

# Appendices

## Waikumete Cemetery

### Reserve Management Plan

May 2015

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or visit [www.aucklandcouncil.govt.nz](http://www.aucklandcouncil.govt.nz)

# Appendices

## Appendix A

*Options for Cemetery Services in Waitakere City (Volume One: Stage 1 Master Plan Discussion Document), March 2009.  
By Synergine Group Limited, Auckland.*

## Appendix B

*Waikumete Cemetery Expansion Report, July 2010.  
By Blue Barn Consulting Limited, Auckland.*

## Appendix C

*Waikumete Cemetery Ecological Management Plan, February 2010.  
By Bioresarches Group Limited, Auckland.*

## Appendix D

*Management of Historic Graves, August 2013.  
By SalmondReed Architects Limited, Auckland.*

## Appendix A

***Options for Cemetery Services in Waitakere City (Volume One: Stage 1 Master Plan Discussion Document), March 2009.  
By Synergine Group Limited, Auckland.***

The former Waitakere City Council commissioned this report as a consequence of the impending burial capacity at Waikumete Cemetery being reached by the year 2018.

The report cited the Burials and Cremations Act 1964 as requiring local authorities to establish and maintain appropriate facilities as to provide for the burial for persons dying within its district. The following methods have been investigated in this report to meet the current and future demand for burials and cremations within the district;

- The closure of Waikumete Cemetery when capacity runs out
- The capacity of Swanson Cemetery and feasibility of its use to augment or replace Waikumete in providing for burial needs in Waitakere City
- The availability of land elsewhere in the city for an additional cemetery or cemeteries
- To consider a variation in the reserve management plan and district plan provisions to enable additional development
- The implementation of alternative burial techniques
- The possibility of ceasing the activity

## Options for Cemetery Services in Waitakere City

### VOLUME ONE: Stage 1 Master Plan Discussion Document



Rev 3.0 Draft Final

March 2009

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## Appendix B

***Waikumete Cemetery Expansion Report, July 2010.  
By Blue Barn Consulting Limited, Auckland.***

Based on the findings of the Synergine Group 2009 report, the former Waitakere City Council commissioned this high level and wide-ranging investigation of potential new burial development into a portion of the vegetated upper slope areas at Waikumete Cemetery. The Blue Barn Study also assessed the environmental effects associated with the proposed development in their report which projected future capacity extended to 2063.



# Waikumete Cemetery Expansion Report

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Contract CM09008A

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## Executive Summary

Capacity forecasts undertaken as part of previous studies at Waikumete Cemetery have identified that there is only sufficient capacity for approximately 10 years of operation using traditional burial practices.

WCC is preparing an Alteration to the Designation of currently 33.41 ha of undeveloped and mostly vegetated land within the northern and western areas of the cemetery to enable future burial development. Of this 33.41 ha, 7.71 ha is proposed to be set aside as a Biodiversity Conservation Area, 4.74 ha will remain as riparian buffer zones and up to 16.71 ha will be developed for new burial and ash plots.

Blue Barron Consulting Ltd was commissioned to undertake a wide ranging assessment of environmental effects associated with the proposed development and produce a report to support Council's application process.

The development of the proposed 16.71 ha of burial areas at Waikumete Cemetery, although possibly complex in certain areas is considered achievable.

From a geotechnical perspective (the principal technical constraint), 11.11 ha is considered relatively straight-forward to develop; 3.05 ha is considered moderately complex; and 2.55 ha considered very difficult.

Other issues such as traffic management, stormwater management, construction noise and landscape restoration issues are considered relatively easy to resolve.

Capacity modelling was undertaken to determine the possible burial yield for the proposed new development areas. Using projected demand data, empirical burial type density inputs and market share assumptions the maximum capacity of the cemetery is predicted to be reached by the year 2063.

Vegetation clearance and development of new infrastructure and burial plots is expected to be undertaken in five (5) stages of ten (10) years capacity for burial interments. Costs for developing the infrastructure for new areas at Waikumete together with landscape restoration planting are estimated at up to \$6M. Up to an additional \$59M (depending on the site-specific slope gradient and grave typology) could be required to fully develop the grave site areas ready for interment. Total development cost then over the 50 year period is estimated to be \$65M.

Six (6) potential alternative cemetery sites were identified in this study but all have significant technical and planning complexities associated with their development.



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# Waikumete Cemetery Expansion Report Appendices

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**KEY**

- LAWN BURIAL 
- MODULAR RETAINING 
- ASH INTERMENT 
- EXISTING STREAMS 

SURVEYED  
DESIGNED  
DRAWN  
COMPUTED  
DWG CHECK  
DESIGN CHECK

DATE	REVISION	BY	DATE



**BLUE BARN CONSULTING LIMITED**

WAITAKERE CITY COUNCIL  
WAIKUMETE CEMETERY  
2060 + BURIAL TYPES

ORIGINAL SCALE		1:5000@A3
SHEET	DRAWING No.	REVISION
1	CM1000 - 600	
OF	CONTRACT No.	
1	CM1000	
SHEETS		





**KEY**

BIODIVERSITY CONSERVATION AREAS	
ALTERED DESIGNATION AREAS	
PROPOSED RIPARIAN MARGINS	
EXISTING ROADS	
PROPOSED ROADS	
POSSIBLE FUTURE ROAD EXTENSION	
GAS LINE EASEMENT	

DATE	REVISION	BY	DATE

**BLUE BARN CONSULTING LIMITED**



DESIGN TEAM LEADER

WAITAKERE CITY COUNCIL  
 WAIKUMETE CEMETERY  
 PROPOSED ALTERED DESIGNATION AREAS

ORIGINAL SCALE 1:5000@A3	
SHEET 1 OF 1	DRAWING No. CM1000 - 100
SHEETS	CONTRACT No. CM1000

CAD FILE CM1000



**KEY**

LAWN BURIAL	
MODULAR RETAINING	
ASH INTERMENT	
EXISTING STREAMS	

SURVEYED  
DESIGNED  
DRAWN  
COMPUTED  
DWG CHECK  
DESIGN CHECK  
CAD FILE CM1000

DATE	REVISION	BY	DATE



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WAITAKERE CITY COUNCIL  
WAIKUMETE CEMETERY  
2060 + BURIAL TYPES

ORIGINAL SCALE 1:5000@A3	
SHEET 1 OF 1	DRAWING No. CM1000 - 600
SHEETS	CONTRACT No. CM1000



**KEY**

- 2010-2020 DEVELOPMENT EXTENT
- BIODIVERSITY CONSERVATION AREAS
- EXISTING STREAMS
- EXISTING ROADS
- GAS LINE

SURVEYED  
DESIGNED  
DRAWN  
COMPUTED  
DWG CHECK  
DESIGN CHECK

DATE	REVISION	BY	DATE



DESIGN TEAM LEADER

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WAITAKERE CITY COUNCIL  
 WAIKUMETE CEMETERY  
 STAGED DEVELOPMENT PLAN 2010-2020

ORIGINAL SCALE 1:5000@A3

SHEET	DRAWING No.	REVISION
1	CM1000 - 500	
6	CONTRACT No.	
SHEETS	CM1000	

CAD FILE CM1000



**KEY**

- 2020-2030 DEVELOPMENT EXTENT
- 2010-2020 DEVELOPMENT EXTENT
- BIODIVERSITY CONSERVATION AREAS
- EXISTING STREAMS
- EXISTING ROADS
- PROPOSED ROADS
- GAS LINE

DATE	REVISION	BY	DATE



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WAITAKERE CITY COUNCIL  
 WAIKUMETE CEMETERY  
 STAGED DEVELOPMENT PLAN 2020-2030

ORIGINAL SCALE		1:5000@A3
SHEET	DRAWING No.	REVISION
2	CM1000 - 501	
OF		
6	CONTRACT No.	
	CM1000	
SHEETS		



**KEY**

2030-2040 DEVELOPMENT EXTENT	
2010-2030 DEVELOPMENT EXTENT	
BIODIVERSITY CONSERVATION AREAS	
EXISTING STREAMS	
EXISTING ROADS	
PROPOSED ROADS	
GAS LINE	

DATE	REVISION	BY	DATE

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WAITAKERE CITY COUNCIL  
 WAIKUMETE CEMETERY  
 STAGED DEVELOPMENT PLAN 2030-2040








ORIGINAL SCALE		1:5000@A3
SHEET	DRAWING No.	REVISION
3	CM1000 - 502	
OF	CONTRACT No.	
8	CM1000	
SHEETS		

CAD FILE CM1000

DESIGN TEAM LEADER



**KEY**

2040-2050 DEVELOPMENT EXTENT	
2010-2040 DEVELOPMENT EXTENT	
BIODIVERSITY CONSERVATION AREAS	
EXISTING STREAMS	
EXISTING ROADS	
PROPOSED ROADS	
GAS LINE	

DATE	REVISION	BY	DATE

SURVEYED  
 DESIGNED  
 DRAWN  
 COMPUTED  
 DWG CHECK  
 DESIGN CHECK  
 CAD FILE CM1000

**BLUE BARN CONSULTING LIMITED**










WAITAKERE CITY COUNCIL  
 WAIKUMETE CEMETERY  
 STAGED DEVELOPMENT PLAN 2040-2050

DESIGN TEAM LEADER

ORIGINAL SCALE 1:5000@A3	
SHEET 4 OF 8	DRAWING No. CM1000 - 503
CONTRACT No. CM1000	
SHEETS:	CM1000



**KEY**

2050-2060 DEVELOPMENT EXTENT	
2010-2050 DEVELOPMENT EXTENT	
BIODIVERSITY CONSERVATION AREAS	
EXISTING STREAMS	
EXISTING ROADS	
PROPOSED ROADS	
GAS LINE	

SURVEYED	DATE
DESIGNED	
DRAWN	
COMPUTED	
DWG CHECK	
DESIGN CHECK	
CAD FILE CM1000	

REVISION	BY	DATE



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WAITAKERE CITY COUNCIL  
 WAIKUMETE CEMETERY  
 STAGED DEVELOPMENT PLAN 2050-2060

ORIGINAL SCALE	1:5000@A3	
SHEET	DRAWING No.	REVISION
5	CM1000 - 504	
6		
SHEETS	CONTRACT No.	
	CM1000	



**KEY**

2060+ DEVELOPMENT EXTENT	
2010-2060 DEVELOPMENT EXTENT	
BIODIVERSITY CONSERVATION AREAS	
EXISTING STREAMS	
EXISTING ROADS	
PROPOSED ROADS	
GAS LINE	

SURVEYED  
DESIGNED  
DRAWN  
COMPUTED  
DWG CHECK  
DESIGN CHECK  
CAD FILE CM1000

DATE	REVISION	BY	DATE



**BLUE BARN CONSULTING LIMITED**

WAITAKERE CITY COUNCIL  
WAIKUMETE CEMETERY  
STAGED DEVELOPMENT PLAN 2060 ONWARDS

ORIGINAL SCALE	1:5000@A3	
SHEET	DRAWING No.	REVISION
6	CM1000 - 505	
OF		
8	CONTRACT No.	
SHEETS	CM1000	



## Appendix C

***Waikumete Cemetery Ecological Management Plan, February 2010.  
By Bioreserches Group Limited, Auckland.***

The plan was produced with the understanding that the proposed two significant ecological areas (SEA) would be zoned to receive the maximum level of protection. The reserve management plan has taken this lead and recommended that the two SEA's are set aside as scientific reserve under the provisions of the Reserves Act 1977.

The objective of the report is to set out a programme to preserve the diversity of native plants now present in what the authors define as the Southern Growth Area and Northern Growth Area, with an emphasis on keeping viable populations of those species that are now rare in the Auckland region.

**WAITAKERE CITY COUNCIL**

**WAIKUMETE CEMETERY  
ECOLOGICAL MANAGEMENT PLAN**

**BIORÉSEARCHES**

Consulting Biologists & Archaeologists - Est. 1972  
P.O. Box 2828, Auckland 1, New Zealand  
[www.bioresearches.co.nz](http://www.bioresearches.co.nz)

## **Waitakere City Council**

# **Waikumete Cemetery Ecological Management Plan**

**FEBRUARY 2010**

**FOR:        WAITAKERE CITY COUNCIL  
              BIORESEARCHES GROUP LIMITED**

**BY:         G L Don, M.Sc (Hons)  
              R O Gardner Ph.D  
              C J Wedding, MSc (Hons)  
              D van Winkel MSc (Hons)**

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## **I INTRODUCTION**

This document is an Ecological Management Plan that incorporates three main ecological aspects that will require active management as the proposed Cemetery expansion proceeds. The preparation of this Plan was the recommendation of the November 2009 report that addressed detailed vegetation descriptions, via vegetation transects, and additional reptile surveys (Bioresarches, 2009). The three aspects arising were the need for management of (i) two vegetation areas that typified gumland vegetation and local orchid populations, (ii) the riparian margins of streams and (iii) populations of both geckos and skinks with the former an apparent remnant only.

The conclusions and recommendations of Bioresarches 2009 are reproduced in full below and summarised on Figure 1 that also shows the areas of habitat that were the focus of the most recent survey.

"The only area of the cemetery property that contains typical gumland scrub is the western end of the Southern Scrub (Figure 1). Even that area will require immediate active management if that status is to be retained. Only 58.5% of the Northern Scrub consists of non-degraded native vegetation but that percentage will decrease as a result of the development of pines, wattle, hakea and gorse.

The key native species that typify the survey area are orchids and the best areas for those species are in the vicinity of Vegetation Transects SS 1 (Southern Scrub) and NS 3 (Northern Scrub). Those areas are defined on Figure 1 that provides an overall summary of the management recommendations arising from these surveys. The key vegetation areas are shown as A and B; both contain rare plants and a high diversity of orchids. Area A contains a liverwort that is probably in a critical condition nationally.

Both Area A and Area B will require a buffer zone (minimum 20 metres) around parts of each of their perimeters.

It is recommended that a Vegetation Management Plan is prepared that covers both areas. The Vegetation Management Plan should be accepted as a condition of any further development of this part of the cemetery and should include aspects such as

fencing (especially Area A), weed control, animal pest control and public access. It should accompany any proposal to alter the planning status of this part of the cemetery.

Copper skinks were most common within the Department of Conservation Reserve (Area C on Figure 1) that is beyond the cemetery property, and were only recorded at a few locations within it, including Area B. Similarly the population of green geckos is small and appears to be confined to one small area of vegetation.

It is recommended that a Reptile Management Plan is prepared that focuses on the copper skinks and green geckos within the property but also considers the copper skink population in the Reserve adjoining the area of Northern Scrub. That Management Plan should consider aspects such as salvage, relocation, habitat enhancement and pest control. The Reptile Management Plan should also be accepted as a condition of further development of this part of the cemetery and form part of any proposal to alter its planning status.

It is also recommended that riparian buffer zones (c.5 m width either side) are retained and managed along the main streams within the northern area of scrub. Similarly a Riparian Zone Management Plan should be produced and be accorded the same significance as the Vegetation and Reptile Plans.

All three Plans should be combined in an Ecological Management Plan".

The following Management Plans are presented on the understanding that implementation of this combined Plan will be a condition of any change in the status of these areas of the Cemetery under the Waitakere District Plan as well as any associated development consents.





## Appendix D

***Management of Historic Graves, August 2013.  
By Salmond Reed Architects Limited, Auckland.***

This work is intended as a reference guide for cemetery staff, contractors and community volunteers engaged in the process of caring for and maintaining historic headstones and grave plot surrounds at Waikumete Cemetery.

## **MANAGEMENT OF HISTORIC GRAVES**

The Cemetery graves are intrinsically valuable and work to them should intervene as little as possible and then only as much as is required for their physical preservation or protection

The graves include all constructed features such as headstones, grave surfaces, fences and railings and these should be kept with the grave. Any original materials that are removed should be recorded, catalogued and safely stored until they can be reinstated.

Moulds and lichens often appear as part of the normal weathering process, giving the graves the patina of age associated with historic cemeteries and is best left alone. If necessary remove with copious amounts of water and a natural bristle brush.

For safety reasons headstones are sometimes laid directly on the grave itself or bare ground and this hastens their deterioration due to constant dampness to their underside. If stones have to be laid down it is best to rest them on an inclined easily drained material such as stone aggregate.

Grave materials

Grave surrounds, usually unreinforced plastered brick and rubble, often using the softer lime based plasters which are easily damaged by mowers and 'weedaters'

Grave surfaces, plastered, sometimes tiled or covered with small marble chips

Headstones and monuments are of various materials, a small number are sandstone, which is very soft and has weathered so that inscriptions are faint or unreadable, these headstones should remained untouched.

Victorian and Edwardian graves, invariably of marble, which stains easily and gradually weathers. Inlaid lead lettering is common, it has often loosened and fallen out. Leave any remnant lettering, it is part of the heritage fabric of the headstone and cannot easily be replaced.

The later post WWI graves are of the simpler chest type using the harder red, grey and black granites, these are long lasting and the inscriptions do not erode easily

### **GUIDELINES FOR VOLUNTEER CLEANING**

If you come to work in a cemetery, be sensible. Please wear a hat, sunglasses, sensible shoes and skin protection. Come prepared with garden fork/spade, rake, broom, plastic bags, scrubbing brush and buckets. Containers of water may save a long walk. Put all

glass bottles, broken vessels, weeds and rubbish in plastic bags to take away. Expose the concrete footing and scrape soil off. Round Up or other weed killer may be required for persistent weeds and self-seeding trees such as Acmena and Pohutukawa.

### **Does and Don'ts**

#### 1. **Documentation** (see attached sheet)

Document grave before work commences, either with a diagram, sketch or photograph with associated notes on its condition and the work you propose to do.

#### 2. **Weeding**

Remove all woody plants and weeds which are not part of the original grave planting.

Remove grass, Blackberry, self-seeding Acmena and Pohutukawa from grave site.

#### **Don't:**

Remove any tree or plant if you suspect that it may be part of the original planting of the grave site.

#### **Don't:**

Remove bulbs unless they have been positively identified as weedy watsonia.

#### **Don't:**

Risk damaging the grave site by removing vegetation with large well-established root systems, as these may have undermined its structure.

#### 1. **Cleaning**

Incorrect cleaning can be more damaging than leaving the grave in its current condition.

Only clean dark or pink granite (these are usually smooth, polished stone with a "speckled" appearance) - scrub off lichen using scrubbing brush and water.

#### **Don't:**

Use metal scrapers as these will scratch the stone.

#### **Don't:**

Clean marble, concrete and sandstone graves until detailed guidelines are developed.  
If you are in doubt about what sort of stone your family grave is made of don't clean it until you know and can clean it appropriately.

2. **Repairs**

**Don't:**

Make irreversible repairs to graves or surrounds until detailed guidelines are developed.  
If you are in doubt about whether the repairs you propose are reversible or not seek advice.

3. **Advice**

Seek advice if you are in doubt about whether the work you propose is appropriate or not

An appropriate person could include:

4. A member of the Auckland Monumental Masons Association
5. A conservation professional
6. The cemetery manager
7. The Friends of Waikumete

**Documentary Checklist**

Name(s) of Deceased:

Family Name(s):

Individuals:

**Date(s) of entombment:**

year:

month:

Day:

**Description:**

Position of Grave Site

Block:

Section:

Plot:

Denomination:

(ref cemetery plan or cemetery office)

Type of Grave and description of special decoration

Inscription (if any)

General Condition

List of Defects

**Author:**

Name, date and relationship to deceased

