Aboriginal Archaeological & Cultural Heritage Assessment

Taronga Zoo, Mosman, New South Wales

Aboriginal Heritage Impact Permit Application for AHIMS Sites #45-6-1959
Part 6 of the *National Parks and Wildlife Act 1974*

Report to
Taronga Conservation Society of Australia

Dominic Steele Consulting Archaeology
16 February 2015

21 Macgregor Street Croydon NSW 21322•Bus (02) 9715 1169•M 0411 88 4232•E dsca@bigpond.net.au

Document Control

Project Name	Aboriginal Archaeological Assessment & AHIP Application. Taronga Zoo, Mosman, New South Wales. Aboriginal Heritage Impact Permit Application for AHIMS Sites #45-6-1959. Part 6 of the *National Parks and Wildlife Act 1974*
Client Name	Taronga Conservation Society of Australia
Recipient	Daniel Djikic
Status	Draft
Issue Date	10 February 2015
Prepared by	Dominic Steele
Approved by	Jean Rice

Glossary and Abbreviations

Aboriginal Archaeological & Cultural Heritage Assessment (AACHA)	A document to assess archaeological and cultural values of an area, generally required as part of an Environmental Assessment (EA).
Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010	Guidelines developed by OEH to guide formal Aboriginal community consultation undertaken as part of an Aboriginal Cultural Heritage Assessment (ACHA).
Aboriginal Heritage Impact Permit (AHIP)	Statutory instrument that the Director General of the Office of Environment and Heritage (OEH) issues under Section 90 of the National Parks and Wildlife Act 1974 to allow the investigation (when not in accordance with certain guidelines), impact and/or destruction of Aboriginal objects.
Aboriginal object	A statutory term defined under the NPW Act 1974 as, 'any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains'.
AHIMS Aboriginal Heritage Information Management System (AHIMS)	The Office of Environment & Heritage (OEH) maintains the Aboriginal Heritage Information Management System (AHIMS) which includes information about Aboriginal objects/sites and Places.
Alluvial	Pertaining to sediment deposited from transport by channelled stream flow or overbank flow.
Artefact	Any product made by human hands or caused to be made through human actions.
Archaeological Potential	The likelihood of undetected surface and/or subsurface archaeological materials existing at a location.
B.P.	Before Present. The 'Present' is defined as 1950.
Burra Charter	The Burra Charter provides guidance for conservation and management of places of cultural significance and sets a standard of practice for the management of places of cultural significance. The most recent version of the Burra Charter was adopted by Australia ICOMOS in 1999.
Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW	Guidelines developed by OEH, outlining the first stage of a two stage process in determining whether Aboriginal objects and/or areas of archaeological interest are present within a subject area. The findings of a due diligence assessment may lead to the development of an AACHA.
Effective (survey) Coverage	A quantifiable estimate of the area in which archaeological materials are 'detectable' (exposed ground surface area).
Environmental Assessment (EA)	Document summarising the assessment of environmental impacts of a development which supports an application for approval under Part 3A of the Environmental Planning and Assessment Act 1979.
Environmental Planning and Assessment Act 1979	Statutory instrument that provides planning controls and requirements for environmental assessment in the development approval process. The Act is administered by the DPI.
In Situ	In situ refers to the (natural or) original position an artefact (or archaeological) deposit was originally formed or deposited.

Isolated Find	An isolated find is usually considered a single artefact or stone tool, but can relate to any product of prehistoric Aboriginal societies. The term "object" is used in the ACHA, to reflect the definitions of Aboriginal stone tools or other products in the National Parks and Wildlife Act 1974.
Lower Slope	Slope element not adjacent below a crest or flat but adjacent above a flat or depression (Speight 2009: 21).
Mid Slope	Slope element not adjacent below a crest or flat and not adjacent above a flat or depression (Speight 2009: 21).
National Parks & Wildlife Act 1974	Primary piece of legislation for the protection of Aboriginal cultural heritage in NSW. Part 6 of this Act outlines the protection afforded to and offences relating to disturbance of Aboriginal objects.
Office of Environment and Heritage (OEH)	The OEH is responsible for managing the Aboriginal Heritage (and other) provisions of the National Parks and Wildlife Act 1974.
Pleistocene	The geological period equivalent to the last ice age and preceding the Holocene from c. 2 million years to 10,000 years B.P. The Late Pleistocene generally refers to the period of time from 40,000 – 10,000 years ago.
Potential Archaeological Deposit (PAD)	Areas assessed as having the potential to contain Aboriginal objects. PADs are commonly identified on the basis of landform types, surface expressions of Aboriginal objects, surrounding archaeological material, disturbance, and a range of other factors. While not defined in the National Parks and Wildlife Act 1974, PADs are generally considered to retain Aboriginal objects and are therefore protected and managed in accordance with that Act.
Proponent	A corporate entity, Government agency or an individual in the private sector which proposes to undertake a development project.
RAP	Registered Aboriginal Party.
Taphonomy	The study of the processes that have acted on an archaeological site to make it as it appears today.
Upper Slope	Slope element adjacent below a crest or flat nut not adjacent above a flat or depression (Speight 2009: 21).
Visibility	The degree to which the surface of the ground can be observed and may be influenced by natural processes such as wind erosion or the character of the native vegetation, and by land use practices.

AHIP Application Check List

No.	Document Attached	Yes or N/A	Location	Notes
1	Restricted information	X	N/A	The project RAPs have not identified any culturally sensitive information requiring restriction
2	Confidentiality information	X	Appendix 6	Appendix 6 includes copies of correspondence from the RAPs. While no direction has been provided to specifically keep this information confidential, it retains personal details and addresses and should not be made publically available
3	Copyright	X		TCSA owns the copyright to this document
4	Description of the proposed activity	X	Main Report	The proposed activities are outlined in Section 1.0
5	Description of the area where the proposed activities are to be undertaken and maps of the area	X	Main Report	The proposed activities and the areas to which this AHIP Application apply are outlined and illustrated in Sections 1.0 and 5.0
6	Details of other applications for AHIPs within the area which is the subject of this AHIP application	X	N/A	No additional AHIPS apply to the areas that are the subjects of this Application
7	Description of the area to which the AHIP will apply	X	Main Report	Section 5.0
8	Description and identification of the Aboriginal objects and sites	X	Main Report & Appendix 2	The site that is the subject of this Application are described in various sections of this report and a site card for AHIMS #45-6-1959 is in Appendix 2
9	Indicate the proposed term of the AHIP	X		Two years
10	Details of the consultation process	X	Appendix 6	Aboriginal consultation was undertaken in accordance with OEH's (2010) guidelines
11	Statement of significance of the cultural heritage values	X	Main Report	Section 3.0

12	Description of the actual or likely harm	X	Main Report	The likely impact of the proposal is assessed to be minimal
13	Description of the measures to avoid harm	X	Main Report	The measures proposed to avoid potential impacts of the proposal as sought through this Application are described in Sections 1.0, 4.0 and 5.0
14	Description of the measures to mitigate harm	X	Main Report	The measures proposed to mitigate harm are described in Sections 1.0, 4.0 and 5.0
15	Information about what you, the applicant, intends to do with salvaged and/or collected objects	X		It is proposed to return any collected Aboriginal objects to a suitable location nearby to their place of origin following the completion of the proposed heritage works
16	A copy of any relevant Development Consent (or other approval)	X	Appendix 7	

Report Contents

Supporting Documentation+

Appendix 1: AHIMS Site Search for Taronga Zoo

Appendix 2: AHIMS Site Card for #45-6-1959

Appendix 3: Structural Engineering Report

Appendix 4: Public Notice

Appendix 5: TSCA Correspondence to the OEH

Appendix 6: Aboriginal Community Correspondence and Consultation Log

Appendix 7: SEA's Requirements (SSD 6864)

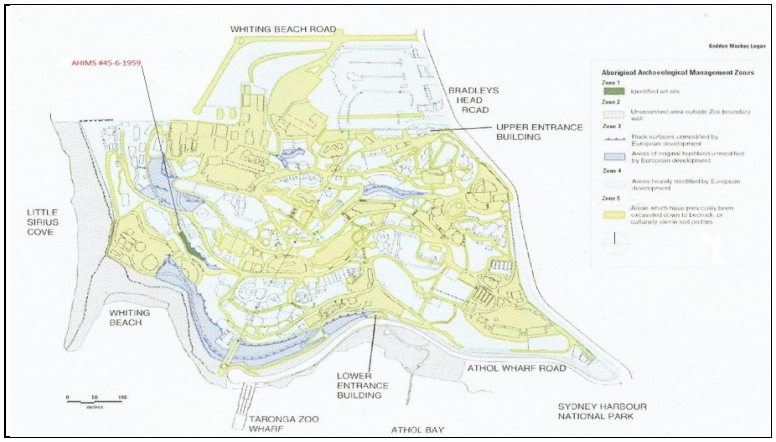
1.0 Introduction

1.1 Background

Taronga Conservation Society Australia (TCSA) proposes to develop in stages an expanded Sumatran Tiger Exhibit at Taronga Zoo in Mosman, NSW. The proposal is a State Significant Development (SSD 6864) being assessed under Clauses 6 and 7 of Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* (**Appendix 7**). The zoo occupies 31 hectares of land situated at the head of Athol Bay on the northern side of Sydney Harbour that is defined by Athol Bay, Whiting Beach and Sirius Cove to the south and west, and Bradley's Head and Whiting Beach Roads to the north and east (**Figure 1.1**). Preparatory works for the project ('stage one') are to be located within the vicinity of the only Aboriginal heritage site presently known to occur within the zoo grounds. This is AHIMS Site #45-6-1959 which is a small and shallow sandstone overhang on the northern side of 'Bird Show Road' approximately opposite the Bird Show Amphitheatre in the southwest of the zoo complex that was first recorded in 1990 to contain (at least) seven and possibly eight white-pigment hand stencils (**Appendix 2**). These motifs were reported to be clearly visible when originally recorded, but only one or possibly two were identifiable in 1997, and possibly only one is apparent now. Mindful that no surface archaeological finds associated with the shelter were reported in 1990, it is currently unknown whether subsurface archaeological deposits occur below present ground levels within or in front of the overhang in a confined landscaped garden area that is situated between the road and a large and partly modified sandstone 'cliff face' that runs broadly parallel with the road of which the rock shelter with art forms a part.

The study area for the project preparatory works takes in Bird Show Road and the sandstone cliff line and its unmodified elements including AHIMS #45-6-1959 and is shaded in red on **Figure 1.2** and **Figure 1.3**. The approximate extent of the significantly larger site of the proposed new tiger enclosure that would be constructed above Bird Show Road during future project phases is shaded in yellow.

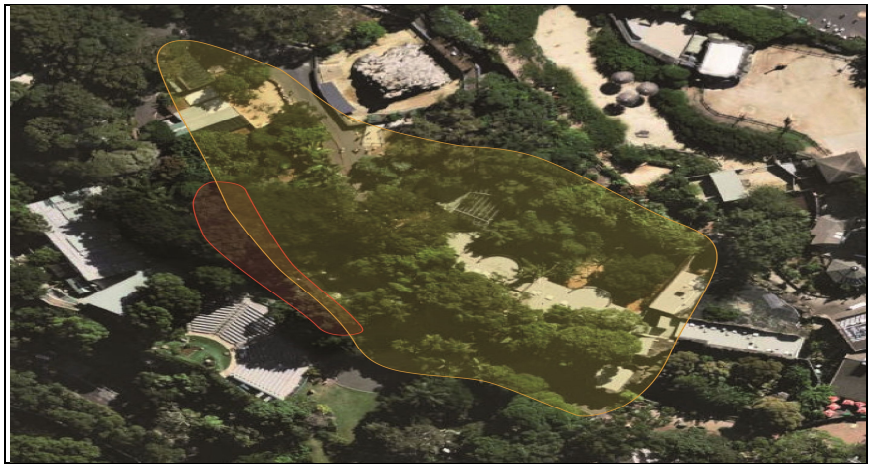
Figure 1.1: Approximate location of AHIMS Site #45-6-1959 at Taronga Zoo (Godden Mackay Logan 2002)



The redevelopment project aims to avoid harming the Aboriginal site, its cliff face context, and any associated archaeological material that may be present. The project also aims to assist in reducing the rate of future deterioration of the Aboriginal heritage site because of a number of interrelated threats to the long-term survival of the site that have been identified during project planning, but which are also largely unrelated to potential development impacts that may arise as a result of the current preparatory works as discussed below. In this regard, the following *Aboriginal Archaeological and Cultural Heritage Assessment* evaluates the nature and extent of the potential heritage impact of the preparatory works that are currently proposed within the vicinity of AHIMS Site #45-6-1959 and recommends that the approaches and methods that are proposed to support an application for a *Aboriginal Heritage Impact Permit* (AHIP) that is also sought here will help to mitigate potential heritage impacts of the redevelopment.

Figure 1.2: Approximate boundary of the proposed Sumatran Tiger Exhibit study area (yellow shading) and its relationship to the current preparatory ('stage one') works area (red shading)

Figure 1.3: Existing condition of the preparatory works study area

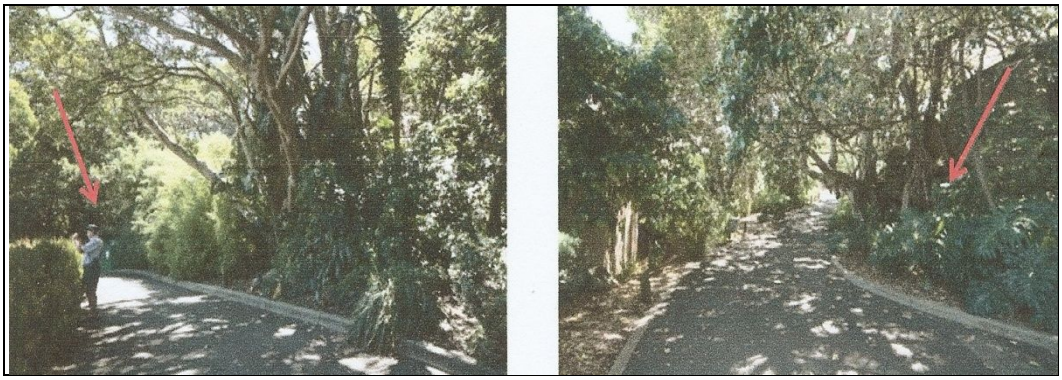


1.2 AHIMS Site #45-6-1959

AHIMS Site #45-6-1959 forms part of a modified series of natural sandstone rock shelves that have created a 2m-3m high cliff line or face that runs broadly parallel with and above Bird Show Road. The roadway was constructed by c.1962 and has remained largely unaltered since that time. A number of c.1940s masonry animal shelters are located on top of the rock face above the Aboriginal heritage site and roadway below, and the rear walls of these exhibits are generally setback behind a path but are close to the edge of the cliff and one of these structures in particular is located directly above AHIMS Site #45-6-1959. Further to the east along Bird Show Road is a coursed sandstone retaining wall that is about 3m high and the rock shelves bordering the road are quarry faced at the western end of the road. Two natural two rock overhangs survive largely intact at the centre of the cliff face. West of the larger overhang is a modern vertical carving that has been cut into the quarry face (see below), while the smaller easternmost overhang contains the hand stencils. Above this section of the rock face is a large fig tree that probably dates from post c.1930 that has roots that extend down from the top of the rock shelves to the garden bed below that form sculptural forms on the northern side of the roadway. Since c.1962 the area has become heavily vegetated with these self seeded fig trees (see **Figure 1.4**) which have colonised and overrun the natural rock outcrops and modified/built stone elements alike including the two central overhangs. The sandstone is being damaged by this unchecked tree growth and as a result some sections of stone (including parts of AHIMS Site #45-6-1959) are now in poor condition and at risk of structural failure.

As described below, tree roots are growing into natural fissures and cracks in the rock and expanding and jacking the sandstone apart, and structural engineering advice is that a section of the overhang of the Aboriginal heritage site will collapse in the course of time if no action is taken. Some tree roots have also compromised the storm water drainage system along the adjacent roadway with roots growing into the pits, and the storm water system is now flooding in this area and compromising exhibits and bird show off-holding facilities below the road.

Figure 1.4: Existing condition of Bird show Road with the approximate location of AHIMS Site #45-6-1959 arrowed



The sketch plans drawn of the site in 1990 and photograph below (see also **Appendix 2**) illustrate how the site appeared at that time, and the images that follow show how the locality looks now.

Figure 1.5: 1990 recording of AHIMS Site #45-6-1959

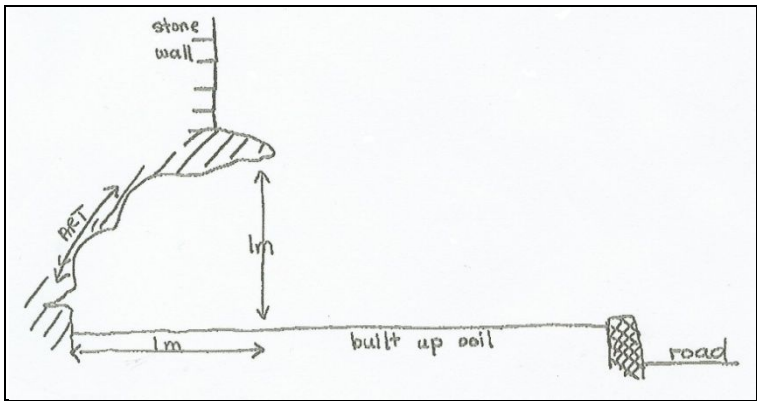


Figure 1.6: Seven hand stencils recorded at AHIMS Site #45-6-1959 in 1990

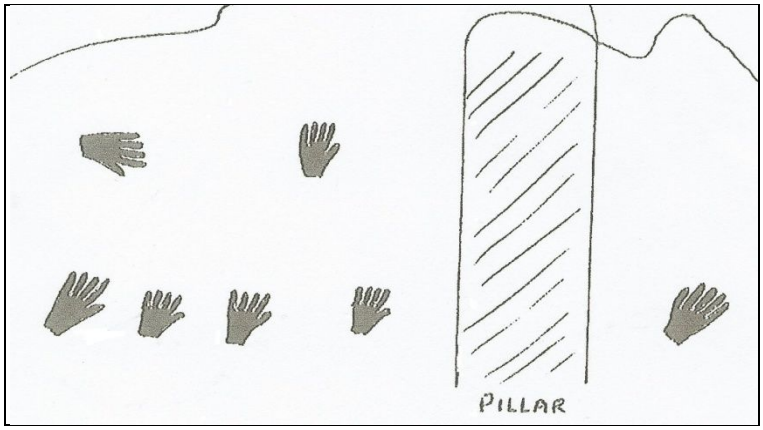


Figure 1.7: Less vegetated condition of AHIMS Site #45-6-1959 originally recorded in 1990

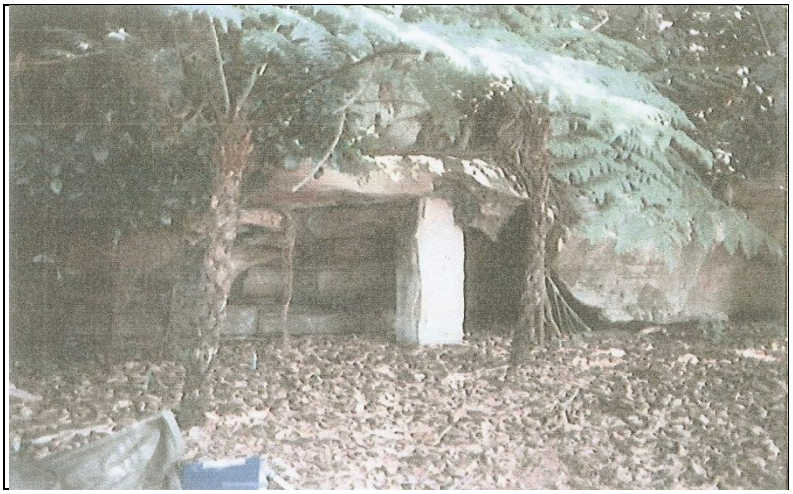


Figure 1.8: Condition of AHIMS Site #45-6-1959 and its immediate surrounds recorded in 2013

1.3 The Proposal

1.3.1 Nature and Scope

The proposed preparatory works that are the subject of this Aboriginal archaeological & cultural heritage assessment and AHIP application require the removal of some fig trees and two non-significant Melaleuca trees on the northern side of Bird Show Road and marginal widening of part of the roadway itself to enable future vehicle access. Demolition of some old exhibits and structures (all small) prior to the commencement of the main construction programme for the exhibit above Bird Show Road is proposed to take place during this preparatory phase.

1.3.2 Engineering Advice

TCSA have sought structural engineering advice on the condition of the sandstone rock shelves and overhangs and arborist advice on aspects of the proposed removal of some of the tree elements on Bird Show Road (see **Appendix 3**). An area of unstable rock overhang has been identified about 5m to the west of the Aboriginal heritage site and a new crack, caused by fig tree root growth, occurs within the overhang with Aboriginal art itself. It has been advised that if nothing is done then the slab of stone over the Aboriginal site will split further and fall off. The wall above the overhang (which is supported by a c.1940s masonry pier) has also been damaged by tree roots.

In combination, the fig trees are causing the cliff face to become unstable by growing into the cracks and expanding and this growth is progressively pushing the rock joints apart. While the structural engineering advice is that the fig trees growing along the cliff face are not transferring significant loads onto the sandstone, water passing from the site above the cliff to the area below along Bird Show Road is also causing damage to areas of the cliff face and water seepage down the back wall AHIMS Site #45-6-1959 is apparent that appears to have affected the visibility of the hand stencils since 1990.

It has been advised that selective tree elements can be safely cut down to prevent further damage. The roots and tree trunks that are engaged into the cliff face are to be left in place. The remaining tree stumps/roots are to be treated regularly with herbicide and as the roots die and decay; cracks in the rock would be carefully grouted to stop settlement and further movement. Some form of support structure is also recommended to be installed near the new crack above and to the west of the heritage site, and drainage from upper areas above Bird Show Road needs to be addressed to stop water runoff and seepage.

1.3.3 The Sumatran Tiger Exhibition Project – Preparatory Works

There will be an increased use of Bird Show Road situated below the proposed tiger exhibit redevelopment site during future construction phases, and also as a result of and following the completion of the proposed development for use for maintenance and access purposes. The roadway needs to be made accessible to

emergency vehicles in order to replace the existing road access on the 'upper roadway' that will be blocked by the new exhibit.

The preparatory project works proposed involve the removal of a number of large fig trees adjacent to the sandstone rock face, retaining walls and the Aboriginal art site opposite the Bird Show amphitheatre because of the damage they are causing to the fabric of these elements and the more pressing requirement for the creation of an adequate emergency vehicle access. Removal of the larger branches and canopy elements encroaching over and into the road easement from trees along the top of wall and above the Aboriginal heritage site overhang will potentially help to reduce the weight/load on the sandstone elements and also hopefully prevent or inhibit further tree growth.

Figure 1.8: Structures to be removed during later stages of the proposal from the top of the sandstone cliff line in the vicinity of AHIMS Site #45-6-1959. The same structure is shown in the image below

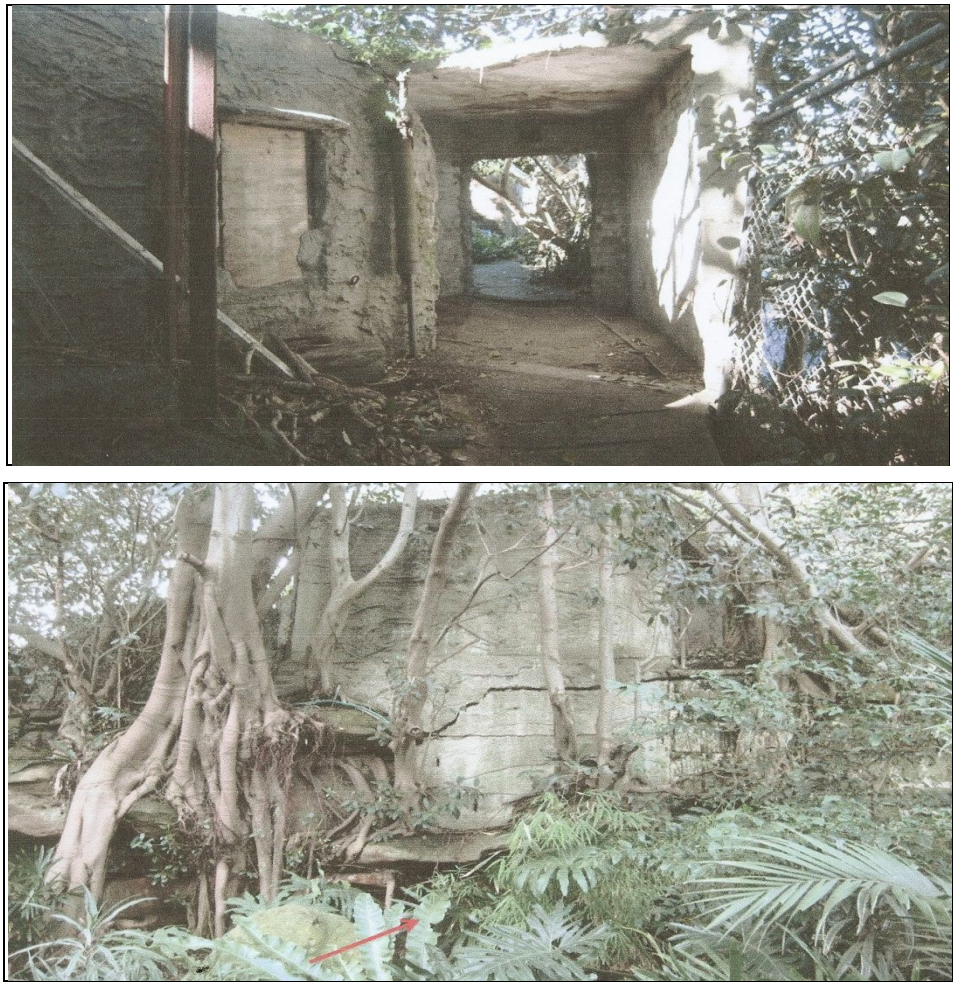


Figure 1.9: Cracked masonry structure built above the rock face over AHIMS Site #45-6-1959 (arrowed)

Figure 1.10: This image shows the rock overhang, masonry pillar and several fig trees growing into the rock face. The Aboriginal heritage site (arrowed) is under the overhang to the left of the pillar. A masonry wall is built over the rock overhang which has a masonry pier supporting it (may not actually provide much support).

TCSA have notified the Heritage Branch in accordance with S170A 1(c) of the *NSW Heritage Act 1977* of the proposal to remove two fig trees (Item 179L) and two of a group of four paper-bark trees (Item 71L) that are listed on the Taronga Heritage and Conservation s.170 Register. This schedule identifies over 300 individual heritage items within the zoo. Only a small number of individual heritage items are listed on Schedule 2 (Heritage Items) of the Mosman LEP 1998. These trees are not listed. The plans to remove these items (and planned mitigative measures) are in accordance with the conservation policies of the Heritage Office endorsed (July 2002) Taronga Zoo Conservation Strategy (GML June 2001). Other items in the vicinity are 63L which is a sandstone retaining wall of local significance in the s.170 register, AHIMS Site #45-5-1959 (66A), and 67L which is the stone carving by M. Leslie which is of local significance.

The methodology proposed is to remove the branches and tops of the trees only and for the trunks and roots to remain. This would be done over several days in stages and the tree tops salvaged for animal feed and the

branches for climbing frames. The roots and trunks would then be poisoned over several years to ensure they die and the roots left to decay over time. Attempts to remove the trunks or roots are not proposed because of the risk of damage. Overtime, as the roots decay, cracks would be filled with structural grout to minimise any potential settlement or movement.

Minor road realignments in the vicinity of AHIMS Site #45-6-1959 are proposed but are to be away from the Aboriginal heritage site. Later stages of the works are to remove unstable structures in the vicinity and to lay services in the roadway. The exhibit development will proceed subsequently with no structures proposed or allowed near the rock overhangs. The table to follow outlines possible harm/impacts and mitigation, and the proposed area of road widening is shown on the plan below.

Figure 1.11: Road widening in the vicinity of AHIMS Site #45-6-1959 will be restricted to replacing the existing asphalt with concrete and the works will not encroach on the area any more than the existing road does now.

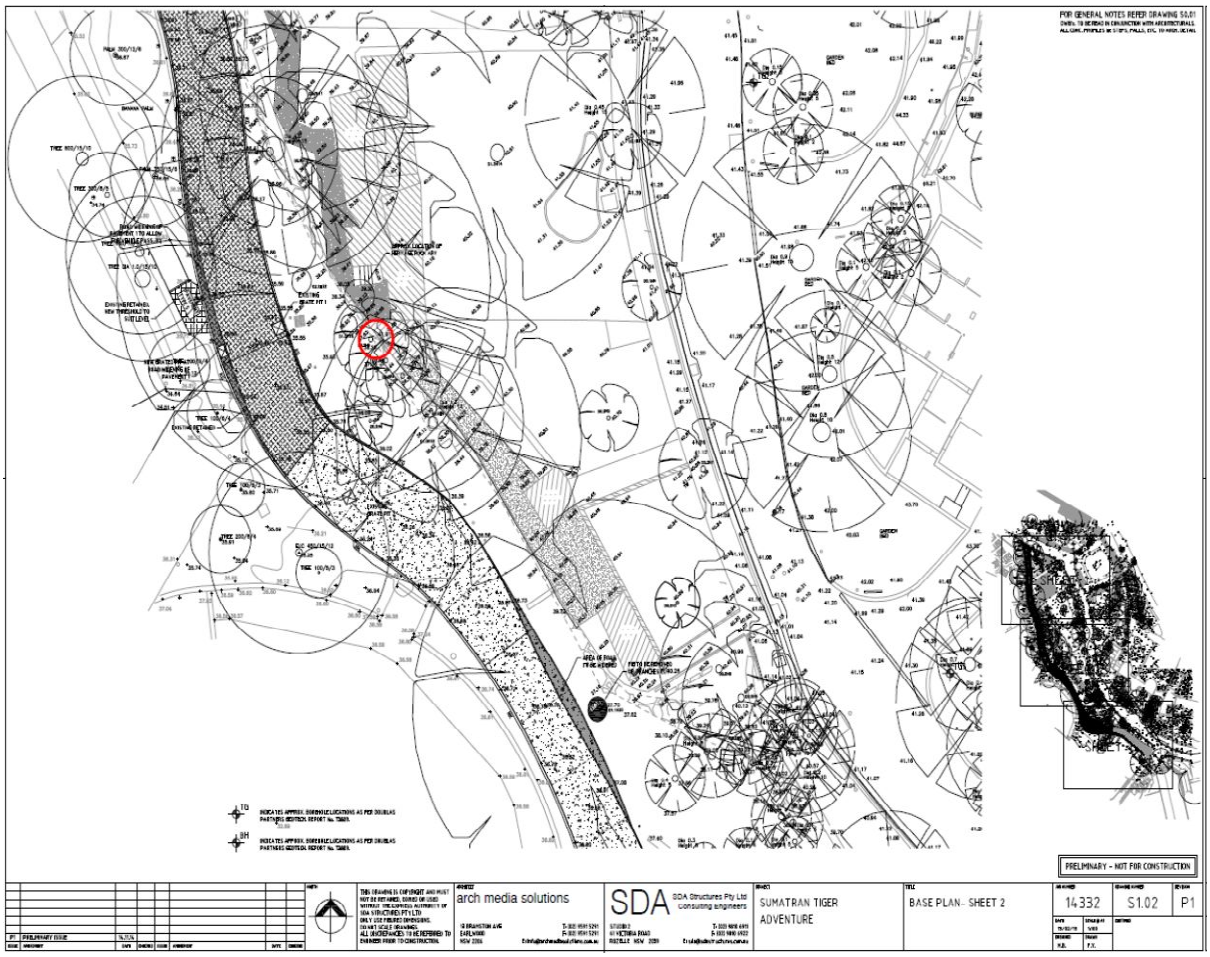


Table 1: Potential harm and mitigation measures

Work	Possible Impacts / Harm	Mitigation
Do Nothing		
	Tree roots in rock face grow and water runs through site	
	Cracked section of overhang falls onto ground	
	Remains of hand stencils and overhang destroyed and any midden deposits buried.	
1. Preparatory Works 2014		
Relocation of animals	None	None
Removal of bamboo	None	None
Lopping of trees	Branches dropping Machines bumping Vibration from motors Loads from crane outriggers Risk of loose section of overhang falling to ground	Methodology for removal Train workers Supervision Test methods away from sensitive areas Protect sensitive sites Archaeologist to excavate area under vulnerable overhang
Structural stabilisation of overhang	Purpose to protect site Risk if not done Installation of support disturbs archaeological deposits under	Work done prior to other work that may cause damage Archaeologist to excavate where disturbance is needed to install support
Poisoning of trees	Inadvertent encroachment	Train workers Protect sensitive sites
Grouting of cracks (future say 2-10 years)	Grout applied under too much pressure causes damage Roots rot and cracks not grouted	Methodology for work Train workers Supervision Test methods away from sensitive areas Protect sensitive sites Add to Zoo's maintenance program
2. Future Work 2015		
Removal of Structures	Vibration caused by tools Building materials falling Inadvertent encroachment	Methodology for hand removal from upper level Train workers Supervision No percussive tools Structural stabilisation to overhangs before works Protect sensitive sites
Drainage work to protect sandstone	Purpose to protect site Risk if not done	Integrate drainage work into Sumatran tigers project
Laying of services in road	Excavation causes vibration Inadvertent encroachment	Methodology to minimise vibration Structural stabilisation to overhangs before works Train workers Supervision Protect sensitive sites
3. Exhibit Construction	- to open 2016[1]	
Construction of enclosure	Loads too close the overhangs Inadvertent encroachment	Design brief to include restrictions re loading sandstone overhangs, etc. Train workers Supervision Protect sensitive sites

1.4 Statutory Heritage Context and Controls

1.4.1 Commonwealth Legislation

Aboriginal and Torres Strait Islander Heritage Protection Act 1984

This Act aims to protect and preserve areas and objects of particular cultural significance to Aboriginal people including human skeletal remains. The processes for the protection of threatened places are outlined in a gazetted Ministerial Declaration and can include the preclusion of development. Although this is a Federal Act, it can also be invoked on a State level. No Aboriginal sites or places within the zoo are subject to a Declaration under this Act.

Environment Protection and Biodiversity Act (1999)

This Act regulates actions likely to have a significant impact on a matter of national environmental significance where approval by the minister responsible is required within Commonwealth and outside if the action will or is likely to have a significant impact on the environment. The Act defines 'environment' as both natural and cultural, and therefore includes the consideration of Aboriginal and historic cultural heritage sites and items. There are no Aboriginal heritage sites or items that are affected by the EPBC Act.

The Native Title Act 1993

The *Native Title Act 1993* provides recognition and protection for native title and the Act established the National Native Title Tribunal (NNTT) to administer native title claims to rights and interests over lands (and water) by Aboriginal people. The NNTT also administers the processes that govern the right of Aboriginal people to negotiate under the Act. The Act also provides for Indigenous Land Use Agreements (ILUA) which is an agreement between a native title group and others about the use and management of land and was introduced as a result of amendments made to the Act in 1998. An ILUA can be negotiated over areas where native title has, or has not yet, been determined and can form part of a native title determination or be settled separately from a native title claim. In addition, an ILUA can be negotiated and registered whether there is a native title claim over an area or not. The zoo is not subject to an Aboriginal Land Claim under this Act.

1.4.2 State Legislation and Heritage Controls

Statutory Protection for Aboriginal Cultural Heritage in NSW

Two principal pieces of legislation provide statutory protection for Aboriginal heritage and the requirements for its management in New South Wales:

- The *National Parks and Wildlife Act 1974* (as amended); and
- The *Environmental Planning and Assessment Act 1979* (as amended).

National Parks and Wildlife Act (1974)

The *Office of Environment and Heritage* (OEH) is the principal government agency with responsibility for the protection and management of Aboriginal archaeological sites and Aboriginal cultural heritage values. It comprises an administrative branch of the *NSW Department of Premier and Cabinet*.

The NPW Act was amended through the *National Parks and Wildlife Amendment Act 2010*. The majority of the Aboriginal heritage management objectives and protection provisions of the NPW Act remain largely the same as they were originally established in 1974. However, a number of the amendments and administration functions of the NPW Act that have implications for the current project are summarised below:

- The Director-General (DG) of the OEH is responsible for the protection and conservation of Aboriginal objects and declared Aboriginal places in NSW.
- Part 6 of the NPW Act provides specific protection for Aboriginal objects and declared Aboriginal places by establishing offences of harm.
- Harm is defined under the Act to mean destroying, defacing, damaging or moving an Aboriginal object from the land.
- Under Section 86 of the NPW Act, it is an offence to knowingly, or cause or permit harm to an Aboriginal object (or Aboriginal place) without prior written consent from the DG of the OEH.
- There are a number of defences and exemptions to the offence of harm under the NPW Act. One of these is that harm is carried out under the terms and conditions of an approved Aboriginal Heritage Impact Permit (AHIP).
- Section 87 of the NPW Act also provides for defences to harm done to an Aboriginal object if *due diligence* has determined that no Aboriginal object would be harmed, compliance with *regulations* or an approved *code of practice* was followed, and if it is shown as a *low impact act* and/or an (unintended) omission
- The NPW Act establishes the DG of the OEH as the decision-maker for AHIP applications.
- The OEH requires effective consultation with Aboriginal people as a fundamental component of the AHIP assessment process.
- AHIPs are issued under Section 87 and Section 90 of the NPW Act. Recent amendments to the administration of the NPW Act allow for the issuance of approvals that combine Sections 87 and 90 submissions in certain circumstances to streamline and make more effective the implementation of the NPW Act.
- Section 5 of the NPW Act defines an Aboriginal object as: '*any deposit, object or material evidence (not being a handicraft for sale) relating to Indigenous and non-European habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains*'.
- A declared Aboriginal place is a statutory concept, meaning that it is any place (land, landscape element, or building etc) that is declared to be an Aboriginal place (under Section 84 of the Act) by the Minister administering

the NPW Act because the Minister is of the opinion that the place is or was of special significance with respect to Aboriginal culture.

- A declared Aboriginal Place may or may not contain Aboriginal objects.
- The protection provided to Aboriginal objects and places applies irrespective of the level of their significance or issues of land tenure.
- Section 89A of the NPW Act requires that the DG be notified of the location of any newly identified Aboriginal site or object which is then registered with the OEH *Aboriginal Heritage Information Management Service* (AHIMS) database.
- AHIMS has replaced the previous *NPWS Aboriginal Sites Register*.

In summary, the NPW Act:

- Is the primary legislation for the protection of Aboriginal cultural heritage in NSW and gives the DG the responsibility for the proper care, preservation and protection of Aboriginal objects and places.
- Part 6 of the NPW Act provides specific protection for Aboriginal objects and places by making it an offence to harm them. An AHIP is required if impacts to Aboriginal objects and/or places cannot be avoided. An AHIP is a defence to a prosecution for harming Aboriginal objects and places if the harm was authorised by the AHIP and the conditions of that AHIP were not contravened.
- The Act includes a 'strict liability' offence for harm to Aboriginal objects and places, but does not require someone to know that it is an Aboriginal object or place they are causing harm to in order to be prosecuted. Defences from prosecution include a low impact activity or demonstration of due diligence conducted in accordance with the OEH Due Diligence Code of Practice.
- However, if an Aboriginal object is encountered in the course of an activity (where an AHIP has not been approved) work must cease and an application must be made to the DG for an AHIP that would need to be accompanied by an assessment completed in accordance with the OEH Code of Practice.
- Consultation with Aboriginal communities is required under Part 8A of the NPW Regulation 2009 and is to be conducted in accordance with the OEH Aboriginal Heritage Consultation Requirements for Proponents 2010 where AHIPs are sought.

Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) requires that environmental and heritage impacts are considered by consent authorities prior to granting development approvals. The relevant sections of the EP&A Act are:

- Part 3A: A single assessment and approval system for major development and infrastructure projects [note that Part 3A has now been repealed and replaced with Part 4 (Division 4.1)].

- Part 4: Development that requires consent under consideration of environmental planning instruments.
- Part 5: An assessment process for activities undertaken by Public Authorities and for developments that do not require development consent but an approval under another mechanism.

1.5 Aboriginal Heritage Assessment and Reporting Methodology

1.5.1 Introduction

This report has been prepared in accordance with the following heritage recording, assessment and reporting guidelines and standards:

- Australia ICOMOS. 2002 (Revised). The Burra Charter. The Australia ICOMOS Charter for Places of Cultural Significance. Australia ICOMOS Inc.
- NSW Department of Environment, Climate Change & Water. (DECCW) 2010a (September). Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010. Part 6 National Parks & Wildlife Act 1974. DECCW. Sydney.
- NSW Department of Environment, Climate Change & Water. (DECCW) 2010b (September). Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales. DECCW. Sydney.
- NSW Department of Environment, Climate Change & Water. (DECCW) 2010c (September). Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales. DECCW. Sydney.

1.5.2 Heritage Register Searches

The following heritage registers, lists, and schedules have been reviewed for the project.

- NSW Office of Environment & Heritage (OEH) Aboriginal Heritage Information Management System (AHIMS) Sites Register.
- NSW Heritage Council – State Heritage Register (SHR) & State Heritage Inventory (SHI).
- Mosman Local Environmental Plan (MLEP) 1999.
- Taronga Zoo Conservation Strategy & Section 170 Heritage & Conservation Register

1.5.3 Literature Review

A document review has been completed for this report that synthesises previous Aboriginal heritage information available for the study area.

1.5.4 Public Notification & Registration of Expressions of Interest

Aboriginal community consultation for the proposed Sumatran Tiger Exhibit commenced in early August 2014 in accordance with procedures set out in *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW 2010a). The guidelines require the following tasks to be undertaken:

> *1. Pre-notification – identification of the Aboriginal parties.*
>
> *2. Notification – contacting identified Aboriginal parties to seek their interest in the project.*
>
> *3. Presentation of Project – advising the registered Aboriginal parties (RAP) of the project, which may involve meetings and/or site visits.*
>
> *4. Methodology – providing the RAPs with the proposed field methodology and seeking any information from them on cultural matters in the study area.*
>
> *5. Impacts and Mitigation Options – discussion of potential impacts to heritage and appropriate mitigation options prior to developing the report.*
>
> *6. Report review – review of the final report.*

In order to identify, notify, and register Aboriginal people who may hold cultural knowledge relevant to determining the cultural significance of Aboriginal objects and/or places that may be affected by the proposal, a Public Notice for the project was placed with the *Mosman Daily* on 7 August 2014. A copy of this notice is appended (**Appendix 4**).

An inspection of the site was undertaken at this time with senior zoo staff in partnership with the *Metropolitan Local Aboriginal Land Council* (MLALC), and a request for preliminary advice for the proposal was subsequently also forwarded to the OEH to assist in the planning for the project. This heritage assessment and AHIP application builds upon the initial response provided by the TCSA in November 2014 to the OEH's request for more information to allow the OEH to effectively assist in the matter as indicated in the appended correspondence (**Appendix 5**).

Following the Public Notice, the completion of preliminary background research, and initial dialogue with the MLALC, the Aboriginal individuals and organisations below were notified of the project directly in writing following the receipt of a Aboriginal community stakeholder list provided by the OEH (1 August 2014) that was sought by DSCA (24 July 2014). These direct notices were sent out to these groups, individuals and government agencies on 8 August 2014:

- Metropolitan Local Aboriginal Land Council (MLALC – Colin Davison).
- Darug Aboriginal Cultural Heritage Assessments (DACHA – Gordon Morton).
- Tocomwall (Scott Franks).

- Eric Keidge.
- NTSCorp.
- National Native Title Tribunal.
- Registrar of the Aboriginal Land Rights Act 1983.
- NSW Heritage Branch.
- Mosman Council (Heritage Advisor).

A draft copy of this assessment was provided to each of the Aboriginal community organisations (RAP's) that expressed an interest in the project (either in response to the Public Notice and/or the direct mail notification) on 18 January 2015. The project RAP's comprised:

- MLALC.
- Tocomwall

A schedule of the Aboriginal community consultation undertaken during the preparation of this report is appended (**Appendix 6**), and copies of the Aboriginal community responses and other stakeholder and government agency correspondence received for the project are also appended.

1.5.5 Site Inspection and Recording

This report provides the following:

- A summary of the observations recorded during recent site (2014) inspections and an evaluation of the results of these site visits.

1.5.6 Analysis, Evaluation and Report

This report presents the following:

- An Aboriginal archaeological assessment that includes an evaluation of the results of background research and a discussion of the archaeological management conclusions that have been developed for the preparatory works proposal.
- Aboriginal archaeological heritage management recommendations and advice relative to the proposal including an Application for an AHIP for AHIMS Site #45-6-1959.

1.6 Report Outline

This Assessment and AHIP Application present the following:

- An introduction to the project (**Section 1.0**).
- An overview of the environmental setting of the study area and the historical context of the development of the land with a focus on AHIMS Site #45-6-1959 (**Section 2.0**).

- A brief Aboriginal archaeological overview for the project and additional details on the existing condition of AHIMS #45-6-1959 (**Section 3.0**).
- The conclusions that have been developed for the project that are based upon the results of the above background Aboriginal archaeological and environmental heritage research, Aboriginal community and other statutory authority and stakeholder consultation, and an evaluation of the documented and potential archaeological resource(s) at the zoo that may be affected by the current preparatory works proposal.(**Section 4.0**).
- Aboriginal archaeological and cultural heritage management recommendations and strategies relative to the proposal (**Section 5.0**).
- Sources and references cited in this report (**Section 6.0**).

1.7 Authorship & Acknowledgements

This report has been written by Dominic Steele of *Dominic Steele Consulting Archaeology* (DSCA) with valuable assistance provided by the zoo's senior heritage advisor, Jean Rice, and the oversight provided by Daniel Djikic, the Sumatran Tiger Exhibit project manager.

2.0 Landscape Setting and Historical Context

2.1 Topography, Vegetation and Soils

The zoo has mainly a south facing aspect and the approximately 31 hectares of land it encompasses consists of three principal sandstone ridges that are traversed by a series of rock ledges and terraces sloping and shelving down towards the foreshore. A natural cliff occurs above Whiting Beach and a man made cutting lines Bradleys Head Road from the Lower Entrance at the Ferry Wharf. A 'seasonal' watercourse with several natural ponds, divides the site in two, the eastern side being one third and western side two thirds. The Hawkesbury Sandstone soils are generally shallow sandy loams where they survive in situ with deeper profiles occurring in the gullies, and before the zoo was developed from c.1913, the natural vegetation will have included tree types such as Smooth-barked Apple, Sydney Peppermint, Red Bloodwood, Scribbly Gum and Gray Gum. Remnants of original brush vegetation survive in the moist central zoo gully.

2.2 Historical Context

The area around AHIMS Site #45-6-1959 was not developed until after the 1930s and aerial images show the land as comprising bush below the existing path and Lion and Tiger exhibits that were built after 1913. Later 1960s images show zoo exhibits had been established above the natural rock shelf and a roadway had been built below it which was cut into the rock shelf at the western end. Retaining walls were built at the eastern end of the new road to create a larger level area for exhibits at the upper level. A ramp had also been built from the older upper road down to the lower (newer) road giving access to a range of animal exhibits constructed below the lower road. The exhibits below the lower road were removed in recent years and replaced with an amphitheatre now used for the free flight bird show. The lower roadway (Bird Show Road), rock shelf and exhibits above remain unaltered from their form evident in the 1962 aerial image below.

Figure 2.1: Approximate location and context of the rock shelter with art in 1930

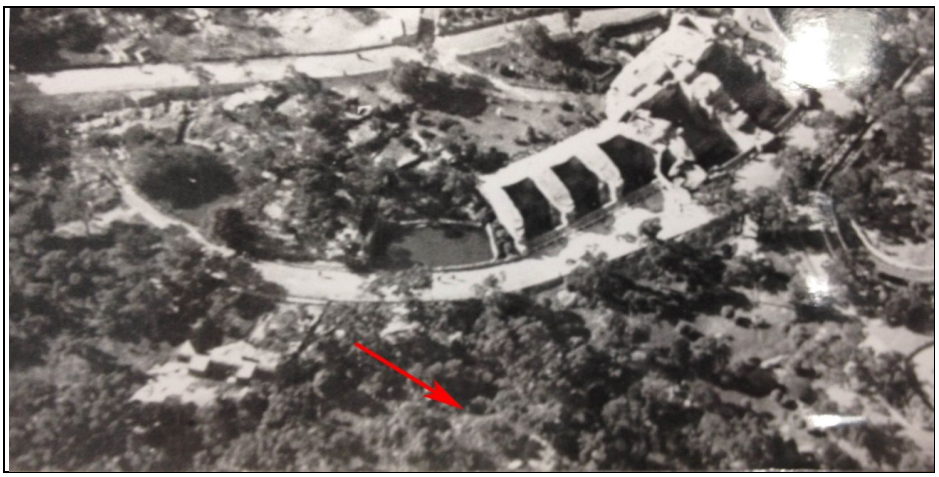
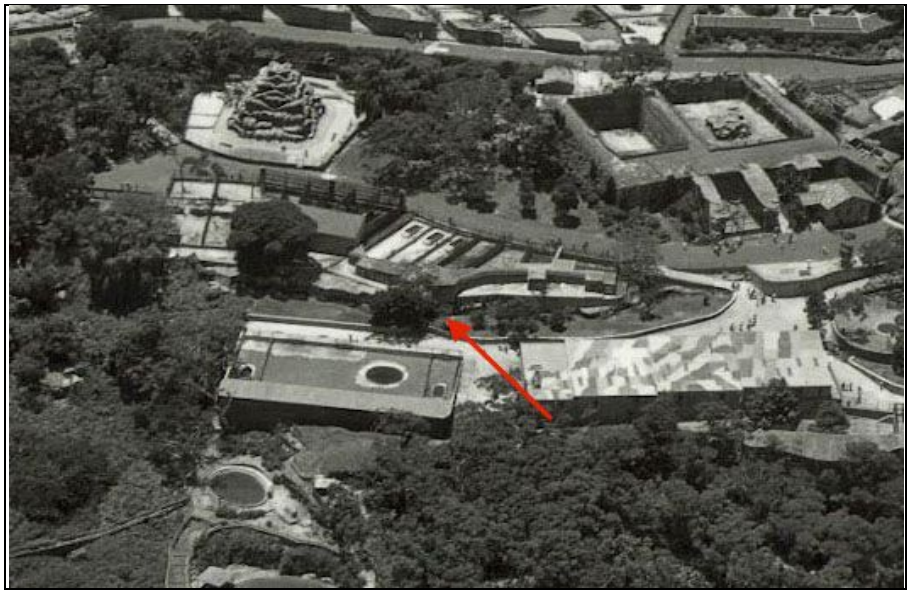


Figure 2.2: Approximate location and context of the rock shelter with art in 1962



2.3 Existing Condition of AHIMS Site #45-6-1959

The site was first recorded in 1990 by an amateur enthusiast (Michael Guider) and was described at that time in the following way:

> *Rock shelter facing south directly opposite; length 16ft, height 4ft, depth 5ft. A Port Jackson Fig tree separates the Dreamtime rock mural...from these original hand stencils.*
>
> *7 white hand stencils on wall faint but still very clear. No occupation seen on the floor grass lawn at front of shelter built up by retaining wall. The back of the Hunting Dog and Dingo exhibits are directly above cave.*

Images of how the site appeared originally in 1990 (see **Appendix 2**) show the (garden) area in front of the shelter and adjacent to the roadway to be grassed but otherwise clearer of vegetation than today and also the pre-existence of the rectangular cement pier that is supporting the roof of the overhang. The pier is believed to have been built at the same time as the masonry animal shelters above the shelter in c.1940 and it is likely that this support has been dug into the floor of the overhang down to bedrock which may (or may not) only occur at a relatively shallow depth below current ground surfaces. The pier may also have been fixed into a cement pad and the excavations to install this support will have potentially disturbed/destroyed a considerable area of any potential archaeological deposit under the drip-line.

It is also evident that the conditions of the rock surfaces within the shelter have deteriorated considerably since 1990 as a result of tree root growth, water seepage down the rear wall, and the loss of considerable sections of surface rock. An annotation to the AHIMS record for Site #45-6-1959 notes that eight hand stencils were visible in 1991, and the last reliable sighting of any of these motifs was in 1997 when the shelter was inspected during

the preparation of the zoo's Heritage and Conservation Register. Only one or possibly two of the seven or eight stencils are partly visible now, and the others may have either faded or eroded away entirely from water run-off over the last 25 years and/or as a result of the weathering, cracking and general exfoliation of the sandstone surfaces on the rear wall of the overhang that has been directly caused (and/or accelerated) by tree root growth and cracking from weight stress on the cliff line from above.

Figure 2.3: A c.1997 photo of at least one hand stencil at the site. The surface of this stone is now or heavily deteriorated and has a large tree root growing across it

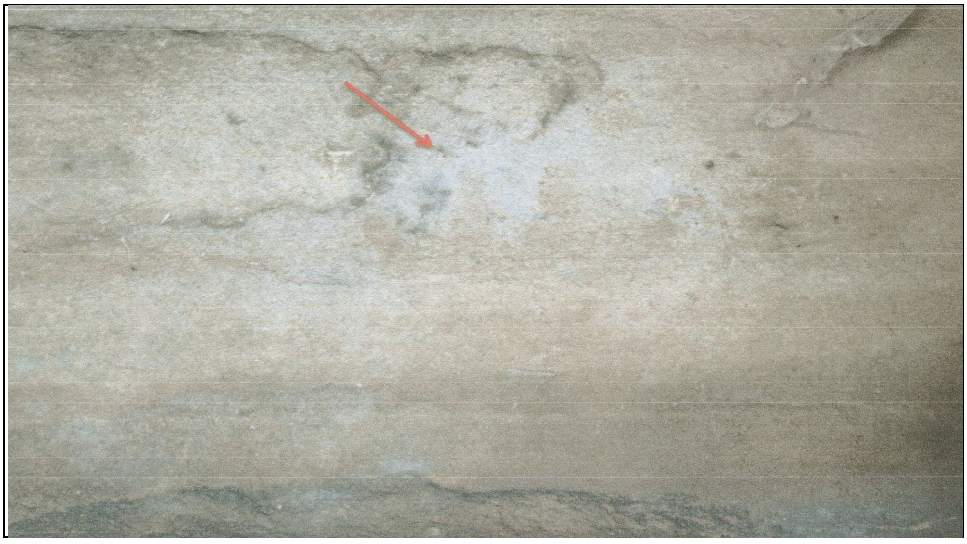
Figure 2.4: The site was inspected again with this photo and the probable location of the photo was identified below and this area of the stone surface below the tree roots is deteriorated here

Photos taken in late 2014 that have been digitally enhanced show at least one (and possibly two) partial hand stencil on the rear wall of the shelter behind the supporting pier, but comparison of the 1997 photograph with

the site today indicates that the face of the stone has been lost in the area where most of the hand stencils were originally recorded in 1990.

Figure 2.5: This digitally enhanced photo is to the right of (and overlapping) the previous photo. Two possible partial handprints are arrowed. The top arrow shows the edge of the new crack in the overhang. At the right is the edge of the c.1940s masonry pier supporting the shelter overhang

Figure 2.6: Possible hand stencil just below and to the right of the arrow.



The potential for intact and substantial subsurface archaeological deposit to occur within and in front of the shelter inside the area that is currently defined by the kerb-side garden area bordered by Bird Show Road would appear to be limited. The locality has been disturbed as a result of past sandstone landscaping and it is unknown how long, wide and deep the rock shelter originally was, although surviving unmodified rock elements

nearby suggest the overhang may have formerly conjoined other overhanging elements of similar dimension to create a larger area for shelter and shade than is apparent now. The installation of the pier placed under the drip line in the centre of the shelter in c.1940 has directly affected the potential archaeological integrity of the site, and the locality in general has been affected by historic road construction(s) phases and ongoing garden maintenance activities since the first decade of the twentieth century.

Mindful of the vertical and horizontal distance of the site from the foreshore below, it is probable that the rugged and elevated topography in between the two points will have dissuaded people from carrying food back from the coastline whose remains that were left behind will have created archaeological occupation deposits under the overhang and in front of its mouth. The space afforded by the overhang for shelter is now very small, but may have been larger before the sandstone landscape of the place was changed from c.1913, but it is possible that the shelter was never of sufficient size or possesses enough 'amenity' to represent a campsite that was repeatedly and frequently used by people. Nevertheless, a freshwater creek originally bisected the Zoo that may have provided water and resources as people travelled through the site in the past to get from the elevated view/vantage points down to the water and its resources below. Durable items such as flaked stone artefacts, lost or discarded when people periodically visited the site and stencilled their hands, may survive beneath current ground surfaces where shells and bones to a lesser extent for example are likely to have largely dissolved in the acidic sandy soils that appear to have also been subject to increased or at least changed water seepage regimes over the roof and down the rear wall following the creation of the cliff line as it exists now.

3.0 Aboriginal Historical & Archaeological Context

3.3 Sydney Regional Archaeological Overview

3.3.1 Aboriginal Occupation of the Sydney Region

The earliest dated coastal sites in the region are on the south coast at Burrill Lake with evidence for first occupation dating to approximately 20,000 years ago (Lampert 1971) and Bass Point that is dated to some 17,000 years ago (Bowdler 1970). Both would have been occupied when the sea level was much lower and the current coastline would have formed part of an inland environment drained by a series of rivers and streams. These early occupation sites have been largely found in stratified (layered) rock shelter deposits or within alluvial deposits, particularly on the margins of large river systems such as the Hawkesbury-Nepean and Parramatta Rivers. Some researchers (see McDonald 2007) have argued that early occupation of the Sydney Basin was focused on these primary river systems and was characterised by a high degree of 'residential mobility' (frequent movement between campsites).

Most dated archaeological sites in the region are less than 5,000 years old. The majority are furthermore dated to within the last 2,500 to 3,000 years. Available evidence suggests that the early occupation of the Sydney landscape was not intensive nor included large groups of people, and that around 5,000-6,000 years ago more intensive use of the landscape by Aboriginal people subsequently began. Many open sites situated away from the coast appear likely to have been first occupied in the last 1,500 years before Contact.

3.3.2 Changes in Stone Tools over Time

Over the 30,000 years of Aboriginal occupation of the region, and in particular the last 5,000 to perhaps 8,000 years, various temporal markers have been established to distinguish the more significant changes in tool types and tool kit composition over time (see for example Attenbrow 1987 & 2004, Attenbrow et al 2009a and b, Lampert 1971, McCarthy 1948, 1964 & 1976, Megaw 1965, Hiscock & Attenbrow 2005, and JMCD CHM 2005a &b). Commonly used terminology for the archaeological phases within what is often referred to as the *Eastern Regional Sequence* are the *Pre Bondaian*, followed by the *Early*, *Middle* and *Late Bondaian*. This sequence is still being refined. These broad phases are summarised below:

- The *Pre Bondaian* stone tool phase (from about 30,000 years ago to about 8,500 years ago) appears to have been essentially composed of large and quite heavy stone artefacts fashioned from fine grained siliceous chert and coarse-grained silcrete materials. Tool types include uni-face pebble tools, core tools, denticulate stone saws, scrapers, hammer stones, limited bipolar cores and flakes, and burins. No backed artefacts, elouera's, or ground stone implements occur. Backed artefacts appear in the archaeological record from around 8,500 years ago.

The change from the *Pre Bondaian* to the *Bondaian* appears to have taken place sometime after 8,500 to 7,000 years before present around the time sea levels stabilised around present levels, and is broadly defined by a noticeable shift in stone tool size (from larger to smaller tools), raw material use, and in the range of raw materials utilised by people for subsequent tool production that is evident in the archaeological stone tool collections that have been excavated and dated in the region. Features of the *Pre Bondaian* phase appear to have continued in many areas on the east coast of Australia (such as un-facial and bi-facial flaking techniques), but backed and edge ground implements appear to have been progressively introduced and widely used over this time period.

The three phases which are recognised as belonging to the *Bondaian* sequence are largely based on the timing of the introduction, and subsequent decline, of backed stone implements, as well as the increased use of bi-polar flaking techniques. Other technological innovations which are evident during the *Bondaian* period include the introduction of ground edge implements (around 3,000 t0 4,000 years before present), and the widespread use of shell fish hooks for fishing during the last 1,000 years. The three *Bondaian* phases are summarised below.

- The *Early Bondaian* phase (from approximately 8,500 years ago to approximately 4,000 years ago) appears to have been dominated by the use of fine grained siliceous tuff and silcrete materials. While the use of the larger and heavier stone implements characterising the earlier *Pre Bondaian* period seems to have persisted, archaeological evidence suggests backed and edge ground implements were widely introduced and used over time. Backed artefacts appear to be uncommon until the later stages of this phase increase in numbers in some archaeological sites occurring from around 4,000 years ago to around 3,500 years BP.

- The *Middle Bondaian* phase (from approximately 4,000 years ago to approximately 1.000 years ago) appears to have been dominated by the use of fine grained siliceous chert and silcrete materials and the manufacture and use of smaller backed implements. This phase is seemingly characterised by the increased manufacture of micro-blades such as Bondi Points and bi-polar artefacts, and the use of quartz as a ready source of a raw material for the production of flaked stone implements. Elouera's are rare.

- The *Late Bondaian* phase (last 1,000 years to European Contact) appears to have been dominated by the increased use of quartz (with the use of other raw materials of stone), common manufacture and use of edge ground implements (at least at Contact), and the use of bone and shell implements (including shell fish-hooks) at some investigated Aboriginal archaeological sites. Backed artefacts possibly decline becoming rare or absent in some coastal sites.

3.4 Local Archaeological Context

3.4.1 Site Types

There are presently 107 Aboriginal archaeological heritage sites recorded in the Mosman LGA that have been recorded in virtually all types of landforms. These include shell midden deposits in sandstone rock shelters of suitable size that provided protection to people during possibly inclement weather conditions, and also in open coastal/estuarine foreshore environments. Painted and drawn art images in sandstone overhangs/shelters are also well represented, along with some engraved images and axe grinding grooves created on the surfaces of usually flat rock platforms. Open campsites (without shell midden) that are commonly represented by the presence of durable materials such as flaked (and occasionally ground) stone artefact scatters reflective of repeated site use of both short and long term duration are less common. Shell middens are predominant (63%) in the Mosman area, but shelters with art are also comparatively common (35%).

3.4.2 Archaeological Excavations

One rock shelter with deposit occurring both within and outside the overhang has been excavated in Mosman at Balmoral Beach and is dated to around 4,000 years BP for first occupation. The upper half of the approximately 2m of deposit identified as the site was found to be principally of shell midden with fish bones well represented and some land animal bone materials. The amount of organic material decreased (decayed over time) with depth in the lower 1m of deposit leaving only stone artefacts. The uppermost undisturbed shell midden deposits within the shelter have been dated to approximately 2,700 years BP (Attenbrow 2010:157).

Eighteen shell species were recovered during the excavation with rock platform species (primarily oyster) being dominant. Bones of snapper were the most common fish elements identified, although over a dozen other different species were also present. In addition, macropod (kangaroo/wallaby) and glider bones were the most common land animals identified, and a number of Dingo bones were also recovered in deposits dated to c.3,0000 years ago which are some of the earliest archaeological Dingo bones in Australia. Several bone points and a shell (Sydney cockle) with resin still adhering indicating it was originally hafted were recovered from the upper layers, and stone artefacts were primarily made of red silcrete and included numerous backed blades (Bondi points). When the first cultural deposits started to accumulate in the shelter a tidal lagoon existed at the site that began infilling around 3,200 and 2,500 years ago and it possible that the extent of intertidal/shallow sub-tidal areas in the vicinity of the rock shelter was then at its maximum.

3.4.3 Art Sites in the Mosman LGA

AMBS (2005:vii) report several trends related to the distribution of Aboriginal archaeological sites in the Mosman LGA that suggest various places were associated with different activities including major campsites

and a range of special activity camps (eg. bachelor, initiation, craft, fishing, art) and some may have had a ceremonial purpose. Similar to engraved art, pigment art (creating motifs like hand stencils) can vary dramatically in size, colour and composition where some shelters may contain only a single hand stencil whilst another nearby may have hundreds of multicoloured motifs of varying sizes and styles/designs. Pigment art is generally only found within shelter sites in Sydney because it does not survive for long in open contexts, although in more arid parts of Australia art that is known to be of pre European origin is still visible on exposed rock surfaces in open contexts. In contrast with engravings, pigment art which has survived in the Sydney region is generally more often located in areas associated with subsistence activity rather than dramatic views.

AMBS (2005:64) further suggest that in Mosman, pigment art tends to be found in camping places, while engravings tend to be related to more aesthetically driven qualities such as views and elevations etc). The caveat is that this division is based upon a continuum between the two types of rock art *technique* sites, which may statistically be true but may not describe all art sites. In this respect, it is noted (ibid) that:

> *'in short, the difference between the rock art techniques are a good indicator of past behaviours at specific locations, but are in themselves not sufficient evidence to identify the specific behaviour. In other words, just because a place has painting does not mean it was a secular place and likewise just because a place has engravings does not mean it was a ceremonial location'.*

Mosman rock art corresponds to Sydney region rick art described in regional analyses by McCarthy, Maynard (McMah), and most recently McDonald, and conform to the larger Sydney regional 'simple figurative' genre. Chronologically, simple figurative art appeared during the last phase (c.3,000 BP) of McDonalds (1994) Bondaian art sequence. The similarity of the style between the two techniques however does not translate into a similarity of subject and appears to have been used for different purposes. The dominant motif for pigment art in the Sydney Basin are hand stencil's and account for just under half (49%) of all motifs. The proportion of the recorded hand stencils is much higher for the Mosman area at over 80% (n=62).

Stencil-only sites (art sites where no other archaeological attributes are present or apparent) tend to be found in the Mosman LGA relatively high on ridgelines, and often within shelters with commanding views. Pigment art in the Sydney region is predominantly found on hill slopes (c.70%) where large shelters provide a good medium and around 80% of Mosman's pigment art sites are found on such landforms. According to McDonald (1994), Mosman falls within the 'Guringai' style boundary (north of Port Jackson and south of the Hawkesbury). However, Mosman's dominance of fish motifs and lack of mundoes (tracks) suggests the evidence fits more with McDonalds 'Eora' style (south of Port Jackson and north of the Georges River) that favours fish motifs over animal and human tracks.

The evidence may suggest that the location of stencil-only sites in Mosman were situated away from or 'outside' (and often topographically above) the foreshore zone where routine day to day activity will have

taken place and may be showing a preference for a non-domestic association, assuming the foreshore middens represent the subsistence base.

3.5 Preliminary Significance Assessment of AHIMS Site #45-6-1959

No direct signage presently indicates the location of AHIMS Site #45-6-1959 at the zoo, although it is located within the general vicinity of a contemporary rock carving with hand stencils as an acknowledgment to its presence. No other Aboriginal heritage sites are located within the zoo grounds, although a rock shelter with midden (AHIMS Site #45-6-2130) is located on the beach of Athol Bay below the Bradley's Head entrance to the Zoo, and a second shelter is recorded at Little Sirius Cove nearby that had in 1990 midden with flaked stone artefacts and art, but the former deposits have been since that time scoured by run-off from pipes (now removed) leading from the Aquarium and only one hand stencil was visible in 1991 and others previously reported (including a shield motif) are either faded or now gone from seepage through the back wall.

The potential for additional Aboriginal sites or objects (rock shelters with art/deposit, rock engravings and axe grinding grooves, and archaeological deposits etc) to occur within the zoo grounds is broadly encapsulated in the SHI listing for the site that states:

> *'While the scope and scale of twentieth development on the site makes it unlikely that such archaeological remains survive on the site, they may occur in pockets of fill or deposition, particularly along the less developed southern perimeter of the site'.*

It is unlikely any further Aboriginal art sites comparable to AHIMS Site #45-6-1959 survive at the zoo. Keller (2009:83) notes that hand stencils probably follow the artistic convention also evident with engraved tracks in Sydney of the part representing the whole, a kind of 'signature' recording the visit to the site by the hand's owner or some other form of memorial. This researcher (ibid:83) also reports that:

> *'David Moore, previous curator of the Australian Museum in a conference address in 1974 of AIAS brought together what was known at that time of the significance of hand stencils. Besides the general signature (memorial interpretation) he instanced the information of a Port Stephens karadji (spiritual, clever man) that in one case visitors to a site thereby indicated they where were going and in another case a set of hands told the story of the king of a man for an offence against Aboriginal Law. Moore also notes that it is possible that some hand stencil sites may have been used as story telling devices for the instruction and initiation of young men.*

Discussions held with the MLALC indicate the site has considerable cultural heritage significance to the local community, and there is no doubt that the shelter also retains important educative and social historic (and environmental) values.

4.0 Heritage Management Options & Impact Mitigation Measures

4.1 Preliminary Scope of Works

To enable the widening of sections of Bird Show Road and the relocation of emergency and service vehicle access from the ('upper') tigers/lions road situated above the cliff face and AHIMS Site #45-6-1959 due to the proposed redevelopment of the area as the Sumatran Tiger Exhibit, the preliminary works required will have varying potential heritage impacts to the Aboriginal heritage site. In light of structural engineering advice which indicates the future deterioration of the Aboriginal heritage site is inevitable because of factors that are largely unrelated to potential development impacts that may arise as a result of the current preparatory works, a 'doing nothing approach' appears to be untenable. Because of the unchecked growth of tree roots, and compounded by water seepage that currently runs through the shelter, it is expected that in due course the cracked section of the rock shelter's overhang will collapse and the remaining hand stencils on the rear wall will be destroyed. Rock fall will also cover any potential archaeological deposit that may be present/survive at the site, and the loss of 'value' at the site will be almost total.

Four fig trees (177L) on the north side of Bird Show Road have been identified that can be safely cut down to prevent further damage to the cliff face and surrounding structures, some of which are in the vicinity of AHIMS Site #45-6-1959. During the removal process of the trees, the branches and overhead canopy is to be cut away, whilst leaving the roots and tree trunks that are engaged into the cliff face in place. These remaining tree stumps/roots are to be treated regularly with an appropriate herbicide to ensure that the root system is killed off to prevent regrowth of the tree. After it has been confirmed that the tree root system is completely dead, the visible and assessable roots and stump can be carefully trimmed back. Removal of the tree roots from the cliff face cracks may cause more damage than leaving the roots in-situ to slowly rot away and deteriorate. The decomposition of the roots in the cracks can cause settlement in the rock. The cracks in the rock are to be carefully grouted and filled in with cement base grout to arrest settlement on rotting of the contained roots. Natural water paths through the cracks are to be maintained by inserting pipe drains in the crack before grouting. The trimming of the roots and the grouting of the cracks are to be properly evaluated after removal of the trees and full access to the rock face is available.

The works proposed for this component of the project will comprise the following in summary

1. Initially remove four large fig trees on the northern side of Bird Show road.

2. Method of removal. Using a 'cherry picker' or similar to cut away the canopy and upper branches and thin the lower branches. All branches are to be supported and lowered to the ground on ropes. Large figs are to be cut but stumps left in situ to support overhanging sandstone ledges because their removal will cause greater damage to the sandstone.

3. Smaller fig shoots, stumps and roots are to be poisoned and when confirmed dead, to be cut back to the face of the stone.

4. All limbs, large timber and leaf litter to be recycled as animal feed and exhibit displays.

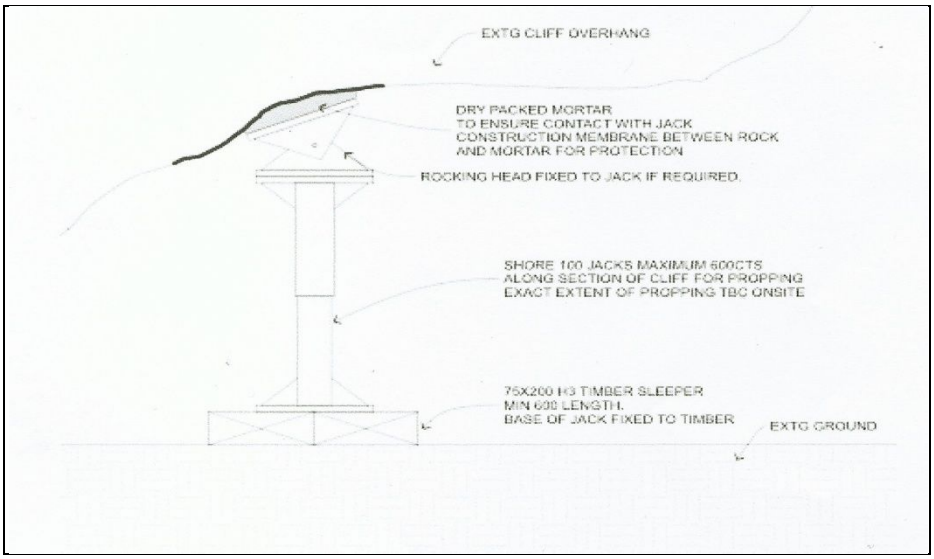
5. Newly exposed sandstone surfaces are to be inspected by an engineer and other consultants and their condition assessed.

6. Aboriginal Heritage area to be covered and protected during tree removal and later stages of the proposal.

7. M. Lee sandstone sculpture to be covered and protected during tree removal and later stages of the proposal.

Due to the presence of new cracking in the rock shelter with art, and in other locations along the cliff face nearby that have been caused by tree root system growth and also the ingress of water, some form of support structure will need to be introduced to the area to support the sandstone at and around the vicinity of AHIMS Site #45-6-1959 prior to the commencement of any tree lopping or other activities that will change the existing condition of the locality. It is proposed that a secondary pier would be introduced in the area to support the sandstone that is failing. The pier is proposed to be supported on timber sleepers placed on top of the existing ground to spread the load. This will require moving aside or removing primarily mulch, and avoiding where practicable ground disturbance itself, but some minor disturbance may be necessary to slightly level the ground surface. Archaeological excavation of the footprint of ground that may be disturbed by the installation of the secondary support(s) would be recommended to be undertaken in advance of these works. An indicative image of the type of jacks that may be used is below.

Figure 4.1: An indicative type of support jack that may be used to stabilise AHIMS Site #45-6-1959



Water ingress to the area is to be arrested by installing adequate surface water drainage to the upper areas as part of the wider redevelopment. Alternatively, if acceptable, a process of natural decay at the site could be allowed to occur as the location is not in an area accessed by the public, and safety concerns can be managed effectively. The proposed widening of Bird Show Road will not extend into the existing garden area in front of

the rock shelter and no Aboriginal heritage impacts are expected as a result. Later work stages are to remove unstable structures in the area above the road which are outside the scope of this report until such times as the exhibition design is confirmed, but it is noted that no structures will be permitted near the rock overhangs.

4.2 Evaluation of Potential Aboriginal Heritage Impacts of the Proposal

The proposal will remove fig trees identified in the s.170 register as item 179L. However, these trees are causing damage to items of greater significance in particular the natural and manmade sandstone features (63L, 67L, and 85L) and Aboriginal site (66A) listed on the zoo's heritage asset registers. The fig trees are not part of the remnant indigenous landscape or the deliberate cultural plantings for the zoo. Their uncontrolled growth has led to the area being overgrown and the road accessibility is increasingly limited. The removal of these trees will result in the loss of the tree canopy but there are numerous large and mature trees above and below the proposed redevelopment site that are to be retained, and the larger sculptural trunks will be retained as their removal is impossible without significant disturbance to the sandstone and subsurface deposits around their basal root systems.

Part of the sandstone overhang at the Aboriginal site is supported by a c.1940s masonry pier. It is believed this pier was built at the same time as the exhibits above the rock face were constructed. Historic aerial photos show these exhibits did not exist in 1930 but were in place in 1960, and they are believed to date from c.1940. The pier continues to support the overhang above. The current alignment of Bird Show Road is likely to have changed over time with evidence of some stone kerbs and low walls now in garden beds being evident and the current roadway has modern concrete kerbs and bitumen. The ground in front of the shelter is a garden bed with tree ferns and other small indigenous plantings and bamboo. The ground is covered with wood chip mulch and no in situ soil is visible.

Following structural engineering advice about the instability of some of the sandstone elements at AHIMS Site #45-6-1959, temporary additional propping is proposed to be installed prior to any works, particularly as there is a risk of spontaneous collapse. The existing pier is not proposed to be changed. In view of the possible existence of buried archaeological remains in the locality, and because there is a safety risk working under the overhang, a stabilisation method has been developed by the engineers to provide support while not disturbing the ground. Rock bolting was considered and discounted because the risk of destroying the stone is too great. Permanent propping was considered prior to any works but the rock face is currently obscured and may contain cracks or other defects that are not now visible. The engineers' advice is that the tree growth needs to be removed and the stone further exposed so it can be assessed in detail. Only then can permanent structural supports designed and installed.

The future removal of the existing animal enclosures above Bird Show Road and AHIMS Site #45-6-1959 and the construction of the new tiger enclosure offer an opportunity to redirect the water run-off that is currently

flowing over the side and down the sandstone rock face at times. The existing animal shelters and paths direct the water over the edge of the rock face and it tends to fall toward the Aboriginal site at the centre of the rock face. The rectification of this drainage problem will also assist in reducing water seepage through the rock and down the rear wall of the shelter and over the art which appears to have contributed significantly to the steady deterioration of the hand stencils that were first recorded in 1990. These mitigation measures will assist in the longer-term conservation of the Aboriginal archaeological site. Shorter term protection measures that will be implemented as part of the proposal would include the clear demarcation and protection of the site using suitable geotextile fabrics and fencing prior to the commencement of future works, and the induction of future planners and contractors involved in the project about the heritage significance and sensitivity of the site.

Structural stabilisation of the rock shelter's overhang will require the installation of a temporary support that may disturb ground surfaces with the potential to retain archaeological deposits. What would be in effect a minor salvage excavation of the area(s) where disturbance that is unavoidable to install the support would be undertaken prior to the commencement of any other work in the vicinity that may cause harm to AHIMS Site #45-6-1959. This archaeological excavation (if required) would be completed according to standard field methods and would be allied to a comprehensive program of archival recording of the site and the conservation works program as a whole through to its successful completion.

5.0 Conclusions & Heritage Management Recommendations

5.1 The Proposal and Scale of Heritage Impact

The preparatory works that are proposed for the Sumatran Tiger Exhibit that are described in this report will change the existing conditions at AHIM Site #45-6-1959, but these impacts are considered to be relatively minor if the protection and mitigation measures previously outlined that are proposed to stabilise the site and ensure the long term survival of the sandstone shelter are successful. The proposed widening of Bird Show Road will not affect any areas nearby to the site with the potential to retain archaeological deposit, and any future disturbance in front of the overhang that may result from the installation of temporary propping to support the failing sandstone can be adequately mitigated against by the completion of archaeological excavation of those areas within the footprint of ground to be disturbed prior to the commencement of any other works in the locality.

5.2 Management Recommendations

5.3.1 Basis for Recommendations

The following recommendations are based upon:

- The recognition of the legal requirements and automatic statutory protection that is provided to Aboriginal 'objects' and 'places' according to the terms and conditions of the *National Parks and Wildlife Act* of *1974*;
- Consideration of the views and advice that have been provided for the project by the *Metropolitan Local Aboriginal Land Council* (MLALC) and the additional RAP's who have been consulted with for the project.

5.3.2 Archaeological Management Recommendations

- It is recommended that an *Aboriginal Heritage Impact Permit* (AHIP) approval be sought from the *NSW Office of Environment and Heritage* (OEH) for future works will and/or are reasonably expected to disturb AHIMS Sites #45-6-1959. The area t0 which this AHIP Application applies is illustrated in the plan overleaf.
- It further is recommended that the excavation methods and research objectives that would be developed to guide how any future archaeological salvage work at the site that may be required would be confirmed when the precise location and size of potential ground disturbance for rock stabilisation beneath and in front of the rock shelter's overhang are confirmed.
- One copy of this report should be forwarded to:

  Ms Miranda Firman
  Archaeologist

Regional Operations Group Greater Sydney
Office of Environment and Heritage
PO Box 644
PARRAMATTA, NSW, 2124

- One copy of this report should be forwarded to:

  Chief Executive Officer
  Mr Nathan Moran
  Metropolitan Local Aboriginal Land Council
  PO Box 1103
  STRAWBERRY HILLS, NSW, 2012

Area to which this AHIP Application for AHIMS Site #45-6-1959 applies

6.0 References

Attenbrow, V.J. 2004. What's Changing Population: Population Size or Land-Use Patterns? The Archaeology of Upper Mangrove Creek, Sydney Basin. **Terra Australis**. **21**. ANU Press.

Attenbrow, V.J. 2010. **Sydney's Aboriginal Past. Investigating the Archaeology and Historical Records**. Second Edition. University of NSW Press.

Attenbrow, V.J. 2011. 'The Role of Marine Resources in the Diet of the Pre-Colonial Aboriginal People and Land Use Patterns Around Port Jackson, Sydney, new South Wales, Australia'. In N.F. Bicho et al (eds.), **Trekking the Shore. Changing Coastlines and the Antiquity of Coastal Settlement**.463-491. Springer.

Australia ICOMOS. 2000 (Revised). The Australia ICOMOS Charter for the Conservation of Places of Cultural Significance. The Burra Charter and its associated Guidelines. Canberra.

Benson, D. and J. Howell. 19950. **Taken for Granted: The Bushland of Sydney and its Suburbs**. Kangaroo Press. Kenthurst.

Bowdler, S. 1970. Bass Point - The Excavation of a South-Eastern Australian Shell Midden showing Cultural and Economic Change. B.A. (Hons.). University of Sydney.

Chapman, G.A. & G.L. Murphy. 1989. **Soil Landscapes of the Sydney 1:100,000 Sheet**. Soil Conservation Society of NSW.

DECCW (April) 2010a. Aboriginal Cultural Heritage Consultation Requirements for Proponents. Part 6 National Parks and Wildlife Act 1974.

DECCW (September) 2010b. Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales. DECCW. Sydney.

DECCW (September) 2010c. Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales. DECCW. Sydney.

Jo McDonald CHM Ltd. 2005b (October). Archaeological Salvage Excavation of Site RTA-G1. 109-113 George Street, Parramatta, NSW. Report to Landcom.

Kelleher, M. 2009. 'Aboriginal art in the Blue Mountains' in E. Stockton and J. Merriman (eds.). **Blue Mountains Dreaming**. **The Aboriginal Heritage**. Blue Mountains Education and Research Trust (Second Edition): 74-101.

Kohen, J.L., E.D. Stockton & M.A.J Williams, M.A.J. 1984. 'Shaws Creek KII Rockshelter: A Prehistoric occupation Site in the Blue Mountains Piedmont, Eastern New South Wales'. **Archaeology in Oceania** Volume 19:57-93.

Kohen, J.L. and R.J. Lampert. 1987. 'Hunters and Fishers in the Sydney Region'. In Mulvaney, D.J. and J.P. White (eds.), **Australians to 1788**: 343-365. Fairfax. Syme and Weldon Associates. Sydney.

Lampert, R.J. 1971. Burrill Lake and Currarong. **Terra Australis 1**. Department of Prehistory. Research School for Asia and Pacific Studies, ANU. Canberra.

Maynard, L. 1976. An Archaeological Approach to the Study of Australian Rock Art. M.A. Thesis. University of Sydney.

McDonald. J.J. 1987. Sydney Basin Aboriginal Heritage Study: Shelter Art Sites. Stage II. Sydney, New South Wales National Parks and Wildlife Service.

McDonald, J.J. 1990. Sydney Basin Aboriginal Heritage Study: Rock Engravings and Shelter Art Sites. Stage III. Sydney, New South Wales National Parks and Wildlife Service.

McDonald, J.J. 2008. **Dreamtime Superhighway. Sydney Basin Rock Art and Prehistoric Information Exchange**. ANU Press. Canberra.

McMah, L.A. 1965. A Quantitative Analysis of the Aboriginal Rock Carvings of the District of Sydney and the Hawkesbury River. Unpublished BA (Hons.) Thesis. Department of Anthropology, University of Sydney.

NPWS. 1997. Aboriginal Cultural Heritage Standards & Guidelines Kit. NSW National Parks and Wildlife Service.

NSW Heritage Office. 1996. NSW Heritage Manual. NSW Heritage Office and the Department of Urban Affairs and Planning. Sydney (Revised 2002).

NSW Heritage Office. 2006. Historical Archaeology Code of Practice. NSW Heritage Council and the NSW Department of Planning. Sydney.

Stockton, E.D. & W.N. Holland. 1974. 'Cultural Sites and Their Environment in the Blue Mountains' **Archaeology and Physical Anthropology in Oceania**. Volume 9(1):36-65.

Appendix 1

OEH AHIMS Site Searches for Taronga Zoo

Office of Environment & Heritage
NSW GOVERNMENT

AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : Taronga Zoo
Client Service ID : 160325

Dominic Steele Archaeological Consulting

Date: 26 January 2015

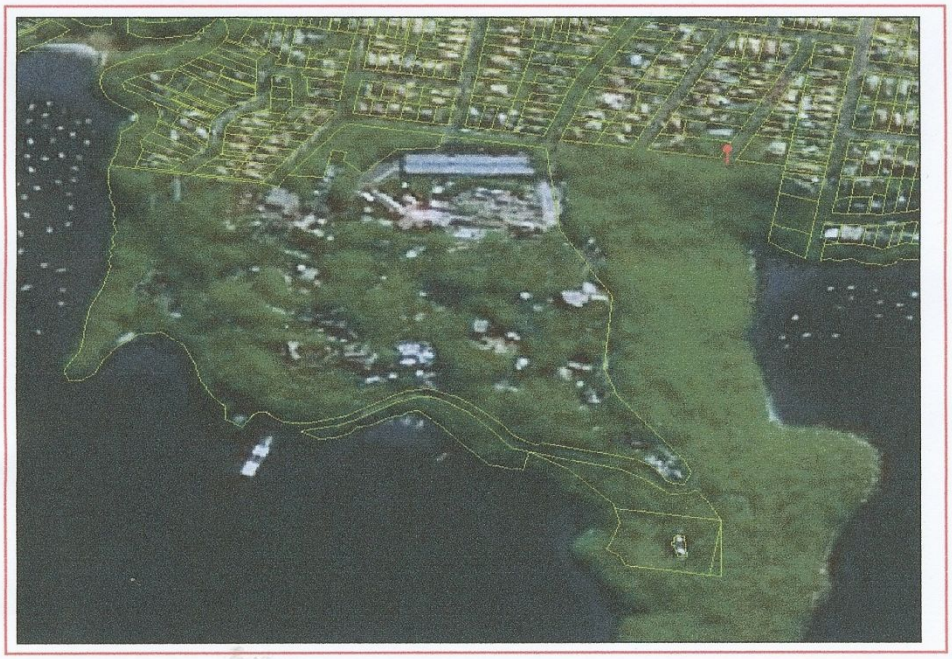
21 Macgregor Street
CROYDON New South Wales 2132
Attention: Dominic Steele

Email: dsca@bigpond.net.au

Dear Sir or Madam:

AHIMS Web Service search for the following area at Datum :GDA, Zone : 56, Eastings : 336880 - 337900, Northings : 6253330 - 6254150 with a Buffer of 50 meters, conducted by Dominic Steele on 26 January 2015.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

15	Aboriginal sites are recorded in or near the above location.
0	Aboriginal places have been declared in or near the above location. *

If your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the NSW Government Gazette (http://www.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Office of Environment and Heritage's Aboriginal Heritage Information Unit upon request

Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Office of Environment and Heritage and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date .Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

3 Marist Place, Parramatta NSW 2150
Locked Bag 5020 Parramatta NSW 2220
Tel: (02) 9585 6380 Fax: (02) 9873 8599

ABN 30 841 387 271
Email: ahims@environment.nsw.gov.au
Web: www.environment.nsw.gov.au

Office of Environment & Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Purchase Order/Reference : Taronga Zoo Ext
Client Service ID : 160326

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
45-6-2065	Little Sirius Pt. 1;Mosman;	AGD	56	336782	6253460	Closed site	Valid	Shell : -,Artefact : -	Shelter with Midden	1809,2025
	Contact	**Recorders**	Margrit Koettig,Michael Guider					**Permits**		
45-6-2064	Little Sirius Pt. 2;Mosman;	AGD	56	336790	6253460	Closed site	Valid	Shell : -,Artefact : -	Shelter with Midden	1809,2025
	Contact	**Recorders**	Michael Guider					**Permits**		
45-6-2063	Little Sirius Pt. 3;	AGD	56	336792	6253460	Open site	Valid	Shell : -,Artefact : -	Midden,Open Camp Site	1809,2025
	Contact	**Recorders**	Michael Guider					**Permits**		
45-6-1701	Little Sirius Cove Midden;	AGD	56	336837	6253788	Closed site	Valid	Artefact : -,Shell : -	Midden,Shelter with Deposit	1293,2025
	Contact	**Recorders**	Val Attenbrow,A.K Morris					**Permits**		
45-6-1702	Sirius Park Midden;	AGD	56	336850	6253973	Open site	Valid	Artefact : -,Shell : -	Midden,Open Camp Site	1293,1809,2025
	Contact	**Recorders**	Val Attenbrow,A.K Morris					**Permits**		
45-6-1959	Taronga Zoo Cave;Mosman;	AGD	56	336980	6253650	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	2025
	Contact	**Recorders**	Michael Guider					**Permits**		
45-6-2130	Athol Bay Cave;Mosman;Taronga Park Zoo;	AGD	56	337250	6253390	Closed site	Valid	Shell : -,Artefact : -,Art (Pigment or Engraved) : -	Shelter with Art,Shelter with Midden	2025
	Contact	**Recorders**	Margrit Koettig,Michael Guider					**Permits**		
45-6-2119	Mosman Athol Beach	AGD	56	337460	6253150	Open site	Valid	Artefact : -	Open Camp Site	1895,2025
	Contact	**Recorders**	Val Attenbrow,Michael Guider					**Permits**		
45-6-2118	Mosman Bradley's Head	AGD	56	337474	6253300	Closed site	Valid	Shell : -,Artefact : -	Shelter with Midden	1895,2025
	Contact	**Recorders**	Michael Guider					**Permits**		
45-6-2066	Red Ochre Fish	AGD	56	337481	6253127	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	1809,1895,2025
	Contact	**Recorders**	Michael Guider					**Permits**		
45-6-2323	Birds Nest Cave;Clifton Gardens;	AGD	56	337530	6253810	Closed site	Valid	Shell : -,Artefact : -	Shelter with Midden	
	Contact	**Recorders**	Michael Guider					**Permits**		
45-6-2807	Bradleys Head East 1	AGD	56	337739	6253143	Open site	Valid	Habitation Structure : 1,Shell : 1		
	Contact T Russell	**Recorders**	Ms.Alison Nightingale					**Permits**		
45-6-2322	Red Fish 2;Mosman;	AGD	56	337740	6253090	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	
	Contact	**Recorders**	Michael Guider					**Permits**		

Report generated by AHIMS Web Service on 26/01/2015 for Dominic Steele for the following area at Datum :GDA, Zone : 56, Eastings : 336880 - 337900, Northings : 6253330 - 6254150 with a Buffer of 50 meters. Additional Info : For an arch assessment. Number of Aboriginal sites and Aboriginal objects found is 15

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 1 of 2

NSW GOVERNMENT Office of Environment & Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Purchase Order/Reference : Taronga Zoo Ex

Client Service ID : 16032(

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
45-6-2320	Burragi Cave;Mosman;	AGD	56	337790	6253250	Closed site	Valid	Shell : -, Artefact : -	Shelter with Midden	
	Contact	**Recorders**						**Permits**		
45-6-2808	Bradleys Head East 2	AGD	56	337794	6253270	Open site	Valid	Habitation Structure : 1, Shell : 1		
	Contact	**Recorders**						**Permits**		
	T Russell	Ms.Alison Nightingale								

Report generated by AHIMS Web Service on 26/01/2015 for Dominic Steele for the following area at Datum :GDA, Zone : 56, Eastings : 336880 - 337900, Northings : 6253330 - 6254150 with a Buffer of 50 meters. Additional Info : For an arch assessment. Number of Aboriginal sites and Aboriginal objects found is 15

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 2 o

Appendix 2

AHIMS Site Card for Site #45-6-1959

[V] New Recording

National Parks and Wildlife Service

BOX N189, GROSVENOR STREET POST OFFICE, SYDNEY, NSW 2000. TEL (02) 237 6500

Standard Site Recording Form

45-6-1959

MAP NAME	EDITION	SCALE	REFERENCE	HEAD OFFICE USE ONLY:
Parramatta River 9130-3-N	2nd	1:25000	3/3698 64/5365	NWPS site no: 45-6-1959 Site types: SELECTION V ART File nos: Date 29-1-90 Filed by: Rchy

Site name: TARONGA ZOO CAVE Locality/~~property name~~: MOSMAN Owner/Manager: TARONGA ZOO

Local post office: Address: P.O. Box 20 Mosman NSW 2088

NPWS District: SYDNEY Region: METROPOLITAN

Reason for investigation (give R.O. instruction no. where applicable): Mosman Archaeological Survey

Portion no: Other land category:
Parish: WILLOUGHBY County: CUMBERLAND
~~Plan~~/sketch/section of site attached? Yes/~~No~~
How many? See back of form

Air photo refs. (for stereo pair)
Photos taken? Yes/~~No~~
How many attached? NONE

How to get to the site (refer to permanent features, give best approach to site eg. from above, below, along cliff. (Draw diagram on separate sheet.) Beside the Dreamtime 81 Mural by M Leslie Shelter is directly opposite the Pygmy Hippotamus exhibit Facing lawn with retaining wall at front.

Other sites in locality? Yes/~~No~~. Site Types include: shell middens and Art sites
Are sites in NPWS Register? Yes/~~No~~. Unregistered sites — plans for future recording? Yes/~~No~~

Have artefacts been removed from site? ~~Yes~~/No/~~don't know~~. When?
By whom? Deposited where?

Is site important to local Aborigines? ~~Yes~~/~~No~~/don't know.
Give contact(s) name(s) + address(es)

Contacted for this recording? ~~Yes~~/No.
(Attach additional information separately) If not, why not?

Verbal/written reference sources (including full title of accompanying report). Personal Investigation

Checklist: surface visibility, damage/disturbance/ threat to site

Condition of site: GOOD

Recommendations for management & protection (attach separate sheet if necessary): ADVISE TARONGA ZOO OF SITE NO. WHEN AVAILABLE. TARONGA ZOO informed me that the NPWS knew of this site. I have not seen it on the register.

Site recorded by: MICHAEL GUIDER Date: 19th January 1990
Address/Institution: ROYAL EXCHANGE
P.O. BOX R32
SYDNEY NSW 2000

SITE POSITION & ENVIRONMENT | OFFICE USE ONLY: NPWS site no:

1. Land form a. beach/hill slope/ridge top, etc: b. site aspect: c. slope:

d. mark on diagram provided *or* on your own sketch the position of the site: e. Describe briefly:

f. Local rock type: SANDSTONE g. Land use/effect:

2. Distance from drinking water: UNKNOWN Source:

3. Resource Zone associated with site (estuarine, riverine, forest etc):

4. Vegetation:

5. Edible plants noted: PORT Jackson Figs

6. Faunal resources (include shellfish):

7. Other exploitable resources (river pebbles, ochre, etc):

Site type: Rock Shelter WITH ART

CHECKLIST TO HELP: length, width, depth, height of site, shelter, deposit, structure, element eg. tree scar, grooves in rock.

DEPOSIT: colour, texture, estimated depth, stratigraphy, contents-shell, bone, stone, charcoal, density & distribution of these, stone types, artefact types.

ART: area of surface decorated, motifs, colours, wet, dry pigment, technique of engraving, no. of figures, sizes, patination.

BURIALS: number & condition of bone, position, age, sex, associated artefacts.

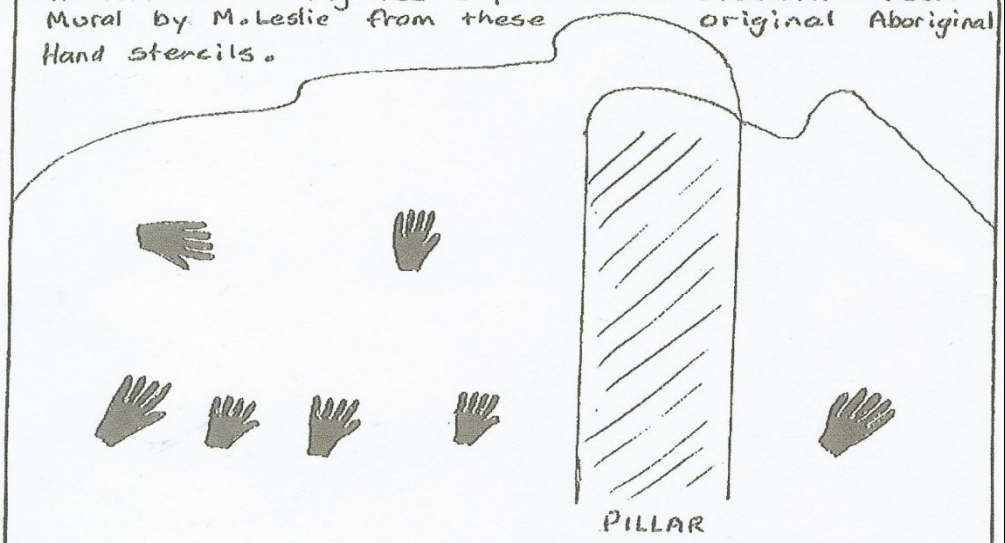
TREES: number, alive, dead, likely age, scar shape, position, size, patterns, axe marks, regrowth.

QUARRIES: rock type, debris, recognisable artefacts, percentage quarried.

OTHER SITES EG. structures (fish traps, stone arrangements, bora rings, mia mias), mythological sites, rock holes, engraved groove channels, contact sites (missions massacres cemeteries) as appropriate

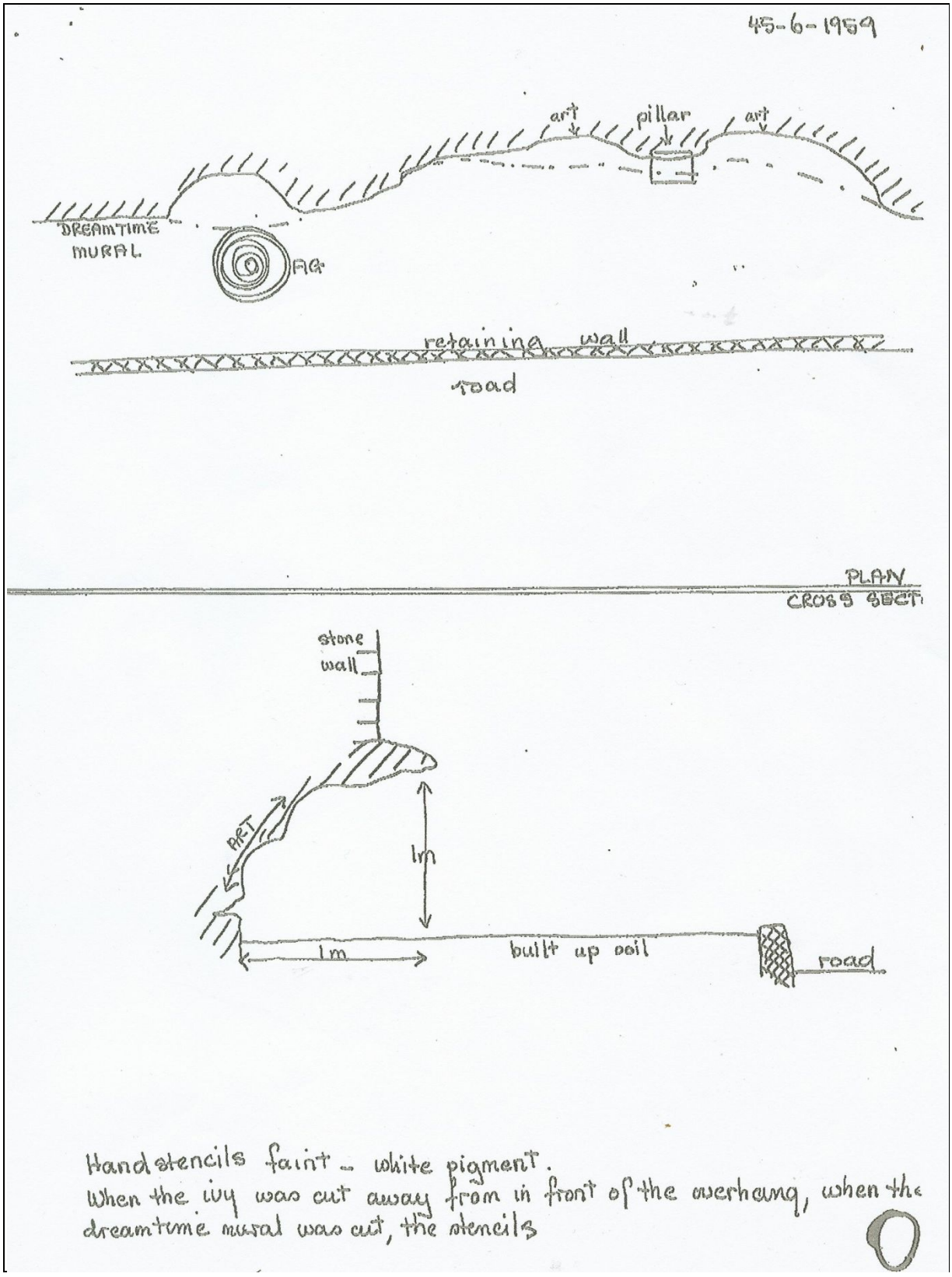
DESCRIPTION OF SITE & CONTENTS.
Note state of preservation of site & contents. Do NOT dig, disturb, damage site or contents.

ROCK SHELTER Facing South directly opposite Pygmy hippotamus exhibit
Length 10ft Height 4ft Depth 5ft
A Port Jackson Fig tree separates the Dreamtime Rock Mural by M. Leslie from these original Aboriginal Hand stencils.



7 White Hand Stencils on wall faint but still very clear. No occupation seen on floor grass lawn at front of Shelter built up by retaining wall. The back of the Hunting Dog and Dingo exhibits are directly above cave.

Attach sketches etc, eg. plan & section of shelter, show relation between site contents, indicate north, show scale.
Attach annotated photos (stereo where useful) showing scale, particularly for art sites.


45-6-1959
art
pillar
art
DREAMTIME
MURAL
AG
retaining wall
road
PLAN
CROSS SECT
stone
wall
ART
1m
1m
built up soil
road
Hand stencils faint - white pigment.
When the ivy was cut away from in front of the overhang, when the
dreamtime mural was cut, the stencils

ABORIGINAL SITE INFORMATION - MOSMAN SHIRE

NPWS SITE NUMBER 45-6-1959 SITE NAME

1:250,000 GR _____ 1:25,000 GR _____

RESEARCH PROGRAMME: _____

RECORDER Michael Guider

REPORT _____

BASE GEOLOGY: (1) Hawkesbury Sandstone 2) Wianamatta Shale
3) Holocene alluvium/beach/estuarine infill
4) man made infill

TOPOGRAPHIC UNIT
1) ridgetop 2) slope- base 3) bay
top
mid
4) beach 5) estuary 6)

LAND STATUS 1) national park 9) proposed road
2) reserve 10) residential
(3) modified open space 11) business
council
private Zoo
4) county open space
5) schools, training centres
6) railway
7) hospital
8)

SITE TYPE
1) engraving 2) open midden
(3) shelter/art 4) shelter/deposit
5) shelter/art/deposit 6) shelter/midden
7) shelter/art/midden 8) midden/burial/art
9) 10)

LEVEL OF RECORDING
1) preliminary (2) summary 3) total
4) plans/diagrams 5) photos
6) no details 7) excavated 8) salvage excavation
9) test excavation
10) assemblage analysis - preliminary
comprehensive
none

CONDITION
1) undisturbed (2) partly disturbed 3) destroyed
4) excavated 5) eroded 6) partly eroded
7) exfoliated 8) water damage 9) overgrown
10)

EUROPEAN IMPACT
1) walking track 2) picnic ground
3) camping 4) trail bikes 5) graffiti
6) overgrown 7) building 8) concreting of pillar

CURRENT PRESERVATION
1) fences 2) signs 3) grid
4) covered (turf) 5) stabilised 6) none
7) not known

White headstones - fairly but clear (?)
located in Zoo Grounds
Visit in January (MH) 1991 - area 8 Headstones.


45-6-1959
Film 3
Neg 4


Film 3
Neg 5

Appendix 3

Taronga Zoo Sumatran Tiger Exhibit – Cliff Inspection Report (Shreeji Consultant Structural & Civil Engineers 2014)

shreeji consultant
structural civil engineers
ABN 94 095 027 320
PO Box 747
Turramurra NSW 2074
Australia
shreejiconsultant.com
mail@shreejiconsultant.com
P/F +61 2 9487 4889

Our Ref: 1312803R Taronga Zoo- Sumatran Tiger Cliff Inspection- Report

TARONGA ZOO SUMATRAN TIGER EXHIBIT- CLIFF INSPECTION REPORT.

1. INTRODUCTION

Inspection was undertaken on 21 July 2014 at the request of Mr Nigel McCombe of Taronga Conservation Society. The inspection was carried out to identify the areas of instability present in the current cliff face adjacent to the area where the proposed redevelopment of the Sumatran Tiger exhibit is to be undertaken. The inspection was limited to visual observations on foot and no parts of the structure fabric was opened up.

2. OBSERVATIONS

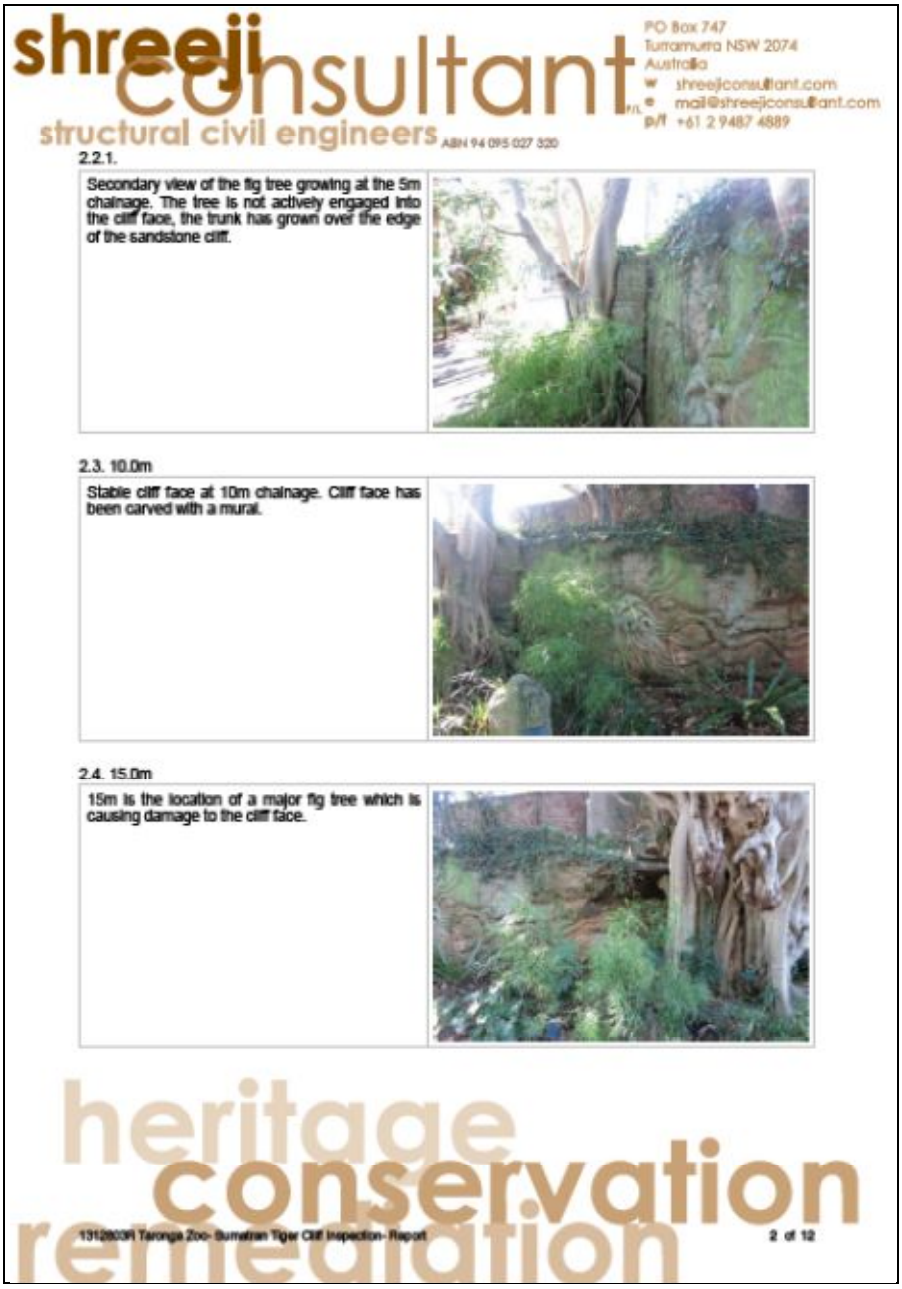
2.1. 0.0m

Beginning of the chainage at the start of the chain fence at the top of the sand stone cliff.	

2.2. 5.0m

Location of the first fig tree growing at the base of the cliff face.	

heritage conservation remediation


shreeji consultant
structural civil engineers
ABN 94 095 027 320
PO Box 747
Turramurra NSW 2074
Australia
w shreejiconsultant.com
e mail@shreejiconsultant.com
p/f +61 2 9487 4889
2.2.1.
Secondary view of the fig tree growing at the 5m chainage. The tree is not actively engaged into the cliff face, the trunk has grown over the edge of the sandstone cliff.
2.3. 10.0m
Stable cliff face at 10m chainage. Cliff face has been carved with a mural.
2.4. 15.0m
15m is the location of a major fig tree which is causing damage to the cliff face.
heritage
conservation
remediation
13128031 Taronga Zoo- Sumatran Tiger Cliff Inspection- Report
2 of 12

shreeji consultant
structural civil engineers ABN 94 095 027 320
PO Box 747
Turramurra NSW 2074
Australia
w shreejiconsultant.com
e mail@shreejiconsultant.com
p/f +61 2 9487 4889

2.4.1.

LHS view of the fig tree growing at the 15m chainage. An unstable rock overhang is present.

2.4.2.

A view of the rock overhang from the RHS of the fig tree.

2.4.3.

A general view of the location of the intrusive fig tree. Several other invasive trees are seen in the photograph to the right.

heritage conservation remediation

shreeji consultant
structural civil engineers
ABN 94 095 027 320
PO Box 747
Turramurra NSW 2074
Australia
w shreejiconsultant.com
e mail@shreejiconsultant.com
p/f +61 2 9487 4889

2.4.4.

The smaller fig tree to the left is growing out of the wall directly behind the large tree at 15m chainage. The tree to the right is heavily engaged with the retaining wall it is growing in front of.

2.5. 20.0m

20m chainage, the fig tree is heavily engaged into the sand stone cliff face.

2.5.1.

The 20m chainage is the location of the aboriginal heritage site. A previously installed support pier is visible to the RHS of the image.

heritage conservation remediation

shreeji consultant
structural civil engineers ABN 94 095 027 320
PO Box 747
Turramurra NSW 2074
Australia
w shreejiconsultant.com
e mail@shreejiconsultant.com
p/f +61 2 9487 4889

2.5.2.

The fig tree is growing into the rock face, expanding a fault in the rock as it grows.

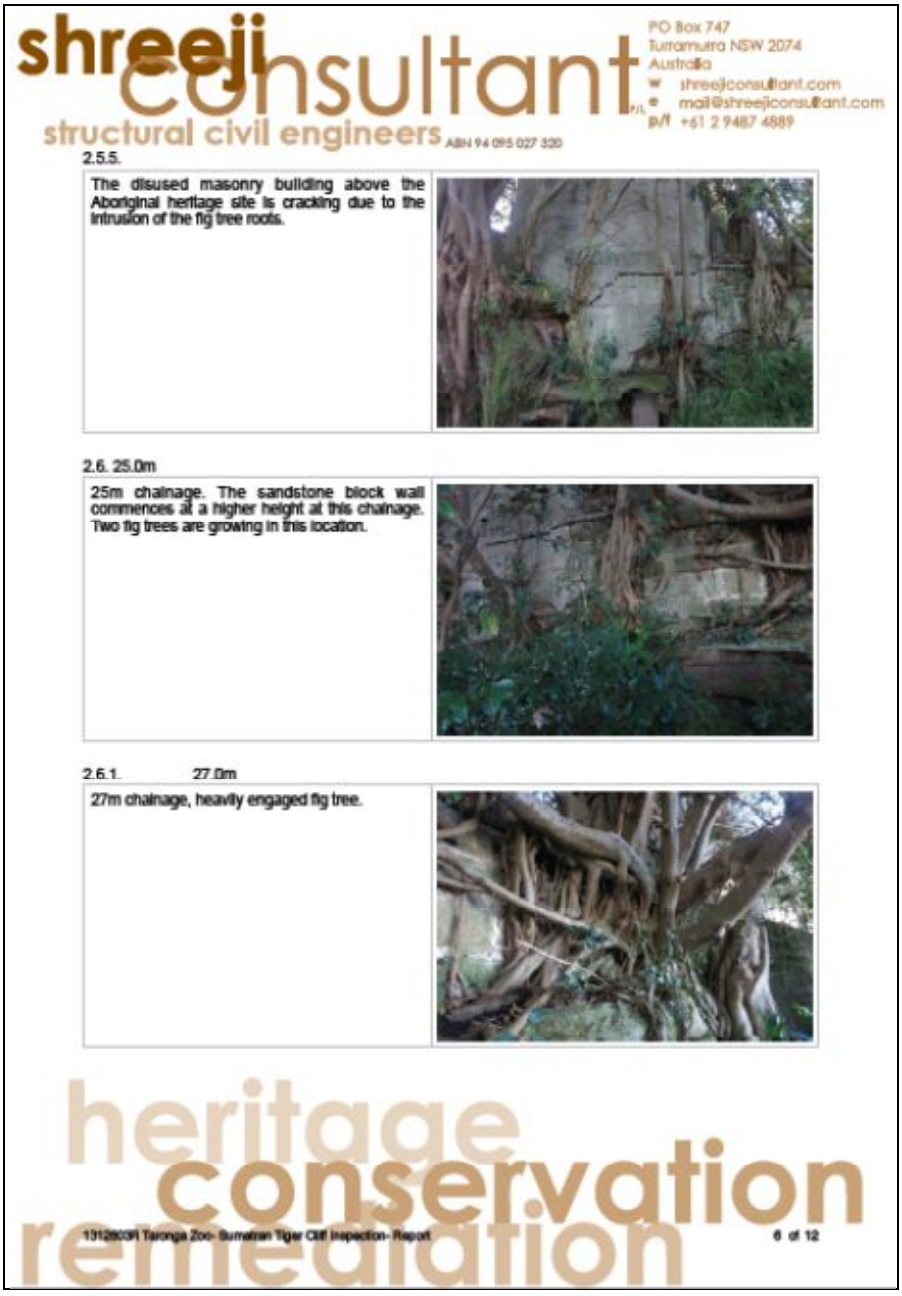
2.5.3.

A detail view of the area in the region of the Aboriginal heritage site. The exfoliating rock face is indication of water passing over the rock face.

2.5.4.

An over view of the Aboriginal heritage site area.

heritage conservation remediation



shreeji consultant
structural civil engineers ABN 94 095 027 320

PO Box 747
Turramurra NSW 2074
Australia
w shreejiconsultant.com
e mail@shreejiconsultant.com
p/f +61 2 9487 4889

2.5.5.

The disused masonry building above the Aboriginal heritage site is cracking due to the intrusion of the fig tree roots.

2.6. 25.0m

25m chainage. The sandstone block wall commences at a higher height at this chainage. Two fig trees are growing in this location.

2.6.1. 27.0m

27m chainage, heavily engaged fig tree.

heritage conservation remediation

shreeji consultant
structural civil engineers
ABN 94 095 027 320
PO Box 747
Turramurra NSW 2074
Australia
w shreejiconsultant.com
e mail@shreejiconsultant.com
p/f +61 2 9487 4889

2.7. 30.0m

Location of pipe at 30m chainage. A large fig tree grows near the base of the pipe.	

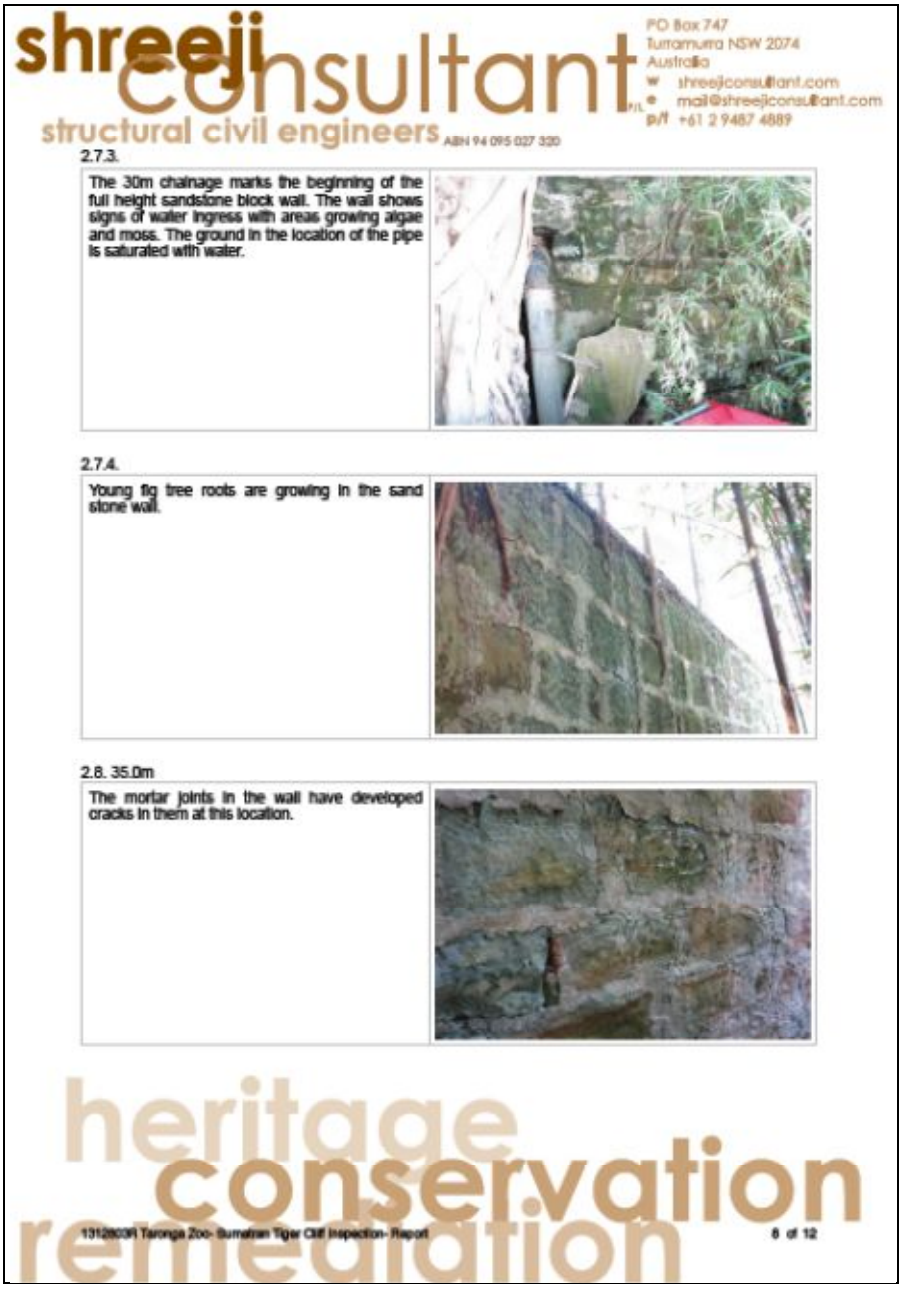
2.7.1.

The sandstone wall at the 30m chainage has been cracked by intrusive root growth.	

2.7.2.

An overview of the 25-30m chainage.	

heritage
conservation
remediation


shreeji consultant
structural civil engineers
ABN 94 095 027 320
PO Box 747
Turramurra NSW 2074
Australia
w shreejiconsultant.com
e mail@shreejiconsultant.com
p/f +61 2 9487 4889
2.7.3.
The 30m chainage marks the beginning of the full height sandstone block wall. The wall shows signs of water ingress with areas growing algae and moss. The ground in the location of the pipe is saturated with water.
2.7.4.
Young fig tree roots are growing in the sand stone wall.
2.8. 35.0m
The mortar joints in the wall have developed cracks in them at this location.
heritage
conservation
remediation
13128C0R Taronga Zoo- Sumatran Tiger Cliff Inspection- Report
6 of 12

shreeji consultant
structural civil engineers
ABN 94 095 027 320
PO Box 747
Turramurra NSW 2074
Australia
w shreejiconsultant.com
e mail@shreejiconsultant.com
p/f +61 2 9487 4889

2.8.1.

The sandstone wall is approximately 3.3m in height.	

2.9. 45.0m

At chainage 45m, a sandstone out crop emerges from the base of the wall.	

2.10. 50.0m

The sand stone wall is covered in render.	

heritage
conservation
remediation

shreeji consultant pty ltd
structural civil engineers ABN 94 095 027 320
PO Box 747
Turramurra NSW 2074
Australia
w shreejiconsultant.com
e mail@shreejiconsultant.com
p/f +61 2 9487 4889

2.11.

The upper side of the cliff at the 15m chainage.

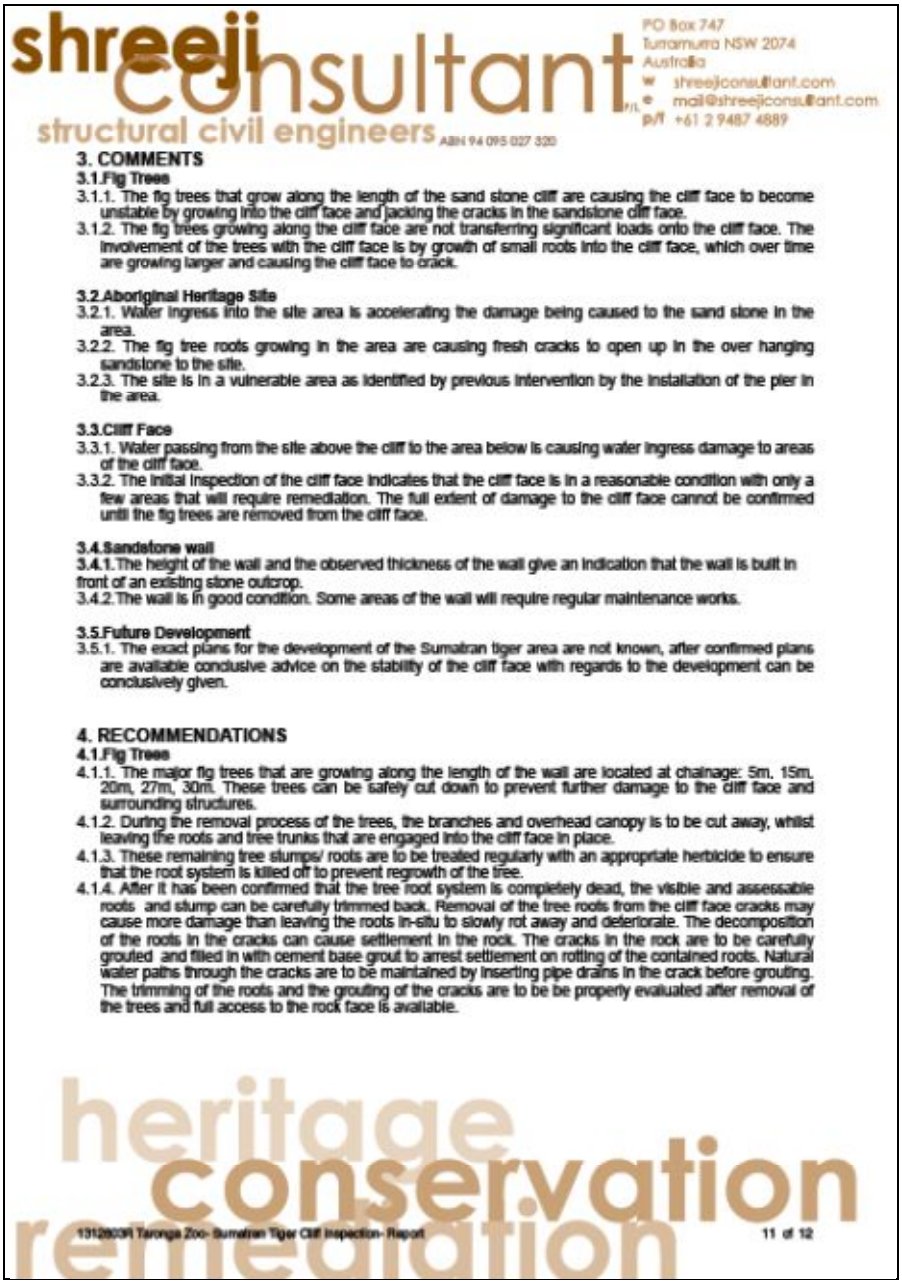
2.12.

A view of the structure above the area at the 25m chainage. Dark organic matter can be seen togather at the base of the path caused by water flow across the surface in the area. The water drains through the path to the sand stone area below. This location is above the Aboriginal heritage site.

2.13.

Upper view at the location of the sand stone wall. Approximate location 35m chainage.

heritage conservation remediation



shreeji consultant
structural civil engineers ABN 94 095 027 320
PO Box 747
Turramurra NSW 2074
Australia
w shreejiconsultant.com
e mail@shreejiconsultant.com
p/f +61 2 9487 4889

3. COMMENTS

3.1.Fig Trees

3.1.1. The fig trees that grow along the length of the sand stone cliff are causing the cliff face to become unstable by growing into the cliff face and jacking the cracks in the sandstone cliff face.

3.1.2. The fig trees growing along the cliff face are not transferring significant loads onto the cliff face. The involvement of the trees with the cliff face is by growth of small roots into the cliff face, which over time are growing larger and causing the cliff face to crack.

3.2.Aboriginal Heritage Site

3.2.1. Water ingress into the site area is accelerating the damage being caused to the sand stone in the area.

3.2.2. The fig tree roots growing in the area are causing fresh cracks to open up in the over hanging sandstone to the site.

3.2.3. The site is in a vulnerable area as identified by previous intervention by the installation of the pier in the area.

3.3.Cliff Face

3.3.1. Water passing from the site above the cliff to the area below is causing water ingress damage to areas of the cliff face.

3.3.2. The initial inspection of the cliff face indicates that the cliff face is in a reasonable condition with only a few areas that will require remediation. The full extent of damage to the cliff face cannot be confirmed until the fig trees are removed from the cliff face.

3.4.Sandstone wall

3.4.1.The height of the wall and the observed thickness of the wall give an indication that the wall is built in front of an existing stone outcrop.

3.4.2.The wall is in good condition. Some areas of the wall will require regular maintenance works.

3.5.Future Development

3.5.1. The exact plans for the development of the Sumatran tiger area are not known, after confirmed plans are available conclusive advice on the stability of the cliff face with regards to the development can be conclusively given.

4. RECOMMENDATIONS

4.1.Fig Trees

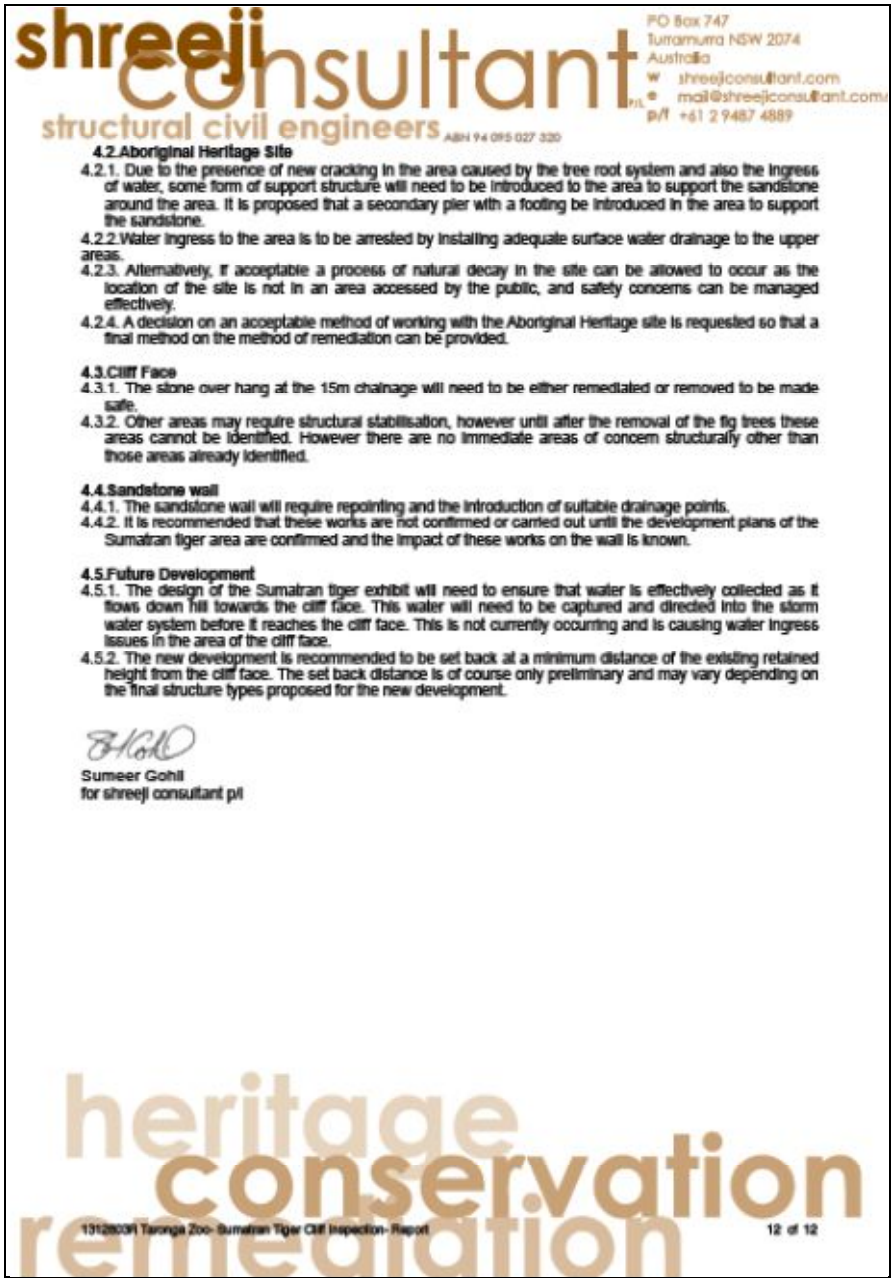
4.1.1. The major fig trees that are growing along the length of the wall are located at chainage: 5m, 15m, 20m, 27m, 30m. These trees can be safely cut down to prevent further damage to the cliff face and surrounding structures.

4.1.2. During the removal process of the trees, the branches and overhead canopy is to be cut away, whilst leaving the roots and tree trunks that are engaged into the cliff face in place.

4.1.3. These remaining tree stumps/ roots are to be treated regularly with an appropriate herbicide to ensure that the root system is killed off to prevent regrowth of the tree.

4.1.4. After it has been confirmed that the tree root system is completely dead, the visible and assessable roots and stump can be carefully trimmed back. Removal of the tree roots from the cliff face cracks may cause more damage than leaving the roots in-situ to slowly rot away and deteriorate. The decomposition of the roots in the cracks can cause settlement in the rock. The cracks in the rock are to be carefully grouted and filled in with cement base grout to arrest settlement on rotting of the contained roots. Natural water paths through the cracks are to be maintained by inserting pipe drains in the crack before grouting. The trimming of the roots and the grouting of the cracks are to be be properly evaluated after removal of the trees and full access to the rock face is available.

heritage conservation remediation



shreeji consultant
structural civil engineers ABN 94 095 027 320

PO Box 747
Turramurra NSW 2074
Australia
w shreejiconsultant.com
e mail@shreejiconsultant.com
p/f +61 2 9487 4889

4.2.Aboriginal Heritage Site

4.2.1. Due to the presence of new cracking in the area caused by the tree root system and also the ingress of water, some form of support structure will need to be introduced to the area to support the sandstone around the area. It is proposed that a secondary pier with a footing be introduced in the area to support the sandstone.

4.2.2.Water ingress to the area is to be arrested by installing adequate surface water drainage to the upper areas.

4.2.3. Alternatively, if acceptable a process of natural decay in the site can be allowed to occur as the location of the site is not in an area accessed by the public, and safety concerns can be managed effectively.

4.2.4. A decision on an acceptable method of working with the Aboriginal Heritage site is requested so that a final method on the method of remediation can be provided.

4.3.Cliff Face

4.3.1. The stone over hang at the 15m chainage will need to be either remediated or removed to be made safe.

4.3.2. Other areas may require structural stabilisation, however until after the removal of the fig trees these areas cannot be identified. However there are no immediate areas of concern structurally other than those areas already identified.

4.4.Sandstone wall

4.4.1. The sandstone wall will require repointing and the introduction of suitable drainage points.

4.4.2. It is recommended that these works are not confirmed or carried out until the development plans of the Sumatran tiger area are confirmed and the impact of these works on the wall is known.

4.5.Future Development

4.5.1. The design of the Sumatran tiger exhibit will need to ensure that water is effectively collected as it flows down hill towards the cliff face. This water will need to be captured and directed into the storm water system before it reaches the cliff face. This is not currently occurring and is causing water ingress issues in the area of the cliff face.

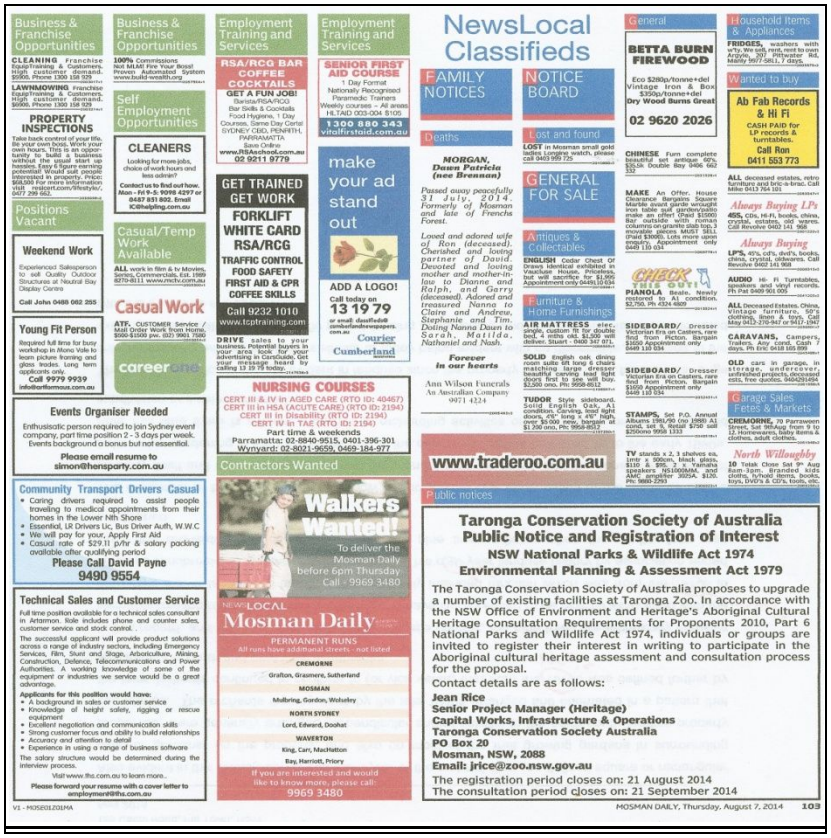
4.5.2. The new development is recommended to be set back at a minimum distance of the existing retained height from the cliff face. The set back distance is of course only preliminary and may vary depending on the final structure types proposed for the new development.

Sumeer Gohil
for shreeji consultant p/l

heritage conservation remediation

Appendix 4

Public Notice



NewsLocal Classifieds

FAMILY NOTICES

Deaths

MORGAN, Dawn Patricia (nee Bressan)

Passed away peacefully 31 July, 2014. Formerly of Mosman and late of Frenchs Forest.

Loved and adored wife of Ron (deceased). Cherished and loving partner of David. Devoted and loving mother and mother-in-law to Dianne and Ralph, and Garry (deceased). Adored and treasured Nanna to Claire and Andrew, Stephanie and Tim. Doting Nanna Dawn to Sarah, Matilda, Nathaniel and Nash.

Forever in our hearts

Ann Wilson Funerals
An Australian Company
9971 4224

NOTICE BOARD

Lost and found

GENERAL FOR SALE

Antiques & Collectables

Furniture & Home Furnishings

www.traderoo.com.au

Public notices

Taronga Conservation Society of Australia
Public Notice and Registration of Interest
NSW National Parks & Wildlife Act 1974
Environmental Planning & Assessment Act 1979

The Taronga Conservation Society of Australia proposes to upgrade a number of existing facilities at Taronga Zoo. In accordance with the NSW Office of Environment and Heritage's Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010, Part 6 National Parks and Wildlife Act 1974, individuals or groups are invited to register their interest in writing to participate in the Aboriginal cultural heritage assessment and consultation process for the proposal.

Contact details are as follows:

Jean Rice
Senior Project Manager (Heritage)
Capital Works, Infrastructure & Operations
Taronga Conservation Society Australia
PO Box 20
Mosman, NSW, 2088
Email: jrice@zoo.nsw.gov.au

The registration period closes on: 21 August 2014
The consultation period closes on: 21 September 2014

MOSMAN DAILY, Thursday, August 7, 2014 103

Appendix 5

TSCA Correspondence to the OEH – November 2014

TARONGA
CONSERVATION SOCIETY AUSTRALIA™

Taronga Zoo Sydney
Taronga Western Plains Zoo Dubbo
Taronga Foundation
Research and Conservation Centre
Australian Conservation Genetics Centre
Wildlife Hospital
Australian Wildlife Health Network
Australian Registry of Wildlife Health
Marine Rescue Unit
Australian Marine Mammal Research Centre
Education Centre
Training Institute
Zoomobile

20th November 2014

Greater Sydney Region
Regional Operations
Office of Environment and Heritage
PO Box 644
Parramatta NSW 2124

Attention: Susan Harrison
Senior Team Leader Planning
susan.harrison@environment.nsw.gov.au

Your reference: DOC14/184316

Re: Aboriginal Site #45-6-1959
Taronga Zoo
Information as requested

Dear Ms Harrison,

We refer to your letter dated 11/09/2014 to Dominic Steele, which was a reply to his email to you dated 20/8/2014, both referring to the above Aboriginal hand stencil site.

Taronga Conservation Society Australia proposes to develop an expanded Sumatran Tiger facility in the vicinity of the site #45-6-1959. As part of preparatory works for the project the Aboriginal site was inspected and found to be in poor condition. TSCA commissioned an engineering assessment (attached) and archival record (not yet completed). We propose to protect and stabilise the site as far as is possible as part of the project.

Your letter requested detailed information be provided prior to meeting to discuss the site and proposed works. The detailed information is provided in the attached report answering each dot point in your letter. The report has been prepared by our consultant for the site, Dominic Steele Consulting Archaeologists, and by Jean Rice, our Senior Project Manager Heritage.

We understand that an Aboriginal Heritage Impact Permit will be required.

If you require further information, please contact either myself on 9978 4545, our project manager Daniel Djikic on 9978 4539 or Jean Rice on 0430 082 440.

Yours sincerely,

Alex Halliburton
General Manager
Capital Works and Infrastructure
Taronga Conservation Society Australia

Attachments
Taronga Zoo - Aboriginal Site #45-6-1959. Additional Information.
Structural Report, prepared by Shreeji Consultant, August 2014.
Plan showing site and road widening.

Taronga Conservation Society Australia

Taronga Zoo - Aboriginal Site #45-6-1959 **Additional Information**

Introduction

In a letter dated 11/09/2014 to Dominic Steele re the above site the OEH requested that the following information prior to arranging a meeting to discuss the proposal. The dot points in the OEH letter are highlighted in bold. The following information has been prepared by Dominic Steele, Consulting Archaeologist, and by Jean Rice, our Senior Project Manager Heritage.

- ***Basic information on the extent and the condition of site #45-6-1959 to supplement the site recording including the associated midden and whether there is information available on when the hand stencils were last visible.***

The site was first recorded in 1990 by an amateur enthusiast (Michael Guider) and was described at that time in the following way:

> *Rock shelter facing south directly opposite; length 16ft, height 4ft, depth 5ft. A Port Jackson Fig tree separates the Dreamtime rock mural...from these original hand stencils.*
>
> *7 white hand stencils on wall faint but still very clear. No occupation seen on the floor grass lawn at front of shelter built up by retaining wall. The back of the Hunting Dog and Dingo exhibits are directly above cave.*

Two images of how the site appeared in 1990 are attached (Fig. 1 & Fig. 2). A number of things are noteworthy including the record that no occupation deposits (midden) were observed in 1990 to occur within or in front of the shelter mindful that the area was grassed and visibility was thereby poor. Also illustrated is the pre-existence of the rectangular cement pier supporting the roof of the overhang. The pier is believed to have been built at the same time as the masonry animal shelters above, possibly c1940. It is likely that this support has been dug into the floor of the shelter down to bedrock, which may (or may not) only occur at a relatively shallow depth below current ground surfaces, and the pier may also have been fixed into a cement pad. The excavations required to install the pier will have potentially disturbed/destroyed a considerable area of any potential archaeological deposit under the dripline. It is also evident that the conditions of the rock surfaces within the shelter have deteriorated considerably since 1990 as a result of tree root growth, water seepage down the rear wall, and the loss of considerable sections of surface rock.

An annotation to the AHIMS Site Card for #45-6-1959 notes 8 hand stencils were visible in 1991. The last reliable sighting of the set of motifs on the site was in 1997 by Richard Raxworthy, as part of the preparation of the site's Heritage and Conservation Register (see Fig. 3). Only two of the 7 or 8 stencils are partly visible now, and the others may have either faded or eroded away entirely from water run-off over the last 24 years and/or as a result of the weathering, cracking and general exfoliation of the sandstone surfaces on the rear wall that has been directly caused (and/or accelerated) by tree root growth and cracking from weight stress on the cliff line from above.

Photos taken in 2014 and digitally enhanced show two partial hand stencils (see Fig. 4 & Fig.5). Professional archival photography has been commissioned to record these and when digitally enhanced may indicate any other stencil locations. Comparison of the 1997 photograph with the site today indicates that the face of the stone has been lost in the area where most of the stencils were.

Dominic Steele, Archaeologist, Dominic Steele Consulting Archaeology (DSCA)

20 November 2014 1

Taronga Zoo - Aboriginal Site #45-6-1959 **Additional Information**

Fig. 1 Original site recording for AHIMS Site #45-6-1959

SITE POSITION & ENVIRONMENT | OFFICE USE ONLY: NPWS site no:

1. Land form a. beach/hill slope/ridge top, etc: b. site aspect: c. slope:

d. mark on diagram provided *or* on your own sketch the position of the site: e. Describe briefly:

f. Local rock type: SANDSTONE g. Land use/effect:

2. Distance from drinking water: UNKNOWN Source:

3. Resource Zone associated with site (estuarine, riverine, forest etc):

4. Vegetation:

5. Edible plants noted: PORT Jackson Figs

6. Faunal resources (include shellfish):

7. Other exploitable resources (river pebbles, ochre, etc):

Site type: Rock Shelter WITH ART

CHECKLIST TO HELP: length, width, depth, height of site, shelter, deposit, structure, element eg. tree scar, grooves in rock.

DEPOSIT: colour, texture, estimated depth, stratigraphy, contents-shell, bone, stone, charcoal, density & distribution of these, stone types, artefact types.

ART: area of surface decorated, motifs, colours, wet, dry pigment, technique of engraving, no. of figures, sizes, patination.

BURIALS: number & condition of bone, position, age, sex, associated artefacts.

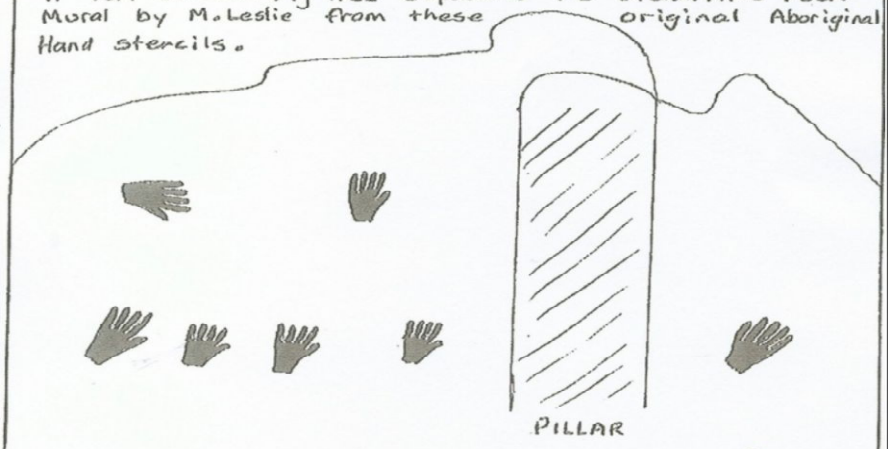
TREES: number, alive, dead, likely age, scar shape, position, size, patterns, axe marks, regrowth.

QUARRIES: rock type, debris, recognisable artefacts, percentage quarried.

OTHER SITES EG. structures (fish traps, stone arrangements, bora rings, mia mias), mythological sites, rock holes, engraved groove channels, contact sites (missions massacres cemeteries) as appropriate

DESCRIPTION OF SITE & CONTENTS.
Note state of preservation of site & contents. Do NOT dig, disturb, damage site or contents.

ROCK SHELTER Facing South directly opposite Pygmy hippotamus exhibit
Length 10ft Height 4ft Depth 5ft
A Port Jackson Fig tree separates the Dreamtime Rock Mural by M. Leslie from these original Aboriginal Hand stencils.



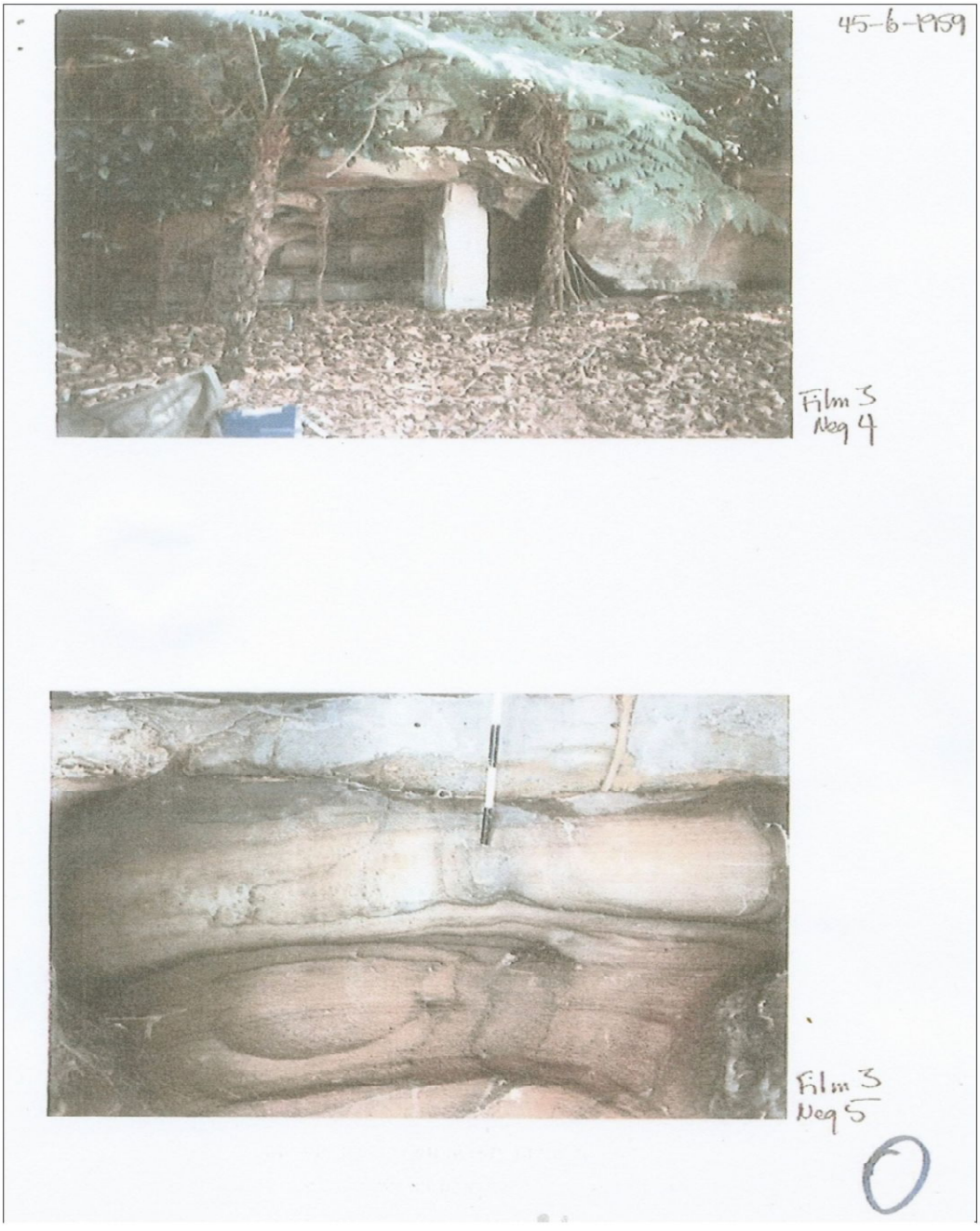
7 White Hand Stencils on wall faint but still very clear. No occupation seen on floor grass lawn at front of Shelter built up by retaining wall. The back of the Hunting Dog and Dingo exhibits are directly above cave.

Attach sketches etc, eg. plan & section of shelter, show relation between site contents, indicate north, show scale.
Attach annotated photos (stereo where useful) showing scale, particularly for art sites.

20 November 2014 2

Taronga Zoo - Aboriginal Site #45-6-1959 **Additional Information**

Fig. 2 Original site recording for AHIMS Site #45-6-1959



20 November 2014 3

Taronga Zoo - Aboriginal Site #45-6-1959 **Additional Information**

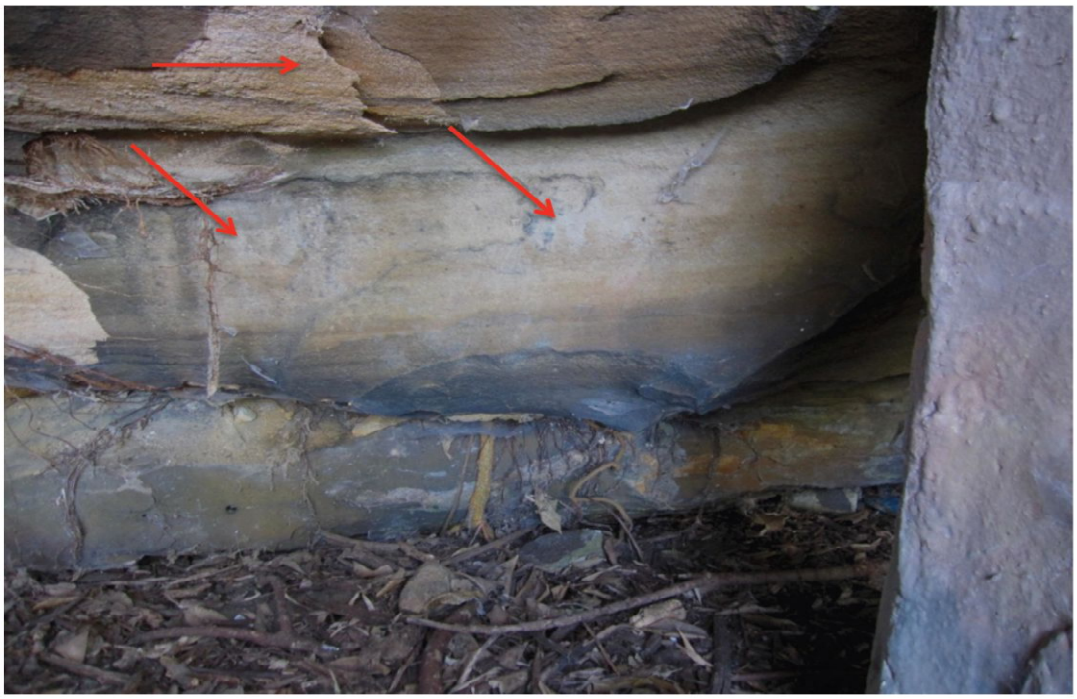
Fig. 3 Site recording for s170 Heritage Register Thematic Study, 1997. Hand print arrowed.

Fig. 4 Photo of site in 2014. Note the lower root and the centre of the photo in both images. There is a new root running diagonally across the rock and the face of the stone has been lost. A possible partial handprint is arrowed at right.

20 November 2014 4

Taronga Zoo - Aboriginal Site #45-6-1959 **Additional Information**

Fig. 5 Digitally enhanced photo taken in 2014 - to the right of (and overlapping) the photo on the previous page. Two possible partial handprints are arrowed. The top arrow shows the edge of the new crack in the overhang. At right is the edge of the masonry pier supporting the overhang.



21 Macgregor Street Croydon NSW 21322•Bus (02) 9715 1169•M 0411 88 4232•E dsca@bigpond.net.au

Taronga Zoo - Aboriginal Site #45-6-1959 **Additional Information**

- ***A statement in relation to the significance of the site based on the surrounding archaeology and landscape and how they relate to site #45-6-1959 and the results of consultation with MLALC to date.***

No direct signage presently indicates the location of AHIMS Site #45-6-1959, although it is located within the general vicinity of a contemporary rock carving with hand stencils as an acknowledgment to its presence. No other Aboriginal sites are located within the Zoo grounds, although a rock shelter with midden (AHIMS Site #45-6-2130) is located on the beach of Athol Bay below the Bradley's Head entrance to the Zoo, and a second shelter is recorded at Little Sirius Cove nearby that had in 1990 midden with flaked stone artefacts and art, but the former deposits have been since that time scoured by run-off from pipes (now removed) leading from the Aquarium and only one hand stencil was visible in 1991 and others previously reported (including a 'hielamon' or shield motif) are either faded or now gone from seepage through the back wall.

The potential for additional Aboriginal sites or objects (rock shelters with art/deposit, rock engravings and axe grinding grooves, and archaeological deposits etc) to occur within the Zoo grounds is broadly encapsulated in the SHI listing for the site that states:

> *While the scope and scale of twentieth development on the site makes it unlikely that such archaeological remains survive on the site, they may occur in pockets of fill or deposition, particularly along the less developed southern perimeter of the site.*

The potential for intact and substantial subsurface archaeological deposit to occur within and in front of the shelter inside the area currently defined by the kerb-side garden area bordered by the road would appear to be limited. The locality has been disturbed as a result of past sandstone landscaping and we do not know how long, wide and deep the rock shelter originally was although surviving unmodified rock elements nearby suggest the overhang may have formerly conjoined other overhanging elements of similar dimension to create a larger area for shelter and shade than is apparent now. The installation of the pier placed under the drip line in the centre of the shelter has directly affected the potential archaeological integrity of the site, and the locality in general has been affected by historic road construction(s) phases and ongoing garden maintenance activities since the first decade of the twentieth century.

Mindful of the vertical and horizontal distance of the site from the foreshore below, it is probable that the rugged and elevated topography in between the two points will have dissuaded people from carrying food back from the coastline whose remains that were left behind will have created archaeological occupation deposits under the overhang and in front of its mouth. The space afforded by the overhang for shelter is now very small, but may have been larger before the sandstone landscape of the place was changed from c.1913, but it is possible that the shelter was never of sufficient size or possesses enough 'amenity' to represent a campsite that was repeatedly and frequently used by people. Nevertheless, a freshwater creek originally bisected the Zoo that may have provided water and resources as people travelled through the site in the past to get from the elevated view/vantage points down to the water and its resources below. Durable items such as flaked stone artefacts, lost or discarded when people periodically visited the site and stencilled their hands, may survive beneath current ground surfaces where shells and bones to a lesser extent for example are likely to have largely dissolved in the acidic sandy soils that appear to have also been subject to increased or at least changed water seepage regimes over the roof and down the rear wall following the creation of the cliff line as it exists now. Photos of the vicinity of the site in 2014 follow (Figs. 6 to 8).

20 November 2014 6

Taronga Zoo - Aboriginal Site #45-6-1959 **Additional Information**

Preliminary discussions held with the MLALC indicate the site has considerable cultural heritage significance, and there is no doubt that the shelter also retains important educative and social-environmental values. A full significance assessment of the site is to be prepared for the Zoo, but at this point the shelter is not considered to be rare and retains limited archaeological or scientific (research) value. This archaeological assessment is based upon the following key considerations that will be detailed within the final heritage assessment of the place and how it is recommended that it should be managed within the context of the proposed upgrades.

- AMBS (2005:vii) report that analysis has identified several trends related to the distribution of Aboriginal archaeological sites in the Mosman LGA that suggest various places were associated with different activities including major campsites and a range of special activity camps (eg. bachelor, initiation, craft, fishing, art) and some may have had a ceremonial purpose.
- There are presently 107 sites recorded in the LGA. As expected, shell middens are predominant (63%) but shelters with art are also comparatively common (35%). One rock shelter with deposit has been excavated in Mosman at Balmoral Beach and this has been dated to around 4,000 years BP for first occupation.
- Like engraved art, pigment art (creating motifs like hand stencils) can vary dramatically in size, colour and composition where some shelters may contain only a single hand stencil whilst another nearby may have hundreds of multicoloured motifs of varying sizes and styles/designs. Pigment art is generally only found within shelter sites in Sydney because it does not survive for long in open contexts, although in more arid parts of Australia art known to be of pre European origin is still visible on exposed rock surfaces in open contexts.
- In contrast with engravings, pigment art which has survived in the Sydney region is generally more located in areas associated with subsistence activity rather than overtly dramatic views (vista's and sightlines etc). AMBS (2005:64) suggest that in Mosman, pigment art tends to be found in camping places, while engravings tend to be related to more aesthetically driven qualities such as views and elevations etc). The caveat is that this division is based upon a continuum between the two types of rock art *technique* sites, which may statistically be true but may not describe all art sites. In this respect, it is noted (ibid) that '*in short, the difference between the rock art techniques are a good indicator of past behaviours at specific locations, but are in themselves not sufficient evidence to identify the specific behaviour. In other words, just because a place has painting does not mean it was a secular place and likewise just because a place has engravings does not mean it was a ceremonial location'.*
- Mosman rock art corresponds to Sydney region rick art described in regional analyses by McCarthy, Maynard (McMah), and most recently McDonald, and conform to the larger Sydney regional 'simple figurative' genre. Chronologically, simple figurative art appeared during the last phase (c.3000 BP) of McDonalds (1994) Bondaian art sequence. The similarity of the style between the two techniques however does not translate into a similarity of subject and appears to have been used for different purposes.
- The dominant motif for pigment art in the Sydney Basin are hand stencil's and account for just under half (49%) of all motifs. The proportion of the recorded hand stencils is much higher for the Mosman area at over 80% (n=62).
- Stencil-only sites (art sites where no other archaeological attributes are present or apparent) tend to be found in the Mosman LGA relatively high on ridgelines, and often within shelters with commanding views.
- Pigment art in the Sydney region is predominantly found on hill slopes (c.70%) where large shelters provide a good medium and around 80% of Mosman's pigment art sites are found on such landforms.

21 Macgregor Street Croydon NSW 21322•Bus (02) 9715 1169•M 0411 88 4232•E dsca@bigpond.net.au

Taronga Zoo - Aboriginal Site #45-6-1959 **Additional Information**

- According to McDonald (1994), Mosman falls within the Guringai style boundary (north of Port Jackson and south of the Hawkesbury). However, Mosman's dominance of fish motifs and lack of mundoes (tracks) suggests the evidence fits more with McDonalds Eora style (south of Port Jackson and north of the Georges River) that favours fish over tracks.
- The evidence may suggest that the location of stencil-only sites in Mosman were situated away from or 'outside' (often above) the foreshore zone where routine day to day activity will have taken place and may be showing a preference for a non-domestic association, assuming the foreshore middens represent the subsistence base etc.

Dominic Steele, Archaeologist, Dominic Steele Consulting Archaeology (DSCA)

Fig. 6 2014 photo showing the rock overhang, masonry pillar and several fig trees growing into the rock face. The Aboriginal site (arrowed) is under the overhang to the left of the masonry pier.

20 November 2014 8

Taronga Zoo - Aboriginal Site #45-6-1959 **Additional Information**

Fig. 7 2013 archival record photos of the road near the site. The location of the Aboriginal site is arrowed.

r_137 (Photographer: Kylie Hilton)
f/8 20 mm / ISO 100 / 1/8 s
11/03/2013 11:43:40

r_138 (Photographer: Kylie Hilton)
f/8 11 mm / ISO 100 / 1/2 s
11/03/2013 11:55:00

r_139 (Photographer: Kylie Hilton)
f/8 10 mm / ISO 100 / 0.3 s
11/03/2013 12:06:54

21 Macgregor Street Croydon NSW 21322•Bus (02) 9715 1169•M 0411 88 4232•E dsca@bigpond.net.au

Taronga Zoo - Aboriginal Site #45-6-1959 **Additional Information**

Fig. 8 2013 archival record photos of the site. The location of the Aboriginal site is arrowed.

s_140 (Photographer: Kylie Hilton)
f/8 11 mm / ISO 100 / 0.4 s
11/03/2013 11:57:06

s_141 (Photographer: Kylie Hilton)
f/8 10 mm / ISO 100 / 10 s
11/03/2013 11:58:57

s_142 (Photographer: Kylie Hilton)
f/8 10 mm / ISO 100 / 0.3 s
11/03/2013 12:01:00

s_143 (Photographer: Kylie Hilton)
f/8 80 mm / ISO 200 / 1.6 s
14/03/2013 11:07:14

s_144 (Photographer: Kylie Hilton)
f/8 40 mm / ISO 200 / 1.3 s
14/03/2013 11:10:54

s_145 (Photographer: Kylie Hilton)
f/8 18 mm / ISO 200 / 0.8 s
14/03/2013 11:11:10

s_146 (Photographer: Kylie Hilton)
f/8 18 mm / ISO 200 / 0.6 s
14/03/2013 11:11:45

s_147 (Photographer: Kylie Hilton)
f/8 28 mm / ISO 200 / 0.6 s
14/03/2013 11:12:20

21 Macgregor Street Croydon NSW 21322•Bus (02) 9715 1169•M 0411 88 4232•E dsca@bigpond.net.au

Taronga Zoo - Aboriginal Site #45-6-1959 **Additional Information**

- ***A preliminary assessment outlining the proposed works and the extent of the works including the proposed harm to the cliff face and the associated midden material as a result of the road widening and the removal of the fig trees.***

An expanded Sumatran Tiger Exhibit is proposed at Taronga Zoo. It is in the vicinity of the identified Aboriginal hand stencil site. The project aims to protect and avoid harming the Aboriginal site and the cliff face and any associated midden material and to reduce the rate of future deterioration of the site.

Engineering Advice

Structural engineering advice has been sought on the condition of the sandstone rock shelves and overhangs and arborist advice on aspects of the removal of the trees. Engineers (Shreeji Consultants) inspected the site on 21st July 2014 to identify the areas of instability present in the current cliff face. The inspection was limited to visual observations on foot and no part of the structure fabric was opened up.

An area of unstable overhang was identified 5m to the west of the Aboriginal site and a new crack, caused by tree roots, in the overhang at the Aboriginal heritage site. It was advised that if nothing were done then the slab of stone over the Aboriginal site would split further and fall off. The existing c1940s masonry pier was also noted and the cracked, c1940s, masonry wall above (also damaged by tree roots). The fig trees are causing the cliff face to become unstable by growing into the cliff face and jacking the cracks in the sandstone cliff face. Small roots have grown into small voids in the cliff face and have over time grown larger. The engineers advised that the fig trees growing along the cliff face are not transferring significant loads onto the cliff face. They also found that water passing from the site above the cliff to the area below is causing damage to areas of the cliff face.

The engineers' advice is that the trees can be safely cut down to prevent further damage. The roots and tree trunks that are engaged into the cliff face should be left in place. These remaining tree stumps/ roots are to be treated regularly with herbicide. As the roots rot cracks in the rock can be carefully grouted to stop settlement. Some form of support structure is recommended near the new crack and drainage of upper areas to stop water ingress. Any new development is recommended to be set back from the cliff face (set back distance subject to detailed later advice).

The Sumatran Tiger Project – Preparatory Works

The project is at a very early stage with only concept designs available. It is envisaged that there will be increased use of the road below the site for maintenance access and services. The lower road is not within the proposed new exhibit but is affected. It needs to be made accessible to emergency vehicles to replace road access on the upper road (that will be blocked by the proposed Tiger exhibit).

Preparatory works proposed involve the removal of large fig trees adjacent the sandstone rockface and retaining walls and the Aboriginal site (opposite Bird show amphitheatre) because of damage they are causing and the requirement for emergency vehicle access (branches hang down over the road). Removal of the branches and canopy of several self seeded figs embedded in rock and sandstone block wall is proposed and removal of trees (figs) along top of wall and above the overhang to reduce the weight / load and to prevent further growth of the roots.

The enabling/forward works package includes;

a) Meeting heritage and Aboriginal heritage requirements

21 Macgregor Street Croydon NSW 21322•Bus (02) 9715 1169•M 0411 88 4232•E dsca@bigpond.net.au

Taronga Zoo - Aboriginal Site #45-6-1959 **Additional Information**

b) *Relocation of some infrastructure from existing Tigers road to Bird Show road*

c) *Protection of overhangs / rock faces and remedial works to retaining wall on Bird Show road*

d) *Removal of trees on Bird Show road and marginally widening part of road to enable vehicle access*

e) *Demolition of old exhibits and structures (all small) prior to main construction programme.*

The work has to be done carefully to minimise disruption to visitors and animals including the adjacent bird show. The methodology proposed is to remove the branches and tops of the trees only and for the trunks and roots to remain. This would be done over several days in stages and the tree tops salvaged for animal feed and the branches for climbing frames. The roots and trunks would then be poisoned over several years to ensure they die and the roots left to decay over time. Attempts to remove the trunks or roots are not proposed because of the risk of damage. Overtime, as the roots decay, cracks would be filled with structural grout to minimise any potential settlement or movement.

It is intended that the project protects, conserves and rehabilitates if possible the M. Leslie sandstone carving and the Aboriginal heritage site in rock overhang – hand print stencils. However the stencil site is degraded with some stencils destroyed and two only partially remaining (not visible to the naked eye). A tree root is causing cracking in part of the rock overhang.

MLALC / archaeological monitoring is likely to be required and advice prior to tree removal and any other works. Any excavations, tree removal or any ground disturbance near the Aboriginal site will need archaeological supervision. The possibility, albeit unlikely, of middens or other archaeological remains in the rock shelters needs to be allowed for.

Minor road realignments in the vicinity are proposed but are away from the Aboriginal site. Later stages of the works are to remove unstable structures in the vicinity and to lay services in the roadway. The exhibit development will proceed subsequently with no structures proposed or allowed near the rock overhangs. See following table of possible harm / impacts and mitigation.

The proposed area of road widening is shown on the accompanying plan.

Jean Rice, Senior Project Manager, Heritage, TCSA

20 November 2014 12

Taronga Zoo - Aboriginal Site #45-6-1959 **Additional Information**

Work	Possible Impacts / Harm	Mitigation
Do Nothing		
	Tree roots in rock face grow and water runs through site	
	Cracked section of overhang falls onto ground	
	Remains of hand stencils and overhang destroyed and any midden deposits buried.	
1. Preparatory Works 2014		
Relocation of animals	None	None
Removal of bamboo	None	None
Lopping of trees	Branches dropping Machines bumping Vibration from motors Loads from crane outriggers Risk of loose section of overhang falling to ground	Methodology for removal Train workers Supervision Test methods away from sensitive areas Protect sensitive sites Archaeologist to excavate area under vulnerable overhang
Structural stabilisation of overhang	Purpose to protect site Risk if not done Installation of support disturbs archaeological deposits under	Work done prior to other work that may cause damage Archaeologist to excavate where disturbance is needed to install support
Poisoning of trees	Inadvertent encroachment	Train workers Protect sensitive sites
Grouting of cracks (future say 2-10 years)	Grout applied under too much pressure causes damage Roots rot and cracks not grouted	Methodology for work Train workers Supervision Test methods away from sensitive areas Protect sensitive sites Add to Zoo's maintenance program
2. Future Work 2015		
Removal of Structures	Vibration caused by tools Building materials falling Inadvertent encroachment	Methodology for hand removal from upper level Train workers Supervision No percussive tools Structural stabilisation to overhangs before works Protect sensitive sites
Drainage work to protect sandstone	Purpose to protect site Risk if not done	Integrate drainage work into Sumatran tigers project
Laying of services in road	Excavation causes vibration Inadvertent encroachment	Methodology to minimise vibration Structural stabilisation to overhangs before works Train workers Supervision Protect sensitive sites
3. Exhibit Construction	- to open 2016[1]	
Construction of enclosure	Loads too close the overhangs Inadvertent encroachment	Design brief to include restrictions re loading sandstone overhangs, etc. Train workers Supervision Protect sensitive sites

[1] Impacts not known in November 2014 as exhibit not designed.

20 November 2014 13

Taronga Zoo - Aboriginal Site #45-6-1959 **Additional Information**

- ***Options for the mitigation of site #45-6-1959. Please address any alternatives to stabilise the cliff face (retention rather than natural decay) and why past attempts to stabilise the cliff face have failed.***

The previous table includes options for mitigation. The site is currently being damaged by water flowing from uphill and running over and through the stone and by tree roots. Self-sown fig trees, some now very large, have roots growing into fissures on the bedrock and into masonry walls and animal shelters. As the roots grow they are expanding and "jacking" the stone. This is causing cracks and destabilisation of the natural rock faces and the man-made structures.

Part of the overhang, near the Aboriginal site, is supported by a masonry pier. It is believed this pier was built at the same time as the exhibits above the rock face. Historic aerial photos show that these exhibits did not exist in 1930 but were insitu in 1960 and they are believed to date from c1940. The pier remains and continues to support the overhang above. No other work has been done to the overhang. The road alignment below the site is likely to have changed over time with evidence of some stone kerbs and low walls now in garden beds and currently modern concrete kerbs and bitumen roadway. The ground in front of the shelter is a garden bed with tree ferns and other small indigenous plantings and bamboo east of the site. The ground is covered with wood chip mulch. The soil is not visible.

Following structural engineering advice about the instability of the wall temporary additional propping is proposed prior to any works, particularly as there is a risk of spontaneous collapse. The existing pier is not proposed to be changed. In view of the possible existence of archaeological remains and because there is a safety risk working under the overhang a stabilisation method has been developed by the engineers to provide support while not disturbing the ground (see drawing following). Rock bolting was considered and discounted because the risk of destroying the stone is too great. Permanent propping was considered prior to any works but the rock face is currently obscured and may contain cracks or other defects not now visible. The engineers' advice is that the growth needs to be removed and the stone further exposed so it can be assessed in detail. Only then can permanent structural supports designed and installed.

The future removal of the existing animal enclosures above the site (one is shown in Figs. 9 & 10) and the construction of the new Sumatran tiger enclosure offer an opportunity to redirect the water currently flowing over the rock face. The existing animal shelters and paths direct the water over the edge of the rock face and fall toward the Aboriginal site at the centre of the rock face. The rectification of drainage will be incorporated into the brief for the design of the new enclosure. Note that the Zoo has its own storm and animal waste water collection and treatment system and flows from the site would be directed into this system.

Jean Rice, Senior Project Manager, Heritage, TCSA

20 November 2014 14

Taronga Zoo - Aboriginal Site #45-6-1959 **Additional Information**

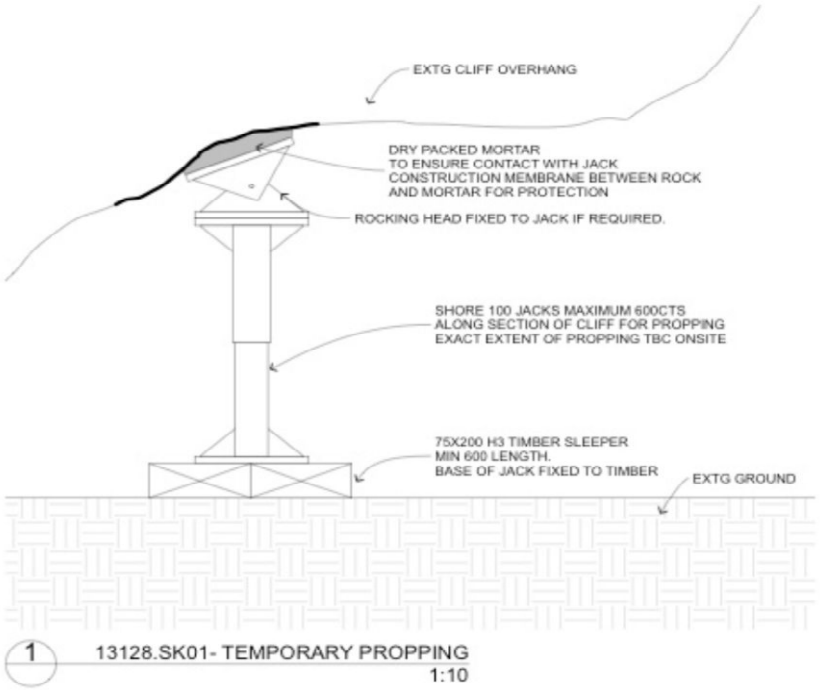
Fig. 9 Structures to be removed later from the top of overhang in vicinity of Aboriginal site. The same structure is shown in the bottom photo.

Fig. 10 View of cracked masonry structure built above rock face over Aboriginal site (arrowed).

20 November 2014 15

Taronga Zoo - Aboriginal Site #45-6-1959 **Additional Information**

shreeji consultant P/L
structural civil engineers ABN 94 095 027 320
PO Box 747
Turramurra NSW 2074
Australia
w shreejiconsultant.com
e mail@shreejiconsultant.com
p/f +61 2 9487 4889



1 13128.SK01- TEMPORARY PROPPING
1:10

heritage
conservation
remediation

20 November 2014 16

Appendix 6

Government Agency and Aboriginal Community Correspondence & Schedule of RAP Consultation

NSW GOVERNMENT | Office of Environment & Heritage

Our reference: FIL14/2019

Mr Dominic Steele
Manager
Dominic Steele Consulting Archaeology
21 Macgregor Street
CROYDON NSW 2132

Dear Mr Steele,

Thank you for your letter dated 24/7/2014 to the Office of Environment and Heritage (OEH) regarding obtaining a list of the Aboriginal stakeholders that may have an interest in the proposed upgrade to facilities at Taronga Zoo, Cremorne (North Sydney LGA).

Before making an application for the issue of an Aboriginal Heritage Impact Permit, the applicant must carry out an Aboriginal community consultation process in accordance with the National Parks and Wildlife Regulation 2009 and completed to the stage described in subclause 80C.

Please find attached the list of Aboriginal stakeholders known to OEH that may have an interest in the project. OEH's list of regional stakeholders is a list of groups, organisations or individuals who may hold cultural knowledge relevant to a proposal in a region. Consultation with Aboriginal people should not be confused with employment. Inclusion on the OEH's list is not an automatic right to employment. It is the decision of a proponent on who they choose to engage to deliver services based on a range of considerations including skills, relevant experience, and WHS considerations. To be clear, the proponent is under no obligation to employ Aboriginal people registered for consultation.

Further, receipt of this information does not remove the requirement of a proponent/consultant to advertise in local print media and contact other bodies seeking interested Aboriginal parties. Consultation with Aboriginal stakeholders must be in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* which can be found on the Office of Environment and Heritage (OEH) public website by accessing the following link:

http://www.environment.nsw.gov.au/resources/cultureheritage/commconsultation/09781ACHconsultreq.pdf

If you wish to discuss any of the above matters further please contact Miranda Firman, Aboriginal Heritage Planning Officer, on (02) 9995 5477.

Yours sincerely

S. Harrison 01/08/14

Susan Harrison
Senior Team Leader Planning
Greater Sydney Region
Regional Operations

Level 6, 10 Valentine Avenue, Parramatta NSW 2150
PO Box 644, Parramatta NSW 2124
Tel: (02) 9995 5477
ABN 30 841 387 271
www.environment.nsw.gov.au

Aboriginal Stakeholders that may have an interest in the Sydney Metropolitan, North Shore and Hornsby LGA's

Metropolitan LALC	Nathan Moran	(02) 83949666	PO Box 1103 Strawberry Hills NSW 2016
	Scott Franks	0404 171 544	PO Box 76, Caringbah NSW 1495
Darug Aboriginal Cultural Heritage Assessments	Gordon Morton	02 4567 7421 or 0422 865 831	90 Hermitage Rd, Kurrajong Hills NSW 2758
	Eric Keidge	04311 66423	11 Olsson Close Hornsby Heights NSW 2077

NSW GOVERNMENT | Office of Environment & Heritage

Our reference:
DOC14/184316

Mr Dominic Steele
Dominic Steele Consulting Archaeology
21 Macgregor Street
CROYDON NSW 2132

Dear Mr Steele,

Thank you for your email dated 20/8/2014 to the Office of Environment and Heritage (OEH) regarding the proposed facility and access road upgrade at Taronga Zoo and the proposed remediation of an Aboriginal shelter registered on the Aboriginal Heritage Information Management System (AHIMS) as site #45-6-1959.

OEH understands that based on advice from Shreeji Consultant Structural Civil Engineers, the proposed works have the potential to harm site #45-6-1959 as they may cause instability to the cliff face. A site visit between Dominic Steele Consulting Archaeologists (DSCA), Taronga Zoo, the Metropolitan Local Aboriginal Land Council (MLALC) and OEH has been requested by DSCA for the purposes of discussing mitigation measures for site #45-6-1959 to ensure harm is minimised to the site during the proposed works.

OEH requests that the following information is provided prior to arranging a meeting to discuss the proposed works:

- Basic information on the extent and the condition of site #45-6-1959 to supplement the site recording including the associated midden material and whether there is information available on when the hand stencils were last visible;
- A statement in relation to the significance of the site based on the surrounding archaeology and landscape and how they relate to site #45-6-1959 and the results of the consultation with MLALC to date;
- A preliminary assessment outlining the proposed works and the extent of the works including the proposed harm to the cliff face and the associated midden material as a result of the road widening and the removal of the fig trees; and
- Options for the mitigation of site #45-6-1959. Please address any alternatives to stabilise the cliff face (retention rather than natural decay) and why past attempts to stabilise the cliff face have failed.

Please note that on the basis of the information supplied it is OEH's opinion that an Aboriginal Heritage Impact Permit (AHIP) will be required for any works harming the site, including stabilisation works. As part of the Aboriginal stakeholder consultation, the measures to ensure ongoing protection of the site will need to be considered.

Level 6, 10 Valentine Avenue, Parramatta NSW 2150
PO Box 644, Parramatta NSW 2124
Tel: (02) 9995 5477
ABN 30 841 387 271
www.environment.nsw.gov.au

If you wish to discuss any of the above matters further please contact Miranda Firman, Aboriginal Heritage Planning Officer, on (02) 9995 5477.

Yours sincerely

S. Harrison 11/09/14

Susan Harrison
Senior Team Leader Planning
Greater Sydney Region
Regional Operations

Tocomwall Pty Ltd
PO Box 76 Caringbah NSW 1495
Tel: 02 9542 7714 Fax: 02 9524 4146
Email: info@tocomwall.com.au www.tocomwall.com.au
ABN: 13 137 694 618

28 November 2014

Dominic Steele
DSCA
21 Macgregor Street
Croydon NSW 2132
Via email: dsca@bigpond.com.au

Dear Dominic,

RE: Aboriginal Cultural Heritage Assessment at Taronga Zoo
Registration of Interest

Tocomwall is seeking *primary involvement* in all consultation meetings and fieldwork for the above mentioned project.

Tocomwall represents traditional owners from this area and retains local and oral history on behalf of its membership. We do not accept or support any person or organisation that comments regarding the said area unless confirmed in writing by myself. We have no objection to our information being provided to the Office of Environment and Heritage and the Local Aboriginal Land Council.

Tocomwall is able to assist with input that can be incorporated into a written assessment of cultural values of the area. We are also able to provide fit staff to assist with work that may involve physical labour. We can provide copies of relevant certificates of currency for business insurances on request.

Please also be advised that this Aboriginal organisation does not do volunteer work or attend unpaid meetings.

All correspondence should be emailed to danny@tocomwall.com.au and sarah@tocomwall.com.au or to the above postal address.

Kindly contact our office if you require any further information.

Yours faithfully

Danny Franks
Aboriginal Heritage & Senior Field Manager

Metropolitan Local Aboriginal Land Council
36-38 George Street Redfern NSW 2016
PO Box 1103 Strawberry Hills NSW 2012
Telephone: (02) 8394 9666 Fax: (02) 8394 9733
Email: bookings@metrolalc.org.au

28th January 2015

Daniel Djikic
Project Manager
Capital Works, Infrastructure & Operations
Taronga Conservation Society Australia
Bradleys Head Road
MOSMAN, NSW, 2088

Taronga Zoo – Archaeological Assessment and AHIP Application

Dear Daniel,

I have reviewed the Aboriginal Archaeological & Cultural Heritage Assessment and AHIP Application for Taronga Zoo's construction of a Sumatran Tiger enclosure. As expected MLALC have concerns for the safety and integrity of all Aboriginal cultural sites that may be affected during construction activities, in this case, AHIMS sites # 45-6-1959 (hand stencils in rock shelter).

I have attended site visits of the proposed enclosure construction with Zoo staff, engineering contractors, David Burke and Dominic Steele of DSCA and in consideration of the Aboriginal Archaeological & Cultural Heritage Assessment conducted by Dominic Steele Consulting Archaeology, and although there are risks involved I am confident minimal to no damage to AHIMS site # 45-6-1959 should occur during construction activities.

MLALC has no objection to the project to proceed and supports the AHIP application for the construction of the Sumatran Tiger enclosure.

For any further information please contact me on my email or phone below.

Lee Davison

Culture and Heritage Officer

ldavison@metrolalc.org.au

0450180680

ntscorp

4 December 2014 ref: OE&H : 4-12-2014/1

Dominic Steele Consulting Archaeology
21 Macgregor Street
Croydon , NSW 2132

Dear Sir or Madam

Aboriginal Cultural Heritage Assessment

Taronga Conservation Society of Australia-Proposed Zoo upgrade

I refer to your letter of 26 November 2012 regarding the above matter.

We acknowledge that section 4.1.2 of the Office of Environment & Heritage's *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* require you to contact us in order to compile a list of Aboriginal people who may have an interest in the proposed project area and hold knowledge relevant to determining the cultural significance of Aboriginal objects and/or places.

However, we advise that NTSCORP's privacy guidelines restrict us from providing proponents with contact details of traditional owners who may have such an interest or hold such knowledge.

Please be advised that, in response to your notification, we will forward your correspondence to any individuals, groups and organisations whom NTSCORP is aware assert traditional interests within or hold cultural knowledge about the relevant area. Recipients of our correspondence will be invited to register their interest in the project directly with you ASAP.

Please be aware that NTSCORP cannot make a guarantee or undertaking that the recipients of our correspondence represent the entirety of traditional owners for the relevant area.

Yours faithfully,

George Tonna
Land & Notifications Officer
NTSCORP Limited

Level 1, 44-70 Rosehill St Redfern NSW 2016 Australia
t: + 61 2 9310 3188
PO Box 2105 Strawberry Hills NSW 2012 Australia
f: + 61 2 9310 4177
abn: 71 098 971 209
w: www.ntscorp.com.au

T:\Future Acts\Correspondence\Templates\Updated notifications as of June 2012\OEHs4.1.2-to-proponent

OFFICE OF THE REGISTRAR
ABORIGINAL LAND RIGHTS ACT 1983 (NSW)

11-13 Mansfield Street
Glebe NSW 2037
PO Box 112, Glebe NSW 2037
P. 02 9562 6327 F. 02 9562 6350

Dominic Steele
Consulting Archaeology
21 Macgregor Street
CROYDON NSW 2132

17 December 2014

Dear Dominic

Request - Search for Aboriginal Land Claim

I refer to your letter dated 10 December 2014 to search the Register of Aboriginal Land Claims database in relation to land described by you as:

Lot: 22 DP 843294

Parish: Willoughby

County: Cumberland

I have searched the Register of Aboriginal Land Claims database and the subject land described by you *does not appear* on the Register as being affected by an Aboriginal Land Claim in pursuant to sections 36 or 37 of the *Aboriginal Land Rights Act 1983.*

Regards

B. Ceiss

Bianca Ceissman
Administrative Officer
Office of the Registrar, *Aboriginal Land Rights Act 1983 (NSW)*
Please Note: Search Requests should not be made over privately owned land. Crown Land is the only land in NSW that is likely to be affected by an Aboriginal Land Claim under the Aboriginal Land Rights Act. It is not necessary to make a search over privately owned – even if an Aboriginal Land Claim has been made over privately owned land it would be refused as soon as this is known.

Appendix 7

Secretary's Environmental Assessment Requirements (SSD 6684)

Secretary's Environmental Assessment Requirements

Section 78A(8A) of the *Environmental Planning and Assessment Act 1979*
Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*

Application Number	SSD 6864
Proposal Name	Sumatran Tiger Adventure, Taronga Zoo
Location	Taronga Zoo, Bradleys Head Road, Mosman (Lot 22 in DP 843294)
Applicant	Taronga Conservation Society Australia
Date of Issue	23 January 2015
General Requirements	The Environmental Impact Statement (EIS) must address the *Environmental Planning and Assessment Act 1979* and meet the minimum form and content requirements in clauses 6 and 7 of Schedule 2 the *Environmental Planning and Assessment Regulation 2000*. Notwithstanding the key issues specified below, the EIS must include an environmental risk assessment to identify the potential environmental impacts associated with the development. Where relevant, the assessment of the key issues below, and any other significant issues identified in the assessment, must include: • Adequate baseline data; • Consideration of potential cumulative impacts due to other development in the vicinity; and • Measures to avoid, minimise, and if necessary, offset the predicted impacts, including detailed contingency plans for managing any significant risks to the environment. The EIS must be accompanied by a report from a qualified quantity surveyor providing: • A detailed calculation of the capital investment value (as defined in clause 3 of the *Environmental Planning and Assessment Regulation 2000*) of the proposal, including details of all assumptions and components from which the CIV calculation is derived; • An estimate of the jobs that will be created by the development during the construction and operational phases of the development; and • Certification that the information provided is accurate at the date of preparation.
Key issues	The EIS must address the following specific matters: **1. Environmental Planning Instruments, Policies and Guidelines** • Address the relevant statutory provisions applying to the site contained in the relevant EPIs, including: o *State Environmental Planning Policy (State and Regional Development) 2011;* o *State Environmental Planning Policy No. 55 – Remediation of Land;* o *State Environmental Planning Policy (Infrastructure) 2007;* o *Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005; and* o *Mosman Local Environmental Plan 2012.* • Address the relevant provisions, goals and strategic objectives in the following: o *NSW 2012;* o *A Plan for Growing Sydney;* o *Draft Inner North Sub-Regional Strategy NSW;* o *Planning Guidelines for Walking & Cycling;*

- *NSW Long Term Transport Master Plan 2012;*
- *Sydney's Cycling Future 2013;*
- *Sydney's Walking Future 2013; and*
- *Mosman Development Control Plan 2012.*

2. Built Form and Urban Design

- The EIS must address the height, bulk and scale of the proposed development within the context of the locality. The EIS must also address design quality with specific consideration of the use of colours, materials, finishes, landscaping and public domain.

3. Operational Management Plan

- Provide an Operational Management Plan for the exhibit addressing relevant animal husbandry policies, guidelines and practices, including any requirements under the *Exhibited Animals Protection Act 1986*.

4. Visual impacts

- Identify and assess the visual impacts of the proposal to/from key vantage points and on surrounding occupiers of land.

5. Heritage

- Prepare a statement of heritage impact which identifies:
  - all heritage items (state and local) including built heritage, landscapes and archaeology, and detailed mapping of these items, and why the items and site(s) are of heritage significance; and
  - what impact the proposed works will have on their significance.
- Address Aboriginal cultural heritage impacts of the proposal, including:
  - identifying and describing the tangible and intangible Aboriginal cultural heritage values that exist across the area affected by the development. This may require the need for surface survey and test excavation.
  - where Aboriginal cultural heritage values are identified, consultation with Aboriginal people who have a cultural association with the land must be undertaken and documented in the EIS. Additionally, the significance of the cultural heritage values for Aboriginal people who have a cultural association with the land must be identified and documented in the EIS.
  - impacts on Aboriginal cultural heritage values are to be assessed and documented in the EIS. The EIS must demonstrate attempts to avoid impacts upon cultural heritage values and identify any conservation outcomes. Where impacts are unavoidable, the EIS must outline measure proposed to mitigate impacts. Any objects recorded as part of the assessment must be documented and notified to OEH.
- Prepare an archaeological assessment of the likely impacts of the proposal on any Aboriginal cultural heritage, European cultural heritage and other archaeological items and outline proposed mitigation and conservation measures.

→ *Relevant Policies and Guidelines:*

- *NSW Heritage Manual*
- *Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation 2005*
- *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*
- *Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW (DECCW, 2011)*

6. Traffic, Parking and Access

- The EIS must include a Car Parking and Traffic Impact Assessment

(CPTIA) that evaluates:

- daily and peak traffic movements likely to be generated by the project during construction and operation (including during the opening period of the new exhibit) and provide details of any impacts to the road network surrounding Taronga Zoo and details of any proposed mitigation measures;
- demonstrate the provision of sufficient car parking during construction and operation in accordance with the relevant guidelines/standards and/or justification for any inconsistencies;
- detail access arrangements for workers to/from the site during construction and operation, including access for emergency vehicles; and
- provide details of the proposed transportation of materials to/from the site during construction including haulage routes, type of vehicles accessing the site and proposed locations for handling materials.

→ *Relevant Policies and Guidelines:*

- *Guide to Traffic Generating Development (RMS)*
- *EIS Guidelines – Road and Related Facilities (DoPI)*
- *NSW Planning Guidelines for Walking and Cycling*
- *Mosman Local Environmental Plan 2012 car parking rates*
- *Austroads Guide to Traffic Management Part 12: Traffic Impacts of Development*

7. Bushfire

- Demonstrate compliance with the relevant provisions of *Planning for Bushfire Protection (PBP) 2006* and detail any bushfire management and/or mitigation measures.

8. Noise

- Identify and provide a quantitative assessment of the main noise generating sources and activities during operation. Outline measures to minimise and mitigate the potential noise impacts on surrounding occupiers of land.

→ *Relevant Policies and Guidelines:*

- *NSW Industrial Noise Policy (EPA)*

9. Waste Management

- Identify all potential sources of liquid waste and non-liquid wastes as defined in the EPA's waste guidelines. The EIS should identify any waste that will be stored, separated or processed on the site and identify the procedures to be adopted to minimise, manage, transport and dispose of this waste in accordance with the relevant standards and guidelines.

→ *Relevant Policies and Guidelines:*

- *Waste Classification Guidelines Part 1: Classifying Waste (DECCW 2009)*

10. Construction Impacts

- The EIS shall assess, quantify, report on and identify measures to ameliorate potential construction impacts during the demolition, site preparation and construction phases of the development, including, traffic, access, noise and vibration, air quality, erosion and sediment control, water quality, waste management and transportation of waste, management and disposal of hazardous materials (including asbestos), management and disposal of concrete waste and rinse water, and other cumulative environmental impacts.

→ *Relevant Policies and Guidelines:*

	• *Assessing Vibration: A Technical Guideline 2006 (DEC)* • *Interim Construction Noise Guideline 2009 (DECC)* • *Waste Classification Guidelines Part 1: Classifying Waste (DECCW 2009)* **11. Infrastructure Servicing** • Detail the existing infrastructure on site and identify possible impacts on any such infrastructure from the proposal; • Detail measures to mitigate the impacts of the proposal on any infrastructure items, including proposed relocation/augmentation; and • Provide details of water supply, consideration of water sensitive urban design and water conservation measures. **12. Water, Drainage and Stormwater** • Prepare a Stormwater and Drainage Assessment to assess the impacts of the proposal on surface and groundwater hydrology and quality. • Identify appropriate water quality management measures focussing on the management of the impacts from the proposed works on Sydney Harbour. • Prepare a Water Management Plan. This should include stormwater and wastewater management, including any re-use and disposal requirements, details of any proposed alternative water supply, proposed *end uses of potable and non-potable water, demonstration of water* sensitive urban design and any water conservation measures. • The EIS shall also provide details of the proposed effluent collection, treatment and disposal related to the operation of the exhibit, and any associated implications for the sewerage treatments systems at the site and the Environmental Protection Licence No.1677. **13. Building Code of Australia** • Prepare a BCA and access report demonstrating compliance with the *Building Code of Australia*. **14. Staging** • Provide an outline of any proposed staging of the works. **15. Ecologically Sustainable Development** • Identify how the development will incorporate ESD principles in the design and construction phases of the development. **16. Consultation** • Undertake an appropriate level of consultation with Council and State government agencies. • Provide details on the Community Engagement Framework to guide the public consultation process.
Consultation	During the preparation of the EIS, you must consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups and affected landowners. In particular you must consult with: • Mosman Council; • Transport for NSW; • Roads and Maritime Services; • Office of Environment and Heritage; • Heritage Council of NSW; • Department of Primary Industries; • Other relevant government authorities; and • Local Aboriginal Land Council and Aboriginal stakeholders.

	The EIS must describe the consultation process and the issues raised, and identify where the design of the development has been amended in response to these issues. Where amendments have not been made to address an issue, a short explanation should be provided.
Further consultation after 2 years	If you do not lodge a development application and EIS for the development within 2 years of the issue date of these SEARs, you must consult further with the Secretary in relation to the preparation of the EIS.
References	The assessment of the key issues listed above must take into account relevant guidelines, policies, and plans as identified.

Plans & Documents

Plans and Documents	The EIS must include all relevant plans, architectural drawings, diagrams and relevant documentation required under Schedule 1 of the Environmental Planning and Assessment Regulation 2000. Provide these as part of the EIS rather than as separate documents. *In addition, the EIS must include the following:* 1. An existing site survey plan drawn at an appropriate scale illustrating: • the location of the land, boundary measurements, area (sq.m) and north point; • the existing levels of the land in relation to buildings and roads; • location and height of existing structures on the site; • location and height of adjacent buildings and private open space; and • all levels to be to Australian Height Datum (AHD). 2. A locality/context plan drawn at an appropriate scale should be submitted indicating: • significant local features such as parks, community facilities and open space and heritage items; • the location and uses of existing buildings, shopping and employment areas; and • traffic and road patterns, pedestrian routes and public transport nodes. 3. Drawings at an appropriate scale illustrating: • the location of any existing building envelopes or structures on the land in relation to the boundaries of the land and any development on adjoining land; • detailed plans, sections and elevations including all temporary and permanent structures; • architectural design statements and documentation; • the height (AHD) of the proposed development in relation to the land; and • any changes that will be made to the level of the land by excavation, filling or otherwise.
Documents to be submitted	• 1 hard copy and 1 electronic copy of all the documents and plans for review prior to exhibition; • 10 hard copies and 10 electronic copies of the documents and plans (once the application is considered acceptable); and • 1 copy of all the documentation and plans on CD-ROM (PDF format), not exceeding 5Mb in size.