



NORTHERN TERRITORY
**PLANNING
COMMISSION**

DRAFT LITCHFIELD SUBREGIONAL LAND USE PLAN 2016



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Enquiry should be made to:
NT Planning Commission
GPO Box 1680 DARWIN NT 0801

FOREWORD



Following extensive community engagement and input, I am pleased to release the Draft Litchfield Subregional Land Use Plan for discussion. This is a long-term plan that identifies the land to support a growing population. It protects the established rural lifestyle, while providing opportunities for growth around rural activity centres and land for urban living with buffers to rural areas.

Planning is a detailed and complex process that works best when community and stakeholders are able to engage with planners at multiple points along the planning journey. The Draft Subregional Land Use Plan is Stage 2 of our community and stakeholder consultation process and follows preliminary consultations in November 2015 with the community and stakeholders.

The Draft Plan shows concept plans for the rural activity centres, so you can see how the local area will grow. Subsequently, more detailed area plans, supported by infrastructure and traffic assessments, will outline what investment is needed to bring services to the area.

In Stage 1, the level of engagement from the community was encouraging – Litchfield people are passionate about their homes and lifestyle and this was reflected in the way you took time to stop and talk with us at markets and shopping centres, to attend briefings and provide submissions.

All in all, we wrote to more than 7100 residents, spoke with around 700 people at industry and group meetings, shopping centres and markets and held a community workshop with 88 participants. We received 90 formal submissions and a wide range of face-to-face enquiries and feedback.

The Draft Plan is ready for you to view and discuss with us. We will again hold information stalls at local markets and shopping centres – details will be on our website.

Stage 2 consultations continue until mid-March 2016. Then the revised subregional plan will be developed for exhibition in mid-2016 as a proposed Planning Scheme Amendment within the Northern Territory Planning Scheme – that will be Stage 3 of the process. You can provide feedback at any time, but the earlier the better.

I look forward to hearing from you.

A handwritten signature in black ink, appearing to read 'Gary Nairn'. The signature is fluid and cursive, with a large initial 'G'.

Hon Gary Nairn AO

Chairman, Northern Territory Planning Commission

February 2016

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INTRODUCTION

PURPOSE

The Litchfield Subregional Land Use Plan provides a more detailed level of planning including planning principles specific to the Litchfield subregion and the Land Use Concept Plans to guide the future development of area plans for the Rural Activity Centres.

The Litchfield Subregional Land Use Plan updates and supercedes the Litchfield Planning Concepts and Land Use Objectives 2002 to provide a contemporary response to strategic planning challenges in line with the direction set by the Darwin Regional Land Use Plan 2015

CONTEXT

Litchfield is one of six subregions identified in the Darwin Regional Land Use Plan, which establishes the strategic planning framework for future development in the Darwin region.

The Darwin Regional Land Use Plan characterises Litchfield as having a rural lifestyle with a focus on local communities. It also acknowledges that Litchfield's proximity to established urban concentrations inevitably dictate that future urban development will be located within its boundaries. This is evidenced by plans for a new city at Weddell and proposed urban development at Holtze, Hughes Noonamah, Noonamah Ridge and Murrumujuk.

The Darwin Regional Land Use Plan responds to the challenges of population growth in the Litchfield area by establishing principles that protect the amenity of the majority of the existing rural lifestyle areas. It identifies the need for future integrated planning to guide coordinated and efficient development that meets the needs of existing and future residents within rural activity centres and rural lifestyle areas.

THE LITCHFIELD SUBREGION

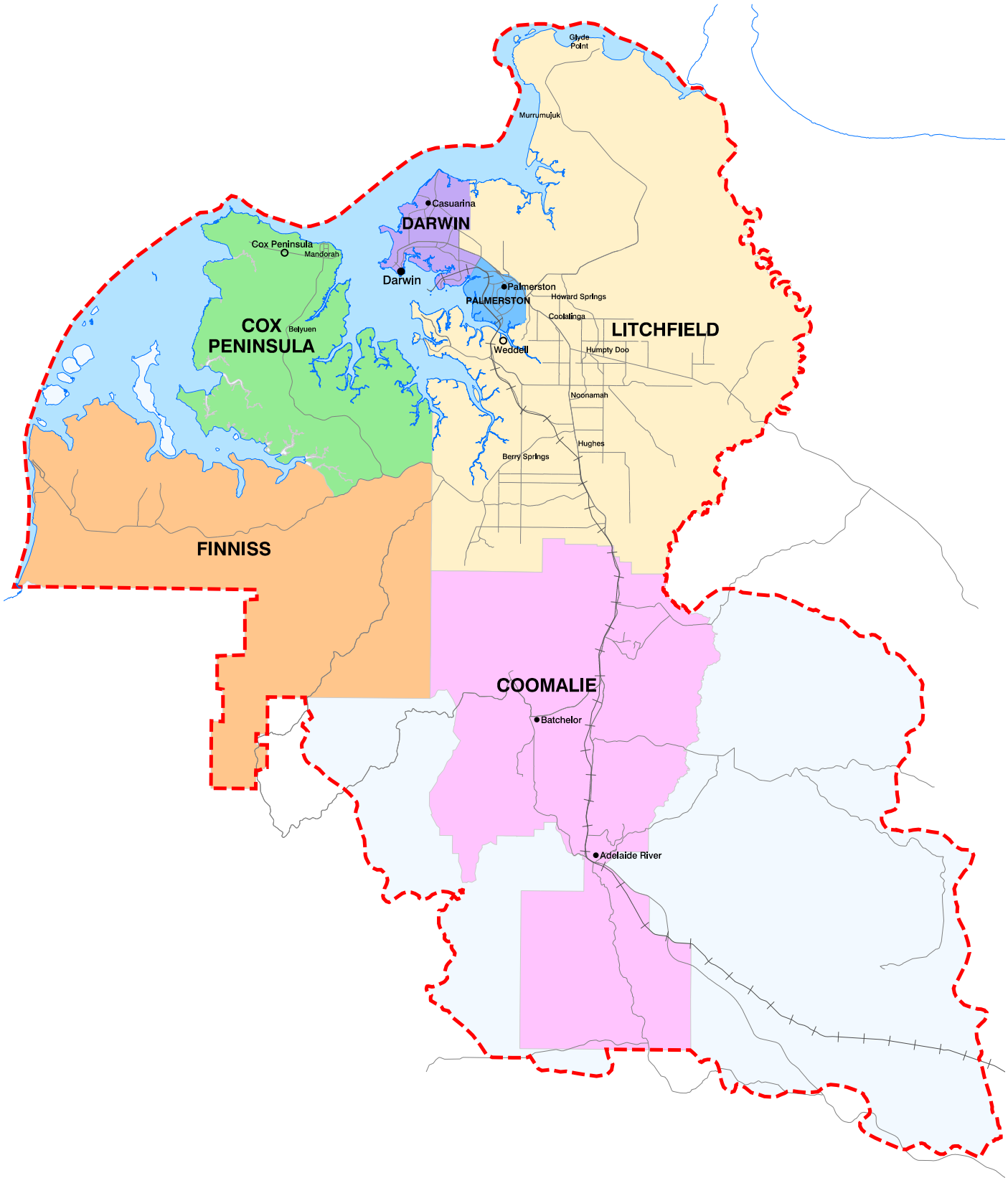
The Litchfield subregion is an area of 3100 km² extending from Gunn Point in the north to Manton Dam in the south and from Adelaide River in the east to Harvey Creek in the West.

Early development of the locality now known as Litchfield was shaped by 'broad acre' subdivision and ventures into agriculture. The formalisation of access roads and reticulation of electricity gave rise to re-subdivision into smaller rural parcels, especially eight and two hectare lots. Population began increasing and continues to do so. The initial interest in semi-commercial hobby farms gave way to growing demand for the rural lifestyle, predominantly on the two hectare lots. Developing as an alternative to suburban living, Litchfield has emerged with a distinct identity and its own constraints and opportunities.

Litchfield is particularly important for its potential to accommodate population growth close to the urban centres of Palmerston and Darwin. Litchfield has a population of 22 123, living in 7539 dwellings (Australian Bureau of Statistics). To accommodate population growth it is estimated that an additional 500 dwellings will be required within Litchfield in the near term of 5 to 10 years, and a total of 20 500 dwellings in the longer term of 40 to 50 years (Darwin Regional Land Use Plan).

In the context of growth the key challenges and opportunities for Litchfield are:

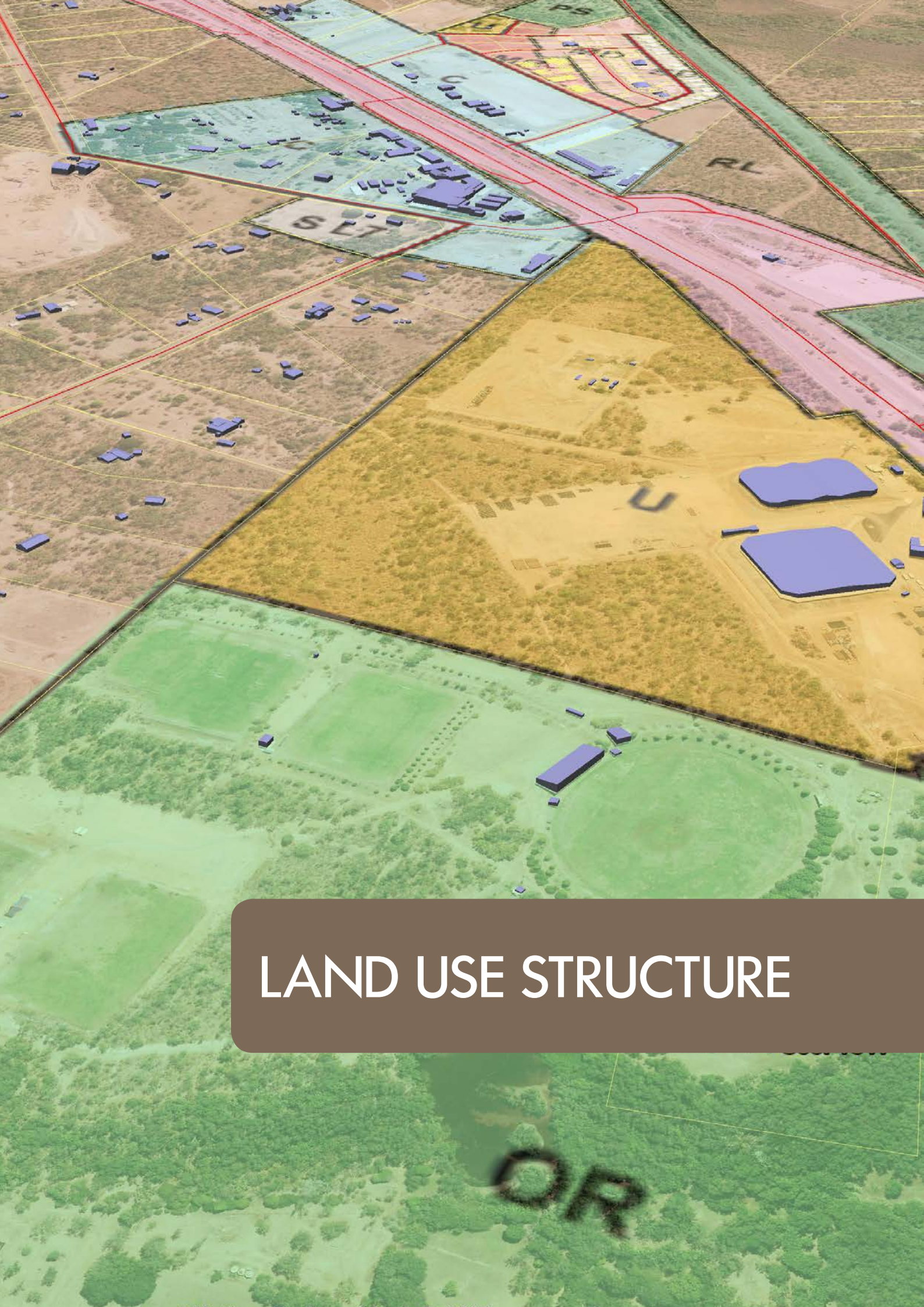
- the multiple roles of Litchfield as Darwin's hinterland supporting the rural lifestyle, agricultural, cultural heritage and natural environment, while providing opportunities for urban growth in Weddell and Holtze;
- balancing population growth with protection of natural resources such as water, horticultural soils and construction materials; and
- land uses in Litchfield of strategic importance, such as defence, major industry, utilities and unique environmental significance.



LEGEND

- Plan Area
- Ocean / Sea
- Road Centreline
- Railway
- Coastline

SUBREGIONS



LAND USE STRUCTURE

The Land Use Structure responds to key opportunities and constraints in the Litchfield Region within the context of the Darwin Regional Land Use Plan.

RESIDENTIAL

URBAN AND PERI - URBAN RESIDENTIAL

Most of the growth in Litchfield will occur in the urban and peri-urban areas of Holtze, Weddell, Noonamah, Hughes, Noonamah Ridge and Murrumujuk.

Development of the Palmerston Regional Hospital in the locality of Holtze, on the northern side of the Stuart Highway opposite Temple Terrace, will create a focus for urban development of undeveloped land between the Palmerston CBD and Howard Springs Road.

Weddell will be a primary activity centre housing over 40 000 people and provide district level retail, commercial and community land uses. Development on Crown land will be supplemented by private development around Hughes and Noonamah, providing lower scale centres and a transition between the city centre and existing rural lifestyle areas.

RURAL LIFESTYLE AREAS

The amenity of Rural Lifestyle areas will be maintained outside of identified rural activity centres by no changes to the current minimum lot sizes in Zone RL (Rural Living) and R (Rural) of the NT Planning Scheme.

The potential conflicts between horticulture and rural lifestyle developments will need to be managed as part of accommodating future growth.



Rural Lifestyle

RURAL ACTIVITY CENTRES

Rural Activity Centres at Berry Springs, Coolalinga / Freds Pass, Howard Springs and Humpty Doo provide for expanded local facilities and services with a range of residential options decreasing in density from urban residential at the core, transitioning to larger lots as a buffer to rural lifestyle areas. Accommodating some population growth within rural activity centres increases the sustainability of larger rural lifestyle lots by reducing the reliance on natural resources, particularly groundwater. Urban residential development within rural activity centres will increase housing choice and underpin the provision of reticulated services and community infrastructure; and support a wider variety of retail and commercial services.

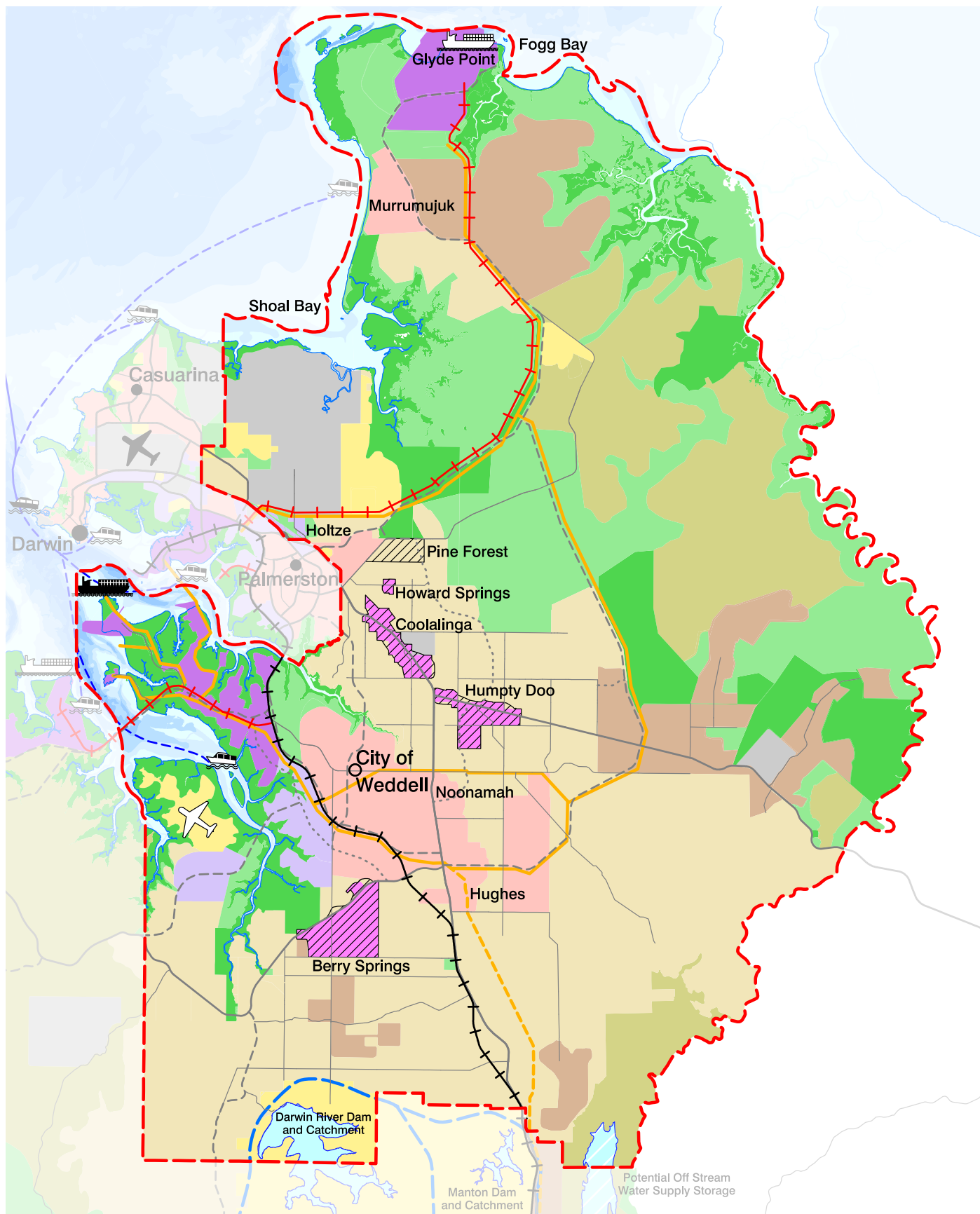
The rural activity centres will also provide opportunities for industries to meet the future needs of local residents. Increased local population will support a greater range of local facilities and services, including public transport and improved local employment opportunities. The boundaries of the rural activity centres have been refined as a result of further evaluation of land capability and servicing options.

Community consultation highlighted the values people place on the Pine Forest, particularly for recreation and therefore the Pine Forest is no longer planned as a rural activity centre. Investigations also indicate urban development is constrained by proximity to biting insects breeding areas. This area has environmental sensitivities and further land capability analysis is required to determine the level of development possible on the land.

Commercial development is focused on the established rural activity centres, although established service nodes at Virginia, Noonamah and Acacia will continue to provide a local level of retailing, servicing passing highway traffic, tourism and the local community. A service node on Girraween Road provides a location for a primary school, with potential for local commercial, community and recreation uses, as identified at page 38.

STRATEGIC INDUSTRY

Glyde Point is identified for major industrial development outside Darwin Harbour. Glyde Point provides the necessary isolation to minimise the impacts of strategic industrial development on established urban areas. The proposed urban area at Murrumujuk will provide opportunities for employees to live locally. Transport and infrastructure corridors will provide access to the broader region.



LEGEND

- Subregion Boundary
- Changes from the DRLUP
- Urban / Peri-Urban
- Rural Lifestyle
- Horticulture
- Community / Government
- Open Space / Natural Area
- Mangrove / Conservation
- Industry

- Strategic Industry
- Commonwealth
- Rural Activity Centre
- Grazing / Agriculture
- Utility Corridor
- Amadeus Gas Pipeline
- Water Supply Catchment
- Existing Waterbody
- Potential Waterbody

- Coastline
- + + Existing / Planned Railway
- — Existing / Planned Ferry Route
- — Existing / Planned Arterial Road and Transport Corridor
- - - Existing / Planned Collector Road
- ✈ ✈ Existing / Planned Airport
- 🚢 🚢 Existing / Planned Sea Port
- 🚢 🚢 Existing / Planned Ferry Terminal
- ○ Existing / Planned Regional Centre

LITCHFIELD SUBREGION LAND USE STRUCTURE

PRIMARY INDUSTRY

HORTICULTURE AND AGRICULTURE

The land areas that have the greatest potential for horticulture or agriculture are identified on page 30. Proposed alternative use of this land should consider lost opportunities for local food security including reduced transportation, and diversity of regional, Territory and national economies.

Cattle holding facilities and other intensive animal industries require locations that are both suitable for purpose and not in conflict with adjacent land uses.



Horticulture in Litchfield

CONSTRUCTION MATERIALS

The extraction of sand, gravel and rock materials in Litchfield supply the construction industry of the Darwin Region. Extractive mineral sites should be accessed with minimal impact on the local road network, and depleted leases be properly rehabilitated to suit the future land use.

OPEN SPACE AND NATURAL AREAS

Shoal Bay and the Howard Springs Sand Plains are recognised as being of national and international significance.

Priority Environmental Management (PEM) areas in Litchfield are identified in recognition of the importance of providing links between environmental landmarks and guides consideration of areas of significance outside parks and reserves.

COMMUNITY FACILITIES AND SERVICES

ACTIVE RECREATION

The Freds Pass Recreation Reserve is the primary facility within Litchfield, providing for a range of recreational activities, including equestrian, rugby, AFL, soccer, cricket and multi-use indoor spaces.



Cycling in the Pine Forest

HEALTH SERVICES

The staged development of Palmerston Regional Hospital at Holtze will provide convenient access to health services and reduce emergency travel distances.

EDUCATION

There is an identified future need to expand primary and preschools, including out-of-school-care, to accommodate growth.

In the short term primary schools are expected to have capacity to accommodate additional children, but it is noted that some schools are using transportable buildings to meet demand.

The Berry Springs Primary School is likely to require expansion and there is an existing need for child care in Berry Springs. This could be met either at the shopping village locality or within the primary school/recreation reserve area.

INFRASTRUCTURE

ESSENTIAL SERVICES

The sequencing of future development will have a significant influence on cost-efficient access to facilities and services. The strategic planning of infrastructure will facilitate provision of urban services to Crown and private land over time.

GROUNDWATER AND WATER SUPPLY

Much of Litchfield relies on groundwater as the primary source for potable water. The several aquifers that underlie the subregion support numerous rural land uses, including stock, agriculture, horticulture and domestic purposes.

Groundwater also sustains the natural environment and contributes to the regional water supply. Sustainable groundwater extraction is calculated at 20% of the annual recharge. Over extraction can lower water quality by increasing concentrations of minerals and salts. In addition, proliferation of on-site effluent disposal systems can contaminate groundwater and lead to serious public health risks.

The Berry Springs aquifer feeds the popular recreation area of the Berry Springs Nature Reserve and sustains the waterways and habitats of the Territory Wildlife Park. This aquifer is exposed to stress from increased subdivision and development, and overuse will have serious implications for residents and the environment. Increasing subdivision and development over the aquifer and annual variation in the recharge demands that extraction be carefully managed to maintain environmental flows.

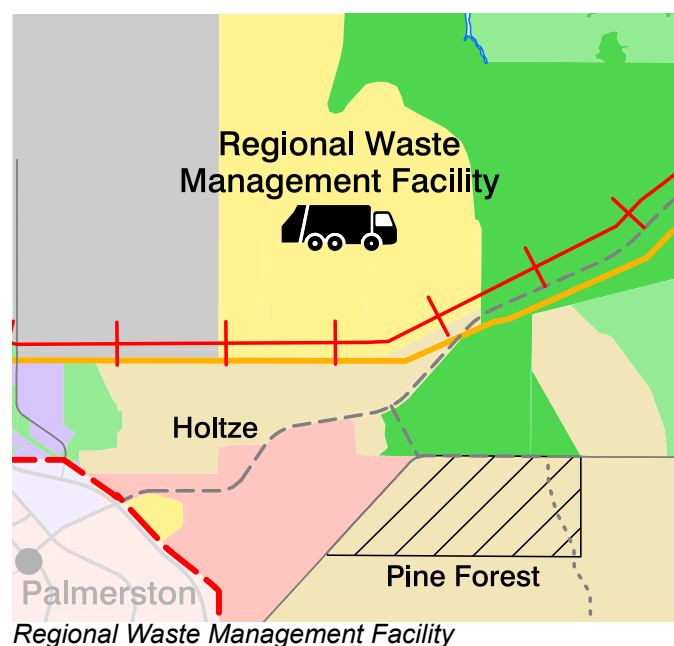
The Darwin Region water supply system currently sources water from Darwin River Dam (85 per cent) and McMinns and Howard East borefields (15 per cent) and provides reticulated supply to five supply zones: Darwin Rural/Palmerston, Stuart Park, Casuarina, Karama and Channel Island. Potential sites to increase the catchment and storage capacity include Manton Dam, Adelaide River Off Stream Storage, Upper Adelaide River Dam, Marrakai Dam and Mount Bennett Dam.

GAS PIPELINE

The gas pipeline from the Amadeus Basin to Channel Island Power Station is included in the Land Use Structure. Increased gas consumption will lead to the need for additional pipeline capacity through new infrastructure and potentially additional corridors.

WASTE

A site at Howard Peninsula is identified for a future regional waste management facility. Based on current technology and predicted volumes, the site has capacity for 50 years of use, and will continue the function of the Shoal Bay waste facility.



TRANSPORT

Identified arterial transport corridors accommodate high capacity urban roads and high frequency public transport services. The corridors include the links to the strategic industry area at Glyde Point, links around the harbour and to Batchelor and the Weddell arterial linking the Stuart Highway to existing infrastructure at the Elizabeth River bridge.

The Glyde Point corridor will provide convenient access between the existing port at East Arm and the future industrial area and between Murrumujuk and higher order urban services available in Palmerston. A second link from the Stuart Highway at Cox Peninsula Road to Glyde Point will connect the future industrial area to the major transport link to southern Australia and limit the potential impacts of heavy transport on the network in built up areas.

A number of other roads which will be important in connecting proposed urban and peri-urban areas with higher order centres are also identified. These include the link from Noonamah to the Glyde Point arterial via Humpty Doo and the planned Middle Arm connector link between Cox Peninsula and Channel Island Roads.

The identification of potential local road frameworks and the incremental implementation with the subdivision of land will establish an interconnected local road network and improve route choice and access options.

KEY STATEMENTS OF POLICY

Statements of policy are shaded, with principles to achieve policy outcomes listed below each policy.

RESIDENTIAL LAND USES

RURAL LIFESTYLE

1. **Maintain rural amenity and lifestyle choice.**
 - continue to support the subdivision of unconstrained land outside activity centres into 2 ha lots in Zone RL (Rural Living) and into 8 ha lots in Zone R (Rural);
 - require stormwater drainage for new residential development to not adversely impact on the receiving environment; and
 - require residential subdivision to provide roads and infrastructure to the requirements of the responsible authority.

RURAL RESIDENTIAL DEVELOPMENT

2. **Facilitate new areas of rural residential development within and outside activity centres.**
 - locate Zone RR (Rural Residential) lots either within or in close proximity to rural activity centres and community facilities;
 - require all lots in Zone RR to be serviced by reticulated water and to not adversely impact on groundwater resources;
 - require all lots in Zone RR that are outside the defined boundaries of rural activity centres to be no less than 1 ha; and
 - require all lots in Zone RR that are within the defined boundary of rural activity centres to be no less than 4000 m².

UNIT TITLE SUBDIVISION

3. **Facilitate unit title subdivision as an option for residential subdivision of large properties with significant areas of constrained land.**
 - require an evaluation of land capability and a management plan to hold constrained areas under common ownership;
 - site dwelling lots on unconstrained land; and
 - limit total density to the average density of the zone of the site.

HOLTZE

4. **Provide urban land in Holtze to support the Palmerston Regional Hospital, associated medical precinct and neighbourhood centre.**
 - identify and service urban land for future residential development with convenient access to Palmerston Regional Hospital;
 - locate a neighbourhood centre with retail premises and community facilities near the Palmerston Regional Hospital; and
 - promote mixed use development with commercial and medical profession premises within the neighbourhood centre.

CITY OF WEDDELL

5. **Preserve the viability of Crown land set aside for the City of Weddell.**
 - restrict land uses that have the potential to adversely impact on the amenity of future urban residential areas in Weddell;
 - manage the development of adjacent private land to provide a transition between urban and rural living areas; and
 - preserve the role of the future city centre of Weddell as a central business area with prime retail, commercial, social and cultural functions.

BITING INSECTS

6. **Mitigate the impact of biting insects on residential amenity and public health.**
 - limit residential development within areas of higher exposure to biting insects;
 - require future development to have regard for the Department of Health's advice on biting insects; and
 - provide separation, as recommended by the Department of Health, between biting insect breeding sites and dwellings on lots less than 2 ha.

MANAGEMENT OF LAND USE CONFLICT

RESIDENTIAL AND AGRICULTURAL LAND

7. Minimise land use conflict between adjacent agricultural and residential land.
 - require proposals to demonstrate an adequate water source to sustain the development at maturity; and
 - require proposals to include adequate buffers to protect the amenity of adjacent land uses.

CATTLE HOLDING FACILITIES

8. Minimise the impacts of cattle holding facilities and intensive animal industries.
 - locate cattle holding facilities with sufficient separation from adjacent sensitive land uses to avoid adverse impacts on the amenity of adjacent land;
 - locate cattle holding facilities with convenient access to arterial roads;
 - require waste disposal facilities to avoid adverse impacts on water resources; and
 - require effective buffers including odour and screening to protect amenity to roads and adjacent areas.

INFRASTRUCTURE

TRANSPORT AND MAIN ROAD NETWORK

9. Provide a coordinated, efficient and interconnected transport network.
 - manage the location of intersections on arterial roads and the local road network;
 - rationalise historic private access to arterial roads through the construction of service roads or local road networks;
 - minimise new arterial intersections in order to support a safe and efficient transport network;
 - promote interconnectivity of the local road network in the design of subdivisions;
 - promote 'active' transport modes by identifying and requiring facilities such as cycle paths and associated infrastructure;
 - facilitate the progressive expansion of public transport services into Litchfield; and
 - utilise the former railway corridor to provide a future cycleway through Litchfield.

LOCAL ROAD NETWORK

10. Resolve problems associated with historic multiple battle-axe lots to establish an interconnected local road network.
 - require development to respond to the local road strategy on page 31;
 - promote the use of identified heavy vehicle routes to limit damage to lesser roads; and
 - require subdivision design to provide an internal road network that serves all adjoining lots with subdivision potential.

PROVISION OF UTILITIES

11. Provide utilities and trunk services sequentially and cost efficiently.
 - require future development of urban and peri-urban areas and rural activity centres to be consistent with subregional infrastructure strategies;
 - ensure on-site effluent disposal systems in rural residential areas do not create detrimental effect on the environment or public health; and
 - provide a site on Howard Peninsula for the future regional waste disposal facility.

GROUNDWATER

12. Support sustainable groundwater use.
 - maintain environmental flows within natural drainage and groundwater systems to protect wetland and rainforest habitats;
 - require the groundwater demand of subdivision and development to not exceed the sustainable recharge of the aquifer;
 - require the design of stormwater drainage and effluent disposal systems to minimise the potential to pollute surface and ground water; and
 - manage development within the recharge area of aquifers to protect water quality.

URBAN DEVELOPMENT



Litchfield will play an important role in accommodating urban growth in the Darwin Region over the next 40 to 50 years. While the Litchfield Subregional Land Use Plan sets the foundation for the urban growth of these localities, further detailed planning will be required to inform infrastructure and servicing upgrades and timing of development to meet demand.

HOLTZE

The locality of Holtze is identified in the Darwin Regional Land Use Plan as suitable for future urban and peri-urban development. An Area Plan for Crown land in Holtze will provide certainty for future infrastructure needs in the area and guide future land use decisions.

The area plan encompasses land that is largely undeveloped. Subject to the management of constraints and provision of trunk urban services, much of this land is suitable for urban residential development over time. After exclusion of the hospital site and medical precinct, the Glyde Point arterial corridor and steep or poorly drained areas, there is approximately 70 ha of land identified for urban development. This presents an opportunity for housing next to a regional hospital, with the advantage of being conveniently located near to an established urban area that provides a range of commercial and community facilities and services.

Important issues for the future development of Holtze include:

- development of an integrated framework of roads and trunk infrastructure to deliver compact walkable neighbourhoods;
- upgrading Temple Terrace to carry increased traffic and include a cycleway;
- delivery of a public transport service from Palmerston to the new hospital;
- identification of suitable land for community purposes such as education, sports and open space for passive recreation.



Single Dwelling at Coolalinga

WEDDELL

Weddell is to be a new city planned as the next major increment of growth for the Darwin Region. It is south of Palmerston, and is bounded by the Elizabeth and Blackmore Rivers, the Middle Arm Peninsula and the Stuart Highway. It has capacity for at least 40 000 people, as well as significant capacity for employment uses, community uses, parkland and recreation.

At present, the Weddell site comprises largely native forest in Government ownership and a smaller area of privately owned rural land. Weddell is around 40 km from central Darwin, and 19 km south of Palmerston. It is around 12-18 km west of the extensive rural residential population of Litchfield focussed around Coolalinga, Humpty Doo and Howard Springs.

The Weddell site is around 6000 ha in area. Around 3000-4000 ha is suited to urban development. The site is bisected by the Adelaide to Darwin rail line. Land generally to the west of the line is unsuited to residential development but may provide some areas for industrial development and infrastructure.

The site is currently served by Jenkins Road, which links the Stuart Highway to the Channel Island Road and Elizabeth River bridge, and by Finn Road, which runs south from Jenkins Road to Berry Springs.

Around half of the site drains north to the Elizabeth River, and the other half drains southwest to the Blackmore River.

The site is largely undeveloped, with the western two thirds being public land covered with savannah woodland, and the eastern third being private land, with some low intensity farming uses and a privately owned airfield.

Detailed site constraints information demonstrate that the key constraints include flood-prone land and waterlogged soils, biting insect breeding areas, archaeological heritage sites, conservation zoned land, existing and future major infrastructure corridors, and adjoining land uses such as the MKT airfield.



Multiple Dwellings at Humpty Doo

The design of the new City of Weddell confronts many challenging issues. Some of the key issues are:

- the timing of developing Weddell may also be influenced by development of private land east of Weddell in the Noonamah and Elizabeth Valley localities, also identified in the Darwin Regional Land Use Plan 2015 for urban development;
- the size of Weddell is largely dependent on the location of biting insect breeding areas and required buffers;
- delivery of an efficient public transport service from Weddell to Palmerston and the Darwin CBD;
- identifying land for employment opportunities; and
- delivery of an infrastructure strategy that identifies the costs for trunk infrastructure and new social infrastructure to support Weddell.

MURRUMUJUK

Murrumujuk is located on the Gunn Point Peninsula overlooking Shoal Bay, about 60 km from the Darwin CBD and 40 km from Palmerston. Substantial areas of relatively flat land next to Glyde Point are subject to detailed investigation to facilitate future industrial development, which would have synergies with an urban centre at Murrumujuk, rural lifestyle lots and potential horticultural development. Previously planned transport and infrastructure corridors will integrate the locality with the broader region and minimise the potential impacts on existing networks. Future investigations into land capability, environmental issues and infrastructure requirements will inform more detailed planning.



Multiple Dwellings at Coolalinga



Multiple Dwellings at Humpty Doo



Apartments at Coolalinga

RURAL ACTIVITY CENTRES



RESIDENTIAL LAND IN RURAL ACTIVITY CENTRES

- A1 Provide residential land within rural activity centres without detracting from the amenity of existing established rural lifestyle areas.
- transition residential land uses from low density next to existing rural lifestyle lots to higher density adjacent to urban services;
 - locate Zone RR (Rural Residential) lots, with a minimum area of 4000 m², as a buffer to rural lifestyle areas;
 - provide a variety of residential lot sizes and housing types;
 - locate urban residential areas nearest facilities and services; and
 - require higher density residential development to comply with the NTG Compact Urban Growth Policy.

SOCIAL INFRASTRUCTURE IN RURAL ACTIVITY CENTRES

- A2 Provide social infrastructure within rural activity centres.
- facilitate community facilities such as schools, community centres, health clinics and aged care facilities within activity centres to meet the needs of the community;
 - facilitate multi-purpose community facilities and shared use of existing facilities within activity centres; and
 - identify and retain land within activity centres for future social infrastructure needs.



Humpty Doo Police and Fire

OPEN SPACE RECREATION IN RURAL ACTIVITY CENTRES

- A3 Provide for land and facilities within rural activity centres for active and passive recreation.
- facilitate the provision of formal recreation facilities within activity centres subject to identified need; and
 - retain natural open space areas for passive recreational use, particularly where adjacent to urban residential development.



Humpty Doo Village Green

CULTURE AND HERITAGE IN RURAL ACTIVITY CENTRES

- A4 Integrate sites of natural and cultural heritage into the development of rural activity centres.
- integrate sites of natural and cultural heritage and integrate, where possible, with parks, reserves, and conservation areas.



Strauss Airstrip, Noonamah

IMPACTS ON THE ENVIRONMENT IN RURAL ACTIVITY CENTRES

- A5 Minimise detrimental impacts of development within rural activity centres on the receiving environment.**
- identify and evaluate environmental constraints, and comply with any relevant environmental management plans;
 - require development proposals to demonstrate an urban design and engineering response to the environmental and physical constraints of the site;
 - require drainage systems that respond to the natural drainage regimes and minimise modification or disturbance to the natural systems as far as is practical; and
 - require the discharge of concentrated stormwater to not exceed pre-development flows or have detrimental impacts in the receiving environment.

UTILITIES IN RURAL ACTIVITY CENTRES

- A6 Provide reticulated services to rural activity centres.**
- prepare infrastructure plans for the strategic and progressive delivery of trunk services to support urban development; and

TRANSPORT AND ROADS IN RURAL ACTIVITY CENTRES

- A7 Provide activity centres with interconnected local road networks**
- require the design of subdivisions to provide for interconnected local roads;
 - promote 'active' transport modes by identifying and requiring facilities such as cycle paths and associated infrastructure; and
 - support the expansion of public transport services to and within activity centres.



Berry Springs Nature Park

BERRY SPRINGS RURAL ACTIVITY CENTRE

The Berry Springs Rural Activity Centre is located along the southern side of Cox Peninsula Road.

Although development of this centre has been constrained to date by the lack of service infrastructure, there is considerable potential to develop a comprehensive centre providing an alternative residential choice with ready access to a range of facilities and services.

Factors contributing to and underpinning the viability of a comprehensive centre in this locality include:

- the limited provision of local facilities in the southern portion of the Litchfield Subregion and areas further afield;
- the improved accessibility to employment associated with the upgrading of Finn Road;
- the availability of significant contiguous tracts of Crown and privately owned land; and
- the location of the centre on the access to tourist destinations such as Litchfield National Park, Berry Springs and the Territory Wildlife Park.

The undeveloped land within and adjacent to the centre has the capacity to accommodate a broad range of housing options supported by commercial and community facilities and services.

The reticulation of water to the proposed rural residential areas will avoid impacts on the Berry Springs aquifer, where as to continue development of rural lifestyle lots that utilise the aquifer may not be sustainable.

The concept plan has a residential lot yield in the order of 700 urban lots and 1 800 rural residential lots. A yield of this order is desirable for the cost-effective provision of reticulated services, especially town water supply, and to support development over time of a viable commercial centre.

The proximity of the centre to the Berry Springs Nature Park and the Territory Wildlife Park and the associated necessity to protect Berry Creek which supports these valued facilities, is both a constraint and an opportunity for the future development of the centre. Protection of these areas will assist in the creation of a vibrant and robust public realm to establish a distinct character for this community with strong links to the environment.

Following are statements of policy relevant to the Berry Springs rural activity centre.

REGARDING RESOURCE MANAGEMENT

B1 To minimise the impacts of development in this locality on the sustainability of ground and surface water resources.

- require the provision of reticulated water;
- evaluate the suitability of proposed waste disposal infrastructure; and
- design and manage stormwater drainage to minimise adverse impacts on the receiving environment.

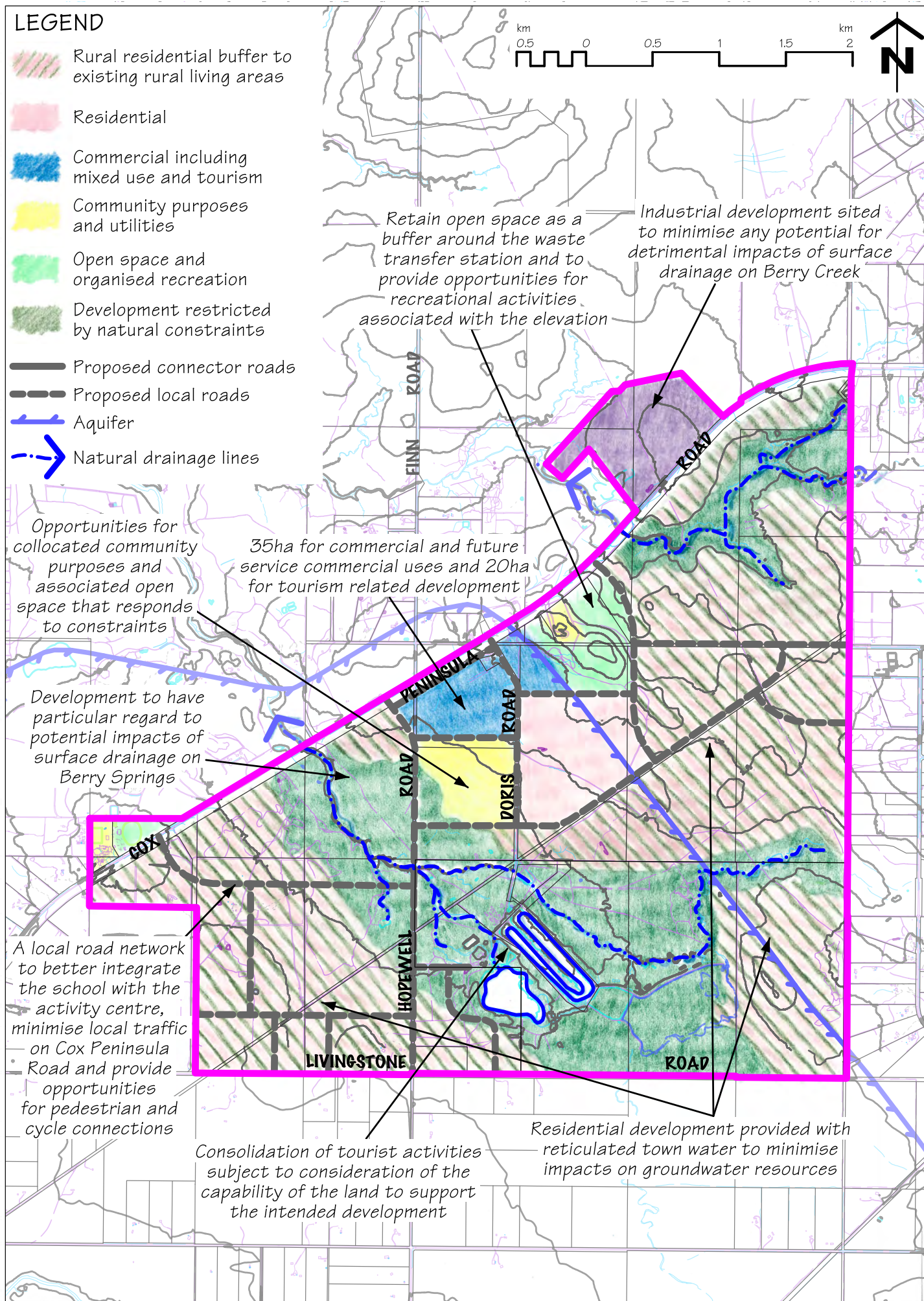
REGARDING INTERCONNECTED LOCAL ROADS

B2 To connect commercial and community facilities and residential areas, and minimise the impacts of local traffic on the arterial road network

- require internal local road links within the rural activity centre;
- continuation of the service road to link Doris and Hopewell Roads; and
- provide convenient pedestrian and cycle connections between nodes of activity.



Bazza the Berry Buff



LAND USE CONCEPT FOR BERRY SPRINGS RURAL ACTIVITY CENTRE

COOLALINGA RURAL ACTIVITY CENTRE

This activity centre is divided into two areas of different land uses by the McMinns Pumping Station opposite Girraween Road.

The old North Australia Railway corridor can function as a 'spine' linking the two areas.

COOLALINGA

Coolalinga continues to develop within the existing commercial zoning either side of the Stuart Highway. Commercial development can be expected to continue to grow inline with Litchfield's population and volume of passing custom.

Coolalinga is in transition. Already a successful centre with a major supermarket, community services and public transport; commercial expansion will drive land use change. The demand for urban homes close to a growing range of services and facilities will bring redevelopment opportunities for private land within the activity centre.

Undeveloped Crown land north of the Highway has the capacity to extend the range of housing options supported by the commercial growth on that side.

The land use concept proposes rural residential as a buffer between urban land uses and the rural lifestyle areas adjacent to the activity centre. Also, the old North Australian Railway corridor acts as a buffer in some locations.

The residential capacity of Crown land and undeveloped private land has the potential to underpin the provision of urban services.

Coolalinga could support an additional 700 dwellings, in the form of approximately 150 rural residential lots, 500 urban sized lots and 50 multiple or small-lot dwellings.

FREDS PASS

To the southeast Freds Pass offers regional facilities for organised recreation and community land uses; primarily for future education and sports facilities.

The difficulty and associated cost of providing reticulated sewerage to Freds Pass precludes urban development in the foreseeable future.

The only commercial land in Freds Pass is the Zone TC (Tourist Commercial) site on Bees Creek Road. This is an opportunity for a caravan park or similar tourist facility providing accommodation during major sporting events.

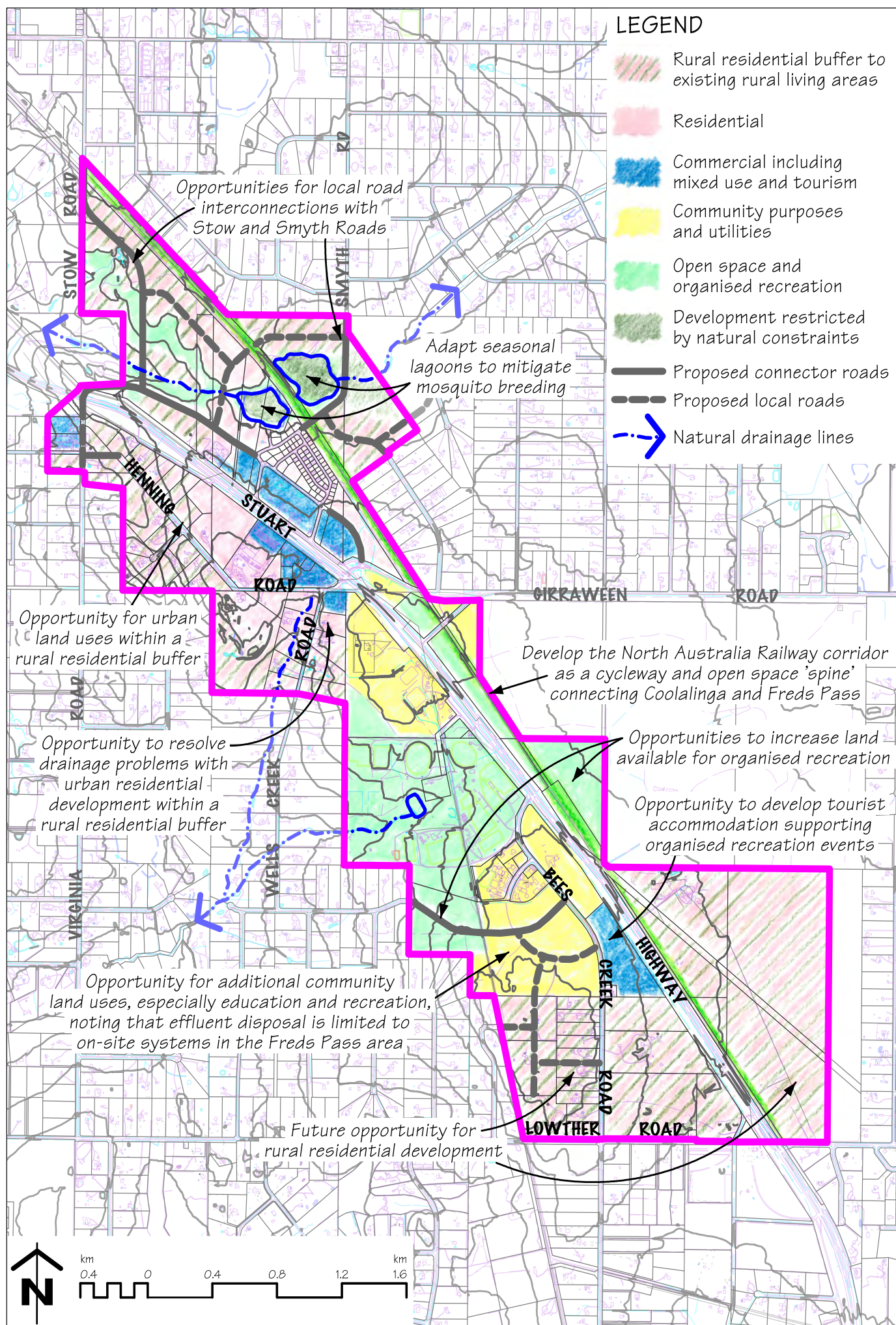
The concept plan identifies the future potential for areas of rural residential lots south of Freds Pass taking advantage of access to town water and proximity to the community facilities. Over time approximately 80 residential lots could be developed west of the Highway and 200 lots east of the Highway.

The following statements of policy relate specifically to Coolalinga and Freds Pass Rural Activity Centre.

MOSQUITO BREEDING SITES

- C1 Integrate urban residential areas in Coolalinga with the existing lagoons as public open space and mitigate mosquito breeding.
- adapt lagoon edges and implement stormwater management to mitigate mosquito breeding; and
 - enhance the environment of the lagoons to serve as public open space.





LAND USE CONCEPT FOR COOLALINGA AND FRED'S PASS RURAL ACTIVITY CENTRE

HOWARD SPRINGS RURAL ACTIVITY CENTRE

The Howard Springs Activity Centre is located 9 km east of the Palmerston CBD. It is characterised by the small commercial centre and local community facilities that serve the surrounding rural lifestyle land.

There is an opportunity to increase the diversity of housing options in the centre, including a small area of urban-scale growth in the immediate vicinity of the commercial zone.

Preliminary investigations suggest that the areas identified on the Land Use Concept Plan for the Howard Springs Rural Activity Centre have the potential to deliver up to 310 dwellings. Approximately 70 of these could be within a central area of multiple dwellings and single dwellings on small lots, surrounded by approximately 160 single dwellings on 800 m² lots with a rural residential buffer of approximately 80 lots on 4000 m² lots.

The concept plan outlines additional road links between Madsen Road and Smyth Road, around the activity centre. The concept is supported by plans to provide reticulated sewerage and upgrade water services.

MOSQUITO BREEDING SITES

HS1 To mitigate the impacts of biting insects on urban development in the activity centre

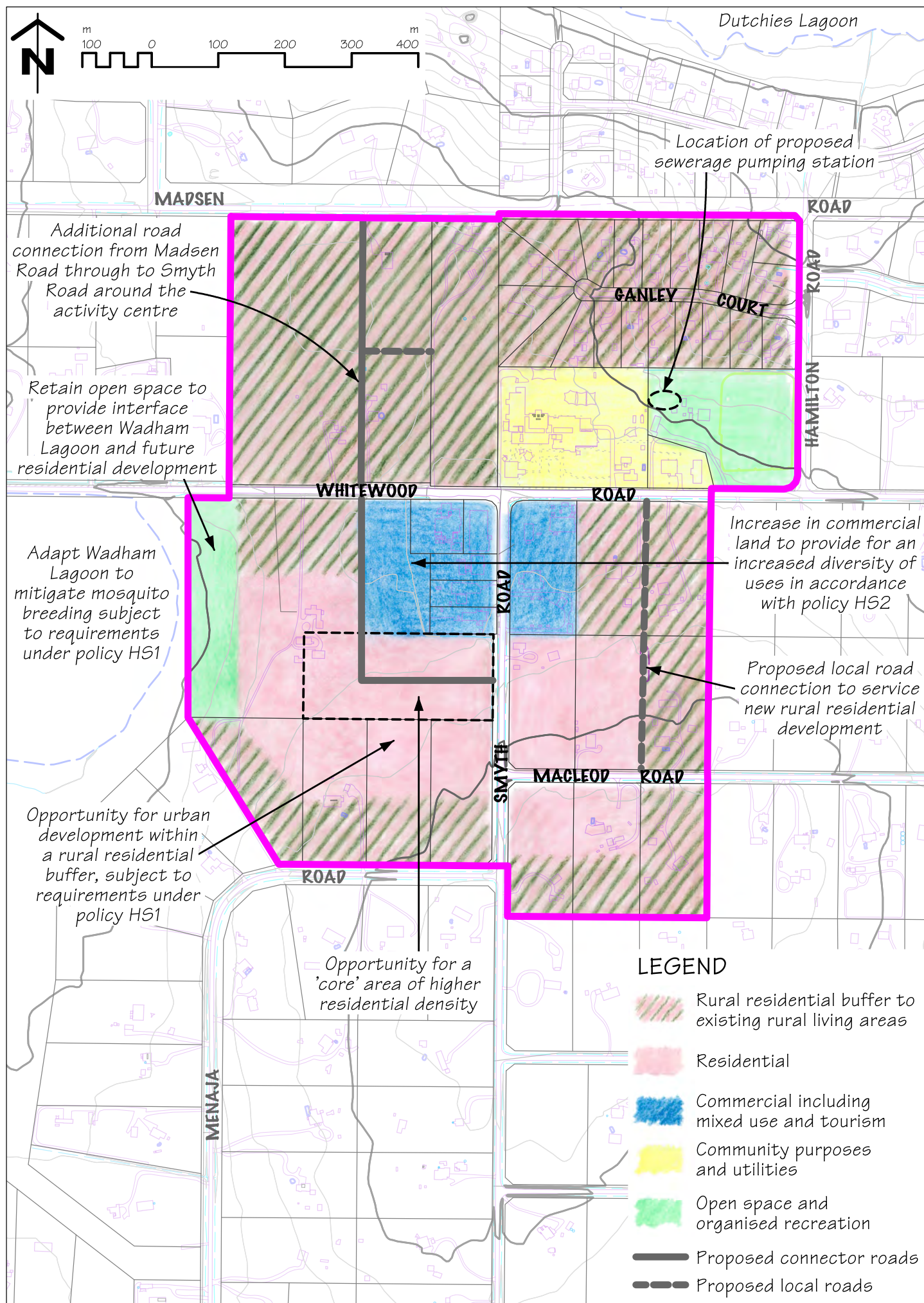
- locate urban residential subdivision in accordance with the requirements of Medical Entomology;
- require caution notices to be placed on all urban lots advising of the likelihood of high seasonal mosquito problems; and
- identify and implement engineering works required to mitigate mosquito breeding in Wadham Lagoon.

COMMERCIAL CENTRE

HS2 To provide for an increased diversity of uses

- integrate future urban residential development with existing commercial uses; and
- promote compact and mixed-use development.





LAND USE CONCEPT FOR HOWARD SPRINGS RURAL ACTIVITY CENTRE

HUMPTY DOO RURAL ACTIVITY CENTRE

The Humpty Doo Rural Activity Centre has supported a large proportion of commercial, community, industrial and residential development. The range of activities demonstrates the opportunities created by the provision of reticulated water and sewer. However development has taken up current capacity, and future growth will require expansion of additional services.

Opportunities for development include undeveloped portions of private and Crown land in close proximity to the centre for increased local community and commercial facilities. New housing options have the potential to enhance the viability of community services and facilities, in addition to infrastructure upgrades.

The centre is characterised by a series of low ridges and depressions. Edwin, Horns and Bees Creeks provide the few natural drainage lines and as such, future development will be required to manage drainage to minimise impacts on lagoons and wetland systems.

Legacies from historic uses within Humpty Doo centre provide barriers to development, notably the old Humpty Doo dump site and extractive pits. Buffers to trunk infrastructure are also a constraint to development.

The Arnhem Highway is an important component of the arterial network serving Litchfield and beyond. Interconnected local road networks and controlled access points aim to reduce the impacts of growth to traffic movement.

Preliminary estimates suggest that the centre could support an additional 1255 dwellings, including

- approximately 875 rural residential lots of 4000 m² with town water but on-site waste disposal; and
- 380 urban sized lots with single or multiple dwellings and full urban services.

TRAFFIC AND CONNECTIVITY

HD1 Minimise the impacts of local traffic on the arterial road network.

- require interconnected local road networks north and south of the Arnhem Highway connected to the Highway at identified access points;
- avoid direct property access to the Stuart and Arnhem highways; and
- provide for the future widening of the Arnhem Highway.

INFRASTRUCTURE

HD2 Provide for the expansion of infrastructure to meet projected demand and manage the potential for conflict with future development.

- identify and retain land to accommodate water supply and sewerage infrastructure; and
- avoid land uses that could restrict operation of the waste stabilisation ponds, for example by excluding incompatible development from the odour buffer.

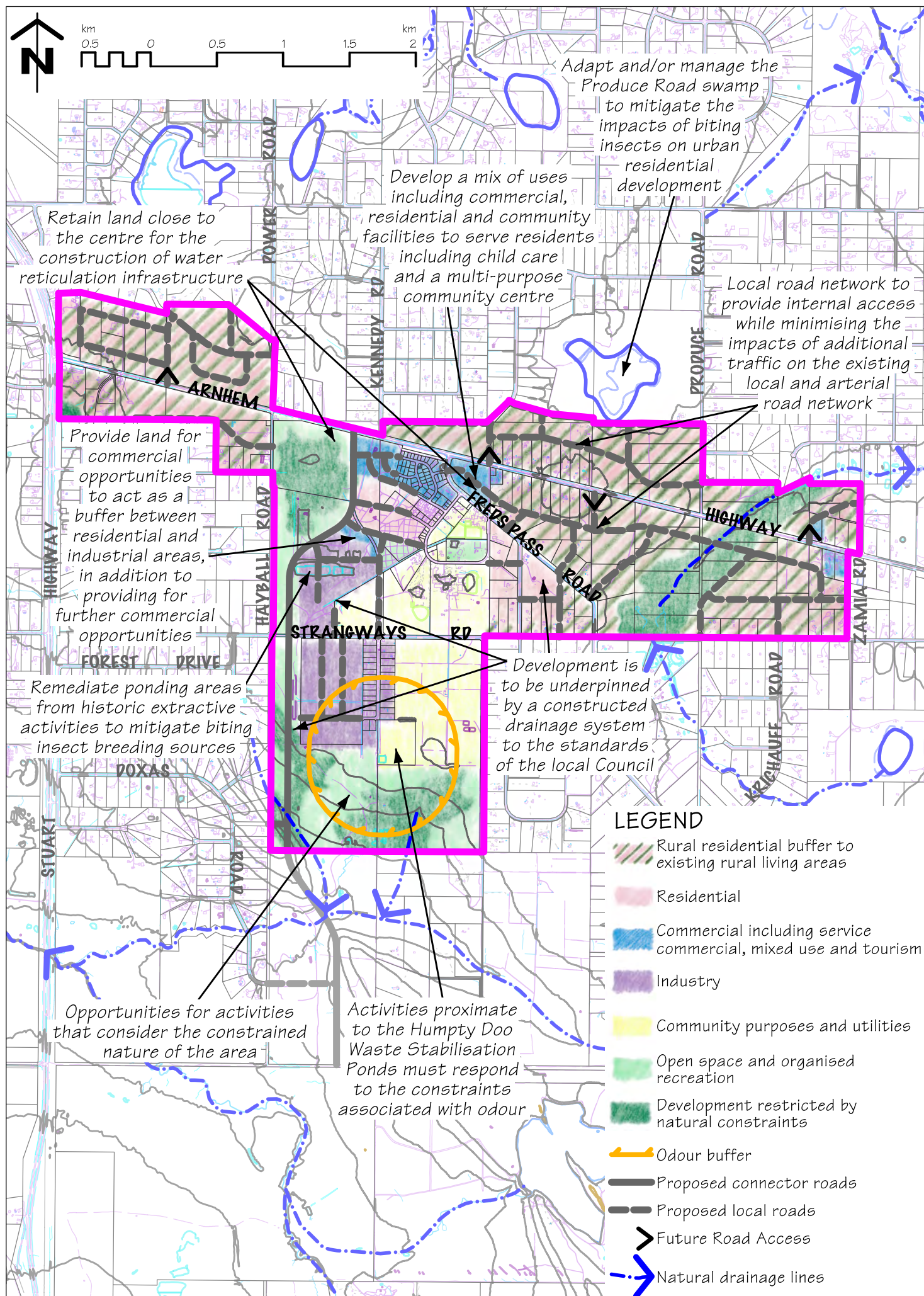
REGARDING THE ENVIRONMENT

HD3 Manage identified potential impacts on the environment and identified environment risks for residents.

- mitigate the residual hazards of the expired Humpty Doo dump site to facilitate identified future land uses;
- continue to evaluate the suitability of on-site effluent disposal systems; and
- adapt and manage biting insect sources such as McMinns Lagoon, Produce Road Swamp, Section 1725 wetland and extractive pits.



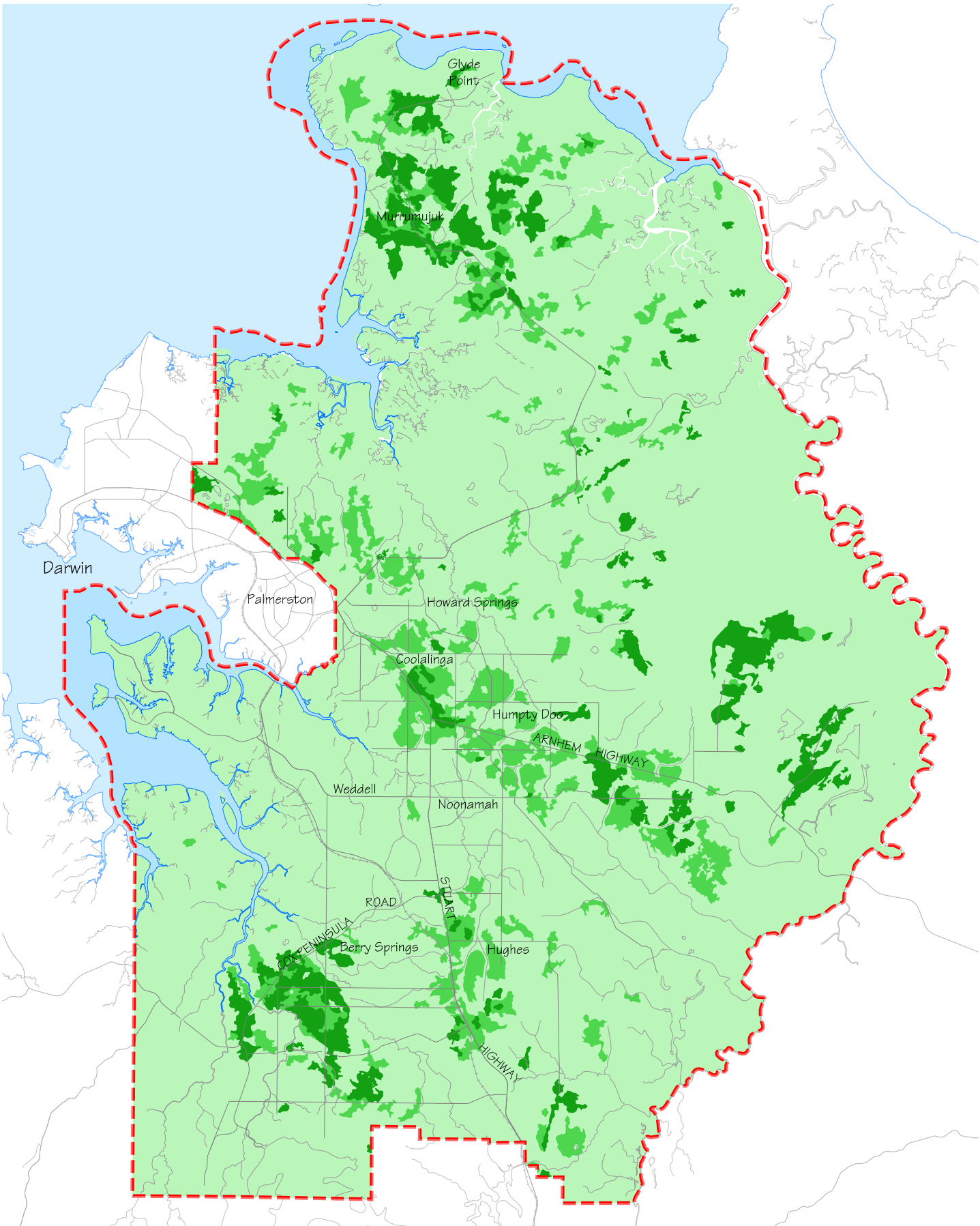
Humpty Doo











LAND USE CONCEPT FOR HUMPTY DOO RURAL ACTIVITY CENTRE

An aerial photograph of a rural landscape. The terrain is a mix of green trees and brownish-yellow cleared land. A network of roads, including a prominent curved asphalt road and several straight dirt roads, crisscrosses the area. Two circular ponds are visible on the left side. Small white buildings are scattered throughout the landscape. A semi-transparent brown rectangle with the word 'MAPS' in white text is overlaid on the lower-left portion of the image.

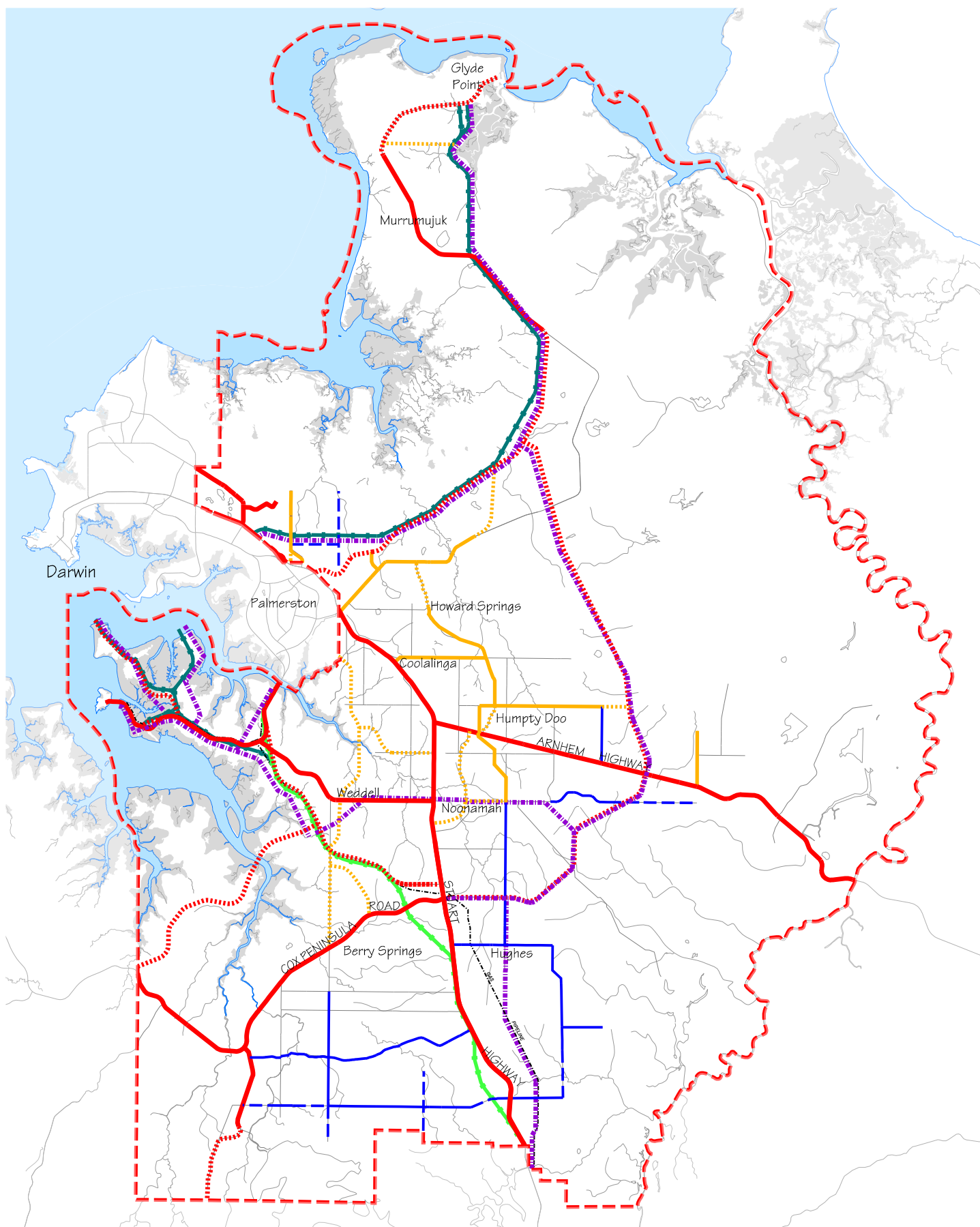
MAPS



LEGEND

-  Plan Area
-  High Perennial Horticultural Potential
-  High Annual Horticultural Potential
-  Low Horticultural Potential
-  Ocean / Sea
-  Road Centreline
-  Railway
-  Coastline

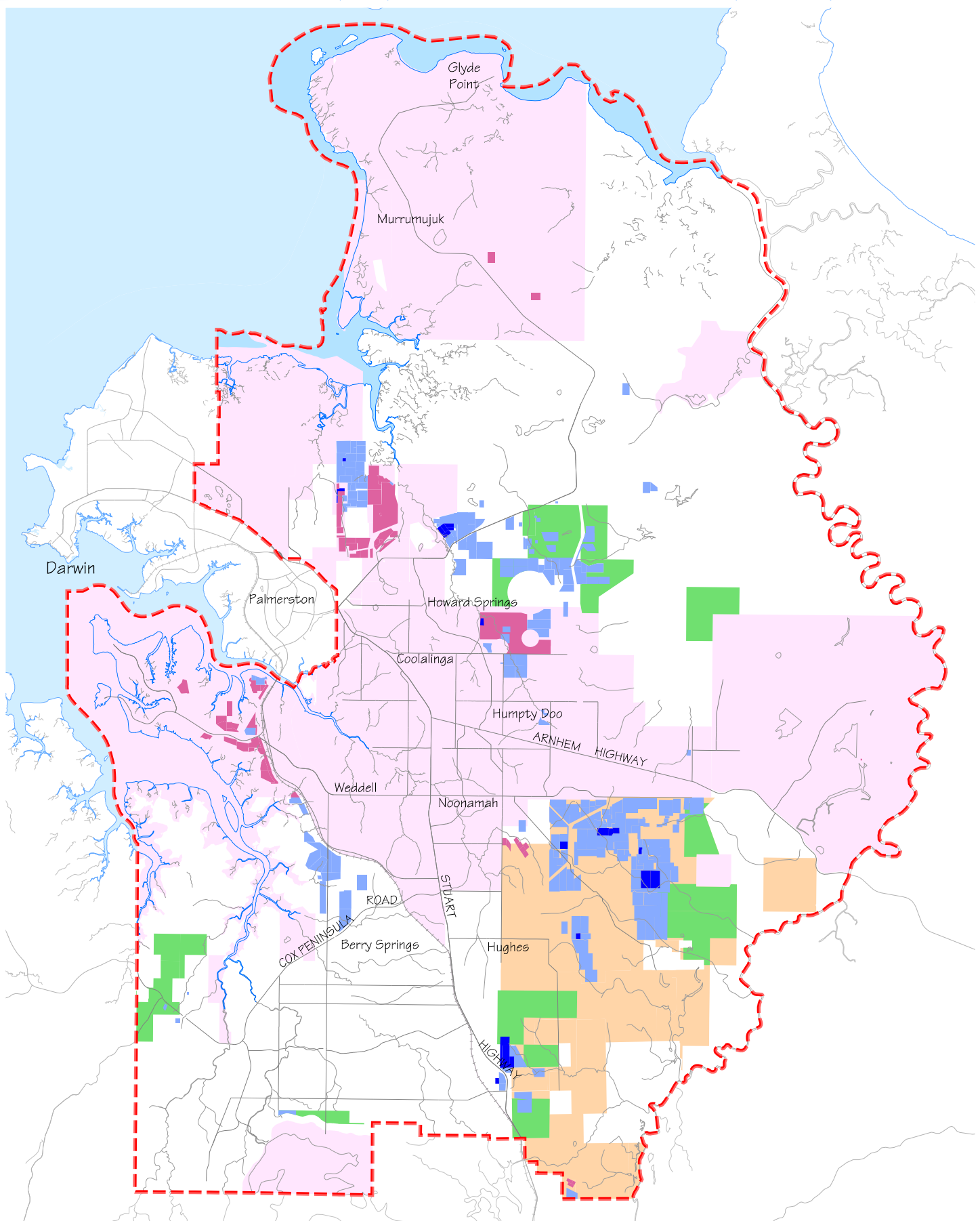
HORTICULTURAL POTENTIAL



LEGEND

- | | |
|---|--|
| — Existing Arterials | - - - - - Gas Pipeline |
| - - - - - Future Arterials | — Extractive Industries Access Road - Sealed |
| — Existing Subarterial/Collectors | - - - - - Access Road - Unformed |
| - - - - - Future Subarterial/Collectors | |
| — Australasia Railway | |
| - - - - - Possible Railway Spurline | |
| - - - - - Service Corridor | |

MAIN ROADS

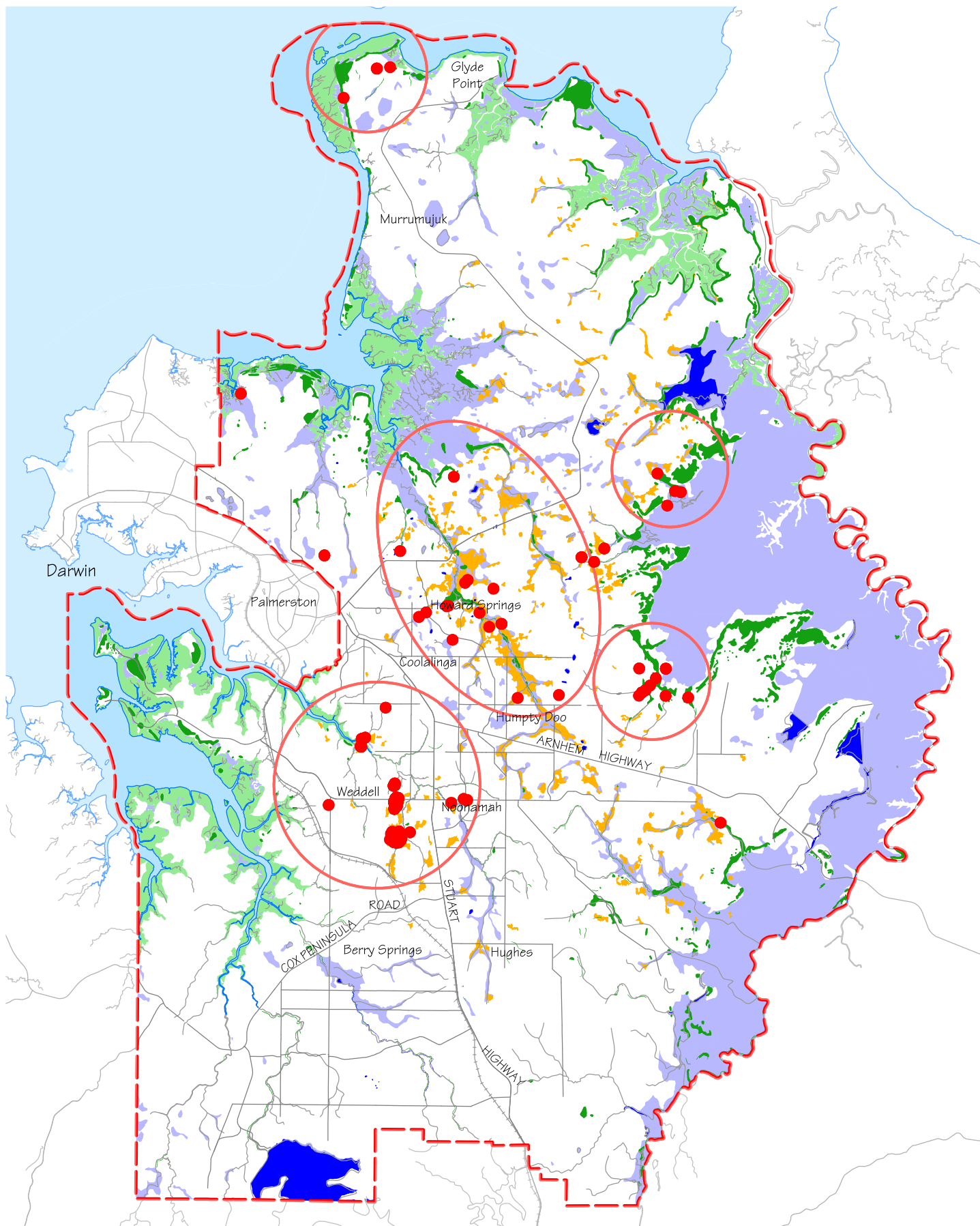


LEGEND

- - - Plan Area
- Extractive Mineral Exploration License
- Extractive Mineral Permit
- Extractive Mineral License
- Mineral Lease
- Mineral Exploration License
- Reserves From Mining
- Ocean / Sea

- Road Centreline
- + + Railway
- Coastline

MINERALS AND EXTRACTIVE MINERALS

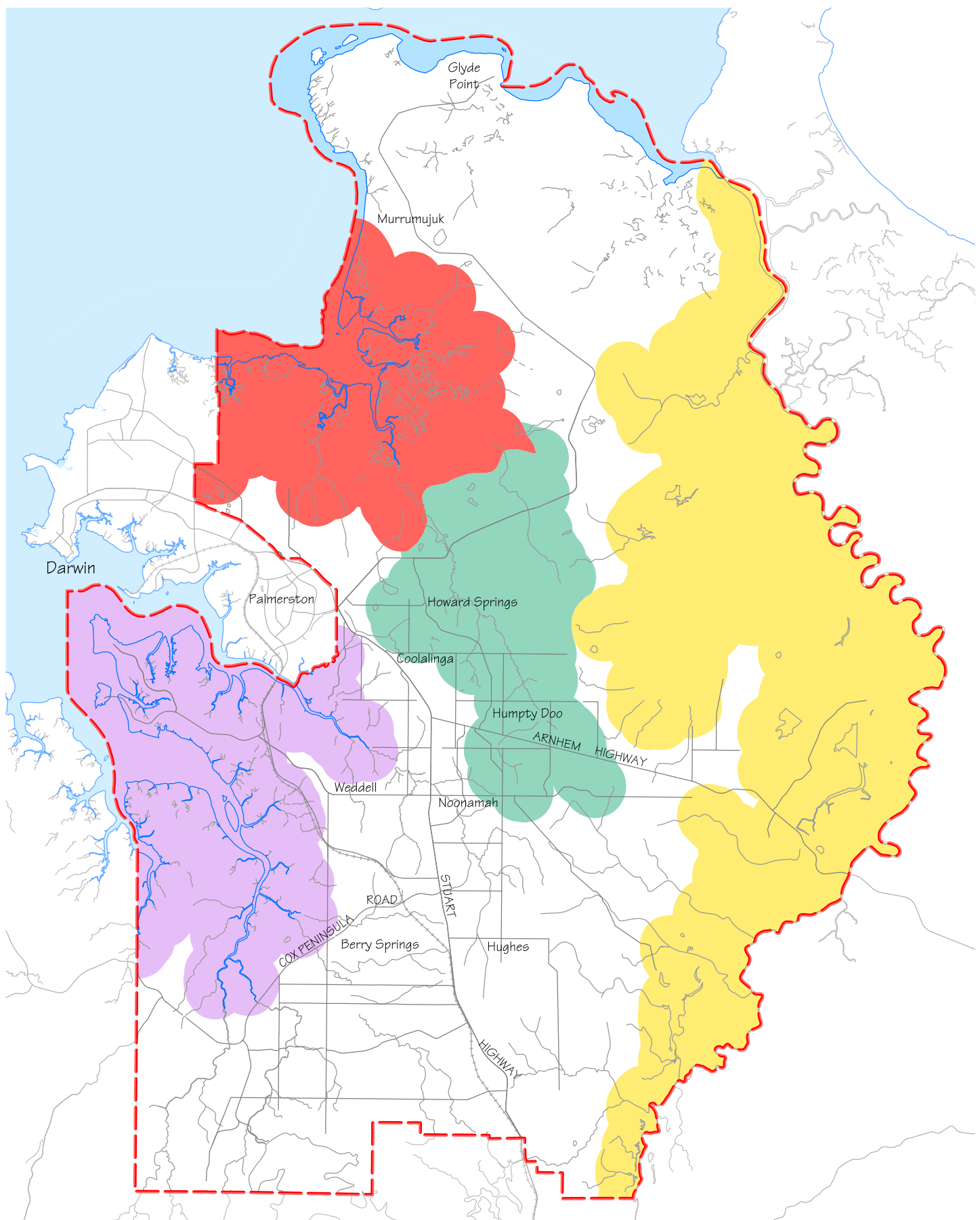


LEGEND

- Plan Area
- Threatened Vegetation Concentration
- Rainforest
- Sandsheet Heath
- Wetland
- Mangrove
- Waterbody
- Ocean / Sea

- Road Centreline
- + + Railway
- Coastline
- Threatened Vegetation Location

SIGNIFICANT CONCENTRATIONS OF THREATENED VEGETATION

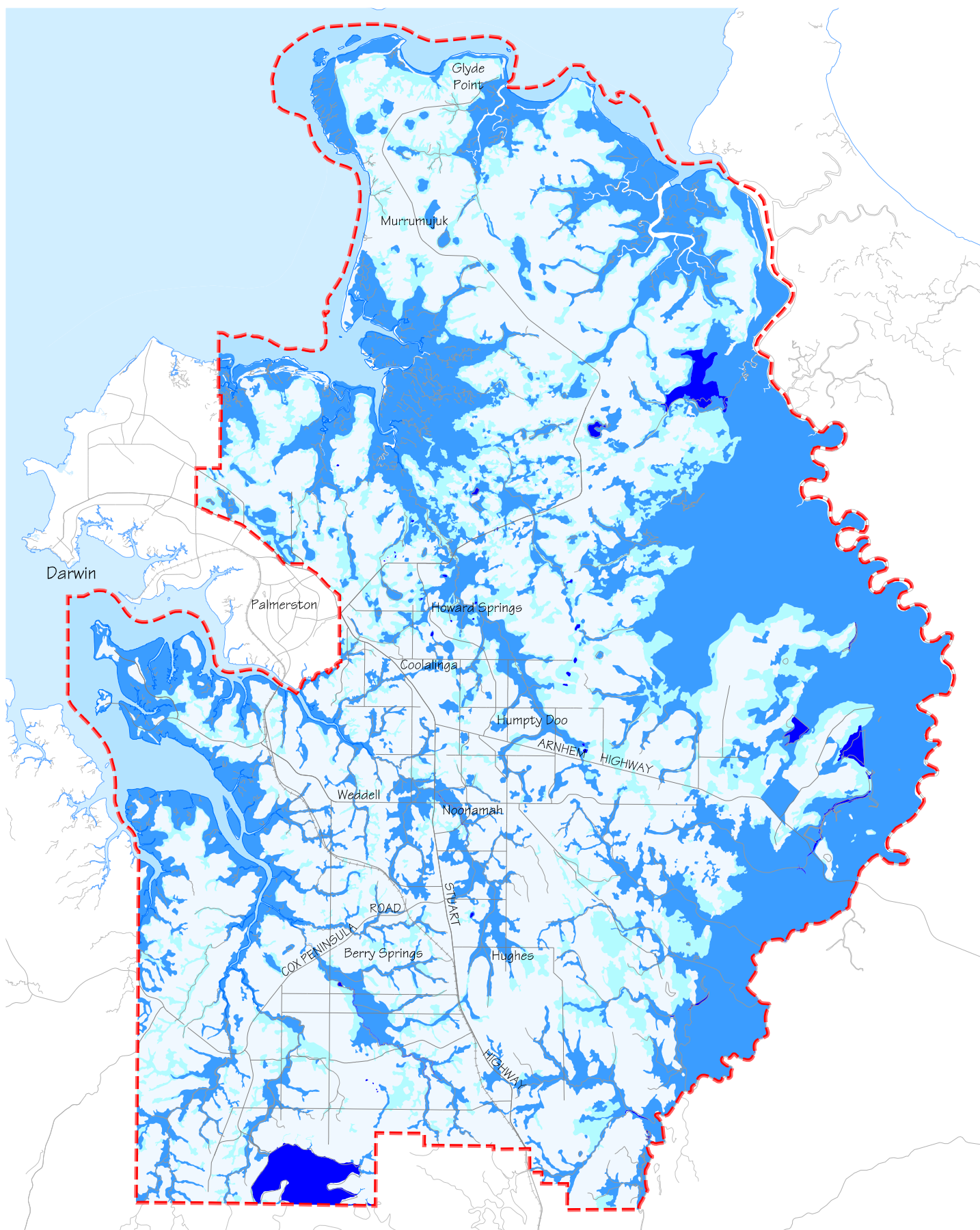


LEGEND

- Plan Area
- Adelaide River Coastal Floodplain
- Darwin Harbour
- Howard Sand Plains
- Shoal Bay
- Ocean / Sea

- Road Centreline
- Railway
- Coastline

SITES OF CONSERVATION SIGNIFICANCE

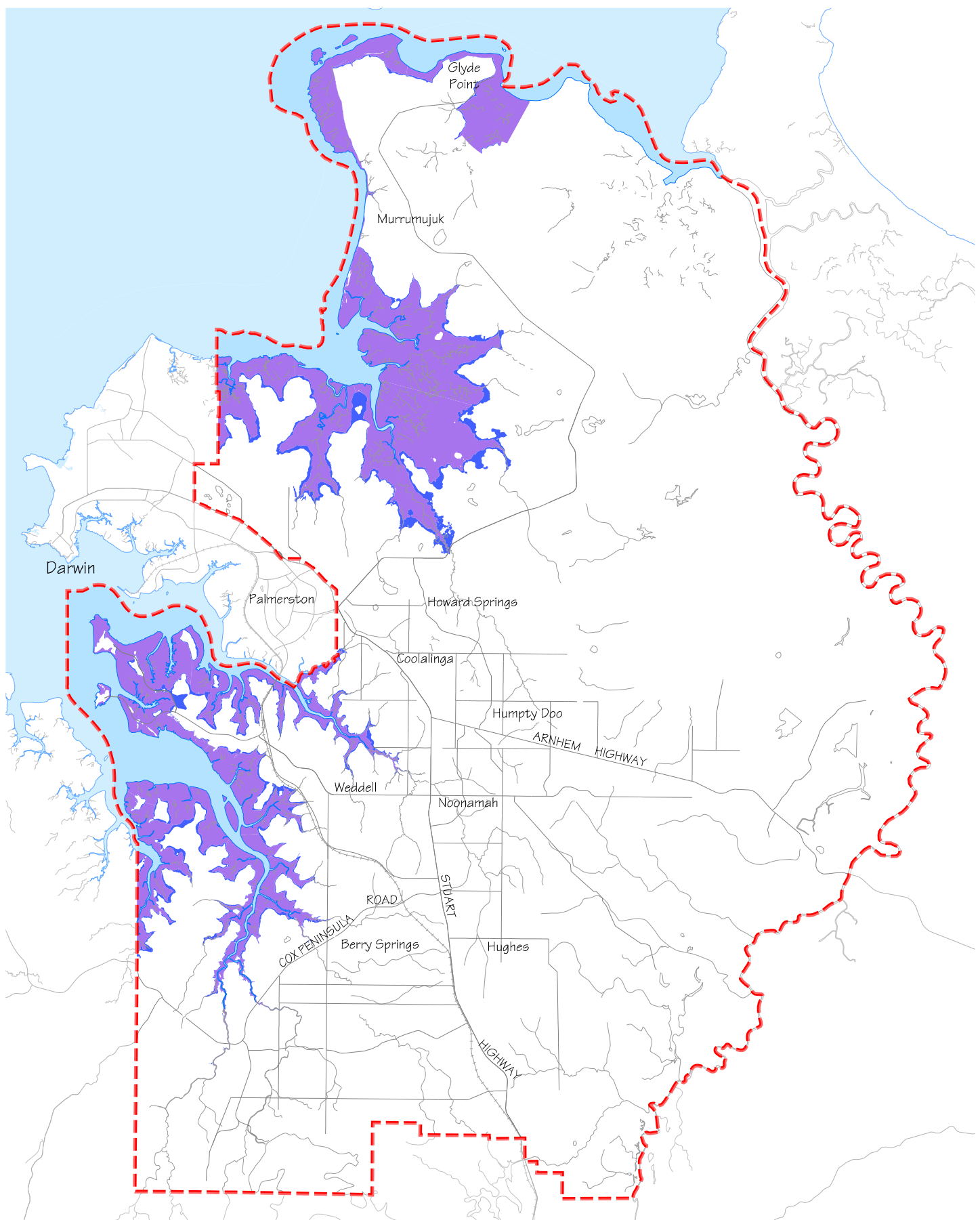


LEGEND

- Plan Area
- Rapidly to Moderately Well Drained
- Imperfectly to Poorly Drained
- Poorly to Very Poorly Drained
- Waterbody
- Ocean / Sea

- Road Centreline
- Railway
- Coastline

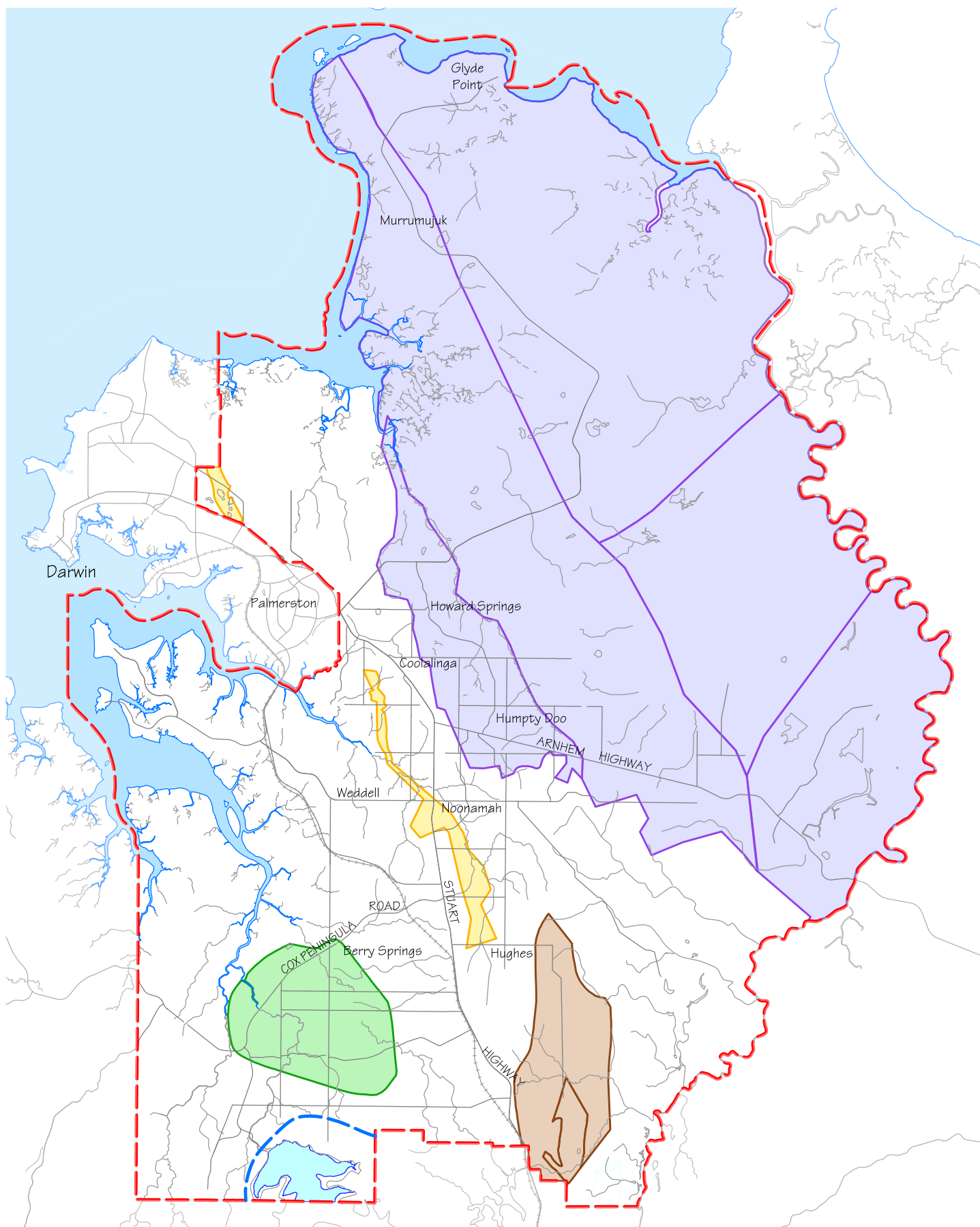
SOIL DRAINAGE



LEGEND

- - - Plan Area
- 1000 Year Extent
- 100 Year Extent
- Ocean / Sea
- Road Centreline
- + + Railway
- Coastline

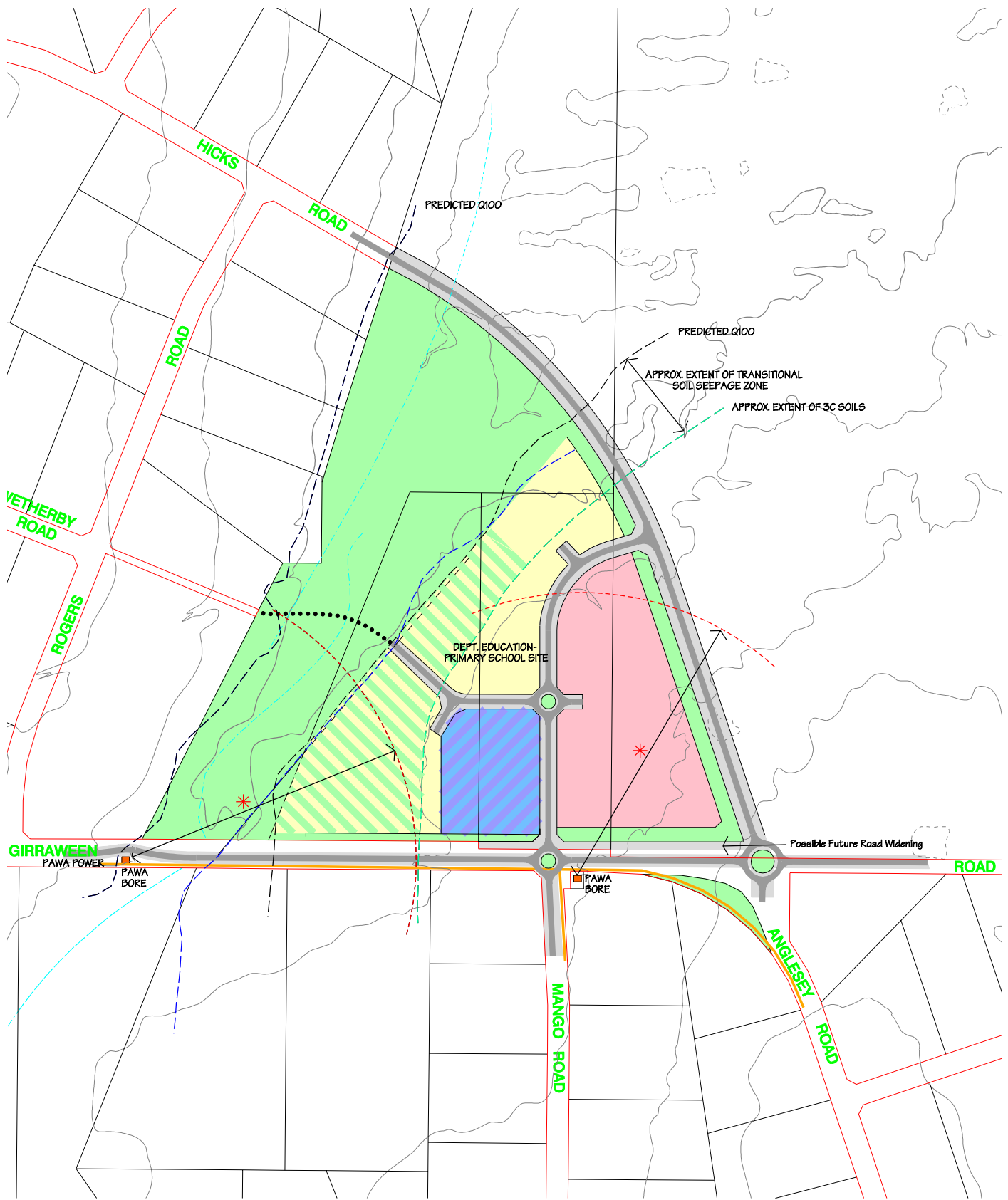
STORM TIDE



LEGEND

- | | |
|--|---|
| Plan Area | Existing Water Supply Storage |
| Koolpinyah Dolomite | Water Supply Catchment |
| Berry Springs Dolomite | Ocean / Sea |
| Acacia Hills | Road Centreline |
| Knuckey, Palmerston and Virginia Dolomite | Railway |
| | Coastline |

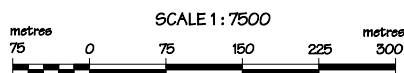
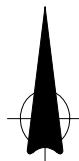
WATER RESOURCES



* CONTROLS OF BORES AND SEPTICS REQUIRED
WITHIN 400M OF PRODUCTION BORES

LEGEND

- COMMERCIAL/SERVICE COMMERCIAL
- COMMUNITY
- BUFFER/OPEN SPACE
- FUTURE USE
- COMMUNITY/RECREATION
- CYCLE PATH



LAND USE CONCEPT FOR GIRRAWEEEN

