Hydeaway Bay Foreshore Reserve Management Plan

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1. Introduction

The purpose of this plan is to guide the management of the Hydeaway Bay Foreshore Reserve between Gloucester Avenue and high water mark (Figure 1). The reserve is designated as esplanade and covers approximately 9 ha.

The objectives of the management plan are to;

1) identify the social, ecological and economic issues and values of the foreshore area.
2) document the results of the community consultation meeting concerning the local foreshore issues.
3) document how the community have been involved in the development of the foreshore plan.
4) develop a management plan to guide the use and protection of bushland along the foreshore.
5) identify a preferred use or mix of uses for the foreshore. These will influence the management and maintenance of the foreshore area.
6) develop an appropriate budget to implement the management plan.

Figure 1. The location of the Hydeaway Bay Foreshore Reserve.

2. Background

2.1 Site history and present use

The Hydeaway Bay Foreshore is currently managed by the Whitsunday Shire Council as a reserve under the Land Act (1994). The foreshore reserve was created in 1986 when the Hydeaway Bay settlement was created. The original classification of the reserve is “road reserve” or “esplanade”. For the foreshore to be developed as a road, would require the approval of the State government which under more recent legislation and Coastal polices would be unlikely (Coastal Protection and Management Act 1995). Prior to the subdivision of Hydeaway Bay the foreshore was lightly grazed. The foreshore is now used by local residents and tourists for a range of recreational purposes.

The Foreshore reserve use has been under scrutiny by local residents and the Whitsunday Shire Council since the mid 1990’s. There are numerous letters on Council file indicating illegal tree clearing and illegal

use of the foreshore. There is evidence that some residents that back onto the foreshore reserve have cleared trees and shrubs in an attempt to extend their backyards into the public land. While the impacts of illegal tree clearing and multiple pedestrian access points may not have created a major impact on the foreshore ecosystem, there is a recognisable impact. There is a need to determine what level of use and clearing is acceptable so that recreational opportunities can be provided for in the reserve.

2.2 Physical description

2.2.1 Geology and geomorphology

The Hydeaway Bay Foreshore is composed of a Holocene dune and minor colluvium fan material from the acid intrusive rocks on the low hill adjacent to Gloucester Avenue. The dune features a frontal beach or foredune, the beach ridge and hind dune. The foundations of the dune are formed from colluvial material from the nearby hill and material deposited during the previous sea level high 125,000 years ago. The beach ridge system has mostly been formed during the Holocene period (last 10,000 years) since the last sea level rise (National Committee on Coastal and Ocean Engineering, 1998). The accumulation of sand on the beach ridge is from wind and wave action. Dune stabilisation occurs when vegetation colonises the sand surface. The surface of the dune is further protected by the presence of ground cover and leaf litter.

The foredune lies in a dynamic intertidal environment. The extent of the tides limit the colonisation of vegetation on the beach or foredune. Another feature of the foredune is the presence of silcrete. This hard rock is composed of cobbles, gravel and sand material from outwash material from the acid granitic low hills behind Gloucester Avenue. The cementing agent of the silcrete is dissolved silica in groundwater (Lewis and McConchie, 1994). Coral fragments can be found in the silcrete which is probably related to the previous sea level high about 125,000 years ago.

The beach ridge system provides a buffer for storm events. Wave action from storms can easily erode unvegetated dune systems. The presence of deep rooted vegetation and surface ground cover stabilises the dune and reduces the impact of storm waves. During storm surge events which are associated with cyclones, the presence of trees and shrubs can dissipate wave energy and reduce the damage to the dune and land behind them (National Committee on Coastal and Ocean Engineering, 1998). Recent storm tide modelling conducted by GHD on behalf of the Whitsunday Shire Council, shows more than 15 lots adjacent to the foreshore will be inundated during a Q100 event.

There is a small ephemeral creek that enters the hind-dune area and is actively eroding. The purpose of the creek is to transport stormwater from the hill behind Gloucester Avenue to the ocean. The accelerated erosion of the creek is caused by the lack of structure and clay in the sand, and the lack of stabilising vegetation.

2.2.2 Vegetation

The original vegetation on the Hydeaway Bay Foreshore beach ridge is littoral drysubtropical rainforest. Williams *et al.* (1984) describes this type of rainforest as … “a distinctive series of communities found close to the sea on either nutrient rich deep sands or on soils derived from slates or basalts”. The features of littoral rainforest includes the presence of “rainforest” tree species and may include vines. Some of the largest expanses of littoral rainforests occur on Fraser Island and Cooloola National Park but occur in Northern Australia as well. These littoral rainforests often have ground projective covers over 75%. Figgis (1989) also describes rainforest found on coastal sand dunes. The littoral rainforest on coastal dunes survive on shallow water tables and the low levels of nutrients in the sand. The rainforest species present on the dunes use specialised fungi or mycorrhizae in the well formed litter layer and upper root zone to gather nutrients (Figgis, 1989). Activities which damage the surface layer will affect the ability of the vegetation to access vital nutrients. Other common names for rainforest that occur on dunes include dune thicket, beach scrub or dune forest.

The littoral rainforest on the Hydeaway Bay Foreshore has been modified by past grazing and other human activity. The grazing of the dune system would have caused some damage to the understorey of the rainforest and introduced a greater proportion of native and introduced grasses. The development of the residential blocks behind the beach ridge may have further caused the clearing of the undergrowth and further damaged the surface soil. The removal of some upper canopy trees and shrubs have allowed more sunlight to reach the ground and has assisted the colonisation of the ground by grasses and other weeds. The use of vehicles along the dune system will also cause damage to the leaf litter and the nutrient cycling in the surface soil.

The existing vegetation on the Hydeaway Bay Foreshore contains clumps of remnant littoral rainforest and individual trees and shrubs. The littoral rainforest is known as Regional Ecosystem number 8.2.2a and its Conservation Status is listed as “Of Concern”. The Biodiversity Status of this ecosystem is noted as being “Endangered”. The rainforest that is left on the beach ridge has been modified. Some areas of the rainforest no longer look like rainforest while some sections still resemble littoral rainforest and can be rehabilitated. The dominant rainforest species identified in the Hydeaway Bay Foreshore beach ridge include:

- *Mimusops elengi*
- *Sterculia quadrifida*
- *Ganophyllum falcatum*
- *Euroschinus falcata*
- *Melia azaradarch*
- *Pleigynium timorense*

The vegetation at the front of the beach ridge on the foredune and above high tide is dominated by She-oak woodland (*Casuarina equistifolia)* and a range of grasses and ground covers. *Casuarina equistifolia* is well adapted to the wind blown dynamic section of this part of the dune system. The grass and ground cover such as beach vine *Ipomea pes-capre* assist in stabilising the sand.

The rockier colluvial fan footslopes from the acid granitic hills form a dry rainforest to Eucalypt woodland. The soils found on the colluvial fans are variable and range from deep gravely sands to duplex soils with clay subsoil.

Williams *et al.,* (1984) describe dry rainforests as structurally different from subtropical wet rainforests and occur in areas with average annual rainfall between 650 and 1100mm. The dry rainforests are dominated by deciduous or semi-deciduous species with relatively small leaves (microphyll) and commonly have vines. Figgis (1989) also describes dry rainforests and states that the semi-deciduous nature of the species is an adaption to the relatively low rainfall conditions. Some of the key indicator species includes flame trees (*Brachychiton acerfolius*), Kapok (*Cochlospermum gillivraei*), Alphitonia species (eg *Alphitonia excelsa*), Bauhinia (*Lysiphyllum hookerii*) and Burdekin plum (*Pleigynium timorense*). The Eucalypt woodland is dominated by Pink bloodwood (*Corymbia intermedia*), Grey ironbark (*Eucalyptus drephanophylla*) and Cocky apple (*Planchronia caryea*). The Eucalypt woodland generally has an open or sparse upper storey and grass and herb ground cover. This woodland may present a medium fire hazard.

2.3 Legislation and policy

The coastal zone is recognised as a high use area and a fragile environment. The National Committee on Coastal and Ocean Engineering (1998) describe the coastal zone as the interface between the land and sea. In some areas of Australia the poor management of the coastal has caused erosion problems that have required engineering solutions such as coastal protection works.

The Commonwealth Government developed its Coastal Policy in 1995. The purpose of the Commonwealth Coastal Policy is to describe how the management of the coastal zone could be improved. The adoption of the Commonwealth Coastal Policy has triggered all Australian States to develop similar coastal polices and legislation. The main Commonwealth legislation that relates to the management of the Hydeaway Bay Foreshore is the Environment Protection and Biodiversity Conservation Act (1999).

The Queensland Government passed the Coastal Protection and Management Act in 1995. The purpose of this Coastal Management Act is to (Section 3):

a) provide for the protection, conservation, rehabilitation and management of the coast, including its resources and biological diversity; and
b) have regard to the goal, core objectives and guiding principles of the National Strategy for Ecologically Sustainable Development in the use of the coastal zone; and
c) provide, in conjunction with other legislation, a coordinated and integrated management and administrative framework for the ecologically sustainable development of the coastal zone; and
d) encourage the enhancement of knowledge of coastal resources and the effect of human activities on the coastal zone.

The Coastal Protection and Management Act provided the impetus for the development of the Queensland State Coastal Management Plan which was released in 2001 (QEPA, 2001). The Coastal plan describes how the coastal zone should be managed via the development of 48 polices. Some of the polices that are relevant to the management of the Hydeaway Bay Foreshore include:

- 2.2.2. Erosion prone areas
- 2.2.4. Coastal hazards
- 2.2.5. Beach protection structures
- 2.3.1. Future need for access
- 2.3.4. Vehicle use on beaches
- 2.8.1 Areas of State significance (Natural resources)
- 2.8.3. Biodiversity
- 2.8.4. Rehabilitation of coastal resources
- 2.8.5. Pest species management
- 2.9.1. Regional Coastal management plans
- 2.9.3. State land on the coast
- 2.9.4. Private use of State land on the coast
- 2.9.5. Control districts

The Queensland Environmental Protection Agency is currently coordinating the development of the Mackay – Whitsunday Coastal Management Plan. This regional coastal plan will contain specific coastal policies and will be used in decisions concerning coastal zone management and development assessment. The regional plan should be finalised by 2007. Other Queensland legislation that is relevant to the management of the Hydeaway Bay Foreshore includes the Environmental Protection Act (1995) (s3 and s319), the Land Act (1994 (s4) and the Nature Conservation Act (1992).

Local Government is recognised as having a role in managing land for community and environmental outcomes. In 1998, the Australian Local Government Association in conjunction with the Biological Diversity Advisory Council developed the National Local Government Biodiversity Strategy which was passed by the National General assembly of Local Government and represents the agreed Local Government position at the National level on the management of biodiversity (Thorman, 1998). The importance of the environment is reflected at a local level in The Whitsunday Shire Council's corporate plan and transitional planning scheme. These two local documents reflect to some degree National and State positions on managing natural resources.

3. Site issues and values

The ecological, social and economic appraisal of the Hydeaway Bay Foreshore was conducted by the Whitsunday Shire Council in February 2005. The following section draws on the contents of the site inspection.

3.1 Ecological issues and values

The vegetation communities have a role in stabilising the dune system and providing habitat and food to local native animals. The Queensland EPA has noted that these littoral rainforests have a biodiversity status of "Endangered. This status means that these ecosystems provide important habitat to a range of animals some of whom could be of State importance. The foreshore is used for breeding by the Flatback Turtle (*Natator depressus)* and is listed as Vulnerable under the Queensland Nature Conservation Act regulations (1994). Residents report that during the breeding season several turtle have been spotted laying eggs. The risks to the turtles include attack by cats and dogs and destruction of the nests by vehicles. The ecosystem values of the Foreshore Reserve are summarised in Table 1.

Table 1. Habitat assessment.

Existing Habitat Value	Very Low	Low	Medium	High	Very High
Rating Ranges	0-2	3-7	8-12	13-17	18-20
Is there a diversity of flora present (high diversity = high value)				13	
Is the area free of declared weeds. (no weed = high value)			8		
Does the remnant vegetation cover a large area ? (>20ha = high)			12		
Is the property connected to other habitats			14		
Are there a range of ecosystems present – eg creek, hill				15	
Property total 62 /100					

There are a number of declared and environmental weeds in the foreshore reserve. Table 2 shows a list of weeds found in the reserve. The proposed management of the weeds are shown in Appendix 1.

Table 2. Site weeds.

Common Name	Scientific Name	Comments
Mother-in-laws Tongue	*Sansevieria trifasciata*	Environmental weed
Mother of Millions	*Bryophyllum delagoense*	Class II weed
Captain Cook Tree	*Thevetia peruviana*	Class III weed
Calico Plant	*Alternanthera dentata*	Environmental weed - Garden escapee
Purple wandering Jew	*Tradescandens pallida*	Environmental weed - Garden escapee
Painted spurge & milkweed	*Euphorbia spp*	Environmental weed
Mossman Burr	*Cenchrus echinatus*	Environmental weed
Caltrup	*Tribulus cistoidies*	Environmental Weed – has a burr
Guinea grass	*Panicum maximum*	Environmental weed

The site inspections showed a number of ecological issues associated with the use and management of the foreshore. The main ecological issues identified on the Foreshore includes;

- removal of trees and shrubs, some for view enhancement,
- spread of weeds primarily by vehicles such as contract slasher,
- damage to the surface of the dune by vehicles and in some isolated areas by pedestrian usage, and,
- minor threats to nesting Flatback turtles due to vehicles, dogs and cats and pedestrians.

3.2 Social values and issues

The social assessment of the site considered adjacent land uses, access and existing and potential users. It should be noted that the foreshore and the reserve which features the new tennis court are the only recreation areas in the Hydeaway Bay area. The Foreshore Reserve has a moderate social value, but this can easily be improved (Table 3).

Table 3. Social assessment of the foreshore reserve.

Existing Social Value	Very Low	Low	Medium	High	Very High
Rating Ranges	**0-2**	**3-7**	**8-12**	**13-17**	**18-20**
Access to public (/20)				15	
Existing use by all community sector groups (/20)			11		
Educational value – eg use by school groups (/20)		3			
Aesthetic value – is it a positive asset to the community (/20)				17	
Recreational value – is it used for recreational purposes (/20)			10		
Property total 56 /100					

The social issues that have been noted for the Foreshore Reserve include:

- There is only a small pedestrian usage of the foreshore and hind-dune areas by local residents.
- The Whitsunday Shire Council have constructed two playgrounds in the reserve.
- Some residents have extended their backyards into the public reserve.
- There are four public access walkways to the beach and another five gullies which have been labelled as possible future pathways to the foreshore. The maximum distance that pedestrians need to walk to access the four existing public walkways is 280m. The three existing pedestrian access points appear to be adequate to cater for the low level of local and other public pedestrian usage. The other five potential access points which correspond to the gullies should be retained for their existing purpose and rehabilitated where necessary. However, the construction of additional walkways to the foreshore could occur in these locations provided that the designs are approved by the State government.
- There is a need to provide for a range of recreational experiences on the foreshore. Ideally, there should be areas dedicated for active and passive recreation on the reserve.
- Some landholders adjacent to the foreshore preventing the public using the land near their back boundaries.

3.3 Economic values and issues

The present use of the land is a vacant reserve. The foreshore reserve is within the erosion prone zone area mapped by the Queensland Environmental Protection Agency, therefore it is unlikely that any development or permanent habitable structures would be supported by the State Government or the Whitsunday Shire Council. The block of land would consequently have a relatively low market value because of the limited commercial opportunities. However, the foredune system protects over 60 lots from coastal storms. The reserve may have a low tourism value but this could be improved. The reserve has a low to moderate economic rating (Table 4).

Table 4. The economic value of the foreshore reserve

Existing Social Value	Very Low	Low	Medium	High	Very High
Rating Ranges	**0-2**	**3-7**	**8-12**	**13-17**	**18-20**
Do the site physical constraints make development easy?		3			
Proximity to existing roads and level of public exposure			9		
What is the estimated real estate value		7			
What is the economic value of the property, given the type of adjacent land uses (protection)				17	
What is the existing income generated from the current land uses	2				
Property total 38 /100					

4. Potential uses

4.1 Site constraints and opportunities

The beach ridge system is a fragile and mobile landform. Ocean currents and wave action from storms can cause damage to the dune system and move sand offshore. The Queensland State Government has coastal policies designed to guide the sustainable management of coastal dune systems (Queensland Coastal Protection and Management Act 1995). The State Coastal plan places restrictions on what development can take place on beach ridge systems. The site constraints include;

- susceptibility to storm surge and storm damage, and,
- State polices that restrict type of use.

The foreshore reserve offers a range of social and ecological opportunities. The ecosystem values of beach ridge systems are relatively high. These coastal rainforests offer thin refuges for a range of plants and animals, and can become tourist attractions providing there is appropriate signage and educational material.

The beach ridge system can offer a range of social opportunities in the form of recreation, education and aesthetics. The reserve could in fact become a valued and well used part of the Hydeaway Bay neighbourhood. The opportunities that exist for the foreshore include;

- improved park infrastructure,
- mini coastal botanical gardens concept or signage of existing vegetation,
- the site is easily accessible from Gloucester avenue, and,
- recreational opportunities such as boat hire could occur on site.

4.2 Community consultation

The Whitsunday Shire Council considers community consultation as an important part of the development of the Hydeaway Bay Foreshore plan. The community can provide important information on the history and current use and issues for an area. The development of the Hydeaway Bay Foreshore Management Plan has utilised four community consultation meetings to gauge community views and issues, plus the provision of community feedback forms.

The first community consultation meeting occurred on the 9th of March 2005 at the Hydeaway Bay caravan park with about 15 people attending. The second meeting occurred on the 10th of August, 2005, the third on the 11th of September and the final meeting on the 2nd of October, 2005. The Foreshore reserve issues discussed at the meetings included;

- legislation that is pertinent to the Foreshore reserve,
- tree clearing,
- unapproved use of the foreshore,
- ecological, social and economic values of the foreshore,
- pedestrian access,
- weed management,
- drainage, and,
- potential uses.

Some of the conclusions from the meeting were:

· That the people who attended the meeting supported the halt to the clearing of trees and shrubs on the foreshore reserve.

- That there was not a large pedestrian or erosion issue at present.
- That the weeds should be better managed.
- That the views of the residents who reside adjacent to the foreshore should be retained where possible.
- Some residents are concerned about the plan affecting their property values.
- Some residents wanted the gullies converted to pathways.
- Some residents did not want commercial activities such as boat hire to occur on the foreshore.
- Current slashing is too low and is damaging the foreshore grass and surface.

4.3. Preferred site use

The proposed use of the Foreshore reserve needs to balance the social uses and ecological values. The local residents have indicated that they value the foreshore. The Whitsunday Shire Council wish to ensure that the ecological values of the remaining rainforest is not diminished but also recognise and support the need to encourage the recreational and social use of the beach ridge reserve. The proposed preferred use

of the foreshore is a nature reserve with a mix of recreational zones. To express the proposed mix of recreation uses, three management zones have been developed.

5. Management of the Hydeaway Bay Foreshore

5.1 Hydeaway Bay Foreshore management plan zones

The Hydeaway Bay Foreshore will be managed using three zones. The zones will define the purpose of each area and the extent of use. The zones have been devised to assist in achieving a balance between the social values such as recreation and the ecological values. The three zones are Recreation, Neighbourhood Recreation and Bushland Protection. The zones can be seen on the Hydeaway Bay Foreshore Management Plan map and appears in Appendix 2.

5.1.1 Recreation zone

Purpose:

The recreation zone is for general active and passive public use for a range of recreational uses. The recreation areas are linked with defined pedestrian access points or walkways from Gloucester Ave to the beach. This zone covers approximately 0.6ha.

Usage: High visitation and high pedestrian access

Disturbance: medium to high

Bushland Protection value/rating: Generally low.

Infrastructure:

- Adequate for a range of users including children and adults.
- Sand ladder where appropriate
- Bollarding where appropriate

Management values: Recreation, aesthetics, social, amenity

Walkways: There will be one defined walkway from Gloucester Ave to the beach through the recreation areas.

Clearing of vegetation: Permission must be sought from the Council

View corridors: No new view corridors allowed in this zone.

General Management: The management of this zone is the responsibility of Council. No vehicles are allowed in the recreation zone except for Council and emergency service vehicles.

Maintenance:

- Mowing – Council as required
- Rubbish bins – Council as required
- Provision of recreation equipment – Council as required
- Tree planting with local native trees only

Figure 2. One of the Recreational areas identified in the management plan.

5.1.2 Neighbourhood Recreation zone

Purpose:

The Neighbourhood Recreation zone is for limited passive recreational use. These areas provide small semi cleared areas for adjacent landholders and the general public to use for passive activities such as bushwalking, picnics, sitting, and relaxing. These areas are not connected to Gloucester Avenue with walkways. Some of these areas are already moderately disturbed and include minor view corridors. This zone covers approximately 1.35ha.

Usage: Low pedestrian access

Disturbance: Medium to Low

Bushland Protection value/rating: Some of these areas have moderate Bushland Protection values.

Infrastructure:

- Sand ladder where appropriate
- Bollarding where appropriate
- No playground equipment
- No construction of permanent or temporary structures
- Positioning of personal chairs and tables is acceptable

Management values: Recreation, aesthetics, social, amenity, Bushland Protection.

Walkways: There will be one defined walkway from the neighbourhood recreation area to the beach. Other access tracks will need to be rationalised by the Council and landholders.

Clearing of vegetation: Permission must be sought from the Council.

View corridors: No new view corridors allowed in this zone. Existing view corridors will remain, but not maintained without Council permission.

General Management: The management of this zone is the responsibility of adjacent landholders and Council. No vehicles are allowed in this zone except for emergency services.

Maintenance: The general maintenance is the responsibility of the adjacent landholders.

- Slashing using tractors is not allowed (ride-ons preferred due to lower impact and potential to transport weeds)
- Clearing of undergrowth is not encouraged
- Clearing of grass and ground cover is not allowed
- No non-native species to be planted in this zone

Figure 3. One of the Neighbourhood recreation areas identified on the management plan map.

5.1.3 Bushland Protection zone

Purpose:

The purpose of the Bushland Protection zone is to protect the vegetation and stabilise the sand dune. These areas have been identified as having moderate to very high conservation values and have regional significance. This zone covers approximately 7.0ha.

Usage: Nil to very low pedestrian access

Disturbance: Very low to low

Bushland Protection value/rating: Moderate to high.

Infrastructure:

- No playground equipment
- No construction of permanent or temporary structures
- Positioning of personal chairs and tables is acceptable

Walkways: Walkways will be generally excluded from the Bushland Protection area. Access tracks from Neighbourhood Recreation areas through Bushland Protection areas will need to be approved by Council. The gullies that drain under Gloucester avenue are currently used to transport stormwater from the nearby hill to the ocean. Any future conversion of the gullies to walkways or pathways will need State Government and Whitsunday Shire Council approval.

Management values: Conservation, aesthetics, amenity, dune stabilisation, creek stabilisation (in some areas).

Clearing of vegetation: Permission must be sought from the Council; generally not allowed.

View corridors: No new view corridors allowed in this zone.

General Management: The management of this zone is the responsibility of Council.

Maintenance: The general maintenance is the responsibility of the Council.

- Slashing will not be allowed
- Clearing of undergrowth is not allowed
- Rehabilitation will be conducted by Council and Catchment Groups
- Clearing of grass and ground cover is not allowed

Figure 4. One of the Bushland Protection areas that are shown on the management plan map.

The Hydeaway bay management zones are shown in Appendix 2.

5.2 Additional foreshore use rules

The use of the foreshore will have the following rules;

- The general use of the foreshore will be in accordance with the management plan.
- Formal beach access for the general community is currently restricted to the three existing public access points.
- The weeds will be managed in accordance with the weed management plan for the site.
- Existing view corridors for adjacent residents will be maintained but new corridors will not be permitted.
- There will be no vehicle access to the foreshore from adjacent residents or from Gloucester Avenue except by Emergency service personnel and approved Council vehicles for foreshore maintenance. This is to reduce the damage to the dune system and to reduce the risk of injury to pedestrians.
- No more trees or shrubs will be allowed to be removed from the dune system unless permission is granted by the Whitsunday Shire Council. If people are caught removing trees from the foreshore they could be fined up to $50,000 under the WSC Tree Preservation local law.
- The defining of the view corridors will be done in conjunction with individual property visits by WSC staff. The view corridors will be monitored using photo points and checked at least two times a year by Whitsunday Shire Council staff.

5.3 Action plan to achieve preferred use

Preferred Use Task	Timing	Establishment Costs – Capital	Establishment Costs – Salary	Maintenance Activities and Costs/ year
1. Defining recreational areas	6/2005	Poles and signs x 4 @ $250 each = $1000	4 Days @ $250 = $1000	Nil
2. Defining bushland areas	6/2005	Poles and signs x 4 @ $250 each = $1000	4 Days @ $250 = $1000	Nil
3. Defining view corridor areas	6/2005	Photo monitoring points established for view corridors	4 Days @ $250 = $1000	2 random Inspection days
4. Defining rehabilitation areas and developing a rehabilitation plan	11/2005	Poles and signs x 4 @ $250 each = $1000	4 Days @ $250 = $1000	To be determined

5. Weed management plan	11/2005	Nil	3 Days @ $250 = $750	3 Days/ yr @ $250 = $750
6. Rehabilitation of defined areas for year.	1/2006	100 seedlings @ $1.50 each = $150 Mulch = $150	Planting 1 day x 2 people = $500	3 Days / yr @ $250 = $750
7. Placement of 2 sand ladders and bollarding for walkways	1/2006	$12,000	Green corp. team	Nil
8.Slashing	On Going	Nil	Nil	Contractor Basis
9.Rubbish Collection	On Going	Nil	Nil	WSC
10.Develop a bushfire management plan	6/2006	Nil	3 days @ $250	To be determined
Total		$15300	$6000	$1500 (plush slashing and rubbish removal)

5.4 Site maintenance plan

Task	Who is Responsible	Timing	Resources
Marking of defined areas	Whitsunday Shire Council	5/2005	WSC
Marking of defined areas	Whitsunday Shire Council Green Corp Residents	5/2005	WSC
Rehabilitation plan and implementation	Whitsunday Shire Council	3 times a year	WSC
Recreation area maintenance	Whitsunday Shire Council	As required	WSC
Neighbourhood area maintenance	Site dependant – Whitsunday Shire Council and adjacent residents	As negotiated	WSC
Bushland protection	Whitsunday Shire Council	As required	WSC
Bushfire management	Whitsunday Shire Council in consultation with Gloucester fire Brigade	As determined in plan	WSC

6. Plan review

This plan will be reviewed by the end of June, 2006. The review will be conducted by the Catchment Management Services of the Whitsunday Shire Council. The purpose of the review will be to:

- Determine whether the plan has been successfully implemented via the management plan and whether the maintenance plan needs to be reviewed (section 7).
- Evaluate whether the allocated budget to the plan is reasonable to achieve the objectives of the plan.
- Evaluate whether the community accepts the plan and its outcomes.

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7. Appendix

7.1 Appendix 1: Hydeaway Bay Foreshore Weed Management Plan

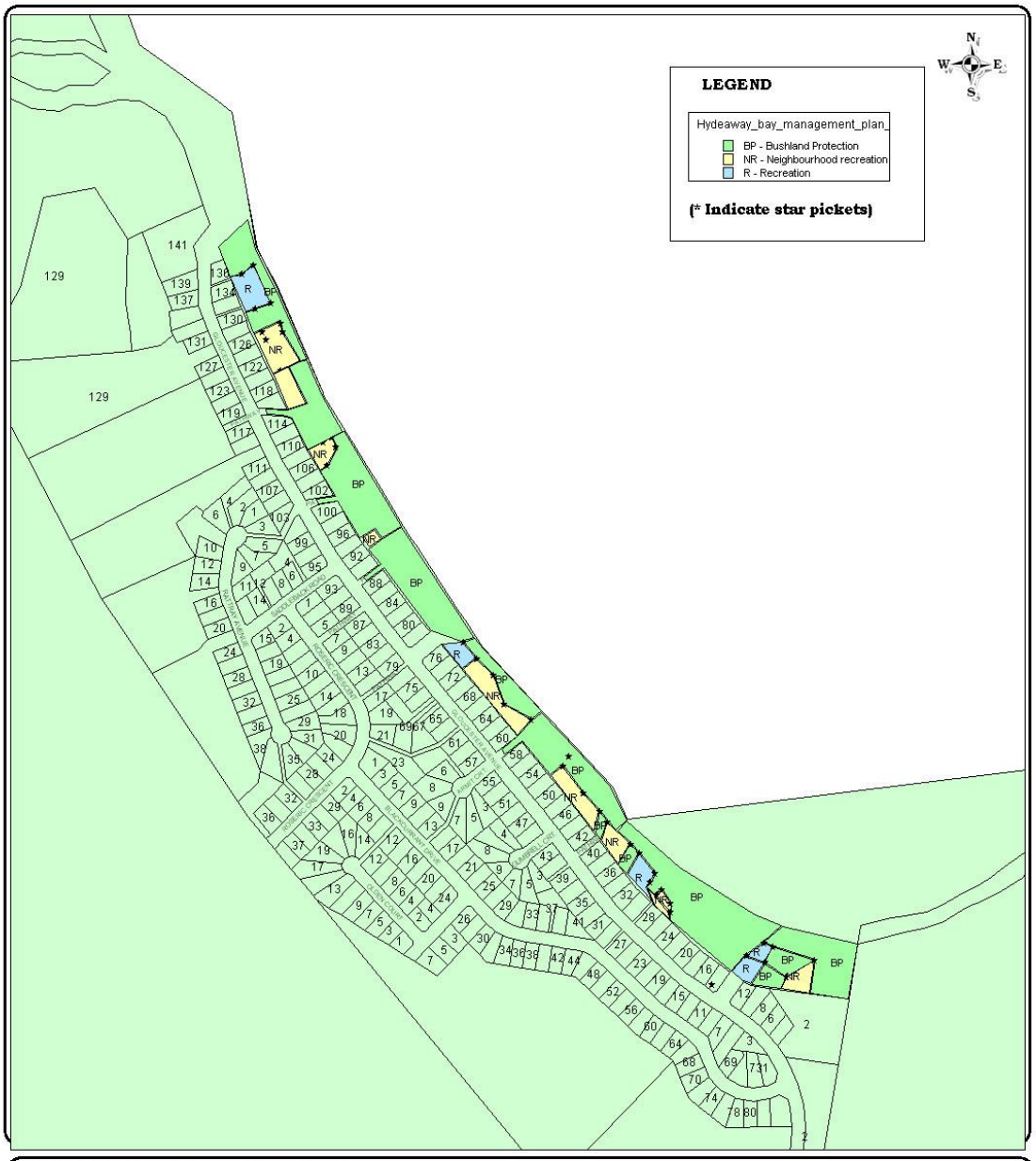
Target weed species

Common Name	Scientific Name	Strategy	Treatment
Mother in laws Tongue	*Sansevieria trifasciata*	Removal in all areas	Hand pull and place in garbage bag and placed in bin or removed to landfill.
Mother of Millions	*Bryophyllum delagoense*	Removal in all areas	Hand remove where possible, use of the chemical Grazon (5ml/litre
Captain Cook Tree	*Thevetia peruviana*	Gradual removal from all areas	Cut with cane knife and quickly spray stump with Grazon.
Calico Plant	*Alternanthera dentata*	Removal with care in erosion prone locations	Hand remove or spray with Grazon at recommended rate (approx 3ml/litre)
Purple wandering Jew	*Tradescandens pallida*	Removal with care in erosion prone locations	Cut vine and soak stem in Grazon
Painted spurge & milkweed	*Euphorbia spp*	Removal with care in erosion prone locations	Spray with Grazon at recommended rate (approx 3ml/litre)
Mossman Burr	*Cenchrus echinatus*	Removal with care in erosion prone locations	Spray with Glysophate (Roundup bioactive if possible – approx. 7ml/litre)
Caltrup	*Tribulus cistoidies*	Removal with care in erosion prone locations	Spray with Grazon at recommended rate (approx 3ml/litre)
Guinea grass	*Panicum maximum*	Removal with care in erosion prone locations. Removal to reduce fire risk.	Spray with Glysophate (Roundup bioactive if possible – approx. 7ml/litre

Timing and methods of weed control activities

1) Property inspections should be conducted at the start and end of the wet season (December and April).
2) Spraying should be conducted by a qualified Council officer and undertaken on clear days with no forecasted rain. The spraying should be conducted under low wind conditions to avoid the spread of chemical to non-target plants. Spraying should avoid situations where there is dew present.
3) For most areas the spraying will entail spot spraying using a handheld pressure bottle or knapsack.

7.2 Appendix 2: Hydeaway Bay Foreshore Map



WHITSUNDAY SHIRE COUNCIL
Geographic Information System

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Hydeaway Bay Foreshore Management Zones

DATE: /09/2002 **SCALE:** 1:5540 **DRAWN BY:** S Hardy
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