City of Napier

NAPIER BOTANICAL GARDENS

RESTORATION PROJECT

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NAPIER CITY COUNCIL

NAPIER BOTANICAL GARDENS RESTORATION PROJECT

Prepared for

Napier City Council
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1 Introduction

The Napier Botanical Gardens are located between Spenser Road, Napier Terrace, and Napier's oldest cemetery on the crest of Napier Hill. Current perception is that the Botanical Gardens are substantially under utilised, due in part to the slow degradation of the Gardens over the last half century.

The overall intent of this project is to bring the Napier Botanical Gardens up to an internationally recognised standard for Botanical Gardens, and to encourage the public back into the Gardens.

The primary objectives for this revitalisation project are to:

- Restore the Napier Botanical Gardens recognising its historical integrity and public amenity value.
- Refocus the internal structure of the Gardens to accommodate a New Zealand Conservation Section.
- Identify the best areas within the existing structure of the Gardens for international plant collections.

Environmental Management Services Ltd has been asked by Napier City Council to assist in developing a comprehensive concept design and associated recommendations for all areas within the Napier Botanical Gardens. The project has been undertaken in close co-operation and consultation with personnel from the Council's Reserves and Works Divisions.

This report:

- Discusses the historical context of the Botanical Gardens
- Outlines a Mission Statement and Objectives
- Provides general restoration recommendations
- Identifies restoration solutions for designated sections of the Gardens
- Provides detailed designs for feature areas within the Gardens.

Recommendations based on the commissioned plans and report by Environmental Management Services Ltd will identify the appropriate staging of works and the budget expenditure estimate for each stage.

2 Historical Framework

2.1 The History of Botanical Gardens

Botanical Gardens have been sources of city pride and admiration for hundreds of years. Traditionally encyclopaedic in their scope Botanical Gardens were established in an attempt to record and display recognised plant diversity. Contemporary botanical gardens face the challenges not only of acting as an essential resource for botanical and horticultural research, but also of playing a fundamental role in plant conservation and public education.

A botanical garden can be defined as "An ordered and catalogued collection of plants assembled primarily for scientific and educational purposes; although within this vague definition many types of institution can be included, ranging from a science research station to a public park. (The Garden", Edited by Howard Luxton, 1991).

Luxton, 1991, also describes how, *"Botanical gardens originated through the passing on of botanical knowledge among the monasteries. Both monastic and domestic gardens raised a variety of useful medicinal herbs and the study of medicine plants was at the heart of the new botanical gardens, born of the Renaissance. The first two modern botanical gardens, Pisa and Padua in Italy, were effectively teaching establishments for pharmacology students.*

The trade and colonial powers saw botanical gardens as centres of commerce, not merely as ornamental or educational institutes. During the 18 th Century the Royal Botanic Gardens, Kew - probably the world's best-known botanic garden - was established as a result of Royal interest".

Joseph Banks was a young scientist and botanist instrumental in the world-wide collection of plants. As explained in the National History Museum web page, *"In 1767 a botanist called Joseph Banks put himself forward as botanist and collector for an expedition to observe the Transit of Venus. The expedition set sail on the HMS Endeavour under Captain Cook in 1768. Banks arranged his own team of scientists and assistants for the journey, among them the illustrator, Sydney Parkinson, and Banks' close scientific friend, Daniel Solander. Banks had embarked on an unprecedented voyage of botanical and entomological investigation.*

The voyage was a success. Banks accumulated massive new collections and Cook was able to explore and chart areas previously unvisited by Europeans. It was on this voyage that Cook first visited the shores of New Zealand and Australia. Not only were their scientific and navigational achievements historically important, but the Endeavour voyage had started to draw the outlines of what was to become the British Empire."

In 1773 Joseph Banks became a special adviser and director of the Royal Gardens of Kew. Kew rapidly attained international importance under the influence of its unofficial director, becoming one of the foremost botanical gardens in the world. The Royal Gardens of Kew drew on specimens from around the globe, and especially from the growing empire. Banks' unrivalled collections from his one and only New Zealand trip formed the basis of the library and herbarium he established at his home in London.

Luxton, 1991, also explains how *"in the middle of the 19th century the botanical gardens' traditional role in the introduction and development of economic crops was taken over by specialist agricultural centres, leaving many tropical botanical gardens as primarily ornamental gardens. Subsequently, the gardens were often abandoned or left under-supported during time of economic stress as the newly emergent nations found more important demands for their resources. Temperate botanical gardens, their colonial networks*

eroded by political changes, underwent a similar decline before the needs of public education and conservation led to an upsurge of activity and the adoption of new roles.

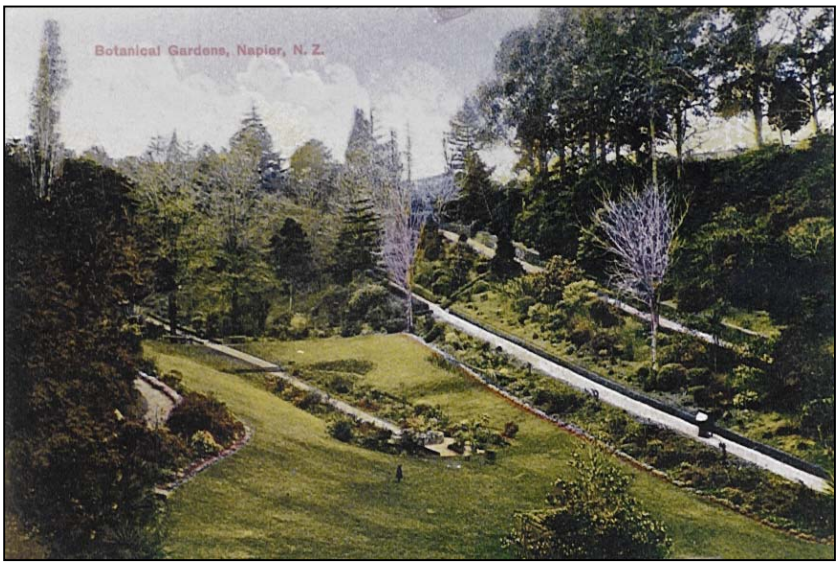
Contemporary botanical gardens have had to account for the recent paradigm shift towards conservation and sustainability. On scientific grounds it is no longer justifiable merely to grow a miscellaneous collection of often-undocumented plants. The responsibility now is to maintain and salvage botanical diversity from a global trend of environmental degradation. Botanical gardens can achieve this through botanical research, cultivation and distribution of rare plants and, most importantly, through public education*."*

In adopting a conscious conservation function botanical gardens are attempting to ensure that plants survive albeit away from their natural habitat, that is *ex situ* conservation. It must however be recognised that the holding of plants in artificial conditions (cultivation) can never be a substitute for retaining the species in a natural habitat (*in situ* conservation).

Many botanical gardens are now especially concerned with the vegetation of their own region. Working together with conservation organisations propagation material is collected from vulnerable populations to establish protected populations in cultivation; eventually these populations may be returned to safe sites in the wild.

2.2 History of the Napier Botanical Gardens

The history of Napier's Parks and Reserves can be traced back to 1855, the year in which the Crown purchased the site of Napier (640 acres) for £50. Alfred Domett, when laying out the town, recommended that 7.3 hectares (18 acres) be reserved for Botanical Gardens, and another 1.8 hectares (4.5 acres) be set aside for a cemetery, linked to the Botanical Gardens if necessary.



Mr C. W. Corner, Superintendent of Parks and Reserves for the Napier City Council in 1947 wrote, *"Provision had been made for Botanical Reserves in Wellington, Napier, Christchurch, and Dunedin only. They were Botanical in name only, and I regret that this still applies to the Napier gardens. It's steep slopes, of little use for other purposes, and it's horticultural interests forgotten and neglected".* Napier became a Borough in 1874. Until that date the Provincial Council administered Napier. Two reserves were known to the Provincial Council at this time, the Botanical Gardens and the area now containing Clive and Memorial Squares, which was at that stage common ground.

The first care taker for the gardens was a Mr Burness who was responsible for the Gardens primary development work. He was succeeded by Mr Burton, a gardener trained on private English estates. At first the Hospital Hill site for the Botanical Gardens was unpromising due

to it's difficult hilly terrain. Early records reveal that there was little money and only prison labour at the caretaker, Mr Burton's, disposal. This labour was put to good use in the planting of trees, chiefly conifers, and the laying out of paths and terraces. Mr Burton's first undertaking was to plant *Pinus radiata* from Enfield Road to the top of Hospital Hill.

Each season Burton planted more decorative trees and shrubs, many of which are still present today. New trees for the Gardens arrived by scour (boats) at the Spit - it was not recorded from whom they were purchased or from where they came. It is thought the many of the fine trees there today were in fact seedlings brought by captains of visiting ships to the Napier Port. These seedlings were often presented to friends or clients who were interested in horticulture and gardening. Later many of the trees were obtained from local nurseries that came to be established. The Rev. Colenso and other Hawke's Bay residents supplied other plants.

In later years elaborate patterned flowerbed displays were developed within the Gardens. Although not reputed as a true representation of an "English" botanical garden, the Napier Botanical Gardens were never the less the source of great civic pride in the district.

As with today's climate Napier suffered severe droughts during those earlier years. In the early days, however, water came from wells that were not linked by pipes to other parts of the town. Fortunately two wells were sunk at the foot of the Botanical Gardens for the 65 th Regiment of the regular forces. These two wells were the main water supply for the soldiers and their families. This water feature quickly became the gathering place for women to do their washing, collect their household water and to talk.

History has it that the suds, discharged in an open drain down the gully to the site of the Recreation Ground, caused rather unpleasant odours during hot periods and gave rise to the rather undignified nick-name 'Soap Suds Gully', which managed to stick well into the 20 th century. More relevant to the Botanical Gardens is the fact that in these dry periods the overflow drain was sometimes dammed and water arduously carried to the thirsting plants.

With the advent of the family car shortly after the Second World War, fewer people walked through the gardens - major improvements then ceased. In 1947 Mr Corner, Superintendent of Parks and Reserve, was recorded as saying the Botanical Gardens were "now a quiet retreat for few and appreciated mainly as a shortcut to the hospital".

The Botanical Gardens also had a small zoo up until World War One. Labour and food shortages during 1914 – 1918 soon curtailed the animal haven, and this area was remodelled. Animals were not introduced again within the Gardens boundaries until approximately 1961 when an aviary was built to house a colony of 'free flying' budgerigars. In conjunction with this a duck pond was established at the main entrance to the gardens. This

was part of a programme developed to improve the standard of the Gardens and to boost its popularity.

Following this scheme came a massive “clean up” operation of the Gardens, run by the Napier City Council. Included in this “clean up” was the installation of a tree identification programme around the Gardens so that each specimen could be named - in keeping with the concept of a botanical garden. Small Fallow deer were also part of this original proposal, as they were seen as a way of drawing people back into the Botanical Gardens.

One of the latest “restoration” projects within the gardens was the ‘facelift’ of the historic terracotta fountain at the top of the hill in 1970. Although the origin of this fountain has been lost over the years, the ornate fountain was restored, and a concrete path incorporated around its periphery.

2.3 Archaeology

Several areas containing historic and archaeological evidence currently exist throughout the Botanical Gardens. Examples of these include the Military Track, remains of the Sextons Cottage, the military well, and a number of Maori middens which predate European settlement.

In recognition of these features the Napier City Council will commission a registered archaeological consultant to undertake a complete survey of the grounds, to:

a) clearly ascertain any areas of significance and heritage value in conjunction with procedures set by the Historic Places Act 1993, and

b) Identify where potential conflict situations between archaeological sites and proposed developments may occur, and

c) Offer options whereby the Napier City Council can mitigate any potential damage.

(See Appendix 1 for copies of historical photographs of the Napier Botanical Gardens, currently held at the “Hawke’s Bay Cultural Trust” archives).

3 The Napier Botanical Gardens Restoration Project

3.1 Napier Botanical Gardens Mission Statement

To foster and stimulate an understanding and appreciation of plants, with a special emphasis on New Zealand's endangered species, through programmes of conservation, propagation, display, and education, and to provide enjoyment to all who visit the gardens.

3.2 Objectives of Napier Botanical Gardens

- To reflect the gardens original integrity, both historically and botanically, and to educate people about the diversity of plant species. To make known the many different uses of New Zealands native flora, and highlight New Zealand's threatened vascular plants.
- To maintain and develop collections of living plants for the purpose of gaining knowledge and enjoyment of the gardens visitors.
- To encourage the utilisation of this area by native New Zealand bird-life through the careful distribution of native plant species. Pursue the introduction of other appropriate native species in order to enhance the natural bio-diversity of the area. A monitored predator control programme must be enforced so as to ensure the success of this sanctuary.
- To instigate a comprehensive signage programme throughout the Gardens, both in the plant labelling capacity and general information signage.
- To develop a collection of native threatened vascular plants for the purposes of public awareness and education, assisted by the Department of Conservation.
- To deliver a tangible contribution to plant conservation within New Zealand.
- To provide education and information in relation to the science of plants, with a special emphasis on native vegetation.
- To use a wide range of educational techniques and projects to allow children, students and adults to appreciate the dependence of people on plants; the interaction of plants and their environment; the loss of habitats and species taking place nationally and globally; and the richness of plant bio-diversity within New Zealand and abroad.
- To encourage the input from local and national interest groups into key areas within the Gardens. To eventually foster, train, and promote a team of qualified volunteers to aid in education programmes offered within the Gardens.

3.3 The Royal Tasmanian Botanical Gardens: A Working Example

The Royal Tasmanian Botanical Gardens is a good example of a successful restoration project in a botanical garden no more than 3 acres in size. The Tasmanian Botanical Gardens has adopted several "community affiliated" conservation programmes – similar to those proposed for Napier's own Botanical Gardens, but on a smaller scale.

One of the strengths of this botanical garden is the staff's ability to involve people directly in growing and replanting of threatened species. Botanical gardens provide the means for a community to do their bit for conservation. As stated in the *Botanic Gardens Conservation Strategy*, any species recovery plans should always take the opportunity to involve the local community, schools, and / or special interest groups in the activity. The earlier the groups are involved the better.

Education in botanic gardens need not simply be the labelling of plants, or just letting the public know what the botanic gardens are doing. There are many different ways a botanical garden can promote conservation awareness. The programmes listed below have been successfully executed at the *Royal Tasmanian Botanical Gardens* - a botanical garden with a size of 3 acres and a budget of less than AUS $1,000,000:

- Education programmes for children about the photosynthesizing processes of plants.
- 'World tour' for visitors around the gardens to study adaptations of plants in different communities;
- Explore the differences between trees by giving them a hug;
- Go on field trips to collect seeds, and then grow and plant native species in school grounds and community parks;
- Revegetate areas to create new habitats to help save endangered birds and insects;
- Or grow endangered species to create *ex situ* collections in the community.

A number of "teaching kits" highlight various themes of environmental education related to the Gardens and plant conservation, with seminars conducted for teachers, parents and trainee teachers. Education programmes should be designed to lead on and direct participants to other environmentally friendly lifestyle choices, such as recycling, energy conservation, water conservation and so on. Botanic gardens should also set an environmentally conscious example to those visiting the gardens:

- Buildings should be energy-efficient and landscape integrated;
- Materials should be recycled, plant material should be composted and mulched, environmentally friendly pest controls trialed and used, recycled paper products used, and so forth.

Due to a limitation of space within the *Royal Tasmanian Botanical Gardens* it was felt that they would be unable to create a garden that could be considered useful as a genetic bank on it's own merits. That is, the gardens could not hold a sufficiently wide genetic sample. They decided that working in conjunction with other land managing authorities, such as the council, schools and in some cases individuals, they could work collectively to create collections of significant conservation value, that is a number of genetically diverse specimens.

4 Restoration Recommendations

4.1 General Approach

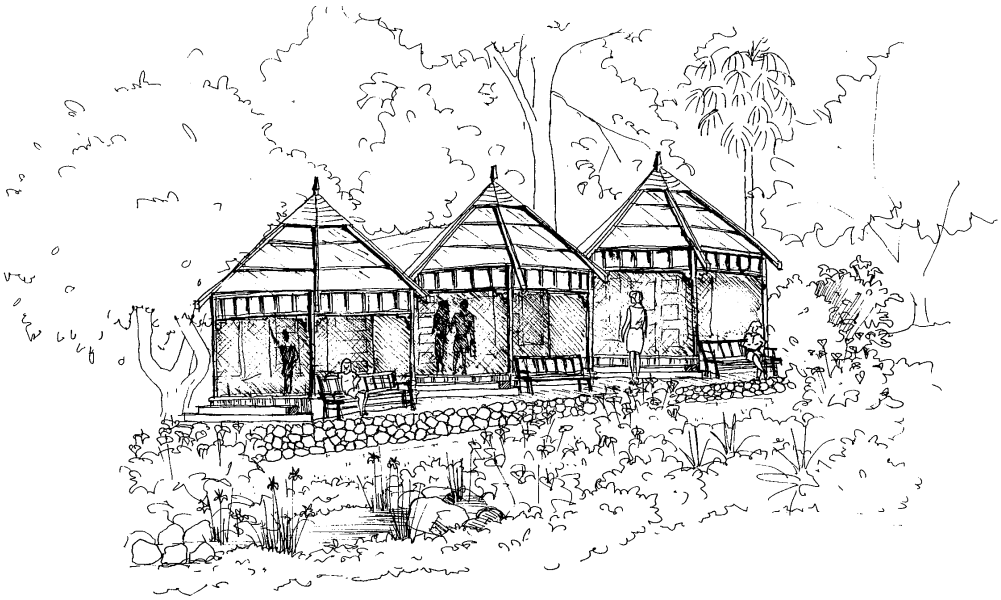
The Napier Botanical Gardens is a unique city asset. The complex historical association between the development of the Gardens and that of the city of Napier presents an important incentive for preserving what historical elements are still present within the Gardens.

As revealed in the historical overview, provision for a Botanical Gardens was made in Napier's original town layout plans of 1855. Over the years, while other New Zealand city reserves were refined to comply with International Botanical Garden requirements – that is Wellington, Christchurch and Dunedin - the Napier Botanical Gardens remained in it's relatively park-like format.

As Napier's Gardens were not originally designed to any particular 'Botanical Garden' framework, and as no major works in this direction have been undertaken since it's establishment 144 years ago, the Napier Botanical Gardens is well overdue for revitalisation and refocussing for the coming millennium. The ultimate goal should now be for the 'Napier Botanical Gardens' to be both botanical in practice as well as in name.

The historical significance of the Gardens is currently unheralded. Most of the historical information on the Gardens is held in the 'archives' of the Hawke's Bay Cultural Trust. Their historical photographs range in period from the late 1880's to the early 1900's. Early photo's are extremely interesting – from both a historical perspective and from a garden design perspective. Many of the photos show the Botanical Gardens in it's early years, with surprisingly large trees and open vistas across the lawn. Others offer less specific glimpses into Napier's colonial history portraying family outings and turn of the century fashions.

It is recommended that the Napier City Council obtains a copy of these photographs for their own files. Because the Botanical Gardens is such a significant city asset it is important that the visual records of the Botanical Gardens history be made accessible. A permanent display within the gardens for the general public to enjoy would accommodate this. Public inquiry may uncover further photographic material in private possession which could possibly be copied or donated for the archival records.

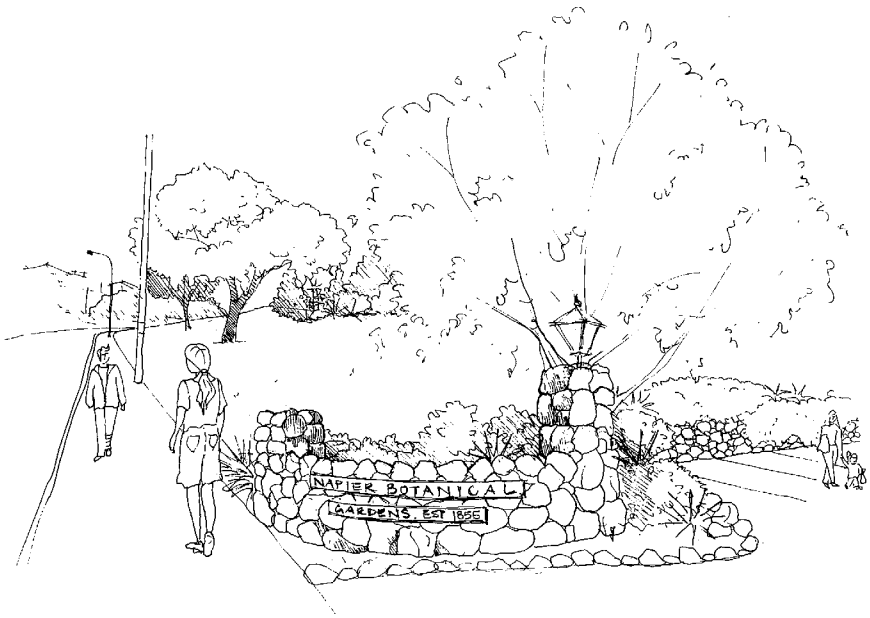


A display panel, as well as a series of information plaques strategically placed along the existing pathway systems, should be installed within the Botanical Gardens, highlighting significant historical facts about the Botanical Gardens and / or allowing visitors to see the Gardens as they once were.

Ideally historical information plaques could be installed in locations of 'historical features of note' within the Gardens. Such plaques should include information about the first well and it's impact on the local community; photo's of the old rose garden, as well as a brief description about the significance of the old terracotta fountain at the top of the hill. These specific areas should be the focus of restorative works within the Gardens. Works need not exactly replicate what is found in the photos however recognition of these important features is essential.

'Low maintenance' is a top priority on the list of objectives for the refocussed Botanical Gardens and this must be recognised in the design of each area. As the focus of this restoration project is to move Napier's Botanical Gardens into the 21st century, proposed solutions for all historical features must address potential site and / or staff constraints where ever possible, including maintenance, and design accordingly. A maintenance schedule and allocation of priorities must be put in place. There is little benefit to be had in restoring an area if it can not be properly maintained.

4.2 General Maintenance and Upgrade Recommendations



The public entrance to the Botanical Gardens, located at the foot of the hill, is currently underdeveloped. The refocussing and redesign of this area will create and define the special character and atmosphere contained within the green treasure that is the Napier Botanical gardens.

A key objective in the restoration of the Napier Botanical Gardens is continuity of materials. This must apply to all man-made elements within the Gardens. It is important to use a standard style and detailing for the entire boundary fence, to have continuity in paving surfaces, step details and importantly garden furniture. Consistency in signage, lettering, and style is important including size, colour and font. The botanical plant names and information must also display and convey information accurately, concisely and clearly.

4.2.1 *Boundary Fence*

Currently the boundary fence style varies greatly from one end of the Botanical Gardens to the other. The lower section of the Gardens is enclosed by a steel pipe and wire-mesh fence, where as the top flat area is enclosed by a brown timber picket fence. A standard style and detail is required for the high profile areas and should be built in materials that emphasise both the historical significance of the Gardens and, if possible, provide a link with materials used in other areas within the Gardens.

It is recommended that a 1.8m high 'traditional style' wrought iron fence, powder coated black or very dark green, be installed. This would provide a strong link with the existing wrought iron fence along the main entrance of the old Napier Cemetery

The historical wooden fence along the boundary of the cemetery should be preserved. This visually reminds the visitor of the historical connection between the two city 'reserves', while at the same time providing a barrier that clearly separates the Gardens from the cemetery.

It is recommended that along the less obvious sections of the Gardens boundary the existing steel pipe and wire mesh fence be upgraded. Installing a black / very dark green wire mesh replacement of a secure design, perhaps angled away from the road on a 45 / 60 degree angle, would suffice.

The secondary gates, in the past used to service 'short cuts' up to the hospital, will also be readdressed. As the hospital is no longer in use these access points are to be closed, ensuring tighter security during after hours, with surveillance cameras to be installed at strategic points within the Gardens after hours also.

As is currently the practise the Gardens would be open to the public between the hours of 8:00am to 4:30pm, unless by prior arrangement with the NCC Reserves Asset Manager. This enforcement could take place after year 4 with the installation of a new boundary fence. The Council may investigate at a later date the opportunity of increasing the 'open hours' during the summer months. A conscious effort has been made throughout the design process to retain all existing annual functions, and to incorporate similar public entertainment within the Gardens available. For such functions the Gardens would be open for pedestrian access within the Gardens, incorporating strategically placed feature lighting where necessary.

The proposed 'limited hours of access' into the Gardens has two purposes. The first being a public safety issue ensuring individuals can no longer walk through the Gardens after dark into a potentially dangerous situation. The second reason, in addition to that, is to reduce the instance of plant theft and vandalism within the Gardens as is currently a major issue.

4.2.1.1 Military Track

A wide mown track system known as the 'military track' runs between the Botanical Gardens and the Napier Cemetery. This particular pathway system also has historical significance as being one of the early track systems established by the 64th Regiment during their occupation in this area. The track was created for ease of access up to the top of the hill as the grade of this route is much more gradual than the alternative pedestrian footpaths and Garden track systems.

It is proposed that the 'Military Track' be incorporated as part of the Botanical garden experience. As such we recommend that the perimeter fence around the Gardens boundary be erected on the cemetery side of the track. This will mean that the vistas out across the Gardens will be preserved. The Military track is currently a mown track and it is proposed that this material will be retained. As the track will become a feature of the Gardens it is anticipated that the maintenance of this area will be adopted as part of the Gardens jurisdiction, ultimately enhancing the character of the Military Track.

It is proposed that the 'Military Track' will have limited hours of access. These will be the same as the Botanical Gardens hours of operation and as such will be closed to the public after dusk.

4.2.2 *Pathway Resurfacing*

All main pathway systems around the Gardens require regrading and compacting prior to paving. The proposed paving surface for all main paths is exposed aggregate (9kg black oxide / m^3) with a brick header course introduced at 4 metre intervals. This header course is to be laid as a soldier course (long side to long side), reducing the monotony of the wide paths by breaking them into sections, and providing continuity of materials with other sections of the Gardens (ie. the historically significant Rose Garden).

The surface of these exposed aggregate pathways is to have the maximum 'grade' possible, using a coarse crushed metal instead of standard beach / river metal. These pathways should also be constantly swept and managed by the Gardens maintenance staff.

A second, less formal treatment is recommended for the secondary pathway systems, such as those leading around the New Zealand native bush section, and up behind the watercourse. In order to enhance the 'bush like' character of such areas a bark chip path with a ponga log border is recommended.

In cases where the steepness of the gradient makes access difficult appropriate regrading should be undertaken. Where possible abruptly sloped paths should incorporate ramped sections and the provision of a suitable handrail for safety reasons as well as ease of access. There are several areas where this will be necessary – an 'upgrade site plan' has been developed highlighting where path regrading is necessary.

Plants with thorns or prickles should be avoided along the edge of paths. The minimum height of branches above paved areas and pathways should be 1800mm where applicable. Any trees with low, drooping branches, or poisonous varieties that are impeding clear access should be trimmed accordingly.

4.3 Irrigation

In order to ensure the restoration of the Botanical Gardens is successful an extensive irrigation system must be installed throughout the entire reserve. This should work on a timer and moisture sensor system, especially crucial between the months of October and April. A "rider main" will need to be installed around the entire perimeter of the Gardens to provide the necessary water supply for all newly established vegetation, ensuring a longer life span of existing plants situated on the very dry north-facing banks.

To date the Gardens have lacked such a provision resulting in a noticeably stark understorey layer throughout the Gardens, especially beneath large tree species where water is extremely limited. The introduction of irrigation into these 'problem' areas will ensure that growing conditions can now accommodate a wider diversity of plant species.

4.4 Water Reticulation

Another water related issue that must be addressed is the question of water conservation. All prominent water features in the Gardens currently run off the city's water supply. Although such practices were not unusual at the time these features were constructed, water conservation is now an important consideration. The Napier City Council in recent years has been an avid enforcer of water conservation, and water rationing around the city - especially during periods of summer droughts. As such it is extremely important that the City's Botanical Gardens, one of Napier's most prominent reserves, practise water conservation.

The recommended solution is the introduction of a water reticulation system that will service the central water-course and both ponds in the Oriental water garden. Introducing water reticulation practices into the Gardens is a prime example of the Councils commitment to it's conservation objective.

It is proposed that this system be installed over a 3 – 5 year period as the main pathways are being upgraded. This will allow for the reticulation pipes to be laid beneath the paving surface for easy access and serviceability. During this time the watercourse would continue to run off city's water supply until the entire pipe installation is complete.

4.5 Signage Recommendations

Signs are a fundamental aspect of the Botanical Gardens. They orientate visitors, direct traffic flow, and indicate and describe places of interest. It is essential that the information content of signs is available to all people, regardless of disability.

Signs within the Gardens should be located so that they are easily visible for both seated and standing adults, and also children. This requires that all signs be between 900mm to 1500mm above the ground and uniform in appearance.

The most easily read signs are those with clear a lettering style, for example Helvetica, having light letters on a contrasting dark background, preferably free from obstructions such as overhanging branches. Signs that contain both graphic symbols and lettering (rather than symbols or lettering alone) are the most easily comprehended.

Once upgraded the main entry, and other individual 'disabled access' areas within the Gardens, such as the children's garden, the sensory garden, and the hilltop wedding garden, should be clearly marked with the international symbol of access.

Signage for the Napier Botanical Gardens restoration is divided into three layers.

1. Historical Status – a special icon and / or text message will be included on each plant label, where applicable, explaining each plants historical significance within the Napier Botanical Gardens.

2. Botanical Information – denoting the plant, shrub or trees botanical name, common name, its country of origin and the specific area the plant is endemic to, the plants conservation ranking and plant description

3. General / Educational Information – to explain alternative uses for each plant, which plants are endangered, bird associations (whether a specific plant provides food for birds)

Each plant should be labelled in relation to these categories. If a plant is part of the "historical" vegetation framework its entire label will be a different colour - this primarily applies to the large tree specimens. The botanical information and where a plant originates from will also be listed - this primarily applies to the understorey planting to be planted beneath existing tree cover. Any additional information of "interest", such as any unique uses a specific plant may have, whether a plant is edible, whether a plant can be used for a functional purpose or for clothing / crafts, should be included.

All existing large tree species within the Gardens are to be labelled within the *historical framework category*. These labels should include the above plant information (botanical name, common name, country of origin etc), however, in order to differentiate between an existing tree and one planted after the year 2000 these labels must either be of a different colour or carry a special icon.

Signs indicating specific areas, such as the 'Australian Section', are to be replaced. All will be identical so as to be easily recognisable, introducing continuity in to the framework of the Gardens. These signs will not only state the name of each specific area but also provide a brief description about the area in question. Labels for areas should also have the date of establishment/creation. This is always interesting in the years to come.

'Education stations' are a simple way of supplying information on specific plant species. These stations give information on individual characteristics or unique plant qualities exhibited by a given plant species. Areas where this would be extremely useful are throughout the New Zealand native section, for example explaining the many different uses of flax in traditional Maori culture, or why alpine plants are often low growing with tiny leaves.

4.6 Parking

It is recognised that the current parking facilities within the grounds of the Napier Botanical Gardens are insufficient to accommodate any significant future development proposals. It is therefore recommended that two separate parking scenarios be offered. The current entrance off Spenser Road is to become the 'alternative access point', with the revised entrance off Napier Terrace becoming the 'Main Entrance' into the Gardens.

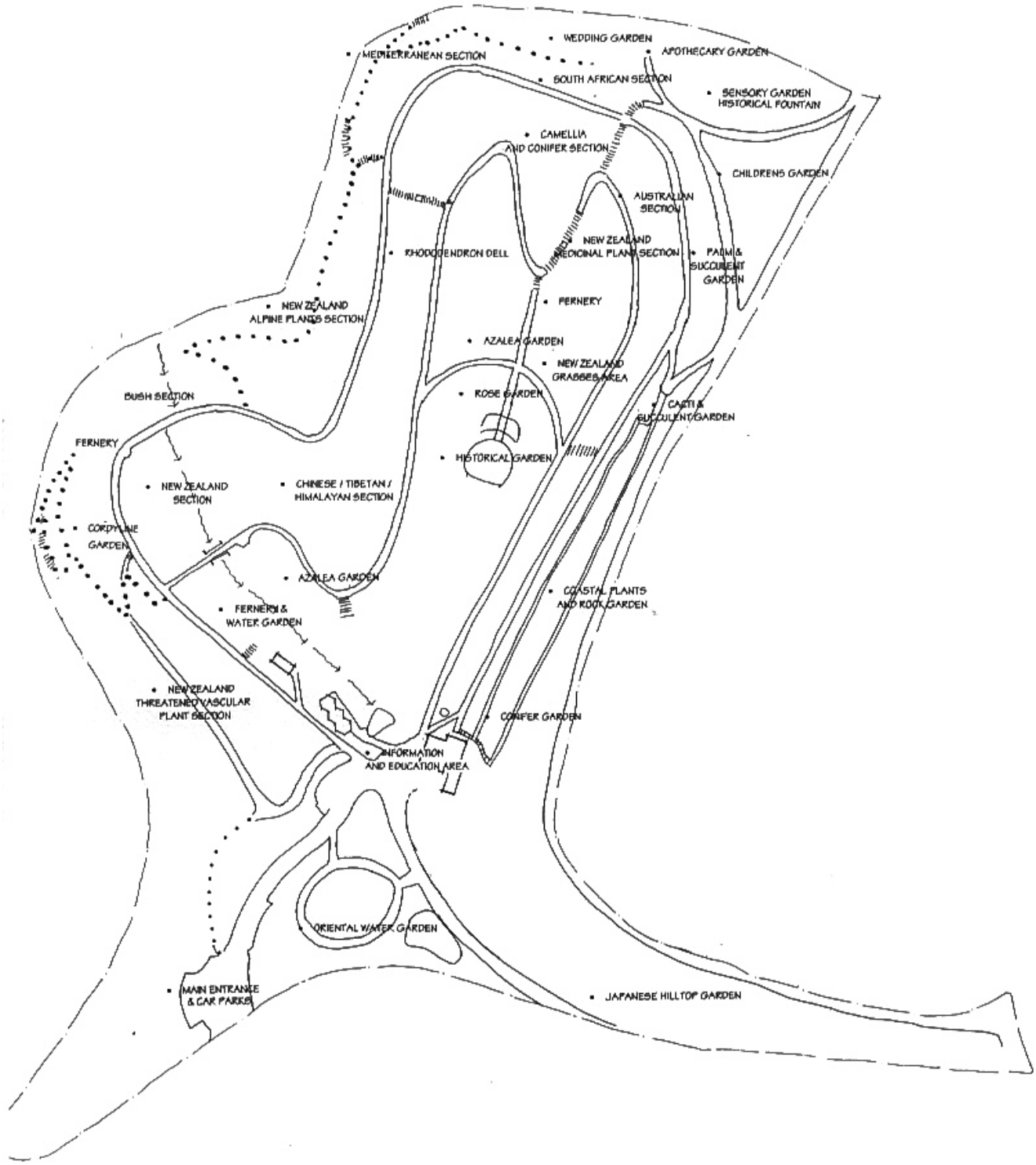
There are currently 24 angle parks situated along the Napier Terrace roadside frontage of the Botanical Gardens. There are also 6 parallel parks in this area, as well as an additional 8 angle parks on the opposite side of the road. With the closure of the hospital, traffic density has greatly reduced, making this entrance a much safer option as the 'Main Entrance' into the Gardens. It is anticipated that the 25 parks currently available on Napier Terrace will be sufficient for future development of the Gardens. There is also scope in this area to accommodate one bus standing area where the current bus stop is located.

It is proposed that all visitor groups meet at the congregation area located beside the current staff room building. It is anticipated that all other visitors enter the park from Napier Terrace 'Main Entrance' where long term public parking is available.

The Spenser Road entrance and car park, as the alternative access point, is to become a bus drop off / pick up point, and is the suggested location for the disabled and 'child vehicle' parking area (for the purpose of servicing parents with small children with prams, buggies etc). This access point will also accommodate service vehicles. The existing driveway into the service area will also be designed to accommodate the turning circle of a coach, although it is anticipated that most visitor groups will be arriving in smaller mini buses.

5 Proposed Restoration Solutions

5.1 Plan of Designated Areas



5.2 Plant Conservation Section

A plant conservation programme focusing on New Zealand's threatened native vascular plants purposefully meets the objective criteria of the Botanical Gardens – something that it is currently lacking. By refocussing the Napier Botanical Gardens to concentrate on the conservation of our threatened native vascular plants, and by working with the Department of Conservation to establish an area within the gardens for endangered plants, our botanical gardens would offer vital educational and conservation opportunities within Hawke's Bay.

The Reserves Asset Manager has already received letters from the Department of Conservation enthusiastically supporting and endorsing the proposed establishment of a threatened native vascular plants programme within the Napier Botanical Gardens. (*See Appendix 2 for copies of the Department of Conservation letters to Council*)

5.2.1 *New Zealand's Nationally Threatened Vascular Plants*

Vascular Plants – These are defined as plants with an internal conducting system of xylem and phloem; they include the ferns, fern allies, conifers, and flowering plants.

The Napier Botanical Gardens plant conservation section should be divided into two specific sub areas. One area representing the threatened plants and their allies from our region, that is the East Coast and Hawke's Bay; the other area containing as many of the threatened plants from other regions of New Zealand as will grow in this climate. Both areas should be sorted according to the appropriate plant communities and ecosystem.

The Department of Conservation has ranked New Zealands threatened vascular plants and assigned them to one of seven categories[1]:

- A = highest priority for conservation action
- B = second priority for conservation action
- C = third priority for conservation action
- I = plants about which little information exists but which are considered threatened
- M = plants that are rare or localised and of cultural importance to Maori
- O = plants that are threatened in New Zealand but are thought to be secure in other parts of their range outside of New Zealand
- X = plants which have not been sighted for a number of years, but which may still exist

Such information should be exhibited somewhere within the conservation enclosure.

The proposed "Threatened Vascular Plant" Section is to be established in place of the existing large aviary. Upon removal of the aviary's concrete foundation, considerable regrading of the bank will be necessary. It would be worthwhile at this point to install all necessary underground services, such as an extensive irrigation system.

This conservation area should be designed primarily from a functional perspective, in accordance with any recommendations made by the Department of Conservation. The entire "Threatened Vascular Plant" area must be carefully fenced off preventing any rodents, possums, and humans from destroying these ecologically sensitive plants. Access into these areas will be limited at all times and closed when unsupervised.

[1] From "*The Conservation Requirements of New Zealand's Nationally Threatened Vascular Plants*"

It is proposed that a clearly defined observation / viewing pathway traverse the entire conservation area. This will meander through the fenced off section allowing visitors to see the threatened plants and learn more about them.

Involvement in this project can be viewed as a tangible contribution by the Napier City Council to bio-diversity conservation in New Zealand.

Uncomplicated information plaques explaining the common threats to our endangered plants; distribution maps showing the proportion of threatened plants registered in each region; and brief descriptions of the specific habitat types of our threatened plants should also be dotted around the conservation area. Where possible comprehensive identification labels about each threatened plant should be erected. Information on each should include:

- Family name
- Specific area the plant is endemic to
- Common name
- Plants conservation ranking
- Plant description
- Conservancy annotation (region within NZ where this plant is naturally found)
- Natural habitat
- Threats
- Sketch or photograph of plant showing, leaf, flower and appearance of mature specimen (where possible)

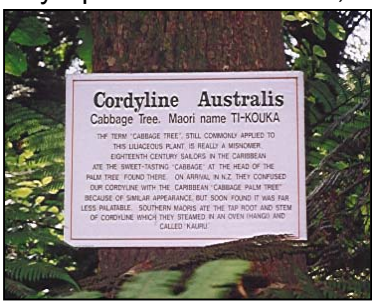
Brief descriptions of the conservation work currently being executed by the Department of Conservation will be presented at an information station specifically allocated to the 'Threatened Vascular Plant' section. Such information will include:

- Work undertaken to date
- Priority sites for survey
- Monitoring: objectives and priority sites
- Research questions
- Management needs
- Selected references for additional information

Specialised Education kits about New Zealands threatened vascular plants, as well as several permanent information plaques situated within the area would complement the conservation section.

5.2.2 *Diverse Uses for New Zealand Native Plants*

The Maori had many uses for our native flora. These uses extended from medicinal and culinary uses to artistic and craft related uses, such as weaving, dying, and of course woodcarving. The area within the Gardens set aside to display these plants is located mid way up the northern face, on the opposite side of the path to the Australian section. There are currently several New Zealand natives growing in this area, primarily self-seeding, recognised for their medicinal and/or culinary properties.



<u>Medicinal / Edible Garden</u> – Listed below are just some of New Zealands native trees that were used in traditional Maori medicine and / or as food. The Maori people generally used only part of the plant, often treating it in some way such as boiling the bark for making a poultice.

Examples of trees used for food or pharmaceutical practises:

Kawakawa / pepperwood (leaves)
Rewarewa / NZ Honeysuckle (nectar)
Matai (sap)
Tanekaha / Celery Pine (bark)
Hinau (bark, berries)
Ngaio (leaves)
Mahoe / Whiteywood (leaves)
Houhere / lacebark (inner bark)
Cabbage tree (root)

Weaving / Rope / Clothing - The Maori people are very artistic people and are praised for their weaving and carvings. The New Zealand bush offers many useful plants from which to gather materials for their crafts. Although the leaves of trees and flaxes were the most common, some native trees offered yielding barks that were perfect for headbands and hats.

Examples of trees used for weaving, rope, or clothing:

Cabbage trees (leaves)
Nikau palm (leaves)
Whauwhaupaku / Five finger (bark)
Makomako / wineberry (bark)
Houhere / lacebark (bark)
Kowhai (bark, inner bark, leaves, juice of roots, flowers)

Dye – Dyes were used to colour both clothing and baskets. Although it was generally the bark of trees that was used weavers did sometimes use the berries and flowers from certain plants.

Examples of trees used for dyes:

Puriri (bark)
Pate / Seven finger (berries)
Whauwhaupaku / Five finger (berries)
Kamahi (bark)
Makomako / wineberry (bark)
Hinau (bark)
Tanekaha / Celery Pine (bark)
Tawhai Ranui / Red beech (bark)
Tawhai / Silver beech (bark)
Kowhai (flowers)
Hinau (an exudation taken from the tree was used to make a black pigment for tattooing).

5.3 International Sections

Under the proposed plan the Botanical Gardens will be refocussed to incorporate a diverse range of international plant collections. Due to its topography and diversity of growing conditions, ranging from good to difficult, sheltered to very exposed, the Napier Botanical Gardens is unsuited to some plant communities. As such only a carefully selected number of plant species and genera shall be grown and displayed within the Napier Botanical Gardens.

The strategy behind the revitalisation of the Gardens is to build on existing collections or introduce new plant species suitable to the Gardens diverse growing conditions. Selected representations or collections of plants from a variety of latitudes, geographic areas and countries will be represented in a specific section. The practical reasoning for this approach is that many of the recommended collections of plants can be grown in New Zealand in conditions approximating those of their country of origin. In some cases however the existing historical framework, ie the large trees, bestow a distinct character to certain areas.

5.3.1 *Chinese / Tibetan / Himalayan Section*

A prime example of how the historical framework of large trees can bestow a specific character to an area can be seen along the hillside on the western bank – just after the watercourse. Here the framework of old conifers and craggy hillside are visually evocative of Oriental landscapes. Because of the diverse range of interesting and established specimen trees this section has been set aside for Chinese, Tibetan, and Himalayan plant communities. Collections of rhododendrons, azaleas, camellias, and conifers etc are to be planted under the existing tree canopy.

To assist the establishment of new vegetation on these dry banks an extensive irrigation system is to be installed which is to service the entire Gardens.

5.3.2 *Mediterranean*

The position selected for the Mediterranean collection has again been selected by the atmosphere created by the large existing trees, in this case the *Phoenix canariensis* palms, which evoke the character of Spain, Southern France, Italy and Greece. Here the plant collection will contain such plants as bay trees, olives, rosemary, and lavender.

5.3.3 *South African*

The framework for this area is already well established and is both visually and botanically interesting. Within the South African collection it is felt that three different plant collections should be included. (See Appendix 2 for useful names for South African Plants)

Bulbs –
South Africa has traditionally been a diverse and wonderful source of bulbs which have been collected and exported world wide since the early 16th century. Many of these plants are familiar to New Zealand gardens: gladiolus, freesia, watsonia, agapanthus, amaryllis etc. These bulbs are suited to a variety of climatic conditions and provide interest in their colour range, size, and different flowering seasons - many varieties flowering late summer and winter as well as spring.

Proteas –
The hillside area adjoining the proposed wedding garden currently holds a small collection of protea species. Unfortunately due to the soils naturally high pH level most of the Napier Botanical Gardens is not ideally suited to the protea species. This particular section, where proteas are currently growing, is elevated, dry and open to the sun. Since protea species are already growing very well here this area has been selected for the South African protea

garden - with an understanding that the pH level of the soil may need modification from time to time.

The protea genus is the most outstanding in the proteaceae family. Proteas are found naturally only in South Africa, mainly in the south western Cape areas. A side benefit is that these species thrive on minimal care and in conditions other plants struggle in. Proteas provide great quantities of magnificent blooms through winter and spring.

Leucadendron and Leucospurnums –
These plants are naturally found on mountain slopes within sight of the ocean enjoying constant sea breezes. They are amongst the most spectacular of winter flowering shrubs. This collection is an adjunct to the protea collection.

List of Appropriate South African Shrubs include:

Adenandra uniflora (spring, 50 x 50cm)
Asclepias physocarpa (swan plant – summer, 100 x 50 cm)
Barleria obtusa (autumn, 50 x 50 cm)
Bauhinia galpinii (summer, 100 x 150 cm)
Calpurnia intrusa (spring, 400 x 100 cm)
Coalmen varieties (spring)
Crotalaria agatiflora (autumn, 175 x 125 cm)
Dais cotinifolia (summer, 500 x 200 cm)
Erica varieties (winter)
Eriocephalus africanus (spring, 50 x 50 cm)
Euryops varieties (winter/spring)
Felicia varieties (spring)
Gamolepis chrysanthemoides (winter, 100 x 100 cm)
Iboza riparia (winter, 225 x 150 cm)
Leonotis leonurus (winter, 200 x 150 cm)
Mackaya bella syn. Asystasia (spring, 125 x 100 cm)
Phygelius capensis (summer, 100x 100 cm)
Plectranthus fruticosus (winter, 150 x 125 cm)
Plumbago auriculata (summer, 150 x 125 cm)
Podolyria varieties
Polygala virgata (spring, 250 x 100 cm)
Portulacaria afra (50 x 50 cm)
Pyonostachys urticifolia (winter, 150 x 125 cm)
Royena lucida (spring, 125 x 125 cm)

5.3.4 *Cycads, Palms and Succulents*

There is a fine and well-established collection of palms and cycads in the northern upper level of the gardens. The proposal for this section is to extend and rationalise what is currently growing in this area. Palms grow particularly well in the Napier region and are generally recognised as a regional “signature”. The cycads in this area of the gardens are old and valuable, both historically and educationally, as representatives of prehistoric flora. The succulent collection will cover a range of low growing ground cover plants such as *Sempervivens* and *Mesembryanthemum* (ice plants).

5.3.5 *South America / Mexico*

Two collections of plants have been selected from this area.

Agaves and Aloes –
These are xerophytes, drought tolerant and fleshy leaved plants from Mexico. These plants flourish in poor, hot and dry areas and apart from maximum sunlight they make no special demands. These plants are undergoing a real revival in public interest and a collection that represents a range of varieties would be a useful public horticultural reference.

Salvia Collection –
This is the largest genus of the mint family. Many varieties of salvia originate from Mexico and the mid region of northern America. These are decorative plants with herbal, culinary and medicinal uses. They are tolerant of difficult dry conditions in full sunlight

5.3.6 *Australian*

This plant collection is located on the slope below the 'Palm and Succulent Garden'. The Australian climate ranges from tropical in the North, coastal and inland desert, to temperate rainforest in Tasmania. The plants selected for the Australian collection are predominantly those from dry zones suited to this area of the Napier Botanical Gardens. Australian plants have adapted to their native climate with sparse growth and with leaves reduced in size or modified into spines. This uniformity in plant and leaf forms is, however, relieved by the bright colours and unusual shapes of their flowers.

Due to the existing historic framework of established trees throughout the Gardens, portions of the Australian area are out of direct sunlight. This directs the selection toward a diverse collection of species suited to these conditions, namely of dry shade and dry and sunny slopes.

Recommended Plant Species

The plant species to be included in this area are:

Leschenaultia biloba (Floor of the Sky) wonderful brilliant blue, 30cm
Murray River daisy
Swan River daisy
Thryptomene
Prostanthera species (Australian mint bushes)
Chamelaucium uncinatum (Geraldton Wax flower)
Telopia warratah
Callistemon (Bottle brush)
Anigozanthos (Kangaroo paws)
Acacia varieties (Australian Wattle)
Banksia (Australian honeysuckle trees)

5.3.7 *Fernery & Water Garden*

In front of the existing hexagonal bird aviary lies a flowing watercourse. As mentioned previously this watercourse is fed from the city's water supply. As well as introducing a water reticulation system into this area the vegetation planted along the watercourses edge should be revisited. This currently fosters a mixture of perennial beds, aquatic plants and low growing conifers planted along its edges, having little to no connection with adjacent Garden

features. The proposed vegetation for this area will be primarily moisture loving plants. Bulbs originating from the areas already represented within the broader Gardens are to be displayed along the edge of the watercourse.

Recommended Plant Species**: -**

Primula varieties (Candelabra)
Iris varieties (Japanese & Louisiana types)
Rodgersia varieties (including Astilbe hybrids)
Filipendula varieties (Meadowsweet)
Hosta varieties
Zantedeschia aethiopica(Arum lilies)
Aristea varieties
Schizostylis coccinea

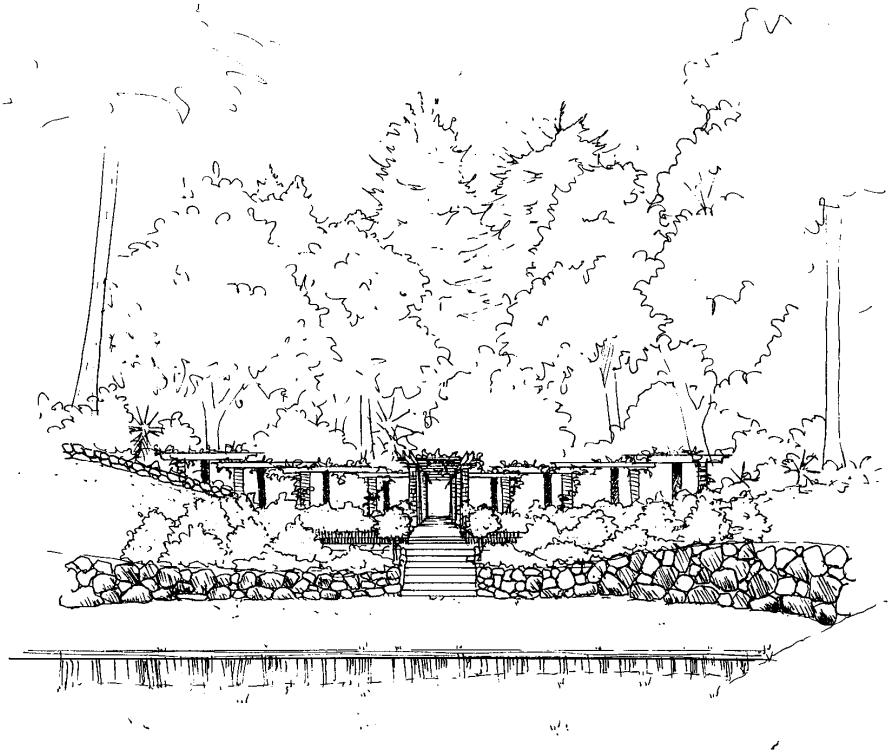
It is proposed that around the small limestone edged pond at the end of the watercourse the existing coniferous species be removed. In their place plant species such as *Gunnera, Ferns, Waterlilies* and *Iris* varieties.

(See Appendix 3 for lists of recommended plant species)

6 Detail Design Areas

6.1 Historical Rose Garden

The area historically known as the Rose Garden lies at the top of the main lawn. In it's current state this area gives little indication of the garden as it once was. Originally the rose garden was situated in a very prominent position, towards the top of the large formal lawn. This key feature, now simply a series of shallow 'bowl' shaped terraces, was extensively planted with roses and foliage plants. Today it offers a more open character, the focus of which has changed considerably. Where once it invited a sedate stroll today this space accommodates more public activities, such as the stage for Napier's 'Carols by Candlelight' celebrations.



As one of the primary objectives behind the redevelopment of the Gardens is to encourage people back into the Gardens, replanting these open grass terraces in the original historic layout would cause a conflict of activity and use. Relocating the historic rose garden so that it provides a frame for the lawn area is a suitable compromise.

A sweeping 'old brick' and timber arcade is proposed to encircle the rose garden and formal lawn. This formal structure is reminiscent of landscape architect Alfred Buxton's work. Buxton was a nationally renowned landscape architect working in the early years of the 20 th century. He designed the gardens for many of Hawke's Bay's wealthier families. Napier's McLean Park was one of his public projects.

Climbing the proposed arcade will be a number of 'old roses' of the varieties popular during that period which would have been planted within the original rose garden in 1855. The rose garden will then extend from the existing border gardens, hugging the edge of the path, to encircle the first lawn terrace. An indication of the recommended roses for this area has been noted on the concept design plan.

6.2 Free Flight Aviary

Immediately behind the Rose Garden is to be a free flight aviary system. This location has been carefully chosen so as to give the visitor the impression that the birds are actually freely occupying the park instead of confined to an aviary system. It is recommended that the mesh around the perimeter of the aviary blend in as much as possible with the surrounding tree cover.

The site that has been chosen for the free flight aviary is in a natural 'dell' and, as such, would successfully camouflage the aviary perimeter from the adjacent pathway systems. A dual gateway structure is proposed for allowing visitors into and out of the aviary. This will be located halfway down the existing central steps that run behind the proposed rose garden. Access into the aviary system will be locked when the Gardens are closed.

There are currently a number of existing mature trees within the proposed free flight aviary system. All of these existing trees are to be retained and where necessary deadwood removed so as to reduce the visual impact of the aviary system and maintain the parks picturesque character.

The free flight aviary will have a strong educational focus with regular signage and a series of information stations. The free flight aviary will replace the Gardens existing hard surface aviaries, which is deemed to be more in keeping with current day perceptions of public bird displays. It is proposed that the aviary enclosure be specifically designed as a bird habitat and as such specific vegetation will be incorporated within this structure.

The selection of bird species for the new free flight aviary will vary slightly from those birds currently housed in the Gardens. The suggested species for the gardens will be unusual, vibrant, and colourful. Unfortunately, due to their tendency for extensively damaging vegetation cover, it is no longer feasible for parrots to be part of the Gardens captive bird-life.

6.3 Japanese Gardens

Japanese Gardens evolved from ancient Chinese Gardens. The garden tradition of China being probably the oldest in the world. In Chinese garden tradition the garden and house are conceived as separate entities. Almost everything in Chinese gardens had a symbolic role, even the plants. Paths, fences and walls in Chinese gardens were never planned in straight lines but meandered so that they would offer ever-changing views. A favourite feature was the circular moon gate – often an ungated opening – which was the symbol of heaven.

The Japanese religion of Shinto – the Way of the Gods – sees man, animals, plants and natural things as all equal parts of creation, and nature is respected. Beauty lies in the natural form and this is what the gardeners seek to achieve. Japanese Gardens are traditionally designed using 'essential features' - a Japanese garden is never haphazardly laid out. These 'essential features' arranged within the Garden are carefully considered by the gardens designer and carry significant underlying cultural meaning. Although enjoyable on a superficial level, a Japanese Garden cannot be successful unless the cultural subtleties within each 'feature' are fully recognised and understood.

There are several different types of Japanese Garden. An island fashioned in a man-made pool was the innovation of Japanese dignitary *Sago no Umako's*. This can be traced back to approximately 620 AD.

A Zen Japanese garden is in actuality a 'dry landscape'. These gardens, developed when *Zen Buddhism* was growing in influence in Japan, were plantless, except for perhaps moss, and formed of rocks and raked sand. Here water is intentionally absent, it's presence suggested instead through the artful use of rocks, plants and raked gravel, and intended for contemplation and spiritual exercise.

Essential features of Japanese gardens include the familiar stepping stone paths, synonymous with Japanese gardens. The stone lantern and basins, and the rustic hut of the tea gardens ever popular in the 16th and 17th Centuries in response to the ideals of the tea ceremonies.

The original garden of Prince Genji was designed for enjoyment from the lake and for viewing from it's many pavilions, but a new style has now emerged. Generally known as 'stroll' or 'tour' gardens a winding path reveals an ever-changing sequence of scenic effects to the viewer. They also began to feature the use of *shakkei* (borrowed view), a concept already used in Chinese gardens where a feature, such as a tree, or view outside the gardens boundaries is made part of the composition of the view within the garden.

6.3.1 *Japanese Hilltop Garden*

The hilltop garden, a steep, south-facing section of the Napier Botanical Gardens, has been selected for the Japanese hilltop 'stroll' garden. The banks of this area already possess a strong Japanese character with their rounded, moss covered slopes and the exposed tree roots that corrugate the banks.

As elsewhere a large proportion of the area has an existing framework of large established trees. Although most of these are in fact European species there is scope for planting a collection of Japanese trees amongst them. It is envisaged that the overall layout and finer detail of this 'stroll' garden will be designed by an experienced Japanese Garden designer, the understanding being that the hilltop garden will relate to the Oriental water gardens below.

Napier City is very fortunate to have a sister City in Tomokamai, Hokaido. Positive interaction between the two cities would enhance and foster closer relations. It would seem both diplomatic and appropriate to approach Tomokamai City to be involved in the creation of this 'Japanese Hilltop Garden'. This association would ensure the implementation of an authentic Japanese Garden within the Botanical Gardens. Requesting input from our Sister City also recognises Napier's respect for our Japanese counterparts currently living within Napier at present.

6.4 Oriental Water Garden

6.4.1 *Signatures of Oriental Gardens*

There are many natural and man-made materials that characterise Oriental Gardens. Listed below are some of these materials and how they are used in Oriental Gardens:

6.4.1.1 Natural Materials

Rocks – These serve as the 'bone' structure of the garden; they are used to create effects of mountains, rock outcrops, waterfalls, stream and river beds, natural bridges, and so on.

Water – Water is used for "Water effects" so as to create the ocean, lakes, ponds, wetlands, waterfalls, and streams. The sound of water is also important and so water trickling from a spout into a water basin is often used within the garden.

Earth – The earth represents 'flesh' for the skeletal rock structure; earth is used to create artificial hills or mounds (*tsukiyama*) onto which the rocks can be set; earth is of course also a growing medium for the plants and sometimes it is left as a bare groundcover.

Plants – Plants are used to create scenic effects portraying trees, shrubs, and herbs in their nature; plants are used to soften and hide defects in rocks; are massed to create the effect of a hill or mountainside; and, like rocks, are used to create the structure of the landscape.

Bamboo – Bamboo is primarily thought of as a fence material in Japanese gardens; bamboo is also used as water spouts for basins, or pipes for conveying water to a waterfall or stream (saplings and natural logs are also used in the same ways).

6.4.1.2 Man-made Materials

Stone Water Basins – Originally these came from temples or shrines and were first introduced into the landscape gardens for use in the tea garden. Stone water basins were used as water basins for ritual purification such as when rinsing hands and mouth before a tea ceremony; stone water basins are also used as decorative focal points in the garden.

Stone (or Wood) Lanterns – These were originally votive lights from temples and shrines also and were also introduced in relation to the tea ceremony – the lantern used for lighting the tea garden path; lanterns are also used to provide a visual accent within the garden at night.

Pillar Foundation Stones – The discarded foundation stone was borrowed for use as a pivotal stepping stone at the intersection of two paths.

Millstones – These are used for the stepping stones

Quarried Granite – This is used for the building of the stone bridges; is used to form paving blocks for formal stone paved walks (*nobedan*); is used kerbing along the edge of the rain gutter at drip lines of eaves.

Roof Tiles – Set on edge in the ground these are used as a decorative edge to separate gravel areas from moss etc.

6.4.2 *The Willow Pattern Story*

In its prominent location to the right of the main entrance the duck pond is an important asset of the Botanical Gardens. Water acts as a drawcard in a city park / garden. Although constructed from hard materials the duck pond has a feeling of naturalness and calm. This is primarily attributed to the weeping willows situated on the island in the middle of this water feature.

The weeping willow was a key feature of early Victorian ceramic patterns. Porcelain and china produced during this time were characterised by Oriental motifs. One poplar pattern, Willow, was conceived during this time and was produced throughout the nineteenth century. There are even several examples of "willow pattern" available on the market today.

The Chinese legend behind the ceramic 'Willow pattern' tells of two forbidden lovers, Chang and Koong-se. Koong-se was the only daughter of a wealthy mandarin, and Chang the father's employee. The two fell in love but were forbidden to see each other once Koong-se's father learnt of their feelings. It was not long before Koong-se ran away from her father's house, across a small bridge overhung by a willow tree, to be with Chang.

After many years of searching Koong-se's father found the two lovers living on an island and had Chang killed. To his dismay Koong-se set their house alight and perished in the fire. Because of their love for each other the Gods rewarded Chang and Koong-se by transforming their spirits into two immortal doves. So now they fly forever above the weeping willow tree free and perfect in their undying love.

The Willow Pattern story is embodied in the existing water feature. The duck pond, as it stands, currently contains almost all of the signatures of the 'willow pattern' - one can see the weeping willow overhanging the water, the little island where the two lovers ran away to, and finally the doves (symbols of constancy and undying love). As the low bridge, used when running away from the fathers house, was some what removed from where the two lovers escaped to, it would be possible to place a low bridge over the lower pond.

Retaining the existing weeping willows, *Salix babylonica*, allows for the historical integrity of the gardens to be preserved while at the same time providing a focal link with adjacent Oriental gardens, such as the Japanese garden. The symbol of the weeping willow provides a valuable link between the European and Oriental cultures that, due to its proximity to both areas, should be enhanced ensuring a successful transition.

Salix are characteristic of the period of Colonial development when Napier city and the botanical gardens were first established. The weeping willow carries with it strong links with New Zealands English (and Chinese) heritage where, being so popular in the mid 1800's, it was bought to New Zealand by the first settlers – adding yet another dimension to the Napier Botanical Gardens water feature.

6.4.3 *Willow Pattern Garden Restoration*

The existing duck pond is currently in a state of disrepair. The concrete rim of the pond has been scarified; presumably to accommodate some sort of tile work or rock-veneer at a later

date, however this has never been completed. The 5 small garden insets situated around the ponds edge no longer carry vegetation and tend to be used as small landings from which ducks rest and young children stand on to feed them. The seating placed around the pond is adequate, but sparse, and the connection between the sloped lawn and the pond area is non-existent and should be addressed.

The paving surface around the entire top water feature must be upgraded. Here lies an opportunity to introduce more creative solutions. It is important that whatever materials are used reflect the overall theme proposed for the water gardens - that is have a European and Oriental balance.

The only 'restoration' work proposed for the larger water feature – other than from an aesthetic viewpoint – is the replacement of the ponds existing traditional "puddled clay" lining for a new concrete base. This eliminates the potential problem of digging through the clay resulting in loss of water when cleaning out the pond, ensuring ease of maintenance.

As it currently stands there is no physical barrier between the ponds edge and the water. This unobstructed character around the pond is important, allowing visiting children to interact with the space freely and providing clear visibility and access into and out of the pond. The water level of the pond should be no deeper than 400mm so as to meet the city's standards. It is recommended that the concrete poured for the new base of the pond have the same black oxide composition as the surrounding path – this will help give the illusion that the pond is in fact deeper than the 400mm requirements.

A mosaic made from broken willow pattern porcelain and a mix of plain white and 'Prussian' blue ceramic tiles is proposed for around the pond edge. By using a combination of the two, a simple but innovative pattern can be created that highlights the key features of the story while also providing a unique, edge to the pond.

The practice of using Mosaic patterns as a paving surface dates back centuries. Traditionally this involved the laying of small, sometimes minute, marble chips of varying shades to create magnificent patterned surfaces. Historically Mosaics were placed both inside and outside buildings; however, some were also placed in gardens as paving as well as on the walls of buildings (frescos).

Mosaics are a worldwide art form that has never ceased to be popular. In New Zealand tessellated tiles, which are a form of mosaic, were commonly laid on entrance floors and often in the bathrooms of grander colonial houses - these were very popular in early Hawke's Bay homesteads.

Patterned tiles have frequently been used to create decorative edges around formal pools. In Spain, the Middle East and in Asia they often portrayed scenes of everyday life or sometimes animals. Incorporating a mosaic pattern into the paving surface around the larger water feature provides a fun and interesting way of expressing the 'Willow Pattern' story.

In order to ensure a high quality outcome to the mosaic, the laying of the mosaic pattern should be done after the laying of the concrete path. This is achieved by cutting a timber mould (approximately 300 – 500mm wide), in sections and of varying in widths, as a template for the mosaic. The mould is laid on top of the compacted base course, forming a lip for the surrounding concrete to be poured up to. After the concrete is set the mosaic is ready to be laid. The timber mould is then lifted, forming the required 10mm deep shape into which the tiles are then placed.

Creating the mosaic shape in this way allows for the path around the edge of the pond to be quickly reinstalled thereby minimising the disruption to this popular area of the Gardens. Once each section of mosaic is completed it can be stepped on within a relatively short period of time. Only those portions of the mosaic that are being laid have the timber mould removed retaining maximum access to the waters edge.

It is recommended that five ceramic "tablets" telling an interpretation of the Willow Pattern story also be set into the concrete path around the pond. These tablets should be approximately 450mm x 300mm in size and have a white background with Prussian blue text and pictures. Each tablet will tell a portion of the story and should be placed 1m or so from the raised wall so that the viewer can read the tablet the tablet and look towards the water feature from the same point.

6.4.4 *Lower Garden Oriental Water Feature*

An intermediary pond lies between the duck pond and the proposed Japanese Hilltop Garden. A small waterfall flows from the larger water feature over large limestone boulders to this smaller pond. A series of generous, sweeping concrete steps flow down to the driveway, leading the visitor down to the lower pond.

This second water feature is more 'natural' in character than the larger water feature and already possesses a number Oriental signatures – large cut rocks, a small waterfall and several coniferous trees around its border. Building on this existing framework with appropriate plant species and spatial layout will strengthen the transition between the two water gardens. Continuing the plant species used around the pond to the proposed Japanese hilltop garden would accomplish a strong visual connection over to this neighbouring area also.

A low footbridge is proposed for the far end of the pond. This links with the 'Willow Pattern' theme established for the larger pond, representing the low bridge crossed by the young lovers when escaping the father's power. As mentioned previously this provides an interactive element between the visitor and the water, and ultimately reinforces the link with the larger pond.

<u>Recommended Plant Species -</u>

<u>Fernery</u>
Matteuccia struthiopteris
Polystichum varieties
Hosta varieties
Nandina domestica
Gunnera

Rodgersia aesculifolia
Iris varieties (at waters edge)

Waters Edge
Astilbe varieties
Hemerocallis varieties
Platycodon grandiflorum

Behind and below seat
Liriope muscari (below seat)
Ophiopogon japonica (below seat)
Buxus microphylla
Rhododendron indicum
Azalea gumpo
Nandina domestica

Background Planting
Pierus japonica
Kalmia latifolia
Osmanthus fragrans aurantiacus
Chamaecyparis obtusa
Fatsia japonica
Pittosporum tobira
Camellia japonica
Camellia sasanqua
Hydrangea macrophylla
Cornus florida
Cotinus varieties`

Behind existing *Cupressus Arizonica*
Prunus varieties
Viburnum tomentosa
Ophiopogon japonica
Syringa cultivars

Between stepping stone path
Thymus serpyllum / Juniperus horizontalis 'Wiltonii'

Beneath Kanuka (remove Cordylines)
Cornus florida
Buxus microphylla (mass planting)

6.5 Sensory Garden Area

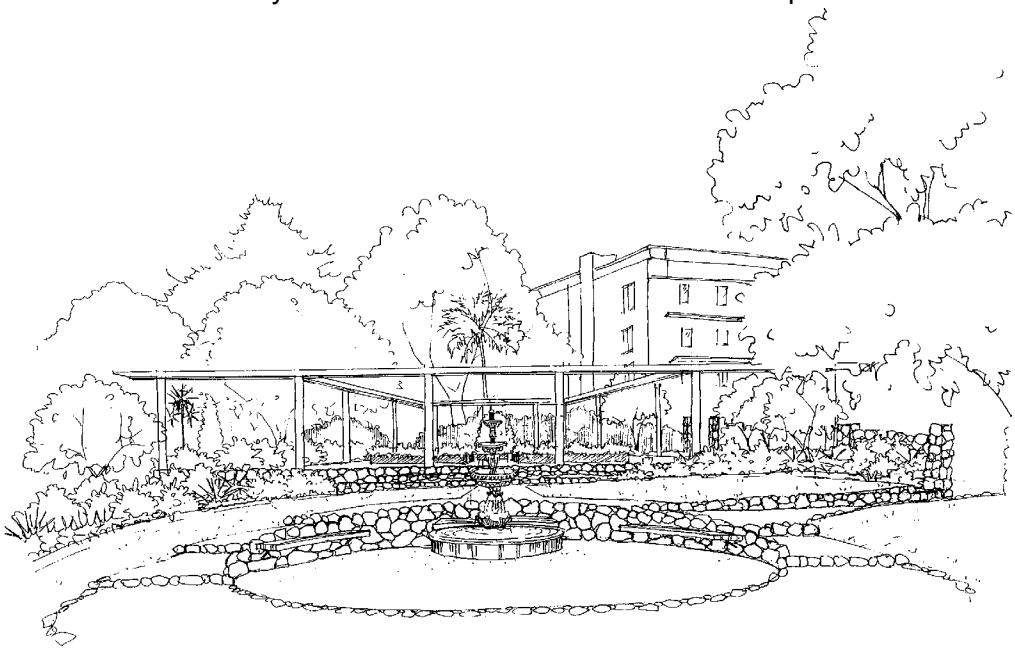
The ancient Greek philosopher Theophrastus is sometimes credited with creating the first botanical gardens, and later much botanical knowledge was passed on through the monasteries. Monastic gardens raised a variety of useful medicinal herbs, initiating the study of medicinal plants, which was at the heart of the botanical garden culture. The monastic gardens, referred to as apothecary gardens, were meticulously laid out with plants carefully grouped together and planted in separate beds. This meant that they could easily be identified, avoiding any danger of confusion – important when they were used medically.

6.5.1 *The Sensory Garden*

More than a display of plants, the Sensory Garden is a place to stretch the minds eye. Whether the visitor walks around the garden or simply wishes to sit within it, this garden is designed to highlight the remarkable scents, colours, sounds and textures found in the plant. Located at the top of the Napier Botanical Gardens this area recognises the formality of traditional apothecary (physic) gardens. A specific area within this section has been designated for a medicinal garden - representing where Botanical Gardens first originated.

6.5.2 *The Main Hilltop Entrance*

At the top of the hill the main entrance is peculiarly understated. Located on the common boundary with the cemetery, this roadway style entrance is both obscure and confusing as to whether it belongs to the gardens or leads to a part of the cemetery. Combined with other elements displaying no clear connection to one another (the fountain, the mesh covered arches, picket fences, the timber archway and the metal covered substations) there is little sense of arrival and entry into the Botanical Gardens from the top of the hill.



The fountain is an important feature in the Botanical gardens. Currently it is rather overwhelmed by the shade of the large Norfolk pine and as it has not been well placed in association with the other elements, the impact of the fountains intricate carved detail is devalued.

By moving the historic terracotta water fountain up the hill 10 metres or so, and relocating the entrance so that it lines up with this and the existing archway, we create a strong axis and focal point for the hilltop entrance. As the existing limestone rock wall is approximately 500mm at this point a series of simple shallow steps would lead from it. It is anticipated that these wide steps will be set a metre or so in from the boundary drawing people into the Gardens from the street.

The existing generous asphalt path would remain, however it's focus will no longer be that of the key access point, instead this will become a secondary accessway suitable for disabled and push chair access.

6.5.3 *The Apothecary Garden*

Situated to the right of the proposed hilltop entrance the apothecary garden is to be surrounded by a 3-metre tall timber colonnade. This structure is to be constructed from recycled telegraph poles connected one to another with deep curving beams.

It is proposed that the entire colonnade be dressed with *Tecamanthe speciosa*, a native flowering climber, a beautiful plant with shiny dark green foliage and panicle's of cream flowers, which is listed in the threatened New Zealand threatened vascular plant section. The *Tecamanthe* growing over the timber colonnade will eventually resemble those clipped hedges often found in European Botanical Gardens

Two limestone edged turf steps are to be built out from the middle of the existing low central wall. These steps will lead up to the apothecary garden, visually linking with the existing old wall and providing easy access up to the garden

The apothecary garden consists of three raised planter beds located within the colonnade structure. This area is intended to contain a number of medicinal plants that will be carefully labelled listing each plants medicinal properties as well as the standard botanical information. Some guide to the many species used is given by their scientific names. As a point of interest whenever the specific name is the Latin *officinalis* you can be sure that it originally had a place in the pharmacopeia – though other plants were used in healing too.

At the periphery of the apothecary garden will be an informal 'Cooks Garden". These gardens will concentrate on plants used in cooking throughout the world displaying both the more conventional cooking herbs as well several plants less commonly renown for their culinary qualities.

6.5.4 *The Wedding Garden*

Situated behind the Apothecary Garden, the Wedding Garden is a small area designed to provide an attractive backdrop for Wedding photos and, if requested, a small congregation space for an outdoor wedding ceremony.

A small garden structure, reminiscent of a litch gate, is proposed for this area over which it is proposed that the rose 'wedding day' will be trained. Two white Lutchyns benches (or similar) are also proposed for this area as focal points within the silver, green and white planting.

Recommended Plant Species for the Wedding Garden (Silver, Green and White Planting) -

Silver
Climbing Rose 'Wedding Day'
Teucrium
Cynara
Artemisia
Buddlea
Convolvulus Cneorum
Dianthus
Senecio
Asetelia Chathamica
Stachys
Pachystegia
Pyrus Salicifolia

Green / White
Euphorbia
Alchemillia
Arthropodium Cirrhatum
Cistus

6.6 The Children's Garden

By its very nature the children's garden should attract children. Currently the entrance into the proposed 'Children's Play Area' is tired and devoid of anything that would attract children to play in it.

To revitalise this area it is proposed to replace the existing steel and wire mesh frame with a pergola structure. This structure will be a prominent feature linking the children's garden with the sensory garden, as well as being visible from the main hilltop entrance. In style this will be reflective of the colonnade surrounding the apothecary garden.

6.6.1 *The Children's Garden Maze*

A garden maze can act like a magnet in the landscape. It's an interactive experience. A maze will draw visitors through intervening gardens toward it.

A maze, whether in a school ground, playground, on CBD land or in a public place is available for use by the whole community – whether as a turf (grass) maze in a park, a stone labyrinth on the coast, or a modern maze in a city centre.

The recommended design for the children's area is a turf maze. This will perform as a passive play area for children.

Turf mazes are 2-dimensional. Although a turf maze is flat, this is interesting in itself. Turf mazes can, in fact, provide more scope for the passive viewer than conventional 'hedge mazes'. With turf mazes it becomes possible to introduce fun, innovative shapes and materials into the pattern. Since a much longer path can fit into a small area and visitors can see and hear each other easily the experience of solving one of these mazes is quite different. As there are no visual obstructions these shapes can be fully appreciated from a distance prior to encountering the maze therefore enticing viewers to the maze from all around its surrounding area.

Although the primary intent behind the maze is to invoke physical interaction, turf mazes also provide for a more passive level of enjoyment. One need not physically walk around the maze to be part of the fun but can simply follow the pattern / journey with their eyes – especially suitable for elderly visitors and weary parents. Children, however, are more inclined to take up the challenge of the maze and follow the paths meticulously.

Due to the immediate proximity of this area to the adjacent historical Cemetery this maze has been loosely based on the Labyrinth – a universal symbol developed thousands of years ago and used in many cultures world-wide.

Unicursal means one path. Unicursal Labyrinths have no junctions but consist of a single path leading from the entrance to the goal. There are three main forms of Unicursal labyrinth: Classical, Roman and medieval Christian. All three forms share a hidden characteristic, internal rotational symmetry.

The archetypal Unicursal labyrinth is the classical seven-ring design. Its simplicity of construction makes the classical labyrinth a very easy design to mark out without measuring equipment. This helps explain its widespread use over thousands of years. Roman Labyrinths, however, were usually designed in a square due to their being laid using mosaic tiles and usually in an inside space.

The Labyrinth is most probably more familiar as a Christian symbol. Historically however its origins lie in ancient traditional / classical labyrinth design. The labyrinth was adopted by the Christian church sometime in the 8th Century. The medieval Christian maze is found in two shapes, circular and octagonal. It is used as a meditation and prayer device taking one on the Unicursal path to the centre of the labyrinth and back out again.

An analogy of the Labyrinth is the journey through life. It can be interpreted, viewed or experienced from a philosophical perspective or just for fun. As there is a limited area to play with, a full scale Christian labyrinth was not possible. The proposed design instead is a derivative of the earlier labyrinths of the middle ages.

Traditional 2-dimensional mazes / labyrinths have one fundamental problem – the grass paths simply cannot withstand being walked upon by large numbers of visitors. An easy solution to this is to reverse the layout of the maze. Old brick paths in a herringbone pattern (feathered finish on the edges) and a drought resistant blue grass such as:

- *Elymus magellanicum* - 30cm tall (blue wheat grass / Magellan blue grass)
- *Festuca glauca 'Elijah Blue'* - 15cm tall

are an easy solution to constant use, both being easy care materials and requiring low maintenance. The finished effect is an interesting, colourful, low maintenance labyrinth that can be enjoyed all year round.

6.7 Terrace Gardens

The existing 'terraced area' is situated below the cemetery on the eastern bank of the Gardens. Due to the steep topography and subsequent drainage issues within this area substantial reconstruction of the bank is required. This should involve constructing a dry stone wall, made from limestone, in front of the existing 'half round' retaining walls currently supporting the bank.

The use of limestone rock provides a strong visual link to other 'feature' areas within the Gardens and maintains the historic integrity of materials selected for the original garden walls.

This reconstruction process allows the banks to remain structurally reinforced at all times. This is especially important in areas of extensive erosion as it minimises the risk of banks subsiding during reconstruction. It also provides the opportunity to professionally install drainage mechanisms behind the dry stone wall for collecting surface and ground water run-off.

The existing paths leading along the front of these retaining walls are to be resurfaced also. These will be carefully constructed to accommodate all surface rain water and run off flowing down from the terraced gardens. Collection channels will be installed along the edge of these pathways to direct this water accordingly.

The proposed plant collections build on existing collections. It is recommended that the 'Cacti and Succulent Collection' currently situated along the top north-eastern terrace be clearly linked with the newly defined 'Palm and Succulent Collection'. As the 'Cacti and Succulent area' is an existing collection it is recommended that revitalisation of this section simply involve the addition of new species / plant varieties, and that the collection be extended another 15m or so along the top two north-eastern terraces.

Below this collection are currently several varieties of *Cistus*. This area is very successful and should be retained for the splash of colour it provides in contrast to the surrounding vegetation. The flowering species, such as Hemerocallis, currently planted along the lower garden terrace have also been appropriately selected. These should also be retained and new varieties of the same species interplanted.

Adjoining the 'Cacti and Succulent Collection' will be the 'Coastal Plant and Rock Garden'. This area is to extend over the next 20m or so of the two upper garden terraces. Plant species are to be chosen both for their interesting colour and unusual growth habit (ie. the

Echium and *Euphorbia* varieties) as well as their hardiness and low maintenance requirements (ie. daisies and *Hebe's*).

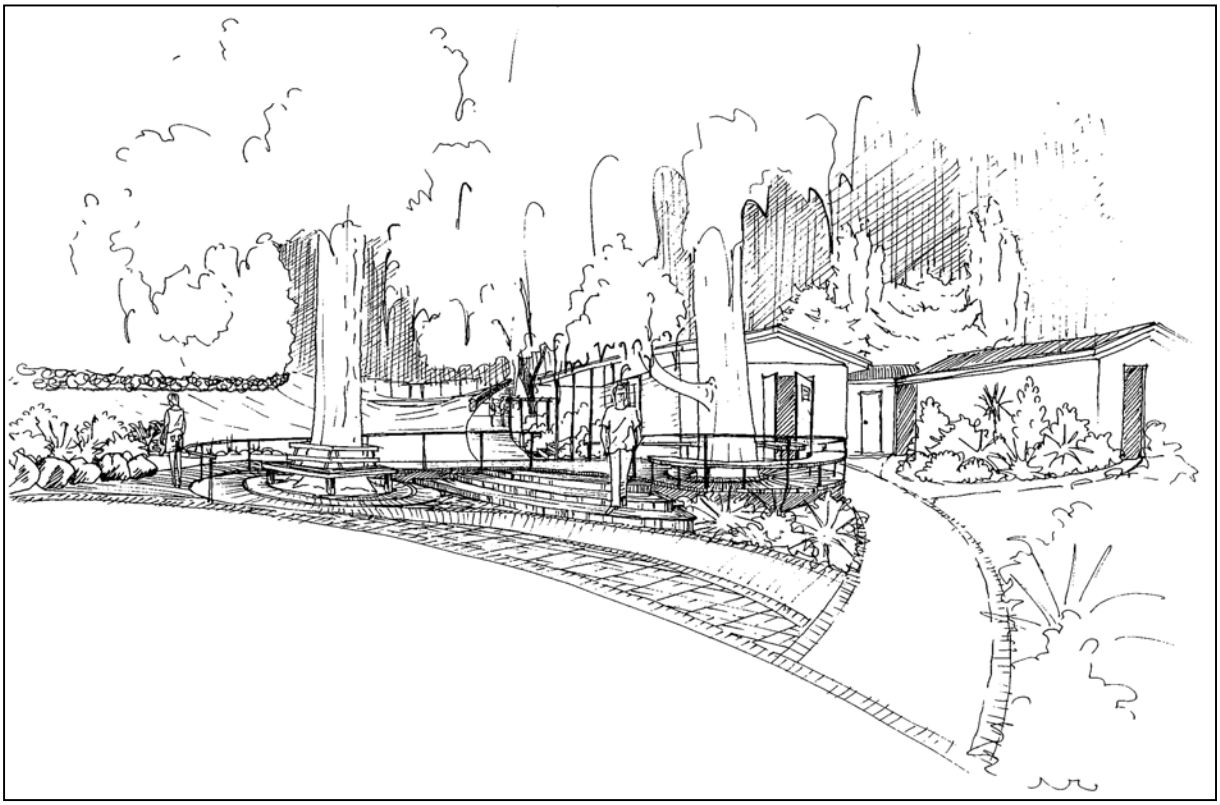
The extensive area at the far end of the eastern terrace has been allocated to a conifer collection. The existing conifer collection, situated on the top level of the north-western bank, is to be relocated to this section of the Gardens. Added to this shall be dark green and silver ground covers (ie. juniper varieties), as well as taller coniferous tree species, (ie. *Cederus deodora* and the Atlantic cedar). Plants selected for this garden are to be those suited to the Napier / Hawke's Bay climate that are not already represented in other areas of the garden.

The haphazard collection of existing bushes and small trees located at the top of the eastern bank (above the utility shed) are to be replaced with groups of silver and dark green conifer species. This selection will flow into the proposed Japanese hilltop garden, which has been identified as a separate design project.

6.8 Information and Service Area

The existing entrance 'forecourt' and service area requires extensive refocussing. In its present state this area offers little for the first time visitor. There is no where for large or small groups to congregate, either on their arrival or departure, nor is there much in the way of directional signage or a general overview of the Botanical Gardens.

The existing two service buildings, a public toilet block and a small staff room / utility shed, are situated at the base of the eastern bank. Both are made of a greenish composite brick offering little aesthetic value to the main entrance of the Gardens. As it would be expensive



to replace these buildings it is recommended that these buildings be internally and externally upgraded. In order to minimise their visual impact, both of these buildings both are to be painted 'creosote black', and the roof painted in a darker shade, such as forest green. It is recommended that all structures in this section of the Gardens be painted the same creosote black.

The external access to the public toilets is currently dark and unattractive. Building a timber pergola between the toilet block and the staffroom / utility shed would provide a more inviting character in this gloomy corner, while at the same time offer a better visual connection between the two service buildings. The small driveway with ramped access up to the storage sheds is to be realigned. This shall also accommodate a level pathway between the informal deck and the public toilets.

The large area to the west of the staffroom / utility shed is to become the new congregation space. A large curved timber deck (built from locally milled macrocarpa) will be extended off the concrete patio to the edge of the lawn. This deck has been designed to take up the many different 'changes in level' currently surrounding the building. A small feature area within the deck has been designed to extend around the trunk of the large conifer (situated on the south side of the staffroom). This area of the deck will be 'koru' shaped, providing an informal shaded seating area.

The existing hexagonal timber seat (historically significant) is situated around the second conifer. This is to be retained, however repainted. The existing asphalt beneath this is to be replaced by brick paving ('old bricks' if possible) and laid in a 'koru' pattern to reflect the adjacent deck detail. A small 100mm x 100mm bottle green tile strip is to be the feature 'of this paved area, this provides the backbone to the koru pattern and, reinforced by an adjacent brick header course, will extend from one side of the paved area to the other.

The path leading to the existing aviary structures is to be replaced. This will involve a slight reduction in the width of the path and the introduction of a slight curve into the paving. The existing cobblestones around the aviaries are to be pulled up and replaced with bricks, the same as used in the adjacent area, which will flow from the curved path across to the existing limestone rock wall.

All layout and materials are to be confirmed by the landscape architect on site prior to installation. The revitalised Botanical Garden Layout Plan, displaying all pathways and interest areas within the Gardens, is to be relocated to the paved 'koru' pattern area. This will allow for easier accessibility to the sign and encourage a more comprehensive circulation pattern.

The existing picnic shelter situated below the large aviary system is to be renovated. This will involve a new coat of paint, using the same creosote black as used for the other service buildings, and redefining the surrounding vegetation so that it comprises solely of ferns and fern allies. The existing picnic table is to be relocated up to the children's maze garden at the top of the hill.

Any inappropriate plant species found in and around the historical limestone well are to be removed, such as the small *Kowhai* currently growing inside the well. A small information plaque is to be erected alongside the well explaining the well's significance to the Gardens and Napier City's early development. A small timber pergola is also proposed for over the adjacent limestone recess (using limestone columns if possible).

7 References

The Garden
Edited by Howard Loxton, 1991

Botanica: The illustrated A-Z of over 10,000 garden plants and how to cultivate them
Bateman 1997

Palmers Manual of Trees, Shrubs and Climbers
Stanley J Palmer Lancewood Australia 1994

The Natural History Museum web-page, 1999

The Story of Napier, 1874 – 1974 (Footprints Along the Shore)
Dr M. D. N. Campbell, 1974

History of Hawke's Bay – Provincial Centennial Memorial
J. G. Wilson & others,1939

A Picture Book of Old Hawke's Bay
Kay Mooney & Margaret Henderson, 1984

Napier's Gardens
Newspaper Article by C. W. Corner, 1947, The Herald-Tribune

The Jubilee of Napier, 1924
Napier City Council, 1924

Facelift for a Forgotten Fountain
Newspaper Article, The Daily Telegraph, 1970

The History & Development of the Parks, Gardens and Recreation Grounds of Napier
C.W.Corner, N.D.H (NZ) in the 'Conference of the New Zealand Superintendent's Association, 1947'

The Willow Pattern Story
Lucienne Fontannaz, Text by Barbara Ker Wilson

A Japanese Touch for Your Garden
Kiyoshi Seike & Masanobu Kudo, 1980

The Conservation Requirements of New Zealands Nationally Threatened Vascular Plants (Threatened Species Occasional Publication No. 13)
S.R. Dopson, P.J. de Lange, C.C. Ogle, B.D. Rance, S.P. Courtney, and J. Molloy. A Department of Conservations publication, 1999

Case Study: Exerts from the **Royal Tasmanian Botanical Gardens web-page**
Andrew Smith, 1999

The Art of the Maze
Adrian Fischer and George Gerster, 1990