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Waste Management Plan
Sydney Heritage Fleet
Pyrmont, NSW 2009

Report Number 610.10676-R7R0

16 December 2011

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Pirrama Road
PYRMONT NSW 2009

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Waste Management Plan
Sydney Heritage Fleet
Pyrmont, NSW 2009

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EXECUTIVE SUMMARY

This report presents the waste management plan to support the Development Application (DA) for the Sydney Heritage Fleet, Bank Street, Pyrmont. This report has been undertaken in accordance with SLR's Offer of Services, Sydney Heritage Fleet Bank Street, Pyrmont; Specialist Building / Environmental Technology Services (Ref. 610.10676 SHF P1 20110823, dated 23 August 2011).

This report has been prepared in response to the Director General's requirements (DGRs), that states:

> *Identify all potential sources of liquid waste and non-liquid wastes as defined in the* Environmental Guideline Assessment, Classification and management of liquid and non-liquid wastes *(EPA 1999). The EA should identify any waste that will be stored, separated and processed on the site and identify the procedures to be adopted to manage these wastes.*

This waste management plan presents a summary of all wastes identified as a consequence of the construction and operational phases of the proposed development, and a waste management plan for those identified waste streams with the following objectives:

- To encourage the minimisation of waste production and maximisation of resource recovery.
- To encourage improved environmental outcomes through waste management.
- To ensure the appropriate management of contaminated or hazardous waste.
- To identify procedures and chain of custody for waste management.
- To ensure the long term sustainability of resource use through more efficient, cost effective and safe waste collection practices for the life of the development.

The waste management plan has been prepared in regard to the *Waste Avoidance and Resource Recovery Act* (2001), the Council of the City of Sydney's *Policy for Waste Minimisation in New Developments* (2005) and the Australian Packaging Covenant goals.

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1 INTRODUCTION

SLR Consulting Australia Pty Ltd (SLR Consulting) has been commissioned by Crawford Architects on behalf of Sydney Maritime Museum Ltd (Client) to provide environmental assessment reports to support a Development Application (DA) for the Sydney Heritage Fleet (SHF), Bank Street, Pyrmont.

This report presents the waste management plan for the above proposed development.

This report has been undertaken in accordance with SLR's Offer of Services, Sydney Heritage Fleet Bank Street, Pyrmont; Specialist Building / Environmental Technology Services (Ref. 610.10676 SHF P1 20110823, dated 23 August 2011).

From the information provided by the Client, the following briefly describes the development:

- The development will comprise a non-profit making working museum and a home for the SHF.
- The site is located under the eastern pylon of the Anzac Bridge with a water frontage to Blackwattle Bay and a street frontage to Bank Street. Approximately half of the site adjacent to the bridge pylon will be occupied by the SHF and the other half to the east will become a community park. The land understood to be developed as a community park does not form part of this assessment.
- Located to the west of the bridge pylon is a freestanding Exhibition Pavilion with an attached refreshment kiosk and amenities also at sea wall/water level.
- The land based component of the project comprises two storage areas at sea wall/water level.
    - The first to store dragon boats operated by Dragon Boats NSW with direct access to a new boat ramp.
    - The second to store and operate small vessels owned by the SHF, which will also make use of the boat ramp.
- Directly above the boat storage areas are exhibition spaces, meeting rooms, amenities, and entry lobby and reception areas.
- Across from the entry courtyard fronting Bank Street is a single storey building with some mezzanine spaces over which are the SHF's maintenance workshops and storage areas which are required to service the SHF vessels. The roof of the maintenance areas will be "green", to provide sound insulation for the SHF's operations and a visually attractive landscape for the adjacent residential buildings.
- Where reference is made to the site being developed for commercial use, this terminology is used to differentiate from residential or industrial uses, and is not intended to construe a commercial (or business) venture.

1.1 Objectives

The principal objective of this WMP is to identify all potential wastes likely to be generated on site during development and post development phases of the Project, including a description of how waste would be handled, processed and disposed of (or reused/recycled).

The specific objectives of this WMP are as follows:

- To encourage the minimisation of waste production and maximisation of resource recovery.
- To encourage improved environmental outcomes through waste management.
- To ensure the appropriate management of contaminated or hazardous waste.
- To identify procedures and chain of custody for waste management.

- To ensure the long term sustainability of resource use through more efficient, cost effective and safe waste collection practices for the life of the development.

Where appropriate, the WMP aims to meet the principles of the waste management hierarchy, by promoting waste as a resource through the following in order of preference:

- **Avoidance:** Waste avoidance through prevention or reduction of waste generation. Waste avoidance is best achieved through better design and purchasing choices.
- **Reuse:** Waste reuse, without substantially changing the form of waste.
- **Recycle:** Waste recycling through the treatment of waste that is no longer usable in its current form to produce new products.
- **Energy recovery:** Energy recovery through thermal treatment of residual waste materials and from green waste processing.
- **Disposal:** Waste disposal, in a manner that causes the least harm to the natural environment.

Penrith City Council state ‘unsorted construction and demolition waste accounts for up to 1.5 million tonnes of waste going to landfills within Sydney each year’. These volumes together with the limited capacity of available landfill have resulted in the need for new developments to consider waste management as part of the development process. Waste Management Plans are just one means of ensuring that appropriate actions are taken to manage the generation and treatment of wastes for new developments’.

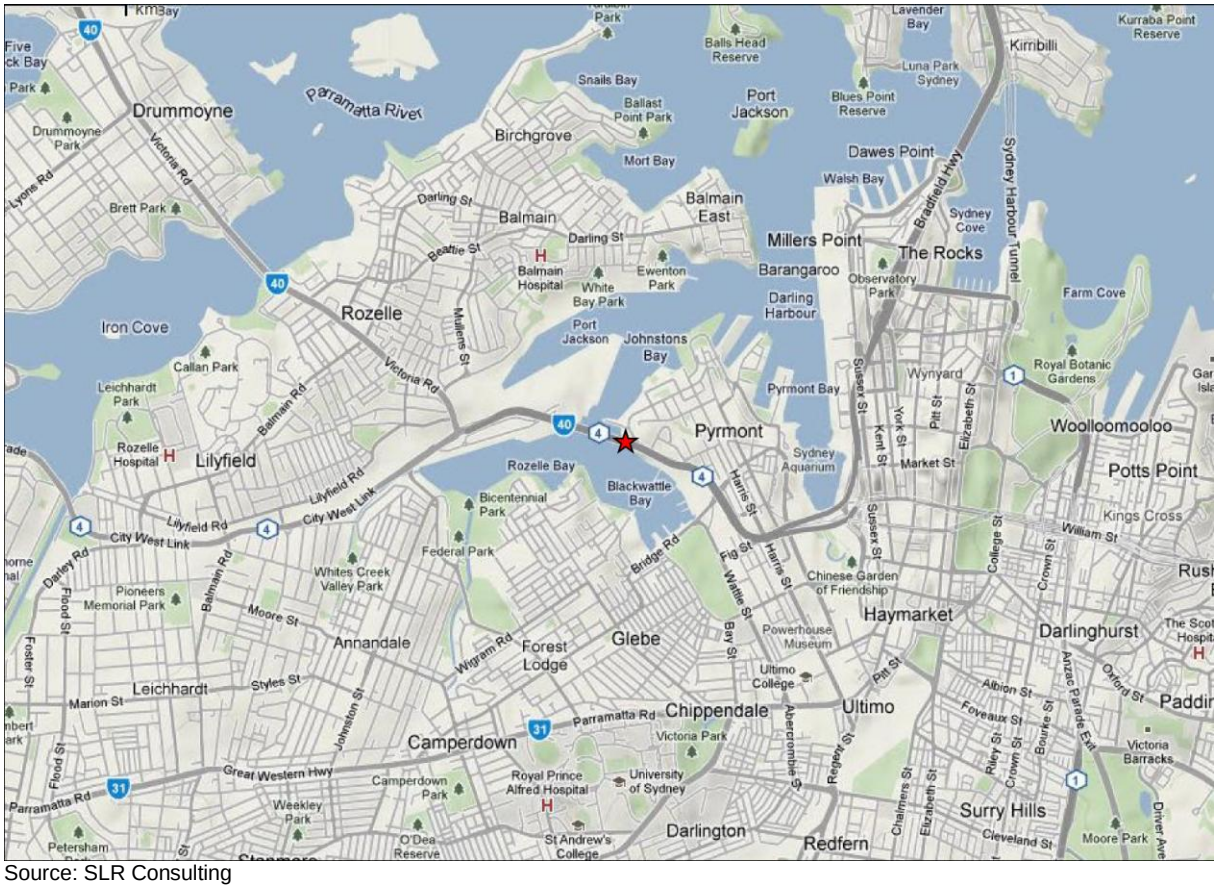
2 SITE DESCRIPTION

2.1 Site Location and Description

The Project Site is located off Bank Street, Pyrmont, NSW 2009, approximately 1.3 kilometres (km) west of Sydney Central Business District (CBD).

A Locality Map is provided below in **Figure 1**.

Figure 1 Locality Map



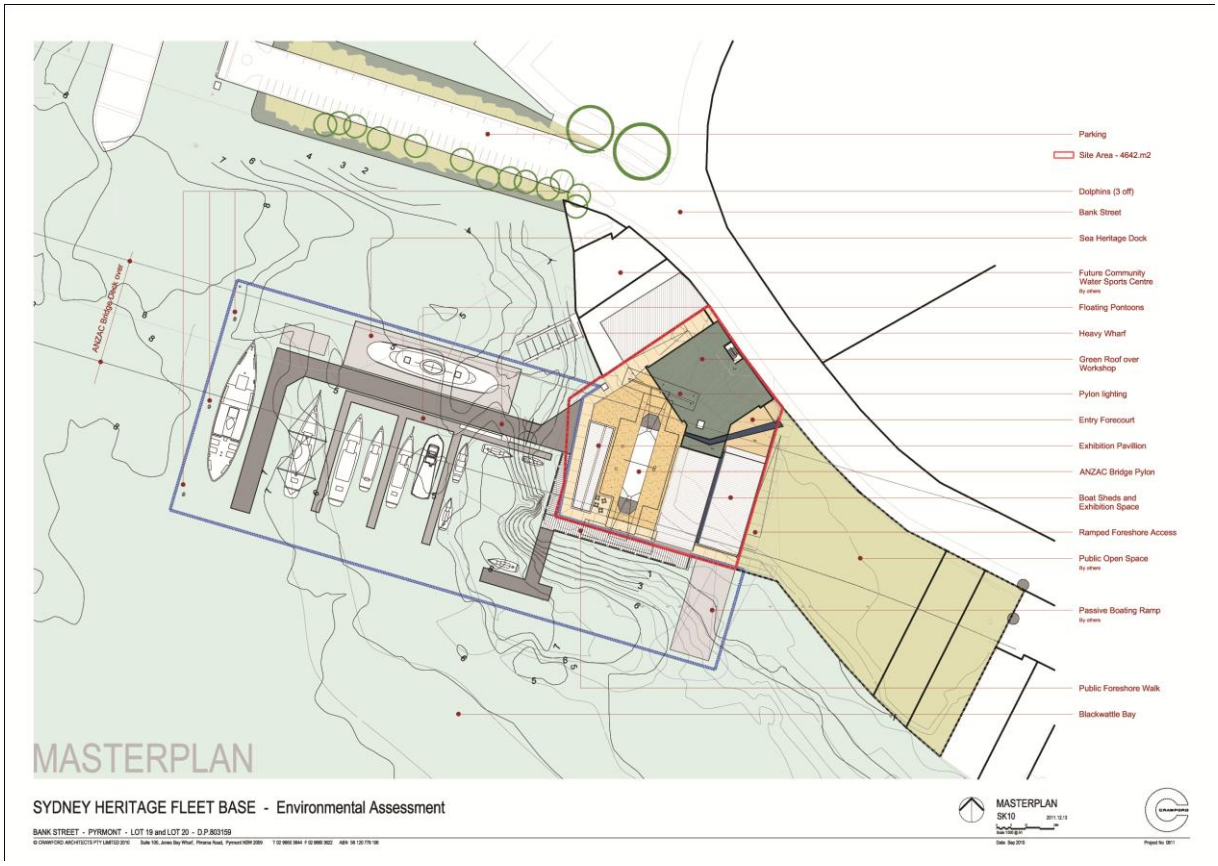
Source: SLR Consulting

The Project Site is a combination of two lots located beneath the eastern pylon of the Anzac Bridge, comprising Lot 19 and Lot 20 of Deposit Plan 803159. The area included within this DA is shown in **Figure 2** and is approximately 4,642 m^2 in area.

For clarity, throughout this report when both lots are being referred to, the term 'Project Site' will be used. If they need to be discussed individually the lots will be referred to by their associated lot and Deposit Plan number.

Two leases exist on the site, a land lease (identified in **Figure 2** by a red boundary) and a water lease (identified by a blue boundary). The public open space (shaded in green in **Figure 2**) is shown, although this is not included within this DA, and does not form part of this assessment.

Figure 2 Site Plan



Source: Crawford Architects

The Project Site is bordered to the south and west by Blackwattle Bay, to the north by Bank Street. The surrounding land uses include:

- North and Northwest: On the other side of Bank Street is Jackson's Landing residential and community estate.
- South and West: Blackwattle Bay borders the Project Site.
- Northeast: There is a small cluster of commercial buildings located on the opposing side of Bank Street.
- Southeast: A series of buildings operated by Poulos Bros Seafoods Pty Ltd, Bidvest Australia Pty Ltd, Hymix Australia Pty Ltd and the Sydney Fish Markets.

2.2 Project Description

The proposed development works shall incorporate the following:

- A two storey building with some mezzanine spaces.
- Located west of the bridge pylon is a freestanding Exhibition Pavilion with an attached coffee kiosk and amenities.
- Boat sheds and vessel storage for dragon boating.
- Shipwrights and boat storage area which includes a machine shop, workshop, timber store, lunch room and amenities.

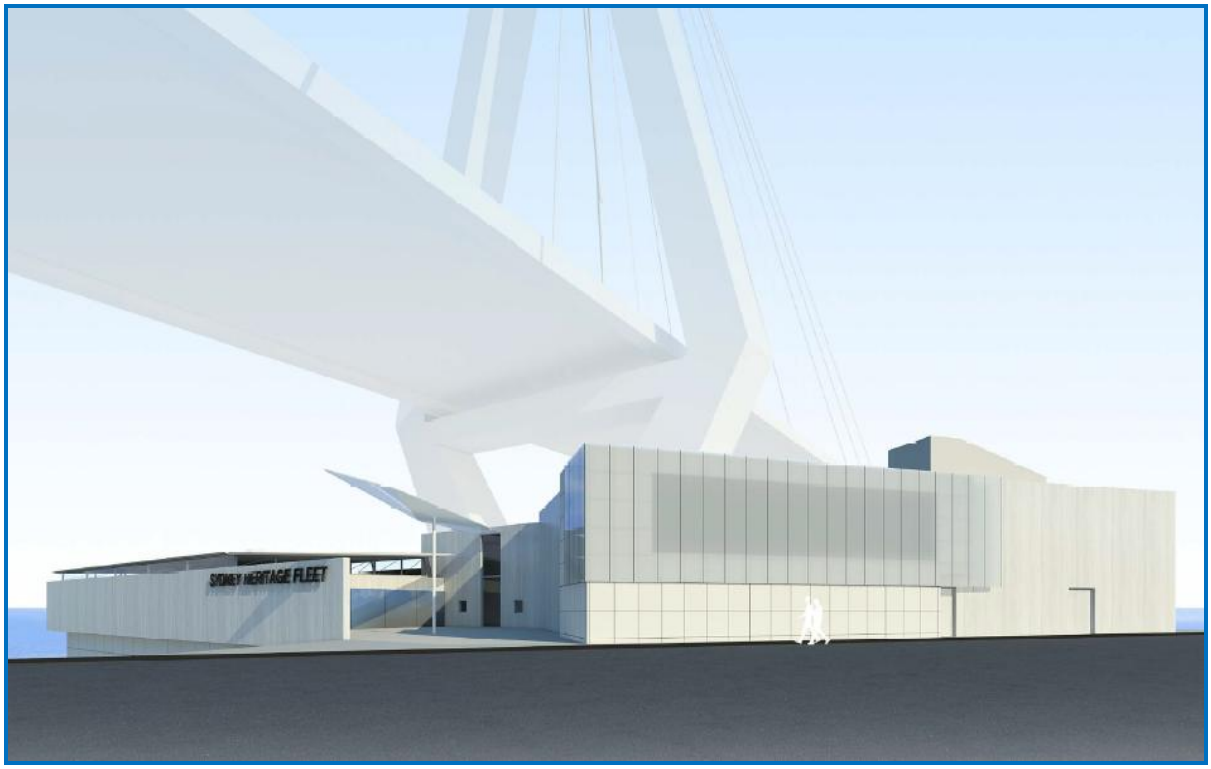
- Directly above the storage areas are exhibition spaces, meeting rooms, amenities, and entry, lobby and reception areas.
- Restoration and maintenance workshop, including a metal fabrication workshop, coal stores, garbage and recycling stores, paint and flammable goods store.
- Working living museum.
- Lay apart stores and electrical workshop.
- The mezzanine which incorporates amenities.
- Heavy wharf.
- Floating pontoons.

Figure 3 and **Figure 4** below show design perspectives for the proposed development from the proposed public open space and from Bank Street, respectively.

Figure 3 View of Proposed Development from Public Open Space

Source: Crawford Architects

Figure 4 View of Proposed Development from Bank Street



Source: Crawford Architects

3 LEGISLATION AND GUIDANCE

3.1 Waste Avoidance and Resource Recovery Act 2001

A key policy standard for waste management is the *Waste Avoidance and Resource Recovery Act 2001* which has established a scheme to promote extended producer responsibility in place of industry waste reduction plans.

The objects of this Act are as follows:

(a) to encourage efficient use of resources and to reduce environmental harm in accordance with the principles of ecological sustainable development;

(b) to ensure that resource management options are considered against a hierarchy of the following order:

i. avoidance of unnecessary resource consumption,

ii. resource recovery (including reuse, reprocessing, recycling and energy recovery),

iii. disposal,

(c) to provide for the continual reduction in waste generation,

(d) to minimise the consumption of natural resources and the final disposal of waste by encouraging the avoidance of waste and the reuse and recycling of waste,

(e) to ensure that industry shares with the community the responsibility for reducing and dealing with waste,

(f) to ensure the efficient funding of waste and resource management planning, programs and service delivery,

(g) to achieve integrated waste and resource management planning, programs and service delivery on a State-wide basis,

(h) to assist in the achievement of the objectives of the Protection of the Environment Operations Act 1997.

3.2 Policy for Waste Minimisation in New Developments 2005

The Council of the City of Sydney's "*Policy for Waste Minimisation in New Developments 2005*" (Waste Minimisation Policy (2005)) was developed to encourage efficient waste minimisation and resource recovery for demolition, construction and ongoing facility management.

The Waste Minimisation Policy (2005) details a range of waste management provisions (including those specific to commercial developments) and includes design specifications for waste storage and collection access areas, procedures for recycling and disposal, and procedures to ensure an acceptable level of general amenity is maintained.

3.3 Australian Packaging Covenant

Sydney Heritage Fleet is encouraged to establish an Action Plan to demonstrate their contribution to the achievement of the Australian Packaging Covenant's (APC) goals. The three main performance goals of the APC are:

- **Design:** Optimise packaging to use resources efficiently and reduce environmental impact without compromising product quality and safety.
- **Recycling:** Efficiently collect and recycle packaging.
- **Product Stewardship:** Demonstrate commitment of all signatories.

4 DEMOLITION / CONSTRUCTION WASTE MANAGEMENT

4.1 Demolition Waste Management

The site currently requires limited demolition activity due to the site being previously levelled. Excavation to the required formation levels will be required which will require the handling of insitu made ground and possibly natural materials.

The limited demolition phase of the Project will generate the following general solid waste streams:

- demolition materials, including crushed hardcore surfacing, fencing etc;
- green waste from the removal of vegetation; and,
- general construction waste.

Clean, suitable demolition materials are to be stockpiled on site and reused where appropriate within the construction phase of the works. Unsuitable or contaminated materials are to be removed from site and treated or disposed of at an appropriate facility.

4.1.1 Contaminated/Hazardous Waste

Where necessary during the infrastructure stage of works, qualified and certified contractors should be engaged to remove all contaminated/hazardous material.

4.2 Construction Waste Management

Construction of the Project will generate the following waste streams:

- liquid waste (i.e. waste oil);
- clinical waste (i.e. sewage); and,
- general construction waste (i.e. concrete, timber, steel).

A comprehensive Waste Management Plan should be provided and implemented by the building contractor. The building contractor should ensure that:

- Construction materials are selected with consideration to their long lifespan and potential for reuse.
- Correct quantities of materials are ordered and prefabricated materials are used where possible.
- Formwork is reused onsite.
- Site disturbance and unnecessary excavation is limited.
- Careful source separation of off-cuts is conducted to facilitate reuse, resale or efficient recycling.
- Subcontractors are informed of site waste management procedures.

Note: The selection of “used” in favour of “new” building products and materials should be encouraged wherever possible.

A comprehensive WMP should be provided and implemented by the Building Contractor. The Building Contractor should ensure that:

- Construction materials are selected with consideration to their long lifespan and potential for reuse.
- Correct quantities of construction materials are ordered and prefabricated materials are used where possible.

- Formwork is reused onsite.
- Site disturbance and unnecessary excavation is limited.
- Careful source separation of waste (e.g. off-cuts) is conducted to prevent cross-contamination of waste and to facilitate reuse, resale or efficient recycling.
- Subcontractors are informed of site waste management procedures.
- Records of all waste types and amounts collected by contractor are maintained.

Note: The selection of “used” in favour of “new” construction products and materials should be encouraged wherever possible.

4.3 Waste Avoidance

The Building Contractor should identify opportunities for waste avoidance by:

- Planned work staging.
- Careful on site storage and source separation.
- Ordering materials to size and ordering pre-cut and prefabricated materials.
- Reducing packaging waste onsite by returning packaging to suppliers where possible, purchasing in bulk, requesting cardboard or metal drums rather than plastics, requesting metal straps rather than shrink wrap and using returnable packaging such as pallets and reels.

To improve provide more reliable figures:

- Compare your projected waste quantities with actual waste produced;
- Conduct waste audits of current projects;
- Note waste generated and disposal methods;
- Look at past waste disposal receipts;
- Record this information to help estimate future waste management plans.

4.4 Reuse, Recycling and Disposal

The management of construction materials and waste including options for reuse and recycling where applicable and practicable should be conducted. Only Project wastes that cannot be cost effectively reused or recycled are to be sent to landfill or appropriate disposal facilities.

The following procedures should be implemented:

- Suitable excavated material should be reused as fill material at another site or for other reuse purposes, as opposed to disposing this material to landfill.
- All solid waste timber, brick, concrete, rock and soil that cannot be reused or recycled should be taken to an appropriate landfill site and disposed of in an approved manner.
- All metals will be recycled where economically viable.
- All waste oil will be recycled.
- All garbage should be disposed of via a council approved system.

4.5 Waste Amounts

The Building Contractor will need to specify the types and quantities of wastes produced during construction. A guide/estimate of the potential waste percentages is provided based on a “rule of thumb” waste generation rates for construction projects, as indicated in **Table 1**.

Table 1 Typical Construction Waste Generation Rates

Material	Estimated Waste %	Volume/Weight Ratios
Timber	5 - 7%	0.5 tonne per m^3
Plasterboard	5 - 20%	2 tonne per m^3
Concrete	3 - 5%	1 tonne per m^3
Bricks	5 - 10%	0.75 tonne per m^3
Iron/Steel	2 - 5%	2 - 4 tonne per m^3

Source: Waste Planning Guide for Development Applications, Inner Sydney Waste Board, 1998

Note: Records demonstrating the actual percentage of waste recycled by weight should be kept by the Building Contractor and reported on a quarterly basis.

4.6 Waste Storage and Servicing

Waste storage areas should be accessible and allow sufficient space for storage and servicing requirements. The storage areas should also be flexible in order to cater for change of use throughout the Project.

The General Contractor will need to specify the types and quantities of wastes produced during construction and on this basis, the numbers and capacity of skip bins can be determined.

Waste generated on site, when it is not able to be directly deposited into the skip bins, will be placed in designated stockpile areas within the site for transfer to the skip bins by bobcat or other means. All waste placed in stockpile areas and skips for disposal or recycling shall be adequately contained to ensure that the waste does not fall, blow, wash or otherwise escape from the site (i.e. appropriate siting of waste stockpile locations should take into account slope and drainage factors).

Hazardous and contaminated wastes will be removed from site by waste contractors for disposal to appropriately licensed facilities.

No liquid wastes or wash down waters should be disposed of via the stormwater drainage system. Wastewater storage tanks should be carefully monitored to ensure overflow does not occur.

The frequency of the waste removal will, in most cases, be dictated by the volume of material being deposited into the skip. All skips leaving the project site will be covered with a suitable tarpaulin to ensure that the spillage of wastes from the skips whilst in transit is prohibited.

4.7 Signage and Education for Staff

Standard signage should be posted in all storage/waste collection areas and all drums/bins are required to be labelled correctly and clearly to identify materials stored within.

Employed staff and contractors should be made aware of all recycling initiatives and waste storage/handling requirements.

4.8 Monitoring and Reporting Requirements

Records of waste volumes recycled, reused or contractor removed are to be maintained and reported on a quarterly basis.

Waste audits are to be carried out to gauge the effectiveness and efficiency of waste segregation procedures and recycling/reuse initiatives. Where audits show that the above procedures are not carried out effectively, additional staff training should be undertaken and signage re-examined.

5 OPERATIONAL WASTE MANAGEMENT

Ineffective waste management for commercial premises can lead to environmental pollution, offensive odours, litter, attraction of vermin and occupational safety and hygiene problems. Effective waste management reduces costs through the reuse of resources and minimisation of fees associated with removal, transportation and disposal of waste, and improves environmental outcomes locally, regionally and globally.

Effective waste management is achieved through the implementation of a WMP for the operational life of the development.

5.1 Identified Waste Streams

The operational phase of the Project will generate the following waste streams (categorised according to the Office of Heritage and Environment's (OEH) Waste Classification Guidelines):

Special Waste

- clinical and related waste (i.e. sewage)
- waste tyres

Liquid Waste

- stormwater
- grey water
- maintenance waste (e.g. cleaning chemicals, fuels, engine oil, varnish, solvents, boat wash downs)

Hazardous Waste

- spent lead-acid or nickel-cadmium batteries
- used dangerous goods containers
- fluorescent tubing

General Solid (non-putrescible) Waste

- recyclable glass, plastic, tin / aluminium cans
- e-waste items (old computers etc)
- printer cartridges and toners
- cardboard and paper
- non-recyclable plastic
- goods packaging waste
- cleaned / drained oil or dangerous goods containers
- used pallets
- timber, plastics and metals from workshop
- spent smoke detectors
- garden waste
- damaged or old equipment (e.g. warehouse forklifts)
- paint tins, and paint residues
- boiler ash from boats within the fleet

- rags, rope and textiles

General Solid (putrescible) Waste

- food waste from lunchroom, kitchen and canteen areas
- spoiled / damaged / spilled product

5.2 Waste Generation Rates

The approximate waste generated by a commercial development may be estimated as follows:

Table 2 Operational Waste Generation Rates

Type of Premises	Garbage Generation	Recycling Generation
Offices	10L / 100m^2 / day	10L / 100m^2 / day
General Retail (i.e. shops with over 100 m^2 floor area)	50L / 100m^2 / day	50L / 100m^2 / day
Restaurants (in place of kitchen / canteen areas)	10L / 1.5m^2 floor area / day	2L / 1.5m^2 floor area / day
Showrooms	40L / 100m^2 / floor area / day	10L / 100m^2 / floor area / day

Source: Appendix B, 'Waste Minimisation Policy (2005), Council of the City of Sydney

Using the above standard industry waste generation rates, calculated waste generation volumes for the Project are as follows:

Table 3 Estimated Waste Generation Rates (L/day)

Activity Area	Nett Area (m^2)	Garbage Generation (L/day)	Recycling Generation (L/day)
Boat Sheds – Dragon Boat Storage			
Vessel Storage / stores	450	225	225
Shipwright and Boat Storage Area			
Machine shop / workshop	440	220	220
Vessel storage	62	31	31
Lunch room (60 seated) and Food preparation area	139	927	185
Restoration & Maintenance Workshop	**960**	**480**	**480**
Working Living Museum			
Entrance, shop, merchandising	112	56	56
Kitchen	22	147	29
Exhibition/Museum/chandlery	435	174	44
Lay-Apart Stores and Electrical	**960**	**480**	**480**
Chandlery Foreshore Exhibit			
Exhibition space	140	56	14
Coffee kiosk	30	200	40
Totals (approximate)	**3,750**	**2,996**	**1,804**

Note: All waste generation rates are approximate.

It is noted that all waste generation rates are approximate only. It is recommended that scheduled waste audits be undertaken approximately two months into the operational phase of the development to quantify waste generation rates generated by the development.

5.3 Dangerous Goods / Liquid Wastes

- Any liquid wastes or dangerous goods wastes generated by the Project (e.g. due to damage or leakage of containment) should be disposed of by a suitably qualified contractor to an appropriately licensed disposal facility.
- No liquid wastes or wash down waters should be disposed of via the stormwater drainage system. Wastewater storage tanks (including stormwater collection tanks) should be carefully monitored to ensure overflow does not occur.
- Containment measures for spillages should be provided nearby (e.g. a spill kit containing non-combustible absorbent material).
- No liquid wastes or wash down waters should be disposed of via the stormwater drainage system. Wastewater storage tanks should be carefully monitored to ensure overflow does not occur.

5.4 Contaminated / Hazardous Wastes

- All contaminated and hazardous wastes (i.e. fluorescent tubing, batteries, e-wastes and smoke detectors) should be recycled at an appropriately licensed facility.
- Fluorescent tubes and other globes can be recycled via prepaid packs suitable for Australia Post to recycling facilities in Australia.
- E-waste (electronic waste such as computers) and batteries contain heavy metal contaminants and should be recycled at an appropriately licensed recycling facility.
- Smoke detectors should be returned to the supplier for disposal (this is a condition of the supplier's licence to sell smoke detectors) and not disposed of with general landfill waste as they contain small amounts of radioactive material. Contact the supplier for information on how to return used smoke detectors.

5.5 Waste Storage and Collection

5.5.1 Waste Storage Areas

It is apparent from the design drawings that the proposed building has a dedicated waste storage and collection area on Level 1 including:

A garbage and recycle store (total area 13.5m^2) in the north-east corner of the development within the metal machine shop adjacent to the coal storage area. The waste storage area should cater for the waste produced on site, with the separate area used for recyclables.

It is noted that the construction of waste areas, storage rooms and compactor equipment should comply with Council and BCA (Building Code of Australia) requirements and Australian Standards. (Refer to Page 8 of the Waste Minimisation Policy (2005) for more information.)

Ash from the boilers of any coal powered ship must be bagged on the ship and stored within the proposed building for collection by a suitable waste contractor.

5.5.2 Space Requirements

Sufficient space should be provided for the segregation and storage of varying waste types including provision for the collection of batteries, fluorescent tubes, smoke detectors, e-wastes and other recyclable resources. Sufficient space must be provided for reuse items such as crates and pallets for occupational safety purposes.

5.5.3 Dangerous Goods and Liquid Wastes Storage

Dangerous goods stores and associated waste areas will comply with relevant Australian Standards as listed in WorkCover's "*Code of Practice for Storage and Handling of Dangerous Goods (2005)*" document and competent advice will be sought when making design, process and storage decisions about handling dangerous goods. In addition, WorkCover notification may need to be provided where manifest levels are exceeded (refer to Workcover's "*Notification of Dangerous Goods on Premises Guide"* for further information, including the appropriate thresholds).

All maintenance chemicals, oils and fuels including associated wastes should be stored separately in an appropriately bunded, well-ventilated area with a drain grease trap and allow sufficient space for handling and storage in accordance with Australian Standard *AS 1940: 2004 The Storage and Handling of Farmable and Combustible Liquids* and relevant development consent conditions.

Liquid waste from drain grease traps must be removed by a licensed waste contractor.

5.5.4 Spills Management

Containment measures for spillages should be provided at appropriate locations and in close proximity to staff car park areas, dangerous goods stores areas and main warehouse operation areas (e.g. a spill kit containing non-combustible absorbent material). Material Safety Data Sheets (MSDS) should also be located nearby spill kit areas for advice on spillage cleanup and disposal.

5.5.5 General Waste Storage Requirements

The following additional general recommendations are provided for the waste storage area:

- The floor of the waste area should be bunded, graded and drained, and finished to a smooth even surface.
- A water supply to the area should be provided (hot and cold) to allowing for appropriate cleaning.
- Adequate ventilation should be provided to prevent nuisance odour.
- The area should be conveniently located to enable easy access for on-site movement as well as collection and servicing.
- The waste area should be secure and lockable.
- The waste area should be clearly signposted to ensure correct use and waste separation.
- The waste storage areas are to be kept clean and odour-free. It is the responsibility of the Operations Manager to routinely (twice weekly) check waste sorting and storage areas for cleanliness, hygiene and OH&S issues.

5.5.6 Contractor Waste Collection

It is understood that a national waste and recycling contractor will be employed to collect and appropriately dispose of the majority of wastes generated by the development. Written evidence of a valid and current contract with a licensed waste collector will be held at the premises.

Liquid wastes must only be collected by licensed waste contractors as approved by Sydney Water and the NSW Office of Environment and Heritage.

Hazardous wastes will be collected by appropriately licensed waste contractors. Research should be undertaken to engage hazardous waste contractors that can ensure the waste is recycled or disposed of by the best means available to Australia. The contractor will be required to provide details of the methods of recycling and disposal.

5.5.7 Waste Bin Types

The number and type of bins used by the development will depend on the Waste Management System chosen for the development, and waste contractor and/or Council's collection requirements.

The Waste Minimisation Policy (2005) provides specifications for a range of waste management equipment including crates and Mobile Garbage Bins (MGBs) which may be referred to when deciding on appropriate bin sizes for waste types generated by the development.

5.5.8 Waste Bin Locations

To encourage employee recycling, general landfill waste and co-mingled recycling bins should be positioned in easily accessible areas for effective recycling results. Waste and recyclables from each holding area within the premises must be transferred to a centralised waste and recycling storage room. Provisions must be made for the separation of cardboard, paper and recyclable plastics at each holding area in addition to the centralised waste storage area.

5.5.9 Waste Collection Rates

It is recommended that the collection of general waste for disposal (especially where it contains putrescible waste) be on a daily basis or that this waste be refrigerated during storage prior to collection. This will need to be monitored in the early stages of operation and adjusted to suit the needs of the development.

Storage of cardboard and paper must be in a dry, vermin-proof area and must not be stored for more than two weeks in order to prevent infestation by pests.

5.5.10 Waste Collection Access Requirements

Paths between holding areas, centralised waste storage areas and collection areas must be level and free of steps or kerbs. (Refer to page 7 of the Waste Minimisation Policy (2005) for maximum travel distances between storage points and collection points for bins.)

Waste collection vehicles vary in size and type according to the waste collection service employed. Access to waste collection areas by collection vehicles may be impeded where inadequate turning circle areas are provided. Access to waste collection areas should therefore be designed in consultation with Council and contracted waste collectors to ensure adequate provisions (such as appropriate turning circles and clearance where in-house collection is required) are in place for collections vehicles to be able to service the development efficiently and effectively, with limited need to reverse. (Refer to Appendix C and D of the Waste Minimisation Policy (2005) for more information on collection vehicles and vehicle access / turning circle requirements.)

5.6 Purchasing Guidelines

A Purchasing Policy may be developed to include strategies for waste minimisation such as:

- Bulk purchasing or the purchase of items that use minimal packaging.
- Source materials that use recycled content (e.g. printing paper).
- Products to be purchased from local producers to reduce transportation impacts.

5.7 Signage and Education for Employees

It is recommended that general and recycling bins, including metal and timber crates, and any other waste collection bin, be colour-coded with clear labels identifying the type of waste that may be disposed of in each bin. This is an effective and easily implemented method to encourage appropriate and effective waste sorting by employees.

Centralised waste storage areas should also have clear signs available to assist staff with correct segregation procedures of each respective waste type.

Employees should receive appropriate training in accordance with the adopted Waste Management System, especially in regard to the type of plastics which can be recycled, and storage and disposal procedures for dangerous goods and liquid wastes.

Waste management procedures should also be clearly communicated to cleaning and maintenance staff (and form part of any contractual conditions) to outline their respective waste management responsibilities.

5.8 Monitoring and Reporting Requirements

Audit and visual assessment of bins prior to collection should be undertaken within the first few months of operation to ensure the WMP is sufficient for the development's needs, with findings recorded in a well-maintained log book. An audit should also be undertaken on a biannual basis to ensure employees are effectively managing wastes.

Quantities of waste types disposed of and recycled should be documented and reported to Council and Sydney Heritage Fleet for research purposes.

Where audits show that segregation and recycling is not carried out effectively, additional employee training should be undertaken and signage and procedures re-examined.

The WMP should be progressively improved and updated on an annual basis, or as required, to reflect changes within the Waste Management System and to promote continual improvement of waste management.

5.9 Roles and Responsibilities

It should be the responsibility of the Operations Manager to implement the Company's material and equipment disposal policy and an employee responsibility to ensure that they comply with the guideline at all times.

The Operations Manager should routinely check waste sorting and storage areas for cleanliness, hygiene and OH&S issues, and also ensure all monitoring and audit results are well documented and carried out as specified in the Waste Management Plan.

6 CLOSURE

This report has been prepared by SLR Consulting Australia Pty Ltd with all reasonable skill, care and diligence, and taking account of the manpower and resources devoted to it by agreement with the client. Information reported herein is based on the interpretation of data collected and has been accepted in good faith as being accurate and valid.

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7 REFERENCES

Australian Standard AS 1940: 2004 *The Storage and Handling of Farmable and Combustible Liquids*

Council of the City of Sydney's "*Policy for Waste Minimisation in New Developments* 2005

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Waste Avoidance and Resource Recovery Act 2001

Waste Planning Guide for Development Applications, Inner Sydney Waste Board, 1998

WorkCover's "*Code of Practice for Storage and Handling of Dangerous Goods* 2005