

BOWMAN AND PARTNERS  
ENVIRONMENTAL PTY LTD



# Vegetation Report

Proposed Residential Lifestyle Village –  
Lot 9007 Southampton Drive Piara  
Waters

January 2021

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## 1.0 Introduction and Background

The owners of Lot 9007 Southampton Road in Piara Waters have received a Development Approval from the City of Armadale to establish a residential lifestyle village on the land.

Development will require most or all of the existing remnant vegetation within the land to be cleared. For their landscape values, existing trees with good health and appearance will be retained, however at this stage of planning, it is not possible to specify which individual trees may be retained.

The land is effectively completely cleared with scattered remnant individual or copses of trees with exotic species interspersed. There is effectively no significant native ground level native vegetation, with weeds and grasses forming this layer.

The present condition of the site in respect of native vegetation, is the result of decades of agricultural use, including its use at present for the agistment of stock and equestrian activities of a private landowner nature.

Figure 1 shows the location of the land.

## 2.0 Description of the Vegetation

### 2.1 Approach

Lot 2007 retains less than approximately 5% of its original vegetation and can be reasonably described as effectively fully cleared with small copses of regrowth and remnant tree vegetation as well as isolated individual trees with a pasture setting.

The vegetation condition has been previously assessed by specialist botanical survey as degraded to completely degraded.

On the basis that the remaining vegetation and flora values are negligible, the vegetation and flora data presented here has been derived as follows:

- review of the document **Botanical Assessment of Selected Lots Along Warton Road, Armadale Road and Wright Road Forrestdale Bennett Environmental Consulting Pty Ltd 2011**, which document mapped and described Lot 2007,
- a site inspection carried out by Bowman and Partners Environmental Pty Ltd in March 2019,
- analysis of recent colour aerial photography of the land.

Whilst the Bennett report was prepared in 2011 and is older than the typically required 5 year validity period, inspection shows that the vegetation has been further degraded by equestrian and stock agistment and it is considered appropriate to use the descriptions of the vegetation presented in this report for the purposes of this clearing application.

### 2.2 Description of the Remnant Vegetation

Figure 1 presents an aerial photograph which confirms that little native vegetation remains on the site.

The Bennett report, a full copy of which is attached, shows at Map 2 that three vegetation mapping units can be assigned to the remnants:

- low open woodland of *Melaleuca preissiana* over dense tall grass over open herbs (majority of remnants within the site)
- low forest of *Eucalyptus rudis* over open herbs over open tall sedges (south eastern corner)
- low open grass (majority of site)

Map 3 of the Bennett report shows that the condition of the vegetation within lot 2007 in 2011 was assessed as degraded, degraded to completely degraded and completely degraded.

Inspection by Bowman and Partners Pty Ltd in 2019, confirmed these general descriptions and found that vegetation conditions appear to have been further degraded by rural uses since the 2011 survey.

The remaining tree vegetation, which presents in isolated parkland copses or individual trees, comprises mainly juvenile and more mature flooded gums (*Eucalyptus rudis*), paperbarks (*Melaleuca preissiana*) together with mature non-indigenous eucalypts and a few large ornamental non-natives including liquid amber, fig and Queensland box tree. There are also a few isolated prickly bark (*Eucalyptus todtiana*) scattered through the property. There is a small row of *Melaleuca teretifolia* shrubs lining a drain which extends to the east out of the wetland and appears to be a remnant of a former agricultural drainage system.



The Bennett report at Map 1 shows that two quadrats, F16 and F17 were located in lot 2007. The summary descriptions for these quadrats are reproduced below whilst a full species list for each quadrat is presented in the full report which is attached.

#### QUADRAT F16

Location: Lot 9006

GPS: Not recorded

Soil Type: Grey sand

Vegetation Description: Low Grass dominated by \**Pennisetum clandestinum* over Open Herbs of \**Lotus subbiflorus*

Vegetation Condition: Degraded to completely degraded

#### QUADRAT F17

Location: Lot 9001

GPS: 397520E; 6445542N

Soil Type: Black sandy loam

Vegetation Description: Low Forest A of *Eucalyptus rudis* subsp. *rudis* over Herbs dominated by \**Lotus subbiflorus* over Tall Sedges dominated by *Juncus pallidus*

Vegetation Condition: Degraded

Notes: Lot of rubbish dumped in area. *Eucalyptus rudis* subsp. *rudis* trees are mainly saplings

On the basis of the information provided in the Bennett report and the aerial photography presented here it has been determined that the production of a new vegetation map noting the species of individual trees will not be of significant assistance in describing the site's remnant vegetation.

## 3.0 Wetlands

There are no wetland values of any conservation significance within the land.

There is an artificial wetland located in the south east of the land which has been constructed by excavation of the surface soils to a depth below the summer water table of the unconfined aquifer.

The wetland basin is surrounded by grass and used as an ornamental and passive recreational feature within the land. There is a small row of *Melaleuca teretifolia* shrubs lining a drain which extends to the east out of the wetland and appears to be a remnant of a former agricultural drainage system.

It is reasonable to conclude based on the condition and lack of native vegetation supported or associated with the artificial wetland that it would be classified as Multiple Use under the conservation classification ranking system utilized by the Department.

Figure 2 presents a recent (March 2019) ground level photograph which confirms these conclusions.

## 4.0 Habitats and Fauna

Site survey found that the remaining fauna habitats comprise open grasslands and tree canopy (Figure 2). Their uses by native fauna are likely to be transitory comprising limited roosting opportunities and seasonal but limited foraging opportunities provided by flowering of the paperbarks and flooded gums.

Site survey found that the remaining vegetation has no significant value for Black Cockatoos, either as foraging, roosting or breeding habitat.

- there are no *Banksia* trees within the land – *Banksia* cones are a favoured food source for Black Cockatoos.
- there are none of the favoured Eucalypt trees which provide food and roosting opportunities for Black Cockatoos
- there are no stands of large trees which could be useful for roosting,
- there are no old/mature Eucalypt trees on the site of the type which can form hollows useful for nesting (Jarrah/Marri/Tuart): each of the large eucalypts which run along the north/eastern boundary of the site and can be seen on the photography is a non-indigenous eucalypt and no hollows exist or could be reasonably expected in the future.

As such the internal/external environmental assessment can be informed that the site has no significant value for Black Cockatoos.

## 5.0 Conclusions

Lot 9007 has been heavily impacted by ongoing rural uses such that remnant vegetation and flora values are negligible.

The remaining trees are all of common native species and the potential for species with conservation values to occur are negligible.

Fauna habitats are restricted to open grasslands and remnant tree canopies and it is reasonable to conclude that no local native fauna would depend on these habitats for survival.

It is therefore concluded that clearing of the land to support the development of a lifestyle village would meet all criteria set down in the principles for clearing of native vegetation recognized by the Department of Water and Environmental Regulation.





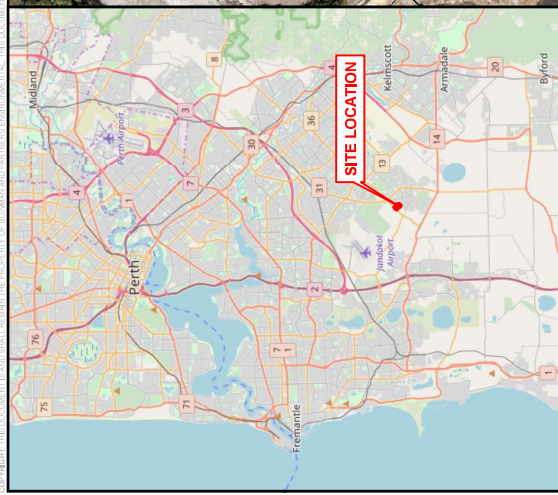
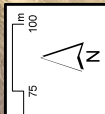
**LEGEND**  
 Site Boundary  
 Cadastre

**FIGURE 1**  
**LOCATION PLAN & AERIAL PHOTOGRAPH**

**B&PE**  
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Job: PROJ/A001-2021  
 Doc: 001  
 Date: 27/01/2021  
 Created: Environmaps  
 Checked: MB

Scale: 1:2,000 @ A3  
 GDA 1984 MGA Zone 50  
 Source: Cadastre - Lanigals  
 Orthophoto - Nearmap, 03/01/21



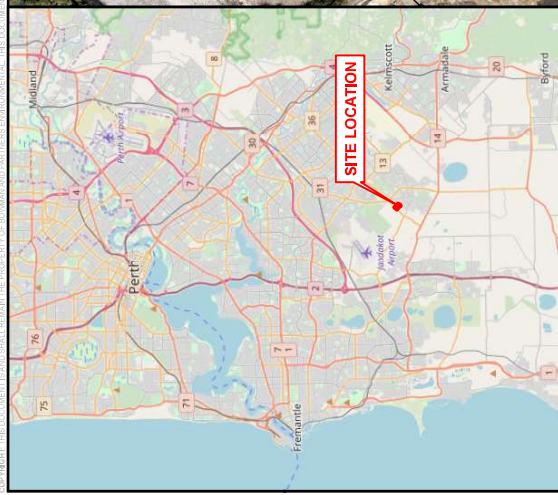
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**LEGEND**

- Site Boundary
- Cadastral
- Vegetation Canopy (1.839877 ha)



**FIGURE 2**  
**VEGETATION CANOPY**

**B&P**  
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Job: PROVA001-2021  
Doc: 002  
Date: 10/2/2021  
Created: Environmaps  
Checked: MB

0 12.5 25 50 75 100  
1:12,000 @ A3  
GDA 1984 MGA Zone 50  
Source: Cadastre - Landgate  
Orthophoto - Neotopix, 03/01/21

Scale: 1:12,000 @ A3  
GDA 1984 MGA Zone 50  
Source: Cadastre - Landgate  
Orthophoto - Neotopix, 03/01/21



### Figure 3: Ground Level Photographs of Artificial Wetland



Plate 1: View of Constructed Ornamental Lake



Plate 2: Saplings of Flooded Gum with grass and weed understory in eastern corner of the land





## Appendix 1.

Botanical Assessment of Selected Lots Along Warton Road,  
Armada Road and Wright Road Forrestdale, Bennett  
Environmental Consulting Pty Ltd 2011

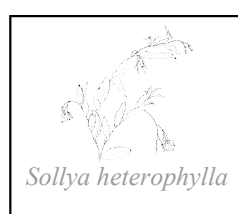
**Botanical Assessment of Selected Lots  
Along Warton Road, Armadale Road and Wright Road  
FORRESTDALE**



**Prepared for:**  
COTERRA ENVIRONMENT



**Prepared by:**  
Bennett Environmental Consulting Pty Ltd



December 2011

## **STATEMENT OF LIMITATIONS**

### **Scope of Services**

This report (“the report”) has been prepared in accordance with the scope of services set out in the contract, or as otherwise agreed, between the Client and Eleanor Bennett (“the Author”). In some circumstances a range of factors such as time, budget, access and/or site disturbance constraints may have limited the scope of services.

### **Reliance on Data**

In preparing the report, the Author has relied upon data, surveys, analyses, designs, plans and other information provided by the Client and other individuals and organisations, most of which are referred to in the report (“the data”). Except as otherwise stated in the report, the Author has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report (“conclusions”) are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. The Author will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to the Author.

### **Environmental Conclusions**

In accordance with the scope of services, the Author has relied upon the data and has conducted environmental field monitoring and/or testing in the preparation of the report. The nature and extent of monitoring and/or testing conducted is described in the report.

The conclusions are based upon field data and the environmental monitoring and/or testing carried out over a limited period of time and are therefore merely indicative of the environmental condition of the site at the time of preparing the report. Also it should be recognised that site conditions, can change with time.

Within the limitations imposed by the scope of services, the field assessment and preparation of this report have been undertaken and performed in a professional manner, in accordance with generally accepted practices and using a degree of skill and care ordinarily exercised by reputable environmental consultants under similar circumstances. No other warranty, expressed or implied, is made.

### **Report for Benefit of Client**

The report has been prepared for the benefit of the Client and no other party. The Author assumes no responsibility and will not be liable to any other person or organisation for or in relation to any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report (including without limitation matters arising from any negligent act or omission of the Author or for any loss or damage suffered by any other party relying upon the matters dealt with or conclusions expressed in the report). Other parties should not rely upon the report or the accuracy or completeness of any conclusions and should make their own enquiries and obtain independent advice in relation to such matters.

### **Other Limitations**

The Author will not be liable to update or revise the report to take into account any events or emergent circumstances or facts occurring or becoming apparent after the date of the report. The scope of services did not include any assessment of the title to or ownership of the properties, buildings and structures referred to in the report nor the application or interpretation of laws in the jurisdiction in which those properties, buildings and structures are located.

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## SUMMARY

Bennett Environmental Consulting Pty Ltd undertook a vegetation and flora overview of Lots 737, 9006, 9001, 1001, 88, 99, 100, 151 and 150 along Warton Road; Lots 13, 14, 15, 3, 28 and 29 along Armadale Road and Lots 4, 5, 6 and 1 along Wright Road in Forrestdale, within the City of Armadale. Large areas were completely cleared and only small pockets of remnant vegetation remained. The vegetation at the site could be classified upon its location in the landscape. The vegetation units described are provided below.

### UPLAND VEGETATION

- Low Woodland A of *Banksia attenuata*, *Banksia menziesii*, *Allocasuarina fraseriana*, *Nuytsia floribunda* and *Eucalyptus marginata* subsp. *marginata* over Low Scrub B dominated by *Xanthorrhoea preissii* or Dwarf Scrub C dominated by *Hibbertia hypericoides* over Tall Grass dominated by *\*Avena barbata* and *\*Ehrharta calycina* in grey sand.
- Low Woodland A of *Banksia attenuata*, *Banksia menziesii*, *Allocasuarina fraseriana*, *Nuytsia floribunda* and *Eucalyptus todtiana* over Heath B of mixed taxa dominated by *Xanthorrhoea preissii* over Open Tall Grass dominated by *\*Ehrharta calycina* over Open Herbs dominated by *Dasyogon bromeliifolius* or *Phlebocarya ciliata* in grey sand.
- Open Low Woodland A of *Banksia attenuata* over Scrub of *Kunzea glabrescens* over Dense Tall Grass of *\*Ehrharta calycina* over Open Herbs dominated by *\*Hypochaeris glabra* in pale grey sand.

### WETLAND VEGETATION

- Low Forest A of *Eucalyptus rudis* subsp. *rudis* over Open Herbs dominated by *\*Lotus subbiflorus* over Open Tall Sedges of *Juncus pallidus* in black sandy loam.
- Dense Low Forest A of *Melaleuca preissiana* over Scrub of *Taxandria linearifolia* over Dense Tall Sedges of *Lepidosperma longitudinale* and *Juncus pallidus* in black sand.
- Low Woodland A of *Melaleuca preissiana* over Dense Thicket of *Kunzea glabrescens* over Herbs dominated by *Dasyogon bromeliifolius* in grey sand.
- Low Woodland A of *Melaleuca preissiana* and *Melaleuca raphiophylla* over Scrub of *Melaleuca teretifolia* and *Astartea scoparia* over Tall Grass dominated by *\*Eragrostis curvula* and *\*Ehrharta longifolia* over Herbs dominated by *\*Lotus subbiflorus* in black sandy loam.
- Dense Low Forest A of *Melaleuca preissiana* with occasional trees of *Eucalyptus rudis* subsp. *rudis* over Open Scrub of *Astartea scoparia* over Dense Herbs dominated by *\*Zantedeschia aethiopicum* in very damp grey sand with areas of open water in which *Lemna disperma* was recorded.
- Dense Thicket of *Kunzea glabrescens* over Dwarf Scrub C dominated by *Hypocalymma angustifolium* and *Lechenaultia floribunda* over Tall Sedges of *Schoenus rigens* in grey sand.
- Dense Low Forest A of *Melaleuca preissiana* over Open Scrub of *Kunzea glabrescens* over Dense Tall Sedges of *Lepidosperma longitudinale* and/or *Dielsia stenostachya* and/or *Hypolaena exsulca* in black silty sand.
- Heath A of *Melaleuca viminea* and *Melaleuca incana* subsp. *incana* over Open Herbs dominated by *\*Hypochaeris glabra* and *\*Lotus subbiflorus* over Tall Sedges dominated by *Baumea juncea* and *Lepidosperma longitudinale* in damp grey sand.
- Open Low Woodland A of *Melaleuca preissiana* over Dense Tall Grass of *\*Ehrharta calycina*, *\*Eragrostis curvula* and *\*Ehrharta longiflora* in low lying grey sand over Open Herbs dominated by *\*Arctotheca calendula* in low lying grey sand.

**HERBLAND/SEDGELAND/GRASSLAND**

- Dense Herbs dominated by \**Lotus subbiflorus* over Open Tall Sedges of *Meeboldina scariosa* and *Baumea articulata* in damp sandy loam.
- Open Low Grass of *Pennisetum clandestinum* over Open Herbs dominated by \**Lotus subbiflorus* over Very Open Low Sedges of \**Cyperus tenellus* in very damp grey sand.

The vegetation at the site varied between very good and completely degraded. Some of the better condition vegetation was recorded from:

- Lot 6 Wright Road recorded vegetation in very good condition. The remnant vegetation was at the back of the block;
- Lot 99 Warton Road, again at the back of the block where it adjoined Lot 6, the vegetation was in very good to good condition;
- Lot 5 Wright Road, also at the back of the block where it adjoined Lot 6 had an area where the vegetation was regrowing after disturbance, and its vegetation condition was recorded as good but there were patches of very good and others of degraded condition; and
- Three other lots, Lot 9103 and Lot 100 along Warton Road and Lot 15 along Armadale Road recorded patches of vegetation that were in good condition.

None of the vegetation units are listed as threatened or priority ecological communities and no threatened or priority flora were observed.

Most of the area is low lying, and some was damp when the survey was undertaken. Although most of the site recorded a degraded to completely degraded condition, due to clearing and planting with non-endemics or clearing with occasional scattered native trees retained, consideration will need to be given to the low lying nature of the area if development is to proceed.



# 1. INTRODUCTION

## 1.1 Background

Coterra Environment commissioned Bennett Environmental Consulting Pty Ltd to undertake a vegetation overview and listing of selected Lots in Forrestdale, within the City of Armadale. The lots were 737, 9006, 9001, 1001, 88, 99, 100, 151 and 150 along Warton Road; Lots 13, 14, 15, 3, 28 and 29 along Armadale Road and Lots 4, 5, 6 and 1 along Wright Road ('the site').



Figure 1. Location of the site surveyed - outlined in red.

## 1.2 Scope of Works

The requirements for this project were to:

- i. Undertake a Level 2 vegetation survey (Environmental Protection Authority, 2004); and to
- ii. Search for and record all significant species at the site.

## 2. BACKGROUND INFORMATION

### 2.1 Geology and Landform

The area is included in the Bassendean Dunes which have off-white to pale grey sands at the surface and cream to yellow sands at depth. The Bassendean Dunes are again separated into three units based on the characteristics of their swamps. The study site occurs within the Southern River Complex, the sand appears to have been blown over the alluvial soils resulting in swamps with a clay base (Churchward and McArthur, 1980).

### 2.2 Vegetation

The Interim Biogeographical Regionalisation for Australia (IBRA) (Thackway and Cresswell, 1995) recognizes 85 bioregions. The IBRA is used as the common unit to compare biological and biophysical attributes. Bioregions represent a landscape-based approach to classifying the land surface and each region is defined by a set of major environmental influences, which shape the occurrence of flora and fauna and their interaction with the physical environment. Baldivis occurs in the Swan Coastal Plain, which has been subdivided into the northern section and the southern section. The study area is located in the southern section, abbreviated SWA2 (Mitchell, Williams and Desmond, 2002).

The survey area is mapped by Beard (1981) as a Low Woodland of *Allocasuarina fraseriana*, *Banksia* species and *Eucalyptus marginata* (abbreviated e2,3Mi). Shepherd *et al.* (2002) have determined the pre-European and current extent of the vegetation associations described by Beard. In addition they have assessed the percentage of each vegetation association remaining, the amount in IUCN reserves and the percentage in other reserves. The pre-European area of e2,3Mi is estimated to be 79,001ha, the current extent is 18,398ha which represents 23.2% remaining vegetated of which 38% is included in conservation.

Hedde *et al.* (1980) described the vegetation complexes of the Darling System at a scale of 1:250 000. There was found to be a distinct pattern of plant distribution linked to landforms, soils and climate. The most obvious trend was associated with increasing aridity from west to east on the Darling Plateau. The vegetation changes observed were a decrease in height and percentage cover of the tallest stratum and a distinct change in floristics. Forrestdale occurs in the Southern River Complex which is described as an Open Woodland of *Corymbia calophylla* – *Eucalyptus marginata* subsp. *marginata* and *Banksia* species with fringing Woodland of *Eucalyptus rudis* subsp. *rudis* and *Melaleuca raphiophylla* along creek beds.

Bush Forever (Government of Western Australia, 2000) states that 17% of the original area of the Southern River Complex remains vegetated within the Swan Coastal Plain. The area proposed for protection (Government of Western Australia, 2000) is 10%.

### 2.3 Threatened Ecological Communities

An ecological community is a naturally occurring biological assemblage that occurs in a particular type of habitat. A Threatened Ecological Community is one which falls into one of the following categories, presumed totally destroyed, critically endangered, endangered or vulnerable (Department Environment and Conservation, 2011b).



A possible ecological community which does not meet the above is added to the Priority Ecological Community List. Priorities 1, 2, and 3 are adequately known but are not currently believed to be threatened. Those that have recently been removed from the threatened list are listed as Priority 4. Conservation dependent ecological communities are placed in Priority 5.

## 2.4 Significant Flora

Prior to undertaking the field work a search was undertaken of the Department of Conservation and Environment Threatened Flora Database. The resulting data is provided in Table 3.

**Table 1. Code and description of Threatened and Priority Flora (Department Environment and Conservation, 2011a)**

Code	Declared Rare and Priority Flora Categories
T	T (Threatened Flora) -Extant Taxa. Taxa, which have been adequately searched for and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection.
X	T (Threatened Flora) -Presumed Extinct Taxa. Taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently.
1	Priority One -Poorly Known Taxa. Taxa, which are known from one or a few (generally <5) populations, which are under threat.
2	Priority Two -Poorly Known Taxa. Taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat.
3	Priority Three -Poorly Known Taxa. Taxa, which are known from several populations, at least some of which are not believed to be under immediate threat.
4	Priority Four - Rare, Near Threatened and other species in need of monitoring. Taxa which are considered to have been adequately surveyed and which whilst being rare, are not currently threatened by any identifiable factors.
5	Priority Five - Conservation dependent species. Species that are not threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.

Table 1 presents the definitions of Threatened and the five Priority Flora ratings under the Wildlife Conservation Act (1950) as extracted from Department of Environment and Conservation (2011a). Table 2 presents the definitions of the threatened species under the Environmental Protection and Biodiversity Conservation Act, 1999 (Department of Sustainability, Environment, Water, Populations and Communities, 2011).

**Table 2. Categories of Threatened Flora Species (Department of Sustainability, Environment, Water, Populations and Communities, 2011)**

Code	Declared Rare and Priority Flora Categories
Ex	Extinct Taxa which at a particular time if, at that time, there is no reasonable doubt that the last member of this species has died.
ExW	Extinct in the Wild Taxa which is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
CE	Critically Endangered Taxa which at any particular time if, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
E	Endangered Taxa, which is not critically endangered, and it is facing a very high risk of extinction in the wild in the immediate or near future, as determined in accordance with the prescribed criteria.

Code	Declared Rare and Priority Flora Categories
V	Vulnerable Taxa which is not critically endangered or endangered and is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.
CD	Conservation Dependent Taxa which at a particular time if, at that time, the species is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years.

**Table 3. Threatened and Priority Flora Species List as provided by the Department of Environment and Conservation**

Taxon	Code	Description
<i>Caladenia huegelii</i>	T	Tuberous, perennial, herb, 0.25-0.6 m high. Fl. green & cream & red, Sep to Oct. Grey or brown sand, clay loam.
<i>Diuris purdiei</i>	T	Tuberous, perennial, herb, 0.15-0.35 m high. Fl. yellow, Sep to Oct. Grey-black sand, moist. Winter-wet swamps.
<i>Drakaea elastica</i>	T	Tuberous, perennial, herb, 0.12-0.3 m high. Fl. red & green & yellow, Oct to Nov. White or grey sand. Low-lying situations adjoining winter-wet swamps.
<i>Drakaea micrantha</i>	T	Tuberous, perennial, herb, 0.15-0.3 m high. Fl. red & yellow, Sep to Oct. White-grey sand.
<i>Lepidosperma rostratum</i>	T	Rhizomatous, tufted perennial, grass-like or herb (sedge), 0.5 m high. Fl. brown. Peaty sand, clay.
<i>Eryngium pinnatifidum</i> subsp. <i>palustre</i>	3	Erect perennial, herb, 0.15-0.5 m high. Fl. white/blue, Oct to Nov. Clay, sandy clay. Claypans, seasonally wet flats.
<i>Jacksonia gracillima</i>	3	No description provided.
<i>Stylidium longitubum</i>	3	Erect annual (ephemeral), herb, 0.05-0.12 m high. Fl. pink, Oct to Dec. Sandy clay, clay. Seasonal wetlands.
<i>Drosera occidentalis</i> subsp. <i>occidentalis</i>	4	Fibrous-rooted, rosetted perennial, herb, to 0.01 m high. Fl. pink/white, Nov to Dec. Sandy & clayey soils. Swamps & wet depressions.
<i>Grevillea thelemanniana</i> subsp. <i>thelemanniana</i>	4	No description provided.
<i>Jacksonia sericea</i>	4	Low spreading shrub, to 0.6 m high. Fl. orange, usually Dec or Jan to Feb. Calcareous & sandy soils.
<i>Ornduffia submersa</i>	4	No description provided.
<i>Thysanotus glaucus</i>	4	Caespitose, glaucous perennial, herb, 0.1-0.2 m high. Fl. purple, Oct to Dec or Jan to Mar. White, grey or yellow sand, sandy gravel.
<i>Tripterococcus paniculatus</i>	4	Perennial, herb, to 1 m high. Fl. yellow-green, Oct to Nov. Grey, black or peaty sand. Winter-wet flats.
<i>Verticordia lindleyi</i> subsp. <i>lindleyi</i>	4	Erect shrub, 0.2-0.75 m high. Fl. pink, May or Nov to Dec or Jan. Sand, sandy clay. Winter-wet depressions.

### 3. METHODS

All tracks were driven and transects were walked through the remnant bushland listing the vegetation units in the area and the dominant taxa. As this was being undertaken the bushland was searched for Threatened and Priority Flora. As a Level 2 vegetation survey was required temporary quadrats were recorded. Plants unknown in the field were collected, pressed and identified using the Reference Collection at the Western Australian Herbarium, which has limited collections and sometimes makes the positive identification difficult. The vegetation at the site is described using the vegetation classification of Muir (1977) as described in Table 4.

**Table 4 Vegetation Classification (from Muir, 1977)**

LIFE FORM / HEIGHT CLASS	Canopy Cover			
	DENSE 70% - 100%	MID DENSE 30% - 70%	SPARSE 10% - 30%	VERY SPARSE 2% - 10%
Trees > 30 m	Dense Tall Forest	Tall Forest	Tall Woodland	Open Tall Woodland
Trees 15 – 30 m	Dense Forest	Forest	Woodland	Open Woodland
Trees 5 – 15 m	Dense Low Forest A	Low Forest A	Low Woodland A	Open Low Woodland A
Trees < 5 m	Dense Low Forest B	Low Forest B	Low Woodland B	Open Low Woodland B
Mallee (tree form)	Dense Tree Mallee	Tree Mallee	Open Tree Mallee	Very Open Tree Mallee
Mallee (shrub form)	Dense Shrub Mallee	Shrub Mallee	Open Shrub Mallee	Very Open Shrub Mallee
Shrubs > 2 m	Dense Thicket	Thicket	Scrub	Open Scrub
Shrubs 1.5 – 2 m	Dense Heath A	Heath A	Low Scrub A	Open Low Scrub A
Shrubs 1 - 1.5 m	Dense Heath B	Heath B	Low Scrub B	Open Low Scrub B
Shrubs 0.5 – 1 m	Dense Low Heath C	Low Heath C	Dwarf Scrub C	Open Dwarf Scrub C
Shrubs 0 - 0.5 m	Dense Low Heath D	Low Heath D	Dwarf Scrub D	Open Dwarf Scrub D
Mat plants	Dense Mat Plants	Mat Plants	Open Mat Plants	Very Open Mat Plants
Hummock grass	Dense Hummock Grass	Mid-Dense Hummock Grass	Hummock Grass	Open Hummock Grass
Bunch grass > 0.5 m	Dense Tall Grass	Tall Grass	Open Tall Grass	Very Open Tall Grass
Bunch grass < 0.5 m	Dense Low Grass	Low Grass	Open Low Grass	Very Open Low Grass
Herbaceous spp.	Dense Herbs	Herbs	Open Herbs	Very Open Herbs
Sedges > 0.5 m	Dense Tall Sedges	Tall Sedges	Open Tall Sedges	Very Open Tall Sedges
Sedges < 0.5 m	Dense Low Sedges	Low Sedges	Open Low Sedges	Very Open Low Sedges
Ferns	Dense Ferns	Ferns	Open Ferns	Very Open Ferns
Mosses, liverworts	Dense Mosses	Mosses	Open Mosses	Very Open Mosses

## 4. RESULTS

Field work was undertaken on 10-11<sup>th</sup> October 2011. Some sites were completely cleared Lot 737 Warton Road, Lot 14 Armadale Road, Lots 28 and 29 Armadale Road.

### 4.1 Vegetation

As with the vegetation description for the Bush Forever Sites it is possible to divide the vegetation at the site into Uplands and Wetlands. The descriptions below will be general covering the different vegetation units recorded from each of the individual lots. The taxa recorded from each quadrat are listed in Appendix B and the vegetation recorded from each Lot is mapped in Appendix C.

#### UPLAND VEGETATION

- Low Woodland A of *Banksia attenuata*, *Banksia menziesii*, *Allocasuarina fraseriana*, *Nuytsia floribunda* and *Eucalyptus marginata* subsp. *marginata* over Low Scrub B dominated by *Xanthorrhoea preissii* or Dwarf Scrub C dominated by *Hibbertia hypericoides* over Tall Grass dominated by *\*Avena barbata* and *\*Ehrharta calycina* in grey sand.  
This vegetation was recorded from the slopes and crest of the sand dune at the site. It was recorded from Lot 88 Warton Road (no quadrat), Lot 99 Warton Road (quadrat F6), Lot 1001 Warton, Lot (quadrat F21) and Lot 9103 Warton Road (quadrats F02 and F03).
- Low Woodland A of *Banksia attenuata*, *Banksia menziesii*, *Allocasuarina fraseriana*, *Nuytsia floribunda* and *Eucalyptus todtiana* over Heath B of mixed taxa dominated by *Xanthorrhoea preissii* over Open Tall Grass dominated by *\*Ehrharta calycina* over Open Herbs dominated by *Dasyopogon bromeliifolius* or *Phlebocarya ciliata* in grey sand.  
This vegetation was recorded from the lower slopes of sand dunes at the site. It was recorded from Lot 9103 Warton Road (quadrat F04), Lot 15 Armadale Road (quadrat F10) and Lot 9101 Warton Road (quadrat F20).
- Open Low Woodland A of *Banksia attenuata* over Scrub of *Kunzea glabrescens* over Dense Tall Grass of *\*Ehrharta calycina* over Open Herbs dominated by *\*Hypochaeris glabra* in pale grey sand.

This vegetation was recorded from low lying ground in Lot 100 Warton Road (quadrat F08).

#### **WETLAND VEGETATION**

- Low Forest A of *Eucalyptus rudis* subsp. *rudis* over Open Herbs dominated by \**Lotus subbiflorus* over Open Tall Sedges of *Juncus pallidus* in black sandy loam.  
This vegetation was recorded from Lot 9006 Warton Road (quadrat F17).
- Dense Low Forest A of *Melaleuca preissiana* over Scrub of *Taxandria linearifolia* over Dense Tall Sedges of *Lepidosperma longitudinale* and *Juncus pallidus* in black sand.  
This vegetation was recorded from low lying ground in Lot 6 Wright Road (quadrat F14).
- Low Woodland A of *Melaleuca preissiana* over Dense Thicket of *Kunzea glabrescens* over Herbs dominated by *Dasyogon bromeliifolius* in grey sand.  
This vegetation was recorded from the lower slope to flat. At Lot 100 the trees of *Melaleuca preissiana* were scattered and not a dominant stratum of the vegetation. It was recorded from Lot 100 (quadrat F07) and Lot 9103 Warton Road (quadrat F01).
- Low Woodland A of *Melaleuca preissiana* and *Melaleuca raphiophylla* over Scrub of *Melaleuca teretifolia* and *Astartea scoparia* over Tall Grass dominated by \**Eragrostis curvula* and \**Ehrharta longifolia* over Herbs dominated by \**Lotus subbiflorus* in black sandy loam.  
This vegetation was recorded in Lot 9101 Wright Road (quadrat F19).
- Dense Low Forest A of *Melaleuca preissiana* with occasional trees of *Eucalyptus rudis* subsp. *rudis* over Open Scrub of *Astartea scoparia* over Dense Herbs dominated by \**Zantedeschia aethiopicum* in very damp grey sand with areas of open water in which *Lemna disperma* was recorded.  
This vegetation was recorded from low lying ground in Lot 3 Armadale Road (quadrat F11).
- Dense Thicket of *Kunzea glabrescens* over Dwarf Scrub C dominated by *Hypocalymma angustifolium* and *Lechenaultia floribunda* over Tall Sedges of *Schoenus rigens* in grey sand.  
This vegetation was recorded from low lying ground in Lot 15 Armadale Road (quadrat F09).
- Dense Low Forest A of *Melaleuca preissiana* over Open Scrub of *Kunzea glabrescens* over Dense Tall Sedges of *Lepidosperma longitudinale* and/or *Dielsia stenostachya* and/or *Hypolaena exsulca* in black silty sand.  
This vegetation was recorded from low lying ground in Lot 5 Wright Road (quadrat F12) and Lot 99 (quadrat F05).
- Heath A of *Melaleuca viminea* and *Melaleuca incana* subsp. *incana* over Open Herbs dominated by \**Hypochaeris glabra* and \**Lotus subbiflorus* over Tall Sedges dominated by *Baumea juncea* and *Lepidosperma longitudinale* in damp grey sand.  
This vegetation was recorded from damp, flat ground in Lot 6 Wright Road (quadrat F13).
- Open Low Woodland A of *Melaleuca preissiana* over Dense Tall Grass of \**Ehrharta calycina*, \**Eragrostis curvula* and \**Ehrharta longiflora* in low lying grey sand over Open Herbs dominated by \**Arctotheca calendula* in low lying grey sand.  
This vegetation was recorded from Lot 9006 Warton Road (quadrat F18).

#### **HERBLAND/SEDGELAND/GRASSLAND**

- Dense Herbs dominated by \**Lotus subbiflorus* over Open Tall Sedges of *Meeboldina scariosa* and *Baumea articulata* in damp flat area. This vegetation was recorded from Lot 5 Wright Road (quadrat F15).

- Open Low Grass of *Pennisetum clandestinum* over Open Herbs dominated by *\*Lotus subbiflorus* over Very Open Low Sedges of *\*Cyperus tenellus* in very damp grey sand.

This vegetation was recorded from Lot 9006 Warton Road (quadrat F16).

## 4.2 Vegetation Condition

Bushland has been historically subject to ongoing degradation and is especially susceptible to disturbances arising as a result of indirect impacts from surrounding developments and human activity. Degradation is caused by a wide range of factors, including isolation, edge effects, weed invasion, plant diseases, changes in fire frequency, landscape fragmentation, increased predation on native fauna by feral animals, decrease in species richness and general modification of ecological function.

Vegetation condition was rated according to the vegetation condition scale used in Keighery (1994). The vegetation condition of the remnant vegetation at the survey site was mainly good (condition 4) to completely degraded (condition 6) with a small area on the south eastern side that was in very good condition. There were groups of trees with good cover or scattered trees where the understorey had been completely replaced with weeds. These areas were degraded (condition 5). Where there were no trees or scattered trees and the weeds were dominant the vegetation condition was completely degraded (condition 6). The vegetation condition of the site is mapped in Figure 3, Appendix C.

**Table 5. Explanation of Vegetation Condition Rating (Keighery, 1994)**

Rating	Description	Explanation
1	Pristine	Pristine or nearly so, no obvious signs of disturbance.
2	Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species.
3	Very Good	Vegetation structure altered, obvious signs of disturbance.
4	Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it.
5	Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management.
6	Completely Degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species.

**Table 6. Vegetation condition recorded for each quadrat**

VEGETATION CONDITION	QUADRAT NUMBERS
Very good	F13, F14
Very good to good	F05
Good	F03, F04, F07, F09, F10, F12
Good to degraded	F02, F16, F19, F20, F21
Degraded	F01, F17
Degraded to completely degraded	F06, F08, F11, F15
Completely degraded	F18

The vegetation condition for each of the individual lots is discussed under the lot number in Appendix C.

### 4.3 Species Recorded

A total of 58 vascular plant families, 173 genera and 244 species were recorded during the survey (See Appendix A). The dominant plant families were: Myrtaceae (Eucalyptus family) with 24 species; Fabaceae (Wattle and pea family) with 23 species; Poaceae (grass family) with 23 species; and Asteraceae (daisy family) with 17 species.

### 4.4 Weeds

A total of 74 weeds were recorded during the current survey with the dominant weed families being Poaceae recording 17 and Asteraceae 11 weed species. All have been determined as weeds by the Western Australian Herbarium (2011) and Department of Environment and Conservation (2011c). There are several ratings allocated to each weed in the Invasive Plant Prioritisation but only three have been selected to include in this report. These are ecological impacts, impact attributes and invasiveness which are shown in Table 7 for each of the non-endemic species recorded. Thirty three of the weeds are listed as having a high ecological impact on the environment and 47 are listed having a rapid rate of dispersal.

**Table 6. Ecological Impacts and Invasiveness of recorded weeds**

Species	Ecological Impacts		Invasiveness
	Ecological impact L – low impact species M – medium impact species H – high impact species U – unknown impact	Impact attributes 1, 2,3,4, 5, 6, 7, 8, 9, 10. See explanation below table	Rate of dispersal R=rapid, M=moderate, S=slow
* <i>Acacia longifolia</i>	H	1,2,4,6,7,8,9	M
* <i>Aira caryophyllaceae</i>	U		U
* <i>Arciotheca calendula</i>	H	8,9	R
* <i>Arundo donax</i>	H		S
* <i>Avena barbata</i>	H		R
* <i>Briza maxima</i>	U		R
* <i>Briza minor</i>	U		R
* <i>Bromus diandrus</i>	H		R
* <i>Carpobrotus edulis</i>	H	8,9	R
* <i>Cicendia filiformis</i>	L		H
* <i>Conyza bonariensis</i>	L		M
* <i>Cotula coronopifolia</i>	U		R
* <i>Crepis capillaris</i>	L		Not recorded
* <i>Cynodon dactylon</i>	H	9	R
* <i>Cyperus tenellus</i>	L		U
* <i>Echium plantagineum</i>	H	increasing	R
* <i>Ehrharta calycina</i>	H	1,2,6,8,9	R
* <i>Ehrharta longiflora</i>	H	1,2,6,8,9	R
* <i>Eragrostis curvula</i>	H		R
* <i>Erodium botrys</i>	U		M
* <i>Euphorbia peplus</i>	H	8,9	R
* <i>Euphorbia terracina</i>	H	8,9	R
* <i>Ficus carica</i>	H		M
* <i>Foeniculum vulgare</i>	L		M
* <i>Freesia alba x leichtlinii</i>	H	8,9	R
* <i>Fumaria capreolata</i>	H	7,9	R
* <i>Gladiolus caryophyllaceus</i>	H		R
* <i>Gomphocarpus fruticosus</i>	H	9	R
* <i>Hedypnois rhagadioloides</i>	U		U
* <i>Holcus lanatus</i>	H		U
* <i>Hordeum vulgare</i>	H		U
* <i>Hypochaeris glabra</i>	H		R
* <i>Isolepis marginata</i>	U		U
* <i>Juncus bufonius</i>	U		R

Selected Lots Armadale, Warton and Wright Roads Forrestdale

Species	Ecological Impacts		Invasiveness
	Ecological impact L – low impact species M – medium impact species H – high impact species U – unknown impact	Impact attributes 1, 2,3,4, 5, 6, 7, 8, 9, 10. See explanation below table	Rate of dispersal R=rapid, M=moderate, S=slow
* <i>Juncus capitatus</i>	U		R
* <i>Lactuca serriola</i>	H		R
* <i>Lagurus ovatus</i>	H		R
* <i>Lolium rigidum</i>	M		R
* <i>Lotus subbiflorus</i>	U		R
* <i>Lysimachia arvensis</i>	U		R
* <i>Lythrum hyssopifolia</i>	M		R
* <i>Medicago polymorpha</i>	L		Not recorded
* <i>Monopsis debilis</i>	M		R
* <i>Moraea flaccida</i>	H	8,9	R
* <i>Ornithopus pinnatus</i>	M		R
* <i>Orobanche minor</i>	U		R
* <i>Oxalis corniculata</i>	L		S
* <i>Oxalis pes-caprae</i>	H		S
* <i>Oxalis purpurea</i>	H		S
* <i>Paspalum urvillei</i>	H		M
* <i>Pelargonium capitatum</i>	H	8,9	R
* <i>Pennisetum clandestinum</i>	H		S
* <i>Petrorhagia dubia</i>	M	8	R
* <i>Phytolacca octandra</i>	U		M
* <i>Ranunculus sessiliflorus</i>	U		R
* <i>Raphanus raphanistrum</i>	U		M
* <i>Ricinus communis</i>	M	2,8,9	R
* <i>Romulea rosea</i>	U		R
* <i>Rubus laudatus</i>	H	3,7,8,9	M
* <i>Rumex crispus</i>	U		R
* <i>Schinus terebinthifolia</i>	H	3,7,8,9	M
* <i>Silene gallica</i>	L		M
* <i>Solanum americanum</i>	U		R
* <i>Solanum nigrum</i>	M		R
* <i>Sonchus asper</i>	U		R
* <i>Sonchus oleraceus</i>	U	increasing	R
* <i>Stellaria media</i>	L		R
* <i>Trifolium campestre</i>	U		U
* <i>Ursinia anthemoides</i>	U	increasing	R
* <i>Vellereophyton dealbatum</i>	M		R
* <i>Vicia sativa</i>	U		U
* <i>Vulpia bromoides</i>	H		R
* <i>Wahlenbergia capensis</i>	U		R
* <i>Zantedeschia aethiopicum</i>	H	6,7,8,9,10	R

**Impact Attributes:** 1 - changed fire regime; 2 - changed nutrient conditions; 3 - changed hydrological patterns; 4 - changed soil erosion patterns; 5 - changed geomorphological processes; 6 - changed biomass distribution; 7 - changed light distribution; 8 - loss of biodiversity; 9 - substantially reduces regeneration opportunities of native plants; 10 - allelopathic effects. Increasing means that the weed is increasing its distribution from original known areas.

#### 4.5 Significant Taxa

No Threatened or Priority Flora were recorded during the survey.

### 5. DISCUSSION

The greatest proportion of the total area surveyed was completely degraded due to clearing, gardens associated with homes, the planting of non-endemic taxa and a market garden which grew strawberries. The site varied between high ground and low ground, and at the time of the survey some areas were inundated.

Most of the remnant vegetation in the higher ground areas recorded a number of tree deaths, especially *Banksia* species but also some *Eucalyptus marginata* subsp. *marginata*. These deaths follow recent very hot summers and low rainfall years which would be expected to put trees under stress. These deaths considerably reduced the vegetation condition of these vegetation units in the Lots where they were recorded.

The lower ground vegetation varied considerably in condition but there several *Melaleuca preissiana* trees scattered through even the degraded areas that were of a good size. On the whole the wetland vegetation did not seem to be suffering the same number of tree deaths as the higher ground.

Lot 6 had remnant vegetation in the best condition with a large area of Lot 5 also being in a good condition. The better condition vegetation of these two lots adjoined each other representing a remnant of a reasonable size. The area represented by quadrat F11 on Lot 3 had very dense *Melaleuca preissiana* and a few *Melaleuca raphiophylla* trees, all of a reasonable size and in very good condition. Unfortunately the understory had mainly been replaced by weeds but the area was fenced keeping any stock out.

The vegetation condition recorded for the different lots (see Table 6) has 9 lots with a vegetation condition of good or better and 12 with a vegetation condition between good to degraded and completely degraded. This may suggest that the remnant vegetation present at the Lots is of a reasonably quality, but quadrats were placed in the area within each lot where the vegetation was in the best condition, skewing the overall results to the better or above end of the vegetation condition scale. Very little of the remnant vegetation was worthy of retention but a very important factor irrespective of the vegetation units and their condition is the dampness level of the whole site and how any proposed development could alter that regime.

None of the vegetation units are threatened or priority ecological communities and no threatened or priority flora were recorded.

Several aggressive weeds were recorded including Blackberry (*\*Rubus lauatus*) and Arum lily (*\*Zantedeschia aethiopica*).

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## **APPENDIX A**

### **Species Listed Under Vascular Plant Family**

Selected Lots Armadale, Warton and Wright Roads Forrestdale

<b>FAMILY</b>	<b>species</b>
ANACARDIACEAE	* <i>Schinus terebinthifolia</i>
APIACEAE	<i>Centella asiatica</i>
	* <i>Foeniculum vulgare</i>
	<i>Homalosciadium homalocarpum</i>
	<i>Trachymene pilosa</i>
ARACEAE	<i>Lemna disperma</i>
	* <i>Zantedeschia aethiopica</i>
APOCYNACEAE	* <i>Gomphocarpus fruticosus</i>
ASPARAGACEAE	<i>Chamaescilla corymbosa</i>
	<i>Laxmannia grandiflora</i>
	<i>Lomandra caespitosa</i>
	<i>Lomandra hermaphrodita</i>
	<i>Lomandra nigricans</i>
	<i>Lomandra preissii</i>
	<i>Lomandra suaveolens</i>
	<i>Thysanotus dichotomus</i>
	<i>Thysanotus patersonii</i>
	<i>Thysanotus tenellus</i>
ASTERACEAE	* <i>Arctotheca calendula</i>
	* <i>Conyza bonariensis</i>
	* <i>Cotula coronopifolia</i>
	* <i>Crepis capillaris</i>
	* <i>Hedypnois rhagadioloides</i>
	<i>Hyalosperma cotula</i>
	* <i>Hypochaeris glabra</i>
	* <i>Lactuca serriola</i>
	<i>Millotia tenuiflora</i> var. <i>tenuiflora</i>
	<i>Podolepis angustifolia</i>
	<i>Podotrochea gnaphalioides</i>
	<i>Senecio pinnatifida</i> subsp. <i>latilobus</i>
	<i>Siloxerus multiflorus</i>
	* <i>Sonchus asper</i>
	* <i>Sonchus oleraceus</i>
	* <i>Ursinia anthemoides</i>
	* <i>Vellereophyton dealbatum</i>
BORAGINACEAE	* <i>Echium plantagineum</i>
BRASSICACEAE	* <i>Raphanus raphanistrum</i>
CAMPANULACEAE	* <i>Monopsis debilis</i>
	* <i>Wahlenbergia capensis</i>
	<i>Wahlenbergia gracilentia</i>
	<i>Wahlenbergia preissii</i>
CARYOPHYLLACEAE	* <i>Petrorhagia dubia</i>
	* <i>Silene gallica</i>
	* <i>Stellaria media</i>

Selected Lots Armadale, Warton and Wright Roads Forrestdale

<b>FAMILY</b>	<b>species</b>
CASUARINACEAE	<i>Allocasuarina fraseriana</i> <i>Allocasuarina humilis</i>
CENTROLEPIDACEAE	<i>Aphelia cyperoides</i> <i>Centrolepis drummondiana</i>
COLCHICACEAE	<i>Burchardia umbellata</i>
CRASSULACEAE	<i>Crassula colorata</i>
CYPERACEAE	<i>Baumea articulata</i> <i>Baumea juncea</i> * <i>Cyperus tenellus</i> <i>Isolepis cyperoides</i> * <i>Isolepis marginatus</i> <i>Lepidosperma leptostachyum</i> <i>Lepidosperma longitudinale</i> <i>Lepidosperma squamatum</i> <i>Schoenus clandestinus</i> <i>Schoenus curvifolius</i> <i>Schoenus efoliatus</i> <i>Schoenus rigens</i>
DASYPOGONACEAE	<i>Calectasia narragara</i> <i>Dasyopogon bromeliifolius</i>
DILLENIACEAE	<i>Hibbertia huegelii</i> <i>Hibbertia hypericoides</i> <i>Hibbertia racemosa</i>
DROSERACEAE	<i>Drosera erythrorhiza</i> <i>Drosera gigantea</i> subsp. <i>gigantea</i> <i>Drosera glanduligera</i> <i>Drosera macrantha</i> <i>Drosera paleacea</i> subsp. <i>paleacea</i> <i>Drosera pallida</i>
EPACRIDACEAE	<i>Astroloma xerophyllum</i> <i>Conostephium pendulum</i> <i>Conostephium preissii</i> <i>Leucopogon conostephioides</i> <i>Leucopogon propinquus</i> <i>Styphelia tenuiflora</i>
EUPHORBIACEAE	* <i>Euphorbia peplus</i> * <i>Euphorbia terracina</i> <i>Monotaxis grandiflora</i> * <i>Ricinus communis</i>

<b>FAMILY</b>	<b>species</b>
FABACEAE	<i>Acacia huegelii</i> * <i>Acacia longifolia</i> <i>Acacia pulchella</i> var. <i>glabrescens</i> <i>Acacia pulchella</i> var. <i>pulchella</i> <i>Acacia saligna</i> <i>Acacia stenoptera</i> <i>Aotus gracillima</i> <i>Bossiaea eriocarpa</i> <i>Daviesia triflora</i> <i>Eutaxia virgata</i> <i>Gastrolobium capitatum</i> <i>Gompholobium tomentosum</i> <i>Hovea trisperma</i> <i>Jacksonia furcellata</i> <i>Kennedia prostrata</i> * <i>Lotus subbiflorus</i> * <i>Medicago polymorpha</i> * <i>Ornithopus pinnatus</i> <i>Oxylobium linearifolium</i> <i>Pultenaea reticulata</i> <i>Sphaerolobium medium</i> * <i>Trifolium campestre</i> * <i>Vicia sativa</i>
FUMARIACEAE	* <i>Fumaria capreolata</i>
GENTIANACEAE	* <i>Cicendia filiformis</i>
GERANIACEAE	* <i>Erodium botrys</i> <i>Geranium solandri</i> * <i>Pelargonium capitatum</i>
GOODENIACEAE	<i>Dampiera linearis</i> <i>Goodenia pulchella</i> <i>Lechenaultia floribunda</i> <i>Scaevola repens</i>
HAEMODORACEAE	<i>Anigozanthos humilis</i> <i>Anigozanthos manglesii</i> <i>Conostylis aculeata</i> subsp. <i>aculeata</i> <i>Conostylis serrulata</i> <i>Haemodorum spicatum</i> <i>Phlebocarya ciliata</i> <i>Phlebocarya filifolia</i>
HALORAGACEAE	<i>Gonocarpus pithyoides</i> <i>Myriophyllum tillaeoides</i>

Selected Lots Armadale, Warton and Wright Roads Forrestdale

<b>FAMILY</b>	<b>species</b>
HEMEROCALLIDACEAE	<i>Arnocrinum preissii</i> <i>Caesia micrantha</i> <i>Dianella revoluta</i> <i>Hensmania turbinata</i> <i>Tricoryne elatior</i>
IRIDACEAE	* <i>Freesia alba</i> x <i>leichtlinii</i> * <i>Gladiolus caryophyllaceus</i> * <i>Moraea flaccida</i> <i>Patersonia juncea</i> <i>Patersonia occidentalis</i> * <i>Romulea rosea</i>
JUNCACEAE	* <i>Juncus bufonius</i> * <i>Juncus capitatus</i> <i>Juncus pallidus</i>
JUNCAGINACEAE	<i>Triglochin lineare</i>
LAMIACEAE	<i>Hemiandra pungens</i>
LAURACEAE	<i>Cassytha capillaris</i> <i>Cassytha racemosa</i>
LOBELIACEAE	<i>Lobelia alata</i>
LOGANIACEAE	<i>Phyllangium paradoxa</i>
LORANTHACEAE	<i>Nuytsia floribunda</i>
LYTHRACEAE	* <i>Lythrum hyssopifolium</i>
MESEMBRYANTHACEAE	* <i>Carpobrotus edulis</i>
MORACEAE	* <i>Ficus carica</i>
MYRTACEAE	<i>Astartea scoparia</i> <i>Calothamnus lateralis</i> <i>Calytrix flavescens</i> <i>Calytrix fraseri</i> <i>Eremaea pauciflora</i> <i>Eucalyptus marginata</i> subsp. <i>marginata</i> <i>Eucalyptus rudis</i> subsp. <i>rudis</i> <i>Eucalyptus todtiana</i> <i>Hypocalymma angustifolium</i> <i>Hypocalymma robustum</i> <i>Kunzea glabrescens</i> <i>Melaleuca incana</i> subsp. <i>incana</i> <i>Melaleuca pauciflora</i> <i>Melaleuca preissiana</i> <i>Melaleuca raphiophylla</i> <i>Melaleuca seriata</i> <i>Melaleuca systema</i> <i>Melaleuca teretifolia</i> <i>Melaleuca thymoides</i> <i>Melaleuca viminea</i> subsp. <i>viminea</i>

<b>FAMILY</b>	<b>species</b>
MYRTACEAE (cont.)	<i>Pericalymma ellipticum</i> <i>Regelia ciliata</i> <i>Scholtzia involucrata</i> <i>Taxandria linearifolia</i>
ORCHIDACEAE	<i>Caladenia flava</i> subsp. <i>flava</i> <i>Caladenia paludosa</i> <i>Caladenia</i> sp. <i>Diuris corymbosa</i> <i>Eriochilus dilatatus</i> <i>Lyperanthus nigricans</i> <i>Microtis media</i> subsp. <i>media</i> <i>Prasophyllum gracile</i> <i>Prasophyllum</i> sp. <i>Pterostylis pyramidalis</i> <i>Pterostylis pyramidalis</i> <i>Pterostylis vittata</i> <i>Thelymitra crinita</i>
OROBANCHACEAE	* <i>Orobanche minor</i>
OXALIDACEAE	* <i>Oxalis corniculata</i> * <i>Oxalis pes-caprae</i> * <i>Oxalis purpurea</i>
PHYTOLACCACEAE	* <i>Phytolacca octandra</i>
POACEAE	* <i>Aira caryophyllaceae</i> <i>Amphibromus nervosus</i> <i>Amphipogon turbinatus</i> * <i>Arundo donax</i> <i>Austrostipa compressa</i> * <i>Avena barbata</i> * <i>Briza maxima</i> * <i>Briza minor</i> * <i>Bromus diandrus</i> * <i>Cynodon dactylon</i> * <i>Ehrharta calycina</i> <i>Eragrostis elongata</i> * <i>Ehrharta longiflora</i> * <i>Eragrostis curvula</i> * <i>Holcus lanatus</i> * <i>Hordeum vulgare</i> * <i>Lagurus ovatus</i> * <i>Lolium rigidum</i> * <i>Paspalum urvillei</i> * <i>Pennisetum clandestinum</i> * <i>Vulpia bromoides</i> * <i>Vulpia</i> sp.
POLYGALACEAE	* <i>Rumex crispus</i>



Selected Lots Armadale, Warton and Wright Roads Forrestdale

<b>FAMILY</b>	<b>species</b>
PORTULACACEAE	<i>Calandrinia corrigioloides</i> <i>Calandrinia granulifera</i> <i>Calandrinia linifolia</i>
PRIMULACEAE	* <i>Lysimachia arvensis</i>
PROTEACEAE	<i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i> <i>Banksia attenuata</i> <i>Banksia ilicifolia</i> <i>Banksia menziesii</i> <i>Petrophile linearis</i> <i>Stirlingia latifolia</i> <i>Synaphea spinulosa</i>
RANUNCULACEAE	<i>Ranunculus colonorum</i>
RANUNCULACEAE	* <i>Ranunculus sessiliflorus</i>
RESTIONACEAE	<i>Desmocladius flexuosus</i> <i>Dielsia stenostachya</i> <i>Hypolaena exsulca</i> <i>Lepyrodia glauca</i> <i>Lyginia barbata</i> <i>Meeboldina scariosa</i>
ROSACEAE	* <i>Rubus laudatus</i>
RUTACEAE	<i>Boronia ramosa</i> subsp. <i>anethifolia</i> <i>Philotheca spicatus</i>
SOLANACEAE	* <i>Solanum americanum</i>
STYLIDIACEAE	<i>Levenhookia stipitata</i> <i>Stylidium brunonianum</i> <i>Stylidium piliferum</i> <i>Stylidium repens</i> <i>Stylidium schoenoides</i>
XANTHORRHOEACEAE	<i>Xanthorrhoea brunonis</i> <i>Xanthorrhoea preissii</i>
ZAMIACEAE	<i>Macrozamia riedlei</i>

## **APPENDIX B**

### **Quadrat Data**

**QUADRAT F01**

**Location:** Lot 9103

**GPS:** 396749E; 6445152N also at 396743E; 6445296N

**Soil Type:** Grey sand

**Vegetation Description:** Low Woodland A of *Melaleuca preissiana* over Dense Thicket of *Kunzea glabrescens* over Herbs dominated by *Dasypogon bromeliifolius* (mainly dead)

**Vegetation Condition:** Degraded

**Notes:** It was on the edge of the vegetation where the greater diversity was recorded



SPECIES	HEIGHT (cm)	% COVER
* <i>Arctotheca calendula</i>	45	<1
<i>Banksia attenuata</i>	1200	all dead 3%
<i>Banksia ilicifolia</i>	1200	2
<i>Bossiaea eriocarpa</i>	40	3
* <i>Briza maxima</i>	60	1
* <i>Briza minor</i>	25	70
<i>Burchardia umbellata</i>	70	<1
<i>Caesia micrantha</i>	70	<1
<i>Caladenia flava</i> subsp. <i>flava</i>	35	<1
<i>Caladenia paludosa</i>	50	<1
<i>Conostylis serrulata</i>	45	2
<i>Dasypogon bromeliifolius</i>	60	50
<i>Drosera macrantha</i>	twiner	<1
* <i>Ehrharta calycina</i>	75	1
* <i>Ehrharta longiflora</i>	60	<1

Selected Lots Armadale, Warton and Wright Roads Forrestdale

SPECIES	HEIGHT (cm)	% COVER
<i>Eriochilus dilatatus</i>	10	<1
* <i>Euphorbia terracina</i>	60	<1
* <i>Fumaria capreolata</i>	50	<1
* <i>Gladiolus caryophyllaceus</i>	80	<1
<i>Gompholobium tomentosum</i>	50	<1
* <i>Hypochaeris glabra</i>	50	<1
<i>Kunzea glabrescens</i>	1200	1
* <i>Lactuca serriola</i>	55	<1
<i>Lepidosperma longitudinale</i>	50	25
<i>Lomandra caespitosa</i>	50	<1
<i>Melaleuca preissiana</i>	1200	<1
<i>Monotaxis grandiflora</i>	10	<1
* <i>Pelargonium capitatum</i>	5	<1
<i>Pterostylis pyramidalis</i>	35	<1
<i>Pterostylis vittata</i>	30	1
<i>Ranunculus sessiliflorus</i>	5	<1
<i>Schoenus curvifolius</i>	60	1
* <i>Sonchus oleraceus</i>	40	1
<i>Stylidium schoenoides</i>	50	<1
<i>Thysanotus tenellus</i>	50	<1
<i>Trachymene pilosa</i>	30	<1
<i>Tricoryne elatior</i>	40	<1
* <i>Avena barbata</i>	Opportunistic	
<i>Acacia pulchella</i> var. <i>pulchella</i>	Opportunistic	
<i>Allocasuarina fraseriana</i>	Opportunistic	
<i>Amhipogon turbinatus</i>	Opportunistic	
<i>Astartea scoparia</i>	Opportunistic	
<i>Boronia ramosa</i>	Opportunistic	
* <i>Bromus diandrus</i>	Opportunistic	
<i>Chamaescilla corymbosa</i>	Opportunistic	
<i>Conostephium preissii</i>	Opportunistic	
<i>Conostylis aculeata</i> subsp. <i>aculeata</i>	Opportunistic	
<i>Desmocladus flexuosus</i>	Opportunistic	
* <i>Freesia alba</i> x <i>leichtlinii</i>	Opportunistic	
<i>Hibbertia hypericoides</i>	Opportunistic	
<i>Hyalosperma cotula</i>	Opportunistic	
<i>Kennedia prostrata</i>	Opportunistic	
<i>Lomandra caespitosa</i>	Opportunistic	
<i>Lomandra preissii</i>	Opportunistic	
<i>Lyginia barbata</i>	Opportunistic	
* <i>Lysimachia arvensis</i>	Opportunistic	
<i>Melaleuca seriata</i>	Opportunistic	
<i>Melaleuca thymoides</i>	Opportunistic	
<i>Microtis media</i> subsp. <i>media</i>	Opportunistic	
* <i>Oxalis purpurea</i>	Opportunistic	
<i>Patersonia occidentalis</i>	Opportunistic	

Selected Lots Armadale, Warton and Wright Roads Forrestdale

<b>SPECIES</b>	<b>HEIGHT (cm)</b>	<b>% COVER</b>
<i>Philotheca spicatus</i>	Opportunistic	
<i>Phyllangium paradoxa</i>	Opportunistic	
<i>Scholtzia involucrata</i>	Opportunistic	
* <i>Sonchus oleraceus</i>	Opportunistic	
<i>Thelymitra crinita</i>	Opportunistic	
* <i>Ursinia anthemoides</i>	Opportunistic	
* <i>Wahlenbergia capensis</i>	Opportunistic	
<i>Xanthorrhoea brunonis</i>	Opportunistic	
<i>Xanthorrhoea preissii</i>	Opportunistic	

**QUADRAT F02**

**Location:** Lot 9103

**GPS:** 396802E; 6445083N

**Soil Type:** Grey / yellow sand

**Vegetation Description:** Low Woodland A of *Banksia attenuata*, *Banksia menziesii* and occasional trees of *Eucalyptus marginata* subsp. *marginata* over Low Scrub B of *Xanthorrhoea preissii* over Dwarf Scrub C dominated by *Hibbertia hypericoides* over Herbs dominated by *Burchardia umbellata*

**Vegetation Condition:** Good

**Notes:** Most of this unit is degraded with large areas of *\*Ehrharta calycina*. Several deaths in *Banksia* species possibly due to hot summer of 2010-2011 and dry 2010 winter



SPECIES	HEIGHT (cm)	% COVER
<i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i>	120	<1
<i>Arnocrinum preissii</i>	60	<1
* <i>Avena barbata</i>	95	1
<i>Banksia attenuata</i>	800	15
<i>Banksia menziesii</i>	800	3
* <i>Briza maxima</i>	50	5
<i>Burchardia umbellata</i>	70	15
<i>Chamaescilla corymbosa</i>	20	5
<i>Dasypogon bromeliifolius</i>	70	1
<i>Desmocladius flexuosus</i>	50	5
* <i>Ehrharta calycina</i>	95	70
* <i>Ehrharta longiflora</i>	65	5
<i>Eriochilus dilatatus</i>	15	<1
* <i>Gladiolus caryophyllaceus</i>	90	5
<i>Gompholobium tomentosum</i>	75	1

Selected Lots Armadale, Warton and Wright Roads Forrestdale

<b>SPECIES</b>	<b>HEIGHT (cm)</b>	<b>% COVER</b>
<i>Hibbertia hypericoides</i>	60	<1
* <i>Hypochaeris glabra</i>	30	1
<i>Kennedia prostrata</i>	5	1
<i>Kunzea glabrescens</i>	200	1
<i>Lepidosperma squamatum</i>	70	<1
<i>Lomandra nigricans</i>	40	<1
<i>Lyginia barbata</i>	80	<1
* <i>Lysimachia arvensis</i>	10	<1
<i>Macrozamia riedlei</i>	75	2
<i>Melaleuca thymoides</i>	90	<1
<i>Monotaxis grandiflora</i>	5	<1
<i>Nuytsia floribunda</i>	600	1
* <i>Pelargonium capitatum</i>	50	2
<i>Schoenus curvifolius</i>	50	2
<i>Scholtzia involucrata</i>	50	<1
* <i>Sonchus oleraceus</i>	65	2
<i>Trachymene pilosa</i>	20	<1
<i>Tricoryne elatior</i>	70	<1
* <i>Ursinia anthemoides</i>	70	5
* <i>Vicia sativa</i>	twiner	<1-25
<i>Xanthorrhoea brunonis</i>	75	2
<i>Xanthorrhoea preissii</i>	120	10
<i>Allocasuarina fraseriana</i>	Opportunistic	
<i>Anigozanthos humilis</i>	Opportunistic	
<i>Astroloma xerophyllum</i>	Opportunistic	
<i>Austrostipa compressa</i>	Opportunistic	
<i>Banksia ilicifolia</i>	Opportunistic	
<i>Boronia ramosa</i>	Opportunistic	
* <i>Briza minor</i>	Opportunistic	
* <i>Bromus diandrus</i>	Opportunistic	
<i>Caladenia flava</i> subsp. <i>flava</i>	Opportunistic	
<i>Calandrinia liniflora</i>	Opportunistic	
<i>Calytrix flavescens</i>	Opportunistic	
<i>Conostephium preissii</i>	Opportunistic	
<i>Conostylis aculeata</i> subsp. <i>aculeata</i>	Opportunistic	
<i>Crassula colorata</i>	Opportunistic	
<i>Dampiera linearis</i>	Opportunistic	
<i>Daviesia triflora</i>	Opportunistic	
<i>Eucalyptus marginata</i> subsp. <i>marginata</i>	Opportunistic	
* <i>Euphorbia terracina</i>	Opportunistic	
* <i>Freesia alba</i> x <i>leichtlinii</i>	Opportunistic	
* <i>Fumaria capreolata</i>	Opportunistic	
<i>Gastrolobium capitatum</i>	Opportunistic	
<i>Hemiandra pungens</i>	Opportunistic	
<i>Hibbertia racemosa</i>	Opportunistic	
<i>Hyalosperma cotula</i>	Opportunistic	

Selected Lots Armadale, Warton and Wright Roads Forrestdale

<b>SPECIES</b>	<b>HEIGHT (cm)</b>	<b>% COVER</b>
<i>Laxmannia grandiflora</i>	Opportunistic	
<i>Lomandra caespitosa</i>	Opportunistic	
<i>Melaleuca systema</i>	Opportunistic	
<i>Microtis media</i> subsp. <i>media</i>	Opportunistic	
* <i>Oxalis pes-caprae</i>	Opportunistic	
<i>Patersonia occidentalis</i>	Opportunistic	
<i>Petrophile linearis</i>	Opportunistic	
<i>Podolepis angustifolia</i>	Opportunistic	
<i>Podotheca gnaphalioides</i>	Opportunistic	
<i>Schoenus clandestinus</i>	Opportunistic	
<i>Senecio pinnatifida</i> subsp. <i>latilobus</i>	Opportunistic	
<i>Stirlingia latifolia</i>	Opportunistic	
<i>Synaphea spinulosa</i>	Opportunistic	
* <i>Wahlenbergia capensis</i>	Opportunistic	



**QUADRAT F03**

**Location:** Lot 9103

**GPS:** 396879E; 6444990N

**Soil Type:** Yellow grey sand

**Vegetation Description:** Open Low Woodland A of *Banksia attenuata* over Dwarf Scrub C of mixed taxa dominated by *Hibbertia hypericoides* over Open Tall Grass dominated by *\*Ehrharta calycina* over Open Herbs dominated by *Burchardia umbellata* and *Chamaescilla umbellata*

**Vegetation Condition:** Good

**Notes:** Very small area at the eastern edge of the property



SPECIES	HEIGHT (cm)	% COVER
<i>Acacia pulchella</i> var. <i>glabrescens</i>	70	<1
<i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i>	250	3
<i>Allocasuarina humilis</i>	150	3
<i>Amphipogon turbinatus</i>	60	<1
<i>Arnocrinum preissii</i>	70	<1
<i>Astroloma xerophyllum</i>	50	1
<i>*Avena barbata</i>	120	3
<i>Banksia attenuata</i>	600	5
<i>Boronia ramosa</i>	70	<1
<i>*Briza maxima</i>	70	5
<i>Burchardia umbellata</i>	70	5
<i>Chamaescilla corymbosa</i>	20	5
<i>Conostephium pendulum</i>	50	<1
<i>Daviesia triflora</i>	75	1
<i>*Ehrharta calycina</i>	120	15
<i>*Euphorbia terracina</i>	30	<1
<i>*Fumaria capreolata</i>	70	<1

Selected Lots Armadale, Warton and Wright Roads Forrestdale

SPECIES	HEIGHT (cm)	% COVER
<i>*Gladiolus caryophyllaceus</i>	120	3
<i>Gompholobium tomentosum</i>	60	1
<i>Hemiandra pungens</i>	10	<1
<i>Hensmania turbinata</i>	20	1
<i>Hibbertia huegelii</i>	25	<1
<i>Hibbertia hypericoides</i>	70	5
<i>*Hypochaeris glabra</i>	15	<1
<i>Jacksonia furcellata</i>	200	<1
<i>Laxmannia grandiflora</i>	10	<1
<i>Lomandra caespitosa</i>	50	1
<i>Melaleuca systema</i>	80	1
<i>*Oxalis pes-caprae</i>	40	<1
<i>*Romulea rosea</i>	50	1
<i>Schoenus clandestinus</i>	5	<1
<i>Stirlingia latifolia</i>	175	3
<i>Synaphea spinulosa</i>	60	1
<i>Thysanotus dichotomus</i>	70	<1
<i>Trachymene pilosa</i>	25	<1
<i>Tricoryne elatior</i>	60	<1
<i>*Ursinia anthemoides</i>	60	5
<i>Acacia huegelii</i>	Opportunistic	
<i>Allocasuarina fraseriana</i>	Opportunistic	
<i>Anigozanthos humilis</i>	Opportunistic	
<i>*Arctotheca calendula</i>	Opportunistic	
<i>Austrostipa compressa</i>	Opportunistic	
<i>Calytrix flavescens</i>	Opportunistic	
<i>Conostylis aculeata</i> subsp. <i>aculeata</i>	Opportunistic	
<i>Dampiera linearis</i>	Opportunistic	
<i>Eucalyptus marginata</i> subsp. <i>marginata</i>	Opportunistic	
<i>Eucalyptus todtiana</i>	Opportunistic	
<i>Gonocarpus pithyoides</i>	Opportunistic	
<i>Hibbertia racemosa</i>	Opportunistic	
<i>Kunzea glabrescens</i>	Opportunistic	
<i>Lyginia barbata</i>	Opportunistic	
<i>Melaleuca thymoides</i>	Opportunistic	
<i>Millotia tenuiflora</i> var. <i>tenuiflora</i>	Opportunistic	
<i>Nuytsia floribunda</i>	Opportunistic	
<i>Patersonia occidentalis</i>	Opportunistic	
<i>*Pelargonium capitatum</i>	Opportunistic	
<i>Petrophile linearis</i>	Opportunistic	
<i>Philothea spicatus</i>	Opportunistic	
<i>Podotheca gnaphalioides</i>	Opportunistic	
<i>Thysanotus patersonii</i>	Opportunistic	
<i>*Wahlenbergia capensis</i>	Opportunistic	

**QUADRAT F04**

**Location:** Lot 9103

**GPS:** 396879E; 6445297N

**Soil Type:** Grey sand

**Vegetation Description:** Low Forest A of *Eucalyptus tottiana* and *Banksia attenuata* over Dwarf Scrub C dominated by *Hibbertia hypericoides* over Tall Grass dominated by *\*Ehrharta calycina* over Herbs of mixed taxa dominated by *Gladiolus caryophyllaceus*

**Vegetation Condition:** Good

**Notes:** Occasional *Eucalyptus marginata* subsp. *marginata* trees in this vegetation unit



SPECIES	HEIGHT (cm)	% COVER
<i>Acacia pulchella</i> var. <i>pulchella</i>	60	<1
<i>Allocasuarina humilis</i>	90	1
<i>Astroloma xerophyllum</i>	50	<1
<i>Austrostipa compressa</i>	50	1
<i>Banksia attenuata</i>	500	8
<i>Bossiaea eriocarpa</i>	50	<1
<i>*Briza maxima</i>	70	10
<i>Burchardia umbellata</i>	75	5
<i>Caesia micrantha</i>	50	<1
<i>Calectasia narragara</i>	60	<1
<i>Chamaescilla corymbosa</i>	5	3
<i>Conostylis aculeata</i> subsp. <i>aculeata</i>	50	3
<i>Dampiera linearis</i>	20	<1
<i>Dasypogon bromeliifolius</i>	90	3
<i>Desmocladius flexuosus</i>	35	1
<i>Diuris corymbosa</i>	70	<1

Selected Lots Armadale, Warton and Wright Roads Forrestdale

<b>SPECIES</b>	<b>HEIGHT (cm)</b>	<b>% COVER</b>
<i>Drosera erythrorhiza</i>	2	<1
* <i>Ehrharta calycina</i>	90	<1
<i>Eriochilus dilatatus</i>	15	<1
<i>Eucalyptus todtiana</i>	1400	45
* <i>Gladiolus caryophyllaceus</i>	120	40
<i>Gompholobium tomentosum</i>	70	<1
<i>Hibbertia huegelii</i>	50	<1
<i>Hibbertia hypericoides</i>	80	10
<i>Lomandra caespitosa</i>	60	<1
<i>Lomandra hermaphrodita</i>	50	<1
* <i>Lysimachia arvensis</i>	30	<1
<i>Microtis media</i> subsp. <i>media</i>	50	<1
<i>Patersonia occidentalis</i>	60	1
* <i>Pelargonium capitatum</i>	50	<1
<i>Petrophile linearis</i>	40	<1
<i>Pterostylis vittata</i>	50	<1
<i>Senecio pinnatifida</i> subsp. <i>latilobus</i>	10	<1
* <i>Sonchus oleraceus</i>	70	1
<i>Stirlingia latifolia</i>	70	1
<i>Thysanotus dichotomus</i>	70	<1
<i>Thysanotus patersonii</i>	twiner	<1
<i>Trachymene pilosa</i>	10	5
* <i>Ursinia anthemoides</i>	80	5
* <i>Zantedeschia aethiopica</i>	20	<1
<i>Acacia saligna</i>	Opportunistic	
<i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i>	Opportunistic	
<i>Allocasuarina fraseriana</i>	Opportunistic	
<i>Anigozanthos humilis</i>	Opportunistic	
* <i>Bromus diandrus</i>	Opportunistic	
<i>Calytrix flavescens</i>	Opportunistic	
<i>Conostephium pendulum</i>	Opportunistic	
<i>Daviesia triflora</i>	Opportunistic	
<i>Eucalyptus marginata</i> subsp. <i>marginata</i>	Opportunistic	
* <i>Euphorbia terracina</i>	Opportunistic	
<i>Hibbertia racemosa</i>	Opportunistic	
<i>Laxmannia grandiflora</i>	Opportunistic	
<i>Lyginia barbata</i>	Opportunistic	
<i>Melaleuca systema</i>	Opportunistic	
<i>Melaleuca thymoides</i>	Opportunistic	
<i>Nuytsia floribunda</i>	Opportunistic	
<i>Phlebocarya filifolia</i>	Opportunistic	
<i>Scaevola repens</i>	Opportunistic	
<i>Scholtzia involucrata</i>	Opportunistic	
<i>Xanthorrhoea preissii</i>	Opportunistic	



**QUADRAT F05**

**Location:** Lot 99

**GPS:** 396653E; 6444217N: also recorded from Lot 100 at 396661E; 6444150N

**Soil Type:** Black silty sand

**Vegetation Description:** Dense Low Forest A of *Melaleuca preissiana* over Dense Tall Sedges dominated by *Lepidosperma longitudinale*

**Vegetation Condition:** Good to very good at Lot 99; degraded to completely degraded at Lot 100

**Notes:** Thick humus layer. Where the area is more open there are a lot of *Astartea* regenerating. At Lot 100 the area has been sown with wheat



SPECIES	HEIGHT (cm)	% COVER
<i>Acacia pulchella</i> var. <i>glabrescens</i>	60	<1
<i>Aotus gracillima</i>	80	<1
<i>Astartea scoparia</i>	175	1
* <i>Avena barbata</i>	70	<1
* <i>Briza maxima</i>	30	<1
* <i>Bromus diandrus</i>	70	
* <i>Conyza bonariensis</i>	5	<1
<i>Dianella revoluta</i>	60	<1
<i>Dielsia stenostachya</i>	80	20-75
<i>Juncus pallidus</i>	120	1
<i>Lepidosperma longitudinale</i>	120	75-0
<i>Lobelia alata</i>	20	<1
<i>Melaleuca preissiana</i>	1200	85
<i>Myriophyllum tillaeoides</i>	5	<1
* <i>Pennisetum clandestinum</i>	80	<1

Selected Lots Armadale, Warton and Wright Roads Forrestdale

<b>SPECIES</b>	<b>HEIGHT (cm)</b>	<b>% COVER</b>
<i>Pterostylis pyramidalis</i>	10	<1
* <i>Rubus laudatus</i>	90	5-50
* <i>Sonchus oleraceus</i>	50	<1
* <i>Zantedeschia aethiopica</i>	90	5
<i>Aphelia cyperoides</i>	Opportunistic	
* <i>Briza minor</i>	Opportunistic	
<i>Cassutha capillaris</i>	Opportunistic	
* <i>Cotula coronopifolia</i>	Opportunistic	
<i>Dampiera linearis</i>	Opportunistic	
<i>Eutaxia virgata</i>	Opportunistic	
* <i>Ficus carica</i>	Opportunistic	
* <i>Fumaria capreolata</i>	Opportunistic	
<i>Gomphocarpus fruticosus</i>	Opportunistic	
<i>Goodenia pulchella</i>	Opportunistic	
<i>Hypocalymma angustifolium</i>	Opportunistic	
* <i>Hypochaeris glabra</i>	Opportunistic	
* <i>Juncus bufonius</i>	Opportunistic	
* <i>Juncus capitatus</i>	Opportunistic	
<i>Kunzea glabrescens</i>	Opportunistic	
* <i>Lolium rigidum</i>	Opportunistic	
* <i>Lotus subbiflorus</i>	Opportunistic	
* <i>Monopsis debilis</i>	Opportunistic	
<i>Oxylobium linearifolium</i>	Opportunistic	
<i>Patersonia juncea</i>	Opportunistic	
<i>Patersonia occidentalis</i>	Opportunistic	
* <i>Pelargonium capitatum</i>	Opportunistic	
* <i>Pennisetum clandestinum</i>	Opportunistic	
<i>Phyllangium paradoxa</i>	Opportunistic	
<i>Pultenaea reticulata</i>	Opportunistic	
* <i>Romulea rosea</i>	Opportunistic	
* <i>Schinus terebinthifolia</i>	Opportunistic	
<i>Schoenus efoliatus</i>	Opportunistic	
* <i>Solanum americanum</i>	Opportunistic	
<i>Taxandria linearifolia</i>	Opportunistic	
* <i>Vellereophyton dealbatum</i>	Opportunistic	
<i>Xanthorrhoea preissii</i>	Opportunistic	

QUADRAT F06N

**Location:** Lot 99

**GPS:** 396272E; 6444401N also at 396454E; 6444331

**Soil Type:** Pale yellow grey sand

**Vegetation Description:** Low Woodland A of *Banksia attenuata*, *Banksia menziesii*, *Eucalyptus marginata* subsp. *marginata* and *Allocasuarina fraseriana* over Low Heath C of mixed shrubs dominated by *Hibbertia hypericoides* over Open Sedges dominated by *Lyginia barbata*

**Vegetation Condition:** Good

**Notes:** Best high ground vegetation recorded during the survey



SPECIES	HEIGHT (cm)	% COVER
<i>Acacia pulchella</i> var. <i>glabrescens</i>	90	1
<i>Acacia stenoptera</i>	30	<1
<i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i>	300	5
<i>Allocasuarina fraseriana</i>	900	3
<i>Allocasuarina humilis</i>	90	<1
<i>Amphipogon turbinatus</i>	70	1
<i>Austrostipa compressa</i>	60	
<i>Banksia attenuata</i>	800	15
<i>Banksia menziesii</i>	600	5
<i>Bossiaea eriocarpa</i>	60	<1
* <i>Briza maxima</i>	70	1
<i>Burchardia umbellata</i>	70	<1
<i>Caladenia flava</i> subsp. <i>flava</i>	20	<1
<i>Calytrix flavescens</i>	50	2
<i>Calytrix fraseri</i>	80	<1
<i>Conostylis aculeata</i> subsp. <i>aculeata</i>	30	2
<i>Dampiera linearis</i>	20	<1
<i>Daviesia triflora</i>	70	<1

Selected Lots Armadale, Warton and Wright Roads Forrestdale

SPECIES	HEIGHT (cm)	% COVER
<i>Desmocladius flexuosus</i>	60	5
<i>Diuris corymbosa</i>	70	<1
<i>Drosera pallida</i>	twiner	<1
* <i>Ehrharta calycina</i>	150	5
<i>Eremaea pauciflora</i>	100	2
* <i>Gladiolus caryophyllaceus</i>	90	5
<i>Gompholobium tomentosum</i>	60	2
<i>Hemiandra pungens</i>	20	<1
<i>Hibbertia hypericoides</i>	70	10
<i>Hibbertia racemosa</i>	50	1
<i>Hovea trisperma</i>	50	<1
* <i>Hypochaeris glabra</i>	30	3
<i>Jacksonia furcellata</i>	120	1
<i>Kunzea glabrescens</i>	200	<1
<i>Laxmannia grandiflora</i>	25	<1
<i>Lomandra caespitosa</i>	30	<1
<i>Lyginia barbata</i>	80	5
<i>Lyperanthus nigricans</i>	2	<1
<i>Lysimachia arvensis</i>	30	<1
<i>Microtis media</i> subsp. <i>media</i>	60	<1
<i>Nuytsia floribunda</i>	700	2
<i>Petrophile linearis</i>	60	2
<i>Phlebocarya filifolia</i>	60	5
<i>Phyllangium paradoxa</i>	10	<1
<i>Pterostylis vittata</i>	30	<1
<i>Scholtzia involucrata</i>	50	8
<i>Senecio pinnatifida</i> subsp. <i>latilobus</i>	10	<1
* <i>Sonchus oleraceus</i>	60	1
<i>Stirlingia latifolia</i>	120	5
<i>Stylidium brunonianum</i>	20	<1
<i>Stylidium piliferum</i>	5	<1
<i>Stylidium repens</i>	5	<1
<i>Thelymitra crinita</i>	30	<1
<i>Thysanotus patersonii</i>	twiner	<1
<i>Trachymene pilosa</i>	15	3
* <i>Ursinia anthemoides</i>	60	1
* <i>Wahlenbergia capensis</i>	70	<1
<i>Eucalyptus marginata</i> subsp. <i>marginata</i>	Opportunistic	
<i>Haemodorum spicatum</i>	Opportunistic	
* <i>Hedypnois rhagadioloides</i>	Opportunistic	
<i>Hypocalymma robustum</i>	Opportunistic	
<i>Macrozamia riedlei</i>	Opportunistic	
<i>Schoenus curvifolius</i>	Opportunistic	



**QUADRAT F07**

**Location:** Lot 100

**GPS:** 396527E; 6444181N

**Soil Type:** Grey sand

**Vegetation Description:** Dense Thicket of *Kunzea glabrescens* over Low Scrub A of *Xanthorrhoea preissii* and *Xanthorrhoea brunonis* over Herbs dominated by *Dasyogon bromeliifolius*

**Vegetation Condition:** Good



SPECIES	HEIGHT (cm)	% COVER
* <i>Aira caryophyllaceae</i>	15	<1
* <i>Briza maxima</i>	60	<1
<i>Caladenia flava</i> subsp. <i>flava</i>	20	<1
<i>Caladenia</i> sp.	10	<1
<i>Crassula colorata</i>	10	<1
<i>Dasyogon bromeliifolius</i>	50	20-50
* <i>Gladiolus caryophyllaceus</i>	40	<1
* <i>Hypochaeris glabra</i>	40	5
<i>Kunzea glabrescens</i>	1000	90
* <i>Lagurus ovatus</i>	30	<1
<i>Lobelia alata</i>	30	<1
<i>Lomandra hermaphrodita</i>	30	<1
<i>Pterostylis pyramidalis</i>	40	<1
<i>Schoenus curvifolius</i>	40	1
* <i>Solanum americanum</i>	50	<1
<i>Trachymene pilosa</i>	25	<1
* <i>Ursinia anthemoides</i>	60	1

Selected Lots Armadale, Warton and Wright Roads Forrestdale

<b>SPECIES</b>	<b>HEIGHT (cm)</b>	<b>% COVER</b>
<i>*Vulpia bromoides</i>	30	<1
<i>*Wahlenbergia gracilentia</i>	50	<1
<i>Xanthorrhoea brunonis</i>	100	10
<i>Xanthorrhoea preissii</i>	120	10
<i>*Zantedeschia aethiopica</i>	5	<1
<i>Allocasuarina fraseriana</i>	Opportunistic	
<i>Calandrinia liniflora</i>	Opportunistic	
<i>Conyza bonariensis</i>	Opportunistic	
<i>*Crepis capillaris</i>	Opportunistic	
<i>Drosera paleacea</i> subsp. <i>paleacea</i>	Opportunistic	
<i>Eremaea pauciflora</i>	Opportunistic	
<i>*Isolepis marginatus</i>	Opportunistic	
<i>*Lactuca serriola</i>	Opportunistic	
<i>Melaleuca preissiana</i>	Opportunistic	
<i>*Sonchus oleraceus</i>	Opportunistic	
<i>*Wahlenbergia preissii</i>	Opportunistic	

QUADRAT F 08

**Location:** Lot 100

**GPS:** 396455E; 6444227N

**Soil Type:** Pale grey sand

**Vegetation Description:** Open Woodland A of *Banksia attenuata* over Scrub of *Kunzea glabrescens* over Dense Tall Grass dominated by *\*Ehrharta calycina* over Very Open Herbs dominated by *Dasypogon bromeliifolius*

**Vegetation Condition:** Degraded to completely degraded

**Notes:** Most of the Banksias and Kunzeas are dead



SPECIES	HEIGHT (cm)	% COVER
<i>*Arctotheca calendula</i>	5	<1
<i>Banksia attenuata</i>	1200	5
<i>*Briza maxima</i>	80	<1
<i>Burchardia umbellata</i>	70	3
<i>Caladenia flava</i> subsp. <i>flava</i>	20	<1
<i>Crassula colorata</i>	15	<1
<i>Dasypogon bromeliifolius</i>	60	5
<i>*Ehrharta calycina</i>	120	3
<i>*Ehrharta longiflora</i>	90	75
<i>Eucalyptus todtiana</i>	400	3
<i>*Gladiolus caryophyllaceus</i>	120	3
<i>*Hypochaeris glabra</i>	10	25
<i>*Isolepis marginatus</i>	5	<1
<i>Kunzea glabrescens</i>	800	20
<i>Lomandra suaveolens</i>	30	<1
<i>Nuytsia floribunda</i>	500	2

Selected Lots Armadale, Warton and Wright Roads Forrestdale

<b>SPECIES</b>	<b>HEIGHT (cm)</b>	<b>% COVER</b>
* <i>Solanum americanum</i>	70	<1
* <i>Stellaria media</i>	20	<1
* <i>Ursinia anthemoides</i>	50	5
* <i>Briza minor</i>	Opportunistic	
* <i>Bromus diandrus</i>	Opportunistic	
<i>Calytrix flavescens</i>	Opportunistic	
* <i>Lagurus ovatus</i>	Opportunistic	
* <i>Wahlenbergia capensis</i>	Opportunistic	



**QUADRAT F09**

**Location:** Lot 15

**GPS:** 396625E; 6444096N

**Soil Type:** Grey sand

**Vegetation Description:** Dense Thicket of *Kunzea glabrescens* over Dwarf Scrub C of *Hypolaena angustifolia* and *Lechenaultia floribunda* over Tall Sedges of *Schoenus rigens*

**Vegetation Condition:** Good

**Notes:** Large area in this good condition



SPECIES	HEIGHT (cm)	% COVER
* <i>Aira caryophyllacea</i>	10	<1
* <i>Briza maxima</i>	70	1
<i>Caladenia flava</i> subsp. <i>flava</i>	30	2
* <i>Carpobrotus edulis</i>	5	<1
<i>Cassytha racemosa</i>	twiner	<1
<i>Dampiera linearis</i>	30	<1
<i>Dasyopogon bromeliifolius</i>	70	3
<i>Drosera glanduligera</i>	5	1
* <i>Gladiolus caryophyllaceus</i>	70	<1
<i>Homalosciadium homalocarpum</i>	5	<1
<i>Hypocalymma angustifolium</i>	70	10
* <i>Hypochaeris glabra</i>	40	2
<i>Hypolaena exsulca</i>	50	2
* <i>Isolepis marginatus</i>	5	<1
<i>Kunzea glabrescens</i>	600	75
<i>Lechenaultia floribunda</i>	50	10
<i>Nuytsia floribunda</i>	500	2

Selected Lots Armadale, Warton and Wright Roads Forrestdale

<b>SPECIES</b>	<b>HEIGHT (cm)</b>	<b>% COVER</b>
<i>Pericalymma ellipticum</i>	120	<1
* <i>Petrorhagia dubia</i>	30	<1
<i>Phyllangium paradoxa</i>	15	<1
<i>Pterostylis pyramidalis</i>	30	<1
<i>Schoenus rigens</i>	80	35
* <i>Sonchus oleraceus</i>	50	<1
<i>Trachymene pilosa</i>	20	<1
* <i>Ursinia anthemoides</i>	70	1
<i>Xanthorrhoea brunonis</i>	100	2
* <i>Acacia longifolia</i>	Opportunistic	
<i>Allocasuarina fraseriana</i>	Opportunistic	
<i>Crassula colorata</i>	Opportunistic	
<i>Dielsia stenostachya</i>	Opportunistic	
<i>Eucalyptus rudis</i> subsp. <i>rudis</i>	Opportunistic	
* <i>Lotus subbiflorus</i>	Opportunistic	
<i>Melaleuca preissiana</i>	Opportunistic	
<i>Microtis media</i> subsp. <i>media</i>	Opportunistic	
* <i>Ornithopus pinnatus</i>	Opportunistic	
<i>Podotheca gnaphalioides</i>	Opportunistic	

**QUADRAT F10**

**Location:** Lot 15

**GPS:** 396556E; 6444016N

**Soil Type:** Grey sand

**Vegetation Description:** Low Woodland A of *Banksia attenuata*, *Banksia menziesii*, *Allocasuarina fraseriana* and *Eucalyptus tottiana* over Scrub A of *Kunzea glabrescens* and *Adenanthos cygnorum* subsp. *cygnorum* over Herbs dominated by *Phlebocarya ciliata* and *Dasypogon bromeliifolius*

**Vegetation Condition:** Good



SPECIES	HEIGHT (cm)	% COVER
<i>Acacia pulchella</i> var. <i>glabrescens</i>	150	3
<i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i>	400	5
<i>Allocasuarina fraseriana</i>	1400	5
* <i>Avena barbata</i>	70	2
<i>Banksia attenuata</i>	600	2
<i>Banksia menziesii</i>	1000	5
<i>Bossiaea eriocarpa</i>	50	5
* <i>Briza maxima</i>	60	<1
<i>Caladenia flava</i> subsp. <i>flava</i>	25	<1
<i>Calandrinia corrigioloides</i>	5	<1
<i>Calytrix fraseri</i>	40	<1
<i>Conostylis aculeata</i> subsp. <i>aculeata</i>	30	<1
<i>Conostylis serrulata</i>	40	<1
<i>Crassula colorata</i>	15	<1
<i>Dasypogon bromeliifolius</i>	50	10-30
<i>Desmocladius flexuosus</i>	30	1
* <i>Ehrharta calycina</i>	80	2

Selected Lots Armadale, Warton and Wright Roads Forrestdale

<b>SPECIES</b>	<b>HEIGHT (cm)</b>	<b>% COVER</b>
<i>*Gladiolus caryophyllaceus</i>	90	1
<i>Gompholobium tomentosum</i>	70	2
<i>Hibbertia hypericoides</i>	50	2
<i>Hibbertia racemosa</i>	30	1
<i>*Hypochaeris glabra</i>	30	<1
<i>Hypolaena exsulca</i>	50	<1
<i>Jacksonia furcellata</i>	300	<1
<i>Kunzea glabrescens</i>	600	10
<i>Laxmannia grandiflora</i>	25	<1
<i>Lepidosperma squamatum</i>	80	<1
<i>Leucopogon conostephioides</i>	60	<1
<i>Lomandra caespitosa</i>	30	<1
<i>Lomandra hermaphrodita</i>	70	<1
<i>Lomandra preissii</i>	70	<1
<i>Lyginia barbata</i>	80	1
<i>*Medicago polymorpha</i>	10	<1
<i>Patersonia occidentalis</i>	60	<1
<i>*Petrohragia dubia</i>	70	<1
<i>Phlebocarya ciliata</i>	50	40
<i>Podolepis gnaphalioides</i>	50	1
<i>Pterostylis vittata</i>	70	<1
<i>Regelia ciliata</i>	200	5
<i>Stylidium repens</i>	10	<1
<i>Styphelia tenuiflora</i>	50	<1
<i>Thysanotus patersonii</i>	twiner	<1
<i>*Ursinia anthemoides</i>	60	<1
<i>Anigozanthos manglesii</i>	Opportunistic	
<i>*Avena barbata</i>	Opportunistic	
<i>Calytrix flavescens</i>	Opportunistic	
<i>Eucalyptus todtiana</i>	Opportunistic	
<i>*Sonchus oleraceus</i>	Opportunistic	



QUADRAT F11

**Location:** Lot 3

**GPS:** 396643E; 6443837N

**Soil Type:** Grey sand

**Vegetation Description:** Dense Forest A of *Melaleuca preissiana* and *Eucalyptus rudis* subsp. *rudis* over Open Low Scrub of *Astartea* over Dense Herbs of *\*Zantedeschia aethiopica*

**Vegetation Condition:** Good to degraded

**Notes:** Although the understorey has been replaced by weeds the density of cover of the Melaleucas is worthy of retention. *Lemna disperma* in open water



SPECIES	HEIGHT (cm)	% COVER
<i>Astartea scoparia</i>	200	10
<i>*Ehrharta longiflora</i>	60	12
<i>Eucalyptus rudis</i> subsp. <i>rudis</i>	1600	10
<i>*Euphorbia peplus</i>	50	1
<i>Geranium solandri</i>	30	1
<i>*Lysimachia arvensis</i>	20	<1
<i>Melaleuca preissiana</i>	1200	85
<i>Melaleuca raphiophylla</i>	1400	3
<i>*Phytolacca octandra</i>	70	2
<i>Ranunculus colonorum</i>	40	<1
<i>*Solanum americanum</i>	50	<1
<i>*Sonchus oleraceus</i>	60	<1
<i>*Stellaria media</i>	40	1
<i>*Zantedeschia aethiopica</i>	120	80
<i>*Arctotheca calendula</i>	Opportunistic	
<i>*Briza minor</i>	Opportunistic	

Selected Lots Armadale, Warton and Wright Roads Forrestdale

<b>SPECIES</b>	<b>HEIGHT (cm)</b>	<b>% COVER</b>
<i>*Fumaria capreolata</i>	Opportunistic	
<i>*Isolepis marginatus</i>	Opportunistic	
<i>Lemna disperma</i>	Opportunistic	
<i>*Lotus subbiflorus</i>	Opportunistic	
<i>Monotaxis grandiflora</i>	Opportunistic	
<i>*Rumex crispus</i>	Opportunistic	
<i>*Trifolium campestre</i>	Opportunistic	

QUADRAT F12

**Location:** Lot 5

**GPS:** 396661E; 6444086N

**Soil Type:** Black sandy loam

**Vegetation Description:** Regenerating Low Woodland A of *Melaleuca preissiana* over Open Scrub of *Kunzea glabrescens* over Herbs dominated by *Mitrasacme paradoxa* and *\*Hypochaeris glabra* over Open to Dense Low Sedges of *Dielsia stenostachya* and *Hypolaena exsulca*

**Vegetation Condition:** Varies between very good and degraded

**Notes:** Areas with deaths of *Hypocalymma angustifolia* and *Dielsia stenostachya*



SPECIES	HEIGHT (cm)	% COVER
<i>Aotus gracillima</i>	50	<1
<i>Astartea scoparia</i>	70	1
<i>*Briza maxima</i>	35	<1
<i>*Briza minor</i>	35	1
<i>*Bromus diandrus</i>	60	1
<i>*Carpobrotus edulis</i>	5	<1
<i>Dielsia stenostachya</i>	50	95-5
<i>Drosera gigantea</i> subsp. <i>gigantea</i>	40	<1
<i>*Ehrharta longiflora</i>	60	<1
<i>Homalosciadium homalocarpum</i>	5	10
<i>Hypocalymma angustifolium</i>	50	1
<i>*Hypochaeris glabra</i>	30	10
<i>Hypolaena exsulca</i>	50	2-30
<i>*Isolepis marginatus</i>	5	2
<i>Jacksonia furcellata</i>	150	<1
<i>Kunzea glabrescens</i>	200	5

Selected Lots Armadale, Warton and Wright Roads Forrestdale

SPECIES	HEIGHT (cm)	% COVER
<i>*Lolium rigidum</i>	50	<1
<i>Melaleuca preissiana</i>	200	15
<i>Myriophyllum tillaeoides</i>	2	2
<i>*Ornithopus pinnatus</i>	2	1
<i>Patersonia juncea</i>	60	<1
<i>Phyllangium paradoxa</i>	20	20
<i>*Sonchus asper</i>	130	1
<i>*Sonchus oleraceus</i>	50	<1
<i>*Ursinia anthemoides</i>	50	<1
<i>*Vulpia sp.</i>	5	2
<i>Xanthorrhoea brunonis</i>	70	1
<i>*Acacia longifolia</i>	Opportunistic	
<i>Acacia saligna</i>	Opportunistic	
<i>Aphelia cyperoides</i>	Opportunistic	
<i>Calothamnus lateralis</i>	Opportunistic	
<i>Cassutha racemosa</i>	Opportunistic	
<i>Centrolepis drummondiana</i>	Opportunistic	
<i>Drosera glanduligera</i>	Opportunistic	
<i>*Ehrharta calycina</i>	Opportunistic	
<i>Lepidosperma longitudinale</i>	Opportunistic	
<i>Melaleuca incana</i> subsp. <i>incana</i>	Opportunistic	
<i>Melaleuca pauciflora</i>	Opportunistic	
<i>Melaleuca viminea</i> subsp. <i>viminea</i>	Opportunistic	
<i>Microtis media</i> subsp. <i>media</i>	Opportunistic	
<i>Sphaerolobium medium</i>	Opportunistic	
<i>Taxandria linearifolia</i>	Opportunistic	



QUADRAT F13

**Location:** Lot 6

**GPS:** 396803E; 6444108N

**Soil Type:** Black sandy loam

**Vegetation Description:** Heath A dominated by *Melaleuca viminea* over Open Herbs dominated by *\*Lotus subbiflorus* and *\*Hypochaeris glabra* over Open Tall Sedges of *Lepidosperma longitudinale* and *Baumea juncea*

**Vegetation Condition:** Very good

**Notes:** Very dense shrubland



SPECIES	HEIGHT (cm)	% COVER
<i>Baumea juncea</i>	70	<1-20
<i>*Briza minor</i>	30	2
<i>*Bromus diandrus</i>	70	2
<i>Cassytha racemosa</i>	twiner	1
<i>*Cicendia filiformis</i>	10	5
<i>*Cyperus tenellus</i>	5	2
<i>*Eragrostis curvula</i>	90	<1
<i>*Hypochaeris glabra</i>	30	15
<i>Isolepis cyperoides</i>	20	<1
<i>*Isolepis marginatus</i>	5	4
<i>*Juncus bufonius</i>	10	<1
<i>Lepidosperma longitudinale</i>	70	20
<i>*Lotus subbiflorus</i>	25	15
<i>Melaleuca incana</i> subsp. <i>incana</i>	170	5
<i>Melaleuca viminea</i> subsp. <i>viminea</i>	200	40-60
<i>Microtis media</i> subsp. <i>media</i>	50	<1

Selected Lots Armadale, Warton and Wright Roads Forrestdale

<b>SPECIES</b>	<b>HEIGHT (cm)</b>	<b>% COVER</b>
<i>*Paspalum urvillei</i>	40	<1
<i>Prasophyllum</i> sp.	10	<1
<i>*Vulpia bromoides</i>	25	1
<i>Acacia saligna</i>	Opportunistic	
<i>Baumea articulata</i>	Opportunistic	
<i>*Gladiolus caryophyllaceus</i>	Opportunistic	
<i>Kunzea glabrescens</i>	Opportunistic	
<i>Melaleuca teretifolia</i>	Opportunistic	
<i>*Sonchus asper</i>	Opportunistic	
<i>*Zantedeschia aethiopica</i>	Opportunistic	

QUADRAT F14

**Location:** Lot 6

**GPS:** 396730E; 6444214N

**Soil Type:** Black sand

**Vegetation Description:** Dense Low Forest A of *Melaleuca preissiana* and *Taxandria linearifolia* over Dense Tall Sedges of *Lepidosperma longitudinale*

**Vegetation Condition:** Very good

**Notes:** Near firebreak the condition is good to degraded due to *\*Acacia longifolia* tall shrubs and *\*Rubus* species and *\*Zantedeschia aethiopica*. There are some open areas where *Taxandria linearifolia* has died



SPECIES	HEIGHT (cm)	% COVER
<i>Acacia pulchella</i> var. <i>glabrescens</i>	70	<1
<i>Eutaxia virgata</i>	50	<1
<i>Hypocalymma angustifolium</i>	120	<1
<i>Juncus pallidus</i>	700	20
<i>Lepidosperma longitudinale</i>	160	80
<i>Meeboldina scariosa</i>	200	2
<i>Melaleuca preissiana</i>	1200	90
<i>Oxylobium lineare</i>	300	1
<i>Podolepis gnaphalioides</i>	50	<1
<i>*Rubus laudatus</i>	50	<1
<i>Taxandria linearifolia</i>	1000	10
<i>*Zantedeschia aethiopica</i>	20	<1
<i>Aotus gracillima</i>	Opportunistic	
<i>Astartea scoparia</i>	Opportunistic	
<i>*Briza maxima</i>	Opportunistic	

Selected Lots Armadale, Warton and Wright Roads Forrestdale

<b>SPECIES</b>	<b>HEIGHT (cm)</b>	<b>% COVER</b>
<i>Caesia micrantha</i>	Opportunistic	
<i>Cassytha racemosa</i>	Opportunistic	
<i>Dielsia stenostachya</i>	Opportunistic	
<i>Kunzea glabrescens</i>	Opportunistic	
* <i>Paspalum urvillei</i>	Opportunistic	
<i>Patersonia occidentalis</i>	Opportunistic	
<i>Podotheca gnaphalioides</i>	Opportunistic	
* <i>Schinus terebinthifolia</i>	Opportunistic	
* <i>Sonchus oleraceus</i>	Opportunistic	
<i>Xanthorrhoea brunonis</i>	Opportunistic	
<i>Xanthorrhoea preissii</i>	Opportunistic	



**QUADRAT F15**

**Location:** Lot 5

**GPS:** 396837E; 6444033N

**Soil Type:** Black sand

**Vegetation Description:** Dense Herbs dominated by \**Lotus subbiflorus* over Very Open Tall Sedges of *Baumea articulata* and *Juncus pallidus*

**Vegetation Condition:** completely degraded

**Notes:** Many *Prasophyllum gracile* located in this area



SPECIES	HEIGHT (cm)	% COVER
<i>Amphibromus nervosus</i>	110	1
* <i>Arctotheca calendula</i>	30	<1
<i>Baumea articulata</i>	80	10
* <i>Briza maxima</i>	40	<1
* <i>Briza minor</i>	20	5
* <i>Cicendia filiformis</i>	5	<1
* <i>Cyperus tenellus</i>	5	3
* <i>Hypochaeris glabra</i>	20	1
<i>Isolepis cyperoides</i>	15	<1
* <i>Isolepis marginatus</i>	10	5
* <i>Juncus bufonius</i>	15	<1
<i>Juncus pallidus</i>	100	34
* <i>Lolium rigidum</i>	50	<1
* <i>Lotus subbiflorus</i>	20	95
* <i>Lysimachia arvensis</i>	20	<1
<i>Meeboldina scariosa</i>	120	5
<i>Prasophyllum gracile</i>	50	<1

Selected Lots Armadale, Warton and Wright Roads Forrestdale

<b>SPECIES</b>	<b>HEIGHT (cm)</b>	<b>% COVER</b>
* <i>Romulea rosea</i>	30	20
* <i>Vulpia bromoides</i>	60	2
* <i>Arundo donax</i>	Opportunistic	
* <i>Avena barbata</i>	Opportunistic	
*Cultivated trees	Opportunistic	
* <i>Gomphocarpus fruticosus</i>	Opportunistic	
* <i>Hordeum leporinum</i>	Opportunistic	
<i>Microtis media</i> subsp. <i>media</i>	Opportunistic	
* <i>Rumex crispus</i>	Opportunistic	
<i>Triglochin lineare</i>	Opportunistic	
* <i>Zantedeschia aethiopica</i>	Opportunistic	

QUADRAT F16

**Location:** Lot 9006

**GPS:** Not recorded

**Soil Type:** Grey sand

**Vegetation Description:** Low Grass dominated by *\*Pennisetum clandestinum* over Open Herbs of *\*Lotus subbiflorus*

**Vegetation Condition:** Degraded to completely degraded

**Notes:** Series of wetlands with few sedges



SPECIES	HEIGHT (cm)	% COVER
<i>*Arctotheca calendula</i>	30	3
<i>*Avena barbata</i>	150	5
<i>*Cynodon dactylon</i>	40	3
<i>*Cyperus tenellus</i>	5	5
<i>*Ehrharta calycina</i>	90	3
<i>*Erodium botrys</i>	40	<1
<i>*Holcus lanatus</i>	70	2
<i>*Juncus bufonius</i>	25	3
<i>Juncus pallidus</i>	70	5
<i>*Lolium rigidum</i>	60	2
<i>*Lotus subbiflorus</i>	40	25
<i>*Lysimachia arvensis</i>	5	<1
<i>*Lythrum hyssopifolium</i>	15	5
<i>Melaleuca teretifolia</i>	200	1
<i>*Pennisetum clandestinum</i>	25	20
<i>*Phytolacca octandra</i>	60	3
<i>Triglochin lineare</i>	20	1
<i>Astartea scoparia</i>	Opportunistic	

QUADRAT F17

**Location:** Lot 9001

**GPS:** 397520E; 6445542N

**Soil Type:** Black sandy loam

**Vegetation Description:** Low Forest A of *Eucalyptus rudis* subsp. *rudis* over Herbs dominated by \**Lotus subbiflorus* over Tall Sedges dominated by *Juncus pallidus*

**Vegetation Condition:** Degraded

**Notes:** Lot of rubbish dumped in area. *Eucalyptus rudis* subsp. *rudis* trees are mainly saplings



SPECIES	HEIGHT (cm)	% COVER
* <i>Avena barbata</i>	90	<1
<i>Centella asiatica</i>	20	2
<i>Eucalyptus rudis</i> subsp. <i>rudis</i>	1500	60
* <i>Isolepis marginatus</i>	15	5
<i>Juncus pallidus</i>	150	25
* <i>Lotus subbiflorus</i>	40	2-40
* <i>Lythrum hyssopifolium</i>	15	1
* <i>Oxalis corniculata</i>	20	<1
* <i>Paspalidium urvillei</i>	50	<1
* <i>Acacia longifolia</i>	Opportunistic	
<i>Astartea scoparia</i>	Opportunistic	
* <i>Carpobrotus edulis</i>	Opportunistic	
* <i>Ehrharta longiflora</i>	Opportunistic	
* <i>Homeria flaccida</i>	Opportunistic	
<i>Melaleuca raphiophylla</i>	Opportunistic	
<i>Melaleuca teretifolia</i>	Opportunistic	

Selected Lots Armadale, Warton and Wright Roads Forrestdale

<b>SPECIES</b>	<b>HEIGHT (cm)</b>	<b>% COVER</b>
<i>Melaleuca viminea</i> subsp. <i>viminea</i>	Opportunistic	
* <i>Phytolacca octandra</i>	Opportunistic	
* <i>Rubus laudatus</i>	Opportunistic	
* <i>Rumex crispus</i>	Opportunistic	
* <i>Sonchus oleraceus</i>	Opportunistic	



**QUADRAT 18**

**Location:** Lot 9001

**GPS:** 397293E; 6445477N

**Soil Type:** Grey sand

**Vegetation Description:** Open Low Woodland A of *Melaleuca preissiana* over Tall Grass dominated by *\*Ehrharta calycina* and *\*Ehrharta longiflora* over Open Herbs dominated by *\*Arctotheca calendula*

**Vegetation Condition:** Completely degraded

**Notes:** Lots of *Melaleuca preissiana* are dead or with tops dying. Occasional clumps of *Melaleuca preissiana* scattered through area



SPECIES	HEIGHT (cm)	% COVER
<i>Acacia pulchella</i> var. <i>glabrescens</i>	150	1
<i>*Arctotheca calendula</i>	40	15
<i>*Bromus diandrus</i>	40	<1
<i>*Carpobrotus edulis</i>	20	5
<i>*Cynodon dactylon</i>	20	<1
<i>*Ehrharta calycina</i>	130	20
<i>*Ehrharta longiflora</i>	90	25
<i>*Eragrostis curvula</i>	120	10-90
<i>*Lotus subbiflorus</i>	20	2
<i>Melaleuca preissiana</i>	1200	10
<i>*Orobancha minor</i>	25	<1
<i>*Romulea rosea</i>	30	2
<i>*Vulpia bromoides</i>	40	50
<i>Acacia saligna</i>	Opportunistic	
<i>*Arundo donax</i>	Opportunistic	

Selected Lots Armadale, Warton and Wright Roads Forrestdale

<b>SPECIES</b>	<b>HEIGHT (cm)</b>	<b>% COVER</b>
<i>*Avena barbata</i>	Opportunistic	
<i>Eucalyptus rudis</i> subsp. <i>rudis</i>	Opportunistic	
<i>Eucalyptus todtiana</i>	Opportunistic	
<i>*Euphorbia terracina</i>	Opportunistic	
<i>Jacksonia furcellata</i>	Opportunistic	
<i>Kunzea glabrescens</i>	Opportunistic	
<i>Nuytsia floribunda</i>	Opportunistic	
<i>*Oxalis pes-caprae</i>	Opportunistic	
<i>*Phytolacca octandra</i>	Opportunistic	
<i>*Ricinus communis</i>	Opportunistic	
<i>*Schinus terebinthifolia</i>	Opportunistic	
<i>*Sonchus oleraceus</i>	Opportunistic	
<i>*Zantedeschia aethiopica</i>	Opportunistic	

**QUADRAT F19**

**Location:** Lot 9101

**GPS:** 397103E; 6445486N

**Soil Type:** Black sandy loam

**Vegetation Description:** Low Woodland A of *Melaleuca preissiana* and *Melaleuca raphiophylla* over Scrub of *Astartea scoparia* and *Melaleuca teretifolia* over Tall Grass dominated by *Eragrostis elongata* and\* *Ehrharta longiflora* over Open Herbs dominated by \**Lotus subbiflorus*

**Vegetation Condition:** Good to degraded



SPECIES	HEIGHT (cm)	% COVER
* <i>Arctotheca calendula</i>	15	1
<i>Astartea scoparia</i>	200	10
* <i>Briza minor</i>	30	2
* <i>Carpobrotus edulis</i>	15	2
<i>Cassutha racemosa</i>	twiner	5
<i>Centella asiatica</i>	20	2
<i>Drosera glanduligera</i>	10	<1
* <i>Echium plantagineum</i>	35	3
* <i>Ehrharta calycina</i>	70	1
* <i>Ehrharta longiflora</i>	70	10
<i>Eragrostis elongata</i>	70	20
* <i>Hypochaeris glabra</i>	50	3
<i>Juncus pallidus</i>	80	3
* <i>Lactuca serriola</i>	40	<1
<i>Lepyrodia glauca</i>	80	1
* <i>Lotus subbiflorus</i>	20	15
* <i>Lysimachia arvensis</i>	20	5



Selected Lots Armadale, Warton and Wright Roads Forrestdale

<b>SPECIES</b>	<b>HEIGHT (cm)</b>	<b>% COVER</b>
<i>Melaleuca raphiophylla</i>	800	15
<i>Melaleuca teretifolia</i>	200	10
* <i>Romulea rosea</i>	40	3
* <i>Sonchus asper</i>	90	<1
* <i>Bromus diandrus</i>	Opportunistic	
<i>Crassula colorata</i>	Opportunistic	
* <i>Euphorbia terracina</i>	Opportunistic	
<i>Lepidosperma leptostachyum</i>	Opportunistic	
<i>Melaleuca viminea</i> subsp. <i>viminea</i>	Opportunistic	
<i>Nuytsia floribunda</i>	Opportunistic	
* <i>Paspalum urvillei</i>	Opportunistic	
* <i>Pelargonium capitatum</i>	Opportunistic	
* <i>Schinus terebinthifolia</i>	Opportunistic	
* <i>Zantedeschia aethiopica</i>	Opportunistic	

QUADRAT F20

**Location:** Lot 9101

**GPS:** 397070E; 6445337N

**Soil Type:** Pale grey sand

**Vegetation Description:** Low Forest A of *Eucalyptus tottiana*, *Banksia attenuata*, *Banksia menziesii* and *Allocasuarina fraseriana* over Scrub of *Kunzea glabrescens* and *Adenanthos cygnorum* subsp. *cygnorum* over Open Tall Grass dominated by *\*Ehrharta calycina*

**Vegetation Condition:** Good to degraded

**Notes:** Narrow strip only on higher ground



SPECIES	HEIGHT (cm)	% COVER
<i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i>	300	5
<i>*Arctotheca calendula</i>	25	<1
<i>Austrostipa compressa</i>	30	<1
<i>Banksia attenuata</i>	400	2
<i>Boronia ramosa</i> subsp. <i>anethifolia</i>	60	1
<i>Bossiaea eriocarpa</i>	60	2
<i>*Briza maxima</i>	45	3
<i>Burchardia umbellata</i>	80	2
<i>Caesia micrantha</i>	30	<1
<i>Caladenia flava</i> subsp. <i>flava</i>	20	<1
<i>Calandrinia granulifera</i>	10	1
<i>Conostylis aculeata</i> subsp. <i>aculeata</i>	50	2
<i>Crassula colorata</i>	15	<1
<i>Dasypogon bromeliifolius</i>	50	3
<i>Desmocladius flexuosus</i>	50	2
<i>Drosera pallida</i>	twiner	<1

Selected Lots Armadale, Warton and Wright Roads Forrestdale

SPECIES	HEIGHT (cm)	% COVER
<i>*Ehrharta calycina</i>	90	15
<i>Eucalyptus todtiana</i>	800	30
<i>*Gladiolus caryophyllaceus</i>	80	2
<i>Gompholobium tomentosum</i>	50	2
<i>Hibbertia hypericoides</i>	70	5
<i>Hyalosperma cotula</i>	20	<1
<i>*Isolepis marginatus</i>	10	<1
<i>Jacksonia furcellata</i>	250	3
<i>Kunzea glabrescens</i>	300	10
<i>Lepidosperma squamatum</i>	60	<1
<i>Leucopogon propinquus</i>	65	1
<i>Levenhookia stipitata</i>	5	<1
<i>Lomandra caespitosa</i>	40	<1
<i>Lyginia barbata</i>	70	3
<i>Monotaxis grandiflora</i>	5	<1
<i>*Oxalis pes-caprae</i>	50	<1
<i>Patersonia occidentalis</i>	70	1
<i>*Pelargonium capitatum</i>	30	<1
<i>Pterostylis vittata</i>	60	<1
<i>Scholtzia involucrata</i>	30	<1
<i>Siloxerus multiflorus</i>	2	<1
<i>Stirlingia latifolia</i>	70	5
<i>Thysanotus patersonii</i>	twiner	<1
<i>Trachymene pilosa</i>	15	<1
<i>*Ursinia anthemoides</i>	70	3
<i>Wahlenbergia preissii</i>	40	<1
<i>*Zantedeschia aethiopica</i>	40	<1
<i>Acacia pulchella</i> var. <i>glabrescens</i>	Opportunistic	
<i>Acacia stenoptera</i>	Opportunistic	
<i>Allocasuarina fraseriana</i>	Opportunistic	
<i>Allocasuarina humilis</i>	Opportunistic	
<i>Calandrinia corrigioloides</i>	Opportunistic	
<i>Cassytha racemosa</i>	Opportunistic	
<i>Conostephium pendulum</i>	Opportunistic	
<i>Dampiera linearis</i>	Opportunistic	
<i>Hemiandra pungens</i>	Opportunistic	
<i>Lechenaultia floribunda</i>	Opportunistic	
<i>Nuytsia floribunda</i>	Opportunistic	
<i>Stylidium repens</i>	Opportunistic	

QUADRAT F21

**Location:** Lot 1001

**GPS:** 396588E; 6444401N

**Soil Type:** Pale grey sand

**Vegetation Description:** Low Forest A of *Eucalyptus marginata* subsp. *marginata*, *Banksia attenuata*, *Banksia menziesii* and *Allocasuarina fraseriana* over Open Low Scrub B of *Macrozamia riedlei* and *Xanthorrhoea preissii* over Open Dwarf Scrub C of *Hibbertia hypericoides* over Open Tall Grass dominated by *\*Ehrharta calycina* over Open Herbs dominated by *\*Gladiolus caryophyllaceus*

**Vegetation Condition:** Good to degraded

**Notes:** Very narrow strip at the top of the dune. Down slope there was a lot of *Adenanthos cygnorum* subsp. *cygnorum* and *Acacia microstachya*. The remainder of this lot planted with non-endemic species with a small amount of natural regeneration after the sand pit was closed



SPECIES	HEIGHT (cm)	% COVER
<i>Acacia stenoptera</i>	70	<1
<i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i>	200	5
<i>Allocasuarina fraseriana</i>	1200	5
<i>Austrostipa compressa</i>	45	<1
<i>*Avena barbata</i>	150	3
<i>Banksia attenuata</i>	600	3
<i>Banksia menziesii</i>	600	3
<i>Burchardia umbellata</i>	80	3
<i>Caladenia flava</i> subsp. <i>flava</i>	25	<1
<i>Calandrinia granulifera</i>	400	3
<i>Conostylis aculeata</i> subsp. <i>aculeata</i>	40	2
<i>Dampiera linearis</i>	20	<1
<i>Dasyogon bromeliifolius</i>	40	1
<i>Desmocladius flexuosus</i>	30	1

Selected Lots Armadale, Warton and Wright Roads Forrestdale

SPECIES	HEIGHT (cm)	% COVER
<i>Dianella revoluta</i>	80	2
<i>Drosera pallida</i>	twiner	<1
* <i>Ehrharta calycina</i>	100	10
* <i>Gladiolus caryophyllaceus</i>	80	15
<i>Gompholobium tomentosum</i>	70	2
<i>Hibbertia hypericoides</i>	60	5
<i>Jacksonia furcellata</i>	200	2
<i>Laxmannia grandiflora</i>	30	<1
<i>Lepidosperma squamatum</i>	50	5
<i>Levenhookia stipitata</i>	10	<1
<i>Lomandra caespitosa</i>	50	3
<i>Lyginia barbata</i>	70	2
<i>Lyperanthus nigricans</i>	2	<1
<i>Macrozamia riedlei</i>	120	5
<i>Microtis media</i> subsp. <i>media</i>	70	<1
<i>Patersonia occidentalis</i>	70	2
* <i>Sonchus oleraceus</i>	20	<1
<i>Stirlingia latifolia</i>	90	3
<i>Trachymene pilosa</i>	25	<1
* <i>Ursinia anthemoides</i>	50	5
<i>Xanthorrhoea preissii</i>	175	5
* <i>Zantedeschia aethiopica</i>	20	<1
<i>Bossiaea eriocarpa</i>	Opportunistic	
<i>Hypocalymma robustum</i>	Opportunistic	
<i>Kunzea glabrescens</i>	Opportunistic	
<i>Lomandra hermaphrodita</i>	Opportunistic	
<i>Melaleuca thymoides</i>	Opportunistic	
<i>Thysanotus patersonii</i>	Opportunistic	

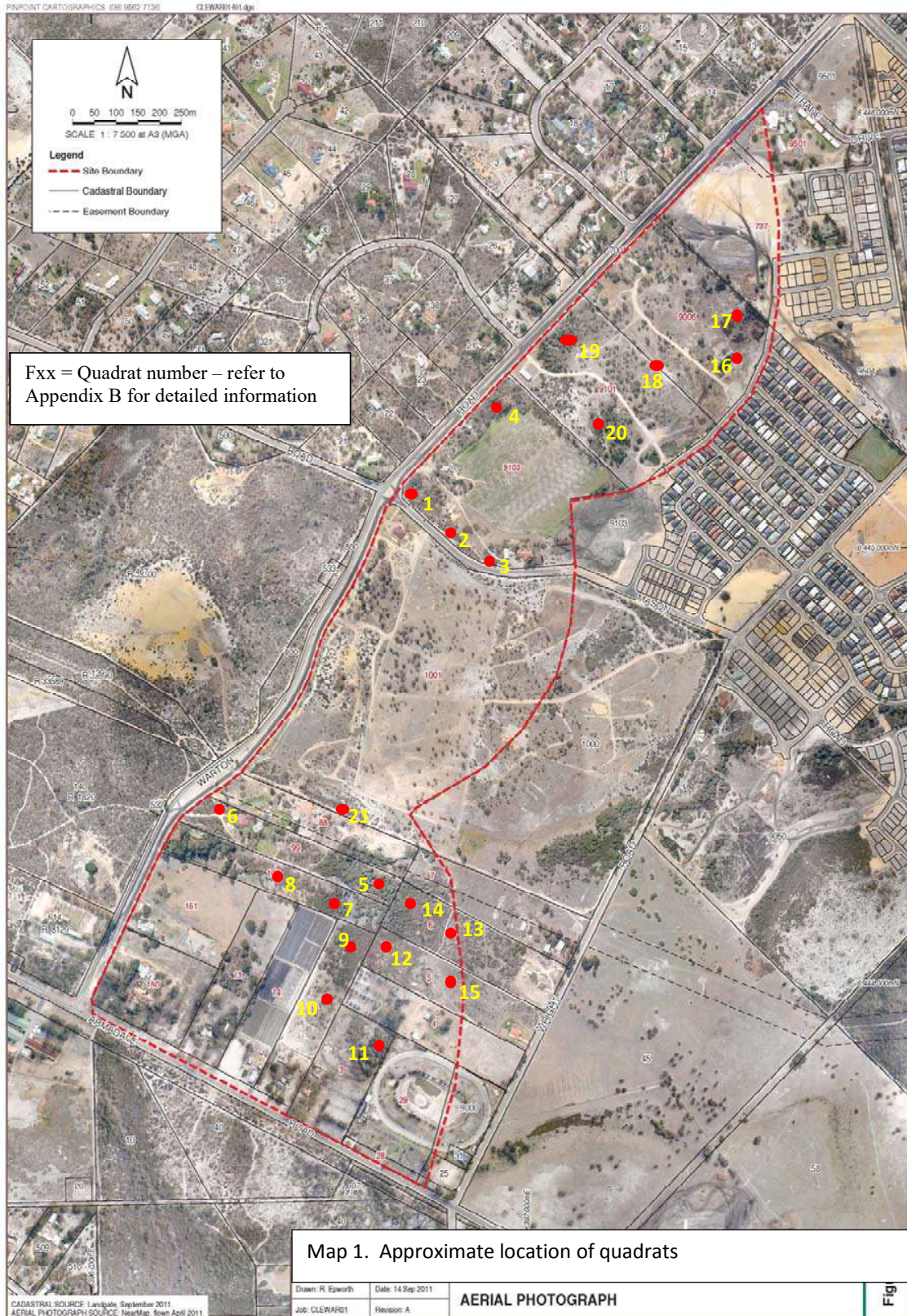


## **APPENDIX C**

### **Maps**

1. Approximate Location of Quadrats
2. Vegetation Units
3. Vegetation Condition

Selected Lots Armadale, Warton and Wright Roads Forrestdale

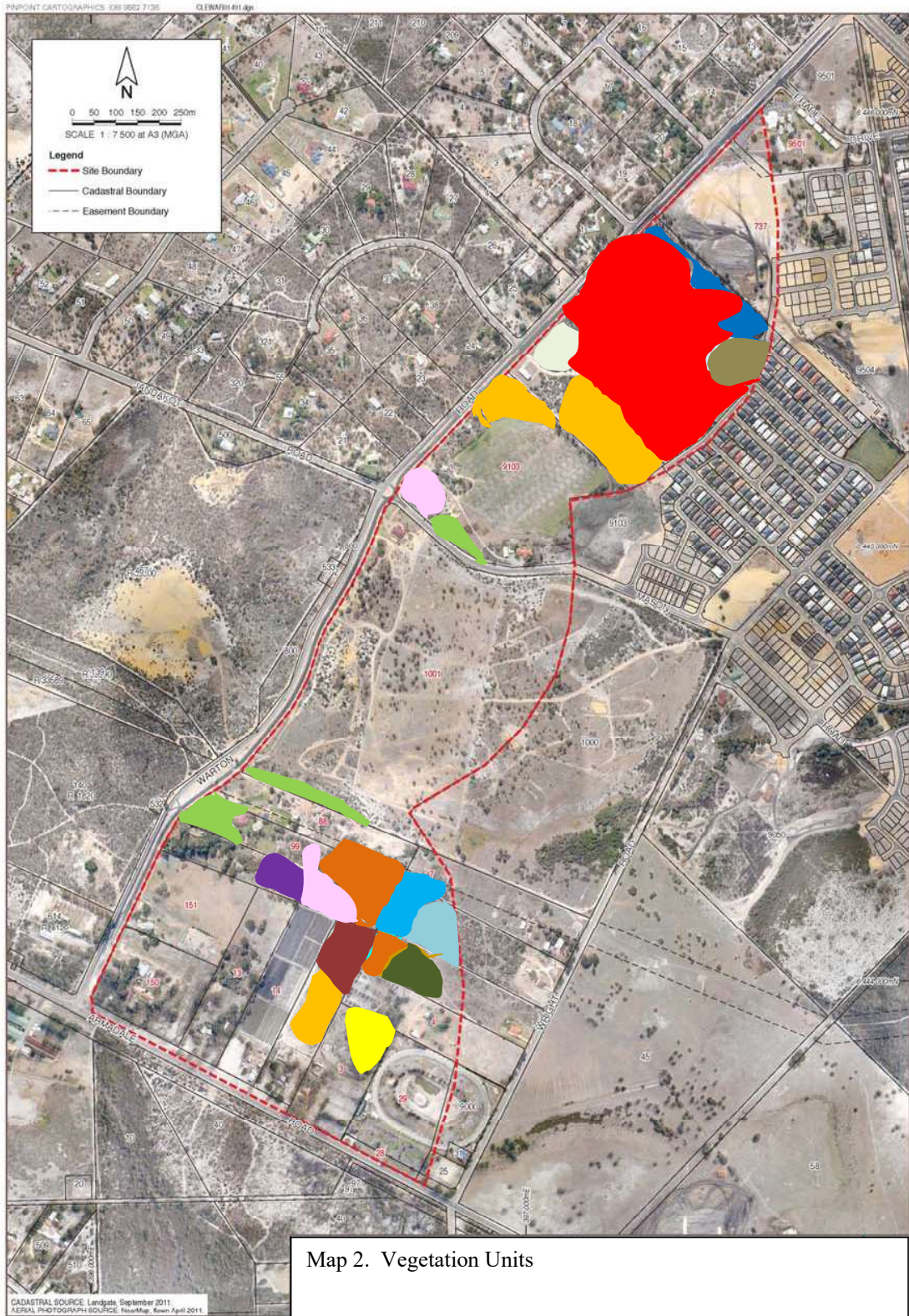


**Figure 2. Vegetation Units**  
**Colours used in vegetation map**

<b>Colour</b>	<b>Vegetation Description</b>
	Low Woodland A of <i>Banksia attenuata</i> , <i>Banksia menziesii</i> , <i>Allocasuarina fraseriana</i> , <i>Nuytsia floribunda</i> and <i>Eucalyptus marginata</i> subsp. <i>marginata</i> over Low Scrub B dominated by <i>Xanthorrhoea preissii</i> or Dwarf Scrub C dominated by <i>Hibbertia hypericoides</i> over Tall Grass dominated by <i>*Avena barbata</i> and <i>*Ehrharta calycina</i> in grey sand
	Low Woodland A of <i>Banksia attenuata</i> , <i>Banksia menziesii</i> , <i>Allocasuarina fraseriana</i> , <i>Nuytsia floribunda</i> and <i>Eucalyptus tottiana</i> over Heath B of mixed taxa dominated by <i>Xanthorrhoea preissii</i> over Open Tall Grass dominated by <i>*Ehrharta calycina</i> over Open Herbs dominated by <i>Dasypogon bromeliifolius</i> or <i>Phlebocarya ciliata</i> in grey sand
	Open Low Woodland of <i>Banksia attenuata</i> over Scrub of <i>Kunzea glabrescens</i> over Dense Tall Grass of <i>*Ehrharta calycina</i> over Open Herbs dominated by <i>*Hypochoeris glabra</i> in pale grey sand.
	Low Forest of <i>Eucalyptus rudis</i> subsp. <i>rudis</i> over Open Herbs dominated by <i>*Lotus subbiflorus</i> over Open Tall Sedges of <i>Juncus pallidus</i> in black sandy loam.
	Dense Low Forest A of <i>Melaleuca preissiana</i> over Scrub of <i>Taxandria linearifolia</i> over Dense Tall Sedges of <i>Lepidosperma longitudinale</i> and <i>Juncus pallidus</i> in black sand.
	Low Woodland A of <i>Melaleuca preissiana</i> over Dense Thicket of <i>Kunzea glabrescens</i> over Herbs dominated by <i>Dasypogon bromeliifolius</i> in grey sand
	Low Woodland A of <i>Melaleuca preissiana</i> and <i>Melaleuca rhapsiophylla</i> over Scrub of <i>Melaleuca teretifolia</i> and <i>Astartea scoparia</i> over Tall Grass dominated by <i>*Eragrostis curvula</i> and <i>*Ehrharta longifolia</i> over Herbs dominated by <i>*Lotus subbiflorus</i> in black sandy loam.
	Dense Low Forest A of <i>Melaleuca preissiana</i> with occasional trees of <i>Eucalyptus rudis</i> subsp. <i>rudis</i> over Open Scrub of <i>Astartea scoparia</i> over Dense Herbs dominated by <i>*Zantedeschia aethiopicum</i> in very damp grey sand with areas of open water
	Dense Thicket of <i>Kunzea glabrescens</i> over Dwarf Scrub C dominated by <i>Hypocalymma angustifolium</i> and <i>Lechenaultia floribunda</i> over Tall Sedge of <i>Schoenus rigens</i> in grey sand
	Dense Low Forest A of <i>Melaleuca preissiana</i> over Open Scrub of <i>Kunzea glabrescens</i> over Dense Tall Sedges of <i>Lepidosperma longitudinale</i> and/or <i>Dielsia stenostachya</i> and/or <i>Hypolaena exsulca</i> in black silty sand.
	Heath A of <i>Melaleuca viminea</i> and <i>Melaleuca incana</i> subsp. <i>incana</i> over Open Herbs dominated by <i>*Hypochoeris glabra</i> and <i>*Lotus subbiflorus</i> over Tall Sedges dominated by <i>Baumea juncea</i> and <i>Lepidosperma longitudinale</i> in damp grey sand.
	Open Low Woodland A of <i>Melaleuca preissiana</i> over Dense Tall Grass of <i>*Ehrharta calycina</i> , <i>*Eragrostis curvula</i> and <i>*Ehrharta longiflora</i> in low lying grey sand over Open Herbs dominated by <i>*Arctotheca calendula</i> in low lying grey sand.
	Dense Herbs dominated by <i>*Lotus subbiflorus</i> over Open Tall Sedges of <i>Meeboldina scariosa</i> and <i>Baumea articulata</i> in damp flat area.
	Open Low Grass of <i>Pennisetum clandestinum</i> over Open Herbs dominated by <i>*Lotus subbiflorus</i> over Very Open Sedges of <i>*Cyperus tenellus</i> in very damp grey sand.
<b>No colour</b>	Cleared areas, homes and surrounds or planted non-endemic trees



Selected Lots Armadale, Warton and Wright Roads Forrestdale





Selected Lots Armadale, Warton and Wright Roads Forrestdale

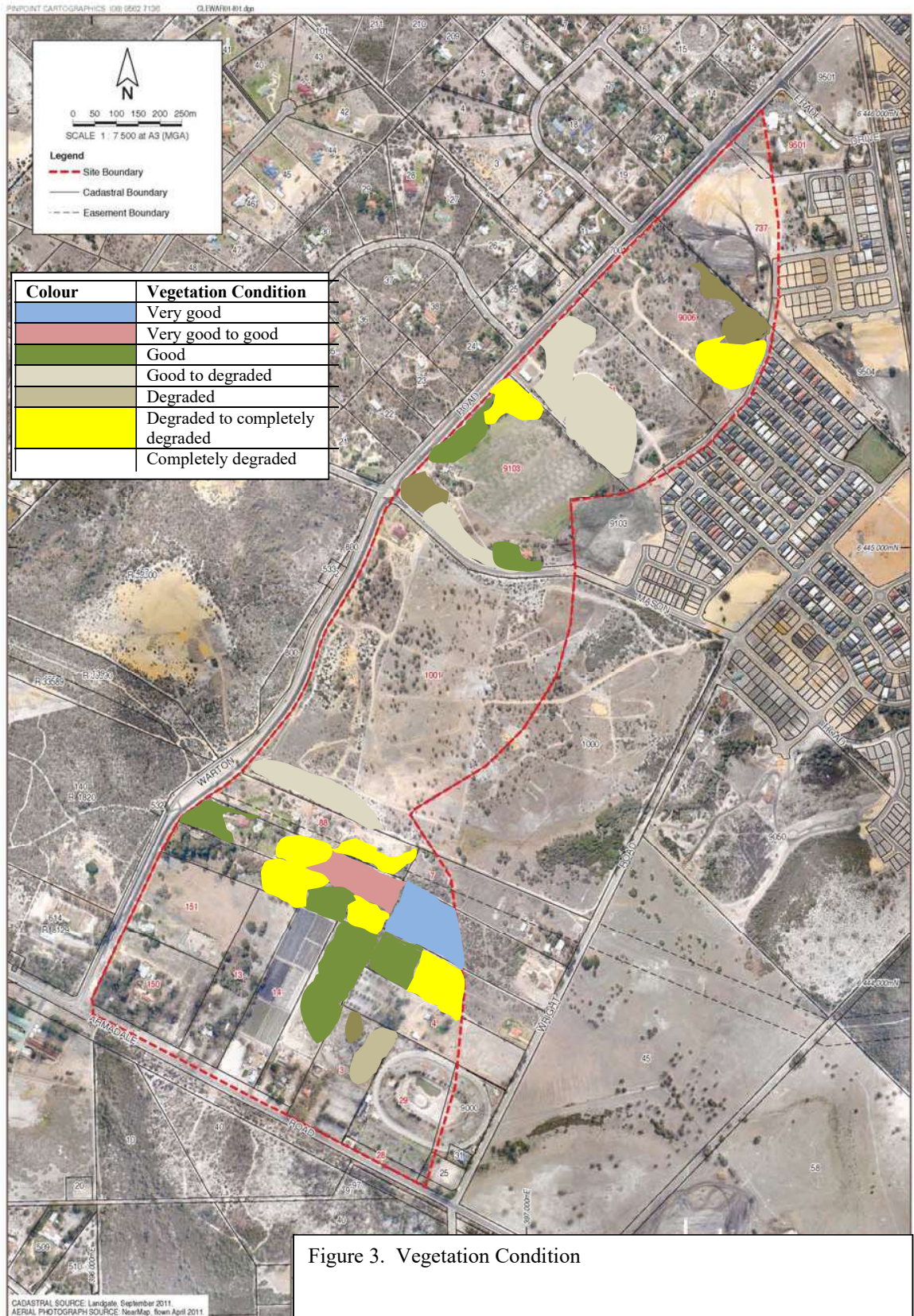


Figure 3. Vegetation Condition



## **APPENDIX D**

### **Detailed Vegetation Units Maps for Lots with Remnant Vegetation**

Selected Lots Armadale, Warton and Wright Roads Forrestdale

<b>Vegetation Unit Abbreviation</b>	<b>Vegetation Description</b>
<b>Bm</b>	Low Woodland A of <i>Banksia attenuata</i> , <i>Banksia menziesii</i> , <i>Allocasuarina fraseriana</i> , <i>Nuytsia floribunda</i> and <i>Eucalyptus marginata</i> subsp. <i>marginata</i> over Low Scrub B dominated by <i>Xanthorrhoea preissii</i> or Dwarf Scrub C dominated by <i>Hibbertia hypericoides</i> over Tall Grass dominated by <i>*Avena barbata</i> and <i>*Ehrharta calycina</i> in grey sand
<b>Bt</b>	Low Woodland A of <i>Banksia attenuata</i> , <i>Banksia menziesii</i> , <i>Allocasuarina fraseriana</i> , <i>Nuytsia floribunda</i> and <i>Eucalyptus tottiana</i> over Heath B of mixed taxa dominated by <i>Xanthorrhoea preissii</i> over Open Tall Grass dominated by <i>*Ehrharta calycina</i> over Open Herbs dominated by <i>Dasypogon bromeliifolius</i> or <i>Phlebocarya ciliata</i> in grey sand
<b>BK</b>	Open Low Woodland of <i>Banksia attenuata</i> over Scrub of <i>Kunzea glabrescens</i> over Dense Tall Grass of <i>*Ehrharta calycina</i> over Open Herbs dominated by <i>*Hypochaeris glabra</i> in pale grey sand.
<b>Er</b>	Low Forest of <i>Eucalyptus rudis</i> subsp. <i>rudis</i> over Open Herbs dominated by <i>*Lotus subbiflorus</i> over Open Tall Sedges of <i>Juncus pallidus</i> in black sandy loam.
<b>Mp</b>	Dense Low Forest A of <i>Melaleuca preissiana</i> over Scrub of <i>Taxandria linearifolia</i> over Dense Tall Sedges of <i>Lepidosperma longitudinale</i> and <i>Juncus pallidus</i> in black sand.
<b>MK</b>	Low Woodland A of <i>Melaleuca preissiana</i> over Dense Thicket of <i>Kunzea glabrescens</i> over Herbs dominated by <i>Dasypogon bromeliifolius</i> in grey sand
<b>MM</b>	Low Woodland A of <i>Melaleuca preissiana</i> and <i>Melaleuca raphiophylla</i> over Scrub of <i>Melaleuca teretifolia</i> and <i>Astartea scoparia</i> over Tall Grass dominated by <i>*Eragrostis curvula</i> and <i>*Ehrharta longifolia</i> over Herbs dominated by <i>*Lotus subbiflorus</i> in black sandy loam.
<b>EA</b>	Dense Low Forest A of <i>Melaleuca preissiana</i> with occasional trees of <i>Eucalyptus rudis</i> subsp. <i>rudis</i> over Open Scrub of <i>Astartea scoparia</i> over Dense Herbs dominated by <i>*Zantedeschia aethiopicum</i> in very damp grey sand with areas of open water
<b>Kg</b>	Dense Thicket of <i>Kunzea glabrescens</i> over Dwarf Scrub C dominated by <i>Hypocalymma angustifolium</i> and <i>Lechenaultia floribunda</i> over Tall Sedge of <i>Schoenus rigens</i> in grey sand
<b>MD</b>	Dense Low Forest A of <i>Melaleuca preissiana</i> over Open Scrub of <i>Kunzea glabrescens</i> over Dense Tall Sedges of <i>Lepidosperma longitudinale</i> and/or <i>Dielsia stenostachya</i> and/or <i>Hypolaena exsulca</i> in black silty sand.
<b>ML</b>	Heath A of <i>Melaleuca viminea</i> and <i>Melaleuca incana</i> subsp. <i>incana</i> over Open Herbs dominated by <i>*Hypochaeris glabra</i> and <i>*Lotus subbiflorus</i> over Tall Sedges dominated by <i>Baumea juncea</i> and <i>Lepidosperma longitudinale</i> in damp grey sand.
<b>ME</b>	Open Low Woodland A of <i>Melaleuca preissiana</i> over Dense Tall Grass of <i>*Ehrharta calycina</i> , <i>*Eragrostis curvula</i> and <i>*Ehrharta longiflora</i> in low lying grey sand over Open Herbs dominated by <i>*Arctotheca calendula</i> in low lying grey sand.
<b>Ms</b>	Dense Herbs dominated by <i>*Lotus subbiflorus</i> over Open Tall Sedges of <i>Meeboldina scariosa</i> and <i>Baumea articulata</i> in damp flat area.
<b>Pc</b>	Open Low Grass of <i>Pennisetum clandestinum</i> over Open Herbs dominated by <i>*Lotus subbiflorus</i> over Very Open Sedges of <i>*Cyperus tenellus</i> in very damp grey sand.
	Cleared areas, homes and surrounds or planted non-endemic trees

Where a quadrat was placed in the vegetation at the Lot being described the quadrat number is recorded. However where the vegetation was the same as that described in a different Lot the above vegetation abbreviation is used (in red lettering). The condition is also recorded (in yellow numbering).



### Vegetation at Lot 3

Higher ground: Dense Thicket of *Kunzea glabrescens* over Tall Sedge of *Schoenus rigens* in grey sand. **Vegetation unit Kg.** Vegetation condition: Degraded

Lower ground: Dense Low Forest A of *Melaleuca preissiana* over Open Scrub of *Kunzea glabrescens* over Dense Tall Sedges of *Lepidosperma longitudinale* and/or *Dielsia stenostachya* and/or *Hypolaena exsulca* in black silty sand. **Vegetation unit EA.** Quadrat F11. Vegetation condition good to degraded

Remainder of the Lot was cleared or with planted non-endemic trees. Vegetation condition completely degraded



### Vegetation at Lots 5, 6 and 7 Wright Road

Regenerating Low Woodland A of *Melaleuca preissiana* over Open Scrub of *Kunzea glabrescens* over Herbs dominated by *Mitrasacme paradoxa* and *\*Hypochaeris glabra* over Open to Dense Low Sedges of *Dielsia stenostachya* and *Hypolaena exsulca* in black sandy loam. **Vegetation unit MD.** Quadrat F12. Vegetation condition very good to degraded.

Heath A dominated by *Melaleuca viminea* over Open Herbs dominated by *\*Lotus subbiflorus* and *\*Hypochaeris glabra* Open Tall Sedges of *Lepidosperma longitudinale* and *Baumea juncea* in black sandy loam **Vegetation unit ML.** Quadrat F13. Vegetation condition very good.

Dense Low Forest A of *Melaleuca preissiana* and *Taxandria linearifolia* over Dense Tall Sedges of *Lepidosperma longitudinale* in black sand. **Vegetation Unit Mp.** Quadrat F14. Vegetation condition very good.

Dense Herbs dominated by *\*Lotus subbiflorus* over Very Open Tall Sedges of *Baumea articulata* and *Meeboldina scariosa* in black sand. **Vegetation unit Ms.** Quadrat F15. Vegetation condition degraded to completely degraded.



No remnant native vegetation. All trees were planted. Vegetation condition completely degraded





### **Vegetation at Lot 15**

Dense Thicket of *Kunzea glabrescens* over Dwarf Scrub C dominated by *Hypocalymma angustifolium* and *Lechenaultia floribunda* over Tall Sedge of *Schoenus rigens* in grey sand. **Vegetation unit Kg.** This was represented by quadrat F09. Vegetation condition was good.

Low Woodland A of *Banksia attenuata*, *Banksia menziesii*, *Allocasuarina fraseriana*, *Nuytsia floribunda* and *Eucalyptus tottiana* over Heath B of mixed taxa dominated by *Xanthorrhoea preissii* over Open Tall Grass dominated by *\*Ehrharta calycina* over Open Herbs dominated by *Dasyogon bromeliifolius* or *Phlebocarya ciliata* in grey sand. **Vegetation unit Bt.** This was represented by quadrat F10. As indicated on the aerial the vegetation varied between good and degraded to completely degraded.

The remainder of the lot had planted trees or was cleared. The vegetation condition was completely degraded.



### **Vegetation at Lots 88 and 99**

Dense Low Forest A of *Melaleuca preissiana* over Open Scrub of *Kunzea glabrescens* over Dense Tall Sedges of *Lepidosperma longitudinale* and/or *Dielsia stenostachya* and/or *Hypolaena exsulca* in black silty sand. **Vegetation unit MD.** This was represented by quadrat F05 placed in Lot 99. The vegetation condition of this vegetation unit in Lot 99 was very good to good but in Lot 88 it was degraded to completely degraded.

Low Woodland A of *Banksia attenuata*, *Banksia menziesii*, *Allocasuarina fraseriana*, *Nuytsia floribunda* and *Eucalyptus marginata* subsp. *marginata* over Low Scrub B dominated by *Xanthorrhoea preissii* or Dwarf Scrub C dominated by *Hibbertia hypericoides* over Tall Grass dominated by *Avena barbata* and *Ehrharta calycina* in grey sand. **Vegetation unit BM.** The quadrat F06 was placed between the residence and the road where the vegetation was in good condition. The second location adjacent to F05 was in a degraded to completely degraded condition.





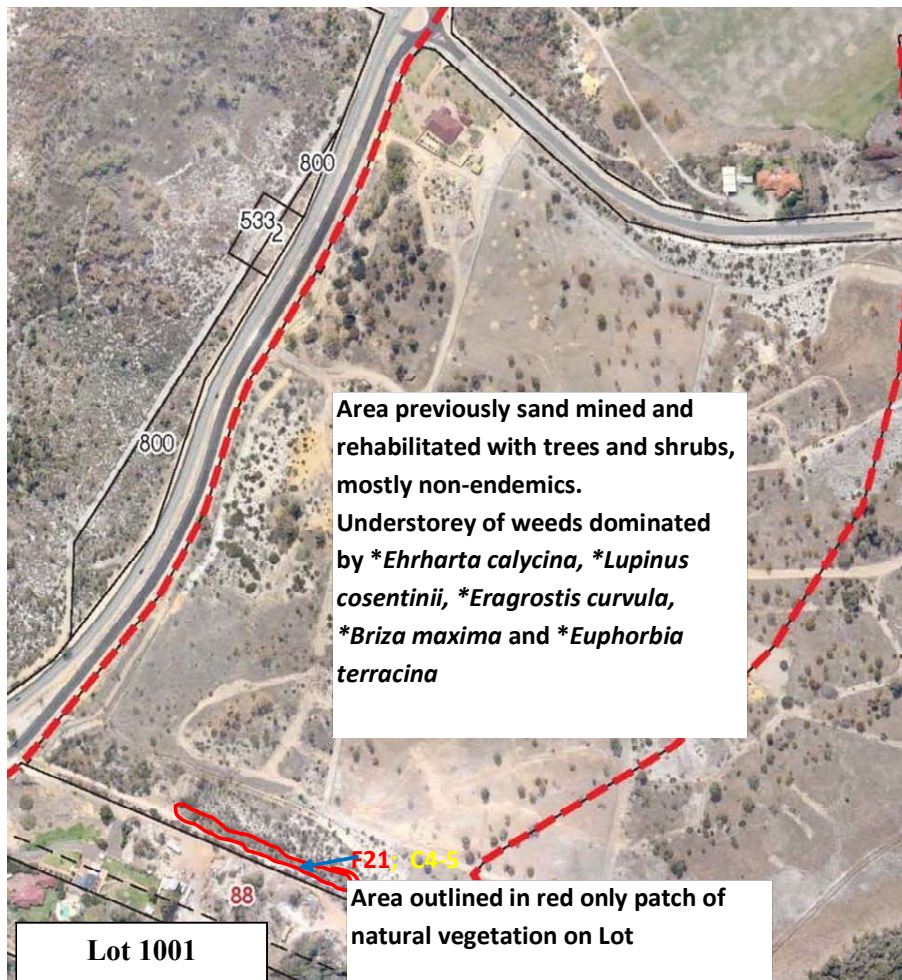
### **Vegetation at Lot 100**

Dense Low Forest A of *Melaleuca preissiana* over Open Scrub of *Kunzea glabrescens* over Dense Tall Sedges of *Lepidosperma longitudinale* and/or *Dielsia stenostachya* and/or *Hypolaena exsulca* in black silty sand. **Vegetation unit MD.** The vegetation condition varied between degraded to completely degraded.

Low Woodland A of *Melaleuca preissiana* over Dense Thicket of *Kunzea glabrescens* over Herbs dominated by *Dasypogon bromeliifolius* in grey sand. **Vegetation unit MK.** It was represented by quadrat F07 but at this Lot the trees of *Melaleuca preissiana* were scattered and not a dominant stratum of the vegetation. The vegetation condition was good.

Open Low Woodland of *Banksia attenuata* over Scrub of *Kunzea glabrescens* over Dense Tall Grass of *\*Ehrharta calycina* over Open Herbs dominated by *\*Hypochaeris glabra* in pale grey sand. **Vegetation unit BK.** This was represented by quadrat F08. The vegetation condition was degraded to completely degraded. There were many dead trees of *Banksia attenuata* and *Kunzea glabrescens*.

The remainder of the Lot had planted trees, especially around the house.



### Vegetation at Lot 1001

This was the largest area of the lots surveyed but was rehabilitating after sand extraction. Only a small area of remnant vegetation remained adjoining Lot 88.

Low Woodland A of *Banksia attenuata*, *Banksia menziesii*, *Allocasuarina fraseriana*, *Nuytsia floribunda* and *Eucalyptus marginata* subsp. *marginata* over Open Low Scrub B dominated by *Xanthorrhoea preissii* and *Macrozamia riedlei* over Tall Grass dominated by \**Avena barbata* and \**Ehrharta calycina* and Open Herbs dominated by \**Gladiolus caryophyllaceus* in grey sand. **Vegetation unit BM.** The vegetation condition varied between good and degraded.

The remainder of the Lot consisted of non-endemic trees and shrubs with a few of the endemic flora re-establishing over introduced grasses and herbs. The vegetation condition was completely degraded.





### Vegetation at Lots 9006 and 9101

Open Low Woodland A of *Melaleuca preissiana* over Dense Tall Grass of *Ehrharta calycina*, *Eragrostis curvula* and *Ehrharta longiflora* in low lying grey sand over Open Herbs dominated by *Arctotheca calendula* in low lying grey sand. **Vegetation unit ME.** This was represented by quadrat F18 which had scattered *Melaleuca preissiana* trees over weeds. The vegetation condition was completely degraded except for small area along the boundary with Lot 737 where the vegetation was degraded.

Low Forest of *Eucalyptus rudis* subsp. *rudis* over Open Herbs dominated by *Lotus subbiflorus* over Open Tall Sedges of *Juncus pallidus* in black sandy loam. **Vegetation unit Er.** This vegetation was

represented by quadrat F17 and surrounded a small dam. The vegetation condition varied between degraded and completely degraded.

Open Low Grass of *Pennisetum clandestinum* over Open Herbs dominated by \**Lotus subbiflorus* over Very Open Sedges of \**Cyperus tenellus* in very damp grey sand. It consisted of a series of wetlands with a few sedges but mainly weeds. **Vegetation unit Pc.** This vegetation was represented by quadrat F16. The vegetation condition was degraded to completely degraded.

Low Woodland A of *Melaleuca preissiana* and *Melaleuca raphiophylla* over Scrub of *Astartea scoparia* and *Melaleuca teretifolia* over Tall Grass dominated by *Eragrostis elongata* and \**Ehrharta longiflora* over Open Herbs dominated by \**Lotus subbiflorus* in grey sand. **Vegetation unit MM.** It was represented by quadrat F19. The vegetation condition varied between good and degraded.

Low Forest A of *Eucalyptus tottiana*, *Banksia attenuata*, *Banksia menziesii* and *Allocasuarina fraseriana* over Scrub of *Kunzea glabrescens* and *Adenanthos cygnorum* subsp. *cygnorum* over Open Tall Grass dominated by \**Ehrharta calycina* in grey sand. **Vegetation unit Bt.** It was represented by quadrat F20. The vegetation varied between good and degraded.





### Vegetation at Lot 9103

Low Woodland A of *Melaleuca preissiana* over Dense Thicket of *Kunzea glabrescens* over Herbs dominated by *Dasyopogon bromeliifolius* (mainly dead). Nearly all the Banksias and Kunzeas are dead and about 95% of the *Dasyopogon bromeliifolius*. **Vegetation unit MK.** It was represented by quadrat F01. The vegetation condition was degraded to completely degraded.

Low Woodland A of *Banksia attenuata*, *Banksia menziesii* and occasional trees of *Eucalyptus marginata* subsp. *marginata* over Low Scrub B of *Xanthorrhoea preissii* over Dwarf Scrub C dominated by *Hibbertia hypericoides* over Herbs dominated by *Burchardia umbellata* in grey sand. **Vegetation unit BM.** It was represented by quadrat F02 and was in good condition.

Low Open Woodland A of *Banksia attenuata* over Dwarf Scrub C of mixed taxa dominated by *Hibbertia hypericoides* over Open Tall Grass dominated by *\*Ehrharta calycina* over Open Herbs dominated by *Burchardia umbellata* and *Chamaescilla umbellata* in yellow grey sand. **Vegetation unit ML.** This was represented by quadrat F03 which recorded a good vegetation condition.

Selected Lots Armadale, Warton and Wright Roads Forrestdale

Low Forest A of *Eucalyptus todtiana* and *Banksia attenuata* over Dwarf Scrub C dominated by *Hibbertia hypericoides* over Tall Grass dominated by *\*Ehrharta calycina* over Herbs of mixed taxa dominated by *Gladiolus caryophyllaceus* in grey sand. **Vegetation unit Bt.** This was represented by quadrat F04. It recorded a good vegetation condition.