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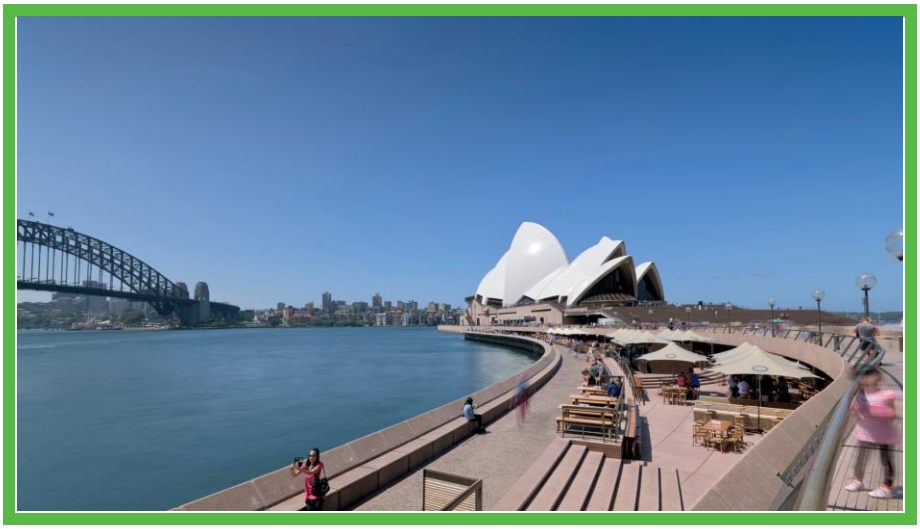

| SYDNEY OPERA HOUSE TRUST |

SYDNEY OPERA HOUSE LOWER CONCOURSE IMPROVEMENTS
CONSTRUCTION WASTE MANAGEMENT PLAN

REFERENCE NO. S10847-ENV-01-A1

BENNELONG POINT, NSW 2000 | 8 JULY 2019

REPORT

Sydney Opera House Lower Concourse Improvements

Construction Waste Management Plan

Bennelong Point, Sydney NSW 2000

Prepared for

Sydney Opera House Trust

Bennelong Point, Sydney NSW 2000
GPO Box 4274, Sydney NSW 2001

by

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1. Introduction

Hibbs & Associates Pty Ltd (Hibbs) has been engaged by the Sydney Opera House Trust (SOHT, the Client) for the provision of environmental services associated with improvements of the Lower Concourse of Sydney Opera House (SOH, the Project) located at Bennelong Point, Sydney NSW 2000 (the Site).

SOHT submitted an application to the NSW Department of Planning & Environment (DPE) to ascertain the requirements for the proposed Project. Post review of the application, DPE issued the Secretary's Environmental Assessment Requirements (SEARs) on December 21, 2018 (Ref: SSD 9794). The SEARs require the following:

The EIS shall:

- *Address air quality, runoff, contamination, waste management and traffic impacts associated with the demolition and construction of the proposal.*
- *Undertake waste classification in accordance with EPA guidelines and off-site disposal of concrete water and rinse water.*

10. Waste Management

The EIS shall:

- *Outline how the development addresses the relevant provisions of the City of Sydney Code for Waste Minimisation in New Developments 2005.*
- *Include a Waste Management Plan.*
- *Include a Hazardous Materials Survey prepared in accordance with the relevant Australian Standards.*

11. Contamination

The EIS shall:

- *Demonstrate compliance with the requirements of SEPP 55, including identification, handling, transport and disposal of any asbestos-containing material that may be encountered during demolition and construction.*
- *Include a Remedial Action Plan, if remediation works are required.*

SOHT has requested that Hibbs prepare a Construction Waste Management Plan (CWMP) for the Project which addresses the SEARs requirements related to the waste management.

There is an existing Operational Waste Management Plan (OWMP) being implemented for the waste management of daily operations at the SOH. The minor modification works within Lower Concourse are unlikely to result in additional waste generation during operations, therefore, the existing OWMP is adequate for the waste management. Building projects, construction, refurbishment and fitout waste management is not included in the OWMP and is required to be covered by a separate plan specific to the construction project. This CWMP addresses waste management for the proposed Project and forms a sub-plan to the OWMP. We recommend this CWMP be read in conjunction with the OWMP.

1.1 Objectives

The objective of the CWMP is to ensure that:

- measures are identified and implemented to minimise waste generated on site during the improvements activities to the extent practicable and recycling rates are maximised
- preferred waste management hierarchy of avoid and reduce, reuse, recycle, recover, treat and finally waste disposal to landfill is followed

- waste collection, storage, and disposal are managed appropriately
- staff have high-level of awareness and understanding of waste management issues
- appropriate measures are implemented to comply with all relevant legislation and other requirements as stipulated in Section 2 of this plan
- all procedures are documented

This plan provides guidance to the construction contractor (Contractor) on how to handle, store and manage the waste generated from the Project.

1.2 Site details

Table 1 Site Details

Site address	Lower Concourse, Sydney Opera House, Bennelong Point
Principal	Sydney Opera House Trust
	Peter Doyle
Site contact	Telephone: (02) 92507873
	Email: pdoyle@sydneyoperahouse.com
	Position: Project Manager, Renewal Statutory Planner

1.3 Scope

This CWMP covers waste generated in relation to improvement works on the Lower Concourse of the SOH.

It is proposed to carry out demolition and refurbishment works including:

- removal of existing shade structures; partial demolition of the existing glazing line at the Opera Bar; and fitout of new office, store and cool room;
- installation of new shade structures;
- realignment of the glazing line in front of the Opera Bar, including enclosure of the area between the Opera Bar and Meat & Cheese Room, and relocation of the egress from the Opera Bar;

At the time of reporting, a Contractor has not been selected and there is limited detail regarding the types, volumes and temporary storage of waste generated by the improvement works. It is strongly advised that this plan be revised and updated once the Contractor and details are finalised.

2. Legislation

The following sections outline key legislation and guidance documents relevant to waste management in NSW. All parties are responsible for complying with legislative requirements, including but not limited to those presented.

2.1 State legislation

Table 2 State Legislation

Environmental Planning and Assessment Act 1979	The EP&A Act is the primary legislation covering land use planning and development assessment in NSW. The Act provides a number of other statutory documents to support the planning structure including State Environmental Planning Policies and Local Environmental Plans.
Environmental Planning and Assessment Regulation 2000	The regulation supports the day-to-day requirements of the EP&A Act. It supplements the broader provisions of the Act and covers matters such as local environmental plans and development control plans, which are used by councils to manage growth and development through the use of land use zoning, development standards and other planning mechanisms.
Environmentally Hazardous Chemical Act 1985	This is the primary legislation for specifically regulating environmentally hazardous chemicals throughout their life cycle.
Protection of the Environment Operation Act 1997	The POEO Act covers a range of environmental requirements and potential offences, including those related to waste and spoil management. It sets out the Environmental Protection Authority (EPA) notification requirements of any actual or potential environmental harm. Part 5.6 of the Act identifies mechanisms for preventing environmental degradation including pollution prevention, cleaner production, reduction in discharge levels likely to cause harm to the environment, recycling and progressive environmental improvement.
Water Management Act 2000	The objects of this Act are to provide for the sustainable and integrated management of the water sources of the State for the benefit of both present and future generations.
Protection of the Environment Operations (Waste) Regulation 2014	This regulation sets out the provisions for waste management including storage, transportation, as well as reporting and recordkeeping requirements for waste facilities.
	The WARR Act promotes waste avoidance and resource recovery and establishes a scheme to promote and extend producer responsibility. The Act sets up a hierarchy of waste management, being avoidance, recovery and lastly disposal.
NSW Government Resource Efficiency Policy 2014	This policy sets out waste management requirements for NSW Government agencies. Agencies are required to publish an annual statement including the volume disposed and expenditure on disposal of their top three waste streams and a comparison with the previous three years. Agencies are encouraged to continually improve their waste efficiency through: • using the integrated waste management contracts; • creating an agency-specific waste reduction plan to target key waste streams that can be reduced or redirected from landfill; • improving separation of recyclable materials from the general waste stream (e.g. organics, clean natural excavated material); and

	• recycling waste products where there is access to a national voluntary stewardship scheme.
NSW's Waste Classification Guidelines 2014	Provides guidance in relation to requirements for the classification of waste as well as the storage, handling and disposal requirements for certain waste types
State Environmental Planning Policy No 55 – Remediation of Land, NSW (SEPP 55)	Provides a framework for the management of contaminated land in NSW.

2.2 Council of the City of Sydney (CoS)

Table 3 Council Legislation

Policy for waste minimisation in new developments, 2005	The purpose of this policy is to encourage efficient waste minimisation and resource recovery for demolition, construction and ongoing facility management. In addition, this policy seeks to facilitate the efficient and safe waste and recycling collection from all premises in the Council of the City of Sydney local government area.

2.3 Other

Table 4 Other Legislation

Sydney Opera House Environmental Sustainability Plan (SOHESP) 2017-2019	Sets targets for waste and recycling. These targets are public and are approved by the Executive and endorsed by the Trust. The targets are reviewed every 3 years
Better Building Partnership Waste Guidelines	Provides best practise guidelines for improving sustainability and waste efficiency of Sydney's commercial and public sector buildings.
Contractors guidelines – TBA*	Contractor relevant corporate policies

*TBA – to be announced

3. Waste management systems

3.1 Waste management approach

The waste hierarchy is a method of waste management which sets out an order of priority for managing waste with the aim of reducing waste generation and increasing the efficiency of resource recovery and use. The waste management options, in preferred order are:

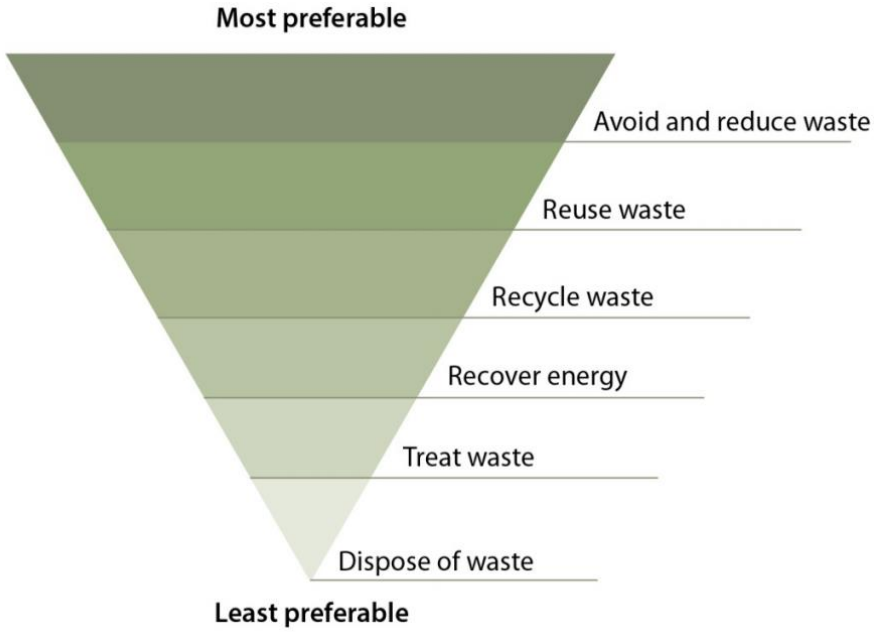

Figure 1 Waste hierarchy[1]

3.2 Waste and recycling streams

The exact types of waste to be generated by the refurbishment works are unknown. The waste types, storage and disposal facilities are to be confirmed by the Contractor.

The major waste streams that are expected from the improvement works include the following:

- building, construction and demolition waste
- general waste
- packaging waste associated with items delivered to the site such as pallets, crates, cartons, plastics, paper, cardboard and wrapping materials
- mixed recycling
- glass
- metals
- lighting, fittings and electrical equipment
- textiles

[1] NSW EPA Waste Avoidance and Resource Recovery Strategy 2014–21 (2014)

- chemicals (e.g. glues, solvent, lubricants)
- liquid waste (e.g. concrete slurry, wastewater)
- asbestos-containing material (ACM) – if removed

The Contractor may generate other waste types which should be updated in the CWMP. The Contractor shall determine the management protocol for each waste stream (Appendix A). This should identify designated areas for waste separation and storage and the method for off-site removal as detailed below.

3.3 Onsite source separation and collection area

The Contractor shall identify a designated area for waste storage and separation. The Contractor is responsible for the provision and periodic maintenance of bins, containers, and equipment necessary for waste separation, classification, recycling and weighing.

The Contractor must supply equipment (bins, signage/stickers, etc.) colour-coded to the AS 4123 series and as approved by the Principal.

The Contractor shall submit an equipment and location plan for onsite source separation before Contract commencement.

3.4 Waste avoidance and reduction

The Contractor shall propose waste avoidance measures to reduce waste generation. The waste avoidance and reduction approach addressed in this CWMP is as follows:

- plan and design work procedures to ensure waste production is minimised, such as ordering appropriate quantities of materials and minimising in ground works. This can be achieved by developing a procurement policy which considers waste avoidance measures
- reduce packaging material provided by the suppliers during purchasing or consider returnable packaging
- use of pre-fabricated materials, where possible

3.5 Reuse and recycling

The procedures to follow by the Contractor for reuse and recycling of waste materials during construction/demolition works include.

- ensure areas for waste segregation are easily accessible and clearly defined
- segregate, classify and appropriately store the recyclable and non-recyclable materials at the source for further reuse or recycling, where possible
- maximise the recycling of demolition waste and reuse building materials, where possible
- reuse and recycle most of the waste material generated so that the volume transported to landfill is minimised

3.6 Treatment and disposal

Where the materials are not suitable for reuse and recycling, the waste may require treatment to stabilise them for appropriate disposal, to reduce the risk of harm to human health or the environment. The Contractor shall classify such wastes using guidance provided in Section 3.7. The disposal shall be through a licensed contractor for the waste stream identified.

3.7 Classification of waste streams

If the waste (solid or liquid) collected from the Project cannot be avoided, reused or recycled it will be classified to determine the appropriate disposal pathway. The classification of waste is undertaken in accordance with the EPA's Waste Classification Guidelines Part 1: Classifying Waste (NSW EPA, 2014). This document identifies six classes of waste: Special, Liquid, Hazardous, Restricted Solid, General Solid (putrescible) and General Solid (non-putrescible), and describes a six-step process to classifying waste. It is the responsibility of the Contractor to identify the exact waste category and manage as per the guidance provided in Section 3.8.

3.8 Waste management

The proposed waste management measures for the project are outlined in the following sections.

3.8.1 General refuse (including building, construction, and demolition waste)

The Contractor shall use a dedicated segregation system to manage general waste (putrescible and non-putrescible). The waste shall be segregated and stored in appropriately labelled bins e.g. metals, plastics, timber, paper, etc. The materials shall be collected, transported and re-processed/recycled or disposed of to appropriately licensed facilities. A weekly collection service is recommended initially, however, the frequency can be adjusted as work progress, subject to volumes of waste being generated.

The Contractor shall appoint a licensed transport and disposal subcontractor to manage the collection of waste.

3.8.2 Contamination management

SOHT maintains a hazardous materials register (Hazmat register, V001, 2/11/18) which documents all ACM within the building. Should the Contractor intend to carry out work in any of the areas identified to contain ACM, which could result in asbestos waste generation, the materials shall be handled, stored and transported in accordance with SafeWork NSW, Code of Practice: How to Safely Remove Asbestos (SafeWork NSW, 2016) and the Protection of the Environment Operations (Waste) Regulation (POEO, 2014), as follows:

- waste shall be stored on site in an environmentally safe manner
- asbestos-impacted material shall be loaded and transported into a sealed truck and wetted down, or bin lined with 200 µm thick polythene totally covered and sealed
- asbestos waste shall be disposed to a landfill that can lawfully receive this waste
- copies of dockets pertaining to disposal of asbestos impacted material shall be maintained to confirm the quantity of materials

Should the Contractor encounter any suspected contamination the advice of suitably qualified persons should be sought.

Hazardous waste (if any) shall be managed by appropriately qualified and licensed contractors, in accordance with the requirements of the Environmentally Hazardous Chemicals Act 1985 and the EPA waste disposal guidelines.

Where the Contractor observes contamination in a waste stream the incident should be recorded and the contents in the contaminated container classified as per the waste categorisation criteria outlined in Section 3.7 and disposed of appropriately.

The SOH Hazmat register, prepared based on contamination assessment surveys, identifies the type and exact locations of hazardous materials (mainly asbestos). The guidance provided in this section and Hazmat register illustrates the safe handling, transport, and disposal procedures for asbestos-containing material that may be encountered during the demolition and construction phase of the Project, therefore, no further remedial action plan is deemed necessary and the requirements are in compliance with SEPP 55 requirements.

3.9 Waste disposal

Waste disposal shall be in accordance with the Protection of the Environment Operations Act 1997 and the Waste Avoidance and Resource Recovery Act 2001. Wastes that are unable to be reused or recycled shall be disposed of offsite to an EPA approved waste management facility following waste classification (refer to Section 3.7).

Where possible, waste will be removed off-site to a recycling facility or will be disposed of at a licensed waste facility. A list of waste contractors shall be provided by the Contractor.

Details of waste types, volumes and destinations are to be recorded in the Waste Register (Appendix B).

3.10 Traffic management

The Contractor will be required to produce and adhere to a Traffic Management Plan which shall include the following requirements at the minimum:

- timing for delivery of materials and removal of waste
- hours of construction operations
- assessment of road safety at key intersections and locations subject to heavy vehicle movements and high pedestrian activity
- details of daily truck movements to and from the site, parking, and area to be used for loading and unloading
- details of temporary cycling and pedestrian access arrangements during construction
- details of construction vehicle access arrangments at all stages of the construction
- signage fencing, safety barriers and marking shall be in accordance with Australian Standards and the Roads and Maritime Services' Manual for Traffic Control at Work Sites

It is recommended that:

- vehicle movements are managed through accredited traffic controllers and there minimal interface with pedestrians across the site
- for any large deliveries and vehicle movements, permission is sought from SOH.
- delivery of materials and removal of waste is carried out during off-peak hours

3.11 Contractor's responsibilities

The Contractor shall comply with the following waste management service requirements:

- the Contractor shall provide services in accordance with the KPIs (Table 5)
- the Contractor must identify waste streams
- the Contractor is responsible for the management of reporting on behalf of any sub-contractor and the Services as they deliver as part of this Contract
- should the Principal (Table 1) choose to participate in any future government initiatives after the commencement of Contract, the Contractor needs to adjust accordingly

4. Key performance indicators (KPIs)

The SOH KPIs are designed to deliver the recycling outcomes in the Environmental Sustainability Plan 2017-19. The KPIs applicable for this CWMP are detailed in Table 5.

Table 5 Sydney Opera House Key Performance Indicators

KPI No.	KPI Type	KPI
1	Reporting	The Contractor must provide waste reports at the end of the reporting period.
2	Performance indicator: diversion rate	SOHESP 2017-2019 aims for 60 % recycling by weight for waste from refurbishment and minor works projects. The CoS Guidelines for Waste Management in New Developments target is to divert 80 %of waste from construction and demolition activities away from landfill by June 2021.
3	Outcomes management indicator: service level	Contractors comply with the SOH Waste Management Systems and processes outlined in this Waste Management Plan

5. Organisation and responsibilities

Roles and responsibilities are summarised in Table 6.

Table 6 Responsibilities

Role	Responsibility
Construction Contractor	• Implementation of CWMP and ensuring appropriate controls are implemented and maintained on site • Conduct site inductions for all workers and visitors • Ensure compliance with all applicable legislation and contract obligations • Collecting and separating waste, recycling and transporting to agreed recycling and disposal facilities • Provide accurate reporting within the agreed timeframe
Manager, Environmental Sustainability, SOHT	• Liaising with and educating the Contractor • Auditing of waste management • Monthly review and annual reporting of waste for the Opera House
All staff	• Manage waste in accordance with this CWMP

5.1 The Contractor

The Contractor shall use reasonable endeavours to assist the Principal in achieving the agreed waste targets in accordance with the key performance indicators (KPIs) and waste diversion targets set out in the latest version of the Sydney Opera House Environmental Sustainability Plan. This includes ensuring sufficient processes are in place to deliver these targets.

Where targets are not achieved, the Contractor will explain variances from the targets and will work with the Principal to develop solutions for meeting the targets.

Where the Contractor sub-contracts out any services referenced within this document, responsibility for compliance remains with the lead Contractor and the obligations will be passed through to any sub-contracted entity.

The Contractor shall work with the Principal to ensure the effective delivery of this CWMP to ensure the timely resolution of emerging issues.

The Contractor must perform their services in accordance with this CWMP, in compliance with environmental and work, health and safety practices for waste management.

6. Training, monitoring and reporting

6.1 Auditing

Regular environmental compliance audits can be undertaken to review the effectiveness and implementation of this plan.

6.2 Training

All personnel responsible for implementing this CWMP shall receive appropriate awareness training or induction. This includes:

- induction to the waste management hierarchy and how to use it
- staff responsibilities for waste management practices relevant to the project such as:
  - waste storage locations
  - waste disposal requirements
  - hazardous or special wastes handling, storage and disposal requirements
  - record of waste disposal details and receipts
- awareness of emergency response procedures

6.3 Monitoring

The Contractor to undertake daily monitoring that waste management procedures are being implemented and controls are well maintained.

6.4 Incident management

The Contractor shall prepare an incident management plan which identifies:

- potential risks and how they will be minimised
- how incidents will be addressed
- the person responsible
- actions taken

6.5 Corrective actions

Where non-conformances with this CWMP are identified through daily inspection, audit or incident reporting, these will be documented, and appropriate corrective action taken.

6.6 Waste register

All waste dockets/ receipts/ manifests will be retained for waste tracking. These shall record:

- date of removal
- volume removed
- waste transport contractor
- destination/ receiving facility

All waste is to be disposed of to a facility lawfully licensed to receive it.

The Contractor shall retain and update a Waste Register (Appendix B).

6.7 Reporting

The Contractor will be responsible for maintaining records of recycling and waste management including the types and volumes of waste generated, the waste classification results, the final destination of waste material and tracking of receipts from waste recycling or disposal facilities.

7. CWMP update and amendment

The requirement to update this CWMP may arise when:

- the details of the demolition/construction Contractor are available
- details of Contractor's waste management measures (waste volumes, storage, and segregation area, transportation, disposal contractors, etc.) are available
- there is an increase or change in scope of work for proposed Lower Concourse improvement works

A copy of the updated plan and changes shall be distributed to all relevant stakeholders in accordance with the approved document control procedure.

Appendices

Waste streams and management protocols
Waste register

Appendix A Waste streams and management protocols

The Contractor is to propose the waste streams in the table below. Current waste streams have been included but they can be modified by the Contractor.

Material	Responsible party	Management protocols	Waste storage method	Waste transport Contractor	Collection frequency	Destination facility	Recovery rate at the facility
Building, construction and demolition waste	Contractor	TBA*	TBA*	TBA*	TBA*	TBA*	TBA*
General waste	Contractor	TBA*	TBA*	TBA*	TBA*	TBA*	TBA*
Packaging waste	Contractor	TBA*	TBA*	TBA*	TBA*	TBA*	TBA*
Mixed recycling	Contractor	TBA*	TBA*	TBA*	TBA*	TBA*	TBA*
Glass	Contractor	TBA*	TBA*	TBA*	TBA*	TBA*	TBA*
Metals	Contractor	TBA*	TBA*	TBA*	TBA*	TBA*	TBA*
Lighting, fittings and electrical equipment	Contractor	TBA*	TBA*	TBA*	TBA*	TBA*	TBA*
Textiles	Contractor	TBA*	TBA*	TBA*	TBA*	TBA*	TBA*
Chemicals	Contractor	TBA*	TBA*	TBA*	TBA*	TBA*	TBA*
Liquid waste	Contractor	TBA*	TBA*	TBA*	TBA*	TBA*	TBA*
ACM	Contractor	TBA*	TBA*	TBA*	TBA*	TBA*	TBA*

*TBA – to be announced

Appendix B Waste register

The Contractor must maintain a waste register.

Date	Waste type	Waste volume	Waste transport contractor	Destination facility
TBA*	TBA*	TBA*	TBA*	TBA*

*TBA – to be announced

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