

White Hollow Reserve Management Plan

City of Port Adelaide Enfield

White Hollow Reserve Management Plan, City of Port Adelaide Enfield

12 September 2013

Version 1

Prepared by EBS Ecology for the City of Port Adelaide Enfield

Document Control					
Revision No.	Date issued	Authors	Reviewed by	Date Reviewed	Revision type
1	12/09/2013	M. Launer	Tali Moyle	11/09/2013	Draft
2	1/11/2013	M. Launer	Tali Moyle	31/10/2013	Draft
3	13/12/2013	M. Launer	Tali Moyle	13/12/2013	Final

Distribution of Copies			
Revision No.	Date issued	Media	Issued to
1	12/09/2013	Electronic	Andy Walker, City of Port Adelaide Enfield
2	1/11/2013	Electronic	Andy Walker, City of Port Adelaide Enfield
3	13/12/2013	Electronic	Andy Walker, City of Port Adelaide Enfield

COPYRIGHT: Use or copying of this document in whole or in part (including photographs) without the written permission of EBS Ecology's client and EBS Ecology constitutes an infringement of copyright.

LIMITATION: This report has been prepared on behalf of and for the exclusive use of EBS Ecology's Client, and is subject to and issued in connection with the provisions of the agreement between EBS Ecology and its Client. EBS Ecology accepts no liability or responsibility whatsoever for or in respect of any use of or reliance upon this report by any third party.

CITATION: EBS Ecology (2013) *White Hollow Reserve Management Plan, City of Port Adelaide Enfield*. Report to City of Port Adelaide Enfield. EBS Ecology, Adelaide.

Front cover photo: View of White Hollow Reserve (looking from the west to the east).

Table of Contents

1	INTRODUCTION	1
1.1	Objectives	1
2	BACKGROUND INFORMATION	2
2.1	Location and physical description	2
2.2	Previous surveys	2
2.3	Pre-European settlement	2
2.4	Post European settlement	2
2.5	Climate	3
3	SITE ASSESSMENT	5
3.1	Survey methods	5
3.2	Survey limitations	5
3.3	Bushland Condition Monitoring weed threat category	5
4	RESULTS	7
4.1	Vegetation	7
4.2	Fauna	11
4.3	Erosion	12
4.4	Rubbish	12
5	ACTION PLAN	13
5.1	Weed control	13
5.2	Revegetation	16
5.3	Public safety mitigation	16
5.4	Rubbish	16
5.5	Maintenance	16
5.6	Management zone 1a	17
5.7	Management zone 1b	19
5.8	Management zone 2a	21
5.9	Management zone 2b	23
5.10	Management zone 2c	25
5.11	Management zone 2d	27
5.12	Management zone 2e	29
5.13	Management zone 3	31
5.14	Management zone 4	33
5.15	Management zone 5	35

5.16	Management zone 6	37
5.17	Management zone 7a	39
	Management zone 7b	41
5.18	Management zone 8	43
5.19	Management zone 9a	45
5.20	Management zone 9b	48
5.21	Management zone 10a	50
5.22	Management zone 10b	52
5.23	Management zone 11	54
5.24	Management zone 12	55
5.25	Management zone 13	56
5.26	Management zone 14	57
5.27	Management zone 15	58
6	REFERENCES	69
7	APPENDICES	70
	Appendix 1. Weed control methodology.	70
	Appendix 2. Location of weed species for control.	73
	Appendix 3. Weed mapping – <i>Lycium ferocissimum</i> (Boxthorn).	81
	Appendix 4. Weed mapping – <i>Foeniculum vulgare</i> (Fennel) and <i>Olea europaea</i> (Olive).	82
	Appendix 5. Weed mapping – <i>Casuarina glauca</i> (Swamp Oak).	83
	Appendix 6. Weed mapping – Mixed species 1.	84
	Appendix 7. Weed mapping – Mixed species 2.	85

List of Tables

Table 1. Bushland Condition Monitoring (BCM) Weed Threat category.....	6
Table 2. Native flora species recorded within White Hollow Reserve.	7
Table 3. Introduced species recorded within White Hollow Reserve.	9
Table 4. Native and introduced birds observed or considered as possibly occurring within White Hollow Reserve.	11
Table 5. Native and introduced reptiles and mammals considered as possibly occurring within the White Hollow Reserve.....	12
Table 6. Weed species for control.	15
Table 7. Management zone 1a overview.	17
Table 8. Management Zone 1a - Revegetation species list.	18
Table 9. Management zone 1b overview.	19
Table 10. Management zone 1b - Revegetation species list.....	20
Table 11. Management zone 2a overview.	21
Table 12. Management zone 2a – Revegetation species list.....	22
Table 13. Management zone 2b overview.	23
Table 14. Management zone 2b – Revegetation species list.....	24
Table 15. Management zone 2c overview.	25
Table 16. Management zone 2c – Revegetation species list.	26
Table 17. Management zone 2d overview.	27
Table 18. Management zone 2d – Revegetation species list.....	28
Table 19. Management zone 2e overview.	29
Table 20. Management zone 2e – Revegetation species list.....	30
Table 21. Management zone 3 overview.	31
Table 22. Management zone 3 – Revegetation species list.....	32
Table 23. Management zone 4 overview.	33
Table 24. Management zone 4 – Revegetation species list.....	34
Table 25. Management zone 5 overview.	35
Table 26. Management zone 5 – Revegetation species list.....	36
Table 27. Management zone 6 overview.	37
Table 28. Management zone 6 – Revegetation species list.....	38
Table 29. Management zone 7a overview.	39
Table 30. Management zone 7a – Revegetation species list.....	40
Table 31. Management zone 7b overview.	41
Table 32. Management zone 7b – Revegetation species list.....	42
Table 33. Management zone 8 overview.	43
Table 34. Management zone 8 – Revegetation species list.....	44
Table 35. Management zone 9a overview.	45
Table 36. Management zone 9a – Revegetation species list.....	47
Table 37. Management zone 9b overview.	48
Table 38. Management zone 9b – Revegetation species list.....	49
Table 39. Management zone 10a overview.	50
Table 40. Management zone 10a – Revegetation species list.....	51

Table 41. Management zone 10b overview.	52
Table 42. Management zone 10b – Revegetation species list.	53
Table 43. Management zone 11 overview.	54
Table 44. Management zone 12 overview.	55
Table 45. Management zone 13 overview.	56
Table 46. Management zone 14 overview.	57
Table 47. Management zone 15 overview.	58
Table 48. Management zone 15 – Revegetation species list.	59
Table 49. Year 1 - Action plan and project costing.	60
Table 50. Year 2 - Action plan and project costing.	62
Table 51. Year 3 - Action plan and project costing.	64
Table 52. Year 4 - Action plan and project costing.	66
Table 53. Year 5 - Action plan and project costing.	67
Table 54. Project costing totals.	68

List of Figures

Figure 1. Mean monthly rainfall and temperature data for Adelaide Airport.	3
Figure 2. Location and Management Zones of White hollow Reserve.	4
Figure 3. Management zone 1a – View from east to west.	17
Figure 4. Management zone 1b – View from south to north.	19
Figure 5. Management zone 2a – View from north-west to south-east.	21
Figure 6. Management zone 2b - View from north to south.	23
Figure 7. Management zone 2c – View from west to east.	25
Figure 8. Management zone 2d – View from north to south.	27
Figure 9. Management zone 2e – View from north to south.	29
Figure 10. Management zone 3 – View from south-east to north-west.	31
Figure 11. Management zone 4 – View from north to south.	33
Figure 12. Management zone 5 – View from south to north.	35
Figure 13. Management zone 6 – View from south-west to north-east.	37
Figure 14. Management zone 7a - View from east to west.	39
Figure 15. Management zone 7b – View from west to east.	41
Figure 16. Management zone 8 – View from west to east.	43
Figure 17. Management zone 9a – View from south to north.	46
Figure 18. Management zone 9b – View from east to west.	48
Figure 19. Management zone 10a – View from east to west.	50
Figure 20. Management zone 10b – View from south to north.	52
Figure 21. Management zone 11 – View from north to south.	54
Figure 22. Management zone 12 – View from north to south.	55
Figure 23. Management zone 13 – View from west to east.	56
Figure 24. Management zone 14 – View from north to south.	57
Figure 25. Management zone 15 – View from south-west to north-east.	58

1 INTRODUCTION

This management plan outlines the biodiversity assets and the threatening processes existing within White Hollow Reserve which is managed by the City of Port Adelaide Enfield (PAE). The aim of the plan is to provide a practical resource document for community and land managers to assist in achieving on-ground works that enhance current native vegetation and biodiversity assets, together with recreation opportunities.

The reserve is located on the coast of LeFevre Peninsula in the suburb of Taperoo. White Hollow Reserve is used by athletes and general public for open area physical training. The landscape of the reserve has been heavily modified since European settlement. The reserve contains a mix of valuable remnant native vegetation and introduced flora species.

It is anticipated that information contained in this plan, will assist land managers in making key decisions towards the long term conservation and management of biodiversity and recreational values within White Hollow Reserve.

1.1 Objectives

- Conservation and restoration of existing remnant vegetation.
- Control and management of high priority weed species.
- Identify other threatening process within the project area.
- Implementation of appropriate revegetation programs to enhance and restore native vegetation.
- Identify opportunities for the enhancement of public recreational activities.

2 BACKGROUND INFORMATION

2.1 Location and physical description

White Hollow Reserve is located within the suburb of Taperoo on the Lefevre Peninsula (Figure 2). The reserve covers an area of approximately 2.15 ha. The reserve is bordered by the Fort Largs Police Academy to the south, the Ray Marten Park to the east, residential housing to the north and Lady Gowrie Drive to the west. The Lefevre Peninsula coastline (the Taperoo dunal system) is located directly opposite Lady Gowrie Drive. The landscape within the reserve includes a mix of low to medium dunes and parkland areas. The dunes are generally restricted to the perimeter of the reserve. The reserve contains a mix of valuable remnant native vegetation and introduced flora species.

White Hollow Reserve has been divided into a series of management zones to assist in achieving the aims of the Management Plan. The management zones were selected based on current landscape and/or vegetation structure, size, weed infestations and requirements of revegetation (i.e. species and density of planting). Refer to Figure 2 for the locations management zones.

2.2 Previous surveys

A vegetation survey was undertaken within White Hollow Reserve in September 2006 by the SA Urban Forest Biodiversity Program (SA Urban Forest Biodiversity Program 2006). The survey was undertaken to identify areas of conservation significance to aid the City of Port Adelaide Enfield when selecting path realignments.

2.3 Pre-European settlement

Aboriginal people of the Kaurna 'tribe' are the original inhabitants of the Taperoo dunes area and surrounding region including White Hollow Reserve. Aboriginal inhabitants would move seasonally from the foothills in winter to the coastal areas during the summer months. Several indigenous site locations outlined in the *State of the Environment Report, 2007, City of Port Adelaide Enfield*, are in the vicinity of the project area. Kaurna people utilised the area and surrounding environs for food and, water supply, campsites, possible burial locations and ceremonial grounds.

2.4 Post European settlement

Since European settlement, significant modification of the natural environment and coastline has occurred. Early settlements along the metropolitan coast grew and began to merge, resulting in almost development infill from Kingston to Outer Harbor. Large scale clearing of native vegetation coupled with the introduction of feral animals and exotic vegetation has resulted in significant loss of biodiversity within the region.

2.5 Climate

The Adelaide region experiences a Mediterranean style climate with cool wet winters and warm dry summers. Figure 1 details average temperatures and rainfall recorded at Adelaide Airport, supplied by the Bureau of Meteorology (2013).

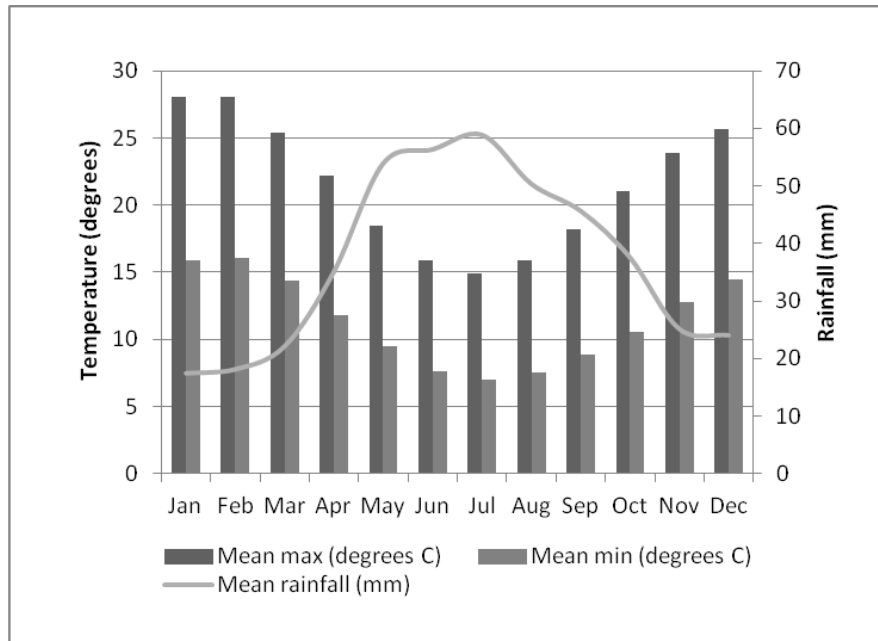


Figure 1. Mean monthly rainfall and temperature data for Adelaide Airport.

Data source: Bureau of Meteorology (Commonwealth of Australia 2013).



Figure 2. Location and Management Zones of White hollow Reserve.

3 SITE ASSESSMENT

3.1 Survey methods

White Hollow Reserve was surveyed on 24 May and 6 June, 2013. The data collected during the surveys included the following:

- a complete flora list (native and introduced)
- location of each 'priority' weed species
- size and/or density of each 'priority' weed species
- locations of dumped rubbish and surface rubble
- areas containing erosion
- areas requiring revegetation

3.2 Survey limitations

The seasonal nature of flora species means that not all species that may use the project area would have been observed during the field survey. Some plant species have short growth patterns and are typically only conspicuous at certain times of the year. Consequently some species may not have been readily detected. Other species, including many of the native grasses, are identifiable to species level only by distinguishing features (e.g. seeds), which were not necessarily present at the time of the survey.

3.3 Bushland Condition Monitoring weed threat category

Weed species have been assigned a threat value based upon the Weed Value Allocation System adopted from the *Bushland Condition Monitoring Manual – Southern Mount Lofty Ranges*. This system was developed using the five invasive threat categories based upon the following principles:

- the weed's degree of invasiveness and ability to expand into intact scrub
- the weed's capabilities to disrupt natural processes in bushland
- the degree of difficulty involved in preventing or controlling an infestation.

Weed species with a threat value of between 3 and 5 are classified as red alert weeds (Table 1). These species have the capacity to spread quickly and are difficult to control. Species with a classification of between 4 and 5 require immediate attention.

Table 1. Bushland Condition Monitoring (BCM) Weed Threat category.

BCM Weed Threat Category	BCM Weed Threat Category Description
5	Highly invasive in either disturbed or intact remnant bushland, spreads rapidly producing dense stands and a blanket cover. Potential to eliminate almost all understorey species. Very difficult to control without outside help.
4	Highly invasive in either disturbed or intact remnant bushland, with the potential to spread rapidly and produce very dense stands given favourable habitat and / or vectors. High potential to reduce native species diversity and abundance. Can be controlled with substantial effort.
3	Invasive in intact bushland and moderate potential to reduce native species diversity. Rate of spread slower than Category 4 and 5 weeds but once present will persist and threaten biodiversity. May produce dense stands over a wide area but can be controlled with sustained effort.
2	Generally only invade disturbed bushland, but may spread rapidly. However, generally only a slight potential to reduce native species diversity, unless present in high densities.
1	Generally only invade disturbed bushland. Often widespread and abundant but not considered a significant threat to biodiversity, unless present at very high densities.

4 RESULTS

4.1 Vegetation

The Reserve contains a mix of native and introduced vegetation. The native vegetation present within the reserve is likely to be a mix of remnant, revegetation and natural regeneration (i.e. seeds dispersal from the vegetation on the coastline of Taperoo). A total of 81 flora species (29 native, 52 introduced) were recorded during the May 2013 survey. This is in comparison to 70 species (22 native, 48 introduced) recorded during the 2006 survey (Table 2 and Table 3).

The common native species within the reserve include *Acacia cupularis* (Cup Wattle), *Dianella brevicaulis* (Short-stem Flax-lily), *Melaleuca lanceolata* (Dry Land Tea-tree) *Olearia axillaris* (Coast Daisy-bush), *Scaevola crassifolia* (Cushion Fanflower) and *Spinifex hirsutus* (Rolling Spinifex). The native vegetation is restricted to several small patches and scattered individual plants within the reserve.

Weed species are widespread within the reserve. Ten of the introduced species recorded during the May 2013 survey are declared under the *Natural Resources Management Act 2004* (Table 3). Common weed species include *Ammophila arenaria* (Marram Grass), *Casuarina glauca* (Grey Bullock), *Foeniculum vulgare* (Fennel), *Leptospermum laevigatum* (Coast Tea-tree), *Lycium ferocissimum* (Boxthorn), *Olea europaea* ssp. *europaea* (Olive), *Pinus halepensis* (Aleppo Pine) and *Cotyledon orbiculata* var. (Cotyledon).

The vegetation (native and introduced) within each management zone is discussed further in sections 5.6 to 5.27.

Table 2. Native flora species recorded within White Hollow Reserve.

Family	Species name	Common name	Present	
			2006 (SAUF BP)	2013 (EBS)
LEGUMINOSAE	<i>Acacia cupularis</i>	Cup Wattle	✓	✓
LEGUMINOSAE	<i>Acacia longifolia</i> ssp. <i>sophorae</i>	Coastal Wattle	✓	✓
LEGUMINOSAE	<i>Acacia pycnantha</i>	Golden Wattle		✓
CASUARINACEAE	<i>Allocasuarina verticillata</i>	Drooping Sheoak		✓
CHENOPODIACEAE	<i>Atriplex cinerea</i>	Coast Saltbush	✓	✓
GRAMINEAE	<i>Austrodanthonia caespitosa</i>	Common Wallaby-grass		✓
GRAMINEAE	<i>Austrostipa flavescens</i>	Coast Spear-grass	✓	✓
GRAMINEAE	<i>Austrostipa</i> sp.	Spear-grass		✓
CUPRESSACEAE	<i>Callitris gracilis</i>	Southern Cypress Pine		✓
AIZOACEAE	<i>Carpobrotus rossii</i>	Native Pigface	✓	✓
LILIACEAE	<i>Dianella brevicaulis</i>	Short-stem Flax-lily	✓	✓
AIZOACEAE	<i>Disphyma crassifolium</i> ssp. <i>clavellatum</i>	Round-leaf Pigface	✓	
SAPINDACEAE	<i>Dodonaea viscosa</i> ssp. <i>spatulata</i>	Sticky Hop-bush		✓

Family	Species name	Common name	Present	
			2006 (SAUF BP)	2013 (EBS)
CHENOPODIACEAE	<i>Enchylaena tomentosa</i> var.	Ruby Saltbush		✓
CYPERACEAE	<i>Ficinia nodosa</i>	Knobby Club-rush	✓	✓
MYRTACEAE	<i>Kunzea pomifera</i>	Muntries		✓
CYPERACEAE	<i>Lepidosperma gladiatum</i>	Coast Sword-sedge	✓	✓
MYRTACEAE	<i>Melaleuca halmaturorum</i>	Swamp Paper-bark		✓
MYRTACEAE	<i>Melaleuca lanceolata</i>	Dryland Tea-tree	✓	✓
POLYGONACEAE	<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum	✓	✓
MYOPORACEAE	<i>Myoporum insulare</i>	Common Boobialla	✓	✓
ZYGOPHYLLACEAE	<i>Nitraria billardierei</i>	Nitre-bush	✓	✓
COMPOSITAE	<i>Olearia axillaris</i>	Coast Daisy-bush	✓	✓
GERANIACEAE	<i>Pelargonium australe</i>	Austral Stork's-bill	✓	
THYMELAEACEAE	<i>Pimelea serpyllifolia</i> ssp. <i>serpyllifolia</i>	Thyme Riceflower	✓	✓
GRAMINEAE	<i>Poa poiformis</i> var. <i>poiformis</i>	Coast Tussock-grass	✓	✓
CHENOPODIACEAE	<i>Rhagodia candolleana</i> ssp.	Sea-berry Saltbush	✓	✓
GOODENIACEAE	<i>Scaevola crassifolia</i>	Cushion Fanflower	✓	✓
COMPOSITAE	<i>Senecio pinnatifolius</i> var. <i>lanceolatus</i>	Variable Groundsel	✓	✓
GRAMINEAE	<i>Spinifex sericeus</i>	Rolling Spinifex	✓	✓
CHENOPODIACEAE	<i>Threlkeldia diffusa</i>	Coast Bonefruit	✓	✓

Table 3. Introduced species recorded within White Hollow Reserve.

Family	Species name	Common name	Declared	BCM weed threat category	Present	
					2006 (SAU FBP)	2013 (EBS)
LEGUMINOSAE	<i>Acacia cyclops</i>	Western Coastal Wattle		3		✓
LEGUMINOSAE	<i>Acacia saligna</i>	Golden Wreath Wattle		2	✓	✓
LILIACEAE	<i>Agapanthus praecox ssp. orientalis</i>			3	✓	
AGAVACEAE	<i>Agave americana</i>	Century Plant		3	✓	✓
LILIACEAE	<i>Aloe arborescens</i>			3	✓	✓
LILIACEAE	<i>Aloe maculata</i>	Broad-leaf Aloe		3	✓	✓
GRAMINEAE	<i>Ammophila arenaria</i>	Marram Grass		3	✓	✓
COMPOSITAE	<i>Arctotheca calendula</i>	Cape Weed		1	✓	✓
LILIACEAE	<i>Asparagus asparagoides f. asparagoides</i>	Bridal Creeper	✓	5	✓	✓
LILIACEAE	<i>Asphodelus fistulosus</i>	Onion Weed	✓	2	✓	✓
ARAUCARIACEAE	<i>Araucaria heterophylla</i>	Norfolk Island Pine		1	✓	✓
GRAMINEAE	<i>Avena barbata</i>	Bearded Oat		2	✓	✓
GRAMINEAE	<i>Bromus diandrus</i>	Great Brome		1	✓	✓
CRUCIFERAE	<i>Cakile maritima ssp. maritima</i>	Two-horned Sea Rocket		1		✓
CASUARINACEAE	<i>Casuarina glauca</i>	Grey Bullock		2	✓	✓
CRASSULACEAE	<i>Cotyledon orbiculata var.</i>	Cotyledon		2	✓	✓
COMPOSITAE	<i>Cynara cardunculus ssp. flavescent</i>	Artichoke Thistle	✓	3	✓	
GRAMINEAE	<i>Cynodon sp.</i>	Couch		2	✓	✓
EUPHORBIACEAE	<i>Euphorbia terracina</i>	False Caper	✓	3	✓	✓
UMBELLIFERAE	<i>Foeniculum vulgare</i>	Fennel		2	✓	✓
OLEACEAE	<i>Fraxinus angustifolia ssp. angustifolia</i>	Desert Ash		2	✓	✓
FUMARIACEAE	<i>Fumaria capreolata</i>	White-flower Fumitory		1	✓	✓
AIZOACEAE	<i>Galenia pubescens var. pubescens</i>	Coastal Galenia		2	✓	✓
COMPOSITAE	<i>Gazania sp.</i>	Gazania		3	✓	
JUNCACEAE	<i>Juncus acutus</i>	Sharp Rush		3		✓
GRAMINEAE	<i>Lagurus ovatus</i>	Hare's Tail Grass		2	✓	✓
MYRTACEAE	<i>Leptospermum laevigatum</i>	Coast Tea-tree		3	✓	✓
GRAMINEAE	<i>Lolium perenne</i>	Perennial Ryegrass		1	✓	✓
SOLANACEAE	<i>Lycium ferocissimum</i>	African Boxthorn	✓	3	✓	✓
LEGUMINOSAE	<i>Medicago polymorpha var. polymorpha</i>	Burr-medic		2	✓	✓
LEGUMINOSAE	<i>Medicago truncatula</i>	Barrel Medic		2	✓	✓
AIZOACEAE	<i>Mesembryanthemum crystallinum</i>	Common Iceplant		3	✓	✓
IRIDACEAE	<i>Moraea setifolia</i>	Thread Iris		2		✓
ONAGRACEAE	<i>Oenothera stricta ssp. stricta</i>	Common Evening Primrose		1	✓	✓
OLEACEAE	<i>Olea europaea ssp. europaea</i>	Olive	✓	4	✓	✓
CACTACEAE	<i>Opuntia monacantha</i>	Drooping Prickly Pear	✓	3	✓	✓
OXALIDACEAE	<i>Oxalis pes-caprae</i>	Sour sob	✓	3	✓	✓
GRAMINEAE	<i>Pennisetum clandestinum</i>	Kikuyu		3	✓	✓

White Hollow Reserve Management Plan, City of Port Adelaide Enfield

Family	Species name	Common name	Declared	BCM weed threat category	Present	
					2006 (SAU FBP)	2013 (EBS)
PALMAE	<i>Phoenix canariensis</i>	Canary Island Palm		2	✓	✓
PINACEAE	<i>Pinus halepensis</i>	Aleppo Pine	✓	3	✓	✓
GRAMINEAE	<i>Piptatherum miliaceum</i>	Rice Millet		2	✓	✓
PLANTAGINACEAE	<i>Plantago lanceolata</i>	Plantain		2	✓	✓
SALICACEAE	<i>Populus nigra</i>	Lombardy Poplar		2	✓	✓
COMPOSITAE	<i>Reichardia tingitana</i>	False Sowthistle		2	✓	✓
LEGUMINOSAE	<i>Retama raetam</i>	White Weeping Broom		4	✓	✓
RHAMNACEAE	<i>Rhamnus alaternus</i>	Blowfly Bush		3	✓	✓
IRIDACEAE	<i>Romulea sp.</i>	Onion-grass		2		✓
COMPOSITAE	<i>Senecio angulatus</i>	Cape Ivy		3	✓	✓
CRUCIFERAE	<i>Sisymbrium orientale</i>	Indian Hedge Mustard		2	✓	✓
COMPOSITAE	<i>Sonchus oleraceus</i>	Common Sow-thistle		1		✓
GRAMINEAE	<i>Stenotaphrum secundatum</i>	Buffalo Grass		3	✓	✓
COMPOSITAE	<i>Taraxacum officinale</i>	Dandelion		1	✓	✓
URTICACEAE	<i>Urtica urens</i>	Small Nettle		2		✓
LEGUMINOSAE	<i>Vicia monantha</i>	Spurred Vetch		2	✓	✓
IRIDACEAE	<i>Watsonia sp.</i>	Watsonia	✓	4	✓	✓

4.2 Fauna

Twelve bird species were observed within the reserve during the field survey. Eight are native species and four are introduced. Table 4 lists all the birds observed and birds considered likely to use habitat within the reserve. No native mammal or reptile species were recorded during the survey. Table 5 lists all the native and introduced reptile and mammal species that could potentially be found within the reserve.

Reserve isolation, combined with dissection by formal and informal tracks, contributes to habitat fragmentation. This severely reduces the reserve's capacity to sustain indigenous fauna in general. Introduced predators such as foxes, and stray and domestic cats and dogs, further exacerbate this problem. The surrounding suburban landscape provides a significant population of cats, both domestic and feral. Cats are likely to utilise the area primarily for hunting. Foxes (*Vulpes vulpes*) are common within the Adelaide region and are known to travel along linear reserves and along the metropolitan coastline.

Table 4. Native and introduced birds observed or considered as possibly occurring within White Hollow Reserve.

Species name	Common name	No observed
<i>Anthochaera carunculata</i>	Red Wattlebird	-
<i>Cacatua roseicapilla</i>	Galah	2
<i>Chroicocephalus novaehollandiae</i>	Silver Gull	12
* <i>Columba livia</i>	Rock Dove	-
<i>Corvus coronoides</i>	Australian Raven	3
<i>Falco cenchroides</i>	Nankeen kestrel	-
<i>Grallina cyanoleuca</i>	Magpie Lark	2
<i>Gymnorhina tibicen</i>	Australian Magpie	3
<i>Hirundo neoxena</i>	Welcome Swallow	Common
<i>Lichenostomus virescens</i>	Singing Honeyeater	-
<i>Manorina melanocephala</i>	Noisy miner	Common
<i>Ocyphaps lophotes</i>	Crested Pigeon	4
* <i>Passer domesticus</i>	House Sparrow	Common
<i>Phylidonyris novaehollandiae</i>	New Holland Honeyeater	5
<i>Rhipidura leucophrys</i>	Willie Wagtail	8
* <i>Stigmatopelia chinensis</i>	Spotted Turtle-dove	5
* <i>Sturnus vulgaris</i>	Common Starling	Common
* <i>Turdus merula</i>	Common Blackbird	6

* Introduced species.

Table 5. Native and introduced reptiles and mammals considered as possibly occurring within the White Hollow Reserve.

Species name	Common name
Reptiles	
<i>Ctenophorus pictus</i>	Painted Dragon
<i>Christinus marmoratus</i>	Marbled Gecko
<i>Gehyra variegata</i>	Tree Dtella
<i>Hemiergis peronii</i>	Four-toed Earless Skink
<i>Lampropholis guichenoti</i>	Garden Skink
<i>Lerista dorsalis</i>	Southern Four-toed Slider
<i>Menetia greyii</i>	Dwarf Skink
<i>Morethia adalaidensis</i>	Adelaide Snake-eye
<i>Pogona barbata</i>	Eastern Bearded Dragon
<i>Pseudonaja textilis</i>	Eastern Brown Snake
<i>Tiliqua rugosa</i>	Sleepy Lizard
<i>Tiliqua scincoides</i>	Eastern Blue Tongue
Mammals	
* <i>Canis lupis familiaris</i>	Dog
<i>Chalinolobus morio</i>	Chocolate Wattle Bat
<i>Chalinolobus gouldii</i>	Gould's Wattle Bat
* <i>Felis catus</i>	Feral Cat
* <i>Mus musculus</i>	House Mouse
<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat
<i>Nyctinomus australis</i>	White-striped Freetail-bat
* <i>Rattus rattus</i>	Black Rat
* <i>Vulpes vulpes</i>	Red Fox

* Introduced species.

4.3 Erosion

There are several areas within the reserve which are managed for erosion. The majority of the erosion is within the steep sections of the running track. The sand is transferred from the high sections of the tracks to the base; this is a result of foot traffic. The steep sections of the running track are monitored and replenished with sand on an as needs basis by the PAE.

4.4 Rubbish

Sections of the reserve appear to have been formed using backfill material which contains rubble and small pieces of concrete. Scattered rubble and concrete is relatively common on the surface of the steep banks. Illegal rubbish dumping is likely to be an ongoing issue within the reserve. Several items were observed during the survey including, mattress's, old furniture, garden waste/clippings, old timber and general rubbish.

5 ACTION PLAN

The following action plan for White Hollow Reserve is for a five year period, with a review scheduled during year 4. Detailed actions and site specific information is provided for each of the Management Zones in Sections 5.6 to 5.27. A works calendar and budget for the five year period is provided in Table 49 to Table 53. It is recommended that two Bushland Condition Monitoring sites and 10 photo point monitoring sites are established within the reserve prior to any on-ground works being conducted. Annual monitoring of these sites will also be required over the five year period.

5.1 Weed control

Control of invasive weed species is the most significant and immediate issue concerning the White Hollow project area. Invasive weed species have been identified for control and these are detailed in Table 6. Details on weed treatment methods are provided in Table 6 and Appendix 1. All material from weed control works is required to be removed from the reserve.

Each species has been selected specific to the project area and allocated a 'Hierarchy of Management' order based on the following principles:

- BCM threat category (Section 3.3, Table 1)
- Size of infestation
- Overall abundance
- Level of invasiveness
- Listing (Declared under *NRM Act 2004*)
- Prior management
- Cost effectiveness.

Invasive and problematic weed species observed include *Ammophila arenaria* (Marram Grass), *Casuarina glauca* (Grey Bullock), *Foeniculum vulgare* (Fennel), *Leptospermum laevigatum* (Coast Tea-tree), *Lycium ferocissimum* (Boxthorn), *Olea europaea* ssp. *europaea* (Olive), *Pinus halepensis* (Aleppo Pine) and *Cotyledon orbiculata* var. (Cotyledon). The majority of invasive weed species are likely to have been introduced through human activities such as illegal dumping, garden escapees, seed dispersal along the coastline, and through being transported on clothing and footwear. Introduced animals such as foxes, cats, rabbits and mice may also transport weed seed on their fur while birds can distribute seed through droppings.

Four weed species, *Agapanthus praecox* ssp. *orientalis* (Agapanthus), *Cynara cardunculus* ssp. *flavescens* (Artichoke Thistle), *Gazania* sp. (Gazania) and *Trachyandra divaricata* (Dune Onion Weed) were not recorded during the survey but have either occurred in the reserve past or are known to occur within the nearby Taperoo coastal vegetation. These species should be treated as level 1 under the 'hierarchy of management' principles if they are observed within the reserve.

The priority weed species for each Management Zone are detailed in sections 5.6 to 5.27. The locations of priority weeds species are provided in Appendix 2 (coordinates) and Appendix 3 to Appendix 7 (maps). Details such as weed control timing, actions and costing associated with weed control are provided in Table 49 to Table 53.

Table 6. Weed species for control.

Species name	Common name	Hierarchy of management	Control techniques
<i>Acacia cyclops</i>	Western Coastal Wattle	2	Hand pull juveniles / cut and swab
<i>Acacia saligna</i>	Golden Wreath Wattle	2	Hand pull juveniles / cut and swab
<i>Agave americana</i>	Century Plant	3 (outside of Management Zone 9) 5 (within Management Zone 9)	Hand pull juveniles / cut and swab
<i>Aloe arborescens</i>		3 (outside of Management Zone 9) 5 (within Management Zone 9)	Hand pull juveniles / cut and swab
<i>Aloe maculata</i>	Broad-leaf Aloe	3 (outside of Management Zone 9) 5 (within Management Zone 9)	Hand pull juveniles / cut and swab
<i>Ammophila arenaria</i>	Marram Grass	4	Hand pull / spray
<i>Asparagus asparagoides</i> f. <i>asparagoides</i>	Bridal Creeper	1	Grub rhizomes or spray
<i>Casuarina glauca</i>	Grey Bul oak	4 (outside of management Zones 6 and 7a)	Cut and swab
<i>Cotyledon orbiculata</i> var.	Cotyledon	3 (outside of Management Zone 9) 5 (within Management Zone 9)	Spray
<i>Euphorbia terracina</i>	False Caper	4	Hand pull
<i>Foeniculum vulgare</i>	Fennel	2	Spray
<i>Fraxinus angustifolia</i> ssp. <i>angustifolia</i>	Desert Ash	3	Cut and swab
<i>Juncus acutus</i>	Sharp Rush	1	Hand pull / spray
<i>Leptospermum laevigatum</i>	Coast Tea-tree	2 (juvenile only) 4 (mature only)	Hand pull juveniles / cut and swab
<i>Lycium ferocissimum</i>	African Boxthorn	1	Hand pull juveniles / cut and swab
<i>Olea europaea</i> ssp. <i>europaea</i>	Olive	1	Hand pull juveniles / cut and swab
<i>Opuntia monacantha</i>	Drooping Prickly Pear	1	Hand pull juveniles / cut and swab
<i>Phoenix canariensis</i>	Canary Island Palm	2 (juvenile only) 4 (mature only)	Hand pull juveniles / cut and swab
<i>Pinus halepensis</i>	Aleppo Pine	2 (juvenile only)	Hand pull juveniles / cut
<i>Populus nigra</i>	Lombardy Poplar	2	Hand pull juveniles / cut and swab
<i>Retama raetam</i>	White Weeping Broom	1	Hand pull juveniles / cut and swab
<i>Rhamnus alaternus</i>	Blowfly Bush	1	Hand pull juveniles / cut and swab
<i>Senecio angulatus</i>	Cape Ivy	3 (outside of Management Zone 9) 5 (within Management Zone 9)	Hand pull juveniles / cut and swab
<i>Stenotaphrum secundatum</i>	Buffalo Grass	5	Hand pull juveniles / spray
<i>Watsonia</i> sp.	Watsonia	1	Hand pull juveniles / cut and swab / spray

5.2 Revegetation

Revegetation works within the reserve aims to improve biodiversity, restore existing habitats, provide additional habitat for native fauna species, aid in stabilising the dunes and reinstate representative samples of the pre-European vegetation communities through the reintroduction of plant species once common to the region. This can be achieved through infilling remnant vegetation and revegetated areas with mainly small to medium sized species.

Revegetation will be separated into the Management Zones; Different plants are suited to different areas in the dune system, therefore species selection and quantities of species are recommended for each of the Management Zones. The recommended flora species and quantities for each Management Zone are provided in sections 5.6 to 5.27. Details such as timing, actions and costing associated with revegetation are provided in Table 49 to Table 53.

5.3 Public safety mitigation

The reserve contains several large *Pinus halepensis* (Aleppo Pine) and *Araucaria heterophylla* (Norfolk Island Pine), some of which have limbs close to or overhanging over the walking/running track. It is recommended that the trees are examined by a qualified and experienced Arborist. The ongoing monitoring and management (removal of dead or dangerous limbs and dead trees) of large trees will be required.

5.4 Rubbish

Scattered rubble and concrete is relatively common on the surface of the steep banks. It is recommended that the rubble/concrete is only collected and removed from the surface layer of the banks (i.e. anything under the sub-surface layer can remain). Illegal rubbish dumping is likely to be an ongoing issue within the reserve. The removal of dumped rubbish has been allowed for in the works program, details are provided in Table 49 to Table 53.

5.5 Maintenance

The walking/running track within the reserve is bordered on both sides with fencing. The fencing construction varies within each section of the reserve but the structure generally consists of softwood permapipe, rural 'ringlok' mesh and heavy duty shade cloth (for erosion control). The fencing will require regular maintenance and has been added to the works program. Details are provided in Table 49 to Table 53.

5.6 Management zone 1a

Table 7. Management zone 1a overview.

Management zone 1a	
Size	0.037Ha – 369.86m ²
Topography	Small dune
Values	Contains range of native species (likely to be a mix of remnant vegetation and revegetation) including <i>Scaevola crassifolia</i> (Cushion Fanflower) and <i>Spinifex hirsutus</i> (Rolling Spinifex)
Management issues	<ul style="list-style-type: none"> • Contains four priority weeds • Sections of minor erosion, particularly bordering the pathway
Management aims	<ul style="list-style-type: none"> • Ongoing control of weed species as per Table 6 • Revegetate the area as per Table 8
Priority weed species	<ul style="list-style-type: none"> • <i>Foeniculum vulgare</i> (Fennel) • <i>Leptospermum laevigatum</i> (Coast Tea-tree) • <i>Lycium ferocissimum</i> (Boxthorn) • <i>Olea europaea ssp. europaea</i> (Olive)
Reference vegetation community	<i>Spinifex sericeus</i> (Rolling Spinifex), <i>Lepidosperma gladiatum</i> (Coast Sword-sedge), <i>Ficinia nodosa</i> (Knobby Club-rush) Open tussock +/- <i>Olearia axillaris</i> (Coast Daisy-bush) Grassland/Open Shrubland



Figure 3. Management zone 1a – View from east to west.

Table 8. Management Zone 1a - Revegetation species list.

Plant type	Species name	Common name	Quantity					Total
			Year 1	Year 2	Year 3	Year 4	Year 5	
Tall shrub >2m	<i>Acacia longifolia ssp. sophorae</i>	Coastal Wattle	2					2
Medium shrub 0.5-2m	<i>Acacia cupularis</i>	Cup Wattle	2					2
	<i>Adriana quadripartita</i>	Coast Bitter-bush	5					5
	<i>Olearia axillaris</i>	Coast Daisy-bush	5					5
	<i>Rhagodia candolleana ssp.</i>	Sea-berry Saltbush	10					10
	<i>Scaevola crassifolia</i>	Cushion Fanflower	5					5
Small shrub <0.5m	<i>Lotus australis</i>	Austral Trefoil	15					15
Herb	<i>Pelargonium australe</i>	Austral Stork's-bill	10					10
Mat plant	<i>Carpobrotus rossii</i>	Native Pigface	20					20
	<i>Kennedia prostrata</i>	Scarlet Runner	15					15
	<i>Kunzea pomifera</i>	Muntries	5					5
Grass	<i>Poa poiformis var. poiformis</i>	Coast Tussock-grass	20					20
	<i>Spinifex hirsutus</i>	Rolling Spinifex	10					10
Tussock	<i>Dianella brevicaulis</i>	Short-stem Flax-lily	15					15
	<i>Ficinia nodosa</i>	Knobby Club-rush	25					25
	<i>Lepidosperma gladiatum</i>	Coast Sword-sedge	15					15
Twiner/climber	<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum	10					10
Sub total			189					189

5.7 Management zone 1b

Table 9. Management zone 1b overview.

Management zone 1b	
Size	0.057Ha – 566.66m ²
Topography	Small dune
Values	Contains range of native species (likely to be a mix of remnant vegetation and revegetation) including <i>Scaevola crassifolia</i> (Cushion Fanflower) and <i>Spinifex hirsutus</i> (Rolling Spinifex)
Management issues	<ul style="list-style-type: none"> • Contains three priority weed species • Sections of minor erosion, particularly bordering the pathway
Management aims	<ul style="list-style-type: none"> • Ongoing control of weed species as per Table 6 • Revegetate the area as per Table 10
Priority weed species	<ul style="list-style-type: none"> • <i>Ammophila arenaria</i> (Marram Grass) • <i>Foeniculum vulgare</i> (Fennel) • <i>Leptospermum laevigatum</i> (Coast Tea-tree)
Reference vegetation community	<i>Spinifex sericeus</i> (Rolling Spinifex), <i>Lepidosperma gladiatum</i> (Coast Sword-sedge), <i>Ficinia nodosa</i> (Knobby Club-rush) Open tussock +/- <i>Olearia axillaris</i> (Coast Daisy-bush) Grassland/Open Shrubland



Figure 4. Management zone 1b – View from south to north.

Table 10. Management zone 1b - Revegetation species list.

Plant type	Species name	Common name	Quantity					Total
			Year 1	Year 2	Year 3	Year 4	Year 5	
Tall shrub >2m	<i>Acacia longifolia ssp. sophorae</i>	Coastal Wattle	2					2
Medium shrub 0.5-2m	<i>Acacia cupularis</i>	Cup Wattle	2					2
	<i>Adriana quadripartita</i>	Coast Bitter-bush	3					3
	<i>Olearia axillaris</i>	Coast Daisy-bush	4					4
	<i>Rhagodia candolleana ssp.</i>	Sea-berry Saltbush	5					5
	<i>Scaevola crassifolia</i>	Cushion Fanflower	4					4
Small shrub <0.5m	<i>Lotus australis</i>	Austral Trefoil	10					10
Herb	<i>Pelargonium australe</i>	Austral Stork's-bill	10					10
Mat plant	<i>Carpobrotus rossii</i>	Native Pigface	15					15
	<i>Kennedia prostrata</i>	Scarlet Runner	15					15
	<i>Kunzea pomifera</i>	Muntries	5					5
Grass	<i>Poa poiformis var. poiformis</i>	Coast Tussock-grass	20					20
	<i>Spinifex hirsutus</i>	Rolling Spinifex	10					10
Tussock	<i>Dianella brevicaulis</i>	Short-stem Flax-lily	15					15
	<i>Ficinia nodosa</i>	Knobby Club-rush	20					20
	<i>Lepidosperma gladiatum</i>	Coast Sword-sedge	15					15
Twiner/climber	<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum	10					10
Sub total			165					165

5.8 Management zone 2a

Table 11. Management zone 2a overview.

Management zone 2a	
Size	0.059Ha – 592.61m ²
Topography	Gently sloping bank; sloping down in a west to east direction
Values	Contains a low number of native species (appears to be a result of past revegetation) including <i>Acacia cupularis</i> (Cup Wattle) and <i>Olearia axillaris</i> (Coast Daisy-bush)
Management issues	<ul style="list-style-type: none"> • Contains two priority weed species • Sections of minor erosion, particularly bordering the pathway. The bank area may be prone to erosion as the majority of the area lacks native ground cover vegetation • Low density of surface rubbish (i.e. old building rubble and backfill material)
Management aims	<ul style="list-style-type: none"> • Ongoing control of weed species as per Table 6 • Revegetate the area as per Table 12 • Removal of surface rubbish
Priority weed species	<ul style="list-style-type: none"> • <i>Fraxinus angustifolia</i> ssp. <i>angustifolia</i> (Desert Ash) • <i>Lycium ferocissimum</i> (Boxthorn)
Reference vegetation community	<i>Olearia axillaris</i> (Coast Daisy-bush), <i>Scaevola crassifolia</i> (Cushion Fanflower), <i>Acacia cupularis</i> (Cup Wattle), <i>Lepidosperma gladiatum</i> (Coast Sword-sedge), <i>Ficinia nodosa</i> (Knobby Club-rush) Low Open Shrubland



Figure 5. Management zone 2a – View from north-west to south-east.

Table 12. Management zone 2a – Revegetation species list.

Plant type	Species name	Common name	Quantity					Total
			Year 1	Year 2	Year 3	Year 4	Year 5	
Tall shrub >2m	<i>Acacia longifolia ssp. sophorae</i>	Coastal Wattle		5				5
Medium shrub 0.5-2m	<i>Acacia cupularis</i>	Cup Wattle		5				5
	<i>Adriana quadripartita</i>	Coast Bitter-bush		5				5
	<i>Atriplex cinerea</i>	Coast Saltbush		5				5
	<i>Olearia axillaris</i>	Coast Daisy-bush		10				10
	<i>Rhagodia candolleana ssp.</i>	Sea-berry Saltbush		15				15
	<i>Scaevola crassifolia</i>	Cushion Fanflower		5				5
Small shrub <0.5m	<i>Enchylaena tomentosa var.</i>	Ruby Saltbush		10				10
	<i>Lotus australis</i>	Austral Trefoil		10				10
Herb	<i>Pelargonium australe</i>	Austral Stork's-bill		15				15
	<i>Senecio pinnatifolius var. lanceolatus</i>	Variable Groundsel		15				15
Mat plant	<i>Carpobrotus rossii</i>	Native Pigface		15				15
	<i>Kennedia prostrata</i>	Scarlet Runner		15				15
	<i>Kunzea pomifera</i>	Muntries		10				10
Grass	<i>Austrostipa flavescens</i>	Coast Spear-grass		20				20
	<i>Poa poiformis var. poiformis</i>	Coast Tussock-grass		20				20
Tussock	<i>Dianella brevicaulis</i>	Short-stem Flax-lily		20				20
	<i>Ficinia nodosa</i>	Knobby Club-rush		25				25
	<i>Lepidosperma gladiatum</i>	Coast Sword-sedge		20				20
Twiner/climber	<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum		10				10
Sub total				255				255

5.9 Management zone 2b

Table 13. Management zone 2b overview.

Management zone 2b	
Size	0.011Ha – 112.76m ²
Topography	Steep sloping bank; sloping down in a west to east direction
Management issues	<ul style="list-style-type: none"> Sections of minor erosion, particularly bordering the pathway. The bank area may be prone to erosion as the majority of the area lacks native ground cover vegetation Low density of surface rubbish (i.e. old building rubble and backfill material)
Management aims	<ul style="list-style-type: none"> Revegetate the area as per Table 14 Removal of surface rubbish
Priority weed species	None present
Reference vegetation community	<i>Olearia axillaris</i> (Coast Daisy-bush), <i>Scaevola crassifolia</i> (Cushion Fanflower) +/- <i>Melaleuca lanceolata</i> (Dryland Tea-tree) +/- <i>Myoporum insulare</i> (Common Boobialla) Open Shrubland



Figure 6. Management zone 2b - View from north to south.

Table 14. Management zone 2b – Revegetation species list.

Plant type	Species name	Common name	Quantity					Total
			Year 1	Year 2	Year 3	Year 4	Year 5	
Medium shrub 0.5	<i>Adriana quadripartita</i>	Coast Bitter-bush		2				2
	<i>Olearia axillaris</i>	Coast Daisy-bush		4				4
	<i>Rhagodia candolleana ssp.</i>	Sea-berry Saltbush		4				4
	<i>Scaevola crassifolia</i>	Cushion Fanflower		3				3
Mat plant	<i>Carpobrotus rossii</i>	Native Pigface		5				5
	<i>Kennedia prostrata</i>	Scarlet Runner		5				5
	<i>Kunzea pomifera</i>	Muntries		2				2
Grass	<i>Poa poiformis var. poiformis</i>	Coast Tussock-grass		10				10
Tussock	<i>Dianella brevicaulis</i>	Short-stem Flax-lily		10				10
	<i>Ficinia nodosa</i>	Knobby Club-rush		15				15
Twiner/climber	<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum		5				5
Sub total				65				65

5.10 Management zone 2c

Table 15. Management zone 2c overview.

Management zone 2c	
Size	0.063Ha – 625.43m ²
Topography	Steep bank; sloping down in a south to north direction
Values	Contains a low number of native species (appears to be a result of past revegetation)
Management issues	<ul style="list-style-type: none"> • Contains one priority weed species • Sections of minor erosion, particularly bordering the pathway. The bank area may be prone to erosion as the majority of the area lacks native ground cover vegetation • Medium to high density of surface rubbish (i.e. old building rubble and backfill material)
Management aims	<ul style="list-style-type: none"> • Ongoing control of weed species as per Table 6 • Revegetate the area as per Table 16 • Removal of surface rubbish
Priority weed species	<ul style="list-style-type: none"> • <i>Lycium ferocissimum</i> (Boxthorn)
Reference vegetation community	<i>Olearia axillaris</i> (Coast Daisy-bush), <i>Scaevola crassifolia</i> (Cushion Fanflower), <i>Acacia cupularis</i> (Cup Wattle), <i>Lepidosperma gladiatum</i> (Coast Sword-sedge), <i>Ficinia nodosa</i> (Knobby Club-rush) Low Open Shrubland



Figure 7. Management zone 2c – View from west to east.

Table 16. Management zone 2c – Revegetation species list.

Plant type	Species name	Common name	Quantity					Total
			Year 1	Year 2	Year 3	Year 4	Year 5	
Tall shrub >2m	<i>Acacia longifolia ssp. sophorae</i>	Coastal Wattle		4				4
Medium shrub 0.5-2m	<i>Acacia cupularis</i>	Cup Wattle		5				5
	<i>Adriana quadripartita</i>	Coast Bitter-bush		5				5
	<i>Atriplex cinerea</i>	Coast Saltbush		5				5
	<i>Olearia axillaris</i>	Coast Daisy-bush		10				10
	<i>Rhagodia candolleana ssp.</i>	Sea-berry Saltbush		15				15
	<i>Scaevola crassifolia</i>	Cushion Fanflower		8				8
Small shrub <0.5m	<i>Enchylaena tomentosa var.</i>	Ruby Saltbush		10				10
	<i>Lotus australis</i>	Austral Trefoil		15				15
Herb	<i>Pelargonium australe</i>	Austral Stork's-bill		15				15
	<i>Senecio pinnatifolius var. lanceolatus</i>	Variable Groundsel		20				20
Mat plant	<i>Carpobrotus rossii</i>	Native Pigface		50				50
	<i>Kennedia prostrata</i>	Scarlet Runner		20				20
	<i>Kunzea pomifera</i>	Muntries		15				15
Grass	<i>Austrostipa flavescens</i>	Coast Spear-grass		50				50
	<i>Poa poiformis var. poiformis</i>	Coast Tussock-grass		50				50
Tussock	<i>Dianella brevicaulis</i>	Short-stem Flax-lily		50				50
	<i>Ficinia nodosa</i>	Knobby Club-rush		50				50
	<i>Lepidosperma gladiatum</i>	Coast Sword-sedge		50				50
Twiner/climber	<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum		10				10
Sub total				457				457

5.11 Management zone 2d

Table 17. Management zone 2d overview.

Management zone 2d	
Size	0.046Ha – 464.24m ²
Topography	Steep bank containing a 90° bend; begins sloping down in a south to north direction and finishes sloping down from the east to west.
Values	Contains a low number of native species (appears to be a result of past revegetation)
Management issues	<ul style="list-style-type: none"> Contains one priority weed species Sections of erosion, particularly bordering the pathway. The bank area may be prone to erosion as the majority of the area lacks native ground cover vegetation Low density of surface rubbish (i.e. old building rubble and backfill material)
Management aims	<ul style="list-style-type: none"> Ongoing control of weed species as per Table 6 Revegetate the area as per Table 18 Removal of surface rubbish
Priority weed species	<ul style="list-style-type: none"> <i>Phoenix canariensis</i> (Canary Island Palm)
Reference vegetation community	<i>Olearia axillaris</i> (Coast Daisy-bush), <i>Scaevola crassifolia</i> (Cushion Fanflower) +/- <i>Melaleuca lanceolata</i> (Dryland Tea-tree) +/- <i>Myoporum insulare</i> (Common Boobialla) Open Shrubland



Figure 8. Management zone 2d – View from north to south.

Table 18. Management zone 2d – Revegetation species list.

Plant type	Species name	Common name	Quantity					Total
			Year 1	Year 2	Year 3	Year 4	Year 5	
Small trees <5m	<i>Melaleuca lanceolata</i>	Dryland Tea-tree		2				2
Tall shrub >2m	<i>Acacia longifolia</i> ssp. <i>sophorae</i>	Coastal Wattle		2				2
	<i>Santalum acuminatum</i>	Quandong		8				8
Medium shrub 0.5-2m	<i>Acacia cupularis</i>	Cup Wattle		3				3
	<i>Adriana quadripartita</i>	Coast Bitter-bush		3				3
	<i>Atriplex cinerea</i>	Coast Saltbush		3				3
	<i>Myoporum insulare</i>	Common Boobialla		2				2
	<i>Olearia axillaris</i>	Coast Daisy-bush		4				4
	<i>Rhagodia candolleana</i> ssp.	Sea-berry Saltbush		5				5
	<i>Scaevola crassifolia</i>	Cushion Fanflower		3				3
Small shrub <0.5m	<i>Enchylaena tomentosa</i> var.	Ruby Saltbush		10				10
	<i>Lotus australis</i>	Austral Trefoil		10				10
Herb	<i>Pelargonium australe</i>	Austral Stork's-bill		10				10
	<i>Senecio pinnatifolius</i> var. <i>lanceolatus</i>	Variable Groundsel		15				15
Mat plant	<i>Carpobrotus rossii</i>	Native Pigface		20				20
	<i>Kennedia prostrata</i>	Scarlet Runner		15				15
	<i>Kunzea pomifera</i>	Muntries		5				5
Grass	<i>Austrostipa flavescens</i>	Coast Spear-grass		25				25
	<i>Poa poiformis</i> var. <i>poiformis</i>	Coast Tussock-grass		25				25
Tussock	<i>Dianella brevicaulis</i>	Short-stem Flax-lily		25				25
	<i>Ficinia nodosa</i>	Knobby Club-rush		25				25
	<i>Lepidosperma gladiatum</i>	Coast Sword-sedge		25				25
Twiner/climber	<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum		10				10
Sub total				255				255

5.12 Management zone 2e

Table 19. Management zone 2e overview.

Management zone 2e	
Size	0.082Ha – 824.44m ²
Topography	Steep bank; sloping down from the south-east to the north-west
Values	Contains a low number of native species (appears to be a result of past revegetation)
Management issues	<ul style="list-style-type: none"> • Contains two priority weed species • Sections of erosion, particularly bordering the pathway. The bank area may be prone to erosion as the majority of the area lacks native ground cover vegetation • Low density of surface rubbish (i.e. old building rubble and backfill material)
Management aims	<ul style="list-style-type: none"> • Ongoing control of weed species as per Table 6 • Revegetate the area as per Table 20 • Removal of surface rubbish
Priority weed species	<ul style="list-style-type: none"> • <i>Lycium ferocissimum</i> (Boxthorn) • <i>Rhamnus alaternus</i> (Blowfly Bush)
Reference vegetation community	<i>Olearia axillaris</i> (Coast Daisy-bush), <i>Scaevola crassifolia</i> (Cushion Fanflower) +/- <i>Melaleuca lanceolata</i> (Dryland Tea-tree) +/- <i>Myoporum insulare</i> (Common Boobialla) Open Shrubland



Figure 9. Management zone 2e – View from north to south.

Table 20. Management zone 2e – Revegetation species list.

Plant type	Species name	Common name	Quantity					Total
			Year 1	Year 2	Year 3	Year 4	Year 5	
Tall shrub >2m	<i>Dodonaea viscosa ssp. spatulata</i>	Sticky Hop-bush		5				5
Medium shrub 0.5-2m	<i>Acacia cupularis</i>	Cup Wattle		4				4
	<i>Adriana quadripartita</i>	Coast Bitter-bush		5				5
	<i>Atriplex cinerea</i>	Coast Saltbush		5				5
	<i>Olearia axillaris</i>	Coast Daisy-bush		5				5
	<i>Rhagodia candolleana ssp.</i>	Sea-berry Saltbush		10				10
Small shrub <0.5m	<i>Enchylaena tomentosa var.</i>	Ruby Saltbush		10				10
	<i>Lotus australis</i>	Austral Trefoil		10				10
Herb	<i>Pelargonium australe</i>	Austral Stork's-bill		10				10
	<i>Senecio pinnatifolius var. lanceolatus</i>	Variable Groundsel		10				10
Mat plant	<i>Carpobrotus rossii</i>	Native Pigface		10				10
	<i>Kennedia prostrata</i>	Scarlet Runner		10				10
Grass	<i>Austrostipa flavescens</i>	Coast Spear-grass		25				25
	<i>Poa poiformis var. poiformis</i>	Coast Tussock-grass		25				25
Tussock	<i>Dianella brevicaulis</i>	Short-stem Flax-lily		25				25
	<i>Ficinia nodosa</i>	Knobby Club-rush		25				25
	<i>Lepidosperma gladiatum</i>	Coast Sword-sedge		20				20
Twiner/climber	<i>Billardiera cymosa ssp. cymosa</i>	Sweet Apple-berry		10				10
	<i>Clematis microphylla</i>	Old Man's Beard		10				10
	<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum		10				10
Sub total				244				244

5.13 Management zone 3

Table 21. Management zone 3 overview.

Management zone 3	
Size	0.097Ha – 972.72m ²
Topography	Steep slope; sloping down from the south-east to the north-west
Values	Contains a low number of native species (appears to be a result of past revegetation)
Management issues	<ul style="list-style-type: none"> • Contains three priority weed species • Sections of erosion, particularly bordering the pathway. The bank area may be prone to erosion as the majority of the area lacks native ground cover vegetation
Management aims	<ul style="list-style-type: none"> • Ongoing control of weed species as per Table 6 • Revegetate the area as per Table 22 • Ongoing monitoring and management of a large <i>Pinus halepensis</i> (Aleppo Pine) – removal of dead or dangerous limbs and dead tree
Priority weed species	<ul style="list-style-type: none"> • <i>Acacia saligna</i> (Golden Wreath Wattle) • <i>Casuarina glauca</i> (Grey Bullock) • <i>Lycium ferocissimum</i> (Boxthorn)
Reference vegetation community	<i>Allocasuarina verticillata</i> (Drooping Sheoak), <i>Callitris gracilis</i> (Southern Cypress Pine), <i>Dodonaea viscosa</i> ssp. <i>spatulata</i> (Sticky Hop-bush) Low Open Woodland



Figure 10. Management zone 3 – View from south-east to north-west.

Table 22. Management zone 3 – Revegetation species list.

Plant type	Species name	Common name	Quantity					Total
			Year 1	Year 2	Year 3	Year 4	Year 5	
Small trees <5m	<i>Allocasuarina verticillata</i>	Drooping Sheoak	6					6
	<i>Callitris gracilis</i>	Southern Cypress Pine	6					6
Tall shrub >2m	<i>Dodonaea viscosa ssp. spatulata</i>	Sticky Hop-bush	8					8
	<i>Santalum acuminatum</i>	Quandong	12					12
Medium shrub 0.5-2m	<i>Acacia cupularis</i>	Cup Wattle	8					8
	<i>Adriana quadripartita</i>	Coast Bitter-bush	20					20
	<i>Atriplex cinerea</i>	Coast Saltbush	4					4
	<i>Olearia axillaris</i>	Coast Daisy-bush	10					10
	<i>Rhagodia candolleana ssp.</i>	Sea-berry Saltbush	20					20
Small shrub <0.5m	<i>Enchylaena tomentosa var.</i>	Ruby Saltbush	20					20
	<i>Lotus australis</i>	Austral Trefoil	20					20
Herb	<i>Pelargonium australe</i>	Austral Stork's-bill	20					20
	<i>Senecio pinnatifolius var. lanceolatus</i>	Variable Groundsel	30					30
Mat plant	<i>Carpobrotus rossii</i>	Native Pigface	50					50
	<i>Kennedia prostrata</i>	Scarlet Runner	20					20
Grass	<i>Austrostipa flavescens</i>	Coast Spear-grass	30					30
	<i>Poa poiformis var. poiformis</i>	Coast Tussock-grass	30					30
Tussock	<i>Dianella brevicaulis</i>	Short-stem Flax-lily	30					30
	<i>Ficinia nodosa</i>	Knobby Club-rush	50					50
	<i>Lepidosperma gladiatum</i>	Coast Sword-sedge	50					50
Twiner/climber	<i>Billardiera cymosa ssp. cymosa</i>	Sweet Apple-berry	20					20
	<i>Clematis microphylla</i>	Old Man's Beard	20					20
	<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum	10					10
Sub total			494					494

5.14 Management zone 4

Table 23. Management zone 4 overview.

Management zone 4	
Size	0.106Ha – 1063.16m ²
Topography	Low lying and relatively flat area
Values	Contains a low number of native species (appears to be a result of past revegetation)
Management issues	<ul style="list-style-type: none"> • Contains eight priority weed species • Low density of surface rubbish (i.e. old building rubble and backfill material) • Illegal rubbish dumping
Management aims	<ul style="list-style-type: none"> • Ongoing control of weed species as per Table 6 • Revegetate the area as per Table 24 • Monitoring and removal of rubbish • Ongoing monitoring and management of a large <i>Phoenix canariensis</i> (Canary Island Palm) – removal of dead palm fronds and dead trees
Priority weed species	<ul style="list-style-type: none"> • <i>Foeniculum vulgare</i> (Fennel) • <i>Fraxinus angustifolia</i> ssp. <i>angustifolia</i> (Desert Ash) • <i>Juncus acutus</i> (Sharp Rush) • <i>Leptospermum laevigatum</i> (Coast Tea-tree) • <i>Lycium ferocissimum</i> (Boxthorn) • <i>Phoenix canariensis</i> (Canary Island Palm) • <i>Rhamnus alaternus</i> (Blowfly Bush) • <i>Stenotaphrus secundatum</i> (Buffalo Grass)
Reference vegetation community	<i>Olearia axillaris</i> (Coast Daisy-bush), <i>Scaevola crassifolia</i> (Cushion Fanflower) +/- <i>Melaleuca lanceolata</i> (Dryland Tea-tree) +/- <i>Myoporum insulare</i> (Common Boobialla) Open Shrubland



Figure 11. Management zone 4 – View from north to south.

Table 24. Management zone 4 – Revegetation species list.

Plant type	Species name	Common name	Quantity					Total
			Year 1	Year 2	Year 3	Year 4	Year 5	
Small shrub <0.5m	<i>Enchylaena tomentosa</i> var.	Ruby Saltbush		10				10
	<i>Lotus australis</i>	Austral Trefoil		10				10
Herb	<i>Pelargonium australe</i>	Austral Stork's-bill		10				10
	<i>Senecio pinnatifolius</i> var. <i>lanceolatus</i>	Variable Groundsel		15				15
Mat plant	<i>Carpobrotus rossii</i>	Native Pigface		15				15
	<i>Kennedia prostrata</i>	Scarlet Runner		10				10
	<i>Kunzea pomifera</i>	Muntries		5				5
Grass	<i>Austrostipa flavescens</i>	Coast Spear-grass		15				15
	<i>Poa poiformis</i> var. <i>poiformis</i>	Coast Tussock-grass		15				15
Tussock	<i>Dianella brevicaulis</i>	Short-stem Flax-lily		15				15
	<i>Ficinia nodosa</i>	Knobby Club-rush		15				15
	<i>Lepidosperma gladiatum</i>	Coast Sword-sedge		15				15
Twiner/climber	<i>Clematis microphylla</i>	Old Man's Beard		15				15
	<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum		15				15
Sub total				180				180

5.15 Management zone 5

Table 25. Management zone 5 overview.

Management zone 5	
Size	0.042Ha – 418.65m ²
Topography	Steep slope; sloping down from the east to the west
Values	Contains a low number of native species (appears to be a result of past revegetation)
Management issues	<ul style="list-style-type: none"> • Contains two priority weed species • Sections of erosion, particularly bordering the pathway. The bank area may be prone to erosion as the majority of the area lacks native ground cover vegetation
Management aims	<ul style="list-style-type: none"> • Ongoing control of weed species as per Table 6 • Revegetate the area as per Table 26 • Control erosion • Ongoing monitoring and management of a large <i>Pinus halepensis</i> (Aleppo Pine) – removal of dead or dangerous limbs and dead tree
Priority weed species	<ul style="list-style-type: none"> • <i>Casuarina glauca</i> (Grey Bul oak) • <i>Lycium ferocissimum</i> (Boxthorn)
Reference vegetation community	<i>Allocasuarina verticillata</i> (Drooping Sheoak), <i>Callitris gracilis</i> (Southern Cypress Pine), <i>Dodonaea viscosa</i> ssp. <i>spatulata</i> (Sticky Hop-bush) Low Open Woodland



Figure 12. Management zone 5 – View from south to north.

Table 26. Management zone 5 – Revegetation species list.

Plant type	Species name	Common name	Quantity					Total
			Year 1	Year 2	Year 3	Year 4	Year 5	
Small trees<5m	<i>Allocasuarina verticillata</i>	Drooping Sheoak				2		2
	<i>Callitris gracilis</i>	Southern Cypress Pine				2		2
Medium shrub 0.5-2m	<i>Adriana quadripartita</i>	Coast Bitter-bush				5		5
	<i>Olearia axillaris</i>	Coast Daisy-bush				5		5
Mat plant	<i>Carpobrotus rossii</i>	Native Pigface				15		15
	<i>Kennedia prostrata</i>	Scarlet Runner				15		15
	<i>Kunzea pomifera</i>	Muntries				10		10
Grass	<i>Poa poiformis</i> var. <i>poiformis</i>	Coast Tussock-grass				15		15
Tussock	<i>Dianella brevicaulis</i>	Short-stem Flax-lily				15		15
	<i>Ficinia nodosa</i>	Knobby Club-rush				20		20
Twiner/climber	<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum				10		10
Sub total						114		114

5.16 Management zone 6

Table 27. Management zone 6 overview.

Management zone 6	
Size	0.056Ha – 555.14m ²
Topography	Steep slope; sloping down from the east to the west
Management issues	<ul style="list-style-type: none"> Contains a dense stand of the introduced species <i>Casuarina glauca</i> (Grey Bul oak) Sections of erosion, particularly bordering the pathway Low density of surface rubbish (i.e. old building rubble and backfill material)
Management aims	<ul style="list-style-type: none"> Ongoing control of weed species as per Table 6 Revegetate the area as per Table 28, this is to be done in conjunction with staggered removal of <i>Casuarina glauca</i> (Grey Bul oak) Control erosion Removal of surface rubbish
Priority weed species	<ul style="list-style-type: none"> <i>Casuarina glauca</i> (Grey Bul oak) <i>Lycium ferocissimum</i> (Boxthorn) <i>Pinus halepensis</i> (Aleppo Pine)
Reference vegetation community	<i>Allocasuarina verticillata</i> (Drooping Sheoak), <i>Callitris gracilis</i> (Southern Cypress Pine), <i>Dodonaea viscosa</i> ssp. <i>spatulata</i> (Sticky Hop-bush) Low Open Woodland



Figure 13. Management zone 6 – View from south-west to north-east.

Table 28. Management zone 6 – Revegetation species list.

Plant type	Species name	Common name	Quantity					Total
			Year 1	Year 2	Year 3	Year 4	Year 5	
Small trees<5m	<i>Allocasuarina verticillata</i>	Drooping Sheoak		10				10
	<i>Callitris gracilis</i>	Southern Cypress Pine		10				10
Tall shrub >2m	<i>Dodonaea viscosa ssp. spatulata</i>	Sticky Hop-bush				12		12
Medium shrub 0.5-2m	<i>Acacia cupularis</i>	Cup Wattle				5		5
	<i>Adriana quadripartita</i>	Coast Bitter-bush				10		10
	<i>Olearia axillaris</i>	Coast Daisy-bush				10		10
Small shrub <0.5m	<i>Enchylaena tomentosa var.</i>	Ruby Saltbush				20		20
	<i>Lotus australis</i>	Austral Trefoil				15		15
Herb	<i>Pelargonium australe</i>	Austral Stork's-bill				15		15
	<i>Senecio pinnatifolius var. lanceolatus</i>	Variable Groundsel				15		15
Mat plant	<i>Carpobrotus rossii</i>	Native Pigface				25		25
	<i>Kennedia prostrata</i>	Scarlet Runner				20		20
Grass	<i>Austrostipa flavescens</i>	Coast Spear-grass				40		40
	<i>Poa poiformis var. poiformis</i>	Coast Tussock-grass				40		40
Tussock	<i>Dianella brevicaulis</i>	Short-stem Flax-lily				30		30
	<i>Ficinia nodosa</i>	Knobby Club-rush				35		35
	<i>Lepidosperma gladiatum</i>	Coast Sword-sedge				30		30
Twiner/climber	<i>Billardiera cymosa ssp. cymosa</i>	Sweet Apple-berry				15		15
	<i>Clematis microphylla</i>	Old Man's Beard				15		15
	<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum				15		15
Sub total				20		367		387

5.17 Management zone 7a

Table 29. Management zone 7a overview.

Management zone 7a	
Size	0.085Ha – 851.72m ²
Topography	Steep slope; sloping down from the east to the west
Values	Contains a low number of native species (appears to be a result of past revegetation)
Management issues	<ul style="list-style-type: none"> Contains a dense stand of the introduced species <i>Casuarina glauca</i> (Grey Bul oak) Sections of erosion, particularly bordering the pathway Low density of surface rubbish (i.e. old building rubble and backfill material) The northern most section borders a residential property
Management aims	<ul style="list-style-type: none"> Ongoing control of weed species as per Table 6 Revegetate the area as per Table 30, this is to be done in conjunction with staggered removal of <i>Casuarina glauca</i> (Grey Bul oak) Control erosion Removal of surface rubbish Create/leave a 2 m wide vegetation free buffer along the residential fence line
Priority weed species	<ul style="list-style-type: none"> <i>Agave americana</i> (Century Plant) <i>Asparagus asparagoides</i> f. <i>asparagoides</i> (Bridal Creeper) <i>Casuarina glauca</i> (Grey Bul oak) <i>Lycium ferocissimum</i> (Boxthorn)
Reference vegetation community	<i>Allocasuarina verticillata</i> (Drooping Sheoak), <i>Callitris gracilis</i> (Southern Cypress Pine), <i>Dodonaea viscosa</i> ssp. <i>spatulata</i> (Sticky Hop-bush) Low Open Woodland

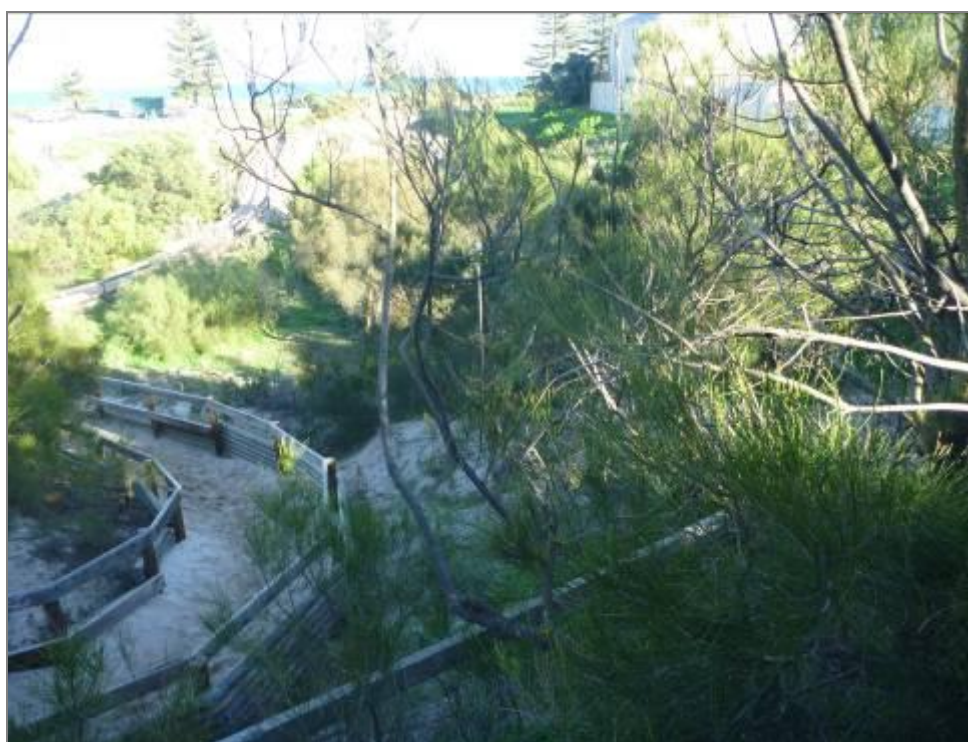


Figure 14. Management zone 7a - View from east to west.

Table 30. Management zone 7a – Revegetation species list.

Plant type	Species name	Common name	Quantity					Total
			Year 1	Year 2	Year 3	Year 4	Year 5	
Small trees<5m	<i>Allocasuarina verticillata</i>	Drooping Sheoak		8				8
	<i>Callitris gracilis</i>	Southern Cypress Pine		8				8
Tall shrub >2m	<i>Dodonaea viscosa ssp. spatulata</i>	Sticky Hop-bush				12		12
Medium shrub 0.5-2m	<i>Acacia cupularis</i>	Cup Wattle				5		5
	<i>Adriana quadripartita</i>	Coast Bitter-bush				10		10
	<i>Olearia axillaris</i>	Coast Daisy-bush				10		10
	<i>Rhagodia candolleana ssp.</i>	Sea-berry Saltbush				10		10
Small shrub <0.5m	<i>Enchylaena tomentosa var.</i>	Ruby Saltbush				10		10
	<i>Lotus australis</i>	Austral Trefoil				15		15
Herb	<i>Pelargonium australe</i>	Austral Stork's-bill				15		15
	<i>Senecio pinnatifolius var. lanceolatus</i>	Variable Groundsel				10		10
Mat plant	<i>Carpobrotus rossii</i>	Native Pigface				25		25
	<i>Kennedia prostrata</i>	Scarlet Runner				10		10
Grass	<i>Austrostipa flavescens</i>	Coast Spear-grass				50		50
	<i>Poa poiformis var. poiformis</i>	Coast Tussock-grass				50		50
Tussock	<i>Dianella brevicaulis</i>	Short-stem Flax-lily				50		50
	<i>Ficinia nodosa</i>	Knobby Club-rush				50		50
	<i>Lepidosperma gladiatum</i>	Coast Sword-sedge				50		50
Twiner/climber	<i>Billardiera cymosa ssp. cymosa</i>	Sweet Apple-berry				20		20
	<i>Clematis microphylla</i>	Old Man's Beard				20		20
	<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum				10		10
Sub total				116		432		448

Management zone 7b

Table 31. Management zone 7b overview.

Management zone 7b	
Size	0.022Ha – 217.7m ²
Topography	Gentle slope and hollow section; sloping down from the east to the west
Values	Contains a low number of native species (appears to be a result of past revegetation)
Management issues	<ul style="list-style-type: none"> • Contains three priority weed species • Contains scattered individuals of the introduced species <i>Casuarina glauca</i> (Grey Bul oak) • Sections of erosion, particularly bordering the pathway
Management aims	<ul style="list-style-type: none"> • Ongoing control of weed species as per Table 6 • Revegetate the area as per Table 32 • Control erosion
Priority weed species	<ul style="list-style-type: none"> • <i>Asparagus asparagoides</i> f. <i>asparagoides</i> (Bridal Creeper) • <i>Casuarina glauca</i> (Grey Bul oak) • <i>Phoenix canariensis</i> (Canary Island Palm)
Reference vegetation community	<i>Allocasuarina verticillata</i> (Drooping Sheoak), <i>Callitris gracilis</i> (Southern Cypress Pine), <i>Dodonaea viscosa</i> ssp. <i>spatulata</i> (Sticky Hop-bush) Low Open Woodland



Figure 15. Management zone 7b – View from west to east.

Table 32. Management zone 7b – Revegetation species list.

Plant type	Species name	Common name	Quantity					Total
			Year 1	Year 2	Year 3	Year 4	Year 5	
Small trees<5m	<i>Allocasuarina verticillata</i>	Drooping Sheoak			3			3
	<i>Callitris gracilis</i>	Southern Cypress Pine			2			2
Medium shrub 0.5-2m	<i>Olearia axillaris</i>	Coast Daisy-bush			4			4
Small shrub <0.5m	<i>Enchylaena tomentosa var.</i>	Ruby Saltbush			5			5
Herb	<i>Pelargonium australe</i>	Austral Stork's-bill			10			10
Mat plant	<i>Carpobrotus rossii</i>	Native Pigface			10			10
	<i>Kennedia prostrata</i>	Scarlet Runner			10			10
	<i>Kunzea pomifera</i>	Muntries			5			5
Grass	<i>Austrostipa flavescens</i>	Coast Spear-grass			15			15
	<i>Poa poiformis var. poiformis</i>	Coast Tussock-grass			15			15
Tussock	<i>Dianella brevicaulis</i>	Short-stem Flax-lily			15			15
	<i>Ficinia nodosa</i>	Knobby Club-rush			15			15
	<i>Lepidosperma gladiatum</i>	Coast Sword-sedge			15			15
Twiner/climber	<i>Clematis microphylla</i>	Old Man's Beard			10			10
	<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum			10			10
Sub total					144			144

5.18 Management zone 8

Table 33. Management zone 8 overview.

Management zone 8	
Size	0.193Ha – 1933.66m ²
Topography	Dune area
Values	Contains a range of native species (likely to be a mix of remnant vegetation and revegetation) including <i>Scaevola crassifolia</i> (Cushion Fanflower), <i>Spinifex hirsutus</i> (Rolling Spinifex), <i>Olearia axillaris</i> (Coast Daisy-bush) and <i>Kunzea pomifera</i> (Muntries)
Management issues	<ul style="list-style-type: none"> • Contains eight priority weed species • Sections of minor erosion, particularly bordering the pathway • The south-western bank may be prone to erosion as the majority of the area lacks native ground cover vegetation • Undesignated pathways • Low density of surface rubbish (i.e. old building rubble and backfill material)
Management aims	<ul style="list-style-type: none"> • Ongoing control of weed species as per Table 6 • Revegetate the area as per Table 34, this is to be done in conjunction with staggered removal of <i>Ammophila arenaria</i> (Marram Grass) • Control erosion • Removal of surface rubbish
Priority weed species	<ul style="list-style-type: none"> • <i>Acacia cyclops</i> (Western Coastal Wattle) • <i>Aloe arborescens</i> (Aloe) • <i>Ammophila arenaria</i> (Marram Grass) • <i>Cotyledon orbiculata</i> var. (Cotyledon) • <i>Foeniculum vulgare</i> (Fennel) • <i>Lycium ferocissimum</i> (Boxthorn) • <i>Olea europaea ssp. europaea</i> (Olive) • <i>Phoenix canariensis</i> (Canary Island Palm)
Reference vegetation community	<i>Olearia axillaris</i> (Coast Daisy-bush), <i>Scaevola crassifolia</i> (Cushion Fanflower), <i>Acacia cupularis</i> (Cup Wattle), <i>Lepidosperma gladiatum</i> (Coast Sword-sedge), <i>Ficinia nodosa</i> (Knobby Club-rush) Low Open Shrubland



Figure 16. Management zone 8 – View from west to east.

Table 34. Management zone 8 – Revegetation species list.

Plant type	Species name	Common name	Quantity					Total
			Year 1	Year 2	Year 3	Year 4	Year 5	
Tall shrub >2m	<i>Acacia longifolia ssp. sophorae</i>	Coastal Wattle			4			4
Medium shrub 0.5-2m	<i>Acacia cupularis</i>	Cup Wattle			5			5
	<i>Adriana quadripartita</i>	Coast Bitter-bush			10			10
	<i>Olearia axillaris</i>	Coast Daisy-bush			10			10
	<i>Rhagodia candolleana ssp.</i>	Sea-berry Saltbush			10			10
	<i>Scaevola crassifolia</i>	Cushion Fanflower			5			5
Small shrub <0.5m	<i>Lotus australis</i>	Austral Trefoil			20			20
Herb	<i>Pelargonium australe</i>	Austral Stork's-bill			20			20
Mat plant	<i>Carpobrotus rossii</i>	Native Pigface			25			25
	<i>Kennedia prostrata</i>	Scarlet Runner			20			20
	<i>Kunzea pomifera</i>	Muntries			10			10
Grass	<i>Poa poiformis var. poiformis</i>	Coast Tussock-grass			50			50
	<i>Spinifex hirsutus</i>	Rolling Spinifex			15			15
Tussock	<i>Dianella brevicaulis</i>	Short-stem Flax-lily			50			50
	<i>Ficinia nodosa</i>	Knobby Club-rush			50			50
	<i>Lepidosperma gladiatum</i>	Coast Sword-sedge			50			50
Twiner/climber	<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum			15			15
Sub total					369			369

5.19 Management zone 9a

Table 35. Management zone 9a overview.

Management zone 9a	
Size	0.076Ha – 763.45m ²
Topography	Very steep slope; sloping down from the north to the east
Management issues	<ul style="list-style-type: none"> Contains dense patches of <i>Senecio angulatus</i> (Cape Ivy), <i>Cotyledon orbiculata</i> var. (Cotyledon), <i>Agave americana</i> (Century Plant), <i>Aloe maculata</i> (Broad-leaf Aloe) and <i>Pelargonium</i> sp. (Storks-bill) The sloping bank may be prone to erosion if all of the weeds are controlled in a single round of treatment. Weed control should be staggered and carried out in conjunction with revegetation Undesignated pathway Medium to high density of surface rubbish (i.e. old building rubble and backfill material) The northern most section borders a residential property
Management aims	<ul style="list-style-type: none"> Ongoing control of weed species as per Table 6 Revegetate the area as per Table 36, this is to be done in conjunction with staggered weed control Control erosion Removal of surface rubbish Create/leave a 2 m wide vegetation free buffer along the residential fence line
Priority weed species	<ul style="list-style-type: none"> <i>Acacia saligna</i> (Golden Wreath Wattle) <i>Agave americana</i> (Century Plant) <i>Aloe arborescens</i> (Aloe) <i>Aloe maculata</i> (Broad-leaf Aloe) <i>Cotyledon orbiculata</i> var. (Cotyledon) <i>Foeniculum vulgare</i> (Fennel) <i>Olea europaea</i> ssp. <i>europaea</i> (Olive) <i>Senecio angulatus</i> (Cape Ivy)
Reference vegetation community	<i>Olearia axillaris</i> (Coast Daisy-bush), <i>Scaevola crassifolia</i> (Cushion Fanflower), <i>Acacia cupularis</i> (Cup Wattle), <i>Lepidosperma gladiatum</i> (Coast Sword-sedge), <i>Ficinia nodosa</i> (Knobby Club-rush) Low Open Shrubland



Figure 17. Management zone 9a – View from south to north.

Table 36. Management zone 9a – Revegetation species list.

Plant type	Species name	Common name	Quantity					Total
			Year 1	Year 2	Year 3	Year 4	Year 5	
Tall shrub >2m	<i>Santalum acuminatum</i>	Quandong			15			15
Medium shrub 0.5-2m	<i>Adriana quadripartita</i>	Coast Bitter-bush			20			20
	<i>Olearia axillaris</i>	Coast Daisy-bush			20			20
	<i>Rhagodia candolleana ssp.</i>	Sea-berry Saltbush			20			20
	<i>Scaevola crassifolia</i>	Cushion Fanflower			15			15
Small shrub <0.5m	<i>Enchylaena tomentosa var.</i>	Ruby Saltbush					20	20
	<i>Lotus australis</i>	Austral Trefoil					25	25
Herb	<i>Pelargonium australe</i>	Austral Stork's-bill					25	25
Mat plant	<i>Carpobrotus rossii</i>	Native Pigface					50	50
	<i>Kennedia prostrata</i>	Scarlet Runner					15	15
Grass	<i>Austrodanthonia caespitosa</i>	Common Wallaby-grass					20	20
	<i>Austrostipa flavescens</i>	Coast Spear-grass					50	50
	<i>Poa poiformis var. poiformis</i>	Coast Tussock-grass					50	50
Tussock	<i>Dianella brevicaulis</i>	Short-stem Flax-lily					50	50
	<i>Ficinia nodosa</i>	Knobby Club-rush					50	50
	<i>Lepidosperma gladiatum</i>	Coast Sword-sedge					50	50
Twiner/climber	<i>Billardiera cymosa ssp. cymosa</i>	Sweet Apple-berry					20	20
	<i>Clematis microphylla</i>	Old Man's Beard					20	20
	<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum					20	20
Sub total					90		465	555

5.20 Management zone 9b

Table 37. Management zone 9b overview.

Management zone 9b	
Size	0.079Ha – 785.83m ²
Topography	The western side of the zone contains a steep bank which slopes downwards in a west to east direction. The eastern side of the zone gently slopes upwards in a west to east direction.
Values	Contains range of native species (appears to be a result of past revegetation) including <i>Allocasuarina verticillata</i> (Drooping Sheoak), <i>Callitris gracilis</i> (Southern Cypress Pine) and <i>Dianella brevicaulis</i> (Short-stem Flax-lily)
Management issues	<ul style="list-style-type: none"> • Contains six priority weed species • Sections of erosion, particularly bordering the pathway • Low density of surface rubbish (i.e. old building rubble and backfill material)
Management aims	<ul style="list-style-type: none"> • Ongoing control of weed species as per Table 6 • Revegetate the area as per Table 38 • Control erosion
Priority weed species	<ul style="list-style-type: none"> • <i>Ammophila arenaria</i> (Marram Grass) • <i>Cotyledon orbiculata</i> var. (Cotyledon) • <i>Foeniculum vulgare</i> (Fennel) • <i>Lycium ferocissimum</i> (Boxthorn) • <i>Olea europaea</i> ssp. <i>europaea</i> (Olive) • <i>Retama raetam</i> (White Weeping Broom)
Reference vegetation community	<i>Allocasuarina verticillata</i> (Drooping Sheoak), <i>Callitris gracilis</i> (Southern Cypress Pine), <i>Dodonaea viscosa</i> ssp. <i>spatulata</i> (Sticky Hop-bush) Low Open Woodland



Figure 18. Management zone 9b – View from east to west.

Table 38. Management zone 9b – Revegetation species list.

Plant type	Species name	Common name	Quantity					Total
			Year 1	Year 2	Year 3	Year 4	Year 5	
Small trees<5m	<i>Allocasuarina verticillata</i>	Drooping Sheoak			2			2
	<i>Callitris gracilis</i>	Southern Cypress Pine			2			2
Tall shrub >2m	<i>Santalum acuminatum</i>	Quandong			5			5
Medium shrub 0.5-2m	<i>Adriana quadripartita</i>	Coast Bitter-bush			5			5
	<i>Olearia axillaris</i>	Coast Daisy-bush			4			4
	<i>Rhagodia candolleana ssp.</i>	Sea-berry Saltbush			5			5
	<i>Scaevola crassifolia</i>	Cushion Fanflower			2			2
Small shrub <0.5m	<i>Enchylaena tomentosa var.</i>	Ruby Saltbush			5			5
	<i>Lotus australis</i>	Austral Trefoil			5			5
Herb	<i>Pelargonium australe</i>	Austral Stork's-bill			5			5
Mat plant	<i>Carpobrotus rossii</i>	Native Pigface			10			10
	<i>Kennedia prostrata</i>	Scarlet Runner			5			5
Grass	<i>Austrodanthonia caespitosa</i>	Common Wallaby-grass			10			10
	<i>Austrostipa flavescens</i>	Coast Spear-grass			10			10
	<i>Poa poiformis var. poiformis</i>	Coast Tussock-grass			15			15
Tussock	<i>Dianella brevicaulis</i>	Short-stem Flax-lily			15			15
	<i>Ficinia nodosa</i>	Knobby Club-rush			15			15
	<i>Lepidosperma gladiatum</i>	Coast Sword-sedge			10			10
Twiner/climber	<i>Billardiera cymosa ssp. cymosa</i>	Sweet Apple-berry			10			10
	<i>Clematis microphylla</i>	Old Man's Beard			10			10
	<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum			5			5
Sub total					155			155

5.21 Management zone 10a

Table 39. Management zone 10a overview.

Management zone 10a	
Size	0.048Ha – 484.16m ²
Topography	Gentle slope; the area slopes down in a west to east direction
Values	Contains a low number of native species (appears to be a result of past revegetation) including <i>Melaleuca lanceolata</i> (Dry Land Tea-tree) and <i>Scaevola crassifolia</i> (Cushion Fanflower)
Management issues	<ul style="list-style-type: none"> • Contains two priority weed species • Illegal rubbish dumping
Management aims	<ul style="list-style-type: none"> • Ongoing control of weed species as per Table 6 • Revegetate the area as per Table 40
Priority weed species	<ul style="list-style-type: none"> • <i>Lycium ferocissimum</i> (Boxthorn) • <i>Olea europaea ssp. europaea</i> (Olive)
Reference vegetation community	<i>Olearia axillaris</i> (Coast Daisy-bush), <i>Scaevola crassifolia</i> (Cushion Fanflower) +/- <i>Melaleuca lanceolata</i> (Dryland Tea-tree) +/- <i>Myoporum insulare</i> (Common Boobialla) Open Shrubland



Figure 19. Management zone 10a – View from east to west.

Table 40. Management zone 10a – Revegetation species list.

Plant type	Species name	Common name	Quantity					Total
			Year 1	Year 2	Year 3	Year 4	Year 5	
Small shrub <0.5m	<i>Lotus australis</i>	Austral Trefoil			5			5
Herb	<i>Pelargonium australe</i>	Austral Stork's-bill			5			5
Mat plant	<i>Carpobrotus rossii</i>	Native Pigface			5			5
Grass	<i>Austrostipa flavescens</i>	Coast Spear-grass			5			5
	<i>Poa poiformis</i> var. <i>poiformis</i>	Coast Tussock-grass			5			5
Tussock	<i>Dianella brevicaulis</i>	Short-stem Flax-lily			5			5
	<i>Ficinia nodosa</i>	Knobby Club-rush			5			5
	<i>Lepidosperma gladiatum</i>	Coast Sword-sedge			5			5
Twiner/climber	<i>Clematis microphylla</i>	Old Man's Beard			10			10
	<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum			5			5
Sub total					55			55

5.22 Management zone 10b

Table 41. Management zone 10b overview.

Management zone 10b	
Size	0.015Ha – 154.8m ²
Topography	Relatively flat ground
Values	Contains a low number of native species (appears to be a result of past revegetation) including <i>Acacia pycnantha</i> (Golden Wattle) and <i>Dianella brevicaulis</i> (Short-stem Flax-lily).
Management aims	<ul style="list-style-type: none"> Revegetate the area as per Table 42
Reference vegetation community	<i>Allocasuarina verticillata</i> (Drooping Sheoak), <i>Callitris gracilis</i> (Southern Cypress Pine), <i>Dodonaea viscosa</i> ssp. <i>spatulata</i> (Sticky Hop-bush) Low Open Woodland



Figure 20. Management zone 10b – View from south to north.

Table 42. Management zone 10b – Revegetation species list.

Plant type	Species name	Common name	Quantity					Total
			Year 1	Year 2	Year 3	Year 4	Year 5	
Grass	<i>Austrostipa flavescens</i>	Coast Spear-grass			10			10
	<i>Poa poiformis</i> var. <i>poiformis</i>	Coast Tussock-grass			5			5
Tussock	<i>Dianella brevicaulis</i>	Short-stem Flax-lily			10			10
	<i>Ficinia nodosa</i>	Knobby Club-rush			10			10
	<i>Lepidosperma gladiatum</i>	Coast Sword-sedge			10			10
Twiner/climber	<i>Clematis microphylla</i>	Old Man's Beard			10			10
	<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum			5			5
Sub total					60			60

5.23 Management zone 11

Table 43. Management zone 11 overview.

Management zone 11	
Size	0.068Ha –681.05m ²
Topography	The area slopes upwards in a west to east direction
Management issues	<ul style="list-style-type: none"> • Contains three priority weed species • Illegal rubbish dumping
Management aims	<ul style="list-style-type: none"> • Ongoing control of weed species as per Table 6 • Ongoing monitoring and management of large <i>Pinus halepensis</i> (Aleppo Pine) – removal of dead or dangerous limbs and dead trees
Priority weed species	<ul style="list-style-type: none"> • <i>Lycium ferocissimum</i> (Boxthorn) • <i>Olea europaea ssp. europaea</i> (Olive) • <i>Pinus halepensis</i> (Aleppo Pine)
Reference vegetation community	Not applicable



Figure 21. Management zone 11 – View from north to south.

5.24 Management zone 12

Table 44. Management zone 12 overview.

Management zone 12	
Size	0.22Ha – 2201.13m ²
Topography	Low lying relatively flat area in the centre of the reserve
Values	Open grassland area for public use
Management issues	<ul style="list-style-type: none"> • Contains one priority weed species • Illegal rubbish dumping
Management aims	<ul style="list-style-type: none"> • Ongoing control of weed species as per Table 6 • Ongoing mowing and/or slashing of the area to retain the open grassland appearance
Priority weed species	<ul style="list-style-type: none"> • <i>Pinus halepensis</i> (Aleppo Pine)
Reference vegetation community	Not applicable



Figure 22. Management zone 12 – View from north to south.

5.25 Management zone 13

Table 45. Management zone 13 overview.

Management zone 13	
Size	0.328Ha – 3282.45m ²
Topography	Relatively flat ground; the centre of the area slopes down in a west to east direction and forms the start/end points for the pathway.
Values	Open grassland area for public use
Management issues	<ul style="list-style-type: none"> Contains four priority weed species Illegal rubbish dumping
Management aims	<ul style="list-style-type: none"> Ongoing control of weed species as per Table 6 Ongoing mowing and/or slashing of the area to retain the open grassland appearance Ongoing monitoring and management of large <i>Araucaria heterophylla</i> (Norfolk Island Pine) – removal of dead or dangerous limbs and dead trees
Priority weed species	<ul style="list-style-type: none"> <i>Leptospermum laevigatum</i> (Coast Tea-tree) <i>Lycium ferocissimum</i> (Boxthorn) <i>Olea europaea ssp. europaea</i> (Olive) <i>Rhamnus alaternus</i> (Blowfly Bush)
Reference vegetation community	Not applicable



Figure 23. Management zone 13 – View from west to east.

5.26 Management zone 14

Table 46. Management zone 14 overview.

Management zone 14	
Size	0.139Ha – 1389.18m ²
Topography	Relatively flat ground
Management issues	<ul style="list-style-type: none"> • Contains one priority weed species • Illegal rubbish dumping
Management aims	<ul style="list-style-type: none"> • Ongoing control of weed species as per Table 6 • Ongoing monitoring and management of large <i>Pinus halepensis</i> (Aleppo Pine) – removal of dead or dangerous limbs and dead trees
Priority weed species	<ul style="list-style-type: none"> • <i>Lycium ferocissimum</i> (Boxthorn)
Reference vegetation community	Not applicable



Figure 24. Management zone 14 – View from north to south.

5.27 Management zone 15

Table 47. Management zone 15 overview.

Management zone 15	
Size	0.065Ha – 645.33m ²
Topography	Relatively flat ground
Values	Contains a low number of native species (appears to be a result of past revegetation) including <i>Melaleuca lanceolata</i> (Dry Land Tea-tree) and <i>Scaevola crassifolia</i> (Cushion Fanflower)
Management issues	<ul style="list-style-type: none"> • Contains weed species including • May be prone to erosion as the majority of the area lacks native ground cover vegetation
Management aims	<ul style="list-style-type: none"> • Ongoing control of weed species as per Table 6 • Revegetate the area as per Table 48
Priority weed species	<ul style="list-style-type: none"> • <i>Lycium ferocissimum</i> (Boxthorn)
Reference vegetation community	<i>Allocasuarina verticillata</i> (Drooping Sheoak), <i>Callitris gracilis</i> (Southern Cypress Pine), <i>Dodonaea viscosa</i> ssp. <i>spatulata</i> (Sticky Hop-bush) Low Open Woodland



Figure 25. Management zone 15 – View from south-west to north-east.

Table 48. Management zone 15 – Revegetation species list.

Plant type	Species name	Common name	Quantity					Total
			Year 1	Year 2	Year 3	Year 4	Year 5	
Small trees<5m	<i>Allocasuarina verticillata</i>	Drooping Sheoak				4		4
	<i>Callitris gracilis</i>	Southern Cypress Pine				4		4
Medium shrub 0.5-2m	<i>Acacia cupularis</i>	Cup Wattle				4		4
	<i>Adriana quadripartita</i>	Coast Bitter-bush				6		6
	<i>Olearia axillaris</i>	Coast Daisy-bush				6		6
	<i>Rhagodia candolleana ssp.</i>	Sea-berry Saltbush				6		6
	<i>Scaevola crassifolia</i>	Cushion Fanflower				4		4
Small shrub <0.5m	<i>Enchylaena tomentosa var.</i>	Ruby Saltbush				10		10
	<i>Lotus australis</i>	Austral Trefoil				10		10
Herb	<i>Pelargonium australe</i>	Austral Stork's-bill				10		10
	<i>Senecio pinnatifolius var. lanceolatus</i>	Variable Groundsel				15		15
Mat plant	<i>Carpobrotus rossii</i>	Native Pigface				10		10
	<i>Kennedia prostrata</i>	Scarlet Runner				10		10
	<i>Kunzea pomifera</i>	Muntries				10		10
Grass	<i>Austrostipa flavescens</i>	Coast Spear-grass				15		15
	<i>Poa poiformis var. poiformis</i>	Coast Tussock-grass				15		15
Tussock	<i>Dianella brevicaulis</i>	Short-stem Flax-lily				15		15
	<i>Ficinia nodosa</i>	Knobby Club-rush				15		15
	<i>Lepidosperma gladiatum</i>	Coast Sword-sedge				10		10
Twiner/climber	<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum				10		10
Sub total						189		189

Table 49. Year 1 - Action plan and project costing.

Activity	Management zone	Actions	Timing	Cost details (Hours/Qty)	Total cost
Monitoring and/or trimming	3	Ongoing monitoring and management of a large <i>Pinus halepensis</i> (Aleppo Pine) – removal of dead or dangerous limbs and dead tree	As soon as possible	4	\$240.00
	4	Ongoing monitoring and management of a large <i>Phoenix canariensis</i> (Canary Island Palm) – removal of dead palm fronds and dead trees	As soon as possible	4	\$240.00
	5	Ongoing monitoring and management of a large <i>Pinus halepensis</i> (Aleppo Pine) – removal of dead or dangerous limbs and dead tree	As soon as possible	4	\$240.00
	11	Ongoing monitoring and management of large <i>Pinus halepensis</i> (Aleppo Pine) – removal of dead or dangerous limbs and dead trees	As soon as possible	4	\$240.00
	13	Ongoing monitoring and management of large <i>Araucaria heterophylla</i> (Norfolk Island Pine) – removal of dead or dangerous limbs and dead trees	As soon as possible	4	\$240.00
	14	Ongoing monitoring and management of large <i>Pinus halepensis</i> (Aleppo Pine) – removal of dead or dangerous limbs and dead trees	As soon as possible	4	\$240.00
Long term monitoring	To be selected	The set up of 2 bushland condition monitoring sites and report	As soon as possible	30	\$1,800.00
	To be selected	The set up of 10 permanent photo monitoring points and report	As soon as possible	5	\$300.00
Inspection and maintenance	All management zones	Inspection and maintenance (if required) to pathway fence - also include erosion controls	As soon as possible	30	\$1,800.00
Weed control	All management zones	Undertake weed control as per Table 7, Hierarchy of management. Only control species listed with a hierarchy of management score of 1, 2 or 3	When actively growing - Species dependant	300	\$18,000.00
	1a, 1b and 3	Site preparation for revegetation. Slash and herbicide spray 1m circles in preparation for planting	One month before commencing revegetation	30	\$1,800.00
Revegetation	1a, 1b and 3	Source tubestock (Total 848 plants)	June / July	\$3.00 each	\$2,544.00
	1a, 1b and 3	Plant tubestock (Total 848 plants)	June / July	\$3.00 each	\$2,544.00

Activity	Management zone	Actions	Timing	Cost details (Hours/Qty)	Total cost
Mowing/slashing	12 and 13	Mowing and slashing of parkland/open space areas	Approximately 18 events per annum at approximately 3 week intervals (subject to rainfall)	18	\$2,700.00
Total cost					\$32,928.00
Total cost + 10% contingency					\$36,220.80

Table 50. Year 2 - Action plan and project costing.

Activity	Management zone	Actions	Timing	Cost details (Hours/Qty)	Total cost
Weed control	All management zones	Undertake weed control as per Table 7, Hierarchy of management. Only control species listed with a hierarchy of management score of 4 and 5	When actively growing - Species dependant	150	\$9,000.00
Weed control (follow up)	All management zones	Follow up monitoring and control of weeds. Species controlled during year 1 with a hierarchy of management score of 1, 2 or 3	When actively growing - Species dependant	30	\$1,800.00
Surface rubbish removal	2a, 2c, 2d and 2e	Removal of old building rubble from surface layer	One month before commencing revegetation	20	\$1,200.00
Weed control	2a, 2b, 2c, 2d and 2e	Site preparation for revegetation. Slash and herbicide spray 1m circles in preparation for planting	One month before commencing revegetation	40	\$2,400.00
Revegetation	2a, 2b, 2c, 2d and 2e	Source tubestock (Total 1276 plants)	June / July	\$3.00 each	\$3,828.00
	2a, 2b, 2c, 2d and 2e	Plant tubestock (Total 1276 plants)	June / July	\$3.00 each	\$3,828.00
Weed control	6 and 7a	Thin out <i>Casuarina glauca</i> by approximately 50%	One month before commencing revegetation	50	\$3,000.00
Revegetation	6 and 7a	Source tubestock (Total 36 plants) (only planting overstorey species <i>Allocasuarina verticillata</i> and <i>Callitris gracilis</i>)	June / July	\$3.00 each	\$108.00
	6 and 7a	Plant tubestock (Total 36 plants) (only planting overstorey species <i>Allocasuarina verticillata</i> and <i>Callitris gracilis</i>)	June / July	\$3.00 each	\$108.00
Weed control	4	Site preparation for revegetation. Slash and herbicide spray 1m circles in preparation for planting	One month before commencing revegetation	6	\$360.00
Revegetation	4	Source tubestock (Total 180 plants)	June / July	\$3.00 each	\$540.00
	4	Plant tubestock (Total 180 plants)	June / July	\$3.00 each	\$540.00
Mowing/slashing	12 and 13	Mowing and slashing of parkland/open space areas	Approximately 18 events per annum at approximately 3 week intervals (subject to rainfall)	18	\$2,700.00

Activity	Management zone	Actions	Timing	Cost details (Hours/Qty)	Total cost
Long term monitoring	As selected in year 1	Survey and report of 2 bushland condition monitoring sites	September / November	24	\$1,440.00
	As selected in year 1	Survey and report of 10 photo points	September / November	3	\$180.00
Inspection and maintenance	All management zones	Inspection and maintenance (if required) to pathway fence - also include erosion controls	September / November	20	\$1,200.00
Total cost					\$32,232.00
Total cost + 10% contingency					\$35,455.20

Table 51. Year 3 - Action plan and project costing.

Activity	Management zone	Actions	Timing	Cost details (Hours/Qty)	Total cost
Weed control (follow up)	All management zones	Follow up monitoring and control of weeds. Species controlled during year 1 with a hierarchy of management score of 1, 2, 3, 4 or 5	When actively growing - Species dependant	80	\$4,800.00
Surface rubbish removal	8, 9b, 10a and 10b	Removal of old building rubble from surface layer	One month before commencing revegetation	40	\$2,400.00
Weed control	7b, 8, 9b, 10a and 10b	Site preparation for revegetation. Slash and herbicide spray 1m circles in preparation for planting	One month before commencing revegetation	20	\$1,200.00
Revegetation	7b, 8, 9b, 10a and 10b	Source tubestock (Total 783 plants)	June / July	\$3.00 each	\$2,349.00
	7b, 8, 9b, 10a and 10b	Plant tubestock (Total 783 plants)	June / July	\$3.00 each	\$2,349.00
Weed control	9a	Thin out <i>Pelargonium</i> sp., <i>Cotyledon orbiculata</i> var., <i>Agave americana</i> , <i>Senecio angulatus</i> and <i>Aloe maculata</i> by approximately 50%	One month before commencing revegetation	80	\$4,800.00
Surface rubbish removal	9a	Removal of old building rubble from surface layer	One month before commencing revegetation	30	\$1,800.00
Weed control	9a	Site preparation for revegetation. Slash and herbicide spray 1m circles in preparation for planting	One month before commencing revegetation	20	\$1,200.00
Revegetation	9a	Source tubestock (Total 90 plants) (only planting midstorey species, <i>Santalum acuminatum</i> , <i>Adriana quadripartita</i> , <i>Olearia axillaris</i> , <i>Rhagodia candolleana</i> ssp. and <i>Scaevola crassifolia</i>)	June / July	\$3.00 each	\$225.00
	9a	Plant tubestock (Total 90 plants) (only planting midstorey species, <i>Santalum acuminatum</i> , <i>Adriana quadripartita</i> , <i>Olearia axillaris</i> , <i>Rhagodia candolleana</i> ssp. and <i>Scaevola crassifolia</i>)	June / July	\$3.00 each	\$225.00
Mowing/slashing	12 and 13	Mowing and slashing of parkland/open space areas	Approximately 18 events per annum at approximately 3 week intervals (subject to rainfall)	18	\$2,700.00

Activity	Management zone	Actions	Timing	Cost details (Hours/Qty)	Total cost
Monitoring and/or trimming	3	Ongoing monitoring and management of a large <i>Pinus halepensis</i> (Aleppo Pine) – removal of dead or dangerous limbs and dead tree	June / July	4	\$240.00
	4	Ongoing monitoring and management of a large <i>Phoenix canariensis</i> (Canary Island Palm) – removal of dead palm fronds and dead trees	June / July	4	\$240.00
	5	Ongoing monitoring and management of a large <i>Pinus halepensis</i> (Aleppo Pine) – removal of dead or dangerous limbs and dead tree	June / July	4	\$240.00
	11	Ongoing monitoring and management of large <i>Pinus halepensis</i> (Aleppo Pine) – removal of dead or dangerous limbs and dead trees	June / July	4	\$240.00
	13	Ongoing monitoring and management of large <i>Araucaria heterophylla</i> (Norfolk Island Pine) – removal of dead or dangerous limbs and dead trees	June / July	4	\$240.00
	14	Ongoing monitoring and management of large <i>Pinus halepensis</i> (Aleppo Pine) – removal of dead or dangerous limbs and dead trees	June / July	4	\$240.00
Long term monitoring	As selected in year 1	Survey and report of 2 bushland condition monitoring sites	September / November	24	\$1,440.00
	As selected in year 1	Survey and report of 10 photopoints	September / November	3	\$180.00
Reporting	All management zones	Progress report	September / November	30	\$1,800.00
Inspection and maintenance	All management zones	Inspection and maintenance (if required) to pathway fence - also include erosion controls	September / November	20	\$1,200.00
Total cost					\$30,108.00
Total cost + 10% contingency					\$33,118.80

Table 52. Year 4 - Action plan and project costing.

Activity	Management zone	Actions	Timing	Cost details (Hours/Qty)	Total cost
Weed control (follow up)	All management zones	Follow up monitoring and control of weeds. Species controlled during year 1 with a hierarchy of management score of 1, 2, 3, 4 or 5	When actively growing - Species dependant	80	\$4,800.00
Weed control	5 and 15	Site preparation for revegetation. Slash and herbicide spray 1m circles in preparation for planting	One month before commencing revegetation	20	\$1,200.00
Revegetation	5 and 15	Source tubestock (Total 303 plants)	June / July	\$3.00 each	\$909.00
	5 and 15	Plant tubestock (Total 303 plants)	June / July	\$3.00 each	\$909.00
Weed control	6 and 7a	Thin out <i>Casuarina glauca</i> by approximately 50% (bring to a total of 100%)	One month before commencing revegetation	50	\$3,000.00
Revegetation	6 and 7a	Source tubestock (Total remaining 799 plants)	June / July	\$3.00 each	\$2,397.00
	6 and 7a	Plant tubestock (Total remaining 799 plants)	June / July	\$3.00 each	\$2,397.00
Long term monitoring	As selected in year 1	Survey and report of 2 bushland condition monitoring sites	September / November	24	\$1,440.00
Long term monitoring	As selected in year 1	Survey and report of 10 photopoints	September / November	3	\$180.00
Review of management plan	All management zones	Review of management plan and re-new for following 5 year period	September / November	130	\$7,800.00
Mowing/slashing	12 and 13	Mowing and slashing of parkland/open space areas	Approximately 18 events per annum at approximately 3 week intervals (subject to rainfall)	18	\$2,700.00
Inspection and maintenance	All management zones	Inspection and maintenance (if required) to pathway fence - also include erosion controls	September / November	10	\$600.00
Total cost					\$28,332.00
Total cost + 10% contingency					\$31,165.20

Table 53. Year 5 - Action plan and project costing.

Activity	Management zone	Actions	Timing	Cost details (Hours/Qty)	Total cost
Weed control (follow up)	All management zones	Follow up monitoring and control of weeds. Species controlled during year 1 with a hierarchy of management score of 1, 2, 3, 4 or 5	When actively growing - Species dependant	80	\$4,800.00
Weed control	9a	Thin out <i>Pelargonium</i> sp., <i>Cotyledon orbiculata</i> var., <i>Agave americana</i> , <i>Senecio angulatus</i> and <i>Aloe maculata</i> by approximately 50% (bring to a total of 100%)	One month before commencing revegetation	50	\$3,000.00
Revegetation	9a	Source tubestock (Total remaining 465 plants)	June / July	\$3.00 each	\$1,395.00
	9a	Plant tubestock (Total remaining 465 plants)	June / July	\$3.00 each	\$1,395.00
Long term monitoring	As selected in year 1	Survey and report of 2 bushland condition monitoring sites	September / November	24	\$1,440.00
	As selected in year 1	Survey and report of 10 photo points	September / November	3	\$180.00
Mowing/slashing	12 and 13	Mowing and slashing of parkland/open space areas	Approximately 18 events per annum at approximately 3 week intervals (subject to rainfall)	18	\$2,700.00
Inspection and maintenance	All management zones	Inspection and maintenance (if required) to pathway fence - also include erosion controls	September / November	20	\$1,200.00
Total cost					\$16,110.00
Total cost + 10% contingency					\$17,721.00

Table 54. Project costing totals.

Year 1	
Total cost	\$32,928.00
Total cost + 10% contingency	\$36,220.80
Year 2	
Total cost	\$32,232.00
Total cost + 10% contingency	\$35,455.20
Year 3	
Total cost	\$30,108.00
Total cost + 10% contingency	\$33,118.80
Year 4	
Total cost	\$28,332.00
Total cost + 10% contingency	\$31,165.20
Year 5	
Total cost Year 5	\$16,110.00
Total cost + 10% contingency	\$17,721.00
Total cost	\$139,710.00
Total cost + 10% contingency	\$153,681.00

6 REFERENCES

Bureau of Meteorology (2013). *Daily Weather Observations*, South Australia <http://www.bom.gov.au>

Caton B, Fotheringham D, Lock C, Royal M, Sandercock R and Taylor R (2007) *Southern Fleurieu Coastal Action Plan and Conservation Priority Study*. Prepared for Adelaide and Mount Lofty NRM Board, Alexandrina Council, City of Victor Harbor, District Council of Yankalilla, Goolwa to Wellington Local Action Plan and Department for Environment and Heritage.

Cordingley, S. P. and Petherick, C. E. (2006), *Vegetation Management Plan Semaphore Park Coastal Reserve*, SA Urban Forest Biodiversity Program, Adelaide.

Kraehenbuehl, D. (1996) *Pre-European Vegetation of Adelaide: A survey from the Gawler River to Hallett Cove*. Nature Conservation Society of South Australia Inc, Adelaide.

Morcombe M. (2000) *Field Guide to Australian Birds*. Steve Parish Publishing, Archerfield.

NCSSA (2005) *Bushland Condition Monitoring Manual: Southern Mount Lofty Ranges, Volume 1 -3*. The Nature Conservation Society of South Australia

NCSSA (2006) *Bushland Condition Monitoring Manual: Southern Mount Lofty Ranges, Coastal Vegetation Communities of the Southern Mount Lofty Ranges*. The Nature Conservation Society of South Australia

SA Urban Forest Biodiversity Program (2006) *Priority Conservation Areas – White Hollow Reserve*. Prepared for the City of Port Adelaide Enfield.

State of Environment Report, June 2007. City of Port Adelaide Enfield.

7 APPENDICES

Appendix 1. Weed control methodology.

There are a variety of weed control methods that can be utilised to effectively control different weed species. Weed control methods include cutting and swabbing, stump injection, drilling and filling, spot spraying and hand pulling. The way to carry out each method effectively and safely is detailed below:

Cut and swab

- Cut off all stems as low as possible using a chainsaw or pruning saw, secateurs or long-handled loppers. The cut must be horizontal so that the herbicide rests on the cut area while being absorbed, rather than running down the side of the stem;
- Stumps will be left in the ground so as to not disturb the soil and to help retain the soil in place i.e. reduce the likelihood of soil erosion;
- Remove all stems from the stump, so that no active (or green) branches/shoots remain, no matter how small they are;
- Liberally swab all cut surfaces immediately with the herbicide mixture. This must be done preferably within half a minute, or immediately if possible. The cut surface cannot be allowed to dry out, otherwise the herbicide will be much less effective. Use a paintbrush, swabber or squeeze bottle (laboratory) to apply the herbicide mixture. Add a dye to the herbicide mixture that will help indicate where swabbing has already been done;
- The tissues that take up and move the poison are immediately under the bark layer, so concentrate on applying the poison around the outer rim of the stump;
- Follow up work may be required. If the stumps re-sprout which can be common with some species, then cut and swab or spray the new regrowth with the herbicide;
- The most effective time of the year to cut and swab plants is when they are actively growing, which varies between species.

Drill and fill

- Drill a steeply angled hole into the plant's cambium layer (where sap flows just beneath the bark layer) with a cordless drill, using a 10mm drill bit;
- The holes should be as close to the base of the plant as possible, and it is essential for the hole to be steeply angled into the cambium otherwise the herbicide will not be absorbed into the sap flow;
- Immediately after the hole has been drilled, it should be filled with herbicide. Syringes (without the needle) or squeeze bottles can be used to administer the herbicide into the hole;
- Holes are drilled every 2.5-5cm until the base of the plant has been circled;
- Follow up work may be required. If the plant re-sprouts which can be common with some species, then the process needs to be repeated.

Frilling

- For large and medium sized trees and shrubs with a large stump or lignotuber the following “Frilling” method is recommended. It can be used in conjunction with the cut and swab method or the drill and fill method to get a higher dose of herbicide into the plant, and to get a more thorough application of herbicide;
- After the plant has been cut and swabbed, make regular extra cuts into the remaining stump and any exposed roots with a hammer and chisel to expose the sapwood. Immediately fill chisel marks with the herbicide mixture in the squeeze bottle. This provides more surface area for the herbicide to penetrate, and ensures a good dose of herbicide. This method, used in conjunction with either the cut and swab method or drill and fill method, should provide a much better kill rate when compared to the cut and swab method or drill and fill method by themselves.

Spraying

- The most effective time of the year to spray is when the plant is actively growing;
- Look for native plants and cover with plastic bags or sheeting while spraying. If there are too many native plants amongst the weeds then this method should not be used;
- Always read the label on the herbicide container, follow the instructions and wear protective clothing. Dilute the mixture as recommended. Add a dye to the herbicide mixture that will help to indicate where spraying has already been done;
- If spraying near creeks or other water bodies, care needs to be taken due to the aquatic environment. Herbicides can have a negative effect on aquatic fauna such as frogs. It is preferable to use other more accurate methods such as cut and swab and drill and fill along creek lines;
- Surfactants can also be used when spraying plants such as Bridal Creeper which have a waxy leaf surface. A surfactant can be added to the herbicide mix which will increase the uptake of the poison through the waxy leaf surface. Surfactants should not be used on or near plants growing in water as they are suspected of affecting frogs;
- Where weeds have narrow vertical leaves, spraying might result in herbicide running off or drifting onto non-target plants. In this situation, wipe on the herbicide mixture with a weed wand, sponge or wick applicator;
- To increase the effectiveness of the herbicide whilst spraying large tussocks of grass, the grass can be slashed and then left to re-grow for several weeks. The regrowth can then be sprayed.

Mechanical Removal

- Some weed species can be removed using machinery. This can either be done on a broad scale where there is a high level of soil disturbance (e.g. using an excavator) or on a smaller scale using equipment such as ‘tree poppers’.
- A tree popper is a practical tool which allows the easy removal of small woody weeds. It comes in three sizes and is relatively easy to use. A small jaw is placed around the stem of the plant to

be removed, the handle is then pulled down so that pressure is placed on the base plate and the plant. The plant is then levered out of the ground with minimal soil disturbance.

- Up to medium size (2-3m tall) woody weeds can be removed utilising this tool. The tree popper should be utilised when the soil is moist as it will be easier to use and less damage will be caused to the surrounding environment.

Hand Pulling / Chipping

- Hand pulling of smaller plants is easiest in the wetter months of the year when the soil is soft and the seedlings are much easier to pull out;
- Seedlings: take hold of the plant at ground level and pull. If you pull at any point higher on the stem it may break and the plant will then require swabbing with herbicide;
- Small woody plants: Take hold of the stem at ground level and gently rock the plant back and forth until it comes away cleanly;
- For species that have a bulb, such as sparaxis or watsonia, a screw driver can be used to gently lift the bulb out of the ground;
- If possible place both feet or fingers on either side of the plant when pulling out. This helps to keep the soil in place and avoids unnecessary disturbance of the soil.
- To chip plants out, use a mattock to remove plants from the ground. Minimise soil disturbance whilst undertaking this activity but ensure that the entire plant and where possible, all of the roots are removed. A number of plants can re-shoot from roots left in the ground. Ensure that any disturbed soil is replaced and patted down.

Appendix 2. Location of weed species for control.

Map reference number	Species name	Common name	Location (54H)		Size
			Easting	Northing	
Point data					
1	<i>Acacia saligna</i>	Golden Wreath Wattle	270628	6145308	L
2	<i>Acacia saligna</i>	Golden Wreath Wattle	270651	6145284	S
3	<i>Acacia saligna</i>	Golden Wreath Wattle	270649	6145384	S
4	<i>Acacia saligna</i>	Golden Wreath Wattle	270652	6145382	S
5	<i>Acacia saligna</i>	Golden Wreath Wattle	270642	6145383	L
6	<i>Agave americana</i>	Century Plant	270657	6145370	S
7	<i>Agave americana</i>	Century Plant	270657	6145371	S
8	<i>Agave americana</i>	Century Plant	270656	6145371	S
9	<i>Agave americana</i>	Century Plant	270656	6145371	S
10	<i>Agave americana</i>	Century Plant	270656	6145371	S
11	<i>Agave americana</i>	Century Plant	270656	6145372	S
12	<i>Agave americana</i>	Century Plant	270657	6145372	S
13	<i>Agave americana</i>	Century Plant	270657	6145372	S
14	<i>Agave americana</i>	Century Plant	270658	6145373	S
15	<i>Agave americana</i>	Century Plant	270658	6145373	S
16	<i>Agave americana</i>	Century Plant	270657	6145374	S
17	<i>Agave americana</i>	Century Plant	270661	6145376	S
18	<i>Agave americana</i>	Century Plant	270663	6145373	S
19	<i>Agave americana</i>	Century Plant	270663	6145374	S
20	<i>Agave americana</i>	Century Plant	270663	6145374	S
21	<i>Agave americana</i>	Century Plant	270663	6145374	S
22	<i>Agave americana</i>	Century Plant	270663	6145375	S
23	<i>Agave americana</i>	Century Plant	270663	6145375	S
24	<i>Agave americana</i>	Century Plant	270663	6145375	S
25	<i>Aloe arborescens</i>	Aloe	270575	6145365	L
26	<i>Aloe maculata</i>	Broad-leaf Aloe	270631	6145379	S
27	<i>Aloe maculata</i>	Broad-leaf Aloe	270631	6145379	S
28	<i>Aloe maculata</i>	Broad-leaf Aloe	270631	6145379	S
29	<i>Aloe maculata</i>	Broad-leaf Aloe	270631	6145379	S
30	<i>Aloe maculata</i>	Broad-leaf Aloe	270631	6145380	S
31	<i>Aloe maculata</i>	Broad-leaf Aloe	270631	6145380	S
32	<i>Aloe maculata</i>	Broad-leaf Aloe	270631	6145379	S
33	<i>Aloe maculata</i>	Broad-leaf Aloe	270636	6145379	S
34	<i>Aloe maculata</i>	Broad-leaf Aloe	270637	6145379	S
35	<i>Asparagus asparagoides f. asparagoides</i>	Bridal Creeper	270668	6145375	S
36	<i>Asparagus asparagoides f. asparagoides</i>	Bridal Creeper	270655	6145359	S
37	<i>Asparagus asparagoides f. asparagoides</i>	Bridal Creeper	270670	6145365	S
38	<i>Asparagus asparagoides f. asparagoides</i>	Bridal Creeper	270670	6145373	S
39	<i>Cotyledon orbiculata var.</i>	Cotyledon	270583	6145370	S
40	<i>Cotyledon orbiculata var.</i>	Cotyledon	270582	6145369	S

Map reference number	Species name	Common name	Location (54H)		Size
			Easting	Northing	
41	<i>Cotyledon orbiculata</i> var.	Cotyledon	270581	6145370	S
42	<i>Cotyledon orbiculata</i> var.	Cotyledon	270581	6145371	S
43	<i>Cotyledon orbiculata</i> var.	Cotyledon	270581	6145369	S
44	<i>Cotyledon orbiculata</i> var.	Cotyledon	270579	6145368	S
45	<i>Cotyledon orbiculata</i> var.	Cotyledon	270580	6145369	S
46	<i>Cotyledon orbiculata</i> var.	Cotyledon	270567	6145360	S
47	<i>Cotyledon orbiculata</i> var.	Cotyledon	270566	6145359	S
48	<i>Cotyledon orbiculata</i> var.	Cotyledon	270564	6145359	S
49	<i>Cotyledon orbiculata</i> var.	Cotyledon	270563	6145358	S
50	<i>Cotyledon orbiculata</i> var.	Cotyledon	270562	6145358	S
51	<i>Cotyledon orbiculata</i> var.	Cotyledon	270596	6145366	S
52	<i>Cotyledon orbiculata</i> var.	Cotyledon	270603	6145375	S
53	<i>Cotyledon orbiculata</i> var.	Cotyledon	270640	6145361	S
54	<i>Foeniculum vulgare</i>	Fennel	270552	6145367	L
55	<i>Foeniculum vulgare</i>	Fennel	270554	6145362	L
56	<i>Foeniculum vulgare</i>	Fennel	270556	6145358	L
57	<i>Foeniculum vulgare</i>	Fennel	270558	6145359	L
58	<i>Foeniculum vulgare</i>	Fennel	270558	6145357	L
59	<i>Foeniculum vulgare</i>	Fennel	270563	6145350	L
60	<i>Foeniculum vulgare</i>	Fennel	270577	6145367	L
61	<i>Foeniculum vulgare</i>	Fennel	270581	6145364	L
62	<i>Foeniculum vulgare</i>	Fennel	270581	6145369	L
63	<i>Foeniculum vulgare</i>	Fennel	270610	6145369	L
64	<i>Foeniculum vulgare</i>	Fennel	270624	6145369	L
65	<i>Foeniculum vulgare</i>	Fennel	270630	6145376	L
66	<i>Foeniculum vulgare</i>	Fennel	270637	6145382	L
67	<i>Foeniculum vulgare</i>	Fennel	270641	6145381	L
68	<i>Foeniculum vulgare</i>	Fennel	270625	6145361	L
69	<i>Foeniculum vulgare</i>	Fennel	270631	6145364	L
70	<i>Foeniculum vulgare</i>	Fennel	270602	6145342	L
71	<i>Foeniculum vulgare</i>	Fennel	270597	6145342	L
72	<i>Foeniculum vulgare</i>	Fennel	270594	6145338	L
73	<i>Foeniculum vulgare</i>	Fennel	270594	6145344	L
74	<i>Foeniculum vulgare</i>	Fennel	270596	6145347	L
75	<i>Foeniculum vulgare</i>	Fennel	270596	6145347	L
76	<i>Foeniculum vulgare</i>	Fennel	270596	6145348	L
77	<i>Foeniculum vulgare</i>	Fennel	270597	6145347	L
78	<i>Foeniculum vulgare</i>	Fennel	270596	6145348	L
79	<i>Foeniculum vulgare</i>	Fennel	270593	6145348	L
80	<i>Foeniculum vulgare</i>	Fennel	270591	6145349	L
81	<i>Foeniculum vulgare</i>	Fennel	270597	6145350	L
82	<i>Foeniculum vulgare</i>	Fennel	270598	6145352	L

Map reference number	Species name	Common name	Location (54H)		Size
			Easting	Northing	
83	<i>Foeniculum vulgare</i>	Fennel	270606	6145354	L
84	<i>Foeniculum vulgare</i>	Fennel	270596	6145334	L
85	<i>Foeniculum vulgare</i>	Fennel	270598	6145281	L
86	<i>Foeniculum vulgare</i>	Fennel	270598	6145279	L
87	<i>Foeniculum vulgare</i>	Fennel	270599	6145279	L
88	<i>Foeniculum vulgare</i>	Fennel	270599	6145277	L
89	<i>Foeniculum vulgare</i>	Fennel	270595	6145278	L
90	<i>Foeniculum vulgare</i>	Fennel	270596	6145280	L
91	<i>Foeniculum vulgare</i>	Fennel	270573	6145349	L
92	<i>Foeniculum vulgare</i>	Fennel	270621	6145296	S
93	<i>Fraxinus angustifolia</i> ssp. <i>angustifolia</i>	Desert Ash	270590	6145291	L
94	<i>Fraxinus angustifolia</i> ssp. <i>angustifolia</i>	Desert Ash	270558	6145287	M
95	<i>Juncus acutus</i>	Sharp Rush	270589	6145286	L
96	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270572	6145344	L
97	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270573	6145349	S
98	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270578	6145344	S
99	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270578	6145344	S
100	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270580	6145346	S
101	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270580	6145346	S
102	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270580	6145346	S
103	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270580	6145346	S
104	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270581	6145348	S
105	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270581	6145349	S
106	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270582	6145349	S
107	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270582	6145350	S
108	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270583	6145350	S
109	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270582	6145350	S
110	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270582	6145352	S
111	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270582	6145352	S
112	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270586	6145340	M
113	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270587	6145342	S
114	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270587	6145342	S
115	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270588	6145342	S
116	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270588	6145343	S
117	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270588	6145343	S
118	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270588	6145342	S
119	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270588	6145345	S
120	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270588	6145345	S
121	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270589	6145349	S
122	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270589	6145349	S
123	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270589	6145349	S
124	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270590	6145350	S

Map reference number	Species name	Common name	Location (54H)		Size
			Easting	Northing	
125	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270550	6145272	L
126	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270543	6145245	L
127	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270544	6145254	L
128	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270540	6145253	L
129	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270609	6145281	L
130	<i>Leptospermum laevigatum</i>	Coast Tea-tree	270609	6145280	L
131	<i>Lycium ferocissimum</i>	African Boxthorn	270628	6145308	L
132	<i>Lycium ferocissimum</i>	African Boxthorn	270631	6145319	S
133	<i>Lycium ferocissimum</i>	African Boxthorn	270569	6145326	S
134	<i>Lycium ferocissimum</i>	African Boxthorn	270570	6145347	S
135	<i>Lycium ferocissimum</i>	African Boxthorn	270548	6145311	S
136	<i>Lycium ferocissimum</i>	African Boxthorn	270549	6145315	S
137	<i>Lycium ferocissimum</i>	African Boxthorn	270552	6145313	S
138	<i>Lycium ferocissimum</i>	African Boxthorn	270558	6145302	S
139	<i>Lycium ferocissimum</i>	African Boxthorn	270561	6145298	S
140	<i>Lycium ferocissimum</i>	African Boxthorn	270568	6145262	S
141	<i>Lycium ferocissimum</i>	African Boxthorn	270581	6145269	S
142	<i>Lycium ferocissimum</i>	African Boxthorn	270591	6145265	S
143	<i>Lycium ferocissimum</i>	African Boxthorn	270590	6145263	S
144	<i>Lycium ferocissimum</i>	African Boxthorn	270590	6145263	S
145	<i>Lycium ferocissimum</i>	African Boxthorn	270590	6145263	S
146	<i>Lycium ferocissimum</i>	African Boxthorn	270591	6145262	S
147	<i>Lycium ferocissimum</i>	African Boxthorn	270626	6145258	S
148	<i>Lycium ferocissimum</i>	African Boxthorn	270625	6145259	S
149	<i>Lycium ferocissimum</i>	African Boxthorn	270558	6145378	S
150	<i>Lycium ferocissimum</i>	African Boxthorn	270592	6145378	M
151	<i>Lycium ferocissimum</i>	African Boxthorn	270593	6145379	M
152	<i>Lycium ferocissimum</i>	African Boxthorn	270594	6145379	S
153	<i>Lycium ferocissimum</i>	African Boxthorn	270593	6145380	M
154	<i>Lycium ferocissimum</i>	African Boxthorn	270658	6145286	S
155	<i>Lycium ferocissimum</i>	African Boxthorn	270681	6145285	S
156	<i>Lycium ferocissimum</i>	African Boxthorn	270675	6145284	S
157	<i>Lycium ferocissimum</i>	African Boxthorn	270678	6145278	S
158	<i>Lycium ferocissimum</i>	African Boxthorn	270678	6145277	S
159	<i>Lycium ferocissimum</i>	African Boxthorn	270677	6145277	S
160	<i>Lycium ferocissimum</i>	African Boxthorn	270670	6145274	S
161	<i>Lycium ferocissimum</i>	African Boxthorn	270674	6145271	S
162	<i>Lycium ferocissimum</i>	African Boxthorn	270675	6145269	S
163	<i>Lycium ferocissimum</i>	African Boxthorn	270678	6145268	S
164	<i>Lycium ferocissimum</i>	African Boxthorn	270679	6145268	S
165	<i>Lycium ferocissimum</i>	African Boxthorn	270676	6145265	S
166	<i>Lycium ferocissimum</i>	African Boxthorn	270679	6145266	S

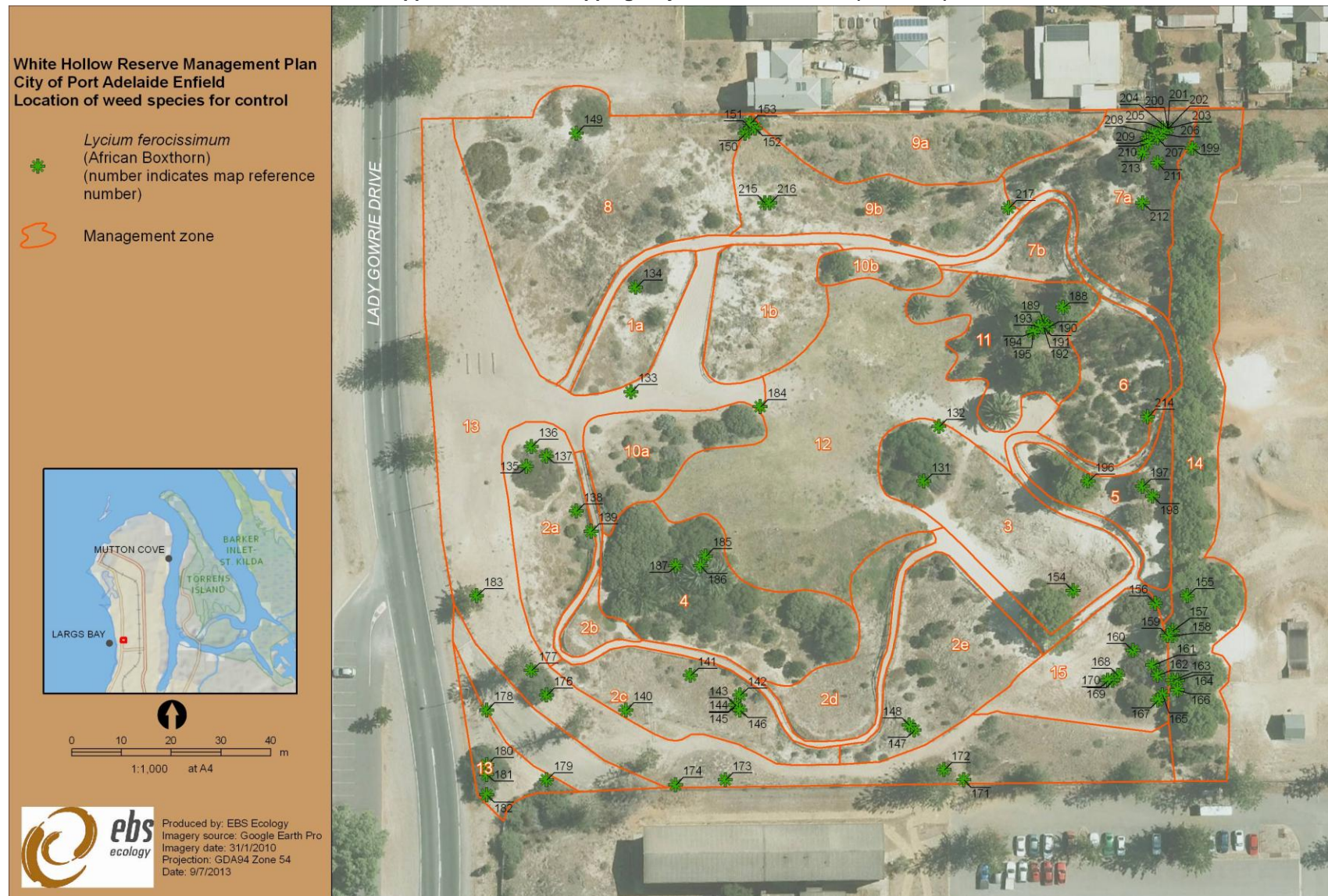
Map reference number	Species name	Common name	Location (54H)		Size
			Easting	Northing	
167	<i>Lycium ferocissimum</i>	African Boxthorn	270675	6145264	S
168	<i>Lycium ferocissimum</i>	African Boxthorn	270667	6145269	S
169	<i>Lycium ferocissimum</i>	African Boxthorn	270666	6145268	S
170	<i>Lycium ferocissimum</i>	African Boxthorn	270665	6145268	S
171	<i>Lycium ferocissimum</i>	African Boxthorn	270636	6145248	S
172	<i>Lycium ferocissimum</i>	African Boxthorn	270632	6145250	S
173	<i>Lycium ferocissimum</i>	African Boxthorn	270588	6145248	S
174	<i>Lycium ferocissimum</i>	African Boxthorn	270578	6145247	S
175	<i>Lycium ferocissimum</i>	African Boxthorn	270552	6145265	S
176	<i>Lycium ferocissimum</i>	African Boxthorn	270552	6145265	S
177	<i>Lycium ferocissimum</i>	African Boxthorn	270549	6145270	S
178	<i>Lycium ferocissimum</i>	African Boxthorn	270541	6145263	S
179	<i>Lycium ferocissimum</i>	African Boxthorn	270552	6145248	S
180	<i>Lycium ferocissimum</i>	African Boxthorn	270540	6145251	S
181	<i>Lycium ferocissimum</i>	African Boxthorn	270540	6145249	S
182	<i>Lycium ferocissimum</i>	African Boxthorn	270540	6145245	S
183	<i>Lycium ferocissimum</i>	African Boxthorn	270538	6145285	S
184	<i>Lycium ferocissimum</i>	African Boxthorn	270595	6145323	S
185	<i>Lycium ferocissimum</i>	African Boxthorn	270584	6145293	M
186	<i>Lycium ferocissimum</i>	African Boxthorn	270583	6145291	S
187	<i>Lycium ferocissimum</i>	African Boxthorn	270578	6145291	M
188	<i>Lycium ferocissimum</i>	African Boxthorn	270656	6145343	M
189	<i>Lycium ferocissimum</i>	African Boxthorn	270652	6145340	S
190	<i>Lycium ferocissimum</i>	African Boxthorn	270653	6145339	S
191	<i>Lycium ferocissimum</i>	African Boxthorn	270652	6145339	S
192	<i>Lycium ferocissimum</i>	African Boxthorn	270652	6145339	S
193	<i>Lycium ferocissimum</i>	African Boxthorn	270651	6145339	S
194	<i>Lycium ferocissimum</i>	African Boxthorn	270650	6145338	S
195	<i>Lycium ferocissimum</i>	African Boxthorn	270650	6145338	S
196	<i>Lycium ferocissimum</i>	African Boxthorn	270661	6145308	S
197	<i>Lycium ferocissimum</i>	African Boxthorn	270672	6145307	S
198	<i>Lycium ferocissimum</i>	African Boxthorn	270674	6145305	S
199	<i>Lycium ferocissimum</i>	African Boxthorn	270682	6145375	S
200	<i>Lycium ferocissimum</i>	African Boxthorn	270677	6145379	S
201	<i>Lycium ferocissimum</i>	African Boxthorn	270677	6145379	S
202	<i>Lycium ferocissimum</i>	African Boxthorn	270677	6145379	S
203	<i>Lycium ferocissimum</i>	African Boxthorn	270677	6145379	S
204	<i>Lycium ferocissimum</i>	African Boxthorn	270677	6145379	S
205	<i>Lycium ferocissimum</i>	African Boxthorn	270676	6145379	S
206	<i>Lycium ferocissimum</i>	African Boxthorn	270676	6145378	S
207	<i>Lycium ferocissimum</i>	African Boxthorn	270675	6145377	S
208	<i>Lycium ferocissimum</i>	African Boxthorn	270674	6145378	S

Map reference number	Species name	Common name	Location (54H)		Size
			Easting	Northing	
209	<i>Lycium ferocissimum</i>	African Boxthorn	270673	6145377	S
210	<i>Lycium ferocissimum</i>	African Boxthorn	270673	6145376	S
211	<i>Lycium ferocissimum</i>	African Boxthorn	270675	6145372	S
212	<i>Lycium ferocissimum</i>	African Boxthorn	270672	6145364	M
213	<i>Lycium ferocissimum</i>	African Boxthorn	270672	6145374	M
214	<i>Lycium ferocissimum</i>	African Boxthorn	270673	6145321	S
215	<i>Lycium ferocissimum</i>	African Boxthorn	270596	6145364	S
216	<i>Lycium ferocissimum</i>	African Boxthorn	270597	6145364	M
217	<i>Lycium ferocissimum</i>	African Boxthorn	270645	6145363	S
218	<i>Olea europaea ssp. europaea</i>	Olive	270568	6145340	M
219	<i>Olea europaea ssp. europaea</i>	Olive	270571	6145343	S
220	<i>Olea europaea ssp. europaea</i>	Olive	270569	6145363	M
221	<i>Olea europaea ssp. europaea</i>	Olive	270643	6145254	S
222	<i>Olea europaea ssp. europaea</i>	Olive	270643	6145255	M
223	<i>Olea europaea ssp. europaea</i>	Olive	270631	6145249	S
224	<i>Olea europaea ssp. europaea</i>	Olive	270598	6145248	S
225	<i>Olea europaea ssp. europaea</i>	Olive	270593	6145319	S
226	<i>Olea europaea ssp. europaea</i>	Olive	270627	6145344	M
227	<i>Olea europaea ssp. europaea</i>	Olive	270652	6145345	S
228	<i>Olea europaea ssp. europaea</i>	Olive	270655	6145343	S
229	<i>Olea europaea ssp. europaea</i>	Olive	270657	6145344	S
230	<i>Olea europaea ssp. europaea</i>	Olive	270656	6145341	S
231	<i>Olea europaea ssp. europaea</i>	Olive	270656	6145340	S
232	<i>Olea europaea ssp. europaea</i>	Olive	270658	6145339	S
233	<i>Olea europaea ssp. europaea</i>	Olive	270659	6145340	S
234	<i>Olea europaea ssp. europaea</i>	Olive	270659	6145341	S
235	<i>Olea europaea ssp. europaea</i>	Olive	270614	6145368	S
236	<i>Olea europaea ssp. europaea</i>	Olive	270640	6145360	S
237	<i>Opuntia monacantha</i>	Drooping Prickly Pear	270641	6145343	S
238	<i>Opuntia monacantha</i>	Drooping Prickly Pear	270646	6145344	S
239	<i>Opuntia monacantha</i>	Drooping Prickly Pear	270636	6145374	M
240	<i>Pelargonium sp.</i>	Storks-bill	270633	6145378	L
241	<i>Pelargonium sp.</i>	Storks-bill	270634	6145377	M
242	<i>Phoenix canariensis</i>	Canary Island Palm	270538	6145371	S
243	<i>Phoenix canariensis</i>	Canary Island Palm	270538	6145370	S
244	<i>Phoenix canariensis</i>	Canary Island Palm	270590	6145294	S
245	<i>Phoenix canariensis</i>	Canary Island Palm	270585	6145292	S
246	<i>Phoenix canariensis</i>	Canary Island Palm	270582	6145291	L
247	<i>Phoenix canariensis</i>	Canary Island Palm	270579	6145281	L
248	<i>Phoenix canariensis</i>	Canary Island Palm	270579	6145281	L
249	<i>Phoenix canariensis</i>	Canary Island Palm	270566	6145288	L
250	<i>Phoenix canariensis</i>	Canary Island Palm	270614	6145285	S

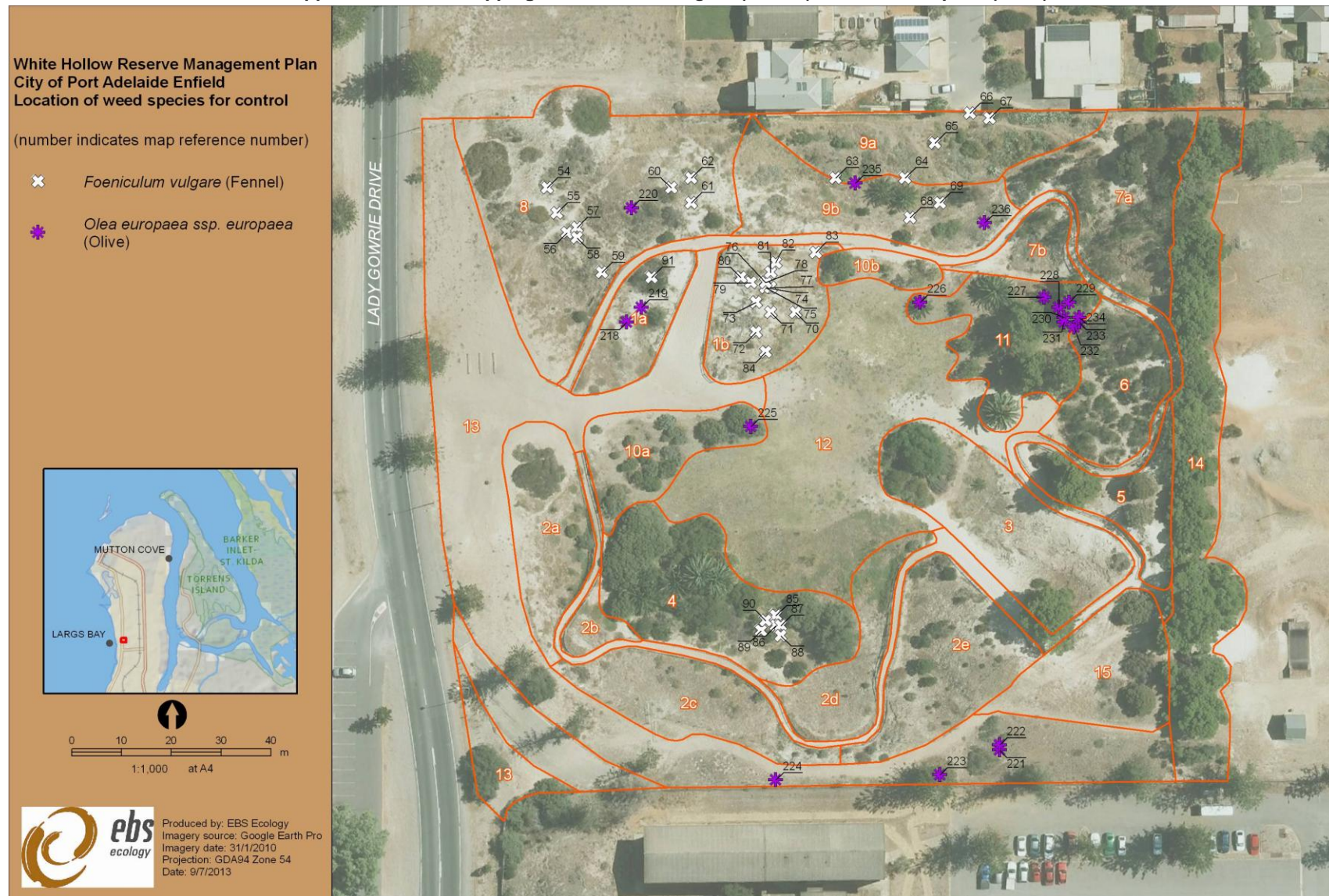
Map reference number	Species name	Common name	Location (54H)		Size
			Easting	Northing	
251	<i>Phoenix canariensis</i>	Canary Island Palm	270628	6145298	S
252	<i>Phoenix canariensis</i>	Canary Island Palm	270649	6145354	S
253	<i>Phoenix canariensis</i>	Canary Island Palm	270651	6145346	S
254	<i>Pinus halepensis</i>	Aleppo Pine	270662	6145343	M
255	<i>Pinus halepensis</i>	Aleppo Pine	270662	6145343	S
256	<i>Pinus halepensis</i>	Aleppo Pine	270661	6145341	S
257	<i>Pinus halepensis</i>	Aleppo Pine	270661	6145341	S
258	<i>Pinus halepensis</i>	Aleppo Pine	270659	6145340	M
259	<i>Pinus halepensis</i>	Aleppo Pine	270656	6145338	S
260	<i>Pinus halepensis</i>	Aleppo Pine	270656	6145336	S
261	<i>Pinus halepensis</i>	Aleppo Pine	270656	6145330	M
262	<i>Pinus halepensis</i>	Aleppo Pine	270663	6145338	S
263	<i>Pinus halepensis</i>	Aleppo Pine	270666	6145337	S
264	<i>Pinus halepensis</i>	Aleppo Pine	270663	6145333	S
265	<i>Pinus halepensis</i>	Aleppo Pine	270664	6145332	M
266	<i>Pinus halepensis</i>	Aleppo Pine	270652	6145323	S
267	<i>Pinus halepensis</i>	Aleppo Pine	270654	6145339	S
268	<i>Pinus halepensis</i>	Aleppo Pine	270656	6145341	S
269	<i>Pinus halepensis</i>	Aleppo Pine	270657	6145340	S
270	<i>Pinus halepensis</i>	Aleppo Pine	270657	6145340	S
271	<i>Pinus halepensis</i>	Aleppo Pine	270657	6145342	S
272	<i>Pinus halepensis</i>	Aleppo Pine	270658	6145343	M
273	<i>Pinus halepensis</i>	Aleppo Pine	270655	6145347	S
274	<i>Populus nigra</i>	Lombardy Poplar	270630	6145320	S
275	<i>Retama raetam</i>	White Weeping Broom	270631	6145356	S
276	<i>Retama raetam</i>	White Weeping Broom	270629	6145363	L
277	<i>Rhamnus alaternus</i>	Blowfly Bush	270633	6145286	L
278	<i>Rhamnus alaternus</i>	Blowfly Bush	270620	6145249	S
279	<i>Rhamnus alaternus</i>	Blowfly Bush	270615	6145250	M
280	<i>Rhamnus alaternus</i>	Blowfly Bush	270581	6145283	L
281	<i>Rhamnus alaternus</i>	Blowfly Bush	270649	6145363	S
282	<i>Watsonia sp.</i>	Watsonia	270605	6145372	L
283	<i>Watsonia sp.</i>	Watsonia	270604	6145372	L
284	<i>Watsonia sp.</i>	Watsonia	270604	6145374	L
285	<i>Casuarina glauca</i>	Grey Bul oak	270648	6145307	S
286	<i>Casuarina glauca</i>	Grey Bul oak	270668	6145305	S
287	<i>Casuarina glauca</i>	Grey Bul oak	270654	6145301	S
288	<i>Casuarina glauca</i>	Grey Bul oak	270653	6145297	S
289	<i>Casuarina glauca</i>	Grey Bul oak	270674	6145305	S
290	<i>Casuarina glauca</i>	Grey Bul oak	270676	6145307	M
291	<i>Casuarina glauca</i>	Grey Bul oak	270677	6145310	S
292	<i>Casuarina glauca</i>	Grey Bul oak	270674	6145312	M

Map reference number	Species name	Common name	Location (54H)		Size
			Easting	Northing	
293	<i>Casuarina glauca</i>	Grey Bul oak	270675	6145312	S
294	<i>Casuarina glauca</i>	Grey Bul oak	270675	6145313	L
295	<i>Casuarina glauca</i>	Grey Bul oak	270675	6145313	S
296	<i>Casuarina glauca</i>	Grey Bul oak	270654	6145313	S
297	<i>Casuarina glauca</i>	Grey Bul oak	270652	6145314	M
298	<i>Casuarina glauca</i>	Grey Bul oak	270649	6145313	S
299	<i>Casuarina glauca</i>	Grey Bul oak	270648	6145358	M
300	<i>Casuarina glauca</i>	Grey Bul oak	270650	6145358	S
301	<i>Casuarina glauca</i>	Grey Bul oak	270650	6145358	S
302	<i>Casuarina glauca</i>	Grey Bul oak	270651	6145359	M
303	<i>Casuarina glauca</i>	Grey Bul oak	270654	6145357	S
304	<i>Casuarina glauca</i>	Grey Bul oak	270653	6145361	M
305	<i>Casuarina glauca</i>	Grey Bul oak	270655	6145359	M
306	<i>Casuarina glauca</i>	Grey Bul oak	270657	6145359	M
307	<i>Casuarina glauca</i>	Grey Bul oak	270654	6145361	M
308	<i>Casuarina glauca</i>	Grey Bul oak	270653	6145362	M
309	<i>Casuarina glauca</i>	Grey Bul oak	270653	6145362	M
310	<i>Casuarina glauca</i>	Grey Bul oak	270651	6145362	M
311	<i>Casuarina glauca</i>	Grey Bul oak	270651	6145361	M
312	<i>Casuarina glauca</i>	Grey Bul oak	270660	6145363	S
313	<i>Acacia cyclops</i>	Western Coastal Wattle	270588	6145363	L
Polygon data					
314	<i>Cotyledon orbiculata</i> var.	Cotyledon	270602	6145372	90% cover abundance
315	<i>Senecio angulatus</i>	Cape Ivy	270611	6145379	100% cover abundance
316	<i>Senecio angulatus</i>	Cape Ivy	270611	6145371	100% cover abundance
317	<i>Pelargonium</i> sp.	Storks-bill	270634	6145374	15% cover abundance
	<i>Cotyledon orbiculata</i> var.	Cotyledon			15% cover abundance
	<i>Agave americana</i>	Century Plant			10% cover abundance
	<i>Senecio angulatus</i>	Cape Ivy			30% cover abundance
	<i>Aloe maculata</i>	Broad-leaf Aloe			30% cover abundance
318	<i>Ammophila arenaria</i>	Marram Grass	270579	6145368	15% cover abundance
319	<i>Stenotaphrus secundatum</i>	Buffalo Grass	270579	6145281	60% cover abundance
320	<i>Casuarina glauca</i>	Grey Bul oak	270672	6145374	60% cover abundance
321	<i>Casuarina glauca</i>	Grey Bul oak	270673	6145321	70% cover abundance

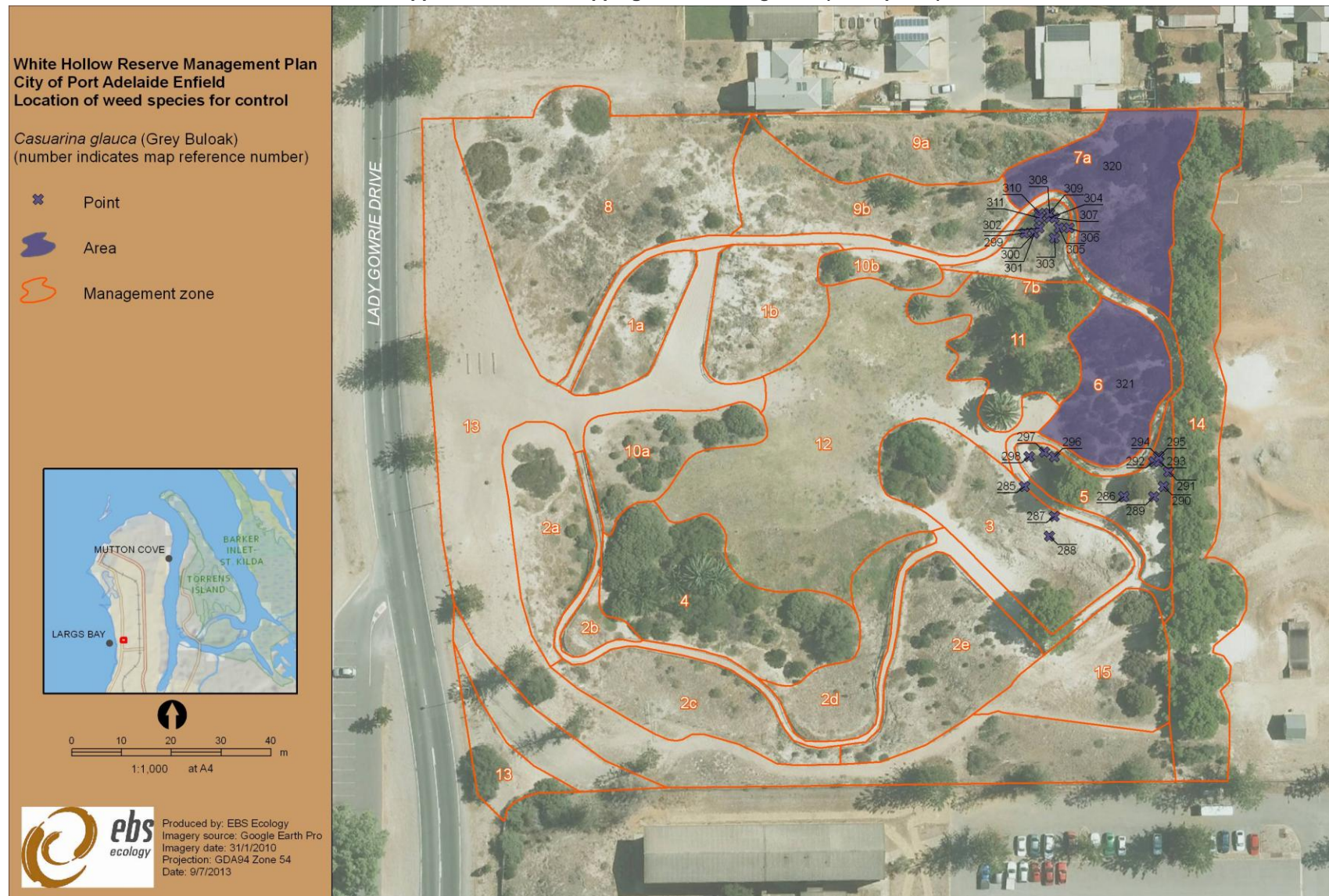
Appendix 3. Weed mapping – *Lycium ferocissimum* (Boxthorn).



Appendix 4. Weed mapping – *Foeniculum vulgare* (Fennel) and *Olea europaea* (Olive).



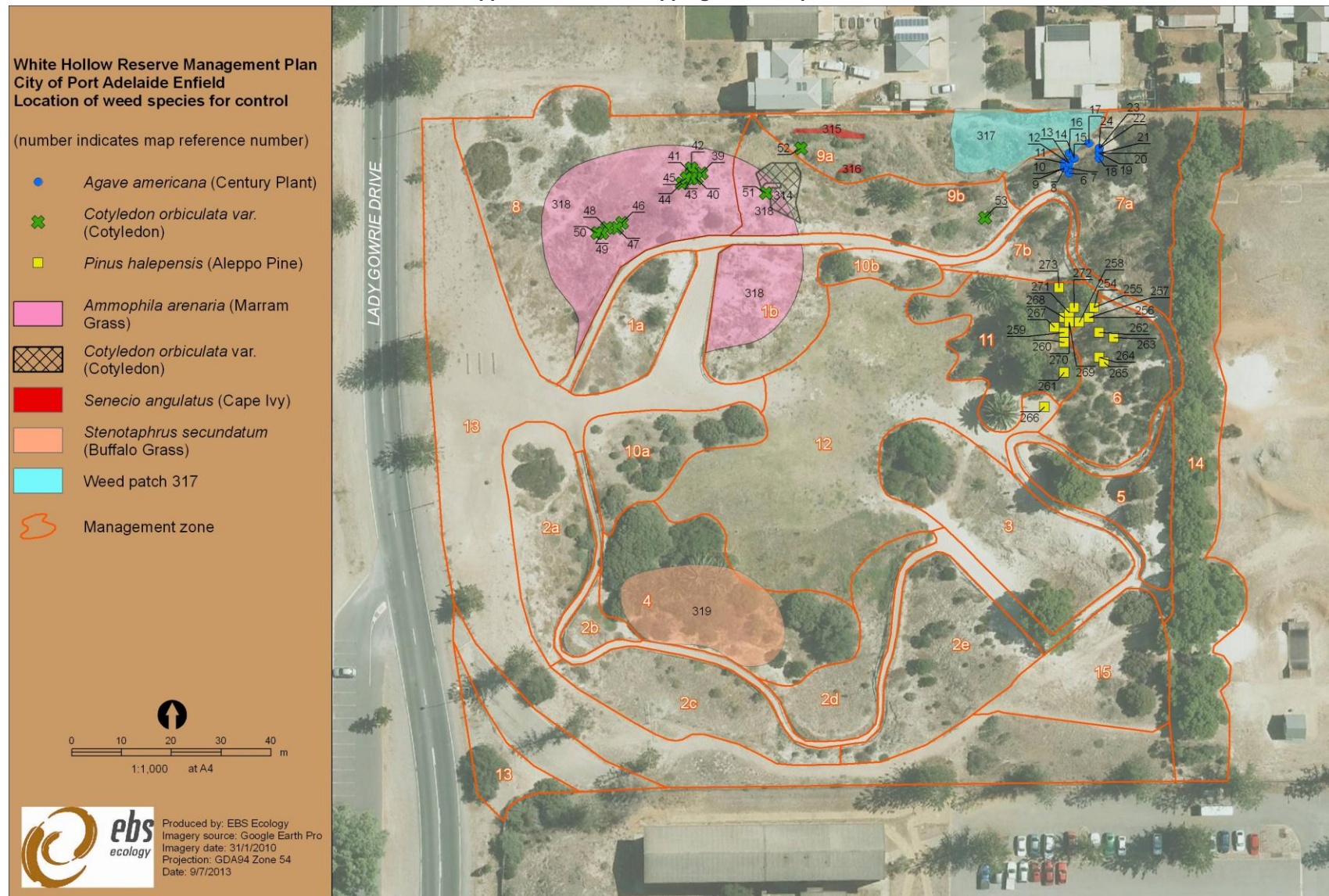
Appendix 5. Weed mapping – *Casuarina glauca* (Swamp Oak).



Appendix 6. Weed mapping – Mixed species 1.



Appendix 7. Weed mapping – Mixed species 2.





EBS Ecology
3/107 Hayward Avenue
Torrensville, SA 5031
www.ebsecology.com.au
t. 08 7127 5607
f. 08 8354 2403

