



**HERITAGE  
COUNCIL**  
OF WESTERN AUSTRALIA

## **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)**

- 3.8.4 Making economic use of inland waterways
- 3.9 Farming for commercial profit
- 3.11.3 Irrigating land

#### **HERITAGE COUNCIL OF WESTERN AUSTRALIA THEME(S)**

- 108 Government policy
- 302 Rural industry and market gardening
- 401 Government and politics

#### **11.1 AESTHETIC VALUE\***

The form and proportions of the *Main Pump Station, Kununurra* demonstrate the aesthetic values of utilitarian service structures associated with Government utilities. (Criterion 1.1)

*Main Pump Station, Kununurra* is clearly associated with the innovation and achievement of the Ord River Irrigation project located in the remote north-east of the Kimberley region of Western Australia. (Criterion 1.2)

Located in Kununurra Lake, adjacent to the north bank at the juncture of the M1 Channel, *Main Pump Station, Kununurra* is a landmark element. (Criterion 1.3)

The vistas to and from *Main Pump Station, Kununurra* make visual connections with Lake Kununurra and the M1 Channel. The place is clearly associated with the Ord River Irrigation Scheme, forming a cultural environment of the water irrigation elements associated within the landscape of the remote north-east Kimberley region. (Criterion 1.4)

#### **11.2 HISTORIC VALUE**

The Ord River Irrigation Scheme, of which *Main Pump Station, Kununurra* was an integral part, was a bold venture to develop and settle the North West of the State in the post-WWII era, during a period of great expansion in the resource and

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

For consistency, all references to garden and landscape types and styles are taken from Ramsay, J. *Parks, Gardens and Special Trees: A Classification and Assessment Method for the Register of the National Estate*, Australian Government Publishing Service, Canberra, 1991, with additional reference to Richards, O. *Theoretical Framework for Designed Landscapes in WA*, unpublished report, 1997.

agricultural sectors, and partly in response to the 'populate or perish' philosophy of the time. (Criterion 2.1)

The Ord River Irrigation Scheme was responsible for the establishment of the town of Kununurra and surrounding district. (Criterion 2.2)

The establishment of the Ord River Irrigation Scheme was a controversial issue in the 1950s, with the State government pressuring the Commonwealth for funding assistance. Funds to complete the project in the late 1960s were eventually granted in the context of a Federal election campaign where funding the Ord project was considered a way to secure votes for a Senate seat. (Criterion 2.2)

*Main Pump Station, Kununurra* was considered a difficult engineering project for the time, requiring considerable design work to satisfy the requirements of the application. (Criterion 2.4)

### **11.3 SCIENTIFIC VALUE**

*Main Pump Station, Kununurra* contributes to the understanding of the cultural history of Western Australia in the innovative use of resources to construct an irrigation water supply scheme for the region in the early 1960s. (Criterion 3.1)

### **11.4 SOCIAL VALUE**

*Main Pump Station, Kununurra* is valued for its associations with the development of the Ord River irrigation district and the town of Kununurra, illustrated by its inclusion on the local Municipal Heritage Inventory and the desire to make continuing use of the place. (Criterion 4.1)

*Main Pump Station, Kununurra* contributes to a sense of place for the local and wider community, who visit the area to view the Ord River dams and resulting lakes and take in the history of the district. (Criterion 4.2)

## **12. DEGREE OF SIGNIFICANCE**

### **12.1 RARITY**

*Main Pump Station, Kununurra* is the largest capacity water pumping station in the State. (Criterion 5.1)

The association between the innovative Ord River Irrigation Scheme and the purpose designed pump station to channel water from Lake Kununurra into the M1 Channel is a unique example of its type and function. (Criterion 5.1)

### **12.2 REPRESENTATIVENESS**

*Main Pump Station, Kununurra* is an intact representative example of a pump station associated with the Ord River Irrigation Scheme, at the pivotal site of channelling water from Lake Kununurra into the M1 Channel. (Criterion 6.1)

As an integral part of the ambitious Ord River Irrigation Scheme, *Main Pump Station, Kununurra* represents the philosophical framework of the State and Federal governments of the time, with the construction of large scale infrastructure intended to facilitate the population of rural areas and protect the nation from the threats of military invasion and economic failure. (Criterion 6.2).

### **12.3 CONDITION**

Overall, *Main Pump Station, Kununurra* is in fair condition. An engineer's report details some cracks in the concrete surface of the west platform, but otherwise the place is structurally adequate and there is no evidence of corrosion of reinforcement elements in the concrete. There has been some vandalism since decommissioning, as evidenced by smashed glazing on the south side and some damage to a door. On the interior, the decommissioned equipment is inoperable.

#### **12.4 INTEGRITY**

Overall, *Main Pump Station, Kununurra* demonstrates a high degree of integrity. Although it no longer functions, it clearly demonstrates what the function was, and therefore presents an opportunity to conserve and interpret at a high level.

#### **12.5 AUTHENTICITY**

Overall, *Main Pump Station, Kununurra* demonstrates a high degree of authenticity with no evidence of intervention to the original fabric, except the wire mesh over the south and east windows, and fencing across the north frontage.

### 13. SUPPORTING EVIDENCE

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

#### 13.1 DOCUMENTARY EVIDENCE

*Main Pump Station, Kununurra*, comprising three 150-cusec capacity Johnson single stage axial flow vertical pumps housed in a corrugated iron shed, was constructed in 1962-63 at the mouth of the Main Irrigation (M1) Channel of the Ord River Irrigation Area.

The Kimberley region was first explored by Alexander Forrest in 1879, when he named the Ord River and discovered the fertile rich black soil in the area. As a land agent for the region in the 1880s, Forrest leased out millions of acres for pastoral use, and in 1887 became the first MLC for the Kimberley. Among those who took up land in the region were the Durack family, who drove cattle across from Queensland and established Lissadell, Argyle, Rosewood and Ivanhoe stations.<sup>1</sup>

In 1926, the Commonwealth Government offered to take responsibility for Western Australia north of the 26<sup>th</sup> parallel. Although the State Government declined the offer, it was forced to clarify its plans to support the development of the northwest.<sup>2</sup>

In 1929, agricultural adviser Frank Wise, who was involved with the establishment of tropical plantations along the Gascoyne River at Carnarvon, suggested that the feasibility of irrigated crops in the Kimberley district should be investigated, but nothing was done at the time.<sup>3</sup> In 1939, a Jewish settlement was proposed for the North West by Dr Isaac Steinberg, of the Freeland League for Jewish Territorial Colonization. Dr Steinberg visited the area at the encouragement of the Western Australian Government and, with the assistance of agricultural adviser George Melville, produced a comprehensive report on the agricultural potential of the region. His proposal for a Jewish settlement, however, was considered unacceptable by the Federal Government under immigration regulations of the time.<sup>4</sup>

In 1941, Kimberley Durack presented a proposal to the Government for the establishment of a research station on the Ord River at Ivanhoe Station to trial irrigated crops for the region. Director of Public Works, Russell Dumas, studied the reports of Kimberley Durack and Dr Steinberg and recommended that the State Government investigate the Ord Valley as a potential site for post-World War II land settlement and extensive irrigation.<sup>5</sup> He believed that, by harnessing the rivers, a substantial settlement based on agriculture could be supported. As a start, Kimberley Durack's proposal for a research station was accepted and a 14-acre site was established on the Ord River at Carlton Reach. In 1944, a survey was made of the proposed Ord River Irrigation Area and the research station was relocated sixteen kilometres downstream where more representative soil types were located.<sup>6</sup>

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<sup>1</sup> Durack, Mary, *Kings in Grass Castles*, Constable & Co, London, 1959.

<sup>2</sup> Graham-Taylor, Susan, 'A Critical History of the Ord River Project' in Davidson, Bruce, *Lessons from the Ord*, Centre for Independent Studies, St Leonards NSW, 1982, p.26-27.

<sup>3</sup> Durack, W. A., *Early History of Research Station, Carlton Reach*, paper presented at the conference '50 Years of Ord Irrigation: review & future perspectives' held at Kununurra, 1-3 November 1991.

<sup>4</sup> Millington, Dr John, *Achievements of the Kimberley Research Station*, paper presented to the conference '50 Years of Ord Irrigation...' op cit, p. 1.

<sup>5</sup> Millington, Dr John, op cit, pp. 1-2.

<sup>6</sup> Durack, W. A., *Early History of Research Station, Carlton Reach*, op cit.

From the mid-1940s, the State Government began to pressure the Commonwealth for financial assistance in developing the North-West.<sup>7</sup> Costs and responsibility for the research station were shared between the State and Commonwealth governments and both governments were involved in negotiations for the funding of the Ord River irrigation scheme. While heightened demand for farm produce in the post-World War II period, and Government policy encouraging rural output to boost Australia's export earnings were contributing factors, the participation of the Commonwealth was also due to a widely held view at the time that the north-west of Australia had to be populated – and quickly. There was a heightened fear of invasion from the more populous Asian countries to the north during and following World War II, epitomised in the popular catchphrase of the time, 'populate or perish'.<sup>8</sup>

Although the expression 'populate or perish' was coined by former Prime Minister Billy Hughes in 1937, he was expressing a philosophy that had been prominent in Australia from the 19th century. It was widely believed that unless Australia vigorously pursued economic expansion to support an expanding population it would not survive as a nation. During World War II, the focus of the 'populate or perish' philosophy shifted to emphasise the concept that unless its population increased, Australia was vulnerable to military attack. One way in which this concern was addressed was through infrastructure, including irrigation schemes, which would increase the area viable for settlement and agricultural development. The Snowy Mountains Scheme in New South Wales and the Eildon Weir project in Victoria were conceived under the auspices of the 'populate or perish' banner.<sup>9</sup> In Western Australia, concerns about an invasion from the north were presented as a reason to proceed with the Ord River scheme.<sup>10</sup>

In 1955, an all-party State Government committee recommended the Ord River Irrigation Scheme to the Commonwealth Government for funding. The project was costed at approximately £11.5 million.<sup>11</sup> The four-stage project comprised a diversion dam to raise and divert water to 180,000 acres of irrigable land, a rock-fill dam incorporating a hydroelectric station, and the development of a town.<sup>12</sup>

In 1957 the Menzies Government responded with a £2.5 million general development grant for the northwest. Funding for north-west development became an issue in the federal election of 1958, with the Labor party promising £20 million if elected. After the Liberal Country Party won the election, the £2.5 million grant was doubled. Despite public pressure, notably from *The West Australian*, the State Government indicated that it intended to spend this money on smaller projects rather than for the Ord River Project.<sup>13</sup>

In 1958, the Commonwealth Government enacted *The Western Australian Grant (Northern Development) Act*, making the £5 million grant available for development in the north of the State.<sup>14</sup> Projects included upgrading of jetty and port facilities to service the inland areas, more watering points along the stock

<sup>7</sup> Graham-Taylor op. cit. p. 29.

<sup>8</sup> Millington, Dr John, op cit, p. 2; Dept of Agriculture, *Annual Report*, 1946, pp. 35-36; Kelsall Binet Architects & Kristy Bizzaca & Associates, op cit, p. 19.

<sup>9</sup> Geoffrey Blainey, Boyer Lecture Series, 11 November 2001; transcript online at [www.abc.net.au/rn/boyers/stories/s411880.htm](http://www.abc.net.au/rn/boyers/stories/s411880.htm), accessed 3 August 2005.

<sup>10</sup> Davidson, B. R. 'Economic Aspects of the Ord River Project' in Davidson op. cit. p. 8.

<sup>11</sup> Graham-Taylor op. cit. p. 31.

<sup>12</sup> LePage, J. S. H. *Building a State: the Story of the Public Works Department of Western Australia, 1829-1985*, Perth, WAWA, 1989, pp. 556-557.

<sup>13</sup> Graham-Taylor op. cit. p. 31.

<sup>14</sup> PWD Public Relations Section, *Ord Irrigation Project*, Gov. Printer, 1973, p. 3.

routes, potable water supplies for each town in the region, and exploitation of the diverse mineral deposits known to exist in the region.<sup>15</sup>

The majority of the grant money was not used, however, as no serious alternative plans to the Ord River Scheme were available and the few projects proposed were largely found to be unviable upon further research.<sup>16</sup> Therefore, in 1958 the Commonwealth gave its approval for part of the £5 million grant monies to be spent on Stage 1 of the Ord River Scheme. Although Prime Minister Menzies expressed misgivings as to the viability of the irrigation project in regard to transport and marketing, in Western Australia, the scheme was viewed with excitement and optimism as the State experienced a period of growth and expansion similar to that which occurred during the gold boom of the 1890s.<sup>17</sup> Sir Charles Court was Minister for Industrial Development and the North West (1959-71) and was active in promoting resource development in the State.

A contract for construction of the Diversion Dam was awarded in 1960-61 and the Government began establishing the necessary infrastructure for the project. The Diversion Dam was located at Bandicoot Bar, a natural quartzite bar at a bend in the Ord River. The Dam created Lake Kununurra, which provided the water for irrigation. The water was distributed through the M1 Channel and a system of branch channels serving the farmlands. However, only the top five feet of the lake water level provided gravity feed for the M1 Channel. Below this level it was necessary to pump the water into the Channel.

The town of Kununurra was established with housing and offices, a water supply, airstrip and a power plant. A 2,000 acre pilot farm was developed by Northern Developments Pty Ltd. Two submersible pumps of 7.5-cusecs each were installed and a supply channel constructed to provide irrigation water for the pilot farm. In 1962, a contract was awarded to C.R. Keath Earthmoving Pty Ltd of Victoria for the construction of irrigation channels and structures for the first 10,000 acres of farmland on the Ivanhoe Plain.<sup>18</sup>

In March 1961, tenders were called for the construction of *Main Pump Station, Kununurra*:

Tenders are hereby invited for supply, installation, testing and maintenance of the undermentioned pumping plant on the banks of the Ord River about 65 miles by road from the Port of Wyndham.

Three only Electric Pumping Units capable of pumping 150 cubic feet per second each (56,000 imperial gallons per minute) against a static head from zero to 17 feet. The units shall be complete with motors, starters, switchboard, pipework, valves and auxiliaries.<sup>19</sup>

Detailed specifications were left open and a three-month tender period was provided to allow for design work for the project, which was considered difficult by the Public Works Department (PWD) engineers and the tenderers. Eight tenders were received from five different companies, including two from interstate, ranging in price from £80,619 to £181,500. The tenders were examined in detail by PWD Hydraulic Engineer, John G. Lewis. Seven of the tenders offered either Pleuger pumps from East Germany or Kelly & Lewis pumps manufactured in Victoria, while Harland Engineering quoted on the provision of Johnson pumps

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15 LePage, J. S. H. *Building a State: the Story of the Public Works Department of Western Australia, 1829-1985*, Perth, WAWA, 1989, pp. 556-557.

16 Graham-Taylor, op. cit. pp.31-32.

17 LePage, J. S. H., op cit, p. 556.

18 PWD *Annual Report*, 1962, p. 23.

19 Advertisement, *Sydney Morning Herald*, 18 March 1961 in PWD Water Supply file, 'Irrigation. Kimberley, Ord River Project. Main Pumping Station, 1961-63', SROWA, WAS 83 CONS 6780 Item 1961/0089.

manufactured in Victoria. There were also variations with regard to submersible or ground level installations.<sup>20</sup>

The PWD requested information on performance from other users of the various types of pumps. The First Mildura Irrigation Trust reported on their experience of two years with similar, but smaller, Kelly & Lewis pumps while Howard Collieries of Maryborough, Queensland, provided information on a Pleuger submersible pump. Neither report allayed the Hydraulic Engineer's concerns about the particular equipment and the contract was eventually awarded to Harland Engineering.

Harland Engineering was a Victorian company well known in Western Australia and represented in the State by the firm of William Adams.<sup>21</sup> The Harland tender had been the second lowest and, with some negotiated variations, came in at a total cost of £88,433. The contract provided for three Johnson single state axial flow vertical pumps, manufactured in Victoria under licence to the British General Electric Company, to be installed under cover at ground level. The variations to the original tender included the provision of variable pitch propellers and withdrawable rotating elements, the latter allowing easier servicing and maintenance. A press release on the awarding of the contract stated that additional pumps would be added to *Main Pump Station, Kununurra* as the district expanded, illustrating the high expectations within the government for the Ord River irrigation scheme.<sup>22</sup>

Further revisions were made to the installation design as the project proceeded, including considerations to issues such as to the floor level of the pumping station in relation to highest flood level, the slope of the bank, trash racks to protect the pump intakes from being clogged by floating debris, distance of the pumps from the control gates at the entrance to the M1 Channel, a forebay at the Channel entrance for the pipe outlets, and installation of the switchgear several feet above floor and flood level.<sup>23</sup>

Completion of the installation was planned for November 1962, to provide water for the first five farms, which were to be allocated at that time.<sup>24</sup> A major setback occurred when the draughtsmen at the Witton Works of British General Electric went out on strike, halting the design and construction of the pump engines. By the time the dispute was settled, the earliest possible delivery date for the first engine was the end of February 1963, with the other two to follow a month later. This meant that *Main Pump Station, Kununurra* would not be in operation until June 1963 at the earliest, adversely affecting the supply of water for the first five farms and the pilot farm. The Agent General in London was asked to assist in expediting the delivery and plans were put in place to provide temporary pumping in the interim.<sup>25</sup>

In May 1962, the pipes to carry the water from *Main Pump Station, Kununurra* to the M1 Channel were ready for delivery, and only one available ship, the *Dorrigo*, was capable of carrying the concrete-lined pipes, which were 56 inches (1.422 metres) in diameter and up to 24 feet (7.3 metres) long, and weighed approximately five tons each. A 7.5 ton overhead travelling station crane, under manufacture by West Australian company Forwood Downs, also needed to be

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20 Correspondence and reports, May-July 1961, PWD Water Supply file, Item 1961/0089, op cit.

21 Correspondence and reports, July 1961, PWD Water Supply file, Item 1961/0089, op cit.

22 Correspondence, July – August 1961, PWD Water Supply file, Item 1961/0089, op cit.

23 Correspondence, 11 October 1961, PWD Water Supply file, Item 1961/0089, op cit.

24 Correspondence and reports, July 1961, PWD Water Supply file, Item 1961/0089, op cit.

25 Correspondence, 11 September - 17 April 1962, PWD Water Supply file, Item 1961/0089, op cit.

shipped to install the pipes. Installation of the intake works was required before the Diversion Dam was completed and Lake Kununurra was created.<sup>26</sup>

Storage at the Diversion Dam commenced on 9 March 1963, and the irrigation channels, drains and associated structures were sufficiently advanced to enable farm watering to commence on 2 May that year.<sup>27</sup> This initial irrigation was achieved by the interim pumping installation, comprising a submersible pump set provided by Harland Engineering, as *Main Pump Station, Kununurra* had not been completed at that time. In the *PWD Annual Report* of June 1963, it was reported that the station building and intake works were ready and 'final installation of the pumping equipment ... was in course'.<sup>28</sup> The Ord River Irrigation scheme was officially opened by Prime Minister Sir Robert Menzies on 20 July 1963.<sup>29</sup>

In the June 1964 *PWD Annual Report*, it was noted that the installation at *Main Pump Station, Kununurra* had been completed by the contractors and water had been made available to the 1963 dry season safflower crops and 1963-64 wet season cotton crops on the first five farms. Tests on the pumps prior to installation showed they had exceeded the specifications in regard to pumping capacity, and were each capable of supplying 170 cubic feet of water per second (63,000 gallons per minute).<sup>30</sup>

In 1964, earthworks on the second 10,000 acres of farmland were under way.<sup>31</sup> In 1964-65, 25,941 acre/feet of water was supplied to irrigate twenty-one farms. As the wet season rainfall had been below average, it is likely that *Main Pump Station, Kununurra* moved a considerable portion of that amount. By the following year, the first stage total of 30,000 acres of farmland on the Ivanhoe Plains had been prepared, served by fifty-two miles of irrigation channels. Thirty-one farms had been allocated.<sup>32</sup> By 1967, of the total 5,540 hectares of irrigated land, 4,775 hectares were under cotton.<sup>33</sup>

In February 1964, the State Government forwarded to the Commonwealth a 'Case for financial assistance from the Commonwealth Government to Complete the Ord Irrigation Project'. This 'Case' estimated that the cost to complete the project would be £30 million. It stated that there were 'proven crops' established on the basis of the Diversion Dam. However, cost analyses were contradictory, and little economic research was available to demonstrate the long-term benefit of the project. Menzies deferred the proposal in 1965. Western Australia pressured the Commonwealth to make a decision, and in 1966 Harold Holt again expressed misgivings and deferred a definite response. The State amended its proposal in late October 1967, although it has been argued that little of the evidence had substantively changed to better recommend the project. Early in November, in the lead-up to the 1967 Federal election, the Holt Government pledged \$48 million to fund the Ord River Irrigation scheme. Under pressure from Gough Whitlam's Labor party in the wake of the long Menzies period, the Government was concerned that its Senate majority may have been in jeopardy. Funding for the Ord River project was considered to be a significant vote-winner

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26 PWD Water Supply file, Item 1961/0089, op cit.

27 *PWD Annual Report*, June 1963, pp. 23 & 26.

28 *PWD Annual Report*, June 1963, p. 27.

29 *PWD Annual Report*, June 1964, p. 30.

30 PWD Water Supply file, Item 1961/0089, op cit.

31 *PWD Annual Report*, June 1964, p. 30.

32 *PWD Annual Report*, June 1965, p. 29 & 1966, pp. 25-26.

33 CSIRO, Division of Tropical Crops and Pastures, *Kimberley Research Station: Visitors Information*, 1980, p. 9.



in Western Australia.<sup>34</sup> The project was later described in *The Australian* as ‘a money hungry monument to importunate politicking’.<sup>35</sup>

Despite continuing concerns about the viability of the scheme and its high establishment costs, the Commonwealth Government approved grants and loans for Stage 2 of the Ord River Irrigation scheme in June 1968. Stage 2 entailed construction of the Ord River Dam and the development of the Packsaddle Plain irrigation area. The Dam was completed in December 1971. It enabled the water level in Lake Kununurra to be maintained at a sufficient height to provide year-round gravity feed to the M1 Channel. *Main Pump Station, Kununurra* was no longer required. The power supply was disconnected for safety but the place was not fully decommissioned, remaining as an emergency facility, ‘almost’ surplus to requirements.<sup>36</sup>

In the decades following its closure, *Main Pump Station, Kununurra* was used as a jetty and refuelling point for tour boats, in particular the motor vessel *Jabiru*, which has moored at the site for over twenty-five years.<sup>37</sup>

In the Irrigation Area, commercial cotton crops were not grown after 1974, due to the increasingly high cost of pest control and other quality problems. Although there continued to be a large variety of minor crops grown, the area laboured under a high cost structure and distance from potential markets.<sup>38</sup> In the late 1980s, the production of tropical fruits, such as melons and bananas, and the fattening of cattle on high protein irrigated leucana pastures was expanding, these proving most successful for the region. In more recent years, successful sugar trials have led to the establishment of a sugar industry.<sup>39</sup>

Lake Kununurra, including the Foreshore Reserve, was listed as a Wetland of International Importance, along with Lake Argyle, under the Ramsar Convention in June 1990. The Convention on Wetlands, signed in Ramsar, Iran, in 1971, is an intergovernmental treaty which provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. The Ramsar Convention on Wetlands came into force for Australia on 21 December 1975. Australia has 64 sites designated as Wetlands of International Importance. Lakes Argyle and Kununurra are recognised as important dry-season refuges supporting more than 20 000 waterbirds.<sup>40</sup>

In 1991, Lot 667, part of which is the site of *Main Pump Station, Kununurra*, was included in the Lake Kununurra Foreshore Reserve 41812, jointly vested in the Water Authority (now Water Corporation) and Shire of Wyndham-East Kimberley. The land was formerly Unvested Crown Land (UCL) presenting difficulties to Water Corporation in regard to management of the site.<sup>41</sup>

In 1997, *Main Pump Station, Kununurra* was included in the Shire of Wyndham-East Kimberley’s Municipal Heritage Inventory. No management category is given.<sup>42</sup>

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34 Graham-Taylor op. cit. pp. 37-42, 52.

35 *The Australian*, 28 February 1979, quoted in Graham-Taylor op. cit. p. 25.

36 Correspondence 5 May 2000 & 13 August 2004, Water Corporation file, ‘Kununurra Asset Rationalisation Project M1 Pump Station’, JT1 2001 100471, Vol. 1.

37 Water Corporation file, JT1 2001 100471, Vol. 1, op cit.

38 LePage, J. S. H., op cit, p. 565.

39 Watson, A. N., *Recent Research on the Ord*, paper presented at the conference ‘50 Years of Ord Irrigation...’, op cit, pp. 1-5; Roberts, Femmeke & Diaz, Fiona, op cit.

40 <http://www.ramsar.org/> accessed 25/10/2005

41 Water Corporation File, Lake Kununurra Foreshore Reserve, 10A 155971.

42 O’Brien Planning Consultants, *Shire of Wyndham-East Kimberley Municipal Heritage Inventory*, place no. 44.

*Main Pump Station, Kununurra* continued to be unused, and the condition of the site and the structure was deteriorating. In 1998, Kununurra restaurant owners Thomas and Dominique Breig applied to lease *Main Pump Station, Kununurra* and convert it into a restaurant. The Shire gave approval for the development with a number of provisos, but after a 5-year investigation as to the future of *Main Pump Station, Kununurra*, Water Corporation denied the application. The issues of joint land tenure and environmental and operational issues, such as impact on the adjacent town water supply bore field, future operation of the M1 Channel and development of the M2 Channel and provision of services such as parking, sewerage and water supply, led the Corporation to the decision that the proposed development was not the best use of the site.<sup>43</sup>

In 2004, *Main Pump Station, Kununurra* was officially decommissioned. In December 2004, the operators of the MV *Jabiru* were negotiating to use the place to display the history of the Ord River and its various projects as the starting point of their tour operation. The Water Corporation is endeavouring to have the site of *Main Pump Station, Kununurra* excised from the larger Foreshore Reserve and placed under its sole control to enable proper management.<sup>44</sup>

In 2005, Connell Wagner Pty Ltd produced a structural review of *Main Pump Station, Kununurra* for the Water Corporation to assist it in its considerations of alternative uses for the place and Whelans Town Planning Consultants conducted a survey of the area for the proposed acquisition of the site by the Corporation.<sup>45</sup>

### 13.2 PHYSICAL EVIDENCE

*Main Pump Station, Kununurra*, a steel framed iron clad shed housing three pumps on a concrete substructure pumping chamber, is located in Lake Kununurra, in the remote north-east Kimberley region of Western Australia.

*Main Pump Station, Kununurra* is located on the north bank of Lake Kununurra, approximately 1 kilometre south west of Kununurra town centre, adjacent to Lakeview Drive, at the junction of the M1 channel. The site can be accessed by Lakeview Drive, southwest off Victoria Highway, or along the gravel access track on the west side of the M1 channel, south off Victoria Highway. Lake Kununurra has seasonal ribbon weed floating on the surface, hence trash racks are installed on the north side of the gravity off-take into the M1 channel. Along the banks of the lake, and in the vicinity of *Main Pump Station, Kununurra*, the predominant plantings are Pandanus Palm (*Pandanus* sp), paper bark trees (*Melaleuca* sp) and native cumbungi (*Typha domingensis*).

*Main Pump Station, Kununurra* is an element located at a pivotal location of the Ord River project, where the water from Lake Kununurra is channelled into the main irrigation channel (M1 Channel) for the entire irrigation network. The pump house is a shed fixed onto a concrete substructure that is the pumping chamber that extends below water level. The shed houses the three original pumps, with evidence of three future pumps planned for the west side of the building. The association with the immediately adjacent spillway (gravity off-take) and M1 Channel is clear. A bridge crosses the spillway (gravity off-take), with the intake and trash racks evident on the south side of the concrete structure, and expansive truncated concrete walls splaying out into the M1 Channel on the north side of the spillway (gravity off-take) under the bridge where the water churns into the M1 Channel. On the west side of the spillway (gravity off-take) there is the

43 Water Corporation file, JT1 2001 100471, Vol. 1, op cit.

44 Water Corporation file, JT1 2001 100471, Vol. 1, op cit.

45 Connell Wagner Pty Ltd, *M1 Pump Station Structural Review*, February 2005; Whelans Town Planning Consultants, *M1 Pump Station Kununurra*, March 2005.

forebay, an area of water enclosed on three sides by retained concrete walls, with a metal grid-like structure across the surface of the water, beneath which the pipes discharge the water from the pump station. On the west side of the Channel an area has been landscaped and formally edged for a short distance. A gauge station is located about 50 metres north along the M1 Channel (on the west side).

*Main Pump Station, Kununurra* is located in Lake Kununurra. It is accessed across a suspended concrete platform from road level, across the bank of the lake, to the shed, at the same level as the adjacent road. Between the road and the shed is a distance of approximately 10 metres that is open to the banks of the lake below. Within that space there are three steel pipes that emerge from the concrete substructure under the shed, extend under the bridge and emerge below water level in the forebay next to the spillway (gravity off-take) in the M1 Channel. Each of the pipes is connected to the pumps located in the shed, at the sub floor level in the pumping chamber, through circular openings in the concrete walls of the substructure.

The floor level of the pump station is a concrete slab that extends beyond the area of the shed, to the west where it forms an open platform. The pumping chamber extends under the open platform and on the north wall there are three circular openings infilled with wire grilles. The north wall of the pumping chamber is set back from the north alignment of the shed above, and the slab is supported by square concrete pillars along the northern frontage. Closer to the road edge of the bank, aligned with the openings and as evidenced by the existing connection pipes, are the concrete support elements for the pipes. There is pipe railing around the platform at the west end. The platform is accessed by an elevated steel access, through a security gate. The concrete platform at the west end shows evidence of the planned future three pumps in the steel plated openings in the floor surface, which would have housed pumps with connections to pipes in the pumping chamber as evidenced by openings and concrete supports. The concrete platform also forms a 2 metre wide apron along the south side of the shed, on the lakeside. On the south-west corner of the concrete platform at water level (approximately 4 metres below), there is a concrete mooring platform, accessed from steel stairs on the south side. There is also evidence of rail lines along the south side of the shed, on the concrete apron, with a buffer stop at the west edge of the platform.

The shed is a steel portal framed structure that has been fixed onto the concrete platform. The portal frame is constructed of RSJ (rolled steel joist) sections. The roof is a low-pitched gable and together with the walls, is clad with corrugated iron sheeting. The walls are sheeted in a vertical configuration. There are windows on all four elevations and all have metal-framed, multi-paned configurations. The 'windows' on the north and west walls have flat metal 'infills' and the south and east windows have wire glass that has been vandalized and wire mesh fitted over the exterior. There is a galvanised roller door on the north frontage, with a pa door allowing pedestrian access.

The concrete platform, on which the shed is located, forms the roof of the concrete pumping chamber (no access - refer to photo in the Connell Wagner structural report). Plans show that the pumping chamber is an entirely concrete construction with interior support pillars and walls and a tapered rear (south) wall in the deepest section of the lake where most of the chamber is below water. Vertical steel reinforcement has been fixed on the exterior of the south wall (on the lake side). The concrete pumping chamber is where the pumps connect to the pipes that penetrate through the circular openings on the north wall and into the M1 Channel at the forebay.

On the interior of the shed there is no lining on the walls or ceiling, revealing the structure. The concrete platform floor forms the entire shed with a separate raised section along most of the north side. The three original 'Harland' pumps are insitu at equal distances apart. They are located adjacent to the raised mezzanine floor where support structures and instrumentation is located. A steel girder crane is in place across the shed, running the full length of the side (north and south) walls. There is a roller door on the south wall, aligned with the main entry on the north wall.

### 13.3 COMPARATIVE INFORMATION

The search for similar places in the Heritage Council database produced, in the main, pump installations of earlier construction associated with town water supplies, the Goldfield Pipeline and sewerage works.

Some pump stations of comparison are the one diesel, five electric and seven booster pump stations that replaced the eight steam pumps on the Goldfield Pipeline between 1959 and 1970.<sup>46</sup> These later pump stations have themselves been superseded in the last decade or so. Almost all the Goldfield Pipeline pump stations remain in situ and several of the original steam pumps are on the State Register, specifically Nos. 1, 3, 6 and 8. The replacement electric stations have yet to be assessed.<sup>47</sup>

The steam pumps on the Pipeline were capable of moving 5 million gallons a day and the later electric stations could move 24 million gallons daily.<sup>48</sup> In comparison, *Main Pump Station, Kununurra* is of larger capacity, with each pump capable of supplying 90 million gallons of water a day. At the time the Ord River scheme was being developed, this was the largest pumping installation for any irrigation application in Australia, evidenced by the difficulty experienced by tenderers and the PWD in the design and decision making process. There were a number of other irrigation areas in the country at the time, including the huge areas of New South Wales and Victoria supplied by the Murray-Darling River system, but these areas were supported by numbers of smaller local pumping installations, originally steam pumps and later diesel operated.<sup>49</sup>

The other irrigation areas in Western Australia include: the Harvey, Waroona and Collie area, developed in 1916 as the first controlled irrigation area in the State; the Preston Valley irrigation area east of Donnybrook; the tropical plantations on the Gascoyne River at Carnarvon, and the Liveringa flood plain area at Camballin fed by the Fitzroy River. At Carnarvon, the water is drawn from the river sands by individual pump installations for each farm and pumping facilities at other areas in the State are of much smaller capacity.<sup>50</sup>

*Main Pump Station, Kununurra* is the largest installation of its type in the State and from the information available at the present, appears to be incomparable with anything in Australia.

<sup>46</sup> *Goldfields Water Supply Scheme: Ceremony to commemorate the completion of the phasing out of the original eight steam pumping stations commissioned in 1903*, 3 April 1970, Gov. Printer, 1970, [p. 5].

<sup>47</sup> HCWA database.

<sup>48</sup> *Goldfields Water Supply Scheme: Ceremony to commemorate the completion of the phasing out of the original eight steam pumping stations commissioned in 1903*, 3 April 1970, Gov. Printer, 1970, [p. 5].

<sup>49</sup> Register of the National Estate database; personal knowledge of Irene Sauman whose grandfather ran the diesel irrigation pump at Nyah on the Murray River in the 1940s and 1950s, where she lived as a child.

<sup>50</sup> HCWA assessment documentation, Gascoyne Research Station, Place 6839; *The Australian Encyclopaedia*, Sydney, Grolier Society, 4<sup>th</sup> ed 1983, Vol. 10, pp. 215-221.

#### **13.4 KEY REFERENCES**

Connell Wagner Pty Ltd, *M1 Pump Station Structural Review*, February 2005.

#### **13.5 FURTHER RESEARCH**

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