Avon Dam

Security Upgrade

Statement of Heritage Impact

(To accompany a s60 Fast Track application under the *Heritage Act, 1977*)

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1. Introduction

Avon Dam (1919-1927) was one of four major dams constructed as part of the Upper Nepean Scheme, supplying water to Sydney via the Upper Canal and Prospect Reservoir. The other dams were Cataract Dam (constructed 1903-1907), Cordeaux Dam (constructed 1918-1926), and Nepean Dam (1926 -1936).

The Upper Nepean Scheme as a whole has State heritage significance as the major water supply scheme for Sydney, operating as originally built for over 130 years, with the four major dams built being State significant engineering feats in their own right. The dams each have an ability to demonstrate aspects of significance associated with:

- construction;
- engineering advancement;
- ongoing operation;
- recreation/visitation; and
- promotion of the engineering achievement by the Water Board and subsequent management authorities.

Each of the dams after construction underwent 'beautification' which included the establishment of picnic areas, landscaped areas and gardens and roads and car parks to allow access to the Dam walls and around the site.

WaterNSW has identified a safety issue at Avon Dam. There has been repeated illegal entry at the site even though WaterNSW closes the site of an evening and employs security guards. To prevent access to buildings across the site and to monitor entry and exit to key buildings at Avon Dam, WaterNSW proposes to install a Gallagher access control hardware system to the [redacted] nd will include a number of CCTV operational cameras. Accompanying CCTV signage is to be displayed in line with privacy requirements.

2. Location

The dam is located on the Avon River upstream of its junction with the Cordeaux River. The catchment area of the dam is 14,299 ha with a lake area of 1,055 ha at full supply level. The nearest settled area is Bargo. The main road access is the Bargo/Avon Dam Road.

The dam is located on Lot 14 DP 1233164. The land and assets are in the ownership of WaterNSW.

The location of the dam is shown in Figure 1 and the red shading represents the State Heritage curtilage for Avon Dam.

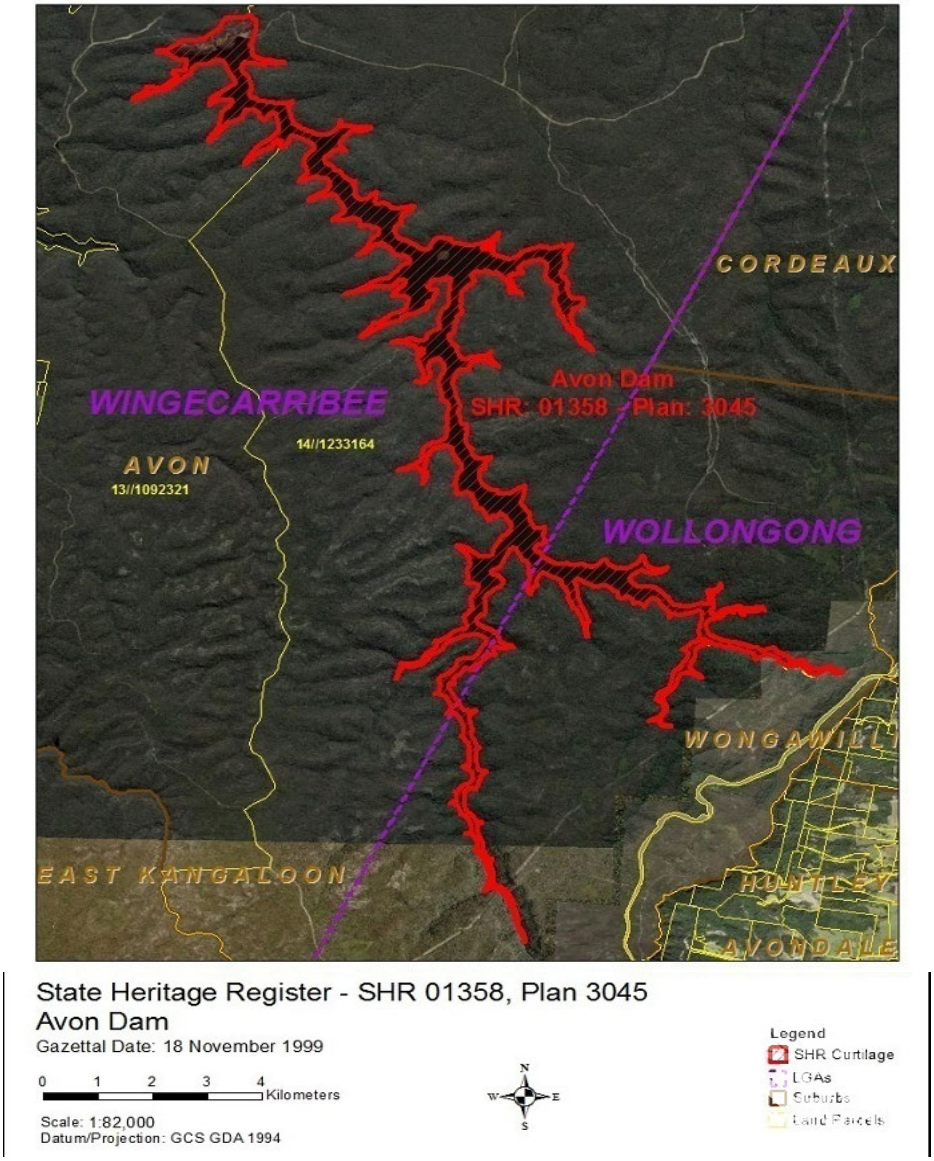


Figure 1: Location of Avon Dam and State Heritage curtilage

3. Heritage Listings

The following heritage listings apply to Avon Dam:

Register	Listing Name and Number	Status
State Heritage Register	Avon Dam (SHR 001358)	State
Local Environment Plan	Avon Dam (LEP I1224)	State
WaterNSW s170 Register	Avon Dam # 4580027	State

4. Heritage Significance, Site and Asset Description

Avon Dam has STATE heritage significance. This significance is largely embodied in: the dam wall, inlet and outlet system and water body; the architectural detailing of the dam wall and outlet towers; evidence of the construction phase such as terraces and remnant buildings; the recreational landscaping; and the natural bushland setting.

Avon Dam is the third of the four water supply dams in the Metropolitan Catchment constructed between 1903 and 1936 to provide a secure water supply to satisfy the demands of industrial, commercial and residential development of metropolitan Sydney up to c.1960. It derives some of its significance as a component of the Upper Nepean Scheme.

Albeit significantly modified in the 1970s with a rockfill embankment, the foundation and wall drainage systems, the Neo-Egyptian architectural expression of the crest and valve houses and pylons, screen tower and crest road collectively continue to be integral elements of this Inter-War era high, curved, cyclopean gravity dam. As such, it is an excellent representative example of this dam construction type in NSW.

The dam at the time of its construction held the largest area of impounded water in the Sydney water supply system and at 200 feet, (61 metres) high from foundation level, was the second highest dam in New South Wales at the time. It is part of a group of like structures (the Metropolitan Dams) which are the State's largest and most intact ensemble of large dams completed prior to the Snowy Mountains Hydro Electricity scheme.

The dam contains in-situ items of Inter-War era water delivery technologies developed by the Public Works Department, such as lengths of cast iron discharge pipes, emergency roller gates, and penstocks and hydraulic operating system, and the concept of dual level discharge which in consideration of their scale and integrity are rare examples of their types. The scour outlet roller emergency gate arrangement is only the example of its kind.

The site of the Avon Dam contains remnants of the construction platforms and roadways blasted out of the hillside for plant and machinery, the site of the township specifically established for the construction of the dam, a purpose built road of access cut through the valley of the Nepean River, and a staff residential precinct inclusive of an original Public Works Department's cottage that collectively continue to evoke through ongoing landscape management the era of the dam's construction to the contemporary viewer.

The Avon Dam site contains areas which with archaeological examination may reveal new information about the construction era of the dam and subsequent early beautification works.

The spillway of the Dam dramatically cut though the saddle of the hillside is the earliest and largest example of such design in New South Wales. The scale of this undertaking in its depth and width continues to impress the contemporary viewer.

The setting of the dam within the native bushland of the catchment is one of the most attractive of the Metropolitan Dams. The dam is a landmark that has engendered beautification works undertaken in the 1920s and again in the 1960s for the general visiting public through the picnic areas and for the management hierarchy of the Water Board in the former Official Quarters (holiday cottage). The mid twentieth century landscaping is the most complex and intact of any scheme surviving at the metropolitan dam sites and possibly in NSW.

The site of the Avon Dam contains remnants of the construction platforms and roadways blasted out of the hillside for plant and machinery, the site of the township specifically established for the construction of the dam, a purpose built road of access cut through the valley of the Nepean River, and a staff residential precinct inclusive of an original Public Works Department's cottage that collectively continue to evoke through ongoing landscape management the era of the dam's construction to the contemporary viewer. The Avon Dam site contains areas which with archaeological examination may reveal new information about the construction era of the dam and subsequent early beautification works.

5. Scope of Works

The scope of works is to install at Avon Dam a Gallagher alarm and access control system (including a number of CCTV operational cameras) at key locations at Avon Dam. The location of the installations are shown in Figure 2 below.

Figure 2 – Installation location of Gallagher access control and alarms.

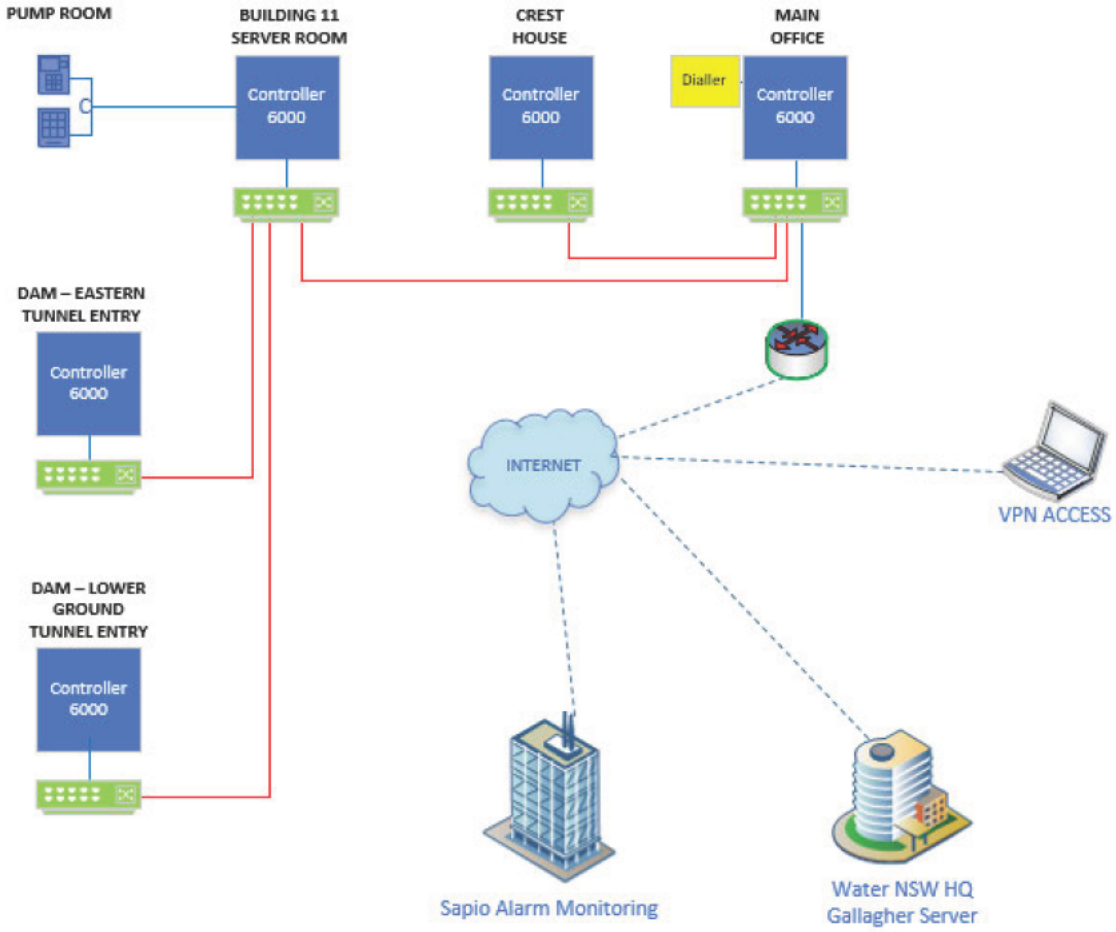
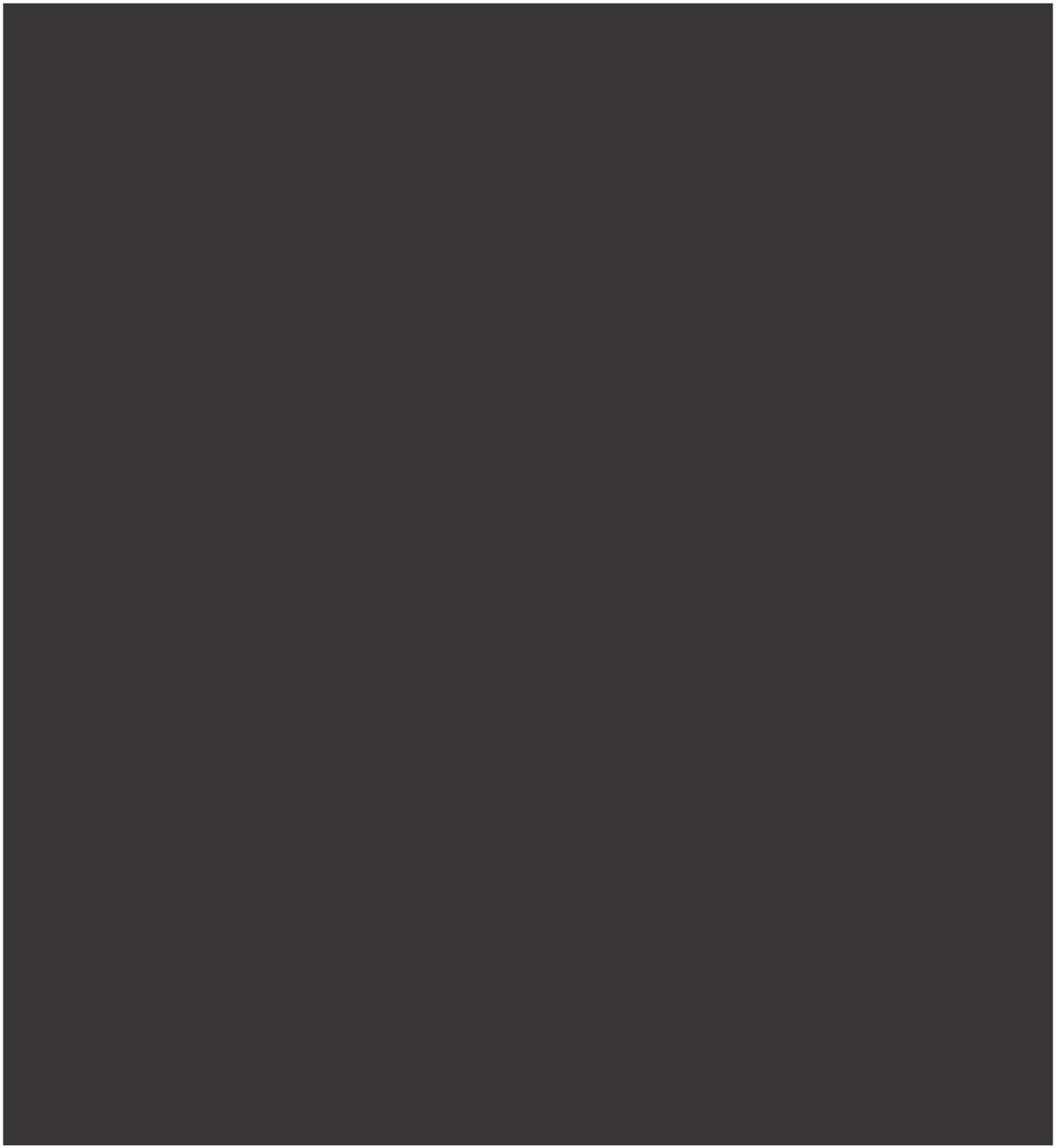
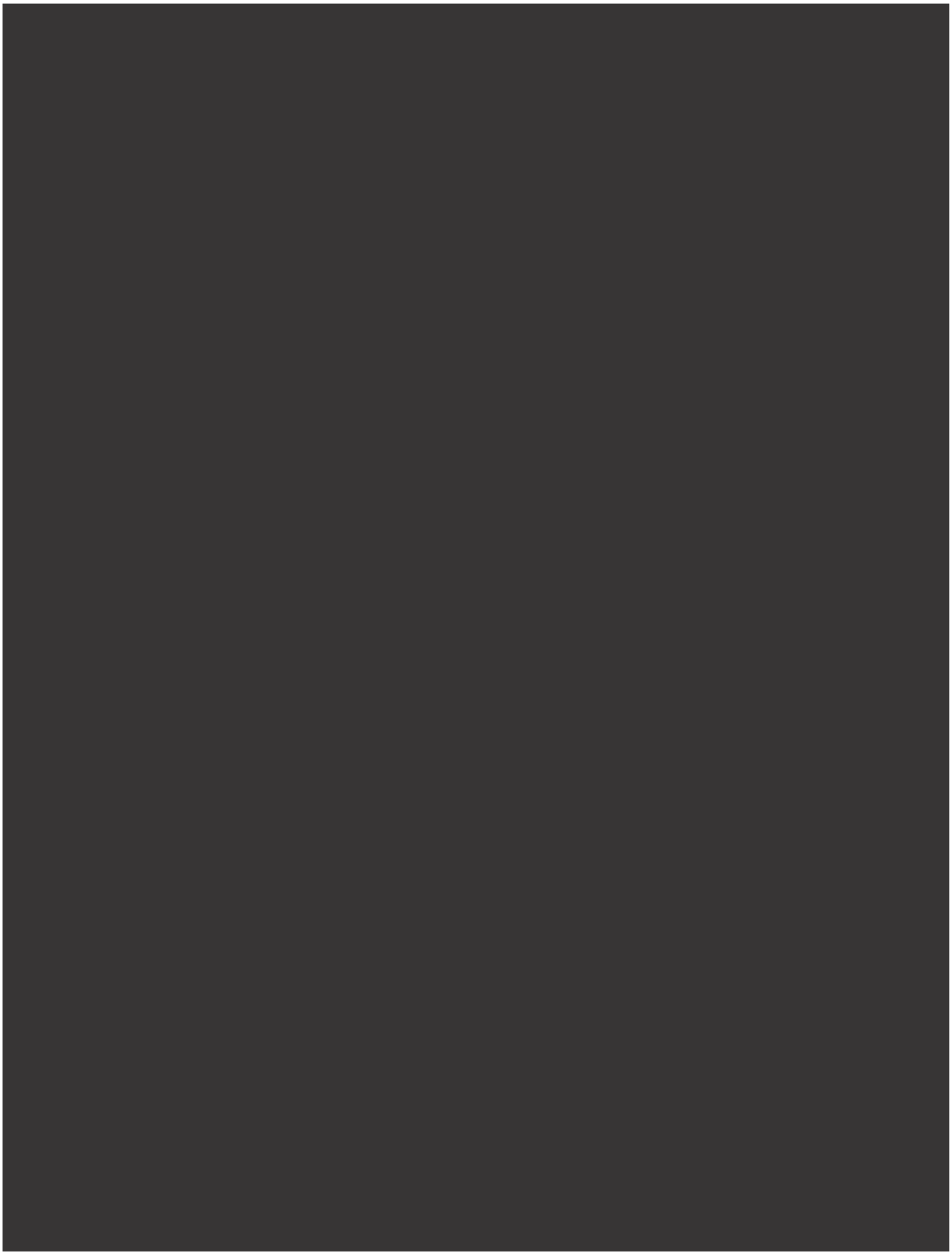
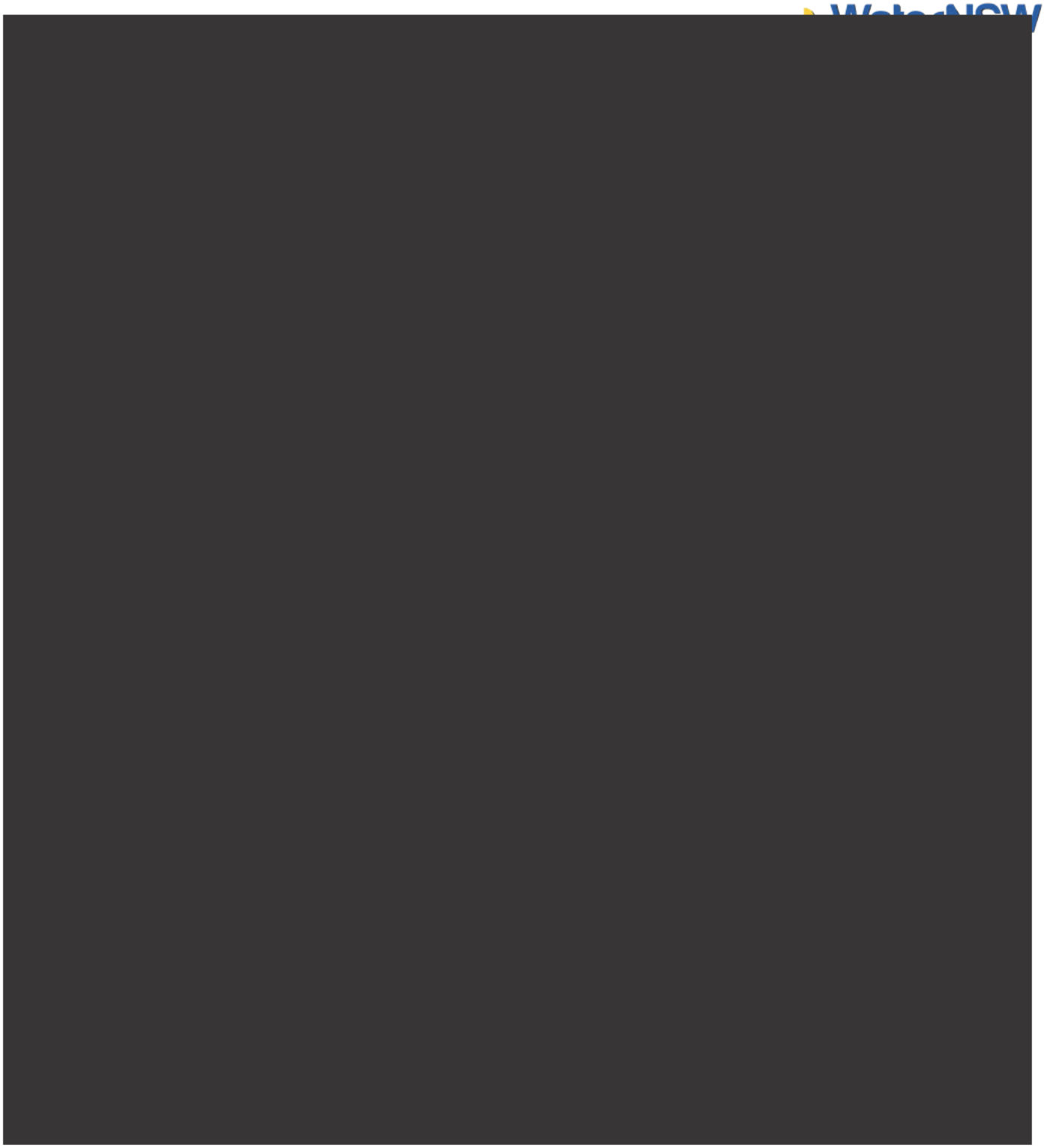


Figure 3 – Schematic showing how the system will operate on site (at 6 locations) and provide security services to Avon Dam via alarm monitoring and controlled access.

To deliver the Gallagher access and control system the general works at each of the locations are described below and the heritage significance of the locations as described in the CMP is also noted (Extent Heritage, 2019). All works are internal to the building or location described unless stated otherwise. Some ancillary works inside each location is required which will provide connectivity to existing communication infrastructure. Existing cable trays and cable runs will be utilised. There is no need for any excavation on site as the system will be installed in existing cable trays and other underground service lines already in place at the Dam.







The work will be done by contractors to WaterNSW specialised in the installation of this system. The works will take 3 - 6 months to install. Most of the work can be undertaken by utilising the contractor's fleet of vehicles and no lay down area is required. The contractor can use existing WaterNSW facilities on site as contractor facilities eg toilets, office, etc. If a site shed is needed one will be located on site for the short term and removed after the works are completed. No disturbance to the ground will be undertaken to accommodate such a shed.

6. Consideration of Alternatives

There are only two main options for this project. One is to Do Nothing and the second is to complete the works as described. The Do Nothing option is not the preferred option as the security at Avon Dam will not be enhanced if the works do not occur. The preferred option is the installation of the Gallagher system of monitoring entry and exit at 6 locations around the Avon Dam site and external security cameras. There is a sub-option to the proposal to monitor alternative locations, but WaterNSW has prioritised buildings with high risk of security breaches and assessed with the proposed installation contractor that these are the most suitable locations.

7. Heritage Impact Statement

The overall impact of the proposed works to Avon Dam is assessed as having little or no adverse impact on the overall heritage significance of Avon Dam. Apart from the Crest House and the Discharge Outlet Valve House, the remaining buildings where the installations are to occur do not have high or exceptional heritage significance. Most of the works including the installation of the Gallager systems (primarily the dual cabinet) are done internally to the buildings, where other similar systems for operating the dam infrastructure are already installed.

[redacted]

[redacted]This buildings does have exceptional heritage significance, and this proposed installation is the first time this type of terminal has been planned to be installed at Avon Dam. The reader is small in size, but the impact cannot be mitigated any further as it must be installed in a prominent position where staff and contractors can see the readers and use the terminal for access. The system will not function if this item cannot be installed. On the Crest House the reader will be installed internally so not to impact the item. It is in full view of the public and WaterNSW has elected not to install an item like this on the crest house. These type of security and access installations are becoming increasingly common on buildings and the local visual impact will be offset by preventing vandalism and illegal entry to the Discharge Outlet Valve House which is not seen by the general public.

The doors on the Crest House are thought to be original and the door reader will not have an impact on the doors as it is installed on the ground and at the base of the door. The Gallagher cabinets and other peripheral equipment will not have an impact to the internals of the Crest House and Discharge Outlet Valve House as similar equipment has already been installed to operate the dam when past upgrades have been undertaken eg electrical cabinets, etc.

[redacted]

[redacted]

[redacted] will have a local minor impact as it is a new installation and is difficult to mitigate as it requires it to be in a prominent position to act as deterrent and monitoring device. The signage to be located with all three cameras is required to meet privacy laws and will be located in obvious positions near the cameras on the cement walls of the entry tunnels so staff and contractors are aware of the camera locations.

There will be no archaeological impact as there will be no excavation for trenches associated with these works. The Gallagher system will use the existing electrical system, optic fibre and cabling system that has already been installed previously on site.

The following table provides an assessment of heritage impact on the significance of the Avon Dam site as a whole, as outlined in the *Guidelines for preparing a statement of heritage impact* (Department of Planning and Environment 2023, 18-20).

Fabric and Spatial Arrangements	There will only be a minor impact to the existing fabric of some areas of the dam as a result of the installations. [redacted]
Settings, Views and Vistas	There will be some negligible visual impact with the installation of the CCTV cameras on site. [redacted] It is unlikely that it will be seen from the dam wall by visitors.
Landscape	There will be no change to the landscape setting of Avon Dam as a result of these intended works.
Use	There will be no change to the use of the Avon Dam site. Monitoring of access and activities at the dam will be undertaken and general safety at the site will be improved.
Demolition	There will be no demolition of any assets onsite and thus no impact from this activity.
Curtilage	There will be no change to the existing State Heritage curtilage as a result of these works.
Moveable Heritage	There will be no impact to movable heritage items as a result of these works.
Aboriginal Cultural Heritage	Aboriginal cultural heritage was not assessed as part of this impact assessment.
Natural Heritage	There will be no impact to natural heritage as a result of these works.
Conservation Areas	The Dam is not located in a conservation area and there are no nearby conservation areas to be impacted.
Cumulative Impacts	There are no predicted cumulative impacts as a result of these works.
Other heritage items in the vicinity	The nearest heritage item is Nepean Dam which is also owned by WaterNSW and there will be no impact to this asset which is located a substantial distance from Avon Dam.

Overall, there will be some very minor localised impacts of the works on a number of locations around the Dam site but there will be little or no adverse impact on the heritage significance of the overall Avon Dam state heritage item.

8. The Conservation Management Plan

The following table outlines the proposed works consistency with the relevant policies contained in the Avon Dam CMP (Extent Heritage, 2019).

Policy Number	CMP policy	Assessment
4.4.3 (1) and 4.6.4	Conserve and manage Avon Dam in accordance with the relevant legislative requirements, including the NSW *Heritage Act* 1977, and Check heritage and planning approval requirements prior to undertaking any changes to the place. Obtain any necessary approvals prior to undertaking work and carry out work in accordance with any conditions placed on these approvals.	WaterNSW has applied for a s60 Fast Track to undertake these works. None of the available heritage exemptions (both Heritage NSW and WaterNSW agency exemptions) could be used as the installation of some of the system and equipment is to the fabric of items known to have individual Exceptional heritage significance. Given the works are under $150,000 but the overall impact to Avon Dam is little to minor a s60 application is appropriate and is compliant with this policy.
4.5.4	Maintain key significant views to and from the dam wall and water	[redacted] The camera pole is not overly long and is on the downstream side of the dam wall away from the Lake. This type of technology is increasingly frequent on assets that need increased security monitoring.
4.6.1	Make decisions requiring change to the Avon Dam site with a clear understanding of the potential impacts on the identified heritage values of the place and seek to minimise negative heritage impact *Guidelines* *Generally, proposed changes that impact on heritage significance should only be considered if:* - *the change helps to maintain the security / protection of the significant buildings / elements*	The installation of the Gallagher monitoring system will require a small change to a number of buildings on site and will introduce a system of electronic monitoring and access not previously installed on the site. The work is in line with policy 4.6.1 as the change to access and monitoring at the site meets the guideline whereby the proposed change will assist in the security/protection of some of the significant buildings and elements on site. Repeated security issues at the site have led WaterNSW to making this change which is in compliance with this policy and relevant guideline.
4.6.2	Prepare a Statement of Heritage Impact when planning options for change	This document meets this policy requirement.

9. Recommendations

Best-practice conservation approach

All works should be guided by the conservation policy of 'do as much as necessary, as little as possible.'

Prior to works
Contractors must be briefed on the heritage sensitive nature of the site and informed of any recommended mitigation measures or controls required.

During works

- Any accidental damage to heritage items is to be treated as an incident, with appropriate recording and notification.
- Unauthorised removal of heritage fabric or the undertaking of works not outlined and assessed in this statement of heritage impact is not permitted.
- All areas affected by works must be cleaned and made good by contractors after works are completed.

10. Conclusion

The intended security and access works at Avon Dam will not have a significant impact on the state heritage listed Avon Dam. The works are minor in nature and will have little or no adverse impact on the heritage significance of Avon Dam. They are in line with the appropriate policies and guidelines from the CMP. The cost of the works is below the threshold of $150,000 and thus a fast track s60 application is appropriate to undertake the works.

11. References

Department of Planning and Environment (2023) *Guidelines for preparing a statement of heritage impact* (pp18-20).

Extent Heritage (2019) *Avon Dam Conservation Management Plan*.