



Transport for NSW

Western Harbour Tunnel and Warringah Freeway Upgrade

Appendix B –
Archaeological site
inspection memorandum

B WHT Archaeological Site Inspection

Contents

B	WHT Archaeological Site Inspection.....	1
B.1	Introduction.....	1
B.2	Aboriginal cultural values assessment.....	4
B.3	Summary of archaeological assessment.....	4
B.4	Significance assessment.....	10
B.5	Impact assessment.....	11
B.6	Management recommendations.....	14

B WHT Archaeological Site Inspection

B.1 Introduction

B.1.1 Background

Nine Aboriginal cultural places were identified in the Aboriginal Cultural Heritage Assessment Report (ACHAR) and Archaeological Assessment Report (AAR) for the Western Harbour Tunnel and Warringah Freeway Upgrade project ('the project'). Both the ACHAR and AAR formed part of Appendix L (Technical working paper: Cultural heritage assessment report) of the environmental impact statement. Approximate locations and details of these nine sites were presented in Figure 4.2 of Appendix L (Technical working paper: Cultural heritage assessment report).

Four of the nine sites were unable to be surveyed for reporting in the environmental impact statement due to private property access constraints. Environmental mitigation measure AH1 requires survey of the four remaining sites once landowner consent is obtained. The four sites requiring survey in accordance with AH1 are:

- Shed Cave (45-6-2672)
- Yerroulbin Cave (45-6-2287)
- Long Nose Point (45-6-1901)
- 5 Hands Shelter (45-6-2967).

B.1.2 Purpose of this report

On 19 and 20 February 2020, during the environmental impact statement public exhibition period, a targeted site inspection of the four sites identified in Section B.1.1 was carried out, as required by environmental management measure AH1. This memorandum provides the findings of the site inspections carried out, an update of the Aboriginal cultural values assessment, a significance assessment and an assessment of potential impacts on the four sites.

B.1.3 Approach to assessment

The description of the project can be found in Section 1 of Appendix L (Technical working paper: Cultural heritage assessment report).

The legislative context of this assessment can be found in Section 2 of Appendix L (Technical working paper: Cultural heritage assessment report).

A summary of Aboriginal stakeholder engagement and involvement activities undertaken for the project is outlined in Section 3 of Appendix L (Technical working paper: Cultural heritage assessment report). The Metropolitan Local Aboriginal Land Council (MLALC), as the applicable local Aboriginal land council in the study area, has been consulted on the findings of this document.

Background information associated with the study area can be found in Section 4 of Appendix L (Technical working paper: Cultural heritage assessment report).

Figure 4-2 of Appendix L (Technical working paper: Cultural heritage assessment report) shows the location of the nine Aboriginal sites registered on the Aboriginal heritage information management system (AHIMS) within the project study area, as understood at the time of preparation of the environmental impact statement. Figure 4-2 of Appendix L (Technical working paper: Cultural heritage assessment report) has been since been updated to reflect the confirmed locations of the four sites inspected in February 2020. The updated figure is shown as Figure B.1-1 of this memorandum.

As shown in Figure B.1-1, of the four previously un-surveyed sites, only Shed Cave (45-6-2672) occurs within the study area. The 5 Hands Shelter (45-6-2967) site was determined to be located around 170 metres outside of the study area. The remaining two sites, Yerroulbin Cave (45-6-2287)

and Long Nose Point (45-6-1901), were confirmed to be located outside of, but adjacent to, the study area.

Following inspection and assessment of these four sites, Jacobs has updated respective site cards listed on the AHIMS with more accurate co-ordinates. The AHIMS is a service provided by Heritage NSW, Department of Premier and Cabinet.

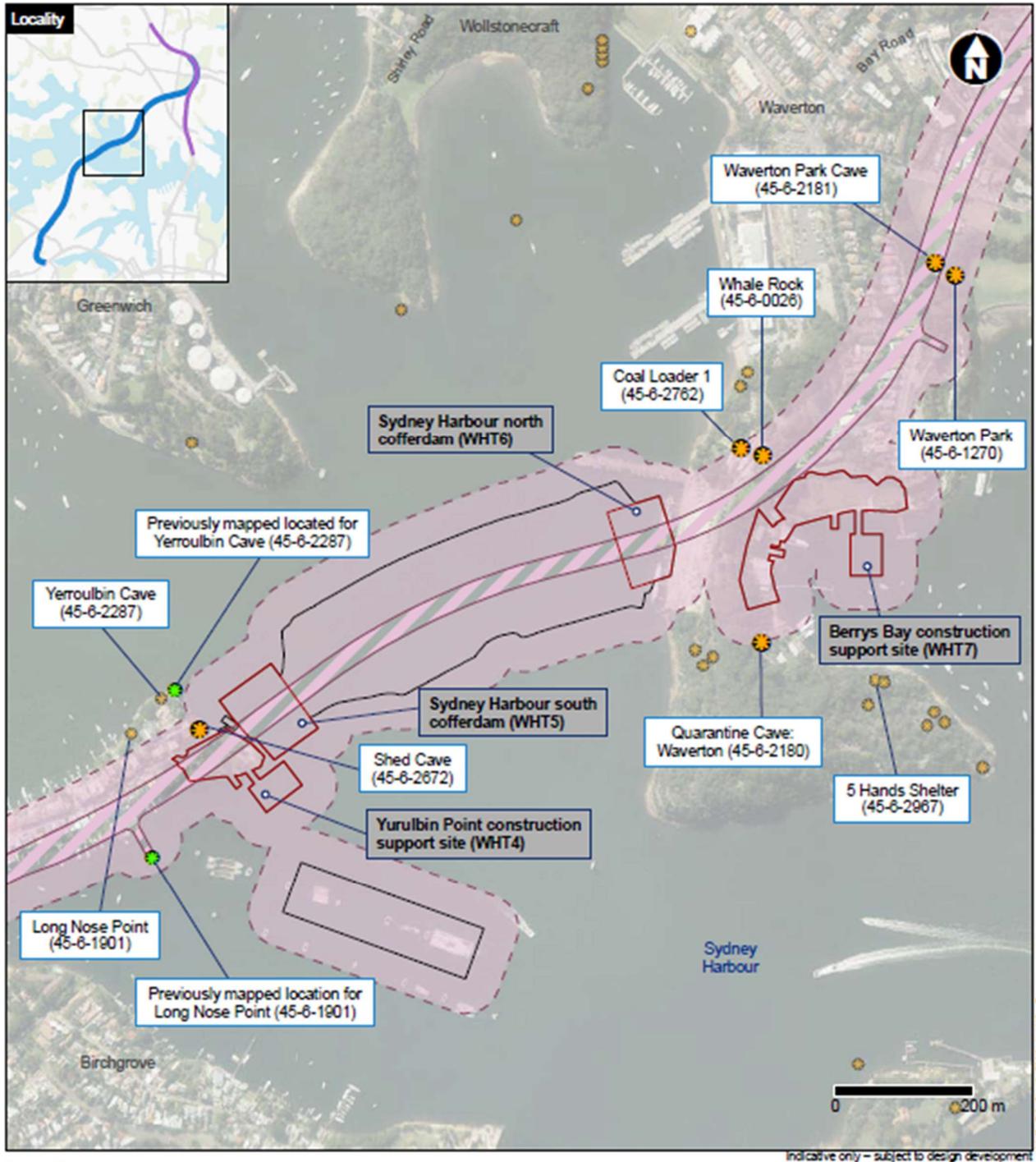


Figure B.1-1 Aboriginal sites (registered on AHIMS) in the project study area (update to Figure 15-1 of the environmental impact statement and Figure 4-2 of Appendix L (Technical working paper: Cultural heritage assessment report))

B.2 Aboriginal cultural values assessment

B.2.1 Overview

The cultural values assessment of the nine sites carried out as part of the environmental impact statement is outlined in Section 5 of Appendix L (Technical working paper: Cultural heritage assessment report) and includes cultural information collected during consultation, field surveys and the test excavation program.

The assessment involved consultation through several methods with knowledge holders as identified by the registered Aboriginal parties for the project. The information provided has contributed to an understanding of the cultural value of the broader landscape within which the project would be located. The cultural values assessment identified locations of Aboriginal cultural value within the study area. Table 5-2 of Appendix L (Technical working paper: Cultural heritage assessment report) identified nine Aboriginal sites which have inherent cultural values located within the study area.

The Aboriginal cultural values associated with each of the four sites relevant to the scope of this memorandum are outlined in Table B.2-1. The description of these values has been updated following the site inspection.

Table B.2-1 Aboriginal cultural values within the study area (extract from Table 5-2 of Appendix L (Technical working paper: Cultural heritage assessment report))

Site name (AHIMS ID)	Description	Cultural values
5 Hands Shelter (45-6-2967)	Rock shelter, midden and art site	Educational, learning, rarity, spiritual, art
Yerroulbin Cave (45-6-2287)	Rock shelter, midden and art site	Educational, learning, rarity
Long Nose Point (45-6-1901)	Rock shelter, midden	Educational, learning, rarity
Shed Cave (45-6-2672)	Rock shelter, midden	Educational, learning, rarity

B.3 Summary of archaeological assessment

B.3.1 Assessment methodology

Consistent with the approach adopted in Section 6 of Appendix L (Technical working paper: Cultural heritage assessment report), the archaeological assessment of the four sites detailed in this memorandum has been conducted in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW, 2010b) and the *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (DECCW, 2011). Refer to Section 6 of Appendix L (Technical working paper: Cultural heritage assessment report) for full details of the assessment methodology applied.

The assessment broadly consisted of the following stages:

- Desktop assessment to develop a predictive model
- Archaeological survey.

Desktop assessment was undertaken as part of the environmental impact statement and is documented in Appendix L (Technical working paper: Cultural heritage assessment report).

In accordance with requirement 5 of the Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW (DECCW 2010b), the archaeological survey adopted a sampling strategy which targeted each distinct landform within a given soil landscape. The sampling strategy had the following objectives:

- Areas of higher visibility and exposures of the ground surface were targeted for particular scrutiny for the presence of midden material or stone artefacts
- All mature trees in the study area were inspected for cultural modification and scarring
- Any areas with potential rocky outcrops close to waterways were inspected for grinding grooves, waterholes and wells
- Exposed sandstone platforms with potential for engravings were targeted.

The following details were recorded for each surveyed area:

- Landform
- Ground surface exposure and nature of exposure
- Visibility as a result of vegetation
- Degree of disturbance
- Nature of current and historical land use.

B.3.2 Survey results

On 19 and 20 February 2020, during the environmental impact statement public exhibition period, a targeted site inspection of these four sites was carried out. The site inspections were carried out by Andrew Costello (Senior Archaeologist, Jacobs), Alexandra Seifertova (Project Archaeologist, Jacobs) and Jake Ferguson (Archaeological Intern, Jacobs). The inspection team was accompanied by Transport for NSW Communication and Stakeholder Engagement Officers and a Transport for NSW Aboriginal Cultural Officer.

The results of the site surveys are presented in Table B.3-1

Table B.3-1 Site survey results

Cultural value name (AHIMS ID)	Description	Image
<p>Yerroulbin Cave (45-6-2287)</p>	<p>The site is an open-faced rockshelter with an easterly aspect. The rockshelter is approximately seven metres in length and three metres in height. The rockshelter is surrounded by vegetation which partially covers the site.</p> <p>Previous archaeological recordings of the site report rock art inside of the rockshelter with shell midden and shell fragments surrounding the entrance and within the dripline. The site photos on the AHIMS file matched the location inspected.</p> <p>During inspection of the site, the rock art was extremely difficult to discern with the naked eye, and the art appears to have faded and degraded over time. Regarding the previously recorded shell midden, some traces of material are visible throughout the site and it is likely the subsurface deposit remains intact.</p> <p>The Yerroulbin Cave site is located greater than 50 metres from the construction footprint and is not subject to further significance assessment or impact assessment in this memorandum.</p>	 <p>Photo by A Costello, showing the inside of Yerroulbin Cave</p>

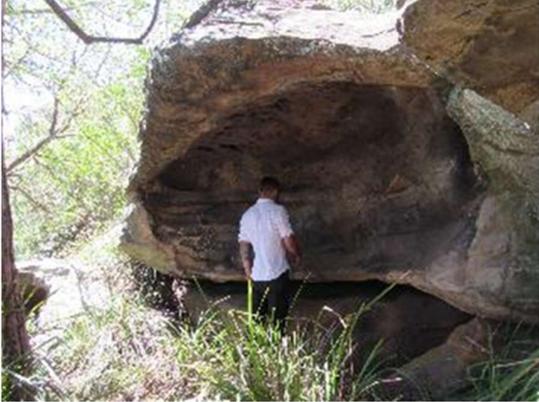
B WHT Archaeological Site Inspection
B.3 Summary of archaeological assessment

Cultural value name (AHIMS ID)	Description	Image
<p>Long Nose Point (45-6-1901)</p>	<p>The site is situated on the foreshore and consists of a north facing rock shelter, next to Yerroulbin Cave. The site photos on the AHIMS file matched the location inspected.</p> <p>There is evidence of erosion and rockfall at the site. A metal seat appears to be a permanent fixture and a concrete pillar has been installed to prevent further collapse of the overhang and support the sandstone structure.</p> <p>Past archaeological recordings of the site state that there is a substantial midden retained under the grass and protected at the front by a sandstone retaining wall. This is likely to still be intact and retained in the subsurface deposit. During the inspection, visible traces of shell midden were observed in the vicinity of the shallow rockshelter which can be seen through patches of the grass.</p> <p>The past recording of the site noted that no art was visible in the rockshelter. No Aboriginal rock art could be identified during the inspection so it is unclear whether exposure and interference has reduced any art work to a state invisible to the naked eye, or whether no art is present.</p> <p>The Long Nose Point site is located greater than 50 metres from the construction footprint and is not subject to further significance assessment or impact assessment in this memorandum.</p>	 <p>Photo by A Costello, showing the front of Long Nose Point</p>

B WHT Archaeological Site Inspection
B.3 Summary of archaeological assessment

Cultural value name (AHIMS ID)	Description	Image
Shed Cave (45-6-2672)	<p>The archaeological site of Shed Cave (45-6-2672) comprises a rockshelter near the waterfront, adjacent to Yurulbin Park and Birchgrove Wharf. The site photos and descriptions on the AHIMS file matched the location inspected.</p> <p>The rockshelter entrance is partially hidden by overhanging leaves behind a gate towards the northern end of the property. The rockshelter is approximately two metres high and three metres long. It is a shallow rockshelter with a lower rear compartment which declines further into the sandstone escarpment. The rockshelter is being used to store various domestic items and there is dampness associated with recent rainfall in the recesses of the rockshelter.</p> <p>Remnants of the previously recorded midden were observed and the rockshelter appears to have been disturbed, aggraded with sand and debris. Some traces of shell material can be seen scattered throughout the rockshelter, which extend back beyond visibility. It is likely the subsurface deposit containing midden and shell material remains intact.</p> <p>The past recording of the site noted that no art was visible in the rock shelter. No evidence of art was noted during the site inspection.</p>	 <p>Photo by A Costello, showing the lower compartment of Shed Cave</p>

B WHT Archaeological Site Inspection
B.3 Summary of archaeological assessment

Cultural value name (AHIMS ID)	Description	Image
<p>5 Hands Shelter (45-6-2967)</p>	<p>5 Hands Shelter (45-6-2967) is located at Balls Head Reserve, situated on a headland overlooking Sydney Harbour.</p> <p>The coordinates on the AHIMS site card incorrectly show the site as being located close to Yurulbin Park and Birchgrove Wharf. This has been corrected and updated on AHIMS following site inspection undertaken to confirm the location of the site using site descriptions and photographs. The 5 Hands Shelter (AHIMS 45-6-2967) is situated adjacent to Balls Head Reserve 5 Hands Cave (45-6-0891). Both of these sites are located around 170 metres from the construction footprint. As such, while the description of the 5 Hands Shelter (45-6-2967) is noted here, it is not subject to further significance assessment or impact assessment in this memorandum.</p> <p>The shelter has a northwest aspect overlooking Sydney Harbour. The shallow rockshelter has had moderate disturbances through casual passer-by visitation due to being in an urban environment as well as some general environmental and erosional factors. The previously recorded midden can be seen scattered throughout the shelter showing the evidence that an intact subsurface deposit has been retained.</p> <p>No Aboriginal rock art could be identified during the inspection and it is presumed that exposure and interference has reduced to any art work to a state invisible to the naked eye.</p>	 <p>Photo by A Costello, showing the front of 5 Hands Cave</p>

B.4 Significance assessment

B.4.1 Methodology

As outlined in Section 7.1 of Appendix L (Technical working paper: Cultural heritage assessment report), a significance assessment is made up of several significance criteria that assess why a site is important. Such assessment recognises that sites may be important for different reasons to different people, and even at different times. The assessment of Aboriginal cultural heritage in this assessment is based upon the four values of the Australia ICOMOS *Burra Charter* (Australia ICOMOS, 2013):

- Social values
- Historical values
- Scientific values
- Aesthetic values.

These values are further described in Section 7.1 of Appendix L (Technical working paper: Cultural heritage assessment report). Each of these values is assessed below for the Shed Cave (45-6-2672) site. As outlined in Section B.3.2, as the sites at Yerroulbin Cave (45-6-2287), Long Nose Point (45-6-1901) and 5 Hands Shelter (45-6-2967) are located greater than 50 metres from the construction footprint these are not considered further as part of this assessment.

B.4.2 Statement of significance

Shed Cave

Table B.4-1 Statement of significance – Shed Cave (45-6-2672)

Criterion	Assessment
Social significance	The site has high social significance at the local level as it provides tangible evidence of the use of the area by Aboriginal people and has high cultural value for Aboriginal people as well.
Historical significance	The site does not meet this criterion. There are no known written or oral historical references to the site.
Scientific significance	The site has high scientific significance at the local level as it is ranked as having high integrity, moderate structure, potential sub-surface deposit and high representativeness and rarity. The integrity of the site is noted to be high because while there has been some surface disturbance through recent use of the cave, the subsurface midden deposit is likely intact. While rockshelters and shell middens are not uncommon Aboriginal site types, they are rare in the western Sydney Harbour region due to development and associated disturbances. The site has research potential and educational potential about the manner in which local Aboriginal populations lived in the area.
Aesthetic significance	The site currently has low aesthetic significance, as despite its proximity and orientation towards Sydney Harbour, its setting is currently sheltered by vegetation and modern fencing. It is likely however during its Aboriginal usage, its aesthetic setting was similar to nearby Yerroulbin Cave and Long Nose Point.
Summary statement of significance	Shed Cave is of high social significance at the local level. It is of high social significance as it provides tangible evidence of the use of the area by Aboriginal people and also has high cultural values for Aboriginal people. It has high scientific significance due to its representativeness and rarity and potential for an intact sub-surface archaeological deposit of shell midden, and research and educational value. While its current aesthetic significance is low due to obstruction of the site from the harbour view surrounds, it is

Criterion	Assessment
	likely that during its Aboriginal usage its setting was similar to nearby Yerroulbin Cave and Long Nose Point.

B.4.3 Summary of significance

The summary of the significance assessment of Aboriginal sites located within the study area is presented in Table 7-6 of Appendix L (Technical working paper: Cultural heritage assessment report). Table B.4-2 below provides an update to this table for the sites assessed as part of this memorandum.

Table B.4-2 Summary of the significance assessment for additional identified Aboriginal sites

Name (AHIMS ID)	Social significance	Historical significance	Scientific significance	Aesthetic significance	Overall significance
5 Hands Shelter (45-6-2967)	Location confirmed during site inspection. No longer situated within the study area.				
Yerroulbin Cave (45-6-2287)	Location confirmed during site inspection. No longer situated within or adjacent to the study area.				
Long Nose Point (45-6-1901)	Location confirmed during site inspection. No longer situated within or adjacent to the study area.				
Shed Cave (45-6-2672)	High	N/A	High	Low	High

B.5 Impact assessment

As described in Section 8 of Appendix L (Technical working paper: Cultural heritage assessment report), the potential impacts on Aboriginal cultural places and archaeological sites recorded within the study area have been considered. Section 8.1 of Appendix L (Technical working paper: Cultural heritage assessment report) outlines the project’s approach to avoiding and reducing impacts on Aboriginal sites where possible.

B.5.1 Potential impacts

As per Section 8.2 of Appendix L (Technical working paper: Cultural heritage assessment report), potential impacts to Aboriginal sites within and adjacent to the study area may include:

- Direct impacts such as the removal, modification or destruction of an Aboriginal site
- Indirect impacts associated with construction vibration generated by tunnelling or surface works and the settlement of land due to tunnelling below or near Aboriginal sites
- Indirect impacts associated with Aboriginal site setting (visual impacts, changes to vistas/landscapes), dust, changes to ongoing use or environmental association.

B.5.2 Level of impacts

Table B.5-1 is a replication of Table 8-2 of Appendix L (Technical working paper: Cultural heritage assessment report). Table B.5-1 has been developed to assess the level of potential impact for Aboriginal sites within the study area. It is based on the definitions and framework for assessing severity of impacts from the *Environmental Protection and Biodiversity Conservation Act 1999 Significant Impact Guidelines 1.2* (Department of Sustainability, Environment, Water, Population and Communities, 2013).

Table B.5-1 Definitions of levels of impact

Impact rating	Scale	Intensity	Duration/frequency
Major	Medium – large	Moderate – high	Permanent/irreversible
Moderate	Small – medium	Moderate	Medium – long-term
Minor	Small/localised	Low	Short-term/reversible
Negligible	Little or no potential physical impact to an Aboriginal site. Includes rock shelters that are less than 50 cubic metres in size.		

B.5.3 Assessment of impacts

The site inspection confirmed that only Shed Cave (45-6-2672) is located within 50 metres of the construction footprint and may potentially be impacted by the project.

The potential for the type of potential impacts outlined in Section B.5.1 to occur at the Shed Cave (45-6-2672) site is summarised in Table B.5-2. The significance of the potential impact is determined to be moderate.

Based on the results of this assessment for the four sites for which inspection work was carried out in February 2020:

- No verified Aboriginal heritage sites are located within the surface construction footprint of the project, and therefore no known sites would be directly impacted by the project
- One archaeological site (45-6-2672, Shed Cave) is located within 50 metres of surface works and within 50 metres of the mainline tunnels and may be subject to indirect impacts associated with vibration and settlement
- Three archaeological sites at Yerroulbin Cave (45-6-2287), Long Nose Point (45-6-1901) and 5 Hands Shelter (45-6-2967) are located greater than 50 metres from surface works and the tunnel alignment and not considered subject to indirect impacts associated with vibration and settlement.

Table B.5-2 Impact assessment for Aboriginal archaeological sites not previously surveyed

Heritage item name (AHIMS ID)	Heritage item type	Overall significance	Location relative to study area	Type of potential impact	Description	Significance of potential impact
Shed Cave (45-6-2672)	Shelter with midden	High	Within 50 metres of the mainline tunnels at Birchgrove. Located within 50 metres of surface works at Yurulbin Point construction support site (WHT4) and Sydney Harbour south cofferdam (WHT5).	Indirect - vibration	There is potential for vibration impact as the site has been identified as being within the minimum working distance for unsound structures. Refer to Table 4-11 and Appendix L of Appendix G (Technical working paper: Noise and vibration)	Moderate
				Indirect – settlement	Settlement at this location is predicted to be less than 10 millimetres.	Negligible

B.5.4 Cumulative impacts

Cumulative impacts are as described in Section 8.3 of Appendix L (Technical working paper: Cultural heritage assessment report).

Given that no verified Aboriginal heritage sites are located within the surface construction footprint of the project, and therefore no known sites would be directly impacted by the project, no additional cumulative impacts are likely.

B.6 Management recommendations

The broad objectives for the project outlined in Section 9 of Appendix L (Technical working paper: Cultural heritage assessment report) to manage impacts on Aboriginal sites and cultural heritage values are still applicable:

- Avoid or minimise impacts on significant cultural heritage
- Preserve as much cultural heritage in its original environment as possible
- Maintain cultural heritage through preservation and increased knowledge.

These objectives are further outlined in Section 9.1 of Appendix L (Technical working paper: Cultural heritage assessment report).

All management recommendations have been presented to registered Aboriginal parties during the project consultation periods and Aboriginal focus group meetings, and their comments have been considered and where possible incorporated into the recommendations.

The site at Shed Cave (45-6-2672) is located within 50 metres of surface works and within 50 metres of the mainline tunnels and may be subject to indirect impacts associated with vibration and settlement.

The potential for impacts to occur at the Shed Cave (45-6-2672) site is summarised in Table B.5-2. The significance of the potential impact is determined to be moderate.

The sites at Yerroulbin Cave (45-6-2287), Long Nose Point (45-6-1901) and 5 Hands Shelter (45-6-2967) are located greater than 50 metres from surface works and the tunnel alignment and are not subject to impact or requiring ongoing management recommendations.

Environmental management measure AH1 has now been satisfied following conclusion of the four additional site inspections and consultation on the findings of this document with the MLALC (refer Table D2-1 of the submissions report). AH10 (refer to Table B.6-1) has been added to state that subject to private landowner consent and access, environmental management measures AH2, AH3 and AH4 (for vibration monitoring) will apply to the Shed Cave (45-6-2672) site.

Table B.6-1 New Environmental Management Measure AH10

Ref	Phase	Impact	Environmental Management measure	Location
AH10	Pre-construction	Aboriginal heritage	Transport for NSW will consult with the landowners of the private property where the Shed Cave (45-6-2672) AHIMS site is located. Subject to private landowner consent and access, AH2, AH3 and AH4 will apply to the AHIMS site Shed Cave (45-6-2672).	Shed Cave (45-6-2672)