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NEWINGTON ARMAMENT DEPOT AND NATURE RESERVE SYDNEY OLYMPIC PARK CONSERVATION MANAGEMENT PLAN

VOLUME TWO



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Issue C

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APPENDIX A AUSTRALIA ICOMOS BURRA CHARTER

The Burra Charter

(The Australia ICOMOS Charter for Places of Cultural Significance)

Preamble

Considering the International Charter for the Conservation and Restoration of Monuments and Sites (Venice 1964), and the Resolutions of the 5th General Assembly of the International Council on Monuments and Sites (ICOMOS) (Moscow 1978), the Burra Charter was adopted by Australia ICOMOS (the Australian National Committee of ICOMOS) on 19 August 1979 at Burra, South Australia. Revisions were adopted on 23 February 1981, 23 April 1988 and 26 November 1999.

The Burra Charter provides guidance for the conservation and management of places of cultural significance (cultural heritage places), and is based on the knowledge and experience of Australia ICOMOS members.

Conservation is an integral part of the management of places of cultural significance and is an ongoing responsibility.

Who is the Charter for?

The Charter sets a standard of practice for those who provide advice, make decisions about, or undertake works to places of cultural significance, including owners, managers and custodians.

Using the Charter

The Charter should be read as a whole. Many articles are interdependent. Articles in the Conservation Principles section are often further developed in the Conservation Processes and Conservation Practice sections. Headings have been included for ease of reading but do not form part of the Charter.

The Charter is self-contained, but aspects of its use and application are further explained in the following Australia ICOMOS documents:

- Guidelines to the Burra Charter: Cultural Significance;

- Guidelines to the Burra Charter: Conservation Policy;
- Guidelines to the Burra Charter: Procedures for Undertaking Studies and Reports;
- Code on the Ethics of Coexistence in Conserving Significant Places.

What places does the Charter apply to?

The Charter can be applied to all types of places of cultural significance including natural, indigenous and historic places with cultural values.

The standards of other organisations may also be relevant. These include the Australian Natural Heritage Charter and the Draft Guidelines for the Protection, Management and Use of Aboriginal and Torres Strait Islander Cultural Heritage Places.

Why conserve?

Places of cultural significance enrich people's lives, often providing a deep and inspirational sense of connection to community and landscape, to the past and to lived experiences. They are historical records, that are important as tangible expressions of Australian identity and experience. Places of cultural significance reflect the diversity of our communities, telling us about who we are and the past that has formed us and the Australian landscape. They are irreplaceable and precious.

These places of cultural significance must be conserved for present and future generations.

The Burra Charter advocates a cautious approach to change: do as much as necessary to care for the place and to make it useable, but otherwise change it as little as possible so that its cultural significance is retained.

Articles

Article 1. Definitions

For the purposes of this Charter:

- 1.1 *Place* means site, area, land, landscape, building or other work, group of buildings or other works, and may include components, contents, spaces and views.
- 1.2 *Cultural significance* means aesthetic, historic, scientific, social or spiritual value for past, present or future generations.

Cultural significance is embodied in the *place* itself, its *fabric, setting, use, associations, meanings, records, related places* and *related objects*.

Places may have a range of values for different individuals or groups.
- 1.3 *Fabric* means all the physical material of the *place* including components, fixtures, contents, and objects.
- 1.4 *Conservation* means all the processes of looking after a *place* so as to retain its *cultural significance*.
- 1.5 *Maintenance* means the continuous protective care of the *fabric* and *setting* of a *place*, and is to be distinguished from repair. Repair involves restoration or reconstruction.
- 1.6 *Preservation* means maintaining the *fabric* of a *place* in its existing state and retarding deterioration.
- 1.7 *Restoration* means returning the existing *fabric* of a *place* to a known earlier state by removing accretions or by reassembling existing components without the introduction of new material.
- 1.8 *Reconstruction* means returning a *place* to a known earlier state and is distinguished from *restoration* by the introduction of new material into the *fabric*.
- 1.9 *Adaptation* means modifying a *place* to suit the existing use or a proposed use.
- 1.10 *Use* means the functions of a *place*, as well as the activities and practices that may occur at the *place*.
- 1.11 *Compatible use* means a use which respects the *cultural significance* of a *place*. Such a use involves no, or minimal, impact on cultural significance.
- 1.12 *Setting* means the area around a *place*, which may include the visual catchment.
- 1.13 *Related place* means a *place* that contributes to the *cultural significance* of another *place*.

Explanatory Notes

The concept of *place* should be broadly interpreted. The elements described in Article 1.1 may include memorials, trees, gardens, parks, places of historical events, urban areas, towns, industrial places, archaeological sites and spiritual and religious places.

The term *cultural significance* is synonymous with heritage significance and cultural heritage value.

Cultural significance may change as a result of the continuing history of the *place*.

Understanding of *cultural significance* may change as a result of new information.

Fabric includes building interiors and sub-surface remains, as well as excavated material.

Fabric may define spaces and these may be important elements of the significance of the *place*.

The distinctions referred to, for example in relation to roof gutters, are:

- maintenance — regular inspection and cleaning of gutters;
- repair involving restoration — returning of dislodged gutters;
- repair involving reconstruction — replacing decayed gutters.

It is recognised that all *places* and their components change over time at varying rates.

New material may include recycled material salvaged from other *places*. This should not be to the detriment of any *place* of cultural significance.

Articles

- 1.14 *Related object* means an object that contributes to the *cultural significance* of a *place* but is not at the place.
- 1.15 *Associations* mean the special connections that exist between people and a *place*.
- 1.16 *Meanings* denote what a *place* signifies, indicates, evokes or expresses.
- 1.17 *Interpretation* means all the ways of presenting the *cultural significance* of a *place*.

Conservation Principles

Article 2. Conservation and management

- 2.1 *Places* of *cultural significance* should be conserved.
- 2.2 The aim of *conservation* is to retain the *cultural significance* of a *place*.
- 2.3 *Conservation* is an integral part of good management of *places* of *cultural significance*.
- 2.4 *Places* of *cultural significance* should be safeguarded and not put at risk or left in a vulnerable state.

Article 3. Cautious approach

- 3.1 *Conservation* is based on a respect for the existing *fabric, use, associations* and *meanings*. It requires a cautious approach of changing as much as necessary but as little as possible.
- 3.2 Changes to a *place* should not distort the physical or other evidence it provides, nor be based on conjecture.

Article 4. Knowledge, skills and techniques

- 4.1 *Conservation* should make use of all the knowledge, skills and disciplines which can contribute to the study and care of the *place*.
- 4.2 Traditional techniques and materials are preferred for the *conservation* of significant *fabric*. In some circumstances modern techniques and materials which offer substantial conservation benefits may be appropriate.

Explanatory Notes

Associations may include social or spiritual values and cultural responsibilities for a place.

Meanings generally relate to intangible aspects such as symbolic qualities and memories.

Interpretation may be a combination of the treatment of the fabric (e.g. maintenance, restoration, reconstruction); the use of and activities at the place; and the use of introduced explanatory material.

The traces of additions, alterations and earlier treatments to the fabric of a place are evidence of its history and uses which may be part of its significance. Conservation action should assist and not impede their understanding.

The use of modern materials and techniques must be supported by firm scientific evidence or by a body of experience.

Articles

Article 5. Values

- 5.1 *Conservation* of a *place* should identify and take into consideration all aspects of cultural and natural significance without unwarranted emphasis on any one value at the expense of others.
- 5.2 Relative degrees of *cultural significance* may lead to different *conservation* actions at a place.

Article 6. Burra Charter process

- 6.1 The *cultural significance* of a *place* and other issues affecting its future are best understood by a sequence of collecting and analysing information before making decisions. Understanding cultural significance comes first, then development of policy and finally management of the place in accordance with the policy.
- 6.2 The policy for managing a place must be *based* on an understanding of its *cultural significance*.
- 6.3 Policy development should also include consideration of other factors affecting the future of a *place* such as the owner's needs, resources, external constraints and its physical condition.

Article 7. Use

- 7.1 Where the *use* of a place is of *cultural significance* it should be retained.
- 7.2 A *place* should have a *compatible* use.

Article 8. Setting

Conservation requires the retention of an appropriate visual *setting* and other relationships that contribute to the *cultural significance* of the *place*.

New construction, demolition, intrusions or other changes which would adversely affect the setting or relationships are not appropriate.

Explanatory Notes

Conservation of places with natural significance is explained in the Australian Natural Heritage Charter. This Charter defines natural significance to mean the importance of ecosystems, biological diversity and geodiversity for their existence value, or for present or future generations in terms of their scientific, social, aesthetic and life-support value.

A cautious approach is needed, as understanding of cultural significance may change. This article should not be used to justify actions which do not retain cultural significance.

The Burra Charter process, or sequence of investigations, decisions and actions, is illustrated in the accompanying flowchart.

The policy should identify a use or combination of uses or constraints on uses that retain the cultural significance of the place. New use of a place should involve minimal change, to significant fabric and use; should respect associations and meanings; and where appropriate should provide for continuation of practices which contribute to the cultural significance of the place.

Aspects of the visual setting may include use, siting, bulk, form, scale, character, colour, texture and materials.

Other relationships, such as historical connections, may contribute to interpretation, appreciation, enjoyment or experience of the place.

Articles

Explanatory Notes

Article 9. Location

- 9.1 The physical location of a *place* is part of its *cultural significance*. A building, work or other component of a place should remain in its historical location. Relocation is generally unacceptable unless this is the sole practical means of ensuring its survival.
- 9.2 Some buildings, works or other components of *places* were designed to be readily removable or already have a history of relocation. Provided such buildings, works or other components do not have significant links with their present location, removal may be appropriate.
- 9.3 If any building, work or other component is moved, it should be moved to an appropriate location and given an appropriate use. Such action should not be to the detriment of any *place* of *cultural significance*.

Article 10. Contents

Contents, fixtures and objects which contribute to the *cultural significance* of a *place* should be retained at that place. Their removal is unacceptable unless it is: the sole means of ensuring their security and *preservation*; on a temporary basis for treatment or exhibition; for cultural reasons; for health and safety; or to protect the place. Such contents, fixtures and objects should be returned where circumstances permit and it is culturally appropriate.

Article 11. Related places and objects

The contribution which *related places* and *related objects* make to the *cultural significance* of the *place* should be retained.

Article 12. Participation

Conservation, interpretation and management of a *place* should provide for the participation of people for whom the place has special *associations* and *meanings*, or who have social, spiritual or other cultural responsibilities for the place.

Article 13. Co-existence of cultural values

Co-existence of cultural values should be recognised, respected and encouraged, especially in cases where they conflict.

For some places, conflicting cultural values may affect policy development and management decisions. In this article, the term cultural values refers to those beliefs which are important to a cultural group, including but not limited to political, religious, spiritual and moral beliefs. This is broader than values associated with cultural significance.

Conservation Processes

Article 14. Conservation processes

Conservation may, according to circumstance, include the processes of: retention or reintroduction of a *use*; retention of *associations* and *meanings*; *maintenance*, *preservation*, *restoration*, *reconstruction*, *adaptation* and *interpretation*; and will commonly include a combination of more than one of these.

There may be circumstances where no action is required to achieve conservation.

Article 15. Change

- 15.1 Change may be necessary to retain *cultural significance*, but is undesirable where it reduces cultural significance. The amount of change to a *place* should be guided by the *cultural significance* of the place and its appropriate *interpretation*.
- 15.2 Changes which reduce *cultural significance* should be reversible, and be reversed when circumstances permit.
- 15.3 Demolition of significant *fabric* of a *place* is generally not acceptable. However, in some cases minor demolition may be appropriate as part of *conservation*. Removed significant fabric should be reinstated when circumstances permit.
- 15.4 The contributions of all aspects of *cultural significance* of a *place* should be respected. If a place includes *fabric*, *uses*, *associations* or *meanings* of different periods, or different aspects of cultural significance, emphasising or interpreting one period or aspect at the expense of another can only be justified when what is left out, removed or diminished is of slight cultural significance and that which is emphasised or interpreted is of much greater cultural significance.

When change is being considered, a range of options should be explored to seek the option which minimises the reduction of cultural significance.

Reversible changes should be considered temporary. Non-reversible change should only be used as a last resort and should not prevent future conservation action.

Article 16. Maintenance

Maintenance is fundamental to *conservation* and should be undertaken where *fabric* is of *cultural significance* and its maintenance is necessary to retain that *cultural significance*.

Articles

Article 17. Preservation

Preservation is appropriate where the existing *fabric* or its condition constitutes evidence of *cultural significance*, or where insufficient evidence is available to allow other *conservation* processes to be carried out.

Article 18. Restoration and reconstruction

Restoration and *reconstruction* should reveal culturally significant aspects of the *place*.

Article 19. Restoration

Restoration is appropriate only if there is sufficient evidence of an earlier state of the *fabric*.

Article 20. Reconstruction

20.1 *Reconstruction* is appropriate only where a *place* is incomplete through damage or alteration, and only where there is sufficient evidence to reproduce an earlier state of the *fabric*. In rare cases, reconstruction may also be appropriate as part of a use or practice that retains the *cultural significance* of the place.

20.2 *Reconstruction* should be identifiable on close inspection or through additional *interpretation*.

Article 21. Adaptation

21.1 *Adaptation* is acceptable only where the adaptation has minimal impact on the *cultural significance* of the place.

21.2 *Adaptation* should involve minimal change to significant fabric, achieved only after considering alternatives.

Article 22. New work

22.1 New work such as additions to the *place* may be acceptable where it does not distort or obscure the *cultural significance* of the place, or detract from its *interpretation* and appreciation.

22.2 New work should be readily identifiable as such.

Explanatory Notes

Preservation protects fabric without obscuring the evidence of its construction and use. The process should always be applied:

- where the evidence of the fabric is of such significance that it should not be altered;
- where insufficient investigation has been carried out to permit policy decisions to be taken in accord with Articles 26 to 28.

New work (e.g. stabilisation) may be carried out in association with preservation when its purpose is the physical protection of the fabric and when it is consistent with Article 22.

Adaptation may involve the introduction of new services, or a new use, or changes to safeguard the place.

New work may be sympathetic if its siting, bulk, form, scale, character, colour, texture and material are similar to the existing fabric, but imitation should be avoided.

Articles

Article 23. Conserving use

Continuing, modifying or reinstating a significant *use* may be appropriate and preferred forms of *conservation*.

Article 24. Retaining associations and meanings

- 24.1 Significant *associations* between people and a *place* should be respected, retained and not obscured. Opportunities for the *interpretation*, commemoration and celebration of these associations should be investigated and implemented.
- 24.2 Significant *meanings*, including spiritual values, of a *place* should be respected. Opportunities for the continuation or revival of these meanings should be investigated and implemented.

Article 25. Interpretation

The *cultural significance* of many places is not readily apparent, and should be explained by *interpretation*. Interpretation should enhance understanding and enjoyment, and be culturally appropriate.

Conservation Practice

Article 26. Applying the Burra Charter process

- 26.1 Work on a *place* should be preceded by studies to understand the place which should include analysis of physical, documentary, oral and other evidence, drawing on appropriate knowledge, skills and disciplines.
- 26.2 Written statements of *cultural significance* and policy for the *place* should be prepared, justified and accompanied by supporting evidence. The statements of significance and policy should be incorporated into a management plan for the place.
- 26.3 Groups and individuals with *associations* with a place as well as those involved in its management should be provided with opportunities to contribute to and participate in understanding the *cultural significance* of the place. Where appropriate they should also have opportunities to participate in its *conservation* and management.

Article 27. Managing change

- 27.1 The impact of proposed changes on the *cultural significance* of a *place* should be analysed with reference to the statement of significance and the policy for managing the place. It may be necessary to modify proposed changes following analysis to better retain cultural significance.
- 27.2 Existing *fabric*, *use*, *associations* and *meanings* should be adequately recorded before any changes are made to the *place*.

Explanatory Notes

These may require changes to significant fabric but they should be minimised. In some cases, continuing a significant use or practice may involve substantial new work.

For many places associations will be linked to use.

The results of studies should be up to date, regularly reviewed and revised as necessary.

Statements of significance and policy should be kept up to date by regular review and revision as necessary. The management plan may deal with other matters related to the management of the place.

Articles

Explanatory Notes

Article 28. Disturbance of fabric

- 28.1 Disturbance of significant *fabric* for study, or to obtain evidence, should be minimised. Study of a *place* by any disturbance of the fabric, including archaeological excavation, should only be undertaken to provide data essential for decisions on the *conservation* of the place, or to obtain important evidence about to be lost or made inaccessible.
- 28.2 Investigation of a *place* which requires disturbance of the *fabric*, apart from that necessary to make decisions, may be appropriate provided that it is consistent with the policy for the place. Such investigation should be based on important research questions which have potential to substantially add to knowledge, which cannot be answered in other ways and which minimises disturbance of significant fabric.

Article 29. Responsibility for decisions

The organisations and individuals responsible for management decisions should be named and specific responsibility taken for each such decision.

Article 30. Direction, supervision and implementation

Competent direction and supervision should be maintained at all stages, and any changes should be implemented by people with appropriate knowledge and skills.

Article 31. Documenting evidence and decisions

A log of new evidence and additional decisions should be kept.

Article 32. Records

- 32.1 The records associated with the *conservation* of a *place* should be placed in a permanent archive and made publicly available, subject to requirements of security and privacy, and where this is culturally appropriate.
- 32.2 Records about the history of a *place* should be protected and made publicly available, subject to requirements of security and privacy, and where this is culturally appropriate.

Article 33. Removed fabric

Significant *fabric* which has been removed from a *place* including contents, fixtures and objects, should be catalogued, and protected in accordance with its *cultural significance*.

Where possible and culturally appropriate, removed significant fabric including contents, fixtures and objects, should be kept at the place.

Article 34. Resources

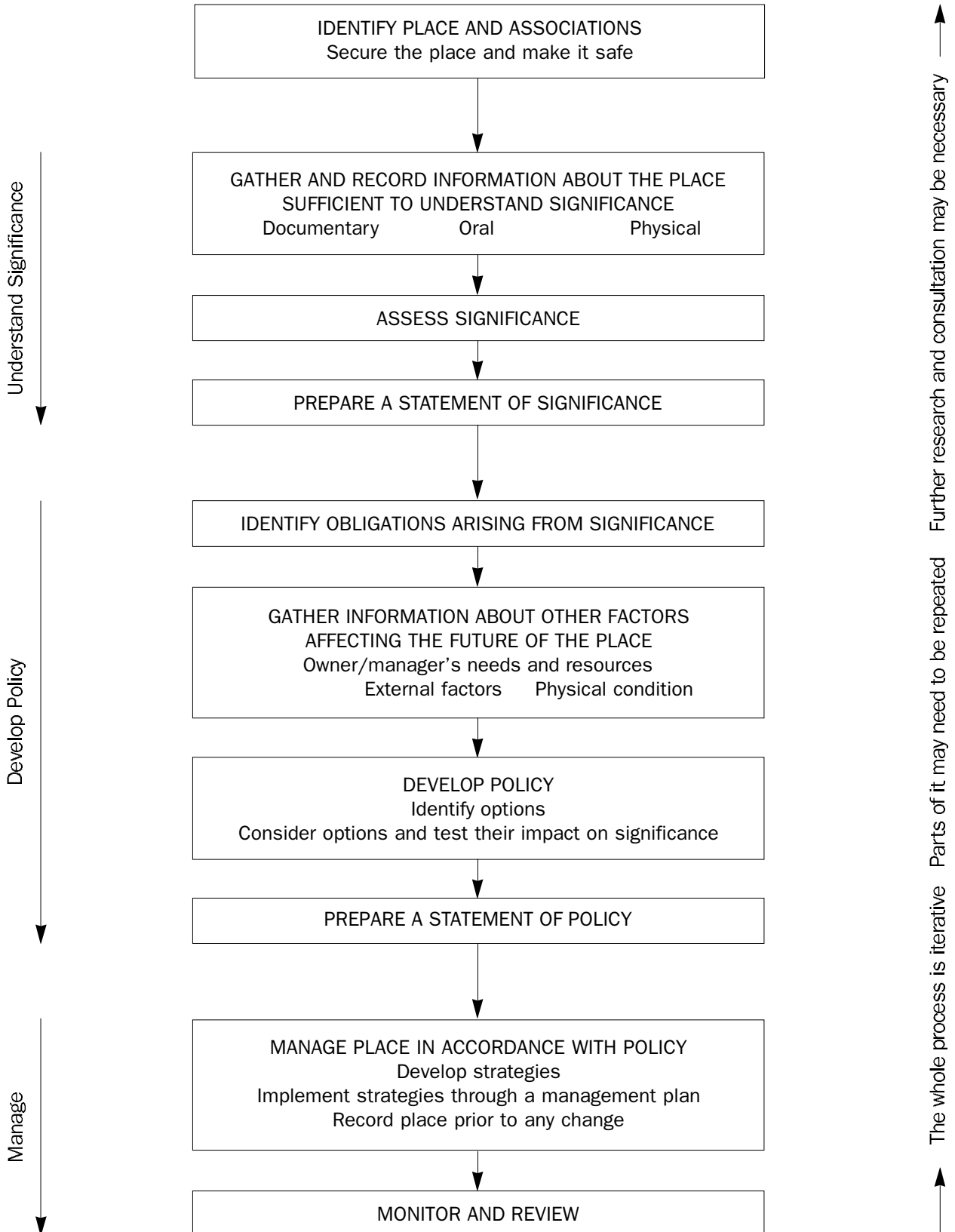
Adequate resources should be provided for conservation.

Words in italics are defined in Article 1.

The best conservation often involves the least work and can be inexpensive.

The Burra Charter Process

Sequence of investigations, decisions and actions



APPENDIX B AUSTRALIAN NATURAL HERITAGE CHARTER

Australian Natural Heritage Charter

for the conservation of places
of natural heritage significance



SECOND EDITION



Australian Natural Heritage Charter

for the conservation of places
of natural heritage significance

SECOND EDITION



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Preamble

The *Australian Natural Heritage Charter* was first adopted in December 1996 following a two-year period of Australia-wide consultation. It was revised and updated in 2002 following the planned five-yearly review in 2001 by users and expert advisers.

The development and review of the Charter was conducted by a national steering committee made up of representatives of the Australian Committee for IUCN (World Conservation Union), the Australian Heritage Commission, Environment Australia, the Australian Local Government Association, the University of Sydney, the University of New South Wales, the Environment Institute of Australia, the Indigenous community and environmental consultants.

* Please note that in this publication words printed in *italics* are defined in Part A of the Charter.

PURPOSE OF THE CHARTER

The Charter is a distillation of ‘best practice’ conservation principles for Australia, based on the consensus of a broad range of experts. It aims to assist everyone with an interest in natural places to establish their natural heritage values and manage them. It can be applied to a wide range of places whether terrestrial, marine or freshwater.

It can be used by organisations or individuals — landowners and managers, non-government and government organisations, decision-makers, voluntary groups, professional practitioners — anyone involved in conserving Australia’s *natural heritage*.

It offers a framework for making sound decisions for managing and restoring natural heritage places based on the *ecological processes* which occur in natural systems. It also provides a process that can be used to support and implement local, state and territory, national and international policies, agreements, strategies and plans. It does not replace statutory obligations.

NATURAL AND CULTURAL HERITAGE

In making decisions that will affect the future of a *place*, it is important to consider all of its heritage values — both natural and cultural. Issues relating to the *conservation* of cultural values may affect the selection of appropriate conservation processes, actions and strategies for the place’s natural values.

The Charter relates closely to the general structure and logic of *The Burra Charter — the Australia ICOMOS Charter for Places of Cultural Significance 1999*. The similarity of these documents enables them to be used together for places that have both natural and cultural values. Additional guidance specific to Indigenous heritage issues is provided in *Ask First: A guide to respecting Indigenous heritage places and values*. A resource which helps to integrate aspects of natural and cultural heritage is the *Protecting Heritage Places Information and Resource Kit*.

WHICH PLACES?

The Charter can be used for any *place* with natural heritage values. These places can be degraded or pristine, large or small, with many heritage values or just one and they can be areas of international, national or local significance. They may be farms, council reserves, mining leases, publicly or privately owned places, the land of traditional Indigenous owners or formally protected areas.

ADDITIONAL GUIDANCE

Protecting Natural Heritage — using the Australian Natural Heritage Charter offers additional and more detailed advice on managing places with natural heritage values. To obtain copies, see the contacts listed on page 25.

WHY CONSERVE OUR NATURAL HERITAGE PLACES?

A *natural heritage* place is one that we believe we should keep for the future — because it is valuable to us.

It may be part of a coast, desert, mountain or bushland that we gaze at and see as ‘home’ — a place which connects us to Australia and helps us to define our distinctive identity. It is part of our life support system.

It may also be somewhere that we know is important because of what it is and what it can tell us scientifically. This place could be a desert mound spring, a fossil site, an ancient watercourse or a marine or bush habitat rich with life. We want to keep it because by doing so we will be protecting a resource of biological and/or geological information. This helps us and future generations to better understand the nature of our physical world and how we might live within its means.

Our *natural heritage* places are those we would want to inherit if we were to be born one hundred or one thousand years from now.

By keeping our natural environment healthy we are investing in our own well-being, protecting the essence of Australia’s unique character and securing an irreplaceable gift for the generations ahead.

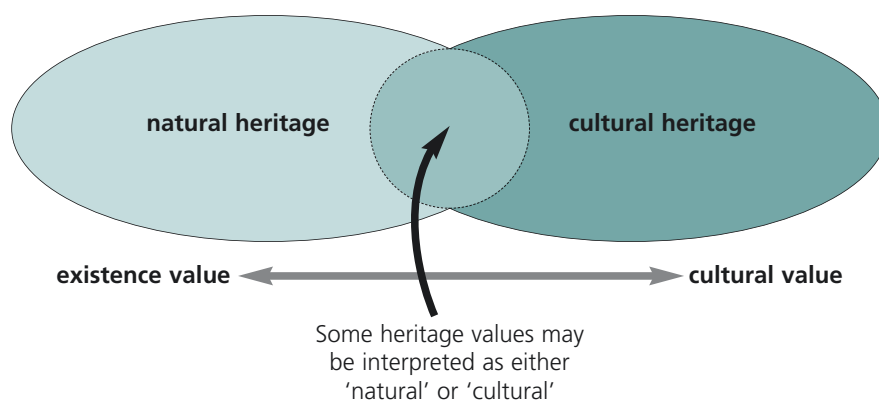
Ethos of the Charter

This Charter encompasses a wide interpretation of *natural heritage* and is based on respect for that heritage.

Natural heritage comprises the natural living and non-living components, that is, the *biodiversity* and *geodiversity*, of the world that humans inherit.

It incorporates a range of values, from existence value to socially-based values. The fundamental concept of *natural heritage*, which most clearly differentiates it from cultural heritage, is that of natural and dynamic *ecological processes*, *earth processes* and *evolutionary processes*, and the ability of *ecosystems* to be self-perpetuating.

Places may have both natural and cultural heritage values. These values may be related and are sometimes difficult to separate. Some people, including many Indigenous people, do not see them as being separate.



The concept of *natural heritage* used in this Charter recognises the role Indigenous people have played in using and shaping Australian landscapes for at least 50 000 years and possibly much longer. *Conservation* of a *place* should identify and take into consideration all aspects of natural and cultural heritage.

This Charter acknowledges the principles of **intergenerational equity**, **existence value**, **uncertainty** and **precaution**. Intergenerational equity and the precautionary principle are elements that are often included in definitions of ‘ecologically sustainable development’. Explanations of these principles follow.

Intergenerational equity

Intergenerational equity means that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.

Existence value

Existence value means that living *organisms*, *earth processes* and *ecosystems* may have value beyond the social, economic or cultural values held by humans.

Uncertainty

Uncertainty means that our knowledge of *natural heritage* and the processes affecting it is incomplete, and that the full potential significance or value of *natural heritage* remains unknown because of this uncertain state of knowledge.

Precaution

The precautionary principle means that where there are threats or potential threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental *degradation*.

How to use the Charter

The Charter provides **definitions** for terms used, and an outline of issues to consider in managing places of natural heritage significance. Words printed in *italics* are defined in Part A.

The **Articles** clarify concepts you will need to understand, but they do not describe how to manage places. They provide best practice guidance on how to approach the task of planning for the management of places of natural heritage significance.

The Charter is divided into four parts:

- Part A** **Definitions** defines terms you will need to understand
- Part B** **Conservation Principles** outlines the principles on which sound natural heritage *conservation* is based
- Part C** **Conservation Processes** defines a range of processes which can be used in natural heritage *conservation*
- Part D** **Conservation Practice** outlines the steps which need to be taken in planning and implementing plans for the *conservation* of a natural heritage *place*.

The Charter provides guidance to a ten-step process for planning to conserve the natural heritage values of many types of places. Central to this process is the development of a conservation policy and a practical conservation plan.

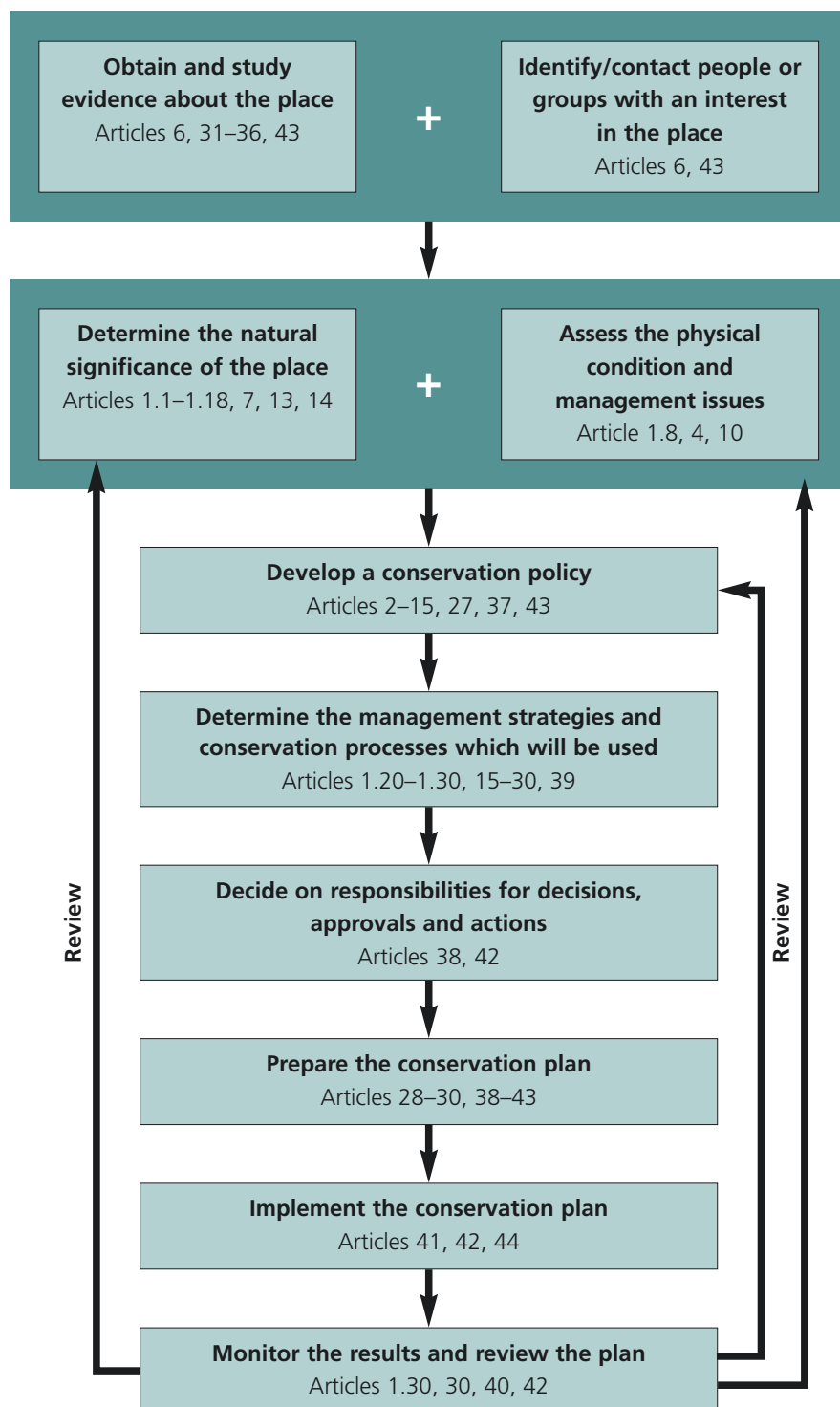
A **conservation policy** outlines the desired goals for conserving the natural significance of a *place* both in the short and long term. The means of implementing the policy is outlined in a **conservation plan**. It describes the actions necessary to ensure the conservation goals are met. It can be part of a broader **management plan** which considers heritage and non-heritage issues in managing a *place*.

The principles and processes presented in the Charter can also be used in developing, implementing, evaluating and revising management plans, community conservation projects and supporting grant applications.

KEY TO USING THE CHARTER

To use the Charter most effectively follow part or all of the processes outlined in the conservation planning diagram opposite and then refer to the Articles and explanatory notes for clarification of terms and concepts.

Developing a conservation plan



This diagram shows the planning process needed to conserve the natural values of places. To help clarify the concepts involved in each step, the numbers of relevant articles are noted in the boxes.

The conservation principles (Articles 2–7) are the basis for all conservation planning and should be considered in each step.

Further guidance for each step may be found in the *Protecting Natural Heritage — using the Australian Natural Heritage Charter* — which assists in using the Charter for conserving places of natural significance.

A

Part A Definitions

Alphabetical listing

Words printed in italics in this document have definitions set out below.

<i>Biodiversity</i>	1.5	<i>Modification</i>	1.28
<i>Community</i>	1.13	<i>Monitoring</i>	1.30
<i>Conservation</i>	1.20	<i>Natural heritage</i>	1.1
<i>Degradation</i>	1.19	<i>Natural integrity</i>	1.8
<i>Earth processes</i>	1.16	<i>Natural significance</i>	1.3
<i>Ecological processes</i>	1.15	<i>Organism</i>	1.11
<i>Ecosystem</i>	1.14	<i>Place</i>	1.2
<i>Enhancement</i>	1.26	<i>Presentation</i>	1.29
<i>Evolutionary processes</i>	1.17	<i>Preservation</i>	1.27
<i>Genetic diversity</i>	1.7	<i>Protection</i>	1.21
<i>Geodiversity</i>	1.4	<i>Regeneration</i>	1.23
<i>Habitat</i>	1.12	<i>Reinstatement</i>	1.25
<i>Indigenous species</i>	1.9	<i>Restoration</i>	1.24
<i>Introduced species</i>	1.10	<i>Species diversity</i>	1.6
<i>Maintenance</i>	1.22	<i>Succession</i>	1.18

Listing by topic

Article 1 For the purpose of the Charter the following definitions apply.

GENERAL

- 1.1** *Natural heritage* means:
- natural features consisting of physical and biological formations or groups of such formations, which demonstrate *natural significance*
 - geological and physiographical formations and precisely delineated areas that constitute the habitat of *indigenous species* of animals and plants, which demonstrate *natural significance*, and/or
 - natural sites or precisely-delineated natural areas which demonstrate *natural significance* from the point of view of science, *conservation* or natural beauty.
- 1.2** *Place* means a geographically defined site or area with associated natural features of *biodiversity*, *geodiversity* and *ecological processes*.

Note for Article 1.1

This definition is based on that used in the World Heritage Convention which is also known as the Convention Concerning the Protection of the World Cultural and Natural Heritage. This convention was adopted by the General Conference of UNESCO in 1972 and is now being adhered to by more than 150 countries.

Articles

VALUES

- 1.3** *Natural significance* means the importance of *ecosystems*, *biodiversity* and *geodiversity* for their existence value or for present or future generations, in terms of their scientific, social, aesthetic and life-support value.
- 1.4** *Geodiversity* means the natural range (diversity) of geological (bedrock), geomorphological (landform) and soil features, assemblages, systems and processes. *Geodiversity* includes evidence of the past life, *ecosystems* and environments in the history of the earth as well as a range of atmospheric, hydrological and biological processes currently acting on rocks, landforms and soils.
- 1.5** *Biodiversity* means the variability among living *organisms* from all sources (including terrestrial, marine and other aquatic *ecosystems* and the ecological complexes of which they are part) and includes diversity within and between species and the diversity of *ecosystems*.
- 1.6** *Species diversity* means the variety of species in a *place*.
- 1.7** *Genetic diversity* means the variety of genetic information contained in the total genes of individual plants, animals and microorganisms in a place.
- 1.8** *Natural integrity* means the degree to which a *place* or *ecosystem* retains its natural *biodiversity* and *geodiversity* and other natural processes and characteristics.
- 1.9** *Indigenous species* means a species that occurs at a *place* within its historically known natural range and that forms part of the natural *biodiversity* of a *place*.

Explanatory Notes

Note for Article 1.5

This definition is essentially the same as that used in Australia's *National Strategy for the Conservation of Biological Diversity* [1996], and in the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999*. The term 'biodiversity' is in widespread use and for consistency has been used in this Charter in preference to 'biological diversity'. However, the meanings and concepts of the two terms are the same.

Note for Article 1.9

Special classes of *indigenous species*, often defined in legislation by terms such as 'threatened species', 'vulnerable species' or 'endangered species', have not been defined in this Charter. However, these concepts might contribute to the *natural significance* of a *place*.

Some legislation sets a date for the historically-known range of species, but this Charter leaves the interpretation of this aspect to individual users.

Note for Article 1.10

Introduced species include those that have been translocated to a place from elsewhere in Australia, and those that are genetically modified by human intervention.

Note for Article 1.12

Habitat elements are the component parts (living or non-living) of the structural environments that make up an *organism's habitat*.

Note for Article 1.19

A degraded ecosystem will usually require human assistance to recover.

- 1.10** ***Introduced species*** means a translocated or alien species occurring at a *place* outside its known natural range as a result of intentional or accidental dispersal.
- 1.11** ***Organism*** means any living being.
- 1.12** ***Habitat*** means the structural environments where an *organism* lives for all or part of its life, including environments once occupied (continuously, periodically or occasionally) by an *organism* or group of *organisms*, and into which *organisms* of that kind have the potential to be *reinstated*.
- 1.13** ***Community*** means an assemblage of *species* that inhabits a particular area in nature.
- 1.14** ***Ecosystem*** means a dynamic complex of *organisms* and their non-living environment, interacting as a functional unit.
- 1.15** ***Ecological processes*** means all those processes that occur between *organisms*, and within and between *communities*, including interactions with the non-living environment, that result in existing *ecosystems* and bring about changes in *ecosystems* over time.
- 1.16** ***Earth processes*** means the interactions, changes and development of *geodiversity* over time.
- 1.17** ***Evolutionary processes*** means genetically-based processes by which life forms change and develop over generations.
- 1.18** ***Succession*** means the natural changes where species composition changes over time.

DEGRADATION

- 1.19** ***Degradation*** means any significant decline in the quality of natural resources or *natural integrity* of a *place* or the viability of an *ecosystem*, caused directly or indirectly by human activities.

CONSERVATION PROCESSES

- 1.20** **Conservation** means all the processes and actions of looking after a *place* so as to retain its *natural significance* and always includes *protection, maintenance* and *monitoring*.
- 1.21** **Protection** means taking care of a *place* by managing impacts to ensure that *natural significance* is retained.
- 1.22** **Maintenance** means the continuous protective care of the *biodiversity* and *geodiversity* of a *place*.
- 1.23** **Regeneration** means the natural recovery of *natural integrity* following disturbance or *degradation*.
- 1.24** **Restoration** means returning existing *habitats* to a known past state or to an approximation of the natural condition by repairing *degradation*, by removing *introduced species* or by *reinstatement*.
- 1.25** **Reinstatement** means to introduce to a *place* one or more species or elements of *habitat* or *geodiversity* that are known to have existed there naturally at a previous time, but that can no longer be found at that *place*.

Note for Article 1.20

Conservation may, according to circumstance, also include *regeneration, restoration, enhancement, reinstatement, preservation* or *modification*, or a combination of more than one of these. *Conservation* includes conserving natural processes of change (as opposed to artificially accelerated changes).

Note for Article 1.22

Maintenance may also need to be done outside the *place*.

Note for Article 1.23

Regeneration applies to both the *geodiversity* and *biodiversity* of a *place*, and includes the process of natural *succession*.

Note for Articles 1.24 and 1.25

The timeframe that would apply to the past state as reference for *restoration* and *reinstatement* is not specified. It should be determined for each situation through the conservation policy.

Note for Article 1.25

Reinstatement has the same meaning as the term 'reintroduction' that is commonly applied for plant and animal species.

Note for Article 1.28

Modification may involve changes to safeguard the *natural significance* of a *place*.

Note for Article 1.29

Presentation includes interpretation and education activities.

Note for Article 1.30

Monitoring is used to assist review of decisions by providing knowledge of the effects of conservation processes on the *significance* of a *place*.

- 1.26** *Enhancement* means the introduction of additional organisms, genotypes, species or elements of habitat or geodiversity to those that naturally exist in a *place*.
- 1.27** *Preservation* means maintaining *biodiversity* of a *place* at the existing stage of *succession*, or maintaining existing *geodiversity*.
- 1.28** *Modification* means altering a *place* to suit proposed uses that are compatible with the *natural significance* of the *place*.
- 1.29** *Presentation* means creating awareness and understanding of the *natural significance* of a *place*.
- 1.30** *Monitoring* means ongoing review, evaluation and assessment to detect changes in the *natural integrity* of a *place*, with reference to a baseline condition.

Part B

Conservation Principles



BASIS OF CONSERVATION

Article 2 The basis for *conservation* is the assessment of the *natural significance* of a *place*, usually presented as a statement of significance.

Article 3 The aim of *conservation* is to retain, *restore* or *reinstate* the *natural significance* of a *place*.

Article 4 A self-sustaining condition is preferable to an outcome that requires a high level of ongoing management intervention.

Article 5 *Conservation* is based on respect for *biodiversity* and *geodiversity*. It should involve the least possible human intervention to *ecological processes*, *evolutionary processes* and *earth processes*.

Article 6 *Conservation* should make use of all the disciplines and experience that can contribute to the study and safeguarding of a *place*. Techniques employed should have a firm scientific basis or be supported by relevant experience.

Article 7 *Conservation* of a *place* should take into consideration all aspects of its *natural significance*, and respect aspects of cultural significance that occur there.

Note for Article 2

If cultural values exist for the *place* they should also be considered as part of the significance of the *place* and included in the statement of significance.

Note for Article 4

A self-sustaining condition allows continuation of natural processes of change.

Note for Article 5

The best *conservation* often involves the least work. *Conservation* should not be undertaken unless adequate resources are available to ensure that the *place* is not left in a disturbed or vulnerable state.

Note for Article 7

Some *places* with *natural significance* might also have Indigenous or historic cultural heritage values that should be conserved. *Conservation of places* with cultural significance is explained in *The Burra Charter*, which defines cultural significance to mean aesthetic, historic, scientific, social or spiritual value for past, present or future generations. For *places* with Indigenous heritage values, reference should be made to *Ask First: A guide to respecting Indigenous heritage places and values*.

Note for Article 8

Protecting Natural Heritage includes more detail on developing the *conservation* policy for a *place*.

'Management issues' include factors such as the owner's needs, resources, external constraints and the past history of use of the *place*.

Note for Article 9

There may be relevant legislative or statutory requirements that need to be considered.

Note for Article 10

An example of the use of this Article is the *conservation* of migratory bird species.

Note for Article 11

Provision for scientific collecting should be incorporated into the *conservation* plan where appropriate. Accepted protocols for scientific collecting should be observed where they exist.

Note for Article 12

An example is poisoning or draining a water body to eliminate an *introduced species* of fish and to prevent its wider spread, even though this action may threaten other *indigenous species* in the same stretch of water.

CONSERVATION POLICY

- Article 8** The *conservation* policy for a *place* should be determined by a clear understanding of *natural significance* and other management issues. These should be used to determine the desired *conservation* outcomes and future condition for the *place*.
- Article 9** The *conservation* policy should determine uses that are compatible with the *natural significance* of a *place*. Uses that will degrade the *natural significance* should not be introduced or continued.
- Article 10** The *conservation* policy should consider *ecological processes* and other processes that extend beyond the stated boundaries of a *place*, and their level of impact or influence on the *natural significance* of the *place*.

REMOVAL OF ELEMENTS

- Article 11** Elements of the *geodiversity* and *biodiversity* that contribute to the *natural significance* of a *place* should not be removed from the *place* unless this is the sole means of ensuring their survival, security or *preservation* and is consistent with the *conservation* policy.
- Article 12** The destruction of elements of *habitat* or *geodiversity* that form part of the *natural significance* of a *place* is unacceptable unless it is the sole means of ensuring the security of the wider *ecosystem* or the long-term *conservation* of the *natural significance*.

INTRODUCED ELEMENTS

Article 13 Some introduced elements may need to be considered as part of the *ecosystem*. Some may contribute permanently to the *natural significance* of the *place*. Others may need to be retained until a condition of sustainable *natural integrity* can be achieved. The conservation policy should stipulate requirements for longer-term retention, control or eradication.

Note for Article 13

Examples include:

- where loose rocks have been removed, they might be replaced by other rocks to provide reptile *habitat*, and
- where a prolific *introduced species* of plant may be the preferred *habitat* for a range of birds and immediate removal may have a dramatic adverse affect on the birds.

Many factors will influence decisions related to conservation practices involving introduced elements.

DEGRADED NATURAL ECOSYSTEMS

Article 14 Some remnants of natural *ecosystems* that have suffered *degradation* may never recover their *natural integrity* but nevertheless may have *natural significance* that should be conserved.

Article 15 Extreme natural ‘catastrophic’ events may cause disturbance. This is a natural phenomenon, but is not *degradation* unless human *modification* of the natural environment has contributed to the event or the effects. If conservation decisions are needed after such events, this difference should guide the decisions.

Note for Article 14

This does not provide an excuse for allowing the *natural integrity* of a *place* to be degraded as long as other aspects are protected.



C

Part C

Conservation Processes

Note for Article 16

Protection may include direct protective action (such as erection of a fence) and indirect measures such as binding legal agreements, planning instruments, land acquisition, placing a protective covenant on a land title or reserving the *place* as a protected area.

Note for Article 18

The main distinction between *regeneration* and *restoration* is the extent of direct or indirect intervention. The activity known as bush *regeneration* consists of *restoration* and other conservation processes defined here.

Note for Articles 19 and 20

In considering *restoration* and *reinstatement*, the length of time that has passed since the existence of the 'earlier state' will influence decisions on conservation policy and will be a matter of judgment by the practitioner for each *place*.

Note for Article 20

For example, returning an element of *geodiversity* that has been seriously depleted, eg, adding gravel to expand the shallows and riffles of a stream that has been deepened by mining.

PROTECTION

Article 16 *Protection* may include conservation management measures that are either direct or indirect. The aim of *protection* is to prevent or minimise impacts that may degrade the *natural significance* of the *place* and to facilitate *regeneration*.

MAINTENANCE

Article 17 *Maintenance* techniques and action should be consistent with the conservation processes adopted for a *place* and should not detract from its *natural significance*.

REGENERATION

Article 18 *Regeneration* is essentially dependent on natural processes facilitating recovery from disturbance or *degradation*. It does not include physical intervention, but should be accompanied by *monitoring* and *protection* measures that do not create *degradation*.

RESTORATION

Article 19 *Restoration* is appropriate only if there is sufficient evidence of an earlier state to guide the conservation process and if returning the *biodiversity*, *geodiversity* or *habitat* of the *place* to that state is consistent with the *natural significance* of that *place*.

REINSTATEMENT

Article 20 *Reinstatement* is appropriate only if:

- there is evidence that the species or *habitat* elements or features of *geodiversity* that are to be reintroduced have existed there naturally at a previous time, and
- returning them to the *place* contributes to retaining the *natural significance* of that *place*, and
- processes that may threaten their existence at that *place* have been discontinued.

ENHANCEMENT

Article 21 *Enhancement* is appropriate only if there is evidence that the introduction of additional *habitat* elements, elements of *geodiversity* or individuals of an *organism* which exist at that place are necessary for, or contribute to, the retention of the *natural significance* of the *place*.

Article 22 Where *organisms* or elements of *geodiversity* are introduced to a *place* for the purpose of *enhancement*, the individuals introduced to the *place* should not alter the natural *species diversity*, *genetic diversity* or *geodiversity* of the *place* if that would reduce its *natural significance*.

Article 23 *Enhancement* in existing natural systems should be limited to a minor part of *biodiversity* or *geodiversity* of a *place* and should not change *ecosystem processes* nor constitute a majority of the *habitats* or features of *geodiversity* of the *place*.

PRESERVATION

Article 24 *Preservation* is appropriate where the *natural significance* of a *place* is fully manifested in its existing stage of natural *succession* or the existing state of its *geodiversity*, and where the *natural significance* is dependent on retaining existing conditions which may otherwise be lost by progression in natural processes.

Article 25 *Preservation* should be limited to the minimum intervention, or the change of *maintenance* actions, needed to suspend the natural *earth processes* or processes of *succession*. The intervention or change should not adversely affect surrounding *ecosystems*.

Note for Article 21

An example of *enhancement* is planting large numbers of a specific tree species to provide a *habitat* for a bird species identified as a particular part of the *natural significance*.

Note for Article 22

This means that genotypes different to the local genotype of a species at a *place* should not be introduced to it unless it is necessary for *restoration* or *preservation* of the *natural significance*.

Note for Article 23

This Article refers to existing natural systems and is not an argument against the creation of a new *habitat*.

Note for Article 24

Preservation is an exception to the general conservation principle of allowing natural *ecological processes*, *evolutionary processes*, *earth processes* and *succession* to continue. There may be situations where the conservation policy is to maintain the *ecosystem* of a *place* at a particular point in its *succession*, eg, *preservation* may be an appropriate conservation process for the locality of the Wollemi pine in New South Wales, thought to be a rare surviving relic of a previous climatic environment.

Note for Article 28

Presentation does not need to be limited to on-site activity and can include off-site programs.

Note for Article 30

Monitoring should be designed and conducted so as to identify changes relevant to the conservation program and unforeseen effects of conservation actions.

MODIFICATION

Article 26 *Modification* of a *place* to accommodate other non-conservation uses is acceptable where *natural significance* is retained and where the *modification* will not adversely affect the *natural significance* of other *places*.

Article 27 *Modification* should be limited to that which is essential to a use for the *place*, such use being determined in accordance with the conservation policy.

PRESENTATION

Article 28 *Presentation* should interpret to visitors and others the *natural significance* of the *place* and should encourage appreciation and respect. It should also encourage an appropriate level of awareness, understanding and support for the heritage values and conservation objectives of a conservation program or activity.

Article 29 *Presentation* may not be appropriate for all *places* for reasons of security and privacy or cultural significance. It should only commence after a *place* has been given adequate *protection*.

MONITORING

Article 30 *Monitoring*, which allows review of the effectiveness of conservation programs and re-examination of the appropriateness of decisions, is fundamental to improving conservation practice. It requires keeping adequate records.

Part D

Conservation Practice



OBTAINING INFORMATION ABOUT A PLACE

Article 31 Work on a *place* should be preceded by research and by review of the available physical, oral, documentary and other information about the existing *biodiversity* and *geodiversity*, including information from Indigenous people.

Article 32 Studies should be of as high a quality as possible. They should be prepared or reviewed by other people with appropriate experience, knowledge or professional qualifications. Information should be checked on site before any decisions about intervention activities are made.

Article 33 Evidence of the existing *biodiversity*, *geodiversity* and any other significant features of the *place* (such as cultural heritage) should be recorded before any disturbance of the *place*.

Article 34 Study of a *place* may require some disturbance to provide the data needed for deciding its *natural significance* and the conservation policy. In these cases the disturbance should have minimal impact on the *biodiversity* and *geodiversity* of the *place* and the actions should be recorded.

Article 35 Physical intervention is justified where it is needed to secure evidence about to be lost or made inaccessible through necessary conservation work or other unavoidable action.

Article 36 Investigation that requires physical disturbance of a *place* may be permitted if it will create, or add substantially to, a body of knowledge and provided that it is consistent with the conservation policy of a *place*.

Note for Article 31

The minimum information required before work or other conservation actions or processes start at a *place* is the identification of its *natural significance*.

Note for Article 33

If the *place* is known to, or likely to have cultural heritage values, reference can be made to *Ask First: A guide to respecting Indigenous heritage places and values* or *The Burra Charter* to assist in understanding, documenting and respecting these values.

Note for Article 34

A permit or licence is likely to be required for such studies.

Note for Article 37

The conservation policy should be of as high a quality as possible. It should be prepared or reviewed by a person with appropriate experience, knowledge or professional qualifications.

See Articles 8, 9, 10.

If management objectives are used instead of a conservation policy, key elements of Article 37 should be taken into account.

Note for Article 38

The process to develop a conservation plan is shown as a diagram on page 7.

The conservation plan may also acknowledge or reflect the local, state and territory, national and international policies, agreements, strategies and plans that may be statutory or guiding documents.

The conservation plan may be a component of a broader management plan for a range of land uses for the *place*, eg a farm plan, a plan of management for a reserve or a land or vegetation rehabilitation program.

Note that 'conservation management plan' is a commonly used alternative term.

CONSERVATION POLICY

Article 37

A conservation policy outlines the desired goals for conserving the *natural significance* of a *place* in both the short and long term. It should be a succinctly written statement which considers:

- the statement of significance and its supporting evidence
- a description of other management issues
- the implications of these issues for future management of the *place*, and
- the desired conservation outcomes and desired future condition.

This policy should be incorporated into a conservation plan for the *place*.

CONSERVATION PLAN

Article 38

A conservation plan should be prepared which outlines how the conservation policy will be implemented. The plan should include:

- a statement of significance
- a description of the management issues
- the conservation policy
- the conservation processes to be used
- organisations and/or individuals responsible for implementing the conservation plan
- a monitoring program to log changes in the *place*, and
- an evaluation process for assessing the success of the conservation plan in achieving the desired conservation outcomes.

- Article 39** The conservation processes to be used should be determined with reference to the conservation policy and to the conservation principles.
- Article 40** There should be a process to ensure that the conservation plan is regularly reviewed and updated.
- Article 41** The requirements of the conservation plan should be made known as part of the *presentation* of the *place*.
- Article 42** Appropriate expert direction and supervision should be maintained at all stages of implementing the plan, a log kept of new evidence, and additional decisions recorded as amendments to the conservation plan.

CONSULTATION

- Article 43** Consultation with individuals and organisations with an interest in the *natural significance* or future use of a *place* is highly desirable, especially at the time of developing the conservation policy and the conservation plan.

Note for Article 39

Conservation processes may be used in combination or sequentially to achieve the desired conservation outcomes.

Note for Article 43

The benefits of consultation include the benefit of additional knowledge or experience concerning a *place* and assistance in resolving any conflict prior to commitment to a management regime. It is recognised that some landholders may wish not to consult where there is no statutory obligation to do so. If a *place* appears to have heritage values for Indigenous people, steps for effective consultation can be found in *Ask First: A guide to respecting Indigenous heritage places and values*.

RECORDS

- Article 44** The records associated with all stages of the *conservation* of a *place* should be kept in a permanent archive and made publicly available, subject to requirements of security and privacy.

Notes on the second edition

These notes about the changes made in the second edition of the *Australian Natural Heritage Charter* are intended to assist those familiar with the original 1996 edition and do not form part of the Charter.

KEY CHANGES

1. The title

This revision of the Charter will be known as *Australian Natural Heritage Charter*, Second edition (or abbreviated to ANHC).

2. Article numbers

The number of new, amalgamated and deleted Articles in the second edition meant that retaining the 1996 Article numbers would have been confusing. Therefore, Article numbers have changed and these changes are shown in the conversion table at the end of these notes.

3. Explanatory notes

Explanatory notes have again been used to clarify Articles where needed, but after the publication of the Charter in 1996, a handbook was printed to provide further advice. An updated version called *Protecting Natural Heritage — using the Australian Natural Heritage Charter* will reflect the second edition of the ANHC.

4. Definitions

The definitions have been slightly re-ordered, and new definitions have been added for *natural heritage* and *presentation*. Definitions for community diversity, conservation management measures, disturbance and ecosystem diversity have been deleted. Many definitions have been edited to improve clarity and to reflect the current use of terms in Australia.

The sub-heading ‘actions’ has been deleted, and those definitions are now included with ‘conservation processes’.

5. Conservation principles

Several new Articles have been added:

- Article 2 (basis of *conservation*)
- Article 4 (objective for places to be in a self-sustaining state)
- Article 13 (introduced elements that may contribute to *natural significance*)
- Article 14 (conserving significance of degraded ecosystem remnants)
- Article 15 (decisions following extreme natural events), and
- Article 41 (*presentation* to include awareness of conservation plan).

6. Conservation processes

Conservation actions and processes have been combined into a single list and the order in which they are listed has been amended to follow a more logical sequence from least to greatest intervention requirements.

Advice has been added about *protection* (Article 16) and an additional process has been included (*presentation*), which reflects the importance of interpretation, appreciation and education in conserving heritage places. New Articles (Article 28 and Article 29) explain the use of *presentation*.

Monitoring has also been included in this section; previously it only appeared in Conservation Practice.

7. Conservation practice

Additional guidance is provided in four new Articles: Article 32 (studies), Article 39 (determining the conservation processes to be used), Article 40 (review of conservation plans) and Article 41 (*presentation*).

8. Cultural heritage

The Charter strengthens a number of references to *conservation* of Indigenous and historic cultural heritage values where these values co-exist with natural heritage values.

Conversion table

First and second editions

This table relates the Article numbers in the 2002 and 1996 editions of the Charter.

Subject	2002 Article	1996 Article	Subject	2002 Article	1996 Article
Part A Definitions			Part B Conservation Principles (continued)		
Definitions	1	1	Disciplines and experience	6	4
Biodiversity, biological diversity	1.5	1.3	Natural significance	7	5
Community	1.13	1.14	Conservation policy	8	6
Community diversity	Deleted	1.4	Statement of significance	2	7
Conservation	1.20	1.22	Compatible uses	9	8
Conservation management measures	Deleted	1.31	Ecological processes beyond places	10	9
Degradation	1.19	1.20	Removal of elements	11	10
Disturbance	Deleted	1.21	Destruction of elements	12	11
Earth processes	1.16	1.17	Introduced elements part of ecosystem	13	–
Ecological processes	1.15	1.16	Significance of degraded ecosystems	14	–
Ecosystem	1.14	1.15	Decisions after extreme natural events	15	–
Ecosystem diversity	Deleted	1.5	Part C Conservation processes		
Enhancement	1.26	1.25	Protection	16	–
Evolutionary processes	1.17	1.18	Maintenance	17	23
Genetic diversity	1.7	1.7	Regeneration	18	12
Geodiversity	1.4	1.8	Restoration	19	13
Habitat	1.12	1.13	Reinstatement	20	17
Indigenous species	1.9	1.10	Enhancement	21–23	14–16
Introduced species	1.10	1.11	Preservation	24, 25	18, 19
Maintenance	1.22	1.30	Modification and natural significance	26	20
Modification	1.28	1.28	Modification and conservation policy	27	21
Monitoring	1.30	1.32	Modification records	Deleted	22
Natural heritage	1.1	–	Presentation	28	–
Natural integrity	1.8	1.9	Presentation not always appropriate	29	–
Natural significance	1.3	1.2	Monitoring	30	34
Organism	1.11	1.12	Part D Conservation Practice		
Place	1.2	1.1	Research precedes work	31	24
Presentation	1.29	–	High studies quality	32	–
Preservation	1.27	1.27	Record evidence before intervention	33	25
Protection	1.21	1.29	Intervention impacts and recording	34	26
Regeneration	1.23	1.23	Loss of evidence	35	27
Reinstatement	1.25	1.26	Disturbance to add to knowledge	36	28
Restoration	1.24	1.24	Conservation policy content	37	29
Species diversity	1.6	1.6	Conservation plan content	38	30
Succession	1.18	1.19	Determining conservation processes	39	–
Part B Conservation Principles			Conservation plan review and updating	40	–
Significance — basis of conservation	2	–	Awareness of conservation plan	41	–
Aim of conservation	3	2	Plan supervision	42	31
Self sustaining condition	4	–	Consultation	43	32
Basis of conservation	5	3	Keeping records	44	33

Administration of the Charter

STATUS OF THE CHARTER

The *Australian Natural Heritage Charter* was originally published in 1996 and subsequently reviewed and updated into this current second edition published in 2002.

ADMINISTRATION AND FUTURE REVIEW

The Australian Committee for IUCN (World Conservation Union) and Environment Australia plan to administer, promote and distribute this Charter. In addition, they monitor and collate the views of users, and review and update the Charter.

FOR COPIES AND COMMENTS

The Charter and other publications referred to in the Charter are available on the Internet at: www.ea.gov.au/heritage/law.

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ecosystems

values

www.ea.gov.au/heritage/law/naturalheritage/

protection

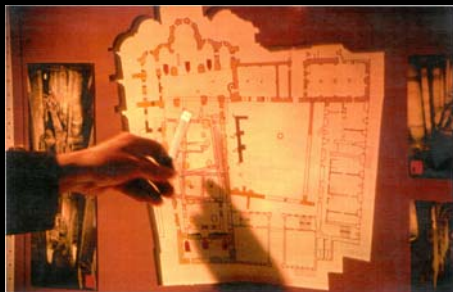
geodiversity

APPENDIX C ICOMOS INTERNATIONAL CULTURAL TOURISM CHARTER

ICOMOS

International Cultural Tourism Charter

**Principles And Guidelines For Managing Tourism
At Places Of Cultural And Heritage Significance**



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Introduction

BACKGROUND

The *ICOMOS International Cultural Tourism Charter* was approved by the ICOMOS General Assembly in Mexico in October 1999. The *Charter* was prepared by the ICOMOS International Scientific Committee on Cultural Tourism. It replaces the 1976 *ICOMOS Cultural Tourism Charter*.

ICOMOS is the international representative body for those who work in the field of cultural heritage conservation.

PURPOSE OF THE CHARTER

The new *Charter* provides an umbrella statement of Principles that guide the dynamic relationships between tourism and places or collections of heritage significance. It can provide the basis of a dialogue and a common set of principles to manage these relationships.

Given that it has been prepared within the international conservation framework established by ICOMOS, the *Charter* addresses the primary relationships between the cultural identity and cultural heritage of the host community and the interests, expectations and behaviour of visitors, both domestic and international. It promotes the engagement of the host community, including indigenous and traditional custodians in all aspects of planning and managing for tourism, particularly at heritage sites, within cultural landscapes and in historic towns.

In addition to recognising the need to safeguard the enormous breadth, diversity and universal importance of cultural heritage, both tangible and intangible, the new *Charter* promotes two major concepts:

- That one of the major reasons for undertaking any form of conservation is to make the significance of the place accessible to visitors and the host community, in a well managed manner.
- That both the conservation community and the tourism industry must work cooperatively together to protect and present the world's cultural and natural heritage, given their mutual respect for it and their concern for the fragility of the resource.

The revised *Charter* has adopted a co-operative approach to the relationship of the conservation community with tourism issues and the tourism industry, avoiding the traditional tensions while protecting those issues of concern. It recognises that greater progress will be made by establishing a positive dialogue than for conservationists to simply regard tourism primarily as something to be tolerated under duress.

The *Charter* is designed as a document for use by a wide variety of conservation and tourism industry bodies to assist manage the relationships with both domestic and international tourism. Accordingly the language and the coverage is deliberately broad and inclusive, rather than specific to any one country or situation. It encourages the further development of specific applications by interested parties.

THE KEY CHARTER CONCEPTS

- A major reason for undertaking the protection, conservation and management of heritage places, the intangible heritage and collections is to make their significance physically and/or intellectually accessible to the host community and to visitors. Unless there is public awareness and public support for cultural heritage places, the whole conservation process will be marginalised and not gain the critical levels of funding or public and political support so necessary for its survival.
- Reasonable and well managed access to cultural development and cultural heritage is both a human right and a privilege. It brings with it a duty of respect on the part of the visitor. Interpretation or presentation, play an important role in making the cultural heritage accessible to people.
- Cultural heritage is seen as a dynamic reference point for daily life, social growth and change. It is a major source of social capital and is an expression of diversity and community identity.
- Domestic and international tourism is one of the foremost vehicles of cultural exchange, providing personal experience of that which has survived from the past as well as the contemporary life and society of others. It can capture the economic benefits of cultural resources and is an important generator of economic development, when managed successfully.

Tourism should bring benefits to the host community and be planned to avoid adverse impacts on the authenticity and physical expression of the cultural heritage. Poorly managed or excessive tourism can have negative effects on the local community and their places of cultural significance.

- The *Charter* is not limited to considering tourism at the traditional ICOMOS concept of Monuments, or to World Heritage listed places, but has been expanded to include the interaction between tourism and all forms of the cultural heritage places, collections and the living aspects of the host communities.
- The *Charter* can be applied to a broad range of places and situations. It deliberately avoids describing the specific heritage characteristics of a limited number of places but uses the broad concept of “Heritage Significance”. The individual heritage characteristics of the particular place or community should be identified as part of the application of the *Charter* to any given situation.

RESPONSES TO THE CHARTER

Responses to the Charter are welcomed, and should addressed to

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The Charter Ethos

At the broadest level, the natural and cultural heritage belongs to all people. We each have a right and responsibility to understand, appreciate and conserve its universal values.

Heritage is a broad concept and includes the natural as well as the cultural environment. It encompasses landscapes, historic places, sites and built environments, as well as biodiversity, collections, past and continuing cultural practices, knowledge and living experiences. It records and expresses the long processes of historic development, forming the essence of diverse national, regional, indigenous and local identities and is an integral part of modern life. It is a dynamic social reference point and positive instrument for growth and change. The particular heritage and collective memory of each locality or community is irreplaceable and an important foundation for development, both now and into the future.

At a time of **increasing globalisation**, the protection, conservation, interpretation and presentation of the heritage and cultural diversity of any particular place or region is an important challenge for people everywhere. However, management of that heritage, within a framework of internationally recognised and appropriately applied standards, is usually the responsibility of the particular community or custodian group.

A primary objective for managing heritage is to **communicate its significance** and need for its conservation to its host community and to visitors. Reasonable and well managed physical, intellectual and/or emotive access to heritage and cultural development is both a right and a privilege. It brings with it a duty of respect for the heritage values, interests and equity of the present-day host community, indigenous custodians or owners of historic property and for the landscapes and cultures from which that heritage evolved.

Tourism and Cultural Heritage

THE DYNAMIC INTERACTION BETWEEN TOURISM AND CULTURAL HERITAGE

Domestic and international tourism continues to be among the foremost vehicles for cultural exchange, providing a personal experience, not only of that which has survived from the past, but of the contemporary life and society of others. It is increasingly appreciated as a positive force for natural and cultural conservation. Tourism can capture the economic characteristics of the heritage and harness these for conservation by generating funding, educating the community and influencing policy. It is an essential part of many national and regional economies and can be an important factor in development, when managed successfully.

Tourism itself has become an increasingly complex phenomenon, with political, economic, social, cultural, educational, bio-physical, ecological and aesthetic dimensions. The achievement of a beneficial inter-action between the potentially conflicting expectations and aspirations of visitors and host or local communities, presents many challenges and opportunities.

The natural and cultural heritage, diversities and living cultures are major tourism attractions. Excessive or poorly-managed tourism and tourism related development can threaten their physical nature, integrity and significant characteristics. The ecological setting, culture and lifestyles of host communities may also be degraded, along with the visitor's experience of the place.

Tourism should bring benefits to host communities and provide an important means and motivation for them to care for and maintain their heritage and cultural practices. The involvement and co-operation of local and/or indigenous community representatives, conservationists, tourism operators, property owners, policy makers, those preparing national development plans and site managers is necessary to achieve a sustainable tourism industry and enhance the protection of heritage resources for future generations.

ICOMOS, the International Council on Monuments and Sites, as the author of this Charter, other international organisations and the tourism industry, are dedicated to this challenge.

Objectives of the Charter

The Objectives of the *International Cultural Tourism Charter* are:

- To facilitate and encourage those involved with heritage conservation and management to make the significance of that heritage accessible to the host community and visitors.
- To facilitate and encourage the tourism industry to promote and manage tourism in ways that respect and enhance the heritage and living cultures of host communities.
- To facilitate and encourage a dialogue between conservation interests and the tourism industry about the importance and fragile nature of heritage places, collections and living cultures including the need to achieve a sustainable future for them.
- To encourage those formulating plans and policies to develop detailed, measurable goals and strategies relating to the presentation and interpretation of heritage places and cultural activities, in the context of their preservation and conservation.

In addition,

- The Charter supports wider initiatives by ICOMOS, other international bodies and the tourism industry in maintaining the integrity of heritage management and conservation.
- The Charter encourages the involvement of all those with relevant or at times conflicting interests, responsibilities and obligations to join in achieving its objectives.
- The Charter encourages the formulation of detailed guidelines by interested parties, facilitating the implementation of the Principles to their specific circumstances or the requirements of particular organisations and communities.

Charter Principles

Principle 1 **Encourage Public Awareness of Heritage**

Since domestic and international tourism is among the foremost vehicles for cultural exchange, conservation should provide responsible and well managed opportunities for members of the host community and visitors to experience and understand that community's heritage and culture at first hand.

1.1

The natural and cultural heritage is a material and spiritual resource, providing a narrative of historical development. It has an important role in modern life and should be made physically, intellectually and/or emotively accessible to the general public. Programmes for the protection and conservation of the physical attributes, intangible aspects, contemporary cultural expressions and broad context, should facilitate an understanding and appreciation of the heritage significance by the host community and the visitor, in an equitable and affordable manner.

1.2

Individual aspects of natural and cultural heritage have differing levels of significance, some with universal values, others of national, regional or local importance. Interpretation programmes should present that significance in a relevant and accessible manner to the host community and the visitor, with appropriate, stimulating and contemporary forms of education, media, technology and personal explanation of historical, environmental and cultural information.

1.3

Interpretation and presentation programmes should facilitate and encourage the high level of public awareness and support necessary for the long term survival of the natural and cultural heritage.

1.4

Interpretation programmes should present the significance of heritage places, traditions and cultural practices within the past experience and present diversities of the area and the host community, including that of minority cultural or linguistic groups. The visitor should always be informed of the differing cultural values that may be ascribed to a particular heritage resource.

Principle 2

Manage the Dynamic Relationship

The relationship between Heritage Places and Tourism is dynamic and may involve conflicting values. It should be managed in a sustainable way for present and future generations.

2.1

Places of heritage significance have an intrinsic value for all people as an important basis for cultural diversity and social development. The long term protection and conservation of living cultures, heritage places, collections, their physical and ecological integrity and their environmental context, should be an essential component of social, economic, political, legislative, cultural and tourism development policies.

2.2

The interaction between heritage resources or values and tourism is dynamic and ever changing, generating both opportunities and challenges, as well as potential conflicts. Tourism projects, activities and developments should achieve positive outcomes and minimise adverse impacts on the heritage and lifestyles of the host community, while responding to the needs and aspirations of the visitor.

2.3

Conservation, interpretation and tourism development programmes should be based on a comprehensive understanding of the specific, but often complex or conflicting aspects of heritage significance of the particular place. Continuing research and consultation are important to furthering the evolving understanding and appreciation of that significance.

2.4

The retention of the authenticity of heritage places and collections is important. It is an essential element of their cultural significance, as expressed in the physical material, collected memory and intangible traditions that remain from the past. Programmes should present and interpret the authenticity of places and cultural experiences to enhance the appreciation and understanding of that cultural heritage.

2.5

Tourism development and infrastructure projects should take account of the aesthetic, social and cultural dimensions, natural and cultural landscapes, bio-diversity characteristics and the broader visual context of heritage places. Preference should be given to using local materials and take account of local architectural styles or vernacular traditions.

2.6

Before heritage places are promoted or developed for increased tourism, management plans should assess the natural and cultural values of the resource. They should then establish appropriate limits of acceptable change, particularly in relation to the impact of visitor numbers on the physical characteristics, integrity, ecology and biodiversity of the place, local access and transportation systems and the social, economic and cultural well being of the host community. If the likely level of change is unacceptable the development proposal should be modified.

2.7

There should be on-going programmes of evaluation to assess the progressive impacts of tourism activities and development on the particular place or community.

Principle 3

Ensure a Worthwhile Visitor Experience

Conservation and Tourism Planning for Heritage Places should ensure that the Visitor Experience will be worthwhile, satisfying and enjoyable.

3.1

Conservation and tourism programmes should present high quality information to optimise the visitor's understanding of the significant heritage characteristics and of the need for their protection, enabling the visitor to enjoy the place in an appropriate manner.

3.2

Visitors should be able to experience the heritage place at their own pace, if they so choose. Specific circulation routes may be necessary to minimise impacts on the integrity and physical fabric of a place, its natural and cultural characteristics.

3.3

Respect for the sanctity of spiritual places, practices and traditions is an important consideration for site managers, visitors, policy makers, planners and tourism operators. Visitors should be encouraged to behave as welcomed guests, respecting the values and lifestyles of the host community, rejecting possible theft or illicit trade in cultural property and conducting themselves in a responsible manner which would generate a renewed welcome, should they return.

3.4

Planning for tourism activities should provide appropriate facilities for the comfort, safety and well being of the visitor, that enhance the enjoyment of the visit but do not adversely impact on the significant features or ecological characteristics.

Principle 4

Involve Host And Indigenous Communities

Host communities and indigenous peoples should be involved in planning for conservation and tourism.

4.1

The rights and interests of the host community, at regional and local levels, property owners and relevant indigenous peoples who may exercise traditional rights or responsibilities over their own land and its significant sites, should be respected. They should be involved in establishing goals, strategies, policies and protocols for the identification, conservation, management, presentation and interpretation of their heritage resources, cultural practices and contemporary cultural expressions, in the tourism context.

4.2

While the heritage of any specific place or region may have a universal dimension, the needs and wishes of some communities or indigenous peoples to restrict or manage physical, spiritual or intellectual access to certain cultural practices, knowledge, beliefs, activities, artefacts or sites should be respected.

Principle 5

Provide Benefit for the Local community

Tourism and conservation activities should benefit the host community.

5.1

Policy makers should promote measures for the equitable distribution of the benefits of tourism to be shared across countries or regions, improving the levels of socio-economic development and contributing where necessary to poverty alleviation.

5.2

Conservation management and tourism activities should provide equitable economic, social and cultural benefits to the men and women of the host or local community, at all levels, through education, training and the creation of full time employment opportunities.

5.3

A significant proportion of the revenue specifically derived from tourism programmes to heritage places should be allotted to the protection, conservation and presentation of those places, including their natural and cultural contexts. Where possible, visitors should be advised of this revenue allocation.

5.4

Tourism programmes should encourage the training and employment of guides and site interpreters from the host community to enhance the skills of local people in the presentation and interpretation of their cultural values.

5.5

Heritage interpretation and education programmes among the people of the host community should encourage the involvement of local site interpreters. The programmes should promote a knowledge and respect for their heritage, encouraging the local people to take a direct interest in its care and conservation.

5.6

Conservation management and tourism programmes should include education and training opportunities for policy makers, planners, researchers, designers, architects, interpreters, conservators and tourism operators. Participants should be encouraged to understand and help resolve the at times conflicting issues, opportunities and problems encountered by their colleagues.

Principle 6

Responsible Promotion Programmes

Tourism promotion programmes should protect and enhance Natural and Cultural Heritage characteristics.

6.1

Tourism promotion programmes should create realistic expectations and responsibly inform potential visitors of the specific heritage characteristics of a place or host community, thereby encouraging them to behave appropriately.

6.2

Places and collections of heritage significance should be promoted and managed in ways which protect their authenticity and enhance the visitor experience by minimising fluctuations in arrivals and avoiding excessive numbers of visitors at any one time.

6.3

Tourism promotion programmes should provide a wider distribution of benefits and relieve the pressures on more popular places by encouraging visitors to experience the wider cultural and natural heritage characteristics of the region or locality.

6.4

The promotion, distribution and sale of local crafts and other products should provide a reasonable social and economic return to the host community, while ensuring that their cultural integrity is not degraded.

Implementing the Charter

A CONSISTENT EVALUATION METHODOLOGY

There are a number of ways that the *ICOMOS International Cultural Tourism Charter* can be implemented to improve the relationship between tourism activities and the conservation of heritage places.

The *Charter* Principles and Guidelines may be used to undertake the evaluation of tourism at heritage places in a consistent and comparable manner. Irrespective of the scale, physical and heritage characteristics of the destination, and the scale and nature of the tourism experience, a consistent evaluation methodology will enable different sites to be compared in a useful and beneficial manner.

Site managers and those who design or implement tourism programs and projects at heritage places will be able to learn more efficiently from the experiences of other sites. They will also have a soundly based methodology for evaluating and monitoring the performance of their site or place over time, leading to improved conservation and visitor management policies and programs.

Researchers will be able to use a consistent methodology when assessing the dynamic nature of tourism at heritage sites and the impact on heritage significance that may arise from tourism activities.

Conservationists will be able to confidently present their work to the public, knowing there is a strong basis for visitor management.

Consent authorities will be able to evaluate tourism development proposals at heritage sites against a widely recognised and consistent set of Principles and Guidelines. Consent for development will thus be more soundly based on well-established criteria.

Providers of funding for tourism projects at heritage sites, whether by way of grant or investment, will have a set of criteria against which to evaluate applications for funding, investment or grant support. The long-term sustainability of heritage sites that is promoted by the Charter will give added security for those who invest or support such programs.

National, Regional and site based tourism promotion programs will be able to include programs which communicate the heritage significance of historic places in their programs. Promoting the unique or distinctive features of a destination is an essential component of successful tourism promotion.

Evaluation Questionnaire

GATHER INFORMATION ABOUT THE PLACE

Before any comparative evaluation can be made about a heritage site or historic place, it is essential that basic descriptive information is established. This information needs to be clearly and concisely recorded.

Nature of the Place

- Location, Physical nature, size, components, property definition
- Geographical and ecological description of the place and context
- Ownership and management structures
- Legislative background
- Nature of the host or custodial community
- Relation to nearby population centres
- Access and transport, site infrastructure
- Physical condition of the place and its locality
- Economic context of the place and the host community
- Stakeholders

Significance of the Place

- The historical, ecological and cultural significance of the place or collection and its authenticity
- Tangible and intangible characteristics
- Comparative values and unique features
- Differing views on significance

Conservation Context

- Responsibility for conservation activities
- Resources and management structure for conservation
- Objectives and standards for conservation
- Nature of current and past physical conservation activities
- Operational and conservation expenditure
- Ecological, political, and economic pressures and threats
- Security and protective measures

Tourism Context

- The broad tourism context of the place in relation to the region
- Local, domestic and/or international tourists
- How did they travel to the place?
- Tourism infrastructure such as airports, road, rail, sea access, accommodation
- Tourism operators transportation, accommodation, information and presentation
- Package tours v individual travel
- Revenue generated by tourism at the place

Relationships Between Tourism and Conservation

- Is the place a new or established tourism venue or attraction?
- The historical tourism experience over time, Is tourism growing or declining
- The broad dynamics between tourism and conservation in the region
- Impacts already experienced from tourism on the place and the community
- How do visitors move around the place, with or without guides and interpretation?

APPLICATION OF THE CHARTER

Principle 1 Encourage Public Awareness

Since domestic and international tourism is among the foremost vehicles for cultural exchange, conservation should provide responsible and well managed opportunities for members of the host community and visitors to experience and understand that community's heritage and culture at first hand.

1. What forms of physical, intellectual and emotive access, to the significance of the site, are available and how is the significance presented to the visitor?
2. Is access equitable and affordable for both the host community and the visitor?
3. What are the forms and techniques used for interpretation of that significance? Do they encourage a high level of public awareness of the significance of the place in the host community?
4. Is the visitor informed of any differing cultural values that may be ascribed to the place?

Principle 2 Managing the Dynamic Relationship

The relationship between Heritage Places and Tourism is dynamic and may involve conflicting values. It should be managed in a sustainable way for present and future generations.

1. How have tourism projects and activities impacted on the natural and cultural heritage and lifestyles of the host community?
2. Are existing or planned programmes based on a comprehensive understanding of the particular significance of the place?
3. Have programmes and projects taken into account their relationship with the aesthetic, social, cultural dimensions, natural and cultural landscapes, bio-diversity characteristics and broader visual context of the heritage place.

4. Have tourism projects given a preference for using local materials and architectural styles or vernacular traditions?
5. Are there on-going programmes of evaluation to assess the progressive impacts of tourism activities and development on the particular place or community?

Principle 3

Ensure a Worthwhile Visitor Experience

Conservation and Tourism Planning for Heritage Places should ensure that the Visitor Experience will be worthwhile, satisfying and enjoyable.

1. Does the information presented optimise the visitor's understanding of the place and encourage them to respect it?
2. Are specific circulation routes for visitors? Can the visitors experience the place at their own pace, if they so chose?
3. Is the visitor encouraged to respect the values and lifestyles of the host community?
4. Is the visitor encouraged to reject possible theft or illicit trade of cultural property?
5. Are there appropriate facilities for the safety, comfort, well being of the visitor, including reasonable access for the physically impaired?
6. Are there adequate and appropriate food, beverage and retail opportunities for visitor enjoyment, without adversely impacting on the significant features or ecological characteristics of the place.
7. Is the visitor directly involved in an activity or personal response which contributes, even in a small manner, to the conservation of the site.

Principle 4

Involve Host and Indigenous Communities

Host communities and indigenous peoples should be involved in planning for conservation and tourism.

1. Are the host community, property owners and/or relevant indigenous people involved in planning for conservation and tourism at the place?
2. Do planning, conservation and tourism activities show appropriate respect for the rights and interests of the host community, property owners and relevant indigenous people?
3. Have relevant people been involved in establishing goals, strategies, policies and protocols for identification, management and conservation programs?
4. If appropriate, has there been respect shown to the wishes of the host community or relevant indigenous people to restrict or manage access to certain cultural practices, knowledge, beliefs, activities, artefacts or sites?

Principle 5

Provide Benefit for the Local Community

Tourism and conservation activities should benefit the host communities

1. Do the economic and other benefits of tourism flow into the host community in an equitable manner?
2. Is a significant proportion of the revenue specifically derived from tourism allotted to protection, conservation and presentation of the cultural heritage?
3. Are there programmes for the training and employment of guides and site interpreters from the host community?
4. Are the local people encouraged to take a direct interest in the care and conservation of their heritage.

Principle 6

Responsible Promotion Programmes

Tourism promotion programmes should protect and enhance Natural and Cultural Heritage characteristics.

1. Do the tourism promotion programmes create realistic expectations and responsibly inform potential visitors?
2. Do the promotion and management programmes seek to minimise fluctuations in visitor numbers?
3. Do tourism promotion programmes encourage visitors to experience the wider cultural and natural heritage characteristics of the region or locality?
4. Does the promotion, distribution and sale of local crafts and other products provide reasonable social and economic returns to the host community.
5. Does the promotion, distribution and sale of local crafts ensure that their cultural integrity is not degraded.

Glossary

This Glossary has been prepared to provide those who use and implement the ICOMOS International Cultural Tourism Charter with a consistent terminology.

Access to significant features, values and characteristics, includes all form of access, including **physical access**, where the visitor experiences the place in person, **intellectual access**, where the visitor or others learn about the place, without possibly ever actually visiting it and **emotive access** where the sense of being there is felt, again even if a visit is never undertaken.

Authenticity describes the relative integrity of a place, an object or an activity in relation to its original creation. In the context of living cultural practices, the context of authenticity responds to the evolution of the traditional practice. In the context of an *Historic Place* or object, authenticity can encompass the accuracy or extent of its reconstruction to a known earlier state.

Biodiversity describes the variety of life forms, the different plants, animals and micro-organisms, the genes they contain and the *ecosystems* they form.

Conservation describes all of the processes of looking after a *Heritage Place*, *Cultural Landscape*, *Heritage Collection* or aspect of *Intangible Heritage* so as to retain its cultural, indigenous or natural heritage significance. In some English speaking countries, the term Preservation is used as an alternative to Conservation for this general activity.

Conservation Community includes all those who work towards the protection, conservation, management and presentation of the world's cultural and natural heritage.

Culture can be defined as the whole complex of distinctive spiritual, material, intellectual and emotional features that characterise a community, society or social group. It includes not only arts and literature, but also modes of life, the fundamental rights of the human being, value systems, traditions and beliefs. Culture encompasses the living or contemporary characteristics and values of a community as well as those that have survived from the past.

Cultural Exchange describes the process or processes whereby a person or group of people experience the respective *Culture*, lifestyle and *Heritage* of another person or group.

Cultural Heritage is an expression of the ways of living developed by a community and passed on from generation to generation, including customs, practices, places, objects, artistic expression and values. Cultural Heritage is often expressed as either *Intangible* or *Tangible Cultural Heritage*.

Cultural Heritage Significance means the aesthetic, historic, research, social, spiritual or other special characteristics and values a place, an object or a custom may have for present and future generations.

Cultural Landscapes describe those places and landscapes that have been shaped or influenced by human occupation. They include agricultural systems, modified landscapes, patterns of settlement and human activity, and the infrastructure of production, transportation and communication. The concepts of cultural landscapes can be useful in understanding the patterns of activity as diverse as industrial systems, defensive sites and the nature of towns or villages.

Cultural Resources encompass all of the *Tangible* and *Intangible Heritage* and living Cultural elements of a community.

Cultural Tourism is essentially that form of tourism that focuses on the culture, and cultural environments including landscapes of the destination, the values and lifestyles, heritage, visual and performing arts, industries, traditions and leisure pursuits of the local population or *host community*. It can include attendance at cultural events, visits to museums and heritage places and mixing with local people. It should not be regarded as a definable niche within the broad range of tourism activities, but encompasses all experiences absorbed by the visitor to a place that is beyond their own living environment.

Domestic Tourism generally refers to those who travel within their own country or region for pleasure, business, learning, holiday, recreation or to visit friends and relatives. It includes those who visit another part of their larger living environment, beyond the sphere of their daily lives.

Ecosystems means a dynamic complex of organisms their non-living environment , interacting as a functional unit.

Geodiversity is the range of earth features including geological, geomorphological, palaeontological, soil, hydrological and atmospheric features, systems and earth processes.

Heritage is a broad concept that encompasses our Natural, Indigenous and Historic or Cultural inheritance.

Heritage Collections include all of the moveable articles that may be associated with a place, an activity, a process or a specific historical event. They also include collections of related or unrelated items that have been gathered into museums, art galleries, scientific repositories, archives and libraries, both public and private.

Heritage Place describes a site or area of heritage significance that contains a number of buildings and structures, cultural landscape, monument, building or other structure, historic human settlement, together with the associated contents and surroundings or curtilage. Heritage places include those, which may be buried or underwater.

Heritage Significance recognizes both the *Natural* and *Cultural Significance* or important values and characteristics of places and people.

Host Community is a general concept that encompasses all of the people who inhabit a defined geographical entity, ranging from a continent, a country, a region, a town, village or historic site. Members of the host community have responsibilities that include governing the place and can be regarded as those who have or continue to define its particular cultural identity, lifestyle and diversity. They contribute to the conservation of its heritage and interact with visitors.

Indigenous Cultural Heritage is dynamic. It includes both *Tangible* and *Intangible* expressions of culture that link generations of Indigenous people over time. Indigenous people often express their cultural heritage through “the person”, their relationships with country, people, beliefs, knowledge, law, language, symbols, ways of living, sea, land and objects all of which arise from Indigenous spirituality. Indigenous Cultural Heritage is essentially defined and expressed by the *Traditional Custodians* of that heritage.

Intangible Cultural Heritage can be defined as embracing all forms of traditional and popular or folk culture, the collective works originating in a given community and based on tradition. These creations are transmitted orally or by gesture, and are modified over a period of time, through a process of collective re-creation. They include oral traditions, customs, languages, music, dance, rituals, festivals, traditional medicine and pharmacopeia, popular sports, food and the culinary arts and all kinds of special skill connected with the material aspects of culture, such as tools and the habitat.

International Tourism generally refers to those who travel to another country for pleasure, business, learning, holiday, recreation or to visit friends and relatives.

Interpretation means all of the activities, including research, involved in the explanation and presentation of the *Tangible* and *Intangible* values and characteristics of an *Historic Place*, object, collection, or activity to the visitor or member of the *Host Community*.

Limits of Acceptable Change refers to a process of establishing the key values and characteristics of a place and the maximum extent to which they may change before the core of their importance is degraded to an unacceptable extent. Tourism and other activities can then be monitored or evaluated to determine the rate at which these values are threatened.

Natural Heritage consists of *ecosystems*, *biodiversity*, and *geodiversity* considered significant for the existence value for present and future generations in terms of their scientific, social, aesthetic and life support values.

Natural Heritage Significance means the importance of *ecosystems*, *biodiversity* and *geodiversity* for their existence value or for present and future generations, in terms of their scientific, social, aesthetic and life support value.

Sustainable Future refers to the ability of an action to be carried out without diminishing the continuation of natural processes of change or damaging the long term integrity of natural or cultural environments, while providing for present and future economic and social well-being.

Sustainable Tourism refers to a level of tourism activity that can be maintained over the long term because it results in a net benefit for the social, economic, natural and cultural environments of the area in which it takes place.

Tangible Cultural Heritage encompasses the vast created works of humankind, including places of human habitation, villages, towns and cities, buildings, structures, art works, documents, handicrafts, musical instruments, furniture, clothing and items of personal decoration, religious, ritual and funerary objects, tools, machinery and equipment, and industrial systems.

Tourism Industry encompasses all those who work in, support, facilitate or provide goods and services to *Domestic* and *International Tourism* activities.

Tourism Projects include all of the activities that enable, facilitate, or enhance a visit to a destination, including the provision or upgrading of related infrastructure and facilities.

Traditional Custodians are those people who have by tradition or custom been responsible for the protection, conservation and continuity of the established significance of the place or cultural value. They include indigenous people and those from religious sects or other defined groups who have a strong and established relationship with a particular aspect of the cultural or natural heritage.

APPENDIX D HERITAGE LISTING INVENTORY SHEETS

- State Heritage Register Database
- State Heritage Inventory Database
- Australian Heritage Places Inventory
- Australian Heritage Database Inventory
- National Trust of Australia (NSW)

STATE HERITAGE REGISTER DATABASE


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Newington Armament Depot and Nature Reserve

Item

Name of Item:	Newington Armament Depot and Nature Reserve
Other Name/s:	Millennium Heritage Parklands Precinct, Newington Armory, Royal Australian Navy Armament Depot (RANAD), Newington Nature Reserve, Sydney Olympic Games
Type of Item:	Built
Group/Collection:	Defence
Category:	Magazine
Primary Address:	Holker Street, Sydney Olympic Park, NSW 2140
Local Govt. Area:	Auburn
Property Description:	

Lot/Volume Code	Lot/Volume Number	Section Number	Plan/Folio Code	Plan/Folio Number
-	2005	-	DP	878356
-	1	-	DP	883215
-	2	-	DP	883215
-	3	-	DP	883215
-	2	-	DP	883573

All Addresses

Street Address	Suburb/Town	LGA	Parish	County	Type
Holker Street	Sydney Olympic Park	Auburn	St John	Cumberland	Primary
	Sydney Olympic Park				Alternate

Owner/s

Organisation Name	Owner Category	Date Ownership Updated
Sydney Olympic Park Authority	State Government	

Statement of Significance

The former Royal Australian Navy (RAN) Armament Depot - Newington known as Newington Armament Depot and including the area now known as the Newington Nature Reserve, is potentially of State heritage significance as a place which demonstrates the historical and technical development of systems and regulations of explosives handling and storage from the 1890s to 1999 and also demonstrates the importance of Sydney as a Navy Port. Newington Armament Depot and Nature Reserve is historically significant as it contains physical evidence demonstrating the history of European occupation through to the end of the 20th century. The site is a valuable tool for research relating to the early settlement and development of the colony of NSW and the development of defence

from colonial times.

Newington Armament Depot and Nature Reserve is potentially of State significance as an extensive cultural landscape containing features from all periods of its human occupation as well as regionally rare forest and wetlands. Newington Nature Reserve is reserved under the NSW National Parks and Wildlife Act 1974 because of its significant ecological values; these extend beyond the boundaries of the Reserve into other parts of the site. The site's estuarine wetland and forest communities are rare remnants of ecological communities that once dominated this region. These provide a valuable resource for research and include a number of rare and endangered ecological communities, flora and fauna including Sydney Turpentine Ironbark Forest, Coastal Saltmarsh, the Green and Golden Bell Frog, *Wilsonia backhousei* and the White Fronted Chat. The site supports 144 bird species and ten bat species including the only known maternity roost of the White-striped Freetail bat in the Sydney area. In addition, it supports the only remaining example of a complete zonal succession from eucalypt forest, saltmarsh, mangroves and tidal mudflats on the Parramatta River estuary.

Date Significance Updated: 15 Apr 10

Note: There are incomplete details for a number of items listed in NSW. The Heritage Branch intends to develop or upgrade statements of significance and other information for these items as resources become available.

Description

Designer/Maker: various

Builder/Maker: Royal Australian Navy

Construction Years: 1897 - 1999

Physical Description: The Newington Armament Depot and Nature Reserve is part of the former Royal Australian Navy Armament Depot, Newington, which operated at the site until December 1999. Armaments used by Australian, British and United States Navy ships were received, inspected, tested, stored and distributed at the Depot. These armaments included gunpowder, explosive shells, cordite, fuses, depth charges, torpedoes and rockets.

The site now spans approximately 100 hectares. It contains 100 buildings, 6.7 kilometres of narrow-gauge rail, 7 battery-powered locomotives, 30 rail wagons, three cranes, various items of moveable heritage left behind after the Depot closed, items of moveable heritage on loan from the Department of Defence, and the 48-hectares Newington Nature Reserve. At its peak the Depot spanned from the Parramatta River to Parramatta Road (259 hectares) and contained 191 buildings. The southern part of the Depot was developed as the athletes village for the 2000 Olympic Games and is now the suburb of Newington. The site includes a wide variety of buildings, blast containment structures, transport networks, landforms and moveable items associated with the storage and handling of explosives, all of which were closely associated with the topography and other natural features of the site.

Evidence of Indigenous occupation in the form of isolated artefact scatters has been referred to in early documentation of this site however more recent information has placed this in question (SOPA 2010). Scarred trees have been recorded however later reports have also questioned the veracity of the cultural significance of these trees. (Irish) The most dominant physical evidence of cultural significance to be found on the site is the built environment relating to the use by the Army, the Royal Australian Navy (RAN) and the American Navy.

The site has been described as consisting of four zones by the Brooks Conservation Master Plan 2003 according to the periods in which they were occupied.

1) The "Original Establishment Precinct" is in the north west corner of the site facing Parramatta River and contains the earliest military buildings and evidence of its occupation as an Armament Depot from 1897. It contains the wharf with two cranes, reclaimed land and part of the light rail system as well as Federation face brick buildings which were purpose built to store and distribute armaments. These buildings are protected by earth mounding and concrete separation blast walls to shield explosive materials in event of accidents. At the top of the precinct on a hill at the end of a cobble stone driveway flanked by two rows of trees ending in two sandstone gate posts are administration and residential buildings. These buildings are a mixture of Federation brick buildings constructed in the first phase and other buildings built during the 1920's, 1930's and 1940's. The later buildings are a mix of materials including timber and fibro with asbestos roofing. The cranes are dated as circa 1973.

2) The "Early Navy Occupancy Precinct" is in the north east corner of the site and provides physical evidence of the Navy occupancy and expansion up until the Second World War. The precinct has a concentration of armaments storage and weapons testing buildings due to its isolation from the other precincts by the wetlands. As the precinct was originally used for burning carbine and testing armament the conservation of the wetland is complicated by the presence of unexploded ordinance.

3) The "RAN Wartime Expansion Precinct" is in the south eastern corner of the site and it includes half of the Woodland. Within this precinct are buildings constructed in the period leading up to WWII for use as armaments storage and weapons testing as well as administration. In addition there are transportation infrastructure and landscape works from this period.

4) The south west corner of the site is described as the "US Navy Utilisation Precinct" because it contains explosives storage bunkers constructed for the US Navy. The area also contains Inter-war buildings constructed as offices and workshops which are generally located in a group close to Jamieson Street at the northern end of the precinct on the hill where the 19th century residences are located. The typical armament store building of the former RANAD site is electrically earthed with massive copper straps, constructed of materials with good antistatic properties; provided with facilities for discharging static electricity from people entering the store; fitted with lightning conductors; and contained within a high earth embankment, which will direct any accidental blast upwards (Fox and Associates 1986).

On site is also a movable heritage collection (part of the Navy Heritage Collection) which is unique and historically related to the Newington site. No other location in the world holds a complete collection of ordnance that directly relates to the entire history of the site and that site only. Many of the individual items are also either extremely rare or the only known example to exist. This collection is not part of this heritage listing on the State Heritage Register but is protected by the Commonwealth.

The site encompasses Newington Nature Reserve which is reserved under the NSW National Parks and Wildlife Act 1974 because of its significant ecological values. The Reserve comprises 48 hectares of remnant and regenerating forest and estuarine wetland communities. These ecological communities extend beyond the Reserve into adjoining land.

The Reserve supports 20 hectares of 'Sydney Turpentine Ironbark Forest', classified as a critically endangered ecological community under the Commonwealth Environment Protection and Biodiversity Act 1999, and as endangered under the NSW Threatened Species Conservation Act 1995. Only 0.5% of the original pre-European extent of this forest type remains intact, and only 220 hectares of this is protected within conservation reserves. 28 native plants, identified as being of regional conservation significance, have been recorded within the forest. It has a high density of hollow-bearing trees (uncommon in other similar remnants of this community), which provide nesting sites for birds and potential microbat roosts. It is an important local and regional stronghold for bush bird and bat species, and provides a base for species that rely on the forest for shelter and breeding habitat, but utilise parkland and urban habitats for feeding and movement.

The Reserve supports a 35-hectare estuarine wetland, which contains mangrove forest, mudflats, 'Swamp Oak Floodplain Forest' and 'Coastal Saltmarsh'. Mangroves are classified as 'protected marine vegetation under the NSW Fisheries Management Act 1994; Swamp Oak Floodplain forest and Coastal saltmarsh are each classified as an 'endangered ecological community under the NSW Threatened Species Conservation Act 1995. *Wilsonia backhousei*, listed as 'vulnerable' under the TSCA, is a component of the saltmarsh community. The saltmarsh community also supports two species of restricted distribution and local conservation significance - *Halosarcia pergranulata* and *Lampranthus tegens*.

The reserve contains a complete zonal succession of eucalypt forest, casuarina forest, saltmarsh and mangroves; the only such succession remaining on the Parramatta river estuary.

It supports the only known maternity roost of the White-striped Freetail bat (*Tadarida australis*) in the Sydney area, and in a building. This maternity roost is established in the roof and wall cavity of a former explosives storehouse. Several other former explosive storehouses within the precinct also show evidence of recent use as maternity roosts by several bat species.

It supports a population of the Green and Golden Bell Frog, listed as an endangered species under the NSW TSCA, and as a vulnerable species under the Commonwealth EPBC.

It supports 144 species of birds, including migratory species listed under international agreements between the governments of Australia, China, Japan and Korea.

The Reserve takes up land a length of approximately one kilometre along Parramatta River without actually including the edge of the river frontage; the estuarine wetlands form part of a network of estuarine habitats along the Parramatta River utilised by migratory shorebirds.

The Reserve supports one of two remaining Sydney populations of the White-fronted Chat (*Epthianura albifrons*). This species is listed as 'vulnerable' under the Threatened Species conservation Act 1995, and the Sydney Olympic Park population as a whole is listed as an 'endangered population'. (SOPA 2010)

**Physical Condition and/or
Archaeological Potential:**

Since the closure of the armament depot in the 1990's the original seven precincts described in the 1989 Godden Report have been reduced substantially. The southern precinct and half the magazine precinct have since been redeveloped as the suburb Newington. The remaining Newington Armament Depot precinct is in good condition

and is maintained regularly with many of the habitable original buildings still occupied. The buildings used for armament storage are not habitable and are currently empty or are used for short term storage. Today the site is being opened up for managed public multi use for recreational, cultural, arts, scientific, research and educational activities, short term accommodation, events and programs as well as conservation and nature reserve. An adaptive building reuse program has included new uses such as a cafe and kiosk on the foreshore, visitor information and bike hire, artists studios, art gallery, theatrette, 96 bed lodge accommodation facility, Birds Australia Discovery Centre, museum and operational storage facilities. The railway has been restored and is operated as a guided tour for visitors. Substantial stabilisation and restoration works were undertaken to buildings, railway track and locomotives in 2001 with the result that built assets are generally in good condition. Forest and wetland communities are generally in good condition due to implementation of a long-term bush regeneration and enhancement program. Access to these areas is highly restricted to ensure their ongoing protection. A program of natural regeneration and planting of local provenance plants is extending and enhancing these communities. Wetland hydrology is actively managed to balance habitat needs of saltmarsh and migratory shorebirds and to minimise creation of mosquito breeding habitat. Mangrove seedlings are actively removed where they pose a threat to saltmarsh or mudflat communities. The wetland contains areas identified as potentially containing unexploded ordnance, which restricts access and some types of management activities. Parts of the wetland contains extensive breeding habitat for the pest mosquito *Aedes vigilax*, necessitating periodic treatment with a bacterial larvicide. **Date Condition Updated:** 30 Mar 10

Modifications and Dates:

1980's - Regular mowing of the forest understorey to reduce fire risk ceases; natural regeneration commences. 1996- Remediation and redevelopment of southern 2/3 of the Depot commences. Restoration of tidal flushing to the wetland - Tidal flushing channel 1 (1997) and tidal flushing channel 2 and 3 (1999) constructed - the wetland had become effectively landlocked as a result of the construction of the Parramatta River seawall in the 1890's and reclamation of Wentworth (Homebush) Bay in the 1950's. 2000-1-1 - Ownership of the land now know as the Newington Armament Depot and Nature Reserve was transferred from the Commonwealth Government to the NSW State Government. 2000/09/14 -34.7 hectares of estuarine wetland and 13 hectares of remnant forest were gazetted as Silverwater Nature reserve, later renamed Newington Nature Reserve. 2001 - Extensive stabilisation and restoration works were conducted to buildings, railway track and locomotives. 2003 - First public open day held. 2003 to present - Progressive adaptive re-use of buildings for uses listed above. The rail track was extended to form a loop encircling the forest, enabling the train to operate as a visitor tour and interpretive attraction. 2007 - New park opened by the riverside - Blaxland Riverside Park, covering 20 hectares adjoining the Newington Armament Depot. Stage 1 of \$7m works opened, comprising creation of landscaped picnic terraces, development of a riverfront promenade, cafe, parking areas etc. 2007 - Wharf area was redeveloped and opened as part of Blaxland Riverside Park. 2008 - Cafe building destroyed by fire and rebuilt. (Information supplied by Sydney Olympic Park Authority)

Current Use:

Arts precinct; Park; Recreation

Former Use:

Farming; Armament Depot.

History

Historical Notes:

The Parramatta river area was formed during the Holocene period

approximately 6000 years ago. Aboriginal people are believed to have lived in the Sydney basin for at least 20,000 years however with the rising sea levels associated with the warming of the Holocene age archaeological evidence is limited to areas above sea level such as the Blue Mountains. (Brooks p21, 22, 23)

Evidence of the use of Homebush Bay by Aboriginal people has been found. Middens originally were present along the shores of the Parramatta River and Homebush Bay however these were substantially disturbed when used for lime making. Past reports have referenced the existence of physical evidence of Aboriginal occupation on the subject site as isolated artefact scatters and scarred trees (Brooks p22, 23). However these findings have since been questioned in further studies. (Irish 2004).

John Blaxland (1769-1845) was a landowner and merchant who came to Australia in April 1807 with the sponsorship of the British government. Blaxland's holding on the Parramatta River was 1290 acres part of which was the land later to become Newington Armament Depot. Blaxland named the site Newington after his home in Kent. He had aspirations to profit from the colony but was constantly at odds with its administration, in particular Governor Bligh, over what was owed to him and the type of agricultural and mercantile enterprise he chose to undertake. Blaxland chose to concentrate on the cattle industry: breeding, slaughtering, salting down, and selling meat and dairy produce and did not undertake crop cultivation which was the farming activity preferred by Bligh. He produced the first suitable colonial salt on the waterfront (Australian Dictionary of Biography). Blaxland's estate was rich, riverside land, comprising a rural villa estate and a farming community. The farm, factory and salt works were established between 1829 and 1832. (SHI Database SHR 00813) Blaxland built a house which is on land which is now part of Silverwater prison. After the death of Blaxland in 1845 the family mortgaged and sold the property. The Land was then leased for uses such as slaughterhouses and timber cutting. (Brooks, 26) The property was bought by John Weatherill who intended to subdivide it but this was never undertaken and the site reverted to the government in 1880.

In 1882 the government resumed the area for a Powder Magazine. Most of the 248 acres resumed at this time was described as mud flats, swamp and mangroves or salt marsh. (Brooks 2003) Its isolated location away from urban areas made it suitable for the storage of explosives. This area was enlarged in 1884 with an extra area of 109 hectares being made available for the magazine. Further increases were made in 1941 (38 hectares), 1946 (86 hectares), 1949 (20 hectares) and 1952 (6 hectares). (Fox, p139) The large scale reclamation eventually drained 200 acres of mud flats. By 1893 the foreshore had moved out into the bay and been straightened with two miles of fascine banks. Reclamation of the wetland continued through the 1930s and into the Second World War. Part of the site was used by Homebush State Abattoir until 1928. In 1938 and 1941 the whole site was resumed for military purposes. (Brooks, 29)

Defence infrastructure in the 19th century was largely located in the inner harbour of Sydney Harbour with Powder Magazines at Goat Island and Spectacle Island. In the 1860's it became apparent that Goat Island was reaching capacity and the use of Spectacle Island as a powder magazine had begun by 1865. By 1880 both Goat and Spectacle Islands had reached capacity and another site was required to store explosives which was far enough removed from the urban population. Newington was chosen for its relative isolation and in 1882 the Government Gazette of 22 August described the resumption of land for "erection of a magazine for the storage of gunpowder and other explosives". (Godden, 9) The first buildings were constructed for and manned by the New South Wales Military Forces in 1897 . The site during the period occupied by the New South Wales Military Forces was focussed on the Parramatta River side within a precinct comprising the river frontage, armament buildings and

accommodation buildings on a hill away from the handling and storage of explosives. In 1921 the Royal Australian Navy took over the site from the army and used the site to store enough ammunition for 2 ships and 2 years practice ammunition. The Navy lobbied for the resumption of more land arguing the site was too small to be of any real value. There followed a decade of development on the subject site and land resumed from the State Abattoir. In 1938 in response to the European military situation the Navy's expansion on the site dramatically increased. The armament depot was fully operational and at its peak when the Second World War was declared. (Brooks, 34)

The Second World War had a major impact upon defence in Australia and the way it was managed. The Royal Australian Navy was formed in 1911 but still played a role as a colonial arm of the British navy. In the Second World War the RAN took on a major role in defence as thousands of Allied ships arrived in Sydney, affecting docking facilities and particularly armament supply and storage. Newington Armament Depot was part of a network of Navy sites on Sydney harbour. Munitions were transported between Garden Island, Cockatoo Island, Spectacle Island and Newington. All ships entering the harbour were de-ammunitioned and the ammunition was then taken to Newington for storage. Of the 5,127 dockings by Navy ships between 1939 and 1945 there were over 500 US ships and almost 400 British. There were smaller numbers of Dutch and French ships as well as almost 12,000 Merchant ships which also carried armaments and navel supplies. (Brooks, p35) During the Second World War Newington played an essential role in supplying Allied ships for the war in the Pacific.

At the end of the war the Navy continued to operate the site and it remained an intrinsic part of the Sydney Ammunition Pipeline. The pipeline is the term used to describe the movement of ammunition from storage facilities such as the RAN Armament Depot at Kingswood via road to Newington where it was transported by water to Garden Island. (Brooks,36)

The Navy was still using the site for the transfer of armaments up to December 1999 (for use in East Timor). The site was handed to the NSW State Government in January 2000. (SOPA 2010)

Historic Themes

Australian Theme (abbrev)	New South Wales Theme	Local Theme
1. Environment - Tracing the evolution of a continent's special environments	Environment - naturally evolved - Activities associated with the physical surroundings that support human life and influence or shape human cultures.	Cultural: Pre-invasion ecosystems illustrating changing human land uses -
1. Environment - Tracing the evolution of a continent's special environments	Environment - naturally evolved - Activities associated with the physical surroundings that support human life and influence or shape human cultures.	Natural - pre European settlement vegetation -
3. Economy - Developing local, regional and national economies	Technology - Activities and processes associated with the knowledge or use of mechanical arts and applied sciences	Technologies of constructing military buildings and structures -
4. Settlement - Building settlements, towns and cities	Land tenure - Activities and processes for identifying forms of ownership and occupancy of land and water, both Aboriginal and non-Aboriginal	Resuming private lands for public purposes -
4. Settlement - Building settlements, towns and cities	Land tenure - Activities and processes for identifying forms of ownership and occupancy of land and water, both Aboriginal and non-Aboriginal	Granting Crown lands for private farming -
5. Working - Working	Labour - Activities associated with work	Working for the defence

	practises and organised and unorganised labour	services -
7. Governing - Governing	Defence - Activities associated with defending places from hostile takeover and occupation	Defending the homeland -
7. Governing - Governing	Defence - Activities associated with defending places from hostile takeover and occupation	Storing Ordnance -
7. Governing - Governing	Defence - Activities associated with defending places from hostile takeover and occupation	Naval establishment or involvement -

Assessment of Significance

SHR Criteria a)

[Historical Significance]

Newington Armament Depot and Nature Reserve is historically significant for its preservation of evidence of European occupation along the Parramatta River. It demonstrates the early occupation of lands at Homebush by Europeans, only nine years after the area was first sighted by members of the first fleet, who remarked upon the presence of Aboriginal people in the area. It was the site of an early land grant to pastoral and industrial entrepreneur John Blaxland (1769-1845) whose family were influential in the colony, and whose house is located on adjacent land. The site demonstrates the importance of Parramatta River in the opening up of the colony and the early rural settlement of areas close to Parramatta. Its historical importance as an Armament Depot lies in its demonstration of the evolution of systems and regulations of explosives handling and storage over 90 years and the role of Sydney as a major port for the Australian Navy fleet. It is highly illustrative of the extent of involvement of the Royal Australian Navy and US Navy in the Second World War and the logistics provided by Australia to the Allies. (Brooks)

SHR Criteria b)

[Associative Significance]

The site of the Newington Armaments Depot has historical association with John Blaxland (1769-1845) who arrived as a free settler in 1806. Blaxland was the first European to substantially develop the land at Newington. He made a contribution to the economic development of the colony, held the office of magistrate and became well known for his disagreements with the early Governors, in particular Governor Bligh.

The place is associated with the Royal Australian Navy who occupied the site from 1921 until 1997. It is also associated with the Royal Navy (British) and the US Navy.

SHR Criteria c)

[Aesthetic Significance]

Newington Armament Depot's unusual mixture of historic buildings, some of which are partially submerged within earth mounds, with its open parkland setting bordered by the forest and wetland together with its relationship to the Parramatta River make a remarkable landscape. The complex features an outstanding collection of turn of the century brick structures which display the application of Federation design to purpose built industrial buildings. (Godden)

SHR Criteria d)

[Social Significance]

Newington Armaments Depot is of social value to the former Navy employees and their families who lived and worked on site up until the 1990's.

SHR Criteria e)

[Research Potential]

Newington Armaments Depot has high potential for interpretation and research into technological developments in explosives handling and storage. It illustrates the development of blast containment structures and design philosophies to accommodate changing international explosives regulations. The buildings constructed for the US Navy during the Second World War are significant examples of military storehouse technology. Specific building types demonstrate the adaptation of building technology for armaments handling and storage and the specific nature of armaments work practices. Research conducted within the endangered estuarine wetland and forest communities is used to inform an adaptive management regime, thereby assisting conservation of these communities. This research has wider application to management of other lands that

SHR Criteria f)
[Rarity]

support similar ecological systems and species.

The Royal Australian Navy Armament Depot at Newington was unique in the history of NSW for its role as the major storage and supply depot of explosive navy armament to service the fleet facilities in Sydney Harbour from 1895 to 1998. It was the only place in NSW where there was a combination of operational activities and physical facilities for the Australian, the US and the Royal Navies on the one site.

Three "endangered ecological communities", listed under the Threatened Species Conservation Act 1995 (Coastal Saltmarsh; Swamp Oak Floodplain Forest; Sydney Turpentine Ironbark Forest) are found on the site. The Turpentine Ironbark Forest is also listed as critically endangered in the Environment Protection Biodiversity Conservation Act 1999. The nature reserve is the only remaining example on the Parramatta river of a complete estuarine zonation, from tidal mudflats, to mangroves, saltmarsh, swamp oak flood plain forest and eucalypt forest. Almost all similar sequences have been cleared in the Sydney Basin. The site is home to part of a listed "endangered population" of the White-fronted Chat and to the saltmarsh plant *Wilsonia backhousei*, both of which are listed as "vulnerable species" under the Threatened Species Conservation Act 1995. A Green and Golden bell frog population is found on site which is "endangered" under the Threatened Species Conservation Act 1995 and vulnerable under the Environment Protection Biodiversity Conservation Act 1999. The site is the only known maternity roost of the White striped Freetail Bat in the Sydney area and is also the only known maternity roost of this species in a building. The site is home to 144 species of birds, including migratory shorebirds and 10 species of bats.


SHR Criteria g)
[Representativeness]

The forest and wetland demonstrate the characteristics of their respective classes of ecological community. Newington Armaments Depot is an excellent example of an armament depot that has evolved over the course of the 20th century. The integrity of the precinct is significant as it is able to demonstrate all periods of the life of the facility.

Integrity/Intactness:

The precinct has been reduced from its original size at the height of its operations. However the remaining precinct has a high degree of integrity.

Assessment Criteria

Items are assessed against the  **State Heritage Register (SHR) Criteria** to determine the level of significance. Refer to the Listings below for the level of statutory protection.

Recommendations

Management Category	Description	Date Updated
Recommended Management	Review a Conservation Management Plan (CMP)	

Procedures /Exemptions

Section of Act	Description	Title	Comments	Action Date
21(1)(b)	Conservation Plan submitted for endorsement	Millenium Parklands Heritage Precinct Conservation Master Plan, prepared by Graham Brooks & Associates Pty Ltd for Sydney Olympic	CMP endorsed under delegation by Director of the Heritage Office 18 June 2004 (expires 18 June 2009) - 1 stamped copy in HO Library.	Jun 18 2004

		Parkland Authority, dated July 2003.		
21(1) (b)	Conservation Plan submitted for endorsement	Millennium Parklands Concise Conservation Reports & Demolition Report, prepared by Design 5 for SOPA, dated February 2005	Concise Conservation Reports endorsed by Heritage Council 30 June 2005 for a period of five years, expires 30 June 2010.	Jun 30 2005
57(2)	Exemption to allow work	Standard Exemptions	<p>SCHEDULE OF STANDARD EXEMPTIONS HERITAGE ACT 1977 Notice of Order Under Section 57 (2) of the Heritage Act 1977</p> <p>I, the Minister for Planning, pursuant to subsection 57(2) of the Heritage Act 1977, on the recommendation of the Heritage Council of New South Wales, do by this Order:</p> <p>1. revoke the Schedule of Exemptions to subsection 57(1) of the Heritage Act made under subsection 57(2) and published in the Government Gazette on 22 February 2008; and</p> <p>2. grant standard exemptions from subsection 57(1) of the Heritage Act 1977, described in the Schedule attached.</p> <p>FRANK SARTOR Minister for Planning Sydney, 11 July 2008</p> <p>To view the schedule click on the Standard Exemptions for Works Requiring Heritage Council Approval link below.</p>	Sep 5 2008
57(2)	Exemption to allow work	Heritage Act - Site Specific Exemption	<p>SCHEDULE C Site Specific Exemptions</p> <p>a. Minor building alterations and additions to and uses of items of environmental heritage provided that the development does not impact on the heritage significance of the building, structure or landscape and as described in the following table:</p> <p>Building Type -Small and medium sized timber framed administration support and operational buildings generally dating from the late interwar years until the end of the Second World War. - Large volume former explosives storehouses, dating from the interwar period until the end of the Second World War. Both brick and timber framed buildings are included in this category. - Former residential buildings, including those currently used for office accommodation. Both brick and timer framed buildings are included in this category. Installation of new external security doors and screens to existing door openings. Extent of Alterations and Additions -Installation of surface mounted internal and external communications cabling or upgraded power supply and fittings (including security, CCTV) - Installation of new floor finishes such as carpet or vinyl over existing floor finishes. - Upgrading of internal light fittings where these</p>	Jan 14 2011

			<p>do not have heritage significance and the installation of additional internal light fittings and external lighting for security purposes.</p> <ul style="list-style-type: none"> - Installation of new internal furniture, where such installation does not require the removal of significant fittings. - Infill or treatment of rail track to minimise trip hazards where the work is completely reversible. - Upgrading of, and connection to, services such as sewer and water where no impact on significant archaeology will result. - Minor penetrations to accommodate ventilation and fire safety (including air conditioning). - Installation of fire safety features such as hose reels, hydrants. <p>b. Routine maintenance and renewal of existing landscaping, including garden beds and general landscaping;</p> <p>c. Landscaping which is included in a Conservation Management Plan that has been endorsed by the Heritage Council.;</p> <p>d. Temporary uses, buildings and structures (being for a period of two months or less) associated with festivals, minor and major events, markets, carnivals, outdoor cinemas, interactive video screens, street performers, entertainment, recreation and leisure activities, information booths, merchandising, food and beverage outlets, trade shows, exhibitions, public meetings and the like;</p> <p>e. Signage for the purposes of event promotions, directional and identification signage, building identification signage and visitor way finding;</p> <p>f. Demolition of exempt development that is defined as exempt under these Site Specific Exemptions;</p> <p>g. Ecological works including minor habitat management and installation of fittings in bushland and wetland areas including bush regeneration, planting, vegetation removal, ecological burning, modification to existing weirs and weir settings, maintenance of tidal flushing channels and drainage systems, installation of bird hides and environmental monitoring devices and pest management activities, including mosquito larvae treatment within Newington Nature Reserve wetland.</p> <p>h. Filming and photography provided that it does not involve:</p> <ul style="list-style-type: none"> -Changes or additions that are not merely superficial and temporary ; - Mounting or fixing of any object or article on any heritage item; - The movement or parking of any vehicle or equipment on areas not designed for that use; <p>or</p> <ul style="list-style-type: none"> - Any permanent changes to vegetation or other natural or physical features of the item. 	
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 **Standard Exemptions** for Works Requiring Heritage Council Approval

Listings

Listing	Listing	Gazette	Gazette	Gazette
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Heritage Listing	Title	Number	Date	Number	Page
<i>Heritage Act - State Heritage Register</i>		01850	14 Jan 11	2	50
<i>Heritage Act - Nomination Deferred</i>			12 Nov 08		

References, Internet links & Images

Type	Author	Year	Title	Internet Links
Written	Kerry Darcovich	2010	Internal SOPA Memorandum	
Written	Sydney Olympic Park Trust	2010	Sydney Olympic Park Master Plan 2030	
Written	Australian Dictionary of Biography Online Edition	2009	John Blaxland (1769-1845)	Click here
Written	Sydney Olympic Park	2007	New Park by the riverside, in 'Park News'	
Written	Paul Irish	2004	When is a scar a scar? - Evaluating scarred and marked trees at Sydney Olympic Park	
Written	NPWS and Sydney Olympic Park Authority	2003	Plan of Management for Newington Nature Reserve at Sydney Olympic Park	Click here
Management Plan (HC endorsed)	Graham Brooks & Associates	2003	Millennium Parklands Heritage Precinct : Conservation Master Plan	
Written	Don Godden and Associates	1989	Newington Armaments Depot - Conservation Policies for Individual precincts	
Written	Fox & Associates, Architects and Planners	1986	Homebush Bay Conservation Study	
Tourism	Attraction homepage	1890	Newington Armament Depot and Nature Reserve	Click here
Written	Robert Curran			Click here

Note: Internet links may be to web pages, documents or images.



(Click on Thumbnail for Full Size Image and Image Details)

Data Source

The information for this entry comes from the following source:

Name: Heritage Office
Database Number: 5054828

H02/00275; 09/03041

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Newington Armament Depot Heritage Conservation Area

Note: There are incomplete details for a number of items listed in NSW. The Heritage Branch intends to develop or upgrade statements of significance and other information for these items as resources become available.

Item

Name of Item: Newington Armament Depot Heritage Conservation Area

Type of Item: Conservation Area

Primary Address: Homebush Bay, NSW 2140

Local Govt. Area: Auburn

Property Description:

Lot/Volume Code	Lot/Volume Number	Section Number	Plan/Folio Code	Plan/Folio Number

All Addresses

Street Address	Suburb/Town	LGA	Parish	County	Type
	Homebush Bay	Auburn			Primary

Assessment Criteria Items are assessed against the [State Heritage Register \(SHR\) Criteria](#) to determine the level of significance. Refer to the Listings below for the level of statutory protection.

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
<i>Regional Environmental Plan</i>	Homebush Bay REP No. 24	024	24 Sep 93	104	5989

Study Details

Title	Year	Number	Author	Inspected by	Guidelines Used
Homebush Bay Regional Environment Plan	1993		Department of Planning		No

References, Internet links & Images

None

Note: Internet links may be to web pages, documents or images.

Data Source

The information for this entry comes from the following source:

Name: Gazette NSW Statutory Listings

Database 790

Number:

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Newington Arms Depot Conservation Area

Source: Go to the [Register of the National Estate](#) for more information.

Identifier: 15054

Location: Homebush Bay

Local Government: Auburn Municipality

State: NSW

Country: Australia

Statement of Significance: The Newington Arms Depot illustrates the sequence of design philosophies for explosives handling throughout this century. The contrast between these structures and those elsewhere on the site document the change in policy from containment of blasts (arched buttressing on original magazine) to protection of other structures from high energy fragments (earth covering of later stores). The complex also provides an insight into the growth of Australia's Navy from the time when it was merely a component of the Royal Navy, through a formative phase of continuing use of Royal Navy equipment and techniques to its present independent status.

Description:

The area comprises about 80ha fronting Parramatta River and includes the original Newington Arms Depot complex dating from 1897; its associated wharf, cranes, roads and tramway system; sample buildings from the later periods of site development; and an area of remnant bushland. The Newington Arms Depot is a declared magazine area of 259ha. It presently contains eighteen buildings (plus part of wharf) dating before 1925; 162 buildings (plus rest of wharf) dating 1925-45; and eleven buildings dating after 1945. The Conservation Area does not cover the entire Arms Depot property. The boundary has been chosen so as to include the buildings and features with particular industrial archaeological significance, as well as a sample of each type of explosives store. There are many non-significant items within the boundary. Significant items are detailed below.

History:

The name Newington originates from Newington Farm in Kent, the early home of Captain John Blaxland who came to Australia in 1807 (he was the brother of Gregory Blaxland, the explorer). Blaxland received a 522ha grant from Governor Bligh and built Newington House in 1832, where he lived until his death in 1845. From 1863-80 the house was occupied by Newington College. In 1881 the land was split, with 352ha being proclaimed as a Powder Magazine (the remainder became a hospital for the insane). The first buildings for the Powder Magazine were built in 1897 and the original sentry post, magazine, residences etc are still used today. At this period the Magazine was manned by a Royal Marine garrison and this arrangement continued until Federation in 1901. Although the nation's defence was to become, under the terms of the Australian Constitution, the sole responsibility of the Commonwealth

Government, it was not prepared in 1901 to take practical control of naval defence matters. Thus, the New South Wales Navy took over the Newington Magazine from the Royal Marines soon after Federation. It was only in 1910 that the Naval Defence Act formally established the Commonwealth Naval Forces, which were re-named the Royal Australian Navy the following year. At that point, the Commonwealth began to take over properties like the Newington Magazine that had formerly belonged to the colonial navies. On acquiring these properties, the Commonwealth embarked on a programme of development works. A further two phases of the development of the Depot are discernible by the type of building construction, viz: the US Army Magazine area, distinguished by earth covered arch type Magazines and the Royal Navy area, distinguished by earth covered box type Magazines. Both these developments took place during World War Two. The function of the Newington Naval Armament Depot is to supply serviceable ammunition of all kinds, ready for use, to ships and establishments of the Royal Australian Navy and such other agencies or organisations as the Secretary, Department of Defence and the Chief of the Defence Force Staff may direct. The Newington wharf is the normal receive and dispatch point for all Australian Government explosives handled in Sydney Harbour. It serves all arms of the Defence services, as well as handling Naval explosive items which are stored at Newington and Kingswood.

Description:

The complex demonstrates explosives handling techniques and features peculiar to this type of establishment, including the electric tramway and safety features such as an extensive network of lightning rods, a bound copper matrix connecting buildings and woven copper tape earthing all metal fixtures. The significant elements are: the original c 1897 complex: this is close to the river and comprises a Gatehouse, Workshops and large Magazine connected to the wharf by a tramway. The complex is ringed by the surviving footings of an iron picket fence on masonry base, with two large stone gateposts on the south side. Its elements are: wharf and cranes: a 122m timber wharf fronting the Parramatta River. Two three tonne fixed electric cranes are used to handle explosives. Little, if any, of the wharf fabric is original.

Tramway: a 2ft gauge tramway (formerly horse drawn, now battery powered) leads from the wharf to the original complex and has been extended to various later buildings elsewhere in the Conservation Area. A plaque on the line near Building 20 shows that it was installed by J E Toole and Company of Sydney.

Building 143 (Gatehouse/Explosives Workshop): English bond face brick with hipped slate roof and round headed windows with cream brick arches. The tramway runs through the centre of the building; above the arched opening is a sandstone pediment inscribed VR 1897.

Building 142 (Explosives Workshop): a small building of similar general character to Building 143: face brick with sandstone trims, cream brick arches and gabled slate roof with sandstone gable coping.

Building 140 (Explosives Workshop): a face brick building of similar general character to Buildings 142 and 143, with gabled slate roof, sandstone gable coping, round headed windows and cream brick arches and round gable vents. The interior has a board ceiling with roses. There are receiving and issuing hatches for gunpowder and various precautions against the danger of static electricity: copper plate at the threshold which workers must touch before entering; antistatic floor; standard copper bench tops; and the building and all fittings are individually earthed by a

copper band around the walls. The floor of the building is at the same level as the ground outside, but with a step up and down at the door. The purpose of this is uncertain. There is a disused well outside.

Building 20 (Magazine): a large brick building with three wide barrel vaulted store rooms and triple gabled slate roof. Similar character to the other early buildings: face brick, cream brick trims, sandstone capped gable ends with round vents. The vaults have double walls with a passage in the wall cavity and windows onto the passage so that lanterns could be placed safely in the passage to light the vaults. Brick string courses and beam holes in two of the vaults suggest that there was a former upper level of shelving. On the east side there is a flat roofed addition. The tramway passes in front of the vaults and enters each by means of a small turntable. The building is surrounded by flying buttresses added later (1920s?), apparently to give extra support to the vaults and is also surrounded by earth banks to contain blast.

Building 137 (Store Room): a small building of stretcher bond face brick with cream brick trims and a hipped slate roof.

Building 139 (Workshop/Ablutions Block, formerly Guardhouse): English bond face brick with cream brick trims and a hipped slate roof. Verandahs are continuous with the main roof have simple chamfered timber posts and brackets. There have been some timber additions. The interior was not seen.

Building 148 (Store, formerly Privies): apparently of later date than the original complex, this is a simple brick building with recessed brick panels and round brick trims. Corrugated fibro roof.

Buildings 144, 145, 146 (Explosives Workshops): these are of similar form and function to Building 140, but date from World War Two. They are of face brick with corrugated fibro roofs. Buildings 140, 144, 145 and 146 have a common verandah covering the tramway as it runs past. They are separated by concrete barriers to minimise the effect of blast. There is a lightning conductor on each building.

Other pre-World War Two buildings are: Buildings 22 and 24: these are non-explosives stores. They are early examples of wooden frame iron, clad buildings with asbestos tile roofs. Buildings 127-129: these are small fibro workshops dating from about 1920: each has a hoist outside over the tramline. The buildings require manual handling of materials and are not currently used as workshops. Building 30: this is an ironclad shell store built by the Navy in 1922. Buildings 154-159: these are small brick, slate roofed Explosives Workshops built between 1924-28. Each has its own hoist and rail track and is surround by a 1m thick concrete wall. These workshops are still in use and are each operated by two men. Building 35: this was built in 1928 as a Bomb Store for the seaplane HMAS Albatross which was brought into service at that time.

Buildings 36-38: these are pre-World War One brick slate roofed workshops, each of which has a small lobby on the south western side in which workers are able to remove any potentially dangerous clothing etc.

World War Two period buildings: the rest of the buildings in the Conservation Area are mostly explosives stores. The listing does not presume that all explosives stores should be retained, but it is desirable to preserve examples of each major type. Suitable examples are: Buildings 56-60: these are good examples of US Armco corrugated iron arch construction Explosives Stores with earth covering. Building 85: a US Army concrete box type construction with earth covering. Buildings 46-49: Royal Australian Navy early World War Two explosives stores.

Other features: Crane: an early riveted manual pivot crane with cast iron

base stands at the road junction near Building 29. Remnant bushland: near Building 31 there is a remnant bushland area of about 8ha on a hillock of Wianamatta shale bordered in part by river front swamps. This area is free of exotic vegetation and the absence of tree stumps suggests that the stand has been undisturbed. It can reasonably be assumed that the range of species is identical with that which occurred before white settlement and that the area is a typical remnant of the original community. Carvings on two kurrajong trees, of considerable age, support this view.

Report produced : 31/5/2011

AHPI URL : <http://www.heritage.gov.au/ahpi/search.html>

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Place Details

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Newington Arms Depot Conservation Area, Homebush Bay, NSW , Australia

Photographs



List	Register of the National Estate
Class	Historic
Legal Status	Registered (14/05/1991)
Place ID	15054
Place File No	1/14/002/0006

Statement of Significance

The Newington Arms Depot illustrates the sequence of design philosophies for explosives handling throughout this century. The contrast between these structures and those elsewhere on the site document the change in policy from containment of blasts (arched buttressing on original magazine) to protection of other structures from high energy fragments (earth covering of later stores). The complex also provides an insight into the growth of Australia's Navy from the time when it was merely a component of the Royal Navy, through a formative phase of continuing use of Royal Navy equipment and techniques to its present independent status.

Official Values Not Available

Description

The area comprises about 80ha fronting Parramatta River and includes the original Newington Arms Depot complex dating from 1897; its associated wharf, cranes, roads and tramway system; sample buildings from the later periods of site development; and an area of remnant bushland. The Newington Arms Depot is a declared magazine area of 259ha. It presently contains eighteen buildings (plus part of wharf) dating before 1925; 162 buildings (plus rest of wharf) dating 1925-45; and eleven buildings dating after 1945. The Conservation Area does not cover the entire Arms Depot property. The boundary has been chosen so as to include the buildings and features with particular industrial archaeological significance, as well as a sample of each type of explosives store. There are many non-significant items within the boundary. Significant items are detailed below.

History:

The name Newington originates from Newington Farm in Kent, the early home of Captain John Blaxland who came to Australia in 1807 (he was the brother of Gregory Blaxland, the explorer). Blaxland received a 522ha grant from Governor Bligh and built Newington House in 1832, where he lived until his death in 1845. From 1863-80 the house was occupied by Newington College. In 1881 the land was split, with 352ha being proclaimed as a Powder Magazine (the remainder became a hospital for the insane). The first buildings for the Powder Magazine were built in 1897 and the original sentry post, magazine, residences etc are still used today. At this period the Magazine was manned by a Royal Marine garrison and this arrangement continued until Federation in 1901. Although the nation's defence was to become, under the terms of the Australian Constitution, the sole responsibility of the Commonwealth Government, it was not prepared in 1901 to take practical control of naval defence matters. Thus, the New South Wales Navy took over the Newington Magazine from the Royal Marines soon after Federation. It was only in 1910 that the Naval Defence Act formally established the Commonwealth Naval Forces, which were re-named the Royal Australian Navy the following year. At that point, the Commonwealth began to take over properties like the Newington Magazine that had formerly belonged to the colonial navies. On acquiring these properties, the Commonwealth embarked on a programme of development works. A further two phases of the development of the Depot are discernible by the type of building construction, viz: the US Army Magazine area, distinguished by earth covered arch type Magazines and the Royal Navy area, distinguished by earth covered box type Magazines. Both these developments took place during World War Two. The function of the Newington Naval Armament Depot is to supply serviceable ammunition of all kinds, ready for use, to ships and establishments of the Royal Australian Navy and such other agencies or organisations as the Secretary, Department of Defence and the Chief of the Defence Force Staff may direct. The Newington wharf is the normal receive and dispatch point for all Australian Government explosives handled in Sydney Harbour. It serves all arms of the Defence services, as well as handling Naval explosive items which are stored at Newington and Kingswood.

Description:

The complex demonstrates explosives handling techniques and features peculiar to this type of establishment, including the electric tramway and safety features such as an extensive network of lightning rods, a bound copper matrix connecting buildings and woven copper tape earthing all metal fixtures. The significant elements are: the original c 1897 complex: this is close to the river and comprises a Gatehouse, Workshops and large Magazine connected to the wharf by a tramway. The complex is ringed by the surviving footings of an iron picket fence on masonry base, with two large stone gateposts on the south side. Its elements are: wharf and cranes: a 122m timber wharf fronting the Parramatta River. Two three tonne fixed electric cranes are used to handle explosives. Little, if any, of the wharf fabric is original. Tramway: a 2ft gauge tramway (formerly horse drawn, now battery powered) leads from the wharf to the original complex and has been extended to various later buildings elsewhere in the Conservation Area. A plaque on the line near Building 20 shows that it was installed by J E Toole and Company of Sydney. Building 143 (Gatehouse/Explosives Workshop): English bond face brick with hipped slate roof and round headed windows with cream brick arches. The tramway runs through the centre of the building; above the arched opening is a sandstone pediment inscribed VR 1897. Building 142 (Explosives Workshop): a small building of similar general character to Building 143: face brick with sandstone trims, cream brick arches and gabled slate roof with sandstone gable coping. Building 140 (Explosives Workshop): a face brick building of similar general character to Buildings 142 and 143, with gabled slate roof, sandstone gable coping, round headed windows and cream brick arches and round gable vents. The interior has a board ceiling with roses. There are receiving and issuing hatches for gunpowder and various precautions against the danger of static electricity: copper plate at the threshold which workers must touch before entering; antistatic floor; standard copper bench tops; and the building and all fittings are individually earthed by a copper band around the walls. The floor of the building is at the same level as the ground outside, but with a step up and down at the door. The purpose

History Not Available

Condition and Integrity

Generally fair to good. Buildings 54 and 55 have been demolished. The steel front of Building 58 has been replaced by concrete blockwork. A Stothert and Pitt Limited 5tonne travelling portal crane which until recently was used on the wharf has been disposed of. (1991)

Location

Approximately 80ha, to the east of Jamieson Road, Homebush Bay, including the original complex, wharf, cranes, tramway, roads, timbered area and buildings: 20, 22, 24, 30, 35, 36-38, 46-49, 54-60, 85, 127-129, 137, 139, 140, 142-146, 148 and 154-159 and comprising the area bounded by a line commencing on the right bank of the Parramatta River on the alignment of the eastern side of Jamieson Street, then proceeding easterly via that bank to a point 10m downstream of Building 15, then directly to the northernmost point of the road immediately north-east of Building 35, then generally southerly and south-westerly via the perimeter road to the east of Buildings 36-40 and 44-49 to the road junction just south of Building 85, then directly to the intersection of Holker and Jamieson Streets, then northerly via the alignment of the eastern side of Jamieson Street to the commencement point.

Bibliography

RECORDS OF THE ROYAL AUSTRALIAN NAVY.

Report Produced Tue May 31 15:06:54 2011

NATIONAL TRUST OF AUSTRALIA (NSW)

S 9094

SILVERWATER (Town or District)	NEWINGTON ARMS DEPOT (R.A.N.A.D.) including: Original Complex, Wharf, Cranes, Tramway, Roads, timbered area	Egerton Street off Parramatta River 1 km east of Silverwater Road Bridge. Access via Jamieson Street
Post Code 2141 Mun of Local Govt Area Auburn	Buildings: 20,22,24,30,35,36-38,46-49, 54-60, 85, 127-129, 137, 139, 140, 142-146, 148, 154-159	
Author of J S Kerr, G Dawson Proposal R Mackay		
Date of 12/9/84 Proposal	(Name or Identification of Listing)	(Address or Location)
Suggested Listing Category CLASSIFIED	Bibliography Notes and Building Plans from Royal Australian Naval Records	Owner and Address Department of Defence - Nav 175 Liverpool Street Sydney NSW 2000
Committee HBC/IAC (Trust Use)		
Council APPROVED (Trust Use) 5-11-84		

Description Briefly cover the points on the following check list where they are relevant and within your knowledge.

Style History: The name Newington originates from Newington Farm in Kent, the early home of Captain John Blaxland who came to Australia in 1807 (he was the brother of Gregory Blaxland the explorer). Blaxland received a 522ha grant from Governor Bligh, and built Newington House in 1832, where he lived until his death in 1845. From 1863 to 1880 the house was occupied by Newington College. In 1881 the land was split with 352ha being proclaimed as a Powder Magazine (the remainder became a hospital for the insane). The first building for the Powder Magazine were built in 1897, and the original sentry post, magazine, residences etc are still used today. At this period the magazine was manned by a Royal Marine garrison and this arrangement continued until Federation in 1901, when the establishment was taken over by the N.S.W. Navy and subsequently by the Royal Australian Navy. A further two phases of the development of the depot are discernible by the type of building construction, viz: the U.S.N. Magazine are distinguished by earth covered arch type magazines and the R.N. area distinguished by earth covered box type magazines. Both these developments took place during World War 11. The total complex presently comprises: pre-1925 buildings: 18 plus portion of wharf; 1925-1945 buildings: 162 plus rest of wharf; post-1945 buildings: 11. (see over).../2

Reasons for listing

The Newington Arms Depot illustrates the sequence of design philosophies for explosives handling throughout this century. The contrast between these structures and those elsewhere on the site document the change in policy from containment of blasts (arched buttressing on original magazine) to protection of other structures from high energy fragments (earth covering of later stores). The complex also provides an insight into the growth of Australia's navy from the time when it was merely a component of the Royal Navy through a formative phase of continuing use of Royal Navy equipment and techniques to its present independent status.

Sketch plan and photos
Attach additional photos if any.

General: The function of the Naval Armament Depot, Newington is to supply serviceable ammunition of all required kinds, ready for use, to Ships and Establishments of the Royal Australian Navy and such other agencies or organizations as the Secretary, Department of Defence and the Chief of the Defence Force Staff may direct.

The depot is a declared magazine area of 259 hectares located adjacent to the suburbs of Lidcombe and Silverwater. This listing does not cover the entire site. The listing boundary has been defined in such a way as to include those buildings and features with particular industrial archaeological significance and also an example of each type of explosives store.

The complex demonstrates explosives handling techniques and features which are particular to this type of institution. The electric tramway is an example. Other safety features are an extensive network of lightning rods, a bound copper matrix connecting buildings. All metal fixtures are earthed with woven copper tape.

Description of Significant Features:

The Original Complex: close to the river comprised a gatehouse, workshops and large magazine (Buildings 20, 137, 139, 140, 142-6, 148) connected by a tramway to the wharf on the river. The complex is ringed by the surviving footings of an iron picket fence on masonry base, with two large stone gateposts on the south side.

Wharf and Cranes: A 122 metre timber wharf fronts onto the Parramatta River. Three cranes (one Stothert and Pitt Limited 5 tonne travelling portal crane, and two 3 tonne fixed electric cranes) are used to handle explosives. Little, if any, of the original wharf fabric remains.

The Newington Wharf is the normal outlet/receipt point for all Australian Government Explosives handled in Sydney Harbour. It thus serves all arms of the Defence services and Department of Productivity, as well as handling Naval explosive items which are stored at Kingswood and Newington.

Tramway: A 2-foot gauge tramway network (formerly horse drawn, but now battery powered) leads from the wharf to various sections of the complex. A plaque on the line near building 20 indicates that the tramway was installed by J E Toole & Co, Sydney.

Building 143 (gatehouse/explosives workshop): A face brick building with a hipped slate roof and round-headed windows with cream brick lintels. The tramway runs through the centre of the building; above the arched opening is a sandstone pediment with the inscription VR 1897. Brick is English bond.

Building 142 (explosives workshop): A small building of similar character to Building 143, of face brick with sandstone trims, cream brick arches, and gabled slate roof with sandstone capped gable ends.

Building 140 (explosives workshop): A face brick building of similar character to the above, with a gabled slate roof, sandstone capped gable ends, round-headed windows and cream brick lintels and round vents in the gables. Interior has a board ceiling with roses. Note also the receiving and issuing hatches for gunpowder, and the various precautions against the danger of static electricity detonating explosives that are being worked on: copper plate at the threshold to be touched before entering the room; antistatic floors; standard copper bench tops; buildings and all fittings individually earthed by a copper band around the walls. There is a disused well outside. The floor of the building is at the same level as the ground outside, but with a step up at the door - purpose of this uncertain.

Buildings 144, 145, 146 (explosives workshops): These buildings are of similar form and function to Building 140, but date from the World War II period. They are of face brick with corrugated asbestos roofs. Buildings 140, 144, 145 and 146 have a common verandah covering the tramway as it runs past. They are separated by concrete barriers to minimise the effect of any blast. There is a lightning conductor on each building.

Building 20 (Explosives store): The building consists of three wide barrel-vaulted store rooms and a triple gabled slate roof. Similar character to the other early buildings: face brick, cream brick trims, sandstone capped gable ends with round vents. The vaults have double walls with a passage in the wall cavity and windows so that lanterns could be placed in the passage to light the vaults. Brick string courses and beam holes in two of the vaults suggest that there was a former upper level of shelving. On the east side there is a flat roofed addition (later?). The tramway passes in front of the vaults and enters each one by means of a turntable. The building is surrounded by flying buttresses added later (1920s?), apparently to give extra support to the vaults, and by earthen banks to contain blast.

Building 137 (storeroom): A small stretcher bond face brick building with cream brick trims and a hipped slate roof.

Building 139 (workshop/ablutions block, formerly guardhouse): A face brick building (English bond brick) with cream brick trims and a hipped slate roof. Verandahs continuous with the main roof have simple chamfered timber posts and brackets. There have been some timber additions. Interior not seen.

Building 148 (store room, formerly toilets): Apparently of later date than the original complex, this is a simple brick building with recessed brick panels and rounded brick trims. Corrugated asbestos roof.

Buildings 22 and 24 are non-explosives/materials handling stores. They are early examples of wooden framed iron clad structures with asbestos tile roof.

Buildings 127-129 are small fibro workshops c1920; each has a hoist outside over the tramway line. The buildings require manual handling of materials are not currently used as workshops.

Building 30 is an iron clad shell store built by the Navy in 1922.

Buildings 154, 155, 156, 157, 158, 159 are small brick, slate roofed explosives workshops built between 1924 and 1928. Each has its own hoist and rail track and is surrounded by a 1m thick concrete wall. These workshops are still in use and are each operated by two men.

Building 35 was built in 1928 as a bombstore used to house bombs for the sea plane HMAS ALBATROSS which was brought into service at this time.

Buildings 36-38 are pre WWI, brick, slate roofed workshops, each of which has a small lobby on the south western side in which workers are able to remove any potentially dangerous clothing etc.

More recent buildings: The remainder of the significant features included in this listing are predominantly explosives stores. The listing does not presuppose that all explosives stores must be retained, however it is desirable that examples of each major type are preserved.

Buildings 54-60 are good examples of U.S. Armco corrugated iron arch construction explosives stores with earth covering.

Building 85 is a U.S. Army concrete box type construction, also with earth covering.

Buildings 46-49 are Royal Australian Navy early WWI explosives stores. (The depot was staffed entirely by Australian during the war).

Manual Pivot Crane: An early, rivetted manual pivot crane with cast iron base stands at the road junction near Building 29.

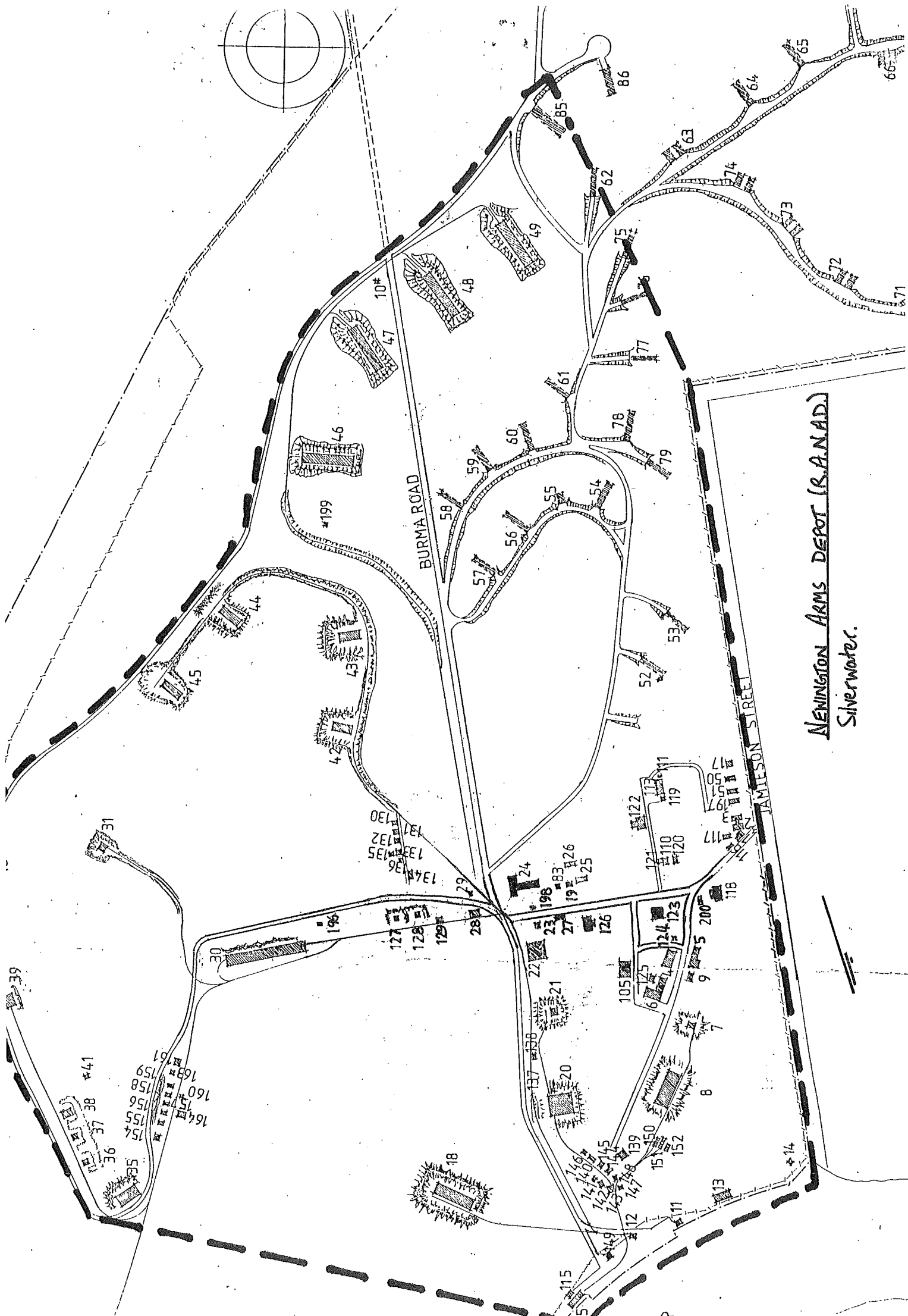
Timbered Area: Also of interest is a timbered area of approximately 8ha situated near Building 31 on a hillock of Wianamatta shale bordered in part by river-front swamps. This area is totally free from exotic vegetation and the absence of tree stumps suggests that the stand has been undisturbed and it can be reasonably assumed that the range of species is identical with that which occurred before white settlement and that the area is a typical remnant of the original community. Carvings on two Kurrajong trees of considerable age support this latter assumption. The area has been inspected by representatives of the Trust's Bush Regeneration Section, and recommendations concerning the management of the area have been forwarded to the Navy.

Site Boundary and Curtilage: This listing covers an area bounded by Jamieson Street on the west of its junction with Parramatta River, along the river to a point 10m downstream from Building 15; from here a line is projected to the northernmost part of the road, north of Building 35. The road is then followed along the eastern side of the site past Buildings 40, 44, 49 and Building 85; a line is projected from the next junction to the south to the nearest point of Jamieson Street. Although the listing includes all of the structures and features included within this boundary, it should be noted that buildings and features not specifically mentioned above are not considered to be significant.

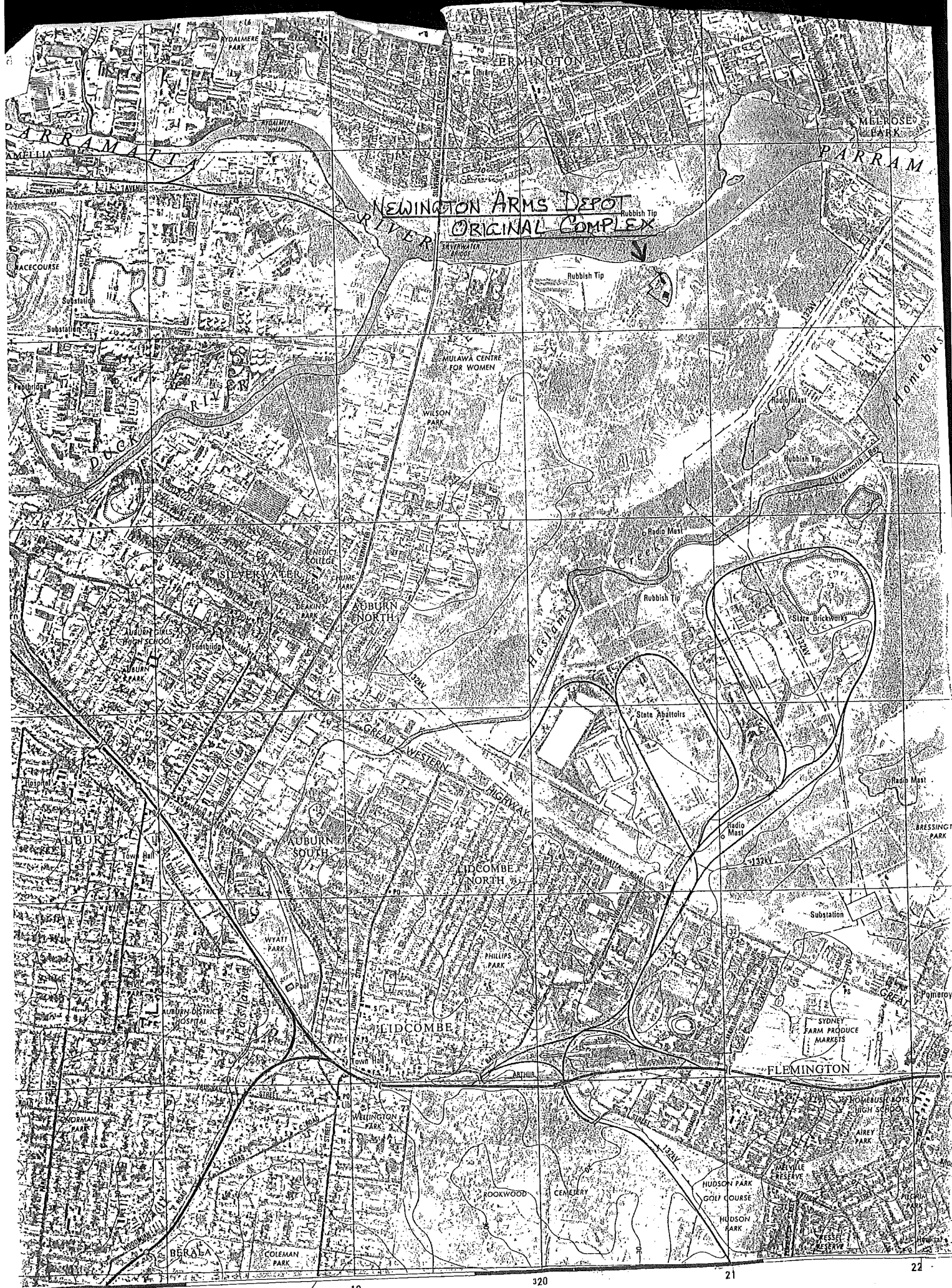
Owner Notified of change to listing Special letter (on file) 16/11/84 *Rm*

committee references:

HBC/300 18/10/82: deferred for joint inspection with IAC (Clarke & Chapman)
 HBC/303 13/12/82: Mr Brassil to organise inspection
 HBC/322: 9/ 4/84: recommended CLASSIFY
 Council 28/5/84: approved CLASSIFIED (original complex)
 owner advised CLASSIFIED 12/7/84; copy to LGA; form letter HBC/5
 IAC/144: 19/ 9/84: referred to



NEWINGTON ARMS DEPOT (R.A.N.A.D.)
Silverwater.



NEWINGTON ARMS DEPOT
ORIGINAL COMPLEX

AUBURN NORTH

AUBURN SOUTH

ELDCOMBE NORTH

FLEMINGTON

REGENTS PARK 2km

REGENTS PARK 3km

PARRAMATTA RIVER

1:25 000

18

19

20

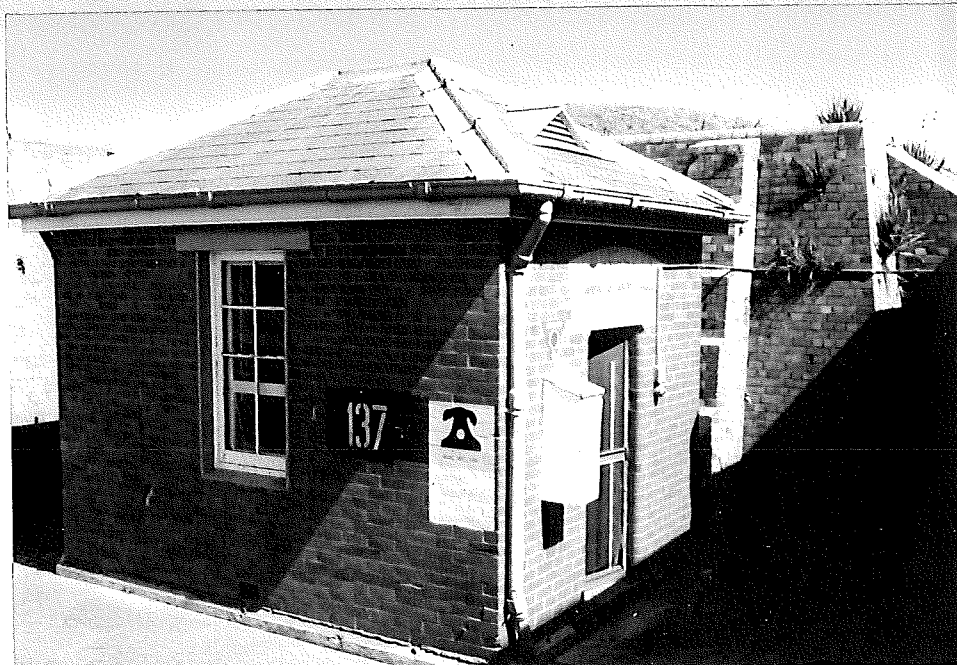
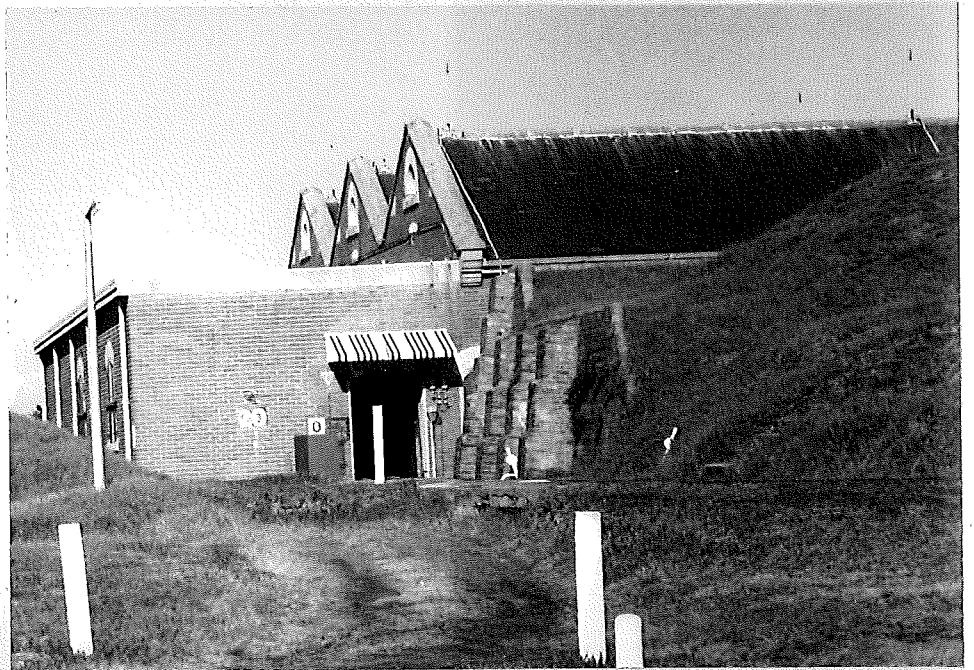
21

22



Bdg 146
explosives
workshop

Bdg 20
explosives
store

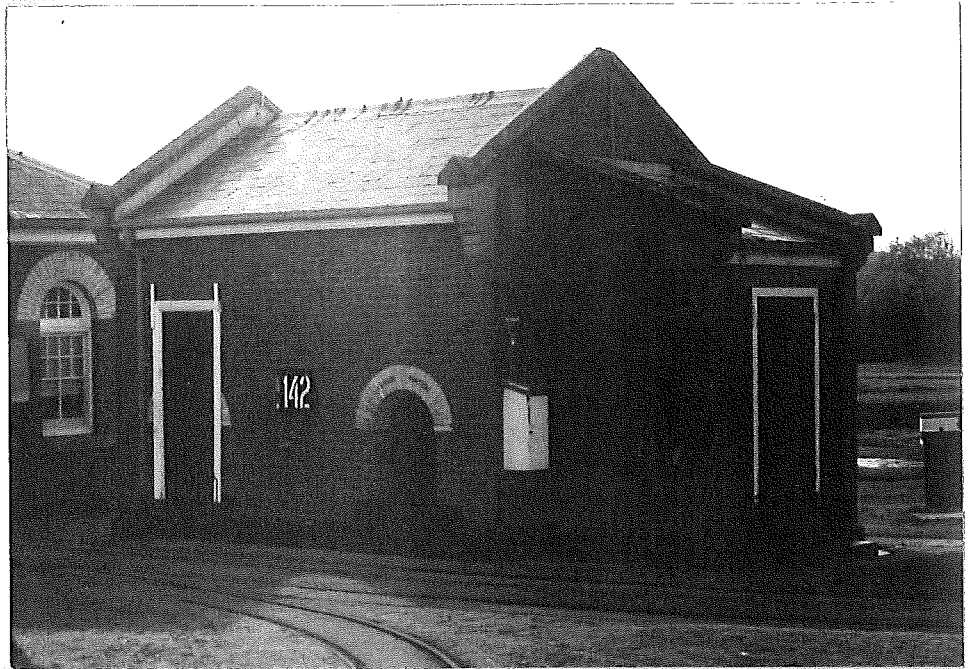


Bdg 137
store room



Bdg 143
Gatehouse

Bdg 142
explosives
workshop

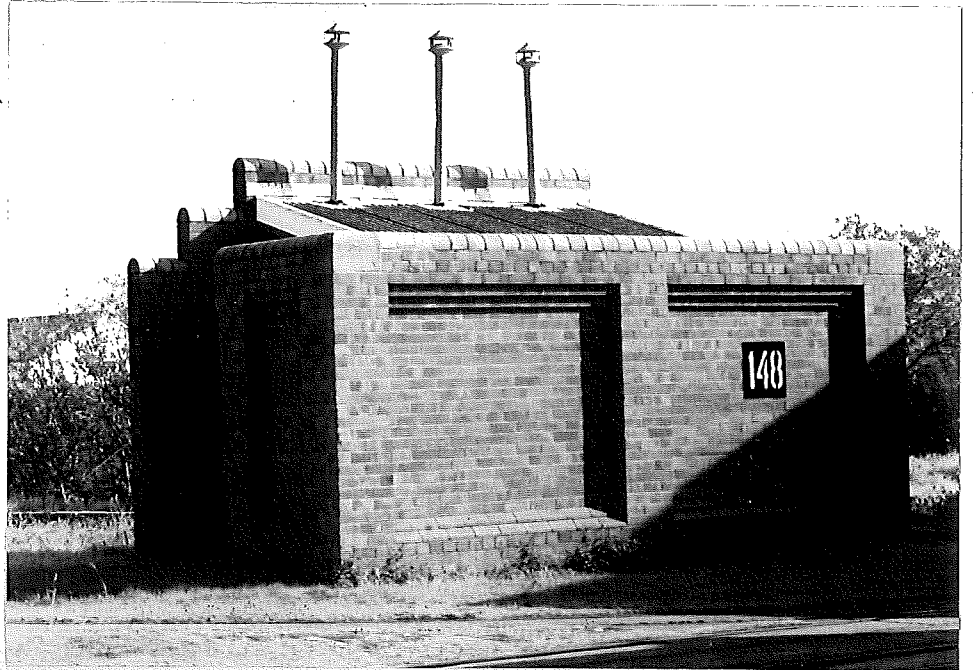


Bdg 140
explosives
workshop

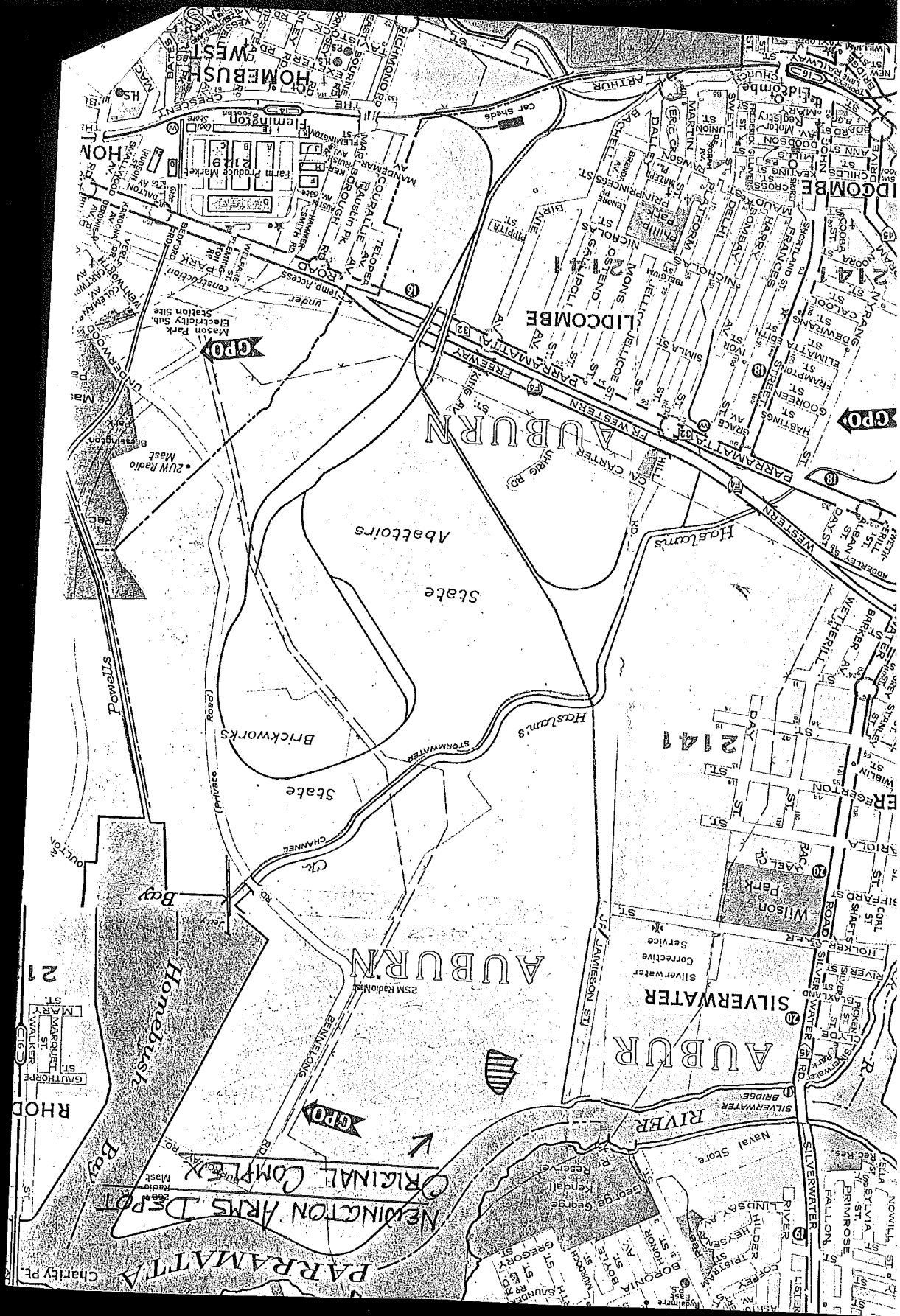


Bdg 139
workshops/ablutions
formerly
guardhouse

Bdg 148
store room
formerly
toilets



gateposts



**APPENDIX E EXTRACTS FROM GRAHAM BROOKS AND ASSOCIATES: CONSERVATION
MASTER PLAN 2003**

PREAMBLE

This Thematic History has been extracted from Section 2.0 of CMP 2003. The history has been reviewed in light of comments on CMP2003 contributed by Robert Curran.

2.1 INTRODUCTION

This history forms part of the heritage assessment section of the CMP of the NADNR. The history has drawn on the information contained in the 1996 Heritage Assessment of RANAD by SBP, as well as various other sources, relating to Aboriginal, pastoral and defence occupation.

In order to comply with the Australian Heritage Commission and NSW Heritage Office protocols regarding historical research, this history has been written thematically. A thematic approach can provide contextual patterns and associations, in relation to human activities in the environment, which would not be immediately obvious from a strictly descriptive or chronological approach. A thematic history provides the opportunity for investigating the social and lifestyle aspects of cultural landscapes as well as the historic fabric, and the interaction between the two in the historical record.

The Australian Heritage Commission (AHC) has developed a thematic framework for use in heritage assessment and management. The Australian Historic Themes Framework identifies nine principal thematic groups and numerous sub-themes. The organising principle for the thematic framework is human activity; "By emphasising the human activities that produced the places we value, and the human response to Australia's natural environment, places are related to the processes and stories associated with them, rather than to the type or function of place."(AHC, 2000) The AHC themes were designed to be used in conjunction with regional or State themes. The 35 State Historical themes were formulated by the NSW Heritage Office, and are designed to be specifically relevant to the history of NSW.

While these historical thematic systems work well for cultural heritage, they are not fully successful for natural heritage because they are based on human activity. However, the thematic approach is used here as far as possible to meet the expectations of the NSW Heritage Council and to allow integrated consideration of the natural and cultural heritage values.

The themes which have been chosen for the history of the Newington Armament Depot and Nature Reserve present the most significant cultural aspects of the site; the history of Aboriginal occupation and then dispossession by Europeans; European pastoral settlement and its subsequent effect on the environment; Defence occupation of the site; environmental change and the subsequent remediation works; and the role of the Armament Depot in the wider network of defence establishments in Sydney.

The Australian Historic Themes, which best reflect the history of the site, are:

- 2.5 Promoting Settlement
- 3.11 Altering the Environment
- 7.7 Defending Australia

The State Historical Themes, which best reflect the history of the site, are:

The State Historical Themes, which best reflect the history of the site, are:

1. First Australians
9. Environment
23. Defence

These themes have formed the basis of questions about the history and interpretation of the site. The chapters, which follow, incorporate consideration of natural values and reflect the historic themes, while the chronological history, which deals with the non-Aboriginal settlement and defence occupation of the site only, has been taken from the 1996 Heritage Assessment of RANAD by SBP.

2.2 NATURAL HISTORY

The history of the Sydney region's landforms and biodiversity is a result of hundreds of millions of years of change and evolution.

In the Permian period 286 to 248 million years ago, the Sydney region was a broad swampy river basin covered with lush plant life. During the early Triassic period 230 million years ago sand, silt and clay sediments filled the Sydney basin. The Permian swamps became coal layers. The sand and silts became sandstone, mudstone and shale.

In the Jurassic period 213 to 144 million years ago, the sandstone formations of Sydney Harbour were raised to their present heights. Cycads, ferns and conifers were dominant. The Cretaceous period saw small and medium sized dinosaurs, egg laying mammals, turtles, marine reptiles and invertebrates among the fauna of eastern Australia. The sudden cooling that ended this period led to the extinction of the dinosaurs and brought a change to the modern flora and fauna.

During the tertiary period (55 – 2.4 million years ago) the Blue Mountains were lifted by crust pressures and the Cumberland Plain formed. Rivers cut gorges through the sandstone plateau country near the coast.

The climate became drier and cooler. Mammals began to dominate, the megafauna evolved, with fish, frogs, snakes, bats and birds. Then colder and warmer periods alternated in the Quaternary 1.8 million years ago.

By at least 20,000 years ago Aboriginal people were living in the Sydney Basin.

In the Ice Ages of the Pleistocene 20,000 years ago, sea levels were 120 – 140 m below the present level, but during the Holocene 6,000 years ago, the sea level rose to fill Sydney Harbour and its tributaries. The climate was cold, dry and windy, and there were severe bushfires, droughts and floods. This was the time when today's topography of the Parramatta River would have been formed, and the natural biodiversity and ecological processes related to today's environment would have been developed.

2.3 ABORIGINAL SETTLEMENT

The long Aboriginal occupation and use of the Sydney area asserted by Aboriginal oral tradition is amply supported by archaeological evidence from the region. A number of Aboriginal sites have been excavated throughout the region from a variety of environments. A rockshelter site in the Blue Mountains (Kings Tableland) has been dated to about 22,000 years ago, implying that

the Sydney region has been occupied by Aboriginal people for at least 20,000 years.

During this period the Sydney area had a vastly different environment than today. The coastline lay tens of kilometres further east, the Parramatta River (and Sydney Harbour) was a deep river valley winding its way out to the coast, and the harbour islands were hills within the valley. Starting about 15,000 years ago, the warmer temperatures of the end of the last ice age began to melt the polar ice sheets and raise water levels over the course of several thousand years. During this time many of the oldest Aboriginal sites along the coast and waterways were abandoned and drowned by the rising waters.

Whilst Aboriginal occupation of the Homebush Bay area is likely to date back well into this last ice age (before it even became a bay), there are few scientifically dated sites within the area. At present the oldest (and one of the only) dated sites within the area is the John Curtin Reserve rockshelter on Toongabbie Creek (some 6kms northwest of Homebush Bay), which has an initial occupation date of around 5,600 years ago.

By about 6,000 years ago waters had completely flooded over the old coastal plain and the Sydney environment with which we are now familiar was largely stabilised. The vast majority of sites in the area date to within the last 5,000 years, well after the sea had reached its present level. It is assumed that most of the older sites are now many metres underwater.

The sites which have survived and been recorded demonstrate that Aboriginal people lived in a variety of environments and utilised a wide range of plant and animal resources for food, shelter and equipment. The types of sites known from the region include rock shelter campsites (some with shell middens, stone artefacts and some also with art), open campsites (shell middens and stone artefact scatters), rock engravings and paintings, scarred trees, axe-grinding grooves, burial sites, stone and ochre quarries and a variety of post-contact sites.

Physical evidence of the usage of the Homebush Bay area by Aboriginal people has been found in the form of several stone artefacts located at the site of the Newington Olympic Village (now the suburb of Newington) and within the Newington Nature Reserve. Aboriginal shell middens (campsites where shellfish and other foods were consumed) are also known to have lined Homebush Bay and the Parramatta River but were destroyed by limeburners in the eighteenth and nineteenth centuries (who quarried the middens to burn the lime-rich shell for use as mortar) and subsequent alterations to the shoreline.

Documentary evidence of Aboriginal traditional life in the Homebush Bay area is scant. A majority of early historical observations of Aboriginal people in Sydney are from the Sydney Cove and outer harbour area, and it is currently unclear to what extent the picture of traditional life they paint can be transposed to the Parramatta River area. It is likely that Aboriginal people in the area exploited a wide range of fish, shellfish, land animal, bird and plant foods. The availability of many species of plant and animal has been documented for the area in a survey of the bush foods of Homebush Bay (Lee & Lennis 2000). The known existence of shell middens in the area is also evidence for the exploitation of the shellfish resources of the mudflats (likely to include rock oyster, mud oyster, cockles and mud-whelks).

2.4 DISPOSSESSION AND SETTLEMENT

2.4.1 Dispossession

The Aboriginal people of southeast New South Wales lived in relatively small groups called bands, made up of several extended families (a clan) and the intermarried women of other clans. There were twenty to thirty (or more) clans in the Sydney region, each speaking one or more of several languages used in the region. It is possible that these language groups (each comprising

several clan groups) had a larger language based identity, though it is also possible that identity was expressed in other ways. At any rate, clans were the land-owning social groups in the Sydney region.

When Europeans arrived in 1788, the Homebush Bay area formed part of the traditional lands of the Wanngal (or Wanegal) clan. The lands of the Wanngal clan extended along the southern shore of the Parramatta River between about Leichhardt and Auburn. The Wanngal clan would have had access rights to the resources of the Homebush Bay area, but would have routinely interacted with neighbouring clan groups. Whether the Wanngal clan spoke the Darug language or Eora (a separate language or possibly a dialect of the Darug language) is unclear.

The first European explorations of the Homebush Bay area occurred within weeks after their arrival in Port Jackson in 1788. Contact with Aboriginal people in the specific area of Homebush Bay is not recorded in these early explorations, though the open nature of the woodland in the area, possibly the result of Aboriginal burning practices, was noted.

With the establishment of the Rose Hill (later Parramatta) settlement in late 1788, there is likely to have been heightened contact between Aboriginal people and Europeans in the Homebush Bay area, then known as The Flats. Traffic along the Parramatta River and Parramatta Road, as well as the many escaped or lost convicts and marines who strayed into the area is likely to have resulted in such contacts, however there do not appear to be extant historical records of any such encounters.

With the devastating smallpox epidemics which claimed many Aboriginal lives in the Sydney area in the late 1780s, drastic changes to the cultural and social organisation of the Sydney clan groups took place, including the amalgamation of some clan groups to ensure continued survival. Interaction between European settlers and Aboriginal people after the smallpox epidemic and prior to the granting of lands at Homebush Bay is illustrated by Balloderry, a young Aboriginal man, possibly of the Wanngal clan (although his clan affiliation is currently unresolved).

Balloderry and others established a trade in fish with the farmers in Parramatta in 1791. The trade was successful but short lived, following the destruction of Balloderry's canoe by convicts at Parramatta. Balloderry later speared an escaped/lost convict (unconnected with the incident) in retaliation. The spearing took place at the Flats (Homebush Bay) and demonstrates that the area was still frequented by Aboriginal people in the early 1790s.

The 1790s and early 1800s saw the appropriation of Aboriginal lands in the Homebush Bay area, starting with the Liberty Plains grants along Powells Creek in 1792, on the southern edge of Homebush Bay. By the mid 1790s, many small grants had been established within the Homebush Bay area as well as on the Rhodes Peninsula and the northern bank of the Parramatta River.

It appears that many of the land grants in Homebush Bay were not subject to intense agricultural activity in the 1790s and some may have been held merely as investments. Many of the grants changed hands (some several times) in this period and descriptions show that many were largely uncleared and/or unoccupied. The implications of this for the continued usage of the area by Aboriginal people is unclear as there are scant historical records for this period, however it does suggest the possibility that Aboriginal people may have continued to reside in or use granted or ungranted areas of Homebush Bay.

By the 1810s, the whole Homebush Bay area was divided (by Haslams Creek) into the Newington estate of John Blaxland and the Homebush estate of D'Arcy Wentworth. It is known that Aboriginal people worked on the Blaxland farm and traded fish with the Blaxlands in the 1810s, although it is not clear whether these were local (Wanngal) people or not. It is also not

known whether these people lived on or adjacent to the farm, but does demonstrate continued usage of the area after European settlement.

Although large portions of the Newington estate remained uncleared up into the 1850s, it is not known whether this allowed Aboriginal people to continue using the area. The 1828 census does record that Aboriginal clans were living at Parramatta, Richmond and Liverpool and these may have been related to those from Newington. The "Returns of Natives" taken between 1832 and 1843 confirms the presence of several hundred Aborigines round Sydney including a tribe at Duck River. By 1840 when Louisa Meredith wrote her descriptions of Homebush Bay, she does not mention any Aboriginal groups in the area.

Although Aboriginal people from other areas of Sydney are known to have visited the Homebush Bay area after this time, regular usage of the area by Aboriginal people appears to have ended by the mid-nineteenth century. This is however currently the subject of ongoing research commissioned by the Sydney Olympic Park Authority, which may uncover evidence to alter or refine this view.

2.4.2 Settlement

The Parramatta River was the first area after Port Jackson to be mapped and charted. Only 10 days after landing at Sydney Cove, members of the First Fleet were exploring the areas to the west in search of suitable land for farming and reliable sources of water. A settlement was established at Rose Hill by the end of 1788. It was renamed Parramatta by Governor Phillip when he ascertained that that was the Aboriginal word for the head of the river.

The first land grant in the Colony was to an ex-convict in Parramatta. Within a year the population was 1,970, which was half the total population of the colony, most of whom were convicts. The area developed as a midway point between the Hawkesbury farms and settlements and Sydney Cove. The Parramatta Road, built in 1794, became a major thoroughfare and trading route, which competed with the river as the main access and transport corridor. The Governor established a second residence at Parramatta and considerable money was spent on a formal town plan, building churches and public buildings.

The viability of the colony depended on the development of farms and the production of crops and livestock. By 1791 Phillip was granting acreage to well-behaved convicts and the militia in an effort to increase farming production. The lands between Parramatta and Sydney began to be settled soon after the establishment of the town of Parramatta. Small land grants were made at Newington from 1797 with two small grants of 25 acres to Captain Waterhouse and Lieutenant Shortland of the militia. In 1800 an adjoining grant of 80 acres was made to an Isaac Archer. These grants faced the river, and were situated across the present site. In 1806 Samuel Haslam was granted land on the Parramatta Road.

The fate of these smallholdings was the same as that of most of the early grantees, who had no capital and were too small to remain viable. Many of the early farmers were inexperienced and practising intensive farming practices unsuited to Australian conditions on marginal land. They were eventually replaced by men of influence and capital who could afford to experiment, invest and purchase breeding stock, and who were favoured by the granting of large expanses of prime land.

In 1807 John Blaxland was granted 1290 acres at Newington and immediately purchased the smaller holdings along the riverfront. Blaxland was a free settler, a man of some wealth willing to invest 6000 pounds in the colony in return for free passage; a land grant and 18 months of convict slave labour at Government expense. The Colonial Office thought Blaxland an appropriate person to encourage in the settlement, as he was a man of 'property and

education'.¹

The Newington grant comprised all the land between the Parramatta River and Parramatta Road, between Duck River and Haslams Creek. Blaxland developed a fine home on a rise within the area, which is now part of Silverwater prison, and began to establish a series of industrial and pastoral enterprises on the property. The area where the Armament Depot is situated was probably initially used for grazing or collecting timber. Blaxland does not appear to have utilised the wetland and no roads or tracks ran through his property in this area.

The history of the Newington estate is a familiar story for the mid decades of the nineteenth century. The recession of 1840 saw the family mortgage and sell the property. After the death of John Blaxland the main house and areas close to it were then re-purchased by the family, but remained too costly to keep. Land was then leased to numerous small industrial ventures such as slaughterhouses, timber cutters and other tenants. The house meanwhile was turned into a school and then an asylum before it was sold again. This tolls the end of the area's pastoral association, as the city grew closer and rich farming lands were available elsewhere with good transport, the marginal areas round Homebush were no longer considered necessary. The new owner, a John Weatherill bought the property with an eye to subdivision. It was never successful and eventually the site reverted to government control in 1880.

2.5 THE CHANGING ENVIRONMENT

2.5.1 From an Aboriginal to a European Environment

The environment around Newington has changed enormously since members of the First Fleet began to explore and chart the Parramatta River. Governor Phillip and Lieutenant Bradley were the first to write about the area around Newington, after an exploratory trip in 1788:

We proceeded to the beginning of the flats, where we landed and went 2 or 3 miles into the country. Found the trees a considerable distance apart and the soil in general good – grass very good and no underwood. After dinner went in the smallest boat over the mudflats past a mangrove island and followed a creek some distance to the westward.

The mangrove island, which they describe and which is drawn on Bradley's 1790 map of the Parramatta River, has now been incorporated into the river foreshore (see Figure 2.1). The Aboriginal name of the island was Arrowanelly². The shape of the foreshore has been smoothed and defined with stonewalls and the course of the river straightened.

¹ ADB 1:117

² Attenbrow 2002:10



Figure 2.1 Lieutenant Bradley's 1790 map showing Newington and the mangrove island offshore (Fox and Associates, 1986)

In 1827 Richard Cunningham described the Cumberland Plain area;

In Cumberland, the land immediately bordering upon the coast is of light, barren, sandy nature, thinly besprinkled with stunted bushes; while from ten to fifteen miles interiorly it consists of poor clayey or ironstone soil, thickly covered with our usual evergreen forest timber and underwood.

Between the two descriptions, 39 years apart, several assumptions can be made about the changes to the lands along the Parramatta River. The striking change between the two descriptions is the comments on under-wood. The land that Phillip and Bradley saw had trees spaced a good distance apart and no under-wood to stop grass from growing. Cunningham who roamed all over the Parramatta area saw a thick forest with under-wood.

James Kohen has said of these changes observed by early writers:

It is clear that it was primarily Aboriginal burning practices, which maintained an open environment dominated by well-spaced trees and grass. Once the Aborigines stopped burning, under brush grew where none had previously existed. (Kohen, 1995:41)

Fire stick farming, as the practice of burning by Aboriginal people is called, was used to create passage through the forest and encourage the movement of animals for hunting. The grassy, park-like landscapes, which were discovered by explorers like Major Mitchell, are assumed to have been the result of fire stick farming. The settlement of Europeans stopped this practice for fear their stock, homes and lands would be burnt. Parts of the bush, which might have been changed in response to fire stick-farming practices, therefore began to revert to that dense character which is familiar from the woodland areas on the site today, and which might have characterised the structure of the plant community without such practices.

The Newington Armament Depot and Nature Reserve woodland, although never completely cleared had been thinned by timber cutters, and was used for the grazing of sheep and cattle by the Homebush Abattoir and then kept mowed and clear of understorey plants by the Navy who were concerned with reducing fire hazard. In addition to this RANAD also grazed sheep. The woodland has not been cleared or mowed since 1981 and since then there have been noticeable changes. Today the woodland has a fairly well-developed understorey, with some fallen timber on the ground. If the area is not cleared but is subject to management that includes weeding and ecological burns it will probably regain structural and floristic characteristics closer to its earlier natural character.

2.5.2 From a Pastoral to a Military Environment

From the period of settlement by Europeans until 1840 the environment of the future MPPH was subject to clearance and the beginning of land reclamation works along the river's edge. Thirty years of pastoral and light industrial activity and the ever-growing numbers of settlers in the area had by 1840, left the land in a state, which was probably similar to the grasslands area of the site now. Louisa Meredith, who lived at Home Bush where the Sydney Olympic Park is now, described the area as completely empty and denuded.

The house stood on the highest ground on the estate and for some hundreds of acres all around not a native tree nor even a stump was visible, so completely had the land been cleared (Meredith, 1973: 56).

Although it was largely cleared, she describes the area as having a lot of remaining wildlife. She writes of the plentiful dingoes in the area, possums, flying foxes, goannas, lizards and snakes. Most of these, it is presumed were living in the uncleared or less disturbed areas of mangroves,

wetland or woodland of the MPHP site and other parts of Homebush Bay.

Estuarine wetland was once the dominant environment of the area and still dominates this part of the Parramatta River. Figure 2.2, clearly indicates that the line of the foreshore as it exists today has been changed significantly from the original foreshore in many places. Early survey plans indicate that areas reclaimed consisted in the main of saltmarsh wetland, described in 1890 as “pigweed swamp with mangroves and oaks in patches” (Fox & Associates, 1986).

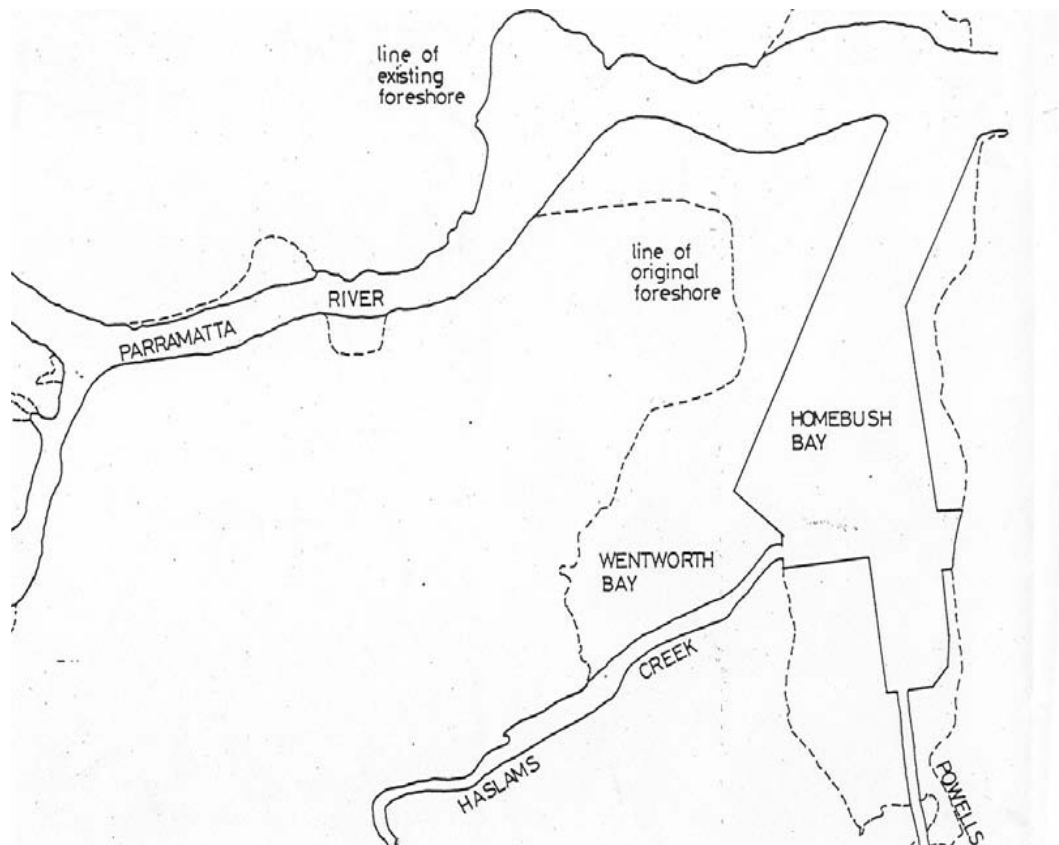


Figure 2.2 Line of original foreshore (Fox and Associates, 1986).

This wetland, remnants of which survive on the site, has been partially preserved by the perception that they were of no use to sheep or cattle or man. The focus in the early years of the colony on food production saw the mangroves and salt marsh overlooked as grazing land suitable for hoofed animals, and was therefore left uncleared. When the government resumed the area for the Powder Magazine in 1882, most of the 248 acres (100.36 hectares) was mudflats, swamp, mangroves or salt marsh.

In 1889 large-scale reclamation works were begun on the site, which saw almost 200 acres of mud flats drained, the foreshore straightened and banked and by 1893, two miles of fascine banks had been constructed. Even though hundreds of acres of land had been reclaimed, the areas directly behind the riverbank were still considered unsuitable for extended building works. This unsuitability however made the area ideal for the polluting and dangerous work of disposal, burning and testing of armaments and explosives.

The topography of the site was largely the reason the site had been left unsettled for so long, and also the reason it was initially seen as unattractive for the erection of a public gunpowder magazine in the 1880s. It was isolated and it had good water access, but it was also marshy and boggy and a long way from the Harbour. Once resumed by the Government the land became subject to more and more reclamation. Reclamation of the wetland continued on the site through the 1930s and into the Second World War. Thousands of pounds were spent to drain the soil and raise buildings and infrastructure above the water logged ground.

The higher and drier areas directly to the south of the wharf, and parts of the wetland to the east were leased by the adjacent Homebush State Abattoir, which ran sheep and cattle in resting paddocks. In 1928 the Abattoir gave the eastern areas back to the magazine and then in 1938 and 1941 all lands were resumed for military uses. The effect of the Abattoir's stock on the environment of the site is hard to gauge, but would almost certainly have kept the area clear of undergrowth. The dearth of native trees in the grassland area was probably due in large part to the use of stock by the Abattoir and later by the military for fire prevention, as well as the mowing regime of later years. In parts of the site today, along the western and southwest boundary of the woodland where mowing ceased in the 1980s, there has been some natural regeneration of native species, where propagules have remained in the soil, or from seed spread into the grasslands area from the woodland.

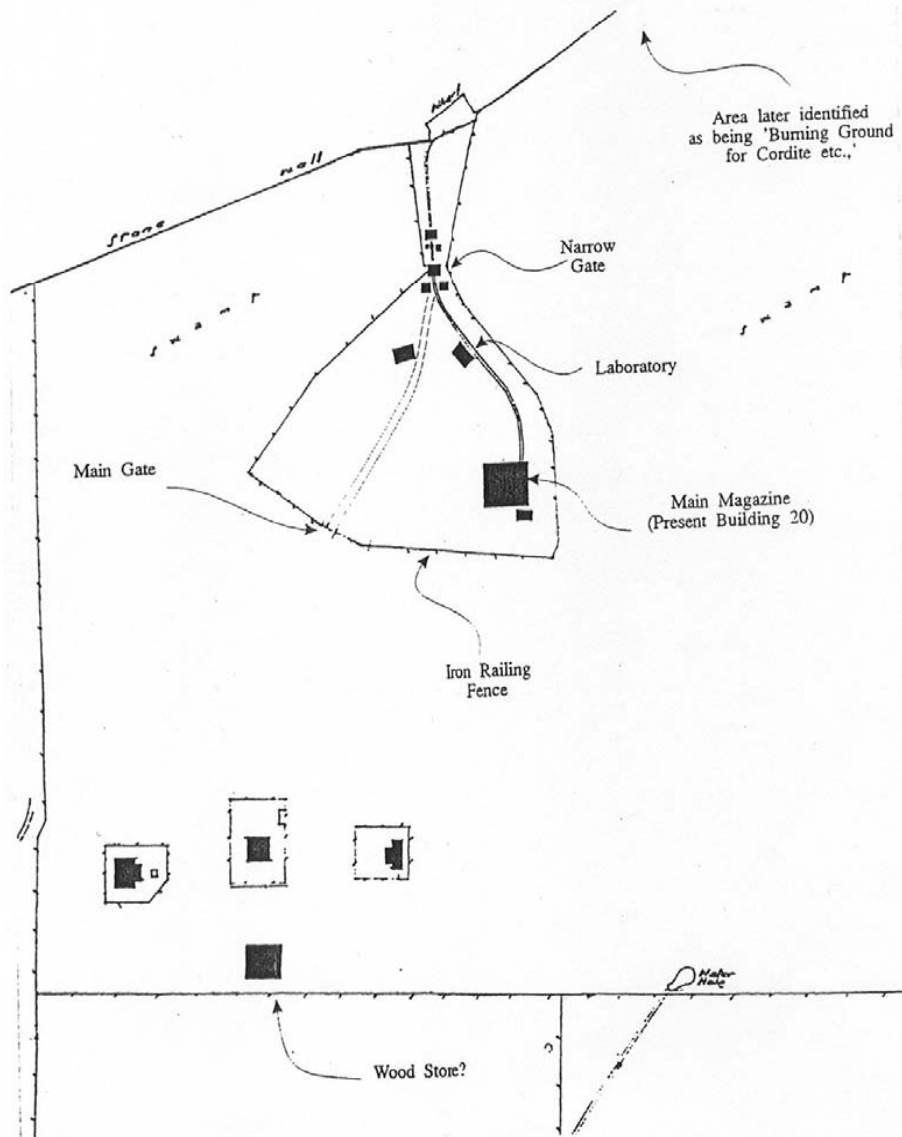


Figure 2.3 Plan of original layout of the Powder Magazine (Schwager Brooks and Partners, 1996).



Figure 2.4 Plan of nineteenth century subdivision, which never went ahead, with early Depot buildings and light rail shown (Schwager Brooks and Partners 1996)

2.5.3 From Industry to Ecological Restoration

From the late nineteenth century until 1980, the management and treatment of the area epitomised the then-prevailing Australian attitude to natural wetland. Homebush Bay and surrounding areas were seen as convenient wastelands for the dumping of industrial and household wastes. The history of industry round Newington had started with Blaxland, then Government industries such as the brickworks, abattoirs and powder magazines at the turn of the twentieth century. These industries were intrinsically polluting and with no environmental controls, draining of wetland, dumping of toxic wastes and pollution of the air by burning, were commonplace.

In the 1960s and 1970s uncontrolled dumping of wastes was common in the Homebush Bay area, and to the east of the woodland. Seepage from contaminants including chemical residues, metals and 3000 cubic metres of tar waste flowed into the salt marsh of the site, and were trapped by the sea wall.

Within the wetland, the Navy used the salt marsh as a convenient site for testing and dumping of wastes connected with proofing activities. Three burning grounds were also situated on the site. One was in the woodland and another in the wetland, where explosives and armaments were destroyed in metal lined pits. The third burning ground was located on low ground in the southern section of the Depot near Haslam's Creek. Here gun propellant was burnt, amongst other things.

The bid to win the 2000 Olympic and Paralympic Games featured a strong commitment to the environment. The Sydney 2000 Bid Committee in 1993 made a commitment to ecologically sustainable development, which would be demonstrated in the conservation of species, resources and the control of pollution. With the announcement of the Sydney 2000 Olympic Games, and the choice of Homebush as the main Olympic venue, the remediation of Homebush Bay became an urgent priority, and this program was used to demonstrate new environmental attitudes and commitments.

The remediation works commenced in 1992 and were complete in 1997 included the treatment of 155 hectares for soil and ground water contamination and has resulted in a number of awards recognising environmental achievements. This change in attitude to the wetland environment followed the development of a worldwide conservation movement, which in Australia began gaining political prominence in the 1980s. In 1992 the Earth Summit in Brazil brought the issue of ecologically sustainable development to the forefront of government policy as Australia was roundly criticised for its history of environmental damage. With the announcement of the 'Green Games', the issue of cleaning up Homebush Bay became an urgent priority for the NSW government. The imminent departure of the Commonwealth Government from the RANAD Depot also caused concern about future management, since the exclusion of the public for many decades had already left an important cultural legacy.

A program of restoration ecology was planned which aimed to conserve and restore the natural values of the site. This has involved the opening up of the sea wall of the wetland to allow tidal flushing of the salt marsh and mangroves, and construction of a large waste mound to the east of the site to contain contaminated soils. Areas to the west of the wharf area which had been used as an asbestos dump were also reshaped and cleared with new landfill changing the topography on the western boundary. The southern portion of the former RANAD site was chosen as the site of the Olympic Village. Remediation and development of the area required the removal of all but two explosives storehouses from the site and the construction of the new Holker Street extension between the northern and southern sections. The Village was designed with ecologically sustainable development principles and has since won a number of awards.

This major change in attitude about the environment also encompassed a new understanding of the effect of Aboriginal land management techniques. The structure and floristics of the woodland area, with its now well developed understorey can now be assessed as regeneration towards a state more closely approximating its natural condition, with fires at less-frequent intervals than the regime instituted by Aboriginal people. The new environmental awareness of Australians and the value attached to the restoration of these small natural areas has added a new and very important quality to MPHP, which gives it enormous value. The importance of these small remnants of ecological communities that once covered large parts of the Sydney Basin is reflected in the gazettal of the natural areas as Newington Nature Reserve.

2.6 DEFENDING AUSTRALIA

In the history of the site since European settlement its occupation for military purposes over the last 100 years has left the greatest impact on the landscape and quantity of built structures. The long and involved history of military development, land acquisition and building on the site has been documented in great detail in the chronological history, contained in Appendix A. The chronological history was compiled prior to 1997 and so includes the southern portion of the site, which is now part of the suburb of Newington. This section will take the site and place it into the broader context of the Sydney Ammunition Pipeline and the history of the Sydney Defence network.

In 1833 the first colonial gunpowder and explosives magazine was erected at Goat Island. In less than a decade it was found to be inadequate for storing civilian and military stock and an additional magazine was constructed on the island for civilian stock. In 1863 this was also deemed to be overcrowded and so another magazine was built at Spectacle Island, further down the Harbour away from the centre of population.

By the 1880s it was recognised that another magazine should be erected further away from the expanding urban settlements of the Harbour. Newington had been mooted as the site for a magazine as early as 1875, but there was reluctance to commit to a site so far from Rose Bay powder ground, the waterlogged land required major reclamation and the narrow, busy passage down the river was a risk to shipping. By 1880 the overcrowding at Spectacle Island had reached crisis point and plans were drawn up to build a new magazine at Newington.

When built in the 1890s, Newington Powder Magazine was managed by the Ordnance Department. At the time of Federation, the site and its workforce were amongst New South Wales' Military Forces assets that passed into the control of the Commonwealth Military Forces and the site languished for many years. In 1921 control passed to the Navy, which assessed the site as being suitable for only a proportion of the reserve ammunition which it was necessary to keep in Australia, i.e., 2 complete outfits for each ship on the station and 2 years practice ammunition. The Navy was initially reluctant to take the site as they felt it was too small for their needs, however by 1922 works had commenced on new buildings. By 1924 the Navy was requesting that more land be made available from that which was leased to the State Abattoir.

The growth of the facility not only reflected the pre-eminent position of the Navy, which was building its presence in Port Jackson, but also the increasingly threatening international situation. Perhaps another, more pressing, reason was pressure to move mass-detonating explosives from Spectacle Island. After a decade of constant building the development of the site eased during the Depression. Then in 1938 with an accelerating situation in Europe, and concerns about the growth of Japan's military, the RAN's expansion was reignited. More land was acquired from the State Abattoir and new buildings were planned to separate domestic buildings from storehouses. Reclamation works were undertaken with Unemployment Relief Scheme funds and the Armament Depot reached its period of peak production as the Second World War was declared.

2.6.1 Naval Defence in Sydney

The dominant influence on Australian naval capacity until the start of the Pacific War in 1941 was the Royal Navy (RN). Even after its formation in 1911, the Royal Australian Navy (RAN) was in effect a colonial arm of the British Navy, using British ships, stores and ordnance. This situation developed in the colonial period when Sydney was the centre of British imperial power in the Pacific. From 1859 the RN operated The Australia Station from Sydney, and gradually made substantial progress to enhance its position in the Pacific. The Australia Station had been configured to conduct trade protection and local defence for Australia and to provide

reinforcement to the British fleet in the Pacific. With this in mind the primary function of naval facilities in Sydney was the provision of supplies and support to Admiralty ships.

The Second World War changed the way Australia thought about and prepared for her defence and the way the RAN functioned in the Harbour. The war threw the development of defence emplacements along the coast and Naval support facilities in Sydney into overdrive. The arrival of thousands of ships of the Allied Forces and merchant navy impacted on not only the docking facilities but also the armaments bases, supply stores and munitions factories in the Sydney region.

The Newington Armament Depot was part of a network of naval sites in Sydney all of which were capable of dealing with RN technology, ships and supplies. Of the three islands in the Harbour, which had historically been used for naval purposes, Spectacle Island was most closely associated with Newington. Spectacle had first been surveyed for a powder magazine in 1863 and from then on was entirely given over to the storage of naval armaments, supplies, archives and gunpowder. Spectacle was considered ideal for the storage of gunpowder being close to Garden Island and Goat Island and yet some distance from central Sydney. As Sydney grew along the Parramatta River, this perception changed and after the construction of Newington Powder Magazine, Spectacle Island was used for a variety of purposes through to the 1990s. Explosives were stored on lighters, which were towed back and forth to ships moored at the explosives buoys in the Man of War anchorage to the east of Garden Island and to Spectacle Island to Newington.

Cockatoo Island, which began life as a prison for recidivist convicts, was converted in 1846 to a dry dock for visiting RN ships. The RN wanted autonomy from commercial dry dock operators such as Mort's Dock, so Governor Gipps supported the construction by supplying convict labour. Dock facilities were upgraded around 1890 as a response to agitation for Australia to develop its own Navy separate from Britain. In 1913 control passed to the Commonwealth as a naval base. The Cockatoo Island dockyard, which was the only naval establishment of its kind, was able to accommodate large ships.

All ships entering the Harbour were required to be de-ammunitioned prior to work being undertaken in dock. The ammunition from ships was then transported to Newington for storage. Ships returning from exercises or engagement would be resupplied off Garden Island with stores bought from Newington. (Godden MackKay, 1997) During World War II the Cockatoo Island dockyard played an important role in the repair of RAN and USN ships damaged in the Pacific War. The number of ships being armed and disarmed can be inferred from the statistics of ship docking Australia-wide. Between 1939-1945 there were 5,127 dockings by naval ships in Australia, most of these occurred in Sydney which was the main base for allied fleet operations in the Pacific after the fall of Singapore. Of these 4,008 were RAN, 391 RN, 513 American, 171 Dutch, 44 French and 11,987 merchant ships. Many of these merchant ships were bringing supplies of ammunition that had to be stored at Newington or one of its World War II sub-depots.

Cockatoo Island was worked at a stretched capacity throughout the war with an increasing number of damaged ships limping through the heads as the Japanese advance was met with allied aggression. Garden Island was busy converting civilian ships into troop carriers and in 1940 the government announced that a naval graving dock would be built there. This was ostensibly to provide support to RN ships, although Prime Minister Menzies appeared to have longer term plans for the RAN when he announced that this dock would "make Australia a fit base for a powerful fleet."

Garden Island was first used for naval purposes in 1789. Between 1856 and 1865 the Navy assumed a greater role in the defence of the colony as Imperial troop numbers in NSW were

reduced. In 1859 construction began of the Australia Station as a permanent base for the Navy. The Colonial Naval Defence Act, 1865 was the first legislation to provide for a colonial naval defence policy, and from then the establishment of the Navy in Sydney was complete. Through the 1870s and early 1880s the cost of funding the defence of the Australian colonies was argued between the Imperial and Colonial governments. It was finally agreed to that the construction of a naval depot would directly support a fighting force at sea and that the Admiralty would build a depot funded by the colony. This of course required construction of an armament depot for the safe storage and distribution of munitions and explosive ordnance.

During the Second World War, maintaining supplies of ordnance and stores was a major problem for the allies in the Pacific, given the distance from the places of production in Europe and America. US store depots were developed in Australia to support the push north against the Japanese. Facilities were developed by the Australian government towards the end of the European war to support the involvement of the British Pacific Fleet in the closing stages of the Pacific War. Stores included supply stores such as Rydalmere across the River from Newington, which was resumed in 1943. Rydalmere was one of the supply stores for the US army and HQ for the army supply services. Seven large Nissen style warehouses and a timber wharf were constructed, which have now been demolished.

The Navy did not, at the end of the war, begin disposing of assets and land. Newington was still on a full contingent of staff and storage capacity was full for several years after the war. By 1967 the Commonwealth controlled about 1.3 km of Harbour foreshores for both military and naval purposes. The administrative and personnel quarters located on parts of Middle Head and South Head, the North Head fortress and Artillery School, together with waterfront industrial naval uses, occupied about 420 hectares. In addition, 280 hectares were held as reserves of largely vacant land on Middle and North Heads, lending a distinctive undeveloped woodland and bush character to parts of Port Jackson and its Harbour side suburbs. Much of this land has now been incorporated into the Sydney Harbour National Park. In 1992 Cockatoo Island dockyard was closed. In 1993 the islands of the Harbour not specifically used for storage purposes were also placed under control of the National Parks and Wildlife Service. Newington was officially closed in 1999 and the Navy has since moved the bulk of its administration and other facilities to other locations in NSW.

2.6.2 The Sydney Ammunition Pipeline

Newington Armament Depot was an intrinsic part of a defence system, which was known as the Sydney Ammunition Pipeline. This pipeline was vital to the continued efficient functioning of the navy in Port Jackson. Warships are required to be de-ammunitioned before they enter dockyards for maintenance, as a basic safety precaution. At the conclusion of maintenance, warships have to be re-ammunitioned with either new, different or the same stock. Many naval ships would enter Port Jackson needing to replenish ammunition or guided weapon stocks or occasionally to land "restricted" or life-expired ammunition or guided weapons. Ships entering refit or requiring repair of battle damage would need, for safety reasons, to land their ammunition before they could enter the dockyards. The pipeline was designed as a system to ensure that ships could be made safe for docking and repairs, provided with new stocks of ammunition, and rotating stocks of ordnance supplies.

During World War II the Navy's storage facilities expanded to encompass a sub-depot at Kingswood (now usually referred to as Orchard Hills) and some storage at St Mary's and Bogan Gate. The Kingswood sub-depot, formerly a US Army chemical weapons storage depot, later became the RAN Armament Depot Kingswood. By the early 1960s the depot incorporated a Guided Missile Unit. This unit later gained an independent existence as the RAN Missile Maintenance Establishment. The RAAF 1 Central reserve, later No. 1 Central Ammunition Depot

was collocated with these Navy elements. For ammunition to be provided to ships in Sydney Harbour, it was loaded for road transport to RAN Armament Depot, Newington. Here the ammunition and guided weapons were transferred from road transport into lighters and towed down the Parramatta River to Sydney Harbour where it was loaded on board warships at special ammunitioning buoys near the fleet base at Garden Island. During WWII the pipeline encompassed, Newington, Spectacle and Garden Islands, creating a chain of naval sites from the upper reaches of the river to the Harbour.

In 1981 the Department of Defence adopted NATO safety principles for the storage, transport and handling of explosives. The NATO safety principles replaced earlier quantity-distance tables and were based on a better understanding of the effects of explosions. The principles deal with acceptable risk, the spacing required between potential explosion sites, exposed sites that may be other potential explosion sites, other facilities, transport routes and residential areas. In general terms the introduction of the NATO principles reduced the amount of explosives that could be held in storehouses, wharves, lighters and around ships when ammunitioning.

When applied to an existing site, the principles determine the quantity of explosives that can be held at a potential explosion site. When used for planning, they determine the separation distances needed to be able to hold a desired amount of explosives at a potential explosion site.

The efficient functioning of the Newington Armament Depot was greatly compromised by these new regulations. The existing infrastructure and the increasingly dense settlement around the Armament Depot meant that it could not physically expand any further and so its closure was a fait accompli.

The Department of Defence had been interested in relocating the functions of the Newington Armament Depot to another facility since the 1960s. Closing Newington meant closing the Sydney ammunition pipeline, and establishing another East Coast Armament Complex either at Point Wilson in Victoria, Twofold Bay near Eden or at Port Alma in Queensland. Closing Newington meant that Port Jackson was no longer practicable as a place to ammunition RAN ships. The availability of Fleet Base West (in WA) meant that fewer ships were based in Sydney dockyards. However, there was still a need to be able to ammunition ships operating on the east coast and the Navy looked at options for establishing new facilities at Point Wilson in Victoria, Eden in NSW and Port Alma in Queensland. In the event, both a refurbished Point Wilson explosive wharf and a new wharf and depot facility at Eden have replaced most of the Sydney ammunition pipeline; facilities at Kingswood remain. The Sydney ammunition pipeline closed in December 1999.

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PREAMBLE

This physical analysis has been extracted from Section 3.0, Nature of the Resource, of CMP 2003. The analysis has been reviewed in light of comments on CMP2003 contributed by Robert Curran.

3.1 AN INTEGRATED NATURAL AND CULTURAL LANDSCAPE

The natural landscape of the Newington Armament Depot and Nature Reserve comprises three general areas; grasslands, wetland and forest. Within these landscapes are numerous buildings, transport systems and landforms. The entire landscape of MPHP has experienced varying degrees of cultural modification. But despite many changes the natural features of the landscape and their underlying ecological processes remains of significance, alongside the cultural features. The wetland for example, is still enclosed by a fascine dyke and stone sea wall, which expanded parts of the original foreshore and led to the reclamation of the lands behind which are now being managed for reinstatement of the wetland values.

Within this landscape the built elements and infrastructure are integrated into the forest, hillsides, wetland and grasslands. Each has been shaped by, or in response to the other. In many places, the natural landscape has been dug out, torn down, reshaped and revegetated to suit the site's occupants. The built elements have been sited and laid out in a manner that responds to the topography. The areas of forest and wetland that have not been disturbed by construction acted as protective buffers and screens for the activities which occurred in them.

The Newington Armament Depot and Nature Reserve is therefore a thoroughly integrated natural and cultural landscape, and might be viewed from various perspectives as a landscape with many layers of meaning.

3.2 NATURAL LANDSCAPE

Much of the MPHP landscape is today very different to what it was before the advent of Europeans. Not only has the vegetation changed dramatically in the grassed areas, but the topography and limit of dry land has been radically altered. The rising ground of the Original Establishment Precinct at one stage joined the natural line of the forest slope at a point which is close to the present crossroad. The landscape today remains gently undulating, and although there has been much reclamation of the swampland, mangroves and wetland, the original high water mark can still be seen at the base of the slope leading to Building 22.

Of the landscape areas of MPHP, it is the grasslands and foreshore that have been most altered. However as discussed in the thematic history above the wetland and the forest have also been affected by the actions of both Aboriginal and European occupiers. The natural attributes of the precinct that remain encompass the ecosystems, biodiversity and geodiversity, and the dynamic ecological processes that continue.

The grassland area is the most recent landscape, and is a direct product of European pastoral settlement and occupation by the military. The forest, despite decades of mowing and understorey clearance, has now regenerated and probably demonstrates a species composition and structure closer to pre-Aboriginal times. Its range of habitats would have expanded considerably since the frequency of fires and slashing has been reduced. The construction of a fascine dyke and sea wall along the river, and the draining of the mudflats behind it have altered the wetland, and a program to reinstate an appropriate tidal flushing regime has been initiated.

The flora species in these two systems are, however, mostly original and in general they retain the structure and appearance of natural remnants.

Within the remaining grassland precincts of the former Depot are a number of cultural plantings related to various stages of the European occupation. These include the scattered trees and open grassland character that remain from the historic use of the site as a golf course, and its subsequent adaptation to armaments storage depot. Specific cultural plantings related to the Depot use are largely confined to the major row of camphor laurel trees lining the old entry driveway from Jamieson Street. There were some small fenced gardens around buildings 122, 123, and 126 but these have largely disappeared, as has a bowling green that was adjacent to building 123. Plantings associated with the post RANAD phase are limited to some low level screen planting around parking areas behind Building 122.



Figure 3.1 The Wetland located at the north eastern end of the site, 1996 (Schwager Brooks and Partners 1996).



Figure 3.2 The Forest located in the centre of the site.

3.3 CULTURAL LANDSCAPE

Many aspects of the landscape of Newington Armament Depot and Nature Reserve have been formed and reformed by human interference and manipulation. MPHP was a culturally influenced landscape well before Europeans invaded Aboriginal lands. Stone artefacts found in the forest and at Newington provide evidence that Aboriginal people utilised the site if not for food gathering and hunting then at least for the making of implements. That which we see today is probably quite different to that which the first Europeans saw.

The cultural landscape of the site consists of areas of wetland, foreshore, grasslands and forest and Armament Depot infrastructure and buildings. The buildings and infrastructure are spread right across MPHP, within the forest and wetland areas as well as in the open grasslands. The buildings are generally grouped in terms of their function and date of construction and linked to each other and the wharf by roads and light rail.

Since the 1996 Heritage Assessment of RANAD by SBP the cultural landscape of the original Armament Depot has changed enormously. The number of buildings has been significantly reduced and the parts of the original area of the site have been developed for the Olympic Village (now known as the suburb of Newington) and parts of the Parklands.

The SBP analysis of 1996 described the cultural landscape of the Armament Depot in terms of the industrial functions and processes of armaments work. This they broke down into two primary functions; the receipt, storage and dispatch of stock and the maintenance of stock. In order to carry out these primary functions a number of different processes were required:

- Handling, lifting, transporting and storing;
- Examination, quality control and repair;
- Administration and record keeping;
- Staff amenities.

These functional categories informed the inventory of the structures, each of which was described with one of five interpretive themes:

- Armament Storage;
- Inspection & Testing;
- Depot Administration;
- Staff Facilities;
- Transportation Infrastructure.

The definitions of the process and functions of armaments work have been retained in this report, with the interpretive themes playing a large part in the precinct analysis.



Figure 3.3 Casuarinas which border the Wetland.



Figure 3.4 The "Burma Road" formerly connected the Depot with the Abattoir lands (Schwager Brooks and partners, 1996).



Figure 3-5 Original Gun Powder Magazine (20) with protective earthworks.



Figure 3-6 Light rail cutting with open grassland in the centre of the site.

3.4 THE BUILDINGS

There are approximately 108 buildings located within the current MPHP site. When SBP conducted their Heritage Assessment of RANAD in 1996 (see 2 Volume Heritage Inventory April 1996, held in SOPA Library) there were at least 200 on the larger site, some of which were portable or temporary. The development of the Olympic Village (now the suburb of Newington) on the southern portion of the site necessitated the removal of all but two buildings to the south of the Holker Street alignment. These are not included in the study area.

The major building types which have been lost are the RN Explosives Storehouses, a number of US Navy Explosives storehouses, and Inspection & Testing and Staff Facilities from areas to the south of Holker Street. The original southern gate to the Armament Depot was removed for the

construction of the motorway in the 1970s. Most recently a number of demountable or portable buildings were removed by both the Commonwealth and OCA from the area near Jamieson Street and elsewhere on the site. All the functional category types are extant and the areas that remain are largely intact. There is one RN concrete storehouse remaining, Building .87. This is within the suburb of Newington, and outside the proposed NSW State Heritage Register boundary of MPHP. It is however intact and the only surviving example of the buildings constructed by Australians for the RN at the end of the Second World War.

The Armament Depot ceased functioning in 1999 and the buildings are no longer used for their original purpose. Some were put to temporary use in storing Olympic Co-Ordination Authority equipment and signage associated with the Sydney 2000 Olympics while a number of office buildings now house the Sydney Olympic Park Authority staff and contractors.



Figure 3-7 Original main receiving centre Building (143) and light railway.

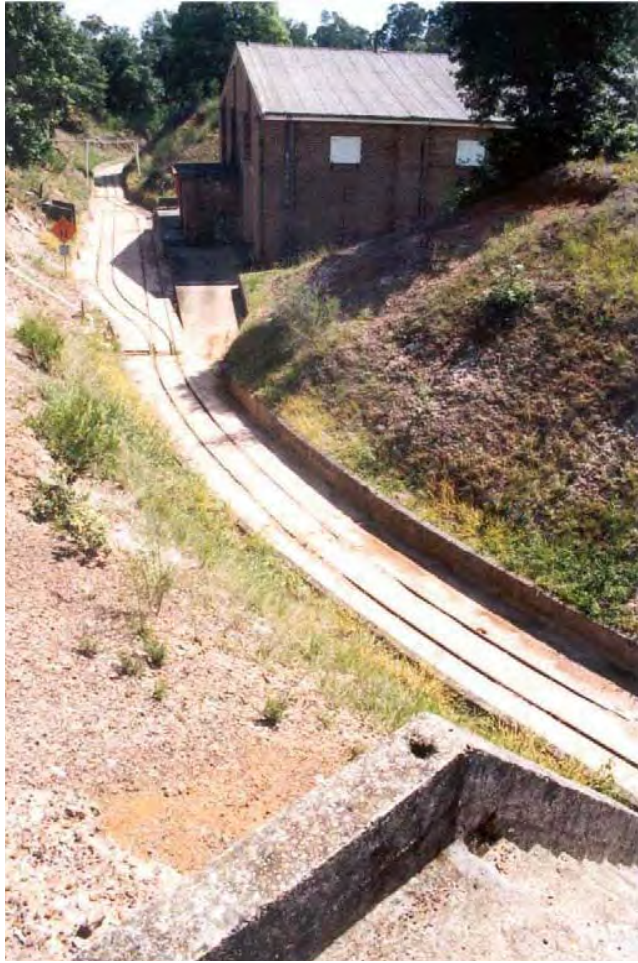


Figure 3-8 WWII explosives storehouse (43) at edge of forest.



Figure 3.9 A row of laboratories (130-34) with forest backdrop.



Figure 3.10 Non-explosives store at centre of site (22).

3.5 MOVEABLE ITEMS

Moveable items can be defined as items which are not fixed, such as tools, trucks, stores, safety equipment, signage, clothing, documents and ephemera. The Armament Depot possessed a large quantity of moveable items in 1996, most of which was removed by the Department of Defence in 1997. The 1996 Inventory did not assess the quantity of moveable items on the site, however the Heritage Assessment of RANAD listed types of items and of these a number are no longer extant.

The main items, which no longer exist, are the naval armaments, weapons and explosives, which was the Armament Depot's stock in-trade. Some of these items have been rendered free from explosives and retained as examples, while a number of explosive types and equipment have been given on loan from Spectacle Island Museum. The other moveables, which are no longer extant since the Department of Defence disposed of the site, are the concrete lighters and vessels¹ that towed the stores from the Harbour, and the forklifts, cages and trucks used for transport. The light rail is intact with 40 trolleys and the 4-electro mobile engines. A large amount of signage, fire fighting and safety equipment is still extant in buildings, as is some of the furniture, some of the tools and lifting equipment of many of the workshops.

¹ Lighters were towed by a range of vessels, including TB9 "Tardius" 45 ft towboat, various types of 40 ft Australian Work Boats, crane stores lighters no's CSL 01, CSL 02 and CSL 03, other Navy tugs and work boats and hired commercial tugs and workboats (information courtesy Robert Curran).



Figure 3.11 Interior of workshop showing moveable items.



Figure 3-12 Interior of workshop showing moveable items.

3.6 TRANSPORTATION INFRASTRUCTURE

The extensive Armament Depot transportation system is largely intact. The light rail and road system, wharf and pathways have all been retained north of Holker Street. There have been some changes to the east and west boundaries of the site since 1996 and these have affected

roads round the perimeter. The Louise Sauvage Pathway along the Narrawang Wetland has been reformed, as has the road, which follows the eastern extremity through the wetland. The road along the foreshore has been extended to the east and in parts, into the wetland, as has the road to Building 47 under Holker Street.

The line of the Burma Road, which extended to the southern end of the Depot, is still recognisable as a new road through the suburb of Newington, south of Holker Street. The light rail system is intact. The wharf is also intact.



Figure 3-13 Electromobile on light rail, 2001.

3.7 THE INDUSTRIAL PROCESS

This section was originally written for the SBP Heritage Assessment of RANAD, 1996. That report was written prior to the construction of the Olympic Village (now the suburb of Newington) and the discussion contains information, which relates to buildings that are no longer extant on the site. All of Section 3.7 is taken from their report and reproduced verbatim here.

3.7.1 Function

Newington Armament Depot had two primary functions:

- The receipt, storage and dispatch of stock related to naval weapons systems.
- Ensuring that the stock matches and is maintained at the level of quality established at the time of manufacture.

When the stock or individual components such as used propellant cases was found to be defective, impossible to repair or past its normal service life, the Depot made arrangements for sale of the cases for scrap after examination to certify freedom from explosives. In previous decades much of this stock had been disposed of within the Depot by burning or in uncommon cases by demolition, which would have involved relatively small quantities of explosive material.²

² Demolition is defined as using high explosives to destroy an item (information courtesy Robert Curran).

This practice had since been moved to other locations away from Newington due to environmental concerns.

In general Newington was never used for the manufacture of explosive substances or armaments although some non-explosive components had been made on site. Ammunition was assembled there from components made elsewhere.

Receipt, Storage and Dispatch Of Stock

There were six principal aspects involved in this part of the Newington Depot's role.

A projectile either manufactured by ADI or imported was despatched to Newington. The first duty of the Depot was to ensure that the quality of the item as received equated to that established by the manufacturer. If ammunition was received with intact seals, no transit damage and inspection traceability it would be accepted as serviceable without further inspection. It was then the duty of the Depot to store the item in the manner that ensured the quality was maintained until it was again despatched to the "client".

All items, or a representative sample, were inspected when they were received to ensure that the stock as supplied matched the relevant documentation. This was required by the quality assurance procedures under AS 1199. The material was then transported to the relevant storehouse. There would be periodic surveillance inspections if it was to be stored for lengthy periods. The frequency of the inspection program depended on the anticipated rate of deterioration. This, in turn, was directly related to the conditions under which the material was stored. For example, cordite deteriorates more quickly at higher temperatures.

When the stock was requested by a particular ship the Depot aimed to have enough in storage to avoid going to the workshops because this delayed the despatch rate.

Stock must be delivered in the correct containers and listed according to contents to facilitate handling and stock control. The ship removed the material from its packaging, resulting in a situation called "broken seal". Once a container had been opened it was assumed that someone may have tampered with the contents. Any stock returned to the Depot with broken seals had to be reinspected for this reason.

Some stock passed directly through the Depot en-route for storage elsewhere. The Depot ensured that this stock was properly prepared for land transportation in accordance with current explosives regulations.

The two depots at Kingswood and Newington worked in tandem. Because of licensing restrictions all high explosives (Rated as 1.1) passed through Newington to be stored at Kingswood.

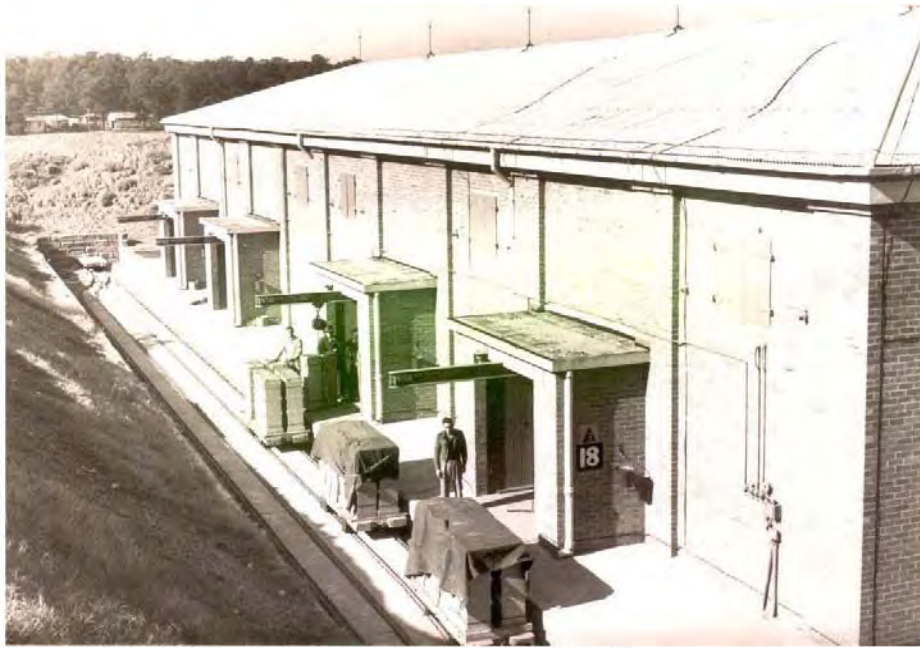


Figure 3-14 Unloading armaments at Building 18, 1950s (Schwager Brooks and Partners 1996).



Figure 3-15 Interior of Building 26, 1950s (Schwager Brooks and Partners 1996).



Figure 3-16 Steel Armco style US Navy Explosives Storehouse now demolished, 1950s (Schwager Brooks and Partners 1996).



Figure 3-17 Interior of Armco Explosives Storehouse, now demolished, 1950s (Schwager Brooks and Partners, 1996).

Maintaining the Quality of the Stock

This aspect of the Depot's work involved inspection, testing, repairs and disposal. The essential work processes at Newington had changed little over time except that quality assurance practices had grown increasingly stringent.

If a projectile had been damaged on a ship or in transit, the Depot had the capacity to make it

safe using remote handling equipment. Damaged stock, for example those that are corroded, was disposed of, usually at another location. This work once took place at various locations within the Depot but environmental pressures required that most was disposed of elsewhere. There were two furnaces, (191 and 192) in the proof area at the eastern extremity of the wharf frontage where low capacity high explosives can be burned. Destructor furnaces were engineered to withstand repeated small explosions when heated by liquid fuel (and later by gas). They contained a mechanism to enable items to be introduced into the chamber remotely so that the operator was protected should the explosion not be contained. There was a metal cube, gas fired, for burning small arms which do not generate a lot of smoke in deference to those living on the opposite river bank. There were also a variety of ventilated steel containers, usually improvised, that were used for the destruction of small arms ammunition by heating over a fire.

There were a number of burning grounds, which often comprised metal lined trenches.

Lachrymatory agents such as tear gas were proofed at Newington until a wind change during proofing on one occasion during the 1960s or 1970s led to a cloud of gas affecting people elsewhere on Homebush Bay led to a ban on tear gas proof on the site.

Stock was checked and tested at the Depot and categorised as serviceable, repairable or unserviceable. Ideally (if rarely) faulty stock would be repaired before it went into storage to avoid double handling.

The Propellant Management Organisation generally did breakdown work in Melbourne for the Navy. It may have been tested at Port Wakefield in South Australia. "Proofing" assured stores managers that the material would do the job for which it had been manufactured. Proof of in-service ammunition was the result of Annual Inspection, later termed Routine Periodic Inspection. An Annual Inspection program would be drawn up each year that showed when each type of ammunition was to be reported and inspected, and storehouse foremen based their stocktaking on this program. Depot Inspection staff would then select representative samples from the Annual Inspection form for examination. This took place in the Depot laboratories and could include a process consisting of unpacking, visual examination for damage, unclear markings and the like, removal of components for internal inspection, gauging or electrical testing and repacking, re-marking and sealing the package. Smaller samples of certain items could be subjected to proof firings. Failure at proof was likely to result in the withdrawal of all stocks of a particular item lot. Little sophisticated equipment for this purpose remained at Newington by 1996, in anticipation of its closure.

Recycling of ammunition containers was also carried out at the Depot. Redundant containers were sold as scrap, especially the brass shell cases. It was a profitable business for the Depot but the cases must be certified to be clear of explosive material prior to their sale. The brass cartridges were pulled apart to remove ferrous components such as firing devices.



Figure 3-18 Cartridge Examination in a Laboratory, 1950s (Schwager Brooks and Partners, 1996).



Figure 3-19 Examination of a Shell Fuse, 1950s (Schwager Brooks and Partners, 1996).



Figure 3.20 One of the Proofing facilities near the river frontage of the site (Schwager Brooks and Partners 1996).

3.7.2 Process

Materials Handling Techniques

Most of the munitions stored and handled at Newington were too heavy to be easily carried by workmen and too dangerous to risk careless handling. These two aspects generated a variety of handling techniques, which changed quite significantly over time, particularly as improvements were made to the mode of transportation.

The initial transportation via light rail determined the early layout of the Depot because of the need to exploit the limited amount of firm, level land. The widespread introduction of trucks in the 1940s made available portions of the Depot, which until then could not be used for the siting of storehouses because they were remote, on higher ground or available for development.

Receipt into Depot

During the early decades of the Depot's operation all stock was brought in by water to the wharf on the Parramatta River. The type of vessels first used for this purpose is unclear, although available evidence suggests dumb lighters, constructed with holds and hatch covers, were in use from around the 1860s and concrete lighters and lighters constructed from other materials were used for most of the twentieth century. Water borne access also emphasised the fact that the majority of naval armament was imported either from the UK, or, until the middle of the twentieth century, manufactured in Melbourne and transported to Sydney by ship. It was only after the armament manufacturing facility at St Mary's was established that some stock was transported by road. However, large quantities of stock were still imported, and transported directly up river from the Port of Sydney.

By the 1990s, most Australian made stock arrived by road and was transferred onto either the rail system or forklift for movement into workshop or storehouse. Material that was transferred by water was done so in special lighters. Apocryphally, they were designed with relatively weak bottoms to send the bulk of any explosive force downwards into the water.

Movement around the Depot

The earliest depot use contained explosives storage in what is now known as Building 20. There was also a gun-cotton magazine, the exact location of which has not been ascertained but which may have been in the location of Building 21. All the workshop and quality control processes were housed in buildings located within a small secure precinct, which was defined by a tall iron picket fence. The latter has now been demolished above the line of its concrete footings. The explosives buildings were close to and approximately on the same level as the wharf. It was from here that the majority of supplies were received and despatched from the Depot. Documentary evidence suggests this was achieved by a light rail system.³

Once the 2-foot gauge, light rail system was introduced heavy stock could be moved longer distances and greater quantities could be transported in the course of a working day. The rail system was soon extended to what is now Building 28 close to what was then the southern boundary of the Depot. Hand-pushed trolleys on light steel rails were taken into the magazine. Here the rails changed to brass strips over timber rails to prevent sparks. One or two of the early trolleys are thought to have survived relatively intact and were stored in Building 20.

Until World War II the design of magazines and explosives storehouses continued to take into account the means by which stock transported by rail was transferred into the building. This was achieved by directly taking the light rail system into the body of the store, or by running the rail close by the main entry or a series of side entrances. The light rail was often laid through narrow cuttings or low tunnels in order to maximise the use of flat contours. In more recent years this has created problems as the low access ways into many of the storehouses created by this system made entry difficult for forklifts.

Lifting and Storage

A long tradition of materials handling, based on these packaging arrangements, developed from the early days of the Depot and persisted well into the later decades of this century. It was known as the "Armstrong" technique, since it relied on human effort, with a mixture of bravado and pride, to lift the heavy items. Changes to packaging and the weight of most items resulted in changes in handling techniques. Stock was then delivered packaged in multiple units, often on pallets, and weighing far more than can be lifted or carried by hand. Electric powered forklifts were then used in most storehouses.

Ammunition and other explosive stock were always stored by explosives classification. Incompatible explosives groups were never stored in the same building.

Gantry cranes are a common feature of both storehouses and workshops. They often extend out of the building and over the adjacent railway or road. Several of the larger 1930s and 1940s storehouses and most of the concrete storehouses at the southern end of the site were also fitted with internal overhead travelling cranes of varying capacity. These moved stock from the rail system or trucks to the required storage location. Modern workshops, established by refitting Buildings 18 and 33, were equipped with sophisticated mechanical arms and other lifting equipment.

Changes in the equipment used to lift and store stock initiated differences and alterations in the design of storage buildings. By the 1930s most of the new brick explosives storehouses were erected with raised floor levels and a loading platform adjacent to the light rail connection. This allowed stock to be lifted directly from trolleys by gantry and shifted into the store. With the

³ *Cumberland Argus and Fruitgrower's Advocate*, 4 September 1897 (information courtesy Robert Curran).

general introduction of trucks during the Second World War, the floor level of many storehouses were set at tray height for ease of transfer, although the US Armco style storehouses, which were also accessed by truck, were designed with floors at roadway level.

There is still a ramp near Building 28, which was used to transfer goods from the rail trolleys to trucks. A nearby crane was used for the same function. From the 1890s cranes have been used at the wharf to assist in the transfer of stock from lighters. By the early 1920s hand power portable balance revolving cranes were in use.⁴ The cranes had been modified or replaced as changes have been made to the quantities, scale and packaging of stock.

In the war years, because of the increased operational levels of the Depot two cranes were mounted on the wharf. The current large crane was moved from Garden Island Dockyard.



Figure 3-21 Rail network on the wharf with trolley (Schwager Brooks and Partners 1996).

⁴ "Commonwealth Department of Works and Railways. Naval Works Branch." *The Argus*, 29 June 1921, p.15.



Figure 3-22 Electromobile and trolleys in cutting, 1950s (Schwager Brooks and Partners 1996).



Figure 3-23 One of the original trolleys showing how it was pushed by hand into the original magazine (20) (Schwager Brooks and partners, 1996).



Figure 3-24 Cranes, lighters and rail transport on the wharf, 1950s (Schwager Brooks and Partners 1996).



Figure 3-25 Modern crane on wharf is a major visual feature on the river (Schwager Brooks and Partners 1996).

Prevention of Sparking

The principal development in industrial technology evident at Newington was the change from the handling of dusty, unstable explosives, such as gunpowder, to pre-packaged and more stable explosives. This fundamental change in the nature of explosives created less need for special protective clothing. However, the avoidance of naked flames, sparks produced by static electricity or induced electrical current, and heating by induced electrical current remained as a critical requirement. For this reason all the explosive workshops, magazines and storehouses have extensive earthing protection in the form of lightning conductors at roof level, copper strips running around the exterior to safely discharge electrical energy to earth in the event of a

lightning strike and earthing connections on all window and door sashes. Some buildings even have earthing connections between individual sections of ferrous ridge capping. Floors were usually laid with non-spark generating material, such as malthoid. In the storehouses, where floor loadings are high, the material is generally laid between a grid of timber battens.

Internally, the Explosives Workshops are fitted with copper strips around the walls of working spaces, copper topped workbenches and special earthing plates located near entry doors for staff to touch when they enter the space. All hand tools were made of non-ferrous metals and benches used for work on electrically initiated or dusty explosives (e.g. gunpowder) are covered in copper sheeting connected to earth. Conductive rubber mats were also used on bench tops.

Operational rules required all staff working in the magazines and explosives workshops to change their footwear at the entrance. This procedure was to minimise the risk of sparking from the contents of pockets, grit or static electricity, in addition to being a general security measure. To distinguish electrical conductivity the toes of approved work boots were painted red or yellow.



Figure 3-26 All external elements of workshops and storehouses are fitted with earthing conductors (Schwager Brooks and Partners 1996).



Figure 3-27 Benches and equipment in workshops are securely earthed (Schwager Brooks and Partners 1996).

Quality Control and Repair

Ensuring the quality of the stock and undertaking minor repairs or related works was carried out in the explosives workshop. The work involved mechanical gauging, measuring, electrical testing and pressure testing of containers. Stock samples were taken apart, inspected and reassembled, gauged and occasionally repainted. The more sophisticated testing of precision-guided weapons systems took place at Kingswood. Newington handled only conventional material.

Traditionally the explosives workshops were very small, capable of accommodating only two or three staff who worked on strictly limited quantities of material. This arrangement limited the potential danger to staff and to the Depot, by restricting the size of a potential explosion.

Individual workshops were arranged in small groups and were separated by protective concrete blast walls or earth traverses. As an added safety precaution, it was common practise to only use every second workshop at one time. Only the required amount of explosive material or item of ammunition was delivered to the particular workshop and the completed work was removed before the next item was delivered to it. This strict set of procedures and demarcation of duties limited the amount of work that could be achieved during a typical working day.

Most of the smaller workshops had been closed by 1996, either because they were within the safety arcs of other operations such as the wharf, or because the safety requirements generated by their own operation were too restrictive on other Depot activities in the vicinity.

The procedures then in use and more stable explosive material had resulted in an extensive change to the workshop operations and internal layout. Two larger buildings, Nos 18 and 33, had been converted for this purpose. The essential process of checking, testing, minor repairs and maintenance continued, but the working arrangements were more cooperative, interchangeable and productive and are carried out by multi-skilled teams.

Administration

The operations of the Depot depended on administrative support. Newington had an Officer in Charge (OIC) who was supported by four section managers; Administration, Warehouse, Production Control and Quality Control. However, administrative arrangements varied over the years and various titles were assigned to management.

In 1897, when it was still under the control of the Royal Navy, the person in charge at Spectacle Island was Gunner in Charge, occupied by a Warrant Officer.

In the early years of RAN control the title was Naval Ordnance Officer, occupied by Lieutenant, and by 1925 the title had changed to Armament Supply Officer, also occupied by a Lieutenant. By 1937 and from then onwards the occupant was a civilian. In 1942 the title of Assistant Armament Supply Officer (AASO) had been added, and an AASO is likely to have been responsible for Newington. By 1949 the Armament Supply Officer had become Superintending Armament Supply Officer (SASO). Deputy Armament Supply Officers (DASO) fell between the SASO and AASO levels.

In the early 1960s the RAN supply organisation was rationalised. SASO remained unaltered, beneath which were the Navy Stores Officer (formerly ASO), Deputy Navy Stores Officer (formerly DASO) and Assistant Navy Stores Officer (formerly AASO). The Navy Stores Officer (NSO) and Newington and Kingswood later became Officer in Charge, RANAD Newington or Kingswood. The SASO became Supply Manager (Armament) circa 1980s. In general terms RANAD organisation involved:

- Inventory management (Stock control);
- Production control;
- Warehousing (Stores);
- Transport;
- Inspection (quality control and assurance);
- Property management;
- Administration.

The Officer in Charge (OIC) ensured that the operations of the Depot were conducted in accordance with current licensing requirements. These were renewed on a periodic basis, about every two years or whenever a significant change takes place. The Depot was inspected by an independent officer to ensure the maintenance of standards and regulations. New licences were issued or corrective actions taken on the basis of those inspections.

The Administration Manager was responsible for maintenance of the facility and its grounds, security, personnel and expenditure, in addition to the normal range of administrative matters.

The Warehouse Manager was responsible for stock control and general services. Modern explosives ordnance can be stored for up to 30 years and sufficient stock was held to maintain a level of readiness for the armed services. Stockholding policy varied considerably over time. In earlier periods the stock may have included "outfits" for ships in commission or reserve, reserve outfits (for war), outfits for equipping defensively manned civilian ships in war time, outfits for equipping armed merchant cruisers in wartime plus a provision for practice usage and wastage.

The outfits were dictated by considerations of the magazine space available on the ship and the expected usage during war.

The Production Control Manager administered the Explosives Workshops and Production and Documentation Control operations. This included the Library and Technical Drawing collection. The documentation required for every movement of stock into or from the Depot was prepared and packaged by this section.

The Quality Control Manager ensured that all the operations of the Depot were conducted in accordance with agreed quality control procedures.

When Spectacle Island was in full operation, Newington was operated as a sub-depot. Initially, Newington was managed from Spectacle Island, where the Armament Supply Officer (ASO) was based. As Newington grew it warranted its own manager on the ground; he was initially known as the Assistant Armament Supply Officer (AASO). In the early 1980s SASO relocated to Newington but the Navy Stores Officer (Newington) remained responsible for Newington; SASO's remit also included depots at Garden Island, Kingswood, Somerton (Victoria) and Byford (Western Australia). Originally both Newington and Spectacle Island were managed as a relatively self-contained operation specialising in Armaments supply. In more recent years, Newington was amalgamated with the overall Naval Logistics operation. Several of the former staff members claimed that, as a result, the sense of identity and pride in specialised work skills was diminished.

Security and Safety

Fences, gate control and Naval Police patrols maintained security of the overall precinct. All buildings were locked and strict control was kept on the issue and handling of keys.

Fire precautions and the general safety and security requirements of an operational defence facility were impressed on all who work or visit the Depot.

Safety was maintained within the licensing standards of Depot operational regulations. Unskilled staff operated under close supervision where necessary. Signage described the explosives classification of the material stored in a particular storehouse and the type of fire fighting measures and protective clothing required in an emergency.

Safety was always an important aspect of the working conditions at Newington. During its long period of service few accidents were recorded. In March 1924 the eight year old son of an employee who lived with his family at Newington died from burns received after the explosion of a supposedly empty powder drum he was dragging.⁵ Two other fatalities are known to have occurred, in an accident in one of the explosives workshops, in 1975.

3.7.3 The Evidence

Water Access

A wharf near the junction of the Parramatta River was one of the first structures constructed for the newly established Depot in the 1890s. While the original wharf has long since been upgraded and expanded, probably on several occasions, there may be some remnants of the original structure below the existing facility.

⁵ "Boy Injured by Powder Explosion", *Sydney Morning Herald*, 20 March 1924, p.10; funeral notice, *Sydney Morning Herald*, 24 March 1924, p.7.

The current timber wharfage extends along a sizable length of the waterfrontage. It contains two cranes and a complex of rail lines sufficient to manoeuvre a large number of trolleys.

There are a number of storage, administration, amenity and security buildings located in the vicinity of the wharf.

Stock was transported by concrete lighters, which were towed down the Harbour by tug.

Road Access

While the main access to the Depot in terms of stock movement has always been by water, the Depot was accessible by road from the earliest period. Until the first half of the 20th century road access was relatively difficult and the Depot staff was conscious of the sense of isolation from nearby Auburn. This sense of isolation was one reason why those living on the base developed a sense of community.

The road network within the Depot expanded in accordance with the available land and the location of the various storehouses and other facilities. The original entry from Jamieson Street remained as the primary land entry point until the Second World War expansion to the south when the "Auburn Gate" was opened. This and the buildings associated with the entry were demolished when the Expressway was constructed.

Access to the vicinity of the Depot from the south was available by 1915 when the adjacent State Abattoir utilised most of the ground not taken up by the military. This road alignment was consolidated in the Second World War, when it became known as the "Burma Road", and linked the Depot to the former Homebush Brickworks, which were taken over for additional storage purposes. This particular area was operated as the Homebush Sub-depot due to its remote distance. It utilised the existing wharves in Homebush Bay.

Prior to the Olympic Games related development, there are two other road layouts in the Depot that are commonly described on the basis of their shape in plan, the "Bullring" and the "Banana". Both relate to the road access provided to the US Navy explosives storehouses during the Second World War. Together with the road that links the concrete block style storehouses across the southern areas of the Depot, these two roadways most clearly illustrated the extensive development of the Depot that became possible once trucks were introduced as the major form of transportation. The "Banana" and most of its associated US Navy underground bunker style storehouses remain.

This change was consolidated in the post war years, particularly as the transportation of stock to and from the Kingswood Depot increased. There were a number of instances throughout the Depot where loading ramps were introduced to facilitate the transfer of stock from road transport to rail for final delivery into those storehouses where the limited access ways of the rail tunnels or cuttings prevent close access by motor vehicle. In general the road network is now closely integrated with the wharf and the larger Depot. This allows the achievement of greater efficiencies as relevant stock can be transferred directly from vessels on the river to trucks where access by rail is no longer required.

The Light Rail System

A light rail system was first introduced to the site in 1909, replacing an earlier system of manually hauling the stock or using horse drawn drays. Comprising a 2-foot gauge and eventually running electric powered locomotives, the light rail system is not the oldest in New South Wales but may well be the largest system, particularly in an industrial/warehouse style installation that is still largely in full running order. Within the Depot it defined the layout of the place with its

requirement to maintain flat or very low gradients and it unifies by linking the diverse sections of the facility. The use of brass strips over timber rails in the magazines, to prevent sparking, is a feature that is rarely found elsewhere. There are two of the original hand-pushed trolleys remaining on the Depot.

The rail system was partly laid on sleepers and partly built into a concrete base with narrow drainage slots for the rails. The reasons for this difference have not been revealed, except that in some sections, timber sleepers and new rails were laid directly over the earlier concrete embedded tracks, when these had deteriorated due to poor drainage along the cuttings.

Light rail systems were a common feature of construction sites, mines and manufacturing plants throughout the late nineteenth and well into the twentieth centuries. The earliest light rail system in NSW is thought to have been in circa 1830, used by the AA Company in the Hunter Valley. The earliest in Sydney was used in 1836 for the construction of Circular Quay.

By the later decades of the nineteenth century there were light rail systems at Eastwood Quarry (1854), Prospect Gravel Quarry (1870), Millers Point Coke Works (1876), Mosman Bay (1878), Emu Plains (1885), AGL Mortlake (1886) and Chowder Bay (1893).

Battery powered locos were first introduced by the Public Works Department in 1922 and by 1925 five were being used for the construction of pressure tunnels of the North Shore Ocean Outfall by the Water Board. In 1946 there were 14 in use in Sydney and over 60 until recently.

Many of the large military manufacturing and warehousing installations were fitted with such rail systems, although most have been removed from their sites. At Spectacle Island, hand trolleys operating on a full gauge railway system remain as an interpretative facility.

It is apparent, from maintenance works carried out to the light rail system in the early months of 2001 that alterations were made from time to time during the operational life of the Depot. This is most notable in that section of the line leading south from the main central junction. In this section the original concrete framed sections of track had deteriorated as a result of poor drainage and slippage from the cutting embankments. Rather than conduct extensive repairs, the Depot managers chose to simply lay an additional set of sleepers and rails over the original line and fill the space with ballast. This form of repair was to have long term consequences as the new rails tended to slip out of alignment and the underlying problems of drainage and earth slippage continued.

Magazine Storage Design Principles

The principal service provided by the Newington Armament Depot was storage. For this reason magazines and explosive storehouses are the most numerous buildings on the site. The individual construction and subsequent addition of several buildings designed for this purpose means that several methods devoted to the storage and handling of explosives during the late nineteenth and first half of the twentieth centuries are demonstrated on this site, a rare physical expression of this evolution in philosophy and practice.

A distinction is made between the terms “Magazine” and “Explosives Storehouse”. “Magazines” were used for the storage of dusty explosives, such as gunpowder, where there was a high risk of accidental explosion from sparking. “Explosives Storehouses” were used to store material that came in a variety of packages, including cordite charges,⁶ flares, torpedoes, aerial bombs

⁶ If designed in the UK these are termed cordite cartridges or charges. American designs are referred to as propelling charges (information courtesy Robert Curran).

and high explosive shells.

The primary design requirement for both magazines and storehouses was to ensure the safety and continuity of the contents. This was achieved by erecting enclosures that were sufficiently secure to withstand several potential threats. The risks included enemy artillery fire in a defensive fortification, theft, lightning strike, vandalism and fire or sparks on an isolated mining or engineering site. Damage could also arise from flying debris on a site where there were a number of magazines in close proximity. Containment of an explosion was not a normal design criteria.

The power of munitions explosions predicated such precautions. It was only after extensive testing of captured German munitions following the First World War that any real progress was made in understanding these processes. From those experiments, additional criteria were identified and these included weather protection and the provision of a relatively stable temperature or moisture conditions to ensure the longevity of the stock in premium condition.

The need for containment and safety measures derived directly from the changing nature of artillery. Explosive shells, for example, were invented in 1784, by Henry Shrapnel. By 1815, William Congreve had developed rockets that could carry both shrapnel and incendiary rounds. The conventional rifle was produced in 1854. Separate cartridges were developed in 1878. The end of the 19th century was marked by the invention of greater numbers of explosive shells, torpedoes and other similar devices.

Much of the theory of magazine design utilised in the British Empire throughout the 19th century was developed by the leading French military engineer, Vauban, in the late 18th century. The principal magazine on Goat Island, built in the 1830s for example, is a direct application of Vauban's principles. So too, was the first magazine (Building 20) built at Newington in the 1890s.

Two of Vauban's primary design criteria for gunpowder magazines in defensive fortifications were a secure location and construction solid enough to resist the fall and bursting of shells. Vauban's ideal magazine was 60ft long by 25ft wide. The stonewalls were to be 8 ft thick, terminating in an arched roof 3 ft thick at the thinnest point, strengthened by four counter-forts or buttresses. The end walls were to be 4 ft thick with a door and window in one end and a window in the other.

The door and windows would be lined with copper. The floor was to be raised on small piers to allow drainage away from the stored powder. Ventilation was effected by a series of small dogleg passages along the sidewalls. A solid section of masonry was left in the centre to prevent the transmission of sparks, fire or shot through the vents.

Barrels were to be stored in tiers usually up to three levels in height. The ideal powder magazine would hold 1050 barrels of powder. For further security, the whole building would ideally be surrounded by a protective wall, located about 12 feet [3.65 metres] from the magazine walls and approximately 10 or 11 feet [3.05 or 3.35 metres] in height. It was more usual to construct magazines smaller than this ideal size so that the required depth of masonry walls could be reduced. To increase storage capacity at a particular installation a series of adjacent or vaulted chambers, of the reduced size, would be erected.

Magazine Design Practice in Sydney

The storage of gunpowder was of major concern to the settlement of Sydney during the early 19th century. Storage of both civilian and military stock was often unsafe in inadequate

warehouses and hulks moored in the Harbour. The construction of the Queens Magazine on Goat Island in 1839 was the first attempt to regularise the situation.

The design of this building was based on the established Vauban model. It varied only in the size, being 100 feet by 25 feet [30.48 metres by 7.62 metres]. The choice of the western slopes of Goat Island afforded protection for the magazine from the flat trajectory of cannon fire should hostile ships enter the Harbour and minimised the potential for damage to the township in the event of an explosion. The magazine was constructed of massive sandstone blocks up to 2 metres thick with a barrel-vaulted roof clad with Bangor slate supported on a timber frame. Ventilation and the entry of sparks were controlled by offsetting the inside and outside outlets of the vents, although not exactly along the Vauban model. The magazine was protected by a large excavated cliff and an encircling wall of heavy sandstone. Fire safety was achieved largely by clearing the island of its vegetation cover. Other facilities such as barracks and meal rooms were located outside the walled section, to reduce the risk of damage from explosion.

The second and later Colonial Magazine built at Goat Island in the 1850s, to a design by the Colonial Architect did not conform to the accepted standards of the Vauban model in aspects of plan and materials. Due probably to cost, speed of construction and Blakett's lack of understanding of the accepted magazine design, later additions to the Colonial Magazine, repeated these variations. In addition the new works were sited close to the Queens Magazine and laboratory, contrary to the traditional practice of isolation.

The second major military magazine complex to be built in Sydney was at Spectacle Island. Its location was chosen for its isolation and, therefore, it posed less risk to the city and its suburban population in the event of an explosion, than Goat Island. Spectacle magazine was constructed in 1865 and was similar to the Colonial Magazine at Goat Island in general form and construction, and did not conform to Vauban's model. It was designed by the Colonial Architect.

Changes were made to the magazine after construction to create a more even temperature for the storage of gunpowder. As well additional wings were built on each side and these were connected internally along the principles established by Vauban.



Figure 3.28 Queens Magazine, Goat Island (1837)
(Schwager Brooks and Partners 1996).



Figure 3.29 Spectacle Island Magazine (1865) (Schwager Brooks and Partners 1996).

Apart from these three principal magazines (as well as lesser ones in place such as Fort Macquarie and Garden Island) and the construction of Newington in the 1890s, Sydney's last principal magazine was built at Bantry Bay, north of the city in an isolated arm of Middle Harbour.

At Bantry Bay the main construction period was between 1909 and 1915 and illustrated a new phase in the design philosophy of gunpowder magazines. The individual magazines were set into cuttings in the steep hillside.

The magazines were constructed of brick with lightweight steel framed roofs supported on external brackets, designed to blow off and direct the blast upwards. The doors are made of steel plate, the windows have external steel plate shutters and a system of double-glazing to reduce heat penetration and the chance of sparks entering the building.

Temperature control was achieved by both passive and active methods. A storage dam, located above the magazines, supplied water via a system of pipes and valves which could run over the roof to reduce the heat load during very hot weather. The large eave overhangs also minimised heat gain to the brick walls.

Apart from their construction details the magazines are smaller than those at Newington, possibly to minimise loss in the event of an explosion. They are connected by a light rail system similar to that in use at Newington.



Figure 3.30 One of the Bantry Bay explosives magazines (1915)
(Schwager Brooks and Partners).

Magazine Construction at Newington

The original magazine at Newington (Building No. 20) dates from 1897 and was designed primarily to accommodate gunpowder stored in barrels. The siting at Newington was consistent with the established principles of isolation. The magazine was located away from the wharf and some distance from the laboratory and workshop buildings. Associated residences, offices and stores were set well away from any risk to damage. Movement of stock was by a light rail system that anecdotal evidence suggests took place by means of horse-drawn trolleys and may have included hand pushed trolleys, later electrified. The magazine was cut into the hillside and designed along Vauban's established principles but utilised brick walls and vaulted ceilings to protect the contents. The roof is clad with slate to reduce combustibility. The storage chambers consist of three barrel vaulted spaces separated by narrow vaulted passages that have small windows to accommodate lanterns for lighting the main chambers, an innovative feature for the time. The magazine was later fitted with a heavy buttressed brick retaining wall and earth traverses to three sides, possibly to afford greater protection to adjacent buildings and facilities.

Three small brick buildings with slate roofs (36, 37 and 38) were erected in the early years of Navy occupancy in the 1920s, probably as gun cotton magazines. They emulate the design and siting concepts used at Bantry Bay but with simpler roof construction. They were placed close to each other, cut into the hillside and all face out over the isolated marshland. Located in a remote part of the Depot they were connected to the wharf by an extension of the light rail system.

These buildings are notable for the small, enclosed entry porch, which provided a place for workers to change into regulation clothing. A similar device was used at Bantry Bay. It was to be a work practice and a design feature that remained consistent for all future magazines and storehouses erected at Newington, with the exception of those erected by and for the US Navy.



Figure 3-31 Pre-war small explosives storehouses round forest (36, 37, 38).

Pre War Explosives Storehouses

Explosives Storehouses were designed specifically to accommodate non-powder explosives. A number of these buildings were erected at Newington in the 1920s and 1930s. They all tended to be larger than the small pre-war magazines and usually responded to the specific needs of particular purchase programmes by the Royal Australian Navy.

Building No. 33 was designed in the late 1920s but was not built until the later 1930s. It was purpose constructed to store aerial bombs used by the seaplane on the newly acquired HMAS ALBATROSS. It is similar to Building No. 39 in design, having a concrete roof, brick walls and roller shutter doors and windows. Building No. 39 is an explosives storehouse, which was built to store depth charges and was later used to store warheads. It is a medium sized storehouse constructed of brickwork with engaged piers. It is roofed by a concrete slab. There is a roller door at the entry and several windows. This is one of the few storehouses constructed in this period without earth traverses. It was made possible by its extreme isolation in relation to other storehouses and magazines.

Building No. 18 is a large storehouse, which has brick walls and a concrete roof. The building is free standing on open country near the river frontage but is completely surrounded by a high earth traverse. It has a number of entry porches down its long side due to its unusual length. Each entry has access to the light rail system.

Buildings Nos. 7, 8 and 21 are similar in design to Building No. 18 although Nos. 7 and 21 are much smaller. All these storehouses are cut partially into the hillside and protected by earth traverses.



Figure 3-32 RAN pre-WWII explosives storehouse (33).



Figure 3-33 Large RAN Explosives Storehouse (18) protected by earth traverse (Schwager Brooks and Partners).

Early World War II Storehouses

The large brick storehouses comprising Building Nos. 42-45 are of brick construction, which provided stable temperature, necessary for the storage of cordite. The lightweight roof structure, truss supported corrugated asbestos cement roof cladding which contrasts with the concrete roof slabs of other storehouses, was designed to fragment in case of an explosion.

These storehouses are located in a group to the south of the forest and are generally cut well into the side of the hill. Earth traversing completes their enclosed perimeters. They were used to store cordite, which required greater temperature control than the shells held in Building Nos.46 –49.

Building Nos.46-49 are large storehouses, which are constructed of timber-framed corrugated asbestos walls and roof cladding. This construction style ensures that the entire building disintegrates in the event of an explosion. This poses a reduced threat to nearby structures from debris, a concept termed “frangible design”. Each is cut into the hillside and encircled by a high earth traverse. The light rail system cuts through the traverse and travels into each storehouse for the entire length of the building, and unusual feature for the storehouses.

The choice of building materials may also reflect restricted defence budgets, although corrugated asbestos was a popular external cladding material for defence facilities before and during the war.

World War II US Navy Explosives Storehouses

The storehouses constructed by the US navy comprise two types: steel ARMCO igloo earth-covered and a modified ARMCO design which was earth-covered, and a third earth-covered concrete arch style. Many were removed from the overall Newington site as part of the Olympics related development.

Building Nos. 52, 53, 54, 60, 61, 77, 78 and 79 comprised the steel ARMCO igloo earth-covered type. These structures were built by the US Navy wartime construction troops, the “Seabees”. Most were located in the sunken roadway system known as the “Banana” and all are earth-covered. Of these structures only Buildings 60, 78 and 79 remain.

The storehouses were relatively small and comprised of prefabricated steel components, which can be easily transported and assembled in remote locations. Steel plated facades were bolted together and storage areas were formed from curved corrugated steel sections, which were also bolted together. While the earth-cover provided some containment of any blast, it was anticipated that any blast would be directed out through the front wall. The long axis of each storehouse was directed away from the other.

Buildings Nos. 62 and 75 (since demolished) were of the earlier ARMCO design, although they were modified after their construction. No. 62 had a concrete façade constructed in 1982, which replaced the original rusted steel plate façade. No. 75 was converted for use as a firing range to test different guns and weapons after refurbishment. The modifications consisted of a brick façade added to the storage chamber with a small brick preparation room connected by a narrow tunnel.

Building Nos. 56, 57, 58, 59, 66, 67, 68, 69, 70, 71, 72 and 74 were both double and single concrete arch earth-covered storehouses. The single type had a long storage room twice the length of the double type, which was joined by the common concrete arched façade, giving a similar storage capacity, but easier access. Buildings 66, 67, 68, 69, 70, 71, 72 and 74 have been demolished.

They were similar in design to the US ARMCO model but were built by Australian civilian construction contractors, although operated by the same US Navy personnel who used the steel ARMCO types. They are generally located within the sunken road system known as the “BULLRING”.

The facades of these earth-covered storehouses were constructed of reinforced concrete vaults. Similar material was used for the facades.



Figure 3-34 US Navy storehouses under earth berms. The buildings (No. 73) have been demolished. (Schwager Brooks and Partners, 1996).

World War II Australian Designed Explosives Storehouses

Concrete box earth-covered (single and double) storehouses were the underground buildings, which were built by Australian construction personnel during the later years of World War II. Some were possibly constructed in the immediate post war years. These buildings illustrated the later design philosophy and technology in the construction of explosives storehouses. The storehouses were generally located on the road that crossed the southern area of the Depot linking it with the “Auburn” gate. Two others were placed on the “Bullring”. All but one of these Storehouses were demolished as part of the Olympics related development.

These storehouses were used to store armaments for both the Royal Navy and the Royal Australian Navy during the later phases of the war. The Australian personnel at the Depot operated them.

Building Nos. 64, 65, 85, 86, 87, 88, 94 and 95 were single storage magazines while Nos. 89, 90, 91 and 93 were double storage magazines. Each section of the double storehouses was identical internally to the single buildings. The two halves were linked by a common façade. Each structure was built with concrete walls, roof and floor. They were earth-covered with a concrete façade. The roof was slightly gabled along the axis of the chamber and extended outwards past the façade to form a cantilevered portico for loading. The main loading doors were constructed of steel plate and accommodate a gantry rail system for handling heavy objects. They have since been demolished.

The majority of the entrances were elevated to provide loading platforms for trucks. Some were set at ground level to allow access for handcarts. A separate entrance door was provided for workers into a small recessed entrance vestibule, which acted as a transition zone. The personnel door was constructed of sheet pressed metal on a timber core. Benches and

cupboards for changing and storing clothes were found in the transition zone.

Windows were placed at high level and were covered with shutters constructed of steel plates. These could be opened to allow daylight and fresh air inside. These buildings were designed to direct the blast out through the windows and doors and away from other structures. These storehouses were all located along curving roads that are set down into the ground line to further contain the force of any blast.

Two other explosive storehouses of frangible design were constructed with timber frames, weatherboard cladding and asbestos cement roofs. These were Building Nos. 97 and 99 (since demolished). They were sited high on the southern ridge of the expanded Depot area and did not have earth traverses encircling them. There were no other significant structures in this area of the site, presumably, therefore, a blast was considered to be sufficiently isolated in an area of less risk.



Figure 3-35 Former single concrete box style underground explosives storehouse (85) now demolished (Schwager Brooks and Partners 1996).

Moveable Items

In addition to the fixed structures and site infrastructure, there is a variety of moveable items or portable relics that supported the operation of the Depot. These can be grouped as follows:

- Items associated with the light rail system, including the two original trolleys, contemporary trolleys, the electro-mobiles, pallets and other forms of containers for transporting stock around the Depot. There is a workshop complex for the electro-mobiles, containing a variety of equipment and tools used to maintain the system;
- Electrically operated forklifts, which were used to transport stock and other equipment within particular buildings or to assist with the loading and unloading of stock onto trucks or rail trolleys;
- All ammunition and explosives material was delivered to the Depot, stored and eventually transported to and from ships in specially designed containers or packages. Some of these containers became surplus and are stored at the Depot until disposed of;

- The concrete lighters and tugs used to transport the stock down the Harbour, to and from the ships, were an integral component of the Depot operation;
- The Laboratories or Explosives Workrooms were fitted with a variety of specialised tools and equipment, related to the processes of testing and repairing stock. This equipment was largely unique to armament depots, because of the dangerous nature of the stock and the handling processes;
- The workshops, garages and sheds contained a wide collection of purpose made equipment related to the general support operations of a large industrial enterprise;
- At any time the Depot stored hundreds, if not thousands, of items of armament;
- There was a complete set of security and fire fighting equipment within the Depot;
- The normal operations of the Depot produced a wide range of documentation and records with regard to licensing, stock control, administration, personnel, receipt and despatch of stock, quality control and maintenance. Some early photographs of the depot are included in this collection;
- There is a collection of mid twentieth century furniture in the administration area.

**APPENDIX F BIODIVERSITY MONITORING SERVICES: NATURAL ENVIRONMENTAL
ASSESSMENT, SEPTEMBER 2011**

NEWINGTON ARMAMENT DEPOT AND NATURE RESERVE, SYDNEY OLYMPIC PARK

CONSERVATION MANAGEMENT PLAN

Natural Environment Assessment

Biodiversity Monitoring Services, September 2011

1. Background

The former Royal Australian Navy Armament Depot (RANAD) at Newington is considered a place of State heritage significance in recognition of its extensive ecological and cultural landscapes. RANAD includes an area known as the Newington Nature Reserve. Newington Nature Reserve is reserved under the NSW National Parks and Wildlife Act 1974 because of its significant ecological values and contains two disparate areas, one of woodland (Wanngal Woodland) and the other of estuarine wetland (Wanngal Wetland). Newington Nature Reserve comprises 48 hectares of remnant and regenerating forest and estuarine wetland communities. These ecological communities extend beyond the Reserve into adjoining land.

A Conservation Master Plan for the then-called Millennium Parklands Heritage Precinct was prepared in 2003. This plan covered the area now called Newington Armament Depot and Newington Nature Reserve. A Conservation Management Plan (CMP) is now required to be produced in 2011. The original plan produced in 2003 focused on the cultural environment, with little information or planning strategies associated with the natural environment. Since 2003 the importance of the natural environment at the Sydney Olympic Park has been recognised and

incorporated into much of the planning and management policies within the Park. In particular, the natural environment within the Newington Armament Depot and Nature Reserve is considered an important aspect of this area and there have been extensive studies undertaken to describe and manage this aspect, with surveys for birds and other terrestrial fauna commencing in 1993.

This report provides information to assist in the development of the CMP for Newington Armament Depot and Nature Reserve and is divided into three sections, all being relevant to the CMP:

- Biodiversity values of the Newington Armament Depot and Nature Reserve,
- Constraints and Opportunities
- Issues

2. Biodiversity Values of the Newington Armament Depot and Nature Reserve

The area provides a unique setting within urban Sydney with representatives of the original natural environment still retained within a purely residential and industrial region. The history of development in and near RANAD allowed for the retention, partly by neglect, of several areas of the original vegetation that would have occurred along the Parramatta River. There are representatives of the littoral vegetation communities of Mangrove Forest and Coastal Saltmarsh that once were part of much of Sydney Harbour and the associated rivers (e.g. Parramatta and Lane Cove Rivers). Slightly inland from Parramatta River are Swamp Oak and Eucalypt Forest that also represent vegetation communities lost from much of the Sydney Basin.

The values of these communities were recognised in the gazettal of the Newington Nature Reserve in 2000. Originally called the Silverwater Nature Reserve, the name was changed in 2001. However, the area now encompassing the Nature Reserve was considered of natural importance far earlier, with the cessation of mowing activities to remove the understorey (fire hazard reduction) in 1981 and understorey plants have been allowed to regenerate since that time. Newington Nature Reserve is unique in that as well as being gazetted as a Nature Reserve under the *National Parks and Wildlife Act 1974* (NPW Act), it is defined as part of the Parklands of Sydney Olympic Park by the *Sydney Olympic Park Authority Act 2001* (SOPA Act). The Parklands are managed by the Sydney Olympic Park Authority (the Authority). Newington Nature Reserve is managed by the Authority under the terms of a Memorandum of Understanding with the NSW National Parks and Wildlife Service (NPWS).

Newington Nature Reserve is in two disparate parts, a woodland of 13 hectares (Wanngal Woodland), and a wetland of 34.7 hectares (Wanngal Wetland), together providing the Newington Nature Reserve of 47.7 hectares. The two parts of the Nature Reserve are separated by a narrow band of grassland that contains scattered trees, a railway line, buildings associated with the former Newington Royal Australian Navy Armament Depot, and a sealed service road. Ownership of this separating land is vested in the Sydney Olympic Park Authority and it is part of the Parklands.

According to the Newington Nature Reserve Plan of Management, the ecological features and physical characteristics of Wanngal Wetland and Wanngal Woodland reveal a number of important values (including

natural, landscape, cultural, knowledge and educational values) associated with an isolated saltwater wetland and native vegetation remnant. Important values in the Plan of Management for the Wanngal Wetland include:

- An intact and diverse estuarine wetland system containing significant areas of remnant saltmarsh and mangroves in excellent condition, that is representative of pre-European vegetation otherwise no longer retained in this locality.
- An important component in the suite of estuarine wetlands remaining within the upper Parramatta River region of the Sydney basin.
- Part of a complete estuarine zonation of Cumberland Plain Woodland, *Allocasuarina*, Saltmarsh, and Mangroves.
- A large stand of *Allocasuarina* in good condition.
- Habitat for 70 species of local and migratory waterbirds and shorebirds, of which 20 are listed in the Japan Australia Migratory Birds Agreement, and nineteen are listed in the China Australia Migratory Birds Agreement.
- Habitat for Sydney's largest population of the Vulnerable White-fronted Chat (*Epthianura albifrons*), and for populations of several bat species.
- Natural and planted areas of the saltmarsh plant *Wilsonia backhousei*, listed as vulnerable under the NSW *Threatened Species Conservation Act (1995)*.
- Two locally significant saltmarsh species - *Lampranthus tegens* and *Halosarcia*
- *pergranulata*.
- An opportunity for scientific research, monitoring and educational programs about wetlands flora and fauna, and management of saltwater wetlands.

The important values listed for the Wanngal Woodland include:

- A reserved area of Sydney Turpentine Ironbark Forest, which is listed as an Endangered Ecological Community under the NSW *Threatened Species Conservation Act 1995* and is listed as vulnerable nationally under the provisions of the Federal *Environment Protection and Biodiversity Conservation Act (1999)*.
- Mature woodland habitat for a large number of flora and fauna species.

- A high density of hollow-bearing trees, not found elsewhere in the region.
- A “base” for fauna that rely upon the woodland for shelter and breeding, but utilise habitats in surrounding Parklands and suburban areas for feeding and movement.
- A stepping stone for native species, particularly birds and bats, moving between remnants within Sydney.
- An important local and regional stronghold for woodland bird and bat species.

The key habitats within Newington Armament Depot and Nature Reserve are shown in Figure 1. Each of these habitats require individual management and influence overall management of the entire area.

Newington Nature Reserve is contained within and forms an integral part of Newington Armament Depot and the land outside the Nature Reserve (called Newington Armory) fulfils a role in maintaining and enhancing the natural features conserved within the Nature Reserve. The location of Newington Nature Reserve in the context of the Armament Depot is shown in Figure 2. Figure 2 also shows other areas of importance within the Depot’s surrounds. Each part of the Depot has different priorities and these influence the overall planning and management

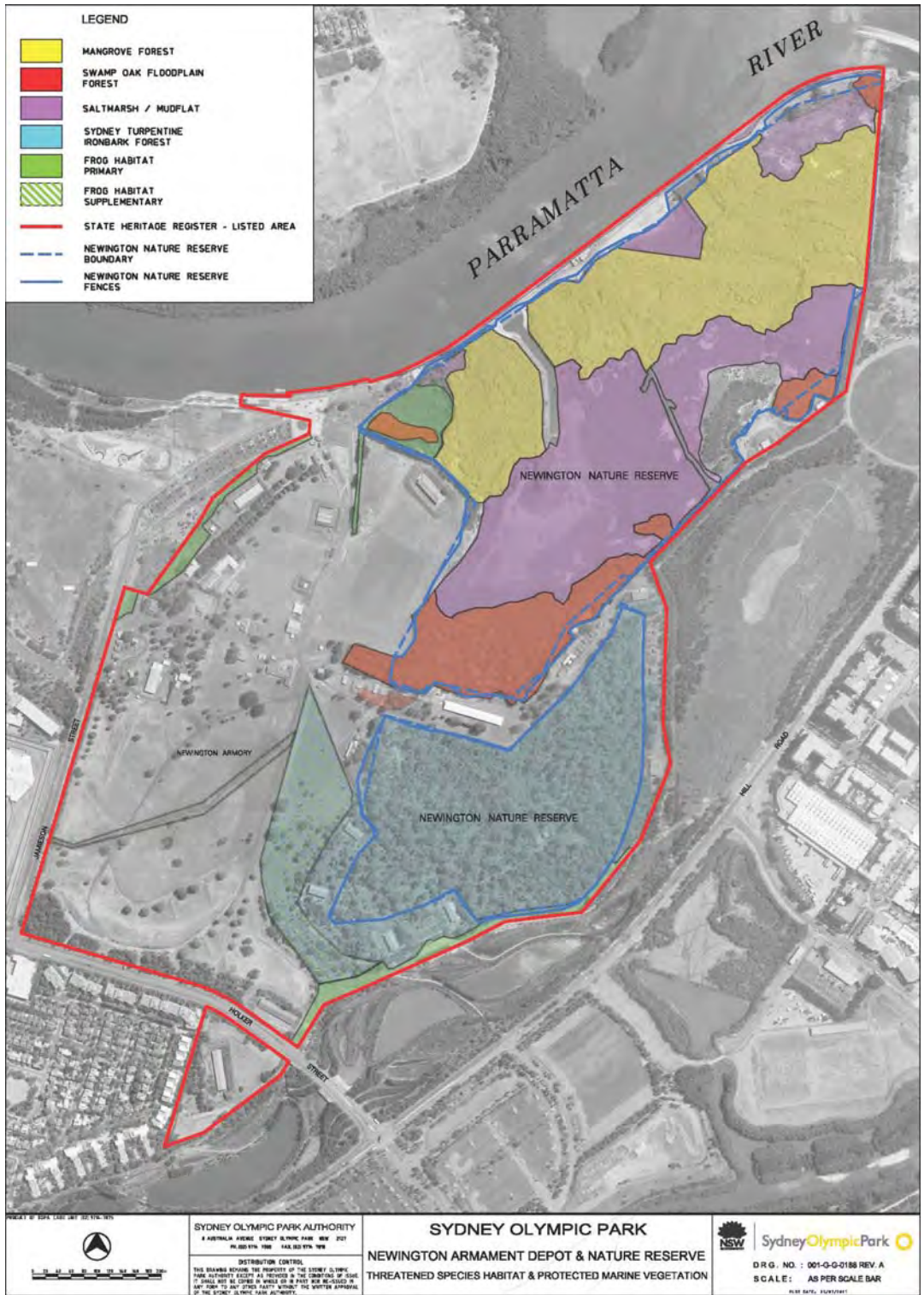


Figure 1: Key Habitats within Newington Armament Depot and Nature Reserve

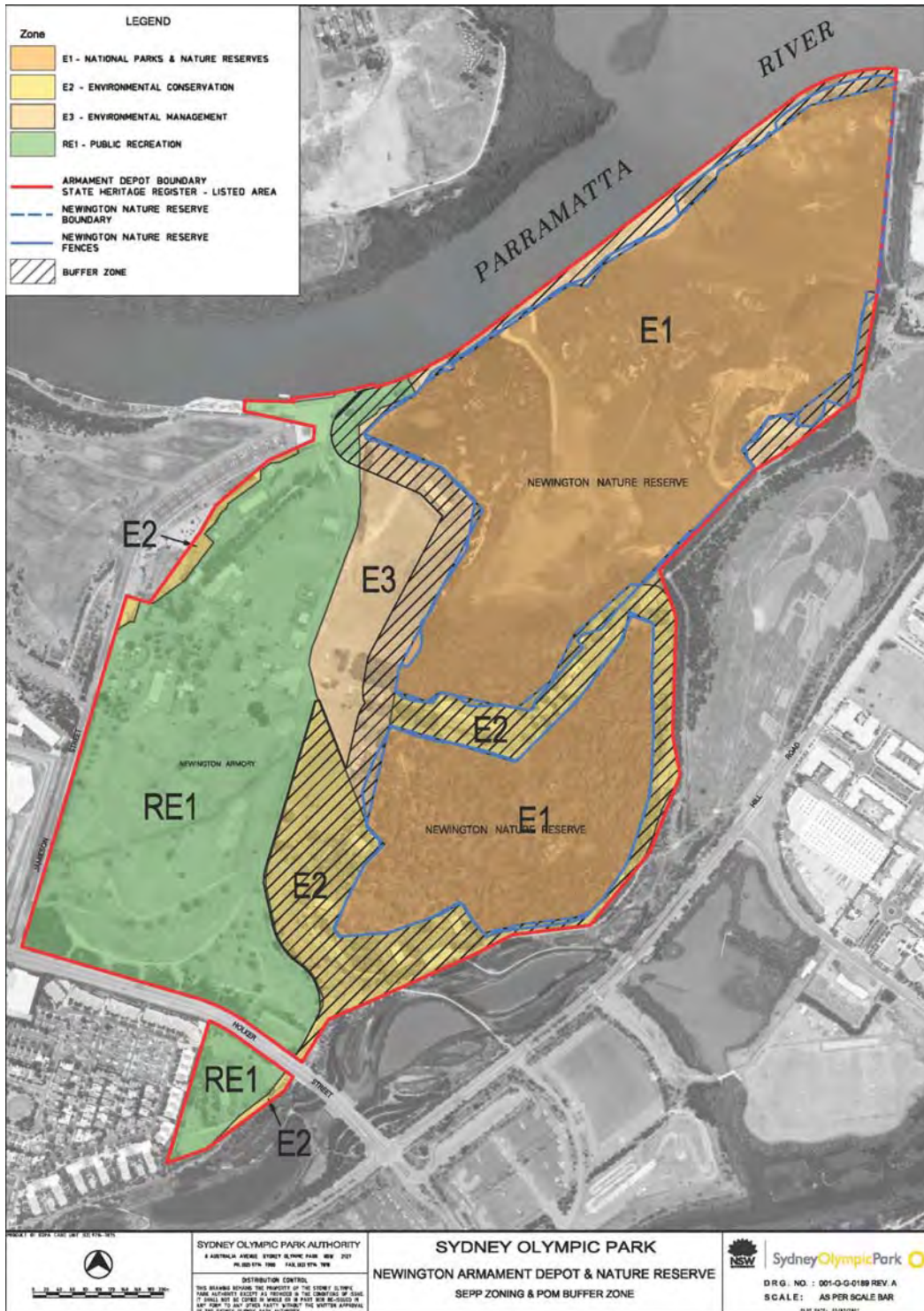


Figure 2: Main Zones within Newington Armament Depot and Nature Reserve

According to the Biodiversity Management Plan for Sydney Olympic Park (SOPA 2008), Newington Armory:

1. Has the potential to cause adverse cross-boundary impacts or to provide complementary protection for the adjacent wetland and forest of Newington Nature Reserve. The importance of this opportunity for protection is recognised in the *Sydney Olympic Park Authority Act*, which requires that the areas adjacent to Newington Nature Reserve must be managed to act as a buffer zone for the Reserve, that the *lands* adjoining the Reserve must be managed in sympathy with the Reserve in order to assist the making of future additions of land to the Reserve, and the Authority must ensure the achievement of the purposes for which the nature reserve is deemed to be dedicated under section 49 (3) of the *National Parks and Wildlife Act 1974*.
2. Parts are classified as an 'environmental conservation area' under State Regional Environmental Planning Policy 24 and this Plan provides a buffer to Newington Nature Reserve, mitigating against edge effects and disturbance impacts. The ecological value of the area is, in part, due to the low level of human disturbance over a prolonged period of time. Many birds use the wetlands as a refuge because of the heavy human impact on other parts of the Parramatta River, particularly at weekends.
3. Contains extensions of the endangered ecological communities of Newington Nature Reserve (Sydney Turpentine Ironbark Forest, Swamp Oak Floodplain Forest, Coastal Saltmarsh). These extensions increase the effective size of the habitats of the Reserve and thereby increase the area of core habitat available. The Buffer zone provides space for these communities to expand, thereby improving their long-term viability.
4. Contains *Wilsonia backhousei* and *Lampranthus tegens*
5. Connects the Parramatta River and the wetland of the Reserve, and the wetland and the forest of the Reserve. Provides continuity in the zonal succession from the river through mangroves, saltmarsh and casuarinas to eucalypt forest, and provide a wildlife movement corridor between the two parts of the Newington Nature Reserve. Provides a corridor for birds moving between the two areas and to other habitats along the river.
6. Contains microbat maternity roosts in Building 42 (White-striped Freetail Bat and Little Free-tailed Bat); microbat roosts in buildings

B134, B43, B44, B38, B37 and B36; potential for many other buildings to be used as roosts

7. Contains Green and Golden Bell Frog supplementary habitat (long grassland and swales); habitat connectivity between Narawang Wetland, Wharf Pond, and Blaxland Common
8. Contains intertidal flora and fauna along the seawall, including mangroves, saltmarsh, shellfish and crustaceans. Bird roosting and feeding habitat, including migratory shorebirds
9. Supports ground-nesting birds on mown grassland, e.g. Richards Pipit, Black-fronted Dotterel, Masked Lapwing

In addition, Newington Armory supports an Endangered Population of the Vulnerable White-fronted Chat *Epthianura albifrons* (listed under NSW *Threatened Species Conservation Act 1995*).

In summary, Newington Armament Depot and Nature Reserve supports the following vegetation communities, plants and animals that are considered either within NSW and/or nationally as sufficiently important to be listed under various conservation Acts. These are listed in Table 1.

Table 1: Communities, plants and animals of Conservation Importance Known to Occur within Newington Armament Depot and Nature Reserve

Community or Species	NSW TSC Act	EPBC Act
Vegetation Community		
Sydney Turpentine Ironbark Forest	Endangered Ecological Community	Endangered Ecological Community
Coastal Saltmarsh of the Sydney Basin Bioregion	Endangered Ecological Community	-
Swamp Oak Floodplain Forest	Endangered Ecological Community	-

Threatened Species		
<i>Wilsonia backhousei</i>	Vulnerable	-
Green and Golden Bell Frog <i>Litoria aurea</i>	Endangered	Vulnerable
White-fronted Chat <i>Epthianura albifrons</i>	Vulnerable and Endangered Population	-
Little Bent-winged Bat <i>Miniopterus australis</i>	Vulnerable	-
Community or Species	NSW TSC Act	EPBC Act
Eastern Bent-winged Bat <i>Miniopterus orianae oceanensis</i>	Vulnerable	-
Grey-headed Flying-fox <i>Pteropus poliocephalus</i>	Vulnerable	Vulnerable
Australasian Bittern <i>Botaurus poiciloptilus</i>	Vulnerable	-
Black-tailed Godwit <i>Limosa limosa</i>	Vulnerable	-
Protected Species under NSW Fisheries Management Act		
Grey Mangrove <i>Avicennia marina</i>	Protected	na
River Mangrove <i>Aegiceras corniculatum</i>	Protected	na

Migratory Bird Species listed either under the Japan Australia Migratory Birds Agreement (JAMBA), China Australia Migratory Birds Agreement (JAMBA) and the Republic of Korea Australia Migratory Birds Agreement (ROKAMBA)

	JAMBA	CAMBA	ROKAMBA
Ruddy Turnstone - <i>Arenaria interpres</i>	Yes	Yes	Yes
Eastern Curlew - <i>Numenius madagascariensis</i>	Yes	Yes	Yes
Whimbrel - <i>Numenius phaeopus</i>	Yes	Yes	Yes
Grey-tailed Tattler - <i>Heteroscelus brevipes</i>	Yes	Yes	Yes
Common Greenshank - <i>Tringa nebularia</i>	Yes	Yes	Yes
Marsh Sandpiper - <i>Tringa stagnatilis</i>	Yes	Yes	Yes
Latham's Snipe - <i>Gallinago hardwickii</i>	Yes	Yes	Yes
Bar-tailed Godwit - <i>Limosa lapponica</i>	Yes	Yes	Yes
Black-tailed Godwit - <i>Limosa limosa</i>	Yes	Yes	Yes
	JAMBA	CAMBA	ROKAMBA
Red Knot - <i>Calidris canutus</i>	Yes	Yes	Yes
Sharp-tailed Sandpiper - <i>Calidris acuminata</i>	Yes	Yes	Yes
Pectoral Sandpiper - <i>Calidris melanotos</i>	Yes	Yes	Yes
Red-necked Stint - <i>Calidris ruficollis</i>	Yes	Yes	Yes
Curlew Sandpiper - <i>Calidris ferruginea</i>	Yes	Yes	Yes
Ruff - <i>Philomachus pugnax</i>	Yes	Yes	Yes
Pacific Golden Plover - <i>Pluvialis fulva</i>	Yes	Yes	Yes
Common Sandpiper - <i>Actitis hypoleucos</i>	Yes	Yes	Yes

3. Constraints and Opportunities

The presence of a number of Endangered Ecological Communities, threatened species, migratory species and protected species (see Table 1) places obligations upon the management of Newington Armament Depot and Nature Reserve. Various Acts dictate how such biota can be managed, with the basic aim being their conservation. The major Acts are the *National Parks and Wildlife Act*, *NSW Threatened Species Conservation Act* and the *Environment Protection and Biodiversity Conservation Act*. There are a number of other Acts and Regulations that are relevant to the management of biodiversity within Newington and these are described elsewhere. A list of relevant acts, regulations and guidelines are provided in Appendix 1.

Basically, the management guidelines for biodiversity conservation at the Sydney Olympic Park can be summarized from the 2010 Plan of Management that gives the following under 3.24. Parkland Management Principles and Guidelines:

Guidelines for Biodiversity Management Principles

- New developments, modification of ecosystems, changes in use or changes in Parkland work practices, should undergo an ecological impact assessment.
- Management actions should be consistent with the objectives of the SOPA Biodiversity Management Plan and the associated Licence issued under the *National Parks and Wildlife Act 1974*.
- Short and long term biodiversity and ecosystem impacts that may be direct, indirect or cumulative should always be taken into account.
- There should be full compliance with relevant objectives and legal requirements relating to any species and/or ecological communities operational management plans.
- To the extent that it is reasonable to do so at the time, the

precautionary principle should be applied when making major decisions that might impact on biodiversity.

An example of a constraint that could be applicable to future planning at Newington is that associated with the Threatened White-fronted Chat. This small insectivorous bird occurs in saltmarsh and other areas of low vegetation and forages in small flocks on ground insects. There only a small number still extant at Sydney Olympic Park and these are found within Newington Armament Depot where they are known to utilize areas of saltmarsh and forage on mowed and un-mowed grasslands. One area where they frequently occur is the 'Parade Ground', within the Buffer Zone. Consequently, any planned use of this area will need to be managed sensitively to ensure the population of White-fronted Chat is not significantly impacted. This is possible, but it will probably require further study and an Assessment of Significance under the NSW TSC Act.

Figure 2 shows the various zonings within the area based upon environmental considerations. Zone E1 covers the Nature Reserve and there is little opportunity for any public use of this zone. However, it is possible to undertake several activities within a nature reserve, including on-going maintenance and use for research and educational purposes. Such activities already occur within Newington Nature Reserve and there is an opportunity to expand on its educational role. The rail track through the Wanngal Woodland part of the reserve is an ideal path for small groups to experience the present state of the remnant bushland and to find out about its history. Care will be required to ensure control of weeds, pests and diseases and that the public has restricted access to the Reserve.

Within the Wanngal Wetland there are opportunities to allow limited access by the public, again for educational purposes. A board walk could be established at the edges of the wetland as could some form of raised platform to be used to view the wetland. Both structures could be associated with access to information about the wetland, migratory birds, history etc.

Zone E2 is that land considered for Environmental Conservation and incorporates the Buffer Zone. According to the SOPA Biodiversity Management Plan, the Buffer Zone is assigned the following Local Objectives¹:

- To maintain and enhance the Buffer as an ecological transition area between the adjacent nature reserve areas and other cultural land within Newington Armory and adjacent areas of the Parklands.
- To protect and enhance the ecological functions associated with the Buffer's role as an ecological transition and habitat area.
- To provide an ecological corridor and habitat linkage between the saltwater wetlands and woodlands precincts within the Newington Nature Reserve.
- To provide for the preservation, enhancement and operation of the electric train railway system.
- To conserve the fabric and functionality of historic buildings and structures.
- To facilitate future additions to the Newington Nature Reserve.
- To retain the function of the Louise Sauvage Pathway and Foreshore Walk as a cycling and pedestrian linkage within the Parklands.
- To facilitate educational, recreational and social pastimes and activities that are consistent with other objectives for the Zone.

¹ The SOPA Act requires that " *The Authority must ensure that the plan of management includes, after consultation with the Director-General of National Parks and Wildlife, a proposal that land adjoining the Newington Nature Reserve is to be managed as a buffer to that reserve* ", and " *In order to assist the making of future additions of land to the Newington Nature Reserve, the Authority must manage the lands adjoining the Reserve in sympathy with the Reserve* " .

There is an extensive Action Plan for the Buffer Zone which divides the Buffer into six management areas. These areas are: Parade Zone; Regenerative Zone; Woodland-Wetland Corridor; Perimeter Zone; Louise Savage Zone and River Walk Zone. There are listed actions for all areas that are aimed at the overall protection of cultural, built and ecological assets. In addition, there are opportunities for public use within all of the areas. There are Vegetation Management Plans 2010 for Wanngal Woodland and Wanngal Wetland plus the Buffer that provide actions for both areas. An example of the Vegetation Management Plan for Wanngal Woodland plus Buffer is given as Figure 4.

Selective vegetation plantings have been set out for Zones E1 and E2 and these are shown in Figure 3. However some plantings within the Buffer Zone (e.g. Regeneration Zone) may be passive i.e. by natural regeneration. The plantings at the Parade Zone are intended to be low vegetation to allow for flight access to and from the wetland by migratory birds. Vegetation and landscape changes within the remainder of the Parade Zone would need to take into consideration both ecological and cultural heritage objectives. The remainder of the Parade Zone is classed as E3, Environmental Management.

Zone RE1 has been set aside for Public Recreation and there are opportunities for increased public use in this area. There is a small area E2 Environment Conservation that is classed as Supplementary Green and Golden Bell Frog habitat. This area would require management for conservation with minimal public usage.

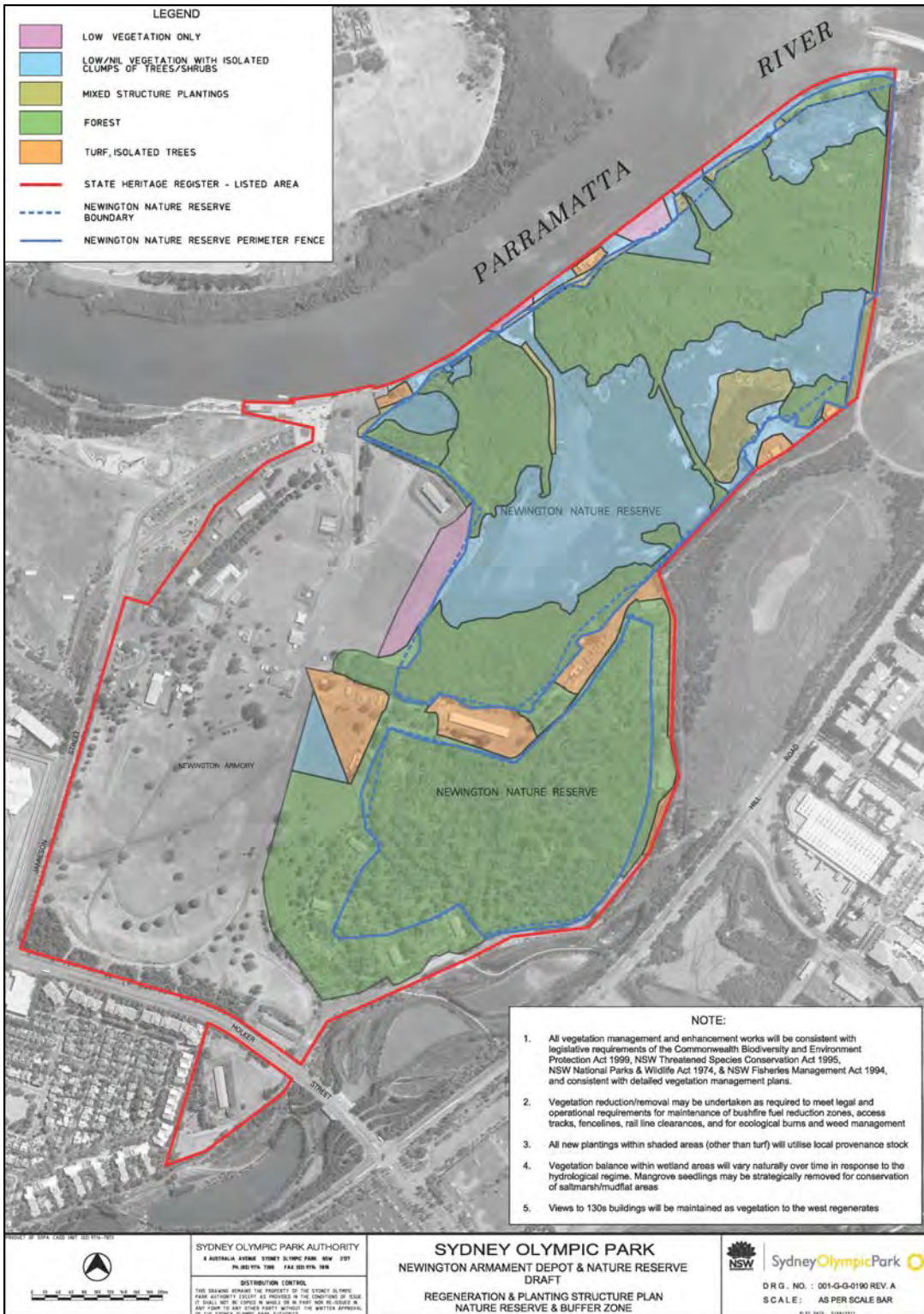


Figure 3: Proposed Plantings within Newington Armament Depot and Nature Reserve

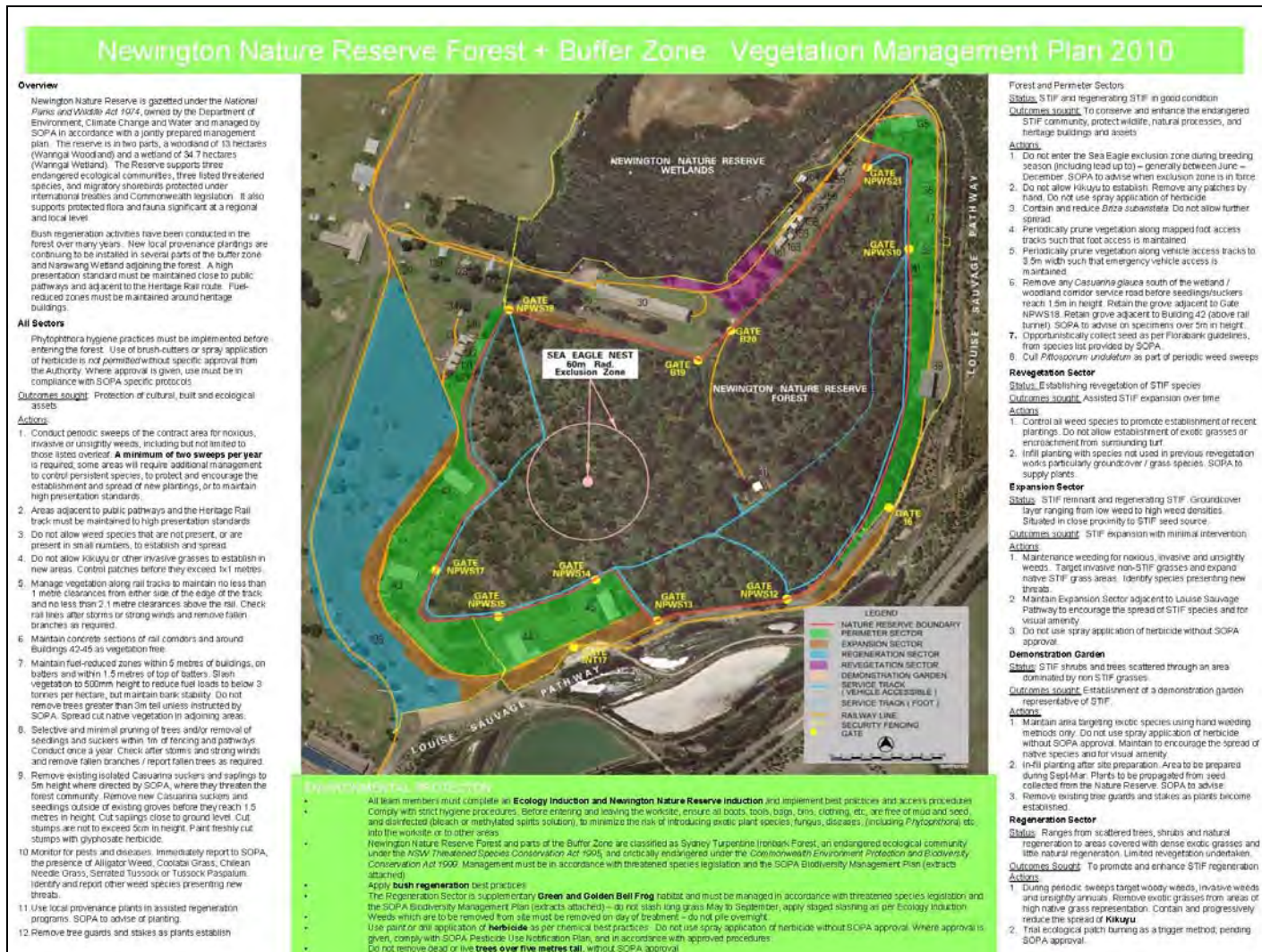


Figure 4: Vegetation Management Plan for Wanngal Woodland and Buffer

4. Issues

Several issues have been raised concerning future use of Newington Armament Depot and Nature Reserve. These issues mainly arise from conflicts between biodiversity conservation and heritage conservation aims and future public use. There are two main areas where issues arise and these are discussed below. Most of these issues can be resolved readily by application of legal constraints (see Appendix 1) and by satisfying a three-fold aim i.e. biodiversity conservation, cultural and built heritage conservation and public use.

a. Public access. With increased use of Newington there will be a greater intensity of visitation resulting in increased infrastructure (e.g. paths, lookouts, seats) to cater for larger numbers. There will also be more pressure for guided and unguided walks particularly in:

- Newington Nature Reserve

The increased use of Newington Nature Reserve for educational purposes is discussed in Section 3, and there is an opportunity for viewing of both the woodland and wetland under controlled visitation.

- Woodland-wetland corridor

There is the potential for an increased use of the Woodland-Wetland Corridor in order to link the main Olympic Park to Newington. The Woodland-Wetland Corridor forms a break between Wanngal Wetland and Wanngal Woodland and there are concerns that increased use of this zone by the public may inhibit movement by fauna between the two areas. At present, the tree canopy forms an almost continual layer between the two areas allowing the passage of birds. However, the sealed road would inhibit ground fauna from moving between the two areas. There are opportunities in the design of the corridor road and its

use to encourage greater movement. By creating short lengths of the roadway that are narrower than that at present and allowing low vegetation to grow close to the road at these 'pinched' sections then ground animals may cross the now smaller open space between the woodland and wetland. Also, restricting movement by the public along the road to daylight hours will also encourage movement by those animals that are active at night.

- Regenerative Zone

The Regenerative Zone has been set aside to allow for the increased growth of the woodland habitat within the previously maintained mowed grassland beside Wanngal Woodland. Increased use of this zone by the public may result in more infrastructure and the loss of newly regenerated woodland. A sensitive approach to the future planned use of this Zone is possible, with a balance between low key use by public and the continual regeneration of woodland habitat.

- River Walk

The River Walk provides an important link through the Armament Depot but there are concerns about its use at night. Night access will require lighting that may affect the behaviour and activity of fauna, particularly migratory birds. If lighting becomes an issue at Newington, then it may necessary to undertake further study of the affect from lighting upon bird and other animal behaviour. Lighting is also an issue within the Buffer Zone as well as lightspill from the general area. Resolution may require a greater of information that is available at present and it is possible that Birds Australia may be of assistance.

b. Use of the Buffer Zone and Armament Buildings

There are several buildings within the Armament Depot and Nature Reserve that, if used by the public, could impact upon the surrounding environment. Concerns about access at night, lightspill, unsupervised access and disturbance could affect the conservation values of Newington. Buildings that may require sensitive management include:

- Buildings B16 & B31
- Buildings B33 & 34
- Bat roost buildings
- River Walk buildings
- Mosquito Gully buildings B42-B45
- Woodland-wetland corridor buildings

Other issues involving buildings and the Buffer Zone include:

- The management of Sydney Turpentine Ironbark Forest around buffer zone buildings,
- Public use/habitat enhancement/visitor facilities within the buffer zone and rest of area, and
- The revegetation of the 'regeneration sector' – maintaining views to 130s buildings

Possibly one of the major issues that will require future planning are changes to the landscape due to **climate change**. The predicted rise in the levels of Parramatta River will impact upon Wanngal Wetland as well as access along the River Walk and the land adjoining the River. Planning for such changes will be incorporated into the present CMP and any other future planning documents.

APPENDIX 1: ACTS, REGULATIONS AND GUIDELINES ASSOCIATED WITH BIODIVERSITY CONSERVATION

LEGISLATIVE COMPLIANCE

- *NSW Sydney Olympic Park Authority Act 2001*
- *NSW Environmental Planning and Assessment Act 1979*
- *NSW Threatened Species Conservation Act 1995 (and Amendments)*
- *NSW National Parks and Wildlife Act 1974*
- *NSW Fisheries Management Act 1994*
- *NSW Noxious Weeds Act 1993*
- *NSW Exhibited Animals Protection Act*
- *NSW Prevention of Cruelty to Animals Act 1979*
- *NSW Heritage Act 1977*
- *NSW Contaminated Lands Management Act 1997*
- *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*

STATUTORY AND OTHER COMPLIANCES

- State Environmental Planning Policy (Major Development) 2005 (Schedule 3, Part 23)
- Plan of Management for the Parklands at Sydney Olympic Park
- Management Plan for Buffer Zone to Newington Nature Reserve, SOP (non-statutory)
- Newington Nature Reserve Forest + Buffer Zone: Vegetation Management Plan 2010 (non-statutory)
- Newington Nature Reserve Wetland + Buffer Zone: Vegetation Management Plan 2010 (non-statutory)
- Licence conditions for mangrove management
- Development consent conditions (e.g. WRAMS, Sydney Olympic Park Master Plan)
- Draft Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2004
- Draft Development Control Plan for Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2004 Sydney Harbour Foreshores and Waterways Area
- State Environmental Planning Policy No. 19 – Bushland in Urban Areas
- State Environmental Planning Policy N0.55 – Remediation of Land
- SOPA Environment Guidelines 2008
- Migratory Bird Agreements

- Environment Protection Licence relating to discharges from the WRAMS Operation
- Declared Prohibited Weeds – State, Regional, Local (18)
- National Strategy for Ecologically Sustainable Development
- Local Agenda 21 Program
- SOPA Green and Golden Bell Frog Management Plan
- SOPA *Wilsonia backhousei* Draft 2003 Management Plan
- Plan of Management for Newington Nature Reserve

ISSUES FROM SYDNEY OLYMPIC PARK 2010 POM

PART 2 PUBLIC ACCESS & LAND USE REGIME - Objectives for Conservation Areas

- provide conservation areas that present high standards of wildlife habitat, fauna and flora refuge and discrete visitor interaction;
- encourage appropriate 'low impact' public use of and access to minimise significant disturbance while maximize the *nature experience* for visitors;
- not exceed optimal use levels which reflect a balance between the impact on species and habitat, the physical limitations on access, the resilience of wetland areas, and the sustainability of particular activities

2.15 Approved Public Uses for Conservation Areas

- TABLE 3 - Schedule of Public Use Controls for Conservation Areas.

3.23. Schedule of SOPA Activity Controls

- TABLE 5 - Schedule of SOPA Activity Controls for all Categories of Land.

3.24. Parkland Management Principles and Guidelines

- Visitation Management Principle
- Land Occupation Management Principle
- Access Management Principle
- Safety and Security Management Principle
- Landscape Management Principle
- Water & Energy Management Principle
- Biodiversity Management Principle
- Buildings & Infrastructure Management Principle
- Lighting Management Principle
- Fire Management Principle

ISSUES FROM BIODIVERSITY MANAGEMENT PLAN

1. Conservation Priorities – Species and Communities

- Sydney Turpentine Ironbark Forest
- Green and Golden Bell Frog
- Coastal Saltmarsh and *Wilsonia backhousei*
- Mangrove Forest
- Swamp Oak Floodplain Forest
- Latham's Snipe
- White-fronted Chat
- Migratory Shorebirds
- Bush Birds
- Microchiropteran bats

2. Local Threats and Issues

- Edge Effects, fragmentation and low structural diversity
- Disturbance
- Artificial lighting
- Noise
- Noxious and invasive weeds
- Water quality
- Pest fauna
- Chytrid fungus
- Phytophthora
- Wildfire
- No release of native fauna

3. Conservation Priorities – Precincts MP3, MP16 and MP17

**APPENDIX G AUSTRALIAN MUSEUM BUSINESS SERVICES: ABORIGINAL HERITAGE
ASSESSMENT, AUGUST 2011**



Newington Armament Depot & Nature Reserve, Sydney Olympic Park Conservation Management Plan: Aboriginal Heritage Assessment

Prepared by Australian Museum Business Services
for Tanner Architects Pty Ltd

Final Report

January 2012

110466



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Recipient:	Roy Lumby, Heritage Consultant, Tanner Architects Pty Ltd
Approved by:	Jennie Lindbergh, AMBS Senior Project Manager

Executive Summary

Australian Museum Business Services (AMBS) has been commissioned by Tanner Architects Pty Ltd to prepare an Aboriginal heritage assessment for the Newington Armament Depot and Nature Reserve. The findings are to be incorporated into a new Conservation Management Plan (CMP) for the site, currently being prepared by Tanner Architects.

The majority of registered AHIMS sites in the region of the study area are stone artefact sites and middens, which occur along Sydney Harbour. There are five registered AHIMS sites within the study area, which have been assessed as being of low significance, and no new Aboriginal sites or areas of Aboriginal heritage sensitivity were identified during the survey. This confirms the predictive model, and was expected given the early development of the area of the Armory.

Given the extent of disturbance to the original land surface within the study area, it is considered that only the woodland area of the Newington Nature Reserve has any archaeological potential for Aboriginal heritage deposits. Three isolated finds and two PADs have previously been identified in this area. No Aboriginal cultural issues or sensitivities were identified for the study area by Mr James Smith of the Metropolitan Local Aboriginal Land Council (MLALC).

It is understood that the woodland area is to be preserved undisturbed under the Conservation Management Plan. This is the preferred Aboriginal heritage option, as this will preserve the registered Aboriginal sites and any Aboriginal heritage deposits that may remain beneath the ground surface. Should any future works be proposed for the woodland area, such as landscaping, or construction of footpaths, light rail tracks or structures, an Aboriginal heritage impact assessment should be undertaken in consultation with the local Aboriginal community.

Future interpretation of the Aboriginal heritage of the study area should be a consideration for future management. The most appropriate place for such interpretive signage may be in the vicinity of the woodland area, as this is where Aboriginal sites have been previously identified. However, any such interpretation should be undertaken in consultation with the local Aboriginal community. The *Aboriginal History & Connections Program* report prepared for SOPA by Paul Irish in 2005 may be of use in determining which people to speak with, and information that could be included in the interpretation.

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1 Introduction

1.1 Preamble

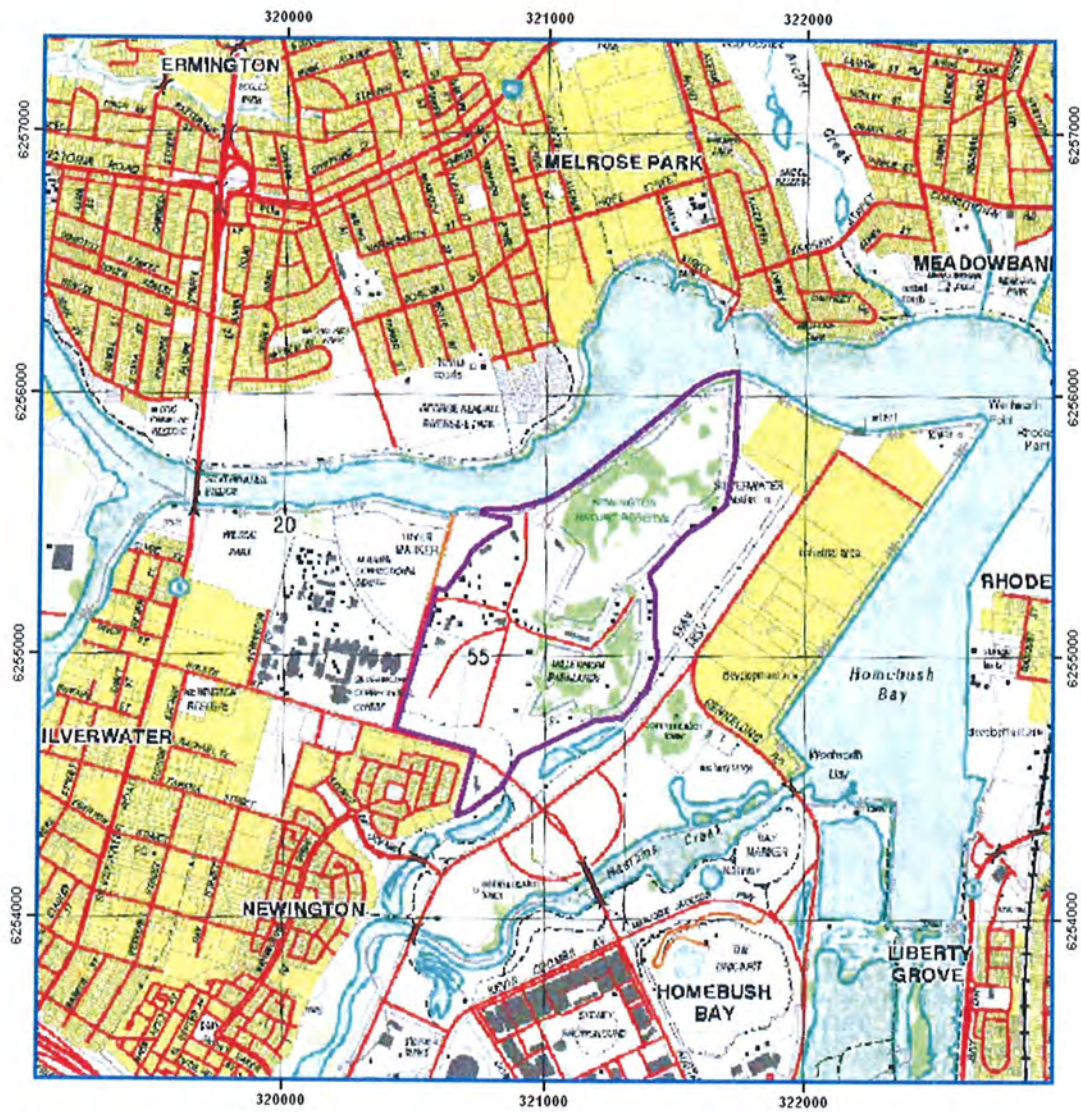
Australian Museum Business Services (AMBS) has been commissioned by Tanner Architects Pty Ltd to prepare an Aboriginal heritage assessment for the Newington Armament Depot and Nature Reserve. The findings are to be incorporated into a new Conservation Management Plan (CMP) for the site, currently being prepared by Tanner Architects.

In 2007, the Sydney Olympic Park Authority (SOPA) opened Sydney's newest regional park precinct, the Blaxland Riverside Park Stage 1. This area adjoins the Newington Armory and heralds a new era for the activation of this part of the Parklands. SOPA continues to activate the precinct by developing art, cultural and recreation programs and also adaptive reuse of heritage buildings for uses such as the Lodge, Art Gallery, Armory Theatre, Education Centre, Armory Wharf café, Artist Studios, Scouts Museum and the Birds Australia Discovery Centre. The precinct is slowly establishing its identity and there are currently over 190,000 visits per annum. When the Blaxland Riverside Park play precinct car park and public amenities is completed, this visitation is expected to increase to over 500,000 visits per annum and over 5,000 daily visits on a peak weekend.

As such, the CMP is to provide SOPA with a practical working document that outlines a strategic framework of policies and prioritised strategies and principles that will provide for conservation of the significant environmental and heritage values of the precinct and guide future compatible contemporary uses, adaptive reuse of the heritage buildings, and maintenance management of the site's unique built, infrastructure and landscape assets for the next five years.

1.2 Study Area


The Newington Armament Depot, including the Newington Nature Reserve, forms part of the Parklands at Sydney Olympic Park and was listed on the State Heritage Register on 14 January 2011 (Figure 1.1). It is within the Auburn Local Government Area (LGA).



Key Map 1: New South Wales



Key Map 2: Study Area

Legend
 Study Area



Background topographic data © Department of Lands (2006) 1:25000 TopoView Topographic and Orthophoto Map
 Horizontal datum: GDA94/MGA Zone 56

Figure 1.1 Location of the study area.

1.3 Methodology

This report is broadly consistent with the principles of the Burra Charter (*The Australia ICOMOS charter for the conservation of places of cultural significance*). It has been prepared in accordance with current heritage best practice and the requirements of the Office of Environment and Heritage, Department of Premier & Cabinet (OEH; formerly the Department of Environment, Climate Change and Water [DECCW] and Heritage Branch, Department of Planning) guidelines as specified in the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010).

The key heritage requirements for this project are:

- identification of any Aboriginal heritage sites present within the study area or within the vicinity;
- assessment of the Aboriginal heritage values of the study area; and
- provision of recommendations for the management of Aboriginal heritage resources in the study area.

To fulfil the requirements of the project, the following tasks were undertaken:

- consultation with the Metropolitan Local Aboriginal Land Council (MLALC);
- search and review of the OEH Aboriginal Heritage Information Management System (AHIMS) database, to determine the location and nature of any Aboriginal heritage sites recorded within, or in the vicinity of, the study area;
- review of relevant previous archaeological reports specific to the area, to determine the extent of past archaeological research in the region;
- review of relevant contextual environmental information and previous land use history;
- site survey, to allow identification and assessment of any Aboriginal heritage values present in the study area; and
- preparation of a report describing the results of the background research, the extent and significance of heritage items recorded in the study area, and outlining management recommendations and mitigation measures for Aboriginal heritage resources, including constraints and opportunities.

1.3.1 Aboriginal Consultation

The Metropolitan Local Aboriginal Land Council (MLALC) was contacted and a representative was invited to attend the preliminary site visit. The MLALC representative nominated to attend was James Smith.

During the site visit, conversation with Mr Smith indicated that the MLALC did not consider the study area to have any issues of Aboriginal cultural heritage significance or sensitivity unrelated to the identified sites and areas of archaeological potential within the nature reserve. A copy of this draft report was also sent to MLALC for review and comment, but no further, written feedback was provided.

1.4 Authorship & Acknowledgements

This report has been prepared by AMBS Project Officer Jenna Weston. AMBS Senior Project Manager Jennie Lindbergh reviewed the report.

The author acknowledges the assistance of Roy Lumby, Heritage Consultant with Tanner Architects.

2 Statutory Context

2.1 Preamble

The conservation and management of heritage items, places, and archaeological sites takes place in accordance with relevant Commonwealth, State or local government legislation. Non-statutory heritage lists and registers, ethical charters, conservation policies, and community attitudes and expectations can also have an impact on the management, use, and development of heritage items. The relevant statutory and non-statutory heritage listings for the study area are summarised below.

2.2 Environment Protection & Biodiversity Conservation Act 1999

In 2004, a new Commonwealth heritage management system was introduced under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The National Heritage List (NHL) was established to protect places that have outstanding value to the nation. The Commonwealth Heritage List (CHL) was established to protect items and places owned or managed by Commonwealth agencies. The Australian Government Department of Sustainability, Environment, Water, Population and Communities (DSEWPC) is responsible for the implementation of national policy, programs and legislation to protect and conserve Australia's environment and heritage and to promote Australian arts and culture. Approval from the Minister is required for controlled actions which will have a significant impact on items and places included on the NHL or CHL.

The Newington Armament Depot and Nature Reserve is not included on the NHL or the CHL, nor are there any Aboriginal heritage items in or within the vicinity of the study area which are listed on the NHL or the CHL.

2.2.1 Register of the National Estate

The Register of the National Estate (RNE) was originally established under Section 22 of the *Australian Heritage Commission Act 1975* (AHC Act). Since the establishment of the NHL and CHL, there is now a considerable level of overlap between the RNE and heritage lists at the national, state and territory, and local government levels. To address this situation, the Register has been frozen since February 2007, meaning that no places can be added or removed. The RNE should be understood as an information resource only. Where an action has been referred to the Minister, in accordance with the EPBC Act, concerning World Heritage, National Heritage, Wetlands, endangered communities, or on Commonwealth land, the RNE may be used as a reference, where appropriate.

The Newington Arms Depot Conservation Area is included on the RNE (Place ID 15054). However, the listing does not include any Aboriginal heritage values, nor are there any Aboriginal heritage items in the vicinity of the study area which are listed on the RNE.

2.3 National Parks & Wildlife Act 1974 (Amended 2010) and National Parks & Wildlife Amendment Regulation 2010

Under the provisions of the *National Parks & Wildlife Act 1974* (NPW Act), the Director-General of the National Parks and Wildlife Service (NPWS; now OEH) is responsible for the care, control and management of all national parks, historic sites, nature reserves, state conservation areas, karst conservation reserves and regional parks. The Director-General is also responsible, under this legislation, for the protection and care of native fauna and flora, and Aboriginal places and objects throughout NSW.

All Aboriginal Objects are protected regardless of their significance or land tenure under the NPW Act. Aboriginal Objects can include pre-contact features such as scarred trees, middens and open campsites, as well as physical evidence of post-contact use of the area such as Aboriginal built fencing

and fringe camps. The NPW Act also protects Aboriginal Places, which are defined as 'is or was of special significance with respect to Aboriginal culture'. Aboriginal Places can only be declared by the Minister administering the NPW Act.

Under Section 90 of the Act, it is an offence for a person to destroy, deface, damage or desecrate an Aboriginal Object or Aboriginal Place without the prior issue of an Aboriginal Heritage Impact Permit (AHIP). The Act requires a person to take reasonable precautions and due diligence to avoid impacts on Aboriginal Objects. AHIPs may only be obtained from the Environmental Protection and Regulation Division (EPRD) of OEH.

The *National Parks and Wildlife Amendment Regulation 2010* commenced on 1 October 2010. This Regulation excludes activities carried out in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* from the definition of harm in the Act. That is, test excavations may be carried out in accordance with this Code of Practice, without requiring an AHIP. The Regulation also specifies Aboriginal community consultation requirements (*Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*). In addition, the Regulation adopts a Due Diligence Code of Practice which specifies activities that are low impact, providing a defence to the strict liability offence of harming an Aboriginal object.

Part of the regulatory framework for the implementation of the NPW Act is the Aboriginal Heritage Information Management System (AHIMS), maintained by OEH. AHIMS includes a database of Aboriginal heritage sites, items, places and other objects that have been reported to the OEH. Also available through AHIMS are site cards, which describe Aboriginal sites registered in the database, as well as Aboriginal heritage assessment reports, which contribute to assessments of scientific significance for Aboriginal sites. The AHIMS is not a comprehensive list of all Aboriginal heritage in NSW, rather it reflects information which has been reported to OEH. As such, site co-ordinates in the database vary in accuracy depending on the method used to record their location. Heritage consultants are obliged to report Aboriginal sites identified during field investigations to OEH, regardless of land tenure, or whether such sites are likely to be impacted by a proposed development. The results of a site search for the local area are presented in Section 4.2.1.

2.4 Heritage Act 1977

The NSW *Heritage Act 1977* (Heritage Act) provides protection for heritage places, buildings, works, relics, moveable objects or precincts that are important to the people of NSW. These include items of Aboriginal and non-Aboriginal heritage significance. Where these items have particular importance to the state of NSW, they are listed on the State Heritage Register (SHR).

The Newington Armament Depot and Nature Reserve is included on the SHR. In relation to Aboriginal heritage, the entry notes:

Evidence of the use of Homebush Bay by Aboriginal people has been found. Middens originally were present along the shores of the Parramatta River and Homebush Bay however these were substantially disturbed when used for lime making. Past reports have referenced the existence of physical evidence of Aboriginal occupation on the subject site as isolated artefact scatters and scarred trees (Brooks p22, 23). However these findings have since been questioned in further studies. (Irish 2004). [NB Irish (2004) identified that the scarred trees were not of Aboriginal origin; however, other evidence of past Aboriginal occupation was identified within the subject site.]

Further, one of the historic themes identified for the site is *Land tenure – Activities and processes for identifying forms of ownership and occupancy of land and water, both Aboriginal and non-Aboriginal.*

There are no other Aboriginal heritage items or places within the vicinity of the study area listed on the SHR.

2.4.1 Roads and Traffic Authority Section 170 Register

Section 170 of the Heritage Act requires government instrumentalities to maintain a Heritage and Conservation Register (Section 170 Register). This Register provides a list of assets which may have State or local heritage significance, including:

- (i) *heritage items under environmental planning instruments,*
- (ii) *items subject to interim heritage orders,*
- (iii) *items listed on the State Heritage Register,*
- (iv) *items identified by the government instrumentality as having State heritage significance.*

There are no Aboriginal heritage items listed on the RTA Section 170 Register within the study area or its vicinity.

2.5 Environmental Planning & Assessment Act (1979)

The *Environmental Planning and Assessment Act 1979* (EP&A Act) is the principal act regulating land use planning and development in NSW, and requires consideration to be given to the environment as part of the land use planning process. Projects are considered under different parts of the Act, including:

- Major projects, requiring the approval of the Minister for Planning and which are regional or State significant are undertaken under Part 3A of the Act.
- Minor or routine development projects, requiring local council consent are usually undertaken under Part 4. In limited circumstances, projects may require the Minister's consent.
- Projects which do not fall under Part 4 or Part 3A are undertaken under Part 5. These are often infrastructure projects approved by local councils or the State agency undertaking the project.

The EP&A Act also controls the making of environmental planning instruments (EPIs). Two types of EPIs can be made: Local Environmental Plans (LEPs) and Development Control Plans (DCPs), covering local government areas; and State Environment Planning Policies (SEPPs), covering areas of State or regional environmental planning significance. LEPs commonly identify, and have provisions for, the protection of local heritage items and heritage conservation areas.

LEPs and DCPs commonly identify and have provisions for the protection of local heritage items and heritage conservation areas. The study area is located in the Auburn LGA. The local heritage items identified in this LGA are listed below.

2.5.1 Auburn LEP 2010

Clause 5.10 of the Auburn LEP 2010 has been prepared in accordance with the NSW Government's Standard Instrument—Principal Local Environmental Plan, and is consistent with current heritage best practice guidelines, providing for the protection of heritage buildings, places, works and trees, heritage conservation areas, and archaeological relics.

Schedule 5 'Environmental Heritage' of the LEP does not identify any Aboriginal heritage items within the study area or its vicinity.

2.6 National Trust of Australia (NSW)

The National Trust of Australia is a private, not-for-profit organisation committed to conserving Australia's heritage. Listing with the National Trust of Australia does not have statutory authority; however, it does have a role in raising public awareness of heritage issues.

There are no Aboriginal heritage items on the National Trust within the study area or its vicinity.

3 Environmental Context

An understanding of environmental factors within the local landscape provides a context for past human occupation and history of an area. The analysis of environmental factors contributes to the development of the predictive modelling of archaeological sites, but it is also required to contextualise archaeological material and to interpret patterns of past human behaviour. In particular, the nature of the local landscape including topography, geology, soils, hydrology and vegetation are factors which affect patterns of past human occupation. Current land use practices have the potential to affect the visibility of archaeological material; they may obscure, or expose archaeological sites. In addition, previous disturbances may have also exposed archaeological material, such as excavation for dams or other ground disturbance. It is important that such factors are also considered in making assessments of archaeological resources in an area and understanding the distribution of observed sites.

3.1 Geology

The study area is underlain by quaternary alluvium along the shoreline of the Parramatta River, and Triassic Wianamatta Group Shales, comprising the Liverpool Sub-Group of Minchinbury Sandstone and Bringelly and Ashfield Shales, in the south eastern parts of the study area. The former consists of alluvium, gravel, sand, silt and clay, while the latter consists of shale with some sandstone beds (1:250,000 Geological Series Sheet S1 56-5 Sydney).

3.2 Soils, Topography & Vegetation

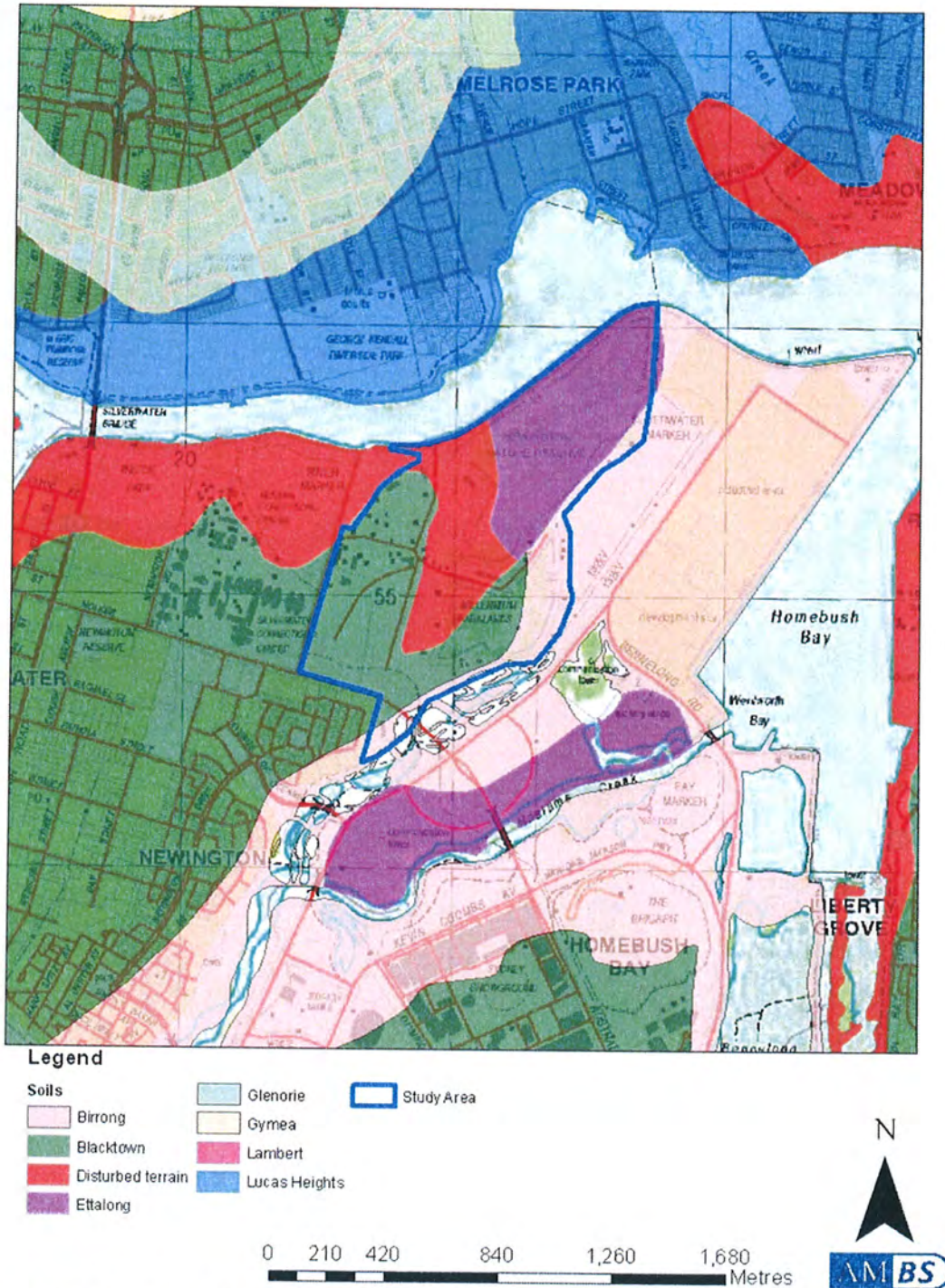
Soils in the study area are the Birrong, Blacktown and Ettalong Soil Landscapes, and areas classified as disturbed terrain (Figure 3.1). Birrong soils primarily consist of deep (>250cm) yellow podzolic soils and yellow solodic soils on older alluvial terraces, and solodic soils and yellow solonetzic soils on current floodplain. This is a fluvial landscape comprising level to gently undulating alluvial floodplain draining Wianamatta Group shales, and broad valley flats, with local relief to 5m and slopes <3%. Vegetation consists of extensively cleared tall, open-forest and woodland. Limitations of this soil landscape are localised flooding; high soil erosion hazard; saline subsoil; seasonal waterlogging; and very low soil fertility (Chapman & Murphy 1989:82).

Blacktown soils primarily consist of shallow to moderately deep (<100cm) red and brown podzolic soils on crests, upper slopes and well drained areas, and deep (150-300cm) yellow podzolic soils and soloths on lower slopes and in areas of poor drainage. This is a residual soil landscape comprising gently undulating rises on Wianamatta Group shales and Hawkesbury shale, and broad rounded crests and ridges with gently inclined slopes, with local relief to 30m and slopes generally <5%. Vegetation consists of cleared eucalypt woodland and tall, open, wet sclerophyll forest. Limitations of this soil landscape are moderately reactive highly plastic subsoil; low soil fertility; and poor soil drainage (Chapman & Murphy 1989:30).

Ettalong soils primarily consist of deep (>150cm) organic acid peats, peaty podzols and humus podzols, often overlying buried siliceous sands. This is a swamp landscape comprising level to very gently undulating coastal swamps with hummocky surface, shallow lakes and very shallow water tables. Local relief is <5m, slopes are <2% and the water table is present at <100cm. Vegetation consists of closed sedgeland and tall open-forest. Limitations of this soil landscape are flooding; permanently high water table; and extremely acid organic soil of low fertility (Chapman & Murphy 1989:122).

The Newington Nature Reserve comprises tidal mudflats, mangroves, saltmarsh, swamp oak flood plain forest and eucalypt forest, and supports three endangered ecological communities. It is set amidst a 52 hectare riverside landscape of undulating hills and woodlands.

Aboriginal occupation was often focussed on prominent landforms such as ridges, which were favourable locations for camping and travelling, and from which surrounding plant and animal resources could be viewed. However, they also camped on lower, elevated areas adjacent to reliable water sources, such as the Parramatta River.



Soil data © Copyright Commonwealth of Australia (Geoscience Australia) 2001
Horizontal datum: GDA94/MGA Zone 56

Figure 3.1 Soils within the study area.

3.3 Hydrology & Drainage

The study area is located on the Parramatta River, which would have been frequently occupied for its water and marine food resources. To this day, the Newington Nature Reserve comprises a complete estuarine zonation, and supports three endangered ecological communities, vulnerable and endangered species and provides valuable habitat for migratory shorebirds. Further, Homebush and Wentworth Bays are located to the east, Haslams Creek is located c.400m to the south east, Bennelong Pond is c.1.2km to the south east and Duck River is c.1.4km to the west. These water resources are swampy and therefore would have provided many food resources, in addition to water. As such, occupation sites including open stone artefact scatters and shell middens may occur within the study area or its vicinity.

3.4 Land Use & Disturbance

The Newington Armament Depot and Nature Reserve form part of the Parklands of Sydney Olympic Park. The first European to develop land at Newington for rural use was free settler John Blaxland, who arrived in 1806. Subsequently, the Newington Armament Depot was the major storage and supply depot of explosive navy armament to service the fleet in Sydney Harbour from 1895 to 1998. It has therefore been subject to a long period of historic land use, with over 100 years of naval occupation and use, and this will have impacted on the presence and integrity of any Aboriginal archaeological deposits within the study area. Further, many middens along the Parramatta River were quarried and burned for lime in the early colony; the River has been dredged; and the banks of the River have been subject to reclamation in many areas (Irish 2004:19).

4 Archaeological Context

This chapter describes the nature of the known Aboriginal archaeology of the study area, based upon a review of relevant archaeological reports and publications, and a search and review of previously recorded sites in the OEH AHIMS. This review and discussion allows for the development of a predictive model for potential Aboriginal sites within the study area, and establishes context for a comparative significance assessment. Summary descriptions of site types are provided in Table 4.1.

Table 4.1 Summary descriptions of Aboriginal site types referred to in this report.

Site Type	Details
Open camp sites/ stone artefact scatters/ isolated finds	Open camp sites represent past Aboriginal subsistence and stone knapping activities, and include archaeological remains such as stone artefacts and hearths. This site type usually appears as surface scatters of stone artefacts in areas where vegetation is limited and ground surface visibility increases. Such scatters of artefacts are also often exposed by erosion, agricultural events such as ploughing, and the creation of informal, unsealed vehicle access tracks and walking paths. These types of sites are often located on dry, relatively flat land along or adjacent to rivers and creeks. Camp sites containing surface or subsurface deposit from repeated or continued occupation are more likely to occur on elevated ground near the most permanent, reliable water sources. Flat, open areas associated with creeks and their resource-rich surrounds would have offered ideal camping areas to the Aboriginal inhabitants of the local area. Isolated finds may represent a single item discard event, or be the result of limited stone knapping activity. The presence of such isolated artefacts may indicate the presence of a more extensive, in situ buried archaeological deposit, or a larger deposit obscured by low ground visibility. Isolated artefacts are likely to be located on landforms associated with past Aboriginal activities, such as ridgelines that would have provided ease of movement through the area, and level areas with access to water, particularly creeks and rivers.
Middens	Shell middens result from Aboriginal exploitation and consumption of shellfish, in marine, estuarine or freshwater contexts. Middens may also include faunal remains such as fish or mammal bone, stone artefacts, hearths, charcoal and occasionally, burials. They are usually located on elevated dry ground close to the aquatic environment from which the shellfish has been exploited and where fresh water resources are available. Deeper, more compacted, midden sites are often found in areas containing the greatest diversity of resources, such as river estuaries and coastal lagoons.
Scarred trees	Tree bark was utilised by Aboriginal people for various purposes, including the construction of shelters (huts), canoes, paddles, shields, baskets and bowls, fishing lines, cloaks, torches and bedding, as well as being beaten into fibre for string bags or ornaments. The removal of bark exposes the heart wood of the tree, resulting in a scar. Over time the outer bark of the tree grows across the scar (overgrowth), producing a bulging protrusion around the edges of the scar. Trees may also have been scarred in order to gain access to food resources (e.g. cutting toe-holds so as to climb the tree and catch possums or birds), or to mark locations such as tribal territories. The locations of scarred trees often reflect historical clearance of vegetation rather than the actual pattern of scarred trees. Unless the tree is over 150 years old, scarring is not likely to be of Aboriginal cultural origin; therefore, these sites most often occur in areas with mature, remnant native vegetation.
Axe grinding grooves	Grinding grooves are the physical evidence of tool making or food processing activities undertaken by Aboriginal people. The manual rubbing of stones against each other creates grooves in the rock, which are usually found on flat areas of soft rock such as sandstone, in areas of creek beds and other water sources. They are often associated with rock pools in creek beds and on platforms to enable the wet-grinding technique.
Quarries	Aboriginal quarry sites are sources of raw materials, primarily for the manufacture of stone tools, but also for ochre procurement. They are only found where raw materials (stone or ochre) occur within the landscape, and where these have been exploited in the past. Such sites are often associated with stone artefact scatters and stone knapping areas. Loose or surface exposures of stone or cobbles may be coarsely flaked for removal of portable cores. Raw materials can be sourced to these sites and provide evidence for Aboriginal movement and/or exchange.
Rock engravings	Rock engravings are a type of Aboriginal art, and are often located on high vantage points along ridge lines at the headwaters of creeks, but can be located on any suitable fine grained stone surface.

Shelter sites with art (engraving, painting or drawing) or occupation deposit	These are art or occupation sites located in areas where suitable rock outcrops and surfaces occur, where weathering has resulted in suitable overhangs or recesses in boulder outcrops or cliff-lines.
Bora/ceremonial	Aboriginal ceremonial sites are locations that have spiritual or ceremonial values to Aboriginal people. Aboriginal ceremonial sites may comprise natural landforms and, in some cases, will also have archaeological material. Bora grounds are a ceremonial site type, usually consisting of a cleared area around one or more raised earth circles, and often comprised two circles of different sizes, connected by a pathway, and accompanied by ground drawings or mouldings of people, animals or deities, and geometrically carved designs on the surrounding trees. Unfortunately, the raised earth features are easily destroyed by agricultural and pastoral activities, vegetation growth and exposure to weather.
Stone arrangements	Stone arrangements usually consist of geometric arrangements of portable stone on prominent rock outcrops, such as vantage points along escarpments where other key landmarks are visible. Some stone arrangements also include circles and pathways. They are thought to be ceremonial in nature, and may have also sometimes been used for corroborees (dances), fights or judicial meetings. Stone arrangements are often isolated from known camp site areas.
Natural mythological (ritual) sites	These types of sites are usually identified by the local Aboriginal community as locations of cultural significance, and they may not necessarily contain material evidence of Aboriginal associations with the place.
Carved trees	Carved trees generally marked areas for ceremonial purposes, or the locations of graves.
Burial sites	Aboriginal burial of the dead often took place relatively close to camp site locations. This is due to the fact that most people tended to die in or close to camp (unless killed in warfare or hunting accidents), and it is difficult to move a body long distances. Soft, sandy soils on, or close to, rivers and creeks allowed for easier movement of earth for burial; and burials may also occur within rockshelters or middens. Aboriginal burial sites may be marked by stone cairns, carved trees or a natural landmark. Burial sites may also be identified through historic records, or oral histories.
Contact/ historical sites	These types of sites are most likely to occur in locations of Aboriginal and settler interaction, such as on the edge of pastoral properties or towns. Artefacts located at such sites may involve the use of introduced materials such as glass or ceramics by Aboriginal people, or be sites of Aboriginal occupation in the historical period.

4.1 Regional Archaeological Context

Aboriginal occupation of the Sydney basin is likely to have spanned at least 20,000 years, although dates of more than 40,000 years have been claimed for artefacts found in gravels of the Cranebrook Terrace on the Nepean River (Stockton and Holland 1974; Nanson et al 1987; Stockton 1993). Late Pleistocene occupation sites have been identified on the fringes of the Sydney basin and from rockshelter sites in adjoining areas. Dates obtained from these sites are 14,700 Before Present (BP) at Shaws Creek in the Blue Mountain foothills (Kohen et al 1984), c. 11,000 BP at Loggers Shelter in Mangrove Creek (Attenbrow 1981, 2004), and c. 20,000 BP at Burrill Lake on the South Coast (Lampert 1971). The majority of sites in the region, however, date to within the last 3,000 to 5,000 years, with many researchers proposing that occupation intensity increased from this period (Kohen 1986; McDonald 1994; McDonald and Rich 1993). Such an increase in occupation intensity may have been influenced by rising sea levels, which stabilised approximately 6,500 years ago. Older occupation sites along the now submerged coastline would have been flooded, with subsequent occupation concentrating along, and utilising resources of, the current coastlines and the changing ecological systems of the hinterland (Attenbrow 2003).

A study of the Sydney region reveals that Aboriginal sites are distributed across the whole range of physiographic units and environmental zones, although certain types of sites may be more frequently associated with certain parts of the landscape (for example, shelter sites are particularly common in areas of Hawkesbury Sandstone), and different parts of the landscape contain different resources, which may be seasonally available or highly localised (Koettig 1996). Hence, shell middens are

common in the Port Jackson region around the shores of bays, rivers, harbours and the coast, in areas where shellfish are available. Accordingly, the Port Jackson archaeological record is different to that of the Cumberland Plain of Sydney, partly because of the different resources in these areas (Attenbrow 1990:30).

In 1989-90, Val Attenbrow undertook Stage 1 of the Port Jackson Archaeological Project, which involved documentary research on previous archaeological work done in the catchment, detailed recording of registered sites and some field survey of areas where no sites had been registered. Stage 2 involved further research of regional issues through excavation of certain sites. Overall, Attenbrow classified six sites as having excellent research potential, 48 as having good potential, and 151 as having poor to nil potential. Attenbrow found, from a review of excavation work in the Port Jackson area, that Aboriginal people were living around the harbour foreshores gathering shellfish at least 4,500 years ago, that the number and species of shellfish represented in middens varied according to distance from the harbour mouth, and that a change from exploitation of predominantly cockle (*Anadara trapezia*) to predominantly oysters (*Saccostrea commercialis*) appears to have occurred over time in this region (Attenbrow 1990:30). She also found that most middens are located within 10m of the high water level, and that burials were placed in open middens as well as in middens within rockshelters. In the same year, as part of an Aboriginal Sites Planning Study for the Lane Cove River State Recreation Area, the NPWS observed that regional excavations of coastal sites with midden layers indicated the exploitation of a variety of sea and land resources (NPWS 1990).

It should also be recognised that the archaeological evidence within any particular site can vary considerably in quantity and the range of evidence present, and that the number of sites or amount of archaeological evidence found in any specific area varies. Further, the distribution of presently recorded sites in some areas is unlikely to be indicative of the original distribution of Aboriginal sites and therefore may not be a reliable guide to the occupation history of that area (Koettig 1996). Accordingly, without professional archaeological assessment of an area, the sites most likely to have been recorded are those which are most obvious to non-professionals, such as rockshelters and art sites.

4.2 Local Archaeological Context

4.2.1 Site Types

A search of the AHIMS database was undertaken on 23 May 2011, and 100 registered Aboriginal sites were identified within a search centred on the study area, with a buffer zone of approximately 5km. The search results are presented in Figure 4.1 and summarised in Table 4.2.

Table 4.2 Summary of Aboriginal sites previously recorded near the study area.

Site types	Count	Percentage
Open camp site	45	45
Midden	19	19
Shelter with midden	8	8
Shelter with art	7	7
Potential Archaeological Deposit (PAD)	5	5
Shelter with deposit	4	4
Isolated find	4	4
Rock engraving	3	3
Midden, open camp site	2	2
Shelter with art and deposit	1	1
Axe grinding groove	1	1
Burial/s, midden	1	1
Total	100	100

There are three isolated finds and two PADs recorded within the study area (Figure 4.2). The most common sites previously recorded in the local area are artefact sites (open camp sites and isolated finds) and middens, which are evidence of Aboriginal people camping in open areas. There are also some shelter sites with art, midden or occupation deposit, rock engravings and axe grinding grooves. These types of sites are associated with the formation of the Hawkesbury Sandstone in the area, as it outcrops in platforms and shelters which were used by Aboriginal people for these purposes.



Legend

- | | | |
|-----------------------|--------------------------|--------------------------------|
| AHIMS Sites | ● Midden, Open Camp Site | ■ Shelter with Art and Deposit |
| ▲ Axe Grinding Groove | ▲ Open Camp Site | ■ Shelter with Deposit |
| ★ Burial/s, Midden | ▲ PAD | ■ Shelter with Midden |
| ▲ Isolated Find | ■ Rock Engraving | □ Study Area |
| ● Midden | ■ Shelter with Art | |

0 0.5 1 2 3 4 Kilometres



Topographic data © Copyright Commonwealth of Australia (Geoscience Australia) 2001
Horizontal datum: GDA94/MGA Zone 56

Figure 4.1 AHIMS sites in the vicinity of the study area (data obtained from AHIMS on 23/5/11).

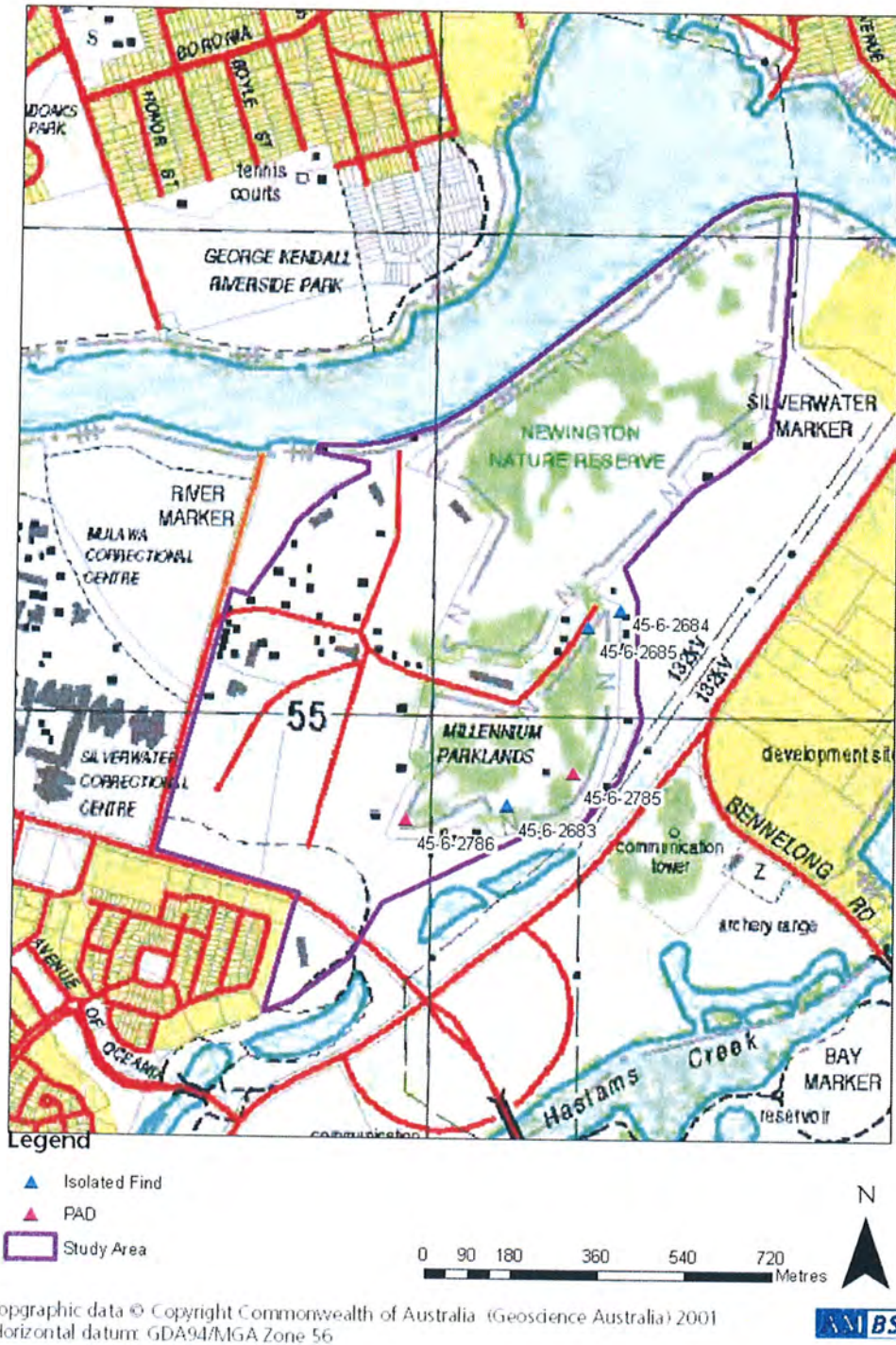


Figure 4.2 AHIMS sites within the study area (projection of sites corrected in accordance with mapping in Irish 2003).

4.2.2 Previous Archaeological Investigations

There have been a number of archaeological investigations of the study area and its vicinity. Rich identified that a survey of “the forested area in the north-east section of Newington Arms Depot” was

undertaken as part of the Parramatta River Heritage Study (1985:Section5.1). This report, undertaken by Rich in 1985, does not appear to be available in the AHIMS database; however, Rich states that the Study “identified Newington Arms Depot as having some potential to contain Aboriginal sites”, and she considered that “the ridge on the west side of Haslams Creek...[was] the most likely location to contain archaeological material” (1985:Section5.2.1). Rich’s survey identified three isolated silcrete artefacts (IF 1, IF 2 and IF 3) on the southern end of the ridge, on the clay horizon with no depth of deposit (see Figure 4.3 for a map of these sites and an area of sensitivity). The central part of the ridge was found to have been heavily modified by construction of a golf course and underground storage facilities, and the northern, forested area had been surveyed for the Parramatta River Heritage Study. Silcrete cobbles were also identified on the southern end of the ridge, but no evidence of flaking to produce stone tools was identified by Rich (1985:Section5.2.1-5.2.2). Rich considered that there was limited potential for extensive Aboriginal archaeological sites to be present in the Armament Depot, because of previous disturbance, and a lack of sites identified during her survey and that of the Parramatta River Heritage Study (1985:Section5.2.2).

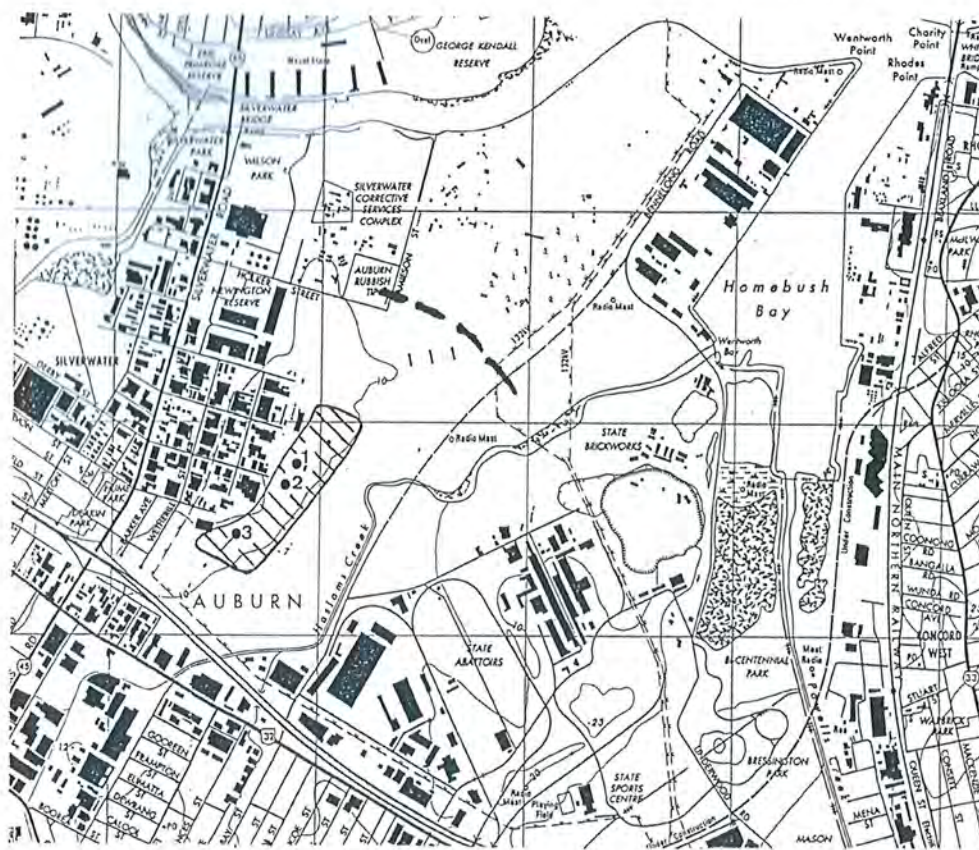






Figure 3: Study Area Finds

-  Sensitive Area defined by Rich 1985b
-  1-3 Location of Three Artefacts recorded by Rich 1985b
-  2 Location of Red Silcrete Pieces identified during Present Survey
-  Northern Limit of Study Area

Base Map Parramatta River 1:25,000

Figure 4.3 Location of artefacts and area of sensitivity identified by Rich in 1985 (Source: Brayshaw 1997:Figure 3).

Robert Paton Archaeological Studies (RPAS) & Australian Archaeological Survey Consultants (AASC) undertook a survey of the Royal Australian Navy Armament Depot (RANAD) in 1995, during which one isolated silcrete flaked piece (located on a dirt track on the eastern edge of the eucalypt woodland, directly opposite a radio tower) and three scarred trees were identified (1995:18-19; Figure 4.4). It was considered that “a significant proportion of the RANAD Newington site has been disturbed by reclamation in the low-lying areas and modified by industrial development on high ground...The silcrete artefact and scarred trees were located within or at the edge of the eucalypt woodland, an area that has not been greatly disturbed over the years” (1995:19). RPAS & AASC were unable to locate the isolated finds recorded by Rich, and did not regard Rich’s area of sensitivity as having archaeological potential, given the previous disturbance to this area and the lack of sites identified during their survey (1995:22).



Figure 4.4 Location of isolated artefact (indicated by red arrow) and scarred trees identified by RPAS & AASC (Source: RPAS & AASC 1995:Figure 2).

Brayshaw (for Godden Mackay Logan [GML]) surveyed the Olympic Village Site, which includes the southern part of the current study area (see Figure 4.5). No Aboriginal sites were found, and Rich's isolated artefacts were unable to be located, although some unmodified silcrete was identified in the area of sensitivity identified by Rich in 1985 (see Figure 4.3). A high level of disturbance was noted on the lower slopes west of Haslams Creek and near armament stores, with landfill seen on the flat adjacent to the creek (Brayshaw 1997:12). Brayshaw stated that "The fact that so few artefacts of silcrete have been found over the entire RANAD site suggests that the material may not have been accessible to Aborigines there as a source, and has only been exposed by disturbance" (1997:13). Brayshaw concluded that the area was not archaeologically sensitive, as the disturbance was "too great to allow any meaningful interpretation of Aboriginal use of the area, or to offer the possibility of further information being gained from subsurface investigation" (1995:13). Feedback from MLALC indicated their desire to monitor excavations for construction works in the vicinity of the previously identified artefacts (GML 1997:1).



Figure 4.5 Location of the study area investigated by GML (Source: GML 1997:Figure 1.1).

Irish surveyed the woodland (which he refers to as Wanngal Woodland) and nature reserve buffer zone of the Newington Armory Precinct in 2003. He established that the trees within the woodland "were of insufficient age to contain scars of Aboriginal cultural origin" (Irish 2003:25), and he determined that the scarred trees identified by RPAS & AASC were not Aboriginal in origin (2003:37-38). Surface visibility was generally low, but during the survey the following items were identified:

- three isolated silcrete and chert artefacts;
- two PADs;
- an axe-marked tree of possible Aboriginal origin (later examined by a professional arborist and determined to be of insufficient age to be Aboriginal in origin; Irish 2004:17); and
- possible silcrete manuports (stone material thought to have been transported to the area by Aboriginal people). However, the Aboriginal origin of the presence of these silcrete pieces could not be confirmed, as it was possible that silcrete was introduced with gravels during use

of the Armory (Irish 2003:34; see also Brayshaw 1997:13, RPAS & AASC 1995:22 and Rich 1985:Section 5.2.1 for this suggestion).

Irish identified that the woodland areas and some parts of the adjacent Newington Armory Buffer Zone were likely to retain areas of archaeological deposit, while the remainder of the Newington Armory appeared to be greatly disturbed and therefore unlikely to retain archaeological sites (2003:43).

Irish (2004) undertook an archaeological assessment for a program of building and rail works within the Newington Armory Precinct. In this report, Irish identifies that he monitored the installation of a stage at the Newington Armory in 2003 (the report for which does not appear to be available in the AHIMS database), which demonstrated “the lack of relict topsoils within the Armory with the potential to contain Aboriginal cultural remains” (Irish 2004:5). Irish did not identify any additional Aboriginal sites or areas of archaeological potential within the proposed impact areas of the building and rail works, as they were within disturbed or reclaimed contexts (2004:9).

A summary of the sites recorded during previous Aboriginal heritage investigations of the study area and its vicinity is provided in Table 4.3. A summary of Aboriginal sites within the current study area is provided in Table 4.4.

Table 4.3 Summary of sites previously recorded within the study area and its vicinity.

Site	Site type	Recorder	Current status
IF 1	Isolated silcrete artefact	Rich (1985)	Unable to be located by RPAS & AASC (1995) or Brayshaw (1997). Presumed destroyed prior to or during construction of the Olympic Village.
IF 2	Isolated silcrete artefact	Rich (1985)	Unable to be located by RPAS & AASC (1995) or Brayshaw (1997). Presumed destroyed prior to or during construction of the Olympic Village.
IF 3	Isolated silcrete artefact	Rich (1985)	Unable to be located by RPAS & AASC (1995) or Brayshaw (1997). Presumed destroyed prior to or during construction of the Olympic Village.
Area of archaeological sensitivity	Area of Aboriginal heritage sensitivity	Rich (1985)	Reassessed by RPAS & AASC (1995) or Brayshaw (1997) as not having archaeological sensitivity. Presumed destroyed prior to or during construction of the Olympic Village.
RANAD IF 1	Isolated silcrete artefact	RPAS & AASC (1995)	Unable to be located by Irish (2003). Possibly destroyed. Located outside of the current study area.
RANAD Scarred Tree 1	Tree with oval-shaped scar	RPAS & AASC (1995)	Determined by Irish (2003) as not being Aboriginal in origin.
RANAD Scarred Tree 2	Tree with elliptical-shaped scar	RPAS & AASC (1995)	Determined by Irish (2003) as not being Aboriginal in origin.
RANAD Scarred Tree 3	Tree with elliptical-shaped scar	RPAS & AASC (1995)	Determined by Irish (2003) as not being Aboriginal in origin.
Wanngal Woodland IF1	Isolated silcrete artefact	Irish (2003)	Registered with AHIMS (45-6-2683). Presumed existing.
Wanngal Woodland IF2	Isolated silcrete artefact	Irish (2003)	Registered with AHIMS (45-6-2684). Presumed existing.
Wanngal Woodland IF3	Isolated chert artefact	Irish (2003)	Registered with AHIMS (45-6-2685). Presumed existing.
Wanngal Woodland Axe-marked Tree	Tree scarred with axe for toe-holds, possibly of Aboriginal origin	Irish (2003)	Determined by a professional arborist as not being Aboriginal in origin (Irish 2004:17).

Wanngal Woodland PAD1	Potential archaeological deposit within possible remnant topsoil	Irish (2003)	Registered with AHIMS (45-6-2786). Presumed existing.
Wanngal Woodland PAD2	Potential archaeological deposit within possible remnant topsoil	Irish (2003)	Registered with AHIMS (45-6-2785). Presumed existing.

Table 4.4 Summary of previously recorded Aboriginal sites within the study area.

AHIMS site #	Site name	Site type	Current status
45-6-2683	Wanngal Woodland IF1	Isolated find	Presumed existing.
45-6-2684	Wanngal Woodland IF2	Isolated find	Presumed existing.
45-6-2685	Wanngal Woodland IF3	Isolated find	Presumed existing.
45-6-2786	Wanngal Woodland PAD1	PAD	Presumed existing.
45-6-2785	Wanngal Woodland PAD2	PAD	Presumed existing.

Other archaeological investigations within approximately 2–3km of the study area have failed to identify Aboriginal sites (Biosis 2008; McDonald 1990; Steele & Carney 1997). However, this is likely to be a reflection of the early urban development of the Parramatta Rivers, which would have precluded the preservation of sites and the necessity for archaeological assessment; rather than an indication of less intense Aboriginal occupation of the area. Further, Steele & Carney identified that European soil fill had been deposited within two areas between Australia Avenue and the Fig Tree Avenue Circuit at the 2000 Olympic Site (Figure 4.6), and that soil beneath this fill could retain Aboriginal archaeological deposit (1997:32-33). Therefore, it was recommended that any impact to these subsurface areas be monitored for the presence of Aboriginal artefacts (Steele & Carney 1997:34). It was also suggested that in-filled low-lying areas, possibly including the low-lying area west of Haslams Creek identified during the Parramatta River Heritage Study as having archaeological potential, may also retain Aboriginal archaeological deposit beneath the fill (Steele & Carney 1997:35; but cf. Irish 2004:5 for the results of monitoring earthworks within the Armory).

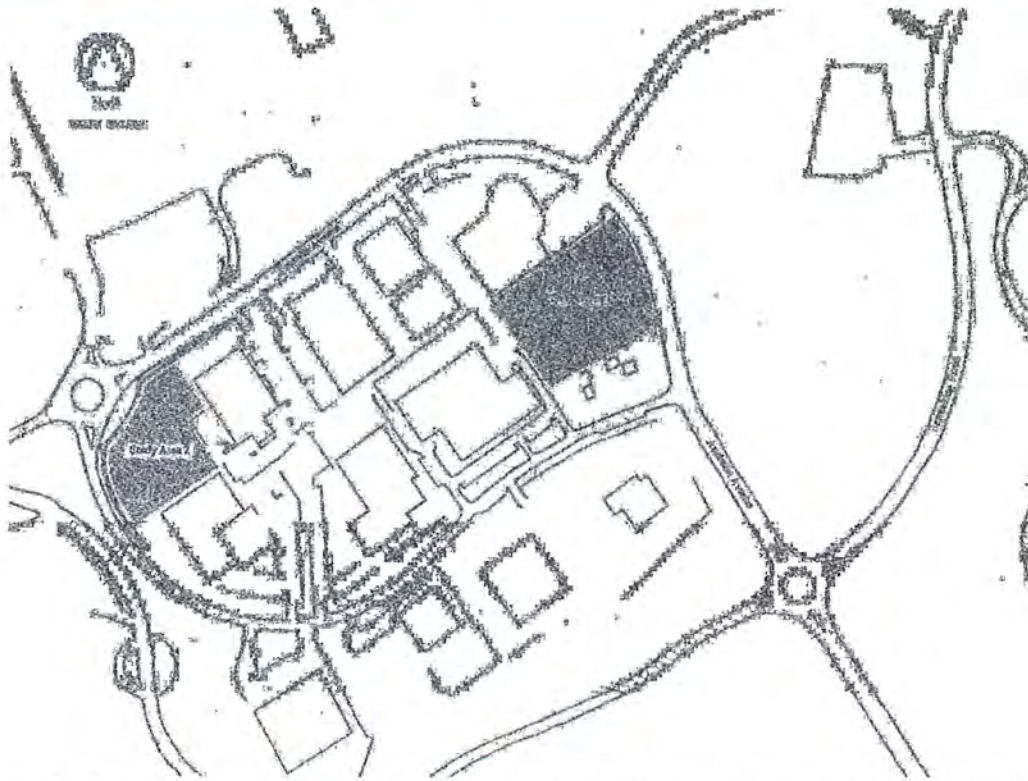


Figure 4.6 Location of areas assessed by Steele and Carney (Source: Steele & Carney 1997:Figure 2.2).

4.3 Aboriginal Heritage Site Prediction Modelling

On the basis of the registered archaeological sites in the region and the review of previous archaeological studies, the following conclusions can be drawn regarding the potential presence and location of Aboriginal heritage sites within the landscape of the study area:

- sites most likely to be present within the study area are isolated finds or open stone artefact sites/PADs. These sites are most likely to occur within the woodland, which has been subject to the least disturbance within the study area;
- any sites within the study area or its vicinity are likely to have been disturbed (and hence not be in situ) by the long history of use of the area as an Armory, although less disturbance has occurred within the woodland area.

4.3.1 Sites Unlikely to be Present

The following site types may or may not previously been recorded within the local region, but are unlikely to be present within the current study area:

- the lack of suitable stone outcrops indicates that stone quarry sites, axe grinding grooves, rock engravings or art sites will not be found in the study area;
- it is unlikely that midden deposits will be present within the study area, as they have not been recorded during previous surveys, and middens along the Parramatta river were often quarried to burn for lime during the early days of the colony;
- it is unlikely that scarred or carved trees will be present within the study area, as there do not appear to be any trees of sufficient age remaining in the study area (Irish 2003:25); and
- burials and ceremonial sites (including stone arrangements and bora grounds) are unlikely to be present in the area given the long history of disturbance resulting from the development of the area.

5 Aboriginal Heritage Survey

5.1 Survey Methodology

The Aboriginal cultural heritage survey was undertaken on 28 June 2011 by AMBS archaeologist Jenna Weston, accompanied by Aboriginal community representative Mr James Smith (see Section 1.3.1). The fieldwork methodology, the context of the Aboriginal heritage assessment and available mapping information were discussed with Mr Smith prior to fieldwork. The findings of the survey and recommendations were discussed with Mr Smith in the field, and his comments have been incorporated into this report.

The purpose of the survey was to verify the location of previously recorded sites within the study area, if possible, to inspect the area for any new archaeological sites and to identify the potential for archaeologically sensitive areas to be present within the study area.

The survey involved pedestrian transects throughout the woodland area of the Newington Nature Reserve, focussing particularly on previously recorded site locations and areas of ground exposure. If any Aboriginal artefacts were encountered, notes were to be made regarding their type, size, and material, descriptions of the site were to be recorded including the environmental setting and details of any disturbance to archaeological material in the site's vicinity, and Geocentric Datum of Australia (GDA94) coordinates were to be taken using a Garmin Oregon 300 handheld GPS unit. Photographs of objects and their location were also to be taken. Photographs of the study area in general were taken using a Canon EOS 300D digital camera.

5.2 Survey Results

No new Aboriginal sites were located during the survey. Although no previously recorded sites were verified, this was to be expected given that the sites were isolated artefacts that are unlikely to be verified by later investigators, and that no artefacts were located on the ground surface of the PADs. Given the recent nature of the investigation during which these sites were recorded, it is considered likely that the co-ordinates registered on the AHIMS are accurate. The following table identifies the previously identified sites within the study areas.

Table 5.1 Summary of previously recorded Aboriginal sites within the study area.

AHIMS site #	Site name	Site type	Current status
45-6-2683	Wanngal Woodland IF1	Isolated find	Presumed existing. Unable to be located during the current survey.
45-6-2684	Wanngal Woodland IF2	Isolated find	Presumed existing. Unable to be located during the current survey.
45-6-2685	Wanngal Woodland IF3	Isolated find	Presumed existing. Unable to be located during the current survey.
45-6-2786	Wanngal Woodland PAD1	PAD	Presumed existing. Unable to be located during the current survey.
45-6-2785	Wanngal Woodland PAD2	PAD	Presumed existing. Unable to be located during the current survey.

The entire study area was found to have been severely impacted by development of the Newington Armory from 1895. Within the woodland area, infrastructure associated with electricity (Figure 5.1), water (particularly for fire management; Figure 5.2), access (Figure 5.3), and ammunitions storage and transport (by light rail) was identified. Excavation to construct ammunitions storage buildings below ground surface is likely to have resulted in mass soil movement in the vicinity of these areas. Although visibility was hampered by recent rains, resulting in a high level of grass and undergrowth throughout the woodland area (Figure 5.4), there were a number of exposed areas which were inspected for Aboriginal artefacts, and which mainly occurred on formerly gravelled tracks around the edges and

through the middle of the woodland area (Figure 5.5). Although some silcrete was seen on the tracks, this is likely to have been brought in as gravel, as has also been suggested by other consultants (see Section 4.2.2 above; Figure 5.6).

Apart from the previously recorded sites, no areas of Aboriginal heritage sensitivity were identified in the study area. Given the extent of disturbance to the original land surface, it is not considered that there is any archaeological potential for intact or substantial Aboriginal heritage deposits on the site, apart from those already identified. Further, no Aboriginal cultural issues or sensitivities were identified by James Smith for the site.



Figure 5.1 Electrical infrastructure within the woodland area.



Figure 5.2 Water (fire management) infrastructure within the woodland area.



Figure 5.3 Old access point within woodland area.



Figure 5.4 Extensive grass and undergrowth within woodland area.



Figure 5.5 Visibility along old access track with remnant gravel, near edge of woodland area.



Figure 5.6 Silcrete among gravel on old access track within woodland area.

6 Assessing Heritage Significance

6.1 Preamble

A primary step in the process of Aboriginal cultural heritage management is the assessment of significance. Heritage significance relating to Aboriginal sites, objects and places in NSW is assessed in accordance with the criteria defined in the OEH guidelines, and cultural significance is identified by Aboriginal communities. The 2010 OEH *Code of Practice for Aboriginal Investigation of Aboriginal Objects in New South Wales*, states that archaeological values should be identified and their significance assessed using criteria reflecting best practice assessment processes as set out in the Burra Charter. The NSW heritage assessment criteria as defined in *Assessing Heritage Significance* (NSW Heritage Office 2001) reflect the Burra Charter assessment criteria, and are consistent with the OEH 1997 guidelines.

6.2 Aboriginal Cultural Significance

6.2.1 Cultural Significance

This area of assessment concerns the value(s) of a site or feature to a particular community group – in this case the local Aboriginal community or communities. Aspects of social significance are relevant to sites, items and landscapes that are important, or have become important, to the local Aboriginal community. This importance involves both traditional links with specific areas as well as an overall concern by Aboriginal people for sites and landscapes generally and their future protection. Aboriginal cultural significance may include social, spiritual, historic and archaeological values. Aboriginal cultural significance assessments can only be made by the relevant Aboriginal communities. This is consistent with NSW heritage assessment *Criterion d*).

6.2.2 Scientific Significance

Scientific significance is assessed using the following criteria to evaluate the contents of a site, state of preservation, integrity of deposits, representativeness of the site type, rarity/uniqueness and potential to answer research questions on past human behaviour (NPWS 1997:5).

- *Representativeness* – all sites are representative of those in their class (site type/subtype); however, this issue relates to whether particular sites should be conserved to ensure that a representative sample of the archaeological record is retained. Representativeness is based on an understanding of the regional archaeological context in terms of site variability in and around the study area, the resources already conserved and the relationship of sites across the landscape. This is consistent with NSW heritage assessment *Criterion g*), and aspects are also consistent with *Criterion a*).
- *Rarity* – defines how distinctive a site may be, based on an understanding of what is unique in the archaeological record and consideration of key archaeological research questions (i.e. some sites are considered more important due to their ability to provide scientific or cultural information). It may be assessed at local, regional, state and national levels. This criterion is consistent with NSW heritage assessment *Criterion f*), and aspects are also consistent with *Criterion a*).
- *Archaeological Research Potential* – significance may be based on the potential of a site or landscape to explain past human behaviour. For example, hearths with charcoal have the potential to be dated and thus contribute to the chronology of occupation in a region. Rockshelters with art have the potential to contribute to our understanding of art motifs or styles in a region. This criterion is consistent with NSW heritage assessment *Criterion e*).

6.2.3 Assessment against Criteria

The following assessment of heritage values against the NSW heritage assessment criteria is informed by the results of the background and environmental review, the predictive model for Aboriginal sites

in the region, and the results of the Aboriginal heritage field assessment and assessment of archaeological potential.

The following is an assessment of the Aboriginal archaeological heritage significance.

Criterion a) an item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area)

Aboriginal stone artefact sites identified within the study area are representative of similar Aboriginal sites across Sydney and the rest of NSW, and as such, do not meet the threshold for inclusion for this criterion.

Criterion b) an item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area)

Aboriginal stone artefact sites identified within the study area are representative of activity by the local Wann-gal people. Although such deposits retain cultural significance, a sense of place, and heritage value for the local Aboriginal people, and are representative of the daily lives of their ancestors, individually they are not rare at a local or regional level; and as such, do not meet the threshold for inclusion for this criterion.

Criterion c) an item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area)

Aboriginal stone artefact sites identified within the study area are representative of similar Aboriginal sites across Sydney and the rest of NSW, and as such, do not meet the threshold for inclusion for this criterion.

Criterion d) an item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons. (Complies with OEHS criterion for Cultural Significance)

James Smith has indicated that, although all Aboriginal heritage sites contain intrinsic cultural significance, the study area does not have any specific cultural significance to the MLALC Aboriginal community. As such, the Aboriginal stone artefact sites identified during the survey do not meet the threshold for this criterion.

Criterion e) an item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area). (Complies with OEHS criterion for Scientific Significance –Archaeological Research Potential)

The Aboriginal cultural deposits located within the study area have low potential to answer research questions about the cultural history of the Wann-gal people. The PADs previously identified within the study area have been described as comprising only a thin layer of remnant soil with the potential to contain stone artefacts. Although areas of possibly intact soil are rare within the study area, and these PADs were considered likely to contain undisturbed *in situ* archaeological deposits, such deposits are not considered to be extensive. Further, the isolated artefacts previously identified within the study area were not identified as likely to be indicative of any subsurface deposit. As such, these PADs and isolated finds are considered to have low research potential.

Criterion f) an item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area). (Complies with OEH's criterion for Scientific Significance – Rarity)

The Aboriginal stone artefact sites identified within the study area may be regarded as being relatively common in the local region, although they do have value in demonstrating the presence of Aboriginal people in the area, which has almost been eradicated by the extensive disturbance that has occurred during the long history of the place as an Armory. Nevertheless, such sites are the most common site type both locally and regionally, and are therefore not considered to have archaeological rarity.

Criterion g) an item is important in demonstrating the principal characteristics of a class of NSW's Cultural or natural places or environments (or in the local area). (Complies with OEH's criterion for Scientific Significance –Representativeness)

Aboriginal stone artefact sites identified within the study area are representative of similar Aboriginal sites across the Sydney and the rest of NSW. Stone artefact sites are the most common type of site previously recorded in the local region. Such site types represent a continuity of use of water resources across the study area. The previously recorded isolated finds and PADs within the study area are likely to represent Aboriginal activity around the bays of the Parramatta River, but have low site integrity given the previous disturbance. As such, Aboriginal stone artefact sites identified during the survey do not meet the threshold for this criterion.

6.2.4 Summary Statement of Significance

Aboriginal stone artefact sites identified within the study area are representative of similar Aboriginal sites across Sydney and the rest of NSW. Isolated artefact sites and PADs previously identified within the study area have potential to contain small, relatively undisturbed subsurface archaeological deposits, and are therefore of low local significance due to their research potential. Although all Aboriginal heritage sites contain intrinsic cultural significance, MLALC did not identify any further specific cultural significances attached to the identified sites or the study area.

The current evidence indicates that the previously identified Aboriginal sites Wanngal Woodland IF1-3 and Wanngal Woodland PAD1-2 have **low significance**. A summary of the assessed levels of archaeological significance for identified sites is presented in Table 6.1 below.

Table 6.1 Assessed levels of significance for identified sites.

Assessed Site	Archaeological Research Potential			Representativeness	Rarity	Overall Significance
	Low	Moderate	High			
Wanngal Woodland IF1	✓			Local	No	Low
Wanngal Woodland IF2	✓			Local	No	Low
Wanngal Woodland IF3	✓			Local	No	Low
Wanngal Woodland PAD1	✓			Local	No	Low
Wanngal Woodland PAD2	✓			Local	No	Low

7 Conclusion

The majority of registered AHIMS sites in the region of the study area are stone artefact sites and middens, which occur along Sydney Harbour. There are five registered AHIMS sites within the study area, which have been assessed as being of low significance, and no new Aboriginal sites or areas of Aboriginal heritage sensitivity were identified during the survey. This confirms the predictive model, and was expected given the early development of the area of the Armory.

Although the study area would have originally been used by Wann-gal people for many thousands of years, very little surviving evidence of their occupation or activities appears to remain on the site. The site has been extensively modified since European settlement of the area, particularly to store ammunitions. The original vegetation, which would have been present at the time of settlement, has regenerated after a long history of clearing and fire management.

Given the extent of disturbance to the original land surface within the study area, it is considered that only the woodland area of the Newington Nature Reserve has any archaeological potential for Aboriginal heritage deposits. Three isolated finds and two PADs have previously been identified in this area. No Aboriginal cultural issues or sensitivities were identified for the study area by Mr James Smith of MLALC.

It is understood that the woodland area is to be preserved undisturbed under the Conservation Management Plan. This is the preferred Aboriginal heritage option, as this will preserve the registered Aboriginal sites and any Aboriginal heritage deposits that may remain beneath the ground surface. Should any future works be proposed for the woodland area, such as landscaping, or construction of footpaths, light rail tracks or structures, an Aboriginal heritage impact assessment should be undertaken in consultation with the local Aboriginal community.

Future interpretation of the Aboriginal heritage of the study area should be a consideration for future management. The most appropriate place for such interpretive signage may be in the vicinity of the woodland area, as this is where Aboriginal sites have been previously identified. However, any such interpretation should be undertaken in consultation with the local Aboriginal community. The *Aboriginal History & Connections Program* report prepared for SOPA by Paul Irish in 2005 may be of use in determining which people to speak with, and information that could be included in the interpretation.

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**APPENDIX H EXTRACTS FROM MINIMUM STANDARDS OF MAINTENANCE AND REPAIR
(NSW HERITAGE OFFICE, OCTOBER 1999)**

MINIMUM STANDARDS FOR MAINTENANCE AND REPAIR

Major amendments to the Heritage Act 1977 passed both houses of State Parliament and came into effect on 2 April 1999. The changes are the result of substantial review of the NSW heritage system.

One of the changes in policy reflected in the new legislation is the establishment of Minimum Standards. Since the original Heritage Act was passed in 1977 the “wilful neglect” provisions had been ineffective in preventing the deterioration of heritage items. In the twenty years of its operation there were no successful prosecutions under this section of the Act.

The section has therefore been deleted and replaced. Owners of items listed on the **State Heritage Register** are now required to ensure that heritage significance is maintained. Owners are required to achieve minimum standards of maintenance and repair.

The standards are set out in the Regulation, and relate to:

- weatherproofing;
- fire protection;
- security; and
- essential maintenance.

These are minimum standards to ensure that heritage significance is maintained. They do not require owners to undertake restoration works, but where works are needed owners may be eligible to apply for financial assistance through the Heritage Incentives Program.

Where these standards are not met and the heritage significance of the item is in jeopardy the Heritage Council will now have the power to order repairs after consultation with the owner.

As a last resort, if negotiations have failed and the owner does not comply with the order, the Heritage Council can arrange for the works to be carried out and charge the expenses to the owner. The Minister may consent to the Heritage Council’s prosecution of the owner for failure to comply with an order under this section of the Act.

A copy of the *Heritage Amendment Regulation 1999*, extracted from the New South Wales Government Gazette No.27, 1999, pages 1 – 9, is included for your information.

What is the State Heritage Register?

Heritage places and items of particular importance to the people of New South Wales are listed on the State Heritage Register. The Register was created in April 1999 by amendments to the *Heritage Act 1977*.

The key to listing on the State Heritage Register is the level of significance. Only those heritage items which are of **state significance in NSW** are listed on the State Heritage Register.

The Register replaces the old system of permanent conservation orders as a means of listing items of state significance

The Register forms part of the State Heritage Inventory, an electronic database of all protected heritage items in New South Wales. To check whether an item is listed on the Register, consult the **State Heritage Inventory** on the internet through the Heritage Office home page: www.heritage.nsw.gov.au

Heritage Amendment Regulation 1999

under the

Heritage Act 1977

His Excellency the Governor, with the advice of the Executive Council, has made **the following Regulation under** the *Heritage Act 1977*.

CRAIG KNOWLES, M.P.,
Minister for Urban Affairs and Planning

Explanatory note

The object of this Regulation is to impose minimum standards with respect to the maintenance and repair of buildings, works and relics that are listed on the State Heritage Register or within a precinct that is listed on that Register.

This Regulation is made under the *Heritage Act 1977*, including sections 118 (as substituted by the *Heritage Amendment Act 1998*) and 165 (the general regulation-making power).

Clause 1 Heritage Amendment Regulation 1999

Heritage Amendment Regulation 1999

1 Name of Regulation

This Regulation is the *Heritage Amendment Regulation 1999*.

2 Commencement

This Regulation commences on 2 April 1999.

3 Amendment of Heritage Regulation 1993

The *Heritage Regulation 1993* is amended as set out in Schedule 1.

4 Notes

The explanatory note does not form part of this Regulation.

Heritage Amendment Regulation 1999

Amendments Schedule 1

Schedule 1 Amendments

(Clause 3)

[1] Part 1, heading

Insert before clause 1:

Part 1 Preliminary

[2] Clause 3 Interpretation

Insert at the end of clause 3:

(3) Notes in the text of this Regulation do not form part of this Regulation.

[31] Part 2, heading

Insert before clause 4:

Part 2 Fees and forms

[4] Part 3

Insert after clause 9:

Part 3 Minimum standards of maintenance and repair

9A Minimum standards imposed

Pursuant to section 118 of the Act, the standards set out in this Part are imposed as minimum standards with respect to the maintenance and repair of a building, work or relic that is listed or within a precinct that is listed on the State Heritage Register.

Note. Section 119 of the Act requires the owner of the building, work or relic to ensure that it is maintained and repaired to standards that are not less than the minimum standards imposed by this Part. Nothing in this Part affects any requirement for the approval under Part 4 of the Act of any aspect of maintenance or repair.

Heritage Amendment Regulation 1999

Schedule 1 Amendments

9B Inspection

- (1) The building, work or relic, and its curtilage or site, must be inspected to identify maintenance and repairs that are needed to ensure compliance with section 119 of the Act in respect of the standards set out in clauses 9C-9H.
- (2) The inspection must be carried out at least once every 12 months in the case of the standards set out in clauses 9C-9G and at least once every 3 years in the case of the standards set out in clause 9H.

Note. The maintenance and repair requirements of section 119 of the Act are ongoing and are not limited to matters identified by an inspection carded out for the purposes of this clause.

- (3) The inspection is to be carried out by a person with expertise and experience appropriate to the nature of the item concerned.
- (4) In the case of a relic kept in a repository or as part of a collection, the inspection is to extend to the conditions under which the relic is kept.
- (5) In the case of a relic that is attached to or forms part of land, the inspection is to include an assessment of the stability of the site of the relic.

9C Weather protection

- (1) The following systems or components, if present, must be maintained and repaired (including by being cleaned and secured) when and to the standard necessary to ensure a reasonable level of protection for the building, work or relic, and its curtilage or site, against damage or deterioration due to weather:
 - (a) surface and sub-surface drainage systems,
 - (b) roof drainage systems, including gutters, rainwater heads, downpipes and stormwater drainage systems,
 - (c) water storages, dams, ponds, retention basins, watercourses, batters, levee banks, sea-walls and other flood and erosion mitigation measures,

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Amendments Schedule 1

- (d) roofs, walls, doors and windows (including the glass components of doors and windows) and other components intended to exclude sun, rain, wind, hail, snow or other weather elements, including their security against the effects of high winds;
 - (e) systems or components which might be at risk of damage or dislodgment by high winds, including damage by falling trees and branches, tidal inundation or wave action;
 - (f) systems and components such as damp proof courses, flashings, ventilation systems and other measures intended to prevent the ingress of water or dampness or to reduce its effects;
 - (g) lightning conductors;
 - (h) any other system or component designed to protect the building, work or relic or its curtilage or site against damage or deterioration due to weather.
- (2) Doors and windows of a building may, as an alternative to being repaired, be boarded up, but only:
- (a) if the building is unoccupied, or
 - (b) as a short term measure pending repair.
- (3) If an opening to a building is designed or intended to have a door, window or other closure in place and does not have the door, window or other closure in place, the opening must be boarded up.

9D Fire protection

- (1) Vegetation, rubbish and any other material that could create a fire hazard for the building, work or relic is to be removed and not permitted to accumulate.

Note. Vegetation and other items can be of heritage significance, and their removal may require the approval of the Heritage Council or the local council.

Heritage Amendment Regulation 1999

Schedule 1 Amendments

- (2) The following systems or components, if present, must be maintained and repaired when and to the standard necessary to ensure a reasonable level of protection for the building, work or relic against damage or destruction by fire:
- (a) lightning conductors,
 - (b) fire detection and control systems, including smoke and heat detectors and fire sprinkler systems and including associated alarm and communication systems,
 - (c) stores of inflammable materials or rubbish,
 - (d) building services such as electricity, gas and heating systems,
 - (c) any other system or component designed to protect the building, work or relic from damage or destruction by fire.

9E Additional fire protection for unoccupied buildings

- (1) The following additional fire protection measures must be taken for the protection of a building that is to be unoccupied for a continuous period of 60 days or more:
- (a) heating or gas services must be shut down, gas or oil supply to those services must be turned off at the mains or other point of connection to supply, and portable gas or oil storages must be removed,
 - (b) permanent or temporary smoke detection systems must be installed with associated communication systems connected to the Fire Brigade and, if the building will be unoccupied for a period of 6 months or more, provided with a permanent power supply.
- (2) This clause does not apply to any outbuilding within the curtilage or site of a building unless the outbuilding has been constructed or adapted for use as a dwelling.
- (3) The use of a building for storage of goods or materials does not constitute occupation of the building for the purposes of this clause if the building ordinarily has another use or is a building of a kind not ordinarily used for storage.

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Amendments Schedule 1

9F Security

- (1) Fencing or surveillance systems appropriate to the nature and location of the building, work or relic must be installed to secure it and its site and prevent vandalism.
- (2) The following systems or components, if present, must be maintained and repaired when and to the standard necessary to ensure a reasonable level of security for the building, work or relic:
 - (a) boundary and internal fences and gates, **including associated locking mechanisms,**
 - (b) in the case of a building, the walls, roof and other building elements, doors, windows and other closures, including glazing and associated locking and latching mechanisms,
 - (c) any electronic surveillance or alarm system installed on the site,
 - (d) any other system or component designed to ensure the security of the building, work or relic.
- (3) Doors and windows of a building may, as an alternative to being repaired, be boarded up, but only:
 - (a) if the building is unoccupied, or
 - (b) as a short term measure pending repair.
- (4) If an opening to a building is designed or intended to have a door, window or other closure in place and does not have the door, window or other closure in place, the opening must be boarded up.

9G Additional security measures for unoccupied buildings

- (1) The following additional security measures must be taken for the protection of a building that is to be unoccupied for a continuous period of 60 days or more:
 - (a) if an electronic surveillance or alarm-system is installed, the system must be connected to a Police Station or a commercial security provider,

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Schedule 1 Amendments

- (b) if no electronic surveillance or alarm system is installed, arrangements must be in place for regular surveillance of the building, work or relic, as appropriate to its nature and location.
- (2) This clause does not apply to any outbuilding within the curtilage or site of a building unless the outbuilding has been constructed or adapted for use as a dwelling.
- (3) The use of a building for storage of goods or materials does not constitute occupation of the building for the purposes of this clause if the building ordinarily has **another use or is a building of a kind** not ordinarily used for storage.

9H Essential maintenance and repair

- (1) Essential maintenance and repair of a building, work or relic (being maintenance and repair necessary to prevent serious or irreparable damage or deterioration) must be carried out whenever necessary.
- (2) Essential maintenance and repair includes:
 - (a) the taking of measures (Including inspection) to control pests such as termites, rodents, birds and other vermin, and
 - (b) the taking of measures to maintain a stable environment for in-situ archaeological relics.
- (3) The requirement for essential maintenance and repair extends to (but is not limited to) the following:
 - (a) foundations, footings and supporting structure of any building, work or relic,
 - (b) structural elements such as walls, columns, beams, floors, roofs and roof structures, and verandah or balcony structures,
 - (c) exterior and interior finishes and details,
 - (d) systems and components (such as ventilators or ventilation systems) intended to reduce or prevent damage due to dampness,

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Amendments Schedule 1

- (e) fixtures, fittings and moveable objects attached to the building, work or relic, or to its curtilage or site,
- (f) landscape elements on the site of and associated with the building, work or relic, including vegetation, garden walls, paths, fences, statuary, ornaments and the like.

9I Conservation management plans

- (1) A **conservation management plan** is a plan prepared by the owner of a building, work or relic for the conservation of the building, work or relic.
- (2) A conservation management plan endorsed by the Heritage Council for a building, work or relic may:
 - (a) provide that a standard set out in this Part does not apply to the building, work or relic (in which case the standard does not apply to it), or
 - (b) impose additional standards of maintenance and repair for the building, work or relic (in which case those standards are imposed as minimum standards with respect to the maintenance and repair of the building, work or relic, in addition to those set out in this Part).

[5] Part 4, heading

Insert before clause 10:

Part 4 Miscellaneous

