# Waste Management Plan

## Project Mars Data Centre - 12 Mars Road, Lane Cove West

### Goodman Property Services (Aust) Pty Ltd

The Hayesbery
1-11 Hayes Street
Rosebery NSW 2011

Prepared by:

**SLR Consulting Australia**

SLR Project No.: 610.032285.00002

16 February 2026

Revision: B Formal Lodgement

## Revision Record

| Revision | Date | Prepared By | Checked By | Authorised By |
|---|---|---|---|---|
| B Formal Lodgement | 16 February 2026 | Andrew Quinn | Miles Mason | Andrew Quinn |

# Basis of Report

This report has been prepared by SLR Consulting Australia (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Goodman Property Services (Aust) Pty Ltd (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

# Executive Summary

This waste management plan has been prepared by SLR Consulting to accompany a state significant development application (SSDA) for the construction and ongoing operation of a data centre facility at 12 Mars Road, Lane Cove West in the Lane Cove Council local government area. The site is legally described as Lot 22 in deposited plan 732062.

This report has been prepared to address the industry Secretary's Environmental Assessment Requirements (SEARs) issued for the Project Mars Data Centre Project (SSD-82052708) dated 10 April 2025.

This report concludes that the proposed data centre is suitable and warrants approval subject to the implementation of the following mitigation measures.

- Separation of waste and recyclables as described.

Following the implementation of the above mitigation measures, the remaining impacts are appropriate.

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# 1.0 Introduction

A state significant development application (SSDA) has been prepared in support of a data centre at 12 Mars Road, Lane Cove West. The site area is 33,559m$^2$ and is zoned E4 General Industrial.

The proposal will include:

- Site preparation works including demolition, bulk excavation and removal of existing structures on the site, tree and vegetation clearing and bulk earthworks
- Construction, fit-out and operation of a three-storey data centre building with a total gross floor area of approximately 21,832 m$^2$ comprising:
  - 24 parking spaces
  - Two loading dock spaces
  - Two levels of technical data hall floor space
  - Three levels of office and amenities building
- Provision of required utilities including:
  - diesel storage tanks
  - water tanks
  - substations on site
- Vehicle and pedestrian access provided via Mars Road
- Associated landscaping and site servicing
- Installation of site services and drainage infrastructure
- A floor space ratio of approximately 0.65:1.

This report has been prepared to address the industry SEARs and accompanying cover letter issued for the Project Mars Data Centre (SSD-82052708) dated 10 April 2025. Specifically, this report has been prepared to respond to the SEARs requirements issued shown in Table 1 below.

**Table 1 SEARs**

| Description of requirement | Section reference (this report) |
|---|---|
| **Waste Management**<br>Identify, quantify and classify the likely waste streams to be generated during construction and operation. | Please refer to:<br>• Table 3 for the identification and classification of demolition and construction waste<br>• Table 5 or the estimated quantities of demolition waste<br>• Table 7 for the estimated quantities of construction waste<br>• Table 9 for the identification and classification of operational waste<br>• Table 11 for the estimated quantities of operational waste |
| Provide the measures to be implemented to manage, reuse, recycle and safely dispose of this waste. | For construction and demolition waste please refer to:<br>• Section 8.5 Waste Avoidance<br>• Section 8.6 Reuse, Recycling and Disposal<br>• Section 8.7 Waste Storage and Servicing |

| Description of requirement | Section reference (this report) |
|---|---|
| | For operational waste please refer to:<br>• Section 9.11 Waste Avoidance, Reuse and Recycling<br>• Section 9.12 Communication Strategies<br>• Section 9.13 Signage |
| Identify appropriate servicing arrangements for the site | Please refer to:<br>• Section 9.6 Waste storage locations<br>• Section 9.9 Waste Vehicle Access |
| If buildings are proposed to be demolished or altered, provide a hazardous materials survey. | Please refer to the separate hazardous materials survey |

The Lane Cove Development Control Plan 2010 (LCDCP)[1] has been used as a guide.

# 2.0 The Site

The site is located in Lane Cove West within the Lane Cove Local Government Area. It is bounded by Mars Road to the north, Woodcock Place to the west, Blackman Park to the south and an industrial site to the east.

The site is in the Lane Cove West Business Park which is a key economic and employment precinct in Lane Cove Council area. The Lane Cove West Business Park contains a range of land uses including Cochlear, Storage King, Lane Cove Gymnastics Club, Novis Healthcare and an Airtrunk Data Centre.

The site comprises one individual allotment totalling 33,559 $m^2$. It is currently occupied by four warehouse buildings with ancillary office spaces.

The closest residential uses to the site are 200 m to the east of the site on Wood Street, Lane Cove West and 250 m to the north of the site on Banksia Close.

The site is well serviced by transport and is close to Epping Road and the M2 Motorway.

An aerial image of the site showing its location is shown in Figure 1 below.

[1] https://www.lanecove.nsw.gov.au/Development/Development-Controls/Planning-Controls


**Figure 1 - Site Aerial**

Source: Urbis, 2025

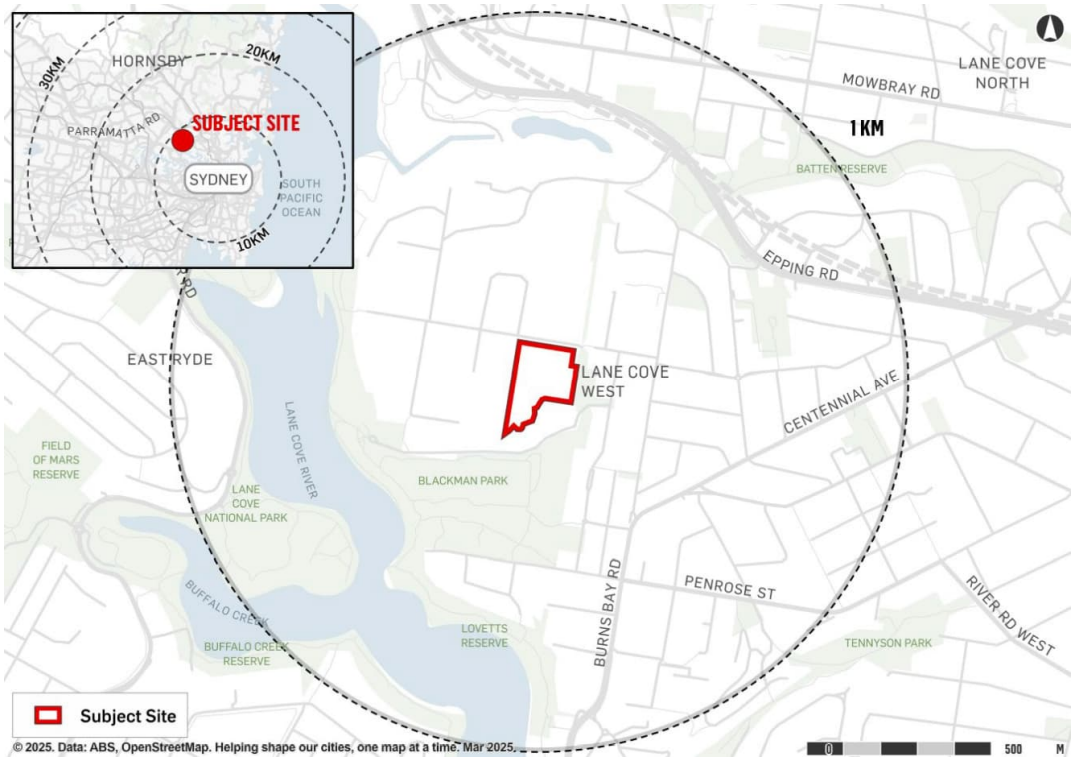



**Figure 2 - Local Context**

# 3.0 Objectives

The principal objective of this waste management plan (WMP) is to identify all potential waste likely to be generated at the Development site during the demolition, construction and operational phases, including a description of how waste would be handled, processed and disposed of, or re-used or recycled, in accordance with the SEARs and guided by Council's requirements.

The specific objectives of this WMP are as follows:

- To encourage the minimisation of waste production and maximisation of resource recovery.
- To assist in ensuring that any environmental impacts during the construction of the Development comply with Council's development consent conditions and other relevant regulatory authorities.

# 4.0 Review of WMP

This WMP will be reviewed and updated:

- To remain consistent with waste and landfill regulations and guidelines
- If changes are made to site waste and recycling management, or
- To take advantage of new technologies, innovations and methodologies for waste or recycling management.

Copies of the original WMP and its future versions should be retained by the building manager. Changes made to the WMP, as well as the reasons for the changes made, should be documented by the building manager as part of the review process.

# 5.0 Better Practice Waste Management and Recycling

## 5.1 Waste Management Hierarchy

This WMP has been prepared in line with the waste management hierarchy shown Figure 3, which summarises the objectives of the *Waste Avoidance and Resource Recovery Act 2001.*

The waste management hierarchy comprises the following principles, from most to least preferable:

- Waste **avoidance**, prevention or reduction of waste generation. Achievable through better design and purchasing choices.
- Waste **reuse**, reuse without substantially changing the form of the waste.
- Waste **recycling**, treatment of waste that is no longer usable in its current form to produce new products.
- Energy **recovery**, processing of residual waste materials to recover energy.
- Waste **treatment,** reduce potential environmental, health and safety risks.
- Waste **disposal**, in a manner that causes the least harm to the natural environment.

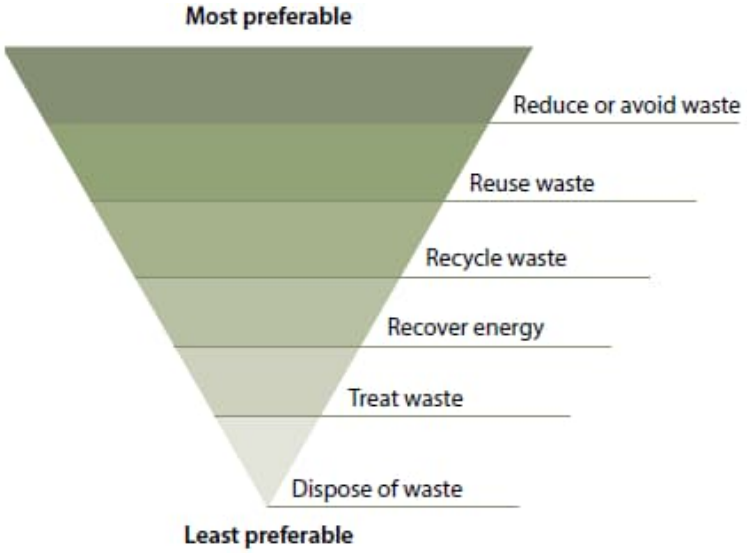



**Figure 3 - Waste Management Hierarchy**

*Image from NSW EPA (2014) NSW Waste Avoidance and Resource Recovery Strategy 2014-21.*

## 5.2 Benefits of Adopting Better Practice

Adopting better practice principles in waste minimisation offers significant benefits for organisations, stakeholders and the wider community. Benefits from better practice waste minimisation include:

- Improved reputation of an organisation due to social and environmental responsibility.
- Lowered consumption of non-renewable resources.
- Reduced environmental impact, for example, pollution, from materials manufacturing and waste treatment.
- Reduced expenses from lower waste disposal.
- Providing opportunities for additional revenue streams through beneficial reuse.

# 6.0 Waste Specialist

This waste management plan was prepared by Andrew Quinn, an environmental consultant with more than 30 years' experience in waste management. He has worked for the NSW EPA, waste management contractors and consultants. He has a Bachelor of Applied Science, University of Technology Sydney (2000), Master of Environmental Studies, Macquarie University (2009) and has lectured in waste management at the University of NSW.

His experience includes waste management plans for new developments, transfer station and resource recovery facility concept design and master planning, operational systems assessments, expert witness and due diligence for waste projects, waste chapters for EISs, contract and tender preparation, tender assessment and evaluation, resource recovery technology research, resource recovery management strategy and policy development, data analysis, managing and conducting waste audits of residential, commercial, industrial, landfill and MRF streams and in remote locations.

Andrew prepared the *Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities*, the NSW EPA's official guide to waste management in commercial and industrial developments. He has also prepared hundreds of waste management plans for new developments. This most relevant to this project include:

- For Goodman Property
  - Project Duke, Kent Road Data Centre, Mascot
  - Project Pluto, McCredie Road Data Centre, Smithfield
  - Project EOS, Lanceley Place Data Centre, Artarmon
  - Project Apollo, 4-10 Talavera Road, Macquarie Park
- For Macquarie Tech Operations - Macquarie Data Centre, Macquarie Park
- For AW Edwards – AirTrunk Data Centre, Lane Cove
- For EMKC$^3$ Developments
  - AirTrunk Data Centre, Huntingwood, two sites
  - AirTrunk Data Centre, Apollo Place, Lane Cove West
  - AirTrunk Data Centre, Sirius Road, Lane Cove West
- For ESR Australia – AirTrunk Data Centre, Blacktown
- For Digital Reality - Lockwood Road Data Centre, Erskine Park
- For Urbis - Canberra Data Centres, Eastern Creek
- For Lindsay Bennelong Developments - Gore Hill Data Centre.

# 7.0 Waste Legislation and Guidance

## 7.1 Lane Cove Development Control Plan 2010

Section Q of the LCDCP sets out a number of specifications for waste management in new developments. Although Council is not the approval authority in this case, the following provisions in the LCDCP are proposed for this development.

***2.2 Waste Management Plans***

*A Waste Management Plan (WMP) outlines measures to minimise and manage waste generated during demolition, construction, and ongoing use of the site/premises. In doing so, the WMP nominates:*

- *the types and volumes of waste and recyclables likely to be generated*
- *arrangements for the storage and treatment of waste and recyclables on site*
- *arrangements for the collection and disposal of residual waste and recyclables from the site*
- *the operational procedures for ongoing waste management of the development*
- *any waste management service provider*
- *potential reuse/recycling opportunities of excess construction materials.*

*Appendix B provides indicative generation rates for waste and recycling as well as Council's current services for residential properties which can be used to inform the compilation of a WMP.*

***Q.3. Controls for Demolition and Construction***

***Provisions***

*a) A detailed Waste Management Plan (WMP) identifying all waste likely to result from demolition and construction must be submitted as part of the development application and must include details of the reuse of materials, and recycling / disposal arrangements.*

*b) Materials that have an existing reuse or recycling market should not be disposed of in a landfill.*

*c) Documentation (such as receipts) for the transport and disposal of waste and recyclables from the site must be retained. This documentation must be made available on request to monitor compliance with the approved Waste Management Plan.*

*d) An area must be allocated onsite for the storage of materials for reuse, recycling and disposal (giving consideration to slope, drainage, location of waterways, stormwater outlets, vegetation, and access and handling requirements). Footpaths, public reserves, street gutters are not used as places to store demolition waste or materials of any kind without Council approval.*

*e) Bins and waste storage areas must be clearly signposted to ensure the correct source separation of wastes and recyclables.*

*f) Measures must be implemented to prevent odour, health risks, and windborne litter.*

*g) Site disturbance and unnecessary excavation must be minimised.*

*Note: When implementing the WMP the applicant must ensure that any material moved offsite is transported in accordance with the requirements of the Protection of the Environment Operations Act (1997).*

***Q.4. Development Specific Controls***

***4.7 Industrial Developments***

***Provisions***

*a) Plans submitted with the development application must show:*

*i. The location of designated waste and recycling storage room(s) or areas sized to meet the waste and recycling needs of all tenants and allowing for the source separation of wastes.*

*ii. The designated collection point for the collection of wastes and recyclables*

*iii. The on-site path of travel for collection vehicles.*

*b) A waste/recycling cupboard must be provided for each kitchen area in the development, with each cupboard being of a sufficient size to hold a minimum of a single day's waste and to hold separate containers for general waste and recyclable materials.*

*c) Developments must include a designated waste/recycling storage area or room(s) (designed in accordance with Appendix G Commercial/Industrial Waste & Recycling Storage Areas), as well as designated storage areas for any industrial waste streams.*

*d) There must be convenient access from each tenancy and/or larger waste producing area of the development to the waste/recycling storage room(s) or area(s).*

*e) There must be step-free access between the point at which bins are collected/emptied and the waste/recycling storage room(s) or area(s).*

*f) Arrangements for the movement of recyclable materials and general waste to the main waste/recycling storage room/area must be detailed on the Waste Management Plan.*

*g) Arrangements for the regular maintenance and cleaning of waste management facilities must be detailed on the Waste Management Plan.*

***Appendix B: Waste/Recycling Generation Rates***

No waste generation rates are listed in the LCDCP for data centres. SLR assumes that the data halls do not regularly generate any waste. SLR has adopted the waste generation rates for offices in the LCDCP as follows:

*Offices*

- *Garbage 10L/100m$^2$ floor area/day*
- *Recyclables 10L/100m$^2$ floor area/day*

***Appendix G: Commercial/Industrial Waste and Recycling Storage Areas***

***Location and Appearance***

*a) Waste/recycling storage areas must be integrated into the design of the overall development. Materials and finishes that are visible from outside should be similar in style and quality to the external materials used in the rest of the development.*

*b) Waste/recycling storage areas must be located and designed in a manner that reduces adverse impacts upon neighbouring properties and the streetscape. The location and design of the areas should minimise adverse impacts associated with:*

*i. the proximity of the area to dwellings*

*ii. accessibility to collection point*

*iii. the visibility of the area*

*iv. noise generated by any equipment located within the area*

*v. noise generated by the movement of bins into and out of the area*

*vi. noise generated by collection vehicles accessing the site*

*vii. odours emanating from the area.*

***Size***

*a) Waste/recycling storage areas must be of adequate size to comfortably accommodate all waste and recycling bins to contain the quantity of waste generated from the development (at the rate described in Appendix B) between collections.*

***Access***

*a) Each tenancy must have convenient access to the waste/recycling storage area(s).*

*b) The waste/recycling storage area must not be accessible to the general public.*

*c) There must be step-free access between the point at which bins are collected/emptied and the waste/recycling storage area(s).*

*d) The development must be designed to allow access by collection vehicles used by the nominated waste contractor. Wherever possible, the site must be configured to allow collection vehicles to enter and exit the site in a forward direction, and so collection vehicles do not impede general access to, from and within the site.*

*e) Access driveways to be used by collection vehicles must be of sufficient strength to support such vehicles.*

*f) Servicing arrangements for the emptying of bins must be compatible with the operation of any other loading/unloading facilities on-site.*

***Design and Layout***

*a) The gradient of waste/recycling storage area floors and any associated access ramps must be sufficiently level to allow for the safe carting of bins.*

*b) Within waste/recycling storage areas, containers used for the storage of recyclable materials should be kept separate from (but close to) general waste containers — so that the potential for contamination of recyclable materials is minimised.*

*c) Waste/recycling storage areas must have a smooth, durable floor and must be enclosed with durable walls/fences that extend to the height of any containers which are kept within. The floor must be graded so that any water is directed to a sewer authority approved drainage connection located upon the site.*

*d) Waste/recycling storage areas must be serviced by hot and cold water provided through a centralised mixing valve. The hose cock must be protected from the waste containers and must be located in a position that is easily accessible when the area is filled with waste containers.*

*e) All doors/gates are to be openable from both inside and outside the storage area and must be wide enough to allow for the easy passage of waste/recycling containers.*

*f) There must be a sign adjacent to the door/gate that indicates that the door/gate is to remain closed when not in use.*

*g) Vermin must be prevented from entering the waste/recycling storage area.*

***Signage***

*a) Waste/recycling storage areas must include signage that clearly describes the types of materials that can be deposited into waste and recycling bins.*

## 7.2 Other Legislation and Guidance

The legislation and guidance outlined in Table 2 below should be referred to during the demolition and construction phases of the Development.

**Table 2 Legislation and guidance**

| Legislation and Guidance | Objectives |
|---|---|
| Building Code of Australia (BCA) and relevant Australian Standards | The BCA has the aim of achieving nationally consistent, minimum necessary standards of relevant health and safety, amenity and sustainability objectives efficiently. |
| Council of Australian Governments National Construction Code 2016 | The National Construction Code 2016 sets the minimum requirements for the design, construction and performance of buildings throughout Australia. |
| NSW EPA's Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities 2012 | These better practice guidelines present information on waste minimisation and resource recovery as well as information on commonly used waste management provisions. The guidelines also provide benchmarks for assessing waste production rates in Australia. |
| NSW Waste and Sustainable Materials Strategy 2041: Stage 1 – 2021-2027 | Replacing the *NSW Waste Avoidance and Resource Recovery Strategy (2014-21)*, the NSW Waste and Sustainable Materials Strategy 2041 focuses on the transition of NSW to a circular economy. The strategy focuses on minimising what is thrown away, and to use and reuse resources more efficiently, making them as productive as possible. The strategy identifies the need to identify infrastructure needs, the mandating of separation of some organic waste streams, and incentivising biogas generation from waste materials. |
| NSW EPA Resource Recovery Orders and Resource Recovery Exemptions | The NSW EPA has issued a number of resource recovery orders and resource recovery exemptions under the POEO (Waste) Regulation 2014 for a range of waste that may be recovered for beneficial re-use. These waste typically include those from demolition and construction works, as well as operational waste such as food waste.<br>• Resource recovery orders present conditions which generators and processors of waste must meet to supply the waste material for beneficial re-use.<br>• Resource recovery exemptions contain the conditions which consumers must meet to use waste for beneficial re-use. |
| NSW EPA's Waste Classification Guidelines 2014 | The NSW EPA *Waste Classification Guidelines* assists waste generators to effectively manage, treat and dispose of waste to ensure the environmental and human health risks associated with waste are managed appropriately and in accordance with the *POEO Act 1997* and is associated regulations. |
| *Protection of the Environment Operations Act (POEO) 1997 and Amendment Act 2011* | The *POEO Act 1997* and *POEO Amendment Act 2011* are administered by the NSW Environment Protection Authority (NSW EPA) to enable the NSW Government to establish instruments for setting environmental standards, goals, protocols and guidelines. They outline the regulatory requirements for lawful disposal of waste generated during the demolition, construction and operational phases of a development, as well as the system for licencing waste transport and disposal. |

| Legislation and Guidance | Objectives |
|---|---|
| The Work Health and Safety Regulation 2017 | The Work Health and Safety Regulation 2017 provide detailed actions and guidance associated with the topics discussed in *Work Health and Safety Act 2011*. The primary aim of the regulation is to protect the health and safety of workers and ensure that risks are minimised in work environments. Workplaces are to ensure that they are compliant with the requirements specified in the regulations. The regulations discuss items such as actions that are prohibited or obligated in work environments, the requirements for obtaining licences and registrations, and the roles and responsibilities of staff in workplaces. |
| *Waste Avoidance and Resource Recovery Act 2001* | The *Waste Avoidance and Resource Recovery Act 2001* aims to promote waste avoidance and resource recovery and repeals the *Waste Minimisation and Management Act 1995*. Specific objectives of the *Waste Avoidance and Resource Recovery Act 2001* include:<br>• encouraging efficient use of resources<br>• minimising the consumption of natural resources and the final disposal of waste by encouraging the avoidance of waste and the reuse and recycling of waste<br>• ensuring industry and the community share responsibility in reducing/dealing with waste, and<br>• efficiently funding of waste/resource management planning, programs and service delivery.<br>As of 2016, the addition to the Act of Part 5 defines the legislative framework for the 'Return and Earn Container Deposit Scheme' whereby selected beverage containers can be returned to State Government authorities for a monetary refund. |

# 8.0 Demolition and Construction Waste and Recycling Management

## 8.1 Targets for Resource Recovery

Targets for new development are expected to contribute to state-specific targets. The NSW Waste and Sustainable Materials Strategy 2041 (DPIE, 2021) sets a target of 80% average recovery rate from all waste streams by 2030. Analysis by DPIE (2023-2024) indicates that construction and demolition waste recovery rates in 2023-2024 were 78%.

It is anticipated that the waste minimisation measures in the following sections will assist the Development to meet these targets. Waste reporting and audits can be used to determine the actual percentage of wastes that are being, or have been, recycled during the demolition and construction stages of The Development.

## 8.2 Waste Streams and Classifications

The demolition and construction of the Development is likely to generate the following broad waste streams:

- Demolition waste
- Construction waste
- Plant maintenance waste
- Packaging waste, and
- Work compound waste from on-site employees.

A summary of likely waste types generated from demolition and construction activities, along with their waste classifications and proposed management methods, is provided in Table 3.

For further information on how to classify a waste type refer to the NSW EPA (2014) *Waste Classification Guidelines*[2]*.* Further information on managing demolition and construction waste is available from the NSW EPA website[3].

**Table 3 Potential demolition and construction waste types, classifications and management methods**

| Waste Types | NSW EPA Waste Classification | Proposed Management Method |
|---|---|---|
| **Demolition and Construction** | | |
| Sediment fencing, geotextile materials | General solid waste (non-putrescible) | Reuse at other sites where possible or disposal to landfill |
| Concrete | General solid waste (non-putrescible) | Off-site recycling for filling, levelling or road base |
| Bricks and pavers | General solid waste (non-putrescible) | Cleaned for reuse as footings, broken bricks for internal walls, crushed for landscaping or driveway use, off-site recycling |
| Gyprock or plasterboard | General solid waste (non-putrescible) | Off-site recycling or returned to supplier |
| Sand or soil | General solid waste (non-putrescible) | Off-site recycling |
| Metals such as fittings, appliances and bulk electrical cabling, including copper and aluminium | General solid waste (non-putrescible) | Off-site recycling at metal recycling compounds and remainder to landfill |
| Conduits and pipes | General solid waste (non-putrescible) | Off-site recycling |
| Timber – treated | General solid waste (non-putrescible) | Reused for formwork, bridging, blocking, propping or second-hand supplier |
| Timber - untreated | | Off-site recycling, chip for landscaping, sell for firewood, reused for floorboards, fencing, furniture, mulched secondhand supplier and remainder to landscape supplies. |
| Doors, windows, fittings | General solid waste (non-putrescible) | Off-site recycling at secondhand supplier |
| Insulation material | General solid waste (non-putrescible) | Off-site disposal |
| Glass | General solid waste (non-putrescible) | Off-site recycling, glazing or aggregate for concrete production |
| Asbestos | Special waste | Off-site disposal to a licensed landfill facility. |

[2] Available online from https://www.epa.nsw.gov.au/your-environment/waste/classifying-waste/waste-classification-guidelines

[3] http://www.epa.nsw.gov.au/your-environment/waste/industrial-waste/construction-demolition

| Waste Types | NSW EPA Waste Classification | Proposed Management Method |
|---|---|---|
| Fluorescent light fittings and bulbs | General solid waste (non-putrescible) | Off-site recycling or disposal, contact *FluoroCycle* for more information[4] |
| Paint | Liquid waste | Off-site recycling, Paintback collection[5] or disposal |
| Synthetic rubber or carpet underlay | General solid waste (non-putrescible) | Off-site recycling, reprocessed for other uses |
| Ceramics including tiles | General solid waste (non-putrescible) | Off-site recycling |
| Carpet | General solid waste (non-putrescible) | Off-site recycling, disposal or reuse |
| **Packaging** | | |
| Packaging materials, including wood, plastic, including stretch wrap or LDPE, cardboard and metals | General solid waste (non-putrescible) | Off-site recycling |
| Wooden or plastic crates and pallets | General solid waste (non-putrescible) | Reused for similar projects, returned to suppliers, or off-site recycling. Contact *Business Recycling* for more information[6] |
| **Work Compound and Associated Offices** | | |
| Food Waste | General solid (putrescible) waste | Dispose to landfill with general garbage |
| Recyclable beverage containers, such as glass and plastic bottles, aluminium cans and steel cans | General solid waste (non-putrescible) | Recycling at off-site licensed facility or at NSW container deposit scheme 'Return and Earn' facility[7] |
| Clean paper and cardboard | General solid waste (non-putrescible) | Paper and cardboard recycling at off-site licensed facility |
| General domestic waste generated by workers such as soiled paper and cardboard, food and polystyrene | General solid waste (non-putrescible) mixed with putrescible waste | Disposal at landfill |
| **Plant Maintenance** | | |
| Empty oil and other drums or containers, such as fuel, chemicals, paints, spill clean ups. Containers were previously used to store Dangerous Goods (Class 1, 3, 4, 5 or 8) and residues have not been removed by washing or vacuuming. | Hazardous waste | Transport to comply with the transport of Dangerous Goods Code applies in preparation for off-site recycling or disposal at licensed facility |
| Empty oil and other drums or containers, such as fuel, chemicals, paints, spill clean ups. Containers have been cleaned by washing or vacuuming. | General solid waste (non-putrescible) | |

[4] Available online from http://www.fluorocycle.org.au/ or http://www.environment.gov.au/settlements/waste/lamp-mercury.html

[5] Available online from https://www.paintback.com.au/

[6] Available online from https://businessrecycling.com.au/

[7] Available online from http://returnandearn.org.au/

| Waste Types | NSW EPA Waste Classification | Proposed Management Method |
|---|---|---|
| Air filters and rags | General solid waste (non-putrescible) | Off-site disposal |
| Oil filters, drained | General solid waste (non-putrescible) | Off-site recycling |
| Lead-acid or nickel-cadmium batteries | Hazardous waste | Off-site recycling, Contact the Australian Battery Recycling Initiative[8] for more information |
| Other batteries | General solid waste (non-putrescible) | |

## 8.3 Demolition Waste Types and Quantities

### 8.3.1 Demolition Waste Generation Rates

The LCDCP does not provide any advice on demolition waste quantities. As an alternative, SLR has adopted the 'factory' and 'office' waste generation rates from *The Hills' Development Control Plan* for estimating the type and quantities of waste generated from demolition of the proposed buildings. The demolition waste generation rates used are shown in Table 4 below.

**Table 4 Demolition waste generation rates**

| Rate Type | Area ($m^2$) | Waste types and quantities ($m^3$) | | | | |
|---|---|---|---|---|---|---|
| | | Timber/ Gyprock | Concrete | Bricks | Metal | Other |
| Factory | 1,000 | 4 | 448 | 205 | 23 | 18 |
| Office | 1,000 | 124 | 7,410 | 1,485 | 29 | 155 |
| Hardstand | 1,000 | | 30 | | 6 | 5 |

### 8.3.2 Buildings for Demolition

Images from Six Maps and Google Earth show the types of buildings. The image from SixMaps (Figure 4) shows the current site layout with boundary and building types and has been used to calculate the areas of buildings and hardstand areas for demolition.

[8] http://www.batteryrecycling.org.au/home


**Figure 4 - Current site layout**

All the buildings appear to be concrete slab construction with bonded metal roofs except Building 4 which has a car park on top.

The uses of the buildings appear to be as follows:

- Building 1 appears to be a warehouse.
- Building 2 appears to be a two-level office building.
- Building 3 appears to be a warehouse with two-level office buildings at the side and front. The front office also includes a car park partially below ground. There is also a café on one side.
- Building 4 appears to be a two-level office and warehouse building with a car park on the roof. The rear side are units with warehouses below and offices on top.
- Building 5 appears to be a two-storey office building.

Car parking and driveways appear to be concrete hardstands and not asphalt. There are a number of mature trees, shrubs and landscaping area. Plants are assumed to be an average of 3 m high.

The areas for demolition are shown in Table 5 along with estimates of the quantities of demolition waste that may be generated.

**Table 5 Estimated types and quantities of demolition waste**

| Building | Use | Number of Floors | Footprint Including Floors ($m^2$) | Waste types and quantities ($m^3$) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Timber/ Gyprock | Concrete | Bricks | Metal | Other | Sand/ Soil | Vegetation |
| Building 1 | Warehouse | 1 | 3,208 | 13 | 1,437 | 658 | 74 | 58 | - | - |
| Building 2 | Offices | 2 | 654 | 81 | 4,846 | 971 | 19 | 101 | - | - |
| Building 3 | Warehouse | 1 | 3,339 | 13 | 1,496 | 684 | 77 | 60 | - | - |
| | Offices | 3 | 4,593 | 570 | 34,034 | 6,821 | 133 | 712 | - | - |
| Building 4 | Warehouse | 1 | 4,799 | 595 | 35,561 | 7,127 | 139 | 744 | - | - |
| | Offices | 2 | 1,269 | 157 | 9,403 | 1,884 | 37 | 197 | - | - |
| Building 5 | Offices | 2 | 6,480 | 26 | 2,903 | 1,328 | 149 | 117 | - | - |
| Car parking and driveway | Hardstand | N/a | 7,976 | - | 2,393 | - | 479 | 399 | - | - |
| Vegetation | Vegetation | N/a | 2,664 | - | - | - | - | - | 799 | 7,992 |
| **Total** | | | **34,982** | **1,455** | **92,073** | **19,473** | **1,106** | **2,387** | **799** | **7,992** |

## 8.4 Construction Waste Types and Quantities

The LCDCP does not provide waste generation rates for construction activities. In the absence of readily available construction waste generation rates from Council, SLR has adopted the 'Office' and 'Factory' waste generation rates from The Hills Development Control Plan (Hills DCP) 2012 for estimating the type and quantities of waste generated from construction of the Development.

The waste generation rates are shown in Table 6.

**Table 6 Construction waste generation rates**

| Rate Type | Development Area | Floor Area ($m^2$) | Waste types and quantities ($m^3$) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Timber | Concrete | Bricks | Gyprock | Sand or Soil | Metal | Other |
| Office | Offices | 1,000 | 5.1 | 18.8 | 8.5 | 8.6 | 8.8 | 2.75 | 5 |
| Factory | All other areas | 1,000 | 0.25 | 2.1 | 1.65 | 0.45 | 4.8 | 0.6 | 0.5 |
| Hardstand | Car park | 1,000 | | 2.1 | | | 4.8 | 0.6 | 0.5 |

These waste generation rates are used to estimate the waste generated from the construction of the Development. The anticipated construction waste quantities for the Development are shown in Table 7 below and are based on the areas shown in drawing *250404---12-Mars-Rd---GAs-&-Sections.pdf.*

**Table 7 Estimated types and quantities of construction waste**

| Area | GFA ($m^2$) | Waste types and quantities ($m^3$) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Timber | Concrete | Bricks | Gyprock | Sand and Soil | Metal | Other |
| Hardstand | 4,073 | - | 8.6 | - | - | 19.5 | 2.4 | 2.0 |
| Offices | 1,996 | 10.2 | 37.5 | 17.0 | 17.2 | 17.6 | 5.5 | 10.0 |
| All other areas | 56,108 | 14.0 | 117.8 | 92.6 | 25.2 | 269.3 | 33.7 | 28.1 |
| **Total** | **62,177** | **24.2** | **163.9** | **109.5** | **42.4** | **306.4** | **41.6** | **40.1** |

## 8.5 Waste Avoidance

In accordance with better practice waste management, the Building Contractor, Building Designer and/or equivalent roles should:

- Develop a purchasing policy based on the approximate quantities of materials to be used so that the correct quantities are purchased.
- Arrange for delivery of materials on an ‘as needed’ basis to avoid material degradation through weathering and moisture damage.
- Communicate strategies to handle and store waste to minimise environmental, health and amenity impacts.
- Select materials with a low environmental impact over the lifecycle of the building.
- Choose timber from certified plantations and avoid unsustainable timber imports including western red cedar, oregon, meranti, luan or merbau.
- Use leased equipment rather than purchase and disposal.
- Minimise site disturbance and unnecessary excavation.
- Incorporate existing trees and shrubs into the landscape plan.
- Grouping wet areas together to minimise the amount of pipe work required.
- Design the Development to require standard material sizes or make arrangements with manufacturing groups for the supply of non-standard material sizes.
- Design works for de-construction.
- Reduce packaging waste by:
    - Returning packaging to suppliers where practicable to reduce waste further along the supply chain
    - 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.
- Use prefabricated materials.
- Select materials for Development works with low embodied energy properties or materials that have been salvaged or recycled for the construction of the Development including concrete that utilises slag and fly ash content, structural and reinforced steel that uses recycled steel content or bulk insulation products that contain recycled content, such as recycled glass in glass-wool.
- Preferentially use paints, floor coverings and adhesives with low VOC (volatile organic compound) content.
- Reduce the use of polyvinyl chloride products.
- Implement measures to prevent the occurrence of windblown litter, dust and stormwater pollution.
- Ensure subcontractors are informed of and implement site waste minimisation and management procedures.

## 8.6 Reuse, Recycling and Disposal

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

Refer to Table 3 for an outline of the proposed reuse, recycling and disposal methods for potential demolition and construction waste streams generated by the Development.

In accordance with best practice waste management, the following specific procedures should be implemented:

- Ensure the site's Development management of the site includes minimising waste generation, requiring the appropriate storage and timely collection of waste materials, and maximising re-use or recycling of materials.
- Store wastes on site appropriately to prevent cross-contamination and guarantee the highest possible re-use value.
- Consider the potential of any new materials to be re-used and recycled at the end of the Development's life.
- Determine opportunities for the use of prefabricated components and recycled materials.
- Strip topsoil from areas designated for excavation and store it on site for reuse.
- Reuse excavation material will be on-site where possible.
- Re-use formwork where appropriate.
- Retain roofing material cut-offs for re-use or recycling.
- Retain used crates for storage purposes unless damaged.
- Recycle cardboard, glass and metal wastes.
- Recycle or dispose of solid waste timber, brick, concrete, asphalt and rock, where such waste cannot be re-used on site, to an appropriately licenced construction and demolition waste recycling facility or an appropriately licenced landfill.
- Dispose of all asbestos and/or hazardous wastes in accordance with SafeWork NSW and NSW EPA requirements.
- Deliver batteries and florescent lights to drop off-site recycling facility.
- Return excess materials and packaging to the supplier or manufacturer.
- Dispose of all garbage via a council approved system.

## 8.7 Waste Storage and Servicing

### 8.7.1 Waste Segregation and Storage

Waste materials produced from demolition and construction activities should be separated at the source and stored separately on-site. It is anticipated that the Development will provide enough space on-site for separate storage, for example, separate skip bins or appropriately managed stockpiles, of the following waste types:

- Bricks, concrete and scrap metal
- Metal and steel, in a condition suitable for recycling at metal recycling facilities
- Timber
- Glass
- Hardstand rubble
- Uncontaminated excavation spoil, if present
- Contaminated excavation spoil, if present
- Hazardous waste, if present
- Paper and cardboard
- General co-mingled recycling waste, and
- Non-recyclable general waste.

If there is insufficient space on-site for full segregation of waste types, the Site Manager, or equivalent role, should consult with the waste and recycling collection contractor to confirm which waste types may be co-mingled prior to removal from the site.

### 8.7.2 Waste Storage Areas

Waste storage areas will be accessible and allow enough space for storage and servicing requirements. The storage areas will also be flexible in order to cater for change of use throughout the Development. Where space is restricted, dedicated stockpile areas are to be delineated on the site, with regular transfers to dedicated skip bins for sorting.

All waste placed in skips or bins for disposal or recycling will be adequately contained to ensure that the waste does not fall, blow, wash or otherwise escape from the site. Waste containers and storage areas are to be kept clean and in a good state of repair.

Areas designated for waste storage should:

- Allow unimpeded access by site personnel and waste disposal contractors
- Consider environmental factors which could potentially cause an impact to the waste storage, such as slope, drainage and the location of watercourses and native vegetation
- Allow enough space for the storage of garden waste and other waste materials on-site
- Employ adequate environmental management controls to prevent off-site migration of waste materials and contamination from the waste. For example, consideration of slope, drainage, proximity relative to waterways, stormwater outlets and vegetation
- Consider visual amenity, safety, accessibility and convenience in their selection, and
- Not present hazards to human health or the environment.

### 8.7.3 Waste Servicing and Record Keeping

The Site Manager or equivalent role is to:

- Arrange for suitable waste collection contractors to remove any construction waste from site
- Ensure waste bins are not filled beyond recommended filling levels
- Ensure that all bins and loads of waste materials leaving site are covered
- Maintain waste disposal documentation detailing, at a minimum:
- Descriptions and estimated amounts of all waste materials removed from site
- Details of the waste and recycling collection contractors and facilities receiving the waste and recyclables
- Records of waste and recycling collection vehicle movements, for example, date and time of loads removed, licence plate of collection vehicles, tip dockets from receiving facility, and
- Waste classification documentation for materials disposed to off-site recycling or landfill facilities.
- Ensure lawful waste disposal records are readily accessible for inspection by regulatory authorities such as Council, SafeWork NSW or NSW EPA, and
- Remove waste during hours approved by Council.

If skips and bins are reaching capacity, removal and replacement should be organised as soon as possible. All site generated building waste collected in the skips and bins will leave the site and be deposited in the approved site lawfully able to accept them.

## 8.8 Site Inductions

All staff, including sub-contractors and labourers, employed during the demolition and construction phases of the Development must undergo induction training regarding waste management for the Site.

Induction training is to cover, as a minimum, an outline of the WMP including:

- Legal obligations and targets
- Emergency response procedures on-site
- Waste priorities and opportunities for reduction, reuse and recycling
- Waste storage locations and separation of waste
- Procedures for suspected contaminated and hazardous wastes
- Waste related signage
- The implications of poor waste management practices, and
- Responsibilities and reporting, including identification of personnel responsible for waste management and individual responsibilities.

It is the responsibility of the Site Manager or Building Contractor to notify Council of the appointment of waste removal, transport or disposal contractors.

## 8.9 Signage

Standard signage is to be posted in all waste storage and collection areas. All waste containers should be labelled correctly and clearly to identify stored materials.

Signs approved by the NSW EPA for labelling of waste materials are available online[9] and should be used where applicable. A selection of signs prepared by NSW EPA is provided in Figure 5.


**Figure 5 - Examples of NSW EPA labels for waste skips and bins**

## 8.10 Monitoring and Reporting

The following monitoring practices are to be undertaken to improve demolition and construction waste management and to obtain accurate waste generation figures:

- Conduct waste audits of current projects where feasible.
- Note waste generated and disposal methods.
- Look at past waste disposal receipts.
- Record this information to track waste avoidance, reuse and recycling performance and to help in waste estimations for future Resource Recovery Management Plans.

Records of waste quantities recycled, reused or contractor removed should be maintained. This can include dockets or receipts verifying recycling and disposal in accordance with this WMP. This evidence should also be presented to regulatory bodies when required.

Daily visual inspections of waste storage areas will be undertaken by site personnel and inspection checklists and logs recorded for reporting to the Site Manager on a weekly basis or as required. These inspections will be used to identify and rectify any resource and waste management issues.

[9] NSW EPA approved waste materials signage https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/business-government-recycling/standard-recycling-signs

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

## 8.11 Roles and Responsibilities

All personnel have a responsibility for their own environmental performance and compliance with all legislation. It will be the responsibility of the Building Contractor to implement the WMP, and an employee and subcontractor responsibility to ensure that they always comply with the WMP.

Where possible, an environmental management representative should be appointed for the Development. Suggested roles and responsibilities are provided in Table 8 below.

**Table 8 Suggested demolition and construction waste management roles and responsibilities**

| Responsible Person | General Tasks |
|---|---|
| Construction Site Manager | Ensuring plant and equipment are well maintained. |
| | Ordering only the required amounts of materials. |
| | Keeping materials segregated to maximise reuse and recycling. |
| | Ultimately responsible for routinely checking waste sorting and storage areas for cleanliness, hygiene and safety issues, contaminated waste materials, and also ensuring that all monitoring and audit results are well documented and carried out as specified in the WMP. |
| Construction Environmental Manager or equivalent | Approaching and establishing the local commercial reuse of materials where reuse on-site is not practical. |
| | Establishing separate skips and recycling bins for effective waste segregation and recycling purposes. |
| | Ensuring staff and contractors are aware of site requirements. |
| | Provision of training of the requirements of the WMP and specific waste management strategies adopted for the Development. |
| | Contaminated waste management and approval of off-site waste transport, disposal locations and checking licensing requirements. |
| | Approval of off-site waste disposal locations and checking licensing requirements. |
| | Assessment of suspicious potentially contaminated materials, hazardous materials and liquid wastes. |
| | Monitoring, inspection and reporting requirements. |

Daily visual inspections of waste storage areas may be delegated to other on-site staff. All subcontractors will be responsible for ensuring that their work complies with the WMP through the project induction and contract engagement process.

# 9.0 Operational Waste and Recycling Management

## 9.1 Targets for Resource Recovery

Targets for new development are expected to contribute to state-specific targets. The NSW Waste and Sustainable Materials Strategy 2041 (DPIE, 2021) sets a target of 80% average recovery rate from all waste streams by 2030. Analysis by DPIE (2023) indicates that the commercial and industrial waste recovery rate in 2022-2023 was 51%.[10]

It is anticipated that the waste minimisation measures in the following sections will assist the Development to achieve this recycling rate. Waste reporting and audits can be used to determine the actual percentage of wastes that are being or have been recycled during operation.

## 9.2 Waste Streams and Classifications

The operation of the Development is likely to generate the following broad waste streams:

- Domestic type waste generated by employees, for example, lunch waste
- Bulk packaging waste, including polystyrene, plastic wrapping and cardboard boxes
- Office waste
- Garden organic waste from landscaped areas
- Bulky waste items such as furniture and e-waste.

Potential waste types, their associated waste classifications, and management methods are provided in Table 9. For further information on how to determine a waste's classification, refer to the NSW EPA *Waste Classification Guidelines* 2014. Recycling drop-off locations and contacts can be found on https://businessrecycling.com.au/ for each waste type.

**Table 9 Potential operational waste types, classifications and management methods**

| Waste Types | NSW EPA Waste Classification | Proposed Management Method |
|---|---|---|
| **General Operations** | | |
| Clean office paper | General solid (non-putrescible) waste | Paper recycling at off-site licensed facility |
| Cardboard including bulky cardboard boxes | General solid (non-putrescible) waste | Cardboard recycling at off-site licensed facility |
| Recyclable beverage containers, glass and plastic bottles, aluminium cans, steel cans | General solid (non-putrescible) waste | NSW container deposit scheme 'Return and Earn', container recycling at off-site licensed facility |
| Food waste | General solid (putrescible) waste | Compost on or off-site or dispose to landfill with general garbage |
| Lead-acid or nickel-cadmium batteries | Hazardous waste | Off-site recycling, Contact the Australian Battery Recycling Initiative11 for more information |
| Other batteries | General solid waste (non-putrescible) | |

[10] https://www.epa.nsw.gov.au/your-environment/waste/waste-overview/waste-performance-data

[11] http://www.batteryrecycling.org.au/home

| Waste Types | NSW EPA Waste Classification | Proposed Management Method |
|---|---|---|
| Mobile Phones | General solid waste (non-putrescible) | Off-site recycling; can be taken to the Mobile Muster program. Contact Mobile Muster for more information |
| Bulky polystyrene | General solid (non-putrescible) waste | Off-site recycling or disposal at landfill |
| Furniture | General solid (non-putrescible) waste | Off-site reuse or disposal to landfill |
| E-waste | General solid waste (non-putrescible) | Off-site recycling, see Section 9.8 |
| Clinical waste | Special waste | Stored, handled, collected and disposed of according to AS 3816 and the *Protection of the Environment Operations Act 1997* |
| Printer toners and ink cartridges | General solid waste (non-putrescible) | Off-site recycling, free disposal box or bags and pickup service exists for printer toners and ink cartridges |
| General garbage, including non-recyclable plastics | General solid (putrescible and non-putrescible) waste | Disposal at landfill |
| **Maintenance** | | |
| Spent smoke detectors[12] - some commercial varieties | Hazardous waste | Disposal to landfill, or off-site disposal at licensed facility |
| Spent smoke detectors - others | General solid (non-putrescible) waste, | |
| Glass, other than containers | General solid (non-putrescible) waste | Off-site recycling |
| Light bulbs and fluorescent tubes | General solid (non-putrescible) waste | Off-site recycling or disposal, contact FluoroCycle[13] or Lamp Recyclers[14] for more information |
| Empty oil and other drums or containers, such as fuel, chemicals, paints, spill clean ups that were previously used to store Dangerous Goods (Class 1, 3, 4, 5 or 8) and residues have not been removed by washing or vacuuming. | Hazardous waste | Transport to comply with the transport of Dangerous Goods Code applies in preparation for off-site recycling or disposal at licensed facility |
| Empty oil and other drums or containers, such as fuel, chemicals, paints, spill clean ups that have been cleaned by washing or vacuuming. | General solid waste (non-putrescible) | |
| Garden organics - lawn mowing, tree branches, hedge cuttings, leaves | General solid (non-putrescible) waste | Reuse on-site or contractor removal for recycling at licenced facility |

[12] The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) require that when more than 10 smoke alarms (particularly americium-241 sources) are collected for bulk disposal they must be treated as radioactive waste and the requirements of the National Health and Medical Research Council's Code of practice for the near-surface disposal of radioactive waste in Australia (1992) must be met.

[13] https://www.fluorocycle.org.au/

[14] https://www.lamprecyclers.com.au/

## 9.3 Waste management overview

Garbage and recycling generation will primarily occur in the office areas. Due to the expected operational procedures of data centres, SLR does not anticipate the data centre rooms will produce any general or recycling waste. Waste that will be generated in the data halls and plant service areas includes e-waste and packaging waste. This will be handled either through a separate contract for e-waste collection and recycling or by returning packaging materials to the product suppliers.

## 9.4 Waste Quantities

The areas required for the waste storage rooms take into account bin sizes, bin numbers and additional space for easy and safe movement of bins. The areas were calculated using the 'Offices' waste generation rates from the LCDCP as shown below in Table 10.

**Table 10 Waste generation rates**

| Type of Premises | Garbage Generation (L/100 $m^2$/day) | Recycling Generation (L/100 $m^2$/day) |
|---|---|---|
| Offices | 10 | 10 |

Using the waste generation rates in Table 10 above, the approximate weekly waste quantities have been calculated taking into account the following assumptions:

- The proportions of the recycling streams are as follows:[15]
  - Paper and cardboard - 93%
  - Recyclable containers - 7%
- A week comprises seven days of operation.

The estimated quantities of operational waste generated are shown in Table 11 below.

**Table 11 Estimated operational quantities**

| Project area | Area ($m^2$) | Litres per week | | |
|---|---|---|---|---|
| | | Garbage | Paper and Cardboard | Recyclable Containers |
| Offices | 1,757.0 | 1,230 | 1,140 | 90 |

Given the types of materials collected and the quantities, a combination of 240 L and 1100 L mobile bins is a likely waste service option. The waste storage room calculations have taken into account typical bin dimensions for 1100 L bins and the dimensions for 240 L bins published in the LCDCP. These are shown in Table 12 below.

**Table 12 Dimensions and approximate footprint of bins**

| Capacity | Height (mm) | Depth (mm) | Width (mm) | Footprint ($m^2$) |
|---|---|---|---|---|
| 1100 L | 1460 | 1230 | 1270 | 1.69 |
| 240 L | 1080 | 735 | 580 | 0.43 |

[15] Industry fact sheets - Commercial offices EPA 2012/0341 November 2012 ISBN 978-1-74293-876-9

To allow for ready movement of bins into and out of the bin storage area, the bin storage area should have a floor area of at least twice the total minimum bin footprint. This can also act as a contingency in the event of spikes in waste generation.

Table 13 below shows the proposed number of bins, collections per week, minimum storage areas and bin capacities for the development.

**Table 13 Recommended minimum bins, collection and storage areas**

| Bin Capacity (L) | | | Collection Frequency per Week | | | Number of Bins Required | | | Total Number of Bins | Recommended Storage Area ($m^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| Garbage | Paper and Cardboard | Recyclable Containers | Garbage | Paper and Cardboard | Recyclable Containers | Garbage | Paper and Cardboard | Recyclable Containers | | |
| 240 | 1100 | 240 | 1 | 1 | 0.5[16] | 6 | 2 | 1 | 9 | 12.7 |

## 9.5 Bulky Waste

Bulky waste includes material that does not easily fit into the normal waste bins such as broken pallets, damaged and disused furniture, disused equipment and other materials. The LCDCP provides no information on bulky waste storage in industrial developments. SLR recommends 4 $m^2$ be allocated for bulky waste.

Table 14 outlines the total minimum combined space recommended for the garbage and recycling bins and bulky waste for the Development.

**Table 14 Waste storage requirements with bulky waste**

| Space required for garbage and recycling bins ($m^2$) | Space required for bulky waste storage ($m^2$) | Total waste storage space required ($m^2$) |
|---|---|---|
| 12.7 | 8 | 20.7 |

## 9.6 Waste storage locations

A waste storage area is shown in the drawings. The area of the waste room is about 170 $m^2$ which is more than adequate for the estimated quantities of waste. The room is at ground level close enough to the loading dock to enable easy and safe collection. The location is shown in Figure 6 below.

[16] Once every two weeks


**Figure 6 – Proposed waste storage location**

## 9.7 Office waste management

The waste management system proposed for office areas will consist of centrally located bins for garbage, recyclable containers, paper, printer cartridges and secure paper destruction.

Bins for garbage and recyclable containers will be located in kitchen areas. Bins for separated food waste may also be provided if there are sufficient quantities. Bins for paper, printer cartridges and secure paper will be located in print rooms or near printers. The precise locations will be determined during the design development stage for the office fit out.

Strategies described in Section 9.11 Waste Avoidance, Reuse and Recycling and Section 9.13 Signage, will also be employed including:

- Use of consistent signage
- Use of Australian Standard colour coding for bins
- Ensuring staff are informed of correct waste separation and management procedures
- Provision of directional signage to show locations and routes to waste storage areas
- Provision of educational signage to show how the system works
- Clearly labelled bins to reduce contamination and identify waste types for each bin.

## 9.8 E-waste

Although the data halls are not expected to regularly produce much waste, from time-to-time significant quantities of e-waste will be generated. E-waste may include broken or upgraded computer hardware, circuits and electrical components and their associated packaging. Some e-waste contains toxic chemicals, such as lead, mercury and arsenic, but can also contain precious metals that can be recycled.

Where possible, facility operators will extend the life of equipment and hardware by implementing a regular maintenance schedule and adopting other proactive care measures such as monitoring the efficiency of cooling solutions to reduce the risk of equipment being discarded before its time. Smart thermostats and in-built sensors may be used to balance temperature maintenance with energy efficiency.

Equipment will be re-used by implementing circular models for servers, and re-purposing older hardware as back-up equipment.

Disposal of e-waste will be the responsibility of equipment suppliers who will collect obsolete equipment when new equipment is installed. Bulk bins, or other methods for transporting large quantities of e-waste, will be used at those times to remove it. Suppliers will use the loading dock as required. Once removed from the site it is expected that suppliers will sell-on any suitable hardware or recycle it lawfully through an approved recycler.

## 9.9 Waste Vehicle Access

The following access provisions will apply for collections:

- Collection vehicles will be able to enter and exit the site in a forward direction
- Unobstructed access, adequate driveways and ramps of sufficient strength to support waste collection vehicle have been allowed for.

Waste collection contractors will take bins from the waste storage room to the loading dock where they will be emptied into the collection vehicle and then returned to the waste storage room.

The collection vehicle is likely to be a rear-lift compactor vehicle up to 9 m long. It will enter the site in a forward direction and reverse into the loading dock like all other vehicles. Once the bins have been unloaded into the vehicle it will drive forward out of the site. The operating height of most rear lift collection vehicles is about 3.5 m to 4 m. The height of the loading dock is 6.5 m.

The collection frequency is that proposed in Table 13, once per week for garbage and paper and cardboard and once per fortnight for recyclable containers. The collection frequency, as is the case with other aspects of the service such as number and size of bins, is subject to change depending on negotiations between the facility operators and a waste contractor.

## 9.10 Waste vehicle swept paths

Drawings showing heavy vehicle swept paths can be found in Figure 7 below

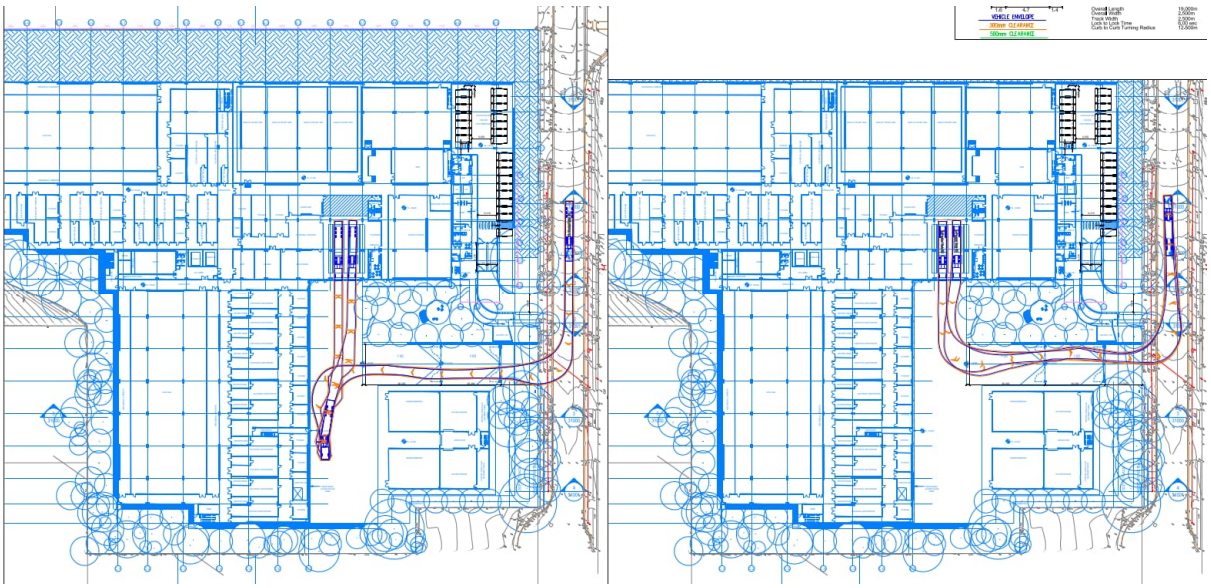


**Figure 7 - Swept paths**

## 9.11 Waste Avoidance, Reuse and Recycling

### 9.11.1 Waste avoidance

Waste avoidance measures include:

- Returning packaging materials like cardboard to the suppliers through the services of the supplier delivery trucks, allowing the reduction of waste further along the supply chain
- Providing ceramic cups, mugs, crockery and cutlery rather than disposable items
- Bulk purchasing and the purchasing of items that use minimal packaging
- Presenting all waste reduction initiatives to staff and tenants as part of their induction program, and
- Leasing equipment and machinery rather than outright purchase and disposal.

### 9.11.2 Re-use

Possible re-use opportunities include establishing systems with in-house and supply chain stakeholders to transport products in re-useable packaging where possible.

### 9.11.3 Recycling

Recycling opportunities include:

- Collecting and recycling e-wastes
- Printer toners and ink cartridges, if purchased, are collected in allocated bins for appropriate contractor recycling
- Paper recycling trays provided in communal and staff areas for scrap paper collection and recycling

- Providing separate receptacles for general waste, recycling and paper and cardboard throughout public areas, as well as within staff areas, to encourage source-separation of waste streams
- Work with tenants to investigate opportunities for the use of recycled paper bags or reusable bags in place of plastics bags
- Separating, by a reasonable distance, the storage areas for recyclables from the general waste storage areas to avoid cross contamination, and
- Development of 'buy recycled' purchasing policy.

## 9.12 Communication Strategies

Education and communication on waste management initiatives and measures will be regularly and clearly conveyed to staff, cleaners and visitors. Benefits of providing this communication include:

- Improved satisfaction with services
- Increased ability and willingness to participate in recycling
- Improved amenity and safety
- Improved knowledge and awareness through standardisation of services
- Increased awareness or achievement of environmental goals and targets
- Reduced contamination of recyclables stream which can incur a collection contractor penalty fee
- Increased recovery of recyclables and organics material, if implemented, and
- Greater contribution to state-wide targets for waste reduction and resource recovery.

To realise these benefits, the following communications strategies are recommended for the Facility Manager:

- Use consistent signage and colour coding throughout the Development
- Ensure all staff are informed of correct waste separation and management procedures
- Provide directional signage to show locations and routes to waste storage areas
- Repair signs and labels promptly to avoid a breakdown in communication
- Clearly label general and comingled waste bins to ensure no cross contamination and to identify the types of waste that may be disposed of in each bin, and
- Educate all staff and contractors associated with the Development, ensuring they adhere to this WMP.

## 9.13 Signage

Signs which clearly identify waste management procedures and provisions to contractors, staff and visitors will be posted at the Development as appropriate.

The design and use of safety signs will comply with Australian Standard AS 1319 Safety Signs for the Occupational Environment and clearly describe the types of materials designated for each bin.

Colour-coded and labelled bin lids are necessary for identifying bins and the Australian Standard AS 4123.7-2006 (R2017) Mobile waste containers Part 7: Colours, markings, and designation requirements provides recommendations for the designated colours for waste bins depending on the type of waste the bins are to receive.

All bin signage should also follow the NSW EPA's standard signage.

Other key signage considerations include:

- Clear and correct labelling on all waste and recycling bins, indicating the correct type or types of waste that can be placed into a given bin, as shown in Figure 8 below
- Signposts and directions to location of waste storage areas
- Clear signage in all waste storage areas to instruct users how to correctly separate waste and recycling
- Maintaining a consistent style colour scheme that complies with AS 4123, and a system for signs throughout the Development, and
- Emergency contact information for reporting issues associated with waste or recycling management.


**Figure 8 - Example NSW EPA labels for ongoing waste**

## 9.14 Roles and Responsibilities

It is the responsibility of the Facility Manager, or equivalent role, to implement this WMP and a responsibility of all tenants and staff to follow the waste management procedures set out by the WMP. A summary of recommended roles and responsibilities are provided in Table 15.

**Table 15 Suggested operational waste-related roles and responsibilities**

| Responsible Person | General Tasks |
|---|---|
| Facility Manager or equivalent role | Ensure the WMP is implemented throughout the life of the development. |
| | Update the WMP as needed to ensure the plan remains applicable to the site. |
| | Undertake liaison and management of contracted waste and recycling collections with contractors and any relevant authorities. |
| | Regularly conduct waste audits to review system performance and identify any additional materials that could be recovered. |
| | Manage any complaints and non-compliances reported through waste audits and other sources. |
| | Ensure all monitoring and audit results are well documented and conducted as specified in this WMP. |
| | Conduct regular waste sorting, physical condition and cleanliness inspections of bins, waste storage rooms and all other waste management equipment for functionality, hygiene and safety. |
| | Organise cleaning and maintenance requirements for waste management equipment as required. |
| | Ensure waste and recycling storage rooms are kept tidy. |
| | Monitor bins to ensure no overfilling occurs and manage unexpected waste quantities to mitigate waste overflow in storage areas |
| | Ensure effective signage, communication and education is provided to alert visitors, employees, site management staff and cleaners about the provisions of this WMP and waste management equipment use requirements. |
| | Monitor and maintain signage to ensure it remains clean, clear and applicable. |
| | Manage ongoing education on correct source separation and waste management at least every three months. |
| | Ensure that regular cleaning and daily transfer of bins is correctly being undertaken by the cleaners. |
| | Ensure all waste compactors and balers are maintained and operational. |
| | Ultimately responsible for the management of all waste management equipment, cleaning requirements, waste transfer and collection arrangements. |
| Cleaners and caretakers | Transfer general waste and recyclables from offices and other areas to the waste and recycling storage areas each day or as required. |
| | Maintain and operate compactors and balers, if installed, and ensure no overfilling occurs. |
| | Cleaning of all bins and waste and recycling area as per the direction of the site manager, or equivalent role. |
| | Monitor bins to ensure no overfilling occurs. |
| | Ensure bins and waste storage areas are kept tidy and clean. |
| | Compliance with the provisions of this WMP. |
| Staff | Place waste, recyclables, cardboard waste in bins and store in designated waste storage area. |
| | Adhere to all waste management directions and comply with the Development's waste management provisions as outlined by the Facility Manager. |

# 10.0 Assessment and findings

The WMP establishes that during ongoing operation of the data centre, two collections for waste and one for paper and cardboard will be provided per week along with one collection for recyclable containers every month. This amounts to three vehicle movements per week and one additional vehicle every second week.

The WMP also establishes that the amount of space allowed for waste and recycling on-site is more than adequate to store the amounts projected to be generated.

# 11.0 Compliance with the SEARs and LCDCP

The waste management requirements of the SEARs are address in Table 1 on page 1.

The waste management requirements of the LCDCP 2010 are detailed in Section 7.1 above. As far as it is possible to say, based on the proposed plans, the development complies with the LCDCP, other than the following:

***2.2 Waste Management Plans***

*A Waste Management Plan (WMP) outlines measures to minimise and manage waste generated during demolition, construction, and ongoing use of the site/premises. In doing so, the WMP nominates:*

- *any waste management service provider*

These details are not yet known but will be confirmed before construction commences.

***Q.3. Controls for Demolition and Construction***

***Provisions***

*d) An area must be allocated onsite for the storage of materials for reuse, recycling and disposal (giving consideration to slope, drainage, location of waterways, stormwater outlets, vegetation, and access and handling requirements). Footpaths, public reserves, street gutters are not used as places to store demolition waste or materials of any kind without Council approval.*

A construction contractor has not yet been appointed so these details are not yet known. Upon appointment of a contractor an area for on-site storage of waste materials will be identified.

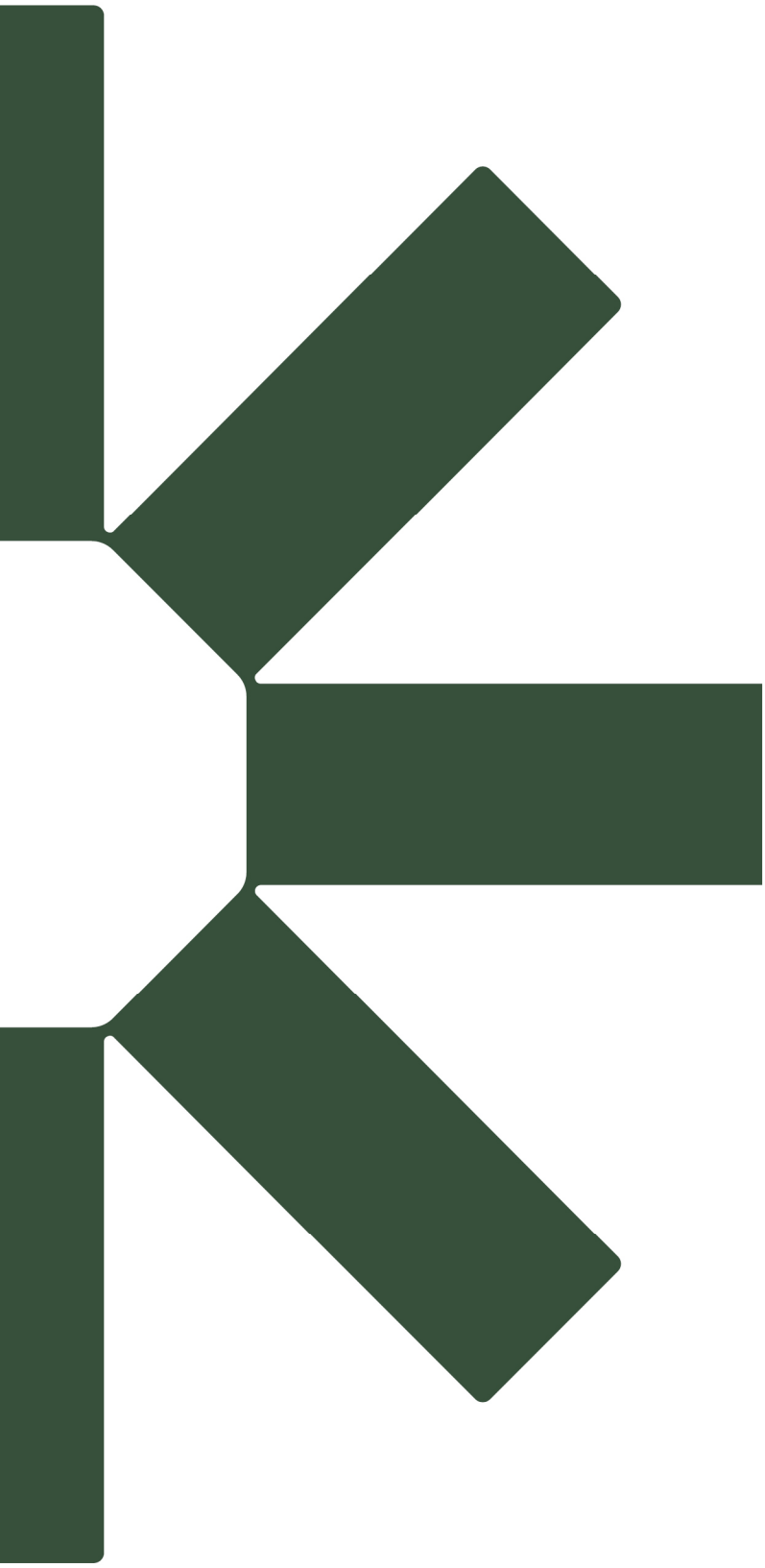
# 12.0 Cumulative impacts

The projected quantities of waste and recyclables, 3588 L each per week, are insignificant compared to the quantities of waste and recyclables generated in Sydney every day. Allowance has been made for the separation of recyclables as much as possible, guided by the waste generation rates in the LCDCP. It is possible that further separation and recovery of waste materials will be made during the operational phase of the development.

The three waste and recycling vehicle movements anticipated to be required each week, plus one per month, are insignificant compared to the number of vehicle movements undertaken in this industrial area every day. This includes waste vehicle which service other buildings in this precinct. If any one of the waste contractors servicing this estate also services this development, then there will be no new waste vehicle movements. As a result, the number of waste collection vehicles travelling in the vicinity of the data centre may not be affected by its development.

# 13.0 Mitigation measures

As the waste-related impact of the data centre is zero or negligible, no measures are proposed beyond those for the separation of recyclables already detailed.



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