

SUBMISSION - WARRAGAMBA DAM RAISING PROJECT – SSI-8441 - TED
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19 DECEMBER 2021

INTRODUCTION

The Burragorang Valley was arguably one of the most beautiful and picturesque areas in Australia. Moreover it was the traditional lands of the Gundungurra (Russell 1914) and other Aboriginal peoples and by the 1940s a thriving small settlement with a long history. All that was lost when the Warragamba Dam was built.

The Dam was built to provide a reliable water supply for Sydney (SCA 2003). Following reviews of its safety during floods the dam wall was raised by 5 metres between 1987 and 1989 when it was raised and strengthened. Further assessments were undertaken and recommendations were made to raise the wall again by 23 metres. This did not proceed however in 1999 work was began on the construction of an auxiliary spillway to allow floodwaters to pass around the dam. This was completed in 2002. Warragamba Dam is part of a larger Sydney Water Supply Catchment Areas involving the Nepean, Avon Cordeaux and Cataract Dams in the Southern Highlands, and the Woronora Dam.

The Warragamba Dam Raising Project is the third attempt to raise the dam wall. The Warragamba Dam Raising Environmental Impact Statement (EIS) is the assessment of the Project's obligations under a variety of NSW and Commonwealth legislation.

This submission is mainly concerned with the effects of the Project on proposed upstream changes during proposed temporary inundation of rivers in the valleys below the southern escarpment areas of the Blue Mountains especially between the Southern Escarpment and Lake Burragorang but in particular the Kedumba, Coks and Kowmung River valleys.

NSW Government Agency responsible for Warragamba Dam and NSW water supply is WaterNSW. The Project is a flood mitigation proposal for the Hawkesbury-Nepean Valley Flood Plain (INSW2019). This submission considers flood mitigation is a new facet of WaterNSW Warragamba Dam responsibilities.

BACKGROUND

The author of this submission has a personal interest in the Blue Mountains living in the region for over the past 34 years. The author did their secondary schooling in the Penrith

LGA when experiencing firsthand flooding numerous times in the Penrith and the surrounding area. In between these periods of the author's life, they were a frequent visitor to the Blue Mountains and Hawkesbury-Nepean floodplain regions undertaking many bushwalks, camping and showing the many cultural, natural and man-made tourist attractions in the regions to friends, guests and overseas visitors. Even the Warragamba Dam was visited on occasions.

During the author's high school days they commuted to the Penrith LGA from the Blacktown LGA for over 7 years. In that time a number of flooding events occurred in the Hawkesbury-Nepean floodplain including major flooding of South Creek during the 1960s that flooded St Marys High School and impacted other residences and facilities in St Marys. On a few occasions the author remembers school colleagues living in the Wallacia, Warragamba and Richmond/Windsor area were unable to attend school because of flooding. The school also participated in cultural activities at Warragamba Dam such as the Festival of Carols (SCA 2003).

Over the years the author has done many bushwalks and camping trips in the southern Blue Mountains. Numerous overnight bushwalks were undertaken to the Kanangra Walls, Kowmung River, Cocks River, Megalong Valley, Jamison Valley and Narrow Neck Plateau. One memorable trip involved a three day bushwalk from Kanangra Walls to Katoomba via the Gangerang and Wild Dog Mountains. Many day walks have been undertaken into Jamison and Megalong Valleys, Narrow Neck Plateau, Mt Solitary, Kings Tableland and the Blue Mountains Southern Escarpment

In 2018 the author and a friend undertook an overnight walk into the Kedumba Valley staying at Kedumba Crossing campsite. It was a wonderful experience and the Kedumba Valley is a very beautiful place. The Kedumba River is a small river but runs through some beautiful country. During early 2000 there was major flooding of the Kedumba River and I understand Kedumba Crossing area and campsite has been irrevocably changed due to the impact of this recent flood having washed away the small weir. None of my walks were with organised organisations like bushwalking clubs and were privately undertaken.

In the last ten years or so the author has become interested in the local history of the Blue Mountains and in particular the early mining, settler, and the Aboriginal community and their culture, as well as track and walking infrastructure and building, and the history of Blue Mountains conservation.

One trip was organised by a Blue Mountains Historical Society (BMHS) member with WaterNSW in 2015 where a small group of BMHS members and others drove into the Kedumba Valley to look at activities that occurred there and some remains of historical

homesteads. These were Maxwell's Hut (located near Waterfall Creek), Cleary's Homestead "Kedumba" ruins (at Kedumba Crossing campsite) and Smith's Hut further down the Kedumba River and passed Reedy Creek.

Over the last few years the author has walked the length of the Blue Mountains Southern escarpment from Medlow Bath to Kings Tableland with a view to assessing and better understanding the early history of the area. In this time the author and colleague have written two historical articles relating relating to early mining and bushwalking in the Jamison Valley.

GENERAL COMMENTS ON The ENVIRONMENTAL IMPACT STATEMENT (EIS)

The EIS document is huge containing 29 Chapters, Table of Contents & EIS Certificate, Glossary, Executive Summary and 53 Appendices.

Considerable problems were experienced with downloading and electronic storage which probably took at least one working day to access.

Difficulty was also experienced with printing the EIS which also took at least another working day to print. As it turned out much of it could not be printed in black & white (B&W) due to the enormous number of figures in each chapter that were colour coded and therefore impossible to analyse in B&W. Footers containing the titles of the chapters, appendices etc and page numbers could not be read as they did not print well in colour. Moreover, the EIS text format was also colour coded with section headings in an orange colour as were dot points, and some sub-texts in multiple colours (such as blue, orange, red and black) and also difficult to read. Many of the figures were in multiple colours too with labels in colour and font so small they are often still unclear using a magnifying glass.

The font size appears to be around 9 point or less (compared to Arial Font) although depending on the type of font used which was not identified, can be even smaller. This font size and the colour type made a printed was virtually impossible to read. Consequently, this meant that many of the chapters that the submitter was interested in had to be printed and then downloaded on computer regularly to read again on a computer screen.

There was inconsistency in formatting and presentation eg only some chapters had summaries and not all had appendices included in the Contents pages. This increased the time needed to read the chapters and appendices. Many chapters referred to other chapters and appendices that were in other chapters

So overall the EIS was very difficult to navigate and not considered user or print reader friendly.

The comments in this submission have been confined to certain chapters which the author is interested in and so comment on the whole EIS document is not provided.

Below is a summary in table form of the chapters and appendices for which comment is provided below.

EIS Chapter	EIS Title	Pages	Number of Appendices	Title	Pages
	Executive Summary	48	0		0
08	Biodiversity – Upstream	126	1	F1	709
			12 parts	F1-L Part 1 to Part 8	602
12	Matters of national environmental significance - Biodiversity	94	13	F1	See above
			1	F2	524
			7 parts	F2-1 Part 1 to Part 7	
			1	F3	538
			1	F4	157
			1	F5	524
17	Non-Aboriginal Heritage	74	1	I	189
			1	J	175
18	Aboriginal Heritage	81	1	K – App1 AAR	193
			4	K – App1 AAR Annex 1-5	540
			1	K-App2 CVA repo	231
			1	K-ACHAR	94

			2	K- ACHAR Appendix 3 to 11	63
20	Protected Lands	60	0		0
25	Visual Amenity	62	1	P	82

Not all references used in the various chapters and appendices are contained in the separate References to the EIS eg some of the Source references.

1) Executive Summary

The Warragamba Dam Raising Project is outlined to raise the Dam wall to enable the temporary holding of floodwaters from the Warragamba catchment to mitigate flooding downstream of the Hawkesbury-Nepean Valley floodplain.

A considerable portion of the Executive Summary seems to be taken up with justifying the Project rather than actually summarising the EIS.

Reference is made to the *Hawkesbury-Nepean Valley Regional Flood Study* (INSW 2019) published by Infrastructure NSW in July 2019 as the impetus for the Warragamba Dam Raising Project. Which seems to be a recent initiative whereas this proposal was already being raised for discussion in 2013 (Saulwick 2013).

The relative contributions of different catchments in a range of floods in the Hawkesbury-Nepean Valley are considered including Warragamba, Nepean River to Wallacia, Grose River, South and Eastern Creeks. It is estimated that the majority of flooding in the Hawkesbury-Nepean Valley Floodplain is due to Warragamba catchment (over 70%) so the other contributing possible rivers creeks are not considered in this EIS.

It seems that other possible contributions to the Hawkesbury-Nepean Valley Floodplain and alternative options are dismissed too quickly.

EIS ISSUES

Several issues are raised in the EIS on which comment is provided in this submission.

Specifically, the issues are confined to the potential impacts of the proposed Warragamba Dam Raising (the 'Project' as defined in the EIS) upstream of the Dam.

However, some broader issues are also raised that impact on the three major study areas considered by the Project (as defined in the EIS), namely the impacts upstream of the Warragamba Dam site, at the Warragamba Dam site itself and downstream of the Warragamba Dam.

Additionally other areas are considered that are closely associated with the main Project and may impact on it such as the Upper Nepean River catchment area.

General issues of concern relate to:

- preservation of the GMWHA, wilderness areas, National Parks and State Conservation Areas
- public access to GBMWH, National Parks, State Reserves and any other recreation areas
- retaining access to Blue Mountains walking tracks and amenities (particularly along the Blue Mountains Southern Escarpment and valleys)

Specific issues considered as discussed in the various EIS Chapters are:

- effects on Biodiversity
- National Environmental Significance – Biodiversity
- impacts on Aboriginal Heritage
- impacts on Non-Aboriginal Heritage
- effects on Protected lands
- impacts on Visual amenity

These issues are discussed below in more detail. Most of these issues are dealt within the relevant specific chapters of the EIS but some also cut across a number of chapters or are considered in more detail in the various relevant EIS Appendices. However, the chapters or appendices will not be reviewed or discussed in great depth as time does not permit a more thorough evaluation of these issues.

(1) Biodiversity – Upstream (EIS Chapter 08)

This chapter is supported by an enormous amount of information in numerous associated Appendices one of which is very large (Appendix F1 Biodiversity Assessment Report - Upstream is 709 pages) and the rest contain much further discussion and detailed

documentation. Biodiversity is such a complex and specialised knowledge area that only some general comment will be made.

Lake Burrangorang and catchment areas in the upstream study area involves many rivers. However the comments on chapter 08 of the EIS are restricted to the Coxs, Kowmung and Kedumba Rivers which the submitter has visited over a lifetime.

Extensive review of documentation and field surveys were undertaken for the Biodiversity Assessment Report. There are two well publicised threatened species identified that have Biodiversity Conservation Act 2016 (NSW) / Environmental Protection and Biodiversity Conservation Act 1999 (Commonwealth) status:

Flora - *Eucalyptus benthamii* (Camden White Gum) – status Vulnerable

Fauna - *Anthochaera phrygia* (Regent Honeyeater) – status Critically Endangered

The Camden White Gum is located in the Kedumba River area whereas a large breeding population of the Regent Honeyeater was recorded around Tonalli Cove.

The Assessment Report found 18 flora species including the Camden White Gum that are Vulnerable, Endangered or Critically Endangered that would be impacted (Table 8-26) and 16 fauna species including the Regent Honeyeater that would be impacted (Table 8-33).

The Report identified impacts that required further consideration by the consent authority in relation to the biodiversity values that involved some landscape features, native vegetation and various species and populations (Table 8-38).

(2) Matters of National Environmental Significance – Biodiversity (EIS Chapter 12)

These matters deal with the impact of the Project on Matters of National Environmental Significance – Biodiversity as discussed in Chapter 12 of the EIS.

Assessment under the EPBC Act and guidelines from the Commonwealth Department of Planning, Industry and Environment (DPIE). Controlling provisions cover:

- World heritage properties
- National heritage places
- Listed threatened species and communities

The assessment of Potential impacts to biodiversity is supported by detailed investigations and documentations in:

- Appendix F1 (Biodiversity assessment report – upstream)

- Appendix F2 (Downstream ecological assessment)
- Appendix F3 (Biodiversity assessment report – construction area)
- Appendix F4 (Aquatic ecology assessment report)
- Appendix F5 (Matters of national environmental significance – biodiversity)

This chapter covers three impact areas – upstream, downstream and the Dam area. This submission comments will be restricted to the upstream study area and associated matters have been raised in chapter 08 (Biodiversity – upstream) and some of its appendices.

It is stated in the chapter that the proposed Project changes of temporary inundation of Lake Burragorang has been estimated to be an additional duration of 8½ days (see Appendix J, figure 4-7). This means at the Dam wall the total inundation period has been estimated to be between 1 and 14 days (or longer depending on the size of the flooding event) for raising the Dam compared to the current estimated levels of 1 to 6 days.

It should be noted that the contents listed at the beginning of this chapter do not line up with some of the actual chapter sections eg the listed contents of sections 12.11 (Threatened species and communities), 12.12 (Migratory species) and 12.13 (Summary of potential impacts) are not the same as the actual chapter sections 12.11 (Migratory species), 12.12 (Summary of potential impacts) and 12.13 (Migration and management of environmental impacts). This led to considerable confusion trying to find some relevant content.

This submission comments are mostly restricted to three of the five main tributaries of Lake Burragorang, that is the Coxs, Kowmung and Kedumba Rivers.

The chapter has identified the upstream catchment as having unique topographical features.

Two threatened ecological communities (TEC) were identified in the upstream study area following increased inundation but more detailed information is provided in Appendix F1 (Biodiversity assessment report – downstream). Some comments are also provided in chapter 08 above.

In section 12.12 (Summary of potential effects) dealing with 'Upstream' on page 83 it states, "Detailed discussion of impacts is provided in Appendix F1 (Biodiversity assessment report – downstream), section 7.3.3" but there is no section 7.3.3.

Appendix F1 (Biodiversity assessment report – downstream)

In lieu of the non-existent section 7.3.3 in Appendix F1 (Biodiversity assessment report – downstream) as stated in chapter 12 the whole of section 7 (Impact assessment) in Appendix F1 was closely reviewed.

Section 7 is 51 pages in length and contains a considerable amount of detail. It provides listing of threatened ecological communities, threatened flora species, threatened fauna species, and discusses cumulative impacts and indicates significant impacts.

Impacts on threatened ecological communities identifies 18 Plant community types (PCTs) potentially (see table 7.1). Potentially loss of seventy six (76) threatened flora species and their habitat (see table 7.2) and this includes the Camden White Gum (*E.benthamii*) which is considered Vulnerable. Potential Project impacts on 16 fauna species that are Critically Endangered, Endangered or Vulnerable and this includes the Regent Honeyeater (*A..phrygia*) which is considered Critically Endangered.

A number of cumulative impacts have been identified (see section 7.3) involving upstream operational impacts within the Project. These are:

- flood stress of native vegetation due to temporary inundation of around 2 weeks
- long term erosion
- changes to vegetation structure and floristics
- physical damage to vegetation
- loss of threatened species and their habitats

This is a considerable number of flora and fauna species, threatened habitats and ecological communities are affected by the Project. Such potential and expected losses are unacceptable and would not be able to be easily managed. Consequently the serious impacts on downstream biodiversity identified in this chapter the Warragamba Dam Raising Project must not proceed.

(3) Non-Aboriginal Heritage (EIS Chapter 17)

This issue deals with the impact of the Project on Non-Aboriginal Heritage as discussed in Chapter 17 of the EIS. Two substantial appendices (Appendix I: Non-Aboriginal Heritage Assessment Report and Appendix J: World Heritage Assessment Report) support this chapter.

This submission comments are restricted to the Upstream studies of the Project. I have made many walks (both day and overnight trips) into the Kedumba, Jamison, Megalong Valleys, and some of the Kowmung River valleys. In more recent times and with a greater interest in, and better knowledge of, local history of the Blue Mountains I have walked most of the tracks along the southern escarpment and many of the tracks into the Kedumba, Jamison and Megalong Valleys.

The chapter presents very little information about the upstream non-Aboriginal heritage. And seems to concentrate more on the Warragamba Dam itself and its immediate vicinity. This is much on the downstream impacts of the Project. In addition, the chapter has the following additional limitations:

- archaeological studies done only on listed archaeological sites (refers to Appendix I)
- 20th century buildings were not included
- no new archival investigations were undertaken
- three (3) days only of site visits

A brief historical overview is provided and outlined under two headings – ‘Early colonial history’ (half a page) and ‘Development of Warragamba Dam’ (two pages). This is inadequate and misleading as there is no historical information provided about the Burragorang Valley settlement nor its subsequent inundation and the activities leading up to inundation such as tree clearing.

Similarly, the historical archaeological potential is summarised under two primary phases of development:

- Phase 1 (c.1800-c.1900) Early land grants and rural development
- Phase 2 (c.1900-c.1940) Urban expansion/Warragamba Dam

This too is misleading as there is no information provided about the mining or logging activities in the Burragorang Valley. Nor the active bushwalking and tourist activities from the 1900s up to the start of building of the Dam in 1948. For example, there were a number of guest houses operating in the Valley and the NRMA owned two popular camping grounds there by the 1930s (Monks 2019). So most of the colonial and post-colonial and modern history up to the late 1940s and their associated heritage and artefacts are now under Lake Burragorang most probably lost permanently. The phase on ‘Urban expansion/Warragamba Dam’ concentrates solely on the Dam. These two phases also leave out activities in the valleys around Lake Burragorang such as the Kedumba Valley where farming and pastoral activities were still undertaken in some places up to the 1990s.

There appear to be no archaeological non- Aboriginal sites in the upstream study area. Interestingly, the Joorilands Homestead in the Upper Wollondilly is an unlisted potential heritage item that is located in the inundation zone is mentioned.

The author has visited the Kedumba Valley on several occasions during over 34 years of residency in the Blue Mountains. One trip was organised by a Blue Mountains Historical Society (BMHS) member with WaterNSW in 2015 where a small group of BMHS members

and others ventured into the Kedumba Valley to look at historical activities and some remains of historical homesteads. These were Maxwell's Hut (located near Waterfall Creek), Cleary's Homestead ruins and Smith's Hut further down the Kedumba River and passed Reedy Creek. Maxwell's Hut, an early slab hut, has now been restored by the National Parks and Wildlife Service. The Cleary Brothers took over Maxwell's selection and built a road into the Kedumba Valley from Kings Tableland and through the Kedumba Pass to their homestead in the early 1950s as the access road from Camden was lost due to the Lake Burragarang. Smith's Hut was abandoned around 1953 when the access to Camden was lost but the property almost certainly pre-dates 1950.

On another bushwalk involving an extended overnight camp at Kedumba Crossing a few fence lines, stockyard ruins and some dams (all in some stage of ruin) were "discovered" between Waterfall Creek and Reedy Creek.

Some Concerns About Appendix I (Non-Aboriginal Heritage Assessment Report)

There are some concerns about matters raised in Appendix I in relation to the upstream study area. The historical archaeology timeline is too restrictive and only extends from c.1800 to c.1940, and then seem limited to rural activity and the construction of Warragamba Dam

Interestingly in relation to Phase 1 mentioned above Appendix I states on page 75:

There is nil to low potential that archaeological evidence of land clearance, and modification for agricultural or pastoral purposes, predating the construction of the Warragamba Dam, would be located within the study area. Evidence for these types of activity are typically ephemeral and therefore likely to have been disturbed by ongoing modification of the landscape through construction. Archaeology may include the following:

- *Evidence of tree clearance (tree boles etc)*
- *Evidence of cultivation (postholes, plough marks in subsoils, etc)*
- *Evidence of the formalisation of agricultural precinct boundaries, such as postholes associated with early fence lines*

As mentioned above there are certainly a few homestead ruins and evidence of property boundaries such as fence lines in the Kedumba Valley. While this doesn't fit the timescale presented in Appendix I this history is still available to be salvaged and documented.

Assuming the properties in the Kedumba Valley were there and still operational from around 1950 then it is approaching 75 years since, and sadly a lot, if not most, of the histories of these properties are now lost. In another part of the catchment Joorilands Homestead seems to be an exception as it is certainly threatened but is still not listed as a heritage item. There

was an opportunity to study some sites before they are entirely lost especially their ephemeral landscapes as is noted in phase 1 as they will not last much longer.

Both listings of World Heritage and National Heritage are considered in this chapter. It identifies the following listed heritage items (based on the World Heritage Assessment Report in Appendix J):

- Greater Blue Mountains Area (WHL Place ID 105122) - referred to a separate report in Appendix J
- Greater Blue Mountains Area (NHL Place ID 105696) - referred to a separate report in Appendix J
- Greater Blue Mountains Area (NHL Place ID 105999) - referred to a separate report in Appendix J
- Joorilands Homestead (currently an unlisted potential heritage item) is located in the inundation zone

The first three items involve the Blue Mountains National Park and the Greater Blue Mountains World Heritage Area and is discussed below.

However much of this assessment report concentrates studies on non-Aboriginal heritage at the Dam site and in the downstream area in the Hawkes Nepean flood plain. The opportunity to do more studies upstream of the Dam has been lost.

Some Concerns about Appendix J (World Heritage Assessment Report)

There are also some concerns about matters raised in Appendix J in relation to the Project upstream study area. These involve potential loss of endangered fauna and flora, areas of GBMWhA, National Parks and Conservation Areas, and the discussion of Special Areas of the Burratorang catchment. These issues have been also discussed to varying degrees in other chapters and appendices of the EIS.

In relation to Special Areas of the catchment this matter is also raised on page 20 of chapter 20 of the EIS (Protected and Sensitive Lands) and this submission provides comment on this matter there as in Appendix J this matter is only raised by the EIS in relation to GBMWhA and Lake Burratorang and Warragamba Dam and this matter potentially has a more broader impact. However, Figure 6.1 in Appendix J provides a more detailed picture of the boundaries of the catchment Special Areas.

Section 5 deals with the upstream impact area (pages 61-63) and estimates the size of upstream impact area is about 1400ha with 304ha occurring within the GBMWhA. Although this is estimated is estimated to represent 0.03% of the total area of the GBMWhA this

submission proposes that no loss of GBMWhA area is acceptable nor that of any area of the Kowmung River which is a gazetted Wild River.

Moreover the proposal to use the upstream impact area as a means to offset the potential impact of the Project on World Heritage Areas is unacceptable. Two potential risks of the Project are identified to the first World Heritage criterion and its component values of the GBMWhA are identified (see Summary page 151):

- *Narrow-leaved Ironbark – Forest Red Gum on rocky slopes of the lower Burragorang Gorge Sydney Basin Bioregion*
- *Eucalyptus benthamii*

Section 13 provides details of proposed numerous mitigation measures and offsets. This submission has not considered the EIS proposed offsets and its associated management, but its position is that offsets to any losses to gazetted National Parks, Conservation Areas, Wild Rivers, GBMWhA as well as threatened species is unacceptable and against the principles of legislating these areas, heritage and threatened species in the first place. And that is despite a Federal Environmental Offset Policy existing under its Environmental Protection and Biodiversity Conservation Act.

Further research (eg impact on temporary inundation on biodiversity) and completion of some detailed impact assessments (eg Aboriginal cultural heritage site and places) are recommended in this chapter identifying that some research and impact assessments have not been sufficient or thorough enough. This is of concern.

(4) Aboriginal Cultural Heritage Assessment (EIS Chapter 18)

This issue deals with the impact of the Project on Aboriginal Cultural Heritage as discussed in Chapter 18 of the EIS. This was a very difficult chapter to navigate through due to its size and complexity. It contains nine separate appendices some of which are massive in size. Consequently, parts of the chapter and many of the appendices were skimmed through. So unfortunately a comprehensive review of this chapter was unable to be done. The chapter assesses the impact of the Project on the Project Upstream Impact Area (PUIA) and the Existing Upstream Impact Area (EUIA). It is noted that the information in this chapter has been heavily redacted. This is understandable due to the sensitive nature of some of the material in the various reports and assessments to Aboriginal peoples.

Prior to the construction of Warragamba Dam the Burragorang Valley and its associated Coxs and Kedumba River valleys were the traditional lands of the Gundungurra Aboriginal peoples.

Unfortunately many of the important Gundungurra sites in the Burragorang Valley were lost when Lake Burragorang was formed after the Warragamba Dam was built in 1960. It appears no Aboriginal cultural heritage assessments were undertaken prior to the dam being built. So a lot of Aboriginal culture, pathways through the valleys, history and heritage (especially of the Gundungurra peoples) were permanently lost as Aboriginal people were displaced from their traditional lands in the Burragorang Valley and were transplanted to a number of locations such as Katoomba and La Perouse in Sydney.

All this is noted in this chapter which assessed the Aboriginal Cultural Heritage in relation to PUIA . Its assessment includes not only the traditional country of the Gundungurra people but also the peoples of the Durag and Tharawal (Dharawal). A number of commissioned reports were undertaken on assessing Aboriginal cultural heritage and the impact of the Project but this chapter seems to play down the serious limitations of these assessments.

Limitations of the Aboriginal Cultural Values Assessment Report

This is contained in *Appendix K – ACHAR – Appendix 2 Aboriginal Cultural Values Assessment Report*. It considered social or cultural value, spiritual value and historical value. This report has been redacted.

Regarding the Upstream study area 32 cultural value places were identified with 29 already impacted and are subject to partial inundation while 3 will be places subject to frequent inundation.

Unfortunately during this study there was very limited consultation with the Registered Aboriginal Parties (who did not wish to participate) and it was reduced to undertaking background research (a desktop analysis).

The report notes on page 18 the limitations of the study:

“... not been possible to undertake the cultural values assessment process collaboratively with Aboriginal cultural knowledge holders.”

and further states:

“... the building of the Warragamba Dam represents the long history of colonial dispossession of Aboriginal People of the Burragorang Valley, a process that began long before its construction ...”

Importantly it did identify harm to what it called 'intangible values' stating on page 19:

"... [the] report primarily concerned with the identification of intangible cultural sites that are not identified through archaeological investigation."

This report makes seventeen (17) recommendations none of which recommend that the Warragamba Dam Raising not proceed.

Limitations of the Archaeological Assessment Report

This report is contained in *Appendix K – Aboriginal Cultural Heritage Assessment Report – Appendix 1 – Archaeological Assessment Report*.

Field surveys were undertaken. Seventy six (76) days of field study done covering an area of 2,655ha resulting in 334 cultural heritage sites identified with 464ha in the PUIA involving 43 sites.

A predictive model was also used It included considerations of previous archaeological surveys and assessments in the local area and wider surrounds, known sites and land uses, and some landscape factors. An additional 131 archaeological sites were predicted.

Under the circumstances it is understandable that there was a lack of cooperation by the RAPs.

Seventy six field days is considered to be insufficient time allocated to undertake a comprehensive Aboriginal archaeological assessment of the areas proposed to be inundated. Especially when only limited information is available at this time. Then to apply a predictive model to complete the Archaeological Assessment is inappropriate.

The report makes four (4) recommendations none of which recommend the Warragamba Dam Raising should not be raised.

Limitations of the Aboriginal Cultural Heritage Assessment Report

This report is contained in *Appendix K – Aboriginal Cultural Heritage Assessment Report*. This appendix provides an overview of the Aboriginal Cultural Values Assessment Report and the Archaeological Assessment Report.

This report provides a brief historical background on Aboriginal occupation in the Burragorang Valley during colonial and more recent times, and summarises the archaeological and cultural values studies putting them in context within the PUIA. In summary

- 43 known archaeological sites (and an additional predicted 131 archaeological sites)

- 11 cultural places within the PUIA
- cumulative harm to intangible values of the cultural landscape from previous impacts on cultural values from the time of the Dam's construction and flooding of the Burragorang Valley and its tributary valleys

In trying to make sense of the Aboriginal Cultural Heritage Assessment which often referred to its appendices, I had difficulty with locating the right information. Many of the Appendices had appendices within appendices! For example the Cultural Values Assessment located in Appendix K (EIS Appendix K – App 2 CVA Repo) was part of three separate appendices – the main one called Appendix 2 (231 pages); Appendix 3 to Appendix 7 (supporting documents to Appendix 2); and Appendix 8 to Appendix 11 (supporting documents to Appendix 2).

While the Archaeological Assessment Report also located in Appendix K (EIS Appendix K – App 1 AAR) was part of five separate appendices – the main one called Appendix 1 (193 pages); Appendix 1 Annex 1 Part 1 (2 pages); Appendix 1 Annex 1 Part 2 (2 pages); Appendix 1 Annex 1 Part 3 (2 pages); Appendix 1 Annex 2 to 5 (142 pages).

Then Appendix K: Aboriginal Cultural Heritage Assessment Report (94 pages) contains eleven Appendices from Appendix 1 (Archaeological Assessment Report), Appendix 2 (Cultural Values Assessment) through to Appendix 11 (supporting documents to Appendix 2).

It is understood that some of the appendices had to be removed at the request of the Registered Aboriginal Parties but surely a more simplified hierarchical approach could have been used such as:

Appendix >>>>>>> Annexure >>>>>>> Attachment

or some other form or combination of these terms.

Some Further Background to Chapter 18

Although there was some interest in the Gundungurra prior to the Dam being built, mainly by interested local white residents and early anthropologists in the early part of the 20th century such as A L Bennett and R H Mathews (Smith 2009), little serious anthropological and archaeological research has been undertaken (although some academic work has been published) unlike other sites in the Hawkesbury Nepean River Valley and elsewhere in the Blue Mountains (Stockton & Merriman 2009). So very little anthropological or archaeological information exists on the Gundungurra. Smith in 1993 provided a small overview of what was known of the Gundungurra peoples (Smith 2009).

Despite the flooding of the Burratorang Valley some important Gundungurra sites remained including in the Kedumba Valley as well as a few other places in the Blue Mountains such as parts of the Megalong Valley and the area now known as 'The Gully' in Katoomba (Smith 2009; Stockton 2009; Johnson 2007).

It seems local current and past Blue Mountains' residents have been at the forefront of studying, publishing and promoting the aboriginal cultural heritage of the Blue Mountains. In recent times local historians such as Jim Barrett and Jim Smith (Barrett 2015; Smith 2016), archaeologists Eugene Stockton and Kelvin Knox (Knox and Stockton 2019) and anthropologist Diane Johnson (Johnson 2007) have re-evaluated some of the Gundungurra cultural heritage. Prior to this there was little published information available on the Gundungurra Aboriginals (Stockton 1980).

It is alarming that so little research has been undertaken or allowed on Aboriginal culture and heritage within the Warragamba Catchment area since the Dam was built in 1960. Although the Aboriginal Cultural Heritage Assessment Report does identify a report commissioned in 1989 by the NSW WaterBoard titled *Warragamba Dam – Archaeological study Sample Investigation of Areas Upstream to be Affected by Increased Water Retention* when assessing the potential raising of the Warragamba Dam wall at that time. During 2005 and 2013 the National Parks and Wildlife Service provided substantial monetary grants to Gundugurra representative organisations (Smith 2016a). But little else seems to have done.

Since the construction of the Dam access to Lake Burratorang seems to have been severely restricted even to the traditional owners, the Gundungurra people. But occasionally access has been granted to the most restricted area of the Warrabamba Catchment. For example, during the so-called 'Millenium Drought' (occurring between around 1996 and 2010) and Lake Burratorang's water capacity was reducing, Jim Smith a Blue Mountains local historian and author visited it a number of times between 2000 and 2010 with permission from authorities. He noted many old buildings and structures, and especially some aboriginal sites, were visible again (Smith 2016b). In 2014 Smith again and an artist, Robyn Collier, visited Lake Burratorang and surrounds with the permission of Water NSW. In her recent book *Paintings from Burratorang the Lost Valley* Collier reminisces about her most recent and earlier visit in 1972 and provides beautiful paintings of those visits (Collier 2017). Those paintings can now be considered historic documents and will provide a valuable future resource.

The Project was provided with an opportunity to do some substantial and important research and field studies on the Aboriginal cultural heritage, and especially the Gundungurra people, in the Warragamba Catchment but sadly yet again this did not eventuate.

(5) Protected Lands (EIS Chapter 20)

This chapter provides an assessment of protected and sensitive lands in the Warragamba Dam Raising Project. Several State and Commonwealth legislation that provide for protected and sensitive lands are relevant to the upstream impact studies including:

Environment Protection and Biodiversity Conservation Act 1999

National Parks and Wildlife Act 1974

Threatened Species Conservation Act 1995

Fisheries Management Act 1994

Water Management Act 2000

Wilderness Act 1987

The WaterNSW Act 2014 established the Water NSW entity responsible for the management of water in NSW and provided for Special Areas around Lake Burragorang.

Access to Special Areas around Lake Burragorang is highly restricted and controlled. There are two Special Areas with different levels of access restrictions:

- **Schedule 1** Special Areas are a 3 kilometre area around the shore of Lake Burragorang and have most of the restrictive access. No one is permitted to access the Schedule 1 Special Areas unless they have approval permission from NPWS and WaterNSW. There are locked gates on access roads, signage and regular patrols to ensure that the security to Schedule 1 Special Areas is maintained
- **Schedule 2** Special Areas range from 6 to 20 kilometres from Lake Burragorang and its tributaries. Access by foot is permitted to Schedule 2 land, however apart from a small private land owners in Schedule 2 land, access by vehicle is not permitted. There are also restrictions on the activities which can be undertaken and the requirement not to damage any aspect of the environment in Schedule 2 lands.

These Special Areas impact on some National Parks and the GBMWhA. And certainly a number of walking tracks in the Southern Blue Mountains Escarpment are affected. Some are popular such as part the track over Mount Solitary (also part of a popular annual Ultra-Trail Australia running festival), some tracks into the Kowmung River and parts of the Katoomba to Mittagong track.

The concern is whether these Special Areas will be extended such as up to the escarpments around Katoomba, Leura, Wentworth Falls, the Narrow neck Plateau and the Kings Tableland to cover temporary inundations if the Project is approved. It has the potential to impact on virtually all the bushwalking tracks along the Southern Escarpment. I have been unable to find any discussion about this in the EIS nor a commitment that this will not happen.

The history of these Special Areas is interesting. In 1959 the Blue Mountains National Park was gazetted but construction of the Warragamba Dam between 1948 and 1960 greatly affected southern portions of the National Park. Indeed a 1963 map of the Water Supply Catchment Areas indicates the 'Areas Prohibited and Restricted to the Public' effectively the current Schedule 1 and 2 Special Areas (Beers 1963). It shows the Warragamba and Metropolitan (Nepean, Avon, Cordeaux, Cataract and Woronora Dams). It states in part on the map:

Entry to the tinted red is entirely prohibited.

Entry is prohibited within that part of the Warragamba Catchment Area exceeding two miles from stored water and tinted yellow, provided that the leader of the party carries a Water Board Permit, or a letter of Permission from the General Secretary of the Boy Scouts Association or a badge or certificate of membership of one of the N.S.W Federation of Bushwalking Clubs.

The red area is comparable to the current Schedule 1 Special Areas and the yellow area is comparable to the current Schedule 2 Special Areas. On its northern part the yellow area the boundary is from the Warragamba Dam towards Kings Tableland, turning north all the way up the Kings Tableland escarpment including a third of the road to McMahons Lookout but then runs beside the road to around the Kedumda Pass area, turns west half way Jamison Valley to Narrow Neck, then beside Narrow Neck road but cutting across the Narrow Neck Peninsula across towards Jenolan Caves then down towards Kanangra Walls but not including them and out towards Mount Werong.

These days Schedule 2 Special Areas essentially remain in its northern part except part of the northern end of Kings Tableland Road is the responsibility of Blue Mountains City Council and the road all the way to McMahons Point is excluded but much of this area is now part of the World Heritage Area as is the Narrow Neck Plateau (Spiral Vision 2011). Most of the escarpment area between Narrow Neck and Kings Tableland is part of the Blue Mountains National Park. Consequently a few of the escarpment walking tracks are jointly managed by the Blue Mountains City Council and the National Parks and Wildlife Service.

Whereas some tracks in the Jamison and Kedumba Valleys are jointly managed by NPWS and Water NSW.

In 1999 37 walking tracks within the Blue Mountains area was inserted added on the State Heritage Register. It would be of concern if any of these were affected because of possible extension of the Schedule 2 Special Areas as part of the Project.

Importantly some area will be lost because of inundation of several rivers within the Lake Burragorang catchment due to the proposed Warragamba Dam Raising including the Coxs, Kedumba and Kowmung, one of the few Wild Rivers left in the Blue Mountains National Park. The Project will also result in the lost of some of the GBMWA.

(6) Visual Amenity (EIS Chapter 25)

This chapter provides an assessment of visual amenity during the construction and operation of the Warragamba Dam Raising Project.

Comment in this submission is confined to the impact on upstream viewpoints and further restricted to the Coxs, Kowmung and Kedumba River valleys. The submitter having bushwalked and camped extensively in these valleys is concerned about the visual impact of inundation of these river valleys.

While only about 1,400 ha is estimated to be inundated around Lake Burragorang the confluences of the Kowmung and Kedumba Rivers into the Coxs River are relatively flat and inundation due to the Project will be significant, as will be further up the Coxs River. This will present a visual eye sore in those areas affected.

A viewpoint and viewshed are only presented from Echo Point, Katoomba from the southern escarpment and the inundation largely will be obscured from there. However tourists utilise lookouts (and there are many) from all parts of the southern escarpment stretching from Cahill's Lookout to Rocket Point. From these two extreme vantage points the inundation will be visible possibly for an extended period. Essentially the inundation will be seen from the Landslide Lookout to Cahills Lookout and from Sublime Point to Rocket Point. Moreover tourists and locals regularly use both Kings Tableland Road (accessing Kings Tableland and the way to McMahon's Point) and Glenraphael Drive along the Narrow Neck Peninsula. This will impact most on bushwalkers as the impacts are far more ranging and will be more obvious from high vantage points such as Mount Solitary as they bushwalk into the Kedumba, Coxs and Kowmung valleys. Moreover the Blue Mountains City Council provides access and parks to a lot of lookouts along the escarpment and especially at Lincoln's Rock

on Kings Tableland which is very popular with tourists. Any inundation will definitely be seen from there.

Since these locations are part of attracting tourists to the Blue Mountains (especially the southern escarpment) and considered to be an international destination, then this Project will potentially affect tourism there to the Blue Mountains National Park and the Blue Mountains City Council both of whom have invested millions of dollars over the years to attract International, Australian, NSW and local tourists.

Aboriginal heritage

The chapter rightly points out that the upstream zone and the Warragamba zone are part of the traditional lands of the Gundungurra, Darkinjung, Tharawal, Dharug and Wiradjuri peoples. There are several Aboriginal sites in this upstream zone which are important to Aboriginal people today.

Landscape is very important to Aboriginal people and form part of their cultural values and heritage so changing the landscape would be insulting.

Moreover consider the Gundungurra in particular. They were forced out of the Burragorang valley to flood it (and their culture and heritage) for the Dam, moved to The Gully in Katoomba (now designated an Aboriginal Place) and were forcibly removed from there too to build a racing track. So in future if the Project goes ahead they will be able to see the inundation occasionally from their Aboriginal Place in Katoomba and reflect on the loss and degradation of the traditional lands in the Burragorang Valley.

(7) Other Issues

Some other issues have been identified during the assessment of the EIS.

Potential Upstream Silting of Lake Burragorang Following Future Inundations

Flood waters are notorious for leaving behind silt requiring extensive cleaning of affected houses, outbuildings and properties. With the additional time (1 to 14 days) flood waters are expected to be standing in inundated areas in the upstream study areas then there is potentially a considerable amount of silt that is likely to sediment in inundated areas. This could significantly impact on ecosystems, flora and fauna. However nothing is mentioned about this in the EIS.

Downstream Flooding Events Due to Excessive Rainfall in the Upper Nepean River

Significant floods have been recorded in the Upper Nepean River catchments such as Camden. It has recorded a number of severe floods in its history (Anon 2019). Apparently the Upper Nepean catchment is in the zone of highest annual rainfall on the mid NSW coast (SCA 2002) so it is inconceivable that the contribution from this catchment has not been factored into the EIS.

CONCLUSIONS

The Warragamba Dam Raising Project should not proceed based on the Environmental Impact Statement (EIS) because it is flawed and incomplete.

The Burragorang Valley was considered by many to be one of the most beautiful and picturesque valleys in Australia (Monks 2019). It was settled in the early 1800s and supported a variety of industries including farming, mining, logging, tourism and recreational activities. It was particularly popular with bushwalkers and at one stage supported two NRMA low-cost motor camps (Monks 2019). And of course, it was the traditional lands of the Gundungurra Aboriginal peoples.

Sadly most of the Aboriginal and white settlement history, culture and heritage has now been lost. So opportunities to re-evaluate their histories over time given new research, study and understanding is also lost.

Recently the importance of historical re-evaluation based on new anthropological and archaeological research and information is shown by Grace Karskens in her recent book about the Hawkesbury-Nepean River (Karskens 2020) and the second edition of *Blue Mountains Dreaming: The Aboriginal Heritage* (Stockton & Merriman 2009).

It is considered the Project missed an opportunity to do some substantial research and field studies on the Aboriginal cultural heritage, and especially the Gundungurra people, in the Warragamba Catchment.

If more heritage and culture of the Burragorang Valley continues to be lost then it will be difficult for future scholars and Blue Mountains' residents to appreciate and understand the histories of the Aboriginal peoples, white settlers and the itinerant travellers who lived or visited the place.

All the assessments of the EIS undertaken in this submission provide grounds for not supporting the Project.

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SUBMISSION - WARRAGAMBA DAM RAISING PROJECT – SSI-8441 - TED
SZAFRANIEC, WARRIMOO

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Statement of support or objection to the proposal

I object to the proposal.

Reasons why I support or object to the proposal

My submission looked at six specific areas (chapters) covered in EIS being:

- effects on Biodiversity
- National Environmental Significance – Biodiversity
- impacts on Aboriginal Heritage
- impacts on Non-Aboriginal Heritage
- effects on Protected lands
- impacts on Visual amenity

Comments in my submission indicate more work needs to be done on these six specific areas and that therefore there are grounds for not supporting the Project.

A declaration of any reportable political donations made in the previous two years

See attached PDF with this submission.