



Our ref: HMD21/304-2

Mr David Way  
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Dear Mr Way

**Notice of Exhibition of application for Warragamba Dam Raising (SSI 8441)**

Thank you for your referral of 28 September 2021 inviting comments from Heritage NSW (HNSW) on the Warragamba Dam Raising State Significant Infrastructure project.

HNSW has chosen to provide a consolidated response in relation to the impacts that the proposal may have upon the heritage of NSW. The attachments to this letter provide detailed comment on the following areas:

- Impacts to Aboriginal cultural heritage (**Attachment 1**)
- Impacts to environmental heritage (**Attachment 2**)
- Resolutions made by the Heritage Council of NSW (**Attachment 3**)
- Impacts to world heritage values as they relate to Aboriginal cultural heritage (**Attachment 4**).

Based upon the information provided, HNSW considers that the current proposal will have a significant impact on Aboriginal cultural heritage values, including the values of the Greater Blue Mountains World Heritage Area.

Environmental heritage impacts are predominantly downstream, and it is considered that they have not been adequately identified, assessed and mitigated through the current studies.

HNSW encourages Water NSW to consider options for long term conservation and protection from harm of these important values.

If you have any questions regarding HNSW advice, please contact Tim Smith, Director Heritage Operations at Heritage NSW on 8837 6327 or tim.smith@environment.nsw.gov.au.

Yours sincerely

**Sam Kidman**  
**Executive Director**  
Heritage NSW  
Department of Premier and Cabinet  
17 December 2021



## **Attachment 1: ABORIGINAL CULTURAL HERITAGE REGULATION COMMENTS ON THE WARRAGAMBA DAM RAISING (SSI 8441)**

Heritage NSW (HNSW) provides the following comments and notes that this advice, provided through the submission process, is consistent with the advice previously provided to the Department of Planning, Industry and Environment (DPIE) as part of the specific-agency referral requirements for State Significant Infrastructure (SSI) approvals under the *Environment Planning and Assessment Act 1979*.

The following documents were considered in our assessment:

- SMEC 2021, *Environmental Impact Statement (EIS): Warragamba Dam Wall Raising*, prepared for WaterNSW, dated 10 September 2021
  - Chapter 18 Aboriginal Heritage
  - Chapter 28 Cumulative Impacts
  - Chapter 29 EIS Synthesis, project justification, and conclusion.
  - Appendix A: Secretary's Environmental Assessment Requirements (SEARs).
  - Appendix C: Environmental Risk Assessment Procedure.
  - Appendix K: Aboriginal Cultural Heritage Assessment Report, dated 10 September 2021 prepared by Niche Environment and Heritage (Niche).
  - Appendix K, Appendix 1: Archaeological Assessment Report, dated 10 September 2021, prepared by Niche Environment and Heritage (Niche).
  - Appendix K, Appendix 2: Aboriginal Cultural Values Assessment Report, dated 10 September 2021, prepared by Waters Consultancy Pty Ltd.

### **Summary of HNSW Review**

Based upon the review of the above information HNSW presents the following summary of key concerns and make the following recommendations.

#### **1. Aboriginal cultural heritage values are not adequately recognised**

The reports listed above, excluding the cultural values assessment, do not adequately recognise the Aboriginal cultural heritage values within the assessment area.

#### **2. The project will impact highly significant Aboriginal cultural heritage values**

Based on the review of the information provided, HNSW understands the Warragamba Dam Raising will result in impacts to highly significant interrelated tangible and intangible Aboriginal cultural heritage values.

The presence and clear expression of dreaming stories and song lines in the archaeological record of the Burratorang Valley is unique and by its very nature cannot occur elsewhere in NSW. The intangible values are specific to the Burratorang Valley and even if similar sites, related to other intangible values, were to exist elsewhere, these will not offset the impact to the stories specific to this area.

### **3. Scientific value of Aboriginal sites has been underestimated**

Based upon the information provided, HNSW considers there is a high likelihood the scientific values attributed to the known Aboriginal sites have been underestimated.

#### **Recommendations**

- HNSW recommends that WaterNSW works with the Aboriginal community to develop a model for long term protection, conservation and celebration of the significant values attributed to the cultural landscape of the Burratorang Valley.
- HNSW recommends that WaterNSW undertake significant additional work to appropriately identify and assess the complex values of the Burratorang Valley. Additional work would likely strengthen the values presently identified.

#### **Detailed HNSW Review**

HNSW has concerns regarding the:

- Aboriginal community objections to this proposal;
- survey results, coverage and visibility calculations;
- absence of Aboriginal Heritage Information Management System (AHIMS) site recording forms;
- lack of identification of potential archaeological deposits and subsurface testing;
- analysis of survey results and poor integration with the statement of significance;
- methodology for assessing scientific significance;
- limitations of the predictive model and impact assessment;
- engagement with principles of ecologically sustainable development (ESD);
- lack of conservation outcomes; and
- limited consideration of mitigation options.

#### **Archaeological Technical Report (ATR)**

HNSW considers that the overall quality of the archaeological technical report (ATR) has compromised the ability of the Aboriginal cultural heritage assessment report (ACHAR), and subsequently the EIS, to adequately consider and assess the impacts to Aboriginal cultural heritage. This review will focus on the ATR as the issues stem from this document and are replicated across both the ACHAR and EIS chapters.

#### **The Cultural Values Assessment**

The cultural values assessment is sufficient as a desktop assessment, acknowledging the limited engagement with the Registered Aboriginal Parties (RAPs). The report identifies known cultural values attributed to the Burratorang Valley and defines the risks to those values.

### **Aboriginal Community Consultation and Registered Aboriginal Parties (RAPs)**

Aboriginal community knowledge, comments and concerns have not been appropriately or adequately considered and addressed. The aim of the consultation process is to involve the Aboriginal community in decision making and afford opportunities to provide informed comment on the proposal. HNSW notes the Aboriginal community has clearly expressed its concern with this proposal, but it appears the concerns have not been addressed and there has not been a concerted effort to redesign or appropriately mitigate the impacts.

HNSW notes that the ACHAR and supporting documents placed on EIS exhibition have not been provided to the RAPs for review and therefore, Stage 4 consultation has not been completed.

As the current document version is significantly different to the version previously provided to the RAPs for comment, on 29 April 2021, HNSW expects that the RAPs would have been provided an opportunity to comment on the most recent version prior to exhibition. This means that HNSW cannot appropriately consider all feedback provided by the RAPs as part of its review.

### **Environmental Impact Assessment (EIS)**

HNSW considers Chapter 18 of the EIS de-emphasises the risks presented by this proposal to Aboriginal cultural heritage.

The risk assessment concludes that, without mitigation, impacts will occur which will have medium consequences for Aboriginal cultural heritage. While the EIS considers this a *high risk*, HNSW suggests that the consequences of unmitigated impact are higher than reported by the assessment.

The assessment concludes that there will be a “*possible contribution to cumulative impacts*” (EIS p18-74) because of the proposal. HNSW is of the view that the impact will result in at least a moderate level of cumulative impact causing an increased risk to Aboriginal cultural heritage.

The suggestion that the mitigation measures, as currently presented, are appropriate to mitigate the risk to medium, with only minor consequences for Aboriginal cultural heritage, demonstrates a lack of understanding of the value of Aboriginal cultural heritage and the finite nature of these heritage values.

### **Key mitigation finding:**

*HNSW considers that the mitigation measures proposed are insufficient to adequately reduce the risk to an acceptable level. While the exploration of offset areas that include similar Aboriginal cultural heritage values is desirable, the sites specific to the proposal area, cannot by their nature occur elsewhere and consequently offsetting will not adequately address the impacts.*

### **Detailed Comments on the Archaeological Technical Report (ATR)**

HNSW considers that the ATR does not demonstrate a comprehensive understanding of the **scientific values** of the proposal area. As a result, the ACHAR cannot appropriately integrate these values into the broader significance assessment.

Without undertaking appropriate archaeological investigation, the scientific values of the area cannot be fully understood. The impact to those values is therefore unknown and HNSW, is not in a position to provide informed comment on the proposal.

### ***Subsurface testing and potential archaeological deposits***

As standard practice, HNSW requires the identification of potential archaeological deposits and the subsurface testing of those deposits to establish their archaeological significance.

As part of the background research, the ATR clearly *articulates the potential for subsurface archaeological deposits to be present* within the assessment area. The results of the assessment do not consider the potential for deposit to exist and there has been no exploration of these values

Niche Environment and Heritage (Niche) (2021, pg. 28) states that "Alluvial deposits have a high significance within the Subject Area, as they have the potential for deep stratified deposits preserving *in situ* evidence of occupation including repeated occupation over many thousands of years".

There is a relatively small amount of this deposit type remaining in the area, due to the inundation caused by the existing dam. The current proposal will result in the further inundation of what appears to be the remaining alluvial deposits. Without appropriate subsurface testing of these landscapes it is not possible to understand the implications for the potential loss of this deposit and the cumulative impact this would have.

Similarly, there are potential archaeological deposits identified in many of the rock shelters that will be impacted. There has not been excavation within these features and, while the report recommends this occurs if the project proceeds, it does not identify which sites will require excavation.

Allowing post approval excavation and possible dating of deposit in a rock shelter presents a significant risk that impact will be approved to a site while the significance is unknown.

HNSW sees this as a risk, particularly as there is limited potential to influence inundation areas once approval is granted.

### ***Survey results and predictive model***

Niche (2021, p.32) states that "the survey coverage achieved for the Subject Area presents a strong representative sample of the landscape". HNSW would expect this statement to illustrate why deviating from the standard 100% survey coverage is an appropriate approach. While HNSW acknowledges that Brayshaw (1989), as referenced in the ATR, has previously suggested 30% as an acceptable threshold, HNSW would still anticipate a justification in the context of the current proposal. There is also some ambiguity around the survey coverage. Detailed maps showing survey coverage need to be included in the report.

HNSW considers that visibility is a limiting factor for the survey and suggests that the identification of features such as artefact scatters, grinding grooves and engravings are strongly linked to visibility of the ground surface. Many of the site photographs provided as appendices depict a landscape with clear visibility restrictions. Additionally, the inability of Niche to relocate previously recorded features, for example stone artefacts within sites, has been directly attributed to visibility restrictions in the site descriptions.

***It is likely that site numbers have been underestimated and the effective survey coverage is significantly less than the 33% survey coverage stated.*** This calls into question the suitability of the survey and likely means that the numbers of sites predicted to occur across the unsurveyed impact area have been underestimated. By not fully considering the limitations of the survey at this point in the report, the subsequent sections that rely on these results are compromised.

Consequently, the updated predictive model is unlikely to be accurate for open sites unless ground surface visibility was 100%. If it is assumed that visibility was on average 50% (the

reality is it is likely to be much lower) this would double the number of predicted open sites within the proposed impact area.

The use of “Soil Landscape hectare (ha) per open site” rather than the conventional number of sites per hectare is misleading and makes comparison of site frequency between soil landscapes challenging. With widely different survey coverage and size of soil landscapes across the assessment area, the number of artefacts per hectare is the clearest way to compare site density. By not clearly stating the density of sites per hectare with full consideration of the impact that visibility has upon the likelihood of identifying sites, the predictive model cannot be accurately relied upon.

It is important to note that the predictive model is based on numbers of sites rather than features. One site can be comprised of several features over a large area such as a scarred tree, artefact scatter and grinding grooves. The numbers of features therefore are also likely to be greater than the number of sites predicted.

Additionally, by grouping a range of features into the “open site” classification, a degree of nuance associated with the predictive model is unable to be understood, and several site types are not accounted for, leading to a possible underestimation of the numbers and natures of sites.

### **Site Analysis**

A **basic artefact analysis** of artefact types across the assessment area and some research questions have been identified that need to be incorporated into the statement of significance and the scientific value of sites. There has, however, been only limited analysis of other site types such as rock shelters and grinding grooves. Some level of formal analysis such as grinding groove length has been undertaken as several of these traits have informed the updates to the predictive model. They are not, however, clearly articulated in the analysis.

The detailed **rock art assessment** is challenging to follow and many of the charts are not labelled so that they can be easily understood. HNSW considers that a fuller consideration and discussion of the regional motif and pigment data is required to compare to the current assessment area. Full documentation and base line recording are recommended.

Other elements such as the possible cultural markings at Ashtons 1 45-4-0966 and the engraving of the jumping women at Warragamba 74 need further clarification.

### **Significance assessment**

HNSW has concerns regarding the suitability of the scientific significance assessment. There appears to be a disconnect between the site descriptions from fieldwork and the subsequent report assessment.

The insufficient consideration of potential archaeological deposits and visibility limitations has resulted in higher significance ratings being placed on sites with higher recorded artefact numbers. HNSW notes that several photographs of artefact scatters identified as high or moderate significance are *ex situ* and located within denuded landscapes and consequently good visibility. This has resulted in higher numbers of artefacts being recorded. Other sites, with fewer visible artefacts, but significant visibility restrictions and what appears to be potential archaeological deposits have generally been assigned lower significance ratings due to fewer artefacts being recorded.

HNSW would anticipate that the eroded artefact scatters have relatively lower potential for scientific investigation. Conversely, if there is potential for artefact scatters within potential archaeological deposits *in situ*, we would anticipate a greater scientific significance and a recommendation for further testing to establish the nature and extent of the deposit. There

has been limited consideration of potential archaeological deposits in open sites, despite the soil landscapes suggesting very good subsurface potential. HNSW requests consideration of these values.

### ***Rock shelters***

The rock shelters recorded as part of this assessment have been generally assigned a low scientific value. The presence of concentrated, multi-feature occupation sites with evidence of cultural activities and potential for unexplored subsurface deposit, presents an excellent opportunity for scientific investigation. HNSW considers that without further investigation of potential archaeological deposits within each of the rock shelters, the significance of the sites remains unknown.

HNSW suggests that by more clearly defining the statement of significance and potential research questions, there would have been a clearer framework of values for Niche to investigate. Additionally, consideration of significance and value at orders of scale, may have provided a comparison with the broader archaeological record of NSW.

The presence of such clearly defined cultural values associated with this landscape, presents a rare opportunity to contextualise physical sites and places within a cultural framework.

**Overall, HNSW considers that there is an underestimation of the significance of the sites in this area.**

### ***Impact assessment and consideration of Ecologically Sustainable Development***

The concerns raised above all contribute to a compromised impact assessment. It is not possible to fully consider the impact caused by the proposal without a full appreciation of the value of this landscape.

There is limited consideration of the potential impacts of flooding on archaeological sites, and the report does not draw strongly on broader literature to support the assessment. HNSW notes that as part of the survey there were several examples of the impacts of inundation, however images and descriptions of this are unclear.

The survey below the full supply level was an excellent opportunity to document the impacts caused by inundation, though this opportunity has been largely overlooked. This evidence could have been used to clearly demonstrate both the known and potential risks to sites as a result of inundation and enable mitigation actions to be developed. This would have enabled more targeted consideration of impacts specific to, for example, the flooding of medicinal springs and impacts to rock art. Site by site consideration of potential impacts, supported by both survey evidence and the broader literature is recommended.

**HNSW views this as a significant and irreversible impact to a unique cultural landscape, that is not represented elsewhere due to the specific cultural values of the place. The area has already been compromised by the construction of the existing dam and the cumulative impact, were this project to proceed, would be significant.**

### ***Ecologically Sustainable Development (ESD)***

The impact assessment needs to consider the predicted sites not identified and engage better with the predicted levels of significance. If the existing significance assessment of known sites is used, it could reasonably expect that a total of 140 low value sites, 10 moderate value and 21 high value sites will be located.

It is therefore important to consider the impact to these predicted sites to identify management options and consider whether impact to 21 highly scientifically and culturally significant sites is appropriate. Without further survey of the impact area and potentially

subsurface excavation, the presence and scientific values of the predicted sites are unknown and cannot be fully considered.

HNSW considers that it is difficult to justify the further impact to these values and that it is necessary to explore options to redesign or mitigate impacts. The principles of ESD need to be applied and provide the opportunity for the proponent to argue why the proposal is acceptable. Without this information, HNSW is unclear on the impact assessment or consideration of principles of ESD in the various reports, or the cumulative impact chapter of the EIS.

### ***Mitigation and recommendations***

The report recommendations are not mitigation measures but instead recommendations to undertake the minimum required level of survey, site recording and investigation.

A detailed site recording and a management plan cannot offset the loss of these values and no impact should be approved while the significance and number of sites is unknown. If the proposal were to be approved, both intangible and tangible Aboriginal cultural heritage values would be irreversibly impacted.

**HNSW does not support a proposal where the archaeological values are not understood and where assessment of values is proposed to be deferred to the post approval stage.**

### ***Other comments***

The following points outline additional issues identified by HNSW that need to be considered by Water NSW:

- Provide evidence that AHIMS site cards have been submitted and the report updated. It is the responsibility of the consultants to submit site recording forms.
- Consider indirect impacts such as vibration, dust etc for those sites in proximity to the dam wall construction area. Appropriate management strategies must then be proposed and discussed in the assessment.
- Undertake a new AHIMS search as the previous search is over 12 months old.
- Ensure all site photographs are appropriately scaled in line with Requirement 7b of the [Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW](#) (DECCW 2010).
- Include consideration of the Aboriginal Place nomination in the report. Please note that there are cross references in the text that refer to this subheading that does not appear to exist.
- Cross check all documents to ensure there are no discrepancies between the EIS, ACHAR and ATR. Several discrepancies relating to the numbers of sites and features recorded and proposed to be impacted were noted across all reports.
- Update all references to reflect the updated *National Parks and Wildlife Regulation 2019*.



## **ATTACHMENT 2: DELEGATE OF THE HERITAGE COUNCIL OF NSW COMMENTS ON THE WARRAGAMBA DAM RAISING (SSI 8441).**

### ***As Delegate under the NSW Heritage Act 1977.***

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Thank you for your referral dated 28 September 2021 inviting comments from the Heritage Council of NSW on the above State Significant Infrastructure (SSI) proposal.

The proposed development involves:

- Demolition or removal of parts of the existing Warragamba Dam, including the existing drum and radial gates
- Thickening and raising of dam abutments
- Thickening and raising of central spillway
- New gates and slots for discharge of water from the flood mitigation zone
- Modifications to the auxiliary spillway
- Operation of the dam for flood mitigation
- Environmental flow infrastructure

### **Impacts to *State Heritage Register (SHR)* listed Items**

HNSW notes that the proposal has limited but direct impacts to known Environmental Heritage sites (Post Contact) situated in the below-dam environment.

The proposed SSI construction area **will directly affect one State Heritage Register (SHR) item** - Haviland Park (SHR no. 01375), and is adjacent to two further SHR items: Warragamba Emergency Scheme (SHR no. 01376) and Megarrity's Bridge (SHR no. 01367), located at Warragamba Dam, Warragamba NSW, that are not directly impacted.

**Haviland Park** (SHR no. 01375) is an example of high-quality visitor facilities provided by the former Water Board at dam sites. It contains numerous archaeological, architectural and engineering remnants from Warragamba Dam's construction. The park commemorates the role of Haviland in numerous landscaped parks and is highly valued by the community as a place for recreation, leisure activities and sightseeing.

The Warragamba Emergency Scheme (SHR no. 01376) is representative of the collective response to Sydney's water shortage during the Second World War period. All of the components are excellent examples of the civil engineering skills of the times. The Balance Reservoir is particularly significant because it provides a stilling pool downstream of Warragamba Dam for the purpose of flood discharge. The group of five cottages associated with the construction of the dam are considered to be of high significance because they housed the operations staff between 1940 and 1959.

### ***SHR Items in the vicinity but not directly impacted by the proposal***

**Megarrity's Bridge** (SHR no. 01367) is of high significance as it serves the function of carrying the major Warragamba pipeline across Megarrity's Creek. It is historically associated with the Warragamba Emergency Scheme, and at the time of construction was one of the

largest concrete arch bridges in NSW. It is a unique item of engineering heritage as its design is based on an innovative 'bow string' arch design rather than the more common 'decked' arch design.

Apart from the above SHR items within the construction area, there are 65 further SHR items within the *Warragamba Dam Raising study area* located downstream from Warragamba Dam, which will be potentially affected by the Warragamba Dam Raising SSI development through changes in flooding regimes.

### ***Flood modelling and risk to downstream sites***

HNSW notes that the existing flood risk to these items from the current dam, and the EIS assessment that flood event modelling with the new Dam may reduce potential impacts to downstream heritage sites in the order of 10-30% overall. This is supported.

By the broader nature of potential flood event modelling, the Warragamba Dam Raising SSI development could also affect three places listed on the World Heritage List, five places listed on the National Heritage List, three places listed on the Commonwealth Heritage List, 793 places listed on Local Environmental Plans and the State Environmental Planning Policy, 76 places listed on State Agency section 170 Heritage and Conservation Registers, 40 items on the NSW Maritime Heritage Database and an unknown number of potentially significant heritage items not listed on the statutory registers, such as the 1850s Jooriland Homestead which is potentially significant and discussed in the supporting impact assessment as referred to below.

HNSW notes that the supporting non-Aboriginal heritage impact assessment does not align with the methodology as proposed by the Applicant in *Warragamba Dam Raising Non-Aboriginal Heritage Specialist Report Scope for Assessment of Impacts*, prepared by Artefact Heritage Services and dated 18/10/2018 (Our Ref. DOC17/517925-1) and *Warragamba Dam Raising Non-Aboriginal Heritage Specialist Report: Response to OEH comments*, prepared by Artefact Heritage Services and dated 08/11/2018 (Our Ref. DOC17/517925-6). Section 1.4 of the supporting assessment, entitled 'Assessment approach,' provides no reference to these documents.

The following reports were considered in our assessment:

- EIS Chapter 17 Non-Aboriginal Heritage
- EIS Chapter 28 Cumulative impacts and interactions
- EIS Appendix I: Report entitled *Warragamba Dam Wall Raising EIS: Non-Aboriginal Heritage Impact Assessment*, Artefact Heritage Services, 10/09/2021
- EIS Appendix J: Report entitled *Warragamba Dam Wall Raising EIS: World Heritage Assessment*, SMEC, 10/9/2021

As delegate of the Heritage Council of NSW the following comments are provided:

- In view of the following comments, HNSW notes that for the purposes of the supporting assessment, the Warragamba Dam operational area has been divided and assessed as three discrete portions: upstream study area, construction study area, and downstream study area, as described in section 1.3 of the supporting assessment.

- Section 4 of the supporting assessment, titled 'Existing Environment', contains entries for a select number of sites in the upstream and construction study areas. While it discusses the Warragamba Emergency Scheme (SHR no. 01376), it does not discuss Megarrity's Bridge (SHR no. 01367), both of which are in the immediate proximity of the construction study area but not directly impacted. Section 4 does not contain details on the listed heritage items in the downstream study area.
- HNSW notes that the site inspections associated with the supporting assessment were undertaken on two days (17/11/17 and 8/3/18) and limited to select heritage items in the upstream study area and the construction study area. While the Warragamba Emergency Scheme (SHR no. 01376) has been inspected, Megarrity's Bridge (SHR no. 01367) has not been inspected, and the Jooriland Homestead, which is subject to a separate subsection (4.7) in the 'Existing Environment' section (4) of the assessment has also not been inspected. This level of survey and site inspection is inadequate for such a large-scale project.
- HNSW notes that the archaeological assessment as contained in section 5 of the supporting assessment is limited to the construction study area of the Warragamba Dam Raising SSI proposal and does not address archaeological potential and significance of the numerous listed items assessed as likely to be affected by this proposal which are outside the construction study area.
- The construction study area has been assessed as having moderate to high potential for retaining an historical archaeological resource associated with the construction of the Warragamba Emergency Scheme and the construction camp and township in the 1930s and 1960s (section 5.2). While associated with a listed item of State heritage significance (the Warragamba Emergency Scheme, SHR no. 01376), this archaeological potential has been assessed as meeting the significance criteria at a local level without a clear explanation as to why it would not meet the significance criteria at state level given the unique and pioneering nature of the SHR item. Further justification on this point is recommended, with a view to comparative assessment as justification, for example in relation to Nepean Dam (SHR 1368).
- The 1850s Jooriland Homestead has been identified as a potentially significant heritage item located within the study area upstream from Warragamba Dam (section 4.7.2), which, according to the supporting assessment, will be inundated as a result of the proposed development (section 7.3.4) leading to "additional deterioration of the structures that remain standing within the homestead site" (section 7.3.4). The location of the Jooriland Homestead could not be found on the heritage mapping as contained in the supporting assessment. The heritage significance of the Jooriland Homestead, as referred to in section 4.7.2 of the supporting assessment, has not been discussed in detail and no impact mitigation and management measures have been proposed.
- The supporting assessment provides general large scale (1:300,000) maps of heritage items within the study area and the flood mitigation zone inundation discharge area downstream. No clear and detailed mapping including sensitivity

mapping identifying the individual heritage items to be affected by this proposal has been provided. This detail should be provided in an addendum at the RTS stage.

- The assessment of impacts within the upstream study area (7.3) is not supported by sensitivity mapping.
- Section 7.4.3 of the supporting assessment identifies three items listed on the World Heritage List, four items on the National heritage list, 15 items listed on the NSW State Heritage Register, 184 LEP listed items, 1 item listed on the State Environmental Planning Policy and 17 items listed on State Agency section 170 Heritage and Conservation Registers located in the downstream area that will be affected by the proposal. Section 7.4.5 of the impact assessment states that “it is noted that additional impacts would occur to heritage items within the areas potentially subject to downstream impacts, where low level flooding would be extended in duration. This includes a range of built heritage, landscape, archaeological and maritime items.” Although section 7.4.5 states that “management measures associated with these impacts are included in Section 8.0,” section 8 of the supporting assessment contains no impact management and mitigation measures specific to heritage items within the downstream study area.
- The assessment identifies 40 items listed on the ‘NSW Register of Shipwrecks’ [sic] (the NSW Maritime Heritage Database) as potentially affected by the proposed SSI development. HNSW notes that the list includes 32 shipwrecks, four aircraft, three items of infrastructure and one other item (WWII Z Special Unit Camp). HNSW also notes that three of the 32 shipwrecks are listed as ‘refloated’ and two are listed as ‘salvaged.’ According to the supporting assessment (sections 7.4.3.4 and 7.5) maritime heritage items downstream from Warragamba Dam are likely to be impacted. This indicates that although 40 maritime heritage items are identified, not all may be impacted, however the assessment is not clear on this point. Although sections 7.4.3.4 and 7.5 of the assessment states that impacts to maritime heritage items will be managed according to the measures identified in section 8, section 8 of the supporting assessment contains no impact management and mitigation measures specific to maritime heritage.
- HNSW notes that section 8 of the supporting assessment contains a concise table (Table 8.1) of general mitigation and management measures pertinent specifically to Haviland Park (SHR No. 01375), the Warragamba Supply Scheme (Water NSW s.170 Register No. 4580161, LEP No. I270), the ‘Warragamba Dam Site’ and ‘the adjacent terrace garden on eastern bank’ and referring to the construction study area in general. Apart from this table, the supporting assessment makes no recommendations as to impact mitigation and management for significant non-Aboriginal heritage sites within the Warragamba Dam Raising SSI proposal’s operational study area.
- Chapter 28 of the EIS (Cumulative Impacts and interactions) identifies in Table 28-4 that potential non-Aboriginal heritage cumulative impacts are ‘unlikely’ as “Heritage items potentially impacted are restricted to items near the construction area, and would not be impacted by other identified projects/developments”. This conclusion is

not reflective of the impact assessment set out in Appendix I (Non-Indigenous Heritage Assessment for the project).

## **Recommendations**

In assessing the project, HNSW notes that the Appendix supporting the EIS has not clearly demonstrated what the impacts to known and potential heritage items will be and how any impacts may be mitigated.

In view of the above concerns, HNSW recommends that the following points are addressed in an addendum to the EIS provided at the Response to Submissions phase of the project:

1. The supporting non-Aboriginal heritage impact assessment should be revised to adequately assess the potential impacts to non-Aboriginal heritage items within the Warragamba Dam Raising operational study area. This should include the construction area and the upstream and downstream study areas and recommend appropriate management and mitigation measures based on the items' archaeological and heritage significance, and the assessed levels of impact.
2. The revised report should contain a detailed assessment of significance of the archaeological potential within the construction area, clearly explaining the level of significance of expected archaeological remains contained within the construction impact footprint based on comparative analysis and previous assessments.
3. The revised assessment should contain a clear discussion of the significance of the Jooriland Homestead and outline adequate impact mitigation and management measures for this item.
4. The revised assessment should contain clear and detailed mapping of individual listed heritage items within the Warragamba Dam Raising study area, including the construction zone and the upstream and downstream study areas. This should be supplied as a mapping appendix in the addendum.
5. The revised assessment should discuss in sufficient detail the potential impacts to SHR listed items, and items listed on the NSW Maritime Heritage Database in the downstream study area, to outline appropriate impact mitigation and management measures specific to these categories of heritage items.
6. The revised report should contain detailed sensitivity mapping indicating which upstream and downstream heritage items are expected to experience positive impacts and which individual items are expected to experience negative impacts. This should be supplied as a mapping appendix in the addendum.
7. The revised assessment should contain recommendations as to the next steps to be undertaken in the management of non-Aboriginal heritage items within the Warragamba Dam Raising study area including the upstream and downstream study areas.
8. The Cumulative impact assessment should be revised for the project for non-Aboriginal heritage to reflect the amended assessments required to inform the RTS submission.

9. The Proponent should undertake a Heritage Interpretation Plan to guide post-approval public education and engagement outcomes. This should be prepared at the project inception and draw on the additionally required Environmental Heritage Assessments noted above.
10. The Heritage Interpretation Plan should be delivered through a range of interpretative products and devices to tell the rich story of the Cultural Landscape, Aboriginal connections to Country, the Dam construction, and associated heritage places and stories.

Early and ongoing collaboration with the relevant Commonwealth and State agencies and local councils on mitigating impacts to heritage items associated with the project is recommended.

HNSW recommends a meeting to discuss the heritage issues raised in this submission to ensure that DPIE and the Proponent can best address them for the RTS phase of the project.

If you have any questions regarding the above advice, please contact Tim Smith OAM, Director Assessments at Heritage NSW on (02) 8837 6327.

Yours sincerely



Sam Kidman  
Executive Director  
Heritage NSW  
**As Delegate of the Heritage Council of NSW**  
17 December 2021



### **ATTACHMENT 3: HERITAGE COUNCIL RESOLUTION ON THE WARRAGAMBA DAM RAISING (SSI 8441)**

During Heritage Council meeting 491 on 3 November 2021 following a briefing on the Warragamba Dam Raising EIS Exhibition, the Heritage Council made the following Resolution published on the HNSW website.

#### **Resolution 2021-61**

The Heritage Council of NSW:

1. **Notes** the update from Heritage NSW on delegated responses to the Warragamba Dam Wall raising project EIS, which is on public exhibition.
2. **Expresses** serious concerns about the project's potential impacts to tangible and intangible Aboriginal cultural heritage and the cultural landscape.
3. **Notes** the material disparity between the scientific and archaeological reading of sites versus Aboriginal understanding of the significance of sites.
4. **Notes** the concerns of Aboriginal stakeholders with the EIS documentation and urges Water NSW to pursue more culturally sensitive engagement.
5. **Supports** Heritage NSW making continued representations about the impacts of this proposal on cultural heritage.

Moved by Paul Knight and seconded by Louise Thurgood.



## **ATTACHMENT 4: COMMENTS ON THE IMPACTS TO THE BLUE MOUNTAINS WORLD HERITAGE AREA AS THEY RELATE TO ABORIGINAL CULTURAL HERITAGE FOR THE WARRAGAMBA DAM RAISING (SSI 8441)**

The following documents were considered in our assessment:

- SMEC 2021, *Environmental Impact Statement (EIS): Warragamba Dam Wall Raising*, prepared for WaterNSW, dated 10 September 2021
  - Chapter 18 Aboriginal Heritage
  - Chapter 20 Protected lands
  - Chapter 28 Cumulative Impacts
  - Chapter 29 EIS Synthesis, project justification, and conclusion
  - Appendix A: Secretary's Environmental Assessment Requirements (SEARs).
  - Appendix J: World Heritage Assessment Report, dated 10 September 2021, prepared by SMEC.

HNSW understands this project was referred to the Commonwealth Minister for the Environment under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act). The project was declared a 'Controlled Action' on 17 July 2017. This was due, in part, to the project's potentially significant impact on the Greater Blue Mountains World Heritage Area (GBMWhA) which is both a World and National Heritage listed place. The assessment of the project's impacts on this matter of national environmental significance is to be carried out in accordance with the bilateral agreement between the NSW and Commonwealth Governments.

This review was undertaken in accordance with the guidance material - *Matters of National Environmental Significance, Significant impact guidelines, Environment Protection and Biodiversity Conservation Act 1999*.

The assessment undertaken by SMEC has concluded "while the Project could potentially impact the GBMWhA, these impacts would not be significant and would not result in a material loss or degradation of the Outstanding Universal Value of the GBMWhA" (p.162 Appendix J).

HNSW however considers that the impact to Aboriginal cultural heritage values by the current proposal will compromise the integrity of the GBMWhA, the broader cultural landscape and consequently the world and national heritage listing.

### **Aboriginal Cultural Heritage Values**

The original World Heritage nomination included Aboriginal cultural values, however due to a lack of understanding of these values at the time the nomination under this criterion was not successful.

The integrity statement for the listing identified the cultural context of the GBMWhA as directly related to the integrity of the landscape, the protection of which is fundamental to maintaining world heritage values. The statement of integrity is clear that through the ongoing association of Aboriginal people, in both a traditional and contemporary capacity, there is a continuous custodial relationship within the GBMWhA and surrounding national parks. Furthermore, the "occupation sites and rock art provide physical evidence of the longevity of the strong Aboriginal cultural connections with the land. The conservation of these associations, together with the elements of the property's natural beauty, contributes to its integrity." (<https://whc.unesco.org/en/list/917/>).

Consequently, while the criteria for World Heritage listing are not specific to Aboriginal cultural heritage values, the integrity of the listing, the GBMWhA Strategic Plan and the various associated management plans all recognise these complementary values and emphasise the importance of their protection.

A lack of understanding of heritage values associated with the GBMWhA is one of the key risks currently identified by the Strategic Plan. While the current investigation has increased understanding of Aboriginal cultural heritage in the area, a comprehensive survey has not occurred within the entirety of the GBMWhA proposed for impact. The impacts are not therefore understood and any impact to irreplaceable Aboriginal cultural heritage within the world heritage area, or adjoining national park, on the scale proposed, would be detrimental to the Outstanding Universal Values and the National Heritage Listing.

The *Matters of National Environmental Significance, Significant impact guidelines, Environment Protection and Biodiversity Conservation Act 1999* are clear that actions likely to have a significant impact on the values of a World Heritage property are those that:

- restrict or inhibit the existing use of a World Heritage property as a cultural or ceremonial site causing its values to notably diminish over time
- permanently diminish the cultural value of a World Heritage property for a community or group to which its values relate
- alter the setting of a World Heritage property in a manner which is inconsistent with relevant values
- remove, damage, or substantially disturb cultural artefacts, or ceremonial objects, in a World Heritage property, and
- permanently damage or obscure rock art or other cultural or ceremonial features with World Heritage values.

Additionally, an action is likely to have a significant impact on Indigenous heritage values of a National Heritage place if there is a real chance or possibility that the action will:

- restrict or inhibit the continuing use of a National Heritage place as a cultural or ceremonial site causing its values to notably diminish over time
- permanently diminish the cultural value of a National Heritage place for an Indigenous group to which its National Heritage values relate
- alter the setting of a National Heritage place in a manner which is inconsistent with relevant values
- remove, destroy, damage or substantially disturb archeological deposits or cultural artefacts in a National Heritage place
- destroy, damage or permanently obscure rock art or other cultural or ceremonial, artefacts, features, or objects in a National Heritage place
- notably diminish the value of a National Heritage place in demonstrating creative or technical achievement
- permanently remove, destroy, damage or substantially alter Indigenous built structures in a National Heritage place, and
- involve activities in a National Heritage place with substantial and/or long-term impacts on the values of the place.

Most of these actions are proposed to occur as a result of the current proposal. It is important to note that it is not necessary for the action to impact the entirety of the property or values. It is sufficient if an action is likely to have a significant impact on a part, element, or feature of a World Heritage property, which embodies, manifests, shows, or contributes to the values of that property.

The GBMWhA Strategic Plan commits to undertake further research into the cultural heritage of the GBMWhA and intends to seek formal recognition of these values as appropriate. In consideration of this, there is additional potential for the proposed impacts to compromise the future world heritage listing of the cultural values.

It is vitally important to view areas with such specific and important universal values as a finite resource, that once lost cannot easily be replaced. While there is still potential for world heritage listing of the area based on the significant cultural values, a precautionary approach should be taken, and all efforts made to protect and conserve these areas into the future.

HNSW supports the nomination of the GBMWhA on the basis of the outstanding Aboriginal cultural values of the area and considers that the proposal will have significant impact to the values of the place without appropriate consideration of conservation or mitigation options.