# Queens Beach Foreshore Reserve Management Plan

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# 1. Introduction

The purpose of this report is to describe the guidelines that will be used to manage the Queens beach foreshore reserve. The Management Plan will apply to the land between the Queens beach surf lifesaving club, north to Yasso Point a distance of approximately 1.4 kilometres. The Queens beach foreshore reserve is located four kilometres north of Bowen. (Figure 1 and 2). The foreshore reserve is not a registered lot, and is considered Unallocated State Land, and this section covers 12.45ha.

The Queens beach foreshore reserve is a coastal reserve formed on sand dune deposits. The source of most of the sand is from the nearby Don river and coastal longshore drift. The population of the Queens beach township is approximately 400 people, and has a school, tennis courts, surf lifesaving club and cinema. Many of the residents of the Queens beach suburb utilise and value the foreshore reserve for a wide range of reasons.

The foreshore reserve has provided protection to the Queens beach suburb from cyclonic events and other coastal storms in recent decades. In recent times a range of community based projects have been undertaken in the reserve to work towards stabilising the dune system using vegetation and better defining pedestrian walkway.

The management of community coastal reserves can be a delicate balance between providing social recreation opportunities, recognising economic values and protecting a community asset. Different community groups, individuals and government may have differing opinions on how coastal reserves should be managed. It is hoped that the management guidelines in this report will provide some certainty for those residents who want to play an active role in assisting Council to manage the Queens beach foreshore reserve.


**Figure 1.** Location of Queens beach.


**Figure 2.** Queens beach foreshore reserve.

# 2. Background

## 2.1 Physical environment

### 2.1.1 Geology, landform and soils

The underlying bedrock of the Queens beach area is Lower Permian intrusive rock such as granite (Malone and Paine, 1971). The granite outcrops at Mt Nutt and other low hills in the Bowen area. The land between the Don river and the Queens beach foreshore is underlain by deltaic sandy sediments which commonly have layers of silt, sand and clay (Aldrick 1988). These sediments are relatively young formed from past flooding events of the Don river. The migration of the Don River from the town of Bowen north to Euri creek has help shape the coastline of Queens beach. Relict stream channels can be seen throughout the Don river delta, including areas behind Queens beach.

The Queens beach dune system is of Holocene age being less than 10,000 year old. Since the stabilisation of the sea level rise about 6,500 years ago following the last ice age, coastal processes of wind and water have helped form the sand dune system. The sand has originated from the Don river, and from the coastal rivers which drain into Edgecumbe bay.

Coastal longshore drift transports sand in a net northerly direction along the Central Queensland coast. Sand is then blown from the tidal zone into the land by the wind, accumulating as dunes. The dunes can be eroded by wave action and currents associated with large coastal storm events.

### 2.1.2 Vegetation

The existing vegetation in the Queens beach foreshore reserve is highly modified. The vegetation in relatively undisturbed, exposed, sandy stretches of coastal land around Brisk Bay, Cape Gloucester and Molongle creek show distinct vegetation zoning from the fore dune to the hind dune areas. In the hind dune areas coastal littoral rainforest is common with bloodwood and eucalypt emergent's, with a mixed zone on the dune crest, and a range of ground vines and Coastal she-oaks on the dune crest and foredune (Figure 3).

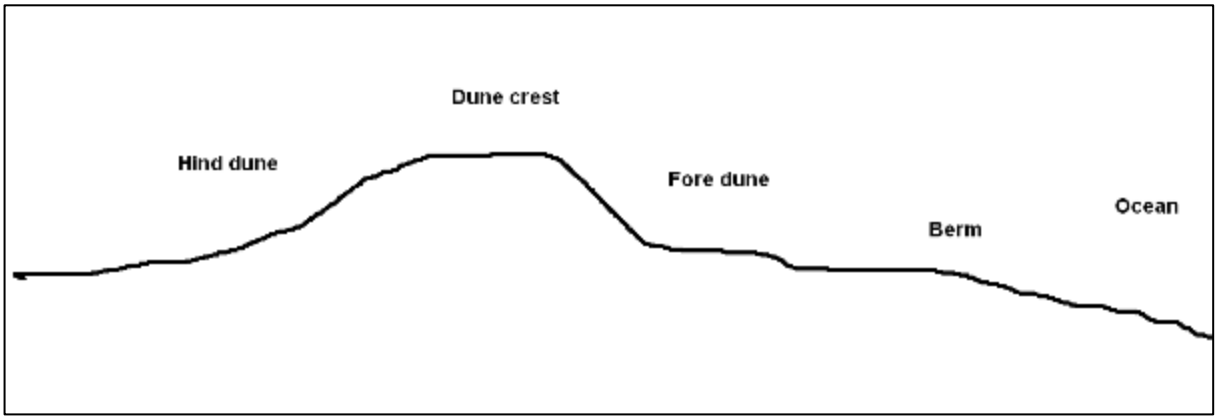


**Figure 3.** Sand dune landforms.

The existing vegetation at Queens beach is an assemblage of exotic grasses, environmental weeds and pioneer native plants. There is a stand of Coastal she-oak (*Casuarina equestifolia*) in the central area of the reserve that were planted by the Beach Protection Authority (QEPA) as a trial some 25 years ago. The dominant species found in the fore dune areas include:

- *Ipomea pres-caprae* (Morning glory)
- *Suaeda australis* (Salt bush)
- *Vitex rotundifolia* (Creeping vitex)
- *Spinefex sericeus* (beach Spinifex)

The native species which are found in the back or hind dune areas include:

- *Acacia salicina* (sally wattle)
- *Clerodendrum inerme* (Lolly bush)

The weeds found at Queens beach include:

- Tridax daisy *(Tridax procumbens)*
- Buffel grass *(Cenchrus ciliaris)*
- Chinee Apple *(Ziziphus mauritiana)*
- Snake weed *(Stachytarphetta spp.)*
- Urena burr *(Urena lobata)*
- Guinea grass *(Megathyrsus maximus var maximus)*
- Caltrop *(Triblus terrestris)*
- Coconut *(Cocos nucifera)*
- Rhodes grass (*Chloris inflata*)

Trees have been planted for ornamental purposes around the Surf lifesaving club and at Yasso Point. In the late 1940's, the *Calophyllum inophyllum* or Indian Laurel were planted along the foreshore reserve north of the surf club. The Banyan figs planted near Yasso Point were planted in 1930 and were derived from seeds or cuttings from those along the strand at Townsville. The *Calophyllum* trees can be seen the 1971 air photograph in figure 4, together with the extent of other vegetation on the dune at this time. A list of plant species in the reserve is found in Appendix 1.

**Figure 4**. Air photograph of Queens beach in 1971.

*2.1.3. Waterways*

The main waterway which influences the Queens beach foreshore reserve is the Don river. The Don river has a catchment of 3571 sq km2 (Norris *et al.,* 2001). The river drains a catchment with a high proportion of acidic intrusive rocks which is the source of most of the sand. The Don river has supplied the sediment which forms the Don river delta and associated floodplain behind the township of Queens beach.

There are two small drainage lines which drain Queens beach and which pass through the foreshore reserve. One small drain emanates from around Beach avenue and the other from Murray avenue. According to local residents occasionally these small drains fill up during a good wet season, however the water has difficulties getting to the sea due to a build up of sand at the discharge points (Figure 5). A discharge value could be fitted to the outlet pipe.


**Figure 5**. Stormwater discharge point for the Beach avenue drain.

### 2.1.4 Climate

The annual average rainfall for Bowen is approximately 1050mm/yr. Most of the annual rainfall occurs during the summer months from low pressure systems located in the Coral sea. Occasionally these low pressure systems develop into cyclones. From 1906 to 2006 the Bureau of Meteorology has listed ten cyclones crossing the coast within 50km of Bowen (Figure 6). A number of other cyclones have passed the coast off Bowen and influenced its rainfall and have caused coastal erosion.

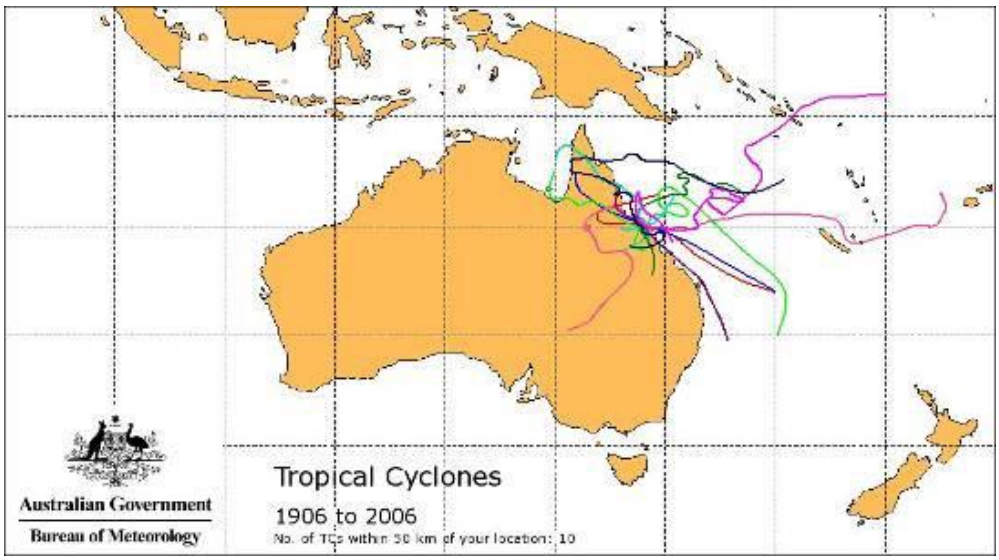


**Figure 6.** Cyclones that have crossed the coast within 50km of Bowen since 1906.

In the late 1950's three cyclones caused large scale destruction in the town of Bowen. Cyclone Agnes hit in March 1956, another in April 1958 and Connie in February 1959. A number of houses were lost along Queens beach in 1958 due to the storm and the erosion, including the Ozone hotel.

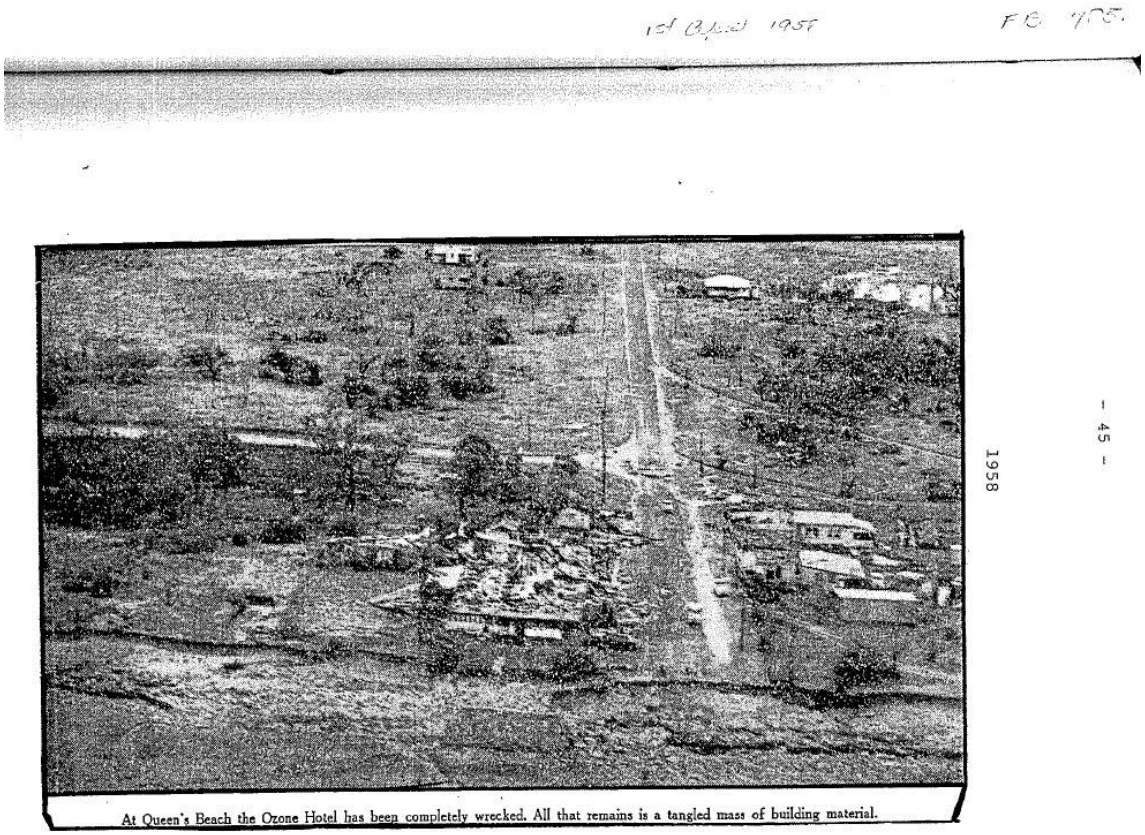


**Figure 7**. Showing the damage caused by the 1958 cyclone.

### 2.1.5 Role and processes of coastal dunes

Sand dunes are formed by a number of coastal processes. Coastal currents carry sand along the coast and transport it into the tidal zone. Off-shore winds then blow the sand landwards where it accumulates and form dunes. Dunes are stabilised by vegetation. The vegetation reduces wind velocity which encourages sand grain particles to settle. Plant parts such as roots and stems trap sand grains. In coastal sand dune areas without vegetation, the dune becomes mobile and the sand can travel inland. Vegetated fore dunes restrict wind and sand movements inland (QEPA, 1996a). The dune vegetation can reduce wind erosion, reduce wave erosion caused by over-wash, and assist in building sand dunes back after storm events (QEPA, 1996a).

The horizontal and vertical size of dunes is determined by the quantity of sand transported into the tidal zone by longshore coastal currents, the aspect of the bay and strength and dominance of the direction of the wind. Coastal dune systems can be kilometres in width where sand supply from nearby rivers is plentiful and the dominant wind direction is favourable.

Coastal dunes protect coastal areas from storm events. During storm events it is natural for dunes to be undercut and eroded. In many situations the eroded sand is taken away by retreating wave currents and settle in bars offshore. During calmer conditions these bars gradually migrate back towards the foreshore and into the tidal range where the wind will once again transport the sand towards the dune. Over time, the sand from these bars will restore the dune system with the assistance of vegetation. However, during extremely large storm events it is possible for the sand to be transported a distance offshore, beyond the reach of currents which normally transport the sand back. In these extreme situations, it will take the dune longer to recover.

It should be noted that beach erosion at Queens beach has been a hotly debated and discussed issue for more than 80 years. In August 1930, the Bowen Independent included an article on beach erosion at Queens beach. The article said:

*The erosion that has been going on at the beach frontage is a matter for the gravest concern of all. A road has been put down at considerable expense along the beach front and if something is not done at an early date the expense of repairing the damage will be tremendous. A great amount of work is required to be done here, but where is the money to come from is the question that will crop up…. The only way to permanently stopping the erosion seems to be to slope and stone the banks leaving occasional footways…*

## 2.2 Past and current use

Europeans first settled Bowen in the 1860's. Photographic and reported use of Queens beach before world war two is difficult to find. Some first hand accounts of the Queens beach foreshore reserve have been sought to determine past use and history of the foreshore reserve. The following is an account from Mr De Luca of Queens beach;

- *After world war two, Mr Gideon Potts started planting trees in the foreshore parks and public areas adjacent to the current tennis courts. This area was used by miners from Collinsville as a holiday camping resort. The skate park, surf life saving club were all part of the original parkland planted by Mr Potts. It was not until some years latter that this area was named Gideon Potts park.*
- *Before the war, the foreshore had Morton bay ash, tea trees, wattle species and other native trees the same as those still found at the Golf club, tennis club and Strickland Street.*
- *After the war, Mr Hall Scott planted sisal hemp on the dunes which made access difficult. Machinery was brought in many years ago to remove the sisal hemp which was planted to stop the dune erosion. The machinery did not reform the dune system.*
- *The spoon drain from the high dune to the road is natural and has been there since before the war the only modification done in recent times was the drain at Murray Ave.*
- *In 1944, Ted Cunningham built a zoo with native animals where the current Wangaratta caravan park is located. At the same time the council filled in the natural spoon drain at the end where the surf club is now.*

The area has a long history of being used by local indigenous people. Local members of the indigenous people have said they have used the area for the following uses:

- *Bon fires*
- *Picnics*
- *Traditional meetings and community gatherings*
- *Family celebrations*
- *Fishing*
- *Teaching the younger generation about culture*

Locals also state that the area where the banyans are planted was used as a storage area for night soil.

The foreshore reserve is now used by locals and tourists. The reserve has a number of established walkways which give easy access to the beach. There is a boat ramp at Yasso Point and also an area designated for horse riding. Many people use the beach to walk along.

## 2.3 Legislation and policy

The coastal zone is recognised as a high use area and a fragile environment. 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 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 Queens beach 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) 11
- 2.8.3. Biodiversity
- 2.8.4. Rehabilitation of coastal resources
- 2.8.5. Pest species management
- 2.9.3. State land on the coast

In 2008, the Queensland government conducted a review of the Coastal Plan. In June 2009, the State Government released a new draft Coastal Plan which it hopes to adopt in early 2010. The State government proposes to introduce a new State Policy on Coastal Management, and a State Planning Policy on Coastal Protection.

The purpose of the draft Management Policy is to provide policy direction and guidance on managing coastal land in Queensland in line with the objectives of the Coastal Act. Coastal resources are protected and maintained by:

a) preparing management plans (or similar tools) to direct strategic, efficient and effective management practices
b) reflecting potential climate change impacts in decision making about the use and management of coastal resources
c) providing infrastructure and services to facilitate effective management of coastal resources
d) regulating the use of coastal resources to allow public benefits from those resources to be realised, while restricting uses that result in a loss of associated values

e) implementing planned maintenance, protection and rehabilitation activities
f) improving collaborative management efforts, knowledge sharing, community awareness and increased participation in coastal management activities (QDERM, 2009a)

The Draft State Planning Policy Coastal Protection (draft policy) aims to protect the coastal resources of the coastal zone by setting out criteria for land-use planning and development assessment- enabling Queensland to manage development within the coastal zone including land below tidal waters. Development in the coastal zone, is planned, designed, constructed and operated to:

a) ensure the protection of people and property from coastal hazards taking into account the predicted effects of climate change; and
b) allow for natural fluctuations of the coast to occur including as a result of sea level
c) rise; and
d) ensure physical coastal processes continue to occur naturally as far as practicable; and
e) preserve areas of high ecological significance and conserve other ecological values including terrestrial, wetland and marine ecological values; and
f) preserve the scenic amenity of the coast by retaining the coast in a predominately natural, undeveloped state; and
g) maintain and enhance public access to the coast; and
h) preserve opportunities for locating coastal-dependant land uses in areas adjoining tidal waters; and
i) achieve urban settlement patterns that conserve coastal resources. (QDERM, 2009b)

Other Queensland legislation that is relevant to the management of Queens beach foreshore includes the Environmental Protection Act (1995) (s3 and s319), the Land Act (1994 (s4)), Integrated Planning Act (1997) and the Nature Conservation Act (1992). 12

## 2.4 Other plans and studies

The most recent scientific studies conducted in the Queens beach area include an investigation of Acid sulfate soils (Muller, 2006), and the mapping of beach scrubs by Reef Catchments Natural Resource Management Group in 2008. In 1988, the soils and geology were mapped by Aldrick (1988). The State government has mapped erosion prone areas along the Queensland coast. The Government's erosion prone zone at Queens beach is 110m. The Environment Protection Agency state that "the 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 period" (EPA, 2005).

In 2007, the Bowen Shire council engaged UPLAN to develop a landscape concept plan for the southern section of the Queens beach foreshore, north of the surf life saving club (Appendix 5.3). The footpath shown on this Plan is now being constructed by the Council.

In 2001 the Queens Beach Action Group (QBAG) developed a sand dunes concept plan. The issues identified in the concept plan included:

- Low community appreciation of the dune system, their nature, conservation, and recreational values
- Differing community views for present and future management of the area
- Low endemic grass and tree species content along the fore dune and back dune slope area,
- Back dune (hind dune) slope area in a degraded state due to current management (council slashing), and high invasive weed species,
- High grassy weed content and ground cover eg bindii, goats thorn, guinea grass, Chinee apple and sisal hemp,
- Dune access tacks in a degraded state, with some evidence of wind and pedestrian traffic through fore dune zone

The QBAG concept plan aimed to initiate a project that would:

- transplant endemic grass and groundcover species from local sources
- Plant 1000 endemic shrub species along the fore dune and back dune slope areas
- Upgrade beach access walking tracks over the dunes with chain and board ramps
- Remove grassy weed and exotic groundcover species
- Set up monitoring sites
- Educate the general community about sand dune management and maintenance

(A copy of the QBAG concept plan map is shown in Appendix 5.4.)

## 2.5 Community consultation

The Management of public land requires community input. Community consultation can occur through a range of methods including meetings, surveys and informal discussions. In May 2001, a public meeting was held to discuss the Queens Beach Action Groups ideas to stabilise the dune system. According to the QBAG representatives, more than 30 people attended the public meeting prior to the development of the concept plan in November that year.

On the 16th of September 2009, a public meeting was held in the surf life saving club to discuss the management of the Queens Beach foreshore reserve, with 26 people attending. The main issues discussed at this meeting were;

- the proposed new State Government Coastal Plan,
- the QBAG concept plan, and,
- the amount and extent of vegetation that should occur on the reserve.

On the 4th of October an on-site meeting was organised by the council to discuss in more detail with local residents what plants could be planted, and where. There were 11 residents who attended this on-site meeting. The Council received 14 written feedback forms after the meeting on the 16th of October to provide initial information on the social, environmental and economic issues of the Queens beach reserve. These feedback forms are treated as confidential and many of the issues raised have been incorporated into this report.

Council officers have also spoken with local indigenous people, members of QBAG and a number of other locals on the history of the Queens beach reserve, and how it might be used in the future. It is envisaged that this draft report will be made available for public comment for a defined period. Once the public comments are received, this Plan may be amended and the final Plan adopted by Council.

## 2.6 Foreshore values

### 2.6.1 Social values

The Queens beach foreshore reserve and beach are used by many local people. The area has a well used boat ramp at Yasso Point. There is also dedicated horse riding entrance point to the beach near the boat ramp. Yasso Point is a scenic place with views up the Don river tributary and along the coast. While this area may have low tourist numbers at present, this could easily be changed.

Queens beach esplanade is an urban area with most of the lots of land occupied. Many of the local residents along the esplanade have easy access to the beach via a number of dedicated walkways. There are six existing walkways and one future walkway opposite Scott Ave to the beach along the 1.4km stretch of coast. Two of these walkways currently have rubber matting placed along the length of the walkway to aid access by elderly and partially disabled people. A wheelchair friendly access to the dune crest could be installed near the surf lifesaving club.

There are a number of community groups which use the Queens beach foreshore reserve. The QBAG have been undertaking revegetation and dune stabilisation work in the reserve since 2001. QBAG has worked

with a number of local schools, including the Queens beach primary school on a number of tree planting days. The QBAG have undertaken some joint revegetation projects with the Burdekin Dry tropics Natural Resource Management Group. Local indigenous groups also use the reserve. The reserve's social values could be increased by:

- encouraging tourists to visit the Yasso Point area,
- placing picnic tables at Yasso Point for locals and visitors,
- continue a path from the surf life saving club to Yasso Point so people do not have to walk on the road or over the dunes,
- installing toilets at Yasso Point,
- installing appropriate and planned information signage,
- remove weeds from the reserve to improve aesthetics, and,
- plant vegetation which have attractive flowers.

### 2.6.2 Economic values

In recent years, Queens beach esplanade real estate values have tripled making it one of the more sought after locations in Bowen. People have bought houses in recent years because of the attractive coastal setting but also as an investment. A number of residents place a high value on being able to see the ocean from their property and believe planting tall trees in the reserve will reduce the value of their property.

The Queens beach foreshore dune system provides a protective barrier to the properties along Queens beach esplanade during storms. Many residents recognise the need to ensure the dune system remains intact so that it protects their property during cyclones. This need is supported by the Queens Beach Action Group who have expressed concern about coastal erosion and the need to stabilise dunes to reduce erosion.

The esplanade road itself is valuable infrastructure and should be protected where possible. Some residents have requested that the width of the esplanade road be widened to allow traffic to pass more safely.

Increasing the tourism potential of the Queens beach area would be economically beneficial for Bowen. If the attractions of Yasso Point and Queens beach are promoted, this might encourage more tourists to visit Bowen and attract more people to stay here.

With the proposed increase in sea level of 0.8m over the next 100 years due to climate change, the Queens beach dune system can be expected to retreat and place pressure on the properties in the Queens beach area (DERM, 2009b).

### 2.6.3 Environmental values

The Queens beach foreshore reserve has been extensively disturbed since European settlement. The original vegetation has long been cleared and most of the vegetation in the reserve are non-native weeds. Local accounts state that there has not been much mechanical modification of the dune system, however there has been some dune retreat from past cyclone events. The foreshore reserve area is important because it allows natural processes of erosion and accretion to occur.

In the fore dune area, native vines such as *Ipomea pres-capre* and *Vitex rotundifolia* can be seen binding and trapping mobile sand. Native grasses such as Spinifex (*Spinifex sericeus*) also colonise the more mobile sections of the dune. The hind dune areas, is colonised by weedy grasses, and pioneer native shrubs such as *Clerodendrum inerme* and *Acacia salicina*. The Beach Protection Authority planted approximately 50 *Casuarina equestifolia* trees in the central section of the reserve with these plants now attaining a height of about 5- 7 m. QBAG have also been involved in planting a number of other native species endemic to the site in recent years. A full list of plant species found on site is found in Appendix 5.7.

According to QBAG Guinea grass (*Megathyrsus maximum*) occurred extensively through the reserve and now has been reduced to small scatted infestations. Guinea grass is an introduced, fast growing, fire tolerant grass which should to be removed from the reserve. The most common grass in the reserve is Buffel grass (*Cenchrus ciliaris*) which is native to Africa and eastern Asia. Buffel grass can tolerate a range of soil conditions and can spreads rapidly. The Buffel grass in the foreshore reserve does provide a protective layer for the sand and its removal should occur in small sections over a long period of time, with it being replaced with native ground cover.

QBAG and other local residents have reported turtles nesting in the hind dune area. According to one resident, a green turtle was seen wandering the esplanade one night which appeared to be attracted to the street lights. The installation of turtle friendly lighting should reduce the incidence of turtle disorientation by street lights. The Burdekin Bowen Integrated Floodplain Management Group (BBIFMAC) have sought funding to install light shields to reduce light being thrown towards the beach.

The two stormwater drains which enter the reserve carry minor amounts of litter and other contaminants. Efforts should be made to minimise the litter emanating from the Queens beach residential areas by ensuring residents manage their waste appropriately.

The biodiversity values of the reserve are currently quite low due to the low diversity of species, lack of native vegetation, and habitat for native animals. Areas which have a large number of species with different vegetation forms provide a larger range of niches for animals. Grassland areas appeal to a relatively low number of animals and do not offer much protection against predators. The inclusion of a shrub layer into the foreshore reserve will increase the diversity of plants, food for animals and niches and habitats for native animals.

The reserve is connected to the estuarine ecosystem of the Don river. If a sparse to mid dense shrub layer can be established in the foreshore reserve, this may encourage a wider range of bird and other wildlife to inhabit this area. A revegetation plan for the Queens beach reserve is found in Appendix 5.2.

### 2.6.4 Cultural values

The area of Yasso Point has been a local focal point for local indigenous people for many years. In 2000, a memorial was erected at Yasso Point recognising Jack and Topsy Yasso. The WASIC group represent the South sea islander people of the area who have used the reserve in the past and continue to do so.

The local traditional owners according to Tindale (1974) were the “Juru” people which are part of the Birri Gubba nation. The local Juru people are assisted by Gudjuda reference group with its office in Ayr. The Girudala Community Cooperative Society Ltd is an organisation which provides support to the local indigenous community. The Girudala Community Cooperative Society Ltd, is an organisation which provides support to the local indigenous people. According to Jim Gaston of the Juru people, there are the remnants of aboriginal middens, dinner sites, camping sites and turtle nesting sites in the Queens beach foreshore reserve. The Yasso group would like the facilities at Yasso point improved to include;

- Toilet with an outside shower (they swim in the river)
- BBQ’s
- More tables and chairs
- A shelter shed for protection from the sun and rain
- Power for lighting
- An area for a traditional garden with protection such as a bollard fence to stop people from walking on the gardens
- A meeting hall or shelter so they can meet each month and discuss traditional and cultural issues and to train and teach the young people in cultural ways.

The Yasso community believe the upgrading of the facilities at Yasso point would be a benefit to holiday makers and the community as a whole. The number of people who use this area has increased significantly in recent times however the facilities are still not adequate.

# 3. Management plan

## 3.1 Management guidelines for foreshore area

The Queens beach foreshore has been divided up into five management units (Figure 8). Each management unit has unique landform, vegetation and usage. The creation of management units allows specific actions to be allocated to each unique section of the foreshore. Each management unit will have a defined set of guidelines for its management and maintenance. This Management Plan will supersede previous plans for the reserve. The goals of the Foreshore Management Plan are:

1. To protect the existing environmental values of the foreshore and improve them where possible over time.
2. To provide a safe coastal recreation area for local residents and tourists.
3. To ensure that the foreshore is maintained in a sustainable way that protects and enhances its natural values and allows for natural processes to occur.
4. To ensure management and maintenance is consistent with best management practises and aligns with State legislation.
5. To provide protection from cyclone events and other storms and stabilise the dune system.
6. To recognise that residents along Queens beach esplanade place value on being able to see the ocean and this should be a consideration when undertaking any revegetation in the reserve.


**Figure 8.** Showing the five management areas of Queens beach foreshore reserve

### 3.1.1 Management guidelines for Area 1

This area is approximately 1.9 ha in area, width is 120m and length is 110-150m.

| Issue | Description of Management and Maintenance | Roles and Responsibility |
|---|---|---|
| 1. Weed Management | Grass weeds will be controlled using hand held weed spray pack units with biactive Glysophate (Council).<br><br>Declared weeds such as Chinee apple will be controlled by Council.<br><br>To maintain area free of exotic grass and other weeds. The removal of weedy grasses needs to be coordinated with a replacement program involving the planting of native grasses. | Community – hand pulling weeds. Can use hand held spray packs to control weeds under instructions from Council's Pest management officers.<br><br>Council – Council to spray chemicals on the public land. Spray for declared weeds twice a year. |
| | | |
| 2.Revegetation | Revegetation should comply with the Revegetation Plan in the Appendix 5.2 and use plant list two.<br><br>Native plants which naturally re-colonise this area will be retained.<br><br>Revegetation theme will include grasses, vines, shrubs and small tress (maximum height of 6m) as per list two. | Community – Assist with tree planting.<br><br>Council – To Assist in providing grass, vines, shrubs, trees. |
| | | |
| 3.Due Stabilization – Mechanical Methods | No stabilisation measures required, allow natural sand accumulation | |
| | | |
| 4. Dune Stabilization – Non-Mechanical Methods | Ensure at least 80% ground cover with grasses and vines. Use fertiliser to provide a boost to plant growth where revegetation is undertaken.<br><br>Drift wood can be placed flat on the ground at the base of the dune. This drift wood may assist in trapping sand which will help to rebuild the dune. | Community – Community may place drift wood at the base of the dune to trap wind blown sand.<br><br>Council – To provide plants, and establish photo points to monitor the erosion. |
| | | |
| 5.Infrastructure | Picnic shelter to be installed near car park. This shelter should be large enough to seat 15 people.<br><br>Signage indicating that the foreshore is under restoration. The sign at this location might recognise indigenous usage of the area and indigenous cultural heritage. | Community – Nil<br><br>Council –To construct picnic shelter and install one sign. Need designated car parking. Need Master plan for Yasso point area. |
| | | |
| 6.Tree Management | Dead trees to be removed if they are a hazard.<br><br>Dead limbs of trees to be removed if they are a hazard.<br><br>View management – No trees to be removed<br><br>Shade trees may be planted next to footpath provided that they are inline with adjacent boundary lines and the location is approved by potentially impacted residents | Community – To hand pull weeds.<br><br>Council – To spray for declared weeds. To remove dead trees if they are a hazard (Council officers to determine). Council to trim lower tree limbs if required. |
| | | |
| 7. Beach Access | There is currently one access point which is used by horses and dogs. | Community – use beach access point only. |
| | | |
| 8.Other | No vehicles on the beach or dune areas<br><br>Develop a Master-plan for the Yasso Point area. The Plan should include what infrastructure could/should be installed and who will maintain and management the infrastructure.<br><br>WASIC to have a 200m2 area to grow traditional foods | Community – WASIC to develop and maintain traditional garden area via a Council approved plan.<br><br>Council – Develop a Master Plan for Yasso Point area. Include designated car parking. |

**Figure 9.** Yasso Point showing the banyan figs.

### 3.1.2 Management guidelines for Area 2

This area is approximately 2.7 ha in area, width is 85m and length is 280m.

| Issue | Description of Management and Maintenance | Roles and Responsibility |
|---|---|---|
| 1. Weed Management | Grass weeds will be controlled using hand held weed spray pack units with biactive Glysophate (Council).<br><br>Declared weeds such as Chinee apple will be controlled by Council.<br><br>To maintain area free of exotic grass and other weeds. The removal of weedy grasses needs to be coordinated with a replacement program involving the planting of native grasses. | Community – hand pulling weeds. Can use hand held spray packs to control weeds under instructions from Council's Pest management officers.<br><br>Council – Council to spray chemicals on the public land. Spray for declared weeds twice a year. |
| | | |
| 2.Revegetation | Revegetation should comply with the Revegetation Plan in the Appendix 5.2 and use plant list one.<br><br>Native plants which naturally re-colonise this area will be retained.<br><br>Revegetation theme will include grasses, vines, shrubs and small tress (maximum height of 1.0m) as per list one. Taller shrubs planted only with approval of adjacent residents.. | Community – Assist with tree planting.<br><br>Council – To Assist in providing grass, vines, and shrubs |
| | | |
| 3.Due Stabilization – Mechanical Methods | No stabilisation measures required, allow natural sand accumulation | |
| | | |
| 4. Dune Stabilization – Non-Mechanical Methods | Ensure at least 80% ground cover with grasses and vines. Use fertiliser to provide a boost to plant growth where revegetation is undertaken. | Community – Community may place drift wood at the base of the dune to trap wind blown sand. |

| | | |
|---|---|---|
| | Drift wood can be placed flat on the ground at the base of the dune. This drift wood may assist in trapping sand which will help to rebuild the dune. | Council – To provide plants, and establish photo points to monitor the erosion. |
| | | |
| 5.Infrastructure | No horse signage at walkway<br><br>Continue footpath to Yasso Point | Community – Nil<br><br>Council –Construct footpath and install sign |
| | | |
| 6.Tree Management | Dead trees to be removed if they are a hazard.<br><br>Dead limbs of trees to be removed if they are a hazard.<br><br>View management – No trees to be removed<br><br>Shade trees may be planted next to footpath provided that they are inline with adjacent boundary lines and the location is approved by potentially impacted residents | Community – To hand pull weeds.<br><br>Council – To spray for declared weeds. To remove dead trees if they are a hazard (Council officers to determine). Council to trim lower tree limbs if required. No horse signage at walkway. |
| | | |
| 7. Beach Access | There is currently one new access point | Community – use access point only in this section. |
| | | |
| 8.Other | No vehicles on the beach or dune areas | |

**Figure 10.** Showing the terrain of area 2.

### 3.1.3 Management guidelines for Area 3

This area is approximately 1.07 ha in area, width is 77m and length is 132m.

| Issue | Description of Management and Maintenance | Roles and Responsibility |
|---|---|---|
| 1. Weed Management | Grass weeds will be controlled using hand held weed spray pack units with biactive Glysophate (Council).<br><br>Declared weeds such as Chinee apple will be controlled by Council.<br><br>To maintain area free of exotic grass and other weeds. The removal of weedy grasses needs to be coordinated with a replacement program involving the planting of native grasses. | Community – hand pulling weeds. Can use hand held spray packs to control weeds under instructions from Council's Pest management officers.<br><br>Council – Council to spray chemicals on the public land. Spray for declared weeds twice a year. |
| | | |
| 2.Revegetation | Revegetation should comply with the Revegetation Plan in the Appendix 5.2 and use plant list one.<br><br>Native plants which naturally re-colonise this area will be retained.<br><br>The Casuarina's planted by QBAG to be retained<br><br>Revegetation theme will include grasses, vines, shrubs (maximum height of 1.0m) as per list one. | Community – Assist with tree planting including the school.<br><br>Council – To Assist in providing grass, vines, and shrubs, trees. |
| | | |
| 3.Due Stabilization – Mechanical Methods | No stabilisation measures required, allow natural sand accumulation | |
| | | |
| 4. Dune Stabilization – Non-Mechanical Methods | Ensure at least 80% ground cover with grasses and vines. Use fertiliser to provide a boost to plant growth where revegetation is undertaken.<br><br>Drift wood can be placed flat on the ground at the base of the dune. This drift wood may assist in trapping sand which will help to rebuild the dune. | Community – Community may place drift wood at the base of the dune to trap wind blown sand.<br><br>Council – To provide plants, and establish photo points to monitor the erosion. |
| | | |
| 5.Infrastructure | Signage indicating that the foreshore is under restoration. No horse signage at walkway. Sign describing role and values of coastal sand dunes.<br><br>Continue footpath to Yasso Point | Community – Nil<br><br>Council –To install appropriate signs and continue path to Yasso Point. |
| | | |
| 6.Tree Management | Dead trees to be removed if they are a hazard.<br><br>Dead limbs of trees to be removed if they are a hazard.<br><br>View management – No trees to be removed<br><br>Shade trees may be planted next to footpath provided that they are inline with adjacent boundary lines and the location is approved by potentially impacted residents | Community – To hand pull weeds.<br><br>Council – To spray for declared weeds. To remove dead trees if they are a hazard (Council officers to determine). Council to trim lower tree limbs if required. |
| | | |
| 7. Beach Access | There is currently one new access point | Community – use access point only in this section. |
| | | |
| 8.Other | No vehicles on the beach or dune areas | |

**Figure 10**. Showing area 3.

### 3.1.4 Management guidelines for Area 4

This area is approximately 2.9 ha in area, width is 63m and length is 401m.

| Issue | Description of Management and Maintenance | Roles and Responsibility |
|---|---|---|
| 1. Weed Management | Grass weeds will be controlled using hand held weed spray pack units with biactive Glysophate (Council).<br><br>Declared weeds such as Chinee apple will be controlled by Council.<br><br>To maintain area free of exotic grass and other weeds. The removal of weedy grasses needs to be coordinated with a replacement program involving the planting of native grasses. | Community – hand pulling weeds. Can use hand held spray packs to control weeds under instructions from Council's Pest management officers.<br><br>Council – Council to spray chemicals on the public land. Spray for declared weeds twice a year. |
| | | |
| 2.Revegetation | Revegetation should comply with the Revegetation Plan in the Appendix 5.2 and use plant list one.<br><br>Native plants which naturally re-colonise this area will be retained.<br><br>Revegetation theme will include grasses, vines, shrubs and small trees (maximum height of 1.0m) as per list one. | Community – Assist with tree planting.<br><br>Council – To Assist in providing grass, vines, and shrubs, trees. |
| | | |
| 3.Due Stabilization – Mechanical Methods | No stabilisation measures required, allow natural sand accumulation | |
| | | |
| 4. Dune Stabilization – Non- | Ensure at least 80% ground cover with grasses and vines. Use fertiliser to provide a boost to plant growth where revegetation is undertaken. | Community – Community may place drift wood at the base of the dune to trap wind blown sand. |

| | | |
|---|---|---|
| Mechanical Methods | Drift wood can be placed flat on the ground at the base of the dune. This drift wood may assist in trapping sand which will help to rebuild the dune. | Council – To provide plants, and establish photo points to monitor the erosion. |
| | | |
| 5.Infrastructure | One sign indicating that the foreshore is under restoration. No horse signage at walkway.<br><br>Continue footpath to Yasso Point. | Community – Nil<br><br>Council –To construct footpath and install appropriate signs. |
| | | |
| 6.Tree Management | Dead trees to be removed if they are a hazard.<br><br>Dead limbs of trees to be removed if they are a hazard.<br><br>View management – No trees to be removed<br><br>Shade trees may be planted next to footpath provided that they are inline with adjacent boundary lines and the location is approved by potentially impacted residents | Community – To hand pull weeds.<br><br>Council – To spray for declared weeds. To remove dead trees if they are a hazard (Council officers to determine). Council to trim lower tree limbs if required. |
| | | |
| 7. Beach Access | There is currently one new access point | Community – use access point only in this section. |
| | | |
| 8.Other | No vehicles on the beach or dune areas | Community |


**Figure 12.** Showing area 4.

### 3.1.5 Management guidelines for Area 5

This area is approximately 2.8 ha in area, width is 68m and length is 420m.

| Issue | Description of Management and Maintenance | Roles and Responsibility |
|---|---|---|
| 1. Weed Management | Grass weeds will be controlled using hand held weed spray pack units with biactive Glysophate (Council).<br><br>Declared weeds such as Chinee apple will be controlled by Council.<br><br>To maintain area free of exotic grass and other weeds. The removal of weedy grasses needs to be coordinated with a replacement program involving the planting of native grasses. | Community – hand pulling weeds. Can use hand held spray packs to control weeds under instructions from Council's Pest management officers.<br><br>Council – Council to spray chemicals on the public land. Spray for declared weeds twice a year. |
| | | |
| 2.Revegetation | Revegetation should comply with the Revegetation Plan in the Appendix 5.2 and use plant list one.<br><br>Native plants which naturally re-colonise this area will be retained.<br><br>Revegetation theme will include grasses, vines, shrubs and small trees (maximum height of 1.0m) as per list one. | Community – Assist with tree planting.<br><br>Council – To Assist in providing grass, vines, and shrubs. |
| | | |
| 3.Due Stabilization – Mechanical Methods | No stabilisation measures required, allow natural sand accumulation | |
| | | |
| 4. Dune Stabilization – Non-Mechanical Methods | Ensure at least 80% ground cover with grasses and vines. Use fertiliser to provide a boost to plant growth where revegetation is undertaken.<br><br>Drift wood can be placed flat on the ground at the base of the dune. This drift wood may assist in trapping sand which will help to rebuild the dune. | Community – Community may place drift wood at the base of the dune to trap wind blown sand.<br><br>Council – To provide plants, and establish photo points to monitor the erosion. |
| | | |
| 5.Infrastructure | One sign indicating that the foreshore is under restoration. No horse signage at walkway. Sign installed indicating the role and values of coastal dunes.<br><br>Continue footpath to Yasso Point, however the track should not be placed on the dune crest.<br><br>Stormwater discharge points – install a discharge valve. | Community – Nil<br><br>Council –To install appropriate sign and continue footpath to Yasso Point.<br><br>Council – Footpath – need to ensure topsoil is placed beside the path to reduce drop-off.<br><br>Council - Implement the UPLAN plan however redesign to keep the footpath off the dune crest.<br><br>Council - Wheel chair access to the beach to be sited close to the surf lifesaving club (close to toilet amenities and car parking)<br><br>Council – to install a discharge valve at the end of the stormwater pipe to improve discharge capabilities. |
| | | |
| 6.Tree Management | Dead trees to be removed if they are a hazard.<br><br>Dead limbs of trees to be removed if they are a hazard.<br><br>View management – No trees to be removed | Community – To hand pull weeds.<br><br>Council – To spray for declared weeds. To remove dead trees if they are a hazard (Council officers to determine). Council to trim lower tree limbs if required. |

| | | |
|---|---|---|
| | Shade trees may be planted next to footpath provided that they are inline with adjacent boundary lines and the location is approved by potentially impacted residents | |
| | | |
| 7. Beach Access | There is currently one new access point | Community – use access point only in this section. |
| | | |
| 8.Other | No vehicles on the beach or dune areas | Community |

## 3.2 Review and evaluation

The Queens Beach Foreshore Management Plan will be reviewed in 12 months after it is adopted by the Whitsunday Regional Council. The review process will include a public meeting on site to discuss the implementation of the Plan. Any proposed changes to the Plan from the public meeting, and consultation with the State Government, will involve the development of a revised version of the Management Plan and the changes adopted by the Council.

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# 5. Appendix

## 5.1 Vegetation list for the reserve

| Species Name | Common Name | Native/Exotic |
|---|---|---|
| *Acacia salicina* | Sally Wattle | Native |
| *Aster subulatus* | Bushy Starwort | Exotic |
| *Asystasia gangetica* | | Exotic |
| *Calophyllum inophyllum* | Indian Laurel | Native |
| *Casuarina equestifolia* | Coastal she oak | Native |
| *Cenchrus ciliaris* | Buffel grass | Exotic |
| *Cenchrus echinatus* | Mosman river grass | Exotic |
| *Chloris inflata* | Rhodes grass | Exotic |
| *Clerodendra inerme* | Lolly bush | Native |
| *Cocos nucifera* | Coconut | Exotic |
| *Gomphrena celosioides* | Gomphrena weed | Exotic |
| *Heliotropium amplexicaule* | Blue Heliotrope | Exotic |
| *Hyptis capitata* | Knobweed | Exotic |
| *Indigofera pratensis* | Forest indigo | Native |
| *Ipomea pes-caprae* | Goats foot morning glory | Native |
| *Megathyrsus maximus var maximus* | Guinea grass | Exotic |
| *Mormordica charantia* | Balsam pear | Exotic |
| *Rhynchelytrum repens* | Red Natal grass | Exotic |
| *Terminalia catappa* | Beach almond | Exotic |
| *Triblus terrestris* | Caltrop | Native |
| *Tridax procumbens* | Tridax daisy | Exotic |
| *Spinifex sericeus* | spinifex | Native |
| *Suaeda australis* | Salt bush | Native |
| *Stachytarphetta spp* | Snake weed | Exotic |
| *Stylosanthes humilis* | Townsville lucerne | Exotic |
| *Urena lobata* | Urena burr | Exotic |
| *Vitex rotundifolia* | Creeping vitex | Native |
| *Ziziphus mauritiana* | Chinee Apple | Exotic – Declared weed |

## 5.2 Revegetation Plan for the reserve

### 5.2.1 Revegetation Plan goals

The goals of the Revegetation Plan will be to:

1) Remove woody weeds from the reserve within next few years.

2) Remove grass weeds from the reserve in a gradual, staged manner replacing them with more suitable ground cover species, over a longer period of time – 10 years.

3) Not to remove native plants which colonise the reserve.

4) To revegetate the area according to the area number and proposed plant list.

5) Not to plant trees which will reduce the sea views of residents along the Esplanade.

6) The species selected for revegetation should be suited to the landform and position on the dune.

7) To plant native species that will stabilise the dune system and provide diversity.

8) Allow the community to become involved in revegetation activities.

### 5.2.2 Plant lists

**Plant list 1** – For areas where plant height is a maximum of 1.0m

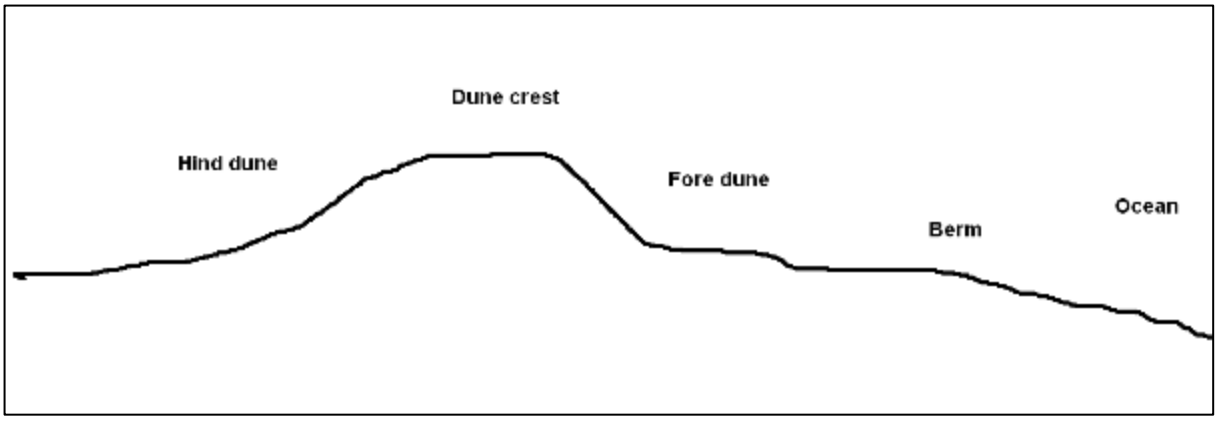
| Position on Dune | Plant Form | Scientific Name | Common Name | Planting Density (Plants/m$^2$) |
|---|---|---|---|---|
| | | | | One plant of the following per 3m$^2$ |
| Fore Dune | Creepers | *Ipomea pes-caprae* | Goats foot morning glory | |
| | | *Canavalia rosea* | Beach bean | |
| | | *Enchylaena tomentosa* | Ruby salt bush | |
| | | | | |
| | Grass | *Spinifex sericeus* | Beach spinifex | |
| | | *Thuarea involuta* | Tropical beach grass | |
| | | | | |
| Dune Crest | Creepers | *Vitex rotundifolia* | Creeping Vitex | |
| | | *Ipomea pes-caprae* | Goats Foot Morning Glory | |
| | | *Canavalia rosea* | Beach Bean | |
| | | | | |
| | Grass | *Spinifex sericeus* | Beach spinifex | |
| | | *Sporobolus virginicus* | Sand couch | |
| | | *Thuarea involuta* | Tropical beach grass | |
| | | | | |
| | Shrubs | *Suaeda australis* | Salt bush | |
| | | | | |
| Hind Dube | Creepers | *Vitex rotundifolia* | Creeping Vitex | |
| | | *Ipomea pes-caprae* | Goats Foot Morning Glory | |
| | | *Canavalia rosea* | Beach Bean | |
| | | | | |
| | Grass | *Spinifex sericeus* | Beach spinifex | |
| | | *Sporobolus virginicus* | Sand couch | |
| | | *Thuarea involuta* | Tropical beach grass | |
| | | | | |
| | Shrubs | *Indigofera pratensis* | Forest Indigo | 1 plant per 25m$^2$ |

Suitable for areas 2,3,4 and 5.

**Plant list 2** – For areas where plant height is a maximum of 6m.

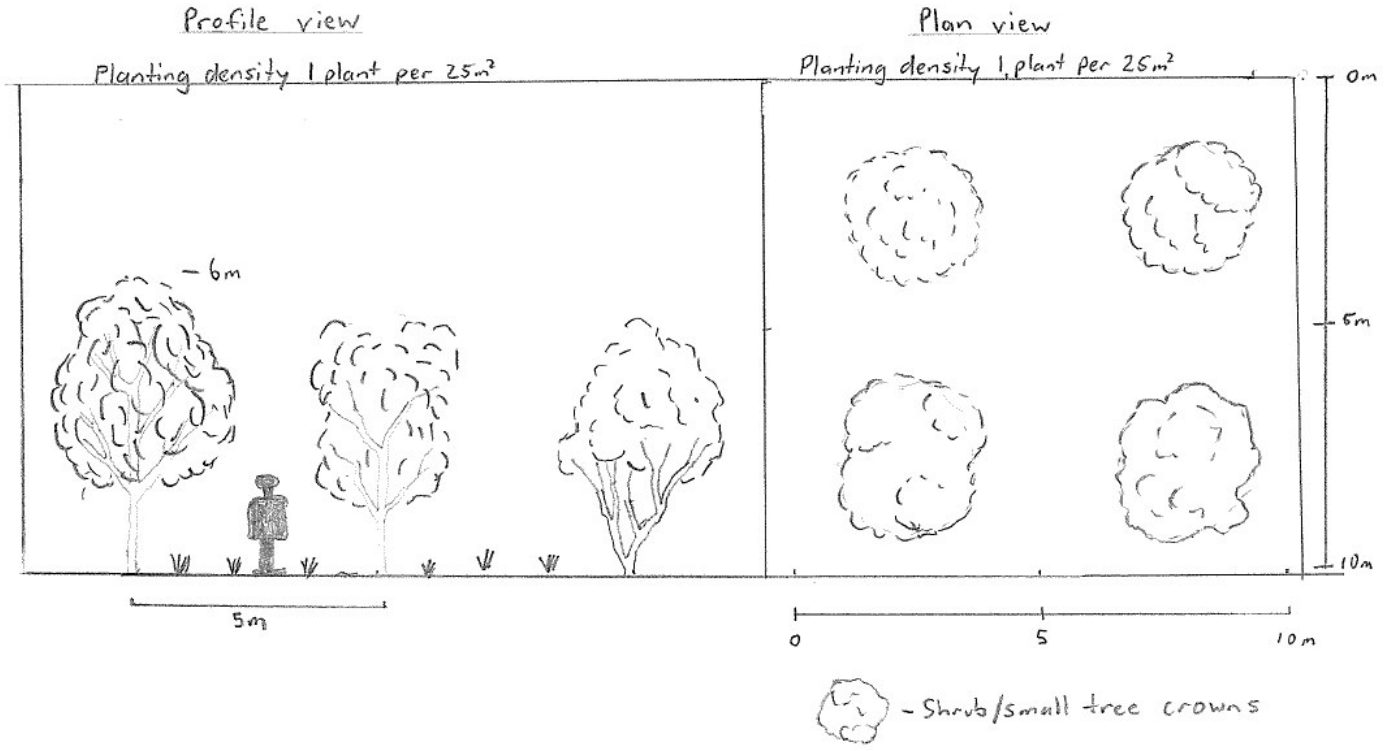
| Position on Dune | Plant Form | Scientific Name | Common Name | Planting Density (Plants/m$^2$) |
|---|---|---|---|---|
| | | | | One plant of the following per 3m$^2$ |
| Fore Dune | Creepers | *Vitex rotundifolia* | Creeping vitex | |
| | | *Ipomea pes-caprae* | Goats foot morning glory | |
| | | *Canavalia rosea* | Beach bean | |
| | | *Enchylaena tomentosa* | Ruby salt bush | |
| | | | | |
| | Grass | *Spinifex sericeus* | Beach spinifex | |
| | | *Sporobolus virginicus* | Sand couch | |
| | | *Thuarea involuta* | Tropical beach grass | |
| | | | | |
| Dune Crest | Creepers | *Vitex rotundifolia* | Creeping Vitex | |
| | | *Ipomea pes-caprae* | Goats Foot Morning Glory | |
| | | *Canavalia rosea* | Beach Bean | |
| | | | | |
| | Grass | *Spinifex sericeus* | Beach spinifex | |
| | | *Thuarea involuta* | Tropical beach grass | |
| | | | | |
| Hind Dube | Creepers | *Vitex rotundifolia* | Creeping Vitex | |
| | | *Ipomea pes-caprae* | Goats Foot Morning Glory | |
| | | *Canavalia rosea* | Beach Bean | |
| | | | | |
| | Grass | *Spinifex sericeus* | Beach spinifex | |
| | | *Thuarea involuta* | Tropical beach grass | |
| | | | | |

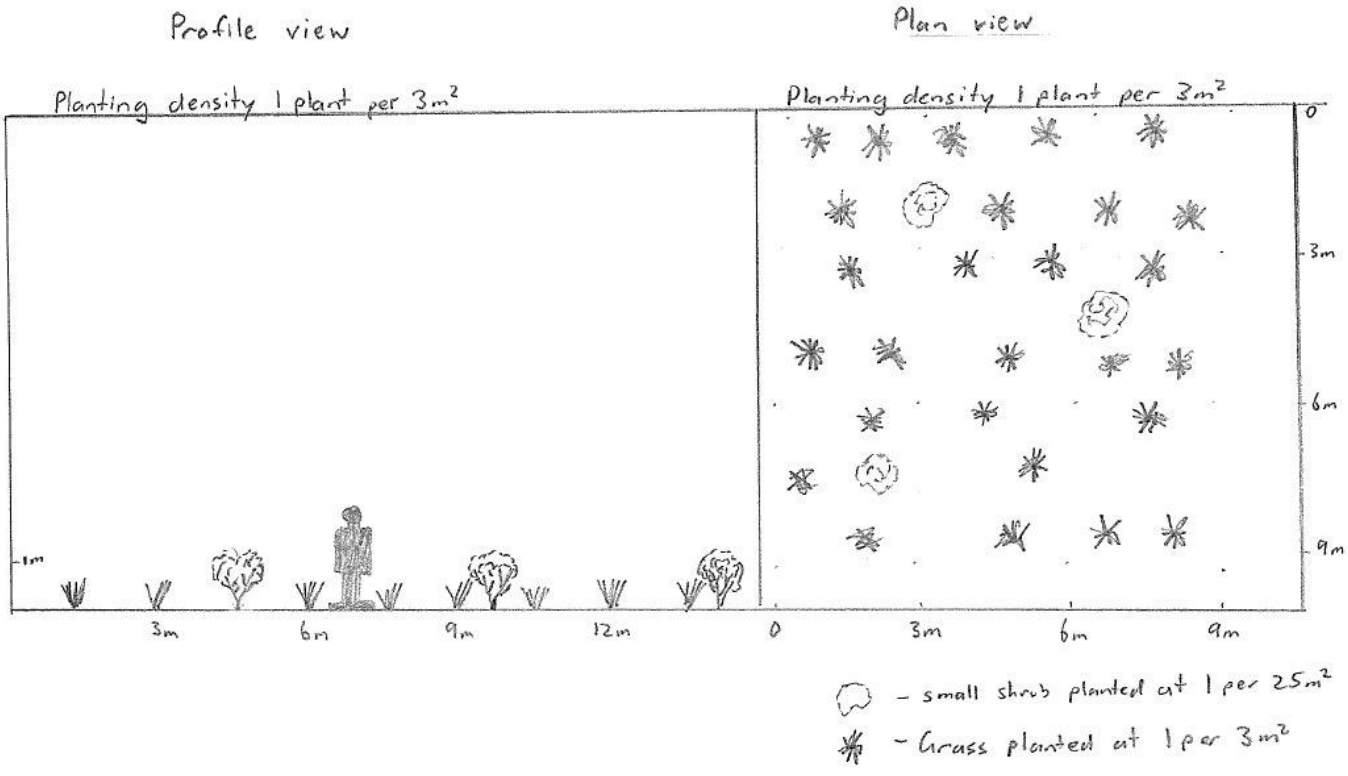
| | | | | |
|---|---|---|---|---|
| | Shrubs | *Indigofera pratensis* | Forest Indigo | 1 plant of the following per 25m$^2$ |
| | | *Miliettia pinnata* | Pongamia | |
| | | *Planchonia careya* | Cocky apple | |
| | | *Eugenia reinwardtiana* | Cedar bay cherry | |
| | | *Fluegggia virosa* | White current | |
| | | *Sophora tormentosa* | Silver bush | |
| | | *Tabernaemontana orientalis* | Banana bush | |
| | | *Sacaevola taccada* | Sea lettuce tree | |
| | | *Lithomyrtus obtusa* | Beach myrtella | |
| | | *Acacia holosericea* | Silver wattle | |
| | | *Cordia subcordata* | Orange trumpet | |
| | | *Pouteria sericea* | | |
| | | *Acacia leptocarpa* | Wattle | |
| | | *Acacia salicina* | Wattle | |




### 5.2.3 Techniques

- Removing exotic grass –
    - Hind dune areas - no more than 100m2 to be removed at once. The replacement grasses need to be planted as soon as the exotic grass is removed.
    - Crest and foredune – no more than 10m2 to be removed at once. The replacement grasses need to be planted as soon as the exotic grass is removed.
- Planting shrubs –
    - No more than 200 shrubs planted in any one year without irrigation. No more than 400 plants planted with irrigation in any one year.
    - Shrubs selected only from approved plant list.
    - Water crystals should be used when planting and also mulch.


Profile view
Planting density 1 plant per 25m²
6m
5m
Plan view
Planting density 1 plant per 25m²
0m
5m
10m
0
5
10m
- Shrub/small tree crowns


Profile view
Planting density 1 plant per 3m²
1m
3m
6m
9m
12m
Plan view
Planting density 1 plant per 3m²
0
3m
6m
9m
0
3m
6m
9m
- small shrub planted at 1 per 25m²
- Grass planted at 1 per 3m²

### 5.2.4 Photographs of some of the revegetation plants


*Indigofera pratensis (Australian Native Plants Society (Australia) – ANPSA)*

*Cordia subcordata*

*Miliettia pinnata*

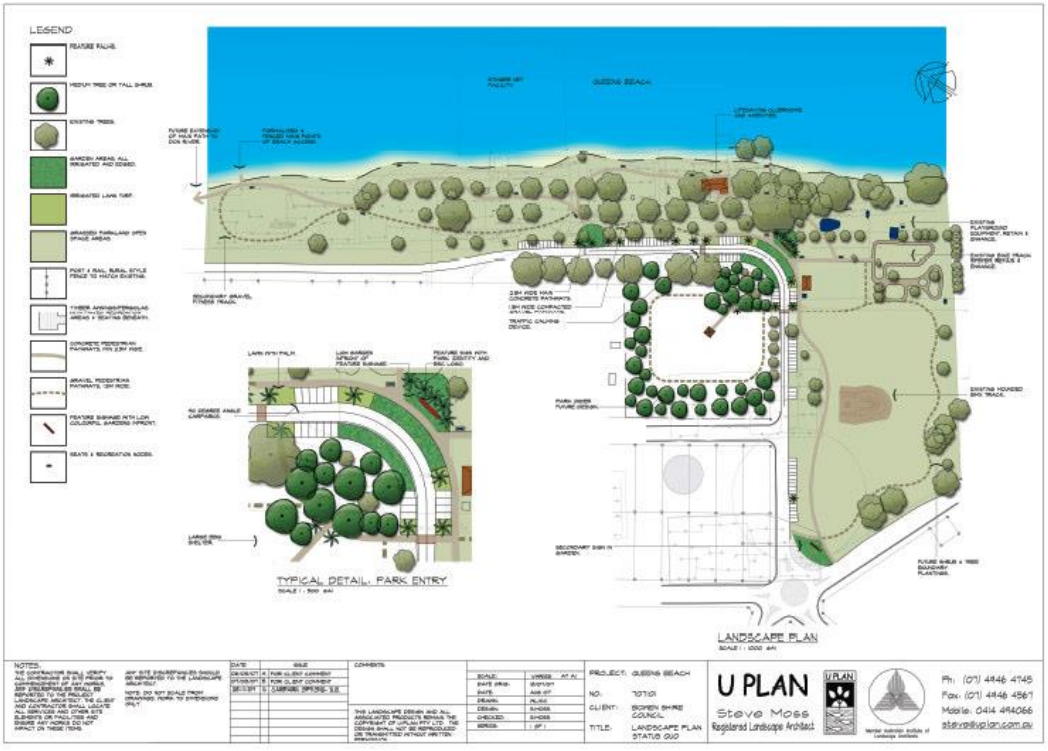
*Sacaevola taccada*

*Acacia salicina*


*Suaeda australis*


*Vitex rotundifolia*

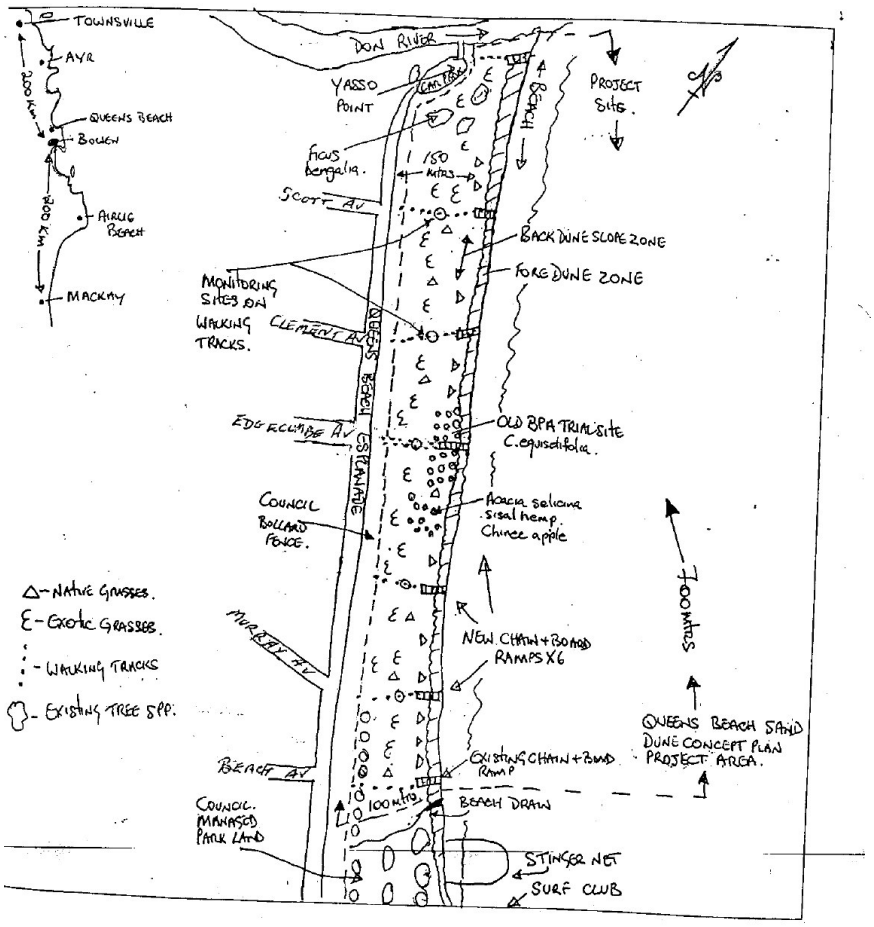
## 5.3 UPLAN – landscape plan




Existing Plan.


Showing proposed path location to Yasso Point.

## 5.4 Queens beach Action Group concept plan



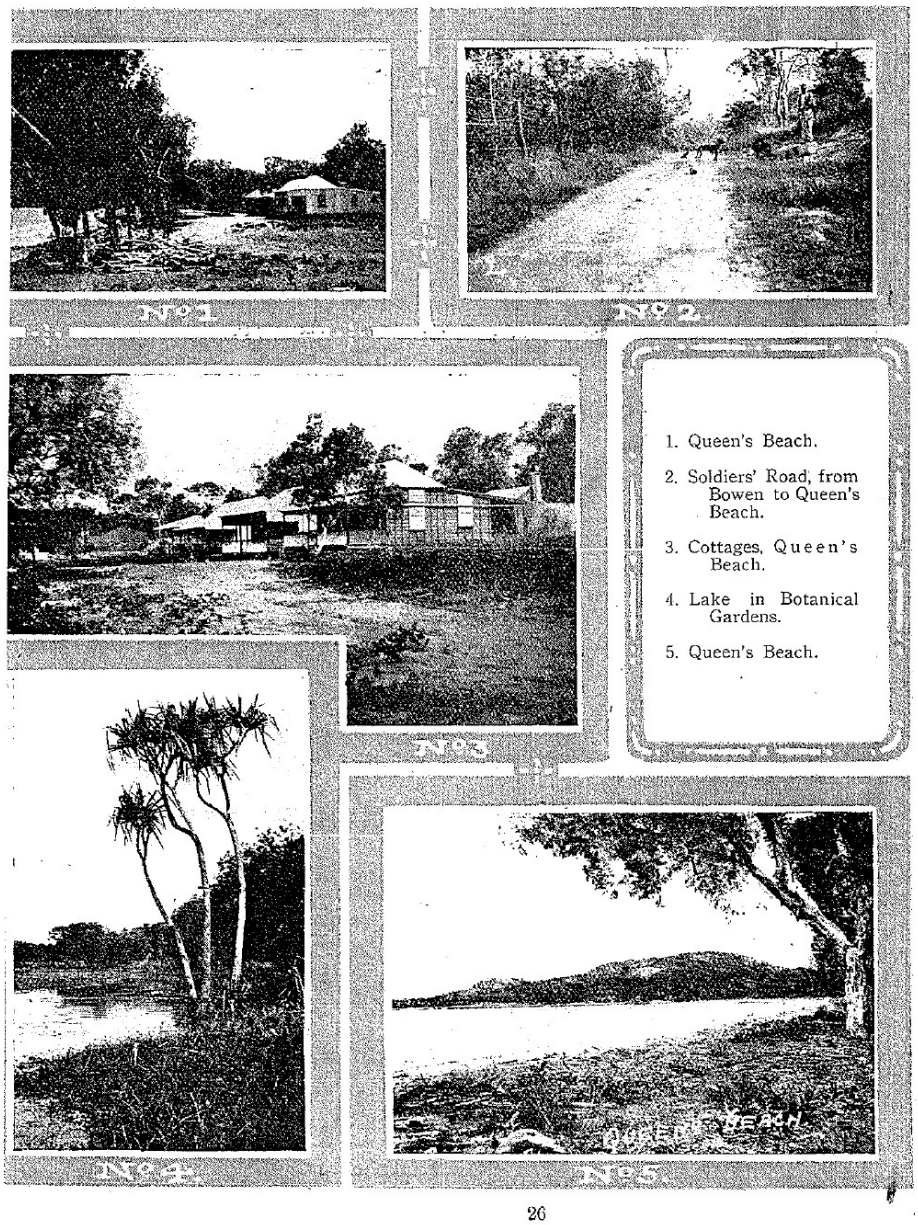
## 5.5 List of recent projects on the foreshore reserve

| Project | Developed | Commenced | Finished | Organisations/Stakeholders |
|---|---|---|---|---|
| QBAG dune stabilisation concept plan | 2001 | 2001 | Ongoing | QBAG, Coastcare, Council |
| Green Corp. Queens Beach restoration project | 2008 | April 2009 | September 2009 | QBAG, Coastcare, Council, NQ Dry Tropics |
| Queens Beach Coastcare project | 2008 | April 2009 | September 2010 | QBAG, Coastcare, Council, NQ Dry Tropics |
| Queens Beach Foreshore Management Plan | February 2009 | September 2009 | January 2010 | Council, NQ Dry Tropics, QBAG, Department Environment and Resource Management (DERM) |

## 5.6 Historical photographs

C675

Queens beach photograph taken from Mt Nutt early in the early 1900's.




26

Various photographs of Queen beach early last century.

Queens beach reserve in the 1950-1960's.

TOP storey of the Ozone Hotel, at Queen's Beach, was torn off and scattered over a big area by winds estimated at their peak at 125 m.p.h. Sections of the upper storey can be seen at top right up to 100 yards away from the hotel. Garage at rear of the hotel was also wrecked.

1ST APRIL 1958

FB 785

1958

- 63 -