Conservation Management Plan
KINGSTON POWERHOUSE HISTORIC PRECINCT

VOLUME B - APPENDICIES

OCTOBER 2023

Prepared for

Suburban Land Agency

ACT Government

Prepared by

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Cover Image: *Kingston Powerhouse from north bank of Molonglo River (circa early 1920s)*
(Source: National Archives of Australia, A3560, 234)

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The Australian ICOMOS Charter for Places of Cultural Significance, 2013

THE BURRA CHARTER

The Australia ICOMOS Charter for Places of Cultural Significance 2013

AUSTRALIA ICOMOS
International Council on Monuments and Sites

Australia ICOMOS Incorporated
International Council on Monuments and Sites

ICOMOS

ICOMOS (International Council on Monuments and Sites) is a non-governmental professional organisation formed in 1965, with headquarters in Paris. ICOMOS is primarily concerned with the philosophy, terminology, methodology and techniques of cultural heritage conservation. It is closely linked to UNESCO, particularly in its role under the World Heritage Convention 1972 as UNESCO's principal adviser on cultural matters related to World Heritage. The 11,000 members of ICOMOS include architects, town planners, demographers, archaeologists, geographers, historians, conservators, anthropologists, scientists, engineers and heritage administrators. Members in the 103 countries belonging to ICOMOS are formed into National Committees and participate in a range of conservation projects, research work, intercultural exchanges and cooperative activities. ICOMOS also has 27 International Scientific Committees that focus on particular aspects of the conservation field. ICOMOS members meet triennially in a General Assembly.

Australia ICOMOS

The Australian National Committee of ICOMOS (Australia ICOMOS) was formed in 1976. It elects an Executive Committee of 15 members, which is responsible for carrying out national programs and participating in decisions of ICOMOS as an international organisation. It provides expert advice as required by ICOMOS, especially in its relationship with the World Heritage Committee. Australia ICOMOS acts as a national and international link between public authorities, institutions and individuals involved in the study and conservation of all places of cultural significance. Australia ICOMOS members participate in a range of conservation activities including site visits, training, conferences and meetings.

Revision of the Burra Charter

The Burra Charter was first adopted in 1979 at the historic South Australian mining town of Burra. Minor revisions were made in 1981 and 1988, with more substantial changes in 1999.

Following a review this version was adopted by Australia ICOMOS in October 2013.

The review process included replacement of the 1988 Guidelines to the Burra Charter with Practice Notes which are available at: australia.icomos.org

Australia ICOMOS documents are periodically reviewed and we welcome any comments.

Citing the Burra Charter

The full reference is *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance, 2013*. Initial textual references should be in the form of the *Australia ICOMOS Burra Charter, 2013* and later references in the short form (*Burra Charter*).

Cover photograph by Ian Stapleton.

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The Burra Charter

(The Australia ICOMOS Charter for Places of Cultural Significance, 2013)

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, 26 November 1999 and 31 October 2013.

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.

The Charter consists of:

- Definitions Article 1
- Conservation Principles Articles 2–13
- Conservation Processes Articles 14–25
- Conservation Practices Articles 26–34
- The Burra Charter Process flow chart.

The key concepts are included in the Conservation Principles section and these are further developed in the Conservation Processes and Conservation Practice sections. The flow chart explains the Burra Charter Process (Article 6) and is an integral part of the Charter. Explanatory Notes also form part of the Charter.

The Charter is self-contained, but aspects of its use and application are further explained, in a series of Australia ICOMOS Practice Notes, in *The Illustrated Burra Charter*, and in other guiding documents available from the Australia ICOMOS web site: australia.icomos.org.

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*, *Ask First: a guide to respecting Indigenous heritage places and values* and *Significance 2.0: a guide to assessing the significance of collections*.

National and international charters and other doctrine may be relevant. See australia.icomos.org.

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 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 in accordance with the principle of inter-generational equity.

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

Explanatory Notes

Article 1. Definitions

For the purposes of this Charter:

1.1 *Place* means a geographically defined area. It may include elements, objects, spaces and views. Place may have tangible and intangible dimensions.

Place has a broad scope and includes natural and cultural features. Place can be large or small: for example, a memorial, a tree, an individual building or group of buildings, the location of an historical event, an urban area or town, a cultural landscape, a garden, an industrial plant, a shipwreck, a site with in situ remains, a stone arrangement, a road or travel route, a community meeting place, a site with spiritual or religious connections.

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.

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

Cultural significance may change over time and with use.

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

1.3 *Fabric* means all the physical material of the *place* including elements, fixtures, contents and objects.

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

Natural elements of a place may also constitute fabric. For example the rocks that signify a Dreaming place.

Fabric may define spaces and views and these may be part of the significance of the place.

1.4 *Conservation* means all the processes of looking after a *place* so as to retain its *cultural significance*.

See also Article 14.

1.5 *Maintenance* means the continuous protective care of a *place*, and its *setting*.

Maintenance is to be distinguished from repair which involves *restoration* or *reconstruction*.

Examples of protective care include:

- maintenance — regular inspection and cleaning of a place, e.g. mowing and pruning in a garden;
- repair involving restoration — returning dislodged or relocated fabric to its original location e.g. loose roof gutters on a building or displaced rocks in a stone bora ring;
- repair involving reconstruction — replacing decayed fabric with new fabric

1.6 *Preservation* means maintaining a *place* in its existing state and retarding deterioration.

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

1.7 *Restoration* means returning a *place* to a known earlier state by removing accretions or by reassembling existing elements 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.

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

1.9 *Adaptation* means changing a *place* to suit the existing *use* or a proposed use.

1.10 *Use* means the functions of a *place*, including the activities and traditional and customary practices that may occur at the place or are dependent on the place.

Use includes for example cultural practices commonly associated with Indigenous peoples such as ceremonies, hunting and fishing, and fulfillment of traditional obligations. Exercising a right of access may be a use.

Articles	Explanatory Notes
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 immediate and extended environment of a *place* that is part of or contributes to its *cultural significance* and distinctive character.	Setting may include: structures, spaces, land, water and sky; the visual setting including views to and from the place, and along a cultural route; and other sensory aspects of the setting such as smells and sounds. Setting may also include historical and contemporary relationships, such as use and activities, social and spiritual practices, and relationships with other places, both tangible and intangible.
1.13 *Related place* means a *place* that contributes to the *cultural significance* of another place.	
1.14 *Related object* means an object that contributes to the *cultural significance* of a *place* but is not at the place.	Objects at a place are encompassed by the definition of place, and may or may not contribute to its cultural significance.
1.15 *Associations* mean the connections that exist between people and a *place*.	Associations may include social or spiritual values and cultural responsibilities for a place.
1.16 *Meanings* denote what a *place* signifies, indicates, evokes or expresses to people.	Meanings generally relate to intangible dimensions such as symbolic qualities and memories.
1.17 *Interpretation* means all the ways of presenting the *cultural significance* of a *place*.	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.

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.

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.

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*.

Articles

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

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

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.

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, biodiversity and geodiversity for their existence value or for present or future generations, in terms of their scientific, social, aesthetic and life-support value.

In some cultures, natural and cultural values are indivisible.

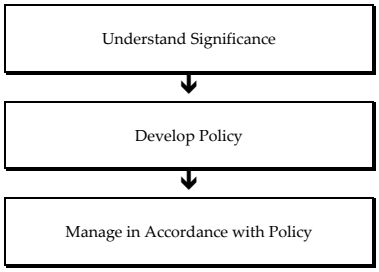
5.2 Relative degrees of *cultural significance* may lead to different *conservation* actions at a place.

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.

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. This is the Burra Charter Process.

The Burra Charter Process, or sequence of investigations, decisions and actions, is illustrated below and in more detail in the accompanying flow chart which forms part of the Charter.



6.2 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.

6.4 In developing an effective policy, different ways to retain *cultural significance* and address other factors may need to be explored.

Options considered may include a range of uses and changes (e.g. adaptation) to a place.

6.5 Changes in circumstances, or new information or perspectives, may require reiteration of part or all of the Burra Charter Process.

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*.

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 activities and practices which contribute to the cultural significance of the place.

Article 8. Setting

Conservation requires the retention of an appropriate *setting*. This includes retention of the visual and sensory setting, as well as the retention of spiritual and other cultural 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.

Setting is explained in Article 1.12.

Article 9. Location

9.1 The physical location of a *place* is part of its *cultural significance*. A building, work or other element 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 elements of *places* were designed to be readily removable or already have a history of relocation. Provided such buildings, works or other elements do not have significant links with their present location, removal may be appropriate.

9.3 If any building, work or other element 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.

For example, the repatriation (returning) of an object or element to a place may be important to Indigenous cultures, and may be essential to the retention of its cultural significance.

Article 28 covers the circumstances where significant fabric might be disturbed, for example, during archaeological excavation.

Article 33 deals with significant fabric that has been removed from a place.

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 significant *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 always be recognised, respected and encouraged. This is especially important in cases where they conflict.

For some places, conflicting cultural values may affect policy development and management decisions. In Article 13, 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. Conservation may also include retention of the contribution that *related places* and *related objects* make to the *cultural significance* of a *place*.

Conservation normally seeks to slow deterioration unless the significance of the place dictates otherwise. 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* and its *use* should be guided by the *cultural significance* of the place and its appropriate *interpretation*.

When change is being considered, including for a temporary use, a range of options should be explored to seek the option which minimises any reduction to its cultural significance.

It may be appropriate to change a place where this reflects a change in cultural meanings or practices at the place, but the significance of the place should always be respected.

15.2 Changes which reduce *cultural significance* should be reversible, and be reversed when circumstances permit.

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

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.

Article 16. Maintenance

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

Maintaining a place may be important to the fulfilment of traditional laws and customs in some Indigenous communities and other cultural groups.

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.

Preservation protects fabric without obscuring 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; or
- 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.

Articles

Explanatory Notes

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 some cases, reconstruction may also be appropriate as part of a *use* or practice that retains the *cultural significance* of the place.

Places with social or spiritual value may warrant reconstruction, even though very little may remain (e.g. only building footings or tree stumps following fire, flood or storm). The requirement for sufficient evidence to reproduce an earlier state still applies.

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*.

Adaptation may involve additions to the place, the introduction of new services, or a new use, or changes to safeguard the place. Adaptation of a place for a new use is often referred to as 'adaptive re-use' and should be consistent with Article 7.2.

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 or other changes to the *place* may be acceptable where it respects and does not distort or obscure the *cultural significance* of the place, or detract from its *interpretation* and appreciation.

New work should respect the significance of a place through consideration of its siting, bulk, form, scale, character, colour, texture and material. Imitation should generally be avoided.

22.2 New work should be readily identifiable as such, but must respect and have minimal impact on the *cultural significance* of the *place*.

New work should be consistent with Articles 3, 5, 8, 15, 21 and 22.1.

Article 23. Retaining or reintroducing use

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

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

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.

For many places associations will be linked to aspects of use, including activities and practices.

Some associations and meanings may not be apparent and will require research.

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 engagement, and be culturally appropriate.

In some circumstances any form of interpretation may be culturally inappropriate.

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.

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

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.

Policy should address all relevant issues, e.g. use, interpretation, management and change.

A management plan is a useful document for recording the Burra Charter Process, i.e. the steps in planning for and managing a place of cultural significance (Article 6.1 and flow chart). Such plans are often called conservation management plans and sometimes have other names.

The management plan may deal with other matters related to the management of the place.

26.3 Groups and individuals with *associations* with the *place* as well as those involved in its management should be provided with opportunities to contribute to and participate in identifying and understanding the *cultural significance* of the place. Where appropriate they should also have opportunities to participate in its *conservation* and management.

26.4 Statements of *cultural significance* and policy for the *place* should be periodically reviewed, and actions and their consequences monitored to ensure continuing appropriateness and effectiveness.

Monitor actions taken in case there are also unintended consequences.

Article 27. Managing change

27.1 The impact of proposed changes, including incremental changes, on the *cultural significance* of a *place* should be assessed with reference to the statement of significance and the policy for managing the place. It may be necessary to modify proposed changes to better retain cultural significance.

27.2 Existing *fabric, use, associations* and *meanings* should be adequately recorded before and after any changes are made to the *place*.

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.

Articles

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

The organisations and individuals responsible for management and decisions should be named and specific responsibility taken for each 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. Keeping a log

New evidence may come to light while implementing policy or a plan for a *place*. Other factors may arise and require new 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.

Explanatory Notes

New decisions should respect and have minimal impact on the cultural significance of the place.

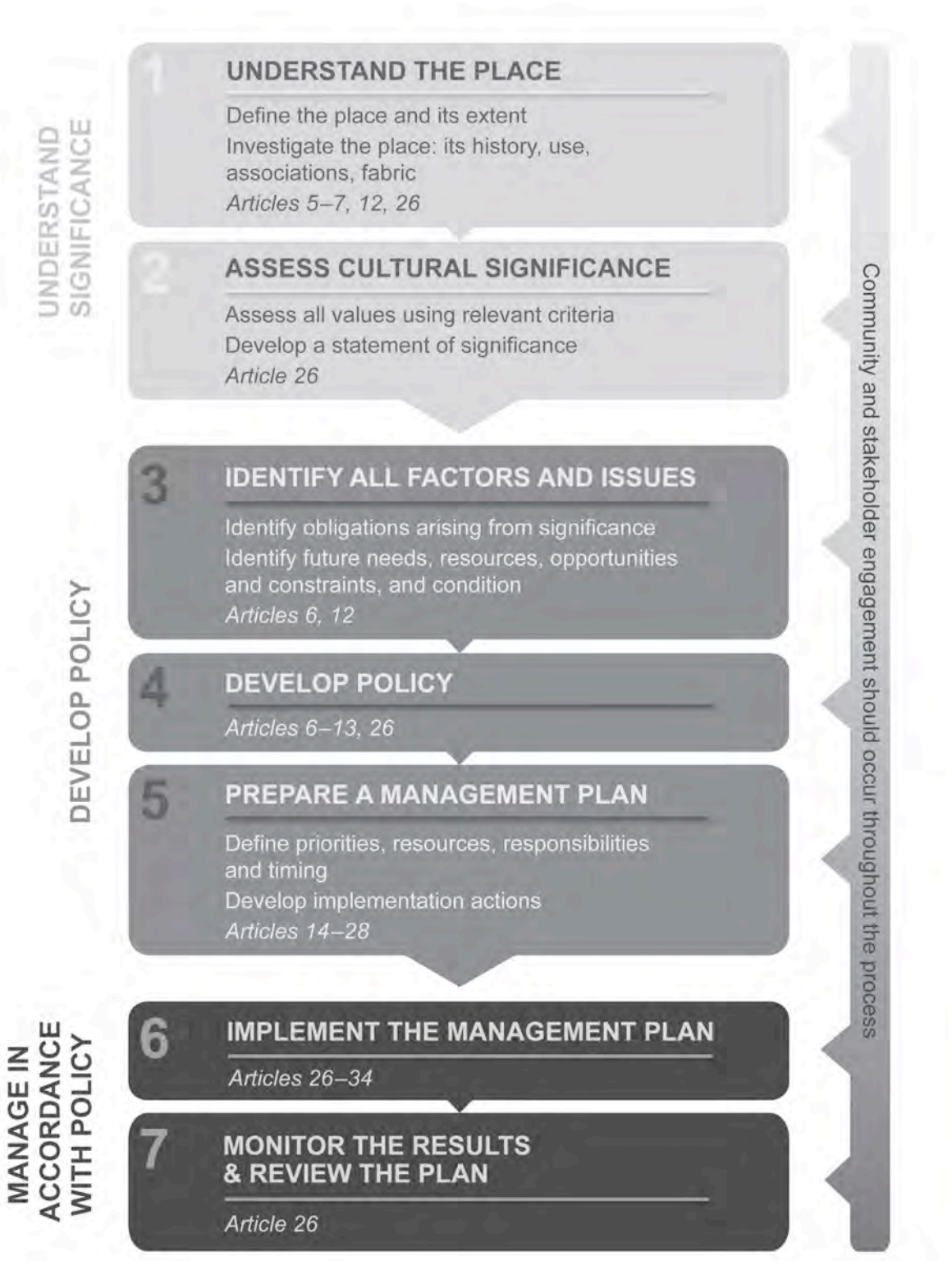
The best conservation often involves the least work and can be inexpensive.

The Burra Charter Process

Steps in planning for and managing a place of cultural significance

The Burra Charter should be read as a whole.

Key articles relevant to each step are shown in the boxes. Article 6 summarises the Burra Charter Process.



Appendix B – Preliminary Arboricultural Report

Prepared by Canopy Tree Experts, 23 September 2020

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Preliminary Arboricultural Report[1]

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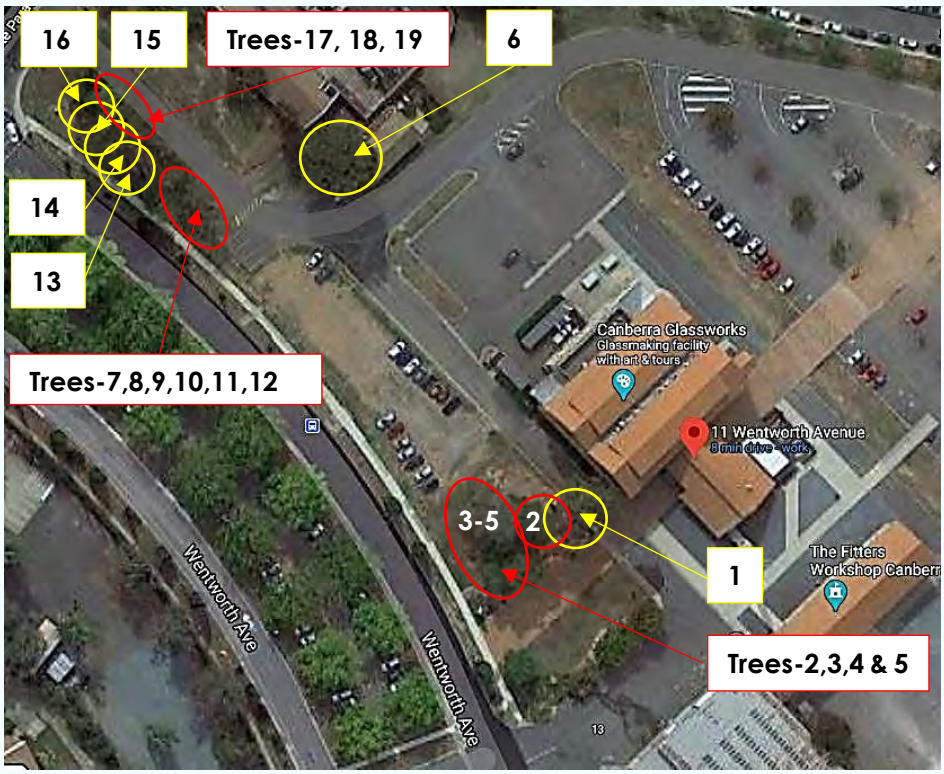


Tree Location Plan – Actmap I 2020

Brief:

Canopy Group were engaged to carry out a tree assessment and prepare a Preliminary Arboricultural Assessement of the trees. The Assessment is to conform to the requirements of *'Notifiable Instrument NI2007-422'*, and, AS4970-2009 *'Protection of trees on development sites'.*

Method, terms and limits

On the 15 September 2020 Hayley Crossing of Canopy Group inspected the above-mentioned site. It was a visual assessment at ground level photos were taken.

For explanations and terminology used please refer to the Apppenix 1. For method and limitations please refer to Appendix 2.

[1] Preliminary Arboricultural Reports are designated in AS4979-2009 'Protection of trees on development sites' and include indicative Tree Protection Zones (TPZ) to guide development layout.

Field Findings

Canopy Group assessed 19 trees of which 6 were “Regulated ”trees. All other trees were *Pinus Radiata* which is a Pest Plant/Weed Species” in the ACT.

All of the *Pinus radiata* were in decline and some were dead.

Canopy Group assessed only the trees as directed by Phillip leeson Architects. There were other street trees outside the boundary that were not assessed. There were some smaller “Non Regulated” trees next to one of the buildings as shown in the alsty image below.

For tree assessment refer to the tree schedule and tree photos to follow.

For explanation of terms refer to Appendix 1..

Tree Schedule

Tree assessed by Hayley Crossing on 15th September 2020

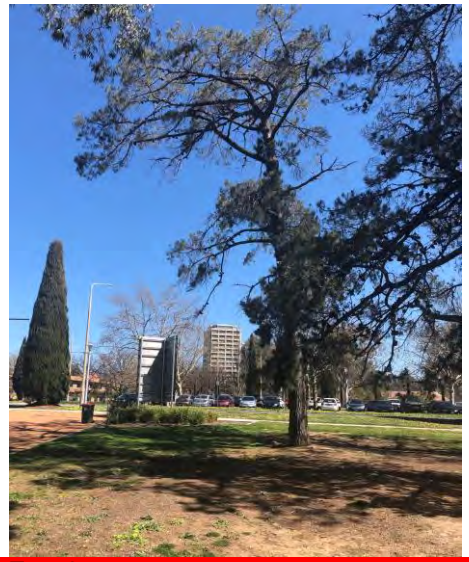
Tree No.	Species	Height	Canopy Spread (North to South)	Health	Structure	Tree Protection Status	Tree Quality Classification	Comments	Circum. 4970	Radius TPZ 4970	D10 TPZ	Radius SRZ 4970
1	Eucalyptus sp. - Gum Tree	20	21.78m	Good	Good	Regulated Tree	Exceptional	Canopy was too high to properly identify species. Deadwood present.	3.20	12.2	8.2	3.6
2	Pinus radiata - Monterey Pine	24	11m	Good	Good	Pest Plant (Weed)		The only pine tree that was displaying good health.	2.80	10.7	7.2	3.4
3	Pinus radiata - Monterey Pine	20	11m	Fair	Good	Pest Plant (Weed)		Canopy thinning at top, recovering from drought	2.10	8.0	5.4	3.0
4	Pinus radiata - Monterey Pine	20	4m	Very Poor		Pest Plant (Weed)		ALMOST DEAD	1.65	6.3	4.2	2.7
5	Pinus radiata - Monterey Pine	24	11m	Very Poor		Pest Plant (Weed)		ALMOST DEAD	2.80	10.7	7.2	3.4
6	Eucalyptus bicostata - Blue Gum	26	18m	Very Good	Good	Regulated Schedule 2	High		3.77	14.4	9.7	3.9
7	Pinus radiata - Monterey Pine	20	4m	Very Poor		Pest Plant (Weed)		ALMOST DEAD	1.95	7.5	5.0	2.9
8	Pinus radiata - Monterey Pine	20	8m	Very Poor		Pest Plant (Weed)		ALMOST DEAD	2.50	9.6	6.4	3.2
9	Pinus radiata - Monterey Pine	20	4m	Very Poor		Pest Plant (Weed)		ALMOST DEAD	1.10	4.2	2.8	2.3
10	Pinus radiata - Monterey Pine	20	DEAD			Pest Plant (Weed)		DEAD	1.95	7.5	5.0	2.9
11	Pinus radiata - Monterey Pine	20	DEAD			Pest Plant (Weed)		DEAD	1.2	4.6	3.1	2.4
12	Pinus radiata - Monterey Pine	20	DEAD			Pest Plant (Weed)		DEAD	2.50	9.6	6.4	3.2
13	Eucalyptus bicostata - Blue Gum	30	8m	Good	Good	Regulated Schedule 2	High	**Retain as a group,** Habitat tree	3.06	11.7	7.8	3.5

Tree No.	Species	Height	Canopy Spread (North to South)	Health	Structure	Tree Protection Status	Tree Quality Classification	Comments	Circum. 4970	Radius TPZ 4970	D10 TPZ	Radius SRZ 4970
14	*Eucalyptus elata* – River Peppermint	28	6m	Good	Poor	Regulated	Medium	**Retain as a group**, Major branch failure, habitat tree	3.37	12.9	8.6	3.7
15	*Eucalyptus elata* – River Peppermint	22	4m	Good	Poor	Regulated	Medium	**Retain as a group**, major branch failure now providing habitat hallow. This tree has been suppressed by others.	2.85	10.9	7.3	3.4
16	Eucalyptus bicostata - Blue Gum	28	8m	Good	Good	Regulated Schedule 2	High	**Retain as a group**	3.30	12.6	8.5	3.6
17	Pinus radiata - Monterey Pine	26	8m	Very Poor		Pest Plant (Weed)		ALMOST DEAD	2.83	10.8	7.3	3.4
18	Stump only	14	DEAD			Pest Plant (Weed)		DEAD	1.80	6.9	4.6	2.8
19	Pinus radiata - Monterey Pine	26	5m	Very Poor		Pest Plant (Weed)		ALMOST DEAD	1.70	6.5	4.4	2.8

TREE PHOTOS -taken by Hayley Crossing 15th September 2020

Tree 1 – Eucalyptus species, Regulated High Quality.

Tree 2 –
Pinus radiata - Monterey Pine
Weed species



Tree 3-
Pinus radiata - Monterey Pine

Tree 4 -
Pinus radiata - Monterey Pine

Tree 5-*Pinus radiata* - Monterey Pine
Weed Species

Tree 6 -
Regulated Schedule 2 species -*Eucalyptus bicostata* - Blue Gum, High Quality

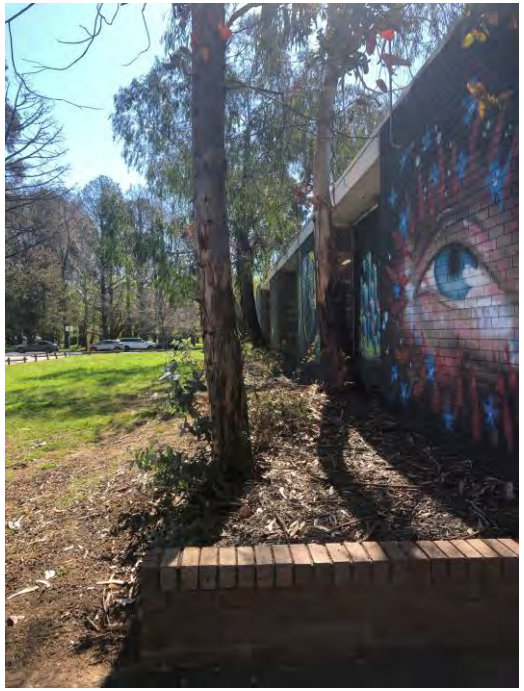
Tree 7,8,9,10,11,12 *Pinus radiata* - Monterey Pine are Weed Species

Tree 13 – Regulated Schedule 2 species -
Eucalyptus bicostata - Blue Gum, High Quality

Tree 13, 14,15, & 16 Regulated Schedule 2 species -*Eucalyptus bicostata (*Blue Gum) and *Eucalyptus nicholii* (Narrow Leaf Peppermint) are high to medium qualilty trees retain as a group only.Trees 17,18 and 19 in the foreground are the *Pinus radiata* which are weed species

Tree 16- Regulated Schedule 2 species - *Eucalyptus bicostata* - Blue Gum, High Quality

Tree 17, 18, 19 *Pinus radiata* - Monterey Pine are Weed species.



Non regulated trees adjacent to the building outside the scope of works.

Appendix 1

Explanations of Terms Used in the Tree Assessments

This Assessment form has been developed to conform to the requirements of *'Notifiable Instrument NI2007-422'*, and; The AS4970-2009 *'Protection of trees on development sites'*

Tree Number

This is a unique sequential identification number allocated to each tree located on the block, overhanging the block or on the verge. The numbers are allocated in Figure 1.

Species

The binomial species name is given

Height

The tree height was estimated except where the height was determined to be near 12m in which case it was measured using a clinometer from a measured offset. Heights of between 11 and 12 metres are recorded as 11metres.

Directional Canopy Radii'

Canopy radii were measured at 90^0 intervals starting at north by stepping. Where it is indicated that a more accurate radius may be important, it was measured by tape measure.

The four radial canopy diameters are shown (in meters) in the 'table. Where measurement of these would require entry onto neighbouring blocks or access was difficult, the measurements have been estimated. If required, the broadest canopy diameter is also measured to determine if a tree is regulated.

Health

Is an indication of the tree's health and vigour. It has been judged against the following range:

Very Good (VG), Good (G), Fair (F), Poor (P), or **Very Poor (VP)**
General comments on the tree's health and vigour, and specific comments on evidence of **insect** infestation or **disease** presence in the tree are included in the **Comments Column** if significant.

Structure

The structural integrity of the tree has been judged against the following range:

Very Good (VG), Good (G), Fair (F), Poor (P), or **Very Poor (VP)**
General comments on the tree's structure and specific comments on evidence of **Root Zone Disturbance** and **Structural Damage** to the tree are included in the **Comments Column** if significant.

Tree Protection Status

The legal status of each of the trees is given as one of the following:

Not Regulated -no protection required, can be retained or removed.

Park Tree -protected by legislation other than the Tree Protection Act 2005. To be protected by the LMPP (Landscape Management and Protection Plan), or otherwise negotiated with Urban treescapes section of TCCS.

Pest Plant - is a weed: no protection required, may be removed without permit (or retained: - depending on level of classification).

Regulated Tree -a tree that, due to its size, is classified as a 'Regulated Tree' under 'The Tree Protection Act 2005' and therefore a permit would be required to:

- Remove the tree;
- Prune the tree, except where the pruning is done by a qualified arborist and is done to the 'Australian Standard for Pruning of Amenity Trees' AS 4373;
- Carry out ground works within 2m of the 'drip line' of the tree.

A Tree Management Plan that is formulated according to the 'Notifiable Instrument NI2007-422: *Tree Protection (Guidelines for Tree Management Plans) Determination 2007' is* designed to act as an application for the Tree Damaging Activities associated with this development.

Registered Tree -a tree that has been nominated to the 'Significant Tree' Register. It may have more rigorous protection measures than a regulated tree (refer to its listing on the Tree Register.

Remnant – a regulated tree that is also a remnant eucalypt. For a Remnant, the Approval Criteria 1 (1) (d) (Inappropriate location) & (e) (substantially affecting solar access) in Disallowable Instrument *Tree Protection (Approval Criteria) Determination (No.2) DI2006-60* do not apply. Remnant eucalypt is not defined in the DI2006-60. In this assessment, it is taken as a eucalypt that was likely to be present at the time of initial subdivision of the land on which it stands.

Schedule 2 – a regulated tree that is of a species listed in Schedule 2 of Disallowable Instrument *Tree Protection (Approval Criteria) Determination (No.2) DI2006-60*. Schedule 2 lists problematic tree species for which the conservator may give

approval for removal, if on a block of less than 1200m^2

Street Tree -protected by legislation other than the Tree Protection Act 2005. To be protected by the Landscape Management and Protection Plan (LMPP).

Tree Quality Classification

These classifications are based on the guidelines in the 'Draft Guidelines for the Preparation of Tree Management Reports for Development on unleased Territory Land 2004 Draft'.

Poor – A poor quality tree is of poor form, structure or health or is likely to represent a significant safety hazard.

Low - A tree that does not have significant amenity value. (the classification Low Quality has been added (by Canopy Tree Experts) to this classification to indicate a tree that has no formal reason for removal other than is lack of significance in the landscape. Some of these trees may have potential to become significant, in which case this is indicated in the 'comments' column.

Medium - A medium quality tree is one of reasonable form, structure and health and is not likely to represent a significant safety hazard.

High – A high quality tree is one that is of good form and condition and without structural defect. It should not represent a significant hazard.

Exceptional- A tree may be considered exceptional on the basis that it is an important part of the landscape due to factors such as prominence of location, contribution to the surrounding landscape and its general appearance. An exceptional tree should be free of any defects that cannot be addressed by remedial treatment. A tree may also be assessed as being exceptional for its **botanic/scientific, cultural** and **natural heritage** values. Trees with significant **botanic/scientific, cultural** and **natural heritage** values may not be ruled out of the exceptional classification due to health, structure or safety concerns.

Comments

Any comments that are relevant are recorded in this column especially those related to health and structure and value.

Retain as a Group- The group of trees are to remain intact because removing one or some of the group will affect the structural integrity of the remaining trees. The remaining trees are more prone to windthrow that can lead to whole tree failure.

Circumference^{4970}

Trunk Circumference for the calculation of the Tree Protection Zone as per Australian Standard AS4970-2009 (TPZ^{4970}) is the trunk circumference at 1.4m above ground level. It is expressed in metres and lists the individual trunk circumferences, if there are more than 1 trunk at that height. These are used to calculate the DBH and subsequently the **Radius TPZ^{4970}**. Where there is more than one trunk at 1.4 m AGL then the DBH is calculated by the formula presented in AS4970-2009. (Branches, c.f. trunks, are not included).

Radius TPZ4970

The radius of the Root Protection Zone component of the Tree Protection Zone as calculated from the trunk diameter at 1.4m AGL as recommended by the AS4970-2009. Note the final TPZ^{4970} may need to be extended to include crown protection.

D10 ^{TPZ}

This is a construct of Canopy Tree Experts. It is the distance from the centre of the trunk to a straight-line excavation past the trunk that would excise 10% of the area of the TPZ^{4970}. This measurement has no regulatory standing. It is only an indication how much root loss may occur with the such an excavation but should be interpreted in conjunction with on-site observations as to where active absorptive roots are likely to be, species knowledge and water availability. It is presented here as one example of how a 10% loss of TPZ^{4970} area could occur.

Radius SRZ^{4970}

The figure given here is an approximation of the Structural Root Zone diameter as proposed in AS4970-2009. It is approximate as it is calculated from the circumference at 1.4m AGL + 20%, instead of the measurement at the root buttress. It is an indication only of the size of root ball required for tree stability

Accurate calculation of the SRZ may be required if a major encroachment into the TPZ^{4970} is envisaged.

Appendix 2– Method and Limits

Method

The inspection of the trees was limited to a visual examination from ground level without the use of boring or testing devices.

The VTA method[2] was used. Defects were identified and evaluated along with the tree's response to those defects, the tree's health and tree's vigour to produce an understanding of the tree's soundness.

Where indications suggest that 'sounding' would be worthwhile the trunk was 'sounded' with a mallet.

Limits

Covers only those trees listed

The information in this report covers only those trees listed and reflects the condition of those trees at the time of the inspection.

Natural variability of trees and their environment

Canopy Tree Experts' arborists conscientiously apply their knowledge in assessing trees and recommending treatments with the aim of achieving the best outcomes for their clients' trees. However, given the natural variability of trees, the arborist may not be able to detect every possible way a tree, or part of a tree, may fail above or below ground. The arborist may not be able to predict when a tree may fail, but the arborist will be able to identify most problems, and the risk of failure will be reduced by having your trees inspected and carrying out of the arborist's recommendations.

Verbal Advice

Caution should be taken in interpreting advice given verbally as understanding and recollection may be unreliable.

Further studies that may be required

No **heritage**, **ecological** or **habitat assessments** were carried out for this site by Canopy Tree Expert's arborists or their agents.

No assessment of the **benefits** of these trees was made.

Tree Risk Assessment

Although the arborist is qualified and authorised to assess risk by both the QTRA and TRAQ methods of assessment, neither method was carried out for this report. However, the training for these authorisations will have influenced the way in which the assessor views the risk associated with trees. A QTRA assessment can be carried out if requested. (www.qtra.co.uk, www.isa-arbor.com)

[2] VTA Method (Visual Tree Assessment) as presented in *The body language of trees1994 Mattheck, Claus & Breloer, Helge, The Stationery office, Norwich, UK pp.118-120.*

Appendix C – 2001 CMP Review Historical Overview

CMP update prepared by Peter Freeman Pty Ltd, August 2001. The historical overview was based on the history prepared by Brendan O'Keefe, historian as part of the 1993 Conservation Management Plan.

3.0 HISTORICAL OVERVIEW

3.1 PREAMBLE

This historical overview has been based on the history prepared by Brendan O'Keefe, historian, as part of the 1993 Conservation Management Plan. The latter section relating to the Kingston Foreshore Development Authority and the Kingston Foreshore Precinct Competition has been completed by Peter Freeman. The history has been reviewed by Keith Baker for the IEA Canberra.

3.2 POWER FOR THE FEDERAL CAPITAL

As the search proceeded in the first decade of this century for the site for Australia's proposed new Federal Capital, one of the most important questions to be decided was the source of power for lighting and other public and private needs in the future city. The parliamentarians and officials involved in the selection of the Federal Capital site had to determine the kind of power upon which the city would depend. They had to ensure, moreover, that the power supply would be sufficient for the city's needs and that the development of a power supply could be undertaken at reasonable cost. As early as 1903, T. Pridham, an engineer with the NSW Public Works Department, suggested harnessing the waters of the Snowy River to supply electric power to the then favoured site for the capital at Dalgety in southern NSW. Pridham advocated a large hydro-electric installation as the way to provide sufficient electric power for city tramways, street lighting, domestic lighting and heating, some industrial undertakings, a railway from Cooma and even a tramway to Mount Kosciusko. A year later, an independent investigation by Charles Robert Scrivener, a senior surveyor in the NSW Department of Lands, strongly endorsed Pridham's general finding that the Snowy could provide sufficiently large quantities of hydro-electricity to power the proposed Federal Capital at Dalgety.[1]

At that time, there was enormous enthusiasm worldwide for hydro-electric schemes. These schemes were hailed for their capacity to provide plentiful quantities of cheap power from a power source, water, that was perpetually self-renewing. Once the capital works in the form of a dam and generating equipment had been put in place, a hydro-electric scheme should theoretically go on providing power forever. The promise of vast amounts of cheap electricity from hydro-electric schemes prompted countries like Switzerland to develop such schemes as a way of encouraging manufacturing industries to set up within their borders.[2]

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1 D.J. Hardman, 'The Snowy Mountains Hydro-Electric Authority: origins and antecedents', *Public Administration*, vol. 27, no. 2, 1968, pp. 209-10.

2 R.C. Green, 'Hydro-electric development in Tasmania', *Tasmanian Historical Research Association Papers and Proceedings*, vol. 8, no. 1, August 1959, p. 4; K.M. Dallas, 'Water power in Tasmanian history', *Tasmanian Historical Research Association Papers and Proceedings*, vol. 8, no. 4, September 1960, p. 90.

Hydro-electric schemes in Australasia were pioneered by Tasmania and New Zealand. In 1888, a mere six years after the opening of the world's first commercial electricity generating station in London[3], a small-scale hydro-electric plant was used to light the Waverley woollen mills near Launceston. This was probably the first use of hydro-electric power in the southern hemisphere. The success of this innovation spurred the Launceston Municipal Council to embark on a more elaborate scheme, employing hydro-electric power to light the streets of the town. The lights were duly turned on in December 1895, Launceston gaining the distinction of being one of the first towns in the world to be lit by hydro-electricity. The small mining town of Reefton, in New Zealand, also utilised hydro-electricity for their lighting. This success encouraged civic leaders in Tasmania to ponder much grander schemes for harnessing hydro-electric power. They hoped that the availability of cheap and almost unlimited hydro-electricity would, as with Switzerland, attract manufacturing industries to the colony, thus helping it to break out of the severe economic depression of the early 1890s [and which would persist until well into the first decade of this century]. The proposal was still actively under discussion, at the time that Pridham and Scrivener produced their reports on hydro-electric power for the future Federal Capital.[4]

The early schemes put forward by Pridham and Scrivener were overtaken to some extent by the selection in late 1908 of the Canberra and Yass area as the site for the Federal Capital. Commonwealth government officials sought a source of power that was closer to the chosen site than the Snowy River and would therefore prove less costly. In October 1908, W.M. Corin, an electrical engineer in the NSW Public Works Department, reported favourably on the Cotter River as a source of both water and of hydro-electric power for a city with a population of 50,000.[5] However, the Advisory Board for the Federal Capital was not at all confident about the Cotter's potential. In June 1909, the Board reported that:[6]

'.:: *In view of the maximum water consumption during drought and with the minimum flow during successive years of low rainfall, it cannot be anticipated with certainty that the Cotter supply would meet the demands*

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3 Gordon F. Anderson, *Fifty Years of Electricity Supply: The Story of Sydney's Electrical Undertaking*, Sydney County Council, Sydney, 1955, p. 3.

4 Green, 'Hydro-electric development in Tasmania', pp. 3-5; Dallas, 'Water power in Tasmanian history', pp. 90-1.

5 W.M. Corin to Acting Chief Engineer, NSW Department of Public Works, 22 October 1908, in 'Reports by Officers of the Department of Public Works regarding Water Supply, Electrical Power, and Irrigation Possibilities in Connection with the Yass-Canberra Area', *Legislative Assembly NSW*, 2nd session, 1908, p. 3, item A1909/10275, Commonwealth Record Series [CRS] A100/1.

6 Advisory Board to Minister for Home Affairs, 'Federal Capital Site: Report and Recommendations of Advisory Board', 16 June 1909, pp. 7-8, item A1909/10275, CRS A100/1. The Board comprised David Miller, the Secretary of the Department of Home Affairs; Scrivener; Percy Owen, Commonwealth Director-General of Works; and Walter Liberty Vernon, the NSW Government Architect.

for water and power for a population greater than 50,000 and for manufacturing purposes of any magnitude, should such ever be proposed within the Territory.'

The Board recommended that the Queanbeyan and Molonglo Rivers be harnessed to provide alternative or additional sources of hydro-electric power. But this proposal was doomed the moment it was issued. The previous month [May 1909], E.M. de Burgh, the NSW government's Chief Engineer for Harbours and Water Supply, had reported that neither of the two rivers had an adequate or sufficiently reliable flow of water to generate the amount of electricity that would be needed.[7]

The Commonwealth, meanwhile, had not lost sight of the possibilities of the Snowy River as a source of hydro-electric power for the Federal Capital. As part of the Seat of Government Acceptance Act of January 1910, the NSW government agreed to allow the Commonwealth the right to generate electricity free of charge from the Snowy River.[8] While the development of the Snowy's hydro-electric potential would guarantee Canberra's power supply in the future, the project was a huge undertaking and it was to be some considerable time before any government could afford to take on the task.

With no imminent possibility of utilising hydro-electricity, government officials began to cast around for alternative power sources for the Federal Capital. During the years 1910 to 1911, the Department of Home Affairs actively considered installing a high-pressure reticulated gas system for the future city. The principal purpose of the system was to provide lighting for Canberra's streets, but it was also to be used for domestic cooking, heating and presumably lighting.[9] At that time, advances in gas-lighting technology had made it the equal of its electric-powered rival, and people were beginning to appreciate the superiority of gas over electricity for cooking.[10] Indeed, a little later, the design submitted by Professor Alfred Agache of Paris in the design competition for Canberra incorporated a massive gas works to supply the city with its power needs. His design won third prize, indicating that gas energy was a serious competitor to electricity. Canberra came very close to having gas as its principal power source.[11]

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7 E.M. de Burgh, 'Federal Capital - Water Supply, Canberra Site', May 1909, p. 4, item A1909/10275, CRS A100/1.

8 Hardman, p. 210; Jim Gibbney, *Canberra 1913-1953*, AGPS, Canberra, 1988, p. 1.

9 F.W. Clements, 'Report on a General Electric Supply Scheme for the Proposed Federal Capital at Canberra', 10 July 1911, pp. 3-4, item FC1911/2507, CRS A110/1.

10 Rosemary Broomham, *First Light: 150 Years of Gas*, Hale and Iremonger, Sydney, 1987, pp. 88, 94-7.

11 Robert Freestone, *Model Communities: The Garden City Movement in Australia*, Thomas Nelson, Melbourne, 1989, p. 119.

Yet, despite the improvements in gas technology, electric lighting for the home exhibited many advantages over gas lighting. Electric lights were 'clean, silent, odourless and safe', and were usually cheaper.[12] Much the same advantages were espoused for electric heating. Electricity, moreover, was by then generally regarded as the most modern of power sources, in fact the latest technological wonder.[13] It was the appropriate technology for a carefully planned, clean and ultra-modern city, and it was the one on which the city founders settled.

Within the Canberra region, there was already a precedent for the use of electricity. During the period 1888 to 1896, the Queanbeyan Wool and Manufacturing Company's works located in Oaks Estate generated electricity to power its industrial machinery. It was probably the first electricity generated in what was to become the Australian Capital Territory. Around the time that the ACT's borders were being drawn up, electricity was used to light a Hospital Ball held in the Protestant Hall in Queanbeyan, and afterwards to light the Swastika Picture Show conducted in the same hall.[14] With the leasing of Duntroon estate in November 1910 for the Royal Military College, the old stables on the property were adapted to house a plant similar to those used in military fortifications in order to generate electric light. The plant, a small oil engine, was in use by the time of the College's opening on 27 June 1911.[15] In the local area, as in the rest of Australia, electricity was seen as the coming medium of power.

Refer
Sequential Map No. 1
1911 location map of the Commonwealth Territory & City Area within NSW
Appendix 1 : Volume 2

Initially, Canberra's founders considered allowing the construction of a number of small-scale electricity-generating plants throughout the proposed city area.[16] They may have intended that these plants would be a mixture of government and private concerns. But the haphazard growth of electric power supplies in Australia's main metropolitan centres did not inspire confidence in this idea.[17] For reasons of reliability and economy, the city founders soon decided upon one centralised power system that would be set up and operated solely by the federal government.[18] It remains one of the

12 Shar Jones, *Let There Be Light: The Development of Domestic Lighting in New South Wales 1788-1904*, Historic Houses Trust of New South Wales, Sydney, 1984, pp.12, 15.

13 Broomham, pp. 88, 96-7.

14 Errol Lea-Scarlett, *Queanbeyan District and People*, Queanbeyan Municipal Council, Queanbeyan, 1968, p. 190.

15 Colonel J.E. Lee, *Duntroon: The Royal Military College of Australia 1911-1946*, Australian War Memorial, Canberra, 1952, p. 16; Causeway residents and Jill Waterhouse, *Canberra: Early Days at the Causeway*, ACT Museums Unit, Canberra, 1992, p. 17.

16 Harold W. Smith to Minister for Home Affairs, 'Report on Electric Supply Canberra', 12 June 1913, p. 1, item 19/8647, CRS A1/1.

17 Guy Allbut, *A Brief History of Some of the Features of Public Electricity Supply in Australia and the Formation and Development of the Electricity Supply Association of Australia 1918-1957*, Electricity Supply Association of Australia, Melbourne, 1958, pp. 25, 40-1.

18 Smith to Minister for Home Affairs, 'Report on Electric Supply Canberra', 12 June 1913, p. 1, item 19/8647, CRS A1/1.

great, though almost unrecognised, achievements of the city founders that Canberra's power supply was planned and set up as integrated system from the start.

At the beginning of June 1911, the Department of Home Affairs commissioned F.W. Clements, Chief Engineer and General Manager of the Melbourne Electric Supply Company, to report on a centralised electric power system for the proposed Federal Capital. By that time, Colonel Percy Owen, the Commonwealth Director-General of Works, had already decided that the power station should be erected on the banks of the Molonglo River, though the exact location had yet to be fixed. Clements was instructed to draw up a scheme for Canberra's power supplies based upon a projected population for the city of 25,000 by the year 1932[19]; the earlier projections of an eventual population for Canberra of 50,000 were now thought to be wildly extravagant.[20] The figure of 25,000 conformed to that specified in the recently announced design competition for the Federal Capital.[21]

Clements submitted his report to Owen on 10 July 1911. Clements reported that, to cater for a population of 25,000, Canberra's power generating equipment would have to be of sufficient capacity to cope with a maximum load of 2,800 kilowatts [kW]. This did not include any provision for tramways or significant manufacturing industries that might grow up in or around the city. On the basis of the postulated maximum load, Clements recommended the procurement of five generators, each capable of putting out 600 kW. As the demands for power would initially be quite low, he proposed the purchase at first of only one generating plant; the rest could be bought progressively later on as Canberra's population grew and the number of public and domestic buildings increased. The proposal suited the Department of Home Affairs very well. The Department felt that it could not select the permanent site for the Powerhouse until the design for the city had been determined, thus the first generator could be set up in a cheap, temporary building and later moved into a permanent installation that would house the full complement of generating machinery.[22]

When the power station eventually reached full capacity, power would be supplied for most of the time, according to Clements' scheme, by four of the plants running continuously; the fifth generator would only be brought into service at periods of maximum

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[19] Clements, 'Report on a General Electric Supply Scheme for the Proposed Federal Capital at Canberra', 10 July 1911, pp. 1, 2, 3, 21, item FC1911/2507, CRS A110/1.

[20] See, for example, minute, Corin to Under-Secretary, Dept of Public Works, 'Federal Capital - Electric Light and Power Supply', 5 June 1909, pp. 3-4, item A1909/10275, CRS A100/1. See also Gibbney, p. 29, for the reaction of Miller, Owen and other senior public servants to Griffin's plan for a city of 75,000 inhabitants.

[21] Gibbney, *op cit*, p. 29.

[22] Clements, 'Report ...' *op cit*, 10 July 1911, pp. 6, 11, item FC1911/2507, CRS A110/1; minute, Director-General of Works to Secretary, Dept of Home Affairs, 'Site for Power Station: Federal Capital', 7 July 1911, item FC1913/1600, CRS A110.

demand on the system. Power would be distributed to the general population by three-phase current at 5,000 volts. The power at the consumers' terminals, i.e. at their home power points, was to be supplied at 240 volts. This arrangement was to conform with the system then operating in Sydney. Clements felt that, as Sydney was relatively close, most of Canberra's future residents would purchase their electrical appliances from there. Power would also be supplied to the Cotter Pumping Station about 10.5 miles [17 km] away. For the Cotter supply, the voltage would be stepped up by three-phase transformers to 11,000 volts, but then reduced to 2,500 volts at the Pump House.[23]

Clements was well aware of the need to take aesthetic considerations into account in his report. He recommended that the electricity mains from the power station and, if possible, transformer substations be placed underground. Otherwise, in the case of substations, he thought that they should be as unobtrusive as possible. He envisaged them as neat, decorative structures erected at out-of-the-way corners in public parks, street plantations and the like. Somewhat at odds with these considerations, he favoured a site for the Power House near the city, '*... probably at a spot on the banks of the Molonglo*'.[24]

Clements' scheme was swiftly accepted by the Government as the blueprint for Canberra's power supply. The promptness of its acceptance clearly reflected the keenness of the Minister for Home Affairs, King O'Malley, to press on with the development of the future capital. Early in August, the specifications for the initial set of equipment required for the Power House were completed and tenders were called.[25]

The specifications were drawn up by Clements, with assistance from Andrew Christie, a marine engineer from Sydney, who was the Engineering Adviser to O'Malley's Department.[26] Their specifications detailed three coal-fired boilers as manufactured by the English firm of Babcock and Wilcox, or of a similar water-tube type. Two of these were to be arranged in a pair and the other was to stand alone. The boilers were to be fitted with superheaters in order to supply superheated steam to the engines. There were to be two feed-pumps, together capable of delivering 5,000 gallons of water per hour to the boilers. The first engine was to be a triple expansion steam engine

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[23] Clements, 'Report ...' *op cit*, 10 July 1911, pp. 16, 17, item FC1911/2507, CRS A110/1; minute, Smith to Minister, Dept of Home Affairs, 'Report on Electric Supply Canberra', 12 June 1913, item 19/8647, CRS A1.

[24] Clements, 'Report ...' *op cit*, 10 July 1911, pp. 18, 19, 21, item FC1911/2507, CRS A110/1.

[25] Minute, Director-General of Works to Secretary, Dept of Home Affairs, 'Site for Power Station - Federal Capital', 7 July 1911, item FC1913/1600, CRS A110; Clements and A. Christie, 'Specification of Power Generating Equipment at Federal Capital Site', August 1911, item FC1911/2507, CRS A110/1.

[26] H.A. Jones, 'Electricity', in Alan Fitzgerald, [ed.], *Canberra's Engineering Heritage*, Canberra Division, The Institution of Engineers, 1983, p. 129.

that would run at a speed of 250 rpm and was to be easily capable of driving the 600 kW generator to which it would be directly coupled. One condensing plant was to be provided.[27]

The amount of water being fed to the boilers was not directly related to the amount of water being drawn from the Molonglo River. After passing through the engines, the used steam was condensed and recirculated to the boilers, with only a proportion of fresh treated water being added to make up for losses [and occasional blow down to clean out accumulated dirt]. Most of the water drawn from the Molonglo River was used to cool the condensers, and was then returned at a higher temperature to the river. This warmer water made the pool above the weir attractive for swimming.

3.3 THE SITE FOR THE POWER STATION

There was one major problem arising from Clements's report and that was its timing. It was commissioned only a few weeks after the announcement in April-May 1911 of the design competition for the Federal Capital, and was accepted by the federal government more than six months before the competition was scheduled to close.[28] As the government was determined to press on with the laying of the city's foundations and as a power supply was an essential prerequisite for construction and habitation, senior government officials were faced with the problem of siting the power station without the benefit of a City Plan. Owen and his colleagues sensibly decided to select a provisional site, with only a temporary structure to be erected upon it.[29]

By 7 July 1911, three days before Clements submitted his report, Owen had pinpointed the site for the temporary power station. It was an area of about twenty acres on the southern bank of the Molonglo near its junction with a small creek, at a point where a gauging weir was to be built across the river.[30] The purpose of the weir was to measure the flow of the Molonglo River, as part of the general assessment of the water resources of the new Federal Territory.[31] Approval to build this weir had been given on 3 February 1911.[32]

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27 Clements and Christie, 'Specification of Power Generating Equipment at Federal Capital Site', August 1911, pp. 4, 9, 11, 13, 18, item FC1911/2507, CRS A110/1.

28 Gibbney, pp. 24, 25.

29 Minute, Director of Works to Secretary, Dept of Home Affairs, 'Site for Power Station - Federal Capital', 7 July 1911, item FC1913/1600, CRS A110.

30 Minute, Director of Works to Secretary, Dept of Home Affairs, 'Site for Power Station - Federal Capital', 7 July 1911; David Miller, note for file, 11 July 1911; minute, J.T.H. Goodwin to Secretary, Dept of Home Affairs, 'Federal Capital - Site for Power Station', 10 August 1911, item FC1913/1600, CRS A110; Clements, 'Report on a General Electric Supply Scheme for the Proposed Federal Capital at Canberra', 10 July 1911, p. 21, item FC1911/2507, CRS A110/1.

31 Minute, Owen to Secretary, Dept of Home Affairs, 31 January 1911, item E1/29/1210, CRS A6269/1.

32 Memo, Director of Commonwealth Lands and Surveys to Land and Property Officer, Dept of Home Affairs, 27 April 1914, item E1/29/1210, CRS A6269/1.

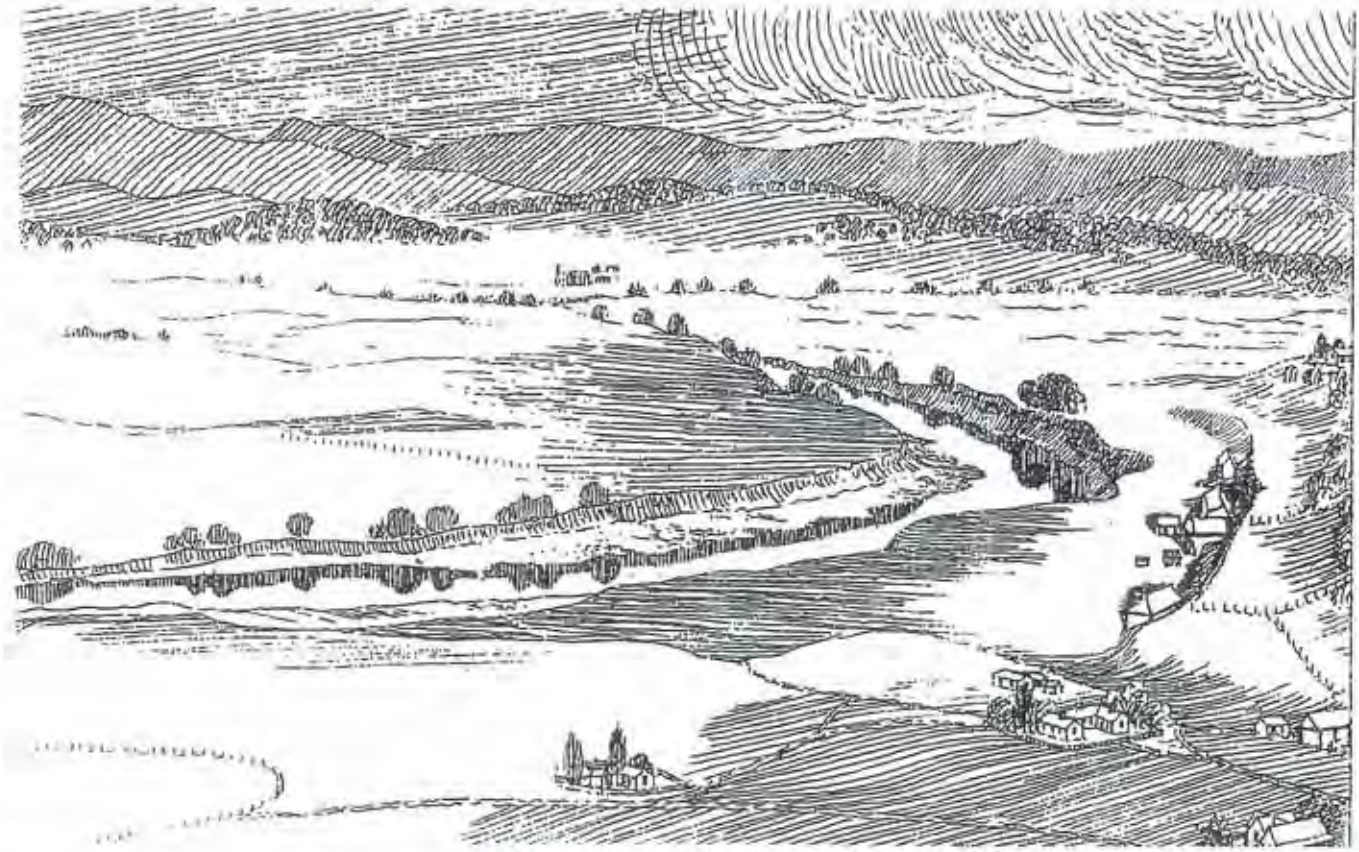

Figure 1
Henry Maitland Rolland sketch showing the Molonglo River and the Royal Military College, **April 1913** [detail].
NLA Canberra, No. G8984

Figure 2
H.M. Rolland, 'Canberra from Black Mountain' [detail], 1914.
NLA Canberra, H.M. Rolland Collection

To Owen and his colleagues, the site presented an obvious advantage for power generating equipment, as the pool created by the weir would, they hoped, provide a constant and adequate supply of water for the power station's boiler plant.

After the temporary location had been chosen, there was a strong feeling among senior government officials such as David Miller, the Secretary of the Department of Home Affairs, that, until the design for the city had been decided, no permanent structures should be erected on the site.[33] Scrivener, now the Director of Commonwealth Lands and Surveys, went even further. He declared that: '... *Whatever the design of the City, the site is unsuitable for either permanent Powerhouse or Kilns if the beauty of the ultimate City is to be a factor of importance.*'[34] At length, in November 1911, O'Malley approved the temporary site, on condition that no permanent buildings would be erected on it, the site would be kept absolutely free from pollution and there would be no interference with the contours of the site.[35]

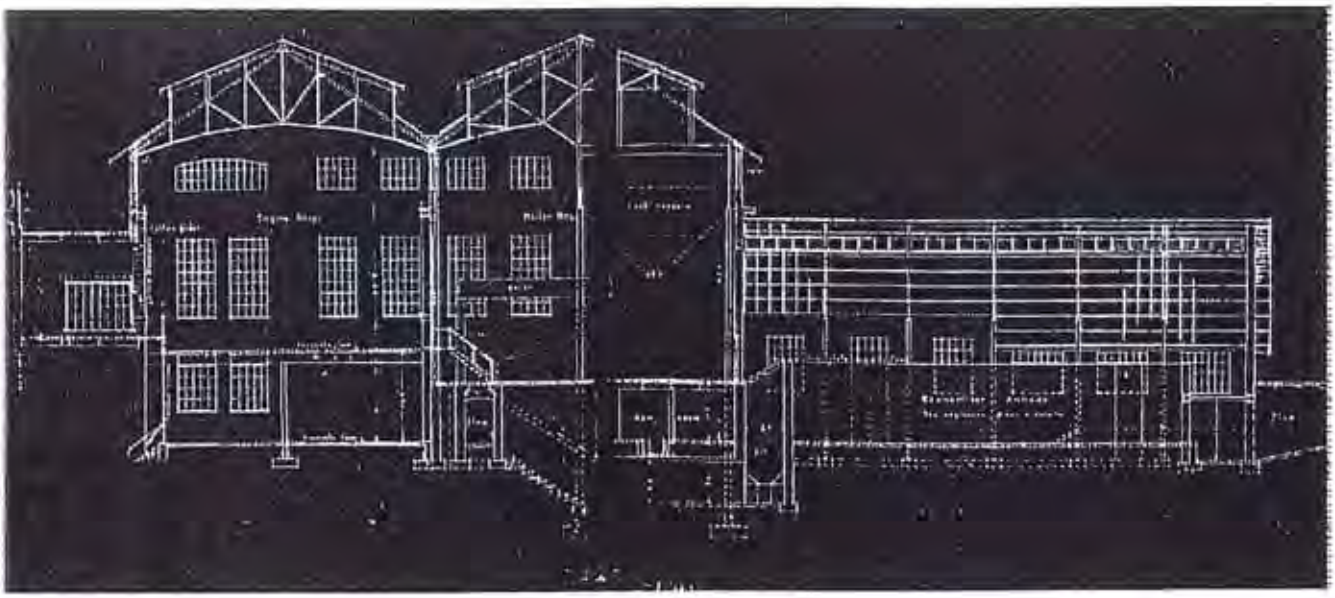

Figure 3
Section of Power House, c1911
National Australian Archives

Meanwhile, the Commonwealth Government Architect, John Smith Murdoch, began drawing up plans for the temporary Power House. Back in August, Owen had envisaged the temporary structure as merely a galvanised iron shed, which would house the first generator and its associated equipment.[36] The difficulty was that the equipment needed for one generator was quite substantial and required an iron shed of some considerable size. For Murdoch, there was an added problem, in that he had to estimate the length of time that the

33 - Miller, note for file, 11 July 1911, item FC1913/1600, CRS A110.
34 Minute, Scrivener to Miller, 'Temporary Power Station - Lime Kilns etc.', 15 September 1911, item FC1913/1600, CRS A110.
35 Memorandum, Minister for Home Affairs to Director-General of Works, 20 November 1911 item FC1913/1600, CRS A110,.
36 Minute, Director of Works to Secretary, Dept of Home Affairs, 'Site for Power Station: Federal Capital', 8 August 1911, item FC1913/1600, CRS A110.

Refer
Architectural Plan No. 2
Appendix 2, Volume 3

structure would serve as a temporary installation. It may well have turned out that the building would serve as Canberra's Power House for some years and it would therefore have to be large enough to accommodate all or most of the equipment detailed in Clements's report. On this basis, Murdoch went ahead and designed a structure that could house all of the equipment. But to indicate its temporary nature, the building was to be clad with galvanised iron.[37]

By 15 May 1912, all tenders for the construction of the Power House had been received and were under consideration, and the generating equipment had been ordered from England. At the same time, entries in the city design competition, which had closed at the end of February, were still being judged. Owen hoped that the winning design would be chosen soon so that the permanent site for the Powerhouse could be fixed before building commenced. But time was the problem. '*... It will be necessary to start building within a month,*' he warned Miller, '*because otherwise it would not be ready for plant when it is delivered.*'[38] A further obstacle was that the government had not yet acquired Yarralumla Station, on whose land the site for the Power House was located.[39] Clearly, Owen felt that, if the city plan were not decided upon soon, it would be too late to halt the building of the substantial Power House structure on its temporary site. Once built, it might become the permanent location.

On 23 May 1912, the Board judging the design competition announced its decision in favour of a design by the Chicago architect, Walter Burley Griffin. Unfortunately for Owen, Griffin did not specify a site for the Power House in his winning entry, although it was clear that the temporary site did not fit in at all with his ideas for that section of the city. Moreover, the only site that seemed suitable for a Power House in Griffin's plan was a designated industrial area where the suburb of Dickson now exists. This was far from any suitable supplies of water and would require a much greater length of railway line to service it. Griffin's plan, along with those of the other prize-winners in the competition, was soon referred to a board appointed by the Department of Home Affairs, whose stated task was to work out how to implement the best features of each plan in the building of the city. Under the chairmanship of Miller, the so-called 'Departmental Board' prepared their own Plan. John Smith Murdoch, the eventual designer of the Power House, was the Board's lone architect. In November, the Board presented its own plan, loosely based on Griffin's design, and this showed Canberra's power station firmly located on what had formerly been regarded as its temporary site.[40]

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37 *Report of the Royal Commission on Federal Capital Administration*, Report no. 6, *Water Supply, Power and Miscellaneous*, Parliamentary Paper no. 16 of 1917, p. 16.

38 Minute, Owen to Secretary, Dept of Home Affairs, 'Federal Capital - Site for Power Station', 15 May 1912, item FC1913/1600, CRS A110.

39 Minute, Goodwin to Secretary, Dept of Home Affairs, 'Federal Capital - Site for Power Station', 10 August 1912, item FC1913/1600, CRS A110.

40 Gibbney, *op cit* pp. 27, 29 and plan facing p. 33.

Figure 4
Commonwealth of Australia Federal Capital Competition, 1912. Walter Burley Griffin's winning submission for the design of the Federal Capital.
NLA images database

The primary rationale for the Board's recommendation lay in the express practical purpose for which it had been established: to determine how to make the designs work on the ground. The Board members, pragmatic men and faithful public servants, regarded Griffin's plan for a city of 75,000 people as an unrealistic extravagance that would involve the Federal Government in vast and unnecessary expenditure. They wished to temper Griffin's idealistic vision with a solid dose of pragmatism, reducing the project to manageable proportions and keeping costs down.[41] The Power House was perhaps the most obvious case in point. The Board members would have been deeply concerned at the wasted expense in putting up a sizeable temporary building, only to pull it down a year or so later when Griffin made up his mind where to site the permanent power station.

41 *Ibid*, p. 29.

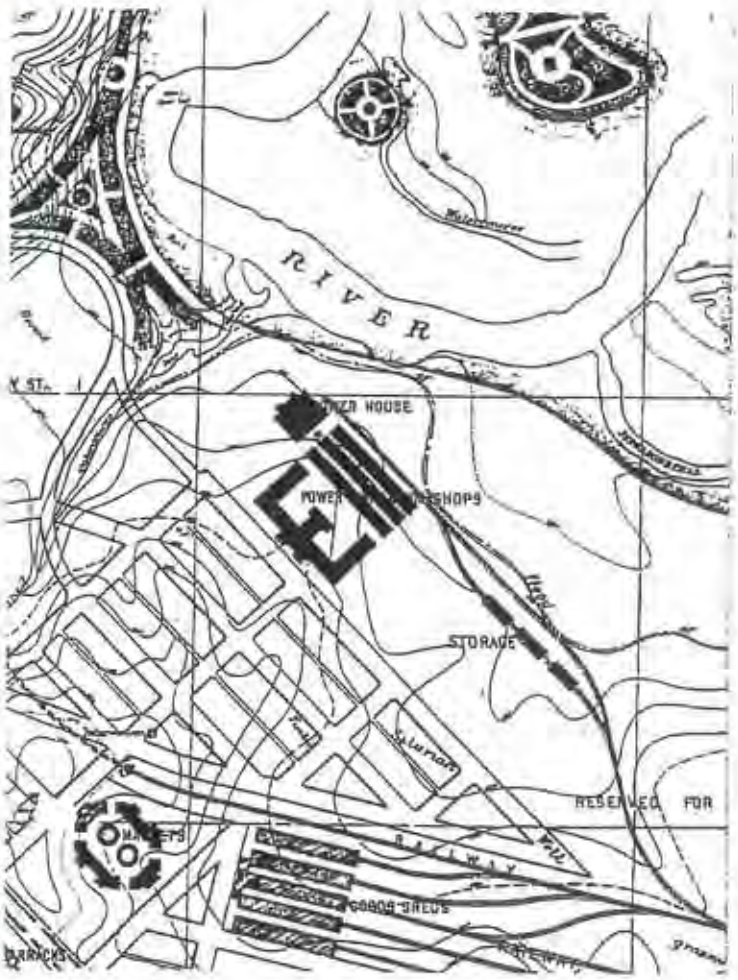

Figure 5
November 1912. Departmental Board Plan (on 1910 base)
NLA Canberra. G8984.C3.S1.1912

Conversely, the Board members would have well appreciated the outstanding practical advantages of the 'temporary' site earmarked for the Power House. Situated on the proposed railway extension from Queanbeyan, the power station could take deliveries of coal directly from trains, while the nearby weir would provide it with a secure supply of water. Virtually no other site close to the city offered such advantages. Moreover, any other functionally suitable site that may have suggested itself would have interfered at least as much with the city's-aesthetic qualities. It was with these considerations in mind that Board members such as Charles Scrivener, who had little more than a year before warned of the aesthetic disaster of erecting a permanent power station on the site, came to recommend it as the most suitable permanent location.

Refer
Architectural Map No. 2
Appendix 3 : Sequential Maps
Volume 2 : Appendices

The re-orientation towards a permanent structure may have been reflected in the decision to use bricks, instead of galvanised iron, to clad the building. Bricks would have been a more permanent and aesthetic building material. In the event, one and a half million bricks were manufactured for the Power House, but the local shale proved unsuitable for the dry-press process by which they were made. Perhaps fortunately, the bricks disintegrated before they could be used. For a cladding material, the Power House builders then turned

Figure 6
Weir at the Molonglo River originally intended for measuring river flow and later used as water supply for the power station c.1915.
A.E. Minty Collection 1959

to unreinforced concrete made with river gravel. It was cheaper than brick, and was considered to be aesthetically superior to galvanised iron.[42]

Preliminary work for the Power House commenced almost immediately upon presentation of the Departmental Board's plan.[43] The barrier that ownership of Yarralumla Station had formerly posed to the commencement of work on the structure had by now been resolved by the government's acquisition of the property on 27 July 1912.[44] In February 1913, Federal Cabinet formally ratified the Board's plan for Canberra, thus confirming as permanent the site for the Power House.[45] The determination of the permanent site was made well before Griffin's arrival in Australia and represented a most significant pre-emption of his detailed plans for the Federal Capital.

Refer
Sequential Map No. 3
c.1913 ACT Feature Map, Sheet 6
Appendix 1 : Volume 2

When Griffin eventually arrived in Australia in August 1913, he was appalled to find a substantial industrial building under construction at a prominent site in his future city. It was a rude shock to him and perhaps the first inkling he received of the difficulties he would face in attempting to translate his design into reality. He soon attempted to overturn the Departmental Board's decision and have the Powerhouse again recognised as only a temporary structure. To indicate its temporary nature, he proposed that it be clad with corrugated iron.[46] For the permanent building, he advocated an

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42 *Report of the Royal Commission on Federal Capital Administration*, Report no. 6, *Water Supply, Power and Miscellaneous*, Parliamentary Paper no. 16 of 1917, p. 16; Jones, 'Electricity', p. 129.

43 Minute, Director-General of Works to Director of Commonwealth Lands and Surveys, 23 January 1913, item FC1913/1600, CRS A110.

44 Minute, Goodwin to Secretary, Dept of Home Affairs, 'Federal Capital - Site for Power Station', 10 August 1912, item FC1913/1600, CRS A110.

45 Gibbney, *op cit* p. 32.

46 Ian Hirst, draft history of Powerhouse, p. 2, Hirst file.

Refer
Sequential Map No. 1
1913 plan showing location proposed by Griffin for the Power House.
Appendix 1 : Volume 2

entirely different site on the northern shore of his East Basin, next to the Causeway.[47] The choice seems rather curious in that a Power House erected there would have presented at least as much of an aesthetic problem. But as it was, Griffin's proposal was just too late. Construction of the Power House was well under way and the costs were high enough to deter any thoughts of abandoning it in favour of an alternative building across the Molonglo. By 1916, Griffin had inevitably acquiesced in the power station site.[48]

Refer
Architectural Drawings No. 1 & 2
1911. Architectural plan and section, J.S. Murdoch, Architect
Appendix 2 : Volume 2

From the original selection of the temporary site in July 1911, it had become by degrees the permanent site, and the Power House had become almost by accident the first permanent building to be constructed for the new Federal Capital. Varying from Griffin's plan, the Power House would come to exert its own significant influence on building and social developments in the area around it.

3.4 THE CONSTRUCTION OF THE POWER HOUSE

With the government's acceptance in July 1911 of Clements's report on the power supply for Canberra, Owen immediately set to work to put the scheme into practice. Tenders were called for the first generating equipment in August and, by May the following year, all tenders had been received and recommendations submitted to the Minister. His approval soon followed. The major pieces of equipment chosen were a generator [or alternator] supplied by Gilbert and Lodge of Sydney, a Bellis and Morcom triple expansion engine to drive the generator, and three Babcock and Wilcox boilers.[49] For some unknown reason, a 600 kW Brush alternator was substituted for the Gilbert and Lodge equipment, and a Greens Economiser was added to the list.[50] An economiser was a device that used the waste heat from the boiler flues to pre-heat water feeding into the boilers. Since all the machinery was of English manufacture, it had to be shipped from England.

Refer
Sequential Map No. 5
January 1913 : Layout for Railway & Powerhouse site, Federal Capital
Appendix 1 : Volume 2

Preliminary work on the Power House commenced in November 1912, but for various reasons a start could not be made on the Power House proper.[51] For one thing, design work on the steel frame of the building had not been completed and was still going on in the latter half of December.[52] The exact position of the building, moreover, had not yet been fixed. On 19 December, Owen informed the Engineer-in-Chief for Railways that the entire complex had been shifted a little to the north-east.

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47 Jones, 'Electricity Supply in the Australian Capital Territory', transcript of address, 21 May 1970, p. 2; Jones, 'Electricity', p. 129.
48 Jones, 'Electricity' *op cit*, p. 129.
49 Minute, Director-General of Works to Secretary, Dept of Home Affairs, 'Federal Capital Power Generating Station - Extension to Plant', June 1913, item FCW1913/610, CRS A199/1.
50 Jones, 'Electricity' *op cit*, pp. 129-30.
51 Gibbney, *op cit* p. 9.
52 Jones, transcript of address, *op cit* p. 3.

This was to conform with the plan for Canberra that had been drawn up by the Departmental Board. The move had the advantage of reducing the distance that water would have to be brought from the Molonglo to the Power House. On the debit side, it would increase the cost of railway construction because a greater length of track and a larger embankment would have to be built. Owen thought that the increased cost would be offset to some extent by the greater quantity of spoil that would be available from the building site, spoil that could be used to raise the embankment. He promised his colleague that his Works branch, in collaboration with Scrivener, would soon fix the exact position for the Power House.[53]

Over a month later, however, the position had still not been fixed. Owen complained to Scrivener that he had not yet provided him with the precise location for the north-east corner of the building, the point from which the foundations for the whole structure had to be laid out. Owen had thus been unable to begin work on the Power House. The building was to be erected with its long sides parallel to the designated line for the railway. The question was, however, where it should be placed relative to the intersection of the railway track with the proposed street alignment north-west of the Power House.[54]

When the siting issue was finally resolved, work at last commenced on the Power House proper in late January 1913.[55] Owen estimated a time of about forty weeks to complete construction.[56] As he had feared, the delays in deciding upon the design of the city and in fixing a site for the Power House resulted in the building being nowhere near ready to receive the generating equipment when it arrived in Australia about the end of the month. The equipment was held in a bond warehouse, probably in Sydney, until construction had proceeded to a point at which it could be installed.[57]

Apart from the Power House itself, the plan by the Departmental Board made allowance for a series of substantial workshops and storage buildings ancillary to the main building. These were to be erected to the south and south-east of the Power House. By January 1913, the plans had been altered in such a way that the ancillary structures were in essence strung out in a line running south-east from the Power House. Owen was keen to start work on the ancillary store buildings virtually as soon as construction of the Power House itself got properly under way.[58]

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53 Minute, Director-General of Works to Engineer-in-Chief for Railways, 19 December 1912, item FC1913/1600, CRS A110.

54 Minute, Director-General of Works to Director of Commonwealth Lands and Surveys, 23 January 1913, item FC1913/1600, CRS A110.

55 Ibid.

56 Minute, Director of Works to Secretary, Dept of Home Affairs, 'Federal Capital - Site for Power Station', 15 May 1912, item FC1913/1600, CRS A110.

57 Minute, Smith to Director-General of Works, 10 February 1914, p. 1, item 19/8647, CRS A1/1.

58 Minute, Director-General of Works to Director of Commonwealth Lands and Surveys, 23 January 1913, item FC1913/1600, CRS A110.

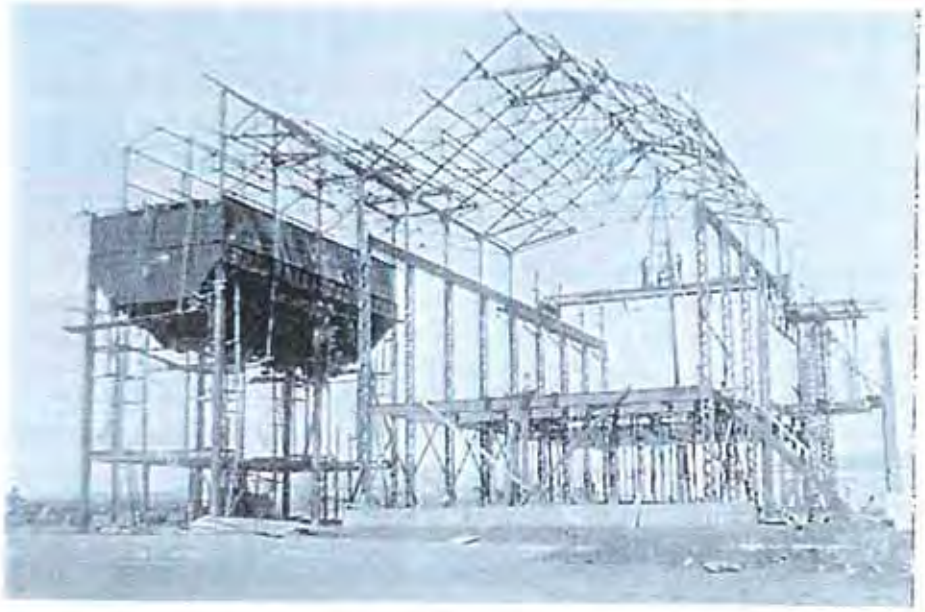

Figure 7
Kingston Power House under construction, c.1912-20, north elevation, showing the installation of the steel frame.
SLNSW, ML, Pieman, At work and play - 01428

Figure 8
West elevation, showing the lower external walls clad, with the roof substructure in place.
NLA Images No. 23043

Figure 9
West elevation showing the external concrete walls completed and awaiting roof cladding.
NLA Images No. 23058

Figure 10
Kingston Power House under construction, **c.1912-20.**
East elevation, showing the lower external walls completed, with the roof substructure in place.
NLA Images No. 23046

Figure 11
North elevation, showing the completion of the external concrete walls.
NLA Images No. 23059

Refer
Architectural Plans Nos 3 & 4
c.1913, Details of Facades in Brickwork, J.S. Murdoch, Architect
Appendix 2 : Volume 2

Towards the end of April 1913, three months after the commencement of construction, Owen judged that the time had come to order additional generating equipment. With the amount of construction work increasing steadily in Canberra, Owen feared that the first 600 kW generator would become overloaded almost as soon as it commenced operation. Owen knew that it would take about a year for the tendering, supply and installation of extra machinery, he wanted to be well prepared to cope with Canberra's power demands when the power station eventually opened. He therefore called in Clements, Christie and Thomas Hill, the Department's Assistant Director Mechanical Engineering, for consultations.[59]

While noting that more efficient machinery was now available, Christie recommended the Department obtain a duplicate set of equipment. Economies would be achieved, he felt, through the capacity to interchange parts. He also floated the idea of the Department acquiring at a later date two mixed pressure turbines

[59] Letter, Director-General of Works to Clements, 25 April 1913, item FCW1913/610, CRS A199/1.

Figure 12
Kingston Power House under construction, **c.1912-20.**
Interior fitout of the Engine Bay.
NLA Images No. 23060

Figure 13
Interior fitout of the Boiler Bay.
NLA Images No. 23061

that would be more efficient and put out a greater kilowattage than the original machines. He pointed out that a smaller mixed pressure turbine would be needed as well, if the Department proceeded with the establishment of a proposed cement factory. Owens, Clements and Hill at length accepted Christie's ideas and, following ministerial approval, a second set of machinery was ordered in November 1913. This comprised another Bellis and Morcom steam engine, another Brush alternator and another Babcock and Wilcox boiler, together with a circulating pump and a condenser.[60]

Work, meanwhile, was progressing on the Power House complex. In June 1913, workmen began construction of the railway extension

[60] Letter, Director-General of Works to Clements, 25 April 1913; minutes of meeting in Melbourne, 5 June 1913, involving Owen, Christie, Clements, the Assistant Electrical Engineer and the Assistant Mechanical Engineer of the Dept of Home Affairs; minute, Assistant Mechanical Engineer to Director-General of Works, 'Extension to Power Plant, Federal Territory', 19 June 1913, item FCW1913/610, CRS A199/1.

from Queanbeyan.[61] By this stage, too, building of the subsidiary structures was probably well advanced. Immediately to the south-east of the Power House, a large engineers' workshop [or machine shop] was erected using galvanised iron. Behind it were three other galvanised iron sheds: a blacksmith's shop, an electrical store and workshop, and a joiners' shop. Further away in the same general south-easterly direction was another storage building and two sheds, one quite large and the other small. Made of galvanised iron, they were apparently used to store cement. A smaller blacksmith's shop and an office were built of galvanised iron on a line running north-east from the engineers' shop. As all of the mains were to run underground from the Power House, a wooden tower was erected to the north-west some time after June 1913. Supply lines to various parts of the city, such as the distribution to Duntroon and the Cotter, radiated out overhead from this tower, refer 1921 plan below.[62]

Refer
Architectural Plans Nos 1 to 4
1913 Architectural drawings of the Powerhouse [brick]
Appendix 2 : Volume 2

In February 1914, the Chief Electrical Engineer of the Department of Home Affairs, Harold W. Smith, reported that the first set of generating equipment, which had been held in bond for over a year, would soon be installed.[63] It was probable that the contractors had waited until the railway line from Queanbeyan was completed before they undertook this task. The machinery was very heavy, the flywheel of the generator alone weighing eight tons,[64] and it would have been far easier to transport the machinery from Sydney direct to the Powerhouse site by train. The first train arrived at the Powerhouse, on completion of the railway extension from Queanbeyan, on 25 May 1914.[65]

Figure 14
Kingston Power House under construction, **c.1912-20.**
Detail of Power House boilers.
NLA Images No. 23071

61 Gibbney, *op cit* p. 15.
62 Minute, Smith to Minister for Home Affairs, 'Report on Electric Supply Canberra', 12 June 1913, p. 5, item 19/8647, CRS A1/1.
63 Minute, Smith to Director-General of Works, 10 February 1914, item 19/8647, CRS A1/1.
64 G.H. Temperley, letter to editor, *Canberra Times*, 25 February 1982.
65 Gibbney, *op cit* p. 15.

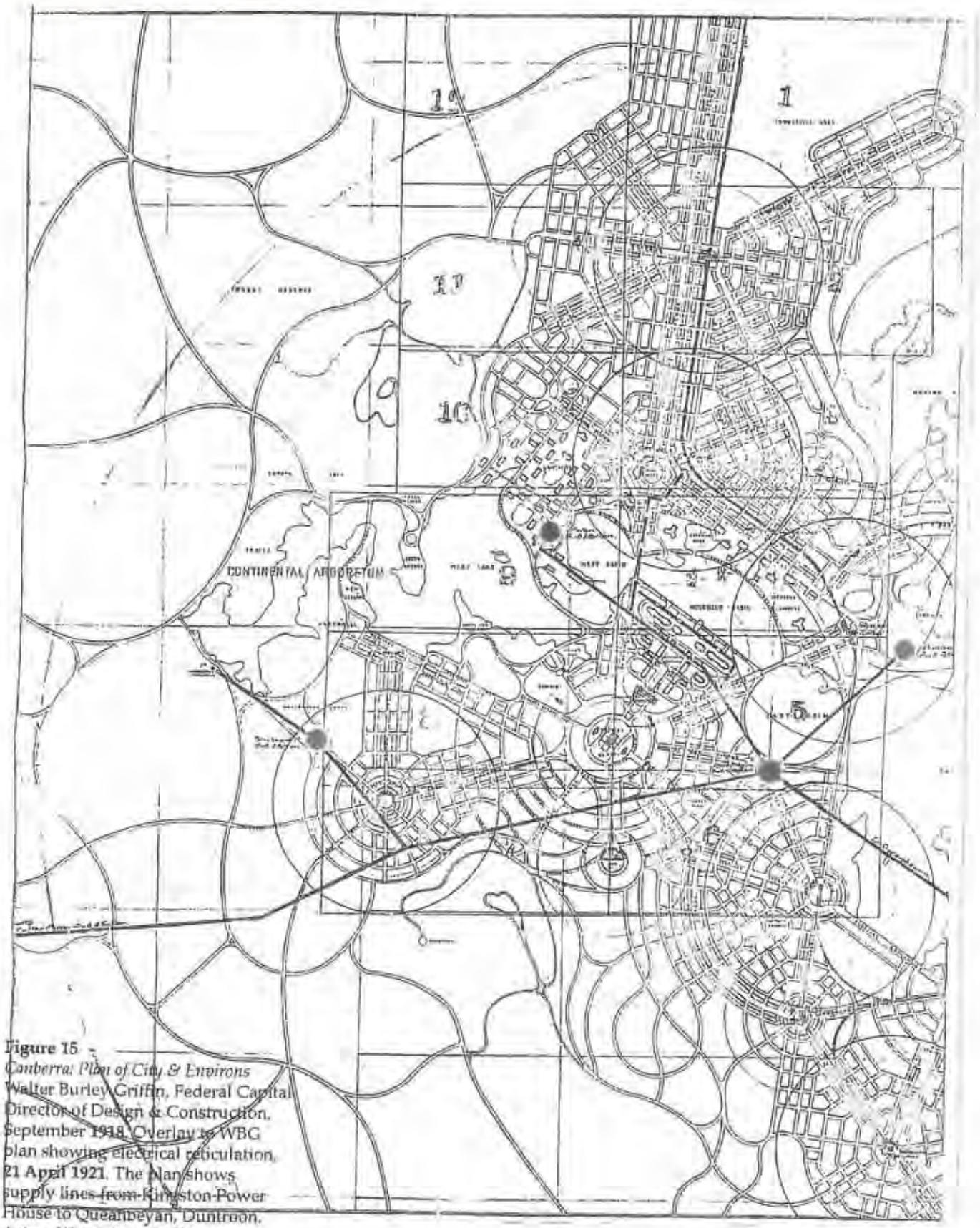

Figure 15 -
Canberra: Plan of City & Environs
Walter Burley Griffin, Federal Capital Director of Design & Construction, September 1918. Overlay to WBG plan showing electrical reticulation, **21 April 1921**. The plan shows supply lines from Kingston Power House to Queanbeyan, Duntroon, Acton, Westridge and Cotter substations.
NAA No. 90.01

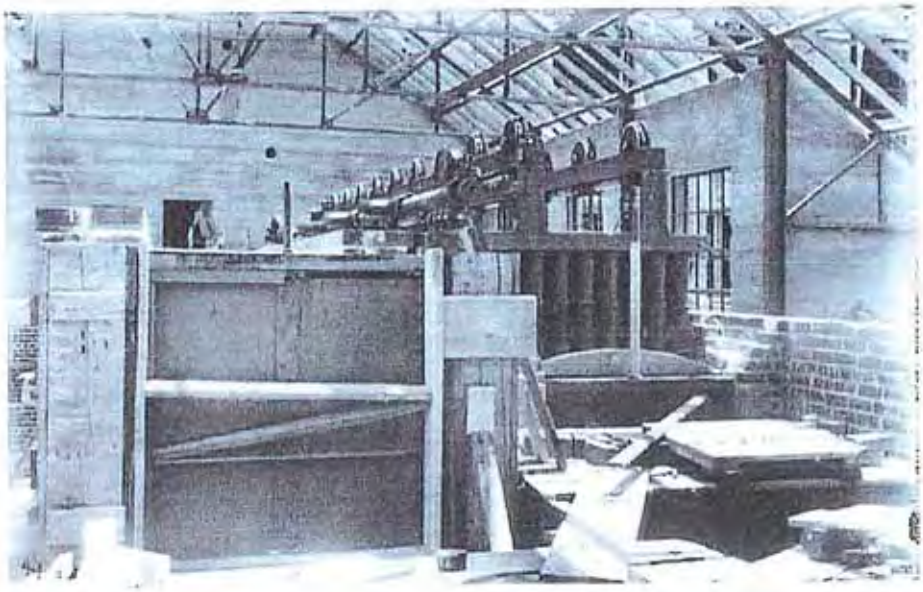

Figure 16
Interior of the Economiser Annexe during construction.
NLA Images No. 23072

Figure 17
Interior of the Engine Bay showing the engines, one with generator fitted.
NLA Images No. 23069

Figure 18
Completed Power House, showing the railway siding running along the north eastern side.
NAA A3560/XR1 : 5451

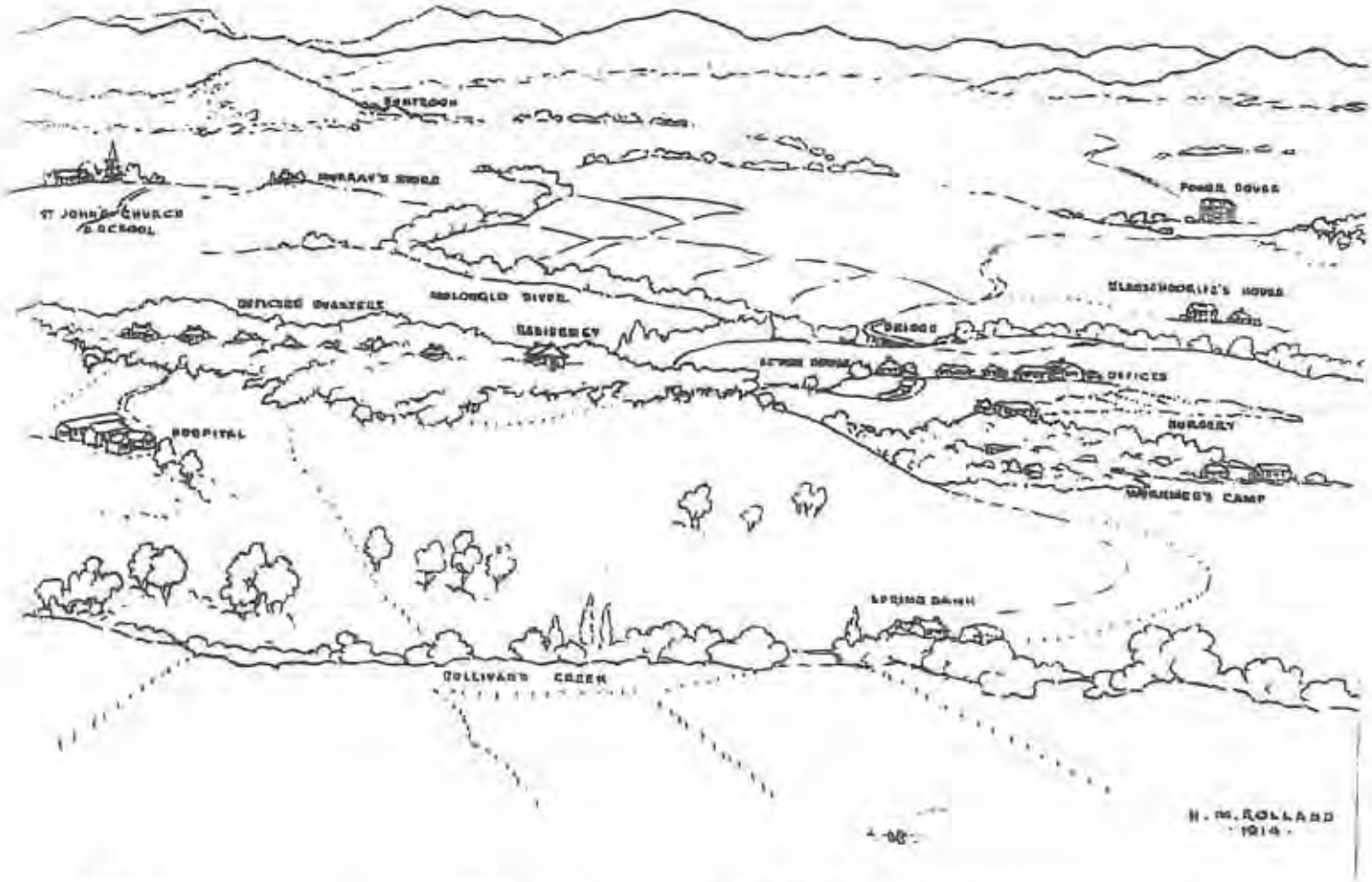

Figure 19
H.M. Rolland, 'Canberra from Black Mountain' [detail] **1914**, indicating the Kingston Power House
Rolland's watercolour had a pen and ink overlay describing the items depicted
NLA, H.M. Rolland Collection

Refer
Architectural Plans Nos 5 to 12
1914 Architectural drawings of the Powerhouse [concrete]
Appendix 2 : Volume 2

The work of installing the large, heavy machinery was undoubtedly a specialised and time-consuming task. In contrast to work on the rest of the project, which had been performed by day labour, the installation of the generating equipment was carried out by contractors.[66] Aside from the two original sets of machinery they had to install, their task was expanded at a late date by the procurement of an additional generating plant. This was a small Robey-Hall engine driving a 150 kW generator. The decision to purchase this generator probably developed out of Christie's earlier suggestion that the Power House acquire a small generator to run the proposed cement factory. As it turned out, the Department saw an alternative benefit in buying a small extra machine: it could be used to provide power at periods of very light loads, in preference to wastefully running one of the larger machines.[67]

Refer
Sequential Map No. 6
1915, Block plan of Power House, Canberra, Federal Territory
Appendix 1 : Volume 2

In mid-1915, after two-and-a-half years' work, construction of the Power House and installation of the generating equipment were at last completed. The total cost of the project amounted to £110,211, made up of £39,596 for construction work, £38,250 for machinery and

[66] *Report of the Royal Commission on Federal Capital Administration*, Report no. 6, *Water Supply, Power and Miscellaneous*, Parliamentary Paper no. 16 of 1917, p. 16.
[67] Jones, transcript of address, p. 4.

£32,365 for electricity mains.[68] The cost of building the railway line from Queanbeyan to the Power House cost an additional £45,619.[69]

3.5 THE POWER HOUSE IN OPERATION

Refer
Sequential Site Plan No. 1
1918 Site development before acceptance of Walter Burley Griffin's final plan.
Appendix 2 : Volume 2

The first electricity was generated at the new Power House on 2 July 1915, when the machinery was acceptance tested.[70] The following month, the Power House commenced operations proper. It began supplying power to Acton and to the Royal Military College, in the latter case replacing the College's own equipment which had been generating electric power for over four years.[71] By early 1916, the Power House was providing electricity to a number of buildings in Acton, namely the Official Visitors' Residence, administration offices, hospital, Commonwealth Bank, Post Office, Fire Station, recreation hall, bachelors' quarters, chauffeurs' quarters, the Acton Pumping Station and the stables. The Residency at Yarralumla was also being supplied with power, as were two minor buildings in the vicinity of the Powerhouse itself. These were the engineers' mess and the office of the clerk of works.[72] Later in 1916, an electricity supply line was extended to the Molonglo Defence Camp, and on 11 October of that year it was extended to the Canberra Brickworks.[73]

As Owen noted, the development of the system led to the displacement of the numerous steam engines that had hitherto been used on construction and other works throughout the federal territory. The only exception was a small steam engine operating at the Cotter Dam[74]; electric power to the Cotter Pumping Station was eventually supplied from 16 October 1918.[75] Despite the supplanting of almost all of the steam engines by the new Powerhouse, the demand for power in Canberra proved to be rather less than Owen and his engineering colleagues had estimated. Expenses far outstripped income. In the financial year 1916-17, for example, expenses amounted to £14,262-4-3 and income to only £4,282-1-2. In the first nine months of the succeeding financial year, expenditure was reduced to £8,628-16-8, but income also declined to £2,900-18-0.[76]

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68 *Report of the Royal Commission on Federal Capital Administration*, report no. 6, *Water Supply, Power and Miscellaneous*, pp. 15, 17.
69 Gibbney, *op cit* p. 15.
70 Jones, transcript of address, p. 4.
71 Jones, 'Electricity', p. 130; Chris Coulthard-Clark, *Duntroon: The Royal Military College of Australia 1911-1986*, Allen and Unwin, Sydney, 1986, p. 83.
72 Minute, Clerk in Charge, Accounts Branch, to Accountant, Dept of Home Affairs, 'Supply of Electricity for Lighting and Power in the Federal Territory', 3 March 1916, item 19/8647, CRS A1/1.
73 Item 17/1956, CRS A792/1; Jones, 'Electricity', p. 130.
74 Minute, Director-General of Works to Acting Secretary, Dept of Home Affairs, 'Re Supply of Electricity for Lighting and Power in the Federal Territory', 8 February 1916, item 19/8647, CRS A1/1.
75 Jones, 'Electricity', *op cit* p. 130.
76 Letter, W.B. Griffin to Secretary, Dept of Home and Territories, 18 June 1918; memo, H.H. Jones, Accountant, Dept of Home and Territories, 'Electric Light and Power Supply - Federal Capital', 31 July 1918, item 19/8647, CRS A1/1.

Figure 20
Exterior of the completed Kingston Power House.
NLA Images No.. 26736

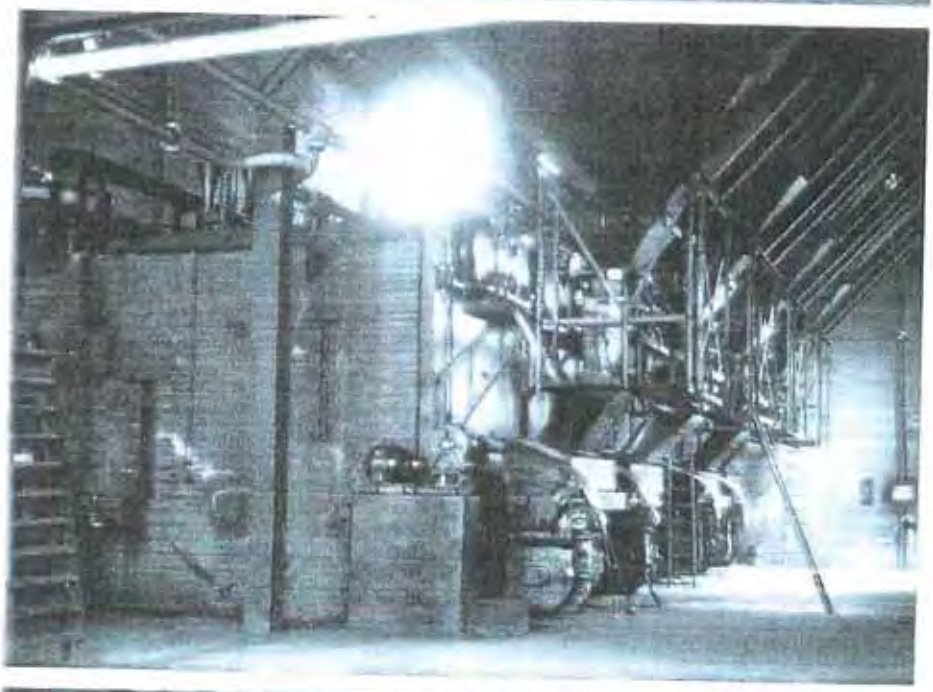

Figure 21
The Boiler Bay interior, showing the original coal-fired Babcock and Wilcox boilers.
NLA Images No.. 26738

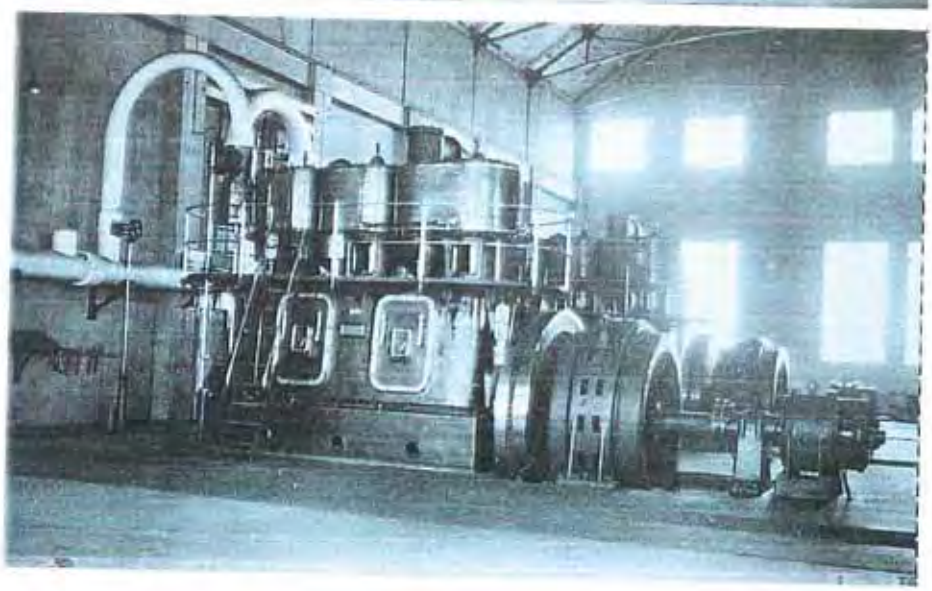

Figure 22
The Engine Room, showing the 1915 Bellis and Morcom triple expansion steam engine.
NLA Images No.. 26737

This imbalance produced two main effects. Firstly, the Department of Home Affairs was forced to charge a relatively high price to supply electricity to its consumers. The high price was particularly resented by the Royal Military College. Over of period of nearly four years from mid-1916, the College Commandant, Brigadier-General J.W. Parnell, disputed the charges with the Department of Home Affairs and even with the Minister himself. He was unsuccessful and the high charges remained.[77]

The second main outcome of the poor demand was the extension of an electric power supply to Queanbeyan. In the original scheme, there had been no provision whatsoever to supply electricity to the town. For their part, Queanbeyan Council and town residents had begun to agitate for such a supply almost as soon as the Power House had started operating. Because the whole operation was losing money, O'Malley agreed in July 1916 to extend the power lines to Queanbeyan. But it was to be quite some time before work on the extension commenced. The principal obstacle to a start on the project was the failure of the Department of Home Affairs and Queanbeyan Council to agree to the proposed arrangements. Again, as with the Royal Military College, the dispute was centred on a difference over money. Queanbeyan Council believed that the price the Department was intending to charge for the service was too high. Griffin, now the Director of Design and Construction, thought that it would be better for the Department to charge a discount price to get the business, and then increase the price at a later date.[78]

It was not until May 1920 that work commenced on extending the power line from the Molonglo Defence Camp to Queanbeyan.[79] Electricity was first supplied to the town on 2 September of that year[80], though the wrangling over an agreement between the town Council and the Department continued for many months afterward. Dissatisfied with the existing agreement, Queanbeyan Council withheld payment of the town's electricity bill.[81] In the meantime, on 1 July 1921, the Department of Works and Railways, which had been running the Powerhouse on behalf of the Department of Home Affairs since October 1919, assumed full control of the operation.[82] In December 1921, the Department and Queanbeyan Council reached a new agreement under which the Power House would supply electricity to Queanbeyan at a minimum charge of £250 per annum,

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77 Item 19/8647, CRS A1/1.
78 Letter, King O'Malley to Griffin, 12 July 1916; letter, Federal Capital Director of Design and Construction [Griffin] to Minister for Home Affairs, 15 September 1916, item 17/1956, CRS A792/1.
79 Item 17/1956, CRS A792/1.
80 Jones, transcript of address, p. 5.
81 Minute, Commonwealth Surveyor-General to Secretary, Dept of Home and Territories, 'Powerhouse: Federal Territory Division 52/2/3', 26 May 1921, item FCL22/136, CRS A192/1.
82 Minute, Walter D. Bingle, Secretary, Dept of Works and Railways, to Secretary, Dept of Home and Territories, 16 June 1921, item FCL22/136, CRS A192/1.

Figure 23
H.M. Rolland watercolour , 1924, 'Canberra; Kingston early buildings and Power House'.
NLA Image No. 16500

Refer
Sequential Map No. 7
1924, Canberra Old and New
Appendix 1 : Volume 2

until the end of August 1940.[83] Despite the provision of electric power to Queanbeyan, the economic problems of the Power House continued. Running costs for the financial year 1919-1920 amounted to over £6,750 and, by September 1921, they had risen to a figure of between £7,000 and £8,000 per year.[84]

Apart from supplying electricity to the community, the Power House provided a number of other services. From mid-1921 at the latest, ice for local consumption was being made at the Powerhouse.[85] Packed in sawdust and wheat bags, the ice was delivered by horse and dray to the Bachelors' Quarters and cottages at Acton.[86] The Powerhouse also had one of the few telephones available to the public in Canberra. From about 1924, the building was equipped with a whistle

[83] Amended agreement between the Commonwealth of Australia and the Municipality of Queanbeyan, 8 December 1921, item 6468, CRS AA1973/26.
[84] A. Richmond, Works Superintendent, 'Powerhouse Canberra: Statement of Units Generated, etc., for the Financial Year 1919-1929', 22 December 1920, item 17/1956, CRS A792/1; note on file re running costs, c. September 1921, item FCL22/136, CRS A192/1.
[85] Item FC1923/902, CRS A199/1.
[86] *Canberra Times*, 15 January 1973.

Figure 24
The Molonglo River, with the Kingston Power House and ancillary buildings in the background.
T.O. McNeil Collection

Figure 25
The Power House and Camp. Note the overhad power lines.
T.O. McNeil Collection

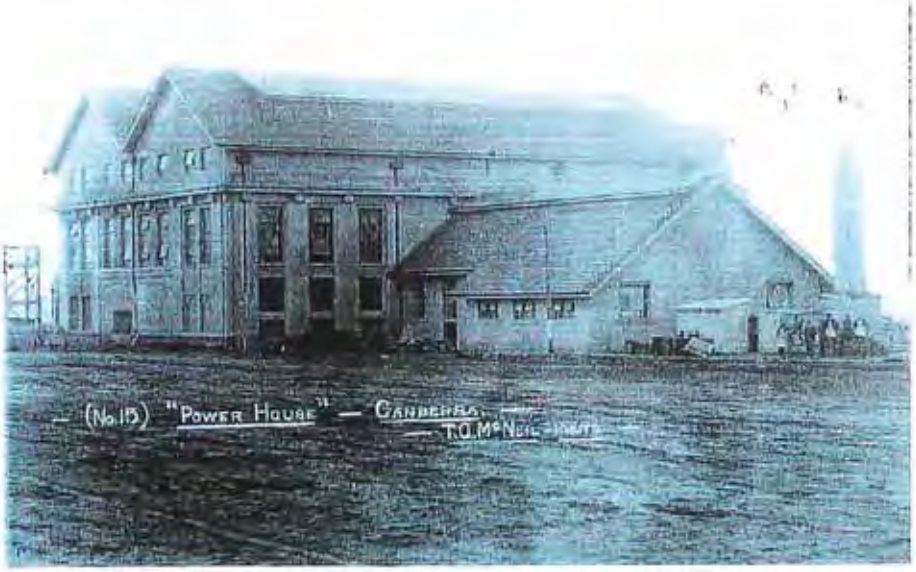

Figure 26
South Elevation of the Power House.
T.O. McNeil Collection

Figure 27
Kingston Power House in the background, with the Molonglo River and weir in the foreground.
NLA Images No. 26608.

Figure 28
Crossing the ford near the Kingston Power House weir.
NAA A3560/4262

and a siren. The steam whistle [later operated by compressed air] had been present in one form or other since early times. The air raid siren was electrically operated, and was presumably fitted during World War II. The two were located side by side on the roof. The steam whistle sounded the stages of the workday for Power House employees and unintentionally came to act as a kind of 'public clock' for the local community, marking distinct phases of the day. The original whistle, taken from the World War I warship *HMAS Australia* before it was sunk off Sydney Heads in 1924, was attached to the roof at the western end of the building. It was later replaced with a Welsh mining whistle. Another unintentional service to the community derived from the Power House's condensing pool: local residents used it as a waterhole for swimming and even held swimming carnivals there.[57] Not so beneficial to the community, however, were

[57] Extract from Clive Harvie, *That's Where I Met My Wife*, provided by Jill Waterhouse; Waterhouse et al., pp. 15-17; Ian Warden, *Canberra Times*, 15 November 1981; Robert Boden, 'A beacon in the early days of Canberra', *Canberra Times*, 23 September 1992.

Figure 29
Kingston Power House Engine Room, showing a 1927 BTH turbo-alternator in front of a 1915 Bellis and Morcom triple expansion steam engine.
NAA A3560/3588

two other side-effects from the Power House. The surrounding neighbourhood had to put up with the soot from the smokestack and with coal dust whipped up by prevailing winds from the coal bins stockpiled in the area around the Power House.[88]

Refer
Sequential Site Plan No. 2
1925 Site development based on Griffin's plan in evidence
Appendix 3 : Volume 2

The demand for electricity in Canberra increased steadily in the 1920s and by late 1927 the Power House was supplying power to 300 premises and 120 street lights. It was time to augment the station's generating capacity. On 22 October 1927, a British Thomson Houston [BTH] turbo-alternator, driven by steam from the existing boilers, was brought into service. At the same time, the small Robey-Hall generator was decommissioned. The new BTH equipment ran at 3,000 rpm and generated 1,500 kW,[89] and through advances in technology was only one-third the size of the existing 600 kW machines.[90] The introduction of the BTH alternator nearly doubled the generating capacity of the Power House, bringing it up to 2,700 kW.

Despite the increase in demand for electricity and the introduction of the new equipment, the cost of generating electric power in Canberra remained high. The problem was that the Power House was a relatively small operation that was supplying electricity to a relatively small number of consumers. It could not achieve economies of scale and of necessity had to pass on its high generating costs to consumers. When, in 1929, a cheaper source of electric power became available in the shape of the recently-constructed Burrinjuck dam, the city fathers seized the opportunity. The Burrinjuck hydro-electric scheme could supply power to Canberra at a lower cost than the local Power House. It was therefore cheaper for Canberra to pay the NSW

Refer
Sequential Map No. 8
Plan of Canberra [detail] 1933
Appendix 1 : Volume 2

88 Minute, C.S. Daley to H.M. Rolland, 'Canberra Powerhouse and Mechanical Workshop', 19 August 1946, item 22/1/1, CRS A3032.
89 Jones, transcript of address, p. 5; Jones, 'Electricity', p. 130.
90 Temperley, *Canberra Times*, 25 February 1982.

Figure 30
Plan of Canberra, May 1927 [detail] showing site of Power House between Molonglo River and Interlake [later Wentworth] Avenue.
NAA G8984,C3.S1.1927

government for its electricity supplies.[91] Accordingly, a single 66,000-volt power line was built from Burrinjuck to Canberra and a substation erected near the Power House to break down the 66,000-volt supply into a voltage acceptable for domestic use in the city. In September 1929, Canberra began taking its electric power from Burrinjuck. For some time, one of the Power House's boilers was kept under steam as a stand-by in case the line from Burrinjuck went down. But effectively, the Kingston power station was closed down after only twelve years of operation.[92]

There was one snag with the new arrangement. Canberra agreed to take only a limited amount of power from Burrinjuck and would incur a heavy penalty if it exceeded its limit. To save power, the Cotter Pumping Station was usually run only in the early hours of the morning, when the demand for electricity was lowest. In order to save energy, Canberra's street lights were turned off at one o'clock in the morning, though the Power House itself remained lit all night, a beacon in the darkened landscape.[93]

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[91] *Canberra Times*, 15 January 1973.
[92] Allbut, p. 21; Jones, transcript of address, p. 6.
[93] Temperley, *Canberra Times*, 25 February 1982; Boden, *Canberra Times*, 23 September 1992.

In 1935, serious doubts arose about the strength of the walls of Burrinjuck dam. The water level in the dam was lowered while the walls were strengthened and, as a consequence, no electric power could be provided until this work was completed. For Canberra, there was little alternative but to bring the Power House back into service. It resumed operating at full capacity from 15 June 1936 and was connected into the NSW electricity grid. To meet the additional demand, two secondhand Brush-Ljungstrom 1,500 kW generators were installed from the Port Kembla power station, together with another two Babcock and Wilcox boilers. The new equipment commenced operation on 28 January 1939. The total generating capacity of Power House now stood at 5,100 kW, a figure that suggests that one of the two original 600 kW generators was no longer in use and may already have been disposed of.[94]

In late 1938, shortly before the additional equipment was put into service at the Power House, the Port Kembla power station was connected into the NSW grid via one line. This was augmented by another line some time later. The development of the NSW grid gradually rendered the Kingston Power House a less important component of the system. It began to operate only intermittently when needed and, in early 1942, was shut down when it was no longer required at all.[95]

Refer
Sequential Site Plan No. 3
1942 Belconnen Naval Station Supply Phase
Appendix 3 : Volume 2

Its retirement this time was short-lived. From 13 May 1942, the BTH 1,500 kW turbo-alternator was put into service for 20 hours each day, solely to supply the wireless transmitter located at Belconnen Naval Station, which was one of the most powerful transmitters in the world. The Kingston Power House continued to provide power to this Station until 1946, when it was again shut down. The following year, one of the two original 600 kW generators, perhaps the only one remaining at that time, was sold off.[96]

Building development in and around the Power House continued on a moderate scale throughout this period. In 1938, coinciding with the connection of the Port Kembla power station into the NSW grid, a new switchboard building was erected at the western end of the Power House.[97] Two years later, a new structure to house the plumbers' and electrical fitters' workshops was built.[98] The Economiser Room in the Power House itself underwent some modifications in late 1943, in order to accommodate the employees' showers and dressing rooms.[99] In the late 1940s, a new electrical and mechanical workshop was built. The smokestack of the Power House was replaced with a new stack, and the two stacks existed side by

Refer
Sequential Map No. 9
1942 Plan of Canberra [detail] showing the Power House precinct and the Causeway housing.
Appendix 1 : Volume 2

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94 Jones, 'Electricity' *op cit*, p. 130; Jones, transcript of address, p. 7.
95 Jones, 'Electricity' *op cit*, p. 130.
96 Jones, 'Electricity' *op cit*, pp. 130-1; Jones, transcript of address, pp. 7-8.
97 Jones, 'Electricity' *op cit*, p. 132.
98 Item C19705, CRS A292/T1.
99 Item 28/8/1, CRS A3032.

Figure 31
Aerial photograph of the Kingston Power House, c1950.
Private Collection

side for a short period; and the coal dust nuisance was reduced with the construction of proper coal storage bins.[100]

The generating life of the Power House was not yet over. In the post-war years, a sustained rise in the demand for electricity in NSW placed severe strain on the NSW electricity grid. As a result, the Kingston power station was again brought back into service in 1948 to augment the hard-pressed NSW system. Such was the scale of the problem that the NSW Electricity Commission established an additional power station at Kingston in 1953. The new station, smaller than the old Power House, was equipped with four Harland and Wolfe diesel engines coupled to Brush alternators.

It took another seven years for the NSW system to build up sufficient generating capacity to meet the demands for electricity, with a safe margin to spare. During this period, both the original Power House and the new diesel generating station operated on a regular basis.

[100] National Capital Planning and Development Committee, Minutes of 51st Meeting, 13-14 June 1946; minute, Daley to Rolland, 'Canberra Powerhouse and Mechanical Workshop', 19 August 1946, item 22/1/1, CRS A3032.

From 1955 to 1957, they operated sporadically when needed, and were then closed down. The diesel station was maintained up into the 1980s as an emergency power source, especially to serve the then Parliament House [now the Old Parliament House], in the event of a total power failure. However, the closure of the original Power House in 1957 marked the end of its career as an electric power station.[101]

3.6 NEGLECT AND REDISCOVERY

By deciding back in 1912 to site the Power House on the banks of the Molonglo, the Departmental Board had, probably unwittingly, created a precedent for future development in the area. The building of the Power House and the railway extension to it had attracted other industries, gradually turning the Kingston site into the *de facto* industrial centre of the city. Development in the area had taken on a life of its own, unrelated to Griffin's plans for the Federal Capital. It was not until 1955 that federal politicians at last began to turn their attention to the anomalous development that had been allowed to occur. A Senate Select Committee, appointed to inquire into the future development of the city, investigated the Kingston industrial area and its future.

Refer
Sequential Map No. 10
Aerial photograph of Canberra, 1952 [detail]
Appendix 1 : Volume 2

The Senate Committee was of the opinion that such an important area close to the city centre should revert to the use that Griffin had originally intended for it. The Committee recommended that no new government industries or buildings should be planned for or built in the Kingston area, and that the present industries be progressively re-located to the new industrial area at Fyshwick. Consideration should also be given, the Committee felt, to clearing the whole of the Kingston-Causeway industrial area, shifting the railway station to Fyshwick and designating the entire area for residential development.[102]

Refer
Sequential Site Plan No. 4
Site Development 1948-1955 Post-War Development Phase
Appendix 4 : Volume 2

While the Committee's report marked the first step in efforts to divest Kingston of its industrial legacy, its recommendations were at first completely ignored. In the ensuing years, further industrial development was allowed to proceed in the Kingston-Causeway area.[103] Close to the Power House itself, a large new electrical workshop was constructed in 1958 near the intersection of Wentworth Avenue and Mundaring Drive.[104] The formation of the ACT Electricity Authority [ACTEA] in July 1963 helped significantly to entrench the area's continuation as the industrial centre of Canberra. The Authority inherited from the Department of the Interior a site containing some 25 buildings with a total value of $273,966. The site constituted a valuable acquisition with its collection of useable buildings and infrastructure. A further reinforcement of the area's

[101] Jones, 'Electricity', pp. 131-2; Jones, transcript of address, pp. 8-9.
[102] ACTEW file G83/385/1.
[103] ACTEW file G83/385/1.
[104] ACTEW file G64/14 part 3.

industrial character occurred in April 1964 with the preparation by the National Capital Development Commission [NCDC] of a set of plans for the 'Kingston Government Services Area'.[105] The plans amounted to an acknowledgement that government industries would continue to operate in Kingston for some time to come. Nevertheless, at the same time, there was a tacit understanding between ACTEA and the NCDC that the Authority would eventually have to vacate its Kingston premises, probably at some indefinite point in the 1980s.[106]

Throughout this period, ACTEA found the Power House useful for various purposes, though it was not among the Authority's more valuable assets at Kingston. Its value was assessed in 1963 at only $26,130, whereas the electrical workshops were said to be worth $186,890.[107] In 1965, most of the generating equipment remaining from the building's days as a power station was sold for scrap.[108] The former Economiser Room was then converted into ACTEA's mechanical workshop and, in mid-1967, a ceiling was added to the Economiser Room.[109] The upper floor of the generator floor housed the control centre for electricity supplies to the whole of Canberra.[110]

In this same period, the Authority experienced its first problems with the building. Persistent roof leaks necessitated repairs to the tiles, guttering, rainheads and downpipes. The repairs proved unusually expensive because the old tiles broke easily and were difficult to replace, and because the steep pitch of the roof made working conditions dangerous on wet, windy and frosty days. The work was carried out in 1967, but with heavy rains in November of that year the roof again developed serious leaks. More repairs had to be carried out. A year later, the floor of the building had deteriorated to such an extent that it required replacement. The existing chequer plate floor was subsequently removed and a six inch thick concrete floor laid down.[111] In spite of these problems, ACTEA felt in 1970 that the building was essentially in good condition, requiring only minor maintenance and painting. The Authority still regarded the old Power House as a useful structure, serving as it did 'specific and continuing purposes'.[112]

Refer
Sequential Site Plan No. 5
1972 Workshop & Stores Facility for ACTEA
Appendix 3 ; Volume 2

At this point, the NCDC made a renewed attempt to initiate changes in the character of the Kingston industrial area. The Commission tried to persuade ACTEA that there was insufficient room in the area for expansion. It began to press the Authority to agree to the clearing of the strip of land between the railway embankment and the lake shore, its object being to transform the area into something '... *more*

[105] ACTEW file G83/385/1.
[106] J.W. Slater, minute, 26 January 1984, in ACTEW file G83/385/2.
[107] ACTEW file G83/385/1.
[108] Jones, 'Electricity', p. 131.
[109] ACTEW file G14/4 part 1.
[110] ACTEW fileG83/385/3.
[111] ACTEW files G64/4 parts 1 and 2.
[112] ACTEW file G83/385/1.

appropriate to its important lakeside setting'. In the view of the NCDC, this meant taking advantage of the high rateable value of the land by building high-rise flats. The NCDC redevelopment plan came to nothing.[113] ACTEA meanwhile was pursuing its own agenda, which involved demolishing many of the smaller rundown structures that were used for storage purposes, and replacing them with one big storehouse.[114] Such plans indicated that the Authority had no intention of vacating the area in the foreseeable future.

In the face of ACTEA's development plans, however, the situation of the old Powerhouse was becoming more precarious. The suitability of the building for ACTEA's operations was gradually diminishing and the Authority was unsure what to do with it. In 1976, the Authority commissioned a feasibility study into the use of the building as a maintenance and repair facility for light and medium weight items, such as refrigerators, washing machines, television sets and traffic lights. Gordon and Northrop, the consultant structural engineers, reported that the building had been structurally altered in 'two or more' locations since its closure as a power station, and that its external concrete walls were significantly cracked in two places. Nonetheless, the building was structurally sound. Despite this, the consulting architects, Peddle Thorp and Walker, considered the building barely suitable for a maintenance facility. They favoured demolition of the Powerhouse and the erection in its place of a purpose-built structure.[115]

While ACTEA itself may have favoured demolition, there was a dawning realisation within the Authority that the Powerhouse was a building of historical importance and any attempt to demolish it would encounter stiff opposition.[116] In the event, ACTEA decided not proceed either with demolition plans or with conversion of the building into a dedicated maintenance facility. Instead, during 1976, the Authority installed a two-ton hoist and a monorail in the building to facilitate storage and some maintenance work functions. ACTEA's consideration of the uses to which the building could be put was hampered by continuing problems with the roof. In high winds, tiles flew off, necessitating expensive repairs during 1977.[117] The following year, the Authority took a fresh look into potential uses for the building and, a result of this investigation, the Substations Branch of ACTEA occupied the ground floor as a storage area.[118]

More studies and proposals followed. In June 1979, ACTEA initiated a minor structural review of the old engine bay, with a view to

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[113] ACTEW file G83/385/1.
[114] ACTEW file G83/385/1.
[115] ACTEW file G64/14 part 3.
[116] ACTEW file G14/4 part 3.
[117] ACTEW file G78/4 and G64/14 part 3.
[118] Minute, S.A. Forlin, 'Utilization of Kingston Power Station', 5 May 1978, ACTEW file G78/4; Maunsell and Partners, 'Feasibility Study: Relocation of A.C.T.E.A. Workshops', February 1981, ACTEW file G83/385/3.

modifying it to accommodate a 132 KV zone substation. One year later, the Authority was considering turning the whole Power House into workshop space, with a new mezzanine floor to be constructed. Yet another feasibility study found, however, that the cost of altering the Power House for this usage would be about the same as erecting an all-new purpose-built workshop. A single-storey purpose-built structure, moreover, would be a much more efficient building than the four-level Power House.[119] This series of studies and proposals was a reflection of the continuing uncertainty within ACTEA over what to do with the building.

By the end of 1980, the Power House was serving a variety of functions, although the building overall was under-utilised. ACTEA's Substation Branch was using the ground floor of the boiler bay for storage. On the first floor was located the back-up control centre for the electricity supply for south Canberra, the main control centre having been moved into Electricity House in the city during 1970 and 1971. Other parts of the first floor were used for furniture storage and for training apprentices, though the lack of heating apparatus in the building ensured that no training could take place during Winter. The coal hopper bays and the ash room of the Power House were not used at all, while the annexe was used for vehicle maintenance.[120]

At this point, the future of the Power House again became bound up in the larger issue of ACTEA's occupation of the Kingston site. The NCDC began pressing ACTEA once more to abandon its Kingston depot and move to another location. This time, the NCDC was successful in persuading ACTEA that the move was desirable, in that it would release prime land for development. Together, the two bodies then set about finding an alternative depot site for ACTEA in Canberra. After two-and-a-half years, however, they were unable to find a suitable new location. Instead, in August 1983, they agreed on a partial solution, with the ACTEA to re-locate some of its functions to two district depots, one to be established in north and one in south Canberra. Kingston would remain as the central depot, but the ACTEA would hand over to the NCDC the strip of land between the railway embankment and the lake for redevelopment.[121]

Having secured its tenure of the Kingston site, ACTEA was again faced with the problem of what to do with the old Power House. By this time, some major changes had occurred which effectively tied the Authority's hands. The Canberra community had awoken to the building's historical significance. In July 1981, it was entered on the Register of the National Trust of Australia [ACT]; and two years later, it was entered on the Register of the National Estate and listed with

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[119] ACTEW file 78/4.

[120] Jones, transcript of address, pp. 10, 11, 12; Maunsell and Partners, 'Feasibility Study: Relocation of A.C.T.E.A. Workshops', February 1981, ACTEW file G83/385/3.

[121] ACTEW file G83/385/2.

the Royal Australian Institute of Architects Register of Significant Twentieth Century Buildings.[122]

Much of this official recognition was due to agitation from the community and a coalition of heritage interests. One of the people who alerted the community to the building's heritage values was Ian Hirst. Hirst had first entered the scene in December 1981, when he had been asked by a senior representative of the NCDC to prepare a submission for the restoration and redevelopment of the Power House. In a complete departure from its industrial past, Hirst suggested a wide range alternative uses for the building, namely '*... community services, recreation, entertainment, education, arts and crafts, audiovisual, publishing, transport and retailing*'. In September 1982, Hirst himself was trying to obtain a lease on the building to put some of his ideas into practice. Though he was unsuccessful, he lobbied and campaigned tirelessly in the following years to garner support for the adaptive re-use of the Kingston Power House.

The surge of public interest in the Power House's heritage significance was initially viewed with a marked lack of enthusiasm by ACTEA. The Authority's Development Engineer informed the Chairman in March 1985 that the proclamation of the Power House and switchgear store as part of the National Estate placed '*... severe limitations on the buildings and restricted land use in their immediate vicinity*'. From the Authority's perspective, public recognition of the building's heritage values had left it with a structure that could neither be demolished nor modified to serve a modern industrial function.

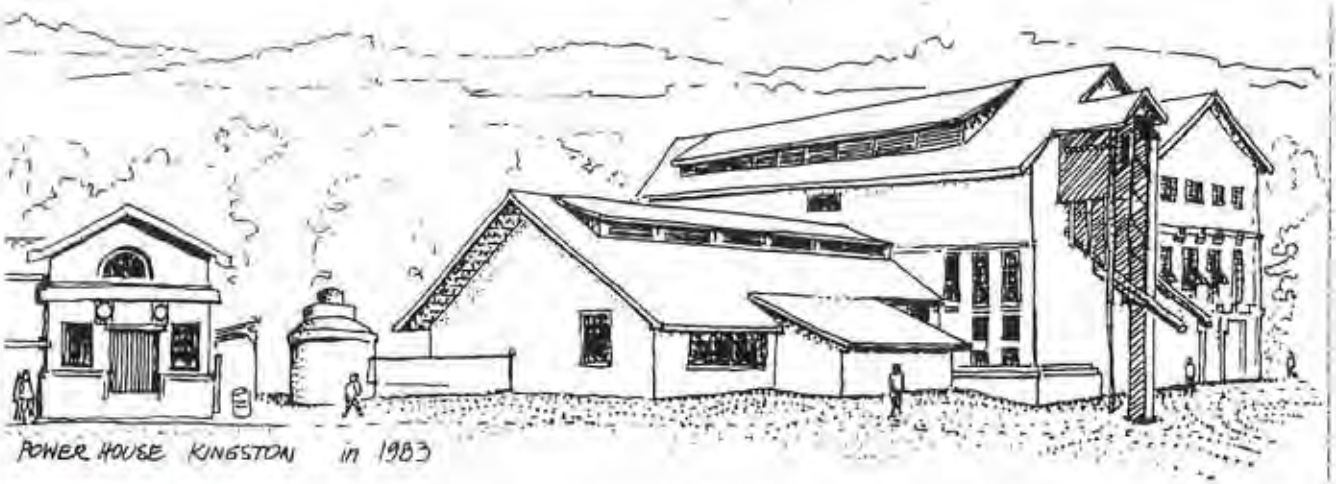

Figure 32
Kingston Power House 1983
Federal Capital Architecture: Canberra 1911-1939, Canberra, 1984

Later in 1985, senior ACTEA officers were referring to the Power House as the Authority's 'White Elephant'.[123] The political landscape was, however, rapidly shifting. In August 1985, a company called Jerrabomberra Cultural Centre Pty Ltd put forward an elaborate

[122] National Trust [ACT Branch] file on the Powerhouse; Australian Heritage Commission file 8/1/0/69.
[123] ACTEW file G83/385/3.

Refer
Sequential Map No. 11
Survey 1:500
Kingston Powerhouse Site
Appendix 1 / Volume 2

scheme for the development of an Australian National Cultural Centre in the Kingston Lakeshore area. The plan was the brainchild of the indefatigable Ian Hirst and was supported by, among others, the [late] historian Manning Clark and the architect John McNabb, who had worked on the new Parliament House project. Envisaged as a 'unique Australian theme park' and a 'spiritual home for Australians', the Cultural Centre was to be spread over a thousand hectares of lakeside land '... *where potential* [had] *been squandered*'. The first stage of the project, to be completed by the Bicentennial year, encompassed development of 35 hectares of land occupied primarily by ACTEA. The project area included the site of the Power House. The Power House itself was to be the focus of the initial development work. The cultural centre submission proposed that after they had restored the exterior of the building to its 'pristine state', they believed that it would be an appropriate home for a Museum of the ACT and for a $50 million collection of opals.[124]

With the release of the Cultural Centre proposal, ACTEA as a body swiftly realised that its views on the Power House were out of step with public opinion. Further, the Authority recognised that maintaining a hostile attitude to the Power House would not win it any friends in the genuine dilemma it faced over what to do with the building. By late 1985, ACTEA was in agreement with the NCDC and the Department of Territories that alternative uses for the Power House should be considered as part of the studies that were to be undertaken on the redevelopment of the Kingston Lakeshore area. The Authority agreed that architects' advice should be sought on alternative uses for the Powerhouse and gave some tentative support to Hirst's idea of housing an ACT Museum or Heritage Centre in the building.[125]

By January 1986, Hirst was once again seeking a lease on the Power House and was himself trying to clean the building in preparation for the 1986 Heritage Week Ball, which the ACT Heritage Committee hoped to hold there in April. Hirst now began to encounter major obstacles to realising his vision, in particular, because of the costs involved. A quote for sandblasting and cleaning of the Power House amounted to $225,000. To obtain finance on this scale, Hirst set about seeking grants from various heritage organisations. In the immediate absence of funds, little was achieved and the projected completion of the first stage of the scheme in 1988 became an impossibility. It was not even until October 1987 that the accountancy firm Price Waterhouse Urwick commenced what was called a 'pre-feasibility study' of the Cultural Centre proposal.[126]

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[124] Jerrabomberra Cultural Centre Pty Ltd, 'Proposal for a National Cultural Centre', August 1985; *Canberra Times*, 30 November 1985.

[125] Minutes of meeting held on 16 October 1985, involving representatives of ACTEA, NCDC and Dept of Territories, to discuss the Kingston Lakeshore area, ACTEW file G91/618.

[126] ACTEW file G83/385/3.

In the excitement over the plans for the National Cultural Centre, there was a continuing tendency to overlook the views and interests of ACTEA. In April 1988, for example, the ACT government issued a brochure calling for ideas on the development of what it called the 'Kingston Foreshores Tourist Area'. ACTEA had not been consulted on the matter and was unaware that a brochure promoting redevelopment of the land it occupied was to be released. In the event, ACTEA told the ACT government that its action was premature and that the Authority could not vacate the site within a period of less than five years.[127]

Simultaneously, the Authority had come to terms with the heritage significance of the Power House. In February 1988, ACTEA avowed that it recognised the unique historical importance of the building and gave a commitment not to prejudice its heritage value in any

Figure 33
Aerial photo of the Kingston Power House precinct, during the ACTEW operations, **c1992**.
NCPA photograph

[127] ACTEW file G91/618.

way.[128] Its promise was promptly put to the test. The Authority had been planning to build a structure next the Power House which would have been architecturally unsympathetic to it and would have obscured the form of the old building. When the Australian Heritage Commission pointed this out to ACTEA, the Authority aborted the proposal.[129] By way of improving the Power House's prospects, ACTEA's successor, ACT Electricity and Water [ACTEW], cleared the building of asbestos insulation and lagging two years later. The removal of the asbestos expanded the range of potential uses to which the Power House could eventually be put.[130]

Refer
Sequential Site Plan No. 6
1992 Workshop & Stores Facility for ACTEW
Appendix 3 : Volume 2

Notwithstanding ACTEW's recognition of the Power House's heritage significance, the ACT government and community were becoming increasingly impatient with what they saw as ACTEW's unwillingness to vacate the Kingston site. In September 1991, the ACT Assembly initiated a preliminary inquiry into the future of the Kingston Foreshore area and invited public comment.[131] In its submission, ACTEW acknowledged that its vacation of the Kingston site would greatly benefit Canberra, but would be extremely costly to itself. ACTEW proposed that development of the area should be in keeping with the architecture and heritage value of the Power House, that ACTEW move out in three to five years and that the expense of re-location be treated as a basic cost of development of the site.[132] Nearly three years before, the Acting Chief Executive of the Authority had put the price of moving at $15 million.[133] ACTEW was saying, in

Figure 34
The Kington Power House during the relocation of ACTEW from the site.
PF 2000 photograph

[128] ACTEW file G83/385/3.
[129] ACTEW file G83/385.
[130] ACTEW files G90/226 and G90/166.
[131] *Canberra Times*, 28 September 1991.
[132] ACTEW Submission to the Preliminary Inquiry into the Future of the Kingston Foreshore Area, October 1991, ACTEW file G91/618.
[133] Letter, E.A.J. Quinlan, Acting Chief Executive, ACTEW, to Hirst, 16 January 1989, ACTEW file G91/618.

other words, that it would move out if the ACT government or the developers of the site paid for its re-establishment at another location. Such a condition was a major additional burden for any prospective developer to shoulder.

3.7 THE KINGSTON FORESHORE DEVELOPMENT AUTHORITY

3.7.1 BACKGROUND TO THE AUTHORITY AND THE KINGSTON FORESHORE PLAN

The ACT Government established the interim Kingston Foreshore Development Authority in **September 1995**. The brief for the Interim Authority was to advise the ACT Government on the future planning, development, and management of Kingston Foreshore and to ensure an orderly transition to its ultimate use as a mixed use waterfront precinct was a strong arts, cultural, tourism and leisure theme.

The Interim Authority undertook a number of activities to achieve this aim including : extensive community consultation; detailed site analysis and research; a National Competition of Ideas; a Preliminary Assessment of Potential Environmental Impacts; the release of a Draft Variation to the Territory Plan and Draft Amendment to the National Capital Plan; formulation of a recommended Implementation Strategy for the site, and discussions towards the establishment of a Statutory Authority to oversee the development of the site to ensure the ongoing holistic and prudent commercial management of the place.

In **February 1997**, the Kingston Foreshore Development *Competition of Ideas* was launched by the ACT Chief Minister Kate Carnell MLA and the Hon Senator Margaret Reid on behalf of the Federal Minister for Sport, Territories and Local Government. The Kingston Foreshore Development Competition was a National competition compromising two stages. The outcome of Stage 1 of Competition was the receipt of comprehensive proposal based on imaginative ideas for Kingston Foreshore and it was intended that these ideas would lead to a subsequent stage of refinement of realisable ideas and to the development of Kingston Foreshore.

There were two premiated entries and one of those entries [by Colin Stewart Architects] became the basis for subsequent Kingston Foreshore planning. The judges said of the Stewart entry that : *'...The strength of this proposal lies in its clear framework. The author recognises the constraints imposed on the site by the Griffin Plan and utilises these to develop a modern urban design framework for the site that clearly draws on the strengths of the earlier plan. The simple formality of the proposal reinforces existing metropolitan elements such as Telopea Park, the East Basin foreshore, and the Causeway and successfully uses the site to improve linkages between Kingston, the Causeway and the wetlands.'*

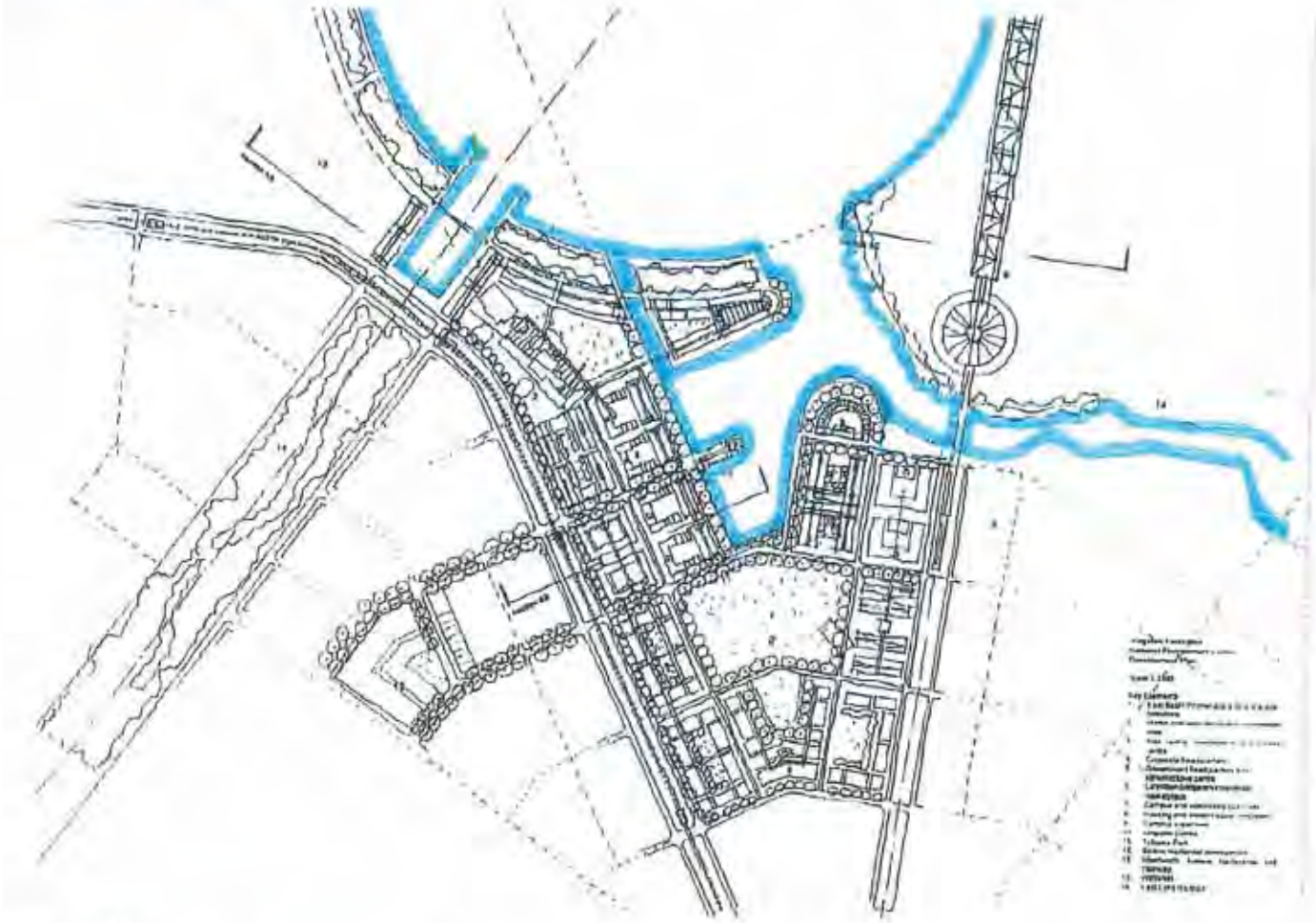

Figure 35
Kingston Foreshore Competition 1997
Source: IKFDA

In **24 April 1998** the **Kingston Powerhouse Historic Precinct,** Kingston was entered on the ACT Interim Heritage Places Register. The summary statement of significance in the Register entry was as follows :

'...The Kingston Powerhouse Precinct communicates the process of steam powered electrical generation from its demise. It remains as the first permanent public structure associated directly to the development and establishment of the community in the Federal Capital. It is an example of early 20th century industrial architecture and the first building in the Federal Capital designed by John Smith Murdoch, a major figure in the creation of the 'Federal Capital' architectural style."

In **December 1999** a Variation to the ACT Territory Plan [No.113] was gazetted for Kingston Foreshore, under the Land [Planning and Environment] Act of 1991. This Variation together with the **Kingston Foreshore Development Authority** Act of 9 December 1999, provided the management and legislative framework for the Kingston Foreshore project, including the Kingston Power House Precinct.

With the introduction of the KFDA Act, and the gazettal of the variation, the Kingston Foreshore Development Authority came into being; and the Interim Register listing of the precinct became a listing

the ACT Heritage Register. The Statement of Significance in the Register was as follows:

'...The Power House and Fitters' Workshop are of industrial and architectural significance. Other intrinsic features assist in demonstrating the industrial use of the site for power generation. The Power House is a landmark structure in its Lakeside setting.'

'The Power House generated the first power to the Federal Capital in 1915. The Power House and its associated Fitters' Workshop are early examples of buildings that housed coal fired steam powered electricity generation equipment. The Power House, Fitters' Workshop, base of the second chimney stack and remnant railway embankment and existing railway track to the north west of the Power House demonstrate the technology and process of early electricity generation in the Federal Capital. The siren and whistle located on the main power house building was an important soundscape feature throughout Kingston. The landscape elements are remnants of Thomas Charles Weston's 1920s windbreak plantation along Interlake (now Wentworth) Avenue and have an evident relationship with the establishment and development phases of the Federal Capital.'

'The Power House was the first permanent public building in the Federal Capital. Its existence was fundamental to the development and establishment of the City. It is an example of early 20th century industrial architecture and the first building in the Federal Capital designed by John Smith Murdoch, a major figure in the creation of the 'Federal Capital' architectural style. The Power House retains numerous internal fittings demonstrating its substantial industrial use.'

'The Fitters' Workshop (Bulk Supply Store) is the second permanent structure in Canberra designed by J. S. Murdoch. The remnant railway embankment and existing railway track are part of the original rail system and were associated with the delivery of coal to the Power House.'

'The Power House ceased to provide power to the National Capital in 1929 when a cheaper source of electric power became available but was reactivated for short periods in the years 1936-42 when repairs to the Burrinjuck Dam (which supplied water to the Burrinjuck Hydro Electric Scheme then servicing Canberra) were required, and in 1948-57 when post war construction in NSW placed severe strain on the NSW Grid. The 1948 switch room provides evidence of this later period of reactivation.'

The variation [113] also proposed specific objectives for **Precinct 6** [The Kingston Power House Precinct] as follows :

'... to preserve and protect the heritage significant buildings and elements in a manner which encourages adaptive reuse;
to provide opportunities for activities and facilities to be integrated within the historic buildings and setting of the Power House; and
to promote public access to, and experience and understanding of; the heritage significance of the place, and
to respect significant views to and from the Power House.'

The variation also set out **Specific Requirements** for both the precinct elements and features and for the interior spaces of the Power House building.

Figure 36
Location of the Kingston Power House
PALM Variation 113

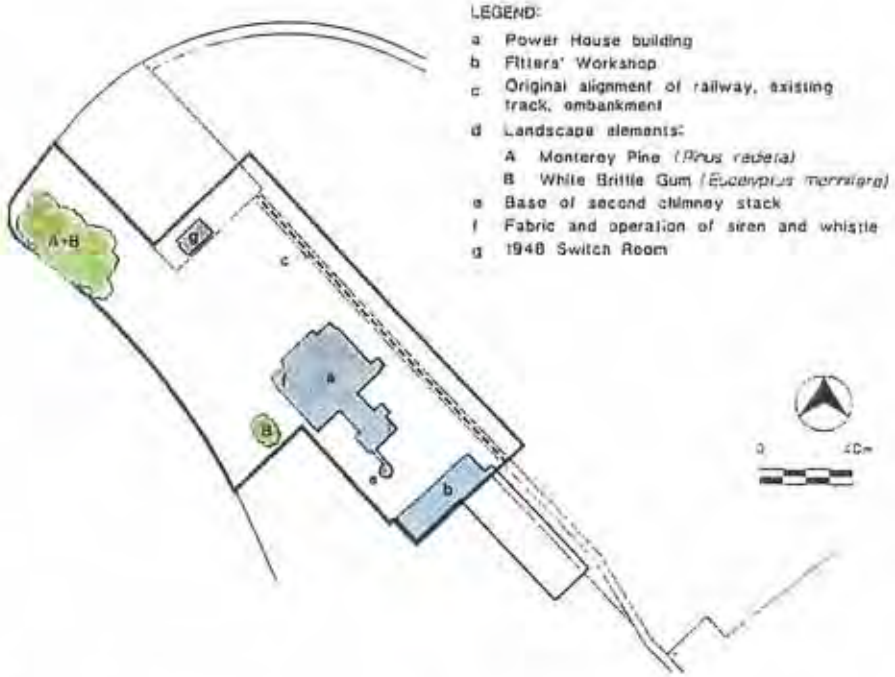

Figure 37
Significant Features within the Precinct
PALM Variation 113

3.7.2 THE ESTABLISHMENT OF THE KINGSTON FORESHORE DEVELOPMENT AUTHORITY

With the statutory establishment of the Kingston Foreshore Development Authority and its planning framework; the Authority

has subsequently embarked on the completion of its stage 1 tasks as follows :

- *complete the acquisition of certain land currently alienated from Territory ownership*
- *implement a relocation strategy for existing users and tenants;*
- *finalise agreements with the Commonwealth for remediation of land formerly owned by the Commonwealth;*
- *implement the Remediation Action Plan;*
- *implement an environmental management plan for the project;*
- *complete demolition of buildings affecting Stage 1 of the project and undertake site clean up and forward planting;*
- *prepare and implement a marketing strategy for the development;*
- *award tenders for Stage 1 infrastructure provision;*
- *establish contracts for undertaking Stage 1 development in partnership with the private sector;*
- *prepare and implement best practice financial, operational and major project monitoring and reporting systems;*
- *prepare and implement risk management strategies for the project;*
- *consult with the community regarding the implementation of the project; and*
- *liaise with all relevant government agencies regarding the implementation of the project.*[134]

In parallel with these large scale planning tasks for the Foreshore area as a whole, detailed planning was commenced [in 2000], on the heritage and conservation management aspects of the Kingston Power House precinct itself. The specific tasks commenced [and which are currently in progress] are :

- the review of the 1993 Conservation Management Plan;
- the review of the potential compatible adaptive uses for the Kingston Power House precinct;
- the completion of the Kingston Power House precinct Interpretation Plan; and
- the completion of conservation works to the Power House roof and rain water goods.

Theses projects have been under-written by funding from the **Commonwealth Cultural Heritage Project Program** [1999/2000] and by funding [cash and 'in kind'] from the **Kingston Foreshore Development Authority**. This review of the 1993 Conservation Management Plan is, in consequence, a component of the general Heritage Review and Master Plan for the Kingston Power House Precinct.

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[134] KFDA, Kingston Foreshore development : Statement of Intent 2000-2001, Canberra, 2000.

Appendix D –Historic Plans

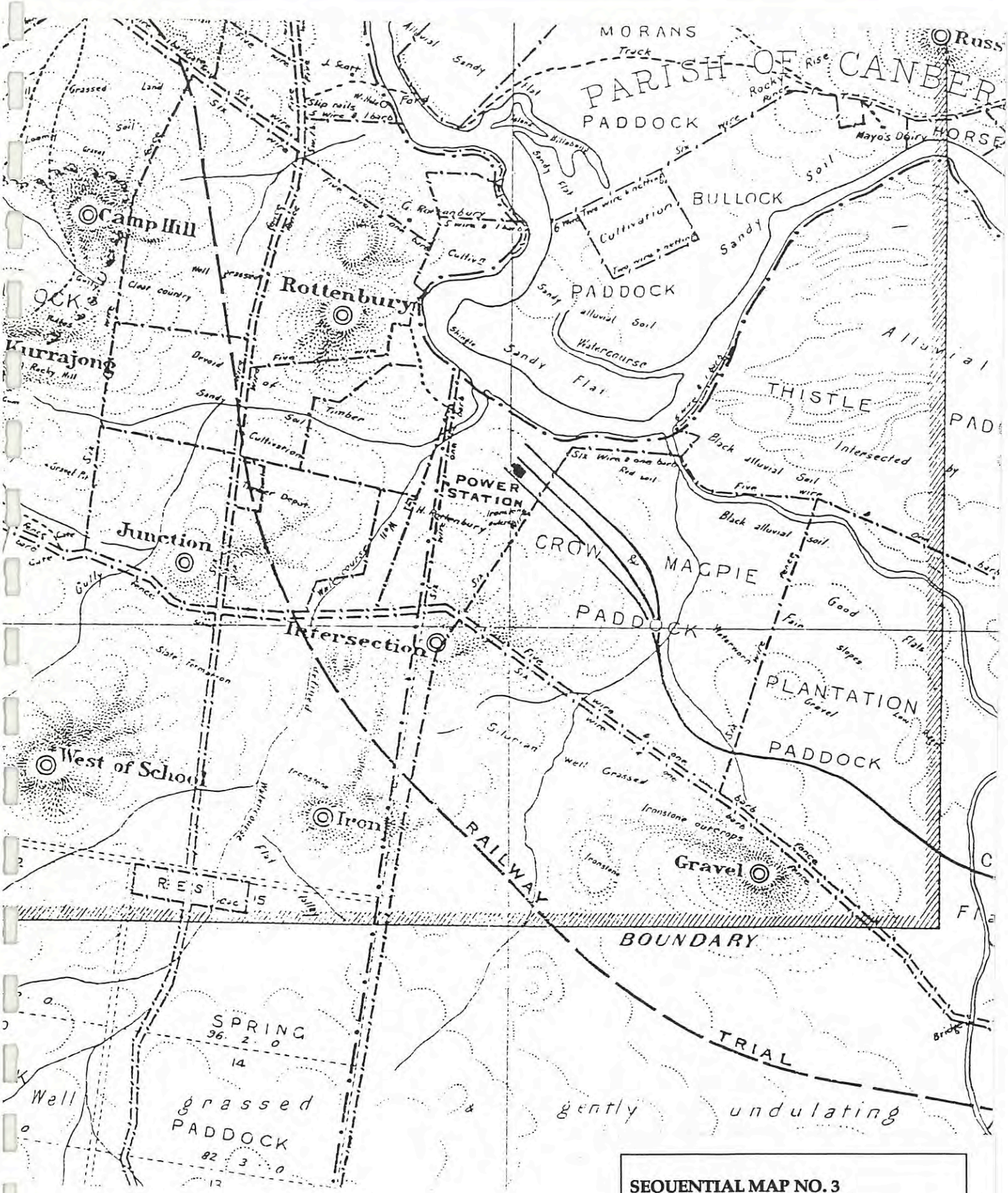
The drawings included in Appendix D have been taken from Volume 2 of the Kingston Power House Precinct Conservation and Management Plan (Freeman Collett & Partners Pty Ltd, Brendan O'Keefe, Roger Hobbs and Vivid Histories, June 1993) and the Fitters' Workshop Conservation Management Plan (updated Duncan Marshall, 2018). The maps and plans are listed below:

1. Departmental Board Plan, November 1912 (on 1910 base), National Library of Australia, G9984.C3.S1.1912
2. Federal Capital Territory Feature Map, Sheet no. 6, National Library of Australia, G8981.G46
3. Layout for Railway and Power House, Federal Capital, National Library of Australia
4. Power House, Ground Floor Plan, circa 1911, National Archives of Australia
5. Power House, Section, circa 1911, National Archives of Australia
6. Federal Territory Power Generating Station, Brick Construction Details, circa 1913, National Archives of Australia
7. Federal Territory Power Generating Station, Brick Construction Details, circa 1913, National Archives of Australia
8. Federal Territory Power Generation Station, Ground and First Floor Plans, 1914, National Archives of Australia
9. Federal Territory Power Generation Station, Details (concrete), 1914, National Archives of Australia
10. Federal Territory Power Generation Station, Side and Front Elevations (concrete), 1914, National Archives of Australia
11. Federal Territory Power Generation Station, Sections (concrete), 1914, National Archives of Australia
12. Federal Territory Power Generation Station, Side and Back Elevations (concrete), 1914, National Archives of Australia
13. Federal Territory Power Generation Station, Elevation Detail 1 (concrete), February 1914, National Archives of Australia
14. Federal Territory Power Generation Station, Elevation Detail 2 (concrete), February 1914, National Archives of Australia
15. Federal Territory Power Generation Station, Detail of chimney, February 1914, National Archives of Australia
16. Engineers Workshop, Federal Territory, Canberra, Section, 1915, ACTEW
17. Engineers Workshop, Federal Territory, Canberra, Details of Reinforced Concrete Piers, 1915, National Archives of Australia
18. Engineers Workshop, Federal Territory, Canberra, Details of Steel Trusses, 1915, National Archives of Australia
19. Joiners Shop Building, Power House Canberra, Floor Plan and Elevation, 1922, National Archives of Australia
20. Proposed Extension to Smithy, Floor Plan, 1924, National Archives of Australia
21. Fitters' Shop, Eastlake, Layout Showing Sanitary Accommodation, 1927, National Archives of Australia
22. Additional Lavatory Accommodation at Fitters Shop, Eastlake, Floor Plan and Elevation, 1944, National Archives of Australia
23. New Layout for Welders' Shop, Floor Plan and Sections, 1947, National Archives of Australia
24. Mechanical Fitters Shop, Kingston, ACT, Strengthening of Roof Trusses to Support Ceiling, 1956, National Archives of Australia
25. Proposed Heating Layout for Workshop, June 1956, National Archives of Australia

SEQUENTIAL MAP NO. 2

November 1912, Departmental Board Plan (on 1910 base)

Source:
NLA Canberra
G8984.C3.S1.1912



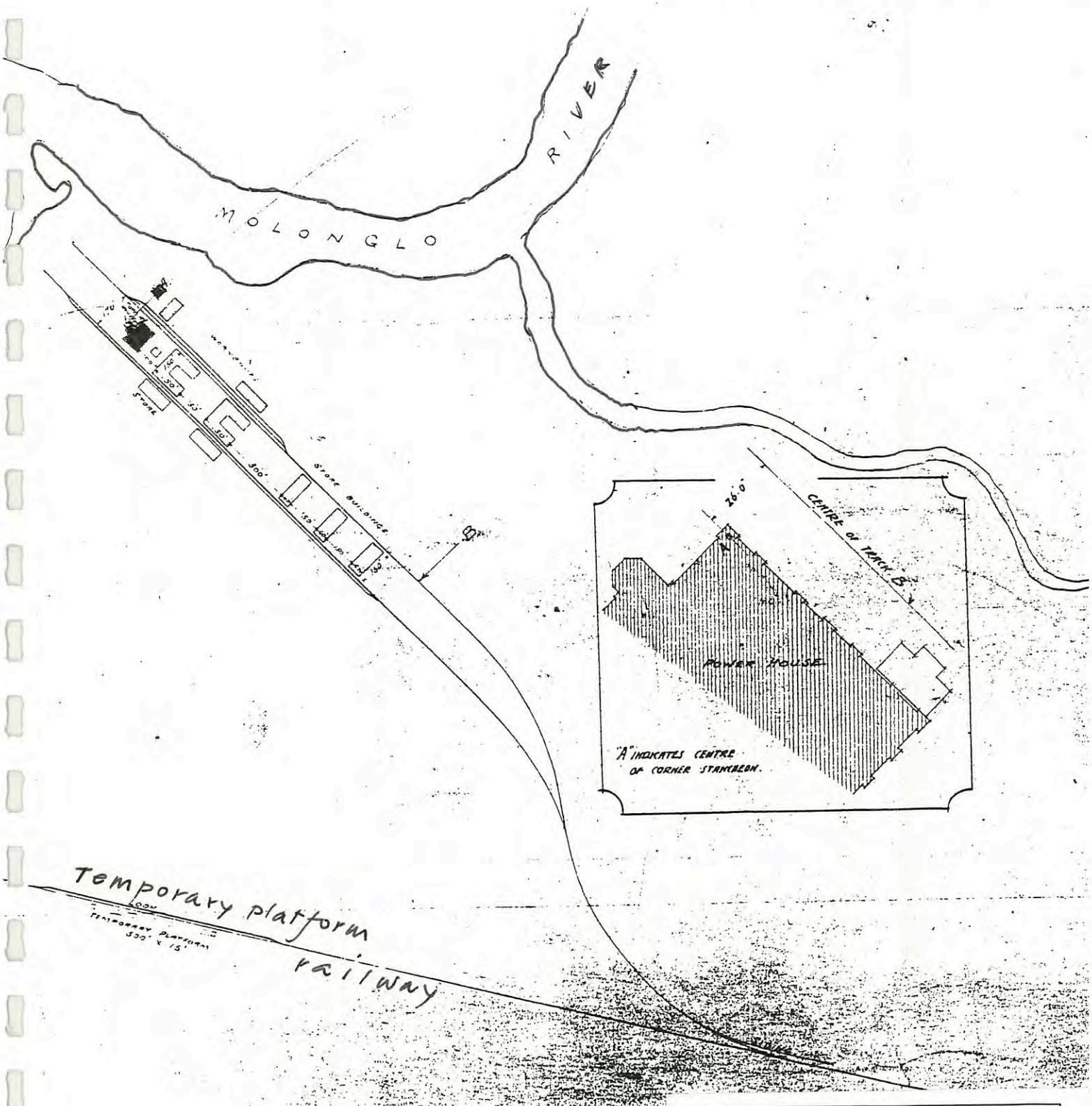
SEQUENTIAL MAP NO. 3

c. 1913 Federal Capital Territory
Feature Map - Sheet No. 6

Source:
NLA Canberra
G8981.G46

— FEDERAL CAPIT

— LAY OUT FOR RAILWAY AND PO

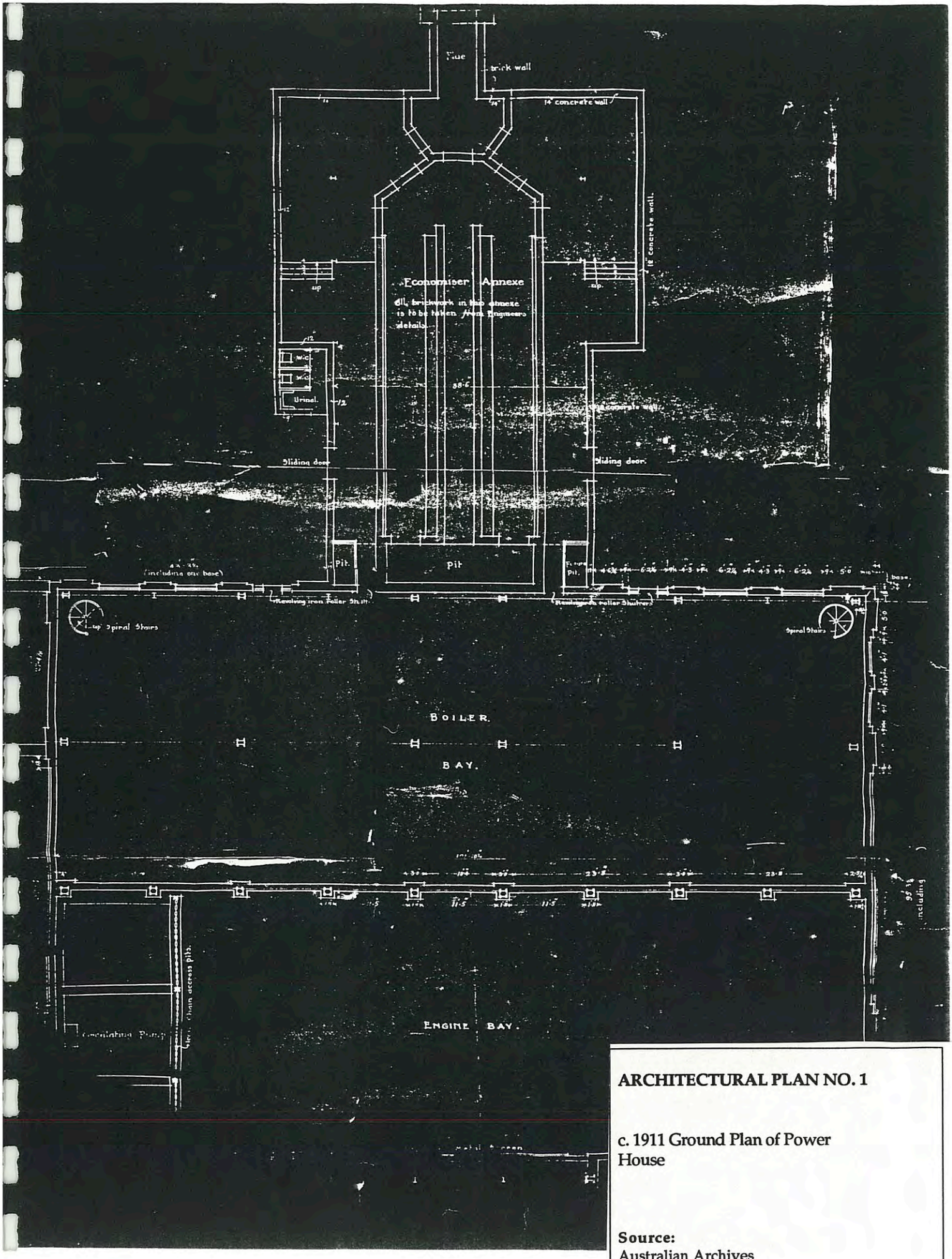


SCALE 400 FEET TO AN INCH.

SEQUENTIAL MAP NO. 5

January 1913
Layout for Railway & Power House, Federal Capital

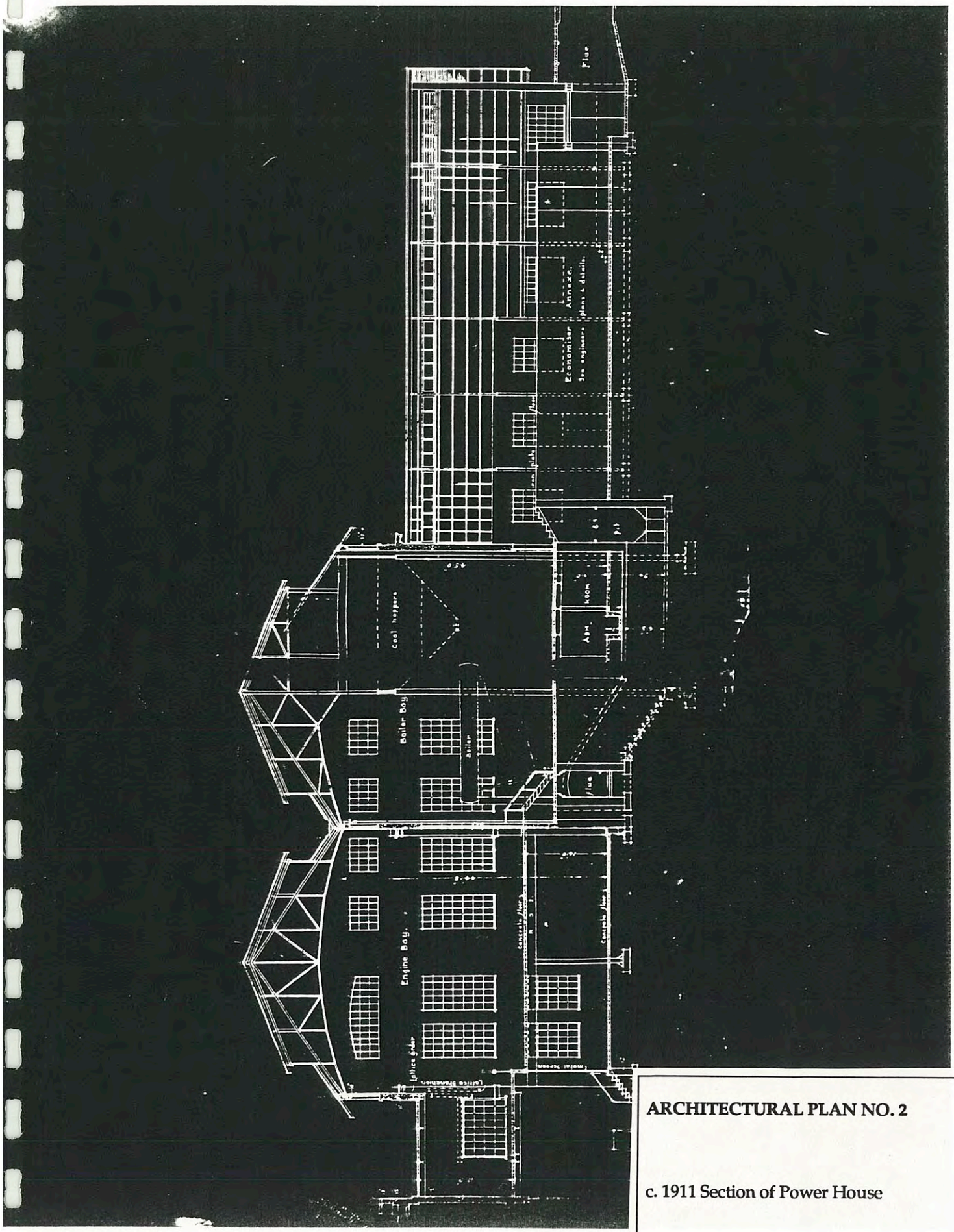
Source:
NLA Canberra



ARCHITECTURAL PLAN NO. 1

c. 1911 Ground Plan of Power House

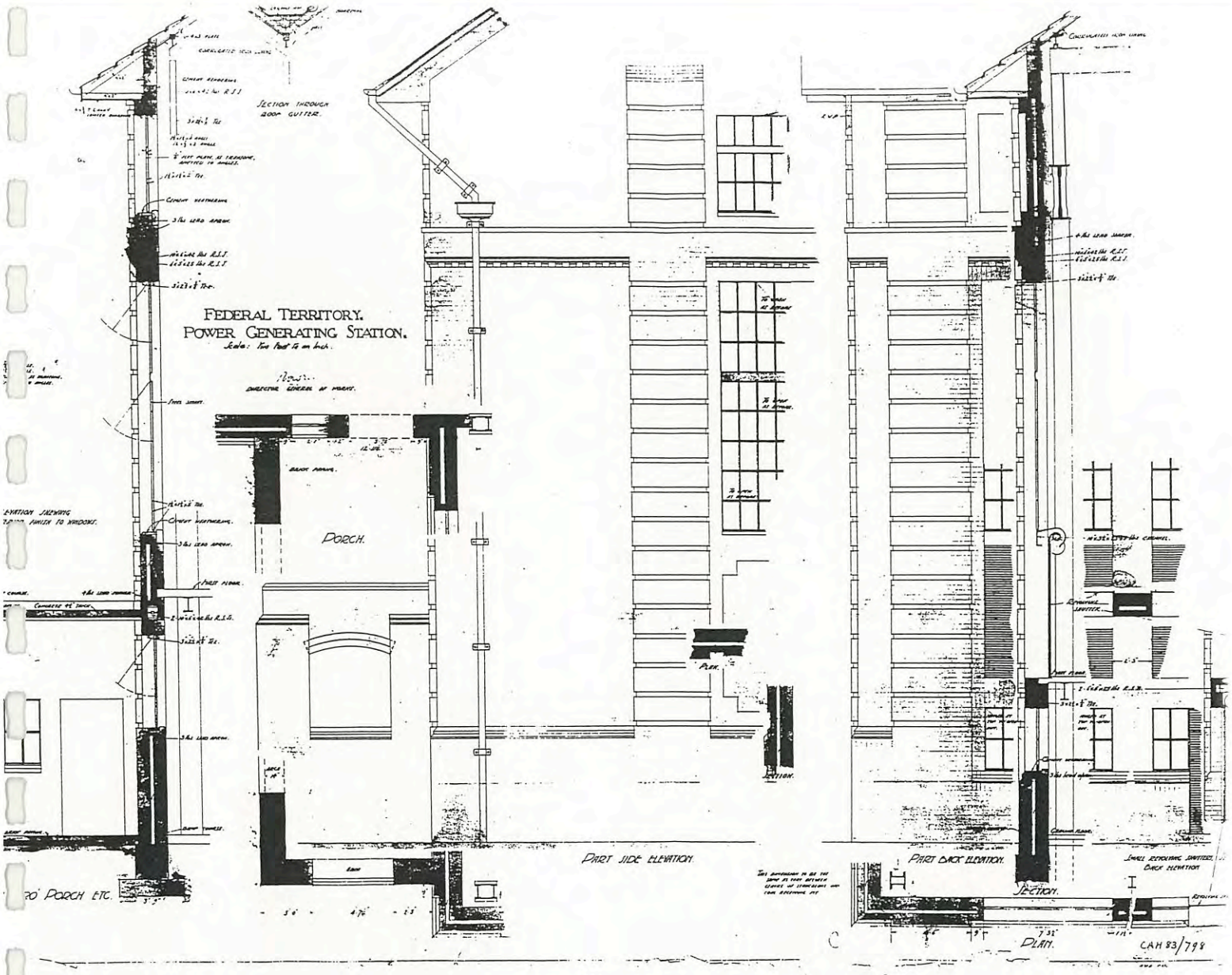
Source:
Australian Archives



ARCHITECTURAL PLAN NO. 2

c. 1911 Section of Power House

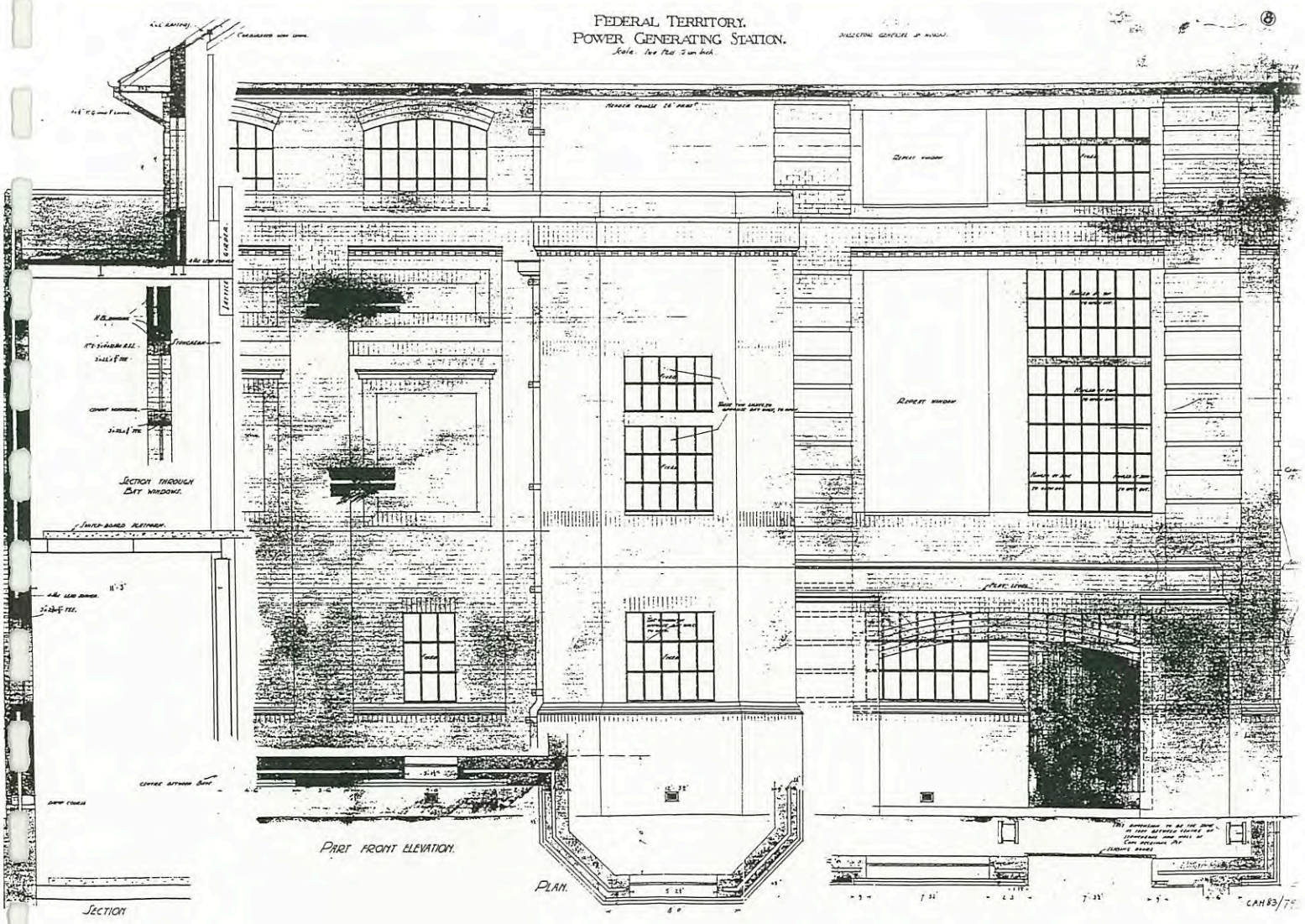
Source:
Australian Archives



ARCHITECTURAL PLAN NO. 3

c. 1913 Architectural Details, **brickwork.** Federal Territory Power Generating Station, signed Percy J. Owen, Director General of Works

Source:
Australian Archives CAH 83/799



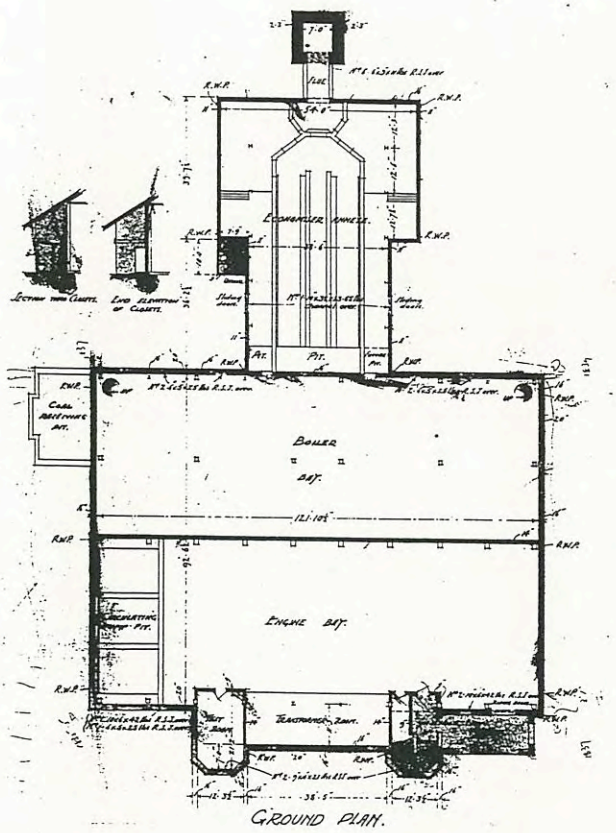
ARCHITECTURAL PLAN NO. 4

c. 1913 Architectural Details, **brickwork.** Federal Territory Power Generating Station, signed Percy J. Owen, Director General of Works

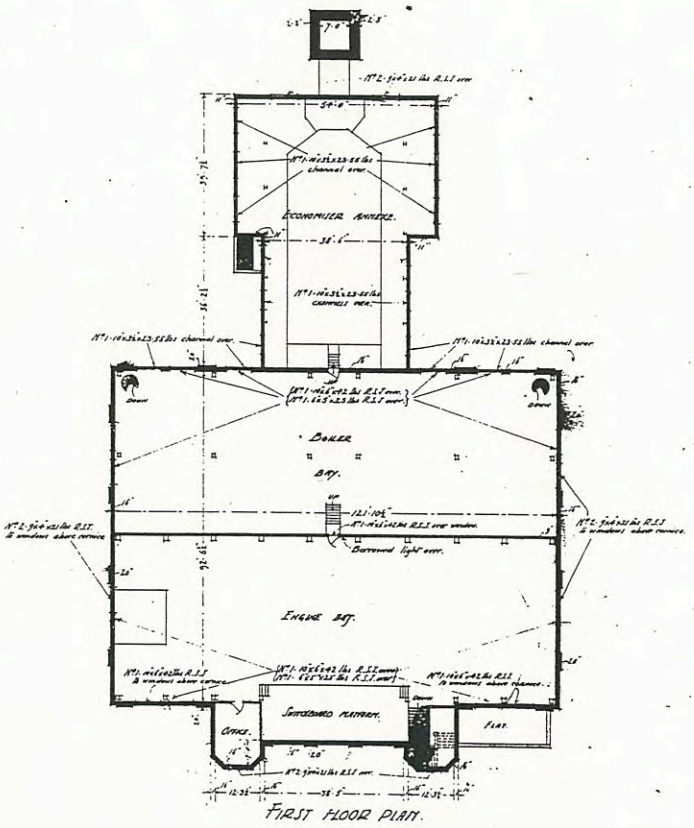
Source:
Australian Archives CAH 83/798

FEDERAL TERRITORY
POWER GENERATING STATION
Scale:— 16 feet to an Inch.

Director General of Works.



GROUND PLAN.



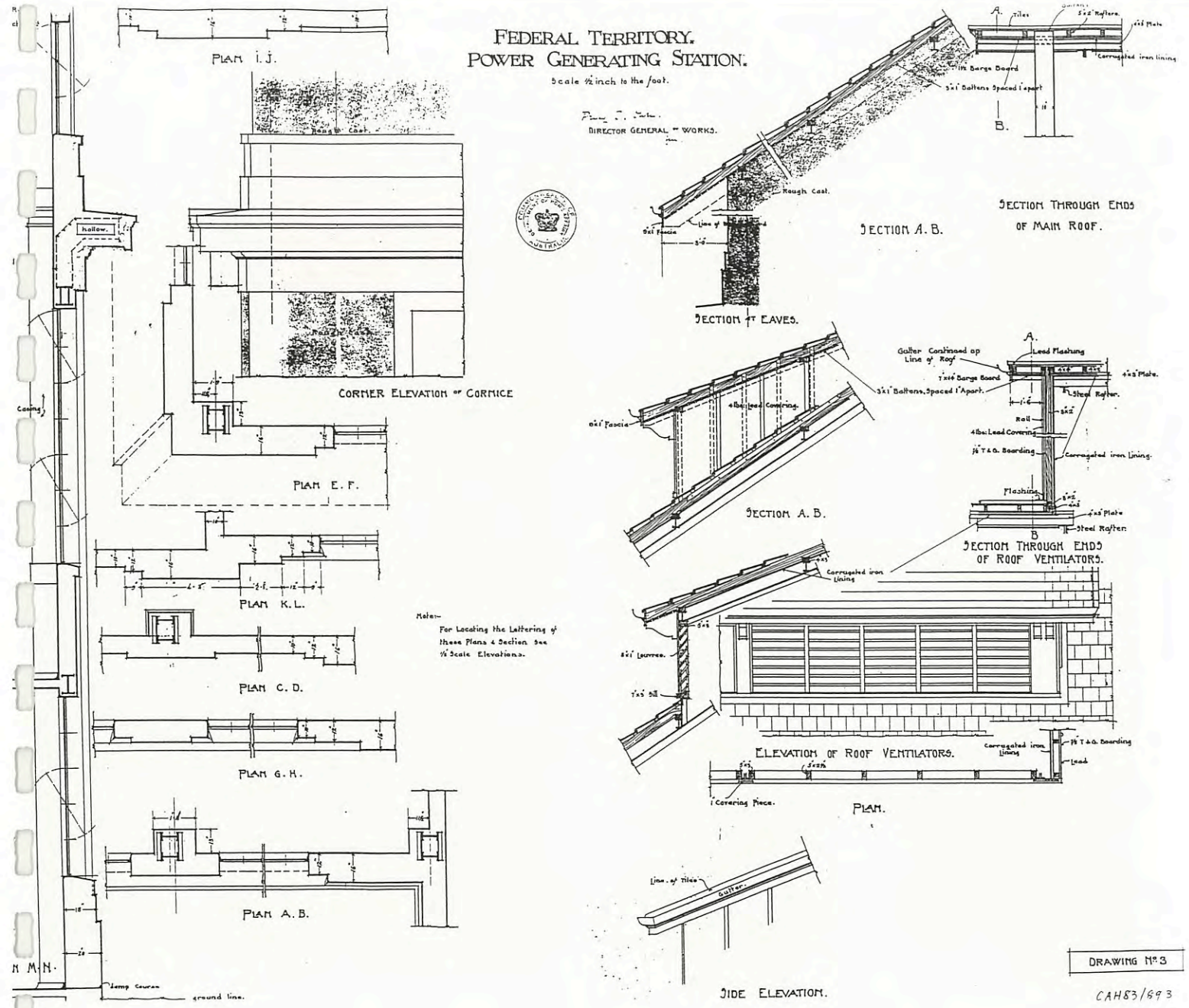
FIRST FLOOR PLAN.

CAH 83/793

ARCHITECTURAL PLAN NO. 5

1914 Ground & First Floor Plan, Federal Territory Power Generating Station (concrete)

Source:
Australian Archives CAH 83/793



ARCHITECTURAL PLAN NO. 6

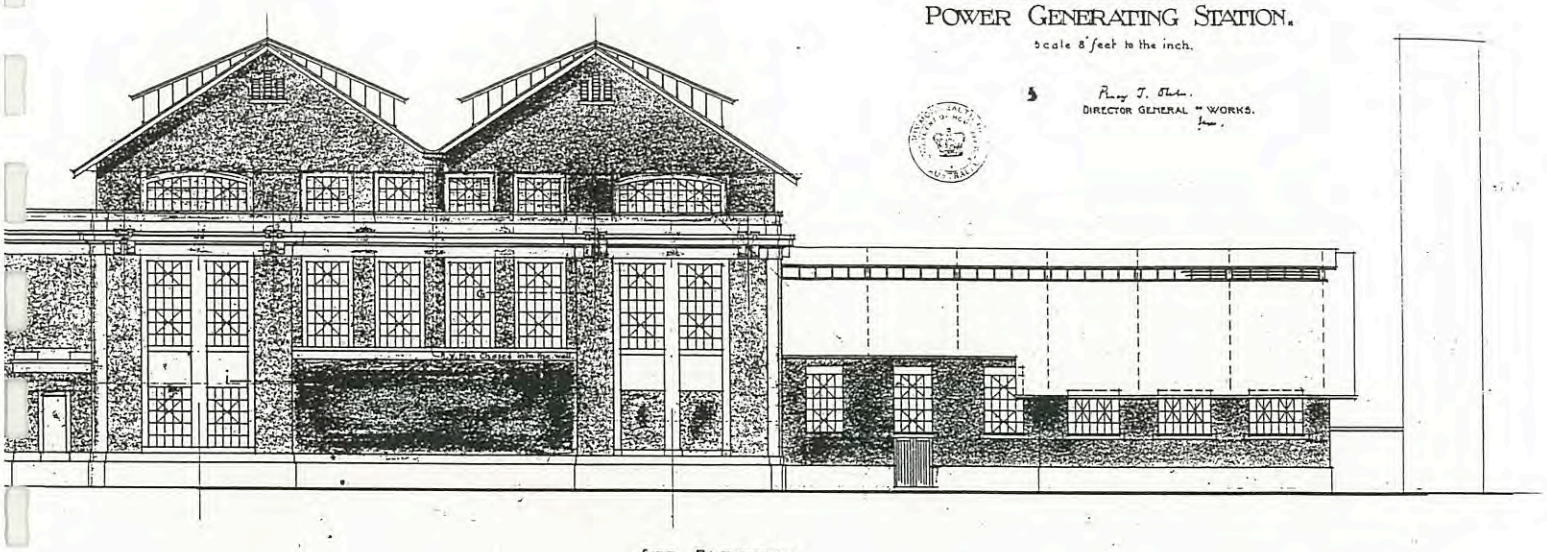
1914 Details, Federal Territory Power Generating Station (concrete)

Source:
Australian Archives CAH 83/893

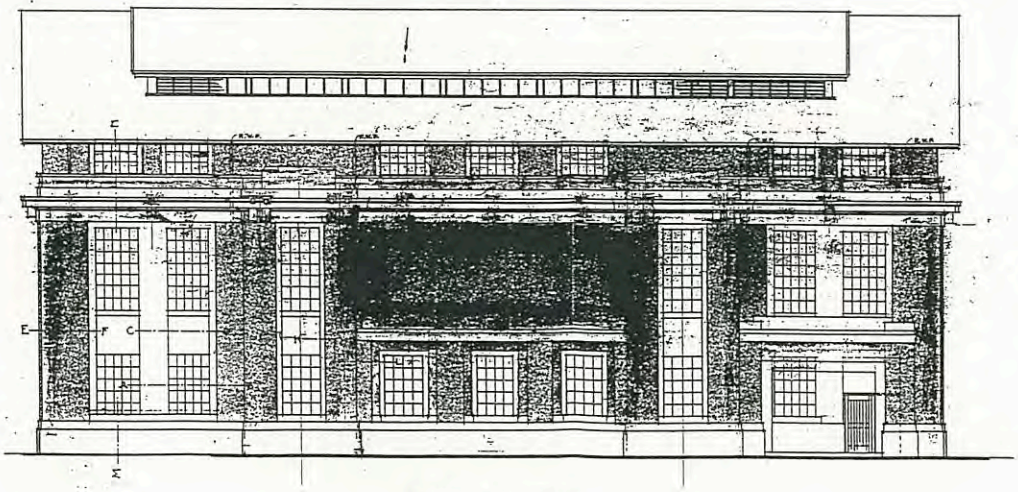
FEDERAL TERRITORY.
POWER GENERATING STATION.

Scale 8 feet to the inch.

Percy T. Taylor.
DIRECTOR GENERAL OF WORKS.



SIDE ELEVATION



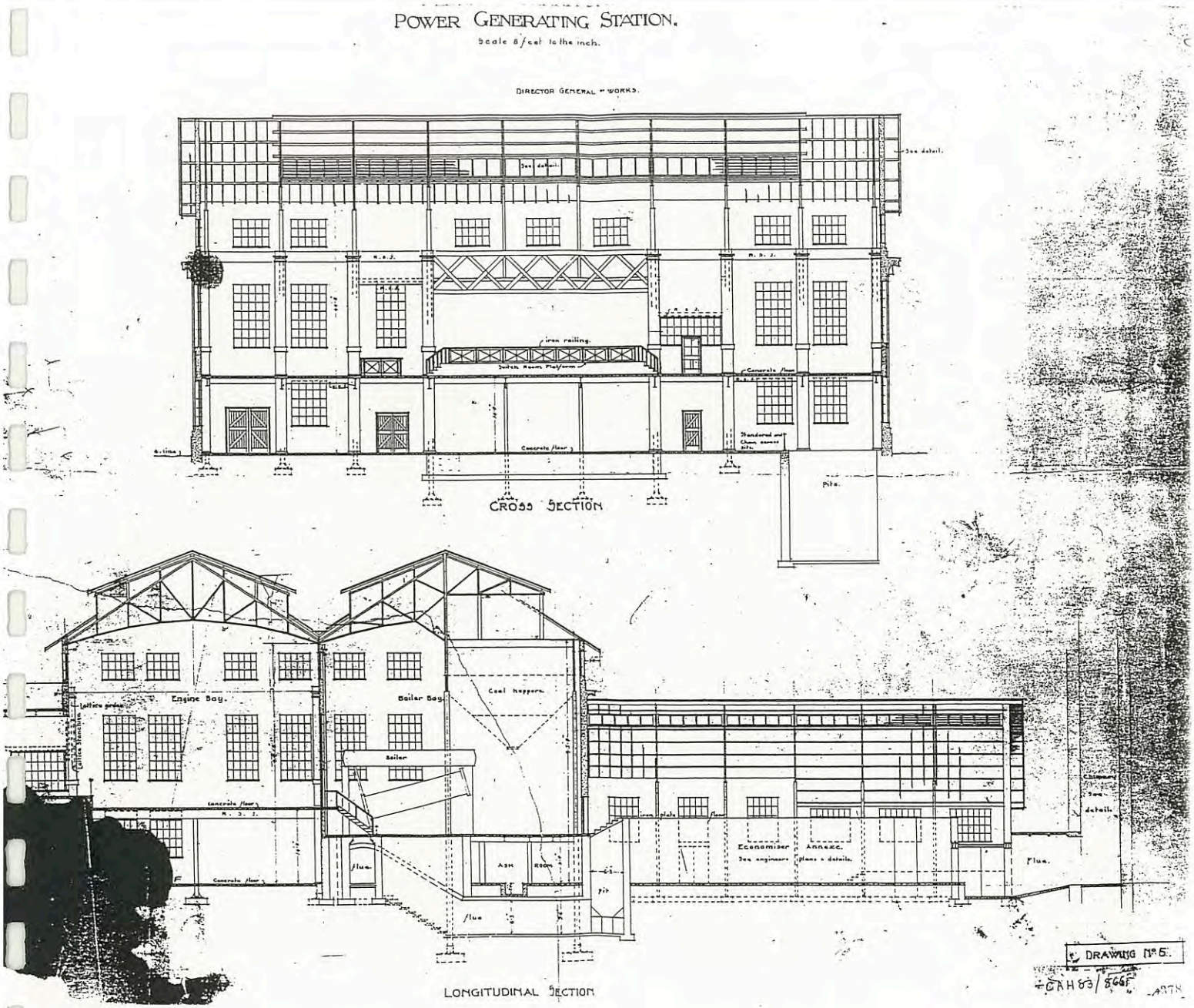
FRONT ELEVATION

DRAWING No 4

ARCHITECTURAL PLAN NO. 7

1914 Side & Front Elevation, Federal Territory Power Generating Station (concrete)

Source:
Australian Archives CAH 83/890



ARCHITECTURAL PLAN NO. 8

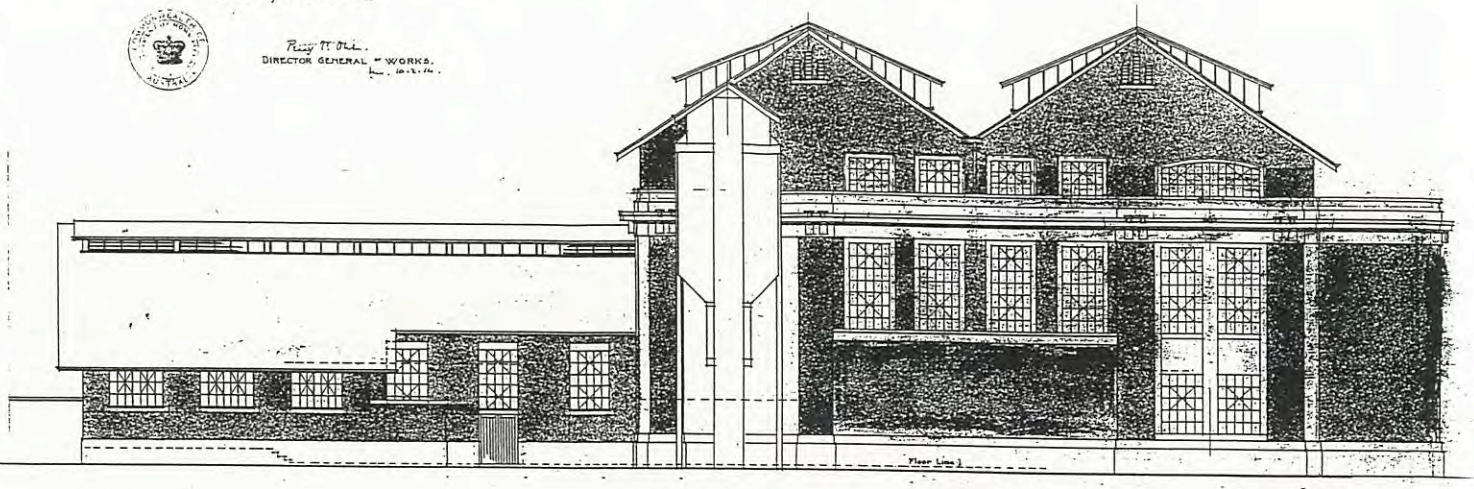
1914 Cross & Longitudinal Section, Federal Territory Power Generating Station (concrete)

Source:
Australian Archives CAH 83/866

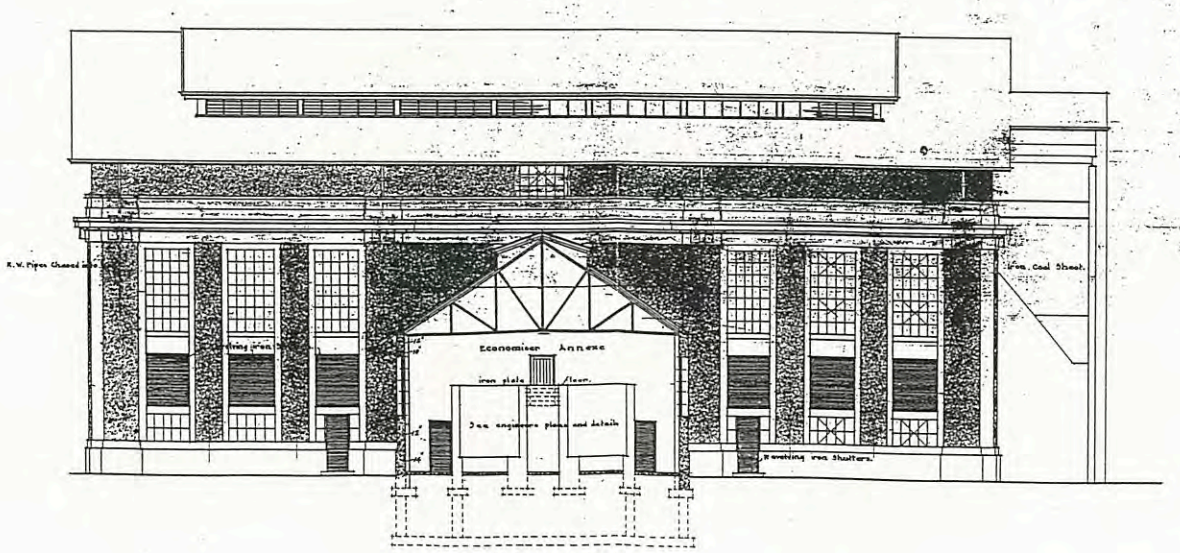
FEDERAL TERRITORY.
POWER GENERATING STATION.

Scale 8 feet to the inch.

DIRECTOR GENERAL OF WORKS.



SIDE ELEVATION



BACK ELEVATION

DRAWING No 6

ARCHITECTURAL PLAN NO. 9

1914 Side & Back Elevation, Federal Territory Power Generating Station (concrete)

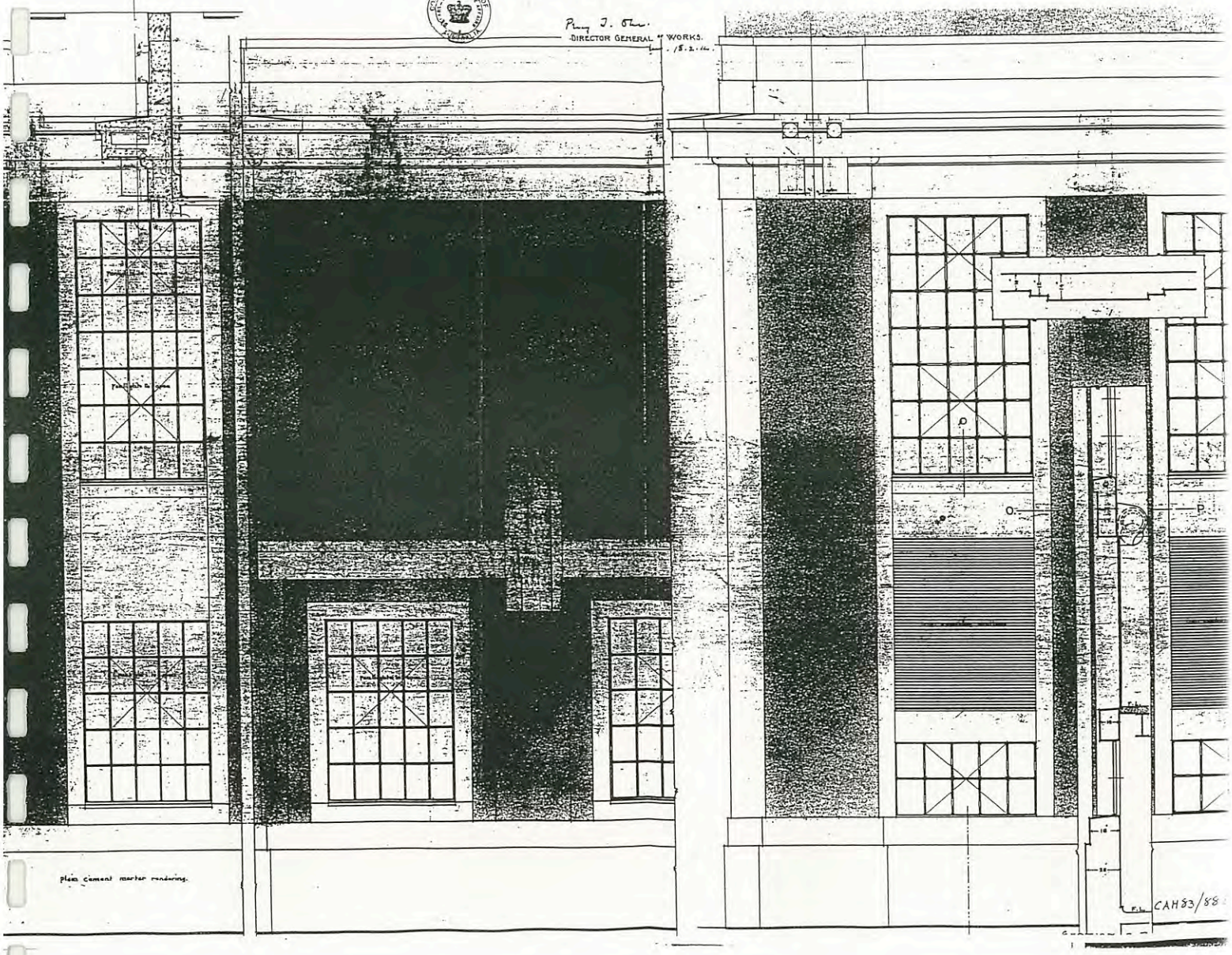
Source:
Australian Archives CAH 83/793

DRAWING No 7.

FEDERAL TERRITORY.
POWER GENERATING STATION.

Scale ½ inch to the foot.

Percy J. Owen.
DIRECTOR GENERAL of WORKS.
18.2.14.



ARCHITECTURAL PLAN NO. 10

1914 Elevational Detail (concrete), Federal Territory Power Generating Station, signed Percy J. Owen, 18 February 1914

Source:
Australian Archives CAH 83/888

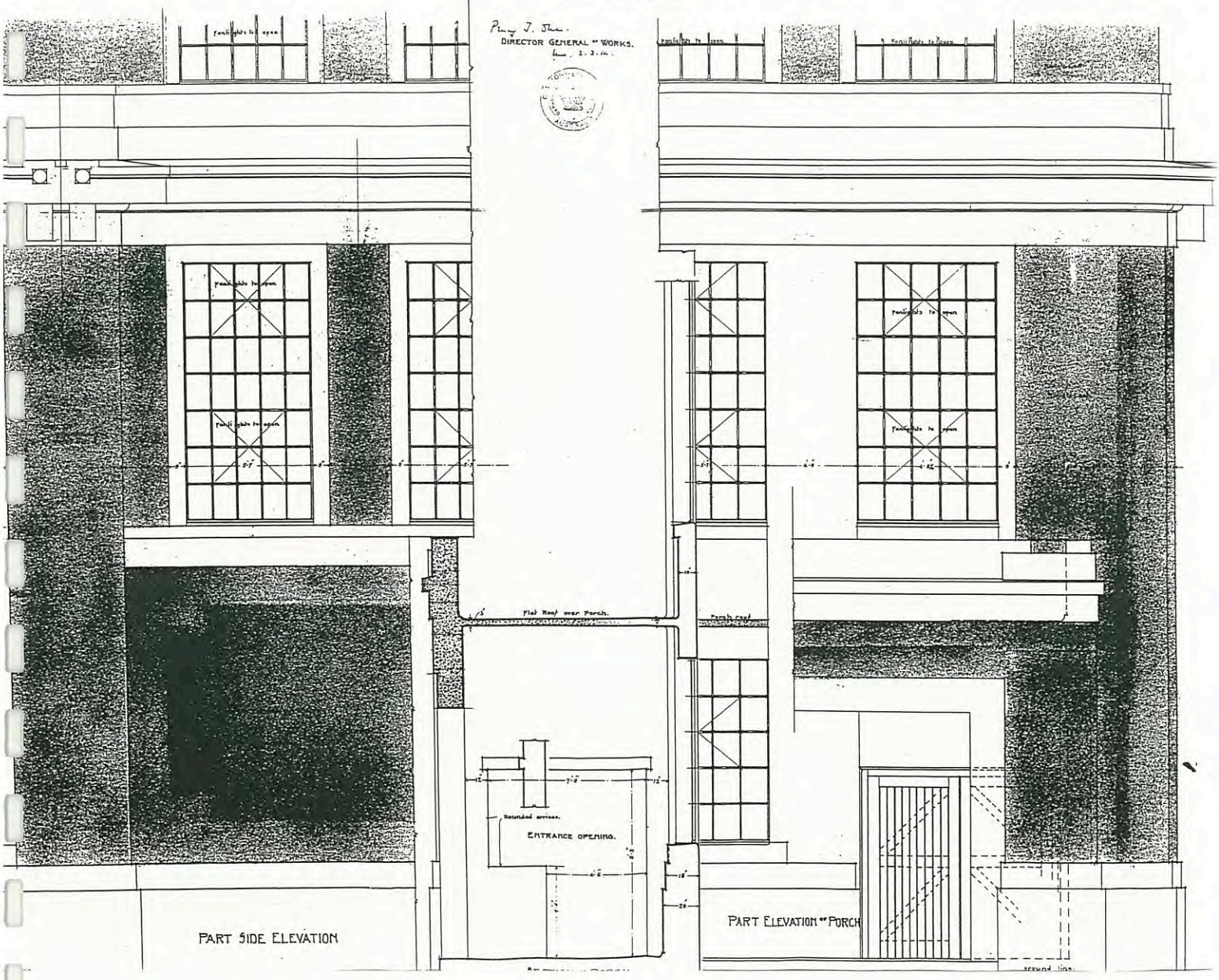
FEDERAL TERRITORY.

POWER GENERATING STATION.

Scale 2 feet to the inch.

DRAWING No 8.

Percy J. Allen.
DIRECTOR GENERAL of WORKS.
Melbourne, 2.3.14.

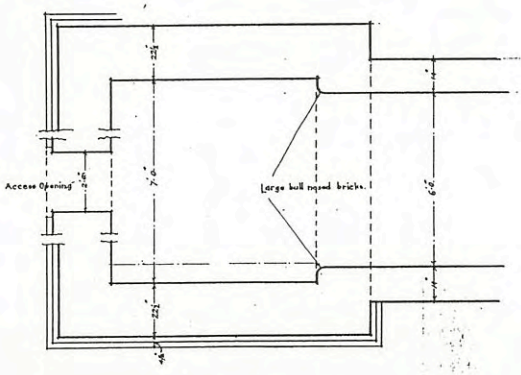


ARCHITECTURAL PLAN NO. 11

1914 Elevation Details (concrete), Federal Territory Power Generating Station

Source:
Australian Archives

DRAWING N° 10



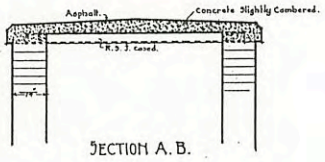
PLAN C. D.

FEDERAL TERRITORY.
POWER GENERATING STATION.

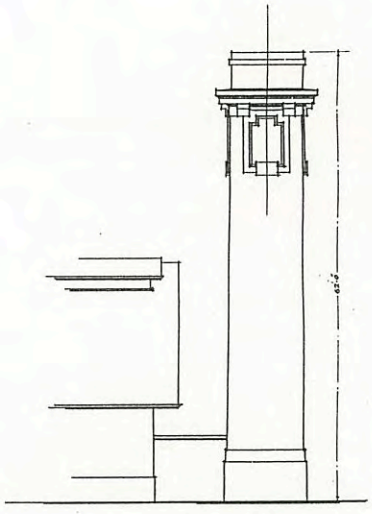
Scale 2 feet to the inch.

DETAIL OF CHIMNEY.

DIRECTOR GENERAL OF WORKS.



SECTION A. B.



ELEVATION

½" Scale

HALF ELEVATION. HALF SECTION.

Figure 55. Engineers Workshop, Federal Territory, Canberra, 1915
Source: ACTEW

Figure 56. Details of Reinforced Concrete Piers, 1915
Source: CRS A2445, item M297C, National Archives of Australia

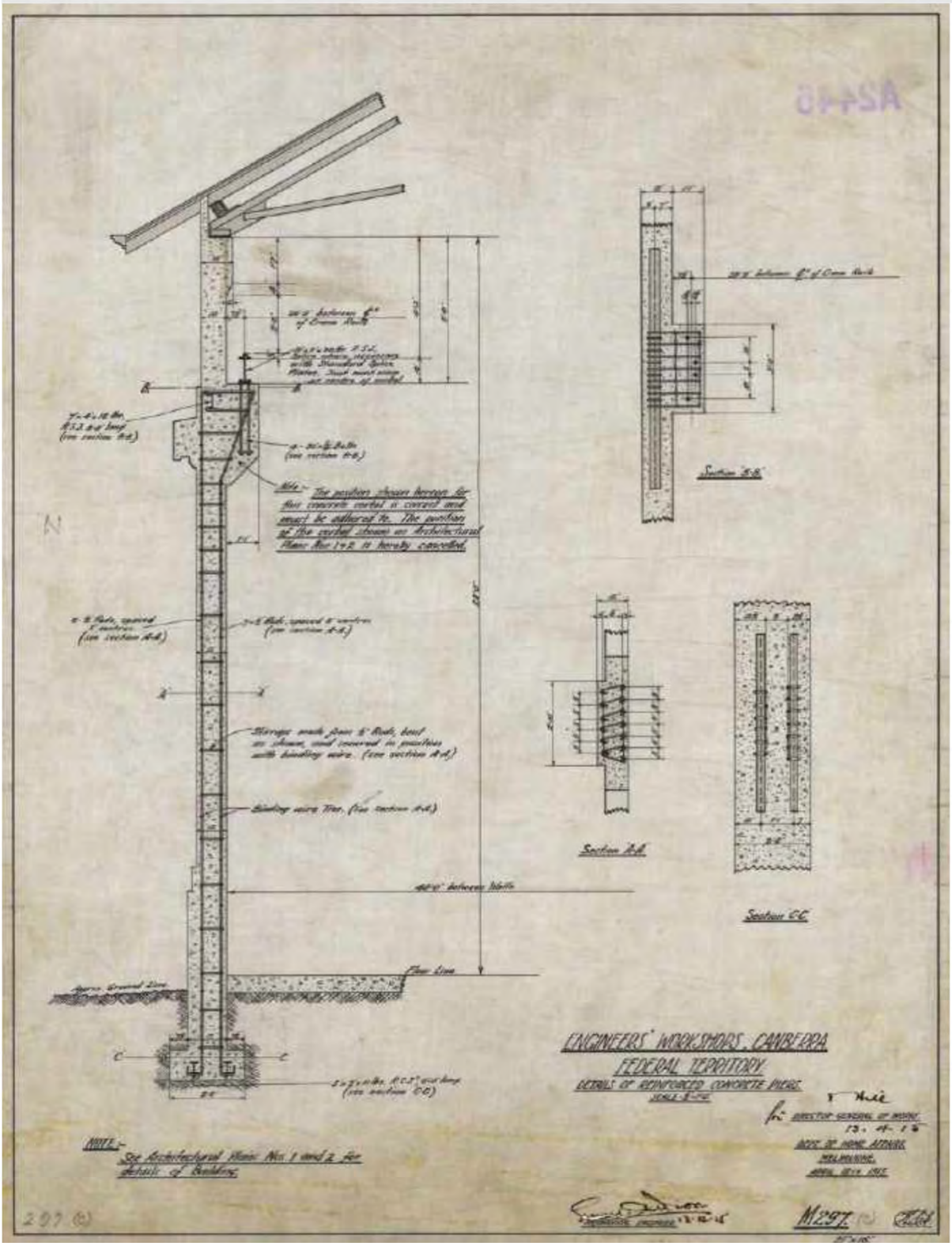


Figure 57. Details of Steel Trusses, 1915
Source: CRS A2445, item M296B, National Archives of Australia

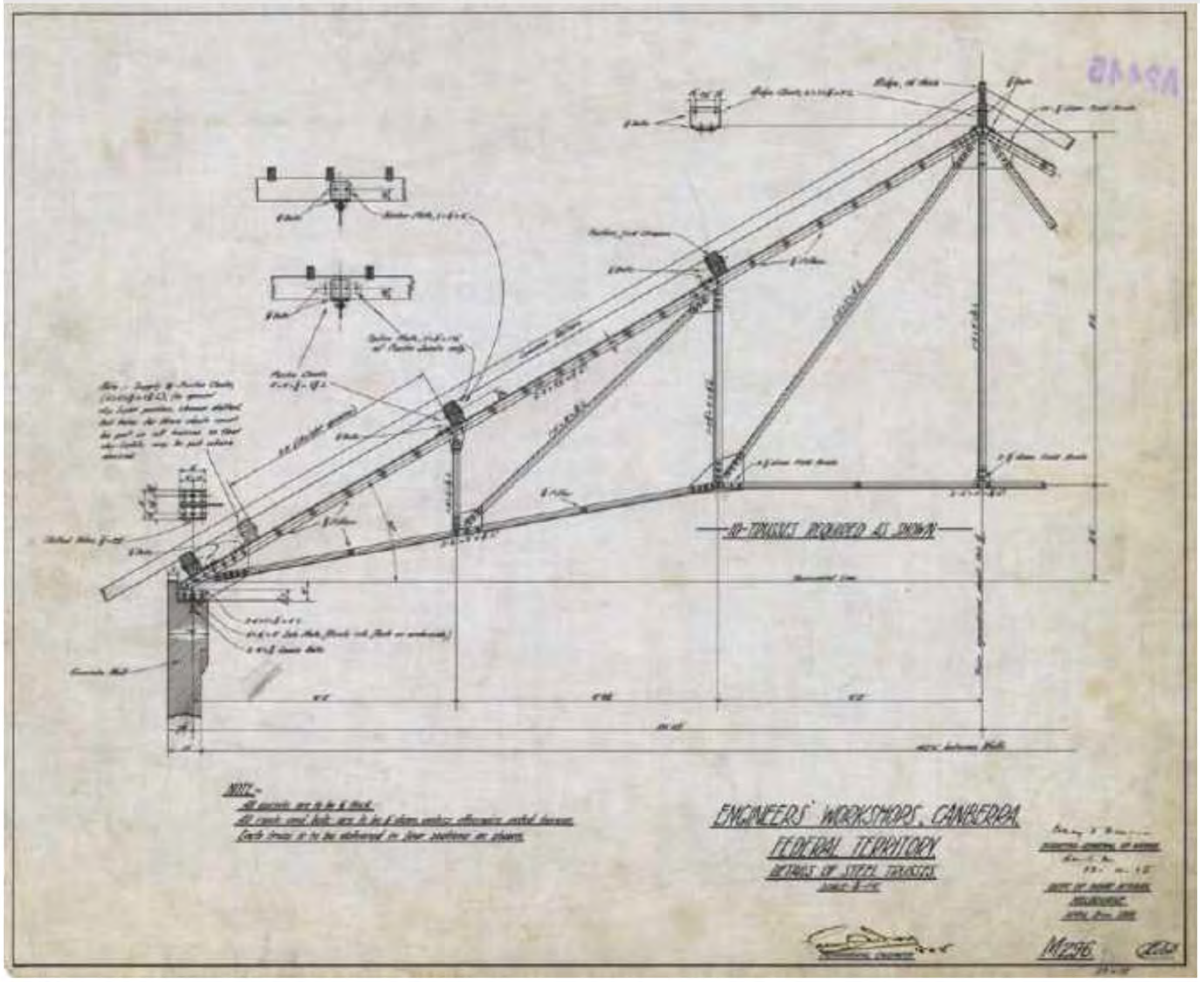


Figure 58. Joiners Shop Building at Power House, Canberra, 1922
Source: CRS A2562, item Ab277, National Archives of Australia

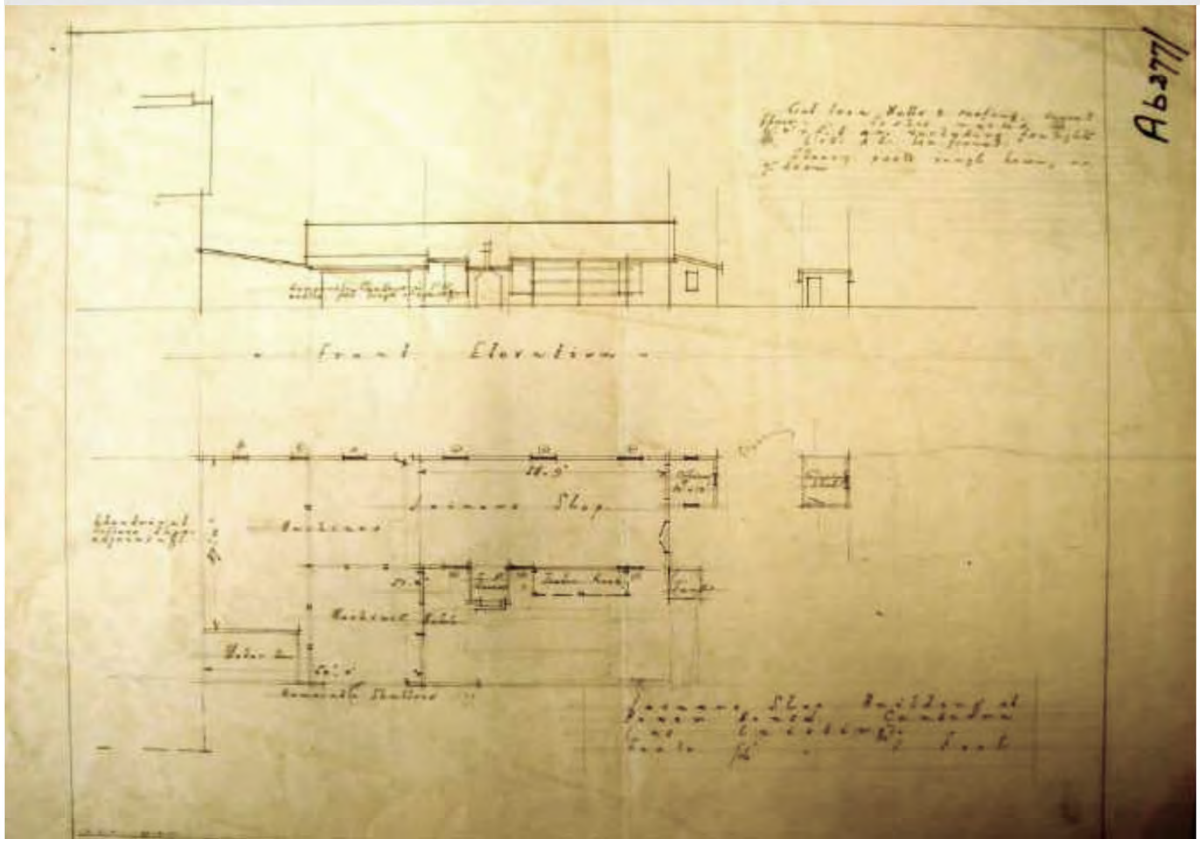
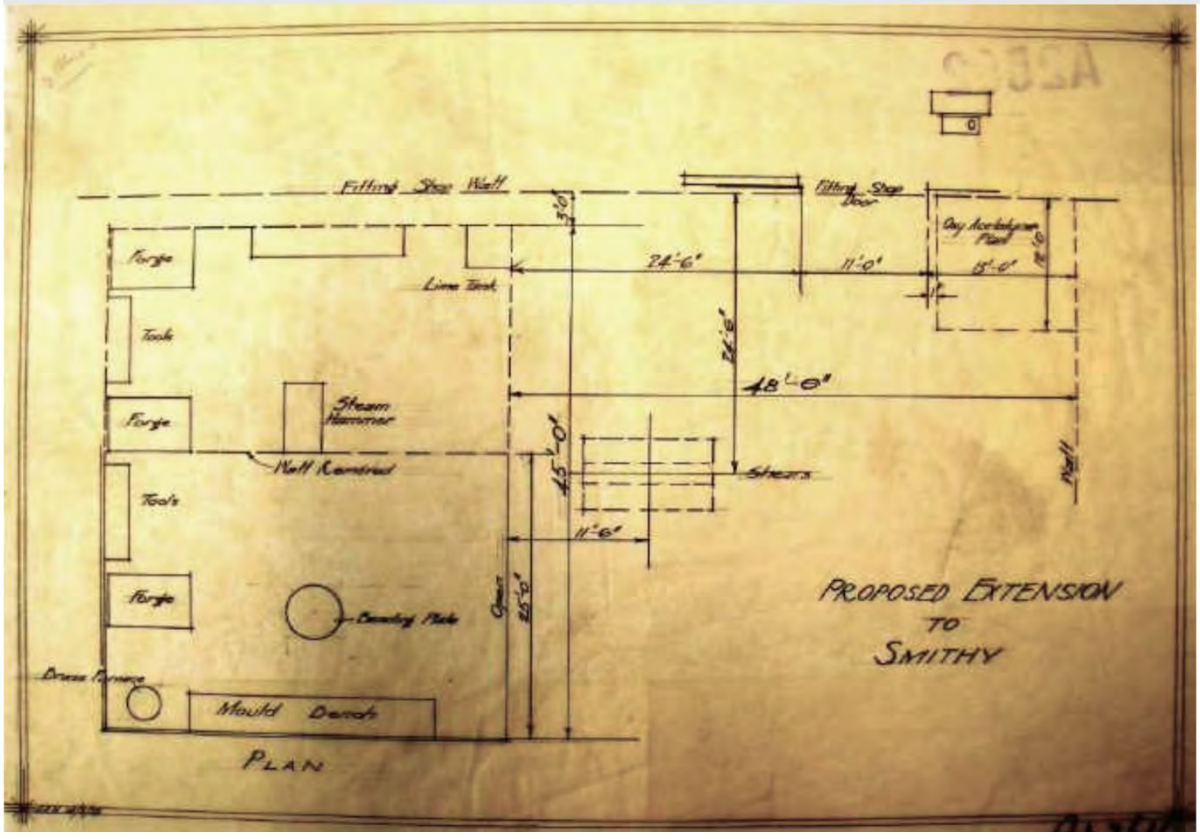


Figure 59. Proposed Extension to Smithy, 1924
Source: CRS A2562, item Ab261, National Archives of Australia



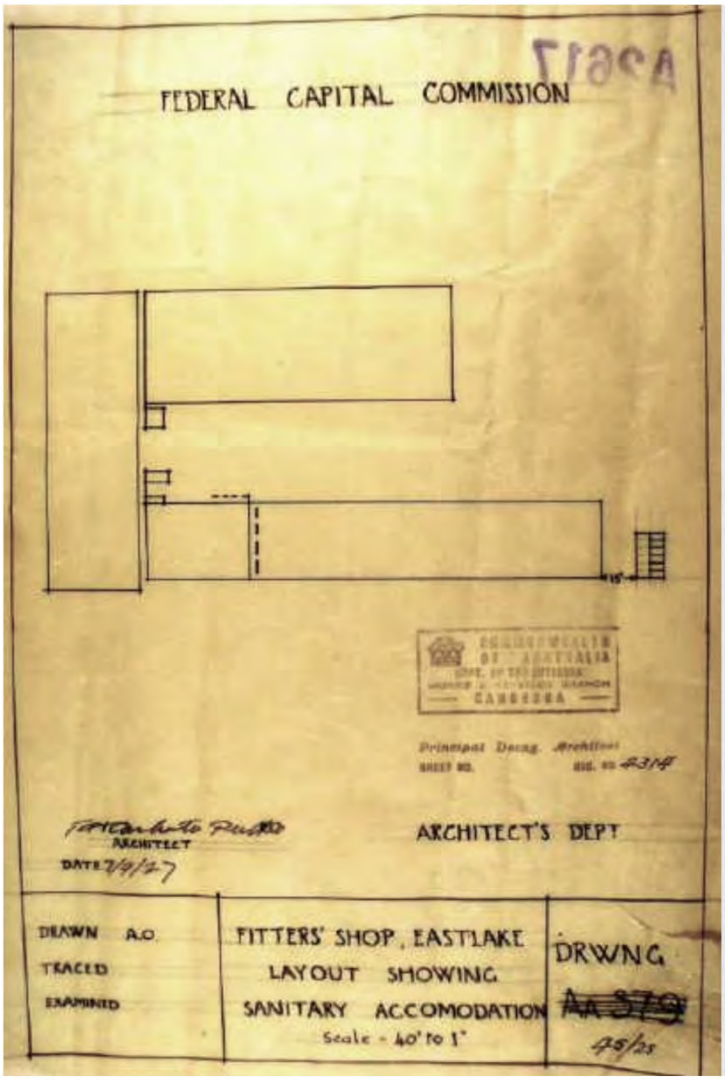


Figure 60. Fitters' Shop, Eastlake, Layout Showing Sanitary Accommodation, 1927
Source: CRS A2617, item Section 167/4314, National Archives of Australia

Figure 68. Mechanical Fitters Shop, Kingston, ACT, Strengthening of Roof Trusses to Support Ceiling, 1956
Source: CRS A2445, item M9016C, National Archives of Australia

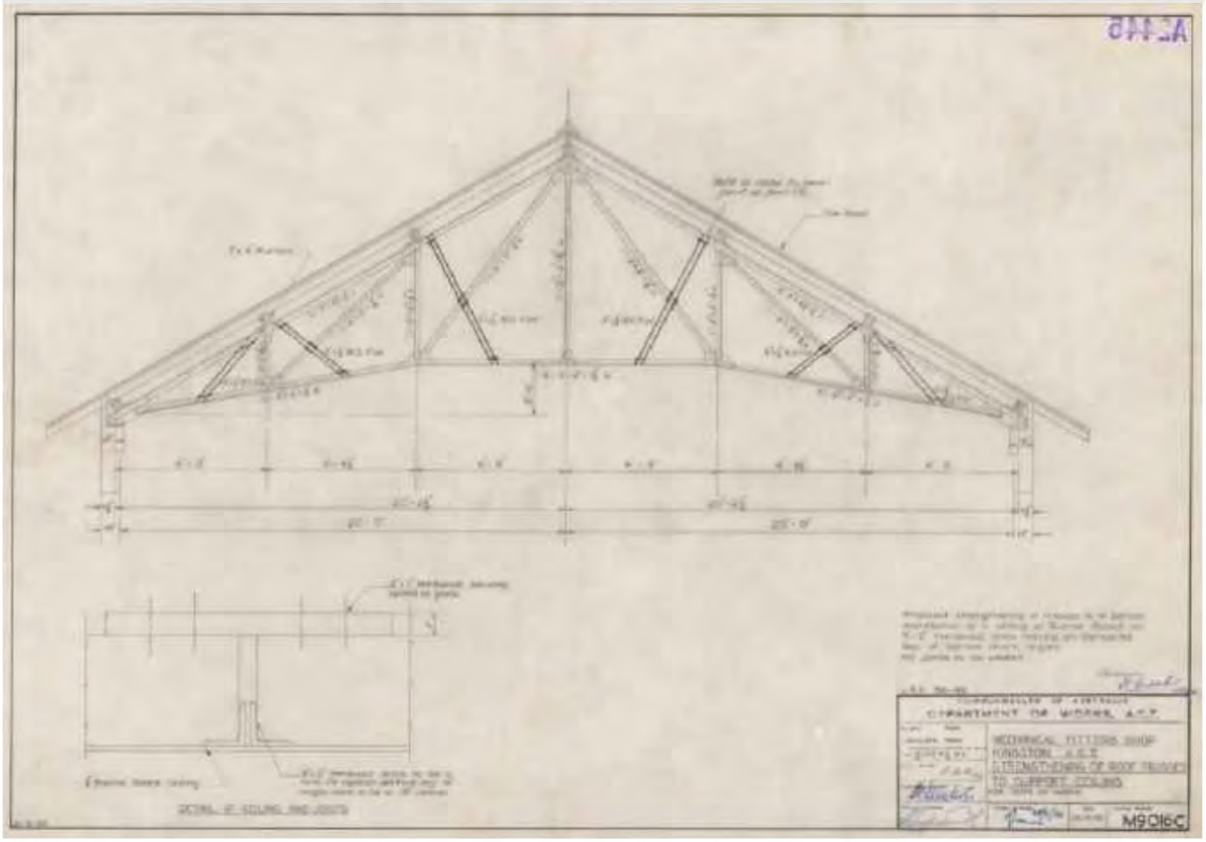
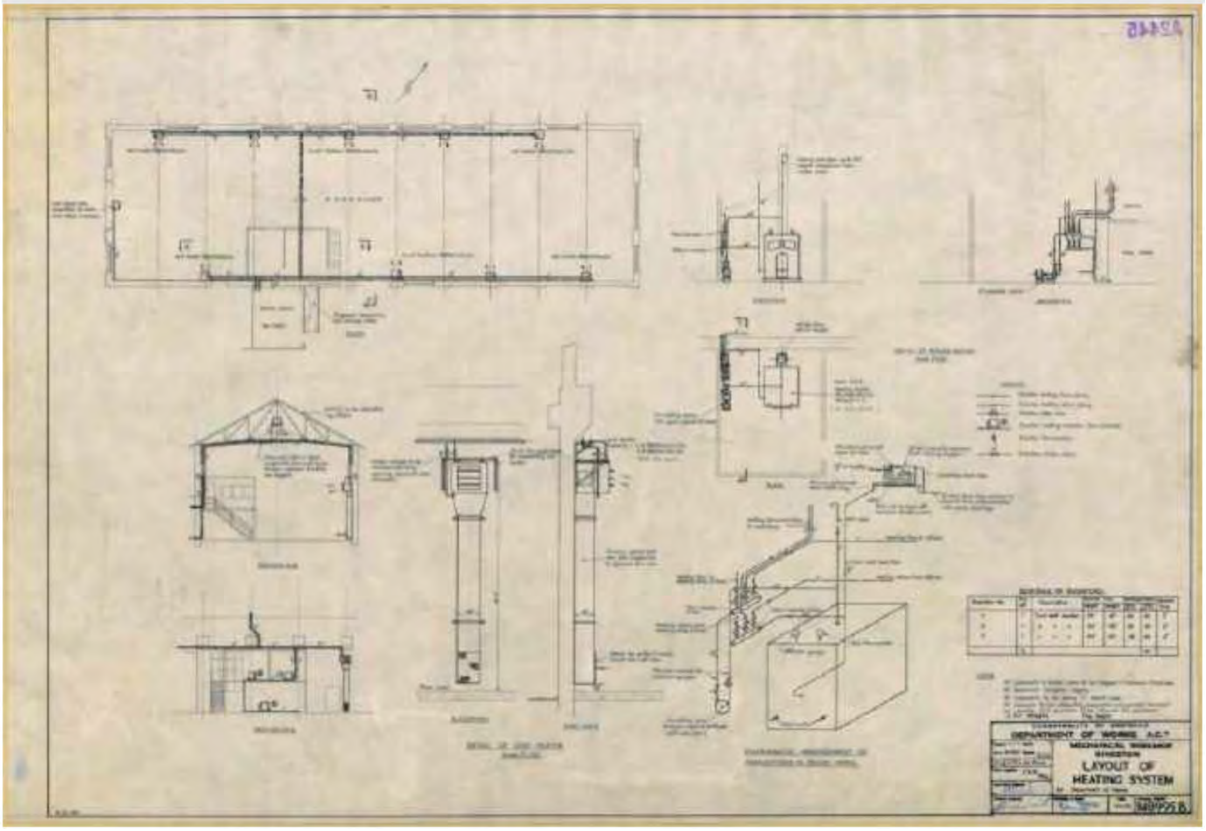


Figure 69. Proposed Heating Layout for Workshop, June 1956
Source: CRS A2445, item M8995B, NAA



Appendix E – Condition Assessment

This condition assessment includes the three building in the Kingston Powerhouse Historic Precinct: the Powerhouse building, the Fitters' Workshop and the 1948 Switch Room.

Heritage Condition Assessment
KINGSTON POWERHOUSE HISTORIC PRECINCT

Part of north-west façade
Philip Leeson Architects September 2020

PREPARED BY PHILIP LEESON ARCHITECTS PTY. LTD

INTRODUCTION

The condition assessment for the Powerhouse and 1948 Switch Room was completed in 2020 whilst that for the Fitters' Workshop was undertaken in 2022. The report is based on a Condition Audit undertaken in by Phillip Leeson Architects in 2013 and has been updated to reflect changes that have occurred since that time. Elements that were not reassessed in 2020 are noted in the relevant schedules.

KEY TO AUDIT RATINGS

HERITAGE SIGNIFICANCE

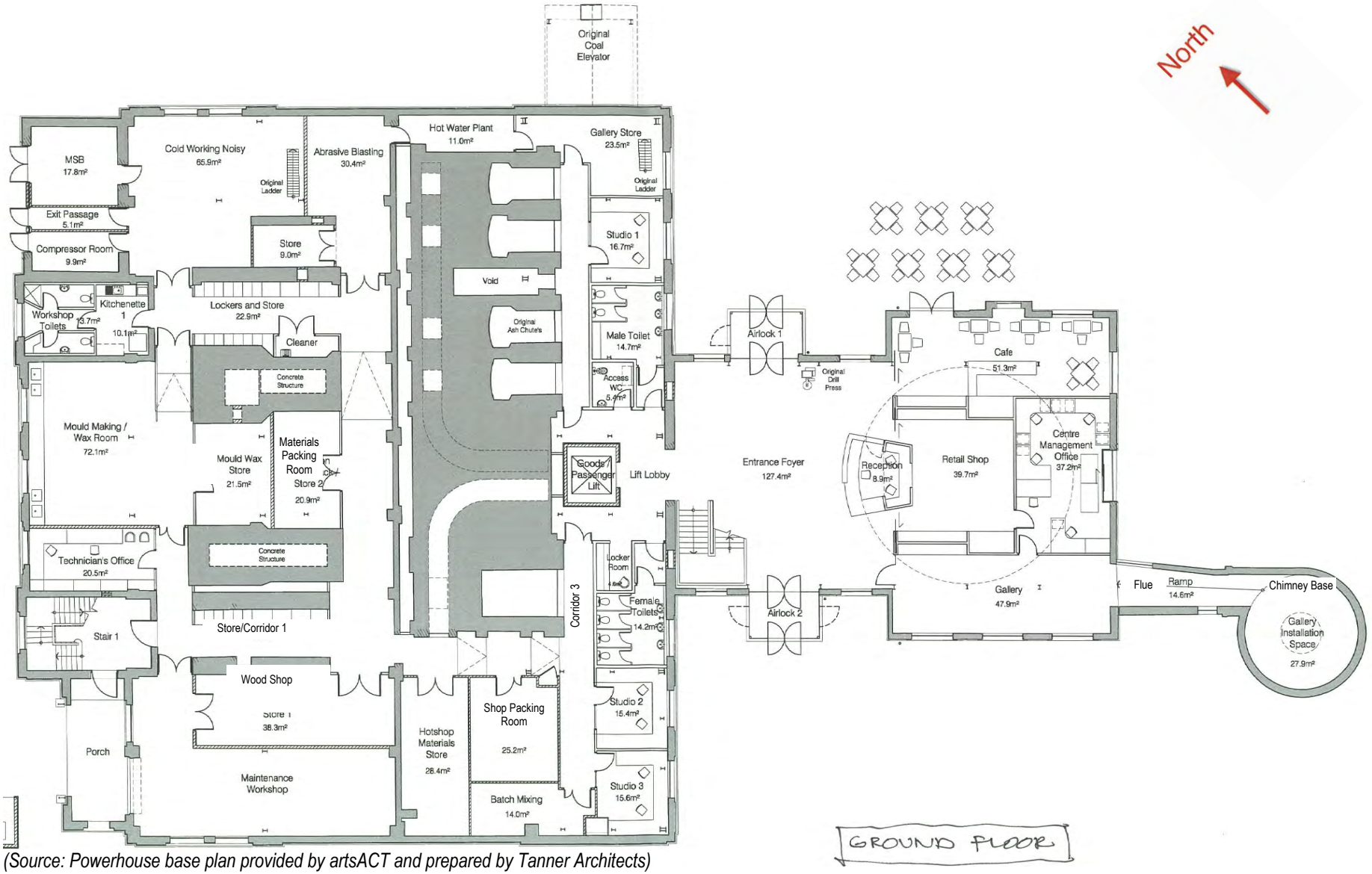
Criteria	Abbreviation	Meaning
Significant	1	Contributes to the heritage significance of the place. May be original fabric or part of later phases that are part of the history of the place. Should be retained and conserved.
Neutral	2	Can be repaired, removed or replaced to modern performance or aesthetic standards.
Intrusive	3	Should be removed.

DEFINITION OF CONDITION

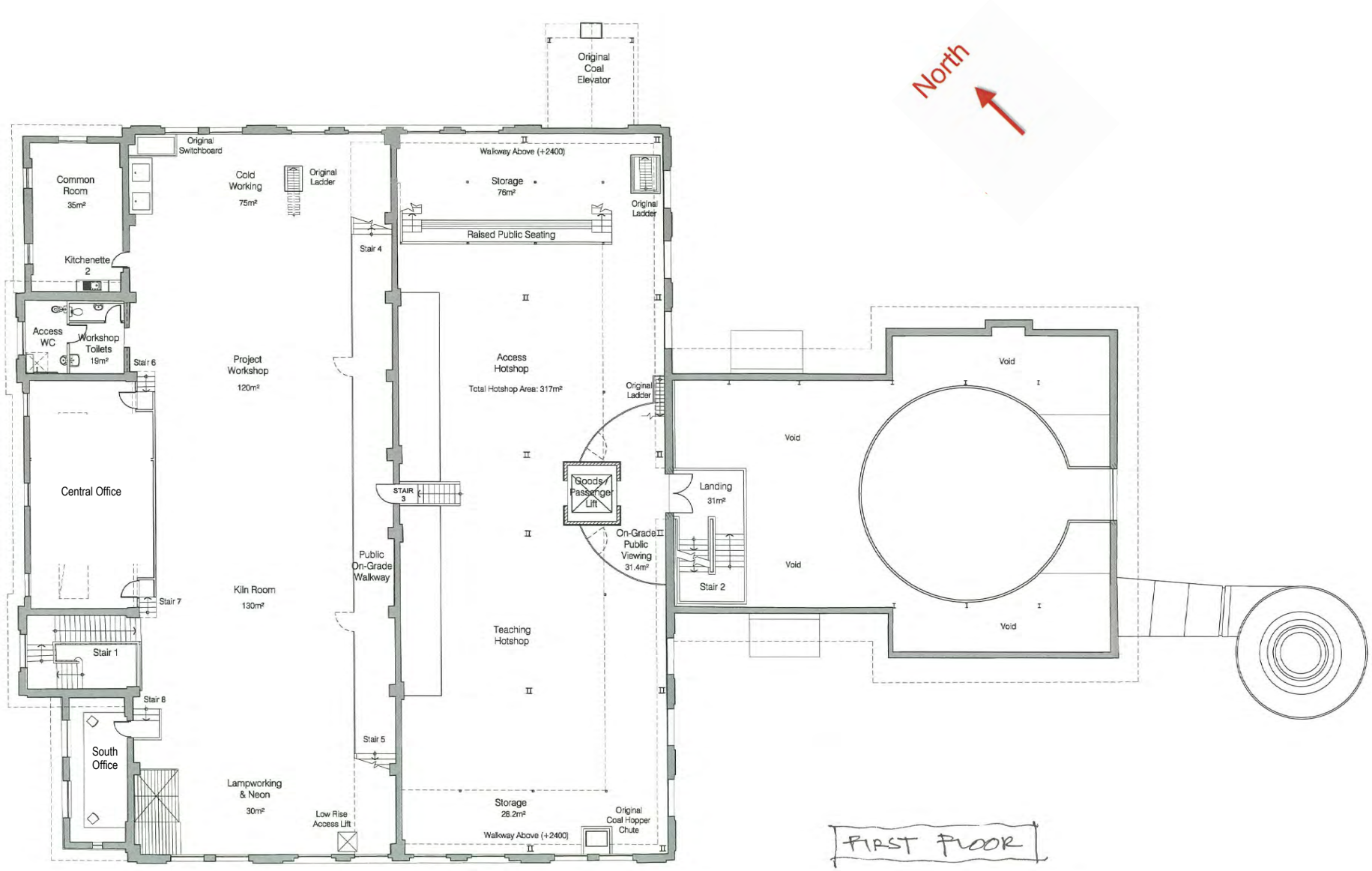
Criteria	No	Meaning
Excellent	1	As new condition which fully meets functional requirements
Good	2	Meets functional requirements
Satisfactory	3	Minor non critical deterioration which nevertheless meets functional requirements
Poor	4	Significant damage which barely meets functional requirements
Unsatisfactory	5	Extreme damage or decay. Does not meet functional requirements

DEFINITION OF PRIORITY

Priority	Abbreviation	Time frame	Description
Urgent	U	Within 12 months	These works are required to stabilise the rapid deterioration of significant fabric. They typically relate to areas where deterioration has progressed to a considerable degree.
Essential	E	1-3 years	These works are required to stabilise the ongoing deterioration of the significant fabric. They typically relate to areas which are beginning to deteriorate.
Recommended	R	>5 years	This category of works are not crucial to the ongoing preservation of the building and typically relate to reinstating original detailing or features. These works are not considered essential, though would serve to improve the presentation or improve functionality of the space.
Investigate	I	0-3 years	Further investigation is required to determine the extent and cause of the defect or if the identified defect may have further implications.



(Source: Powerhouse base plan provided by artsACT and prepared by Tanner Architects)



(Source: Powerhouse base plan provided by artsACT and prepared by Tanner Architects)

POWERHOUSE EXTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
Walls	Poured off form concrete with decorative detailing in contrasting smooth and roughcast render. Render unpainted, warm colour	1910's	1	Mostly typical wear and tear for its age. Vertical cracks throughout and evidence of previously patched cracks (poor colour match), surface crazing, chips, discolouration, rust stains from steel fixings etc. All considered satisfactory and part of the building history	3	Monitor cracks and repair if required.		
	As above	1910's	1	Horizontal cracks potentially more serious than vertical cracks and may relate to the corrosion of embedded steel. Evident to the cornice of the projecting bay to the façade and above the west window to the south-west elevation (ground floor) where a previous repair has failed.	4	Inspect condition at height. Could be inspected as part of future works requiring high level access.	I	
	Areas of later masonry infill with reinstated roughcast render finish	Varies	1	Satisfactory	3			
	Terracotta vents to additions	1950s	2	Satisfactory	3			
	Flue between chimney and economizer annex - Canberra red face brick (English bond)	Late 1940s	1	Wall appears to be damp. No capping/weathering evident to top of brickwork. Large vertical crack to north-east side, possibly caused by corrosion of embedded metal.	4	Review at height and repair as required. Remove corroded metal and monitor crack. If stable, crack could be filled with a weak mortar mix.	I	
	Poured off form concrete to base of chimney	Late 1940s	1	Minor cracking. Water is reported to enter the structure from above.	4	Further investigation at	I	

POWERHOUSE EXTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
				Considerable biological growth to upper part. Internal floor level below height of gravel to exterior.		height to confirm source of water ingress. Treat base of wall externally or reduce ground level. Once damp rectified, organic growth could be removed using a mild biocide.		
Eaves	300 x 35mm white painted timber fascias with galvanised steel reinforcing plates.	Possibly renewed	1	Extensive peeling paint, particularly to higher sections. Biological growth, and possibly rot to north-west façade. Broken section at west end of south-west elevation.	3	Re-painting overdue. Repair deteriorated sections of timber	E	Yes
	White painted fibre cement sheet linings with timber straps to gable end soffits.	2000s?	1	Strap loose at south-west gable box gutter and at west corner under low pitched roof.	4	Refix strap.	E	
				Missing sheeting where overflow pops to valley gutter have been installed.	2	Reinstate missing sheeting	E	
	White painted timber slats to raking side soffits	1910s	1	Loose slat to north-east side of economiser annex above entry lobby.	4	Reattach	E	
				Extensive cobwebs and bird droppings to soffits etc.	4	Cleaning overdue	R	Yes
	White painted fibre cement sheet linings with straps to 1950s additions.	Early 1950s	2	Peeling paint. Loose cover strip between fascia and gutters.	4	Re-painting overdue. Remove loose material	E	Yes

POWERHOUSE EXTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
	Modern addition: prefinished metal sheet with proprietary jointing system to fascia & soffit	2000s	2	Good	2			
Barges	Pointed tile edge with 300 x 35mm white painted timber bargeboards and timber moulding	Possibly renewed	1	Rotten mouldings to north-east and south-west elevations adjacent to valley gutter and at both ends of north-east elevation. Likely due to water from box gutter overflow	4	Confirm suitability of box gutter size and inspect condition at height. Once drainage rectified repair/replace rotten sections to match existing	I	
				Missing barge pointing to economiser annex roof, adjacent to north-east entry	4	Reinstate missing pointing	E	
				Moulding and mortar to pointed tiled edge missing to west end of south-west elevation	4	Replace damaged/missing to match existing	E	
				Loose and rotten moulding to south-west end of south-east shed dormer to boiler bay	4	Reattach sound timber. Repair/replace damaged to match existing	E	
				Mortar pointing cracked to south-west end of economiser annex.	4	Replace damaged pointing	E	
	White painted steel channel purlins to main gable roofs	1910s	1	Satisfactory	3			
	150x 200mm white painted timber purlins to south-east gable roof	1910s	1	Satisfactory	3			
Gutters	White painted galvanised quad profile	Likely renewed	2	Extensive peeling paint	2	Repaint	E	Yes
				Gutter to south-east shed dormer, boiler bay is deformed/has slumped at the north end	3	Resecure/replace as required	E	

POWERHOUSE EXTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
Rainwater heads	White painted folded galvanized steel with decorative bosses and astragals	1910s	1	Extensive peeling paint	3	Repaint	E	Yes
				Rainwater head to north-east side of projecting bay (to façade) is leaking and causing damage to the roof and walls below	5	Repair/replace to match existing	U	
Downpipes	White colorbond 100 x 100mm square, pvc pipe at base connected to stormwater, s/s inspection panel at base, rolled astragals brackets, lower section of dps recessed into concrete walls (original detail)	2000s	2	Appearance good. Function not tested. Downpipes may be insufficient size, particularly those to the valley gutter	3	Installation of larger dps may be required if insufficient	I	
				Staining and biological growth to dp to centre of south-west elevation indicates that it is leaking and possibly blocked towards base.	4	Unblock dps. Dps should be regularly cleared of debris	U	Yes
	Spitters from shed dormers to main roofs	2000	2	Good	2			
Windows and doors	Main building: white painted steel frame, awning sashes, variety of glazing including original float glass, several eras of wired glass, thin and thick reeded glass, modern “cathedral” type obscure glass	Frames 1910 Glazing Various	1	Ongoing problems with vandalism (glass breakage), particularly on lower south-west elevations It understood that some glass was also broken in the recent hail storm.	3	Replace broken glass panes.	E	
				Peeling paint to steel frames	3	Repaint	E	Yes
	Original entry - multi paned timber framed door with multi paned highlight and sidelight	1910s	1	Damage to paintwork due to use Four broken glass panes. Glass reported to break when door slams (has been subsequently fitted with new hardware)	4	Replace broken glass Repaint	E	
	Timber framed sash windows, north-east and north-west elevations	1950s	2	Peeling paint One broken pane	4	Repaint Replace broken glass	E	

POWERHOUSE EXTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
	Modern doors and windows to economiser annex and café addition	2000s	2	Good	2			
	Round steel framed window to north-east elevation of economiser annex	?	?	Satisfactory	3			
	White powdercoated aluminium louvres in steel frame, 1950s addition to north corner	2000s	2	Satisfactory	3			
	South-east side: white Colorbond roller doors	1990s	2	Satisfactory	3			
	Original entry porch: white Colorbond roller shutter	1990s	2	Satisfactory	3			
	Base of chimney: steel door	Late 1940s	1	Appearance satisfactory. Inoperable	3			
Roof	Unglazed Marseilles pattern red terracotta tiles	c.1990s	1	Appear satisfactory from ground level inspection	3			
	Main roof: lead flashings	c.1990s	2	Loose at dormer, south-west elevation of boiler bay roof	4	Refix/replace	E	
	Economiser annex: lead flashings	c.1990s	2	Loose/detached to north-east and south-west side of shed dormer	4	Refix/replace	E	
	Galvanised steel valley gutter	c.1990s	2	Not closely examined. Evidence of overflow at gable ends.	4	Inspection at height recommended	I	Yes
	Main Building flat roof section behind parapets.	Unknown	TBC	Not visible from ground level		Inspection at height recommended	I	Yes
	Additions to north-west façade: hipped corrugated galvanised steel sheet	Early 1950s	2	Appear satisfactory from ground level inspection	3			
	Modern café addition: steel deck	2000s	2	Appear satisfactory from ground level inspection	3			
Shed Roof Dormers	Terracotta tiled roofs, white painted timber louvres and steel	c.1990s	2	Satisfactory	3			

POWERHOUSE EXTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
	bird mesh, white painted fibre cement sheet side walls with timber straps							
Services	Original entry: ceiling lights, switches, GPOs, security alarm, security touch pad, stainless steel slot drain at porch edge	2000s	2	Not tested				
	North-east elevation: redundant metal conduits, various wall lights	Various	1	Inoperative. Part of building history. A conduit has partly detached on the north-east elevation	4	Refix loose conduit	R	
	North-east elevation: 300mm dia. riveted steel outlet/ inlet pipe	c1910s	1	Satisfactory	3			
	Coal elevator: riveted steel plate, H section columns, timber framed fixed windows at top under small tiled gabled roof	1910s	1	A steel purlin appears to have some corrosion There is corrosion to other components, such as the ends of the loading arms	3	Remove surface corrosion, treat and repaint	E	
	Remnant steel brackets, conduits	Various	1	Inoperative. Part of building history	3			
	Chimney: PVC conduit, copper earth strap	2000s	2	Not tested				
	South-west elevation: redundant steel pipes, wall vent/drain stack, various penetrations	Various	1	Inoperative. Part of building history				
	Siren and steam whistle to roof of engine bay	c.1930-40s	1	Can be operated				
North-west side	Plant and equipment sheds	2000s	3	Good	2			
	Cyclone fenced enclosure for vehicles and equipment	2000s	3	Good	2			
	Gas bottle enclosure at original entry porch	2000s	3	Good	2			

POWERHOUSE EXTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
	2 steel boot scrapers either side of original entry porch	1915	1	Satisfactory, wear indicative of many years of use and part of significance	3			
North-east side	North-west and part north-east perimeter: Broomed concrete paving, steel sections suggest former rail line	2000s	2	Gravel section with modern steel rails difficult to walk on	2	Replace existing interpretative rail line with device that better represents industrial past and is safe to transverse	R	
	Modern brick and concrete paving	2000s	2	Good	2			
South-east side	Galvanised steel bike stands	2000s	2	Good	2			
	Red brick paving suggesting footprint of original chimney	2000s	2	Good, though footprint may not represent the size and shape of the original chimney	2	Excavation of the area may reveal the original location of the chimney	R	

POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
CORRIDOR 1 / STORE								
Floor	Concrete slab with non-slip textured grey painted finish	Unknown	2	Satisfactory	3			
Walls	Original off form poured in situ concrete	1910s	1	Typical wear and tear, patches penetrations and old fixings – part of the building history. Concrete slurry stain	3			
	Modern concrete blockworks and painted fibre cement on steel frame (over doors)	2000s	2	Good	2			
Ceilings	Original poured in situ concrete	1910s	1	Satisfactory	1			
	Modern poured in situ concrete	2000s	2	Good	2			
	Precast concrete panels in red oxide painted steel frame	1950s?	2	Satisfactory	3			
Interior Windows	Described under individual rooms which open off corridor							
Doors	Modern solid core flush panel fire doors	2000s	2	Good	2			
Services	Metal conduits, PVC pipes, switches, control pads, cable trays, galvanised steel ductwork, suspended fluorescent lights, fire services etc.	2000s	2	Not tested Staining to ductwork due to water ingress				
	Historic fixings (limited number)	Various	1	Inoperative. Part of building history				
Fittings	Wood workshop shelving and cutting tables	2000s	2	Good	2			
MATERIALS PACKING ROOM / STORE 2								
Floor	Concrete slab with non-slip textured grey painted finish	Unknown	2	Satisfactory	3			

POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
Walls	original off form poured in situ concrete	1910s	1	Typical wear and tear, patches and penetrations – part of the building history	3			
	Modern concrete blockwork and poured in situ concrete	2000s	2	Good	2			
Ceilings	Original poured in situ concrete	1910s	1	Satisfactory	3			
	Modern poured in situ concrete	2000s	2	Satisfactory	3			
	Precast concrete panels in red oxide painted steel frame	1950s?	1	Satisfactory	3			
Internal windows	Aluminium framed	2000s	2	Good	2			
Doors	Modern solid core flush panel doors with steel frame. Fixed glazing above.	2000s	2	Minor scuffs and marks	2			
Services	Metal conduits, PVC pipes, switches, DB, control panels, cable trays, steel ductwork, suspended fluoro lights, fire services etc.	2000s	2	Not tested				
	Historic services and remnant fixings	Various	1	Inoperative. Part of building history				
Fittings	Storage shelving, loose furnishings	2000s	2	Good	2			
TECHNICIAN'S OFFICE								
Floor	Modern concrete slab with man hole	2000s	2	Hairline crack	3			
Walls	Original off form poured in situ concrete	1910s	1	Typical wear and tear, patches and penetrations - part of the building history	3			
	Modern concrete blockwork and fibre cement sheeting in steel frames	2000s	2	Good	2			

POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
Ceiling	Precast concrete panels in red oxide painted steel frame	1950s?	1	Satisfactory	3			
Internal windows	Fixed glazing in grey painted steel frame	2000s	2	Good	2			
External windows	Multipaned steel framed	1910s	1	Satisfactory				
Doors	Modern solid core flush panel fire doors with steel frame and fixed glazing above.	2000s	1	Good	2			
Services	Metal conduits, PVC pipes, switches, control panels, cable trays, steel ductwork, suspended fluoro lights, fire services	2000s	2	Not tested Some fluorescent light have no globes/are not working				
	Communications and fire service controllers, data hubs	2000s	2	Not tested				
	Historic services & remnant fixings	Various	1	Inoperative. Part of building history				
Fittings	Laminated MDF cupboards & chrome hardware	2000s	2	Good	2			
	Loose furniture	2000s	2	Good	2			
MOULD MAKING / WAX ROOM								
Floor	Steel trowelled concrete slab with inset steel strip drains	2000s	2	Satisfactory	3			
Walls	Original off form poured in situ concrete	1910s	1	Typical wear and tear, patches and penetrations – part of the building history. Previous repairs/plugs evident	3			
	Modern concrete blockwork	2000s	2	Good	2			
Ceiling	Precast concrete panels in red oxide painted steel frame	1950s?	1	Satisfactory	3			
External windows	Multi paned steel framed	1910s	1	Satisfactory	3			

POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
Doors	Solid core flush panel fire doors, modern hardware and steel frame.	2000s	2	Good	2			
Services	Metal conduits, PVC pipes, switches, control panels, cable trays, steel ductwork, suspended fluorescent lights, fire services	2000s	2	Not tested				
	Historic services and remnant fixings, including early light fitting	Various	1	Inoperative. Part of building history				
Fittings	Stainless steel benches and sink units, sundry equipment with galvanised steel exhaust hoods	2000s	2	Good	2			
	Loose furniture, including tables with steel top	2000s	2	Good	2			
MOULD WAX STORE								
Floor	Concrete slab with non-slip textured grey painted finish	2000s	2	Satisfactory	3			
Walls	Original off form poured in situ concrete	1910s	1	Typical wear and tear, patches and penetrations – part of the building history	3			
	Modern concrete blockwork	2000s	2	Good	2			
Ceiling	Precast concrete panels in red oxide painted steel frame One beam hand painted with 'Power House Canberra'	1950s?	1	Satisfactory	3			
	Modern concrete slab, above red oxide painted steel frame	2000s	2	Satisfactory	3			
Services	Conduits, PVC pipes, switches, control panels, cable trays, DB, steel ductwork, suspended fluorescent lights, fire services	2000s	2	Not tested				

POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
	Communications and fire service controllers, data hubs	2000s	2	Not tested				
	Historic services and remnant fixings	Various	1	Inoperative. Part of building history				
Fittings	Loose steel shelving	2000s	2	Good	2			
KITCHENETTE 1								
Floor	Vinyl on concrete slab	2000s	2	Good	2			
Walls	Original off form poured in situ concrete	1910s	1	Typical wear and tear, patches and penetrations – part of the building history	3			
	Painted plasterboard on lightweight framing	2000s	2	Good	2			
Ceiling	Precast concrete panels on red oxide painted steel frame	1950s?	1	Satisfactory	3			
Doors	Original painted timber v jointed tongue and grooved boards, ledged and braced, timber jambs and clear glazed highlight, steel rim lock and brass knob	1910s	1	Satisfactory Glazing, architrave and jamb transom replaced	3			
Services	Conduits, PVC pipes, switches, control pads, cable trays, galvanised steel ductwork, suspended fluorescent lights, fire services	2000s	2	Not tested				
	Historic services and remnant fixings, including a Westinghouse 'No-fuse Load Centre'. Cable terminating boxes fixed to steel framing	Various	1	Inoperative. Part of building history				
Fittings	Laminated MDF cupboards and chrome hardware, stainless steel sink and chrome tap	2000s	2	Good	2			

POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
	Loose appliances and furniture	2000s	2					
WORKSHOP TOILETS								
Floor	Vinyl on concrete slab	2000s	2	Good	2			
	Ceramic tiles to toilet cubicles	2000s	2	Good	2			
Walls	Original off form poured in situ concrete (external walls)	1910s	1	Typical wear and tear, patches and penetrations – part of the building history	3			
	Painted plasterboard on lightweight framing to toilet cubicles	2000s	2	Good	2			
	White glazed ceramic tiles to shower walls, basin splashback and skirtings in toilet cubicles	2000s	2	Good	2			
Ceiling	Precast concrete panels in red oxide painted steel frame	1950s?	2	Satisfactory	3			
	Painted plasterboard on lightweight framing to toilet cubicles	2000s	2	Good	2			
External windows	Multipaned steel framed	1910s	1	2 broken glass panes	4	Replace broken glass	E	
Doors	Painted timber frame, glass panel and steel frame. Fixed glazing above. Modern hardware.	2000s	2	Good	2			
	Modern painted timber solid core, flush panel to toilet cubicles	2000s	2	Good	2			
Services	Recessed downlights, switches, GPO, sprinkler heads, exhaust fans	2000s	2	Not tested Dirty around perimeter				
	Historic services and remnant fixings	Various	1	Inoperative. Part of building history				
Fittings	White ceramic WCs and wall basins, white powdercoated	2000s	2	Good	2			

POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
	shower screens, chrome tapware, toilet paper holders, frameless mirrors, soap dispensers, hand dryers							
	Loose furniture	2000s	2	Good	2			
COLD WORKING NOISY								
Floor	Steel trowelled concrete slab with steel strip drains	2000s	2	Good	2			
Walls	Original off form poured in situ concrete	1910s	1	Typical wear and tear, patches and penetrations – part of the building history Some staining from machinery	3			
	Modern concrete blockwork (some painted)	2000s	2	Good	2			
	Rendered red brickwork	Unknown	-	Satisfactory				
Ceiling	Precast concrete panels on red oxide painted steel frame	1950s?	1	Satisfactory	3			
	Modern slab on grey painted steel frame	2000s	2	Good	2			
Doors	Solid core flush panel fire doors, modern hardware and steel frame	2000s	2	Good	2			
External windows	Multipaned steel framed	1910s	1	6 panes broken glass Dirty externally	4	Replace broken glass panes	E	
Services	Conduits, PVC pipes, switches, control panels, cable trays, DB, galvanised ductwork, suspended fluoro lights, fire services	2000s	2	Not tested				
	Historic services and remnant fixings	Various	1	Inoperative. Part of building history				
	Former condensing pits	1910s	1	Now used for water storage	2			
Fittings	Freestanding equipment	2000s	2	Good	2			

POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
	Steel access ladder	1910s	1	Inoperative (new slab over) - part of building history				
EXIT PASSAGE								
Walls	Modern concrete blockwork	2000s	2	Good	2			
COMPRESSOR ROOM								
Floor	Steel trowelled concrete slab	2000s	2	Good	2			
Walls	External wall: textured render with stepped moulding to base	1950s	2	Good Some remnant fixings				
	Canberra red brickwork Rendered brickwork above door	Unknown	-	Render above door damaged				
	Modern concrete blockwork	2000s	2	Good	2			
Ceiling	Off form concrete slab	1950s	2	2 unsealed penetrations Evidence of water leaks	3	Confirm if fire seal is required to block openings	E	
Doors	Solid core flush panel fire doors, modern hardware and steel frame	2000s	2	Good	2			
Services	Conduits, PVC pipes, switches, control pads, cable trays, fluorescent lights, fire services	2000s	2	Not tested				
	Modern compressor and switch gear	2000s	2	Not tested				
ABRASIVE BLASTING								
Floor	Steel trowelled concrete slab	2000s	2	Good	2			
Walls	Original off form poured in situ concrete	1910s	1	Typical wear and tear, patches and penetrations – part of the building history	3			
	Modern concrete blockwork and brickwork	2000s	2	Good	2			
Ceiling	Precast concrete panels in red oxide painted steel frame	1950s?	1	Satisfactory	3			

POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
Doors	Solid core flush panel, view panel, modern hardware and steel frame	2000s	2	Good A few scuffs	2			
Services	Conduits PVC pipes, switches, cable trays, steel ductwork, suspended fluorescent lights, fire services	2000s	2	Not tested				
	Historic services and remnant fixings	Various	1	Inoperative. Part of building history				
Fittings	Freestanding equipment	2000s	2	Good	2			
STORE								
Floor	Steel trowelled concrete slab	2000s	2	Good	2			
Walls	Original off form poured in situ concrete vault	1910s	1	Satisfactory	3			
	Modern concrete brickwork	1950s	2	Satisfactory	3			
Doors	Solid core flush panel, modern hardware and steel frame	2000s	2	Good	2			
Services	Fluorescent light and switch, sprinkler head	2000s	2	Not tested				
PACKING ROOM (FOR SHOP)								
Floor	Steel trowelled concrete slab	2000s	2	Good	2			
Walls	Modern concrete blockwork	2000s	2	Good	2			
Ceiling	Poured concrete	2000s	2	Good	2			
Doors	Solid core flush panel, modern hardware and steel frame	2000s	2	Good	2			
Services	Fluorescent light and switch, sprinkler head, exposed pipework	2000s	2	Not tested				
Fittings	Freestanding steel shelves	2000s	2	Good	2			

POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
CORRIDOR 2								
Floor	Steel trowelled concrete slab	2000s	2	Grease stained floor	2	Clean and seal. More frequent cleaning required	R	Yes
Walls	Off white painted off form poured in situ concrete	1950s?	1	Satisfactory	3			
	Modern concrete blockwork	2000s	2	Good	2			
Ceiling	Modern concrete slab	2000s	2	Good	2			
	Off form poured in situ concrete	1950s?	1	Satisfactory	3			
Doors	Solid core flush panel, modern hardware and steel frame	2000s	2	Good	2			
Services	Fluorescent light and switch, sprinkler head, exposed pipework, cable trays etc.	2000s	2	Not tested				
BRICK FLUE								
Floor and walls	Red bricks	1910s	1	Salt efflorescence evident, likely from historic use. Bricks appear to be stable. Slurry on walls, likely from installation of fire sprinklers	3	Remove salts from brickwork	E	
Ceiling	Off from, poured in situ concrete	1910s	1	Satisfactory	3			
Doors	Frameless glass with chrome patch fittings	2000s	2	Good	2			
Services	Inset wall lighting	2000s	2	Not currently working	4	Replace	R	Yes
CORRIDOR 3								
Floor	Steel trowelled concrete slab	2000s	2	Grease stained floor	2	Clean and seal. More frequent cleaning required	R	Yes
Walls	Off form poured in situ concrete	1910s	1	Satisfactory	3			
	Modern concrete blockwork	2000s	2	Good	2			

POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
	Modern painted plasterboard on lightweight framing, painted impact panel to lower walls	2000s	2	Good	2			
Ceiling	Concrete slab on red oxide painted steel frame	1950s?	1	Satisfactory	3			
	Off form concrete slab	1950s?	1	Satisfactory	3			
Doors	Solid core flush panel, modern hardware and steel frame	2000s	2	Impact damage and scratches	2			
Services	Fluorescent light, sprinkler head, exposed pipework, cable trays etc.	2000s	2	Not tested				
CAFÉ STORE								
Floor	Steel trowelled concrete slab	2000s	2	Grease stained	2	Clean and seal. More frequent cleaning required	R	Yes
Walls	Off form poured in situ concrete	1910s	1	Satisfactory	3			
	Modern concrete blockwork	2000s	2	Stained and chipped adjacent to door	2			
Ceiling	Concrete slab on black painted steel frame	1950s?	1	Satisfactory	3			
	Off form in situ concrete	1910s	1	Satisfactory	3			
Doors	Solid core flush panel modern hardware and steel frame	2000s	2	Impact damage and scratches	2			
Services	Fluorescent light and switch, sprinkler head, exposed pipework, cable trays etc.	2000s	2	Not tested				
Fittings	Loose steel shelving and fridges	2000s	2	Good	2			
STUDIO 1								
Floor	Vinyl on concrete slab	2000s	2	Good	2			
Walls	Off form in situ concrete	1910s	1	Satisfactory	3			
	Painted plasterboard on lightweight framing	2000s	2	Good	2			

POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
Ceiling	Painted pre-cast concrete panels on red oxide painted steel frame	1950s?	1	Satisfactory	3			
Doors	Solid core flush panel doors, modern hardware and steel frame, clear glass side panel	2000s	2	Good	2			
Trims	Plastic skirting	2000s	2	Good	2			
Services	Fluorescent light, sprinkler head, exposed pipework, cable trays etc.	2000s	2	Not tested				
Fittings	Loose steel shelving, tables etc.	2000s	2	Good	2			
STUDIO 2								
Floor	Vinyl on concrete slab	2000s	2	Good	2			
Walls	Off form poured in situ concrete	1910s	1	Satisfactory	3			
	Painted plasterboard on lightweight framing	2000s	2	Walls due for repaint. Some damaged to lower part of wall adjacent to door.	2	Repair damage and repaint	R	Yes
Ceiling	Concrete slab and precast panels on red oxide painted steel frame	1950s?	1	Satisfactory	3			
Doors	Solid core flush panel doors, modern hardware and steel frame, clear glass side panel	2000s	2	Impact damage and scratches	2			
Trims	Plastic skirting	2000s	2	Good	2			
Services	Fluoro light, sprinkler head, exposed pipework, cable trays etc.	2000s	2	Not tested				
Fittings	Loose steel shelving, tables etc.	2000s	2	Good	2			
STUDIO 3 – Not assessed as part of CMP (commentary from 2013 Condition Assessment)								
Floor	Vinyl on concrete slab	2000s	2	Good	2			
Walls	Off form poured in situ concrete	1910s	1	Satisfactory	3			
	Modern concrete blockwork	2000s	2	Good	2			
	Modern painted plasterboard on lightweight framing	2000s	2	Good	2			

POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
Ceiling	Concrete slab on red oxide painted steel frame	1950s?	1	Satisfactory	3			
Doors	Solid core flush panel doors, modern hardware and steel frame, clear glass side panel	2000s	2	Good	2			
Trims	Plastic skirting	2000s	2	Good	2			
Services	Fluoro light, sprinkler head, exposed pipework, cable trays etc.	2000s	2	Not tested				
FEMALE TOILETS								
Floor	Concrete slab, exposed aggregate, polished	2000s	2	Stained	2	Clean and reseal		Yes
Walls	Off form poured in situ concrete	1910s	1	Concrete exfoliating at base of wall, loose material continuously falling from wall	3	Confirm if wall damp and test for salts. Removal of salts and installation of a DPC may be required	E	
	Modern painted plasterboard on lightweight framing	2000s	2	Good	2			
	Orange ceramic tiles to basin splash and back of toilet cubicles	2000s	2	Good	2			
Ceiling	Off form concrete and precast concrete panels on red oxide painted steel frame	1950s?	1	Satisfactory Steel post dirty	3			
Doors	Painted timber solid core, flush panel, satin chrome pull and closer	2000s	2	Good	2			
	Painted timber solid core, flush panel, view panel, satin chrome pull and closer	2000s	2	Good	2			

POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
Services	Fluorescent lights, cable trays, sprinklers etc.	2000s	2	Not tested				
Fittings	Ceramic wall basins, tiled splashback, chrome taps, laminated MDF toilet partitions, ceramic toilet pans, concealed cisterns, frameless mirrors, stainless steel paper towel and bin tower, toilet paper holders.	2000s	2	Good	2			
LIFT LOBBY & LOCKER ROOM								
Floor	Concrete slab, exposed aggregate, polished	2000s	2	Grease stained and sticky surface	2	Clean and reseal		Yes
Walls	Off form poured in situ concrete	1910s	1	Concrete exfoliating at the base of wall, loose material continuously falling away	3	Confirm if wall damp and test for salts. Removal of salts and installation of DPC may be required	E	
	Painted plasterboard on lightweight framing	2000s	2	Impact damage adjacent to lockers	3	Consider installing ply panels to resist impact, repaint	R	
	Painted brickwork	1950s?	1	Satisfactory	3			
	Stained vertical timber slats to lift surround	2000s	2	Good	2			
Ceiling	Pre-cast concrete panels on red oxide painted steel frame	1950s?	1	Satisfactory	3			
Door	Solid, flush panel door	2000s	2	Good				
Services	Fluorescent lights, cable trays, sprinklers etc.	2000s	2	Not tested				
	Lift	2000s	2	Not tested				
Fittings	Lockers	2000s	2	Not tested				
MALE TOILETS								

POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
Floor	Concrete slab, exposed aggregate, polished	2000s	2	Stained	2	Clean and reseal	R	Yes
Walls	Off form poured in situ concrete	1910s	1	Concrete exfoliating at base of wall, loose material continuously falling away	3	Confirm if wall damp and test for salts. Removal of salts and installation of a DPC may be required	E	
	Painted plasterboard on lightweight framing	2000s	2	Good	2			
	Orange ceramic tiles to basin splash and back of toilet cubicles	2000s	2	Good	2			
Ceiling	Pre-cast concrete panels on steel frame	1950s?	1	Satisfactory	3			
Doors	Painted timber solid core, flush panel, satin chrome pull and closer	2000s	2	Good	2			
	Painted timber solid core, flush panel, view panel, satin chrome pull and closer	2000s	2	Good	2			
Services	Fluorescent lights, cable trays, sprinklers etc.	2000s	2	Not tested				
Fittings	Ceramic wall basins, tiled splashback, chrome taps, stainless steel urinal trough, laminated MDF toilet partitions, ceramic toilet pans, concealed cisterns, frameless mirrors, stainless steel paper towel and toilet paper holders, bin tower	2000s	2	Good	2			
ACCESSIBLE WC								

POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
Floor	Concrete slab, exposed aggregate, polished	2000s	2	Stained	2	Clean and reseal	R	Yes
Walls	Painted plasterboard on lightweight framing	2000s	2	Good	2			
Ceiling	Pre-cast concrete panels on painted steel frame	1950s?	1	Satisfactory	3			
Doors	Painted timber solid core, flush panel, satin chrome pull and closer	2000s	2	Good	2			
	Painted timber solid core, flush panel, view panel, satin chrome pull and closer	2000s	2	Good	2			
Services	Fluorescent lights and switch, cable trays, sprinklers etc.	2000s	2	Not tested				
Fittings	Ceramic wall basin, chrome taps, ceramic toilet suite, frameless mirrors, stainless steel grab rails, toilet paper holder, hand dryer, change table	2000s	2	Good	2			
CORRIDOR ADJACENT TO ASH CHUTES								
Floor	Steel trowelled concrete slab	2000s	2	Minor scuffs	2			
Walls	Painted off form poured in situ concrete	1910s	1	Satisfactory	3			
	Painted brickwork	1950s?	1	Satisfactory	3			
	Painted plasterboard on lightweight framing. Painted ply to lower part	2000s	2	Good	2			
Ceiling	Painted pre-cast concrete panels on white painted steel frame	1950s?	1	Satisfactory	3			
Doors	Solid core flush panel, modern hardware and steel frame	2000s	2	Good	2			

POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
Services	Fluorescent light, sprinkler head, exposed pipework, cable trays etc.	2000s	2	Not tested Lights in ash chutes do not work (except 1)	4	Replace globes	R	
Ash chutes	Concrete, sealed at top by new floor slab. The later ash chute retains early metal doors whilst the four original chutes are fitted with glass covers.	4 x 1910s and 1 x later	1	Satisfactory	3			
	Frameless glass covers with chrome patch fittings	2000s	2	Considerable effort to open	2	Consider installation of easier to open fittings	D	
GALLERY STORE								
Floor	Steel trowelled concrete slab	2000s	2	Minor scuffs	2			
Walls	Painted off form poured in situ concrete, some parts painted	1910s	1	Satisfactory	3			
	Painted plasterboard on lightweight framing	2000s	2	Good	2			
Ceiling	Painted pre-cast concrete panels on white painted steel frame	1950s?	1	Satisfactory, some dirt evident	3			
Doors	Solid core flush panel, modern hardware and steel frame	2000s	2	Minor scuffs	2			
Services	Fluorescent light, sprinkler head, exposed pipework, cable trays etc.	2000s	2	Not tested				
HOT WATER PLANT								
Floor	Steel trowelled concrete slab	2000s	2	Good	2			
Walls	Off form poured in situ concrete, some parts painted	1910s	1	Salt deposits on external (north-east) wall	3	Confirm if wall is damp and test for salts. Removal of salts and installation of a DPC may be required	E	

POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
	Modern concrete blockwork	2000s	2	Good	2			
	Painted plasterboard on lightweight framing	2000s	2	Good	2			
Ceiling	Painted pre-cast concrete panels	1950s?	1	Satisfactory	3			
Doors	Solid core flush panel, modern hardware and steel frame	2000s	2	Good	2			
Services	Fluorescent light, sprinkler head, exposed pipework, cable trays, hot water systems etc.	2000s	2	Not tested				
HOTSHOP MATERIALS STORE								
Floor	Steel trowelled concrete slab	2000s	2	Good	2			
Walls	Off form poured in situ concrete, some parts painted	1910s	1	Satisfactory	3			
	Modern concrete blockwork	2000s	2	Good	2			
Ceiling	Poured off form concrete	2000s	2	Good	2			
Doors	Solid core flush panel, modern hardware and steel frame	2000s	2	Good	2			
Services	Fluorescent light, sprinkler head, exposed pipework, cable trays etc.	2000s	2	Not tested				
Fittings	Loose steel shelves	2000s	2					
MAINTENANCE WORKSHOP								
Floor	Steel trowelled concrete slab	2000s	2	Good	2			
Walls	Original poured off form in situ concrete	1910s	1	Satisfactory, previous repairs evident	3			
	Modern concrete blockwork	2000s	2	Good	2			
	Painted plasterboard on lightweight framing	2000s	2	Good	2			
	Bricked up opening to south-west wall (English garden wall bond)	Unknown	-	Satisfactory	3			
Ceiling	Modern concrete slab on red oxide painted steel frame	2000s	2	Good	2			

POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
	Removable timber ceiling/floor to west corner (timber boards on timber framing), allows large items to be hoisted up to the engine bay above	1910s	1	Satisfactory	3			
Windows	Original steel framed multi-pane	1910s	1	Frame deformed 1 window has a broken pane and another has 4 broken panes. Potentially asbestos in putty	4	Test for asbestos. Replace broken glass and repaint window. Straightening of window frame may not be possible without removal of glazing	E	
Doors	Solid core flush panel, modern hardware and steel frame	2000s	2	Good	2			
	Modern steel roller door to porch	1990s?	2	Not tested				
Services	Fluoro lights, sprinkler head, exposed pipework, cable trays etc.	2000s	2	Not tested				
Fittings	Loose benches and shelves, stainless steel sink and tap	2000s	2	Not assessed				
WOOD SHOP								
Floor	Concrete slab with non-slip textured paint finish	2000s	2	Good	2			
Walls	Poured off form in situ concrete	1910s	1	Satisfactory	3			
	Modern concrete blockwork	2000s	2	Good	2			
Ceiling	Precast concrete slabs on steel frame	1950s?	1	Satisfactory	3			
Doors	Solid core flush panel, modern hardware and steel frame	2000s	2	Good	2			

POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
Services	Fluorescent light, sprinkler head, exposed pipework, cable trays etc.	2000s	2	Not tested				
Fittings	Loose benches and shelves	2000s	3	Not assessed				
CHIMNEY BASE/GALLERY INSTALLATION SPACE								
Floor	Clear finished timber boards	2000s	2	Good, though subject to damp and falling debris from walls	2			
Walls	Red brickwork	Late 1940s	1	Considerable salt efflorescence, particularly to south-east side. Salts may be from the combustion of coal and are migrating to the surface due to wetting and drying from damp. Water reported to enter from above (appears to be gaps to the south-east side). Surrounding ground levels also higher than internal floor level. Black deposits also evident	3	Further investigation at height to confirm source of water ingress. Treat base of wall externally or reduce ground levels. Desalination of brickwork recommended (e.g. using a poultice or captive head washing)	I	
Ceiling	Metal sheet at gather	2000s	2	Satisfactory Rusted, evidence of leaks from above	3			
	Frameless glass	2000s	2	Good, dirty	2			
	Concrete and steel lintel over entry openings	Late 1940s	1	Breaking away (salt efflorescence) at junction with rusted steel lintel	3	Refer to wall above. Treat steel for rust	E	
Services	Power and lighting, HVAC	2000s	2	Not tested HVAC (floor vents) operational	2			
BRICK FLUE (LINK TO CHIMNEY BASE)								
Floor	Concrete slab	2000s	2	Cracked but functional	3			
	Chequer plate steel	2000s	2	Good	2			

POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
Walls	Red brickwork	Late 1940s	1	Salt efflorescence – refer to walls of chimney above	3	Refer to walls of chimney above	I	
	Frameless glass	2000s	2	Satisfactory	4			
Ceiling	Painted plasterboard on lightweight framing	2000s	2	Good, some staining/marks	2			
Services	Recessed lighting	2000s	2	Operational	2			
CENTRE MANAGEMENT OFFICE								
Floor	Carpet on concrete slab	2000s	2	Good	2			
Walls	In situ concrete to south-east wall. Infilled sections of wall may indicate location of original flue.	1910s	1	Concrete exfoliating at base of wall, loose material continuously falling away. Sections have been rendered over to stabilise	3	Confirm if wall damp and test for salts. Removal of salts and installation of a DPC may be required	I	
	Painted plasterboard on lightweight framing, inset timber skirtings	2000s	2	Good	2			
Ceiling	Painted plasterboard on lightweight framing, including bulkhead	2000s	2	Dirty adjacent to access panel	2			
	Painted steel roof space access panel	2000s	2	Very dirty	3	Clean	R	Yes
Window	Refer also to Exterior description. Modern frameless glass in steel frame (single pane)	2000s	2	Anecdotal evidence of water leaks	4	Investigate and repair as required	I	
Door	Painted timber solid core, flush panel, chrome lever and lock.	2000s	2	Good	2			
Services	Recessed ceiling lights, fire services, power points etc.	2000s	2	Not tested				
Fittings	Laminated MDF and glass display cases	2000s	2	Good	2			

POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
RETAIL SHOP								
Floor	Polished concrete slab	2000s	2	Good Hairline cracking	2			
Walls	Painted plasterboard on lightweight framing, inset timber skirtings	2000s	2	Good	2			
Ceiling	Painted perforated plasterboard on lightweight framing, including bulkhead	2000s	2	Good Previous patch repair evident	2	Repaint	R	Yes
Doors	Painted timber solid core , flush panel, chrome lever and lock.	2000s	2	Good	2			
	Anodized aluminium framed glass doors to Foyer	2000s	2	Good	2			
Services	Recessed ceiling lights, fire services, power points and switches	2000s	2	Not tested				
Fittings	Laminated MDF and glass display cases	2000s	2	Good	2			
CAFÉ ADDITION								
Floor	Polished concrete slab	2000s	2	Dirty	2	Clean and reseal	R	Yes
Walls	Anodised aluminium framed glazing, including swing and sliding doors	2000s	2	Good	2			
	Painted 150mm dia. round steel columns	2000s	2	Good	2			
Ceiling	Painted fibre cement sheet	2000s	2	Good	2			
Services	Recessed ceiling lights, fire services, speakers etc.	2000s	2	Not tested				
KITCHEN								
Floor	Polished concrete with rubber floor covering	2000s	2	Good	2			

POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
Walls	External: in situ off form concrete, painted	1910s	1	Some staining (grease) to lower part	3			
	Internal: painted plasterboard on lightweight framing, clear finished timber slats to upper walls	2000s	2	Good	2			
Ceiling	Upper ceiling: bolted steel trusses, red oxide painted, steel channel columns, painted timber purlins and rafters	1910s	1	Satisfactory				
	Reflective foil sarking and insulation blanket	2000s	2	Good	2			
	Painted plasterboard on lightweight framing to kitchen area.	2000s	2	Good	2			
Windows	Refer to exterior for description of modern glazing to round pipe inlet.							
Services	Cone light fitting in window alcove, various eras of services and fittings	Various	1	Part of building history				
	Modern cabling, fire services, exhausts etc.	2000s	2	Not tested				
Fittings	Commercial kitchen fit out	2000s	2	Not assessed				
ENTRANCE FOYER								
Floor	Polished concrete.	2000s	2	Hairline cracks throughout. More substantial cracks adjacent to post for entry airlocks Floor sticky and stained adjacent to café entry	2	Clean and reseal	R	Yes
Walls	External: in situ off form concrete	1910s	1	Satisfactory	3			

POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
	Internal: Painted plasterboard on lightweight framing, clear finished timber slats to upper walls	2000s	2	Good	2			
Ceiling	Upper ceiling: bolted steel trusses, red oxide painted, steel channel columns, painted timber purlins and rafters	1910s	1	Satisfactory	3			
	Reflective foil sarking and insulation blanket	2000s	2	Torn section above stair to west corner	2	Patch repair	D	
Windows	Aluminium framed glazing to shed dormer above	2000s	2	Good	2			
Doors	Refer to Exterior Description for Airlocks							
Services	Various eras of services and fittings	Various	1	Inoperable. Part of building history				
	Modern cabling, fire services, pendant lights	2000s	2	Lights operational, others not tested				
Fittings	Laminated MDF display cases, frameless glass doors	2000s	2	Not assessed				
	Historic drill press, located under Stair	1910s?	1	Part of Powerhouse history - to be retained and conserved	3			
Staircase	Painted steel frame, clear finished timber treads on steel plate, frameless glass balustrade with stainless steel patch fittings.	2000s	2	Missing tactile indicators	4	Reinstate missing	E	
GALLERY								
Floor	Polished concrete	2000s	2	Good	2			
Walls	In situ off form concrete, partially painted	1910s	1	Satisfactory	3			
	Painted plasterboard on lightweight framing, clear finished timber slats to upper walls	2000s	2	Good	2			

POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
Ceiling	Upper ceiling: bolted steel trusses, red oxide painted, steel channel columns, painted timber purlins and rafters	1910s	1	Satisfactory	3			
	Reflective foil sarking and insulation blanket	2000s	2	Good	2			
Services	Modern cabling, fire services, gallery track lighting	2000s	2	Not tested				
AIRLOCKS 1 & 2								
Floor	Concrete slab with inset door mats and covering	2000s	2	Some wear	2			
Walls	100mm diameter round painted steel columns, frameless toughened glass	2000s	2	Good	2			
Ceiling	Painted plasterboard on lightweight framing	2000s	2	Good	2			
Doors	Frameless glass sliding	2000s	2	Good	2			
Services	Recessed ceiling lights, exit signs, detectors, door mechanisms	2000s	2	Good	2			
STAIR 1								
Floor	Steel trowelled concrete slab	1910s	1	Satisfactory	3			
Walls	Cement render on in situ concrete. Painted dado and dado line	1910s	1	Cracks north-east and south-west walls Paint finish is deteriorating/ peeling off	4	Monitor cracks Consolidate paint finish	I E	
Ceiling	Painted concrete, painted steel beams	1910s	1	Satisfactory	3			
Stair	Poured concrete, smooth trowelled surfaces. Bullnosed nosing	1910s	1	Satisfactory, a few cracks	3			

POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
	Recessed non slip ribbed tread edge, possibly lead	1950s?	1	Satisfactory	3	Test metal to confirm if lead (can be performed by Robsons Environmental)	I	
	20 x 20mm painted square steel balusters set into treads, decorative detail at foot of stairs, clear finished moulded timber handrail	1910s	1	Satisfactory	3			
Services	Suspended pendant lights	Possibly 1950s	1	Not tested				
	Wall mounted fluoro lights, surface conduits, exit signs, fire services	2000s	2	Not tested				
Fittings	Varnished timber panelled doors to under stair store, original brass catch, modern lock	1910s	1	Satisfactory	3			
COLD WORKING, PROJECT WORKSHOP, KILN ROOM, LAMPWORKING & NEON								
Floor	Steel trowelled slab. mastic expansion joints, stainless steel slot and point drains	2000s	3	Good	2			
	SW corner: lift up floor made up of timber sleepers, steel eyelets	1910s	1	Satisfactory	3			
Walls	Rendered concrete, engaged piers, painted up to gantry beam, unpainted above	1910s	1	Satisfactory Evidence of water leaks to upper part of wall (reported to be as a result of January 2020 hail storm)	3			
	Painted steel girder truss (north-west side)	1910s	1	Satisfactory	3			

POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
	Air-conditioning vents to south-east wall, mechanical vents to vent hot air out of building during summer	2000s	2	Impacted/damaged louvres to upper part.	2			
Ceilings	Grey painted steel trusses and purlins	1910s	1	Satisfactory	3			
	Colorbond miniorb linings	2000s	2	Good	2			
	Louvres to shed dormers	Mix of modern and historic types	1 and 2	Good	2			
Services	Early switchboard to north-east corner. Perspex case surrounds switchboard	Mid-20th century?	1	Not tested Dirty case makes it difficult to view switchboard				
	Historic services and remnant fixings, including enamelled pendent lights	Various	1	Inoperative. Part of building history				
	Modern services including pendant lights, stainless steel service bollards, fire services, etc.	2000s	2	Not tested				
	Operating mechanisms for whistle and air raid siren	1940s	1	Note tested, though thought to be in working order				
Fittings	2 tonne overhead crane, modern ropes	1910s?	1	Not tested Serviced annually				
	Painted RSJs supported on piers to south-east and north-west sides to carry gantry crane.	1910s?	1	Good	3			
	Unpainted galvanised steel balustrade toppers at top of Stair 1 to meet building code	2000s	2	Good	2			

POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
	Various plant and machinery, desks, shelves, podium displays, wall display cases	2000s	2	Good	2			
	Stainless steel sink to west corner	2000s	2	Good	2			
	Low rise access lift, east corner	2000s	2	Not tested				
Stairs 4 and 5	Lightweight frame, sheet flooring and treads, sheet vinyl, aluminium tread edges, unpainted galvanised steel pipe handrails, tactiles top and bottom, stained ply cladding to low walls	2000s	2	Good	2			
Stairs 6 and 7	Poured concrete, inset tread edges (possibly lead l).	1950s?	1	Satisfactory	3	Test metal to confirm if lead	l	
	Unpainted galvanised steel balustrades	2000s	2	Good	2			
Stair 8	Poured concrete, aluminium tread edges, stained ply lined low wall, unpainted gal. steel handrail, tactiles top and bottom	2000s	2	Good	2			
SOUTH OFFICE								
Floor	Concrete slab	Possibly 1910s	1	Not visible				
	Sheet vinyl	2000s	2	Good	2			
Walls	Painted in situ concrete	Early 1950s	2	Satisfactory	3			
Ceiling	Painted plasterboard with shadow line cornice on lightweight framing	2000s	2	Good	2			
Door	Painted timber solid core, flush panel, view panel, satin chrome lever and lock, timber frame	2000s	2	Good	2			
Trims	70 x 20mm square painted timber architrave to door	2000s	2	Good	2			

POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
Services	Ceiling mounted fluorescent lights, conduits to switches, fire services etc.	2000s	2	Not tested				
Fittings	Loose office furniture	2000s	2	Good	2			
CENTRAL OFFICE								
Floor	Concrete slab	1910s	1	Not visible				
	Carpet tiles Previously had been vinyl tiles (possibly contained asbestos)	2010s	2	Good Vinyl tiles possibly removed				
Walls	White painted hard plaster with inset moulded dado	1910s	1	Satisfactory Some minor scuffs	3			
	Painted Masonite sheet on lightweight framing to south-east wall, 70 x 25mm painted timber splayed skirting and architraves	Circa 1950s	1	Satisfactory	3			
Ceiling	Painted plasterboard with shadow line cornice on lightweight framing	2000s	2	Good	2			
Door	Painted timber solid core, flush panel, glazed top panel, timber frame	1950s	1	Satisfactory	2			
	Satin chrome lever and lock	2000s	2	Good	2			
External Windows	Timber sash windows	1950s	2	Water damaged timber sill	4	Repair as required	E	
Internal windows	Painted timber frame, sliding, view to former engine bay (now blocked), small square timber architrave	1950s	1	Satisfactory	3			
Trims	40 x 10mm square painted timber architrave to external windows	2000s	2	Good	2			
Services	Ceiling mounted fluorescent lights, fire services etc.	2000s	2	Not tested				
Fittings	Loose furniture	2000s	2	Not assessed				

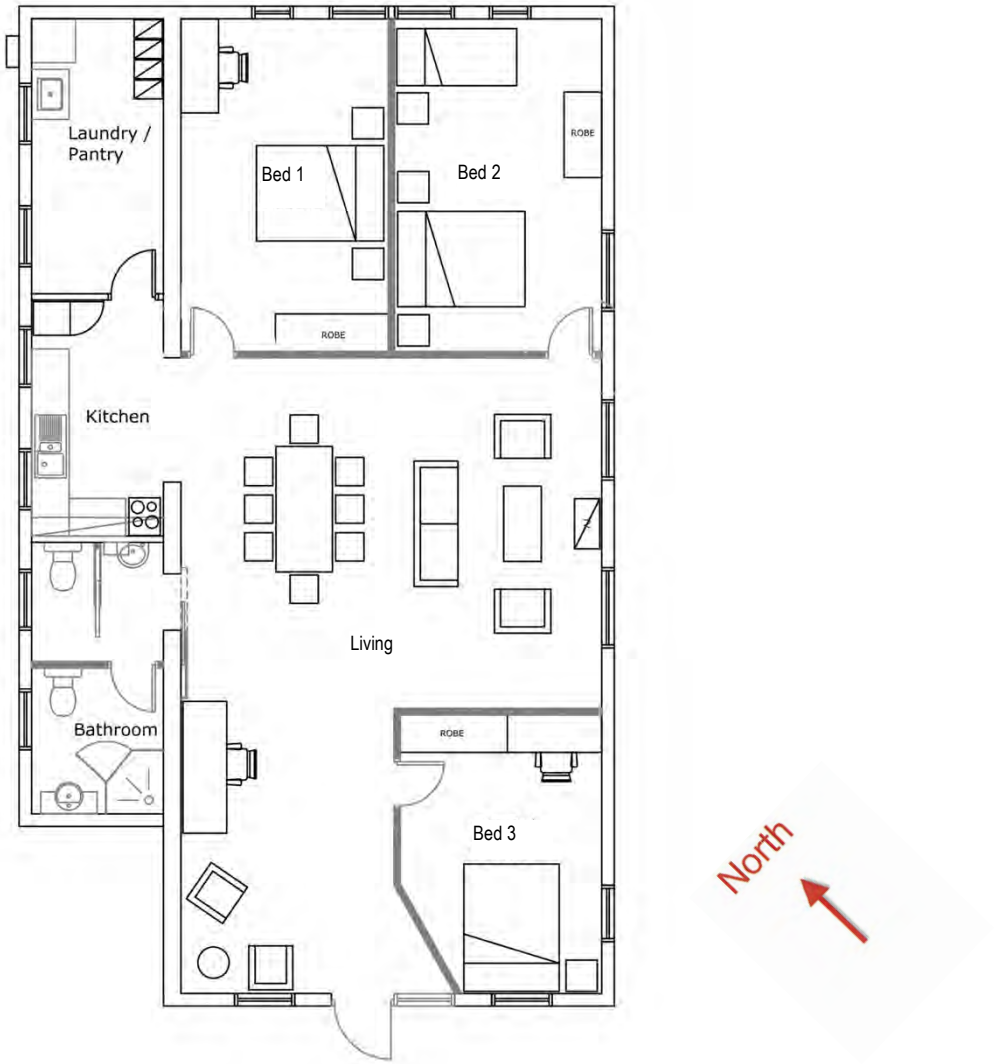
POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
WORKSHOP TOILETS & ACCESS WC								
Floor	Sheet vinyl to lobby, plastic skirting	2000s	2	Good	2			
	Ceramic tiles to toilet cubicles and shower	2000s	2	Good	2			
Walls	In situ concrete to external walls	1910s	1	Peeling paint – possibly contains lead	3	Repaint	E	Yes
	Painted plasterboard on lightweight framing	2000s	2	Good	2			
	Toilet cubicles: white glazed ceramic tiles to splashbacks and skirtings	2000s	2	Good	2			
Ceilings	Painted concrete on timber clad steel beams	1910s	1	Peeling paint, may indicate water damage. Paint may contain led	4	Investigate and repair as required Repaint	I	
	Painted plasterboard on lightweight framing	2000s	2	Good	2			
Doors	To Workshop – painted timber-frame, multi pane highlight and sidelights glazing, original door removed	1910s	1	Satisfactory	3			
	To Toilets – painted timber solid core, flush panel, satin chrome lever and privacy latch	2000s	2	Good	2			
	Painted steel access panel to service duct south-west wall	2000s	2	Good	2			
Windows	Steel framed window to exterior (in accessible toilet)	1910s	1	6 broken panes	4	Replace broken glass	E	
Services	Modern wall lights, recessed ceiling lights, fire services	2000s	2	Not tested				
Fittings	White ceramic wall basins and toilet suites, chrome taps. toilet	2000s	2	Not tested				

POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
	paper holder, hand dryers, frameless mirrors, stainless steel grab rails.							
COMMON ROOM & KITCHNETTE								
Floor	Concrete slab	1950s	2	Not visible				
	Sheet vinyl	2000s	2	Good	2			
Walls	White painted cement render on in situ concrete	1910s and 1950s	1 and 2	Small crack above corner of door	3	Monitor	I	
	Perforated steel mesh cover to some air bricks	1950s	2	Satisfactory	3	Air bricks could be covered to improve performance of heating and cooling	R	
	Uncovered air bricks	1950s	2	Broken brick to west corner	3	Repair	R	
Ceiling	Painted plasterboard with shadow line cornice on lightweight framing	2000s	2	Cracking, water damage to west corner	2	Repair downpipe, rainwater head and roof above	U	
Door	Painted timber solid core, flush panel, view panel, timber frame, satin chrome lever and lock,	2000s	2	Good	2			
Services	Ceiling mounted lights, power points, fire services	2000s	2	Not tested				
Fittings	Laminated MDF kitchen cupboards, stainless steel sink, chrome tap	2000s	2	Good	2			
	Loose appliances and furniture	2000s	2	Good	2			
ACCESS HOTSHOP, TEACHING HOTSHOP, PUBLIC VIEWING								
Floor	Steel trowelled concrete slab with mastic expansion joints ,stainless steel slot and point drains	2000s	3	Good	2			
	Dark grey coloured concrete sections indicate original openings to ash chutes below	2000s	2, though demarcation of chutes 1	Good. Part of historic interpretation	2			

POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
Walls	In situ off form concrete, engaged piers. Remnants of early finish to south-east wall including red dado with black dado rail. Cement wash to upper part of wall	1910s	1	Satisfactory. Marks to walls are indicative of former industrial use Some water staining to the south-east side Patching to walls was undertaken as part of 2000s works	3			
Ceilings	Grey painted steel trusses and purlins	1910s	1	Satisfactory	3			
	Underside of sarking exposed	2000s	2	Good	2			
	Powdercoated mechanical louvres to shed dormers	2000s	2	Good	2			
Windows	Generally described in Exterior; Bird netting across lower windows	1910s	1	A couple of broken glass panes to south-west elevation	3	Replace broken glass	E	
	Colorbond steel roller shutters	1990s?	2 – shutters 1 – openings	Satisfactory Noisy to operate, though regularly serviced	3			
	Unpainted galvanised steel balustrade at shutters	2000s	2	Good	2			
Doors	Frameless glass doors to adjacent hall and to Stair 2 landing	2000s	2	Good	2			
Services	Historic services and remnant fixings	Various	1	Inoperative. Part of building history				
	Shovel shaped light fittings fixed to walls	Unknown, pre-1957	1	Inoperative. Part of building history				
	Enamelled pendant light fittings	Possibly 1910s	1	Inoperative. Part of building history				
	Modern services including pendant lights, service bollards, fire services, etc.	2000s	2	Not tested				

POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
Stair 3	In situ concrete, inset tread edges, galvanised steel plate side walls, stainless steel handrail, tactiles	2000s	2	Good	2			
Coal Hoppers	Bolted and riveted steel plate, RSJ ribs, on steel H columns	1910s	1	Highly intact and rare	3			
Fittings	Modern steel ductwork and exhausts to kilns etc. Several roof penetrations	2000s	2	Good, though not inspected at height	2			
	New steel framed access walkway along north-west side. Steel frame suspended from roof trusses, galvanise steel mesh floor. Steel access ladder south-west end	2000s	2	Good	2			
	Elevated Public Walkway: To north-east, south-east and south-west sides. Steel frame, compressed cement sheet floor, sheet vinyl, unpainted galvanised steel balustrades, varnished ply clad low wall to south-east side.	2000s	2	Good	2			
	Lift inserted between coal hoppers: Stained timber vertical slat cladding. Frameless glass and stainless steel handrail to each side	2000s	2	Good	2			
	Original steel access ladder south-east side. Leads to catwalk between coal hoppers – timber	1910s	1	Satisfactory	3			

POWERHOUSE INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
	board floors, steel frame, low steel handrail							
	Modern steel catwalk adjacent	2000s	2	Good	2			
	Perforated powdercoated steel sheet screen to base of original ladder	2000s	2	Good	2			
	Modern kilns in galvanized steel enclosures	2000s	2	Good	2			



1948 Switch Room Ground Floor Plan
(*Source: base plan provided by artsACT and prepared by Spacelift Design Consultancy)*

1948 SWITCH ROOM EXTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
Walls	Canberra red face bricks, rowlock string course at sill level, thin brick on flat sills	1948	1	Satisfactory. Typical wear and tear. Some patching evident, especially north-west wall where surface pipework modified Numerous cobwebs. Minor settlement crack to north corner	3	Monitor and repair as required	I	
	Later orange / red face bricks to south-west addition	Late 20th century	1	Satisfactory	3			
	Red face brick below centre windows, north-east side	1990s	2	Satisfactory	3			
	White painted concrete lintel over openings on south-east and north-east sides	1948	1	Satisfactory	3			
	Remnant concrete slab threshold to former doorway centre north-east side	1920s	1	Satisfactory	3			
Eaves	White painted timber fascia, fibre cement sheet soffit lining (potentially asbestos), 40 x 10mm timber straps, boxed eaves at gable ends	1948	1	Timber bargeboards are weathered Cobwebs and insect nests	3	Cleaning overdue Repaint timber elements	E	Yes
	Ladder point on north-west side	2000s	2	Good	2			
Gable ends	Pointed tiled edge, white painted timber barges, exposed white painted timber purlins, fibre cement sheet soffit lining (potentially asbestos), 40 x 10mm timber straps	1948	1	Satisfactory Cobwebs and insect nests	3	Cleaning overdue	R	Yes

1948 SWITCH ROOM EXTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
	Round white painted timber louvred vent, face brick header edging to north-east gable	1948	1	Bottom louvre split	3	Repair	E	
	Terracotta air brick detail on south-west gable	Late 20th century	2	Satisfactory	3			
Roof	Concrete tiles	1948?		Satisfactory	3			
	Stainless Steel anchor points	2000s	2	Good	2			
	Min pitch roof to north-west side: painted galvanised steel trays with rounded top hat seam covers	1948	1	Not inspected Some rust was evident from ground level	3	Inspect condition at height	I	
Gutters	White painted galvanised steel quad	1948	1	Dented and uneven Those to the north-west side are filled with leaves from the adjacent gum	3	Secure properly	Ee	
Downpipes	100 x 50mm white painted gal. steel with rolled astragals fixed to timber blocks	1948	1	Satisfactory	3			
	White painted gal. steel rainwater heads	1948	1	Satisfactory	3			
	100mm round PVC pipe to downpipe bases opening to concrete dish drain adjacent to the front (south-west door)	2000s?	2	Street drain noted to back up with leaves from trees, leading to flooding of the area surrounding the porch	2	Reconfigure pavement and drainage to south of Switch Room	E	
Windows	White painted steel framed, multi paned, awning sashes, original mechanisms	1948	1	3 broken panes to windows on north-west side. Extensive cobwebs	4	Replace broken glass Clean windows	E	
	White painted steel framed, multi paned, fixed to south-west side	1980s?	2	Satisfactory.	3			
	White painted multi paned windows to central part of north-east elevation	1990s?	2	Satisfactory	3			

1948 SWITCH ROOM EXTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
Doors	White painted timber solid core, flush panel front door, timber frame, multipaned side and high lights, satin chrome hardware	1990s?	2	Satisfactory	3			
	White powdercoated security screen door	2000s	2	Good	2			
Services	Original wall light above centre opening north-east side, switch LHS opening	1948	1	Inoperable. Part of building history				
	TV aerial	2000s	2	Not tested				
	Airconditioning units, north-east side, surface conduit on north-east wall.	2000s	2	Air conditioning may not be sufficient for residences				
	Blue security system light south-west side	2000s	2	Not tested				
	Electricity meter, north-west side	1990s?	2	Not tested				
	Electricity point of attachment north-east side	2000s?	2	Not tested				
	Downpipe to north-east corner connected to plastic water tank	2000s	2	Pipes to water tank cracked	4	Replace broken pipes	E	
	Water tank pump.	2000s	2	Not functioning	4	Repair/replace	I	
	Septic tank	?	2	Appears to be shared with sub station.		Connect to mains sewer system	I	
	Water meter	?	2	Not connected		Re-connect/replace	I	
Other Elements	500mm high basalt retaining wall to south-east side	1990s?	2	Satisfactory	3			
	Modern landscaping to north-east side – concrete pavers, treated pine sleeper retaining walls, various plantings	2000s	2	Satisfactory	3			

1948 SWITCH ROOM EXTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
	Concrete dish drain to south-east side falls to kerb drain on south-west side	1990s?	2	Extensive moss growth at drain, indicating water ponding	3	Investigate ponding and modify as required	E	
	1500mm high black plastic coated chainwire fence to south-east, north-east and part north-west sides	2000s	2	Good	2			
	South-west side: White painted timber framed porch, plain concrete slab floor, galvanised corrugated steel roof sheeting, no gutter.	1980s	2	Satisfactory	3			
	Precast concrete bench seat south-west side	1970s	2	Satisfactory	3			

1948 SWITCH ROOM INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
Floor	Concrete slab	1948?	1	Not visible				
	Carpet to living areas & bedrooms	2000s	2	Good	2			
	Ceramic tiles to Foyer and Bathroom	2000s	2	Good	2			
	Laminate floorboards to Kitchen & Laundry	2000s	2	Good	2			
Walls	External walls: white painted bagged brickwork run into window reveals	1948	1	Good	2			
	White painted plasterboard on lightweight framing	2000s	2	Good	2			
	Painted timber panels over air bricks	2000s	2	Good	2			
	White ceramic tiles to shower recess, basin splashbacks and bathroom / wc skirtings	2000s	2	Good	2			
Ceiling	Living room: white painted timber trusses, steel tie rods, plates and wall brackets	1948	1	Good	2			
	Fibre cement sheet linings to skillion section with 40 x 10mm painted timber straps. Likely asbestos (appears to have warning sticker)	1948	1	Satisfactory	3			
	Bedrooms and service rooms: white painted plasterboard with 90mm coved cornice	1990s	2	Good	2			
Trims	100 x 20mm painted timber skirtings	2000s	2	Good	2			
	40 x 10mm painted timber door architraves	2000s	2	Good	2			

1948 SWITCH ROOM INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
	Powdercoated aluminium ducted skirtings to some walls in living room and bedrooms	2000s	2	Good	2			
Doors	White painted hollow core and solid core, flush panel timber, satin chrome hardware	2000s	2	Good	2			
Services	Modern white plastic GPOs and switches	2000s	2	Not tested				
	Ceiling mounted fluorescent lights throughout	2000s	2	Not tested				
	Pendant lights to living room	2000s	2	Not tested				
	Alarm key pad at entry	2000s	2	Not tested				
	Ducted AC throughout	2000s	2	Not tested				
	Ceiling exhaust fans to Bath and Laundry	2000s	2	Not tested				
Fittings	Laminated MDF cupboards and benchtops to kitchen and laundry.	2000s	2					
	Stainless steel sink, laundry tub and appliances	2000s	2	Not tested				
	Vanity unit, toilet suites, white powdercoated shower screen, mirror cabinet, chrome taps, towel rails	2000s	2	Good	2			

FITTERS' WORKSHOP EXTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
Roof	Terracotta tiles	2000s	1	Good	1			
Gutters	White painted quad gutters	2000s	1	Evidence of leaks at joints	3	Repair joints	Essential	
Downpipes	Modern rectangular downpipes. These replaced downpipes with decorative rainwater heads (scars of rainwater heads evident to north-west walls)	2000s	1	Evidence of leaks at joints	3	Repair joints	Essential	
Walls	Roughcast rendered walls with smooth render to cornice	1916	1	Base of north-east wall appears to be damp and some render has come away from the wall. Roughcast render has been renewed in some areas, including over sections originally finished in smooth render (the cornice to the north-east elevation)	3	Confirm if wall is damp and test for salts. Removal of salts and installation of DPC may be required	Investigate	
	Unrendered concrete wall (south-east wall)	1916	1	Peeling paint. Part of the cornice has broken away and there are cracks to several remaining sections. There are cracks to the wall above the windows. Steel to one of the lintels is exposed and rusting.	4	Remove loose paint if it contains lead. Inspect at height and remove any loose material. Inspect at height to confirm extent of damage. Remove rust and protect steel.	Urgent Urgent Essential	
Windows	Steel-framed windows with modern clear glass	Most 1916	1	Some chipped paint and rust	3	Treat rust and repaint	Essential	
Doors	Modern aluminium-framed doors	2000s	2	Good				

FITTERS' WORKSHOP EXTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
	Timber-framed braced and ledged doors	1916	1	The door to the north-east has peeling paint and is rotting at the base	4	Repair/replace rotten sections and repaint	Essential	

FITTERS' WORKSHOP INTERIOR								
Item	Description	Date	Significance	Condition	Condition Rating	Works Required	Works Priority	Cyclical Item
Ceiling	Battened sheeting	1950s	2	Some damage to south-west end	2	Monitor	Investigate	
Walls	Painted, rendered walls	2000s	1	Previous patch repairs	2			
Floor	Concrete slab (modern slab over older slab)	2000s	2	Several cracks	3	Monitor	Investigate	
Crane	Not tested	Circa 1916	1					

End of Condition Assessment.

Appendix F – ACT Heritage Citation

Kingston Powerhouse Historic Precinct

ACT Heritage Council

Entry to the ACT Heritage Register

Heritage Act 2004

20048. Kingston Powerhouse Historic Precinct

Section 8, Blocks, 8, 11, 14, & 24

KINGSTON

This document has been prepared by the ACT Heritage Council.

This entry which was previously part of the old heritage places or the old heritage objects registers (as defined in the ***Heritage Act 2004***), as the case may be, is taken to be registered under the ***Heritage Act 2004***.

Conservation Requirements (including Specific Requirements), as defined under the ***Heritage Act 2004,*** that are contained within this document are taken to be Heritage Guidelines applying to this place or object, as the case may be.

Information restricted under ***the old heritage places register or old heritage objects register*** is restricted under the ***Heritage Act 2004***.

Contact: ***ACT Heritage Council*** ***c/o Secretary*** ***PO Box 144*** ***Lyneham ACT 2602***
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ACT Government
environment ACT
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E-mail: EnvironmentACT@act.gov.au

48. Kingston Power House Historic Precinct, Kingston [V113][1]

Location

District of Central Canberra, Division of Kingston, Section 8, Blocks, 8, 11, 14, & 24 as identified on Figure 48 and indicated on the Territory Plan Map by the Heritage Places Register Overlay H48.

Features Intrinsic To The Heritage Significance Of The Place

The Place comprises the following significant features identified on Figure 48a

a) Power House building, together with significant internal fabric identified at Schedule 1 and Figure 48b;
b) Fitters' Workshop (Bulk Supply Store);
c) original alignment of the railway and existing railway track and embankment
d) landscape elements: Monterey pine (*Pinus radiata*- A), White brittle gum (*Eucalyptus mannifera* - B);
e) base of the second chimney stack;
f) fabric and operation of the siren and whistle; and
g) 1948 Switch Room.

Statement Of Significance

The Power House and Fitters' Workshop are of industrial and architectural significance. Other intrinsic features assist in demonstrating the industrial use of the site for power generation. The Power House is a landmark structure in its Lakeside setting.

The Power House generated the first power to the Federal Capital in 1915. The Power House and its associated Fitters' Workshop are early examples of buildings that housed coal fired steam powered electricity generation equipment. The Power House, Fitters' Workshop, base of the second chimney stack and remnant railway embankment and existing railway track to the north west of the Power House demonstrate the technology and process of early electricity generation in the Federal Capital. The siren and whistle located on the main power house building was an important soundscape feature throughout Kingston. The landscape elements are remnants of Thomas Charles Weston's 1920s windbreak plantation along Interlake (now Wentworth) Avenue and have an evident relationship with the establishment and development phases of the Federal Capital.

The Power House was the first permanent public building in the Federal Capital. Its existence was fundamental to the development and establishment of the City. It is an example of early 20th century industrial architecture and the first building in the Federal Capital designed by John Smith Murdoch, a major figure in the creation of the 'Federal Capital' architectural style. The Power House retains numerous internal fittings demonstrating its substantial industrial use.

The Fitters' Workshop (Bulk Supply Store) is the second permanent structure in Canberra designed by J. S. Murdoch. The remnant railway embankment and existing railway track are part of the original rail system and were associated with the delivery of coal to the Power House.

The Power House ceased to provide power to the National Capital in 1929 when a cheaper source of electric power became available. It was reactivated for short periods in the years 1936-42 when repairs to the Burrinjuck Dam (which supplied water to the Burrinjuck Hydro Electric Scheme then servicing Canberra) were required, and in 1948-57 when post war construction in NSW placed severe strain on the NSW Grid. The 1948 switch room provides evidence of this later period of reactivation.

Specific Requirements

In accordance with s54(1) of the *Land (Planning and Environment) Act 1991* the following requirements are identified as essential to the conservation of the heritage significance of the place. These requirements are prepared to implement the following conservation policy for the place:

[1] [V113: Added to Heritage Places Register Number 48 08/06/2000 (Variation Number 113)]

The place is to be conserved and appropriately maintained consistent with its heritage significance. In conserving the place, its prior use as an industrial site for the generation of electricity should continue to be evident and accessible to the public.

i) Buildings including alterations and additions

a) The Power House is to remain the dominant feature of the Precinct in any future development.

b) The industrial character, form and scale of the Power House and Fitters' Workshop shall be retained. External additions to the Power House, Fitters' Workshop and 1948 Switch Room shall only be permitted if the proposed additions do not adversely affect the heritage significance of the place.

c) External alterations to the Power House, Fitters' Workshop and 1948 Switch Room, including alterations to external finishes, shall reflect and complement the architectural style of the buildings.

d) Internal alterations or additions to the Power House and Fitters' Workshop will respect proportions of space and may only be permitted where it can be demonstrated that they will not adversely affect the heritage significance of the place. Any alterations or additions shall be undertaken in accordance with a Conservation Management Plan approved by the ACT Heritage Council and any subsequent amendment of that plan. Any proposed works which will require the alteration or removal of the significant internal fabric identified at Schedule 1 will require a Development Application.

e) Any new buildings or elements shall be consistent with the architectural character of the place, and where possible, shall positively enhance the public's ability to understand its former industrial use and historic role in the development of the National Capital. New construction shall only be permitted where it can be demonstrated that it will not adversely affect the heritage significance of the place and will not affect the landmark qualities of the Power House and Fitters' Workshop.

f) The base of the second chimney stack shall be conserved in its current location. If the base of the first chimney stack is uncovered during development works this shall be conserved and protected from disturbance.

g) The siren and whistle shall be conserved and retained in its current location on the roof of the Power House and maintained in working order. Consideration shall be given to future operation for interpretive purposes or new use.

ii) Demolition of Buildings

a) Demolition of the Power House, Fitters' Workshop, base of the second chimney stack and 1948 Switch Room shall not be permitted, other than in exceptional circumstances, including circumstances in which the buildings are structurally unsound and beyond economic repair or where there are significant public health and safety reasons to warrant demolition. Demolition shall not be permitted unless it can be demonstrated that there is no prudent and feasible alternative.

b) Demolition of any part of the original fabric of the above features shall only be allowed in the context of sympathetic conservation of the place, including any alterations and additions.

c) Accurate recording of any building or structure shall be undertaken prior to any demolition or removal of fabric.

iii) Landscape

a) The plantings on the corner of Mundaring Drive and Wentworth Avenue of Monterey Pine (A) and White Brittle Gum (B), and those to the west of the Power House of White Brittle Gum (B), are to be conserved and when appropriate, replaced with the same species of tree. All are to be maintained.

b) The alignment of the former railway and existing railway track should be retained as a linear open space and appropriately expressed in future landscaping treatment. An indicative portion of the existing railway track should be retained, conserved and interpreted *in situ.*

c) The immediate spaces surrounding the Power House, Fitters' Workshop and railway alignment that demonstrate the industrial servicing and operation of these buildings shall be retained and appropriately landscaped.

d) Significant visual links shall be retained between the Power House and (i) East Basin and (ii) Bowen Park. The prominent gables and roof form of the Power House shall be visible from potential water transport links to and from the Kingston Foreshore area.

e) Excavation and landscaping works shall be undertaken in accordance with approved archaeological procedures.

Figure 48: Kingston Power House Precinct: Location

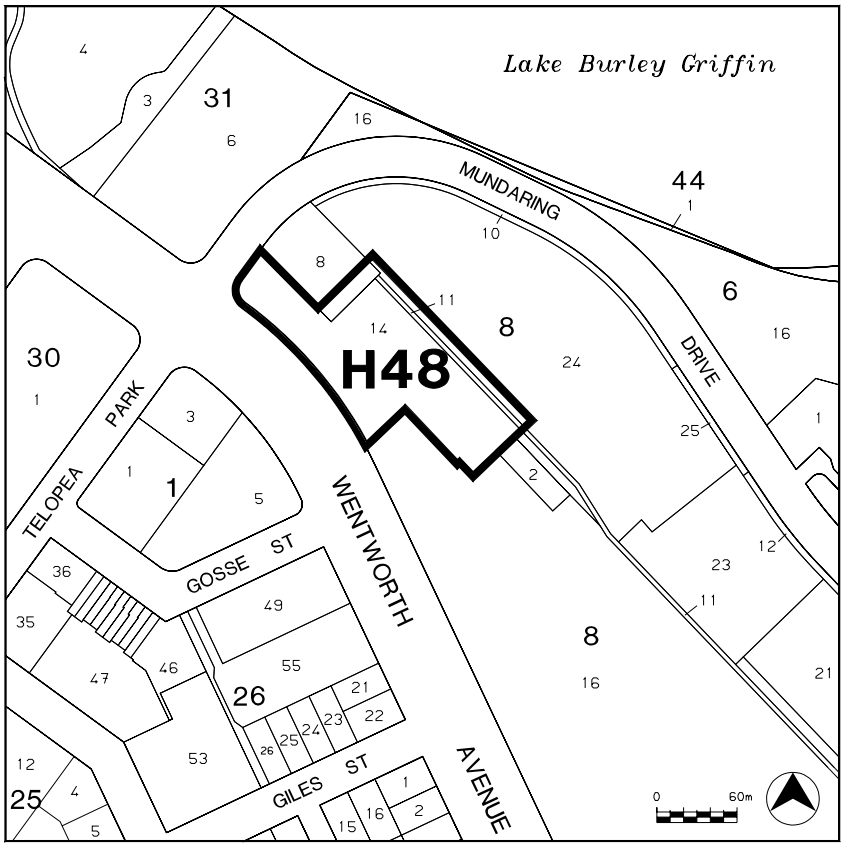
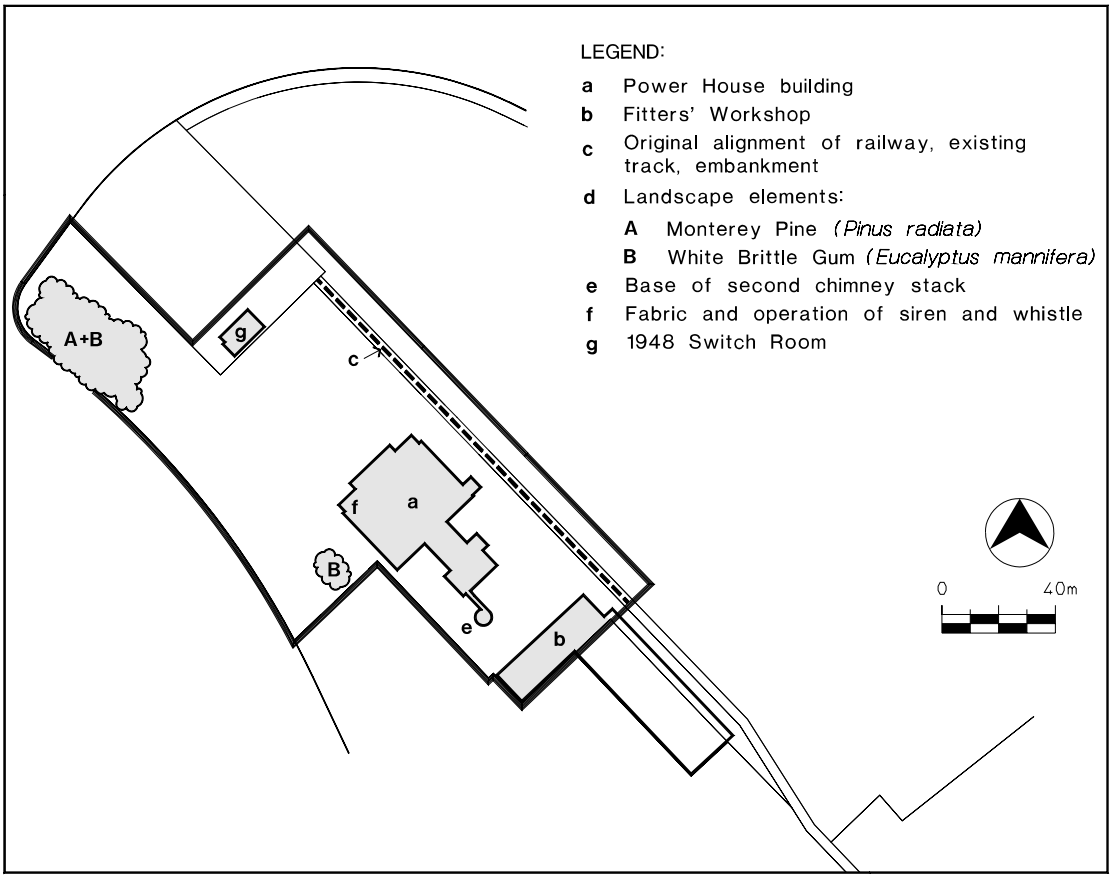


Figure 48a: Kingston Power House Precinct: Significant Features


LEGEND:
a Power House building
b Fitters' Workshop
c Original alignment of railway, existing track, embankment
d Landscape elements:
A Monterey Pine (Pinus radiata)
B White Brittle Gum (Eucalyptus mannifera)
e Base of second chimney stack
f Fabric and operation of siren and whistle
g 1948 Switch Room
A+B
g
c
f
a
B
e
b
0
40m

SCHEDULE 1
SIGNIFICANT INTERNAL FABRIC: POWER HOUSE

Stairwell (Ground and 1st Floors)
- Steps, railings, handrails, cupboards beneath stairs (1)
- Original light fittings (8)

Basement (Ground Floor)
- Condensing pits (2)
- Light fitting on central beam (4)
- Ladder to 1st floor and into condensing pit (5)
- Ash chutes (6)
- Coal elevator (7)
- Original light fittings (8)

Battery Room (Ground Floor)
- Original joinery and 3 phase switch on right hand side of door as you enter, ceiling and cable terminating boxes and cable rack

Economiser Room (Ground Floor)
- Trusses
- Drill press (9)
- Position of flue (10)

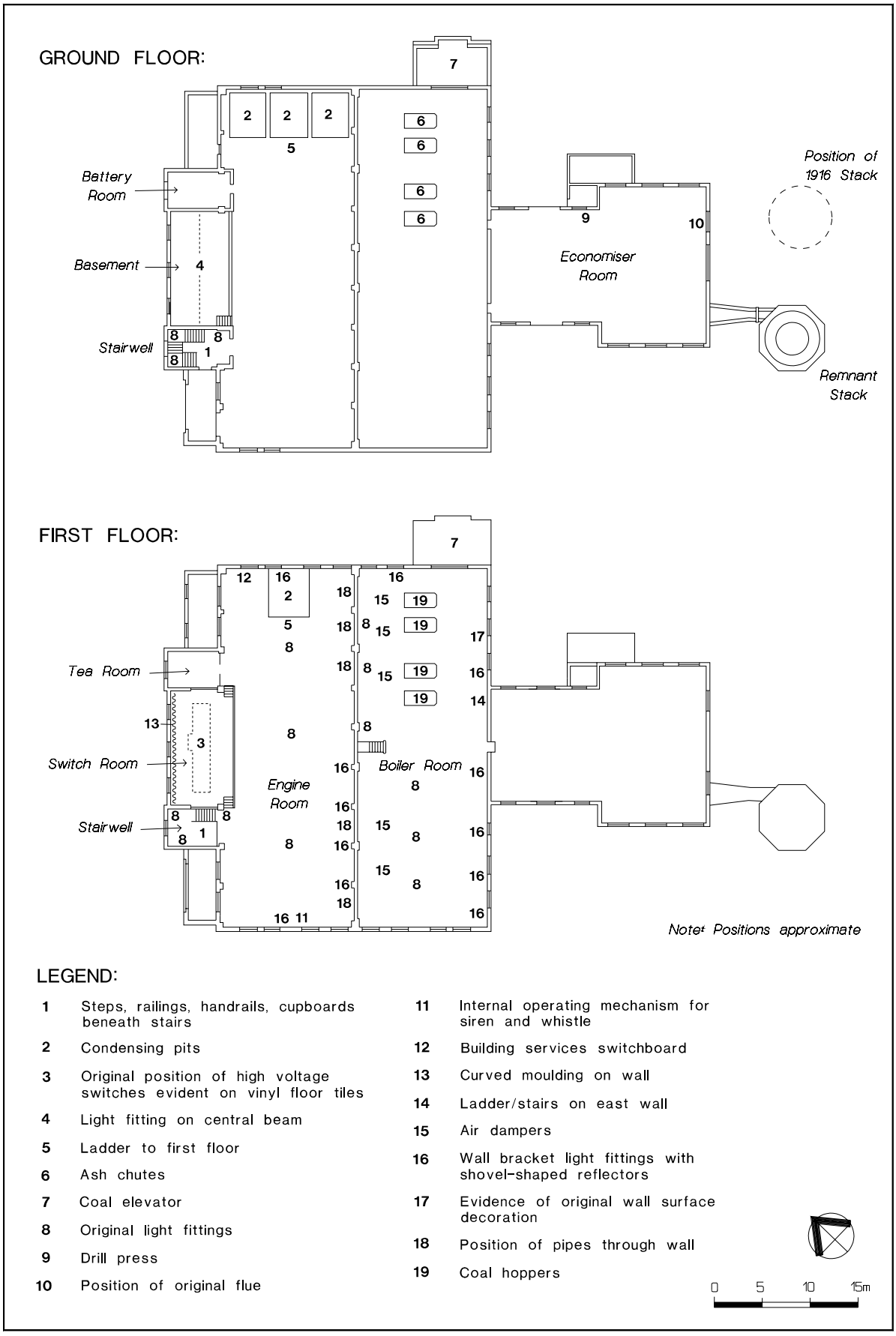
Engine Room (1st Floor)
- Floor, ripple iron ceiling, trusses, fenestration, louvres and gantry, sign, columns, beams, and services (external electrical wiring)
- Internal operating mechanism for siren and whistle (11)
- Building services switch board (12)

Tea Room (1st Floor)
- Windows and door and wall framing

Switch Room (1st Floor)
- Original position of high voltage switches evident on the vinyl floor tiles (3)
- Curved moulding on the wall (13)

Boiler Room (1st Floor)
- Walls, ceiling
- Coal hopper (19)
- Coal elevator (7)
- Ladder/stairs on east wall (14)
- Air dampers (15)
- Wall bracket light fittings with shovel shaped reflectors (16)
- Original light fittings (8)
- Evidence on east wall of original wall surface decoration featuring red section from floor finished with a black line below cement washed walls (17)
- Portion of pipes through west wall of Boiler Room into the Engine Room (18)

Figure 48b: Kingston Powerhouse Precinct: Significant Internal Fabric of Power House Building



Appendix G – Kingston Power House Interpretation Plan

Keith Baker and Associates Pty Ltd in association with Peter Freeman Pty Ltd, 2002

Kingston Power House

Interpretation Plan

Prepared by Keith Baker and Associates Pty Limited

In Association with Peter Freeman Pty Ltd

and Kingston Foreshore Development Authority

For The Institution of Engineers, Australia

Under a Commonwealth Cultural Heritage Projects Program Grant

May 2002

PO Box 28
Woden ACT 2606

Cover photo: Kingston Power House from Wentworth Avenue entry, showing the Boiler Bay, Economiser Annexe and Chimney base.

All photos are by Keith Baker unless otherwise acknowledged.

Acknowledgements: The Author wishes to acknowledge the assistance of the Commonwealth Department of Environment and Heritage, and the Kingston Foreshore Development Authority in funding this project. The report builds on earlier funding to the Institution of Engineers Australia for an oral history recording project through an ACT Heritage Grant, and associated funding by Actew Ltd for engineering research and initial interpretation work. This Interpretation Plan is intended to be complementary to the Precinct Conservation Management Plan Review prepared by Peter Freeman Pty Ltd.

Research has been assisted by access to the collections, records and displays of the National Australian Archives, the National Library of Australia, the Australian Heritage Commission, Film Sound Australia, the National Science and Technology Centre, Actew Ltd, the ACT Heritage Unit, the ACT Heritage Library, the National Trust of Australia (ACT) and the Canberra and District Historical Society, the Powerhouse Museum Sydney, and the Museum of Transport and Technology at Auckland, NZ. Access to the Kingston Powerhouse site was initially facilitated by Actew and subsequently by the Kingston Foreshore Development Authority. The cooperation of the Canberra Division of the Institution of Engineers, Australia, and Engineering Heritage Australia (Canberra) is also appreciated. My thanks also for advice on particular aspects from Alan Asquith, John Elsom, Godfrey Lowe and Don Reynolds.

Executive Summary

The Kingston Power House is an imposing building, important in the heritage of Canberra and worthy of its recognition as a significant piece of 20th Century architecture. And although it has been stripped of most of its original machinery, enough remains in its assembly of functional spaces for its original purpose and operation to be understood. The building becomes so much more interesting and exciting when its operation can be visualised with the generating plant and people that supplied Canberra with electricity from 1915. For the visitor to gain this vision, the building needs to be interpreted, relating the spaces, remaining fittings and evidence of past machinery to its purpose and function. The interpretation need not interfere with the adaptive reuse of the building as part of the exciting Kingston Foreshore redevelopment. But the adaptation needs to be equally sensitive to the heritage listed building fabric and to the understanding of its original engineering function as a coal fired steam power station.

The Interpretation Plan is complimentary to the Kingston Power House Precinct Conservation Management Plan Review which was prepared in August 2001 by Peter Freeman Pty Ltd, and includes Adaptive Reuse & Development Control Guidelines.

The Interpretation Plan begins with a recognition of the need for interpretation to enhance the visitor experience and sets out some of the options, ranging from simple labels and illustrative panels with historic photographs, through to interactive computer displays, holograms and sound and light displays. These options build on the research and recording that has been done to date under heritage grants to the Canberra Division of the Institution of Engineers, Australia.

The Plan then progresses to examine the remaining equipment, the building functionality and features, the flow through building and individual room and plant functions. They are illustrated with present-day and historic photographs, and reference to early plans and records. It then proposes an Interpretation Centre in a ground level location that was formerly used for ash handling, with good access to many of the engineering features and potential access to others. It is in a location that would be less desirable commercially but highly desirable as a focal point for guides and guided tours. Before listing other recommendations, the Plan discusses some of the safety and security issues, and the interdependencies of conservation, interpretation and reuse.

The Plan concludes with a list of recommendations for interpretation. They lead with the need for adaptive reuse to be planned in conjunction with the industrial plant and equipment conservation and interpretation, to achieve compatible uses which do not unnecessarily compromise the sense of space and flow in the building. This is followed by a recommendation for a physical interpretation centre as a key for guided inspections and control of access to some areas, coupled with a range of interpretive measures around the building to give a historical and functional overview, as well as details of particular features. These would include illustrations and text on panels and interactive screen based equipment, recorded sound, projection and possibly holographic images to give a sense of former machine plant and equipment. Interpretive signs and panels are proposed to take into account both the flow of people and the original flow of materials and energy through the building. And the building fabric is proposed to be interpreted in relation to the industrial function rather than being subsidiary to the architectural style and detailing.

The Plan suggests that consideration be given to limited relocation of equipment and machinery which would help the understanding of the building function and features, including some models and replicas providing interaction with visitors where possible. The steam whistle is proposed to be made operational because of its social significance for the area, and interpretation is proposed beyond the Power House building to rail tracks, coal stockpile area, water circulation for condensers, smoke stack base and the like. The plan concludes by proposing building use by functions that have synergy such as an energy display and advisory centre, operated in conjunction with the interpretive centre, and guided tours of the main areas, with occasional guided commercial tours of the more obscure areas.

Kingston Power House Interpretation Plan

Kingston Power House Interpretation Plan

1. Introduction

The Kingston Power House building is an excellent example of an early 20th century coal fired powerhouse. Changes to the building have been relatively minor and the building remains in good condition. However the removal of the generating plant and most of the associated equipment in the 1950s and 1960s has left the purpose of the original spaces less than obvious to most people, yet capable of clear understanding with a little guidance.

- ***Need to interpret the history and original engineering or industrial function of the building as well as the architectural features.***

  The 1993 Conservation Management Plan was an important step in recording the history of the Kingston Power House and setting out the significance of the buildings and other features on the site. However it was very limited in assessing the remaining plant items and relating the functions to the building fabric. Architectural features such as the stairs and windows, which were incidental to the powerhouse operation were given coverage, while significant engineering features such as the coal and ash hoppers and conveyor, or the condenser pit were not mentioned. That is not to say that the architectural features are not important to the conservation of the building, but that its significance lies largely in its function, and the function cannot be understood without relating the building and its original equipment to the process of generating electricity from coal.

  This need for interpreting the engineering function was recognised in some earlier work by the Institution of Engineers, Australia. It resulted in an ACT Heritage Grant for an oral history study, and funding by ACTEW of an interactive computer based engineering interpretation. The results were presented by the author in a paper to the Second Australasian Conference on Engineering Heritage[1], and incorporated in an application to the Commonwealth Government for funding of initial conservation works and interpretation under the Cultural Heritage Projects Program.

  The application by the Canberra Division of Institution of Engineers Australia was successful and the Commonwealth of Australia, represented by the Department of the Environment and Heritage, provided $75,000 to

  > *Review the 1993 conservation management plan for the Kingston Power House and provide adaptive reuse strategies for the precinct, an interpretation plan and undertake Stage 1 stabilisation and restoration works.*

  The ACT Government, through the Kingston Foreshore Authority, provided a further $30,000 for the project.

  Conservation planning and management of the physical works has been performed by Peter Freeman Pty Ltd, Canberra based Conservation Architects and Planners who had previously undertaken significant conservation studies on the site. A two volume Conservation Management Plan Review was finalised in August 2001 and the conservation work, predominantly to the roof of the building, has since been performed. The Interpretation Plan was arranged as a sub-consultancy by Keith Baker and Associates Pty Limited, following earlier engineering heritage interpretation work on the Power House in the form of an interactive computer display for the Institution of Engineers. Some links to detailed supporting information in the interactive display were incomplete, but the basic information edition was completed and demonstrated at

[1] Conference conducted by the Institute of Professional Engineers New Zealand, Auckland 2000

the engineering heritage conference previously mentioned.

The resulting Interpretation Plan under the current consultancy project should be read in conjunction with the revised Conservation Management Plan Review, and recommendations for adaptive reuse. Conservation Policy No 5 for Interpretation of the Precinct[2] states that *the current draft Interpretation Plan should be completed, such that specific interpretation recommendations and initiatives are provided for the Power House and for the precinct as a whole*.

2. The Visitor Experience

The aim of this Interpretation Plan is to stimulate interest in the former operation of the Kingston Power House, and enable visitors to understand that they are not just in a large old building, but one with an important history and function. The visitor experience will vary with the interest and knowledge of the individual, and the plan will attempt to address "visitor types" as follows:

- Interstate or overseas day visitors with no knowledge of Canberra's history or the operations of a power station
- Locals with an interest in the historical associations of the Power House, but little understanding of its workings
- People with a technical knowledge of power generation, who want to see what remains and relate it to their knowledge or increase their knowledge
- Visitors with a professional interest in history, architecture or conservation
- People working in the building following its adaptive reuse, or living onsite in the precinct, who want to absorb the ambiance of the building and understand more of history and former function, and
- Tour guides, either local wanting in-depth understanding of the place, or those incorporating the Kingston Foreshore as a stop in Canberra.

Power House in the Kingston Foreshore Redevelopment
Kingston Foreshore Development Authority

[2] Peter Freeman Pty Ltd, *Kingston Power House Precinct Conservation Management Plan Review*, Vol 1, Canberra, 2001, p61

3. *General Presentation of Information*

There is wide scope for presentation of information to visitors. Information may be supplied by an introductory message, by a tour with the specific purpose of explaining the building and its function, or by information panels that can be incidentally referred to in a particular location or as the visitor moves around the precinct. Interpretive material needs to take into account the existing equipment, and its relationship to the former equipment and the building features, such that the process of generating electricity at Kingston Power House can be understood.

Some examples of possible methods of interpreting the Power House building, plant and processes are set out aid further discussion.

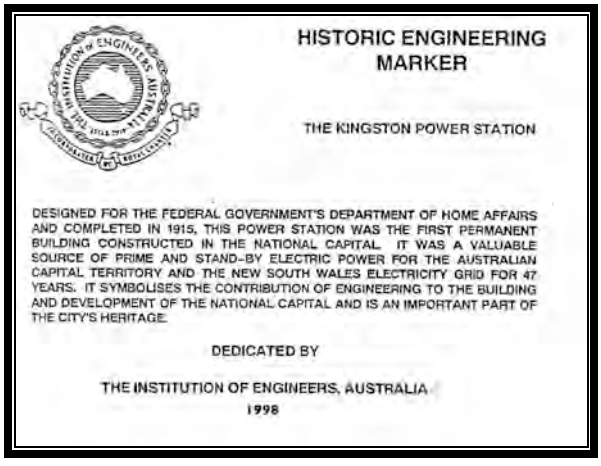
- ***Labels and Interpretive Signs***

  The simplest and most common form of interpretive material is provided through labels installed on unfamiliar items, or signs describing the equipment or space and the process that formerly occurred there[3].

  Rooms and spaces within the building may be identified with their original and any subsequent significant use, such that after adaptive reuse of the building there continues to be an on ongoing sense of historical purpose. This principle should also apply to rooms that are not normally accessible to the public.

- ***IEAust Plaque***

  The Institution of Engineers, Australia had a Historic Engineering Marker unveiled on the Power House by the Chief Minister in 1998. It contains a citation describing the engineering significance of the place as a whole.



IEAust Plaque

ACT Chief Minister Unveiling Plaque
Photo Institution of Engineers Australia,

This form of interpretive sign gives an overview and marks the significance of the place for the Canberra district, but other signage will be required to give an understanding of the equipment and functions within the place.

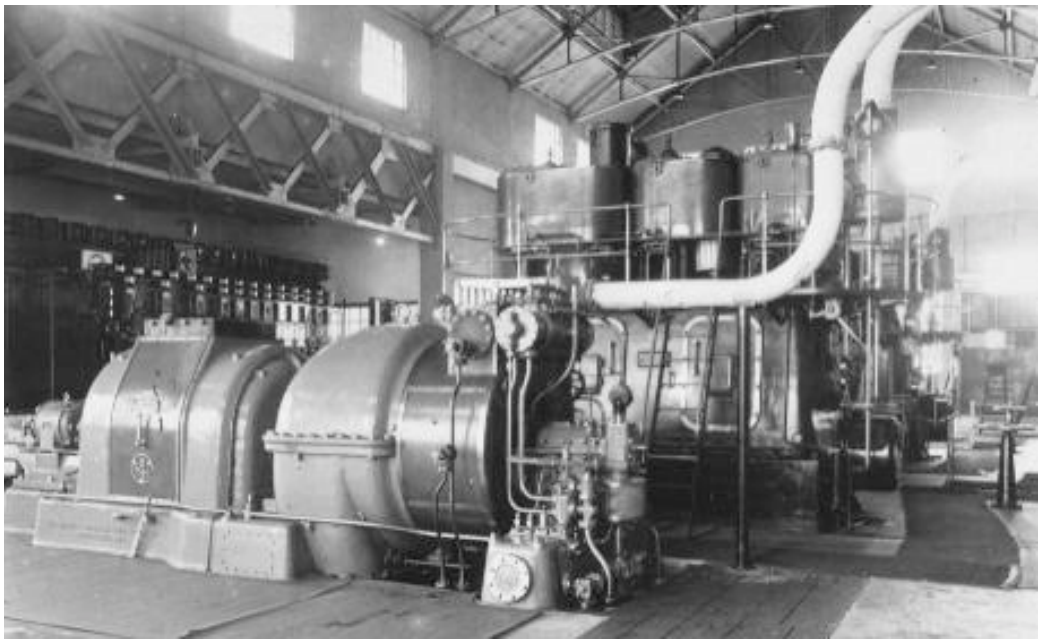
[3] For example labels distinguishing the ash hopper outside the building from the coal hoppers inside the building, or a message saying that ash from the boilers was stored in this hopper until there was sufficient to cart away by truck for landfill in the district.

- ***Images***

  Where equipment has been modified or removed, images are essential to convey process or use of a space and the human interaction. We are most fortunate to have an excellent collection of early photographs of the Power House held by National Australian Archives (NAA) and the National Library, particularly the Mildenhall Collection within the NAA. Images of the plant transferred from NSW very limited, but photos of the original 1918 installation at Pt Kembla are being pursued.

  It is common practice to incorporate historical photographs with descriptive text on interpretive panels that can be distributed around a site such as the Power House. They are best where they can be viewed at the same time as the item or space in question, so that both the size and the location or orientation of the plant can be visualised. This is possible through photographic panels, full size reproductions used as murals, or projection of photographic images as appropriate.

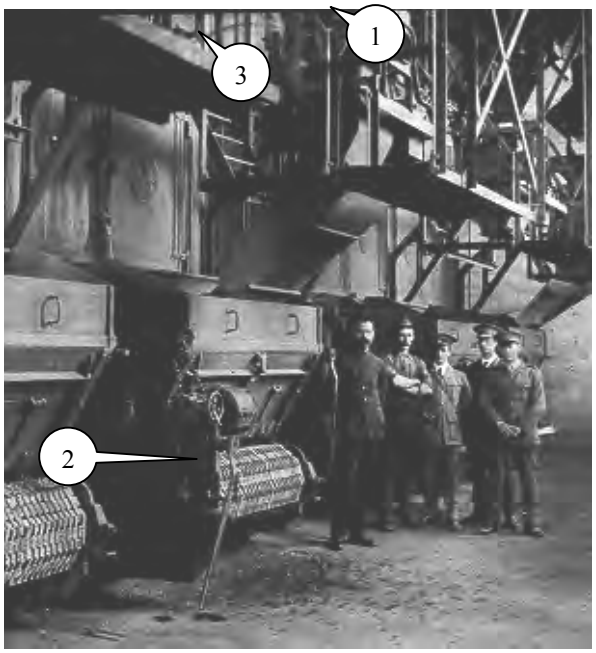
  Photographs can be reasonably durable if screen printed or etched on aluminium signs, or mounted under glass, but they are still subject to vandalism. Photographic interpretation would be appropriate in areas such as the generator machine room where plant has been completely removed, or the boiler room, to show how the boilers were located under the coal hoppers and a controlled amount of coal was fed to the chain grate stokers. Examples of this type of interpretation are shown below.



Electricity generating machinery previously operating in this room.

1927 steam turbine in foreground and 1915 reciprocating steam engine at rear.

Example of Interpretive Panel with photos and simple text giving quick impression
Photo NAA A3560 Item3588



Coal was fed at a controlled rate from the overhead coal hopper (1) into the bin in front of the boiler, and through to the chain grate stoker (2). The speed of the grate and flow of coal could be controlled to suit the amount of steam needed. The heat from the burning coal, in contact with the steel tubes inside the boiler, turned the water they contained to steam. This steam was superheated under pressure (180 pounds per square inch and 550 degrees Fahrenheit, or1200kPa and 290^{0}C), and collected in the steam drums at the top of the boiler (3). An insulated pipe conveyed the steam through a hole in the wall to the steam engines in the next room. The hot gasses from combustion of the coal were contained in the firebrick casing of the boiler, and passed via a large damper in the floor, through an underfloor chamber to the Economiser Room next door, before passing up the chimney stack. A boiler attendant or fireman looked after the firing rate and pressure in the boiler, with a high degree of automation for 1913 when the boilers were built.

Original Babcock and Wilcox Water-tube Boilers

Example of Interpretive Panel with photo and text giving more detailed description
Photo Canberra Times

- ***Movie Images***

  Where suitable movie footage is available, it could be used as part of an introductory presentation in a theatrette, or on local TV monitors in a similar way to the still photographs described above. However no such historical films have been identified for Kingston Power House. A reasonably thorough search of historical Canberra coverage in the National Film and Sound Archives, Film Sound Australia, revealed only distant shots of the Power House. There were some other remotely associated events, and some coverage of other larger power stations elsewhere, which could be selectively edited for inclusion in interpretive material for Kingston, but nothing approaching the interpretive value of the historical still photographs previously mentioned.

- ***Recorded Sound***

  Sound effects such as steam engines operating can give a greater sense of reality in any recreation of the Power House operation. However they need to be reasonably authentic to avoid criticism from steam enthusiasts who would relate to the size and speed of large engines.

  Oral history recordings have been made with twelve former workers from the Power House[4]. Excerpts from these oral history recordings have been used in the present interactive display, along with other limited sound effects. There would be scope for recording more authentic sounds for use in the building, and for editing the oral history recordings to give place-specific information for major spaces in the building such as the boiler room.

[4] Interviews undertaken by Matthew Higgins in 1999, with funding to IEAust under an ACT Heritage Grant

- ***Interactive Display***

  An interactive computer based display was previously produced by the author for IEAust with funding from Actew[5]. This has been expanded as part of this Interpretation Plan. This display enables the individual viewer to learn about the history of the siting and plant selection, gain an overview of the generating technology and look in more detail if they are interested, and also share some of the social significance of the place. Viewers can chose to skip parts they are less interested in, go back if they want something repeated, or ask for more details about equipment or processes that interest them.

  The program is developed using Microsoft PowerPoint which operates as a slide show on personal computers, but could be readily adapted to touch screen technology. It was prepared to give an introduction to people visiting the Power House for the first time, while giving some context and layers of information to people who have more familiarity with the place and the technology. In the touch screen form it could be located at the entrances to the building and at key distributed locations to enhance the visitor experience of a wide range of people passing through or occupying the building.

  Touchscreen facilities can be provided as a kiosk as used by the ACT Government at shopping centres and bus terminals, or a smaller bench mounted units as shown in the examples. They have been used successfully in the foyer of the Australian National Gallery, where visitors can gain familiarity with the gallery collection before visiting particular gallery displays.

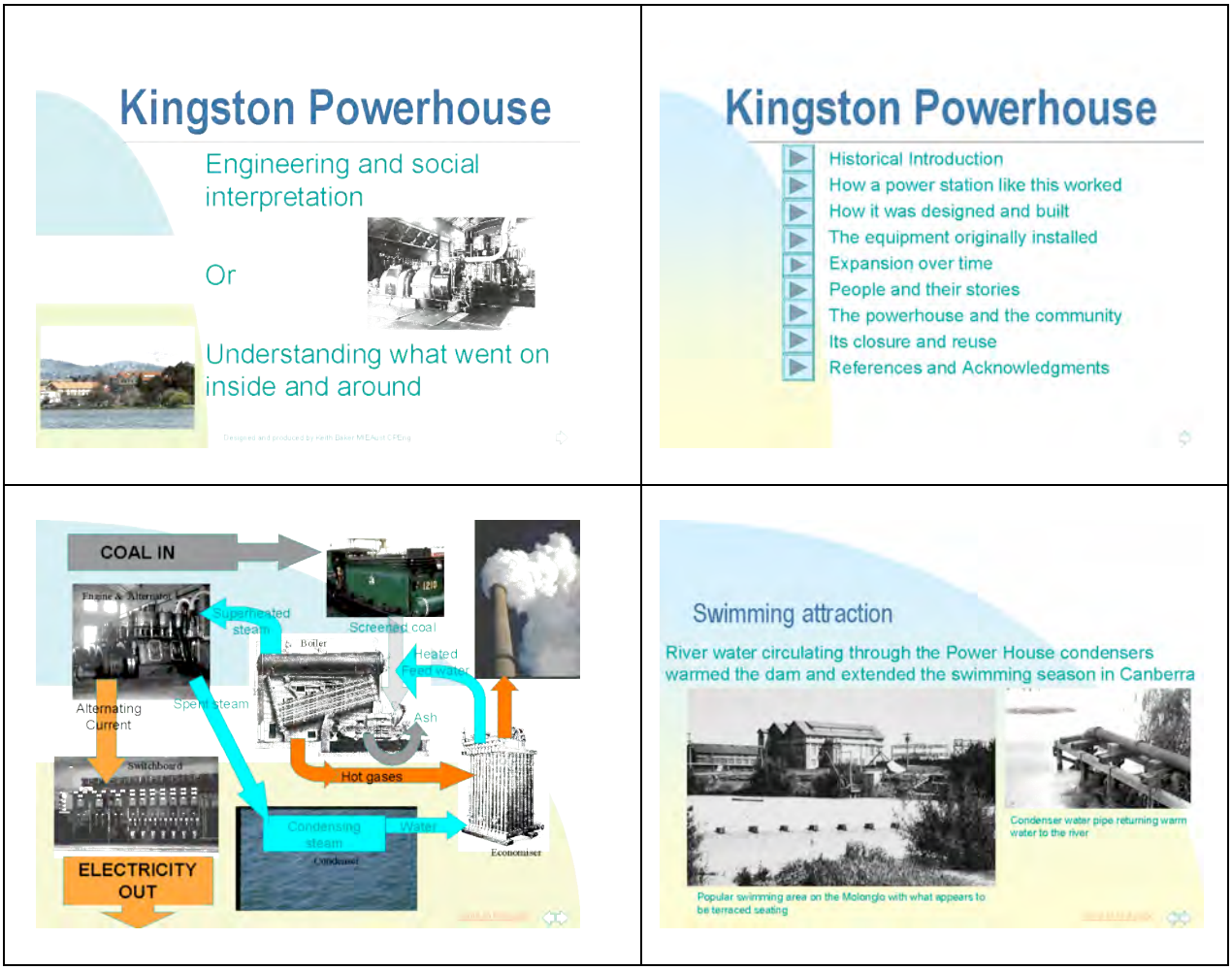
Austouch Kiosk
Photo Austouch

Benchmounted option for Touch screen
Photo Morpheous

If desired, the material could also form the basis for an introductory film, adapting the script with a combination of still photographs, related movie footage, and animation. This would be a more expensive option than adapting the interactive computer presentation to a touch screen format, and would be most appropriate with a theatrette setting, if such a facility is contemplated.

Other opportunities should be taken to make displays interactive with visitors where possible.

[5] Kingston Powerhouse: Engineering and social interpretation, or Understanding what went on inside and around, designed and produced by Keith Baker, 2000



Sample Pages of Interactive Display *Keith Baker and Associates Pty Limited*

- ***Models Replicas and Related Equipment***

  Scale models or replicas are often used in museums to illustrate large items that cannot be directly displayed. Cut-away or working models are also used to illustrate the operations of machines that cannot be readily otherwise seen.

  One option of interpreting the plant and equipment that was earlier removed would be by scale models of the larger items, and replicas of smaller items. A scale model of a Babcock and Wilcox water-tube boiler similar to that originally used at Kingston exists in the Museum of Transport and Technology at Auckland, NZ. It may be worthwhile exploring the options for obtaining such a model, possibly through purchase or loan. Investigations have also been made in relation to the earlier steam whistle on the building, from the scuttled HMAS Australia, and obtaining a replica of that whistle would be quite feasible. Other simple items such as the condensers, for which the specification exists, could be fairly readily reproduced if desired.

Model Babcock and Wilcox Water-tube Boiler in Museum in New Zealand

It is also possible to introduce genuine plant items from elsewhere which serve the same purpose as models in illustrating processes that occurred in the Power House. There is a danger in doing so if visitors become confused in thinking the introduced item is original to the building. However, where the plant item has significance to the site, has high interpretive value, and its origin is clearly identified, such relocation is justified and desirable. The synchronising switchboard from the 1953 Diesel Auxiliary Power Station has been salvaged by the demolition contractor, and donated to Power House conservation project[6]. It would form a useful link in interpreting the changing nature of electricity generation on the site over half a century, and the basic similarity of technology employed in synchronising engine driven alternators, whether the prime mover is steam or diesel powered. It could be adapted if desired to allow visitors to experience a simulated synchronising process, using the synchroscope, lights, governor controls and computerised sound effects.

Control and Synchronising Switchboard Salvaged from 1953 Kingston Diesel Auxiliary Station

[6] Pers comm John Pendrick Snr, Advanced Demolition and Recycling Pty Ltd.

- ***Holograms, Virtual Equipment and Sound and Light Displays***

  A more sophisticated variation on the idea of models and replicas is to have holographic images in three dimensions in the actual spaces originally occupied by the missing plant items. There are some differences in the types of holograms that are used for display purposes. Reflection holograms are presented as panels which can be mounted on a wall like a poster, but the viewer has the impression of seeing into the picture. Transmission holograms would be more likely to suit the requirements envisaged for the Power House, where the viewer looks through a window to see what appears to be a three dimensional scene behind the glass. This could have the appearance of a room housing full-scale equipment, giving the illusion that the original equipment is in the space that it used to occupy.

  This approach to interpretation of missing plant has several advantages
  - It is more exciting for viewers
  - The spaces in the building can be more clearly understood
  - Major spaces can be used for other purposes as part of the adaptive reuse, without locking them up for interpretive use
  - The cost would be high[7], but as the cost of technology reduces it may be moderate compared with some other options such as physical relocation of plant. The cost benefit ratio is probably not supportable at present, but the possible use of such technology should be kept open for the future
  - Where similar equipment to the original can be located anywhere in the world, 3D holographic images can be produced. A number of these plant items have been located or are in the process of location.[8]

A reflection Hologram display

A transmission Hologram, where the viewer looks through a "window" into the 3D objects

[7] Holograms in Questacon, with laser optics are valued in the hundreds of thousands of dollars. Investigations are proceeding as to what may be realistic for Kingston.

[8] Apart from the prospect of locating a similar Bellis and Morcom engine in the UK as mentioned in the following section, a smaller operating engine and alternator exist at the Powerhouse Museum in Sydney (1929 B&M two cylinder 165 kW 428 RPM set fom the Chicago Mill at Lane Cove. This was one of some 600 B&M engines imported into Australia between 1900 and 1970.)

Existing Greens Economiser in WA which could be used to produce 3D Holograms

A lower cost option would be to project photographic images in the spaces where equipment had been, making use of color slides from similar existing equipment, historic photos of original equipment, or a combination of both. While this would be unlikely to fit on a continuous basis with adaptive reuse, it could probably be presented at particular times as a sound and light show. This has been an effective approach to spaces such as the House of Representatives in Old Parliament House in Canberra.

An extension of this idea is to use the illusion known as Pepper's Ghost to show a transition from historic to present-day photographs taken from the same point. This can be presented optically on a screen, or even more authentically in some suitable spaces, by an illusion of virtual objects appearing in the present space. Pepper's Ghost presentations are being used most effectively in a number of Australian museums and tourist attractions, where the illusion of a historic figure, often in miniature, appears and moves about among real objects to describe their history and features.

Sound and Light Show at Old Parliament House, Canberra
Photo Shirley Spectra

Pepper's Ghost display at Red Hill Mine, Sovereign Hill, Ballarat
Lifesize SpectraVision, Shirley Spectra

- ***Restoration of Equipment and Spaces***

  The most desirable option from the point of view of many people, but the most expensive and limiting on adaptive reuse of the building, would be to obtain examples of the original machinery, and restore some of the spaces to their former glory.

  It may be possible to obtain a Bellis & Morcom triple expansion engine to replace one in the engine room.

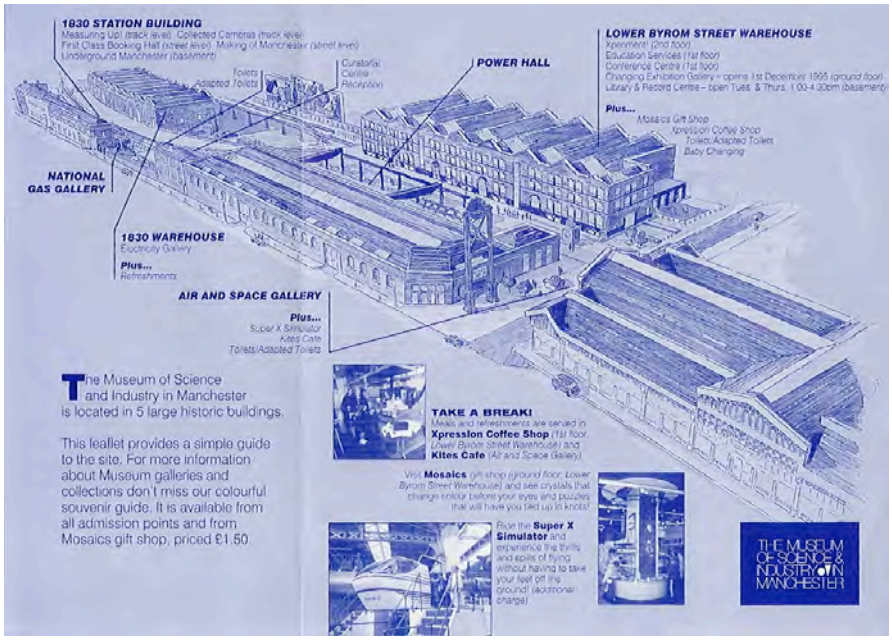
  - Some years ago an attempt was made to track down the engine and alternator that had been sold to a sawmill at Mt Burr in South Australia. This was inconclusive, and the engine may still exist.
  - During the National Engineering Heritage Conference in Canberra in October 2001, a member of the UK Newcomen Society indicated that a factory at Stoke-on Trent was disposing of a Bellis & Morcom engine which may be similar to those formerly at Kingston. This is being further investigated.

However the cost of obtaining and relocating such equipment would go well beyond the purchase and transport costs. Installation would require further modification to the Engine Room floor which has been leveled, some maintenance would be required to make the machine safe and presentable in a public space, and a source of steam or compressed air would be necessary if the engine were to operate at all.

- ***Site Guide***

An important aid for the visitor in understanding the building and its equipment and relationship to the site would be the production of a site guide. This should be easily related to the buildings in a realistic way, and show the entrances for the different parts of the Power House. An example of a folded A4 sheet successfully used with a museum complex using industrial buildings is shown.

Sample Front Cover



Unfolded sheet showing buildings and display features
Manchester Museum of Science and Industry

4. *Remaining Equipment*

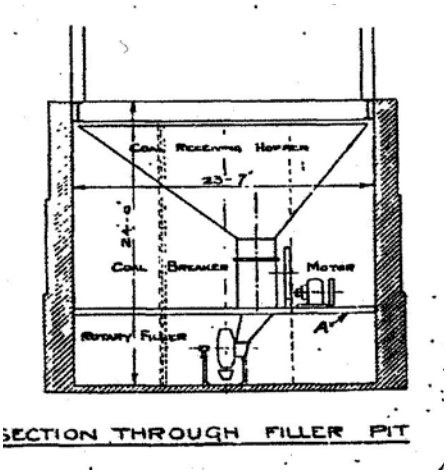
It is critical that all remaining plant and equipment items are interpreted to the public and the building occupants. There is a need to distinguish between remaining items that are central to the original function of the Power House, and those that have been introduced for their interpretive value, or may be original but incidental, such as light fittings, conduits and switches. The latter are more important to the authentic building conservation than to the interpretation of the building operation.

Important remaining equipment and plant items include

- Railway tracks
- External coal filler pit (subject to excavation outside building and examination of pit inside building)
- Coal and ash conveyor system encircling the boiler room
- Overhead coal hoppers in the boiler room
- Overhead ash hopper outside the building
- Air dampers and flue gas chambers below boiler room floor
- Ash chutes between boiler room and ash room
- Base of chimney stack

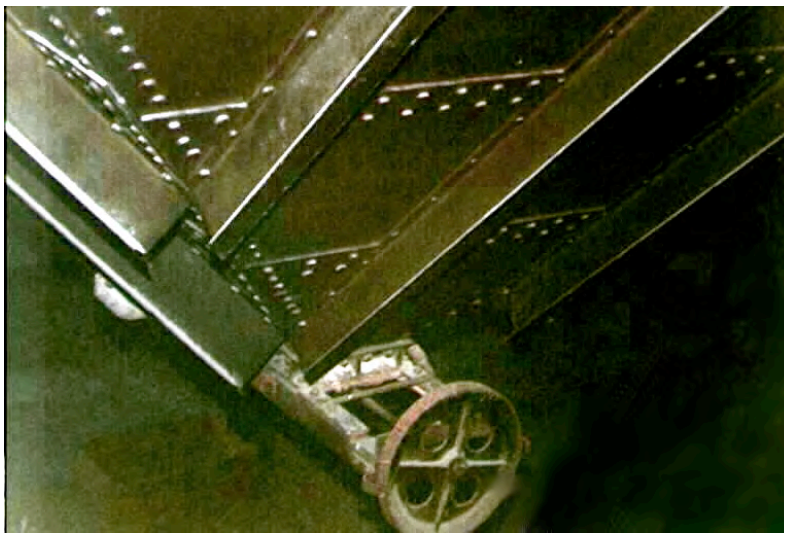
These are illustrated in the interactive display, and examples are shown below.

Railway tracks, present and original *NAA A3560 Item5451*



External coal filler pit *FC Drg M26*

Remaining drive system for coal and ash conveyor



Overhead coal hoppers in the boiler room

Overhead ash hopper outside the building

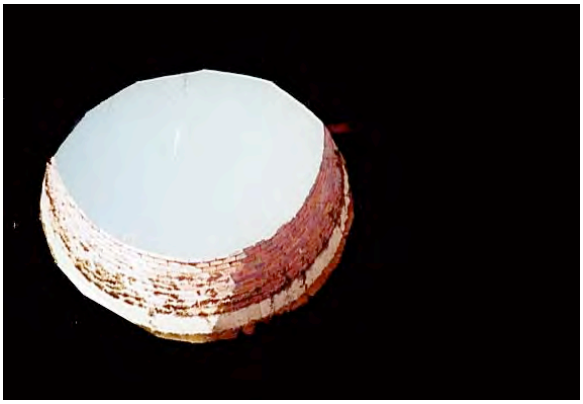
Ash chutes and elevator guide rails

Air dampers to flue gas chambers

Ash chutes between boiler room and ash floor

Base of chimney stack

Access Opening to Flue

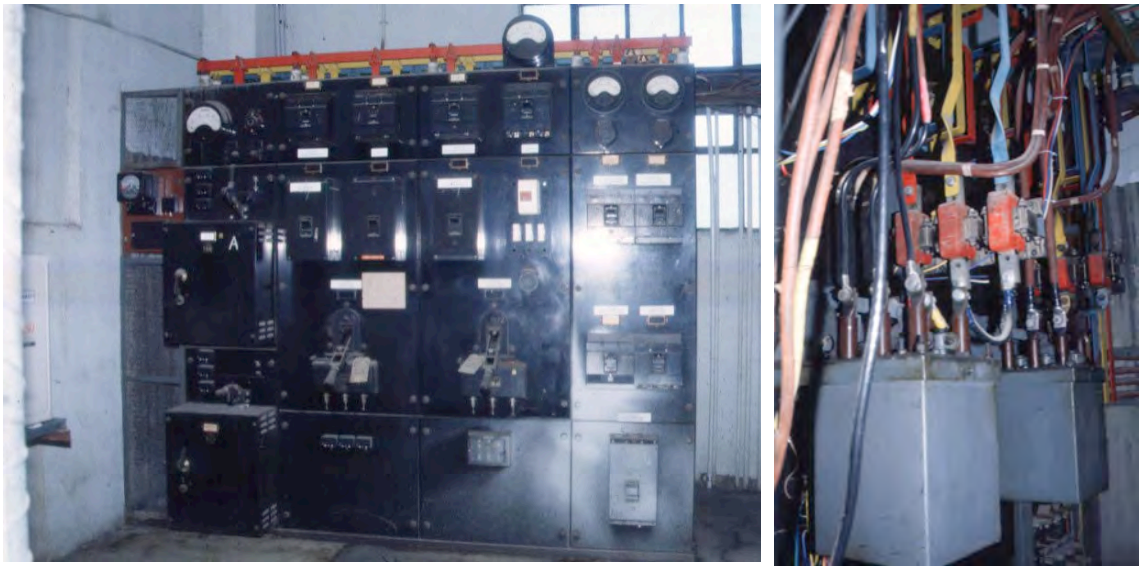


Base of Chimney

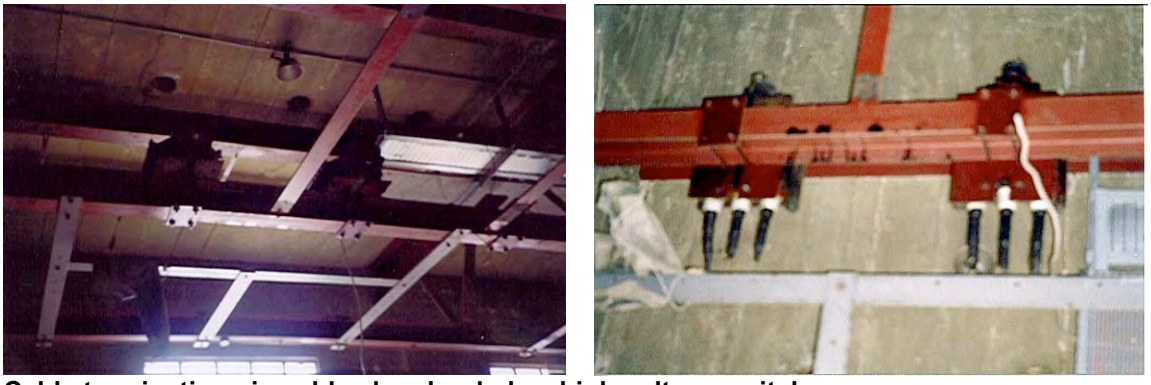
Auxiliary equipment also worthy of interpretation includes

- Overhead Crane in Engine Bay
- 415 Volt building services switchboard feeding building auxiliary equipment
- Cable terminations in cable chamber below high voltage switchroom
- Steam whistle
- Air raid siren

Overhead Crane in Engine Bay



415 Volt building services switchboard



Cable terminations in cable chamber below high voltage switchroom

Steam whistle and Air raid siren on roof

Features that should be explained to interested visitors include

- The delivery of coal by rail to the Power House, and stockpiling on site
- The transfer of coal from the stockpile, to a pit and chute (now buried) near the ash hopper
- The transfer of coal via the conveyor to the overhead hoppers in the Boiler Room
- The discharge of ash from the boilers to the Ash Floor below
- The transfer of ash via the conveyor to the ash hopper

- The removal of ash from site by road trucks
- The working of the conveyor system, with a high level of automation for its time
- The discharge of flue gases and the improved pollution control through replacement of the chimney stack.

All of these functions can be understood by reference to the equipment that remains.

Engineering features that require interpretation, but without the benefit of remaining equipment include

- Production of steam in boilers, from the overhead coal supply
- Conversion of the energy contained in steam to rotary motion in the reciprocating steam engines and later turbines
- Generation of electricity by alternators driven by steam engines
- Distribution of electricity to consumers in the district
- Controlling the electrical output to match the load requirements
- Synchronising alternators where the demand was greater than could be met by a single machine
- Condensing the used steam using cooling water from the river
- Recovering heat from flue gases to improve efficiency.

Social or historical features that should also be interpreted include

- The progressive expansion in capacity, from reciprocating engines to turbines, including the transfer of New South Wales plant from Port Kembla
- The importance of the Power House to the community
- The people who worked there
- Its use during World War II
- The changes in demand over time, leading to removal of plant.

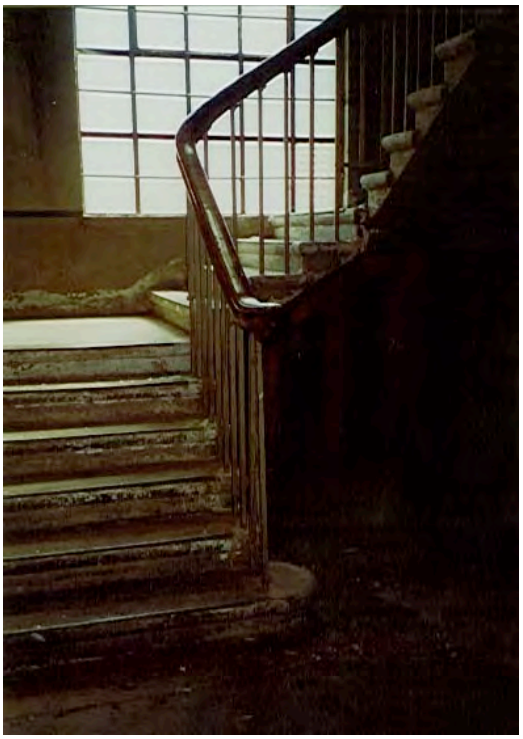
5. Building Functionality and Features

The building architecture, as an early 20th Century industrial work of JS Murdoch, has great significance. There are a number of architectural features that are described in the Heritage Overlay[9] and Conservation Management Plan Review[10] which should be interpreted, including

- Its early Federal Capital style and relationship to other Murdoch designs
- The stairwell
- Floors and railings and ladders
- Ripple iron ceilings
- Trusses, particularly spanning the high voltage switch platform, and other structural features
- Fenestration
- Ventilation louvres
- Joinery and decorative features
- Light fittings
- Boot scraper

[9] Heritage Overlay: Variation to the Territory Plan, December 1999
[10] Freeman Vol 1, p 64

Power House and Bulk Store in early Federal Capital Style



Main Stair

Railings on stairs and floor openings

Ripple iron ceiling and louvres

LatticeTruss above high voltage switchboard platform

Boot scraper outside main stair

Fenestration

Ventilation louvres

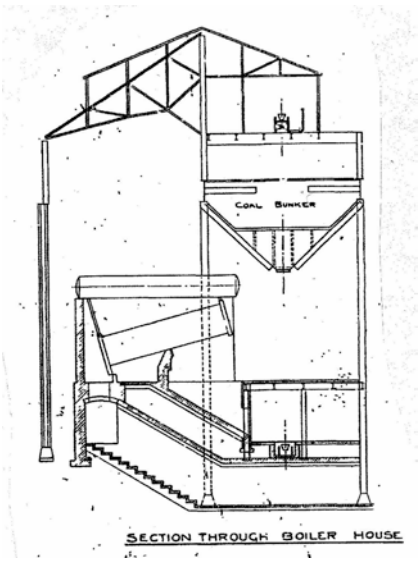
Joinery below main stair

Light fittings in main stair and Boiler Room

The design of the building cannot be fully appreciated however without relating it to the engineering features and electricity generating function. The levels in the building architecture need to be interpreted with the plant functions. For example

- The height of the building determined by the height of boilers, with the coal hoppers above, and the ash handling below
- The same height in the adjacent generating bay being used for massive machine foundations and chambers for cabling and transformers and station batteries below the machine floor level, and provision for lifting the machines over each other by overhead crane, when required for maintenance
- The more economical single storey construction for the economiser room, where less height was required
- The depth of the condenser pit to obtain cooling water from the Molonglo River

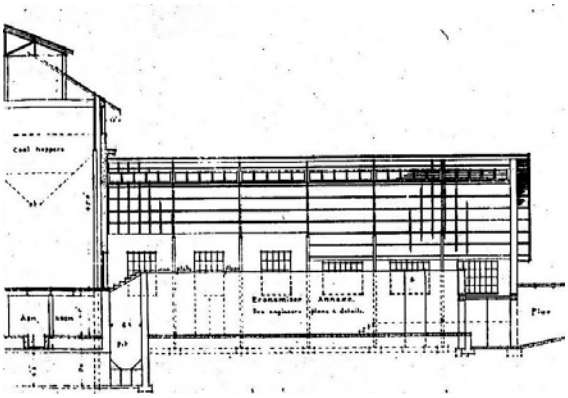
Building Elevation view showing height



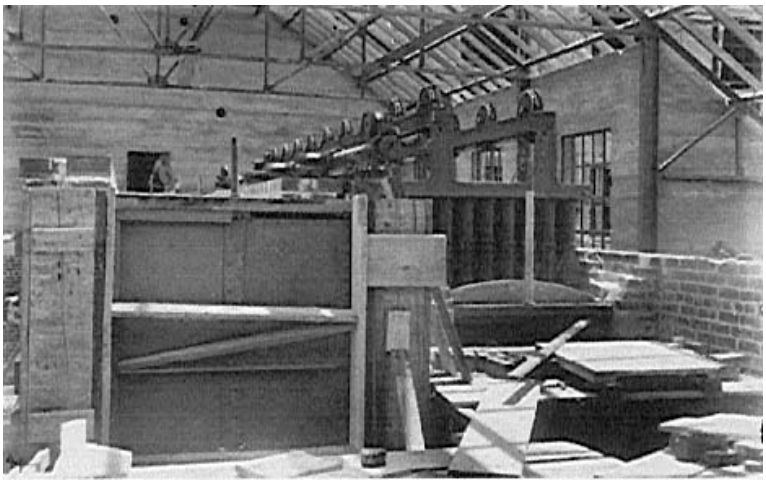
Section showing need for height
National Australian Archives

Massive machine foundations below machine floor level

Economiser Annex showing lower wall height

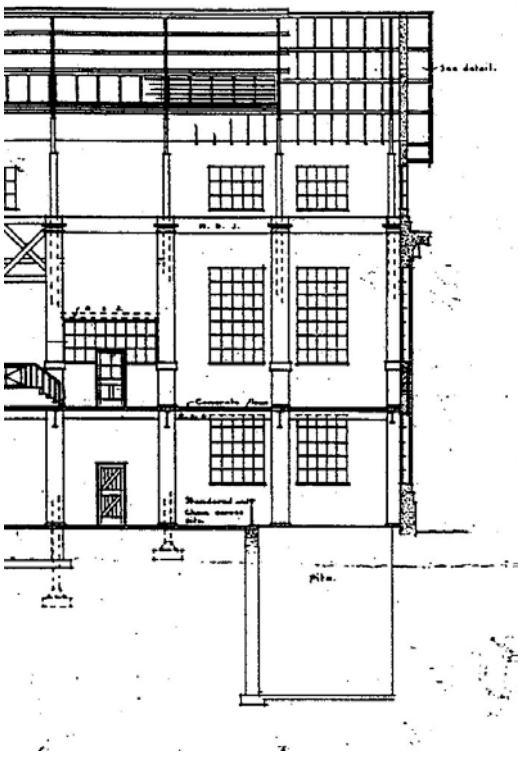


Section showing relatively lower height of economiser equipment *National Australian Archives*



Interior of Economiser Annexe during construction
NLA Images No 23072

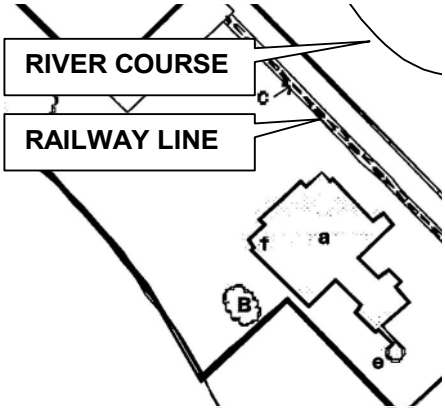
Condenser Pits from Machine Room and former cooling water pipe to river
NAA A3560 Item 54



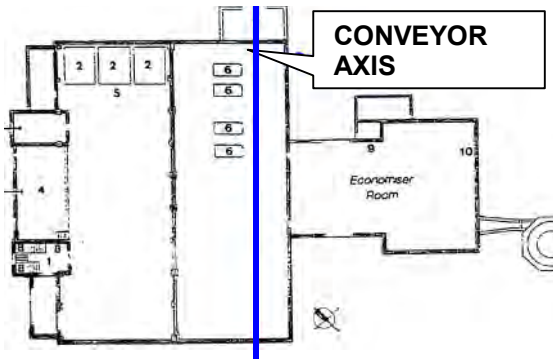
Section showing condenser pits

The orientation of the building and its elements was also determined by engineering features

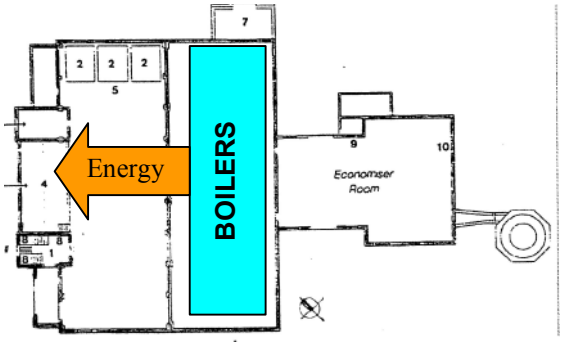
- The extension of the railway from Queanbeyan, alongside the river
- The availability of cooling water for the condensers from the nearby gauging weir on the river
- The axis of the coal and ash handling and boiler room, perpendicular to the railway line
- The steam and electricity generating and distribution plant to one side of the boiler room
- The heat recovery and exhaust flue to the other side.



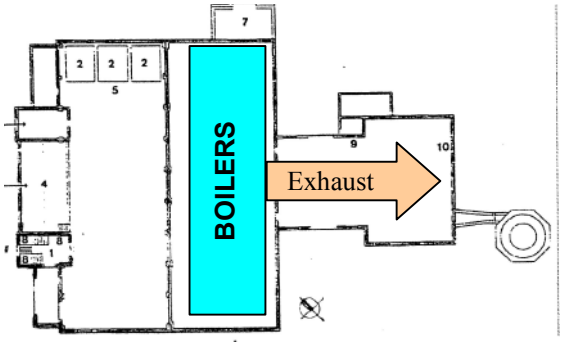
Site Plan showing orientation to rail and river



Building Plan showing conveyor axis feeding boilers with coal and removing ash.



Energy flow in steam from boilers to generating plant and electricity out.



Exhaust gas flow through heat recovery plant to chimney stack.

6. *Flow Through Building*

Flow through the building was based on engineering process taking precedence over the convenience of movement of people. In interpreting the building, the flow of materials and energy need to be preserved. This may be counter to the desirable flow of people for the adaptive reuse of the spaces, and some compromises may be necessary. However in making any changes to the access to the building or the subdivision of spaces within, care needs to be taken to avoid any compromise to the understanding of the flows inherent in the original design and function.

7. *Individual Room and Plant Functions*

Adaptive reuse should not reduce the integrity of the major spaces or prevent their engineering interpretation. For example, suggested wall penetrations between the boiler room and the engine bay should not be so large as to create the impression of a common space, since the former was hot and dirty while the latter was clean.

It may be possible by use of the proposed mezzanine floors in some areas to give a better view of items such as the coal hoppers and overhead traveling crane, while providing access to a safe present day standard. This would have the potential to enhance interpretation providing the mezzanine levels are not taking up a substantial area and thus reducing the feeling of space in the original rooms.

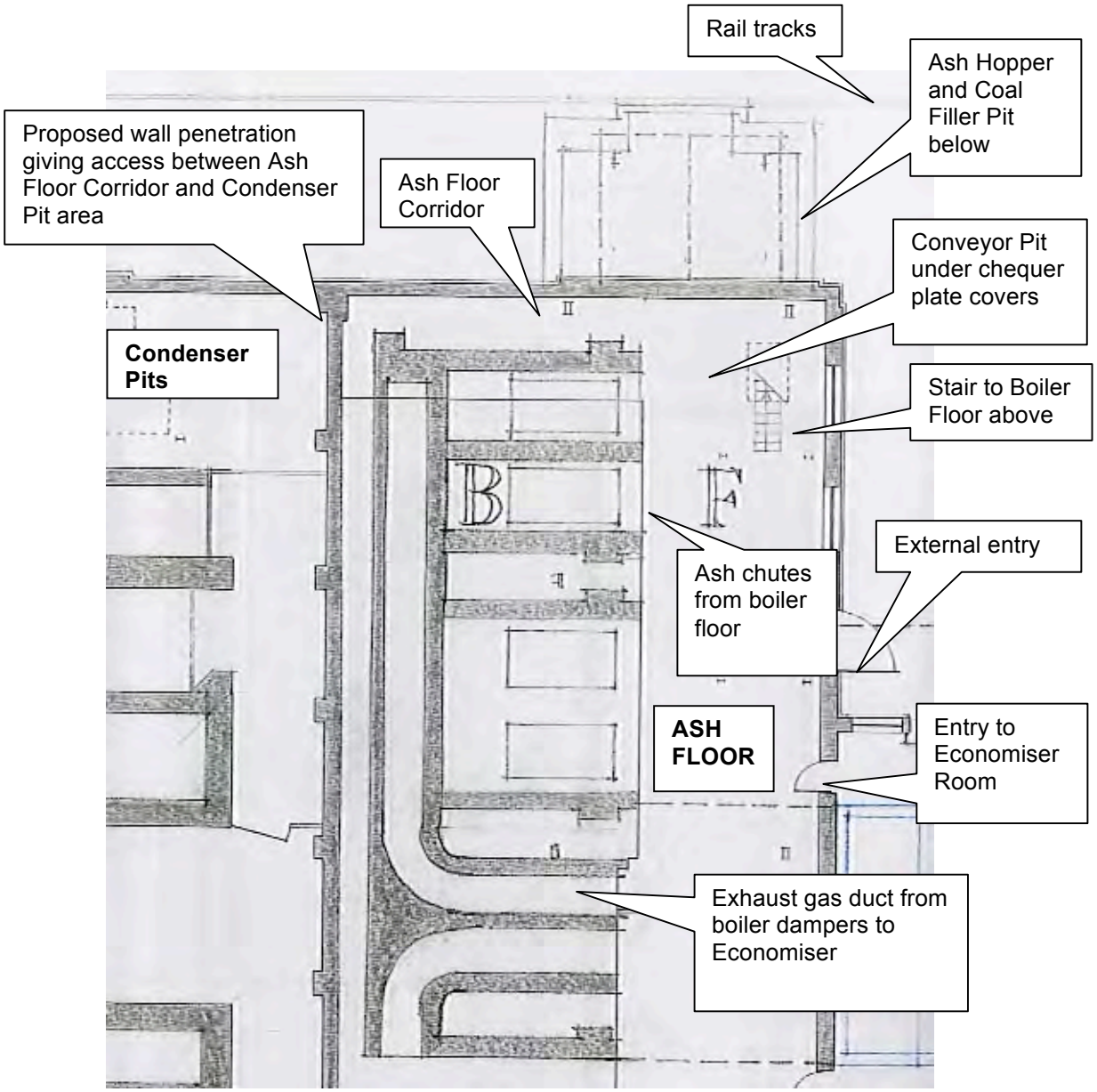
As previously mentioned, all individual rooms, including basement rooms not intended for general access, and major spaces within rooms such as the condenser pit or high voltage switchboard platform should be identified. The rooms and spaces should be sufficiently marked that visitors can tell where they are in the building and what was the original purpose of the space, thus facilitating self guided tours for those interested in doing so.

8. *Interpretation Centre*

It would be highly desirable if an area of the building with high engineering significance but lower value for adaptive reuse could be set aside as an interpretive centre. Such a space would be suitable in the basement area eastern corner below the boiler room. In this relatively confined ash handling area there is access to

- the coal and ash conveyor
- a steel plate covered pit where the coal entered the building
- the location where ash was dispatched on the conveyor to the ash hopper
- a steel access stair to the boiler floor, and
- potential for making a wall penetration via a passage to the basement area below the Engine Bay and into the condenser pit.

Such an area would not readily be able to be open for unsupervised visitor access, but would be invaluable for periodic use in guided tours. It would provide a base for volunteer guides, staff or contracted tour guides who were trained to give more detailed and specialised tours than would be possible through self guided tours of areas accessible to the public.



Plan of Proposed Interpretation Centre
Based on Freeman Vol 2 Adaptive Reuse Ground Plan PF August 2001

Proposed area in Basement for Interpretation Centre *Photo Peter Freeman*

View to Economiser Annexe Door

Covered ash chute from boiler above

Conveyor pit and corridor to wall adjoining condenser pit

Stair to Boiler Floor

Ladder down into conveyor pit

Another area that should be considered to be set aside as a restricted interpretation area is the catwalk above the coal hoppers. This is accessible by a steel ladder which is not suitable for general visitor access, but it may be possible to provide alternative safe access via the proposed mezzanine floor to the Boiler Room.
This would provide a particularly unusual and exciting visitor experience enabling

- an appreciation of the height of the building
- a view down into the coal hoppers
- close examination of the remains of the conveyor which runs the length of the building, including motors and chain drive sprockets, and mechanical controls for dispatching coal to the hoppers
- access to view the top of the ash hopper through an opening for the conveyor

Catwalk and conveyor drive above coal hoppers

Stair to Catwalk

9. Safety and Security Issues

The are clearly some issues associated with visitor access and safety which need to be addressed. The walkway above the coal hoppers has a rail on one side only, which is OK for one or two persons hanging on, but not for groups. It also requires safety lighting, because even in the daytime the area is very dark.

Other safety issues relate to preventing unauthorised access to areas where people may be harmed, while facilitating interpretation on limited guided tours. This relates to

- Where machinery has been removed, leaving uncovered pits or trip hazards
- Where access covers are missing, or removed to give a view of the technology concerned, but giving the potential for fingers to be caught
- Stairs and safety rails intended for adults in an industrial workplace, but where children may fall through below the intermediate rail, or climb where they should not.

Remaining concrete block with protruding bolts in Boiler Room

Original boilers with chain grate stoker drive mounted on concrete block *NAA A3560 Item 3*

Footing and Finger hazards

10. Access and Conservation Issues

The easy answer is to close off such areas to prevent access. However this would severely limit the interpretation of the plant and equipment that remains, and make the visitor experience less authentic. It is important to maximise the access for interpretation of the remaining plant and equipment, even if this means some compromises for the building conservation or adaptive reuse.

- ***Level Floors and stairways***

  As part of the previous reuse of the building by Actew, the floors of the Economiser Room, High Voltage Switchboard Platform and Engine Bay have been leveled, removing most evidence of the engine bases, cableways and the like. By contrast the Boiler Room has ash pits through the floor where the boilers have been removed, and air dampers that have been sealed closed at roughly floor level when asbestos in the building was sealed or removed. The Adaptive Reuse & Development Control Guidelines suggest the potential for extending the Engine Room floor through into the Boiler Room as far as the line of the Coal Hoppers. It is recognised that the floor needs to be safe and

level in the areas to be reused, but the floor of at least the first boiler bay at the northeastern end should be retained as is for interpretation. Beyond that the floor could be filled and resurfaced close to its present level, or with a new suspended floor 1.5m above the present level as suggested in the Guidelines. If filled, the position of ash pits 2, 3 and 4 should be permanently identified in the floor. Raising the floor under part of boiler 1 location would seriously reduce its interpretive value.


Floor openings in Boiler Room, Two South-west end and Four North-east end

In the Engine Bay, there is a suggestion that the opening in the floor above the Condenser Pit may be infilled and interpreted. This would overcome a safety issue and make more space available for reuse, but it would be more desirable to retain and interpret the opening rather than its former location.


Floor opening above condenser pit from Engine Bay
See also historic photo on page 33 showing condenser equipment adjacent to Roby-Hall engine.

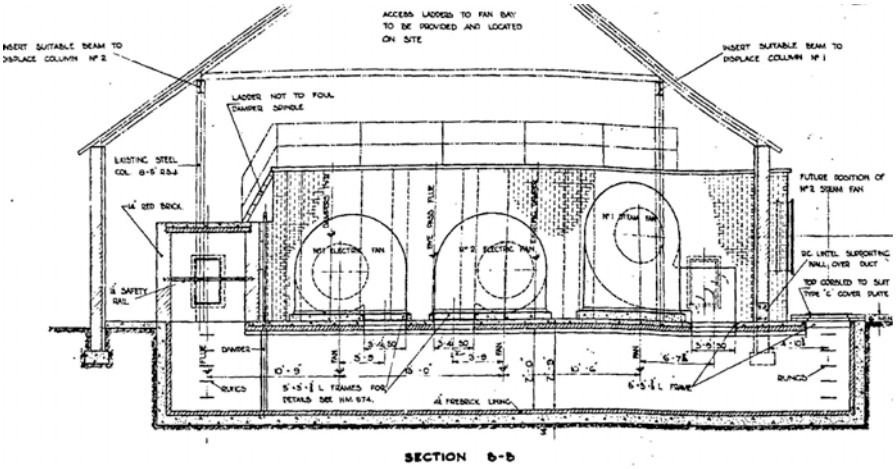
As mentioned the floors under the former economiser, engines and high voltage switchboard have been resurfaced, obliterating the plant and equipment locations. These locations should be reestablished as accurately as possible from plans and photos and interpreted in the new floor coverings. It is recognised that this will not be straightforward with the changes over time, such as the removal of the Robey-Hall engine before installation of BTH turbine, and the sparse information found to date on the Brush-Ljungstrom turbines.

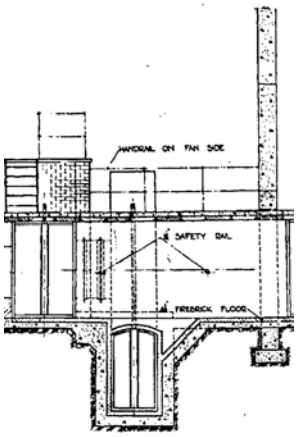
Two pits exist in the Economiser Annex floor, which appear to have been used

for automotive servicing. Their location does not correspond with the original floor plan for the Economiser Annexe but they match some of the changes made in the late 1940s when the new chimney was installed, and were probably adapted from the fan duct from that time. They may have some interpretive value in connection with the story of continued use and adaptation of the building, but they have limited significance in relation to the power generation function.

Servicing Pits with cover lifted

Chamber between servicing pits





Section through Economiser Annex showing transverse tunnel with fans to new Chimney *Actew Microfilm 82217-2050-01*

Section with end wall

- ***Wall Penetrations***

  There are boards covering the wall penetrations between the Boiler Room and Engine Bay where the former steam pipes were run. They are sealed in a way that suggests there may be remains of asbestos lagging in the openings. These openings are significant and should be retained if possible for interpretation of the connection between the two areas and the energy flow in the steam pipes. The removal of traces of asbestos will be an OH&S issue whether the holes are filled or reopened.

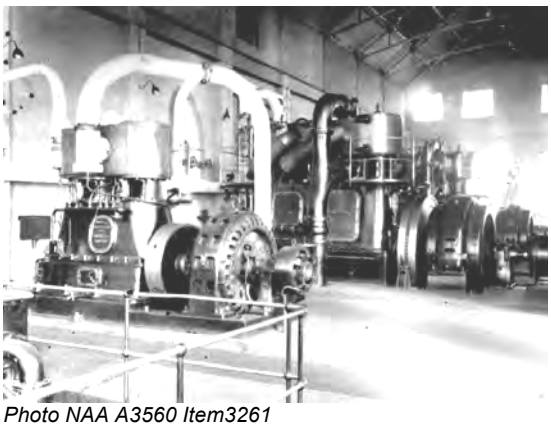


Photo NAA A3560 Item3261

Wall penetrations in Boiler Room wall for steam pipes passing to Machine Room.

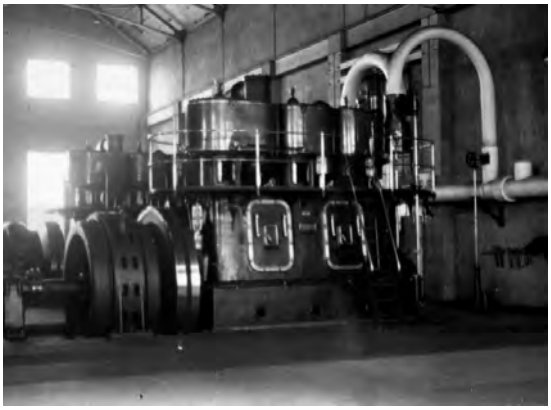


Photo NAA A3560 Item69

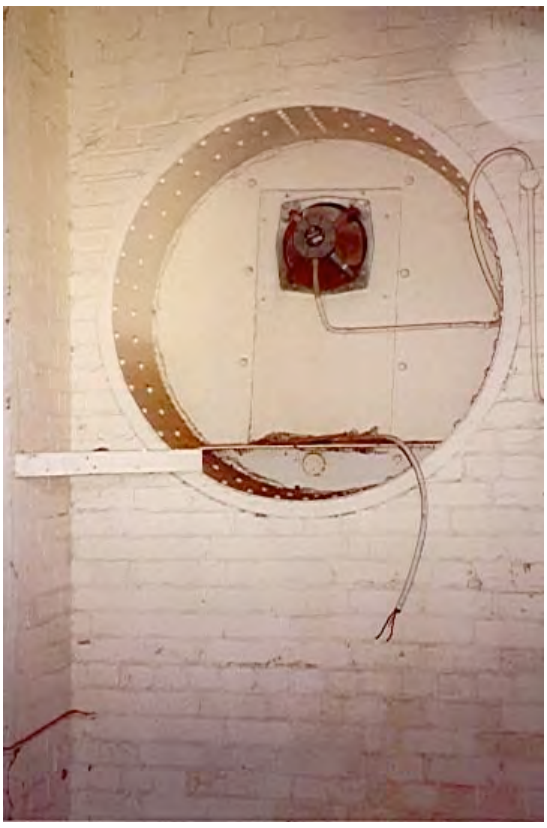
Asbestos lagged steam pipes feeding Roby-Hall and Bellis & Morcom engines

Other penetrations in this wall, if necessary for the purpose of adaptive reuse should not incorporate these steam pipe penetrations.

A penetration in the wall at the level below, while not strictly desirable from a conservation point of view (but no less than those proposed for adaptive reuse), would aid the guided interpretation of the building engineering functions by providing a much more compact area to cover.

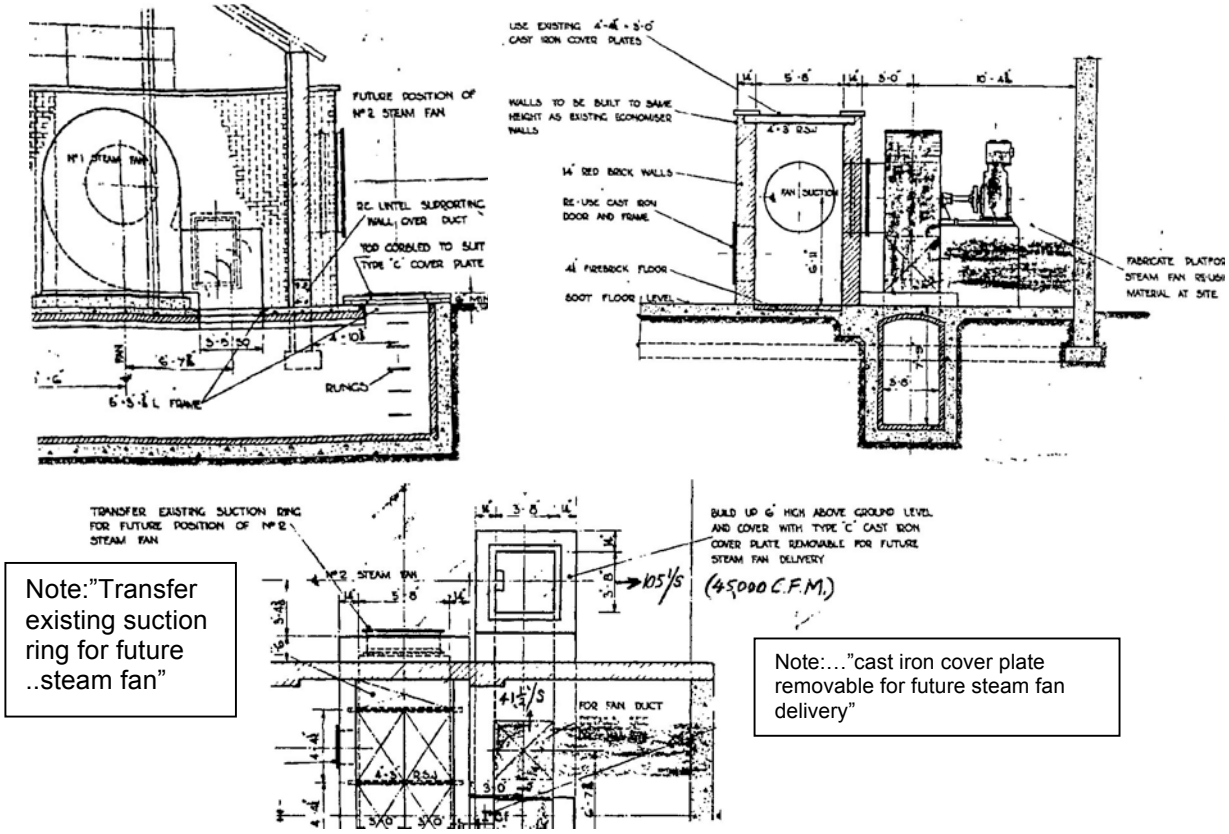
An existing wall penetration in the Economiser Annexe can be interpreted. It is a large circular opening in the eastern external wall. The opening is framed with a steel riveted ring, and sealed with a steel plate through which an exhaust fan has later been fitted. The opening is associated with the work done in the late 1940s when provision was made for a second steam fan to be added to the exhaust duct feeding the new chimney.

The work made use of an existing suction ring, apparently salvaged from the original chimney installation. This opening could add to the story of progressive use, with connection to original fabric.




Circular Wall opening in Economiser Annexe, internal and external views

Steel cover plate on ground adjacent to circular opening in Economiser Annexe wall



Note:"Transfer existing suction ring for future ..steam fan"

Note:…"cast iron cover plate removable for future steam fan delivery"

Extracts from drawing showing work associated with new chimney *Actew Microfilm 82217-2050-01*

- ***Manageable Interpretation***

  It is clear that not every aspect of the current building and equipment can be retained, exposed and interpreted. While settling on a manageable interpretation package for the physical remains, the same considerations should apply to engineering plant and equipment as for the building fabric under the Burra Charter, i.e. to do as much as necessary to make the place safe and usable, while causing as little disturbance or permanent loss as possible.

11. Relation to Adaptive Reuse

The Interpretation Plan can be spelled out in general terms, but needs to be further developed in conjunction with the firming of proposals for adaptive reuse. Some general principles will assist that consideration.

- ***Sense of Space***

  The main spaces of the Boiler Room and Engine Bay should not be closed off by excessive subdivision. While some subdivision is inevitable, and mezzanine floors are proposed in the Adaptive Reuse Guidelines, it should be possible to view the full internal height, length and width from some points in each room and appreciate the original disposition of the plant.

- ***Compatible or Sympathetic Functions***

  Where possible, reuse involving compatible or sympathetic functions will make the ongoing interpretation of the building much more feasible and

desirable to the occupants.

- One serious proposal put to the Foreshore Authority by an interested Kingston resident was for an energy centre which would explain the alternative forms of generation and efficient use of energy. Energy centres are increasingly used by State and Local Governments to advise citizens on household energy matters, and with a greater interest in renewable energy to combat the Greenhouse effect, such a compatible use is worthy of further investigation as a commercial or sponsored activity.

- ***Limitation on Commercial Functions and Everyday Use***

  There will need to be some limits placed on the maximising of commercial use of spaces out of respect for the original functions and their interpretation, just as there are limits to adaptive changes to the building under the Conservation Management Plan. The commercial value of a clearly interpreted building to tour guides should not be overlooked in relation to the business they would bring to the development as a whole. The loss of some rentable floor area may be more than offset by an increase in customers who view the historic building as a plus for the commercial Foreshore development.

12. Recommendations

12.1 Adaptive reuse should be guided by the Conservation Management Plan and planned in conjunction with the industrial plant and equipment conservation and interpretation, to achieve compatible uses which do not unnecessarily compromise the sense of space and flow in the building.

12.2 An Interpretation Centre should be established in the basement to give controlled access to spaces such as those formerly used for coal and ash handling, the conveyor, the underfloor exhaust gas chamber, and with the addition of a wall penetration, to the generator bases, condenser pit, and transformer and cable chambers. This would greatly enhance the prospect of interpreting the Power House as a state of the art engineering facility when built, and one which provided electricity to the National Capital over a period of more than 40 years.

12.3 Interpretation should give an overview of the building history and power generation functions through computerised and other audiovisual presentations based on the CD-ROM presentation that has been updated as part of this Interpretation Plan.

12.4 Interpretive signs and panels should take into account both the flow of people and the original flow of materials and energy through the building.

12.5 The building fabric should be interpreted in relation to the industrial function as a means of understanding the practical functional design, and not the function subsidiary to the architectural style and detailing.

12.6 Consideration should be given to limited relocation of equipment and machinery which would help the understanding of the building function and features, such as

- Engine replacements or models which relate closely to the original
- The synchronizing switchboard from the Diesel Auxiliary Power House
- A replica of the steam whistle from HMAS Australia.

12.7 The steam whistle on the roof should be made functional with a compressed air supply, and maintained for use on special occasions.

12.8 Each space in the Power House should be interpreted in relation to removed former equipment, through interpretive photographic panels, sound recordings, and a means of understanding the size, location and function of the former equipment. This could be through

- Relocation of similar equipment where available and practical
- Full size photographic murals or projected images
- Full size silhouettes which can be related to interpretive photographic panels
- 3D holographic images based on photographing similar existing equipment, or computer generated based on original drawings and photographs
- A sound and light show in the two major spaces, possibly incorporating moving virtual figures and virtual power generating plant items.

Some of these options can be done at relatively low cost and other options may be taken up over time as money permits, if they are not considered feasible initially.

12.9 Interpretation should extend beyond the Power House building to rail tracks, coal stockpile area, water circulation for condensers, chimney base etc.

12.10 Consideration could be given to encouraging building use by some functions that have synergy such as

- An energy display and advisory centre, operated in conjunction with the interpretive centre
- Regular guided tours of the main areas
- Occasional guided commercial tours of the more obscure areas, such as the full basement and coal hopper catwalk, and with holographic or photographic projection of the boiler, generating and economiser plant.

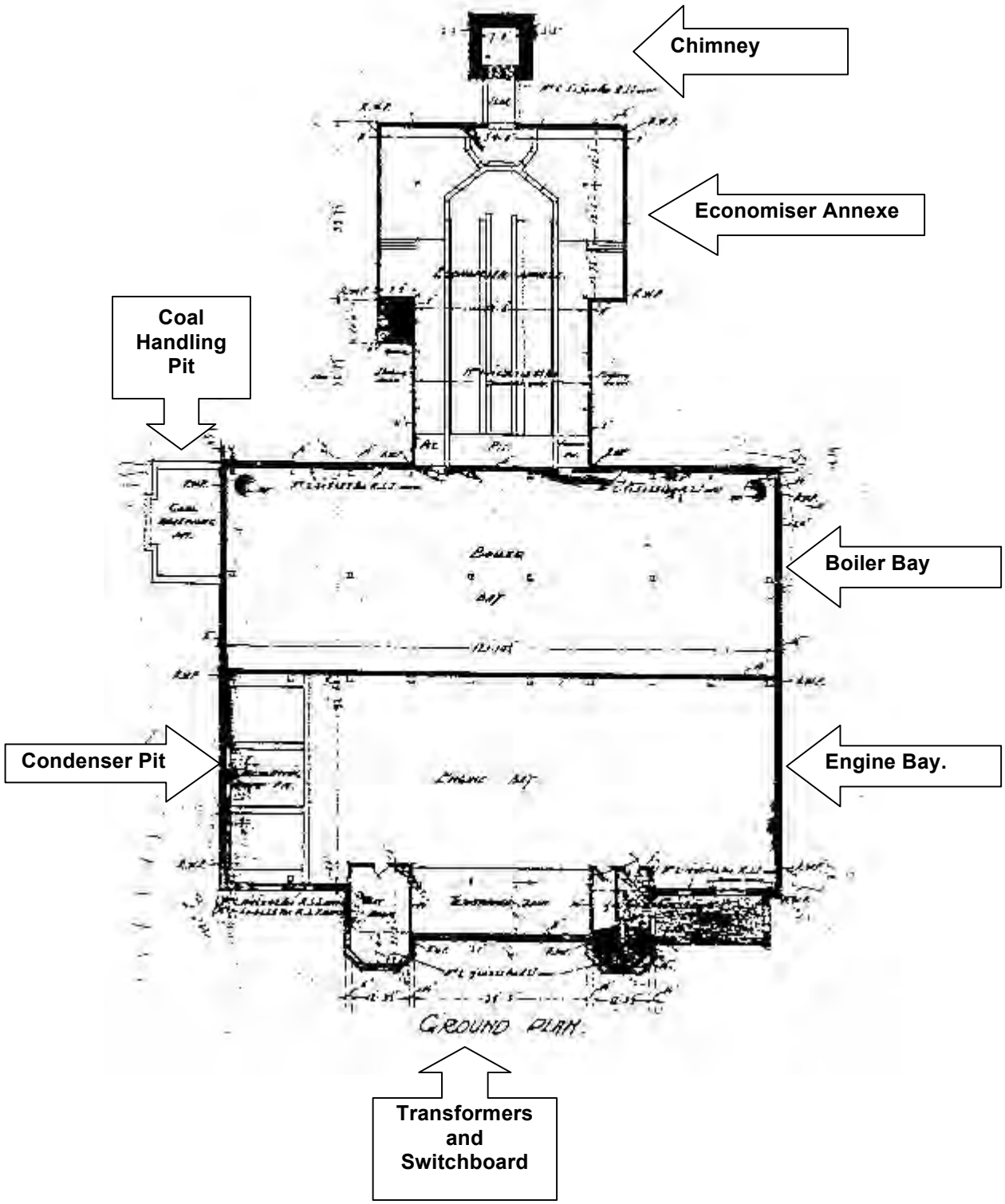
12.11 The condenser pits and the conveyor pit which extends from the Ash Floor under the external ash hopper, should be pumped out for further investigation, and keep dry if possible. This is expected to reveal condenser piping and the underside of the coal filler pit, possibly enabling interpretation.

12.12 Consistent with Conservation Policy No 4 of the Conservation Management Plan, the original chimney base, the rail tracks and the top of the coal filler pit should excavated by an archaeologist with a view to further interpretation.

12.13 The 1940s alterations to the Economiser Annexe should be interpreted, along with the more recent adaptation by Actew for vehicle servicing, to show the progressive use of the building over the 20th century.

Appendix 1

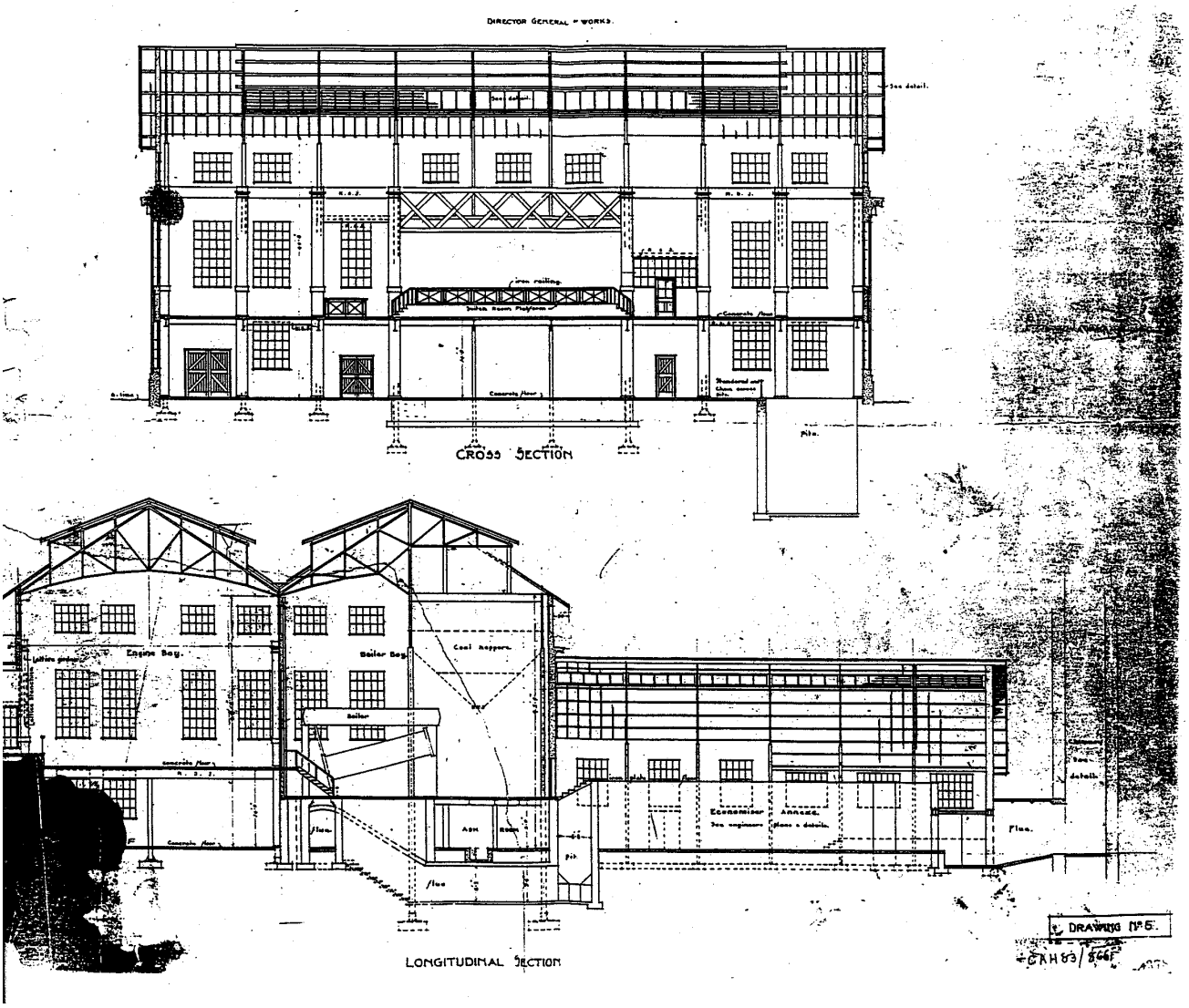
Original Plan of Power House



C 1911 Director General of Works Drawing
National AustralianArchives

Appendix 2

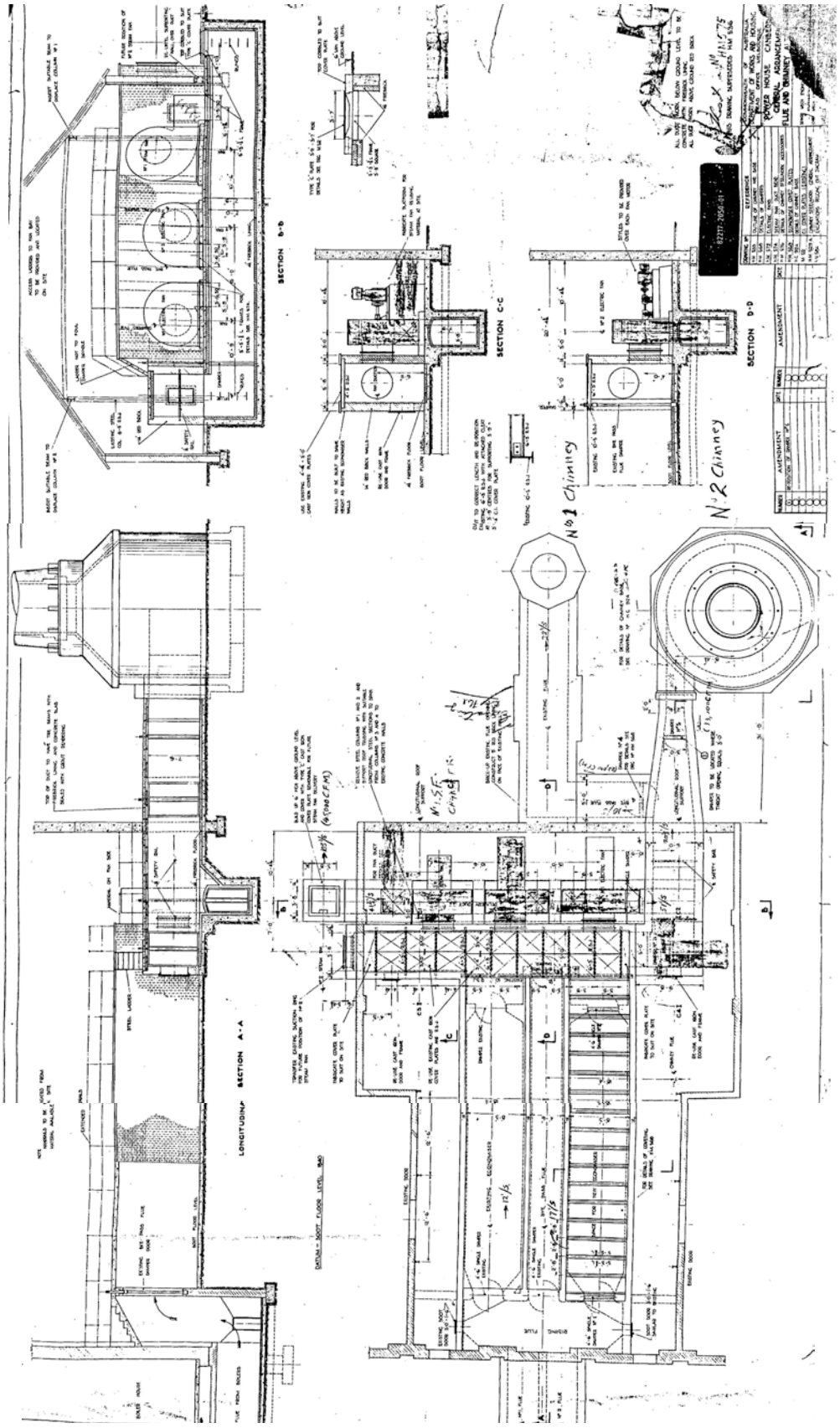
Original Sections of Power House



C1911 Director General of Works Drawing No5 CAH83/866
National AustralianArchives

Appendix 3

Plan and Section of Economiser Annexe showing Modifications associated with Replacement Chimney Stack



Department of Works and Housing Drawing c1948 ACTEW Microfilm reference 82217-2050-01

Appendix H – Fitters' Workshop Historical Overview

Duncan Marshall, 20018 Update based on 2011 CMP prepared by Duncan Marshall, Keith Baker, Navin Officer Heritage Consultants and Brendan O'Keefe

3. OVERVIEW HISTORY

Tracing the genesis of what is now known as the Fitters' Workshop at Kingston has been a complicated process. The building has undergone various changes of name in its history and, on occasion, two or more names have been used for the building at the same time. On other occasions, the name has been applied to the Fitters' Workshop and adjacent buildings, or has been given to a separate building entirely. Thus, it is often unclear in the records precisely what structure is meant when a name is used at a particular time. At least in part, too, the name changes reflected a recognition of the broader purposes that the building served, in comparison to a narrower range of functions that were originally conceived for it.

The matter was further clouded by the apparent absence of any file on the design and construction of the building, as well as by the lack of anything like a complete set of plans and architectural drawings for the structure – instead, only a very few partial plans and drawings appear to have survived. What follows below is an attempt to elucidate the evolution of the site and building from available documents, plans, drawings and photographs.

A 'Temporary' Building

The selection of Eastlake – later Kingston – as the site both of the Power House for the federal capital and of its initial industrial area originated with the Departmental Board. Following criticism of Walter Burley Griffin's winning design for Canberra as being too extravagant and too expensive to consummate, the Minister for Home Affairs, King O'Malley, appointed the Board in 1912 to review all four prize-winning or commended plans for the national capital. Unable to endorse any of the plans, the Board members instead came up with a hybrid plan that they considered would be more suited to local conditions and cheaper to implement. For the time being, the government accepted the Departmental Board Plan as the basis for the design of Canberra.

In its plan dated 25 November 1912, the Board positioned the Power House on the southern bank of the Molonglo River southeast of the government group of buildings and at the terminus of a rail spur from Queanbeyan. Alongside the Power House, the plan showed an extensive collection of buildings labelled as 'Power Plant and Workshops'. A little further away to the southeast, the plan included a line of storage buildings aligned along a small parallel loop of the rail spur (Reid 2002, pp. 93, 99 and 102).

Preliminary works for the construction of the Power House commenced in November 1912, while work on the building itself started the following January. No early start was made on any of the workshops. By mid-1913, however, the engineers responsible for establishing the Power House and Canberra's electric power supply felt that the erection of the first of the stores buildings and workshops were needed as soon as possible. On 19 July 1913, Percy Owen, the Director-General of Works, put the case to the Secretary of the Department of Home Affairs:

> 'The time has arrived when the Commonwealth should erect an Electrical Store Building and first section of Machine Shop at Canberra. The site proposed is near the Power House between the two railway sidings. The section now proposed would be 50 [feet] x 80 [feet], and so placed on the site as to admit of extension and incorporation with the permanent building.

The Machine Tools which I propose would be such as are necessary for carrying out the primary electric supply and medium repairs on the class of machinery now in use at the Capital Site.

The estimated cost of the building, machine tools, and other plant is £1,600.

I am now preparing a scheme of the entire workshop premises with a view to additions being made to meet requirements from time to time, and if feasible, any permanent construction. The provision, however, of the first section cannot wait the time when bricks will be available for permanent construction.' (Minute, Director-General of Works to Secretary, Department of Home Affairs, 'Electrical Store Building and Workshop at Canberra', 19 July 1913, Commonwealth Record Series [CRS] A199, item FCW1915/963)

Figure 33. Section of the 1912 Departmental Board Plan showing the planned Kingston industrial area
Source: Detail from Reid 2002, p. 99

Several aspects of Owen's proposal are worthy of note. First, there was an intention even at this stage to erect a permanent workshop structure, preferably in brick. Rather than any financial constraints, it was the urgent need for a suitable structure, coupled with the shortage of bricks, that prompted Owen's request for a temporary building. Moreover, the building he was proposing was to be designed and erected in such a way that it could be integrated with the permanent structure when it was eventually built. This consideration would come to exert an important influence on the design of the permanent building. It is also apparent that the workshops Owen had in mind were not simply intended to serve the Power House – rather, their purpose was to carry out maintenance and repairs of all machinery in use at the federal capital site.

In expectation of a swift grant of approval from the Minister for Home Affairs, Owen asked the Assistant Electrical Engineer at the same time to get in touch with the senior architect in the branch he headed, John Smith Murdoch, who had prepared the plans for the Power House in 1911. Owen's aim in issuing this directive was to ensure that plans for the temporary building were drawn up and construction was ready to start immediately the Minister gave his assent to the plan. Already, on 4 July, Harold W. Smith, the department's Melbourne-based Assistant Electrical Engineer, had prepared preliminary drawings for the electrical stores and workshop building. These were passed onto Murdoch. (Minute, Director-General of Works to Assistant Electrical Engineer, 'Electrical Store Building and Workshop at Canberra', 19 July 1913; minute, Harold W. Smith, Electrical Engineer, to Works Director, Victoria, 'Electrical Workshop', 17 April 1914, both in CRS A199, item FCW1915/963)

But the expected prompt endorsement from the Minister failed to materialise. After a little

over three weeks, Owen, losing patience, pushed the Secretary to secure a quick approval and re-affirmed his arguments for the temporary structure. In so doing, he further explained the urgency for the building and the purposes it was to serve:

> 'On the general question of laying down this plant, it should be borne in mind that the Commonwealth has even now a large amount of machinery in use in the Territory. The necessity for repairs is inevitable; in addition to which the plant will be required for much original work in installing Power Plant, Transmission Lines and accessory apparatus.
>
> Although I am recommending only a small Workshop Plant for the time being, it will probably be necessary to extend it within the next twelve or eighteen months to cope with the increased volume of Machine Shop work.' (Minute, Director-General of Works to Secretary, Department of Home Affairs, 'Electrical Store Building and Workshop', 13 August 1913, CRS A199, item FCW1915/963)

While Owen's immediate object was the erection of a temporary workshop building, his arguments are also indicative of the functions for which the permanent building would be needed.

A month later and the Minister had still not given the go-ahead. By this time, most of the machinery to be accommodated in the building was ready to be shipped to Canberra. Ministerial approval was eventually forthcoming in late October, though he reduced the funds allocated for the construction of the building and for the erection of the machinery to £1,000. Murdoch, meanwhile, prepared final drawings for the structure. (H W Smith, note on file, 19 September 1913; and minute, Smith to Works Director, Victoria, 'Electrical Workshop', 17 April 1914, both in CRS A199, item FCW1915/963)

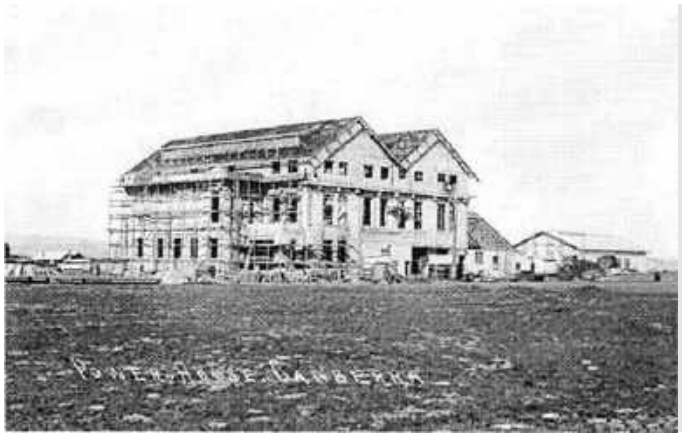


Figure 34. The Power House under construction in 1913, with Owen's galvanised iron 'temporary' Electrical Store and Machine Shop at right
Source: CRS M77, image no. 31, National Archives of Australia

Figure 35. The Power House (right) in about 1914, with the 'temporary' Electrical Store and Machine Shop (centre) showing the gap between them
Source: nla.pic-an14235363-42, National Library of Australia

The structure that was erected was a galvanised iron building that stood just to the southeast of the Power House on the same side of the rail line and immediately beside it.

The building's long axis was aligned parallel to the rail line. In its position and alignment, it mirrored one of the buildings shown as part of the 'Power Plant and Workshops' that had been depicted in the 1912 Departmental Board Plan, but with one major difference. A gap had been left between the building and the Power House, and in this gap would later be erected the Fitters' Workshop. The long axis of the latter building would of course be perpendicular to the rail line. Whether the gap was deliberately left to accommodate a building with its axis on this alignment is not known, though it seems possible.

Although Owen's building was supposed to be a temporary structure, it in fact became a permanent fixture. Extensions were made to the building in the 1920s and, in an October 1922 site plan, it is labelled as 'Machine Shop'. By mid-decade, it had become known as the Electrical Workshop or Electrical Fitters' Shop. (Institution of Engineers, Australia 1928, p. 128; Jones 1983, p. 139)

A Permanent Building

Design work for the permanent building was underway by March 1915, if not before. A set of three architectural drawings dating from that and the following month show parts of the building, including details of the concrete piers and the steel roof trusses. The drawings refer to the building as the 'Engineers' Workshops'. While each of the drawings is signed by or on behalf of Owen, the building's resemblance to the Power House leaves little doubt that the architectural design was the work of Murdoch.

It was to be some time before a start was made on construction of the building. In February 1916, Owen reported that power from the new Power House was being used 'for all purposes in construction in connection with the... Workshops.' The building was not being supplied with power from the Power House in early March, indicating that it had not yet been completed. By the middle of the month it was, or was about to be, supplied with electricity via a meter installed in or on the building. (Minute, Director-General of Works to Acting Secretary, 'Re Supply of Electricity for Light and Power, in the Federal Territory', 8 February 1916; memorandum, Clerk in Charge, Accounts Branch, to The Accountant, Department of Home Affairs, 'Supply of Electricity for Lighting and Power in the Federal Territory', 3 March 1916; H W Smith, Assistant Engineer (Electrical), to The Engineer, Department of Home Affairs, 'Electric Supply – Canberra', 15 March 1916, all in CRS A1, item 1919/8647)

There is other evidence that the building was completed during 1916. In testimony on 7 August of that year before the Royal Commission on Federal Capital Administration, the accountant and valuer, W R Hiscock, stated that:

> 'Of all the buildings erected at the capital site there was only one regarding which he was able to get the actual cost namely, the machine shop (£3,687), which was probably worth the money expended on it.' (*Queanbeyan Age and Queanbeyan Observer*, 11 August 1916, p. 2)

The National Library holds a collection of Hiscock's photographs and they include one of the Power House and finished Fitters' Workshop that is dated to 1916.

Another photograph which probably dates to slightly earlier in 1916 shows the Fitters' Workshop in a nearly complete state. The photograph is interesting because it reveals that even at this early stage a small ancillary structure had been erected on the southeastern side of the building at its southwestern end. This may well have been the Blacksmiths' Shop. It should be noted, though, that no mention is made of this facility in a list of structures

that had been charged against the budget item for buildings in the Power House area between 1 June 1916 and 24 January 1917 (see below). However, this might only mean that funds to build the Blacksmiths' Shop had been allocated and expended before June 1916.

Figure 36. The Power House with the completed Fitters' Workshop at right in 1916
Source: W R Hiscock photograph, nla.pic-an23432132, National Library of Australia

Figure 37. The Power House in early 1916 with the nearly-completed Fitters' Workshop at right and what may be the Blacksmiths' Shop next to it
Source: Canberra and District Historical Society photograph no. 1990

In its completed state, the Fitters' Workshop was a reinforced concrete structure roofed with tiles (some 30 to 40 of which had to be replaced when they were blown off in a storm in 1928). The building was 132 feet long by 40 feet wide. On its southeastern side, it was provided with fewer windows possibly because at the time Murdoch was designing it there was already an intention to erect the Blacksmith's Shop and other ancillary structures close to it on that side. Moreover, there was a large doorway on the same side near the northeastern end of the building which would have given easy access to the 'temporary' Electrical Store and Machine Shop which had been erected earlier. (Institution of Engineers, Australia 1928, p. 128; memorandum, George A. Rittinger, Mechanical engineer, to Acting Chief Engineer, 8 October 1928, CRS A86/1, item 189)

The budget item list referred to above was set down by the Works Superintendent, J D Brilliant, in January 1917. Included in the list was:

> 'New fitters shop for provision of Traction Engine Fitters. Iron rack connected with same.' (Minute, J.D. Brilliant, Works Superintendent, to Clerk in Charge, Accounts Branch, 'Job 13, Buildings for Stores, Workshops, etc.', 24 January 1917, CRS A361, item DSG/9999)

If this is in fact a reference to the Fitters' Workshop that is the subject of this report, it gives some idea of its function when it was first built, as well as helping to explain its large size. Traction engines could be large pieces of machinery and would have required a large workshop.

Brilliant's list included the following buildings as well:

- additional provision for storage of electrical material;
- removal from Acton, re-erection and extension of two buildings at Power House for

use of Stores Officer;
- one building, provision for motor garage;
- removal from Acton, extension and re-erection one machine shed;
- provision for storage of timber and iron at Stores Branch;
- building for fire engine;
- additions to saw milling sheds;
- two sheds, provision for storage of timber; and
- building provision for covering compressor plant.

The list provides a snapshot of the development of buildings and functions in the Power House area up to the beginning of 1917.

In comparing the amount expended on building the Fitters' Workshop with that expended on other buildings at the Power House, the Royal Commission accepted Hiscock's valuation of the other buildings as collectively worth only £2,435. This was despite the fact that an amount of £8,687 had been spent on them. 'It is quite impossible,' Commissioner Blacket reported, 'that the amount stated, or even 50 per cent of it, could ever have been spent upon or in respect of these buildings.' He added that he had found it impossible to determine whether the expenditure was 'evidence of negligent bookkeeping, or of waste.' (Report of the Royal Commission of Federal Capital Administration, vol. 3, 1917, p. 4)

Similarly, Blacket found that the expense of building the Power House itself had been inexplicably and unnecessarily excessive. While the building was said to have cost £39,596 to erect, Hiscock assessed its value as only £20,123 (*Queanbeyan Age and Queanbeyan Observer*, 24 April 1917, p. 2). Thus, the Fitters' Workshop has some mark of distinction as the only building erected in the Power House area up to 1917 that was worth the money spent on it!

Federal Capital Advisory Committee

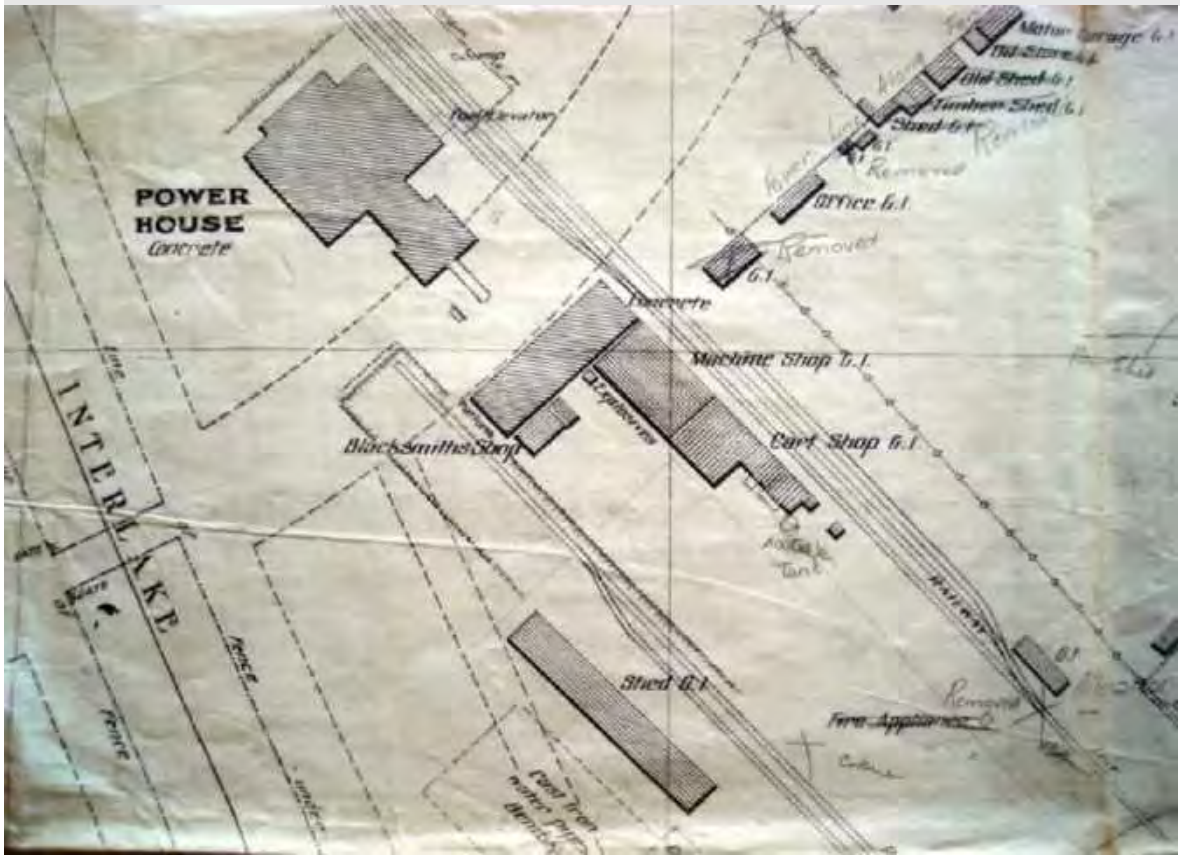
Six months after it first met in January 1921, the Federal Capital Advisory Committee issued its First General Report on the construction of Canberra. At this time, with the development of the capital just getting started again after World War 1, the Fitters' Workshop was doing little more than storing a large quantity of 'construction plant', much of it purchased before work had earlier come to a halt. In the Power House area in general, 'numerous temporary stores and other buildings' existed from the period before the appointment of the FCAC. Already, however, the Committee had overseen the establishment of joinery works and a concrete pipe manufactory in the area. (FCAC 1921, pp. 6, 23.)

As the building program in Canberra intensified, industrial development and activity in the Kingston area expanded rapidly over the next twelve months. The Fitting Shop, as it was now called, was very busy. It is not clear, however, whether the name referred just to the Fitters' Workshop as it is now known or whether it also included the earlier galvanised iron structure which, with extensions, nearly adjoined it to the southeast. The latter seems the more likely alternative.

During the twelve-month period, the machine tools were concentrated in the 'main workshop' and the fitting, machine and overhauling sections were re-arranged. Part of the re-arrangement involved the erection of two large machine sheds which were reported in

the latter half of April 1922 to be almost completed. These sheds are probably those shown on the October 1922 site plan as extensions of the earlier galvanised iron shed – they are labelled as the 'Cart Shop'. It is possible, too, that they are the same entities as new buildings that were reported to have been erected in the period 'for use as a machinery store and engine shed.' (FCAC 1922, p. 10; *Queanbeyan Age and Queanbeyan Observer*, 25 April 1922, p. 2)

Figure 38. October 1922 Site Plan showing extensions to the Machine Shop, the Explosives Store and the Blacksmiths' Shop with small addition
Source: From CRS A192, item FCL1922/1110, National Archives of Australia



As to the work that the 'Fitting Shop' was performing in this period, the FCAC reported that:

> 'The machine, fitting and other metal-working shops have been engaged continuously upon repairs, maintenance, and renewal of the various units of plant in operation in the Territory, including Power House equipment, Brickworks machinery, traction engines and waggons, steam-roller, portable steam-engines, pumps, keystone navvy, compressors and pneumatic tools, rock crushers, motor cars and the hand tools in use.' (FCAC 1922, p. 12)

To assist in carrying out these tasks, a 15-inch lathe and an electrically-driven 4 foot 6 inch drill were installed in the Fitters' Workshop, the latter in April 1922. (FCAC 1922, p. 10; *Queanbeyan Age and Queanbeyan Observer*, 25 April 1922, p. 2)

A small extension was also made to the Blacksmiths' Shop in the early 1920s. By this time as well, a small Explosives Store existed between the Blacksmiths' Shop and the Electrical Workshop, though it was much closer to the latter and stood next to the southeastern wall of the Fitters' Workshop.

The wide range of tasks that the Fitters' Workshop was undertaking in these years

highlights the fact that the facility was not an adjunct of the Power House, designed purely to service and repair its equipment. Instead, the Fitters' Workshop was a facility that provided support to construction and development work in the federal capital as a whole.

Figure 39. Aerial photograph 27 November 1923 showing in particular the 'temporary' Machine Shop with its Cart Shop addition
Source: National Library of Australia, photograph no. NL5679

Federal Capital Commission

The broad range of tasks that the Fitters' Workshop undertook continued for the remaining years of the FCAC's existence and through the entire period of office of its successor, the Federal Capital Commission (FCC) – that is, for the rest of the 1920s. Indeed, the work of the shop increased markedly during the FCC period. By 1925, the facility was valued at £5,123 and was employing a foreman and 62 other workmen. Shop staff carried out repair work on all kinds of plant, and manufactured minor parts as they were needed. For the twelve months ending 30 June 1925, the Fitters' Workshop fulfilled 1,014 factory and standing orders, with its output valued at £9,658. (FCC 1925, p. 21; FCC 1926, p. 36)

In the succeeding twelve months, the number of factory and standing orders more than doubled to 2,608. The steady increase in the volume of work was such that Owen warned in mid-1926 that additions to the Fitters' Workshop and plant would soon have to be made. Over the previous twelve months, several new machines had already been installed. But the growth particularly in work on motor vehicles and mechanical plant demanded extra floor space. In fact, Owen proposed establishing an entirely new section to deal with the work required on mechanical plant. (FCC 1926, pp. 29, 36)

This level of activity probably reflects the overall pace of development of Canberra – with a focus on the opening of the Provisional Parliament House in Canberra in 1927 and the need for facilities to support the growing population.

The Fitters' Workshop was kept 'very busy' during the 1926-27 financial year, with the number of jobs increasing again by a factor of nearly fifty per cent to 3,866 jobs. In the first half of 1927, construction commenced on the additions that Owen wanted. As the Architect's Department of the FCC described them in the middle of that year:

> 'Two additional wings are being erected at rear of the main Fitters' Workshop, Eastlake, to give accommodation for electrical workshops, *etc*., and foundry and motor car repair shop, *etc*.' (FCC 1927, p. 59)

The description indicates that extensions were being made to both sets of galvanised iron structures that stood immediately to the southeast of the Fitters' Workshop. Both of them were double-storey. On the northeastern wing, the flat-roofed 1922 Cart Shop was partially or wholly demolished and replaced by a shorter two-storey section with a hipped

roof. This provided extra floor space for the Electrical Workshops. A more substantial addition was made to the southwestern wing, which hitherto consisted of the old Blacksmiths' Shop. This addition, too, was a hipped roof structure and, when completed, made the southwestern wing longer than its northeastern counterpart. The new structure accommodated a foundry and, towards the end of the extension, a repair shop for motor vehicles. At the very end of the extension, a Plumbers' Workshop was provided and, above it, a store for motor vehicle spare parts. (Memorandum, Assistant Chief Engineer, FCC, to Executive Architect, 'Maintenance Plumbers Workshop, Kingston', 27 July 1928, CRS 86/1, item 189)

Completed in December 1927, the additions made for greater ease of work and improved efficiency throughout the workshop complex. By this time, the Fitters' Workshop was carrying out a large amount of construction and maintenance work for the 'Transport Section, Plant Section, Brickworks, Abattoirs, Building Construction Branch, Quarries, and general construction work.' (FCC 1928, pp. 39, 41)

Figure 40. Aerial photograph 1925 showing the wings extending from the Fitters' Workshop, the northeastern wing with the flat-roofed Cart Shop and the southwestern wing comprising only the Blacksmiths' Shop
Source: National Library of Australia, photograph no. 204/5/17

In February 1928, the Institution of Engineers of Australia held its Sixth Engineering Conference in Canberra. During their visit to the national capital, the conference attendees inspected many of the city's buildings and engineering works and facilities. Among these were the 'Factories and Repair Shops' at Kingston, a detailed description of which was published in the Institution's *Quarterly Bulletin*. The article is worth quoting at some length for the light it sheds on the machinery and functions of the Fitters' Workshop and its wings at this time. The Shop,

> 'contained 6 lathes, 3 drilling machines, 1 Universal milling machine, 1 Universal grinding machine, planing machine and shaping machine and the usual assortment of hacksaws, emery wheels, etc. Wings are extended on each side of the main building, one of which contains the Blacksmiths' Shop, with 6 forges with mechanical blowers, and 30 cwt. steam hammer, a small foundry and an acetylene welding plant, pattern makers and wheelwrights' shop, and a motor repair shop of 5,000 sq. ft. area.
>
> The other wing contains the Electrical Fitters' Shop of 5,300 sq. ft. area, containing lathe, drills, etc., and other small tools required by this section.' (Institution of Engineers, Australia 1928, p. 128)

The additions to the two wings of the Fitters' Workshop marked the peak of work activity in the complex. But a decline in work swiftly followed. During the 1928-29 financial year, the workshops spent a greater proportion of their time maintaining and repairing the FCC's motor vehicles. These included tractors, loaders, graders, ditchers, rollers and steam-shovels. Workshop staff also carried out regular inspections of lifts and boilers, and attended to the maintenance of all heating, hot water and mechanical services in Canberra's buildings. Although the turnover for the year was £33,199, the number of jobs

performed dropped somewhat to 3,554. (FCC 1929, p. 71)

Figure 41. Aerial photograph from about 1928 showing the new double-storey hipped roof extensions to the Fitters' Workshop
Source: National Library of Australia, unnumbered photograph from Sir John Butters' Collection

In the ensuing ten months, the number of jobs undertaken fell further to 2,572 as development of the national capital slowed and the FCC's term of office approached its end. In fact, the workshops were idle for most of the period between mid-December 1929 and mid-January 1930. Again, a hefty proportion of the jobs that were carried out involved the service and repair of motor vehicles. Along with the slowdown in development activity in Canberra, staff numbers at the Fitters' Workshop and neighbouring workshops were drastically reduced. With astoundingly poor timing, the Canberra Branch of the Australian Natives Association chose this moment to lobby the Minister for Home Affairs to establish apprenticeships for young male school-leavers at the Fitters' Workshop, to prevent their drifting into 'dead-end employment'. But there were now few, if any, opportunities at the Fitters' Workshop, and it was about to enter a period of much reduced activity. (FCC 1930, pp. 16, 21; memorandum, W. Lancaster, Acting Accountant, to Chief Commissioner, FCC, 31 March 1930, CRS A6267, item F1930/79; *Canberra Times*, 13 August 1929, p. 1)

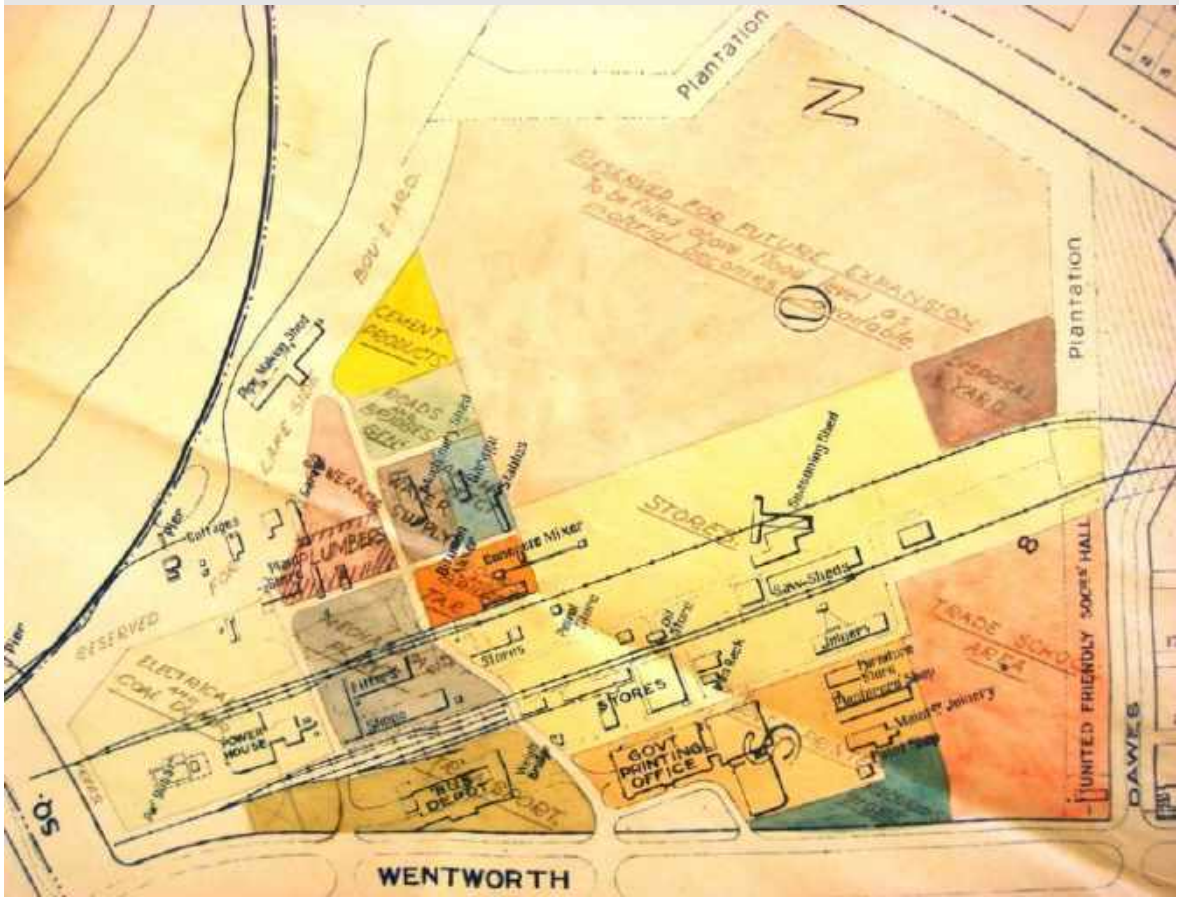
Decline and Transition

The Great Depression and the winding up of the FCC put a halt to much of the construction and development work in Canberra. During the 1930s and into the next decade, the Fitters' Workshop was probably engaged in the maintenance and repair of existing plant and services in the capital – there would have been little requirement for additional tasks or the staff to perform them. As a consequence, little or no change was made to the structure of the Fitters' Workshop and its adjoining buildings. The Electrical Fitters' Shop, as the more northeasterly of the two extensions from the original Fitters' Workshop building, continued to serve the function for which it was erected in the 1920s. In like manner, the southwesterly extension and the Fitters' Workshop itself continued to carry out mechanical fitting and engineering tasks – in fact, by the mid-1940s they were sometimes referred to as the Mechanical Workshop(s). A site plan dating from October 1941 shows no change to the Fitters' Workshop and its extensions since the end of the 1920s. (CRS A292, item C19705; 'Future Development of the Kingston Stores Yard: Notes on the second meeting of conference to discuss the future development of the Kingston Stores Yard area', 14 October 1943, p. 5, CRS A3032, item 28/8/1)

But there was some concern about the rather haphazard way in which the whole Kingston industrial area had developed and the way in which it would develop in the future. The different functions that were carried out there were not well segregated, there was a

'multitude of tracks leading any and everywhere' and the area exhibited an appearance of general untidiness. In January 1941, the senior officers responsible for the various industrial functions carried on at Kingston held a conference to consider the future development of the area. They agreed to the drawing up of tentative boundaries for each functional section and to the need for laying out permanent roads. Of most significance for the long-term future of the Fitters' Workshop was a realisation at this early stage that the area should conform in some degree to Garden City principles and to meet wider community interests. The conference agreed that a strip of land at least 150 yards wide should be reserved along the riverbank for a lakeside boulevard and a belt of trees to screen the area from the gaze of the general public. ('Kingston Stores Yard Area: Notes of a Conference held to consider the future development of the area', 15 January 1941; and 'Future Development of the Kingston Stores Yard: Notes on the second meeting of conference to discuss the future development of the Kingston Stores Yard area', 14 October 1943, p. 5, CRS A3032, item 28/8/1)

Figure 42. October 1941 Site Plan demonstrating little external change to the size and shape of the Fitters' Workshop and its wings
Source: From CRS A292, item C19705, National Archives of Australia



For understandable reasons, the decisions reached at the conference yielded no immediate practical outcome. Any further thoughts of the future of the Kingston industrial area were put off for some time by the emergence of a far more pressing issue, namely the outbreak of war with Japan. The war made its presence felt in the area in a rather more direct way, too. In April 1942, slit trenches with timber revetments were constructed close to the Fitters' Workshop to provide protection against possible air raids. In the event, it was not until October 1943 that the Kingston senior officers held their second meeting to discuss the future development of the area. (*Canberra Times*, 30 April 1942, p. 4)

The second meeting trod exactly the same path as the first meeting and reaffirmed its decisions, but there were some important additions. The most significant of these for the Fitters' Workshop concerned the existing Electrical Fitters' Shop. There had evidently been dissatisfaction for some time about the poor standard of accommodation on site for some of the plant equipment. As a solution to the problem, the meeting determined that the Electrical Engineer and his staff should vacate the Electrical Fitters' Shop and that it be handed over to the Plant and Mechanical Engineer for the storage of plant. This meant that a new Electrical Fitters' Shop would have to be built, and the senior officers urged that this should occur as soon as possible. ('Future Development of the Kingston Stores Yard: Notes on the second meeting of conference to discuss the future development of the Kingston Stores Yard area', 14 October 1943, p. 4, CRS A3032, item 28/8/1)

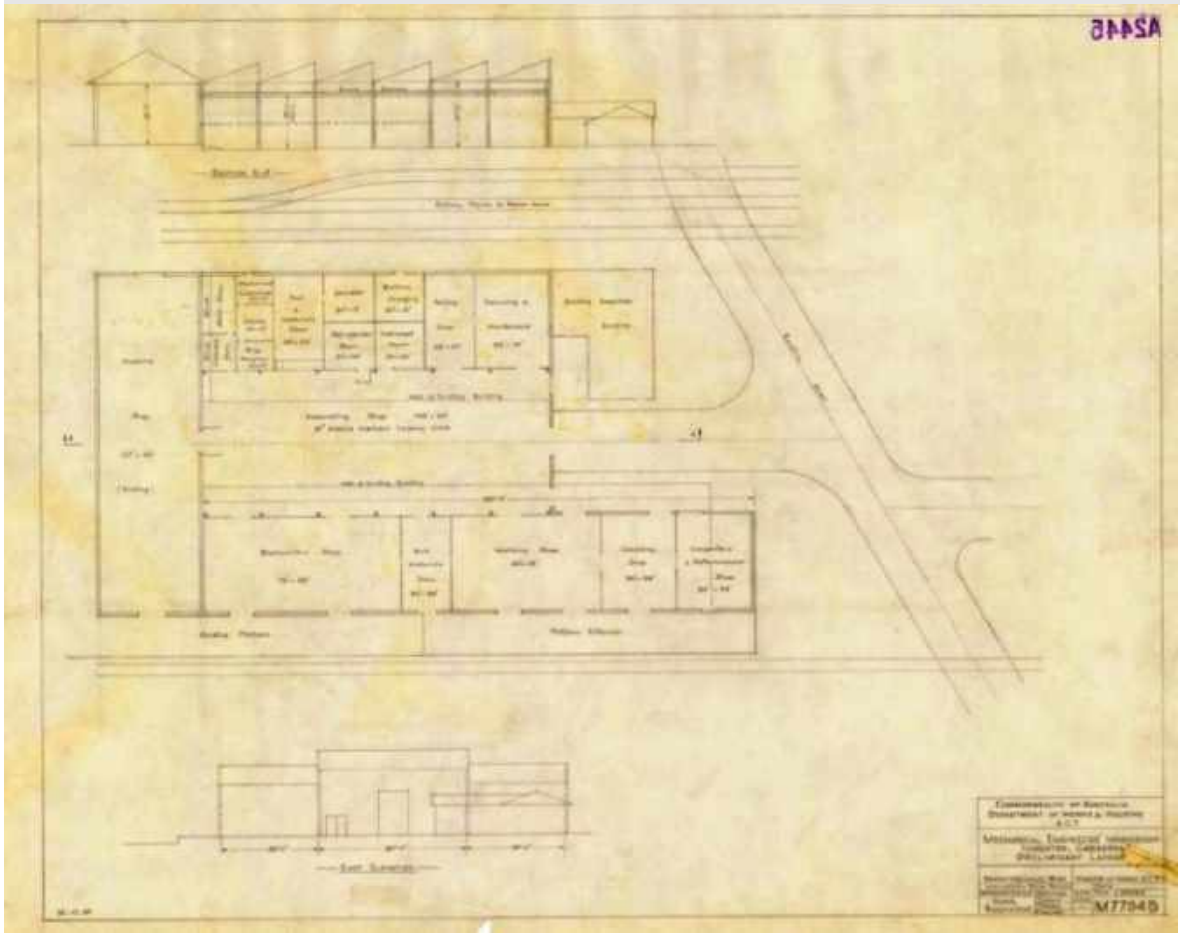
Another matter of relevance to the Fitters' Workshop was also discussed at the meeting. A little to the northeast of the southwesterly extension from the Workshop stood a small lavatory block. Those present at the meeting agreed that it was 'badly located' as it stood in the way of any further addition to the southwesterly extension (that is, the Mechanical Workshop). The lack of a sewerage system over much of the Kingston site made it impossible as yet to remove the lavatory block, but the meeting decided that nothing more than temporary improvements should made to the block before it could be demolished. These considerations, including the availability of a sewerage connection, may well have provided the rationale for the construction of an amenities block as a small extension to the Electrical Fitter's Shop in the period 1944-46. ('Future Development of the Kingston Stores Yard: Notes on the second meeting of conference to discuss the future development of the Kingston Stores Yard area', 14 October 1943, pp. 3-4, 5, CRS A3032, item 28/8/1; CRS A2445, item M7794B)

The fate of the Electrical Fitters' Shop, meanwhile, remained unresolved. By March 1944, the National Capital Planning and Development Committee (NCPDC) had decided on a site for the proposed new Shop to the north of the Power House and on the other side of the railway line from it. But the proposal was soon dropped when the Committee realised that the site was too close to the river and that dampness and humidity would have a deleterious effect on the Shop's electrical equipment. The departmental architect H M Rolland promptly came up with a new scheme to erect the Shop on a site between the Power House and Wentworth Avenue. At the same time – June 1946 – he proposed the demolition of the Mechanical Workshop constituting the southwesterly extension from the Fitters' Shop and its replacement by 'a larger and more suitable' building on the same site. (Extract from 38th Meeting of the National Capital Planning and Development Committee [NCPDC], 8-9 March 1944; extract from Minutes of the 49th Meeting of the NCPDC, 13-14 May 1946; and extract from Minutes of the 50th Meeting of the NCPDC, June 1946, all in CRS AA3032, item 22/1/1A; additional extract of Minutes of the 50th Meeting of the NCPDC, June 1946; and extract of Minutes of the 51st Meeting of the NCPDC, 11-12 July 1946, both in CRS A3032, item 22/1/1)

These proposals lasted barely a month. In August, Rolland outlined a new scheme for the Electrical and Mechanical Workshops to be amalgamated into a single double-storey building to extend in a southeasterly direction from the Fitter's Shop. The scheme, which necessarily entailed the demolition of the existing extensions from the Fitter's Shop (except for the amenities block), envisaged the coverage by the new building of the whole area currently occupied by the two extensions, as well as the space between them. This remained the preferred option for two years before it, too, was abandoned. In a partial return to an earlier scheme, a two-storey Electrical Workshop was to be erected on the site previously proposed for it between the Power House and Wentworth Avenue.

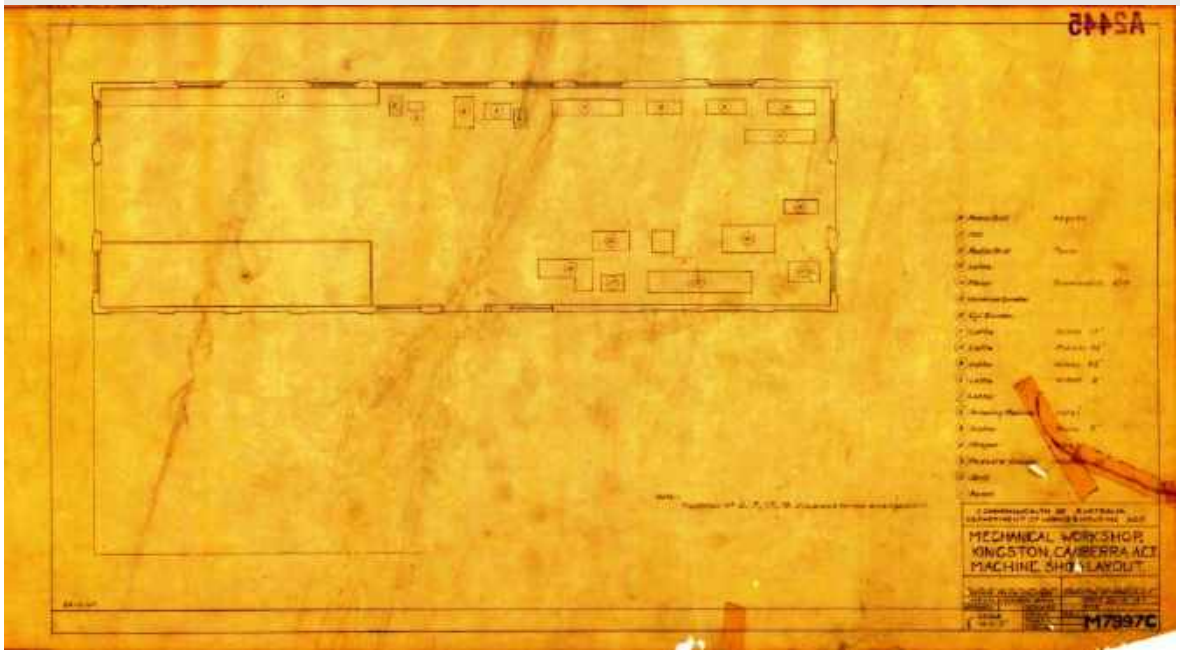
Simultaneously, the huge replacement extension to the Fitters' Shop that Rolland had proposed was to be used entirely as the Mechanical Workshops. In the end, however, neither scheme would ever be realised. (Extract of Minutes of the 52nd Meeting of the NCPDC, 8-9 August 1946; memorandum, C S Daley to H M Rolland, 'Canberra Power House and Mechanical Workshop', 19 August 1946, both in CRS A3032, item 22/1/1; Drawing no. 17898, 'Proposed Electrical Workshop Kingston Canberra', 6 October 1948, CRS A3032, item 22/1/1A)

Figure 43. 1946 Preliminary Layout Plan for the Mechanical Engineers' Workshop showing the amenities block at the end of the northeasterly extension from the Fitters' Shop
Source: CRS A2445, item M7794B, National Archives of Australia



A major reason for the vast expansion of floor space that the NCPDC felt was needed for the Mechanical and Electrical Workshops may have been the growth in the volume of work they performed after the doldrums of the 1930s. If the statement of an appellant before the ACT Conciliation Commissioner in February 1952 is accurate, then the variety of work that the Fitters' Workshop was expected to carry out had 'increased tremendously' over the previous ten years. The appellant was the leading hand fitter and turner at what he called the Kingston 'Transport workshops'. Whether this was the same as or included the Fitters' Workshop is not clear, especially as the Bus Depot was nearby. (*Canberra Times*, 27 February 1952, p. 2)

Figure 44. 1947 Layout of the Fitters' Shop showing the disposition of Equipment
Source: CRS A2445, item M7997C, National Archives of Australia

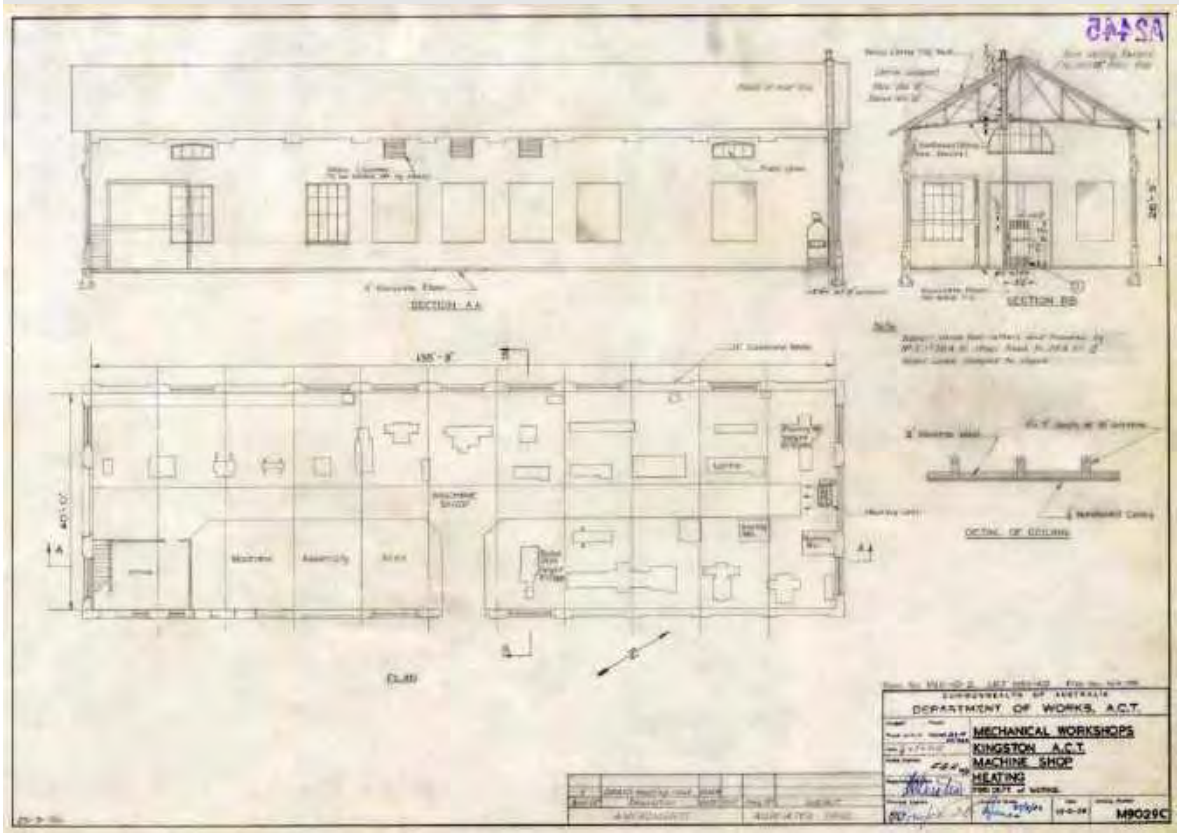


A new focus on the Kingston industrial area occurred in 1955 with the appointment of a Senate Select Committee to inquire into the development of Canberra or, more correctly, the lack of it. In its deliberations, the Committee came to the firm view that such an important area as Kingston should be turned over to the use that Griffin originally intended for it. The Committee recommended that no new government industries or buildings should be planned for or built in the Kingston area, and that the existing industries should be progressively relocated to the new industrial area at Fyshwick.

> 'Consideration should also be given, the Committee felt, to clearing the whole of the Kingston-Causeway industrial area, shifting the railway station to Fyshwick and designating the entire area for residential development.' (ACTEW file G83/385/1, quoted in O'Keefe 1993, pp. 26-7)

At first, the Committee's recommendations were completely ignored, if not actively undermined. In the same year as the Committee was appointed, the NCPDC revived the scheme it had approved in 1948 to build new Electrical Workshops on a site between the Power House and Wentworth Avenue. Fresh drawings were prepared and the NCPDC averred that it was now necessary to erect the building 'at an early date'. The Electrical Workshops were built later in the 1950s, though not on the preferred site. Rather, they replaced the existing workshop in the northeasterly extension from the Fitters' Shop. About the same time, the Fitters' Shop itself was fitted with a heating system. (Drawings nos. 23200, 23201 and 23202, May 1955; and extract from Minutes of the 145th Meeting of the NCPDC, 7-8 December 1955, all in CRS A3032, item 22/1/1A; ACTEW file G64/14 part 3; CRS A2445, items M8995B and M9029C, 1956)

Figure 45. One of the 1956 schemes for heating the Fitters' Shop, showing some of the internal layout at that time
Source: CRS A2445, item M9029C, National Archives of Australia



The formation of the ACT Electricity Authority (ACTEA) in 1963 helped to entrench the continuation of the Kingston area as an industrial centre. Having inherited a site valued at $273,966 and containing 25 buildings, ACTEA was not easily going to surrender it. Indeed, ACTEA later set about re-developing the area, demolishing many of the smaller rundown structures that were used for storage purposes and replacing them with one large storehouse. In 1967, the Authority added an extension onto the Electrical Workshops. The whole Electrical Workshops building, however, was demolished in 1974 and replaced with a new stores building that was 'amalgamated with the old fitters shop.' By repute, the Fitters' Workshop was only used for storage purposes by this time. (ACTEW file G83/385/1; O'Keefe 1993, p. 27; Jones 1983 p. 139)

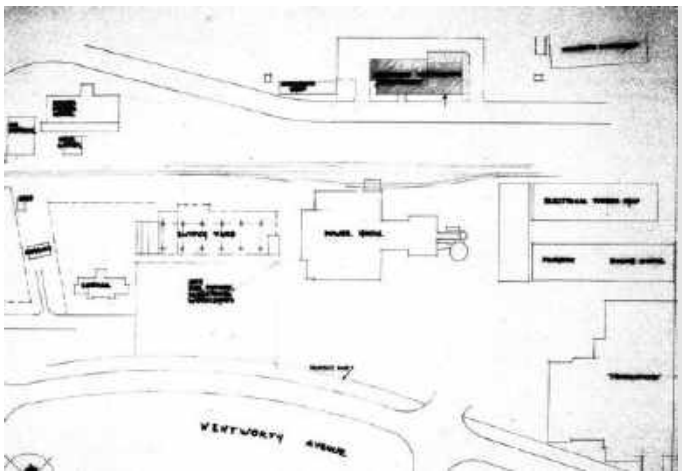


Figure 46. Site plan from about 1964, showing the Fitters' Workshop at right with its two extensions
Source: CRS A9663, item 23062, National Archives of Australia

Revival and Transformation

The Canberra community was first alerted to the heritage significance of the Power House and perhaps, too, its neighbour, the Fitters' Workshop through the efforts of the local community activist, Ian Hirst. From the early 1980s until well into the 1990s, Hirst campaigned tirelessly for the retention of the Power House and its conversion into a centre for arts, entertainment and other community uses. To him is due the germ of the idea to convert the Power House and by extension its precinct, including the Fitters' Workshop, into an arts centre. The first formal recognition of the heritage significance of the Power House occurred in July 1981 when it was classified by the National Trust. Two years later, it was entered in the Commonwealth Government's Register of the National Estate and listed with the Royal Australian Institute of Architects. (O'Keefe 1993, pp. 31-3)

Pressure had also been mounting to put an end to the *de facto* industrial centre that Kingston had become and to turn it over to the residential use that Griffin had intended for it. Accordingly, in 1995, the ACT government acquired the 37 hectare Kingston foreshores site from the Commonwealth and embarked on a community consultation as part of a process to decide how to redevelop the area. This led on to the holding of a national design competition for the site in 1997. The competition was won by the Canberra architect Colin Stewart who produced a master plan that included a cultural precinct which made use of two of the site's heritage structures, the Power House and the Fitters' Workshop. (Land Development Agency)

The beginnings of the community use of the Kingston industrial area took place in 1998 with the opening of the Old Bus Depot Markets. After ACTEA's successor ACTEW finally quit the Kingston site a few years later, the ACT government released its Arts Facilities Strategy in 2003 which expressly identified the Fitters' Workshop as 'a future hub for visual arts production.' The Power House, too, was earmarked as a centre for the visual arts and, in 2007, the Canberra Glassworks opened in the building, supported by ACT government funding. In the meantime, the first three residential developments of the Kingston Foreshore project had been completed. (*Canberra Times*, 4 July 2009)

In its 2008 campaign for re-election, the ACT Labor Party promised to upgrade the Fitters' Workshop and to commit $1 million to the project. Following the election, the new government provided a sum of $30,000 in the 2008-9 budget for a study to assess potential uses for the building. In the budget for the next financial year, a further amount of $200,000 was allocated for preliminary design work to make the building suitable for a visual arts workshop. Foremost among the issues to be considered was the provision of water, electricity and bathroom services, as the building lacked all three. (*The Chronicle*, 19 May 2009, p. 5)

In the meantime, Megalo Print Studio approached the ACT government with a request to be granted use of the building for visual arts purposes. As the proposal accorded with the government's general plans for the Fitters' Workshop, Megalo appeared to have the inside running on securing the building. However, a complicating factor emerged in May 2009 when the building was used as a concert venue for the Canberra International Music Festival. No less a luminary than the eminent Australian composer Peter Sculthorpe stated that the Fitters' Workshop had the best acoustic properties of any building in Australia.

Relying on the authority of Sculthorpe, the Pro Musica organisation put forward a counter-proposal for the building to be used as a multi-purpose cultural facility, hosting such events as music and theatre performances, temporary exhibitions and book fairs. Pro Musica's

president, Don Aitkin, was adamant that 'the structure should not be compromised' from the viewpoint of retaining its acoustic properties. He specifically did not want interior walls erected, the ceiling changed, or cloth and fabric put up. (*Canberra Times*, 4 July 2009)

In 2012, Megalo decided not to pursue the option to use the Workshop because of the dispute and uncertainty.

The ACT Government decided to continue to make the Workshop available for hire for functions and events, including musical performances, and this continues to be the case. The annual Canberra International Music Festival has used the Workshop as its primary venue since 2015.

In 2015, a number of minor changes were made to improve the Workshop as a venue.

Physical Changes to the Building

Throughout the life of the building numerous small and larger changes have been made. However, the reasons for the changes and dates are unclear in a number of cases. A summary of the changes are as follows:

- original door in southwest converted to a window;
- original window in northwest converted to a door;
- widening of the southeast and northwest doors;
- new slab laid over existing slab;
- grilles removed from southwest windows;
- ceiling installed, roof trusses reinforced and covering of louvre windows in 1956, perhaps as part of heating the building;
- two storey office structure possibly installed inside workshop, and later removed;
- machinery removed, except for crane;
- awning(?) windows fixed shut;
- installation of an electric hoist on the crane;
- shelter constructed along northwest of Workshop, and later removed;
- roof refurbished and skylights removed;
- 2006 upgrade works:
    - repair and repaint ceiling;
    - new insulation and sarking in roof cavity;
    - two doorways in southeast elevation closed up;
    - new downpipes and gutters, removal of existing downpipes – new downpipes in different locations;
    - timber (glass?) louvres repaired and repainted;
    - repainting of roof ventilators;
    - removal of an exhaust stack in southeast side of roof, northeast end;
    - external render stabilised/repaired, perhaps including re-rendering/re-finishing of the northeast elevation;
    - window glass replaced, and window mechanisms repaired (the latter may not actually have been undertaken);
    - timber doors repaired;
    - various switchboards, cables and services removed;
    - barge boards repainted;
    - asbestos sheeting for soffits at gables replaced with fibro-cement sheets;

    - climbing plant on northwest elevation removed;
    - temporary building with link to Workshop installed on southeast side;
- post 2006, doorway in southeast elevation closed up, and temporary building removed;
- 2015 upgrade works:
    - fixing two sets of original timber doors in an open position;
    - installing new doors with glass side and highlights in the two existing door openings;
    - infilling an existing (non-original) concrete ramp to level the floor, including scabbling back the ramp;
    - installing new emergency lighting units on the ceiling, and associated surface mounted cables to the underside of the ceiling;
    - installing new high bay lights, with surface mounted cables to the underside of the ceiling and on two walls;
    - installing suspended exit signs;
    - installing fire detectors, extinguishers, and a fire hose reel including associated pipework; and
    - installing new GPOs and surface mounted conduits.

Some other works were indicated as part of the 2006 program however, these were apparently not undertaken.

A number of historical plans indicate the Fitters' Workshop and the initial structures to the southeast were separated by a short distance. As the initial structures pre-dated the Workshop, it seems possible this separation was necessary to enable construction of the Workshop. However, over time, and with subsequent wings to the southeast, this separation was either bridged or eliminated.

Figure 47. Fitters' Workshop in 2005
Source: Duncan Marshall

Note: There are grilles on the southwest windows and climbing plant on the northwest elevation.