

Vlamingh Head

Masterplan



Vlamingh Head

Model system

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Summary

Introduction

The Ningaloo Sustainable Development Committee (NSDC) is responsible for the implementation of the *Ningaloo Coast Regional Strategy Carnarvon to Exmouth*. The strategy called for a review of Vlamingh Head's overnight visitor limit and suitable areas for tourism development, based on historical land dealings and the fact that existing development could not be adequately catered for in the coastal tourism framework hierarchy in the strategy.

Based on this review, the Department for Planning and Infrastructure's Ningaloo Sustainable Development Office (NSDO) has prepared a masterplan for the Vlamingh Head node.

Masterplan intent

The masterplan provides the principles for land use and development at Vlamingh Head, an overall limit of 1020 overnight visitors in the node, the preferred locations for future development, along with detailed planning and sustainability guidelines. It is to be given statutory effect by way of a local scheme amendment.

The masterplan does not comment specifically on proposed types of tourism development, their layout, construction and servicing arrangements. This level of detail will need to be addressed by proponents as part of the preparation of outline development plans and/or development applications.

Consultation

Consultation with local stakeholders including landowners and the Shire of Exmouth took place as part of the initial review of overnight visitor numbers and tourism investigation envelopes, as well during the preparation of the draft Vlamingh Head Masterplan. The draft plan was advertised for an eight week period during which comments from the general public, government agencies and community groups were received.

Stakeholders generally support most elements of the masterplan; however, the allocation of 300 beds to Lot 319/Part Lot 6 Yardie Creek Road remains in dispute with the relevant landowner (who considers this allocation to be insufficient), along with the masterplan's position on development envelopes and building height limitation to single storey.

Existing land use and capacity

The masterplan area focuses on two privately owned freehold properties totalling about 34 hectares. Lot 2

Yardie Creek Road has an area of about 14 hectares and contains the existing Lighthouse Caravan Park, which is licensed for 720 overnight visitors and provides budget tourist accommodation, fuel station, managers' residence and related service infrastructure. The adjoining Lot 6 Yardie Creek Road has an area of about 19 hectares, is undeveloped and exists largely in natural elements.

A land swap involving the rear portion of Lot 6 with adjacent Lot 319 Yardie Creek Road, which fronts Yardie Creek Road, has been agreed with the Shire of Exmouth, Department for Planning and Infrastructure (DPI) and Gnulli Native Title claimants but has not yet been implemented.

Statutory context

Under the Shire of Exmouth Town Planning Scheme No. 3, Lot 2 and Lot 6 are zoned for tourism purposes, while Lot 319 is part of a local scheme reserve for the purpose of recreation and public open space. Implementation of the land swap will require Lot 319 to be rezoned, and the rear portion of Lot 6 will revert to unallocated crown land and be incorporated into the local scheme reserve.

The masterplan retains the Vlamingh Head node for tourism purposes and does not provide for residential or other high impact uses such as industry and high-density tourism. It recognises that the current provisions of the scheme are unlikely to ensure the desired development outcome, and that an amendment is necessary to ensure that future development is consistent with the masterplan.

Masterplan

The masterplan specifies an overall limit of 1020 beds for the Vlamingh Head node, with the entire additional growth of 300 beds allocated to Lot 319/Part Lot 6. This growth allocation represents a balance between unfettered expansion of the node, as might occur under a scenario of high-density tourism use, and retention of the unique landscape value and remote experience Vlamingh Head currently offers visitors.

This growth allocation constitutes a change to the coastal tourism framework contained in the *Ningaloo Coast Regional Strategy Carnarvon to Exmouth*. It recognises the existing approved capacity and existence of undeveloped freehold land purchased from the Shire of Exmouth in 1995 for tourism purposes. However, the masterplan seeks to retain the low key and low impact objectives for development on the

Ningaloo coast and for Exmouth to be the focus for higher intensity development.

The masterplan identifies appropriate areas for development based on an analysis of key opportunities and constraints at Vlamingh Head as well as specifying detailed sustainability guidelines for future development. Further detailed work will need to be undertaken by proponents with regard to building design, layout, access, parking and other site-specific considerations.

Design guidelines

Sustainability guidelines included in the masterplan address location and setbacks, development type and scale, environment, landscape amenity and sense of place, infrastructure, resource efficiency, tourism diversity and employment, and access. Key guidelines include:

- development in identified envelopes unless a site-responsive design can be demonstrated that minimises the impact on the environment and the visual landscape character of the node;
- development setback from visually prominent areas including ridgelines and limestone outcrops;
- highest point of any structure not to exceed 20m Australian Height Datum (AHD) excluding installations for telecommunications purposes;
- single-storey buildings are to be less than 5 metres in height;
- design and orientation of dwellings should be climate-responsive.

Section A

10 Background

11 Purpose of the masterplan

The purpose of the Vlamingh Head Masterplan is to establish a clear framework and guidelines for the future use and development of land at Vlamingh Head. It is intended to guide the preparation of an amendment to the Exmouth local planning scheme and detailed site development plans and formal development applications.

The masterplan consolidates the recent review of the tourism investigation envelope and visitor numbers for Vlamingh Head undertaken as part of the implementation of the *Ningaloo Coast Regional Strategy Carnarvon to Exmouth*. The masterplan provides an overall vision for the area and identifies development

envelopes catering for an increase in visitor numbers, and is supported by detailed sustainability principles and development guidelines.

12 Node review

The regional land use plan, coastal tourism framework and planning and environmental guidelines contained in the *Ningaloo Coast Regional Strategy Carnarvon to Exmouth* provide the foundation for the masterplan. Vlamingh Head is identified in the strategy as a tourism node with a capacity for 500 overnight visitors (figure 1).

Concerns have long been held relating to the overnight accommodation limit for this node, primarily because the node has already developed beyond this capacity but also as a result of ongoing negotiations for a land swap between land south of the existing Lighthouse Caravan Park (Lot 6) and unallocated crown land further east (proposed Lot 319/Part Lot 6). Submissions on the draft *Carnarvon Ningaloo Coast Regional Strategy* that supported an increase the number of overnight visitors that could be accommodated in this node argued for total node capacities of between 1000-1400 people.

The area was retained as a tourism node in the strategy, due to the absence of sufficient information to determine the overall impact of such a large expansion, particularly with reference to the environmental sensitivity of the area, the impact on Exmouth as the primary centre for major tourism development and proximity to Ningaloo Marine Park and Cape Range National Park. Notwithstanding this, the strategy requested further review of the potential development of the Vlamingh Head node as part of the implementation of the coastal tourism framework.

13 Review of tourism investigation envelope and accommodation numbers

The *Review of tourism investigation envelope and accommodation numbers for Vlamingh Head* assessed current tourism development and explored the potential for future tourism use, incorporating sustainable development principles, in the overall planning framework for Vlamingh Head and the Shire of Exmouth. Specifically, the study reviewed the existing land use context including land tenure, land use, tourism visitor numbers, the natural environment, heritage, landscape values and amenity and tourist accommodation capacity in the region.

Figure 1: Vlamingh Head recommended tourism node (as per Ningaloo Coast Regional Strategy Carnarvon to Exmouth)



The four development options proposed for Vlamingh Head reflected the expected demand for and supply of accommodation, the opportunities and constraints of the tourism node, its carrying capacity and environmental sensitivity. The options ranged from maintaining the status quo, to increased development involving up to an additional 400 beds. In order to differentiate between the options a qualitative assessment was undertaken using criteria including visual amenity, development rights of landowners, infrastructure and service availability, risk of inundation, environmental impacts and proximity to the wastewater treatment plant.

Stakeholder and community consultation formed an essential component of the study and included a workshop with key stakeholders and community interest groups to provide an overview of the regional and site issues, tourism demand and supply, carrying capacity model and development options for Vlamingh Head. The key issues and/or concerns raised at the workshop included the adequacy of infrastructure at Vlamingh Head and the impact of tourism development on the natural and cultural environment and visual and landscape amenity of the area. These issues are discussed elsewhere in this document (sections 5-7).

The review confirms the position in the strategy that Vlamingh Head should be retained as a low-key, low impact and remote experience where the environment and landscape amenity are protected, and that Exmouth should be retained as the gateway to the Ningaloo coast and the place of high impact development, including residential development.

It should be noted that the NSDC has subsequently resolved not to support any residential development at Vlamingh Head, and that any further growth that might be contemplated in the preparation of an overall masterplan should be allocated to either Lot 6 or proposed Lot 319/Part Lot 6.

14 Process

The draft Vlamingh Head Masterplan was used as the basis for discussion with the Exmouth Shire Council, landowners and other key stakeholders. Based on these discussions, the masterplan was submitted to the NSDC and the Shire of Exmouth for approval to advertise for public comment (figure 2). Following advertising, the masterplan was reviewed in light of public submissions

and subsequently adopted by Exmouth Shire Council and the NSDC. An amendment to the Shire of Exmouth Town Planning Scheme No. 3 is now required to give effect to the masterplan. Once the amendment is finalised, site development plans may be submitted to Council and the NSDC for approval.

2.0 Planning context

2.1 Site context

2.1.1 Location

Vlamingh Head is situated about 18 km north-west of Exmouth in close proximity to the North-West Cape. It is well known for the Vlamingh Lighthouse, the Lighthouse Caravan Park and the surrounding natural environment, including the adjacent Ningaloo Reef Marine Park and the nearby Cape Range National Park.

The masterplan area is generally defined as the Vlamingh Head tourism node and incorporates Lot 2 (14.8 ha), otherwise known as the Lighthouse Caravan Park, Lot 6 (19.6 ha) and Lot 319 (10.9 ha) that forms part of a proposed land exchange with Lot 6 (figure 3).

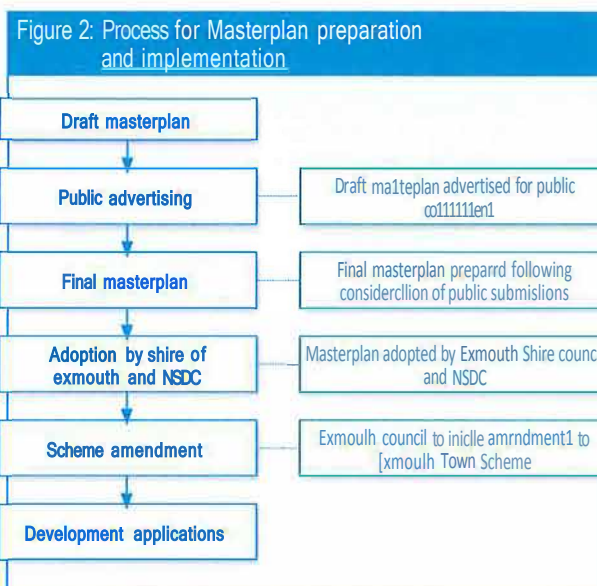
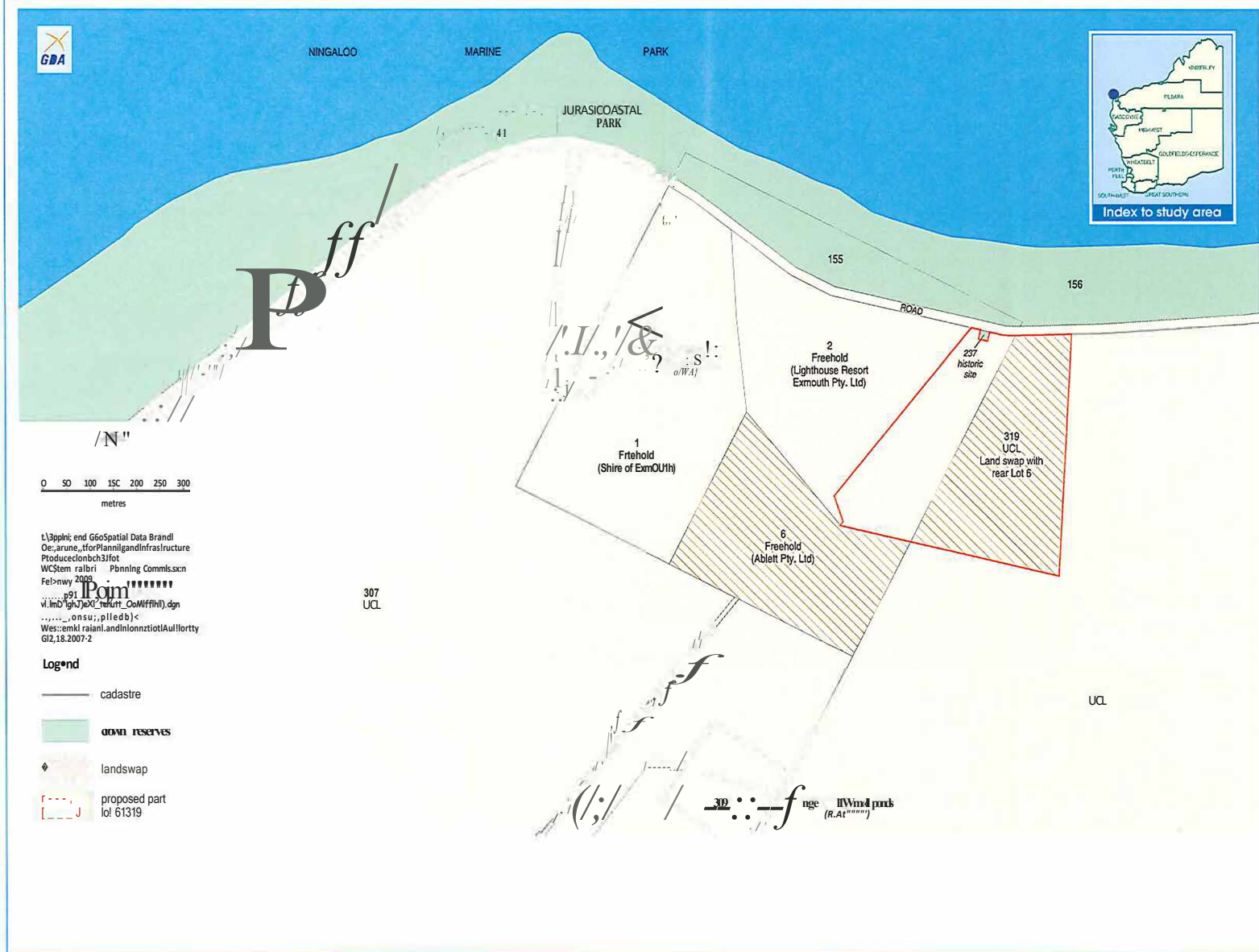


Figure 3: Land tenure and ownership



2.1.2 Regional context

Exmouth is a small coastal town whose main source of economic wealth is derived from tourism, fishing and the maintenance of Australian Government defence communications infrastructure predominately associated with the Harold E. Holt Naval Communications Base. Exmouth services the North West Cape and Vlamingh Head, and provides basic services including education and health care. The Shire of Exmouth has a population of 2,271 permanent residents, which increases by more than 3,000 during peak holiday periods.

The Cape Range region displays significant cultural, biological, scientific, scenic and recreational attributes, and has been identified for potential world heritage listing on the basis of its environmental attributes. For locals and visitors alike the region offers recreational fishing, snorkelling and diving on the Ningaloo Reef, swimming with the whale sharks and manta rays, camping and hiking in the Cape Range National Park and the scenic drives of Shothole Canyon and Charles Knife Road.

The Ningaloo Reef is the largest fringing coral reef in Australia with over 300 km of reef-fringed coastline between Exmouth and Red Bluff. It is renowned for its extraordinary diversity of marine wildlife including whale sharks, turtles, dugongs, sharks and manta rays and its foreshores provide important aggregation and nesting areas for turtle populations, including the loggerhead, green, flatback and hawksbill turtles. The entire Ningaloo Reef and offshore waters out to the state territorial limit are contained in the Ningaloo Marine Park.

The Cape Range National Park contains part of the Cape Range, an elevated and heavily dissected limestone range and fringing coastal plain adjacent to the northern part of Ningaloo Marine Park. The park is highly valued not only for its regionally significant ecology, which is increasingly recognised for its national and world heritage significance, but also for the scenic quality of its rugged coastline bordered by the Ningaloo Reef and its associated recreational qualities.

Jurabi Coastal Park lies on the western side of the Cape Range, and west of Yardie Creek Road extending from the northern boundary of the Cape Range National Park north past Vlamingh Head to the commonwealth

land on North West Cape (Lyndon Location 44, defence purposes). It contains the Jurabi Turtle Centre and, similar to nature reserves elsewhere in Western Australia, the park is managed for wildlife and landscape conservation, scientific study and preservation of features of archaeological, historic or scientific interest.

2.2 Statutory planning context

A recent review of relevant planning documentation identified the underlying planning principles of relevance to this masterplan, including:

- protection of environmental, natural and cultural values (specifically Cape Range National Park, Ningaloo Marine Park and Muiron Islands marine management area and Jurabi and Bundegi coastal parks)
- , conservation and enhancement of coastal features and processes
- , maintenance of ecological habitats and processes
- provision of small-scale, low-impact and managed tourism development along the Ningaloo coast
- , provision of residential and large-scale development only in the Exmouth townsite
- , avoid unnecessary expansion and duplication of infrastructure outside the Exmouth townsite
- , maintenance of groundwater supplies.

A brief overview of some of the relevant documents from which these principles have been derived is provided in section 2.2.1.

2.2.1 Regional planning

Ningaloo Coast Regional Strategy Carnarvon to Exmouth

The masterplan is underpinned by the *Ningaloo Coast Regional Strategy*, a 30 year strategic land use plan that sets out the planning framework for sustainable tourism and land use on the Ningaloo coast. The main objectives of the strategy are to protect the Ningaloo Reef and provide for low-key, low-impact nature based tourism opportunities and the sustainable use of the Ningaloo coast.

In relation to Vlamingh Head, the strategy notes that the area provides a comprehensive range of facilities and services, and is ideally sited to retain its main tourism focus. Expansion potential in the established development area is limited by landform and tenure, although suitable areas for tourism and recreation

facilities and services exist to the north and east of the Lighthouse Caravan Park.

The strategy provides detailed planning and environmental guidelines against which all tourism development, including expansion of existing development, is assessed. The masterplan has incorporated these guidelines, where appropriate, as part of the development options presented for Vlamingh Head.

Exmouth Structure Plan

The Exmouth Structure Plan is contained in the strategy and reviews the structure plan detailed in the *Exmouth-Learmonth (North West Cape) Structure Plan*. It presents a policy framework based on objectives, strategies and guidelines, and categories of land use. In accepting the need to accommodate growth, the structure plan does not provide for residential development outside the existing boundary of Exmouth townsite. This is to avoid the unnecessary extension of existing infrastructure such as water, power and sewerage and the possible duplication of services already available in the town.

Exmouth-Learmonth (North West Cape) Structure Plan

The North West Cape Structure Plan recognises that all major urban, tourism and commercial development should be confined to the east coast of the North West Cape and more specifically to the Exmouth townsite boundary. It considers development on the west coast and concludes that the development of major tourist accommodation could detract from the west coast's major attractions of wilderness, beauty and relative isolation.

The structure plan supports a limited development on the west coast, preferably in the form of wilderness lodge style accommodation (ie low-impact accommodation). Other forms of tourism development will be considered only where it is demonstrated that it will protect the wilderness values and environmental sensitivities of the west coast.

Ningaloo Coast State Planning Policy 6.3

State Planning Policy 6.3 is intended to provide state agencies, local government, community and proponents with clear guidance regarding acceptable and sustainable development on the Ningaloo coast. It seeks to preserve and protect the natural environment while maintaining the Ningaloo coast as an all-seasons recreation and nature-based tourism destination and

limiting growth with managed staged development to ensure that the community continues to enjoy a remote and natural experience. It also requires that future residential, commercial, higher-impact tourism and industrial development be consolidated in Carnarvon and Exmouth.

Ningaloo Coast Regional Interim Development Order

The regional interim development order is the principle statutory mechanism through which planning and development supports the Ningaloo Coast Regional Strategy Carnarvon to Exmouth while a region scheme for the area is being prepared. Planning approval for all new development is required from the NSDC, which has delegated powers from the Western Australian Planning Commission (WAPC) to determine applications for planning approval.

State Planning Policy 2.6 State Coastal Planning Policy

This policy addresses land use planning and development issues relevant to the protection and management of the coast. The policy requires strategic plans to guide local planning, development setbacks for protection against coastal processes such as erosion and storms (including cyclones), and the provision of coastal foreshore reserves for public purposes.

Environmental Protection of Cape Range Province: Position Statement No. 1

The Environmental Protection Authority's objective for the environmental protection of the Cape Range province is to protect the environmental quality of all environmental systems and to ensure that these systems are managed in accordance with the principles of ecologically sustainable development and the *National Strategy for the Conservation of Biological Diversity*. The position statement provides a set of principles aimed at having development and environmental management undertaken in a manner that ensures that the long-term ability of the area to accommodate human pressures is not exceeded. It is important to note that from an environmental perspective, there should be no major development on the west side of Cape Range with residential development confined to the existing townsite.

2.3 Local planning

2.3.1 Shire of Exmouth Town Planning Scheme No. 3

Under the Exmouth Town Planning Scheme No. 3 Lots 2 and 6 are zoned tourist while Lot 319 is zoned as a local

scheme reserve for the purpose of recreation and open space (and is subject to a land swap with the DPI).

The objectives of the tourist zone are:

- (a) to provide for a wide range of tourist facilities and holiday accommodation;
- (b) to protect and wherever possible enhance the special characteristics which attract tourists to the district;
- (c) ensure the Town of Exmouth remains the principle place in the district for tourist services and facilities, including holiday accommodation;
- (d) facilitate access, especially within the town, for buses and caravans including the provision for suitable located stopping places; and
- (e) ensure the council's facilities for tourists, and related services offered are of high standard and maintained.

Most tourism developments are permissible in the tourist zone subject to relevant approvals being granted. Other land uses such as residential development are not permissible in this zone. The following use classes apply¹:

- Caravan park, AA
- Caretaker's dwelling IP
- Club premises AA
- Holiday accommodation P
- Hotel AA
- Motel P
- Service station SA
- Shop AA
- Take-away food outlet AA
- Public amusement AA
- Public utility AA

While it is clear that the scheme does not contemplate residential land use at Vlamingh Head, the current provisions of the tourist zone are unlikely to ensure appropriate tourism development outcomes. The

1AA - use not permitted unless council has granted planning approval.

IP - use not permitted unless use is incidental to predominant use and approved by council.

SA - use not permitted unless council has approved the use after giving notice.

tourist zoning applicable to Exmouth does not provide sufficient differentiation to that appropriate for Vlamingh Head.

A scheme amendment will be required to ensure that future development accords with an overall masterplan for Vlamingh Head, with reference to specific conditions and design guidelines.

2.4 NSDC decisions relating to the masterplan

During 2005, the Exmouth Shire Council and the NSDC were presented with an overall masterplan for the Vlamingh Head tourism node by the landowners. The masterplan addressed development across Lot 2 and proposed Lot 319/Part Lot 6, and included a residential component that was considered by the landowner to be necessary to offset upfront costs associated with the provision of essential service infrastructure.

In March 2006, the NSDC resolved not to support the advancement of a residential component at Vlamingh Head as it would be inconsistent with the *Ningaloo Coast Regional Strategy Carnarvon to Exmouth, State Planning Policy 6.3 Ningaloo Coast* and the *Report of the Ministerial Taskforce: Investigation of the Impact of Combining Tourist and Permanent Residential Accommodation and the Impact of Strata Titling of Tourist Accommodation*, and the node is crucial for tourism development.

The NSDC also resolved that the key issues to be addressed in the preparation of a masterplan include the:

- overall size of the Vlamingh Head tourism node and distribution of bed numbers across the two existing freehold lots, taking into account the potential land swap involving Lot 6 and Lot 319;
- zoning of Lot 319;
- provision of infrastructure;
- form and scale of development.

In a related decision, the NSDC accepted that any growth at the Vlamingh Head tourism node should be allocated to either Lot 6 or the Lot 319/Part Lot 6 in recognition of the land tenure history.

3.0 Market context

3.5 Overview

The Exmouth region attracts a mix of domestic and international visitors for holiday and leisure purposes, mostly seeking outdoor pursuits in the surrounding national, marine and coastal parks. The majority of visitors are self-drive travellers, although Exmouth is accessible by air all year round. In recent years, growth in visitor demand has led to increased accommodation, recreation and tourism infrastructure. According to Exmouth tourism industry stakeholders and operators, recent trends experienced in the region include:

- European visitors arrive mostly in April, May and June although backpackers, predominately European, arrive from December to February. Japanese visitors arrive mostly between August and October;
- peak visitation is experienced in July and the peak shoulder periods occur in April, June, August and September;
- visitation and length of stay has increased as the quality, range and choice of accommodation has improved;
- increasing demand exists for budget accommodation such as backpacker, camping and self-contained cabins/chalets in caravan parks.

3.6 Visitor estimates and accommodation supply

Using several sources of visitor estimates for the Exmouth region, it was concluded that annual visitation to Exmouth (as at 2005) is estimated to be around 110,000 to 120,000 (and potentially up to 140,000), with an average annual growth of between 2% and 10%. It was also noted that visitation is increasing between January and April.

Assuming the average annual growth for visitor estimates, medium-term projections indicate that by

2015 annual visitation to Exmouth could be in the range of 140,000 (ie 2% per annum growth) to 347,000 (ie 10% per annum growth). This corresponds to between 11,500 and 31,000 extra visitors to Exmouth on average each year, if growth fluctuates between 2% and 10% per annum respectively.

The total supply of tourist accommodation in Exmouth is estimated to be 5,688 beds comprised of 410 hotel/motel/apartment/unit/rental home rooms (1,360 beds), 974 caravan/camping sites (3,896 beds), and 108 cabins (432 beds). These estimates have been derived with bed numbers for caravan/camping sites and cabins calculated on the basis of 4 beds per site/cabin.

The annual average occupancy rate in Exmouth is about 45%, similar to that experienced at other seasonal tourism destinations. Most of the accommodation in Exmouth operates at full capacity (100%) during July (school holidays), around 75% capacity for June, August and September, around 40% capacity for April, May and October, and around 20% capacity for November to March.

3.7 Tourism accommodation supply and demand

ERM (2006) modelled accommodation supply and visitor demand was modelled taking into consideration a range of factors such as length of stay, seasonality, projected visitor growth and visitor accommodation preferences. If all currently proposed development were to proceed, there would be an 84% increase in the number of beds in the Exmouth area, with about 60% of this growth being 4-5 star accommodation and 40% being low-budget accommodation including caravan sites, backpacker and cabin style accommodation.

If all the proposed developments as at 2005 eventuate, the supply of budget accommodation will increase along with minor increases in the Cape Range National Park, which is consistent with the finding of Wood and Hopkins (2003) that visitors prefer budget accommodation on the western side of the Cape Range.

Several supply-demand scenarios are presented by ERM (2006), ranging from low demand-moderate growth to high demand-high growth (table 1). It is important to note that all scenarios predict an oversupply of hotel/motel/apartment accommodation and an undersupply of caravan park sites/cabins and backpacker accommodation by 2012.

Table 1: Exmouth tourist accommodation supply-demand scenarios

Exmouth scenario	Visitation (demand)	Accommodation supply (2006-12)	Likely outcome
Low demand, moderate growth in supply.	6% per annum growth.	50% built as planned (1893 beds added including 1175 hotel/unit/apartment beds).	Oversupply of hotel/motel/ apartments/homes 2011-2012; undersupply of caravan park sites/ cabins 2010-2012; sustained undersupply of backpacker accommodation.
Moderate demand, moderate-high growth in supply.	8% per annum growth.	75% built as planned (2839 beds added including 1763 hotel/unit/apartment beds).	Oversupply of hotel/motel/ apartments/homes 2010-2012; undersupply of caravan park sites/ cabins 2010-2012; sustained undersupply of backpacker accommodation.
High demand, high growth in supply.	10% per annum growth.	100% built as planned (3,785 beds added including 2350 hotel/unit/apartment beds).	Oversupply of hotel/motel/ apartments/homes 2009-2012; undersupply of caravan park sites/cabins 2009-2012; undersupply of backpacker accommodation 2007-2012.

Source: ERM (2006)

3.8 Vlamingh Head

There is no tourism data available specifically for the Vlamingh Head tourism node. Based on occupancy data collected by the owner of the Lighthouse Caravan Park, it has been estimated that 10,100 guests stayed overnight in 2003 and 10,600 in 2004. Visitors are a mix of grey nomads, international tourists, surfers, fishers and families. Peak visitation occurs in July with December to February the low season.

The tourism node at Vlamingh Head consists entirely of the facilities at the Lighthouse Caravan Park, which is currently licensed for 152 short stay sites (including cabins) and 28 campsites (720 beds). An on-site assessment by ERM (2006) revealed 820 actual bed numbers distributed across 175 caravan/camping sites and 30 cabins/chalets/bungalows.

An estimated 7%-8% of visitors to Exmouth choose to stay at the Lighthouse Caravan Park. Under a scenario of 6% annual growth in visitors to Exmouth during 2005-2012, and with no further expansion at the Lighthouse Caravan Park, there is an estimated increase in annual occupancy rates from 47% to 69%. Of course, this is dependent on many factors including the distribution of predicted growth over time and the ability of the area to attract visitors during non-peak periods.

The supply-demand analysis revealed the following key points for consideration at Vlamingh Head:

- demand for budget accommodation is likely to remain high;
- increasing demand for accommodation in the Cape Range National Park will not be satisfied, contributing to ongoing demand for accommodation at Vlamingh Head;

- an increase in visitor demand of between 200-400 overnight beds could be met at Vlamingh Head based on projected trends, although supply-demand should not be the sole determining factor in setting a desirable and sustainable capacity for the node;
- Vlamingh Head needs to be differentiated from the Exmouth gateway in offering a low-key, low density, nature-based and semi-remote tourism experience.

4.0 Tenure and land use

4.9 Existing tenure and use

The Vlamingh Head tourism node is comprised of a mix of land tenure including freehold land (Lots 1, 2, 4 and 6) as well as unallocated crown land (Lots 319, 191 and land further east) and crown reserves (Lots 155, 156 and 237) set aside for recreation, coastal management and cultural heritage purposes (figure 3). Lot 2 contains the Lighthouse Caravan Park and has been extensively modified for this use while the remaining freehold and unallocated crown land is undeveloped and exists mostly in natural elements.

Jurabi Coastal Park is reserved for the purpose of recreation and coastal management and is vested and jointly managed by the Shire of Exmouth and the Department of Environment and Conservation (DEC). Jura bi Coastal Park, together with Bundegi Coastal Park and the commonwealth lands further east, form a coastal extension of the Cape Range National Park and are likely to be managed in a manner consistent with the parks' management plan.

In 1995, the Shire of Exmouth released an expression of interest for a freehold lot at Vlamingh Head, as a tourist development site, zoned for tourism/recreation. Lot

Lot 6 was purchased in 1996 and in 1999 the landowners subsequently approached the Shire of Exmouth and DPI to discuss the potential opportunity to swap the southern portion of Lot 6 with unallocated crown land to the east of Lot 6 (Lot 319). The land-swap negotiations have been concluded; however, the actual swap awaits a final decision from the landowner and has not been implemented.

Part of the unallocated crown land immediately to the south of Lot 6 is leased to the owner of the Lighthouse Caravan Park for sewage treatment ponds. In addition, unallocated crown land surrounding the Vlamingh Head tourism node is identified as conservation and land use investigation areas in the *Cape Range National Park: Draft Management Plan*.

4.10 Native title

The relevant Native Title requirements in relation to the land swap between Lot 6 and Lot 319 have been met.

5.0 Environment and heritage

5.1 Climate

The North West Cape region experiences a dry climate with hot summers and mild winters, which varies considerably both in the region and from year to year. The annual average rainfall at Exmouth is 267 mm, occurring during either January to March associated with thunderstorms and tropical lows or from May to July when tropical cloud bands originating from the north-west often bring heavy rains. The highest annual total for the region of 823 mm occurred at Vlamingh Head in 1923 when heavy rains fell in January, March and April. Evaporation is high and greatly exceeds rainfall for most months of the year.

Average temperatures range from 24°C in July to 38°C in January at Learmonth although further north at Vlamingh Head and on the western side of the Cape Range, temperatures are moderated by winds passing over the ocean. Winds are generally south or south-easterly for much of the year, although this varies considerably mainly due to the influence of afternoon sea breezes during the warmer months. These sea breezes are generally south to south-westerly on the western side of the Cape Range and south-westerly to north-easterly on the Exmouth Gulf side. When winds blow from the inland Pilbara during summer it is not uncommon for maximum temperatures to exceed 40°C for several consecutive days.

A tropical cyclone with strong winds, high seas and heavy rains occurs about once every two years on average, most commonly during February and March. Most tropical cyclones approach from the north or north-east, and the semi-enclosed and shallow waters of Exmouth Gulf have the potential to cause large and damaging storm surges, particularly at the southern end of the gulf.

5.2 Drainage

Storm surge inundation associated with cyclonic events infrequently affects low-lying areas, while flooding occurs more frequently on the coastal plain as a result of rainfall, high tides and low lying area of land. At Vlamingh Head an ephemeral creek system drains through the Lighthouse Caravan Park to the foreshore dune system. Cyclone Vance in 1999 resulted in flooding of parts of Lot 2 and Lot 6 with the majority of water flowing north to the coastal dunes and inundating the access track on Lot 6.

No data is available from the Shire of Exmouth regarding the frequency and volume of stormwater run-off at Vlamingh Head. A detailed analysis of the 1 in 100 year stormwater flow should be undertaken prior to new development.

5.3 Geology and geomorphology

A dominant geological feature associated with North West Cape is the Cape Range Anticline, which resulted from tectonic uplift during the Miocene and Quaternary periods and the subsequent exposure of underlying tertiary sediments. It rises to over 300 m above sea level and is characterised by a deeply dissected limestone plateau with narrow valleys, spectacular gorges and extensive cave systems.

The North West Cape area contains extensive karst formations, formed by the percolation of water through limestone sinkholes and the dissolution of minerals over long periods of time. These formations include caves, rock shelters, subsurface streams, sinkholes and caverns.

Vlamingh Head is located at the tip of the Cape Range peninsula, which includes various coastal sedimentary formations. The surface geology at North West Cape is composed of beds of tertiary limestone (Tulki limestone) and sandstone (Vlamingh sandstone) and quaternary Bunderra calcarenite. The

coastal geomorphology of the Vlamingh Head area is dominated by shore-parallel beach ridges often immediately adjacent to the shoreline and typically backed by parabolic dunes.

5.4 Hydrogeology

As documented by Allen (1993) the regional water table occurs in a non-homogeneous karstic aquifer system formed by the Mandu limestone on the crest of the range, the Tulki limestone on the flanks of the range, and the recent sediments and/or Tulki limestone on the coastal plain, all of which are in hydraulic continuity. The water table consists of a subdued groundwater mound that occurs only a few metres below the surface on the coastal plain but rises to about 10 m above sea level beneath the highest part of the Cape Range.

The aquifer consists of free draining water above the water table, a freshwater lens floating on, and grading into brackish water that rests on a seawater wedge beneath (Hamilton-Smith, 1998). On the coastal plain fresh groundwater occurs as a thin wedge overlying seawater with a broad zone of diffusion 10-20 m thick, probably resulting from tidal oscillations (Allen, 1993). Recharge of the aquifer is inferred to occur after heavy rainfall events by direct surface infiltration, run-off into internal drainage and cave openings along the crest of the range, and by infiltration of run-off along drainage lines.

At Vlamingh Head the watertable gradient is low with groundwater flowing north towards the coast and occurring at shallow depths of around 5 m below the surface.

5.5 Flora and fauna

5.5.1 Terrestrial

The Cape Range peninsula supports a diverse range of flora and fauna species that includes endemic species as well as species at the limit of their geographical range and/or occurring as geographically isolated populations. Although flora habitat diversity is considered low, the flora of the Cape Range is particularly rich for an arid limestone environment and represents 46% of all taxa recorded for the Carnarvon botanical district including 12 endemic taxa, six taxa largely confined to the peninsula and 30 weed species. While tropical and temperate species at the limit of their range occur on the peninsula, the relatively high number of annuals is reflective of the area's aridity (Leighery and Gibson, 1993).

The peninsula's rich and diverse fauna has been attributed to the range of habitats available, including mangroves, sandy ridges, subterranean wetlands, alluvial plains, rocky ranges and caves, as well as the presence of species at the limit of their geographical range and/or occurring as geographically isolated populations (Kendrick, 1993). While the peninsula is not a centre of endemism with regard to vertebrate fauna, there is a high level of endemism in the subterranean invertebrate fauna and the Cape Range karst system is thought to be one of the most biologically diverse in the world (Humphreys 1993, 2000).

At Vlamingh Head, and more broadly in the Cape Range National Park, there are no declared rare flora species, nor are there any listed nationally threatened flora species or ecological communities. However, several species of special conservation interest have been identified on the DEC's priority flora list (table 2).

Table 2: DEC flora database search results

Species name	Conservation status	Locality
Brachychiton obtusilobus	P4	5 km south of Yardie Creek
Daviesia pleurophylla	P2	Harold Holt Naval Base, Exmouth
Stackhousia umbellata	P3	Vlamingh Head, North West Cape

The species below can possibly be found in the greater area of Exmouth and North West Cape.

Acacia alexandri	P3	Cape Range, Exmouth
Corchorus interstans	P3	Exmouth

Note: priority rating provided by DEC regarding the conservation code and knowledge of species.

P2 - poorly known taxa - under immediate threat - small population known

P3 - poorly known taxa - not under immediate threat - significant populations known

P4 - rare taxa - not currently threatened - no immediate population threat and population self-sustaining.

As mentioned previously, the peninsula is noted for the occurrence of flora species at (or near) the geographical limit of their distribution. This includes 21 temperate species occurring at the northern end of their ranges on the red dune fields at the top of the peninsula, as well as other species in valleys or on limestone on the western side of the range, and on the western coastal sands (Leighery and Gibson, 1993).

Several protected fauna species have been identified as potentially occurring in the Vlamingh Head area. The loggerhead turtle and the green turtle use beaches on the Cape Range peninsula for nesting and are protected species under the *Wildlife Conservation Act 1998* and also listed as threatened under the *Environment Protection and Biodiversity Conservation Act 1998 (EPBC Act)*. Green turtles tend to nest in higher proportions in the northern area of the Ningaloo Marine Park while loggerhead turtles tend to favour the sandy beaches further south. Hawksbill turtles also nest on beaches adjacent to Jura bi Coastal Park and are listed by the International Union for the Conservation of Nature as critically endangered. (IUCN, 2007).

In addition, the peregrine falcon may occur in the area and is a specially protected species.

5.5.2 Subterranean fauna

Subterranean waterways in the Cape Range peninsula provide important habitat for subterranean fauna and have been identified as nationally significant, and for possible listing under the Convention on Wetlands (Ramsar Convention). Much of the significance of the wetland system is associated with the endemic, relictual or otherwise notable subterranean fauna it supports, which is dependent on the presence and maintenance of the karst hydrogeological system and processes.

The subterranean fauna of the peninsula comprises terrestrial (troglifauna) and aquatic (stygoafauna) components and includes species considered rare or likely to become extinct. Both of these are important because of their species richness, evolutionary history and adaptations, and the evidence they can provide for continental drift.

Troglifauna occur in caves mostly in Tulki limestone in the Cape Range and on the coastal plain and the peninsula supports the richest and most diverse troglobite community in Australia, if not the world (Hamilton-Smith et al, 1998). Stygoafauna inhabit the groundwater of the fringing plain and occur predominately in the anchialine zone where fresh water mixes with deeper saline groundwater. The stygoafauna is endemic to the Cape Range peninsula and contains a class, orders, genera and species not otherwise represented in the southern hemisphere.

The distribution of aquatic cave fauna is determined by the hydrology of the area, with stygoafauna more likely

to be widely distributed than troglifauna because of the high degree of connectivity in the coastal plain limestone. Much of the subterranean fauna is vulnerable to extinction as a result of its highly specialised habitat or lifecycle requirements and its geographic isolation.

5.5.3 Marine

The Ningaloo Reef is the largest fringing coral reef in Australia and supports a diverse range of marine species, including over 200 species of coral, 600 species of mollusc and 500 species of fish. It is popular locally for its high densities of recreationally important fish species and famous internationally for its diving and annual whale shark visits. Many beaches fringing the reef are nesting sites for several species of marine turtles. Marine mammals, including dugongs, occur in small numbers in the lagoon and humpback whales often pass close to the reef on their annual migration routes.

5.6 Heritage

5.6.1 Aboriginal heritage

The Ningaloo coast and its hinterland were occupied by the Junigudira, located on North West Cape and the Cape Range peninsula south to the bottom of Exmouth Gulf and Whaleback Hills, and the Baiyungu whose territory extends south from Whaleback Hills to Point Quobba and comprises Coral Bay and the coastal areas of southern Ningaloo, Cardabia, Warroora, Gnaraloo and Quobba stations.

The Baiyungu Aboriginal Corporation has purchased and currently manages Cardabia Station near Coral Bay. The Gnu lii Native Title Claimant Group is the registered native title claimant for the area including Vlamingh Head.

Two Aboriginal heritage sites have been previously recorded in a 15 km² study area centred on Lot 319, neither of which occurs on Lot 6 or Lot 319. One site is a ceremonial/mythological site and has a closed access classification in the Register of Aboriginal Heritage Sites, presumably owing to culturally sensitive information that the site file may contain. The other site is located about 3.5 km to the south-west of Vlamingh Head and consists of two rock shelters containing stone artefacts and fragments of baler shell and turtle bones. Both caves also contain paintings in red ochre and some very faint engravings. Despite the fact that these two sites are the only registered sites, many other Aboriginal sites are known to exist in the Vlamingh Head area.

Aboriginal heritage surveys conducted in 2001 did not identify any surface Aboriginal archaeological sites of significance at Vlamingh Head. However, it was recommended that Vlamingh Head be monitored for the presence of additional archaeological material, which may be exposed when vegetation is removed when ground disturbance commences.

5.6.2 European heritage

Vlamingh Head was selected as a lighthouse location in 1907 and operated from 1912 - 1967 when the light was transferred to one of the towers on the naval communication base at Point Murat. The site consists of the lighthouse, store, quarters and grave as well as the Exmouth 31 radar station that operated during World War 2. The lighthouse has been a significant feature of the north-west coast for over 50 years.

Cyclone Vance caused considerable damage to the lighthouse in 1999 and restoration works were undertaken on the lighthouse and adjoining shed in 2000 and 2001 to ensure their survival. The lighthouse, store, quarters and grave, and the Exmouth 31 radar station and associated remnants are heritage listed by the Heritage Council of Western Australia. The Lighthouse Caravan Park homestead on Lot 2 is included in this listing.

The Shire of Exmouth has recently commissioned the preparation of a site development plan for the Vlamingh Head lighthouse heritage precinct. This will involve the preparation of a conservation plan, complying with the Heritage Council of Western Australia guidelines, as well as a development and interpretation strategy.

5.6.3 National heritage

The Australian Heritage Council is currently assessing a nomination for inclusion of the Ningaloo Reef-Cape Range area on the National Heritage List. The proposed boundary has not yet been finalised, and is subject to the parallel assessment of the area as part of its nomination for inclusion on the World Heritage List. It is intended that the National Heritage boundary and the World Heritage boundary align.

The National Heritage List has been established to list places of natural, historic and indigenous places of outstanding heritage significant to Australia. Listed places are protected under the *Environmental Protection and Biodiversity Conservation Act 1999*, which requires that approval be obtained before any action takes

place that could have significant impact on the national heritage values of a listed place.

5.6.4 World heritage

The commonwealth government intends to nominate the Ningaloo Reef-Cape Range system for inclusion on the World Heritage List, and is working with the DEC to prepare the nomination document in parallel with the Australia Heritage Council's assessment of the area for inclusion on the National Heritage List.

The commonwealth government's decision to proceed with the nomination was preceded by the state government's release in February 2006 of a report on a proposal to nominate the area for inclusion on the list. The report included the government's preferred boundary on which comments were sought from key stakeholders as part of a consultation program to determine the boundary to be used in the nomination.

The final boundary has yet to be determined, but is expected to be based on stakeholder consultation and assessment of the area's values against the inclusion criteria for the World Heritage List.

In the event that the Vlamingh Head node is included in the World Heritage area, ownership would remain as it was prior to nomination, and state and local laws would still apply.

5.7 Assessment

The key environment and heritage impacts associated with further development at Vlamingh Head are most likely to be direct site-based impacts and indirect off-site impacts on turtle populations arising from disturbance to nesting females and more generally to nesting rookeries. Increased pedestrian traffic on turtle nesting beaches can also be problematic as ruts and furrows can present significant impediments to hatchling movement towards the ocean. Light sources near turtle nesting beaches can have a similar effect by attracting hatchlings away from the water and increasing the risk of mortality. The potential for increased impacts on turtle populations arising from development at Vlamingh Head was recognised by stakeholders at the workshop in August 2005.

When considering the potential severity of any impact on turtle populations, it is important to understand the way in which turtles behave from season to season and from place to place. Accordingly, any impacts on

turtle populations are likely to be distributed over space and time. Given that population numbers of turtles are declining worldwide, the Ningaloo coast which provides areas relatively free from human disturbance, will increase in significance in terms of their value to turtle populations.

Turtle nesting occurs on the beaches of the Cape Range peninsula between December and March, which broadly coincides with off-peak tourist activity. Currently, only budget accommodation in the form of caravan sites and chalets are available at Vlamingh Head, the demand for which principally occurs during the winter months. Thus, the alternating seasonality of turtle nesting and tourism currently favours turtle populations. However, the provision of more expensive accommodation (eg 4 star) and improved tourism infrastructure as part of any development on Lot 319/Part Lot 6 could be expected to increase occupancy rates at Vlamingh Head over time. Initially this would occur during the shoulder periods immediately before and after the peak tourism season, but there may also be an increased demand for accommodation from international visitors who typically visit the Exmouth region during the summer months.

Management of visitor impacts on turtles is undertaken by the DEC with support from community-based programs such as the Ningaloo Community Turtle Monitoring Program, which provides information to assist turtle management and address issues such as beach access and turtle tourism and interpretation/education requirements. The extent to which management can address turtle impacts arising from additional growth in overnight visitors at the node depends on resource availability. This issue is perhaps more appropriately addressed at the development application stage, where proponents are encouraged to work with the DEC and the Ningaloo Community Turtle Monitoring Program to develop appropriate management solutions.

Other environmental impacts, in particular the cumulative impact associated with additional overnight visitors at Vlamingh Head and the activities they undertake during their stay, are difficult to predict. The increase in the overall usage of the area is not directly determined by the availability of accommodation at the node, especially due to its close proximity to Exmouth.

Direct site-based impacts associated with development at Vlamingh Head will include the clearing of native

vegetation and the consequent loss of habitat for various flora and fauna species. While there are several priority flora species and at least one protected fauna species recorded as possibly occurring in the vicinity of Vlamingh Head, a flora and fauna assessment is required to accurately determine the presence or absence of these species. This is consistent with advice from stakeholders that proposed extension to the Cape Range National Park may have some implications for Vlamingh Head, particularly for flora and fauna species.

6.0 Landscape and visual character

6.1 Landscape character

The Cape Range is the dominant natural feature of the terrestrial landscape and extends south-east from Vlamingh Head at the tip of the Cape Range peninsula to Point Cloates. The Cape Range is characterised by ancient eroded limestone gorges, caves, rocky outcrops and overhangs that harbour a history of Aboriginal habitation, providing a rich story of the life and culture of early inhabitants as well as a unique human record of environmental and biodiversity changes.

The Vlamingh Head tourism node is situated directly east of the most northerly point of the Cape Range Peninsula. Its essential visual character could be described as an assortment of small-scale structures nestled in and around the sandy and rocky gullies and spur ridges beneath Vlamingh Head. The natural landscape is characterised by the dominant ridgeline of Vlamingh Head to the west and a low ridgeline extending east of this ridge directly through proposed Lot 319. To the south of this ridgeline are low undulating red dunes interspersed occasionally with limestone outcrops, while to its north the land slopes away through steep gullies to flatter, low-lying areas behind the 10 m high coastal foredunes of Lighthouse Bay.

The gradient changes associated with these ridges provide interest in the landscape, particularly in relation to the dramatic natural feature of Vlamingh Head. This is an important aspect to consider when contemplating structures on higher ground in the tourism node. The cabins constructed on the spur at the rear of the Lighthouse Caravan Park provide an example of significant visual incongruity and demonstrate how even single storey structures in prominent locations can alter the character of an area.

The visual perception of the Vlamingh Head tourism node is mainly gained on approach from the east along Yardie Creek Road and from Vlamingh Head itself. Both of these locations are heavily used by visitors, particularly since Yardie Creek Road is the major access route to the Cape Range National Park and adjacent Ningaloo Marine Park.

Planning for the node would benefit from a formal visual landscape evaluation and visual impact assessment as described in the DPI's visual landscape planning manual.

6.2 Sense of place

A location's sense of place is largely dependent on its natural and built form and the corresponding type of experience it offers the visitor. Vlamingh Head currently offers a semi-remote experience that can be differentiated from the more remote experience offered on the west coast or the considerably less remote experience offered in the township of Exmouth.

The semi-remote experience offered at Vlamingh Head derives from its geographic isolation and low-population density, its surrounding natural environment and proximity to Cape Range National Park and Ningaloo Marine Park, and the mostly low-key nature of its built form (eg basic chalet-style accommodation and caravan/camping). The overall quality of the experience offered at Vlamingh Head depends not only on the condition of the surrounding natural environment but also on the level and nature of interaction between other visitors and groups of users.

Given that the Ningaloo Reef has been identified as an iconic destination for visitors to Western Australia, the preservation of the unique natural experience is vital not only for the Exmouth area, but also the broader region and tourism generally in Western Australia. Stakeholders have indicated that any future development should maintain the semi-remote experience and be sensitive to the existing environment. This is consistent with the Ningaloo Coast Regional Strategy's requirement for low impact tourism facilities and that the coast be retained largely in its natural state.

70 Service infrastructure

71 Water supply

The Exmouth groundwater area is proclaimed under the *Rights in Water and Irrigation Act 1914*. Any groundwater abstraction in this proclaimed area is subject to licensing by the Department of Water, and includes all domestic wells. The Exmouth groundwater area consists of five sub-areas with Vlamingh Head being located in the Exmouth west sub-area but in close proximity to the Exmouth north sub-area. It should be noted that the Exmouth north sub-area, which includes the Lighthouse Caravan Park and naval base, and the Exmouth townsite sub-area are fully allocated with no more water available for release. The sub-areas, their allocation limits and current allocations are detailed in table 3.

The Lighthouse Caravan Park has an overall water allocation of 26,251 kilolitres per year and consumes approximately 12,551 kilolitres drawn from the Department of Defence (DoD) well field located approximately 7 km due east of Vlamingh Head in addition to a private bore in the caravan park (table 4).

The water supplied from the DoD is relatively saline (approx 2,000 mg/litre) and is stored in on-site tanks with a storage capacity of 256,000 litres. This services all chalets and is used for washing machines and hot water systems. The water drawn from the Lighthouse Caravan Park bore is extremely saline (approx 5,000-10,000 mg/litre) and is used for ablution and irrigation purposes only. This water is desalinated for drinking water purposes using an on-site reverse osmosis plant.

Table 3: Exmouth groundwater area allocation¹

Exmouth groundwater sub-area	Allocation limit (kilolitres)	Current allocation (kilolitres)	Status of water supply
Exmouth townsite	300,000	300,000	No more water available for release
Exmouth north (including naval base and Lighthouse Caravan Park)	200,000	237,000	No more water available for release
Exmouth west (includes Yardie Creek Caravan Park and DEC)	Limited	20,000	No more water available for release
Exmouth south (to Learmonth)	4,700,000	238,550	Water available
Exmouth central	1,000,000	870,000	Water available

Source: Department of Water (2007).

¹ Current allocation subject to change

Table 4: Water allocation licences and consumption by the Lighthouse Caravan Park

Licencee	Water allocations (KL per annum)	Lighthouse Caravan Park water consumption (KL per annum)
Department of Defence (190,000 KL licence)	6,251	6,251
Lighthouse Caravan Park	20,000	6,300
Total	26,251	12,551

NB: Lighthouse Caravan Park is a 'Category 1' water user (Department of Water (April 2005)). It is not eligible for a 'restricted' licence / allocation. The Lighthouse Caravan Park is a 'Category 1' water user (Department of Water (April 2005)).

Exmouth's scheme water is drawn from a large number of low yielding bores situated along the eastern margin of the Cape Range in the Exmouth townsite sub-area. Due to increasing salinity, the well field has been rationalised and numerous bores have been decommissioned. Groundwater salinity is highest in the north of the well field. This is attributed to the northward thinning of the freshwater lens and the combined impact of abstraction from private bores, the naval base well field, and the public water supply scheme.

7.2 Wastewater

Wastewater from the Lighthouse Caravan Park is treated via three evaporation ponds constructed on Lot 309 to the south of Lot 2 and Lot 6. The ponds, registered with the DEC, have varying volumes and are capable of handling 75,000 litres per day of sewerage. An on-site audit of accommodation supply at the Lighthouse Caravan Park identified 205 sites comprised of 140 powered sites, 35 unpowered sites and 30 chalets. The owner of the Lighthouse Caravan Park has advised that the daily average sewerage volume is approximately 54,000 litres.

Further investigation will be necessary to determine whether the existing wastewater treatment ponds are appropriate for both black and grey wastewater disposal and of sufficient capacity to cater for future demand associated with additional growth at the node.

Depending on the outcome of these investigations, it may also be necessary to consider alternative systems for both black and grey wastewater disposal.

Any future development at Vlamingh Head would be subject to *State Planning Policy 4.1 State Industrial Buffer* and the revised draft currently in preparation. In the absence of further technical analysis to identify an appropriate buffer width, the application of the Environment Protection Authority's standard buffer distance of 500 m will result in a significant portion of Lot 6 being affected. However, proposed Lot 319/Part Lot 6 is not likely to be affected.

7.3 Power supply

Exmouth has a power generation capacity of about 8 megawatts (MW). Up until September 2006, Exmouth's power system comprised 3 wind turbines (60 kilowatts) connected to a 6 MW diesel fuelled electricity grid. The Exmouth wind farm produces about 120 MW hours of electricity annually, enough to power about 20 homes. A new privately owned 8 MW gas fired power station has been in operation since September 2006, with renewable energy continuing to be exported from the wind farm and supplied to customers.

Vlamingh Head is situated on the edge of the existing power distribution network. The Lighthouse Caravan

Park has 11 kilovolt lines running to the site and a 200 volt transformer supply unit providing power for services and infrastructure. In the event of transformer failure the site has a mobile power generator.

Current power supply is adequate for existing tourism infrastructure at Vlamingh Head, but is nearing maximum capacity. Any future development proposals at Vlamingh Head will need to consider additional distribution feeders or alternative sources.

74 Gas

The Lighthouse Caravan Park receives gas cylinders supplied by road transport and will continue to do so for the foreseeable future.

75 Telecommunications

Exmouth is serviced by four telecommunication structures including a Telstra tower located 4 km south of the townsite, a tower supporting television services located near the Exmouth post office, and communication towers located near the Harold E. Holt Naval Communication Base. Telstra is the single phone company operating in Exmouth, and maintains public telephone facilities at the Lighthouse Caravan Park.

76 Waste disposal

The Shire of Exmouth collects waste from the Lighthouse Caravan Park twice a week during the peak tourist season and once per week during the off-season. The waste is disposed of via landfill at the Exmouth waste disposal facility located 8 km south of the town. A recycling program exists at the waste site for aluminium cans.

77 Access

Vehicle access to Lot 2 and Lot 319/Part Lot 6 is via Yardie Creek Road, North West Cape. With respect to Lot 6 and Lot 319, there is currently access provided to the sewerage treatment ponds and DoD bores. Confirmation of the need to retain access through Lot 319/Part Lot 6 is required from DoD, Shire of Exmouth and adjoining landowners.

78 Assessment

The lack of adequate infrastructure to cater for the expected increase in demand for water, power and sewerage pose constraints on further development at Vlamingh Head. The Department of Water has advised

that current usage is more than likely at, or above, ecologically sustainable limits and there is unlikely to be an opportunity to extract good quality groundwater at Vlamingh Head. In addition, there is currently a moratorium on the construction of private bores pending a review of the existing groundwater allocation plan for Exmouth.

The existing DoD water allocation to Vlamingh Head is fully used by the Lighthouse Caravan Park. Any increase in this allocation to supply additional development at Vlamingh Head would need to be negotiated with the DoD. Alternative water sources for Vlamingh Head include desalination of artesian bore water, existing groundwater to the south in the Cape Range or on DoD land, and/or connection to the Exmouth scheme supply. Water harvesting is not considered a realistic option given the region's aridity and the huge storage capacity required to harvest sufficient water from infrequent rainfall events.

Stakeholders agree that water supply is a major problem in Exmouth, particularly on the west coast. The Department of Water has indicated that a detailed hydrological study would need to be undertaken prior to assessing an increase in current licensed allocation. The study would need to consider water availability, recharge and environmental impact among other considerations. Given that connection to the Exmouth scheme supply may be cost prohibitive for tourism-based development without public or private subsidisation, further investigation is required into the remaining water supply options, namely the benefits and costs of desalinisation, additional groundwater bores and/or an expanded DoD allocation.

Electricity supply to Vlamingh Head is currently nearing maximum capacity and further development will require either the installation of additional grid capacity or additional on-site power supply systems (eg generators, wind-diesel systems, solar panels). As with scheme water supply, the installation of additional grid capacity to service Vlamingh Head may be cost prohibitive for a tourism-based development in this location.

Wastewater treatment will also need to be addressed, as part of any further development at Vlamingh Head, recognising that connection to the Exmouth sewerage system may be cost prohibitive for a tourism-based development in this location.

Finally, it should be noted that the Vlamingh Head tourism node is expected to function as a single entity with respect to the supply of essential services, with reciprocal arrangements for essential services such as wastewater treatment, potable water and power supply. An arrangement using or expanding existing sewerage treatment facilities and the use of alternative technologies should be examined further.

Section B

1.0 Vlamingh Head Masterplan

1.1 Vision

A vision for development at Vlamingh Head has been developed taking into consideration the *Ningaloo Coast Regional Strategy*, the *Review of the tourism investigation envelope and accommodation numbers for Vlamingh Head* and resolutions of the NSDC:

Vlamingh Head should cater for tourism development that provides for a low-key, low impact, and semi-remote experience and protects the environment, landscape values and visual character of the area.

This vision recognises that Exmouth is to be retained as the northern gateway to the Ningaloo Reef and the appropriate location for high impact development including high intensity tourism and residential development. It is also set in the context of Vlamingh Head's acknowledged role as being a significant landmark entry to the west side of Cape Range, the Ningaloo Marine Park and Cape Range National Park.

1.2 Masterplan objectives

The masterplan aims to provide a framework for future development at Vlamingh Head. Specifically the objectives of the masterplan are to:

- Provide a diversity of tourism accommodation at Vlamingh Head ranging from caravan/camping and self-contained cabins (eg 2-3 star rating) as well as high quality ecotourism accommodation (eg 4 star rating) through short-stay holiday homes/apartments or safari-style structures with associated facilities.
- Retain the semi-remote experience of Vlamingh Head by specifying limits on the type and scale of development, including overall visitor numbers, and ensuring the protection of the natural environment, landscape values and visual character of the area. This is to be facilitated through adherence to the masterplan's sustainability criteria when undertaking site planning for development at Vlamingh Head.

1.3 Opportunities and constraints of the site

An analysis of site-based development opportunities and constraints was undertaken, as well further site investigations (figure 4). The analysis indicates the following primary opportunities:

- relative abundance of land allowing a variety of potential development layouts;
- no competing land use;
- natural topography creates intense visual interest and opportunities for diversity within the landscape;
- close to a beach and Ningaloo Marine Park.

The following significant constraints will impact on site planning and design:

- potential for flooding on Lot 2 and part of proposed Lot 319²;
- continuous and multi-directional wind;
- insufficient potable water, electricity supply and sewerage treatment capacity to support additional development;
- visually sensitive ridgelines and limestone outcrops.

14 Development envelopes

The masterplan considers development at Vlamingh Head on Lot 2 and proposed Lot 319/Part Lot 6, taking into account the agreed land swap, and comprises a total area of about 34 hectares. Based on an analysis of the opportunities and constraints of the tourism node, the areas most suited to the development of tourism accommodation and associated facilities have been identified (figure 5), and are supported by detailed planning and sustainability guidelines (table 5).

There are few relatively flat areas in the node suited to further development although the northern portions of Lot 2 (already substantially developed) and proposed Lot 319/Part Lot 6 may provide reasonable sites for construction. Notwithstanding any additional constraints, appropriate design and engineering may allow development to take advantage of steeper areas to provide guests with views through to Lighthouse Bay and North West Cape.

It is important to highlight that the topography of the node is expected to shape further development at Vlamingh Head. The preferred approach is for development to accept the undulation of the site and to

work with it, ensuring that buildings are integrated into the landscape and that the semi-remote and natural experience is retained. A 'tread lightly' approach should be adopted where dwellings are raised above ground level thus avoiding the need to structurally alter the landscape.

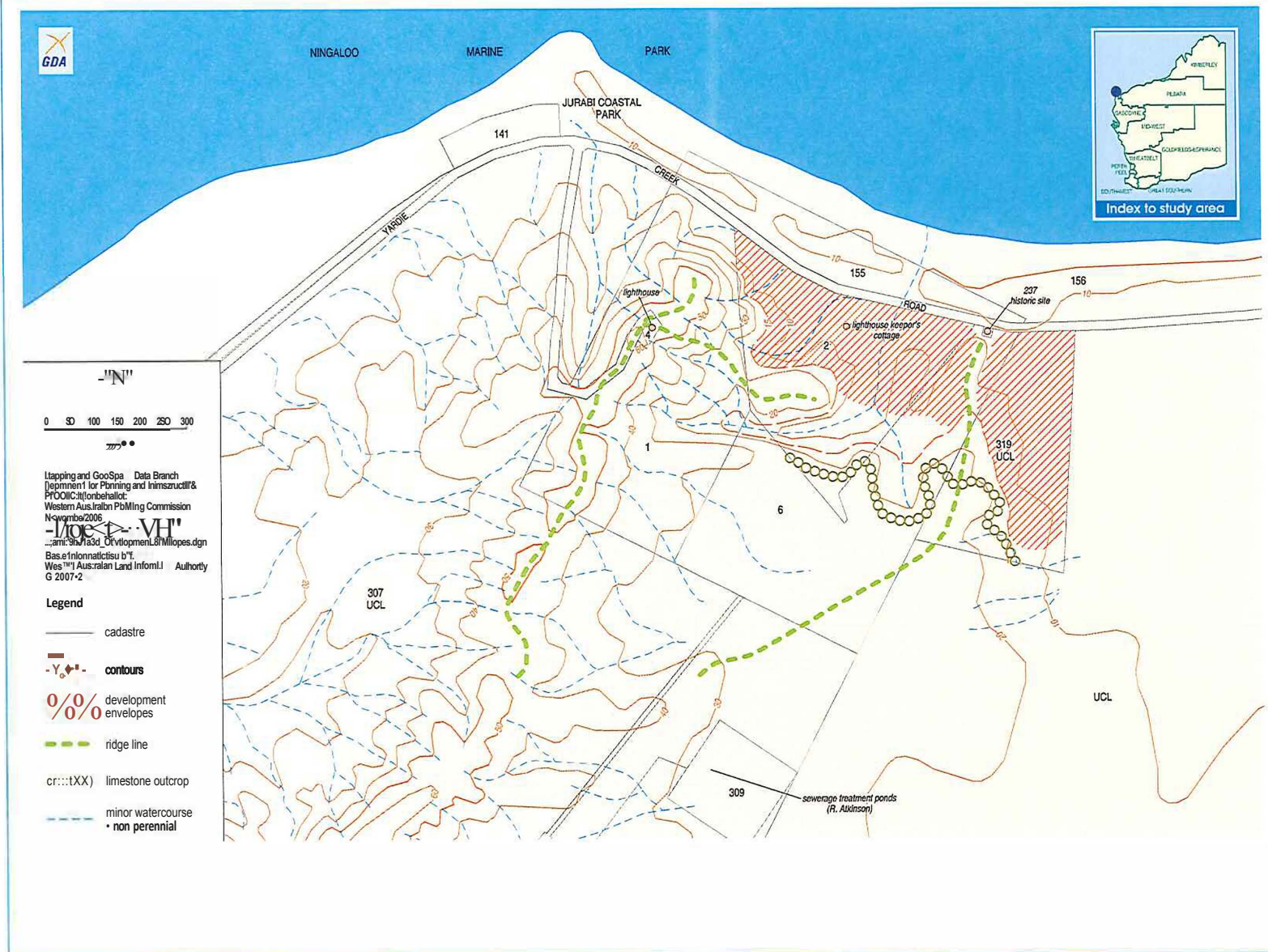
Development is to be contained in the envelopes, which are constrained by the 15 m contour line, for the purpose of protecting the landscape and visual amenity of Vlamingh Head, along with other site-based constraints including potential flood prone areas. The masterplan permits development outside these envelopes, according to specified conditions; however, the highest point of any structure is not to exceed the 20 m contour line (excluding telecommunications).

Development that is consistent with the masterplan objectives will require adherence to the following design imperatives:

- locate buildings in the existing landscape and away from visually sensitive ridgelines and exposed limestone outcrops;
- ensure that buildings and structures respond sensitively to the unique physical environment;
- single storey only;
- plan for diversity;
- where appropriate, enable visitors to enjoy their own private spaces.
- Create an environment that will enable cars and pedestrians to *move* safely through the entire node. For example, cars may be separated from pedestrians where practicable by providing rear access to accommodation while maintaining foreground areas as open space with shade.

2. Potential for flooding requires referral of development proposals to DoW with respect to building requirements etc.

Figure 5: Development envelopes



15 Subdivision

Subdivision in the masterplan area will not be supported. Subdivision would compromise the ability of the newly created lots to accommodate a viable tourism enterprise, based on the bed numbers specified elsewhere in this plan. Notwithstanding this, strata titling of tourism development is acknowledged as a means for financing some forms of development, and in principle the strata titling of new tourist accommodation at Vlamingh Head may be supported. However, any proposal for strata titled tourist accommodation would need to address issues relating to design, construction and fit-out, separation of unit ownership and establishment management. Furthermore, any such proposal in strategic tourism locations such as Vlamingh Head must demonstrate that the use of the accommodation for tourism purposes will be protected.

16 Overnight visitor numbers

An overall limit of 1020 overnight visitors is proposed in this masterplan for the Vlamingh Head tourism node, taking into account:

- the expectation of freehold landowners to be able to develop their landholdings for tourism purposes;
- site-based constraints on built structures;
- the need for development to retain the semi-remote experience and protect the environmental and landscape character of the area; and
- the need to ensure Exmouth is retained as the location for major development.

In accordance with the NSDC's resolution of 2 March 2006, all of the additional bed numbers are allocated to Lot 319/Part Lot 6 in recognition of the land tenure history. The allocation to Lot 2 is 720 beds based on the Lighthouse Caravan Park's most recent (September 2005) caravan park license that authorises 152 short-stay sites and 28 campsites³. The final allocation to proposed Lot 319 is 300 beds.

It is worth noting that the overall land area at Vlamingh Head is similar to that of Coral Bay, which currently caters for about 1900 overnight visitors. An increase in the capacity of the Vlamingh Head node to 1020 overnight beds would result in the node being slightly more than half the current size of Coral Bay.

In the process of preparing the masterplan the landowner of proposed Lot 319/Part Lot 6 has sought an overnight visitor capacity of up to 700 beds. Growth of this extent would result in Vlamingh Head being about 70 per cent of the current size of Coral Bay, a scale of development well beyond that consistent with the Ningaloo Coast Regional Strategy Carnarvon to Exmouth.

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3. Bed numbers have been calculated on the basis of four beds per caravan, camping site or chalel and up to a maximum of eight beds per holiday home. This is consistent with the bed number methodology applied in Coral Bay.

Table 5: Planning and sustainability guidelines

Guidelines	
Location and setbacks	<ul style="list-style-type: none"> All development should be contained in the identified development envelopes unless it demonstrates a site-responsive design that minimises impact on the environmental and visual/landscape character of Vlamingh Head. The highest point of any structure must not exceed 20 m Australian height datum, excluding installations for telecommunications purposes (eg aeriels). Buildings and infrastructure, particularly accommodation structures, must avoid risk of damage from coastal processes including the impact of cyclones, consistent with State Planning Policy 2.6. No development is to occur in creek lines or areas prone to inundation by flooding, to be determined with reference to 1 in 100 year flood levels and a precautionary principle safety factor. A road frontage setback of 20 m is required from Yardie Creek Road. Appropriate setbacks are required from sites of cultural significance or heritage value including Aboriginal heritage.
Development type and scale	<ul style="list-style-type: none"> All development must be for tourism related purposes. Occupancy is limited to a maximum of three months in any calendar year, except for an on-site caretaker/manager. Low-density development that complies with the overall bed number allocation is permitted in the development envelopes. High impact land uses including high-density tourism, residential, mixed use and industrial uses are not permitted at Vlamingh Head. The preferred design for development is modular with breaks between individual buildings and limited solid enclosures and thermal mass. No development is to exceed one storey and five metres in height.
Environment	<ul style="list-style-type: none"> All buildings, infrastructure and landscaping are to be designed to minimise alteration to the natural topography of the site. Locations of declared rare or priority flora and fauna species are to be avoided or protected, and disturbance to important breeding or feeding areas is to be minimised. Development should be sensitive to native fauna such as kangaroos and emus entering the tourism node for water and shade. Disturbance or loss of natural vegetation is to be avoided or minimised. Potential impact on the adjacent Ningaloo Marine Park and Jurabi Conservation Park are to be minimised, particularly with regard to turtle nesting. Lighting must not affect nocturnal or breeding animals. Treated sewage to secondary standard will be disposed via trickle irrigation to natural vegetation. Screened solids and sludge, all inorganic waste, and non-recycled organic waste should be transported to an appropriate licensed landfill. Development proposals should consider innovative pavement solutions as an alternative to bitumen and concrete to decrease stormwater run-off. Produce information brochures on the unique natural environment of Vlamingh Head, the sustainable design features of the development and ways people can assist in achieving environmental objectives and greater resource efficiencies.
Landscape amenity and sense of place	<ul style="list-style-type: none"> Development should be setback from visually prominent areas including ridgelines, limestone outcrops and other areas as identified in this masterplan The highest point of any structure must not exceed 20 m Australian height datum, excluding installations for telecommunications installations. A 500 m buffer is to be retained around the existing sewage treatment ponds unless a technical analysis is undertaken by the proponent to determine the nature and level of emissions (particularly odour) from the site for the purpose of specifying an appropriate buffer area. Proponents must prepare a visual impact assessment as part of any site development plans, that addresses: <ol style="list-style-type: none"> existing landform, vegetation, prominent features and key viewsheds; contour information at 1 m intervals; an artist's impression and/or 3D-model of the scale and built form of the proposed development that shows how it will affect visual amenity values. Architectural style, landscape design and construction materials should reflect local elements.

Table 5: Planning and sustainability guidelines

Infrastructure	<ul style="list-style-type: none"> • The cost of providing power, water and wastewater treatment systems to service the Vlamingh Head tourism node is the responsibility of the proponent. • A detailed analysis of potable and non-potable water availability for development at Vlamingh Head is to be undertaken by the proponent to determine the most appropriate source(s) of water. • On-site renewable energy from wind turbines and solar panels is advocated given the constraint on power supply and to reduce the environmental impact associated with the consumption of fossil fuels for energy generation. • Wind-diesel systems and other forms of remote area power supply should be promoted. • Wastewater treatment on-site via a commercial sewage treatment plant capable of treating sewage and grey water to secondary standard for sub-surface garden irrigation should be promoted.
Resource efficiency	<ul style="list-style-type: none"> • The design and orientation of dwellings should be climate-responsive by adopting passive heating and cooling strategies for the thermal comfort of visitors: <ul style="list-style-type: none"> • cross ventilation in living areas and bedrooms; • adequate roof overhangs and window treatments to reduce heat loads; • shaded outdoor living areas on multiple sides; • , maximise roof ventilation; • orientation that acknowledges strong prevailing winds. • Energy efficient buildings to reduce the environmental impact from energy production should be provided. Features should include: <ul style="list-style-type: none"> • solar hot water storage systems on all dwellings; • high standard wall and floor insulation; • , window and door placement for cross ventilation; • performance glazing; • shading of walls and window treatment; • external pull-out clotheslines to reduce use of electric clothes dryers; • ceiling fans for cooling; • insulated hot water pipes; • SA rated energy efficient appliances; • natural light in kitchens and bathrooms; • ample day lighting to all rooms and energy efficient lighting sources. • Use of non-potable water, including grey water and secondary-treated black water in public open space and landscaped areas should be advanced to reduce consumption of potable water. • Organic and green waste should be collected, composted and appropriately stored for use as mulch, soil improver or fertiliser. • Incorporate water sensitive design principles and features into overall design of buildings, hard surfaces, landscaped areas and stormwater drainage. In buildings, features should include: <ul style="list-style-type: none"> • low flow showerheads conforming to minimum rating of 3A • , toilet flushing conforming to a minimum rating of 3A (3/6L or 2/4L dual flush systems) • , all sink and basin taps to be a minimum rating of 3A.
Economic	<ul style="list-style-type: none"> • The development should provide improved employment and career opportunities for people working in Exmouth. • The development should increase the diversity of tourist accommodation at Vlamingh Head, and more broadly the Exmouth area.
Access	<ul style="list-style-type: none"> • An orderly flow of vehicles and pedestrians throughout the node should be provided for. • Appropriately managed and signed pedestrian access to the beach is required. • , Vehicle access is to be retained through Lot 6 to the DoD bores to the south of the node.

2.0 Implementation

2.7 Scheme amendment

The masterplan has been adopted by the Exmouth Shire Council and the NSDC to guide detailed site development planning for tourism accommodation at Vlamingh Head. An amendment to the Shire of Exmouth Town Planning Scheme No. 3 is necessary to ensure it accords with the masterplan. If the proposed land swap is to proceed it will also be necessary to ensure that the tenure over the remainder of Lot 6 reverts back to unallocated crown land.

For the purpose of the scheme amendment, it is envisaged that Lot 2 and Lot 319/Part Lot 6 would be rezoned as a special use zone for the purpose of tourist accommodation with prescribed conditions. The conditions would require that all development must be generally in accordance with the Vlamingh Head Masterplan and that the following uses would be subject to the 'AA' requirements of the scheme:

- , caravan park
- , holiday home
- short-stay apartment
- , ecotourism accommodation (including restaurant)
- shop
- , caretaker's dwelling.

No other uses except those already in existence (eg fuel station) would be permitted.

The balance of Lot 6 reverting back to unallocated crown land will also need to be rezoned to a local scheme reserve for the purpose of recreation and public open space.

It should be noted that Council recently resolved to prepare a new local planning scheme for the Shire of Exmouth. The manner in which strategic and other forms of tourism development are to be addressed in the new scheme has yet to be resolved, but is to be informed by a local tourism planning strategy that will focus on tourism as a key local economic activity. In addition, a local planning strategy to manage and guide all land uses in the Shire of Exmouth and promote sustainable development will form an integral component of the new scheme.

2.8 Review of coastal tourism framework

In addition to the necessary scheme amendment and possible changes in land tenure, the Vlamingh Head tourism node should be removed from the category of tourism node in the coastal tourism framework contained in the Ningaloo Coast Regional Strategy Carnarvon to Exmouth. At full capacity Vlamingh Head will be twice the size of the maximum permissible overnight visitor numbers of a tourism node on the Ningaloo coast, except Coral Bay. It is important that this increased number of permissible overnight visitors does not create a precedent for an expectation of growth in the size of other development nodes on the Ningaloo coast. It should be emphasised that the unique planning context of Vlamingh Head, particularly its historic land transactions and the existing scale of development, required the overall size of the node to be reviewed as part of the implementation of the coastal tourism framework.

2.9 Masterplan review

It is intended that the masterplan be reviewed no later than five years after its adoption by the NSDC in June 2008.

2.10 Next steps

The Exmouth Town Planning Scheme No. 3 requires amending in order to give affect to the Vlamingh Head Masterplan, and this would include the rezoning of Lot 319 and the rear portion of Lot 6. The amendment must be initiated by Council and then approved by the Minister for Planning. Once finalised, site development plans may be submitted to Council and the NSDC for planning approval.

3.0 References

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