

Finniss

Planning Concepts and Land Use Objectives



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And
Land Use Objectives
2002



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Minister's Message

The Finnis Sub-Region is an establishing rural living area and an important recreational area for Darwin residents and visitors. Its continued growth and development is dependent on a coordinated and strategic approach to land use planning.

The *Finniss Planning Concepts and Land Use Objectives* has evolved from the evaluation of available information on the Sub-Region's resources and development opportunities in consultation with residents, developers, government agencies and the public. The document informs developers, investors and the community of the Government's vision for the Finnis Sub-Region for the next 20-25 years and provides the basis for coordinating and evaluating public and private development.



The *Finniss Planning Concepts and Land Use Objectives* contains the land use objectives which establish the framework for planning control in the Finnis Sub-Region. Now that I have made the land use objectives, I will consider them along with those matters listed under section 51 of the *Planning Act 1999* when considering development applications. The planning concepts will similarly be a consideration in the assessment of such applications.

As with any planning document, the *Finniss Planning Concepts and Land Use Objectives* will be subject to ongoing monitoring and review.

A handwritten signature in black ink, appearing to read 'Kon Vatskalis', with a long horizontal flourish extending to the right.

KON VATSKALIS

Minister for Lands and Planning

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1 BACKGROUND

1.1 INTRODUCTION

The Northern Territory Planning Scheme consists of *Land Use Objectives, Incorporated Documents* and *Development Provisions*. These establish policies and controls for the orderly, economic and sustainable use and development of land and provide a guide to the community, landholders, developers, service providers, and the consent authority on the planning vision and objectives for a particular area.

Land Use Objectives are statements of government policy in respect of the use and development of land. *Development Provisions* include provisions permitting, prohibiting, restricting or imposing conditions on the use and development of land while *Incorporated Documents* provide guidelines relating to the use, protection and development of land which assist the consent authority in assessing development applications.

This document presents land use objectives for the Finniss Sub-Region. The land use objectives are presented as Key Objectives and objectives relevant to particular land uses or land use issues.

1.2 REGIONAL AND PLANNING CONTEXT

The Finniss Sub-Region includes that area south of Bynoe Harbour, north of Litchfield National Park and Wagait Aboriginal Land Trust and west of the Litchfield Shire and Coomalie Community Government Council areas (Figure 1.1).

Broad land use objectives and land use structure plans for the Darwin Region and a number of sub-regions were established in 1990 under the *Planning Act 1979*. These include:

- *Darwin Regional Land Use Structure Plan 1990*;
- *Finniss Land Use Structure Plan 1990*;
- *Litchfield Land Use Structure Plan 1990*; and
- *Cox Peninsula Land Use Structure Plan 1990*.

Both the *Darwin Regional Land Use Structure Plan 1990* and *Finniss Land Use Structure Plan 1990* currently apply to the Finniss Sub-Region and have been saved as Land Use Objectives under the *Planning Act 1999*.

Control plans, saved as development provisions under the *Planning Act*, also apply within the Finniss Sub-Region. These include:

- *Namarada Area Plan 1990*, developed for the subdivision of Section 2881, Hundred of Glyde, at Dundee Beach for rural living purposes; and
- *Crab Claw Island Control Plan 1998*, which provides controls for tourist development on Crab Claw Island, Sections 178, 179, 180 and 181, Hundred of Milne, on Bynoe Harbour.

Development elsewhere within the Finniss Sub-Region is currently not subject to land use and development control, other than for the subdivision or consolidation of freehold or leasehold land.

The *Darwin Regional Land Use Structure Plan 1990* provides for the allocation of land expected for a regional population of 1 million people and provides the framework for the future use and development of the region.

The *Finniss Planning Concepts and Land Use Objectives 2002* reviews the *Finniss Land Use Structure Plan 1990* in response to development pressures and a growing resident population in this area. This review has been conducted within the regional

planning framework established by the *Darwin Regional Land Use Structure Plan 1990*.

The regional role of the Finnis Sub-Region is to provide a recreation and rural living resource for the regional population, providing for residential use that is compatible with the recreation and conservation functions of the area and that complements development elsewhere in the Darwin Region.

Urban expansion into the Finnis Sub-Region is not supported due to:

- the need for major changes to the mangrove coast of Bynoe Harbour and

along the Finnis River floodplain to control mosquito and biting midge breeding;

- the remote location and associated transportation problems; and
- land and water resource constraints, particularly flooding, waterlogging and limited potable groundwater.

2 LAND USE PLANNING BASE

This section evaluates physical, biological, cultural and socio-economic resources (the land use planning base) and identifies constraints to future land use and development in the Finnis Sub-Region.

2.1 PHYSICAL RESOURCES

2.1.1 Climate

The climate can be considered typical Top End monsoonal, with distinct dry and wet seasons. The main features include:

Dry season (May-September) – steady south-easterly winds which can create rough seas and increase wildfire risk; warm daytime temperatures (maximum 30.4°C to 32.4°C); low humidity levels.

Wet season (October-April) – cloudy conditions; frequent and at times heavy rain; humid conditions (maximum 9 am range from 70% to 83%) with maximum temperatures ranging from 31.4°C to 33.1°C; westerly and north westerly winds; potential for tropical cyclones along the coast which produce heavy rain and gale force winds (Bureau of Meteorology, 1997).

2.1.2 Geology and mineral resources

The main geological component within the Finnis Sub-Region is the Pine Creek Geosyncline which has two main sub-provinces – the Litchfield Province (which includes the Finnis Sub-Region) and the Central Region (Figure 2.1) (Young, 1997).

The most important aspect of the geology for land use planning is the potential for mineral and extractive mineral deposits. Numerous mineral deposits and operating mines are located within the Pine Creek Geosyncline and the mineral potential of this area is at least medium to high in almost all

parts. New deposits continue to be found in the Pine Creek Geosyncline and the absence of noted deposits in a particular area does not necessarily mean that the area does not contain mineral deposits.

The Litchfield Province is characterised by tin tantalum bearing pegmatite deposits and the Central Region by numerous vein deposits of gold, tin and lead zinc silver. Deposits of nickel, uranium and platinoid minerals have also been found.

The Finnis Sub-Region is generally considered to have medium to high mineral potential and it is expected that further mines will be developed in the future. The rocks, alluvium and soil within the area have high potential for extractive minerals for the construction industry.

2.1.3 Land resources

Land systems and land classes

Land systems are areas or groups of areas, which have a recurring pattern of topography, soils and vegetation. Accordingly, they provide a useful indicator to the capability of land to support various land uses. However, land system classifications are often more refined than is required for the purposes of broad scale land use planning and can be grouped into broader land classes that may incorporate a number of land systems.

Land system and land class mapping currently available for the Finnis Sub-Region is provided in Figure 2.2 and areas of rugged terrain are highlighted in Figure 2.3. More detailed land unit mapping of the Finnis Sub-Region has recently been completed and this information will be used in the detailed assessment of site specific development proposals.

A number of observations can be made on the basis of available land resource information that is relevant to the determination of future land uses. Most of the western and central areas of the Finnis Sub-Region consist of level or gently undulating land (Northern Lateritic Plains and Granite Hills and Lowlands) suitable for a range of land uses. However, soils are generally not suitable for agriculture or horticulture. The eastern part of the Finnis Sub-Region consists of hilly country with scattered areas of ridges and hills (Dissected Foothills and Elevated Backbone Country) which may require larger lot development or exclusion of some areas from development altogether. The coastal fringes and floodplains of the Finnis River (Estuarine Alluvia and Coastal Plains) are generally unsuitable for most forms of development other than low intensity uses. Salinity problems associated with the Finnis River floodplains preclude any form of irrigation within these areas.

2.1.4 Seasonal waterlogging

Seasonal waterlogging is a major constraint to development within parts of the Finnis Sub-Region with severe waterlogging occurring within the floodplains of the major river systems and the coastal and estuarine plains of Fog Bay and Bynoe Harbour (Figure 2.4). These areas are generally unsuitable for most forms of development other than low intensity uses such as seasonal grazing.

2.1.5 Water resources

Groundwater resources

The quantity and quality of groundwater available is a major factor in determining the range and intensity of land use within rural and regional areas. Generally, groundwater resources in large parts of the Finnis Sub-

Region pose a significant constraint to development.

Coastal and eastern areas contain groundwater systems that can be expected to provide enough groundwater for indoor and limited outdoor domestic use associated with low-density rural living. The rest of the Finnis Sub-Region has limited groundwater potential and it may be difficult to locate a water supply that can sustain even an indoor domestic supply for low density rural living (Figure 2.5).

Surface water resources

Surface water can provide an alternate source of water supply where groundwater is unavailable or limited. The Finnis River is the major river system in the area. Stream flows are distinctly seasonal and concentrated during the wet season therefore, an all year water supply derived from surface water resources requires some form of water storage, such as rainwater tanks or dams.

The *Darwin Regional Water Supply and Land Management Strategy* (PAWA, 1988) identified the Mount Bennett Dam on the Finnis River as a future major dam site and long term regional proposal to provide an additional water supply to the Darwin Region (Figure 2.6). Construction of infrastructure needed for reticulation from this source would require a substantial population to be economically viable.

Opportunities may exist for smaller scale surface water storage options, such as off stream storage or hillside dams, to provide for residential or other development within private lots, or to service specific public facilities such as rural service centres. Such water storage options depend on suitable dam sites being available and economically viable to develop. They would also need to be of sufficient capacity to cater for high evaporation and possibly, high infiltration

rates. The cumulative impact of off stream storage options and dams on the catchment would need to be considered, including impacts on environmental flows and potential dam construction impacts such as erosion and sedimentation. Proposals would be assessed and licensed under the *Water Act* and assessment under the *Planning Act* and *Environmental Assessment Act* may be required.

Direct pumping of surface water from watercourses currently occurs to service particular developments. However, this water supply option is normally restricted to land with river frontage and proposals to pump water will need to be assessed and licensed under the *Water Act* to make sure that pumping is within sustainable levels. The East Finnis River has been subject to past contamination from the former Rum Jungle Uranium Mine near Batchelor. The river is no longer considered a health hazard, but remains a contaminated water body. Water from some parts of the river may not be suitable for human consumption, crop irrigation, stock or aquaculture in its current state.

2.1.6 Flooding and Storm Surge

The coastal fringes of the Finnis Sub-Region are prone to tropical cyclones and storm surge hazard particularly coastal areas adjoining Fog Bay and Bynoe Harbour.

Predicted 1.0% Annual Exceedance Probability (AEP) levels for coastal areas range from 5.1m to 5.3m Australian Height Datum (AHD) while predicted 0.1% AEP levels range from 6.3m to 6.6m AHD. Figure 2.7 shows the extent of land affected by storm surge hazard on the basis of predicted 1.0% AEP levels (Vipac, 1994).

The floodplains of the major rivers and tributaries experience seasonal flooding during the wet season, which severely

constrains potential development of these areas. The extent of land subject to seasonal flooding at 1.0% AEP levels is illustrated on Figure 2.8.

The principles of the *Darwin Regional Land Use Structure Plan 1990* are adopted for the consideration of land use potential of areas subject to flooding and storm surge. These are:

- development permitted below the 1.0% AEP inundation level from either storm surge or flooding is limited to land uses such as open space, recreation, non-residential public facilities and short stay tourist accommodation (such as camping areas and caravan parks);
- development permitted between the 1.0% AEP and 0.1% AEP inundation levels for storm surge areas include land uses permitted below the 1.0% AEP level as well as industrial and commercial uses; and
- development which is discouraged within areas subject to any flooding or storm surge includes residential, noxious and hazardous industry, strategic and community services (such as power generation facilities, defence installations, schools, hospitals, etc) and major transport links. Dry season grazing may also be appropriate in such areas to complement wet season grazing on adjacent upland areas, provided that grazing does not occur before such areas are dry enough to avoid environmental damage.

2.1.7 Land degradation

The term “land degradation” refers to the loss of the physical or biological resources of an area, typically as a result of overuse or inappropriate land use. Land degradation

includes erosion, vegetation loss, weed infestation and salt water (tidal) intrusion.

Known areas of land degradation include the floodplains of the Finnis River, where the exotic weed *Mimosa pigra* and other weeds such as *Noogoora burr* have infested large areas and where pockets of severe erosion have occurred from overgrazing and feral animals. Point source erosion is also prevalent from road construction and land clearing for subdivisions. The disturbed environment resulting from erosion increases the potential for weed invasion.

Unrestricted access to the beaches on Fog Bay is increasing the potential for beach erosion and threatens the dune system along Five Mile Beach. This dune system is considered to be of geomorphic and aesthetic significance.

To prevent further land degradation, it is important for land use planning to embrace the goal of ecologically sustainable use of land, for land use to be appropriate for its location, and for development intensity to be within the capacity of the land. Avoidance of extensive vegetation clearing in areas most prone to soil erosion and incorporation measures to prevent further spread of weeds, particularly *Mimosa pigra* in land management practices are also important.

2.2 BIOLOGICAL RESOURCES

2.2.1 Vegetation

The Finnis Sub-Region offers a diverse range of vegetation, with a pattern of vegetation communities reflecting local topography, soils, drainage and other factors (Figure 2.9).

The most significant areas of conservation value are the floodplains and tidal wetlands of the Finnis River. The floodplain system is important for its paperbark swamps and rice

grass plains and supports stands of paperbarks (*Melaleuca cajuputa* and *M. viridiflora*) that are considered to be some of the best in the Northern Territory (Department of Lands and Housing, 1990b). Other parts of the Finnis Sub-Region contain significant areas of mangroves and rainforest, including dry monsoonal rainforest, spring fed rainforest and riverine rainforest (Figure 2.10). A number of rare, endangered and vulnerable floral species occur as recorded by the Department of Infrastructure, Planning and Environment (DIPE) Herbarium (Figure 2.11).

Weeds

Significant areas of weed infestation occur throughout the Finnis Sub-Region, including *Hyptis suaveolens* in upland areas and *Mimosa pigra* in the wetlands. *Salvinia molesta* is a significant part of the aquatic environment in parts of the Finnis River system. Weed infestation represents a constraint to development, particularly development that utilises the natural environment, such as recreation, conservation, agriculture and catchment protection.

To reduce the impact of weeds on land use and development, infested areas must be managed and catchments need to be protected from further weed invasion. This will be the responsibility of landholders following the *Northern Territory Weeds Management Strategy 1996 – 2005* (DPIF, 1996).

2.2.2 Fauna

A number of rare, endangered and vulnerable fauna species occur within the area as recorded on the DIPE Fauna Atlas (Figure 2.12). The Finnis River floodplains and the coastal plains of Fog Bay provide habitats for several important species (Department of Lands and Housing, 1990b). Important breeding sites for the Flatback Turtle are

located on the beach areas north of Dundee Beach (Figure 2.13). Highly significant wader and waterbird breeding and feeding sites also occur along Five Mile Beach and the Magpie Goose and Saltwater Crocodile breed at several sites along the Finnis River.

2.3 BITING INSECTS AND PUBLIC HEALTH RISK

The occurrence of biting insects needs to be considered in land use planning for the Finnis Sub-Region. The mangrove coastal fringes, inland floodplains and lagoons and billabongs are breeding habitats for species of mosquitoes and biting midges (commonly known as “sandflies”).

Mosquitoes are the insects of major public health importance in the Northern Territory (Department of Health and Community Services, 1987) because of their ability to transmit viruses that can cause disease, such as Ross River virus, Barmah Forest virus, Murray Valley encephalitis virus and Kunjin virus. Malaria and Dengue Fever are the most important potential mosquito borne diseases that could be reintroduced into the Northern Territory. Biting midges are not known to be vectors of diseases suffered by humans, but their blood sucking habits can make them a serious pest problem and can produce secondary infections.

The siting of residential areas needs to take into account the location of large and uncontrollable biting insect sources within flight range. The Department of Health and Community Services (Territory Health Services 1987, 1997a, 1997b) recommends no residential development with lots less than 2 ha within 1.6 km of large and uncontrollable areas of mosquito and biting midge breeding.

For rural residential development, the Department of Health and Community

Services (DHCS) guidelines should be consulted to make sure that as many people as possible are protected from high numbers of biting insects. These guidelines include:

- exclusion of areas sensitive to disturbance, such as areas below maximum tide level, large brackish swamps and areas below the wet season stabilised level of freshwater water features;
- avoidance of residential development adjacent to significant sources;
- creation of buffer zones where appropriate, particularly for development with lots less than 2 ha;
- placement of larger lot sizes near significant biting insect source areas;
- appropriate drainage to avoid creating or aggravating mosquito breeding sites;
- avoidance or appropriate management of activities that can result in new sources or aggravate existing sources such as septic tanks, sewerage and waste lagoons, extractive industries, artificial impoundments and irrigated agriculture; and
- rehabilitation of artificial depressions that are potential mosquito breeding sites.

Rural residential development with lot sizes of 2 ha or larger are not considered to require a buffer from biting insect sources as the buffer is provided by the lots themselves. The siting of lots of 2 ha or larger adjacent to biting insect sources can act as a buffer to smaller lot development. Lots within 1.6km of potential sources are generally recommended to have a notification that advises of the potential significant pest and disease risks associated with these areas.

Non-residential developments (ie mining, horticulture and agriculture) have the

potential to create new mosquito breeding sites and the relevant the DHCS guidelines (Territory Health Services, 1997c, 1997d) should be consulted for such development.

Large areas of the Finnis Sub-Region are subject to seasonal biting insect constraints (particularly early dry season) and are unsuitable for urban development or rural residential development with lot sizes smaller than 2 ha (Figure 2.14).

Developments near coastal areas may experience the highest number of biting insects between October and January. Developments near wet season inundated areas may experience biting insect problems between March and August, with the extent of the problem related to the length of retention of floodwaters. Specific entomological investigations should be conducted in areas proposed for residential development with lot sizes smaller than 2 ha or proposed rural service centres.

2.4 CULTURAL RESOURCES

Cultural resources within the Finnis Sub-Region are shown on Figure 2.15. The *Heritage Conservation Act* recognises two main types of heritage sites. Those entered onto the Northern Territory Heritage Register (declared heritage places) and those prescribed as archaeological places and objects. Currently there are no declared heritage places in the Finnis Sub-Region. However, the Leviathan Tin Mine has been nominated and proposed as a heritage place under the *Heritage Conservation Act*.

All prescribed archaeological places are protected, regardless of whether they have been recorded. Despite a limited amount of archaeological survey work in the Finnis Sub-Region, more than 25 sites have been recorded. The limited amount of survey work together with the non-random

distribution of archaeological places means it is likely that numerous other unrecorded sites exist particularly on the margins of watercourses and mangroves.

There are a large number of registered and recorded Aboriginal sacred sites within the Finnis Sub-Region with the main concentrations in the Bynoe Harbour and Fog Bay coastal areas and Finnis River.

Registered sites are those that Aboriginal custodians have requested the Aboriginal Areas Protection Authority (AAPA) to protect and that have been documented and evaluated by the AAPA. Recorded sites are those that have been made known to the AAPA from a variety of sources but have not been assessed by the AAPA. Both registered and recorded sites are protected under the *Northern Territory Aboriginal Sacred Sites Act*.

However, it is important to note that the AAPA Register is not definitive and that there may be numerous other unidentified sacred sites, particularly given the limited amount of survey work that has been undertaken within this area. The obtaining of an Authority Certificate for development proposals assists the protection of sacred sites. An Authority Certificate is the product of a consultation process between the AAPA (and the proponent) and Aboriginal custodians, which documents the constraints (if any) imposed by the existence of sacred sites on a particular development.

2.4.1 Aboriginal cultural landscapes and resources

There may be vegetation, fauna and landscape features other than registered or recorded sacred sites or registered archaeological sites that are valued by Aboriginal people. To document specific areas or resources would require an extensive anthropological and ethnobotanical

assessment, which is not considered appropriate for a broad scale land use planning study. However, the existence of these landscapes and resources should be recognised and considered in the assessment of specific development proposals.

2.5 SOCIO-ECONOMIC RESOURCES

2.5.1 Population base

The population of the Finnis Sub-Region is difficult to accurately estimate because Australian Bureau of Statistics (ABS) *Census of Population and Housing* statistical areas do not match the Sub-Region boundary. The closest estimate can be obtained by excluding Mandorah and Belyuen from the Cox Finnis Statistical Local Area. This includes Cox Peninsula and Aboriginal and pastoral land south of the Finnis River (Figure 2.16).

Based on Census figures, the estimated population of the Finnis Sub-Region in 1996 was 445 and 384 persons in 1991 (ABS, 1996). This represents an increase of 15.9% between 1991 and 1996 or an average annual increase of 3.2%. However, the large percentage change in population is due to the very small population base.

The growth in population is associated with rural residential development that has occurred since the late 1980s at Dundee Beach, Dundee Downs, and Bynoe Haven. Unofficial population estimates suggest that the permanent population of the Finnis Sub-Region may be much larger than the official ABS figures indicate. In addition to the permanent population, there is an additional “weekender” population, which is difficult to accurately estimate. However, anecdotal evidence suggests that this population may be in excess of 1 000 people.

Proposed rural residential subdivision for both weekender use and permanent

occupation will lead to an increase in the population base of the Finnis Sub-Region. The rate of increase is difficult to estimate and will be dependent on the rate at which existing subdivided lots are developed and further lots are subdivided and sold.

2.5.2 Current settlement

There are no townships within the Finnis Sub-Region although major population concentrations are associated with rural residential subdivisions at Dundee Beach, Dundee Downs and Bynoe Haven. These sub-divisions consist of both permanent residents as well as substantial numbers of temporary or “weekender” populations.

There is one Aboriginal community within the Finnis Sub-Region, which is the Woolaning community. This is a minor community which comprises between 20-100 people, is self governing and which may provide resources to smaller outstations (Figure 2.17) (DLPE, 1997).

2.5.3 Land tenure

The Finnis Sub-Region is mostly a combination of freehold land and Crown Lease areas (Figure 2.18). NT Portions 3192 and 3283 are leasehold parcels held by the Northern Territory Land Corporation. The eastern part of the Finnis Sub-Region consists of Crown land, Northern Territory Land Corporation leasehold land (part of which has been set aside for the proposed Mount Bennett Dam) and a section of Commonwealth freehold land used by the Army and known as the Kangaroo Flats Training Area.

Areas that can be considered constrained or alienated in terms of future development are Northern Territory Land Corporation areas used for parks, conservation reserves and future dams, Aboriginal freehold land

(Wagait Aboriginal Land Trust) and the Department of Defence training area at Kangaroo Flats. At the same time, some of these areas offer opportunities for compatible shared use. For example, parks and reserves provide opportunities for recreation and tourism, proposed dam sites with open catchments provide recreational opportunities and Aboriginal land can provide opportunities for Aboriginal cultural tourism or other forms of development as long as appropriate agreements are put in place with the land owners.

2.6 LAND USE

A wide range of land uses occur within the Finnis Sub-Region including:

2.6.1 Conservation

There are some areas of conservation significance that are not protected by inclusion within a park or reserve. These include important wildlife breeding sites and concentrations of rare, threatened or endangered flora and fauna species. The DIPE is pursuing protection of many of these areas through cooperative management agreements with land owners under the *Territory Parks and Wildlife Conservation Act*.

2.6.2 Marine parks

A proposal to establish a Beagle Gulf Marine Park under the *Territory Parks and Wildlife Conservation Act* is being considered to provide for conservation, coordinated management and sustainable use of coastal and marine resources. This proposal includes the section of coast, sea and seabed from Cape Ford, south of the mouth of the Daly River, to Cape Hotham, north-east of the Adelaide River mouth, including the waters of Bynoe Harbour (Figure 2.19). The proposed boundaries of the marine park are preliminary at this stage and may be refined

or amended by the DIPE during a more detailed park planning process. In addition, declaration of the marine park is subject to resolution of an Aboriginal land claim over the area.

The living resources of the park are proposed to be managed cooperatively by the DIPE and the Department of Business, Industry and Resource Development, (DBIRD). Fish and aquatic life are proposed to be managed by the DBIRD using Fisheries Management Plans prepared under the *Fisheries Act*. Other living resources (marine mammals, reptiles, birds, mangroves) are proposed to be managed by the DIPE using a Beagle Gulf Marine Park Plan of Management prepared under the *Territory Parks and Wildlife Conservation Act*.

2.6.3 Commercial fishing and aquaculture

Inland waters provide limited access to commercial fishing. Some barramundi fishing occurs between the mouth and defined closure lines of the river systems under the *Barramundi Fishery Management Plan* prepared under the *Fisheries Act*.

Aquarium fishing for live fish and aquatic life occurs, particularly in the upper reaches of the Finnis River, and associated streams and billabongs. Access is often through pastoral stations, which needs to be negotiated with land owners. Coastal areas are important barramundi, mud crab, coastal line, coastal net, mollusc (shellfish) and trepang fisheries.

A number of aquaculture (pearling) leases exist within Bynoe Harbour, to the north of the Finnis Sub-Region.

2.6.4 Horticulture

Existing horticulture development is limited to a large mango farm adjacent to the Finnis

River and small-scale market gardens and hobby farms.

2.6.5 Tourism and recreation

The major recreational pursuit within the Finnis Sub-Region is fishing, which represents an important use of coastal areas, rivers, lagoons and billabongs. Areas of particular importance include the waters of Fog Bay and Bynoe Harbour and the Finnis River. Other recreational activities include four wheel driving, hunting and more passive activities such as camping, picnicking, nature walks and sightseeing.

The coastal areas of Fog Bay and Bynoe Harbour provide natural attractions such as beaches, water, bushland, scenery and wildlife, which offer a range of recreational activities.

Dundee Lodge at Dundee Beach and Crab Claw Island on Bynoe Harbour offer tourist accommodation. Fishing tour operators licensed under the *Fisheries Act* can operate throughout the major river systems.

2.6.6 Residential

Some residential sub-division has occurred, particularly at Dundee Beach, Dundee Downs and Bynoe Haven. Subdivision of these areas was initially purported to serve a market for weekender rural living. However, some of the lots within these areas are now permanently occupied. Further subdivisions for rural living are expected.

2.6.7 Defence training areas

The Kangaroo Flats Training Area is located at Section 2730, Hundred of Hughes.

2.6.8 Water supply sites

Mount Bennett on the Finnis River was identified in the *Darwin Regional Water Supply and Land Management Strategy* (PAWA, 1988)

as a future dam site. Due to the development, which has already occurred within the catchment, it is proposed that the Mount Bennett Dam Catchment will be an open catchment and be available for recreational uses. Future development of the Mount Bennett Dam will depend on agreement with the traditional Aboriginal owners of the Wagait Aboriginal Land Trust.

2.6.9 Native title claims

There are no native title claims lodged with the Native Title Tribunal under the Commonwealth *Native Title Act* within the Finnis Sub-Region at this time. It should be noted that this is not an indication of whether or not native title exists within the area. This cannot be certain until the Federal Court has determined that native title does or does not exist in a particular area. The appropriate means of determining whether native title exists is by application under the *Native Title Act*.

2.6.10 Aboriginal land claims

The Finnis River Region (LC237) is the only land claim current for the area under the Commonwealth *Aboriginal Land Rights (Northern Territory) Act* (Figure 2.20).

This area of land is constrained at present and for the immediate future until the land claim is determined. However, whether the claim does or does not proceed, long term land use planning needs to consider the appropriate future use of this area.

2.6.11 Infrastructure and services

Transport and access

Access throughout the Finnis Sub-Region is provided by road, with limited private access by sea, river and air (Figure 2.21). Fog Bay Road provides access from Cox Peninsula Road to Fog Bay while Litchfield Park Road provides access from Batchelor through

Litchfield National Park and Wagait Aboriginal Land Trust. Some 16km of Fog Bay Road's 54km length is sealed. The Litchfield Park Road is sealed from Batchelor to the northern boundary of the Park (75km) with the remaining 44km to Cox Peninsula Road being a low standard gravel road. The unsealed sections of these roads are subject to access restrictions during the wet season.

Selective realignments and sealing of Fog Bay Road will be progressively implemented. The DIPE has investigated options for realignment of Litchfield Park Road to Fog Bay Road and proposed an alternative alignment north of the Park boundary through Wagait Aboriginal Land Trust. The alignment is still under assessment in consultation with the land trust owners. Significant realignment of sections of Fog Bay Road is being considered to reduce the problem of direct access from existing rural residential lots.

In addition to the major access roads there are numerous minor access roads and four wheel drive tracks extending across the Finnis Sub-Region, which provide access within properties and to local attractions. A continuation of the process of negotiation with landowners is required to establish legal public access to four wheel drive tracks within private land.

Power, water and sewerage

There is no reticulated power, water or sewerage within the Finnis Sub-Region. Developments must generate their own power, water is supplied from local bores and storage tanks and on site sewage treatment systems, such as septic tanks, are used.

Solid waste disposal

There is a managed temporary waste disposal site at Dundee Downs. A future long-term option for a permanent waste disposal site is currently being investigated by the DIPE.

Urban services

There are limited urban services within the Finnis Sub-Region, reflecting the small permanent population. Residents rely heavily on urban services provided within centres outside the area, including Darwin and Palmerston. Food and fuel supplies can be purchased at several local points including a pub, shop and tourist lodge at Dundee Beach (Dundee Lodge) and a roadhouse at Bynoe Haven (Sand Palms Roadhouse).

Woolaning School, west of Litchfield National Park, is the only permanent school in the Finnis Sub-Region. An interim school has been established at Dundee to cater for demand in the short term. The Department of Education, Employment and Training will develop permanent school facilities if enrolments remain constant and a suitable serviced site within a proposed rural service centre is identified. The closest schools outside the area are Batchelor Area School (catering for children up to Year 10) and Berry Springs Primary School. The Katherine School of the Air and the Northern Territory Correspondence School also provide education facilities for residents of the Finnis Sub-Region.

There are no health services provided within the Finnis Sub-Region and the closest community health centre is at Batchelor.

2.7 DEVELOPMENT CONSTRAINTS – SUMMARY

The major constraints affecting the Finnis Sub-Region are limited potable groundwater, biting insects, lack of infrastructure and services, coastal and riverine flooding and seasonal waterlogging.

3 DEVELOPMENT OPPORTUNITIES

This section discusses development opportunities considered to be consistent with the regional planning framework and within the capability of the land use planning base.

3.1 RURAL LIVING

Rural living development generally requires flat to gently sloping land with enough area free of flooding and waterlogging to enable a house to be built and the provision of reasonable useable areas, satisfactory effluent treatment and disposal and year round access.

The central and western parts of the Finnis Sub-Region are generally suitable for rural living. However, these areas do not have the potential to provide enough groundwater for even indoor domestic use associated with low density rural living development and water supply options may be limited to rain water tanks, carting water from community bores or supply from surface water sources. Consequently, a minimum lot size of 8 ha is preferred. However, should a reticulated water supply become available in the future, there may be opportunities for smaller lot rural residential development (ie less than 2 ha) in association with planned rural service centres in otherwise constraint free areas.

The coastal fringe at Fog Bay has the potential to provide enough groundwater for indoor and limited outdoor domestic water supply for low density rural living development. However, much of this area is unsuitable for development because of other constraints, including coastal flooding.

The area adjacent to Dundee Beach is generally suitable for residential development, however, parts of this area are affected by coastal flooding and the entire area experiences biting insect problems.

Much of Dundee Beach has been developed for rural and “weekender” living at densities ranging from 0.4 ha to 8 ha.

The eastern part of the Finnis Sub-Region is generally suitable for larger lot rural living development (ie greater than 8 ha lots) which includes enough flat land within each lot to construct a dwelling. However, development should ensure that the landscape quality of escarpment areas is protected. Sufficient groundwater supplies are available for domestic use.

The southern part of the Finnis Sub-Region between the Wagait Aboriginal Land Trust and Litchfield National Park has sufficient groundwater for domestic use associated with rural living lots of 2 ha or larger. However, there is no current access into this area and development and access to lots is complicated by the historic rectangular grid subdivision pattern. This subdivision pattern also occurs within parts of the eastern and central portions of the Finnis Sub-Region. Development of these lots for rural residential development would be best achieved through consolidation and re-subdivision. Careful subdivision design and appropriate land management practices are required to prevent land degradation, given the erodible nature of soils in some parts.

3.2 TOURISM AND RECREATION

The *Northern Territory Tourism Development Masterplan* (1994) and the *Top End Regional Tourism Development Plan* (1996) recognise the potential for tourism development within the Finnis Sub-Region.

Opportunities for tourism development include the coastal areas of Fog Bay and Bynoe Harbour, nature based tourism or eco-tourism on the Finnis River and bed

and breakfast style accommodation within rural areas. The fishing tour industry is experiencing significant growth and future provision of access by developers to major rivers and streams, including the Finnis River, is important to maintain this growth.

Recreational fishing is a major attraction for both local residents and tourists and continued growth in the use of Bynoe Harbour, Fog Bay and the Finnis River is expected. There will be opportunities to provide additional facilities to cater for recreational fishing. A new boat ramp is proposed for Crab Claw Island and the construction of boat ramps in both the freshwater and tidal sections of the Finnis River is being investigated by the DBIRD.

The future development of the proposed Mount Bennett Dam may provide further recreational opportunities similar to those provided at Manton Dam, such as water sports, picnic areas and fishing. However, the development of this dam is long term and subject to agreement with the traditional Aboriginal owners of Wagait Aboriginal Land Trust.

The protection of significant natural and scenic areas is considered crucial given the recognised importance of the Finnis Sub-Region as a regional tourism, recreation and conservation resource. The protection of the coastal areas at Fog Bay and along Bynoe Harbour, and the riverine plains adjoining the Finnis River, is a priority. Some important areas of conservation significance may be protected and managed under the *Territory Parks and Wildlife Conservation Act*.

3.3 CONSERVATION

The conservation of the physical, biological and cultural resources is an important objective for scientific and aesthetic reasons and to provide and enhance recreational

opportunities for residents and visitors. The *Northern Territory Parks Masterplan* prepared by the former Parks and Wildlife Commission NT (undated) provides a forward vision for managing the park system of the Northern Territory to the year 2010. The Masterplan provides for the preparation of four regional park master plans, which focus on:

- protection of representative natural areas of both land and sea;
- protection of rare and endangered species of flora and fauna;
- protection of cultural and historic sites of significance;
- provision of high quality tourism experiences based on the Territory's outstanding array of scenic landscapes, variety of wildlife, Aboriginal culture and European historical sites; and
- encouragement of public participation, understanding, appreciation and enjoyment of the Territory's natural and cultural heritage.

The continued development of a comprehensive and representative park system for the Finnis Sub-Region will be within the future framework provided by the *Top End Region Parks Masterplan*.

The proposed Beagle Gulf Marine Park would provide protection of coastal waters and intertidal areas of Fog Bay and Bynoe Harbour. However, at present, the proposed marine park only extends to high water level and therefore does not provide protection to coastal areas of recognised conservation value above high water level. Important areas of conservation significance not protected under the current proposal include:

- the coastal dune system along Five Mile Beach on Fog Bay, which is considered to be of geomorphic and aesthetic significance, and adjacent freshwater wetlands;
- Native Point, which is an important breeding area for the Flatback Turtle;
- beach areas along Five Mile Beach, which are a significant migratory wader feeding and roosting area; and
- extensive mangrove and coastal swamp areas extending north and east from Native Point along the southern coastline of Bynoe Harbour.

The *Finniss Land Use Structure Plan 1990* endorsed the declaration of these important coastal areas together with the coastal waters of Beagle Gulf and Bynoe Harbour as a coastal park, and the implementation of a park management plan. This option is supported through the proposed Beagle Gulf Marine Park to provide protection to areas of conservation significance both above and below high water level.

Sections of the Finniss River and floodplains are recognised as significant breeding and feeding areas for waterbird and crocodiles. They also contain important areas of paperbark swamps and rice grass plains. Many of these areas are located within the Wagait Aboriginal Land Trust. Protection and management of these areas under the *Territory Parks and Wildlife Conservation Act* is appropriate.

The protection of other areas of conservation significance within private land that are not proposed to be declared as a park or reserve, or the interim protection of areas of conservation significance that are proposed for future declaration as a park or reserve, may be achieved through cooperative agreements with land owners

under the *Territory Parks and Wildlife Conservation Act*.

The protection of cultural resources is provided by existing legislation – the *Heritage Conservation Act* and the *Northern Territory Aboriginal Sacred Sites Act*. Identification and protection of important cultural resources can be ensured by requiring detailed heritage and archaeological assessment of land proposed for development.

3.4 MINING

The Finniss Sub-Region area has potential for gold, tin tantalum, tin and lead zinc silver, as well as extractive mineral mining of sand, soil, gravel, clay and stone for the construction industry.

It is not possible to predict the future land requirements for mining operations as this will depend on where economic deposits are found, market demand and mineral prices and access to land. Mining proposals will need to be assessed on a merits basis in terms of environmental impact, compatibility with adjacent land use and net benefit to the broader community. The *Mining Act* and *Environmental Assessment Act* provide the appropriate mechanisms for assessment.

3.5 COMMERCIAL FISHING AND AQUACULTURE

A continuation of limited aquarium and commercial barramundi fishing in the appropriate reaches of the Finniss River and commercial fishing and crabbing operations within the waters of Fog Bay and Bynoe Harbour, will require continued access to these areas.

The coastal fringe of Bynoe Harbour has potential for marine water aquaculture and may also provide shore bases for offshore aquaculture operations, such as pearl oyster or fish farms. Areas adjacent to the non-tidal

sections of the Finnis River may be suitable for freshwater aquaculture, particularly where soils have a high clay content suitable for ponding. However, the delineation of specific areas of aquaculture potential is not possible based on current information.

Aquaculture proposals will need to be assessed in terms of environmental impact, compatibility with adjacent land use and net benefit to the broader community. The *Planning Act* and *Environmental Assessment Act* provide the appropriate mechanisms for assessment.

3.6 CATCHMENT PROTECTION

Protection of the proposed Mount Bennett Dam site and catchment from inappropriate development is important. Land use within the proposed dam site should be limited to short term and low intensity uses, such as recreation, tourism and mining activities, which do not require permanent infrastructure development. Land use within the catchment area should also be limited to low intensity uses. However, development does not need to be restricted to short term uses and could involve the construction of permanent buildings and infrastructure. Environmental assessment of specific development proposals that have the potential to adversely impact on water resources within the catchment area may be required.

3.7 AGRICULTURE

The Finnis Sub-Region has limited potential for passive agriculture, such as grazing, or intensive agriculture, such as poultry farms and piggeries. However, some cattle grazing currently occurs on the floodplains of the Finnis River and a piggery operates in the Bynoe Haven area.

Existing agricultural are expected to continue. Development of more intensive agriculture may be possible provided affordable water sources are developed and that such uses adopt measures and practices which minimise land degradation and other potential adverse impacts on the environment and do not adversely impact on the residential amenity of surrounding properties. However, protection of large areas of land specifically for agricultural development is not considered justified.

3.8 HORTICULTURE

Horticulture development generally requires deep, medium textured and gravel free soils with free drainage, flat to very gently sloping terrain and good water supply.

Unsuitable terrain and soil conditions and insufficient groundwater potential for irrigation limit the potential for horticulture development. Areas adjacent to the non-tidal sections of the Finnis River provide some opportunity for horticulture development using surface water pumped from the river. This would be largely limited to dry season cropping as these areas are subject to inundation during the wet season. Such development would require assessment and licensing under the *Water Act* to ensure that pumping is within levels which can sustain continual use.

Some small scale market gardening and hobby farming is currently undertaken within existing rural living lots using available groundwater. Some further development may be possible where adequate groundwater or surface water can be sourced, provided that such development does not compromise the environmental integrity of the area. However, protection of large areas of land specifically for horticulture development is not considered justified.

3.9 SUMMARY

The main land use opportunities within the Finnis Sub-Region are for low-density rural living development, mining, tourism and recreation, conservation, catchment protection and commercial fishing and aquaculture.

4 LAND USE OBJECTIVES AND LAND USE STRUCTURE

This section presents land use objectives and planning concepts to guide the type, intensity and location of future land use and development. The Land Use Objectives are presented as Key Objectives and objectives relevant to particular land uses or land use issues.

The Land Use Objectives are shown shaded and only those shaded words are “made” by the Minister as Land Use Objectives within the meaning of the *Planning Act*. Some suggestions as to how the objectives might be advanced are offered in dot points.

4.1 THE VISION

The Finnis Sub-Region is to develop as an area of low density rural living supported by horticulture, agriculture, commercial fishing, aquaculture and mining uses. Opportunities for tourism, recreation and conservation will be enhanced and encouraged, particularly tourism and recreation facilities associated with the proposed Mount Bennett Dam and catchment.

In particular, the objectives aim to:

- provide for low density rural living development;
- encourage development as a regional tourism, recreation and conservation resource;
- provide for the Mount Bennett Dam as a future public water supply source for the Darwin Region; and
- ensure protection of opportunities for horticulture, agriculture, commercial fishing, aquaculture and mining.

4.2 KEY OBJECTIVES

The following objectives establish broad planning policy applicable to all development within the Finnis Sub-Region.

4.2.1 Culture, Lifestyle and Health

To promote a high level of amenity for residents and visitors.

This will be achieved by:

- establishing confidence in the type, intensity and location of future use and development of land, minimising the potential for land use conflicts; and
- protecting landscape quality and visual amenity by including areas of high scenic value within conservation and recreation areas and establishing vegetation buffer zones along major road corridors.

To protect the health of residents and visitors.

This will be achieved by:

- minimising the incidence of biting insects and associated pest and disease problems through the appropriate location and density of development, particularly residential development;
- implementing DHCS guidelines relating to biting insects and ensuring development complies with relevant regulations of the *Public Health Act*;
- promoting the provision of on site sewage treatment and disposal systems in accordance with the *Code of Practice for Small On Site Sewage and Sullage Treatment Systems and the Disposal or Reuse of Sewage Effluent* and relevant DHCS guidelines; and
- providing appropriate solid waste disposal sites using the *Guidelines for the*

4.2.2 Land Use

To encourage a range of land uses which recognise the constraints and opportunities of the Sub-Region.

This will be achieved by:

- providing opportunities for rural living development;
- encouraging future development of commercial and community facilities in appropriately located service centres to prevent ad hoc or ribbon development;
- protecting opportunities for mining, commercial fishing, aquaculture, horticulture and agriculture; and
- protecting the site and catchment of the proposed Mount Bennett Dam from inappropriate development.

4.2.3 Natural Resources

To promote development that represents the sustainable use of land within the capacity of resources.

This will be achieved by:

- requiring detailed consideration of the capability of land to support proposed development;
- protecting physical, biological and cultural resources of conservation significance;
- avoiding development of seasonally waterlogged areas and coastal and riverine floodplains, particularly for rural living purposes;
- protecting areas subject to waterlogging or flooding within conservation and recreation areas;
- establishing beneficial uses categories for water resources under the *Water Act* and

ensuring that development proposals do not compromise declared beneficial uses; and

- requiring assessment and licensing under the *Water Act* of any development involving water extraction or waste discharge to waterways.

4.2.4 Environment and Conservation

To promote appropriate protection and use of physical and biological resources.

This will be achieved by:

- supporting the *Northern Territory Parks Masterplan* and developing a comprehensive, adequate and representative park system;
- developing management plans for parks and reserves; and
- promoting the conservation of native vegetation by encouraging land clearing in accordance with the *Land Clearing Guidelines 2002*.

To minimise detrimental impacts of development on the environment.

This will be achieved by:

- encouraging landholders to adhere to the guidelines contained within the *Northern Territory Weeds Management Strategy 1996 – 2005*;
- considering recommendations in the determination of planning applications of any environmental assessment required under the *Environmental Assessment Act*;
- encouraging appropriate agricultural practices to minimise land degradation and other potential adverse impacts on the environment;

- encouraging horticultural practices which minimise adverse impacts on groundwater and surface water systems;
- requiring the preparation of erosion and sediment control plans for most forms of development; and
- developing guidelines for the use of improved pastures on pastoral land to resolve conflicts between the use of improved pastures for grazing and the conservation of native vegetation.

4.2.5 Heritage

To protect cultural resources.

This will be achieved by:

- protecting registered European heritage places and historic archaeological sites;
- protecting registered or recorded Aboriginal sacred sites and prehistoric archaeological sites;
- accepting that future use and development of land is subject to obtaining an Authority Certificate from the Aboriginal Areas Protection Authority under the *Northern Territory Aboriginal Sacred Sites Act*; and
- subjecting future use and development of land where there has been no or minimal land surface disturbance to archaeological survey to ensure the protection of historic and prehistoric archaeological sites.

4.3 PLANNING CONCEPTS

The Planning Concepts at Figure 4.1 indicate the recommended distribution of land uses as identified in the land use objectives. The concepts have been prepared taking account of the known resources and constraints of the Finnis Sub-Region and the opportunities for development within the context of the regional planning framework.

Contributions from government agencies, community and industry groups and individual land owners and residents has been an important contribution in the preparation of this plan.

4.3.1 Residential

The planning concepts identify low density living as appropriate. The majority of development will be at an 8 ha minimum lot size, reflecting development constraints, particularly the limited potential to obtain enough groundwater for domestic use.

The exception will be small pockets of 2 ha minimum rural living development adjacent to Dundee Beach, which recognises the potential to obtain enough groundwater for domestic use in this area, and that biting insect problems preclude residential development at higher densities. It is noted that much of the Dundee Beach area has already been developed for rural residential at lot sizes smaller than 2 ha.

Opportunities for smaller lot rural residential development (less than 2 ha) may exist in association with planned rural service centres in areas otherwise constraint free should a reticulated water supply become available in the future. The land use structure plan delineates areas adjacent to proposed rural service centres along Fog Bay Road that may be suitable for this development.

It is expected that 8 ha minimum rural living areas will provide for a range of uses in addition to residential activities, provided that such development does not compromise the environmental integrity of the area. The type and scale of such development will largely depend on land and water resources within individual lots.

Parts of the central, eastern and southern portions of the Finnis Sub-Region consist of an historic rectangular grid subdivision

pattern. Development of these lots for rural residential development will require consolidation and re-subdivision. Rural residential development of hilly country will need to ensure that enough flat land is available for dwelling construction and that the landscape quality of hills and escarpments is protected.

To provide for rural living development which recognises the physical, biological, cultural and socio-economic capacity of resources.

This will be achieved by:

- providing for low density rural living, mostly on lot sizes greater than 8 ha;
- providing for rural living on minimum lot sizes of 2 ha in areas free from constraints other than biting insects and with potential for sufficient groundwater for domestic supply; and
- providing for future rural residential development on lots less than 2 ha in association with future rural service centres on land that is constraint free and only if a reticulated water supply becomes available.

To minimise the impacts of biting insects on the health and amenity of residential areas.

This will be achieved by:

- discouraging rural residential development at densities higher than 2 ha within areas subject to biting insect problems.

To minimise the impacts of rural living development on amenity and the environment.

This will be achieved by:

- consolidating land within areas comprising historic rectangular grid

subdivisions prior to re-subdivision for rural living;

- using land in accordance with its physical capability to support rural living development;
- providing sufficient area within each lot free from constraints of slope, waterlogging or inundation to accommodate a dwelling and associated bore and sewage waste disposal system; and
- preventing land degradation within areas with potential for severe soil erosion through detailed subdivision design and introduction of appropriate land management practises.

4.3.2 Tourism and Recreation

Opportunities for commercial tourism development exist within the Finnis Sub-Region, particularly on the coast of Fog Bay and Bynoe Harbour and along the Finnis River. Specific sites have not been identified in the land use structure plan as the nature and siting of commercial tourism development will depend on market demand, land availability, land and water resource constraints and potential environmental impacts.

Potential areas for commercial tourism development are often within proposed conservation and recreation areas. Low intensity tourism development is considered a compatible shared use as long as appropriate environmental safeguards and management plans are implemented. Opportunities also exist for bed and breakfast style accommodation within rural living lots. Again, land and water constraints will largely determine the nature and location of such development.

Recreational fishing is a major attraction for both local residents and tourists and

continued access to Bynoe Harbour, Fog Bay and the Finniss River will be provided. The protection of the Finniss River and floodplains and the Bynoe Harbour coastline as conservation and recreation areas will ensure that public access is maintained.

The protection of significant natural areas as a regional tourism, recreation and conservation resource is provided for by inclusion of the coastal waters and intertidal areas of Fog Bay and Bynoe Harbour within the proposed Beagle Gulf Marine Park, and the protection of the riverine plains of the Finniss River as conservation and recreation areas. These areas will also include land subject to seasonal waterlogging and coastal and riverine flooding, which is unsuitable for rural living development.

To encourage a range of commercial tourism development.

This will be achieved by:

- supporting the *Northern Territory Tourism Development Masterplan* and the *Top End Regional Tourism Development Plan*;
- promoting opportunities for commercial tourism development including: the coastal areas of Fog Bay and Bynoe Harbour; nature based or eco tourism on the Finniss River and appropriate accommodation and boat and fishing tours; and bed and breakfast style accommodation within rural living areas; and
- encouraging low intensity tourism development as a compatible shared use of conservation and recreation areas provided appropriate environmental safeguards and management plans are implemented.

To ensure a range of recreational opportunities for residents and visitors.

This will be achieved by:

- promoting recreational fishing as a major attraction for residents and visitors and ensuring the provision of facilities to cater for recreational fishing needs;
- developing the proposed Mount Bennett Dam and catchment for recreational opportunities such as swimming, boating, picnic areas and fishing; and protecting the coastal areas, riverine plains, and land otherwise unsuitable for development, as conservation and recreation areas.

4.3.3 Conservation

The proposed Beagle Gulf Marine Park would provide protection of coastal waters and intertidal areas of Fog Bay and Bynoe Harbour and could be extended to coastal areas of recognised conservation value above high water level. Existing freehold land, such as Crab Claw Island, would be excluded from the park.

The Beagle Gulf Marine Park would be protected under the provisions of the *Territory Parks and Wildlife Conservation Act* and the *Fisheries Act*. The living resources of the park are proposed to be managed cooperatively by the DIPE and the DBIRD. Fish and aquatic life are proposed to be managed by the DBIRD under Fisheries Management Plans prepared under the *Fisheries Act*. Other living resources (marine mammals, reptiles, birdlife, mangroves) are proposed to be managed by the DIPE through a Beagle Gulf Marine Park Plan of Management prepared under the *Territory Parks and Wildlife Conservation Act*.

The proposed boundaries of the marine park are still preliminary and may be refined or amended by the DIPE during a more detailed park planning process. Declaration of the marine park is also subject to

resolution of an Aboriginal land claim over the area.

Protection of other areas of conservation significance will continue to be pursued by the DIPE through cooperative management agreements with landowners under the *Territory Parks and Wildlife Conservation Act*.

To promote conservation and protection of physical and biological resources.

This will be achieved by:

- protecting the existing system of parks and reserves, identifying areas which require further protection, identifying and protecting heritage places and objects and protecting land and water resources from inappropriate development;
- supporting the proposed Beagle Gulf Marine Park to protect coastal waters and intertidal areas of conservation significance (other than existing freehold land);
- promoting the inclusion of coastal areas of recognised conservation value above high water level within the proposed Beagle Gulf Marine Park; and
- preparing *Fisheries Management Plans* and a *Plan of Management* for the proposed Beagle Gulf Marine Park.

4.3.4 Mining

Much of the Finnis Sub-Region has potential for mineral and extractive mineral mining. However, it is not possible to predict the future land requirements for mining operations as this will depend on where economic deposits are found, market demand, mineral prices, and access to land. As such, the planning concepts (Figure 4.1) do not delineate areas of mining potential.

Mining proposals will need to be assessed to determine environmental impact, compatibility with adjacent land use and net benefit to the broader community. The operational management and rehabilitation of extractive operations will be particularly important in areas within 1.6 km of rural residential development of lots less than 2 ha. The *Mining Act* and *Environmental Assessment Act* provide the appropriate mechanisms for assessment.

To protect opportunities for mineral and extractive mineral mining, while ensuring the protection of public amenity, health and the environment.

This will be achieved by:

- granting priority to mining operations which have due regard to the potential long term use of the area, land and water resource constraints and protection of the environment;
- minimising the creation of biting insect breeding sites within mine sites; and
- assessing mining proposals on a merits basis in terms of environmental impact, compatibility with adjacent land use and net benefit to the broader community.

4.3.5 Commercial Fishing and Aquaculture

A continuation of aquarium and commercial barramundi fishing within the Finnis River is expected subject to licensing from the DBIRD under the *Fisheries Act*. Continued commercial fishing operations within the waters of Fog Bay and Bynoe Harbour, which are within the proposed Beagle Gulf Marine Park, will be controlled by the DBIRD under a Fisheries Management Plan prepared under the *Fisheries Act*.

A number of aquaculture (pearling) operations exist within Bynoe Harbour and the coastal fringe of the Harbour is

recognised as having potential for further marine water aquaculture and may provide shore bases for offshore operations, such as pearl oyster or fish farms.

Areas adjacent to the non-tidal sections of the Finnis River may be suitable for freshwater aquaculture, particularly where soils have a high clay content for ponding. However, specific areas are not delineated in the concept plan.

Areas of aquaculture potential are mostly within proposed conservation and recreation areas. Specific proposals will need to be assessed in terms of environmental impact, compatibility with adjacent land use and net benefit to the broader community. The *Planning Act* and *Environmental Assessment Act* provide the appropriate mechanisms for assessment.

To promote opportunities for commercial fishing and aquaculture while protecting coastal and inland waters.

This will be achieved by:

- licensing commercial and aquarium fishing operations within the Finnis River under the *Fisheries Act*;
- controlling commercial fishing operations within the proposed Beagle Gulf Marine Park by way of a Fisheries Management Plan prepared under the *Fisheries Act*;
- promoting marine water aquaculture along the coastal fringe of Bynoe Harbour, including shore bases for offshore operations, and freshwater aquaculture adjacent to the non-tidal sections of the Finnis River; and
- assessing specific aquaculture proposals under the *Environmental Assessment Act*.

4.3.6 Catchment Protection

The proposed Mount Bennett Dam is recognised as being a long term proposal for future public water supply subject to further feasibility assessment and agreement with the traditional Aboriginal owners of Wagait Aboriginal Land Trust.

Land use within the proposed dam site and catchment area should be limited to low intensity uses. The planning concepts at Figure 4.1 provide for protection of the proposed dam site and catchment area by their inclusion within a conservation and recreation area that stretches from Fog Bay along the Finnis River. This is consistent with the possible future recreational use of Mount Bennett Dam for water sports, picnicking and fishing.

To protect the proposed Mount Bennett Dam site and catchment area from inappropriate development.

This will be achieved by:

- limiting land use and development within the Mount Bennett Dam and catchment area to those uses which will not adversely impact on the water resources within the catchment.

4.3.7 Horticulture

The planning concepts at Figure 4.1 do not delineate specific areas for horticulture. However, areas adjacent to the non-tidal sections of the Finnis River may have some potential for horticulture (mainly dry season cropping because of seasonal inundation) using surface water pumped from the river.

There is also some potential for some small scale horticultural development within rural living areas, although this will depend on land and water resources within individual lots.

To protect opportunities for horticulture while ensuring the protection of the environment.

This will be achieved by:

- providing for horticulture (mostly dry season cropping) on land adjacent to the non-tidal sections of the Finnis River using surface water pumped from the river subject to adequate assessment and licensing under the *Water Act*;
- promoting appropriate horticultural practices, particularly adjacent to the Finnis River, to minimise adverse water quality impacts;
- providing for small scale market gardening and hobby farming within 8 ha minimum rural living areas where adequate water supplies can be sourced; and
- allowing for horticulture development within rural living areas provided it does not compromise environmental integrity.

4.3.8 Agriculture

The planning concepts at Figure 4.1 do not delineate specific areas for agriculture. However, there is potential for the continuation of existing agricultural use and opportunities for some seasonal grazing activities on the floodplains of the Finnis River and for some more intensive agricultural development within rural living areas.

To protect opportunities for agriculture within the capability of natural resources while ensuring the protection of the environment.

This will be achieved by:

- providing for the continuation of existing agriculture uses, including seasonal grazing of the floodplains of the Finnis River; and

- protecting opportunities for intensive agriculture, such as poultry farms and piggeries, within 8 ha minimum rural living areas, provided that such development does not compromise the environmental integrity of the area and subject to assessment under the *Environmental Assessment Act*.

4.3.9 Infrastructure and Services

Continued development of the Finnis Sub-Region will generate a need for commercial and community facilities, such as retail facilities, schools and health services. As such, there is a need to plan for the creation of designated rural service centres to ensure that commercial operations do not develop in an ad hoc manner, and that commercial and community facilities are concentrated in appropriate and accessible locations to serve residents.

Determination of the precise location, land area and range of commercial and community facilities required for rural service centres is difficult as part of a broad scale land use planning assessment. These will require more detailed consideration of factors such as available land, land resources, options for providing adequate services, and government service provision standards and land requirements for community facilities.

The potential population of the Finnis Sub-Region is estimated to be about 40 000 persons. The proposed land use structure plan provides for four possible rural service centres along Fog Bay Road to provide for commercial and community services, each serving a catchment population of about 8 000 persons. The timing for development of these rural service centres and associated commercial and community facilities will depend on the rate of population growth. Water supply, power supply and sewage

disposal options to service these rural service centres will require further investigation.

There may also be a need for smaller local service nodes, which provide convenience level goods and services, at appropriate locations within rural living areas. Siting of these will require more detailed consideration of factors such as land and water resources.

Further development will also generate a need for infrastructure, such as roads, power, water supply, sewage treatment and solid waste disposal sites. Until such time as population growth makes such infrastructure economic power generation, water supply and sewage treatment will be provided by on-site systems. Sewage treatment systems will need to comply with the *Code of Practice for Small On Site Sewage and Sullage Treatment Systems and the Disposal or Reuse of Sewage Effluent* produced by Territory Health Services (1996).

The planning concepts at Figure 4.1 provide for Fog Bay Road as the major access road. Unsealed sections of this road are subject to access restrictions during the wet season.

Selective realignments and sealing of Fog Bay Road will be progressively implemented. The planning concepts recognise the possible significant realignment of sections of Fog Bay Road to reduce the problem of direct access from existing rural residential lots.

Should the Mount Bennett Dam proceed in the future, there is a need for the realignment of that section of Litchfield Park Road that extends through the proposed dam site. The DIPE has investigated options for realignment of Litchfield Park Road to Fog Bay Road, and an alternative alignment north of the park boundary through Wagait Aboriginal Land Trust is still being assessed in consultation with the land trust owners.

An integrated network of local roads which service future development will be developed over time as part of specific site or area developments. Local roads will need to meet DIPE standards.

Appropriate solid waste disposal sites will need to be selected and developed following the *Guidelines for the Siting, Design and Management of Solid Waste Disposal Sites in the Northern Territory* produced by the Department of Lands, Planning and Environment and Territory Health Services. Formal environmental assessment may be required under the *Environmental Assessment Act*. Another option is the provision of waste transfer stations to collect waste prior to disposal at a regional waste disposal facility. The Department of Infrastructure, Planning and Environment are investigating solid waste disposal methods and siting options for waste disposal facilities as part of a regional waste management strategy.

To provide adequate and efficient infrastructure and services.

This will be achieved by:

- establishing local service centres, which provide for convenience level goods and services, at appropriate locations within rural residential areas;
- endorsing the role of Fog Bay Road and Litchfield Park Road as arterials in the regional road network;
- supporting the proposed realignment of sections of Fog Bay Road;
- investigating the re-alignment of that section of Litchfield Park Road that extends through the Mount Bennett Dam site should the dam proceed in the future;
- encouraging the development of an integrated local road network to service future development;

- developing local roads to DIPE standards, including restrictions on intersection spacing and no direct access to arterial and sub-arterial roads;
- supporting the road improvements proposed by the DIPE within the Road Network Strategy; and
- promoting the continued use of on site systems for power generation, water supply and sewage treatment and disposal.

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Figure 1.1

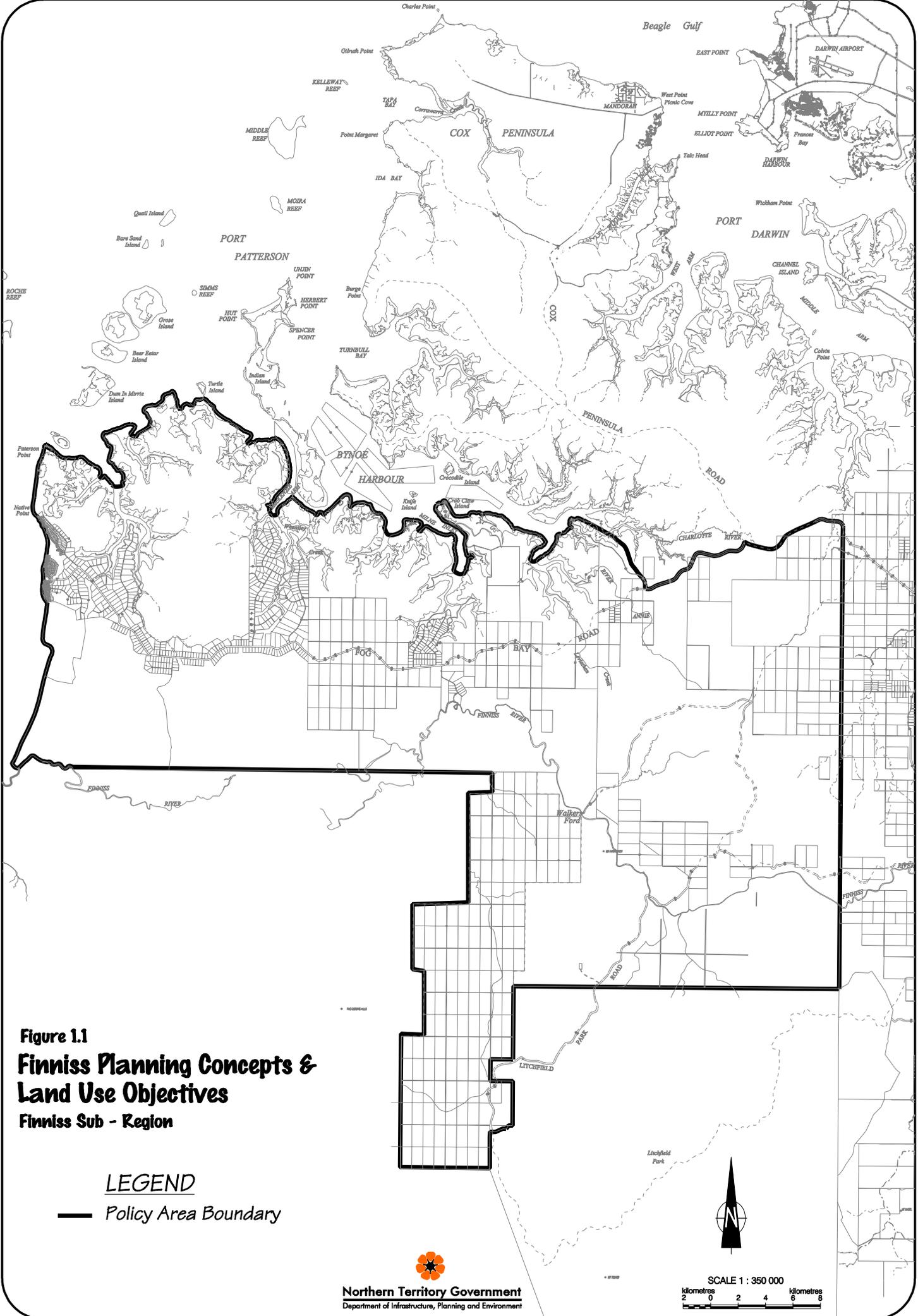


Figure 1.1
Finniss Planning Concepts & Land Use Objectives
 Finniss Sub - Region

LEGEND

— Policy Area Boundary



Northern Territory Government
 Department of Infrastructure, Planning and Environment

SCALE 1 : 350 000
 kilometres
 2 0 2 4 6 8
 kilometres

Figure 2.1

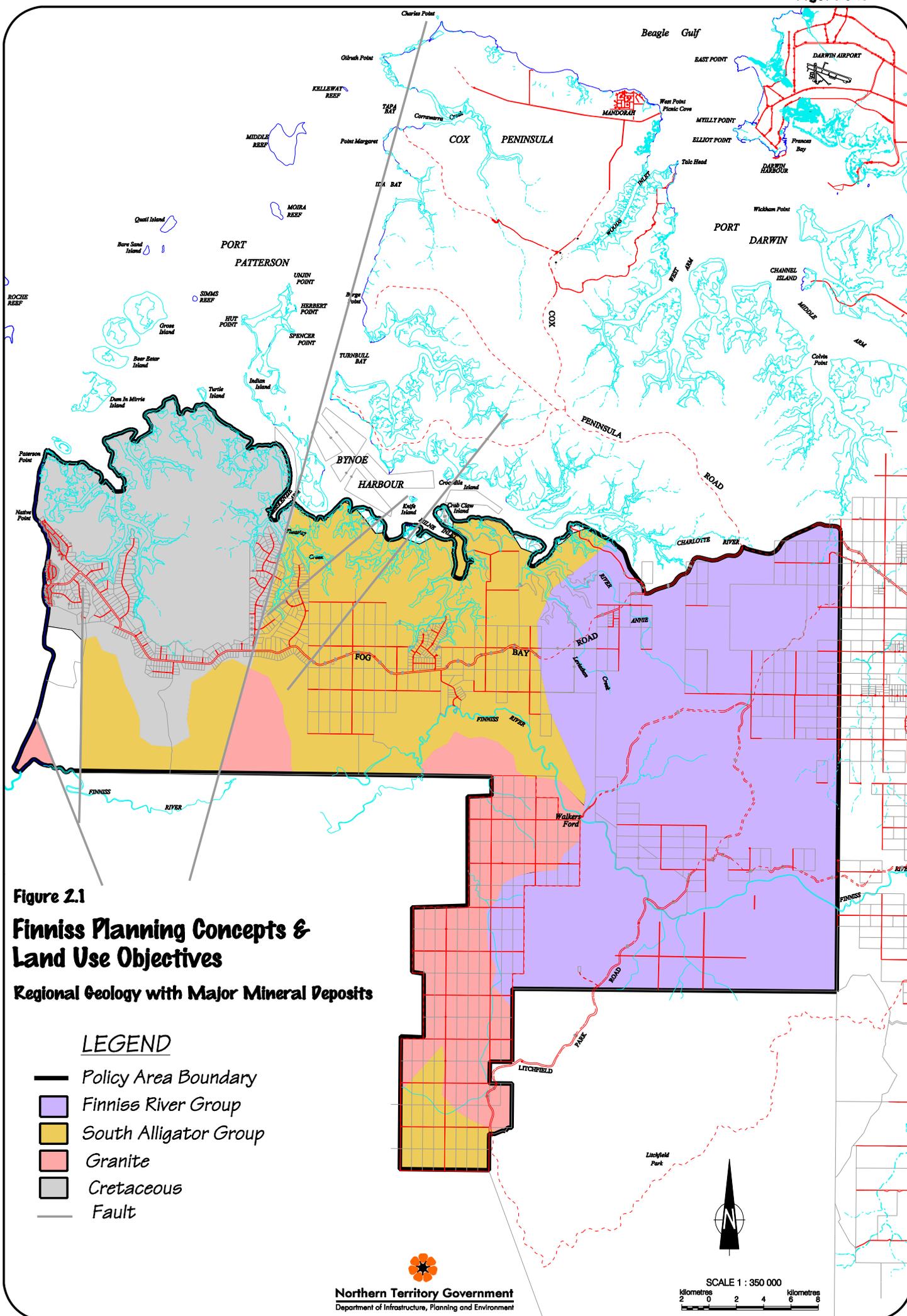


Figure 2.1
Finniss Planning Concepts & Land Use Objectives
Regional Geology with Major Mineral Deposits

LEGEND

-  Policy Area Boundary
-  Finniss River Group
-  South Alligator Group
-  Granite
-  Cretaceous
-  Fault

Legend

- NORTHERN LATERITIC PLAINS**
 Kh - KOSHER: Gently sloping margins of deeply weathered lowlands; colluvial gravelly & stony red & yellow gradational soils & sandy derivatives of Queuse & Kay land system soils; patchy grassland, Pandanus scrub, & mixed scrub.
 Kf - KEEFERS HUT: Dissected rolling deeply weathered lowlands with frequent remnants of Kay land system; variety of transitional soils, gradational yellow & red, uniform red, sands & loams over laterite, gradational yellow loamy soils derived from parent rock; woodland.
 Ch - Charles Point: Gently undulating plains, widely spaced stream lines; Tertiary Laterite Red Earths & Tertiary Laterite Podzols; Soils arable but highly leached; Tall Open Forest or Mixed Open Forest.
 By - Bynoe: Complex of lateritic residuals & moderate to steep-sided dissection valleys with narrow bottoms; Tertiary Laterite Soils, gravely truncated soils, some Acid Alluvial soils; Broken topography & variable leached soils not generally suitable for agriculture; Mostly Palm Scrub and Open Forest.
- ELEVATED BACKBONE COUNTRY**
 B - BAKER: Dissected uplands & isolated strike ridges of graywacke, sandstone & siltstone; skeletal soils & outcrop with minor sandy red & yellow gradational soils; woodland.
 BR - Brocks Creek Ridge: Sharp north-south ridges & hills; Rock outcrops & skeletal soils; Steep topography, shallow soils not suitable for agriculture; Deciduous Open Forest & Mixed Open Forest.
- WESTERT FAULT BLOCK PLAINS**
 Lf - Litchfield: Mostly gently undulating with some scattered rocky hills; Mostly Granite Laterite Podzol & Granite Yellow Podzolic soil, some rocky skeletal soils & Acid Alluvials; Most soils arable, but highly leached with coarse sandy surface; Mostly Palm Scrub, some Mixed Open Forest.
- FLOOD PLAIN ALLUVIA OF NORTHERN RIVERS**
 F - Finniss: Flats liable to flooding inter-mixed with hills & undulating country; Acid Alluvial soils, gravely Yellow Podzolic soils, & skeletal soils; Soils on flats arable, liable to shallow flooding; Grassland on flats, Mixed Open Forest on remainder.
- ESTUARINE ALLUVIA**
 Li - Littoral: Salt & mud flats liable to saline flooding, beaches, & sand-dunes, laterite capped cliffs; Salt flat soils, dune sands; soils saline or very sandy, not suitable for agriculture; Salt meadows, samphire flats, mangroves, dune scrubs.
- GRANITE HILLS & LOWLANDS**
 Gr - Grappa: Gently rolling hills, usually convex slopes developed on granite & granodiorite; predominantly mottled yellow duplex soils; tall shrubland.
 Gc - Grecka: Gently undulating low hills, probably formed on granite, also minor sandstone & siltstone, & alluvium derived from these rocks; eucalypt woodland.
- DISSECTED FOOTHILLS**
 Bf - Bendo: Eroded remnants of siltstone, sandstone & quartz; skeletal soils, gradational red soils, & yellow-earth-type soils; woodland.
 Rf - Rumwaggon: Hills or raised gravel patches & intervening alluvial flats; skeletal soils & gradational yellow loamy soils on hill slopes, texture-contrast alkaline soils on flats; woodland or stunted woodland on hill slopes, savannah on flats.
 Bb - Bistard: Very low ridges and hills on Lower Proterozoic sediment and intervening alluvial flats; shallow and moderately deep lithosols with minor shallow yellow massive earths and earthy sands; eucalypt woodland, open woodland and low open woodland, shrubland to grassland on alluvial flats.
- COASTAL PLAINS**
 Flat ill-drained estuarine mud & clay under paperbark forest, herbaceous swamp vegetation, or sedge land.
 Cp - CYPERUS: Seasonally flooded coastal plains, freshwater over estuarine clays; black cracking clays over mainly calcic estuarine muds; sedge land.
 Cm - COPEMAN: Low sandy coastal plain, freshwater over estuarine clays; black cracking clays over gleyed muds; herbaceous swamp vegetation.
 Pw - PINWINKLE: Swampy depressions; black uniform cracking clays over gleyed estuarine muds & riverine sands, texture-contrast peaty loam over clay soils; paperbark forest.
 Pa - PALLIDAL: Low swampy plains; fresh water clays over marine sediment; no distinct channels; friable duplex soils and massive clays; short perennial grassland.
 Pe - PEAKED LAND SYSTEM: High, strike aligned ridge on Moyle River Quartzite/Sandstone.
- ALLUVIAL PLAINS**
 Quaternary alluvium with sandy soils and savannah or grassland.
 Fb - FABIAN: Flood-plains of dominantly silty alluvium; texture contrast (coloured solonch) soils and gradational yellow loamy soils, alkaline and acid; grassland.
 Fw - FLATWOOD: Flood-plains of dominantly silty alluvium and minor hills; gradational yellow loamy soils and minor texture-contrast soils; savannah, some mixed woodland.

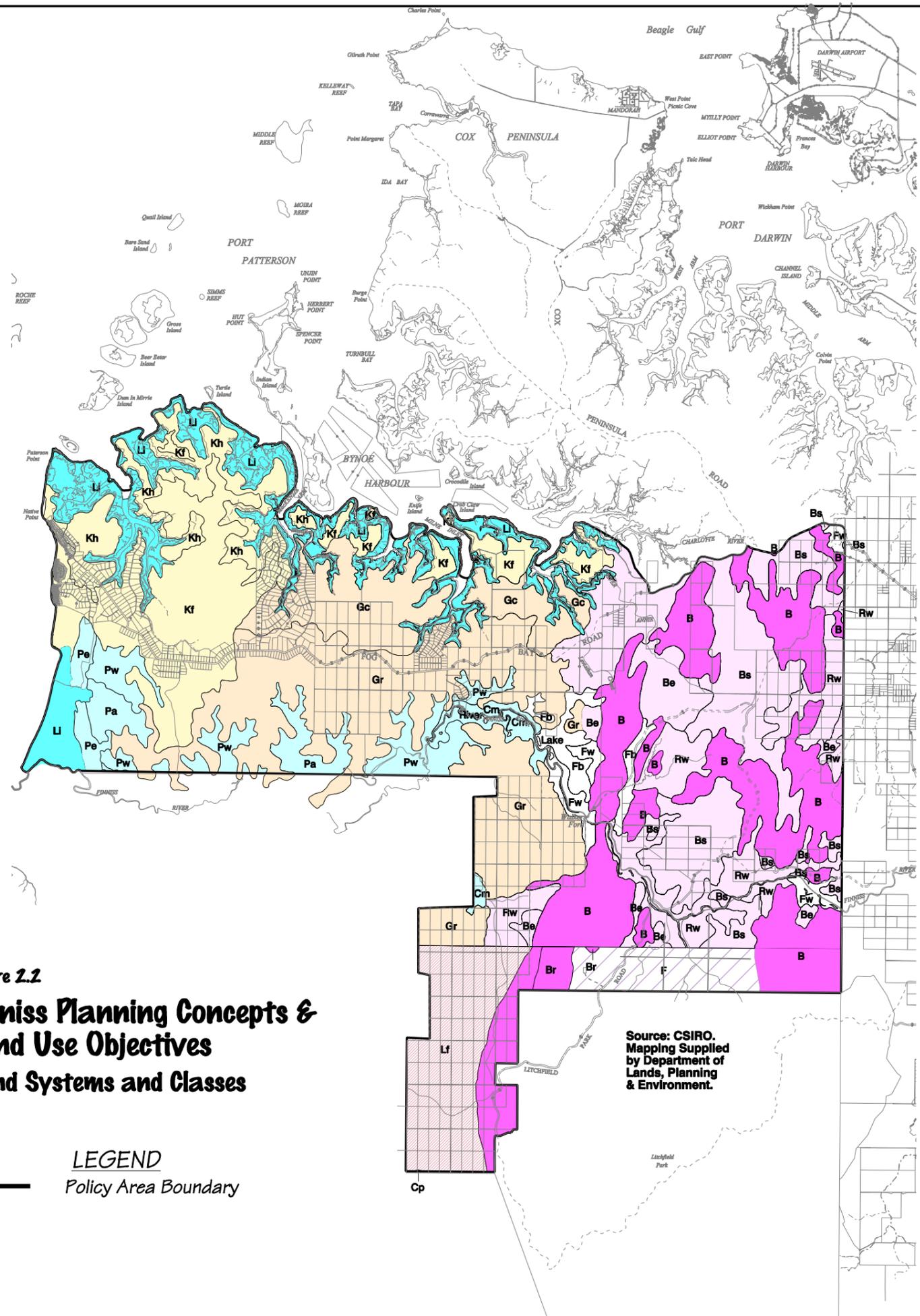
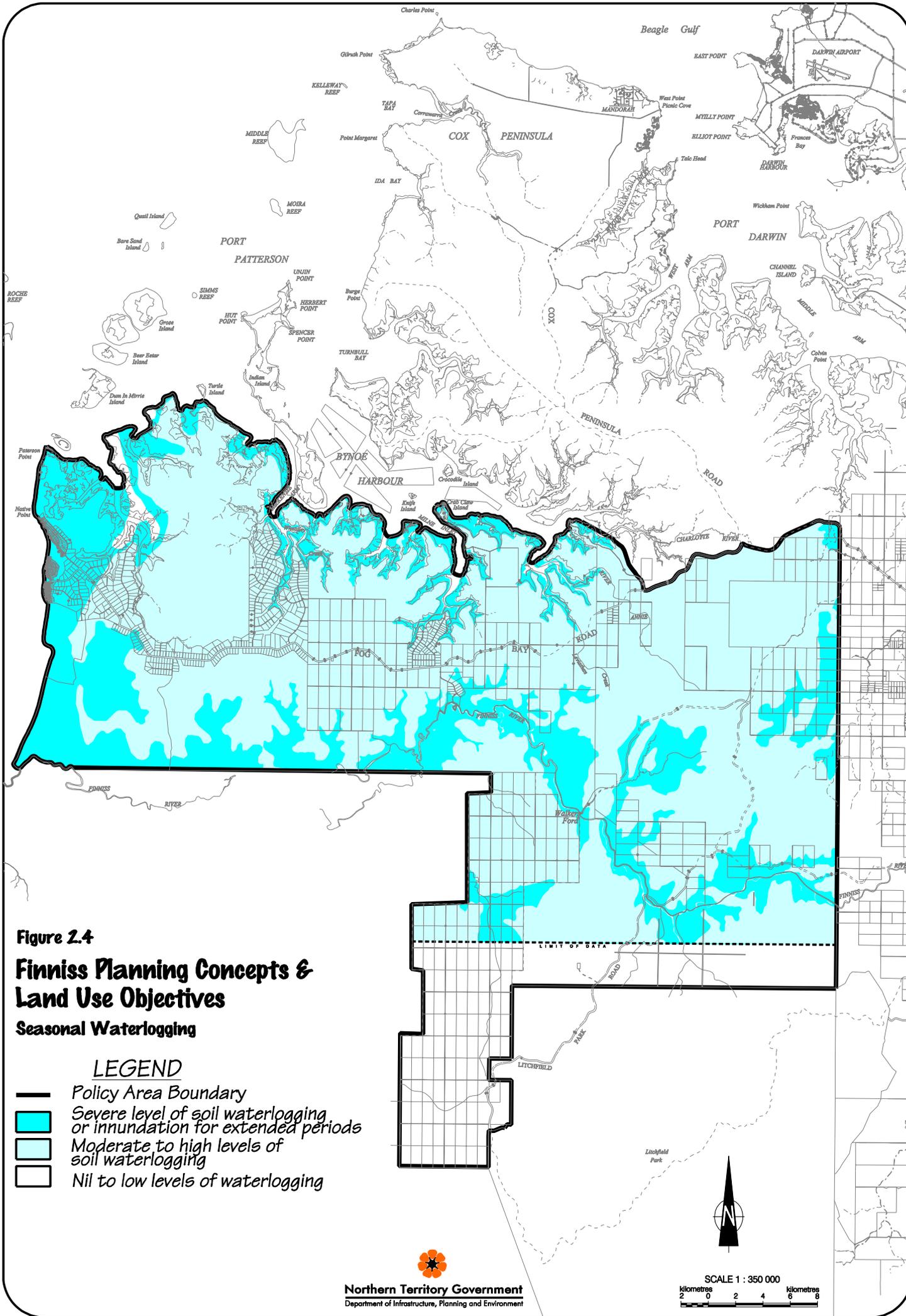


Figure 2.2
Finniss Planning Concepts & Land Use Objectives
Land Systems and Classes

LEGEND
 — Policy Area Boundary

Source: CSIRO. Mapping Supplied by Department of Lands, Planning & Environment.

Figure 2.4



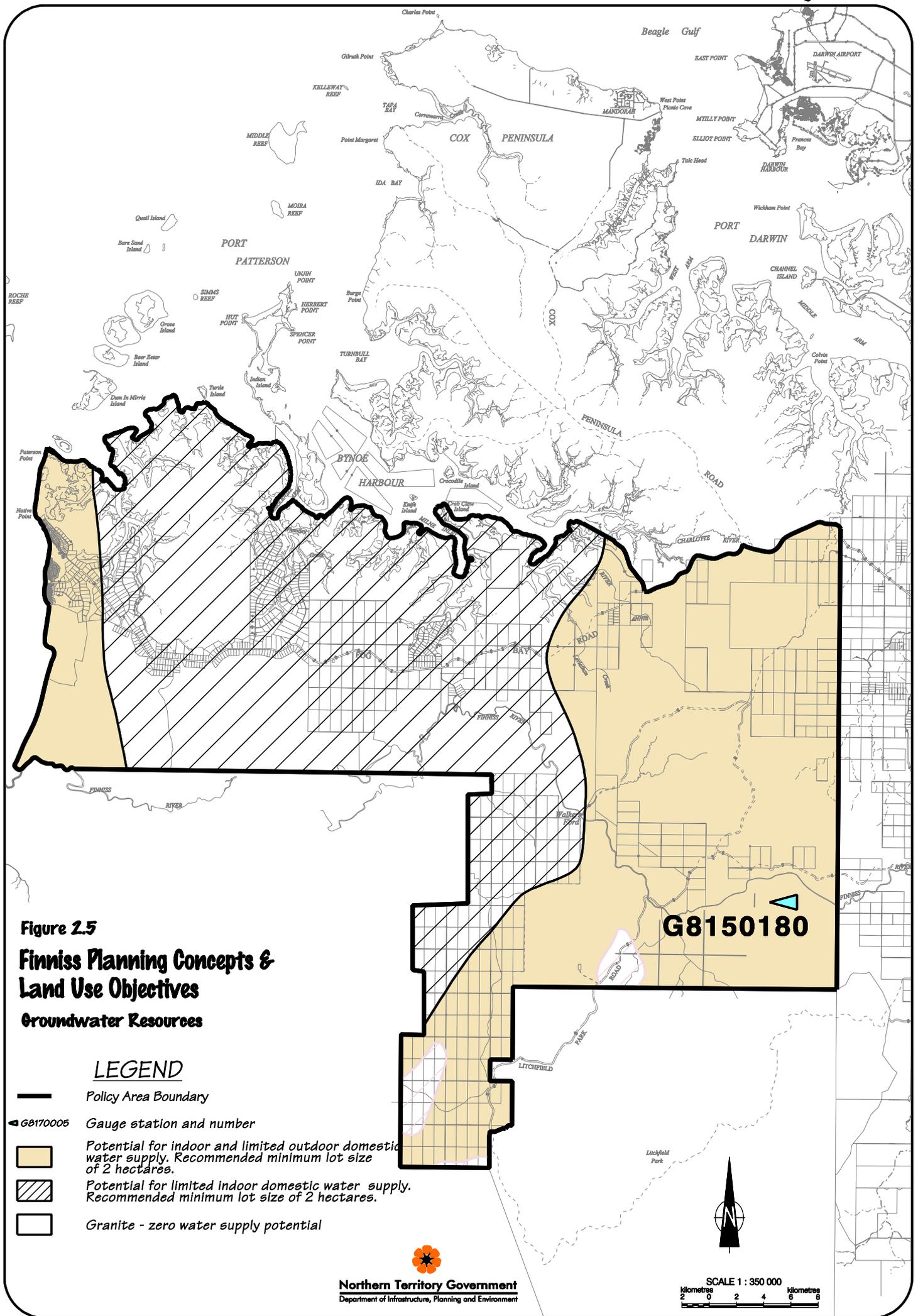


Figure 2.5
Finniss Planning Concepts &
Land Use Objectives
Groundwater Resources

LEGEND

-  Policy Area Boundary
-  G8170005 Gauge station and number
-  Potential for indoor and limited outdoor domestic water supply. Recommended minimum lot size of 2 hectares.
-  Potential for limited indoor domestic water supply. Recommended minimum lot size of 2 hectares.
-  Granite - zero water supply potential

Figure 2.6

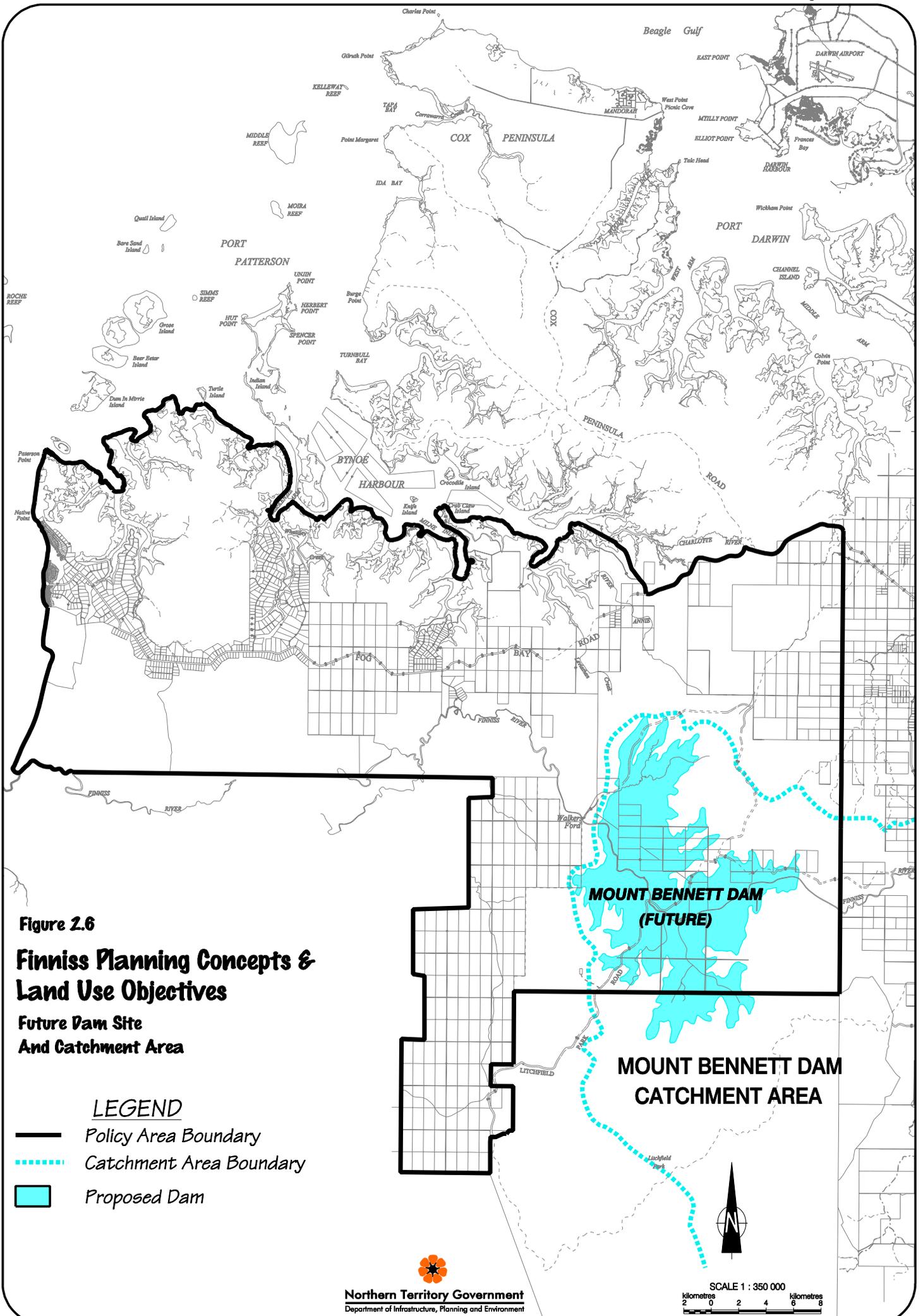


Figure 2.6

Finniss Planning Concepts & Land Use Objectives

Future Dam Site
And Catchment Area

LEGEND

-  Policy Area Boundary
-  Catchment Area Boundary
-  Proposed Dam

Figure 2.7

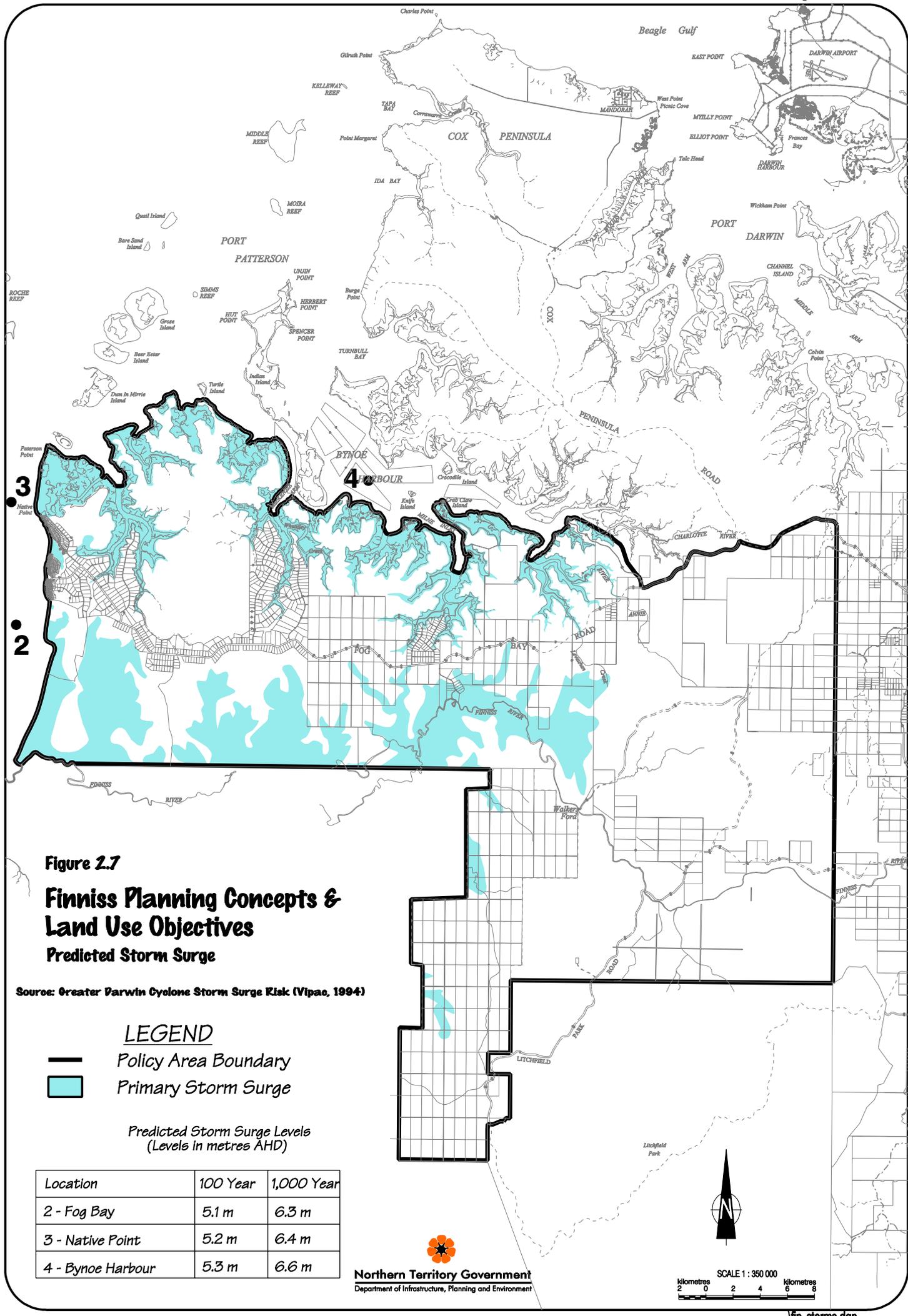


Figure 2.7
Finniss Planning Concepts & Land Use Objectives
Predicted Storm Surge

Source: Greater Darwin Cyclone Storm Surge Risk (Vipac, 1994)

LEGEND

- Policy Area Boundary
- Primary Storm Surge

Predicted Storm Surge Levels
 (Levels in metres AHD)

Location	100 Year	1,000 Year
2 - Fog Bay	5.1 m	6.3 m
3 - Native Point	5.2 m	6.4 m
4 - Bynoe Harbour	5.3 m	6.6 m



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SCALE 1 : 350 000
 kilometres 0 2 4 6 8
 kilometres

Figure 2.8

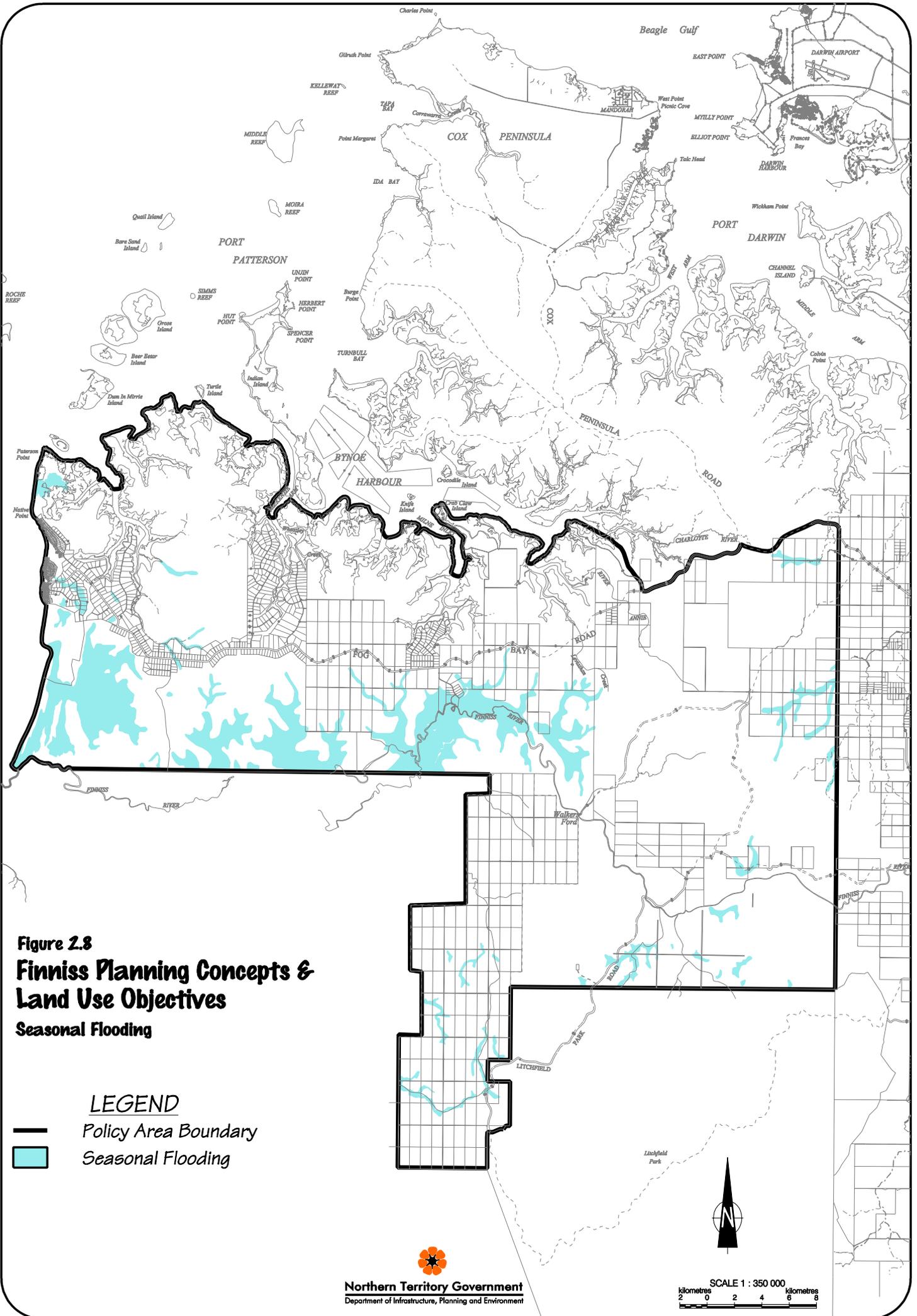


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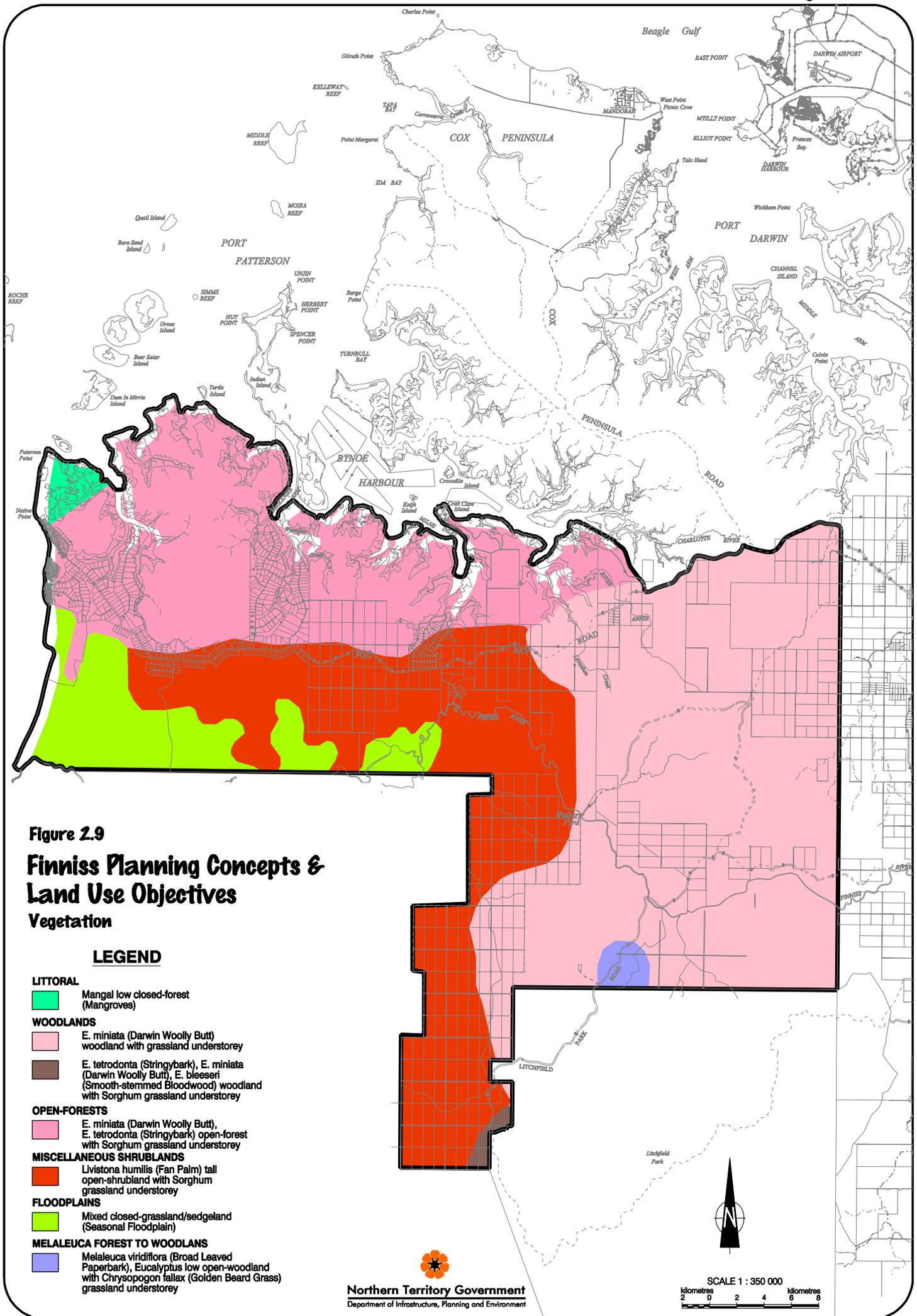


Figure 2.10

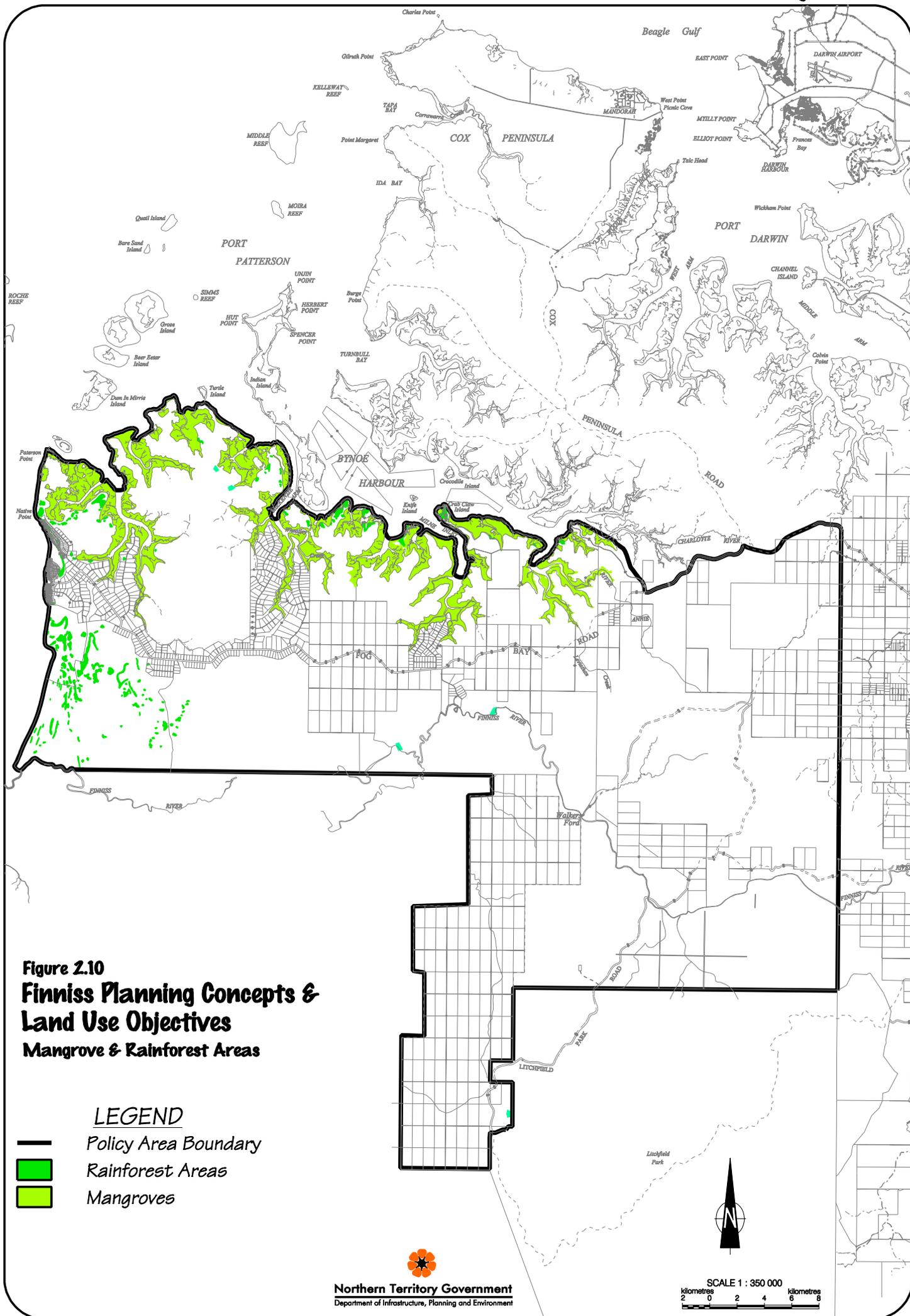


Figure 2.10
Finniss Planning Concepts &
Land Use Objectives
Mangrove & Rainforest Areas

LEGEND

-  Policy Area Boundary
-  Rainforest Areas
-  Mangroves

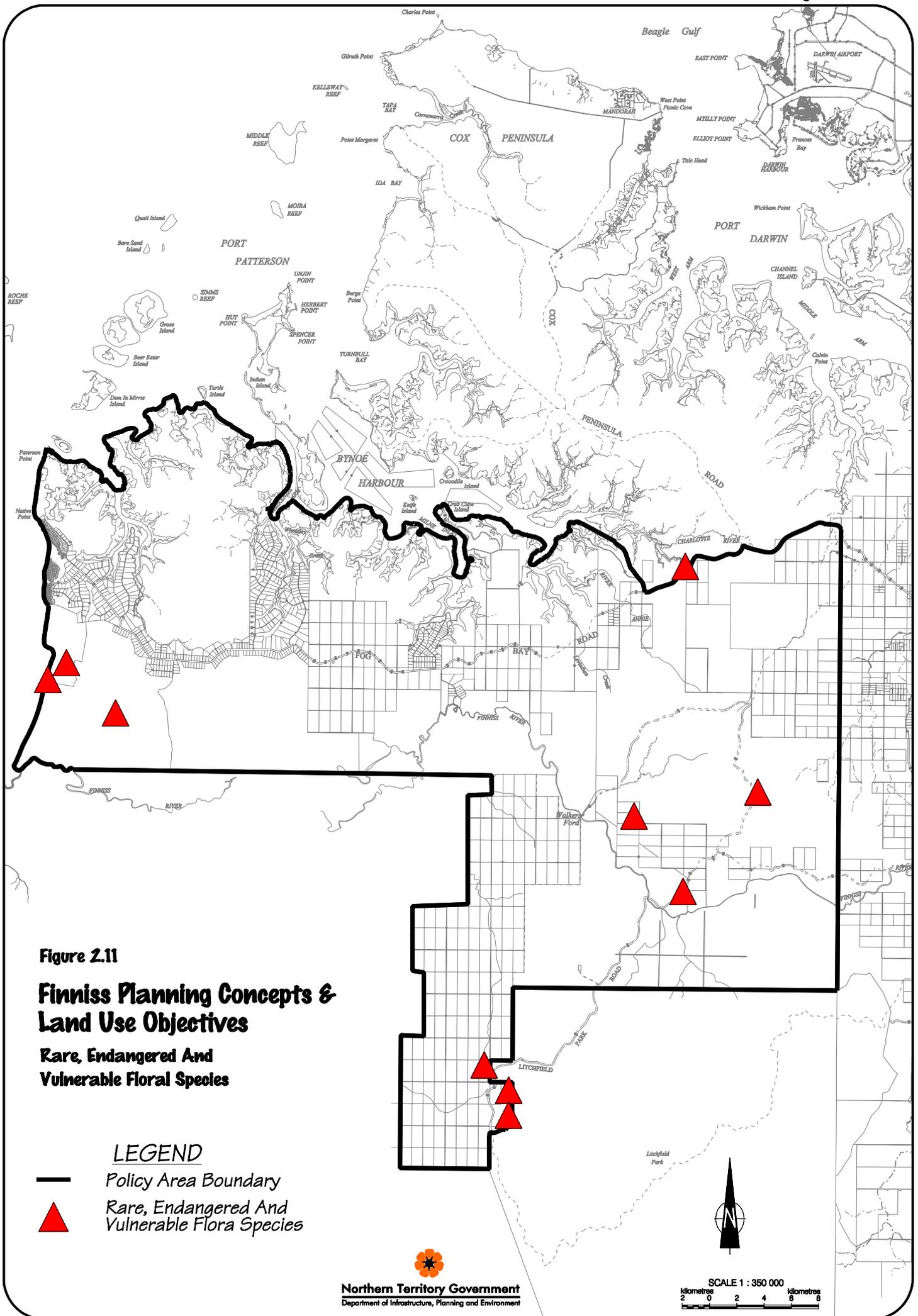


Figure 2.12

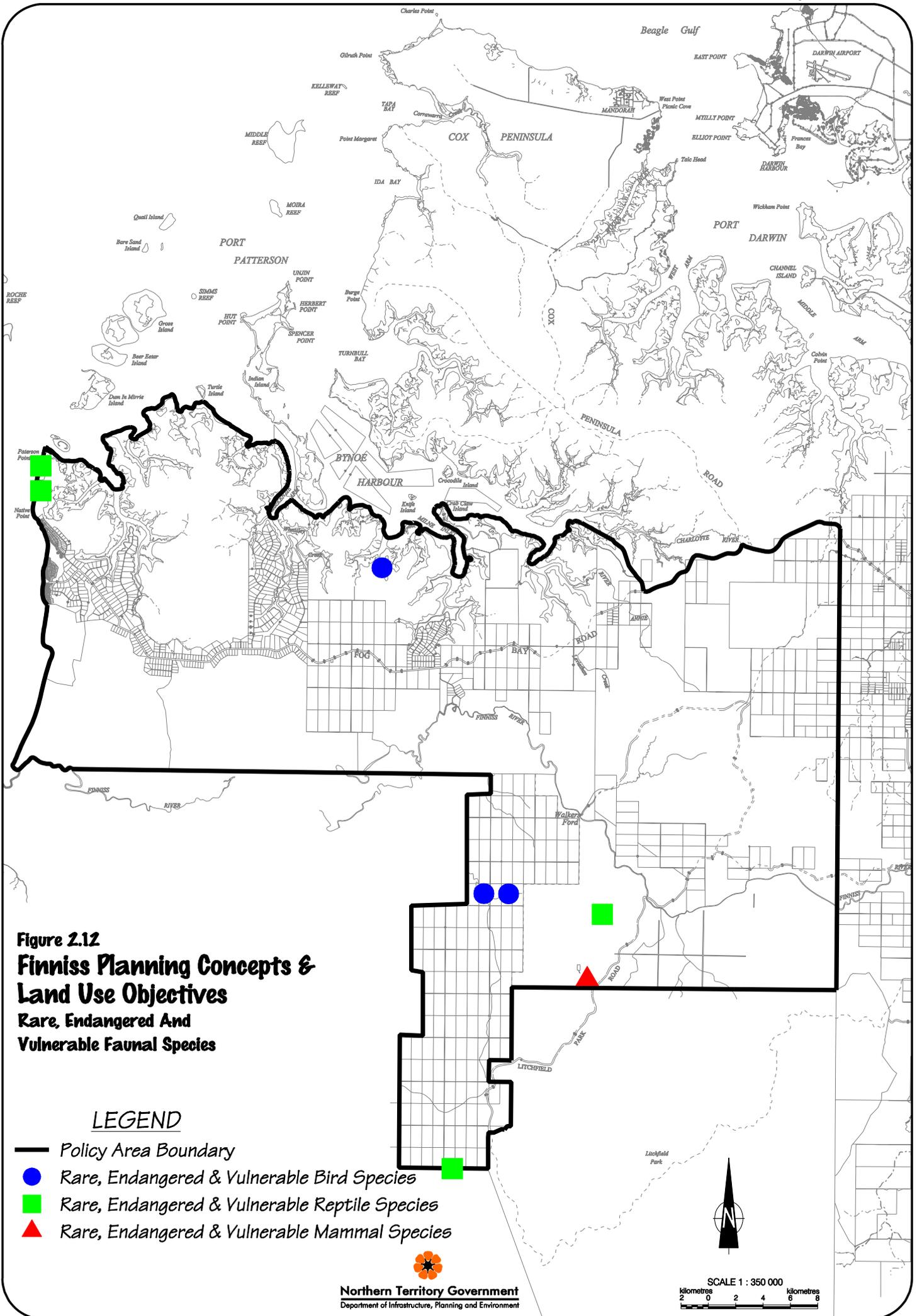


Figure 2.13

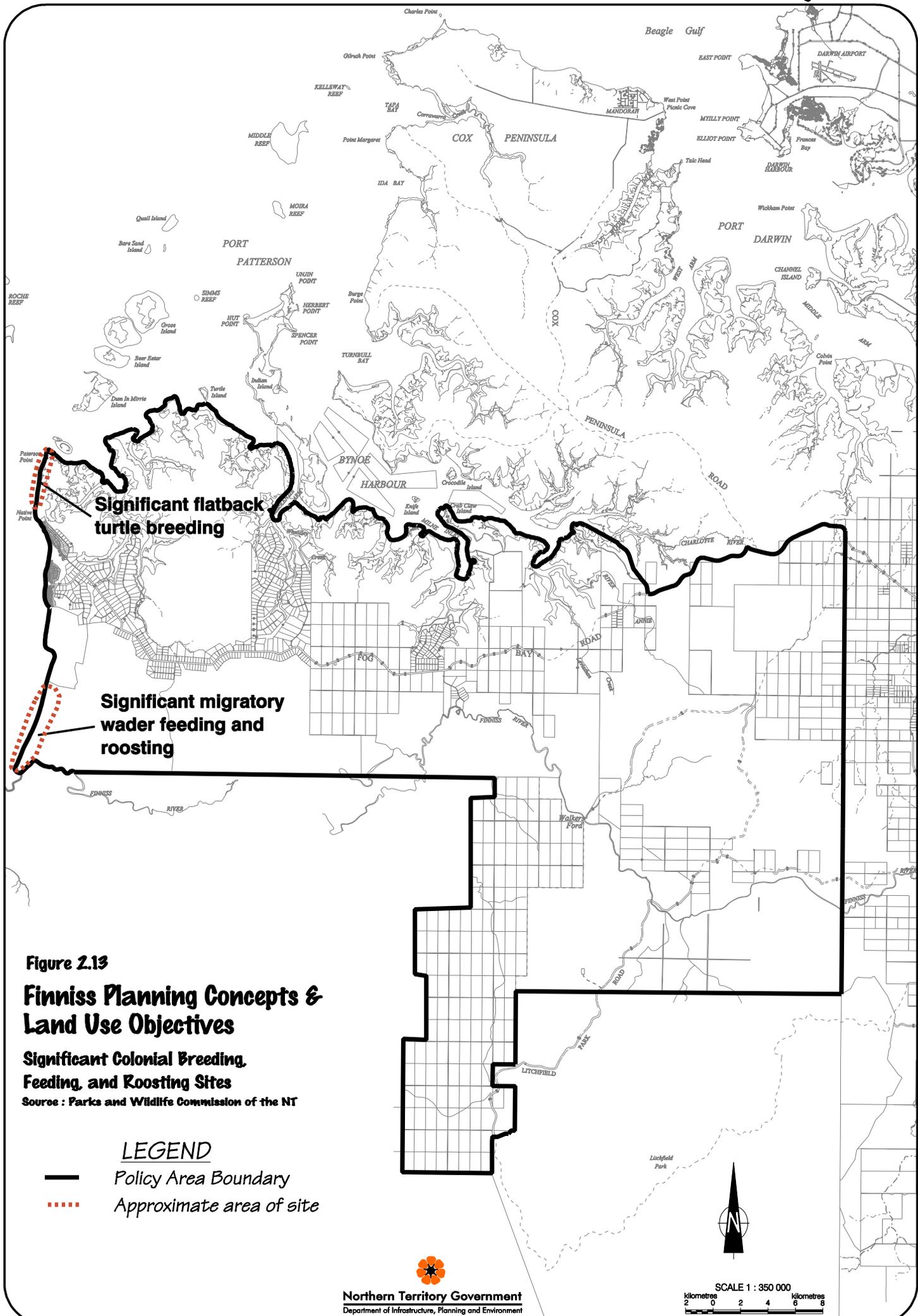


Figure 2.13
Finniss Planning Concepts & Land Use Objectives

Significant Colonial Breeding, Feeding, and Roosting Sites
 Source : Parks and Wildlife Commission of the NT

LEGEND

-  Policy Area Boundary
-  Approximate area of site

Figure 2.15

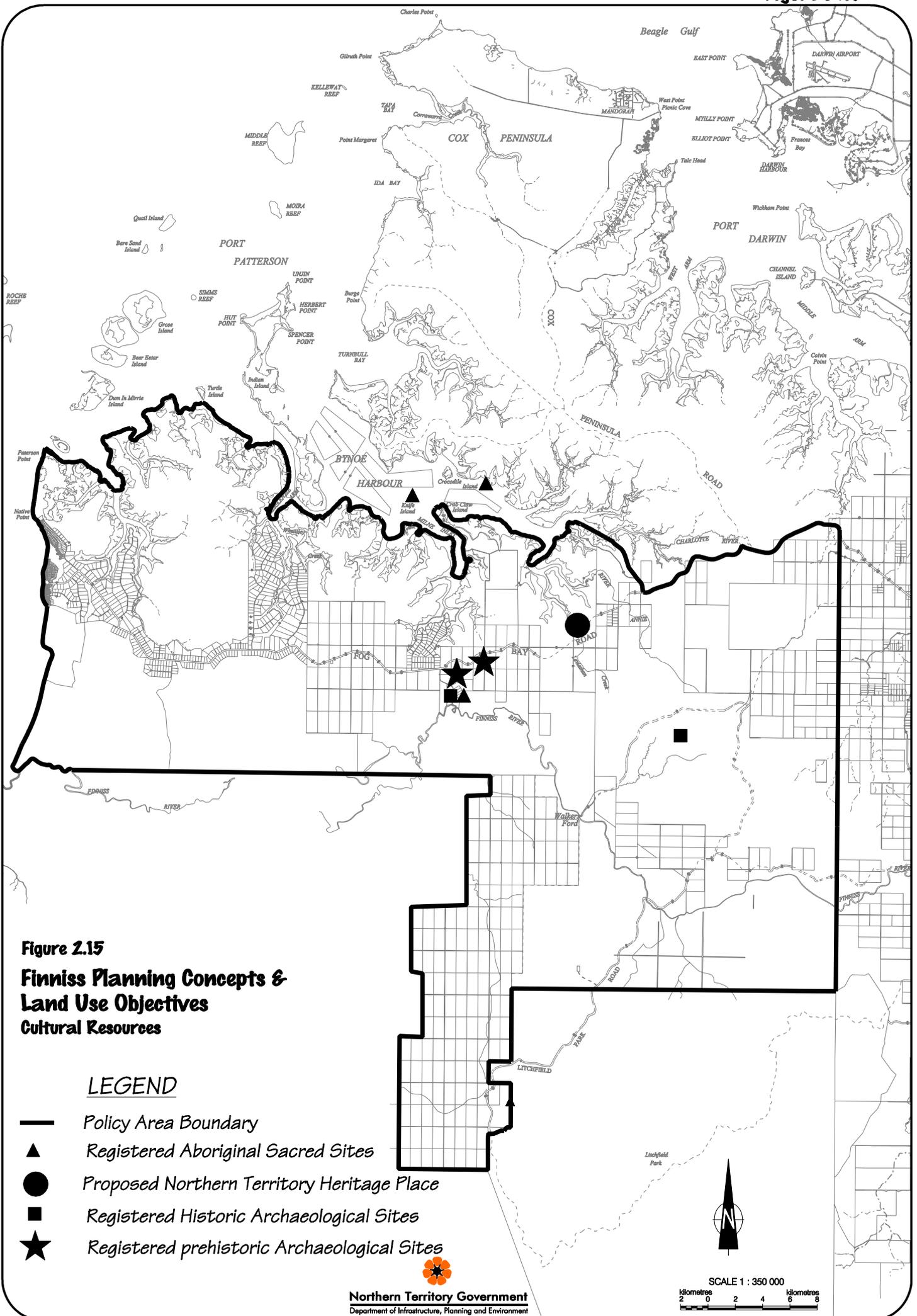


Figure 2.16

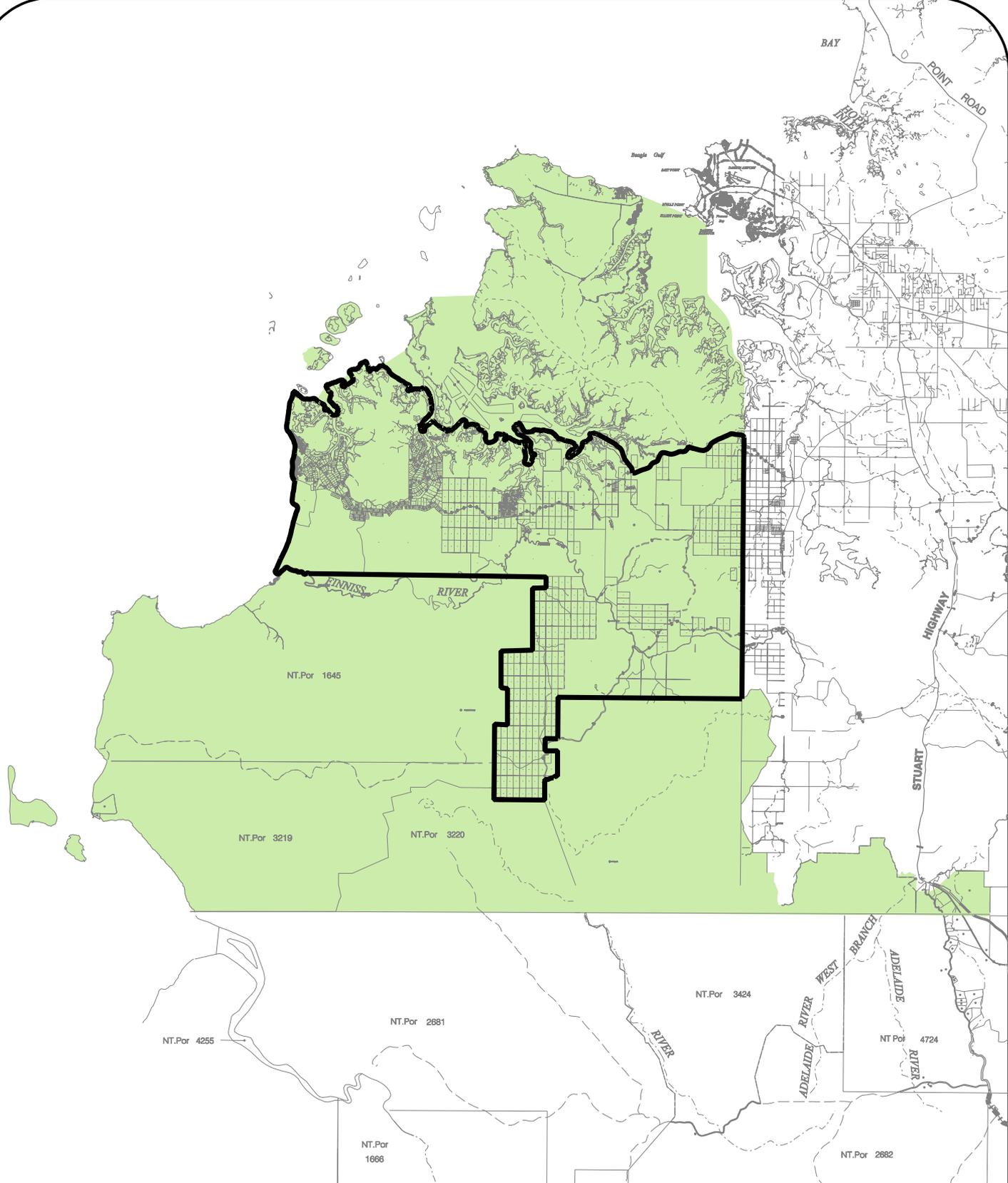


Figure 2.16
Finniss Planning Concepts & Land Use Objectives

Statistical Local Area
Source: Australian Bureau of Statistics

LEGEND

-  Policy Area Boundary
-  Cox Finniss Balance

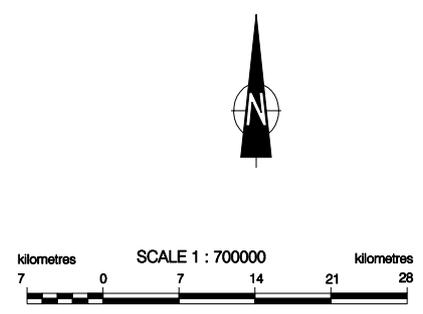


Figure 2.17

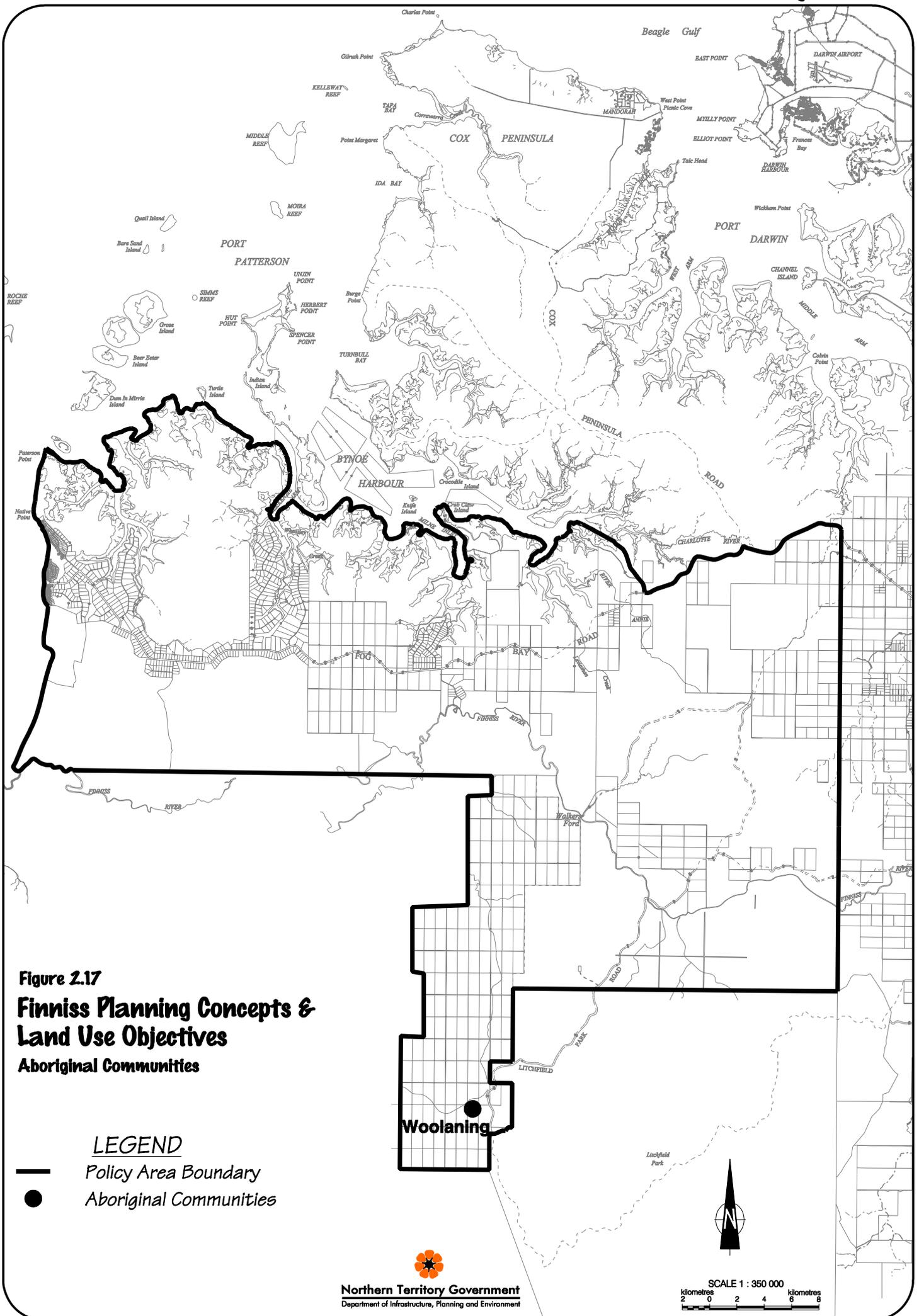


Figure 2.17
Finniss Planning Concepts & Land Use Objectives
Aboriginal Communities

LEGEND

- Policy Area Boundary
- Aboriginal Communities

Woolanng



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SCALE 1 : 350 000
 kilometres 2 0 2 4 6 8
 kilometres

Figure 2.18

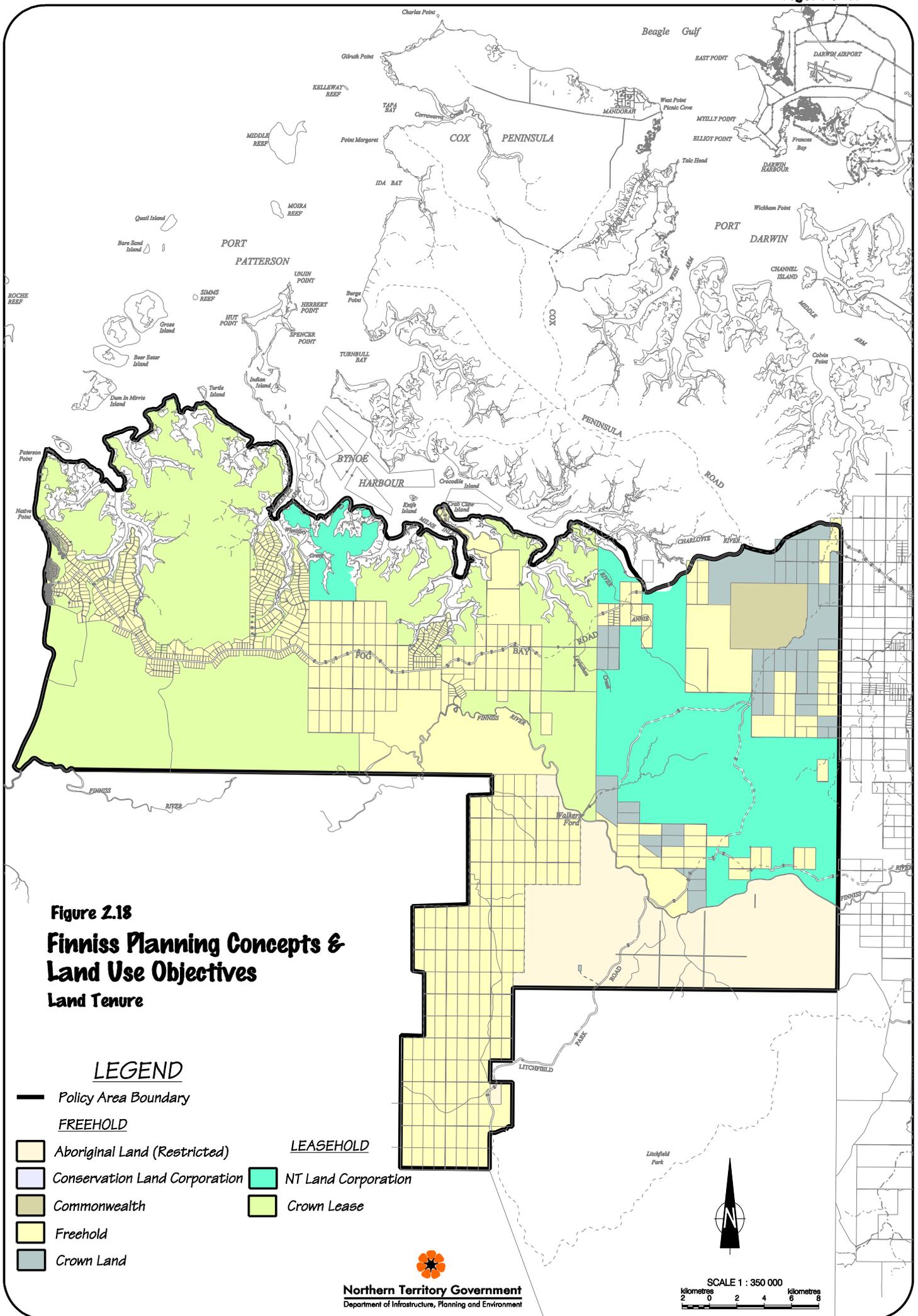


Figure 2.19

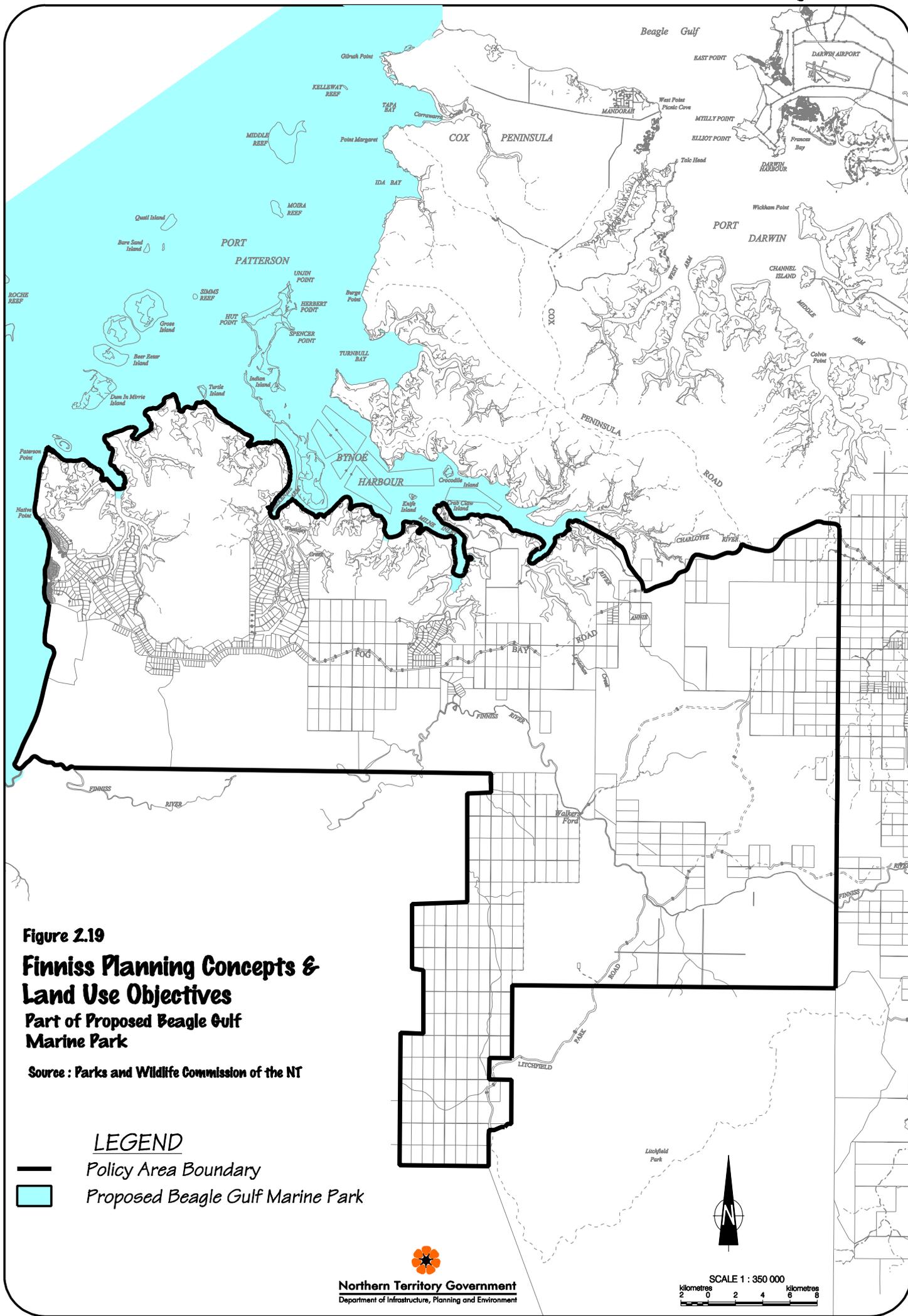


Figure 2.19
Finniss Planning Concepts & Land Use Objectives
 Part of Proposed Beagle Gulf Marine Park

Source : Parks and Wildlife Commission of the NT

LEGEND

-  Policy Area Boundary
-  Proposed Beagle Gulf Marine Park



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SCALE 1 : 350 000
 kilometres
 2 0 2 4 6 8
 kilometres

Figure 2.20

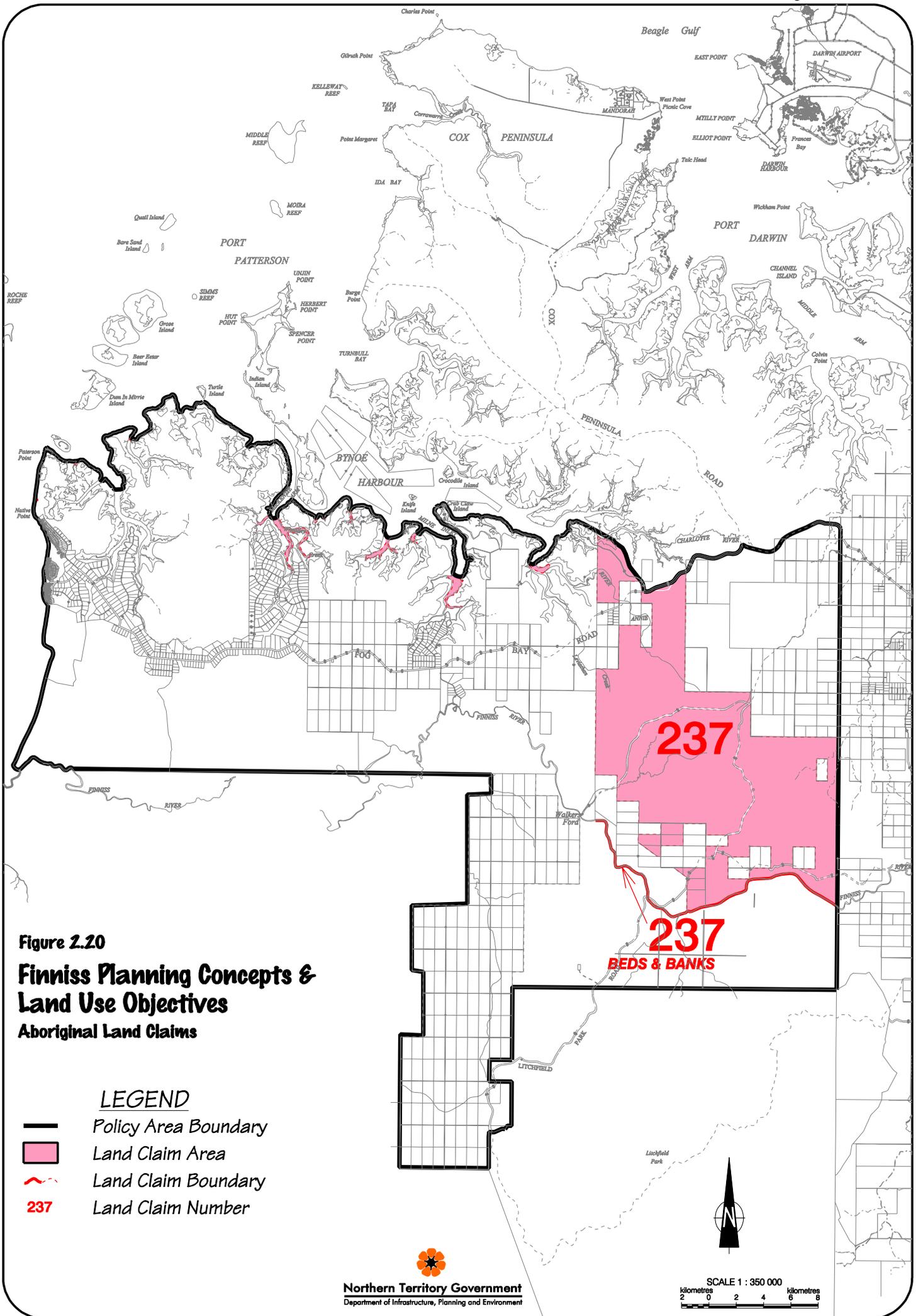


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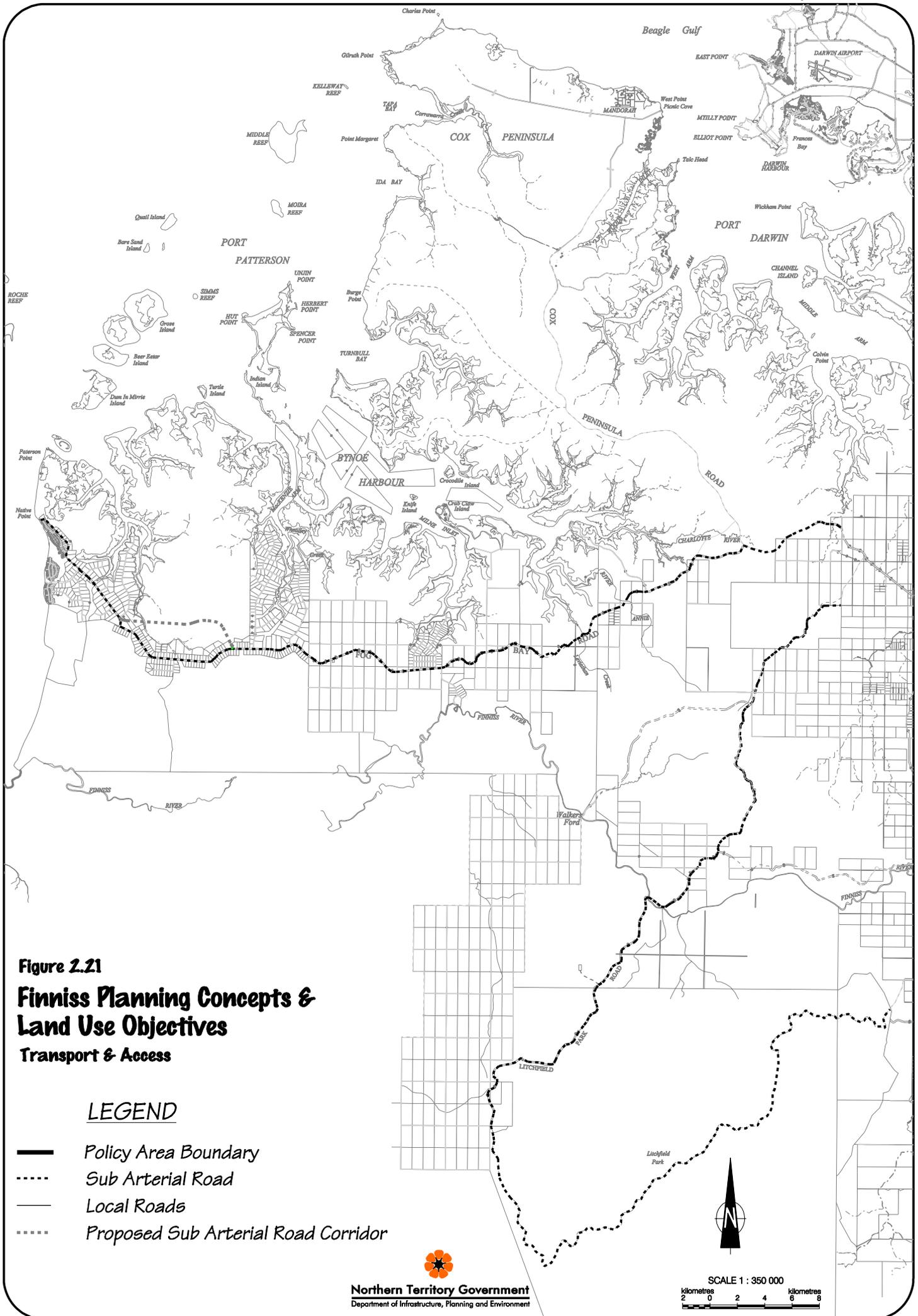


Figure 2.21
Finniss Planning Concepts & Land Use Objectives
Transport & Access

LEGEND

- Policy Area Boundary
- Sub Arterial Road
- Local Roads
- Proposed Sub Arterial Road Corridor



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SCALE 1 : 350 000

kilometres
 2 0 2 4 6 8

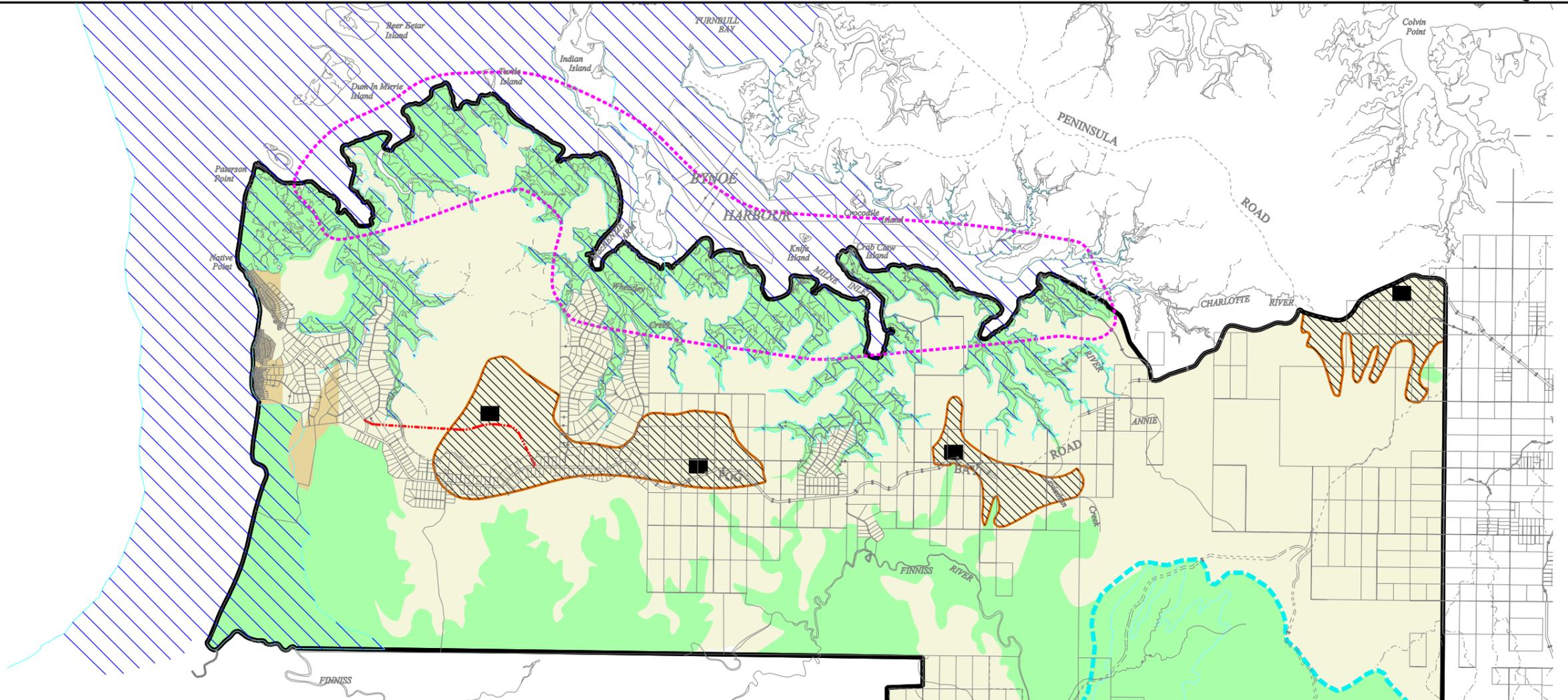
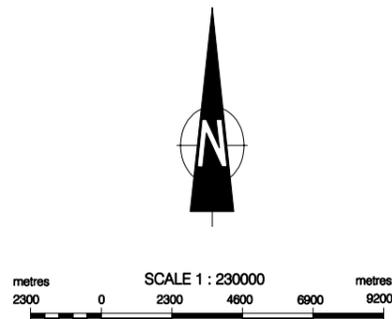


Figure 4.1
Northern Territory Planning Scheme
Finniss Planning Concept

LEGEND

- Policy Area Boundary
- Proposed Road
- Part of Proposed Beagle Gulf Marine Park
- Conservation & Recreation
- Possible Future Rural Living - 1 ha minimum
- Rural Living - 2 ha minimum
- Rural Living - 8 ha minimum
- Possible Aquaculture
- Possible Rural Service Centres
- Catchment Area Boundary
- Proposed Mount Bennett Dam



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