



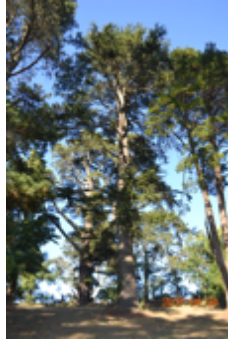
**A CONSERVATION REPORT  
THE PINETUM COLLECTION  
AND TUBEROUS BEGONIA DISPLAY  
WOMBAT HILL BOTANIC GARDENS**

**CENTRAL SPRINGS ROAD, DALY STREET, FASER STREET AND HILL ROAD,**

**DAYLESFORD, HEPBURN SHIRE, VIC, 3460**

**HEPBURN SHIRE**

**MAY 2019**



A stand of Douglas Fir on the northern slopes, Pinetum

## **1 Application For A Permit Exemption For The Mulching Of The Significant Tree collection in the Pinetum, and Conservation Work to the Tuberous Begonia Conservatory and Associated Glass Houses**

### **This Statement forms part of a permit application for:**

The necessary mulching, soil monitoring and tree labelling of the significant collection of historic trees in the Pinetum located on the northern slopes of the gardens to ensure their preservation into the future. Further works also include the restoration of the Tuberous Begonia Conservatory and associated Propagation and Growing Houses and Shade Shed, including the development of a Begonia Policy in line with recommendations from the Conservation Management Plan.

Date: 5/5/2019

**Reference: Victorian Heritage Register (VHR) Number H02202 Overlay Number HO697**

### **Statement of Significance**

Last updated on - April 6, 2009

What is significant?

The Daylesford Botanic Gardens cover an area of 10.4 hectares and are bounded by Daley Street, Hill Street, Frazer Street and Central Springs Road. The site on the summit of the extinct volcano of Wombat Hill at an elevation of 667.8 metres, provides a rich soil, cool climate growing conditions, a favourable aspect and excellent views to the surrounding countryside and over the Daylesford township.

The land was first set aside in 1854, reserved as public garden in 1862, and developed from c.1865. The Gardens were extended slightly in 1870 and 1883 and developed with input from noted nineteenth century landscape designer, William Sangster, in 1884-85 whose original plan survives.

Due to the Daylesford Botanic Gardens being sited on top of a hill, the layout of the Gardens is not immediately apparent, but several distinct areas can be determined. The central lawn area on the south side has display garden beds, the Alf Headland Conservatory constructed in 1988 to house

the annual display of tuberous begonias, and a replica rotunda erected in 1993. The works depot area consists of the curator's residence built in 1948, large sheds, glass houses and two open nurseries. The Pioneers' Memorial Tower built in 1938 offers the opportunity for views across the Gardens and distant landscape, and a place to picnic on the north east side. Adjacent is the Circular Day Basin dating from 1882 which is the earliest known structure to remain in the gardens, although no longer in use. To the west is the large Oval Reservoir constructed in 1888-89 which holds some of Daylesford's water supply with the smaller Lower Service Basin c.1969 to the north, both of which were roofed in the 1990s. One of the main features of the gardens is the extant fernery with cascade, (not operational) designed by Sangster in 1884-85, located on the southern side of the hill. A circuit path meanders through this area. and leads back to the road and into the formal garden area from the Pioneers' Memorial Tower. Much of the existing path layout, including the carriage driveway lined with an avenue of Dutch Elms, have been retained from the nineteenth century, together with the extensive tree planting including many species of conifers, other mature trees and cool climate plants.

How is it significant?

The Daylesford Botanic Gardens are of historic, scientific (botanic), and aesthetic significance to the State of Victoria.

Why is it significant?

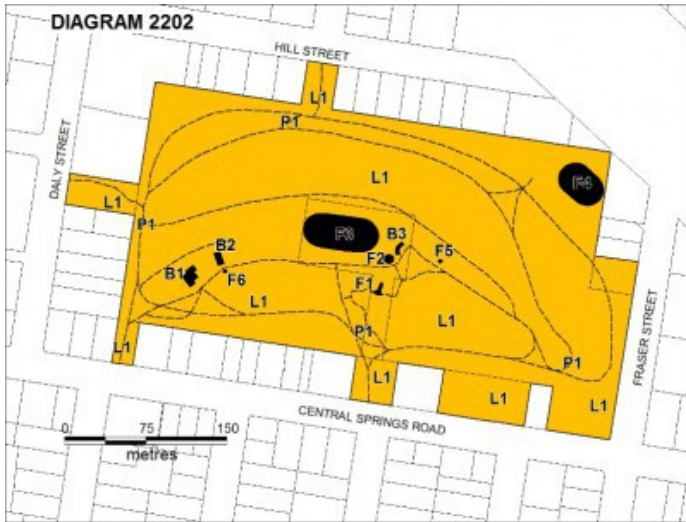
The Daylesford Botanic Gardens are historically significant as a fine example of a regional botanic garden demonstrating the typical characteristics of a carriage drive, informal park layout, decorative structures and works such as the memorial tower, conservatory, rotunda, cascade and fernery, which contrasts with the open lawns planted with specimen trees, areas of intensive horticultural interest and close proximity to a township developed during the mid to late nineteenth century.

The Daylesford Botanic Gardens are historically significant for the design input by noted landscape designer William Sangster, and for the survival of his 1884 plan, which is a rare example of a plan from this prolific garden designer.

The Daylesford Botanic Gardens are of scientific (botanic) significance for the extensive conifer collection and cool climate plants. The Gardens contain an outstanding collection of conifers and other mature trees, many of which were donated by renowned botanist Ferdinand von Mueller. Significant trees include *Pinus ponderosa* (Western Yellow Pine), *Pinus coulteri* (Big Cone Pine), two *Abies nordmanniana* (Caucasian Fir), *Abies pinsapo*, (Spanish Fir) and a *Cedrus atlantica f. glauca* (Blue Atlas Cedar), *Pinus wallichiana* (Bhutan Pine), *Pinus pinaster* (Maritime Pine), *Sequoiadendron giganteum* (Giant Redwood), (Monkey Puzzle) and *Aesculus hippocastanum* (Horse Chestnut), many the largest or finest examples in Victoria. Other outstanding trees include a *Tilia cordata* (Small-leaved European Linden), a row of *Cupressus lusitanica* (Mexican cypress), a *Quercus robur* (English Oak) planted in 1863, avenues of Dutch Elms and a rare *Quercus leucotrichophora* (Himalayan Oak).

The Daylesford Botanic Gardens are of aesthetic significance as a rare example of a botanic garden spectacularly sited on an extinct volcanic cone which allows a panoramic view, aided by the 1938 Pioneers'

Memorial Tower, as well as vistas within and out of the gardens and from the township to the gardens. As the most prominent local landmark, the Garden's vertical dominance in the landscape provides a dark contrast to the elms avenues, oaks and other deciduous species.



H2202 revised hermes map

L1 Lower Basin Northern Slopes, Pinetum and Elm Walk  
 B2 Alf Headland Conservatory

**Description of the Pinetum and Tuberous Begonia Conservatory**



*Extract from Wombat Hill Botanic Gardens Conservation Development Plan by Jill Orr-Young, 1997. Wombat Hill Botanic Gardens Daylesford Conservation Management Plan, by Lee Andrews & Ass, 2007*

The township of Daylesford was created after the discovery of gold on Wombat Flat in 1851. In 1854, the township was surveyed and approximately 50 acres on Wombat Hill was set aside as a Camp and Police Reserve. At the end of 1862, the government agreed that nine hectares (23 acres), encompassing Wombat Hill, would be set-aside as public gardens under the control of the Municipal Council. In 1865 Ferdinand von Mueller, Director of the Botanic Gardens, Melbourne, sent the Daylesford Borough Council 100 forest trees and 12 seeds. The pinetum started with the planting of 50 Monterey Cypress (*Cupressus macrocarpa*).

The tree collection was further founded on Mueller’s contributions in 1869, when Michael Kennedy was appointed the first ‘labouring gardener’ and the gardens were laid out.

Further development of the tree collection occurred between 1870-1884 the Council received 264 plants specifically for the Gardens. The trees included Monterey Cypress (*Cupressus macroarpa*), McNab Cypress (*C. macnabiana*), Lawson Cypress (*Chamaecyparis lawsoniana*), Japanese Cedar (*Cryptomeria japonica*), Bronze Japanese Cedar (*C. japonica ‘Elegans*), Canary Island Pine (*Pinus canariensis*), Monterey Pine (*Pinus radiata*). In 1885 further specimens were added, (*Pinus pinaster*) and Aleppo Pine (*P. halepensis*), Chili Pine or Monkey Puzzle Tree (*Araucaria araucana*),

Bunya bunya tree (*A. Bidwilli*), Western Hemlock (*A heteropylla*), Wellingtonia Giant Redwood (*Sequoiadendron giganteum*), Douglas Fir (*Pseudotsuga menziessii*), Norway Spruce (*P. abies*), Himalayan White Pine (*P. excelsa*), West Himalayan Fir (*P. Pindrow*), Himalayan Cedar (*Cedrus deodara*).

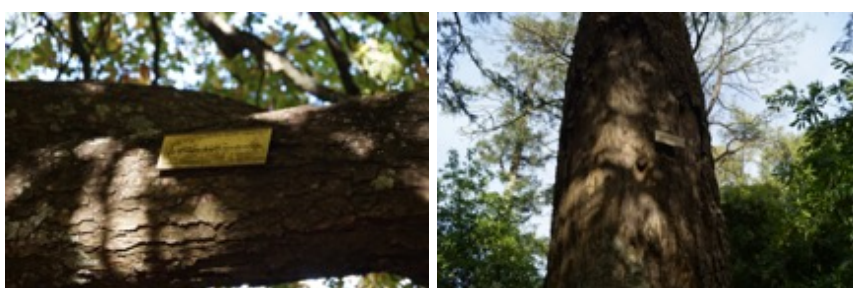


In 1898 the pinetum included West Himalayan Spruce (*Picea smithiana*), Oriental Spruce (*P.orientalis*), Silver Fir (*Abies alba*), Eastern White Pine (*Pinus strobus*), Bhutan Pine (*Pinus wallichiana*), Western Yellow Pine (*P. ponderosa*), Big Cone Pine (*Pinus coulteri*), Caucasian Fir, (*Abies nordmanniana*), Spanish Fir (*Abies pinsapo*) and Blue Atlas Cedar (*Cedrus atlantica f. glauca*), Atlas Cedar (*C. atlantica*) Maritime Pine (*Pinus pinaster*), Jeffrey's Pine (*P. jeffreyi*), Knobcone Pine (*P.attenuata*), Californian Foothill Pine (*P sabiniana*), Larch (*Larix decidua*), Stone Pine (*Pinus Pinea*) and a row of Mexican Cypress (*Cupressus lusitanica*) along the entrance drive.

In May 1883, the Council, engaged the firm of Taylor and Sangster to submit a layout plan for the gardens. William Sangster, one of Victoria's leading landscape designers at the time, developed a plan for the Public Gardens Daylesford which was never fully implemented. Of the 50 different types of trees noted on Sangster's plan approximately half are conifers, the remaining are European and deciduous trees. John Hawker, horticulturalist from Heritage Victoria initiated the replanting of 12 lost species in the 1980s.

In 1884 Kennedy resigned and a new curator, W. Gascoigne, a Frenchman, was appointed. Gascoigne, an experienced horticulturist, had arrived in the district in 1857 with previous experience in fruit growing, and he specialized in bulbs, particularly hyacinths, tulips, narcissi, double anemones, irises, ixas and gladioli. He started the Daylesford's begonia collection in 1885 when the first Bergonia Conservatory was built to display the tuberous begonias. The Deakin Plant Shade House made of timber slats (25.6m by 16.5m) was also erected in 1896.

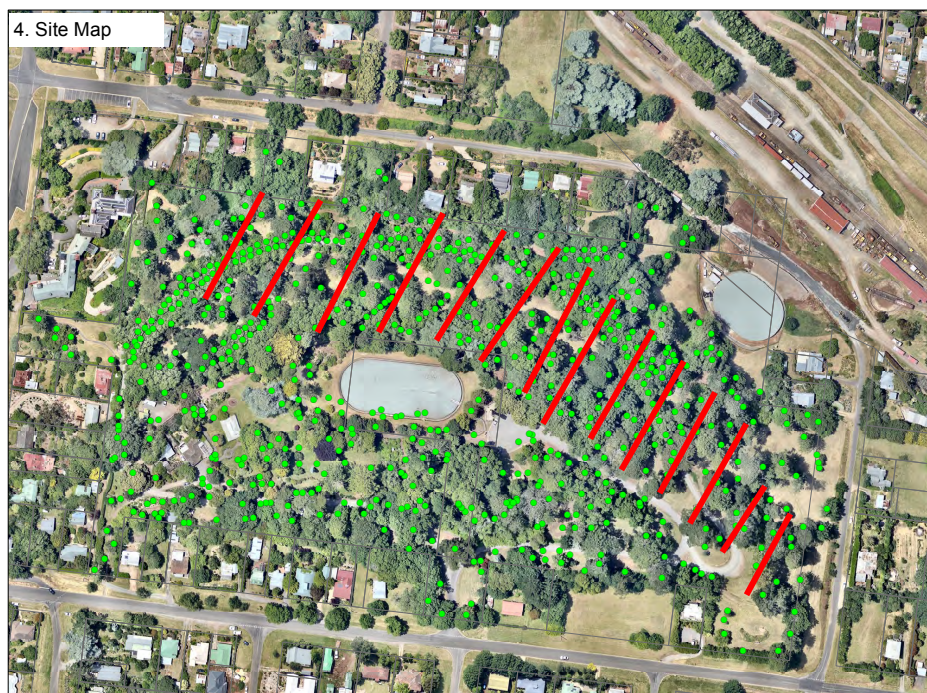
In 1937 a new Curator Bill Greville rebuilt the Begonia conservatory with 45 plants from the Ballarat City Council, 30 from Queens Park in Essendon, eventually displaying 250 tubers including a (lost) one named 'Daylesford'. Greville introduced dahlias, cannas, anemones, ranunculi, begonias and succulents. In the 1940s he arranged for identification plates to be attached to the plants and pinetum.



When Greville retired in 1952, Alf Headland was appointed part-time caretaker in 1956, he continued with the Tuberous Begonia cultural tradition. In 1988, under Robert Beard, a new purpose conservatory was built for the now famous annual display of Begonia Conservatory with funds from the Commonwealth Bicentennial Grant erected on the site of the former 1941 Begonia glass house and named to honour of Alf Headland's work.

#### Summary of Use Of The Registered Place: -

#### Pinetum along the Northern Slopes



The northern slopes

The most significant introduced feature of the Wombat Hill Botanic Gardens is the 19<sup>th</sup> century exotic tree collection. The collection is dominated by conifers which are set within a forest framework that contrasts with the bright green leaves from deciduous Elm Trees. The Elm avenues cut across the northern slopes of the garden between informal plantings of a forest of conifers. The tree legacy of Ferdinand Mueller dates from the 1860s and early 1870s. The development of the upper Elm Walk commenced in 1860s, and the lower Elm avenue was planted in the 1880s. The Pinetum collection is the oldest in Australia and has the most number of surviving conifers dating from the 1860s, 1870s and 1880s due in part to its location at 800metres altitude, on the slopes of a volcanic hill in a cool climate

#### Existing Conditions and Recommendation

Including reference to the *Homewood Consulting Arborists Assessment of Trees within the Wombat Hill Botanic Gardens, 2017*.

A total 694 trees within the Botanic Gardens were assessed by *Homewood Consulting Arborists / 2017*. One of the key issues identified is the aging significant tree collection. The garden has an aging tree population, which combined with species origin, climatic conditions such as drought and water stress the trees are predisposed to greater vulnerability making them susceptible to pests and

diseases. The Arborist Report states that tree senescence can be slowed down by improving the health of the trees and limiting potential environmental stresses.

They recommended site modifications to relieve the stress by the incorporation of composted organic mulching across the northern slopes where the Pinetum and 1860 Elm Walk are located. This has the potential of significantly improving the health and longevity of the trees. The measure is one of the most effective ways to slow down the rate of senescence.

It is proposed to carry out recommended organic mulching programme of applying 400cubic metres of well composted pine chips across the northern slopes.

It is proposed to extend the labelling programme to cover the conifers across the Pinetum in the northern slopes.

Other recommendations included the development of a car parking strategy to reduce compaction by visitor's cars. This area is restricted to the borders of the carpark and does not affect the Pinetum in the northern slopes area. Council is progressing with the development of a car parking strategy at the turning circle. This is not part of this grant application.

## **Tuberous Begonia Display**

### **Existing Conditions and Recommendation**

The annual tuberous Begonia display of about 250 plants is significant as a continuing regional horticulture tradition at the Wombat Hill Botanic Gardens. The age of the cultural practice dates to 1885, that is 135 years ago and is similar to the collection at Ballarat Botanic Gardens.

- The annual cultivation, display and exhibition of Tuberous Begonias has been more an initiative of the curators. It is proposed that it be adopted as an official Council Garden policy as recommended in the Conservation Management Plan.
- The collection and display of tuberous Begonia as a culturally significant tradition, first introduced by curator Gascoigne in the 19<sup>th</sup> century is dependent upon the proper functioning of a series of conservation and glass houses in order to undertake storage during the cold winter and continual propagation of the plants.

There are three unheated glasshouses and a shade house which are critical in the annual cycle required to retain the 130year old cultural horticultural traditional of tuberous Begonia display. The following assessment of these structures is based on discussions with John Roach, the Hepburn Shire horticulturalist and notes provided by him and site visits.

### **Tuberous Begonia Public Display the Alf Headland Glass Conservatory**



The Alf Headland Glass Conservatory the main public display area



### Current Use

The conservatory is used for the collection of tuberous Begonias. Display is viewed from outside, there is no public access to the interior unless it is an organised tour. The encircling verandah is important for weather protection for the public. Benches on the east side are used for presentation of horticultural education tours.

Growing Begonias is a year-long task. The tuberous Begonia plants are tendered during February to ensure large flowers before the plants are put out on public display in the Alf Headland Conservatory in March. Once cool weather begins in April or May the plants start to die back to ground level. All tubers are then taken out of the pots and inspected for damage or rot. Afterwards they are stored in the bulb room, Growing House, over winter. In spring they are taken out of storage and potted up and placed in the heated glass house, Propagation House. Once the shoots reach about 5-10cm cuttings are taken. They are potted and moved to the nonheated glass house, and finally to the public display conservatory.

### Existing Condition

The steel structure is basically sound and in good condition. It is a typical unpainted aluminium 1988 structure, which is intact to the date of its construction. The verandah Polycarbonate sheeting cover over viewing area is old, brittle and discoloured and unsightly. The external covered area is used as a protected place where tour groups may gather for presentations.

The glazed roof above the display area is broken in places, panes are cracked and in other areas the glass panes have slipped out of the frame allowing water to leak onto plants. This damages the plants. The glass has been painted with vinyl paint on the inside making it very hard to clean. The natural light through the painted panes provides poor inadequate light transmission, especially during winter. The plants will not flower well without the right amount of light, whereas too much heat and light can reduce the size of the flowers.

### Proposed Works

It is proposed to re-glaze and replace the old glass, reseal and seal the panes, and replace the Polycarbonate sheeting over the verandah.



### Propagation Glass House.



The collection is stored and grown within the Botanic Gardens nursery where two special glass houses are used for their propagation and development. Each glass house has different conditions necessary for each stage of their growth. The propagation Glass House is used mainly to propagate stem cuttings of tuberous Begonias with the help of a heated bed to stimulate a rapid strike rate for the sensitive cuttings. Sensitive young plants are grown on in the house before transferring to the conservatory.

#### Existing Condition

This house is structurally in good condition with concrete block walls and steel framed glass roof. Aging and weathering have seen the deterioration of the glass roof with some of the glass panes broken, cracked or slipping in their frames causing water leaks and cold drafts, both are detrimental to sensitive plants. The glass has also been painted with vinyl paint on the inside. This causes poor transmission of light and makes it very difficult to keep the glass clean.

#### Proposed Works

Replace glass with 4 mm horticultural glass, clean frames and seal. During summer erect a frame for shade cloth to keep the house cool and make the temperature and light control easier.

## Growing Glass House



The Growing Glass House is used to store the dormant Begonia tubers and to start the young plants in spring before transferral to the conservatory. During summer it is used for the growing the orchids ready for the late winter spring display in the conservatory after the Begonias have gone dormant. This house is never empty as the bench space is fully utilised as displays are changed in the conservatory.

### Existing Condition

Structurally sound but problems with the original structural design with the omission of a central support when it was relocated, causing the ridge line to sag. Cracked, broken and slipped glass panes allow water leakage during winter when it is critical for the dormant Begonia tubers stay dry.

### Proposed

Replace central support, replace cracked and broken panes and reseal and seal existing glass.

## Shade House



A large useful historic style of rustic shade house using timber lathes as shade as was the traditional way. This is shade Shed replaced the original Deakin Plant Shade House made of timber slats that was built in 1898. It is used to grow plants that don't need cold protection and to grown on display plants such as orchids during summer. This allows the Propagation and Growing Glass Houses to be reserved for the tuberous Begonias. The timber slat shade house is a very traditional type of garden structure.

### Existing Condition

The structure which is made of wood has weathered and is now structurally unstable, posts are

replaced, and new props erected. It is unsound and deteriorating rapidly.

### Proposed Works

It is proposed to replace the structure matching the existing design which was based on the design of the former Deakin Plant Shade House.

### Why Conservation Work is Necessary?

#### Pinetum

The Pinetum at Wombat Hill Botanic Gardens is one of the oldest and most extensive 19<sup>th</sup> century pinetums on mainland Australia. It is the most significant feature in the cool climate Botanic Gardens. Apart from the significant conifers listed on the state heritage register, it comprises over 50 different species of conifers from around the world. Many of the conifers in the Pinetum are now 100-160 years old. With good conservation and maintenance, they could have a further life expectancy of 100-200 years. Survival of the 300 or so conifers has in part been due to the excellent volcanic soils, cool climate and altitude of about 800metres.

There are 694 exotic trees in the Botanic Gardens. The tall dark conifers dominate and provide a backdrop for the contrasting avenues and specimens of deciduous trees. This supports a 19<sup>th</sup> century picturesque aesthetic when the native trees were replaced with exotics. Along the northern slopes of the garden the majority of conifers are planted in a forest framework which is bisected with two Elm avenues that date back to the 1860s and 1880s. This creates two of the significant walks through the gardens.

The trees planted between 1860-1880s are at most risk of irreversible loss, due to drought, climate change, dissimilar growing requirements and tree senescence. They have reached a critical stage. Urgent conservation works have been recommended for 236 conifers of the remaining collection of 694 trees to ensure they attain their useful life expectancy (ULE) to reduce risk, failure and progressive tree loss. Tree senescence can be slowed down by improving the health and limiting the effect of potential environmental stresses. The stresses can be easily alleviated through implementation of a mulching program beneath the canopies of these feature trees.

#### Tuberous Begonia Conservatory and Glass Houses/Shade House

The cultivation, display and exhibition of tuberous Begonia's survives from the 1884 when it was first introduced by Gascoigne the French curator of the Botanic Gardens. It is a cultural horticultural traditional practice that has state significance. Urgent conservation works are required to conserve the conservatory and two glass houses and shade shed in the Nursery that are used in this horticultural practice where different stages take a year to complete. These works are critical to safeguard the tuberous Begonia plants and to allow the continued tradition of the annual cycle of growing, propagation, collection and display of tuberous Begonias in the conservatory during the months of March to May.

The general structures of the glass houses are in each case, adequate. It is the important utility and function of the structure that no longer provides the right conditions for horticulture use.

It is proposed to replace and re-fix damaged and weathered glazing panes and replace with good conservatory horticulture glass. The timber slat shed which dates to the 1880s requires conservation work and replacing of rotted and damaged timber members.

## What Are The Proposed Works?

The proposed conservation works focus on preservation of the Pinetum collection across the northern slopes of the Botanic Gardens by the application of 400 cubic metres of composted pine mulch.

The conservation works also focus on preservation of the cultural tradition of tuberous Begonia display that dates to 1885 by the conservation work to the three existing glass houses that are used for the preparation, growing, propagation and display of the plants. The works consist of replacing damaged broken and painted glass panes and refixing. Strengthening the central ridge in one of the nursery glass houses. Replacing a rotted timber retaining wall beside the Alf Headland Conservatory with volcanic rock retaining wall with stormwater drains around the east side.

The work comprises rebuilding the traditional garden timber slat shed which is badly deteriorated. This structure is critical to the nursery area allowing the glass houses to be used for the Begonia plants.

The work will also include rebuilding a garden retaining wall alongside the Alf Headland Conservatory, the public display structure for the tuberous Begonias.

## General Description of Major Objective

**Conservation:** The major objective is to safeguard the Pinetum and preserve the traditional horticultural practice of growing and exhibiting tuberous Begonia's in the Botanic Gardens.

The works are all in accordance with the recommendations of the Conservation Management Plans, *Wombat Hill Botanic Gardens Conservation Development Plan by Jill Orr-Young, 1997* and *Wombat Hill Botanic Gardens Daylesford Conservation Management Plan, by Lee Andrews & Ass, 2007* and the *Homewood Consulting Arborists Assessment of Trees within the Wombat Hill Botanic Gardens, 2017*.

The proposed works are in accordance with the principles and methodology set out in the Burra Charter.

## What physical and visual impacts will result from the proposed works?

**Demolition:** There is no demolition work.

**Conservation:** The conservation work is to the existing structures, and will have positive physical, structural and visual impact on the heritage significance of the place.

## Conclusions

The conservation works proposed have been carefully considered in relation to the heritage significance of the Wombat Hill Botanic Gardens. The heritage significance of the place and its cultural practices will be preserved and retained for future generations.