The Coordinator-General

Hummock Hill Island Development project

Coordinator-General's report on the environmental impact statement

February 2011

Tomorrow's Queensland:
strong, green, smart, healthy and fair

Toward Tomorrow's Queensland

Queensland Government

SPC_0167_.001_Pu

Contents

Synopsis vi

1 Introduction 1

2 Project details 2

2.1 The proponent 2
2.2 The project 2
2.3 Project rationale 8
2.3.1 Tourism justification 8
2.3.2 Economic justification 12

3 The environmental impact assessment process 15

3.1 Australian Government impact assessment 15
3.2 State impact assessment 15
3.2.1 Declaration as a significant project 16
3.2.2 Terms of reference for the EIS 16
3.2.3 Public notification and review of the EIS 17
3.2.4 Supplementary EIS 18
3.3 Public consultation on the project 20
3.4 Project approvals 20
3.4.1 State and local approvals 20
3.4.2 Australian Government approvals 21

4 Evaluation of environmental effects 22

4.1 Introduction 22
4.2 Proponent commitments 22
4.3 Social, economic and planning impacts 23
4.3.1 Planning issues 23
4.3.2 Master plan/draft plan of development 30
4.3.3 Development schedule 32
4.3.4 Tourism and leisure facilities 32
4.3.5 Community facilities, social and emergency services 33
4.3.6 Impacts on mineral deposits 35
4.3.7 Native title and cultural heritage 36
4.3.8 Safety 37
4.4 Infrastructure impacts 37
4.4.1 Infrastructure agreements 37
4.4.2 Bridge and causeways 38
4.4.3 Public boat ramps 40
4.4.4 Water supply 44
4.4.5 Waste, wastewater and other services 49
4.4.6 Roads 54
4.4.7 Airstrip 56
4.4.8 Landscaping 56
4.5 Fauna and flora 57
4.5.1 Fauna 57
4.5.2 Flora 61

4.5.3 Potential impacts on terrestrial ecology 63
4.5.4 Mitigation measures—terrestrial ecology 66
4.5.5 Potential impacts on marine ecology 76
4.5.6 Mitigation measures—marine ecology 78
4.5.7 Coordinator-General's conclusion—fauna and flora 80
4.6 Acid sulfate soils 81
4.6.1 Context 81
4.6.2 EIS findings 81
4.6.3 Coordinator-General's conclusions 82
4.7 Weed and pest management 82
4.7.1 Weed management 82
4.7.2 Pest management 83
4.8 Significant coastal dunes 83
4.9 Visual amenity 84
4.10 Sustainability 85
4.10.1 Sustainable buildings 85
4.10.2 Other sustainable development outcomes 86
5 Environmental management plans 87
5.1 Context 87
5.2 Construction EMP 87
5.3 Draft EMPs 88
5.4 Coordinator-General's conclusion 90
6 Matters of national environmental significance 91
6.1 Introduction 91
6.2 Public consultation 91
6.2.1 Terms of reference 91
6.2.2 Environmental impact statement 92
6.2.3 Supplementary EIS 92
6.2.4 Other public information and consultation activities 93
6.3 Description of the proposed action 93
6.4 Places affected by the project 95
6.5 Assessment of potential impacts and mitigation measures 95
6.5.1 World Heritage values 95
6.5.2 Listed threatened species and communities 113
6.5.3 Listed migratory species 132
6.6 Offsets 136
7 Conclusion 138
Appendix 1 Conditions and recommendations 140
Appendix 2 Proponent's commitments 167
Appendix 3 World Heritage Values for the Great Barrier Reef Marine Park World Heritage Area 175
Appendix 4 Proposed vegetation clearing and offsets 179
Appendix 5 Draft lease conditions 182
Appendix 6 Machinery of government changes 187
Abbreviations and acronyms 188

Figures

Figure 2.1 Project location (Latitude: 24°01’S, Longitude: 151°28’E).....5
Figure 2.2 Project master plan (full island view).....6
Figure 2.3 Precinct plan.....7
Figure 4.1 Hummock Hill Island connectivity, highlighting areas A (Red) and B (Yellow) 75

Synopsis

Introduction

This report has been prepared pursuant to section 35 of the *State Development and Public Works Organisation Act 1971* (Qld) (SDPWO Act) and provides an evaluation of the environmental effects of the Hummock Hill Island development project (HHID project/the project).

The proponent for the project, Eaton Place Pty Ltd, proposes to construct a $950 million integrated tourism and residential community within Special Lease (SL) 19/52155 on Hummock Hill Island (HHI), 30 kilometres south east of Gladstone. The site is located about 100 metres off the mainland within Rodds Bay in the south-east coastal area of the Gladstone Regional Council (GRC). Of the 1163-hectare (11.63 square kilometres) SL area, the proponent proposes a development area of 518 hectares (5.18 square kilometres) consisting of 341 hectares (3.41 square kilometres) for the development footprint and 177 hectares (1.77 square kilometres) for open space, golf course and parkland. Development of the lease area into a master planned tourism/residential community will occur over a 15 to 20-year period, along with construction of a bridge between the island and the mainland near Turkey Beach, Queensland.

The development will incorporate a range of short-term tourist accommodation such as resort hotels, holiday units and camping grounds for approximately 2800 tourists (at full capacity). There are also plans to have 700 permanent residences housing approximately 1200 people (at full capacity) at this location. The township design also promotes educational and village precincts, boat ramps and beach access, an 18-hole golf course, retail outlets, relevant public infrastructure and leisure facilities for local communities.

On 13 January 2006, the project was determined to be a controlled action likely to affect matters of national environmental significance under section 75 of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Under a bilateral agreement with the Australian Government, this Coordinator-General's report will be used by the Australian Government Minister for Sustainability, Environment, Water, Population and Communities (Australian Government Minister for Environment) to assess the controlled action for the purposes of the EPBC Act.

On 17 November 2006, the HHID project was declared to be a 'significant project for which an environmental impact statement (EIS) is required' pursuant to section 26(1)(a) of the SDPWO Act. The EIS for the HHID project was advertised for public comment from 10 December 2007 until 4 February 2008. A supplementary EIS (SEIS) was also prepared, which addressed the submissions made on the EIS.

In evaluating the potential environmental, social and economic impacts of the project, the Coordinator-General considered the EIS, SEIS and detailed environmental management plans (EMPs) prepared by the proponent; public submissions received on the EIS; comments on the EIS and SEIS, and advice received on a range of key issues from GRC, state agencies and the Australian

Government Department of Sustainability, Environment, Water, Population and Communities; and other relevant information.

The requirements of the SDPWO Act have been satisfactorily fulfilled and sufficient information has been provided to finalise the required evaluation of the potential impacts attributable to the HHID project.

Social and economic impacts

The current planning scheme (Miriam Vale Shire Council 2009), the non-statutory Wide Bay Burnett Regional Plan (WBBRP) and the State Coastal Management Plan generally seek to contain urban land uses to existing developed areas and away from the coastal zone. This accords with best practice, which dictates that the preferred settlement pattern for a region should result in a compact, well-serviced and efficient urban form. Similarly, urban land uses should also avoid sensitive coastal areas to minimise risks to important habitats and/or degradation of the marine environment.

If the HHID proposal consisted of residential uses only (and therefore requiring social services generally associated with large residential developments), the conclusion would be that it is inconsistent with the above planning principles and therefore inappropriate. However, this is not the case as first and foremost the HHID is a tourism development with an attached residential component.

The HHID is expected to inject $65 million per annum in tourism expenditure by 2016 and over $85 million by 2024. The development is also expected to generate an average of 190 jobs per annum during the 17-year construction period with peak employment of 350 people. The number of operational jobs created by the project is expected to rise steadily over the life of the development and is expected to peak at around 700 people in 2024. Total benefits are expected to be $1020.2 million with a net benefit being around $360 million (2007/2008 dollars over 30 years).The project would also benefit the local community, given its close proximity to Gladstone and the inclusion of public facilities such as beachfront parks and other passive recreation opportunities.

The EIS found that the residential component is critical to the financial viability of the overall development. The permanent residents on the island would contribute significantly to the funding of recreation and community facilities and the open space areas through rate levies to be imposed by GRC. Sales of residential land would underpin the ability of the project to provide the necessary infrastructure and services. The proposed level of permanent residential dwellings within the development footprint (i.e. 30 per cent of dwellings) is considered to be suitable for an integrated tourism/residential development of this size and location.

Infrastructure impacts

The HHID requires major infrastructure to be developed, including roads, access bridge, boat ramps, water supply, wastewater, gas, electricity, power and airfield. The proponent has committed to provide and fund all necessary infrastructure for the development so that local and state infrastructure providers are not affected. A condition has been stated in this report for the proponent to enter into an operation

and maintenance agreement with the GRC to maintain and operate the service infrastructure. Conditions have also been stated in relation to designing and constructing the proposed bridge and boat ramps.

Road studies undertaken for the EIS indicate that two roads and a number of intersections on the mainland would require upgrading if the HHID was to proceed. Upgrades would be required for state- and council-controlled roads. The proponent is required to enter into infrastructure agreements (or similar instrument) with the Department of Transport and Main Roads (TMR) and GRC for works on the respective roads/intersections as indicated in the EIS and SEIS and to fully fund and construct appropriate roads and relevant infrastructure for the development on HHI.

The proponent's desire to use desalination as its major source of potable water for the HHID is noted. However, GRC's requirement for the development to connect to mains water supply (in the long-term) and its initiative to provide services to southern areas of the GRC's region, including mains water supply are acknowledged. However, a timeframe is not been set at this time. Until GRC can provide mains water supply to the area, the project will require water supply from a temporary desalination plant to be constructed within the development footprint.

The EIS (including EMPs), and subsequent documents, provide mitigation measures and commitments proposed by the proponent for water quality management. It is considered that the potential for the HHID to impact on water quality in Colosseum Inlet, Boyne Creek, Rodds Bay (adjacent to the island), and around the island in general, can be adequately minimised through these mitigation measures. This includes implementing erosion and sediment controls and water sensitive urban design practices, the proponent's commitments and the construction and operational EMPs. Relevant conditions have been set in this report to ensure marine water quality is appropriately managed.

The project proposal includes mitigation of impacts on infrastructure and other services associated with its out-of-sequence location. The project proposal includes hard infrastructure such as roads, water and sewerage at no cost to local or state government. Infrastructure for social services such as police, ambulance and fire brigade facilities will be funded by the proponent through infrastructure agreements between the proponent and the state government. Surrounding communities, such as Turkey Beach are also expected to benefit from these services.

Environmental management of the site (flora and fauna)

The EIS reported that targeted surveys on HHI during 1993 and 2007 located 5 amphibians, 14 terrestrial reptiles, 125 birds, 33 mammals and 4 aquatic species. Of these, four species of birds, one mammal species and all four aquatic species are considered to be rare or threatened in Queensland or at a national level.

Targeted surveys in the development area during 1993 and 2007 did not locate any listed threatened flora species. Therefore, no significant impact is expected on listed flora; however, conditions stated in this report require vegetation mitigation strategies that will protect these species, if located during clearing works.

The SEIS indicates that approximately 518 hectares (5.18 square kilometres) of vegetation needs to be disturbed for the development (including all infrastructure). The regional ecosystems (RE) that are listed as endangered, of concern or least concern total approximately 300 hectares (three square kilometres).

A recommendation is stated in this report to ensure the rehabilitation, ongoing management and conservation of all parts of HHI not allocated for urban purposes. The proponent has submitted an offsets proposal to the state government and it is considered that it will meet the state's offsets requirements.

The EIS recommends that the parts of the island that will not be developed as part of the HHID require specific management to ensure the ongoing protection of these areas. In the long-term, it is preferred that a conservation park be declared under the *Nature Conservation Act 1992* (NCA) over all the undeveloped parts of the HHI (approximately 1700 hectares or 17 square kilometres) and for GRC to assume the role of trustee. However, this is presently not feasible given the presence of an exploration permit (for mineral sands) over 2041 hectares (20.41 square kilometres) of the island and interim arrangements are recommended.

It is noted that the proponent has committed to fund and manage the undeveloped parts of the island (land outside the development footprint, approximately 1700 hectares) for 17 years or as otherwise agreed with GRC through an infrastructure agreement. GRC will be responsible for managing this area at the conclusion of the infrastructure agreement. A condition has been stated in this report to ensure the proponent's commitment and the appropriate management of the undeveloped parts of HHI. Beneficial aspects of this would include control of public access to sensitive areas, greater public awareness and a reduction in the incidence of feral animals on the island.

The EIS indicates that the closest seagrass areas to the proposed bridge and boat ramp at Boyne Creek occur approximately 200 metres east of the existing causeway. Accordingly, construction of the bridge is unlikely to impact on local seagrass. Approximately 0.38 hectares of mangroves and 0.38 hectares of saltpan are expected to be impacted by the bridge construction.

The EIS stated that the changes to Boyne Creek tidal flows are anticipated to be minimal due to installation of bridge supports. An overall positive impact is expected following the removal of the current artificial rocky causeway with restoration of the natural flow regime and greater access for marine fauna.

Constructing the bridge and removing the current causeway would improve navigation for boat users and potentially benefit fish and other marine fauna. These benefits would outweigh the minor impacts on the marine fish habitat associated with the disturbance of small areas of mangrove and saltflat communities.

The Boyne Creek boat ramp and associated facilities will require removal of approximately 0.07 hectares of mangroves. This represents approximately 0.002 per cent of mangrove habitat within the Colosseum Inlet, Boyne Creek, Sandfly Creek and the Seven Mile Creek intertidal wetland system. The Colosseum Inlet boat ramp and associated facilities will require 0.6 hectares of 'least concern' RE 12.2.11

(eucalypts). The road to the Colosseum Inlet boat ramp will require approximately 0.4 hectares of native vegetation to be cleared.

The EIS also states that increased boat traffic in Boyne Creek and Colosseum Inlet will occur as a result of increased accessibility resulting from the HHID, construction of boat ramps and natural population growth in the region. It is estimated that approximately 200 small boats will be owned by the permanent population of the development (about 3 per cent of the total 2006 boat ownership in the Gladstone local government area), with up to 20–30 of these in use on any given day. A similar number of boats could be expected to be used by tourists to the island.

Based on population projections for the region, the proportional increase in boat numbers in the region will be in the order of 2500 over the 15-year development period of the HHID. From a regional sense, the level of boat ownership and usage related to the project is relatively minor in comparison to anticipated growth in the region's boat numbers. The estimated increase of up to 20–30 boats (per day) within the area is not expected to have a significant impact on water quality and marine fauna (including dugong and turtles).

The EIS indicates that impact on habitat for dugongs, turtles and other key marine species around HHI is expected to be negligible given the minor impacts associated with the bridge and boat ramps and the commitment to a high standard of management of water quality from the development.

Increased human activity on HHI could impact on the small number of turtles that may nest on the island. The northern beaches of the island appear suitable for turtle breeding and egg laying; however, the EIS indicated that there is evidence that turtles use these beaches infrequently and at low densities.

Beaches on the island will not be directly impacted by the development and the proponent has committed to employ techniques that have been successfully used elsewhere, to ensure that public access to turtle breeding beaches does not affect turtle breeding, egg laying and egg hatching.

The proponent has proposed a suite of management strategies to mitigate potential construction and operational impacts on terrestrial, fauna, flora and communities including an offsets strategy, EMPs, protected areas management and a wildlife management plan.

In constructing and operating the project, the proponent has committed to mitigation measures to negate or minimise potential impacts on marine flora and fauna. This includes minimising clearing of key habitats, implementing erosion and sediment controls, water sensitive urban design, water quality monitoring, marine ecological monitoring, integrated turf and pest management, commitment to the *Reef Water Quality Protection Plan 2009*,[1] nesting turtle strategies, artificial lighting strategies and public awareness and education programs. Conditions have been stated in this report requiring the proponent to implement these measures.

[1] Department of Premier and Cabinet, *Reef Water Quality Protection Plan*, Department of the Premier and Cabinet, 2009, viewed 2 February 2011, www.reefplan.qld.gov.au/library/pdf/reef-plan-2009.pdf

Implementing the required mitigation and conservation measures should avoid and minimise any potential impacts of the HHID project on key fauna species. As a result, it is expected that there may be minimal short-term disturbance to, and no significant long-term impact on, listed threatened species and communities on and surrounding HHI.

Conclusion

It is considered that there is a major positive net benefit to the community from the development of the project and that it can proceed, subject to a number of specific conditions (detailed in Appendix 1 of this report) to manage its design, construction and operation.

It is also considered that the EIS process for the HHID project has addressed the environmental and other impacts of the project and the mitigation and offset measures to be adopted to avoid or minimise the impacts, and meets the Queensland Government's impact assessment requirements, in accordance with the provisions of part 4 of the SDPWO Act and part 5 of the State Development and Public Works Organisation Regulation 1999.

Pursuant to section 39 of the SDPWO Act, it is recommended that the HHID project, as described in detail in the EIS and supplementary report, and summarised in section 2 of this report, should proceed subject to the conditions and recommendations contained in this report.

This report will be provided to the proponent, GRC and relevant state agencies, and will also be made publicly available at www.dip.qld.gov.au

Under section 17(2) of the SDPWO Regulation and a bilateral agreement with the Australian Government, this report will be given to the Australian Government Environment Minister to assess the controlled action for the purposes of the EPBC Act.

.....

Keith Davies
Coordinator-General
28 February 2011

1 Introduction

This report has been prepared pursuant to section 35 of the *State Development and Public Works Organisation Act 1971* (SDPWO Act) and provides an evaluation of the environmental impact statement (EIS) for the Hummock Hill Island development project (HHID project or the project).

It is not intended to record all the matters that were identified and subsequently settled. Rather, it concentrates on the substantive issues identified during the EIS process. The report:

- summarises the key issues associated with the potential impacts of the project on the physical, social and economic environments at the local, regional, state and national levels
- presents an evaluation of the project, based on information contained in the EIS, supplementary EIS (SEIS), submissions made on the EIS and information and advice from advisory agencies and other parties
- states conditions under which the project may proceed.

Under a bilateral agreement with the Australian Government, this report will be used by the Australian Government Minister for Sustainability, Environment, Water, Population and Communities (Australian Government Minister for Environment) to make an assessment of the controlled action for the purposes of the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act).

2 Project details

2.1 The proponent

The proponent for the project is Eaton Place Pty Ltd. The principal shareholders of the proposed HHID are the Scarf and Hatsatouris families of Sydney, New South Wales (NSW). These family companies, along with associated businesses, have successfully undertaken major property developments in NSW, including shopping centres, home unit developments and commercial property development to the value of over $250 million over the past 10 years.

Eaton Place Pty Ltd currently possesses a Special Lease (SL) (SL19/52155) over Lot 3 on FD841442 which covers an area of 1163 hectares (11.63 square kilometres) on Hummock Hill Island (HHI), 30 kilometres south-east of Gladstone. The lease is granted for business, industrial, commercial, residential, tourist and recreational purposes, with specific conditions requiring the lessee to purchase each stage of the development upon completion.

2.2 The project

Eaton Place Pty Ltd proposes to construct a $950 million integrated tourism and residential community within the SL area on HHI. The site is located within Rodds Bay in the south east coastal area of the GRC (refer Figure 2.1). The island is also located about 100 metres from the mainland and forms the western edge of the Great Barrier Reef Marine Park (GBRMP), at low water mark. The inner waters and the marine area between low water and highest astronomical tide (HAT) are located within the State Government's GBRMP. HHI is also located in the Great Barrier Reef World Heritage Area (GBRWHA) and adjoins the Colosseum Fish Habitat Area. The island is connected to the mainland by an artificial rocky causeway which provides four-wheel drive access at extreme low tides.

In the report *Floristic analysis of the Great Barrier Reef continental islands, Queensland*[2], Batianoff and Dillewaard indicate that there are approximately 552 continental islands recorded along the east coast of Queensland within the GBRMP. The total area of these islands is approximately 1627 square kilometres of which HHI (21.5 square kilometres) represents 0.013 per cent of the land mass. The Australian Government's listing of World Heritage values for the GBRWHA records 600 continental islands within the wider GBRWHA.

The project is the redevelopment of a pastoral lease into a master planned tourism/residential community over a 15 to 20-year period. Other lots affected by the proposed development include:

[2] GN Batianoff and HA Dillewaard, *Floristic analysis of the Great Barrier Reef continental islands, Queensland*, Queensland Department of Environment, 1995.

- Lot 1 on FD841442—boat ramp on Colosseum Inlet and access track connecting this to the western edge of the proposed development
- Lot 1 USL 43258—Boyne Creek bridge, boat ramp and causeway (mainland side)
- Lot 10 FD841442—Boyne Creek bridge (island side).

Of the 1163-hectare (11.63 square kilometres) SL area, the proponent proposes a development area of 518 hectares (5.18 square kilometres) consisting of 341 hectares (3.41 square kilometres) for the development footprint and 177 hectares (1.77 square kilometres) for open space, golf course and parkland. The active management and protection of undeveloped parts of the lease area and the remainder of the island are discussed on page 69 of this report.

Section 3 of the EIS and section 2 of the SEIS described the proposed development. In summary, the development will include the following:

- 240-room resort hotel
- 150-room beachfront tourist eco-hotel
- 70-room motel
- tourist park
- holiday and residential properties in one-, two-, three- and four-bedroom configurations
- golf course and other sporting facilities
- community centre
- education and research centre
- public boat ramps
- commercial facilities
- health facilities
- associated public infrastructure (including access bridge).

The HHID is expected to accommodate approximately 1200 permanent residents and 2800 tourists when the development is at full capacity. The project's final precinct plan (refer Figure 2.3) highlights the specific categories of development within the development footprint. The project's master plan, draft plan of development and the tourism/residential mix is addressed in detail in section 4.3.2 of this report.

During the EIS process, the proponent undertook consultation activities and a review of outcomes, which led to revisions to the development footprint. While not substantially different in concept, the revisions include:

- all development contained within the special lease area
- all development outside the coastal management district (i.e. erosion prone areas)

- inclusion of a fauna corridor network to ensure connectivity between nature areas surrounding the development footprint
- impacts on endangered regional ecosystems (REs) in the western development precinct have been reduced by amending the development layout
- firebreaks between development areas and surrounding open space have been accommodated internally within the development footprint.

The proposed development schedule for the HHID is included as Figure 2-2 in the SEIS. The schedule shows a 17-year development program after obtaining project approvals from the Local, State and Australian governments. Further details are provided in section 4.3.3 of this report.

Figure 2.1 Project location (Latitude: 24°01'S, Longitude: 151°28'E)

Figure 2.2 Project master plan (full island view)

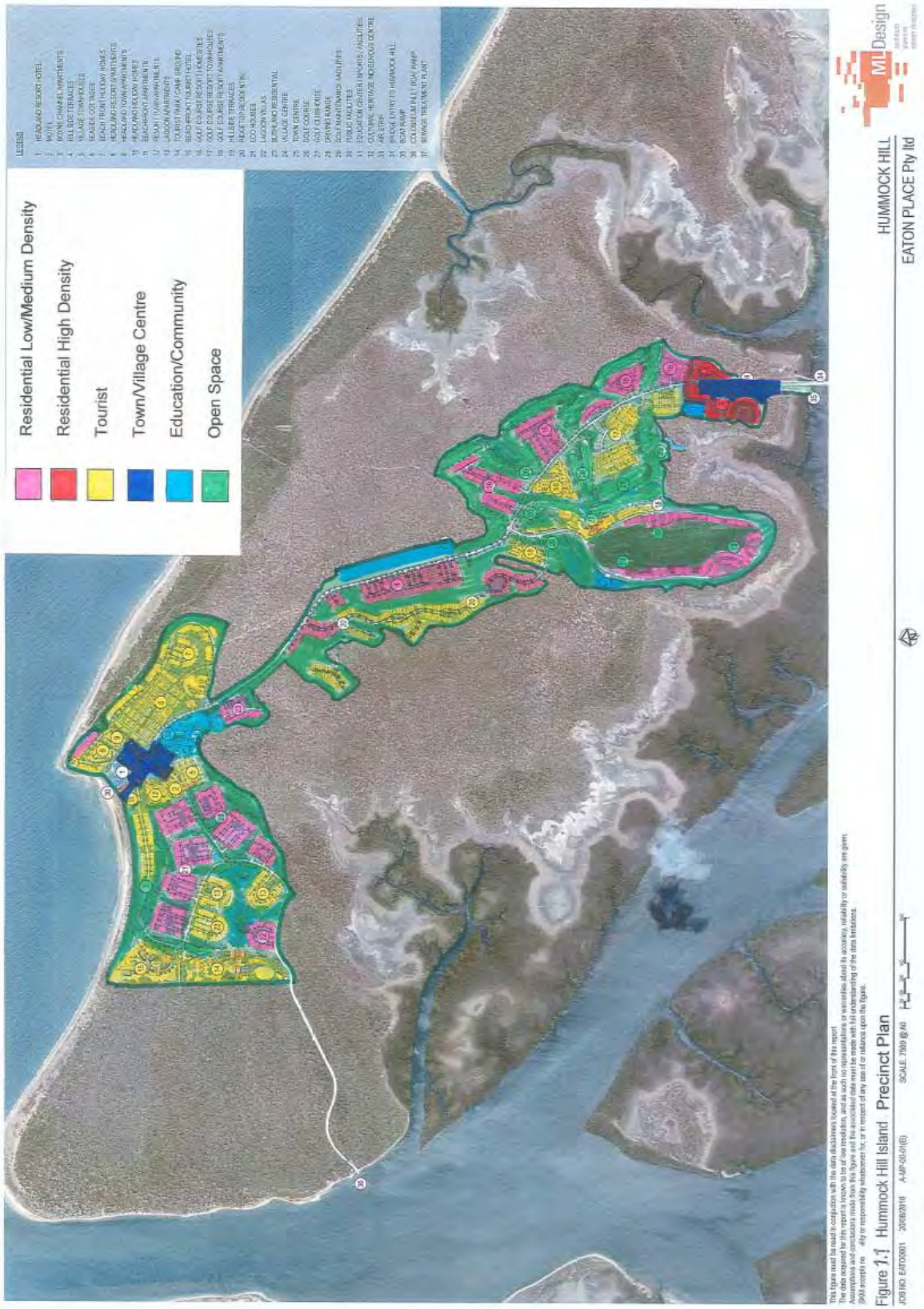

Figure 2.3 Precinct plan

2.3 Project rationale

The EIS indicates that the HHID project will bring major economic and social benefits to the surrounding districts, the region and the state. The project's close proximity to the nearby major export centre of Gladstone is predicted to have the added outcome of boosting domestic tourism by providing a viable new source of recreational and social outlet for the increasing numbers of mining and associated industry workers and their families located in the Gladstone region. The location of HHID in the GBRWHA will also provide an alternative destination option for international visitors seeking to experience the unique environment in relative comfort.

2.3.1 Tourism justification

Central Queensland tourism—context

In late 2006, the Queensland Government delivered the *Queensland Tourism Strategy: A 10-year vision for sustainable tourism*.[3] One of the outcomes of this strategy was the preparation of a tourism opportunity plan for each tourism region across Queensland. This process was managed by Tourism Queensland (TQ) in partnership with regional tourism organisations (RTOs).

In 2009, the *Central Queensland Tourism Opportunity Plan* (CQTOP), covering the tourism regions of Gladstone and Capricorn, was released. The plan provides direction for sustainable development of tourism in the Central Queensland region to 2019. While not identified as a catalyst project in the plan (due to its early stage of environmental assessment), the HHID is listed as one of the new projects and opportunities in the Gap Analysis section (section 4.2) of the CQTOP. Nevertheless, the Department of Employment, Economic Development and Innovation (DEEDI) has indicated that the HHID would meet a number of the key project selection criteria for a catalyst project identified by the plan, and would make a major contribution to achieving the region's tourism vision, namely: 'encourage profitable and sustainable development that immerses the ideal visitor in experiences that are sensitive to the unique natural, cultural and lifestyle features of Central Queensland.'

[3] Tourism Queensland, *Queensland Tourism Strategy: A 10-year vision for sustainable tourism*, Tourism Queensland, 2006, viewed 2 February 2011, www.tq.com.au/tqcorp_06/index.cfm?E98B24EA-BF4E-9693-F458-46147C183D91

Specifically, the project will serve as a catalyst project for the region for the following reasons:

Catalyst project—key project selection criteria	HHID's suitability
Is the product unique or provide a competitive advantage for the region?	HHID is a unique product for the Gladstone region as it would provide a tourism facility on a continental island within the GBRWHA, of a size and standard that does not currently exist in the region and would complement existing tourism infrastructure. HHID would provide competitive advantage for the area as an integrated tourism and residential community in Central Queensland of a standard and scale that is comparable with similar styles of development in South East Queensland and the Cairns region.
Does the project meet the needs of growth target markets?	HHID would accommodate the needs of growth target markets particularly the growing domestic market of industrial and mining workers and families, the domestic and international drive markets as well as providing a new destination option for international visitors to the GBRWHA.
Is the product/project demand driven?	HHID is focused on addressing expected market demand as the mining and industrial population in the area increases; and their short-term recreational/tourism requirements need to be captured or risk being lost to alternative destinations. In addition, the HHID is expected to serve as a major attraction and a potential destination for the current drive market that travels through the region thus extending the stay and spend of this market in the region.
Is the project aligned with Local, State or Commonwealth Government's priorities and likely to gain support from decision-makers?	The Queensland Government has granted the proponent of the HHID a SL on HHI for business, industrial, commercial, residential, tourist and recreational purposes. Justification of the Coordinator-General's recommendation to GRC that the project proceed is the basis of this report and is based on the Coordinator-General's assessment of the social, economic, planning and environmental implications of the development. GRC has stated in-principle support for the project.
Is the project aligned with the vision for the region and community aspirations?	The project has received in-principle support from the GRC as the HHID is seen as a catalyst project that will expand regional tourism product and assist GRC to provide equity of service provision (e.g. reticulated water supply) to existing communities in the outer areas of GRC's catchment (e.g. Agnes Waters and Town of 1770).

Further, the CQTOP identifies core elements of a vision for future growth and development of tourism in the Central Queensland region. A brief summary of how the HHID meets the desired development goals includes:

CQTOP desired development goals	HHID's suitability

Contribute to a positive image of the area as a destination in its own right (not just as a stopover) for local and international visitors and business people	The HHID is expected to enhance the region's current image and attractiveness by providing a new and different tourism experience for locals and tourists. The standard, quality and range of short-term accommodation in the development are expected to be an attraction in itself. The EIS demonstrates that there are no other sites between Agnes Waters and north of Curtis Island, within the existing developed areas of the region, suitable for a tourism development of this nature.
Recognise and highlight the internationally and nationally significant natural and heritage assets	The HHID is a resort within the GBRWHA and will be designed and constructed in an environmentally sustainable manner to enhance visitor experience through a mix of traditional and eco-lodge type short-term tourist accommodation. The development will provide walks, nature experiences and access to a WHA continental island coastline.
Successfully blend nature-based and industrial tourism to create a spectrum of experiences that encourage an increased length of stay	HHID will be located within high-value environmental areas which will be managed by the proponent to protect native species on the island. Education programs will be offered by the proponent to provide visitors and residents with knowledge of the area and ways to protect fauna and flora species. Two boat ramps are also proposed, which will provide safe, formal boat launching facilities in the area and allow recreational boat owners and tourists to access and appreciate the natural environment.
Protect and enhance the lifestyle of residents in Central Queensland	HHID will provide a recreational and social outlet for people working or living in the Gladstone region.
Target a specific market that appreciates the region's unique character and successfully provide infrastructure suitable to their needs	The HHID will provide an environmentally sustainable development for interstate, overseas and local visitors. The proposal will provide facilities and services for the drive market, attracting and retaining visitors in this growing market category. Recreational facilities include boat ramps, golf course, parkland and picnic areas, protected environmental areas, camping grounds, cafes and restaurants. The development will provide infrastructure such as power, water, sewerage, roads and communication. The proponent has committed to provide land and build facilities for police, fire brigade and ambulance which will service the island and surrounding areas.
Products that match the natural assets of the region and provide immersive experiences where you can get away from the crowds	HHI is located about 30 kilometres south of Gladstone. The HHID will include recreational and public facilities adjacent to WHA beaches that have not been easily accessible by locals. The HHID proposal demonstrates a sustainable use of an environmentally sensitive area which is adjacent to a natural environment.
Support a profitable and sustainable tourism industry	The HHID is expected to generate over $65 million per annum in tourism expenditure by 2016, and over $85 million per annum by 2024. By 2024, this would represent >$810 million of regional value added (>$290 million in net present value (NPV) terms).

The HHID also addresses most of the 'destination weaknesses' identified in the CQTOP including:

CQTOP destination weaknesses	HHID's suitability
Lack of internationally ready product	The HHID will provide a 240-room international standard resort hotel.
Low consumer awareness and preference	The range of tourist facilities proposed for the HHID, and the nature of the proposed development, will assist in raising the consumer awareness of the region and contribute to attracting increased visitation to the region, which in turn will improve customer preference of the region.
Limited conference and events facilities	The HHID will provide an education facility which will be available for conference seminars and training courses. Similar facilities will also be available in the resort hotel.
Reliance on the domestic market, in particular the visiting friends and relatives (VFR) market	The HHID will provide tourist facilities for both domestic and international markets and create market opportunities in addition to the VFR market.
Accommodation room stock for business and leisure	When fully operational, the HHID will provide 1925 hotel rooms and dwellings for the holiday/leisure market, which will increase the leisure room stock in the region, and assist in making the region more attractive to the leisure market. The HHID will provide for 10 000 square metres of commercial and retail space in town and village centres and 1500 square metres in the tourist precinct.
Perceived as a gateway or stop-over destination	The scale and nature of the HHID will be a tourist destination in its own right and improve the destination status of the wider Gladstone/Central Queensland region.
Limited availability of commercial tours including industrial tours	The scale and nature of the HHID will increase tourism visits to the region and potentially generate tour options to satisfy the needs of the domestic and international visitors.
Lack of destination identity in leisure tourism	HHID will raise the profile of the wider region as a leisure/holiday destination.

The HHID also clearly addresses some of the investment and infrastructure gaps noted in the CQTOP for the GRC including:

CQTOP investment and infrastructure gaps	HHID's suitability
The image of tourism and residents negative perceptions of things to do with Gladstone	The HHID will provide tourism services and facilities for international and locals visitors. The development will provide facilities and activities for day trips to the island including access to ocean beaches, stinger-free swimming, nature walks and small craft boating. The HHID will improve the recreation and leisure options for the local population and visitors. HHID expects to make a major contribution to broadening the image of the region as a tourist destination in its own right.

Water/sewerage to Agnes Waters/Seventeen Seventy	The HHID is seen by GRC as a catalyst to assist Council to provide equity of service provision (e.g. reticulated water supply) to outer areas of the GRC area.
Medical facilities and 24/7 medical services	The HHID will provide space (at market value) within the commercial precinct for interested medical practitioners. If these opportunities are taken up, this will provide a service for tourists, island residents and those living in surrounding areas.

Coordinator-General's conclusions—tourism justification

This report acknowledges that tourism is not a major activity for the Gladstone region at present. Currently, Gladstone receives around two per cent of Queensland's domestic tourism market and three per cent of the international tourism market. It is considered that the HHID would be a catalyst for tourism growth in the Gladstone region.

The findings of the EIS and advice provided by TQ and DEEDI indicated that the HHID will provide a focus for major tourism expenditure and jobs in the region.

The proponent is required to ensure that the tourism (i.e. short-term stay) dwellings within the HHID remain at around 70 per cent of all dwellings to ensure the tourism benefits (e.g. expenditure and jobs) of the proposal are maintained or grown throughout the life of the development.

2.3.2 Economic justification

The net benefit analysis (NBA) undertaken during the EIS process indicates that for the preferred development option, total benefits of the HHID are expected to be $1499.7 million with a NPV being $541.1 million (2007/2008 dollars over 30 years). The benefit/cost ratio has been determined to be 1:6 for the development.

The EIS indicates that for the HHID:

- total construction and building expenditure is valued at $635 million ($380 million in NPV terms)
- construction and building work for the HHID is estimated to add $270 million of regional value ($167 million in NPV terms)
- total direct and indirect contribution of the development to regional value is estimated to be $390 million ($240 million in NPV terms)
- approximately 60 per cent of the benefits of the HHID would be attributable to tourism-based development
- construction and building work for the development would make a total direct and indirect contribution to Queensland's economy by value-adding $460 million ($280 million in NPV terms).

The EIS indicates that the contribution of the development on the tourism market is projected to include the following:

- by 2016 over $65 million per annum in tourism expenditure and by 2024, over $85 million per annum
- by 2016 expenditure from the development is anticipated to contribute 0.5 per cent of Queensland's tourism gross state product target
- at the Fitzroy region level the development is anticipated to generate around 400 jobs directly related to tourism by 2016—five per cent of the TQ 10-year target for the Fitzroy region.

This represents a direct contribution to regional value by 2024 of >$810 million (>$290 million in NPV terms). Total direct and indirect regional value added is estimated to be >$1060 million (>$380 million in NPV terms).

The EIS indicates that the HHID is also expected to generate an average of 190 jobs per annum during the 17-year construction period with peak employment of 350 people. The EIS predicts that once indirect effects are taken into account, construction is expected to generate around 4700 person years of employment, with an average of 260 jobs per year, and a peak employment of 460 persons. At a state level, the development is estimated to directly and indirectly generate almost 5400 person years of employment in construction, with an average of 300 jobs per year, and a peak employment of 550 persons.

The number of operational jobs created by the project is expected to rise steadily over the life of the development and is expected to peak at around 700 people in 2024. The majority of staff are expected to reside as permanent residents within the development. At a state level, the tourism expenditure is estimated to directly and indirectly generate up to 850 jobs per annum by 2024.

It is acknowledged that direct jobs created by the HHID and the potential flow-on jobs, as noted in the EIS, present substantial opportunities for the local and regional labour markets which will assist to provide employment for the anticipated expanding population in the region.

DEEDI's SEIS submission states that the economic stimulus for the local, regional and state economies resulting from the construction, tourism and employment in the region, and the intention to not develop the majority of the island will result in considerable net benefit for the region and state.

In a letter to the Coordinator-General, Gladstone Area Promotion and Development Limited (GAPDL) has indicated its support for the HHID by highlighting the following points:

- the project will generate opportunities including
  - providing an economic boost to the Gladstone region
  - further enhancement of the liveability of the region
  - potential supply chain services for small to medium business in the region

- the new residential and resort niche will significantly contribute to the regional socio-economic profile while adding to the region and the state's assets and attractions
- the project will also provide a new tourism product, offering many employment opportunities for local residents; and provide a consistent demand for local suppliers.

This report notes the findings of the EIS and advice received from DEEDI and GAPDL that the HHID is expected to provide considerable economic benefits to the region and the state.

3 The environmental impact assessment process

3.1 Australian Government impact assessment

On 13 January 2006, the then Australian Government Minister for Environment, Heritage and the Arts (Australian Government Minister for Environment) determined the Hummock Hill Island Development (HHID) project to be a 'controlled action' under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act)—reference number EPBC 2005/2502—due to the likely potential impacts on matters of national environmental significance' (MNES). Therefore, the project must be approved under the EPBC Act before it can proceed.

The relevant controlling provisions under the EPBC Act are:

- sections 12 and 15A (World Heritage)
- sections 18 and 18A (listed threatened species and communities)
- sections 20 and 20A (listed migratory species).

A bilateral agreement between the Commonwealth and Queensland governments has been made under section 45 of the EPBC Act. This accredits the EIS process conducted under the SDPWO Act and enables the EIS to meet the impact assessment requirements of both Commonwealth and Queensland legislation. Under the bilateral agreement, a controlled action may be considered for approval under section 133 of the EPBC Act once the Australian Government minister has been provided a copy of this report.

This section of the report addresses the requirements of the Queensland Government's assessment as specified by Schedule 1 of the bilateral agreement and Part 5 of the State Development and Public Works Organisation Regulation 1999.

3.2 State impact assessment

Section 35(3) of the SDPWO Act requires the Coordinator-General to prepare a report evaluating the EIS for a significant project for which an EIS is required. Under section 35(1) of the SDPWO Act, after the end of the EIS submission period, the Coordinator-General must consider the EIS, all properly made and other submissions accepted by the Coordinator-General about the EIS, and any other material he considers relevant to the project.

This Coordinator-General's report may state conditions under section 39, 45, 47C, 49 or 49B of the SDPWO Act, may make recommendations under section 43 or 52 of the Act and impose conditions under part 4, Division 8 of the Act, for the undertaking of the project.

A copy of this report is provided to the proponent and publicly notified on the departmental website. The notification of this report and its provision to the

Australian Government Minister for Environment completes the assessment process under the SDPWO Act.

3.2.1 Declaration as a significant project

An initial advice statement (IAS) was lodged with the Coordinator-General in January 2006 and on 17 November 2006 the project was declared a 'significant project for which an EIS is required' pursuant to section 26(1)(a) of the SDPWO Act.

Matters considered by the Coordinator-General in making this declaration included:

- information in the proponent's IAS
- relevant planning schemes and policy frameworks
- infrastructure impacts
- employment opportunities
- environmental effects
- complexity of Local, State and Australian government requirements
- level of investment
- the project's strategic significance.

The former Department of Infrastructure and Planning (DIP) managed the EIS process on behalf of the Coordinator-General and invited relevant Australian, State and Local Government representatives, and other relevant authorities, to participate in the process as advisory agencies.

3.2.2 Terms of reference for the EIS

The terms of reference (TOR) assists the proponent to develop a comprehensive EIS for the project satisfying the requirements of the SDPWO Act. The draft TOR was prepared by DIP on behalf of the Coordinator-General, with relevant input from the Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC).[4]

The IAS and draft TOR were advertised for public comment on 18 November 2006. Comments on the draft TOR were accepted until close of business on 18 December 2006 and were received from the following agencies:[5]

- Department of Education, Training and the Arts
- Department of Emergency Services
- Department of Housing

[4] On 17 September 2010, the Australian Government department responsible for the EPBC Act changed name from the Department of Environment, Water, Heritage and the Arts (DEWHA) to the Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC). To avoid confusion, the acronym DSEWPaC is used throughout this report to represent the Australian Government department responsible for the EPBC Act.

[5] Due to machinery of government changes, the names of some agencies have changed throughout the EIS process. Refer to Appendix 6 of this report for an explanation of the changes.

- Department of Local Government, Planning, Sport and Recreation
- Department of Main Roads
- Department of Primary Industries and Fisheries
- Department of Transport
- Environmental Protection Agency
- Airservices Australia
- Calliope Shire Council
- Gladstone City Council
- Miriam Vale Shire Council (MVSC).

Two submissions were also received from interested individuals.

A final TOR was issued to the proponent on 22 June 2007.

3.2.3 Public notification and review of the EIS

An EIS was prepared by the proponent and presented to the Coordinator-General in November 2007. Following a review process, whereby the Coordinator-General and DSEWPaC determined that it substantially addressed the TOR, the EIS was publicly advertised on 8 December 2007 in *The Australian*, *Courier Mail*, *Gladstone Observer* and *Bundaberg Newsmail*, inviting submissions from the public until COB on 4 February 2008. The CD-ROM version of the EIS could be purchased for $10 (including postage) from the Sinclair Knight Merz (SKM) office in Brisbane. The executive summary was available free of charge.

The EIS was displayed at:

- Miriam Vale Shire offices
- Miriam Vale Shire Library
- State Development Centre, Gladstone
- State Library of Queensland, Brisbane.

The EIS was also available via both the DIP and proponent's websites.

Twenty-one agencies were approached formally to evaluate the EIS. Thirty-seven submissions were received with the following distribution:

- government agencies—17
  - Department of Communities (DoC)
  - Department of Education, Training and the Arts
  - Department of Emergency Services
  - Department of Health
  - Department of Housing

  - Department of Main Roads
  - Department of Mines and Energy
  - Department of Natural Resources and Water
  - Department of Primary Industries and Fisheries
  - Environmental Protection Agency
  - Queensland Transport
  - Calliope Shire Council
  - Gladstone City Council
  - Miriam Vale Shire Council
  - DSEWPaC
  - Great Barrier Reef Marine Park Authority
  - Civil Aviation Safety Authority.
- environment groups—2
- private individuals—11
- pro-forma letter—6
- petition (193 signatures)—1.

The key issues raised in submissions on the EIS include:

- the sequence of development in the local region
- impacts of increased boating activities including boat strike to turtles and dugong
- clearing of coastal dunes
- stormwater runoff and impacts on marine habitats
- extent of clearing of native vegetation
- habitat fragmentation
- provision of essential services
- impacts on native fauna species.

3.2.4 Supplementary EIS

All submissions received by the Coordinator-General on the EIS were provided to the proponent. Following discussions with the proponent, it was determined that preparation of a SEIS was necessary to address substantive issues raised on the EIS.

A copy of the SEIS was forwarded to government agencies on 8 September 2009 requesting their specific comments or advice to the Coordinator-General to be considered for inclusion as conditions or recommendations in this report. An electronic copy of the SEIS was also provided to members of the public who

commented on the EIS. The SEIS was also available via the both the DIP and proponent's websites.

Twelve submissions were received with the following distribution:

- government agencies—11
  - DoC
  - Department of Community Safety (DCS)
  - DEEDI
  - DEEDI (Fisheries Queensland)
  - Department of Environment and Resource Management (DERM)
  - Department of Health
  - TMR
  - Tourism Queensland
  - GRC
  - DSEWPaC
  - Civil Aviation Safety Authority
- private individuals—1.

The most prominent issues raised in submissions included:

- finalisation of a suitable vegetation offset package
- impacts on the waterway
- fisheries impacts
- protection of the undeveloped parts of HHI.

The following government agencies advised that they were satisfied that all issues had been addressed:

- Queensland Health (QH)
- DoC
- Tourism Queensland.

The following government agencies either provided advice or recommended conditions:

- TMR
- DCS
- GRC.

The following government agencies provided advice or recommended conditions and/or requested further information on specific issues which were addressed in additional documentation to the SEIS:

- DERM
- DEEDI
- DSEWPaC
- Civil Aviation Safety Authority.

In January 2010, the proponent provided additional information documents to address final issues raised in submissions on the SEIS. These documents were then provided to relevant agencies.

Substantive issues raised in submissions are discussed individually in section 4 of this report. MNES are addressed in section 6 of this report.

3.3 Public consultation on the project

The proponent conducted a public information and consultation program throughout the EIS process, as documented in the Appendix B1 of the SEIS. Consultation included activities such as:

- face-to-face meetings with 'affected' and 'interested' parties
- advertisements and media activity in local, metropolitan and national news media
- newsletters and fact sheets
- information and feedback tools including project website, freecall 1800 number, reply paid mail service and email
- public displays
- meetings with advisory agencies.

The proponent has indicated that these activities will continue beyond the EIS process into the construction and operation phases of the development.

3.4 Project approvals

3.4.1 State and local approvals

Legislation that may apply to the HHID project may include:

- SDPWO Act
- *Integrated Planning Act 1997* (IPA)—development application for preliminary approval for material change of use
- *Sustainable Planning Act 2009* (SPA)—applies to applications after the application for preliminary approval is decided
- *Vegetation Management Act 1999*
- *Environmental Protection Act 1994*
- *Coastal Protection and Management Act 1995*

- *Fisheries Act 1994*
- *Nature Conservation Act 1992* and Nature Conservation (Wildlife) Regulation 1994
- *Marine Parks Act 2004*
- *Aboriginal Cultural Heritage Act 2003*
- *Queensland Heritage Act 1992*
- *Native Title Act 1993*
- *Native Title (Queensland) Act 1993*
- *Land Act 1994*
- *Transport Infrastructure Act 1994.*

Key statutory approvals necessary for the development of the project may include:

- material change of use (MCU), reconfiguration of lot and operational works—IPA/SPA
- development permit for operational works—clearing of native vegetation
- various operational works permits—*Vegetation Management Act 1999, Fisheries Act 1994* and *Coastal Protection and Management Act 1995*
- development approval for relevant environmentally relevant activities (ERA)—*Environmental Protection Act 1994* and associated Regulation including:
  - ERA 63: sewage treatment
  - ERA 64: water treatment (by desalination plant)
  - ERA 62: operating a waste transfer station
- approval to disturb, harm or destroy a listed species under the *Nature Conservation Act 1992*
- permit to undertake work in the Great Barrier Reef Coast Marine Park.

3.4.2 Australian Government approvals

In addition to the state and local approvals necessary for the development of the project, Australian Government approval is also required to undertake a controlled action under section 133 of the EPBC Act. Further discussion of the assessment against the EPBC Act is provided in section 6 of this report.

4 Evaluation of environmental effects

4.1 Introduction

As described in section 35 of the SDPWO Act, this report provides an evaluation of the environmental effects of the project and places conditions and recommendations on the project for the satisfactory management and mitigation of these impacts.

The SDPWO Act defines 'environment' to include:

(a) ecosystems and their constituent parts, including people and communities.

(b) all natural and physical resources.

(c) the qualities and characteristics of locations, places and areas, however large or small, that contribute to their biological diversity and integrity, intrinsic or attributed scientific value or interest, amenity, harmony and sense of community.

(d) the social, economic, aesthetic and cultural conditions that affect, or are affected by, things mentioned in paragraphs (a) to (c).

'Environmental effects' means 'the effects of development on the environment, whether beneficial or detrimental'. These effects can be direct or indirect, of short, medium or long-term duration and cause local or regional impacts.

This section outlines the major environmental effects identified during the EIS process, including those raised in the EIS, SEIS and additional information proved by the proponent, in submissions on the EIS and in consultation with advisory agencies and other key stakeholders.

Where appropriate, comments have been provided on these matters and, where necessary, conditions stated and recommendations made to mitigate impacts of the project that have been identified in the EIS.

A summary of the substantive issues raised during the EIS process follows in the next sections.

4.2 Proponent commitments

Section 18 of the SEIS lists the proponent's commitments for the HHID. A number of these commitments have been confirmed through conditions stated in this report. Other commitments are covered by general council requirements or statutory approval. Additional commitments which include actions beyond those required to meet statutory approvals are listed in Appendix 2. Implementing the non-statutory commitments would further mitigate the project's potential adverse environmental impacts. The proponent's commitments cover all aspects of the project including:

- land
- visual amenity

- infrastructure
- water resources
- air
- waste
- noise and vibration
- cultural heritage
- flora and fauna
- social
- health and safety
- ecological sustainable development.

Further, the proponent has prepared draft environmental management plans (EMPs) to address specific environmental issues identified during the EIS process. The proponent's commitments and EMPs have been considered in this report and recommendations made to ensure the proponent implements specific actions, in accordance with best practice environmental management.

4.3 Social, economic and planning impacts

4.3.1 Planning issues

Context

Development on HHI has been proposed on a number of occasions in the past. SL 19/52155 on HHI was granted by the Queensland Government in 1991 for development for business, industrial, commercial, residential, tourist and recreation purposes. This decision was reflected in approval of a previous application for a residential and tourist development (encompassing the majority of the lease area) by the former MVSC in 1996. That approval lapsed and a subsequent proposal was lodged in 1999 (since discontinued) for a residential tourist development housing approximately 9000 people that also included a commercial space launch facility.

The HHID proposal would potentially accommodate approximately 1200 permanent residents (including tourism/commercial/retail staff) when fully operational. Permanent residential uses are limited to 30 per cent of all dwellings within the development area. Therefore, the HHID is not designed to address the region's housing issues. Its main focus is to create a new tourism industry for the Gladstone region and to create a new tourist destination to enhance the region's attractiveness.

The social and economic benefits of the HHID are discussed in detail in section 2.3 of this report.

Council planning scheme

An assessment of the HHID against the council planning scheme is included in section 2.2 of the EIS, section 4 of the SEIS and in additional information provided by the proponent.

Prior to the Queensland Government-instigated council amalgamation process in March 2008, the HHID was located in the MVSC. The former MVSC area now forms part of the new GRC.

The relevant planning scheme for the site—MVSC Planning Scheme 2009—came into effect on 27 February 2009. During the development of the MVSC planning scheme, the state government and the then MVSC were aware of the proposed HHID and the SL on the site. However, as is normal practice, the project was not recognised or acknowledged in the planning process as the EIS process had not been finalised.

The previous MVSC Planning Scheme (1999) recorded HHI within the rural zone. However, the publicly notified planning scheme showed the whole island as conservation zone. The former MVSC made a council resolution to change the zoning of Lot 3 (i.e. the lease area) back to rural. However, the gazetted maps included in the current planning scheme shows the island in the parkland and open space zone. GRC has indicated that the inclusion of the SL area in a parkland and open space zone does not reflect the desire of GRC (and the previous MVSC) to have the land remain a rural zone until such time as an application of MCU is assessed as part of the project.

In December 2009, the proponent lodged a development application under the IPA to GRC seeking preliminary approval for MCU on the site. The application seeks assessment against the superseded MVSC Planning Scheme 1999. Based on legal advice received, GRC has issued an acknowledgment notice advising of its refusal to consider the application under the superseded planning scheme. However, the application will still be dealt with under IPA as the application was lodged with GRC prior to SPA commencing.

The EIS recognised that the project site is not currently identified for tourist nor urban development and that the project is inconsistent with the current planning scheme zoning. However, this does not preclude development—a preliminary approval may override the planning scheme if there are sufficient grounds to justify the decision.

In its submission on the SEIS, GRC noted the previous advice of the former MVSC, Gladstone City Council and Calliope Shire Council in response to the EIS. These submissions raised issues about inconsistencies of the proposal against the strategic planning objectives embodied in the MVSC Planning Scheme and the non-statutory Wide Bay-Burnett Regional Plan (WBBRP). More recently, GRC has advised in-principle support for the project, although it acknowledges that the HHID is inconsistent with the preferred settlement pattern component of the WBBRP and the zoning of the MVSC Planning Scheme.

GRC indicated that, since the amalgamation, it has focused on the need to create a single unified Gladstone regional community and has identified that this can be

achieved through the concepts of equity and equality in services and standards throughout the area. These concepts are embodied in GRC's Corporate Plan, which was prepared following extensive community consultation. GRC contends that a project such as the HHID could assist in providing infrastructure and services, particularly in the southern section of the GRC area.

GRC's specific project issues and requirements are discussed throughout section 4 of this report.

Regional plan

HHI is currently included in the region that is covered by the WBBRP.

The WBBRP was launched on 23 May 2007, about six months after the HHID project was declared to be a significant project. The WBBRP is a non-statutory regional plan and includes a preferred pattern of development for the Wide Bay-Burnett region which directs urban growth, particularly residential development, to existing urban areas designated within the urban footprint. The plan considers that large scale tourism developments with a residential component are not appropriate outside these areas.

Draft regulatory provisions for the WBBRP took effect on 18 December 2009. Figure 1 of the draft regulatory provisions displays a map of the revised Wide Bay-Burnett region which excludes the area covered by the former MVSC (and therefore HHI). This reflects the future alignment of council areas to areas covered by a regional plan. As such, the former MVSC area remains part of the WBBRP until such time as a new draft regional plan is gazetted and then it will be aligned with the area covering the remainder of the GRC.

Not withstanding this, throughout the EIS process several submissions questioned the proposed development's compliance with components of the WBBRP and the potential for setting of a precedent for other residential development proposals in coastal areas of the region. The EIS argues that the HHID would comply with the majority of outcomes sought by the WBBRP. Table 2.2 in section 2 of the EIS provides the proponent's assessment of the project against the applicable objectives and policy objectives of the WBBRP. This was updated in section 4 of the SEIS and subsequent information provided to the Coordinator-General and distributed to relevant agencies.

The key inconsistency of the proposal is the potential impacts that may arise due to the out-of-sequence nature of the permanent residential component of the HHID including:

- potential future cost to government to fund the provision of social infrastructure for the development, such as ambulance, fire brigade, police, health and education facilities
- impact on regional centres network.

It is acknowledged that considerable funding will be required to provide the necessary social and community infrastructure for the HHID. It is noted that the

proponent has committed to provide the various community facilities as part of the HHID including medical centre, post office, kindergarten etc. These matters are covered in section 4.3.5 of this report.

The proponent has also committed to provide land within the development area, and to fund various facilities for police, ambulance and fire brigade facilities on the island. A condition has been stated in this report requiring the proponent to enter into a social infrastructure agreement with the state to provide these facilities (Appendix 1, Schedule 1, Condition 1). A condition has also been stated requiring the proponent to enter into a community facilities agreement with GRC to ensure the delivery of the required services (Appendix 1, Schedule 2, Condition 6).

The EIS found that the HHID will not detract from the established or desired regional centres network in the region. The EIS maintained that existing tourist centres such as Agnes Waters and the Town of 1770 will not be negatively affected by the HHID, as the development would provide services to a different segment of the tourism market. In addition, as noted in section 2.3 of this report, DEEDI has indicated that the development is likely to be a catalyst for greater tourism to these areas thereby providing an economic boost to these locations and the region in general.

The EIS acknowledged that the HHID will create a new coastal settlement separate from existing urban areas. However, the EIS emphasised that the HHID is creating a tourism industry and tourist destination with a supporting residential component. Seventy per cent of all dwellings on the island are to be designated for tourism uses to cater for local, intrastate, interstate and overseas tourists. This equates to 1925 dwellings for short-term tourism and 790 dwellings for permanent residential. The EIS anticipated that a majority of the tourism workforce (700 at peak) will reside in the permanent residences. Section 4.3.2 of this report addresses the master plan and draft plan of development for the HHID. This report also includes stated conditions of approval and a recommendation to DERM to ensure that the 70/30 (tourism/residential) mix for the development is maintained and that development is undertaken in accordance to 70/30 mix.

State planning policies

The EIS indicated that the following state planning policies (SPPs) are relevant to the HHID:

- SPP 1/92—Development and the conservation of agricultural land
- SPP 2/02—Planning and managing development involving acid sulfate soils
- SPP 2/03—Mitigating the adverse impacts of flood, bushfire and landslide
- State Coastal Management Plan 2001 (SCMP)—refer to ‘State Coastal Management Plan’ on page 27 of this report.

The HHID area can be classified broadly as non-agricultural (steep slopes of Hummock Hill, sand dunes and mudflat and mangrove areas) and pasture land of very low to low fertility (gently sloping plains and foot slopes) and as such is not good quality agricultural land (GQAL). Therefore, construction of the HHID would not

cause a loss of GQAL and would not compromise the state's interest under *State Planning Policy 1/92: Development and the Conservation of Agricultural Land*.[6]

The proponent has committed to manage potential acid sulfate soil and acid sulfate soil in accordance with relevant government requirements to achieve the development outcomes of *State Planning Policy 2/02: Planning and Managing Development Involving Acid Sulfate Soils*[7] and not compromise the state's interest. The management of potential acid sulfate soil for the HHID is addressed in section 4.6 of this report.

The HHID has been located and designed to minimise potential adverse impacts from natural hazards in accordance with the objectives of *State Planning Policy 1/03: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide*.[8] Section 18 of the EIS identified and addressed potential hazards and risks associated with the HHID.

State Coastal Management Plan (SCMP)

Under the *Coastal Protection and Management Act 1995*, the SCMP and regional coastal management plans have the status of an SPP for the purpose of making and amending planning schemes and assessing and deciding development applications. The SCMP provides guidance on protecting and managing the coastal zone.

In its submission on the EIS, DERM indicated that a new tourist development in a location remote from existing urban centres is inconsistent with SCMP policy 2.1.2 *Settlement pattern and design*. The EIS acknowledged that the HHID is inconsistent with policy 2.1.2 in a similar way to its inconsistency with the WBBRP. However, the EIS finds that the HHID is in the greater part consistent with the majority of components of the SCMP. Table 2.1 in section 2 of the EIS provided an assessment of the project against the SCMP. This was updated in section 4 of the SEIS.

SCMP policy 2.8.1 *Areas of state significance (natural resources)* provides that development proposed within an 'area of state significance (natural resources)' must demonstrate a net benefit to the state. Approximately 160 hectares of the proposed development is located over a coastal dune system considered by DERM to be consistent with the SCMP definition of a 'significant coastal dune system' and therefore an 'area of state significance (natural resources)'.

Assessment of the project against policy 2.8.1 is provided in section 4.8 of this report. Based on advice from DERM, it is determined that the project provides a net benefit to the state and the requirements of SCMP policy 2.8.1 can be met.

DERM's submission on the EIS raised issues about the project's potential inconsistency with SCMP policy 2.8.3 *Biodiversity*. Issues raised by DERM related to

---

[6] Department of Housing, Local Government and Planning and Department of Primary Industries, *State Planning Policy 1/92: Development and the Conservation of Agricultural Land*, 1992, viewed 27 January 2011, www.dip.qld.gov.au/docs/ipa/spp1_92.pdf

[7] Department of Natural Resources and Mines and Department of Local Government and Planning, *State Planning Policy 2/02: Planning and Managing Development Involving Acid Sulfate Soils*, 2002, viewed 27 January 2011, www.dip.qld.gov.au/docs/ipa/ass_spp_oct_02.pdf

[8] Department of Local Government and Planning, Department of Emergency Services, *State Planning Policy 1/03: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide*, 2003, viewed 22 December 2010, www.emergency.qld.gov.au/publications/spp/pdf/spp.pdf

the extent and impact of proposed clearing and fragmentation on the island's habitats. Following review of the proponent's proposed vegetation offsets package and the proposed wildlife management plan (refer section 4.5.4 of this report), DERM has indicated that the proposed development can meet vegetation management policy requirements if offsets negotiations are finalised, land contracts signed and connectivity is maintained. DERM's preliminary assessment of the proposed offsets package is supported and it is considered that appropriate offsets can be provided for the proposed vegetation clearing. Biodiversity matters relating to the HHID are addressed in section 4.5 of this report.

It is considered that other SCMP policies relevant to the HHID including 2.1.5 *Maritime infrastructure*; 2.1.17 *Tourism and recreation activities*; 2.1.12 *Managing water resources*; 2.2.2 *Erosion prone areas*; 2.4.1 *Water quality management*; 2.4.2 *Wastewater discharge to coastal waters*; 2.4.3 *Waste disposal facilities*; 2.4.4 *Stormwater management*; and 2.8.2 *Coastal wetlands* are adequately addressed in the project's master plan, EIS documents, relevant commitments of the proponents and management practices in the EMPs and that the development is generally in accordance with the intent of these policies. Also, conditions stated throughout this report will ensure compliance with these policies of the SCMP.

The SCMP is supported by a number of regional coastal management plans including the *Curtis Coast Regional Management Plan 2003*. However, HHI is situated outside the southern boundary of this region, and it is noted that no regional coastal management plan applies to the project site.

Draft Coastal State Planning Policy

A recent state government review of the SCMP has determined that the plan needs to be amended to better position the State Government to deal with existing and emerging pressures on Queensland's coastline. A draft *Queensland Coastal Plan* has been prepared by DERM in response to the review's findings, including a draft *State Planning Policy: Coastal Protection* (Coastal SPP). The draft plan was released for public comment in August 2009.

The draft Coastal SPP includes provisions similar to the SCMP policy 2.1.2 and states that:

> urban development is to achieve a nodal settlement pattern and avoid creating or extending settlements in a ribbon or linear pattern along the coast unless it can be demonstrated that factors such as landform constraints and/or the efficient provision of infrastructure provide that a linear development pattern is necessary in a particular area.

More generally, development assessment provisions include a requirement that avoids development in the coastal zone for urban or rural residential purposes occurring outside an urban area, except if the development is consistent with any applicable state planning regulatory provisions, regional plan and relevant planning scheme.

At the time of writing, the proposed Coastal SPP had not been finalised.

Coordinator-General's conclusions—planning issues

In considering the planning matters for this project, this report has assessed the merits of the proposal against its potential inconsistencies with components of the existing planning instruments.

The current planning scheme (MVSC 2009), WBBRP and coastal management policies generally seek to contain urban land uses to existing developed areas and away from the coastal zone. This accords with best practice, which dictates that the preferred settlement pattern for a region should result in a compact, well-serviced and efficient urban form. Similarly, urban land uses should also avoid sensitive coastal areas to minimise risks to important habitats and/or degradation of the marine environment.

In the absence of any overriding factors, urban development on HHI would be inconsistent with these principles. A new urban node on HHI would be separate from the existing urbanised areas in the Gladstone region and would impact on an undeveloped coastal area, including works in the marine park for the proposed bridge and boat ramps. Major infrastructure including road upgrades and a bridge is required to service the site. If the HHID proposal consisted of residential uses only, the report's conclusion would be that it is inconsistent with the above planning principles and therefore inappropriate. However, this is not the case as the HHID is first and foremost a tourism development with a residential component attached.

The tourism component of the HHID (i.e. 70 per cent of the total number of dwellings) does have specific locational requirements. The EIS found that there are no sites between Agnes Waters and north of Curtis Island, within the existing developed areas of the region, suitable for a tourism development of this nature.

The residential component of the HHID is designed to support the tourism component of the development by providing:

- a diversification of project revenues to help secure finance for the required infrastructure investment
- a base level of population to justify provision of infrastructure for the development
- a base level of population supporting retail and services, thereby supporting the operating cashflow of businesses which form part of the development. This acknowledges the high variability of tourism populations in facilities of this nature.

As discussed later in this report, the project proposal includes mitigation of impacts on infrastructure and other services associated with its out-of-sequence location. Section 18 of the SEIS set out the proponent's commitment to provide all hard infrastructure such as roads, water and sewerage at no cost to government. Social infrastructure, such as police, ambulance and fire brigade facilities, will be funded by the proponent through infrastructure agreements between the proponent and the State Government. Surrounding communities, such as Turkey Beach, are also expected to benefit from these services. Conditions stated in this report reflect these commitments (Appendix 1, Schedule 1, Condition 1 and Appendix 1, Schedule 2, conditions 9–11).

It is noted that GRC has stated in-principle support for the project and it recognises the project's potential to assist in providing upgraded infrastructure in the southern part of the region. The EIS described the economic opportunities of a major tourism development of this nature that would benefit the region and the state. The project would also provide a benefit to the local community given its close proximity to Gladstone and the inclusion of public facilities such as beachfront parks and other passive recreation opportunities.

It is accepted that the permanent residential component is critical to the financial viability of the overall development. The permanent residents on the island would contribute significantly to the funding of recreation and community facilities and the open space areas through rate levies to be imposed by GRC. Sales of residential land would underpin the ability of the project to provide the necessary infrastructure and services. The proposed proportion of permanent residential dwellings within the development footprint (i.e. 30 per cent) is appropriate for an integrated tourism/residential development of this size.

Issues were raised in responses to the EIS that the project would act as a catalyst for further development in nearby coastal areas. The Coordinator-General is confident that GRC, in conjunction with state agencies, can demonstrate that further residential development in these areas should be discouraged. In particular, the availability of a 20-year supply of future residential land would not support the need for further greenfield residential subdivisions in coastal areas in the southern part of the region.

Overall, it is considered that the HHID project (incorporating 30 per cent residential uses) demonstrates sufficient reasons to be located on the proposed site as long as environmental and equity issues are sufficiently resolved. These matters are addressed in following sections of this report.

4.3.2 Master plan/draft plan of development

A master plan for the HHID was presented in the EIS and revised in the SEIS (refer Figure 2.2 above). The footprint has been reduced in area for environmental reasons. However, the development yield remains unchanged. Revisions to the development footprint include:

- all development contained within the SL area
- all development outside the coastal management district (i.e. erosion prone areas)
- inclusion of a fauna corridor network to ensure connectivity between conservation areas surrounding the development footprint
- impacts on endangered REs in the western development precinct reduced by amending the development layout
- fire breaks between development areas and surrounding open space are accommodated internally within the development footprint.

The draft plan of development and precinct plan (dated November 2010) for the HHID sets up five land use precincts or zones as follows:

- tourist (including hotels; tourist/caravan park; low, medium and high density short-term tourist residential)
- town and village centres
- community and education
- open space (including golf course open space and conservation and natural areas)
- residential (including low/medium and high density residential).

The draft plan of development provides for a total of 2715 dwellings within the development footprint of the HHID. The Coordinator-General has determined that the most appropriate mix of short-term tourist and permanent residential dwellings for the development should remain at 70/30 (i.e. around 1925 short-term tourism and 790 permanent residential). It is considered that a 70/30 mix would support the viability of the tourism and public facilities and services and to help finance required infrastructure for the development including electricity, telecommunications, water supply, roads, and bridge which will be included in stage 1 of the development.

GRC has indicated that it would undertake compliance checks by audit or complaint to ensure the development's compliance with the 70/30 short-term tourism/permanent residential mix. GRC may also consider employing a rating option which would reflect different charges for different land uses such as permanent residential and tourism accommodation. The use of these proposed actions by GRC is supported.

The EIS stated that accommodation within the development will cater for low-, medium- and high-income households. This is intended to cater to young people attracted to the island by opportunities to work in the tourism industry. A condition is stated in this report to reflect the requirement to maintain a level of low cost housing of at least 15 per cent of all permanent residential accommodation within the development (Appendix 1, Schedule 2, Condition 1).

It is understood that the plan of development will be generally finalised in accordance with the draft document submitted subsequent to the SEIS (dated November 2010) in consultation with GRC. The finalised plan of development is to be based on the precinct plan for the development, dated 20 August 2010 (Figure 2.3 above). It is noted that GRC may impose further requirements, in the form of conditions of development, in addition to those stated in this report.

Conditions are stated in this report (Appendix 1, Schedule 2, conditions 1–3) to ensure the project is developed appropriately and in accordance with master plan as described in the EIS, precinct plan (Figure 2.3 above) and the overarching planning principles for the region.

It is recommended that the Chief Executive of DERM amend the state's lease for the HHID to include a condition that restricts the number of dwellings on the island to 2715 and specifies a 70/30 percentage split for short-term tourism (1925) and permanent residential dwellings (790) within the development footprint, generally in

accordance with the draft plan of development (dated November 2010) provided to the Coordinator-General and GRC (Appendix 1, Schedule 3, Recommendation 1).

4.3.3 Development schedule

The proposed development schedule for the HHID was included as Figure 2-2 in the SEIS. The schedule shows the proposed 17-year development program.

The first two years of the program (i.e. stage 1) concentrate on developing primary infrastructure (access road, bridge, water supply and sewerage headworks, power supply) as required under the terms of the SL. On completion of these works and freeholding of the development area, construction will commence for the headland resort hotel, tourist park and headland apartments (i.e. stage 2). The development of the town centre will commence in year three of the development schedule and include the first stage of the retail and commercial facilities. Further development of the retail facilities will parallel the growth in the tourist and permanent population.

Construction of short-term tourist and permanent dwellings will commence in stage 2 of the development. To ensure that tourism remains the key focus of the HHID, approximately 88 per cent of all dwellings proposed to be constructed during stage 2 will be tourism dwellings for short-term accommodation. Approximately 66 per cent of all tourism dwellings are proposed to be constructed in stage 2, compared to an estimated 21 per cent of all permanent residences.

The staging of the development is a key component of the state's draft lease conditions (refer Appendix 5). A condition is stated in this report to ensure that key components of the project are developed generally in accordance with the schedule proposed in the EIS (Appendix 1, Schedule 2, Condition 4).

4.3.4 Tourism and leisure facilities

Section 2.2.2 of the SEIS lists the types of tourism and leisure facilities for tourists and residents the proponent has committed to provided as part of the HHID. These facilities include:

- 240-room resort hotel—4 star
- 150-room beachfront tourist hotel—3 star
- 70-room motel
- tourist park
- a range of self-catered holiday properties
- tourist retail shopping
- restaurants and cafes
- golf course
- sports centre
- tourist information centre

- traditional owners cultural heritage interpretive centre
- recreational camping ground.

A condition is stated in this report to ensure appropriate development and funding of tourism and leisure facilities for the HHID (Appendix 1, Schedule 2, Condition 5).

4.3.5 Community facilities, social and emergency services

Community facilities and services

The EIS, SEIS and the proponent's commitments indicate that the following community facilities and services will be provided as part of the HHID that will be accessible by HHI residents, tourists and adjoining communities:

- community centre
- medical centre
- education and research centre
- boat ramps
- kindergarten
- public bus service
- cycle paths
- post office
- surf life saving club
- recreational facilities.

A number of these facilities and services, including the community centre, boat ramps and cycle paths, will ultimately be the responsibility of GRC. It is noted that the proponent has committed to fund these facilities and services until costs of operation are matched by income from local government rates and levies. Responsibility for these facilities would then be handed over to the GRC. Other facilities, such as the medical centre, post office and education and research centre, will be built at the proponent's expense and commercial operators will be sought to take over funding and management of these facilities in due course.

It is also noted that the proponent has committed to establish and fund a bus service to link with existing school bus services to local schools. The bus service may eventually become a commercial operation if there is interest from commercial operators.

The provision of emergency services and facilities is a necessary requirement of the HHID. Generally, the local council is responsible for providing such State Emergency Services (SES) facilities in conjunction with Emergency Management Queensland (EMQ). It is recommended that the proponent consult with EMQ and GRC to establish the responsible entity for ongoing maintenance of premises and maintenance and supply of vehicles and equipment (Appendix 1, Schedule 3,

Recommendation 2). It is also recommended that the proponent subsidise this service by providing training to staff to fulfil the SES response role, if the development does not have the requisite permanent residence base to support a volunteer SES group (Appendix 1, Schedule 3, Recommendation 3).

Emergency services

The EIS indicated that the size of the development will warrant the proponent establishing service infrastructure which would normally be the responsibility of the state government and or local government such as police, fire brigade, ambulance and health facilities.

During the EIS process, a number of agencies (including GRC and DIP) raised the issue of the potential for future costs to state and local government for providing services due to the location and proposed size and capacity of the development. Potential costs relate to the purchase of appropriate land, construction costs, staffing costs and operational costs for the essential infrastructure and services.

The EIS and SEIS indicated that the proponent is willing to fund specific components of these services. The proponent has committed to fund the set-up costs for the state and local government services. These commitments are discussed below.

Police

The proponent's draft plan of development schedule includes:

- provision of land for a police station
- provision of land for a police residence on site
- construction of a police station to required standards.

Queensland Police Service (QPS) has indicated that QPS determines whether a police presence is required in a community and to what extent. The determination is based on a number of factors including population size, location and need. QPS recognises that the proponent has made the above commitments and that it represents an opportunity to provide a police presence on the island, at a future time, with limited establishment cost to QPS. QPS has also indicated that if QPS determines that a police presence is required on the island, they would require a discrete facility on its own land title, independent of and separate to other emergency services facilities.

Fire brigade and ambulance

The proponent's draft plan of development schedule includes:

- provision of land for fire station
- construction of fire station
- provision of a fire engine
- provision of land for ambulance station
- construction of ambulance station.

DCS has indicated that providing Queensland Fire and Rescue Service (QFRS) services will depend on factors such as response time profile, incident history, proximity to existing stations and population forecasts. Queensland Ambulance Service (QAS) service delivery will depend on factors such as response time profile, unit hour utilisation, case load per day and proximity to existing ambulance stations and other heath facilities. These considerations will affect the type of infrastructure that is provided, for example rural fire brigade or auxiliary fire and rescue station. The location and type of emergency facilities required would need to be determined by QFRS and QAS in accordance with their operational criteria and anticipated service delivery needs.

However, DCS recognises that the proponent has made commitments in relation to emergency services and that this represents an opportunity to provide a fire brigade and ambulance presence on the island, at a future time, with limited establishment cost to the DCS.

Coordinator-General's conclusion—community facilities, social and emergency services

It is expected that the development of the HHID and the resulting temporary and permanent population would, at some stage, trigger the need to provide emergency services infrastructure (on the island or augmented facilities on the mainland) in the future. At this stage of the development approval process, it is not possible to specify the detailed requirements for the provision of emergency services infrastructure. It is considered that an infrastructure agreement(s) between the proponent and the relevant state agencies is the most appropriate mechanism to capture the relevant community and emergency services infrastructure funding by the proponent.

Conditions stated in this report ensure appropriate community facilities and services are developed and funded for the HHID (Appendix 1, Schedule 2, conditions 6–7).

A condition is also stated in this report to ensure development of and compliance with infrastructure agreements for the development (Appendix 1, Schedule 1, Condition 1).

Also, it is recommended that DERM amend the draft lease to include a requirement that the proponent enter into a social infrastructure agreement with the relevant state agencies (Appendix 1, Schedule 3, Recommendation 4).

4.3.6 Impacts on mineral deposits

An Exploration Permit for Mineral (EPM No. 7164) issued to Monto Minerals Limited over relict beach ridge systems on HHI was renewed on 6 August 2010 (expiring on 22 October 2011) by the Queensland Minister for Mines and Energy. The EPM covers 4380 hectares (43.8 square kilometres) of which 2041 hectares (20.4 square kilometres) is on HHI and the remainder occurs on seabed adjacent to HHI.

The HHID would sterilise approximately 156 hectares of the island's deposit of mineral sands. This will occur entirely within the West Side resource that is estimated to be 4.2 million cubic metres at approximately 2.4 per cent heavy mineral. This

equates to 30 per cent of the West Side resource and 12 per cent of the entire HHI resource. Higher grade heavy mineral deposits also exist in the East End resource and Central resource of the island, but outside the development HHID footprint. All three known mineral deposits on HHI are located in littoral vineforest/scrub communities which are known habitat for the listed black-breasted button quail *(Turnix melanoagaster).*

In its submission on the SEIS, DEEDI recommended that impact on the resource should be avoided to the greatest extent possible.

The EIS finds that, based on exploration permit application information, the mineral deposits on HHI are not currently economically viable in their own right and would require inclusion of larger deposits such as Middle Island to the south (part of EPM No. 7164, currently Resources Reserve) and north east of Rockhampton (currently within the Byfield National Park). It is considered unlikely the mineral sands deposits in the National Park will be made available for mining. It is currently not possible to determine the viability of the HHI mineral resource; however, the relatively limited activity in this sector and the current constraints faced by mineral sands operations in coastal areas is noted.

Avoidance of resource sterilisation may be mitigated by exploiting the resource prior to developing these areas. However, this will depend on when, and if, an EPM holder seeks approval from DEEDI for a mining lease. If approval is sought, DERM will be required to assess the application for an environmental authority and attach conditions for any approval. The Minister for Mines and Energy is the decision maker on whether mining could occur. The permit holder would also be required to refer the application to the Australian Government for a decision on whether the project constitutes a 'controlled action' under the EPBC Act.

The proposed management of the undeveloped parts of HHI are addressed on page 69 of this report.

4.3.7 Native title and cultural heritage

Native title

On 16 November 1991, SL 19/52155 was granted to Hummock Hill Island Pty Ltd under the provisions of the then *The Land Act 1962–1990* over an area described as Lot 3 on FD841442, County of Flinders, Parish of Rodds Bay. This is considered to be a lease that confers a right of exclusive possession, Part 10, Module BA of the *State Government Native Title Work Procedures* (DERM). The grant of a valid SL under the *Land Act 1962* on or before 23 December 1996 is a previous exclusive possession act under section 23B(2)(c)(viii) of the under the Commonwealth *Native Title Act 1993* (NTA) and wholly extinguishes native title under section 20 of the *Native Title (Queensland) Act 1993*. Native title is therefore considered extinguished over the SL area.

An assessment of native title must be undertaken for the other lots requiring development on HHI (i.e. Lot 1 on FD841442, Lot 1 USL 43258 and Lot 10

FD 841442). However, section 24KA of the NTA allows for the establishment of public roads, bridges and boat ramps where native title is not extinguished.

It is recommended that the proponent liaise with DERM to ensure all native title requirements are met prior to commencing development (Appendix 1, Schedule 3, Recommendation 5).

Cultural heritage

It is noted that a cultural heritage management plan (CHMP) for the HHID was approved by DERM on 17 January 2007. The proponent has committed to manage all cultural heritage matters, including potential impacts to cultural heritage sites within the development site, in accordance with the CHMP.

4.3.8 Safety

Due to the nature of the HHID, with its large construction workforce undertaking a range of activities and the expected permanent and temporary population, preparation and implementation of a risk management plan and emergency response plan is required for all stages of the development including when fully operational. As such, a condition is stated in this report to ensure the safety of HHI workers and visitors and residents on the island (Appendix 1, Schedule 1, Condition 2).

4.4 Infrastructure impacts

4.4.1 Infrastructure agreements

The EIS and SEIS indicated that major infrastructure is required to support the HHID, including roads, bridge, boat ramps, water supply, wastewater, gas, electricity, power and airfield. It is noted that the proponent has committed to provide and fund all necessary infrastructure for the development so that local and state infrastructure providers are not affected. The proponent has also committed to enter into an operation and maintenance agreement with the GRC to maintain and operate the service infrastructure for a period of years to be agreed and until such operation and maintenance costs can be recovered by income from rates applied to the developed land.

The proponent has indicated that the transfer in operation and management responsibility for public infrastructure from the proponent to GRC will likely occur 17 years after commencing development; however, the exact timing is to be agreed with GRC. For infrastructure that GRC would eventually own and maintain, Council will receive rates revenue from the developed land within the HHID which would offset future costs borne by Council.

It is noted that the draft DERM lease conditions (refer Appendix 5) include a requirement that the proponent provide a performance guarantee bond in the amount of $5 million prior to commencing any physical works on the leased area. This report includes a recommendation that DERM amend the draft lease to

complete some components of the project prior to releasing the bond (Appendix 1, Schedule 3, Recommendation 6).

Conditions are stated in this report to ensure appropriate infrastructure delivery for the development (Appendix 1, Schedule 2, conditions 8–11).

4.4.2 Bridge and causeways

Current access to HHI is by the existing artificial rocky causeway in Boyne Creek, which is only accessible on very low spring tides and requires a four-wheel drive vehicle. The causeway consists of earthen fill, reinforced with medium sized logs. The existing causeway and saltflats in this area and Boyne Creek are excluded from the Colosseum Inlet Fish Habitat Area (FHA) (i.e. within 100 metres either side of the centre line of the existing causeway).

Bridge

The EIS proposed access to HHI from the mainland via a balanced cantilever bridge across Boyne Creek which will replace the existing causeway. The bridge is expected to be approximately 170 metres in length (including approaches). The proponent has indicated that the cost of the bridge and embankment work is expected to be around $9.2 million. It is noted that the proponent has committed to fully fund the design and construction of the Boyne Creek bridge.

The EIS investigated only one proposed design for the access bridge. The EIS proposed the alignment of the bridge to extend from the existing road corridor at the end of Clarks Road and across Boyne Creek using the current causeway alignment and utilising the footprint of the existing filled abutments to launch the bridge.

The EIS indicated that the closest seagrass areas to the proposed bridge and boat ramp at Boyne Creek occur approximately 200 metres east of the existing causeway. So the bridge is unlikely to impact on local seagrass. Approximately 0.31 hectares of mangroves and 0.31 hectares of saltpan is expected to be impacted by the bridge construction.

The EIS stated that the changes to Boyne Creek tidal flows are anticipated to be minimal due to installation of bridge supports. However, the proposal includes the removal of the existing causeway therefore restoring the natural flow regime and resulting in an overall positive impact.

In its submissions on the EIS and SEIS, DEEDI (Fisheries Queensland) raised some issues about the proposed design of the bridge, due to the potential marine plant disturbance and reclamation works required and that the activities also constitute the construction or raising of a waterway barrier. DEEDI indicated its preference for the bridge to be built from HAT to HAT, i.e. that bridge abutments should not be located on tidal land.

DEEDI has advised that although the general preference is to avoid works in marine fish habitat areas, the proposal is acceptable in recognition of specific circumstances of this case, including:

- existing disturbed areas
- efforts to align new structures to these areas
- the proponent's commitment to undertake certain major restoration works that will have benefits to fish habitat
- costings of alternatives provided.

It is noted that all proposed bridge works are restricted to within the exclusion area of the declared FHA Area Management A.

DEEDI has recommended that the bridge design should allow for suitable navigational access during all tides (i.e. not impede existing navigational access and preferably improve the existing situation resulting from the presence of the causeway). The interim bridge design provided by the proponent shows a clearance of at least seven metres above mean water level (or 5.5 metres above HAT) to ensure navigational access during all tides for small vessels.

DEEDI has also advised that bridge piles located below HAT constitute a waterway barrier and will therefore require approval. Any marine plant disturbance as a result of the bridge construction will also require approval and a suitable marine fish habitat offset may be required.

Approach road

As part of the bridge works, the proponent also proposes to upgrade the existing road embankment at the end of Clarks Road across an inter tidal area. The top of the existing embankment is at approximately HAT, therefore there is presently no tidal flow across the embankment under normal conditions.

The current road embankment is one traffic lane in width and is to be expanded to two lanes. The EIS indicated that the upgrade would involve raising the level of the causeway further above HAT (with an allowance of any storm surge heights, currently 3.3 metres in the Tannum Sands area including a climate change factor) and potentially include a 10-metre wide extension (to convert to two lanes). As part of these works the proponent intends to install a series of culverts through the embankment to restore some tidal flow. Upgrade of the causeway will result in the loss of less than 0.05 hectares of supratidal saltflat.

DEEDI advised that the causeway and access road works will require both an approval to disturb marine plants and an approval to construct or raise a waterways barrier. As the causeway is located on a road reserve, GRC advised the upgrade will also require operational works approval by Council.

Additional tidal works approvals

DERM advised that relevant applications for the bridge and causeway works are to be made under the SPA with DEEDI and DERM being concurrence agencies as law requires. Works on land seaward of the line of HAT would require a permit under the *Marine Parks Act 2004.* DERM has not advised of additional requirements as part of the EIS process.

Coordinator-General's conclusions—bridge and causeways

Taking into account advice from DEEDI (Fisheries Queensland) it is concluded that the most suitable bridge option for the HHID is that proposed in the EIS (i.e. the design incorporating part of the footprint of the existing causeway structure).

However, a condition is stated in this report to ensure:

- safety of bridge and boat users and the appropriate management of estuarine waters (Appendix 1, Schedule 1, conditions 3–5 and Appendix 1, Schedule 2, conditions 12–13)
- impacts on the marine fish habitat are mitigated by a suitable offsets package (Appendix 1, Schedule 1, Condition 6)
- construction work on the causeway meets relevant requirements (Appendix 1, Schedule 2, Condition 14).

It is considered that the overall benefits of constructing the bridge and removing the current causeway, including improved navigation for boats and potential benefits to fish and other marine fauna, would outweigh the potential impacts on the marine fish habitat (i.e. removing small areas of mangrove and saltflat communities, as noted earlier in this report). As advised by DEEDI, removing the subtidal causeway would constitute an offset for potential impacts on marine fish habitat caused by construction on tidal lands.

4.4.3 Public boat ramps

Current public access to estuarine and marine waters around HHI is limited to boat ramps at Turkey Beach, Foreshores Estate and Wild Cattle Island. Other than these sites, boating access requires launching from Tannum Sands or Boyne Island and requires passage over a shallow bar at the mouth of Colosseum Inlet or via Wild Cattle Creek (mid to high tide only). Informal launching of small boats is known to occur in the region and particularly in the vicinity of the Boyne Creek causeway.

The HHID proposes constructing two all-tide public boat ramps. Preliminary designs for both ramps are included in section 6.4.2 of the SEIS. One boat ramp would be located adjacent to the bridge in Boyne Creek and accessed from the proposed commercial marine facility and associated parking area. A second boat ramp is proposed on the western side of HHI, 500 metres north of Yacht Creek and south on Bangalee (within Colosseum Inlet). A public road will link the Colosseum Inlet boat ramp with the main development.

Both boat ramps propose to have two-lane access, toilets, bins and fish cleaning facilities and appropriate parking. The Colosseum Inlet boat ramp will provide access to BBQs and a picnic area and the Boyne Creek boat ramp will provide showers, a marine centre and boat storage facilities.

The proponent intends to construct both boat ramps to be all-tide ramps. The Boyne Creek boat ramp will cater for smaller boats (i.e. boats with draft of < 0.5 metre or boats of approximately 5-metre length) wanting to access the shallower estuarine

waters between the island and the mainland. The Colosseum Inlet boat ramp would attract larger boats wanting to access deeper estuarine and marine waters.

EIS findings

After releasing the SEIS, the proponent advised that, based on preliminary designs, the Boyne Creek boat ramp and associated facilities will require approximately 0.07 hectares of 'least concern' RE 12.1.3 (mangroves). This represents approximately 0.002 per cent of mangrove habitat within the Colosseum Inlet, Boyne Creek, Sandfly Creek and the Seven Mile Creek intertidal wetland system.

The Colosseum Inlet boat ramp and associated facilities will require 0.6 hectares of 'least concern' RE 12.2.11 (eucalypts). The road to the Colosseum Inlet boat ramp will require approximately 0.4 hectares of RE 12.2.11 to be cleared.

Additional information provided by the proponent also indicates 0.05 hectares of supratidal saltpans habitat may be impacted during construction of the Boyne Creek boat ramp. This represents approximately 0.002 per cent of supratidal saltpan habitat within the Colosseum Inlet, Boyne Creek, Sandfly Creek and the Seven Mile Creek intertidal wetland system.

It is noted that the proponent has committed to fund the construction of the boat ramps, associated infrastructure and ongoing maintenance. Ownership of the boat ramps will be transferred to the GRC at the end of an agreed operation and maintenance period. Refer to subsection 4.4.1 for more information on the proposed infrastructure agreement.

The EIS also states that increased boat traffic in Boyne Creek and Colosseum Inlet will occur as a result of increased accessibility resulting from the HHID, construction of boat ramps and natural population growth in the region.

Increased boat traffic around the island may impact on marine fauna; however, with proposed reduced boat speeds in the area, appropriate signage and boating education programs, the impact on marine fauna should be reduced (refer to subsection 4.5.5).

The proposed construction of two new boat ramps on HHI will provide greater access to Colosseum Inlet and Rodds Bay for recreational boating and fishing activities. To a large extent, this would have the effect of formalising the existing access to these areas, assisting in its management, and would not be expected to significantly increase growth in boating activity beyond the projected regional trends given the relatively easy access from Gladstone to Rodds Bay by a typical recreational boat user.

The likely increased boat traffic around HHI may have implications for the safety of the boating public. The Transport Operations (Marine Safety) Regulation 2004 sets out the general requirements for operating boats in Queensland waters and a general six-knot speed limit applies in the vicinity of a moored boat, jetty, wharf, pontoon, boat ramp or near the shoreline.

Agency comment

Maritime Safety Queensland (MSQ), an office of TMR, in a submission to the Coordinator-General, put forward the following observations about the boat ramp proposals for the HHID:

- the proposed development is anticipated to generate proportionate local demand for trailer boat launching facilities
- a development the size of the HHID would require marine infrastructure such as boat ramps
- the geographical spread of the development is likely to generate user demand for more than one launching location
- failure to provide multiple launching sites may result in inappropriate, informal launching sites being established over time with resulting adverse social and environmental impacts
- any boating facilities provided by the developer would alleviate the pressure on TMR to fund recreational boating infrastructure at a later date.

The MSQ submission indicated support for two boats ramps as part of the development, at the locations indicated in the EIS, provided that both ramps are designed and built in accordance with current TMR standards. However, MSQ has questioned the suitability of the preliminary design of the proposed Boyne Creek boat ramp. MSQ raised two issues:

- the ramp is a long distance from the parking area (approximately 150 metres) which may result in inappropriate parking on or near the ramp and potential user resistance due to inconvenience for pedestrians
- the turning bay for the ramp may create an undesirable blind spot for drivers and some user conflict.

DEEDI (Fisheries Queensland) has also questioned the suitability of the proposed Boyne Creek boat ramp and the proposed preliminary design presented in the EIS. Fisheries Queensland indicated that the location and design would not deliver a practical and functional boat ramp facility and its construction would result in significant impacts on tidal fish habitats and marine plants not warranted by the functionality of the facility. In addition, the proposed car parking facilities associated with the ramp would be located on tidal lands that would require extensive filling and reclamation works.

To address issues raised by the agencies, the proponent provided both a revised draft design for Boyne Creek boat ramp (which relocates car parking and other associated facilities above HAT) and a new proposal for the boat ramp to be located on the mainland side of the bridge. Details provided on the mainland option for the Boyne Creek boat ramp indicate that it would entail a shorter access ramp which could potentially have less direct impact on the WHA, tidal fish habitat and marine plants, and it is likely to provide safer access for launching boats. Relevant agencies have reviewed both proposals.

The proponent confirms that the final design of the boat ramps will be in accordance with current TMR standards and will be provided to TMR and DEEDI for input prior to applying for operational works (tidal works) approval through GRC.

DEEDI has indicated that the Boyne Creek boat ramp would not be considered eligible for consideration as an offset for marine fish habitat.

DEEDI has provided conditional support for the boat ramp aspect of the HHID, considering the broader socio-economic benefits that are predicted from an appropriately designed boat ramp, particularly in relation to the priority sectors of tourism and marine industries. DEEDI has indicated that the provision of public boating infrastructure by the proponent, rather than the state, represents a master planned approach to community development by the private sector which should be supported and encouraged. The location of a Boyne Creek boat ramp at the entrance to the master planned community provides opportunities for a small commercial precinct servicing visitors to the island (fuel, bait, ice, food, boat hire and boat maintenance and storage). This will result in the creation of two 'commercial' hubs that provides better balance to the overall master plan and increased opportunities for business and industry development.

It is noted that DEEDI (Fisheries Queensland), MSQ and GRC are supportive of, and have no major issues with, the proposed location and design of the Colosseum Inlet boat ramp.

Coordinator-General's conclusions—public boat ramps

Based on the information provided to date, it is considered the mainland option for the Boyne Creek boat ramp is the preferred option. This is because it would be likely to require a shorter access ramp, which may have less direct impact on the WHA, fish habitat and marine plants, and could potentially provide safer access for launching boats.

It is also considered that designing both the Boyne Creek and Colosseum Inlet boat ramps in accordance with key agency requirements and the strategic positioning of the Boyne Creek boat ramp should limit any potential impacts on fish habitat and marine plants.

Conditions are stated in this report ensure the construction work of both proposed public boat ramps meet government requirements, provide safe and efficient facilities for users an limit impact on the marine environment (Appendix 1, Schedule 2, conditions 15–16).

To ensure the safety of the boating public around HHI, it is considered that it would be appropriate to impose a general six-knot speed limit in the vicinity of the Colosseum Inlet boat ramp and the Boyne Creek bridge and boat ramp to a greater distance than the current legislative requirements, to be determined in consultation with the Regional Harbour Master (Gladstone) and DEEDI. Consequently, it is recommended that the Regional Harbour Master (Gladstone) consider imposing a general six-knot speed limit in the vicinity of the Colosseum Inlet boat ramp and the Boyne Creek bridge and boat ramp (Appendix 1, Schedule 3, Recommendation 7).

It is noted that the proponent has also committed to a package of measures aimed at mitigating or offsetting any impacts on key marine species that may be associated with the development, particularly the locally increased level of boat traffic in the area. These measures are discussed in subsection 4.5.5.

4.4.4 Water supply

Throughout the EIS process, the proponent has examined water and wastewater in combination, which reflects the modern approach to water cycle management, where wastewater is as much a resource as freshwater. It is noted that the proponent has committed to provide and fund all necessary water cycle infrastructure for the HHID, and contribute to external infrastructure so that local and state infrastructure are not affected.

It is further noted that the proponent has committed to enter into an operation and maintenance agreement with GRC to maintain and operate the relevant service infrastructure for a period of years to be agreed, and until such operation and maintenance costs can be covered by income from rates and service charges applied to the developed land. A condition is stated in this report to reflect these commitments (Appendix 1, Schedule 2, conditions 9–11).

Water supply is discussed immediately below and wastewater/recycled water follow in subsection 4.4.5.

Proponent's water supply strategy

The EIS stated that the total water consumption for the entire HHID is expected to be around 1894 kilolitres per day, with 441 kilolitres per day (i.e. 23 per cent) required as potable water.

The EIS indicated that the proponent's overall strategy for water supply to the HHID is one of self-sufficiency and independence from the mainland supply. A number of options were evaluated in section 3.4.1 and Appendix A7.1 of the EIS. The proponent's preferred water supply system for HHID is an integrated system comprising:

- potable water from a small desalination plant
- rainwater tanks for non-potable household uses
- rainwater can be used for potable uses if ultraviolet or filtration units are installed at the tank (this will be optional for all households)
- recycled water from treatment of wastewater for toilet flushing and all external uses
- recycled water to be used for irrigation of public open space and the golf course
- mandated water efficient devices installed in all buildings.

The proponent proposes to use all these options to a certain extent and for specific purposes throughout the development.

The EIS and SEIS also provided some comment on potable water from the mainland supply; however, throughout the EIS process, the proponent has indicated its preference for the desalination plant and has therefore focused its assessment on desalination for the following reasons:

- alignment with the desired objectives for the development by ensuring it does not rely on a water supply from the mainland
- desalination is a non-climate dependent source, providing long-term security of supply
- desalination plants are modular in nature and, as such, the final capacity of the plant can be determined when better information on consumption trends for the development become known.

The EIS suggests that the cost of both options (i.e. desalination and mainland supply) is likely to be similar.

The EIS did not include an assessment of the impacts of the supply of potable water via pipeline from the mainland. Therefore, the proponent would need to undertake additional studies and seek specific approval through GRC before progressing this option.

The proponent is aware of the other suitable options for supply of potable water to the HHID.

Desalination proposal

Desalination produces potable quality water from seawater (or brackish water). The desalination plant required for the HHID would be a small scale application. The EIS advocated a mechanical vapour compression (MVC) desalination process as the most suitable for the HHID. A MVC desalination plant uses the principles of a heat pump to evaporate and then condense water, separating salt water into freshwater and saline concentrate streams. The heat transfer and recovery system is very efficient for this scale of application, with energy consumption in the order of around 10 kilowatt hour per kilolitre of water produced.

The EIS stated that MVC is the second most popular desalination technology used in Australia, behind reverse osmosis, and is particularly suited to small scale applications. At the scale required for the HHID, energy consumption is comparable to reverse osmosis. The MVC process is provided in more detail in section 3.4.1.4 of the EIS.

The water provided by the desalination plant will meet the requirements of the *Australian Drinking Water Guidelines* (2004) and the *Water Supply (Safety and Reliability) Act 2008*. The proponent has committed to establish comprehensive hazard analysis and critical control points and drinking water quality plans to ensure that any potential human health impacts are managed throughout the design and operation of the plant.

The EIS indicated that the advantages of MVC for the HHID are:

- pre-treatment requirements are minimal and requirement for chemical addition is also minimal compared with most other water treatment technologies involving both desalination and conventional treatment
- operation is simple and low maintenance
- reliability is very high
- product water quality is very high
- production rate can be varied to suit demand
- the plant is easy and quick to power up and down and can be shut down without any special requirements
- corrosiveness of product water can be managed through blending small quantities of unprocessed feedwater or concentrate rather than adding chemicals.

The EIS noted that the desalination plant is proposed to be located near the entrance to the island adjacent to the village centre.

The proponent proposes that seawater will be extracted from Boyne Channel via a seawater intake pump located on the northern (island side) pier of the proposed bridge. The pump will be programmed to pump seawater during the upper half of the tidal cycle to ensure a consistent quality of raw water. A stainless steel submersible pump will be screened to prevent the ingress of debris and organisms into the pipeline. Flows in the pump have been determined to be quite low compared with the current in the Boyne Channel and are not expected to entrap marine organisms. A detailed description of the process is included in section 3.4.1.4 of the EIS.

The EIS indicated the measures to reduce entrainment of marine organisms in the intake of the desalination plant will be determined during detailed design. However, some of the measures proposed are:

- design to achieve the minimal practical water velocity at the intake
- a ‘velocity cap’ that produces horizontal intake currents, which fish are able to detect better than vertical currents
- incorporation of a travelling screen/fish return system at the intake to prevent fish entering and, where possible, release them unharmed.

The EIS stated that such measures are considered by the California Coastal Commission (2004) as ‘best technology available’ for the purposes of complying with the US Clean Water Act.

As part of the desalination process, the EIS proposes that evaporation ponds would be used to manage the brine waste from the desalination plant (approximately 850 kilolitres per day). Further detailed analysis is required to confirm the size, location and dimensions of the evaporation ponds. However, the EIS provided preliminary analysis indicating that four evaporation ponds, each approximately 4225 square metres (i.e. 65 metres × 65 metres) would be required to manage the brine stream with a containment to allow a 1 in 100-year storm event.

Using evaporation ponds means there would be no recurrent requirement to discharge concentrate back into the estuary or ocean (i.e. concentrated solution water will be naturally evaporated). However, provision will be made to monitor the salinity levels in the ponds during wet weather events, in the event of potential overflow. Should there be a need to discharge excess water from the pond, to prevent potential for unmanaged overflow, monitoring will determine whether the salinity in the ponds is less than the current seawater levels and in this case the excess water could be slowly discharged at an approved location during outgoing tides.

As the level of salinity in the discharge will be similar to that of the receiving environment, and because the receiving environment will most likely be naturally disturbed because of the wet weather events (i.e. increased turbity from higher tides, increased wave action and extra runoff), there is not expected to be any negative impact. If the salinity level in the evaporation ponds is determined to be greater than the seawater level (and there is a potential for ponds to overflow) the water will be blended with either seawater or recycled water prior to discharge, to ensure the discharge complements the salinity level of the receiving environment, thereby not causing a negative impact.

The evaporation ponds would be lined with either clay or a geotextile, typically with permeability less than 0.01 millimetres per day, to prevent leaching of saline concentrate to groundwater or leakage to surface waters. A condition is stated in this report to ensure appropriate management measures are implemented to manage impacts of the potential outfall from the evaporation ponds (Appendix 1, Schedule 2, Condition 19).

Salt concentrate produced as a by-product of the desalination plant operation is considered valuable by the proponent and it has indicated that it will endeavour to secure a market for the salt concentrate. As part of the design of the desalination plant, the proponent has committed to ensure holding areas do not permit seepage or infiltration of salt by-products to the groundwater system.

GRC's preferred water option

In its submission on the SEIS, GRC indicated that it did not support the desalination plant option for water supply to the HHID as Council did not want to own and run such a facility in that location. GRC would prefer water for the development to be sourced from the current Gladstone Area Water Board/GRC system and be piped to the site to an appropriate storage area for reticulation. GRC requires that the water supply infrastructure provided to be capable of servicing the HHID at full capacity and use, without the need for future augmentation by GRC. The proponent will be responsible for the full cost of all infrastructure necessary to achieve this.

As the potential impacts of connecting the HHID to the mainland water supply have not been addressed in this EIS process, GRC will need to consider the potential impacts of a mainland water supply for the island in granting an MCU for the development.

As noted earlier in this report, GRC indicates that since amalgamation it has been focusing on creating a single, unified Gladstone regional community. GRC believes it can achieve its goal through concepts of fairness and equity in services and standards throughout the area. As part of this focus, GRC has committed to provide mains water to existing communities in outlying parts of the GRC area (e.g. Agnes Waters and Town of 1770) that do not currently have this service. GRC has set a timeframe of three years to develop the pipeline and sees the HHID as a catalyst to achieve equality of water provision throughout GRC area. This timeframe should fit within the development timeframe of the HHID.

Although GRC requires mains water connection for the HHID, Council does not question the technology of desalination or the management of potential impacts of operating a desalination plant as presented in the EIS and SEIS.

It is noted that, in subsequent advice from GRC, Council indicated it would support the proposal to construct a temporary desalination plant to cover construction activities until such time as the mainland supply can be connected to HHI.

Coordinator-General's conclusion—water supply

The proponent's desire to use desalination as its major source of potable water for the HHID is noted. Similarly noted are:

- GRC's views on a permanent desalination plant
- GRC's proposed strategy to provide water supply, and other services, to existing settlements in the outer regions of the GRC area such as Agnes Waters and the Town of 1770
- the likelihood that GRC's water strategy would proceed either with or without the HHID proceeding.

This evaluation report agrees with GRC that the HHI should connect to a mains water supply system when available. In the interim, it is recommended that GRC consider any application it receives from the proponent for a temporary desalination plant (to be fully funded and managed by the proponent) on the site to service the development until such time as mains supply is connected (Appendix 1, Schedule 3, Recommendation 8).

It is recognised that if a temporary desalination plant needs to be constructed, it will most likely be a smaller scale operation than that envisaged throughout the EIS process; therefore, potential impacts are likely to be further minimised. However, the proponent is required to prepare a decommissioning plan for the plant and related activities (including the salt storage areas) as part of the development's EMP. The EMP is addressed in section 5 of this report.

DERM has advised that it is likely that a temporary water desalination plant of the size that may be required to initially service the island (until such time as mainland supply can be connected) will not be an ERA. If an ERA is not triggered, approval for the plant would form part of GRC's development approval and DERM would be a concurrence agency.

A condition is stated in this report to ensure the appropriate water supply for the development (Appendix 1, Schedule 2, conditions 17–19). A condition is also stated should the temporary desalination plant be deemed an ERA by DERM (Appendix 1, Schedule 1, Condition 7).

4.4.5 Waste, wastewater and other services

Waste management

The EIS indicated that waste from the HHID will be temporarily stored in the construction site compound before being transported by road to the waste transfer station at the Benaraby landfill by an appropriately licensed waste contractor.

The potential impact of waste management activities on the environment include:

- waste spills and loss of containment of waste resulting in impacts on soils, surface water, groundwater, terrestrial and marine fauna and human health
- littering and contamination of waterways
- plastic waste causing mortality to marine fauna
- odour and noise generation from waste handling and storage
- propagation of pests, vermin and disease vectors.

It is noted that the proponent has committed to manage waste from the island in accordance with the Environmental Protection (Waste Management) Regulation 2000 and to develop and implement a waste management plan (WMP) for both the construction and operation stages of the development. The proponent has also committed to implement a community education program as part of the waste management service for the island. Some of the proponent's other mitigation measures include:

- waste avoidance, minimisation, re-use and recycling principles to be used wherever possible
- wastes to be segregated to assist in recovery and recycling
- no disposal of solid or hazardous wastes on the island
- a centralised construction waste collection area will be provided as part of the development.

Tables 11.1 and 11.2 in the EIS provided a potential inventory of waste produced on the island during construction and operation (respectively) and how each source will be managed.

A condition is stated in this report to ensure waste generated by the development is appropriately managed in accordance with government requirements (Appendix 1, Schedule 1, Condition 8). The project's EMP (including the preparation of a WMP) is addressed in section 5 of this report.

Wastewater/recycled water

EIS findings

The EIS proposed a centralised treatment plant as the most viable and sustainable treatment option for the small scale of development proposed on HHI. Wastewater (greywater and blackwater) will be collected from households and commercial premises via a reticulated sewerage system. A pump station will be required to transfer wastewater from the northern end of the island as this will not be able to be gravity fed to the water recycling plant via the sewage treatment plant. All premises on the island will connected to the reticulated sewerage system.

The sewage treatment plant will require approval from DERM as an ERA (ERA 63) and as such will require a development approval for an MCU. Detailed design of, and operation and management procedures for, the water recycling plants and sewerage system must be included as part of the ERA application.

The sewage treatment plant will be sized to cater for an average dry weather flow (ADWF) of 1.0 megalitre per day with additional storage provided to handle up to three times ADWF as per *Planning Guidelines for Water Supply and Sewerage*.[9] It is proposed that the plant will be constructed in two stages of 500 kilolitres capacity each.

In the EIS and SEIS, the proponent proposes to employ high velocity sonic disintegrator technology for the production of recycled water on HHI. The proponent proposes that the recycled/wastewater plant will be constructed in two stages of 500 kilolitres capacity each.

A verification process will also be undertaken to ensure that the recycled water plant is capable of consistently producing class A+ recycled water. The potential impacts of odour from the treatment plant will be assessed as part of the development application.

The HHID proposes to use recycled wastewater for:

- toilet flushing
- external uses such as car washing and garden watering
- irrigation of golf course and public open space
- firefighting.

The EIS and SEIS indicated that the proposed technology is very reliable and low maintenance. The plant is not flow or temperature dependent, is highly flexible and able to treat largely fluctuating flows. The treatment process takes about 30 minutes. The plant is highly effective in destroying pathogens and provides an effluent quality

[9] Department of Environment and Resource Management, *Planning Guidelines for Water Supply and Sewerage*, Department of Environment and Resource Management, 2010, viewed 2 February 2011, www.derm.qld.gov.au/water/regulation/ws_s_consultation.html

that exceeds *Australian Drinking Water Guidelines*[10] and *Queensland Water Recycling Guidelines*.[11] The plant will be designed to minimise odours.

The proponent has developed preventative measures and a 'no discharge' policy to reduce the likelihood of the need for the emergency discharge point for the sewage treatment plant. Based on a request from DERM, the location of the emergency discharge point has been amended so that it will be above HAT on the non-tidal area of the island and as such should not impact on the Colosseum Fish Habitat Area.

Coordinator-General's conclusion—wastewater/recycled water

Conditions are stated in this report to ensure the appropriate management of wastewater for the development in accordance with government requirements (Appendix 1, Schedule 1, Condition 9 and Appendix 1, Schedule 2, conditions 20–21).

Stormwater management

The EIS indicated that, unless appropriately managed, the development could impact on the marine waters surrounding HHI by potentially discharging sediment, nutrients, other chemicals and litter from the island. This in turn has the potential to impact marine species in these waters, such as fish, dugongs and turtles. However, the proponent has committed to design and implement the project to avoid impacting water quality.

It is noted that the proponent has committed to ensure that the discharge from the island will be managed to meet designated water quality objectives through a number of measures including:

- erosion and sediment control plans
- water sensitive urban design
- integrated turf and pest management
- maintaining a 100-metre development buffer from HAT (80 metres at the headland)
- eliminating septic tanks
- not discharging treated sewage or desalination effluents to the marine environment.

A summary of the proponent's proposed water quality mitigation measures is immediately below.

---

[10] National Health and Medical Research Council and Natural Resource Management Ministerial Council, *Australian Drinking Water Guidelines*, 2004, viewed 15 December 2010, www.nhmrc.gov.au/_files_nhmrc/file/publications/synopses/adwg_11_06.pdf

[11] Environmental Protection Agency, *Queensland Water Recycling Guidelines*, Environmental Protection Agency, 2005, viewed 2 February 2011, www.derm.qld.gov.au/water/regulation/recycling/pdf/recycle_guidelines.pdf

Erosion and sediment controls

- Use erosion and sediment controls in accordance with *Soil Erosion and Sediment Control—Engineering Guidelines for Queensland Construction Sites*[12] for all construction activities within ephemeral watercourse catchments that discharge to estuarine or marine waters.
- Maintain a 10-metre buffer of all ephemeral watercourses within the proposed construction area as required by the South East Queensland Regional Vegetation Management Committee.
- Not undertake construction activity in the 100-metre buffer zone above HAT (80 metres at the headland) except for the public access infrastructure such as the bridge and boat ramps.
- Conduct construction activities for the bridge and boat ramps as per construction methods and protection measures outlined in section 8 of the EIS. These works will also be subject to a site specific erosion and sediment control plan including additional controls for working in a sensitive marine environment.
- Ensure ephemeral watercourse discharges will meet water quality objectives for estuarine waters derived from existing and ongoing proposed monitoring.

Water sensitive urban design

- Employ water sensitive urban design (WSUD) principles for all permanent control measures to mitigate litter, sediment, nutrient, hydrocarbon and chemical releases to adjacent estuarine and marine environments.
- Construct control measures in accordance with *Draft Water Sensitive Urban Design Engineering Guidelines: Stormwater*.[13]

Water quality monitoring

- Develop and implement a water quality monitoring plan (WQMP) to establish local water quality objectives and to monitor the effectiveness of proposed measures in maintaining of water quality. This is to be undertaken during the period development approvals are being gained and before construction. The WQMP will:
  - be designed in accordance with relevant guidelines including:
    - *Queensland Water Quality Guidelines*[14]

---

[12] Institution of Engineers Australia, *Soil Erosion and Sediment Control – Engineering Guidelines for Queensland Construction Sites*, Institution of Engineers Australia Queensland Division, Brisbane, 1996.
[13] Brisbane City Council, *Draft Water Sensitive Urban Design Engineering Guidelines: Stormwater*, Brisbane City Council, 2006, viewed 2 February 2011, web.brisbane.qld.gov.au/documents/building_development/subdivision_development/wsud_cover_page_and_contents.pdf
[14] Department of Environment and Resource Management, *Queensland Water Quality Guidelines 2009*, Department of Environment and Resource Management, Brisbane, 2009, viewed 20 December 2010, www.derm.qld.gov.au/environmental_management/water/queensland_water_quality_guidelines/queensland_water_quality_guidelines_2009.html

- draft *Urban Stormwater Queensland Best Practice Environmental Management Guidelines 2009*[15]
- draft *State Planning Policy 4/10: Healthy Waters*[16]
- *ANZECC/ARMCANZ Guidelines*[17]
- *Water Quality Guidelines for the Great Barrier Reef Marine Park*[18]

– measure nutrients (including iron), chlorophyll-a, herbicides, pesticides, copper, lead, total suspended solids, and possibly other analytes as determined during design of the monitoring program

– include water quality sampling at location W1, W2, W5, and W8 as shown on Figure 9-8 of the EIS, as well as an additional location in Sandfly Creek. Additional sites may be added during development of the WQMP.

- Establish water quality objectives on the basis of a minimum of 24 data points over 12 months. The monitoring program will also include regular profiling of temperature, salinity, dissolved oxygen, pH, and turbidity.
- Monitor the health of seagrass, mangrove and coral communities by implementing a marine ecological monitoring program.

Stormwater treatment

The proponent has proposed developing a stormwater management system that treats stormwater in a series of purpose-built wetlands, detention basins and treatment systems, to ensure that untreated runoff from the project does not enter wetlands outside the project site. It is also planned to re-use treated water from the development to irrigate areas such as the airstrip and golf course. This approach will reduce the volume of water used by the HHID and maximise the use of water, thereby limiting overall impact and reducing associated waste.

Reef Water Quality Protection Plan

The proponent has committed to conform to the objectives of the *Reef Water Quality Protection Plan 2009*[19] (RWQPP). The RWQPP aims to address pollution from a

---

[15] Department of Environment and Resource Management, *Draft Urban Stormwater Queensland Best Practice Environmental Management Guidelines*, Department of Environment and Resource Management, 2009, viewed 2 February 2011, www.derm.qld.gov.au/environmental_management/water/environmental_values_environmental_protection_water_policy/draft_urban_stormwater_qbpem_guideline.html

[16] Department of Environment and Resource Management, *State Planning Policy 4/10: Healthy Waters,* Department of Environment and Resource Management, 2009, viewed 2 February 2011, www.derm.qld.gov.au/environmental_management/water/environmental_values_environmental_protection_water_policy/pdf/spp-healthy-waters.pdf

[17] Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand, *The Australian and New Zealand Guidelines for Fresh and Marine Water Quality*, 2000, viewed 15 December 2010, www.mincos.gov.au/publications/australian_and_new_zealand_guidelines_for_fresh_and_marine_water_quality

[18] Great Barrier Reef Marine Park Authority, *Water Quality Guidelines for the Great Barrier Reef Marine Park*, 2009, viewed 15 December 2010, www.gbrmpa.gov.au/__data/assets/pdf_file/0016/33802/Water_Quality_Guidelines_for_the_GBR.pdf

[19] Department of Premier and Cabinet, *Reef Water Quality Protection Plan*, Department of the Premier and Cabinet, 2009, viewed 2 February 2011, www.reefplan.qld.gov.au/library/pdf/reef-plan-2009.pdf

range of diffuse sources within the catchments that flow into the Great Barrier Reef. The plan has two objectives:

1. reduce the load of pollutants from diffuse sources in the water entering the reef
2. rehabilitate and conserve areas of the reef catchment that have a role in removing water borne pollutants.

The proponent's commitments in relation to the RWQPP are addressed in Table 13.4 of the SEIS, some of which include employing erosion and sediment controls, WSUD and water quality monitoring (refer above).

Coordinator-General's conclusion—stormwater management/water quality

The potential for the HHID to impact water quality in Colosseum Inlet, Boyne Creek, Rodds Bay (adjacent to the island) and around the island in general can be adequately managed through the mitigation measures and commitments in the EIS and subsequent documents, and the construction and operational EMPs. Conditions are stated in this report to ensure the appropriate management of marine water quality (Appendix 1, Schedule 2, conditions 22 and 24). The project's EMP is addressed in section 5 of this report.

4.4.6 Roads

Mainland roads

Road studies undertaken for the EIS indicate that two roads and several intersections would require upgrading if the HHID was to proceed. Upgrades would be required for state- and council-controlled roads. Consequently, as part of the HHID, the proponent intends to upgrade the following roads (and intersections) in accordance with a traffic management plan (TMP) to be agreed with GRC and TMR which will be included with the MCU application to GRC:

- Turkey Beach Road and Foreshores Road—roads and intersection
- Bruce Highway and Turkey Beach Road—intersection
- Foreshores Road and Clarks Road—intersection.

Island roads

The traffic capacity of the HHID road network has been determined with reference to the *Queensland Streets: Design Guidelines for Subdivisional Streetworks*.[20] The volume of traffic to be generated by the HHID is based on the specific land uses included in the development such as tourist, recreation, retail, commercial and residential uses.

[20] Institute of Public Works Engineering Australia, Queensland Division, *Queensland Streets: Design Guidelines for Subdivisional Streetworks*, 1993.

Based on the area of land for each land use, and an allowance for the number of trips generated by these land uses, the expected volume of traffic requires that the road connecting the town centre to the bridge is classified as a distributor road with a design capacity of 15 000–20 000 vehicles per day. The EIS indicated that it is anticipated that the daily traffic volumes with full development are expected to be at the low end of the capacity range. For this reason, a high standard two-lane road would be sufficient; however, other design objectives may result in a four-lane form being implemented. This proposed size of road reserve can accommodate either a two- or four-lane form and is consistent with the land use and level of movement needed by the community visiting and living on HHI. Even though a distributor road is being provided, the proponent will not be expanding the development.

The proponent has confirmed that the section of road linking the northern and southern portions of the development (around 500 metres) will remain as two separate single lane carriage ways (5–6 metres) separated by a naturally vegetated strip of 50–60 metres in width. This is in accordance with DERM's connectivity requirements.

All roads on the island will be speed limited to 50 kilometres per hour except the link road noted above which will be limited to 40 kilometres per hour to provide greater protection for wildlife.

The master plan for the HHID (including the internal road network) includes design elements that minimise or mitigate impacts upon fauna communities that incorporate vegetated corridors (of differing sizes), fauna crossing points at potential road-strike points, fauna crossings in designed ephemeral watercourse crossings and maximisation of tree retention across the development area. These issues are discussed in more detail in subsection 4.5.4 of this report.

If four lanes are eventually required for the development, additional fauna mitigation measures may be required, such as fauna bridges at strategic locations.

Coordinator-General's conclusion—roads

It is noted that the proponent has committed to:

- enter into infrastructure agreements (or similar instrument) with TMR and GRC for works on the respective roads/intersections as indicated in the EIS and SEIS
- fully fund and construct appropriate roads and relevant infrastructure for the development on HHI.

It is also noted that as part of the island's road/transport system, the proponent has committed to provide extensive pedestrian and cycling networks with the HHID.

Conditions are stated in this report to ensure the road design and construction for council-controlled roads meet GRC requirements (Appendix 1, Schedule 2, conditions 25–27). Conditions are also stated in this report to ensure the road design and construction for state-controlled roads meet government requirements (Appendix 1, Schedule 1, conditions 10–13).

4.4.7 Airstrip

The proponent proposes to construct a small private grass airstrip as part of the HHID. It is to be located east of the main ridgeline and will use currently cleared ground of the former homestead airstrip. The HHI airstrip will be used by small/light aircraft, with less than six aircraft movements per day. The airstrip will be a private, unregistered airstrip and will not provide for night time usage. Development within the approach/take-off area will be limited in height to comply with Civil Aviation Safety Authority's (CASA) advisory publication—*Guidelines for aeroplane landing areas*.[21]

The EIS stated that the airstrip development will comply with the CASA *Manual of Standards*[22] (part 139—Aerodromes) and as such will have the following characteristics:

- runway width—15 metres
- runway length—1000 metres
- longitudinal slope of the runway—less than 2 per cent
- traverse slope of the runway—2.5 per cent
- clearance at the end of the runway—objects less than 2 metres within 100 metres of end of the runway
- clearance on side of runway—only low mass objects (frangible) within 80 metres of the runway.

All developments in the vicinity of airports, aerodromes and airfields must take into consideration the specifications stated in the CASA's *Manual of Standards Part 139—Aerodromes.* The manual contains specification (standards) prescribed by CASA of uniform application, determined to be necessary for the safety of air navigation including obstacle restrictions and limitations and is referenced in the *Civil Aviation Safety Regulations Part 139—Aerodrome Certification and Operation*.

The closest operational airport to HHI is the Gladstone Airport. The project is not expected to adversely impact the operations of the Gladstone Airport.

A condition is stated in this report to ensure the HHID meets CASA's requirements (Appendix 1, Schedule 2, Condition 28).

4.4.8 Landscaping

Landscaping will be undertaken as part of the HHID and will be funded by the proponent. GRC will be responsible for approving appropriate landscaping through the MCU process. It is noted that the proponent has committed to fully fund all

[21] Civil Aviation Safety Authority, *Guidelines for aeroplane landing areas*, Civil Aviation Safety Authority, 1992, viewed 2 February 2011, www.casa.gov.au/wcmswr/_assets/main/download/caaps/ops/92_1.pdf
[22] Civil Aviation Safety Authority, *Manual of Standards*, Civil Aviation Safety Authority, 2010, viewed 2 February 2011, www.casa.gov.au/wcmswr/_assets/main/rules/1998casr/139/139mfull.pdf

landscaping for the development and to consult with DERM in determining appropriate vegetation for the landscaping program for the development.

It is also noted the proponent has committed to:

- use vegetation native to HHI in all aspects of landscaping to ensure continuity of vegetation
- re-use certain types of vegetation in the landscaping program removed from the development site
- manage the landscaping program in accordance with the principles of ecological sustainable development (ESD).

A condition is stated in this report to ensure the landscaping program for the HHID is undertaken in accordance with government requirements (Appendix 1, Schedule 2, Condition 29).

4.5 Fauna and flora

4.5.1 Fauna

Schedule 3 of the *Nature Conservation Act 1992* (Qld) and Nature Conservation (Wildlife) Regulation 1994 (NC(W)R) lists all Queensland's vulnerable wildlife. The EPBC Act lists all of Australia's protected species and communities.

The EIS and SEIS indicate that an EPBC Act protected matters report for the HHI area lists 23 threatened species that are likely to occur in the area, including six birds, five mammals, seven reptiles, one shark and four plants. The protected matters report also indicated that the island does not contain any threatened ecological communities. However, on-site investigations reveal that littoral vineforest (a listed threatened community under the EPBC Act) is present on the island (refer subsection 4.5.2 of this report).

The EIS investigated the listed threatened species and communities that may be affected by the proposed development.

Terrestrial fauna

The following paragraphs summarise the findings in the EIS which lists all species recorded during the following surveys:

- AGC Woodward-Clyde (1993)
- Bill Carter and Associates (1993)
- Dames and Moore (1995)
- Central Queensland University (2005)
- Sinclair Knight Merz (2007).

A total of 5 amphibian species and 14 terrestrial reptile species were recorded on the island by the collective surveys. None of the species recorded are considered to be rare or threatened in Queensland or at a national level.

One hundred and twenty-five species of birds have been recorded by the surveys. Of these, the Eastern Curlew *(Numenius madagascariensis)* is listed as rare under the NC(W)R; the Beach Stone-curlew *(Esacus neglectus)* is listed as vulnerable under the NC(W)R; and the Beach Thick-knee *(Burhinus neglectus)* and the black-breasted button quail *(Turnix melanogaster)* are listed as vulnerable under the NC(W)R and the EPBC Act. Only the black-breasted button quail is included in the EPBC Act protected matters report for the island.

The SKM surveys conducted in 2007 recorded a concentration of shorebird activity on the landward side of the island, where extensive intertidal wetlands, marine plains and saltmarshes occur. The proposed development is not close to any significant areas of shorebird habitat. As such, an increase in the level of threat posed from construction, habitat loss, domestic animals, human interference, ongoing noise and lighting is not expected.

Thirty-three species of mammals were recorded during the collective surveys, of which only the Grey-headed Flying Fox *(Pteropus poliocephalus)* is listed as vulnerable under the EPBC Act. This species was observed foraging on the island, but no roosts of this or other bat species were observed. Flying fox camps may be established and may have occurred on the island over time; however, the proposed development will not intrude into the preferred wetland/riparian roost sites of these species and as such poses no current or future threat to the viability of flying fox camps.

The EIS also indicated that other species that have the potential to inhabit the site but not recorded during the collective surveys include:

Wildlife Online database[23] (Queensland) listing:

- black-necked stork (*Ephippiorhynchus asiaticus*)—rare
- false water rat/water mouse *(Xeromys myoides)*—vulnerable.

DSEWPaC (Commonwealth) database:

- kermadec petrel (western) *(Pterodroma neglecta neglecta)*—vulnerable
- Australian painted snipe *(Rostratula australis)*—vulnerable
- red goshawk *(Erythrotriorchis radiatus)*—vulnerable
- squatter pigeon (southern) *(Geophaps scripta scripta)*—vulnerable
- northern quoll *(Dasyurus hallucatus)*—endangered
- large-eared pied bat *(Chalinolobus dwyeri)*—vulnerable
- false water rat/water mouse *(Xeromys myoides)*—vulnerable

[23] Formerly the WildNet database. Refer to www.derm.qld.gov.au/wildlife-ecosystems/wildlife/wildlife_online/index.html

- yakka skink *(Egernia rugosa)*—vulnerable
- dunmall's snake *(Furina dunmalli)*—vulnerable.

The potential for these species occurring on the site is discussed in Table 14.12 of the EIS.

Marine fauna

The EIS indicated that the aquatic species (listed under either the NC(W)R or EPBC Act) that have been confirmed or suspected to inhabit or migrate through the Rodds Bay area are:

- Loggerhead Turtle *(Caretta caretta)* (endangered—NC(W)R; endangered and migratory—EPBC Act)—confirmed sighting
- Green Turtle *(Chelonia mydas)* (vulnerable—NC(W)R; vulnerable and migratory—EPBC Act)—confirmed sighting
- Leatherback Turtle *(Dermochelys coriacea)* (endangered—NC(W)R; vulnerable and migratory—EPBC Act)
- Hawksbill Turtle *(Eretmochelys imbricata)* (vulnerable—NC(W)R; vulnerable and migratory—EPBC Act)—confirmed sighting
- Pacific Ridley or Olive Ridley Turtle *(Lepidochelys olivacea)* (endangered—NC(W)R; endangered and migratory—EPBC Act)
- Flatback Turtle *(Natator depressus)* (vulnerable—NC(W)R; vulnerable and migratory—EPBC Act)—confirmed sighting
- Dugong *(Dugong dugon)* (vulnerable—NC(W)R; migratory and listed—EPBC Act)—confirmed sighting
- Indo-Pacific Humpback Dolphin *(Sousa chinensis)* (rare—NC(W)R; migratory—EPBC Act)
- Estuarine Crocodile *(Crocodylus porosus)* (vulnerable—NC(W)R).

Listed migratory species

Migratory species are those animals that migrate to Australia and its external territories, or pass through or over Australian waters during their annual migration. All species on the list of migratory species are MNES under the EPBC Act.

Migratory species are those listed in the:

- Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention)
- China–Australia Migratory Bird Agreement (CAMBA)
- Japan–Australia Migratory Bird Agreement (JAMBA)
- Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA).

Listed migratory species also include any native species identified in an international agreement approved by the Australian Government Minister for Environment.

The overall findings in the EIS concluded a low likelihood of significant impacts on listed migratory species within and around the project site.

The EPBC protected matters report run in January 2007 (for the SEIS) lists 28 migratory species that are likely to occur on or near HHI including:

- eight terrestrial birds
- four wetland birds
- one marine bird
- seven marine mammals
- seven reptiles
- one shark species.

A full listing and an assessment of likelihood of occurrence of each species is included in Table 3.2 of the EPBC Supplementary Report included in the SEIS.

Commentary on migratory marine species is included on page 59 of this report.

Migratory birds

The migratory birds included in the protected matters report are:

Terrestrial

- White-bellied Sea-Eagle *(Haliaeetus leucogaster)*
- White-throated Needletail *(Hirundapus caudacutus)*
- Barn Swallow *(Hirundo rustica)*
- Rainbow Bee-eater *(Merops ornatus)*
- Black-faced Monarch *(Monarcha melanopsis)*
- Spectacled Monarch *(Monarcha trivirgatus)*
- Satin Flycatcher *(Myiagra cyanoleuca)*
- Rufous Fantail *(Rhipidura rufifrons)*

Wetland

- Latham's Snipe, Japanese Snipe *(Gallinago hardwickii)*
- Australian Cotton Pygmy-goose *(Nettapous coromandeli anus albipennis)*
- Little Curlew, Little Whimbrel *(Numenius minutes)*
- Painted Snipe *(Rostratula benghalensi s s lat)*—vulnerable

Marine

- Southern Giant-Petrel *(Macronectes giganteus)*—endangered.

Survey results included in the EIS, including the surveys conducted in March 2007, recorded a concentration of shorebird activity on the landward side of the island, where extensive intertidal wetlands, marine plains and saltmarshes occur. The EIS indicated that there will be no development in this area and no public access.

The EIS also indicated that:

- targeted surveys on the eastern and northern ocean beaches, the proposed bridge site and other accessible intertidal areas recorded only a small number of Lesser and Greater Sand Plovers and Red-capped Plovers
- the HHID is not proximate to any significant areas of migratory shorebird habitat and therefore increase in the level of threat from construction, habitat loss, human interference, ongoing noise and lighting is not expected.

4.5.2 Flora

Terrestrial flora

The EIS and SEIS indicated that no rare or threatened plant species have been recorded on the island, although exhaustive surveys of the entire island have not been completed. Targeted surveys in the proposed development area between 1993 and 2007 did not record any significant flora species.

The EPBC protected matters report run in January 2007 (for the SEIS) lists the following plants that have the potential to occur within the site:

- Wedge-leaf Tuckeroo (*Cupaniopsis shirleyana)*—vulnerable
- Cycad Palm (*Cycas megacarpa)*—endangered
- Minute Orchid, Ribbon-root Orchid (*Taeniophyllum muelleri)*—vulnerable

The Wildlife Online Database (Queensland) listing also includes the following plants that have the potential to occur on the island:

- *Pratia podenzanae*—rare
- *Xylosma ovatum*—rare.

The likelihood of these plants occurring on the island is discussed in section 14.1.2.4 of the EIS. In summary, none of these species have been located in the site area in surveys undertaken to date. Of the five species listed above, only the *Xylosma ovatum*, which occurs in littoral vineforest, and the *Pratia podenzana* (a rare herb) have any likelihood of being present on the island.

Marine flora

The GBRMPA's report *Environmental Status: Mangroves and Saltmarshes*[24] indicates that along the Great Barrier Reef coast mangrove and saltmarsh habitats cover an area of approximately 3800 square kilometres (i.e. 380 000 hectares). The

[24] J Neylan, *Improving the Eco-efficiency of Golf Courses in Queensland*, Australian Golf Course Superintendents' Association and Queensland Environmental Protection Agency, Brisbane, 2001.

EIS stated that the area of mangroves around HHI and within the Colosseum Inlet is approximately 106 hectares and 4410 hectares respectively.

The GBRMPA's report *Environmental Status: Seagrass*[25] indicates that that seagrass beds cover approximately 13 per cent of the GBRWHA, including the presence of some 6000 square kilometres (i.e. 600 000 hectares) of shallow seagrass habitat and a further 40 000 square kilometres (i.e. 4 000 000 hectares) of deepwater seagrass habitat in the Great Barrier Reef.

The EIS indicated that recent seagrass surveys identified the following extent of seagrass in the local area:

- Colosseum Inlet—238 hectares
- Boyne Creek—26 hectares
- Seven Mile Creek—517 hectares
- Rodds Bay—681 hectares.

The two areas of seagrass closest to proposed development on HHI are located in the eastern part of Boyne Creek, commencing approximately 200 metres east of the existing causeway.

Terrestrial communities

As noted above, the EPBC Act protected matters report run for the EIS indicated that the island does not contain any threatened ecological communities. However, ground studies indicate RE 12.2.2, which is consistent with the critically endangered ecological community—Littoral vineforest and Coastal Vine Thickets of Eastern Australia, is present on the island. Throughout the EIS process the proponent has continued to review and revise the master plan and the development footprint to ensure the least possible impact on the local environment. The development footprint has been redesigned to completely avoid threatened communities from its boundaries (i.e. RE 12.2.2), increase the width of fauna corridors and increase buffers to tidal lands, wetlands and waterways. All development has been excluded from littoral vineforest/scrub (suitable habitat for the black-breasted button quail) and beachfront habitats located on the ocean side of the island, south of the northern headland. Also, no development will occur in the small patch of littoral vineforest/scrub that appears to be present on the western side of the island. The two sections of littoral vineforest/scrub are not contiguous with a two-kilometre section of RE 12.2.11 separating them. Therefore, there are not expected to be any impacts on the threatened communities of their potential inhabitants such as the black-breasted button quail.

The EIS indicated investigations have found that koalas (listed as 'regionally vulnerable' under the *Nature Conservation Act 1992*) do not occur in the development area. The EIS implied that essential habitat for the koala does not exist

[25] Great Barrier Reef Marine Park Authority, *Environmental Status: Seagrass*, Great Barrier Reef Marine Park Authority, Townsville, 2005.

within the development area. DERM argues against this assumption and advises that the development area contains three essential habitat factors which could potentially accommodate koalas.

Table 5.1 in the EPBC Supplementary Report, included in the SEIS, lists all REs under the *Vegetation Management Act 1999* (VMA) to be cleared for the development.

4.5.3 Potential impacts on terrestrial ecology

The HHID project has the potential to have direct and indirect short-term and long-term impacts on threatened species and communities. Short-term impacts may be those that occur during the construction and initial operation of the project. Longer-term impacts would occur on an ongoing basis. Mitigation measures proposed by the proponent, and specified as conditions in this report, are likely to avoid or minimise the potential impacts.

The EIS indicated that the potential short-term impacts of the project may include:

- injury and/or death of flora and fauna during vegetation clearing required for the development
- potential disturbance to fauna from activities required for the construction of roads, buildings, bridge, boat ramps and other infrastructure including dust, noise and vibration
- potential traffic related wildlife injury or deaths on roads within or around the project area
- potential spread of weeds into cleared and disturbed areas.

The EIS indicated that the potential long-term impacts of the project may include:

- loss of remnant and regrowth vegetation and habitat and a result of vegetation clearing
- fragmentation of the landscape affecting flora connectivity and fauna movement
- potential traffic-related wildlife injury or deaths on roads within or around the project area.

Likely impacts on specific species are discussed in Table 5.5 of the EPBC Supplementary Report included in Appendix C of the SEIS. A summary of these is included in the sections immediately below.

Terrestrial fauna

As noted above, the EIS indicated that targeted surveys on HHI during 1993 and 2007 located 5 amphibians, 14 terrestrial reptiles, 125 birds, 33 mammals and 4 aquatic species. Of these, four species of birds, one mammal species and all four aquatic species are considered to be rare or threatened in Queensland or at a national level.

As noted above, the EIS expressed the view that the HHID will not intrude into the preferred wetland/riparian roost sites of flying fox species and will not pose a current or future threat to the viability of flying fox camps. It is considered that removing approximately 300 hectares of vegetation from the island may have some impact on sites available to flying foxes for nesting purposes. However, the impact is expected to be relatively minor considering the availability of known mainland and island sites (e.g. Boyne Island) for flying fox roosting and foraging and that HHI is not a known significant flying fox habitat area.

It is also expected that the following project actions will minimise any potential negative impacts on flying foxes in the area:

- the remainder of the island (i.e. over 1700 hectares) will remain in its natural state with a protected areas management regime in place in perpetuity
- the implementation of the proponent's revegetation/regrowth strategies will provide enhanced vegetated areas (including the planting of local fruiting trees for the flying foxes)
- implementing a wildlife management plan may provide greater protection for the flying fox population
- pest and feral animal eradication programs.

A condition is stated in this report requiring the proponent to fund the active management of the undeveloped parts of the island for a period of at least 17 years, after which responsibility will be transferred to GRC to manage in perpetuity (Appendix 1, Schedule 2, Condition 30). Benefits of this would include controlling public access to sensitive areas, greater public awareness and reducing the incidence of feral animals on the island. A condition is also stated in this report requiring the proponent to prepare a wildlife management plan to be approved by DERM (Appendix 1, Schedule 1, Condition 14).

The layout of the proposed development may lead to potential impacts on fauna species due to fragmentation of the island's habitat areas. The proposed master plan for the development has been modified to include fauna corridors and buffers to tidal lands, wetlands and waterways to retain habitat connectivity. Further mitigation measures to limit the impacts of fragmentation of the island are addressed below.

Detailed measures will also be determined in conjunction with DERM as part of preparing the wildlife management plan.

Listed migratory species

Some migratory bird species may be temporarily impacted by construction noise, dust and vibration. Artificial night lighting may also impact upon some migratory bird species. In principle, these impacts could cause stress, causing them to leave their home ranges, disruptions to breeding cycles and restrictions on foraging behaviour. However, the extent of the remaining suitable habitat on the island compared to the area of the proposed development suggests that impacts would not be significant.

Likely impacts (after mitigation) on specific migratory species (including mammals, reptiles etc) are noted in more detail in Table 5.6 of the EPBC Supplementary Report included in Appendix C of the SEIS.

Terrestrial flora

As noted above, targeted surveys in the development during 1993 and 2007 did not locate any listed threatened flora species. Therefore, no significant impact is expected on these species. However, in section 14.3 of the EIS, the proponent has committed to several vegetation mitigation strategies that will provide appropriate protection for these species, if located during clearing works.

Clearing native vegetation

Table 5.1 in the EPBC supplementary report (included as Appendix C in the SEIS) lists all REs under the VMA to be cleared for the development.

Throughout the EIS process, the proponent has continued to review and revise the master plan and the development footprint to ensure the least possible impact on the local environment. The development footprint has been revised to specifically reduce potential impacts on endangered REs, increase the width of fauna corridors and increase buffers to tidal lands, wetlands and waterways. All development has been excluded from littoral vineforest/scrub and beachfront habitats located on the ocean side of the island, east of the northern headland and the section located on the western side of the island. This requirement is reflected in a condition stated in this report (Appendix 1, Schedule 2, Condition 1).

Additional vegetation investigations undertaken after the SEIS was released indicated that approximately 518 hectares[26] of vegetation would need to be disturbed for the development (including all infrastructure). The REs that are listed as 'endangered', 'of concern' or 'least concern' total approximately 300 hectares. Of the REs recorded, the following three REs are listed as essential habitat for koalas under the VMA:

- RE 12.12.12 *Eucalyptus tereticornis, E. crebra*—open-forest to woodland—of concern-dominant (195.14 hectares)
- RE 12.3.10 *Eucalyptus populnea*—grassy woodland/tall woodland—endangered-dominant (4.5 hectares)
- RE 12.3.3 *Eucalyptus tereticornis*—open-forest to woodland—endangered-dominant (5.43 hectares).

A table displaying the proposed vegetation clearing and offsets requirements is included in Appendix 4.

[26] Total amount of vegetation within the development footprint has been included for ease of calculation of vegetation offset. Not all vegetation will be removed.

It is noted that the REs recorded on HHI are similar to those located on other continental islands in the GBRWHA and/or on the mainland in the surrounding area and therefore are not considered unique to the region.

To mitigate the loss of the REs the proponent is required to secure an environmental offset that addresses the requirements of the Queensland Government. This is discussed under subsection 4.5.4 below.

The amount of vegetation to be removed will be finalised prior to seeking vegetation clearing approval from DERM. The proponent has committed to avoid and minimise environmental impacts of the HHID by ensuring the smallest development footprint as possible.

4.5.4 Mitigation measures—terrestrial ecology

The revised master plan for the HHID, included in the SEIS, incorporates a number of design elements that are intended to negate or minimise potential impacts of the project including:

- avoid and minimise clearing of endangered REs and no clearing of Poplar Box woodlands and littoral vineforest communities
- no development in habitat known to support significant fauna species such as the black-breasted button quail (littoral vineforest)
- incorporating vegetated corridors within the development site to allow flora and fauna dispersal across the island
- maintenance of riparian corridors adjacent to ephemeral creeks
- incorporation of formal road crossing infrastructure at key fauna corridor locations
- maximising tree retention across the development to increase landscape permeability for flora and fauna
- minimal disturbance to tidal habitats.

Terrestrial fauna, flora and communities

In section 14 of the EIS, the proponent has proposed a suite of management strategies to mitigate potential construction and operational impacts on terrestrial, fauna, flora and communities.

In the SEIS, the proponent has updated the proposed mitigation measures to negate or minimise potential impacts on terrestrial flora and fauna. These are included in the subsections immediately below.

Compensatory habitat strategy

In the EIS, the proponent stated that it proposes to develop a comprehensive compensatory habitat strategy (CHS) for the project. The objectives of the proponent's strategy are to:

- comply with the requirements of the Queensland *Vegetation Management Act 1999* and associated codes and policies

- consider the provision of appropriate offsets for potential impacts on MNES
- provide tangible conservation benefits locally and within the wider GRC area with an emphasis on threatened species conservation.

The proponent's CHS involves:

- securing regrowth (near remnant) vegetation within and outside the GRC area which is representative of the REs and essential habitat to be cleared for the project. The properties will either be purchased by the proponent or secured via a registered covenant. Properties will be actively managed until such time as they reach remnant status
- securing REs of equivalent conservation status to those to be cleared for the project within and outside the GRC area and managing these areas until such time as they reach remnant status
- strategic purchase of key land parcels that have been identified as key linkages or habitats for EVR taxa at the local, sub-regional and regional scale
- revegetation and rehabilitation of existing cleared areas of land within the study area, with a view to reinstating pre-clearing vegetation types (including appropriate fruiting trees for flying foxes).

Offsets strategy

State

The proponent has submitted a proposed offsets package to DERM for consideration as part of the EIS process for the project. While full details cannot be provided at the time of writing, the following offset details and advice from DERM can be provided:

- the proponent has proposed to offset clearing of approximately 300 hectares of RE (including endangered, of concern and threshold REs and mapped essential habitat)
- the proposed offset will be greater than 700 hectares and meets Criteria 1—Offset limitations of the *Policy for Vegetation Management Offsets*[27] (refer Appendix 4)
- all proposed offsets are proposed within areas mapped as non-remnant or category X by a Property Map of Assessable Vegetation (PMAV) (i.e. is not assessable)
- the areas proposed to be cleared and the proposed offsets meet either the requirements of the *Policy for Vegetation Management Offsets 28 September 2007* or the *Policy for Vegetation Management Offsets—version 2.4*[27]
- all proposed offset areas are located within approximately 35 kilometres of the areas proposed to be cleared

[27] Department of Environment and Resource Management, *Policy for Vegetation Management Offsets*, version 2.4, Department of Environment and Resource Management, Brisbane, 2009, viewed 20 December 2010, http://www.derm.qld.gov.au/about/policy/documents/3450/veg_2006_2888.pdf

- the majority of the proposed offsets proposed are the same REs. Where like-for-like REs are not provided, a higher ratio has been provided
- proposed offset areas provide connectivity to areas of mapped remnant vegetation
- the proposed offset areas are located adjacent to national park, creeks and within wildlife corridors
- all offset areas proposed are expected to regain remnant status within 5–20 years.

In summary, DERM has advised that, based on the information provided by the proponent subsequent to the SEIS, the proposed development would meet vegetation management policy requirements if offsets negotiations are finalised, land contracts signed and connectivity is maintained. Accordingly the Coordinator-General is satisfied that appropriate offsets can be provided for the proposed vegetation clearing.

A condition is stated in this report requiring the proponent to secure offsets for the proposed clearing of remnant vegetation, prior to a preliminary approval for an MCU on the site (Appendix 1, Schedule 1, Condition 15).

Conditions are also stated in this report that require the proponent to, among other things, undertake a complete plant/flora survey (in consultation with the Wildlife Branch of DERM, before finalising the development footprint) and prepare a flora rehabilitation plan (Appendix 1, Schedule 1, conditions 15–17).

Commonwealth

Offsets are regulated by DSEWPaC as per the *Draft Policy Statement: Use of Environmental Offsets under the Environmental Protection and Biodiversity Conservation Act 1999*.[28] The draft policy provides principles for offsetting unavoidable impacts on MNES. The proponent is aware that it will need to meet the relevant offset requirements of the Commonwealth and is currently in negotiation with DSEWPaC to determine appropriate offsets for the development. The Commonwealth offset requirement may be over and above that required by the state government.

Environmental management plans

The draft EMPs for the project were included in section 20 of the EIS and section 17 of the SEIS provided an update. The draft EMPs include the proponent's committed mitigation measures for all components of the construction and operational stages of the development. The draft EMPs are designed to ensure that identified environmental impacts relating to the project are avoided or minimised. EMPs are addressed more detail in section 5 of this report.

---

[28] Department of Environment, Water, Heritage and the Arts, *Draft Policy Statement: Use of Environmental Offsets under the Environmental Protection and Biodiversity Conservation Act 1999*, Department of Sustainability, Environment, Water Population and Communities, 2007, viewed 2 February 2011, www.environment.gov.au/epbc/publications/pubs/draft-environmental-offsets.pdf

Environmental management of undeveloped parts of HHI

Proponent's strategy

The proponent has committed to fund and actively manage the protection of the undeveloped parts of HHI (land outside of the development footprint, around 1700 hectares) for a period of up to 17 years (or otherwise agreed with GRC via an infrastructure agreement) to ensure a greater level of active protection is provided to these parts of the island. Following this period, GRC will be responsible for funding the management of the area in perpetuity. GRC may consider imposing a 'green levy' on HHI residents to cover relevant management costs. Any management arrangement must be consistent with the management principles for the tenure of the land at that time.

While HHI is part of the GBRWHA and subject to associated protection policies, HHI has never been subject to an active management regime to protect the island wildlife and flora as proposed by the proponent. Part of the proponent's proposal to manage the area is to design and implement a wildlife management plan (in consultation with DERM) to protect the island's natural wildlife (including the black-breasted button quail). Details of this plan are addressed under 'wildlife management plan' on page 70 of this report.

A condition is stated in this report to ensure the management of the undeveloped parts of HHID is undertaken by the proponent (Appendix 1, Schedule 2, Condition 30).

Tenure of undeveloped land on HHI

HHI is made up of five parcels of unallocated state land. As noted above, the HHID will impact on Lot 3 on FD841442 (i.e. the SL area); Lot 1 on FD841442 and Lot 10 FD841442 on HHI. Lot 1 USL 43258 on the mainland will also be impacted by the construction of the Boyne Creek bridge, boat ramp and causeway. Approximately 75 per cent of HHI is included within an Exploration Permit for Minerals (EPM 7164) (refer subsection 4.3.6 of this report), which expires on 22 October 2011.

In the long-term it is preferred that a conservation park to be declared under the NCA over all the undeveloped parts of the island (approximately 1700 hectares) and for GRC to assume the role of trustee. However, this is presently not feasible given the presence of an exploration permit (for mineral sands) over 2041 hectares (20.4 square kilometres) of the island.

The following actions are recommended by the Coordinator-General (Appendix 1, Schedule 3, Recommendation 9):

- a conservation park (with GRC as trustee) be declared over the portion of the island outside the HHID development area and not within the current exploration permit area
- as an interim measure, a resource reserve (a type of protected area defined by the *Nature Conservation Act 1992* (Qld)) be declared over the part of the island subject to the exploration permit and outside the HHID development area

- once it has been determined that the mineral sands resource is unlikely to be mined, the conservation park be extended into the remaining undeveloped areas of HHI.

The purpose of a resource reserve tenure would be to enable an active conservation regime to be implemented, while retaining its status as a mineral resource. A conservation park tenure would enable a similar mechanism for its active management and would exclude mining activities.

Irrespective of its protected area tenure, the undeveloped parts of the island would be actively managed by the proponent for a period of 17 years or otherwise agreed with GRC by means of an infrastructure agreement. Following this period, the declaration of a conservation park would hand responsibility to GRC. Council has agreed to this proposed arrangement and indicated that long-term funding is likely to be through a levy or benefited area rate. GRC would be responsible for funding the management of the area in perpetuity.

A condition is stated in this report to ensure ongoing protection and active management of the undeveloped parts of the island (i.e. land outside the development footprint,) thereby providing greater protection of this area of the WHA (Appendix 1, Schedule 2, Condition 30).

The NCA requires that a management plan is prepared for the protected areas. This would be prepared by the proponent and approved by DERM.

The requirement for the proponent to provide funding for the management of the undeveloped parts of HHI is additional to that generally sought for a development of this type and should therefore be considered an offset.

Wildlife management plan

A condition is stated in this report requiring the proponent to prepare a wildlife management plan, to be approved by DERM, to protect wildlife on the island (in particular the black-breasted button quail) (Appendix 1, Schedule 1, Condition 14). The proponent's commitment to not allow domestic cats within the HHID area and to prohibit dogs from certain parts of the island will form part of the plan.

The Coordinator-General requires that the wildlife habitat management plan include:

- wildlife habitat and movement corridors incorporated in the design, construction and operation of the project. This must include:
  - the design and management of the development to retain and enhance remaining vegetated areas and maximise fauna movement corridors (as discussed in this report)
  - the design and construction of a major fauna crossing (e.g. underpass culvert) along the sections of road that pass through vegetated areas to prevent fauna entering the roadway
  - developing and implementing a roadside wildlife management plan to further protect wildlife in the vicinity of the access road

  - installing traffic calming devices in strategic locations
  - installing fauna exclusion fencing in appropriate locations, if necessary, as agreed with DERM
  - developing, implementing and funding activities to specifically eradicate fox, wild dog and feral cat numbers in the buffer zone between the HHID and the rest of the island and on and surrounding the bridge (e.g. trapping program)
  - prohibiting domestic cats within the HHID area and dogs from environmentally sensitive parts of the island such as beaches and protected areas
  - implementing vegetated buffers of at least 100 metres in width around the entire perimeter of the HHID footprint (80 metres at the headland) to protect sensitive environments
- developing and implementing a management plan for the black-breasted button quail *(Turnix melanogaster)* that are known to exist in littoral vineforest RE on the island
- developing and implementing a beach and foreshore management plan (including a community education/awareness program) in consultation with DERM to manage the sensitive areas particularly for turtles and shorebirds
- developing and implementing an artificial lighting management plan that will include a range of methods of minimise impacts such as:
  - turning off light sources
  - wattage reduction
  - repositioning lights behind structures
  - shielding
  - redirecting light sources
  - lowering lights
  - recessing lights so the light does not reach the beach
- measures must be included in a community management statement to regulate domestic animals in residential precincts to avoid disturbing native fauna in open space areas
- all site rehabilitation work is to be undertaken and/or managed by appropriately qualified personnel.

Many of these activities accord with the goals of the *National recovery plan for the black-breasted button quail*[29] and are expected to benefit all wildlife on the island.

[29] M Mathieson & GC Smith, *National recovery plan for the black-breasted button quail*, Department of Environment and Resource Management, 2009, viewed 2 February 2011, www.environment.gov.au/biodiversity/threatened/publications/recovery/pubs/black-breasted-button-quail.pdf

It is considered that implementing the wildlife management plan will provide an appropriate level of active protection for wildlife on the island (and in the WHA) that does not currently exist.

Connectivity preservation strategies

In submissions to the Coordinator-General from DERM and DSEWPaC, issues were raised about the potential reduction in connectivity linkage of the island resulting from the proposed development. As a result, the proponent provided additional information on vegetation to be cleared from the site, connectivity strategies and a proposed environmental offsets package.

Based on the information provided by the proponent, DERM has advised that connectivity on the island (in accordance with performance requirement s.4—Connectivity, of the *Regional Vegetation Management Code for Southeast Queensland Bioregion*[30] can be maintained if:

- linear clearing is restricted to 20 metres in width for a distance of not less than 500 metres in area A (i.e. segment of road connecting northern and southern parts of the development and 300 metres in area B (i.e. the area between the bridge connection on the island and the commencement of the development) (refer Figure 4.1 of this report)
- clearing of areas A and B is only permitted for the construction of an access road (including bike path) and reasonably associated service infrastructure such as power, water and telecommunications
- advance regrowth adjacent to the section of road linking the northern and southern portions of the development is to be allowed to return to remnant status
- clearing is be restricted to the current development footprint
- no amendment to the lease area occurs other than the intended excision of a portion of the lease area to be included in a resource reserve.

In the EIS documentation and additional information provided to the Coordinator-General, the proponent proposed a number of measures to reduce the impact of fragmentation of fauna communities. These include:

- vegetated corridors that permit flora and fauna dispersal across HHI, particularly the maintenance of riparian corridors adjacent to ephemeral creeks. Wildlife corridor types that are to be considered for the development, to be agreed with GRC and DERM include:
  - major linkage—several hundred metres in width and containing no buildings or major structures

[30] Department of Natural Resources and Water, *Regional Vegetation Management Code for Southeast Queensland Bioregion*, Department of Environment and Resource Management, 2006, viewed 2 February 2011, www.derm.qld.gov.au/vegetation/pdf/codes/southeast_code_nov_06.pdf

  - inter-urban linkage—corridors of 100–200 metres wide through a predominantly urban matrix, but containing large areas of green space, such as the golf course
  - local linkage—corridors of less than 100 metres wide through urban and non-urban matrices
- formal fauna crossing points at potential road-strike points, particularly within the proposed corridors described above
- fauna crossings at ephemeral watercourse crossings
- tree retention across the development area to increase landscape permeability for flora and fauna particularly in and around the proposed golf course.

In accordance with DERM's requirements, the proponent also proposes that the section of road linking the northern and southern portions of the development (around 500 metres) consist of two separate single lane carriage ways (5–6 metres) separated by a naturally vegetated strip of 50–60 metres wide. This area is currently near remnant and is expected to provide an area of relative safety for animals which may pass through this area. The vegetation on either side of the roads is near remnant and eventually will provide a partial canopy which would offer greater protection for wildlife that may cross in this area above ground.

This segment of road is also likely to be straight and would assist drivers to see wildlife that may be crossing. The proponent proposes that this section of road will be speed limited to 40 kilometres per hour and will include formal fauna crossing points to provide greater protection for crossing fauna. Traffic calming devices are proposed at regular intervals along the road to maintain speeds limits in the area. The road will be appropriately signed to warn drivers that wildlife may cross in the area.

The proponent proposes that the road will be built to provide regular culverts for small macropods to travel under the road thereby providing additional means of connectivity across the island. All other roads within the development will be speed limited to 50 kilometres per hour.

As noted above, the proponent is required to prepare a wildlife management plan to ensure wildlife on the island is protected, and to address connectivity strategies.

As noted earlier in this report, a condition is stated that will specify requirements for road design (including reduced speed limits and the requirement for formal fauna crossing points and fauna culverts) on the island to ensure the appropriate protection of wildlife on the island (Appendix 1, Schedule 2, Condition 2). The condition also requires the proponent to include in road designs the preferred fauna sensitive design standards included in the *Fauna Sensitive Road Design Manual—Volume 2: Preferred Practices*.[31]

[31] Department of Transport and Main Roads, *Fauna Sensitive Road Design Manual—Volume 2: Preferred Practices,* Department of Transport and Main Roads, 2010, viewed 2 February 2011, www.tmr.qld.gov.au/Business-and-industry/Technical-standards-and-publications/Fauna-Sensitive-Road-Design-Volume-2.aspx

Coordinator-General's conclusion—terrestrial ecology

The Coordinator-General is satisfied that the proposed vegetation clearing is necessary for the development of the project. As noted above, conditions have been specified in this report to ensure the majority of other vegetated areas within the lease area will be retained and protected in open space precincts and the remainder of the island, outside of the lease area, is appropriately protected and managed. The Coordinator-General is also satisfied that the proponent will be able to meet the state's offsets requirements.

As a consequence of development approval for the project, there is expected to be a substantial net gain of protected open space of approximately 1700 hectares on the island and vegetated habitat areas of over 700 hectares at the proposed offset locations.

As noted above, conditions are stated in this report that require the proponent to undertake a complete plant/flora survey in consultation with the Wildlife Branch of DERM before finalising the development footprint and to prepare a flora rehabilitation plan (Appendix 1, Schedule 1, conditions 15–17).

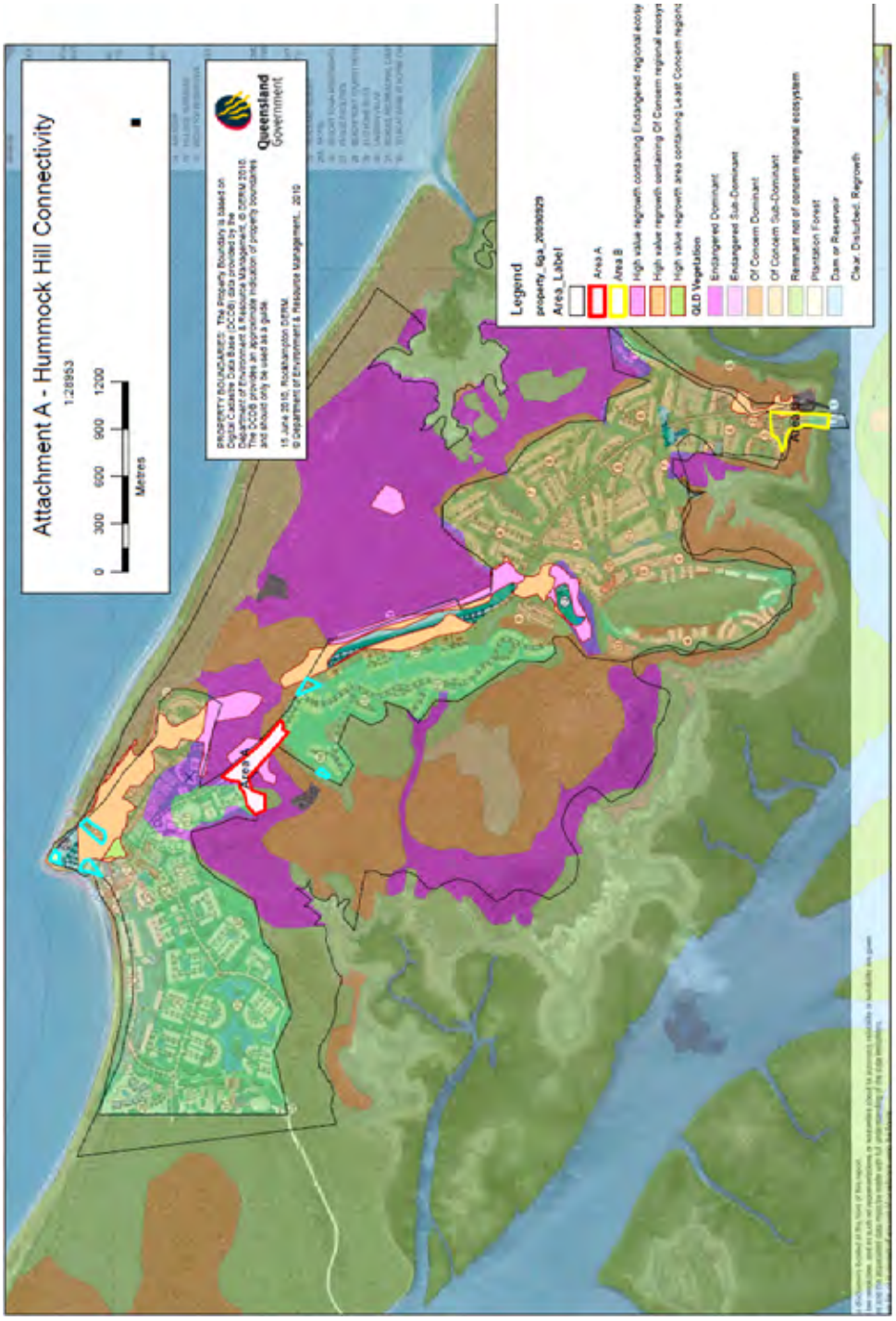

Figure 4.1 **Hummock Hill Island connectivity, highlighting areas A (Red) and B (Yellow)**

Listed migratory species

The proponent's proposed mitigation measures are clearly documented in the proponent's draft EMPs (included in section 20 of the EIS and updated in section 17 of the SEIS). Mitigation measures to be implemented by the proponent include:

- no development or public access to the landward side of the island, where extensive intertidal wetlands, marine plains and saltmarshes occur and where a concentration of shorebird activity was recorded during surveys noted in the EIS
- measures to mitigate potential habitat loss and fragmentation (discussed in detail under subsection 4.5.4)
- construction EMPs will include measures to minimise (and, where possible, negate) the amount of noise, dust and vibration from development activities thereby reducing the potential impacts of fauna, including migratory birds
- develop and implement an artificial lighting management plan (as described on page 71 of this report)
- a public awareness/education program about the local environment and wildlife.

Conditions are stated in this report requiring the proponent to implement these measures. In addition, as noted above, a condition is stated requiring the proponent to establish and fund a protected areas management regime over the undeveloped sections of the island (Appendix 1, Schedule 2, Condition 30). This would avoid and mitigate potential development-related impacts to these areas and provide a substantial long-term positive outcome for suitable habitat for key (terrestrial) migratory species.

4.5.5 Potential impacts on marine ecology

The HHID project has the potential to have direct and indirect short-term and long-term impacts on marine ecology. Short-term impacts may be those that occur during the construction and initial operation of the project. Longer-term impacts would occur on an ongoing basis. Mitigation measures proposed by the proponent, and specified as conditions in this report, are likely to avoid or minimise the potential impacts.

Marine fauna

The EIS indicated that, without adequate management, the potential short-term impacts on marine fauna of the project may include:

- potential disturbance to marine species from activities required for the construction of the bridge and boat ramps
- potential harm to, or death of, marine species due to water quality loss as a result of discharge of sediments, nutrients, other chemicals and litter into surrounding waters associated with construction
- potential disturbance due to construction lighting.

Similarly, the EIS indicated that the potential long-term impacts of the project could include potential:

- injury or death to marine life due to possible increase in recreational boat traffic
- for increased proliferation of exotic species, including weeds and pests
- harm or death to marine species due to water quality loss as a result of discharge of sediments, nutrients, other chemicals and litter into surrounding waters
- disturbance due to operational lighting.

Impacts on dugongs, turtles and other marine species

The EIS indicated that impact on habitat for dugongs, turtles and other key marine species around HHI is expected to be negligible given the minor impacts of construction (associated with the bridge and boat ramps) and the commitment to a high standard of water quality management from the development.

Some marine species, particularly dugong and some turtle species, are susceptible to injury or mortality from boat strike. It is estimated that approximately 200 small boats will be owned by the permanent population of the development (about three per cent of the total 2006 boat ownership in the Gladstone Local Government area), with up to approximately 29 of these in use on any given day. A similar number of boats could be expected to be used by tourists to the island. Based on population projections for the region, the proportional increase in boat numbers in the region will be in the order of 2500 over the 15-year development period of the HHID. From a regional sense, the level of boat ownership and usage related to the project is relatively minor in comparison to anticipated growth in the region's boat numbers.

The proposed construction of two new boat ramps on HHI will provide greater access to Colosseum Inlet and Rodds Bay for recreational boating and fishing activities. To a large extent, this would have the effect of formalising the existing access to these areas, assisting in its management, and would not be expected to significantly increase growth in boating activity beyond the projected regional trends, given the relatively easy access from Gladstone to Rodds Bay by a typical recreational boat user.

As discussed in subsection 4.4.2, the proposal includes removing an existing low-tide causeway across Boyne Creek (by the proponent). This is anticipated to have a positive outcome for the movement of marine species in Boyne Creek, including listed marine species.

Impacts on nesting turtles

More human presence and activity on HHI has the potential to impact on turtles that may nest on the island. The northern beaches of the island appear suitable for turtle breeding and egg laying; however, the EIS indicated that there is evidence that turtles use these beaches infrequently and at low densities.

Beaches on the island will not be directly impacted by the development and the proponent has committed to employ techniques that have been successfully used at other locations to ensure that public access to turtle breeding beaches does not affect the breeding, egg laying and egg hatching components of the turtle lifecycle.

Operational lighting also has the potential to disturb nesting turtles. However, it is noted that the proponent has committed to a lighting strategy to avoid, where possible, or reduce potential impacts. GRC will be responsible for implementing local laws to ensure these commitments are met outside the development site and for introducing appropriate codes to ensure the lighting conditions can be implemented on site.

Marine flora

Some direct mangrove and supratidal salt flat habitat loss will occur during construction of the proposed access road, bridge and public boat ramps due to filling activity for the road, bridge abutments, casements/piers and also filling for construction of the public boat ramp in Boyne Creek.

The revised conceptual design of the bridge and boat ramp options, provided after the SEIS was released, indicate that approximately 0.38 hectares of RE 12.1.3 (mangrove) and 0.38 hectares of saltpan would be impacted. This equates to approximately 0.02 per cent and 0.002 per cent respectively of the Colosseum Inlet, Boyne Creek, Sandfly Creek and the Seven Mile Creek intertidal wetland system.

The EIS also finds that local seagrass meadows are not expected to be impacted by the development and no mangroves will be removed at the site of the Colosseum Inlet boat ramp.

4.5.6 Mitigation measures—marine ecology

In constructing and operating the project, the proponent has committed to, and will be required to implement, several mitigation measures to negate or minimise potential impacts on marine flora and fauna, including:

- removing the existing sub-tidal causeway (in the vicinity of the proposed bridge) across Boyne Creek that currently constitutes a significant waterway barrier within the marine park thus restoring natural tidal flows and unrestricted movement of marine fauna
- minimise habitat clearing within supratidal salt flats and mangroves to the minimum width required to accommodate road and bridge design, stormwater controls and service infrastructure
- conduct clearing in accordance with relevant recommendations included in the *Wetland Management Profile—Salt Marsh Wetlands* issued by the Queensland Wetlands Programme (DERM)
- obtain all approvals required by relevant legislation before commencing work
- implement erosion and sediment controls (as described on page 52 of this report)

- implement WSUD principles (as described on page 52 of this report)
- implement water quality monitoring initiatives (as described on page 52 of this report). The Coordinator-General states a condition in this report requiring the proponent to seek DERM's consideration of the water objectives of the HHID (Appendix 1, Schedule 2, Condition 23)
- use Class A+ wastewater for irrigation and supplementary fertilisers for the golf course
- operate watering, fertilising and pest control in accordance with the *Australian Golf Course Superintendents' Association and QLD EPA Improving the Eco-efficiency of Golf Course in Queensland*.[32]
- conform to the objectives of the RWQPP.[33] The RWQPP aims to address pollution from a range of diffuse sources within the catchments that flow into the Great Barrier Reef. The plan has two objectives:
    a. reduce the load of pollutants from diffuse sources in the water entering the reef
    b. rehabilitate and conserve areas of the reef catchment that have a role in removing water borne pollutants
- employ techniques that have been successfully used at other locations to ensure that public access to turtle breeding beaches does not affect breeding, egg laying and egg hatching components of the turtle lifecycle including developing and implementing public awareness and education programs
- develop and implement an artificial lighting management plan (as described on page 71 of this report). The proponent's commitments indicate that all external lighting for the site will conform to the following Australian standards:
    – AS 1158—Road lighting
    – AS 4282—Control of the obtrusive effects of outdoor lighting.

Marine ecological monitoring

It is noted that the proponent has committed to develop and implement a marine ecological monitoring program (MEMP) to map and monitor key marine communities in the close proximity to HHI (including Boyne Creek and Colosseum Inlet) including coral communities, seagrass beds and mangrove communities for a period of five years.

[32] J Neylan, *Improving the Eco-efficiency of Golf Courses in Queensland*, Australian Golf Course Superintendents' Association and Queensland Environmental Protection Agency, Brisbane, 2001.
[33] Department of Premier and Cabinet, *Reef Water Quality Protection Plan*, Department of the Premier and Cabinet, 2009, viewed 2 February 2011, http://www.reefplan.qld.gov.au/library/pdf/reef-plan-2009.pdf

While it is recognised the development is not likely to impact on seagrass and corals in the area due to any outfall discharge, there are potential impacts to marine mammals a result of increased boat traffic (recognising that this increase would be likely to occur without the HHID proceeding). The proponent has indicated its interest in funding this monitoring to provide useful data to relevant and interested agencies such as DERM, DEEDI and GBRMPA.

A condition is stated in this report to ensure that marine ecological monitoring is undertaken and that DEEDI and DERM are consulted in the preparation of the plan and all results provided to both agencies (Appendix 1, Schedule 1, Condition 20). It is also considered that the proponent's commitment exceeds the requirements for development approvals and could be considered as an environmental offset.

Further commitments

It is noted that the proponent has committed to a number of additional measures relating to protecting marine species in the vicinity of HHI. These measures include:

- introduce public awareness and education programs to encourage reduced vessel speeds and educate the public on the local marine environment, thereby minimising the potential impacts on dugongs, turtles and other marine species
- work with relevant experts and contribute to the ongoing operation of a marine mammal and turtle monitoring program aimed specifically at the Rodds Bay Dugong Protection Area. This would incorporate research and monitoring directly relevant to the management of dugongs
- contribute to a proposal to change the southern area of the Rodds Bay Dugong Protection Area from Zone B to Zone A. This may include a financial contribution to the cost of compensation associated with a formal buyout of fishing licences.

4.5.7 Coordinator-General's conclusion—fauna and flora

It is noted that the HHID could impact threatened species on HHI. The proponent has provided details of EMPs and a list of commitments which it will enforce throughout the construction and operational stages of the development.

Implementing committed mitigation and conservation measures, as described in the EIS and SEIS and the proponent list of commitments, is expected to mitigate the impacts of the HHID project on species that were identified during the field surveys noted in the EIS. As a result, it expected that there may be minor short-term disturbance to, and no significant long-term impact on, listed threatened species and communities on and surrounding HHI.

The Coordinator-General is satisfied that the potential for the HHID to impact on flora and fauna on and around the island in general can be adequately managed through the mitigation measures and commitments contained in the EIS and subsequent documents, the construction and operational EMPs and in conditions the Coordinator-General has specified in this report.

A condition is stated in this report to ensure potential impacts on the island's flora and fauna are managed appropriately (Appendix 1, Schedule 1, conditions 14–20 and Appendix 1, Schedule 2, conditions 30–31).

4.6 Acid sulfate soils

4.6.1 Context

Acid sulfate soil is a characteristic feature of low lying coastal environments in Queensland. Undisturbed, these soils can be present in an anaerobic state within marine muds and sands in the form of potential acid sulfate soil. Actual acid sulfate soil is the oxidised (disturbed) form, which may occur as the result of natural or anthropogenic disturbance from changes in groundwater levels and/or exposure to oxygen.

Acid sulfate soil in an undisturbed environment may have neutral acidity or be slightly alkaline and no visual appearances indicating its acidic potential. However, when exposed to air either by direct excavation or by indirect changes to the surrounding water table, pyritic material inherent in the soil is oxidised by sulfur oxidising bacteria leading to the formation of sulfuric acid. High concentrations of acid released into receiving waters can potentially cause significant impacts on ecosystem health.

4.6.2 EIS findings

The EIS indicated that acid sulfate soil is present in the intertidal zone and mangroves and potentially in the sands below the water table on the northern side of HHI. Acid sulfate soil is likely to be disturbed around the existing causeway during construction of the bridge and boat ramp located east of the bridge. The EIS found that the amount of disturbance is expected to be low and can be managed through an acid sulfate soil management plan.

It is noted that the proponent has committed to develop and implement an acid sulfate soil management plan to minimise potential acidification issues associated with construction of the bridge and boat ramps. The management plan will be prepared in accordance with the *Queensland Acid Sulfate Soil Technical Manual: Soil Management Guidelines*[34] and submitted for approval prior to bund construction. The acid sulfate soil management plan will be managed in accordance with sections 4.8 and 4.9 of *State Planning Policy 2/02*: *Planning and Managing Development Involving Acid Sulfate Soils*.[35] The acid sulfate soil management plan will form part of the construction EMP.

---

[34] SE Dear, NG Moore, SK Dobos, KM Watling and CR Ahern, *Queensland Acid Sulfate Soil Technical Manual: Soil Management Guidelines*, Department of Natural Resources and Mines, 2002, viewed 2 February 2011, www.derm.qld.gov.au/land/ass/pdfs/soil_mgmt_guidelines_v3_8.pdf

[35] Department of Natural Resources and Mines and Department of Local Government and Planning, *State Planning Policy 2/02: Planning and Managing Development Involving Acid Sulfate Soils*, 2002, viewed 27 January 2011, www.dip.qld.gov.au/docs/ipa/ass_spp_oct_02.pdf

The EIS indicated that the acid sulfate soil management plan will include:

- minimising the disturbance of potential acid sulfate soil
- neutralisation of excavated soils with pure fine agricultural lime at the nominated rate outlined in Table 4 of *State Planning Policy 2/02 Guideline: Acid Sulfate Soils*[36]
- application of lime to open excavation faces
- storage of excavated potential acid sulfate soil material in a dedicated bunded area to capture stormwater flowing from stockpiles
- potentially re-using neutralised soils as general fill.

4.6.3 Coordinator-General's conclusions

The Coordinator-General acknowledges that acid sulfate soils may be present around HHI. It is noted that the proponent has committed to employ appropriate management techniques to negate, where possible, or reduce the impact of disturbing acid sulfate soils. It is also noted that the proponent has committed to develop and implement an acid sulfate soil management plan in accordance with the relevant Queensland Government acid sulfate soil guidelines.

A condition is stated in this report to ensure the appropriate management of potential acid sulfate soils (Appendix 1, Schedule 1, Condition 21).

4.7 Weed and pest management

4.7.1 Weed management

The proponent's commitments include preparing and implementing a weed management plan to prevent the movement of weeds to and from the construction site. Management measures include:

- using wash-down facilities for vehicles and equipment entering and leaving the construction site
- prior to entering the site, all machinery, equipment and vehicles are to be certified as 'clean' by trained personnel
- weeds will not be used as mulch for landscaping, but will be disposed of and burned to prevent reseeding
- soil, earth and landscaping material brought onto the site will be from a source that is clean and weed free
- monitoring revegetated areas to identify new infestations and eradicate any declared weeds found

[36] Department of Natural Resources and Mines and Department of Local Government and Planning, *State Planning Policy 2/02: Planning and Managing Development Involving Acid Sulfate Soils*, 2002, viewed 27 January 2011, www.dip.qld.gov.au/docs/ipa/ass_spp_oct_02.pdf

- weed monitoring to ensure that new weeds species are not introduced into the immediate development area or surrounding sites.

A condition is stated in this report to ensure the appropriate management of weeds in the development area (Appendix 1, Schedule 2, Condition 32).

4.7.2 Pest management

It is noted that the proponent has committed to develop and implement an integrated pest/vector management plan in accordance with the *Guidelines to minimise mosquito and biting midge problems in new development areas*[37] and in consultation with QH and the GRC. Management measures include:

- buffers between any continuous vegetation lines and residences
- roadway embankment construction to eliminate (if possible) any standing water impoundment or eradication of water flows into mosquito breeding areas
- stormwater drainage designed to avoid silt accumulation and be free draining
- exit points from drains into waterways or wetlands designed to avoid habitat changes at discharge points.

A condition is stated in this report to ensure the appropriate management of pest species for the development site and adjacent land (Appendix 1, Schedule 2, Condition 33). A condition is also stated in this report to ensure the appropriate measures are introduced to minimise feral animals on the island (Appendix 1, Schedule 1, Condition 14).

4.8 Significant coastal dunes

SCMP Policy 2.8.1 *Areas of state significance (natural resources)* provides that development proposed within an 'area of state significance (natural resources)' must demonstrate a net benefit to the state. Approximately 160 hectares of the proposed development is to be located over a coastal dune system considered by DERM to be consistent with the SCMP definition of a 'significant coastal dune system' and therefore an 'area of state significance (natural resources)'.

It remains the view of the proponent that the dunes in question do not meet the SCMP criteria for 'significant coastal dune system'. The proponent also questions the extent of the dune system as assessed by DERM. However, at the request of DERM, the proponent prepared a NBA, which was presented in its entirety in the EIS. The proponent updated the NBA to address revisions recommended by DERM. The revised NBA was included as Appendix B2 and summarised in section 15 of the SEIS. The revised NBA indicates that for the preferred development option, total benefits are expected to be $1020.2 million with a net present value (net benefit to the state) being $360 million (2007/2008 dollars over 30 years).

---

[37] Queensland Health, *Guidelines to minimise mosquito and biting midge problems in new development areas*, Queensland Health, *2002*, viewed 2 February 2011, www.health.qld.gov.au/ph/Documents/cdb/14804.pdf

Based on DERM's advice and the data provided, it is concluded that the proponent has demonstrated the project provides a net benefit to the state. Even if the proponent incurs additional costs, the sensitivity analysis of increased costs and reduced revenue shows that even under extreme variations (20 per cent plus), the project will still have a net benefit to the state.

4.9 Visual amenity

The visual amenity of the site, as viewed from the GBRWHA, will initially be reduced because of works required as the development is constructed. Impact is expected to be minor (considering the surrounding industrial skyline) and should diminish over time as the effects of revegetation and rehabilitation are seen and natural plant growth continues.

HHI is visible from several locations on the mainland and also to boat traffic passing to seaward of the island. The island faces the main channel into the Port of Gladstone and forms part of a landscape that includes the large industrial structures of Gladstone and Boyne Island as well as large ships using the port. Views from the mainland at the bridge site will be changed permanently as the current natural view will be interrupted by the bridge and associated infrastructure. It is considered that the social benefits to be gained by accessing the island via the bridge, such as providing access to the island and parts of the WHA that were previously inaccessible, outweigh any negative visual impacts of the bridge. It is expected that proposed mitigation and controls over the built form will minimise potential visual impacts to the island.

Views from locations within the development footprint area will be permanently and significantly changed. Where there is currently an environment in its natural state, it will be replaced with tourism facilities, houses, roads, pathways etc. These changes are significant; however, there is currently limited access to the island, so the current views are seen only by a small number of people. People visiting, or living in, the completed development will be expecting a built environment similar to other tourism/residential developments.

The HHID will also be visible from the air. Some of this impact will be reduced over time with vegetation planting and rehabilitation and natural regrowth. Also, much of the surrounding aerial views include the urbanised and highly industrialised areas of Gladstone, Boyne Island (including Boyne Smelter's red mud tailings dam) and Tannum Sands.

The proponent's commitments relating to visual amenity include:

- retaining existing vegetation on site, where practicable, and undertaking selected clearing for building envelopes and public spaces
- undertaking additional planting using seedlings of mature trees to achieve a height above 10 metres with a dense understorey to increase density and screening qualities of vegetation

- restricting development on the elevated sections of HHI and cluster development on lower sections
- limiting development on the ridgelines of the island
- limiting development to two storey or 8.5 metres above natural ground level (except at ridgelines as noted above)
- ensuring rooftops do not protrude above canopy height of the surrounding vegetation
- ensuring external lighting in environmentally sensitive areas within the development, including the headland, will be shielded to limit extraneous light where necessary or faced away from coastal and habitat areas
- designing the bridge to maintain some view of the landscape beyond the bridge.

The Coordinator-General is satisfied that the potential for the project to impact on the surrounding area, including views from the GBRWHA and the mainland, can be adequately managed through the mitigation measures and commitments and strict controls over the built form on the island. These measures and commitments are described in the EIS documents and subsequent documents, the EMPs and in conditions contained in this report. However, a condition is stated in this report to ensure the visual impact of the development is minimised to the greatest extent possible (Appendix 1, Schedule 2, Condition 34).

4.10 Sustainability

4.10.1 Sustainable buildings

State government regulations require all new and renovated homes achieve a five-star energy equivalent rating. Therefore, all residential dwellings on the project site must be constructed to this standard. In addition to this requirement, the project incorporates a range of environmental design, energy and water efficiency principles to promote a high degree of sustainability. The proponent has made a number of commitments to incorporate specific measures including:

- design buildings to five-star standards for energy consumption
- include solar hot water heating
- include rainwater tanks for non-potable household uses
- provide a recycled water supply
- provide energy efficient equipment and appliances.

These measures apply to the entire project site including commercial and retail buildings.

The proposal has adopted a wide range of practical measures that would promote the implementation of a high degree of sustainable development outcomes. A condition is stated in this report to ensure that sustainable building measures are

incorporated into the development's detailed design (Appendix 1, Schedule 2, Condition 35).

4.10.2 Other sustainable development outcomes

Section 3.7 of the EIS discussed how the HHID will achieve the key objectives of ecological sustainable development (ESD). These are discussed briefly below.

The EIS and SEIS emphasise the proponent's willingness to embrace the basic principles of ecologically sustainable development for all aspects of the HHID. The matters of building sustainability are discussed above. The proponent's other commitments include numerous sustainability measures to meet the following objectives:

- greater community wellbeing and concern for key social issues
- local economic development and employment growth
- sustainable use and management of land and water resource
- protecting biological diversity
- more efficient use of energy and greater use of renewable energy resources
- more effective land use planning, environmental protection and pollution control
- reducing consumption, minimising waste and properly managing hazardous waste
- reduced greenhouse gas emissions and improving air quality.

The proponent has adopted measures that would promote the implementation of a high degree of sustainable development outcomes. A condition is stated in this report to ensure that sustainable development measures are incorporated into the detailed design of the HHID (Appendix 1, Schedule 2, Condition 35).

5 Environmental management plans

5.1 Context

Potential environmental issues requiring attention have been identified during the impact assessment process. The purpose of the EMP is to detail the actions, procedures and responsibilities to be carried out during project implementation, to mitigate adverse and enhance beneficial environmental and social impacts.

The objectives of the EMP are to provide a:

- practical framework for establishing best practice environmental management standards and guidelines to mitigate potential environmental harm for each activity
- mechanism to assist managers, supervisors and construction crews to comply with current legislation
- means of identifying environmental issues and to provide general procedures which must be considered when undertaking construction and operational activities
- mechanism to reduce the potential impacts of construction and operational activity
- preliminary basis for establishing environmental due diligence during the construction and operational phases.

The EMP establishes the framework, including environmental protection objectives, standards, measurable indicators and control strategies (i.e. to demonstrate how the objectives will be achieved), to ensure that the measures are implemented during each stage of the project.

This is also achieved by specifying the monitoring, reporting and auditing requirements, with nominated responsibilities and timing, to ensure that the commitments are met. The EMP also identifies corrective actions if monitoring indicates that the performance requirements have not been met.

5.2 Construction EMP

The aim of the construction EMP (CEMP) is to detail the actions, procedures and responsibilities to be carried out during the implementation phase of the project, to address the project's potential construction impacts. These impacts were identified during the environmental studies and consultation conducted as part of the EIS process.

A draft CEMP was prepared by the proponent for the construction of the project and provided in the section 20 of the EIS and updated in the section 17 of the SEIS. The proponent's draft CEMP outlines commitments to protect the environmental values potentially affected by the following construction activities:

- vegetation clearing within the project footprint
- upgrade of external (mainland) road network
- construction of bridge over Boyne Channel
- construction of internal road network (and associated services)
- installation of power supply—external, above ground powerlines, 12 kilometres
- installation of power supply—internal, underground
- installation of gas supply—external, 16.5 kilometres
- installation of gas reticulation infrastructure
- installation of water and wastewater reticulation infrastructure (including temporary desalination plant, if required)
- construction of water and wastewater treatment plants and evaporation pond
- construction of public boat ramps at Boyne Channel and Colosseum Inlet
- construction of associated boat/trailer parking
- construction of golf course.

It is noted that the proponent's commitments include environmental protection objectives, standards, measurable indicators and control strategies (to demonstrate how the objectives will be achieved).

The CEMP will be further refined and expanded as part of final approvals for the construction phase of the project based on the detailed design of the works and through consultation with regulators.

The CEMP will also serve as the benchmark for measuring the effectiveness of environmental protection and management. This can be achieved by specifying the monitoring, reporting and auditing requirements, with nominated responsibilities and timing, to ensure the necessary mitigation measures are met. The CEMP also provides, as appropriate, for unforseen events by outlining corrective actions that may be implemented in these situations.

5.3 Draft EMPs

Details of draft EMPs proposed for the HHID were included in section 20 of the EIS and updated in section 17 of the SEIS. Elements included in the draft EMPs include:

- coastal management
- water management (including hydrology and water quality)
- geology and soils
- sediment and erosion control
- land contamination
- terrestrial flora and fauna management

- air quality
- noise and vibration
- hazard and risk
- social and economic.

EMPs will incorporate industry compliant sub-plans including:

- soil and water management
- acid sulfate soil management
- emergency management
- weed management
- pest/vector management
- waste management
- bushfire management
- bird and animal hazard management
- road-use management
- beach and foreshore management
- traffic management
- golf course management.

It is noted that a cultural heritage management plan (CHMP) was completed for the project site and approved by DERM[38] on 27 January 2007 in accordance with the *Aboriginal Cultural Heritage Act 2003*. The SEIS also included additional mitigation measures the proponent has committed to implement with the CHMP, to effectively manage potential impacts to cultural heritage sites within the HHID site.

In the event a temporary desalination plant is required as part of the development, the proponent is required to prepare a desalination plant and related activities (including the salt storage areas) decommissioning plan to form part of the EMP for the development.

The EMPs will become reference documents because they convert the undertakings and recommendations of the environmental studies into actions and commitments to be followed by the designers, constructors and future operators of the proposed project.

[38] Formerly Department of Natural Resources and Water.

The EMPs will also serve as the benchmark for measuring the effectiveness of environmental protection and management. This can be achieved by specifying the monitoring, reporting and auditing requirements, with nominated responsibilities and timing, to ensure the necessary mitigation measures are met. The EMPs also provide, as appropriate, for unforseen events by outlining corrective actions that may be implemented in these situations.

5.4 Coordinator-General's conclusion

The EMPs will serve to implement the commitments made by the proponent and ensure the effective management of environmental impacts of the project.

A condition is stated in this report to avoid, if possible, or minimise the environmental impacts of the HHID through an effective EMP program (Appendix 1, Schedule 2, Condition 36).

6 Matters of national environmental significance

6.1 Introduction

On 13 January 2006, the then Australian Government Minister for Environment, Heritage and the Arts (Australian Government Minister for Environment) determined the Hummock Hill Island Development (HHID) project to be a 'controlled action' under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act)—reference number EPBC 2005/2502—, due to the likely potential impacts on matters of national environmental significance' (MNES). Therefore, the project must be approved under the EPBC Act before it can proceed.

The controlling provisions under the EPBC Act are:

- sections 12 and 15A (World Heritage)
- sections 18 and 18A (listed threatened species and communities)
- sections 20 and 20A (listed migratory species).

A bilateral agreement between the Commonwealth and Queensland governments has been made under section 45 of the EPBC Act. This accredits the EIS process conducted under the SDPWO Act and enables the EIS to meet the impact assessment requirements of both Commonwealth and Queensland legislation. Under the bilateral agreement, a controlled action may be considered for approval under section 133 of the EPBC Act once the Australian Government Minister has been provided a copy of this report.

This section of the report addresses the requirements of the Queensland Government's assessment as specified by Schedule 1 of the bilateral agreement and Part 5 of the State Development and Public Works Organisation Regulation 1999.

6.2 Public consultation

6.2.1 Terms of reference

An Initial Advice Statement (IAS) was lodged with the Coordinator-General in January 2006 and on 17 November 2006, the HHID project was declared a 'significant project for which an EIS is required' pursuant to section 26(1)(a) of the SDPWO Act.

The draft TOR was prepared by former Department of Infrastructure and Planning (DIP) on behalf of the Coordinator-General, with relevant input from DSEWPaC[39].

[39] On 17 September 2010, the Australian Government department responsible for the EPBC Act changed name from the Department of Environment, Water, Heritage and the Arts (DEWHA) to the Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC). To avoid confusion, the acronym DSEWPaC is used throughout this report to represent the Australian Government department responsible for the EPBC Act.

The IAS and draft TOR were advertised for public comment on 18 November 2006. Comments on the draft TOR were accepted until close of business (COB) on 18 December 2006.

A final TOR was issued to the proponent on 22 June 2007.

6.2.2 Environmental impact statement

An EIS was prepared by the proponent and presented to the Coordinator-General in November 2007. Following a review process, whereby the Coordinator-General and DSEWPaC determined that it substantially addressed the TOR, the EIS was publicly advertised on 8 December 2007 in *The Australian*, *Courier Mail*, *Gladstone Observer* and *Bundaberg Newsmail*, inviting submissions from the public until COB on 4 February 2008.

Twenty-one agencies were approached to evaluate the EIS. Thirty-seven submissions were received with the following distribution:

- 17 government agencies
- 2 environment groups
- 11 private individuals
- 6 pro-forma letters
- 1 petition (193 signatures).

The key issues raised in submissions on the EIS include:

- the sequence of development in the local region
- impacts of increased boating activities including boat strike to turtles and dugong
- clearing of coastal dunes
- stormwater runoff and impacts on marine habitats
- extent of clearing of native vegetation
- habitat fragmentation
- provision of essential services
- impacts on native fauna species.

6.2.3 Supplementary EIS

All submissions received by the Coordinator-General on the EIS were provided to the proponent. Following discussions with the proponent, it was determined that preparation of a Supplementary EIS (SEIS) was necessary to address substantive issues raised on the EIS.

A copy of the SEIS was forwarded to government agencies on 8 September 2009 requesting comments or advice to the Coordinator-General for consideration for inclusion in this report as conditions or recommendations. An electronic copy of the

SEIS was also provided to members of the public who commented on the EIS. The SEIS was also available via both the DIP and proponent's websites.

Eleven submissions were received from government agencies. The most prominent issues raised were:

- finalisation of a suitable vegetation offset package
- impacts on the waterway
- fisheries impacts
- protection of the undeveloped parts of Hummock Hill Island (HHI).

In late January 2010, the proponent provided additional information to address issues raised in submissions on the SEIS; and this information was forwarded to relevant agencies. The proponent has provided the Coordinator-General and DSEWPaC with additional information over the course of the assessment.

Substantive issues raised in submissions are discussed in section 4 of this report.

6.2.4 Other public information and consultation activities

The proponent conducted a public information and consultation program throughout the EIS process, as documented in the Appendix B1 of the SEIS. Consultation included activities such as:

- face-to-face meetings with 'affected' and 'interested' parties
- advertisements and media activity in local, metropolitan and national news media
- newsletters and fact sheets
- information and feedback tools including project website, freecall 1800 number, reply paid mail service and email
- public displays
- meetings with advisory agencies.

The proponent has indicated that these activities will continue beyond the EIS process into the construction and operation phases of the development.

6.3 Description of the proposed action

Eaton Place Pty Ltd proposes to construct a $950 million integrated tourism and residential community on HHI, 30 kilometres south-east of Gladstone. The site is located within Rodds Bay in the south-east coastal area of the Gladstone Regional Council (GRC). The island is also located about 100 metres from the mainland and forms the western edge of the Great Barrier Reef Marine Park (GBRMP), at low water mark. The inner waters and the marine area between low water and highest astronomical tide (HAT) are located within the State Government's Great Barrier Reef Coast Marine Park. HHI is also located in the Great Barrier Reef World Heritage Area (GBRWHA) and adjoins the Colosseum Fish Habitat Area. The island

is connected to the mainland by a causeway which provides four-wheel drive access at very low tides.

The project is the redevelopment of a pastoral lease into a master planned community over a 15- to 20-year period, along with construction of a bridge between the island and the mainland near Turkey Beach, Queensland.

Section 2 of the SEIS described the proposed development. In summary, the development will include the following:

- 240-room resort hotel
- 150-room beachfront tourist hotel
- 70-room motel
- tourist park
- holiday and residential properties in one-, two-, three- and four-bedroom configurations
- golf course and other sporting facilities
- community centre
- education and research centre
- public boat ramps
- commercial facilities
- health facilities
- associated public infrastructure (including access bridge).

The HHID is expected to accommodate approximately 1200 permanent residents and 2800 visitors when the development is at full capacity.

During the EIS process, the proponent undertook consultation activities and a review of outcomes, which led to revisions to the development footprint. While not substantially different in concept, the revisions include:

- all development to be located outside the coastal management district (i.e. erosion prone areas)
- inclusion of a fauna corridor network (including a minimum 500 metres in width east-west corridor, a minimum 80 metres in width at the headland and minimum of 100 metres in width around the entire perimeter of the remainder of the development) to ensure connectivity between nature areas surrounding the development footprint
- impacts on endangered vegetation in the western development precinct have been reduced by amending the development layout
- firebreaks between development areas and surrounding open space have been accommodated internally within the development footprint.

6.4 Places affected by the project

The proposed integrated tourist and residential development on HHI will take place on Lot 3 on FD841442 over which the proponent holds a Special Lease (SL) 19/52155 (1163 hectares or 11.63 square kilometres). The entire SL is located in the GBRWHA. Other lots affected by the proposed development include:

- Lot 1 on FD841442—boat ramp on Colosseum Inlet and access track connecting this to the western edge of the proposed development on HHI (within GBRWHA)
- Lot 10 on FD 841442—Boyne Creek bridge (island side) (within GBRWHA)
- Lot 1 on USL 43258—Boyne Creek bridge, boat ramp and causeway (mainland side) (Lot is external to GBRWHA; however, part of the bridge and boat ramp works will be within the GBRWHA).

The proponent proposes a development area of 518 hectares (5.18 square kilometres) within the SL consisting of 341 hectares (3.41 square kilometres) for the development footprint and 177 hectares (1.77 square kilometres) for open space, golf course and parkland. Management of the remainder of the lease area is discussed on pages 104 and 125 of this report.

6.5 Assessment of potential impacts and mitigation measures

6.5.1 World Heritage values

Great Barrier Reef World Heritage Area

The Great Barrier Reef is the largest World Heritage Area (WHA) on earth, extending over 2000 kilometres and covering 348 000 square kilometres. Over 99 per cent of the WHA is covered by the GBRMP, but it also includes many islands, cays and 'internal' state waters protected by Queensland legislation that are not part of the Commonwealth Marine Park.

HHI is located about 100 metres off the mainland in the southern section of the GBRWHA. In the report *Floristic analysis of the Great Barrier Reef continental islands, Queensland*[40] Batianoff and Dillewaard indicate that there are approximately 552 continental islands recorded along the east coast of Queensland within the GBRMP. The total area of these islands is approximately 1627 square kilometres, of which HHI (21.5 square kilometres) represents 0.013 per cent of the land mass. The Australian Government's listing of World Heritage values for the GBRWHA (refer Appendix 3) records 600 continental islands within the wider GBRWHA.

The Great Barrier Reef was declared a WHA in 1981, internationally recognised by the World Heritage Committee for its outstanding universal value. It remains one of

[40] GN Batianoff and HA Dillewaard, *Floristic analysis of the Great Barrier Reef continental islands, Queensland*, Queensland Department of Environment, 1995.

only a small number of World Heritage properties worldwide that have been adopted for all four natural criteria:

- contain unique, rare and superlative natural phenomena, formations and features and areas of exceptional natural beauty (Criteria: VII)
- provide habitats where populations of rare and endangered species of plants and animals still survive (Criteria: X)
- outstanding example representing significant ongoing geological processes, biological evolution and man's interaction with his natural environment (Criteria: IX)
- outstanding example representing a major stage of the earth's evolutionary history (Criteria: VIII).

Potential impacts and mitigation measures

In Australia, an action that has, will have, or is likely to have, significant impact on the WHV of a World Heritage property requires approval under the EPBC Act. The *Matters of National Environmental Significance: Significant Impact Guidelines*[41] consider an action is likely to have a significant impact on the WHV of a declared World Heritage property if there is a real chance or possibility that it will cause one or more of the values to be:

- lost
- degraded or damaged, or
- notably altered, modified, obscured or diminished.

As noted above, the HHID triggered sections 12 and 15A (World Heritage) of Part 3, Division 1 of the EPBC Act. Consequently, the proponent provided an assessment of the HHID against the WHV of the GBRWHA in the EIS and SEIS. Subsequently, DSEWPaC requested that the proponent provide a more detailed and specific assessment of impacts on the WHV of the GBRWHA and clarify proposed mitigation strategies. A document *Hummock Hill Island—Assessment of Impacts on World Heritage Values*[42] (Sinclair Knight Merz (SKM) report) was provided to DSEWPaC in early November 2010. The Coordinator-General has considered information in the EIS, SEIS and the SKM report in assessing the impacts of the HHID on the WHV of the GBRWHA.

The documents indicate that the proposed development will be designed, constructed and managed to avoid (where possible) potential adverse impacts on coastal and aquatic ecosystems or on the geological and geo-morphological characteristics of the region that underlie the ecological diversity of the Great Barrier Reef. Where impacts cannot be avoided, the proponent has committed to an environmental management regime and has proposed a number of measures to

[41] Department of Environment, Water, Heritage and the Arts, *Matters of National Environmental Significance: Significant Impact Guidelines 1.1*, Department of Sustainability, Environment, Water Population and Communities, 2009, viewed 2 February 2011, www.environment.gov.au/epbc/publications/pubs/nes-guidelines.pdf
[42] SKM, 7 December 2010

minimise and mitigate potential impacts. Offsets are also proposed to address residual impacts.

Note: As some of the criteria for WHV for the GBRWHA cover similar matters (e.g. impacts on coral cays, marine turtles, flora and fauna etc), specific information on each matter will not be repeated in full for each criteria.

It is noted that there is no formal management plan or strategy for the GBRWHA and no clear management priorities or strategies in place to guide the use of areas such as HHI that are outside the GBRMP and are not declared national parks or conservation areas. The following assessment of the HHID's potential impacts on WHVs is therefore based on the criteria of the original World Heritage listing.

Criteria VII—Contain unique, rare and superlative natural phenomena, formations and features and areas of exceptional natural beauty

The WHV for this criteria are noted in Appendix 3 of this report. The values focus on the natural beauty of the GBRWHA, namely the reef and island system, coral and sand cays, mangrove systems, variety of landscapes and seascapes, variety of marine flora and fauna in the coral reefs, breeding colonies for seabirds, large aggregations of butterflies, and habitat for migrating whales, dolphins, dugong and turtles.

The HHID is predominantly terrestrial in nature with a minimal direct footprint on the adjacent coastal and marine environment. The most notable impact within this criteria would be on visual amenity, discussed below. The other WHV are also briefly addressed. However, greater detail is provided in other sections of this report.

Visual amenity

HHI is visible from a few locations on the mainland and to boat traffic passing to seaward of the island. The island faces the main channel into the Port of Gladstone and forms part of the general landscape that is dominated by large industrial structures of Gladstone and Boyne Island as well as large ships using the port. Proposed mitigation and strict controls over the built form (discussed below) will minimise potential visual impacts to the island.

The visual amenity of the site, as viewed from the GBRWHA, will be temporarily affected during construction works required for the development. Impact is expected to be minor (considering the adjacent industrial skyline of Gladstone) and should diminish over time as the effect of revegetation and rehabilitation are seen and natural plant growth continues.

Views from the mainland at the bridge site will be changed permanently as the current view will be interrupted by the bridge and associated infrastructure. This area is already modified by the causeway structure and clearing for the access road/tracks.

Views from locations within, and adjacent to, the development footprint area will be permanently changed. Where there is currently an environment in a mostly natural state it will be replaced with tourism facilities, houses, roads, pathways etc. Currently

there is limited access to the island and the current views are seen by a few people each year. Those who will be visiting, or living in, the development will be expecting a built environment similar to other tourism/residential developments of this nature.

The HHID will also be visible from the air. Some of this impact will be reduced over time with vegetation planting and rehabilitation and natural regrowth. Also, parts of the surrounding aerial views include the urbanised and highly industrialised areas of Gladstone, Boyne Island (including Boyne Smelter's red mud tailings dam), Tannum Sands and the township of Turkey Beach.

The proponent's commitments relating to visual amenity include:

- retaining existing vegetation on site, where practicable, and undertaking selected clearing for building envelopes and public spaces
- undertaking additional planting using seedlings of mature trees to achieve a height above 10 metres with a dense understorey to increase density and screening qualities of vegetation
- restricting development on the elevated sections of HHI and cluster development on lower sections
- limiting development on the ridgelines of the island
- limiting development to two storey or 8.5 metres above natural ground level (except at ridgelines as noted above)
- ensuring rooftops do not protrude above canopy height of the surrounding vegetation
- ensuring external lighting in environmentally sensitive areas within the development, including the headland, will be shielded to limit extraneous light where necessary of faced away from coastal and habitat areas
- designing the bridge to maintain some view of the landscape beyond the bridge.

A condition is stated in this report to ensure the visual impact of the development is minimised to the greatest extent possible (Appendix 1, Schedule 2, Condition 34).

The impacts of artificial lighting within the HHID has the potential to negatively impact marine and terrestrial fauna by disturbing bird roosting patterns and affecting other species. The proponent has committed to develop and implement an artificial lighting management plan which will include the following initiatives:

- turning off light sources
- wattage reduction
- repositioning lights behind structures
- shielding
- redirecting light sources
- lowering lights
- recessing lights so the light does not reach the beach.

Mitigation of any potential lighting impacts on the WHA will be addressed by the proponent's commitments. A condition is stated in this report to ensure implementation of these commitments (Appendix 1, Schedule 1, Condition 14). All external lighting for the site will conform to the following Australian standards:

- AS 1158—*Road lighting*
- AS 4282—*Control of the obtrusive effects of outdoor lighting.*

Coral cays, reefs and related marine flora and fauna

Several coral cays are located within the main GBR system well offshore from HHI, including Heron Island which is located approximately 50 kilometres from HHI. An inshore rock and coral reef, Hummock Hill Reef, is located approximately 200–900 metres offshore from HHI (east of the headland). The reef stretches for a distance of around 900 metres parallel to the shoreline.

Water quality mitigation measures for the development (discussed on page 128 of this report) are sufficient to ensure no adverse effects on the surrounding marine waters. Therefore, it is unlikely that the HHID would negatively impact on Hummock Hill Reef and its marine flora and fauna. Impacts on other marine flora and fauna are addressed on page 117 of this report.

Mangrove systems

The GBRMPA's report *Environmental Status: Mangroves and Saltmarshes*[43] indicates that along the Great Barrier Reef, coast mangrove and saltmarsh habitats cover an area of approximately 3800 square kilometres (i.e. 380 000 hectares). The EIS stated that the area of mangroves around HHI and within the Colosseum Inlet is approximately 106 hectares and 4410 hectares respectively.

The conceptual design of the bridge and boat ramp options, provided after the SEIS was released, indicate that approximately 0.38 hectares of mangroves and 0.38 hectares of saltpan would be impacted. This equates to approximately 0.02 per cent and 0.002 per cent respectively of the Colosseum Inlet, Boyne Creek, Sandfly Creek and the Seven Mile Creek intertidal wetland system. The proposed Boyne Creek boat ramp facility is to be located on the mainland adjacent to the bridge abutment and is therefore largely outside the WHA.

The proposed development seeks to minimise the extent of mangrove loss during construction.

[43] Great Barrier Reef Marine Park Authority, *Environmental Status: Mangroves and Saltmarshes*, Great Barrier Reef Marine Park Authority, Townsville, 2006.

The mitigation measures proposed by the proponent seek to cover an offset for the potential loss of marine plants caused by the development. In particular, the proponent's commitment to remove the existing subtidal causeway (in the vicinity of the proposed bridge) across Boyne Creek would result in the clearing of a major man-made waterway barrier within the marine park and WHA and returning it to its near natural state. A condition is stated in this report to ensure removal of the causeway (Appendix 1, Schedule 2, Condition 12).

Breeding colonies of seabirds

HHI is not a known breeding colony for seabirds. However, the SKM surveys conducted in 2007 for the EIS recorded a concentration of shorebird activity on the landward side of the island, where extensive intertidal wetlands, marine plains and saltmarshes occur. The proposed development is not close to any significant areas of shorebird habitat. As such, an increase in the level of threat posed from construction, habitat loss, domestic animals, human interference, ongoing noise and lighting is not expected. The proponent's wildlife management plan is designed to protect the island's wildlife to mitigate any effects of the HHID, including shorebirds. The plan is to include:

- developing, implementing and funding activities to specifically eradicate fox, wild dog and feral cat numbers in the buffer zone between the HHID and the rest of the island and on and surrounding the bridge (e.g. trapping program)
- prohibiting domestic cats within the HHID area and dogs from environmentally sensitive parts of the island such as beaches and protected areas
- developing and implementing a beach and foreshore management plan (including a community education/awareness program) to manage the sensitive areas particularly for turtles and shorebirds.

The requirement for a wildlife management plan is included as a condition in this report (Appendix 1, Schedule 1, Condition 14).

The potential impacts of HHID on bird species generally on HHI are addressed throughout subsections 6.5.2 and 6.5.3 of this report.

Butterflies

The SKM report indicates that large aggregations of over-wintering butterflies are not present on or near HHI.

Migrating whales

It is considered that migrating whales are not expected to be impacted by the HHID, as their migration activity occurs well offshore from the island. There are relevant laws that govern activities relating to viewing migrating whales that would apply to any commercial tourism operation associated with the HHID.

Dolphins, dugong, turtles and other marine species

The EIS (section 15) indicated that, overall, the project is not expected to cause a significant impact on marine life in the vicinity of the island. Impact on habitat for

dugongs, turtles and other key marine species is expected to be negligible given the minor impacts associated with the bridge and boat ramps and the commitment to a high standard of management of water quality from the development. These matters are discussed further in relation to Criteria X (refer to page 101).

Criteria X—Provide habitats where populations of rare and endangered species of plants and animals still survive

The WHV of this criterion focus on the presence of rare and endangered species within GBRWHA (refer Appendix 3of this report).

Listed flora species and ecological communities

The GBRMPA's records indicate that there are 2195 plant species known on the continental islands in the GBRWHA of which 3 are endemic species and 74 are listed as rare or threatened under Queensland and Commonwealth legislation and in the International Union for Conservation of Nature and Natural Resources (IUCN) *Red Data Book* as follows:

- 16 are listed as vulnerable under the Commonwealth EPBC Act
- 58 are listed as rare, 2 as endangered and 14 as vulnerable under the Queensland NC(W)R
- 33 are listed as rare, 1 as endangered and 8 as vulnerable in the IUCN Red Book
- 7 species are included on each of the above listings.

Batianoff and Dillewaard[44] report that for Capricorn floristic region of the GBRMP, of which HHI is a part, 846 species of plants are known to exist, of which only the *Actephila sessilifolia* is listed as a rare/endangered species. This species is listed as rare under the Queensland NC(W)R and in the IUCN *Red Data Book.* However, it is not listed under the EPBC Act. This species was not located during any of the field surveys on HHI presented in the EIS.

The EIS (section 14), SEIS (section 12) and SKM report indicated that no rare or threatened plant species have been recorded on the island. Targeted surveys in the proposed development area between 1993 and 2007 did not record any listed threatened flora species.

The EPBC Act protected matters report, run for the EIS, also indicated that the island does not contain any threatened ecological communities. However, ground studies indicate that regional ecosystem (RE) 12.2.2, which is consistent with the critically endangered ecological community 'Littoral Vineforest and Coastal Vine Thickets of Eastern Australia', is present on the island.

During the EIS process, the proponent revised the master plan and the development footprint to ensure the least possible impact on the local environment and the values of the WHA. The development footprint has been redesigned to completely avoid

[44] GN Batianoff and HA Dillewaard, *Floristic analysis of the Great Barrier Reef continental islands, Queensland*, Queensland Department of Environment, 1995.

threatened communities from its boundaries (i.e. littoral vineforest), increase the width of fauna corridors and increase buffers to tidal lands, wetlands and waterways.

Other native vegetation

The HHID vegetation removal impacts and mitigation strategies are addressed in detail in subsection 6.5.2 of this report. However, in summary, approximately 518 hectares of vegetation[45] is proposed to be disturbed for the development (including all infrastructure). The REs that are listed under state legislation as 'endangered', 'of concern' or 'least concern' total approximately 300 hectares.

Table 7 in the SKM report lists the vegetation communities required to be removed as part of this development. This listing also notes the percentage of each vegetation type to be removed as a proportion of that present on HHI and within the GBRWHA as a whole. Three vegetation communities occur mainly on HHI within the WHA, they are:

- *Eucalyptus populnea* woodland of which 4.6 hectares of 160.1 hectares (i.e. 3 per cent) is proposed to be removed
- *Eucalyptus moluccana* open forest of which 0.15 hectares of 28.7 hectares (i.e. 0.5 per cent) is proposed to be removed
- *Melaleuca quinquenervia*, *Lophostemon suaveolens* woodland which will not be impacted by the development.

It is noted that these vegetation types are relatively common on the adjacent mainland.

The vegetation communities most affected, as a proportion of the whole of the WHA, would be Eucalyptus tereticornis open forest to woodland (6 per cent), *Eucalyptus melanophloia woodland* (6 per cent), *Corymbia* spp*., Eucalyptus* spp*., Acacia* spp*.* open forest to closed forest (4 per cent) and *Eucalyptus populnea woodland* (3 per cent).

Of these, *Eucalyptus tereticornis* (6 per cent) and *Corymbia spp., Eucalyptus spp., Acacia spp.* (4 per cent) are abundant in the GBRWHA including elsewhere on HHI and on other continental islands and the overall area of each community remaining on HHI is large enough to remain viable. *Eucalypus populnea* is only present on HHI within the GBRWHA, but the 156 hectares area remaining after development is large enough to remain viable and preserve the contribution of this community to the floristic diversity of HHI and the WHA.

The area of *Eucalyptus melanophloia* present within the GBRWHA is quite small, at 10.6 hectares on HHI and 87 hectares across the terrestrial component of the WHA. After development, the area remaining on HHI will be about 5 hectares. While the overall floristic diversity of the GBRWHA will be retained by the 77 hectares located on other islands, the size of the community remaining on HHI may be marginally

[45] Total amount of vegetation within the development footprint has been included for ease of calculating vegetation offset. Not all vegetation will be removed.

viable and will potentially require additional management to prevent further incursion of 'edge effects' if it is to remain viable in this setting. It is recommended that this be incorporated into the overall management of the proposed protected area on HHI (Appendix 1, Schedule 3, Recommendation 10).

The proponent has submitted an offsets package providing an offset of 700 hectares of strategic land within 35 kilometres of the island on the mainland which is considered to be an appropriate offset for this development and meets the state's offsets requirements.

In addition to vegetation offsets, conditions are stated in this report that require the proponent to undertake a complete plant survey (in consultation with the Wildlife Branch of DERM before finalising the development footprint) and to prepare a flora rehabilitation plan (Appendix 1, Schedule 1, conditions 15–17).

Fauna species

A total of 5 amphibian species and 14 terrestrial reptile species were recorded on the island by the collective surveys noted in the EIS (section 14). None of the species recorded is listed as rare or threatened in Queensland or at a national level.

One hundred and twenty-five species of birds have been recorded by the surveys. Of these, the Eastern Curlew *(Numenius madagascariensis)* is listed as rare under the Nature Conservation (Wildlife) Regulation 1994 (Qld) (NC(W)R); the beach stone-curlew *(Esacus neglectus)* is listed as vulnerable under the NC(W)R; and the beach thick-knee *(Burhinus neglectus)* and the black-breasted button quail *(Turnix melanogaster)* are listed as vulnerable under the NC(W)R and the EPBC Act. Only the black-breasted button quail is included in the EPBC Act protected matters report for the island.

All development has been excluded from littoral vineforest/scrub (suitable habitat for the black-breasted button quail although this species was not observed during field surveys referenced in the EIS) and beachfront habitats located on the ocean side of the island, south of the northern headland. Also, no development will occur in the small patch of littoral vineforest/scrub which is present on the western side of the island. The two sections of littoral vineforest/scrub are not contiguous with a two kilometre section of RE 12.2.11 (*Corymbia* spp., *Eucalyptus* spp., *Acacia* spp. open forest to low closed forest on beach ridges) separating the littoral vineforest communities. Therefore, there are expected to be no impacts on the threatened communities or their potential inhabitants such as the black-breasted button quail.

Thirty-three species of mammals were recorded during the collective surveys, of which only the grey-headed flying fox *(Pteropus poliocephalus)* is listed as vulnerable under the EPBC Act. This species was observed foraging on the island, but no roosts of this or other bat species were observed. The EIS (section 14.1.1.2) indicated that the HHID will not intrude into the preferred wetland/riparian roost sites of flying fox species and will not pose a current or future threat to the viability of flying fox camps. It is likely that removing approximately 300 hectares of vegetation from the island would have some impact on sites available to flying foxes for foraging purposes. However, the impact is considered to be relatively minor considering the

availability of known mainland and island sites (e.g. Boyne Island) for flying fox roosting and foraging and that HHI is not a known significant flying fox habitat area.

It is also expected that the following project actions will minimise any potential negative impacts on flying foxes in the area:

- the remainder of the island (i.e. over 1700 hectares) will remain in its natural state with a protected area management regime in place
- the implementation of the proponent's revegetation/regrowth strategies will provide enhanced vegetated areas (including the planting of local fruiting trees for the flying foxes)
- the implementation of a wildlife management plan and pest and feral animal eradication programs would provide improved outcomes for the flying fox population.

It is also considered that the active removal of feral animals from HHI will better protect the existing native wildlife. A condition is stated in this report (Appendix 1, Schedule 1, Condition 14) that requires the proponent to develop, implement and fund activities to specifically reduce fox, wild dog and feral cat numbers in the buffer zone between the HHID and the rest of the island and on and surrounding the bridge (e.g. trapping program).

Many of these activities proposed in the wildlife management plan accord with the goals of the *National recovery plan for the black-breasted button quail*[46] and are expected to benefit all wildlife on the island.

Benefits of managing protected areas on HHI

In the long-term, it is preferred that a conservation park to be declared under the *Nature Conservation Act 1992* (Qld) (NCA) over all the undeveloped parts of the island (approximately 1700 hectares) and for GRC to assume the role of trustee. However, this is presently not feasible given the presence of an exploration permit (for mineral sands) over 2041 hectares (20.4 square kilometres) of the island.

The following actions are recommended (Appendix 1, Schedule 3, Recommendation 9 by the Coordinator-General:

- a conservation park (with GRC as trustee) be declared over the portion of the island outside the HHID development area and not within the current exploration permit area
- as an interim measure, a resource reserve (a type of protected area defined by the NCA) be declared over the part of the island subject to the exploration permit and outside the HHID development area

[46] M Mathieson & GC Smith, *National recovery plan for the black-breasted button quail*, Department of Environment and Resource Management, 2009, viewed 2 February 2011, www.environment.gov.au/biodiversity/threatened/publications/recovery/pubs/black-breasted-button-quail.pdf

- once it has been determined that the mineral sands resource is unlikely to be mined, the conservation park be extended into the remaining undeveloped areas of HHI.

The purpose of a resource reserve tenure would be to enable an active conservation regime to be implemented while retaining its status as a mineral resource. A conservation park tenure would enable a similar mechanism for its active management and would exclude mining activities.

Irrespective of its protected area tenure, the undeveloped parts of the island would be actively managed by the proponent for a period of 17 years or otherwise agreed with GRC by means of an infrastructure agreement. Following this period, the declaration of a conservation park would hand responsibility to GRC. Council has agreed to this proposed arrangement and indicated that long-term funding is likely to be through a levy or benefited area rate. GRC would be responsible for funding the management of the area in perpetuity.

A condition is stated in this report to ensure ongoing protection and active management of the undeveloped parts of the island (i.e. land outside the development footprint) thereby providing greater protection of this area of the WHA (Appendix 1, Schedule 2, Condition 30).

The NCA requires that a management plan is prepared for the protected areas. This would be prepared by the proponent and approved by DERM.

The requirement for the proponent to fund the management of the undeveloped parts of HHI is additional to that generally sought for a development of this type and should therefore be considered an offset.

Nesting turtles

In relation to potential impacts on nesting turtles the EIS concluded that:

- the northern beaches of the island appear suitable for turtle breeding and egg laying; however, there is evidence that turtles use these beaches infrequently and at low densities
- more human presence and activity on the island has the potential to impact on turtles that may nest on the island
- beaches on the island will not be directly impacted by the development and the proponent has committed to employ techniques which have been successful at other locations such as Mons Repos to ensure that public access to turtle breeding beaches does not affect the breeding, egg laying and egg hatching components of the turtle lifecycle
- operational lighting has the potential to disturb nesting turtles, although this would be managed via an artificial lighting management plan.

It is recognised that there could be negative impacts on the small numbers of nesting turtles, if the development is not managed appropriately. Conditions stated in this report include a requirement to fund the active management of protected areas on the island (Appendix 1, Schedule 2, Condition 30). Benefits of this activity to the

WHA would include controlling public access to sensitive areas on HHI such as turtle nesting sites, developing and implementing public awareness and education programs and reducing the incidence of feral animals on the island (and therefore the potential predation of turtle eggs).

This report also includes a condition that requires the proponent to implement a wildlife management plan (Appendix 1, Schedule 1, Condition 14). This plan will include the development and implementation of a beach and foreshore management plan (including a community education/awareness program) which will provide further protection of sensitive areas such as potential turtle nesting sites.

Breeding colonies of seabirds

As noted previously, HHI is not a known breeding colony for seabirds and the proposed development is not expected to have significant impacts on breeding areas for seabirds.

Dolphins, dugong and other marine species

Key marine species may be affected indirectly by development impacts on water quality and habitat areas and/or directly through boat strike.

A number of mitigation measures are proposed. To assess the effectiveness of mitigation measures for potential impacts on marine communities in the area, and improve the general understanding of the local marine environment in the WHA, the proponent has committed to develop and implement a marine ecological monitoring program, in consultation with DEEDI and DERM, to map and monitor key marine communities in the area including coral communities, seagrass beds and mangroves.

A condition stated in this report requires the proponent to develop and implement a marine ecological monitoring program to ensure the commitments are met (Appendix 1, Schedule 1, Condition 20).

Discharge of sediments, nutrients, other chemicals and litter into surrounding waters

The proponent has committed to conform to the objectives of the *Reef Water Quality Protection Plan*[47] (RWQPP) as detailed in Table 13.4 of the SEIS. The RWQPP aims to address pollution from a range of diffuse sources within the catchments that flow into the Great Barrier Reef lagoon. The plan has two objectives:

a) reduce the load of pollutants from diffuse sources in the water entering the reef

b) rehabilitate and conserve areas of the reef catchment that have a role in removing water-borne pollutants.

Conditions stated in this report require that any discharge from the island will be managed to meet or exceed water quality objectives through a number of measures

[47] Department of Premier and Cabinet, *Reef Water Quality Protection Plan*, Department of the Premier and Cabinet, 2009, viewed 2 February 2011, http://www.reefplan.qld.gov.au/library/pdf/reef-plan-2009.pdf

including erosion and sediment control plans, water sensitive urban design (WSUD), integrated turf and pest management and the maintenance of a 100-metre development buffer (80 metres at the headland) from HAT. The project does not include the use of septic tanks or discharges of untreated sewage or desalination effluents to the marine environment and therefore will not negatively impact on the environment.

The EIS indicated that a targeted water quality monitoring plan (designed in accordance with *Queensland Water Quality Guidelines*[48] and the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*[49] will be implemented to monitor the effectiveness of proposed measures in the maintaining of water quality. This commitment is stated in a condition attached to this report (Appendix 1, Schedule 2, Condition 23).

Seagrass

The SKM report indicates that there are approximately 200 hectares of shallow seagrass located around HHI. These are important for the productivity and functioning of the local marine and coastal ecosystem. The closest seagrass areas to the proposed bridge and boat ramp at Boyne Creek occur approximately 200 metres east of the existing causeway. It is recognised that there may be some minor siltation build up in the vicinity of the bridge and boat ramp during their construction. However, these impacts will be avoided where possible or mitigated to the greatest extent. Relevant measures will be included in the construction environmental management plan (EMP).

It is considered that seagrass around HHI is unlikely to be permanently impacted by the development.

Potential boat strike impacts

Some marine species, particularly dugong and some turtle species, are susceptible to injury or mortality from boat strike. It is estimated that approximately 200 small boats will be owned by the permanent population of the development (about 3 per cent of the total 2006 boat ownership in the Gladstone local government area), with up to approximately 29 of these in use on any given day. A similar number of boats could be expected to be used by tourists to the island. Based on population projections for the region, the proportional increase in boat numbers in the region will be in the order of 2500 over the 15-year development period of the HHID. From a regional sense, the level of boat ownership and usage related to the project is relatively minor in comparison to anticipated growth in the region's boat numbers.

---

[48] Department of Environment and Resource Management, *Queensland Water Quality Guidelines 2009*, Department of Environment and Resource Management, Brisbane, 2009, viewed 20 December 2010, www.derm.qld.gov.au/environmental_management/water/queensland_water_quality_guidelines/queensland_water_quality_guidelines_2009.html

[49] Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand, *The Australian and New Zealand Guidelines for Fresh and Marine Water Quality*, 2000, viewed 15 December 2010, www.mincos.gov.au/publications/australian_and_new_zealand_guidelines_for_fresh_and_marine_water_quality

The proposed construction of two new boat ramps on HHI will provide greater access to Colosseum Inlet and Rodds Bay for recreational boating and fishing activities. To a large extent, this would have the effect of formalising the existing access to these areas, assisting in its management, and would not be expected to significantly increase growth in boating activity beyond the projected regional trends given the relatively easy access from Gladstone to Rodds Bay by a typical recreational boat user.

This report contains a recommendation to the Regional Harbour Master (Gladstone) to consider imposing a general six-knot speed limit in the vicinity of the Colosseum Inlet boat ramp and the Boyne Creek bridge and boat ramp (Appendix 1, Schedule 3, Recommendation 7). This recommendation is focused on improving boat safety in the area and would have the benefit of reducing the risk of boat strike impacts on marine species such as turtle and dugong.

The proponent has also committed to a package of measures aimed at mitigating or offsetting any impacts on key marine species that may be associated with the development, particularly the locally increased level of boat traffic in the area. These measures include:

- public education and awareness programs that will include information (including brochures and signage) on local marine species and ways to reduce potential impacts on these species
- developing and implementing a marine ecological monitoring program (MEMP) to map and monitor key marine communities in the area including coral communities, seagrass beds, and mangroves. The MEMP will include baseline monitoring including at least two seasonal monitoring events (winter and summer) over at least 12 months
- work with relevant experts and contribute to the ongoing operation of a marine mammal and turtle monitoring program aimed specifically at the Rodds Bay Dugong Protection Area. This would incorporate research and monitoring directly relevant to the management of dugongs
- contribute to a proposal to change the southern area of the Rodds Bay Dugong Protection Area from Zone B to Zone A. This may include a financial contribution to the cost of compensation associated with a formal buyout of fishing licences
- remove the existing causeway in Boyne Creek to restore the natural flow regime and allow the unimpeded movement of marine species.

Criteria IX—Outstanding example representing significant ongoing geological processes, biological evolution and man's interaction with his natural environment

The WHV for this criterion focus on geological process and biological evolution of the GBR and its impact on the GBR ecosystem. Further details are noted in Appendix 3 of this report.

Diversity of flora

The proposal would require clearing of approximately 300 hectares of remnant vegetation. In terms of the proportion of individual vegetation types that occur across the GBRWHA, the scale of clearing ranges up to 6 per cent.

As noted above, the proposed development would not impact EPBC-listed flora species or threatened ecological communities or the overall floristic diversity of the WHA.

Diversity of fauna

As noted above, the proposed development is not expected to significantly impact on the diversity of terrestrial fauna in the GBRWHA. One species, the grey-headed flying fox *(Pteropus poliocephalus)*—listed as vulnerable under the EPBC Act—would be potentially impacted by the proposed vegetation clearing and associated loss of foraging habitat on the island. These impacts are expected to be mitigated by compensatory actions of the development including rehabilitation and revegetation programs.

Many of the activities proposed in the wildlife management plan accord with the goals of the *National recovery plan for the black-breasted button quail*[50] and are expected to benefit all wildlife on the island.

Marine fauna and seabirds

As noted above, the project is not expected to cause a significant impact on marine life in the vicinity of the island. Impact on habitat for dugongs, turtles and other key marine species is expected to be negligible given the minor impacts associated with the bridge and boat ramps and the commitment to a high standard of management of water quality from the development.

As noted above, it is recognised that there could be negative impacts on the small numbers of nesting turtles and shorebird habitat, if the development is not managed appropriately. Conditions stated in this report include a requirement for the proponent to fund the active management of protected areas on the island (Appendix 1, Schedule 2, Condition 30). Benefits of this activity to the WHA would include controlling public access to sensitive areas on HHI (such as turtle nesting sites), developing and implementing public awareness and education programs, and reducing the incidence of feral animals on the island (and therefore the potential predation of turtle eggs).

[50] M Mathieson & GC Smith, *National recovery plan for the black-breasted button quail*, Department of Environment and Resource Management, 2009, viewed 2 February 2011, www.environment.gov.au/biodiversity/threatened/publications/recovery/pubs/black-breasted-button-quail.pdf

Other

The SKM report finds that, on a local level, HHI, like all parts of the GBRWHA, contributes to:

- the size and morphological diversity of the GBRWHA
- ongoing processes of accretion, erosion and deposition in the GBRWHA
- dispersion and evolution of hard corals and associated flora and fauna of the GBRWHA
- morphological and genetic changes in mangrove and seagrass within the GBRWHA
- integrity of the inter-connections between reef and island networks of many taxa
- processes of dispersal, colonisation and establishment of plant communities.

It is considered that the HHID will not influence the current level of contribution to these processes. In addition, HHI does not directly contribute to:

- indigenous temperate species derived from tropical species, as these are not present on or near HHI
- isolation of certain populations (e.g. two subspecies of the butterfly *Tirumala hamata* and the evolution of distinct races of the bird *Zosterops spp*), as these have not been recorded on HHI
- remnant vegetation types (hoop pines) and relic species (sponges), as these have not been recorded on HHI.

Criteria VIII—Outstanding example representing a major stage of the earth's evolutionary history

The WHV for these criteria are noted in Appendix 3 of this report. The values focus on evolutionary processes and maturity of the GBR.

In accordance with the findings of the SKM report, HHI does not directly contribute to:

- reef morphologies of the GBR
- record of sea level changes and history of the reef's evolution
- record of climate history, environmental conditions and processes
- formations such as serpentine rocks within the GBRWHA.

The SKM report indicates that approximately 151 hectares of non-active relict dune system (i.e. 12 per cent of the relict dunes on HHI) will be impacted to differing degrees by the development. Development on the dunal system will be outside the erosion-prone area and therefore is not expected to impact on erosion and deposition processes along that part of the coastline. The remainder of the island's dunal system will remain untouched and therefore the history and evidence of the island's evolution will remain. The construction of the bridge and boat ramps would

occur a number of kilometres away from the relict dune systems and are not expected to impact the dunal system.

The proponent is required to develop and implement a beach and foreshore management plan (including a community education/awareness program) in consultation with DERM to manage the sensitive coastal areas including the dunal systems on the island.

Appendix B2 and section 15 of the SEIS provided a revised NBA to determine whether the impact on the dune system met the SCMP criteria for 'significant coastal dune system'. The NBA determined that the dunes to be impacted did not represent a good example of significant coastal dunes; and therefore, did not meet the SCMP criteria.

The NBA indicates that for the preferred development option, total benefits are expected to be $1020.2 million with a net present value (net benefit to the state) being $360 million (2007/2008 dollars over 30 years). While not agreeing with the NBA's assessment that the dunes did not meet the SCMP criteria, DERM concluded that the proponent has demonstrated the project provides a net benefit to the state, based on the data provided. Even if the proponent incurs additional costs, the sensitivity analysis of increased costs and reduced revenue shows that even under extreme variations (20 per cent plus), the project will still have a net benefit to the state.

Management of the dune system will be covered in the protected areas management regime included as a condition in this report (Appendix 1, Schedule 2, Condition 30).

Coordinator-General's conclusion—WHA

The previous discussion has highlighted the following key actions associated with the proposed development within the GBRWHA:

- clearing of approximately 300 hectares of remnant vegetation within a 518-hectare development footprint
- introducing a new urban area including a population of approximately 1200 permanent residents expanding up to 4000 on the island during peak periods of tourism activity (i.e. a maximum of 2800 tourists)
- disturbing small areas of marine plants and the seabed associated with the construction of an access bridge and boat ramps.

An assessment of the impacts on the WHV of the GBRWHA present or likely to be present within and around HHI has been undertaken in the EIS, SEIS and the SKM report. The following potential impacts are concluded:

- visual disturbance of a relatively undeveloped island within the WHA caused by the residential and tourism urbanisation
- a reduction in the representation of vegetation types within the WHA of up to 6 per cent although no loss of EPBC-listed flora species or threatened communities would occur (i.e. the floristic diversity is retained on HHI and within

the GBRWHA). Note that the vegetation affected is generally well represented on other continental islands in the GBRWHA and on the mainland

- permanent development on 151 hectares of a relict coastal dune system corresponding to 12 per cent of the total area of dunes on HHI
- potential loss of habitat for terrestrial fauna, including foraging areas of the grey-headed flying fox—listed as vulnerable under the EPBC Act
- an increase in the number of small trailerable boats in the Rodds Bay/Colosseum Inlet area leading to an increased risk of boat strike injuries of vulnerable marine fauna such as dugongs and turtles.

Beneficial and mitigating actions of the proposal include:

- new opportunities for visitors to appreciate the WHA in an appropriately managed manner. This opportunity has been limited to date. The public open space facilities proposed for the island will enhance recreational opportunities for communities in the Gladstone region and the community information activities proposed by the proponent may provide visitors with a greater understanding of the GBRWHA (and its values), GBRMP, HHI and the environment in general
- strict controls over the built form on the island would be implemented to minimise visual intrusion
- the proposed construction of two new boat ramps on HHI will provide greater access to Colosseum Inlet and Rodds Bay for recreational boating and fishing activities
- active management and protection of the undeveloped part of the island—HHI currently has no active management regime in place. The HHID will facilitate a protection tenure status under the NCA for the undeveloped parts of the island along with an agreed long-term management regime
- removal of the Boyne Creek causeway—this would reinstate the natural water flow through Boyne Creek and provide unrestricted access for marine species through the area
- implementation of a MEMP to map and monitor key marine communities in the close proximity to HHI (including Boyne Creek and Colosseum Inlet) including coral communities, seagrass beds and mangrove communities for a period of five years. The proponent's commitment is reflected in a condition stated in this report (Appendix 1, Schedule 1, Condition 20)
- implementation of a wildlife protection plan—potentially providing greater protection for the wildlife that exists on and around HHI including the black-breasted button quail. The proponent's commitment is reflected in a condition stated in this report (Appendix 1, Schedule 1, Condition 14)
- development and implementation of public awareness and education programs to inform visitors and residents and address environmental issues (e.g. marine species, endangered communities, preservation of World Heritage values). This

commitment includes the establishment of a community education centre to be initially funded by the proponent.

It is noted in the SKM report that proponent has committed up to $150 000 for a study of terrestrial World Heritage values and management priorities. The proponent has indicated that it would seek to involve DSEWPaC in developing the study scope and methodologies to ensure the study specifically targets gaps in current knowledge and management focus, thus contributing to the overall understanding and management of terrestrial GBRWHA values.

The proponent has further committed to:

- working with relevant experts and contributing to the ongoing operation of a marine mammal and turtle monitoring program aimed specifically at the Rodds Bay Dugong Protection Area. This would incorporate research and monitoring directly relevant to the management of dugongs
- contributing to a proposal to change the southern area of the Rodds Bay Dugong Protection Area from Zone B to Zone A. This may include a financial contribution to the cost of compensation associated with a formal buyout of fishing licences.

Overall, it may be concluded that the proposed HHID would have an impact on WHV, particularly through the urbanisation of an existing undeveloped island. Impacts on natural resources of the area and key species are minor. Impacts, largely mitigated by the commitments of the proponent and the benefits of the proposal, are considered to be acceptable given that the primary purpose of the project is to encourage sustainable tourism uses while protecting key natural values of the area.

6.5.2 Listed threatened species and communities

Context

The EPBC Act lists all of Australia's protected species and communities.

EIS findings

The EIS (section 14) discussed the listed threatened species and communities that may be affected by the proposed development.

The EIS (section 14) and SEIS (section 12) indicated that an EPBC Act protected matters report for the Hummock Hill Island area lists 23 threatened species that are likely to occur in the area, including six birds, five mammals, seven reptiles, one shark and four plants. The protected matters report also indicates that the island does not contain any threatened ecological communities. However, on-site investigations reveal that littoral vineforest (a listed threatened community under the EPBC Act) is present on the island.

Threatened fauna (terrestrial and marine)

The following paragraphs summarise the findings in the EIS, which lists all species recorded during the following surveys:

- AGC Woodward-Clyde (1993)
- Bill Carter and Associates (1993)
- Dames and Moore (1995)
- Central Queensland University (2005)
- SKM (2007).

Five amphibian species and 14 terrestrial reptile species were recorded on the island by the collective surveys. None of the species recorded is listed as rare or threatened in Queensland or at a national level.

One hundred and twenty-five species of birds have been recorded by the surveys. Of these, the eastern curlew *(Numenius madagascariensis)* is listed as rare under the NC(W)R; the beach stone-curlew *(Esacus neglectus)* is listed as vulnerable under the NC(W)R; and the beach thick-knee *(Burhinus neglectus)* and the black-breasted button quail *(Turnix melanogaster)* are listed as vulnerable under the NC(W)R and the EPBC Act. Only the black-breasted button quail is included in the EPBC Act protected matters report for the island.

The SKM surveys conducted in 2007 recorded a concentration of shorebird activity on the landward side of the island, where extensive intertidal wetlands, marine plains and saltmarshes occur.

Thirty-three species of mammals were recorded during the collective surveys, of which only the grey-headed flying fox *(Pteropus poliocephalus)* is listed as vulnerable under the EPBC Act. This species was observed foraging on the island, but no roosts of this or other bat species were observed. Flying fox camps may be established and may have occurred on the island over time; however, the proposed development will not intrude into the preferred wetland/riparian roost sites of these species and as such poses no current or future threat to the viability of flying fox camps.

The aquatic species (listed under either the NC(W)R or EPBC Act) that have been confirmed or suspected to inhabit or migrate through the Rodds Bay area are:

- loggerhead turtle *(Caretta caretta)* (endangered—NC(W)R; endangered and migratory—EPBC Act)—confirmed sighting
- green turtle *(Chelonia mydas)* (vulnerable—NC(W)R; vulnerable and migratory—EPBC Act)—confirmed sighting
- leatherback turtle *(Dermochelys coriacea)* (endangered—NC(W)R; vulnerable and migratory—EPBC Act)
- hawksbill turtle *(Eretmochelys imbricata)* (vulnerable—NC(W)R; vulnerable and migratory—EPBC Act)—confirmed sighting
- pacific ridley or olive ridley turtle *(Lepidochelys olivacea)* (endangered—NC(W)R; endangered and migratory—EPBC Act)
- flatback turtle *(Natator depressus)* (vulnerable—NC(W)R; vulnerable and migratory—EPBC Act)—confirmed sighting

- dugong *(Dugong dugon)* (vulnerable—NC(W)R; migratory and listed—EPBC Act) —confirmed sighting
- indo-pacific humpback dolphin *(Sousa chinensis)* (rare—NC(W)R; migratory—EPBC Act)
- estuarine crocodile *(Crocodylus porosus)* (vulnerable—NC(W)R).

The EIS also indicated that other species that have the potential to habitat HHI site (but not recorded during the collective surveys) include:

Wildlife Online[51] (Queensland) listing:

- black-necked stork (*Ephippiorhynchus asiaticus*)—rare
- false water rat/water mouse *(Xeromys myoides)*—vulnerable.

DSEWPaC (Commonwealth) database:

- kermadec petrel (western) *(Pterodroma neglecta neglecta)*—vulnerable
- Australian painted snipe *(Rostratula australis)*—vulnerable
- red goshawk *(Erythrotriorchis radiatus)*—vulnerable
- squatter pigeon (southern) *(Geophaps scripta scripta)*—vulnerable
- northern quoll *(Dasyurus hallucatus)*—endangered
- large-eared pied bat *(Chalinolobus dwyeri)*—vulnerable
- false water rat/water mouse *(Xeromys myoides)*—vulnerable
- yakka skink *(Egernia rugosa)*—vulnerable
- dunmall's snake *(Furina dunmalli)*—vulnerable.

The potential for these species occurring on the site is discussed in Table 14.12 of the EIS.

Threatened flora (plants)

As noted above, GBRMPA's records indicate that there are 2195 plant species known on the continental islands in the GBRWHA (127 in the southern region) of which 3 are endemic species and 74 are listed as rare or threatened under Queensland and Commonwealth legislation and in the IUCN *Red Data Book* as follows:

- 16 are listed as vulnerable under the Commonwealth EPBC Act
- 58 are listed as rare, 2 as endangered and 14 as vulnerable under the Queensland NC(W)R
- 33 are listed a rare, 1 as endangered and 8 as vulnerable in the IUCN Red Book
- 7 species are included on each of the above listings.

[51] Formerly the WildNet database. Refer to www.derm.qld.gov.au/wildlife-ecosystems/wildlife/wildlife_online/index.html

Batianoff and Dillewaard[52] report that for Capricorn floristic region of the GBRMP, of which HHI is a part, 846 species of plants are known to exist of which only the *Actephila sessilifolia* is listed as a rare/endangered species. This species is listed as rare under the Queensland NC(W)R and in the IUCN *Red Data Book.* However, it is not listed under the EPBC Act. This species was not located during any of the field surveys on HHI presented in the EIS.

The EPBC Act protected matters report for HHI lists the following plants that have the potential to occur in the site:

- wedge-leaf tuckeroo (*Cupaniopsis shirleyana)*—vulnerable
- cycad palm (*Cycas megacarpa)*—endangered
- inute orchid, ribbon-root orchid (*Taeniophyllum muelleri)*—vulnerable.

The Wildlife Online (Queensland) listing also includes the following plants that have the potential to occur on the island:

- *Pratia podenzanae*—rare
- *Xylosma ovatum*—rare.

The likelihood of these plants occurring on the island is discussed in section 14.1.2.4 of the EIS. In summary, none of these species have been located in the site area in surveys undertaken to date. Of the five species listed above, only the *Xylosma ovatum*, which occurs in littoral vineforest, and the *Pratia podenzana* (a rare herb) have any likelihood of being present on the island.

The EIS (section 14) and SEIS (section 12) indicate that no rare or threatened plant species have been recorded on the island. Targeted surveys in the proposed development area between 1993 and 2007 did not record any listed threatened flora species.

Threatened communities

The EPBC Act protected matters report, run for the EIS, for the HHI area indicates that the island does not contain any threatened ecological communities. However, ground studies indicate that RE 12.2.2, which is consistent with the critically endangered ecological community—Littoral vineforest and Coastal Vine Thickets of Eastern Australia—is present on the island but not within the development footprint.

During the EIS process, the proponent revised the master plan and the development footprint to ensure the least possible impact on the local environment. The development footprint has been redesigned to completely avoid threatened communities from its boundaries (i.e. RE 12.2.2), increase the width of fauna corridors and increase buffers to tidal lands, wetlands and waterways. All development has been excluded from littoral vineforest/scrub (suitable habitat for the black-breasted button quail) and beachfront habitats located on the ocean side of the island, south of the northern headland. Also, no development will occur in the small

[52] GN Batianoff and HA Dillewaard, *Floristic analysis of the Great Barrier Reef continental islands, Queensland*, Queensland Department of Environment, 1995.

patch of littoral vineforest/scrub which is present on the western side of the island. The two sections of littoral vineforest/scrub are not contiguous, with a two-kilometre section of RE 12.2.11 separating them. Therefore, there are expected to be no impacts on the threatened communities and their potential inhabitants such as the black-breasted button quail.

Connectivity preservation strategies to address potential habitat fragmentation are addressed on page 72 of this report.

Potential impacts

Potential impacts on specific species are notes in table 5.5 of the EPBC supplementary report, included as Appendix C of the SEIS.

As noted above, the EIS indicated that targeted surveys on HHI during 1993 and 2007 located five amphibians, fourteen terrestrial reptiles, 125 birds, 33 mammals and four aquatic species. Of these, four species of birds, one mammal species and all four aquatic species are considered to be rare or threatened in Queensland or at a national level.

Threatened terrestrial fauna

With the exception of the grey-headed flying fox, the HHID footprint does not directly affect the habitat of listed terrestrial fauna.

The proposed development is not close to any significant areas of shorebird habitat. As such an increase in the level of threat posed from construction, habitat loss, domestic animals, human interference, ongoing noise and lighting is not expected to affect EPBC-listed species.

As noted above, the EIS expressed the view that the HHID will not intrude into the preferred wetland/riparian roost sites of the grey-headed flying fox and will not pose a current or future threat to the viability of flying fox camps. The removal of approximately 300 hectares of vegetation from the island may have some impact on sites available to flying foxes for foraging purposes. However, the impact is considered to be relatively minor considering the availability of known mainland and island sites (e.g. Boyne Island) for flying fox roosting and foraging and that HHI is not a known significant flying fox habitat area.

It is also expected that the following project actions will minimise any potential negative impacts on flying foxes in the area:

- the remainder of the island (i.e. over 1700 hectares) will remain in its natural state with a protected areas management regime in place
- the implementation of the proponent's revegetation/regrowth strategies will provide enhanced vegetated areas (including the planting of local fruiting trees for the flying foxes)
- the implementation of a wildlife management plan may provide greater protection for the flying fox population
- pest and feral animal eradication programs.

A condition is stated in this report to ensure ongoing protection and active management of the undeveloped parts of the island (i.e. land outside the development footprint,) thereby providing greater protection of this area of the WHA (Appendix 1, Schedule 2, Condition 30). This matter is addressed in detail on page 121 of this report. Beneficial aspects of this would include controlling public access to sensitive areas, developing and implementing public awareness and education programs and reducing the incidence of feral animals on the island.

Irrespective of its protected area tenure, the undeveloped parts of the island would be actively managed by the proponent for a period of 17 years or otherwise agreed with GRC by means of an infrastructure agreement. GRC, as trustee, would be responsible for funding the management of the conservation park in perpetuity.

Threatened marine fauna

Dugongs, turtles and other marine species

The EIS indicated that impact on habitat for dugongs, turtles and other key marine species around HHI is expected to be negligible given the minor impacts associated with the bridge and boat ramps and the commitment to a high standard of water quality management from the development.

Key marine species may be affected indirectly by development impacts on water quality and habitat areas and/or directly through boat strike. These matters are addressed in further detail below.

Seagrass

The SKM report indicated that there are approximately 200 hectares of shallow seagrass located around HHI. These are important for the productivity and functioning of the local marine and coastal ecosystem. The closest seagrass areas to the proposed bridge and boat ramp at Boyne Creek occur approximately 200 metres east of the existing causeway. It is recognised that there may be some siltation build up in the vicinity of the bridge and boat ramp during their construction. However, these impacts will be avoided where possible or mitigated to the greatest extent. Relative measures will be included in the construction EMP.

Over the longer term, seagrass around HHI is unlikely to be permanently impacted by the development.

Discharge of sediments, nutrients, other chemical and litter into surrounding waters

The proponent has committed to conform to the objectives of the RWQPP. These commitments are addressed in Table 13.4 of the SEIS. The RWQPP aims to address pollution from a range of diffuse sources within the catchments that flow into the Great Barrier Reef lagoon. The plan has two objectives:

(a) reduce the load of pollutants from diffuse sources in the water entering the reef

(b) rehabilitate and conserve areas of the reef catchment that have a role in removing water borne pollutants.

Conditions included in this report require that any discharge from the island will be managed to meet or exceed water quality objectives by including erosion and sediment control plans, WSUD, integrated turf and pest management and the maintenance of a 100-metre development buffer (80 metres at the headland) from HAT. The project does not include septic tanks or discharges of treated sewage or desalination effluents to the marine environment.

The EIS indicated that a targeted water quality monitoring plan (designed in accordance with *Queensland Water Quality Guidelines*[53] and *The Australian and New Zealand Guidelines for Fresh and Marine Water Quality*[54] will be implemented to monitor the effectiveness of proposed measures in the maintaining of water quality. This commitment has been reflected in a condition attached to this report (Appendix 1, Schedule 2, Condition 23).

Potential boat strike impacts

Dugong and some turtle species, are susceptible to injury or mortality from boat strike. It is estimated that approximately 200 small boats will be owned by the permanent population of the development (about 3 per cent of the total 2006 boat ownership in the Gladstone local government area), with up to approximately 29 of these in use on any given day. A similar number of boats could be expected to be used by tourists to the island. Based on population projections for the region, the proportional increase in boat numbers in the region will be in the order of 2500 over the 15-year development period of the HHID. From a regional sense, the level of boat ownership and usage related to the project is relatively minor in comparison to anticipated growth in boat numbers.

The proposed construction of two new boat ramps on HHI will provide greater access to Colosseum Inlet and Rodds Bay for recreational boating and fishing activities. To a large extent, this would have the effect of formalising the existing access to these areas, assisting in its management, and would not be expected to significantly increase growth in boating activity beyond the projected regional trends given the relatively easy access from Gladstone to Rodds Bay by a typical recreational boat user.

This report contains a recommendation to the Regional Harbour Master (Gladstone) to consider imposing a general six-knot speed limit in the vicinity of the Colosseum Inlet boat ramp and the Boyne Creek bridge and boat ramp (Appendix 1, Schedule 3, Recommendation 7). This recommendation is focused on improving boat safety in the area and would have the benefit of reducing the risk of boat strike impacts on marine species such as turtle and dugong.

---

[53] Department of Environment and Resource Management, *Queensland Water Quality Guidelines 2009*, Department of Environment and Resource Management, Brisbane, 2009, viewed 20 December 2010, www.derm.qld.gov.au/environmental_management/water/queensland_water_quality_guidelines/queensland_water_quality_guidelines_2009.html

[54] Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand, *The Australian and New Zealand Guidelines for Fresh and Marine Water Quality*, 2000, viewed 15 December 2010, www.mincos.gov.au/publications/australian_and_new_zealand_guidelines_for_fresh_and_marine_water_quality

The proponent has also committed to a package of measures aimed at mitigating or offsetting any impacts on key marine species that may be associated with the development, particularly the locally increased level of boat traffic in the area. These measures include:

- public education and awareness programs which will include information (including brochures and signage) on local marine species and ways to reduce potential impacts on these species
- development and implementation of a MEMP to map and monitor key marine communities in the area including coral communities, seagrass beds, and mangroves. The MEMP will include baseline monitoring including at least two seasonal monitoring events (winter and summer) over at least 12 months
- work with relevant experts and contribute to the ongoing operation of a marine mammal and turtle monitoring program aimed specifically at the Rodds Bay Dugong Protection Area. This would incorporate research and monitoring directly relevant to the management of dugongs
- contribute to a proposal to change the southern area of the Rodds Bay Dugong Protection Area from Zone B to Zone A. This may include a financial contribution to the cost of compensation associated with a formal buyout of fishing licences
- remove the existing causeway in Boyne Creek to restore the natural flow regime and allow the unimpeded movement of marine species.

Nesting turtles

More human presence and activity on HHI has the potential to impact on turtles that may nest on the island. The northern beaches of the island appear suitable for turtle breeding and egg laying; however, the EIS indicated that there is evidence that turtles use these beaches infrequently and at low densities.

Beaches on the island will not be directly impacted by the development and the proponent has committed to employ techniques that have been successfully used at other locations such as Mon Repos to ensure that public access to turtle breeding beaches does not affect the breeding, egg laying and egg hatching components of the turtle lifecycle.

Operational lighting has the potential to disturb nesting turtles. However, the proponent has committed to a lighting strategy to avoid, where possible, or reduce potential impacts. GRC will be responsible for implementing local laws to ensure these commitments are met outside the development site and for introducing appropriate codes to ensure the lighting conditions can be implemented on site.

Threatened flora (plants)

As noted above, targeted surveys in the development area during 1993 and 2007 did not locate any significant flora species. Therefore, no significant impact is expected on these species. Nevertheless, in section 14.3 of the EIS, the proponent committed to a regime of vegetation mitigation strategies to protect these species, if located during clearing works.

Threatened communities

The proponent has committed to avoid and minimise environmental impacts of the HHID by ensuring the smallest development footprint as possible. The amount of vegetation to be removed will be finalised prior to seeking vegetation clearing approval from DERM.

As noted above, all development has been excluded from littoral vineforest/scrub and beachfront habitats located on the ocean side of the island, south of the northern headland. No development will occur in the small patch of littoral vineforest/scrub which is present on the western side of the island. The two sections of littoral vineforest/scrub are not contiguous, with a two-kilometre section of RE 12.2.11 separating them. The development also includes a connectivity preservation strategy to provide movement corridors for the island's wildlife (refer to page 121). Therefore, there are expected to be no impacts on the threatened communities of their potential inhabitants such as the black-breasted button quail.

Table 7 of the SKM report summarised the vegetation communities to be cleared for the development. Approximately 518 hectares of REs[55] needs to be disturbed for the development (including all infrastructure). The REs that are listed as endangered, of concern or least concern within that area total approximately 300 hectares. Of the REs recorded, the following three REs are listed as essential habitat for koalas under the VMA:

- RE 12.12.12 *Eucalyptus tereticornis, E. crebra*—open-forest to woodland—of concern-dominant (195.14 hectares)
- RE 12.3.10 *Eucalyptus populnea*—grassy woodland/tall woodland—endangered-dominant (4.5 hectares)
- RE 12.3.3 *Eucalyptus tereticornis*—open-forest to woodland—endangered-dominant (5.43 hectares).

Mitigation measures

The proponent's proposed mitigation measures are clearly documented in the draft EMPs (included in section 20 of the EIS and updated in section 17 of the SEIS). The proponent's commitments for the project, which are not included as conditions in this report, are included as Appendix 2to this report.

Threatened terrestrial fauna, flora (plants) and communities

In section 14 of the EIS, the proponent proposed management strategies to mitigate potential construction and operational impacts on terrestrial, fauna, flora and communities.

In the SEIS, the proponent has updated the proposed mitigation measures to negate or minimise potential impacts on terrestrial flora and fauna. These are explained in the subsections below.

---

[55] Total amount of vegetation within the development footprint has been included for ease of calculation of vegetation offset. Not all vegetation will be removed.

Compensatory habitat strategy

In the EIS, the proponent proposed to develop a comprehensive compensatory habitat strategy (CHS) for the project. The objectives of the proponent's strategy are to:

- comply with the requirements of the Queensland *Vegetation Management Act 1999* and associated codes and policies
- consider the provision of appropriate offsets for potential impacts on MNES
- provide tangible conservation benefits locally and within the wider GRC area with an emphasis on threatened species conservation.

The proponent's CHS involves:

- securing regrowth (near remnant) vegetation within and outside the GRC area which is representative of the REs and essential habitat to be cleared for the project. The properties will either be purchased by the proponent or secured via a registered covenant. Properties will be actively managed until such time as they reach remnant status as defined by DERM
- securing REs of equivalent conservation status to those to be cleared for the project within and outside the GRC area and managing these areas until such time as they reach remnant status
- strategic purchase of key land parcels that have been identified as key linkages or habitats for EVR taxa at the local, sub-regional and regional scale
- revegetation and rehabilitation of existing cleared areas of land within the study area, with a view to reinstating pre-clearing vegetation types (including appropriate fruiting trees for flying foxes).

Vegetation offsets strategy

The proponent has submitted an offsets package to DERM for consideration of state interests as part of the EIS process for the project. While full details cannot be provided at this time, the following proposed offset details and advice from DERM is noted:

- the proponent has proposed to offset approximately 300 hectares of RE (including endangered, of concern and threshold REs and mapped essential habitat)
- the proposed offset will be greater than 700 hectares and meets Criteria 1—Offset limitations of the *Policy for Vegetation Management Offsets—version 2.4*[56] endorsed 21 October 2009
- all proposed offsets are proposed within areas mapped as non-remnant or category X by a Property Map of Assessable Vegetation (PMAV) (i.e. is not assessable)

[56] Department of Environment and Resource Management, *Policy for Vegetation Management Offsets*, version 2.4, Department of Environment and Resource Management, Brisbane, 2009, viewed 20 December 2010, http://www.derm.qld.gov.au/about/policy/documents/3450/veg_2006_2888.pdf

- the areas proposed to be cleared and the proposed offsets meet either the requirements of the *Policy for Vegetation Management Offsets* 28 September 2007[57] or the *Policy for Vegetation Management Offsets*—version 2.4[58] endorsed 21 October 2009
- all proposed offset areas are located within approximately 35 kilometres of the areas proposed to be cleared
- the majority of the proposed offsets are the same REs. Where like-for-like REs are not provided, a higher ratio has been provided
- proposed offset areas provide connectivity to areas of mapped remnant vegetation
- the proposed offset areas are located adjacent to National Park, creeks and within wildlife corridors
- all offset areas proposed are expected to regain remnant status within 5–20 years.

DERM has advised that, based on the information provided by the proponent, the proposed development will meet vegetation management policy requirements if offsets negotiations are finalised, land contracts signed and connectivity is maintained. Connectivity is addressed on page 72).

A condition is stated in this report that includes a requirement for the proponent to secure offsets for the proposed clearing of remnant vegetation (Appendix 1, Schedule 1, Condition 15).

Additional conditions are stated in this report that require the proponent to, among other things, undertake a complete plant survey (in consultation with the Wildlife Branch of DERM before finalising the development footprint) and prepare a flora rehabilitation plan (Appendix 1, Schedule 1, conditions 15–17).

Wildlife management plan

A condition is stated in this report requiring the proponent to prepare a wildlife management plan, to be approved by DERM, to protect wildlife on the island, in particular the black-breasted button quail (Appendix 1, Schedule 1, Condition 14).

The wildlife management plan must include:

- wildlife habitat and movement corridors incorporated in the design, construction and operation of the project. This must include:
  - the design and management of the development to retain and enhance remaining vegetated areas and maximise fauna movement corridors (as discussed in this report)

---

[57] Department of Environment and Resource Management, *Policy for Vegetation Management Offsets*, Department of Environment and Resource Management, Brisbane, 2007.
[58] Department of Environment and Resource Management, *Policy for Vegetation Management Offsets*, version 2.4, Department of Environment and Resource Management, Brisbane, 2009, viewed 20 December 2010, http://www.derm.qld.gov.au/about/policy/documents/3450/veg_2006_2888.pdf

- designing and constructing a major fauna crossing (e.g. underpass culvert) along the section of road that pass through vegetated areas to prevent fauna entering the roadway
- developing and implementing a roadside wildlife management plan to provide further protection to wildlife in the vicinity of the access road
- installing traffic calming devices in strategic locations
- installing fauna exclusion fencing in appropriate locations, if necessary, as agreed with DERM
- considering the preferred fauna sensitive design standards included in the *Fauna Sensitive Road Design Manual —Volume 2: Preferred Practices*[59]
- developing, implementing and funding activities to eradicate fox, wild dog and feral cat numbers in the buffer zone between the HHID and the rest of the island and on and surrounding the bridge (e.g. trapping program)
- prohibiting domestic cats within the HHID area and dogs from environmentally sensitive parts of the island such as beaches and protected areas
- implementing vegetated buffers of at least 100 metres in width around the entire perimeter of the HHID footprint (80 metres at the headland) to protect sensitive environments

- developing and implementing a management plan for the black-breasted button quail *(Turnix melanogaster)* that are likely to exist in littoral vineforest habitat on the island
- developing and implementing a beach and foreshore management plan (including a community education/awareness program) in consultation with DERM to manage the sensitive areas particularly for turtles and shorebirds
- developing and implementing an artificial lighting management plan that will include a range of methods of minimise impacts such as:
  - turning off light sources
  - wattage reduction
  - repositioning lights behind structures
  - shielding
  - redirecting light sources
  - lowering lights
  - recessing lights so the light does not reach the beach

[59] Department of Transport and Main Roads, *Fauna Sensitive Road Design Manual—Volume 2: Preferred Practices,* Department of Transport and Main Roads, 2010, viewed 2 February 2011, www.tmr.qld.gov.au/Business-and-industry/Technical-standards-and-publications/Fauna-Sensitive-Road-Design-Volume-2.aspx

- including measures in a community management statement to regulate domestic animals in residential precincts to avoid disturbing native fauna in open space areas
- ensuring all site rehabilitation work is undertaken and/or managed by appropriately qualified personnel.

Many of these activities accord with the goals of the *National recovery plan for the black-breasted button quail*[60] and are expected to benefit all wildlife on the island.

Environmental management plans

The draft EMPs for the project are included in section 20 of the EIS and section 17 of the SEIS provided an update. The draft EMPs include the proponent's committed mitigation measures for all components of the construction and operational stages of the development. The draft EMPs are designed to ensure that identified environmental impacts relating to the project are avoided, where possible, or minimised if unavoidable.

EMPs are addressed in section 5 of this report.

Protected areas management

HHI is made up of five parcels of unallocated state land. As noted above, the HHID will impact on Lot 3 on FD841442 (i.e. the SL area); Lot 1 on FD841442 and Lot 10 FD841442 on HHI. Lot 1 USL 43258 on the mainland will also be impacted by the construction of the Boyne Creek bridge, boat ramp and causeway. Approximately 2041 hectares (20.4 square kilometres) of HHI is included within an Exploration Permit for Minerals (EPM 7164) (refer to subsection 4.3.6 of this report).

As noted above, in the long-term it is preferred that a conservation park to be declared under the NCA over all the undeveloped parts of the island (approximately 1700 hectares) and for GRC to assume the role of trustee. However, this is presently not feasible given the presence of an exploration permit (for mineral sands) over 2041 hectares (20.4 square kilometres) of the island.

The following actions are recommended by the Coordinator-General:

- as an interim measure, a resource reserve (a type of protected area defined by the NCA) be declared over the part of the island subject to the exploration permit and not within the HHID development area
- a conservation park (with GRC as trustee) be declared over the remaining portion of the island outside the HHID development area
- once the exploration permit is lapsed, the resource reserve area be amalgamated into the conservation park.

[60] M Mathieson & GC Smith, *National recovery plan for the black-breasted button quail*, Department of Environment and Resource Management, 2009, viewed 2 February 2011, www.environment.gov.au/biodiversity/threatened/publications/recovery/pubs/black-breasted-button-quail.pdf

Irrespective of its protected area tenure, the undeveloped parts of the island would be actively managed by the proponent for a period of 17 years or otherwise agreed with GRC by means of an infrastructure agreement. Following this period, the declaration of a conservation park would hand responsibility to GRC. Council has agreed to this proposed arrangement and indicated that long-term funding is likely to be through a levy or benefitted area rate. GRC would be responsible for funding the management of the area in perpetuity.

A condition is stated in this report to ensure ongoing protection and active management of the undeveloped parts of the island (i.e. land outside the development footprint), thereby providing greater protection of this area of the WHA (Appendix 1, Schedule 2, Condition 30).

The NCA requires that a management plan be prepared for the protected areas. This would be prepared by the proponent and approved by DERM.

The requirement for the proponent to fund the management of the undeveloped parts of HHI is additional to that generally sought for a development of this type and should therefore be considered an offset.

Further, the protection and management of all undeveloped parts of HHI is considered to exceed the requirements for development approval and is an environmental benefit for the area.

Connectivity preservation strategies

In submissions to the Coordinator-General, DERM and DSEWPaC raised issues about the potential reduction in connectivity linkage of the island resulting from the proposed development. As a result, the proponent provided additional information on vegetation to be cleared from the site, connectivity strategies and a proposed environmental offsets package.

Based on the information provided by the proponent, DERM has advised that connectivity on the island (in accordance with performance requirement s.4—Connectivity, of the *Regional Vegetation Management Code for Southeast Queensland Bioregion*[61] can be maintained if:

- linear clearing is restricted to 20 metres in width for a distance of not less than 500 metres in area A (i.e. segment of road connecting northern and southern parts of the development) and 300 metres in area B (i.e. the area between the bridge connection on the island and the commencement of the development) (refer Figure 4.1 of this report)
- clearing of areas A and B is only permitted to construct an access road (including bike path) and reasonably associated services such as power, water and telecommunications
- advance regrowth is be allowed to return to remnant

[61] Department of Natural Resources and Water, *Regional Vegetation Management Code for Southeast Queensland Bioregion*, Department of Environment and Resource Management, 2006, viewed 2 February 2011, www.derm.qld.gov.au/vegetation/pdf/codes/southeast_code_nov_06.pdf

- clearing is be restricted to the current development footprint
- no amendment to the lease area occurs.

In the EIS documentation and additional information provided to the Coordinator-General, the proponent proposes a number of measures to reduce the impact of fragmentation of fauna communities as a result of the development. These include:

- vegetated corridors which permit flora and fauna dispersal across HHI particularly the maintenance of riparian corridors adjacent ephemeral creeks. Wildlife corridor types that are to be considered for the development, to be agreed with GRC and DERM include:
  - major linkage—several hundred metres in width and containing no buildings or major structures
  - inter-urban linkage—corridors 100–200 metres wide through a predominantly urban matrix, but containing large areas of green space such as the golf course
  - local linkage—corridors less than 100 metres wide through urban and non-urban matrices
- formal fauna crossing points at potential road-strike points, particularly within the proposed corridors described above
- fauna crossings at ephemeral watercourse crossings
- tree retention across the development area to increase landscape permeability for flora and fauna particularly in and around the proposed golf course.

In accordance with DERM's requirements, the proponent also proposes that the section of road linking the northern and southern portions of the development (around 500 metres) consist of two separate single lane carriage ways (5–6 metres) separated by a naturally vegetated strip 50–60 metres wide. This area is currently near remnant and is expected to provide an area of relative safety for animals which may pass through this area. The vegetation on either side of the roads is also near remnant and may eventually provide a partial canopy which may offer greater protection for wildlife that may cross in this area above ground.

This segment of road is also likely to be straight and should assist drivers to see and avoid wildlife that may be crossing. The proponent also proposes that this section of road will be speed limited to 40 kilometres per hour and will include formal fauna crossing points to further protect crossing fauna. Traffic calming devices are also proposed at regular intervals along the road to further reduce the driving speeds in the area. The road will be appropriately signed to warn drivers that wildlife may cross in the area.

The proponent also proposes that the road will be built to provide regular culverts for small macropods to travel under the road.

All other roads throughout the development will be speed limited to 50 kilometres per hour.

A condition is stated in this report requiring the proponent to prepare a wildlife management plan, to be approved by DERM, to protect wildlife on the island (Appendix 1, Schedule 1, Condition 14). This plan must address connectivity strategies.

Additionally, a condition is stated in this report specifying requirements for road design (including reduced speed limits and the requirement for formal fauna crossing points and fauna culverts) on the island, to protect wildlife on the island (Appendix 1, Schedule 2, Condition 2). The condition also includes the requirement that roads within the development be designed to include the preferred fauna sensitive design standards included in the *Fauna Sensitive Road Design Manual—Volume 2: Preferred Practices*.[62]

Other strategies

The full list of the proponent's commitments is included in section 18 of the SEIS. Some of the commitments relevant to MNES are:

- creating a vegetated corridor, in accordance with DERM requirements, of at least 500 metres in width to allow fauna dispersal from east-west across the island. The proponent also commits to establish a major fauna crossing at this point
- developing and implementing a roadside wildlife management plan in agreement with DERM
- installing traffic calming devices in strategic locations throughout the development
- retaining corridors of at least 100 metres in width around the perimeter of the HHID footprint (80 metres at the headland).
- reducing fox, wild dog and feral cat numbers in the buffer zone between the HHID and the rest of the island
- prohibiting domestic cats within the HHID area
- developing and implementing a beach and foreshore management plan (including a community education/awareness program) to manage the sensitive areas particularly for turtles and shorebirds.

Conditions stated in this report ensure these measures are implemented.

Marine flora and fauna

The proponent has made a number of commitments during the EIS process to negate or minimise potential impacts on marine flora and fauna on and in waters surrounding the island. These include:

---

[62] Department of Transport and Main Roads, *Fauna Sensitive Road Design Manual—Volume 2: Preferred Practices,* Department of Transport and Main Roads, 2010, viewed 2 February 2011, www.tmr.qld.gov.au/Business-and-industry/Technical-standards-and-publications/Fauna-Sensitive-Road-Design-Volume-2.aspx

Minimisation of habitat clearing

- minimising clearing within supratidal salt flats and mangroves to the minimum width required to accommodate road, bridge and boat ramp design, stormwater controls and service infrastructure
- conducting clearing in accordance with the recommendations included in the *Wetland Management Profile—Salt marsh Wetlands issued by the Queensland Wetlands Programme*[63]
- obtaining all approvals required by relevant legislation before commencing work.

Erosion and sediment controls

- using erosion and sediment controls in accordance with *Soil Erosion and Sediment Control Guidelines—Engineering for Queensland Construction Sites (IE Aust (Qld) 1996)* for all construction activities within ephemeral watercourse catchments that discharge to estuarine or marine waters
- maintaining a 10-metre buffer of all ephemeral watercourses within the proposed construction area as required by the South East Queensland Regional Vegetation Management Committee
- undertaking no construction activity in the 100-metre buffer zone above HAT (80 metres at the headland) except for the public access infrastructure such as the bridge and boat ramps
- conducting construction activities for the bridge and boat ramps as per construction methods and protection measures outlined in section 8 of the EIS. These works will also be subject to a site specific erosion and sediment control plan including additional controls for working in a sensitive marine environment
- ensuring ephemeral watercourse discharges will meet water quality objectives for estuarine waters derived from existing and ongoing proposed monitoring.

Water sensitive urban design

- employing WSUD principles for all permanent control measures to mitigate litter, sediment, nutrient, hydrocarbon and chemical releases to adjacent estuarine and marine environments
- constructing control measures in accordance with *Draft Water Sensitive Urban Design Engineering Guidelines: Stormwater.*[64]

---

[63] Department of Environment and Resource Management, *Wetland Management Profile—Salt marsh Wetlands issued by the Queensland Wetlands Programme*

[64] Brisbane City Council, *Draft Water Sensitive Urban Design Engineering Guidelines: Stormwater*, Brisbane City Council, 2006, viewed 2 February 2011, web.brisbane.qld.gov.au/documents/building_development/subdivision_development/wsud_cover_page_and_contents.pdf

Water quality monitoring

- developing and implementing a water quality monitoring plan (WQMP) to establish local water quality objectives. This will be undertaken when seeking development approvals and before construction
- designing the WQMP in accordance with the *Queensland Water Quality Guidelines*,[65] the *Australia and New Zealand Guidelines for Fresh and Marine Water Quality*[66] and the *Water Quality Guidelines for the Great Barrier Reef Marine Park*.[67]

Integrated turf and pest management

- Using Class A+ wastewater for irrigation and supplementary fertilisers for the golf course.
- Operating watering, fertilising and pest control in accordance with best practice

Commitment to reef water quality protection plan

- Conforming to the objectives of the *Reef Water Quality Protection Plan 2009*[68] (RWQPP). The proponent's commitments in relation to the RWQPP are clearly addressed in Table 13.4 of the SEIS, some of which are included within this section of the report, immediately above.

Public awareness/education

- Introducing public awareness and education programs to encourage reduced vessel speeds and educate the public on the local marine environment to minimise potential impacts on dugongs, turtles and other marine species.

Marine ecological monitoring

- Developing and implementing a MEMP to map and monitor key marine communities in the close proximity to HHI (including Boyne Creek and Colosseum Inlet) including coral communities, seagrass beds and mangrove communities for five years, to advise relevant agencies such as DERM, DEEDI and GBRMPA.
- This commitment exceeds the requirements for the state and could be considered as an environmental offset.

---

[65] Department of Environment and Resource Management, *Queensland Water Quality Guidelines 2009*, Department of Environment and Resource Management, Brisbane, 2009, viewed 20 December 2010, www.derm.qld.gov.au/environmental_management/water/queensland_water_quality_guidelines/queensland_water_quality_guidelines_2009.html

[66] Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand, *The Australian and New Zealand Guidelines for Fresh and Marine Water Quality*, 2000, viewed 15 December 2010, www.mincos.gov.au/publications/australian_and_new_zealand_guidelines_for_fresh_and_marine_water_quality

[67] Great Barrier Reef Marine Park Authority, *Water Quality Guidelines for the Great Barrier Reef Marine Park*, Great Barrier Reef Marine Park Authority, Townsville, 2009.

[68] Department of Premier and Cabinet, *Reef Water Quality Protection Plan*, Department of the Premier and Cabinet, 2009, viewed 2 February 2011, http://www.reefplan.qld.gov.au/library/pdf/reef-plan-2009.pdf

Artificial lighting strategies

- Developing and implementing an artificial lighting management plan which will include a range of methods of minimise impacts such as:
  - turning off light sources
  - wattage reduction
  - repositioning lights behind structures
  - shielding
  - redirecting light sources
  - lowering lights
  - recessing lights so the light does not reach the beach.

Conditions are stated in this report to ensure the above measures are implemented.

Coordinator-General's conclusion—listed species and communities

An assessment of the impacts on threatened species and communities has been undertaken in the EIS, SEIS and the SKM report (World Heritage values). The following key potential impacts are concluded:

- potential loss of foraging habitat for the grey-headed flying fox caused by the clearing of around 300 hectares of remnant vegetation—listed as vulnerable under the EPBC Act
- an increase in the number of boat trailers in the Rodds Bay/Colosseum Inlet area leading to an increased risk of boat strike injuries of listed marine fauna such as dugongs and turtles.

Overall, it may be concluded that the proposed HHID would have minimal disturbance in the short-term and no significant long-term impact on listed threatened species and communities and any impact could be offset by measures proposed by the proponent and conditions stated in this report.

It is noted that the development proposal has been designed to avoid direct impacts on the only listed ecological community present on the island—Littoral Vineforest and Coastal Vine Thickets of Eastern Australia. Consequently, direct impacts on the black-breasted button quail (listed as a vulnerable species and associated with the above habitat) would be avoided. Similarly, habitat areas for listed shorebirds on the landward side of the island are largely avoided by the development footprint apart from small areas associated with the bridge and boat ramps.

Beneficial and mitigating actions of the proposal include:

- active management and ongoing protection of the undeveloped part of the island—HHI currently has no active management regime in place. This measure will facilitate a protection tenure status under the NCA for the undeveloped parts of the island along with an agreed management regime in perpetuity

- removing the Boyne Creek causeway—this would reinstate the natural water flow through Boyne Creek and provide unrestricted access for marine species through the area
- implementing a MEMP to map and monitor key marine communities in the close proximity to HHI (including Boyne Creek and Colosseum Inlet) including coral communities, seagrass beds and mangrove communities for five years. The proponent's commitment are reflected in a condition specified in this report (Appendix 1, Schedule 1, Condition 20).
- implementing a wildlife protection plan—this potentially provides a means of providing greater protection for the wildlife that exists on and around HHI including the black-breasted button quail and the grey-headed flying fox
- the proponent is required to undertake a complete plant survey (in consultation with the Wildlife Branch of DERM before finalising the development footprint) and prepare a flora rehabilitation plan
- to ensure the safety of the boating public around HHI, this report recommends to the Regional Harbour Master (Gladstone) that it would be appropriate to impose a general six-knot speed limit in the vicinity of the Colosseum Inlet boat ramp and the Boyne Creek bridge and boat ramp to a greater distance than the current legislative requirements. Although this is specifically aimed at increasing public safety, if implemented, reduced speed limits in parts of Boyne Creek and Colosseum Inlet may also provide a safer environment for marine fauna that inhabit the area
- the proponent's commitment to working with relevant experts and contributing to the ongoing operation of a marine mammal and turtle monitoring program aimed specifically at the Rodds Bay Dugong Protection Area—this would incorporate research and monitoring directly relevant to the management of dugongs
- the proponent's commitment to contribute to a proposal to change the southern area of the Rodds Bay Dugong Protection Area from Zone B to Zone A. This may include a financial contribution to the cost of compensation associated with a formal buyout of fishing licences.

6.5.3 Listed migratory species

Context

Migratory species are those animals that migrate to Australia and its external territories, or pass through or over Australian waters during their annual migration. All species on the list of migratory species are MNES under the EPBC Act.

Migratory species are those listed in the:

- Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention)
- China–Australia Migratory Bird Agreement (CAMBA)

- Japan–Australia Migratory Bird Agreement (JAMBA)
- Republic of Korea–Australia Migratory Bird Agreement (ROKAMBA).

Listed migratory species also include any native species identified in an international agreement approved by the Australian Government Minister for Environment.

EIS findings

The EIS investigated the listed migratory species that may be affected by the proposed development, concluding a low likelihood of significant impacts on listed migratory species within and around the project site.

The EPBC protected matters report run in January 2007 (for the SEIS) lists 28 migratory species that are likely to occur on or near HHI including:

- eight terrestrial birds
- four wetland birds
- one marine bird
- seven marine mammals
- seven reptiles
- one shark species.

A full listing and an assessment of likelihood of occurrence of each species is included in Table 3.2 of the EPBC supplementary report included in the SEIS. A number of reported species have been assessed as a low likelihood of occurring within the study area, as follows:

- Australian cotton pygmygoose *(Nettapus coromandeli anus albipennis)*
- southern giant-petrel *(Macronectes giganteus)*
- blue whale *(Balaenoptera musculus)*
- humpback whale *(Megaptera novaeangliae)*
- irrawaddy dolphin *(Orcaella brevirostris)*
- killer whale *(Orca Orcinus orca)*
- indo-pacific humpback dolphin *(Sousa chinensis)*
- northern quoll *(Dasyurus hallucatus)*
- estuarine crocodile, saltwater crocodile *(Crocodylus Porosus)*
- whale shark *(Rhincodon typus).*

Potential impacts and mitigation measures for marine species (including migratory) and fauna are covered in the subsection 6.5.2 above and will not be repeated in this subsection. The following analysis will focus on migratory birds.

The migratory birds included in the protected matters report are:

Terrestrial

- white-bellied sea eagle *(Haliaeetus leucogaster)*
- white-throated needletail *(Hirundapus caudacutus)*
- barn swallow *(Hirundo rustica)*
- rainbow bee eater *(Merops ornatus)*
- black-faced monarch *(Monarcha melanopsis)*
- spectacled monarch *(Monarcha trivirgatus)*
- satin flycatcher *(Myiagra cyanoleuca)*
- rufous fantail *(Rhipidura rufifrons)*

Wetland

- latham's snipe, Japanese snipe *(Gallinago hardwickii)*
- Australian cotton pygmy-goose *(Nettapous coromandeli anus albipennis)*
- little curlew, little whimbrel *(Numenius minutes)*
- painted snipe *(Rostratula benghalensi s s lat)*—vulnerable

Marine

- southern giant-petrel *(Macronectes giganteus)*—endangered.

Survey results included in the EIS, including the surveys conducted in March 2007, recorded a concentration of shorebird activity on the landward side of the island, where extensive intertidal wetlands, marine plains and saltmarshes occur. The EIS indicated that there will be no development in this area and no public access.

The EIS also indicated that targeted surveys on the eastern and northern ocean beaches, the proposed bridge site and other accessible intertidal areas recorded only a small number of lesser and greater sand plovers and red-capped plovers.

Potential impacts and mitigation measures

The HHID has the potential to impact listed migratory species. However, the EIS and SEIS indicated that implementing relevant mitigation measures will ensure that the project will have minimal impact on listed migratory species. The EIS indicated that in relation to the *EPBC Act Policy Statement 1.1*,[69] the project will not:

- substantially modify, destroy or isolate important migratory species
- introduce any invasive species that are harmful to migratory species
- seriously disrupt the lifecycle of an ecological significant proportion of the population of a species.

[69] Department of Water, Environment, Heritage and the Arts, *EPBC Act Policy Statement: 1.1 Significant Impact Guidelines: Matters of National Environmental Significance*, Canberra, 2009.

Some migratory bird species may be temporarily impacted by construction noise, dust and vibration. Artificial night lighting may also impact upon some migratory bird species. In principle, these impacts could cause stress, causing them to leave their home ranges; disruptions to breeding cycles; and restrictions on foraging behaviour. However, implementing mitigation measures and the extent of the remaining suitable habitat on the island, compared with the area of the proposed development, suggests that impacts would not be significant.

Likely impacts (after mitigation) on specific migratory species (including mammals, reptiles etc) are noted in more detail in Table 5.6 of the EPBC supplementary report included in Appendix C of the SEIS.

The proponent's proposed mitigation measures are documented in the proponent's draft EMPs (included in section 20 of the EIS and updated in section 17 of the SEIS). Measures include:

- there will be no development or facilitated public access to the landward side of the island, where extensive intertidal wetlands, marine plains and saltmarshes occur and where a concentration of shorebird activity was recorded during surveys noted in the EIS
- measures to mitigate potential habitat loss and fragmentation, as discussed in detail above (compensatory habitat strategy/offsets)
- construction EMPs developed by the proponent will include measures to minimise (and where possible, negate) the amount of noise, dust and vibration from development activities, thereby reducing the potential impacts of fauna, including migratory birds
- lighting will be effectively mitigated by the proponent's commitment to develop and implement an artificial lighting management plan which will include a range of methods of minimise impacts such as:
  - turning off light sources
  - wattage reduction
  - repositioning lights behind structures
  - shielding
  - redirecting light sources
  - lowering lights
  - recessing lights so the light does not reach the beach
- a public awareness/education program about the local environment and wildlife will be developed and implemented by the proponent.

Conditions stated in this report include requirements to ensure these measures are implemented (Appendix 1, Schedule 1, Condition 14). In addition, conditions require the establishment, and ongoing funding, of a protected areas management regime for the undeveloped sections of the island (Appendix 1, Schedule 2, Condition 30). This would avoid and mitigate any potential development-related impacts to these

areas and provide a long-term positive outcome for suitable habitat for key (terrestrial) migratory species.

Coordinator-General's conclusion—listed migratory species

It is concluded that the project may potentially impact on migratory species, although most likely to a minimal degree. Implementing mitigation and conservation measures, as described in the EIS, SEIS, EMPs and the proponent list of commitments, for the construction and operational stages of the development are expected to significantly mitigate the impacts of the HHID project on species that were identified during the field surveys. As a result, it is expected that there will be no significant long-term impact on the listed migratory species component of the controlling provisions of the project under the EPBC Act.

6.6 Offsets

As noted above, an appropriate offsets package has been proposed and detailed information submitted by the proponent for the proposed vegetation clearing and potential impacts to the marine fish habitat. Conditions stated in this report include requirements for the proponent to identify and secure offsets for the proposed clearing of remnant vegetation (Appendix 1, Schedule 1, Condition 15) and marine fish habitat (Appendix 1, Schedule 2, Condition 12), in accordance with state policy prior to construction works.

It is considered that a number of the conservation initiatives (discussed above) to be funded and managed by the proponent are over and above the state's development approval requirements for the project and could be considered as environmental offsets. These include:

- protected areas active ongoing management
- removing the Boyne Creek causeway
- designing and implementing a MEMP.

Additionally, it is noted in the SKM report that the proponent has committed up to $150 000 for a study of terrestrial World Heritage values and management priorities. The proponent has indicated that it would seek to involve DSEWPaC in developing the study scope and methodologies to ensure the study specifically targets gaps in current knowledge and management focus, thus contributing to the overall understanding and management of terrestrial GBRWHA values. The proponent has further committed to:

- working with relevant experts and contributing to the ongoing operation of a marine mammal and turtle monitoring program aimed specifically at the Rodds Bay Dugong Protection Area. This would incorporate research and monitoring directly relevant to the management of dugongs

- contributing to a proposal to change the southern area of the Rodds Bay Dugong Protection Area from Zone B to Zone A. This may include a financial contribution to the cost of compensation associated with a formal buyout of fishing licences.

Decisions on the offsetting of potential impacts on MNES are the responsibility of the Australian Government Minister for Environment and it is noted that the minister may impose other requirements/conditions on the project proponent's over and above those stated throughout this report.

7 Conclusion

Having regard to the documentation provided during the EIS process for the HHID project, the Coordinator-General is satisfied that Queensland Government's requirements for impact assessment (in accordance with the provisions of Part 4 of the SDPWO Act) have been met.

The EIS process has provided sufficient information to the government and to the community to allow an informed evaluation of potential environmental impacts which could be attributed to the project.

The Coordinator-General is satisfied that careful management of the key construction and operational activities should minimise or avoid any potential environmental impacts.

The proponent has made commitments throughout the EIS and SEIS, which have been summarised in section 18 of the SEIS. The Coordinator-General has confirmed a number of these commitments through conditions in this report. Other commitments include actions beyond those required to meet statutory approvals and their implementation will further mitigate potential adverse environmental impacts of the project. Further, the proponent has developed detailed EMPs to address specific environmental issues identified during the EIS process associated with each element of the project.

In reaching a conclusion on the acceptability or otherwise of managing potential project impacts, the Coordinator-General has considered these project commitments and EMPs.

Where necessary, conditions have been set and recommendations made that Eaton Place Pty Ltd and other relevant entities are to implement.

On the basis of the information provided, including advice from advisory agencies, the Coordinator-General is satisfied that the adverse environmental impacts associated with the project are able to be addressed by:

- implementing the conditions listed in Appendix 1 of this report (pursuant to section 39 of the SDPWO Act)
- obtaining relevant environmental authorities from DERM under the EP Act
- finalising and implementing the project EMPs
- implementing the project generally in accordance with the arrangements described in the EIS, SEIS, project commitments and this report
- securing appropriate environmental offsets.

The Coordinator-General recommends that the project, as described in detail in the EIS and SEIS and summarised in section 2 of this report, should proceed, subject to the conditions contained in Appendix 1 of this report.

In the event of any inconsistencies between the EIS documents and the recommended requirements in this report, the recommended requirements in this report prevail.

Eaton Place Pty Ltd and its agents must implement the conditions and recommendations of this report and all commitments presented in this report and section 18 of the SEIS.

In accordance with section 17(2) of the SDPWO Regulation, a copy of this report will be provided to the Australian Government Minister for Environment to enable a decision to be made under Part 9 of the EPBC Act.

Under the provisions of Part 9 of the EPBC Act, the Australian Government Minister for Environment may approve or refuse the taking of the proposed action. In approving a proposed action, the minister may attach conditions to the approval if he is satisfied that the condition is necessary or convenient to protect a MNES, or to repair or mitigate damage to a MNES.

Copies of this report will be issued to:

- Eaton Place Pty Ltd (the proponent)—pursuant to section 35(5)(a) of the SDPWO Act
- GRC—as assessment manager for development approval in accordance with section 35(5)(a) of the SDPWO Act
- Australian Government Minister for Environment— to make an assessment of the controlled action for the purposes of the EPBC Act.

Copies of the report will be also issued to agencies responsible for implementing conditions, including:

- DERM
- DEEDI
- DCS
- TMR.

Other advisory agencies who participated in the EIS process will be notified about the availability of this report.

In accordance with section 35(5)(b) of the SDPWO Act, a copy of this report will also be made available at: www.dip.qld.gov.au

Appendix 1 Conditions and recommendations

Schedule 1 Conditions for which a state agency is the responsible entity

Material change of use—preliminary approval

Conditions stated by the Coordinator-General pursuant to section 39 of SDPWO Act that the assessment manager must attach to a preliminary approval for material change of use (MCU).

Condition 1

(a) Prior to the commencement of use of stage 1 of the development, the developer must enter into a social infrastructure agreement with the state to:

  (i) provide land within the HHID for fire and rescue and ambulance infrastructure

  (ii) provide land within the HHID for police infrastructure (including station, holding cells/watchhouse, residential accommodation and other necessary facilities (e.g. storage)

  (iii) construct fire and rescue and ambulance infrastructure

  (iv) construct police infrastructure

  (v) undertake a combination of land dedication and construction works pursuant to points (i)–(iv) above, or

  (vi) provide assistance, either financially or by other agreed means, to improve the current facilities responsible for ambulance and fire brigade servicing the proposed development area, or

  (vii) be in accordance with any other agreement reached between the developer and the relevant state authority on behalf of the state to discharge this condition, prior to the commencement of the use.

(b) Any construction of fire and rescue and ambulance infrastructure, or agreement to allow the construction of fire and rescue, ambulance and police infrastructure must be by agreement with the relevant state authority to ensure compliance with contemporary operational standards for the construction of such facilities.

(c) The proponent/developer must not market or advertise any agreement with the state about potential new, or upgrading of, ambulance, fire brigade or police services as part of the HHID.

The Chief Executive of the DCS is the entity with jurisdiction for this condition.

Condition 2

Before commencing any construction works, the proponent must consult with the QPS, DCS and other emergency services agencies to develop a risk management plan and emergency response plan, for all stages of the project.

The Chief Executive of the DCS is the entity with jurisdiction for this condition.

Condition 3

Construction works that require the removal, destruction or damage of marine plants as defined under the *Fisheries Act 1994* must not be undertaken without a development permit for operational works.

The Chief Executive of DEEDI is the entity with jurisdiction for this condition.

Condition 4

(a) Bridge construction works (such as bridge piles) located below HAT must not be undertaken without a development permit for operational works (constructing a waterway barrier).

(b) Construction works for the bridge approach road (and any other crossings of defined waterways under the *Fisheries Act 1994*) must not be undertaken without a development permit for operational works.

The Chief Executive of DEEDI is the entity with jurisdiction for this condition.

Condition 5

The proponent must design all waterway crossings and works within waterways in accordance with the Fisheries Queensland guideline FHG 001 *Fish Passage in Streams, Fisheries Guidelines for Design of Stream Crossings (1998)* and ensure construction is undertaken with full regard for fish passage requirements.

The Chief Executive of DEEDI is the entity with jurisdiction for this condition.

Condition 6

An application for a development permit for operational works that require the removal, destruction or damage of marine plants and/or the disturbance of tidal fish habitats must be accompanied by an offset proposal that complies with relevant policies at the time of assessment (e.g. Queensland Fisheries operational policy *FHMOP005—Mitigation and compensation for activities and works causing marine fish habitat loss (2002)*).

The Chief Executive of DEEDI is the entity with jurisdiction for this condition.

Condition 7

The following condition, relating to ERA 64—water treatment (by desalination plant), only applies if a temporary desalination plant is required for the HHID and is deemed to be an ERA by DERM.

An application to construct and operate a desalination water treatment plant, must include the following information provided to DERM and GRC for review:

(a) an independent expert report demonstrating that no material or serious environmental harm or nuisance to the receiving environment and sensitive places will result from the construction and operation of the facility

(b) details of the specific location of the proposed works and associated infrastructure with an emphasis placed on identifying sensitive environmental receptors

(c) details of the proposed brine evaporation pond locations, designs and construction standard, and brine management system

(d) a management framework that commits to the practices and principles to be applied to ensure that environmental impacts are minimised.

The Chief Executive of DERM is the entity with jurisdiction for this condition.

Condition 8

To operate a waste transfer station as part of the HHID the following condition in relation to ERA 62—operating a waste transfer station applies:

An application to construct and operate a waste transfer station must include the following information provided to DERM and GRC for review:

(a) an independent expert report demonstrating that the construction and operation of the facility will not cause material or serious environmental harm or nuisance to the receiving environment and sensitive places

(b) details of the specific location of the proposed works and associated infrastructure with an emphasis on identifying sensitive environmental receptors

(c) a management framework that commits to the practices and principles to be applied to minimise environmental impacts.

The Chief Executive of DERM is the entity with jurisdiction for this condition.

Condition 9

To operate a sewerage system as part of the HHID the following condition in relation to ERA 63—sewage treatment applies:

(a) All sewage generated by the HHID must be directed to and treated at a central sewage treatment plant.

(b) As part of an development application to construct and operate a sewage treatment works, the proponent must submit to GRC the following:

  (i) an independent expert report demonstrating that the construction and operation of the facility will not cause material or serious environmental harm or nuisance to the receiving environment and sensitive places

  (ii) details of the specific location of the proposed works and associated infrastructure (including pump stations and wet weather and/or

emergency storage facilities), with an emphasis on identifying sensitive environmental receptors

(iii) details of the proposed irrigation area (including location, size and irrigation method) and demonstration that the application of treated effluent to the proposed irrigation area will be sustainable. The report must, as a minimum, consider and present the following:

(A) the characteristics of any groundwater aquifer underlying the site and the soil and vegetation types in the proposed irrigation area

(B) the results of a detailed water balance study (including details of the maximum number of equivalent persons contributing to the treatment works)

(C) the results of site-specific modelling, simulating the impact of the proposed and ongoing irrigation release. The modelling should be conducted using the Model for Effluent Disposal by Land Irrigation (MEDLI) or another model acceptable to DERM

(D) a management framework that commits to the practices and principles to be applied to ensure that irrigation application rates are managed to minimise environmental impacts.

(c) The sewage treatment works must be designed, constructed and operated consistent with an advanced wastewater treatment plant, with treatment quality achieving the following quality characteristics.

Quality characteristics	Minimum	Maximum
BOD5		5 mg/L
Total suspended solids		5 mg/L
Electrical conductivity		16000 µS/cm
Total nitrogen		4 mg/L
Ammonia as N		0.5 mg/L
Total phosphorus		0.2 mg/L
pH	6.5 pH units	8.5 pH units
E. coli		< 1 cfu in 500ml sample
Faecal coliform		< 1 cfu in 500ml sample
Turbidity		2 NTU
Colour		<2 TCU

The Chief Executive of DERM is the entity with jurisdiction for this condition.

Condition 10

(a) Prior to making an application for a development permit for material change of use for all or part of the development subject to the preliminary approval, the applicant/landowner must:

(i) submit a road impact assessment (RIA) to TMR which:

(A) identifies the cumulative impacts of all stages of development on the intersection of the Bruce Highway (Gin Gin—Benaraby)/Turkey Beach Road and other approved developments in the vicinity that also gain access from the state-controlled road via Turkey Beach Road

(B) is carried out in accordance with the TMR's *Guidelines for Assessment of Road Impacts of Development (GARID)* (2006 or as amended).

(ii) submit a road use management plan to TMR which details:

(A) traffic volumes

(B) proposed transport routes

(C) estimates of any required infrastructure maintenance contributions or conceptual or preliminary plans of necessary upgrades to mitigate road impacts with a design horizon of 10 years after opening of the final stage of development

(D) any requirements regarding access/connection to public roads, transport scheduling, dust control and road safety.

The Chief Executive of TMR is the entity with jurisdiction for this condition.

Condition 11

(a) The proponent must enter into a road infrastructure agreement with TMR for the upgrading of the Bruce Highway (Gin Gin—Benaraby)/Turkey Beach Road intersection and any necessary road maintenance and upgrades identified in the finalised RMP to ameliorate any adverse impacts of road use by the project on the assets of TMR. The infrastructure agreement must be submitted to GRC to inform GRC's decision on any MCU over the proposed development land. All works within the Bruce Highway road reserve require prior approval from TMR and must be designed and constructed by TMR pre-qualified consultants and contractors, and meet TMR standards and specifications.

(b) The Chief Executive of GRC must be consulted regarding any RMP which seeks to address intersections and road reserves involving a council-controlled road (e.g. Bruce Highway/Turkey Beach Road intersection).

(c) Upon approval by the TMR of the revised RIA and RMP and prior to the signing and dating of the Plan of Survey for each stage of the development or

before commencing use for MCU applications, the applicant/landowner must undertake the works or pay the contributions identified in the report.

(d) If an infrastructure agreement between the proponent and TMR is not concluded within six months of the submission of the RMP, either party may refer the matter to the Coordinator-General.

The Chief Executive of TMR is the entity with jurisdiction for this condition.

Condition 12

(a) Within 90 days of appointing a construction contractor for the project, and before commencing any major construction works on the project, the proponent must prepare a TMP for any construction or maintenance of road infrastructure.

(b) The proponent must provide the TMP for review by TMR, GRC and any other relevant stakeholders and take account of the reviews.

(c) The TMP must incorporate a provision that, before commencing any program of oversize transport movements that may be required for the construction of the project, the proponent will consult with TMR, GRC and any other relevant stakeholders.

(d) The proponent must implement the TMP during construction and commissioning of the project and construction or maintenance of road infrastructure.

The Chief Executive of TMR is the entity with jurisdiction for this condition.

Condition 13

Any works in the state-controlled road corridor must not be undertaken without a development permit in accordance with the *Transport Infrastructure Act 1994* (Qld) and associated regulations.

The Chief Executive of TMR is the entity with jurisdiction for this condition.

Condition 14

(a) The proponent must implement and manage a wildlife habitat management plan (WHMP) which incorporates beach and foreshore management. The WHMP must be provided to DERM for approval prior to commencing construction.

(b) The WHMP must:

(i) define the impact of the development on the species populations

(ii) provide for the survival of the species in the wild

(iii) achieve a net conservation benefit for the species

(iv) consider and address changes to species composition that may potentially occur as a result of the development.

(c) The WHMP must include:

(i) wildlife habitat and movement corridors in the design, construction and operation of the project. This must include:

(A) designing and managing the development to retain and enhance remaining vegetated areas and maximise fauna movement corridors (as discussed in this report)

(B) designing and constructing a major fauna crossing (e.g. underpass culvert) along the sections of road that pass through vegetated areas to prevent fauna entering the roadway

(C) implementing a roadside wildlife management plan to further protect wildlife in the vicinity of the access road

(D) installing traffic calming devices in strategic locations such as the connectivity corridors noted in Figure 4.1 of this report

(E) installing fauna exclusion fencing in appropriate locations, if necessary, as agreed with DERM

(F) considering the fauna sensitive design standards included in the *Fauna Sensitive Road Design Manual—Volume 2: Preferred Practices*[70]

(G) developing, implementing and funding activities to specifically eradicate fox, wild dog and feral cat numbers in the buffer zone between the HHID and the rest of the island and on land surrounding the bridge (e.g. trapping program)

(H) prohibiting domestic cats within the HHID area and dogs from environmentally sensitive parts of the island such as beaches and protected areas

(I) developing and implementing a beach and foreshore management plan (including a community education/awareness program) to manage the sensitive areas particularly for turtles and shorebirds

(J) establishing vegetated buffers of at least 100 metres in width around the entire perimeter of the HHID footprint (80 metres at the headland) to protect sensitive environments

(ii) a management plan for the black-breasted button quail *(Turnix melanogaster)* that are likely to exist in littoral vineforest RE on the island

(iii) a beach and foreshore management plan (including a community education/awareness program) in consultation with DERM to manage the sensitive areas particularly for turtles and shorebirds

---

[70] Department of Transport and Main Roads, *Fauna Sensitive Road Design Manual—Volume 2: Preferred Practices,* Department of Transport and Main Roads, 2010, viewed 2 February 2011, www.tmr.qld.gov.au/Business-and-industry/Technical-standards-and-publications/Fauna-Sensitive-Road-Design-Volume-2.aspx

(iv) an artificial lighting management plan that will include a range of methods to minimise impacts such as:

(A) turning off light sources

(B) wattage reduction

(C) repositioning lights behind structures

(D) shielding

(E) redirecting light sources

(F) lowering lights and recessing lights so the light does not reach the beach

(v) measures in a community management statement to regulate domestic animals in residential precincts to avoid disturbing native fauna in open space areas

(vi) measures to ensure all site rehabilitation work is undertaken and/or managed by appropriately qualified personnel.

The Chief Executive of DERM is the entity with jurisdiction for this condition.

Condition 15

(a) Before clearing any REs on the project site, the proponent must:

(i) complete and submit detailed mapping of REs on and around the project site in consultation with DERM

(ii) obtain a development permit for operational works for the clearing of native vegetation.

(b) An application for a development permit for operational works for the clearing of native vegetation must include an offset for endangered REs in accordance with DERM's *Policy for Vegetation Management Offsets*[71] and the *Regional Vegetation Management Code for Southeast Queensland Bioregion*[72]

(c) An offset must be provided for all areas of REs other than endangered RE that are cleared as part of the project to the satisfaction of the Coordinator-General.

(d) The offset(s) must meet criteria 4 and 5 of the *Policy for Vegetation Management Offsets*[71] and must be secured prior to any clearing of native vegetation.

(e) No clearing is to occur outside the areas designated for urban purposes by this preliminary approval.

---

[71] Department of Environment and Resource Management, *Policy for Vegetation Management Offsets*, version 2.4, Department of Environment and Resource Management, Brisbane, 2009, viewed 20 December 2010, http://www.derm.qld.gov.au/about/policy/documents/3450/veg_2006_2888.pdf

[72] Department of Natural Resources and Water, *Regional Vegetation Management Code for Southeast Queensland Bioregion*, Department of Environment and Resource Management, 2006, viewed 2 February 2011, www.derm.qld.gov.au/vegetation/pdf/codes/southeast_code_nov_06.pdf

(f) Clearing in areas A and B (Figure 4.1 of this report) must be less than 20 metres in width and separated from other remnant or regrowth clearing by at least 20 metres.

(g) Clearing in areas A and B is only permitted for the construction of an access road (including bike path) and reasonably associated service infrastructure such as power, water and telecommunications.

Note: For the purposes of this preliminary approval for material change of use, the chief executive administering the *Vegetation Management Act 1999* is not a concurrence agency under the *Sustainable Planning Act 2009*.

The Chief Executive of DERM is the entity with jurisdiction for this condition.

Condition 16

(a) Prior to an application for a reconfiguration of a lot within the lease area the proponent must complete plant surveys in consultation with the Wildlife Branch of DERM.

(b) Detailed information must be provided to DERM in relation to:

  (i) the extent of long-term loss of native plants

  (ii) rehabilitating disturbed areas

  (iii) the maintenance of threatened species' populations.

(c) The proponent must consider options for avoiding or minimising impacts to Schedule 6 plants (i.e. native plants) listed in the *Nature Conservation (Wildlife) Regulation 2006* and discuss specific requirements with DERM, before commencing clearing.

(d) The proponent must prepare a flora rehabilitation plan and provide it to DERM for consideration.

(e) The proponent must obtain a permit under the *Nature Conservation Act 1992* (Nature Conservation (Administration) Regulation 2006) if there is a need to remove/clear protected plants (i.e. native plants). The application for a clearing permit must list all plant species to be cleared in accordance with the relevant schedules under the Nature Conservation (Wildlife) Regulation 2006.

(f) The proponent must obtain a wildlife rehabilitation permit under the Nature Conservation (Wildlife Management) Regulation 2006 and Nature Conservation (Administration) Regulation 2006 if protected animals need to be rescued, particularly during the clearing and construction stages of development.

The Chief Executive of DERM is the entity with jurisdiction for this condition.

Condition 17

Where there will be unavoidable impact to near threatened, rare, vulnerable or endangered flora or fauna requiring a permit under the *Nature Conservation Act 1992,* specific management and mitigation measures, including offsets for the impact

to the species and/or its habitat consistent with the *Queensland Government Environmental Offsets Policy*, must be included in the WHMP mentioned in Condition 14.

The Chief Executive of DERM is the entity with jurisdiction for this condition.

Condition 18

(a) As part of the artificial lighting management plan mentioned in Condition 14, (c)(iv) the applicant must provide details of how nesting turtles on HHI will be protected from the impacts of lighting through practical design, location and management commitments, including a detailed analysis of the potential visibility of all artificial lighting, including reflected light, at turtle-sensitive locations.

(b) The artificial lighting management plan must specify the design, location and management of all lighting used in the development to ensure that no direct or reflected artificial lighting would be visible at turtle sensitive areas after 7.30 pm during the nesting and hatching season, which extends from 1 October to 31 March, except as required for emergencies or marine safety.

(c) Where, for legal or safety reasons, lighting can not be excluded or shielded completely from turtle-sensitive areas during the nesting and hatching period, the proponent must make practical design and management commitments to ensure that the lighting will have no significant effect on turtle nesting and hatchlings.

(d) Commitments to the design, location, and management of all lighting must be made legally binding on all future owners and/or lessees.

The Chief Executive of DERM is the entity with jurisdiction for this condition.

Condition 19

Any beach access and other infrastructure required to be placed within the wetland and foreshore dunal systems (excluding the bridge and public boat ramps) must avoid disturbance to marine plants and fish habitats. Where avoidance is not possible, the path and area of least disturbance is to be taken.

The Chief Executive of DEEDI is the entity with jurisdiction for this condition.

Condition 20

(a) The proponent must develop and implement a marine ecological monitoring program (MEMP) to map and monitor key marine communities in the area including coral communities, seagrass beds and mangrove communities.

(b) The proponent must consult with DEEDI and DERM to develop the monitoring methodology including sites, frequencies, specific techniques, trigger points and subsequent actions.

(c) The MEMP must include baseline monitoring including at least two monitoring events (winter and summer) over at least 12 months and an ongoing monitoring campaign every five years.

(d) All marine ecological monitoring results must be provided to DEEDI and DERM.

The Chief Executive of DEEDI is the entity with jurisdiction for this condition.

Condition 21

(a) Prior to commencement of construction, the applicant must provide to DERM a site-specific acid sulfate soil management plan developed and to be implemented in accordance with:

(i) *State Planning Policy 2/02: Planning and Managing Development Involving Acid Sulfate Soil*[73]

(ii) the *State Planning Policy 2/02 Guideline: Acid Sulfate Soils*,[74] and with reference to the *Guidelines for Sampling and Analysis of Lowland Acid Sulfate Soils in Queensland*[75]

(iii) the *Queensland Acid Sulfate Soil Technical Manual: Soil Management Guidelines*[76]

(iv) *Instructions for the Treatment and Management of Acid Sulfate Soils*[77] or any updates of them as they become available.

(b) The acid sulfate soil management plan must be developed by consultants experienced in large scale development projects containing acid sulfate soils, in consultation with DERM, and include a commitment to be on site during excavation and treatment activities.

The Chief Executive of DERM is the entity with jurisdiction for this condition.

---

[73] Department of Natural Resources and Mines and Department of Local Government and Planning, *State Planning Policy 2/02: Planning and Managing Development Involving Acid Sulfate Soils*, 2002, viewed 27 January 2011, www.dip.qld.gov.au/docs/ipa/ass_spp_oct_02.pdf

[74] Department of Natural Resources and Mines and Department of Local Government and Planning, *State Planning Policy 2/02 Guideline: Acid Sulfate Soils*, Department of Natural Resources and Mines and Department of Local Government and Planning, Brisbane, 2002.

[75] Ahern et al., *Guidelines for Sampling and Analysis of Lowland Acid Sulfate Soils in Queensland*, Queensland Acid Sulfate Soils Investigation Team, Department of Natural Resources, Indooroopilly, 1998.

[76] SE Dear, NG Moore, SK Dobos, KM Watling and CR Ahern, *Queensland Acid Sulfate Soil Technical Manual: Soil Management Guidelines*, Department of Natural Resources and Mines, 2002, viewed 2 February 2011, www.derm.qld.gov.au/land/ass/pdfs/soil_mgmt_guidelines_v3_8.pdf

[77] Environmental Protection Agency, *Instructions for the Treatment and Management of Acid Sulfate Soils*, 2001, viewed 2 February 2011, www.derm.qld.gov.au/register/p01203aa.pdf

Schedule 2 CONDITIONS FOR WHICH THE CHIEF EXECUTIVE OF THE GRC IS THE RESPONSIBLE ENTITY

Conditions stated by the Coordinator-General to be attached to a preliminary approval for material change of use.

Condition 1

(a) The development is to be generally in accordance with:

(i) the master plan described in the EIS, revised in the SEIS and further amended by any requirements of these conditions of development

(ii) the precinct plan dated 20 August 2010 (Refer Figure 2.3)

(b) For all stages of development, the number of dwellings for permanent residential use (i.e. other than short term accommodation) must not exceed 30 per cent of the total number of constructed dwelling units within the HHID and must not exceed 790 dwellings.

(c) For all stages of development, at least 15 per cent of dwellings for permanent residential use must be low cost housing, i.e. intended as accommodation for people who wish to work and live on HHI in support of the tourist industry.

(d) The total area used for urban purposes must not exceed 518 hectares.

(e) Development must be excluded from the littoral vineforest communities to the west of the headland and beachfront habitat to the east of the headland (as represented by RE 12.2.2 determined by detailed mapping specified in Schedule 1, Condition 15, (a) of this report, to protect the environmental value of these areas.

(f) Unless otherwise stated in these conditions, the development is to be in accordance with the Miriam Vale planning scheme codes and policies applicable to the GRC.

Note: ‘short-term accommodation’ is defined as:

- premises used to provide short term accommodation for the general public which may be self contained. The use may include a manager’s residence and office and the provision of recreation facilities for the exclusive use of residents; and/or
- premises used, or intended to be used principally, for accommodating persons away from their normal place of residence.

Note: ‘low cost housing’ is defined as a multiple dwelling unit with one or two bedrooms.

Note: ‘urban purposes’ are defined by the Sustainable Planning Regulation 2009.

Condition 2

(a) The HHID must include design elements that will avoid where possible or mitigate impacts upon fauna communities by the incorporating the following:

(i) vegetated corridors which permit flora and fauna dispersal across HHI particularly the maintenance of riparian corridors adjacent to ephemeral creeks. Wildlife corridor types that are to be considered for the development, to be agreed with GRC and DERM, include:

(A) major linkage—several hundred metres in width and containing no buildings or major structures

(B) inter-urban linkage—corridors of 100–200 metres in width through a predominantly urban matrix, but containing large areas of green space such as the golf course

(C) local linkage—corridors of less than 100 metres in width through urban and non-urban matrices

(ii) roads designed to include the preferred fauna sensitive design standards included in the *Fauna Sensitive Road Design Manual—Volume 2: Preferred Practices* (TMR June 2010)

(iii) formal fauna crossing points at potential road-strike points, particularly within the proposed corridors described above

(iv) fauna crossings at ephemeral watercourse crossings

(v) tree retention across the development area to increase landscape permeability for flora and fauna particularly in and around the proposed golf course

(vi) a 500-metre section of road connecting the northern and southern parts of the development to include an east-west fauna movement corridor incorporating:

(A) retention of a 50 to 60-metre (width) naturally vegetated area between the single lane carriage ways

(B) traffic calming devices at agreed points along the road

(C) wildlife signage to warn drivers

(D) culverts under the roadway to accommodate movement of small fauna.

(vii) 30-metre buffers to waterways

(viii) construction and maintenance of fire breaks within the special lease area.

(b) DERM must be consulted in relation to all aspects of this condition.

Condition 3

No development, other than construction of the bridge, public boat ramps, service infrastructure, pedestrian access to the beaches and life saving structures, is to occur within the erosion prone area indicated in DERM's *Erosion Prone Area Plan SC 3378* (or updated version) or within the storm tide hazard area defined by the planning scheme and the State Coastal Management Plan Guideline *Mitigating the Adverse Impacts of Storm Tide Inundation*[78] or subsequent amendments to the State Coastal Management Plan.

Condition 4

Sequencing of the development must:

(a) provide for community facilities to be made available in conjunction with the first residential (tourism/permanent) stages

(b) limit the number of permanent residential dwellings constructed in stage 2 to not exceed the numbers set out in Table 1.1 of the draft Hummock Hill Island Plan of Development (dated November 2010)

(c) ensure the recreational camping ground is constructed in stage 2.

Condition 5

The proponent must develop and fund the tourist and leisure facilities according to the EIS/SEIS documentation and any requirements of these conditions of development including the following:

(a) 240-room resort hotel—4 star

(b) 150-room beachfront tourist hotel—3 star

(c) 70-room motel

(d) tourist park

(e) a range of self-catered holiday properties

(f) tourist retail shopping

(g) restaurants and cafes

(h) golf course

(i) sports centre

(j) tourist information centre

(k) traditional owners cultural heritage interpretive centre

(l) recreational camping ground.

[78] Environmental Protection Agency, *State Coastal Management Plan Guideline: Mitigating the Adverse Impacts of Storm Tide Inundation*, 2006, viewed 2 February 2011, www.derm.qld.gov.au/register/p01698aa.pdf

Condition 6

(a) The proponent must enter into a community facilities agreement with GRC to ensure the delivery of the community facilities for the HHID including:

(i) community centre

(ii) medical centre

(iii) education and research centre

(iv) boat ramps

(v) kindergarten

(vi) public bus service

(vii) cycle paths

(viii) post office

(ix) surf life saving club

(x) recreational facilities

(xi) SES facilities and activities.

(b) The community facilities agreement must address all aspects, timing and funding of the development of the community facilities and must be submitted to GRC for approval prior to an application for a development permit for material change of use within the HHID.

Condition 7

The program for developing community facilities is to be based on the rate of developing the residential units within the development, as measured by the approval by GRC of reconfiguring of the land into development lots. An application to reconfigure a lot must not be lodged with GRC for their approval until the proponent has completed the community facilities in accordance with the approved development program.

Condition 8

(a) All infrastructure must be provided at the cost of the proponent. Details and timing are to be agreed through an infrastructure agreement with GRC. The agreement must state that the proponent will develop the following physical infrastructure required for providing essential services to the HHID including:

(i) water supply system (including pipeline)

(ii) sewerage

(iii) power

(iv) telecommunications

(v) stormwater drainage systems

(vi) recycled water treatment and supply

(vii) wastewater collection, treatment and disposal

(viii) solid waste collection and disposal

(ix) access road from Foreshores Road to HHI

(x) bridge over Boyne Creek

(xi) boat ramps

(xii) internal roads, cycle ways and pedestrian paths

(xiii) public parks and open space (including environmental buffers).

(b) The proponent must submit to GRC the infrastructure agreement for approval prior to making an application for a development permit for material change of use within the HHID .

Condition 9

(a) The proponent must enter into an operation and maintenance agreement with GRC to either maintain and operate the infrastructure or subsidise the costs of operating and maintaining infrastructure for a period of 17 years or otherwise agreed with GRC .

(b) The proponent must submit to GRC the operation and maintenance agreement for approval prior to making an application for a development permit for material change of use within the HHID .

Condition 10

The HHID is to be connected to electricity and telecommunications to the requirements of the relevant authorities. The proponent is to fund all works including any alterations, relocations, or upgrade work necessary to electricity and telephone installations resulting from or in connection with HHID.

Condition 11

Should any aspect of the development trigger appraisal under existing GRC infrastructure policies, the proponent must contribute towards GRC infrastructure prior to commencement of the use on site. The contributions are to be paid in accordance with the rates applicable at the date of payment.

Condition 12

(a) The proponent must consult with DEEDI, DERM, TMR and GRC prior to finalising the Boyne Creek bridge design.

(b) Bridge works or any associated works must be restricted to within the exclusion area of the declared Fish Habitat Area Management A as shown at Figure 4 on plan number FHA-037 Colosseum Inlet.

(c) The bridge must be constructed to allow clearance of at least 5.5 metres above HAT to enable navigational access during all tides for small vessels.

(d) As part of the bridge construction works, the existing causeway within Boyne Creek between HHI and the mainland must be removed to the level of the

existing depth adjacent to the causeway. All existing causeway material, outside of the permanent footprint of the Boyne Creek bridge and boat ramp, is to be removed and all fish habitats restored. The footprint of the causeway must be restored and rehabilitated within two years of commencing works associated with the HHID, or within six months of completing the Boyne Creek bridge, whichever is sooner.

Condition 13

The proponent must undertake construction of the Boyne Creek bridge as part of Stage 1 construction works for the HHID. The Boyne Creek bridge is to be completed within two years of the commencing the works associated with the HHID.

Condition 14

(a) The proponent must consult with DEEDI, DERM and GRC prior to submitting the Clarks Road causeway upgrade design plans to GRC.

(b) The proponent must submit relevant causeway upgrade design plans to GRC for operational works approval prior to any construction works.

(c) Causeway design plans must include the following:

  (i) causeway upgrade works must be restricted to the current causeway alignment

  (ii) vehicle access must be controlled by use of temporary fencing delineating the works zone

  (iii) guard rails must be installed along the causeway and on approaches to the salt flat area.

Condition 15

(a) The Boyne Creek and Colosseum Inlet boat ramps must be designed and built in accordance with current TMR standards.

(b) Boat ramps or other public fishing infrastructure must be constructed to minimise impacts on tidal fish habitats and marine plants.

(c) The proponent must seek input from DEEDI (Fisheries Queensland), DERM and TMR on final boat ramp designs prior to submitting an application to GRC.

(d) The proponent must obtain operational works (tidal works) approval from GRC prior to any construction.

Condition 16

(a) The proponent must ensure that the Boyne Creek boat ramp:

  (i) is appropriately managed to avoid any potential future dredging requirement

  (ii) is restricted to within the exclusion area of the declared FHA Management A as shown on plan number FHS-037 Colosseum Inlet.

(b) The Boyne Creek boat ramp must be designed to:

(i) ensure car parking, rigging facilities and other associated facilities are located in a suitable location above HAT

(ii) include access management features for the ramp, parking area and associated facilities to prevent vehicular access and minimise pedestrian access to tidal lands (except through proper use of the ramp to launch and retrieve vessels).

Condition 17

All water supply reticulation must be designed, constructed and maintained in accordance with GRC codes, policies, standards and specifications, applicable at the time and where relevant to GRC requirements.

Condition 18

(a) The permanent potable water supply for the HHID must be sourced from the current Gladstone Area Water Board/GRC system and piped to the site to an appropriate storage for reticulation.

(b) The water supply infrastructure provided must be capable of servicing the HHID at full occupancy and use, without the need for future augmentation by the GRC.

(c) The proponent is responsible for the full cost of all necessary water supply infrastructure on the island. The proponent must enter into an agreement with GRC to determine an appropriate contribution to council costs for providing a water pipeline to the island.

Condition 19

(a) If a temporary desalination plant is required as part of the construction phase of the development, the proponent must consult with GRC before commencing construction. The desalination plant and associated infrastructure and any subsequent decommissioning activities must be funded by the proponent.

(b) If a temporary desalination plant is required as part of the construction phase of the development, the proponent must ensure:

(i) monitoring of salinity levels in the evaporation ponds is undertaken during the wet season and extreme weather conditions

(ii) discharge of potential overflow from the evaporation ponds is appropriately managed to ensure salinity levels are comparable to that of the receiving environment and that discharge occurs on an outgoing tide

(iii) evaporation ponds are lined with either clay or a geotextile (with permeability less than 0.01 mm/day) to prevent leaching of saline concentrate to groundwater or leakage to surface waters.

Condition 20

(a) The proponent must specify the proposed recycled/wastewater treatment technologies in the infrastructure agreement with GRC mentioned in Appendix 1, Schedule 2, Condition 8.

(b) The proponent must prepare a recycled water management plan in accordance with the *Water Supply (Safety and Reliability) Act 2008* and submit to DERM and GRC for approval prior to making an application for a development permit for material change of use within the HHID.

(c) All permanent water storages must be constructed in accordance with the *Queensland Water Recycling Guidelines* (EPA 2005) and the *Australian Mosquito Control Manual* (Mosquito Control Association of Australia 2002). Temporary water storages must be constructed in accordance with the *WSUD Technical Design Guidelines* (Healthy Waterways 2006).

Condition 21

(a) All sewerage reticulation for the HHID must be designed, constructed and maintained in accordance with GRC codes, policies, standards and specifications, applicable at the time and where relevant to GRC requirements.

(b) All sewage generated by the HHID must be directed to and treated at a central sewage treatment plant within the development area.

(c) No septic tanks are to be installed within the HHID.

Condition 22

(a) An erosion and sediment control plan (ESCP) must be prepared by the proponent prior to commencing construction. The plan must be developed by a suitably qualified engineer in accordance with the *Queensland Urban Drainage Manual* (EPA 2007), *WSUD Technical Design Guidelines* (Healthy Waterways 2006) and the *Soil Erosion and Sediment Control Engineering Guidelines for Queensland Construction Sites*[79] or subsequent revisions. The ESCP must be designed around the following objectives:

(i) minimising vegetation and soil disturbance within ephemeral watercourses during construction

(ii) drainage control from cleared areas

(iii) erosion control of exposed surfaces

(iv) sediment control

(v) re-vegetation of cleared areas to re-establish ground cover.

[79] Institution of Engineers Australia, *Soil Erosion and Sediment Control – Engineering Guidelines for Queensland Construction Sites*, Institution of Engineers Australia Queensland Division, Brisbane, 1996.

Condition 23

(a) The proponent must develop and implement a water quality monitoring program (WQMP) which is to be designed in accordance with relevant guidelines including the *Queensland Water Quality Guidelines* (DERM 2009), the draft *Urban Stormwater Queensland Best Practice Environmental Management Guidelines 2009* (DERM), the draft *State Planning Policy for Healthy Waters 2009* (DERM), the *ANZECC/ARMCANZ (2000) Guidelines* and the *Water Quality Guidelines for the Great Barrier Reef Marine Par*k (GBRMPA 2009).

(b) The WQMP must be submitted to DERM and GRC for review prior to an application for a development permit for material change of use within the HHID.

(c) As part of the WQMP, the proponent must undertake water quality baseline monitoring of turbidity, sediment pollutant concentrations and other parameters, within Colosseum Inlet, Boyne Creek and Rodd's Bay adjacent to HHI before commencing construction.

(d) The findings of the WQMP must be used to determine water quality parameters for discharges from the development into the surrounding receiving water bodies.

Condition 24

(a) The proponent must prepare a detailed design of stormwater systems including an assessment of the stormwater runoff volume and any changes in quantity or quality of this runoff as a result of the development. The design is to be in accordance with the draft *Urban Stormwater Queensland Best Practice Environmental Management Guidelines 2009* (DERM) and the draft *State Planning Policy for Healthy Waters 2009* (DERM). Storm water controls must be designed to:

(i) protect water environmental values specified in the *Environmental Protection (Water) Policy 2009*

(ii) minimise ecological impacts on waters in the locality (complying with water quality guidelines)

(iii) make use of stormwater for recycling and water conservation

(iv) make use of drainage corridors for improved recreational values and open space or landscape area

(v) maintain acceptable health risks, aesthetics, protection from flooding, public safety and other social issues

(vi) maintain existing runoff conditions

(vii) maintain existing peak flow rates

(viii) preserve existing drainage paths.

(b) The stormwater designs and runoff assessment are to be submitted to DERM and GRC for review prior to an application for a development permit for material change of use within the HHID.

Condition 25

(a) Prior to an application for a development permit for material change of use within the HHID, a TMP for council-controlled roads for the proposed development must be agreed with and submitted to GRC. The final TMP must consider impacts 10 years beyond the last development stage.

(b) The TMP must address matters which include:

(i) traffic to be generated by the proposed development and the development's impact on the external road network

(ii) traffic to be generated by the proposed development on the major roads within the proposed development

(iii) requirements and timing of upgrades to Turkey Beach Road and Foreshores Road due to development traffic

(iv) the standard of the access road (Clarks Road) to the island from Foreshores Road

(v) intersection treatments required due to development traffic at the following intersections:

(A) Bruce Highway/Turkey Beach Road

(B) Turkey Beach Road/Foreshores Road

(C) Foreshores Road/Clarks Road

(vi) the minimum required standards for roads within the development.

(c) The Manager of TMR (Assets and Operations) Fitzroy region must be consulted regarding any TMP which seeks to address intersections and road reserves involving a state-controlled road (e.g. Bruce Highway/Turkey Beach Road intersection).

(d) If the TMP identifies a requirement for access and intersection treatment due to development traffic, the work must be carried out by the proponent at their cost.

Condition 26

GRC requirements for upgrading of council-controlled roads and intersections must be included in the GRC Infrastructure Agreement mentioned in Appendix 1, Schedule 2, Condition 8.

Condition 27

(a) All roads, to be designated as public roads must be designed and constructed in accordance with GRC's codes, policies, standards and specifications applicable at the time of development.

(b) All internal accesses, internal driveways, circulation roads, commercial vehicle provisions, car parking and manoeuvring areas must be designed in accordance with AS 2890 and comprise a sealed pavement to GRC requirements. Turnarounds and intersections must be provided to cater for garbage collection trucks to the requirements of GRC.

(c) The maximum speed limit allowed within the HHID is 50 kilometres per hour, except the 500-metre section of road linking the northern and southern components of the development which must be speed limited to 40 kilometres per hour.

Condition 28

(a) The proponent must consult with the Civil Aviation Safety Authority (CASA) and GRC in finalising the location and design of the proposed airstrip, before commencing construction.

(b) The airstrip must be constructed and operated in accordance with relevant CASA requirements, such as CASA's *Manual of Standards Part 139—Aerodromes.*

(c) The height and location of buildings and other infrastructure must be considered in accordance with relevant CASA requirements.

Condition 29

(a) Landscaping shall be undertaken in accordance with GRC's codes and policies applicable at the time of development and shall be maintained to the satisfaction of GRC.

(b) The proponent will prepare a detailed landscape master plan (LMP) for the island to be approved by GRC. The LMP must address the management of existing vegetation and the design and management of the public areas such as urban or tourist areas as well as infrastructure such as roads. Particular attention must be given to the early establishment of suitable vegetation and the creation of special areas suitable for water based recreation and enjoyment. The LMP must detail plant densities and species. Details on fertilizer and chemical usage will be provided in specifications attached to the approved landscaping plan

Condition 30

The proponent must enter into an infrastructure agreement with GRC for the rehabilitation, ongoing management and conservation of all parts of HHI not allocated for urban purposes for not less than 17 years or until such time as the income from GRC's rates and services charges applied to the developed land allows GRC to take over responsibility of management and funding of these areas. The agreement must be submitted to GRC for approval prior to making an application for a development permit for material change of use within the HHID.

Condition 31

Prior to making an application for a development permit for material change of use for all or part of the development subject to the preliminary approval, the proponent must:

(a) provide a plan showing the exact boundary of the areas allocated for urban purposes within the lease, the esplanade, and the unallocated state land

(b) provide to the assessment manager, a proposal for an agreement or arrangement whereby the part of the leasehold land not allocated for urban purposes will be transferred to protected area under the *Nature Conservation Act 1992* to be managed by an appropriate trusteeship arrangement prior to commencement of the development.

Condition 32

A weed management plan must be developed for the site and surrounds to meet standards acceptable to DEEDI (Biosecurity Queensland) and the GRC prior to any disturbance occurring onsite.

Condition 33

The proponent must develop a pest species management plan for the site and surrounds to meet standards acceptable to the QH and GRC prior to any disturbance occurring on site.

Condition 34

(a) The proponent must implement the following measures to avoid where possible or mitigate visual amenity impacts of the HHID:

  (i) design the Boyne Creek bridge to maintain some view of the landscape beyond the bridge

  (ii) locate all buildings and infrastructure including road cuttings below any prominent ridge line or hilltop so that there are no visible changes in the skyline

  (iii) conform location and design of access roads and driveways to the landform and cause minimum visual impact or erosion hazard

  (iv) restrict roof tops of buildings to below the canopy height of the surrounding vegetation

  (v) where the cladding of any part of a house (including the roof and rain water tanks) is proposed to be in metal sheet, ensure cladding is Colorbond or painted in muted tones to reduce reflection

  (vi) where the wall cladding of a house is proposed to be in excess of 25 per cent timber siding or fibre cement siding or metal sheet, ensure cladding is painted or stained in muted tones prior to occupation of the house or within a specified time thereafter

(vii) to not use reflective factory finished metal sheets i.e. untreated galvanised sheet, aluminium, zincalume, or white, off white or silver paint finishes for roofs unless the slope of the roof is 10 per cent or less

(viii) retain existing vegetation on site, where practicable, and undertake only selected clearing for building envelopes and public spaces

(ix) plant landscaped areas in public and private spaces with species that are native and occur locally on HHI

(x) undertake additional plantings using seedlings of mature trees that will achieve a height above 10 metres with a dense understorey to increase density and screening qualities of vegetation

(xi) limit development on the elevated sections of HHI and conform to GRC requirements

(xii) limit development on the ridgelines to single storey residences

(xiii) limit development to two-storey dwellings or 8.5 metres above natural ground level (except at ridgelines note above)

(xiv) focus all lights in buildings and in public spaces on the areas required and where possible lights to be equipped with motion sensor switches to minimise light duration

(xv) shield external lighting in environmentally sensitive areas within the development, including the headland, to limit extraneous light where necessary or face away from coastal and habitat areas.

Condition 35

The proponent must incorporate sustainability measures as outlined in the EIS, SEIS and list of commitments, in buildings and structures proposed to be erected in the HHID site. Such measures are to be included in the design guidelines for the development.

Condition 36

(a) The proponent and/or its contractor(s) must finalise the HHID environmental management plans for construction and operational management to the satisfaction of DERM and GRC at least one month prior to commencing construction.

(b) The proponent must prepare a desalination plant and related activities (including the salt storage areas) decommissioning plan to form part of the EMP for the development.

(c) The proponent and/or its contractor(s) must comply with all requirements of approved environmental management plans.

Schedule 3 Coordinator-General's recommendations

Summary of recommendations made by the Coordinator-General throughout this report.

Recommendation 1

The Chief Executive of DERM amend the state's lease for the HHID to include a condition which restricts the number of dwellings on the island to 2715 and specifies a 70/30 percentage split for short-term tourism (1925) and permanent residential dwellings (790) within the development footprint, generally in accordance with the draft plan of development (dated November 2010) provided to the Coordinator-General and GRC.

Responsible entity: Chief Executive of DERM

Recommendation 2

The proponent consult with Emergency Management Queensland (EMQ), GRC to establish the responsible entity for ongoing maintenance of premises and maintenance and supply of vehicles and equipment.

Responsible entity: Proponent

Recommendation 3

The proponent subsidise this service by providing training to staff to fulfil the State Emergency Service (SES) response role, if the development does not have the requisite permanent residence base to support a volunteer SES group.

Responsible entity: Proponent

Recommendation 4

The Chief Executive of DERM amend the state's lease for the HHID to include a condition which states the following:

(a) Prior to the commencement of use of stage 1 of the development, the developer must enter into a social infrastructure agreement with the state to:

  (i) provide land within the HHID for fire and rescue and ambulance infrastructure

  (ii) provide land within the HHID for police infrastructure (including station, holding cells/watchhouse, residential accommodation and other necessary facilities (e.g. storage)

  (iii) construct fire and rescue and ambulance infrastructure

  (iv) construct police infrastructure

  (v) undertake a combination of land dedication and construction works pursuant to points (i)–(iv) above, or

(vi) provide assistance, either financially or by other agreed means, to improve the current facilities responsible for ambulance and fire brigade servicing the proposed development area, or

(vii) be in accordance with any other agreement reached between the developer and the relevant state authority on behalf of the state to discharge this condition, prior to the commencement of the use.

(b) Any construction of fire and rescue and ambulance infrastructure, or agreement to allow the construction of fire and rescue, ambulance and police infrastructure must be by agreement with the relevant state authority to ensure compliance with contemporary operational standards for the construction of such facilities.

(c) The proponent/developer must not market or advertise any agreement with the state about potential new, or upgrading of, ambulance, fire brigade or police services as part of the HHID.

Responsible entity: Chief Executive of DERM

Recommendation 5

The proponent liaise with DERM to ensure all native title requirements are met prior to commencing development.

Responsible entity: Proponent

Recommendation 6

The Chief Executive of DERM amend the draft lease to include a requirement that the following components of the project are completed prior to releasing the bond:

(a) emergency services building, including fire and rescue, ambulance and police (if required by these agencies)

(b) medical centre

(c) community centre

(d) picnic and barbecue areas

(e) surf life saving club

(f) boat ramps.

Responsible entity: Chief Executive of DERM

Recommendation 7

The Regional Harbour Master (Gladstone) consider imposing a general six knots speed limit in the vicinity of the Colosseum Inlet boat ramp and the Boyne Creek bridge and boat ramp.

Responsible entity: Regional Harbour Master (Gladstone)

Recommendation 8

GRC consider any application it receives from the proponent for a temporary desalination plant (to be fully funded and managed by the proponent) on the site to service the development until such time as mains supply is connected.

Responsible entity: Chief Executive of GRC

Recommendation 9

(a) The Minister responsible for the *Nature Conservation Act 1992* should, for the portion of HHI outside the HHID development area:

(i) consider the declaration of a conservation park (with GRC as trustee) over the portion of HHI not subject to the current exploration permit

(ii) once the exploration permit covering HHI is lapsed and the Minister responsible for the *Mineral Resources Act 1989* is satisfied that the HHI mineral resource is unlikely to be developed, consider extending the conservation park to the remaining areas of HHI (outside the HHID development area)

(iii) as an interim measure and subject to the timing of the above, consider the declaration of a resource reserve over the portion of HHI subject to the current exploration permit.

Recommendation 10

The Chief Executive of DERM incorporate specific management measures to prevent further incursion of 'edge effects' of the remaining area of *Eucalyptus melanophloia* on HHI (approximately 5 hectares) into the overall management of the proposed protected area on HHI.

Responsible entity: Chief Executive of DERM

Appendix 2 Proponent's commitments

Section 18 of the SEIS provides a full listing of proponent commitments.

Those key commitments for implementation during the design, construction and operational phases of the Hummock Hill Island (HHI) project that are not included as conditions throughout this report or require expansion are listed below. Some of the commitments may be general requirements of GRC and other state policies, etc.

Land

The proponent will:

- ensure that any fill material brought on to the site meets the requirements of:
  - *National Environmental Protection (Assessment Contamination) Measure;*
  - *Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland* (1998)
  - all fill material imported to the island will be sourced from a registered quarry or borrow pit
- ensure that the site source of the imported fill is not listed on the Environmental Management Register (EMR)/Contaminated Land Register (CLR)
- conduct visual inspections of the imported fill material to ensure that it contains no waste material
- obtain documentation from the fill provider, which must contain the following:
  - date of arrival on site
  - volume/ quantity of fill material
  - provider
  - source of fill material
  - documentation that the site of the fill material is not listed on the EMR/CLR.

The proponent will be responsible for ongoing land management within the HHI development boundary. The proponent proposed a 'special area levy' be introduced to fund a maintenance team. The maintenance team will have the following responsibilities:

- fire management
- weed management
- pest management
- fence management
- incidental rubbish removal
- track maintenance
- enforcement of access restriction.

Transport infrastructure

The proponent will provide a significant level of connectivity through the street network by implementing:

- extensive pedestrian and cycling networks including access between major activity centres
- minimal use of cul-de-sacs
- a public transport system.

The proponent will provide a public bus service within the HHI development and to the mainland.

Climate

Develop and implement a bushfire management plan prior to construction. The plan will be developed by a suitably qualified person in accordance with State Planning Policy 1/03.

Building pad levels and public infrastructure will be located above the levels required in both the State Coastal Management Plan and GRC Planning Scheme reducing potential risks associated with climate change.

Water resources

Culverts and crossings will be designed in accordance with *Queensland Urban Drainage Manual* (1993).

Develop and implement a golf course/turf management plan in line with recommendations in the *Improving the Eco-efficiency of Golf Courses in Queensland (AGCSA & Qld EPA 2001)* by:

- including bioretention basins to "process" stormwater nutrient loads prior to release to existing drainage lines and ephemeral watercourses

- using in-ground sensors to assess soil moisture and nutrients to manage recycled water application rates
- developing an Integrated pest management plan for pesticide management
- managing fertiliser to limiting fertiliser applications, use of slow release natural organic fertilisers, and applying fertiliser during forecast dry weather only
- retaining and utilising native vegetation to the maximum extent, limiting recycled water application to that available.

Groundwater monitoring will be undertaken:

- during any dewatering activities during the lagoon construction to monitor recharge performance and potential changes in groundwater quality
- in the vicinity of proposed effluent disposal areas to ensure land irrigation of treated effluent does not result in mounding, salination or contamination
- to investigate potential groundwater contamination in the vicinity of the cattle dip site
- adjacent to any proposed bulk chemical storages.

Air quality

Air quality will be managed as set in the EMP.

Renewable energy and energy efficiency measures will be incorporated into the design to reduce energy demands and greenhouse gas emissions. These measures will include:

- designing buildings to five star standards for energy conservation
- including solar hot water heating
- incorporates energy efficient appliances.

The construction contractor will develop and implement a dust management plan.

The plan will include the following measures to minimise dust emissions:

- construction of a sealed site access road will be undertaken during the initial stage of construction works and works will be staged to minimise the extent of disturbed land at any one time
- use on-site watering sprays to control visible dust emissions from disturbed and unsealed trafficked areas as required
- use dedicated site entry and exit points, and defined roadways only and install truck wheel shaker pads or washer sprays at the access/egress points to unsealed trafficked areas in order to minimise tracking dirt onto the adjacent paved road network
- progressive rehabilitation of disturbed areas will be undertaken to minimise the potential for windblown dust

- investigate any valid complaint in relation to construction dust, including dust monitoring.

Waste

Development and implementation of a construction WMP in accordance with the Environmental Protection (Waste Management) Regulation 2000.

Implement community education program as part of the waste management service.

Noise and vibration

Noise and vibration will be managed as set out in the EMPs.

The construction contractor will develop and implement a construction noise management plan (CNMP). The plan will incorporate the following mitigation measures:

- all practical steps be taken to silence construction equipment
- works be restricted to the hours of 6:30 am to 6:30 pm, Monday to Saturday, and no work outside these hours if audible at the nearest sensitive place
- tailgates of all vehicles transporting materials to and from the site would be securely fixed prior to loading and immediately after unloading
- all mobile plant equipment used on site shall be maintained in an efficient condition and operated in a proper manner
- all equipment used on site would have evidence of compliance with recommended noise levels outlined in AS2436-1981 *Guide to Noise Control on Construction, Maintenance and Demolition Sites*
- maintain a complaints register and investigate if a community complaint regarding excessive noise or vibration levels is received
- review the CNMP periodically to ensure it remains appropriate to the current stage of construction activities
- implement a community consultation program, informing residents of the construction schedule, progress and alerting them to times of unusually noisy activities or out of hours work.

During later stages of construction the following additional mitigation measures will also be incorporated into the plan:

- no ‘warming up’ of plant and machinery would occur near residential dwellings before specified working hours
- ensure all noise suppression devices are maintained to manufacturers specifications
- fit all exhausts of mobile plant operating within close proximity to sensitive receivers, with suitable mufflers
- consider further limiting the allowable hours of operation

- consideration to fitting adjustable reversing alarms (which are set at a margin above background level).

Noise from the use of boats and watercraft will be minimised by:

- recommending speed limits be established by QTMR for Colosseum Inlet and Boyne Creek placing restrictions on the allowable times of use for boat ramps and associated facilities
- installing appropriate signage at locations around boat ramps and near sensitive areas, which request patrons to minimise undue noise between the specified night-time hours (10 pm to 6 am)
- observation of the Queensland nuisance laws, which restrict times of use for powerboat engines at residential premises.

Noise impacts from boat maintenance and repair activities will be minimised through:

- performing high noise or tonal activities (tools using constant speed motors such as angle grinders) inside acoustic enclosures or appropriately designed buildings (to minimise breakout noise to nearest receivers)
- maximising shielding and buffer distances to nearest receivers, as part of the facility layout and design.

Transport noise from vehicles travelling within HHI, and aircraft using the airfield, will be controlled through:

- limiting road traffic speeds to 50 kilometres per hour
- no residences will accessed from the main road across HHI
- restricting aircraft maintenance activities and flights to and from HHI to daytime hours.

Cultural heritage

Comply with the requirements of the approved CHMP.

Flora and fauna

Potential impacts from increased population pressures on estuarine and marine EVs, fauna and flora will be controlled by:

- no access for vehicles to salt flats
- community education programs and interpretative signs to raise public awareness of salt flats role in the estuarine system
- clear interpretative signage will be placed on all boat ramps providing maps of seagrass meadow locations within the estuarine system and explaining the risks of dugong and turtle collisions within these areas to increase public knowledge of potential harm that may occur from boat propeller damage and that reduced speeds and increased awareness will reduce the risk of boat strikes

- recommending speed limits be established by QTMR for Colosseum Inlet and Boyne Creek to reduce the occurrence of boat strike with marine mammals and turtles in areas of seagrass meadows
- consultation with DERM will be conducted with the view to designating special dugong and turtle areas within Colosseum Inlet and Seven Mile Creek where vessel operation restrictions will exist.

Vehicles (excluding emergency vehicles) will be excluded from accessing beaches on HHI.

A rehabilitation plan will be implemented to control revegetation of disturbed areas and include the following principles:

- species used will be native to HHI and present in the surrounding landscape
- planting densities and species composition will be determined by establishing reference sites on HHI, within which structural and floristic information will be measured
- all disturbed areas which are to be returned to open space or bushland will be rehabilitated immediately following the cessation of construction works. Rehabilitation methods will vary according to specific site constraints.

The following strategies will be employed prior to and during proposed construction works:

- prior to the commencement of any vegetation clearance, the Contractor shall identify all areas to be cleared on construction plans and in the field
- prior to commencement of the works, the applicant shall arrange a pre-start meeting with GRC Environmental Assessment Officers or other relevant GRC Officer.
- prior to commencement of the works, the applicant shall fence or clearly mark with tape, the limits of all protected vegetation. Within these zones the following activities shall not be permitted:
  - storage and mixing of materials
  - vehicle parking
  - liquid disposal
  - machinery repairs and/or refuelling
  - construction site office or shed
  - combustion of any material
  - stockpiling of soil, rubble or debris
  - any filling or excavation including trench line, topsoil skimming and/or surface excavation, unless otherwise approved by the Project Manager
  - unauthorised pesticide, herbicide or chemical applications.

Implement measures to minimise any damage to retained trees and/or the conserved area considering the following measures:

- identifying a tree protection zone: All retained trees likely to be impacted upon by development works will be marked prior to construction works
- prior to establishing a tree protection zone, trees to be protected will be pruned focusing on removal of dead or broken branches.

All activities in an area adjacent to any protected tree or area shall be carried out in such a manner as to minimise any damage to trees and/or the conserved area.

Prior to the selective clearing operations, habitat trees shall be identified.

At least 14 days prior to the pre-start meeting, an appropriately qualified person (i.e. accredited by DERM for capture and release) 'spotter-catcher' shall be appointed and assess the site for wildlife habitat.

Prior to tree removal, an appropriately qualified ecologist shall attempt to 'flush out' any denning or nesting animals not observed during the initial hollow inspection. This may involve hitting target trees with a sledgehammer or another similar technique.

Following felling, a second inspection of the relevant trees shall be carried out to relocate fauna disturbed by the clearing process or remaining within the felled timber to a suitable location determined in consultation with DERM.

Where possible, the actual felling of the habitat trees shall be conducted in a manner that will maximize the chances of survival for any fauna remaining within the tree hollows. This shall involve pushing rather than cutting, and cushioning the tree fall with other felled timber and foliage.

All injured animals shall be immediately removed and taken to an appropriately qualified veterinary surgeon. The discovery of any orphaned or injured native fauna at a later stage during operational works will be immediately reported to DERM.

Following completion of the selective clearing stage, capture and release records shall be supplied to QPWS in accordance with their licensing conditions. A copy of these records, if requested, shall be supplied to GRC.

Social

Provide a communication program targeted to local residents and visitors to HHI including:

- regular construction updates
- advice on construction schedules
- the results of monitoring required by the EMP.

Develop, promote and implement an effective complaints response system for receiving, handling and responding to complaints received during construction of the project, including:

- provision and promotion of a phone contact with construction management staff during hours of construction
- a follow up procedure which notifies complainants within 24 hours of the intended response to the issue raised.

Recreational facilities of the HHID will be established, operated and maintained by the proponent as part of the community facilities agreement with GRC.

The proponent will establish a bus service to link with existing school bus services to existing schools in the region.

Develop monthly reports (publicly accessible on request) regarding communication activities, residents' complaints and resolution of complaints.

Appendix 3 World Heritage Values for the Great Barrier Reef Marine Park World Heritage Area

Criterion: (IX) Outstanding example representing significant ongoing geological processes, biological evolution and man's interaction with his natural environment

Biologically the Great Barrier Reef supports the most diverse ecosystem known to man and its enormous diversity is thought to reflect the maturity of an ecosystem, which has evolved over millions of years on the northeast Continental Shelf of Australia. The World Heritage values include:

- the heterogeneity and interconnectivity of the reef assemblage;
- size and morphological diversity (elevation ranging from the sea bed to 1142m at Mt. Bowen and a large cross-shelf extent encompass the fullest possible representation of marine environmental processes);
- on going processes of accretion and erosion of coral reefs, sand banks and coral cays, erosion and deposition processes along the coastline, river deltas and estuaries and continental islands;
- extensive *Halimeda* beds representing active calcification and sediment accretion for over 10 000 years;
- evidence of the dispersion and evolution of hard corals and associated flora and fauna from the "Indo-West Pacific centre of diversity" along the north-south extent of the reef;
- inter-connections with the Wet Tropics via the coastal interface and Lord Howe Island via the East Australia current;
- indigenous temperate species derived from tropical species;
- living coral colonies (including some of the world's oldest);
- inshore coral communities of southern reefs;
- five floristic regions identified for continental islands and two for coral cays;
- the diversity of flora and fauna, including:
    - Macroalgae (estimated 400-500 species);
    - Porifera (estimated 1500 species, some endemic, mostly undescribed);
    - Cnidaria: Corals - part of the global centre of coral diversity and including:
        - hexacorals (70 genera and 350 species, including 10 endemic species);
        - octocorals (80 genera, number of species not yet estimated);
    - Tunicata: Ascidians (at least 330 species);
    - Bryozoa (an estimated 300-500 species, many undescribed);
    - Crustacea (at least 1330 species from 3 subclasses);
    - Worms:
        - Polychaetes (estimated 500 species);
        - Platyhelminthes: include free-living Tubelleria (number of species not yet estimated), polyclad Tubelleria (up to 300 species) and parasitic helminthes (estimated 1000's of species, most undescribed);
    - Phytoplankton (a diverse group existing in two broad communities);

- Mollusca (between 5000-8000 species);
- Echinodermata (estimated 800 extant species, including many rare taxa and type specimens);
- fishes (between 1200 and 2000 species from 130 families, with high species diversity and heterogeneity; includes the Whale Shark *Rhynchodon typus*);
- seabirds (between 1.4 and 1.7 million seabirds breeding on islands);
- marine reptiles (including 6 sea turtle species, 17 sea snake species, and 1 species of crocodile);
- marine mammals (including 1 species of dugong (*Dugong dugon*), and 26 species of whales and dolphins);
- terrestrial flora: see "Habitats: Islands" and;
- terrestrial fauna, including:
  - invertebrates (pseudoscorpions, mites, ticks, spiders, centipedes, isopods, phalangids, millipedes, collembolans and 109 families of insects from 20 orders, and large over-wintering aggregations of butterflies); and
  - vertebrates (including seabirds (see above), reptiles: crocodiles and turtles, 9 snakes and 31 lizards, mammals);

- the integrity of the inter-connections between reef and island networks in terms of dispersion, recruitment, and the subsequent gene flow of many taxa;
- processes of dispersal, colonisation and establishment of plant communities within the context of island biogeography (e.g. dispersal of seeds by air, sea and vectors such as birds are examples of dispersion, colonisation and succession);
- the isolation of certain island populations (e.g. recent speciation evident in two subspecies of the butterfly *Tirumala hamata* and the evolution of distinct races of the bird *Zosterops spp*);
- remnant vegetation types (hoop pines) and relic species (sponges) on islands.
- evidence of morphological and genetic changes in mangrove and seagrass flora across regional scales; and
- feeding and/or breeding grounds for international migratory seabirds, cetaceans and sea turtles.

Criterion: (VII) Contain unique, rare and superlative natural phenomena, formations and features and areas of exceptional natural beauty

The Great Barrier Reef provides some of the most spectacular scenery on earth and is of exceptional natural beauty. The World Heritage values include:

- the vast extent of the reef and island systems which produces an unparalleled aerial vista;
- islands ranging from towering forested continental islands complete with freshwater streams, to small coral cays with rainforest and unvegetated sand cays;
- coastal and adjacent islands with mangrove systems of exceptional beauty;
- the rich variety of landscapes and seascapes including rugged mountains with dense and diverse vegetation and adjacent fringing reefs;
- the abundance and diversity of shape, size and colour of marine fauna and flora in the coral reefs;
- spectacular breeding colonies of seabirds and great aggregations of over-wintering butterflies; and
- migrating whales, dolphins, dugong, whale sharks, sea turtles, seabirds and concentrations of large fish.

Criterion: (VIII) Outstanding example representing a major stage of the earth's evolutionary history

The Great Barrier Reef is by far the largest single collection of coral reefs in the world. The World Heritage values of the property include:

- 2904 coral reefs covering approximately 20 055km^2;
- 300 coral cays and 600 continental islands;
- reef morphologies reflecting historical and on-going geomorphic and oceanographic processes;
- processes of geological evolution linking islands, cays, reefs and changing sea levels, together with sand barriers, deltaic and associated sand dunes;
- record of sea level changes and the complete history of the reef's evolution are recorded in the reef structure;
- record of climate history, environmental conditions and processes extending back over several hundred years within old massive corals;
- formations such as serpentine rocks of South Percy island, intact and active dune systems, undisturbed tidal sediments and "blue holes"; and
- record of sea level changes reflected in distribution of continental island flora and fauna.

Criterion: (X) Provide habitats where populations of rare and endangered species of plants and animals still survive

The Great Barrier Reef contains many outstanding examples of important and significant natural habitats for *in situ* conservation of species of conservation significance, particularly resulting from the latitudinal and cross-shelf completeness of the region.

The World Heritage values include:

- habitats for species of conservation significance within the 77 broad-scale bioregional associations that have been identified for the property and which include:
    - over 2900 coral reefs (covering 20 055km^2) which are structurally and ecologically complex;
    - large numbers of islands, including:
        - 600 continental islands supporting 2195 plant species in 5 distinct floristic regions;
        - 300 coral cays and sand cays;
        - seabird and sea turtle rookeries, including breeding populations of green sea turtles and Hawksbill turtles; and
        - coral cays with 300-350 plant species in 2 distinct floristic regions;
    - seagrass beds (over 5000km^2) comprising 15 species, 2 endemic;
    - mangroves (over 2070km^2) including 37 species;
    - *Halimeda* banks in the northern region and the unique deep water bed in the central region; and
- large areas of ecologically complex inter-reefal and lagoonal benthos; and
- species of plants and animals of conservation significance.

Appendix 4 Proposed vegetation clearing and offsets

RE	RE description	Impacted area on HHI (hectares)	Area on HHI (hectares)	% impacted of HHI total (hectares)	Proponent's offset multiplier	Proponent's offset area proposal (hectares)[2]
12.1.1	*Casuarina glauca* ± *Melaleuca quinquenervia* ± mangroves openforest. Occurs on margins of Quaternary estuarine deposits. Casuarina glauca was found to be present only as disturbed regrowth on the margin of landzone 2 and landzone 12.	0.25	16.46	1.519	8	2
12.1.2	Saltpan vegetation including grassland, herbland and sedgeland on marine clay plains	0.453	199	0.228		
12.1.3	Mangrove shrubland to low closed forest on marine clay plains and estauries	0.107	437	0.024		
12.2.11	*Corymbia* spp., *Eucalyptus* spp., *Acacia* spp. open forest to low closed forest on beach ridges	159.037	984	16.162		
12.2.14	Fore dune complex	0.091	61	0.149		
12.3.3	*Eucalyptus tereticornis* open-forest to woodland. *Eucalyptus crebra* and *E. moluccana* are sometimes present and may be relatively abundant in places, especially on edges of plains and higher level alluvium.	4.315	170	2.538	2	10.86

12.3.10	*Eucalyptus populnea* ± *E. tereticornis* grassy woodland/tall woodland ± patches of *Acacia harpophylla* and *Melaleuca bracteata*. Occurs on Quaternary alluvial plains.	4.6	160	2.875	2	9
12.12.7	*Eucalyptus crebra* grassy woodland. Other species such as *Corymbia erythrophloia*, *Eucalyptus exserta*, *E. tereticornis*, *C. tessellaris, C. citriodora* may be present in low densities or in patches.	23.15	156	14.840	2	172.83
12.12.8	*Eucalyptus melanophloia*, usually with *E. crebra* ± *Corymbia erythrophloia* grassy woodland. Other species such as *Eucalyptus exserta*, *E. tereticornis*, *C. tessellaris*, *C. citriodora* may be present in low densities.	5.46	10.6	51.509	3	16.38
12.12.12	*Eucalyptus tereticornis*, *E. crebra* (sometimes *E. siderophloia*) open-forest to woodland. Other species present can include *Eucalyptus melanophloia*	195.14	334	58.425	2.5	487.85
12.12.19	Vegetation complex of exposed rocky headlands. Vegetation types include *Themeda triandra* grassland and wind-sheared shrubland and woodland. This RE was found not to be present the site consists of regrowth 12.12.7.	0.29	0.98	29.592	3	0.87

12.12.28	*Eucalyptus moluccana* ± *E. crebra*, *Corymbia citriodora* openforest or woodland. Occurs on broad ridges and lower slopes on Mesozoic to Proterozoic igneous rocks.	0.15	26.7	0.562	3	0.45

1. Offset under VMA or Fisheries Act
2. Offset proposal on mainland
3. Commonwealth likely to require an offset to be found within GBRWHA

Figures provided by Greening Australia

Appendix 5 Draft lease conditions

Draft Conditions for

Case: 2006/008750 Action: 1 As at: 17 Jun 2010

A78

(1) The lessee must use the leased land for development purposes for the development of of tourist, residential, commercial, and community facilities.

(2) This lease may be forfeited if not used for the purpose stated above.

(3) The annual rent must be paid in accordance with the Land Act 1994.

(4) The Parties acknowledge that GST may be payable in respect of a supply made under this lease. Where GST becomes payable in respect of a supply made under this lease, the State (lessor) may recover the GST from the lessee by increasing the consideration payable by the lessee to the State by an amount equal to that which the State is obliged to remit to the Commonwealth as GST on the supply and that amount may be recovered from the lessee as part of the money payable to the State under this lease. The State will upon request by the lessee, issue to the lessee a valid GST tax invoice in respect of any taxable supply made under this lease. (NOTE: For the purposes of this condition "GST" means the goods and services tax which results from the enactment of A New Tax System (Goods and Services Tax) Act 1999 and the related Acts which constitute the Commonwealth taxation reform (as amended from time to time)).

(5) The lessee must pay the cost of any required survey or re-survey of the leased land.

(6) The lessee must control pest plants and animals, on the leased land, in accordance with the Land Protection (Pest and Stock Route Management) Act 2002 and the Local Laws and requirements of the Gladstone Regional Council.

(7) The lessee has the responsibility for a duty of care, to take all reasonable and practicable measures to sustainably manage the leased land by conserving the physical, biological, productive and cultural values, either on the leased land or in areas affected by the management of the leased land.

(8) The lessee must ensure that the use and development of the leased land conforms to the Planning Scheme, Local Laws and requirements of the Gladstone Regional Council, binding on the lessee.

(9) The lessee must give the Minister administering the Land Act 1994, information about the lease, when requested.

(10) The lessee must not clear any vegetation on the leased land, unless in accordance with the Sustainable Planning Act 2009.

(11) No compensation for improvements or developmental work is payable by the State at the forfeiture, surrender or expiry of the lease, but the lessee has the right to remove the lessee's moveable improvements

within a period of three (3) months from the forfeiture, surrender or expiry of the lease, provided all money due by the lessee to the State on any account whatsoever has been paid, or be required to remove those improvements as specified in any further condition of lease.

(12) This lease is subject to the Land Act 1994 and all other relevant State and Commonwealth Acts.

A89 (1) The lessee must allow any person authorised under the Forestry Act 1959 access to the leased land for the purpose of cutting and removing timber or removing other forest products, or quarry material, or other material from the leased land.

(2) Except as hereinafter provided the lessee must not interfere with any forest products or remove any quarry material (including any stone, gravel, sand, earth, soil, rock, guano or clay which is not a mineral within the meaning of the Mineral Resources Act 1989) or other material upon the leased land without the permission of the Minister administering the Land Act 1994 except under the authority of and in compliance in every respect with the requirements or a permit, licence, agreement or contract granted or made under the Forestry Act 1959.

C342 The lessee must comply with any lawful requirements of the Coordinator-General, Department of Environment and Resource Management, and The Gladstone Regional Council.

C343 The lessee must from the commencement of the lease and to the satisfaction of the Minister administering the Land Act 1994,, complete development in accordance with the staging referred to in condition D194, and as approved by the Gladstone Regional Council..

C352 The lessee must, before commencing any development whatsoever provided for in the conditions of this lease, enter into a written Deed(s) of Agreement with the Department of Main Roads, Telstra, and Ergon Energy in respect of their requirements internal and external to the site. A copy of such Deed(s) must be lodged with the immediately upon such Deed(s) execution. The lessee must at all times comply with the provisions of such Deed(s) and to any amendment thereto as may from time to time be agreed upon between the parties. Should there be a subsequent transfer of the lease, the Deed(s) must be assigned to the incoming lessee who must assume and comply with all requirements of the said Deed(s).

C400 The lessee of the lease cannot apply for an offer of a new lease (a renewal application) under the provisions of the Land Act 1994 as renewal of the lease is prohibited.

C401 The lessee may not sublease the lease, and section 334 of the Land Act 1994 applies.

D194 The Minister administering the Land Act 1994 will consider seeking Governor in Council approval for a grant in fee simple over the area of each of Stages 1,2 and 3 upon completion of agreed development as approved by Gladstone Regional Council, of each stage of the leased land, upon:

(1) Performance of and compliance with all of the conditions of the lease to the satisfaction of the said Minister; and
(2) Payment to the said Minister, by the lesseeof the purchase price for each developed stage. The purchase price for the first stage is $4826.00 per hectare, plus a percentage increase in accordance with the Consumer Price Index (Brisbane All Groups) compounded quarterly for each completed quarter from the commencement of the lease to the date any offer to purchase is made to the lessee. The purchase price for each subsequent stage, will be re-assessed at the time the offer to purchase each stage is made.; and
(3) Payment of any other relevant fee; and
(4) Surrender to the State of the land comprised in the relevant stage of the leased land for which development has been completed..

H123 The provision of access, further access or services to the leased land will not be the responsibility of the Local Government or the State.

I59 The lessee must six (6) months from the commencement of the lease but prior to commencement of any physical works on the leased area, provide to the Minister administering the Land Act 1994 a Performance Guarantee Bond issued by a bank or any other financial institution approved by the said Minister in the amount of Five Million Dollars ($5,000,000.00) and in a form approved by the said Minister unconditionally guaranteeing to pay the amount of the Bond to the said Minister on demand as surety for restoration of the site to a safe and saleable condition and any remediation costs required, as may occur or be required by as a consequence of failure to comply with condition A78. The amount of the Bond may be reviewed at any time at the discretion of the said Minister, or upon application being made to the Department of Environment and Resource Management by the lessee.

Assessment of the Bond amount must be undertaken by and all costs leading to the establishment of the Bond and any review of the Bond must be borne by the lessee.

Notwithstanding the above, the said Minister has the discretion to approve any other form of security offered by the lessee in substitution for the Bond. If the said Minister approves any other form of security offered by the lessee

(the substituted security), then the said Minister will determine, in the Minister's absolute discretion, the amount of, the form of, and the terms upon which the substituted security must be provided.

I60 In the event that any transfer of the leased land is approved, the purchaser will be required to furnish to the Minister administering the Land Act 1994, a performance guarantee bond as required by condition I59, effective from the date of transfer, upon such terms and conditions as the said Minister may at that time determine, in substitution for the current bond which will be released.

I66 The lessee indemnifies and agrees to keep indemnified the Minister administering the Land Act 1994, and the State of Queensland, (the "Indemnified parties") against all actions, suits, proceedings, claims, demands, costs, losses, damages and expenses ("Claim") arising out of or in any way connected to or resulting from the granting of this lease to the lessee or which is connected to or resulting from the lessees' use and occupation of the leased land (all of which are referred to as "the indemnified acts or omissions") save to the extent that the Claim arises as a result of any negligent act or omission of the Indemnified parties, however, any negligent act or omission of one of the Indemnified parties does not negate the indemnity to any of the other Indemnified party/ies.
The lessee hereby releases and discharges the Indemnified parties from any claim relating to the indemnified acts or omissions which may be made against the Indemnified parties.

I69 (1) The lessee must effect a public liability insurance policy with an insurer authorised under the Insurance Act 1973 (Commonwealth) or, in any other case, to the satisfaction of the Minister administering the Land Act 1994, naming the lessee as the insured covering legal liability for any loss of, or damage to any property and for the injury (including death) to any person arising out of anything done or omitted on or about the leased land or any improvements thereon and against all claims, demands, proceedings, costs, charges and expenses whatsoever in respect thereof subject to the terms and conditions of the insurance policy. Such policy must:

(a) be for an amount of not less than Twenty Million ($20,000,000) dollars in respect of all claims arising out of a single event or such higher amounts as the Minister may reasonably require:

(b) be effected on a "claims occurring" basis so that any claim made by the lessee under the policy after expiration of the period of policy cover but relating to an event occurring during the currency of the policy will be covered by the policy subject to the claim meeting the policy's other terms and conditions;

(c) be effected on such other reasonable terms and conditions as

may be required by the Minister; and

(d) be maintained at all times during the currency of the lease.

(2) The lessee must, as soon as practicable, inform the Minister administering the Land Act 1994, in writing, of the occurrence of any event that the lessee considers is likely to give rise to a claim under the policy of insurance effected and must ensure that the said Minister is kept fully informed of subsequent actions and developments concerning the claim.

(3) The lessee must renew such policy, at the lessees' expense, each year during the currency of this lease and forward a certificate of currency to the Department of Environment and Resource Management within 14 days of the commmencement of each respective renewal period.

(4) Upon receipt of a Notice of Cancellation, the lessee must immediately effect another public liability policy in accordance with the provisions of this condition.

(5) Clause (1) of this condition will be satisfied if the lessee is the State of Queensland or a statutory authority eligible for cover under the Queensland Government Insurance Fund and is insured and continues to be insured by the Queensland Government Insurance Fund.

(6) Clause (1) of this condition will be satisfied if the lessee is the Commonwealth of Australia or a statutory authority eligible for cover under the Comcover Insurance Fund and is insured and continues to be insured by Comcover.

L110 The lessee must , to the satisfaction of the Minister administering the Land Act 1994, maintain improvements on the leased land in a good and substantial state of repair.

M543 The lessee must not keep, store or permit to be kept or stored on the leased land any materials of a dangerous, flammable or explosive nature unless all statutes, local laws and regulations applicable to the keeping and storage of such materials have been complied with in every respect.

Appendix 6 Machinery of government changes

Queensland Government changes

Due to machinery of government changes from 26 March 2009 (see *Public Service Department Arrangements Notice* (No. 2) 2009), some changes were made to some Queensland Government departments referred to in this report.

New department (as of 26 March 2009)	**Previous department/s**
Department of Employment, Economic Development and Innovation—DEEDI	Department of Primary Industries and Fisheries—DPIF Department of Mines and Energy —DME Department of Tourism, Regional Development and Industry—DTRDI Department of Employment and Industrial Relations—DEIR
Department of Environment and Resource Management—DERM	Environmental Protection Agency—EPA Department of Natural Resources and Water—NRW
Department of Transport and Main Roads—TMR	Department of Main Roads—DMR Queensland Transport—QT
Department of Communities—DoC	Department of Communities—DoC Department of Housing—Housing Department of Local Government, Sport and Recreation—DLGSR Disability Services Queensland—DSQ
Department of Community Safety—DCS	Department of Emergency Services—DES

As a result of machinery of government changes from 21 February 2011 the Coordinator-General's function (including parts of the former Department of Infrastructure and Planning) moved to DEEDI.

Australian Government departmental changes

New department (as of 14 September 2010	**Previous department/s**
Department of Sustainability, Environment, Water, Population and Communities—DSEWPaC	Department of Environment, Water, Heritage and the Arts—DEWHA

Abbreviations and acronyms

ACA Act	*Australian Cultural Heritage Act 2003*
ANZECC	Australian and New Zealand Environment Conservation Council
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
CSC	(The former) Calliope Shire Council (now part of Gladstone Regional Council)
CHMP	cultural heritage management plan
DCS	Department of Community Safety
DEEDI	Department of Employment, Economic Development and Innovation
DERM	Department of Environment and Resource Management
DEWHA	(The former) Department of Environment, Water, Heritage and the Arts (Australian Government)
DIP	(The former) Department of Infrastructure and Planning
DMP	disaster management plan
DoC	Department of Communities
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities (Australian Government)
TMR	Department of Transport and Main Roads
EA	Environmental Authority
EIS	environmental impact statement
EMP	environmental management plan
EPA	(The former) Environmental Protection Agency (now part of DERM)
EP Act	*Environmental Protection Act 1994*
EPBC Act	*Environment Protection and Biodiversity Conversation Act 1999*
EPP Air	*Environmental Protection (Air) Policy*
ERA	Environmentally Relevant Activity (under EP Act)
EVR	Endangered, vulnerable, rare (species)
GCC	(The former) Gladstone City Council (now part of Gladstone Regional Council)
GQAL	good quality agricultural land
GRC	Gladstone Regional Council (amalgamation of former Gladstone City Council, Miriam Vale Shire Council and Calliope Shire Council)
GBRMP	Great Barrier Reef Marine Park
GBRMPA	Great Barrier Reef Marine Park Authority

GBRWHA	Great Barrier Reef World Heritage Area
HHI	Hummock Hill Island
HHID	Hummock Hill Island development (the project)
IAS	initial advice statement (as defined by the SDPWO Act)
IPA	*Integrated Planning Act 1997* (now the Sustainable Planning Act 2009)
MCU	material change of use
MVSC	(The former) Miriam Vale Shire Council (now part of Gladstone Regional Council)
ML	mining lease
MNES	matters of national environmental significance (as defined by the EPBC Act)
NCA	*Nature Conservation Act 1992*
QH	Queensland Health
QH Act	*Queensland Heritage Act 1992*
QNCW Reg	*Queensland Nature Conservation Wildlife Regulation 1994*
QPS	Queensland Police Service
RE	regional ecosystem
RIA	road impact assessment
SCMP	State Coastal Management Plan 2001
SDPWO Act	*State Development and Public Works Organisation Act 1971*
SDPWO Regulation	State Development and Public Works Organisation Regulation 1999
SEIS	supplementary environmental impact statement
SL	Special Lease
SPA	*Sustainable Planning Act 2009*
TMP	Traffic Management Plan
TOR	terms of reference (as defined by the SDPWO Act)
VM Act	*Vegetation Management Act 1999*
WBBRP	Wide Bay-Burnett Regional Plan (non-statutory)
WMP	waste management plan

PO Box 15009 City East Qld 4002 Australia
tel +61 7 3227 8548
info@dip.qld.gov.au

www.dip.qld.gov.au