

## **SUMMARY OF STATE HERITAGE PLACE**

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### **REGISTER ENTRY**

**Entry in the South Australian Heritage Register in accordance with the  
*Heritage Places Act 1993***

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**NAME:** North Adelaide Service Reservoir **PLACE NO.:** 26400

**ADDRESS:** Corner O'Connell Street & Barton Terrace, North Adelaide  
CR6059/925 Section 1643 Hundred of Yatala

### **STATEMENT OF HERITAGE SIGNIFICANCE**

The North Adelaide Service Reservoir represents a significant feat of hydraulic engineering in South Australian history that demonstrates the evolution and pattern of the State's development, particularly the growth of the colony, investment in infrastructure networks, and commitment to public health. The 1870s brick and cement structure was designed to increase and balance the pressure of water sent to the Port Adelaide area. It is a unique South Australian example of an underground reservoir, with its finely constructed red-brick arcades comprising piers and arches that form a 'cathedral to water'. As a utilitarian structure it demonstrates a high degree of technical accomplishment in construction, materials and design.

### **RELEVANT CRITERIA (under section 16 of the *Heritage Places Act 1993*)**

**(a) *it demonstrates important aspects of the evolution or pattern of the state's history.***

Closely associated with the provision of the reticulated water scheme for Adelaide, the North Adelaide Service Reservoir demonstrates important aspects of the evolution or pattern of the State, including the growth of the colony, investment in infrastructure networks, and commitment to public health.

From the earliest days of the colony, supply of water to the State has been a challenge. Early supplies from the River Torrens were quickly reduced in quality and became insufficient for the burgeoning population. Concern for public health required the reserving of important water-catchment areas such as Brownhill Creek as early as 1840. Early waterworks could only service a limited area until the River Torrens Weir & Aqueduct (SHP10886) was constructed from 1860 to 1872 as part of the first reticulated water scheme for Adelaide. This was

largely required due to the introduction of Australia's first watered sewerage system in Adelaide.

Service of water to Port Adelaide was established in 1865. In 1877, a visiting consulting Hydraulic Engineer, W Clark suggested many improvements to the water system for South Australia, including construction of the North Adelaide Service Reservoir. This was completed in 1879 by the first South Australian Hydraulic Engineer, Mr Oswald Brown, to increase pressure for the Semaphore and Port Adelaide area. The increase in pressure would allow for the improvement of the sewerage system in the Port.

**(e) it demonstrates a high degree of creative, aesthetic or technical accomplishment or is an outstanding representative of particular construction techniques or design characteristics.**

The North Adelaide Service Reservoir demonstrates a high degree of technical and aesthetic accomplishment. The quality of its design and construction were remarkable for its time and function; the utilitarian building being constructed using piers and arcades more commonly seen in grand neoclassical structures, creating a 'cathedral-to-water'. The quality of its design and finish were particularly notable given the structure was never intended to be seen or accessed by the general public.

The Service Reservoir also demonstrates a high degree of technical accomplishment for the time it was constructed, as demonstrated by its construction techniques and design characteristics, some of which are noted by Statton 2016.

# SITE PLAN

North Adelaide Service Reservoir  
Corner O'Connell Street & Barton Terrace, North Adelaide

PLACE NO: 26400



**NORTH ADELAIDE SERVICE RESERVOIR** N ↑  
Corner O'Connell Street & Barton Terrace, North Adelaide  
Site plan generally indicating the boundary and important components of the place.

## LEGEND

— Boundary of State Heritage Place

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## COMMENTARY ON THE LISTING

### Description and notes with respect to a place entered in the South Australian Heritage Register in accordance with the *Heritage Places Act 1993*

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#### Physical Description

The North Adelaide Service Reservoir is an underground water infrastructure located in the northwest corner of the Kangattilla reserve at the corner of O'Connell Street and Barton Terrace in North Adelaide. It was constructed in 1879 of brick and cement barrel vaults with arcades/piers and arched perimeter walls. The reservoir has a square footprint that measures approximately 33.5 metres in length and width, and has an overall internal clear height of approximately 5.8 metres.

The brick arched roof structure is supported by the internal arcades and piers and the top of the perimeter walls. There are a total of nine arch-roofed bays, each with a span of approximately 2.9 metres. The roof arch springings are around 5 metres above the tank floor. Perimeter walls are horizontal brick arches tied into supporting internal wall buttresses/arches and in turn tied into the floor and stiff diaphragm of the roof (Statton, 2016, p1-2).

The place includes the original pump-house building, located on the eastern side of the tank mound, which is also the access point for the tank. There is also a ventilation grate on the western elevation of the mound.

The Service Reservoir also demonstrates a high degree of technical accomplishment for the time it was constructed, which is demonstrated by its construction techniques and design characteristics, some of which are noted by Statton 2016 as follows:

- Bricks are hard burnt clinker bricks 'machine pressed' that were apparently specifically manufactured in Melbourne to exacting dimensions and quality.
- Indications are that brick joints in arches were radial. A lime rich mortar was used for the roof arches and mortar with higher cement content for masonry below the water line.
- The 1370 mm thick concrete floor was placed in two layers.
- Roof arches are noted to be constructed initially from one row across the full width of the tank together from a common spring level and progressively then to the tank perimeter. It is likely a timber formwork/ falsework was used. Construction of the internal piers and arches was carried out simultaneously with the side walls. Any gaps between the excavated ground and horizontal wall arches were filled with concrete.
- External concrete mortar filling of roof arch haunches placed above the arch spring-lines, commonly known as 'backing' (refer figure 4) can be seen in the void under the valve house floor.

- The whole of the tank structure including roof arch concrete 'backing' and the roof drainage system was completed prior to placing earth backfill over the roof. The sequence of placing the earth backfill is not well documented, although it is likely to have been placed with wheel barrows and the like, working over the arches progressively and in layers across the full tank width.

The components identified as being intrinsic to the heritage significance of the North Adelaide Service Reservoir include:

- Original (1879) internal vaulted brick structure
- Above-ground pump house structure
- Above-ground mounded area directly associated with the underground structure, including eastern grate

The components specifically excluded from the State Heritage Place are:

- Post 1900 fabric associated with the continuing use of this reservoir for water management purposes.

### **History of the Place**

The North Adelaide Service Reservoir was constructed in 1879 by the Hydraulic Engineers Department to provide more consistent pressure for the Port Adelaide area and other suburbs.

From the earliest days of the colony, supply of water to the drought-prone State has been an issue. Early supplies from the River Torrens were quickly reduced in quality and became insufficient for the burgeoning population. Concern for public health required the reserving of important water-catchment areas such as Brownhill Creek as early as 1840. The later introduction of a water-dependant sewerage system for Adelaide required more water still, and the River Torrens Weir & Aqueduct was constructed from 1859 to 1872 as part of the first reticulated water scheme for Adelaide.

In 1877, visiting Hydraulic Engineer Mr W Clark made many recommendations for improving the water supply in South Australia. Among these was the recommendation to build a service reservoir in North Adelaide to supply Port Adelaide. Act No. 99/1878 authorising the establishment thereof was assented to on the 22 October 1878. Prior to this, the SA Government had procured the services of Hydraulic Engineer Oswald Brown, the first of this profession in SA. Brown was to head the newly-formed Hydraulic Engineers Department. Brown readily accepted this recommendation and the North Adelaide Service Reservoir was completed in 1879 by the nationally known contractor John Robb, who had previously constructed a section of the Adelaide sewers and would go on to construct the Victor Harbor breakwater. At the time there was some controversy about the location of the reservoir.

## Chronology

1865	Water initially supplied to Port Adelaide from reticulated system
1877	Mr O Brown employed as SA's first true Hydraulic Engineer in newly formed Hydraulic Engineers Department
1877	Mr W Clark, MICE recommends location of the service reservoir
1878	Act No. 99/1878 authorising construction of reservoir passed
1879	Construction completed
1882	Act No. 99/1878 repealed by Waterworks Act 1882

## References

- Donovan & Associates nd, *Adelaide Parklands Heritage Places study: service reservoir*
- Hammerton, M 1986, *Water South Australia: A History of the Engineering and Water Supply Department*, Wakefield Press, Netley, SA
- John Lack, 'Robb, John (1834–1896)', Australian Dictionary of Biography, National Centre of Biography, Australian National University, <http://adb.anu.edu.au/biography/robb-john-4484/text7323>, published first in hardcopy 1976, accessed online 21 October 2016.
- Land Titles Office, CR6059/925
- Manning Index of South Australia, *Adelaide Water Supply*, State Library of South Australia, viewed 23 October 2016, <http://www.slsa.sa.gov.au/manning/adelaide/water/water.htm>
- SA Water 1876-79, Public Works Report excerpts (compiled by SA Water library)
- State Heritage Unit files: Ref No. 26400
- Statton, P 2016, Structural assessment of historic North Adelaide service reservoir, *paper presented at the fifth South Australian Heritage Engineering Conference*, 13 May 2016, Adelaide
- Temple, LG c1930, *History of the Adelaide Metropolitan Water Supply 1856 to 1930* (SA Water internal document compiled c1960)
- *The South Australian Weekly Chronicle*, The Late Hydraulic Engineer, Sat 15 July 1882, available at <http://trove.nla.gov.au/newspaper/article/91467270/8727135>
- *Waterworks Act 1882* (available at: [http://www.austlii.edu.au/au/legis/sa/num\\_act/wa269o45a46v1882257/](http://www.austlii.edu.au/au/legis/sa/num_act/wa269o45a46v1882257/))

## SITE DETAILS

North Adelaide Service Reservoir  
Corner O'Connell Street & Barton Terrace, North Adelaide

PLACE NO: 26400

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<b>FORMER NAME:</b>	Service Reservoir
<b>DESCRIPTION OF PLACE:</b>	Underground red-brick service reservoir with vaulted arches above which is a grassed mound with grate to eastern elevation and above-ground pump house.
<b>DATE OF COMPLETION:</b>	1879
<b>STATE HERITAGE STATUS:</b>	<b>Description:</b> Confirmed <b>Date:</b> 30 August 2017
<b>LOCAL HERITAGE STATUS:</b>	N/A
<b>CURRENT USE:</b>	<b>Description:</b> Reservoir <b>Dates:</b> 1879-ongoing
<b>PREVIOUS USE(S):</b>	<b>Description:</b> None <b>Dates:</b> n/a
<b>ARCHITECT:</b>	<b>Name:</b> Oswald Brown <b>Dates:</b> 1879
<b>BUILDER:</b>	<b>Name:</b> John Robb <b>Dates:</b> 1879
<b>SUBJECT INDEXING:</b>	<b>Group:</b> Utilities; <b>Category:</b> Reservoir; Pumping Station; Pump House;
<b>LOCAL GOVERNMENT AREA:</b>	<b>Description:</b> Adelaide City Council
<b>LOCATION:</b>	<b>Street Name:</b> Corner Barton Terrace & O'Connell Street <b>Town/Suburb:</b> North Adelaide <b>Post Code:</b> 5000
<b>LAND DESCRIPTION:</b>	<b>Title:</b> CR 6059/925 <b>Section:</b> 1643 <b>Hundred:</b> Yatala
<b>MAP REFERENCE (GDA94):</b>	<b>MGA Zone:</b> 54 <b>Easting (X):</b> 280298.88533 <b>Northing (Y):</b> 6135129.68254

## PHOTOS

North Adelaide Service Reservoir  
Corner O'Connell Street & Barton Terrace, North Adelaide

PLACE NO: 26400

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North Adelaide Service Reservoir mound



North Adelaide Service Reservoir pump-house



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North Adelaide Service Reservoir interior (courtesy SA Water)



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