Mackay Coasts and Communities

Haliday Bay

Beach Plan

2010

Contents

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Cover image: Orthophotos from digital aerial photography 0.6 metre pixel 2004 supplied by Mackay Regional Council.

1. Beach unit description

The Haliday Beach beach unit includes approximately three kilometers of coastline from Seaforth Creek in the west to McBrides Point in the east (Figure 1). Haliday Bay beach is a 500 metre long, north-east facing sandy beach backed by a narrow foredune. The beach is bordered by a 20 metre high northern headland and 60 metre high McBrides Point, that extends 500 metres out from the southern end of the beach (Short, 2000). Extensive mangrove communities line the Haliday Bay beach unit in the west, associated with Seaforth Creek.

Haliday Bay is a small residential settlement consisting predominantly of Freehold tenure zoned as Village (Figures 2, 3). Haliday Bay Resort occupies a large Freehold block in the centre of the beach unit, backing much of the sandy beach. An Esplanade, zoned as Open Space, surrounds the beach and headlands, and Cape Hillsborough National Park borders the beach to the south.

Figure 1: Extent of Haliday Bay beach unit

ACKNOWLEDGMENTS: Orthophotos from digital aerial photography 0.6m pixel 2004 supplied by Mackay Regional Council.

Figure 2: Land tenure Haliday Bay

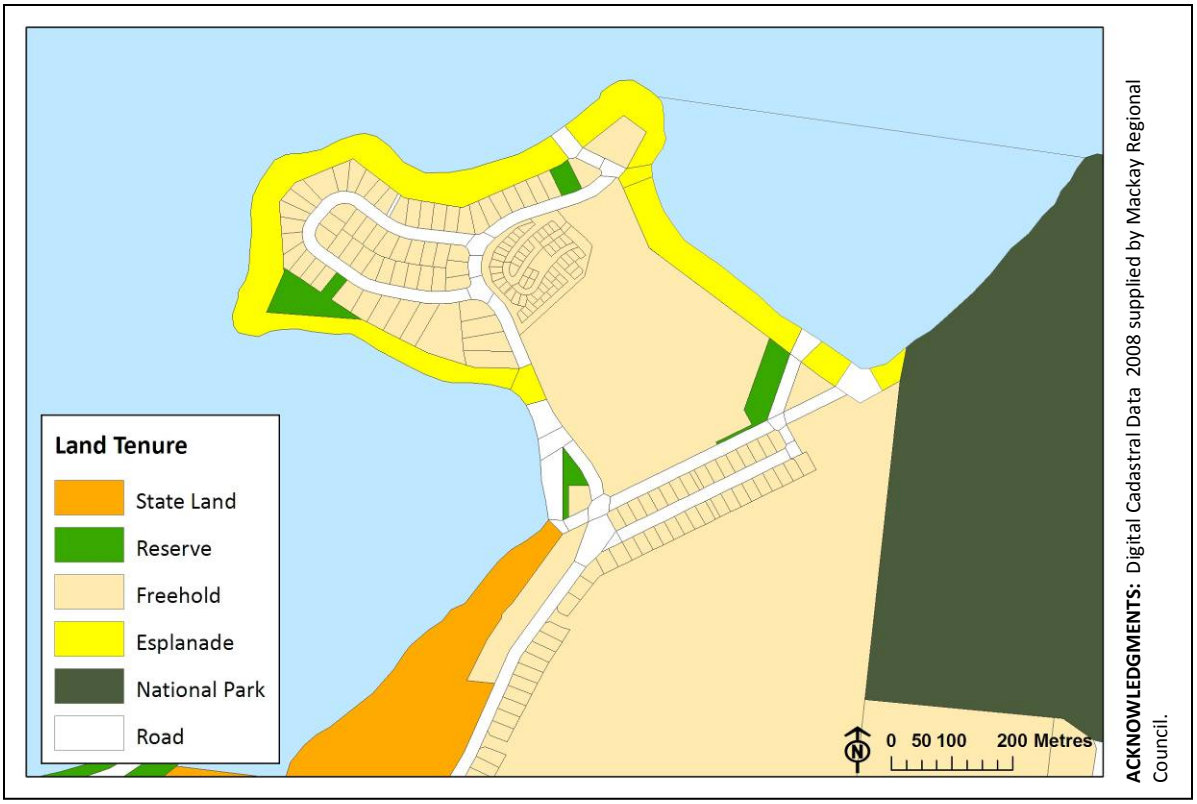


Figure 3: Planning scheme zonation Haliday Bay

2. Conservation and Management Issues

2.1 Vegetation

2.1.1 Remnant vegetation

The largest amount of remnant vegetation remains at the southern end of Haliday Bay beach under National Park tenure (Figure 6, Table 1). These mixed-eucalypt open to woodland forests are protected under Queensland legislation (Figure 4).

Remnant vegetation has been largely removed from the centre of the beach unit, with approximately only three hectares remaining on Esplanade tenure at the northern and southern ends of the beach, and on the western Reserve adjacent to the mangroves (Figure 6). The condition of this vegetation along the Haliday Bay sandy beach is threatened by weed invasion. Pre-clearing mapping shows that the entire headland was once a continuation of the mixed-eucalypt open to woodland forests present in the National Park (RE 8.12.20a) (Environmental Protection Agency, 2003).

Extensive mangrove and salt flat communities are present in the west of the Haliday Bay unit, associated with Seaforth Creek (Figure 5).

A bushfire is an uncontrolled fire burning in forest, scrub or grassland vegetation and may occur in most vegetation types in Queensland where there is a fuel path of sufficient dryness to be flammable (Queensland Government, 2003). State Planning Policy 1/03 under the *Sustainable Planning Act 2009* deals with the mitigation of adverse impacts of bushfire, and includes a natural hazard assessment for bushfires and the subsequent provision of safety buffers. According to this policy, a low hazard score and no prescribed safety buffer width is allocated to “narrow strips of coastal vegetation with a linear shape, less than 50 hectares in area and more than one kilomere from the nearest extensive vegetation, on 0-5% slope, with an eastern aspect” (Queensland Government, 2003). All rehabilitation activities undertaken as part of this plan will be done so with consideration of this State Planning Policy.

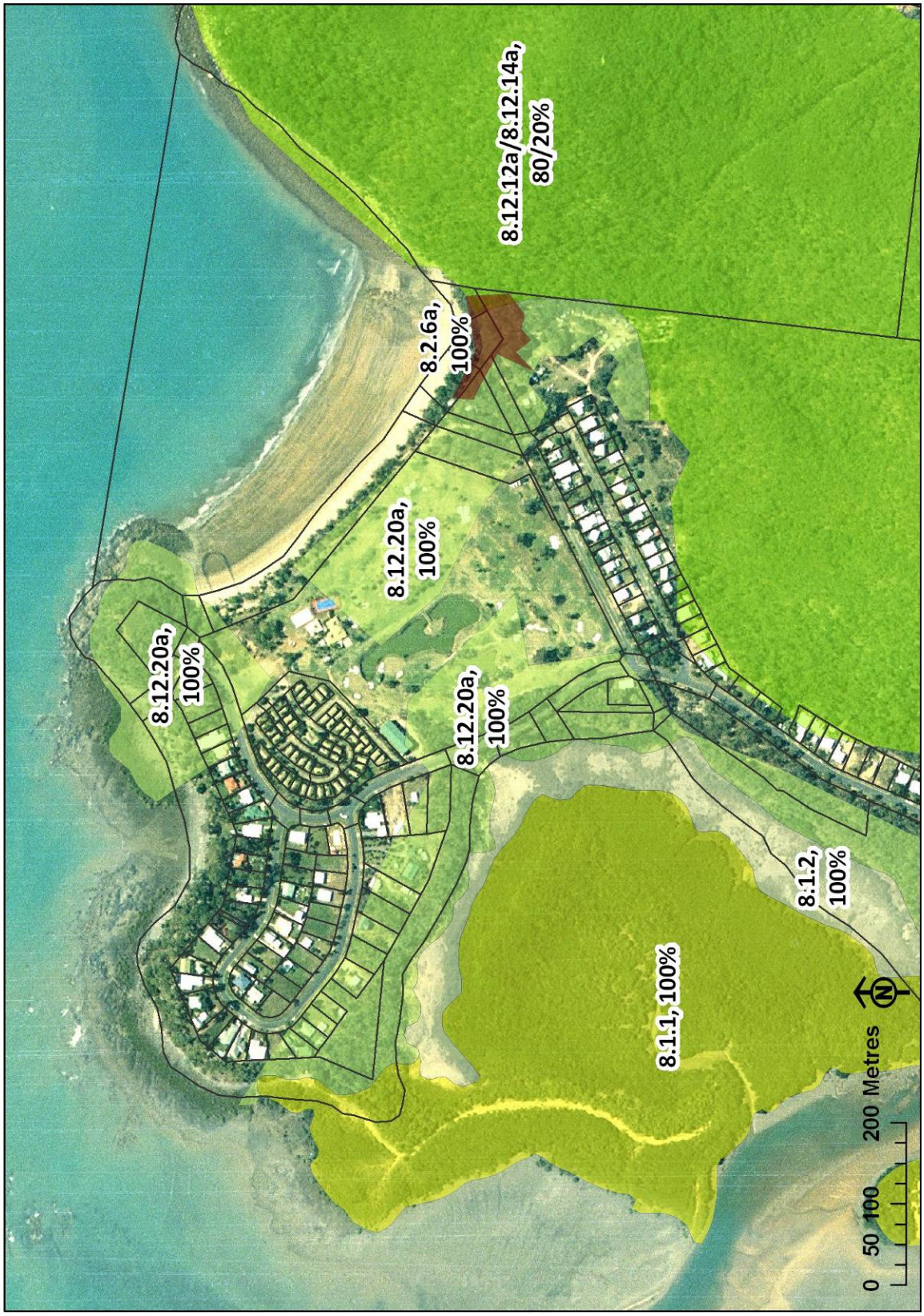
Table 1: Remnant vegetation (Regional Ecosystem) communities at Haliday Bay

Regional Ecosystem (RE)	Short description (Environmental Protection Agency, 2005)	Approximate area (ha) on Esplanade tenure	Vegetation Management Act status 2005	Biodiversity status	EPBC Status
8.2.6a	*Corymbia tessellaris* ± *Acacia leptocarpa* ± *Banksia integrifolia* ± *Melaleuca dealbata* ± beach scrub species open forest on coastal parallel dunes.	0.2 ha	Of concern	Of concern	n/a
8.12.20a	*Eucalyptus drapanophylla* and/or *E. platyphylla* ± *Corymbia clarksoniana* ± *C. dallachiana* woodland on low gently undulating landscapes on Mesozoic to Proterozoic igneous rocks.	3 ha Esplanade. Rest of this vegetation is on other tenure and not included in beach unit recommendations.	Not of concern	Of concern	n/a
8.1.1	Mangrove vegetation of marine clay plains and estuaries. Estuarine wetland.	Other tenure. Not included in beach unit recommendations.	Not of concern	No concern at present	n/a
8.1.2	Samphire open forbland to isolated clumps of forbs on saltpans and plains adjacent to mangroves.	Other tenure. Not included in beach unit recommendations.	Not of concern	Of concern	n/a
8.12.12a	Mixed open forest to woodland of *Corymbia intermedia* ± *Eucalyptus portuensis* ± *E. platyphylla* ± *E. drapanophylla* ± *E. tereticornis*. Occurs on lower and mid-slopes of mountains and hills formed on Mesozoic to Proterozoic igneous rocks.	Other tenure. Not included in beach unit recommendations.	Not of concern	No concern at present	n/a
8.12.14a	*Eucalyptus drepanophylla* and *Lophostemon confertus* woodland. Occurs on exposed hill slopes of islands on Mesozoic to Proterozoic igneous rocks.	Other tenure. Not included in beach unit recommendations.	Not of concern	No concern at present	n/a

Figure 4: Mixed-eucalypt open to woodland forests on McBrides Point are protected by Queensland legislation.

Figure 5: Extensive mangrove communities line Seaforth Creek in the west of the Haliday Bay beach unit.

Figure 6: Remnant vegetation Haliday Bay beach unit



ACKNOWLEDGMENTS: Orthophotos from digital aerial photography 0.6m pixel 2004, and Digital Cadastral Data 2008 supplied by Mackay Regional Council. 2008 Central Queensland remnant beach scrub mapping 1:12,000; and 2003 Remnant Vegetation Communities and Regional Ecosystems of Queensland version 5, 2005, supplied by Environmental Protection Agency.

2.1.2 Vegetation zonation

The Haliday Bay sandy beach retains partial dune vegetation zonation, with a thin band of open casuarina woodland extending along much of the foredune (Figure 7). However, the Esplanade is only 15 metres wide, removing the potential for secondary or tertiary woodland zones. At the northern end of the beach, the maintenance of the recreational area prevents natural vegetation zonation (Figure 8).

Beyond the sandy beach, the Haliday Bay coastline is comprised of rocky foreshores. Natural vegetation zonation remains largely intact in these areas and includes a variety of; low energy mangrove-lined foreshores (Figure 9), rocky headland vegetation (Figure 10), and mixed-eucalypt communities extending directly from the rocky foreshore.

Figure 7: Haliday Bay beach retains partial dune vegetation zonation, with a thin band of coloninising spinifex and casuarinas extending along much of the foredune.

Figure 8: At the northern end of the Haliday Bay beach, natural dune zonation has been removed for the recreational area.

Figure 9: Mangrove communities line the low energy rocky foreshores in the Haliday Bay beach unit.

Figure 10: Vegetation on the headland north of Haliday Bay beach.

2.1.3 Non-native vegetation

Many non-native species are present along Haliday Bay beach, reflecting the high levels of past disturbance and proximity to urban residence. These include a variety of both garden escapees and environmental weeds, such as Guinea grass (*Megathyrsus maximus*) which increases fuel loads and smothers native regeneration (Figure 11). Dense stands of Agave (*Agave sp.*) and coconut palms (*Cocos nucifera*) are present in some areas of the Esplanade (Figure 12, 8), outcompeting native vegetation and creating issues with falling fronds and coconuts. The Declared prickly pear (*Opuntia sp.*) is also present along this length of beach (*Land Protection Pest and Stock Route Management Act, 2002*).

Figure 11: Guinea grass (*Megathyrsus maximus*) poses a fire threat and smothers native vegetation along the foreshore.

Figure 12: Dense stands of Agave (*Agave sp.*) are present along the Haliday Bay beach foreshore.

2.2 Public access and facilities

There are six designated beach access points provided with various fencing, signage, and associated infrastructure in the Haliday Bay beach unit (Figure 19). Five of these are associated with the Haliday Bay sandy beach, and the sixth provides access to the north-facing rocky foreshore from Blue Beach Boulevard (Figure 13). A public boat ramp is provided at the southern end of the beach (Figure 14) and aquatic transport from the Freehold property are permitted on one of the Esplanade access points (Figure 15).

Two recreational areas are provided along Haliday Bay beach, with barbeques, shelters, playground, amenities, and a swimming enclosure (Figure 16). A pedestrian access path of 250 metres joins these two recreational areas, alongside a fence which defines the Esplanade from Freehold tenure (Figure 17). Given the short distance between several of these access points, and the significance this stretch of vegetation for marine turtle populations (section 2.3), it is recommended that access paths four and five be removed as a formal beach access points (Figure 18). Unrestricted vehicle access to the foredune and beachfront in the northern recreational area (Figure 8) compacts sand and prevents natural regeneration, and should be fenced to exclude vehicles.

Figure 13: Access 1 to the north facing rocky forshore from Blue Beach Boulevard.

Figure 14: Boat ramp access on Haliday Bay Esplanade.

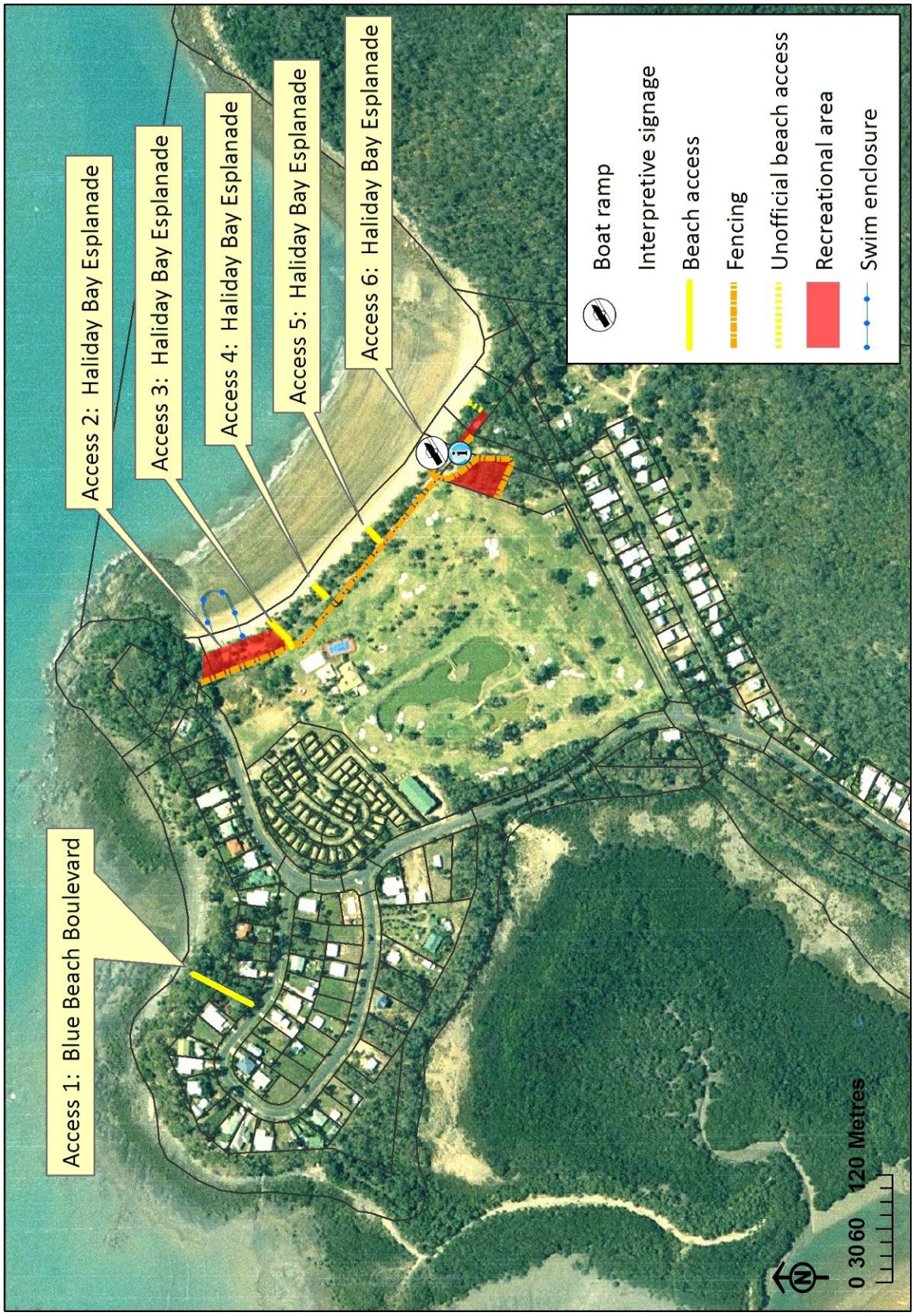
Figure 15: Access 3 on Haliday Bay Esplanade provides for the use of aquatic transport from the adjacent Resort.

Figure 16: Recreational area associated with swimming enclosure on Haliday Bay Esplanade.

Figure 17: A pedestrian walkway joins the two recreational areas, adjacent to the Freehold property.

Figure 18: Access 4 on Haliday Bay beach Esplanade is only 60 metres from Access 3.

Figure 19: Haliday Bay access points and recreational areas



ACKNOWLEDGMENTS: Orthophotos from digital aerial photography 0.6m pixel 2004; Digital Cadastral Data 2008; and Boat Ramps 2008 supplied by Mackay Regional Council.

2.3 Wildlife

Haliday Bay is one of three beaches listed in the Mackay Whitsunday region as supporting significant populations of nesting marine turtles. An average of 19 flatback turtle (*Natator depressus*) nests per year were recorded at Haliday Bay between 1993 and 2003, with a maximum of 46 occurring in one year (Mackay District Turtle Watch Association, 2003). An interpretive sign highlighting the values of Haliday Bay as a turtle nesting habitat is installed at access six on the Haliday Bay Esplanade (Figure 19). Light pollution from nearby development increases the mortality rates of turtle hatchlings along Haliday Bay beach (Griffin, F. 2009, pers. comm., 5 June). An education campaign to minimise, redirect, shield, or switch off light sources during turtle nesting season is recommended. Additionally, planting native vegetation as a screen along the back of the Esplanade boundary is recommended to reduce the effects of light pollution on the turtle population. Vehicle access to the beachfront should be restricted to in front of the boat ramp only, to protect the turtle population from the effects of vehicles on beaches, "compacting sand, crushing nests and creating wheel ruts that impede or trap hatchlings" (Environment Australia, 2003, p. 24). Fencing to exclude vehicle access to the foredune and beachfront in front of the northern recreational area is recommended.

The vulnerable false water rat (*Xeromys myoides*) Essential Habitat covers the mangrove communities on the western side of the beach unit, lining Seaforth Creek (listed 'Vulnerable' by *Queensland Nature Conservation Act, 1992*). Although no other Essential Habitat mapping is currently available, beach scrub ecosystems are considered to provide habitat for the listed northern quoll (*Dasyurus hallucatus*), rusty monitor (*Varanus semiremex*), and coastal sheathtail bat (*Taphozous australis*). The Haliday Bay beach unit contains a small pocket of eucalypt and acacia open forest with beach scrub understory (RE 8.2.6a) at the southern end of the beach (Figure 20). This condition of this community is threatened by weed invasion.

Figure 20: Wildlife values Haliday Bay beach unit

ACKNOWLEDGMENTS: Orthophotos from digital aerial photography 0.6m pixel 2004 and 2008 Digital Cadastral Data supplied by Mackay Regional Council. 2008 Central Queensland remnant beach scrub mapping 1:12,000; and 2006 False Water Rat Essential Habitat mapping, supplied by Environmental Protection Agency.

2.4 Cultural heritage

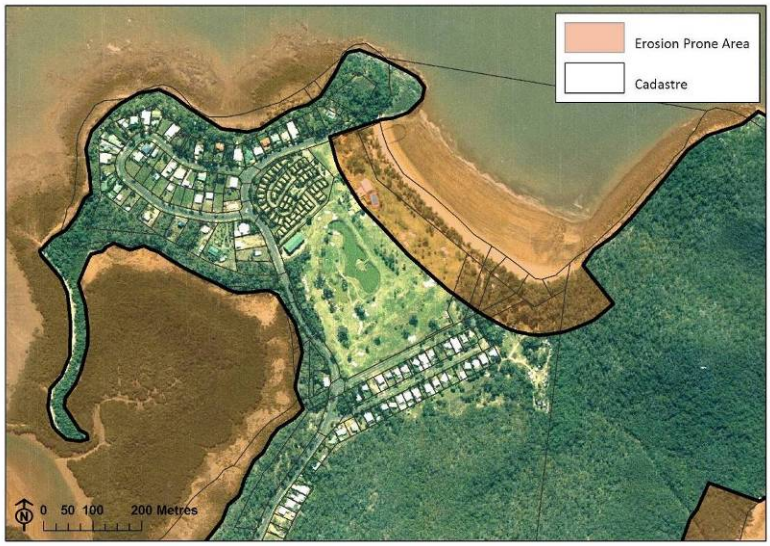
The Haliday Bay area was previously occupied by Traditional Owners and the retention and rehabilitation of natural areas remains of significance to the Yuibera people (Mooney, G. 2009, pers. comm., 9 March). Middens, fish traps or other items of cultural significance may be present in the area.

2.5 Erosion

Development has been excluded from the erosion prone area in the Haliday Bay beach unit, with the exception of an eastern portion of the Haliday Bay Resort (Figure 23). The retention and maintenance of the Esplanade buffer zone is important to prevent threats to property boundaries and infrastructure into the future. Some sections of frontal dune along Haliday Bay beach are lacking, or have very sparse, native vegetation, leaving them vulnerable to erosion processes (Figures 21, 22). Improving the condition of the dune vegetation using weed control and revegetation is recommended.

Figure 21 and 22: Some sections of Haliday Bay beach front are lacking, or have very sparse, native vegetation to stabilise the dunes, leaving them more vulnerable to erosion processes.

Figure 23: Erosion Prone Area Haliday Bay beach unit



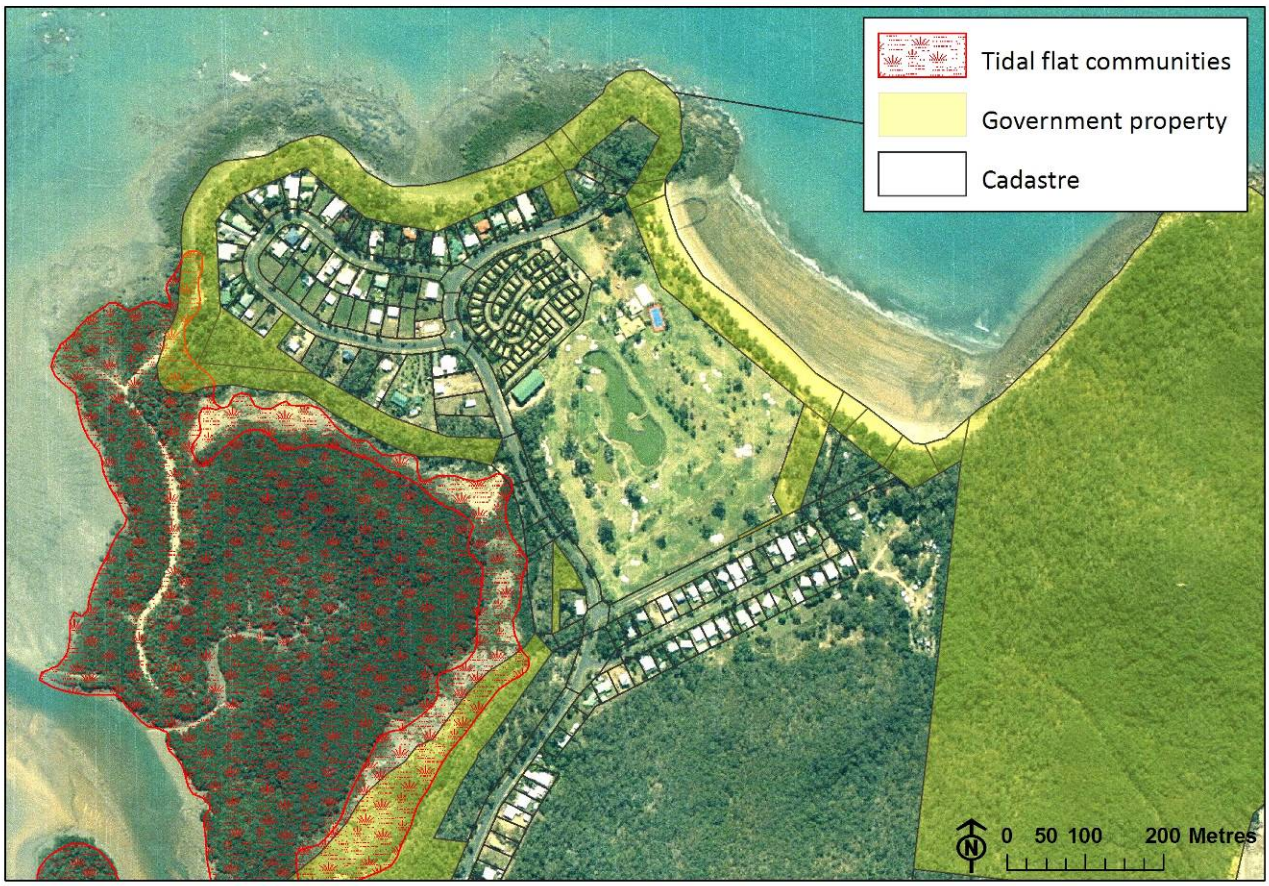
ACKNOWLEDGMENTS: Orthophotos from digital aerial photography 0.6m pixel 2004; and Digital Cadastral Data 2008 supplied by Mackay Regional Council. Central Queensland erosion prone area mapping supplied by Environmental Protection Agency 2008. Erosion Prone Area is "the width of the coast that is considered to be vulnerable to coastal erosion and tidal inundation over a 50-year planning cycle" (Environmental Protection Agency (2007) *Coastal erosion and assessment of erosion prone area widths,* Information sheet, p5.)

2.6 Climate change

The presence of a small buffer zone along Haliday Bay beach means it has some potential to protect against the predicted impacts of climate change. Further stabilising this dune system and improving structure and condition through weed control and rehabilitation activities along the length of the beach is recommended.

Tidal flat communities extend in from Seaforth Creek to the margins of the Haliday Bay Road and residential area (Figure 24). This precludes the possibility of any expansion of these salt marsh communities as sea level changes occur.

Figure 24: Current extent of tidal flat communities Haliday Bay beach unit (Landzone 1)



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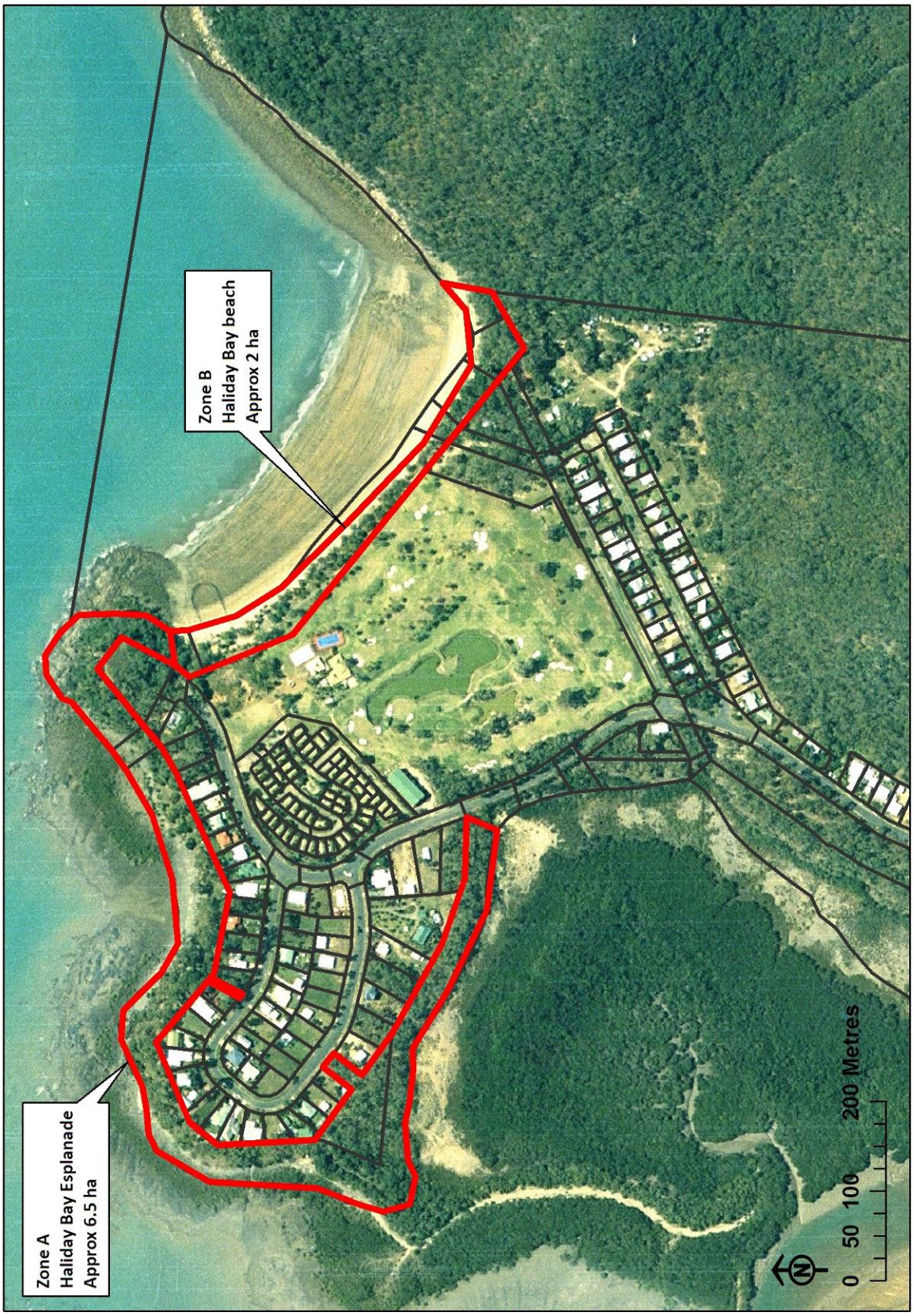
3. Recommended activities

#	**On-ground activity details** (Figure 25)
Zone A | Haliday Bay Esplanade (6.5 ha)	
1	Monitor Reserve and Esplanade tenures for weed infestations and implement weed control as required.
Zone B | Haliday Bay beach (2 ha)	
2	**Weed control, revegetation.** Major target weed species include Guinea grass (*Megathyrsus maximus*), prickly pear (*Opuntia sp.*), agave (*Aagave sp.*), pink periwinkle (*Catharanthus roseus*), and various other herbaceous garden escapees. Revegetation to replace removed weed species, and focused along the back of the Esplanade to provide a screening effect to reduce artificial lighting of the beach. Strategic revegetation along the frontal dune in the northern recreational area to stabilise the dune and direct pedestrian access.
3	**Fencing. 1.** Fencing the length of the Esplanade between access tracks three and six (approx 250 metres) to direct pedestrians to access paths and to protect and rehabilitate native vegetation to the east of the fence. Access tracks four and five to be closed to provide a continuous tract of vegetation, particularly to support the success of turtle nesting at the beach. **2.** Fencing of a suitable buffer zone of the Esplanade foredune in the northern recreational area, north from access track three (approx 90 metres in length), which incorporates suitable access point/s for pedestrians. This fencing is intended to prevent vehicle access to the foredune and beachfront, and protect native regeneration and revegetation to the east of this fence.
Other activities across multiple zones	
4	Update and rationalise current regulatory and information signage; dogs on leads, vehicle and pedestrian access points, waste dumping, camping, and fire signage.
5	Monitor and use available legislation to protect existing native vegetation on Esplanade tenure as required.
6	Educate coastal community on requirement to dispose of garden waste and other debris at designated Council refuse sites.
7	Educate coastal community and local tourism businesses on weed species, and promote and facilitate the use of local native species in residential and commercial gardens.

Figure 25: Zones for recommended activities



ACKNOWLEDGMENTS: Orthophotos from digital aerial photography 0.6m pixel 2004; and Digital Cadastral Data 2008 supplied by Mackay Regional Council.

4. References

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Appendix 1: Recommended species for dune revegetation

This is a generic list of recommended species for dune revegetation on Mackay beaches compiled from *Sarina Shire Beaches Management Guidelines for Coastal Zones*, Regional Ecosystem 8.2.1, 8.2.2, 8.2.6a revegetation recommendations, and field observations.

A distinction is made below between front and hind dune species for revegetation. However, the species selected for revegetation at any particular location will ultimately depend on current and pre-clearing Regional Ecosystem mapping, and site-specific conditions (such as aspect, topography, existing vegetation, soil condition, etc).

Front Dune (seaward)		
Species name	**Common name**	**Habit**
Canavalia rosea	Beach bean	Groundcover
Carpobrotus glaucescens	Angular pigface	Groundcover
Ipomoea pes-caprae	Goats foot convolvulus	Groundcover
Sporobolus virginicus	Marine couch	Groundcover
Vigna marina	Vigna	Groundcover
Cyperus pedunculatus	Pineapple sedge	Sedge
Spinifex sericeus	Beach spinifex	Grass
Thuarea involuta	Birds beak grass	Grass
Vitex trifolia	Coastal vitex	Shrub
Argusia argentea	Octopus bush	Tree
Casuarina equisetifolia	Coastal she oak	Tree

Front Dune (top and landward side)		
Species name	**Common name**	**Habit**
Clerodendum inerme	Coastal lollybush	Shrub
Dodonaea viscosa subsp. *viscosa*	Sticky hop bush	Shrub
Sophora tomentosa	Silver bean	Shrub
Vitex trifolia	Coastal vitex	Shrub
Casuarina equisetifolia	Coastal she oak	Tree
Hibiscus tiliaceus	Cottonwood	Tree
Pandanus tectorius	Pandanus	Tree

Hind dune and further landward		
Species name	**Common name**	**Habit**
Crinum pedunculatum	Spider lilly	Lilly
Eragrostis intrrupta	Coastal love grass	Grass
Eustrephus latifolius	Wombat berry	Climber
Stephania japonica	Tape vine	Climber
Clerodendrum inerme	Coastal lolly bush	Shrub
Dodonaea viscosa subsp. viscosa	Sticky hop bush	Shrub
Eugenia reinwardtiana	Beach cherry	Shrub
Jasminum didymium	Native jasmine	Shrub
Sophora tomentosa	Silver bean	Shrub
Acacia leptocarpa		Tree
Acacia oraria		Tree
Acronychia laevis	Glossy acronychia	Tree
Alphitonia excelsa	Soapy ash	Tree
Banksia integrifolia	Coastal banksia	Tree
Calophyllum inophyllum	Ball nut	Tree
Chionanthus ramiflora	Native olive	Tree
Clerodendrum floribundum	Lolly bush	Tree
Corymbia tesselaris	Moreton bay ash	Tree
Cupaniopsis anacardioides	Tuckeroo	Tree
Diospyros geminata	Scaly ebony	Tree
Drypetes deplanchei	Yellow tulip	Tree
Euroschinus falcata	Ribbonwood	Tree
Hibiscus heterophylus	Native hibiscus	Tree
Hibiscus tiliaceus	Cottonwood	Tree
Jagera pseudorhus	Foam bark	Tree
Macaranga tanarius	Macaranga	Tree
Mallotus phillipensis	Red kamala	Tree
Mimusops elengi	Red coondoo	Tree
Morinda citrifolia	Smelly cheese tree	Tree
Pandanus tectorius	Pandanus	Tree
Pittosporum ferrugineum	Rusty pittosporum	Tree
Planchonia careya	Cocky apple	Tree
Pleiogynium timorense	Burdekin plum	Tree
Sterculia quadrifida	Peanut tree	Tree
Terminalia cattapa	Beach almond	Tree
Terminalia muelleri		Tree
Thespesia populnoides	Tulip tree	Tree

Appendix 2: Coastal fencing specifications