



DAVILAK RESERVE  
NATURAL AREA  
MANAGEMENT PLAN 2005

## MANAGEMENT REVIEW COMMENT

The 1998 Management Plan for the Davilak Reserve was seen as part of a significant turning point for the City in its responsibilities to the local environment. This review should be celebrated in its recording of the success achieved over the last 5 years. All of the priority recommendations of the plan have been achieved and a platform for further enhancement of the Reserve has been established.

This review of the 1998 Management Plan and its recommendations are similarly bold, and are intended to accelerate the establishment of additional passive and environmentally friendly habitat at Davilak Reserve.

For all of the highly rated aspects of living and working in the City of South Perth, it is an inescapable fact that the unique natural areas that once graced the lands of this City are largely no longer and that only Davilak and the Goss Avenue / Curtin Primary School bushland can provide us with an appreciation of our original Banksia bushland environment.

Moreso, it is incumbent upon us to maximize habitat for the remnant natural fauna of the City and also to retain what we can for the benefit of future generations.

This review records the City's recent work in upgrading the natural species seed orchard and provides for the ongoing management of the orchard and the existing natural "nodes".

Importantly, the review also provides a specific project plan for the creation of an additional natural area which will enhance the visual and environmental appeal of the reserve. This plan envisages active community and City involvement.

The City commends the report to ratepayers and the users of Davilak Reserve and the ongoing input, continued support and involvement of all is encouraged and appreciated.

It is appropriate within this review to acknowledge the efforts of all involved in the achievement of the 1998 Management Plan objectives. The fine support provided by past and present members of the City of South Perth Environment Association is acknowledged. The City extends its particular gratitude to Mr Andrew Thompson for the passion, vision and commitment displayed for the natural environment of the City over many years, extending recently to his valued assistance and input to this review.

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# **1. INTRODUCTION**

## **1.1 THE STUDY AREA**

The Davilak Reserve site is located in Manning, within the City of South Perth and is surrounded by Manning Road to the south, Ley Street to the west and Davilak Crescent to the north and east. An overview of the location is depicted on Maps 1, 2 and 3.

## **1.2 BACKGROUND**

The Davilak Reserve Management Plan was initiated by the City of South Perth as a result of a resolution made by Council at the May 1996 meeting.

The resolution stated (*in part*) that...

- (a) the Environmental Officer be instructed to prepare a Management Plan for submission to this Committee in order to provide the framework for the progressive re-vegetation of Davilak Reserve; and
- (b) an area of the reserve, to be determined, be set aside to develop a seed orchard for the propagation and growth of understorey species.

This resolution was made in recognition of the poor state of the remaining vegetation at Davilak Reserve. The reserve in May 1996 could best be described as a highly degraded remnant of Banksia Woodland. Almost all of the understorey species have gone and many of the overstorey species have disappeared or are in senescence.

## **1.3 PUBLIC CONSULTATION**

The intention to develop a management plan, hold a workshop and accept submissions was advertised in the *Community Southern Gazette* on 18 and 25 February, 1997. Two submissions were received and 10 people attended the workshop held at Manning Library on 2 April, 1997.

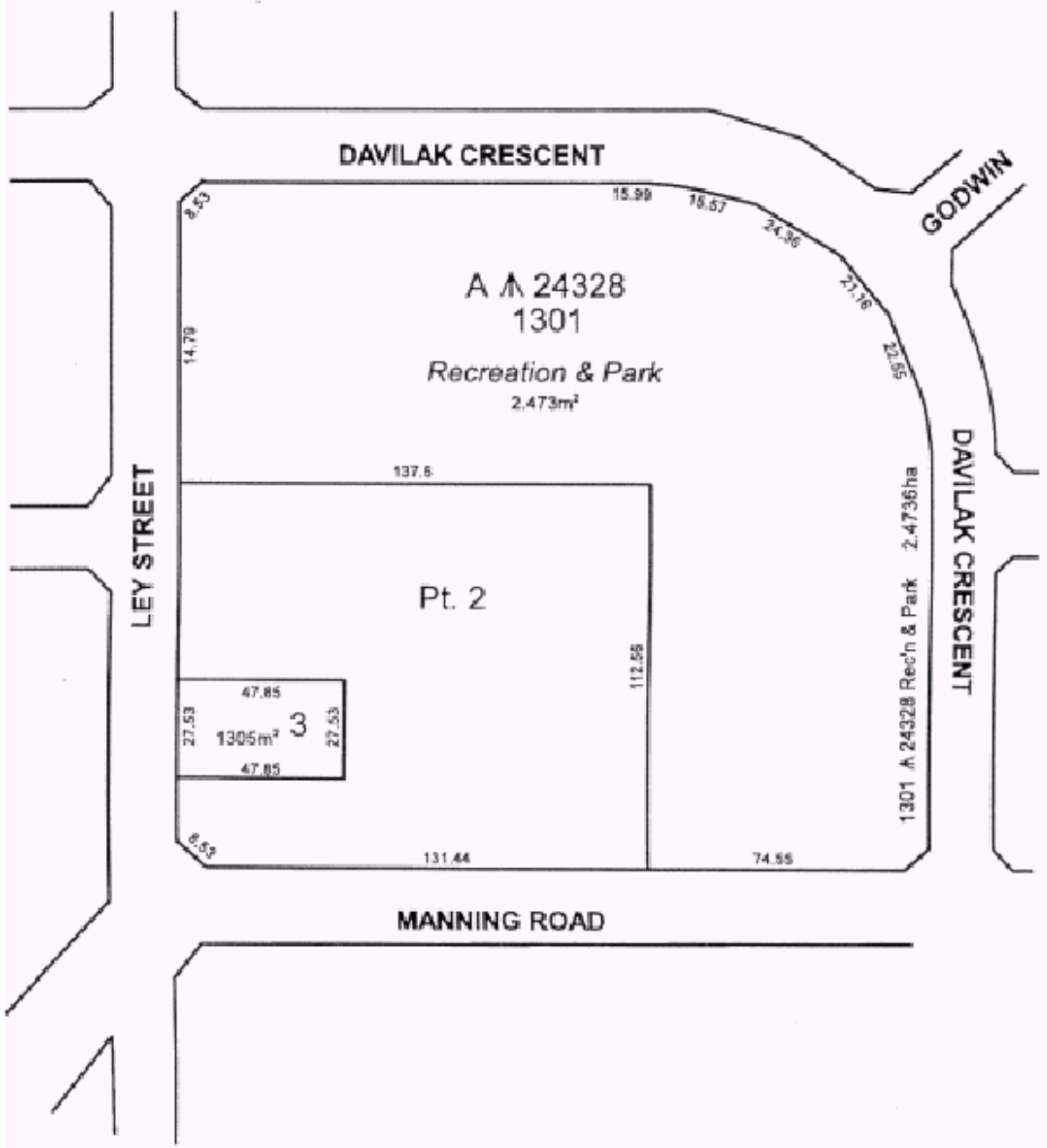
A draft plan was then developed and released for public comment for a period of two months, ending 28 November, 1997. Six submissions were received. Issues raised in the submissions and at the workshop have been addressed in the development of the 1998 management plan.

It should be noted that in the review of this management plan, no additional public consultation was undertaken.



MAP 2

OVERVIEW OF STUDY AREA



## **1.4 ENVIRONMENTAL STRATEGIES**

The City of South Perth has in place a number of Strategic Objectives to guide present and future policy when considering environmental matters. The City's Environmental Strategic Objective pertaining to the Natural Environment states:

*"To sustainably manage, enhance and maintain the City's unique, natural and built environment."*

As part of this objective, the City has a strategy to:

*"Identify areas and opportunities within the City for revegetation projects and develop and implement appropriate management plans for reestablishing a natural environment."*

This is the policy background that has led the City of South Perth to develop this and other management plans for remnant bushland and wetland sites.

## **1.5 MANAGEMENT OBJECTIVES**

### **MAJOR OBJECTIVES OF THE 1998 MANAGEMENT PLAN**

1. Identify / document community concerns for future management.
2. Facilitate restoration of the original Banksia woodland.
3. Facilitate development of a seed orchard.
4. Manage for landscape value.

### **REVIEW OBJECTIVES**

The following objectives have been developed to provide for the future management of Davilak Reserve:

- Examine the progress towards implementation / success of the 1998 Management Plan recommendations.
- Consider those recommendations in terms of community needs and expectations, the City's current strategic objectives and best practice for such areas.
- Identify any obvious areas in which change in usage or ratepayer support has occurred.
- Establish a framework for future action based upon the aforementioned, whilst respecting the integrity and direction of the 1998 Management Plan.

**MAP 3 DAVILAK RESERVE - JANUARY 1996**





## **2 PHYSICAL AND BIOLOGICAL ENVIRONMENT**

### **2.1 CLIMATE**

Perth experiences a Mediterranean climate, which is essentially wet winters and hot dry summers. The mean minimum and maximum temperatures are 18.1 and 30.0 degrees C in summer and 9.0 and 17.4 degrees C in winter. Average annual rainfall for the area is approximately 870 mm, of which most falls in winter.

### **2.2 GEOMORPHOLOGY AND SOILS**

Davilak Reserve is situated on the Bassendean soil association of the Swan Coastal Plain. These are ancient aeolian (wind-borne) beach dunes that have been extensively leached, therefore are chemically and physically infertile. The sand is described by Biggs and Wilde (1980) as being created by previous erosional and depositional processes as a result of periods of higher and lower sea levels in earlier periods. Bassendean soils are typically grey humic quartz sands overlying deep yellow sand. This typifies the site at Davilak Reserve.

### **2.3 FLORA AND FAUNA**

Bassendean soils are characterised by Banksia woodland. This is a broad description given to a variety of vegetation complexes found within this range of soils. A botanical survey of the nearby Gillon Street bushland (Trudgen 1993) described that study area as occurring within the *Bassendean Complex - Central and South*. The vegetation found within this Complex, as described by Heddle *et al.* (1980), ranges from woodlands of jarrah-sheoak-banksia on the sand dunes, to a low woodland of *Melaleuca* spp., and sedgelands on the low-lying depressions and swamps.

Pristine Banksia woodland prior to European arrival would have supported a wide variety of fauna. Considering the present degraded state of Davilak Reserve and other human induced disturbance issues, the fauna that could be expected there would be limited to a number of bird and reptile species.

## **3 CURRENT LAND TENURE, USE, CONDITION AND MANAGEMENT**

### **3.1 TENURE**

Davilak Reserve is located on a site that contains two lots and a reserve (see Map 2). The reserve itself is A24328, comprising approximately 2.47 ha. The 'A' prefix before the reserve number indicates that it is an A-class reserve. This category of reserve is protected because it requires the consent of both houses of State Parliament before any change to its use can occur. The land was originally held by the State Housing Commission (Homeswest), but was surrendered to the Crown in 1955. It was subsequently vested in the City of South Perth for "Recreation and Park". The remaining two lots, Part Lot 2, Ley Street and Lot 3, Ley Street, were previously owned by Telstra (in the remainder of the management plan they will be referred to as the old Telstra site).

### **3.2 USE**

Davilak Reserve is zoned *Parks and Recreation, Local Reserve* in the City of South Perth Town Planning Scheme No.5. Under the Western Australian Planning Commission Metropolitan Region Scheme, the site is zoned *Urban*.

### **3.3 CONDITION AND MANAGEMENT**

In 1998, the most accurate description of Davilak Reserves' bushland condition was *Completely Degraded*. A vegetation condition scale utilised by Keighery (1994) describes this as *typically weed or crop species with isolated native trees and shrubs*. Most of the reserve is completely degraded in soil structure, water holding capacity, as well as vegetation. Following this review, Davilak Reserve can still be classed as degraded with some areas partially revegetated. The likely occurrence of dieback in the reserve, supports the degraded classification.

The City of South Perth has increased management of this reserve from the previous verge and fringe mowing, some slashing and minor weed control. Various areas within the reserve have been revegetated, or earmarked for revegetation, including unnecessary access tracks. Weed control has been increased, this extends into the Seed Orchard that was established. The City's staff maintain these areas. The reserve is in part reticulated around the verges and up to 5 metres within the reserve. Water is supplied from a bore located on site.

Possible works that could be carried out by the City, either directly by its employees, or through provision of funds for contract labour and materials, are outlined in the recommendations made in Section 5.

## 4 CONSERVATION OVERVIEW

### 4.1 WHY REVEGETATE DAVILAK RESERVE WITH THE ORIGINAL PLANT SPECIES?

Davilak Reserve is a remnant of the extensive stands of Banksia woodland that once covered much of the Swan Coastal Plain. A large amount of this woodland has now been cleared in the face of suburban sprawl.

Different complexes of Banksia woodland can be identified based on slightly different vegetation types and structure. As already mentioned in this report, Davilak Reserve is part of the *Bassendean Complex - Central and South*. Other reserves within the City of South Perth of the same complex include the bushland remnants at Goss Avenue (3.8 ha), Curtin Primary School (1.3 ha) and Gillon Street (3.8 ha).

Pristine Banksia woodland comprises many plant species, making it interesting and ecologically important. It could be argued that Davilak Reserve can not be considered a true example of Banksia woodland because it no longer supports extensive understorey vegetation. This may be so, but it is considered that the reserve can still carry out valuable ecological functions, even with only the remnant tree species.

One of these functions is that of a wildlife corridor. Native birds and animals are slowly but surely being lost to the inner suburbs of Perth. The major reason for this is the loss of original vegetation. Native fauna have co-existed with this vegetation for thousands of years and are highly adapted to it. The loss of the local vegetation and its replacement in our parks and gardens with exotic trees and shrubs, has favoured introduced birds such as the Spotted or Indian Dove (*Streptopelia chinensis*), over the original species. This bird is now very common in the inner city.

If we wish to preserve our native fauna, it is important we keep reserves of remnant vegetation in urban areas. If they are located reasonably close to each other, they will act as “wildlife corridors”, enabling local birds and animals to continue to range throughout our city. Degraded bushland, like that at Davilak Reserve, can provide this habitat, albeit, not to the extent of less degraded bushland remnants. Appropriately planted suburban gardens and street trees can also assist in this task.

This leads us to another major function of a reserve such as Davilak. It is a visual reminder of our natural heritage, a link with the past. Inner city suburbs as a rule do not have much remnant vegetation. Indeed, the City of South Perth has less than 5% of its total area as bushland. Remnant Banksia woodland in the City is considerably less, perhaps only 2%. These reserves provide an interesting contrast and visual experience from the many “manicured” parks and gardens that are common in established suburbs.

## 5 MANAGEMENT ISSUES

### 5.1 AMENITY AND PUBLIC ACCESS

#### Objectives:

- **To provide for recreation activities considered appropriate with the desired management objectives for the reserve.**

Davilak Reserve is presently used for passive recreation, by walkers and dog owners and as an access way for the public. Residents use the reserve to access the shops and buses on Manning Road and students use it to get to the various schools in the area. In the past, an area of the reserve adjacent to the old Telstra facility was cleared and sown with grass to provide an area for the apprentices to play football during their breaks.

Utilisation of the reserve for passive recreation and as an access way should continue to be encouraged. Although Davilak Reserve has a similar passive use when compared to nearby Neil McDougall Park and Coolidge Reserve, their facilities need not be duplicated due to their close proximity. Indeed, a submission received stated that a playground was not required in the reserve for that reason. However if playground equipment was to be reintroduced, it could be developed in a different style to suit the bushland setting, perhaps with input from local children.

The reserve is not subject to high use or busy pedestrian traffic, and from observation and discussion with users it provides a relaxing and interesting alternative to the other nearby facilities. It is a place for quiet contemplation, a slow walk, throw a ball with the dog, listen to some bird calls or a chat between friends in the rotunda shelter. The vegetation on the reserve provides a noise buffer from nearby road traffic as well as protection from any future activity on the adjoining Telsta site. The issue of pathways was also discussed at the workshop. It was suggested that a number of compressed limestone pathways be constructed throughout the reserve. These pathways are now in place, however the safety of some of the pathways (uneven and soft edges) was raised by the City's bushland team. The existing pine pole barriers on the perimeter of the reserve are falling into disrepair due to the bolts rusting. Failure to improve the current condition of these barriers could result in injury to the public. A cable pit on the north side of the reserve is broken and a dangerous uneven surface presents.

Some of the larger original Banksias have died and some remaining limbs are becoming weak and should be cut and removed. As these are public safety issues, these items are not costed for specific budget consideration here and should be rectified as a priority.

New signs need to be constructed for the reserve. The existing signs are falling apart and are in urgent need of replacement. The new signs should contain more information about the reserve, including dog access, rehabilitation efforts and other work being implemented. It is recommended that an experienced 'Natural Environment Interpreter' be contracted to design these signs and determine their position, in consultation with the City.

The seed orchard sits comfortably amongst the natural surroundings and the grassed verges, with the natural vegetation nodes providing a fair balance of aesthetics, passive use, access and natural habitat. The original concept has worked well, and continued maintenance and upgrade will ensure its future success. The signage promoting the seed orchard, however should be cleared of graffiti or replaced.

**Recommendations:**

- 5.1.1 Manage the reserve for passive recreation (COSP);**
- 5.1.2 Investigate pathway requirements with further public consultation prior to any construction (COSP); and**
- 5.1.3 Review and replace existing signs within the reserve (COSP).**

## 5.2 FIRE MANAGEMENT

### Objective:

- **To minimise the risk of fire within the reserve.**

The issue of fire has been a major management issue with respect to the reserve over a number of years. Discussions with residents, who have lived near the reserve for many years, have revealed that it was regularly burnt by Council to reduce the fire hazard. The regular Council burning, plus other unplanned burns are believed to have contributed to the eventual degradation of the vegetation in the reserve. This would have also encouraged the growth of weed species, especially Veld Grass (*Ehrharta spp*).

The present management of the reserve with respect to fire is one of the more contentious issues. The site is infested with Veld Grass and this constitutes a major fire hazard in summer. The City's response to this has been to regularly slash the reserve to reduce the impact of this hazard. Residents claim that this action is preventing any re-growth of native species. More recently, in response to these concerns, staff from the City have surveyed the site to identify and peg native species, so these can be avoided by the slashing crews.

Future management of the site should include slashing, but should also include the use of herbicide (Fusilade), in the more sensitive areas, such as around the existing vegetation, to reduce the impact of the veld grass (see Recommendation 5.5.3).

Over the last 5 years the reserve has not been significantly affected by fire, and certainly not to the extent that unfortunately occurs within many other natural areas and in the City of South Perth precincts, namely nearby Goss Avenue Bushland.

It is likely that the exposure to houses, vigilant residents, reticulated verges, openness of the woodland and verges and passing traffic are positive fire control factors. The control of exotic grasses by the City has meant that fire fuel load is lower than it would otherwise be. These fuel reduction methods should be continued to ensure that in the event of fire, the damage is kept to a minimum.

The best way to contact the Kensington Fire Brigade is to dial 000. This is because they may already be attending a fire and a direct call to their station will not, in that situation, be answered.

A fire management strategy should be regularly reviewed for the reserve, in consultation with staff from the Kensington Fire Brigade and input from the local community.

### Recommendations:

- 5.2.1 Encourage local residents to exercise vigilance over the reserve and to report any suspicious activities or fires immediately to the appropriate authorities (COSP); and**
- 5.2.2 Develop a fire management strategy to reflect the management of the reserve, in conjunction with Kensington Fire Brigade (COSP/KFB)**

## 5.3 DIEBACK MANAGEMENT

### Objective:

- **To manage the current dieback-affected areas to ensure the remainder of the reserve, and other reserves within the City, are not affected.**

Dieback has not been positively identified at Davilak Reserve, however the unexplained deaths of several Banksia trees suggest that the pathogen is present. Further sampling is required to confirm its occurrence within the bushland and investigate its presence in the Seed Orchard, located within the Reserve. Following this, dieback monitoring should occur every six months. Due to the size of the Reserve, if dieback is identified in one area it is likely to be spread throughout the entire bushland.

A Dieback Management Plan will need to be developed, following confirmation of its presence, to reduce the spread of the pathogen to other areas. The Plan should incorporate City staff, contractors and residents. Education should form a critical part of the Management Plan.

Hygiene to be implemented at all times whilst undertaking work at this reserve (by all staff, residents and contractors);

- Machinery, vehicles and equipment to arrive at the site free of mud and soil.
  - To clean machinery, use a brush, spade, bar or compressed air in preference to washing down with water.
  - Wash down at designated wash down points (e.g. City's Operations Centre) or on a hard, well drained surface, which does not run off into bushland.
  - Clean machinery, vehicles and equipment before moving to another area.
- Knowing *Phytophthora* dieback occurs within this bushland, do not move from infested to uninfested areas unless the vehicle, machinery and equipment are free of soil and mud.

A comprehensive schedule of management procedures for dieback infested areas can be found in Appendix 8.

### Recommendations:

- 5.3.1 Verify the occurrence of *Phytophthora* within the Reserve and investigate its occurrence within the Seed Orchard.**
- 5.3.2 Erect signage that warns and informs the public about the occurrence of *Phytophthora* within the Reserve.**
- 5.3.3 Develop an information package / brochure to inform residents about *Phytophthora*.**
- 5.3.4 Develop a Dieback Management Plan for the Reserve and Seed Orchard, this could include the establishment of a *Phytophthora* Dieback Implementation Group. Ensure all relevant staff are aware of the Dieback Management Plan.**

## 5.4 FERAL AND DOMESTIC ANIMALS

### Objective:

- **To investigate the impact of feral and domestic animals on the reserve**

The effect of feral animals on Davilak Reserve is limited. There is no evidence of rabbit activity and it is considered highly unlikely that foxes would frequent the area.

Domestic dogs and cats are another matter. The issue of dogs was raised at the workshop. The suggestion was made that Davilak Reserve is a popular place for residents to exercise their dogs and it should remain that way. The reserve is presently gazetted as a Dog Exercise Area, meaning that dogs can be exercised off the lead. This should continue to be encouraged for the reason given above and those that follow. Firstly, the vegetation of Davilak Reserve is such that dogs off their lead would cause little harm. Secondly, nearby Neil McDougall Park is prohibited to dogs, thereby limiting opportunities for dog exercise in the area. It is recommended however, that due to the occurrence of dieback within this Reserve (see Section 5.3), and the potential for this pathogen to be spread to other areas by dogs, signage should be erected to inform and educate dog owners utilising the Reserve.

Currently the control of domestic cats in the reserve is limited. An education campaign and the development and implementation of regulatory controls on cats is recommended. The City is however promoting responsible cat ownership through an education pamphlet, in conjunction with the Cat Sterilisation Society and reduced price sterilisation.

### Recommendations

- 5.4.1 Support the existing designation for the reserve under the Local Law Relating to Dogs. Appropriate signage should be erected that incorporates the importance of the remnant bushland and warns of the occurrence of dieback, therefore dogs should remain out of the bushland (COSP); and**
- 5.4.2 Support education campaigns about responsible cat ownership (COSP).**
- 5.4.3 Explore the development of a cat control regulation (COSP).**



## 5.5 REHABILITATION

### Objective:

- **To develop and implement strategies to rehabilitate the vegetation within the reserve to achieve desired management objectives**

As already mentioned, the existing condition of Davilak Reserve is highly degraded. What remains is predominantly an overstorey Banksia woodland complex that is in itself slowly degrading. Every year, one or more trees die and are removed from the reserve. Due to the slashing regime employed to reduce the impact of the veld grass, there is little or no scope for natural regeneration. As a result, the overall number of trees in the reserve is steadily decreasing.

The majority of the views, expressed in submissions and by participants at the workshop, supported the augmentation of existing vegetation in the reserve. The augmentation of the original Banksia bushland has been a resounding success. Many of the post management plan plantings are well established and the woodland areas are filling out as planned. The 1998 Management Plan flora list scheduled 19 surviving endemic species. The flora list attached to this review details 42 species identified and 3 believed to be found but not conclusively identified. It is also anticipated that stock from the Seed Orchard (see Section 5.6) could be utilised in the rehabilitation of the natural areas.

The plantings appear not to be affected by dieback (*Phytophthora spp.*). However, monitoring of susceptible areas could prevent transfer of the disease.

The impending loss of the bushland at Lot 690 Gillon Street, Karawara raised several possibilities for Davilak Reserve. The transfer of topsoil from the former Gillon Street bushland appears to have contributed little in direct germination outcomes. However, it is likely that it helped suppress the grasses that dominated the understorey at the time and would have introduced beneficial fungi and natural nutrient levels, important to the survival of the local plant species.

The present open space created next to the old Telstra facility should be preserved as the only large area of open space on the site. This will enable access for residents to kick a football or play other sports, without damaging the vegetation.

The nodes of vegetation have been created as envisaged and the community volunteers and the City's bushland team have performed well in their restoration work. Some encouraging signs of native birdlife were noted during the review visits to the reserve.

The 1998 Management Plan did not include a comprehensive exotic species list, recording only "major" weed species, numbering seven species. Whilst the weed list in this review expands the list of weeds to some 35 species, this is not a reflection of the scale of weed infestation. All weeds appear to be reasonably well controlled.

The creation of another vegetation node forms part of the recommendations of this review (Project plan available in Appendix 6). On commencement, establishing upper storey species would become a priority.

A continuation of structured planting, direct seeding and environmental weed control programs will ensure that the quality and appearance of the natural nodes will continue to improve. A grass specific weed control program within the nodes should be undertaken as soon as possible (cost estimates available in Appendix 7).

Regular review and monitoring of plantings and weed control progress will assist with future management direction.

**Recommendations:**

- 5.5.1 Augment the existing Banksia woodland vegetation within the reserve by planting more trees. These should be representative of the original vegetation and where possible, from seed locally collected. The nodes should be covered at the original density. Outside areas to be more lightly planted (COSP);**
- 5.5.2 Create nodes around several of the more substantial groves of Banksias to develop the understorey vegetation. This again should be indicative of the original vegetation in the reserve and from locally collected seed where possible (COSP);**
- 5.5.3 Maintain the rest of the site as a dry reserve with regular mowing and slashing, except for the immediate surrounds of the trees, which will require either hand weeding or herbicide (fusilade) treatment to remove weeds (COSP);**
- 5.5.4 Remove the reticulation from within the boundary fence. Irrigate the perimeter verge only (COSP); and**
- 5.5.5 Conduct tests to ascertain the presence of dieback (*Phytophthora spp.*) within the reserve prior to planting.**

## **5.6 SEED ORCHARD DEVELOPMENT**

### **Objectives:**

- **To develop a seed orchard to grow Banksia woodland understorey species;**
- **To involve local community groups in its management.**

As already mentioned, the development of a seed orchard in a section of the reserve was a resolution of Council made at the May 1996 meeting. The aim of the seed orchard is to plant and grow Banksia woodland understorey species so they can eventually be harvested for their seed. This will involve the utilisation of a small portion of the reserve, approximately 20 metres x 20 meters, so these species can be intensively planted (see Map 4). Ultimately, the seed will be utilised to replenish other Banksia woodland reserves within the City.

This facility was fully established as envisaged and has well served to supply some of the native seed needs of the City's nursery. For a number of now historic maintenance, ageing and climatic reasons, the plant quantity and quality in the seed orchard has diminished over late 2003 and early 2004. The City has implemented an upgrading program over recent months which has resulted in removal of failed and undesirable plants, pruning, soil / fungi / nutrient restoration, weed control and a general repair and tidy of the seed orchard infrastructure.

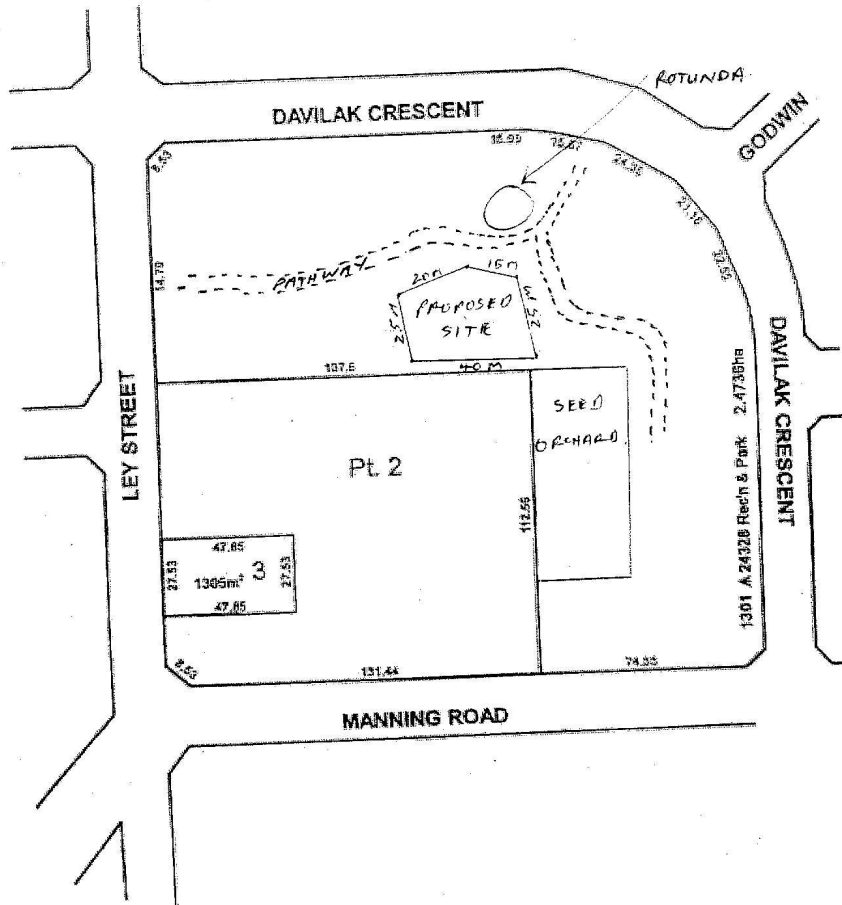
New plantings will need to be undertaken as the stock becomes available and a program of ongoing maintenance has been implemented.

Maintenance responsibilities should be allocated to the appropriate City officers, and also involve the City's bushland team (See Appendix 5). Those responsible for the seed orchard should also have responsibilities with seed collection and stock, a propagation program and the City's site rehabilitation program.

### **Recommendations:**

- 5.6.1 Continue to assist COSPEA in their work developing the Seed Orchard (COSP); and**
- 5.6.2 Incorporate work required at the Seed Orchard into annual maintenance budgets (COSP).**

# MAP 4 PROPOSED NEW REVEGETATION AREA AT DAVILAK RESERVE



## **5.7 COMMUNITY INVOLVEMENT AND EDUCATION**

### **Objectives:**

- **To encourage the local community to become actively involved with the management and rehabilitation of the reserve;**
- **To encourage schools to adopt the bushland for curriculum environmental studies.**

Encouraging local community involvement in the rehabilitation of Davilak Reserve should be a priority. Whilst the City has encouraged and supported community involvement, the lack of growth in community involvement is a clear weakness in the future good management of the Reserve. It also means that the investment made in the Reserve infrastructure and natural areas is not producing to its potential in social capital terms.

It has been well demonstrated elsewhere that in such cases, a more proactive approach can produce excellent results without a large outlay. By encouraging the formation of a local “Friends” group, community and school involvement in the reserve will ensure its preservation. More so, the actual cost of improving the Reserve can be reduced by the growth in volunteer and education based on-ground help. The involvement of student groups will often lead to a growth in interest and participation by those parents and friends connected to the students. This review includes a recommendation for the modest funding of a proactive community program.

Suggestions to aid involvement could include commissioning a results based consultancy for the facilitation of a community / schools involvement program, e.g. “Adopt-a-Bushland”. The initial costing (\$975) to a project plan stage, will establish a commitment in place from an education or community group. The future support / cost will be determined by the scope of involvement, offset by enhanced on-ground outcomes and reduced cost of labour.

### **Recommendations:**

- 5.7.1 Encourage local residents to form a “Friends” group to care for the reserve (COSP); and**
- 5.7.2 Invite local schools and community groups to adopt Davilak Reserve and become involved with its management and rehabilitation (COSP).**

## **6 IMPLEMENTATION**

### **6.1 FACILITATION**

#### **Objective:**

- **To identify ways to facilitate implementation of this management plan**

The major source of funding for the implementation of recommendations made in this management plan should come from allocations made in the City budgetary process.

#### **Recommendations:**

- 6.1.1 Encourage and advise community based organisations to become incorporated and become involved in the reserve (COSP); and**
- 6.1.2 Ensure adequate funding is provided by Council to conduct a staged implementation of this management plan (COSP);**

## 6.2 PRIORITY AND REVIEW

### Objectives:

- **To develop a schedule for implementation of recommendations;**
- **To assign a review date to this management plan.**

A priority list or Implementation Schedule of recommendations, as appears in the 1998 Management Plan, is attached in Appendix 9. The list also displays an approximate costing for each recommendation. Recommendations requiring funding from organisations other than the City of South Perth are indicated in the schedule. It is recommended that major works are incorporated into City's Forward Works budget so they can be progressively implemented. The minor works are prioritised so they can be budgeted and implemented under Annual Maintenance budgets. Maintenance of the Seed Orchard, weed control and establishment of the new revegetation area would be high priorities (Outlined in Appendix 5-7).

Most of the recommendations have been assigned a High or Medium priority, depending on its urgency of implementation. Each priority has a time frame of implementation:

**HIGH (H) within 2 years,  
MEDIUM (M) within 4 years,**

In addition, some of the recommendations, such as those proposing routine maintenance, will be ongoing for the life of the management plan, hence the following priority:

**ONGOING (O)**

This plan should be reviewed again by Council no later than 2008.

### Recommendations:

**6.2.1 Implement recommendations as per assigned priority (COSP);**

**6.2.2 Review this management plan on or before the year 2008 (COSP).**

## APPENDIX 1

### Flora Species from 1998 Plan

<b>FLORA: NATIVE SPECIES</b>	
<b>BOTANICAL NAME</b>	<b>COMMON NAME</b>
<b>FLOWERING PLANTS</b>	
CASUARINACEAE	
<i>Allocasuarina fraseriana</i>	Common sheek (Condil)
DASYPOGONACEAE	
<i>Lomandra sp.</i>	
DILLENACEAE	
<i>Hibbertia hypericoides</i>	Yellow buttercup
<i>Hibbertia racemosa</i>	
DROSERACEAE	
<i>Drosera erythrorhiza</i>	Red ink sundew
HAEMODORACEAE	
<i>Conostylis spp.</i>	
MIMOSACEAE	
<i>Acacia stenoptera</i>	Narrow winged wattle
<i>Acacia willdenowiana</i>	Grass wattle
MYRTACEAE	
<i>Eucalyptus marginata</i>	Jarrah
<i>Hypocalymma robustum</i>	Swan River myrtle
PAPILIONACEAE	
<i>Bossiaea eriocarpa</i>	Common brown pea
<i>Daviesia nudiflora</i>	
<i>Gompholobium tomentosum</i>	Hairy yellow pea
<i>Kennedia prostrata</i>	Red runner
PHORMICACEAE	
<i>Dianella divaricata</i>	Dianella
PROTEACEAE	
<i>Banksia attenuata</i>	Candle banksia (Biara)
<i>Banksia ilicifolia</i>	Holly leaf banksia
<i>Banksia menziesii</i>	Firewood banksia
XANTHORRHOEACEAE	
<i>Xanthorrhoea brunonis</i>	



**APPENDIX 2**

Weed Species from 1998 Plan

<b>FLORA: MAJOR INTRODUCED SPECIES</b>	
<b>BOTANICAL NAME</b>	<b>COMMON NAME</b>
<b>FLOWERING PLANTS</b>	
IRIDACEAE	
<i>Freesia aff. Leichtinii</i>	Freesia
<i>Romulea rosea</i>	Guildford grass
MYRTACEAE	
<i>Chamelaucium uncinatum</i>	Geraldton wax
OXALIDACEAE	
<i>Oxalis pes-capre</i>	Soursob
POACEAE	
<i>Cynodon dactylon</i>	Couch
<i>Ehrharta calycina</i>	Perennial veldgrass
<i>Eragrostic curvula</i>	Love grass

### **APPENDIX 3**

#### **Davilak Reserve Plant List (March, 2004)**

<b>GENUS</b>	<b>SPECIES</b>	
<i>Acacia</i>	<i>pulchella</i>	
<i>Acacia</i>	<i>stenoptera</i>	
<i>Acacia</i>	<i>saligna</i>	
<i>Acacia</i>	<i>wildenowiana</i>	
<i>Adenanthos</i>	<i>cygnorum</i>	
<i>Allocasurina</i>	<i>fraseriana</i>	
<i>Allocasurina</i>	<i>humulis</i>	
<i>Banksia</i>	<i>menzesii</i>	
<i>Banksia</i>	<i>attenuata</i>	
<i>Banksia</i>	<i>illicifolia</i>	
<i>Borya</i>	<i>spp</i>	
<i>Bossiea</i>	<i>ericarpa</i>	
<i>Conostylis</i>	<i>aculeata</i>	
<i>Conostylis</i>	<i>setigera</i>	
<i>Dampiera</i>	<i>linearis</i>	
<i>Desmocladius</i>	<i>flexuosa</i>	
<i>Desmocladius</i>	<i>fasciculata</i>	
<i>Dianella</i>	<i>spp</i>	
<i>Eremea</i>	<i>pauciflora</i>	
<i>Eucalyptus</i>	<i>marginata</i>	
<i>Eucalyptus</i>	<i>spp</i>	Likely several non - local species
<i>Gompholobium</i>	<i>tomentosum</i>	
<i>Hibbertia</i>	<i>hugellii</i>	
<i>Hibbertia</i>	<i>racemosa</i>	
<i>Hovea</i>	<i>trisperma</i>	
<i>Hypocalymma</i>	<i>robusta</i>	
<i>Jacksonia</i>	<i>furcellata</i>	
<i>Kennedia</i>	<i>prostrata</i>	
<i>Lepidosperma</i>	<i>squamatum</i>	
<i>Leschenaultia</i>	<i>floribunda</i>	
<i>Leucopogon</i>	<i>conostephioides</i>	
<i>Lomandra</i>	<i>hermaphrodita</i>	
<i>Lomandra</i>	<i>micrantha</i>	
<i>Lyginia</i>	<i>barbata</i>	
<i>Macrozamia</i>	<i>reidlei</i>	
<i>Melaleuca</i>	<i>seriata</i>	
<i>Melaleuca</i>	<i>thymoides</i>	
<i>Orthrosanthus</i>	<i>laxus</i>	
<i>Pattersonia</i>	<i>occidentalis</i>	
<i>Schoenus</i>	<i>curvifolius</i>	
<i>Scholtzia</i>	<i>involucrata</i>	
<i>Xanthorrea</i>	<i>brunis</i>	
<i>Xanthorrea</i>	<i>preisii</i>	

plus 3 species yet to be identified.

## **APPENDIX 4**

### **Davilak Reserve Weed Species (March, 2004)**

<b>GENUS</b>	<b>SPECIES</b>	<b>COMMON NAME</b>
<i>Avena</i>	<i>barbata</i>	Wild oats
<i>Brachychiton</i>	<i>populneus</i>	Kurrajongs
<i>Briza</i>	<i>maxima</i>	Blowfly Grass
<i>Bromus</i>	<i>rigidus</i>	Brome grass
<i>Conyza</i>	<i>bonariensis</i>	Fleabane - short
<i>Conyza</i>	<i>albida</i>	Fleabane - long
<i>Cynodon</i>	<i>dactylon</i>	Couch
<i>Cyprus</i>	<i>congestus</i>	Cyprus grass
<i>Digitaria</i>	<i>sanguinalis</i>	Crab grass - small
<i>Ehrharta</i>	<i>longifolia</i>	Annual Veldt Grass
<i>Eragrostis</i>	<i>curvula</i>	African Love Grass
<i>Gamochaeta</i>	<i>falcata</i>	Cudweed
<i>Gladiolus</i>	<i>spp</i>	
<i>Hypochaeris</i>	<i>glabra</i>	Flatweed
<i>Lactuca</i>	<i>serriola</i>	Prickly Lettuce
<i>Lagurus</i>	<i>ovatus</i>	Hare's Tail Grass
<i>Lotus</i>	<i>spp</i>	Birdsfoot Trefoil
<i>Oenothera</i>	<i>mollissima</i>	Primrose Type
<i>Ornithopus</i>	<i>compressus</i>	Serradella
<i>Osteospermum</i>	<i>clandestinum</i>	Stinking rodger
<i>Pelargonium</i>	<i>capitatum</i>	Rose Pelargonium
<i>Portulaca</i>	<i>oleracea</i>	Portulaca
<i>Romulea</i>	<i>rosea</i>	Guildford Grass
<i>Silene</i>	<i>gallica var. gallica</i>	French Catchfly
<i>Solanum</i>	<i>nigrum</i>	Nightshade
<i>Sonchus</i>	<i>oleraceus</i>	Common Sow - Thistle
<i>Sporobolus</i>	<i>indicus var. capensis</i>	Paramatta Grass
<i>Trifolium</i>	<i>spp</i>	Clovers
<i>Ursinia</i>	<i>anthemoides</i>	Ursinia
<i>Vulpia</i>	<i>myuros</i>	Silver Grass
<i>Washingtonia</i>	<i>filifera</i>	Cotton Palm

Also: 2 x Poaceae

2 x Unknown.

## **APPENDIX 5**

### **Guidelines for management of seed orchard**

<b><u>Function</u></b>	<b><u>Timing</u></b>	<b><u>Notes</u></b>
Species upgrade	Immediate action	Meeting of involved staff, consultant
Weed control	Monthly, March to November Close control of couch grass	Hand weed and surgical herbicide
Pruning	Review each Autumn	Most natives benefit
Pest control	Examine monthly	Refer to Plant Protection Vols1, 2 & 3 (Kerruish)
Seed collection	Liaise with natural area staff	Main collection period October to March
Watering	Discontinue after fair opening rains September to October - Suggest twice weekly for 20 minutes November & December - 3 x 20 minutes January, February, March - until opening rains, 3 x 30 minutes	

## APPENDIX 6

### Project plan for new revegetation area (Assumes July 2005 commencement and plant stock available)

<u>Task</u>	<u>Responsibility</u>	<u>Timing</u>	<u>Cost (est.)</u>	<u>Notes</u>
Species list	Consultant / City	June	\$100	300 upper storey
Site survey (Approx. 1300m <sup>2</sup> )	Consultant / City	June	n/a	Peg area /gps / photo
Grass control 1	City/contractor	April	\$150	Glyph on couch (Complete)
Retic. lines	"	July	\$950	Lay, pin / trench poly
Grass control 2	"	July	\$250	Glyph / Pulse / Metsulphuron
Plant stock (400)	City nursery ?	July / Aug	\$600	Large stock?
Planting	City / contractor	July /Aug	\$500	Plant on retic lines
Plant aids	"		\$800	Weed mats, guards, stakes
Grass control 3	"	Sept	\$150	Glyph / pulse/ sim
Retic connect	"	Oct	\$450	Trench, connect, test
Maintenance	"	Dec	\$250	Weed, remove guards Recycle retic poly
Review	City	March	n/a	

#### **Total indicative cost**

**\$ 4,200 plus GST**

Project methodology - Plant aids and reticulation to produce strong initial growth to establish site for follow up understorey planting (shade) and for strong weed competition. Reticulation to operate in conjunction with existing system for this reserve. Reticulation pipe to be recycled. Heavy control of grasses and weeds. Natural area staff to be involved in all aspects of the plan & works.

## APPENDIX 7

### Grass control

Grass specific weed control within the nodes:

Cost estimate for 2005 = \$795.00

Cost estimate for 2006 = \$595.00

## Appendix 8

### Phytophthora Dieback Management Procedures for Bushland Reserves Provided by the Dieback Working Group

Timing	<ul style="list-style-type: none"> <li>▪ Activities such as fire break maintenance, slashing and removal of woody weeds to occur in dry soil conditions ie. scheduled between November and March and postponed during and following rainfall.</li> </ul>
Bushland Restoration Activities	<ul style="list-style-type: none"> <li>▪ <u>Weeding</u> - If weeds are being manually removed, they should be immediately placed in a container, so plant material or soil is not dropped into other parts of the reserve or other reserve areas.</li> <li>▪ <u>Revegetation</u> - If revegetation is required:             <ul style="list-style-type: none"> <li>- Consider direct seeding rather than planting seedlings.</li> <li>- Purchase plants from nurseries with Wholesale Accreditation from the Nursery Industry Association, or nurseries with excellent hygiene procedures. Community groups completing revegetation activities should be advised to do the same.</li> <li>- If moving from one part of a bushland reserve to another, or from an infested area to uninfested, ensure all machinery, tools and equipment are free of mud and soil.</li> <li>- If using mulch, ensure that it has been well composted (the heating part of the composting process kills <i>P. cinnamomi</i>).</li> </ul> </li> </ul>
Access	<ul style="list-style-type: none"> <li>▪ Off road vehicles, motorcycles and horses to be kept out of bushland reserves.</li> <li>▪ Minimise the number of tracks in bushland reserves, and ensure that they have hard, dry and well drained surfaces.</li> <li>▪ Avoid entering bushland reserves when the soil is wet and muddy, and stay on the tracks.</li> <li>▪ Visitors to bushland reserves are to ensure that their footwear is free of mud and soil.</li> <li>▪ <u>When constructing a track;</u> <ul style="list-style-type: none"> <li>- Construct in dry soil conditions.</li> <li>- Ensure all machinery and tools used are free of <i>P. cinnamomi</i>.</li> <li>- Consider constructing wooden walkways over muddy areas.</li> <li>- Materials that can be used to construct tracks include: gravel that is free of <i>P. cinnamomi</i>, concrete, limestone or woodchips.</li> </ul> </li> </ul>
Fire Protection Activities	<ul style="list-style-type: none"> <li>▪ Mow, slash or use herbicide on fire breaks, rather than plough or grade.</li> <li>▪ When maintaining breaks by grading, do not grade wider than the existing graded area.</li> </ul>
Soil Movement	<ul style="list-style-type: none"> <li>▪ Minimise soil disturbance; mow, slash or use herbicide rather than grade or plough.</li> <li>▪ If soil, gravel, sand etc. is to be imported into a bushland reserve, these materials are to be sourced from a supplier who is accredited by the Nursery Industry Association to ensure they are free of <i>P. cinnamomi</i>.</li> <li>▪ Do not dump plant material or soil in bushland reserves.</li> </ul>
Vehicles, Machinery and Tools	<ul style="list-style-type: none"> <li>▪ All machinery and vehicles (including small tractors, ride on mowers, slashers and utes) to be free of mud and soil on tyres, mudflaps, body and underbody when entering a bushland reserve, when moved into <i>P. cinnamomi</i> free areas, and when moved from one bushland reserve to another.</li> <li>▪ All tools and equipment (including shovels, spades and trowels etc.) to be free of mud and soil when entering a bushland reserve, when moved into <i>P. cinnamomi</i> free areas and when moved from one bushland reserve to another.</li> </ul>
Water Management	<ul style="list-style-type: none"> <li>▪ Any water used in the bushland reserves to be from scheme or bore supply, or sterilised.</li> <li>▪ Do not discharge drainage water into bushland reserves.</li> </ul>
Roadsides	<ul style="list-style-type: none"> <li>▪ Slashers, tractors and other equipment used on roadsides to be washed down daily when operating in bushland areas.</li> </ul>

## Appendix 9

### Implementation Schedule

No.	Recommendation	Priority	Approx. Cost
<b>5.1</b>	<b>AMENITY AND PUBLIC ACCESS</b>		
5.1.1	Manage the reserve for passive recreation (COSP);	H	\$200
5.1.2	Approach Telstra for support with landscaping and sponsorship proposals (COSP);	M	
5.1.3	Investigate pathway requirements with further public consultation prior to any construction (COSP).	H	
5.1.4	Review and replace existing signs within the reserve (COSP).	H	\$3,000
<b>5.2</b>	<b>FIRE MANAGEMENT</b>		
5.2.1	Encourage local residents to exercise vigilance over the reserve and to report any suspicious activities or fires immediately to the appropriate authorities (COSP).	H	\$500
5.2.2	Develop a fire management strategy to reflect the management of the reserve, in conjunction with Kensington Fire Brigade (COSP/KFB).	H	In house
<b>5.3</b>	<b>FERAL AND DOMESTIC ANIMALS</b>		
5.3.1	Support the existing designation for the reserve under the Local Law Relating to Dogs. Appropriate signage should be erected (COSP);	O	\$500
5.3.2	Support education campaigns about responsible cat ownership (COSP)	O	In house
<b>5.4</b>	<b>REHABILITATION</b>		
5.4.1	Augment the existing Banksia woodland vegetation within the reserve by planting more trees. These should be representative of the original vegetation and where possible, from seed locally collected. The nodes should be covered at the original density. Outside areas to be more lightly planted (COSP);	H/O	\$1,500 /yr
5.4.2	Create nodes around several of the more substantial groves of Banksias to develop the understorey vegetation. This again should be indicative of the original vegetation in the reserve and from locally collected seed where possible (COSP);	H/O	\$1,500 /yr
5.4.3	Maintain the rest of the site as a dry reserve with regular mowing and slashing, except for the immediate surrounds of the trees which will require either hand weeding or herbicide (fusilade) treatment to remove weeds (COSP);	O	\$2,000 /yr
5.4.4	Remove the reticulation from within the boundary fence. Irrigate the perimeter verge only (COSP);	H	\$1,500
5.4.5	Conduct tests to ascertain the presence of dieback ( <i>phytophthora spp.</i> ) within the reserve prior to planting.	H	\$500
<b>5.5</b>	<b>SEED ORCHARD DEVELOPMENT</b>		
5.5.1	Continue to assist COSPEA in their work developing the Seed Orchard (COSP/COSPEA);	H	In house
5.5.2	Incorporate work required at the Seed Orchard into annual maintenance budgets (COSP)	H	\$1,500 /yr
<b>5.6</b>	<b>COMMUNITY INVOLVEMENT AND EDUCATION</b>		
5.6.1	Encourage local residents to form a "friends" group to care for the reserve (COSP);	M	\$500



5.6.2	Invite local schools and community groups to adopt Davilak Reserve and become involved with its management and rehabilitation (COSP);	M	\$500
6.1	<b>FACILITATION</b>		
6.1.1	Encourage and advise community based organisations to become incorporated and how to successfully apply for grant monies (COSP);	M	\$200
6.1.2	Ensure adequate funding is provided by Council to conduct a staged implementation of this management plan (COSP);	H	–
6.2	<b>PRIORITY AND REVIEW</b>		
6.2.1	Implement recommendations as per assigned priority;	–	–
6.2.2	Review this management plan on or before the year 2005 (COSP).	–	\$3,000 (total cost)