

Hunter Water S170 Register

SHI No.: *Name:*
3630118 **Grahamstown Canal**

Location No address



Description:

Grahamstown Canal is an open canal cut into the surrounding pasture land with earthen embankments at the sides. It connects to the Williams River through concrete flood gates at one end and enters Balickera Pumping Station through a series of intake pipes at the other. Part of its length includes the 1200m Balickera Tunnel, cut through the ridge between the Williams River extraction point and the Balickera Pumping Station

Significance:

The Grahamstown Canal is an important element of the Grahamstown Scheme, providing water from the Williams River to Balickera Pumping Station, for gravitation to Grahamstown Dam. It is primarily significant for its function within the Grahamstown Scheme rather than for its fabric.

Assessed Significance: Local

Endorsed Significance: Local

Historical Notes:

Constructed: 1957-1964

After the end of World War II, the Board became preoccupied with the adequacy of their water sources. It was in March 1946 that the Board's then President, George Schroder, first raised the possibility of using the Grahamstown Moors as a possible new water source.

The Grahamstown Moors had a catchment area covering more than 78 square kilometres, and for years it had been known that a large amount of water could be impounded at the site. The local catchment however, was inadequate to cater for the demands of the region, posing a significant challenge in regards to its exploitation as a storage site.

Whilst investigations in regards to the utilisation of Grahamstown Dam as an auxiliary to the Tomago Water Supply Works were carried out from the late 1940s, and the Board obtained 2000 acres of the Grahamstown moorlands in 1948, an alternative proposition of constructing a much larger dam at Tillegra was preferred. In the early 1950s it was decided by the Engineering Experts' Committee that future investigation should concentrate on Tillegra. However, in the face of growing opposition to Tillegra Dam and following a visit to Europe to attend conferences and inspect waterworks, Schroder was able to persuade the Board to delay the Tillegra Dam and fully exploit both the Tomago sandbeds and Grahamstown catchment area. The Board subsequently commissioned the Swedish consulting engineers Vattenbyggnadsbyran, to investigate. After visiting the region early in 1953 they delivered their report in September, and with it provided their solution to the problem of the Grahamstown Moor's inadequate catchment.

The scheme proposed by Vattenbyggnadsbyran provided for fresh water to be drawn from the Williams River near Seaham and conveyed by open canals and a tunnel to the storage dam constructed on the moors, formed by constructing an embankment across the natural depression.

As the Williams River was tidal at the point of extraction, the Swedish engineers outlined the necessity of constructing a weir to form a barrage between the tidal salt water and the fresh river water. Once collected, this fresh water would be conveyed by open canal for approximately 3 miles to a pumping station at Balickera, where the water would be lifted 15 meters before gravitating towards the dam through a 1200m long tunnel cut through a high ridge between the sites. The water would then feed into an outlet canal that delivered it to Grahamstown Dam.

In February 1955, following review, the Board's Amplification Committee broadly accepted the scheme, with construction of the Dam authorised on 5th April 1955.

Construction of the scheme commenced immediately after the official construction ceremony was performed by the then Premier, Mr J Cahill, on 30th November 1957.

On 9th July 1957 the Board had decided to request the assistance of the Water Conservation and Irrigation Commission, in association with the Board, to design and construct the Seaham-Balickera tunnel, including automatic inlet control gates and a road bridge structure. Excavation on the Balickera end of what was called the Seaham-Balickera Canal commenced 14th July 1958, whilst excavation work at the Seaham end of the canal, on Boag's Hill, commenced on 28th March 1960. The works at the Seaham end of the canal included the inlet structure which was to control the flow of water from the Williams River into the canal. These concrete river inlet works, consisting of a concrete structure, were completed in 1963-64. The construction of the river inlet included the installation of the

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mechanical equipment of the radial gates and an electrical control line for automatic operation, which took a little longer to install. A 12 ft diameter reinforced concrete pipe conduit was laid in 1963-64, with work proceeding on deposition of protective fill. At the same time, attention was being given to healing of the banks of the canal by filling with rock, and the bulkhead gate structure was completed and brought into use.

Rock spoil was again placed on eroded sections of the Seaham-Balickera canal as necessary during the year 1966-67, and in 1978-79 dredging of the canal was carried out to remove the silt and aquatic weeds. In 1980-81 more dredging was carried out to remove silt, this time from a portion of the canal between Balickera Pumping Station and Grahamstown Dam.

Designer: Vattenbyggnadsbyran (VBB) - Swedish *Builder:* Hunter District Water Board
Builder: Engineering Consultancy
Current Use: Water canal *Former Uses:*

Physical Condition:

Only small sections inspected but it appears generally in good condition. The canal has been dredged in the past to address siltation problems.

Recommended Management:

- This item contributes to local character and should be conserved.
 - Original details should be maintained including doors, windows and original signage.
 - New materials should be sympathetic to the nature and character of the original building.
 - In the event of major proposed changes, prepare a Conservation Management Strategy and undertake an archival recording.
 - Wherever possible, changes should be restricted to the interior of the building.
 - Routine maintenance of existing fabric is essential.
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References:

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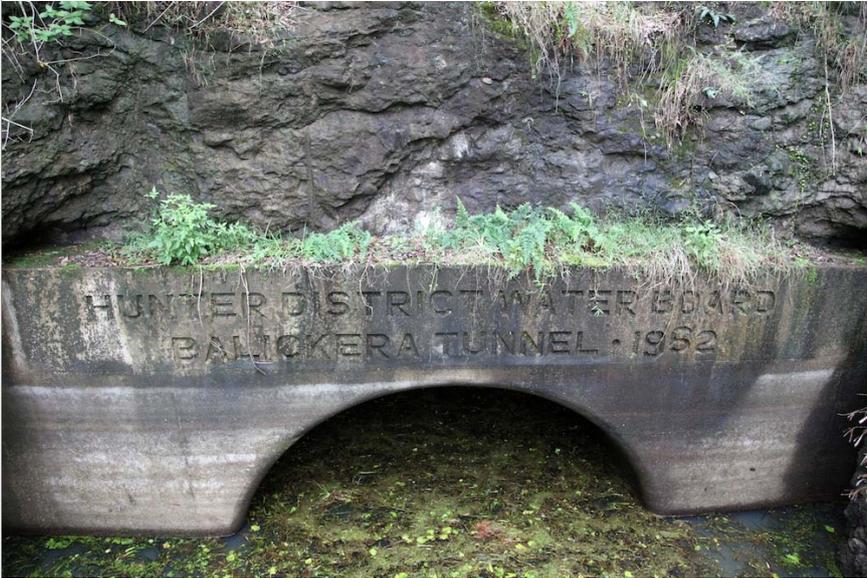
Listings:

- 1 *Heritage Act - s.170 NSW State agency heritage register:*
Listing date: . Reference Number:
-

Data Entry: *Date First Entered:* 23/Jul/2010 *Date Updated:* 10/Sep/2010 *Status:* Partial

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Images



Grahamstown Canal

File: Balickera Tunnel.jpg

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Grahamstown Canal

File: Balickera Tunnel 2.jpg

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Grahamstown Canal - Balickera Tunnel - location (Courtesy of Google Earth)

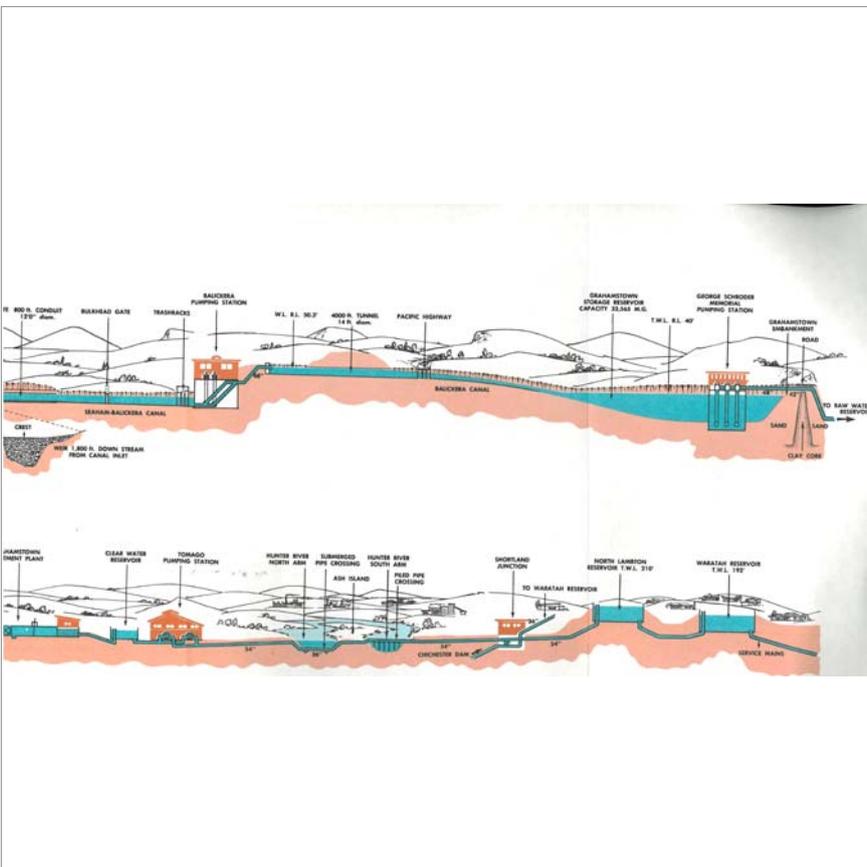
File: balickera tunnel GE.jpg

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Grahamstown Dam System Diagram (Courtesy of the HDWB)

File: Grahamstown Dam System.jpg

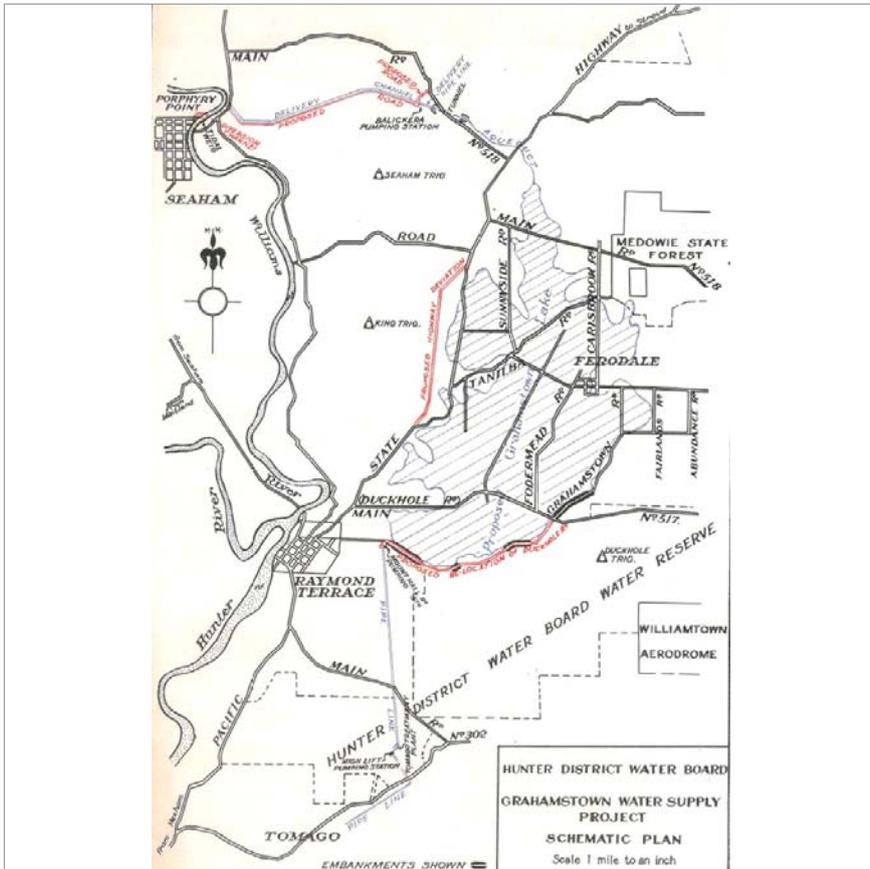
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Grahamstown Dam Plan (Courtesy of HDWB Annual Report 1954-55)

File: Grahamstown Dam
and Canal etc.jpg

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Dam and Canal
etc..jpg



Grahamstown Canal - Balickera Tunnel construction (Courtesy of John W. Armstrong, "Pipelines and People")

File: Construction of
Balickera Tunnel
HP.jpg

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Grahamstown Canal excavations (Courtesy of John W. Armstrong, "Pipelines and People")

File: Grahamstown Canal Excavation HP.jpg

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