

Liverpool Health Academic Precinct

JANUARY 2020

Operational Waste Management Plan



**WASTE AUDIT AND
CONSULTANCY SERVICES**

Level 21 / 133 Castlereagh Street
Sydney, NSW 2000

Telephone (02) 9199 4521
www.wasteaudit.com.au

This report contains confidential information. It has been compiled by Waste Audit and Consultancy Services (Aust) Pty Ltd on behalf of Johnstaff for the Liverpool Health and Academic Precinct development.

This Waste Management Plan is not a substitute for legal advice on the relevant environmental legislation, which applies to Johnstaff, its contractors or other bodies. Accordingly, Waste Audit and Consultancy Services (Aust) Pty Ltd will not be liable for any loss or damage that may arise out of this project, other than loss or damage caused as a direct result of Waste Audit and Consultancy Services (Aust) Pty Ltd's negligence.

Table of contents

Table of contents.....	3
1. Introduction	4
2. Operational Waste Management Plan	5
2.1 Waste Generation	5
2.1.1 Waste Streams	5
2.2 Waste Generation Estimates.....	5
3. Waste Management Systems/Practices	6
3.1 General Waste	7
3.2 Recycling System	7
3.3 Clinical Waste	7
3.4 Waste Storage Area.....	8
3.5 Waste Management Education	10
3.6 Ongoing Management.....	11

1. Introduction

This Plan details the management of waste generated during the operational phases of the Liverpool Health & Academic Precinct development. It has been prepared on behalf of Johnstaff to accompany a Development Application for the development at this site.

Liverpool Hospital is located within the Liverpool Central Business District (CBD), on the corner of Elizabeth Street and Goulburn Streets, Liverpool. The hospital campus includes land east and west of the Main Southern Railway, which forms an eastern and western campus. The proposed works are located in the western portion of the western hospital campus. The site is legally described as Lot 501 in DP1165217.

The application seeks consent for the construction and operation of a new multi-storey Integrated Services Building providing new treatment and support services that will integrate with the existing hospital. The works also include the refurbishment of certain existing hospital facilities.

A detailed project description is provided by Ethos Urban within the EIS.

Waste audit and management strategies are recommended for new developments to provide support for the building design and promote strong sustainability outcomes for the building. All recommended waste management plans will comply with council codes and any statutory requirements.

This Operational Waste Management Plan addresses the appropriate segregation, containment and disposal of waste required with waste avoidance being the primary focus. To assist Hospital management in achieving effective waste and recycling management, this waste management plan has three key objectives:

- i. **to minimise the environmental impacts of the operations of the development on the environment** – this will be achieved by ensuring maximum diversion of waste from landfill; correct containerisation and transport of materials; correct segregation of materials into appropriate management streams; awareness among tenants of waste avoidance practices.
- ii. **to minimise the impact of the management of waste within the development on local residents** – this will be achieved by ensuring waste is managed so as to avoid odour and litter and collected during suitable times.
- iii. **to ensure waste is managed so as to reduce the amount landfilled and minimise the overall quantity generated** – this will be achieved by implementing systems that assist tenants to segregate appropriate materials that can be recycled; displaying signage in all tenant areas to remind and encourage avoidance and recycling to staff; and through associated signage in the retail precinct to reinforce these messages.

The Liverpool City Council Development Control Plan 2008 (various Sections including Sections 14 and 25) has been referred to in the development of the waste estimates and related requirements.

Management strategies reflect current best-practice requirements, and relevant Sections of the *Protection of the Environment Operations Act 1997* and the NSW Environment Protection Authority *Waste Classification Guidelines, Part 1: Classifying Waste*, as well as consideration of industry best practice for this type of development.

2. Operational Waste Management Plan

2.1 Waste Generation

2.1.1 Waste Streams

Based on the development profile (as per Section 1), the following are the main waste streams that would be expected:

- General waste;
- Clinical waste (including pharmaceutical, sharps and cytotoxic waste);
- Paper and cardboard; and
- Comingled recycling (including).

Other wastes may be generated, but these would be in small volumes and irregular in terms of when generated (eg., confidential documents, e-waste, unwanted furniture). Hospital management will conduct a waste assessment once the new development is operational to determine the additional types and quantities of wastes that may be generated. Following this, appropriate management systems will be implemented and where necessary systems implemented (eg., collection schedules), to manage all wastes and recyclables.

It is not expected that significant quantities of garden waste will be generated.

2.2 Waste Generation Estimates

The following table show the estimated waste generated from the various components of the development (based on the profile of the development as provided) – these estimates are based on averages for quantity of waste generated and composition as determined by industry data (ie., data/information provided by WACS' waste audits conducted in the healthcare sectors).

Note that actual types and volumes of the various wastes will be dependent on the type of patient services as well as treatments delivered (eg., numbers of inpatients (occupied bed days) and outpatients). With healthcare, this can fluctuate according to time of year and changes in treatments and services.

However, this issue is one that hospitals recognise and are equipped to manage in terms of systems implemented to manage those changes in waste types and volume generated.

It is estimated that the development will generate a total of approximately **2,945 litres (3.0 m³)** of waste and recyclables per day – a total of **17,670 litres (17.7 m³)** per week¹.

¹ This estimate is based on a "6 day" week for provision of patient services.

3. Waste Management Systems/Practices

The following summarises the waste and recycling system that will be implemented for the development.

Note that the system to be implemented is one that integrates with the current waste management system and procedures currently used within the Hospital.

Waste and recycling bins will be located in dirty utility rooms, office spaces, cleaner's rooms and patient areas as required for the activities conducted in each specific department/area. As part of the hospital's continual improvement program, reviews of the location, type and size of waste/recycling containers will be undertaken on a regular basis.

The bins and/or contents are collected by Hospital General Services staff and transported to the central waste storage areas as appropriate to the location where wastes collected from. These areas are:

- Basement Clinical Services building (includes HealthShare Food waste)
- Basement Integrated Services Building

Private contractors provide collection and treatment/disposal services. These are:

- Veolia for cardboard/paper/recyclables with
- Shred X for Security Paper
- Redlam Waste Services (now Daniels) for Clinical Waste

Guidance for determining "best practice" waste management for this Development has been obtained from the Waste Management Association of Australia, Biohazardous Waste Industry Group, Manual for the Management of Biohazardous Waste, 7th edition, 2014², NSW Health Department publication *Clinical and Related Waste Management for Health Services 2017* and NSW EPA. In addition, should this waste be generated, a contractor will be appointed to specifically manage the collection and treatment/disposal of it.

Management is also in compliance with Australian Standards:

- AS 3816, Management of clinical and related wastes
- AS 4031, Non-reusable containers for the collection of sharp medical items used in health care areas
- AS/NZS 4261, Reusable containers for the collection of sharp items used in human and animal medical applications

Waste will be disposed of in the disposal room on each floor. The waste disposal unit will be composed of:

- General waste bin 660 litre (green).

² This publication is referred to by a number of Government agencies as representing "best practice" for the management of biohazardous waste generated within healthcare facilities.

- Clinical waste bin 120 litre (yellow).
- Recycling bin 660 litre (blue).
- Cytotoxic waste in appropriate bags/ sharps units (purple).

3.1 General Waste

All general waste will be deposited into dedicated 660 litre MGB that have been located in the various wards/departments of the Development. These will be located in such areas as dirty utility rooms and other areas as required.

MGB will be transported by Hospital staff and emptied into the general waste compactor for collection.

This compactor is serviced on a “needs” basis and that additional waste from this development will not impact on the current system except for potentially increasing the servicing schedule.

3.2 Recycling System

660 litre mobile garbage bins will be located on each level of the development for recyclables (paper and cardboard). These will be transported on a “needs” basis by site cleaners, taken to the appropriate central storage area and replaced with an empty bin.

3.3 Clinical Waste

120 litre mobile garbage bins will be positioned in each disposal room on each floor. In addition, in accord with the NSW Health publication “PD2012_061: *Environmental Cleaning Policy*”, sharps containers will be located throughout the development as required.

Due to the risks involved with the generation and handling of clinical and related wastes, extreme care must be maintained when handling, packaging, transporting and disposing of these materials. Consequently, there are strict requirements for all generators, transporters and disposal site operators to ensure that there is protection to the community and the environment.

All clinical and related wastes must be:

- Handled by staff with knowledge and access to appropriate Personal Protective Equipment
- Packaged so that there is no risk of wastes escaping
- Transported and disposed of in accordance with State EPA legislation and guidelines and relevant Codes of Practice
- The following principles will apply for management of this waste stream. Sharps containers should be placed within “arms reach” of where the sharp is generated – then the full containers are located in utility rooms awaiting collection by healthcare facility staff and/or contractors.

- These containers will range from 1.0 litre sharps containers through to 40 litre clinical waste drums – all meeting the required standard in terms of construction and colour coding etc. The actual number and sizes to be utilised will depend on the patient's conditions and discussions with the appointed clinical waste contractor.
- According to the Industry "best practice" waste management manual (*Waste Management Association of Australia, Biohazardous Waste Industry Group, Manual for the Management of Biohazardous Waste, 7th edition, 2014*), storage can be a dedicated and purpose built room or mobile garbage bins.
- It is intended that as per normal practice for these types of facilities, that the appointed contractor will service the sharps containers/bins from their place of use within the facility and replace them at the same time with empty containers/bins.

Clinical waste must be stored in uniquely identified receptacles located in separate rooms from all other wastes and recyclables, and disposed of according to designated Clinical and Hazardous Waste Procedures.

3.4 Waste Storage Area

General waste will be stored in the on-site compactor and recyclables stored on the loading dock in bins while awaiting collection.

In keeping with best practice sustainability programs, all waste areas; reuse areas and waste and recycling bins will be clearly differentiated through appropriate signage and colour coding to Australia Standards to reflect the materials contained. The chute access point should be clearly signed as well.

The waste areas will be accessed by Hospital staff only.

The waste and recycling bins will be colour coded and clearly signed. Each stream will be located in a designated area. This will assist in easy identification of correct bins by cleaners.

Signage will be a crucial element of the waste management system. The waste contractor should provide all signage for bins and walls in waste storage rooms. Below are examples of the types of signage that can be used at the development.



Don't waste YOUR future



Don't waste YOUR future



The following are alternate types of signs and are available from:

<http://www.sustainability.vic.gov.au/services-and-advice/community/public-place-recycling/signage-library> and are free to download.





3.5 Waste Management Education

All waste management strategies (particularly resource management programs), rely on all staff to participate and co-operate in order to ensure that objectives are at least met. Staff therefore must receive appropriate training/education or else they are not going to know what to do.

All staff and contractors shall attend a waste management training session.

This is to be conducted during all induction programs in the first instance.

For those staff and contractors currently employed on-site, they will be required to attend a dedicated training session so that they are fully aware of their roles and responsibilities in respect to waste management.

Records shall be maintained of all staff and contractors' attendance at a training session to ensure that all personnel attend.

The Waste Management Committee (apart from ensuring staff education programs are developed and implemented), should also address other methodologies in order to ensure that staff receive information on waste reduction programs (eg., signage, information sheets and flow charts).

All staff will receive information regarding the waste collection systems including how to use the system, which items are appropriate for each stream and collection times. Appropriate signage and

updated information will also be provided, as well as receiving feedback on issues such as contamination of the recycling stream or leakage of the recyclables into the general waste. Facilities management will have the responsibility for these tasks.

All waste receptacles will be appropriately signed and additional room signage is usually provided from most waste contractors during implementation of the waste contract.

It is recommended that all signs should:

- Clearly identify the waste/recycling stream;
- Use correct waste/recycling stream colour coding;
- Identify what can and cannot be disposed of in the receptacle; and
- Include highly visual elements to accommodate for individuals with inadequate English literacy.
- As part of the staff (and resident) induction and welcoming process, a waste and recycling toolkit will be provided. This toolkit will include the details of each of the systems in place; acceptance criteria for each stream and how each stream is managed.

An active waste monitoring program will be employed. The waste and cleaning contracts will ensure that contractors actively participate in the waste reduction program for the site and meet regularly to identify performance and new opportunities for diversion and avoidance.

3.6 Ongoing Management

Having suitable systems in place is only one element of an effective waste management system. Compliance by all stakeholders is essential.

Cleaners:

Cleaners should be required to provide feedback to management about any non-compliance issues they observe during their cleaning activities, such as contamination, non-participation, or missing or damaged bins. This allows issues to be dealt with promptly by management.

Waste Contractors:

The waste/recycling contractor will be required to report actual quantities collected by stream so that management can monitor performance and feed this back to staff. Specific Key Performance Indicators for performance should be included in waste and recycling contracts.

The waste contractor should also be required to participate in ongoing reviews and provide updates on new opportunities that may allow the Hospital to further increase their diversion from landfill.