Walka Water Works

Conservation Management Plan

Maitland City Council

eco logical AUSTRALIA
A TETRA TECH COMPANY

Document Tracking

Project Name: Walka Water Works

Project Number: 24NEW8045

Project Manager: Dr Gary Marriner

Version	Prepared by	Reviewed by	Approved by	Status	Date
v1	Dr Gary Marriner	Karyn McLeod	Konrad Grinlaubs	Draft	14/02/2025
v2	Dr Gary Marriner	Maitland City Council	Konrad Grinlaubs	Draft	09/05/2025
v2a	Dr Gary Marriner	-	Konrad Grinlaubs	Draft	30/05/2025
v3	Dr Gary Marriner	Maitland City Council	Konrad Grinlaubs	Final	19/09/2025

This report should be cited as 'Eco Logical Australia 2025, *Walka Water Works Conservation Management Plan,* Prepared for Ramboll on behalf of Maitland City Council.'

Acknowledgements

This document has been prepared by Eco Logical Australia Pty Ltd with support from Charyssa Lawrence and Roland Chanin-Morris at Ramboll. Charlotte Anlezark at the National Trust NSW, the Library staff of Maitland City Library and Newcastle City Library, Isaac Conway, Clare James, Scott Tuner and numerous other Maitland City Council Staff.

Abbreviations

Abbreviation	Description
AACo	Australian Agriculture Company
ADD	Aboriginal Due Diligence Assessment
AHIP	Aboriginal Heritage Impact Permit
ARDEM	Archaeological Research Design and Excavation Methodology
AT&CJ	Australian Town and Country Journal
ATR	Aboriginal Technical Report
BCA	Building Code of Australia
CHL	Commonwealth Heritage List
CMP	Conservation Management Plan
DDA	Disability and Discrimination Act 1995
DMP	Destination Management Plan
DP	Deposited Plan
EHR	Engineering Heritage Register
ELA	Eco Logical Australia
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
GNMP	Greater Newcastle Metropolitan Plan 2036
Gov Gaz NSW	Government Gazette of the State of NSW (post-federation)
HCNSW	Heritage Council of NSW
HDWB	Hunter District Water Board
HRP	Hunter Regional Plan
HRNSW	Historical Records of NSW
LEP	Local Environment Plan
LGA	Local Government Area
MCC	Maitland City Council
MDM	Maitland Daily Mercury
MM	Maitland Mercury
MM&HGA	Maitland Mercury and Hunter River General Advertiser
MWM	Maitland Weekly Mercury
NC&HRDN	Newcastle Chronicle and Hunter River District News
NCC	National Construction Code
NMH&MA	Newcastle Morning Herald & Miners Advocate
NPW Act	National Parks & Wildlife Act 1974
NSW Gov Gaz	NSW Government Gazette (pre-federation)
NSW LA VAP	NSW Legislative Assembly Votes & Proceedings
PWD	Public Works Department
RNE	Register of the National Estate
SANSW	State Archives of NSW
SHI	State Heritage Inventory
SHR	State Heritage Register
SMH	Sydney Morning Herald
Syd Gaz	Sydney Gazette
Syd Herald	Sydney Herald

Abbreviation	Description
Syd Times	Sydney Times
TF&S	The Farmer and Settler

Executive Summary

The Walka Water Works site is listed on the NSW State Heritage Register (SHR) (Item #00466) and Maitland Local Environmental Plan 2011 (LEP) (LEP #I222). Located in Oakhampton Heights, north of Maitland and close to the Hunter River, it is one of the largest and most intact 19th century public infrastructure complexes in Australia and includes a wide range of features including a finely executed polychrome brick pumphouse and chimney, multiple expansive water filtration tanks, a substantial reservoir with wall, a complex subsurface pipe network, archaeological sites of associated houses, and various other features. The main pumping complex was built in the 1880s and continued in operation until the 1940s.

The site has been appreciated for its historical significance since the 1930s. Originally this appreciation arose from the machinery used within the main pumphouse. Since then the architecture and layout of the complex have been recognised for their technological, aesthetic and historical significance. As such the key components of the site are:

- The Main Pumping Station including the Main Pumphouse, Chimney, and associated surrounding buildings.
- The Filtration Beds and Tanks, including the Settling Tanks, Filter Beds, Clean Water Tanks and Pipe Network.
- The Reservoir and associated features.
- Archaeological sites related to various houses built on the site.
- The Power Station including the Power Station Site, Railway Cutting, and tracks.

This CMP has graded the significance and condition of 40 heritage components of the overall Walka site that range from the earliest components of the water filtration system through to elements of the Power Station demolished in the 1970s. Each item has a significance grading from low to exceptional, and a condition grading from very poor to good. It has found that seven of the items are of exceptional heritage significance and a further 12 are of high significance. Likewise, it found that site is in good condition over half graded good (19 items) or fair (six items). The items of exceptional significance are:

- Main Pumphouse (Item A)
- Boiler Room (Item B)
- Chimney (Item C)
- Settling Tank (Item H)
- Clear Water Tank (Item L)
- Reservoir and Outlet Tower (Item M)
- Pipes, Pits and Tunnels (Item N).

As the property is listed on the State Heritage Register, prior approval from the NSW Heritage Council of NSW is required for all changes to ensure its heritage significance is retained. For works to be undertaken, either an application under section 60 of the Act is required, or the works must comply with Standard Exemptions as published in the *NSW Government Gazette;* the most recent exemptions were published in 2022 (Gov Gaz NSW 262 17Jun2022). The main areas of use around the main pumphouse and Filter Beds have moderate historical archaeological potential owing to the extensive network of pipes and tunnels, the locations of which are only assumed from 100 year old plans. Within this general area, there are numerous sections that have high potential for historical archaeological

resources to be present. There are also three areas within the site that have high sensitivity for Aboriginal cultural objects and any works within these areas would require further assessment and an Aboriginal Heritage Impact Permit (AHIP) if future impacts are unavoidable.

For conservation purposes the site has been divided into 5 zones based on their geography, topography, and historical use. There are a series of Conservation Policies that apply to the entire site and further polices that are specific to certain zones only.

Zone #	Zone name	Description	Items	Size
1	Water works core	The eastern most end of the site which has been the main focus for all historical occupation Including: • The Main Pumphouse and associated buildings • The Pumphouse Lawn • The filter beds and tanks • The workers cottages archaeological site and Chief engineers' residence archaeological site • The Power Station Lawn and associated road network • The section of the railway at the eastern end of the site • The northeastern corner of the reservoir.	Includes: A, B, C, D, E, F, G, H, I, J, K, L, part of M, part of N, O, P, R, S, T, U, V, W, Y, part of Z, AA	7.38ha
2	Cleared Zone	The land to the west of Zone 1 that has been cleared and is only sparsely forested except for those areas that are part of Zone 5. This includes the existing caretaker's cottage and associated buildings.	None	6.34ha
3	Forested Zone	All land north of the old railway / track that isn't part of Zone 1, 2 or 5 that forms the northernmost part of the site.	None	15.55ha
4	Reservoir and surrounds.	The entire reservoir, and surrounding area bounded by the cadastral boundary to the west and south, and by the old railway to the north except those areas in Zone 1. Includes the embankment and reservoir wall, the Byewash and Second Engineers Cottage.	Q, X, Part of Z	34.50ha
5	Aboriginal sites Zone	The two areas of the site that contain registered Aboriginal sites namely the area at the north of Zone 3 around the existing pond that contains one site, and the area between Zones 2 and 4 where two AHIMS sites were located.	Part of Z	0.83ha

In addition to the Polices for the sites, a number of Actions have been provided that are for immediate attention. These include works that need to be undertaken as soon as possible for the site to remain compliant with the minimum maintenance standards required in Part 3 of the *Heritage Regulation 2012*.

Contents

List of Figures

List of Tables

1. Introduction

1.1. Project Background

Eco Logical Australia (ELA) have been commissioned by Ramboll, on behalf of Maitland City Council (MCC) to prepare this Conservation Management Plan (CMP) for the Walka Water Works site in Oakhampton Heights, in the Maitland Local Government Area (LGA). The Walka Water Works site is listed on the NSW State Heritage Register (SHR) (Item #00466) and Maitland Local Environmental Plan 2011 (LEP) (LEP #I222). It is one of the largest and most intact 19th century public infrastructure complexes in Australia and includes a wide range of features including a finely executed polychrome brick pumphouse and chimney, multiple expansive water filtration tanks, a substantial reservoir with wall, a complex subsurface pipe network, archaeological sites of associated houses, and various other features. A Conservation Plan was first prepared for the site in 1986 (Tresev 1986) which fed into a Management and Concept Plan the following year (Suters Busteed Corner Clode 1987). Collectively these documents formed the equivalent of a modern CMP.

1.2. Aims & Objectives

The overarching objective of this CMP is to provide MCC, as the Managers of the place, a comprehensive but readily accessible document that helps to interpret, preserve and protect the heritage significance of the Walka Water Works whilst providing practical solutions to allow for its on-going use and maintenance.

The aim is to provide guidance for future planning and provide a basis against which impact to heritage significance can be assessed. Further, it aims to guide how best to protect heritage significance when any changes, either permanent or temporary are proposed.

1.3. Site Context

1.3.1. Ownership

The Walka Water Works is located on Wonnarua Country in the Lower Hunter Valley (Figure 1). The site occupies approximately 64 hectares of land located at 55 Scobies Lane, Oakhampton Heights in Maitland Local Government Area (LGA). It occupies Lot 455 DP 722263 and is a Crown Reserve for the purpose of the preservation of historical sites and buildings. In addition, MCC owns two small parcels of land which adjoin the Crown Reserve to the southeast that they manage as part of the Walka Water Works site. These are Lots 1 and 2 DP 1063520. These two small portions contribute a further 0.5ha of land to the site (Figure 2). For the context of this report, Walka Water Works is also referred to as 'the site' and is defined by its heritage curtilage and additional council owned land.

1.3.2. Location & Characteristics

The site generally is a relatively flat area of slightly elevated land that slopes from all sides down towards Walka Lagoon. The only exception being the land south of the Reservoir Lining Wall which slopes steeply to the southeast away from the reservoir. The site is bounded to the north by the gardens of residencies along Forest Hill Drive, to the south and east by farmland, and to the west by the North Coast Railway.

Figure 1: The Walka Water Works site in its regional context.

Figure 2: The Walka Water Works site land ownership.

It is within the Bolwarra Heights soil landscape with underlying geology characterised by Greta coal measures and the Branxton Formation of the Maitland Group, including sandstone, siltstone, and conglomerate. A significant proportion of the site is occupied by Walka Lagoon. The lagoon is naturally occurring but has been extensively modified. This modification occurred initially as part of early farming in the area but is most obvious through the erection of the reservoir lining wall erected in 1885 to formalise the lagoon into a water reservoir. There are several channels and first and second order streams that run into the lagoon on the northern part of the site. It is located approximately 500 metres west of the Hunter River (Coquun). Most development has occurred at the easternmost side of the sites which has been largely cleared and planted with non-native and ornamental species. To the north and west of the lagoon there is immature open forest. *Eucalyptus maculata* (spotted gum) is the most dominant species, ironbark and forest red gums are also common.

1.3.3. Key Components

The site has been appreciated for its historical significance since the 1930s. Originally this appreciation arose from the machinery used within the Main Pumphouse. Since then, the architecture and layout of the complex have been recognised for their technological, aesthetic and historical significance. As such the key components of the site are:

- The Main Pumping Station including the Main Pumphouse, Chimney, and associated surrounding buildings.
- The Filtration Beds and Tanks, including the Settling Tanks, Filter Beds, Clean Water Tanks and Pipe Network.
- The Reservoir and associated features.
- Archaeological sites related to various houses built on the site.
- The Power Station including the Power Station Site, Railway Cutting, and tracks.

1.3.4. Existing Listings

The Walka Water Works is listed on numerous statutory and non-statutory registers as shown in Table 1. The relevant heritage curtilage of these listings is shown in Figure 3.

Table 1: Heritage listings in relation to the Site

Name	Register	ID	Significance	Location
Walka Water Works	SHR	00466	State	The Project Site
Walka Water Works	Maitland LEP 2011	I222	State	The Project Site
Walka Waterworks and Pumping Station	RNE	1250	State	The Project Site
Newcastle's First Water System - the Walka Scheme, 1886	EHR	196	National	Includes the Project Site
Walka Waterworks and Pumping Station	National Trust (NSW)	NTN.05/77	State	The Project Site

Figure 3: Heritage listings in relation to Walka Water Works

1.4. Methodology & Structure

This CMP follows the principles set out in the *Burra Charter* and guidance contained within *Conservation Plan* (Kerr, 2013). It follows *Guidance on developing a conservation management plan* (HCNSW 2021a), *Statement of best practice for conservation management plans* (HCNSW 2021b) and fulfils the CMP Checklist (HCNSW 2021c). The assessment of heritage significance has been informed by *Assessing heritage significance* (DPE 2023). The Aboriginal and Historical archaeological potential of the site have been assessed separately (ELA 2024a, ELA 2024b).

This CMP contains a comprehensive history of the site from used by Aboriginal People prior to 1788 through to the start of the 21st century. This historical context is contained within Section 2 and provides a foundation for understanding, interpreting and conserving the heritage significance. Section 3 provides a detailed overview of the elements of the site, their specific context, and their current status. This information is then used, along with existing evaluations, to inform a detailed and up to date assessment of heritage significance in Section 4. The significance of individual elements in contained within Section 5. Constraints and Opportunities for the site are present in Section 6. The following Section, Section 7 acknowledges these constraints and opportunities, and combined with the understanding of heritage significance, presents a series of Conservation Policies. These include policies that cover the whole site (Section 7.4) and those that are linked to specific elements (Section 7.5.1 to 7.5.5). The CMP ends with guidance on how best to implement these policies in Section 8.

1.5. Limitations

This CMP is limited to the location outlined in Section 1.3 and show in Figure 3. It does not include any other areas of infrastructure associate with the Walka Water Works outside of this boundary such as the inlet pump on the Hunter River or the pipe network extending throughout the lower Hunter Valley.

1.6. Authorship & Copyright

This CMP has been prepared by Dr Gary Marriner, Associate Heritage Consultant, ELA with assistance from Charlotte Bradshaw and Chloe Verman, Heritage Consultants, ELA. The CMP has been reviewed by Karyn McLeod, Principal Heritage Consultant, ELA. All photographs were taken by Dr Marriner unless otherwise noted. Digital Mapping was prepared by Amy Wilson, GIS Analyst, ELA.

1.7. Acknowledgements

This CMP has been prepared with the support of Charlotte Anlezark at the National Trust NSW, the Library staff of Maitland City Library and Newcastle City Library, Isaac Conway, Clare James, Scott Tuner and numerous other Maitland City Council Staff.

2. Historical Context

2.1. Aboriginal History

Ethnographic resources attribute the original inhabitants of Maitland to either the Wonnarua or the Awabakal. Tindale's mapping of Aboriginal traditional lands situates the site on the boundary of both Awabakal and Wonnarua lands (Tindale 1974). While the Maitland area is more broadly recognised as the traditional lands of the Wonnarua the proximity of the site to the Awabakal border suggests the area may have been used as a transitional boundary between the two nations. Brayshaw (1987a) maps the site within Awabakal lands, the southeastern neighbours of the Wonnarua. Brayshaw suggests that, like the Wonnarua, the Awabakal may have been affiliated with the Kamilaroi nation, who were a dominant cultural influence on the southeastern coast of New South Wales.

Today, Aboriginal and Torres Strait Islander people account for 7.5% of the population of Maitland LGA (Australian Bureau of Statistics, 2019). Strong cultural ties to the landscape are maintained through Dreamtime stories. The traditional inhabitants of the Hunter Valley, including the Wonnarua, Awabakal, Worimi, Wiradjuri and other groups, shared Dreamtime stories. The formation of the Hunter Valley is explained in the Dreamtime as being the work of the spirit Baiame. Baiame was the creator of the rivers and hills, and gave the people their laws of life, traditions and culture. This includes the Hunter River, a major river in the Hunter Valley, known as *Coquun* by the Wonnarua peoples. Baiame was believed to return to the earth to work magic or to punish transgressors of marriage rules. The story of the Dreaming is recounted by James Miller:

The Valley was always there. It was there in the Dreaming, though mountains, trees, animals and people were not yet formed. The river as we know it today was yet to be born. Everything was sleeping. For some unknown reason there was movement. The movement stirred form invisible forces… The spirits interacted, shaping what was nothing into something. They gave life to the whole valley… The land held both human and animal life and was the home of the spirits who were born in the Dreaming (Miller, 1985).

Aboriginal people in the lower slopes and plains of the Hunter region were hunter-gatherers who would seasonally move from large, semi-permanent camps comprised of complex huts made from grass and tree branches or grass and mud over a frame along riverbanks in the summer, while in the winter months groups would disperse into smaller hearth-groups (AECOM, 2009). Men hunted for food including kangaroos, emus and wallabies and women gathered bush fruits, yams, grubs, and roots (Miller, 1985). Food was often caught with nets in wooded areas, although sections of the landscape were often burnt to create favourable conditions to access game (Miller, 1985).

The material culture of the Lower Hunter region was seemingly dominated by wood and bark materials. Canoes were made from tree bark which was softened and shaped through the use of fire and tied with vines at either end. A hearth of clay was sometimes constructed in the centre of the canoe to cook fish. Shields were constructed from both wood and bark and often painted with white and red ochre. Wide shields were used to protect against spears, while narrow shields were used against clubs or "waddies". Waddies were always made from hard wood and were used in both hunting and warfare. Other raw materials, including kangaroo bone for awls, shell for scrapers and possum skin for headbands and cloaks, were widely used in the region. Lithic raw materials within the region are most commonly mudstone/tuff, although silcrete and chert is also observed in the archaeological assemblages of the Upper Hunter.

2.2. Early Investigations

British ships began travelling up the eastern coast of NSW as early as 1791 with the voyage of the Salamander to Port Stephens, however it wasn't until 1797 that the Lower Hunter Valley was first mapped and recorded by John Shortland whilst pursing escaped convicts (Shortland, 1798). Shortland named the river 'Hunter' (HRNSW Vol.3 p.727) after the Governor of NSW at the time. The presence of coal at the mouth of the river caused great excitement with Hunter reporting his plan to investigate further to the Duke of Portland with excitement (Hunter, 1798). Fishermen and private boats continued to explore the coast and collected coal that was later sold in Sydney (Perry, 1965). The presence of coal encouraged Hunter's successor Gidley King to send an exploratory party headed by William Paterson and James Grant with Aboriginal man Bungaree on 19th June 1801 aboard the *Lady Nelson*. After initially exploring the harbour and its numerous islands, Grant described the place as one of abundance with coal, fish, ores and a vast array of timber. Members of the party travelled upstream on 28th June noting that they,

…found the country on both sides for the most part level and swampy near the river, but with distant views which were delightfully pleasant. The river made a very serpentine course, and for many miles up appeared to be as broad as the Thames at Kingston (Grant 1803, p.160).

Grant also noted at the time that the river appeared to flood regularly with waters as high as 40 or 50ft based on marks on the surrounding trees. The party travelled a further 30 miles upstream which may have placed them in the vicinity of Maitland, although it has been suggested they may have instead travelled up the present Williams River towards Clarence Town instead (Perry 1965). Irrespective, Grant made applicable generalisations about the Lower Hunter when describing the landscape:

Between us and the hills was a space perfectly level for many miles, covered with trees and underwood, and to appearance swampy. The land on the south side of the river was interspersed with lagoons (Grant 1803, p.162).

The success of the *Lady Nelson* and other private missions to source coal from the area led King to send a detachment garrison the mouth of the Hunter River and commence mining under the guidance of Paterson. This effort was short lived however due to misconduct on the part of the commanding officer. The camp, named Coal River, lasted just four months (Suters 1997). The respite was short lived however and occupation of the Hunter River, and exploitation of its resources, remained key to the colonial administration.

On March 18, 1804, General Orders were issued that re-established a settlement at Newcastle under the command of Lieutenant Menzies. The orders restricted the individuals that were allowed to access the port and Hunter River and placed strict controls on the procurement of materials. The Order officially named the settlement Newcastle, and the County Northumberland (Syd Gaz 25Mar1804 p.1). These controls included ownership of all coal and timber being vested in the Crown, and that no vessel was allowed to enter the Hunter River without a licence. Menzies only remained at Newcastle until March 1805 when he quit the colony following a disagreement with Colonel William Paterson (Flowers, 1967).

Following Menzies departure there was a succession of Commandants installed in Newcastle including William Lawson in 1806 and again in 1809 (Dunlop 1967), Thomas Britiffe Skottowe from 1811 to 1814 (Dutton 2020) and Thomas Thompson (1814-1816) (Syd Gaz 19Feb1814 p.1). Following Thompson, Captain James Wallis was appointed Commandant in June 1816 (Syd Gaz 01Jun1816 p.1). Wallis was much celebrated as commandant and commenced public works including a new church, stone convict hospital and multiple barracks. He also conceived of the breakwater from the mainland to Nobbys

Island although it would be decades before it was fully realised (Blunden, 1967). Wallis was subsequently replaced by Captain James Morrissett on Christmas Eve 1818 (Syd Gaz 26Dec1818 p.1)

2.3. Opening the Hunter

Timber getting, being a key resource accessible to the new settlement, occurred in many areas of the Lower Hunter, especially those where boats could be easily moored (Figure 4). This led to small shelter sites being established at Maitland and Morpeth potential as early as 1810 (City of Maitland, 1965).

Figure 4: Coal River N.S. Wales, 1807 by I.W. Lewin. This painting shows well the overarching forested landscape of the Hunter Valley in the early 19th century that was so appealing to early loggers. SLNW SAFE/PXD 942/3

During the command of Skottowe in early January 1812, Governor Macquarie first visited Newcastle and the Lower Hunter. During this visit he travelled approximately 20 miles upstream as far as the "first branch" presumably the confluence of the Hunter and Williams River (Macquarie 1812). It was shortly after this visit that Macquarie authorised the first farming at Paterson Plains, on the Paterson River, by reliable convicts and free settlers, marking the first official settlement upriver from Newcastle, this was soon followed by the establishment of farming at Wallis Plains (Boyle et al 2011).

Macquarie again visited the area in in 1818, first checking on farmers along the Paterson River and then continuing on upstream. His party reached the area around Maitland on the 31 of July and in honour of then Newcastle Commandant Wallis, Macquarie duly dubbed the area Wallis Plains stating that he:

examined the Land of both sides of this River which appeared to be of excellent quality both for cultivation & grazing (Macquarie, 1818).

Having been impressed with the success of the farms on the Paterson River, Macquire further permitted the first settlement of Wallis Plains in 1818 leaving Wallis himself to work out the details (Keys 2023).

Whilst the main focus of the settlement at Wallis Plains remained the River and Newcastle, the interior was not being ignored. Aboriginal men Myles, Mullaboy, Murphy, Whirle and Bandagran aided John Howe of Windsor in the first overland trip to the Hunter in 1820 creating the 'Bulga Track'. In March 1820 Howe wrote to Macquarie from Wallis Plains celebrating his success (Howe 1820). Howe was followed by George Augustus Middleton in December 1821 who created the 'Parsons Road', an overland route from Sydney to Newcastle (Dunn 2016). The success of these overland routes was not a lauded success however and immediately the Parsons Road was utilised by runaway convicts attempting to escape Newcastle (Morisset 1821).

2.4. First Grants

Wallis Plains was selected as it had several desirable qualities namely good quality soils, access to fresh water and local lagoons with a variety of edible fauna. The twelve first settlers of the region set out in 1819; all bar one or two were repeat offenders but considered trustworthy (Table 2). Most were over 30, and few had any farming experience (Keys 2023).

Table 2: Original grant holders in Wallis Plains

Robert Martyn	John Cahill
George Mitchell	William Jones
Patrick Riley	William O'Donnell
John Eckford	Patrick Moloney
John Allen	Mary Hunt (Molly Morgan)
John Smith	Thomas Boardman

These 12 initial farms were informally claimed and laid out, the area having yet to be formally surveyed. They spread across the southern bank of the Hunter from the present Maitland in the west and Raworth in the east. Despite the inexperience of these first farmers, they somewhat prospered. This is despite flooding being an early issue for the farmers with the whole are being flooded in March 1819 (Perry 1963). When visited by Bigge as part of his report into the Colony publish in 1822, he noted that:

…the convict settlers, who now amount to eleven, frequently brought down with them, maize, butter, poultry and eggs, which they gave in exchange for tea, sugar, tobacco and cotton goods… (Bigge 1822).

From 1822 to 1827 Henry Dangar travelled extensively across Newcastle and the Hunter Valley surveying much of the land for the first time. This included the first plan of Wallis Plains in 1822 and marking out the first road from Newcastle to Wallis Plains in 1824 (Gray 1966). In 1823 he produced the first substantial description of the settlement at Wallis Plains. At this time there were 22 farms

between 11 and 60 acres, most houses were wattle and daub with only four having been built from weatherboard, and one farm having a 'log hut'. All farms had huts and barns, almost all had pigs, but only around half kept cattle. Most had gardens to grow vegetables and peach orchards (Dangar 1823 in Gray 1966).

Throughout the following decades more land grants were given out across the area. Those within the site were given later in the 1830s. The site was occupied by four landholders (Table 3 and Figure 5). Of these grants, the majority of the site is in that given to Houston Mitchell. Mitchell acknowledged that the land was used by Aboriginal people prior to his arrival and used their language to name his new estate writing in his diary:

The Aboriginal name for the hilly part of my grant is Walka and the lake is called Potay. This information I distinctly received from about 50 natives who were seated at their respective fires on the prettiest part of Walka. (Mitchell 1831)

Table 3: Grantees of land within the site

Grantee	Size	Name	Date granted
Walter B. Wilkinson	1000 acres	Oakhampton	13 June 1832
Wilkinson arrived per the Thalia in 1821 and by July 1822 he had secured permission to proceed to Newcastle. Originally from Devon, he provided Oakhampton with its name (Berthold 1978). He was active through the 1830s including giving money for a church (Syd Gaz 11Nov1834 p.1) and being a committee member of the Patrick Plains Turf Club (Syd Gaz 09Apr1836 p.3). In financial difficulties during the depression of the 1840s (NSW Gov Gaz 07Mar1845 p.262) which lists him as being out of the colony. By 1879 he was in ill health and was remanded for 'Lunacy' in 1879 (MM&HGA 04Oct1879 p.16) being committed to the Lunatic Reception House at Darlinghurst (MM&HGA 11Oct1879 p.3).			
Houston Mitchell	416 acres	Walka	27 November 1833
Arrived per the *North* Briton in 1829 (Syd Gaz 13Oct1829 p.3). He was the brother of Sir Thomas Micthell. Appointed magistrate of the colony on 24th December 1832 (NSW Gov Gaz 26Dec1832 p.481) by which time the name Walka had been associated with his holdings. The land being granted to him the following year (NSW Gaz Gov 27Nov1833 p.493). He played a role in petitioning for the new church in 185 (Syd Times 02Jan1835 p.3) going as far as to offering an acre of land for a cemetery. By 1842, it was unclear whether Micthell was alive and a court case he was involved in was ongoing (Syd Herald 11Feb1842 p.2). A notice was placed in the NSW Government Gazette in July 1843 stating that he was not a shareholder of the Alliance Assurance Company (NSW Gov Gaz 14Jul1843 p.905), and another in July 1844 stating he had sold his shares in the Union Bank of Australia (NSW Gov Gaz 05Jul1844).			
William Purnell	50 acres	Botanic Garden	25 April 1836
Arrived as a convict per the *Larkins* in 1817 having been convicted of larceny (Syd Gaz 22Nov1817). He received his ticket of leave in 1824 (Syd Gaz 04Mar1824 p.1). At this time, he was working for Jonathan Hassall in Parramatta. He petitioned for a land grant in 1824 desiring permanency in the colony and was eventually granted land in 1825. He was convicted for receiving stolen goods in 1826 having in his possession numerous tools that belong to Hassall. It is suggested that he never occupied his grant in Maitland and spent his life in and around Sydney (Eureka 2024). He died in 1871 in Lane Cove (NSW Gov Gaz 12Dec1871 p.2818).			
John Jamison	300 acres		06 December 1832
John Jamison was the son of the First Fleet Surgeon's Mate Thomas Jamison. He was born in Carrickfergus, Ireland and served in the navy in his youth. Thanks to his role in curbing scurvy in the Swedish Navy, he was knighted by the King of Sweden, Charles XIII in 1809 and appointed a knight bachelor in the UK in 1813. He inherited property in NSW, largely around Penrith, following the death of Thomas in 1811 and arrived in Sydney per the *Broxbornebury* in 1814 to take possession. After initially finding favour with the colonial authorities, he became a *persona ingrata* in 1822 after he made unsubstantiated allegations of immorality amongst convicts at Emu Plains. He was eventually restored to favour in 1831 eventually joining the legislative council where he remained a member until 1843. He was active in the public sphere as an eminent settler including being the first president of the Australian Patriotic Association in 1835. He amassed massive land holdings throughout his like including 11,000 at Bathurst and 18,000 at Capertee (Walsh 1967).			

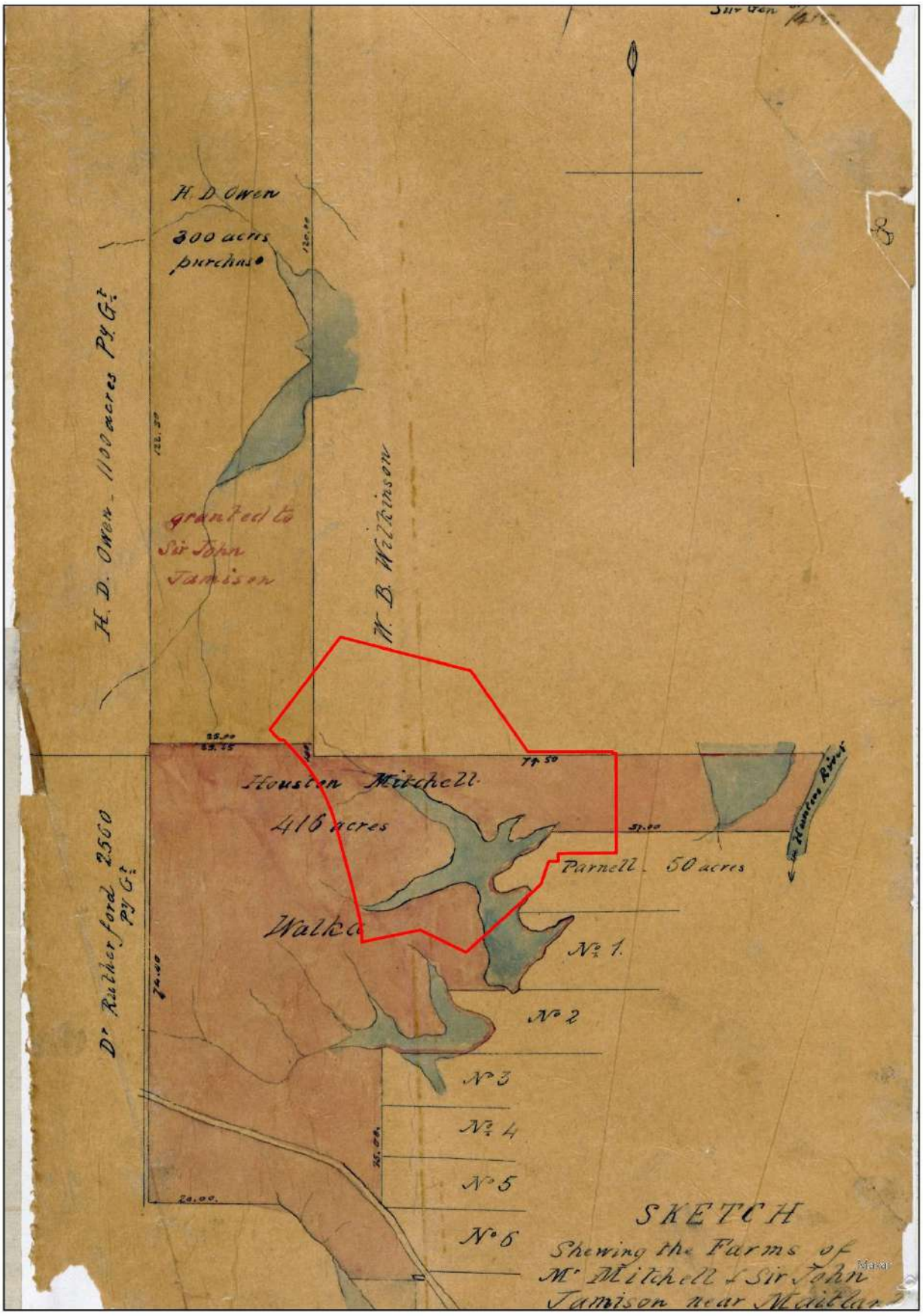


Figure 5: The site shown on an undated, c.1840s plan demonstrating the original grantees of the land. Note the original size of the Walka Lagoon which extended southwards.

2.5. Growth c.1830s to 1870s

Following the closure of the penal settlement at Newcastle it somewhat floundered and settlement focus shifted to further upstream. This was enhanced by the arrival of steam powered ships in 1831 at which time Morpeth became the main harbour for the region. The Australian Agriculture Company (AACo.), established in 1824, was granted significant land and a 31-year monopoly on coal mining in Newcastle in May 1833. As such Newcastle's growth as a wider settlement remained hindered but its need for water did not (Docherty 1983). At this time Maitland began its role as the regional capital, with Wallis Plains as the commercial centre, Morpeth the main port, and East Maitland the government hub (Turner 1987). As part of this growth, increasingly more areas along the Lower Hunter were granted, inhabited and farmed by settlers marginalising the Aboriginal population and creating a more formalised and controlled landscape (Figure 6).

Figure 6: View on the Lower Hunter, c.1840s by Joseph Decker. This painting demonstrates the increasing occupation of the river by settlers, the demarcation of space and control of the landscape. SLNSW ML 642 9AL4Bk5Y

The settlement at Wallis Plains became a key stop off for river traffic and a place where people from across the increasingly settled valley could exchange goods and services. This led to Sydney Merchants Powditch and Boucher to construct a store and wharf in the town. At this time the official town of East Maitland remained secondary to the freer 'private' town rapidly growing where the original twelve grants were made. The enduring preference for Wallis Plains led in November 1835 to it being officially renamed "West Maitland" with Wallis Creek the boundary between the two settlements (Syd Gaz 17Nov1835 p.4). The distinction between the two towns is typified in Figure 7.

Figure 7: Plan of Maitland c1850. The two separate entities are clear with the rigidity of East Maitland contrasting with the fluidity of West Maitland. SLNSW Z/M3 811.259/MAITLAND/1850/1

This golden age for Maitland, when it was second only to Sydney in the colony, was to be short lived. A combination of factors in the 1850s led to Newcastle regaining its role as the key city in the area. First, the demand for coal from Sydney and Melbourne resulting from the goldrush led to massive increases in production. Alongside this demand the AA&Co monopoly on production was challenged in the 1840s ultimately leading to the surrendering of its position in 1847. This led to a flourishing of new companies increasing production (Docherty 1983). From 1853 the AA&Co were also permitted to be subdivided and sold allowing the growth of the city west of the original boundary. The arrival of railways into Newcastle from 1856, allowed coal to be transported quickly and reliably from the mines to the port and also contributed to the expansion of the settlement (Turner 1986). This growth saw the population of Newcastle grow from 536 in 1833 to 7581 by 1861. Over the same period the population of Maitland (including east and west) rose from 1456 to 8780. The census of 1871 makes note of Newcastle's phenomenal growth and Maitland's decline:

The most important after Sydney is Newcastle, with 7,581 inhabitants; then Parramatta, with 6,103; West Maitland, 5,079; Bathurst, 5,030; Goulburn, 4,453; Grafton, 2,250. Of these, Newcastle has made by far the most rapid strides since 1861, her population having increased at the rate of 10.37 per cent. annually. …while the numbers for East Maitland, West Maitland, and Windsor, show a very material falling off; the decrease being at the rates of 0.87 per cent., 1.08 per cent., and 0.88 per cent. annually. This retrograde movement is explained by the impoverished state of the surrounding districts, caused chiefly by the floods to which they are exposed. (ABS 2019)

The long-term consequences of multiple flood events seem to have hampered any substantial development of the area including in 1857 (MM&HRA 07Apr1857 p.2) and 1864 (Freeman's Journal 20Feb1864 p.2), 1866 (MM&HRA 14Jul1866 p.4), and 1870 (Empire 25Mar1870 p.2). Despite this, there was an attempt in the mid-1850s to establish a brickworks at the site (Empire 19Jul1854 p.1), and by the 1870s the fruit grown on the site was considered prized (AT&CJ 26Feb1870 p.13). An inevitable consequence of this growth was a greater need for food, services, and water.

The Walka Estate itself was placed for sale in January 1835 (Syd Herald 26Jan1835 p.4) at which time it was described as being all fenced-in and divided into three paddocks. It appears not to have sold however with Houston Mitchell still being named as being 'of Walka' in 1837 (NSW Gov Gaz 05Jul1837 p.478). Indeed in 1838, Mitchell advertised the land instead for lease at which time it was divided into two paddocks (Syd Herald 02Spr1838 p.3). Mitchell appears to have managed to sell the land soon after as in June 1840 it is placed up for sale by John Eales (The Colonist 20May1840 p.3). In 1850 60 acres of land 'known as Walka' is placed up for sale (MM&HRA 23Nov1850 p.2). At this time it had been subdivided into seven lots and described as 'good grass land' (MM&HRA 14Dec1850 p.3). John Eales maintained hold of the land until 1881 when it is resumed by the State Government for the Water works.

2.5.1. The Scobie Family

Part of the Walka site, named 'the Gardens', was settled by Michael Scobie in the 1840s when only a thatched hut had been built there and around 10 acres of land cleared. The cleared land was reported to have been planted with maize with the area of the future water works being still wooded (Maitland Weekly Mercury 28Mar1903 p.14) The Scobie family arrived in Australia in 1839 per the *Palmyra* and were in Oakhampton by 1840. At the time the family consisted of Michael, his wife and six children. The family lived and grew to 11 children at The Gardens through the 19th century. Micheal eventually died in 1903 at the age of 100 and at the time of his death he had 130 living descendants (MM 28Mar1903 p.14).

One of his sons, Robert Scobie was born in 1831 and travelled with his family to Australia in 1839. In 1851, aged 20, he became a business partner with his father and their farm at The Gardens was praised with his obituary stating…

…*eventually the whole of the 60 acres were brought under cultivation of fruit trees of almost every variety, grapevines and vegetables, until the garden became famous for the quality of its products, due to the care and attention constantly devoted to it. It was, in fact, one of the model orchards in the State* (MM 08Jan1910 p.4).

Robert Scobie had success in the goldfields and later owned his own orchard and vineyard at Mount Pleasant. He was a founder of the West Maitland School of Arts and represented Hunter in the NSW Legislative Assembly from 09 February 1889 until 25 June 1894 (MM 08Jan1910 p.4). It appears that he maintained his primary residency at The Gardens until his death in 1909. His wife, Mary Scobie was born in 1842 in Sussex and arrived in Australia at 15 years old with her mother and sister. She married Robert two years later (c.1859) and lived at The Gardens until 1926, a period of 67 years (Dungog Chronicle 19Dec1941 p.6). The home was still standing and occupied by the family in 1939 will the land still being farmed (MDM 30Aug1939 p.9). She died in 1941 at the age of 99 leaving behind three sons and nine daughters. Many of Mary and Robert's sons joined the military including Bob Scobie, who rose to the rank of Lt. Col. Before dying at Gallipoli in August 1915 at the age of 44.

The Scobie family continued to farm the area into the 1950s. In 1955, another flood event had a devastating impact on their farm (TF&S 18Mar1955 p.38).

2.5.2. Getting their feet wet 1860s

2.5.2.1. The need

Newcastle's original water supply came from wells fed by water caught on the high ground and draining through the soils, with the wells eventually being supplemented by rainwater collection. As the region grew through the early decades of the 19th century, so did the requirements for water. This included water for domestic use (washing and bathing) and increasingly water for industrial and commercial purposes. The need for a regular water supply to manage fire was also a key concern. Similarly, the growing settlements at Morpeth, West Maitland, and East Maitland would have been dependent on wells and rainwater as the Hunter River remains brackish as far as Oakhampton.

Drought in the early 1860s led to water shortages across the lower Hunter. In Newcastle only two wells still possessed drinkable water in this period (NC&HRDN 07Feb1866 p.2). The realisation of multi-municipality collaboration was raised as early as 1866 with acknowledgement that East Maitland, West Maitland, and Morpeth would need to collaborate (MM&HRA 18Jan1866 p.2). In response, West Maitland Municipal Council established a Water Committee who were empowered in 1867 to erect a waterworks (MM&HRA 30Nov1867). The *West Maitland Water Supply and Embankment Bill 1868* was introduced to the Legislative Assembly in January 1868 by Benjamin Lee, Member for West Maitland, which would have granted West Maitland Council power to obtain and develop land outside of their municipal boundary. The Bill was unsuccessful however, in part due to its wide reach which would have attempted to simultaneously manage flood and water supply (MM&HRA 21Sep1869 p.2). Following a destructive fire that destroyed the Club Chambers in September 1869, the need for water for safety purposes was again brought to the fore (MM&HRA 21Sep1869 p.2).

The water supply issue was regularly discussed and raised in all areas of society. A public meeting at the Newcastle Courthouse November 1873 fully encapsulated many of the concerns of the population of the time. The meeting was chaired by the Mayor with multiple Alderman in attendance and

resolved that "*a plentiful supply of water fit for domestic use and general purposes should be secured for all parts of the city*" (Newcastle Chronicle 06Nov1873).

As such it was clear by the early 1870s that ongoing climate unpredictability, growing population, and the risk from fire in increasingly built-up environments all meant that a large scale, reliable water supply for the Lower Hunter was critical for its survival and continued growth.

2.5.2.2. The design

Newcastle Council considered various different locations for a site for permanent waterworks in the 1870s. Francis Bell, the City Engineer of Sydney prepared a report to Newcastle Borough Council in July 1875. His report first rejected bringing water down from Maitland due to quality and contamination concerns. It went on to consider 'Wallaby Flat' an area of sand flats owned by the AA&Co around Hamilton where a large shaft had already been built. He considered this site viable and estimated it would cost around £62,500. The scheme would also require two receiving and distributing reservoirs at high points in the city. It was ultimately rejected due to fears of encroaching development. The final area considered was Redhead Lagoon which had already been resumed for water supply on 01 January 1967. Bell supported this option glowingly stating, "*This magnificent water shed should be secured for the future, to the inhabitants of Newcastle and neighbourhood*". The cost was estimated at £88,000. (MM&HRA 10Jul1875 p.6). The Newcastle Council was unable to reach a consensus on Bell's proposals however and they were eventually rejected (Jordon 2015).

Following the rejection of Bell's report, George Alfred Lloyd, Member for Newcastle raised the need for a water system for Newcastle in the Legislative Assembly. On the 09 June 1876 he sought support for a commission into the situation noting the large and increasing population and the increasingly important role of Newcastle in shipping. Mr Robertson added that any scheme should also include West Maitland, East Maitland, and the 'towns down the river' (SMH 10Jun1876 p.3). Whilst there were a few dissenting voices, largely based around the cost of any such scheme, the motion was passed:

—That an Address be presented to the Governor, praying that His Excellency will be pleased to appoint a Commission to inquire into the best means of supplying the City of Newcastle and the surrounding mining townships with Water, and the probable cost thereof ; and that he will also be pleased to cause to be placed on an Additional Estimate for the present year a sum sufficient to cover the expense of such Commission (NSW LA VAP No.105 Friday 09Jun 1876 – 407/8).

The Legislative Assembly subsequently commissioned William Clark an experienced civil engineer who worked extensively across the British Empire including projects in Calcutta (Kolkata) and Madras (Chennai). His work in Calcutta in particular was highly successful where, despite high costs, he was able to vastly improve both water supply and sewerage (Armstrong 1967). Clark was ideally situation for the task being already in the colony having recently completed investigations into a new water supply for Sydney (Jordon 2015).

His report, published in November 1877 details his justification for selecting the Walka site. He establishes in great detail the estimated required capabilities of the proposed works, calculating that just over one million gallons a day would be required. He stated that there is sufficient supply from the Hunter even in dry times and that the water at the intake at Bolwarra is sufficiently free of salinity. In more general terms, amidst a highly technical report, Clark made clear and direct note of the extensive health benefits of clean water in reducing mortality rates (Armstrong 1967). The proposed scheme included reservoirs at Buttai Hill and East Maitland before describing the proposed works. The works proposed involved:

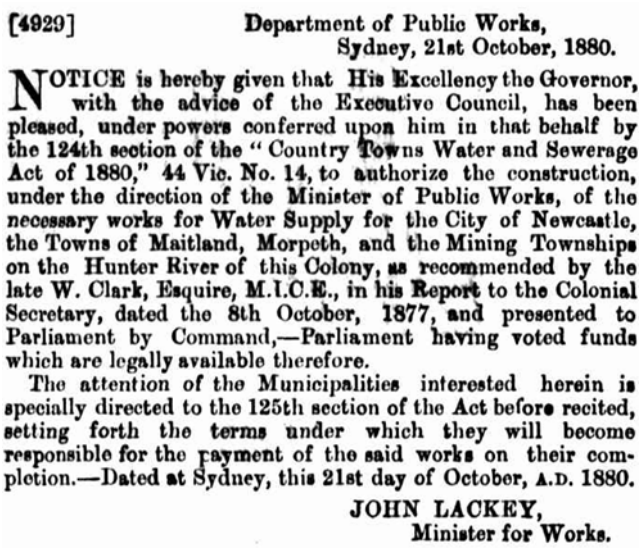
- Pumping river or stored water into the tank from where it would flow into the filters and eventually into the clean water tank.
- From here it would be pumped to a one million gallon reservoir at Buttai Hill, with a branch to East Maitland on the pipe.
- From Buttai Hill it would flow under gravity to supply Newcastle and surrounding towns via a network of local reservoirs.

He estimated the total price of the project at £170,000 which included £7,801 for a storage reservoir, £15,128 for the river, filters and clear water tanks, £19,398 for the engines, £6,448 for the suction pipes from the river to the reservoir, £94,657 for all piping to connect to the various towns, £10,879 for service reservoirs and connections, and £5,128 for land, fencing, compensation and housing. A small sum was also put aside as a contingency. Total running costs were estimated to be £11,652 per year or around £33 a day (MM&HRA 01Nov1877 p.3).

2.5.3. The Process

Newcastle Borough Council subsequently arranged a conference with members of each of the surrounding councils to discuss the scheme (MM&HRA 08Nov1977 p.4). The Conference took place over two days, first in Newcastle on 16 November 1877 and a second session in West Maitland on 28 November 1877. It has attended by representatives from West Maitland, Newcastle, Wallsend, Plattsburg, East Maitland, Morpeth, Lambton, Waratah, Wickham, Hamilton, and Greta and Anvil Creek. The site at Oakhampton was visited and all in attendance agreed with the Clark Plan. In addition, a delegation to address State government was agreed upon. The delegation found great support for the scheme and a keen supporter in Premier Sir John Robertson and the following Premier, James Farnell (Armstrong 1967). In January 1878, surveyors were sent to the Lower Hunter to begin preliminary work. The Farnell government subsequently fell in December 1878 with no legislation passed to enable the works to proceed. Sir Henry Parkes' ministry, which followed Farnell, was less favourable to the scheme in part due to its general lack of detail. This was subsequently used as a reason why the government was unable to appropriate funds. Despite the lack of enthusiasm, the land for water storage reservoirs was resumed from October 1879 with work commencing on Newcastle and Buttai (Four Mile Creek) reservoirs in October 1880 despite no way of water being pumped to them (Jordon 2015).

The introduction of the *Country Towns Water and Sewerage Act* of 1880 marked a significant advance in the legislative process for not only the Walka Scheme, but water supply across the state. This Act provided fixed rate loan funding for water schemes across the state to be constructed by the Public Works Department (PWD). This caused a problem for the Walka scheme however, as it was intended that individual councils would pay off the works, not an integrated regional system that crossed multiple municipalities (Jordon 2015). Despite this unresolved issue, on 21 October 1880, it was announced that Clark's scheme would be funded (Figure 8) and the following June the land was formally resumed (NSW Gov Gaz 21June1881 p3283).



[4929] Department of Public Works,
Sydney, 21st October, 1880.

NOTICE is hereby given that His Excellency the Governor, with the advice of the Executive Council, has been pleased, under powers conferred upon him in that behalf by the 124th section of the "Country Towns Water and Sewerage Act of 1880," 44 Vic. No. 14, to authorize the construction, under the direction of the Minister of Public Works, of the necessary works for Water Supply for the City of Newcastle, the Towns of Maitland, Morpeth, and the Mining Townships on the Hunter River of this Colony, as recommended by the late W. Clark, Esquire, M.I.C.E., in his Report to the Colonial Secretary, dated the 8th October, 1877, and presented to Parliament by Command,—Parliament having voted funds which are legally available therefore.

The attention of the Municipalities interested herein is specially directed to the 125th section of the Act before recited, setting forth the terms under which they will become responsible for the payment of the said works on their completion.—Dated at Sydney, this 21st day of October, A.D. 1880.

JOHN LACKEY,
Minister for Works.

Figure 8: Extract from the NSW Government Gazette that confirms that funding of the Water Scheme. NSW Gov Gaz 22Oct1880 p.5444

2.6. Construction

Construction of the various components of the water works took place over the 1880s with at least 14 separate contracts being issued for various components (Malnic 1984). Table 4 demonstrates the dates and key events that cover the construction and operational changes that occurred during the working life of the Water Works.

The overall construction was managed by the Harbours and Rivers Branch of the NSW Department of Public Works. Although direct links are scarce, it is likely that E.O. Moriarty took overall responsibility for the implementation of the scheme as he was the Chief Engineer for Harbour and Rivers at the time. Moriarty also worked on the 1886 Bathurst Waterworks and the 1885 Goulburn Pumping Station. Robert Hickson, in his role as assistant engineer at the Harbor and Rivers Department in Newcastle had general responsibility with Henry Deane Walsh, the first Chief Engineer of Walka and overseeing day-to-day construction (Turner 1987). His cottage was one of the first parts of the site completed. Tenders for the works were regularly placed in the NSW Government Gazette and at least four firms were engaged to undertake the works including Smith and Burley, George Blunt, James Russell, and James Watt and Company.

Table 4: Key historical events that occurred during the operation of the Water Works

Date	Event
June 1881	79 hectares of land resumed 'for the Waterworks, Walka Lagoon and its catchment'
October 1881	Work on the Walka Water Works commences (NMH&MA 11Aug1885 p.4)
March to September 1882	Tenders sought for the construction of the Chief Engineers Residence
April to June 1882	Tenders sought for the supply of cast iron pipes and castings
June 1882	Tenders sought for supply and delivery of pumping engines, boiler and pumps
December 1882	Tenders sought for construction of the storage reservoir, filter beds and water tanks By this date Smith and Burley had begun construction on the tunnel from the Hunter River to pumping station
April 1883	Reported that tenders have been accepted by the government but that no work has been started (NMH&MA 30Apr1883 p.3)

Date	Event
May 1883	George Blunt, contractor, began construction of the filter beds and reservoir (Singleton Argus 19Mar1884 p.1) (Figure 10, Figure 9, Figure 11) Many workmen brought their families and lived on sites in tents
December 1883	First deposits made in construction of Puddle Trench and Wall at the Reservoir
March 1884	Smith and Burley had completed the tunnel from the Hunter River to the pumping station (Turner 1987) George Blunt had excavated over 40,000 cubic yards of material from the filter beds to build the embankment Singleton Argus reports that work has been ongoing on the reservoir embankment and filter beds (Singleton Argus 19Mar1884 p.1)
June 1884	Tenders sough for carting, delivering, laying and joining the pipes
August 1884	Works reported to be going well (MM&HRA 12Aug1884 p.6) The Chief Engineers residence was completed by this time and Henry Deane Walsh, the Irish engineer oversaw the construction of the works, was living on the site (Lloyd & Troy 1990)
February 1885	Last deposits made at the top of the Puddle Trench and Wall at the Reservoir Tenders sought for "*the construction of the Engine and Boiler House, Engine Foundations, Smoke Stack &c.*" (NSW Gov Gaz 20Feb 1885 p.1281)
March 1885	Estimated that George Blunt has approximately 5 months more work on the site
April 1885	M. Parkhill was awarded the tender to erect the Engine-house and Pumping Station, the key components of the Main Pumping Station (NSW Gov Gaz 28Apr1885 p.2905).
1886	By 1886 Parkhill was insolvent and James Russel had overtaken the construction
February 1886	Tender sought for construction of five caretakers' cottages – it does not appear that these were ever built
January 1887	The Water Works opens (NMH&MA 07Jan1884 p.5)
April 1890	Tender sought for the construction of four workmen's cottages built to the north of the Pump House
June 1890	Tender for the cottages awarded to C. Baker (AT&CJ 21Jun1890 p.41)
1892	Hunter District Water Supply and Sewerage Board constituted and assumed control of the site. Eastern Office annex constructed
1893	Experiments were undertaken at the site in the use of Polarite as a filter medium and the placing of the new sand-washing plant is taking place (MM&HRA 8Jun1893 p.4)
February 1894	Reported that the new sand washing plant is "Working very satisfactorily' (MDM 27Feb1894 p.4)
1896-1897	Second intake pipe constructed
1898	Hunter District Water Supply and Sewerage Board decided to erect a roof over the Clear Water Tank (Daily Telegraph 29Nov1898 p.6)
1907-1908	Construction of two addition filter beds (Beds 5 and 6)
1909	Plans drawn up for the additional sand washing plant located east of Filer Bed 4
1912-1913	Construction of Filter bed 7 in addition to a range of other upgrades including the western pump house and Pumphouse No 6
Nov 1914	Delegation from Singleton Council visit the site on a fact finding mission. This visit includes the sand washing plant indicating it is complete by this time
1916	Installation of the rapid water filters, and potentially Pumphouse No 9
Pre-1920s	Construction of numerous other features including change sheds (Figure 14)
1925	Walka Water Works placed in standby mode

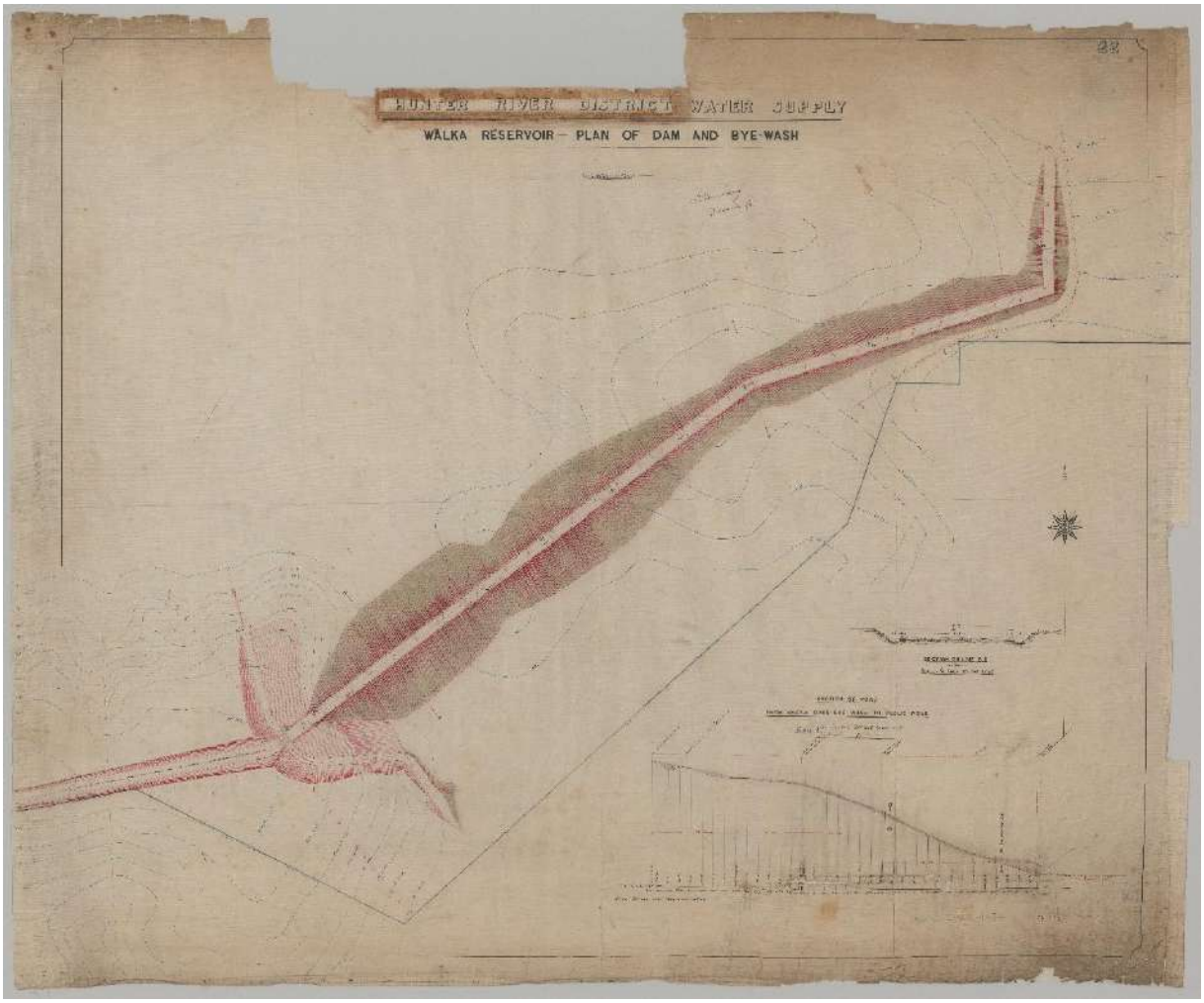


Figure 9: Original design plan for the Embankment from 1882 showing scale and details of construction AF00065745.

Figure 10: Construction of the Settling tank c.1885. Note the recognisable stepped brick work on the right of the image. Photo from the Maitland City Library Collection

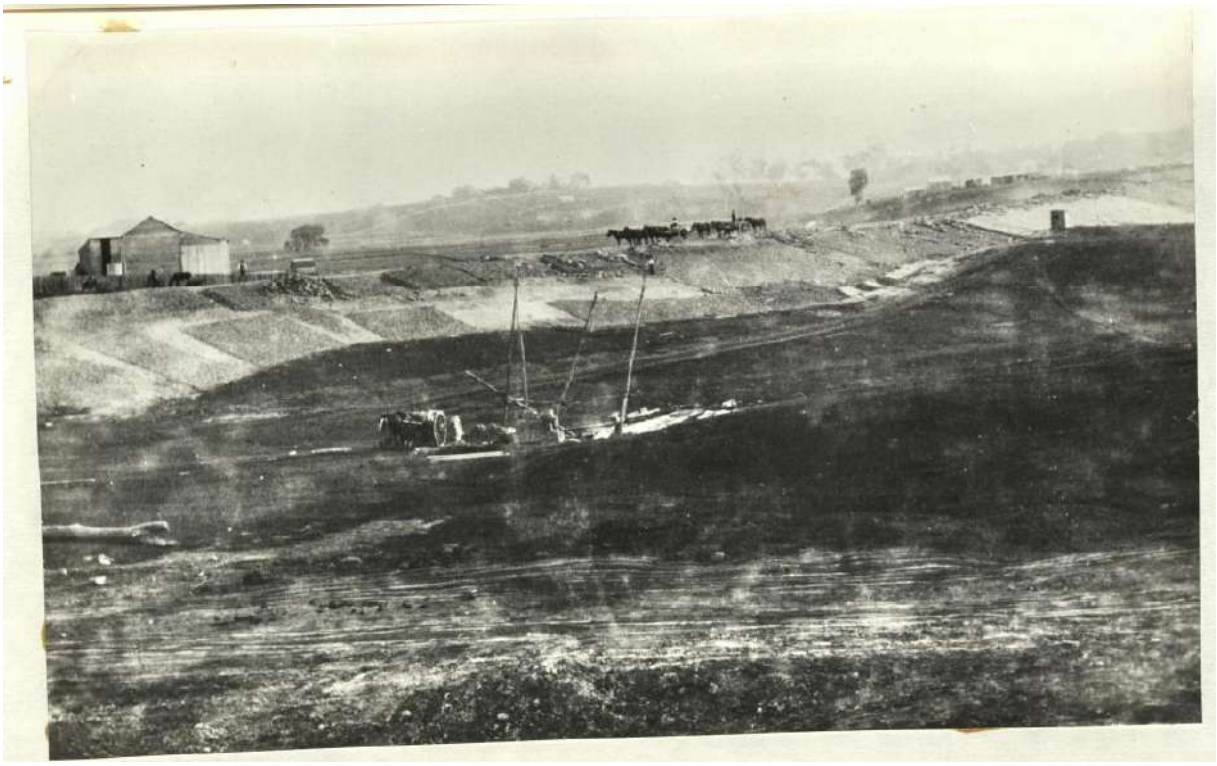


Figure 11: 1885 image taken during construction of the Embankment. Photo taken from Malnic 1984 with the original in the Hunter District Water Board Collection

Figure 12: The Boiler Room during operation c.1887-1892 before the construction of the Eastern Annex (1892). Undated photo from the Maitland City Library collection.

Figure 13: Walka Water Works, West Maitland c.1893 - Living Histories A8803-P0057

Figure 14: Undated image taken from the Clear Water Tank towards the Main Pumphouse. The roof of the Privy and Change Shed is visible dating the photo to post 1913. Photo from the Maitland City Library collection.

2.7. In Operation

The importance and widespread recognition of the engineering importance of the Walka site was demonstrated by numerous visits from interested groups. These included a visit from the Northern Engineering Institute in 1910, 1916, the Newcastle School of Arts Scientific Society in 1899, The Newcastle Branch of the Institute of Engineers Australia in 1923. Maintenance and improvements took place through the operational life of the site; often following visits to the site by members of the Water Board. These included:

- 1892: Various discussions to place regarding the duplication of the pipeline from Walka to the Buttai Reservoir.
- 1893: Extreme flooding occurs in February (National Advocate 15Feb 1893 p.2).
  Walka hosts a cricket match with members of the Newcastle and Maitland Staff of the Water Board engaging in a game. Edward Hacket accompanied the Newcastle Staff (MM&HRA 13Apr 1893 p.4).
- 1898: It was determined that a roof should be erected over the clear water tank in order to preserve the quality of the water and prevent weed growth (Daily Telegraph 29Nov1898 p.6).
- 1901: Inspection of subsidence of the embankment was undertaken in addition to a number of pipeline bridges along the duplication to Buttai (SMH 22Feb1901 p.6).
- 1908: The Clear Water Tank was emptied and inspected, it was found to be clear of any vegetation meaning the roof, erected c.1899 was effective at keeping the water clean (NMH&MA 27Aug1908 p.7). The roof is absent in 1913. It is unknown why it was removed (Figure 14)
- 1914: The designs for the Rapid Filters were prepared and location west of the Clear Water Tank selected for their construction (NMH&MA 15Dec1914 p.3).
- 1917: Purchasing a fan and motor to clean the boilers, confirming the site boundary and improving fencing, alterations to the office and store, installation of kitchen sinks in the workers cottages along with boarding up the back verandas (Northern Times 19Dec1917 p.4).

Figure 15: Showing the aftermath of the flood of 1893. The Second Engineers residence is visible on the high ground. Photo provided by MCC.

2.8. Post Pump 1920s to 1950s

The completion of the Chichester Dam in 1924 meant that the Walka Water Works, which had provided the people of the Lower Hunter a reliable supply of fresh water since 1887, was superfluous to need. It was reported at the time that the workers at Walka were anxious about the Dam affecting their jobs (The Labour Daily 21Mar1924 p.3). The following year Walka was placed on standby mode in case of dam failure, but work continued so that it could remain as a viable back up service. A tender was accepted for the supply and deliver of two additional boilers in April 1925 (Newcastle Sun 27Apr1925 p.3). In March 1927, works were undertaken to clear the pipe tunnel entrance at the Hunter River (MDM 24Mar1927 p.4). in 1928 a large plan of the site was drawn up which showed the Water Works largely at the maximum extent (Figure 16). As early as 1930, Walka was considered to be "almost a monument to a day that had passed" by The Chief Engineer of the Hunter District Water Supply and Sewerage Board (NMH&MA 12May 1930 p.4).

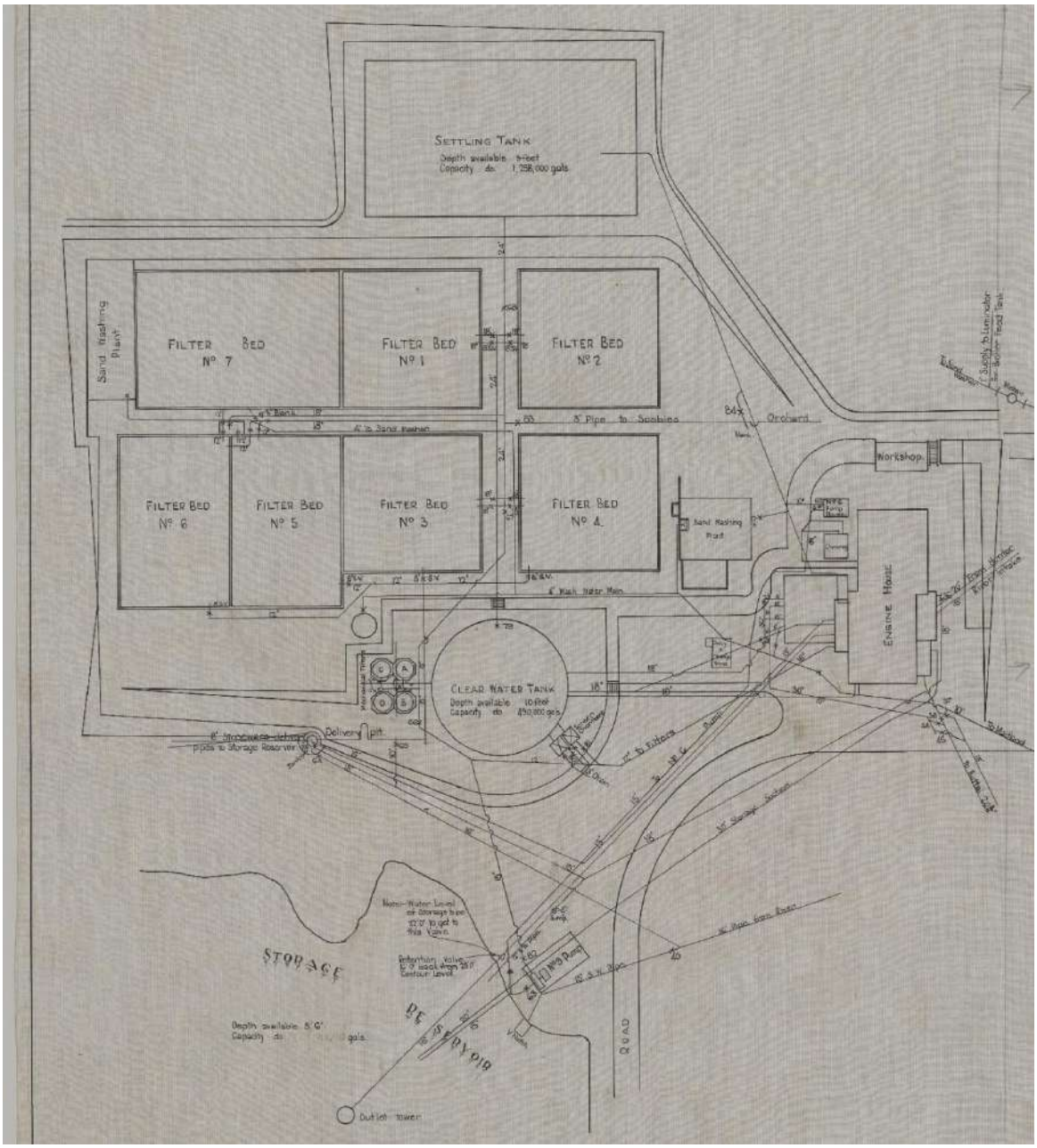


Figure 16: Extract from the 1928 'Diagram of Distribution System that shows the works, including the pipe network at is maximum extent. SANSW AF00065936

In March 1933, the need for Walka to remain a viable back up source was demonstrated when the Girl Guides were refused permission to use the site for a camp "*as no risks could be taken in connection with the maintenance of the purity of the water*" (Newcastle Sun 07Mar1933 p.4). The Chief Engineer reported that a test run in September 1933 was satisfactory (MDM 26Sep 1933 p.7). In 1935 it was agreed that the plant would be given an annual test run at a cost of £35 (MDM 07Aug1935 p.4). The regular maintenance and trials were warranted when, in January 1938, a pump at Walka was reactivated to supplement the supply from Chichester during the World War II drought (1937-1945) (NMH&MA 19 Jan1938 p.8). Despite the reactivation the importance of Walka as a heritage item was already appreciated by the late 1930s. In 1938 it was visited by members of the Newcastle and Hunter District Historical Society who toured the gardens and had particular interest in the older engines (NMH&MA 09May1938 p.9).

Through World War II it was decided that Walka would be retained as an emergency supply if required (NMH&MA 02Jun1943 p.4) but despite this, when being considered for use in an irrigation scheme later that year, the machinery was found to be in a "*bad state of repair*" (MM 11Dec1943 p.2). With the war over, the pumps were finally closed in 1945 and as early as June tenders were advertised to demolish the structure (Newcastle Sun 01Jun1945 p.6). No demolition works were carried out and in 1946 the Hunter District Water Board (HDWB) made the decision to sell off the Walka site suggesting that it would make an ideal location for a park or guest house with baths, tennis courts and bowling greens (MM 06Aug 1947 p.3).

One possible purchaser was the Newcastle Technical College, who commissioned a report and valuation of the site in June 1948 (Creer & Berkely 1948). The report details all of the main buildings and water infrastructure in addition to the Chief Engineer's residence containing nine rooms, the Second Engineer's residence, containing six rooms, and four workmen's cottages, each with seven rooms. It concludes that as result of age, the buildings were already deteriorating and that maintenance would be expensive. As such it concluded that the overall value was £ 5000 and that:

"It is difficult to envisage an economical or commercial use for this property". (Creer & Berkely 1948)

Despite attempting to sell in the late 1940s, by 1951 the HDWB still owned the site and again attempted to sell. At the time it was noted that a supply of urgently required galvanised iron could be recovered from the works (MM 09Aug1950 p.1). An attempt was made to transfer one of the original Watt engines to the Sydney Museum of Technology and Applied Science, however it was rejected due to cost (NMH&MA 04Jul1951 p.4). The Museum did commission a series of photographs of the machinery prior to its demise (Malnic 1984). A tender from A.G. Carylons of Rozelle for the removal of the steam drive plant and equipment was accepted by the HDWB in August 1951 for £3320 (MM 15Aug1951 p.4). The use of explosives to break up the flywheels, and general carelessness of Carylons caused all windows to be destroyed, and considerable damage to the sandstone architrave of the Main Pumphouse front door (Malnic 1984).

A lease agreement was put in place around this time to allow part of the site to be used for power generation.

2.9. Powering up 1950s to 1978

With the site dormant from the late 1930s and the HDWB seemingly keen to dispose of it, an agreement was reached in 1951 to erect a temporary Power Station at the site. This was in response to widespread power shortages following World War II caused in part by massive increase in demand in the post war world (Chester & Elliot 2019). The NSW Electricity Commission responded to this

power shortage buy purchasing four prefabricated power plants from the USA in 1951 (Malnic 1984). Walka, Penrith, Casula and Port Kembla were selected to be the sites for the stations (Tresev 1987).

The project details were discussed and finalised by May 1951 (Singleton Argus 25May1951 p.5). When announced it was envisioned that the Power Station at Walka would cost around £3 million and add 25,000 kilowatts to the grid. (NMH&MA 18Dec1951 p.4). It was hoped that the works would be completed by September 1952. The ready supply of water and location close to the existing power grid were seen as being positives for the scheme (Malnic 1984).

In general, the parts for the Power Station were imported by ship to both Sydney and Melbourne and carried by rail to the site. Representatives from the General Electric Company in the USA travelled to the site to supervise the construction works (George 1997).

The site was inspected in October 1951 (MM 16Oct1951 p.2) and by December work was progressing well with over 160 men employed (MM 17Dec1951 p.3). It had slowed into 1952 though with strikes and shortages with shipping supplies blamed by the government (MM 28May1952 p.3). Despite the slowed progression when visited in May 1952 massive change was visible at the site including foundations for the main Power Station building (Figure 17) and for the cooling tanks built over the earlier Filter Beds (Figure 18) .

The progress was further hampered by a series of events through 1952 and 1953. First, tragedy struck in September when Jon Ashworth, a 19-year-old rigger from Maitland fell from a building and died (MM 08Sep1952 p.2). Following this it was discovered that the foundations were inadequate, in part due to flooding and that remedial work would be required (MM 16Sep1952 p.2). This led to the 'temporary' dismissal of 120 employees (MM 18Sep1952 p.1). Work was further slowed when the boilermakers went on strike on the 20th of October after the dismissal of a boilermaker for "misconduct to his foreman'' (MM 22Oct1952 p.1). The strike was settled 10 days later (MM 30Oct1952 p.4).

There were further rumblings of industrial action in February 1953 by members of the Federated Ironworkers Union however it appears these came to nothing (MM17Feb1953 p.3). There were further deaths on the project in February when 34-year-old Franics Wilson fell off a building whilst welding (MM 26Feb1953 p.5), and in March when an exploding flange killed 28-year-old Herbert Stanton. The explosion caused him to be thrown 142 feet away and stripped his body of clothing (MM 24Mar1953 p.2). The inquest into the death of Stanton went on for several days and found that reasonable safety measures had been abandoned for expediency. The coroner stopped short of declaring Stanton's death as manslaughter (MM 18Jun1953 p.1). Despite these setbacks, the first power was connected to grid on 30 Jun 1953 (MM 30Jun1953 p.3).

Figure 17: Construction work at the main Power Station site in May 1952. Photo provided by MCC.

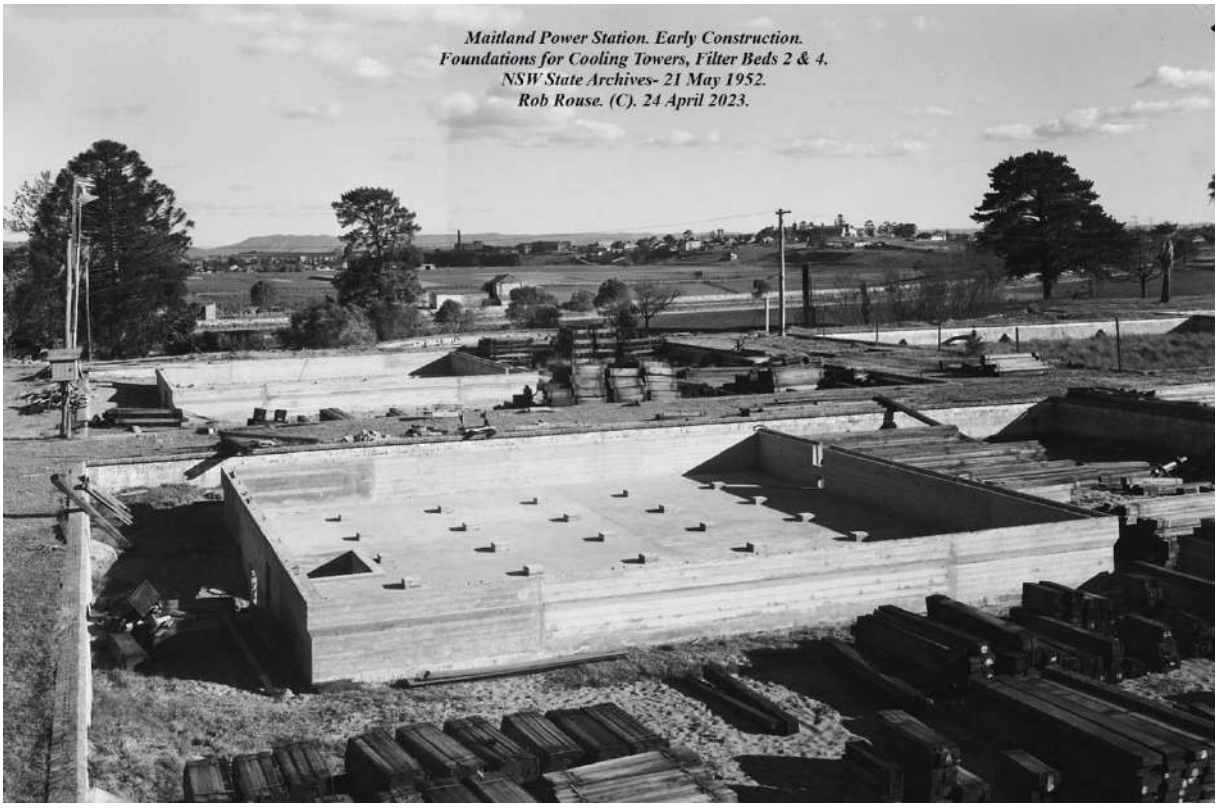


Figure 18: Foundations for the filter towers built over Filter Beds 2 and 4 in 1952. Photo provided by MCC.

The Minister for Local Government J.B. Renshaw officially opened the Power Station on 7 August 1953, nearly a year behind schedule (MM 07Aug1953 p.2). Due to safety, the public were encouraged not to attend the opening and children were specifically barred. The ceremony included the Electricity Commissioner (Mr Conde) and the NSW manager of Australian General Electric (Mr J.L. Taylor). The ceremony was followed by a cocktail party at the Belmore Hotel (MM 05Aug1953 p.2).

The main Power Station structure was constructed on the lawn to the south of the pumphouse. It measured approximately 80 meters by 100 metres and housed four pairs of boilers and alternators (Godden & Associates 1987). The existing road network dates from this period, and the branch railway, which ran across the site was also constructed as part of the works opening in May 1954 (Manic 1984 p.50) (Figure 19, Figure 20).

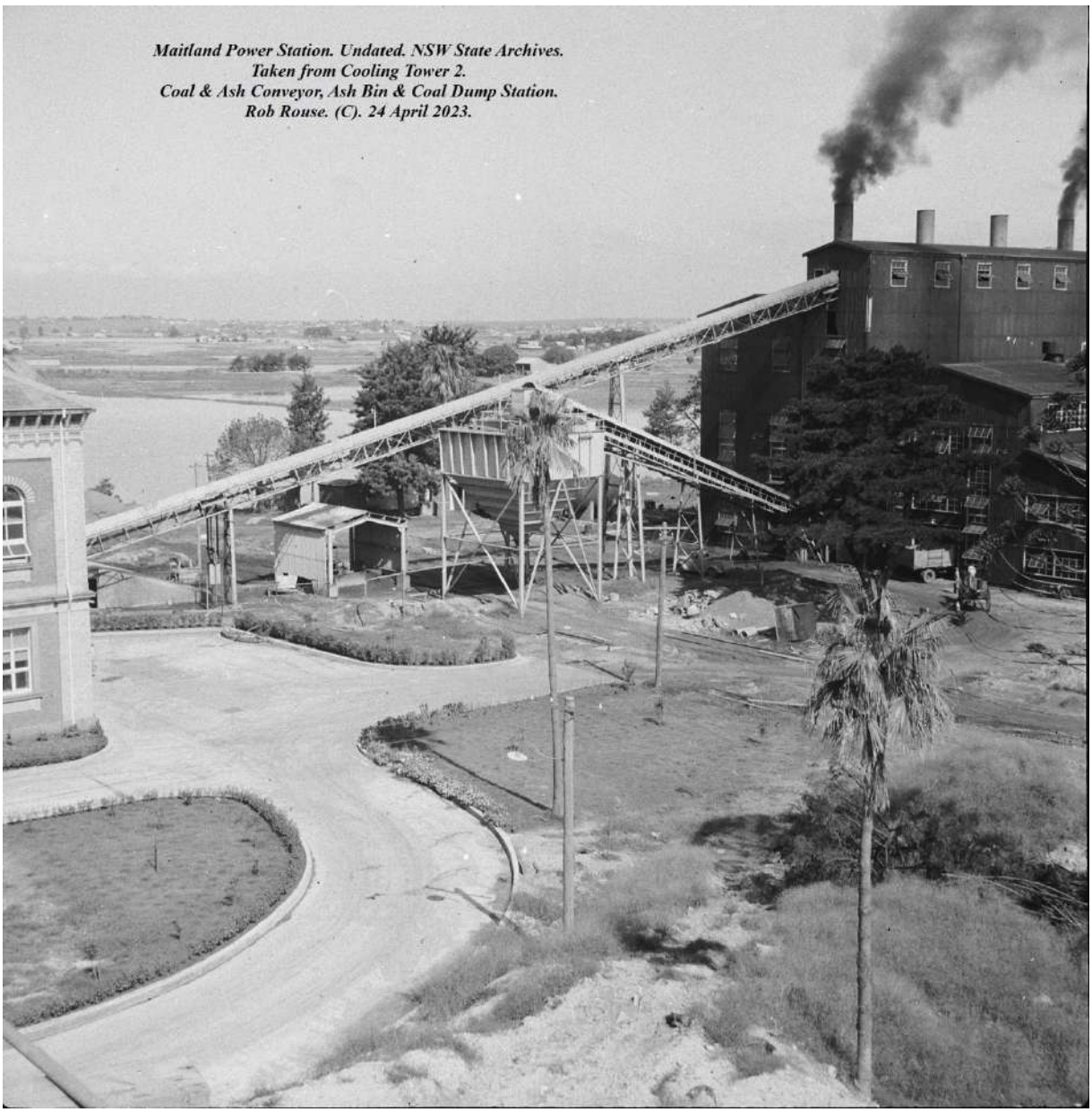


Figure 19: The area between the Main Pumphouse and Power Station which was used by coal trains to unload.

The Main Pumphouse was converted into offices and amenities and the basement largely filled with rubble (Malnic 1984). Once filled, the western Pumphouse floor was concreted over restricting access

to the basement (Tresev 1987). Major alterations were made to the filter beds which included the construction of cooling towers in beds 2 and 4 and oil storage tanks in beds 5 and 6 (Godden & Associates 1987). A new railway cutting to bring coal to the site was created which ran around the reservoir and between the pumphouse and new Power Station along the route of the present road.

Figure 20: Post-1953 view of the main complex. The cooling towers have been erected over Filter Beds 2 and 4 and Pumphouse No 9 is visible in the foreground. Photo supplied by MCC.

By 1954 the Power Station was up and running (Figure 21, Figure 22, Figure 23). In response to a question regarding the potential pollution in the legislative assembly, J.B. Renshaw stated it was at present the third most efficient Power Station in the State (MM 30Nov1954). The Power Station had a relatively short life span and having been placed on standby in the early 1970s was decommissioned in 1976. Two years later in June 1978 the building was demolished and the site cleared by Balcomb Industries Pty Ltd (Malnic 1984 p.49).

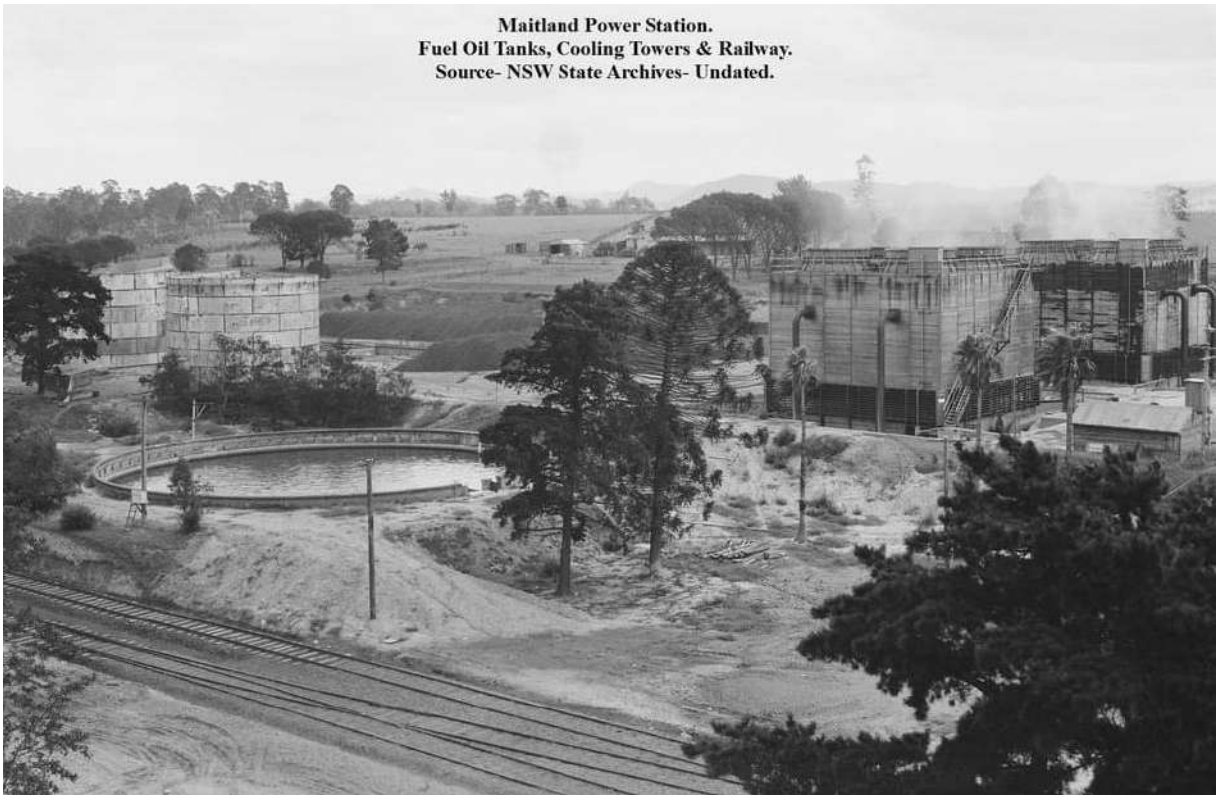


Figure 21: The Oil tanks built over Filter Bed 5 and 6 and the Cooling Towers built over Filter Bed 2 and 4. Photo provided by MCC.

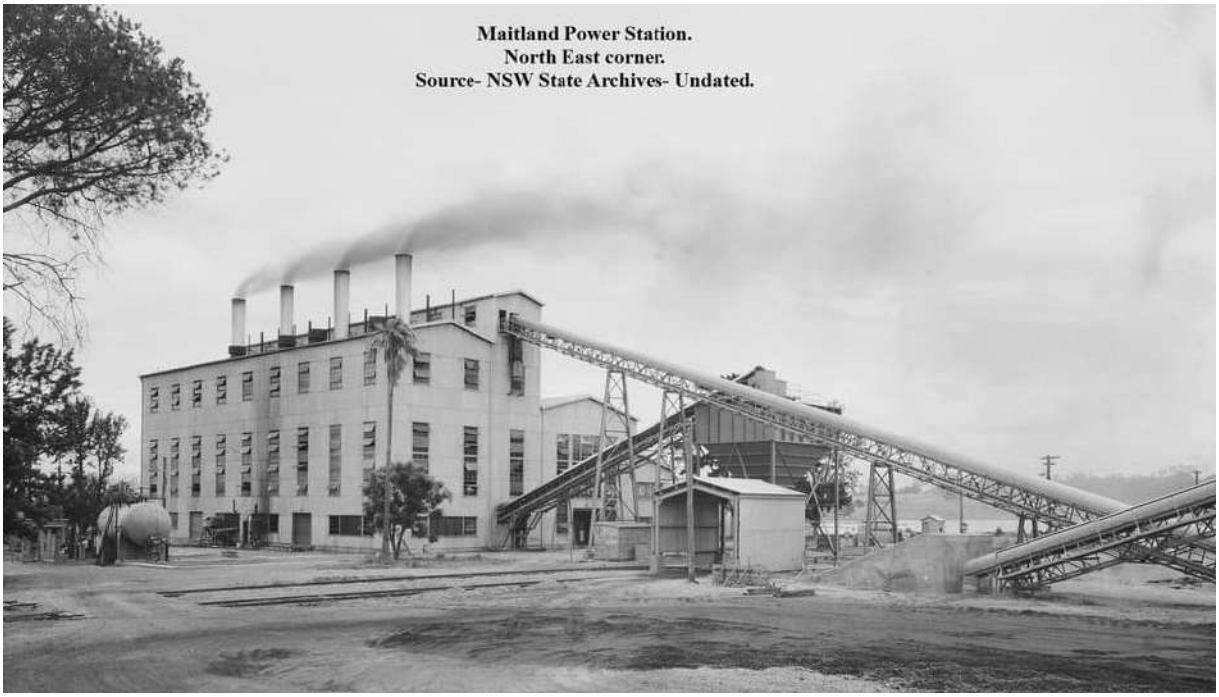


Figure 22: The Power Station in operation viewed from the Pumphouse Lawn. Photo provided by MCC.

Figure 23: Extract from an undated c1951-1976 aerial photograph showing the Power Station at its maximum extent. This includes the cooling towers on Filter Bed 2 and Filter Bed 4, the oil tanks on Filter Beds 5 and 6. Photo courtesy of John Stein in the Maitland City Library Collection.

2.10. Public Space

The Power Station was decommissioned in 1975 and demolition occurred across the site the following year. The demolition works were expansive and also included the chief residents and workmen cottages associated with the Water Works phase. During the demolition much of the machinery and construction materials were smashed and destroyed in situ and buried at the site (Figure 24, Figure 25).

Figure 24: Piles of smashed machinery during the demolition of the Power Station in 1978. Photo provided by MCC.

Figure 25: Part of the demolition of the Power Station in 1978 showing the destroyed machinery. Photo provided by MCC.

In the subsequent decades, landscaping works were undertaken to transform the site into a public amenity. A trust was formed to manage the site in 1984. A Permanent Conservation order (No. 466) was placed over the site in October 1986 (Gov Gaz NSW 03Oct1986, Issue 156 p.4877). Some of the landscaping and construction works undertaken during this period formed part of the 'work for dole' scheme in the 1990s and 2000s (Nota 01Oct1998 p.16).

Works during this period included:

- Formation of the roadway along to route of the railway track.
- A new caretaker's cottage at the northern end of the site in 1995 (Figure 26).
- Construction and operation of a miniature railway including a bridge in 1996 (Figure 27).
- The erection of a children's playground in the vicinity of the old Power Station prior to 2000 (Figure 28).
- The construction of timber and concrete block retaining walls around the main buildings from 1999 (Figure 29, Figure 30).
- Grading and maintenance of the walking track around the reservoir in 2000 (Figure 31).
- Localised gardening and landscaping including in 2003 (Figure 32).

For much of this period, the ground floor of the pumphouse was used as a café and housed a small museum that featured a scale model of the water works.

Figure 26: The caretakers cottage erected in 1995. Photo Provided by MCC

Figure 27: The miniature railway bridge built in 1996 Photo Provided by MCC

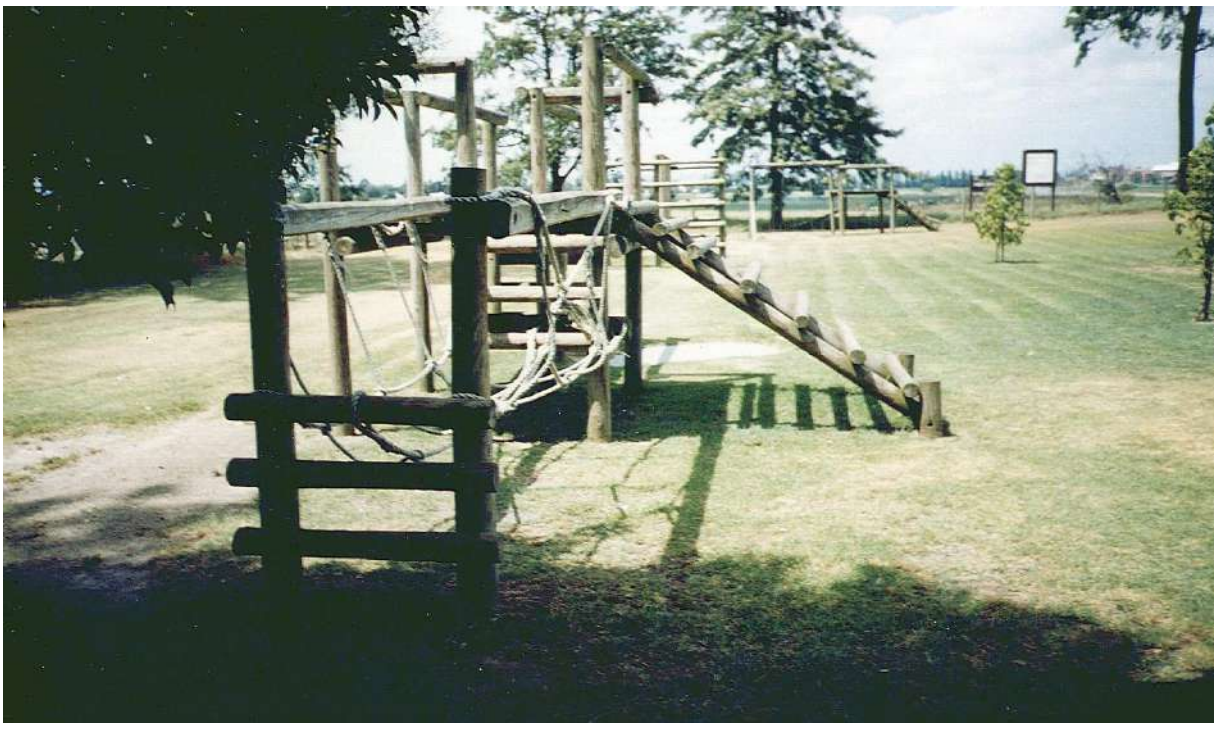


Figure 28: Children's playground built prior to 2000. Photo Provided by MCC

Figure 29: Concrete Block retaining wall built 1999. Photo Provided by MCC

Figure 30: Timber retaining walls built. Photo Provided by MCC

Figure 31: Pathway and bridge upgrades of the walking paths in 2000. Photo Provided by MCC

Figure 32: Landscaping undertaken around the Clear Water Tank in 2003 as part of the work-for-dole scheme. Photo Provided by MCC

3. Structural Evidence

3.1. Overview

The following section describes each individual element of the Walka Water Works. Where still present, the descriptions are based upon physical examination undertaken in 2024. These descriptions are enhanced by the corpus of previous reporting undertaken for the site and historical research, including plans, maps, and photographs. Of particular importance were the documents prepared in the 1980s:

- The Conservation and Development of the former Walka Waterworks, West Maitland, Malnic 1984
- Conservation Plan for Walka Water Works, Tresev 1987
- Industrial Archaeology in Specialist reports for Walka Waterworks Conservation Plan, Don Godden & Associates (1987).

Each item, or where appropriate, groups of items have been assigned a code to facilitate cataloguing. The site has a full range of historical features. In some cases, the features are well known through historical evidence and are still extant whereas other items exist only as undocumented potential archaeological features.

Figure 33 maps each feature and its code. Figure 34 shows similar information on the 1938 historical aerial. This aerial shows the fullest extent of the Water Works on the site prior to any modifications from the Power Station. Figure 35 demonstrates those features that are extant or demolished. A more detailed account of archaeological potential is included in Section 6.7.

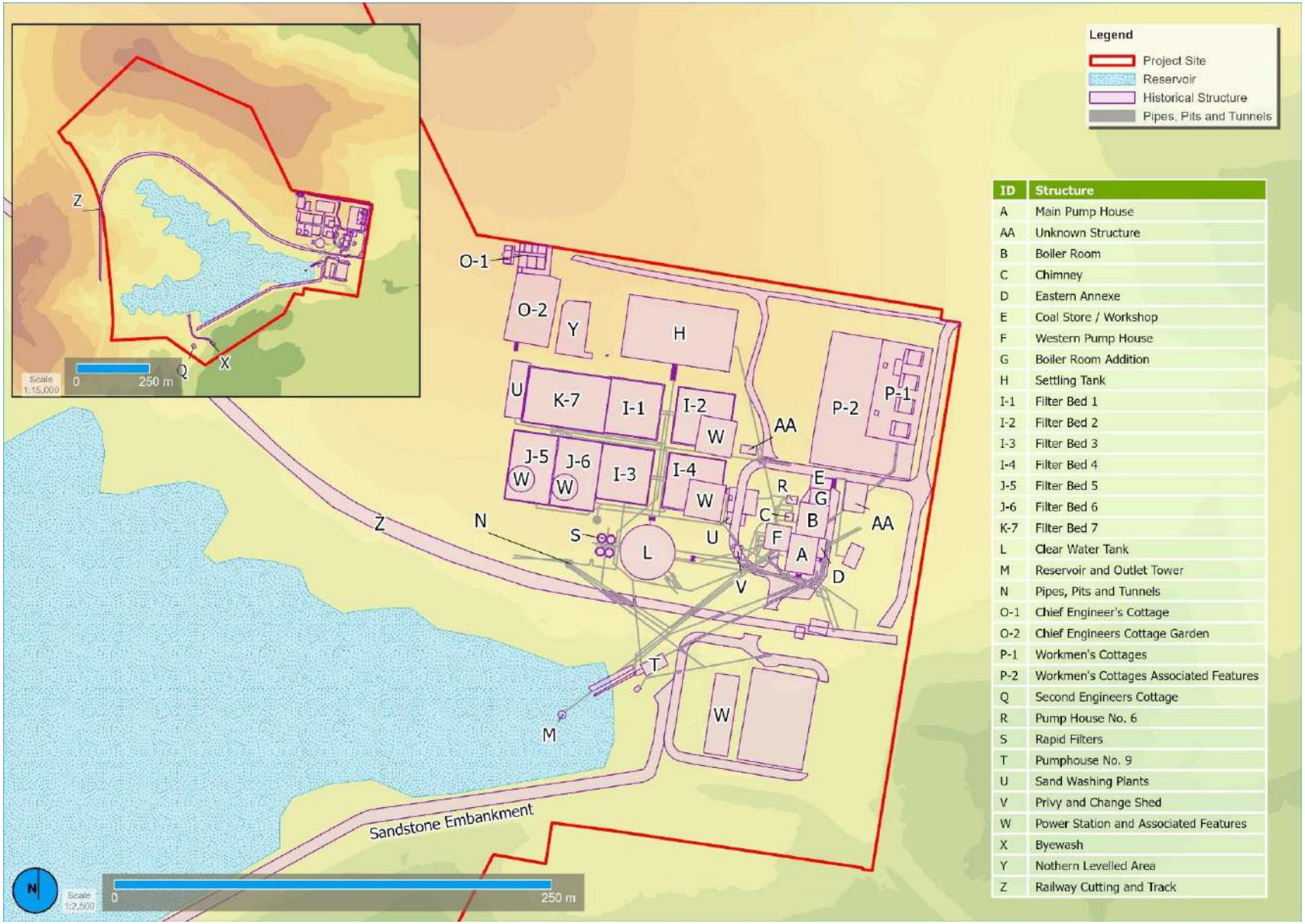


Figure 33: Map of the identified historical features at Walka.

ID	Structure
A	Main Pump House
AA	Unknown Structure
B	Boiler Room
C	Chimney
D	Eastern Annexe
E	Coal Store / Workshop
F	Western Pump House
G	Boiler Room Addition
H	Settling Tank
I-1	Filter Bed 1
I-2	Filter Bed 2
I-3	Filter Bed 3
I-4	Filter Bed 4
J-5	Filter Bed 5
J-6	Filter Bed 6
K-7	Filter Bed 7
L	Clear Water Tank
M	Reservoir and Outlet Tower
O-1	Chief Engineer's Cottage
O-2	Chief Engineers Cottage Garden
P-1	Workmen's Cottages
P-2	Workmen's Cottages Associated Features
Q	Second Engineers Cottage
R	Pump House No. 6
S	Rapid Filters
T	Pumphouse No. 9
U	Sand Washing Plants
V	Privy and Change Shed
W	Power Station and Associated Features
X	Byewash
X	Byewash
Y	Nothern Levelled Area
Z	Railway Cutting and Track

Figure 34: The 1938 historical aerial photograph of the site with historical features located.

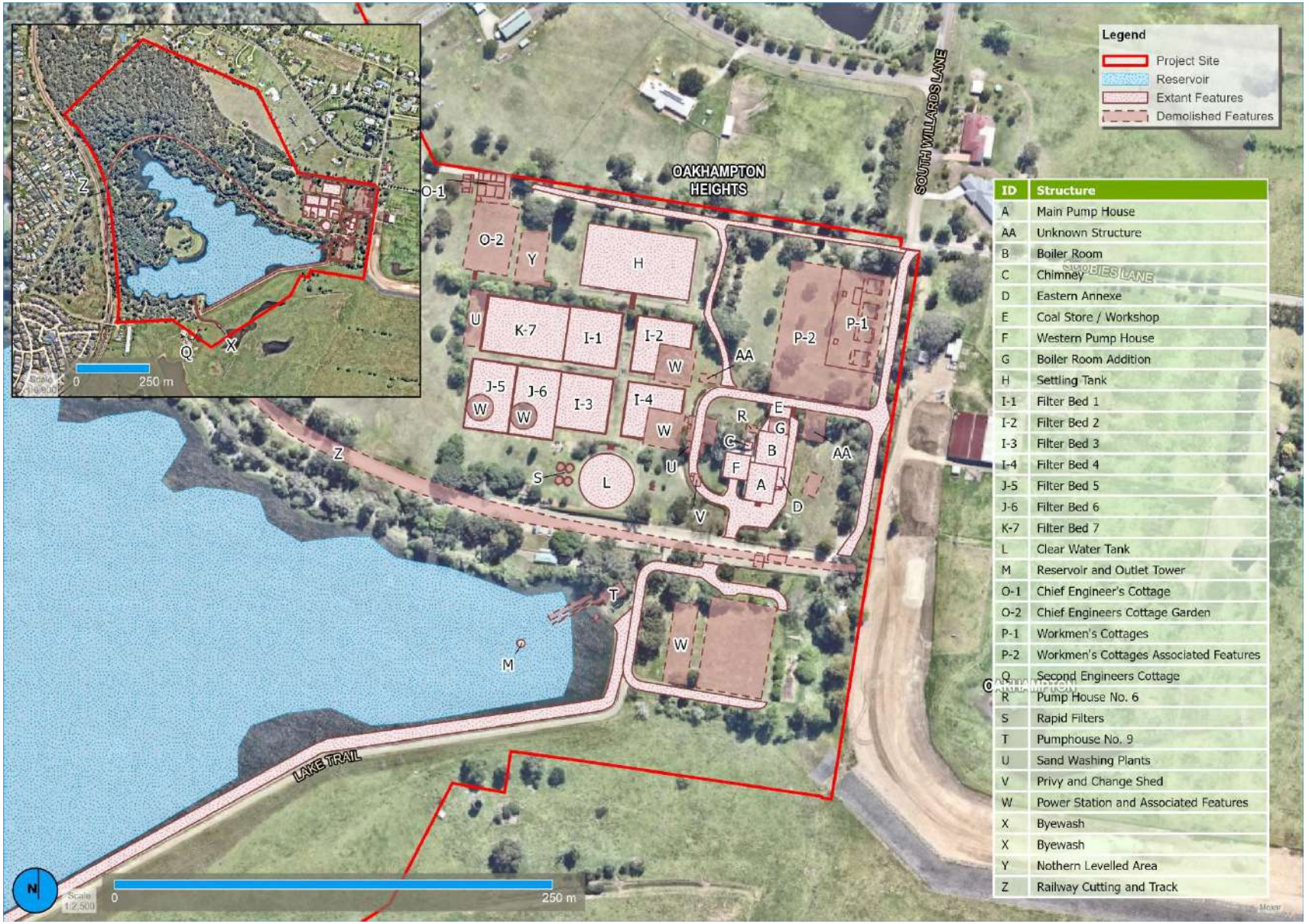


Figure 35: Map showing which historical features catalogued are extant or demolished.

3.2. Main Pumping Station

3.2.1. Overview

The Main Pumping Station consists of the two-storey Main Pumphouse, Boiler Room, Western Pumphouse, Eastern Annex, Chimney, Boiler Room Addition, and Coal Store / Workshop. In addition to the Main Pumping Station other ancillary and supplementary buildings in the vicinity including Pumphouse No 6, Privy and Change Shed, an unknown structure, and parts of the Power Station and Associated Features. It is the most well-known and iconic part of the complex.

It functioned to pump water to and from the complex filtration system established at the site. The dates, functions and key mechanical elements of each item are in Table 5.

Table 5: Items in the Main Pumping Station

Name	ID	Construction	Status	Machinery
Main Pumphouse	A	1885-1886	Modified c.1950s, 1990s Extant	Three James Watt & Co. vertical beam engines
Boiler Room	B	1885-1886	Modified c.1950s, 1990s Extant	Five 28ft long Lancashire Boilers in 1885 Two Babcock and Wilcox boilers added in 1913
Chimney	C	1885-1886	Modified 1990s Extant	
Eastern Annex	D	1892	Modified c.1950s, 1990s Extant	
Coal Store / Workshop	E	1885-1886	Modified c.1950s, 1990s Extant	
Western Pumphouse	F	1913	Modified c.1950s, 1990s Extant	Hathorn Davey & Co vertical triple expansion three plunger pump engine
Boiler Room Addition	G	1913	Demolished c.1983	
Pumphouse No 6	R	1913	Demolished date unknown	
Privy and Change Shed	V	Pre-1928	Demolished pre-1967	
Unknown Structures	AA	Pre-1928	Demolished pre-1967	

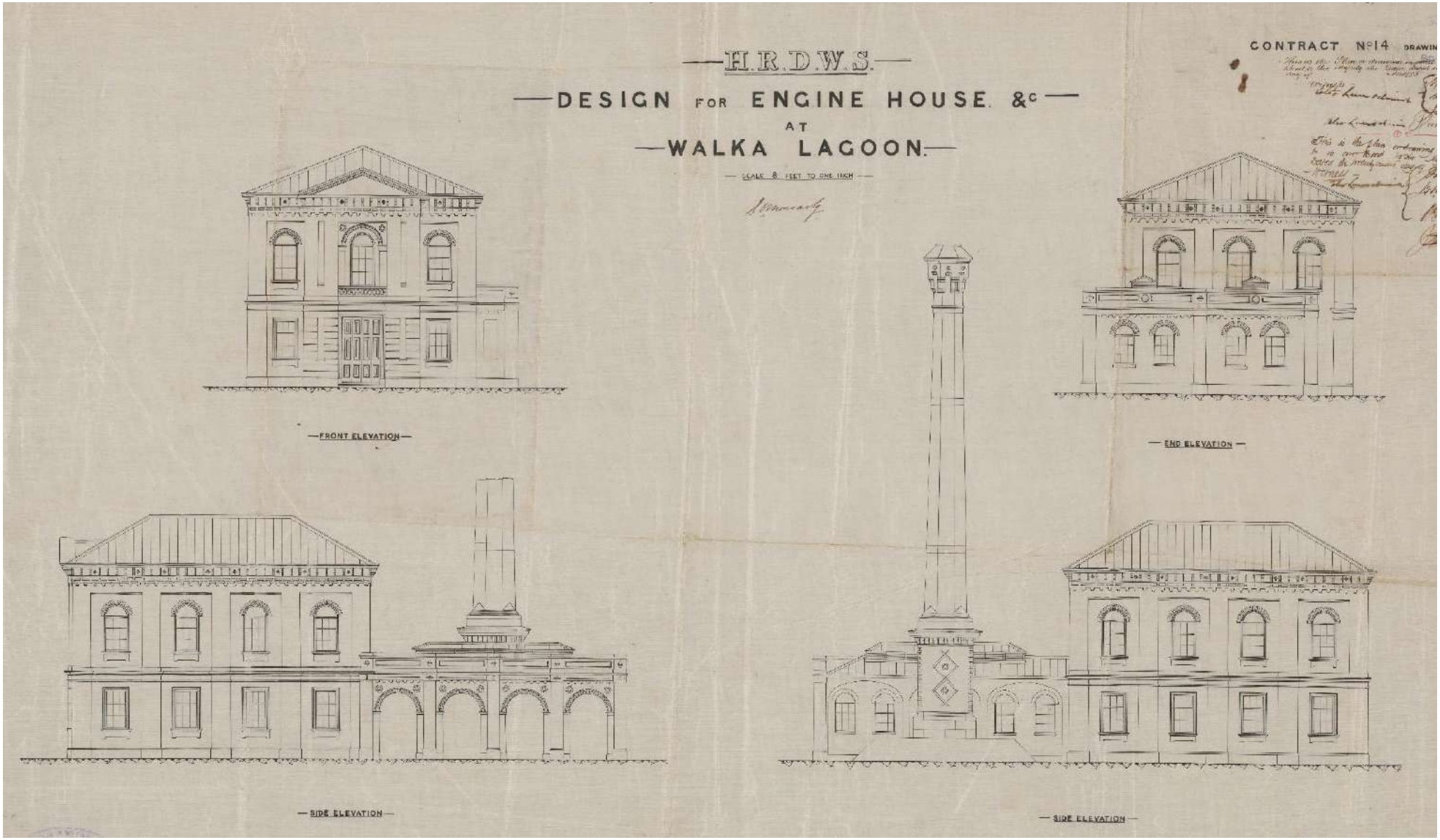


Figure 36: Elevation Drawings of the Main Pumphouse (Item A), Boiler Room (Item B), and Chimney (Item C) from 1885. NSWSA AF00086369

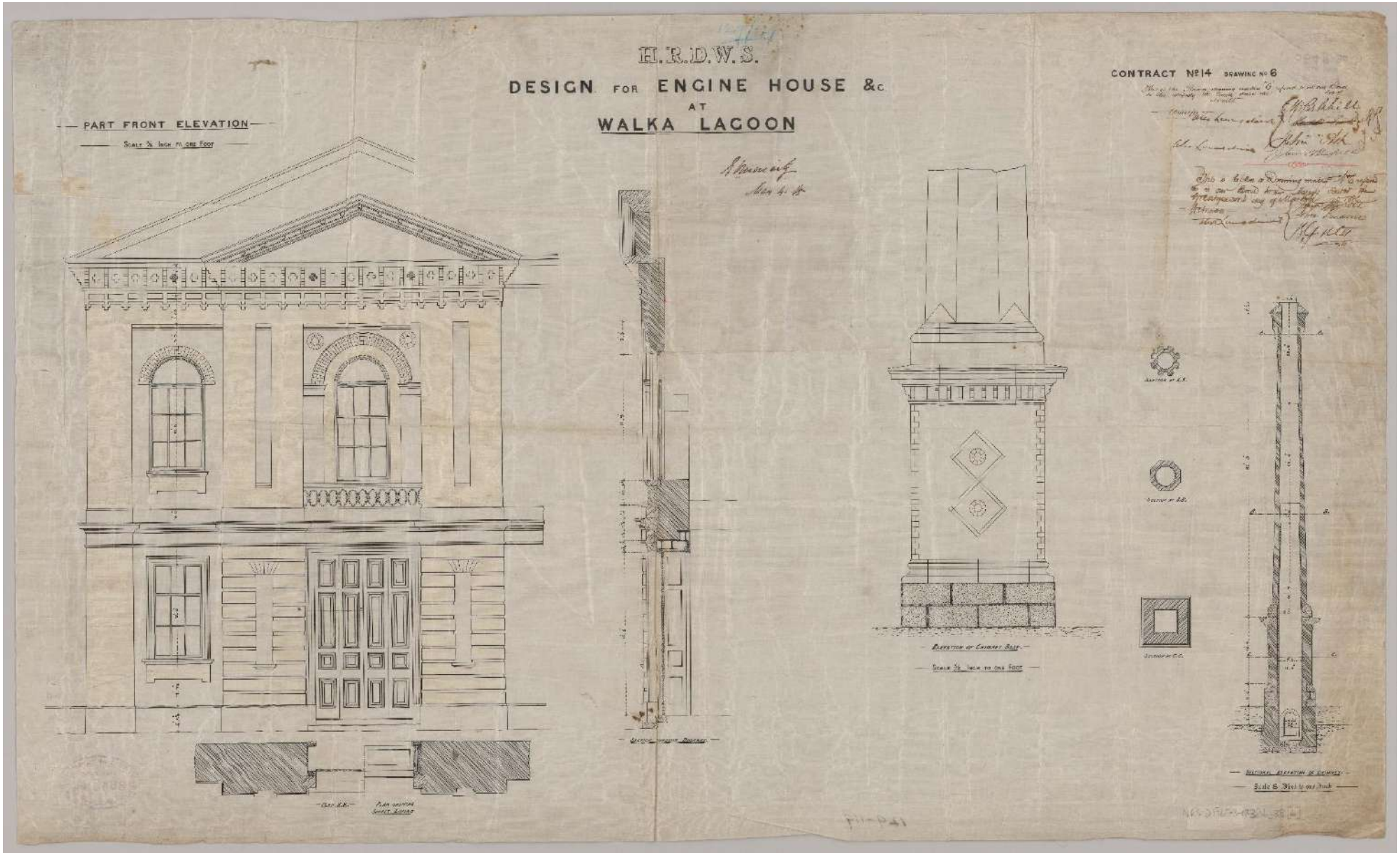


Figure 37: Front elevation of the Main Pumphouse and detail of the chimney at Walka NSWSA AF00086372

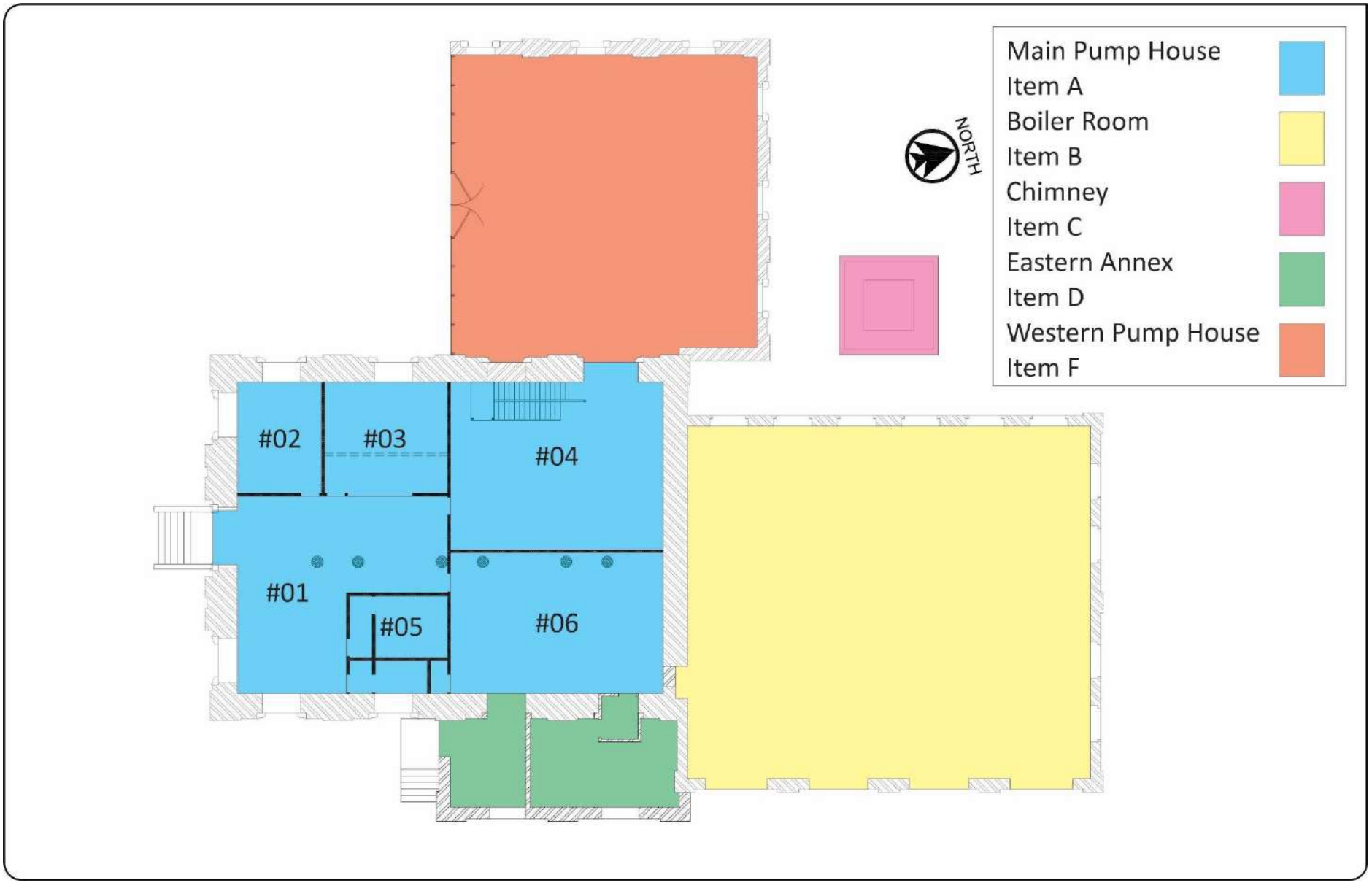


Figure 38: Internal rooms within the Main Pumping Station. Base plan provided by MCC

3.2.2. Main Pumphouse: Item A

The Main Pumphouse was constructed during the initial phase of construction from 1886 to 1887. It is a two-storey polychrome brick structure built in the Italianate Style. The solid brick walls are over one meter thick for much of their height, constructed to be sufficiently strong to support the first floor that housed the engine rocking beams. The walls reduce in thickness above the first floor. The foundational courses of the building are sandstone, as are the architraves of the ground floor windows. The brickwork is of very high quality with cream and red dry pressed bricks used for the external courses, all tuckpointed. In all sections the walls use cream brick pilasters to create bays constructed in red brick. Each window is contained to within a pilastered bay with the first floor being differentiated with a course of sandstone. Decorative brickwork elements include moulded polychrome arch heads on the first floor windows, panelling below all windows, protrusions on the south facing elevation, the use of circular motifs astride the central window on the south facing elevation, and decorative coursing on the upper sections of wall to support brick and sandstone cornicing. The staircase leading up to the main entrance is a 1950s addition, built to create access to the elevated internal floors. All windows are currently six-pane however it is believed these are 1940s replacements for the earlier nine pane windows that were destroyed during removal of the machinery. The building has a substantial basement, believed to be at least 10 meters deep which was not accessible during the inspection for this report but had recently been inspected. There is a staircase leading up to the main entrance which was installed in the early 1950s when the internal floor level was substantially raised.

The roof is hipped and constructed of corrugated iron with a small pediment above the main entrance lined with sandstone. It is believed that the roof, in addition to much of the guttering has been replaced within the last 15 years.

Figure 39: Southern and western elevation of the Main Pumphouse (Item A)

Figure 40: Eastern elevation of the Main Pumphouse (Item A), with Eastern Annex (Item D) and Boiler Room (Item B) visible.

Internally, the Main Pumphouse was substantially remodelled when converted into offices during the 1950s and again when it operated as a café during the 1990s. The only clear original fabric remaining are the substantial painted cast iron columns. The space has been portioned into various rooms as described in Table 6 and shown in Figure 38 and Figure 41.

Table 6: Internal Description of Main Pumphouse (Item A)

Room	Known as	Key features	Condition / Integrity	Images
#01	Main Office / Entrance	Original cast iron columns supporting beams that extend outwards. False panel board ceiling. Timber floors. Various fixtures and fittings including lights and power points	Columns original and in good condition Good integrity to 1950s internal layout. Paint cracking and some mould on external walls	Figure 42,Figure 43
#02	Office	Original cast beam, false ceiling, carpeted floor	Crack in external wall, repairs to internal render, water damage	Figure 44
#03	Laboratory / Kitchen	Original cast beam, false ceiling, linoleum floor, possible 1950s cabinetry, serving hatch	General good condition. Low dividing wall in centre	Figure 45,Figure 46
#04	Pumphouse Lower	Exposed brickwork and stud work demonstrating construction. Concrete floor, no ceiling showing exposed floorboards of upper storey. Wire mesh enclosed staircase	Clear evidence of construction techniques from numerous phases. Stairs from 1950s alterations. Floor 1950s but closer to original level	Figure 47,Figure 48
#05	Toilets	Low false ceilings in some parts. Various extractor fans and pipework. Some ornate mirrors/hinges etc. 1950s fixtures	Largely intact 1950s toilet block	Figure 49, Figure 50

Room	Known as	Key features	Condition / Integrity	Images
		and fittings. Herringbone tiled floor		
#06	Change room / Museum	Original cast beams continue, internal wall panelling. Thin grey carpet with some floorboards exposed. Scale model of waterworks	Plans show 1950s change rooms with further partition wall. Original beams in good condition, no original 1950s features	Figure 51
#07	Upper floor	Exposed timber roof with metal trusses. Painted brick walls laid English bond. Original timber floor, and three pairs of iron wheel brackets in place.	Original 1880s floor and wheel fittings. Potential original paint work water damaged	Figure 52,Figure 53

Figure 41: Location of rooms within the Main Pumphouse in the Main Pumping Station. Base plane provided by MCC.

Figure 42: The Main Office (Room #01) in Main Pumphouse (A) looking towards Room #02 and #03. Note the original columns with 1950s floors and internal partitions creating the additional rooms.

Figure 43: The Main Office (Room #01) looking towards the southeast corner. The entrance into the Main Pumphouse is visible. There is some paint flaking around the windows along with mould but otherwise, the room is in good condition.

Figure 44: The Office (Room #02) in Main Pumphouse (A) demonstrating water damage. Cracks in the render are visible on the external wall.

Figure 45: The front section of the Kitchen/Laboratory (Room #03). The low partition wall is of an unknown date but likely was installed along with the kitchen equipment in the 1990s.

Figure 46: The rear area of Room #03 showing the 1990s cabinetry and sinks.

Figure 47: The Pumphouse Lower room (Room #04) looking south. The floor level in this room is lower than the adjoining rooms and it features exposed wood stud work and various Power Station features.

Figure 48: The 1950s internal staircase that links Room #04 to Room #09 above.

Figure 49: Toilets (Room #05) within the Main Pumphouse (Item A) with original tiled walls and herringbone floor.

Figure 50: The false ceiling and various vents within the Toilets (Room #05)

Figure 51: The scale model of the Water Works within the Museum (Room #06). The continuation of the original columns and beams are visible.

Figure 52: General view of the upper floor. Showing the original painted water damaged walls, floor and wheel brackets in place. Various later vents and ducting are additionally visible.

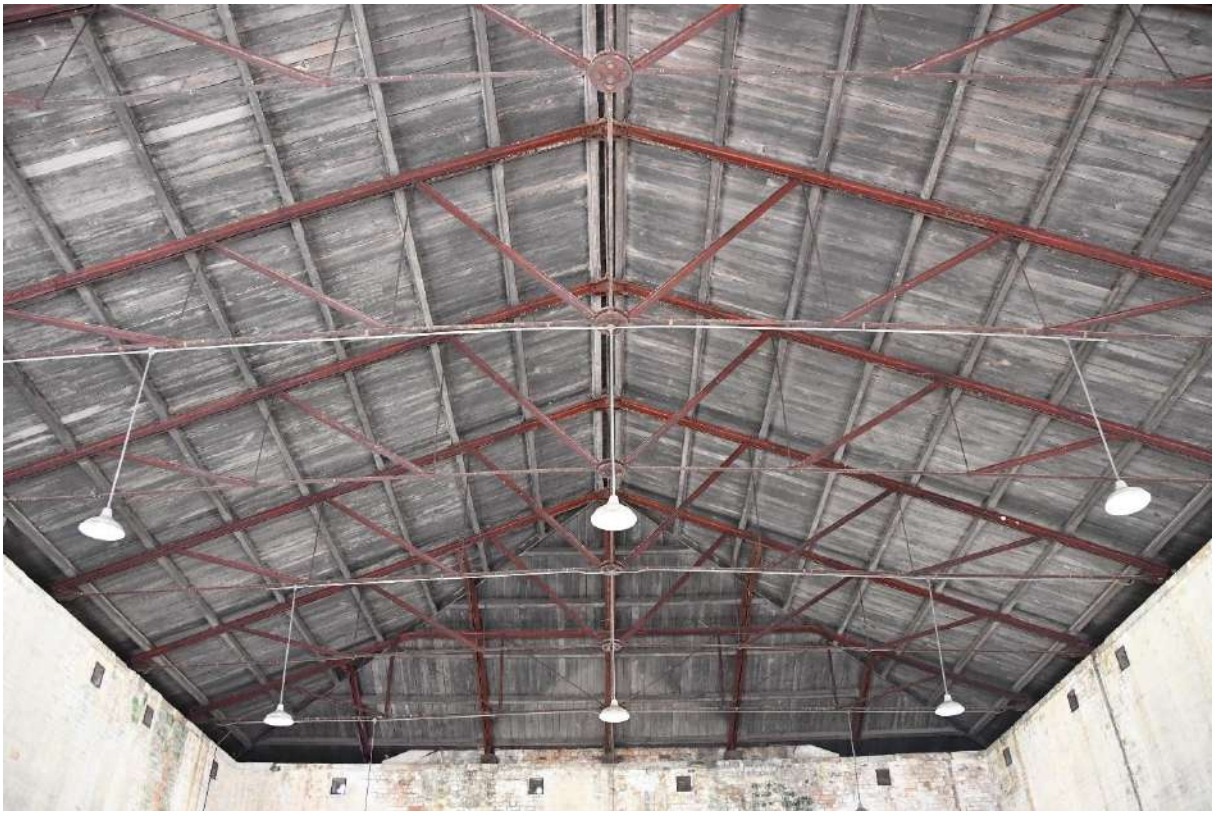


Figure 53: Internal view of the roof of the Main Pumphouse showing the roof trusses and water damaged walls.

3.2.3. Boiler Room: Item B

The Boiler Room sits to the north of the Main Pumphouse (Figure 54). It was constructed during the same phase (1886-1887), in the same red and cream polychrome brick style with a sandstone basecourse. It is a single storey building with four large openings along the eastern wall, each within a pilastered bay (Figure 55). Each opening is identical with a rounded arch in alternating brick and two circular motifs above. The openings contained well-constructed recent wooden double-doors. The wall is capped with a decorative bed of brick work within a shallow parapet. The northern elevation contains two pairs of arch-topped windows and a continuation of the parapet (Figure 56, Figure 57). There is evidence of repair to the brickwork beneath one of the eastern windows indicating it may have been used as a doorway (Figure 59). This doorway would have led to the Boiler Room Addition (Item G). The corner columns for the wall on the northeastern corner has two voids presumable left over from the roof of the boiler room extension. The windows feature sandstone sills. The western wall likewise has pairs of windows. Here though, each pair is covered within a further relieving arch. The parapet continues through this wall but is less decorative. The flue, which connects the Boiler Room to the Chimney is located in the western wall. The southern wall includes a bricked-up doorway that would have connected the Boiler Room to the Main Pumphouse (Figure 60, Figure 61). There is currently no internal access between the two rooms.

The roof is double hipped at one end and gabled at the other. It is concealed behind the parapet and presently clad in corrugated iron (Figure 59, Figure 60). The original iron roof trusses are in place internally, however the support columns that support the roof have all been replaced with a plain 'I' beam construction. The original column capitals are still present. The modification likely occurred during the 1950s when the boiler room was use as a store. Other modifications from that time include the installation of a concrete floor which is presently covered in asphalt.

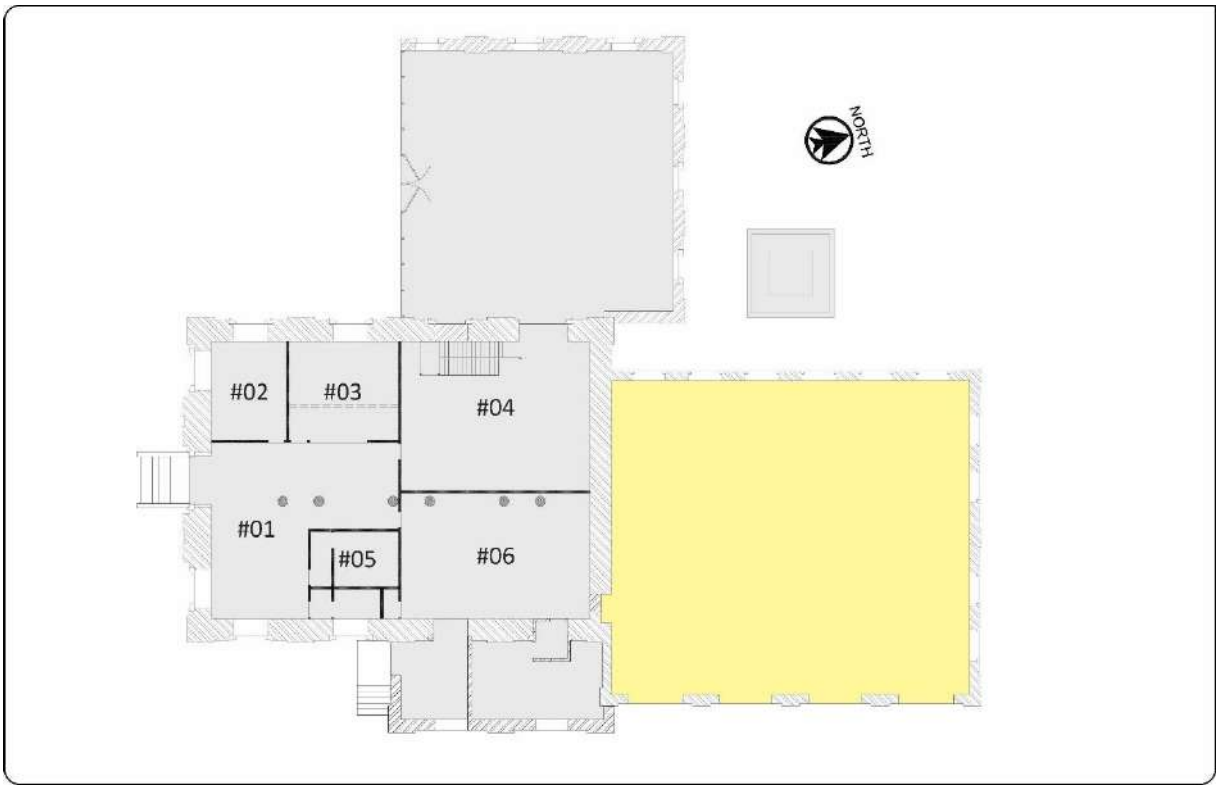


Figure 54: Location of the Boiler Room within the Main Pumping Station. Base plane provided by MCC.

Figure 55: The eastern elevation of the Main Pumphouse (Item A), Eastern Annex (Item D) and Boiler Room (Item B). The four pilastered arched doorways with modern doors are visible. View to the west

Figure 56: Northern elevation of Boiler Room (Item B). Evidence of the attachment of the former Addition (Item G) can be seen on the corner in the foreground and below the window frame where the brick work has been replaced.

Figure 57: The northern and eastern elevation of the Boiler Room (Item B) showing the paired windows beneath the relieving arches and decorative brickwork.

Figure 58:General interior view of the Boiler Room (Item B) showing the western wall with relieving arch.

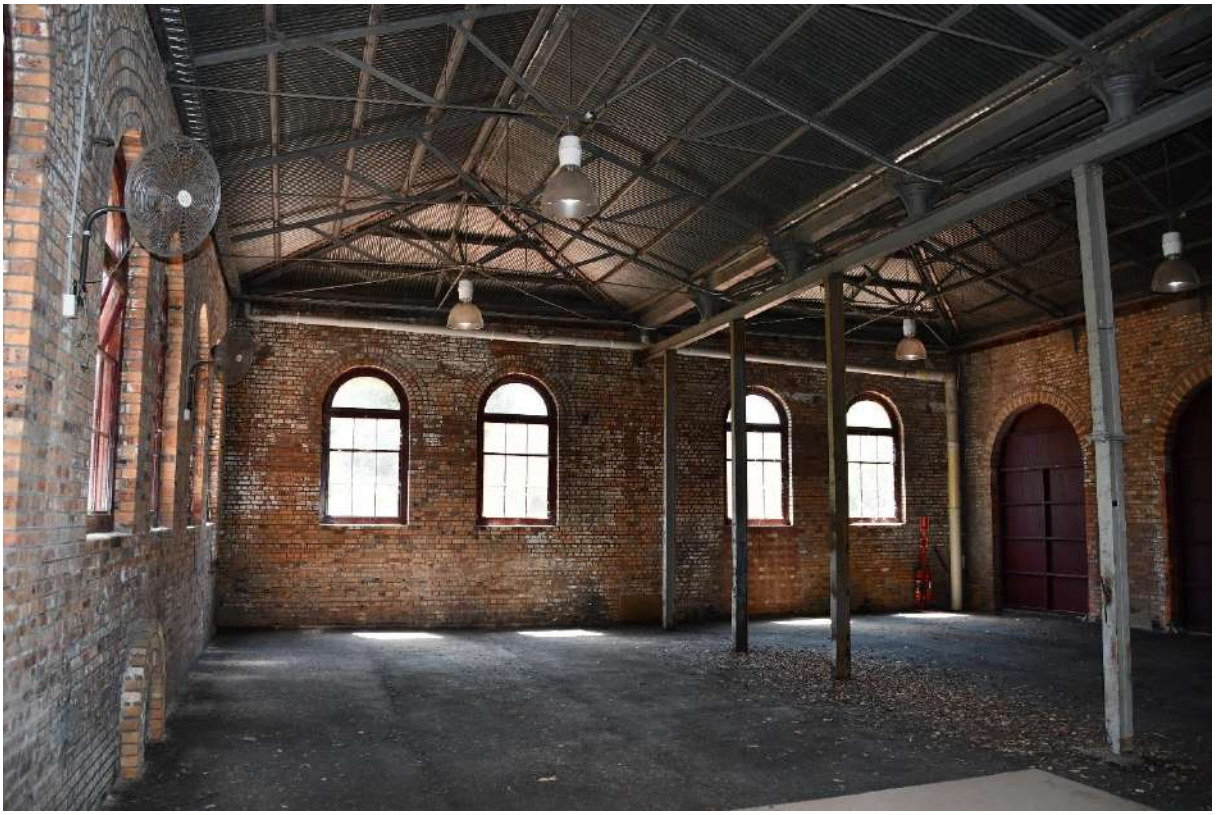


Figure 59: Northen wall of the Boiler Room (Item B). The repaired former doorway that accessed the former Addition (Item G) is visible on the windows to the right.

Figure 60: The southern wall of the Boiler Room (Item B) where the various previous access points to the Main Pumphouse (item A) can be seen.

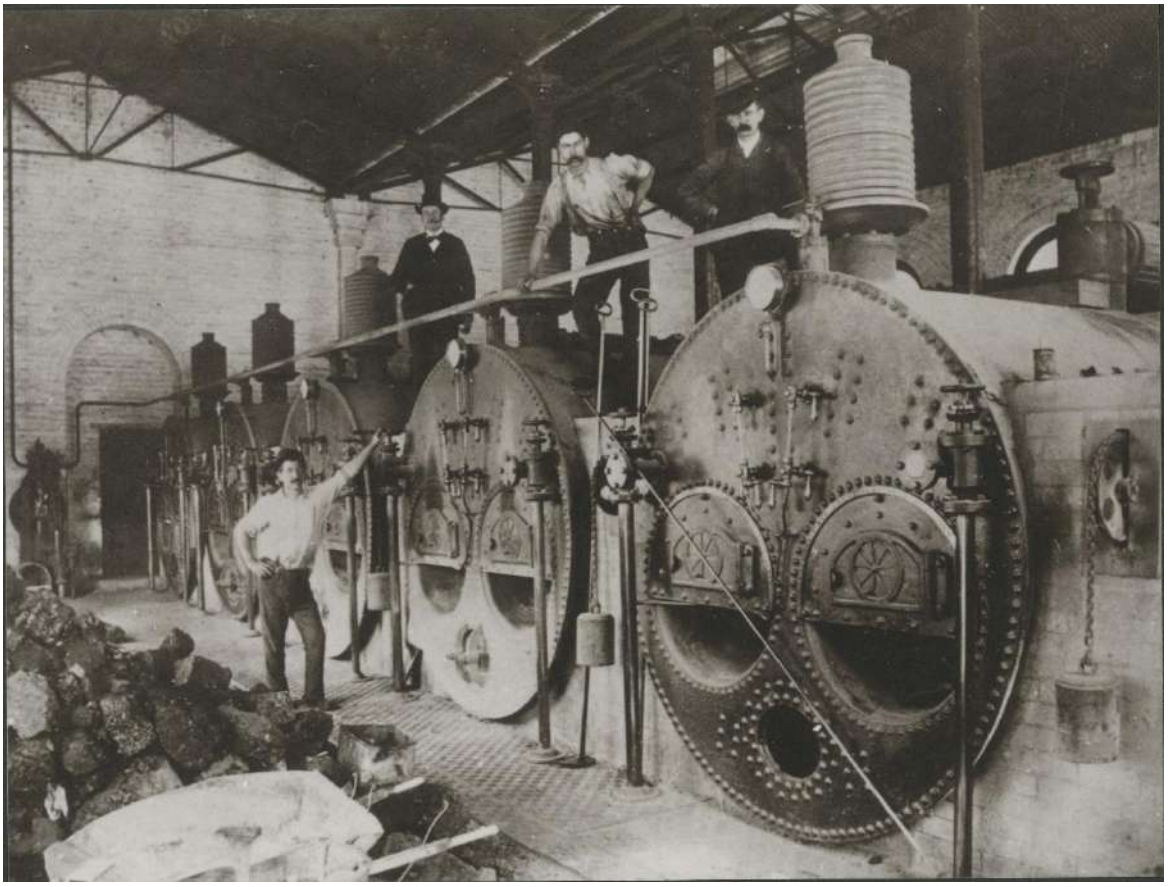


Figure 61: The Boiler Room in the late 19th century with the five Lancashire boilers. The doorway to the Main Pump House can be seen on the southern wall. Photo provided by MCC.

3.2.4. Chimney: Item C

The Chimney was only inspected externally and from ground level during the preparation of this report. Further information comes from Tresev 1987, Malnic 1984 and PWA 2020. It is located west of the Boiler Room (Item B) and north of the Western Pumphouse (Item F) (Figure 62).

The Chimney, built 1886-1887, is 36 metre tall and built of polychromatic brick and sandstone as with other original buildings. The lowest two courses are well-hewn sandstone blocks above a decorative cuboid brick section which features a diamond and circular motif (Figure 63). This supports the largest section which consist of a further sandstone section supporting the main octagonal stack, largely in orange brick with occasional yellow banding (Figure 64). The exhaust of the chimney is constructed from decorative brick and sandstone. It originally was capped with a cast iron chimney top which was removed during works in 2001. The original sits on the pumphouse lawn (Figure 65).

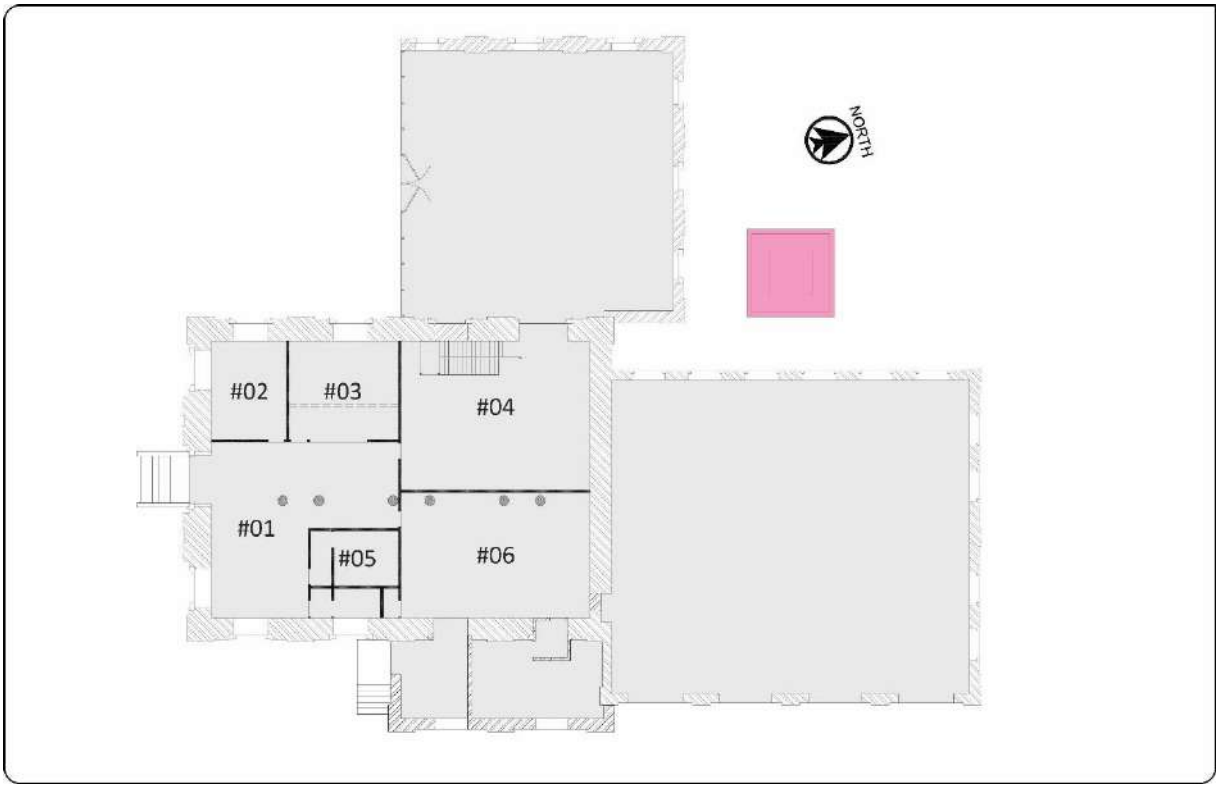


Figure 62: Location of the Chimney within the Main Pumping Station. Base plan provided by MCC.

Figure 63: The lower section of the chimney (Item C) viewed from the north with the diamond and circular motif and sandstone base visible.

Figure 64: The chimney (item C) viewed from the north showing its location to the west of the Boiler Room (Item B)

Figure 65: The original cast iron chimney top imported from Scotland, currently located in the Pumphouse Lawn

3.2.5. Eastern Annex: Item D

The Eastern Annex is attached to the eastern side of the Main Pumphouse and was constructed in 1893 (Figure 66). Its design incorporates many of the features of the original buildings including the use of polychrome brick, pilastered bays, upper sandstone coursings and the parapet line from the Boiler Room. The windows of the Eastern Annex are rectangular, matching those of the eastern elevation of the Main Pumphouse. On the southern elevation there is a 1950s entrance with steps which abruptly disrupts the flow of the building and ignores the surrounding architectural elements (Figure 67). It has a skillion corrugated galvanised roof that is likely a replacement. The roof is support on timber trusses.

Internally the Eastern Annex consists of two rooms, a bathroom and a tearoom. The bathroom has no ceiling showing the exposed joists and roof trusses above (Figure 68). There are substantial cracks to the external walls visible. The floor and lower walls are tiled and the fixtures and fittings are largely intact. Based on style and material, the majority appear to be 1950s (Figure 69). These include sinks, urinals, and shower cubicles. The tearoom, to the south, has a carpeted floor and contains some museum remnants (Figure 70). The ceiling is intact in this room. Both rooms open into Room #06 of the Main Pumphouse.

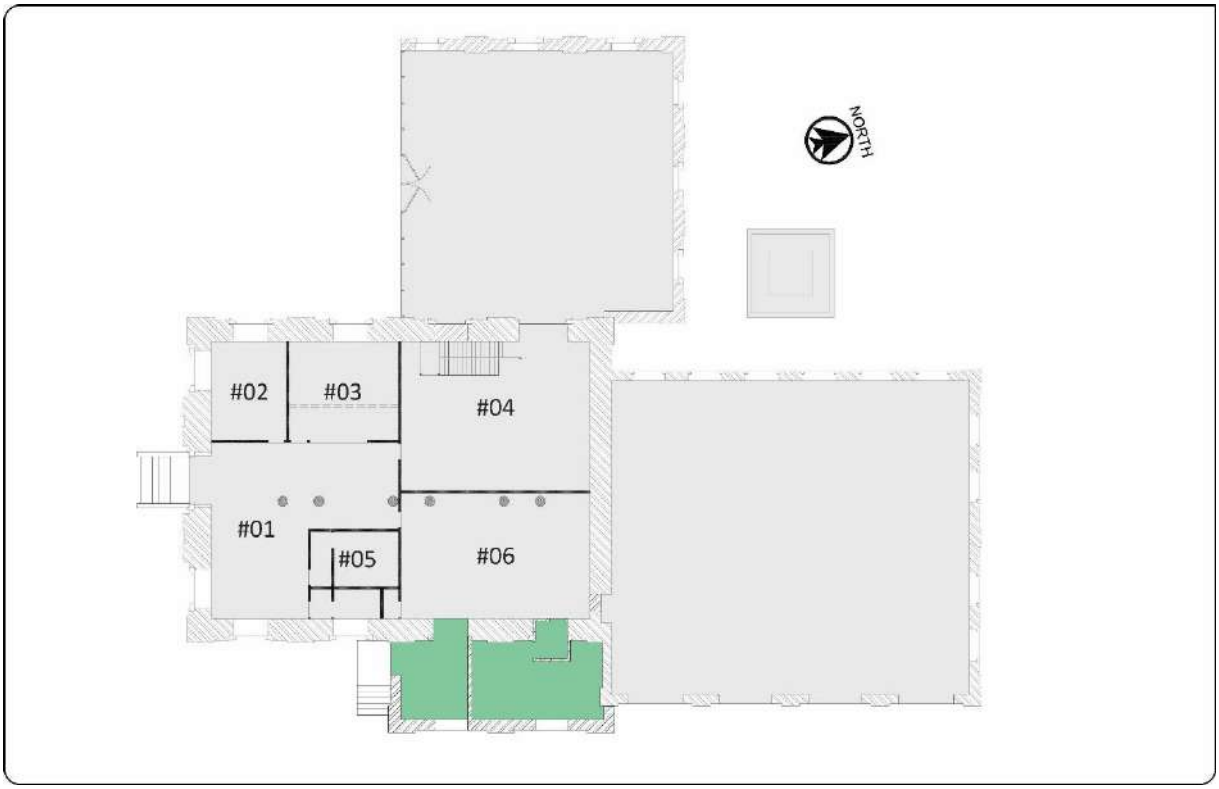


Figure 66: Location of the Eastern Annex within the Main Pumping Station. Base plan provided by MCC.

Figure 67: The Eastern elevation of the Pumping Station showing the location and features of the Eastern Annex (Item D). The unsympathetic 1950s doorway is visible on the southern facade of the annex.

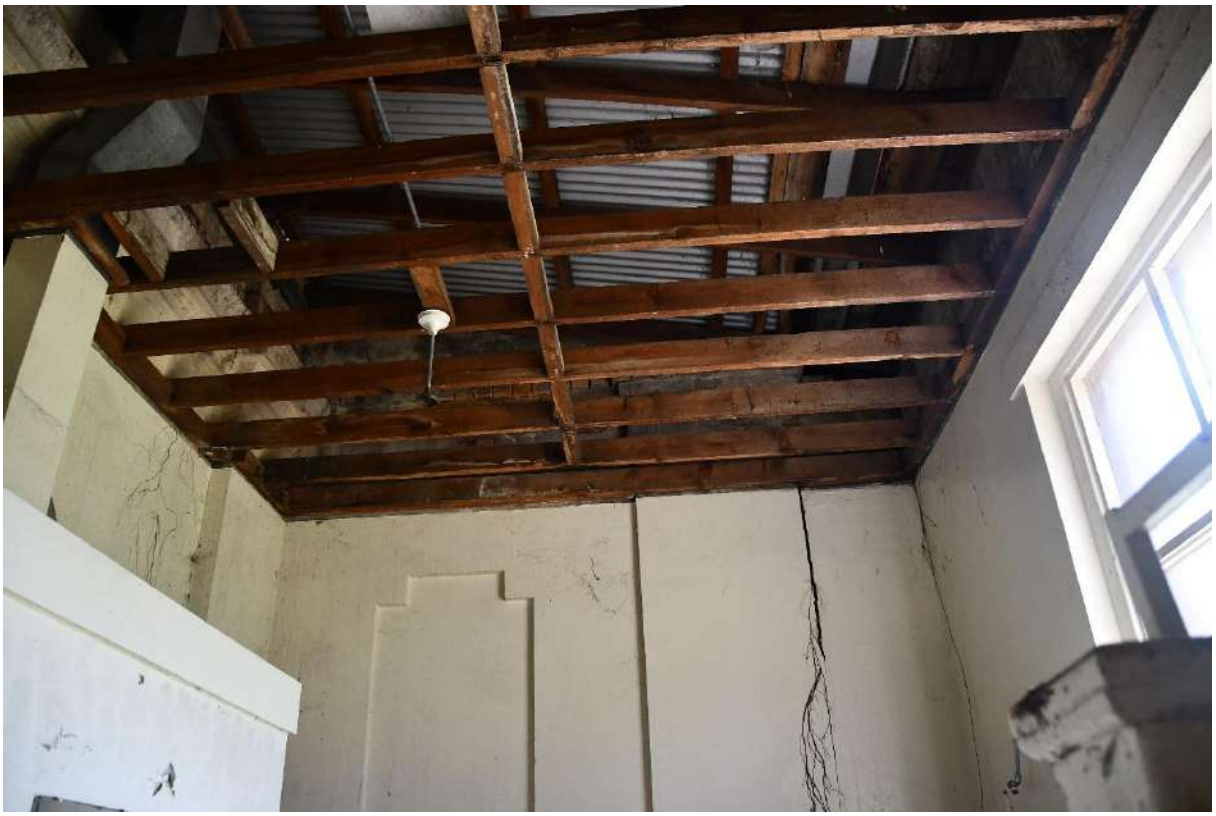


Figure 68: Northern wall of the Eastern Annex (Item D) with corrugated roof visible above.

Figure 69: Showers within the northern room of the Eastern Annex showing flaked paint and tiled walls.

Figure 70: Part of the southern room of the Eastern Annex. Used most recently as a museum, it retains some artefacts

3.2.6. Coal Store / Workshop: Item E

Constructed during the initial period of works from 1886 to 1887, the Coal Store, also known as the Workshop, is located to the north of the Boiler House. The building is single-storey and built in the same polychromatic brickwork as other buildings from the period (Figure 71). The southern elevation consists of two arched doorways with alternative colour round arches set into pilastered bays. Each bay features round brick motifs and decorative banding above. There are modern, well-constructed wooden double doors in each bay. The northern wall acts as a retainer and is only visible internally. It slopes inward towards the roof and the lowest eight courses are stepped outwards (Figure 72). There are four chutes built into the wall which likely originate in the current roadway above and it is suggested they were used for coal distribution.

The building has a slight pitched skillion roof, supported internally on timber trusses. The roof features a handrail on one side indicating it may have originally intended to be accessible space. A staircase is adjacent to the eastern wall, built from either concrete or rendered brick. It is currently fenced off.

Figure 71: Southern Elevation of the Coal Store / Workshop (Item E). the stairs to the upper street level can be seen on the right of the image.

Figure 72: Internal view within Item E facing the eastern wall. The chute for coal delivery can be seen in the northern wall on the left of the image.

3.2.7. Western Pumphouse: Item F

The Western Pumphouse was erected in 1913 adjoining the Main Pumphouse to the west (Figure 73). The brickwork and form of the building closely match that of the 19th century sections with pilastered polychromatic brickwork creating widowed bays, although generally, the brickwork lacks the more ornate and decorative elements seen elsewhere (Figure 74, Figure 75). To create the building, modifications were undertaken to the original west elevation of the Main Pumphouse. These included the closure of windows and creation of a new doorway in one of the pilastered bays (Figure 77). The work was carried out with sympathetic care to integrate with the original building. The northern and western elevations each feature nine-panelled windows and it has been suggested (Tresev 1987) that these may be the only remaining original windows. The southern elevation of the Western Pumphouse is markedly different being constructed of corrugated iron clad to a timber frame with multiple wooden doors (Figure 74, Figure 76). This was a deliberate choice to ease future extensions which seemed likely prior to the opening of the Chichester Dam in the 1920s. The whole building is one single open space and has a concrete floor, installed in 1949.

The Western Pumphouse has a hipped monitory roof which ends abruptly with a gable on the southern side. The roof is supported internally by a series of cast iron trusses and the internal surface is clad in wood. The external material is corrugated metal.

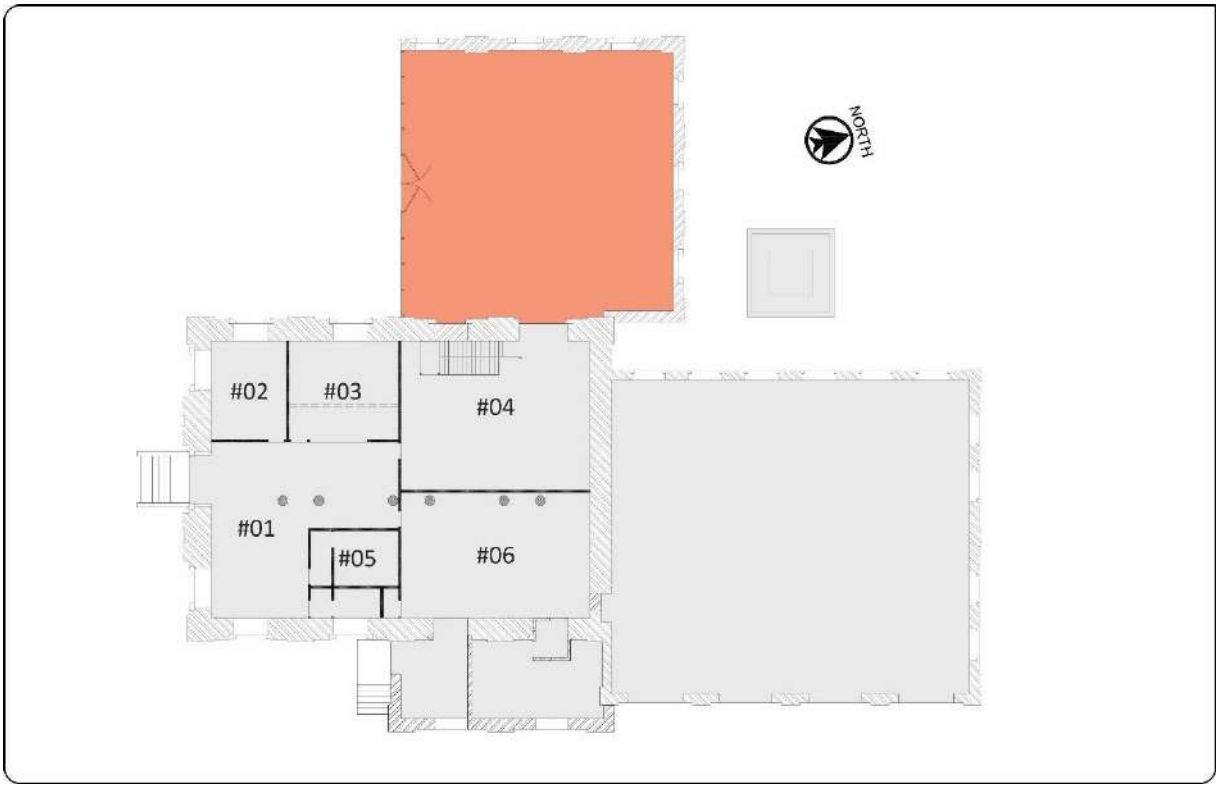


Figure 73: Location of the Western Pumphouse within the Main Pumping Station. Base plan provided by MCC.

Figure 74: The southern and western elevation of the Pumping Station showing the southern face of the Western Pumphouse (Item F) with its corrugated iron face. View to the northeast

Figure 75: The eastern elevation of the Western Pumphouse (item F). The design and structure of the Western Pumphouse closely match the original Main Pumphouse (Item A) but is less ornate. View to the east

Figure 76: The internal side of the southern elevation of the Western Pumphouse (Item F) demonstrating the timber frame to which the iron cladding is attached. View to the south

Figure 77: The internal eastern wall of the Western Pumphouse (Item F) showing the doorway through into the Main Pumphouse (Item A). Features from the originally external western wall of the Main Pumphouse are clearly visible. View to the east.

3.2.8. Boiler Room Addition: Item G

The space between the Boiler Room (Item B) and Coal Store (Item E) was utilised as a separate space from 1913. Currently the only visible evidence of this construction is the two voids in the northern wall of the Boiler Room discussed above. Photographic evidence and survey undertaken in the 1980s indicate that it consisted of a corrugated iron roof over a timber frame (Figure 78). Tresev (1987) posits that it housed two new boilers that provided steam for engines in the Western Pumphouse (Item F) and "another engine in a pump shed (now gone) built close to the chimney and boiler room". This is almost certainly Pumphouse No 6 (Item R). This Boiler Room Addition remained into the 1980s but was recommended for demolition in the 1987 Conservation Plan. It was demolished sometime after 1993 with the existing decorative brick surface installed in the 1990s (Figure 79).

Figure 78: The Eastern Elevation of Pumping Station in 1984. The roof of Item G is still clearly visible between the Boiler Room (Item B) and the Coal Store / Workshop (Item E) at the right of the image (Green arrow). Photo taken from Malnic 1984 p.188

Figure 79: The space between the Coal Store / Workshop (Item E) and Boiler Room (Item B) where the Boiler Room Addition (Item G) was located. View to the east.

3.2.9. Pumphouse No 6: Item R

No physical surface evidence of Pumphouse No 6 Remains. It was likely constructed as part of the 1913 updates to the site in collaboration with the Western Pumphouse (Item F) (Malnic 1984). The 1928 General Plan (Figure 16) shows the location of Pumphouse No 6 immediately north of the Chimney (Item C) and west of the Boiler Room (Item B). It shows the building measuring 5.5 metres long and 4 metres wide. The building was demolished pre-1974 based on its absence in the National Trust submission prepared in June 1974. Restoration and retaining works in the 1990s likely encroached close to the location.

At present the location gently slopes down towards the extant buildings, with short wooden retaining wall and the base of slope. A few mature trees are located in the area (Figure 80, Figure 81).

Figure 80: The approximate location of Pumphouse No 6 (Item R) to the north of the chimney (Item C). No surface evidence was visible in this location. It is unclear if the Pumphouse was built at the same surface level as the other buildings or higher. View to the northeast.

Figure 81: The approximate location of Pumphouse No 6 (Item R) to the north of the chimney (Item C). Evidence of the landscape modifications made during the 1990s can be seen around the chimney (Item C) and Western Pumphouse (Item F) View to the southwest

3.2.10. Privy and Change Shed: Item V

No physical surface evidence of the Privy and Change Shed remains. It was located to the west of the Western Pumphouse (Item F) at the same level. It is shown in the 1928 plan as a rectangular building 6.5 metres long, and 4 metres wide with a 1.5 metre long, 2 metres wide addition to its northwest corner (Figure 16). It was still present when the site was abandoned in 1947 and featured corrugated walls, and a corrugated hipped roof (Figure 82), Its location aligns with the current concrete road network constructed for the Power Station in the early 1950s and it was likely demolished by this date.

At present the area contains well maintained lawn with some garden beds and manicured hedges. Part of the 1950s Power Station road network (Item W) runs directly over the area where the shed was most likely to have been located (Figure 83).

Figure 82: A 1947 photograph looking towards the Pumping Station from west of the Clear Water Tank. The roof of the Privy and Change Shed (Item V) is clearly visible.

Figure 83: The location of the Privy and Change Shed (Item V). At present the area contains a well maintained lawn and the 1950s road network (Item W) runs through the area.

3.2.11. Unknow Structures: Item AA

Two further structures are shown on the 1938 Aerial photograph (Figure 34). One is located at the northern end of the Pumphouse lawn, east of the Workshop (Item E). The aerial photo shows this as a rectangular building. slightly smaller than the Western Pumphouse with a narrower rectangular extension to the south. The 2023 Ground Penetrating Radar (GPR) survey of the lawn showed a structure in this location indicating subsurface evidence likely remains here (Figure 88). At present the area is flat lawn (Figure 84).

The other is located between the Pumping Station and Filter Bed 2 (Item I-2). This is shown as a small rectangular building, slightly larger than the Privy and Change Shed. Both are still present in 1944 but absent by the 1970s. The function of both buildings is currently unknown and there is currently no evidence of their form on the surface which is grassed at both locations.

Figure 84: Area of the Item AA to the east of the Workshop on the Pumphouse Lawn

3.3. Power Station

3.3.1. Power Station and Associated Features: Item W

The Power Station was opened in 1953 and closed in 1978. In that quarter century span a large number of modifications were made to the existing industrial infrastructure across the site, as well as numerous new features. Many of the alterations made were removed during the demolition of the Power Station and subsequent remodelling of the site into a public amenity.

The main Power Station building was located on what is now known as the Power Station lawn to the south of the Pumping Station (Figure 85). Little surface indication of the Power Station itself was visible at the time of the survey in late 2024. This area was not surveyed directly due to the high level of asbestos contamination; however observations were made from a safe distance. The large, flat area is currently overgrown with a few scattered picnic benches and trees.

Based on historical photographs and reports the Power Station was a large rectangular building with multiple rooflines at a maximum height of 27.3m. It occupied a significance proportion of the lawn with a footprint of 1515m^2. To the west sat the substation and the whole area was ringed by a concrete road (Figure 86).

Examination of modern aerial photography shows well the location of numerous subsurface features in the form of parch marks in the grass (Figure 87). This is further supported by the results of a Ground Penetrating Radar Survey undertaken as part of remediation planning (Figure 88).

A coal loading chute ran from the top of the station northward to a loader located on the Pumphouse lawn, which was used for coal storage. There were numerous ancillary buildings constructed on both lawns to support this. The only remaining evidence is the concrete road network which surrounds the Pumping Station and Power Station currently.

Figure 85: The Power Station Lawn viewed from the north. Little evidence of the Power Station is visible aside from the concrete curbing of the corresponding road network.

Figure 86: The Power Station c.1960s. Image taken from the GHD 2021

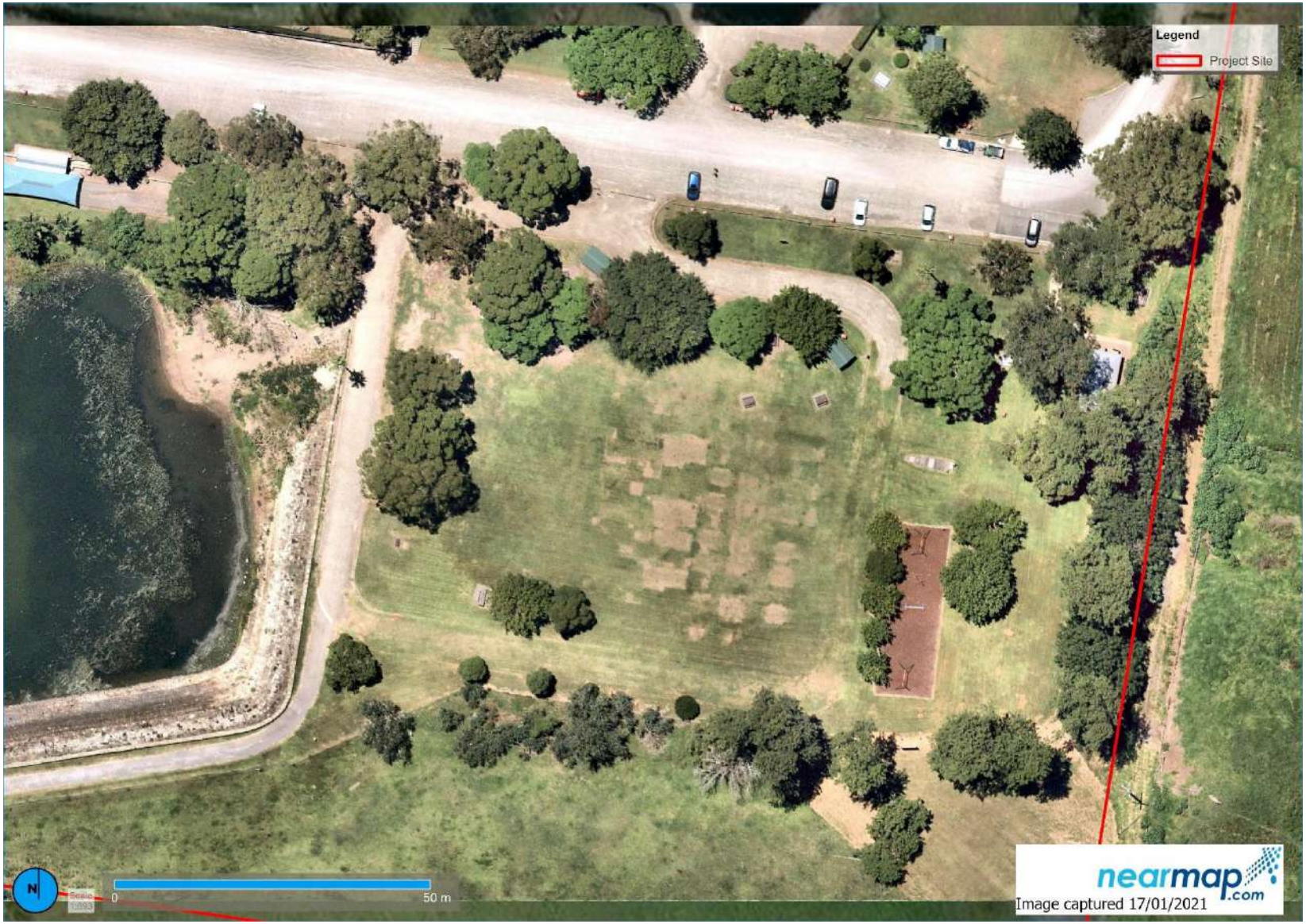


Figure 87: Aerial photograph from 2021 that clearly shows the footprint of the Power Station as parch marks in the grass. Also visible is the extent of the road network.

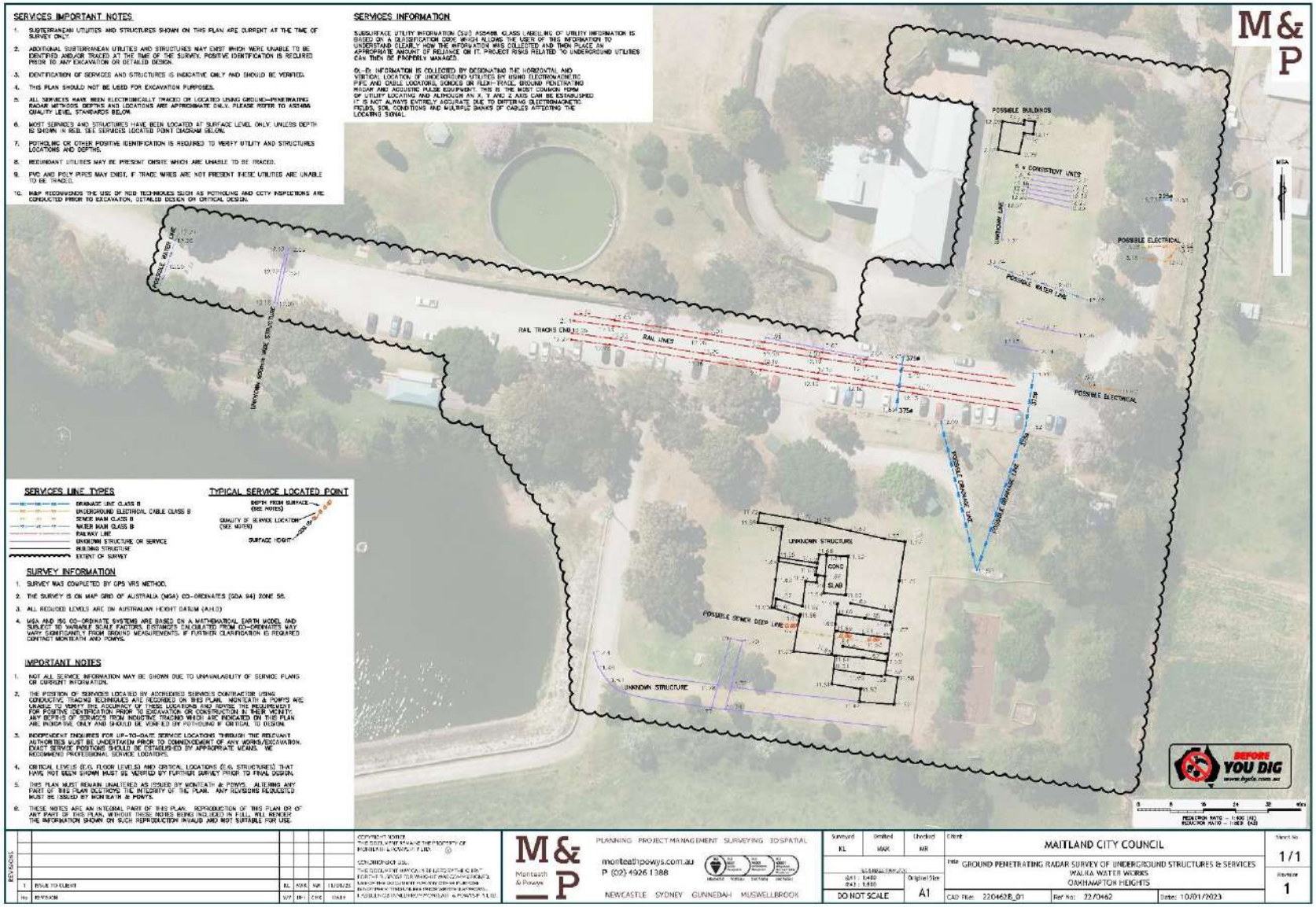


Figure 88: Results of the 2023 GPR Survey undertaken for MCC that shows the outline of the Power Station. Survey results provided by MCC.

3.3.2. Railway Cutting and Tracks: Item Z

The railway line, established as part of the Power Station upgrades was installed as a branch from the North Coast Line to deliver coal to the Station. It was constructed sometime after the Power Station opened, with coal at first being brought by road.

Following the closure of the station the route of the railway was largely converted to a gravel road and walking track. At the eastern most end, closest to the Main Pumphouse, the tracks are preserved and partially visible within the extant roadway (Figure 89).

Various other evidence of the railway remains along its previous route including cuttings (Figure 90), embankments (Figure 91), and a series of small bridges (Figure 92, Figure 93).

Figure 89: The remaining railway tracks at the easternmost end of the former line, south of the Main Pumphouse

Figure 90: Example of a railway cutting along the route of the former railway, now converted to a gravel road.

Figure 91: Example of an embankment constructed for the former railway line, now converted to a gravel road and partially utilised by the miniature railway.

Figure 92: One of the small bridges seen along the route of the former railway. Here it appears the c.1950s concrete bridge structure was modified to carry a concrete slab, hemmed with former railway sleepers.

Figure 93: View along the former railway showing the small nature of the bridges.

3.4. Filtration System

3.4.1. Overview

Walka Water Works formed the largest water purification and supply system in NSW upon its completion and was a genuine feat of ingenuity and late 19th century engineering. Simplified it operated through the following steps:

- Water was drawn from the Hunter River by the pumps in the Main Pumphouse (Item A)
- If clean enough it was pumped directly into the Settling Tank (Item H), if dirty, it would be pumped into the Reservoir (Item M) for an initial settling.
    - It could then be pumped from the reservoir back into the Settling Tank (Item H) later if required.
- Water flowed from the Settling Tank (Item H) gravitationally to the original four (Items I-1 to I-4), then six (Items J-5 and J-6) and eventually seven (Item K-7) Filter Beds.
- Each Filter Bed contained two courses of dry brick, washed river gravel and sand. At any one time at least one bed would be subject to cleaning.
    - Later, Rapid Filters (Item S) were installed that could clean the water at a fast rate under pressure.
    - Two Sand Washing Plants (Item U) were installed to aid the cleaning process.
- The filtered water would gravitationally flow into the Clear Water Tank (Item L)
- From the Clear Water Tank (Item L), the water would then be pumped again down pipelines to the various reservoirs.

Most of the main elements of the Filtration system are extant, albeit it largely buried (Table 7, Figure 94).

Table 7: Items in the Filtration system

Name	ID	Construction	Status
Settling Tank	H	1883-1885	Extant Open and largely intact
Filter Beds 1 to 4	I-1 - I4	1883-1886	Extant. I-1 – backfilled I-2 – Open, modified 1950s I-3 – backfilled I-4 – Backfilled, modified 1950s
Filter Beds 5 and 6	J-5, J-6	1907-1908	Extant Modified 1950s
Filter Bed 7	K,7	1913	Extant. Currently backfilled
Clear Water Tank	L	1883-1885	Extant Roof added 1898 and removed pre 1913
Pipe, Pits, Tunnels	N	From 1883 onwards	Extant, numerous ongoing additions for duration of works
Rapid Filters	S	1914-1916	Demolished 1944-1960
Sand Washing Plants	U	1893-1894 1910-1913	Demolished unknown date Demolished c.1950s

Figure 94: Main elements of the filtration system. Note the pipe network extends to the reservoir to the south, and beyond the Project Site Boundary to the east.

3.4.2. Settling Tank: Item H

The Settling Tank (Item H) is the most northly of the major Beds and Tanks at the site and is located on the highest ground at the north of the site (Figure 95). It measures 67 metres long, 35 metres wide and is 3 metres deep. The walls are constructed from sandstock bricks rendered with Portland cement (Figure 96). The render is largely intact with some cracks and exposed sections. Where exposed, the brickwork is laid English bond with a top course of rowlock-laid cant bricks with mitred corners (Figure 97). The lowest three course of the walls step out towards the centre of the Tank. The floor is rendered but it is unclear if it is brick or concrete as it is largely intact. There is a clear north-south linear pattern to the floor indicating it was constructed in panels. These could have been either precast concrete or brick. At present the tank remains empty and various features of pumping machinery remain present These include a vertical iron inlet pipe on the eastern side, and outlet pipes on the southern side. A ladder was present on this side in the 1980s but has since been removed. A staircase is located in association with the Settling Tank to the south where it provides access down to the Filter Beds.

Figure 95: Location of the Settling Tank (Item H) within the Filtration System

Figure 96: The Settling Tank. The inlet from the eastern wall is clearly visible. Outlets on the southern wall are obscured by trees. Cracking on the wall render is evident as well as the linear marks on the floor. View to the southwest.

Figure 97: Detail of the northeast corner of the Settling Tank showing the rowlock brickwork on the upper course with mitred corners and cant bricks. View to the south

3.4.3. Filter Beds 1 to 4: Items I-1 to I-4

Filter Beds 1 to 4 (Items I-1 to I-4) are located on a central grid to the south of the Settling Tank (Item H) (Figure 98). Each were constructed at the same initial period (1884-1885). A central main pipe runs down the central north-south axis of the Beds. Filter Bed 1 (Item I-1) has been backfilled and is only recognisable as a parch mark on the existing surface (Figure 99). Filer Bed 2 (Item I-2) is currently empty. It shows a similar construction style to the Settling Tanks (Item H) with courses of English bond sandstock brick beneath a rowlock cant brick capping course. The walls are not rendered; however the base is. Sections of the southern and eastern walls were modified during the 1950s to house cooling towers for the Power Station. This is evidenced in sections where the brickwork has been replaced with concrete and large bore iron pipes placed (Figure 100). Likewise, in the southwest corner, there is a substantial above ground concrete addition that includes iron pipework. As with Filter Bed 1, Filter Bed 3 (Item I-3) has been backfilled and is only visible as a parch mark. The upper capping course of Filter Bed 4 (Item I-4) is visible on the surface, albeit slightly overgrown. It is formed of the same sandstock cant bricks laid rowlock as elsewhere. Filter Bed 4 was substantially modified to house a cooling tower in the 1950s. This included a new substantial concrete pipe on its southern end with associated staircase leading to an access point (Figure 101). The south-eastern corner of the Bed was removed and extended out, with the brick being replaced by concrete (Figure 102).

The central pipe is visible at various points along its alignment. At the southern end, a small sandstock brick square, with a sunken centre, is visible on the surface. Further northward towards the centre of the gird is a small opening where the pipe itself is visible. Here it is partially covered by a concrete lintel. The northernmost point where the pipe can be seen is the clearest. Here a rectangular sandstock brick structure with the same cant sandstock brick capping course has been built with the pipe contained within. The use of concrete for the lintel is visible here (Figure 103).

Figure 98: Location of the original four Filter Beds (Items I-1 to I-4) within the Filtration System

Figure 99: The surface in the vicinity of Filter Bed 1 (Item I-1). View to the southwest

Figure 100: The southern wall of Filter Bed 2 (Item I-2) where the concrete modifications from the 1950s adaptations, are clearly visible. View to the southeast

Figure 101: The 1950s pipe access point constructed at the southern end of Filter Bed 4 (Item I-4). The use of brickwork here indicates this may be reusing an early feature as other 1950s period features exclusively use concrete or asbestos. View to the south

Figure 102: The southeastern corner of Filter Bed 4 (Item I-4) showing the modified footprint caused by the 1950s modifications. View to the east.

Figure 103: The northernmost exposed section of the central pipe showing it within a sandstock brick lined pit. View to the south

3.4.4. Filter Bed 5 and 6: Items J-5 and J-6

Filter Beds 5 (Item J-5) and 6 (Item J-6) were both constructed around 1908 to the west of the original four filter beds (Figure 104). The were formed from off-form concrete walls with pre-cast concrete caps. Both filter beds are currently empty but are heavily overgrown. Filter Bed 5 (Item J-5) is largely filled with reeds whereas Filter Bed 6 (Item J-6) contains trees, shrubs and bushes. The concrete panelling is intact and the walls feature concrete coping.

Figure 104: Location of the two 1908 Filter Beds (Items J-5 and J-6) within the Filtration System

Figure 105: The central wall that divides Filter Bed 5 Item J-5) and 6 (Item J-6). The intact concrete walls are in good condition however the beds are very overgrown.

Figure 106: The northern wall of Filter Bed 6 (Item J-6) with the concrete coping evident. View to the west

3.4.5. Filter Bed 7: Item K-7

Filter Bed 7 (Item K-7) was the last and the largest of the Filter Beds to be built at the site. It was constructed in 1913 north of Filter Beds 5 and 6 and west of Filter Bed 1 (Figure 107). As with Beds 5 and 6, it was constructed from off-form concrete walls with pre-cast concrete caps. Very little surface evidence of Filter Bed 7 (Item K-7) is visible as it has been entirely backfilled. It is largely definable by parch marks in the grass that demonstrate its spatial extent.

Figure 107: Location of the 1913 Filter Bed (Item K-7) within the Filtration System

Figure 108: Filter Bed 7 (item K-7), as viewed from the southeast. This Bed is largely only visible as a rectangular parch mark.

Figure 109: Filter Bed 7 (Item K-7) as viewed from the southwest.

3.4.6. Clear Water Tank: Item L

The Clear Water Tank (Item L) was part of the original construction at the site and was built c.1883-1885 south of the original Filter Beds (Figure 110). It is a very well-constructed tank and unique on the site in that it has a circular form as opposed to the rectangles for all other large components (Figure 111). The tank was constructed from sandstock bricks, laid Flemish bond, and bonded with a hard pale grey lime mortar. A row of laid soldier forms the upper course, atop which there is a peaked cement capping. On the eastern side the water inlet remains along with a small, gated opening (Figure 112). There is evidence of repair immediately south of the gate. Periodically, there are vent gaps it the walls approximately halfway up its extent. These are occasionally filled with cast iron decorative vents. The Clear Water Tank was originally constructed without a roof. A roof was fitted to the structure in 1898 to maintain water quality. Remains of the roof modifications are evidenced by a series of small brick pillars attached to the inner surface of the tank (Figure 113). As shown in Figure 14 the roof was supported internally by a series of iron pillars.

Figure 110: Location of the Clear Water Tank and the southern end of the Filtration System

Figure 111: General view of the Clear Water Tank facing south. The gated inlet area is visible as are a number of the internal roof pillars.

Figure 112: Close up of the gated entrance to the Clear Water Tank on the eastern side. View to the east.

Figure 113: Close up of the inlet and gated entrance to the Clear Water Tank facing south. Some of the internal support pillars are also visible.

3.4.7. Pipes, Pits and Tunnels: Item N

The 1928 plan shows the extensive pipe network across the site (Figure 16, Figure 115). In addition, various other plans, schematics and drawings demonstrate individual aspects of the overall networks (Figure 114). Visible evidence is limited on the site largely to network access points and occasional outlets. At least three access points are present along the central line that ran from the Settling Tank southwards past the Filter beds to the Clear Water Tank.

The southern most of these has been entirely backfilled with only a shallow brick lined depression remaining. Here the bricks are sandstock single cant facing inwards towards the void bonded with a hard grey mortar (Figure 116). The central access point remains largely open and is of poorer construction than the others indicating it is not original. It consists of a rectangular void lined with a concrete beam on the northern side but with the other three sides open. This demonstrates that is likely not an original opening. Through the void the well-built brick tunnel that houses the pipes is visible. The northern-most access point is open and in moderate condition. It is rectangular and features the same cant brick coping as its southern most counterpart. Beneath this is a well-built brick wall that continues downward on all sides except to the south where a concrete beam supports to coping to create the start of the tunnel. Within the void the large main iron pipe is still present in addition to various artefacts including small beams, pipes and valves.

In addition to these main access points there are numerous other aspects of the pipe network present through the site, many of which are of an undetermined date. It is also assessed that the vast majority of the subsurface network remains intact. These include two tunnels that exist on either side of the Main Pumphouse. The Eastern Tunnel housed the pipework in from the Hunter River and out to the Buttai Reservoir. It is accessible from an external vertical shaft located on the eastern side of the Main Pumphouse (Item A). When explored in 2020 the entrance was found to be intact and accessible (MCC

2020). The Western Tunnel contained the pipework that connected the Pumping Station to the filtration system. As with the Eastern Tunnel, exploration in 2020 found the Eastern Tunnel accessible and intact (Figure 119).

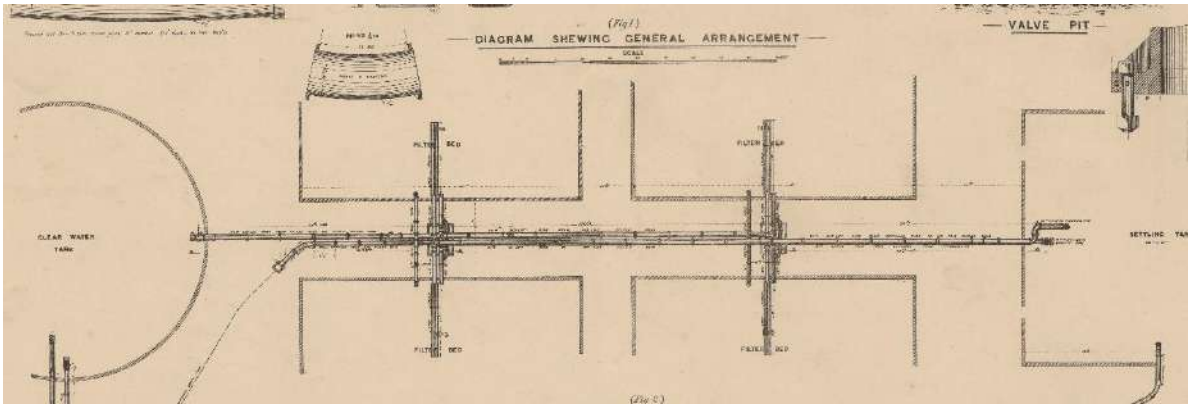


Figure 114: Extract from the 1882 plan "Detail of pipe connections for Filter Beds &c" Produced by the Department of Public Works NSW. The Access points shown in Figure 116 and Figure 118 are over these main junctions. NSWSA AF00065867

Figure 115: Inferred locations of the main pipe network around the Filtration System.

Figure 116: The southern access point where only the upper course of bricks remains visible. View to the north

Figure 117: The central access point which is unlikely to be original. The brickwork on the tunnel is clear. The large central iron pipe is obscured by a small collapse of the surrounding topsoil. View to the east

Figure 118: The intact northern most access point where the brick work, main pipe and numerous other fixtures and fittings are visible. View to the north.

Figure 119: The Western Tunnel that extends out from the Pumping Station with original pipework and potential pump structure remaining. Photo taken by Onyx during the 2020 Exploration on behalf of Maitland City Council.

Additional pipes and access points were put in place during the 1950s to help the functionality of the Power Station. These are clearly different from the Water Works network largely in terms of scale, and materials, being larger and made of concrete. For example, south of Filter Bed 4 (item I-4) there is a large, concrete above-ground access point that connects to a partially above ground pipe which runs southwards towards the reservoir (Figure 120).

Figure 120: The c.1950s above ground pipe access point. This was likely part of the cooling system for the Power Station. View to the south

3.4.8. Rapid Filters: Item S

The Rapid Filters are shown on the 1928 historical plan of the site as a collection of four octagons, arranged in two pairs, to the west of the Clean Water Tank (Item L) (Figure 16, Figure 121). The were built around 1916 and are still present in 1944 but demolished prior to the mid-1960s. Examination of the area indicated on the 1928 plan shows differential growing patters in the grass indicating a different subsurface material (Figure 122). This indicates evidence of the Rapid Filters likely remains. Further examination of high resolution aerial photography supports where the locations of all four filters can be seen (Figure 123).

Figure 121: The location of the Rapid Filters within the Filtration System

Figure 122: Location of the Rapid Filters (Item S) where the flowering plants correspond to their location indicating different subsurface conditions.

Figure 123: Analysis of the 2023 aerial photo of the site where the four Rapid Filters can be discerned as patches of drier grass.

3.4.9. Sand Washing Plants: Item U

Two Sand Washing Plants were constructed at the site. One was built adjacent to Filter Bed 7 (Item K-7) in 1893/1894 and the other just east of Filter Bed 4 (Item I-4) c.1910-1913 (Figure 124). The plant west of Filter Bed 7 is shown in the 1928 plan as a rectangular area 10.9 metres wide and 31.6 metres long (Figure 16). This area is identifiable as a low mound in this location (Figure 125). The other plant, east of Filter Bed 4, is shown on the 1928 plan as a more substantial built structure with two rooms and other features. It measured 17.6 metres wide and 20.7 metres long. This location is immediately below the 1950s concrete road that runs west of the Main Pumphouse and the construction of this road is likely to have impacted much of this structure. Despite this, a section of concrete wall does remain in this location that is likely from the plant (Figure 126, Figure 127).

The original 1909 construction plans for the Plant near Filter Bed 4 provide a large amount of detail regarding its form (Figure 134). It is shown utilising a pre-existing concrete floor (9.6m long, 6.9m wide). This concrete floor is located at the southern end of the Plant. To the north is the main large 18.4 metres long, 15.7 metres wide, washing plant. This consists of a sunken concrete floor, around 0.45 metres below ground level I which the sand would have been deposited for washing. The washing machinery was located on the western side and featured a series of washing hoppers, two silt pits, and a pivot to support an arm that actually washed the sand. This plan also shows a portable and permanent tramway specifically for the movement of sand. The tramway is shown running westwards between Filter Bed 2 and Filter Bed 4. The status of this tramway is unknown.

Figure 124: Location of the two Sand Washing Plants within the Filtration System

Figure 125: The low mound in the location of the Sand Washing Plant west of Filter Bed 7. View to the north.

Figure 126: The concrete wall east of Filter Bed 4 that likely comes from the Sand washing Plant. View to the south

Figure 127: Close up of features along the wall that was likely part of the Sand Washing Plan. View to the north

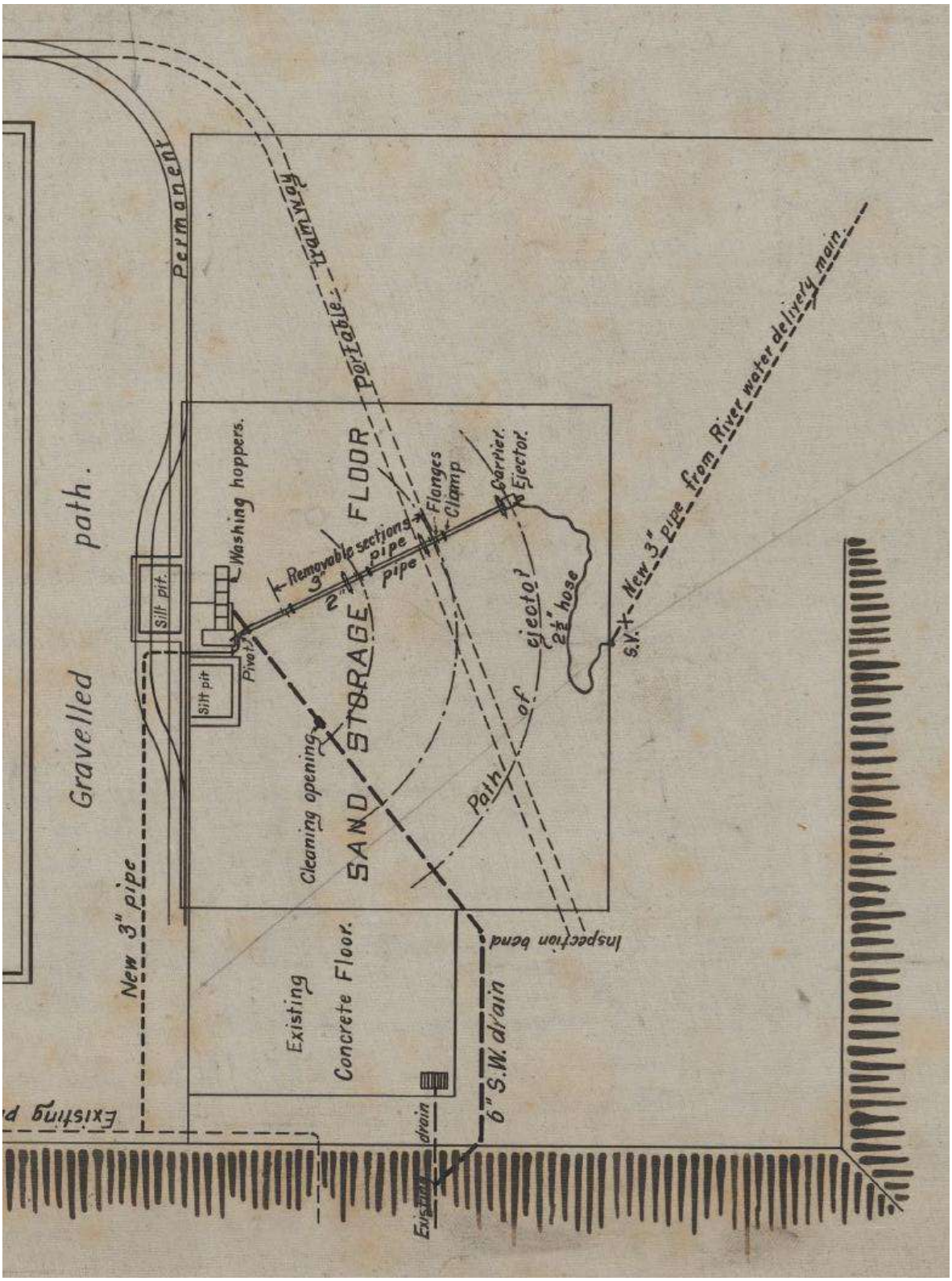


Figure 128: Extract from the 1909 plan of the Sand Washing Plant (AF00065949) showing the features and configuration..

3.5. Reservoir and associated features

3.5.1. Reservoir and outlet tower: Item M

Walka Reservoir was formed in 1884 to 1885 by constructing a substantial sandstone embankment across the original Walka Lagoon. The Reservoir is a 'V' shape pointing eastward and follows the natural topography on all sides apart from the south. The shoreline of the Reservoir slopes gently and is largely vegetated with areas of grassland, reeds and woodland on the banks.

The Outlet Tower was observed only from the shore. It is a circular brick structure with an iron trap door located approximately 35 metres from the shoreline at the eastern end of the Reservoir. There is a small series of rungs attached to the northeastern side, and the structure has an iron handrail. The Outlet Tower was used for storage of water directly from the Hunter River, when it required additional settling prior to being filtered.

Figure 129: The outlet tower within the eastern end of the Reservoir. View to the East

The embankment was constructed with an earthen bank lined on its inside face with sandstone. The blocks are large and moderately well hewn. Atop the Embankment sits a well-constructed, three course high sandstone wall formed from moderately well hewn rectangular blocks laid running bond. The wall is capped with a rounded coping course (Figure 130). The outside face remained undressed, although has been slightly terraced as evidence by differentials in current grass growth (Figure 131).

Figure 130: The north facing side of the Embankment showing the well-constructed sandstone elements. View to the southwest.

Figure 131: The south facing side of the Embankment which was unlined. The area in the foreground would have been part of the original Walka Logon. View to the west

3.5.2. Pumphouse No 9: Item T

No surface evidence of Pumphouse No 9 remains. Construction of the Pumphouse took place in 1913. It was erected at the eastern end of Walka Reservoir in an area currently known as the 'beach'. This area could not be accessed during the survey. It is currently overgrown and fenced off from public access (Figure 132,Figure 133). Based on the 1928 Plan, the building measured 13.6 metres long and 7.2 metres wide (Figure 16). The original construction plans show it as a rectangular building built from wooden stud work frame, clad in galvanised corrugated iron (Figure 134). Most of the structure had a brick floor with a concrete section in the southeast corner. It was designed with a gable roof with a central chimney. It is unclear when Pumphouse No 9 was demolished. There is a structure in the vicinity of the location during the Power Station phase, however this doesn't match with the orientation or size of the structure shown on the 1928 plan, nor in the original construction plans. This indicates Pumphouse No 9 was demolished prior to the operation of the Power Station.

Figure 132: The beach area where Pumphouse No 9 was located. Currently the area is overgrown. View to the west

Figure 133: The general vicinity of Pumphouse No 9 on the 'beach' at the eastern end of the Reservoir. View to the north

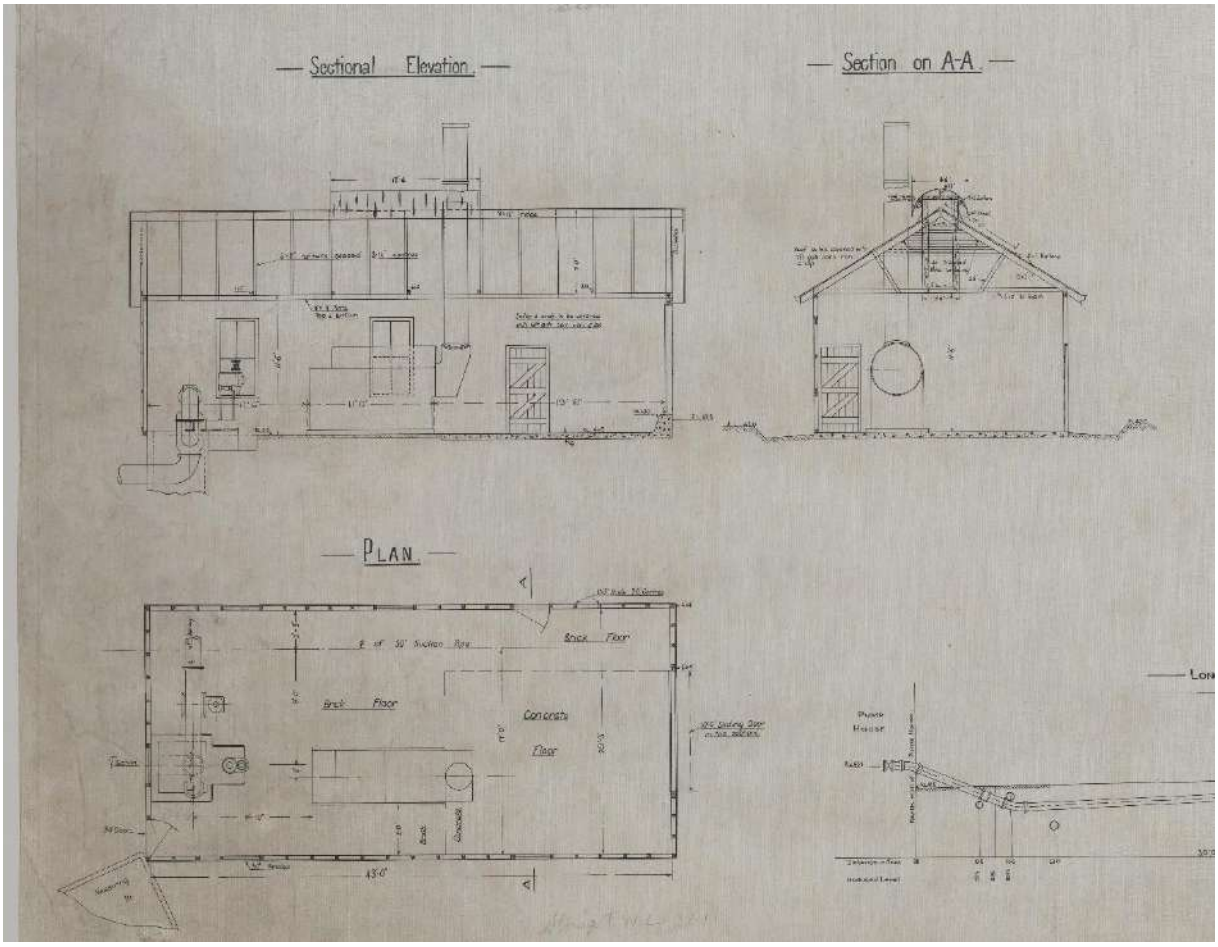


Figure 134: Original construction plans of Pumphouse No 9. AF00065969

3.5.3. Byewash: Item X

The Byewash (Item X) was constructed together with the Embankment around 1884. It consists of three main elements, a curved opening that faces into the reservoir, the main race that runs to the south, and the end which includes a set of steps and eventual end section. All sections are primarily constructed from sandstock brick laid English bond which is in turn capped with well hewn sandstone coping (Figure 135). The base is brick with a cement render. A pipe runs beneath the Byewash which is encased in concrete. It runs from the opening in the reservoir as far as the lower section of the stepped section where it is exposed providing an outlet (Figure 136). The steps are constructed from sandstone and the original construction plans show them constructed atop 'rubble masonry set in cement'.

Figure 135: The curved opening of the Byewash within the Reservoir with the well-constructed sandstock pillars and walls visible, along with the well-formed stonework. View to the west.

Figure 136: The stepped section of the Byewash showing the outlet from the lower pipe. View to the north.

Figure 137: Valve pit at the southern end of the Byewash. View to the west. Scale = 1 metre

3.6. Habitation

3.6.1. Chief Engineer's Cottage and Garden: Item O-1 and O-2

The Chief Engineer's Cottage (Item O-1) was the first building constructed on the site. It being erected around 1883 following the advertisement of tenders in 1882. The cottage was demolished in the 1970s as part of wider clearing of the site. The footprint and design of the cottage show a well-proportioned three bedroom house, with servants' quarters and separate kitchen and wash house (Figure 138, Figure 139).

The footings of the Chiefs Cottage remain as archaeological features. They consisted of a pattern of large well hewn sandstone blocks arranged at right angles with smaller areas of sandstock brick work abutting the stone in the eastern and southern corners. The brickwork is laid English bond.

To the south of the Chief Engineer's Cottage is an area designated as the Garden (item O-2). Although no specific reference to garden has been found historically, there us multiple evidence that some activity took place in this area. The modern historical aerial shows multiple linear features in the area along with one clear circular feature (Figure 142). Further, the survey located a staircase at the southern end of the area leading down towards the sand washing plant (Item U) and a series of concrete filled post holes along the southern edge that likely held a fence in place (Figure 143). Collectively this indicates that activity took place in this area that was linked to the occupation of the Chief Engineer's Cottage.

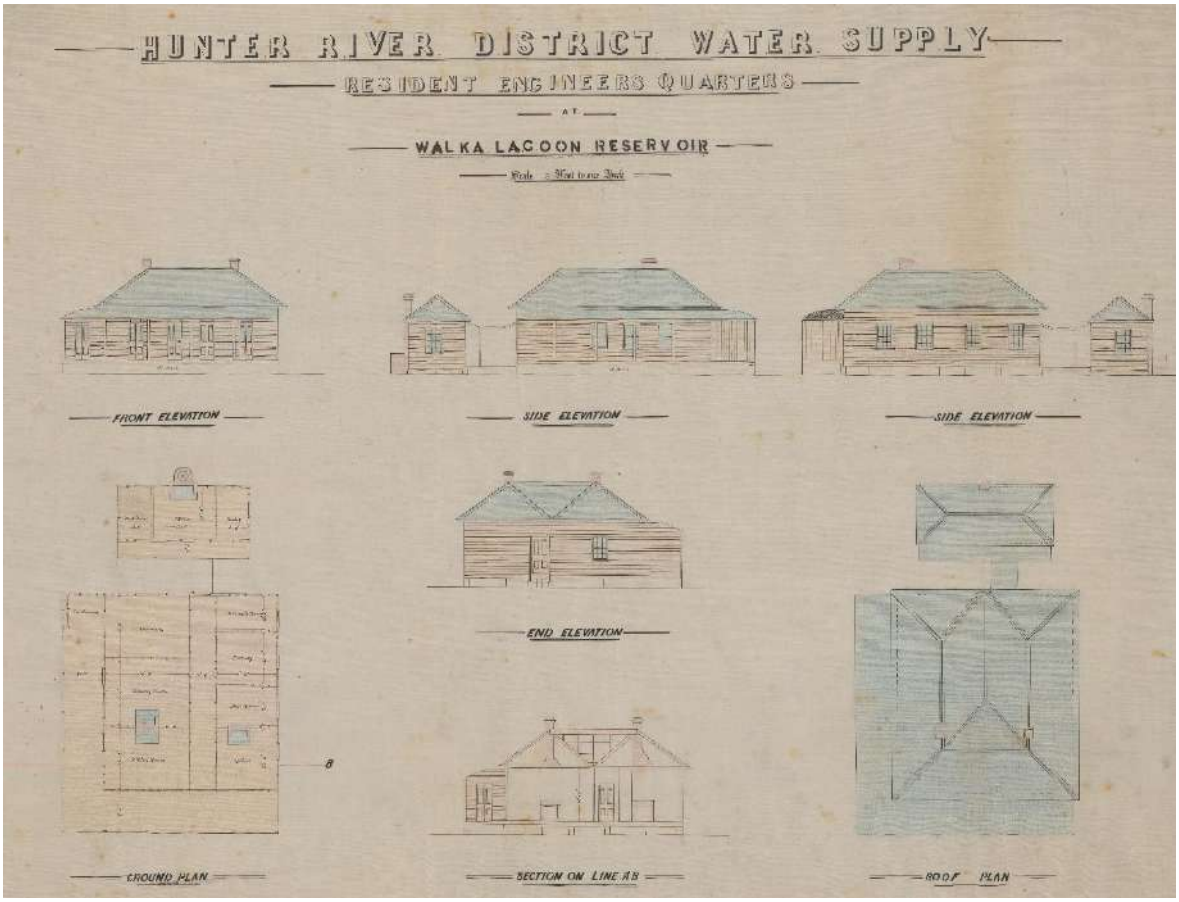


Figure 138: Original plans of the Chief Engineers Cottage. SANSW AF00065777

Figure 139: The Chief Engineer's Residence in 1883. Photo supplied by Maitland City Council

Figure 140: The archaeological features that form the western part of the Chief Engineer's Cottage. View to the north, scale 2 metres

Figure 141: Close up of the sandstock bricks from the southern part of the exposed footings of the Chief Engineer's Cottage. View to the south, scale 0.5metres

Figure 142: Modern aerial photograph of the Chief Engineer's Cottage (item O-1) and Garden (Item O-2) with overlay based on the 1928 Plan. The various parch marks in the garden are clearly visible.

Figure 143: The east to west running line of concrete post holes at the southern end of the Chief Engineer's Cottage. View to the east, scale 0.5 metres

3.6.2. Northern Levelled Area: Item Y

The area to the west of the Settling Tank (Item H) features a number of potential archaeological features. Those south of the Chief Engineer's Cottage (Item O-1) are discussed below as Chief Engineers Garden (Item O-2).

The remainder include a 17 metres wide, 30 metres long area, aligned north to south, that has been levelled through cutting into the northern bank and depositing the material to the south (Figure 144, Figure 145). To the east of this, is a similar size area that has not been levelled but that features a pair of linear parch marks that run north to south and then turn to the southeast. There is also a small, rendered set of steps in the southeast corner of the area that leads down to the level of the Settling Tank (Figure 146). Along the southern edge of the levelled area multiple concrete filled post holes, with iron posts, are visible. The posts having been cut off. This continues through from the area of the Chief Engineer's Cottage Garden (Item O-2) discussed below.

Figure 144: The northern part of the Northern Levelled Area (Item Y). Part of the area here appears sunken and is fenced off. View to the northwest

Figure 145: The southern section of the Northern Levelled Area. View to the east.

Figure 146: The small set of steps at the southeast corner of the Northern Levelled Area (Item Y). View to the northwest

3.6.3. Workmen's Cottage and Garden: Item P-1 and P-2

The Workmen's Cottages were constructed in 1890 or 1891 by C. Baker. As with the other cottages, they were demolished in the 1970s. Numerous plans were drawn up for a variety of cottages to be built on the site. Based on the presence of Charles Baker's signature on the plans shown in Figure 147 it is considered that these are those are the most likely. This is consistent with the parch marks observed in the modern aerials and observed during the survey.

The plans show a simple four room cottage with an internal kitchen, front and rear verandas and external toilet. It is shown built on pads with a hipped roof, and four panelled sash windows, and two internal fireplaces. Overall, the cottages are shown has being 7.8m long and 7.2m wide.

In addition to the houses themselves, the area to the west and south of the cottages has been defined the 'Cottage Gardens' (Item P-2). It is likely that the occupants used much of this area for various activities with the 1938 aerial (Figure 34) showing much of the area with occupation.

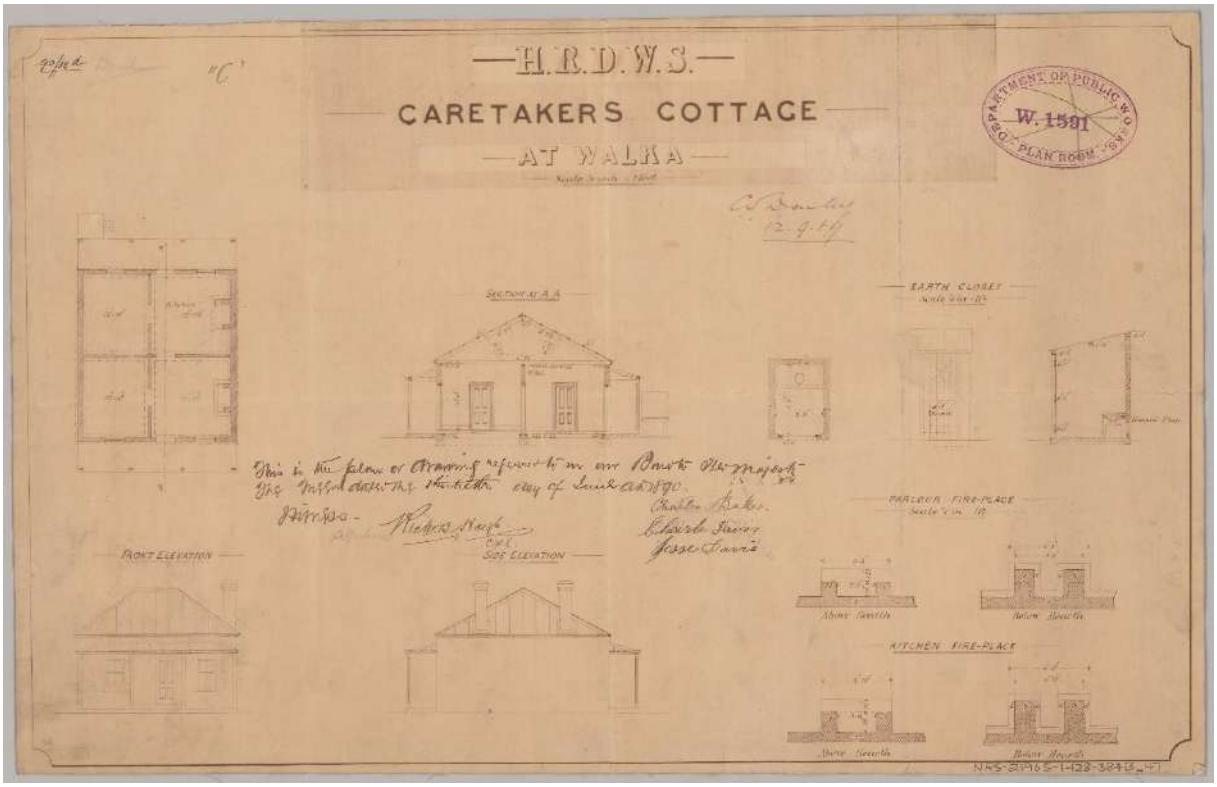


Figure 147: 1890 plans for 'Caretakers Cottage'. Based on the date, size and presence of Charles Baker's signature it is believed these are the 'Workmen's Cottages' SANSW AF00065865

Figure 148: Parch marks showing the approximate layout of the Workmen's Cottages (Item P-1) in the northeast of the site. View to the north

Figure 149: Parch marks showing the approximate layout of the Workmen's Cottages (Item P-1) in the northeast of the site. View to the west

Figure 150: Modern aerial photograph of the Workmen's Cottage (Item P-1) and Garden (Item P-2) with overlay based on the 1928 Plan. The various parch marks that define the shape of the cottage are visible.

3.6.4. Second Engineer's Cottage: Item Q

The Second Engineer's Cottage (Item Q) was constructed some time prior to 1893 based on the photo of it from the flood aftermath that year (Figure 15). It is described at as 'six room brick cottage' (Godden & Associates 1987). No historical plan for the cottage has been located. Part of the footings of the cottage are still visible on the ground surface (Figure 151, Figure 152). They show a building approximately 8 metres wide and 7 metres long with all walls being constructed from brick. Attached to the northern wall was a rendered, or possibly concrete, section of flooring which likely formed the base of a veranda. This section was 1.3 metres wide. One internal brick wall was present, 3.5 metres south from the northern wall. This created two rooms. The northern room being 3.5 by 7 metres, and the smaller southern room being 2.4 by 7 metres.

Around 7.5 metres to the south is a small rectangular brick feature that may been the remains of a fireplace. It measures 1.6 metres wide at least 0.5 metres long. Where examined the bricks were sandstock with a rounded rectangular frog in the centre of the stockface. The bricks were bonded with a very fine beige mortar.

Modern aerial photographs indicate that a larger structure may be present in the site with potential outbuildings to the south and east (Figure 153).

Figure 151: The Second Engineers Cottage footings. The concrete or rendered northern floor is clearly visible. View to the south, scale = 2 metre

Figure 152: Close up of the southern section, potential fireplace, at the Second Engineer's Cottage (Item Q). View to the west. Scale = 1 metre

Figure 153: Modern aerial photograph of Second engineer's Cottage (Item Q) with overlay based on the 1928 Plan. The various exposed remains and parch marks that define the shape of the cottage are visible.

4. Assessment of Significance

4.1. Assessments of Significance

Giving the long standing acknowledgement of the historical importance of Walka Water Works, it is understandable that the site is listed on multiple heritage registers. Table 8 provides an overview of the assessment of heritage significance presented for the site on the SHR. Additional new assessment has also been undertaken where necessary given the near 40 years since the initial assessment was prepared (Godden & Associates 1987).

Table 8: Existing and additional assessments of significance

SHR Criteria	Existing Assessment (Godden and Associates 1987)	Additional Assessment
Criteria a Historical Significance	Establishment of the complex was a major political and engineering achievement, finally providing a permanent supply of clean water to Newcastle residents. Changes and developments at the complex document the growth of the demand for water. An expectation of further expansion is evidenced in the temporary nature of the southern wall of the pumphouse west annex. The construction, expansion and demise of the waterworks were vital stages in the establishment and growth of the Hunter Valley Waterboard. The ultimate demise of the site as a water treatment plant and its subsequent development (and demise) as a Power Station documents significant periods of growth and change in the community. William Clark, a prominent hydraulics engineer and a number of other noteworthy individuals were closely associated with the complexes design, construction and expansion.	The Walka Water Works were the first in Australia to include filtration for the whole of the supply at source and the first in NSW to contain any degree of filtration. The later use of the site as one of four Power Stations in 1951 is demonstrative of the changing needs of the Australian people in the post-WW2 era with rapid growth of electrical demand, and electrical generation becoming a key industry of the Hunter Valley ever since. The Power Station itself, being imported from the USA, shows a change in Australia's geopolitical focus in the second half of the 20th century with a view to the USA rather than traditionally relying on support from the UK.
Criteria b Historical Associations	none	A number of historically significant figures were involved in the design, construction and operation of the Walka Water Works. These included: • William Clark (1821-1880), a British engineer and inventor who gained acclaim for the Kolkata (Calcutta) sewerage system, the Chennai (Madras) drainage system as well as schemes for numerous Australian cities. • Henry Deane Walsh (1853-1921), an Irish engineer who served as the first Chief Engineer at Walka. Later he gained renown as the engineer-in-chief of the Sydney Harbour Trust remodelling Dawes and Millers Points and the construction of Walsh Bay.

SHR Criteria	Existing Assessment (Godden and Associates 1987)	Additional Assessment
		• Robert Hickson (1842-1923), an Irish engineer who had general responsibility for the construction of the site as assistant engineer at the Harbor and Rivers Department in Newcastle. He went on to take on numerous roles in Sydney including under-secretary for public works. • The Scobie family. Numerous members of the Scobie family were active in the development of agriculture in NSW as well as holding high political and military offices.
Criteria c **Aesthetic/creative/technical achievement**	The entire site has been largely unmarred by the construction of any other unsympathetic developments. The reservoir catchment continues to provide a pleasant rural curtilage to the complex. The Pumphouse, chimney and boiler house are finely executed polychrome brick structures which feature a degree of uniformity in materials, form and scale that is typical of many 19th century public buildings. The combination of elegant polychrome brick buildings, filter beds, tanks and reservoir with the nearby topography creates an element of considerable cultural interest and beauty within an already attractive landscape.	All built aspects of the site demonstrate great technical achievement. The polychrome ornate brick structures are excellent examples of late 19th century technical brickwork and building. The precision and scale of the reservoir, tanks, and pipe network are all technical achievements in their own right. The flexible pumping system, when installed, was cutting edge technology of its day and the use of chemical and biological filtration and testing was pioneering in Australia. As the centre piece of the first water supply scheme for Newcastle, Maitland, and the lower Hunter, Walka is a substantial technological accomplishment of its age.
Criteria d **Social Significance**	The complex is an outstanding resource for the interpretation of the importance of 19th century industrial processes. For many years it has been a cultural landmark to the people of Maitland and the Hunter Valley. The site is the centrepiece of the most important advance in public health in the history of the Hunter Valley, improving health and cleanliness of the population and their urban environment. Furthermore, without a water supply many secondary industries which provided employment in the Newcastle area could not have been established.	The site has importance to the local Aboriginal Community. It has been appreciated by the local community for its historical importance since at least the 1940s. It attracts a wide range of visitors from the local community who engage with its ecological, environmental and historical aspects.
Criteria e **Research Significance**	The complex is the only complete set of 19th century water filtration equipment extant in NSW and illustrates water treatment filtration processes. The configuration and substantial remains of all major components of the complex, including evident remains of machinery locations and ancillary structures, such as pipes, enable the processes carried out to be clearly understood. The largely intact set of Victorian structures typify the building associations of a 19th century technology.	The research significance is enhanced by the changes made to the site since in the post-WW2 period including the modifications for the Power Station which could indicate the values placed on the early buildings at the time. The functionality and technology of the Power Station is currently poorly understood with the only known purpose-written text lacking spatial and technological detail.

SHR Criteria	Existing Assessment (Godden and Associates 1987)	Additional Assessment
	The evolution of the complex over time provides evidence of the development of steam technology from beam engines to reciprocating engines.	
Criteria f Rarity	none	Walka Water Works is the only 19th century water filtration site in NSW to be largely intact. It is unique in the Hunter Valley and is by far the largest and best preserved of the four heritage listed waterworks in NSW.
Criterial g Representativeness	The intact nature of the site makes it an excellent representation of water filtering and reticulation processes of the period.	The largely intact brick construction is highly representative of late 19th century civil construction.

4.2. Existing Statements of Significance

4.2.1. NSW State Heritage Register

The 'Walka Water Works' was placed under a Permanent Conservation Order in October 1986 and was listed on the NSW State Heritage Register on 02 April 1999 (SHR #00466). The listing contains the following statement of significance:

Walka Waterworks is one of the largest and most intact 19th century industrial complexes in the Hunter Valley. The surviving water treatment features at the site constitute the most comprehensive set in NSW and clearly illustrate water filtration and reticulation processes and the major developments which occurred during the late 19th and early 20th century. The pumphouse, chimney and boiler house are elegant finely executed polychrome brick structures in a traditional configuration which are located within an attractive landscape. The entire complex, including reservoir and tanks, is an important cultural landmark.

4.2.2. Register of the National Estate (non-statutory)

The Register of the National Estate was originally established under the *Australian Heritage Commission Act 1975* (repealed). In 1997 the Council of Australian Governments agreed that heritage listing, and protection should be the responsibility of the level of government best placed to deliver agreed outcomes. It was agreed that the Commonwealth's involvement in environmental matters should focus on matters of national environmental significance, including World Heritage properties and places of national significance. Each state, territory and local government has a similar responsibility for its own heritage. Although it no longer has a legal basis, the Register of the National Estate (RNE) now exists as an archive of information about more than 13,000 places throughout Australia.

The 'Walka Waterworks and Pumping Station' was listed on the Register of the National Estate (Non-statutory) on 21 March 1978 (RNE #1250). The listing contained the following Statement of significance:

One of the biggest public industrial undertakings in the Hunter Valley, supplying the region with water 1887-1929. The waterworks is an outstanding and representative example of this type of works including the basic storage lagoon, sand filtration beds, settling tank and engine and pumphouse. Pipes are still in place. The buildings are of significant industrial architectural nature, from the Victorian period.

4.2.3. National Trust (NSW) Register (non-statutory)

The National Trust (NSW) maintains a register of places considered to be culturally significant and that are worth of conservation. The registered was opened in 1946 and has over 13,000 items listed. These included significant landscapes, buildings, townscapes and cemeteries.

The 'Walka Waterworks and Pumping Station' was classified by the National Trust (NSW) on 31 May 1976. The 'reasons for listings' provided on the National Trust (NSW) register are identical to the statement of significance on the RNE.

4.2.4. Engineering Heritage Register (non-statutory)

The Engineering Heritage Register is maintained by Engineers Australia through the Engineering Heritage Recognition Program. The site was original registered as 'Walka Water Supply Scheme' in

December 2015 and updated the following year to 'Newcastle's First Water System - the Walka Scheme, 1886' (EHR 196). It is marked with an Engineering Heritage National Marker meaning it is considered to be of national significance. The nomination included the following Statement of significance:

The Hunter River District Water Supply Scheme is an excellent example of the progress made in the late 19th century to provide safe and sustainable water supplies to metropolitan populations. The scheme as a whole was thoroughly researched to ensure that quality and quantity of supply would be available for the communities of the lower Hunter Valley. It used the best technology available at the time, transferred from Britain, and was the first in Australia to use comprehensive treatment at the source. It was:

- *the centrepiece of the most important advance in public health in the history of the Hunter Valley, improving health and cleanliness of the population and their urban environment.*
- *the most comprehensive set of water treatment features surviving in NSW, documenting the growth of the demand for water.*
- *a finely executed polychrome brick structure, demonstrating the importance of the aesthetic treatment from late 19th century infrastructure.*

It is a testament to the work of English Civil Engineer, William Clark M.Inst.C.E.

4.3. Curtilage

The SHR Curtilage of the Walka Water Works was first defined when it was placed under a Permanent Conservation Order in 1984. It corresponds to Lot 445 on DP722263 and is defined in the Government Gazette as:

All those pieces or parcels of land situated at Rutherford, City of Maitland, Parish of Maitland, County of Northumberland, being part of land resumed for Storage Reservoir and other works notified in Government Gazette No. 241 of 21st June 1881— "Walka Water Works" as shown edged heavy black on plan catalogued H.C. 1186 in the office of the Heritage Council of New South Wales.

The curtilage as shown on the SHR is in Figure 154.

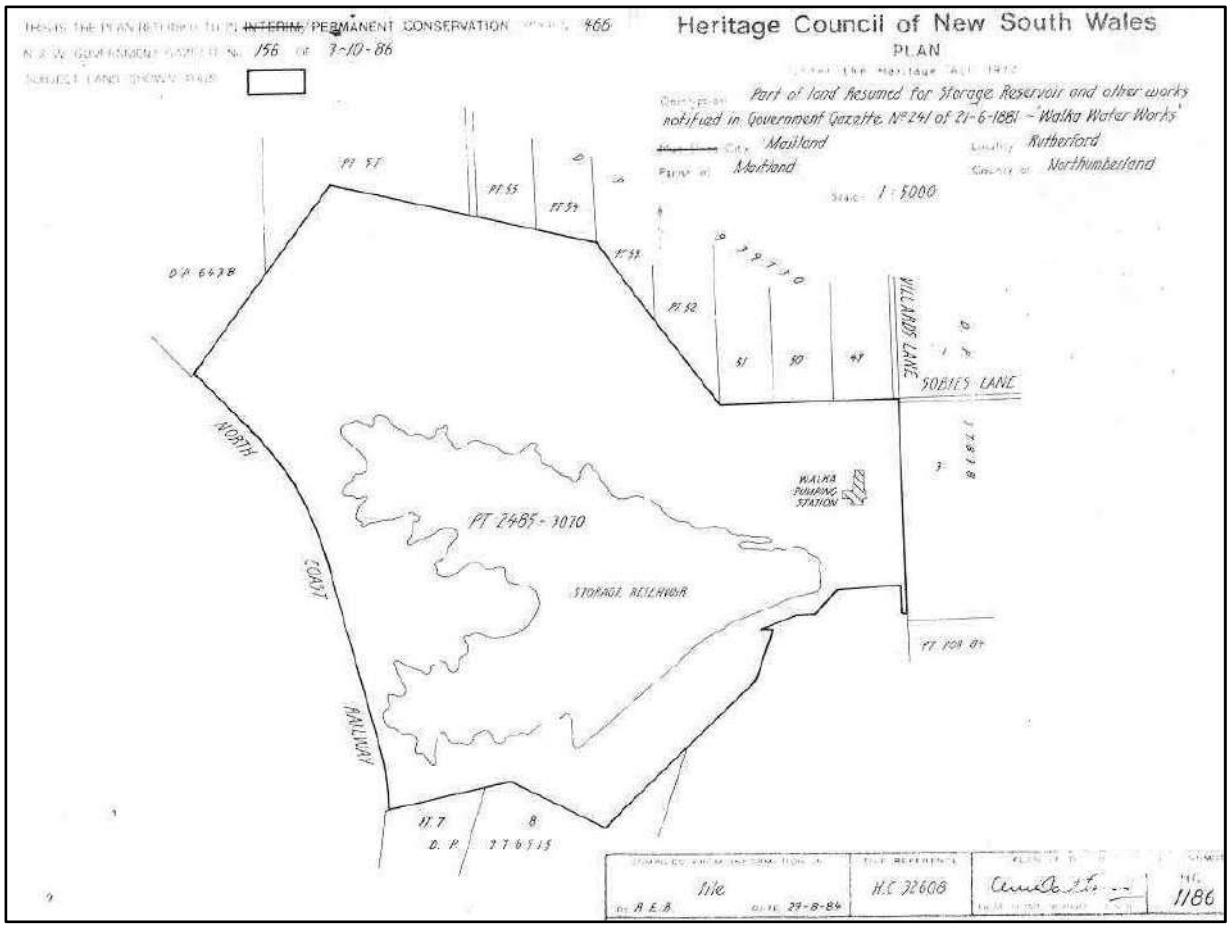


Figure 154: Curtilage of the Walka Water Works as shown on the SHR.

4.4. Significant Views

As a large site with numerous features, there are multiple locations from which important views are located. These primarily are focused on views of the Main Pumping Station and additionally included views of the filtration system, reservoir and the wider landscape. These views largely incorporate elements of both the natural and built form of the site and incorporate visual representations of the industrial processes. The main expectation is the views from the Chief Engineer's Cottage and Second Engineer's Cottage. Each of these buildings appears to have been deliberately located on prominent high points with views. Hence, they are significant as they are intentionally designed to be appreciated.

The key significant views are shown in Figure 155.

Figure 155: The significant views in and around the site.

5. Grading of Significant elements

5.1. Basis of assessment

The historical nature of heritage items means that they have been created, used, reused, adapted and modify throughout time. Each stage of the process can contribute to the tangible fabric of an item, modify existing fabric, and remove fabric from the item. This can create a complex web where a single heritage item can have a variety of tangible elements that have varying degrees of significance. Grading the tangible elements of a heritage item is the process through which the contributions of individual parts can be properly understood and appreciated both in terms of their own value but also in how they contribute to the whole.

A variety of factors are considered when grading the significance of elements. Underlying all considerations is an appreciation of the overall significance of an item as defined in the previous section. With this in mind, the following are considered:

- the degree of intactness
- extent of originality and authenticity
- the quality and contribution of the original form of the element
- its demonstrative abilities in relation to the significance
- the overall condition of the item
- any direct associations it has with important historical figures, events, or processes.

The following grading is based up the *Assessing heritage significance* (DPE 2023) which includes a five-tier system shown in Table 9.

Table 9: Grades of significance per DEP 2023

Grading	Justification
Exceptional	Rare or outstanding element directly contributing to a place or object's significance.
High	High degree of original fabric. Demonstrates a key element of the place or object's significance. Alterations do not detract from its significance.
Moderate	Altered or modified elements. Elements with little heritage value, but which contribute to the overall significance of the place or object.
Little	Alterations detract from its significance. Difficult to interpret.
Intrusive	Damaging to the place or object's significance.

The grade of '**neutral**' has also been included here, with it being defined as neither detracting from, nor contributing to significance, often with a functional role.

In addition to grading of significance, each element has also been assessed for its current condition. This provides a broad indication of condition and highlights the key items that require attention where relevant. Given the substantial size of some of the items at Walka, i.e. the reservoir wall, the grading of condition is applicable to the majority of the item acknowledging that there may be some smaller areas of lower condition. The ratings for condition are shown in Table 10.

Table 10: Ratings for condition of heritage elements

Condition	Description
Excellent	Building, fabric or element is almost entirely free from defects and is in an as new condition.
Good	Building, fabric or element show only minor defects which are likely caused by regular wear and tear. Only minor deterioration of key elements is evident such as wear to surface finishes. No major maintenance or repairs are required.
Fair	The building, item or fabric shows clear signs of deterioration and has defects. Surfaces require attention and whilst the item remains functional maintenance or repairs are required.
Poor	There is serious deterioration or defects that go beyond what would be expected given the age of the item. There are serious structural or surface issues with the item that requires immediate attention. The item requires maintenance or repair in order to retain functionality.
Very poor	The building or item has failed and has lost all functionality. Restoration beyond repairs is required.

For items that have assessable historical features for more than one period, such as the Main Pumphouse, two responses are provided. This is to account for situations where fabric from one significant period of occupation may be considered an intrusive element in another period of occupation. The grading of the Main Pumphouse has also been broken down to account for changes and modifications to each of the individual rooms. It is noted that this internal division of space dates from the 1950s and is not original to the design of the building.

Grading of the items is shown below in Table 11.

5.2. Grading

Table 11: Significance and condition grading of key heritage items

Item	Name	Construction Date	Primary Fabrics	Significance	Condition	Comments
A	Main Pumphouse	1885-1886	Polychromatic Brick walls, corrugated metal roof	Exceptional	Good	The most recognisable and significant part of the site. Extensively remodelled internally in 1950s and 1990s but retains iron supports, some timber floors, layout and brickwork. Some intrusive elements. Replacement roof
A Rm #01	Main Office / Entrance	Space defined 1950s	Timber floors, panel board walls and ceiling	Moderate	Good	Original iron supports remain, wall partitions and ceiling not original
A Rm #02	Office	Space defined 1950s	Timber floors, panel board walls and ceiling	Moderate	Good	Original iron supports remain wall partitions and ceiling not original
A Rm #03	Laboratory / Kitchen	Space defined 1950s	Timber floors, panel board walls and ceiling	Moderate	Good	Original iron supports remain wall partitions and ceiling not original
A Rm #04	Pumphouse Lower	Space defined 1950s	Brick and panel board walls. Concrete floor	Little	Fair	Non-conforming stairs. No ready access internally
A Rm #05	Toilets	Space defined 1950s	Timber floors, panel board walls	Little	Fair	Wall partitions and ceiling not original
A Rm #06	Change room / Museum	Space defined 1950s	Timber floors, panel board walls	Moderate	Good	Wall partitions and ceiling not original
A Rm #07	Upper floor	Space defined 1950s	Brick walls, timber floors	High	Good	Contains the last internal evidence of the original Pumphouse Machinery
B	Boiler Room	1885-1886	Polychromatic Brick walls, corrugated iron roof, asphalt floor	Exceptional	Good	Original iron columns removed and replacements required attention
C	Chimney	1885-1886	Polychromatic Brick	Exceptional	Good	Maintenance required
D	Eastern Annex	1892	Polychromatic Brick	High	Fair	Internal crack, and missing ceiling in bathroom. Intrusive door on southern face
E	Coal Store / Workshop	1885-1886	Polychromatic Brick	High	Good	
F	Western Pumphouse	1913	Polychromatic Brick	High	Good	Original external face of Main Pumphouse preserved internally. Sothern wall designed to be temporary

Item	Name	Construction Date	Primary Fabrics	Significance	Condition	Comments
G	Boiler Room Addition	1913	n/a	Neutral	Very poor	Little evidence remains
H	Settling Tank	1883-1885	Brick	Exceptional	Good	Overgrown
I-1	Filter Bed 1	1883-1885	Brick	High	Good	Currently backfilled
I-2	Filter Bed 2	1883-1885	Brick	High	Fair	Alteration to original layout in 1950s
I-3	Filter Bed 3	1883-1885	Brick	High	Good	Currently backfilled
I-4	Filter Bed 4	1883-1885	Brick	High	Fair	Alteration to original layout in 1950s
J-5	Filter Bed 5	1908	Concrete	High	Good	Walls and coping intact, overgrown
J-6	Filter Bed 6	1908	Concrete	High	Good	Walls and coping intact, overgrown
K-7	Filter Bed 7	1913	Concrete	Neutral	Good	Final bed constructed. Currently backfilled
L	Clear Water Tank	1883-1885	Brick	Exceptional	Good	Roof currently absent
M	Reservoir and Outlet Tower	1883-1885	Sandstone wall, concrete tower	Exceptional	Good	Overgrown in places
N	Pipes, Pits and Tunnels	1883 onwards	Iron, brick, concrete	Exceptional	Unknown	Enduring evidence of the site's complexity
O-1	Chief Engineer's Cottage	1882-1884	Brick, sandstone	Moderate	Unknown	Potential archaeological site – habitation of key individual
O-2	Chief Engineer's Cottage Garden	1882 onwards	unknown	Moderate	unknown	Evidence may have higher significance. Requires investigation
P-1	Workmen's Cottages	Post-1890	unknown	Moderate	Unknown	Potential archaeological site – key to human stories of the site
P-2	Workmen's Cottages Garden	Post-1890	unknown	Moderate	unknown	Evidence may have higher significance. Requires investigation

Item	Name	Construction Date	Primary Fabrics	Significance	Condition	Comments
Q	Second Engineers Cottage	Pre-1890	Brick	Moderate	Unknown	Potential archaeological site – habitation of key individual
R	Pumphouse no. 6	1913	unknown	Neutral	Very poor	Likely entirely removed
S	Rapid Filters	1916	unknown	Moderate	Unknown	Potential archaeological site – key part of later technology
T	Pumphouse No. 9	1913	unknown	Moderate	Very poor	Likely entirely removed
U	Sand Washing Plants	1891-1894 c.1910	Unknown Concrete	Moderate Moderate	Unknown Very poor	Potential archaeological site – key part of technology Largely destroyed, remnant evidence left
V	Privy and Change Shed	Pre-1920	unknown	Neutral	Very poor	Likely entirely removed
W	Power Station and Associate Features	1951 onwards	Concrete, asbestos	High	unknown	Power Station archaeological site – key aspect of later site use. Road network remains extant
X	Byewash	1883-1885	Brick	High	Good	
Y	Northern Levelled Area	Unknown	Unknown	Unknown	Unknown	Requires further investigation
Z	Railway cutting and Track	1951 onwards	Concrete	High	Fair	Some rails and bridges remain. Overall route with cutting etc. preserved
AA	Unknown Structures	Pre-1928	Unknown	Unknown	Unknown	Requires further investigation

6. Constraints & Opportunities

6.1. Background

Constraints and Opportunities are intended to highlight the key factors that will impact on the future of the site and guide any future preservation, development or alternation. They are in part based on statutory requirements, and in part from best practice. They are prepared with specific reference to the most significant and important aspects of the site.

6.2. The Burra Charter

The Principles of the Burra Charter are used throughout Australia as the core guidelines by which all impacts, changes and management of cultural heritage buildings and places are managed. The following Articles from the charter have particular relevance for Walka but it should be noted that the Burra Charter should be implemented in its entirety and anyone involved in modification, change or use of the site should be aware of it.

- ARTICLE 3. CAUTIOUS APPROACH

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.
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

Conservation should make use of all the knowledge, skills and disciplines which can contribute to the study and care of the place.
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.

- 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.

- 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 15. CHANGE

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.
Changes which reduce cultural significance should be reversible and be reversed when circumstances

permit.
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.
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.

- ARTICLE 21. ADAPTATION

Adaptation is acceptable only where the adaptation has minimal impact on the cultural significance of the place
Adaptation should involve minimal change to significant fabric, achieved only after considering alternatives.

- ARTICLE 22. NEW WORK

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 be readily identifiable as such but must respect and have minimal impact on the cultural significance of the place.

- 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.

- ARTICLE 27. MANAGING CHANGE

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

- ARTICLE 33. 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.

6.3. The Statement of Significance

The Statement of Significance as defined on the SHR and shown in Section 4.2.1 provides the most definitive assessment of the most important qualities of the site. As such the constraints in Table 12 are derived directly from it.

Table 12: Constraints arising from the Statement of Significance

Statement	Constraint	Opportunities
Walka Waterworks is one of the largest and most intact 19th century industrial complexes in the Hunter Valley.	The intact nature of the entire complex is key to its significance and so no alternations, changes, or modifications can be made to the overall layout of the 19th century elements. Nor can any element be removed.	Focal point for local community to learn and understand the growth and development of the region and the evolution of the technology.
The surviving water treatment features at the site constitute the most comprehensive set in NSW and clearly illustrate water filtration and reticulation processes and the major developments which occurred during the late 19th and early 20th century.	Any works at the site must not obscure the original purpose of the site as clear evidence of the water filtration and reticulation process.	Key educational resource in understanding the technology, attitudes and society in general in the 19th century through the intactness of the whole system.
The pumphouse, chimney and boiler house are elegant finely executed polychrome brick structures in a traditional configuration which are located within an attractive landscape.	No changes can be made to the brick structures external appearance, nor their configuration. Any changes to the landscape must ensure that it retains its aesthetic qualities.	Focal point for the site and ideally located at entranceway to be a place of community engagement and appreciation. Established use as a wedding venue highlights the esteem and desirability of the location.
The entire complex, including reservoir and tanks, is an important cultural landmark.	The site must retain a cultural link to the people of the region and its landmark status by being accessible.	Key area within the LGA, and wider region for interpretation, knowledge sharing, recreation and community engagement.

6.4. Statutory listings

6.4.1. Environment Protection and Biodiversity Conservation Act 1999 (Cth)

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the principal environmental legislation at a Commonwealth level. It provides for the protection and management of matters of national environmental significance as defined in the Act. Matters of national environmental significance include but are not limited to flora, fauna, ecological communities, and heritage places of national and international importance.

In addition, the EPBC Act applies to actions with a significant impact on the environment where the actions affect, or are taken on, Commonwealth land, or are carried out by a Commonwealth agency (even if that significant impact is not on one of the nine matters of 'national environmental significance').

The EPBC Act requires approval from the Australian Minister for the Environment for actions with a significant impact on places included on the National Heritage List or Commonwealth Heritage List.

There are no known Matters of National Environmental Significance that relate to the Walka Water Works site. The EPBC Act therefore provides no constraint.

6.4.1.1. National Heritage List

The National Heritage List was established under the EPBC Act to protect places of outstanding significance to Australia.

There are currently no places on the NHL within or near to the site. The non-statutory EHR does consider the site to be of National Significance.

6.4.1.2. Commonwealth Heritage List

The Commonwealth Heritage List (CHL) was established under the EPBC Act to protect places owned and managed by Commonwealth agencies.

There are no places on the CHL within or near to the site.

6.4.2. National Parks & Wildlife Act 1974

The *National Parks and Wildlife Act 1974* (NPW Act) is the principal Act providing protection for Aboriginal cultural heritage (objects and places) in NSW. It provides protection for Aboriginal cultural heritage irrespective of the level of archaeological or cultural heritage significance or land tenure. Heritage NSW is responsible for the administration of the NPW Act. The NPW Act provides protection for Aboriginal cultural heritage in NSW. Section 86 of the NPW Act states:

- "A person must not harm or desecrate an object that the person knows is an Aboriginal object".
- "A person must not harm an Aboriginal object".
- "A person must not harm or desecrate an Aboriginal place".

Under the NPW Act, it is an offence to harm an Aboriginal object or place. Harming an Aboriginal object or place may result in a fine of up to $550,000 for an individual and imprisonment for two years; and in the case of a corporation, a fine of up to $1.1 million. The fine for a strict liability offence (s86 [2]) is up to $110,000 for an individual and $220,000 for a corporation.

Harm under the NPW Act is defined as any act that: destroys defaces or damages the object; moves the object from the land on which it has been situated; causes or permits the object to be harmed. However, it is a defence from prosecution if the proponent can demonstrate 1) that harm was authorised under Section 90 of the NPW Act, or 2) that the proponent exercised due diligence in respect to Aboriginal cultural heritage. The due diligence defence states that if a person or company has exercised due diligence, liability from prosecution under the NPW Act will be removed or mitigated if it later transpires that an Aboriginal object was harmed. If an Aboriginal object is identified during the proposed activity, all activity within that area must cease and Heritage NSW notified (DECCW, 2010b). The due diligence defence does not authorise continuing harm.

Where Aboriginal sites are known no works can take place in these locations without full investigation and assessment in line with:

- *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH 2011);

- *Code of practice for archaeological investigation of Aboriginal objects in New South Wales* (the Code) (DECCW, 2010b); and,
- *Aboriginal cultural heritage requirements for proponents 2010* (DECCW, 2010c).

The *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW 2010c) codifies a process for consultation with Aboriginal people who hold cultural knowledge relevant to determining the significance of Aboriginal cultural heritage. The requirements are consistent with the NPW Act and seek, inter alia, to conserve Aboriginal objects and places of significance to Aboriginal people. Consultation is therefore a fundamental part of the Aboriginal cultural heritage assessment process.

An Aboriginal Heritage Impact Permit (AHIP) can be issued by the Chief Executive of the Department under Part 6 of the NPW Act where harm to an Aboriginal object or Aboriginal Place cannot be avoided. Section 90 of the NPW Act relates specifically to AHIPs. An AHIP can be issued, transferred, varied, surrendered, revoked or suspended.

Aboriginal archaeological survey was undertaken in 2024. This found that there are four known Aboriginal sites located within Walka Water Works as summarised in Table 13 and shown in Figure 156.

Constraints and opportunities resulting from Aboriginal archaeological sensitivity are presented in Section 6.7.

Table 13: Descriptions of Aboriginal sites within Walka Water Works

AHIMS ID	Site Name	Site Type	Description
38-4-0142	WW2	Artefact scatter	This site was recorded by H. Brayshaw in 1988 during an archaeological survey of the Walka Waterworks Reserve. The site condition was listed as disturbed and was located one metre north of the railway embankment, close to the cutting. The site comprised of two silcrete flakes, both with distal modifications and one indurated mudstone pebble.
38-4-0143	WW1	Artefact scatter	This site was recorded by H. Brayshaw in 1988 during an archaeological survey of the Walka Waterworks Reserve. The site condition was recorded as disturbed, likely as a result of the railway construction. WW1 was located within the southern portion of the disused railway cutting. The site is comprised of two unmodified silcrete flakes, both located within a ground exposure of reddish clay. Silcrete and quartz pieces were observed in the area, with much of the silcrete appearing heat treated.
38-4-0144	WW3	Grinding groove	This site was recorded by H. Brayshaw in 1988 during an archaeological survey of the Walka Waterworks Reserve. The site was recorded within a disturbed context near the northern boundary of the Walka Waterworks lot boundary along a ridge line. The site comprises of one grinding groove adjacent to a slight depression in the rock shelf, capable of holding water immediately after rain. The groove is 16cm in length; this was noted by Brayshaw as considerably shorter than the average groove length of 25-30 centimetres.
38-4-0155	Walka	Grinding groove	This site was recorded by W. T. Bluff for unknown reasons in 1989. Site card references AHIMS ID 38-4-142 and notes, “grinding grooves supposed to be on site”. No further site location or description is given. This site card is likely a duplicate of the grinding groove site AHIMS 38-4-0144 ‘WW2’.

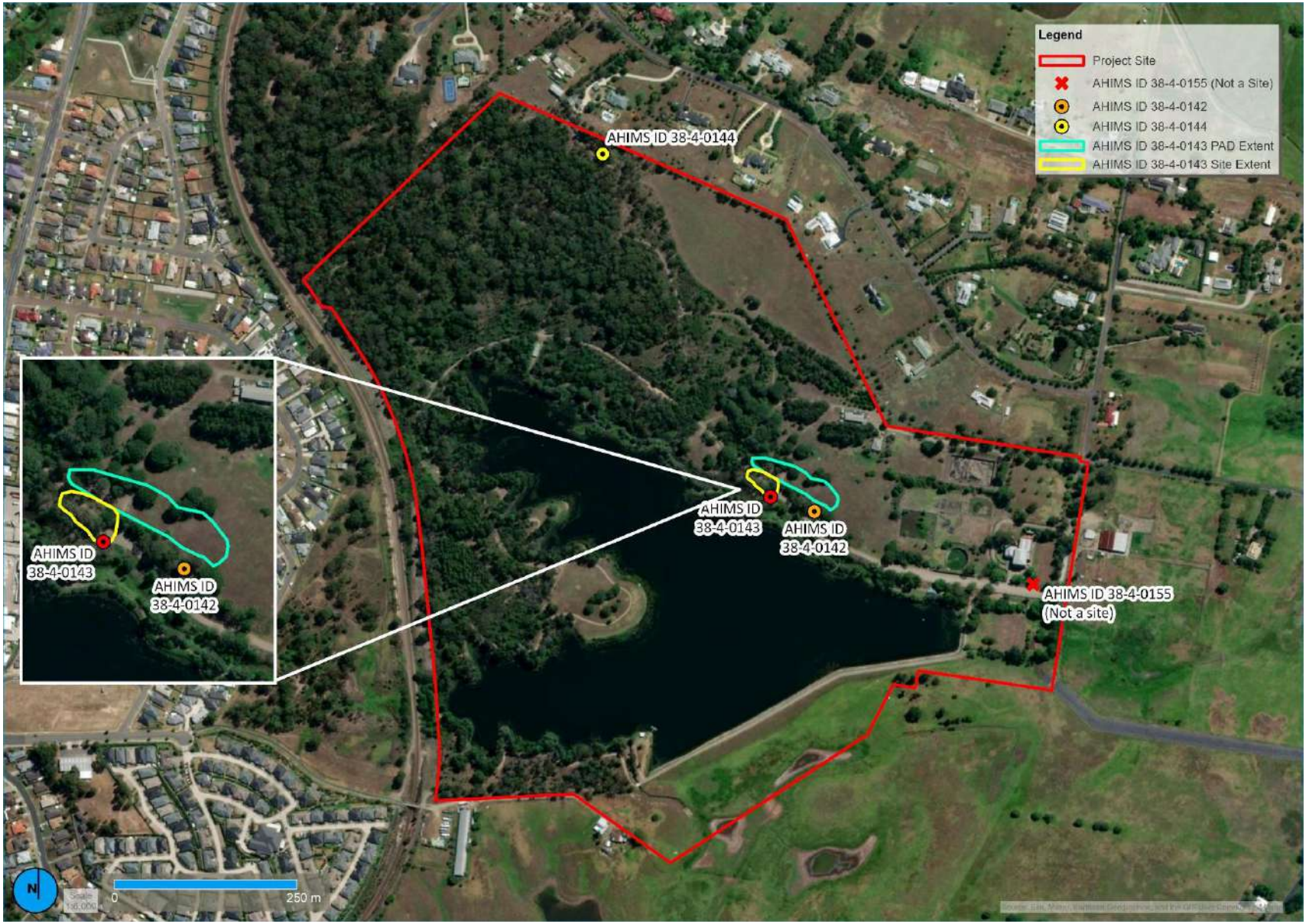


Figure 156: Results of the Aboriginal Archaeology survey showing the locations of the known Aboriginal sites.

6.4.3. Heritage Act 1977

The NSW *Heritage Act 1977* (the Heritage Act) is the principal legislation for the management of NSW's environmental heritage. It establishes the State Heritage Register (SHR) and includes protection provisions for Interim Heritage Orders, Orders to Stop Work and managing disturbance to archaeological relics (both on land and underwater within the limits of the State). It also requires government agencies to maintain a Heritage and Conservation Register.

To assist management of NSW's environmental heritage, the Heritage Act distinguishes between assets of state and local heritage significance:

- State significance refers to significance to the state in relation to the historical, archaeological, architectural, cultural, social, natural or aesthetic value of an item.
- Local significance refers to significance to an area in relation to the historical, archaeological, architectural, cultural, social, natural, or aesthetic value of an item.

Items may be of State and local significance. Items of local significance may or may not be of significance to the State.

6.4.3.1. State Heritage Register

The State Heritage Register (SHR) is a statutory register of environmental heritage, with heritage values that have been confirmed as demonstrating importance to the whole of NSW under specific criteria. It is established under Section 22 of the Heritage Act. Listing a place on the register means that prior approval from the NSW Heritage Council is required for major changes to ensure its heritage significance is retained.

The site is listed on the SHR as Walka Water Works (SHI #00466).

Section 57(1) of the Heritage Act outlines what works require approval. These are:

> *(a) demolish the building or work,*
>
> *(b) damage or despoil the place, precinct or land, or any part of the place, precinct or land,*
>
> *(c) move, damage or destroy the relic or moveable object,*
>
> *(d) excavate any land for the purpose of exposing or moving the relic,*
>
> *(e) carry out any development in relation to the land on which the building, work or relic is situated, the land that comprises the place, or land within the precinct,*
>
> *(f) alter the building, work, relic or moveable object,*
>
> *(g) display any notice or advertisement on the place, building, work, relic, moveable object or land, or in the precinct,*
>
> *(h) damage or destroy any tree or other vegetation on or remove any tree or other vegetation from the place, precinct or land.*

For works to be undertaken either an application under section 60 of the Act is required, or the works must comply with Standard Exemptions as published in the NSW Government Gazette.

This process also applies to management of historical archaeological resources and relics.

Historical archaeological resources or 'relics' are defined by Section 4 of the Heritage Act. as:

> *Any deposit, object or material evidence:*

(a) *which relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and*

(b) *which is of State or Local significance."*

It should be noted that not all remains that would be considered 'archaeological' are relics under the NSW Heritage Act.

Constrains and opportunities arising from historical archaeological resources are presented in Section 6.7.

6.4.3.2. S170 Listings

Section 170 of the Heritage Act requires government agencies to establish a Heritage and Conservation Register that identifies all assets of environmental heritage that it owns or occupies. Government agencies are required to provide the NSW Heritage Council prior notice of any intention to make the following changes to items listed on the Section 170 Heritage and Conservation Register:

- remove an asset,
- transfer ownership of an asset,
- cease to occupy an asset,
- demolish an item.

Assets must be maintained with due diligence in accordance with the Heritage asset management guidelines (DCCEEW 2024). Proposals to alter, dispose or demolish assets of State heritage significance (not listed on the SHR) must be referred to the NSW Heritage Council for comment.

Walka Water Works was previously listed on the Hunter Water S170 register. Once transferred from Hunter Water ownership, it ceased to be listed. Other aspects of the overall scheme such as Newcastle Reservoirs remain listed.

6.4.3.3. Relics Provisions

Section 139 of the *Heritage Act* protects certain (historical archaeological) 'relics' from activities that would disturb or excavate land including causing them to be 'discovered, exposed, moved, damaged or destroyed'. This protection extends to the situation where a person has 'reasonable cause to suspect' that archaeological evidence may be affected by the disturbance or excavation of the land. It applies to all land in New South Wales that is not included on the SHR. Relics are also protected when listed on the SHR but are subject to different regulatory requirements. A relic is an archaeological deposit, resource or feature that has heritage significance at a local or State level as per regulatory guidelines (e.g. NSW Heritage Branch, 2009).

Under Section 146 of the *Heritage Act*, a person who has discovered or believes they may have discovered a relic must cease work, notify Heritage NSW, and provide details.

6.4.4. Crown Lands Act 1989, the Crown Lands Legislation Amendment Act 2005, Crown Lands Management Act 2016.

The reserve has been reserved for the 'Preservation of Historical sites and buildings'.

6.4.5. Environmental Planning and Assessment Regulation 2000

The *Environmental Planning and Assessment Regulation 2000* (EPA Regulation) provides consent authorities with flexibility to consider different solutions to enable changes of use to existing buildings.

6.4.6. National Construction Code

The EPA Act and *Environmental Planning and Assessment Regulation 2000* requires that work to an existing building conforms to the *National Construction Code* (NCC) Volumes 1 or 2, commonly referred to as the *Building Code of Australia* (BCA). This sets out the minimum standards to which works must address structural requirements, fire resistance, access and egress (Including for people with disabilities), services, equipment, health and amenities.

Whilst compliance with the performance requirements of the BCA is mandatory, it is accepted that not all provision will apply in all cases and that in some cases works can be considered as 'deemed to satisfy'. The BCA only applies where new building work is being carried out.

Any works proposed for the buildings at Walka must confirm to the BCA but do so is such a way that the significant fabric of the buildings is not compromised. Any works that are required under the BCA should strictly follow Article 3 of the Burra Charter as shown in Section 6.2.

6.4.7. Disability and Discrimination Act 1995 and 2005 (Cth)

Access to public buildings, or those used by the public are controlled by the *Disability and Discrimination Act 1995* (DDA) as well as the BCA. Under the DDA it is illegal to discriminate on the basis of a person's disability and under Section 23 access to premises to which the public is entitled access is protected. Compliance with the DDA may be different to compliance with the BCA. Compliance with the DDA is covered if works comply with the *Commonwealth Disability (Access to Premises – Buildings) Standards*.

Heritage buildings are not exempt from the DDA but there are multiple defences should a compliant under the Act be raised. These include preparation of an Access Action Plan, and consideration of unjustifiable hardship. It has been ruled by the Australian Human Rights Commission that heritage significance may be considered with regard unjustifiable hardship.

Any works proposed for the buildings at Walka should confirm to the DDA unless a justifiable case under unjustifiable hardship can be made. Any work undertaken should be done in such a way that the significant fabric of the buildings is not compromised. Any works that are required under the DDA should strictly follow Article 3 of the Burra Charter as shown in Section 6.2.

6.5. Non-Statutory listings

Non-Statutory listings exist in the most part to reflect specific interest areas and are created by organisations that represent professionals in those fields. Whilst they have no legal standing, they often provide a great deal of specialist information and critically, are a key indicator of Criterion (d) of the heritage significance criteria as they are clear evidence of very strong community association.

6.5.1. Register of the National Estate

Walka Waterworks and Pumping Station, Willards La, Oakhampton Heights, NSW, Australia (Place ID #1250) was registered on the RNE in 1978. Key to the listing was it being one of the biggest public industrial undertakings in the valley. The architectural significance of the buildings, and the completeness of the complex, including pipes, beds, tanks, and engines, were also noted.

The RNE listing emphasises that the heritage significance of the place comes in a large part from its completeness and industrial architecture.

6.5.2. Engineering Heritage Register

The Engineering Heritage Register is maintained by Engineers Australia through the Engineering Heritage Recognition Program. The site was original registered as 'Walak Water Supply Scheme' in December 2015 and updated the following year to 'Newcastle's First Water System - the Walka Scheme, 1886' (EHR 196). It is marked with an Engineering Heritage National Marker meaning it is considered to be of national significance.

6.5.3. National Trust (NSW) Register

The National Trust (NSW) maintains a register of places considered to be culturally significant and that are worth of conservation. The registered was opened in 1946 and has over 13,000 items listed. These included significant landscapes, buildings, townscapes, cemeteries.

The 'Walka Waterworks and Pumping Station' was classified by the National Trust (NSW) on 31 May 1976. The 'reasons for listings' provided on the National Trust (NSW) register are identical to the statement of significance on the RNE.

6.6. Other documentary evidence

6.6.1. Maitland City Council Destination Management Plan 2020-2030 (2019)

Maitland City Council produced the *Destination Management Plan* (DMP) to provide guidance on how best to grow the visitor economy. The Walka Water Works is one of five 'Priority Destination Hubs' in the DMP because of feedback from the local community.

In the DMP the vision for the Walka Water Works is:

Become an iconic visitor attraction for the city, with active day use as well as an overnight destination for nature based tourism, weddings, functions and events.

The DMP provides its own Constraints (Challenges) and opportunities analysis as demonstrated in Table 14.

Table 14: Constraints contained in the MCC DMP

Opportunity	Challenge
Acknowledging the importance and value of the existing wildlife, ecology and heritage through interpretation, signage, museum experience and capital upgrades.	Accessibility to and connectivity of the road and cycle network, and inadequate development of 'big picture' people movement strategies.
Considering accommodation options such as permanent eco cabins scattered through the reserve, temporary glamping sites, RV parking and a boutique hotel.	Flooding in the surrounding areas.
Incorporating private function and event spaces, with a bar, craft brewery, restaurant and/or café in the existing building infrastructure.	Ownership and permissible uses under land ownership.
Expanding on the existing train rides which operate only on the third Sunday of the month or by appointment.	Set amongst a residential area therefore consideration must be given to neighbours.
Formalising nature walks and trails with wayfinding and interpretive signage.	History and heritage of the site.
Adding interactive experiences such as guided walking tours, adventure park, play areas and hiring facilities.	Environmental factors including blue green algae levels.
Packaging nature based products and experiences such as enhanced walking trails and commercial activities.	Lack of recent capital investment in Maitland accommodation.
Considering active uses of the lagoon.	Potential contamination of land and buildings.

Opportunity	Challenge
Assessing the site to determine its suitability for a range of events and activations including music festivals, outdoor theatre and evening performances.	Funding and additional private sector investment.
Testing commercial activities through pilot initiatives using temporary infrastructure and pop up activations like Street Eats.	The quality of water in the lagoon is not suitable for any water sports.
Planning for better people movement to facilitate a safer, smarter, enhanced visitor experience. This would include better vehicle access into the site, park and ride options and improved connectivity with other areas of Maitland, including roads, signage and a network of shared pathways between Walka and Morpeth.	Any activities must have a mutual understanding to be able to coexist. Impending conditions assessment report with so many unknowns and variables that could limit the feasibility and viability of potential uses for the site – both buildings and grounds Low awareness of Maitland as a tourism destination

6.6.2. Hunter Regional Plan 2036, 2016

The *Hunter Regional Plan 2036* (HRP)was prepared by the NSW Planning and Environment in order to guide the NSW Governments land use planning priorities and decisions over the 20-year period from 2016 to 2036 recognising that the Hunter Valley is seeing considerable economic and demographic growth.

Direction 9 of the HRP 2036 focuses on growing tourism within the Hunter with the natural environment, wine industry, and potential for gastronomic tourism being highlighted as key factors. Walka Water Works has opportunities to contribute to this growth by encouraging development in natural areas that support conservation outcomes (HRP Action 9.2) and develop capacity for growth in food-based tourism (HRP Action 9.5).

Direction 18 is focused on enhancing access to recreational facilities and connect open spaces. This includes activities such as expanding existing walking and cycling trails and connect existing green spaces. Walka Water Works is not one of the places specifically mentioned under this Direction however it stills bares consideration especially as part of a strategy that integrates open space and recreation opportunities (HRP Action 18.4).

Direction 19 relates to identifying and protection the regions heritage. This direction acknowledges the importance of cultural heritage to communities through providing them with a tangible connection to the past, as well as the tourism and economic benefits. Adaptive reuse of heritage structures and conserving Aboriginal heritage features are both key aspects of doing this. All works undertaken at Walka Water Works should be done so in consultation with the local Aboriginal Community (HRP Action 19.1). Any works undertaken at the site should also be appropriately informed by the preparation of heritage studies (Action 19.2).

6.6.3. Greater Newcastle Metropolitan Plan 2036

The *Greater Newcastle Metropolitan Plan (GNMP) 2036* works in collaboration with the HRP 2036 with a focus on the Greater Newcastle area that includes Maitland, and Walka.

Strategy 6 regards the promotion of tourism, major events and sporting teams with a large focus placed on festivals. Walka has potential to contribute towards the growth of the conferencing sector (GNMP Action 6.2) and increases in enabling major events in strategic centres (GNMP Action 6.3).

Strategy 10 relates to creating better buildings and great places that have a sense of identify and reflect community values. Adaptive reuse of heritage buildings is a clearly defined aspect of this strategy. Walka has strong opportunities under Action 10.1 which focuses on promoting innovated

approaches to the creative re-use of heritage places, ensuring good urban design preserves and renews historic buildings and places.

Strategy 11 is focused on creating great public spaces. This aims to create public spaces that contribute to the beauty of the environment and acknowledges the Aboriginal, historic, migrant and maritime heritage of the area. Walka can contribute to Action 11.1 which includes the aim to enhance community access to sporting, recreational, cultural and community services and facilities. It can also play a leading role in identifying, protecting and celebrating Aboriginal cultural heritage, historic heritage, and maritime heritage.

6.7. Aboriginal and historical archaeological resources.

6.7.1. Aboriginal Archaeological potential

An Aboriginal Archaeological Assessment (AAA) was prepared for the site in 2024 (ELA 2024a) which included a site survey with members of Mindaribba LALC. It noted that there are three known Aboriginal sites within Walka and concluded that the much of the site, aside from the reservoir and areas heavily modified for the Water Works and Power Station contained areas of moderate and low sensitivity for Aboriginal objects to be present. Within these, areas of high sensitivity are present around the previously recorded sites. The sensitivity mapping is show in Figure 157. The following recommendations are made on the basis of this assessment.

- AREAS OF NIL SENSITIVITY

In areas determined to possess nil sensitivity for the presence of Aboriginal objects and/or sites, an unexpected finds procedure must be followed (Figure 44). Aboriginal objects are protected under the NPW Act, regardless of whether they are registered on AHIMS or not.

If suspected Aboriginal objects, such as stone artefacts are located during future works, works must cease in the affected area and an archaeologist called in to assess the finds. If the finds are found to be Aboriginal objects, Heritage NSW must be notified under section 89A of the NPW Act. Appropriate management and avoidance or approval under a section 90 AHIP should then be sought if Aboriginal objects are to be moved or harmed.

In the extremely unlikely event that human remains are found, works should immediately cease, and the NSW Police should be contacted. If the remains are suspected to be Aboriginal, Heritage NSW may also be contacted at this time to assist in determining appropriate management.

- AREAS OF LOW SENSITIVITY

In areas determined to possess low sensitivity for the presence of Aboriginal objects and/or archaeological deposits, it is recommended at minimum an Aboriginal Due Diligence (ADD) assessment be prepared (Figure 44) in line with *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW 2010a).

These areas require further archaeological investigations in accordance with the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW, 2010b). If Aboriginal objects or areas of potential are identified, an impact assessment is required in accordance with the Guide to Investigating, Assessing, and Reporting on Aboriginal Cultural Heritage in New South Wales (OEH, 2011) with full Aboriginal community consultation is required to identify cultural values in accordance with Aboriginal cultural heritage consultation requirements for proponents (DECCW, 2010c).

- AREAS OF MODERATE SENSITIVITY

In areas determined to possess moderate potential for Aboriginal objects, further archaeological investigations in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW, 2010b) is required (Figure 44). Depending on the impacts, this may include a test excavation program and accompanying Archaeological Technical Report (ATR). If Aboriginal objects or areas of potential are identified, an impact assessment is required in accordance with the Guide to Investigating, Assessing, and Reporting on Aboriginal Cultural Heritage in New South Wales (OEH, 2011) with full Aboriginal community consultation is required to identify cultural values in accordance with Aboriginal cultural heritage consultation requirements for proponents (DECCW, 2010b).

- AREAS OF HIGH SENSITIVITY

As there are known Aboriginal objects within or in close proximity to these areas, further archaeological investigations in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW, 2010b) with full Aboriginal community consultation in accordance with Aboriginal cultural heritage consultation requirements for proponents (DECCW, 2010c) is required (Figure 44).

If impacts are proposed to the PAD associated with AHIMS ID 38-4-0143 and AHIMS ID 38-4-0142, a test excavation program and accompanying Archaeological Technical Report (ATR) is required. If impacts to AHIMS 38-4-0144, AHIMS ID 38-4-0143 or AHIMS ID 38-4-0142 are proposed and cannot be avoided, an Aboriginal Heritage Impact Permit (AHIP) must be sought.

6.7.2. Historical archaeological potential

The historical archaeological potential of the Walka Water Works has recently been assessed (ELA 2024b) with numerous areas of potential identified as shown in Figure 158. The main areas of use around the Main Pumphouse and Filter Beds have a general potential of 'Moderate' this is to account for the extensive network of pipes and tunnels etc., the locations of which are only assumed from 100 year old plans.

Any impact to a known or potential historical archaeological resource requires the preparation of an Archaeological Research Design and Excavation Methodology (ARDEM). This document outlines the process by which the archaeological resource will be managed including excavation techniques, recording and reporting methods, and mitigations. The ARDEM must be prepared by a historical archaeologist who meets the criteria for a State Significant Excavation Director as defined by the Heritage Council of NSW.

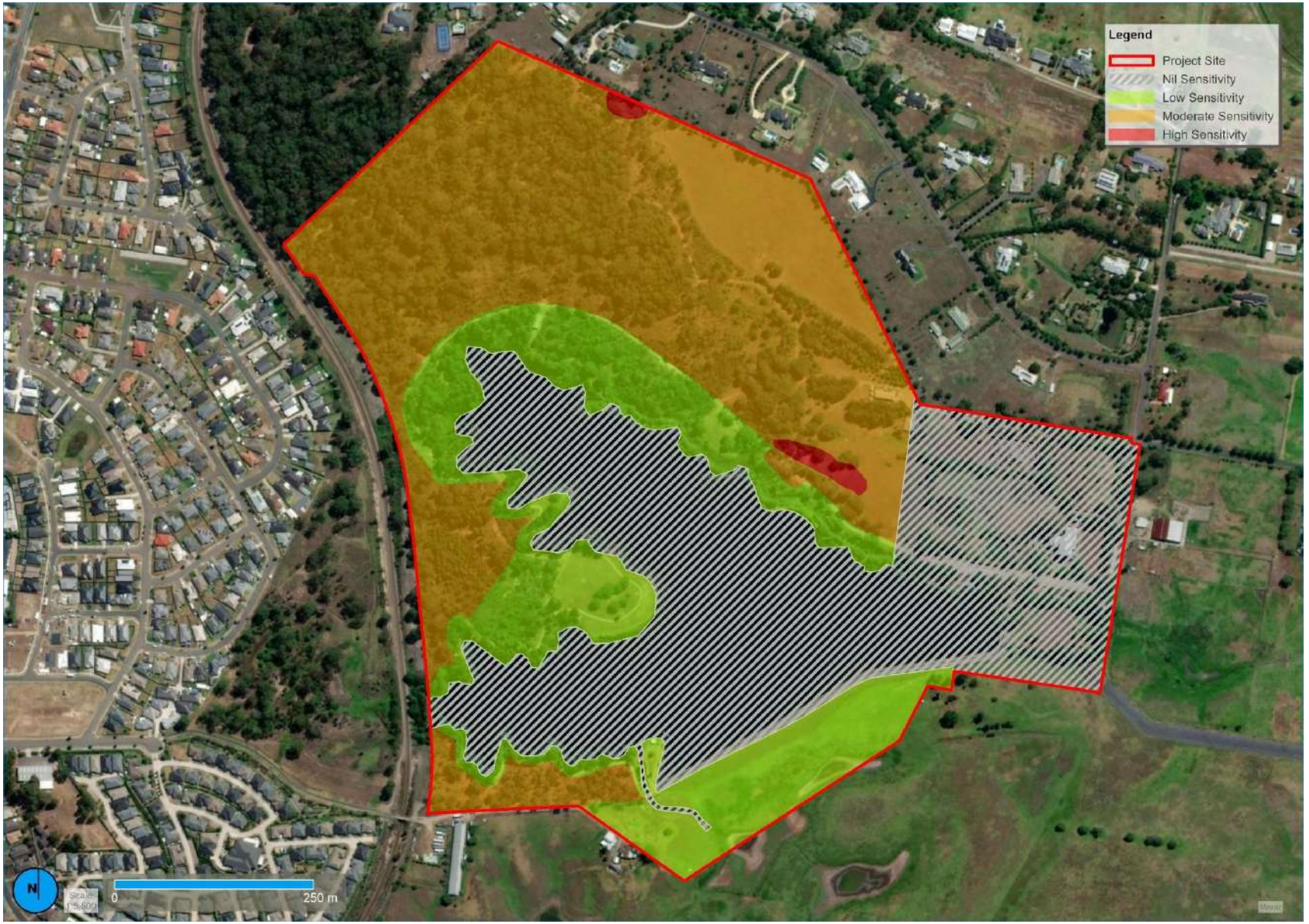


Figure 157: Map of the Aboriginal archaeology sensitivity as defined in the AAA.

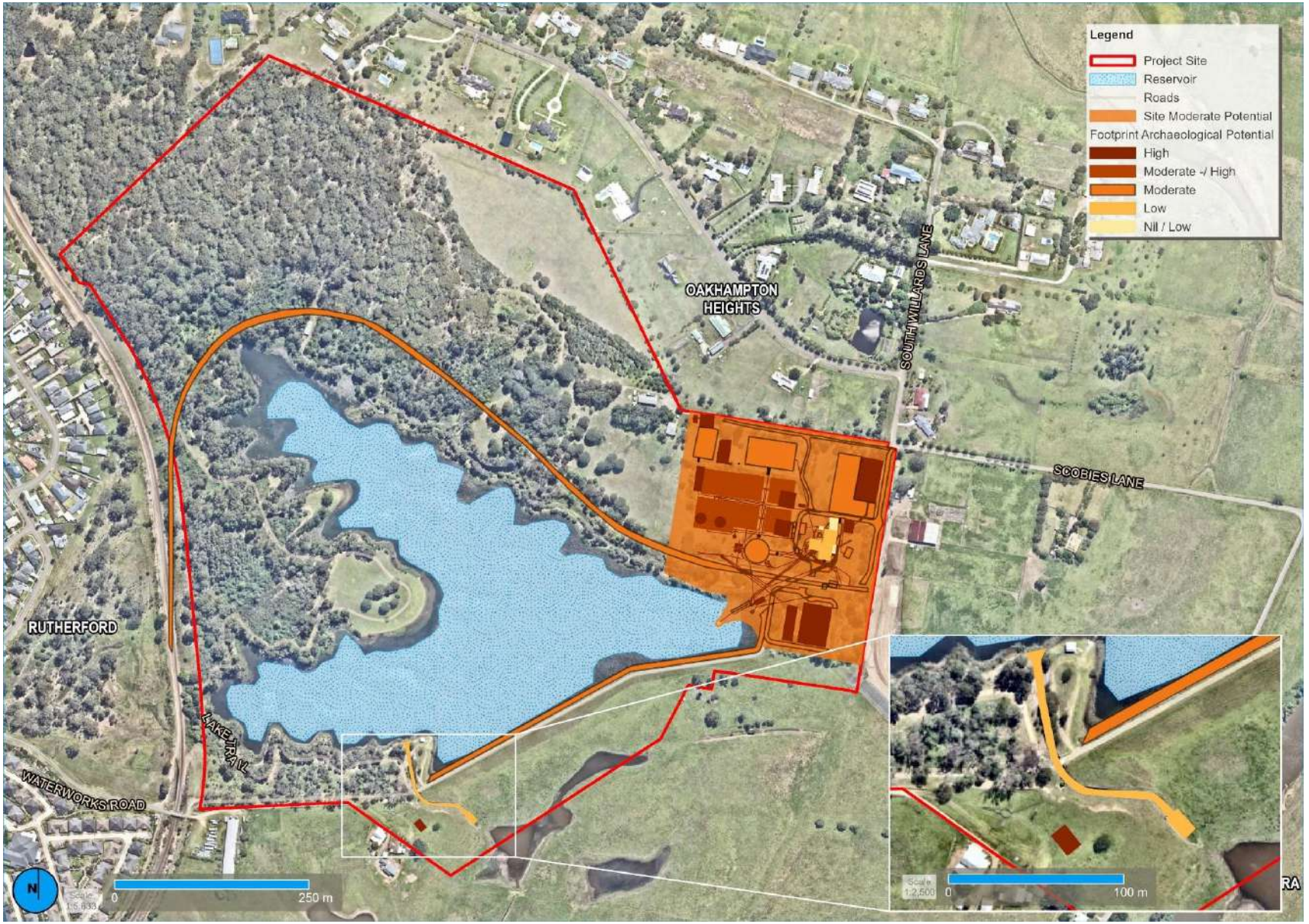


Figure 158: Map of the historical archaeological potential.

6.8. Plan of Management

To be completed in final draft

7. Conservation Policies

7.1. Overview

Heritage places are best looked after through a series of carefully considered, applicable, and relevant policies that directly present achievable guidance on how best to retain cultural significance. Polices are most useful when they provide clear direction and solve key problems. The following polices are designed to provide for enduring management of the Walka Water Works, including the management of change in accordance with the Burra Charter.

There are two general types of polices below:

- Those that provide specific guidance or answers regarding change.
- Those that provide direction on process that should be followed to develop specific guidance.

Along with each series of policies, applicable guidelines have also been provided which should be consulted when enacting the policies.

7.2. The Burra Charter

Since 1979, *The Burra Charter: the Australia ICOMOS Charter for Places of Cultural Significance* (Burra Charter) has guided the conservation, preservation and interpretation of historical and culturally significant places in Australia. Article 1 of The Burra Charter provides a series of definitions that aid in the identification of key attributes and provides a widely applicable and understood framework through which conservation can occur.

- *Place* means a geographically defined area. It may include elements, objects, spaces and views. Place may have tangible and intangible dimensions.
- *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.
- *Fabric* means all the physical material of the place including elements, fixtures, contents and objects.
- *Conservation* means all the processes of looking after a place so as to retain its cultural significance.
- *Maintenance* means the continuous protective care of a place, and its setting. Maintenance is to be distinguished from repair which involves restoration or reconstruction.
- *Preservation* means maintaining a place in its existing state and retarding deterioration.
- *Restoration* means returning a place to a known earlier state by removing accretions or by reassembling existing elements without the introduction of new material.
- *Reconstruction* means returning a place to a known earlier state and is distinguished from restoration by the introduction of new material.
- *Adaptation* means changing a place to suit the existing use or a proposed use.

- *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.
- *Compatible use* means a use which respects the cultural significance of a place. Such a use involves no, or minimal, impact on cultural significance.
- *Setting* means the immediate and extended environment of a place that is part of or contributes to its cultural significance and distinctive character.
- *Related place* means a place that contributes to the cultural significance of another place.
- *Related object* means an object that contributes to the cultural significance of a place but is not at the place.
- *Associations* mean the connections that exist between people and a place.
- *Meanings* denote what a place signifies, indicates, evokes or expresses to people.
- *Interpretation* means all the ways of presenting the cultural significance of a place.

7.3. Zoning

These enhance and supplement the Conservation policies. The zoning approach was first applied to the site in the original 1986 CP (Tresev 1986) and has been updated here. The five zones are shown in Table 15 and Figure 159: Heritage Conservation Zones.

Table 15: Heritage Conservation Zones

Zone #	Zone name	Description	Items	Size
1	Water works core	The eastern most end of the site which has been the main focus for all historical occupation Including: • The Main Pumphouse and associated buildings. • The Pumphouse Lawn. • The filter beds and tanks. • The workers cottages archaeological site and Chief engineers' residence archaeological site. • The Power Station Lawn and associated road network • The section of the railway at the eastern end of the site. • The northeastern corner of the reservoir.	Includes: A, B, C, D, E, F, G, H, I, J, K, L, part of M, part of N, O, P, R, S, T, U, V, W, Y, .part of Z, AA	7.38ha
2	Cleared Zone	The land to the west of Zone 1 that has been cleared and is only sparsely forested except for those areas that are part of Zone 5. This includes the existing caretaker's cottage and associated buildings.	None	6.34ha
3	Forested Zone	All land north of the old railway / track that isn't part of Zone 1, 2 or 5 that forms the northernmost part of the site1.	None	15.55ha
4	Reservoir and surrounds.	The entire reservoir, and surrounding area bounded by the cadastral boundary to the west and south, and by the old railway to the north except those areas in Zone 1. Includes the embankment and reservoir wall, the Byewash and Second Engineers Cottage.	Q, X, Part of Z	34.50ha
5	Aboriginal sites Zone	The two areas of the site that contain registered Aboriginal sites namely the area at the north of Zone 3 around the existing pond and the area between Zones 2 and 4 where AHIMS sites were located.	Part of Z	0.83ha

Figure 159: Heritage Conservation Zones

7.4. Core Policies

The entire of the Walka Water Works site is listed on the State Heritage Register and in numerous other locations. The Core Policies are intended to be a universal set of foundations that are applied to all zones and that ensure ongoing best practice management which maintains the heritage significance of the place.

- POLICY 1

The Statement of Significance in Section 4 must be the definitive basis for heritage management of the whole site. Any changes, alterations, or modifications of any part of the site must be done in such a way as to retain the heritage significance and value identified in this CMP.

- POLICY 2

In acknowledgement of the State significance of the place, all relevant best practice heritage guidelines, codes and charters must be followed and all works should be undertaken to maximise the long term conservation of the site.

- POLICY 3

Any and all modifications to the site, its flora, built forms, and landscape should only be undertaken by suitable qualified and experienced practitioners who are skilled in the discipline of conservation practice.

- POLICY 4

This CMP is to be the key heritage management of the site. It should be used in good faith and applied to all necessary scenarios. If situations arise where it doesn't supply sufficient guidance, a Statement of Heritage Impact should be prepared.

- POLICY 5

A centralised archival repository for materials relating to Walka Water Works should be established and maintained by MCC. This should contain all known historical documents, and be updated to include any further sources acquired, the results from any further investigations, and copies of all further work reports.

- POLICY 6

This CMP should be reviewed every 5 years and updated at least every 10 years. Should the ownership of the site change it should be reviewed.

- POLICY 7

Archaeological investigation in areas of exposed relics should be undertaken in order to investigate, document, and record these sites so that they can either be safely buried or properly exposed and interpreted.

- POLICY 8

All significant views identified in Section 4.4 and shown in Figure 155 *must be retained and no new construction that blocks or otherwise impacts the views is permissible*.

7.5. Zone Specific Policies

7.5.1. Zone 1 – Water Works Core Zone

- POLICY 9

The core character of the place, namely a series of finely built brick buildings and large subsurface tanks, set in a semi-rural natural landscape should be conserved and respected. This includes the spatial relationship between the elements and the ability to view various elements from multiple locations.

- POLICY 10

No removal of any remaining building or built feature that relates to the 19th century Water Works is permissible. No modifications should be made to any building façade except where that façade was intended to be removable (i.e. Western Pumphouse) unless for safety or repair.

- POLICY 11

A 'Loose Fit' approach should be taken to any future use of the internal space within the Core Zone. This means the function and spatial requirements of use are tailored to fit the space available as opposed to altering the buildings to fit the proposed use.

- POLICY 12

Impacts to any archaeological resource should be avoided wherever possible. If avoidance is not feasible then an ARDEM must be prepared and suitable mitigation measures put in place including archival recording and excavation.

- POLICY 13

Any new construction that is necessary for future use within Zone 1 must not impact up the completeness of the existing structures. Likewise, any key visual links must not be impacted upon and all significant views to and from key locations must be maintained or enhanced.

- POLCY 14

Any new construction should be sympathetic to the form, orientation, colours and materials of the existing buildings but it must not seek to emulate or copy the design. All new buildings must be clearly distinguishable from the heritage elements and not obscure and overwhelm them.

- POLICY 15

Any and all works undertaken in Zone 1 must be recorded including routine maintenance and activities carried out under Standard Exemptions. This should include dates, names of individuals undertaking works, plans of works, and photographic archival recording before and after works have been performed.

- POLICY 16

Maintenance to all structures should be undertaken in accordance with best practice and by individuals suitably experienced in historical building preservation. Regular maintenance schedules should be produced with the aim for ongoing preservation of the structures.

- POLICY 17

Wherever works impact upon, or cause the removal of significant fabric, the fabric should be removed with care, catalogued, and stored appropriately for future reuse within the site.

- POLICY 18

Any regular users of the site, including but not limited to Council employees, tenants, and subcontractors, should attend a heritage induction prior to commencing works on or use of the site that clearly explains the historical significance of the site and the opportunities, constraints and policies contained within this CMP. To ensure consistency it is recommended that a video is used.

- POLICY 19

The impact of any and all internal utilities and infrastructure such as plumbing, electrical conduit and air conditioning should be minimised and no chasing of walls is permitted. All new services should be attached to the surfaces of existing walls and, use existing penetrations and where possible, utilise underfloor or under false-ceiling routes.

- POLICY 20

The basement of the Main Pumphouse should be emptied using an archaeologically appropriate method that enables the retention of artefacts with the basement made available as an interpretive space.

- POLICY 21

Rearrangement of the internal space of Item A is permissible following archival recording of the current layout. Likewise, the ground level floor level may be restored to its original 19th century level if required following recording. Any new internal partitioning works must be undertaken with due regard to the 19th century fabric including external walls and iron columns.

- POLICY 22

The internal space of Item B may be rearranged and the extant 1950s columns should be replaced with replicas of the original 19th century columns.

- POLICY 23

All necessary measures must be taken to ensure that the Chimney (Item C) is preserved. This can include internal structural modifications, repair and repointing brickwork, and the construction of steel framing around the chimney. Care should be taken to minimise the visual impact of any framing and full archival recording must take place prior to and following works.

- POLICY 24

Modification to the temporary south facing façade of the Western Pumphouse (Item F) is permissible on the condition that full archival recording is undertaken prior to removal.

- POLICY 25

The layout of the Filtration system including all beds and tanks must be preserved, and where possible interpreted in order to best explain and present the historical significance of the site. All tanks and beds

should undergo extensive archival recording including 3D scans prior to any works to create a definitive archival resource.

- POLICY 26

Any works within an area of historical archaeological potential should be proceeded by an appropriate archaeological investigation including the preparation of an ARDEM approved by HCNSW followed by excavations directed by a suitably qualified and experienced Excavation Director.

- POLICY 27

Investigation through Ground Penetrating Radar and archaeological test excavation should be undertaken to fully map the remaining pipe, pits and tunnel network. Preservation and interpretation of their location should be undertaken.

- POLICY 28

Historical features and items in the landscape such as stairs and retaining walls should be cleared of vegetation and assessed for their use and condition. At a minimum these items should be recorded and maintained to prevent damage.

7.5.2. Zone 2 – Cleared Zone

- POLICY 29

New construction is permissible in Zone 2 as long as it has no visual impact on views of Zone 1 as identified in Section 4.4. Any new construction should consider the existing natural environment and be clearly segregated from Zone 1.

- POLICY 30

Any access to Zone 2 for construction, use, or maintenance of structures should avoid impacts to the structures and fabric in Zone 1. The current road access is adequate but care must be taken to avoid impact.

7.5.3. Zone 3 - Forested Zone

- POLICY 31

Any new construction within Zone 3 should be in keeping with its current environment and involve minimal impact to the forested area.

- POLICY 32

Any impacts to the north of the Zone should take additional care to ensure there are no further Aboriginal sites located in this area.

7.5.4. Zone 4 - Reservoir and surrounds

- POLICY 33

Maintenance to the reservoir embankment and Byewash should be periodically undertaken to ensure its function. All works should be documented and use materials in keeping with its current form.

- POLICY 34

The location of the Second Engineers Cottage should be further investigated in order to understand, record and interpret the location. This should be undertaken by a suitably qualified and experienced Excavation Director.

- POLICY 35

Care should be taken when undertaking any work to existing road/track that traces the location of the former railway to ensure that there is no impact to any subsurface evidence of the railway, including features such as bridges.

7.5.5. Zone 5 - Aboriginal sites Zone

- POLICY 36

No impacts may occur within Zone 5 until further archaeological investigation in accordance with the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW, 2010b) and with full Aboriginal community consultation in accordance with Aboriginal cultural heritage consultation requirements for proponents (DECCW, 2010c) are undertaken.

- POLICY 37

If impacts are proposed in zone 5 are proposed and cannot be avoided, an Aboriginal Heritage Impact Permit (AHIP) must be sought prior to works commencing.

8. Implementation

This CMP outlines the heritage significance of the Walka Water Works, how each item contributes to this significance, and provides key policies for the conservation, re-use, interpretation and ongoing management of the site in line with the Burra Charter, Heritage NSW guidelines, and best practice. The following is provided to give advice on how to implement the policies and findings of this CMP.

8.1. Minimum maintenance standards

Minimum maintenance standards are set out in Part 3 of the Heritage Regulation 2012. Table 16 details those regulations that apply to the site but are summarised only. The full regulations should be consulted when preparing maintenance plans.

Table 16: Minimum maintenance standards summarised from Heritage Regulation 2012

Regulation	Details	Applicability
10. Weather Protection	Any system or component designed to protect a building, work, or relic, must be maintained and repaired to ensure a reasonable level of protection. This includes: • all types of drainage systems • roofs, walls, doors, and windows • damp proofing and other measures taken to prevent the ingress of water or damp. • lightning conductors.	To all built structures on the site generally and of highest importance to the buildings within the Main Pumping Station.
11. Fire Protection	Vegetation, rubbish and other material that may pose a fire risk should not be allowed to accumulate. If present systems that protect against fire or may cause fire must be maintained. This includes: • lightning conductors • smoke and fire alarms and sprinkler systems. • series such as electricity, gas and heating systems.	To all built structures on the site generally and of highest importance to the Main Pumping Station.
12. Fire Protection for unoccupied buildings	If a building is unoccupied for 60 days or more certain additional measures apply including: • all services including electricity, gas, and oil should be disconnected. • Temporary or permanent smoke detection systems should be installed.	All buildings in the Main Pumping Station.
13. Security	Security systems such as fencing or surveillance must be installed to secure the site and prevent vandalism. If present systems including the following must be maintained: • Boundary fences, doors, windows, and other closures and all their associated locking mechanisms • Electronic surveillance or alarm systems. The boarding of windows and other openings in only to be used as a temporary measure	All areas of the site require surveillance including archaeological sites.
14. Security for unoccupied buildings	If a building is unoccupied for 60 days or more certain additional measures apply including: • Alarm or surveillance system should be connected to a police station or private security provider. • If no alarm system is in place, regular surveillance should be undertaken.	To all built structures on the site generally and of highest importance to the Main Pumping Station.

Regulation	Details	Applicability
15 Essential maintenance and repair	Essential maintenance and repair must be carried out where necessary this includes: • Measures to control pests. • Measures to maintain a stable environment for in-situ archaeological relics. These requirements extend to but are not limited to: • Foundations and footings, • Structural elements and their finishes • Fixtures, fittings, systems and components • Landscape elements of the site.	Any and all parts of the site identified in this CMP has having heritage significance and any other parts of the site that may have heritage significance.

8.2. Ongoing maintenance

8.2.1. Maintenance Plan

A Maintenance Plan should be developed for the site in line with *Preparing a maintenance plan* (NSW Heritage Office Information Sheet 1.1). This plan should include a clear budget and program for works that are appropriate and achievable for the site. In addition, it should clearly outline how maintenance and repairs are to be recorded and the pathways through which escalation can occur should more substantial repairs be required. Further information on specific activities and actions that should be included in the Maintenance Plan is included below.

8.2.2. Documentation

As a State Heritage listed site, all works undertaken within the site must be documented even if they are being undertaken under a Standard Exemption. *Documenting maintenance and repair works* (NSW Heritage Office Information Sheet 1.3) provides guidance on the form the documentation should take. Key to the process is understanding what to document, and secondly how to document it. Documentation should include contract conditions, allowances, drawings, specifications, and schedules in addition to a clearly presented log of the works themselves. It should be accompanied by a detailed photographic record of the works and, where appropriate, should include input from a suitably qualified and experienced heritage consultant.

8.2.3. Masonry walls

All maintenance to masonry walls, including those built of brick, stone, or unpainted render should be undertaken in accordance with *Cleaning Masonry Walls* (NSW Heritage Office Information Sheet 6.1). Particular attention should be paid to Section 6 where appropriate methods for the cleaning of brickwork and mortar are provided.

8.2.4. Corrugated roofs

All maintenance to corrugated metal roofs at the site should be undertaken in accordance with *Corrugated Roofing* (NSW Heritage Office Information Sheet 4.1). This provides details on the best approaches to general cleaning and maintenance, patching and making repairs. In addition, it provides guidance on when to undertake full replacement. It is currently understood that the present roofs of the various buildings and annexes within the Main Pumping Station are not original, however in order to prolong their lives and therefore minimise any further impact to the surrounding significant structure, all measures should be taken to maintain the roofs. Replace like with like.

8.2.5. Floorboards

The only original remaining floorboards at the site are those on the upper floor of the Main Pumphouse (item A). All measures to protect and maintain them should be taken. Where necessary repairs should be undertaken in line with the guidance in *Patching old floorboards* (NSW Heritage Office Information Sheet 5.3)

8.3. Actions

Based on the policies outlined in Section 7.5, the minimum standards in section 8.1 and the details provided in section 8.2, the following Actions are required

- ACTION 1

Preparation of a long term Maintenance Plan, and associated works documentation plan that serves as the permanent record of all future maintenance and repairs to the site. The Maintenance Plan should include schedules of regular maintenance for the site.

- ACTION 2

The 2020 Condition Assessment (NSW Public Works 2020) should be used as the basis for a general survey of the Main Pumping Station to highlight any areas that require works in accordance with the minimum standards. Table 17 details the identified works required to confirm to the minimum standards.

Table 17: Identified actions required for compliance with minimum standards.

Action	*Locations*	*Regularity*
Ensure all roof fixings are in good condition and replace any corroded fixings	*All roofs in Main Pump Station*	*As soon as possible and every 5 years thereafter*
Ensure roof coping is in good condition and replace any missing or degraded parts	*All roofs in Main Pump Station*	*As soon as possible and every 5 years thereafter*
Ensure all guttering, including down pipes are clear, in good condition and are fit for purpose	*All roofs in Main Pump Station*	*As soon as possible and every year thereafter*
Ensure all flashing is installed correctly and in good condition	*All roofs in Main Pump Station*	*As soon as possible and every 5 years thereafter*
Apply lead weathering to all areas of stonework that are exposed and weathering.	*All stonework along roofs, pediments, sills,*	*As soon as possible and every 5 years until full stone replacement is undertaken – see Action 3*
Undertake desalination of stonework in the base courses	*All stonework in base courses around the Main Pump Station*	*Within the next 3 to 5 years*
Identify and replace damaged and eroded bricks in external walls	*All external walls at the Main Pump Station*	*Within the next 3 to 5 years and every 5 years thereafter refer to Action 3*
Identify of areas of eroded mortar and repoint brick work with comparable lime mortar	*All external walls at the Main Pump Station*	*Within the next 3 to 5 years, and every 5 years thereafter*
Survey, identify and remove all unnecessary external fixtures and fittings and repair brickwork where required	*All external walls at the Main Pump Station*	*As soon as possible and every 5 years until cornice replacement is undertaken – see Action 3*
Examine concrete cornices, remove any loose sections, seal remaining sections	*All external walls at the Main Pump Station*	*Within the next 3 to 5 years*
Examine all external vents to ensure do nesting and replace any damaged vents	*All external walls at the Main Pump Station*	*Within the next 1 to 3 years and every year thereafter*

Action	*Locations*	*Regularity*
Examine all external spaces to ensure no vegetation growth	*All external walls at the Main Pump Station*	*As soon as possible and every year thereafter*
Ensure all windows are securable	*All external walls in the Main Pump Station*	*As soon as possible and every year thereafter*
Ensure all window fixtures and fittings are operable and in good condition	*All external walls in the Main Pump Station*	*As soon as possible and every year thereafter*

- ACTION 3

Archaeological investigations should take place in locations where relics are currently exposed, specifically the Chief Engineer's Cottage and Second Engineer's Cottage in order to prevent irreversible loss of archaeological data due to ongoing exposure and environmental change. A management place for their long term preservation and interpretation should be prepared.

- ACTION 4

Prepare an element replacement strategy for all structures in the Main Pumphouse that identifies and secures a sources of suitable replacement materials. This includes stone, bricks and mortar, and concrete cornicing for replacement of all parts of the buildings that are subject to natural weathering,

9. Bibliography

Australian Bureau of Statistics; Australian Data Archive; Smith, Len; Rowse, Tim; Hungerford, Stuart, 2019, Historical and Colonial Census Data Archive (HCCDA) *Census of 1871*

AECOM, 2009. *Aboriginal Archaeology and Cultural Heritage Impact Assessment Mt Arthur Coal, Muswellbrook, NSW.* Prepared for Hansen Bailey.

Armstrong, J. W. 1967 *Pipelines and People,* The Hunter District Water Board, Halstead press, Sydney

Berthold, W. 1978 *History of Oakhampton Part 1*. Maitland and District Historical Society Inc. Bulletin Vol 2, No 5.

Bigge, J.T. 1822 *Report of the Commissioner of Inquiry into the State of the Colony of New South Wales,* House of Commons

Blunden, T.W. 1967. James Wallie (1785-1858) *Australian Dictionary of Biography,* Volume 2

Boyle, H.F., Gent, L., Anderson, V. 2011 A Synopsis of the History of the Paterson River Valley, Paterson Historical Society Inc.

Brayshaw, H. 1987. *Aborigines of the Hunter Valley: A Study of Colonial Records*. Bicentennial Publication 4. Scone & Upper Hunter Historical Society, Scone, NSW.

Brayshaw, 1987. *Walka Water Works Reserve Aboriginal Archaeological Survey*. Prepared for Tresev, on behalf of Walka Waterworks Trust.

Chester, L., and Elliot, A. 2019 *Energy problem representation: The historical and contemporary framing of Australian electricity policy*. Energy Policy 128 pp102-113.
Creer & Berkeley, 1948 *Report & Valuation re land & buildings comprising the Walka waterworks at Scobie's Lane, West Maitland.* Report to Newcastle Technical College.

Docherty, J.C., 1983, Newcastle: The making of an Australian City, Hale & Iremonger

Dunlop, E.W. 1967 William Lawson (1774–1850) *Australian Dictionary of Biography,* Volume 2

Dunn, Mark. 2015. *A Valley in a Valley: Colonial Struggles over land and resources in the Hunter Valley, NSW 1820-1850*. PhD thesis, School of Humanities and Languages, UNSW

Dunn, M. 2016. *Aboriginal guides in the Hunter Valley, New South Wales* in Shellam, Tiffany & Cadzow, Allison, (editor.) & Konishi, Shino, (editor.) & Nugent, Maria, (editor.) 2016, Brokers and boundaries: colonial exploration in indigenous territory, ANU Press, Canberra, A.C.T

Dutton, K.R. 2020. The Skottowe manuscript and the Cook connection, *Journal & Proceedings of the Royal Society of New South Wales,* colv. 153, pt 2. Pp156-163.

Department of Planning and Environment (DPE) 2023 *Assessing Heritage Significance*

Department of Environment, Climate Change and Water, 2010a. *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales.*

Department of Environment, Climate Change and Water, 2010b. C*ode of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales*

Department of Environment, Climate Change and Water, 2010c. A*boriginal cultural heritage consultation requirements for proponents*

Eco Logical Australia, 2024. *Walka Water Works Aboriginal Archaeological Assessment.* Report prepared for Ramboll

Eco Logical Australia, 2024. *Walka Water Works Historical Archaeological Assessment*. Report prepared for Ramboll

Eureka, 2024. *Statement of Heritage Impact & Archaeological Assessment, Scobies Lane Realignment, Oakhampton.* Report prepared for MCC

Flowers, E. (1967) Sir Charles Menzies (1783–1866), *Australian Dictionary of Biography,* Volume 2, 1967

George, P. 1997. *Walka Power Station*, Bolwarra NSW

GHD, 2021. *Walka Water Works Contamination Assessment*. Report to Maitland City Council

Gooden & Associates, 1987. *Industrial Archaeology* in Specialist Reports for Walka Waterworks Conservation Plan, Tresev 1987

Grant, J. 1803. *The Narrative of a voyage of discovery performed in his majesty's vessel the Lady Nelson.* C. Roworth, Bell Yard, Fleet Street, London

Grey, N. (1966) Henry Dangar (1796-1861) *Australian Dictionary of Biography,* Volume 1, 1966

Heritage Council of NSW (HCNSW) 2021. *Guidance on developing a conservation management plan*

Heritage Council of NSW (HCNSW) 2021 *Statement of best practice for conservation management plans*

Heritage Council of NSW (HCNSW) 2021 *Conservation Management Plan Checklist*

Historical Records of NSW, 1895 (HRNSW). *Volume III – Hunter 1796-1799.* F.M Bladen (ed.). Charles Potter Government Printer, Sydney

Howe to Macquarie, 21 March 1820, SRNSW Reel 6049, 4/1744.

Hunter, J. 1798 *Letter to the William Cavendish-Bentinck, Duke of Portland January 1798.* Historical Records of NSW vol 3.

Jones, G., 1967. *The movement for Newcastle's first water supply, 1875-1885*. Newcastle Public Library, Council of the City of Newcastle

Jordon, B. 2015, *Newcastle's First Water Supply – The "Walka" Scheme, Nomination for Engineering Heritage Recognition*. Prepared for Engineering Heritage Newcastle

Kerr, J.S. 2013. *Conservation Plan* (7th edition), Australia ICOMOS

Keys, C. 2023, T*he development of Maitland: how different decisions in the early years could have created a less flood-liable town*. Maitland and District Historical Society Inc Bulletin Vol.30 No 2

Lloyd, C.J. & Troy, P.N., 1990. *Henry Deane Walsh (1853-1921)* Australian Dictionary of Biography Volume 12, Melbourne University press

Macmillan, D.S., 1967, *William Paterson*, Australian Dictionary of Biography, Volume 2

Maitland, City of. (1965) Historical Buildings of Maitland and District, June 1965. Mercury print, Maitland.

Maitland City Council (2020) Walka Water Works Basement Exploration Report

Macquarie, Lachlan. 1812. J*ournal to and from Van Diemen's Land to Sydney in New South Wales. 4 November 1811 – 6 January 1812.* Original held in the Mitchell Library, Sydney. ML Ref: A777 pp.74-**. [Microfilm Reel CY302 Frames #420-4**].

Macquarie, L. *Journal to and from Newcastle. 27 July 1818 - 9 August 1818.* Original held in the Mitchell Library, Sydney. [ML Ref A781]

Malnic, N.O., 1984. *The Conservation and Development of the Former Walka Waterworks, West Maitland.* Master of Architecture Thesis, University of Newcastle

Miller, J. 1985. *Koori: A Will to Win.* Angus and Robertson.

Mitchell, H. *Letter to Thomas Michell 09 April 1831.* SLNSW Papers of Sir T.L. Mitchell vol 3: 1830-1839 CYA 292

Morisset, J.T. *Letter to Frederick, Goulburn Esq., Colonial Secretary, Newcastle December 18 1821* Main series of letters received, 1788-1825. Series 897, Reels 6041-6064, 6071-6072. State Records Authority of New South Wales

Office of Environment and Heritage, 2011. *Guide to Investigating, Assessing, and Reporting on Aboriginal Cultural Heritage in New South Wales.*

NSW Heritage Office 1998 Information Sheets:

- *Preparing a maintenance plan* (NSW Heritage Office Information Sheet 1.1
- *Documenting maintenance and repair works* (NSW Heritage Office Information Sheet 1.3)
- *Cleaning Masonry Walls* (NSW Heritage Office Information Sheet 6.1
- *Corrugated Roofing* (NSW Heritage Office Information Sheet 4.1).
- *Patching old floorboards* (NSW Heritage Office Information Sheet 5.3)

NSW Public Works Advisory 2020. Walka Water Works *Condition Assessment. Report prepared for Maitland City Council*

Perry, T.M. (1965) *Australia's First Frontier: The Spread of Settlement in New South Wales 1788 - 1829* Melbourne University Press

Shortland, J. 1798. *Letter to John Shortland Snr September 1798.* University of Newcastle Archives, Shelf Location A6472 (iii)

Suters Architects, 1997. *Newcastle Archaeology Management Plan,* City of Newcastle

Suters Busteed Corner Clode, 1987. *Walka Water Works Management & Concept Plan.* Report prepared for Walka Water Works Trust

Tindale, N 1974. *Aboriginal tribes of Australia: Their Terrain, Environmental Controls, Distribution, Limits, and Proper Names* / by Norman B. Tindale, with an Appendix on Tasmanian Tribes by Rhys Jones, Australian National University Press, 1974.

Tresev Pty Ltd, 1986, *Conservation Plan Walka Water Works.* Report prepared for Walka Water Works Trust

Turner, J.W. 1987. Coalmining and Manufacturing in Newcastle, 1797-1900. University of Newcastle.

Walsh, G.P. 1967 Sir John Jamison (1776-1844) *Australian Dictionary of Biography*, Volume 2