



REGISTER OF HERITAGE PLACES - ASSESSMENT DOCUMENTATION

11. ASSESSMENT OF CULTURAL HERITAGE SIGNIFICANCE

The criteria adopted by the Heritage Council in November, 1996 have been used to determine the cultural heritage significance of the place.

PRINCIPAL AUSTRALIAN HISTORIC THEME(S)

- 3.7.4 Building and maintaining railways
- 3.11.5 Establishing water supplies

HERITAGE COUNCIL OF WESTERN AUSTRALIA THEME(S)

- 202 Rail and light rail transport
- 404 Community services and utilities

11.1 AESTHETIC VALUE*

The man made features of *Bullabulling Rock Water Catchment & Dams* complement and contrast with the natural environment, with low scale meandering rock catchment walls, slab rock channels, picturesque water filled dam and raised dam embankments, all providing a built aesthetic on the otherwise harsh natural goldfields landscape. (Criterion 1.1)

Bullabulling Rock Water Catchment & Dams forms a cultural environment of water catchment and storage in a harsh environment, combining the collection of runoff water with storage and subsequent supply through a system of rock catchment walls, channels and dams. (Criterion 1.3)

11.2 HISTORIC VALUE

Bullabulling Rock Water Catchment & Dams is significant for its key role as a water source, firstly for travellers on the Goldfields' Road, and then as a water source for the steam locomotives of the Eastern Goldfields Railway line. In the absence of an employed pump operator, the hotel proprietor and his family took on responsibility for operating the pump to fill the tank, especially during World War Two, when labour shortages meant no such pump operator was stationed at Bullabulling. (Criterion 2.1)

* For consistency, all references to architectural style are taken from Apperly, R., Irving, R. and Reynolds, P. *A Pictorial Guide to Identifying Australian Architecture: Styles and terms from 1788 to the present*, Angus & Robertson, North Ryde, 1989.

Bullabulling Rock Water Catchment & Dams supplied the Eastern Goldfields Railway with water from 1895 to c.1956, and is significant for its support role in the development of the eastern and northeastern goldfields. (Criterion 2.2)

Bullabulling Rock Water Catchment & Dams, together with the Bullabulling Tavern that fronts the highway on the south side, is all that remains of Bullabulling township. (Criterion 2.2)

Bullabulling Rock Water Catchment & Dams symbolises the importance of water in the goldfields district in particular and Western Australia in general. (Criterion 2.3)

Bullabulling Rock Water Catchment & Dams is associated with Public Works Department engineer William Herbert Shields who designed the place, together with other railway water supply facilities between Northam and Coolgardie. (Criterion 2.3)

Bullabulling Rock Water Catchment & Dams represents high technical and engineering achievement in its innovative design and construction. (Criterion 2.4)

11.3 SCIENTIFIC VALUE

Bullabulling Rock Water Catchment & Dams represents a creative response to water collection in its design and construction, and has the capacity to provide information on processes associated with steam trains and the railways, that are no longer practiced. (Criteria 3.2 & 3.3)

11.4 SOCIAL VALUE

Bullabulling Rock Water Catchment & Dams has some social value for its association with the steam railway operation on the Eastern Goldfields line. (Criterion 4.1)

12. DEGREE OF SIGNIFICANCE

12.1 RARITY

12.2 REPRESENTATIVENESS

Bullabulling Rock Water Catchment & Dams represents an innovative example of engineering associated with the use of local materials. (Criterion 6)

Bullabulling Rock Water Catchment & Dams is a good representative example of an 1890s railway water supply facility utilising a rock catchment. (Criterion 6.2)

12.3 CONDITION

Bullabulling Rock Water Catchment & Dams is in good condition except for a small section of the carrier race that has been damaged, the termination

of the channel at Great Eastern Highway, and plantings that have sprouted along the channels.

12.4 INTEGRITY

Bullabulling Rock Water Catchment & Dams no longer has a railway association, but still clearly has the capacity to collect and store water, and therefore has a high degree of integrity.

12.5 AUTHENTICITY

Bullabulling Rock Water Catchment & Dams shows minimal evidence of changes to the fabric. The damaged section of the carrier race and the termination of the north channel at Great Eastern Highway are the only alterations. The place displays a high degree of authenticity.

13. SUPPORTING EVIDENCE

The documentary evidence has been compiled by Irene Sauman, Historian. The physical evidence has been compiled by Laura Gray, Conservation Consultant.

13.1 DOCUMENTARY EVIDENCE

Bullabulling Rock Water Catchment & Dams comprises Bullabulling Rock, a soak, stone catchment walls and various stone lined channels, and two dams (1894-98), which were constructed to provide water for road and rail traffic between the towns of Southern Cross and Coolgardie.

Prior to the late 1880s, the State Government had minimal involvement in the supply of fresh water for the general population. It provided wells at intervals on main roads and stock routes as these became necessary, and water supplies for shipping were provided at ports such as Fremantle, Albany and Geraldton, but supply for the general population was the responsibility of the individual householder and business or property owner.¹

After the completion of the second section of the Eastern Railway between Guildford and 'Chidlow's Well' in 1884, the issue of water supply came to the fore when water had to be carried long distances during the summer to service the route. The first railway dam was built at Clackline in 1887, to collect rainwater runoff from the Clackline Gully and enable the service on the Eastern Railway extension to Toodyay.²

Gold was discovered in the Yilgarn district in 1887. The first two miners in the area, H. Beadles and Tim Shea, were sent out by a syndicate to open up a gold find at Eenuin, but the gold quickly petered out there and the two decided to go on to another reported find. They became lost and died from lack of water, prompting a Government survey of water supplies to the field. More gold finds were made in the Yilgarn district, including that by R. Risely and Mick Toomey at Southern Cross in early 1888 and the Yilgarn Goldfield was declared on 1 October that year.³

By 1891, a more direct route to the Yilgarn field had been established with the construction of a road between Northam and Southern Cross.⁴ This route largely followed the track of Charles Hunt's exploratory journeys of 1864-1866. Hunt had established a number of wells through the district, specifically for the use of later travellers, and the Public Works Department undertook to develop these water supplies for the use of people travelling to

¹ LePage, J. S. H. *Building a State: the Story of the Public Works Department of Western Australia, 1829-1985*, Perth, WAWA, 1989, p. 263.

² LePage, J. S. H., *op cit*, pp. 263-264.

³ Harris, C. M., 'Water...Tragedy and Triumph on the Western Australian Goldfields', *Early Days*, Vol 3 Pt. 9, pp. 18-25; Uren, Malcolm, *Glint of Gold*, Melbourne, Robertson & Mullen, 1953, pp. 55-61; 'Report on Routes to Yilgarn Hill', *West Australian*, 18 January 1888, p. 3.

⁴ Hallack, E. H., *Western Australia and the Yilgarn Goldfields, being a series of articles written by an "Othersider"*, W. K. Thomas, Adelaide, 1891.

the goldfield.⁵ The Government decided to construct a railway line from the terminus of the Eastern Railway at Northam to Southern Cross to better service the Yilgarn field.⁶

The establishment of railways and water supplies required a significant investment of capital, but it had been long known that the only means by which Western Australia could develop was through the expansion of agriculture or the exploitation of mineral finds. The Government had facilitated the establishment of private railways through the Midlands and the Great Southern for the purpose of agricultural expansion, but for the goldfields, which promised far greater returns more quickly, it was prepared to invest State funds and retain complete control. A supporting argument for the expenditure on a railway to the east was that it would be the first part of a rail connection with the eastern half of Australia.

In September 1892, before construction had even begun on the Yilgarn Railway, gold was discovered further east at Coolgardie, and a major rush was on to the new field. In June 1893, Paddy Hannan discovered gold 24 miles (39 kms) east of Coolgardie and a few months later the reefs that formed the Golden Mile were discovered. As a result of this, the speed of development on the goldfields and the rapid influx of population outstripped both railway construction and the provision of water supplies. The PWD attempted to provide wells and bores along the route for prospectors and carriers.⁷ The wells yielded water with a high salt content, requiring the installation of condensers to render the water suitable for human consumption. The heavy demand for water required the track to be closed to traffic on occasions to allow the wells time to refill. At Coolgardie and Hannan's Find (Kalgoorlie), huge banks of condensers were set up, from which water was sold by the gallon.⁸

Water supplies for the new railway were of major concern. The locomotive boilers required large amounts of good quality water with little mineral content. In September 1893, William Herbert Shields, Assistant Engineer with the Public Works Department, was sent to search the country either side of the route from Northam to Southern Cross and beyond, for any permanent water or the means of obtaining it. He found that there was no permanent water east of Burlong Pool on the Avon River at Northam, but he recognised that the large areas of granite rock scattered through the district would be useful water catchments with high runoff ratios. Soaks located around granite outcrops were well known as a water supply, and were used

⁵ Water Authority of Western Australia, *The Wells of Explorer Charles Hunt: An assessment of their condition and historical significance as a groundwater resource*, WAWA, Perth, November 1991; LePage, J. S. H., op cit, pp. 263-264. The Coolgardie Municipal Inventory suggests that Hunt may have established a well at Bullabulling, but this is not so. From Woolgangie, he travelled southeast to Gnarlbine, bypassing Bullabulling.

⁶ Gunzberg, A. & Austin, J., *Rails Through the Bush*, Light Railway Research Society of Australia, Melbourne, 1997, p. 206. The name 'Yilgarn Railway' was replaced with 'Eastern Goldfields Railway' in 1899-1900, West Australian Government Railway, *Annual Report*, 1900, p. 2.

⁷ Public Works Department, *Annual Report, 1895*, in *Votes & Proceedings of Parliament, 1896*, p. 24.

⁸ LePage, J. S. H., op cit, pp. 263-264.

by the Aboriginal people and later European explorers, sandalwood cutters and settlers.⁹ An 1893 Lands and Surveys plan shows a man-made soak on Bullabulling Rock, possibly built as a water supply for travellers.¹⁰ This soak remains extant in 2003.

Following Shield's recommendations, large excavated tanks, or dams, fed by the granite outcrops, were constructed between Northam and Southern Cross at Cunderdin, Kellerberrin, Merredin and Parker's Range (Moorine). The Parker's Range dam was constructed by the PWD, while the other three dams were constructed by the railway contractor, J. McDowell.¹¹

Construction of the Yilgarn line was hastened to facilitate development of the new goldfield at Coolgardie.

It being deemed important to the development of the Coolgardie goldfield, the Government entered into an arrangement with the contractor to accelerate the progress of the work so that the line should be completed by the 30th June, 1894, and that in the meantime he should convey traffic over the line as each part was sufficiently finished. On the 1st July last [1894] the Government took over the traffic arrangements, pending the actual completion of the line.¹²

The Government was planning to extend the line to Coolgardie and in the meantime, provided water for prospectors and carriers between the head of the line and Coolgardie. In 1893-94, a number of dams associated with granite outcrops were under construction by the Public Works Department, between Southern Cross and Coolgardie. These were located at Yelladine (Yellowdine, 18 miles from Southern Cross), Koorarawalyee (41 miles), Boorabbin (59 miles), Woolgangee (Woolgangie, 77 miles) and Bullabullin (Bullabulling, 99 miles). The railway traffic for the future line was estimated at one train a week each way, and the planned water supplies were considered sufficient for six times that number.¹³

By June 1894, approximately £4,860 had been spent on these dams and catchments out of a total expenditure for the year on 'stock route, wells, and water conservation' of £46,930-18-0.¹⁴

Dam 1 of *Bullabulling Rock Water Catchment & Dams* was constructed 14 feet (4.25 metres) deep, and was 85 feet (26 m) long and 45 feet (13.7 m)

⁹ LePage, J. S. H., op cit, p. 265; Public Works Department, *Annual Report*, 1894, in *Votes & Proceedings of Parliament*, 1895, Paper no. 22, p. 4; Gunzberg, A. & Austin, J., p. 206.

¹⁰ 'Roads from Southern Cross to Coolgardie showing Existing and Proposed Works', Department of Lands and Surveys Water Supply Branch, 30 October 1893, Coolgardie Museum, as cited in Curtin University of Technology *Conservation Plan for Bullabulling Township and Railway Catchment*, (Unpublished Draft), prepared for the National Trust of Australia (W.A.), 2001, p.30.

¹¹ LePage, J. S. H., op cit, p. 265; Public Works Department, *Annual Report*, 1894, op cit, p. 4; Gunzberg, A. & Austin, J., p. 206.

¹² Public Works Department, *Annual Report*, 1894, op cit, p. 4.

¹³ Shields, William Herbert, "Water- Supply on the Yilgarn Railway, Western Australia", *Minutes of Proceedings of the Institution of Civil Engineers*, The Institution, London, 1901, Vol. 146, p. 242.

¹⁴ Public Works Department, *Annual Report*, 1894, op cit, p. 4.

¹⁴ Public Works Department, *Annual Report*, 1894, op cit, pp. 3 & 21.

wide at the bottom of the excavation. It was partly lined with clay 'puddle' and had 9 inches (23 cm) of metalling over the clay lining on the steeper section of slope. Dam 1 was planned to have the capacity of 1.75 million gallons, but in the PWD *Annual Report* of 1896 it was listed as holding 1.98 million gallons, which was just over 9 Megalitres (Mgl).¹⁵ The water catchment comprised Bullabulling Rock. Stone walls and stone-lined channels were constructed to direct the rainwater runoff from the rock into the dam.¹⁶

In 1895, the PWD reported that 'thirteen large and two small tanks' associated with the Coolgardie goldfields had been completed during the year.¹⁷ The report went on to state:

The construction of these tanks was carried out under great difficulties, and at extreme pressure, and it was only by the skill and exceptional efforts of Mr. Jobson, the officer in charge of the district, that they were excavated in time to catch the latter rains of the winter. When those rains came the tanks were able to conserve much needed water on the various routes, and materially assist the development of the fields and the heavy traffic to them which had set in.¹⁸

The dams constructed between Southern Cross and Coolgardie were 'practically the same as Merredin...the design being considered successful in minimising evaporation'.¹⁹ *Bullabulling Rock Water Catchment & Dams* had a sluice gate installed to prevent the dams overflowing, which would have caused damage to the dam walls. This was a standard installation, with some dams, such as at Merredin, also having a floodgate to prevent flooding of the town during heavy storms. At *Bullabulling Rock Water Catchment & Dams*, the iron sluice gate was suspended over the carrier race to Dam 1. It remained open in normal operation to allow water to enter the channel and the dam. When the dams were in danger of overflowing, the sluice gate was closed to allow water from the catchment area to bypass the channel and run out onto the surrounding ground, where it would be soaked up by the sandy soil.²⁰

Reserve 2919, covering the Bullabulling Rock catchment, channels and Dam 1 was gazetted on 31 May 1895 for the purpose of water supply. The Reserve had an area of 227.9 acres (92.12 ha).²¹

The work on the Northam-Southern Cross section of the railway line was completed in January 1895 and a contract was let in June to brothers John

15 PWD Plan for Foreman of Bullabulling Tank, 29 April 1894, SROWA CONS 4481 Item 37114; PWD Plan 2858, topographical plan of Bullabulling Rock, 12 May 1894; Public Works Department, *Annual Report*, 1896, in *Votes & Proceedings of Parliament*, 1897, Paper no. 25, p. 31.

16 PWD Plan 2858, topographical plan of Bullabulling Rock, 12 May 1894; Bullabulling Rock Catchment site diagram, 2003.

17 Public Works Department, *Annual Report*, 1895, op cit, pp. 23-24.

18 Public Works Department, *Annual Report*, 1895, op cit, pp. 23-24.

19 Shields, William Herbert, op cit, p. 255.

20 Shields, William Herbert, op cit, p. 255.

21 DOLA Reserves Index, Reserve 2919, 26 May 2003; Original Plan 186.

and Adam Wilkie, for construction of the line from Southern Cross to Coolgardie.²² The PWD report on what was intended for the line, stated:

There will be wayside stations, with siding accommodation and other facilities, about 20 miles apart, at Yellowdine, Kararawalyee, Boorabbin, Woolgangie and Bullabulling... Watering tanks for engines will be erected on the course of the line, to be supplied from the large tanks already constructed on the Southern Cross-Coolgardie Road and additional tanks proposed to be specially constructed for the purposes of the railway.²³

Construction of the track was rushed through by the contractors, with buildings, sidings and other finishing work left until last. The Wilkie Brothers had tendered a low price for the work with the intention of making money from the use of the line while the finishing work was being carried out.²⁴

As the line was constructed, the watering places successively became the head of the line where the railway contractors and carriers established a temporary base. People and goods were carried by train to the head of the line. From there, the carriers carted goods to Coolgardie and goldfield settlements further north, while the prospectors walked. At least 15,000 gallons of water a day were required at the base to supply the railway contractors, prospectors, carters and horses and camels. Exceptionally heavy rains, which fell in April 1895, filled all the dams along the route to overflowing, but in December 1895 and January 1896 water had to be carted from Bulong Pool to meet the demands at Woolgangie and Boorabbin.²⁵ The PWD attempted to find extra supplies of fresh water, and 'the rocks around Woolgangie and Bullabulling, for a radius of half-a-mile, have been riddled with bores, but in no case was fresh water struck'.²⁶

A number of prospectors tried their luck along the route, including in the area around Bullabulling where 'numerous gold mining leases' were taken up, in no small part due to the availability of a reliable water supply from Bullabulling Rock Water Catchment & Dam.²⁷ Water provided from the dams and from Bulong Pool was sold at fourpence a gallon. Bullabulling Rock Water Catchment & Dam returned £3,163-5-2 in water revenue in the 1896-97 year, which was twenty-two percent of the total water revenue received from the Coolgardie district and the highest amount returned from any of the sixty-one watering stations (tanks, bores, wells and condensers) in the district.²⁸

22 Public Works Department, *Annual Report*, 1895, op cit, 11-12.

23 Public Works Department, *Annual Report*, 1895, p. 13.

24 Public Works Department, *Annual Report*, 1896, op cit, pp. 33.

25 Public Works Department, *Annual Report*, 1896, op cit, pp. 33-34.

26 Public Works Department, *Annual Report*, 1896, op cit, pp. 33.

27 Public Works Department, *Annual Report*, 1896, op cit, pp. 31-33; *Wise's Post Office Directory*, 1895-1900.

28 Public Works Department, *Annual Report*, 1896, op cit, p. 43-44. The Coolgardie district referred to here covered the road and rail routes from Esperance and Northam through Coolgardie and Kalgoorlie to Menzies.

The line from Southern Cross reached Coolgardie on 23 March 1896, and all the dams, except Bullabulling Rock Water Catchment & Dam 1, were taken over by the Railways Department.²⁹

In view of the advance of the construction of the Coolgardie railway, and the consequent almost entire disappearance of road traffic, Tanks 1, 2, 3, 4, 5 and 6 have been taken over as railway tanks. Tank No. 7, at Bullabulling, has been retained by the Water Supply Department to provide for the requirements of the people engaged in working the numerous gold mining leases in its vicinity. These tanks... were of the greatest assistance to the contractors for the Southern Cross-Coolgardie railway who were allowed (so long as there was sufficient for general supply) to take what water they required for the purposes of their contract... the railway could not have reached Coolgardie until some considerable time after it did had not the contractors had the command of such ready supplies.³⁰

A townsite was surveyed at Bullabulling but no gazettal has been located. In 1897, tenders were called for construction of a post office. The building was of timber-framed construction with corrugated iron cladding, and comprised an office and quarters with two rooms, kitchen and store.³¹ The Rock Hotel was in existence by 1896, and was operated by the Palmer family, who also ran the post office for several years.³²

In 1898, a second dam was built at Bullabulling to increase the water supply for the railway. Similar dams were added at Woolgangie and Boorabbin. These were required because the rail traffic had considerably exceeded the expected one train a week.

Southern Cross to Kalgoorlie Railway Water Supply:- The principal work undertaken during the year has been the improvement and completion of the water supply for railway purposes... At Bullabulling also, an additional tank, with a capacity of over 3,000,000 gallons, has been put in hand by Departmental day labour. The catchment area of the original tank has been extended, the area cleared and additional drains cut. The total cost of the whole works was £5,000.³³

Dam 2 of *Bullabulling Rock Water Catchment & Dams* was connected to Dam 1 by a spillway, which allowed water to flow into it from Dam 1, but not back the other way. Dam 1 in effect acted as a silt dam. A second water reserve, Reserve 6077, was gazetted on 28 July 1899. Reserve 6077 was 1,175 acres (475 ha) in area and incorporated, but did not extinguish, Reserve 2919. Reserve 6077 included an area referred to as an alluvial catchment, where a multi-branched creek fed rainwater into the rock catchment channel to supplement the supply to the dams. The creek was generally dry and flowed only after heavy rains.³⁴ In the week ending 2

²⁹ Gunzberg, A. & Austin, J. op cit, p. 238; *A Brief History of the Western Australian Government Railways*, WAGR, 1975, p. 5.

³⁰ Public Works Department, *Annual Report*, 1896, op cit, p. 31.

³¹ *West Australian Government Gazette*, 26 March 1897, p. 562; *PWD Annual Report*, 1898, p. 86.

³² *Wise's Post Office Directory*, 1896-97.

³³ *PWD Annual Report*, 1898, p. 63 & map 'Showing Works Undertaken and completed during the Year ending June 30th 1898'.

³⁴ DOLA Original Plan 186 & Reserves Index, Reserve 6077; PWD Plan 2858, Topographical plan of Bullabulling Rock, 1894, op cit.

November 1899, 1.33 inches (34 mm) of rain, which fell in a 3-hour period, generated 1,061,675 gallons (4.8 Mgl) of water in the dams.³⁵

A pump house was established to the north of Dam 1, where a resident caretaker, or pumper, maintained the catchment channels and the dams and operated the steam pump. The pump drew water from either dam as required. The pump house and the caretaker's dwelling were corrugated iron-clad structures.³⁶ A 1902 Railway Department plan for Bullabulling railway yard shows a 25,000-gallon water tank on a thirteen-foot (4 metre) high stand connected to the pump house by a 2.5-inch (63 mm) iron pipe. A Class 5 timber station building, 150-foot passenger platform, loading platform, stone station master's house and three stone platelayer's cottages made up the rest of the railway yard.³⁷

The goldfields rail traffic was significant and constant, and Bullabulling was an important watering station for the line, requiring a resident station master and night officer. The Post Office Directory of 1900 lists Bullabulling as a mining district with 46 entries, but these entries included residents of Dedari, Calooli, Ubini, and Goondari and miners at the Gibraltar and Gnarlbine gold mines.³⁸ The population of the district was enlarged by workers on the Goldfields Water Supply Scheme between 1897 and 1902.

The Goldfields Water Supply was opened on 24 January 1903. The Railway Department preferred not to use the pipeline water for the locomotives, as it was considered too saline. Wherever possible, it continued to pump water from the railway dams, although in times of shortage the Scheme water was used as a cheaper alternative to carting. For the Eastern Goldfields line, water had to be carted from Bulong Pool at Northam. On the Northam-Coolgardie route, a water transport locomotive, which carried tanks of water and deposited them along the line for the use of other locos, required half the water it carried for its own use.³⁹ In 1902, the railway tanks along the Eastern Goldfields line were connected to the Goldfields Water Supply. *Bullabulling Rock Water Catchment & Dams*, with other dams along the line, continued to be used as the main railway water supply, with water from the pipeline used only in times of shortage.⁴⁰

The Progress Plan for Bullabulling railway yard, dated 1906-1929, shows an out-of-shed and instrument cabin as the only station buildings remaining. No indication is given of when the station building was removed, but it is likely to have been sometime in the 1920s, when Bullabulling became an unmanned stop. The instrument cabin was removed to Lilliginni in January 1931.⁴¹ Listings in the Post Office directory had fallen to twenty-six by 1910,

35 Shields, William Herbert, op cit, p. 257.

36 WAGR, Plan 34864, Bullabulling Survey of dams, 1 February 1944, HCWA place file 3933.

37 WAGR plan CCE 6074, 1902, Water supply for Eastern Goldfield railways, SROWA, ACC 1781/6074.

38 *Wise's Post Office Directory*, 1900.

39 Public Works Department, *Annual Report*, 1896, op cit, p. 33-34.

40 PWD, *Annual Report*, 1902, pp. 29 & 34; WAGR, Bullabulling Progress Plan, no. 13372B, 1906-1929, SROWA, AN 260/12 ACC 1642.

41 WAGR, Bullabulling Progress Plan, no. 13372B, 1906-1929, op cit; WAGR plan CCE 6074, 1902, op cit; *Wise's Post Office Directory*, 1920-1930.

and thirteen by 1920. No postmaster was listed after 1907 and post office facilities were instead provided at the Hotel. By 1930, the only railway employee listed at Bullabulling was the pumper, A. Nichols. The Bullabulling district continued to have a floating population of miners.⁴²

On 17 January 1945, the pump house was destroyed by fire when ash from the ash dump blew back onto the structure during hot, gusty weather. The place had been rebuilt by June 1945, indicating that *Bullabulling Rock Water Catchment & Dams* was still an integral part of the railway water supply system on the line.⁴³ A pumper was no longer employed by this time, partly due no doubt to a shortage of manpower during World War Two. Responsibility for filling the railway tank rested with the proprietor of the Rock Hotel who, with his family, was the only permanent resident in the town. In the 1950s, Bullabulling was the location of a 14-house railway camp, whose occupants maintained the line. Housing for the railway workers comprised cabins and former Army huts.⁴⁴

In 1953, diesel engines were introduced on the Eastern Goldfields line, and by 1956 most country rail services were diesel powered. All dams, including *Bullabulling Rock Water Catchment & Dams* was no longer required for a railway water supply. In the 1960s, the issue of rail gauge standardisation was addressed. At Parkeston, 4 kilometres east of Kalgoorlie, the narrow Western Australian gauge line met the standard gauge line from the east, and freight and passengers had to transfer. In November 1962, construction of the standard gauge line between Kalgoorlie and Perth was begun. The line between Kalgoorlie and Southern Cross followed a different route to that taken by the narrow gauge line, in order to serve the new mining area at Koolyanobbing to the north. Bullabulling and other places between Coolgardie and Southern Cross lost their connection to the railway. The standard gauge line was opened to Kalgoorlie on 3 August 1968, and the old narrow gauge track, platforms, water tank and buildings, including the pump house, were removed from Bullabulling.⁴⁵

All that remains at Bullabulling is the Rock Hotel and *Bullabulling Rock Water Catchment & Dams*. Since 1955, the Hotel has been run by the Minozzi family and caters to passing road traffic. Improvements to the Great Eastern Highway have resulted in some alterations to the route, and the roadway has cut through a section of the northern channel of *Bullabulling Rock Water Catchment & Dams*.

In 2003, *Bullabulling Rock Water Catchment & Dams* is an unused railway water catchment and storage facility.

⁴² *Wise's Post Office Directory, 1920-1930; Family legacy lives on at Bulla Bulling', Kalgoorlie Miner Weekender, 12 November 1994, p. 9.*

⁴³ WAGR File, 'Bullabulling pump house', SROWA, AN 260/1, ACC 1235, Item 23743.

⁴⁴ WAGR, Bullabulling Progress Plan, no. 13372B, 1906-1929, op cit; 'Family legacy lives on at Bulla Bulling', op cit; *Wise's Post Office Directory, 1945-1949.*

⁴⁵ Exact date of removal is not known. No WAGR files for Bullabulling, other than for the water supply, have been located.

13.2 PHYSICAL EVIDENCE

Bullabulling Rock Water Catchment & Dams is located approximately 200 metres to the south and east of Bullabulling Tavern, which is the only remaining building in the Bullabulling townsite, 29 kilometres west of Coolgardie, on Great Eastern Highway.

Bullabulling Rock is recognisable from the highway, but the evidence and extent of the soak, rock catchment walls, channels and dams are only discernable on closer inspection. Bush tracks lead to the dam and base of the rock from both sides of Bullabulling Tavern, and the dams are located immediately behind the tavern.

A man-made soak is located towards the south western edge of the rock outcrop. It is a partially-collapsed rectangular structure, approximately 7 x 5.4 metres, and 1.5 metres deep. The original dry-wall rock to the eastern side has completely collapsed, while the northern and southern edges remain partially intact. An informal rock and timber platform is located to the west of the soak. The purpose of this structure is unclear. It includes some railway sleepers.⁴⁶

The water run off from Bullabulling Rock is channelled by a man-made splayed rock wall, around the base of the granite outcrop, into slab rock lined channels and into the dam catchment areas. Immediately to the north of the Dam 1 is the concrete pad that formerly supported the steam pump, which facilitated the water supply into tanks to supply the steam locomotives with water. No evidence of the workings remains.

The catchment rock walls are constructed of slabs of local rock, mortared together and tilted back against earth build-up, to form a splayed wall to channel the runoff from the outcrop into the channels and the dams. The rock catchment walls vary in height from 0.50 metres high across the rock outcrop, to 1.0 metre high around the base of Bullabulling Rock, with some junctions evident where water is directed toward the channels and dams.

The rock catchment walls divert the water runoff from the rock and the outer perimeter base of the rock for several hundred metres, on the western side, extending north, and south and southeast, into the carrier race (the main east-west channel). Channels are evident at the south and north ends of the main north-south rock catchment walls.

The channels are slab stone constructions with splayed slab walls and a slab base. The channels are approximately 1.0 - 1.5 metres deep with earth banked up against both sides. In places, there are plantings that have grown between the slabs, and there is some build up of debris. The channels extend for a hundred metres or so to the south and southeast, although it was not possible to determine the full extent to the southeast channel due to thick vegetation. The channel to the north is terminated at a length of about 100 metres by Great Eastern Highway.

⁴⁶ Physical description as per Curtin University of Technology *Conservation Plan for Bullabulling Township and Railway Catchment*, (Unpublished Draft), prepared for the National Trust of Australia (W.A.), 2001.

The mid-western section of the catchment wall on the west side forms a junction with the carrier race direct to the dams in the west. At the junction there is evidence of a steel sluice gate and concrete form suggesting an apparatus by which the gate was opened and closed to release water into the dams.

The carrier race, also a slab construction with splayed sides, is approximately 1.5 metres high. The carrier race falls away in gradations from the Rock for approximately 150 metres, following an earth bank constructed for this purpose. It consists of a clay-puddle lined channel, covered with cement-joined stone pitching.⁴⁷ At the east end near the junction with the perimeter walls, the floor is paved with small stone sections, but the remainder is a slab stone floor. Central along the several hundred-metre length of the carrier race there is evidence of considerable damage. Pipes have been installed to connect the east and west sections of the carrier race, and earth cover over the pipes has subsided. On the south side of the carrier race is a byewash.

In the west, the carrier race opens into Dam 1. Dam 1 is a small holding dam with similar stone overflow into the dam on the east side as an extension of the channel. On the south side of the dam is a byewash. On the west side of Dam 1 there is a stone-lined spillway several metres wide with 0.50 metres high sides, that carries overflow into Dam 2. Dam 2 has a considerably larger capacity than Dam 1. It has graded earth embankments and there is another stone spillway on the western end. Both dams are surrounded by earth embankments.

Bullabulling Rock Water Catchment & Dams is in good condition except for a small section of the carrier race that has been damaged, the termination of the channel at Great Eastern Highway, and plants that have sprouted along the channels.

13.3 COMPARATIVE INFORMATION

Bullabulling Rock Water Catchment & Dams is one of a number of such water supplies provided throughout the State from the 1890s to 1920s for the operation of the railways. They were located along the Eastern Goldfields, Great Southern and Northern railway lines. Initially they were clay lined, but clay-lined dams had high absorption rates and were subject to seeds taking root in the lining. Cleaning was difficult as the lining was easily damaged. Concrete was used, but often developed considerable fine cracks due to wide temperature variations combined with varying water levels. A number of the dams constructed in the goldfields were roofed to reduce the rate of evaporation, and asphalt was later used successfully as a lining.⁴⁸

⁴⁷ Physical description as per Curtin University of Technology *Conservation Plan for Bullabulling Township and Railway Catchment*, (Unpublished Draft), prepared for the National Trust of Australia (W.A.), 2001.

⁴⁸ LePage, J. S. H., op cit, pp. 265, 269-272; Public Works Department, *Annual Report, 1899-1900, Votes & Proceedings of Parliament*, Vol. 1 1900, Paper no. 11, p. 42.

The 1994 *Survey of Railway Heritage in Western Australia* lists over 100 existing dams, which were associated with railway operation. The list does not include former railway dams later used for local domestic and stock water purposes.⁴⁹

Railway dams are represented on all railway lines constructed in the State. Those which are known to be associated with a rock catchment include: *Bonnie Rock Water Tank & Rock Catchment* (Place 12837); *Berringbooding Water Tank & Rock Catchment* (Place 12838), Muckinbudin; and, *Geelakin Tank* (Place 12057) and *Geelakin Rock* (Place 12058), all on the Wyalkatchem-Bullfinch agricultural line. Geelakin Tank (1926) is a circular concrete tank and represents the progression from the early earth dams of the 1890s. Geelakin Tank collects the water from the stone-walled catchment area of Geelakin Rock, and supplies the water tank in the Warralakin railway yard, which is currently used to water stock.

The rock catchment and covered earth dam at Coongoo, on the former Northern Railway line route west of Mt Magnet, is not listed on the Mt Magnet Municipal Inventory.

The Eastern Goldfields line has the greatest concentration of railway dams associated with rock catchments. *Rock water Catchment Area*, Cunderdin (Place 03534), has an associated 25,000-gallon tank on stand in the railway reserve, which is entered on the State Register as *Railway Water Tower, Cunderdin* (Place 0647). The Cunderdin rock catchment includes a tunnel cut through granite to carry water to the 12 million gallon (54.6 Mgl) dam.

Railway Dam, Merredin (Place 13523), with associated 25,000-gallon tank on stand in the railway yard, is understood to be in good condition. The water tank is entered on the State Register as part of the *Merredin Railway Station Group* (Place 1577/3641).

Moorine Rock Dam (Place 10065) has an associated station master's house; *Yellowdine Catchment & Dams* (Place 10069) and *Boorabbin Rock Catchment & Dams* (Place 3936) each have two dams of similar size to Bullabulling, which were constructed by the PWD during the same works programme. Both places are entered on the relevant municipal inventories.

Karalee Reservoir, Rock Catchment & Aqueduct (Place 10062) is entered on the State Register and is the subject of a conservation plan. This dam was associated with one of Charles Hunt's wells and was one of the larger railway dams constructed for the line, being 10.6 million gallons (48.25 Mgl) in capacity.⁵⁰

Bullabulling Rock Water Catchment & Dams is a good example of an early railway water supply using a granite rock catchment.

13.4 REFERENCES

⁴⁹ Uhe (Rogers), Phillipa, *Survey of Railway Heritage in Western Australia*, National Trust of Australia (WA), March 1994, Appendix, Railway Water Supplies.

⁵⁰ Research Institute for Cultural Heritage, Curtin University, *Conservation Plan for Karalee Rock Water Catchment*, prepared for the National Trust, 2000.

13.5 FURTHER RESEARCH
