Gogeldrie Weir

Statement of Heritage Impact

Report prepared for WSP Australia and WaterNSW

Final

July 2024

Navin Officer

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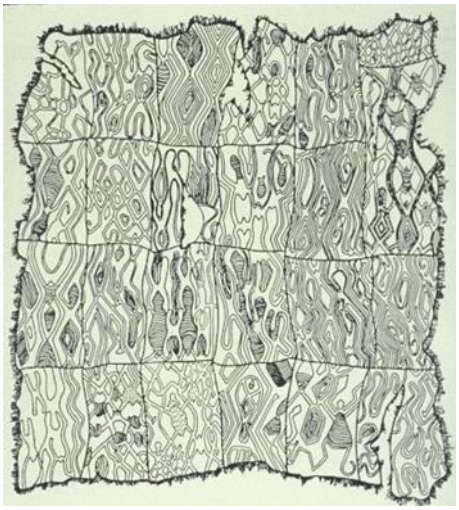

NOHC acknowledges Australia's Aboriginal and Torres Strait Islander people, their many diverse communities across our nation and their rich culture. We pay respect to their Elders past and present. We acknowledge Aboriginal and Torres Strait Islander peoples as Australia's first peoples and as the Traditional Owners and custodians of the land and water across the Australian landscape and seascape. We recognise and value the ongoing contribution of Aboriginal people to Australian life and how their contribution continues to enrich our society. In our daily work we recognise, cherish, celebrate and defend the evidence of Aboriginal and Torres Strait Islander peoples rich and complex history and prehistory which extends back from the present day into a deep and distant past. We understand that this archaeological evidence has meaning to the descendants of those who created it. Through our research and conservation efforts we strive to unlock hidden meanings from these traces of the past and to make that knowledge available to current and future generations of Aboriginal and Torres Strait Islander people.

Image: Aboriginal possum skin rug collected 1839–1840 from the Hunter River region, eastern NSW (Smithsonian Inst. Washington D.C. Cat. no. E5803)

Document control

Project no.:	240077
Project client:	WSP Australia
Project proponent:	WaterNSW
Document description:	Gogeldrie Weir, Statement of Heritage Impact
Project Manager:	Dr Susan McIntyre-Tamwoy
Authors:	Sneha Kishnadwala
Internal review:	Dr Susan McIntyre-Tamwoy and Nicola Hayes
Document status:	Final Draft v2
Local Government Area:	Leeton Shire Council
Local Aboriginal land Council:	Wiradjuri

Document revision status

Author	Revision number	Internal review	Date issued
Sneha Kishnadwala	Draft v1	Dr Susan McIntyre-Tamwoy and Nicola Hayes	08/05/2024
Sneha Kishnadwala and Susan McIntyre-Tamwoy	Final draft V2	Dr Susan McIntyre-Tamwoy	18/06/2024
Sneha Kishnadwala	Final	Dr Susan McIntyre-Tamwoy and Nicola Hayes	26/07/2024

Cover photographs: View of control house and weir at the back facing south; View of weir facing southeast; View of Gogeldrie Weir facing northwest; View of Gogeldrie Weir Plaque; View of the lower walkway along the dam facing south; View of Gogeldrie Weir facing north; View of south bank of Murrumbidgee River with dam on the left; View of weir and north bank of Murrumbidgee River facing southwest.

EXECUTIVE SUMMARY

Navin Officer Heritage Consultants Pty Ltd (NOHC) has been engaged by WSP Australia on behalf of WaterNSW to complete a Statement of Heritage Impact of Gogeldrie Weir (subject site).

The Gogeldrie Weir is listed on the SHR as item no. SHR00961 as an item of state significance. The site is also listed on the WaterNSW S170 Heritage and Conservation Register.

The primary objective of this project is to undertake electrical renewals and drum hoist and drive replacement works at Gogeldrie Weir in the Murrumbidgee valley to reduce safety and reliability risks at this facility in accordance with the WaterNSW Risk Management Policy, relevant Work Health and Safety (WHS) Legislation, Asset Class Strategies and standards.

These components of the heritage item have already reached or are reaching their end of life and are required to be replaced in compliance with WaterNSW standards. For these works, WaterNSW needs to install temporary cranes, make a trench parallel to the existing fence and the water channel and prepare a setup area on the northern side of the watercourse (i.e. the side with the camping ground) within the heritage curtilage.

The weir is currently operational and has been well maintained. It is an integral element in the Coleambally Irrigation Area system that was designed and constructed in the late 1950's through early 1960s with most of the original fabric intact. The site is authentic in its use, engineering and history.

The continued mechanical operation is essential to the weir's purpose and therefore essential to the heritage significance of the item.

The proposed works will have minimal impact on the historical values of Gogeldrie Weir, however they will have a moderate impact on the engineering values of the structure as they involve the replacement of original components with new components of different design. Such work goes beyond the maintenance and minor works covered by the Standard Exemptions for approvals under the *Heritage Ac, NSW*. The proposed changes to the original fabric/ which include significant engineering components, will require a s60 application under the *Heritage Act, 19977 NSW* to be submitted for approval.

It is recommended that:

- An application under s60 of the Heritage Act, NSW is submitted, accompanied by this Statement of Heritage Impact.
- An archival recording shall be conducted before, during and after the replacement of the component parts (in compliance with Policy# 12 of the CMP). This documentation shall also include the original drawings for the structure and before and after photographs of all changes. The document should be added to the listing information and be a permanent archive.
- While archaeological deposits associated with the weir are considered unlikely the Water NSW unexpected finds protocol should be provided to contractors and implemented as necessary.

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Abbreviations

ACHM	Australian Cultural Heritage Management
AICOMOS	Australia ICOMOS the Australian national committee of ICOMOS
CIA	Coleambally Irrigation Area
CMP	Conservation Management Plan
FAT	Factory Acceptance Test
HAA	Historical Archaeological Assessment
ICOMOS	International Council on Monuments and Sites
km	kilometre
LEP	Local Environmental Plan
NOHC	Navin Officer Heritage Consultants Pty Ltd
NSW	New South Wales
OEH	Office of Environment and Heritage (NSW) (former) now Heritage NSW
SAT	Site Acceptance Test
SHR	State Heritage Register
SHI	State Heritage Inventory
SOHI	Statement of Heritage Impact
WHS	Work Health and Safety (legislation)

1. INTRODUCTION

1.1 Project background

Navin Officer Heritage Consultants Pty Ltd (NOHC) has been engaged by WSP Australia on behalf of WaterNSW to conduct a Statement of Heritage Impact for works proposed at Gogeldrie Weir (subject site) (Figure 1-1).

The scope of works involves the replacement of the main electrical control panel that was previously replaced in 1994 and the replacement of the 6 hoist drums and associated gear boxes at the top of the weir structure. One has previously been replaced in recent years after mechanical failure[1]. These components have already reached, or are reaching, their end of life and are required to be replaced with new ones in compliance with WaterNSW standards. For these works WaterNSW also needs to install cranes, install a trench, and prepare a setup area on the norther side of the canal (i.e. the side with the campground) within the heritage listed curtilage of the Gogeldrie Weir. Specific details of the proposal are discussed in Section 4 of this report.

1.2 Heritage status

The Gogeldrie Weir is listed on the State Heritage Register (SHR) as item no. SHR00961 as a heritage item of State significance. The weir is also listed on the WaterNSW S170 Heritage and Conservation Register.

1.3 Aims and scope

This report will assess the potential impact to the heritage values of the Gogeldrie Weir to provide WaterNSW with sufficient information to determine the impact of the proposed works on the heritage item concerned.

This assessment is consistent with the Department of Planning and Environment's *Guidelines for Preparing a Statement of Heritage Impact* (DPE, 2023). The process followed is consistent with the *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance 2013* (AICOMOS 2013).

Preparation of this report involved the following tasks:

1. Data and archival research including a review of heritage listings and historical heritage literature review.
2. Review of previous heritage reports prepared for the Gogeldrie Weir.
3. Review of documentation of proposed works provided by Water NSW and Asset Ready.
4. Field inspection of the subject site.

1.4 Report outline

This report includes:

1. Description of the proposed development and the framework for assessment (Section 1).
2. Discussion of the heritage item and its surrounding (Section 2).

[1] pers. comm. advised of this by local WaterNSW staff during site inspection.

3. A consideration of the cultural heritage significance of the Gogeldrie weir (Section 3).
4. Discussion of the proposed works on the site (Section 4).
5. Discussion of the heritage impact assessment and recommendations pertaining to the proposed works a (Section 5).
6. A summary of findings and recommendations (Section 6).

1.5 Authorship and acknowledgements

This report has been prepared by built heritage specialist Sneha Kishnadwala (Bachelor of Architecture, University of Mumbai and Master of Science in Architectural Design for Conservation of Built Heritage, University of Strathclyde, UK) and reviewed by Dr Susan McIntyre-Tamwoy (BA (Hons) Anthropology University of Sydney and PhD (Archaeology) James Cook University) and Nicola Hayes. Sneha Kishnadwala and Dr Susan McIntyre-Tamwoy visited the site on 10 April 2024. The mapping for this report has been completed by Jacob McIntyre.

Figure 1-1 Map showing the location of the subject site.

2. THE HERITAGE ITEM

2.1 Site description

2.1.1 Heritage item

Gogeldrie Weir is of State significance and was constructed 1957-59. It is located approximately 22 kilometres (km) southwest of Leeton, New South Wales on the Murrumbidgee River. There is a recreational park (campsite) on the northern bank of the weir which is currently managed by the local council but is within the heritage curtilage. It is a six-bay open flow concrete undershot weir which provides a weir pool for diversion into Coleambally Canal and other features of the Murrumbidgee Irrigation Scheme (Figure 1-1).

The pylons are concrete, rounded in form with a short upstream side and elongated downstream side. The six gates are each around 12.2m x .16m with a reinforcing structure attached to the downstream side to counteract the pressure from the weir pool. The gates are operated by a mechanised electric system (now automated), the gearbox for which is located on the top of the structure.

The control house is located on the northern abutment of the structure. The floor of the weir is concrete and has a fixed sill on the downstream. The channel is lined with rock to counteract erosion.

The *Heritage Act 1977* (NSW) places a statutory obligation on WaterNSW to preserve heritage assets and associated cultural heritage values. It is a statutory requirement under Section 170 of the *Heritage Act 1977* that 'a government instrumentality shall establish and keep a register entitled the "Heritage and Conservation Register"'. The subject site is listed under this register.

2.1.2 Heritage listings

The Gogeldrie Weir is listed as an item of Significance to the State of NSW on the SHR as item no. SHR00961. The subject site is also listed on the WaterNSW Section 170 Heritage and Conservation Register (Figure 2-1).

2.1.3 Heritage items in the vicinity – Statutory heritage listings

There are no other heritage items in the vicinity.

2.1.4 Site and its context

Gogeldrie Weir is located in the Riverina Region of New South Wales on the Murrumbidgee River, approximately 25 km southeast of Leeton, 9 km south of Gogeldrie and 30 km downstream of Narrandera. It is approximately 580 km southwest of Sydney via the Hume and Newell Highways. It is situated within the Leeton Shire.

The weir is situated in a man-made cutting which joined a natural u-bend in the Murrumbidgee River. Most of the weir including the structure is located within Lot 1 DP1184785, with the northern end of the weir structure and the access road in Lot 2 (see Figure 2-1). The access road, which is included in the heritage curtilage, passes through and also provides access to, the recreation and camping ground on the northern bank of the weir canal. The weir and the canal are a focus for recreational fishing and the camping ground.

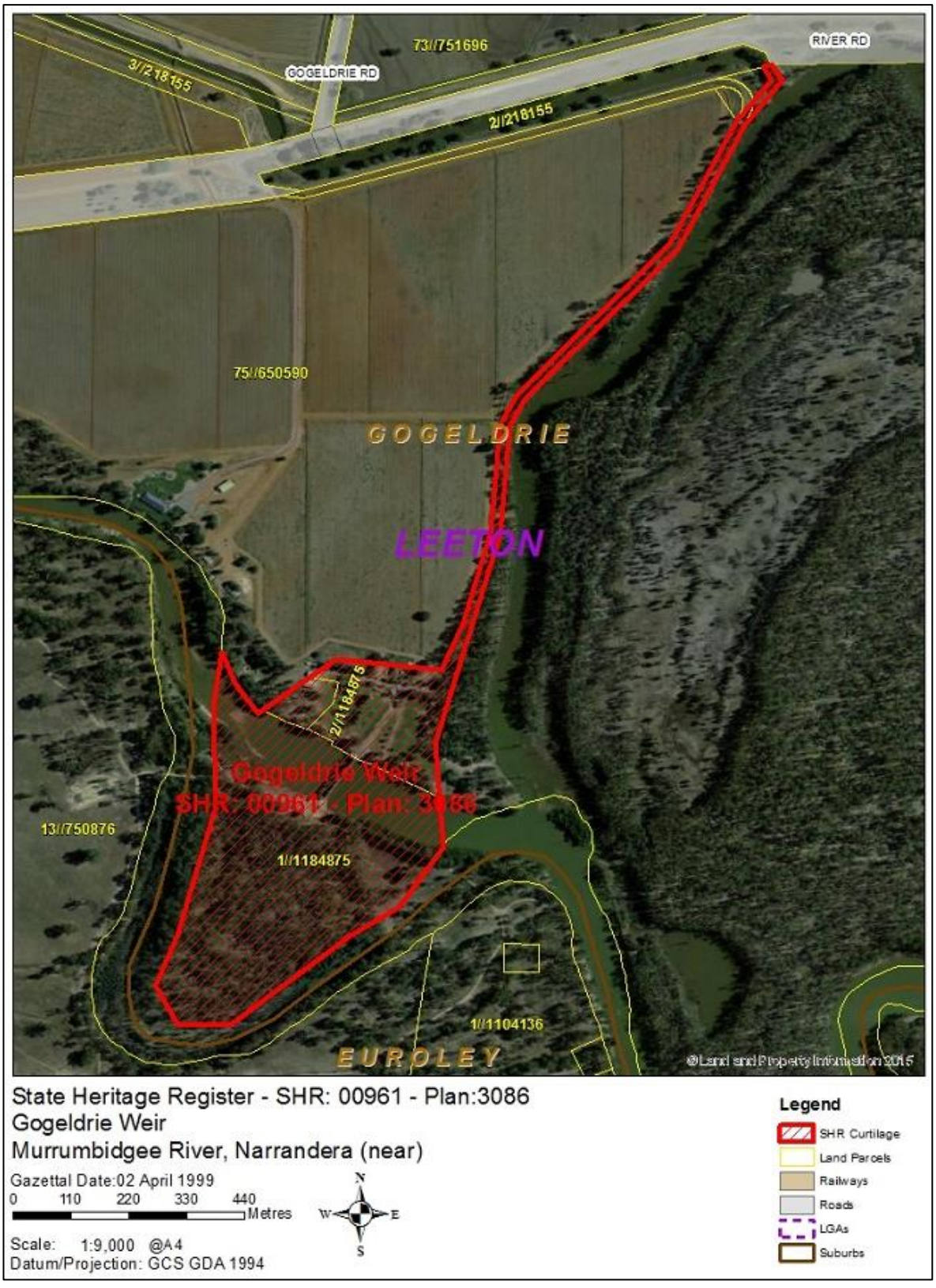

Figure 2-1 Heritage Listing of Gogeldrie Weir (SHR, 2024).

2.2 Site summary history

A summary of the history of the weir is included on the SHR listing which notes that:

> The Gogeldrie Weir was completed in 1959 to divert water from the Murrumbidgee River to the Coleambally Irrigation Area via the Coleambally Canal, and to part of the Murrumbidgee Irrigation Area and associated irrigation districts via the Stuart Canal. The Coleambally Irrigation Scheme was one of the last major public irrigation schemes by the government to enable agriculture to expand in the Coleambally [area][2] south of the Murrumbidgee. The scheme utilised the regulated flows from the Snowy Scheme and the Blowering Dam. The mechanics of Coleambally [Irrigation Area] were similar to the MIA, with a major diversionary weir at Gogeldrie on the Murrumbidgee distributing water by gravity through networks of canals and channels. The first farms were taken up in 1960. ('Gogeldrie Weir' State Heritage Register (SHR) as item no. SHR00961).

The Murrumbidgee Irrigation Area

The Murrumbidgee River is the second longest river in Australia. It is a major tributary of the Murray River, running from the Snowy Mountains in the east, in a generally west-northwesterly to its confluence with the Murray River near Boundary Bend in Victoria. The Murrumbidgee basin was opened to settlement in the 1830s and soon became an important farming area. However, it was the establishment of the Murrumbidgee Irrigation area that in the early 1900s that facilitated the intensive agricultural development that characterise the area today. The upper catchment is regulated by Burrinjuck and Blowering Dams. The system is a major engineering achievement comprising an elaborate series of weirs, canals and holding ponds. Several purpose-built townships were designed and built as part of the agricultural expansion including Griffith and Leeton, both of which were designed by Walter Burley Griffin.

The Coleambally Irrigation Area and the Gogeldrie Weir

The Coleambally Irrigation Area was developed later in the 1950s as a new expansion of the irrigation system in the Riverina. It centred on a newly created township of Coleambally which officially opened in 1968.

The Gogeldrie Weir was completed in 1959 to divert water from the Murrumbidgee River to the Coleambally Irrigation Area via the Coleambally Canal, and to part of the Murrumbidgee Irrigation Areas and associated irrigation districts via the Stuart Canal. The weir is an integral feature for capturing and utilising the water from the Snowy Scheme for watering the Coleambally Irrigation Area. It is the diversion weir that controls and diverts water from the Murrumbidgee River to the Coleambally area.

A more detailed historical overview can be found in the Gogeldrie Weir Conservation Management Plan (CMP) (Australian Cultural Heritage Management (ACHM), 2015).

Figures 2-2 to 2-11 present historical images of the Gogeldrie Weir during construction and post-construction. There is also a short YouTube video of the construction of the weir made by local man, Henry George Gardiner, available at https://youtu.be/0R4KF_56K_E?si=8y7INgesO0tAdDtM. The video includes some images of the drag line creating the channel in which the weir sits, and it provides a clear indication of the amount of land disturbance which occurred during construction.

[2] Words in square brackets are missing from the SHR listing.

Figure 2-2 Gogeldrie Weir during construction, 1959 (Source: National Archives of Australia).

Figure 2-3 Gogeldrie Weir near completion, 1959 (Source: National Archives of Australia).

Figure 2-4 Gogeldrie Weir during construction, 1959 (Source: National Archives of Australia).

Figure 2-5 Aerial view of Gogeldrie Weir Gates, 1964 (Source: National Archives of Australia).

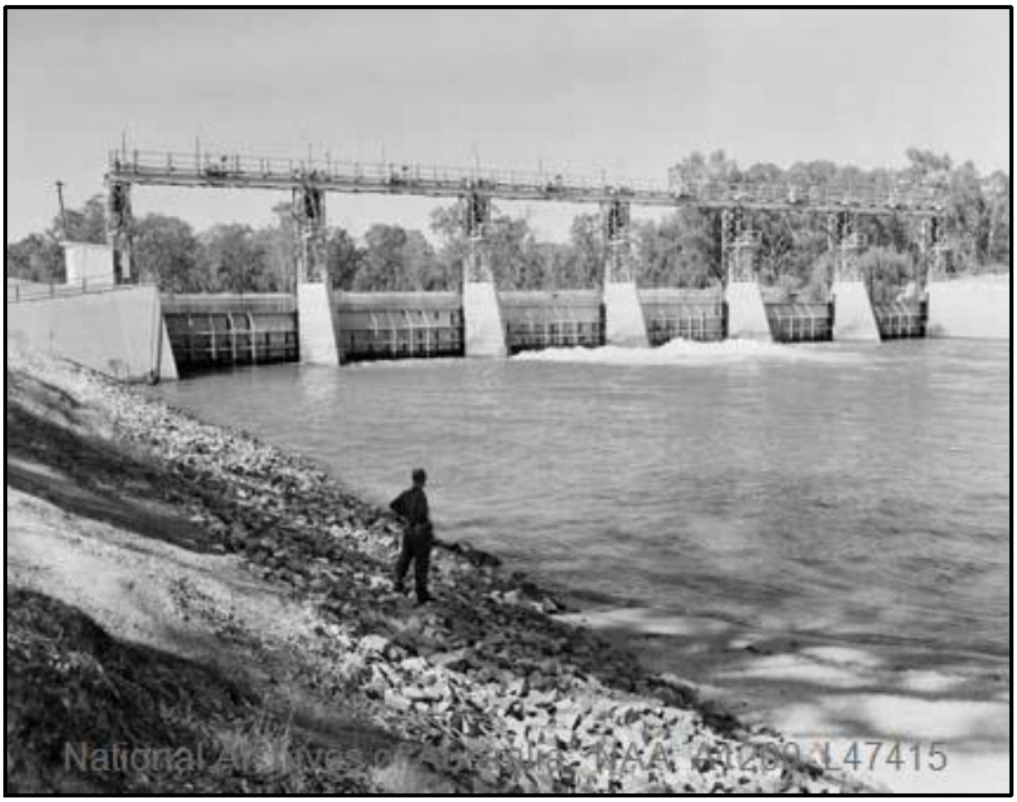

Figure 2-6 Gogeldrie Weir gates viewed from northern bank facing towards east, 1964 (Source: National Archives of Australia).

Figure 2-7 Aerial view of Gogeldrie Weir, 1965 (Source: National Archives of Australia).

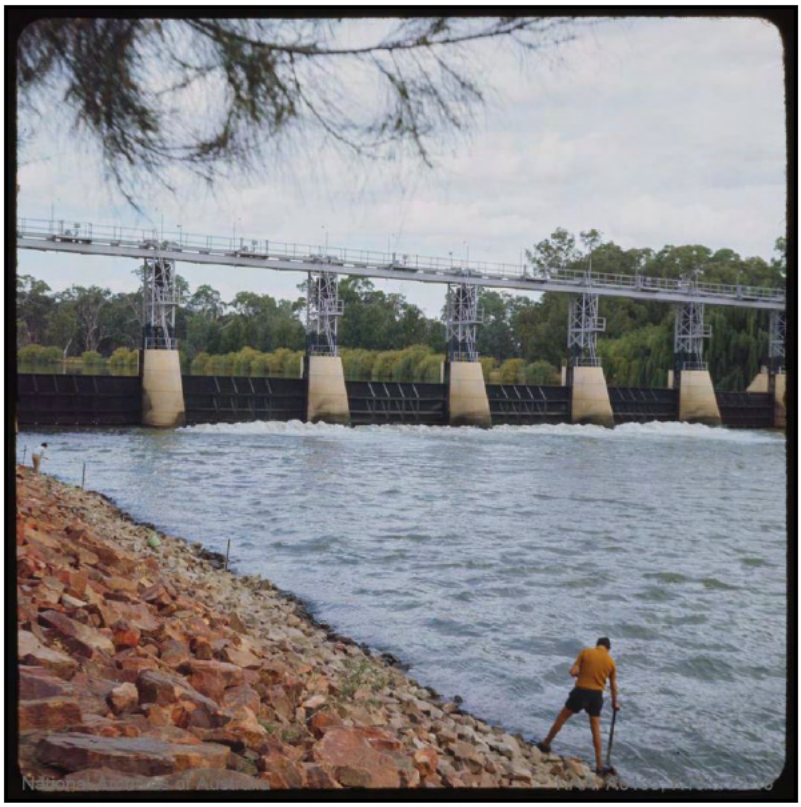

Figure 2-8 Gogeldrie Weir gates viewed from northern bank facing towards east, 1972 (Source: National Archives of Australia).

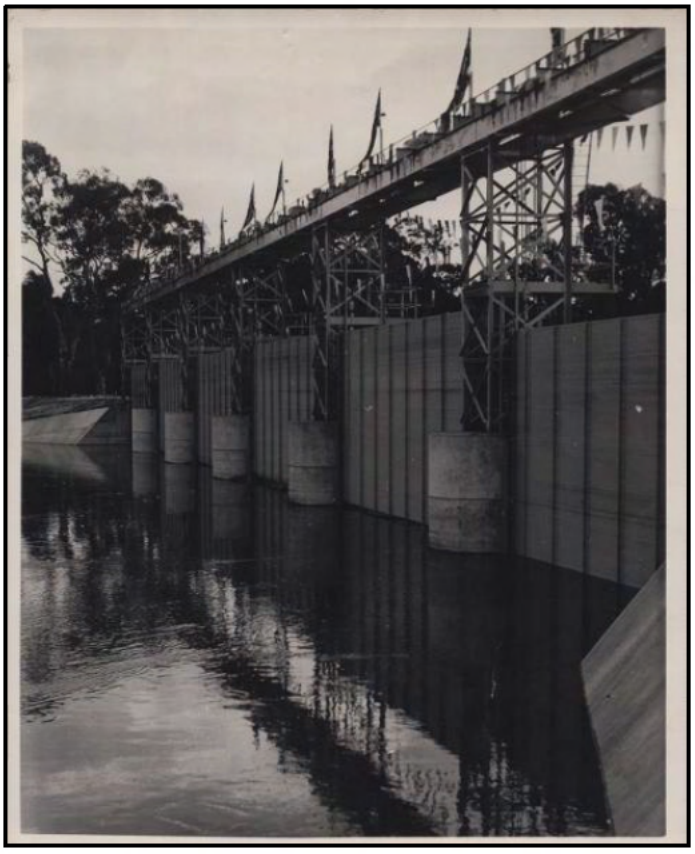

Figure 2-9 Gogeldrie Weir gates facing northwest, n.d. (Source: Australian National University).

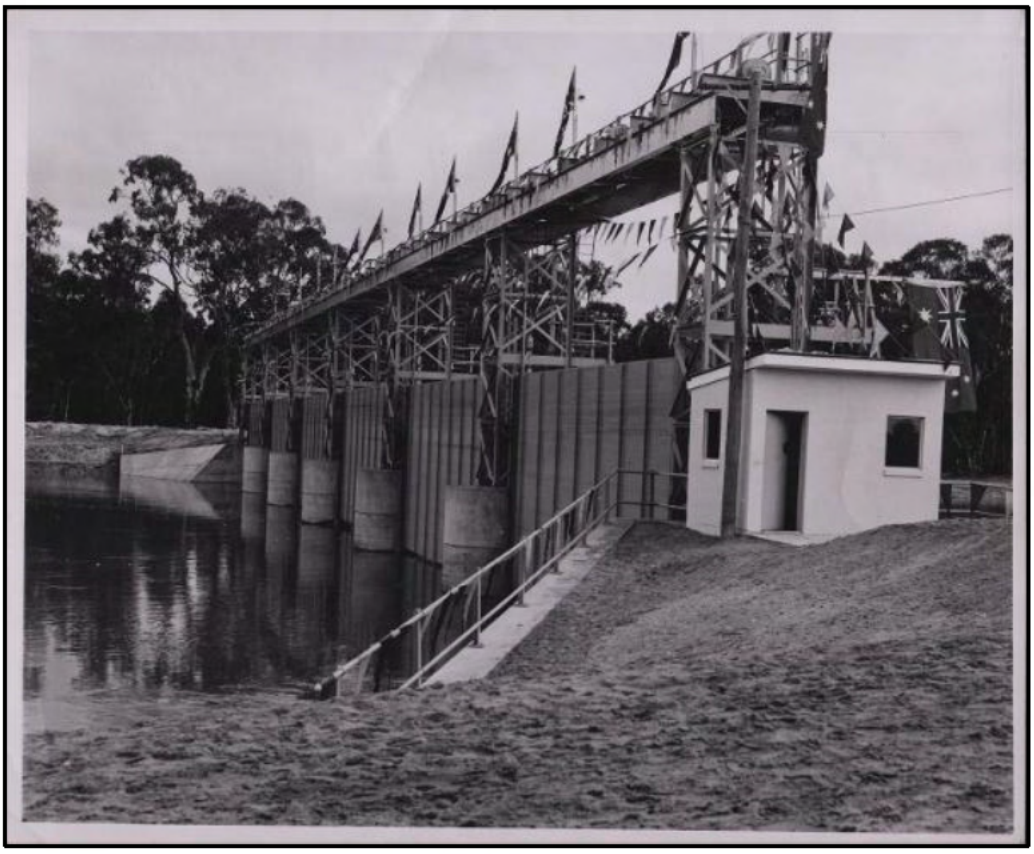

Figure 2-10 Gogeldrie Weir gates and control office viewed from northern bank facing west, n.d. (Source: Australian National University).

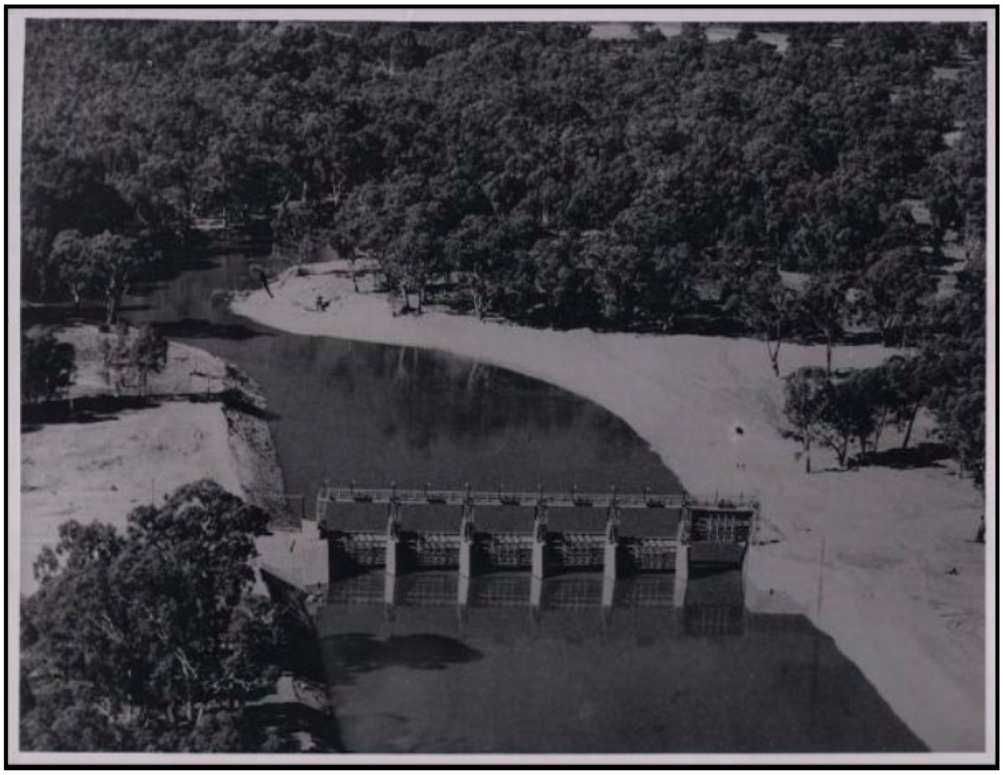

Figure 2-11 Aerial view of Gogeldrie Weir gates viewed facing east, n.d. Likely soon after completion as landscaping has not occurred. (Source: Australian National University).

A timeline of the key events in the history of Gogeldrie Weir are extracted from the CMP written by ACHM in 2015 (Table 2-1).

Table 2-1 Timeline of the key events in the history of Gogeldrie Weir.

Date	Event
1829	Sturt's party explores the Murrumbidgee.
1836	Mitchell follows part of the Murrumbidgee.
1846	Waste Lands Occupation Act. This Act gave significant opportunities to squatters to gain greater security of tenure. Also known as the Squatter's Act.
1848	The first runs were leased in the district.
1861	Crown Lands Alienation Act passed, better known as Robertson's 'Free Selection before Survey'. Settlers allowed to take up areas of 160 or 320 acres within existing runs under Conditional Purchase or Conditional Lease tenures.
1866	Public Works Department started establishing water supplies on western stock routes starting with wells on the stock route between the Lachlan and Darling Rivers.
1884	Land Act passed. 10 May 1884 Royal Commission on the Conservation of Water appointed.
1892-94	Water Conservation, Irrigation and Drainage Branch of the Public Works Department formed.
1903	Irrigation Trust formed.
1907-1928	Burrunjuck Dam completed at the headwaters of the Coleambally and Murrumbidgee Irrigation Areas. Gogeldrie and Yanco Irrigated.
1911	First canals dug within the Murrumbidgee Irrigation Area.
1912	Murrumbidgee Irrigation Area formally established.
1913	Water Conservation and Irrigation Commission (WCIC) replaced the Irrigation Trust.
1945	Soldier Settlement Scheme encourages irrigating of district after World War 2.
1949	Snowy Mountain Scheme begins construction.
1957	Gogeldrie Weir announced in Act of Parliament.
1959	Work on the Coleambally Irrigation Area. Gogeldrie Weir completed
1964	Landscaping and tree planting of adjoining lands (see Figure 2.5 and 2.7)
1968	Placement of stone spalling downstream of weir.

1972	Completion of Snowy Mountain Scheme.
1978	Blowering Dam completed.
1990	New rails and ladders.
1991	Additional decking and covers to improve safety.
1996	Gate control meter replaced by computerised control.
1997	Government privatises irrigation supply canals in Murrumbidgee Irrigation Area to Murrumbidgee Irrigation Limited.
2003	Addition to existing control room.
2004	Repairs to original control room, construction of addition to control room, addition of new guttering and drainage.
2018	Electric gear box on gate 2 (the southern side of weir) rebuilt due to failure of original
2020	Weir superstructure re painted

2.2.1 Previous physical changes

The subject site was constructed in 1957–59 on the Murrumbidgee River. The main electrical control panel was replaced in 1994. The original gate control meter was replaced by a computerised meter in 1996 (AssetReady 2023).

Other recorded modifications have been made to the main structure of the weir and include:

1. Original walkways were widened and extended across the entire span of the weir.
2. Gate mechanisms were automated in order to be operated remotely, as was the piezometer reading equipment.
3. As part of a 2004 upgrade the control room was extended to house the expansion of equipment and improve the operating conditions (ACHM, 2015).
4. The structure has been painted.

2.3 Physical description

2.3.1 Description

The SHR listing describes the site as follows:

> *The Gogeldrie Weir is one of seven major weirs on the Murrumbidgee River. It is approximately 63 kilometres downstream of Narrandera. The weir is 85.34 m (280') between abutments. The weir structure comprises concrete sill floor reinforced with steel sheet piling cut-off walls, the floor is surmounted by concrete piers and steel superstructure providing supports for the steel sluice gates. There are six gates each measuring 6.1 m (20') high and 12.2 m (40') wide, weighing 24 tonnes. The gates are opened individually by electric motors placed centrally between piers. The gates move vertically, and the counterweights drop into the counterweight wells allowed for in each of the concrete piers. The original gate control meter has been*

replaced by computerised meter in 1996. The weir provides a pool level suitable for the diversion of water from the Murrumbidgee River into Coleambally Canal supplying the Coleambally Irrigation Area, and via Coononcoocabil Lagoon into the Stuart Canal to supply part of the Murrumbidgee Irrigation Areas and associated irrigation districts. At full supply level, the weir holds 7,400 ML. The effective capacity of both canals for long term operation at about 5,500 ML per day.

2.3.2 Site Inspection

The site was inspected by Ms Sneha Kishnadwala and Dr Susan McIntyre-Tamwoy on the 10th April 2024. On inspection, the Gogeldrie Weir was found to be operational and fully functional. The above water components of the structure were fully accessible at the time of the inspection. Water NSW staff were on hand to provide access and explain the function of the structure. The lower gantry was traversed to the southern side (see Figure 2-13) and the area where the cranes would be assembled during the works was also inspected. On both the northern and southern banks the proposed crane locations are in area that have previously been built up and levelled on the side of the canal (see Figure 2-14 and Figure 2-17&. The upper gantry /walkway was also accessed so that the hoist drums and gear boxes could be viewed (see Figure 2-20 and Figure 2-21). There are 6 sets of these components, 5 of these are original, with one having been recently replaced due to mechanical failure. All 6 are proposed to be replaced with Rotork Actuators.

No inspection was undertaken of submerged sections or internal subterranean sections classified as restricted confined spaces. At the time of inspection the gates were partially open, and water was flowing rapidly through the sluice gates.

The entire structure is constructed in steel and reinforced concrete. Minor elements have been replaced over its lifespan to maintain its functionality. The metal structure has been recently painted. Figures from 2-13 to 2-28 depict the current condition of the weir.

The physical condition of the weir is good, however certain mechanical and electrical components are approaching end of life. Over the structure's lifespan, there have been additions, such as the gantry area on the top which now allows for easy access to the hoist drums and gear boxes, and the metal walkway along the weir connecting the north and south banks of the channel. The original control house remains but an extension has been added.

The weir is a six-bay open flow reinforced concrete undershot weir, of approximately 85 m in length across the cutting. The pylons are of concrete, rounded in form with a short upstream side and elongated downstream side. The six gates are large measuring 12.2 m wide and 6.1m high with a reinforcing structure attached to the downstream side to counteract the pressure from the weir pool. The gates are operated by a mechanised electric system (now automated), the gearbox for which is located on the top of the structure. The control house is located on the right abutment of the structure. The floor of the weir is concrete and has a fixed sill on the downstream. The channel is lined with rock to counteract erosion and wooden cribbing is located on the left downstream side (ACHM, 2015). This was first added in 1968 but has been added to over time following flood damage.

The structure has been painted several times (including recently) and regular maintenance have been undertaken. As per the structural and functional aspects, the WaterNSW mentions that the 'Majority of Electrical assets available at site are reaching or already reach their longevity and required to be replaced with new ones in compliance with WaterNSW standards' (AssetReady 2023).

Figure 2-12 View of control house and weir at the back facing south.

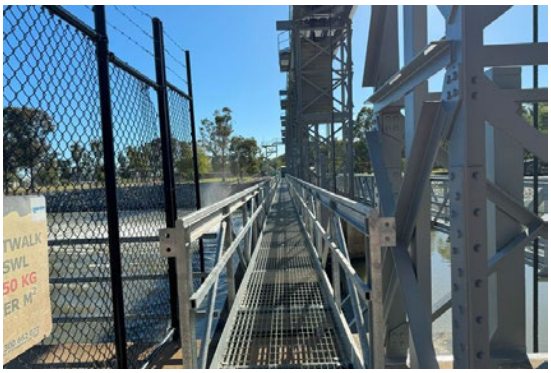

Figure 2-13 View of the lower walkway along the dam facing south.

Figure 2-14 View of Gogeldrie Weir facing north.

Figure 2-15 View of Gogeldrie Weir facing north.

Figure 2-16 View of Gogeldrie Weir and control house facing southwest.

Figure 2-17 View of Gogeldrie Weir and control house facing southeast.

Figure 2-18 View of electric control panels in the old control house to be replaced.

Figure 2-19 View of interior of the old control house.

Figure 2-20 Detail of electrical up drive gear box to be replaced.

Figure 2-21 Detail of hoist drum bearing.

Figure 2-22 View of the northern bank of Murrumbidgee River facing west.

Figure 2-23 View of the northern bank of Murrumbidgee River facing east. The general location for a trench (to house electrical cables) to be constructed as a part of proposed works.

Figure 2-24 View of the Gogeldrie Weir Camp area facing northeast. This location is proposed for temporary setup/laydown area and a trench.

Figure 2-25 View of the Gogeldrie Weir Camp area facing northeast. This location is proposed for temporary setup/laydown area and a trench.

Figure 2-26 Gogeldrie Weir Plaque. Included on the plaque is the Water Resources Commission Seal, Original opening plaque (29 July 1959) Acknowledging the Water Resources Commission assuming control of the weir in April 1975, and a 50- year celebratory plaque (25 July 2009).

Figure 2-27 View of the lower walkway along the Gogeldrie Weir facing north.

3. SIGNIFICANCE ASSESSMENT

3.1 Statement of Significance

The Gogeldrie Weir is listed under the SHR as item no. SHR00961 as an item of State significance. The site is also listed under the WaterNSW S170 Heritage and Conservation Register. It states:

> *Gogeldrie Weir is associated with the Coleambally Irrigation Area and also part of the Murrumbidgee Irrigation Area. It is a major component in the Coleambally Irrigation Scheme being the diversion weir that controls and diverts water from the Murrumbidgee River to the Coleambally area. The weir is a landmark in the region* (SHI, 2012).

While the subject site has been determined to meet the threshold for state significance the SHR listing does not record an assessment against the current standard Heritage criteria. This heritage item was originally assessed prior to 1999 before the assessment against standard criteria became mandatory. In 2015 as part of the development of the conservation management plan (ACHM 2015), a more detailed statement of significance was adopted.

The following statement of significance is extracted from the Conservation Management Plan (CMP), 2015 by Australian Cultural Heritage Management:

> *Gogeldrie Weir is a significant feature within the New South Wales water storage system and forms an integral part of the operation of the Murrumbidgee Irrigation Scheme. The continued use of the place and its significant items contributes to the significance of the place. The current setting, adjoining the Gogeldrie Weir Park, enhances the setting of the place, allowing for continued visitation and utilisation of the social significance of the place. Gogeldrie Weir is a landmark in the region and is one of seven major weirs on the Murrumbidgee River.*
>
> *The built structures are the primary contributor to the heritage significance of the Gogeldrie Weir. This includes a number of features constructed from 1957–59, with later additions, repairs, and upgrades as technology and the water needs for the region changed over time. The construction of Gogeldrie Weir represented a major expansion of the Murrumbidgee Irrigation Scheme. Construction of the weir allowed people of the region to exercise additional control over water resources and ensuring that water from the Snowy Scheme was captured and could be made available in a reliable way for agricultural use. The Gogeldrie Weir plays an important role in the overall operation of the wider irrigation system throughout the region, specifically in controlling water diversion into Coleambally Canal to supply the Coleambally Irrigation Area. Irrigated agriculture is a major economic driver of the region.*
>
> *Gogeldrie Weir meets a number of heritage significance criterion, including Historic, Scientific, Aesthetic, Social and Representativeness. The weir itself, and the objects that control of the water within it, form an important feature of the surrounding cultural landscape and of the wider Murrumbidgee Irrigation Area, and state of NSW.*

The standard criteria were applied although the assessment details are not provided. The CMP concludes that the Gogeldrie weir is of significance in terms of Criterion a) Historical Significance, Criterion c) Scientific Significance, Criterion d) Social Significance and Criterion g) Representativeness. Appended to the CMP (ACHM 2015) is an extract from an earlier report (Austral 2003). That extract does include a statement against criteria a) c) d) and g) (although not f). However, in neither case is detail provided regarding the specific values that demonstrate these criteria and the issue of 'threshold' is not discussed i.e. in what way are each of the values above or below the threshold for State significance rather than local significance. For this reason, this current assessment has considered the relevant criteria again and the outcome is provided below in Table 3.1.

Overall, the site is in good condition and is an important structure testifying to the history of water storage and irrigations systems in NSW from the early 1960s. There are minor elements that have been changed however, the site remains authentic in its use, engineering and history.

3.2 Significance of the Gogeldrie Weir

The assessment of the subject area using the *Guidelines for Preparing a Statement of Heritage Impact* for preparing a statement of heritage impact (DPE, 2023) is shown in Table 3-1. It is noted that while many places may meet the threshold in relation to more than one criterion: a heritage item only needs to meet the threshold of State significance against one criterion to be considered an Item of State Heritage.

As part of the current assessment of potential impact we have reviewed the criteria and considered the matter of threshold. It should be noted however that this was done without undertaking a detailed comparative analysis of all similar heritage items in NSW but rather relied on the historical and physical information included in the state heritage inventory, the CMP and form physical observation. The results are summarised in Table 3-1.

Table 3-1 Assessment of Gogeldrie Weir subject area for statement of heritage impact.

Criteria	**Assessment**
Criteria a) Historical Significance	The subject site was constructed in 1959 and is an important element of the water storage and irrigation system in NSW, making it historically significant. It represents the last of the government's major water storage and management systems and completed the irrigation system in the Riverina area. The weir is a central component of the Coleambally Irrigation Area (CIA) and has been in continuous operation since its construction. This weir and the CIA enable the expansion of intensive farming into the Coleambally area south of the Murrumbidgee. **The item meets the threshold for state significance under this criterion.**
Criteria c) Aesthetic Significance	The subject site is aesthetic from an engineering perspective. The steel structure is a landmark in the region. The item within its created channel and waterway is aesthetically pleasing and a draw card for the associated recreational camping ground. The item meets the threshold for **local significance** under this criterion.
Criteria d) Social Significance	The subject site is a local landmark within the area. It is a focus of social gatherings and holidaymakers at the Riverside recreation park and campground area on its northern bank. The item meets the threshold for **local significance** under this criterion.
Criteria e) Research Significance	The subject site has some potential for research for its engineering designs from 1958- 1959. It is best considered as part of an ambitious engineering project to harness the regulated flows from the Snowy Scheme and the Blowering Dams to facilitate the development and expansion of intensive farming south of the Murrumbidgee. Its research significance relies on its role as a component of an engineered irrigation system and landscape. **The item meets the threshold for local significance under this criterion.**

	Caution: the research value of the combined components of the MIA and CIA system i.e. as an engineered waterscape are likely to be greater than the individual components when assessed in isolation. This criterion warrants further consideration as the comparative assessment required is outside the scope of the current brief.
Criteria f) Rare Significance	The subject site is one of the original weirs constructed as a part of Coleambally Irrigation Area which is part of the Murrumbidgee Irrigation System. This was the last large irrigation project of its type in NSW. Collectively the physical components of this system are part of a rare large scale engineered water management/agricultural landscape. **The item meets the threshold for state significance under this criterion**
Criteria g) Representativeness	The subject site is representative of the variety of weirs and the water management options used in the Riverina to promote intensive agriculture. It is integral part of Murrumbidgee Irrigation Scheme. **The item meets the threshold to state significance under this criterion**.
Integrity/Intactness	The subject site is authentic in its function and use. It is intact and has been well maintained. It continues to fulfil its original function as an integral part of the irrigations system in the Riverina.

4. PROPOSED WORKS

4.1 The Proposal

The primary objective of this project is to undertake electrical and drive replacement works at Gogeldrie Weir in the Murrumbidgee valley to reduce safety and reliability risks at this facility in accordance with the WaterNSW Risk Management Policy, relevant WHS legislation, Asset Class Strategies and standards.

WaterNSW, have advised that these electrical and mechanical components have already reached, or are reaching, their end of life and need to be replaced to ensure the continued operation of the weir.

The scope of works listed includes the following:

- Decommissioning and removal of the existing Automatic Transfer Switch (ATS).
- Decommissioning and removal of the two existing PLC panels.
- Decommissioning and removal of the existing gate cables from switchboard.
- Decommissioning and removal of six existing actuators (HOS4101 to HSO4106).
- Decommissioning and removal of six existing gate motor Local Control Panel (LCPs).
- Decommissioning and removal of existing slack rope switches.
- Decommissioning and removal of existing Cathodic Protection panel.
- Decommissioning and removal of existing overtravel limit switches.
- Supply, installation, Factory Acceptance Test (FAT), Site Acceptance Test (SAT) and commissioning of new form 4b switchboard inclusive of Main light and power DB, RTS (Socomec ATyS d M 100A) and Gate control starter panel.
- Supply, installation, FAT, SAT, and Commissioning, of new LCP panel. Supply, installation, FAT, SAT, and Commissioning, of new 24VDC UPS panel & 24VDC batteries.
- Supply, installation, FAT, SAT, and commissioning of six (6) new Rotork Actuators (IQ3 series).
- Supply, installation, FAT, SAT, and commissioning of power, control, instrument, & communication (if any) cables as detailed in the cable schedule.
- Supply, installation, FAT, SAT, and commissioning of sea-saw lighting poles and fixtures assemblies for walkway & stairs.
- Supply, installation, and commissioning of new HDG conduits off from the main cable tray towards each actuator.
- Supply, installation, and commissioning of new underground conduits and pits from the control room towards existing level transmitters.

This includes the replacement of the current gear boxes shown in Figure 2-20 that drive the cable hoist (Figure 2-21) which are the mechanisms that wind the cable that opens each sluice gate. The proposed actuator is shown in position in Figure 4-2. The combined electrical upgrade works are illustrated in Appendix A.

For these works, WaterNSW needs to install cranes, excavate a trench running parallel to the existing fence line and waterway for the installation of cables, and prepare a setup area on the northern side i.e. recreational campground side within the heritage curtilage as shown in Figure 4-1.

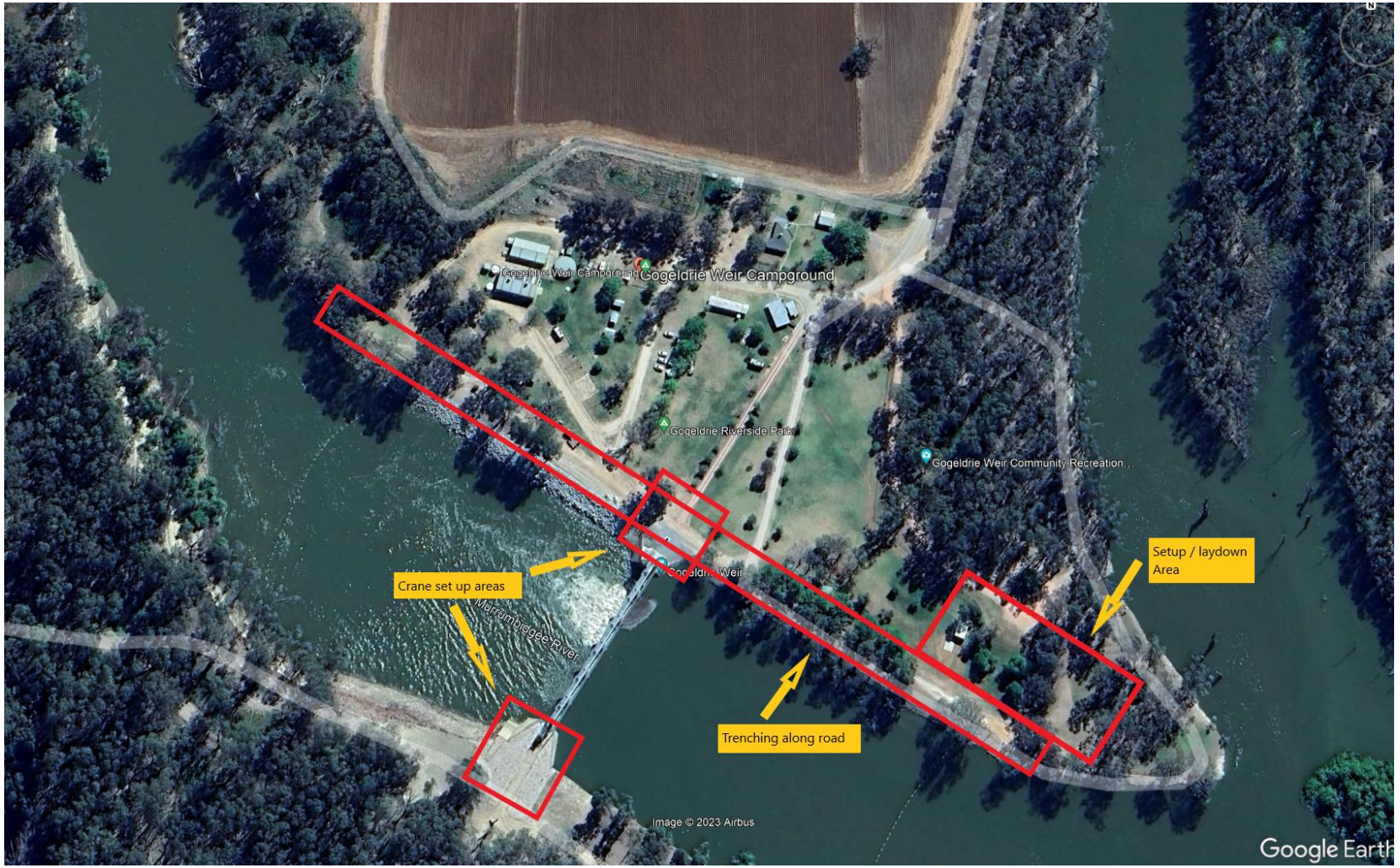

Figure 4-1 Gogeldrie Weir Electricals Renewals Survey Area (Source: WSP).

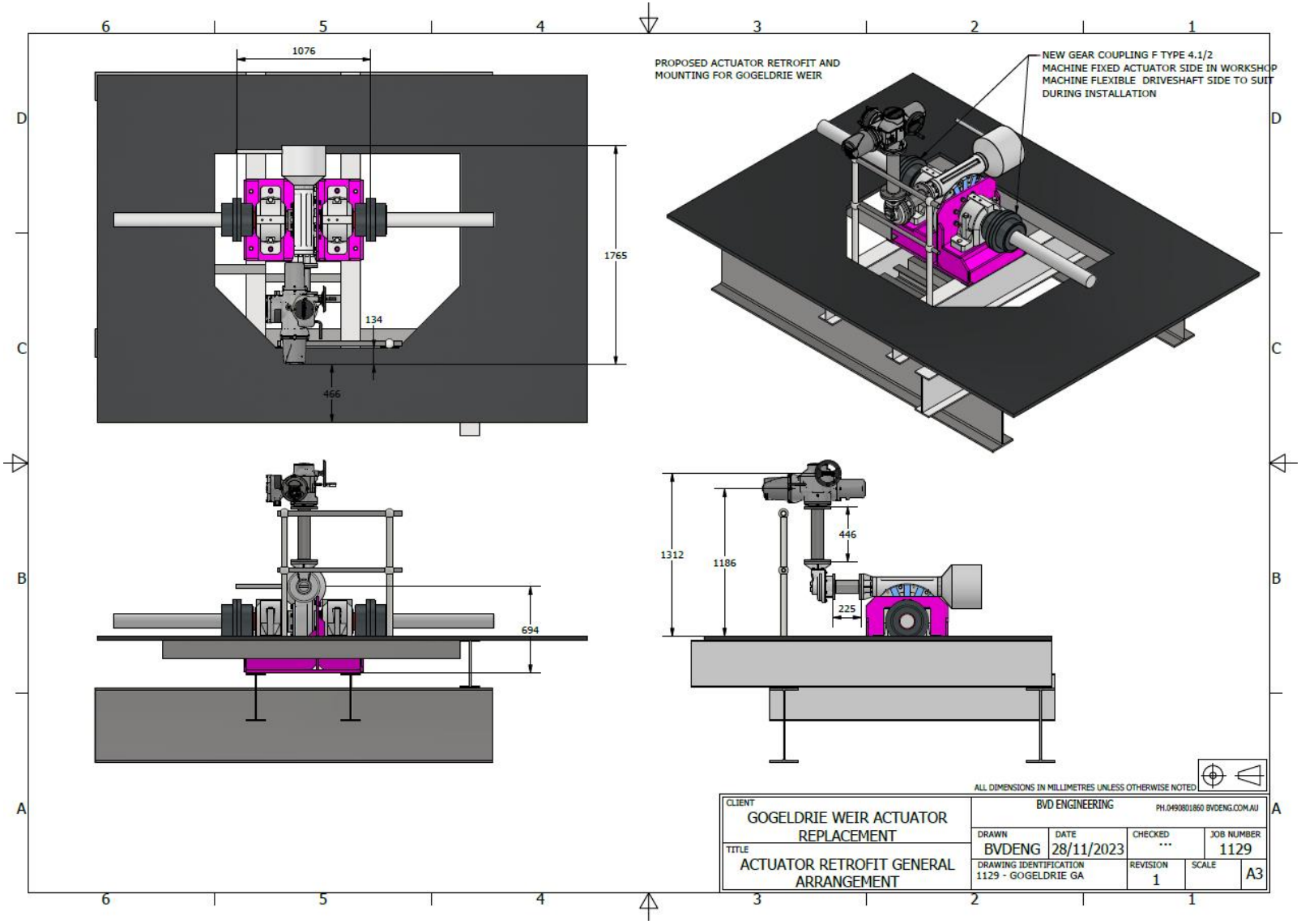

Figure 4-2 This image shoes the proposed actuator that will be retrofitted in place of the current gear mechanism that drives the cables that open the gates of the weir.

5. HERITAGE IMPACT ASSESSMENT

The CMP for the heritage item includes a policy on the replacement of materials:

> *Policy 7: Where required, material in poor condition may be replaced in a like-for-like manner (i.e. with new materials to match the old). When replacing non-original fabric, reversion to the original is preferred. Where this is not possible, new material should be chosen carefully and applied sensitively in order to minimise impact on the heritage place.*

The proposal is not compliant with Policy 7 of the CMP. Water NSW advises that the replacement of the hoist components with others of the same or similar design was considered on a previous similar project but was determined to be unfeasible for the following reasons:

- Safety: The current machine guarding is inadequate, and use of the original design would result in it continuing to be inadequate which is a safety issue. The proposed conversion would align with similar upgrades at other sites.
- Standardization: Standardizing with other sites simplifies control systems, making fault-finding easier.
- Efficiency: Actuators are off-the-shelf items that can be procured and replaced quickly, reducing return-to-service times.

Renewing the motors is necessary to comply with the Asset Class Guidelines, which mandate that electrical equipment should be renewed after 40-50 years of service. Although the motors are of good quality construction, their age means they have a different frame size compared to modern equivalents. Sourcing spare motors of this size would be difficult and costly. Additionally, significant work would be required if a motor fails in the future, making refurbishing the existing motors not a viable option.

Policy 12 and 16 are also relevant to the currently proposed works.

> *Policy 12: Original details and finishes must be recorded prior to any major refurbishment/alterations.*
>
> *Recording should be undertaken by a heritage professional and in accordance with the NSW Heritage Branch guidelines 'How to Prepare Archival Records for Heritage Items, 1998), and a copy submitted to the WaterNSW Head Office.*
>
> *Records relating to the history of the place should be centralised and stored in a way so as to prevent deterioration. Storage of items off site or away from WaterNSW offices (e.g. in the Local history museums or libraries) should be recorded centrally.*

To comply with this policy an archival recording should be undertaken to document the proposed changes. As the heritage item ages, and technology changes it is likely that to maintain economic and sustainable functionality Water NSW will need to carry out works of a similar nature in the future. The process of archivally recording these changes is essential to maintain the historical values for which the heritage item is listed. Overtime the archive becomes an important component of the heritage property and will contribute to maintaining and supplementing the values under Criterion C.

> *Policy 16: Opportunities to interpret the heritage assets and to promote and encourage use of the place should be exploited.*
>
> *New interpretive signage should be installed at Gogeldrie Weir with reference to the heritage value of the place, including its history (construction date, purpose, importance to the local area) form and function. Historic photos may also be used (where relevant).*

Change provides an opportunity to assess the way the site, its history and changes over time are interpreted to the public. Currently, despite the weir being a feature of the adjacent recreation park there is little information on its heritage significance available to visitors.

5.1 Matters of consideration

5.1.1 Are the works proposed to a heritage item or in the vicinity of a heritage item?

The works proposed are to the SHR listed heritage item # SHR00961 Gogeldrie Weir. There are no other heritage items in the vicinity.

5.1.2 Fabric and spatial arrangements

The proposed works will have no impact on the spatial arrangements.

The most significant component of the fabric of weir to be replaced are the drum hoist and associated gear drives. These original mechanical items are nearing end of life, and one has failed in recent years. Although we have been informed that the original manufacturer still exists, we note that the replacement is with Rotork Actuators rather than new items of identical design.

As noted in section 3 the statement of significance in the CMP states that

> *The built structures are the primary contributor to the heritage significance of the Gogeldrie Weir. This includes a number of features constructed from 1957-59, with later additions, repairs, and upgrades as technology and the water needs for the region changed over time*. (ACHM 2015:28)

Changes in operational industrial heritage items are common, if function is to be maintained. Recognising this while having identified the physical structure and fabric as primary contributors to significance, Policy # 7 of the CMP recommends that where components/fabric must be replaced that these are replaced with materials/items of the same design and materials has been considered. In the case of the replacement of the original drum hoist and gear drives with Rotork actuators it is not feasible to replace them with identical components as noted above (see Section 5).

The proposed changes, particularly the replacement of the gears that drive the cables that raise the sluice gates with Rotork actuators is a notable impact on original fabric and not compliant with Policy #7 in the CMP. To safeguard the integrity of the heritage item, the proposed changes will be clearly documented through a photographic record to maintain an accurate record of the history of the heritage item through its life cycle (in compliance with Policy #12).

5.1.3 Setting, views and vistas

While the temporary installation of cranes on both ends of the weir and laydown/setup area will have a temporary impact on the setting, views and vistas; the proposed works will have no long-term impact on the setting, views and vistas.

5.1.4 Landscape

These are no heritage listed trees or cultural landscapes. Apart from the temporary installation of crane son either side of the weir structure while works are occurring there will be no impact to the views or setting of the heritage item.

5.1.5 Use

There is no change of use to the heritage item. The proposed works will ensure the continued operation of the heritage item.

5.1.6 Demolition

The proposed works do not include demolition. However, there will be removal and replacement of components as described in proposed works (see section 4).

5.1.7 Curtilage

The proposal includes the installation of temporary cranes, trenching and a laydown area within the heritage curtilage. The cranes will be removed following installation and any disturbance form trenching rehabilitated.

5.1.8 Moveable heritage

To some extent the replaced components may be considered movable heritage once disconnected from the structure. The components are integral to the function of the weir and are not usually visible to the public as they are located on the upper gantry/walkway. Interpretation should consider the rationale for and history of construction of the weir, its role in the overall irrigation system. It should explain the original drawings, provide an overview of the removed components and rationale for original choice and subsequent replacement. All changes should be recorded through an archival recording including before and after photos, plans and documentation.

5.1.9 Aboriginal cultural heritage

There are no identified Aboriginal sites on the subject site, and it is noted that the waterway is an artificial channel constructed as part of the irrigation system. WaterNSW have advised that they have completed a separate Aboriginal Due Diligence assessment which has identified a previously unrecorded Aboriginal object in the vicinity that will not be impacted by the proposed works.

5.1.10 Historical archaeology

There is a low likelihood of archaeological deposits associated with the heritage item.

5.1.11 Natural heritage

The site is not listed for its natural heritage values. There is no impact on the natural heritage.

5.1.12 Conservation areas

The subject site is not within a conservation area.

5.1.13 Cumulative impacts

Over time it is inevitable that the component parts of industrial items such as the Gogeldrie weir, will be replaced if its original function is to be maintained. The cumulative impacts, therefore, need to be documented to ensure that a history of the item and changes to it over time are recorded.

5.1.14 Other heritage items in the vicinity

There are no heritage items in the vicinity to be impacted.

5.2 Statement of Heritage Impact

The proposed works involve replacement of the six drive gear boxes, electrical renewals, and installation of temporary cranes and a laydown/setup area (see section 4 and Appendix B). These works are necessary to reduce safety and reliability risks and ensure the ongoing functionality of the weir. The continued mechanical operation is essential to the weir's purpose and therefore essential to the heritage significance of the item.

The proposed works will have some impact on the heritage significance of Gogeldrie Weir. The primary significance of the weir lies in its history and continuing function as part of the CIA and extended MIA along with its impetus in the creation of the settlement of Coleambally and surrounding farmlands. The weir is also significant as an integral component of the ambitious engineering project to irrigate inland NSW. The works should be photographically documented to record the elements being replaced.

The works will impact original fabric and are non-compliant with Policy #7 of the CMP. The latter policy specifies replacement of like with like in any refurbishment works. Nevertheless, the works as proposed will ensure that the historical heritage item maintains its functionality and continues to serve the purpose for which it was built. Archival recording of the changes and improved interpretation at the site which explains its history engineering, role in the irrigation scheme, and changes over time, would also mitigate any impact to fabric by encouraging the retention and appreciation of the historical values of the heritage item.

6. SUMMARY AND RECOMMENDATIONS

The proposed works are necessary to ensure the ongoing functionality of the weir in accordance with the WaterNSW Risk Management Policy, relevant WHS legislation, Asset Class Strategies and standards. The continued mechanical operation is essential to the weir's purpose and therefore essential to the heritage significance of the item.

The proposed works will have minimal impact on the historical values of Gogeldrie Weir, they will however have moderate impact on the engineering values of the structure as they involve the replacement of original components with new components of different design.

In carrying out this assessment it was noted that there is no detail in the SHR listing regarding the specific heritage values of Gogeldrie weir that should be managed and conserved. The CMP provides policies that are designed to assist in the management of the property and should inform repair and replacement projects. The CMP is a useful document to include in future works documentation provided to the relevant engineering contractors to ensure that relevant policies may be considered.

Both the SHR entry and the CMP should be updated to include assessment against the specific criteria (see Table 3-1). This will provide clearer direction on the heritage values of the property that must be managed and safeguarded. Given that the proposed works to this state significant item are outside the parameters of general maintenance and are not compliant with Policy 7 in the CMP a s60 permit will be required before the works can proceed.

It is recommended that:

- An application under s60 of the Heritage Act, NSW is submitted, accompanied by this Statement of Heritage Impact.
- An archival recording shall be conducted before, during and after the replacement of the component parts (in compliance with Policy# 12 of the CMP). This documentation shall also include the original drawings for the structure and before and after photographs of all changes. The document should be added to the listing information and be a permanent archive.
- While archaeological deposits associated with the weir are considered unlikely the Water NSW unexpected finds protocol should be followed.

7. REFERENCES

ACHM 2015 Conservation Management Plan Gogeldrie Weir. WaterNSW.

Austral Archaeology 2003 Heritage Assessment of 304 River Structures Southern Region and 36 River Structures Northern Region for Section 170 Heritage and Conservation Register Volume 3 Southern New South Wales Structures D-G. A report for Department of Land & Water Conservation State Water. [Extract included as Appendix 8.1 in ACHM 2015].

Australian Cultural Heritage Management (ACHM). 2015. *Conservation Management Plan, Gogeldrie Weir.* WaterNSW.

Australia ICOMOS. 2013. *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance*. Burwood, Victoria.

AssetReady, 2023. *Gogeldrie Weir Electrical Upgrade Installation Scope of Work for Contractor.* WaterNSW.

NSW Department of Planning and Environment (DPE) 2023. *Guidelines for Preparing a Statement of Heritage Impact.*

State Water Heritage Inventory, s170. 2012. *Gogeldrie Weir.* WaterNSW.

Video

'Gogeldrie Weir and Coleambally Channel Construction in 1960s' images by Henry George Gardner and narrated by John Gardner. https://youtu.be/0R4KF_56K_E?si=1cnpcmY6ux_pua7X

Appendix A Gogeldrie Weir Electrical Upgrade Works Drawings

LAYOUT PLAN
SCALE 1:1000

SCALE 1:1000 10 0 10 20 30 40 50

FACILITY NAME:	GOGELDRIE WEIR
LOCATION CODE:	WWRGOG
DISCIPLINE:	ELECTRICAL
DRAWING TYPE:	GENERAL ARRANGEMENT
DRAWING STATUS:	FOR CONSTRUCTION
PLOT DATE:	6/10/2023 1:09:27 PM

ASSETREADY
A WSP & SMEC Joint Venture

REVISION	DETAILS OF AMENDMENT	CHK'D	DATE
0	ISSUED FOR CONSTRUCTION	AZ	6/10/23

DRAWN	31/03/2023	SCALES	SHEET SIZE
NEIL COOK		1:1000	A1
DESIGNED	31/03/2023	FILE NO.	REPORT NO.
NEIL COOK		F2023/xxxx	
CHECKED	31/03/2023	APPROVED	JOB/PROJECT NO.
ALIREZA ZOHOORI		CHRIS WATTS (POSITION)	D2023/122550

WaterNSW

GOGELDRIE WEIR
ELECTRICAL UPGRADE WORKS
SITE LAYOUT
ELECTRICAL EQUIPMENT LOCATIONS

REV.	PLAN NO.
0	PL2022/1469
	SHEET 1 OF 1
	122550-DEL-DWG-045

DRAWING FILE LOCATION / NAME C:_AV-WaterNSW_Projects\WP-D2022_122550 Gogeldrie Weir\7-DWG\01 Electrical Drawings\PL2022-1469.dwg

GOGELDRIE WIER

FACILITY NAME:	GOGELDRIE WEIR
LOCATION CODE:	WWRGOG
DISCIPLINE:	ELECTRICAL
DRAWING TYPE:	GENERAL ARRANGEMENT
DRAWING STATUS:	FOR CONSTRUCTION
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ASSETREADY
A WSP & SMEC Joint Venture

REVISION	DETAILS OF AMENDMENT	CHK'D	DATE
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DRAWN 6/06/2023 NEIL COOK	SCALES NTS	SHEET SIZE A1	
DESIGNED 6/06/2023 NEIL COOK	FILE NO. F2023/xxxx	REPORT NO.	
CHECKED 6/06/2023 ALIREZA ZOHOORI	APPROVED CHRIS WATTS (POSITION)	JOB/PROJECT NO. D2023/122550	

WaterNSW

GOGELDRIE WEIR
ELECTRICAL UPGRADE WORKS
WEIR LAYOUT
ELECTRICAL EQUIPMENT LOCATIONS

REV.	PLAN NO.
	PL2022/1470
	SHEET 1 OF 2
0	122550-DEL-DWG-046

DRAWING FILE LOCATION / NAME C:__AV-WaterNSW_Projects\WP-D2022__122550 Gogeldrie Weir\7-DWG\01 Electrical Drawings\PL2022-1470.dwg

LAYOUT PLAN
SCALE 1:1000

SCALE 1:1000 10 0 10 20 30 40 50

LEGEND

- CABLE PIT
- JUNCTION BOX
- NEW UNDERGROUND CABLE RUN TRENCH TYPE A

REFER TO CD2021/109 WATERNSW ELECTRICAL WORKS DESIGN & INSTALLATION STANDARD

NOTES:

1. REFER TO DRAWING PL2022/1472 FOR TRENCH SPECIFICATION AND CROSS SECTIONS
2. PITS SHALL BE CONCRETE WITH CONCRETE INFILL STEEL "GATIC" STYLE COVERS. PITS ARE TO BE CAPABLE OF WITHSTANDING INCIDENTAL LIGHT VEHICLE AND FARM EQUIPMENT TRAFFIC WITH A WHEEL LOAD OF LESS THAN 6000KG AT 40KM/H
3. PITS SHALL INCLUDE DRAINAGE POINT THAT DRAINS TO A RUBBLE FILLED ABSORPTION TRENCH.
4. MINIMUM PIT DIMENSIONS:
   FOR USE WITH TRENCH TYPE A: 600L X 300W X 900D
   IF 50mm ϕ CONDUIT IS INSTALLED PITS SHELL BE INSTALLED EVERY 100m, ALTERNATIVELY IF 100mm ϕ CONDUIT IS INSTALLED PITS ARE ONLY REQUIRED AT EACH END OF THE RUN.
5. BRASS CABLE MARKERS TO BE PLACED AT PIT EDGES WHERE CABLES EXIT. MARKERS TO INDICATE DIRECTION OF RUN VIA ARROWS AND DISTANCE TONEXT PIT / MARKER
7. ALL FINAL INSTALLED CONDUITS AND PITS TO BE SURVEYED AND THE SURVEY FILES DELIVERED TO WATERNSW.
8. EXISTING CABLE ROUTES SHOWN ARE ESTIMATED AND INCLUDED FOR INFORMATION ONLY. ADDITIONAL BURIED SERVICES ARE KNOWN TO EXIST IN THE VICINITY OF ALL NEW ROUTES AND ARE NOT SHOWN HERE
9. APPROX LOCATIONS OF EXISTING SENSORS ONLY.
10. SENSORS TO BE INSTALLED AS PER DRAWING PL2023-681.

FACILITY NAME:	GOGELDRIE WEIR
LOCATION CODE:	WWRGOG
DISCIPLINE:	ELECTRICAL
DRAWING TYPE:	GENERAL ARRANGEMENT
DRAWING STATUS:	FOR CONSTRUCTION
PLOT DATE:	6/10/2023 1:09:49 PM

ASSETREADY
A WSP & SNEC Joint Venture

REVISION	DETAILS OF AMENDMENT	CHK'D	DATE
0	ISSUED FOR CONSTRUCTION	AZ	6/10/23

DRAWN	6/06/2023	SCALES	SHEET SIZE
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DESIGNED	6/06/2023	FILE NO.	REPORT NO.
NEIL COOK		F2023/xxxx	
CHECKED	6/06/2023	APPROVED	JOB/PROJECT NO.
ALIREZA ZOHOORI		CHRIS WATTS	D2023/122550
		POSITION	

WaterNSW

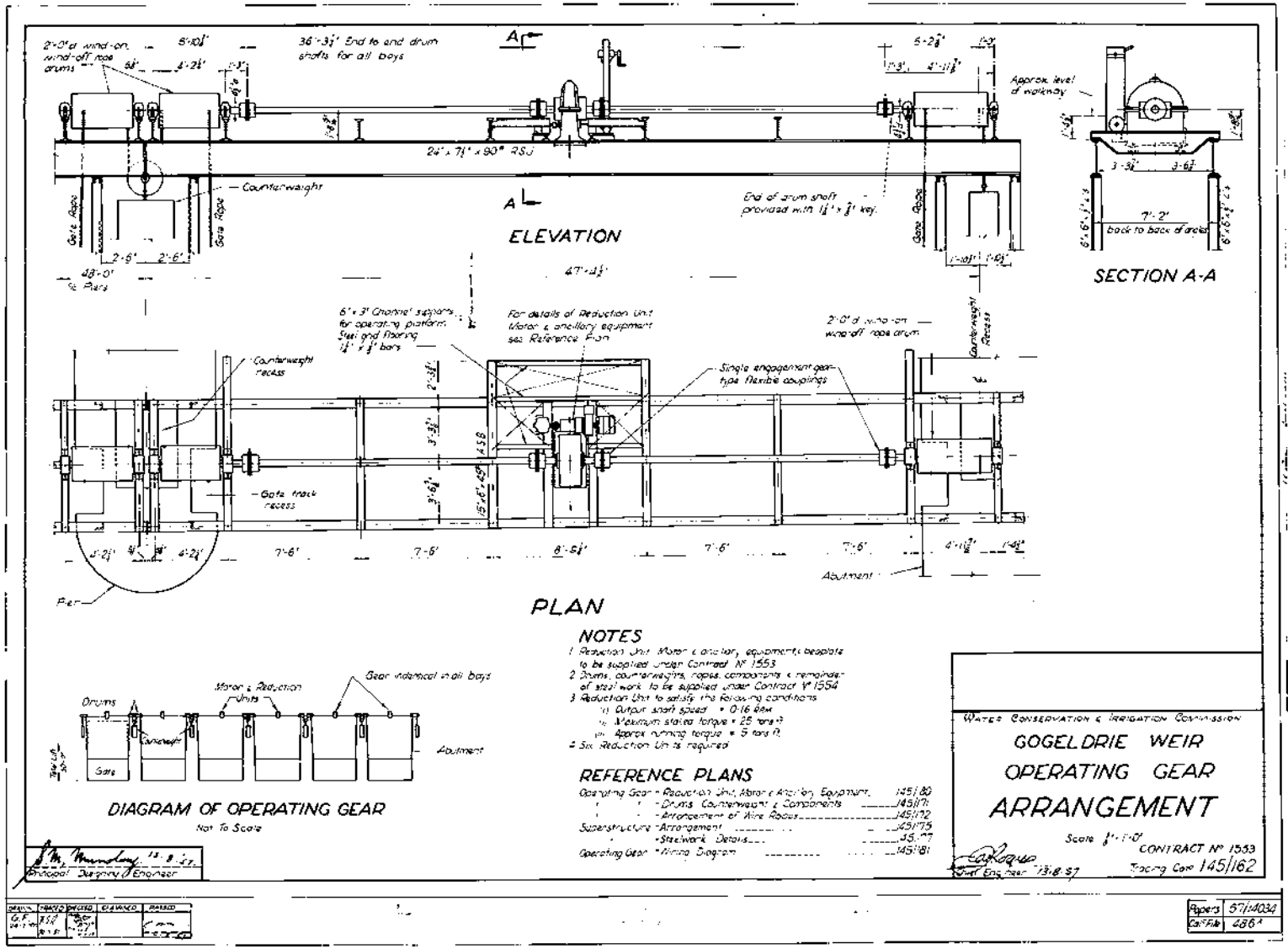
GOGELDRIE WEIR

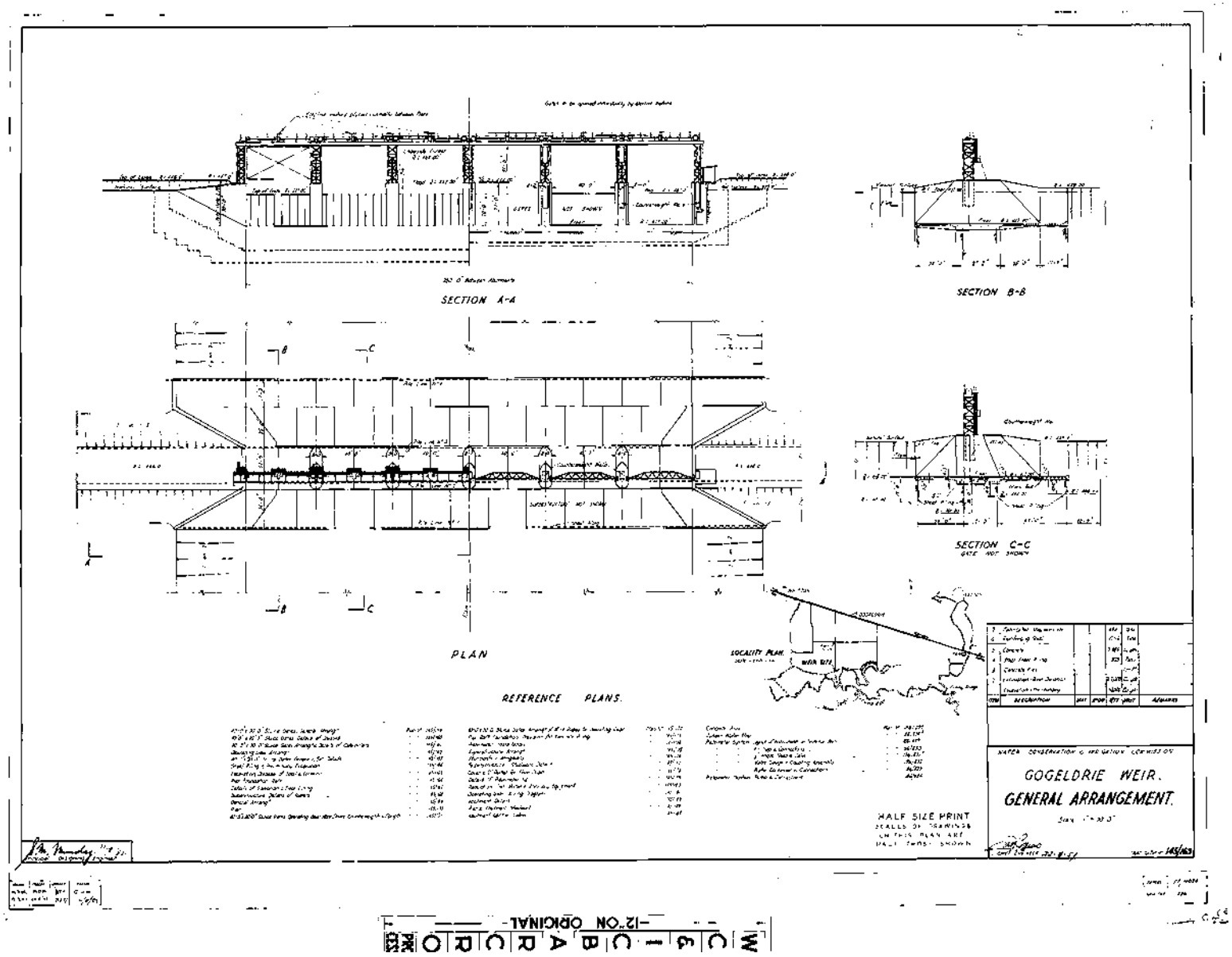
ELECTRICAL UPGRADE WORKS
NEW CONDUIT ROUTE AND TRENCH DETAILS
SHEET 1 OF 2

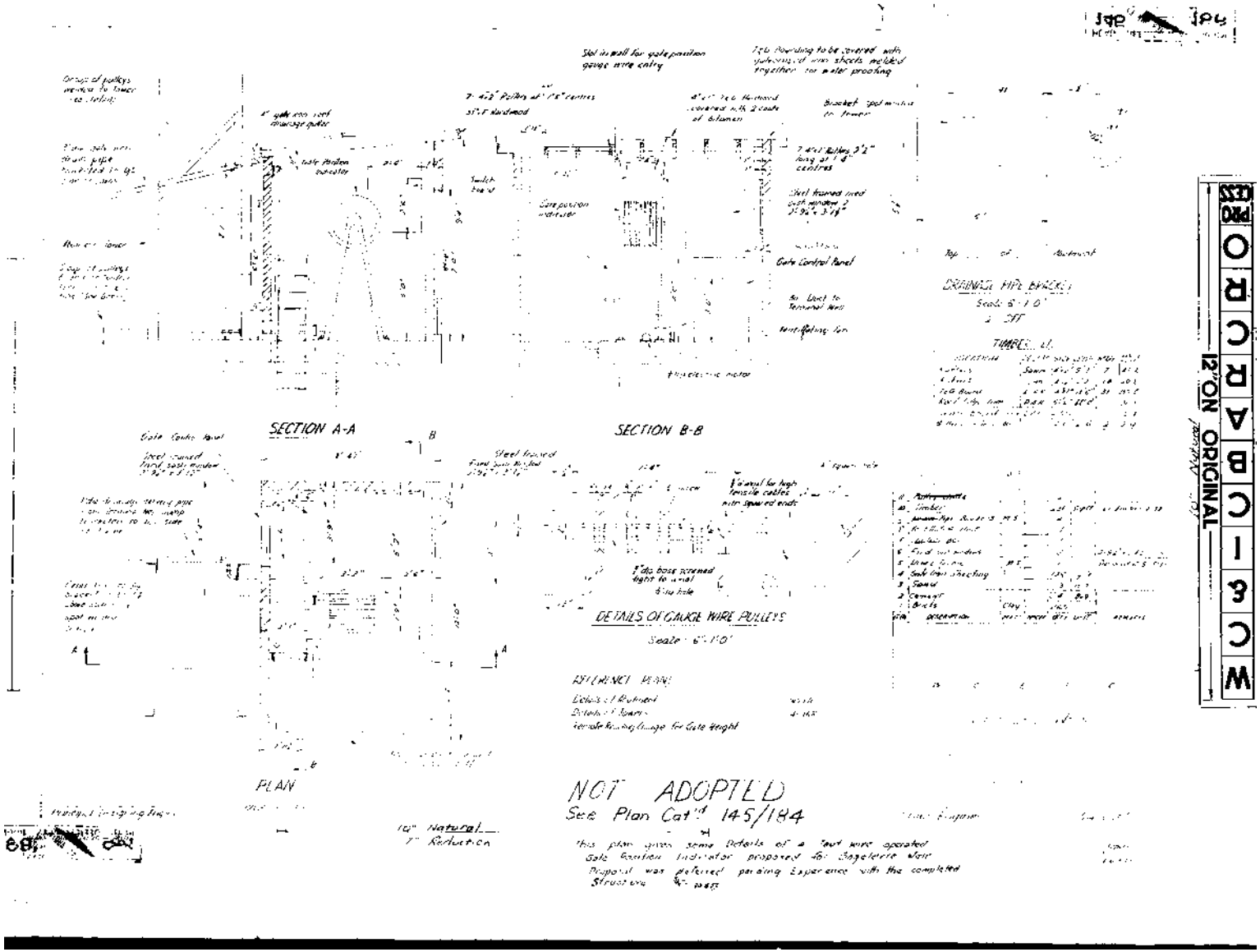
REV.	PLAN NO.
	PL2022/1472
	SHEET 1 OF 2
0	122550-DEL-DWG-048

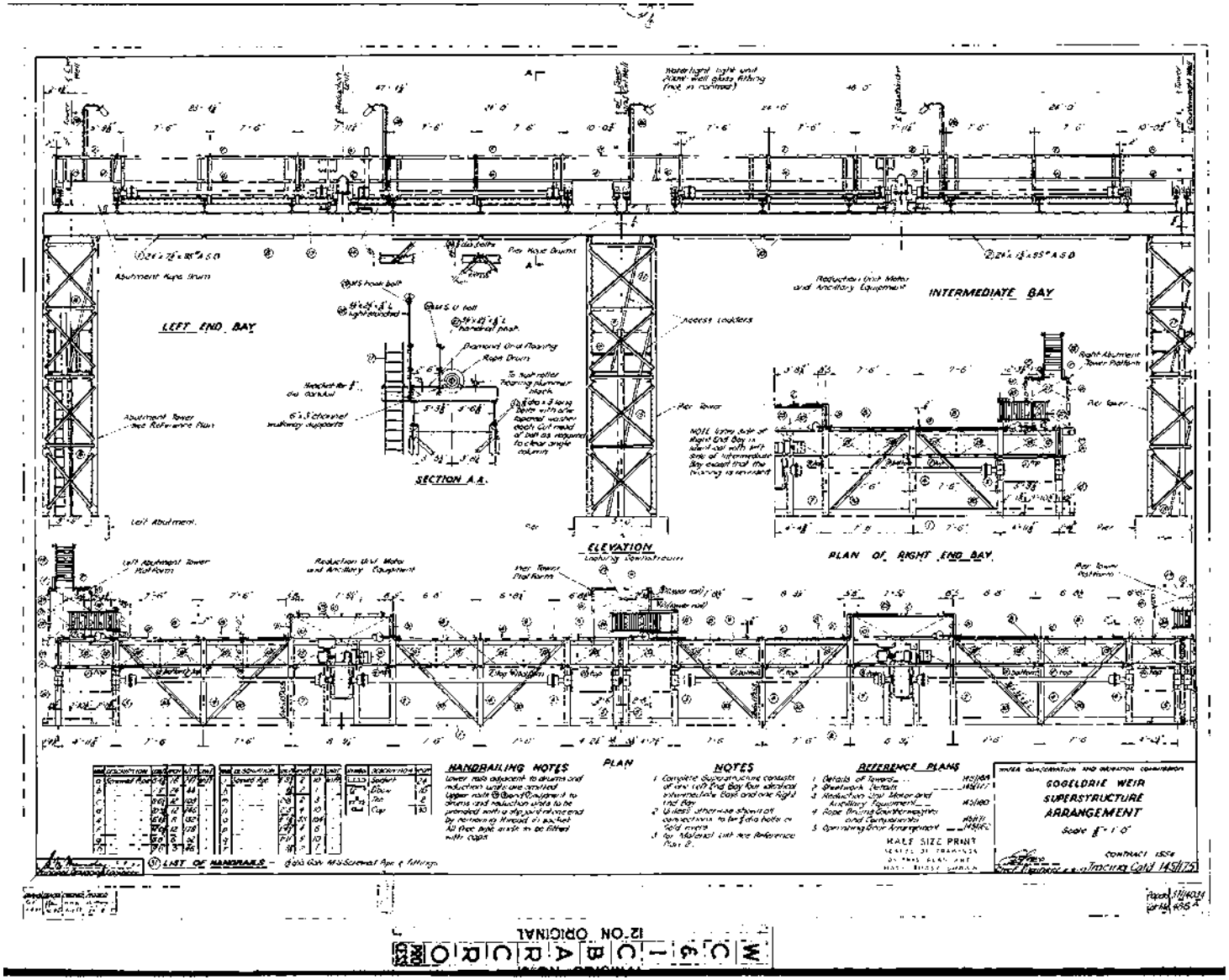
DRAWING FILE LOCATION / NAME C:_AV-WaterNSW_Projects\WP-D2022_122550 Gogeldrie Weir\7-DWG\01 Electrical Drawings\PL2022-1472.dwg

Appendix B: Original Drawings Gogeldrie Weir


ELEVATION
SECTION A-A
PLAN
DIAGRAM OF OPERATING GEAR
Not To Scale
NOTES
REFERENCE PLANS
WATER CONSERVATION & IRRIGATION COMMISSION
GOGELDRIE WEIR
OPERATING GEAR
ARRANGEMENT
CONTRACT No 1553
Tracing Core 145/162
12"ON ORIGINAL


SECTION A-A
SECTION B-B
SECTION C-C
GATE NOT SHOWN
PLAN
LOCALITY PLAN
WEIR SITE
REFERENCE PLANS.
HALF SIZE PRINT
SCALES OF DRAWINGS
ON THIS PLAN ARE
HALF THOSE SHOWN
GOGELDRIE WEIR.
GENERAL ARRANGEMENT.


SECTION A-A
SECTION B-B
PLAN
DETAILS OF GAUGE WIRE PULLEYS
Scale 6"-1'0"
NOT ADOPTED
See Plan Cat'd 145/184
ORIGINAL
12" ON ORIGINAL


LEFT END BAY
INTERMEDIATE BAY
SECTION A.A.
ELEVATION
PLAN OF RIGHT END BAY
PLAN
HANDRAILING NOTES
NOTES
REFERENCE PLANS
GOGELDRIE WEIR
SUPERSTRUCTURE
ARRANGEMENT
Scale 1/8" = 1'-0"
HALF SIZE PRINT
12 ON ORIGINAL