



Appendix B6

Construction Heritage Management Plan

Project: Keepit Dam Work Package 2 - Post Tensioning Works
Location: Keepit Dam, Namoi River, Northern NSW
Client: WaterNSW
Contract: 04532F31



Construction Heritage Management Plan

Document Acceptance and Release Notice

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REVIEWED:

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(for acceptance)

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ACCEPTED:

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(for release)

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Abbreviations

Term	Definition
CEMP	Construction Environmental Management Plan
CoA	Conditions of Approval
CTP	Compliance Tracking Program
DPE	Department of Planning and Environment
EA	Environmental Assessment
EMR	Environmental Management Representative
EMS	Environmental Management System
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2000</i>
EPA	Environment Protection Authority
EWMS	Environmental Work Method Statement
HMP	Heritage Management Plan
NSW	New South Wales
OEH	Office of Environment and Heritage
Project, the	Keepit Dam Work Package 2 – Post Tensioning Works
SoC	Statement of Commitments
SRG	SRG Limited
WaterNSW	The client

Construction Heritage Management Plan

1. Introduction

1.1. Context

This Construction Heritage Management Plan (HMP or Plan) is a Sub plan of the Construction Environmental Management Plan (CEMP) for the Keepit Dam Stage 2, Work Package 2 – Post Tensioning Works project (Keepit Dam Post Tensioning Works) (the Project).

This HMP has been prepared to address the requirements of the *Keepit Dam Upgrade Environmental Assessment* (PB, 2007), the *Keepit Dam Upgrade Submissions Report and Preferred Project Report* (PB, 2008), the resulting Project Approval (06_0155) issued for upgrade of Keepit Dam, and all applicable legislation.

1.2. Background

Keepit Dam is situated on the Namoi River, 13 km upstream of its confluence with the Peel River in the north-west of NSW.

The NSW Dams Safety Committee requires that Keepit Dam be upgraded to be able to safely pass the probable maximum flood and to withstand earthquake events. WaterNSW is therefore undertaking dam safety upgrade works to Keepit Dam to comply with the requirements of the NSW Dams Safety Committee.

WaterNSW has adopted a two stage approach to upgrading Keepit Dam;

- Stage 1 - Construction of two fuse plug spillways – completed in 2011.
- Stage 2 - Electrical relocation, post tensioning of the main dam wall and raising of the dam concrete monoliths and the main embankment.

The Stage 2 works have been procured into three separate contract work packages, these being;

1. Electrical relocation works – completed in 2015.
2. Post tensioning the main dam wall.
3. Raising of the dam concrete monoliths and main embankment.

This Construction Heritage Management Plan (HMP) has been prepared for the Keepit Dam Stage 2, Work Package 2 - Post Tensioning Works.

1.3. Environmental Management System Overview

The overall Environmental Management System for the Project is described in the Construction Environmental Management Plan (CEMP).

The HMP is part of the SRG Limited (SRG) environmental management framework for the Project, as described in Section 4.1 of the CEMP. Management measures identified in this Plan will be incorporated into site or activity specific Environmental Work Method Statements (EWMSs) or Work Method Statements (WMSs) where relevant.

EWMSs / WMSs will be developed and signed off by environment and management representatives prior to associated works, and construction personnel will be required to undertake works in accordance with the identified mitigation and management measures.

Used together, the CEMP, strategies, procedures and EWMSs form management guides that clearly identify required environmental management actions for reference by SRG personnel and contractors.

The review and document control processes for this Plan are described in Section 9 of the CEMP.

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2. Purpose and objectives

2.1. Purpose

This Construction Heritage Management Plan describes how SRG propose to manage and protect Aboriginal and non-Aboriginal heritage impacts during construction of the Keepit Dam Stage 2, Work Package 2 – Post Tensioning Works project.

2.2. Objectives

The key objective of the HMP is to ensure that impacts to Aboriginal and non-Aboriginal heritage items and sites is minimised. To achieve this objective, SRG will undertake the following:

- Ensure appropriate controls and procedures are implemented during construction activities to avoid or minimise heritage impacts.
- Ensure appropriate measures are implemented to address the relevant requirements of the Conditions of Approval outlined in Table 3-1 and Statement of Commitments in Table 3-2.
- Ensure appropriate measures are implemented to comply with all relevant legislation and other requirements as described in Section 3.1 of this Plan.

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3. Environmental Requirements

3.1. Relevant legislation and guidelines

3.1.1. Legislation

Legislation relevant to Aboriginal and non-Aboriginal heritage includes:

- *Environmental Planning and Assessment Act 1979* (EP&A Act).
- *National Parks and Wildlife Act 1974* (NPW Act).
- *Heritage Act 1977* (Heritage Act).
- *Environment Protection Biodiversity Conservation Act 1999* (EPBC Act) (Commonwealth).
- *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (Commonwealth).

Relevant provisions of the above legislation are explained in the register of legal and other requirements included in the CEMP.

3.1.2. Guidelines and Standards

The main guidelines, specifications and policy documents relevant to this Plan include:

- *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW 2010) (for reference only).
- *Altering Heritage Assets* (Heritage Office and DUAP 1996).
- *Assessing Heritage Significance* (NSW Heritage Office 2001).
- *Archaeological Assessment Guidelines* (NSW Heritage Office and NSW Department of Urban Affairs and Planning 1996).
- *NSW Government's Aboriginal Participation in Construction Guidelines* (2007).
- *How to Prepare Archival Recording of Heritage Items* (Heritage Branch 1998).
- *Photographic Recording of Heritage Items Using Film or Digital Capture* (Heritage Branch 2006).

3.2. Conditions of Approval

The requirements of the Conditions of Approval relevant to heritage are detailed in Table 3-1.

Table 3-1 Conditions relevant to the Heritage Management Plan

CoA No.	Condition	Where addressed
2.16 a)	Prior to the commencement of construction works, fence the boundary of the crest area of the ridge on which the Aboriginal stone procurement source #20-5-21 is situated, to protect it from any direct and indirect impacts of construction works. The fencing shall be sufficient to prevent the incursion of construction vehicles, and shall be marked with appropriate signs.	Section 4.1 Table 6-1
2.16 b)	If during the course of construction, it uncovers any heritage or archaeological material previously not identified, all work likely to affect the material shall cease immediately and the relevant authorities consulted about an appropriate course of action prior to the recommencement of work. The relevant authorities may include DECC, the Heritage Office, and the Local Aboriginals Land Council. Any necessary permits or consents shall be obtained and complied with prior to recommencement of work.	Table 6-1 and Appendix A

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3.3. Statement of Commitments

Statement of Commitments from the Submissions and Preferred Project Report relevant to heritage are detailed in Table 3-2.

Table 3-2 Statement of Commitments relevant to heritage

SoC No.	Condition	Where addressed
27.1	<p>An Indigenous Heritage Management Sub Plan will be prepared as part of the CEMP. The Sub Plan will be prepared in consultation with all relevant Aboriginal groups and the DECC and include:</p> <ul style="list-style-type: none"> a) details of the archaeological investigations to be undertaken and any associated licences or approvals required; b) procedures to be implemented if previously unidentified Aboriginal objects are discovered during Construction. If such objects are discovered all work likely to affect the object(s) will cease immediately and the DECC informed in accordance with the National Parks and Wildlife Act 1974; c) an education program for Construction personnel on their obligations for Aboriginal cultural materials; and d) the following specific measures to avoid impacts to the Aboriginal stone procurement source #20-5-21: <ul style="list-style-type: none"> i. fencing off the crest area of the ridge on which the site is situated; ii. avoiding excavation of ridge deposits for fill in the boat ramp saddle dam wall; and iii. archaeological salvage of the Aboriginal stone procurement site #20-5-21 if impact cannot be avoided. 	<p>This plan</p> <p>Not required for this stage of the project</p> <p>Table 6-1 and Appendix A</p> <p>Table 6-1 and Section 7</p> <p>Table 6-1</p>
28.1	<p>A Historical Heritage Management Sub Plan will be prepared as part of the CEMP. The Sub Plan will be prepared in consultation with the Heritage Office and include:</p> <ul style="list-style-type: none"> a) procedures to be implemented if previously unidentified historical relics are discovered during Construction; b) an education program for Construction personnel on their obligations for historic relics; and c) the following specific measures in relation to the main dam wall, subject to detailed design: <ul style="list-style-type: none"> i. use of materials that are sympathetic to those that are present in the existing main dam wall; ii. reuse of the existing spillway gate lifting gear; iii. the removal and refurbishment, if possible, of the gantry crane on top of the existing main dam wall and its replacement (if possible) on top of the raised main dam wall; iv. the removal and secure storage of historic items located on the top of the existing main dam wall, including the metal dedication and commemorative plaques and the metal 'Water Conservation and Irrigation Commission, NSW', insignia, and their relocation to similar locations on top of the raised main dam wall; and v. archival recording of the existing main dam wall in accordance with best practice outlined in the NSW Heritage Office (1998) guidelines 'How to Prepare Archival Records of Heritage Items' before construction work begins. 	<p>Appendix A</p> <p>Table 6-1 and Section 7</p> <p>Table 6-1</p>

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4. Existing Environment

4.1. Aboriginal heritage

A *Cultural Heritage Assessment* was undertaken as part of the preparation of the Review of Environmental Factors in May 2007.

The study area is within the tribal boundaries of the Kamilaroi tribe (Tindale 1974; Howitt 1996).

Cultural heritage sites potentially affected by the dam safety upgrade were identified through searches of relevant Aboriginal and European heritage registers, a review of previous heritage assessments and field surveys undertaken in July 2005 and July 2006.

Twenty-eight Aboriginal heritage sites were recorded within the surveyed area during the 2005 and 2006 field surveys, comprising 13 artefact scatters, nine scarred trees, five isolated finds and one stone procurement source (quarry). A further 11 Aboriginal heritage sites were previously recorded within 10 kilometres of Keepit Dam, comprising six artefact scatters, three scarred trees, one stone procurement source and one collection of grinding grooves. The presence of five of these previously recorded sites was confirmed during the field surveys. Three of the sites (KDA6, KDA20 and 20-5-0002) are considered to be of high archaeological significance at a local level based on their general rarity. The study area also includes the site of the former Borah Crossing Aboriginal Reserve. The reserve is situated on the southern side of the Namoi River at Borah Crossing, at the northern end of Lake Keepit.

The Environmental Assessment found that construction works for the overall Keepit Dam Upgrade may cause indirect impacts to Aboriginal site 20-5-0021 (stone procurement source), which is located on the crest of a ridge adjacent to the location of the proposed boat ramp saddle dam (as shown in Figure 4.1). The mitigation measure for this site is detailed in Table 6-1, which includes fencing the area off.

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Figure 4.3 Aboriginal Heritage Sites

- Artefact scatter
- Scarred tree
- Stone procurement source
- Grinding grooves

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4.2. Non-Aboriginal heritage

The *Cultural Heritage Assessment* was undertaken as part of development of the Environmental Assessment (EA).

There were found to be no listed non-Aboriginal heritage sites.

Thirteen heritage sites were identified during the surveys completed for the Environmental Assessment and an assessment of significance was undertaken. The outcomes are summarised in Table 4-1.

Table 4-1 EA findings – listing and significance assessment of heritage sites

Site name	Description	Listing	Assessment
KDH1	House ruin	Not listed at State or local level	Does not meet threshold for listing
KDH2	Ruins on island in Lake Keepit	Not listed at State or local level	Does not meet threshold for listing
KDH3	School / scout hall	Not listed at State or local level	Fulfils criteria for local listing
KDH4	'Tulcumbah' homestead	Not listed at State or local level	Does not meet threshold for listing
KDH5	Shearing shed and house ruin	Not listed at State or local level	Does not meet threshold for listing
KDH6	House ruin	Not listed at State or local level	Fulfils criteria for local listing
KDH7	Private residence – previously Carroll Gap Primary School (1822-1922)	Not listed at State or local level	Fulfils criteria for local listing
KDH8	Main dam wall of Keepit Dam	Not listed at State or local level	Fulfils criteria for local and State listing
KDH9	Keepit Dam workshop equipment	Not listed at State or local level	Fulfils criteria for local listing
KDH10	'Violet Banks'	Not listed at State or local level	Does not meet threshold for listing
KDH11	Former Gunnenbene school	Not listed at State or local level	Does not meet threshold for listing
KDH12	Former Church and Presbytery and cemetery	Not listed at State or local level	Does not meet threshold for listing
KDH13	Former Keepit school	Not listed at State or local level	Does not meet threshold for listing

The Environmental Assessment found that construction works for the overall Keepit Dam Upgrade works would impact on the Keepit Dam Site KDH8 (main dam wall) as shown Figure 4.2 and 4.3.

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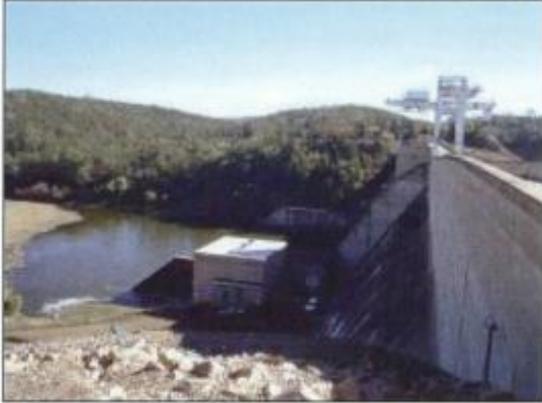


Figure 4.2 Keepit Dam Wall



Figure 4.3 Keepit Dam Plaques

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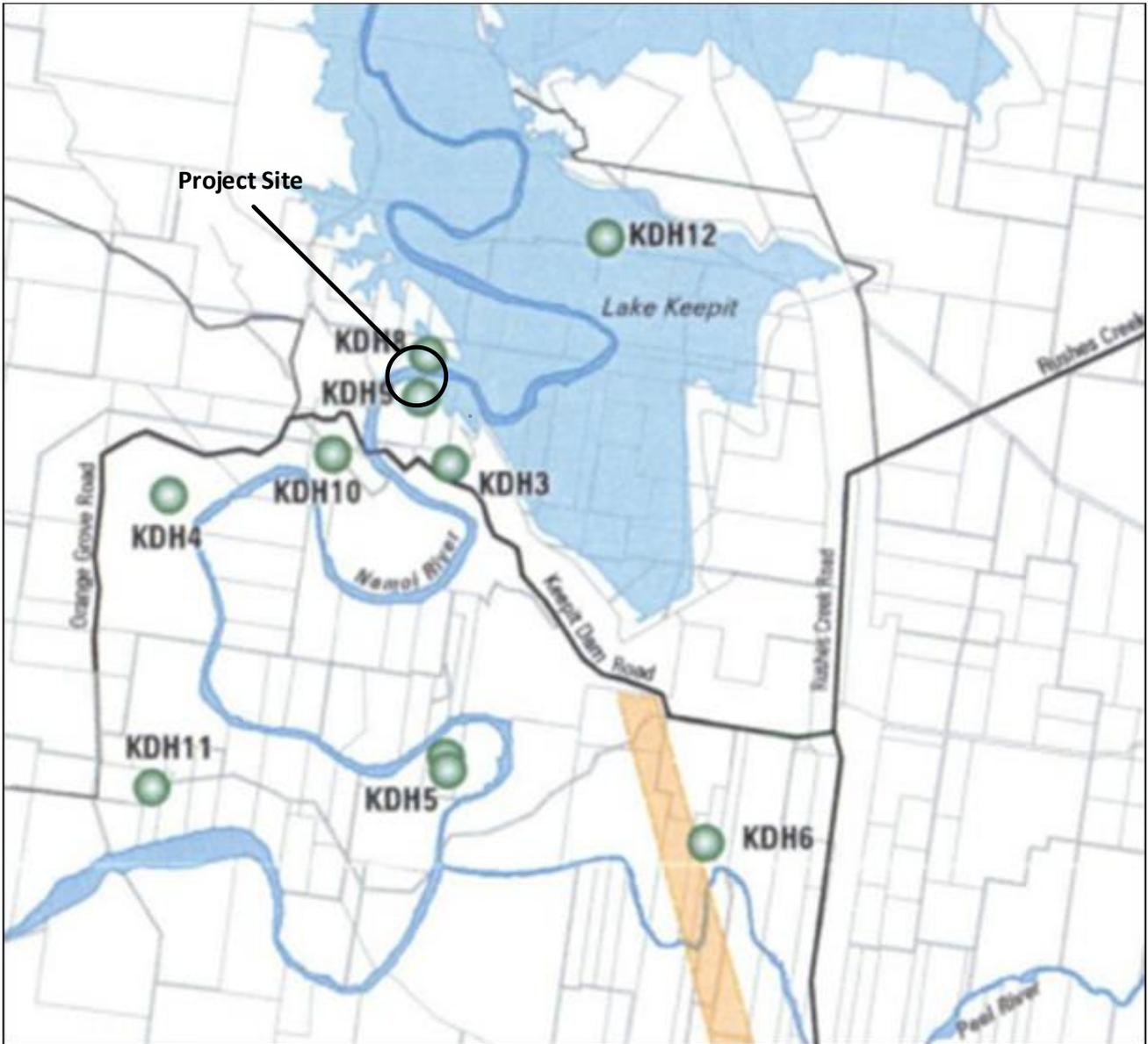


Figure 4.4 Non-Aboriginal Heritage Sites

During the Keepit Dam Post Tensioning Works project, mitigation measures recommended through the Environmental Assessment, which are relevant to Keepit Dam Site KDH8 and the Post Tensioning Works process, would be implemented

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5. Aspects and Impacts

5.1. Construction activities

Key aspects of the project that could result in adverse impacts to Aboriginal and Non-Aboriginal heritage include:

- Demolition of the concrete monoliths – removal of the monoliths in whole / larger pieces.
- Drilling and coring process.
- Construction site compounds.

Refer also to Appendix C of the CEMP – Environmental Risk Assessment which details aspects and impacts.

5.2. Aboriginal heritage impacts

Error! Reference source not found. summarises identified impacts and management measures in relation to A boriginal sites.

Table 5-1 Aboriginal heritage – impacts and mitigation

Name	Item	Impact	Management
20-5-0021	Stone procurement site	Indirect impact	<p>Prior to the commencement of construction works, fence the boundary of the crest area of the ridge on which the Aboriginal stone procurement source #20-5-21 is situated, to protect it from any direct and indirect impacts of construction works. The fencing shall be sufficient to prevent the incursion of construction vehicles, and shall be marked with appropriate signs.</p> <p>The following specific measures to avoid impacts to the Aboriginal stone procurement source #20-5-21 are to be implemented:</p> <ol style="list-style-type: none"> i. fencing off the crest area of the ridge on which the site is situated; ii. avoiding excavation of ridge deposits for fill in the boat ramp saddle dam wall; and iii. archaeological salvage of the Aboriginal stone procurement site #20-5-21 if impact cannot be avoided.

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5.3. Non-Aboriginal heritage impacts

Error! Reference source not found. summarises identified impacts and management measures in relation to Non-Aboriginal sites.

Table 5-2 Heritage items and level of impact

Recording	Significance	Impact	Management
KDH8 Main dam wall of Keepit Dam	Fulfils criteria for local and State listing	Direct impacts for overall Keepit Dam upgrade works. There is direct impact for Stage 2, Package 2 works.	The Statement of Commitments include the following specific measures in relation to the main dam wall, subject to detailed design: <ol style="list-style-type: none"> i. use of materials that are sympathetic to those that are present in the existing main dam wall; ii. reuse of the existing spillway gate lifting gear; iii. the removal and refurbishment, if possible, of the gantry crane on top of the existing main dam wall and its replacement (if possible) on top of the raised main dam wall; iv. the removal and secure storage of historic items located on the top of the existing main dam wall, including the metal dedication and commemorative plaques and the metal 'Water Conservation and Irrigation Commission, NSW', insignia, and their relocation to similar locations on top of the raised main dam wall; and v. archival recording of the existing main dam wall in accordance with best practice outlined in the NSW Heritage Office (1998) guidelines 'How to Prepare Archival Records of Heritage Items' before construction work begins.

Stage 2, Package 2 works will involve works to the dam wall. Materials are sympathetic to the dam wall itself as they consist of concrete and steel, materials which were originally used in the dam wall structure.

There will be no impact to the spillway gate lifting gear, nor to the gantry crane on top of the existing main dam wall due to the project works. There will also be no impact to the metal dedication and commemorative plaques and the metal 'Water Conservation and Irrigation Commission, NSW' insignia, nor the section of the main dam wall to which they are placed on.



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6. Environmental Mitigation Measures

A range of environmental requirements and control measures are identified in the various environmental documents, including the EA, Submissions and Preferred Project Report and Project Approval. Specific measures and requirements to address potential Heritage impacts are outlined in Table 6-1.

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Table 6-1 Environmental management measures

ID	Environmental Management Measure	When to implement	Responsibility	Reference
H1	Training will be provided to all personnel (including subcontractors), on any relevant heritage requirements from this plan, including unexpected heritage finds, through inductions and toolboxes. The known heritage items and location are to be illustrated during the site induction.	Pre-construction and construction	SRG Project Manager / Site SQE Representative	SoC 27.1 and SoC 28.1
H2	Where relevant, heritage management measures from this plan will be included in Environmental Work Method Statements (EWMS).	Construction	SRG Project Manager / Site SQE Representative	SoC 27.1 and SoC 28.1
H3	All activities on the site shall be undertaken with the objective of preventing impact on heritage items.	Pre-construction and Construction	SRG Project Manager / Site SQE Representative	SoC 27.1 and SoC 28.1
H4	Prior to the commencement of construction works, fence the boundary of the crest area of the ridge on which the Aboriginal stone procurement source #20-5-21 is situated, to protect it from any direct and indirect impacts of construction works. The fencing shall be sufficient to prevent the incursion of construction vehicles, and shall be marked with appropriate signs.	Pre-construction and Construction	SRG Site SQE Representative / Supervisor	CoA 2.16 a) and SoC 28.1
H5	Prior to construction SRG is to confirm with WaterNSW that archival recording of the dam wall has been completed in accordance with best practice outlined in the NSW Heritage Office (1998) guidelines 'How to Prepare Archival Recordings of Heritage Items.	Pre-construction	SRG Project Manager	SoC 28.1
H6	Materials used in the works are to be sympathetic to those that are present in the existing dam wall.	Design	WaterNSW Project Manager	SoC 28.1
H7	Statement of Commitment 28.1(c)(iii) relates to the removal historic items on top of the dam wall. These items include the metal dedication and commemorative plaques and the metal "Water Conservation and Irrigation Commission, NSW" insignia. As there will be no impact to this section of the dam wall, it is proposed that these items are not removed or disturbed as part of the Stage 2, Package 2 works.	Pre-construction	SRG Project Manager / Site SQE Representative	SoC 28.1
H8	If any unexpected heritage items are encountered, works potentially affecting the find would cease immediately and the Unexpected Archaeological Finds procedure included in Appendix A will be implemented. As part of the procedure, relevant authorities will be consulted about an appropriate course of action prior to the recommencement of work. The relevant authorities may include NSW Heritage Council, OEH and Local Aboriginal Land Councils.	Construction	SRG Project Manager / Site SQE Representative / Supervisor	CoA 2.16 b), SoC 27.1 and 28.1

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7. Compliance Management

7.1. Roles and Responsibilities

The organisational structure and overall roles and responsibilities are outlined in the CEMP. Specific responsibilities for the implementation of environmental controls are detailed in Section 4 of this Plan.

7.2. Training

All employees and contractors working on site will undergo site induction training relating to heritage management issues. The induction training will address elements related to heritage management including:

- Existence and requirements of this sub-plan.
- Relevant legislation.
- Heritage mitigation and management measures.
- Procedure to be implemented in the event of a unexpected heritage finds.

Further details regarding staff induction and training are outlined in Section 5 of the CEMP.

7.3. Monitoring and Inspections

Weekly inspections will be undertaken with the inspection form provided in Appendix D of the CEMP completed including those related to heritage items e.g exclusion fencing and signage around heritage items and the dam wall works.

7.4. Non-conformances

Non-conformances will be managed in accordance with Section 8.5 of the CEMP.

7.5. Audits

Audit requirements are detailed in Section 8 of the CEMP.

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8. Review and Improvement of the HMP

8.1. Continuous improvement

Continuous improvement of this Plan will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement.

The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of environmental management and performance.
- Determine the cause or causes of non-conformances and deficiencies.
- Develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies.
- Verify the effectiveness of the corrective and preventative actions.
- Document any changes in procedures resulting from process improvement.
- Make comparisons with objectives and targets.

8.2. HMP update and amendment

The processes described in Section 8 of the CEMP may result in the need to update or revise this Plan. This will occur as needed.

Only the Site SQE Representative, or delegate, has the authority to change any of the environmental management documentation. In terms of approval of updates or amendments to this Plan, this is to be carried out by the Environmental Management Representative (EMR), with the EMR verifying that the amendments are consistent (or not) with the Project Approval.

A copy of the updated plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure – refer to Section 9 of the CEMP.



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Appendix A – Unexpected Heritage Finds Procedure

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