

Capel Foreshore



2007
VEGETATION SURVEY
AND MANAGEMENT PRESCRIPTIONS

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Commissioned by the Capel Foreshore Committee of Management



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Capel Foreshore - The Site



Capel Foreshore Reserve is situated on the Eastern shores of Port Phillip Bay extending some 3.5 km from Chinaman's Creek at West Rosebud to Shirlow St. Rye and is bounded by Pt. Nepean Rd. and the bay beach.

The terrain of this linear reserve is predominantly primary Holocene dunes of unconsolidated sand and the swales behind the dunes, although some sections may feature underlying swamp deposits particularly around Chinaman's Creek. This is due to the presence inland of Tootgarook Swamp which would have varied in its level of inundation over the past 12,000 yrs with changes in sea levels and the subsidence of the Port Phillip Sunklands. The dunes have formed since that time. Chinamans Creek, the waterway that drains the swamp, has followed different courses in the past even up to quite recently when the drain was dug through Tootgarook Swamp, and the coastal strip would have been subject to varying ground water levels. The seagrass beds along the intertidal flats thrive on the fresh water rising from this ground water.

The reserve links two geological types. At the eastern end the siliceous sands of Rosebud predominates whereas towards the western end the sands becoming more alkaline due to the influence of the dune calcarenite, of which the southern part of the Nepean Peninsula largely consists.

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This area has seen a regular seasonal human presence for thousands of years. It would have been a rich resource in the past, with the swamp on one side and the sea on the other. This is evident in the many middens along the foreshore. Although this vegetation type was once common along the eastern dune systems of Port Phillip Bay, natural remnants are rare and under extreme pressure. This pressure on the narrow coastal zone is also likely to increase, given the predicted changes to tidal levels due to climate change.



About This Plan - Aims

The authors were commissioned by Capel Foreshore Committee of Management to undertake a flora survey. This survey took place between January and December 2007. A full year was needed so as to include annual species, and a range of different flowering and seeding times and to gain a more complete picture of the foreshore vegetation. The aims of this survey were:

- o To ascertain species present on site
- o Identify significance and location of remnant vegetation
- o Identify weed management priorities
- o Specify timing of works
- o Indicate species to be used in revegetation
- o Make recommendations on management

How to use this plan

- o This plan is multi-dimensional and should to be viewed in its entirety. It needs to be used in conjunction with fauna and cultural site considerations.
- o This report should be consulted before initiating any plans for revegetation and prior to any other works being undertaken.
- o This report should be consulted for both short and long-term planning and before initiating restoration, revegetation, landscaping or any other works.
- o Works can and should be undertaken slowly, as working with nature and natural regenerative processes is more efficient, cost effective and ultimately more successful in the long term.
- o It should be seen as a base line to be added to, rather than definitive. Works timetables need to be able to respond to emerging issues, opportunities and climate variations.
- o Vegetation management plans provide organised and credible data and as such, become the ideal basis for grant applications.
- o Best practice is for maps and overlays to be laminated and posted on walls so as to be always accessible to staff and committee members, rather than out of sight in drawers or filing cabinets.
- o Overlays can be annotated as works progress and situations change.

Who should use this plan

Committees, staff, rangers, workers, friends groups and contractors need to make themselves familiar with the plan and use it to prioritise works and to inform management decisions.

Flora

Ecological Vegetation Classes

Ecological Vegetation Classes are used to describe vegetation assemblages across the state. Capel Foreshore supports a number of EVCs, some of which overlap to form a mosaic, or are so disturbed as to be hard to define. To map the more disturbed sites indicator species were used. The EVC maps and profiles in the appendices show the likely extent of the original EVCs which were as follows:

- EVC 002 - Coast Banksia Woodland
- EVC 053 – Swamp Scrub
- EVC 160 – Coastal Dune Scrub
- EVC 311 – Berm Grassy Shrubland
- EVC 858 – Coastal Alkaline Scrub
- EVC 879 – Coastal Dune Grassland

As incipient dunes develop along a shoreline they become colonised by species such as Coast Spinifex (*Spinifex sericeus*), Coast Salt-bush (*Atriplex cinerea*) and Salt-grass (*Distichlis distichophylla*). Over summer in particular this is the zone usually occupied by people, sitting and walking, and is under pressure from mechanical beach cleaners on some foreshores. The shape of this primary dune system is largely determined by the species which colonise these incipient dunes. The introduced Marram Grass (*Ammophila arenaria*) tends to produce a steep erodable dune front while a diverse sward of indigenous species tends to produce a variable but more stable and gently sloping dune front.



At Capel Foreshore these remnants appear to have characteristics of both EVC 311 Berm Grassy Shrubland and EVC 879 Coastal Dune Grassland and are difficult to determine since only small patches remain, and these areas are highly disturbed.



Inland of these EVC's on the seaward side of the primary dune, Coastal Dune Scrub (EVC 160) develops on the unconsolidated sand. This vegetation tends to be dense and wind pruned and is able to withstand these coastal influences. It forms a buffer to the vegetation developing in the swales behind the primary dunes, which at Capel Foreshore supports predominantly Coast Banksia Woodland (EVC 002) verging into Coastal Alkaline Scrub (EVC 858) closer to Rye.

Coastal Moonah Woodland is a sub-class of EVC 858 and exists on the western end of Capel Foreshore Reserve. Primary indicators for this vegetation are Coast Wirilda (*Acacia uncifolia*), Thyme Rice-flower (*Pimelea serpyllifolia*) and Shade Pellitory (*Parietaria debilis*)



Coast Wirilda



Thyme-leaf Rice-flower

Coast Banksia Woodland would originally have been the predominant EVC on Capel Foreshore Reserve. Much of this has been cleared in the past for camping, which is still creating pressure for its removal because of the risk of falling limbs etc. Many trees do exhibit signs of borer attack. These borers would have been limited in the past by predation by species such as Yellow-tailed Black-Cockatoos which now only occasionally make an appearance due to the lack of nesting hollows on the Mornington Peninsula. Mowing of the understorey for camping also reduces the likelihood of any regenerating seedlings surviving.



Although Coast Banksia do not require fire to regenerate, in the absence of fire, stands tend to open up and develop into an open grassy woodland. This is evident in the area east of Violet Street. Young Banksias do regenerate well however just above the strand-line vegetation particularly in patches of Coast Wattle (*Acacia longifolia* ssp. *sophorae*). In an accreting dune system, as the incipient dune builds and the shoreline moves forward, these areas in turn become the swales behind the primary dune.

Many areas supporting Coast Banksia or Coastal Alkaline Scrub, would also have had Drooping Sheoak (*Allocasuarina verticillata*) as a major structural component. This species suffered intense harvesting across the Nepean Peninsula to be burnt in the many lime kilns. The planting of this species has been occurring at Capel Foreshore and should continue, taking care to avoid patches of naturally occurring Wallaby Grasses (*Austrodanthonia* spp.) since the “needles” tend to smother these low stature grasses.

Swamp Scrub EVC is limited to the area adjoining Chinamans Creek. The scattered, naturally occurring Swamp Gum (*Eucalyptus ovata*), evident both within the fenced off area near the creek and adjacent to the toilet block may indicate a transition into Swampy Woodland which possibly once extended to the Blackwood grove (*Acacia melanoxylon*) opposite the West Rosebud shops. This area is in need of sensitive restoration. Chinaman's Creek also supports an in-stream vegetation community, Reedy Swamp.



Profiles of each of these EVC's from the Mornington Peninsula Shire's data base have been included as an appendix and provide ideal planting guides for revegetation areas.

Significance

EVC #	Vegetation Class	Bioregional Significance	FFG ¹	EPBC ²
EVC 002	Coast Banksia Woodland	Vulnerable		
EVC 053	Swamp Scrub	Endangered		
EVC 160	Coastal Dune Scrub	Least Concern		
EVC 311	Berm Grassy Shrubland	Endangered		
EVC 858	Coastal Alkaline Scrub	Depleted		Nominated
	Coastal Moonah Woodland		Listed	
EVC 879	Coastal Dune Grassland	Endangered		

All local species on the foreshore are considered to be significant due to the depletion of remnant coastal vegetation on Port Phillip Bay and Coast Alkaline Scrub within the state. Possibly 5 species of State Significance and at least 24 species of Regional Significance were recorded. Those of high local significance are those of which only a few individuals are known locally. More species may appear in future from stored seed banks, if sufficient consideration is given to the regeneration potential through sensitive bushland restoration activities.

Total Species in the Study Area



A total of 242 Species were recorded in this reserve during 2007. Of these 98 were indigenous and 144 were introduced. (see appendix)

Some plants were unable to be identified to species level due to the unavailability of fertile material. A number of these such as orchid species were previously unrecorded on the Capel Foreshore.

¹ Flora & Fauna Guarantee Act (1992) Vic.

² Environment Protection & Biodiversity Conservation Act (1988)

It was difficult to determine with some species and individuals whether they were planted or naturally occurring, particularly some of the trees and shrubs.

There have been a number of planting eras over a very long period, for instance pines and cypresses were considered ideal foreshore vegetation by early managers. It is difficult to determine their origins of some of the older eucalypts (unlike the Southern Mahogany which is obviously introduced)

The next main era of planting was in the 1970s and featured well-meaning native "fruit salad" plantings without regard to whether the plant was indigenous and that any indigenous species were sourced from local seed. Many of the Coast Banksias from this era were grown at Seawinds from seed sourced from Western Australia. These trees have not flourished.

Management Zones

The following section addresses broad management issues and contains recommendations for weed species control within each zone. This should be used in conjunction with Significant Species maps, Vegetation Quality Maps and Orchid Overlays. For specific methods of control for each weed species, see appendix

To enable management to be more tailored to foreshore needs and uses, we have divided the area into management zones. (See Management Zone maps in Appendix)

We have given these areas names, rather than numbers, as an aid to locating these zones along the narrow, linear reserve. On the Management Zones Maps all conservation areas are indicated with a green border. All other zones are bordered with purple.

Conservation Zones

With zones designated for conservation, it is recommended that management should concentrate on sensitive weed management, always working outwards from high quality areas or significant species occurrences. Other than when specifically mentioned, no enrichment planting should occur in these zones. An exception to this would be the Drooping Sheoak which was once common but is now highly depleted across the Nepean Peninsula.

The EVC Profiles (See Appendix) can be used as a guide as to which species should be planted in camping or picnic zones, when revegetation is appropriate, using local provenance sources. Care should be taken, particularly when planting *Poa* species, that seed is collected from foreshore remnants and planted back within that EVC, since there are a number of forms and species which occur locally in different vegetation communities, e.g. all of the Dune *Poa* (*Poa poiformis* var. *ramifer*) individuals which occur on the foreshore appear to have been planted as this species is not a natural component of these particular vegetation classes.

Marshall Conservation Zone

This area supports, predominantly, Coast Banksia Woodland as indicated by the presence of Bracken and old Banksias; although due to the presence of Coast Wirilda and Thyme-leaf Rice Flower it displays some overlap with Coastal Alkaline Scrub. There is no camping in this zone

and weed control has recently been undertaken. Trailing Gazania (*Gazania rigens*) and Bladder Campion (*Silene vulgaris*) are currently scattered throughout this zone and are likely to become an increasing problem along with English Ivy (*Hedera helix*) and Italian Buckthorn (*Rhamnus alaternus*).

Closer to the Shirlow Street end African Thistle (*Berkeya rigida*) will need to be followed up annually since although it has been removed it is unknown how long the seeds are stored in the soil.

Much of the foredune/strandline vegetation in this zone is of low quality but the two patches of regeneration are of relatively high quality.

In some areas of this zone the predominant weeds are succulents and fire could be considered as a method of control. The area burned should be small, and intensive follow-up weed control should be planned using sensitive, skilled work to maximize regeneration potential. One colony of Onion Orchids (*Microtis* spp.) occurs immediately adjacent to Pt. Nepean Road and it is likely that other colonies exist in this zone. To facilitate the maintenance of native grassland (predominantly Spear Grass) on which the Onion Orchid relies, patches should be steamed when annual weedy grasses are at the two leafed stage of growth, shortly after autumn rains. Ideally (depending on weather conditions) this could be repeated prior to orchid emergence.

Romney Orchid Conservation Zone

This area supports a mosaic of Coast Banksia Woodland and Coastal Alkaline Scrub, while the foredune supports high quality remnants of Coastal Scrub and Berm Grassy Shrubland/Coastal Dune Grassland. There also appears to be fresh water infiltration occurring across this zone, which is probably why Sea Grass flourishes in the shallows. This zone is of variable quality, but is highly significant, due to the presence of a number of orchid colonies (See Orchid Maps, Overlays and spreadsheet)

These are mostly found in the Coast Banksia/Coastal Alkaline Scrub mosaic rather than on the foredune complex. The orchids are thriving among the mosses and both are indications that at least some ecological processes are intact.

Even under the Cypresses the Coast Bone-fruit (*Threlkeldia diffusa*) abounds. This zone is also significant due to the presence of midden sites. These are most obvious beneath the Cypress trees, because their roots pull the midden material to the surface and it is possible that the whole foreshore is one continuous midden. Disturbed and eroded areas are the places where midden sites are most evident. Care needs to be taken that no further disturbance occurs in these areas and in some cases, fencing may be required. Care will also need to be taken if the removal of these Cypresses is proposed.

Although there is no camping, numerous incursions occur along the road side, which are now being remedied through the use of logs and barriers.

In high quality areas in this zone the foreshore is accreting (building) whereas in areas dominated by Marram and disturbed by beach cleaners the foredune is steep and eroding. Previously unrecorded on the Mornington Peninsula, Sprenger Fern (*Asparagoides densiflorus*) occurs predominantly in this zone, and as such is a high priority for control aimed at elimination.

Keith Street Conservation Zone

This is a relatively small area but has been identified as a separate zone due to the presence of midden sites and high quality ground storey remnants, supporting small herbs such as Hypoxis (*Hypoxis sp.*), Annual Buttercup (*Ranunculus sessiliflorus*), Native Carrot (*Daucus glochidiatus*) and a variety of mosses. Although orchids were not found in this zone during this survey, it is likely that they are present, given the presence of mosses. Bridal Creeper (*Asparagus asparagoides*) occurs within this zone but seems to have been affected by the biocontrol rust. High quality habitat also occurs across this zone.

Morris Street Conservation Zone

Consideration should be given to removing the Cypresses opposite Morris Street to allow natural regeneration to take place and to protect the old existing Banksias. Severe pruning and cut and painting would be ideal so as to minimize root disturbance while mitigating public risk. This sensitivity is necessary to minimize disturbance to any indigenous ground flora or possible midden sites. Feral beehives exist in hollows in these Banksias and are in need of removal. There is currently some camping in this zone but consideration should be given to decommissioning these sites to allow regeneration works to take place.

Tootgarook Conservation Zone

This area is significant due to the presence of midden sites and also of numerous orchid colonies and understorey species such as Prickly Starwort (*Stellaria pungens*) and Common Bottle-daisy (*Lagenophora stipitata*) which occur within the Coast Banksia Woodland component.

Some of the orchid colonies occur within mown or planted areas and care needs to be taken that any management works, other than selective hand weeding, occur outside the period from May through to the beginning of December. Any works in these areas should be mindful of moss layers which are orchid indicator species and any soil disturbance should be minimized. Herbicide should only be used to target specific species and any spray drift should be minimized to avoid impacts on soil micro-biota, on which the orchids rely.

The Eastern section of this zone also supports some high quality, foredune vegetation remnants. There are also high habitat values, with swamp rats active in the Sword Sedge, and Grass Blue Butterflies feeding on the introduced Rocket (*Cakile spp.*) on the strandline. White-lipped Snakes have also been recorded in this area, along with both species of Blue-tongued Lizard.

It is not clear whether the Swamp Gum (*Eucalyptus ovata*) present in this zone is planted or naturally occurring.

No Coastal Alkaline Scrub or Moonah Woodland occurs in this zone.

Banksia Conservation Zone

This is one of the largest areas of relatively intact Banksia Woodland on the Capel Foreshore Reserve. Active weed management of woody species such as Cotoneaster (*Cotoneaster* spp.) has occurred over a long period of time. This has however, lead to a successional invasion of introduced grass species. The management of these grasses will need to be undertaken sensitively so as to enable indigenous grasses, lilies and sedges to predominate. In some cases this may be facilitated by selective whipper-snipping or steaming of annual introduced species so as to deplete the seed bank over time. Perennial grasses should be hand-weeded from high quality ground cover areas and selectively spot-sprayed where they dominate in poorer quality areas. Most weeds seem to be concentrated at track edges or on the strandline. Follow-up of woody weed control in the Coast Banksia areas will also be necessary in the longer term since many of these species are retained in the seed-bank for a long time, in addition to being transported via blackbirds, to the Reserve, from neighbouring gardens. Regeneration is occurring throughout this zone and priority should be given to its protection and enhancement.

Although orchids were not found in this zone during this survey, they are likely to occur and a more targeted search should take place next year between July and October.

Rosebud West Foreshore Conservation Zone

Much of this zone is fenced and supports a number of areas that have had active management in the past and have significant regeneration occurring.

Both reference areas are in this zone. Although traditionally, most reference areas are not subject to planting or mulching, this area is useful as a monitoring site since records and maps have been kept and species present documented over time. Restoration should continue, concentrating on weeding from high quality areas, out, being mindful of significant species such as Love Creeper (*Comesperma volubile*)

The Western Australian Willow Myrtle (*Agonis flexuosa*) is invading along the land edges of this zone from plantings in the adjacent Rosebud West Camping Zone. This species should be removed from within the zone, along with any mature Myrtle trees overhanging this zone. Radiata Pine (*Pinus Radiata*) impacting on this zone should also be removed. After removal allow at least two years for natural regeneration to occur, along with continued weed management, before considering enrichment planting. Consideration can, however be given to replanting of Coast Banksia, Drooping Sheoak or Sweet Bursaria (*Bursaria spinosa*) outside the main fence-line. The reason for allowing natural regeneration is that Pines are well known for suppressing seed bank regeneration, but once they are removed, the seed bank regenerates surprisingly well after the pine needles have broken down.

Blackwood Conservation Zone

This zone encompasses a small grove of Blackwoods opposite Rosebud West shopping centre. This grove possibly comprises one individual with younger plants coming from root regeneration and is the only patch of Blackwoods on the Capel Foreshore. As such it is an important resource for material for replanting purposes. This species differs widely in form

across the Mornington Peninsula and any replanting should only be done from trees occurring either on the Rosebud Foreshore or the Capel Foreshore. Due to the low production of seed in this area, propagation may have to be from cuttings.

Chinaman's Creek Swamp Gum Conservation Zone

This zone predominantly supports Swamp Scrub although foredune vegetation predominates towards the entrance of the creek. This creek line has had many years of continuous planting and weed control by Friends Groups and supports high quality habitat for the endangered Swamp Skink. To allow for the open-canopy requirements of the Swamp Skink, species such as Coast Wirilda, White Correa (*Correa alba*), Silver Banksia (*Banksia marginata*) and the planted Swamp Sheoak (*Casuarina obesa*) should be removed. These species are a legacy of past inappropriate plantings.

Panic Veldt Grass (*Ehrharta erecta*) has the potential to completely dominate and should be weeded at every opportunity and the entire plant must be bagged so the seed is removed from the site.

The patch of Periwinkle (*Vinca major*) is also problematic and needs to be contained, with the future aim of eliminating it from this zone. A Sea Box (*Alyxia buxifolia*) planted as a replacement would be a good idea as they are both from the same family.

The Chinamans Creek zone, due to the limited distribution of this EVC on the Foreshore Reserve, supports a number of species not found elsewhere within the reserve.

Most of the Swamp Gums (*Eucalyptus ovata*) on the Capel Foreshore, occur in this zone. There is one other individual immediately adjacent and possibly one natural occurrence in the Tootgarook Conservation Zone. This makes them of high local significance and their continued health and longevity are a priority in this zone. (See Indigenous Species & Significance Table and Significant Species Map5 in Appendices)

Camping and Picnic Zones

With zones designated as camping and picnic zones, the impacts are mostly seasonal with a large influx of tourists from December until Easter. This allows for management to be undertaken during the off-season and autumn plantings should be established before the tourists arrive.

A re-occurring problem in many camping areas along the coastal fringe is the over-pruning of Coast Beard-heath (*Leucopogon parviflorus*) without regard for the great age and significance of some of these individuals which is leading to the attrition and loss of this species apart from any aesthetic considerations arising from the skeletal appearance of the pruned individual. Since although Coast Beard Heath can withstand some tip pruning, cutting of larger limbs creates the destabilization of this plant and once it is gone it can be very difficult to re-establish.

Capel Foreshore Reserve varies in quality, levels of weed invasion and management regimes. Camping is restricted to certain areas, and along with the boat ramp receives more intensive management.

Kevin Street Camping Zone

Camping occurs within this zone and highest quality areas are found adjacent to Point Nepean Road and along the primary dune.

The presence of Short-stemmed Flax Lily (*Dianella brevicaulis*) in this zone indicates that Drooping Sheoaks were once more prevalent so any enrichment planting should utilize both of these species. Otherwise prioritize protection around existing mature Coast Banksias to encourage natural regeneration and tree health.

Tootgarook Camping Zone

Camping occurs in this zone along with the Tootgarook Boat Ramp and it is a highly disturbed area with few existing remnants. These remnants need protection and all existing isolated individuals should also be protected using understorey planting to ensure their health and long term survival. This is already occurring in some areas within this zone, however some of the entrances along the new fence create an impact on a couple of individuals and consideration could be given to closing or moving those access points. The fence however creates the perfect opportunity for foredune planting on the bay side, with the long term view of creating shade and protection for the camping area. This would also have the effect of accreting sand and therefore reduce impacts of any tidal changes. Once species such as Knobby Club-rush, Coast Saltbush and Coast Wattle become established, it will allow for recruitment or enrichment planting of species such as Drooping She-oak and Coast Banksia.

Truemans Road Picnic Zone

This area serves as a day-visitor area but given that it is adjacent to high quality conservation areas, this zone could be utilized as an interpretation facility. Group plantings of labeled plants could be used and interpretation boards put there, leading eastwards along a trail through the Banksia Conservation zone to the Rose Street entrance. Another interpretation board could be placed at the viewing point across the bay opposite Violet Street.

It is suggested that some planting is undertaken along the foredune, adjacent to the Truemans Rd Parking area starting around the lone She-oak and the grove of Coast Banksias on the bay side of the toilet block, to create shade and protection from coastal influences.

Rosebud West Camping Zone

This zone has been subject to the long-term impacts of camping. Although there are numerous old Banksias and areas of Coast Tea tree, many of the trees are planted. There are however, large patches of native grass and herbs, including Coast Wood-sorrel (*Oxalis rubens*), a significant species. These patches are an ideal basis for encouraging regeneration through weeding, selective mowing and occasionally, enrichment planting if natural regeneration is not occurring. This will require that workers undertaking mowing should be aware of what constitutes native vegetation, including grasses.

Although in the long term i.e. with natural attrition, most of the exotic trees could be replaced, species known to genetically pollute, such as Southern Mahogany (*Eucalyptus botryoides*) and Giant Honey-myrtle (*Melaleuca armillaris*) should be a priority for removal and those impacting on isolated indigenous individuals, or those listed as S1 should also be removed (see Introduced Species and Methods of Control in appendices and Priorities Section). Plantings in this zone can include species such as Blackwood, Bursaria, Black Wattle (*Acacia mearnsii*), Swamp Gum, Coast Manna Gum (*Eucalyptus viminalis* ssp. *pyroriana*) and should include some Coast Banksia.



Priorities

Basic Rules of Bush Regeneration

- o Minimal disturbance - disturbance inevitably leads to weed invasion.
- o Minimal chemical usage – for a number of reasons including off-target damage, bio accumulation, costs involved etc.
- o Minimal use of mulch – although mulching can be very useful in revegetation and as weed suppression and water retention in a garden bed situation, when restoring remnants its use is often unnecessary and brings with it the risk of introducing weed seeds and Argentine ants, and suppressing regeneration of indigenous seed banks.
- o Work from high quality areas outwards
- o Work slowly and systematically
- o Take 'before and after' photos for monitoring purposes.
- o Be mindful of buffers e.g. even some woody weeds can at times provide buffers from grassy weed invasion. In turn Grassy Weeds may protect regenerating seedlings.
- o Be mindful of habitat e.g. check for birds nests, possum dreys and other signs of faunal usage.
- o When concentrating on a particular weed species, remove mature, seeding individuals first.
- o When concentrating on a dioecious weed, remove females or fruiting individuals first e.g. *Pittosporum*
- o Observe hygiene procedures e.g. clean shoes, clean tools and bagging of weed seeds, or other means of removing it from the site.
- o Timing is an important consideration. Weed control is generally best undertaken when species are flowering, prior to seed set. In sites where orchids or other geophytes and annuals are present, undertake works in these areas to coincide with the time that these species are dormant, or post seeding.
- o Highly sensitive areas, such as orchid sites, require highly sensitive weed management. This is due to the fact that orchids rely of intact surface layers, composed predominantly of mosses and small annual herbs.
- o Aim to leave weed biomass on site (although not its seed), if possible aim to kill woody weeds in situ or hang smaller weeds in trees rather than creating piles or removing it from the site.
- o Follow-up, then monitor, if needed adapt management, then follow-up again. This requires budgets to be allocated or planned for at the start of any project. Many high quality restoration projects have failed due to lack of funds for follow-up maintenance and monitoring.

Working from high quality areas out is a basic principle of natural vegetation management. It is therefore important to have an assessment of where the best quality areas are. The National Trust of NSW developed a colour coding system to map vegetation quality and we have used a modified form of this system to map the vegetation on Capel Foreshore Reserve. This system is also useful as a way of monitoring changes in vegetation quality over time.

Site Prioritisation

(see Vegetation Quality Map in Appendices).

GREEN - More than 60% indigenous cover.
RETENTION area.....**highest priority**

- Retain what is left.
- Aim to eliminate all weeds over time.
- No planting. Allow for natural regeneration.
- Highly skilled workforce.

ORANGE - More than 30% indigenous cover.
RESTORATION area....**moderate priority**

- Restore slowly
- Aim to control weed population
- Possible enrichment planting after allowing time for natural regeneration.
- Semi-skilled workforce under skilled co-ordination.

RED - Less than 30 % indigenous cover.
REVEGETATION area....**lowest priority**

- Aim to control weed seed production.
- May plant in high profile areas or to link higher quality areas or buffers.
- Still may have habitat or buffer values which weeds are providing.

Weed Species Prioritisation

(see Introduced Species & Methods of Control in Appendices)

A total of 144 introduced species were recorded on the Capel Foreshore. These species vary in their potential to invade and dominate remnant indigenous vegetation. Some may have been there for a long time and others may be recent introductions. Weeds occur in vegetation communities just as indigenous species do e.g. Marram Grass will be found within the foredune communities rather than in Coast Banksia Woodland. The following system provides a way to prioritize weeds both in terms of their current status and their known risk to coastal vegetation communities species. When this is combined with the vegetation quality maps it enables both sites and species to be prioritized.

KEYSTONE – K

- Totally dominate structurally and floristically.
- Many species (flora and fauna) may have become dependant.
- Work slowly and systematically from retention areas outwards.
- Remove mature specimens first.
- Keep in mind buffers/habitat.
- Long-term management approach required.**

SMALL PATCHES – S

Of variable risk but easiest to eliminate.

S1 - High risk = **Highest priority = Eliminate across site.**

S2 - Moderate risk = Moderate priority = Eliminate from retention areas first.

S3 - Negligible risk = lowest priority.

UBIQUITOUS SPECIES - U

- Scattered weeds of disturbed areas.
- Hard to eliminate - Look at management regime.
- Eliminate in retention areas but of low priority elsewhere.

Revegetation & Planting

(see EVC Maps and EVC profiles in Appendices)

Planting is best undertaken in revegetation areas, and is useful for creating buffers and links between high quality areas or habitat areas and also for interpretation and education. It is also useful for protecting isolated trees in camping areas and shade for campers. It is however of lower priority than protecting retention and restoration areas, which act as the sources of biodiversity. Plants will survive best within their EVCs or plant communities. The EVC maps in the appendices indicate the original EVCs and the profiles developed by Jeff Yugovic for the Mornington Peninsula Shire Council indicate the species that are likely to occur within that EVC and their dimensions and availability commercially. Plants should always be sourced from local provenance and local gene pools.

With some species particular care needs to be taken when sourcing material. Some of the planted *Carpobrotus* spp. are either hybrids or introduced. This Genus has the ability to hybridize and therefore pollute the gene pools of the local Karkalla. The various Poas are also a problem and difficult to identify. The blue form of *Poa poiformis* has been planted in the Chinamans Creek Swamp-gum Conservation Zone area but is not a natural occurrence. It needs to be replaced by other *Poa*'s from seed collected from original individuals (not planted)

within the Chinamans Creek environs. (Predominantly *Poa labillardieri*). The rare Dune Poa has also been planted throughout the foreshore but is not thought to be naturally occurring.

Many old Coast Banksias on the peninsula are senescing or suffering from borer attack. Some of those closer to Rye may also be suffering from a form of die-back, the cause of which is currently being investigated by Ian Smith for the MPSC. Many have had to be removed for risk mitigation particularly in the camping zones or along access routes. All trees are now numbered and coded which makes it possible to assess how many Banksias are on the foreshore, how many are being removed each year and therefore how many need to be replanted each year under the State Vegetation Framework, so as to offset losses. The trees that are currently senescing are approx 100 years old on average. Many other species become structurally unstable before this time, but there is an erroneous perception that Coast Banksias are particularly prone to dropping branches precipitously and as a result they tend to be pruned or felled prematurely. Consideration should be given to cabling or other methods of stabilization.

Having said this, most (but not all) planting of this species could be undertaken on the foredune areas where there is no natural regeneration already occurring, to aid in dune stabilisation.



Calendar of Works

Timing of works is vital to successful vegetation management. To facilitate this, a calendar is included in the Appendices. This is just a guide and it is worth keeping in mind that seasons vary from year to year, and from place to place. There is no substitute for being on the site and monitoring weather and life cycles of different species.

Further Recommendations

To enable monitoring of the foreshore vegetation over time it is recommended that photo points be set up. These need to be at easily re-locatable sites such as track junctions and corner posts. These are best done in spring so as to show the greatest diversity of the species present. If follow-up monitoring is done systematically every spring, correlation is then possible with the photo points over time. Before and after photos of particular work sites will need to have a stake (or sign) as a marker. The dates will also need to be noted since any site will look different in a different season. All points should be GPS recorded and could be hyper-linked with the photos in the data base spreadsheet.

Much disturbance has occurred along the edge of Point Nepean Road. In the recent past, during the construction of the bike path through the reserve, a patch of the roadside vegetation was cleared every 50-100m to allow the stockpiling of gravel for the path. People then started parking and driving on these cleared areas so bollards were placed to prevent vehicle access. A few of these stockpile sites were existing road drainage sumps prior to the works, but after the works were completed, none of the sites were properly reinstated. VicRoads workers naturally presumed they were all sumps which now leads to them being excavated and sprayed as part of the roadside maintenance works. There are many more than required to allow stormwater to drain away. An on-site meeting with VicRoads conservation officer would establish which ones are the original sumps, which sites can be rehabilitated and revegetated, would define responsibilities and thus facilitate efficient joint management.

Appendices

Aerial Maps 1 – 5
Ecological Vegetation Class Profiles
EVC Maps 1 – 5 and Overlays 1 – 5
Total Species List

Indigenous Species & Significance
Orchid Locations Map
Orchid Locations Overlay
Orchid Locations Spreadsheet
Significant Species Key & Maps 1 – 5

Management Zone Maps 1 – 5

Vegetation Quality Key & Maps 1-5

Introduced Species & Methods of Control

Calendar of Works

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APPENDICES

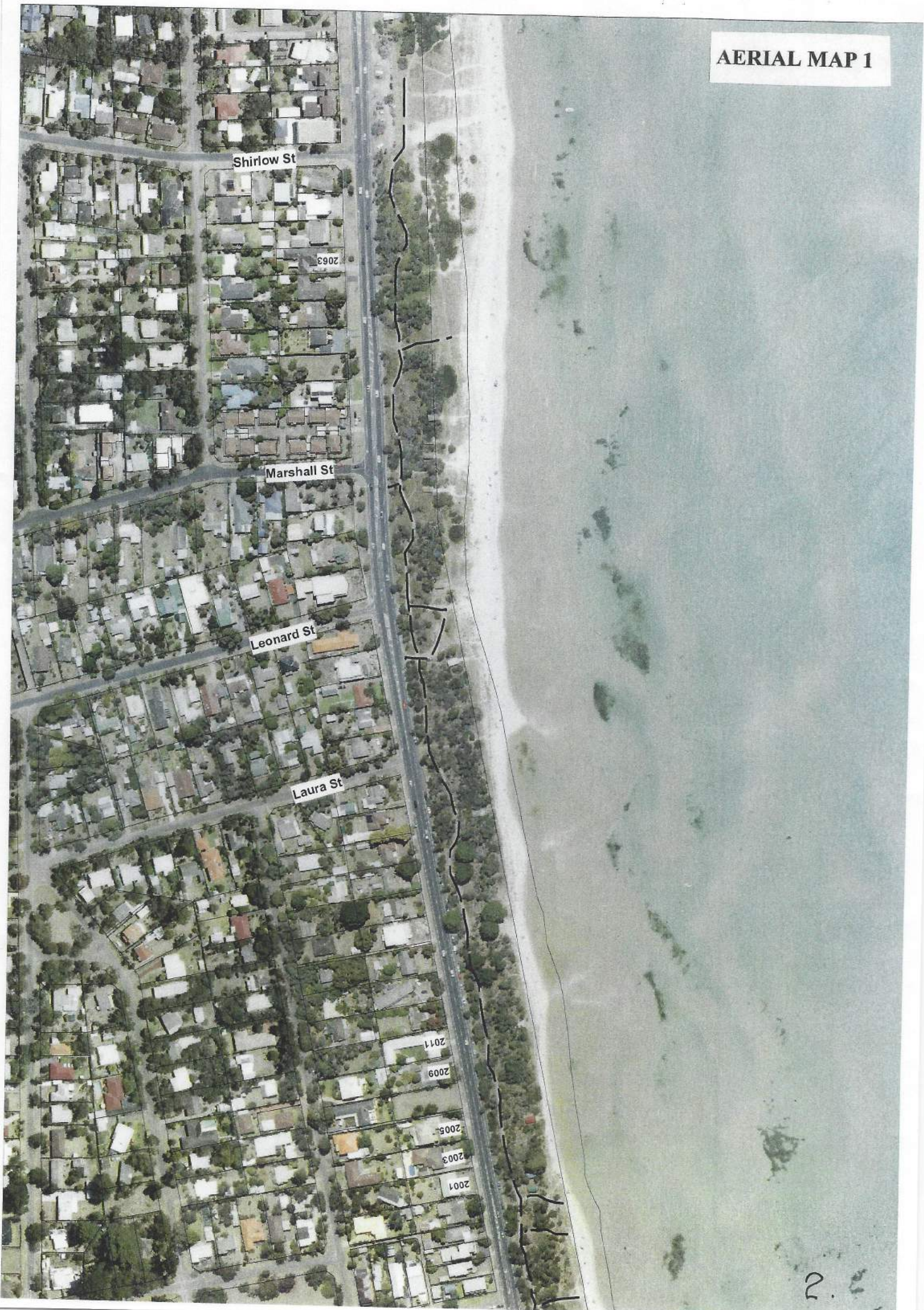
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Appendix 1

AERIAL MAPS
(1 - 5)

AERIAL MAP 1



Shirlow St

2063

Marshall St

Leonard St

Laura St

2011

2009

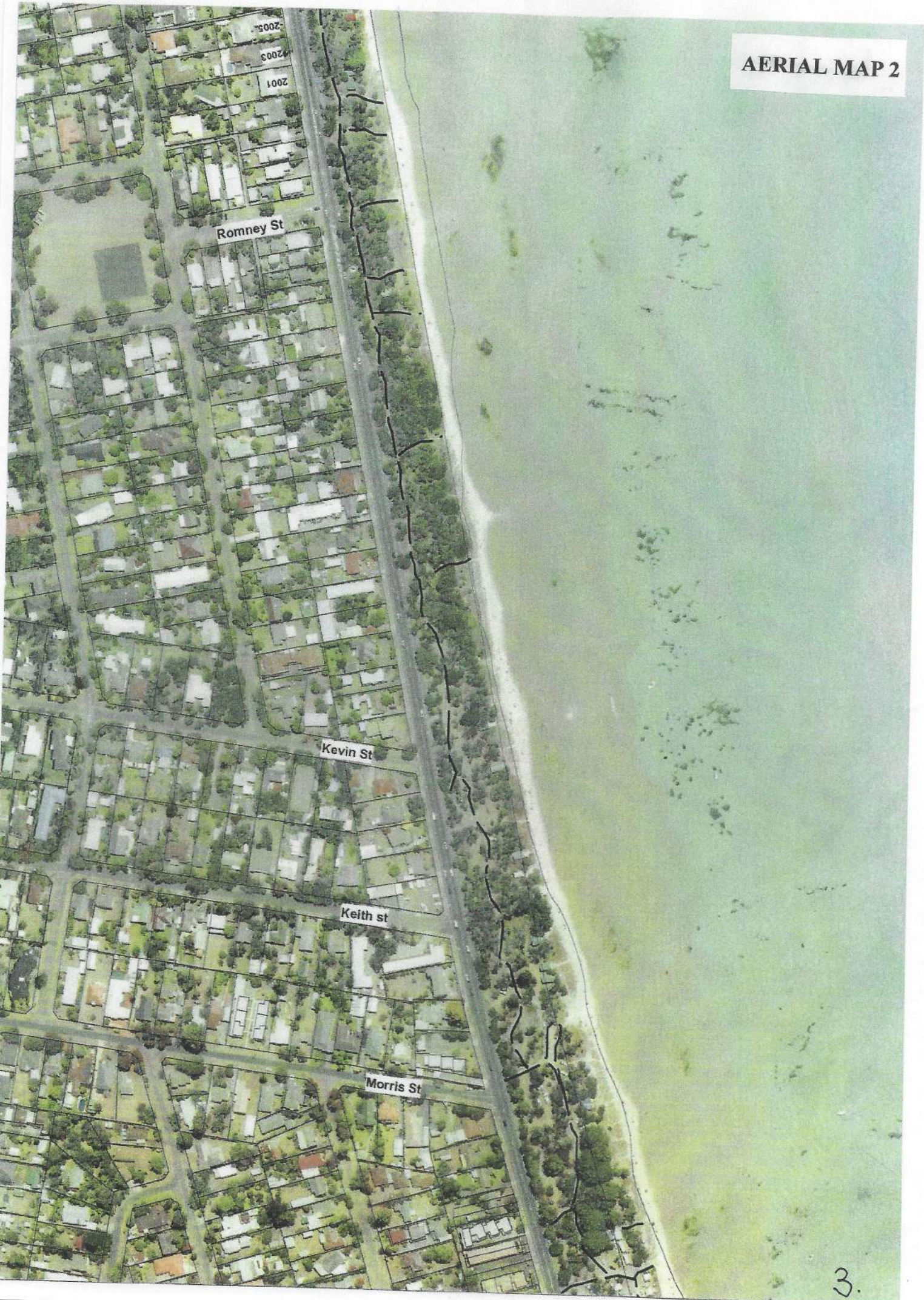
2005

2003

2001

2

AERIAL MAP 2



2001
2002
2003

Romney St

Kevin St

Keith st

Morris St

AERIAL MAP 3



Morris St

Carmichael St

Burdett St

Point Nepean Rd

Truemans Rd

Skating rink

1859
1857
1856
1853
1849
1847
1845

1829

AERIAL MAP 4



AERIAL MAP 5



Appendix 2

**ECOLOGICAL VEGETATION
CLASS (EVC) PROFILES**

ECOLOGICAL VEGETATION CLASS PROFILE:

002 COAST BANKSIA WOODLAND

Structure:	Woodland to 25 metres
Environment:	Usually on deep alkaline (calcareous) sand, often at the foot of coastal bluffs, sometimes on coastal bluffs on relatively sheltered sites
Pre-1750 distribution:	Widespread and locally extensive in coastal areas of the Mornington Peninsula, with inland occurrences near Cape Schanck
Present distribution:	Scattered and rare
Peninsula status:	Vulnerable
Bioregional status:	Vulnerable
Nearest relative:	Coastal Dune Scrub
Adjacent EVCs:	Coastal Dune Scrub, Coastal Dune Grassland, Coastal Alkaline Scrub
Typical site:	Rosebud Foreshore, Rosebud
Notes:	Distinguished by dominant Coast Banksia; ground layer frequently has succulent creepers, these are fire retardant and tend to protect Banksias from fire damage; this community naturally develops from Coastal Dune Scrub (dominated by Coast Tea-tree) in the long absence of fire

General notes:

- (1) This profile is generalised with only the major species listed; individual sites may differ in composition due to site characteristics (geology, aspect, rainfall, drainage) and site history; look at the composition of adjacent vegetation to fine tune the species list for your site.
- (2) Heights for trees are in metres, other plants in centimetres.
- (3) Availability from nurseries is for species, not necessarily for your soil-type genetic provenance within the species; plants should be sourced from same soil type / geology for genetic conservation and best growth; contact your local indigenous nursery and ask them to collect seed from local sites or ensure that plants are local provenance.
- (4) Planting of locally sourced indigenous species appropriate for the EVC should be undertaken where remnant indigenous vegetation is absent or where carefully applied bush regeneration techniques have failed to stimulate adequate recruitment of new indigenous plants within remnant indigenous vegetation; managing for natural regeneration preserves the ecological integrity of native vegetation rather than turning it into a plantation.

Scientific name	Common name	Height	Available
Trees			
<i>Acacia longifolia</i> var. <i>sophorae</i>	Coast Wattle	10	✓
<i>Allocasuarina verticillata</i>	Drooping Sheoak	10	✓
<i>Banksia integrifolia</i>	Coast Banksia	25	✓
<i>Leptospermum laevigatum</i>	Coast Tea-tree	5	✓
<i>Myoporum insulare</i>	Common Boobialla	13	✓
Shrubs			
<i>Correa alba</i>	White Correa	150	✓
<i>Leucopogon parviflorus</i>	Coast Beard-heath	500	✓
<i>Rhagodia candolleana</i>	Seaberry Saltbush	200	✓

Scientific name	Common name	Height Available	
Grasses			
<i>Dichondra repens</i>	Kidney-weed	4	✓
<i>Distichlis distichophylla</i>	Australian Salt-grass	20	
<i>Imperata cylindrica</i>	Blady Grass	50	✓
<i>Lepidosperma concavum</i>	Sandhill Sword-sedge	60	
<i>Lepidosperma gladiatum</i>	Coast Sword-sedge	100	✓
<i>Microlaena stipoides</i>	Weeping Grass	70	✓
<i>Poa labillardierei</i>	Common Tussock-grass	100	✓
<i>Poa poiiformis</i>	Coast Tussock-grass	100	✓
Ground covers			
<i>Acaena novae-zelandiae</i>	Bidgee-widgee	20	✓
<i>Dianella brevicaulis</i>	Small-flower Flax-lily	50	✓
<i>Dianella revoluta</i> s.l.	Black-anther Flax-lily	80	✓
<i>Dichondra repens</i>	Kidney-weed	4	✓
<i>Geranium solanderi</i> s.l.	Austral Cranesbill	30	✓
<i>Ficinia nodosa</i>	Knobby Club-sedge	100	✓
<i>Lepidosperma gladiatum</i>	Coast Sword-sedge	100	✓
<i>Lomandra longifolia</i>	Spiny-headed Mat-rush	100	✓
<i>Pelargonium australe</i>	Austral Stork's-bill	60	✓
Ferns			
<i>Pteridium esculentum</i>	Austral Bracken	100	
Climbers, epiphytes			
<i>Clematis microphylla</i>	Small-leaved Clematis		✓
<i>Glycine clandestina</i>	Twining Glycine		✓
<i>Tetragonia implexicoma</i>	Bower Spinach		✓

ECOLOGICAL VEGETATION CLASS PROFILE:

053 SWAMP SCRUB

Structure:	Scrub to 5 metres
Environment:	Fertile floodplains, usually wide but may be relatively narrow
Pre-1750 distribution:	Widespread along watercourses of the Mornington Peninsula
Present distribution:	Scattered and rare
Peninsula status:	Endangered
Bioregional status:	Endangered
Nearest relative:	Swampy Woodland
Adjacent EVCs:	Wide range: on dry, not flood-prone land includes Grassy Woodland, Herb-rich Foothill Forest; on wetter flood-prone land includes Reeds swamp
Typical site:	Bittern Coastal Wetland, Bittern
Notes:	Distinguished by dominant Swamp Paperbark with little or no cover from Swamp Gum; where Swamp Gum forms a distinct canopy the EVC is Swampy Woodland

General notes:

- (1) This profile is generalised with only the major species listed; individual sites may differ in composition due to site characteristics (geology, aspect, rainfall, drainage) and site history; look at the composition of adjacent vegetation to fine tune the species list for your site.
- (2) Heights for trees are in metres, other plants in centimetres.
- (3) Availability from nurseries is for species, not necessarily for your soil-type genetic provenance within the species; plants should be sourced from same soil type / geology for genetic conservation and best growth; contact your local indigenous nursery and ask them to collect seed from local sites or ensure that plants are local provenance.
- (4) Planting of locally sourced indigenous species appropriate for the EVC should be undertaken where remnant indigenous vegetation is absent or where carefully applied bush regeneration techniques have failed to stimulate adequate recruitment of new indigenous plants within remnant indigenous vegetation; managing for natural regeneration preserves the ecological integrity of native vegetation rather than turning it into a plantation.

Scientific name	Common name	Height	Available
Trees			
<i>Acacia mearnsii</i>	Black Wattle	12	✓
<i>Acacia melanoxylon</i>	Blackwood	15	✓
<i>Eucalyptus ovata</i>	Swamp Gum	20	✓
<i>Exocarpos cupressiformis</i>	Cherry Ballart	8	
<i>Leptospermum lanigerum</i> (some sites only)	Woolly Tea-tree	6	✓
Shrubs			
<i>Acacia verticillata</i>	Prickly Moses	400	✓
<i>Cassinia aculeata</i>	Common Cassinia	250	✓
<i>Exocarpos strictus</i> (some sites only)	Pale-fruit Ballart	500	

Scientific name	Common name	Height	Available
<i>Goodenia ovata</i>	Hop Goodenia	200	✓
<i>Leptospermum continentale</i>	Prickly Tea-tree	200	✓
<i>Melaleuca ericifolia</i>	Swamp Paperbark	700	✓
<i>Ozothamnus ferrugineus</i>	Tree Everlasting	400	✓
Grasses			
<i>Eragrostis brownii</i>	Common Love-grass	50	✓
<i>Microlaena stipoides</i>	Weeping Grass	70	✓
<i>Notodanthonia semiannularis</i>	Wetland Wallaby-grass	80	✓
<i>Poa clelandii</i>	Noah's Ark	75	✓
<i>Poa labillardierei</i>	Common Tussock-grass	100	✓
<i>Poa tenera</i>	Slender Tussock-grass	60	✓
Ground covers			
<i>Acaena novae-zelandiae</i>	Bidgee-widgee	20	✓
<i>Alisma plantago-aquatica</i>	Water Plantain	200	✓
<i>Astroloma humifusum</i>	Cranberry Heath	50	✓
<i>Carex appressa</i>	Tall Sedge	150	✓
<i>Centella cordifolia</i>	Centella	20	✓
<i>Crassula helmsii</i>	Swamp Crassula	10	✓
<i>Deyeuxia quadriseta</i>	Reed Bent-grass	150	✓
<i>Dianella longifolia</i>	Pale Flax-lily	130	✓
<i>Dianella revoluta</i>	Black-anther Flax-lily	80	✓
<i>Dichondra repens</i>	Kidney-weed	4	✓
<i>Drosera peltata</i> ssp. <i>auriculata</i>	Tall Sundew	50	
<i>Euchiton collinus</i>	Creeping Cudweed	40	
<i>Gahnia radula</i>	Thatch Saw-sedge	100	✓
<i>Gahnia sieberiana</i>	Red-fruit Saw-sedge	300	✓
<i>Gonocarpus tetragynus</i>	Common Raspwort	30	✓
<i>Goodenia elongata</i>	Lanky Goodenia	40	✓
<i>Gratiola peruviana</i>	Austral Brooklime	15	✓
<i>Haloragis brownii</i>	Swamp Raspwort	50	
<i>Hemarthria uncinata</i>	Mat Grass	50	✓
<i>Hypericum gramineum</i>	Small St John's Wort	40	✓
<i>Hypericum japonicum</i>	Matted St John's Wort	8	
<i>Isolepis inundata</i>	Swamp Club-sedge	20	
<i>Juncus australis</i>	Austral Rush	130	✓
<i>Juncus pallidus</i>	Pale Rush	150	✓
<i>Juncus pauciflorus</i>	Loose-flower Rush	100	✓
<i>Lagenophora stipitata</i>	Common Bottle-daisy	20	✓
<i>Lepidosperma laterale</i> var. <i>majus</i>	Variable Sword-sedge	150	✓
<i>Lobelia anceps</i>	Angled Lobelia	30	✓
<i>Lomandra filiformis</i>	Wattle Mat-rush	45	✓
<i>Lomandra longifolia</i>	Spiny-headed Mat-rush	100	✓
<i>Lythrum hyssopifolia</i>	Small Loosestrife	50	
<i>Mazus pumilio</i>	Swamp Mazus	14	✓
<i>Oxalis exilis</i>	Shady Wood-sorrel	8	
<i>Persicaria decipiens</i>	Slender Knotweed	80	✓

Scientific name	Common name	Height Available	
<i>Pterostylis furcata</i>	Sickle Greenhood	30	
<i>Schoenus apogon</i>	Common Bog-sedge	25	
<i>Selliera radicans</i>	Shiny Swamp-mat	5	✓
<i>Senecio glomeratus</i>	Annual Fireweed	120	
<i>Senecio minimus</i>	Shrubby Fireweed	150	
<i>Triglochin striatum</i>	Streaked Arrowgrass	30	✓
<i>Xanthorrhoea minor</i>	Small Grass-tree	100	✓
Ferns			
<i>Blechnum minus</i>	Soft Water-fern	80	
Climbers, epiphytes			
<i>Amyema pendula</i>	Drooping Mistletoe		
<i>Billardiera scandens</i>	Common Apple-berry		✓
<i>Cassytha pubescens</i>	Downy Dodder-laurel		
<i>Comesperma volubile</i>	Love Creeper		✓

ECOLOGICAL VEGETATION CLASS PROFILE:

160 COASTAL DUNE SCRUB

Structure:	Scrub to 5 metres
Environment:	Deep sand on coastal dunes
Pre-1750 distribution:	Restricted occurrences on sandy coasts of the Mornington Peninsula
Present distribution:	Some mostly modified examples remain
Peninsula status:	Vulnerable
Bioregional status:	Least concern
Nearest relative:	Coastal Alkaline Scrub
Adjacent EVCs:	Coast Banksia Woodland
Typical site:	Sandy Point (HMAS Cerberus)
Notes:	Distinguished from Coastal Headland Scrub by different substrate, although the two EVCs have broad overlap, partly due to sand overlying rocks

General notes:

- (1) This profile is generalised with only the major species listed; individual sites may differ in composition due to site characteristics (geology, aspect, rainfall, drainage) and site history; look at the composition of adjacent vegetation to fine tune the species list for your site.
- (2) Heights for trees are in metres, other plants in centimetres.
- (3) Availability from nurseries is for species, not necessarily for your soil-type genetic provenance within the species; plants should be sourced from same soil type / geology for genetic conservation and best growth; contact your local indigenous nursery and ask them to collect seed from local sites or ensure that plants are local provenance.
- (4) Planting of locally sourced indigenous species appropriate for the EVC should be undertaken where remnant indigenous vegetation is absent or where carefully applied bush regeneration techniques have failed to stimulate adequate recruitment of new indigenous plants within remnant indigenous vegetation; managing for natural regeneration preserves the ecological integrity of native vegetation rather than turning it into a plantation.

Scientific name	Common name	Height	Available
Trees			
<i>Acacia longifolia</i> var. <i>sophorae</i>	Coast Wattle	5	✓
<i>Allocasuarina verticillata</i>	Drooping Sheoak	10	✓
<i>Leptospermum laevigatum</i>	Coast Tea-tree	5	✓
<i>Myoporum insulare</i>	Common Boobialla	5	✓
Shrubs			
<i>Correa alba</i>	White Correa	150	✓
<i>Enchylaena tomentosa</i>	Ruby Saltbush	50	✓
<i>Leucophyta brownii</i>	Cushion Bush	100	✓
<i>Leucopogon parviflorus</i>	Coast Beard-heath	500	✓
<i>Ozothamnus turbinatus</i>	Coast Everlasting	200	✓
<i>Rhagodia candolleana</i>	Seaberry Saltbush	200	✓

Scientific name	Common name	Height	Available
Grasses			
<i>Austrodanthonia setacea</i>	Bristly Wallaby-grass	100	✓
<i>Lachnagrostis billardierei</i>	Coast Blown-grass	60	
<i>Poa poiformis</i>	Coast Tussock-grass	100	✓
<i>Spinifex sericeus</i>	Hairy Spinifex	60	✓
Ground covers			
<i>Actites megalocarpa</i>	Dune Thistle	40	✓
<i>Apium prostratum</i>	Sea Celery	15	
<i>Crassula decumbens</i>	Spreading Crassula	10	
<i>Crassula sieberiana</i>	Sieber Crassula	10	
<i>Daucus glochidiatus</i>	Austral Carrot	50	
<i>Dianella brevicaulis</i>	Small-flower Flax-lily	80	✓
<i>Dichondra repens</i>	Kidney-weed	4	✓
<i>Ficinia nodosa</i>	Knobby Club-sedge	100	✓
<i>Lepidosperma gladiatum</i>	Coast Sword-sedge	100	✓
<i>Muehlenbeckia adpressa</i>	Climbing Lignum	200	✓
<i>Senecio pinnatifolius</i>	Variable Groundsel	40	✓
<i>Spergularia media</i> s.l.	Coast Sand-spurrey	30	
Ferns			
None			
Climbers, epiphytes			
<i>Clematis microphylla</i>	Small-leaved Clematis		✓
<i>Tetragonia implexicoma</i>	Bower Spinach		✓

ECOLOGICAL VEGETATION CLASS PROFILE:

858 COASTAL ALKALINE SCRUB

Structure:	Scrub to 15 metres
Environment:	Deep alkaline sands
Pre-1750 distribution:	Most of the Nepean Peninsula, particularly the interior areas
Present distribution:	Rare
Peninsula status:	Endangered
Bioregional status:	Depleted
Nearest relative:	Coastal Dune Scrub
Adjacent EVCs:	Coastal Headland Scrub, Coast Banksia Woodland, Damp Sands Herb-rich Woodland, Swamp Scrub (Boneo Swamp)
Typical site:	Point Nepean, Portsea
Notes:	Distinguished by usual dominant Moonah or sometimes Coast Tea-tree, with characteristic species especially Coast Wirilda and Thyme Rice-flower, large areas originally dominated by Drooping Sheoak; listed as a threatened community under the <i>Flora and Fauna Guarantee Act 1988</i> (Vic.) as 'Coastal Moonah Woodland'; previously known as Calcarenite Dune Woodland

General notes:

- (1) This profile is generalised with only the major species listed; individual sites may differ in composition due to site characteristics (geology, aspect, rainfall, drainage) and site history; look at the composition of adjacent vegetation to fine tune the species list for your site.
- (2) Heights for trees are in metres, other plants in centimetres.
- (3) Availability from nurseries is for species, not necessarily for your soil-type genetic provenance within the species; plants should be sourced from same soil type / geology for genetic conservation and best growth; contact your local indigenous nursery and ask them to collect seed from local sites or ensure that plants are local provenance.
- (4) Planting of locally sourced indigenous species appropriate for the EVC should be undertaken where remnant indigenous vegetation is absent or where carefully applied bush regeneration techniques have failed to stimulate adequate recruitment of new indigenous plants within remnant indigenous vegetation; managing for natural regeneration preserves the ecological integrity of native vegetation rather than turning it into a plantation.

Scientific name	Common name	Height	Available
Trees			
<i>Acacia longifolia</i> var. <i>sophorae</i>	Coast Wattle	5	✓
<i>Acacia retinodes</i> var. <i>uncifolia</i>	Coast Wirilda	10	✓
<i>Allocasuarina verticillata</i>	Drooping Sheoak	15	✓
<i>Bursaria spinosa</i> var. <i>macrophylla</i>	Sweet Bursaria	8	✓
<i>Exocarpos cupressiformis</i>	Cherry Ballart	8	
<i>Leptospermum laevigatum</i>	Coast Tea-tree	5	✓
<i>Melaleuca lanceolata</i>	Moonah	15	✓
<i>Myoporum insulare</i>	Common Boobialla	8	✓

Scientific name	Common name	Height	Available
Shrubs			
<i>Acacia paradoxa</i>	Hedge Wattle	200	✓
<i>Adriana quadripartita</i>	Coast Bitter-bush	300	
<i>Alyxia buxifolia</i>	Sea Box	200	✓
<i>Correa alba</i>	White Correa	150	✓
<i>Correa reflexa</i>	Common Correa	200	✓
<i>Hibbertia sericea</i>	Silky Guinea-flower	70	✓
<i>Leucopogon parviflorus</i>	Coast Beard-heath	500	✓
<i>Olearia axillaris</i>	Coast Daisy-Bush	150	✓
<i>Pimelea serpyllifolia</i>	Thyme Rice-flower	150	
<i>Pomaderris paniculosa</i>	Coast Pomaderris	200	✓
<i>Pultenaea canaliculata</i>	Coast Bush-pea	200	
<i>Rubus parvifolius</i>	Small-leaf Bramble	100	
<i>Rhagodia candolleana</i>	Seaberry Saltbush	200	✓
<i>Solanum laciniatum</i>	Large Kangaroo Apple	300	✓
Grasses			
<i>Austrodanthonia racemosa</i>	Stiped Wallaby-grass	60	
<i>Austrodanthonia setacea</i>	Bristly Wallaby-grass	100	✓
<i>Austrostipa flavescens</i>	Coast Spear-grass	120	✓
<i>Lachnagrostis billardierei</i>	Coast Blown-grass	60	
<i>Microlaena stipoides</i>	Weeping Grass	70	✓
<i>Poa labillardierei</i>	Common Tussock-grass	100	✓
<i>Poa poiformis</i> var. <i>ramifer</i>	Dune Poa	100	✓
Ground covers			
<i>Acaena novae-zelandiae</i>	Bidgee-widgee	20	✓
<i>Ajuga australis</i>	Austral Bugle	60	
<i>Apium prostratum</i>	Sea Celery	15	
<i>Caladenia carnea</i> s.l.	Pink Fingers	25	
<i>Caladenia latifolia</i>	Pink Fairies	40	
<i>Carex breviculmis</i>	Common Grass-sedge	30	
<i>Carpobrotus rossii</i>	Karkalla	5	✓
<i>Convolvulus erubescens</i>	Pink Bindweed	15	✓
<i>Corybas despectans</i>	Coast Helmet-orchid	2	
<i>Corybas incurvus</i>	Slaty Helmet-orchid	2	
<i>Crassula sieberiana</i>	Sieber Crassula	10	
<i>Cynoglossum australe</i>	Australian Hound's-tongue	60	
<i>Cyrtostylis reniformis</i>	Small Gnat-orchid	10	
<i>Cyrtostylis robusta</i>	Large Gnat-orchid	25	
<i>Daucus glochidiatus</i>	Austral Carrot	50	
<i>Dianella brevicaulis</i>	Small-flower Flax-lily	80	✓
<i>Dianella revoluta</i> s.l.	Black-anther Flax-lily	80	✓
<i>Dichondra repens</i>	Kidney-weed	4	✓
<i>Epilobium billardierianum</i>	Variable Willow-herb	100	
<i>Eriochilus cucullatus</i>	Parson's Bands	20	
<i>Euchiton collinus</i>	Creeping Cudweed	40	
<i>Euchiton involucratus</i> s.s.	Star Cudweed	50	

Scientific name	Common name	Height Available	
<i>Galium australe</i>	Tangled Bedstraw	40	
<i>Helichrysum leucopsideum</i>	Satin Everlasting	60	
<i>Hydrocotyle laxiflora</i>	Stinking Pennywort	15	✓
<i>Ficinia nodosa</i>	Knobby Club-sedge	100	✓
<i>Kennedia prostrata</i>	Running Postman	5	✓
<i>Lagenophora stipitata</i>	Common Bottle-daisy	20	✓
<i>Lepidosperma gladiatum</i>	Coast Sword-sedge	100	✓
<i>Microtis unifolia</i>	Common Onion-orchid	90	
<i>Myosotis australis</i>	Austral Forget-me-not	30	
<i>Oxalis corniculata</i> s.l.	Yellow Wood-sorrel	15	
<i>Oxalis exilis</i>	Shady Wood-sorrel	8	
<i>Oxalis perennans</i>	Grassland Wood-sorrel	15	
<i>Parietaria debilis</i>	Shade Pellitory	30	
<i>Pelargonium australe</i>	Austral Stork's-bill	60	✓
<i>Pterostylis cucullata</i>	Leafy Greenhood	20	
<i>Pterostylis pedunculata</i>	Maroonhood	25	
<i>Pultenaea tenuifolia</i>	Slender Bush-pea	30	✓
<i>Ranunculus sessiliflorus</i>	Annual Buttercup	30	
<i>Sambucus gaudichaudiana</i>	White Elderberry	200	✓
<i>Scaevola albida</i>	Pale Fan-flower	50	
<i>Scutellaria humilis</i>	Dwarf Skullcap	10	
<i>Sebaea ovata</i>	Yellow Sebaea	30	
<i>Senecio biserratus</i>	Jagged Fireweed	100	
<i>Senecio glomeratus</i>	Annual Fireweed	120	
<i>Senecio hispidulus</i>	Rough Fireweed	100	
<i>Senecio odoratus</i>	Scented Groundsel	150	✓
<i>Senecio pinnatifolius</i>	Variable Groundsel	40	✓
<i>Stackhousia monogyna</i>	Creamy Stackhousia	30	
<i>Swainsona lessertiifolia</i>	Coast Swainson-pea	50	
<i>Veronica calycina</i>	Hairy Speedwell	50	✓
<i>Viola hederacea</i>	Ivy-leaf Violet	15	✓
Ferns			
None			
Climbers, epiphytes			
<i>Anyema miquelii</i>	Box Mistletoe		
<i>Anyema preissii</i>	Wire-leaf Mistletoe		
<i>Cassytha pubescens</i>	Downy Dodder-laurel		
<i>Clematis microphylla</i>	Small-leaved Clematis		✓
<i>Comesperma volubile</i>	Love Creeper		✓
<i>Muehlenbeckia adpressa</i>	Climbing Lignum		✓
<i>Tetragonia implexicoma</i>	Bower Spinach		✓
<i>Zygophyllum billardierei</i>	Coast Twin-leaf		

ECOLOGICAL VEGETATION CLASS PROFILE:

311 BERM GRASSY SHRUBLAND

Structure:	Shrubland to 2 metres
Environment:	Deep sand on beaches partially protected from wind
Pre-1750 distribution:	Scattered on sandy beaches of the Mornington Peninsula, mainly in relatively sheltered locations
Present distribution:	Scattered and uncommon, most stands are small (major occurrence on Mud Islands)
Peninsula status:	Endangered
Bioregional status:	Endangered
Nearest relative:	None
Adjacent EVCs:	Coastal Dune Scrub, Coastal Headland Scrub
Typical site:	Mount Eliza to Mount Martha Foreshore
Notes:	Distinguished by dominant Coast Saltbush <i>Atriplex cinerea</i>

General notes:

- (1) This profile is generalised with only the major species listed; individual sites may differ in composition due to site characteristics (geology, aspect, rainfall, drainage) and site history; look at the composition of adjacent vegetation to fine tune the species list for your site.
- (2) Heights for trees are in metres, other plants in centimetres.
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Scientific name	Common name	Height Available
Trees		
None		
Shrubs		
<i>Atriplex cinerea</i>	Coast Saltbush	180 ✓
Grasses		
<i>Distichlis distichophylla</i>	Australian Salt-grass	200
Ground covers		
<i>Tetragonia implexicoma</i>	Bower Spinach	100 ✓
Ferns, climbers, epiphytes		
None		

ECOLOGICAL VEGETATION CLASS PROFILE:

879 COASTAL DUNE GRASSLAND

Structure:	Grassland to 60 centimetres
Environment:	Sandy beaches
Pre-1750 distribution:	Widespread and locally extensive on sandy coasts
Present distribution:	Widespread but rare
Peninsula status:	Endangered, mostly through replacement by Marram Grass
Bioregional status:	Endangered
Nearest relative:	Coastal Dune Scrub
Adjacent EVCs:	Coastal Dune Scrub, Berm Grassy Shrubland
Typical site:	Point Leo Foreshore Reserve, Point Leo
Notes:	Distinguished by dominant beach grass Hairy Spinifex; extensively replaced by introduced Marram Grass

General notes:

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- (2) Heights for trees are in metres, other plants in centimetres.
- (3) Availability from nurseries is for species, not necessarily for your soil-type genetic provenance within the species; plants should be sourced from same soil type / geology for genetic conservation and best growth; contact your local indigenous nursery and ask them to collect seed from local sites or ensure that plants are local provenance.
- (4) Planting of locally sourced indigenous species appropriate for the EVC should be undertaken where remnant indigenous vegetation is absent or where carefully applied bush regeneration techniques have failed to stimulate adequate recruitment of new indigenous plants within remnant indigenous vegetation; managing for natural regeneration preserves the ecological integrity of native vegetation rather than turning it into a plantation.

Scientific name	Common name	Height	Available
Trees			
None			
Shrubs			
<i>Leucophyta brownii</i>	Cushion Bush	100	✓
<i>Atriplex cinerea</i>	Coast Saltbush	180	✓
<i>Rhagodia candolleana</i>	Seaberry Saltbush	100	✓
Grasses			
<i>Distichlis distichophylla</i>	Australian Salt-grass	20	
<i>Spinifex sericeus</i>	Hairy Spinifex	60	✓
Ground covers			
<i>Tetragonia implexicoma</i>	Bower Spinach	100	✓

Scientific name	Common name	Height Available
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Ferns, climbers, epiphytes

None

Appendix 3

**EVC MAPS
(1 - 5)**

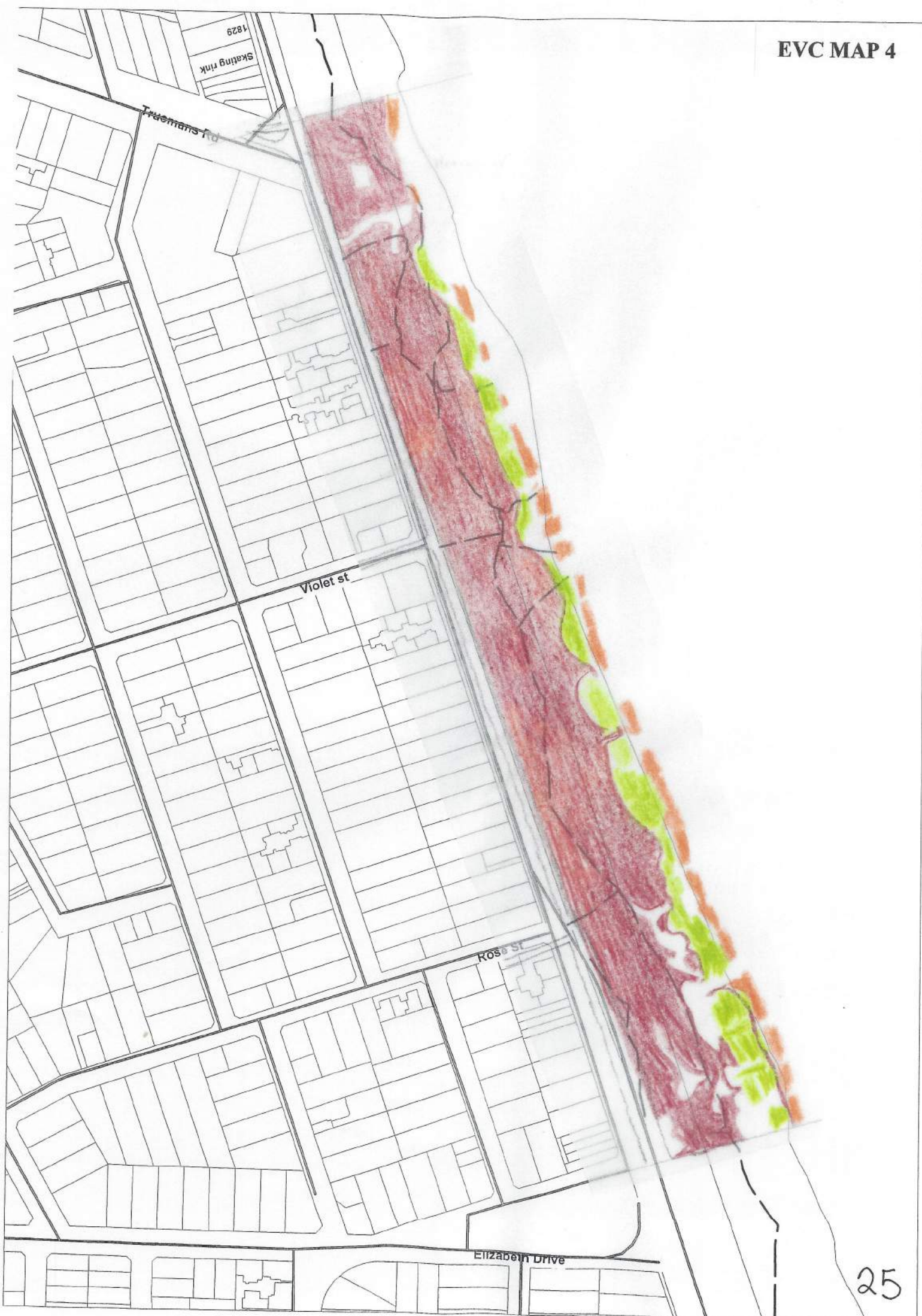
**KEY TO ECOLOGICAL VEGETATION CLASS MAP
CAPEL FORESHORE 2007**

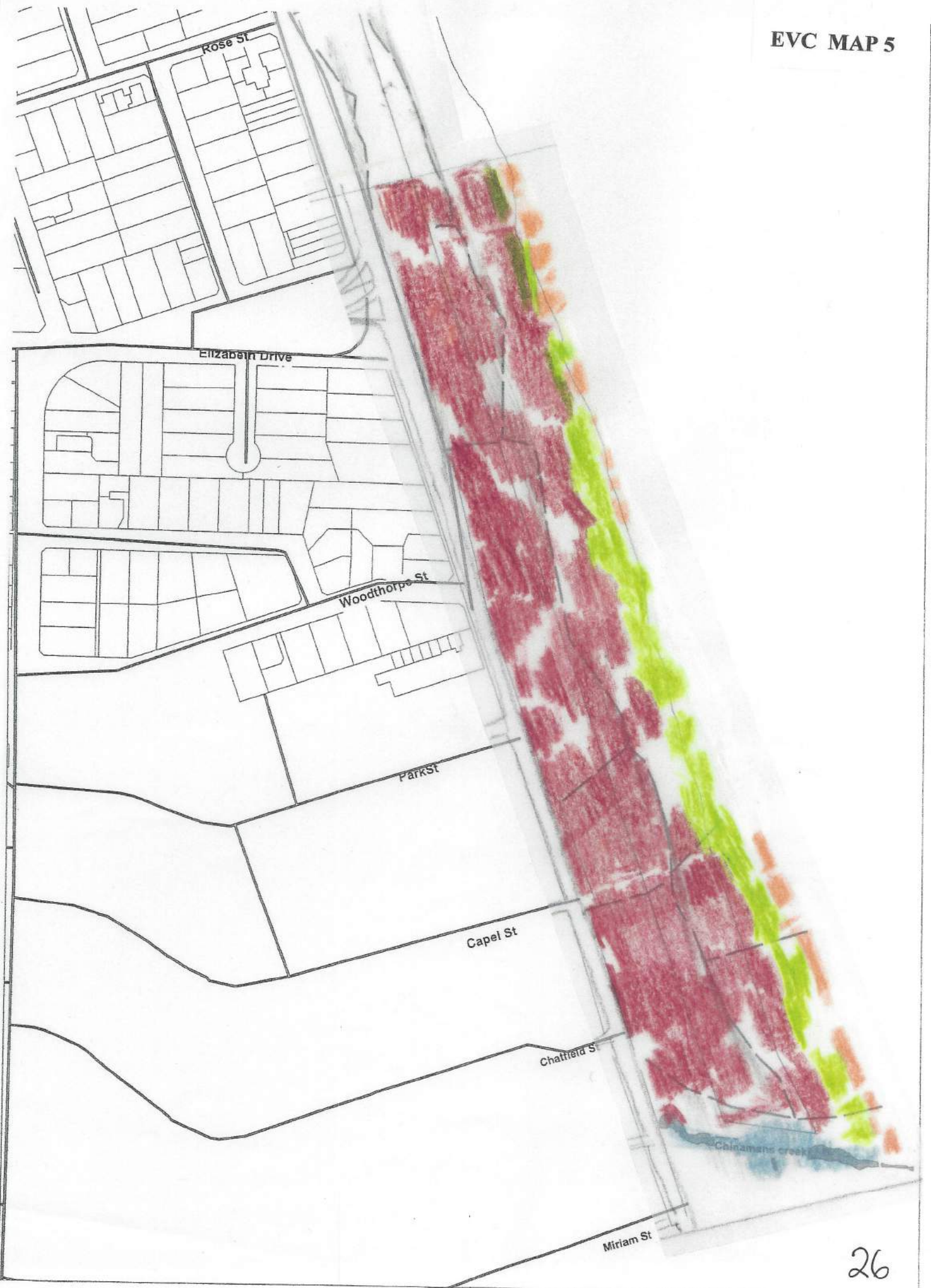
EVC 002 COAST BANKSIA WOODLAND	DARK RED	
EVC 053 SWAMP SCRUB	BLUE	
EVC 160 COAST DUNE SCRUB	GREEN	
EVC 858 COASTAL ALKALINE SCRUB	YELLOW	
EVC 311 BERM GRASSY SHRUBLAND & /OR EVC 879 COASTAL DUNE GRASSLAND	ORANGE	











Appendix 4

TOTAL SPECIES LIST

TOTAL SPECIES LIST

Botanical Name	Common Name
* <i>Acacia longifolia</i> subsp. <i>longifolia</i>	Sallow Wattle
<i>Acacia longifolia</i> subsp. <i>sophorae</i>	Coast Wattle
<i>Acacia mearnsii</i>	Black Wattle
<i>Acacia melanoxylon</i>	Blackwood
<i>Acacia paradoxa</i> (some?/all planted)	Hedge Wattle
* <i>Acacia saligna</i> (planted and naturalized)	Golden Wreath Wattle
* <i>Acacia</i> spp. (planted and naturalized)	Wattles
<i>Acacia uncifolia</i> (natural & planted)	Coast Wirilda
<i>Acaena novae-zelandiae</i>	Bidgee-widgee
* <i>Acanthus mollis</i>	Bears Breach
* <i>Acetosa sagittata</i>	Rambling Dock
<i>Acianthus</i> spp.	Mosquito Orchid
* <i>Agapanthus praecox</i> subsp. <i>orientalis</i>	Agapanthus
* <i>Agonis flexuosa</i> (planted and naturalized)	Willow Myrtle
* <i>Agrostis capillaris</i>	Brown-top Bent
* <i>Agrostis ?gigantea</i>	Red-top Bent
* <i>Aira</i> spp.	Hair Grass
* <i>Allium triquetrum</i>	Three-corner Garlic
<i>Allocasuarina verticillata</i> (natural & planted)	Drooping Sheoak
<i>Alyxia buxifolia</i>	Sea Box
* <i>Ammophila arenaria</i>	Marram Grass
* <i>Anchusa arvensis</i>	Bugloss
* <i>Arctotheca calendula</i>	Cape Weed
* <i>Asparagus densiflorus</i>	Sprengeri Fern
* <i>Asparagus asparagoides</i>	Bridal Creeper
* <i>Asparagus scandens</i>	Asparagus Fern
* <i>Aster subulatus</i>	Aster-weed
<i>Atriplex cinerea</i>	Coast Saltbush
<i>Austrodanthonia racemosa</i>	Stiped Wallaby-grass
<i>Austrodanthonia</i> spp.	Wallaby Grass
<i>Austrostipa flavescens</i>	Coast Spear-grass
* <i>Avena barbata</i>	Bearded Oat
<i>Banksia integrifolia</i> subsp. <i>integrifolia</i>	Coast Banksia
* <i>Berkheya rigida</i>	African Thistle
* <i>Briza maxima</i>	Large Quaking-grass
* <i>Briza minor</i>	Lesser Quaking-grass
* <i>Bromus catharticus</i>	Prairie Grass
* <i>Bromus diandrus</i>	Great Brome
* <i>Bromus hordeaceus</i> subsp. <i>hordeaceus</i>	Soft Brome
* <i>Bromus</i> spp.	Brome
<i>Bursaria spinosa</i>	Sweet Bursaria
* <i>Cakile ?edentula</i>	American Sea Rocket
* <i>Cakile maritima</i> ssp. <i>maritima</i>	Sea Rocket
<i>Calystegia sepium</i> subsp. <i>roseata</i>	Large Bindweed
* <i>Cardamine hirsuta</i> s.l.	Common Bitter-cress
<i>Carex breviculmis</i>	Common Grass-sedge
<i>Carex fascicularis</i>	Tassel Sedge
* <i>Carpobrotus edulis</i>	Hottentot Fig
<i>Carpobrotus rossii</i>	Karkalla
* <i>Carpobrotus</i> spp.	Pigface
* <i>Catapodium rigidum</i>	Fern Grass

- * *Centranthus ruber*
- * *Cerastium* spp.
- * *Chamaecytisus palmensis*
- * *Chasmanthe floribunda*
- * *Chenopodium album*
- * *Chlorophytum comosum*
- * *Chrysanthemoides monilifera* subsp. *monilifera*
- * *Cirsium vulgare*
- Cladium procerum*
- Clematis microphylla*
- Comesperma volubile*
- * *Conyza* spp.
- * *Coprosma repens*
- * *Cordyline australis*
- Correa alba* (?some planted)
- Correa reflexa* (?planted)
- Corybas* spp.
- * *Cotoneaster franchettii*
- * *Cotoneaster glaucophyllus* var. *serotinus*
- * *Cotoneaster* spp.
- Cotula australis*
- * *Crassula multicava* subsp. *multicava*
- Crassula sieberiana* s.l.
- Crassula* spp.
- * *Crassula tetragona* subsp. *robusta*
- * *Crocsmia X crocosmiiflora*
- * *Cupressus macrocarpa*
- * *Cynodon dactylon* var. *dactylon*
- Cynoglossum australe*
- * *Cynosurus echinatus*
- Cyrtostylis reniformis*
- Cyrtostylis* sp
- * *Dactylis glomerata*
- Daucus glochidiatus*
- * *Delairea odorata*
- Dianella brevicaulis*
- Dianella revoluta* s.l.
- Dichondra repens*
- * *Diplotaxis tenuifolia*
- * *Dipogon lignosus*
- Distichlis distichophylla*
- * *Ehrharta erecta* var. *erecta*
- * *Ehrharta longiflora*
- Epilobium* spp. ?x2
- * *Erigeron karvinskianus*
- * *Eucalyptus leucoxylo* (planted)
- Eucalyptus ovata*
- Eucalyptus viminalis* sub.sp. *pryoriana*
- * *Euphorbia paralias*
- * *Euphorbia peplus*
- * *Euphorbia* spp.
- Ficinia nodosa*
- * *Foeniculum vulgare*
- * *Fraxinus* spp.(planted and naturalized)
- * *Freesia alba* x *Freesia leichtlinii*
- * *Fumaria* spp.
- Red Valerian
- Mouse-ear Chickweed
- Tree Lucerne
- African Cornflag
- Fat Hen
- Spider-plant
- African Boneseed
- Spear Thistle
- Leafy Twig-sedge
- Small-leaved Clematis
- Love Creeper
- Fleabane
- Mirror Bush
- New Zealand Cabbage-tree
- White Correa
- Common Correa
- Helmet Orchid
- Grey Cotoneaster
- Large-leaf Cotoneaster
- Cotoneaster
- Common Cotula
- Shade Crassula
- Sieber Crassula
- Crassula
- Shrubby Crassula
- Montbretia
- Monterey Cypress
- Couch
- Australian Hound's-tongue
- Rough Dog's-tail
- Small Gnat-orchid
- Large Gnat-orchid
- Cocksfoot
- Australian Carrot
- Cape Ivy
- Small-flower Flax-lily
- Black-anther Flax-lily
- Kidney-weed
- Sand Rocket
- Common Dipogon
- Australian Salt-grass
- Panic Veldt-grass
- Annual Veldt-grass
- Willow Herb
- Seaside Daisy
- Yellow Gum
- Swamp Gum
- Coast Manna Gum
- Sea Spurge
- Petty Spurge
- Spurge
- Knobby Club-sedge
- Fennel
- Ash
- Freesia
- Fumitory

Gahnia trifida	Coast Saw-sedge
* Galium aparine	Cleavers
* Galium murale	Small Goosegrass
Galium sp.	Bedstraw
* Gazania rigens	Trailing Gazania
* Genista linifolia	Flax-leaf Broom
* Genista monspessulana	Montpellier Broom
Geranium ? potentilloides	Cinquefoil Cranesbill
Geranium ?sp 2.	Crane's Bill
* Geranium molle var. molle	Dovesfoot
* Geranium sp	Geranium
* Gladiolus spp.	Gladiolus
* Hakea laurina (planted)	Pincushion Hakea
* Hakea suaveolens (?planted)	Sweet Wattle
* Hedera helix	English Ivy
* Hibiscus sp.	Hibiscus
* Holcus lanatus	Yorkshire Fog
* Homeria flaccida	One-leaf Cape-tulip
* Hordeum vulgare s.l.	Barley
* Hydrocotyle ? bonariensis	American Pennywort
Hydrocotyle ?verticillata	Pennywort
Hydrocotyle laxiflora	Stinking Pennywort
* Hypochoeris glabra	Smooth Cat's-ear
* Hypochoeris radicata	Cat's Ear
Hypoxis spp.	Hypoxis
Juncus pallidus	Pale Rush
Kennedia prostrata	Running Postman
Lachnagrostis ?filiformis var. 1 or 2	Common or Wetland Blown-grass
Lachnagrostis billardierei subsp. billardierei	Coast Blown-grass
Lagenophora stipitata	Common Bottle-daisy
* Lagurus ovatus	Hare's-tail Grass
* Leontodon taraxacoides subsp. taraxacoides	Hairy Hawkbit
* Lepidium africanum	Common Peppercross
Lepidosperma gladiatum	Coast Sword-sedge
Leptospermum laevigatum	Coast Tea-tree
Leucophyta brownii	Cushion Bush
Leucopogon parviflorus	Coast Beard-heath
Lobelia anceps	Angled Lobelia
* Lolium rigidum	Wimmera Rye-grass
* Lolium spp.	Rye Grass
Lomandra longifolia	Spiny-headed Mat-rush
* Lotus subbiflorus	Hairy Bird's-foot Trefoil
* Lycium ferocissimum	African Box-thorn
* Medicago laciniata	Medic
* Melaleuca armillaris subsp. armillaris (planted)	Giant Honey-myrtle
Melaleuca ericifolia	Swamp Paperbark
Melaleuca lanceolata subsp.lanceolata (some planted)	Moonah
* Melaleuca nesophila (planted)	Showy Myrtle
* Melianthus major	Cape Honey-flower
* Melilotus albus	Melilot
* Melilotus indicus	Sweet Melilot
Microtis spp.	Onion Orchid
* Minuartia mediterranea	Fine-leaved Sandwort
Muehlenbeckia adpressa	Climbing Lignum
Muellerina eucalyptoides	Creeping Mistletoe
Myoporum insulare (most/?all planted)	Common Boobialla

- * *Narcissus* spp.
- Olearia glutinosa* (?some planted)
- Oxalis* ? *rubens*
- * *Oxalis articulata*
- * *Oxalis incarnata*
- * *Oxalis pes-caprae*
- * *Oxalis purpurea*
- Oxalis* spp.
- * *Paraserianthes lophantha* subsp. *lophantha*
- Pelargonium australe* (? Some planted)
- * *Pelargonium X domesticum*
- * *Pennisetum clandestinum*
- * *Petrorhagia* sp.
- * *Phalaris aquatica*
- Phragmites australis*
- * *Physalis peruviana*
- Pimelea serpyllifolia* subsp. *serpyllifolia*
- * *Pinus nigra* var. *corsicana* (planted)
- * *Pinus radiata* (planted)
- * *Pittosporum crassifolium*
- * *Pittosporum undulatum*
- * *Plantago coronopus* subsp. *coronopus*
- * *Plantago lanceolata*
- * *Poa annua*
- * *Poa bulbosa*
- Poa labillardierei*
- Poa poiformis*
- Poa poiformis* var. *ramifer* (?planted)
- * *Polycarpon tetraphyllum*
- * *Polygala myrtifolia* var. *myrtifolia*
- * *Polypogon* spp
- Pomaderris paniculosa* subsp. *Paralia* (planted)
- Pseudognaphalium luteoalbum*
- Pteridium esculentum*
- Pterostylis pedunculata*
- Pultenaea tenuifolia*
- Ranunculus sessiliflorus*
- Ranunculus* spp.
- Rhagodia candolleana* subsp. *candolleana*
- * *Rhamnus alaternus*
- * *Romulea* sp.
- * *Rorippa nasturtium-aquatica*
- * *Rubus discolor*
- Rubus parvifolius*
- Rumex brownii*
- * *Rumex conglomeratus*
- Schoenus /solepis* sp.
- Senecio* ?*glomeratus*
- Senecio* ?*spathulatus* s.l.
- Senecio hispidulus* s.l.
- Senecio quadridentatus*
- * *Sherardia arvensis*
- * *Silene nocturna*
- * *Silene vulgaris*
- * *Solanum douglasii*
- Solanum laciniatum*
- Jonquil*
- Sticky Daisy-bush*
- Dune Wood-sorrel*
- Sourgrass*
- Pale Wood-sorrel*
- Soursob*
- Large-flower Wood-sorrel*
- Wood-sorrel*
- Cape Wattle*
- Austral Stork's-bill*
- Regal Pelargonium*
- Kikuyu*
- Childling Pink*
- Toowoomba Canary-grass*
- Common Reed*
- Cape Gooseberry*
- Thyme Rice-flower*
- Corsican Pine*
- Radiata Pine*
- Karo*
- Sweet Pittosporum*
- Buck's-horn Plantain*
- Ribwort*
- Annual Meadow-grass*
- Bulbous Meadow-grass*
- Common Tussock-grass*
- Coast Tussock-grass*
- Dune Poa*
- Four-leaved Allseed*
- Myrtle-leaf Milkwort*
- Coast Beard-grass*
- Coast Pomaderris*
- Jersey Cudweed*
- Austral Bracken*
- Maroonhood*
- Slender Bush-pea*
- Annual Buttercup*
- Buttercup*
- Seaberry Saltbush*
- Italian Buckthorn*
- Onion Weed*
- Water Cress*
- Blackberry*
- Small-leaf Bramble*
- Slender Dock*
- Clustered Dock*
- Bog Sedge*
- Annual Fireweed*
- Dune Groundsel*
- Rough Fireweed*
- Cotton Fireweed*
- Field Madder*
- Mediterranean Catchfly*
- Bladder Campion*
- Douglas' Nightshade*
- Large Kangaroo Apple*

* <i>Solanum nigrum</i> s.s.	Black Nightshade
* <i>Solanum</i> spp.	Nightshade
* <i>Soliva</i> spp.	Jo Jo/Bindii
* <i>Sonchus asper</i> s.l.	Rough Sow-thistle
* <i>Sonchus oleraceus</i>	Common Sow-thistle
<i>Spinifex sericeus</i>	Hairy Spinifex
* <i>Sporobolus africanus</i>	Rat-tail Grass
<i>Stellaria pungens</i>	Prickly Starwort
* <i>Stenotaphrum secundatum</i>	Buffalo Grass
<i>Swainsona lessertiifolia</i>	Coast Swainson-pea
* <i>Taraxacum</i> spp.	Dandelion
<i>Tetragonia implexicoma</i>	Bower Spinach
<i>Thelymitra</i> sp.	Sun Orchid
* <i>Thinopyrum junceiforme</i>	Sea Wheat-grass
<i>Threlkeldia diffusa</i>	Coast Bonefruit
<i>Thuidiopsis</i> sp.	Golden Weft-moss
* <i>Trifolium dubium</i>	Suckling Clover
<i>Triglochin ?procerum</i>	Water-ribbons
* <i>Vicia hirsuta</i>	Tiny Vetch
* <i>Vicia sativa</i> subsp. <i>nigra</i>	Narrow-leaf Vetch
* <i>Vinca major</i>	Blue Periwinkle
* <i>Vulpia</i> spp.	Fescue

* denotes introduced species

Appendix 5

**INDIGENOUS SPECIES
& SIGNIFICANCE**

INDIGENOUS SPECIES & SIGNIFICANCE

Botanical Name	Capel Foreshore Common Name	2007 VROT	Regional		map/zone
			Local		
<i>Acacia longifolia</i> subsp. <i>sophorae</i>	Coast Wattle		HL		m
<i>Acacia mearnsii</i>	Black Wattle		HL		m
<i>Acacia melanoxylon</i>	Blackwood		HL		creek
<i>Acacia paradoxa</i> (some?/all planted)	Hedge Wattle		HL		m
<i>Acacia uncifolia</i> (nat, occurrence mapped/planted in creek)	Coast Wirilda	r			
<i>Acaena novae-zelandiae</i>	Bidgee-widgee				
<i>Acianthus</i> spp.	Mosquito Orchid		HL		m
<i>Allocasuarina verticillata</i> (natural & planted)	Drooping Sheoak		HL		
<i>Alyxia buxifolia</i>	Sea Box		R		m
<i>Atriplex cinerea</i>	Coast Saltbush				
<i>Austrodanthonia racemosa</i> var. <i>racemosa</i>	Striped Wallaby-grass				
<i>Austrodanthonia</i> spp.	Wallaby Grass				
<i>Austrostipa flavescens</i>	Coast Spear-grass		R		
<i>Banksia integrifolia</i> subsp. <i>integrifolia</i>	Coast Banksia				
<i>Bursaria spinosa</i>	Sweet Bursaria		HL		m
<i>Calystegia sepium</i> subsp. <i>roseata</i>	Large Bindweed				
<i>Carex breviculmis</i>	Common Grass-sedge				
<i>Carex fascicularis</i>	Tassel Sedge				
<i>Carpobrotus rossii</i>	Karkalla		R		creek
<i>Cladium procerum</i>	Leafy Twig-sedge	r			
<i>Clematis microphylla</i>	Small-leaved Clematis				
<i>Comesperma volubile</i>	Love Creeper				
<i>Correa alba</i> (?some planted)	White Correa		HL		m
<i>Correa reflexa</i> ?planted)	Common Correa		HL		creek
<i>Corybas</i> spp.	Helmet Orchid		?R		m
<i>Cotula australis</i>	Common Cotula				
<i>Crassula sieberiana</i> s.l.	Sieber Crassula		R		
<i>Crassula</i> spp.	Crassula				
<i>Cynoglossum australe</i>	Australian Hound's-tongue		R		m
<i>Cyrtostylis reniformis</i>	Small Gnat-orchid		R		
<i>Cyrtostylis</i> sp	Gnat-orchid		R		m
<i>Daucus glochidiatus</i>	Australian Carrot		R		
<i>Dianella brevicaulis</i>	Small-flower Flax-lily		R		

<i>Dianella revoluta</i> s.l.									
<i>Dichondra repens</i>									
<i>Distichlis distichophylla</i>									
<i>Epilobium</i> spp. ?x2									
<i>Eucalyptus ovata</i> (some ?planted-but not near creek)									
<i>Eucalyptus viminalis</i> sub.sp. <i>pyrioriana</i>									
<i>Ficinia nodosa</i>									
<i>Gahnia trifida</i>									
<i>Galium</i> sp.									
<i>Geranium</i> ? <i>potentilloides</i>									
<i>Geranium</i> ?sp 2.									
<i>Hydrocotyle</i> ? <i>verticillata</i>									
<i>Hydrocotyle laxiflora</i>									
<i>Hypoxis</i> spp.									
<i>Juncus pallidus</i>									
<i>Kennedia prostrata</i>									
<i>Lachnagrostis</i> ? <i>filiformis</i> var. 1 or 2									
<i>Lachnagrostis billardierei</i> subsp. <i>billardierei</i>									
<i>Lagenophora stipitata</i>									
<i>Lepidosperma gladiatum</i>									
<i>Leptospermum laevigatum</i>									
<i>Leucophyta brownii</i>									
<i>Leucopogon parviflorus</i>									
<i>Lobelia anceps</i>									
<i>Lomandra longifolia</i>									
<i>Melaleuca ericifolia</i>									
<i>Melaleuca lanceolata</i> subsp. <i>lanceolata</i> (some planted)									
<i>Microtis</i> spp.									
<i>Muehlenbeckia adpressa</i>									
<i>Muellerina eucalyptoides</i>									
<i>Myoporium insulare</i> (most/?all planted)									
<i>Olearia glutinosa</i> (?some planted)									
<i>Oxalis</i> ? <i>rubens</i>									
<i>Oxalis</i> spp.									
<i>Pelargonium australe</i> (? Some planted)									
<i>Phragmites australis</i>									
Black-anther Flax-lily	HL	m							
Kidney-weed									
Australian Salt-grass									
Willow Herb									
Swamp Gum	HL	m&creek							
Coast Manna Gum	HL	m							
Knobby Club-sedge									
Coast Saw-sedge	HL	creek							
Bedstraw									
Cinquefoil Cranesbill									
Crane's Bill									
Stinking Pennywort									
Hypoxis	HL	m							
Pale Rush									
Running Postman									
Common or Wetland	HL	creek							
Blown-grass									
Coast Blown-grass	R	m							
Common Bottle-daisy	HL	m							
Coast Sword-sedge	R								
Coast Tea-tree									
Cushion Bush	R	m							
Coast Beard-heath									
Angled Lobelia									
Spiny-headed Mat-rush									
Swamp Paperbark									
Moonah	R								
Onion Orchid	R	m							
Climbing Lignum	R								
Creeping Mistletoe	HL	m							
Common Boobialla									
Sticky Daisy-bush	R	m							
Dune Wood-sorrel	HL	m							
Wood-sorrel									
Austral Stork's-bill	R	m							
Common Reed									

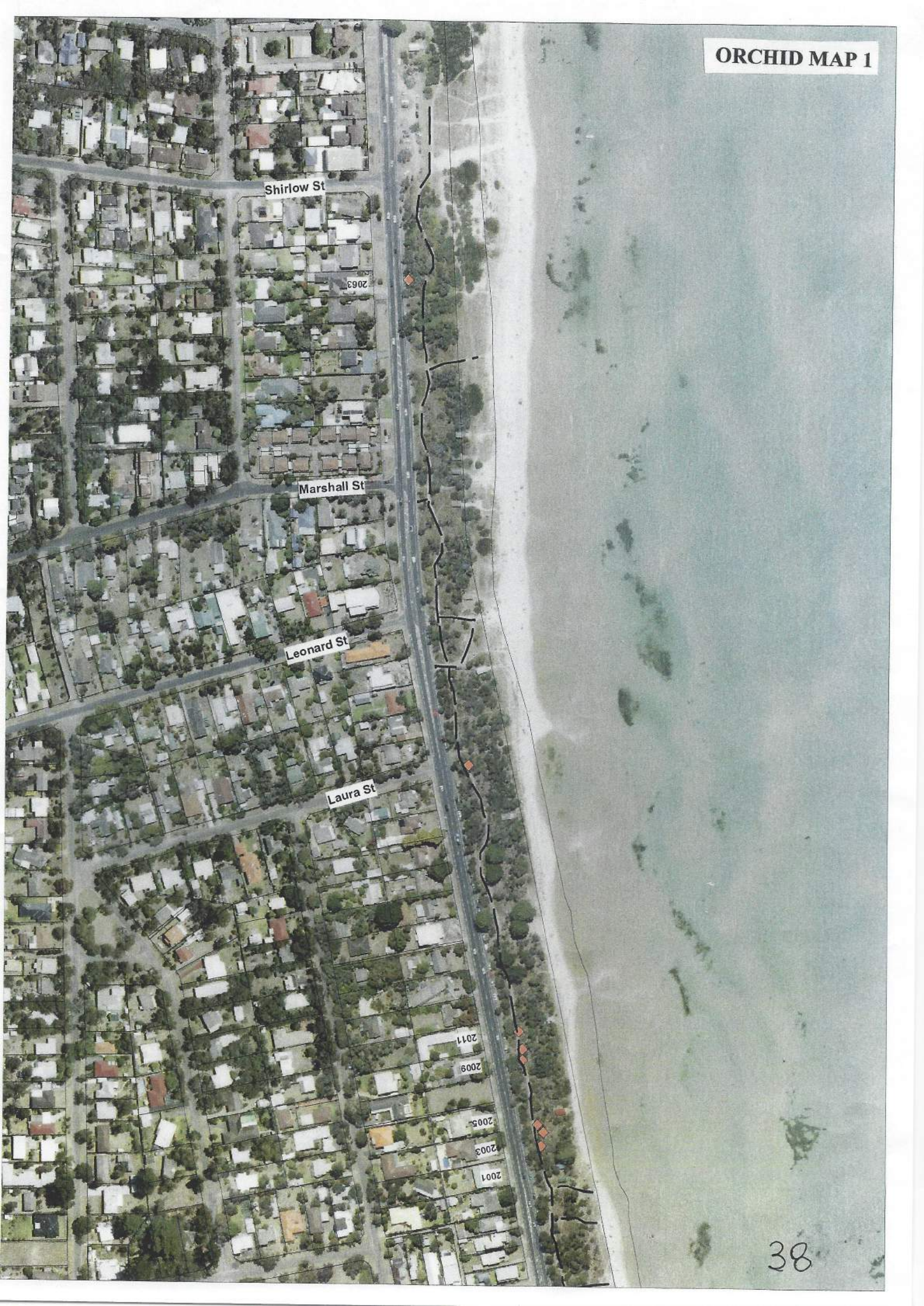
<i>Pimelea serpyllifolia</i> subsp. <i>serpyllifolia</i>				
<i>Poa labillardierei</i>			R	m
<i>Poa poliformis</i>		r		
<i>Poa poliformis</i> var. <i>ramifer</i> (?planted)			R	
<i>Pomaderris paniculosa</i> subsp. <i>paralia</i> (planted)				
<i>Pseudognaphalium luteoalbum</i>			R	m
<i>Pteridium esculentum</i>			R	m
<i>Pterostylis pedunculata</i>			R	m
<i>Pultenaea tenuifolia</i>			R	m
<i>Ranunculus sessiliflorus</i>			R	m
<i>Ranunculus</i> spp.			HL	creek
<i>Rhagodia candolleana</i> subsp. <i>candolleana</i>			HL	creek
<i>Rubus parvifolius</i>			HL	creek
<i>Rumex brownii</i>				
<i>Schoenus /isolepis</i> sp.				
<i>Senecio</i> ? <i>glomeratus</i>				
<i>Senecio</i> ? <i>spathulatus</i> s.l.			R	creek
<i>Senecio hispidulus</i> s.l.				
<i>Senecio quadridentatus</i>				
<i>Solanum laciniatum</i>				
<i>Spinifex sericeus</i>			HL	foredune
<i>Stellaria pungens</i>			HL	m
<i>Swainsona lessertiifolia</i>			R	m
<i>Tetragonia implexicoma</i>				
<i>Thelymitra</i> sp.			HL	m
<i>Threlkeldia diffusa</i>			R	
<i>Thuidiopsis</i> sp.				
<i>Triglochin</i> ? <i>procerum</i>				creek
Thyme Rice-flower				
Common Tussock-grass				
Coast Tussock-grass				
Dune Poa				
Coast Pomaderris				
Jersey Cudweed				
Austral Bracken				
Maroonhood				
Slender Bush-pea				
Annual Buttercup				
Buttercup				
Seaberry Saltbush				
Small-leaf Bramble				
Slender Dock				
Bog Sedge				
Annual Fireweed				
Dune Groundsel				
Rough Fireweed				
Cotton Fireweed				
Large Kangaroo Apple				
Hairy Spinifex				
Prickly Starwort				
Coast Swainson-pea				
Bower Spinach				
Sun Orchid				
Coast Bonefruit				
Golden West-moss				
Water-ribbons				

R = Regionally significant
(Ehmke et al. 2007)

vrot = listed vulnerable rare or threatened species
HL = High Local Sig./few individuals on foreshore
map/zone = map(m) / area described

Appendix 6

ORCHID LOCATIONS
MAP



Shirlow St

2063

Marshall St

Leonard St

Laura St

2011

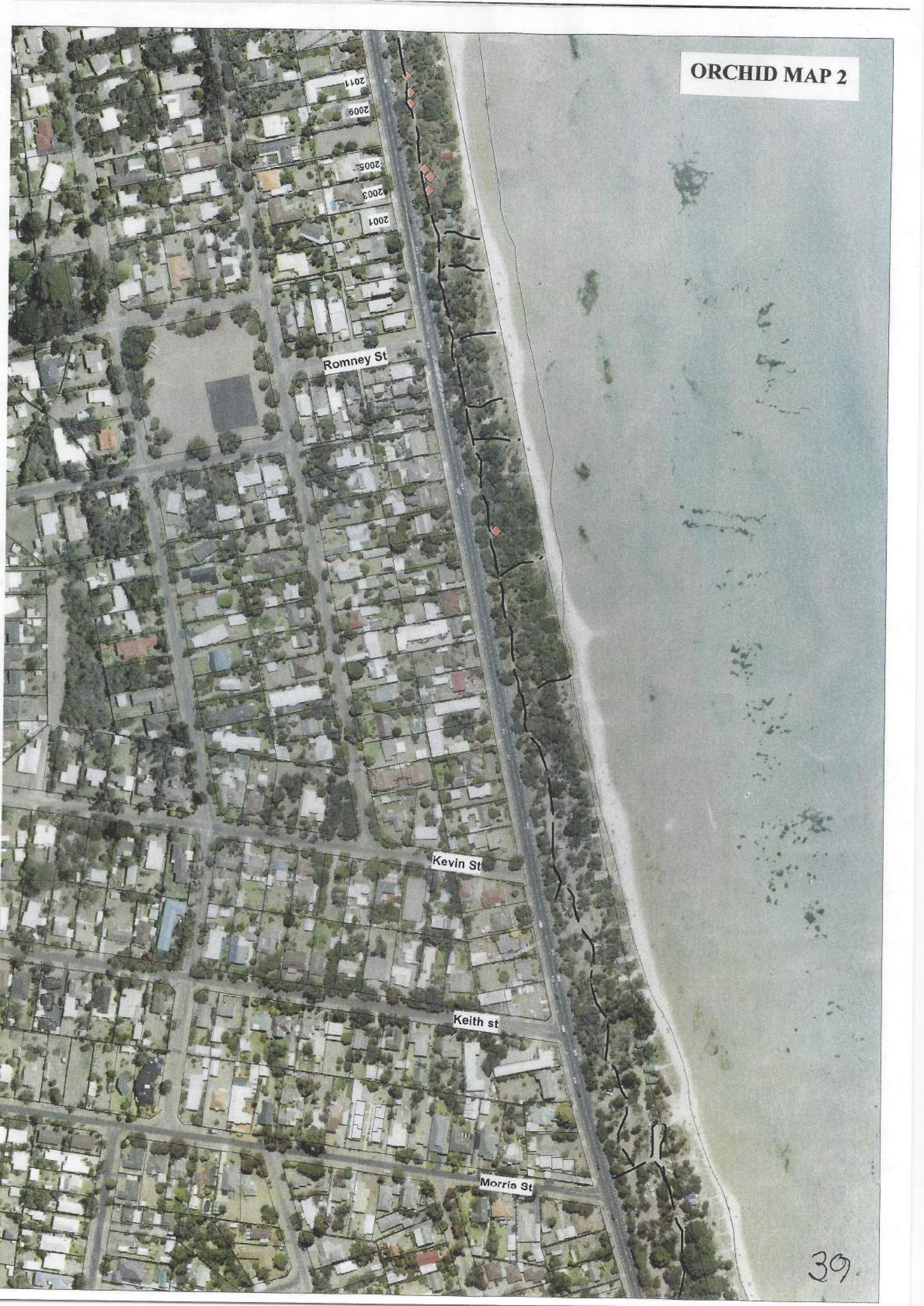
2009

2005

2003

2001

ORCHID MAP 2



Romney St

Kevin St

Keith st

Morris St

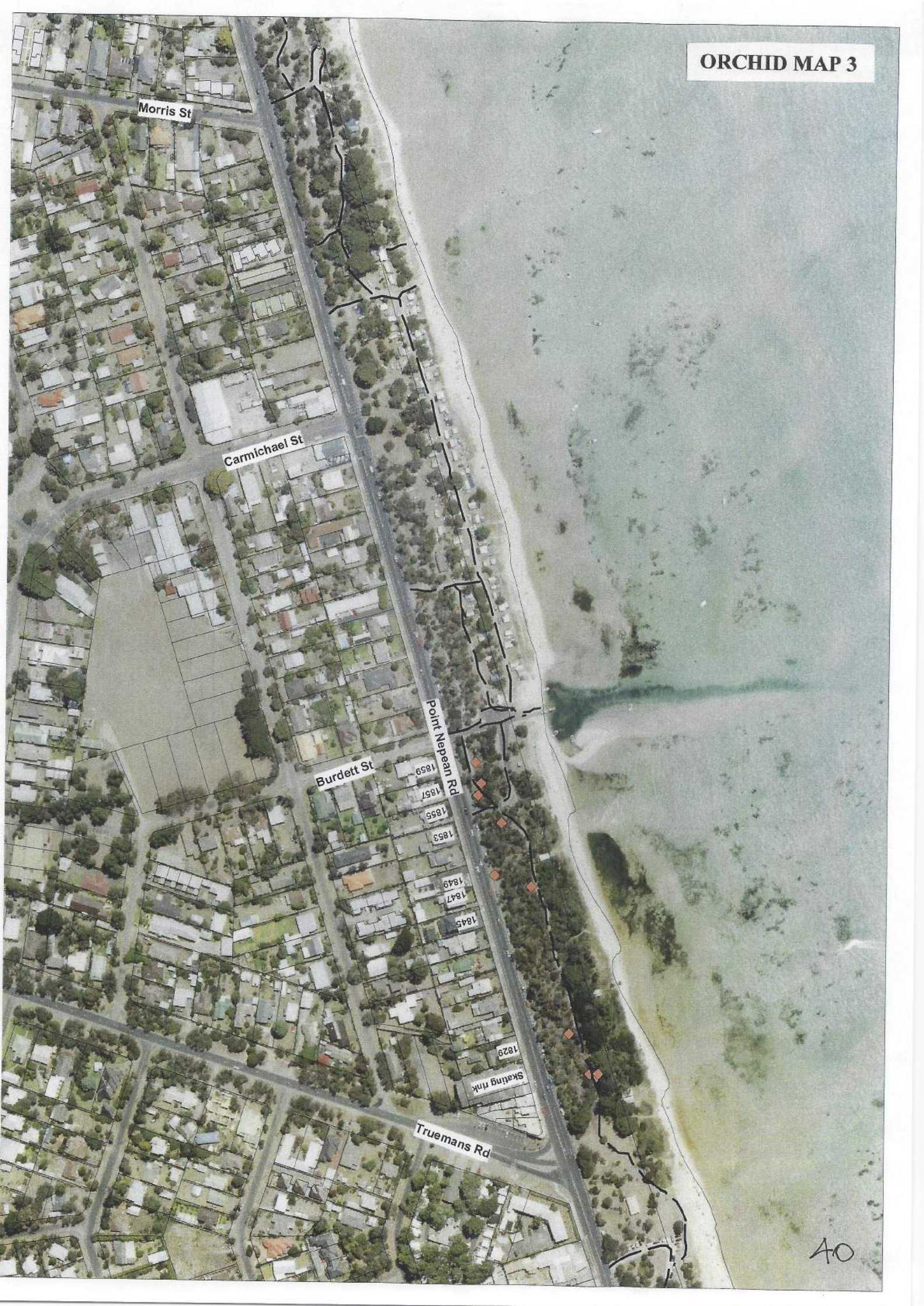
2011

2009

2005

2003

2001



Appendix 7

ORCHID LOCATIONS OVERLAY
(these are not included in this
report)

Appendix 8









ORCHID LOCATIONS SPREADSHEET

APPENDIX ORCHID LOCATIONS 2007 CAPEL FORESHORE

date	WPT No	Lat	Long	species	comments
15/06/2007	242	38 22' 00.3	144 51' 43.9	Pterostylis pedunculata	opp 1859/bayside of bike track
	244	38 22' 02.9	144 51' 35.2	Pterostylis pedunculata	opp 1857/bayside of bike track
AMG 55		Easting	Northing		
2/08/2007	246	0311 511	575 0878	Pterostylis pedunculata	opp Laura/bayside of bike track
	247	0311 713	575 0922	Pterostylis pedunculata	opp 2011/bayside of bike track
	248	0311 723	575 0923	Pterostylis pedunculata	opp 2009/bayside of bike track
	249	0311 729	575 0923	Pterostylis pedunculata	opp 2009/bayside of bike track
	250	0311 779	575 0935	Pterostylis pedunculata	opp 2005/bayside of bike track
	251	0311 794	575 0936	Pterostylis pedunculata	opp 2003/bayside
	252	0312 043	575 0987	Microtis sp.	opp 1971-3(Elandra)/bayside
	256	0313 017	575 1240	Corybas/Cyrtostylis	opp 1857/bayside of bike track
	257	0313 029	575 1239	Pterostylis pedunculata	opp 1855/both sides of bike track
	258	0313 109	575 1283	Corybas/Cyrtostylis	opp 1845/1847 roadside of track
	259	0313 093	575 1266	Corybas/Cyrtostylis	opp 1845/1847 roadside of track
	261	0313 201	575 1310	Microtis & Thelymitra sp	opp 1829/ roadside of track
	262	0313 229	575 1328	Pterostylis pedunculata	opp skate rink/both sides of track
14/09/2007	295	0313 050	575 1250	Acianthus sp	opp 1851/1853 roadside of track
	296	0313 062	575 1244	Microtis sp	opp 1849/roadside
	297	0313 080	575 1259	Cyrtostylis reniformis	opp 1847/1849(joins with wpts258&259)
	303	0316 207	573 9106	Microtis sp	opp 2063/roadside
	304	0311 785	575 0931	Microtis sp	opp 2003/bayside

Appendix 9

**SIGNIFICANT SPECIES
KEY & MAPS (1 - 5)**

Botanical Name	Common Name	Symbol
<i>Acacia mearnsii</i>	Black Wattle	  
<i>Acacia melanoxylon</i>	Blackwood	
<i>Acacia uncifolia</i>	Coast Wirilda	
<i>Alyxia buxifolia</i>	Sea Box	
<i>Bursaria spinosa</i>	Sweet Bursaria	
<i>Comesperma volubile</i>	Love Creeper	
<i>Cynoglossum australe</i>	Australian Hound's-tongue	
<i>Dianella revoluta s.l.</i>	Black-anther Flax-lily	
<i>Eucalyptus ovata</i>	Swamp Gum	
<i>Eucalyptus viminalis subsp. pryoriana</i>	Coast Manna-gum	
<i>Hypoxis spp.</i>	Hypoxis	
<i>Lachnagrostis billardieri s.l.</i>	Coast Blown-grass	
<i>Lagenophora stipitata</i>	Common Bottle-daisy	
<i>Leucophyta brownii</i>	Cushion Bush	
<i>Muellerina eucalyptoides</i>	Creeping Mistletoe	
<i>Olearia glutinosa</i>	Sticky Daisy-bush	
<i>Oxalis rubens</i>	Dune Wood-sorrel	
<i>Pelargonium australe</i>	Austral Stork's-bill	
<i>Pimelea serpyllifolia subsp. serpyllifolia</i>	Thyme Rice-flower	
<i>Pultenaea tenuifolia</i>	Slender Bush-pea	
<i>Stellaria pungens</i>	Prickly Starwort	
<i>Swainsona lessertiifolia</i>	Coast Swainson-pea	
Friends Group Reference Area		

SIGNIFICANT SPECIES MAP 1



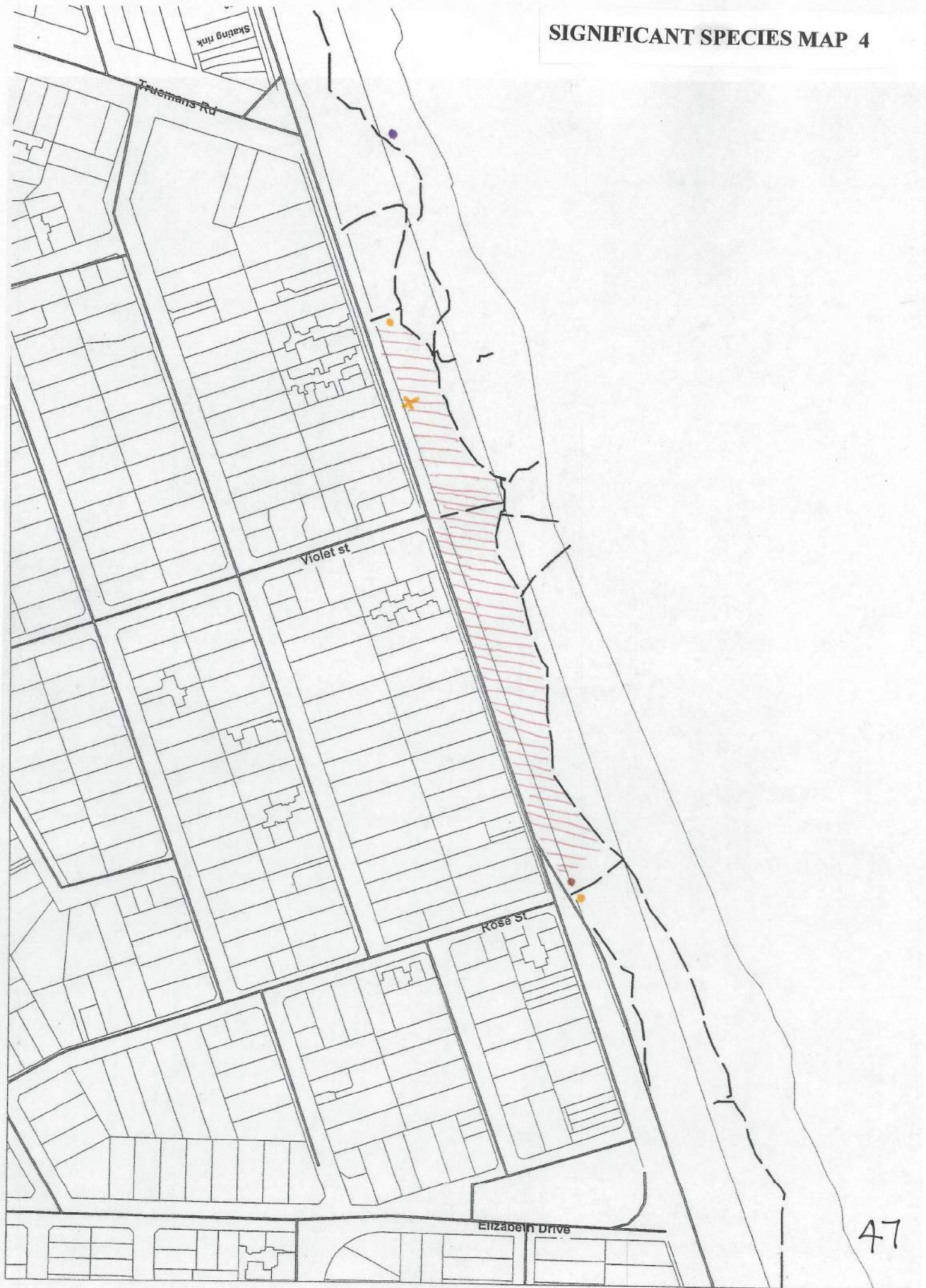
SIGNIFICANT SPECIES MAP 2



SIGNIFICANT SPECIES MAP 3



SIGNIFICANT SPECIES MAP 4



SIGNIFICANT SPECIES MAP 5



Appendix 10

**MANAGEMENT ZONE
MAPS (1 - 5)**

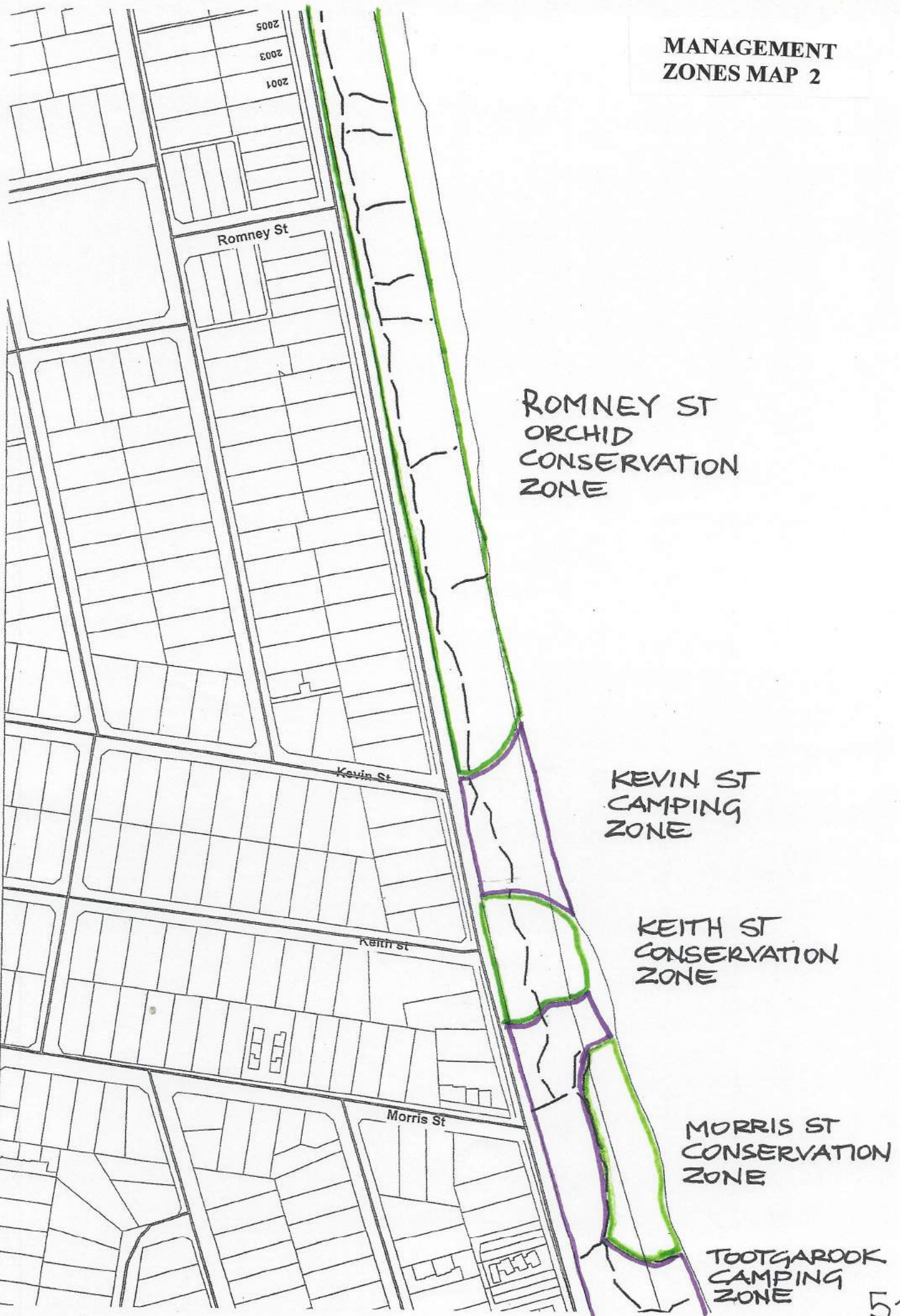
MANAGEMENT
ZONES MAP 1



MARSHALL ST
CONSERVATION
ZONE

ROMNEY ST
ORCHID
CONSERVATION
ZONE

MANAGEMENT
ZONES MAP 2



MANAGEMENT
ZONES MAP 3

MORRIS ST
CONSERVATION
ZONE

TOOTGAROOK
CAMPING
ZONE

TOOTGAROOK
CONSERVATION
ZONE

TRUEMANS
RD. PICNIC
ZONE



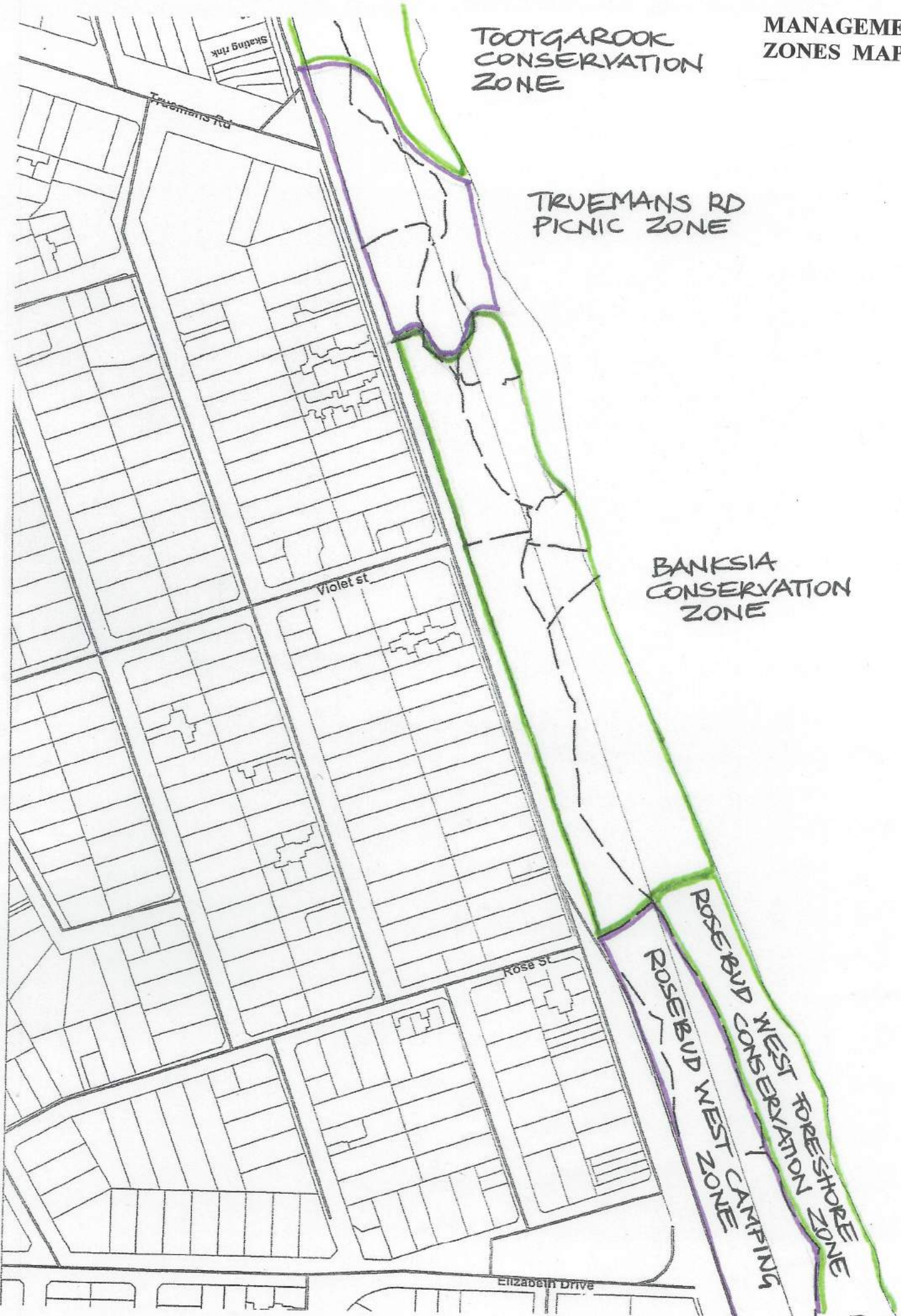
MANAGEMENT
ZONES MAP 4

TOOTGAROOK
CONSERVATION
ZONE

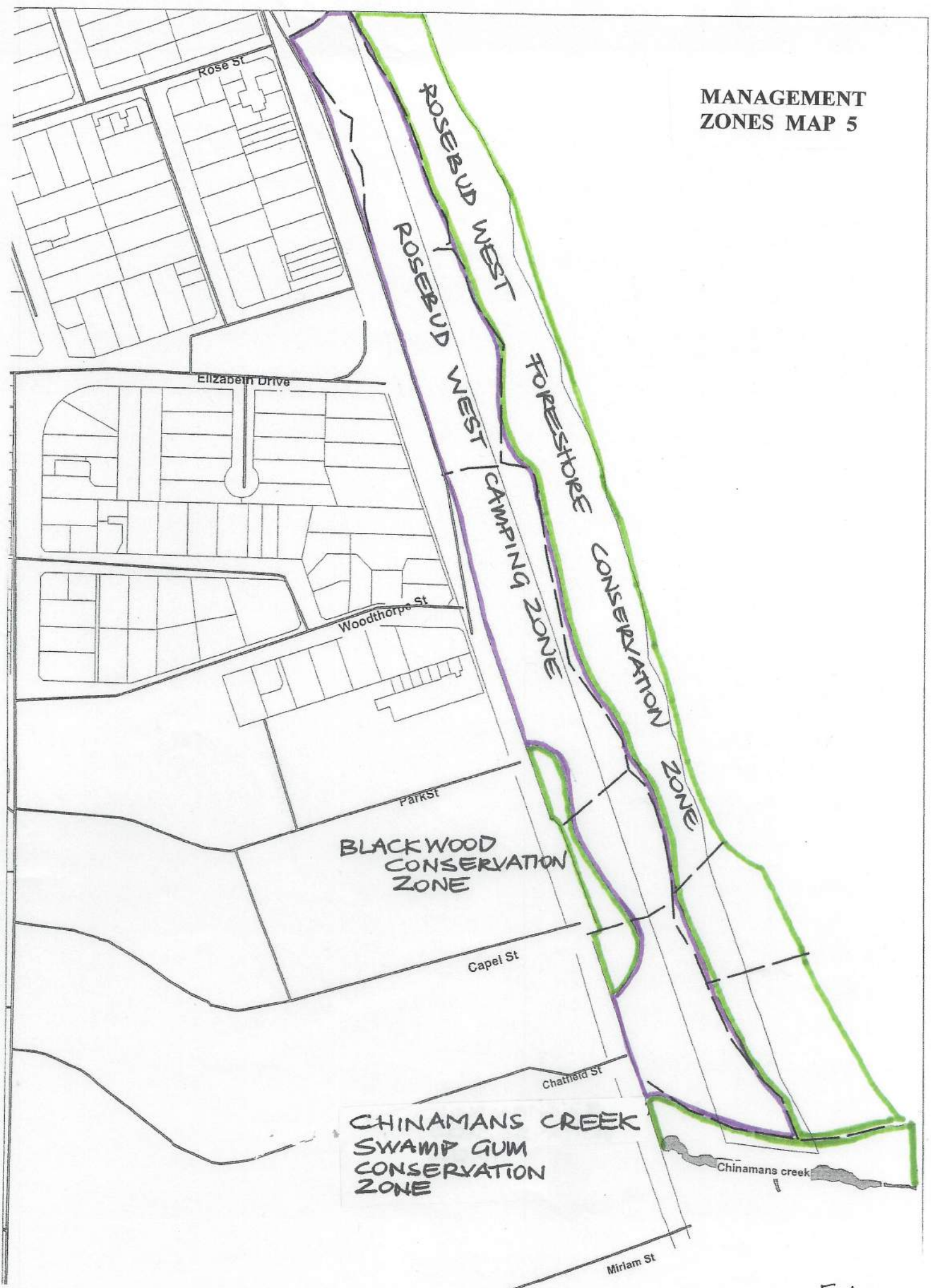
TRUEMANS RD
PICNIC ZONE

BANKSIA
CONSERVATION
ZONE

ROSEBUD WEST FORESHORE
CONSERVATION ZONE
ROSEBUD WEST ZONE
CAMPING



**MANAGEMENT
ZONES MAP 5**



Appendix 11

**VEGETATION QUALITY KEY
& MAPS (1 - 5)**

KEY TO VEGETATION QUALITY MAPS CAPEL FORESHORE 2007

GREEN - More than 60% indigenous cover.

RETENTION area.....highest priority



- Retain what is left.
- Aim to eliminate all weeds over time.
- No planting. Allow for natural regeneration.
- Highly skilled workforce.

ORANGE - More than 30% indigenous cover.

RESTORATION area....moderate priority



- Restore slowly
- Aim to control weed population
- Possible enrichment planting after allowing time for natural regeneration.
- Semi-skilled workforce under skilled co-ordination.

RED - Less than 30 % indigenous cover.

REVEGETATION area....lowest priority



- Aim to control weed seed production.
- May plant in high profile areas or to link higher quality areas.
- Still may have habitat or buffer values which weeds are providing.

VEGETATION QUALITY MAP 1

HIGH 
MED 
LOW 



VEGETATION QUALITY MAP 2

HIGH 
MED 
LOW 



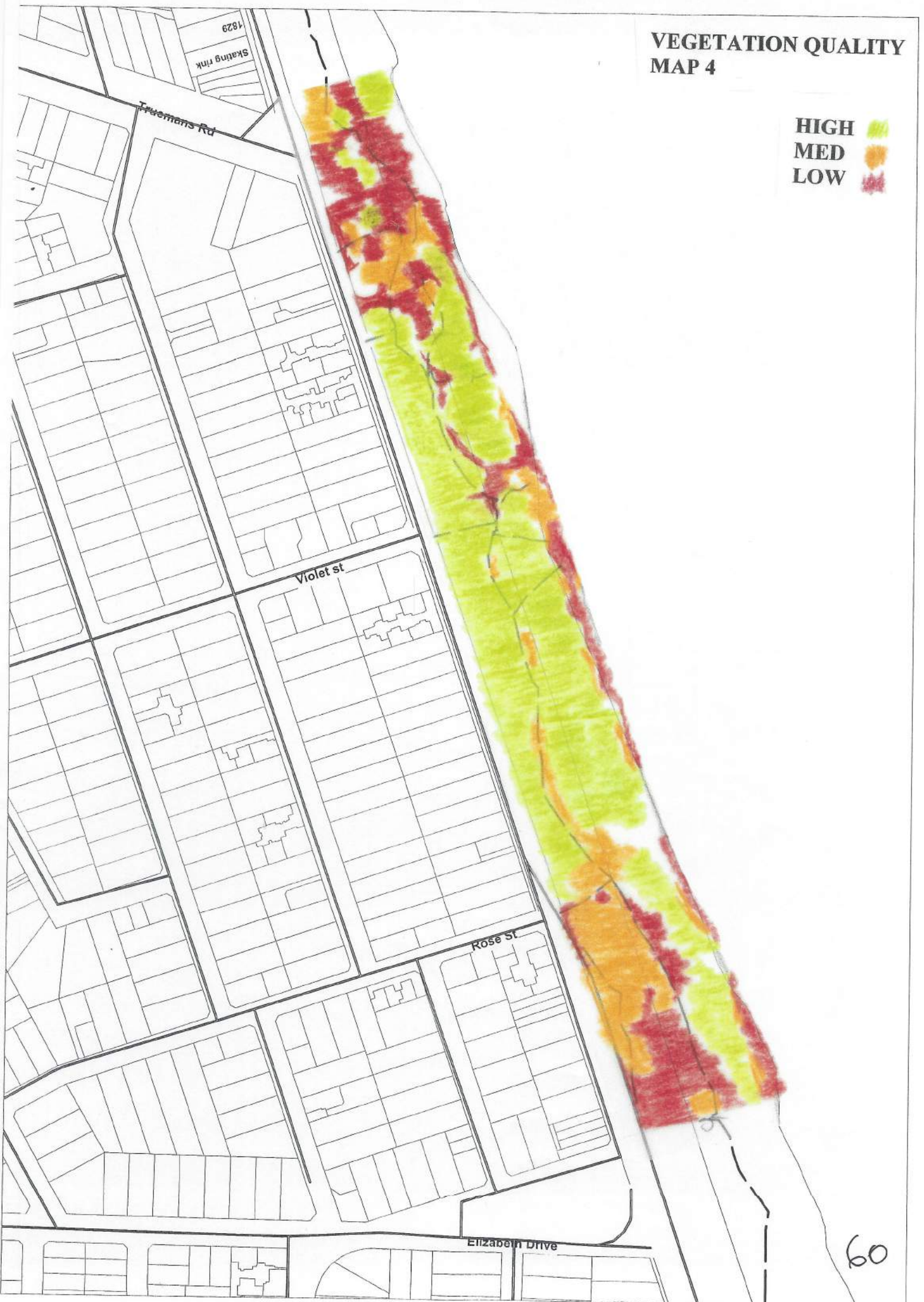
VEGETATION QUALITY MAP 3

HIGH 
MED 
LOW 



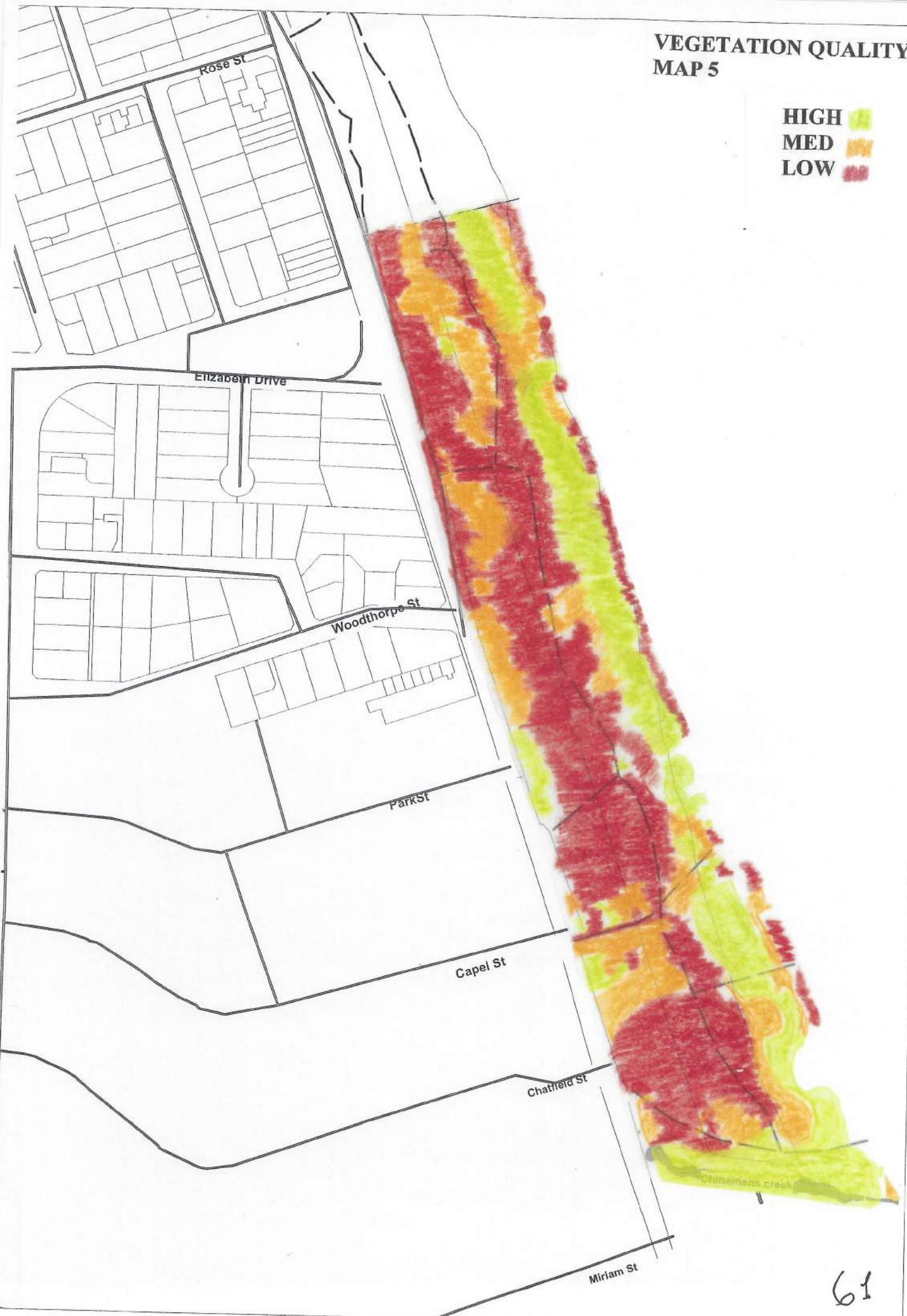
VEGETATION QUALITY MAP 4

HIGH 
MED 
LOW 



VEGETATION QUALITY MAP 5

HIGH 
MED 
LOW 



Appendix 12

**INTRODUCED SPECIES
and METHODS OF CONTROL**

KEY TO INTRODUCED SPECIES & METHODS OF CONTROL

risk/status

K = keystone species.

S1 = small patches of high risk introduced species

S2 = small patches of moderate risk introduced species

S3 = small patches of introduced species of negligible risk

U = ubiquitous introduced species

Methods of Control

1. Handweeding

This is sometimes the most effective method, particularly with seedlings of woody weeds or shallow rooted species, or succulents where every fragment has the ability to grow into a new plant, or on more sensitive sites.

2. Cut & Paint, or Frill & Fill

These methods is particularly effective on woody shrubs or trees.

Cut & Paint involves cutting through the trunk and painting with straight or semi-dilute herbicide, concentrating on the region just below the bark (the cambial tissue).

Frill & Fill involves using down ward cuts into the cambial tissue and filling it with herbicide. The cuts are repeated in a spiral up the trunk.

Species which are known to vigorously re-sprout after cutting are best treated in this way. Where minimal disturbance is required and the weed is best left to die in situ, frill and fill is the best method.

3. Steam/flame thrower in damp conditions

When controlling annuals, seedlings and succulent species the use of a flame thrower is an effective treatment. This should only be done when conditions are damp, or when it is raining and outside the fire season. The aim is not for flames but more of a wilting appearance, just like steamed vegetables.

4. Foliar Spray

Due to the known impacts of sprays on amphibians etc. and the off-target damage that is unavoidable, use of foliar sprays should be kept to a minimum. Where it is used it should be for specific reasons, used selectively, with the appropriate chemical for a target species and with appropriate weather conditions prevailing. Foliar spray should not be used near Chinamans Creek due to the known effects on aquatic ecosystems.

5. Cut off at Ground Level

This method is effective with woody species which do not re-sprout after cutting e.g. Pines, Sallow Wattle & Giant Honey-myrtle and for annual grasses pre-seed set.

6. Biocontrol

Currently, on Capel Foreshore, the Bridal Creeper is suffering from the effects of at least one biocontrol agent, a rust, which has been found right across the foreshore on every Bridal Creeper plant and which appears to have had a major effect on seed production this year. It is possible that another biocontrol agent, the Leaf Hopper, *Zygina* sp. is also present but was not observed during this survey.

7. Remove Crown

Some species such as Asparagus Fern, are eliminated by cutting around the crown and removing it. It will not re-sprout from the water storage organs left in the soil.

INTRODUCED SPECIES AND METHODS OF CONTROL

Botanical Name	Common Name	risk/status	Methods of Control	Comments
Acacia longifolia subsp. longifolia	Sallow Wattle	S1	1 5	hybridizes with Coast Wattle
Acacia saligna	Golden Wreath Wattle	S1	1 2	? hybridize with other wattles
Acacia spp. (planted and naturalized)	Wattles	S2	1 2	
Acanthus mollis	Bear's Breach	S2	1 2	
Acetosa sagittata	Rambling Dock	S1	1 2 4	
Agapanthus praecox subsp. orientalis	Agapanthus	S2	1	to control: cut off flowers
Agonis flexuosa (planted and naturalized)	Willow Myrtle	S2	1 2	remove those in cons. zones
Agrostis capillaris	Brown-top Bent	S2	4	
Agrostis ?gigantea	Red-top Bent	U	1 4	
Aira spp.	Hair Grass	U	3	
Allium triquetrum	Three-corner Garlic/Angled Onion	S1	1 3	
Ammophila arenaria	Marram Grass	K	4	foredune
Anchusa arvensis	Bugloss	S2/U	1 3 4	
Arctotheca calendula	Cape Weed	U	1 3 4	
Asparagus densiflorus	Sprengeri Fern	S1	? 4 ? ?	
Asparagus asparagoides	Bridal Creeper	K	6	Rust is present
Asparagus scandens	Asparagus Fern	S1	7	Chinamans creek
Aster subulatus	Aster-weed	U	1	
Avena barbata	Bearded Oat	U	1 3	
Berkheya rigida	African Thistle	S1	1 2	
Briza maxima	Large Quaking-grass	S2	1 3 5	bag seed/flowers and remove
Briza minor	Lesser Quaking-grass	U	1 3	
Bromus catharticus	Prairie Grass	S2	1 3 5	
Bromus diandrus	Great Brome	S2	1 3 5	
Bromus hordeaceus subsp. hordeaceus	Soft Brome	S2	1 3 5	
Bromus spp.	Brome	S2	1 3 5	
Cakile ?edentula	American Sea Rocket	U	1 3	foredune
Cakile maritima ssp. maritima	Sea Rocket	U	1 3	foredune
Cardamine hirsuta s.l.	Common Bitter-cress	U	3	Potential to hybridize with Karkalla
Carpobrotus edulis	Hottentot Fig	S1	1 ? 3	Potential to hybridize with Karkalla
Carpobrotus spp.	Pigface	S1	1 ? 3	Potential to hybridize with Karkalla
Catapodium rigidum	Fern Grass	U	1 3	
Centranthus ruber	Red Valerian	S2	1 2	introduced from garden waste
Cerastium spp.	Mouse-ear Chickweed	U	3	

<i>Chamaecytisus palmensis</i>	S1	1 2	
<i>Chasmanthe floribunda</i>	S1	1 2 4	
<i>Chenopodium album</i>	U	1	introduced from garden waste
<i>Chlorophytum comosum</i>	S2	2 4	
<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i>	S1	1 2	
<i>Cirsium vulgare</i>	S1	1 2 4	
<i>Conyza</i> spp.	U	1 3	
<i>Coprosma repens</i>	S1	1 2	
<i>Cordylone australis</i>	S2	2	
<i>Cotoneaster franchetii</i>	S1	2	
<i>Cotoneaster glaucophyllus</i> var. <i>serotinus</i>	S1	2	
<i>Cotoneaster</i> spp.	S1	2	
<i>Crassula multicaeva</i> subsp. <i>multicaeva</i>	S2	1 3	introduced from garden waste
<i>Crassula tetragona</i> subsp. <i>robusta</i>	S2	1 3	introduced from garden waste
<i>Crocsmia X crocosmiiflora</i>	S1	1 4	introduced from garden waste
<i>Cupressus macrocarpa</i>	S2	5	
<i>Cynodon dactylon</i> var. <i>dactylon</i>	U/S2	4	
<i>Cynosurus echinatus</i>	U	1 3 5	
<i>Dactylis glomerata</i>	S2	1 4	
<i>Delairea odorata</i>	S2	2 3 4	
<i>Diplotaxis tenuifolia</i>	S2	1	
<i>Dipogon lignosus</i>	S1	2	
<i>Ehrharta erecta</i> var. <i>erecta</i>	K	1 3	
<i>Ehrharta longiflora</i>	S2	1 3 5	
<i>Erigeron karvinskianus</i>	S2	1	introduced from garden waste
<i>Eucalyptus leucoxylon</i> (planted)	S3		
<i>Euphorbia paralias</i>	S1	1 3 4	
<i>Euphorbia peplus</i>	U	1 3	
<i>Euphorbia</i> spp.	S2	1 2	introduced from garden waste
<i>Foeniculum vulgare</i>	S1	2	
<i>Fraxinus</i> spp. (planted and naturalized)	S2	2	
<i>Freesia alba</i> x <i>Freesia leichtlinii</i>	S2	1 4	
<i>Fumaria</i> spp.	U	3	
<i>Galium aparine</i>	S2	3	
<i>Galium murale</i>	U	3	
<i>Gazania rigens</i>	S1	3	
<i>Genista linifolia</i>	S1	1 4	
<i>Genista monspessulana</i>	S1	1 2	
	S1	1 2	
Tree Lucerne			
African Cornflag			
Fat Hen			
Spider-plant			
African Boneseed			
Spear Thistle			
Fleabane			
Mirror Bush			
New Zealand Cabbage-tree			
Grey Cotoneaster			
Large-leaf Cotoneaster			
Cotoneaster			
Shade Crassula			
Shrubby Crassula			
Montbretia			
Monterey Cypress (planted)			
Couch			
Rough Dog's-tail			
Cocksfoot			
Cape Ivy			
Sand Rocket			
Common Dipogon			
Panic Veldt-grass			
Annual Veldt-grass			
Seaside Daisy			
Yellow Gum (planted)			
Sea Spurge			
Petty Spurge			
Spurge			
Fennel			
Ash			
Freesia			
Fumitory			
Cleavers			
Small Goosegrass			
Trailing Gazania			
Flax-leaf Broom			
Montpellier Broom			

Geranium molle var. molle			
Geranium sp	U	3	
Gladiolus spp. (?tristatus/undulatus)	S2	1 2	
Hakea laurina (planted)	S1	1 2 3 4	Hundreds of corms produced
Hakea suaveolens (planted)	S2	2	
Hedera helix	S2	2	
Hibiscus sp. (planted)	S1	1 2	Seed produced on aerial growth
Holcus lanatus	S3	2	
Homeria flaccida	S2	1 3 5	
Hordeum vulgare s.l.	S1	4	
Hydrocotyle ? bonariensis	U	1 3 5	
Hypochoeris glabra	?	?	restricted to Chinamans crk
Hypochoeris radicata	U	3	
Lagurus ovatus	U	1 4	
Leontodon taraxacoides subsp. taraxacoides	U	1 3 5	
Lepidium africanum	U	1	
Lolium rigidum	U	1	
Lolium spp.	U	1	
Lotus subbiflorus	U	1	
Lycium ferocissimum	U	3	
Medicago laciniata	S1	2	
Melaleuca armillaris subsp. armillaris (planted)	U	3	hybridizes with <i>M. ericifolia</i>
Melaleuca nesophila (planted)	S1	5	?hybridize with <i>Melaleuca</i> spp.
Melanthus major	?S2	5	
Meilolotus albus	S2	2	
Meilolotus indicus	U/S2	1 3 5	
Minuartia mediterranea	U/S2	1 3 5	
Narcissus spp.	U	3	
Oxalis articulata	S2	1	
Oxalis incarnata	S1	3 4	
Oxalis pes-caprae	S1	3 4	
Oxalis purpurea	S1	3 4	
Paraserianthes lophantha subsp. lophantha	S1	3 4	
Pelargonium X domesticum	S1	2	
Pennisetum clandestinum	S2	1 2	introduced from garden waste
Petrorhagia sp.	K/S2	1 4	Contain by mowing & shading out
Phalaris aquatica	U	1 3	
Physalis peruviana	S2	1 4	
	S2	1	
Dovesfoot	U		
Geranium	S2		
Gladiolus	S1		
Pincushion Hakea (planted)	S2		
Sweet Hakea (planted)	S2		
English Ivy	S1		
Hibiscus	S3		
Yorkshire Fog	S2		
One-leaf Cape-tulip	S1		
Barley	U		
American Pennywort	?		
Smooth Cat's-ear	U		
Cat's Ear	U		
Hare's-tail Grass	U		
Hairy Hawkbit	U		
Common Peppercress	U		
Wimmera Rye-grass	U		
Rye Grass	U		
Hairy Bird's-foot Trefoil	U		
African Box-thorn	S1		
Medic	U		
Giant Honey-myrtle (planted)	S1		
Showy Myrtle (planted)	?S2		
Cape Honey-flower	S2		
Mellilot	U/S2		
Sweet Mellilot	U/S2		
Fine-leaved Sandwort	U		
Jonquil	S2		
Sourgrass	S1		
Pale Wood-sorrel	S1		
Soursob	S1		
Large-flower Wood-sorrel	S1		
Cape Wattle	S1		
Regal Pelargonium	S2		
Kikuyu	K/S2		
Childling Pink	U		
Toowoomba Canary-grass	S2		
Cape Gooseberry	S2		

Spreading Bridal Creeper Rust Fungus using the Spore Water Method

- *The best time to collect spores is usually Aug-Sept when production is highest.*
 - *The best conditions to spray in are a light rain with light winds and high humidity.*
 - *The best time to spray is late in the afternoon.*
 - *Because there is no threat of off-target damage spore water can be liberally applied to Bridal Creeper in all areas where it occurs, including native vegetation and near water courses.*
 - *It is more advantageous to spray spores in areas of high infestation, as the spores are more likely to take to the Bridal Creeper.*
1. Find an area liberally infected with rust (look for small yellow dots on top of leaf, light brown rings of spores underneath).
 2. Cut foliage infected with rust and place into plastic bag (1x60L bag per 100L spore water). NB: Do not remove all infected foliage.
 3. Keep cut foliage moist (? spray a fine mist into bag with hand held sprayer – not too much though as will rinse off spores).
 4. Cut foliage can be stored in plastic bags for up to 48 hrs but should be used ASAP.
 5. Half fill a 60L bin with rain water if available. If rainwater is not available, use tap water and add an aquarium water conditioner (to remove chlorine etc).
 6. Submerge foliage in water and agitate until all spores are washed off leaves.
 7. Sieve mixture to remove debris, remember to wash off any spores that have stuck to the sides of the container.
 8. Pour into CLEAN (i.e. no trace of herbicide) spray unit, remember to wash off any spores that have stuck to the sides of the container. No need to use a dye.
 9. Spray method:
 - Use as fine a mist as possible
 - Pay particular attention to the underside of the leaf
 - Spray until run-off
 - Start at the top of the infestation and work downwards
 - Keep spore water solution agitated while in the spray tank to minimize spores sticking to the sides of the tank.
 10. Spray spore water ASAP after mixing; as the spores will die the longer they are kept in solution.

Appendix 13

CALENDAR OF WORKS

CALENDAR OF WORKS
(may vary from year to year)

	jan	feb	mar	apr	may	june	july	aug	sept	oct	nov	dec
Cut and paint vines such as English Ivy & Dolichos (before flowering & seed set)												
Cut & paint Blackberry												
Drill & cill/cut & paint woody weeds (before seed set)												
Handweed annuals & seedlings of woody weeds												
Handweed perennial ground smotherers												
Handweed orchid patches.												
Autumn burning/steaming of exotic annuals												
Spring burning/steaming of exotic annuals (not in orchid patches)												
Planting												
Seed collection												