### 5.8. DRAFT COCONUT MANAGEMENT PLAN

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DEPARTMENT:	Infrastructure Services

### **RECOMMENDATION**

That Council adopt the Coconut Management Plan and the Coconut Management Action Plan 2015/2016.

### **EXECUTIVE SUMMARY**

The Coconut Management Plan ("Plan") was developed by the Douglas Shire Council ("Council") to define the objectives and document the goals of managing coconut palms effectively on Council controlled lands. The plan aims to identify the role that coconut palms play in specific locations through an assessment and classification based process. The Plan provides Council with a comprehensive understanding of the challenges and opportunities faces in order to preserve and enhance that contribution.

The Plan addresses issues such as hazard identification, risk assessment, palm distribution, environmental impact and the associated costs of coconut management. The Plan establishes a framework to implement and track the progress of Council's coconut management for social, economic and environmental benefits. Importantly, the Plan provides Council officers with a policy, procedures and an assessment tool for managing coconuts. The plan represents a snapshot of what is known about the distribution of mature coconuts on Council controlled lands within the Douglas Shire area and is current as at April 2015.

The community has high expectations that the tropical appeal that coconut palms bring to the Douglas Shire must be protected. This community expectation is based on the economic value that coconuts add to the tourism industry. The Plan will have no impact on the tropical appeal of Douglas, as the Plan enables coconuts to be assessed, protected and even planted in places of high value.

In finalising the Plan, Council undertook an extensive community engagement process. This engagement process included the following actions:

- Plan released for public comment on Council's website 22 June 2015;
- Public submission period extended and closed 20 July 2015;
- Plan featured in full page article in the Gazette Newspaper published on 9 July 2015;
- Public notices in the Daintree Matters section of the Gazette Newspaper published 7 July 2015;
- · Various information posted on Council's Facebook page;
- General Manager Operations conducted an ABC Radio Interview 2 July 2015 and Channel 7 News 3 July 2015; and
- Information session was held at the Daintree Community Forum 23 July 2015.

Key Messages from the Community Engagement are:

- The coconut plays a significant role in promoting the area as a tropical destination for the tourism industry;
- People expect to see coconut palms in Douglas, especially in Port Douglas;
- Concern that Council may not implement the plan respectfully and the community assumption is that Council will remove the majority of coconuts which will affect the tropical feel of the area;
- · Coconuts should be better managed in areas of environmental significance;
- Coconuts are a valuable resource going to waste and there are many opportunities for utilizing coconuts as a resource. Requests were received from private businesses to take over coconut management; and
- Protect our critically endangered littoral rainforests from the impacts of coconuts.

Council received 71 written submissions during the public consultation period. The submissions were categorised into 3 groups:

- Submissions that clearly stated that they accept / support the plan;
- Submissions that clearly stated that they reject / oppose the plan;
- Submissions that did not clearly state their opinion either way.

Support	Oppose	Unclear
22	19	28

A further two submissions were not included in the count as they were second submissions from individuals wanting to provide additional information to their first submission. Given the above responses the community is clearly divided on this issue.

Council has listened to the community feedback on the draft Plan and has re-written sections of the Plan to clarify the goals and management processes. In order to transparently document the actions Council intends to take in the 2015/2016 financial year, Council has created a *Coconut Management Action Plan 2015/2016*, which sets out the projects where Council will focus its efforts. Through the action plan, Council will:

- Continue to de-nut a total of 1,452 coconut palms,
- Remove 14 high risk specimens for public safety;
- Undertake two restoration projects; and
- Undertake a pilot program and enter into landholder maintenance agreements with Newell Beach residents.

### BACKGROUND

For many years Council has been faced with the challenge of managing coconuts, particularly in trying to reduce the number of high risk specimens. Most often the removal of these beautiful, useful but inappropriately planted palms has caused a great deal of concern and anguish within the local community.

In 1997, Council introduced a de-nutting program to reduce its exposure to public liability claims, protect visitors and the public from falling nuts. This initial program established a denutting run of 847 palms. The de-nutting program is a high cost management approach and the number of coconut palms on Council's de-nutting program has steadily increased to 1,369 trees, de-nutted twice annually. The current cost of this de-nutting program has more than doubled in this time. At the time of drafting the Plan the de-nutting was conducted under an existing Preferred Supplier Arrangement 2336 *De-nutting of Coconuts*. This arrangement has now expired, resulting in a substantial increase to coconut maintenance costs in 2015.

The most recent de-nutting program conducted in early 2015 cost \$99,300 and the follow up program later this year is estimated to cost a similar figure. In addition, approximately \$60,000 is being spent each year in removing fallen palms, fronds and fruit from parks, roads, paths, beaches and storm water drains.

The current cost of coconut maintenance has now increased to around \$250,000 annually and it is expected that these costs will continue to increase over time as there are numerous coconut palms that will need to be included in the de-nutting program in the near future. The ever increasing numbers of palms has prompted Council staff to conduct an extensive audit of coconut palms and undertake a review of its policy and procedures regarding the management of coconut palms on Council controlled lands.

The Douglas Shire is known as "the place where the rainforest meets the reef" due to our many areas north of the Daintree River which have long been considered pristine examples of natural coastal vegetation. Coconuts have spread into and will continue to spread throughout the Shire's World Heritage listed areas, significantly impacting on the endangered littoral rainforest and coastal vine thicket ecological communities that are listed as critically endangered under the *Environment Protection and Biodiversity Conservation Act1999* (EPBC Act).

The figures below show examples of the littoral rainforest protected under the EPBC Act and also the destructive nature of the coconut palm if allowed to continue unchecked along the Douglas coastline.





Without a Coconut Management Plan and an effective management framework the coconut's invasive nature will continue to degrade our Shire's valuable natural assets.

### COMMENT

The recent coconut audit found that there are approximately 11,639 specimens of coconut palms growing on public land across the Shire. At present the de-nutting program covers only 1,369 high-risk specimens growing on Council controlled lands. It is estimated that there are approximately 2,800 additional specimens that could be considered high-risk and that are not yet included in the de-nutting program.

The Plan provides Council officers with the necessary tools to classify coconut palms. The palms are assessed based on their location, the risk they pose and their overall condition. The assessment tools are necessary for ensuring effective and efficient operational and maintenance based activities.

The plan includes provisions for stakeholders to appeal against the removal of coconut palms (unless classified as a safety risk) and to enter into maintenance agreements with Council to take over the maintenance (de-nutting) of certain palms.

The Plan enables coconuts to be assessed and protected in places of high value and also allows for the planting of replacement palms in these areas.

The plan provides all stakeholders a clear policy direction and a documented process in order to make informed decisions regarding coconut management.

### PROPOSAL

### Options

# 1. It is recommended that Council adopt the Coconut Management Plan and Coconut Management Action Plan 2015/2016.

Adopting the Plan will ensure there is an appropriate and clear direction for the management and maintenance of coconuts on Council controlled lands. Such management will lower the risk of injury and ensure that important natural areas are protected.

The Coconut Management Action Plan 2015/2016 sets out the projects where Council will focus its efforts.

# 2. Council may decide not to adopt the Coconut Management Plan and Coconut Management Action Plan 2015/2016.

Failure to adopt the Coconut Management Plan and Coconut Management Action Plan 2015/2016 will result in a higher than necessary exposure to public liability claims. The associated costs of managing coconut palms in public and natural areas will continue to increase over time.

### FINANCIAL/RESOURCE IMPLICATIONS

The current cost of coconut management is approximately \$252,000 per year. The cost of effective coconut management is expected to rise in the future if the Plan is not adopted.

It is not envisaged that additional staff or resources will be required in the implementation of the Plan. All inspections and assessments will remain the responsibility of the Open Spaces Team Leaders.

The additional workload required in maintaining a coconut register / maintenance agreement database will be absorbed into existing positions in the Open Spaces team.

### **RISK MANAGEMENT IMPLICATIONS**

The plan provides the tools for council officers to undertake condition and risk assessments. This documentation is vital in ensuring Council's responsibilities to public health and safety, meeting auditing requirements and ultimately reducing Council's exposure to public liability claims. Council must be able to demonstrate that it has inspection processes and procedures in place to eliminate hazards (wherever possible) across the Shire.

The recent coconut audit found that there are approximately 11,639 specimens of coconut palms growing on public land. It is estimated that there are approximately 2,800 additional specimens that could be considered high-risk and that are not yet included in the de-nutting program.

In the past 12 months council officers have dealt with 84 customer requests specifically relating to coconuts. This plan will provide officers with a decision making tool to ensure a consistent assessment methodology is implemented.

Climate change projections for Australia include increased temperature, sea level rise, changing rainfall patterns and more frequent and intense extreme climatic events (Australian Greenhouse Office, 2007). Predicted impacts on the beach, fore dune and coastal wetland environments include increased vulnerability of beach and dune systems due to coastal erosion, shoreline recession, and saltwater intrusion (*State Coastal Management Plan, 2001*). In the sand dune environment, non-native species such as Coconut palms (*Cocos nucifera*) do not reduce wind erosion and accelerate wave erosion when they fall (Beach Protection Authority of Queensland, 1981).

The maintenance of a well vegetated dune system provides the best protection against sea level rise, shoreline erosion and storm surge events (Australian Greenhouse Office, 2007). The coconut management plan is a step in the right direction to address climate change issues through promoting the maintenance of well-vegetated dune systems, and identifying potential buffer zones of coastal vegetation.

### SUSTAINABILITY IMPLICATIONS

**Economic:** The current cost of coconut management is approximately \$252,000 per year and is expected to rise into the future.

Highlighted in many of the public submissions was the fact that in most parts of the world where coconuts exist, they have become a valuable economic resource. The draft Coconut Management Plan is a starting point for effective coconut management. Council, where appropriate, should encourage proposals from private business to utilise this resource and future reviews of Council's Plan will consider allowing private business involvement as a way of offsetting maintenance costs.

Environmental: Queensland's Vegetation Management Act (1999) uses a Regional Ecosystem classification system to describe remnant vegetation communities and to provide their conservation status. Virtually all foreshore Regional Ecosystems across the Douglas Shire are either 'endangered' or 'of concern'. Legislation providing protection to remnant vegetation in the coastal zone include the Federal *Environment Protection and Biodiversity Conservation Act (1999)*; Queensland's Vegetation Management Act (1999).

The Plan raises concerns about coconut tree impacts on EPBC-listed littoral rainforest. The Commonwealth Scientific and Industrial Research Organisation (CSIRO) and Terrain Natural Resources and Mines (NRM) 2014 Mapping Littoral Rainforest & Coastal Vine Thickets of Eastern Australia in the Wet Tropics: Mission Beach Pilot Study identified coconut trees (Cocos nucifera) as transformer weeds in littoral rainforest in the pilot area, and recommended that transformer species in littoral rainforests in the Wet Tropics be given appropriate weight by government in considering funding applications for control.

The Douglas region contains many examples of Littoral Rainforest, an EPBC listed coastal vegetation community shared along the eastern Australian coast. The littoral rainforest provides specific character and significance in the Wet Tropics and Douglas area as it provides much of the essential 'where the rainforest meets the reef' character for which the region is famous.

The failure of the management of coconut palms in these ecosystems is advocating the demise of a critically endangered ecosystem.

### Social:

The Plan is the first phase of improving Council's coconut management systems and procedures. Significant consultation with the community in Douglas has occurred. Improved systems will allow council to track progress, detail measurable outcomes and set clear and specific goals. The risk and condition assessment tools for making decisions will allow Council staff to deliver services efficiently, provide accountability and engagement with the community. Importantly the Plan recognises the aesthetic and symbolic importance of the coconut palm in certain areas and also allows for public participation in the maintenance of palms in locations where they might ordinarily be removed.

### CORPORATE/OPERATIONAL PLAN, POLICY REFERENCE

This report has been prepared in accordance with the following:

### Corporate Plan 2014-2019 Initiatives:

### **Theme 3 - Improve Environmental Performance**

3.1.3 - Develop management plans for Council's parks and reserves including coastal reserves and foreshore areas.

### **Operational Plan 2014-2015 Actions:**

11 – Plan to enhance and preserve the natural environment – Coconut Management Policy

### COUNCIL'S ROLE

Council can play a number of different roles in certain circumstances and it is important to be clear about which role is appropriate for a specific purpose or circumstance. The implementation of actions will be a collective effort and Council's involvement will vary from information only through to full responsibility for delivery.

The following areas outline where Council has a clear responsibility to act:

Asset-Owner	Meeting the responsibilities associated with owning or being the custodian of assets such as infrastructure.
Facilitator	Bringing people together to develop solutions to problems
Fully-Responsible	Delivering a program or activity for another organisation (usually another level of government).
Information Provider	Bringing people together to develop solutions to problems.

### CONSULTATION

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- **External:** Council undertook an extensive community engagement process. This engagement process included the following actions:
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- People expect to see coconut palms in Douglas, especially in Port Douglas;
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- Coconuts should be better managed in areas of environmental significance;
- Coconuts are a valuable resource going to waste and there are many opportunities for utilizing coconuts as a resource. Requests were received from private businesses to take over coconut management; and
- Protect our critically endangered littoral rainforests from the impacts of coconuts.

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Council has listened to the community feedback on the draft Plan and has re-written sections of the Plan to clarify the goals and management processes. In order to transparently document the actions Council intends to take in the 2015/2016 financial year, Council has created a *Coconut Management Action Plan 2015/2016*, which sets out the projects where Council will focus its initial efforts. Through the action plan, Council will:

- Continue to de-nut a total of 1,452 coconut palms,
- Remove 14 high risk specimens for public safety;
- Undertake two restoration projects; and
- Undertake a pilot program and enter into landholder

maintenance agreements with Newell Beach residents.

### ATTACHMENTS

- Attachment 1 Coconut Management Plan
- Attachment 2 Coconut Management Action Plan 2015/2016

# DOUGLAS SHIRE COUNCIL

# Coconut Management Plan



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### Part 1

### Summary

This Coconut Management Plan was developed by the Douglas Shire Council (DSC) to define and document the goals and objectives of the Douglas Shire Council in managing coconuts effectively on council controlled lands. The plan aims to identify the role that coconut palms play in any specific location through assessment and classification based on their location and contribution to a given area. The Coconut Management Plan provides council with a comprehensive understanding of what is required to preserve and enhance that contribution.

The plan also addresses issues such as potential risk, distribution, impacts and associated costs of coconut management. The plan aims to establish a framework to implement and track the progress of council's coconut management for social, economic and environmental outcomes. The plan represents a snapshot of what is known about the distribution of mature coconuts on council controlled lands within the Douglas area and is current as at April 2015.

### Introduction

Over the past ten years many Local Governments have had to face the issue of coconut management. Many have chosen to remove all dangerous specimens while others have settled on a program of targeted removal and de-nutting, while other have adopted the more expensive option of de-nutting only.

For many years DSC has been faced with the challenge of how the number of high risk specimens could be managed. Most often the removal of these beautiful, useful but inappropriately planted trees has caused a great deal of concern and anguish within the local community.

To reduce its exposure to public liability claims and to protect visitors and the public the Douglas Shire Council has conducted a de-nutting program, which covered some 847 specimens. This program has been in place since 1997 and is a high cost management approach. The number of coconut trees on Council's de-nutting program has steadily increased to 1,369 (2014) trees being de nutted twice annually. This figure has increased in recent times to 1,452 palms identified to be de nutted over the 2015/2016 maintenance period.

The current cost of this de-nutting program each year has more than doubled in this time to \$192,000 with an additional \$60,000 (approximately) being spent each year in removing fallen trees, fronds and fruit from parks, roads, paths, beaches and storm water drains.

These costs will continue to increase with time and there are numerous other specimens of coconuts that will need to be included in the de-nutting program. This has prompted DSC to conduct an extensive audit of its coconuts and undertake a review of its policy and procedures regarding the management of coconuts on council controlled lands.

The Coconut Management Plan is to be reviewed every 4 years to update GIS distribution data, classification maps, track changes and any trends in distribution. This should include GIS compilation of the Regional Ecosystems which are currently defined as Littoral Rainforest communities within Douglas.

This guiding principles document is a companion document to the *Coconut Management Action Plan 2015/016 (CMAP)*. The CMAP is to provide open and transparent information to all stakeholders relating to operational actions in relation to coconut maintenance for the 2015/2016 financial year. The CMAP is to be reviewed annually prior to each financial year.

### The Cost of Coconut Management

Douglas Shire Council encourages the growing of native vegetation wherever possible and supports the rehabilitation of the foreshore in an effort to regain and retain the special character of our coastal villages and natural assets. The beauty and attraction of the Douglas region is reliant on its lush rainforest natural areas and has always been known as a place where the "Rainforest meets the Reef".

The gradual destruction of our native vegetation along our foreshores for views and by the invasive nature of coconut palms is evident on many of our local beaches.



Photo – Newell Beach June 2014

In addition, the coconut palm has displayed an invasive behaviour to native ecosystems along our coastline. They out compete the native species for space and nutrients, the large nuts and fronds cause physical damage to native species when they fall which allows for further expansion of established coconut palm groves.

Consideration must be given to the critically endangered status of our foreshore vegetation, much of which is highly significant or threatened by both coastal development and natural processes. The Douglas region contains many examples of Littoral Rainforest, listed as a critically endangered ecological community under the Australian Governments *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act.* 

The Commonwealth Scientific and Industrial Research Organisation (CSIRO) and Terrain NRM's 2014 *Mapping Littoral Rainforest & Coastal Vine Thickets of Eastern Australia in the Wet Tropics: Mission Beach Pilot Study* identified coconut trees (*Cocos nucifera*) as transformer weeds in littoral rainforest and recommended that transformer species in littoral rainforests in the Wet Tropics be given appropriate weight by government in considering funding applications for control.

The Commonwealth Listing Advice on Littoral Rainforest and Coastal Vine Thickets of Eastern Australia identifies transformer weeds as a threat:

The establishment of transformer weeds in littoral rainforest patches can have a significantly detrimental effect. Transformer weeds are highly invasive taxa with the potential to seriously alter the structure and function of the ecological community. Whilst it is accepted that the ecological community can tolerate a significant amount of weed cover due to its relative resilience, if left unchecked, such weeds will eventually take over and destroy the affected patch.

Coconuts are a popular food source for the white tailed rat *Uromys caudimaculatus*, a creature that is classed as a coconut busting machine. Without any human intervention the white tail rats convert coconuts into perfect mosquito breeding receptacles. *Aedes egypti, Aedes notoscriptus* and *Culex quinquefasciatus* are just 3 dangerous mosquitoes capable of using these coconuts as breeding receptacles. Between them these 3 mosquitoes are capable of carrying serious arbovirus including Dengue, Ross River fever and Barmah Forest virus. The white tail rat is a recognised vector for the lethal disease leptospirosis in this region. Many beach communities also sustain significant populations of the pest species black rat *(Rattus rattus)* thanks to the shelter and food provided by coconuts.



Photo courtesy of Russell Constable

White tailed rat *Uromys* caudimaculatus

Photo of chewed nut, perfect mosquito breeding receptacle



Photo courtesy of Russell Constable

The risk of serious injury or death from being hit by falling fruit is real with many anecdotal stories telling of near misses. Falling fronds also represent a danger as do fruit dislodged by cyclonic winds.

The danger imposed by falling nuts is usually managed by the removal of the offending tree or by a de-nutting program, which usually involves removal of the developing inflorescence or immature fruit before they become developed enough to pose a danger. This combined with the removal of fallen fronds and nuts from lawns, paths, roads and stormwater drains is an expensive and time-consuming ongoing activity.

The recent coconut audit found that there are approximately 11,639 specimens of coconut palms growing in places where the falling fruit had the potential to cause personal injury to members of the public. The audit included specimens growing on Council controlled land and specimens growing on land in private ownership where such trees were growing in positions close to or overhanging areas to which members of the public had legal access. Council and the owner of the land on which the specimens are growing may be jointly responsible for any personal injury claims caused by falling fruit. The audit found that there were 438 fruiting specimens in this situation and that there were approximately 8.491 fruiting specimens on Council controlled lands. The total number of fruiting specimens in the area surveyed was 8,929.

At present the de-nutting program covers only 1,369 high-risk specimens growing on Council controlled lands. It has been estimated that there are approximately another 2.800 specimens that could be considered high-risk. The remaining 7.470 specimens are at this point in time considered to be a low-risk but this may change with future developments and increases in visitor numbers. The cost of the current de-nutting program is approximately \$192,000 per year. The cost of removing fallen trees, leaves, fruit and nuts from lawns, paths, roads, beaches and stormwater drains is approximately \$60,000 per year.

The audit also found that there were some 2,710 non-bearing specimens with 138 occurring on private land and 2,572 on Council controlled land (this figure does not include seedlings, some of which will die from natural causes before they reach a fruiting age). The cost of de-nutting only a percentage of these trees would be a significant and on-going cost once these palms begin fruit production. Coconut

palms take between four and ten years to bear fruit depending on the variety and reach their maximum fruit bearing potential at about twenty-five years of age. This full fruit bearing potential can be maintained for between forty and forty-five years, after which fruit production slowly declines until the death of the tree. Coconuts can live for in excess of one hundred years. Mature trees can produce between forty and eighty fruit per year depending on the variety.



Photo – Coconut denutting at Rex Smeal Park 2015

### Table of Results – Coconut Audit 2014

### Coconut Audit 2014 Summary of data Private Private Non Public Public Non Location Total Denutted Classification Area Bearing Bearing Bearing - bearing Port Douglas Area Port Douglas / Esplanade Craiglie Ferrero Rd Southern Area Mowbray valley Yule Point Pebbly Beach 2,3 Oak Beach 2,3,4 Pretty Beach Turtle Cove Wangetti 2,3,4 Ocean View Road Central Area Killaloe Warners Rd Upper Cassowary Rd Shannonvale - Borzi Rd Captain Cook Hwy -South Mossman Mossman Finlayvale Rd Santacatarina Rd North Mossman Cooya Beach 1,3,4 Newell Beach 2,3 Bells Rd Mossman Daintree Rd Sciacca Rd Bamboo Creek Rd Kingston Rd Kahana Rd Whyanbeel Rd Wonga Beach 2,3,4 Northern Area Daintree River / Village Daintree River / Ferry Cape Kimberely Beach 2,4 Cow Bay 2.4 Thorntons Beach 2,4 South Noah's Beach Noah's Beach Coconut Beach Myall Beach Cape Tribulation Beach Emmagen Beach South Cowie Beach Cowie Beach Nicole Drive Camelot Cl Cape Tribulation Rd Stonewood Rd Tea Tree Rd Mahogany Rd

	Maple Rd			1	3	4		3
	George Rd		1			1		3
	Forest Creek Rd	4	2	5	2	13		3
	Thornton Peak Drive			3	1	4		3
	Carbeen Rd			10		10		3
	Cedar Rd			1		1		3
	Silver Ash Rd				1	1		3
	Bloodwood Rd			1	8	9		3
	Buchanan Creek Rd			1	1	2		
Total		438	138	8491	2572	11639	1369	

### **Facts & Statistics**

- Coconuts can live for over 100 years;
- 1 mature tree can produce up to 80 fruits per year;
- Douglas Shire has 8,491 fruit bearing coconuts on council controlled lands. That's approximately 679,280 nuts each year;
- In many parts of the world coconuts are an extremely valuable crop. Some of the Coconut products include; water, oil, filtration, lauric acid, biodiesel, milk, fibre, husks and shells; and
- Coconuts cost the Douglas ratepayers \$250,000 per year to maintain the current service level.



### Part 2

### **Council Policy**

### **DOUGLAS SHIRE COUNCIL**

NO. Enter #

### **General Policy**

Coconut Management Policy

### Intent

Provide clear direction regarding the management and maintenance of coconut palms (*Cocos nucifera*) on Council-controlled land.

### Scope

This policy applies to all Council-controlled land within the Douglas Shire Council (DSC) area.

This policy should be read in conjunction with:

- Local Law No. 4 (Local Government Controlled Areas, Facilities and Roads) 2011;
- Council's Planning Scheme Policy No. 4:03:02, Policy No 7 Landscaping;
- General Policy No. 01:04:10 Vegetation on Council's Controlled Land Planting, Removal and Maintenance;
- Administration Instruction No. 02:02:09 Dealing with vegetation matters on Council Controlled Land;
- Preferred Suppliers Arrangement 2336 Denutting of Coconut Trees Schedule of Trees;
- Coconut Palm maintenance agreement;
- International Society of Arboriculture Tree Risk Categorization; and
- DSC Coconut Palm assessment tool.

### Purpose

It is recognised that coconut palms are an integral component of the aesthetics within the shire and provide benefits in relation to the look and feel of the tropical environment as well as providing benefits to the tourism industry.

This policy aims to provide a practical and balanced approach to coconut management that addresses issues concerning risk mitigation, financial responsibility, conservation, aesthetics and plant maintenance and health.

This policy also aims to adopt a consistent approach towards the improvement of the larger urban forest by addressing the role that coconut palms play in any specific location through assessment and classification based on their location and contribution to a given area.

### PROVISIONS

### 1. General

Due to the large number of coconut palms managed by Douglas Shire Council, it is important as a responsible land manager, that coconut palms are assessed and classified in relation to the following factors:

- Potential to cause harm or damage (based on location);
- Ease of maintenance;
- Practical, aesthetic and tourism values;
- Benefits provided in the larger urban forest;
- Possible damage caused in natural areas; and
- Customer Request Management records.

Based on the assessments and classifications, Council will take appropriate maintenance and management actions. Refer to Table 1 - Management options based on location classification and Appendix 2 – Douglas Shire Council Coconut Palm assessment tool.

### 2. Risk Management

Due to the risk associated with falling nuts and fronds, all palms selected to be retained in high occupancy locations must be maintained on a twice yearly basis through removal of dead and dying fronds and the removal of inflorescences and developing nuts.

Those palms selected for removal in high occupancy locations must be maintained as described above until such time as removal takes place. If these palms are not maintained, the cost of reactive maintenance increases exponentially the longer the nuts are left on the palm and the associated risk increase is a liability concern.

If coconut palms are found to have structural defects and/or disease infestation they will be removed.

If coconut palms have grown too tall to make climbing impracticable or unsafe (to perform maintenance functions) then the palm will be removed.

### 3. Establishment

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For reasons of risk mitigation and financial responsibility Council will not support an increase in coconut palm numbers.

The planting of any coconut palm on a street verge, within any park, reserve or land controlled or managed by Council is not permitted except as prescribed below.

Residents are encouraged to plant other vegetation as prescribed in General Policy No. 1:04:10 - Vegetation on Council Controlled Land: planting, removal and maintenance (*Provision 1. Vegetation planting and landscaping*).

Establishment of new coconut palm seedlings will only be allowed under the following circumstances:

- To replace a coconut palm that has been selected as a feature palm for retention and that palm has to be removed for one of the reasons cited above, (e.g. it becomes unsafe to climb or diseased); or
- Where a coconut palm that has been selected as a feature palm for retention has failed or been damaged as a result of a severe weather event; or

 A selected replacement for the purpose of aesthetic improvement (Note: Climbing spikes leave scars on palms and should not be used on palms that have not been previously spiked).

### 4. Maintenance

All palms selected for retention must be serviced twice per year as per relevant maintenance criteria. Where this is not possible or feasible due to budgetary constraints, practicability or due to classification as low risk of causing harm (i.e. low traffic/occupancy areas), Council will:

- Remove/Selectively thin out the palms; or
- Retain/Erect warning signs regarding the potential for falling nuts.

Where palms are assessed to be in low occupancy areas and not marked for removal in the near future, the area underneath the palms should be serviced to prevent the germination of fallen nuts (i.e. regular inspections carried out to remove fallen nuts and termination of any germinated nuts).

### 5. Removal or retention

All palms will be classified into management classes based on their location. The location relates to and informs the risk of harm or damage from coconuts and fronds, aesthetic value, value in the urban forest, damage to natural areas and cost benefits. For more details on the classifications please refer to Appendix 1 – International Society of Arboriculture Tree Risk Categorization & Appendix 2 – DSC Coconut Palm Assessment Tool.

Based on this assessment, the following management options will be used:

Class	Location	Value	Risk	Actions
1	High occupancy / use – Beaches / Esplanades / Foreshores / Parks Special interest streetscapes	High aesthetic / tourism	Traffic & pedestrians movements are "High"	Retain and maintain
2	Low occupancy / use – Beaches / Esplanades / Foreshores / Parks	Medium / Low aesthetic Low urban forest value	Traffic & pedestrians movements are "Low"	Remove or Retain with signage
3	Streetscapes (excludes classes 1 & 2)	Low aesthetic / urban forest value	People – Moderate Property - High	Remove or Retain by Agreement
4	Littoral rainforest & coastal vine thickets (excludes classes 1 & 2)	Detrimental	People - Low Environment – High	Remove and rehabilitate

 Table 1: Management options based on location classification (Refer: Appendix 2 – Douglas Shire Council Coconut Palm Assessment Tool)

For those palms retained, their condition and density must be assessed in order to ascertain whether they should be retained as is, removed to benefit other palms or replaced as part of a site improvement regime.

# Table 2: Management options based on condition and density assessment (Refer: Appendix 2 – Douglas Shire Council Coconut Palm Assessment Tool

Assessment	Action – Retain / Remove / Replace
Healthy with good stability - spiked	Twice annual service
Healthy with good stability – not spiked	Twice annual service (No future spiking)
Defective, damaged, diseased, dangerous	Remove & replant (No future spiking)
Aesthetically poor due to spiking rot pockets	Replace with seedling (No future spiking)
Dense clumps or groupings	Consider thinning and replanting elsewhere

Where palms are to be removed, relevant public notification and/or consultation will be carried out in accordance with other tree removal procedures.

High risk palms removed for safety reasons will not require public consultation, only notification.

### 6. Appeal against removal

Where residents or businesses do not support the removal of coconut palms (excluding high risk palms) Council may consider entering into a coconut maintenance agreement (Appendix 3 - Coconut Palm maintenance agreement) where the property owner agrees to take over maintenance of the palm as per Council standards for coconut palm maintenance (at their own cost).

Even if a Coconut Palm Maintenance Agreement is in place, public liability remains with Council. Given this public liability responsibility, Council will perform twice annual inspections in accordance with the coconut maintenance schedules. Should Council find upon inspection that the palm is not being serviced as per the conditions set out in the agreement, Council will send the resident a reminder of their agreed maintenance responsibilities allowing a **two-week grace period** for maintenance to be carried out. If maintenance is not carried out by the resident within this timeframe, the palm will be removed as per the original plan.

Should the resident move away, Council will become aware of this fact upon the next inspection period when the new resident receives the notice to arrange the maintenance work.

Council will notify the new resident of the previous agreement and either renegotiate a maintenance agreement with the new owner of proceed to remove the coconut palm.

All palms retained in this fashion are to be registered on the Douglas Shire Council Coconut Database.

### 7. Replacement

New seedlings may be allowed to grow underneath coconut palms that have been selected for replacement (Refer to Table 2 & Appendix 2 – Douglas Shire Council Coconut Palm Assessment Tool). This can be carried out in any one of the following ways:

• Planting a seedling that has been germinated in a nursery;

- Placement of two to three viable nuts in the location of the new palm and as soon as germination and establishment occurs, the strongest plant is selected for retention and the others are removed; or
- Transplanting of a juvenile palm from another location as a more advanced specimen.

All replacement palms are to be recorded on the Douglas Shire Council Coconut Database.

All new and other palms that have not been spiked previously may not be spiked in the future. Over time this will allow for improved aesthetics of those palms selected for retention.

Coconut Management Plan 2015 – 452785 - Part 2 Classification / Distribution Maps

In accordance with Table 1 above, the following maps indicate coconut classification /distribution areas for the Douglas Shire Council management areas (Table 3: Coconut Map Reference Table)

Area	Location	Document Number
Southern Area	Wangetti Beach	452165
Southern Area	Turtle Cove	452166
Southern Area	Pretty Beach	452167
Southern Area	Oak Beach	452239
Southern Area	Oak Beach – Reynalds Road	452169
Southern Area	Oak Beach – Northern end (Thala Beach)	452241
Southern Area	Pebbly Beach	452168
Southern Area	Mowbray Valley – Spring Creek Road	452173
Southern Area	Mowbray Valley	452256
Port Douglas Area	Craiglie	452153
Port Douglas Area	Four Mile	452356
Port Douglas Area	Four Mile Beach	452367
Port Douglas Area	Island Point and Macrossan St	452364
Central Area	Ocean View Road	452149
Central Area	Captain Cook Hwy – South Mossman	452171
Central Area	Mossman	452160
Central Area	Finlayvale Road	452158
Central Area	Cooya Beach (Southern End)	452151
Central Area	Cooya Beach (Northern End)	452150
Central Area	North Mossman	452164
Central Area	Newell Beach	452238
Central Area	Newell Beach – Saltwater Creek to Rocky Point	452255
Central Area	Bamboo Creek Road	452036
Central Area	Rocky Point to New Wonga	452162
Central Area	Old Wonga to Vixies Road	452254
Central Area	Wonga Beach- Vixies Road to Helen's Creek	452253
Central Area	Wonga beach – Helen's Creek to Daintree River	452252
Northern Area	Daintree Village	452237
Northern Area	Cape Kimberley	452145
Northern Area	Cow Bay Beach	452152
Northern Area	Thorntons Beach	452251
Northern Area	Noah's Beach	452163
Northern Area	Coconut Beach	452148
Northern Area	Myall Beach	452161
Northern Area	Cape Tribulation Beach	452146
Northern Area	Emmagen Beach	452154
Northern Area	South Cowie Beach	452170
Northern Area	Cowie Beach	452250
Northern Area	Streetscape Cape Tribulation	452147

Table 3: Reference	table for	coconut	management	maps	(refer	to	Appendix	4 for
actual maps)								

### Appendix 1 – International Society of Arboriculture Tree Risk Categorization

# International Society of Arboriculture (ISA) Tree Risk Categorization (Summarised)

### **The Risk Categorization Process**

To estimate risk from trees the following factors need to be considered:

- The targets;
- The presence of a tree or part/s that could fail;
- The likelihood of a the failure occurring (Tree biomechanics and site factors);
- The likelihood of the failure impacting on the target (Target location); and
- The consequence of the failure (Level of impact and target value).

To determine the likelihood of a failure impacting a target, the following two factors must be considered:

- The likelihood of the failure occurring within a specific time frame; and
- The likelihood of the tree or branch impacting the target.

Tree biomechanics and implications of defects and conditions as well as site factors can affect the likelihood of failure and impact.

Once the above factors have been considered, the following procedure needs to be followed:

- Categorise these two factors using the Likelihood Matrix to estimate the likelihood of the combined event: a tree/part failure occurring and impacting the specified target. (Steps 1 – 4 below);
- Combine the likelihood of that event with the expected consequences of a failure to determine a level of risk using the risk matrix (Steps 5 – 7 below);
- 3. Compare the risk category to the level of risk that is acceptable to the client (Council); and
- 4. Present mitigation options if the risk category identified exceeds the level of acceptable risk.

### Steps in developing a tree risk rating:

- 1. Identify possible targets;
- 2. Identify tree part(s) that could strike the target;
- 3. Evaluate likelihood for each part to fail:
  - a. Improbable
  - b. Possible
  - c. Probable
  - d. Imminent

4. Evaluate the likelihood of tree/part impacting the target:

- a. Very Low
- b. Low
- c. Medium
- d. High
- 5. For each failure mode, estimate consequences of failure(Matrix 1: Likelihood matrix):
  - a. Unlikely
  - b. Somewhat likely
  - c. Likely
  - d. Very Likely
- 6. For each failure mode, estimate consequences of failure
  - a. Negligible
  - b. Minor
  - c. Significant
  - d. Severe
- 7. For each failure mode, designate the risk (Matrix 2: Risk Rating Matrix)
  - a. Low
  - b. Moderate
  - c. High
  - d. Extreme

### Matrix 1: Likelihood matrix

Likelihood of Failure	Likelihood of Impacting Target				
	Very Low	Low	Medium	High	
Imminent	Unlikely	Somewhat likely	Likely	Very Likely	
Probable	Unlikely	Unlikely	Somewhat likely	Likely	
Possible	Unlikely	Unlikely	Unlikely	Somewhat likely	
Improbable	Unlikely	Unlikely	Unlikely	Unlikely	

### Matrix 2: Risk Rating Matrix

Likelihood of Failure & Impact	Consequences of Failure					
	Negligible	Minor	Significant	Severe		
Very Likely	Low	Moderate	High	Extreme		
Likely	Low	Moderate	High	High		
Somewhat likely	Low	Low	Moderate	Moderate		
Unlikely	Low	Low	Low	Low		

### Coconut Management Plan 2015 – 452785 - Part 2 Explanation of terms

### Likelihood of Failure

**Improbable:** The tree or branch is not likely to fail during normal weather conditions and may not fail in many severe weather conditions within the specified time frame.

**Possible:** Failure could occur, but is unlikely during normal weather conditions within the specified time frame.

**Probable:** Failure may be expected under normal weather conditions within the specified time frame.

**Imminent:** Failure has started or is most likely to occur in the near future, even if there is no significant wind or increased load. This is an infrequent occurrence for a risk assessor to encounter and may require immediate action to protect people from harm.

### Likelihood of Impacting a Target

**Very Low:** The likelihood of the failed tree or part impacting the specified target is remote. This is the case in a rarely used site fully exposed to the assessed tree (rare occupancy, no protection) or an occasionally used site that is partially protected by trees or structures (occasional occupancy, moderate protection).

**Low:** It is not likely that the failed tree or part will impact the target. This is the case in an occasionally used area that is fully exposed to the assessed tree, a frequently used area that is partially exposed to the assessed tree, or a constant target that is well protected from the assessed tree.

**Medium:** The failed tree or part is as likely to impact the target as not. This is the case in a frequently used area that is fully exposed on one side to the assessed tree or a constantly occupied area that is partially protected from the assessed tree. Examples include a suburban street next to the assessed street tree or a house that is partially protected from the assessed tree by an intervening tree.

**High:** The failed tree or part will most likely impact the target. This is the case when a fixed target is fully exposed to the likely failure (constant occupancy, no protection) or the likely failure is over a high-use road or walkway with an adjacent street tree (frequent occupancy).

### **Occupancy Rates**

**Constant occupancy:** A target is present at nearly all times, 24 hours a day, 7 days a week

**Frequent occupancy:** The target zone is occupied for a large portion of a day or week

**Occasional occupancy:** The target Zone is occupied by people or targets infrequently or irregularly.

**Rare occupancy:** The target zone is not commonly used by people.

### **Consequences of Failure**

Consequences of failure and impact are categorized based on the value of the target and harm that may be done to it.

The consequences of failure and impact also depend, in part, on the tree or tree part size, fall characteristics, fall distance, and any factors that may protect the risk target from harm.

The consequences of failure can be categorized using the following guidelines:

**Negligible:** Consequences that involve low-value property damage or disruption that can be replaced or repaired; they do not involve personal injury. Examples of negligible consequences include:

- A small branch striking a fence
- A medium sized branch striking a shrub bed
- A large part striking a structure and causing low monetary damage
- Disruption of power to landscape lighting

**Minor:** Consequences that involve low to moderate property damage, small disruptions to traffic or a communication utility, or very minor injury. Examples of minor consequences include:

- A small branch striking a house roof from a high height
- A medium-sized branch striking a deck from a moderate height
- A large part striking a structure and causing moderate monetary damage
- Short-term disruption of power at a service drop to a house
- Temporary disruption of traffic on a neighbourhood street

**Significant:** Consequences that involve property damage of moderate to high value, considerable disruption, or personal injury. Examples of significant consequences include:

- A medium-sized part striking an unoccupied new vehicle from a moderate or high height.
- A large part striking a structure and resulting in high monetary damage
- Disruption of distribution primary of secondary voltage power lines, including individual services and street-lighting circuits
- Disruption of traffic on a secondary street

**Severe:** Consequences that could involve serious injury or death, damage to high-value property, or disruption of important activities. Examples of severe consequences include:

- Injury to a person that may result in hospitalization
- A medium-sized part striking an occupied vehicle
- A large part striking an occupied house
- Serious disruption of high-voltage distribution and transmission power line
- Disruption of arterial traffic or motorways

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**Example:** The consequences of a medium-sized dead branch striking a house would be *minor*, the consequences of that branch striking an unoccupied new car would be *significant*, and the consequences of it impacting the driver would be *severe*.

The consequences are combined with the likelihood of failure and impact to determine the risk ratings.

### Levels of Risk

**Extreme:** Failure is imminent with a high likelihood of impacting the target and the consequences of the failure are severe. The assessor should recommend that mitigation measures be taken as soon as possible. In some cases, this may mean immediate restriction of access to the target zone to avoid injury to people.

**High:** Consequences are significant and the likelihood is very likely or likely, or consequences are severe and likelihood is likely. The assessor should recommend mitigation matters to be taken.

**Moderate:** Consequences are minor and likelihood is very likely, or likelihood is somewhat likely and consequences are significant or severe. The assessor may recommend mitigation and/or retaining and monitoring.

**Low:** Consequences are negligible and likelihood is unlikely, or consequences are minor and likelihood is somewhat likely. Mitigation or maintenance measures may be appropriate for some trees, but the priority for action is low. Assessors may recommend retaining and monitoring these trees, as well as mitigation that does not involve the removal of the tree.

Draft Coconut Management Plan 2015 InfoXpert # 452785 - Part 2



# Appendix 2 – Douglas Shire Council Coconut Palm assessment tool

5

Draft Coconut Management Plan 2015 InfoXpert # 452785 - Part 2

### **Appendix 3 - Coconut Palm Maintenance Agreement**

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<b>ENQUIRIES:</b>	Enter Enquiry Person
PHONE:	Enter Enquiry Phone
YOUR REF:	Enter "Your Reference"
OUR REF:	Document Number

Enter Date DD Month YYYY

Enter Address

Dear Enter Name

### **RE: Coconut Palm Maintenance Agreement for (Insert Address)**

Douglas Shire Council places great value on street and park trees (including palms) as an asset to the region for a range of reasons such as aesthetics, public amenity and shading.

Some of Council's responsibilities as the custodian of trees on public land is ensuring public safety and preventing damage to infrastructure, services and property.

As part of Council's risk mitigation measures under Council General Policy **#** (to be confirmed), coconut palms (*Cocos nucifera*) that pose an unacceptable risk of injury or damage to property should be removed and replaced with trees in appropriate locations.

The coconut palm on the Council verge in front of your property at (insert address) has been assessed as a high risk tree. In consideration of individual ratepayers' preferences, Council has made provision for you to take over maintenance of the palms as prescribed below.

In this instance it has been noted that you wish to appeal against the removal of this coconut palm and agree to take over maintenance of the palm.

Council must inform you that if the Coconut Palm is to be retained it will be monitored and you will be required to maintain it to the satisfaction of the General Manager Operations and subject to the following conditions:

- 1. The Coconut palm/s must be de-nutted and de-fronded twice per year or upon Council request and to Council standards (to be provided to you prior to signing of this agreement).
- 2. If upon inspection Council finds that the maintenance of the palms is not being performed or is not up to standard, you will be notified in writing to rectify the situation within two weeks. Should you fail to rectify the situation, Council retains the right to remove the palm and replant it with a suitable street tree.

- 3. Any contractor you engage to perform the palm maintenance must:
  - 3.1. Be engaged on the basis that all public liability and workers compensation is current and sighted by Council. Copies to be supplied to Douglas Shire Council prior to signing of this agreement;
  - 3.2. If, during the life of this agreement, you decide to engage a different contractor to the one originally approved by Council, then you are required to provide the above documentation to Council prior to the new contractor starting on-site;
  - 3.3. Be responsible for related claims that may occur as a result of this work. This includes claims of public liability and/or workers compensation;
  - 3.4. Comply with all statutory obligations including Workplace Health and Safety;
  - 3.5. Secure the work site and restrict entry to authorised persons only;
  - 3.6. Remove all debris; and
  - 3.7. Be responsible for making good damage to surrounds to the satisfaction of Council.
- 4. You will indemnify Douglas Shire Council against all liability relating to this agreement, to the extent that such liability is caused by the negligence (or other fault) of yourself, your employees or contractors.
- 5. The agreement will remain active for a period of 5 years at which point it will be reassessed and a new agreement tabled.
- 6. The palm will be removed by Council regardless of the agreement, under the following circumstances:
  - 6.1. The palm has been damaged;
  - 6.2. Has become diseased;
  - 6.3. Is dangerous to service;
  - 6.4. Has been destabilised;
  - 6.5. For any other reason where public safety has been put at risk; and
  - 6.6. As per assessment by a delegated Council officer.

Please confirm your acceptance of the above conditions in order for Council to retain the palm/s by signing in the required areas below and returning the original document to Council as per the above mentioned contact details or by delivery to Council's Administration office at 64-66 Front Street Mossman.

If you have any further enquiries regarding this matter, please do not hesitate to contact the relevant Officer above.

Yours faithfully

Paul Hoye General Manager Operations

I hereby wish to retain the Coconut palm/s on the footpath at:

(Address) .....,

(Location of palm/s).....

I have read the conditions set out as per the letter above and confirm that I agree to maintain the coconut palm/s as per the conditions in order to retain it/them.

Signed

(Resident's Name)

(Date)

\*\*\*\*\*

This policy is to remain in force until otherwise determined by Council.

General Manager Responsible for Review: General Manager Operations

ADOPTED: Click here to enter a date. DUE FOR REVISION: Click here to enter a date. REVOKED/SUPERSEDED: Click here to enter a date. Coconut Management Plan 2015 – 452785 - Part 2 Appendix 4: All Districts coconut location Distribution / Classification maps

### Southern Area – Wangetti Beach



### Southern Area – Turtle Cove


# Southern Area – Pretty Beach

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#### Southern Area – Oak Beach



# Southern Area – Oak Beach – Reynalds Road



## Southern Area – Oak Beach – Northern end (Thala Beach)



## Southern Area – Pebbly Beach

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# Southern Area – Mowbray Valley – Spring Creek Road

# Southern Area – Mowbray Valley

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# Port Douglas Area – Craiglie



# Port Douglas Area – Four Mile

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# Port Douglas Area- Four Mile Beach



## Port Douglas Area – Island Point



#### Central Area – Ocean View Road

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# Central Area – Captain Cook Hwy – South Mossman



#### Central Area – Mossman



## Central Area – Finlayvale Road



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. . . . . . . . . . . . . . .

# Central Area – Cooya Beach (Southern End)



.....

# Central Area – Cooya Beach (Northern End)



#### Central Area – North Mossman



#### **Central Area – Newell Beach**



## Central Area – Newell Beach – Saltwater Creek to Rocky Point



#### Central Area – Bamboo Creek Road



## Central Area – Rocky Point to New Wonga



# Central Area – Old Wonga to Vixies Road



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# Central Area – Wonga Beach- Vixies Road to Helen's Creek





## Central Area – Wonga beach – Helen's Creek to Daintree River

# Northern Area – Daintree Village

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# Northern Area – Cape Kimberley



## Northern Area – Cow Bay Beach



#### Northern Area – Thorntons Beach



#### Northern Area – Noah's Beach

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## Northern Area – Coconut Beach

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# Northern Area – Myall Beach



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# Northern Area – Cape Tribulation Beach



# Northern Area – Emmagen Beach



## Northern Area – South Cowie Beach

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## Northern Area – Cowie Beach


Coconut Management Plan 2015 - 452785 - Part 2

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# Northern Area – Streetscape Cape Tribulation



# DOUGLAS SHIRE COUNCIL

**COCONUT MANAGEMENT ACTION PLAN** 

2015/2016

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# Coconut Management Action Plan 2015 – 2016

#### **PURPOSE**

The coconut management action plan provides open and transparent information to all stakeholders regarding operational actions for the maintenance over the 2015/2016 financial year. The action plan sets out the projects to be completed which will help to achieve the coconut management plan outcomes as outlined in the Coconut Management Plan.

#### ACTIONS

Coconut maintenance will be split into four categories as outlined below:

- 1. Coconut de-nutting program;
- 2. Removal of high risk specimens for public safety;
- 3. Environmental control and restoration projects; and
- 4. Landholder maintenance agreements.

#### **COCONUT DE-NUTTING PROGRAM**

High risk coconut palms to be de-nutted throughout the Douglas Shire region are listed in Table 1 below. A total of 1,452 coconut palms have been identified for maintenance with an additional 83 palms added to the de-nutting program. De-nutting occurs twice annually and the estimated cost of de-nutting is \$192,000 in 2015/2016. The photo below shows one of the methods for de-nutting; climbing the tree and pruning by hand. The second method employed by Council is to erect an elevated platform. Council's preference is to use elevated platforms as climbing the trees causes scaring to the surface due to the spiked shows worn by the climber. Figure 1 below shows the relevant maps of coconut location to be de-nutted.



# Table 1 - Coconut De-nutting Program

Area	Address	Location	No. of trees
Port Douglas			
1	Capt Cook Highway	Near Paws & Claws	3
2	Nautilus St	Centre Island between Mitre and Reef Sts	33
3	Cowrie/Helmet Sts	Foreshore area between Cowrie & Helmet Sts	76
4	Barrier St	Cnr with Tropic Court.	1
5	Barrier St	Four Mile Park including Outrigger access northern side	20
6	Pecton Ave	Footpath	4
7	Triton Cres	Footpath	1
8	Little Reef St	East side	11
9	Port Douglas Road	Outside Medical Centre on cnr with Barrier St	3
10	Solander Blvd	Bruno Reidwig Park	54
11	Davidson St Service Road	Port to Mahogany includes 2 south of Fire Station	15
12	Ti Tree St	Cnr with Mahogany and in Ti tree St	5
13	Grant St	Rotary Park	2
14	Warner St	Between Grant & Wharf Sts	1
15	Wharf St	Over path Adjacent to Coast Guard Only	1
16	Wharf St	Rex Smeal Park includes Little Cove	37
17	Wharf St	Market Park	85
18	Wharf St	Market Park Carpark	5
19	Dixie St	Park next to Sugar Wharf	33
20	Ashford Ave	Park next to Boatramp	3
21	Ashford Ave	Boat ramp next to Combines Club	5
22	Macrossan St	Jalun Park	34
23	Macrossan St	Davidson St to Jalun Park	18
24	Port Douglas Esplanade	Macrossan to Mowbray Sts including near Toilets	81
25	Garrick St	Macrossan to Sand St	28
26	Garrick St	Jalunbu Park	6
27	Garrick St	Southern end beach access	5
28	Sand St	Tide to Beryl Sts	9
29	Sand St	Southern Beach access	1
30	Davidson St	Reynolds Park near CWA Hall	6
31	Beryl St	Central Plaza	9
32	Davidson St	Mowbray to Macrossan Sts	9
33	Port Douglas Road	In front of QT	24
Oak Beach			
34	Oak Beach Rd	Northern Car park beach access	10
35	Oak Beach Rd	Pathway between Nos. 15 & 17	14
Killaloe	Killaloe		
36	Oceanview Rd		40
Cooya Beach			
	Bougainvillea St	Foreshore area / Esplanade	305
	Albatross Cl	On corner in front of flats	3

Area	Address	Location	No. of trees
Newell Beach			
	Esplanade	Mown area of foreshore	144
	Rankin St	Boat ramp car park	9
	Marine Pde	Outside number 9 Executive Retreat	1
Rocky Point			
	Daintree Rd	Park opposite Rocky Point School Road	8
	Daintree Rd	Boat ramp car park	1
Wonga Beach			
	New Wonga Esplanade	Foreshore area	170
	Old Wonga Esplanade	Foreshore area	95
	Oleander Drv	Opposite Yarun Cl	2
	Oleander Drv	Corner of Oleander Drv and Marlin Drv	2
Daintree Ferry			
	Southern ramp	Both sides of ramp	9
	Northern ramp	Near boat loading bay	3
Cape Tribulation			
	Cape Tribulation Rd	Beach access old Coconut Beach Resort	2
	Cape Tribulation Rd	Southern Bank of Thompson Creek causeway	3
	Cape Tribulation Rd	In front of Whet Restaurant	3
Total			1452

# FIGURE 1 – Area map locations of Coconuts to be de-nutted



Map 1 - Port Douglas CBD

Page 4

#### Map 2 – Four Mile Area



Page 5

# Map 3 - Oak Beach



Page 6

#### Map 4 - Killaloe Area - Ocean View Road



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# Map 5 - Cooya Beach



#### Map 6 - Newell Beach



# Map 7- Wonga Beach



# Map 8 - Rocky Point



# Map 9 - Daintree Ferry



# Map 10 - Cape Tribulation



#### **REMOVAL**

Table 2 below details coconuts scheduled to be removed for public safety and Figure 2 shows the relevant maps of coconuts to be removed.

Area	- Location	- Reason -	Number of Palms	Map/ Figure Reference -
Wonga Beach	Pathway Gardenia Cl	High risk to public safety	5	Map 11-Figure 1
	Janbal St toilet block	Over powerline service wire	1	Map 11-Figure 2
	Old Wonga esplanade	Termite infested	2	Map 12 - Figure 3
	Old Wonga esplanade	Unable to climb (Vine)	2	Map 13 - Figure 4
	Old Wonga esplanade	Rotten Base	1	Map 13 - Figure 5
	Old Wonga esplanade	Over powerlines	2	Map 13 - Figure 6
Port Douglas	Corner of Murphy St	High risk to public safety	1	Map 14
Total			14	



Figure 1 – High risk coconuts over pathwayFigure 2 - Over service wire in Janbal StreetGardenia Cl (Nuts and Fronds)



Figure 3 – Termite infested coconut Old WongaFigure 4 - Vine covered coconut unsafe to climbEsplanadeOld Wonga Esplanade



# FIGURE 2 – Location maps of coconuts to be removed

Map 11- Wonga Beach Area -Gardenia Close and Janbal Street



# Map 12- Wonga Beach Area- Esplanade



# Map 13 Wonga Beach Area-Esplanade



Map 14 - Port Douglas Area – Murphy Street

![](_page_93_Picture_1.jpeg)

#### **ENVIRONMENTAL CONTROL AND RESTORATION PROJECTS**

Three separate restoration projects are proposed to be completed in 2015/2016 and are listed below:

- 1. Four Mile Beach Esplanade site;
- 2. Sheraton Resort Foreshore Restoration; and
- 3. Germination control Daintree lowlands.

#### Site 1 – Four Mile Beach Esplanade

This site is located directly adjacent to the Sands Property Development. Works were commenced on site in 2012 whilst under the management of Cairns Regional Council (CRC). A stop work order was placed on the revegetation crew at the time following the removal of mature coconuts. The stop work order was to remain in place until the matter was resolved. The proposed revegetation works as outlined in the attached Appendix 1 aims to resolve the situation and implement revegetation of the site as per the original development approval in 2002. The revegetation plan clearly details the proposed scope of works and will be done in consultation with all stakeholders as per the Community Engagement Plan attached Appendix 2.

#### Site2 – Sheraton Resort Foreshore

Relevant council staff and Sheraton managers met on site to discuss proposed plans to undertake coconut maintenance / improvement works on the foreshore dunes adjacent to the resort. Agreed actions at the meeting were that the Sheraton would submit a proposed scope of works for approval by council in accordance with guidelines as set out in the state governments Queensland Coastal Plan. Appendix 3 shows a draft proposal of the works to be undertaking in conjunction with council.

#### Site 3 - Germination Control in the Daintree Lowlands

A trial site of littoral rainforest will be chosen north of the river based on environmental significance. Fallen coconuts will be collected by "my pathway" participants based north of the river to prevent recruitment and the further spread of the coconuts. The collected coconuts will be split and utilised as a supplement bait in the feral pig trapping program in the Daintree Lowlands.

#### LANDHOLDER MAINTENANCE AGREEMENTS

During the public consultation period numerous landholders indicated that they would be willing to enter into a formal maintenance agreement with council to de-nut coconut palms adjacent to their property. It is proposed that council trial this arrangement with willing landholders.

The priority location is at the southern end of Newell beach. Landowners will receive a mail out from council with the aim of formalising coconut maintenance arrangements between the parties. Many landholders at this location currently already pay to maintain the coconut palms. Formalising this arrangement confirms the palms will be retained and registered in the database.

# Map 15- Newell Beach Area

![](_page_96_Picture_1.jpeg)

**APPENDIX 1 – REVEGETATION PLAN FOUR MILE BEACH ESPLANADE** 

# DOUGLAS SHIRE COUNCIL

# **Revegetation Plan**

# Four Mile Beach Esplanade

2015

Operational plan for the revegetation of site specific sections of Four Mile Beach esplanade and adjacent coastal lands.

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#### Introduction

This Revegetation Plan is for two parcels of land located directly to the north of Four Mile Park. This includes the foreshore land described as L14 SP160319 and the section of the esplanade directly east (refer to Figure 1). These parcels of land have been divided into two separate sections to facilitate different outcomes for each area.

#### Purpose

This document provides a guide for addressing the illegal clearing of native vegetation in this sensitive natural area and will be used by Council's Natural Areas staff when rehabilitating this area. The document complies with Council's responsibility to manage the site according to the Queensland Coastal Plan which aims to protect native vegetation on coastal land. It also integrates community consultation results on the desired environmental outcome. The document complies with the Port Douglas Waterfront Master Plan, adopted by Council in November 2009, by supporting the following key outcome: "to preserve and enhance areas of existing environmental significance including revegetation to protect dunal systems".

This document does not address the management of coconut palms within the entire Douglas Shire Council area. Associated issues such as public safety, removal, denutting and preserving coconut palms are addressed within the Coconut Management Council Coconut Management Plan.

#### Site location

The site is divided into two sections each with its own revegetation plan. The basis for dividing the two sections along its common boundary is to allow for differences in the landscape's character between the unstable dunal area (Section 1) and the land described as L14 SP160319 (Section 2). Both sections are directly adjacent to remnant vegetation type 7.2.8, which is listed as an environmental significant area.

Douglas Shire Council is the trustee of the esplanade and adjacent coastal lands and is responsible for management of these natural areas.

![](_page_100_Picture_0.jpeg)

Figure 1 Site location

# **Management considerations**

**Illegal clearing** 

Following the construction of the adjacent property development, this site has been the target of ongoing illegal clearing of native foreshore vegetation for several years. Mature native trees and seedlings have been destroyed on numerous occasions, presumably to enhance ocean views for the adjacent blocks of land for sale and for the recently constructed residential properties.

![](_page_101_Picture_0.jpeg)

Figure 2 Stumps of mature native trees illegally cleared.

![](_page_101_Picture_2.jpeg)

Figure 3 A beach almond tree (*Terminailia catappa*) reshooting after being illegally removed.

#### **Foreshore vegetation**

The vegetation is described as *Melaleuca leucadendra open forest to woodland on sands of beach origin*, RE type 7.2.8 on the Queensland Government regional ecosystems database. It is listed as essential habitat, remnant vegetation containing of concern regional ecosystems, and the biodiversity status is listed as "Endangered". Section 1 meets the criteria of a sensitive area of unstable dune as there is currently very little native vegetation existing under retained mature coconut palms.

![](_page_102_Picture_2.jpeg)

Figure 4 Section 1.

**Coconut palms** 

The site previously contained large numbers of mature coconut palms that had been planted. To enable the area to be rehabilitated with native foreshore species, 49 of these coconut palms were removed in 2012, leaving only those coconuts along the beach edge so as to maintain a visual continuity with the whole of Four Mile Beach. The removal of coconuts is critical essential as coconuts displace native vegetation by

smothering seedlings and plants with falling fronds and nuts, and out-compete native plants for sunlight, nutrients and root space.

![](_page_103_Picture_1.jpeg)

Figure 5 Coconut palm fronds smother and out-compete native species.

Council recognises that coconut palms contribute to the tropical atmosphere of Port Douglas and are a feature of the majority of Four Mile Beach, therefore any coconut palms that over-hanged or aligned the foreshore were retained to ensure that the area retained its tropical ambiance (refer to Figure 6).

![](_page_104_Picture_0.jpeg)

Figure 6 Front lines of coconut palms retained.

#### Weeds

The site has minor occurrences of invasive pest plant species that require ongoing treatment to avoid the weeds spreading into adjacent remnant vegetation.

![](_page_104_Picture_4.jpeg)

Figure 7 Mother-in-laws tongue (*Sanseviera trasciata*) spreading through the understorey.

Figure 8 Rattlepod (*Crotalaria pallida*) occurs abundantly in the area if it is not managed.

#### **Desired outcomes and actions**

Section 1

To rehabilitate the dunal area providing connectivity and establishment of foreshore vegetation by:

- Educating nearby residents regarding Council's requirement to act in accordance with the Coastal Protection and Management Act.
- Addressing the issue of illegal clearing for sea views by compromising with filtered views or sea views through gaps in the vegetation.
- Allowing trees to establish in widely spaced groves or with some gaps to allow views and breezes to flow through the vegetation.
- Providing small habitat linkages to improve species survival and encourage the re-colonisation of the dunal system.
- > Formalising the access tracks.

Encouraging community participation and stewardship in the rehabilitation project.

Section 2

To revegetate the area with appropriate suitable native species (as shown in Appendix 1) by:

- > Preserving and enhancing the existing remnant vegetation.
- > Controlling weeds.
- Encouraging participation from residents to take ownership by maintaining the landscaped area directly in front of their homes.
- Retaining the existing landscaped area between the houses and the fig trees (as shown in Figure 9).

![](_page_106_Picture_7.jpeg)

Figure 9 The landscaped area between the fig tree and the houses will be retained.

Acacia crassicarpa     Northern golden wattle       Acacia mangium     Broadleaf salwood       Acacia craria     Coastal wattle       Acmena hemilampra     Blush satinash       Aglial edeagnoidea     Coastal boodyarra       Alpin edeagnoidea     Coastal boodyarra       Alpin aportei     Sarsaparilla       Alyria spicata     Chain fruit       Atractocarpus fitzalani     Brown gardenia       Baringtonia calyptrata     Mango pine       Belschmiedia obtusfiolia     Blush walnut       Blepharocarya involucigera     Rose butternut       Brachychiton aceritolius     Illawarra flame tree       Braynia cornua     Fart bush       Catophyllum ingl     Blush touriga       Catophyllum sil     Blush touriga       Caralia brachiata     Corky bark, Fresh water mangrove       Casuarina equisetifolia     Beach casuarina       Cerbera marghas     Dog bare       Chounarthus ramilora     Long flowered clerodendrum       Colubrina asiatica     Sea trumpet       Corden subcordata     Sea trumpet       Colubrina asiatica     Beach Beach Beach	Botanical Name	Common Name
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Haemodorum coccineum Blood root	Guioa acutifolia	Glossy tamarind
	Haemodorum coccineum	Blood root

# Appendix 1 List of suitable plant species
Botanical Name	Common Name
Hibiscus tiliaceus	Coast cottonwood
Intsia bijuga	Kwila
Jagera pseudorhus	Foambark
Livistona muelleri	Northern cabbage tree palm
Lophostemon suaveolens	Swamp mahogany, swamp box
Macaranga tanarius	Kamala, Blush macaranga
Mallotus philippensis	Red kamala
Maytenus fasciculiflora	
Melaleuca leucadendra	Weeping paperbark
Melaeuca viridiflora	Broad leaved paperbark
Melia azederach	White cedar
Micromelum minutum	Lime berry
Miliusa brahei	Rasberry jelly plant
Millettia pinnata	Pongamia tree
Mimusops elengi	Red coondoo
Mischocarpus exangulatus	Red bell mischocarp
Morinda citrifolia	Rotten cheesefruit
Pandanus tectorius	Beach pandan
Pittosporum ferrugineum	Rusty pittosporum
Planchonia careya	Cocky apple
Pleiogynium timorense	Burdekin plum
Polyscias elegans	Celerywood
Pouteria chartacea	Thin leaved coondoo
Pouteria obovata	Yellow boxwood
Premna serratifolia	Coastal premna
Ptychosperma elegans	Solitaire palm
Rhus taitensis	Sumac
Scaevola taccada	Beach lettuce
Schefflera actinophylla	Umbrella tree
Scolopia braunii	Brown birch
Sterculia quadrifida	Peanut tree
Syzygium angophoroides	Yarrabah satinash
Tarenna dallachiana	Tree ixora
Terminalia arenicola	Brown damson
Terminalia catappa	Indian almond
Terminalia microcarpa	Damson plum
Terminalia muelleri	Mueller's damson
Thespesia populneoides	Tulip tree
Timonius timon	False fig

# **APPENDIX 2 – COMMUNITY ENGAGEMENT PLAN – FOUR MILE BEACH REVEGETATION**

Project Title:
Four Mile Beach Revegetation Project

**Project Manager:** Peter Logan

Signature			

..... Date

# Branch Manager Approval: Michael Kriedemann

..... ..... Signature Date

General Manager Approval: Paul Hoye

Signature	Date

CEO Approval (if required)

•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
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..... Date

Councilor's Workshop (if required):

Reference:	
#	

## Define the project

The revegetation plan consisted of removing approximately 50 coconut palms and replanting the site with 3,000 native plants. Removal of the palms was critical to the success of the revegetation plan as the density of the palms was such that any understory species could not benefit from solar nutrition or rainfall. In addition, large palm fronds or coconuts falling on the new plants could damage them and significantly hamper their chance of survival and growth. In revegetation exercises of this nature the initial planting numbers appear large but this is to allow for some natural attrition.

One of the considerations given to the timing of the revegetation works was the impact on the tourism sector and environmental conditions. The coconut removal and replanting was therefore scheduled to be undertaken during the wet season between late January and late March, as this is a low tourism period and the wet conditions would enhance planting growth. Based on the revegetation project undertaken at Rocky Point, it would be expected that within twelve months the new plantings will have a significant positive visual impact.

## Engagement goals

Douglas Shire Council must provide sufficient information to all stakeholders regarding the proposed project so that the scope of the proposal is fully comprehended and the advantages and disadvantages understood.

## Key project messages

- To provide timely, consistent and clear information to all stakeholders regarding the project.
- To report outcomes of consultation and stakeholder engagement.
- The key message and benefits of the project are -

## Area of interest

The subject site (Lot 14 on SP160319) is a **Reserve for Beach Protection and Coastal Management** purposes managed by Council on the State's behalf as well as incorporating the Esplanade on the southern end of Four Mile Beach. It is also adjacent to Four Mile Park and the Esplanade on the southern end of Four Mile Beach, Port Douglas. The Reserve is positioned between the foreshore and private residences that form part of The Beach Front (The Sands), Port Douglas.

## Identifying the stakeholders

## Internal stakeholders

• Paul Hoye –General Manager Operations

- Michael Kriedemann Manager Infrastructure
- Peter Logan Coordinator Open Spaces
- Sean Cooper- Team Leader Open Spaces Port Douglas
- Greg McLean Media and Communications Officer
- DSC Frontline Services

## **Mayor and Councillors**

- Mayor Julia Leu
- Cr Abigail Noli
- Cr David Carey
- Cr Terry Melchert
- Cr Bruce Clarke

## **External stakeholders**

- Residents of Lot 14
- Broader Community
- Douglas Shire Sustainability Group
- Port Douglas Tourism
- Film Industry Association
- Department Of Environment Protection & Heritage
- Terrain NRM
- TO's

## Level of engagement

This campaign will inform/educate.

**Inform** / **educate** – to provide balanced and objective information on Council policies, plans, strategies and decisions. The outcome is an informed community which is therefore better able to contribute to Council participation processes. The success of this project will also require behavioral change by surrounding residents.

### Techniques – launch consultation April 2016

Technique	Level of engagement	Description	Key Messages	Stakeholder Audience	Timeframe	Responsibility
Letter drop	Inform / educate	Letter & fact sheet to key user groups.	Brief outline of project.	As per stakeholder list	Commence ment of public consultatio n phase	DSC –project manager
Advertising – council column in Mossman Gazette	inform/educat e	Outline project.	Brief outline of project – fact sheet	General Pt Douglas community	Commence ment of consultatio n phase	DSC - project manager
DSC Website	Inform / educate	Webpage outlining project – fact sheet	Brief outline of project – fact sheet	All users	Consultatio n phase	DSC - project manager
Media Release / Council Column	Inform / educate	Announceme nt	Brief outline of project – fact sheet	General Port Douglas community	After consultatio n phase	DSC - project manager

## Available resources

CEO Unit - Letter & DSC website. CEO Unit - Advertising - Council Column in Mossman gazette. Press release for key milestones (completed project)

## **Budget allocation**

No separate budget allocation Advertising: Mossman Gazette. An advertisement to run in both publications at start of PC process. Approximately \$600. Letter drop: Incorporated into branch overheads

## Monitoring, feedback & evaluation

Feedback from residents and ratepayers throughout the consultation phase will be monitored, collated and reported.

# **APPENDIX 3 – REVEGETATION PLAN SHERATON MIRAGE**



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Purpose
Site Location
Sheraton Mirage Port Douglas Resort – Dune Area
Scope of Works
Stage 1 – Clean-up of waste vegetation
Stage 2 – Revegetation
Stage 3 – Coconut Management
Ongoing Management
Desired Outcome

Appendix 1

List of suitable plant species for Four Mile Beach dune area.

## Sheraton



#### Introduction

This Revegetation Plan is for the land located directly adjacent to the Sheraton Mirage Port Douglas Resort. This includes the foreshore land directly east of the Resort as indicated in Figure 1. This area has been divided into three separate sections.



Figure 1: The three sections of foreshore and dunal area to be cavered in the scope of works

#### Purpose

This document addresses the legal clearing of invasive pest plant species that require ongoing treatment to avoid the weeds spreading into adjacent remnant vegetation. The revegetation of the area will be in line with the Douglas Shire Council recommendations and provision of appropriate plant stock.

#### Site Location

As stated and indicated above, the site has been divided into 3 sections which are all covered by this revegetation plan so as to keep the natural continuous appearance of the foreshore.

The site is owned by Fullmarr Hotels NQ Pty Ltd trading as Sheraton Mirage Port Douglas Resort and referred to in the Deed of Grant of Land First Schedule as Lot 133 on Plan SR819 in the County of Solander Parish of Salisbury and Town of Port Douglas.

## Sheraton



#### Sheraton Mirage Port Douglas Resort - Dune Area

Sheraton Mirage Port Douglas Resort plans to restore the dune area adjoining Four Mile Beach to enhance the beach as well as the Resort grounds. The works will involve clearing out all unsightly, fallen leaves, branches and fronds.

The area involved is along the dune extending from the Wedding Chapel pathway through to the beach access pathway at the northern end of the Resort side of the northern Mirage Villa boundary.

The works will require some removal of branches and unwanted vegetation as identified by the Douglas Shire Council during discussions on 13 August 2015 and as outlined in Simon Clarke's letter of 21 August 2015. The area will be completed in the 3 suggested stages and Council is to provide restocking vegetation with plants suitable to regenerate the dune in line with the Coastal Management Plan.

It is proposed that the Sheraton Mirage Port Douglas Resort grounds team will commence the required works once agreement is reached. Work will be carried out in stages and distinct sections so as to limit the impact of the program and provide a gradual but timely improvement to the foreshore and dune area.

#### Scope of Works

Stage 1. - Clean-up of waste vegetation.

From discussions with local council representatives it has been recommended that the work to clean out the abundance of waste vegetation from in the dune area is to be completed in three sections.



Figure 2 - Southern beach access

## Sheraton





Fig 3 Central beach access



Figure 4 Northern beach access

Completing the works in three sections will limit the overall impact on the area and allow the Council to advise on the revegetation program and work to be completed before moving to the next section.

Clearing the existing access pathways to the beach is also part of these works.

Items of vegetation to be cleaned out include the removal of all fallen leaves, fronds, dead vegetation, coconuts fruit and dangerous and/or unstable branches together with unwanted vegetation as identified on site with Council.

## Sheraton





Figure 5. Fallen fronds on dunes behind Four Mile Beach

#### Stage 2 - Revegetation

Once the clearing of each section has been completed, the Resort will request involvement of the Douglas Shire Council to inspect the site and determine the appropriate ground cover required for the long term sustainability of the dune area whilst gaining the best possibly aesthetics from the Resort side.

#### Stage 3 - Coconut Management

The Resort will consider a Coconut Management Plan. This plan will come into effect once the revegetated areas are completed, in line with Council's research and guidelines.

#### **Ongoing Management**

The Resort grounds team will remove fallen fronds and invasive pest plant species on a regular basis. The general clearing of rubbish from the area will be undertaken on as needed by Resort staff. This continual maintenance of the dunal area will allow the indigenous plantings to take hold and flourish.

#### **Desired** Outcome

To maintain the tropical ambiance of Port Douglas in general and the Resort and Four Mile Beach in particular, it is intended to retain all healthy coconut trees. The native vegetation will survive with the careful management of this sensitive area.

The future removal of damaged and/or dangerous coconut trees will only be done following consultation with Douglas Shire Council.

## Sheraton



It is the intention of the Resort owners and management team to return the dune area of Four Mile Beach to a safe, picturesque, environmentally friendly and natural state.

Sheraton



Appendix 1.

Copy for information only as noted by Cairns Regional Council Revegetation Plan, Four Mile Beach Esplanade 2013.

List of suitable plant species for Four Mile Beach dune area

Botanical Name	Common Name
Acacia crassicarpa	Northern golden wattle
Acacia mangium	Broadleaf salwood
Acacia oraria	Coastal wattle
Acmena hemilampra	Blush satinash
Aglaia elaeagnoidea	Costal boodyarra
Alphitonia petrei	Sarsaparilla
Alyxia spicata	Chain fruit
Atractocarpus fitzalanii	Brown gardenia
Barringtonia calyptrate	Mango pine
Beilschmiedia obtusifolia	Blush walnut
Blepharocarya involucrigera	Rose butternut
Brachychiton acerifolius	Illawarra flame tree
Breynia cemua	Fart bush
Calophyllum inophyllum	Beach calophyllum
Calophyllum sil	Blush touriga
Canarium vitiense	Canarium
Carallia brachiate	Corky bark, Fresh water mangrove
Casuarina equisetifolia	Beach casuarina
Cerbera manahas	Dog bane
Chionanthus ramiflora	Native olive
Clerodendrum longiflorum	Long flowered clerodendrum
Colubrina asiatica	Beach berry bush
Cordia subcordata	Sea trumpet
Crinum pedunculatum	Beach lify, Swamp lify
Cupaniopsis anacardioides	Beach Tamarind
Deplanchea tetraphylla	Golden bouquet tree
Dillenia alata	Red beech
Diospyros compacta	Australian ebony
Dodonea viscosa	Hop bush
Elaeodendron melanocarpum	False olive
Eucalvatus plattvahvlla	Ghost gum
Euroschinus falcate	Pink poplar
Ficus beniamina	Weeping fig
Ficus drupacea	Drupe fig
Ficus macrocarpa	Small fruited fig
Ficus opposite	Sandnaner fig
Ficus racemosa	Cluster fig
Ganophyllum falcatum	Daintree bickory
Glochidian harvevanum	Harvey's huttonwood
Glochidian philippicum	Daintree cheese tree
Gmelina dalormoleana	White beech
smelina aalrympieana	white beech

## Sheraton



Botanical Name	Common Name	
Gomphandra Australiana	Buff beech	
Guioa acutifolia	Glossy tamarind	
Haemodorum coccineum	Blood root	
Hibiscus tiliaceus	Coast cottonwood	
intsia bijuga	Kwila	93
Jagera pseudorhus	Foambark	100
Livistona muelleri	Northern cabbage tree palm	
Lophostemon suaveolens	Swamp mahogany, swamp box	
Macaranga tanarius	Kamala, Blush macaranga	
Mallotus philippensis	Red kamala	- 1
Maytenus fasciculiflora	Orange bark	1
Melaleuca leucadendra	Weeping paperbark	97
Melaleuca viridiflora	Broad leaved paperbark	
Melia azederach	White cedar	
Micromelum minutum	Lime berry	
Miliusa brahei	Raspberry jelly plant	
Millettia pinnata	Pongamia tree	- Ú
Mimusops elengi	Red coondoo	1
Mischocarpus exangulatus	Red bell mischocarp	
Morinda citrifolia	Rotten cheesefruit	
Pandanus tectorius	Beach pandan	-
Pittosporum ferrugineum	Rusty pittosporum	
Planchonia careya	Cocky apple	
Pleiogyynium timorense	Burdekin plum	- U
Polyscias elegans	Celerywood	1
Pouteria chartacea	Thin leaved coondoo	
Pouteria obovata	Yellow boxwooe	
Premna serratifolia	Coastal premna	0
Ptychosprma elegans	Solitaire palm	
Phus taitensis	Sumac	
Scaevola taccada	Beach lettuce	1
Schefflera actinophylla	Umbrella tree	1
Scolopia braunii	Brown birch	1
Sterculia quadrifida	Peanut tree	1
Syzgium angophoroides	Yarrabah satinash	0
Tarenna dallachiana	Tree ixora	
Terminalia arenicola	Brown damson	
Terminalia catappa	Indian almond	
Terminalia macrocarpa	Damson plum	1
Terminalia muelleri	Mueller's damson	1
Thespesia populneoides	Tulip tree	
Timonium timon	False fig	

## Sheraton