Buninyong Botanic Gardens Conservation Study

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With Fifth Creek Studio
For City of Ballarat
Final Version June 2004

Buninyong Botanic Gardens Conservation Plan

The draft documenbt was prepared by Dr David Jones, School of Architecture, Landscape Architecture & Urban Design, The University of Adelaide, for the City of Ballarat.

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Following public consultation and submissions the Bunincyong Botanic Gardens Conservation Study Steering Committee recommended a number of changes to the historical details of this report. As the consultant was unable to produce a revised document with these amendments within the timescale required by Council, the draft document was adopted by Council at its meeting held 9 June 2004 with the following resolutions:

1. That Council adopts the “Buninyong Botanic Gardens Conservation Study and Masterplan with text modifications as pr attachement 4
2. That Counil acknowledeges and thanks the members of the Steering Committee for their involvement in development of the plan.

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Contents

1 Introduction

1.1 Preface

The Buninyong Botanic Garden is located on a 5 acre (2ha) allotment in the township of Buninyong near Ballarat. Together with the adjacent 5 acre (2ha) Gong Reservoir allotment, the two allotments form a significant park land landscape and resort for the town. The former contains a significant mature collection of botanical species, a large timber rotunda erected in 1901, various other structures, gates, unusual concrete fencing, a circuitous central pathway, a series of ponds, and a former concrete walled swimming baths. The latter contains a disused reservoir and a recently established *Acer* sp. arboretum collection. Both allotments are separated by a tree-cloaked embankment, with a roadway on top, that disguises the reservoir wall within. To the south is a former Courthouse complex, more recently a council depot, that is now considered as part of the assets of the Garden proper. Part of the Garden is excised for a bowling green. The Garden has a splendid some have been listed on both the National Trust of Australia (Victoria) *Register of Significant Trees* (1999) and collection of mature trees and plants, and included in Heritage Victoria's Registration of the Garden and The Gong under the *Heritage Act* 1995.

The Buninyong Botanic Garden was identified in a 1981 study of Victoria's historic gardens by Peter Watts as being of state significance. The Garden and The Gong were registered under the *Heritage Act* 1995 by Heritage Victoria in 1999.

The site is currently managed by the City of Ballarat as delegated authority under the *Crown Lands (Reserves) Act*. The Garden and The Gong are separately reserved as Public Park and Recreation Zone (PPRZ), with Cornish Street and the bowling green as Residential 1 Zone (R1Z) under the *Ballarat Planning Scheme* (2000). Both the Gardens and the Gong, together with Cornish Street and the bowling green are affected by the Heritage Overlay within this Scheme.

Dr David Jones, from Adelaide University, in association with Fifth Creek Studio, were engaged on 31 December 1999 to undertake a Conservation Study and to prepare a Landscape Masterplan for the Gardens and the Gong areas, in accordance with a brief dated *c*. November 1999. In summary the brief called for the preparation of a 'Conservation Analysis, Policies and Management Plan' of the Buninyong Botanic Gardens. The objectives of the study were twofold:

- firstly to prepare a conservation analysis of the site, concluding with a succinct statement of cultural significance. From this, conservation policies are to be prepared.
- secondly, to provide guidelines and recommendations for the conservation, restoration, management and development of the Gardens which will ensure retention of significant features and sympathetic development in line with the Gardens' historic character and botanic role.

This first section (which comprises this report) has been largely prepared by Dr David Jones and the second section has been largely prepared by Fifth Creek Studio Pty Ltd.

The study has been conducted following guidelines prepared by Australia ICOMOS (International Council on Monuments and Sites) as described in the *Burra Charter* (amended 1999). These guidelines provide for the distinction between analysis of significance and policy formulation. This was reflected in the study brief and in this report where Part One comprises the analysis of significance and Part Two outlines suggested conservation policies and management recommendations. This study was greatly aided by the assistance and support of staff from the City of Ballarat and Heritage Victoria.

1.2 Method

General Principles

This study follows principles laid down by the Australian chapter of the International Council on Monuments and Sites, an international body sponsored by UNESCO. In 1979 Australia ICOMOS, drawing on the work of its international parent, produced a charter for 'the conservation of places of cultural significance' (known as the 'Burra Charter' to commemorate the town where it was ratified). Guidelines to the charter were produced subsequently and these clarify the applicability and use of the Burra Charter. The major feature of the Charter and its guidelines is to separate analysis from policy formulation. These principles are now well established in Australia and their use for a variety of culturally significant sites is widespread. This study has used methods compatible with the Australia ICOMOS Charter and Guidelines.

Terminology
This study uses terms and definitions that follow those in the Australia ICOMOS Burra Charter. Therefore, the following terms are used throughout the report without further explanation:

- *Place* means site, area, building or other work, group of buildings or other works together with associated contents and surroundings.

- *Cultural significance* means aesthetic, historic, scientific or social value for past, present or future generations.

- *Conservation* means all the processes of looking after a *place* so as to retain its cultural significance. It includes *maintenance* and may, according to circumstance, include *preservation*, *restoration*, *reconstruction* and *adaptation* and will commonly be a combination of more than one of these.

These definitions do not necessarily treat scientific or botanical significance in the same light as a scientist or botanist may approach the subject, but reflect the emphasis of this report on an assessment of cultural significance.

Throughout this report, botanical names have been italicised and common names capitalised. No attempt has been made to update spelling or nomenclature of plant names when used in direct quotes from other sources.

1.3 Site Boundaries

The Buninyong Botanic Gardens and Gong Reservoir allotments are situated in the original survey town of Buninyong to the south of Ballarat.

The original public gardens comprise 2.2ha that includes the present Botanic Gardens and Bowling Club. This allotment is 660' x 330' in dimensions [approx. 201m x 100m]. This area is bounded by Inglis Street on the west, Scott Street on the north, Cornish Street on the east, and a closed portion of Yuille Street on the south that now comprises part of the Buninyong Primary School grounds. The main entrance to the Gardens is at the intersection of Inglis and Scott Streets, however pedestrian access is available into the Gardens from most points around its perimeter.

The Gong Reservoir encompasses an additional 2.2ha. The area is bounded by Cornish Street to the west, Scott Street to the north, Fisken Street to the east, and Yuille Street to the south of which portions of Yuille and Fisken have no vehicular access. This allotment is 660' x 330' in dimensions [approx. 201m x 100m]. There is no identifiable entrance into The Gong and access is available around the surrounds of the reservoir.

The scope of this report embraces both allotments, as designated Public Gardens in the original survey, together with considering the cultural and landscape context of the adjacent roadways especially the role of Cornish Street that dissects both allotments.

The plan overleaf depicts the location of the subject sites.

Figure 1.3.1
Site Plan

2 Conservation Analysis

2.1 History

Settlement and Survey of Buninyong

The first land survey of the town of Buninyong was undertaken by William Malcolm, the Government Surveyor in early 1850. The botanic gardens and Gong reservoir were identified as allotments A.1 and A.2 each comprising 5 acres (2.02ha). The survey plan carried a swampy graphic icon on the allotments that was annotated as "Springs & Tea Tree" thereby indicating the principal reason why they were not allocated as saleable allotments. Prior to this survey the allotments were variously grazed as part of the original pastoral run of Thomas and Somerville Learmonth that was taken over in the late 1840s by J Porter and P Fleming.[1]

While a temporary reserve was gazetted over these allotments, and fifty acres (20.2ha) withdrawn from sale on 29 August 1861, it was not until 1889 that a remnant of 10 acres (4.1ha) was finally permanently 'Reserved for Botanic Gardens'. The foundation stone for the Roman Catholic Church, sited to the north-west of the Gardens and known as the Church of St Peter and St Paul, was laid in 1853. It was eventually extended and consecrated in 1858. The site for the Catholic Church in Fiskin Street, to the east of the Gardens, was permanently reserved in 1858, the Presbyterian Church in 1860, and the Anglican Church one block to the west of the Gardens in 1862-1865.[2] Porter and Fleming established an 'eating house' on the north-east corner of Scott and Cornish streets overlooking the gardens site. Its close proximity to the springs ensured regular bullock wagon and traveller trade *en route* from Ballarat and Geelong and *vice versa*.

With the survey various government structures were erected. One of the first, established following the discovery of gold in Buninyong in August 1851, was a log lock-up and extensive stables on the site of the former court house building. This encampment is portrayed in an 1856 watercolour sketch by Emma von Steiglitz.

Another structure was a sandstone building reputedly used as a court house. Later red brick additions to the structure reflect its change of use and function to a butter factory.[3] Adjacent to the court house structure was a single storey red brick Wardens Office, erected in 1858 for £400. It functioned in this role until 1873 whereupon it remained vacant until 1887 when it was transferred to the Borough Council. With the lease of the court house in 1897 to the butter factory enterprise the role of the Wardens Office becomes unclear. It is known that is served as an adjunct caretaker's residence for the Ogilvie family in the 1920s-40s.[4]

The Buninyong Road District was declared on 8 July 1858, the Municipality of Buninyong was formed 15 July 1859, and Colonial Governor Sir Henry Barkly laid the foundation stone of the police court building in 1858. The municipality was then reconstituted in part as a Borough on 1 October 1863, and the Roads Board created as a Shire Council on 16 February 1864.[5]

In the 1850s the original Gong reservoir was constructed. Its purpose was principally to ensure a water flow to the adjacent bluestone brewery established by Thomas Sheppard in *c*.1854, but also to provide additional water for the settlement. By 1857 'Sheppard's Fine Ale and Porter' was widely acclaimed. Sheppard became the first chairman of the Shire in 1859, also served as a Justice of the Peace, President of the Buninyong Horticultural Society, and a Chairman of the Buninyong Cemetery Commission.[6] He has a long history of pastoral and commercial ventures in the Pyrennes and Port Phillip Districts.

A stone-lined water flume, approximately aligned with Yuille Street, was also constructed in 1874 to convey excess water and the surface scum from the reservoir, and to provide additional water to the Bowen Hill gold diggings to the west. To enable the latter, a water race was constructed along Simpson Street constructed by the miners to Council's approval.[7] Part of this flume exists today. The area to the east of Cornish Street became locally known as the Upper Botanical Reserve or Upper Dam, the Gong Gong Reservoir, and later 'the Gong' to distinguish it from the Gong Gong Reservoir in Ballarat.

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1 Thorpe & Akers 1982, *An Illustrated History of Buninyong*, pp. 5, 6; Victoria 1856*, Plan of the Township of Buninyong in the County of Grant*, dated March 18, 1856.

2 *Government Gazette*, August, 29, 1861.

3 Smith 1990, 'Former Council Depot Building, Buninyong, Rs 10903 Buninyong Municipal Store Yard', pp. 1-2.

4 Jean Robertson, pers. comm., 2000; Ritchie nd, 'Wardens Office – an explanation', p. 1.

5 *Government Gazette*, July 8, 1858; Thorpe & Akers 1982, *An Illustrated History of Buninyong*, p. 35.

6 Anon 1978, *Overland*, 72, p. 25.

7 Thorpe, MW & M Akers 1982, *An Illustrated History of Buninyong*, p. 31; Beth Ritchie, pers. comm., 2000.

Garden Development: The Fegbeital Period

With the establishment of a Shire Council in Buninyong in 1859 part of the councillors' attention was given to the development of the Botanic Gardens. The Shire immediately allocated £95 of funds, and established a potato garden on 2ha of drier ground with their own staff, and then sold the potatoes to assist in raising further funds. Funds were sought from the colonial government in Melbourne from agencies that assisted provincial botanic garden establishment.[8] In October 1861 Council adopted a "plan of the Botanic Gardens with main walks and two bridges, estimated costs £36." The origin and basis of this 'plan' is unclear. Split post and rail fencing and timber gates were erected in 1860-1861 to prevent the egress of "geese, goats, pigs, etc. trespassing" in the Gardens. A pump was also acquired "for the spring". The Shire Council also sought the services of a suitable curator. They also proposed the erection of a bathing house on the Gong at a cost of not more than £40.[9]

The Borough was created from within the Shire by proclamation in October 1863. The Borough repeatedly sought funding assistance to achieve these objectives as the following 1864 extract from the Borough Minutes indicates:

> *Fencing and improvements partially completed at Botanic Gardens and £100 applied for from Government funds to complete the work.*[10]

During the 1860s the numerous plantings were sourced by the Borough for the Gardens. These included specimens from von Mueller at the Botanical Gardens in Melbourne, Francis Moss, at 'Mossmount' locally in Buninyong, from George Longley at the Ballarat Botanic Gardens, and from Daniel Bunce at the Geelong Botanic Gardens. It is likely that additional donations came from Buninyong residents, and several of the other prominent Ballarat nurserymen including R.U. Nicholls, George Smith, Thomas Lang. Plans for the Gardens were also reputedly prepared by Town Surveyor, Robert Harvey, and forwarded to the 'Board of Works' in Melbourne for approval.[11]

Ferdinand von Mueller (1825-1896), who served as Director of the Melbourne Botanic Gardens (1857-1873) and Government Botanist (1853-1896), was a significant distributor of plants and seedlings that he "reared and gratuitously distributed" throughout Victoria.[12] The Buninyong Gardens was a recipient of von Mueller's enormous energy, although there is no evidence that he visited or prepared a plan of the Gardens.[13] Von Mueller, upon Council's invitation, forwarded some "500 plants and shrubs and 300 packages of seeds" to the Council, together with a cartage account for 30/- in May 1862.[14] In August 2, 1866 Council again wrote to von Mueller seeking "again application for such shrubs and plants as you can spare."[15]

In 1867 the Council again approached von Mueller for plants, and he replied "stating that he would supply a quantity of trees & shrubs … & suggests an agent be appointed to receive & pack same …" While the Mayor and Cr. Bray took this correspondence as an opportunity to journey to Melbourne to "wait on Dr Mueller for purpose of receiving such plants, etc.", Council also requested that "the Chinese be requested to clean the borders in the Botanic Gardens for the purpose of receiving plants & a committee of Council instruct Chinese as to what is required."[16] This is the only reference to Chinese involvement in the Gardens but the tone of the quotation implies that Chinese may have undertaken the original creation of garden beds and edgings under the supervision of the Council. A Council minute in the subsequent week indicates that "the borders & walks be lined off throughout the 'Garden' and the water channel be laid off from one culvert to the other."[17]

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8 Beth Ritchie nd, "Buninyong Gardens Precinct," p. 1.

9 Minutes of the Shire of Buninyong, June 27, 1860, p. 88; September 12, 1860, p. 114; October 10, 1860, p. 125; January 16, 1861, p.145; April, 10, 1961, p. 162; October 30, 1861, p. 209; November 27, 1861, pp. 214-215.

10 *Buninyong Borough Council Minutes*, April 23, 1864.

11 Lumley, P, J Dyke, R Spencer, & E Almond 1983, *Ballarat: Historic Landscapes, Trees and Gardens*, pp. 27-34; Beth Ritchie nd, 'Buninyong Gardens Precinct', p. 1.

12 Victoria 1884, '1316', *Victorian Year Book 1883-1884*, p. 579. For more detailed information on von Mueller, refer to: 'The Scientific Savant in Nineteenth Century Australia', theme issue of *Historical Records of Australian Science* 11 (3), 1997; Home, RW, AM Lucas, S Maroske, DM Sinkora and JH Voigt eds 1998, *Regardfully yours: selected correspondence of Ferdinand von Mueller*. Berne, Switzerland: Peter Lang AG.

13 Von Mueller correspondence collection; Wells, pers. comm., 2000.

14 Minutes of the Borough of Buninyong Council, May 14, 1862, p. 246.

15 Minutes of the Borough of Buninyong Council, August 2, 1866.

16 Minutes of the Borough of Buninyong Council, May 16, 1867, pp. 21, 23; May 27, 1867; April 28, 1868, p. 130.

17 Minutes of the Borough of Buninyong Council, May 25, 1867, p. 24.

Francis Moss (1833-1916) was a major influence upon the species planted in the Gardens. Born into an Episcopalian family in County Durham in England, to a father who was a gardener by trade, in 1851 he migrated to Victoria and was immediately drawn to the goldfields at Ballarat. By 1853 he had acquired land at Buninyong and was starting to develop an extensive horticultural enterprise and establish his reputation as a competent nurseryman. At his garden, called 'Mossmount' or 'Mossmont', developed he shifted from fruit trees and vegetables into deciduous and coniferous trees. Moss is credited with propagating the 'Stewart's Seedling' apple, as well as developing American blight (woolly aphis) resistant fruit tree stock with the assistance of Ballarat nurseryman Thomas Lang.[18] By 1873 the garden at 'Mossmount' was a 'botanic garden' and a pleasure resort for visitors as one newspaper reported:

> *The extent of ground developed to Horticulture by Mr. Francis Moss is seventeen acres* [6.9ha]*, through the centre of which winds a well made gravel drive, and on each side, from end to end, are splendid specimen trees and shrubs. …*
>
> *It is now twenty years since Mr. Moss commenced to form these grounds, and during the earlier years chiefly vegetables were cultivated. Mr. Moss eventually improving and finally year by year beautifying the spot, so that of late the grounds have become during the summer months quite a popular place of resort for the good people of Ballarat.*
>
> *Nearly all kinds of coniferæ, hardy trees, and shrubs succeed grandly here; while fruits of all kinds with the exception of peaches, almonds and apricots, thrive excellently, and attain great perfection. No less than ten acres* [4.0ha] *of grounds are devoted to fruits, and the remaining seven acres* [2.8ha] *to floral and arboricultural beauty*.[19]

Francis Moss, following a series of unfortunate deaths in his family, including his wife committing suicide in the Gong, decided to relocate his nursery activities to a property near Leongatha in Gippsland thereby establishing what is today known as Mossvale Park.[20] Moss died in Buninyong and was buried in the Buninyong Cemetery. As well as donating plants to the Gardens, he also donated many of the trees in the Buninyong Cemetery in 1873-74.[21]

In 1879 the Town Clerk purchased "75 trees and shrubs … as recommended by Mr Moss … to be planted in gardens and planted under his supervision."[22] Moss apparently continued to either donate or supply at cost trees to the Gardens and Gong reserve into the 1910s. Because of his reputation as a successful nurseryman, Moss was often drawn into discussions and debates about horticultural matters and issues that threatened his livelihood. At one stage Moss joined other Melbourne and Ballarat nurserymen, including George Smith JP FRHS, in petitioning the Chief Secretary complaining about von Mueller's distribution of free tree seedlings and how it impacted upon their businesses.[23]

The Curator at the Ballarat Botanic Gardens, George Longley, also donated plants to the Buninyong Gardens. It is recorded that "Mr McPherson [the curator] received about 100 trees from Mr Longley …" in 1891. More than likely these included specimens of Atlas Cedar (*Cedrus atlantica* 'Glauca'), the Big Tree (*Sequoiadendron giganteum*), and the Scotch Elm (*Ulmus glabra* 'Horizonalis') given their successful propagation and cultivation in the Ballarat Gardens and the age of specimens in the Buninyong Botanic Gardens.[24]

There is only one known reference as to plants being obtained from the State Nursery at Creswick when McPherson obtained 140 trees together with 250 rose cuttings. The latter is curious because it was not a plant grown at Creswick, and would have most likely to have come from Longley or one of the Ballarat private

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18 Thorpe, MW & M Akers 1982, *An Illustrated History of Buninyong* p. 18; Beth Ritchie, pers. comm., 2000; Lumley et al. 1983, *Ballarat: Historic Landscapes, Trees and Gardens*, pp. 30-33; Etonian 1873, "Mosmont Gardens, Buninyong," *The Gardener*, 12 July; Anon *c*.1978, "Stewart's Seedling—Ballarat, A Victorian Gold-Town Cooking Apple," pp. 16-17; Lyndon 1994*, The Story of Mossvale Park*, pp. 7-11.

19 Etonian 1873, "Mosmont Gardens, Buninyong," *The Gardener*, 12 July.

20 Jean Robertson, pers. comm., 2000; Lyndon, E 1994*, The Story of Mossvale Park*.

21 Leather, D & A. Beggs Sunter, *Buninyong Cemetery*, pp. 3, 7.

22 Minutes of the Borough of Buninyong Council, July 8, 1879.

23 *Buninyong Telegraph*, July 11, 1904; July 12, 1905; Lumley et al 1983, *Ballarat: Historical Landscapes, Trees and Gardens*, pp. 29-30. Melbourne, Vic: Royal Botanic Gardens; Smith, G 1862, *The Cottage Gardener*. Ballarat, Vic: Comb & Co.; Von Mueller correspondence file 70.05.31, letter dated 31 May 1870, footnote 3.

24 Minutes of the Borough of Buninyong Council, August 10, 1891; John Patrick Pty Ltd 1994, *Ballarat Botanical Garden Conservation Analysis and Policy*, pp. 10, , 14, 16.

nurseries. Notwithstanding this, the Borough Council occasionally made application "to the government for a supply of trees and shrubs suitable for planting in Council's parks and gardens."[25]

Daniel Bunce (1813-1872) at the time was the Curator of the Geelong Botanic Gardens (1857-1872). In May 1862 the Borough Council sought "arrangements … with Mr Bunce to get a supply of plants from Geelong." Apparently he forwarded seeds to the Council which was part of a wider seed and plant distribution he undertook in the region.[26]

During the 1860s the Borough proceeded in developing various community facilities. It had inherited the Gong Reservoir, and in 1861 constructed a large bluestone-lined sunken water 'tank' in the Gardens to assist with the town water supply. As piping was never installed this venture never achieved its purpose, so that by 1872 the Borough converted the structure into an outdoor swimming pool and erected a timber-paling fence around the enclosure. The Curator of the Gardens was thereby placed in charge of the management of the baths. In the same year, after considerable community interest, land was excised from the Gardens to enable a leasehold to the Bowling Club and a simple gabled pavilion was erected. The structure, with a simple rectangular plan and measuring approximately 3.4m x 7.8m, included a 4.66m high gabled roof and a gabled entry door feature with finials.[27]

The Borough Council also appointed Conrad Fegbeitel as the new Curator for the Gardens in 1872, as well as the Baths Superintendent. The position also included duties at the Bowling Green for 2½ days. There are various versions of the spelling of Fegbeitel's surname in period records. Born in Ockstadt near Frankfurt in Germany in 1833, he migrated to Melbourne in 1857 with 30 other 'agricultural labourer' and 'gardener' immigrants from the same locality. He married in 1869, lived at various residences in Eyre and Palmerston Streets in Buninyong, and the couple had no issue although they fostered a local girl whose parents had died.[28]

The aesthetic appearance of the Gardens was recorded by 'Etonian' in 1873 *en route* to a visit to Francis Moss' 'Mosmont Garden' [sic].

> *We landed at the entrance to the Buninyong Gardens after a pleasant drive from Ballarat of sixty minutes, and a very short time sufficed to prove that even at this dull season there is much to admire at the Buninyong Gardens.*
>
> *The natural lay of the ground is charming; the general arrangement well conceived; the selection of ornamental trees and flowering shrubs excellent---many of the specimens, both of deciduous and coniferous trees, being the admiration of all visitors. The surrounding country is hilly and very picturesque; indeed, during the spring and summer months, it would be difficult to find a more inviting spot*.[29]

With Fegbeitel's appointment Borough Councillor Robert Allan sought the preparation of a design for the pool together with formalising the path layout. Allan, the son of an architect, was born in Berwickshire and migrated to Melbourne in 1841 establishing a profitable flour mill operation in Kilmore. A prominent Presbyterian member of the Kilmore community, Allan sold this operation in 1856 and relocated to Buninyong acquiring land in 1856. Allan served as a Borough Councillor (1866-1875), and Mayor of the Borough from 1870-1875, so it was appropriate that he sought to lead a development strategy for the Gardens. He was to establish the Robert Allan scholarships within the Presbyterian Church that still exist today.[30]

In the year following Allan's retirement as Mayor a fire devastated an entire block of timber shops and dwellings in Learmonth Street in November 1876. The Borough, acting on community fear, sought to increase the capacity of the Upper Gong Dam to ensure that an adequate water supply would be available next time to avert such a disaster and for pipe connection into the town. Construction was hampered in April 1877 by a "few days of rain ... making the work much heavier" for the contractors.[31] These works included raising the Gong's water level by 1.37m (4½ feet) to its present level, widening the wall of the reservoir by

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25 *Buninyong Telegraph*, December 19, 1891; Minutes of the Borough of Buninyong Council, May 18, 1891.

26 Minutes of the Borough of Buninyong Council, May 28, 1862; Jones, G 1984, *Growing Together*, pp.35-68

27 Beth Ritchie nd, 'Buninyong Gardens Precinct,' pp. 1-2.

28 Beth Ritchie, pers. comm., 2000.

29 Etonian 1873, 'Mosmont Gardens, Buninyong', *The Gardener*, 12 July.

30 Beth Ritchie, pers. comm., 2000; Beth Ritchie nd, 'Buninyong Gardens Precinct,' p. 1.

31 *Buninyong Telegraph*, April 28, 1877, p. 2E.

1.5m (5 feet) westwards by excavating mud from the floor of the original reservoir, and the planting of several trees around the Gong in May 1879.

Swimming and the baths was an often discussed Borough Council item in the 1870s. Upon the motion of Cr Peter Hedrick in January 1872, Council approved the adaptation and cleansing of the old reservoir into a public baths. Hedrick served as the first Mayor of the Borough in 1863-64. In March 1872 regulations pertaining to the operation of the Baths were proclaimed by the Attorney-General, and the Mayor officially opened the Baths.[32] In September 1872 the Council approved the erection of 4 dressing sheds and "a closet" at the Baths. Council's Baths Committee regularly inspected the venue, and in 1876 established fees as follows: "Family Season 6/-, Single Season 3/-, Single 2d." Council also started noticing the irregularity of the spring water supply to the Baths and established an alternating schedule of days for male and female bathing. During these years Fegbeitel, and his wife, obtained 7½% of the baths takings to supplement his curator's salary.[33]

Growing interest in recreation activities in the late 1880s prompted the formation of the Buninyong Tennis Club. In 1886 Dr Hardy sought permission from the Borough Council to form and establish a tennis club in the Gardens.[34]

In the year 1889 several changes affected the life of the community of Buninyong. Changes occurred in the curatorship of the Gardens, the Gardens was formerly gazetted as a Botanical Gardens Reserve, the new Town Hall buildings were opened, and the railway came to the town.

Although Fegbeitel had performed his services since 1872, the Borough Council forced him to retire in 1889, aged 56. This action was apparently due to the deteriorating condition of the Gardens, and Council resolved that "notice of leave be given to Mr Fegbeitel."[35]

32 Minutes of the Buninyong Borough Council, January 16, 1872, p. 56; Committee Minutes, January 17, 1872; Council Minutes, March 12, 1872, p. 470; Borough Letters 1867-81, No. 324, March 18, 1872.

33 Thorpe & Akers 1982, *An Illustrated History of Buninyong*, p. 35; Minutes of the Shire of Buninyong Council, January 16, 1861, p. 145; Minutes of the Borough of Buninyong Council, October 8, 1872, p. 519; February 8, 1876, p. 209; November 21, 1876, p. 268; November 28, 1876, p. 270; January 11, 1878, p. 352; January 21, 1879, p. 442; December 9, 1879, p. 537

34 Beth Ritchie, per.s comm., 2000.

35 *Buninyong Telegraph*, October 25, 1887; November 2, 1889; Beth Ritchie, pers. comm., 2000.

Nurturing the Gardens: the McPherson Period

Following Fegbeitel's forced retirement the Borough advertised for the position of "Gardener" in October 1889. The terms of reference of the position, prepared by the Borough Clerk, Robert Harvey, on October 26, 1889, were as follows:

Figure 2.1.1
Conditions for Gardener and Caretaker, Buninyong, 26th October 1889

Duties	1/ The person appointed will have control over the Gardens and Baths subject to the supervision of the Parks and Gardens Committee or their officer
	2/ He will look after the baths and ponds and animals ---
Vegetables	3/ He will not be allowed to grow vegetables or flowers for sale, but a portion of ground will be allotted him to grow vegetables for his own use ---
Extra duties	On receiving instructions to do so, he will do any other council work besides work in the gardens, and should he be instructed to work in the Bowling green will give a correct note of the time so spent to the Town Clerk
Baths	The Baths will be under his charge or some female living with him in the gardens, so that persons bathing may at all times be looked after during the hours and times appointed, during the bathing season, and the baths enclosure kept in good order; for this baths service he will receive 50% of the fees, which he will collect & pay monthly to the Town Clerk, who will supply the necessary books and stationary.
Hours	The hours of work will be, 8 per day, besides this he will take general charge of the gardens at all times
	The Gardens will be open on Sundays at all times and during the hours he or some one on his behalf will attend and see that orderly conduct is maintained and no damage done ---
House	A house will be supplied by the Council.
	Outside the gardens he will keep the trees in the streets in good order.
Payment	Payment of the wages agreed upon will be made fortnightly.
Agreement	The agreement may be terminated by either party by one months notice
	The baths will be open on Sunday until 10 am

From "five applications, Mr Robert McPherson was appointed."[36] Robert Allan McPherson (1860-1942) held the position for almost 10 years until he resigned and accepted a more lucrative position as Sexton of the Buninyong Cemetery in 1897 remaining in that position until 1930. In this latter position he established much of the Cemetery's flower bedding, including planting extensive beds of daffodils, as well as continuing to nurture the trees. At the Gardens, McPherson was responsible for the Gardens and Baths as Curator and Superintendent respectively, but also placed in charge of the care of street trees and tree guards in Buninyong. McPherson also took up residency in the Curator's cottage in the Gardens, and alterations to the kitchen were undertaken in 1890. The actual date of erection and form of this cottage is undocumented but conceivably it was the same timber cottage that the Ogilvie's later resided in during the 1920s-40s.[37]

On 5 April 1889 the allotments comprising the Gardens, Bowling Club, and the Gong were permanently gazetted as a Botanical Gardens Reserve, comprising 12 acres, 2 roods, 0 perches [4.9ha], "to be used and maintained as and for a Public Gardens and offices and conveniences connected therewith and for no other purposes whatsoever."[38] Council also acquired title deed for £2 the former court house building and allotment, described as 'Old Court House, Wardens Office, Police Quarters' and fencing valued at approximately £250.[39] By 1890 two tennis courts had been developed on part of the bowling green leasehold and a tennis club established. In 1891 Yuille Street, adjacent the Gardens, was closed with portions being given to the Gardens.

The opening of the railway to Buninyong was a significant event in the life of the town. It particularly impacted upon the social life in the Gardens. The line from Ballarat, commemorated with the once only release of *The Buninyong Illustrated Railway News*, provided a popular conveyance for travellers and Ballarat picnickers to the Gardens up until its passenger service cessation in 1937, and its dismantling in 1947.

While Fegbeitel appears to have planted many of the Weeping Willows (*Salix babylonica*) during his curatorship, the Willows rapidly became a nuisance notwithstanding their aesthetic appearance. By 1893 the Council was recommending to McPherson, that "3 willows in front of the caretakers house be removed and all trees at back of bowling green." When these works occurred is not reported. By *c*.1900 the Willows were a dominant feature around the pool, and the island had acquired a sub-tropical atmosphere with Flax (*Phormium tenax* 'Variegated'), Arum Lilies (*Zantedeschia aethiopica*), and Cabbage Palms (*Cordyline australis*) well advanced. The Cornish Street embankment was also a feature with Willows well-established

36 *Buninyong Telegraph*, October 29, 1889, p. 2F; November 1, 1889, p. 2E; November 5, 1889, p. 3A.

37 Leather & Beggs Sunter, *Buninyong Cemetery*, pp. 3, 7; *Buninyong Telegraph*, January 7, 1898; Beth Ritchie, pers. comm., 2000.

38 *Government Gazette* April 5, 1889, p. 1200; Letter, Secretary for Lands, to Shire Secretary, Shire of Buninyong, January 30, 1958; Letter, Secretary for Lands, to Shire Secretary, Shire of Buninyong, May 9, 1950.

39 *Government Gazette*, December 18, 1888.

along its eastern flank, and Cherry Laurels (*Prunus laurocerasus*), Cabbage Palms (*Cordyline australis*), and a range of shrubs established on the western flank of the embankment.[40]

McPherson obviously had a green thumb and a penchant for flower bedding. By February 1894 the Mayor was proudly reporting on the "splendid" appearance of the Gardens under McPherson's care.[41] The *Buninyong Telegraph* editor also extolled its appearance:

> *What with the beautiful show of asters, phlox, and other flowers our public gardens look lovely at the present time. There are greater variety of flowers there now than ever before. The dalias are superb, the whole going to show what can be done with a little water laid on. The beds near the bowling green are one mass of colour of various kinds, and to see a difference between the places where water is laid on and where it is not let the visitor notice the large bed on the right hand of the path leading from the main gate. With water this too could be made a beautiful sight, and the recent survey made goes to show that water could be easily laid on this place. The curator states that with the expenditure of a few shillings, a large flower bed, which could compete with, or even outshine the bed near the bowling green, could be made by laying water on from the circular pond just across the path. The bed could be carried back almost to the bowling green.*[42]

Within the flower garden, adjacent to a pink-flowering Oleander (*Nerium oleander*), McPherson also erected a flagpole.[43]

In 1892 the Borough leased the former court house, and most likely the former Wardens Office, to butter factory proprietor F Daniels. Daniels' venture proved successful and by 1894 he was seeking approval to undertake extensions to the building to increase his creamery and production to enable two new large 600 gallon cream vats as well as a patent Evenden lightning extractor churn with a capacity of 600 pounds of butter. A separate company, the Buninyong Butter Factory and Creamery Co., was formed in 1895 to administer the operation, and Richard Rennie built the extensions at the company's expense. In 1908 the company, then very successful, decided to move closer to the railway and the Borough considered options for the building including demolition.[44]

In the years following McPherson's resignation as Curator in 1897 several changes and building works occurred in the Gardens. Notwithstanding his resignation, McPherson still kept a relationship with the Gardens by serving as an active member on the Buninyong Progress Association.

Federation and the Rotunda: The Frazer Period

Upon McPherson's resignation Council again advertised for Curators. In January 1898 Samuel Livingstone Frazer (1848-1934) was appointed Curator of Gardens; a position which he held until 1920. With an assistant day labourer, he took charge of the both the Gardens as well as the street reserves in Buninyong, presumably upon the same terms of reference as prepared by Robert Harvey in 1889 quoted above. At the time of this appointment the Gardens were in a fine condition. A small timber fence edged the pond, timber benches had been positioned under several Algerian Oaks (*Quercus canariensis*) to provide rest for visitors, and many of the ornamental trees were in a mature condition.[45]

In 1901 the Queen Victoria Rotunda was erected. A large octagonal timber lathe structure, with a timber slat roof and flagpole as gable feature, it included low seat benches around its internal edges and a four-legged food preparation table around the central flagpole and support. The floor was apparently laid in bitumen, and the foundations on the structure were edged and pointed with red bricks. Above the cream-painted archways were erected two signs. The sign to the west announced "*Queen Victoria Rotunda, erected by the residents of Buninyong and district, 13th November, 1901. A. Coxall, Mayor*" in a free-hand style of typescript. The sign to the east announced "*The rich and poor meet together the LORD is the maker of them all*," in a free-hand style of typescript. In subsequent years the typescript has been altered but the words have remained the same with only the source of the biblical quote, "*Prov. 22.2*," appearing in one sign and then disappearing again. Timber for the rotunda was supplied by Mr Howard who also erected the structure. To the immediate

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40 Photo, c.1910, taking cream to the butter factory, Buninyong & District Historical Society collection; Photo, c.1900, 'Botanical Gardens. Buninyong', Beth Ritchie collection; Beth Ritchie, pers. comm., 2000.

41 *Buninyong Telegraph*, February 23, 1894, p. 2F.

42 Buninyong Telegraph, February 23, 1894, p. 2C.

43 Don Ogilvie, pers. comm., 2000; Jean Robertson, pers. comm., 2000; Photo, *c*.1874, depicting the fernery and bowling club building after a snow-fall.

44 Ritchie nd, 'Wardens Office – an explanation,' p. 1

45 *Buninyong Telegraph*, January 7, 1898; January 14, 1898; Photo, *c*.1905, depicting a man on the pond island. Beth Ritchie collection.

north of the rotunda, along the fence-line were several mature Radiata Pines (*Pinus radiata*) that were to be later removed due to their risk to the rotunda structure from falling branches.[46]

The *Buninyong Telegraph* reported the opening ceremony, as well as the designers of the structure, in detail:

> *The handsome and commodious rotunda erected at the Buninyong Botanic Gardens, which was provided by public subscription, at a cost of £75, was formally opened on Friday last, in the presence of a large concourse of people, guests of his Worship Mayor A. H. Coxall. The public gardens presented a very gala and festive appearance, the large number of flags of all kinds and other decorations amongst the trees, giving the always pretty gardens an even more attractive appearance. The new building is a large, solid-looking octagonal erection, capable of holding 200 people. It will be found very convenient for all visitors to the gardens. Above one entrance is the following inscription:-- "Queen Victoria Rotunda, erected by the residents of Buninyong and district, 13th November, 1901. A. Coxall, Mayor." Above the opposite entrance is "The rich and poor Meet together, the Lord is the maker of them all." The architect for the building was Mr E Smith, the contractor, Mr Jas. Howard, Buninyong. Mr. Chas. Calf, local confectioner, had charge of the catering, and gave every satisfaction.*[47]

During 1903-1904 the Bowling Club sought to extend its green as well as relocating their "refreshment pavilion." Increased bowling clubs membership and the desire to have more greens to cater for the demand was prompting the expansion of the greens while maintaining the existing tennis courts. The bowling club's pavilion appears to have been originally located on the southern side of the bowling greens, and was shifted "under the supervision of the council" to its present position adjacent to the rotunda.

> *The Bowling Club have decided to carry out extensive improvements at their already pretty little green. The president of the club, Mr T.A. Robertson, at Monday's meeting of the Borough Council obtained permission to extend the fence on the north so as to make it level with the tennis court fence, the intention of the club being to put down two new rinks at their green. In the past, there being only three rinks ...* [that were] *almost threadbare before the end of the season. With five rinks the practice can be divided so that no rink will get more than a fair amount of use.*
>
> *The site chosen* [for the refreshment pavilion] *was on the eastern side of the rotunda, between the footpath and the fence, and under the trees ... A gate will be placed near the pavilion so that anyone can get to it from the street without having to go round to any of the gates now existing.*[48]

During the Borough's deliberations, approval was also granted for the installation of two 20 gallon coppers in the Gardens for the sale of hot water at the Town Clerk's discretion. During the relocation of the pavilion the Town Clerk appears to have selected one portion of the pavilion to install the coppers thereby centralising the sale of refreshments, hot water, and other foodstuffs in the one location.[49] In the same year the Borough was considering ideas to erect new gates, that were eventually installed in 1910, and were attempting to deal with a donation of ferns from Mr NS Salmon. The latter issue was slow in realising its home that eventually saw the erection of a timber lathe fernery.[50]

Most of these works were undertaken in November 1903, in preparation for the summer visitor season, as the *Buninyong Telegraph* reported:

> *A number of improvements have been carried out at the Botanical Gardens. The refreshment pavilion has been shifted from near the Bowling Club fence to a new position close to the rotunda. This is a decided improvement. The new coppers purchased by the council have been built in at the pavilion, so the sale of hot water and refreshments will be made at the same spot and should prove very convenient to visitors during the holidays. A fence has been placed on the borders of the half moon pool where required to prevent children from falling in. Extra* [toilet] *accommodation has been provided for ladies. The four pine trees which grew on the north side of of* [sic] *the Bowling Green have been grubbed and stumps removed. The gardens have all been dug over and placed in very good order and are now ready for the influx of visitors during the holidays. We are informed that in all probability the*

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46 Photo, 1901, 'Opening of the Rotunda Buninyong Gardens,' December 1901, Buninyong & District Historical Society collection; Photo, 1975, rotunda, Beth Ritchie collection; Don Ogilvie, pers. comm., 2000; Beth Ritchie, pers. comm., 2000; Jean Robertson, pers. comm., 2000; *Ballarat Courier*, December 14, 1901.

47 *Buninyong Telegraph*, December 20, 1901.

48 *Buninyong Telegraph*, November 6, 1903, p. 2F

49 *Buninyong Telegraph*, November 6, 1903, p. 3A.

50 *Buninyong Telegraph*, November 2, 1903; November 16, 1903; May 16, 1904.

new gates spoken of will be placed in position and when this work is done and the improvements effected at the Bowling Green and Tennis Court our popular gardens will be second to none in any country town in the State.[51]

Apparently separate male and female toilets were erected along the southern line of the present bowling green. The structures were semi-open and of corrugated iron construction. The ladies was to the west near Inglis Street, and the male toilet close to the existing gabled bowling club structure.[52]

In 1905 a light snowfall covered Buninyong and several photos were taken of the Gardens. One depicts the view from the entry gates across to the Bowling Club building. It also depicts a young Spanish Fir (*Abies pinsapo*) in the foreground, low English Box (*Buxus sempervirens*) hedging along the pathway, feature shrubs including an *Agave* sp. along the pathway edge, a snow-cloaked sign. In the background are large Weeping Willows (*Salix babylonica*) around the pond, and a large Weeping Willow to the rear of the Bowling Club building and two heavily pollarded specimens in front of the building.[53]

With the election of new Councillors in 1905, Councillor John Ogilvie became an active proponent of advancing the community role of the Gardens. He first proposed "that the public baths be thrown open free for one afternoon per week" and that a swimming instructor be sought to encourage the youth to learn to swim. By December 1905 he was suggesting that,

… the Council get up evening municipal concerts for the summer evenings at the public gardens. He had seen concerts held in other places which had been very successful and thought this would be a progressive move on the part of the council. The district should be advertised by arranging for photographs of its beauty spots to be placed in railway carriages and other conspicuous places.[54]

Post-Federation Garden Maturation: the Oglivie Period

During the late 1910s various improvements and maintenance works were undertaken in the Gardens. The Borough sought the design and erection of new gates for the Gardens in 1910, and by December they "were ready to be installed for the opening." They were erected at a cost of £4.6.0 "not including labour," in February 1911 by Mayor John Ogilvie and "presented a tidy appearance." Reputedly the gates may have been in an indian red-burgundy colour, and installed with an arch similar to that extant at the Ballarat East Gardens with the words 'Buninyong Botanic Gardens' arched in cast iron. Separate galvanised iron male and female toilets were also erected at this time. [55]

During 1913-1914 several poplars were removed by the local saw-miller, 2 wooden swings were installed, and on Patriotic Day in 1914 many of the willows were tapped and removed. Notwithstanding the reports of the Willow removals in 1914 it is evident from photographs that many specimens around the pool existed until the 1930s. Mr Howard also lopped many of the willows in the Gardens during the drought of 1915. The financial times were harsh and the Borough was forced to amalgamate with the Shire of Buninyong in October 1915 to sustain a budget and a works program. The Progress Association replaced the wooden swings with 2 simple concrete swings, to a formwork designed by CCP Wilson, in 1926 that were removed in the 1990s following council amalgamations.[56]

The concrete swings were but part of the concrete improvement works that Charles Corbett Powell Wilson (1858-1938) caused to be erected in the Gardens. Wilson, followed in the footsteps of his engineer father Charles Anthony Corbett Wilson (1827-1923) who was involved in many road works projects in the Ballarat-Geelong region, including the design of the Leigh River bridge at Shelford, and served at the Shire of Leigh from 1863-1916 attaining the Shire Engineer position. CCP Wilson also pursued an engineering and municipal career designing many bridges and structures in the Portland-Dartmoor locality, until he was appointed Shire Engineer for the Shire of Buninyong in 1908-1938 and conjointly served as Engineer to the Shire of Leigh following his father's retirement from 1910-1938). During this time he designed and supervised the erection of numerous concrete bridges, as well as supervising other cast *in situ* reinforced concrete structures including the World War I memorial in Buninyong, extensions to the Town Hall, and the

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51 *Buninyong Telegraph*, November 27, 1903, p. 2E.

52 Don Ogilvie, pers. comm., 2000; Jean Robertson, pers. comm., 2000.

53 Photo, 1905, 'Buninyong Snow Scene. Gardens. 1905," Beth Ritchie collection.

54 *Ballarat Courier*, October 14, 1905; November 15, 1905; December 11, 1905.

55 *Buninyong Telegraph*, December 1910; *Ballarat Courier*, February 18, 1911; Don Ogilvie and Jean Robertson, pers. comm., 2000.

56 Don Ogilvie, pers. comm., 2000; Beth Ritchie, pers. comm., 2000; Jean Robertson, pers. comm., 2000; Photo, c.1914-1915, three girls in the garden, Buninyong & District Historical Society collection.

bath walls in the Gardens.[57] Other examples of Charles CP Wilson's concrete work include several local bridges, additions to the Buninyong Town Hall, arched entrance features to 'Kingshill', 'Clifton Villa', and the former Wesleyan Church are attributed to Wilson.[58]

CCP Wilson introduced concrete into the Gardens. Tapering concrete post fencing with wire strands and netting were erected along the northern and eastern edges of the Gardens. Two simple concrete swings were erected, and a small wading pool to the north of the pool was also poured with concrete edging. Around the pool Wilson replaced the aging timber fence with a concrete version involving concrete posts and concrete spans some 1.8m long that carried timber hand-rails. Wire netting served as the fencing on this structure. There was also enough room between the fence and the pool to enable young children to fish.[59]

Perhaps the most lasting example of CCP Wilson's work in the Gardens was his *in situ* reinforced concrete walls that were erected around the baths. Constructed immediately after the First World War with reputedly returned servicemen labour, the construction included eight change cubicles, and re-pointing of the bluestone pitchers on the pool surface. Gravel involved in the project came from the Leigh River.[60]

A further feature of the Gardens was the 'Half Moon Pool'. The pool remains as an unresolved feature in the Gardens. Reputedly constructed in *c*.1905, it consisted of a 'half-moon' shaped dam or pool located immediately to the west of the Cornish Street embankment. However, an 1888 plan for the Buninyong-Ballarat branch railway line depicts a large crescent shaped pool in this same location. This would have been part of the original swamps and springs depicted on the 1856 survey plan for the Township. The pool's nomenclature appears to be have been derived from its general shape and possibly accentuated by an arced pathway that edged the 'pool'. The Ogilvie children recall no actual pool in this location but rather a crescent-shaped "swampy area" rampant with Arum Lilies (*Zantedeschia aethiopica*) and Pampas Grass (*Cortaderia selloana*). The Lilies were often cut and sold by their mother for sale in Ballarat. In 1915 there was a drought in the area and Mr Howard reputedly filled the 'Half Moon Dam' "with 100 loads of sawdust [together] with 1100 yards of soil excavated from [the] Gong."[61]

In late 1913 the Progress Association made a deputation to the Borough Council reporting that they had available funds and were "desirous to beautify the gardens by erecting swings and a batten house." McPherson subsequently prepared plans for the timber lathe structure, and the Town Clerk tabled them for the Borough Council's approval. McPherson's plans for the fernery have not been located. However, the timber gabled lathed structure, erected with a corrugated iron roof, was typical of small fernery houses of the period. With doorways at the western and eastern ends, there was a stone-edged focal garden in the centre of the structure edged by paths. On the front, to the west, was a large plaque sign that commemorated the work of the Progress Association, and its President A.C. Watkins Snr., in facilitating in its construction. Stands of Hellebore's (*Helleborus* sp.) were planted at both entrances, and massive Hydrangeas (*Hydrangea* sp.) eventually grew between the fernery and the adjacent pond. McPherson's design was typical of timber lathe shade houses of the period, as advocated by nurserymen such as Henry Sewell or Edwin Smith, and typical of those to be found in larger properties in Ballarat. Its design may have been inspired by images in Heyne's publication *The Amateur Gardener* (1881) or images in the popular *The Garden & the Field* journal. The grand lathe structures at Ballarat and Geelong Botanic Gardens were adventurous attempts in timber craftmanship where excess funds were available.[62]

The design accorded with much of the instructions provided by the editor of *The Garden & the Field* in 1881 on "Making Shadehouse and Frames':

> *A shadehouse or a frame is so easily made, that it is surprising that so few people count them amongst their possessions. A few pieces of hardwood—red-gum or jarrah for posts, some pieces of 3in x 2in. deal, and a number of thin deal strips, called "battens" by the trade, an inch and a-half or less wide,*

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57 Griffiths, "Father and son," *MEMO 67*, pp. 30-35.

58 Coleman Sutherland 1983, *Buninyong Conservation Study*, p. 113.

59 Photo, c.1980, concrete fencing around the pool, Buninyong & Districts Historical Society collection; Don Ogilivie, pers. comm., 2000; Griffiths, "Father and son," *MEMO 67*, p. 34.

60 Beth Ritchie nd, 'Buninyong Gardens Precinct', p. 2; Griffiths, "Father and son," *MEMO 67*, p. 34.

61 *Buninyong Telegraph*, August 4, 1880; Plan, 1888, 'Buninyong-Ballarat Branch Railway Line', Beth Ritchie collection; Don Ogilvie, pers. comm., 2000; Beth Ritchie, pers. comm., 2000; Jean Robertson, pers. comm., 2000.

62 Undated photos, c.1932, Ogilvie collection; Don Ogilvie, pers. comm., 2000; Jean Robertson, pers. comm., 2000; Beth Ritchie, pers. comm., 2000; Don Ogilvie & Jean Robertson, pers. comm., 2000; Aitken 1987, "Garden buildings and the hard landscape," p. 9; *The Garden and the Field*, November 1, 1875, p. 4; September 18, 1901, p. 119; Heyne 1881, *The Amateur Gardener*; Aitken 1985, "Australian shade houses and ferneries," pp.

and six feet long, is all that is wanted for the first; and a sufficient number of glazed sashes, two feet wide and three to four feet long, with some bricks and mortar is all that is needed for the other.

The shadehouse must always have the ridge-pole running east and west, so that as the sun passes over the house, his rays shall make a moving shadow of the battens …[63]

The Ogilvie children recall that the fernery was filled with ferns, fuschias, and water lilies.[64]

Although not mentioned in the period documents, it is apparent that a small, scoria, 1m high stone-walled pond structure was erected along the southern flank of the fernery possibly at the small time. This triangular shaped installation, now used as a rose garden and within the Bowling Club lease, was originally a fish pond containing goldfish with suitable edge netting to prevent prying small hands from catching the fish.[65]

Following the First World War Council took several initiatives. The local Empire Day committee planted 'Soldier Trees' in memory of residents who had been killed in action. The small grove of oaks and poplars on Hastie's Hill, originally called Birdwood Grove and now Birdwood Park, was one such action. Another was the engagement of returned soldiers, through a £749 Repatriation Grant allocated to the Council, to erect a concrete fence around, and concrete dressing sheds within, the baths to replace the aging timber structures.[66] During period several Rose Series photographs of the town were taken, and one panorama depicts the maturity of many conifers and deciduous trees along the ridgeline in the Gardens with some reaching over 23m.[67]

In April 1924 John Ogilvie (1870-1937) was appointed Curator of Gardens for Buninyong Borough. The position was a significant fall from the senior community positions he had previously held in Buninyong. These positions included being gazetted as a Justice of the Peace (*c*.1905-1939), being elected to the Borough Council in 1905, serving as Mayor of the Borough from 1910-1911, and serving at Deputy Coroner for many years. This fall appears to have commenced with his retirement from Council in 1911, and is indicated by his appointment as Council Dog Registration Officer and Thistle Inspector that entitled him to £20 per annum, plus 50% of registration fees obtained and 50% of fines imposed. By this stage he was clearly seeking to supplement his income and support his young family of wife Mary and two daughters Ellen Mary (1905-1992) and Annie Elizabeth (1908-1991). By 1924 his family had grown to include John Arthur (1914-1991), George Robert (*b*.1917), James Watkins (1919-1920), and Marjorie Jean (*b*.1920). His last child, Francis Donald (*b*.1924) was to be born in the Curator's residence in the Gardens in September 1924. While as Curator he was a regular contributor of letters and articles to the *Bulletin*, *Smith's Weekly*, the *Weekly Times* and the *Ballarat Courier* under the pseudonym 'Dormant'.[68]

Ogilvie's reputation however, notwithstanding this change of economic circumstances, was as a 'gentleman':

John was man of integrity, a man of strong principles. He didn't know the modern term, "politically correct", but this would apply very well to his life style. He valued honesty and truth, law and order in all things. He was respectful of other people and their property. All of these attributes he instilled into his children as well as the importance of good manners and the value of learning.[69]

Born in Buninyong, Ogilvie acquired a strong working knowledge of farming practice in the locality before he moved to Melbourne. In his late teens he obtained a position as a gardener at Flemington Racecourse and "developed a love of horticulture." Although horses and horticulture became his favourites he was wise enough to fore-see the depression that was unfolding in Melbourne, so in June 1893 he journeyed to the Kalgoorlie goldfield. The date just followed Paddy Hannan's discovery and preceded many of the bank closures in Melbourne. Ogilvie appears to have discovered a sizable amount of gold as when he returned to Buninyong in 1901 he was able to acquire property at ease, be listed as a "Gentleman" in the rate records in

63 Anon 1881, "Making shadehouse and ferneries," *The Garden & the Field*, August.

64 Don Ogilvie, pers. comm., 2000; Jean Robertson, pers. comm., 2000

65 Don Ogilvie, pers. comm., 2000; Jean Robertson, pers. comm., 2000; Photo, *c*.1874, depicting the fernery and bowling club building after a snow-fall.

66 Minutes of the Shire of Buninyong Council, September 24, 1872, p. 515; October 8, 1872, p. 519; November 6, 1919; December 4, 1919;

67 Thorpe & Akers 1982, *An Illustrated History of Buninyong*, p. 16.

68 Ogilivie, J 1996, *John Ogilvie*, pp. 20, 22, 37, 39, 62-63, 72.

69 Ogilivie, J 1996, *John Ogilvie*, p. 22.

1901 and then as an "Investor" in 1904. With this wealth and community position he married Mary Jane Watkins (1882-1951) on January 11, 1905.[70]

The Ogilvie family resided in the Curator's Cottage in the Gardens while John served as Curator. The 1889 drafted terms of engagement as Curator and Superintendent presumably applied again as his roles were again to supervise both the Gardens and baths and in return the Council provided a stipend salary and free rental of the Curator's cottage.

The single-storey timber cottage, with simple decorative, cross-configuration, timber fretwork on the front verandah, consisted of five rooms with no electricity. Into this cottage Mary had to cram many of her favourite pieces of furniture and belongings that had filled their former, large, Palmerston Street residence since her marriage. Comprising a central passage-way, with its hall-stand and occasional table, the front room was to the left (east) of the main doorway with a fireplace and Mary placed her favoured huge buttoned leather couch in this room. The main bedroom was to the right (west), with bedrooms to the left and right, with a fireplace with the left bedroom. To the right rear was the kitchen with one fireplace that also accommodated Mary's huge carved timber sideboard, timber dresser, central cedar table that could seat 10, and a pale green coloured crystal chandelier. The rear of the cottage was nearly flush with the stone flume. A lean-to sleep-out was attached to the western side of the cottage, with a corrugated iron water tank on a concrete foundation adjacent under the Atlas Cedar (*Cedrus atlantica* 'Glauca'), and the toilet slightly downhill to the west near the Hawthorn hedge (*Crataegus monogyna*). A small timber footbridge spanned the flume immediately outside the kitchen door, and a small corrugated iron and rough timber Gardener's Shed to the east of the cottage under the Algerian Oak (*Quercus canariensis*).[71]

> *Once established in the Gardens, the Old Man set about his task of nurturing established plants, cutting grass and planting out beds of seedlings. Once again he was able to put into practice the skills that he had learnt thirty years earlier when he was taught at the Flemington Race Course*.[72]

While McPherson had established the flower bedding garden, Ogilvie continued and probably extended and diversified the area and plantings in this garden. Within the Y-shaped gravel pathway configuration, lined by lengths of timber, Ogilvie planted numerous show flowers including, Dahlias, Echiums, Snapdragons, Violas, Gypsophilas, Sweet Peas, Aquilegias, Lupins, Stocks, Lilacs, Daisies, Fuschias, Shasta Daisys, Clarkias, Godetias, Phlox, Banksian Roses, Red Hot Pokers, Tree Peonies, Oriental Poppies, Larkspurs, Delphiniums, Picotees while maintaining an elderly pink-flowering Oleander (*Nerium oleander*), a big Viburnum (*Laurustinus tinus*) and a Rose Banksia (*Rosa banksiae*). Ogilvie's favourite was Dahlias and he was known to be a specialist in the cultivation of these annuals. Adjacent to the stream, cloaked in Arum Lilies (*Zantedeschia aethiopica*), Ogilvie maintained a wide bed of Goldenrod (*Solidago* sp.) intermingled with Daisies. On the other side of the stream were stalks of Pussy Willows (*Salix capea*) and flax (*Phormium tenax*) plants. Along the northern flank of the bedding garden Ogilvie maintained a 2.4 m wide bed of Dahlias. The crushed gravel paths were about 1.2 m wide, and the Y-shape terminated at a feature circle of purple Agapanthus (*Agapanthus orientalis*). He also established rose gardens in front of the Curator's residence, and a small, circular, English Box (*Buxus sempervirens*) hedge garden bed symmetrically aligned with the main passage full of flowering annuals.[73]

Meanwhile the Ogilvie family did the best they could with little finances. To the youngest children, Jean and Don, the Gardens were their playground; their backyard. "Our front garden was different from that of other people. It was a place of beauty with huge specimen trees, hedges, raked gravel paths and beds of flowers … But our back yard was no different from the ordinary." Mary also had to improvise and be creative, especially with cooking. Mary often made jam from the Cherry Laurels (*Prunus laurocerasus*) on the embankment, or from the Blackberries (*Rubus* sp.) that were rampant around the Gong. "We had trouble with possums that lived in the trees near the house. At night they would jump out of the trees, landing with a thud on the iron roof …"[74]

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70 Ogilvie, J 1996, *John Ogilvie*, pp. 22-26; *Ballarat Courier*, January 5, 1905; January 14, 1905; February 4, 1905; October 25, 1910.

71 Undated photos *c*.1930, *c*.1932, Ogilvie collection; Don Ogilvie, pers. comm., 2000; Jean Robertson, pers. comm., 2000; Photo, J Ogilvie, *John Oglivie*, p. 56 that depicts the timber weatherboards; Ogilvie, J 1996, *John Ogilvie*, pp. 56, 60, 61.

72 Ogilvie, J 1996, *John Ogilivie*, p. 58.

73 Undated photos, *c*. 1925, *c*.1932, Ogilvie collection; Plan, Anon nd, 'Buninyong Gardens 1920s: recollections of the Ogilvie's', Buninyong & Districts Historical Society file; Don Ogilvie pers. comm., 2000; Jean Robertson, pers. comm., 2000; Don Ogilvie and Jean Robertson, pers. comm., 2000.

74 Don Ogilvie, pers. comm., 2000; Jean Robertson, pers. comm., 2000; Ogilvie, J 1996, *John Ogilvie*, pp. 58, 59, 66, 67.

During this time there were seats positioned beneath every Algerian Oak (Quercus canariensis) that edged the main pool.

Some memories of these times, by the Ogilvie children, portray the care and seriousness that John Ogilvie placed upon his job:

> *On reflection, we are amazed that our father kept the grassed area cut so well; not with a lawn mower, but with the steady measured strokes of a scythe. He was renowned for his skill with this tool. Each year in early spring, he would use his scythe to take the first cut off the bowling green …*
>
> *Hand-pruned box hedges wound their way around several of the garden beds. Where there were no hedges, we remember long, sweetly-scented drifts of picotees which seemed to bloom continuously. A lasting memory of the Gardens is the perfume. One can still smell the phlox, godetias, clarkias and sweet peas; these varieties which today would be classed as "cottage plants", not to mention the banksia rose climbing close to the house and the scented roses in the front.*
>
> *Our father worked with Jack Middleton to erect a fence around the perimeter of the Gardens, making all the concrete posts by hand.*
>
> *A modern innovation was when a hose was provided by the Council. Because Gong water was used, there were frequent annoying delays as eels were drawn into the system. These would then have to be laboriously removed with a piece of wire!*
>
> *Because the house was provided, we have the impression that the curator's wages were minimal indeed. We can recall two ways in which our mother supplemented the family income. She had permission to sell hot water to picnickers. This would be boiled in a copper adjacent to the pavilion and "dippered" out into teapots, billies, etc.*
>
> *Also, in season, she sold water lily and arum lily blooms to White the Florist in Ballarat. Water lilies were sought after for bridal bouquets. Gordon Hale would obligingly swim out into the "duck pond" to cut the blooms and Mum would carry them, packed in tissue into a suitcase, on the train and in later years, the bus.*
>
> *One could not live in the Gardens without being closely associated with the Baths, …*
>
> *… there were no toilets, and showers were unheard of. There was no chlorination, no weed control and absolutely no wee control! By the end of the season, slime was thick in the bottom and the water was brown.*
>
> *The Baths were filled from a nearby spring but in a dry year the water was "topped up" from the Gong with all its "creatures".*
>
> *In winter, when the Baths were not in use and Buninyong's greyhound owners wanted live rabbits for training their dogs, the Ogilvie boys kept a supply of these in the Baths*.[75]

In the late 1930s the water quality of the baths became a matter of concern for the Council. This was notwithstanding the good intentions of Mrs Ogilvie, as Baths Superintendent, in attempting to supervise swimming activities. The seriousness of the health risk of the water contributed to the Council's Medical Officer, Dr Longden issuing "instructions [in 1940] that unless better draining and cleaning, and running water is provided, the baths must be closed and not used [sic.]." In reviewing the situation with Council, the Shire Secretary observed:

> *Ever since their construction, the baths have been fed continuously from a small spring outside the wall by a pipe through the wall, and are capable of being emptied by a large pipe leading from the bottom into the pool in the gardens. The baths are at present kept locked but are opened by Mrs. Ogilvie when required.*
>
> *Owing to the Infantile Paralysis epidemic in Jan. '38 and the drought in Jan. 39 the baths were not opened in the last two summers, but this year the demand for them has been very heavy. However, sine the water table in the small spring has apparently dropped some 18"* [46cm]*, the water has ceased flowing in from here, and temporary filling has been resorted to by a syphon pipe line from the*

75 Ogilvie, J 1996, *John Ogilvie*, pp. 83-84.

Gong. Further, yabbies have borrowed through the joints in the unpointed pitchers, and then through the clay core which the Council has had placed around the whole of the west end and unpointed north side, and these holes have also had the effect of keeping the water down to a very low level. [sic.][76]

Accordingly the baths remaining closed following this health declaration. In 1946 local MLA RJ Hyatt sought advice on possible actions to reinstate the baths for suitable use. In reply, the Shire Secretary provided a works plans for some £2500 that included removing the bluestone pitchers and laying a concrete base, and erecting a windmill and sinking a bore to provide a pure water supply. No further action was taken.[77]

Upon John Ogilvie's death in 1939 from pneumonia, Mary Ogilvie appears to have been engaged as Curator of the Gardens. She was formally appointed to the position of Caretaker in February 1940,[78] and the Shire Secretary in the same month reported to Council that:

… the prewent arranfement between the Council and Mrs. Ogilvie is that she is paid £5. Perc yea by the Council to be general caretaker of the gardens, and is granted the caretakers house rent free. In addition, she has all the privileges at the gradens, including the sale of hot water etc., and in addition she may charge for admission to the baths [sic.].[79]

During the war years Mary Ogilvie moved out of the Curator's cottage into a cottage in Forest Street. She passed away at that residence on September 9, 1951.[80]

The Post-War Years: A Phase of Deterioration and Renewed Care

During the later years of the war, and for a period thereafter, Council appears to have engaged a "part-time Caretaker" to undertake garden maintenance activities, and much of the Gardens deteriorated notwithstanding attempts to obtain funding support from the state government. One resident complained about the condition of drainage coming from the 'Half Moon Pool' into the main pool:

… a drain in the gardens … very rusty & still water, the smell coming from it at times is vile. There are mosquitos & other flying insects in thousand on same, and for the sake of the many little children who patronize the pool & swings I think that something should be done immediately.[81]

Another, on behalf of the Buninyong Improvement Committee observed the condition of several trees:

… the tree which has fallen into the Pond at the gardens also the remaining part of same tree which is very dangerous & likely to fall at any time.[82]

Following World War II Buninyong followed the tradition earlier established in Ballarat of planting a tree to a fallen serviceman or woman. Six trees were planted in the Gardens at an unknown date, and only 4 plaques remain today. These include Harold (Paddy) McKenzie, R Tyler, P Alley, and J (Jack) Hayes. Of the World War II deaths in Buninyong Shire there were only six and these include H McKenzie, R Roget, E Gazzard, R Tyler, P Alley, and J Hayes, so it would appear that the remaining trees would honour R Roget and E Gazzard. The plaques themselves are replicas of the plaques used in Ballarat.[83]

Council was more often unsuccessful than successful in its applications for funding support to the state Government. In 1948 it received £80 to undertake various works, and in 1949 sought to re-gravel the footpaths with a fine quartz gravel. In 1949 it purchased from Cyclone Pty Ltd a metal slide.[84] The Council

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76 Coulson 1940, "Report on the Buninyong Public Baths," 1 February, p. 1.

77 Letter, EA Coulson, Shire Secretary, to RJ Hyatt MLA, June 11, 1946.

78 Letter, EA Couslon, Shire Secretary, to Mrs Ogilvie, February 5, 1940, Shire of Buninyong file collection.

79 Coulson 1940, "Report on the Buninyong Public Baths," 1 February, p. 2.

80 Ogilvie, J 1996, *John Ogilvie*, pp. 78, 82.

81 Letter, EA Coulson, Shire Secretary, to The Secretary, Department of Public Works, January 16, 1947; Letter, Mrs J Davies, to Shire of Buninyong Councillors, February 5, 1947.

82 Letter, AV Chan, Secretary, Buninyong Improvement Committee, to President, Shire of Buninyong, July 29, 1952.

83 Anon nd, 'Shire of Buninyong – World War II Honour Roll', Buninyong & District Historical Society file collection; Jean Robertson, pers. comm., 2000; Heagney 1988, 'Ballarat Anzacs,' *Ballarat Courier*, p. 9. Note: a further oral source suggests that the missing names might be Scully and Freeman however these were not recorded as deaths in the action.

84 Letter, BP Pryor, Shire Secretary, to Secretary, Public Works Department, April 17, 1951; Letter, PT Byrnes, Minister of Public Works, to HE Bolte, MLA, May 1, 1951; File record, R Lewis, Shire Engineer, to Public Works Department, July 15, 1949; Letter, HP Bennett, Sales Department, Cyclone, to Shire Engineer, Shire of Buninyong, January 14, 1949; Letter, RM Parsons, Sales Department, Cyclone, to Shire Engineer, Shire of Buninyong, June 30, 1949; Docket LG.47/437, Public Works Department to Municipal Clerk, Shire of Buninyong, March 11, 1938.

also made inquiries to the Ballarat Fish Acclimatisation Society as to possible species for restocking the Gong, but later realised that the Gong was full of Carp that would prevent non-Carp breeding. The Society advised that they only had Brown Trout in the hatchery but that their preference for the Gong would be Perch.[85]

This pattern of deterioration continued. By 1956 the Bowling Club was complaining about the condition of the fernery. Council advised that its call for tenders to dismantle the structure met with no bidders, but the structure was dismantled later that year.[86] The condition of the existing toilets in the Gardens was increasingly causing concern to the Council. With this in mind designs for separate brick Men's and Women's toilets were prepared by the Shire in March 1959, and approved in August 1959. With these plans Council thereupon successfully sought financial assistance from the Tourist Development Authority in 1960 to enable the erection of the toilets. W & M Flynn Bros were the successful tenderer for the contract in July 1961 proposing a price of £831.4.0 for the works.[87]

In 1959, after several petitions to the Council, the Council agreed to surrender to the Crown an area in the south-western corner of the Public Gardens to enable a 21 year lease to be granted to the Bowling Club. The area concerned comprised 230' x 270' [70m x 82.2m].[88] This arrangement enabled the formalisation of the Bowling Club's tenuous occupancy on a portion of the permanently reserved Gardens.

On 16 April 1962 the Bowling Club land was excised from the Gardens Reserve, and granted a 21 year leasehold over 1.1.34 acres [0.45ha] of land ending a period of 80 years of unofficial occupancy of the subject land.

In 1963 Mr V Scott successfully tendered for the "demolition and removal" of the caretakers cottage from the Gardens proposing a cost of £35.[89]

In 1974 the area occupied by the Shire Depot in Cornish Street was excised from the Gardens, and portions of the closed Yuille Street allocated to the School. In 1984 the Bowling Club renewed its 21 year lease of grounds.

In 1985 the Council initiated a work program in the Gardens to improve its appearance. Much of this work included arboricultural work on tree specimens, planting of several middle-storey specimens near the old baths, draining and silt removal works in the pond, construction of bluestone path edgings, removal and or relocation of picnic seating and the barbeque, removal of senescent or inappropriate species, and building improvement works associated with the toilet blocks.[90] Works to the Bowling Club building included various repairs, and repainting the façade in Taubman's 'Eaglehawk Brown', 'Tumby Bay Gold', and 'Taupe Mist' to highlight particular architectural details. It was also recommended to repair and repaint the timber lathes on the Rotunda in Dulux 'Liana Timbercolour', with Taubman's 'Chiffon' on the soffits and flagpole, Taubman's 'Eaglehawk Brown' on the mouldings timber colour, spouting, and doorway linings, and to retain the typescript lettering and paint colours as existing. Works to the pavilion included Taubman's 'Eaglehawk Brown' on all metal work, Dulux 'Liana Timbercolour' on all interior woodwork, and Taubman's 'Chiffon' on exterior timberwork.[91]

During the course of 1985 the National Trust of Australia (Victoria) also considered and approved the registration of four specimen trees in the Gardens and Gong on the nomination of John Hawker. These specimens included a Spanish Fir (*Abies pinsapo*), two *Acer opalus* ssp. *obtusatum*, and an *Acer platanoides* 'Crimson King'.[92]

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85 Letter, EA Coulson, Shire Secretary, to The Secretary, Ballarat Fish Acclimatisation Society, August 2, 1946; Letter, GA Gillbert, Secretary, Ballarat Fish Acclimatisation Society, to Shire Secretary, Shire of Buninyong, August 7, 1946; Letter, EA Coulson, Shire Secretary, to The Secretary, Ballarat Fish Acclimatisation Society, September 10, 1946.

86 Letter, JH Isaac, Buninyong Bowling Club, to Shire Secretary, Shire of Buninyong, April 3, 1956; Letter, Shire Secretary, Shire of Buninyong, to JH Isaac, April 24, 1956.

87 Plan, Shire of Buninyong, Buninyong Public Gardens, Sanitary Conveniences, 14 August 1959; Letter, MJ Harkins, Director, Tourist Development Authority, to Shire Secretary, Shire of Buninyong, January 15, 1960; Letter, AJ Fraser, Minister for State Development, to GL Scott, MLA, November 2, 1960; Shire of Buninyong Tender Contract, July 29, 1961.

88 Letter, Shire Secretary, Shire of Buninyong, to Secretary, Lands & Survey Department, March 23, 1959.

89 Letter, V Scott, to Shire Secretary, Shire of Buninyong, February 28, 1963; Letter, AC Lord, Shire Secrtary, to V Scott, March 8, 1963.

90 Letter, NL Barrett, Shire of Buninyong, to John Hawker, Department of Conservation Forests & Lands, 12 June 1985.

91 Krusche 1985, 'untitled document', Royal Botanic Gardens file.

92 National Trust files.

During the removal of the Old Depot in 1990, John Hawker, then with the Royal Botanic Gardens, prepared a landscape plan and planting list to integrate the Depot site with the Botanic Gardens. Recommendations included regrading part of the grounds around the Depot site, fencing along some of the alignments to rationalise car access movements, and certain tree removal and arboricultural works.[93] Included was a list of proposed plantings, as follows:

1	Quercus robur (x5)	English Oak
2	Sequoiadendron giganteum (x8)	Giant Redwood
3	Cedrus atlantica f. glauca	Blue Atlas Cedar
4	Cedrus deodara	Deodar
5	Tilia x europaea (x2)	Linden
6	Sequoia sempervirens	Coast Redwood
7	Quercus rubra	Northern Red Oak
8	Castanea sativa (x2)	Chestnut
9	Ulmus parvifolia	Chinese Elm
10	Quercus suber	Cork Elm
11	Quercus ilex	Holm Oak

Following an invitation of the Shire of Buninyong Council, Stephen Forbes from the Royal Botanic Gardens, Melbourne, reviewed the Gardens and the Gong Reservoir in July 1993. His recommendations pointed to the need for the Council to undertake a conservation study of the Gardens and supported the Council idea for the development of an *Acer* species arboretum on the Gong Reservoir land. Only some of the *Acer* species were actually planted and very few of the list recommended in the correspondence. Specific recommendations included:

- continuing the sub-tropical character of the island and the planting of additional accent species including *Cordyline strict*a (Erect Palm-Lily), *Yucca aloifolia* (Spanish Bayonet), with possible foliage interest species of *Prunus cerasus* (Kentish Cherry), *Sparmannia africana* (African Sparmannia) and *Dombeya tiliacea* (Wedding-flowers);
- use of hedging plantings in the old baths, such as *Taxus baccata* (Common Yew) or *Chamaecyparis lawsoniana* (Lawson's Cypress), or creeper species such as *Parthenocissus tricuspidata* (Small-leaf Virginia Creeper) or *Ficus pumila* (Creeping Fig) or *Juniperus communis* 'Hibernica' (Irish Juniper);
- continuation of appropriate fencing similar to present and the original;
- clearing the Cornish Street embankment of poplar suckers and its replacement with *Prunus laurocerasus* (Cherry Laurel), *Photinia serrulata* (Chinese Hawthorn) and *Crataegus monogyna* (English Hawthorn);
- the simplification of the bowling green edge shrubbery down to *Elaeagnus pungens* (Silverberry)*, Euonymus japonicus* (Evergreen Spindle Tree), *Myrtus communis* (Common Myrtle), and *Viburnum tinus* (Laurustinus);
- removal or relocation of the playground equipment;
- development of an *Acer* sp. collection, other than Japanese Maples (*Acer palmatum*), on land around the Gong Reservoir, and a suggested planting list and planting layout (this list is contained in the appendix);
- survey and labelling of trees and significant species.[94]

Several of these recommendations have been acted upon. Central has been the establishment of an Acer sp. collection on the Gong Reservoir reserve.

Works by a CEP scheme in the early 1970s undertook the installation of bluestone edging along parts of the main path. Included in these works was the refurbishment of the rotunda including replacing broken lathes and painting works. Unfortunately the lathes were painted white, while historically they had always been a natural timber finish.

In November 1999 Heritage Victoria registered the Gardens and Gong areas on the Victorian Heritage Register. Thereupon the City of Ballarat called for tenders for the preparation of a Conservation Study and Landscape Masterplan for which Dr David Jones with Fifth Creek Studio was successful.

93 Letter, John Hawker, Royal Botanic Gardens, to EW Smith, Shire of Buninyong, 9 May 1990.

94 Letter, Dr Philip Moors, Royal Botanic Gardens, to GL Anders, Shire of Buninyong, 6 August 1993.

2.2 Management Phases

The management phases for the Gardens and Gong are summarised in the following tables. The foundations of the Gardens' design and plantings were established during Fegbeital's and McPherson's curatorships. Frazer and the Ogilvie's continued to nurture the design and its plantings. With the resignation of Mary Ogilvie the maintenance regime in the Gardens deteriorated and was largely left to citizen initiatives led by the Buninyong Progress Association.

Figure 2.2.1
Buninyong Botanic Gardens Management Phases

Year	1860	1870	1880	1890	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000
LGA	Road Board	Borough Council of Buninyong, 1863-1915						Shire Council of Buninyong, 1915-1995							City of Ballarat, 1995+
Curator			Conrad Fegbital 1872-1889		Robert Allan Mc-Pherson 1889-1898	Simon Livingstone Frazer 1898-1920		John Ogilvie 1924-1939 Mary Ogilvie 1939-1941							
Other					Buninyong Progress Association (in various forms) *c*.1880s+										

Figure 2.2.2
Gardeners of the Buninyong Botanic Gardens

1872-1889	Conrad Fegbeitel, Curator of Gardens, Superintendent of Baths
1889-1898	Robert Allan McPherson, Curator of Gardens, Superintendent of Baths
1898-1920	Simon Livingstone Frazer, Curator of Gardens, Superintendent of Baths
1924-1939	John Ogilvie, Curator of Gardens, Superintendent of Baths
1939-1941	Mary Jane Ogilvie, Curator of Gardens, Superintendent of Baths

3 Comparative Analysis

3.1 Introduction

To enable the cultural significance of the Buninyong Botanic Gardens to be adequately assessed, it is necessary to examine several comparative aspects. These include other botanic gardens in Victoria, and other provincial public gardens in Australia. Given the absence of a designer associated with the Buninyong Botanic Gardens a comparative analysis of comparable work is not possible.

3.2 The Role of Botanic Gardens

The Buninyong Botanic Gardens, although reserved in 1861 as a 'public garden', has always strived to fulfil many objectives of a botanic garden as well as an asset to the community of Buninyong. It is therefore appropriate then to examine the role of botanic gardens and then compare Buninyong to other provincial botanic gardens in Australia.

The defining characteristics of a botanic garden are generally accepted to include the following attributes, proposed by the International Union of the Conservation of Nature.[95]

- *a reasonable degree of permanence*
- *open to the public*
- *adequate labelling of plants*
- *communication of information to other gardens, institutions and the public*
- *an underlying scientific basis for the collections*
- *proper documentation of the collections, including wild origin monitoring of the plants in the collections*
- *exchange of seeds or other materials with other botanic gardens, arboreta or research stations*
- *undertaking of scientific or technical research on pants in the collections*
- *maintenance of research programmes in plant taxonomy in associated herbaria.*

The Buninyong Botanic Gardens fulfils several of these attributes. However its historical economic base within the Borough/Shire of Buninyong has meant that several of these attributes have never been realised.

Other bodies have slightly differing definitions of a botanic garden. The Royal Horticultural Society in England, for instance, has defined a 'Botanic Garden' as:

> *… a garden in which a diversity of plants is grown for purposes of study and instruction and in which they are arranged according to a system of classification and not simply for ornament or utility … hence a time-honoured feature of botanic gardens is an area divided into beds where clearly labelled annuals, biennials, and herbaceous perennials, and sometimes a few low-growing shrubs, of the same botanical groups are grown together .. It may also function as a plant-breeding station and trial ground where plants new to the region are tested for hardiness and garden merit, and whence they are distributed to local gardeners …*[96]

This last function is clearly evident at Buninyong in the 1860s and 1870s when plants, especially conifers and deciduous trees, were obtained from the Melbourne, Geelong and Ballarat Botanic Gardens. More recently, the allocation of select and rare *Acer* sp. to the Gardens through the Royal Melbourne Botanic Gardens has reinforced its original role as a trial ground and repository for certain species. During the 1870s-1940s its ornamental flower bed role was pre-eminent and a source of much public attention. The beds were established for display and colour as distinct from being arranged in strict botanical classification principles and with the standard nomenclature and signage.

Notwithstanding this botanical bias most botanic gardens, especially under William Guilfoyle's later influence in Victoria, took on a more aesthetic role and sought to achieve a mixture of picturesque and gardenesque ideals. This aspect of the aesthetic was not overlooked by the Royal Horticultural Society who noted that:

> *… many botanic gardens also serve as public parks and bird sanctuaries and have large glasshouses, rock-gardens, herbaceous borders, lakes, ornamental flower-beds, etc., as additional features.*

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95 Hayward, VF 1989, *The Botanic Gardens Conservation Strategy*, p. 5. Kew, UK: International Union for the Conservation of Nature, Botanic Gardens Conservation Secretariat.

96 Royal Horticultural Society 1969, *Dictionary of Gardening*.

The rationale for doing this was to enhance the educational role of such gardens. Certainly, the larger Gardens in Adelaide, Sydney and Melbourne all participated in this objective. Ballarat did also to a lesser degree. The motive was to advance the standing of the horticultural science to enable the education of both the pubic and gardeners. The ornamental beds at Buninyong served this purpose while they were maintained by McPherson and Ogilvie. McPherson's aim in establishing a fernery continued this objective. The Royal Horticultural Society continues:

> *A botanic garden being primarily an educational institution, all pants on display should be clearly and accurately labelled; the labels … should be so placed that the public can find and read them without difficulty … Botanic gardens form important training grounds for young gardeners who become acquainted with a wide range of plants in their daily work …*

Labelling has been recently undertaken at Buninyong Botanic Gardens, and is often referred to by visitors.

It is not the intention of this study to definitively analyse whether the Buninyong Botanic Gardens excels in all of the defined characteristics of a botanic garden, and possesses all the right attributes. But it can readily be concluded that the Gardens is not simply a public park. Rather it is a repository for an extensive botanical collection laid out with some attention to aesthetic concerns. It is also clear that the site has considerable scientific significance, as the term is understood in the definition of cultural significance in the Australia ICOMOS Burra Charter.

3.3 Provincial Botanic Gardens in Australia

In the 1860s-1890s considerable attention was given in provincial towns throughout Australia to establishing botanic gardens or arboreta. The directors of the principal botanic gardens in each of the colonies set the tone for the growth and how passionately it was pursued. Ferdinand von Mueller, as both Director of the Melbourne Botanic Gardens and Government Botanist, orchestrated the establishment of the finest collection of provincial botanic gardens in Australia in Victoria. His influence also flowed over into South Australia and the fringes of the Murray River. South Australia was from whence he undertook his original botanical studies in Australia, and the Murray River corridor was directly influenced by Victorian newspapers and political decisions given their immediate economic catchment to Melbourne as distinct to Sydney. Dr Richard Schomburgk, Director of the Adelaide Botanic Gardens, in contrast achieved little success as his strength of character could not compete with the dynamism of George Goyder, who worked as feverously as von Mueller in South Australia, in his capacity as Crown Land Surveyor General.

With surveys in both colonies, a park or park land system was designated often with generous proportions. In Victoria, the work of von Mueller as Government Botanist in distributing, promoting and acclimatising plants was a dominant stimulus. The Victorian legislature also supported this endeavour by distinguishing between botanic gardens and public parks when it came to funding and grants, and although the former were the more popular monies were allocated to both types liberally. In South Australia extensive tracts of park lands within and around towns were included in surveys but there was not the comparable promoter as in von Mueller or the liberal funds. Instead, most initiatives came from the Forest Board who often established mixed species plantations, and pro-offered large amounts of free trees to farmers and pastoralists. John Ednie Brown was influential in this regard, and he was especially commissioned to design plantings for the Adelaide Park Lands, as well as botanic garden master plans for Mount Gambier and Port Pirie. The former plan recently uncovered, dated 1880, displays an intricate Victorian garden design within an extensive conifer and deciduous tree arboretum that if implemented would have rivalled any Victorian provincial botanic garden.

The only other comparable nineteenth century provincial botanic garden is in Albury. Begun as a government reserve allocated in 1871, and planted in c.1878, the original layout consisted of a geometric configuration until the pathway layout was altered by curator JER Fellowes in 1901.

The following table summarises the early history of extant provincial botanic gardens in Victoria. The provincial gardens in Albury, Adelaide, Mount Lofty and Mount Gambier have been added as a contrast.

Figure 3.3.1
Select Provincial Botanic Gardens in New South Wales, South Australia, and Victoria[97]

Garden	Date Established	Area	Attributed Designer	Style	Prominent Curator(s)	Other People Associated with the Gardens
Adelaide Botanic Gardens (South Australia)	1854 site selected; 1860 Act gazetted; 1877 opened	130 acres [52ha] (1873)	George Francis; Richard Schomburgk	Victorian; Gardenesque	George Francis, Richard Schomburgk, Noel Lothian	
Albury Botanic Gardens (New South Wales)	1871 reserved; *c*.1878 planted; 1901 redesigned	N/a	JEF Fellowes	Gardenesque	JEF Fellowes	
Ballarat Botanic Gardens	1858 proposed; 1859 reserved; 1860s	83 acres [43ha]	Messrs Wright & Armstrong	Victorian	George Longley	
Beechworth (Queen Victoria Park / Gardens)	1860s early plantings; 1901 established	11 acres [4.45ha]	Beechworth community	Late Victorian		
Bendigo – Sandhurst / White Hills Botanic Gardens	1854 identified; 1857 gazetted	40 acres [16ha]			S.G. Gadd	
Buninyong Botanic Gardens	1861 temporarily reserved; 1889 permanently reserved	5 acres [2ha]		Victorian	Conrad Fegbeitel, Robert McPherson, Simon Frazer. John Ogilvie	Von Mueller, George Longley, Francis Moss
Camperdown Botanic Gardens	1869 reserved; 1873 laid out; *c*.1888 plan and redesigned	125ha	Daniel Bunce (?), William Guilfoyle	Gardenesque		
Castlemaine Botanic Gardens	1860 gazetted; 1866 developed	28ha	Philip Doran	Gardenesque	Philip Doran	Von Mueller
Colac Botanic Gardens	1865 reserved; 1860s developed; *c*.1875-80 re-organised	38 acres [15.3ha]	Daniel Bunce, William Guilfoyle, Reeves & McDonald	Gardenesque	Reeves & McDonald	Daniel Bunce
Daylesford – Wombat Hill Botanic Gardens	1861 commenced; *c*.1884 plan and remodelled		William Sangster	Gardenesque		
Geelong Botanic Gardens – Eastern Park	1850 committee of management 1854 plantings	184 acres [74ha]	Daniel Bunce	Gardenesque / Victorian	Daniel Bunce John Raddenberry	
Hamilton Botanic Gardens	1853 reserved; 1870	10 acres [4ha]	William Ferguson William Guilfoyle	Gardenesque / Late Victorian		
Horsham Botanic Gardens	*c*.1880 plan		William Guilfoyle	Gardenesque		
Koroit Botanic Gardens	1862 reserved; *c*.1880 plan		William Guilfoyle in association with a Mr Whitworth	Gardenesque / Late Victorian		
Kyneton Botanic Gardens	1858 reserved; 1861 plan		Stuart Murray	Gardenesque		Von Mueller
Malmsbury Botanic Gardens	1855 gazetted; 1859 surveyed; 1863 laid out	23 acres [9.3ha]		Gardenesque		Von Mueller
Maryborough – Phillips Gardens	1872 reserved; 1875 plantings; 1879 gazetted		Town Surveyor	Gardenesque		
Mount Gambier Botanic Gardens (South Australia)	*c*.1860 reserved; 1880 designed	N/a	John Ednie Brown	Victorian	N/a	Richard Schomburgk
Mount Lofty Botanic Garden (South Australia)	1956 acquired; 1964-65 designed		Allan Correy	American Picturesque	John Schultz	Noel Lothian
Portland Botanic Gardens	1851 reserved 1857 planted	50 acres [20ha]	William Allitt, Alexander Elliot	Gardenesque	Daniel Allitt, Alexander Elliot	
Port Fairy Botanic Gardens	1859-60; 1859 designed; 1871; extended	28 acres [11.3ha]	John Shanks Jenkins in consultation with William Guilfoyle	Gardenesque	Henry Hedges. James Prior.	William Guilfoyle
Sale Botanic Gardens	1860 gazetted	34 acres [13.8ha]		Gardenesque		
Warrnambool Botanic Gardens	1866; 1877 redesigned	22 acres [8.9ha]	William Guilfoyle	Gardenesque	Charles Scoborio	

97 Hawker 1987, "Victoria's Provincial Botanic Gardens," pp. 1-9; Aitken 1997, *A Thematic Framework for Designed Landscapes in Victoria*, pp. 54, 124-125; Victoria 1884, "1312-1320," *Victorian Year Book 1883-1884*, pp. 572-580; Watts 1983, *Historic Gardens in Victoria*, pp. 54-79.

4 Overview Analysis

4.1 Micro Climate

The climate of Buninyong is reminiscent of Ballarat but is more influenced by the open expanse of the Western District landscape and the lack of enveloping hills. Most climatic data is available from the Ballarat records.

The mean daily temperatures range from 25.5°C in January to 3.2°C in July, with an average of 17.2°C across the year. Temperatures above 20.0°C are common December-February, and temperatures less than 10.0°C are common in July. Severe frost tends to occur between May to November. While there are several instances of snowfalls in Buninyong there are no available records as to their occurrence and frequency. One fall did occur in the winter of 1903.[98]

Average rainfall ranges from 703mm at Ballarat (Survey Office) to 779mm at Scotsburn (Mount Boninyong). Highest falls tend to be in June, August and September in the 70-75mm levels, with low falls in January and February in the 30-35mm levels.[99]

4.2 Landform

The township of Buninyong is at 515m (1690 feet) above sea level. One colonial reporter recorded that:

> *the air is pure and bracing, and the water-supply from numerous fine springs is plentiful and good. Buninyong is the centre of a rich mining district, there being seven batteries, thirteen distinct reefs in the sixteen and a-half square miles of auriferous ground actually worked upon. ... The geological formation is basaltic lava on the west and silurian with recent surface drift on the east.*[100]

The portion of Buninyong where the Gardens is located is on Cainozoic newer volcanics. Consequently the soils and the geological profile of the area is igneous in character with Mount Buninyong being representative of various Quaternary and Tertiary old volcanic cones in the locality. Mount Buninyong and Mount Warrenheip were the predominant lava flow points in the region.[101]

4.3 Soil

Because of its volcanic origins the soils in the Buninyong locality are acidic and capable of supporting tree species not commonly and successfully cultivated in Ballarat where alluvial, sandstones and siltstones, and a thin veneer of volcanic soils are present.

Agricultural land, and thereby their soils, are rated as high to very high in their capacity to sustain prime lamb, wool, and beef cattle grazing activities.

Soils in the Gardens are predominated by the rich acid red soils. However, alluvial soils are present along the drainage lines where the springs and swamps existed or have been drained.

4.4 Use of Water

The designation of the Gardens site was due to the presence of a watercourse and several springs on the allotments. The designation of 'springs' on the original town survey plan reinforces this selection. Because of the volcanic origins of the landscape mineral springs are a common occurrence in the Buninyong locality. Several springs exist on the Primary School property often appearing on the oval area during winter, and springs appear to also feed the Gong Reservoir. The original baths were fed from the adjacent springs, and springs are most likely on the grassy expanse in the Gardens where seasonal marshiness persists during the wetter months of the year.

The Gardens are well supplied by water from the Gong Reservoir and underground springs and soakages. The Gong has reliably maintained relatively constant water levels since its construction but in the last few years has had lower than normal levels due to prolonged drought conditions. The grassy expanse in the Gardens is reliably wet and boggy in the winter months, and recent agricultural drains have not resolved this

98 Land Conservation Council, *Ballarat Study Area*, pp. 63-64.

99 Land Conservation Council, *Ballarat Study Area*, pp. 62-63.

100 Sutherland, 1888, *Victoria and its Metropolis*, p. 209.

101 Land Conservation Council, *Ballarat Study Area*, pp. 260-261.

occurrence. Historically the area was a swamp, probably fed from springs, and additional water flows from the Gong egress pipe and ground drainage works since the 1870s is perpetuating the poor drainage in this area. The lack of documentation as to the drainage history, and underground infrastructure, of the Gardens hampers a full understanding of the drainage system, but oral history purports that there is a series of pipes that drain from the grassy expanse and inter-connect with the main pool.[102]

The Gong's main outflow is via a stone-lined flume that originally connected to a formal water pipe system. In the early-mid 1900s this function was ceased and a stormwater system installed which today cannot handle flows in times of medium-high rains, with surface run-off, and egress flows from the main pool.

Water levels appear to remain constant in the main pool and secondary pool however it is unclear how these levels are maintained.

In recent years sprinkler systems have been added to part of the Gardens but they are largely to ensure the maintenance of the green lawns in the Gardens.

There is a need to better integrate the use of water so as to address drainage issues raised below.

4.5 Wildlife Communities

The Gardens and Gong are a haven for a range of fauna and avifauna including fish. Both areas attract water-loving birds including ducks, swans, and species such as Blackbirds (*Tendus merula*), Starlings (*Sturnus vulgaris*), House Sparrows (*Passer domesticus*), Rosellas (*Platycercus* sp.), are common in both areas with the latter particularly in the Gardens.

Koalas have been reported using the Gong and Gardens as a movement corridor, and the presence of mature eucalypts assists their habitat requirements. The absence of clusters of Manna Gums (*Eucalyptus viminalis*), and River Red Gum (*E camaldulensis*) within the Gong and Gardens would delimit their propensity to stay and feed for longer periods of time and to establish territory.

Common Possums are prolific in the Gardens, and particularly inhabit the Italian Cypress (*Cupressus sempervirens*) trees.

Redfin, carp, tench, and eels occur in the Gong, with carp being the predominant species. Oral history reports that eels were once prolific and would often clog up the pipes and drains that interconnected the Gong to the main pool, and other drains in the Gardens.[103]

There are no rare or unusual wildlife species associated with the Gardens or Gong.

4.6 Original Vegetation

Accurate details as to the original vegetation in the locality are not available. The original vegetation would have been under pressure from exploitation during early settlement and gold mining years. Both phases would have necessitated land and vegetation clearance for pasture establishment, timber for shelter, fencing and fire.

Available records would suggest two vegetation communities in the Buninyong locality.

- In the wetter gullies and flatter areas a low open forest of Swamp Gum (*Eucalyptus ovata*), Manna Gum (*E viminalis*) and Yarra Gum (*E yarranensis*) predominated with a scatter of River Red Gums (*E camaldulensis*) and Narrow-leaved Peppermints (*E radiata*). Middle-storey tended to be Blackwoods (*Acacia melanoxylon*) and Silver Wattle (*A dealbata*), with an under-storey of Tussock Grass (*Poa labillardieri)*, Austral Bracken, and aquatic plants including reeds along the streamlines.

- On the slopes and undulating areas low open forests of Narrow-leafed Peppermint (*E radiata*), Messmate Stringybark (*E obliqua*) persisted with a random scatter of Candlebark (*E dalyrampiana*, syn. *E rubida*), Swamp Gum (*E ovata*), Broad-leaved Peppermint (*E dives*), and River Red Gum (*E camaldulensis*). Middle-storey vegetation tended to be Blackwood (*A melanoxylon*), Silver Wattle (*A dealbata*), Golden Bush-pea, with an under-storey of Tussock Grass (*Poa labillardieri*), Austral Bracken, Common Heath (*Epacris impressa*), and Myrtle Wattle (*Acacia myrtifolia*). Remnants of this

102 Don Ogilvie and Jean Robertson, pers. comm., 2000.

103 D Ogilvie and J Robertson, pers. comm., 2000.

vegetation community persist on the slopes of Mount Buninyong and on bushland to the north of Buninyong township.[104]

The occurrence of Yarra Gum (*E yarraensis*) is unusual. The species was original thought to only have its habitat on the alluvial flats of the Yarra River from Lilydale to Healesville giving rise to its scientific nomenclature. Subsequent but restricted occurrences have been recorded along the Dandenong Creek near Dandenong, near Morwell, on the Barwon River, this occurrence, and patches in the Grampians.

There is little remnant evidence of the upper-storey species today. Oral history records, period photographs, and site surveys indicate that there are no *Eucalyptus* sp. in the Botanic Gardens.[105] It would appear likely that any remnant specimens would have been removed for structure construction and firewood use. Regeneration and secondary growth of *Eucalyptus* species is common in the upper reaches on the valley above the Gong. No middle-storey vegetation persists, whereas there are segments of grasses, bracken, and aquatic plants on the slopes adjacent to and around the edges of the Gong Reservoir.

There are no rare or unusual indigenous vegetation species in the Botanic Gardens and Gong. The restricted occurrence of Yarra Gum (*E yarraensis*) should be noted and taken advantage of in any re-planting strategies.

There is a need to use indigenous species to enable vegetation and wildlife corridor linkages with areas to the west and east of the Gardens and Gong, and to enable quality re-establishment of vegetation habitats especially along the creek corridor. In the first instance Manna Gum (*E viminalis*) and Yarra Gum (*E yarranensis*) should be used, and thereafter River Red Gum (*E camaldulensis*), Narrow-leaved Peppermints (*E radiata*) and Broad-leaved Peppermints (*E dives*).

4.7 Planting Themes

Planting themes in the Gardens reflect two themes, whereas, there is one planting theme around the Gong. The former two dominate the landscape, whereas the latter is partially associated with an unplanned tree profile that is associated with weed infestations and aesthetics.

In the Gardens, planting themes of the Victorian period (1870s-1890s), and the Mid-Wars period (1920s-1940s) structure the Gardens and give rise to its character. The species profiles in these periods approximate with plantings undertaken in localities such as the Macedon Ranges, portions of the Mornington Peninsula, and the Adelaide Hills in terms of their mixtures and joint presence. There are similarities to species profiles in Ballarat public parks, such as around Lake Wendouree, Victoria Park, Ballarat East Gardens, but the predominance of acid-loving conifers, such as Big Trees (*Sequoiadendron giganteum*) and Oaks (Quercus sp.), makes this Gardens unusual in terms of the botanical assets of Ballarat.[106]

Typical species in the Victorian period, relative to the the Buninyong Botanic Gardens, included Bunya Bunya Pines (*Araucaria bidwillii*), Big Trees (*Sequoiadendron giganteum*), Monterey Pines (*Pinus radiata*), Algerian Oaks (*Quercus canariensis*), English Elms (*Ulmus procera*), Huntington Elms (*Ulmus* x *hollandica*), Atlas Cedars (*Cedrus atlantica*), Weeping Willows (*Salix babylonica*), Italian Pines (*Cupressus sempervirens* 'Stricta'), and Crucifix Trees (*Picea pinsapo*). The latter is however an uncommon and rare species in Victoria, but common in the Adelaide Hills. The introduction of Weeping Willows (*Salix babylonica)* and Italian Poplars (*Populus nigra* 'Italica'), albeit their attractiveness, were a common practice throughout Victoria, New South Wales and South Australia. Many a creek and river bank have been clogged subsequently by these plantings. The prolific growth of the Weeping Willows (*Salix babylonica*) around the pools in the Gardens and invasive root system prompted attempts to remove them in the 1920s-1970s. Similarly, Italian Poplars (*Populus nigra* 'Italica')and Weeping Willows (*Salix babylonica*) have taken a stronghold around the Gong. The difficulty with the former in this instance is that it is probable that its root system is reinforcing the reservoir embankment while at the same time enabling water seepage.

Hawthorn hedges (*Crataegus monogyna*), Laurels (*Prunus laurocerasus*), Laburnums (*Laburnum* sp.), Laurustinus (*Viburnum tinus*) were also common middle-storey species in this period.

The original species from the Victorian period are known to have been sourced from a number of venues. Numerous tree species were obtained from the Royal Melbourne Botanic Gardens as collected, propagated

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104 Land Conservation Council, *Ballarat Area - Study Report*, pp. 261-262.

105 D Ogilvie and J Robertson, pers. comm., 2000.

106 Jones, DS and P Payne 1998, *Gardens in South Australia 1840-1940*, pp. 50-58; Jones, P 1982, *Planting c.1850-1900*, pp. 10-63; Lumley, P, J Dyke, RD Spencer & AD Gardiner eds 1981*, Trees and Gardens from the Goldmining Era*, pp. 73-90.

and disseminated by its Director Ferdinand von Mueller. Perhaps the largest collection may have been donated by Francis Moss who operated the 'Mossmont Nursery' on the Warrenheip Road just south of Buninyong. Minor sources appear to be from Daniel Bunce, who was Director of the Geelong Botanic Gardens, and George Longley who was Director of the Ballarat Botanic Gardens. It is likely that additional species came from the private gardening efforts of individuals in Buninyong, and possibly from the State Nursery in Creswick.

Moss' role and species selection would have been more accurate to and appropriate to the Gardens given his own propagation attempts on Buninyong soils and his knowledge of the microclimate, and as evidenced in the Victorian period plantings at the Buninyong Cemetery that he donated in 1873-74.[107]

A key feature of many Victorian period botanic or public garden's was a flower garden. Buninyong was not to be outdone. McPherson crafted such a garden and Frazer and Ogilivie spent hours maintaining and nurturing its blooms and seasonal colours and scents. Phlox, dahlias, Gold Rod, Shasta Daisies, Larkspurs, were all common in this annual and perennial garden, and typical of period flower fashions. This garden was apparently removed following or during the Second World War due to economics and the lack of a resident curator.

There is a subtle but distinctive *alleé* of trees that dissect the Gardens on a NE-SW direction. Like an avenue of trees, it is only partially discernible now with the loss and removal of several trees in recent years. There is no photographic, primary or oral evidence to suggest its role or that a path ran along its length. Rather, it may have been a simple design feature in the Gardens.

The Mid War period reflected a change to more functional tree species that are common in many town and suburban streets today. Golden (*Fraxinus excelsior*) and Desert Ash (*Fraxinus oxycarpa*), and later the Claret Ash (*Fraxinus oxycarpa* 'Raywoodi', were commonly planted in many town streets. English Elms (*Ulmus procera*) and Oaks (*Quercus robur*) continued to be planted, with the later introduction of Pin Oaks (*Quercus palustris*). The selection of these species tends to reflect a growing awareness of the Australian temperatures, rainfall, and soils. Patterns of street trees in Ballarat and Buninyong tend to reflect street tree plantings that occurred in country South Australia, Victoria and New South Wales during the same period. Several of these specimens found their way into the Gardens. One of the unfortunate introductions during this period was the White Poplar (*Populus alba*) which, like the Weeping Willow (*Salix babylonica*), evolved into a pest species with its prolific growth patterns if left unchecked and invasive root systems. A few unusual specimens, however, were introduced into the Gardens during this period including the Field Maple (*Acer campestre*), Italian Maple (*Acer opalus*), Common Lime (*Tilia* x *europaea*), Flowering Ash (*Fraxinus ornus*), and Small-leaf Linden (*Tilia cordata*).

Most of these plantings, in the Gardens and Gong, tend to be in identifiable areas.

In the last 30 years there have been various planting actions in the Gardens. Several have sought to plant species already extant in the Gardens and reflective of the Victorian period. A few unusual specimens such as the Indian Bean Tree (*Catalpa bignonioides*), were introduced. However, many specimens introduced were reflective of common garden species including the Variegated Pittosporums (*Pittosporum eugenioides* 'Variegatum'), and Cherries (*Prunus* sp.).

Recent street tree plantings thankfully echo mainly the Victorian period. Scott Street is delineated by Pin Oaks (*Quercus palustris*), Monterey Pines (*Pinus radiata*), and Atlas Cedars (*Cedrus deodara*). Along Inglis Street Silver Elms (*Ulmus procera* 'Variegata') have recently been planted that extend the visual *alleé* of English Elms (*Ulmus procera*) in Inglis Street between Scott and Learmonth Streets. In Cornish Street Weeping Willows (*Salix babylonica*) dominate the embankment, and new Big Trees (*Sequoiadendron giganteum*) have been planted.

There is a need to establish a planting strategy plan that permits progressive removal and replanting, as necessary, using new species that accord to the Victorian and Post War periods that establish the present character of the Gardens and the Gong.

4.8 Use of Materials

Three layers of materials are extant in the Gardens and Gong. These layers largely reflect phases of garden establishment and maturation and renewal.

107 Leather, D and A Beggs Sunter, *Buninyong Cemetery*, p. 7.

The first layer dates from the Fegbeital-McPherson curatorship period. This includes bluestone stone treatment of the flume and the hidden reservoir wall, the timber structures including the pavilion and rotunda, picket fencing along the western flank of the Gardens, rockery stone work adjacent to the site of the fernery, and the surface materials of pathways. Much of these materials echo materials used in the public domain in the Victorian era throughout Victoria. The only material absent is the use of cast iron as a utilitarian and functional feature. For example, it has been used extensively in Ballarat to demark drainage bridges and culverts.

The second layer relates to the Frazer-Oglivie period and was significantly influenced by CCP Wilson. Because of Wilson's passion with formed *in situ* concrete many subtle features remain around the Gardens. These include the concrete walls around the baths, the concrete fencing posts along the northern and eastern flanks of the Gardens. Variations to this theme were the entrance gates (although concrete formwork occurred), the Ogilvie constructed brick drainage pit.

The third layer has sought the removal of segments of the concrete work and its replacement with more contemporary versions. Various versions of picnic tables and seats, rest seats, foot bridges, information signage have also been introduced that have poor design features, conform to generic signage and seat patterns used throughout Victoria, or are unsympathetic to the heritage character of the Gardens. Bluestone edging also intruded into the Gardens along the main path and to form the representational flower garden on the site of the curator's residence.

Strangely, use of cast iron in the Victorian era, as in Ballarat, is absent from the Gardens and there is no photographic evidence to suggest its existence. Its absence may be due to economics more than a desire to keep abreast with Ballarat. Similarly, there is no use of random dry sandstone prevalent throughout Buninyong and its environs. The only evidence is on the flume. This is strange because it was typical in many gold mining towns, given the ready stone-mason expertise and freely available sandstone, to use dry and wet stone to line drains and gutters, to establish stone walls and edges to pools and lakes, or to provide foundational edges to structures and monuments. Again, this is strange as the material and the technical skills were available in Buninyong given its gold mining origins. In contrast, both materials are used skilfully on the Buninyong Town Hall and Court House building.

There is a need to respect materials used in the Fegbeital-McPherson, and Frazer-Ogilvie, periods and to consider the use of cast iron and local stone where sympathetic to the character of the Gardens and the Gong.

4.9 Drainage

Drainage is one of the central problems in the Gardens and Gong. Key questions relate around the difficulty of water circulation and flushing, over-flows during times of heavy downpours, and the percolation and seepage of spring and reservoir water. Drainage problems in the Gong relate to the water body itself and its immediate edges and watercourse. Drainage problems in the Gardens relate to the former 'half moon pool' area and drainage outflows.

The recommendations by Dr Peter Breen from Monash University, appended, address the issue of the lack of water circulation in the Gong that is resulting in algal blooms. The problems are linked to the excess amount of accumulated deciduous leaf litter in the water that concentrates nutrients and water-borne sediment particles, the lack of water flushing or movement that causes water stagnation, that collectively prompt algae blooms and a deteriorated of water quality and colouration. The drop in water levels over recent years only adds to the stagnation problems, and increases algal blooms following times of flash rainfalls that transfer vegetative and other litter along the creek system into the Gong.

During times of heavy downpours the internal drainage system in the Gardens overflows. Water outside the Gardens tends to move in surface flows along the road cambers and roadside ditches where present. Part of this water flow also flows down into the Gardens with associated leaf and sediment litter. Water also overflows from the Cornish Street drainage system and from the Primary School, down either the old water flume, down a series of unidentified/mapped pipes, and in surface flows down to the flume and soakage pits. The pits immediately clog up and the egress pipe size prevents adequate flow dispersal of the waters and litter. There are no trash racks, or litter collection points, within the Gardens drainage system (except immediately at the end of the flume which cannot handle the flows), resulting in concentrations of leaf and sediments in certain locations.

Percolation of spring and reservoir water continue to impact upon the Gardens. The former is a lesser problem presently mainly due to the drought that has resulted in a lowering of the water table. Springs originally supplied the baths, and conceivably service the water pools. Water seepage from the reservoir

immediately impacts the former 'half moon pool' site, and Council agricultural drainage works in the 1980s and 1990s has not resolved the situation. Following periods of heavy rainfalls or flash floods this area becomes reliably marshy and water-logged. Historically, its environmental form of a swamp or marsh returns. Water also drains directly into the upper pool by way of an agricultural pipe that feeds from the reservoir wall. This pipe does not relate to the historical overflow pipes installed when the reservoir was constructed. Similarly, there appears to be a network of underground drainage pipes in the Gardens that have not been mapped. It is also unclear how they actually operate. While the pools appear to handle the flows and retain a relatively constant water level, the water overflow along the drainage channel results in the same problems discussed above where the waters meet the flume water flows. The main pool has been drained several times since its construction, and re-filled thereafter apparently by natural flows and the pipe system.

There is a need to properly map out the Gardens historical drainage system to ascertain how and where water flows are being directed to and from. There is a need to resolve the poor drainage works at the egress of the pool water channel and the flume. There is a need to provide a more integrated drainage and water management system in the Gardens and the Gong.

4.10 Circulation and Access

The historical circulation patterns in the Gardens and around the Gong have largely not been altered since their original layout during the Fegbeital period. The main path through the Gardens exists today, terminating at the main pool. During the McPherson to Ogilvie periods this path continued and arched up along the southern flank of the baths to Cornish Street. There was also a path that looped around the main pool, and a path that led in front of the curator's residence westwards towards the former toilets. A further path arced from the north-eastern corner of the Gardens across to the south-eastern edge of the main pool, edging what the Ogilvie's perceive was the 'half moon pool'. A Y-shaped path configuration structured the flower garden. These secondary circulation features have disappeared since the Second World War and the cessation of a resident curator.[108]

The main path remains and continues to serve its arrival and ceremonial roles. It leads the visitor from the main town, through the gates, and into the body of the Gardens while providing views outwards into various portions of the Gardens.

Around the Gong, a grid road system as per the original survey exists today. The path from the north-western corner to the south-eastern corner of the area is more than likely a vernacular community creation as a desire-line. Earthworks in the 1980s, at the same time as the *Acer* sp. plantings simply formalised this pathway. The gravel surface of this path is now hidden under water-flushed sediments and rampant grass growth.

There is a need to conserve and reinforce the existing and historical circulation systems.

4.11 Historic Features

Several features have been identified by past heritage surveys in Buninyong and for the Gardens. These include the Gardens itself, the Gong, the rotunda and pavilion, and the baths and its walls.

Time and deterioration, with minimal maintenance following the Second World War up until the initiatives of the Buninyong Progress Association resulted in the loss of various items. These include much of the secondary path system at the Gardens, the lathe fernery, segments of the concrete fencing along the northern and eastern flanks of the Gardens, the curator's residence and associated outbuildings and flower gardens, the main flower bedding garden, and parts of the concrete play equipment. Most of these artefacts disappeared or were removed in the 1940s-60s.

Historical features or artefacts extant in the Gardens and Gong include:

Figure 4.11.1
Historic Artefacts in the Buninyong Botanic Gardens

[108] Don Ogilvie and Jean Robertson, pers. comm., 2000.

Artefact	Significance	Relevance	Recognition
Buninyong Botanic Gardens	Landscape Design, Symbolic, Community, Engineering, Botanical	Significant	HV (#1826)
The Gong Reservoir	Community, Engineering, Botanical	Significant	HV (#1826)
Entry / Main Gates	Landscape Design, Craftmanship	Significant	HV (B1)
Timber picket fencing on Inglis Street edge	Symbolic	Associative	
Main path	Landscape design, Symbolic	Significant	HV (S1)
Concrete posts and wire on Scott Street edge	Landscape design, Engineering	Significant	
Queen Victoria Rotunda	Architecture, Landscape design, Symbolic, community	Significant	HV (B2)
Pavilion	Landscape design, community	Significant	
Picnic Tables and Benches	Landscape design	Associative	
Male and Female Toilet blocks	Architecture	Associative	
Wading Pool concrete edge	Engineering	Significant	
Rockery near fernery site	Landscape design	Significant	
Bowling Club old pavilion	Architecture, Community	Significant	HV B4)
Water pit near foot bridge	Landscape design	Associative	
Main path foot bridge	Landscape design	Associative	
Bluestone garden	Landscape design	Associative	
Baths walls	Engineering	Significant	HV (B6)
Baths pathway	Landscape design	Associative	
Baths pool (covered over)	Engineering	Significant	HV (B5)
Baths spring	Landscape design	Associative	
Main Pool and Island	Landscape design	Significant	HV (S2)
Upper Pool	Landscape design	Significant	HV (S3)
Main-Upper Pools foot bridge	Landscape design	Associative	
Main Pool channel	Landscape design	Significant	HV (S2)
Stone flume	Engineering	Significant	HV (S4)
Cornish & Yuille Street drainage pits	Engineering	Associative	
Former Court House	Architecture, Community	Significant	
Former Warden's House	Architecture, Community	Associative	
Cornish Street Reservoir and embankment	Engineering	Significant	
Recent Picket Fence at Gong	Landscape design	Associative	
Gong path	Landscape design	Associative	HV (S5)
Gong Lake	Engineering	Significant	HV (S6)
Gong foot bridge	Landscape design	Associative	

NER: National Estate Register
HV: Heritage Victoria Register (#1826)
NTST: National Trust of Australia (Victoria)

There is a need to provide better interpretive information about the Gardens and the Gong so as to provide a co-ordinated interpretation rather than fragmented views and pieces of history.

4.12 Views

The Gardens and the Gong, because of its setting on a small ridgeline and within its undulating topography offers several important vantage points that assist interpretation and orientation of the Gardens and the Gong. Unlike many sites there has been little change in the original plantings, and thereby the designed enclosure of the Gardens and the Gong.

The following are a summary of the major visual sightlines in and outwards from the Gardens and the Gong.

Figure 4.12.1
Views in and out of the Buninyong Botanic Gardens

View	Value / Significance	View Type
From Scott and Inglis Streets towards the Main Gates	Significant	Symbolic
From the Main Path, near the Main Gates, to the old Bowling Club Pavilion	Significant	Axial
From the Main Path to the Queen Victoria Rotunda	Significant	Axial, Symbolic
From the Main Path, up and down / NE-SW axis, an *alleé*	Significant	Axial
From the Main Path foot bridge across the Main Pool	Significant	Experiential
From the Queen Victoria Rotunda south-easterly across the main lawn	Associative	Panorama
Along Scott Street, up and down / E-W axis	Associative	Panorama
From the north-west corner of the Gong inwards in a south-easterly direction	Significant	Panorama
From Cornish Street, through the Weeping Willows, into the Gong	Associative	Experiential
From a mid-point on the Gong path across the Gong reservoir in a south-westerly direction	Associative	Panorama
From a highpoint in Fisken Street across the Gong reservoir in a south-easterly direction	Associative	Panorama
From a mid-point on Yuille Street across the Gong reservoir in a northerly direction	Associative	Panorama

Because of the visual location of the Gardens and Gong in Buninyong, the silhouette of many of the taller trees can be observed from various locations around the township. This includes westerly views from Hastie's Hill and the Midland Highway when approaching from Geelong.

There is a need to reinforce visual sightlines and focal points, and to ensure that a planting strategy enhances existing and historical views.

4.13 Art and Monuments

Like many public parks in Victoria the Buninyong Botanic Gardens hosts several monuments to particular events in human history. Most historical artefacts are associated with broader symbolic or commemorative themes, whereas recent plaques and monuments are associated with localised incidents, events or activities.

Key features are the World War I tree *alleé* and the Queen Victoria Rotunda. Both commemorate significant events in Australia's history. The former extends the significant war memorial tree Avenue of Honour in Ballarat and even uses similar plaques. The latter is the first rotunda erected and opened in Victoria to celebrate the reign of and recent death of Queen Victoria, "the greatest and noblest queen the world had ever seen."[109].

4.14 Furniture

The existing furniture in the Gardens and Gong is indicative of the last planting design phase. It is a mixture of 1950s timber seats and benches and rubbish bins, 1960s style barbeques, 1960s/1970s treated pine structures, 1970s lighting poles and standards, and 1990s pseudo-heritage seat benches and modern rubbish bins. A lone 1990s seat guards the Gong pathway. There is little consistency in the public furniture, and only the 1990s furniture seeks to respect the heritage values in the Gardens and Gong.

There is a need to adopt a furniture policy that respects the heritage values in the Gardens and Gong, and is complementary to existing heritage structures.

4.15 Landscape Elements - Summation

Given the above analysis and survey the following contextual issues are prevalent in the Gardens and the Gong.

Botanic Gardens

- well defined and has a clear edge and sense of enclosure;
- in need of a co-ordinated management plan;
- needs attention to improve its drainage system;
- possesses an important collection of botanical specimens in need of a program of sympathetic replacement and siting;
- possesses an important collection of artefacts that need careful conservation care.

The Gong

- starting to be undefined and un-enclosed;
- in need of a co-ordinated management plan;
- offers potential for the establishment of an *Acer* sp. arboretum;
- needs urgent water quality management actions.

109 *Buninyong Telegraph*, December 20, 1901.

Site Furniture

- lacking any unity in design, ergonomics, siting, style, functionality, and colour consistency;
- often in poor condition;
- poor provision of rubbish receptacles.
- poor universal design considerations for furniture in particular heights, configurations, access.

Ornamental Tree Planting

- there is a need to develop a strategic tree replacement and management master plan to establish a clear vision as to the future plantings and to maintain a historical and botanical consistency to that extant;
- need to adopt a planting strategy palette that adopts the use of Victorian and Mid-War Years planting only;
- need to undertake extensive plantings in the Gong to enhance its setting and natural linkages to the Gardens;
- need to remove any non-Victorian and Mid War Years plantings and replace them with suitable species;

Plaques and Memorials

- there is an unco-ordinated approach occurring in plaques and monuments that is shifting their symbolism or associativeness from important broader events to small localised events;
- need to rationalise plaques and memorials and adopt a policy that permits such items where they only celebrate or commemorate significant events in Australia's history;
- need to establish a policy as to plaque use on seats and below trees that enables the former but minimizes the latter;

Fencing

- fragmented approach to fencing to date;
- need to conserve the remnants of the concrete and wire fencing, and remove other fencing structures; to conserve the picket fencing where extant on Inglis Street frontage; to maintain the existing low-key fence between the primary school and the Gardens; and, to minimize the use of fencing around the Gong;

Adjacent Streetscapes

- recent planting attempts have been sympathetic in creating a botanical atmosphere around the Gardens and the Gong, and will eventually create strong visual allees and edges to both areas;
- need to maintain the same tree planting and selection philosophy.

Car Parking

- the advent of the car has shifted the notional entrance of the Gardens to a central point rather than at the Main Gates, consequently there has been increasing car parking demands in this portion of Scott Street. The present design of this area is unsympathetic to Scott Street, adjacent residences and the Gardens, and a better formed and drained solution is needed;
- rationalise car parking in Scott Street, keeping the gravel character, but formalising the access route and parking spaces, and visually disguising the car spaces from the Scott Street visual corridor;

Ornamental Garden Beds and Plantings

- these beds largely disappeared in the 1940s and 1950s. There are token rose beds near the rotunda and a 1970s garden on the site of the former curator's cottage;
- ornamental garden beds should be removed from the Gardens and Gong.

Drainage

- drainage is a key problem in the management of the Gardens and Gong. It implicates algae blooms and stagnation problems at the Gong, drainage overflow problems at the base of the flume, and waterlogging problems below the reservoir embankment;
- need to rationalise water movement and settling patterns in the Gong to enable circulation, flushing, quality edge vegetation;
- need to map out and re-examine the historical underground drainage system in the Gardens as to upgrading and improving the system;
- need to rationalise water flows from the flume and the water channel to enable better flows and to reduce flooding and litter accumulation;
- need to recognise that the site of the 'half moon pool' will continue to have waterlogging problems and that design and planting strategies should accommodate this eventuality.

Indigenous Plantings

- there are few indigenous plantings in both the Gardens and the Gong, with the latter possessing several mature introduced native specimens;
- need to keep native and indigenous plantings out of the Gardens, reservoir embankment, and much of the Gong arboretum;
- need to encourage indigenous plantings in the upper reaches of and the around the eastern and southern edges of the Gong reservoir.

Pathways & Circulation Systems

- there is a good circulation system extant in much of the Gardens and the Gong, that needs little alteration;
- need to better design the Cornish Street embankment to ensure pedestrian, cyclist, and car safety;
- need to re-establish the 'half moon pool' arced pathway;
- need to formalise the Gong pathway;
- need to establish visually legible 'paths' that lead from the Gardens into the Gong from its north-easterly and south-easterly corners to unify the circulation systems;
- need to calm traffic flows along the Cornish Street embankment.

Signage

- signage is presently unco-ordinated, dates from various periods, and conveys disconnected information;
- need to adopt a signage and interpretative policy and design guidelines for the Gardens and the Gong;
- need to consider the extension of such a policy and guidelines to wider use in Buninyong;

Gates, Bridges and Steps

- the symbolism of the main gates is poorly framed to the visitor and road user, and there are poor access 'gates' provided into the Gardens and the Gong to announce the commencement of pathways;
- most foot bridges are in a deteriorating condition and possess an unsympathetic design character and form to the heritage value and style of the Gardens and the Gong. Little use of steps has been applied where excessive slopes on walking routes occur;
- need to consider universal access design standards in enabling access to all parts of the Botanic Gardens and The Gong;
- need to better frame the main gates on Scott and Inglis Streets;
- need to have clarity of access points into and out of the Gardens and the Gong;
- need to re-construct all foot bridges and any road 'bridges' over drainage culverts in a style complementary to the Victorian era period;
- need to install steps in the north-easterly and south-easterly corners of the Gardens to enable better safe access.

Retaining Walls and Walls

- minimal use of walls, other than in the baths, has been applied to date;
- need to minimise wall use in the Gardens and the Gong;
- need to use local wet and dry stone in instances where retaining walls, steps, or topographical variations are proposed.

Baths

- the baths are an important focal point in the social life of the Gardens, and have been adapted into a garden suitable for celebratory activities in recent years;
- need to ensure a continued strong social role for the baths;
- need to maintain the integrity of the baths concrete work.

Playground Equipment

- much of the playground equipment relates to the 1970s and 1980s and accordingly is inconsistent with current Australian standards. The siting of the main playground also obstructs the visual symbolism of a NE-SW *alleé* through the Gardens;
- need to remove existing playground facilities;
- need to prevent any new facilities being erected or positioned in the *alleé*.

Picnic Facilities

- most picnic facilities are in a deteriorating condition or of an unsympathetic design appearance to the heritage character of the Gardens;
- need to adopt a policy as to picnic facility design and siting that is complementary to the heritage character of the Gardens;
- need to re-design the existing barbeque facilities and consider alternative siting arrangements;

Lighting and Services

- lighting treatment is centred around the picnic area and is unsympathetic in its utilitarian design and *luminere* spread;
- lighting in the picnic area needs to be redesigned and relocated so to be complementary to the heritage character of the Gardens;

Wildlife

- wildlife is causing little damage in the Gardens and Gong presently;
- need to monitor possum populations;
- need to provide bird habitat refuges and nesting boxes in secure positions.

Maintenance

- the maintenance of the Gardens and Gong are largely cared for through a series of out-sourced contracts, and there is a poor Council supervision relationship to the Gardens and Gong;
- need to establish a better management structure that places the management of the Gardens and the Gong under the direct portfolio that manages the Ballarat Botanic Gardens;
- need to consider opportunities for the Gardens and Gong to complement the Ballarat Gardens in botanical display, propagation, and collection establishment.

Colour and Finishes

- inconsistent colour policy for furniture, signage, structures, gates, and fences used throughout the Gardens and Gong;
- need to establish a colour and finish policy that respects the heritage character of the Gardens and Gong.

Futures

- lack of clarity as to the future of the bowling club land, given its spatial and legal relationships to the Gardens, makes forward planting strategies difficult;
- need to consider the possible future re-acquistition of the bolwing club land into any planting strategy and management plan.

5 Significance

This section considers the cultural significance of the Gardens and the Gong.

5.1 Statement of Significance: Buninyong Botanic Garden and The Gong Reservoir

This sub-section considers the significance of the Buninyong Botanic Gardens and the Gong Reservoir and proposes a Statement of Significance:

> *The Buninyong Botanic Garden and The Gong are an important representative example of provincial botanic gardens established during the Victorian period in Victoria. They possess strong social associations to the community of Buninyong, a significant botanical collection including several Acer sp. and Abies sp., the first public gardens structure erected in Victoria in honour of Queen Victoria in 1901, a war memorial avenue of honour, and important remnants of early concrete in situ workmanship. The Garden, relatively intact since establishment, are comprable in their historic, social and scientific assemblages to other provincial botanic gardens in Victoria*.

5.2 Past Assessment

The Buninyong Botanic Garden, including the rotunda, pavilion and The Gong reservoir, were identified in the *Buninyong Conservation Study* in 1983 with a recommendation that the precinct be included on the register of the National Estate. The 'Gardens Conservation Precinct', identified, included the School, St Nicholas Catholic Church, the former police station, brewery and court of mines, 'Kings Hill', Hasties Springs together with the Gardens and The Gong reservoir and surrounds.[110]

The Garden, including The Gong precinct, was included in the Victorian Heritage Register on 17 June 1999 (G24) following a recommendation for inclusion dated 22 February 1999, in accordance with Section 32 (c) of the *Heritage Act 1995*. The area is recognised as a 'heritage place'. The registration documentation is included in the Appendices.[111]

The extent of the Victorian Heritage Registration specified a number of identified features and elements including:

1. All of the buildings and structures marked as follows on Diagram 600774 held by the Executive Director:

B1	Entrance Gates (1903-07)
B2	Rotunda (1901)
B3	Shelter and brick fire place (1920s)
B4	Bowling Clubhouse (1900s)
B5	Former Bluestone Swimming Pool (1861)
B6	Concrete Wall (1920s)

2. All of the landscape features and paths marked as follows on Diagram 600774 held by the Executive Director:

S1	Path
S2	Pond, island and water coarse
S3	Half Moon Pond
S4	Water Flume
S5	Path
S6	Gong Lake

3. All the trees marked as follows on Diagram 600774 held by the Executive Director:

T1	*Abies pinsapo*
T2	*Acer opalus* subsp. *obtusatum* x2
T3	*Acer platanoides* 'Crimson King'
T4	*Acer platanoides*

4. All the Commemorative trees and Plaques marked as follows on Diagram 600774 held by the Executive Director:

T5	*Grevillea robusta;* + Sqd. L. Tyler, 18.2.43, RAAF
T6	*Fraxinus excelsior* 'Aurea'; (unmarked)
T7	*Acer campestre*; + CPL H. D. McKenzie, 19.7.41
T8	*Fraxinus excelsior* 'Aurea'; + J. J. Hayes, 27.5.44, RAAF
T9	*Fraxinus angustifolia* subsp. *angustifolia,* L. Sgt. J. Alley, 6.2.42, AIF

110 Coleman Sutherland 1983, *Buninyong Conservation Study*, pp. 5, 46-51, 112-113.

111 Victorian Heritage Register, number 1826, pp. 1-5.

T10 *Populus tremula;* (unmarked)

5. All of the land known as Buninyong Botanic Gardens and incorporating the area known as The Gong, and gazetted as Crown Reserve Rs 3999 [P101916 and P101918] and permanently reserved for Public Gardens marked L1 and L2, Cornish Street road reserve marked L3, and Crown Land [P101917] marked L4 on Diagram 600774 held by the Executive Director.[112]

Registration was considered against the following criteria in the *Heritage Act* 1995 with the following rationale:

a. The historical importance, association with or relationship to Victoria's history of the place or object

The Gardens are historically important as one of Victoria's oldest regional botanic gardens. The early development of botanic gardens reflects the community's interest in natural history and a desire to embellish the landscape with a rich variety of plants. The Melbourne Botanic Gardens and the government botanist Ferdinand von Mueller encouraged their establishment in Victoria.

The rotunda opened in 1901 as a memorial to Queen Victoria is the earliest memorial erected to Queen Victoria in Victoria. The 1861 bluestone water tank is an early type of this structure in Victoria. The entrance gates were opened by the Mayor in 1911.

b. The importance of a place or object in demonstrating rarity or uniqueness

The planting in the Botanic Gardens includes two rare Acer opalus subsp. obtusatum, and outstanding specimens of Abies pinsapo, Acer platanoides, and Acer platanoides 'Crimson King'.

c. The place or object's potential to educate, illustrate or provide further scientific investigation in relation to Victoria's cultural heritage

The Gardens have scientific and aesthetic significance for their collection of plants especially the Acer collection. Many of the species are characteristic of nineteenth century gardens and have been grown as a botanical collection. The variety of deciduous and evergreen species and contrasting forms combine to form an outstanding picturesque landscape.

d. The importance of a place or object in exhibiting the principal characteristics or the representative nature of a place or object as part of a class or type of places or objects

e. The importance of the place or object in exhibiting good design or aesthetic characteristics and/or in exhibiting a richness, diversity or unusual integration of features

The Gardens are of aesthetic importance combining a richness of flora in a natural setting where the topography and the use of water has been utilised to form an outstanding landscape. The aesthetic quality is achieved by the careful placement of plants and water

No variation to this rationale is proposed from this study.

5.3 Criterion Qualities of Significance

This sub-section summarises the qualities of significance that result in the Statement of Significance of the Buninyong Botanic Gardens and the Gong. Consideration should also be given to the Comparative Analysis.

Significance Quality Criterion	
5.3.1 Historical Significance	**For retention of the essential "original" gardens** The gardens retain their original design integrity and much of the design components and plantings from the 1870s-1890s period. They are one of the most intact examples of Victoria's series of nineteenth-century provincial botanic gardens. While not having an identified designer or sourced plan, they possess landscape design qualities in terms of a gardenesque structure, a circuitous walking pathway, sweeping lawns, a sense of enclosure, play with water, and a number of strong vegetative lines and patterns. These result in an interesting assemble of water

[112] Victorian Heritage Register, number 1826, p. 2.

pools, paths, tree allees and lines, lawns, nestled in a valley-like setting.

For its surviving structures and landscape features
The Gardens and Gong also possess an additional layer of structures that seek to complement the principal function of the place to enable appreciation and recreation. The assemblage of these structures, include:

- the first outdoor structure erected in Victoria to honour Queen Victoria,
- the innovative use of concrete in situ in structure design in baths, play equipment, fencing;
- the original main pool and island feature;
- the main pathway;
- the original structure and location of focal and ornamental trees;
- entrance gates;
- the Gong reservoir and retaining walll / embankment;
- the pavilion with its hot water coppers;
- the original bowling club pavilion.

The Gong possesses historical associations with the original commercial ventures in Buninyong, and the reservoir directly contributed to the visual enclosure of the Gardens.

5.3.2
Aesthetic Significance

For its role as an example of the Gardenesque style
The Gardens possess, notwithstanding the absence of a designer and plan, a gardenesque atmosphere and character that is heightened by the use of a select palette of coniferious and deciduous vegetation to structure views and spaces.

5.3.3
Scientific Significance

For its role as an example of an Australian provincial botanic garden
The Buninyong Botanic Gardens survive as a realtively intact example of a provincial botanic gardens in Victoria that have largely not suffered excisions, encroachments, and intrusion of non-complementary functions.

For its surviving pinetum and coniferious plantings
The Gardens possess an interesting collection of pines and conifers which, although of a small scale compared to other provincial botanic gardens, is rich in diversity and the strong predominance of Big Trees (Sequoia giganteum).

For its unusual concentrated of Maples (*Acer* sp.)
Although based upon a 1940-50s foundation, recent *Acer* sp. plantings, have heightened its scientific role as a specialised arboretum of maples in Victoria.

5.3.4
Social Significance

For its value to the community
The Gardens, and the Gong, have long had an important social and celebrative role in the community of Buninyong, and are highly valued for their recreational and cultural associations.

5.3.5
Ability to Demonstrate

For its ability to demonstrate a transition in design styles
The spatial nature of the Gardens and the Gong results in two different spatial and planting characters. The former possesses many of the Victorian era planting and design traditions, whereas the Gong possesses more picturesque and Mid War Years planting traditions.

5.4 Trees and Vegetation of Significance

In 1985-1986 four specimen trees were nominated and approved for registration on the National Trust of Australia (Victoria) Register of Significant Trees. These specimens included the Spanish *Fir (Abies pinsapo*), two *Acer opalus* ssp. *obtusatum*, and an *Acer platanoides* 'Crimson King'.

The criterion and assessment categories for their registration are set out in the following table.

Table 5.4.1
Extract from the Register of Significant Trees

Cate-gory #	Category	Spanish Fir (*Abies pinsapo*)	*Acer opalus* ssp. *obtusatum*	*Acer platanoides* 'Crimson King'
1	Any tree which is of horticultural or genetic value and could be important source of propagating stock, including specimens that are particularly resistant to disease or exposure		1	
2	Any tree which occurs in a unique location or context and so provides a contribution to the landscape, including remnant native vegetation, important landmarks and trees which form part of an historic garden, park or town	2	2	2
3	Any tree of a species or variety that is rare or of very localised distribution	4	3	
4	Any tree that is particularly old or venerable			
5	Any tree outstanding for its large height, trunk circumference or canopy spread			
6	Any tree of outstanding aesthetic significance			
7	Any tree which exhibits a curious growth form or physical feature such as abnormal outgrowths, natural fusion of branches, severe lightning damage or unusually pruned forms			
8	Any tree commemorating a particular occasion (including plantings by Royalty) or having associations with an important historical event			
10	Outstanding example of species			1

The contextual setting of these registrations can be compared to the overall tree specimen in provincial Victorian botanic gardens, including Moss Vale Park, together with a list of significant *Pinus* sp. prepared for Victoria. The comparison indicates that the Buninyong Botanic Gardens possesses an important *Acer* sp., and one of only a few Abies pinsapo specimens registered in Victoria. Moss Vale is included in this instance as it is the place where Frances Moss, who supplied trees to the Buninyong Botanic Gardens, eventually settled after departing from Buninyong.

Table 5.4.2:
Significant Vegetation and Significant *Pinus* sp. in Botanic Gardens in Victoria

	Specimens recorded in the National Trust of Australia (Victoria) Register of Significant Trees[113]	Pine Species in Cultivation (Significant specimens in bold)[114]
Ballarat (Ballarat Botanic Gardens)	*Pinus ponderosa, Picea sitchensis, Picea abies, Eucalyptus globulus ssp. globulus, Quercus cerris, Quercus robur, Sequoia sempervirens, Sequoiadendron giganteum (29), Taxodium distichum, Ulmus glabra 'Pendula', Vitex lucens, Ulmus x hollandica 'Wredei' (2), Ulmus glabra 'Exoniensis', Sophora japonica 'Pendula', Acer campestre (2), Araucaria bidwillii, Fraxinus excelsior 'Pendula', Amelanchier lamarckii, Fraxinus excelsior 'Aureo-variegata"*	*Pinus radiata, P canariensis, P halepensis* var *brutia, P ponderosa*
Beechworth (Queen Victoria Park)	*Pinus cortorta var. contorta, Cupressus sempervirens 'Stricta', Pinus coulteri, Pinus taeda*	*Pinus radiata, P canariensis,* ***P taeda****, P nigra var maritima,* ***P coulteri****,* ***P wallichiana, P contorta*** **var *contorta*, *P ponderosa, P pinaster***
Bendigo (White Hills)	*Acacia karoo, Dovyalis caffra, Pinus torreyana, Callistemon brachyandrus*	*P radiata, P halepensis,* ***P roxburghii****, P pinea,* ***P torreyana***
Buninyong	*Abies pinsapo, Acer opalus ssp. obtusatum (2), Acer platanoides 'Crimson King'*	*Pinus radiata, P ponderosa*

113 National Trust of Australia (Victoria) 1998, *Register of Significant Trees in Victoria*.

114 Hawker 1987, "Pines in the Provincial Gardens of Victoria," p. 12.

Camperdown	*Tilia x europaea (9), Cassine crocera, Quercus leucotrichophora (2)*	*Pinus radiata, P canariensis*
Castlemaine	*Quercus robur, Ulmus minor ;Sarniesis', Pinus pinea, Eucalyptus longifolia, Acacia farnesiana, Pinus torreyana, Quercus canariensis x Quercus robur, Catalpa bignonioides, Platanus orientalis, Pinus ponderosa, Ulmus glabra 'Camperdownii' (7), Quercus macrocarpa var. oliviformis, Pinus sabiniana, Tilia platyphyllos*	*Pinus radiata, P pinaster, P ponderosa,* ***P halepensis****, P nigra* var *maritima,* ***P sabiniana****, P torreyana*
Colac	*Pittosporum tenuifolium 'Eila Keightley', Sophora japonica, Araucaria bidwillii, Cupressus forbesii, Ulmus x hollandica 'Vegeta'*	*Pinus radiata, P wallichiana*
Creswick		***Pinus muricata****, P radiata*
Daylesford (Wombat Hill Botanic Gardens)	*Pinus wallichiana, Pinus ponderosa, Pinus coulteri, Cedrus atlantica f. glauca, Abies pinsapo, Abies nordmanniana, Tilia cordata*	*Pinus radiata,* ***P coulteri****,* ***P pinaster****,* ***P wallichiana***
Geelong (Eastern Park)	*Fagus sylvatica, Prumnopitys andina, Ginkgo biloba, Jubaea chilensis, Quillaja saponaria, Sequoiadendron giganteum, Acer pseudoplantanus 'Leopoldii', Podocarpus elatus, Agathis robusta, Eucalyptus maculata, Actinostrobus pyramidalis, Picconia excelsa, Scolopia brownii, Brachychiton discolor, Alnus jorullensis, Ficus playpoda var angustata, Juglans nigra, Wigandra caracasana, Quercus macrolepis, Persea americana, Juniperus thurifera, Corynocarpus laevigatus, Araucaria bidwillii (24), Cassine crocea, Brachychiton x roseus nothosubsp. Roseus*	*Pinus radiata, P pinea,* ***P canariensis****,* ***P sabiniana****,* ***P torreyana****,* ***P cembroides*** **var** ***parryana****, P halepensis*
Hamilton	*Quercus laucotrichophora (2), Acacia falciformis, Pinus sabiniana, Quercus agrifolia, Pinus nigra var. maritima, Chamaecyparis funebris, Quercus robur, Gymncocladus dioica*	***Pinus radiata****,* ***P sabiniana****, P canariensis, P halepensis* var *brutia, P nigra* var *maritima, P wallichiana*
Koroit Botanic Gardens	*Ficus playpoda, Rapanaea howittiana, Chamaecyparis funebris, Dracaena draco, Wignadia caracasana, Fraxinus ornus, Araucaria cunninghamii*	
Kyneton	*Quercus suber (3), Jubaea chilensis, Ginkgo biloba, Sequoiadendron giganteum, Sequoia sempervirens, Quercus robur, Quercus leucotrichophora, Prunus lusitanica 'Variegata', Quercus macropcarpa var. oliviformis, Quercus canaraiensis, Cedrus atlantica f. glauca, Araucaria bidwilli, Chamaecyparis funebris, Abies nordmanniana, Cupressus lusitanica, Quercus agrifolia, Quercus douglasiii*	*Pinus radiata,* ***P radiata*** **var** ***binata P nigra*** **var** ***maritima,,*** *,* ***P canariensis***
Malmsbury	*Araucaria bidwilli, Arbutus x andrachnoidesi*	*Pinus* ***pinea*** *radiata, P radiata* var *binata,* ***P***
Maryborough (Philip Gardens)	*Eucalyptus citriodora, Brachychiton acerifolius, Juniperus phoenica*	***Pinus patula***
Moss Vale Park, Leongatha	*Ulmus minor 'Variegata', Platanus orientalis, Quercus castaneifolia, Quercus canariensis, Platanus x acerifolia*	
Portland	*Rhus viminalis, Cordyline australis, Wigandia caracasana (2)*	No pines extant
Warrnambool	*Pinus torreyana, Pinus brutia*	*Pinus radiata, P canariensis, P pinaster,* ***P torreyana****,* ***P halepensis var brutia****, P ponderosa*

Several extant trees within the study area possess various levels of significance, having regard to the inventory identification numbers as follows:

5.5 Artefacts and Sites of Significance

Several extant artefacts within the study area possess various levels of significance, as follows:

Figure 5.5.1
Artefacts and Sites of Significance at Buninyong Botanic Gardens and The Gong

Artefact	Significance	Value	Recognition
Buninyong Botanic Gardens	Landscape Design, Symbolic, Community, Engineering, Botanical	High	HV (#1826)
The Gong Reservoir	Community, Engineering, Botanical	High	HV (#1826)
Entry / Main Gates	Landscape Design, Craftmanship	High	HV (B1)
Main path	Landscape design, Symbolic	Medium	HV (S1)
Concrete posts and wire on Scott Street edge	Landscape design, Engineering	Medium	
Queen Victoria Rotunda	Architecture, Landscape design, Symbolic, community	High	HV (B2)
Pavilion	Landscape design, community	Medium	
Wading Pool concrete edge	Engineering	Medium	
Rockery near fernery site	Landscape design	Medium	
Bowling Club old pavilion	Architecture, Community	Medium	HV B4)
Baths walls	Engineering	High	HV (B6)
Baths pool (covered over)	Engineering	High	HV (B5)
Main Pool and Island	Landscape design	High	HV (S2)
Upper Pool	Landscape design	Medium	HV (S3)
Main Pool channel	Landscape design	Medium	HV (S2)
Stone flume	Engineering	High	HV (S4)
Former Court House	Architecture, Community	High	
Cornish Street Reservoir and embankment	Engineering	High	
Gong path	Landscape design	Low	HV (S5)
Gong Lake	Engineering	Medium	HV (S6)

6 Policies

6.1 Objectives of the Management Plan

The objective of the Conservation Policy and Strategy is to provide a document which provides recommendations and guidelines for the conservation, restoration, management and development of the Garden and The Gong which will ensure the retention of historic and scientific features and permit sympathetic development in line with the Garden and The Gong's historic character and scientific roles.

The following section sets out the recommended policies.

6.1.1 Policies for Managemen

6.1.2 Significance of the Buninyong Botanic Garden and The Gong

Policies	Guidelines	Implications
● That the Buninyong Botanic Garden be recognised as an important representative of a provincial botanic gardens, established in the Victorian period, that reflects highly the provincial botanic gardens characteristics and fashions of the 1870s-1890s in Victoria	● The Botanic Garden be conserved so as to retain the plantings and structural qualities of the 1870s-1890s period; ● A management plan should integrate the landscape management and care of the Garden and The Gong.; ● Any management plan should recognise the long term potential re-transfer of the bowling club grounds back to the Garden; ● The significance of the Garden should be noted in the Register of the National Estate;	● Enhance the provincial Victorian character of the Garden; ● Care should be given to ensure that a Victorian character in the Garden is maintained in any conservation action, planting implementation and replacement strategy, and where infrastructure and structural actions are proposed; ● The management plan should set forth the forward planning strategies for the future care and maintenance of the Garden; ● All management and planting strategies should consider the aesthetic and historical associations of the bowling club land to the Garden; ● Correspondence with the Australian Heritage Commission re registration;
● That The Gong be recognised as an important adjunct area to the Botanic Garden, that was originally intended as forming the Botanic Garden, but possessing an arboretum character of the 1920s-1940s	● The Gong should be conserved so as to retain the plantings and structural qualities of the 1920s-1940s period; ● A management plan should integrate the landscape management and care of the Garden and The Gong.;	● Enhance The Gong's 1920s-1940s arboretum-like character, and build upon its significant *Acer* sp. collection and visual amphitheatre setting; ● Ensure a circulation and identity connection between the Garden and The Gong
● That the Botanic Garden and The Gong possess certain identified significant historic structures and features, and botanical specimens, that are intregral to the heritage significance of both areas	● Any management plan should seek to make recommendations for the conservation, restoration, and adaptation of features and attributes in the Garden and The Gong that respect their heritage significance and aesthetic contribution to the Garden and The Gong.	● Special care should be ensured to conserving and or maintaining the integrity and chararcter of the identified significant heritage features of the Garden and The Gong; ● The Cornish Street reservoir embankment represents an important aesthetic and functional transition zone between the Garden and The Gong and care should be taken in any works in this area; ● Care should be entertained in any development or tree action proposal to ensure that it accords with these policies and respects the significance of the Garden and The Gong

6.1.3 Purpose of the Buninyong Botanic Garden the The Gong

Policies	Guidelines	Implications
● That the Buninyong Botanic Gardens be retained for its original reserved purpose while respecting its significant social role in the life of the Buninyong community	● Maintain the purpose of the Garden as a venue for botanical display and passive recreation;	● Maintain the functional role of the Garden; ● Approve a suitable Landscape Masterplan that accords with this policy; ● No new incursions, excisions, commercial developments, or variations of recreational activities and botanical displays are permitted.

● That The Gong be retained for its original reserved purpose as an undefined recreation area but strengthened in its botanical and articulation linkages to the Garden; ● That The Gong be developed as a significant venue for the display and propagation of *Acer* sp. (except *Acer palmatum*) plantings;	● Maintain the purpose of The Gong as a venue for botanical display and passive recreation; ● Enhance the role of The Gong as a significant *Acer* sp. arboretum;	● Maintain the functional role of The Gong; ● Approve a suitable Landscape Masterplan that accords with this policy; ● No new incursions, excisions, commercial developments, or variations of recreational activities and botanical displays are permitted; ● Enable additional plantings of Acer sp. (except *Acer palmatum*) in and around The Gong

6.1.4 Fabric and Setting

Policies	Guidelines	Implications
● The Garden should seek to adopt a Victorian period (1870s-1890s) character, with a strong gardenesque philosophy, and planting strategies should accord with this aim; ● Conserve all evidence of the Victorian period (1870s-1890s) structures, circulation patterns, garden fixtures, and plantings; ● Conserve and respect all evidence of the Mid War period (1920s-1940s) including structures, circulation patterns, garden fixtures, and plantings where they pertain to the workmanship/tenure of Frazer, Ogilvie or Wilson; ● Conserve and respect all evidence of the Post War period (1950s-1960s) plantings where they are significant or unusual specimens;	● Adopt the Victorian period (1870s-1890s) as the thematic approach for the management of the Garden including all infrastructure, buildings, plantings, lettering, etc., actions and strategies; ● Conserve a sense of enclosure around the main pool and the small pool with deciduous ornamental species; ● Conserve the pools and island in their present forms, but strengthen plantings on the island; ● Conserve the sense of openness, gardenesque character, and vistas offered by the main walk from the Main Gate to the Rotunda, and across the main lawn, yet respect its enclosure unless to highlight distinct visual focal points adjacent to or in the distance; ● Conserve and reinstate the NE-SW visual axial corridor through the Garden with suitable deciduous and conifer Victorian era species; ● Conserve all extant building structures, including the old bowling club pavilion, and garden fixtures, and give attention to appropriate period colours and typescript where applied; ● Conserve all evidence of concrete *in situ* structures, fencing and walling; ● Reinstate and re-align pathways where they accord with the period; ● An exception to this policy is the retention of the Mid War Years war memorial tree line near the Main Gate; ● Enable better circulation and visual connections and legibility between the Garden and adjacent areas of significance;	● Permit variations to this theme only where the War Memorial trees exist or where it is necessary in enabling a circulation and visual connection between the Garden and The Gong; ● Prepare a landscape masterplan for both the Garden and The Gong; ● Within the Masterplan ensure provision of design guidelines as to any structures, furniture, signage, fencing, bridges, posts and bollards, path treatments, steps and paving, path edgings, as necessary, such that they accord with the historic character and period of the Garden; ● Remove any 1950s-1990s garden fixtures, furniture, plantings, garden edgings, signage, where they are not in character, style, colour, finish, with the Victorian period (1870s-1890s) of the Garden except where they represent significant botanical or symbolic plantings or pertain to concrete *in situ* formwork; ● Conserve the enclosed yet expansive gardenesque layout and character of the Garden and do not permit variations to this character; ● Re-craft the NE-SW visual axial corridor but do not add a pathway; ● Re-instate the arc-ing 'Half Moon Pool' walk; ● Create a better circulation and visual connection between the Garden and the courthouse building, the Garden and The Gong; ● Propagate or seek the new growth of significant or unusual specimens of trees from the Post War period (1950s-1960s) plantings presently in the Garden and seek their re-planting, new planting, re-establishment in The Gong area; ● Use only Victorian period plants (trees, shrubs) to replace or to be planted in the Garden; ● Do not permit variation in style and authenticity of building structures and garden fixtures, concrete *in situ* features or structures, unless it enhances the interpretation of the structure/fixture/feature;
● The Gong should seek to adopt a Mid War Years period (1920s-1940s) character, with a strong gardenesque and American Romantic philosophy, and planting strategies should accord with this aim;	● Adopt the Mid War Years period (1920s-1940s) as the thematic approach for the management of The Gong including all infrastructure, buildings, plantings, lettering, etc., actions and strategies;	● Permit variations to this theme only where it is necessary in enabling a circulation and visual connection between the Garden and The Gong; ● Prepare a landscape masterplan for both the Garden and The Gong;

- Conserve all evidence of Mid War Years period (1920s-1940s) structures, circulation patterns, garden fixtures, and plantings;
- Conserve and respect all evidence of the the Victorian period (1870s-1890s) including structures, circulation patterns, garden fixtures, and plantings where they pertain to the workmanship of Frazer, Ogilvie or Wilson

- Conserve the spatial openness and structure of The Gong reservoir and seek to establish a stronger sense of enclosure;
- Conserve a sense of enclosure around The Gong reservoir with deciduous and coniferous ornamental species;
- Conserve the Weeping Willows along the Cornish Street embankment but undertake a Willow, Poplar and pest-plant removal program at the head of The Gong and along its southern embankment;
- Conserve the sense of openness, gardenesque character, and vistas offered by the main walk around The Gong yet respect its enclosure unless to highlight distinct visual focal points adjacent to or in the distance;
- Enable better circulation and visual connections and legibility between The Gong and adjacent areas of significance;

- Within the Masterplan ensure provision of design guidelines as to any structures, furniture, signage, fencing, bridges, posts and bollards, path treatments, steps and paving, path edgings, as necessary, such that they accord with the historic character and period of The Gong;
- Remove any 1950s-1990s garden fixtures, furniture, plantings, garden edgings, signage, where they are not in character, style, colour, finish, with the the Mid War Years period (1920s-1940s) of The Gong except where they represent significant botanical or symbolic plantings or pertain to concrete *in situ* formwork;
- Conserve the enclosed yet expansive gardenesque layout and character of The Gong and do not permit variations to this character;
- Create a better circulation and visual connection between the Gong and the brewery building, the Gong and the Church, and the Garden and The Gong;
- Use only Mid War Years (1920s-1940s) period plants (trees, shrubs) to replace or to be planted in The Gong;

- That the road reserves adjacent to the Garden and The Gong should be sympathetically managed to ensure aesthetic and botanical parity in street tree plantings to the Garden and The Gong;
- That Council should seek to encourage due sympathetic design treatment and finishing of buildings, surfaces, plantings, and infrastructure to accord with the significance of the Garden and The Gong;
- That indigenous vegetation species should be highlighted as a part of the botanical display of The Gong at its headwaters and along its creek corridor

- Maintain the streetscape tree planting strategies applied in Scott, Cornish, Fisken, and Inglis Streets;
- Increase the planting sequence of Silver Elms (*Ulmus procera* 'Variegata') in Inglis Street to enhance its long-term *alleé* presentation and consider the extension of these plantings along Inglis Street past the School and back towards Learmonth Street;
- Rationalise the car parking arrangements in Scott Street, including surface treatment and drainage, to lessen its visual impact upon residences, street users, and Garden users;
- Rationalise the bowling club car park including re-treatment of the surface, better drainage works, and the establishment of plantings sympathetic to the Garden's character and planting profile;
- Conserve existing gravel road surfaces and narrow bitumen road cambers to maintain a rural character;
- Create a more identifiable visual and interpretative connection between the Gardens and Learmonth Street;

- Develop a uniform street tree planting strategy and set of policies for Buninyong township that respects past street tree planting fashions and the existing mature specimens in the Garden;
- Develop a roadside management policy for the Buninyong township that respects indignous species maintenance as well as maintaining the deciduous and conifer tree character of the township;
- Re-evaluate the density, sequence, and location of Silver Elms (*Ulmus procera* 'Variegata') plantings along Inglis Street to strengthen its future form and structure;
- Vary the design of roadside parking arrangements adjacent to the Gardens and The Gong to delimit damage to existing road reserve and edge plantings, to control drainage patterns so as to reduce erosion, and to minimise trash and litter dispersal into The Gong and the Garden;
- Re-consider *City of Ballarat Planning Scheme* statutory and strategic planning provisions for public and private land holdings, including road reserves, adjacent to the Garden and The Gong so as to ensure that the historic character of the Garden and The Gong edges, places, and vista lines are not compromised;
- Consider the development of an identity-making street signage (directional, nomenclature, informational) policy for Buninyong township that rationalises the existing disparate signage assemblages and forms;
- Monitor existing street drainage systems (including gutters, grates, sumps and pits) to delimit overloads, excessive siltation and litter accumulation, and thereby drainage flows into the Garden and or The Gong;

		● Prepare a master plan for the re-design of the Bowling Club car park, giving attention to drainage, plantings, fencing, signage; ● Develop a creek master plan, for land at the headwaters of The Gong and upstream to Hastie's Hill, that enables the re-establishment of indigenous species (trees, shrubs, grasses), and the creation of wetlands as necessary to filter run-off and stream flows.
● That care should be made to ensure the visual prominence and setting of the Garden and The Gong, and their plantings, are maintained as an integral part of the character of Buninyong	● Conserve and enhance existing views and vistas within the Garden and The Gong as identified; ● Enhance the visual setting of the main gates; ● Create several vantage points in the landscape design for The Gong;	● Revise *City of Ballarat Planning Scheme* statutory and strategic planning provisions to provide an appropriate visual character policy for Buninyong township or re-design the zoning units within the Scheme to make them landscape responsive rather than land use responsive;

6.1.5 Visitor Management

Policies	Guidelines	Implications
● That visitor management respect the significance and purpose of the Garden and The Gong, and continue to maintain a low profile	● Establish an identity to the Garden at its main gate on the Inglis/Scott street road reserves; ● Minimize the use of the main lawn for non-community celebratory activities; ● Enable increased use of the baths and courthouse environs for weddings and similar family celebratory activities; ● Concentrate community activities in the first instance around the pavilion and rotunda, and thereafter in the baths and courthouse environs; ● Enhance the role and restoration of the courthouse as a regional interpretation centre; ● Rationalise bus parking activities and patterns adjacent to the Garden;	● Re-design the entry approach to the Gardens from Learmonth Street; ● Introduce a reservation and fee system for private celebratory use of spaces and facilities within the Garden and The Gong; ● Limit and monitor the intensity and frequency of celebratory activities; ● Seek funds for the restoration and extension of the courthouse as a regional interpretation centre;

6.1.6 Education and Interpretation

Policies	Guidelines	Implications
● That the cultural and botanical significance of the Garden and The Gong be adequately interpreted but continue to maintain a low profile	● Establish a signage design and interpretive policy, and seek to ; ● Continue the use of specimen identification signage; ● Conserve examples of Victorian period (1870s-1890s) or Mid War Years period (1920s-1940s) where they portray the cultural or social heritage of the Garden and or The Gong; ● Enhance the educational presentation and communication of the significance of and the historical and botanical components of the Garden and The Gong; ● Foster community pride and care of the Garden and The Gong;	● Rationalise signage in the Garden and The Gong; ● Ensure appropriate botanical and historical information in the Garden and The Gong; ● Publish suitable illustrated literature upon, and an illustrated history text about, the Garden and The Gong; ● Assist and sponsor the establishment of a Friends Group for the Garden and The Gong;

6.1.7 Garden and The Gong Management

Policies	Guidelines	Implications
● That the management of the Garden and The Gong be vested in the formal care of the City of Ballarat's Botanic Gardens 'management unit' or similar; ● That the managers of the Garden and The Gong recognise that these places possess strong community values and	● Re-allocate the overall management of the Garden and Gong to the operating unit in the City of Ballarat that manages the Ballarat Botanic Garden; ● Continue outsourced maintenance contracts and monitor their operation; ● The Garden and Gong should be	● Review and rationalise the management operations of the Garden and The Gong; ● Review all existing out-sourced and in-house arrangements for the care and maintenance of the Garden, The Gong, and adjacent streetscapes to

meanings in the life of the Buninyong township	viewed as an annexe, not a sub-branch, of the Ballarat Botanic Garden, and cared for along equivalent standards; ● The Garden and Gong should be viewed as an opportunity to extend and strengthen the botanical profile of the Ballarat Botanic Garden, and propagation opportunities to harness this opportunity should be entertained with other suitable botanic gardens; ● Establish a data base and tree inventory to monitor plantings in the Garden and Gong; ● Foster the tradition of plant material exchange with suitable botanic gardens to enable interchanges of specimens and seeds;; ● Review policy of allowing weddings and similar events free use of the Garden or Gong; ● Monitor growth and decline of plant material and keep records, and an on-going history of the Garden and Gong;	ensure consistency with this Conservation Policy and any Landscape Masterplan; ● Revisit the statutory and strategic planning provisions in the *City of Ballarat Planning Scheme* as they pertain to the Garden, The Gong, and adjacent road reserves, so as to provide for suitable conservation objectives and due consideration of visual character and sightline issues; ● Upgrade data inventories about the Garden and The Gong; ● Establish tree specimen exchanges with Ballarat and Melbourne Botanic Gardens, and consider the establishment of an exchange relationship with Mount Lofty Botanic Garden, to enable interchanges of specimens and seeds; ● Establish a on-going management committee for the Garden and The Gong that enables community representation, has linkages to local Councillors and any Friends Group, and is reportable to the City of Ballarat

6.1.8 Priorities for Works and Actions

Policies	Guidelines	Implications
● That any Landscape Masterplan adopt a priortisation system to identify works and actions;	● Ensure that conservation works be prioritised into the following categories: - short term (1-5 years) - medium term (5-10 years); and - long term (10-20 years) ● Ensure that all works and actions accord with the adopted Conservation Plan, the *City of Ballarat Planning Scheme*, and any provisions of the *Heritage Act* 1995	● Any priorities should be assessed and incorporated into the Landscape Masterplan; ● Seek endorsement of the Conservation Plan and Landscape Masterplan from Heritage Victoria, that works and actions proposed therein accord with Section 66 “Exemptions from permits” of the *Heritage Act* 1995, and will be undertaken in accordance with the exemptions set out in Registration No. 1826; ● Review the provisions of the *City of Ballarat Planning Scheme*, as it relates to the Garden, The Gong, and adjacent road reserves, so as to delimit any conflicts and prohibitions, to enable consistency in content and logic, and to require recognition of the Conservation Plan as a legitimate policy document; ● Seek discussions with Heritage Victoria to enable variations to and permission for strategies and works proposed in the Conservation Plan and Landscape Masterplan

6.1.9 Future Developments

Policies	Guidelines	Implications
● That any future development or variation of use be in accordance with the adopted Conservation Plan and Landscape Masterplan; ● That any development on land, including road reserves thereto, adjacent to the Garden or The Gong seek to respect the intent of the Conservation Plan and the character of the particular area; ● That the bowling club leasehold shall continue subject to a regular review of lease and due payment; ● That funding should be sought, to	● Seek to maintain the present level of development within the Garden and The Gong; ● Seek to encourage due respect and sympathetic building, road-making and planting activities adjacent to the Garden and or The Gong; ● Monitor the operation and future of the bowling club leasehold; ● Seek funding grant and ciommunity service club support to assist in quality improvements, and expansion of and continuity of the planting strategy, to the Garden and or The Gong in	● Adopt the Conservation Plan and Landscape Masterplan; ● Review the provisions of the *City of Ballarat Planning Scheme*, as it relates to the Garden, The Gong, and adjacent road reserves, so as to delimit any conflicts and prohibitions, to enable consistency in content and logic, and to require recognition of the Conservation Plan as a legitimate policy document; ● Monitor public and private planning applications, building applications, road works to delimit their impacts

supplement Council budgetary allocations, to enable quality improvements of the Garden and or The Gong in accordance with the Conservation Plan and Landscape Masterplan	accordance with the Conservation Plan and Landscape Masterplan	upon the Garden and or The Gong; ● Action a review of the Conservation Plan and Landscape Masterplan where any variation of the use and development within the Bowling Club leasehold is proposed; ● Monitor suitable funding avenues and seek the support of local service clubs in implementing the Conservation Plan and Landscape Masterplan

6.1.10 Adoption and Review

Policies	Guidelines	Implications
● That the Conservation Plan and Landscape Masperplan be formally adopted by the Ballarat City Council	● Implement the Conservation Plan and undertake regular review of the Lansdscape Masterplan	● Adopt the Conservation Plan and Landscape Masterplan ● Monitor the operation of the Landscape Masterplan

6.1.11 Futures Studies and Research

Policies	Guidelines	Implications
● That historical, biological and botanical research be encouraged in the Garden and The Gong	● Establish propagation trials of select and rare species in the Garden and Gong, especially the *Acer* sp. collection; ● Enhance the *Acer* sp. collection profile and standing of The Gong; ● Establish a system of water quality monitoring in the Garden and The Gong water systems; ● Foster a wider appreciation of the physical and social history of the Garden and The Gong;	● Establish a relationship with Mount Lofty Botanic Garden and the Royal Melbourne Botanic Gardens to ensure a flow of information and plant material exchanges between venues; ● Encourage a Watch-watch program that operates through the Buninyong Primary School; ● Explore research options with biologica/environmental researchers/teachers at the Ballarat University, and at the regional high school; ● Encourage and facilitate the preparation and publication of a suitable illustrated history of the Garden and The Gong; ● Seek grant funding to enable research monitoring programs in the Garden and The Gong;

6.2 Policies for Components

6.2.1 Paths and General Layout

Policies	Guidelines	Implications
● That the existing circulation systems and structural design of the Garden and The Gong be not altered; ● That the existing formal and informal circulation systems be maintained and strengthened; ● That circulation between the Garden and The Gong be especially strengthened; ● That alterations to the general layout, form and edge/enclosure treatment of the Garden and or The Gong be minimised;	● Seek to conserve and maintain existing pathway networks in the Garden and around The Gong; ● Conserve the existing main pathway, together with its edge treatment;; ● Formalise a pathway circuit around the Gong reservoir, and provide clear and accessible walking connections to the Gardens' pathway system; ● Investigate possibilties for additional circulation connections into the Gong; ● Strengthen formally and visually the pathway system to and from the Gardens and Learmonth Street; ● Improve universal access to the toilet blocks and other areas of the Garden and The Gong; ● Create a walking linkage along the creek corridor from above the Gong to Warrenheip Street; ● Minimise any changes to the edge/enclosure of the Garden or The Gong during the staging of plant removal and replacement actions	● Do not vary the existing physical and botanical structure and circulation footprints of the Garden and The Gong; ● Formalise the pathway connections to and around The Gong from the Garden; ● Upgrade universal access to paths and the toilets, and ensure pathways, steps, and edges provide secure supports and surfaces as necessary; ● Consider the incorporation of a pedestrian and cycle route strategy within any street tree strategy for Buninyong township to enable an integrated approach to the aesthetic and biological design of corridors in and around the township ● Reinstate the 'half moon pool' arced pathway; ● Reinstate a pathway connection from the main pool direct along the former overflow/flume to Inglis Street; ● Formalise a pathway circuit around the Gong reservoir, and provide clear and

accessible walking connections to the Garden's pathway system;
- Consider the development of an *Acer* sp. tree-lined walk/avenue along the existing path on the northern flank of The Gong;
- Investigate possibilties for additional circulation connections into The Gong and into the Garden;
- Create a defined tree-lined linear path from the front entry of the Courthouse to Cornish Street;
- Reinstate the 'gate' at the NE corner of the Gardens;

6.2.2 Planting and Landscape Themes

Policies	Guidelines	Implications
● The Garden should seek to adopt a Victorian period (1870s-1890s) planting design character, with a strong gardenesque philosophy, and planting strategies should accord with this policy; ● The Gong should seek to adopt a Mid Wars period (1920s-1940s) planting design character, with a strong arboretum and American Gardenesque philosophy, and planting strategies should accord within this policy.	● Revisit the planting profile of the Garden and The Gong, including the Cornish Street embankment, to accord with the planting philosophies being adopted, the species assessment/identification review conatined in the Conservation Plan and the Landscape Masterplan, and to accord with any legislative controls as to noxious/pest plants and water catchment management objectives/policies/provisions; ● Seek to enhance the role and function of The Gong as an Acer sp. (except Acer palmatum) arboretum and reference area for Victoria; ● Undertake noxious/pest tree/shrub/grass/weed eradication programs, in accordance with the Conservation Plan, that seek to enhance the botanical and aesthetic presentation of the Garden and or The Gong; ● Undertake, and monitor, appropriate arboricultural actions to prolong the longevity of specimens without compromising the safety of the general public or other tree specimens or historic structures; ● Consider the establishment of a tree-lined path character, with visual axis spaces, along the existing Gong pathway; ● Consider the re-positioning of recent commemorative trees in the Gardens where it enhances the character and visual qualities of the Gardens; ● Craft a waterlogging resilient planting strategy in the 'half moon pool' area; ● Establish a sequence of shade and ornamental trees in the bowling club car parking aligned to the southern boundary;	● Remove all Australian plant species from the Cornish Street embankment and re-plant in suitable Victorian period (1870s-1890s) middle-storey and ground-storey species; ● Create an Maple (*Acer* sp.) arboretum in the Gong and enhance its presentation and aesthetic possibilities; ● Retain Weeping Willows (*Salix babylonica*) on the Cornish Street embankment but progressively remove all Weeping Willows (*Salix babylonica*), White (*Populus alba*) and Italian Poplars (*Populus nigra* 'Italica'), and invasive species along the southern and eastern flanks of the Gong Reservoir and seek to establish an indigenous species character, while retaining unusual feature conifers and plane trees in this locality; it is important to retain and permit the growth of select accent dark or deciduous colourful foliaged tree specimens along the southern flank; ● Consider the establishment of a tree-lined path character, with visual axis spaces, along the existing Gong pathway; ● Remove the line of Variegated Pittosporums (*Pittosporum undulatum* 'Variegatum') along the northern Garden frontage/curtailage and reinstate with suitable Victorian period (1870s-1890s) species, and retain the existing Apple-Myrtle (*Angophora costata*) as a specimen tree; ● Remove the collection of garden Cherry/Prunus (*Prunus* sp.) and Silver Birch (*Betula pendula*) trees to the rear of the old bowling club building and reinstate with suitable Victorian period (1870s-1890s) species; ● Consider the re-positioning of recent commemorative trees in the Garden where it enhances the character and visual qualities of the Garden; ● Remove all Italian Poplars (*Populus nigra* 'Italica') and Big Trees (*Sequioadendron giganteum*) species in the 'half-moon pool' area that are subject to water-logging and propose suitable water-loving tree specimens that offer botanical consistency to the Victorian period (1870s-1890s); ● Establish a sequence line of deciduous, shady, ornamental trees in the bowling club car parking aligned to the

		southern boundary; ● Take action to progressively remove select trees identified in the tree inventory as unsafe, aging or dangerous especially those specimens that directly affect the structural integrity of any building or structure or may place at risk human use of the Garden or The Gong; ● Retain dead or senescent trees, or fallen trees, in The Gong area where they present habitat nesting hollows, refuges, or similar to wildlife;
● Implement a tree replacement and care policy that seeks to nurture existing specimens and to maintain the continuity of the planting design character of the Garden and The Gong	● Conserve tree species of the 1870s-1890s and 1920s-1940s periods, as appropriate within the Garden and The Gong respectively, and undertake regular maintenance as appropriate to enable their continued healthy growth; ● Allow trees from later periods to remain where spaces or styles are not compromised but do not necessarily replace species as they become senescent. Instead, review their contribution to the visual quality of the Garden, the tree replacement strategy contained in any management plan, and/or their historic associations to enable a rational decision to be made; ● Enact a policy of seeking to propagate conifers that enhance the diversity of the Garden, and ensure the continuation of progeny from existing specimens; ● Conserve all commemorative trees and registered trees under the *Heritage Act* 1995;	● Implement an on-going tree replacement program to ensure a future single-age or mixed-age planting character, according to individual tree location and in accordance with the planting themes for the Garden (Victorian period – 1870s-1890s) and The Gong (Mid War Years (1920s-1940s); ● Enact a policy of seeking to propagate conifers that enhance the diversity and textural qualities of the Garden, and ensure the continuation of progeny from existing specimens; ● Conserve and monitor all commemorative trees and registered trees under the *Heritage Act* 1995, and replace with period species or Maples (*Acer* sp.) or Ash (*Fraxinus* sp.), or an unusual Victorian period (1870s-1890s) species where a specimen needs to be removed or is senescent; ● Period tree species selection should accord with the principles and schedules/guidelines stated in: - Jones, P 1982, *Planting c.1850-1900*. Canberra: ACNT. - Jones DS & P Payne 1998, *Gardens in South Australia 1840-1940*. Adelaide: Heritage SA. - Shum, WA (ed) 1939, *Australian Gardening To-Day Illustrated, Sun News-Pictorial*. Melbourne: Sun News-Pictorial. - Nursery catalogues from Ballarat plant nurseries in the 1920s-1940s.
● That shrubs should be minimised to areas where existing and where they provide a visual barrier to fence structures in the Garden and The Gong, and should accord with the Victorian period (1870s-1890s) and Mid War Years period (1920s-1940s) respectively; ● That all middle-storey vegetation and shrubs be removed from or delimited from continued growth in The Gong area; ● That existing and original hedging specimens should be conserved in the Garden; ● That perennial flower beds and plants should be limited in the Garden and The Gong;	● Limit the use and re-introduction of ornamental shrubs and plants to existing areas with the intention of creating strong edges and to provide visual barriers to supplement existing fencelines; ● Conserve and care for extant hedging and consider the re-establishment of hedging in the Garden where historical authentic; ● Rationalise shrubs or middle storey plantings in the Garden, especially along the bowling club fenceline, to accord with plantings applied in the Victorian period (1870s-1890s); ● Rationalise all shrubs and middle-storey plantings in The Gong towards their eventual removal/eradication; ● Delimit any flower beds or similar in the Garden and The Gong;	● Remove the garden and bed edging on the site of the former Curator's residence; ● Care for existing English Box (*Buxus sempervirens*) and English Hawthorn (*Crataegus monogyna*) hedges in the Garden, and consider their extension and re-establishment where appropriate with the original locations in the Victorian period (1870s-1890s) in the Garden; ● Re-design the bowling club boundary fenceline garden bed to host flowering plants used in the Victorian period (1870s-1890s); ● Remove all shrubs or middle-storey plants from The Gong; ● Phase out the existing rose beds in the Garden; ● Continue the use of purple-flowering Agapanthus (*Agapanthus orientalis*), Red-hot Pokers (*Kniphofia praecox*) and similar *Kniphofia* sp., in clusters or as accents, in the Garden;

6.2.3 Lawns

Policies	Guidelines	Implications
● That the main lawn of the Garden represents a formal area and focal point of the botanic garden and needs to maintained accordingly; ● That the main lawn of The Gong represents an informal area of the botanic garden and needs to be maintained accordingly;	● Seek to maintain the quality of grass cover and care applied for the existing main lawn in the Garden; ● Seek to continue an open native and exotic grassy expanse in The Gong;	● Monitor the health and condition of the main lawn in the Garden; ● Monitorand regularise the condition and operation of irrigation systems on the main lawn in the Garden; ● Continue a policy of mechanical slashing in The Gong area; ● Consider the introduction of native grass swards in parts of The Gong, and consider experimental use and cultivation of native grasses in The Gong;

6.2.4 Use of Water and Drainage

Policies	Guidelines	Implications
● That an acceptable quality and level of water supply regularly flush, cleanse, and sustain aquatic, plant and wildlife in the Garden and The Gong; ● That the impact of drainage over-flows be minimised in the Garden; ● That any historical drainage design feature be cons;erved	● Seek to resolve algal bloom problems in The Gong reservoir by creating a regular flushing system and removing excessive litter defoliating vegetation in The Gong's catchment to enable a reduction of leaf litter; ● Conserve the stone-lined flume, main pool and minor pool edges, stone-edged water channel in the Garden; ● Recognise that the 'half-moon pool' area will continue to present a water-logged drainage problem and that suitable landscape design treatment be undertaken to enhance its presence;	● Install trash racks in suitable locations in The Gong and Garden, and regular clean them; ● Create a flushing system for The Gong to ensure adequate water circulation; ● Reconstruct drains at the end of the flume to better cater for storm overloads and accumulated litter; ● Drain and cleanse the main pool regularly; ● Consider a planting strategy that enframes the 'half-moon pool' area, thereby spatially and historically identifing its presence in the Garden; ● Investigate and map the historical drainage and spring system in the Gardens;

6.2.5 Buildings and Structures

Policies	Guidelines	Implications
● That all Victorian period (1870s-1890s) structures, buildings, garden configurations and pathways, garden fixtures in the Garden be conserved; ● That all Mid War Years period (1920s-1930s) concrete in situ structures and garden fixtures, gates, in the Garden and The Gong be conserved; ● That where other period structures, garden fixtures, etc., exist consideration should be given to their removal or re-casting to enable a more sympathetic presence in the Garden; ● That where renovations to or alterations to or new structures are proposed, as contained in the Conservation Plan or Landcsape Masterplan, that they are undertaken in sympathy with the historic and landscape character of Garden and or The Gong respectively; ● That no additional buildings be erected in the Garden and The Gong, excepting renovation works to existing structures;	● Conserve all extant examples of building and structural work of the Victorian period (1870s-1890s) and the Mid War Years period (1920s-1940s) in the Garden; ● Conserve all extant examples of building and structural work of the Mid War Years period (1920s-1940s) in The Gong; ● Where building design, drainage/engineering works, landscape design interventions/works/structures are proposed, in accordance with the Conservation Plan or Landscape Masterplan, that they incorporate design features, finishes, colours, and forms sympathetic to and as historically applied in the Victorian period (1870s-1890s) and the Mid War Years period (1920s-1940s) in the Garden and The Gong respectively; ● Consideration be given to the upgrading of the Cornish Street embankment to enable safe use and passage by non-vehicular traffic and wildlife; ● Monitor the stability of the Cornish Street embankment reservoir wall; ● Provide new seating furniture where it approximates with extant furniture or the locations depicted in period photographs; ● Establish a furniture and landscape detail structures policyin the	● Reconstruct all bridges and culvert crossings using a suitable Victorian period (1870s-1890s) design form in the Garden, and a more picturesque version in The Gong; ● Rationalise the Cornish Street embankment so as to traffic calm, enable passive recreational use, an adaptation of its original gravel track qualities and atmosphere, and to reinstate any bridges, and to enable a safe wildlife habitat; ● Conserve the old bowling club pavilion and consider options to alternative uses; ● Conserve the old rockery in the bowling club leasehold; ● Conserve the concrete wading pool, baths walls, and concrete fence posts; ● Re-create/re-design the toilet blocks so as to soften their appearance; ● Create a ceremonial pathway connection between the Courthouse and the Baths, and install foot bridges where necessary; ● Re-design the light standard arrangements adjacent to the rotunda and pavilion; ● Identify spring sites with suitable Victorian period (1870s-1890s) structures to ensure safety and to enable interpretation; ● Re-design the picnic, Garden and The Gong furniture so as to be

	Landscape Masterplan that draws inspiration from the periods of the Garden and The Gong, including attention to local character iconography, use of period colours, use of period regional materials including cast iron and stone where appropriate; ● Conserve the courthouse building and seek to enhance its role as an interpretive centre;	complementary to the character style of the area, and to enable greater user opportunities; ● Re-position and re-design the barbeque; ● Conserve and restore the main gates; ● Conserve the Queen Victoria Rotunda, seeking options to reinstate the original colour scheme and signage script, replicate lathe screens when the situation arises, and seek the re-installaton of the original food preparation table; ● Conserve and adapt the pavilion to accommodate a more flexible range of recreational functions and needs; ● Conserve the courthouse building and seek to enhance its role as an interpretive centre; ● Remove the existing playground and playground equipment; ● Create an environmental art opportuntity on the site of the former Curator's residence;

6.2.6 Services

Policies	Guidelines	Implications
● That services, and infrastructure, be unobtrusive as possible throughout the Garden and The Gong; ● That services be upgraded in the Gardens to enable better community celebratory use of the Garden;	● Ensure that all infrastructure and service visual impacts are minimal; ● Ensure that any above ground infrastructure and services are designed so as to be sympathetic in character with the Victorian period (1870s-1890s) of the Garden and the Mid War Years period (1920s-1940s) of The Gong; ● Ensure adequate electrical supply connection points in and around the pavilion, in the baths, and at the Courthouse to enable use for celebratory activities;	● Map out and review the positions and alignments of existing (historical and new) irrigation, drainage, electricity (above/below ground) cables; ● Prevent the erection of any new over-head cabling in the Garden or The Gong, and reduce the application/erection of over-head cabling in road reserves adjoining the Garden and The Gong; ● Require infrastructure, including lighting, design accords with the Victorian period (1870s-1890s) of the Garden and the Mid War Years period (1920s-1940s) of The Gong; ● Install electricity outlets in the baths area, in the pavilion, and in the Courthouse, to enable usage;

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8 Chronology

1851-54	The Upper Gong Dam erected
1858	Buninyong Mine Wardens office erected
1859	Buninyong Municipal Council formed
1861	Land reserved as a botancial gardens reserve; "plan of the Botanic Gardens" reputedly prepared; water tank (baths) erected
1862	Plants sourced from Baron Ferdinand von Mueller; plants sought from Daniel Bunce
1863	Borough of Buninyong formed
1866	Plants sourcedfrom Baron Ferdinand von Mueller
1872	Conrad Fegbeital appointed Curator; water tank converted into baths
1876	Learmonth Street fire
1876-77	Upper Gong Dam enlarged
1879	Plants acquired from Francis Moss
1886	Tennis Club formed and established in the Gardens
1889	Robert Allan McPherson appointed Curator; Botanical Gardens Reserve gazetted; railway line established to Buninyong
1890	Yuille Street closed and added to the Gardens
1891	George Longley donates plants to the Gardens
1897	Lease of court house to
1898	Simon Livingstone Frazer appointed Curator
1901	Queen Victoria Rotunda erected
1903-04	Bowling Club extended; pavilion relocated to present position; coppers installed
1910	John Ogilvie elected a councillor
1911	Gates erected
1913	Fernery erected
1915	Shire of Buninyong formed
1915-20	Concrete seats, concrete posts installed
1924	John Ogilvie appointed Curator
1937	Railway service ceases
1939	Mary Jane Ogilvie appointed Curator
1940	Baths closed
1941	Mary Jane Ogilvie resigns from position as Curator
1946*c*.	War Memorial trees planted
1949	Play equipment installed
1961	New toilets erected
1962	Bowling Club land excised from the Gardens
1974	Shire Depot land excised from the Gardens and Yuille Street area re-allocated to the School
1995	City of Ballarat formed
1999	Buninyong Botanic Gardens and The Gong registered under the *Heritage Act* 1995.

9 War Memorial Information

	Number	Rank	Unit	Fate	State		Notes	
McKenzie, Harold (Paddy)								
Tyler, R								
Alley, P								
Hayes, J (Jack)								
Roget, R								
Gazzard, E								

Appendix I

Vegetation Inventory

Vegetation Inventory of Buninyong Botanic Gardens and The Gong Reservoir

This inventory and assessment has been compiled with the assistance of Tony Whitehill, John Hawker, Graeme Hopkins, and David Grant. January-February 2000.

Plant #	*Botanical Name*	Common Name	Significance + Heritage Victoria Registration	Need for Retention and Conser-vation	Existence of a Botanical / Cultural Identification Plaque associated with a Specimen	Artefact / Plaque Text where in Association with a Specimen	Field Notes (January-February 2000)	Maintenance Recommendations
Species in the Buninyong Botanic Gardens Area								
1	*Quercus palustris*	Pin Oak	4 A	3			1978 street planting; specimen damage by possums	Monitor possum damage and replace specimen where damage is excess
2	*Cedrus libani*	Cedar of Lebanon	4 A	3			1978 street planting; sourced from the City of Melbourne	Clear leaders out to 1.5 m above natural ground surface
3	*Quercus palustris*	Pin Oak	4 A	3			1978 street planting; specimen damage by possums	Monitor possum damage and replace specimen where damage is excess
4	*Cedrus libani*	Cedar of Lebanon	4 A	3			1978 street planting; sourced from the City of Melbourne	Clear leaders out to 1.5 m above natural ground surface
5	*Cedrus libani*	Cedar of Lebanon	4 A	3			1978 street planting; sourced from the City of Melbourne	Clear leaders out to 1.5 m above natural ground surface
6	*Quercus palustris*	Pin Oak	4 A	3			1978 street planting; specimen damage by possums	Monitor possum damage and replace specimen where damage is excess
7	*Quercus palustris*	Pin Oak	4 A	3			1978 street planting; specimen damage by possums	Monitor possum damage and replace specimen where damage is excess
8	*Quercus robur*	English Oak	2 A	2	Botanical Plaque			
9	*Cedrus deodara*	Deodar Cedar	2	1	Botanical Plaque			
10	*Grevillea robusta*	Silky Oak	1 H Registered under the *Heritage Act 1995* as Item Number 1826, 3 June 1999, as T5 on Diagram 600774	2	Botanical Plaque War Memorial Plaque	Sgt. R.G. Tyler + 18.2.43, R.A.A.F.	Split trunk that may result in early senescence; showing signs of struggling with situation and may have to be replaced soon	Monitor health condition and consider replacement with either a *Grevillea robusta*, or an *Acer* sp. or *Fraxinus* sp.
11	*Fraxinus excelsior* 'Aurea'	Golden Ash	1 H S Registered under the *Heritage Act 1995* as Item Number 1826, 3 June 1999, as T8 on Diagram 600774	2	Botanical Plaque War Memorial Plaque	P/O J.J. Hayes + 27.5.44, R.A.A.F.		

12	*Acer campestre*	English Maple, Field Maple, Hedge Maple	1 H S Registered under the *Heritage Act 1995* as Item Number 1826, 3 June 1999, as T7 on Diagram 600774	1	Botanical Plaque War Memorial Plaque	CP H.D. McKenzie + 19.7.41 A.I.F.		
13	*Fraxinus excelsior* 'Aurea'	Golden Ash	1 H S Registered under the *Heritage Act 1995* as Item Number 1826, 3 June 1999, as T6 on Diagram 600774	1		Unmarked War Memorial	Young specimen	
14	*Fraxinus angustifolia* ssp. *angustifolia*	Narrow-leaf Ash	1 H S Registered under the *Heritage Act 1995* as Item Number 1826, 3 June 1999, as T9 on Diagram 600774	1	Botanical Plaque War Memorial Plaque	L. Sgt. J. Alley + 6.2.42, A.I.F.		
15	*Populus tremula*	European Aspen	1 H S Registered under the *Heritage Act 1995* as Item Number 1826, 3 June 1999, as T10 on Diagram 600774	1	Botanical Plaque	Unmarked War Memorial		
16	*Ulmus* x *hollandica*	Dutch Elm	3 H	3			Medium sized specimen	
17	*Crataegus monogyna*	English Hawthorn hedge	1 H A	1			Some 27 Hawthorns in a hedge form	
18	*Araucaria bidwillii*	Bunya Bunya	2 H A	2		Tree planted by Jean Robertson and Annie Lippiatt, members of the Ogilvie, 1986	Plaque for the specimen held by the City of Ballarat after it was removed by vandals	Tree planted but not mulched properly
19	*Thuja plicata*	Western Red Cedar	4 A	3			1978 street planting; sourced from the City of Melbourne	
20	*Rosa sp.*	Roses - bedding	4	4				
21	*Cupressus sempervirens* 'Stricta'	Italian Cypress	2 H A	2			Possum habitat	Monitor health
22	*Fraxinus oxycarpa*	Desert Ash	4 H	4	Botanical Plaque		Unhealthy specimen	Propose specimen removal in 5-10 years; consider replacement with a *Pistachia chinensis* (Chinese Pistachio)
23	*Quercus x hollandica*	Dutch Elm	3 H	3	Botanical Plaque			
24	*Cupressus sempervirens* 'Stricta'	Italian Cypress	2 H A	2	Botanical Plaque		Possum habitat	Monitor health
25	*Prunus lusitanica*	Portugal Laurel	2 H S	3	Botanical Plaque			
26	*Sequoiadendron giganteum*	Big Tree, Sequoia	2 A	2	Botanical Plaque			
27	*Prunus lusitanica*	Portugal Laurel	2 H S	3				
28	*Agapanthus orientalis purple*	Agapanthus - several clustered	4	4				
29	*Pseudotsuga menziesii*	Douglas Fir, Oregon	2 H S	2	Botanical Plaque			

30	*Garrya elliptica*	Tassel Bush, Catkin Bush	3 H	3	Botanical Plaque		
31	*Quercus robur*	English Oak	2 A	2	Botanical Plaque		
32	*Crataegus monogyna*	English Hawthorn hedge	3 A	2			
33	*Pinus pinaster*	Maritime Pine	2 A S	2	Botanical Plaque	Extensive arboricultural work undertaken on this specimen in 1984-85 by Trevor Lawrence; only specimen in the Gardens; several specimens around Lake Wendouree	Good arboricultural specimen
34	*Ulmus procera*	English Oak	3 H	3	Botanical Plaque	Specimen is suckering; consider specimen removal and suckering eradication	Remove specimen and undertake sucker eradication
35	*Sequoiadendron giganteum*	Big Tree, Sequoia	2 A	2			
36	*Euonymus japonicus*	Evergreen Spindle Tree	3 H	3	Botanical Plaque	Botanical incorrect information on plaque	
37	*Quercus robur*	English Oak	3 H	3			
38	*Cupressus sempervirens* 'Stricta'	Italian Poplar	4	4		1980s plantings	
39	*Rhododendron sp., Ribes sanguineum, Crataegus, sp., Fraxinus sp., Photinia sp., Hedera helix, Viburnum tinus, Camellia sp., Vinca major*	Rhododendron sp., Pink-flowering Currant, Hawthorn sp., Ash sp., Photinia sp., English Ivy, Laurustinus, Camellia sp., Periwinkle	4	4		1985 plantings along boundary, mostly donated from the City of Melbourne	
40	*Abies pinsapo*	Spanish Fir, Crucifix Tree	1 H A S Registered under the *Heritage Act 1995* as Item Number 1826, 3 June 1999, as T1 on Diagram 600774; Registered on the National Trust (Victoria) Register of Significant Trees, 8 May 1986	1	Botanical Plaque		
41	*Prunus lusitanica*	Portugal Laurel	2 H A	2	Botanical Plaque		
42	*Buxus sempervirens*	English Box hedge	1 H A	1			
43	*Buxus sempervirens*	English Box hedge	1 H A	1			
44	*Sequoiadendron giganteum*	Big Tree, Sequoia	2 H A	2	Botanical Plaque		
45	*Buxus sempervirens*	English Box hedge	1 H A	1			
46	*Pseudotsuga menziesii*	Douglas Fir, Oregon	2 H A	2	Botanical Plaque	Not in a healthy condition; top showing evidence of die-back	Specimen is dying and should be considered for removal
47	*Olearia paniculata*	Golden Ake-ake	2 S	1		Medium sized specimen; unusual specimen; a few around Lake Wendouree; relatively healthy specimen	Monitor specimen and propagate for replanting elsewhere in the Gardens
48	*Cedrus deodara*	Deodar Cedar	2 A	2	Botanical Plaque		
49	*Cupressus sempervirens* 'Stricta'	Italian Cypress	4	4		1980s plantings	
50	*Sequoiadendron giganteum*	Big Tree, Sequoia	2 A	2			
51	*Prunus lusitanica*	Portugal Laurel	3 A	3		Medium sized specimen	

52	*Prunus serrulata*	Japanese Flowering Cherry	4	4		Domestic garden species; consider removal	Remove specimen and replace with a Victorian era species as per the Landscape Design plan
53	*Ceratonia siliqua*	Carob	2 S	1		Medium sized specimen; centres dead but still in a healthy condition; a long lived species; very uncommon in Ballarat region and not in Ballarat Botanic Gardens	Monitor specimen
54	*Picea smithiana*	West Himalayan Spruce	2 S	2	Botanical Plaque		
55	*Trachycarpus fortunei*	Chusan Palm	2 H	2	Botanical Plaque		
56	*Prunus cerasifera* 'Nigra'	Purple Cherry-plum	4	4		Domestic garden species; consider removal	Remove specimen and replace with a Victorian era species as per the Landscape Design plan
57	*Prunus cerasifera* 'Nigra'	Purple Cherry-plum	4	4		Domestic garden species; consider removal	Remove specimen and replace with a Victorian era species as per the Landscape Design plan
58	*Photinia glabra* 'Rubens'	Red-leaf Photinia	4	4		Domestic garden species; consider removal	Remove specimen and replace with a Victorian era species as per the Landscape Design plan
59	*Photinia glabra* 'Rubens'	Red-leaf Photinia	4	4		Domestic garden species; consider removal	Remove specimen and replace with a Victorian era species as per the Landscape Design plan
60	*Prunus* 'Pollardii'	Pollard Almond	2 S	2		Most likely sourced from Creswick Nursery where the cultivar was first identified	
61	*Phormium tenax*	New Zealand Flax	4 A	3			
62	*Rosa sp.*	Roses - several	4	4			
63	*Sequoiadendron giganteum*	Big Tree, Sequoia	4 H	3		Young specimen; can be relocated at this age	Consider relocation if it accords with landscape design policies
64	*Tilia cordata*	Small-leaf Linden	3 A S	2		Healthy specimen	Specimen doing well at Buninyong; monitor
65	*Alnus jorullensis*	Evergreen Alder	4 A	3	Botanical Plaque		
66	*Alnus jorullensis*	Evergreen Alder	4 A	3	Botanical Plaque		
67	*Alnus jorullensis*	Evergreen Alder	4 A	3	Botanical Plaque		
68	*Alnus jorullensis*	Evergreen Alder	4 A	3	Botanical Plaque		
69	*Fraxinus ornus*	Flowering Ash, Manna Ash	1 S	1	Botanical Plaque	Unusual and uncommon specimen in Ballarat; Unusually large or big specimen (mostly ½ the size in Melbourne of Adelaide; Ivy growing on trunk	Monitor specimen; remove ivy; take arboricultural works as necessary
70	*Betula pendula*	Silver Birch	4	4		Domestic garden species; consider removal	Remove specimen and replace with a Victorian era species as per the Landscape Design plan; consider *Paulownia tomentosa* (Royal Paulownia)
71	*Betula pendula*	Silver Birch	4	4		Domestic garden species; consider removal	Remove specimen and replace with a Victorian era species as per the Landscape Design plan; consider *Paulownia tomentosa* (Royal Paulownia)
72	*Betula pendula*	Silver Birch	4	4		Domestic garden species; consider removal	Remove specimen and replace with a Victorian era species as per the Landscape Design plan; consider *Paulownia tomentosa* (Royal Paulownia)

73	*Betula pendula*	Silver Birch	4	4		Domestic garden species; consider removal	Remove specimen and replace with a Victorian era species as per the Landscape Design plan; consider *Paulownia tomentosa* (Royal Paulownia)
74	*Catalpa bignoniodes*	Indian Bean Tree	2 H A S	2		Young specimen, planted in 1985 by Michael Searby, Deputy Chair of Victoria's 150th Commity	
75	*Prunus serrulata*	Flowering Cherry	4	4		Domestic garden species; consider removal	Remove specimen and replace with a Victorian era species as per the Landscape Design plan; consider *Paulownia tomentosa* (Royal Paulownia)
76	*Pinus radiata*	Radiata Pine	2 H A	2	Botanical Plaque		
77	*Cedrus atlantica*	Atlas Cedar	2 H A	2	Botanical Plaque		
78	*Ginkgo biloba*	Maidenhair Tree	4	3		Young specimen sourced from the City of Melbourne in 1985; not a common species in Ballarat region	Retain and monitor health
79	*Ulmus glabra* 'Pendula' [syn. *Ulmus glabra* 'Horizontalis']	Weeping Scotch Elm	2 A	2	Botanical Plaque; carries incorrect scientific nomenclature		
80	*Kniphofia praecox*	Red-hot Poker	4	3		Apparently this species was grown in the original flower bedding garden sited in this location	
81	*Tilia* x *europaea*	Common Lime, Common Linden	2 S	2	Botanical Plaque	Healthy and uncommon specimen	Specimen doing well at Buninyong; monitor and undertake arboricultural work as necessary
82	*Quercus robur*	English Oak	3 H	3	Botanical Plaque		
83	*Laurus nobilis*	Sweet Bay Tree, Grecian Laurel thicket	3 H	3		Uncommon specimen; Sucker thicket	Monitor
84	*Crataegus monogyna*	English Hawthorn hedge	2 H A	2	Botanical Plaque x 2	12 specimens	
85	*Ulmus robur*	English Oak	3 H	3			
86	*Cedrus atlantica f. glauca*	Blue Atlas Cedar	2 H A	2	Botanical Plaque	Fine specimen; Suffered considerable storm damage in recent years; Dead branches in the top of the specimen	Early signs of senescence appearing due to storm damage; consider removal and replacement with same
87	*Rosa, sp., Rosmarinus officinalis, Hedera helix, Iris sp., Lavandula sp., Ulmus sp., Spiraea sp., Pelargonium sp., Nandina domestica*	Roses, Rosemary, English Ivy, Irises, Lavendar, Oak suckers, Spiraea, Geraniums, Nandina	4	4		Domestic garden species created in the 1970s; consider removal	Remove specimen and replace with a Victorian era species as per the Landscape Design plan
88	*Quercus canariensis*	Algerian Oak	3 H	3	Botanical Plaque		
89	*Quercus canariensis*	Algerian Oak	3 H	3	Botanical Plaque		
90	*Quercus canariensis*	Algerian Oak	3 H	3	Botanical Plaque		
91	*Nerium oleander*	Oleander	4	4		Probably a garden escapee	

92	*Ulmus glabra* 'Pendula' [syn. *Ulmus glabra* 'Horizontalis']	Weeping Scotch Elm	3 H	3			
93	*Ulmus glabra* 'Pendula' [syn. *Ulmus glabra* 'Horizontalis']	Weeping Scotch Elm	3 H	3			
94	*Quercus canariensis*	Algerian Oak	3 H	3	Botanical Plaque	Extensive historical pruning evidence	
95	*Quercus canariensis*	Algerian Oak	3 H	3	Botanical Plaque		
96	*Pinus sp.*	Pine sp.	3 H	3			
97	*Quercus borealis* [syn. *Quercus rubra*]	Red Oak	4	4		Extensive possum damage; remove specimen; slightly uphill from this site a over-mature *Abies nordmanniana* (Caucasian Fir) was removed in c.1985	Remove specimen and consider replacement with an *Abies nordmanniana* (Caucasian Fir)
98	*Pseudotsuga menziesii*	Douglas Fir, Oregon	3 H	3	Botanical Plaque		
99	*Quercus canariensis*	Algerian Oak	3 H	3	Botanical Plaque		
100	*Quercus canariensis*	Algerian Oak	3 H	3		On Primary School property	
101	*Quercus canariensis*	Algerian Oak	3 H	3		On Primary School property	
102	*Quercus canariensis*	Algerian Oak	3 H	3		On Primary School property	
103	*Cedrus atlantica*	Atlas Cedar	3 H A	3		On Primary School property	
104	*Quercus canariensis*	Algerian Oak	3 H	3		On Primary School property	
105	*Quercus canariensis*	Algerian Oak	3 H	3		On Primary School property	
106	*Cedrus atlantica*	Atlas Cedar	3 H A	3		On Primary School property	
107	*Quercus canariensis*	Algerian Oak	3 H	3		On Primary School property	
108	*Cedrus atlantica*	Atlas Cedar	3 H A	3		On Primary School property	
109	*Quercus canariensis*	Algerian Oak	3 H	3		On Primary School property	
110	*Quercus canariensis*	Algerian Oak	3 H	3			
111	*Quercus canariensis*	Algerian Oak	3 H A	3		Poor condition; ivy growing on specimen	Ivy should be removed
112	*Cedrus deodar*	Deodar Cedar	3 H A	3	Botanical Plaque	Ivy growing on the specimen; bell-shaped, or double-leader, specimen	Bell-shaped, is a poor and specimen should be considered for removal; Ivy should be removed
113	*Tilia cordata*	Small-leaf Linden	2 A S	2		Healthy specimen; Ivy growing on specimen	Specimen doing well at Buninyong; monitor; Ivy should be removed
114	*Acacia melanoxylon*	Blackwood	4	4			
115	*Sequoiadendron giganteum*	Big Tree, Sequoia	3 H	3	Botanical Plaque		
116	*Quercus robur*	English Oak	3 H	3		Small 1980s specimen	
117	*Platanus orientalis*	Oriental Plane	4	4		Poorly 1980s specimen	
118	*Sequoia sempervirens*	Redwood	3 A	3		1978 street tree planting sourced from the City of Melbourne	
119	*Fraxinus excelsior* 'Aurea'	Golden Ash	3 A	3			
120	*Sequoia sempervirens*	Redwood	3 A	3		1978 street planting; sourced from the City of Melbourne	
121	*Sequoia sempervirens*	Redwood	3 A	3		1978 street planting; sourced from the City of Melbourne	
122	*Sequoia sempervirens*	Redwood	3 A	3		1978 street planting; sourced from the City of Melbourne	
123	*Quercus* x *hollandica*	Dutch Elm	3 H	3			
124	*Cupressus sempervirens* 'Stricta'	Italian Cypress	3 H A	2	Botanical Plaque		
125	*Pittosporum eugenioides* 'Variegatum'	Variegated Pittosporum	4 A	4		1980s plantings; unusual domestic garden planting to replace original *Pinus radiata* (Radiata Pine); consider removal	Remove 0-5 years

126	*Pittosporum eugenioides* 'Variegatum'	Variegated Pittosporum	4 A	4			1980s plantings; unusual domestic garden planting to replace original *Pinus radiata* (Radiata Pine); consider removal	Remove 0-5 years
127	*Pittosporum eugenioides* 'Variegatum'	Variegated Pittosporum	4 A	4			1980s plantings; unusual domestic garden planting to replace original *Pinus radiata* (Radiata Pine); consider removal	Remove 0-5 years
128	*Pittosporum eugenioides* 'Variegatum'	Variegated Pittosporum	4 A	4			1980s plantings; unusual domestic garden planting to replace original *Pinus radiata* (Radiata Pine); consider removal	Remove 0-5 years
129	*Sequioadendron giganteum*	Big Tree, Sequoia	4 H	3	Plaque	This tree was planted by Dawn Whyes & Beth Ritchie (Founders) To hononour the work of the Buninyong Gardens Restoration Committee The 3rd Day of November, 1985 And commemorate The 150th Anniversary Of the state of Victoria	Young specimen; can be relocated at this age	Consider relocation if it accords with landscape design policies
130	*Pittosporum eugenioides* 'Variegatum'	Variegated Pittosporum	4 A	4			1980s plantings; unusual domestic garden planting to replace original *Pinus radiata* (Radiata Pine); consider removal	Remove 0-5 years
131	*Pittosporum eugenioides* 'Variegatum'	Variegated Pittosporum	4 A	4			1980s plantings; unusual domestic garden planting to replace original *Pinus radiata* (Radiata Pine); consider removal	Remove 0-5 years
132	*Pittosporum eugenioides* 'Variegatum'	Variegated Pittosporum	4 A	4			1980s plantings; unusual domestic garden planting to replace original *Pinus radiata* (Radiata Pine); consider removal	Remove 0-5 years
133	*Angophora costata*	Smooth-bark Apple-myrtle	4 S	3			1980s plantings; unusual planting and will result in a feature specimen	Monitor and care for
134	*Pittosporum eugenioides* 'Variegatum'	Variegated Pittosporum	4 A	4			1980s plantings; unusual domestic garden planting to replace original *Pinus radiata* (Radiata Pine); consider removal	Remove 0-5 years
135	*Pittosporum eugenioides* 'Variegatum'	Variegated Pittosporum	4 A	4			1980s plantings; unusual domestic garden planting to replace original *Pinus radiata* (Radiata Pine); consider removal	Remove 0-5 years
136	*Populus nigra* 'Italica'	Italian Poplar	3 A	3	Botanical Plaque		Unhealthy small specimen; consider removal	Remove 0-5 years
137	*Populus nigra* 'Italica'	Italian Poplar	3 A	3	Botanical Plaque		Split, unhealthy medium specimen; consider removal	Remove 0-5 years
138	*Pittosporum eugenioides* 'Variegatum'	Variegated Pittosporum	4 A	4			1980s plantings; unusual domestic garden planting to replace original *Pinus radiata* (Radiata Pine); consider removal	Remove 0-5 years
139	*Populus nigra* 'Italica'	Italian Poplar	3 A	3	Botanical Plaque			
140	*Pinus ponderosa*	Yellow Western Pine	2 H A S	2	Botanical Plaque			
141	*Quercus robur*	English Oak	3 A	2				

142	*Pinus ponderosa*	Yellow Western Pine	2 H A S	2	Botanical Plaque			
143	*Pinus radiata*	Radiata Pine	3 A	2	Botanical Plaque		Large specimen that still has 10-20 years lifespan; remains a visually significant specimen	Monitor specimen and consider for removal in 15-20 years
144	*Cupressus sempervirens* 'Stricta'	Italian Cypress	2 H A	3	Botanical Plaque			
145	*Quercus x hollandica*	Dutch Elm	2 H S	2	Botanical Plaque			
146	*Sequioadendron giganteum*	Big Tree, Sequoia	2 H A	2	Botanical Plaque		Top fell off in recent storms	Monitor health given the storm removal of its top branches
147	*Sequioadendron giganteum*	Big Tree, Sequoia	4 H	3	Commem-orative Plaque	In memory of George Innes Pioneer of Buninyong 1841 - 1894	Young specimen; can be relocated at this age	Consider relocation if it accords with landscape design policies
148	*Cedrus atlantica*	Atlas Cedar	3 H A	2	Botanical Plaque			
149	*Ulmus glabra* 'Pendula' [syn. *Ulmus glabra* 'Horizontalis']	Weeping Scotch Elm	3 H	3	Botanical Plaque; carries incorrect scientific nomenclature			
150	*Quercus canariensis*	Algerian Oak	3 H	3	Botanical Plaque			
151	*Cordyline australis*	Cordyline, Cabbage Palm Tree	3 H A	3	Botanical Plaque		Remove suckers and monitor health	Relocate specimen onto the SE edge of the island to give better rhythm and symmetry to the island; remove suckering of existing specimen
152	*Quercus canariensis*	Algerian Oak	3 H	3	Botanical Plaque			
153	*Quercus canariensis*	Algerian Oak	3 H	3	Botanical Plaque			
154	*Ulmus glabra* 'Pendula' [syn. *Ulmus glabra* 'Horizontalis']	Weeping Scotch Elm	3 H	3	Botanical Plaque; carries incorrect scientific nomenclature			
155	*Populus alba*	Silver-leaved Poplar, White Poplar	4 H	3	Plaque			
156	*Populus alba*	Silver-leaved Poplar, White Poplar	4 H	3				
157	*Populus alba*	Silver-leaved Poplar, White Poplar	4 H	3	Botanical Plaque			
158	*Agapanthus orientalis, Zantedeschia aethiopica*	Agapanthus, White Arum Lily	3 H	3				
159	*Quercus robur*	English Elm	3 H	3			Poorly specimen; damage on top branches due to storm damage	Remove 10-15 years
160	*Quercus robur*	English Elm	3 H	3	Botanical Plaque		Poorly specimen	Remove 10-15 years
161	*Quercus x hollandica*	Dutch Elm	3 H S	2	Botanical Plaque			

162	*Populus alba*	Silver-leaved Poplar, White Poplar	4 H	3			Unhealthy, unsafe specimen with a dead-hollow centre, and with ivy growth	Remove 0-5 years
163	*Populus nigra* 'Italica'	Italian Poplar	4 H	3			Unhealthy waterlogged specimen	Remove 0-5 years
164	*Populus nigra* 'Italica'	Italian Poplar	4 H	3			Unhealthy waterlogged specimen	Remove 0-5 years
165	*Populus nigra* 'Italica'	Italian Poplar	4 H	3			Unhealthy waterlogged specimen	Remove 0-5 years
166	*Prunus laurocerasus*	English Laurel	3 H	2			Species associated with the Ogilvie family	
167	*Eucalyptus radiata*	Narrow-leaved Peppermint	4	4			Poorly specimen	
168	*Eucalyptus radiata*	Narrow-leaved Peppermint	4	4			Poorly specimen	
169	*Sequoia sempervirens*	Italian Cypress	4	4	Commem-orative Plaque	Buninyong District Guides Celebrate 30 Years 1967 [logo] 1997 Sequoia sempervirens planted 1st Dece 1997 By Mrs Joan Grace 1st Brown Owl	Poorly specimen that is root water-logged	
170	*Prunus laurocerasus*	English Laurel	3 H	2			Species associated with the Ogilvie family	
171	*Rubus sp., Agapanthus orientalis, Helichrysum sp., Acacia pravissima, Buddleia davidii, Hakea laurina, Prunus x blireiana, Acacia ilicifolia, Banksia sp., Melaleuca decussata, M. lanceolata, Populus alba suckers*	Blackberry, Agapanthus (white + purple), Everlasting sp., Ovens Wattle, Butterfly Bush, Pincushion Hakea, Double-rose Cherry-plum, Flinders Ranges Wattle, Banksia sp., Totem-poles, Moonah, White Poplar suckers	4	4			Embankment plantings mainly from the 1960s-1970s; unsympathetic plantings to the historical nature and character of the Gardens	Remove all Australian native species, *Populus alba* (Silver-leaved Poplar) suckers, and flowering ground covers; develop a planting design that adopts Victorian era middle storey and select decorative upper storey species that can withstand water logging and with non-invasive root systems
172	*Populus alba*	White Poplar, Silver-leaved Poplar	4 H	3			Multi-stemmed specimen with three wounds with hollow centres within the wounds; Bees nest in hollow	Remove specimen 0-5 years; Remove bees nest
173	*Populus alba*	White Poplar, Silver-leaved Poplar	4 H	3				
174	*Populus alba*	White Poplar, Silver-leaved Poplar	4 H	3				
175	*Populus alba*	White Poplar, Silver-leaved Poplar	4 H	3	Botanical Plaque			
176	*Populus alba*	White Poplar, Silver-leaved Poplar	4 H	3				
177	*Populus alba*	White Poplar, Silver-leaved Poplar	4 H	3	Botanical Plaque			
178	*Populus alba*	White Poplar, Silver-leaved Poplar	4 H	3				
179	*Populus alba*	White Poplar, Silver-leaved Poplar	4 H	3				

180	*Populus alba*	White Poplar, Silver-leaved Poplar	4 H	3	Botanical Plaque	Multi-stemmed specimen starting to overly leans and twists over the baths walls; root system starting to raise the baths walls; consider removal	Remove 0-5 years and re-instate baths walls
181	*Thuja plicata*	Western Red Cedar	4 A	3		Small specimen	
182	*Thuja plicata*	Western Red Cedar	4 A	3		Small specimen	
183	*Thuja plicata*	Western Red Cedar	4 A	3		Small specimen	
184	*Thuja plicata*	Western Red Cedar	4 A	3		Small specimen	
185	*Thuja plicata*	Western Red Cedar	4 A	3		Small specimen	
186	*Thuja plicata*	Western Red Cedar	4 A	3		Small specimen	
187	*Thuja plicata*	Western Red Cedar	4 A	3		Small specimen	
188	*Thuja plicata*	Western Red Cedar	4 A	3		Small specimen	
189	*Thuja plicata*	Western Red Cedar	4 A	3		Hedge	
190	*Ulmus glabra* 'Camperdownii' [syn. *Ulmus* 'Camperdownii']	Camperdown Elm	3 A S	2		Healthy specimen	
191	*Ulmus glabra* 'Camperdownii' [syn. *Ulmus* 'Camperdownii']	Camperdown Elm	3 A S	2		Healthy specimen	
192	*Phormium tenax* 'Variegatum'	Variegated New Zealand Flax	3 H	3			
193	*Phormium tenax* 'Variegatum'	Variegated New Zealand Flax	3 H	3			
194	*Dicksonia antarctica*	Soft-tree Fern - various specimens	3 H	3			
195	*Populus alba*	White Poplar, Silver-leaved Poplar	4 H	3	Botanical Plaque	Multi-trunked specimen in need of either removal or bolt-work; monitor condition; southern stem has an increasing lean	Monitor condition and consider options of removal or bolting in 0-5 years
196	*Quercus canariensis*	Algerian Oak	3 A	2	Botanical Plaque		
197	*Tilia* x *europaea*	Common Lime, Common Linden	3 A S	2	Botanical Plaque	Incorrectly scientifically identified; Healthy specimen	Specimen doing well at Buninyong; monitor
198	*Cordyline australis*	Cordyline, New Zealand Cabbage Tree	2 A	2			
199	*Cordyline australis*	Cordyline, New Zealand Cabbage Tree	2 A	2			
200	*Cordyline australis*	Cordyline, New Zealand Cabbage Tree	2 A	2			
201	*Cordyline australis*	Cordyline, New Zealand Cabbage Tree	2 A	2			
202	*Cordyline australis*	Cordyline, New Zealand Cabbage Tree	2 A	2			
203	*Phormium tenax* 'Variegatum'	Variegated New Zealand Flax	2 A	2			
204	*Cordyline australis, Hibiscus, Dicksonia antarctica, Phormium tenax* 'Variegatum', *Vinca major, Zantedeschia aethiopica, Hedera helix, Agapanthus orientalis*	Cordyline or New Zealand Cabbage Tree, Hibiscus sp., Soft-tree Fern, Variegated New Zealand Flax, Periwinkle, Arum Lily, English Ivy, Agapanthus (purple)	2 H A	2		Island plantings	
205	*Ulmus procera* 'Variegata'	Silver Elm	4	3		1980s street plantings	

206	*Ulmus procera* 'Variegata'	Silver Elm	4	3			1980s street plantings	
207	*Crataegus sp.*	Hawthorn hedge remnants	1 H	2			7 Hawthorn specimens	
208	*Vinca major, Ulmus sp.*	Periwinkle, Elm suckers	4	4			Specimens as under-planting	
209	*Viburnum tinus*	Laurustinus	4	3				
210	*Prunus serrulata*	Flowering Cherry	4 A	4			Domestic garden species; consider removal	Remove specimen and replace with a Victorian era species as per the Landscape Design plan; consider *Paulownia tomentosa* (Royal Paulownia)
211	*Prunus serrulata*	Flowering Cherry	4 A	4			Domestic garden species; consider removal	Remove specimen and replace with a Victorian era species as per the Landscape Design plan; consider *Paulownia tomentosa* (Royal Paulownia)
212	*Thuja plicata*	Western Red Cedar	4 A	3			1978 street planting; sourced from the City of Melbourne	
213	*Quercus palustris*	Pin Oak	4 A	3			1978 street planting; specimen damage by possums	Monitor possum damage and replace specimen where damage is excess
214	*Noltea africana*		3 H	3			Suckers extant; noxious weed; has survived repeated attempts to be eradicated	Monitor suckers and take action to control further suckering
215	*Fraxinus ornus*	Flowering Ash	3 S	3			Poor unhealthy specimen; consider removal	Remove 0-5 years

Plant #	*Botanical Name*	Common Name	Significance + Heritage Victoria Registration	Need for Retention and Conser-vation	Existence of a Botanical / Cultural Identification Plaque associated with a Specimen	Artefact / Plaque Text where in Association with a Specimen	Field Notes (January-February 2000)	Maintenance Recommendations
Species in the Gong Reservoir Area								
250								
251	*Quercus palustris*	Pin Oak	4 A	3			1978 street planting;	Monitor possum damage and replace specimen where damage is excessive
252	*Thuja plicata*	Western Red Cedar	4 A	3			1978 street planting; sourced from the City of Melbourne	
253	*Thuja plicata*	Western Red Cedar	4 A	3			1978 street planting; sourced from the City of Melbourne	
254	*Quercus palustris*	Pin Oak	4 A	3			1978 street planting;	
256	*Thuja plicata*	Western Red Cedar	4 A	3			1978 street planting; sourced from the City of Melbourne	
257	*Thuja plicata*	Western Red Cedar	4 A	3			1978 street planting; sourced from the City of Melbourne	
258	*Quercus palustris*	Pin Oak	4 A	3			1978 street planting;	
259	*Thuja plicata*	Western Red Cedar	4 A	3			1978 street planting; sourced from the City of Melbourne	

260	*Thuja plicata*	Western Red Cedar	4 A	3	1978 street planting; sourced from the City of Melbourne	
261	*Quercus palustris*	Pin Oak	4 A	3	1978 street planting;	
262	*Thuja plicata*	Western Red Cedar	4 A	3	1978 street planting; sourced from the City of Melbourne	
263	*Pinus radiata*	Radiata Pine	3 A	3	In relatively good condition at present but aging; consider long term replacement with *Pinus canariensis* (Canary Island Pines)	Monitor tree; consider removal 20-25 years; consider forward planting of *Pinus canariensis* (Canary Island Pines)
264	*Eucalyptus globulus ssp. globulus*	Tasmanian Blue Gum	3 A	3	Relatively elderly specimen with centre rotted out; excellent example of buttressing; remove at the same time as any adjacent *Pinus radiata* (Radiata Pine) removal works	Monitor tree; consider removal 20-25 years; consider forward planting of *Pinus canariensis* (Canary Island Pines)
265	*Pinus radiata*	Radiata Pine	3 A	3	In relatively good condition at present but aging; consider long term replacement with *Pinus canariensis* (Canary Island Pines)	Monitor tree; consider removal 20-25 years; consider forward planting of *Pinus canariensis* (Canary Island Pines)
266	*Pinus radiata*	Radiata Pine	3 A	3	In relatively good condition at present but aging; consider long term replacement with *Pinus canariensis* (Canary Island Pines)	Monitor tree; consider removal 20-25 years; consider forward planting of *Pinus canariensis* (Canary Island Pines)
267	*Pinus radiata*	Radiata Pine	3 A	3	In relatively good condition at present but aging; consider long term replacement with *Pinus canariensis* (Canary Island Pines)	Monitor tree; consider removal 20-25 years; consider forward planting of *Pinus canariensis* (Canary Island Pines)
268	*Pinus radiata*	Radiata Pine	3 A S	3	In relatively good condition at present but aging; consider long term replacement with *Pinus canariensis* (Canary Island Pines); specimen with evidence of a lightning wound and scar	Monitor scar and wound; monitor tree; consider removal 20-25 years; consider forward planting of *Pinus canariensis* (Canary Island Pines)
269	*Cupressus sempervirens* 'Stricta'	Italian Cypress	4 A	3	In good condition but possessing an unusual horizontal-like form	Monitor
270	*Cupressus macrocarpa*	Monterey Cypress	3 A	3		
271	*Cupressus macrocarpa*	Monterey Cypress	3 A	3		
272	*Acer opalus* ssp. *obtusalum* (Wadst & Kit ex Willd) Gams	Italian Maple	1 A S Registered under the *Heritage Act 1995* as Item Number 1826, 3 June 1999, as T2 on Diagram 600774; Registered on the National Trust (Victoria) Register of Significant Trees, 12 December 1985	1		
273	*Cupressus macrocarpa*	Monterey Cypress	3 A	3		
274	*Acer capillipes*	Snake-bark Maple	1 S	1	Flora of Victoria Project (150th Anniv., # 960061)	
275	*Cupressus macrocarpa*	Monterey Cypress	3 A	3	Very large, dense, multi-stemmed specimen with a child's cubby house within; requires minimal trimming	Monitor, undertake minimal trimming as necessary
276	*Acer pubinerve*		1 S	1	Flora of Victoria Project (150th Anniv., # 960053)	

277	*Eucalyptus globulus* ssp. *globulus*	Tasmanian Blue Gum	3 A	3	Relatively elderly specimen with evidence of old wounds; dead branches could be cleaned out and a minor amount of arboricultural work could be considered	Monitor; clean out dead branches; consider minor arboricultural works
278	*Pinus radiata*	Radiata Pine	3 A	3		
279	*Acer campbellii* var. *sinese*		1 S	1	Flora of Victoria Project (150th Anniv., # 951138)	
280	*Acer monspressulanum*	Montpellier Maple	1 S	1	Flora of Victoria Project (150th Anniv., # 951217)	
281	*Acer capillies*	Snake-bark Maple	1 S	1	Flora of Victoria Project (150th Anniv., # 960061)	
282	*Acer obtusifolium*		1 S	1	Flora of Victoria Project (150th Anniv., # 951175); specimen removed in February 2000 due to death	Non-existant specimen; consider replanting a similar species in the Gong
283	*Quercus robur*	English Oak	3 A	3		
284	*Pinus radiata*	Radiata Pine	3 A	3	Aging and unhealthy specimen at the end of its lifespan; consider removal	Remove specimen in 0-5 years
285	*Acer forrestii* [syn. *A pectinatum* ssp. *forrestii*]		1 S	1	Flora of Victoria Project (150th Anniv., # 921372)	
286	*Acer velutium*		1 S	1	Flora of Victoria Project (150th Anniv., # 951232)	
287	*Acer buergerianum*	Three-toothed Maple, Trident Maple	1 S	1	Flora of Victoria Project (150th Anniv., # 960062)	
288	*Acer pseudoplatanus*	Sycamore	1 S	1	Flora of Victoria Project (150th Anniv., # 951167)	
289	*Acer saccharum* ssp. *leucoderme*		1 S	1	Flora of Victoria Project (150th Anniv., # 951240)	
290	*Acer opalus* ssp. *obtusalum* (Wadst & Kit ex Willd) Gams	Italian Maple	1 A S Registered under the *Heritage Act 1995* as Item Number 1826, 3 June 1999, as T2 on Diagram 600774; Registered on the National Trust (Victoria) Register of Significant Trees, 12 December 1985	1		
291	*Acer rubescens*		1 S	1	Flora of Victoria Project (150th Anniv., # 960055)	
292	*Acer sp.*	Ash sp.	3 A	3		
293	*Acer platanoides* 'Crimson King'	Norway Maple	1 A S Registered under the *Heritage Act 1995* as Item Number 1826, 3 June 1999, as T3 on Diagram 600774; Registered on the National Trust (Victoria) Register of Significant Trees, 12 December 1985	1		

294	*Acer pseudoplatanus* 'Purpureum' [syn. *A pseudoplatanus* 'Atropurpureum'	Sycamore	1 S	1	Flora of Victoria Project (150th Anniv., # 951151)	
295	*Acer velutinum* 'Vanvolxemi'i		1 S	1	Flora of Victoria Project (150th Anniv., # 951153)	
296	*Acer platanoides*	Norway Maple	1 A S Registered under the *Heritage Act 1995* as Item Number 1826, 3 June 1999, as T4 on Diagram 600774	1		
297	*Pinus radiata*	Radiata Pine	3 A	3		
298	*Acer sp.*	Maple sp.	3 A	3		
299	*Acer* sp.	Maple sp.	3 A	3		
300	*Eucalyptus globulus* ssp. *globulus*	Tasmanian Blue Gum	3 A	3		
301	*Salix alba* x *fragilis*	Crack Willow	4 A	4	Deemed a problem species in terms of litter, suckering, and root system	Remove and eradicate suckers
302	*Salix alba* x *fragilis*	Crack Willow	4 A	4	Deemed a problem species in terms of litter, suckering, and root system	Remove and eradicate suckers
303	*Junus* sp., *Eleocharis* sp., *Ranunculus* sp., *Cyperus* sp., *Typha* sp.	Rush sp., Common Spike-rush, Buttercup, Flat sedge sp., Cumbungi or Bull-rush	4 H	4		
304	*Populus nigra* 'Italica'	Italian Poplar	3 A	3	Attractive cluster of *Populus nigra* 'Italica' (Italian Poplar)	Monitor and consider long term removal
305	*Populus nigra* 'Italica'	Italian Poplar	3 A	3	Attractive cluster of *Populus nigra* 'Italica' (Italian Poplar)	Monitor and consider long term removal
306	*Populus nigra* 'Italica'	Italian Poplar	3 A	3	Attractive cluster of *Populus nigra* 'Italica' (Italian Poplar)	Monitor and consider long term removal
307	*Populus nigra* 'Italica'	Italian Poplar	3 A	3	Attractive cluster of *Populus nigra* 'Italica' (Italian Poplar)	Monitor and consider long term removal
308	*Populus nigra* 'Italica'	Italian Poplar	3 A	3	Attractive cluster of *Populus nigra* 'Italica' (Italian Poplar)	Monitor and consider long term removal
309	*Quercus robur*	English Oak	3 A	3		
310	*Quercus palustris*	Pin Oak	4 A	3		
311	*Populus nigra* 'Italica'	Italian Poplar	3 A	3	Specimens located on the road reserve and provide an aesthetic round-about to Yuille Street	Monitor and consider long term removal
312	*Salix alba* x *fragilis*	Crack Willow	4 A	4	Deemed a problem species in terms of litter, suckering, and root system	Remove and eradicate suckers
313	*Populus alba*	White Poplar, Silver-leaved Poplar	3 H	4	Deemed a problem species in terms of litter, suckering, and root system.	Consider progressive and systematic removal
314	*Populus alba*	White Poplar, Silver-leaved Poplar	3 H	4	Deemed a problem species in terms of litter, suckering, and root system.	Consider progressive and systematic removal
315	*Populus alba*	White Poplar, Silver-leaved Poplar	3 H	4	Deemed a problem species in terms of litter, suckering, and root system.	Consider progressive and systematic removal
316	*Populus alba*	White Poplar, Silver-leaved Poplar	3 H	4	Deemed a problem species in terms of litter, suckering, and root system.	Consider progressive and systematic removal
317	*Populus alba*	White Poplar, Silver-leaved Poplar	3 H	4	Deemed a problem species in terms of litter, suckering, and root system.	Consider progressive and systematic removal
318	*Populus alba*	White Poplar, Silver-leaved Poplar	3 H	4	Deemed a problem species in terms of litter, suckering, and root system.	Consider progressive and systematic removal

319	*Populus alba*	White Poplar, Silver-leaved Poplar	3 H	4	Deemed a problem species in terms of litter, suckering, and root system.	Consider progressive and systematic removal
320	*Populus alba*	White Poplar, Silver-leaved Poplar	3 H	4	Deemed a problem species in terms of litter, suckering, and root system.	Consider progressive and systematic removal
321	*Pinus radiata*	Radiata Pine	3 A	3	Specimen in a variable condition	Needs to thinned on the crown; consider removal in 5-10 years; could be replaced with *Pinus pinaster* (Maritime Pine) or *P canariensis* (Canary Island Pine)
322	*Populus alba*	White Poplar, Silver-leaved Poplar	3 H	4	Deemed a problem species in terms of litter, suckering, and root system.	Consider progressive and systematic removal
323	*Populus alba*	White Poplar, Silver-leaved Poplar	3 H	4	Deemed a problem species in terms of litter, suckering, and root system.	Consider progressive and systematic removal
324	*Populus alba*	White Poplar, Silver-leaved Poplar	3 H	4	Deemed a problem species in terms of litter, suckering, and root system.	Consider progressive and systematic removal
325	*Platanus* x *acerifolia*	London Plane	3 A	3	Relatively healthy specimen; may have to be thinned out below	Monitor; thin out vegetation surrounding it; consider planting medium sized *Acer* sp. (Maples) around the specimen to enhance its setting
326	*Populus alba*	White Poplar, Silver-leaved Poplar	3 H	4	Deemed a problem species in terms of litter, suckering, and root system.	Consider progressive and systematic removal
327	*Populus alba*	White Poplar, Silver-leaved Poplar	3 H	4	Deemed a problem species in terms of litter, suckering, and root system.	Consider progressive and systematic removal
328	*Populus alba*	White Poplar, Silver-leaved Poplar	3 H	4	Deemed a problem species in terms of litter, suckering, and root system.	Consider progressive and systematic removal
329	*Populus alba*	White Poplar, Silver-leaved Poplar	3 H	4	Deemed a problem species in terms of litter, suckering, and root system.	Consider progressive and systematic removal
330	*Populus alba*	White Poplar, Silver-leaved Poplar	3 H	4	Deemed a problem species in terms of litter, suckering, and root system.	Consider progressive and systematic removal
331	*Populus alba*	White Poplar, Silver-leaved Poplar	3 H	4	Deemed a problem species in terms of litter, suckering, and root system.	Consider progressive and systematic removal
332	*Populus alba*	White Poplar, Silver-leaved Poplar	3 H	4	Deemed a problem species in terms of litter, suckering, and root system.	Consider progressive and systematic removal
333	*Populus alba*	White Poplar, Silver-leaved Poplar	3 H	4	Deemed a problem species in terms of litter, suckering, and root system.	Consider progressive and systematic removal
334	*Populus alba*	White Poplar, Silver-leaved Poplar	3 H	4	Deemed a problem species in terms of litter, suckering, and root system.	Consider progressive and systematic removal
335	*Populus alba*	White Poplar, Silver-leaved Poplar	3 H	4	Deemed a problem species in terms of litter, suckering, and root system.	Consider progressive and systematic removal
336	*Populus alba*	White Poplar, Silver-leaved Poplar	3 H	4	Deemed a problem species in terms of litter, suckering, and root system.	Consider progressive and systematic removal
337	*Populus nigra* 'Italica'	Italian Poplar	3 H	4	Attractive cluster of *Populus nigra* 'Italica' (Italian Poplar)	Monitor and consider long term removal
338	*Populus nigra* 'Italica'	Italian Poplar	3 A	3	Attractive cluster of *Populus nigra* 'Italica' (Italian Poplar)	Monitor and consider long term removal
339	*Populus nigra* 'Italica'	Italian Poplar - some 3 specimens	3 A	3	Attractive cluster of *Populus nigra* 'Italica' (Italian Poplar)	Monitor and consider long term removal
340	*Populus nigra* 'Italica'	Italian Poplar - some 4 specimens	3 A	3	Attractive cluster of *Populus nigra* 'Italica' (Italian Poplar)	Monitor and consider long term removal
341	*Salix babylonica*	Weeping Willows - some 18 specimens	2 H A	2	Deemed a problem species in terms of litter, suckering, and root system; but presently having aesthetic benefits and an embankment stabilisation role	Monitor and remove dead specimens only
342	*Pinus radiata*	Radiata Pine	3 A	3	Very large specimen and in an aging condition	Remove in 10-15 years
343	*Pseudotsuga menziesii*	Douglas Fir	4	4	Unusual specimen in an unusual location; probably a garden planting	Monitor

344	*Salix matsudana 'Tortuosa*	Corkscrew Willow	4	4	Unusual specimen in an unusual location; out of context with setting	Remove
345	*Crataegus monogyna*	English Hawthorn (3 small clumps in this location)	4 H	4	Pest plant in an un-supervised location with little historical value	Remove and eradicate suckers
346	*Populus nigra* 'Italica'	Italian Poplar	3 A	3	Damaged centre	Remove; check and remove nesting box beforehand

Notes:

Column 1: Additional species with an alphabetical reference have been identified in the field survey of the Gardens in March 1999.

Column 5:

Significance:

1	High
2	Moderate
3	Some
4	Little
H	of associational value and value as evidence
A	of aesthetic value
S	of scientific value

Column 6:

Need: Ranking and Need for Retention and Conservation:

1	Strong
2	Preferred
3	Desirable
4	Unnecessary

Appendix II

Plaque and Artefact Inventory

Item #	Tree Species Item # when associated with a plaque	Landscape Artefact when associated with a plaque	Plaque Inscription on Landscape Item or Artefact (approximate type configuration represented)	Significance	Need for Retention and Conservation	Field Notes
1						
2	Tree (war memorial avenue)		Sgt R.G. Tyler + 18.2.43 R.A.A.F.	1 H	1	
3	Tree (war memorial avenue)		P/O J.J. Hayes + 27.5.44 R.A.A.F	1 H	1	
4	Tree (war memorial avenue)		CP H.D. McKenzie + 19.7.41 A.I.F.	1 H	1	
5	Tree (war memorial avenue)		L Sgt. J. Alley + 6.2.42 A.I.F	1 H	1	
6		Scott Street picket fencing and entry gate	Australia 1788-1988 "Buninyong Botanic Gardens" commenced 1859 This gateway and fencing was erected as a Bicentennial Project with financial assistance from the Federal Government It was officially opened by Ed O'Loughlin on Australia Day, 1988	3 H A	4	
7		Queen Victoria Rotunda (west side)	Erected by The residents Dec 13th 1901 / Queen Victoria Rotunda / Of Buninyong District A. Coxall Mayor	1 H A	1	
		Queen Victoria Rotunda (east side)	The rich and poor meet together the Lord is the maker of them all	1 H A	1	
8	Tree (in the upper part of the main lawn of the Gardens)		This tree was planted by Dawn Whykes & Beth Ritchie (Founders) to honour the work of the Buninyong Gardens Restoration Committee The 3rd Day of November, 1985 and commemorate the 150th Anniversary of the state of Victoria	3 H	3	
9	Tree (in the lower part of the main lawn of the Gardens)		IN MEMORY OF GEORGE INNES PIONEER OF BUNINYONG 1841 - 1894	3 H	3	
10	Tree (near Cornish Street embankment in the Gardens)		BUNINYONG DISTRICT GUIDES CELEBRATE 30 YEARS 1967 [LOGO] 1997 SEQUOIA SEMPERVIRENS PLANTED 1ST DEC 1997 BUNINYONG BOTANIC GARDENS BY MRS JOAN GRACE 1ST BROWN OWL	4 H	3	

11		Seat at Main Pool	Dawn – (Mrs J. Whykes) In appreciation of your work as our Secretary from Back to Buninyong & School Centenary Committees 1973	3 H	3
12		Seat at Main Pool	1903-1990 In Memory of Stanley Hathaway a beloved husband of lucy and father of hazel and merle	3 H	3

Notes:

Column 5:

Significance:

1	High
2	Moderate
3	Some
4	Little
H	of associational value and value as evidence
A	of aesthetic value
S	of scientific value

Column 6:

Need: Ranking and Need for Retention and Conservation:

1	Strong
2	Preferred
3	Desirable
4	Unnecessary

Appendix III

Maple (*Acer* sp.) Species Plantings Proposed for The Gong Reservoir Area in 1993[115]

#	Species	Growth Height	Origin
1	Acer hookeri Miq	35-50ft	Eastern Himalayas
2	Acer griseum (Franch) Pax	20-40ft	China
3	Acer davidii 'George Forest'		
4	Acer ginnala Maxim	20ft	Eastern China, Manchuria, Korea, Japan
5	Acer davidii Franch	3-50ft	China
6	Acer laxifolium Pax	20-30ft	China
7	Acer rubrum 'Shlesingeri'	100ft	
8	Acer saccharinum	90-130ft	Eastern North America
9	Acer buergeranum Miq	20ft	China
10	Acer buergeranum 'Rubrum'	20ft	Unknown species
11	Acer cappadocium 'Aureum'	60-70ft	
12	Acer circinatum Pursh	35ft	
13	Acer negundo 'Auratum'	50ft	
14	Acer negundo 'Aureo-variegatum'	50ft	
15	Acer negundo 'Variegatum'	50ft	
16	Acer platanoides 'Rubrum'	60ft	
17	Acer platanoides 'Drummondii'		
18	Acer saccharinum 'Pyramidale'		
19	Acer pseudo-platanus 'Brilliantissimum'		
20	Acer pseudo-platanus 'Leopoldii'		
21	Acer spicatum Lam.	30ft	Eastern USA, Canada
22	Acer wilsonii Rehd.	30-40ft	China
23	Acer platanoides 'Palmatifidum'		
24	Acer campestre 'Pulverulentum'		
25	Acer triflorum Kom	20-40ft	Manchuria, Korea
26	Acer campestre L.	35ft	
27	Acer cappadocium 'Rubrum'	60-70ft	

115 Letter, Dr Philip Moors, Royal Botanic Gardens, to GL Anders, Shire of Buninyong, 6 August 1993.

Appendix IV

Select Comparative Assessment of Maples (*Acer* sp.) in Provincial Botanic Garden collections and Other Locations in Victoria and South Australia: [*Acer palmatum* (Japanese Maple) varieties not included]

		***Acer* sp. in the Buninyong Botanic Gardens [inc. Gong Reservoir]**	**Ballarat Botanic Garden collection (2000)**	***Acer* sp. identified in other areas in Ballarat City Council (1983)[116]**	**Acer sp. in the Mount Lofty Botanic Garden collection (2000)[117]**	***Acer* sp. recorded in the National Trust (Victoria) Significant Trees Register (1998)[118]**	***Acer* sp. in the Castlemaine Botanic Garden collection (1984)[119]**	***Acer* sp. in the Hamilton Botanic Garden collection (1994)[120]**	***Acer* sp. in the Malmsbury Botanic Garden collection (1998)[121]**	***Acer*sp. in the Warrnambool Botanic Gardens collection (1995)[122]**
Acer aidzuense					specimen					
Acer albo-purpurascens					specimen					
Acer barbatum					specimen					
Acer buergerianum	Trident Maple, Three-toothed Maple	Specimen 960062			specimen			specimen		
Acer campbellii					specimen					
Acer campbellii var sinense		Specimen 951138								
Acer campestre	Field Maple, Hedge Maple	Specimen [Registered tree under the *Heritage Act* 1995]		Sturt Street (Raglan-Ripon streets, Gillies street to Arch of Victory); Avenue of Honour, Beaufort Cres, Drummond Street North	specimen	Ballarat Botanic Gardens (2)	Specimen		Specimen	
Acer capillipes	Snake-bark Maple	Specimen 960061; Specimen 960061			specimen					

116 Lumley et al. 1983, *Ballarat Historic Landscapes, Trees and Gardens – Part 1*, pp. Var.

117 Mount Lofty Botanic Garden computer inventory, 2000.

118 National Trust of Victoria (Australia) 1998, *Significant Trees Register*.

119 Francine Gilfedder & Kevin Walsh 1991, *Castlemaine Botanical Gardens: Part One – Conservation Analysis and Policies*, appendix.

120 Francine Gilfedder & Associates 1994, *Hamilton Botanic Gardens Conservation Policy and Strategy for Implementation*, appendix.

121 Francine Gilfedder & Associates 1988, *Malmsbury Botanic Gardens – Part One: Conservation Analysis and Policie*s, appendix.

122 SF Landscape Consultants Pty Ltd 1995, *Warrnambool Botanic Gardens: Conservation and Management Plan*, appendix.

Acer cappadocium	Coliseum Maple, Cappadocian Maple, Caucasian Maple			specimen		‘Hascombe’, Mount Macedon						
Acer cappadocium ‘Aureum’									specimen			
Acer carpinifolium	Hornbeam Maple			specimen								
Acer caudatum				specimen								
Acer circinatum									Specimen			
Acer cissifolium	Vine-leaf Maple, Ivy-leafed Maple			specimen								
Acer crataegifolium	Hawthorn Maple			specimen								
Acer davidii	Father David’s Maple, Père David’s Maple, Snake-bark Maple			specimen					Specimen			
Acer davidii ssp *grosseri* [syn *Acer grosseri*]				specimen								
Acer davidii ssp *hersii* [syn *Acer Davidii* var. *grosseri*]				specimen								
Acer elegantulum				specimen								
Acer fabri				specimen								
Acer griseum	Paperbark Maple											
Acer henryi				specimen								
Acer japonicum	Full-moon Maple, Japanese Maple											
Acer japonicum var *aconitifolium*				specimen					Specimen			
Acer japonicum var *aureum*									Specimen			
Acer japonicum var *vitifolium*									Specimen			
Acer kawakamii				specimen								
Acer macrophyllum	Big-leaf Maple, Oregon Maple			specimen								
Acer maximowicziaum	Nikko Maple			specimen								
Acer monspessulanum	Montpelier Maple, French Maple	Specimen 951217		specimen		Eastern Park, Geelong						
Acer negundo	Ash-leaved Maple, Box-elder Maple, Box Elder			specimen			Specimen					Specimen
Acer negundo var *aureo-marginatum*									Specimen			
Acer negundo var *californicum*				specimen								
Acer negundo var *flemingo*									Specimen			
Acer negundo var *varigatum* (syn. *Acer negundo* var. ‘Variegata’)			Ballarat East Town Hall Gardens				Specimen					

Acer nigrum				specimen				
Acer ningpoense				specimen				
Acer obongum				specimen				
Acer obtusifolium		~~Specimen 951175~~ [deceased and removed]						
Acer oliverianum				specimen				
Acer opalus	Italian Maple					Specimen		
Acer opalus var *granatensis*	Italian Maple	Specimen 951218						
Acer opalus var obtusatum	Italian Maple	Specimen x 2 [Registered tree under the *Heritage Act* 1995]			Buninyong Botanic Gardens Reserve (2)			
Acer orientale				specimen				
Acer pectinatum ssp *forrestii* [syn *Acer forrestii*]		Specimen 921372		specimen				
Acer pennsylvanicum	Striped Maple, Moosewood			specimen				
Acer pentaphyllum				specimen				
Acer platanoides	Norway Maple	Specimen [Registered tree under the *Heritage Act* 1995]	Ballarat East Town Hall Gardens	specimen				
Acer platanoides 'Columnare'				specimen				
Acer platanoides 'Crimson King'		Specimen [Registered tree under the *Heritage Act* 1995]			Buninyong Botanic Gardens Reserve		specimen	
Acer platanoides 'Dissectum'				specimen				
Acer platanoides 'Drummondii'							Specimen	
Acer platanoides 'Globosum'				specimen				
Acer platanoides 'Palmatifdum' [syn *Acer platanoides* 'Lorbergii']				specimen				
Acer platanoides 'Reitenbachii'				specimen				
Acer platanoides 'Schwedleri'				specimen				
Acer pseudoplatanus	Sycamore Maple	Specimen 951167	Sturt Street (Raglan-Ripon streets)	specimen		Specimen (x4)		Specimens
Acer pseudoplatanus var *brilliantissium*							specimen	

Acer pseudoplatanus var 'Leopoldii'	Variegated Sycamore			Geelong Botanic Gardens	Specimen	
Acer pseudoplatanus 'Nizetii'			specimen			
Acer pseudoplatanus 'Purpureum'	Purple-leaved Sycamore	Specimen 951151	specimen			specimen
Acer rubescens		Specimen 960055				
Acer rubinerve		Specimen 960053	specimen			
Acer rubrum	Red Maple, Scarlet Maple		specimen	'St Fillian', Narbethong		
Acer saccharinum	Silver Maple		specimen		Specimen	
Acer saccharum	Rock Maple, Sugar Maple		specimen			
Acer saccharum ssp. *leucoderme*		Specimen 951240				
Acer semenovii			specimen			
Acer skutchii			specimen			
Acer spicatum	Mountain Maple		specimen			
Acer tataricum	Tatarian Maple, Amur Maple		specimen			
Acer tataricum ssp *ginnala* [syn *Acer ginnala*]	Amur Maple		specimen			
Acer tegmentosum			specimen			
Acer trautvetteri			specimen			
Acer truncatum	Shantung Maple		specimen			
Acer ukurunduense			specimen			
Acer velutinum					specimen	
Acer velutinum var. *vanvolzemii*		Specimen 951151	specimen			
Acer wilsonii			specimen			
Acer x *freemanii*						
Aver velutinum		Specimen 951232				

Sources: Royal Melbourne Botanic Gardens correspondence files; Mount Lofty Garden computer inventory; Brickell (ed) 1996, *The Royal Horticultural Society A-Z Encyclopedia of Garden Plants*.

Appendix V

Potential Tree Specimen List for Additional Planting, or Removal, in the Garden and The Gong

The following list arose from discussions between David Jones, David Grant, Tony Whitehill, Graeme Hopkins, and John Hawker, when reviewing the tree assets in the Buninyong Botanic Garden and The Gong reservoir areas.

Botanical Name	Common Name	For Possible Planting		For Recommended Removal	
		Gardens	Gong	Gardens	Gong
Abies nordmanniana	Caucasian Fir	√			
Abies pinsapo	Spanish Fir, Crucifix Tree	√			
Acer sp. (except *Acer palmatum*)	Maples (except Japanese Maple)		√	√ (except registered specimens)	
Araucaria bidwillii	Bunya Bunya	√	√		
Araucaria cunninghamiana	Hoop Pine	√	√		
Catalpa bignonioides	Indian Bean Tree	√			
Ceratonia siliqua	Carob	√			
Cordyline stricta	Erect Palm-Lily	√			
Cupressus macrocarpa	Monterey Cypress		√		
Cupressus sempervirens 'Stricta'	Italian Cypress	√			
Dracaena draco	Dragon Tree	√			
Eucalyptus globulus ssp. *globulus*	Tasmanian Blue Gums		√		
Eucalyptus radiata	Narrow-leaved Peppermint			√	
Ficus macrophylla	Moreton Bay Fig	√	√		
Fraxinus ornus	Flowering Ash	√			
Maclura pomifera	Osage Orange	√	√		
Metasequoia glyptosroboides	Dawn Redwood		√		
Olearia paniculata	Golden Ake-ake	√			
Paulownia tomentosa	Royal Paulownia	√			
Pinus canariensis	Canary Island Pine	√	√		
Pinus pinaster	Maritime Pine	√			
Pinus radiata	Radiata Pine	√	√		
Pistachia chinensis	Chinese Pistachio	√			
Pittosporum eugenioides 'Variagatum'	Variegated Pittosporum			√	
Populus alba	Silver-leaved Poplar			√	√
Populus nigra 'Italica'	Italian Poplar				
Prunus serrulata	Flowering Cherry			√	
Salix babylonica	Weeping Willow			√	√
Salix fragilis	Crack Willow				√
Salix matsudana 'Tortuosa'	Corkscrew Willow				√
Taxodium distichum	Swamp Cypress, Bald Cypress	√	√		
Tilia cordata	Small-leaved Linden	√			
Tilia x *europaea*	Common Linden	√			

Ulmus glabra 'Exioniensis'	Exeter Elm	√			
Var.	Australian native shrubs			√	

Appendix VI

Heritage Victoria Registration Citation

Appendix VII

National Trust of Australia (Victoria) – Significant Tree Registration Assessment Forms

Appendix VIII

Report on 'The Gong' by Dr Peter Breen, CRC for Freshwater Ecology, Monash University

Buninyong Lake "the gong" Water Management Issues

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February 1, 2000

1. The Current Situation

The lake is formed by a simple weir in the upper reach of a relatively steep catchment draining west from Mt Buninyong. The lake is over a 100 years old and has apparently accumulated a large amount of sediment. The floor of the lake is now relatively flat. Water depth is now about 2 metres (range 1-2.5 m). It is thought the lake receives groundwater from springs although the relative contribution from overland flow versus groundwater is not known. As indicated by the littoral vegetation the water level variation in lake appears to be minimal. The catchment has been predominantly rural, but currently is being increasingly urbanised. Some piped stormwater enters the lake. Wastewater treatment within the immediate catchment was largely septic tank.. Over the last 5-10 years the catchment has been sewered. However the lake would have historically received nutrient inputs from septic tank runoff some of which would have accumulated in, and enriched the sediments.

The major management problem with lake is that for the last 5 years a bloom of *cyanobacteria* (blue-green algae) has occurred

The weir, the southern edge, and part of the immediate eastern catchment is colonised by either willows or poplar. Over a long period of time these deciduous trees could represent a significant organic load to the lake. The south-eastern end of the lake is colonised by *Typha domingensis* (narrow leaf cumbungi). In general the lake littoral zone is not well vegetated, although modest stands of *Eleocharis acuta and Crassula helmsii* occur on the northern edge. The littoral vegetation of the lake could be enhanced.

Water quality data for the Lake is limited and consequently is likely to be unrepresentative and difficult to interpret. However some BOD measurements taken in February 1999 were very high (15 mg/l at the surface and 42 mg/l at a depth of 2m). This suggests that at least periodically the organic load within the lake is high, and that bottom sediments could be expected to be driven anaerobic. Under these conditions the sediments would become a source of phosphorus which would contribute to the risk of algal and cyanobacterial blooms. The limited nutrient data taken in March 1999 would support this suggestion (TP = 0.15 mg/l, TN = 4.5 mg/l).

2. Objective of the review

The brief is to evaluate possible options for reducing the frequency of cyanobacterial blooms. While there are always constraints and other management objectives, the focus of this brief assessment is cyanobacterial bloom management.

3. Management priorities

3.1 Minimisation of in-situ nutrient recycling

One of the main factors influencing the degree of nutrient recycling in a system is the supply and availability of organic carbon. In this system this is represented by the annual inputs from the catchment (eg. direct leaf litter from littoral vegetation, natural organic material washed off the catchment, anthropogenic sources such as stormwater and septic leachate), and the processing and cycling of carbon stored in the sediments.

The supply and availability of organic carbon controls the activity of sediment bacteria, which in turn influence the redox conditions in the sediments and the storage/release/recycling of nutrients from the sediments. Increased carbon load generally acts to increase nutrient recycling and availability. Consequently one major management response to algal blooms can be to reduce carbon supply and availability from both the catchment and in-situ store in the lake sediments.

3.2 Minimisation of catchment nutrient supply.

The major sources of nutrients to the catchment include:

- Natural catchment runoff
- Agricultural runoff
- Urban stormwater
- Past domestic septic leachate

It is likely that the influence of these sources, has/and continues to, change over time. For example the apparent sediment accumulation in the lake is most likely to have occurred through natural or agricultural activities, whereas urbanisation (stormwater and septic leachate) is the most likely source of increased readily available nutrient load. The continued and recurrent cyanobacterial blooms is evidence of a certain level of nutrient enrichment.

An important thrust of any management strategy needs to be to reduce the influent nutrient load to the lake from the catchment and from changing catchment landuses..

3.3 Manipulation of environmental conditions conducive to algal and cyanobacterial blooms.

Amongst the most important environmental factors involved in the development of algal and particularly cyanobacterial blooms are the physical characteristics of the storage. Hydraulic detention time is very important in determining how long a potential nuisance bloom has to develop. Cyanobacteria grow relatively slowly and often require long hydraulic detention time for nuisance blooms to develop.

Vertical stratification of the water column is also common feature of water bodies prone to nuisance blooms. This condition indicates that the lake is not well mixed.

In general promoting natural mixing processes and reducing hydraulic detention time are factors in reducing the risk of algal and particularly cyanobacterial blooms.

4. Management options or opportunities

A number of opportunities exist for managing the environmental conditions in the Gong Lake.

4.1 Minimisation of lake sediment organic content and in-situ nutrient recycling

Prior to human influence many small natural (ie. shallow) water bodies underwent a natural drying cycle. Many constructed water bodies tend to be permanent water bodies. The breakdown of organic matter is much faster in aerobic condition (ie.dry) than in anaerobic conditions (ie. wet). That is it is important for the successful natural management of many systems that a drying cycle is included in the management cycle.

In this situation where the system has had a long period where organic matter could have accumulated in the sediments it is very likely that a strong drying cycle will be beneficial. Drying cycles as a management initiative need to be regular. Consequently a single drying period is unlikely to have major beneficial results. In fact a single drying applied in isolation may increase nutrient availability through the breakdown of the accumulated organic matter in the sediments. It maybe necessary to program a summer drying cycle over a number of years (3-4) to reduce the organic content of the sediments and the ability of the system to regenerate nutrients stored in the sediments. In the short term, a series of summer drying cycles also reduces the risk of recurrent cyanobacterial blooms further contributing to the overall carbon load of the system.

4.2 Mininisation of catchment carbon load and in-situ nutrient recycling

Carbon load to the system can also be reduced in a number of ways. The direct carbon load represented by the leaf fall of deciduous trees could be reduced. Leaf fall in deciduous trees tends to be syncronised in autumn and winter and then rapidly broken down in the following spring and summer. This process both releases nutrients directly contained in the litter fall, but also provides a large carbon source to drive the sediments anaerobic and release nutrients contained in the sediments. This source of carbon supply and subsequent nutrient release could be reduced through reducing the number of deciduous trees directly shedding into the lake. While a number of these trees may have heritage value a large number could be removed and replaced with native species. Native species still drop considerable quantities of leaves, but the fall is more evenly distributed over the year and the leaves generally breakdown slower and exert their organic load over a greater period of time, and more in line with many systems natural ability to process to the load.

Reduction of catchment carbon sources is also important. A number of catchment carbon sources exist and are similar to nutrient sources:

- Natural catchment runoff
- Agricultural runoff
- Urban stormwater
- Past domestic septic leachate

Agricultural sources are important in this catchment, but both urban stormwater and domestic wastewater discharges will become more important. The development of a constructed wetland at the eastern end of the lake could address a number of these problems. A relatively weedy area at the eastern end of the lake could be rehabilitated in the process.

4.3 Minimisation of catchment nutrient supply.

To minimise the risk of nuisance algal and cyanobacterial blooms in lakes it is important to reduce nutrient supplies. The major sources of nutrients in the catchment include:

- Natural catchment runoff
- Agricultural runoff
- Urban stormwater
- Past domestic septic leachate

All these sources are amenable to treatment in constructed wetlands. However the major current forms (eg. natural, agricultural and urban runoff) are all rainfall dependent, and any wetland design would need to consider the hydrology of the input. The area at the eastern end of the lake appears to be a good site for a constructed wetland.

4.4 Minimising conditions conducive to algal and cyanobacterial blooms.

Water bodies prone to cyanobacterial blooms commonly have long detention times that allow sufficient time for slow growing cyanobacteria to accumulate. These water bodies also typically stratify which provides an advantage to cyanobacteria that can adjust their buoyancy and remain in the euphotic zone and continue to grow over long periods of time.

Three major options exist to manage environmental conditions to reduce cyanobacterial bloom risk:

- Reduce hydraulic detention time
- Reduce stratification and increase mixing
- Decreased biodiversity

These factors tend to be related. However in general detention time can be reduced by increasing inflow. In this case bore water could be pumped into the system to increase flow through. The downstream system in the gardens could also benefit from this option through increased flushing of the ornamental ponds. A possible off-set for the cost of this option is that the bowling club may be able to harvest the increased flow through the gardens for watering of greens. Further water quality sampling would be required to validate this option.

There appears to be an opportunity to used windmills to breakdown water column stratification within the lake. More importantly wind assisted lake mixing could be recycled through the constructed wetland and during periods of low runoff nutrient rich bottom waters could be pumped through the wetlands for treatment. This approach would both help breakdown stratification and also reduce nutrient levels in the lake.

Modifying the peripheral vegetation could also allow better wind mixing. Any changes to the surrounding trees could include a gap to the south west to increase wind action over the lake and promote natural mixing. Exposed edges may need to be modified to protect them from any resultant wave action.

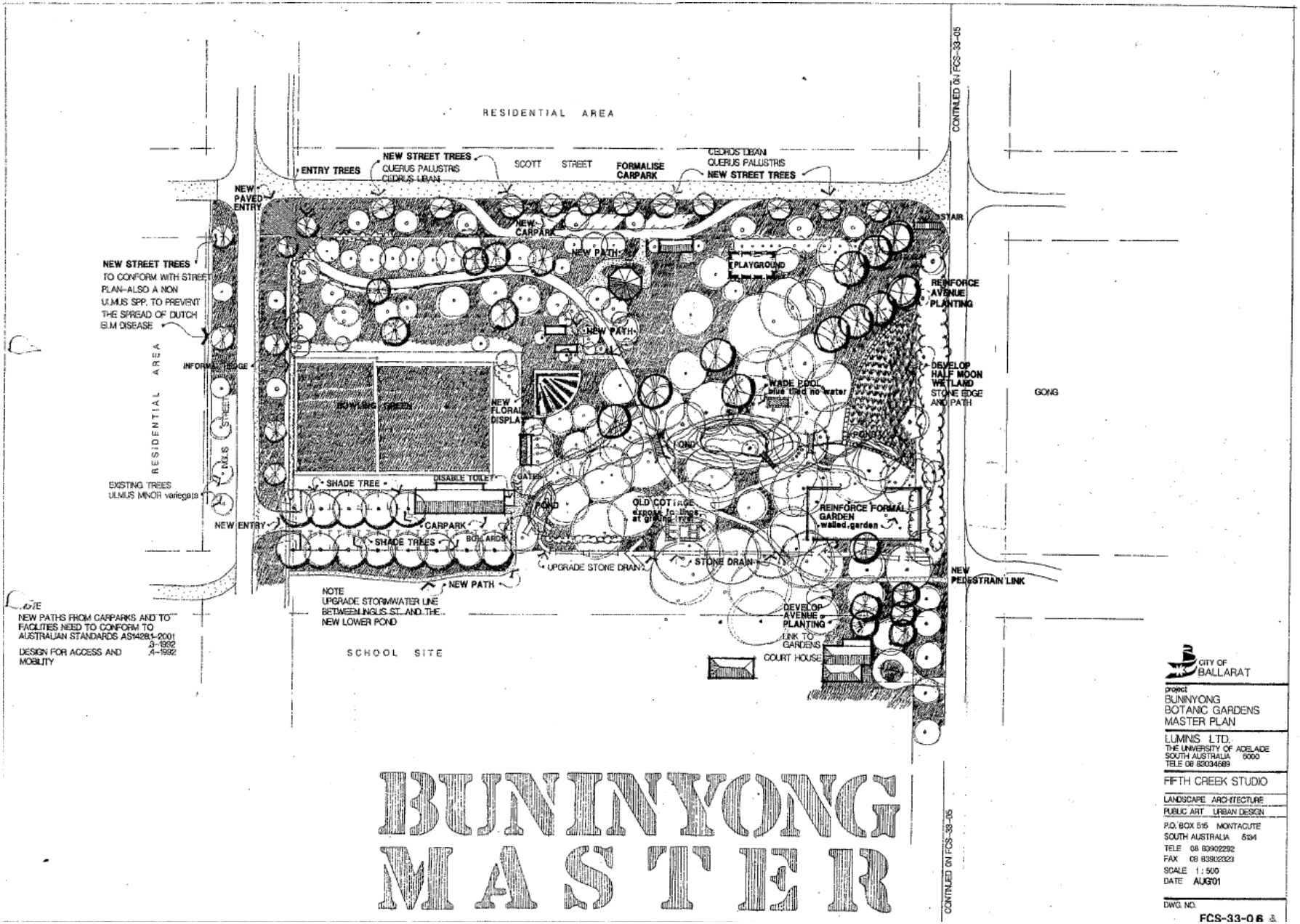
The introduction of a more natural water level variation in the lake would promote a more diverse and extended littoral vegetation. This could be achieved by modifying the outlet structure of the lake. The outlet could be modified to temporarily detain event inflows and then slowly draw lake water levels down over a period of time. This would both extend the extent and diversity of the littoral vegetation which would in turn reduce the area for cyanobacterial growth and increase natural competition for resources.

5. Summary

It is suggested:

- That the lake undergoes a remedial drying regime.

- That organic load to the lake be reduced by reducing the extent of deciduous trees around the margin of the lake. This could also increase natural wind mixing of the lake.
- That catchment nutrient and organic loads, be treated in a constructed wetland at the eastern end of the lake.
- That the windmills be used to mix the lake and pump water through the constructed wetland during low flow periods.
- That bore water be used to increase the flow through the lake.
- That any increased flows through the lake be coupled with an option to use increased discharge from the gardens for green watering in the bowling club.
- That lake outlet structures be modified to increase water level variation within the lake to increase bio-diversity



NOTE

NEW PATHS FROM CARPARKS AND TO FACILITIES NEED TO CONFORM TO AUSTRALIAN STANDARDS AS1428.1-2001 & -1992

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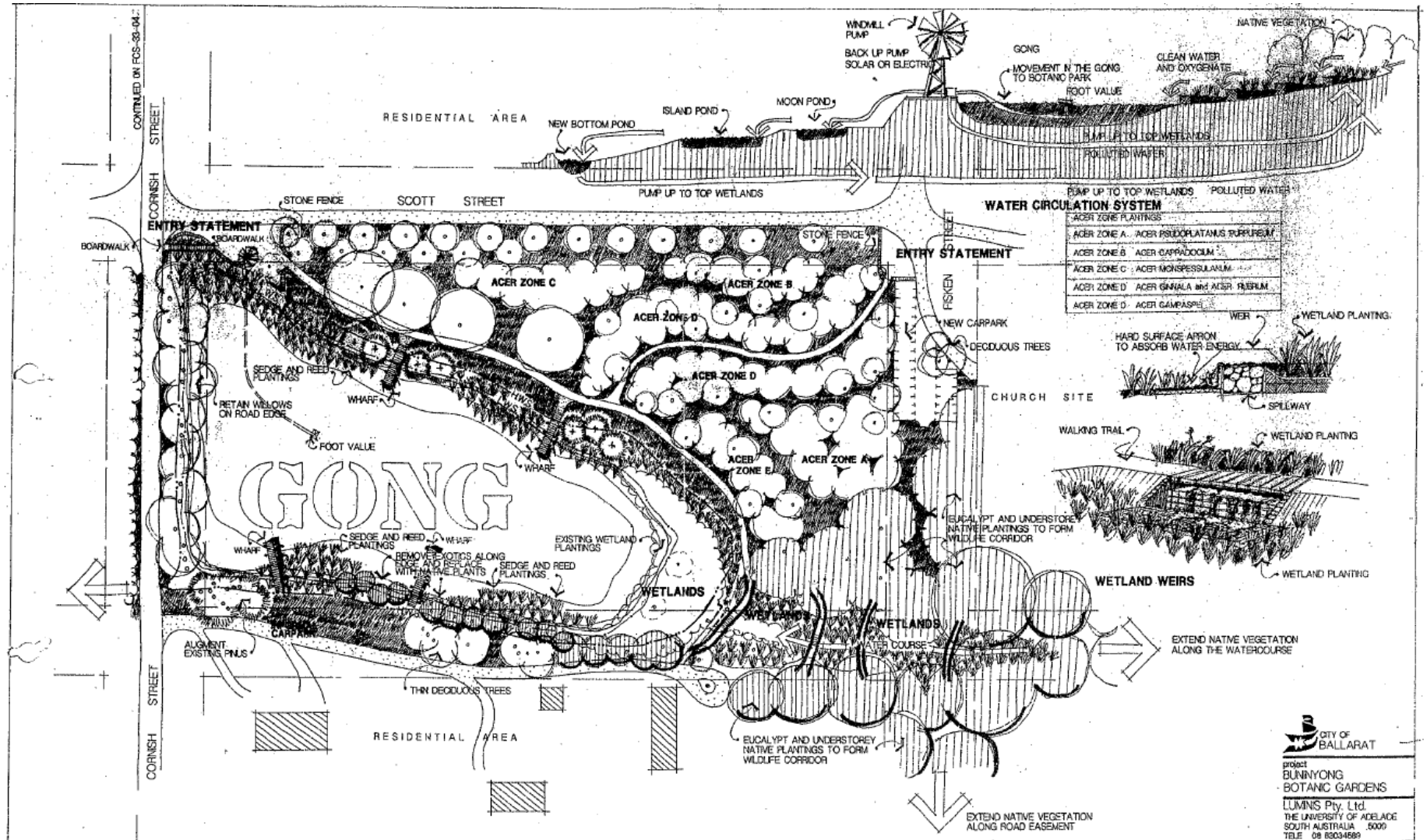

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