15 JUBILEE AVENUE, WARRIEWOOD

Waste Management Plan

Prepared for:

15 Jubilee Pty Ltd
c/o Trend Constructions Group Pty Ltd
PO Box 600
Spit Junction
NSW 2088

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BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with 15 Jubilee 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.

DOCUMENT CONTROL

Reference	Date	Prepared	Checked	Authorised
610.30357-R01-v2.0	3 April 2021	Celine El-Khouri	Andrew Quinn	Andrew Quinn
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1 Introduction

SLR Consulting Australia Pty Ltd (SLR) has been commissioned by 15 Jubilee Pty Ltd c/o Trend Constructions Group Pty Ltd (the Client) to prepare a waste management plan (WMP) in support of a development application (DA) to Northern Beaches Council (Council). The WMP is for the development of a storage and industrial development located at 15 Jubilee Avenue, Warriewood NSW (the Development).

This WMP applies to the waste generated from the site preparation, construction and operational stages of the Development and has been prepared using architectural drawings supplied by the Client and attached in **Appendix A**.

1.1 Objectives

The objectives of this WMP are to:

- Help implement safe and practical options for waste collection from the Development by Council or private waste servicing contractors
- Identify potential waste likely to be generated during the demolition, construction works and operation of the Development
- Provide advice on how identified waste should be identified, handled, processed, disposed of, reused or recycled in accordance with Council requirements, relevant Australian codes and standards and better practice waste minimisation principles, and
- Encourage waste avoidance and minimisation through advice on design, ordering and planning.

1.2 Review of WMP

This WMP is not a static document. It is a working document that requires review and updating to ensure ongoing suitability for the proposed on-going operations at the site.

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.

2 Project Description

2.1 Site Description

The Development is located on Lot 202 in DP1019363 and is zoned B7 Business Park. The current development site consists of grass, trees and two shipping containers. The site of the Development is shown in **Figure 1**.

Figure 1 The Development site

2.2 Proposed Development Works

The works for the Development are anticipated to include the following:

- Site preparation works
- Construction of the two level industrial development, consisting of:
  - 59 storage units
  - 24 warehouses
  - 24 ancillary offices
  - Stairs and ramps, and
  - Vehicle driveways.

Once the construction stage is completed, the Development will operate as an industrial storage and warehouse development.

3 Better Practice Waste Management and Recycling

3.1 Waste Management Hierarchy

This WMP has been prepared in line with the waste management hierarchy shown in **Figure 2**, 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.

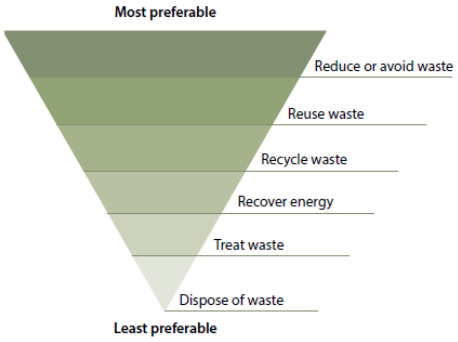

Image from NSW EPA (2014) NSW Waste Avoidance and Resource Recovery Strategy 2014-21.

Figure 2 Waste management hierarchy

3.2 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.

4 Waste Legislation and Guidance

The legislation and guidance outlined in **Table 1** below should be referred to during the site preparation, construction operation of the Development.

Table 1 Legislation and guidance

Legislation and Guidance	Objectives
Council legislation and guidelines	
Pittwater Local Environmental Plan 2014[1]	The Pittwater Local Environmental Plan 2011 (PLEP) provides the legal framework of the Pittwater DCP 2014, including land use and development permitted in a set zone and was designed in accordance with the *Environmental Planning and Assessment Act 1979* section 33A.
Pittwater 21 Development Control Plan 2014[2]	The Pittwater 21 Development Control Plan 2014 (DCP) applies to all development proposals in the former Pittwater district of the Northern Beaches local government area. The DCP supports provision of the LEP planning controls by providing detailed planning and design guidelines and should be consulted in conjunction with the LEP. The DCP has been prepared in accordance with Division 3.6 of the *Environmental Planning and Assessment Act 1979* and Part 3 the Environmental Planning and Assessment Regulation 2000. The Pittwater 21 DCP references the Waste Management Guidelines 2016 for waste management provisions for a development.
Waste Management Guidelines 2016[3]	The Waste Management Guidelines 2016 provides waste management guidance for developments built in the former Warringah district of the Northern Beaches Council. It aims to encourage appropriate management of demolition and construction wastes, manage the negative impacts of waste collection and storage and promote principles of ecological sustainability. The sections of these guidelines applicable to the Development are Chapter 1 – Demolition, Chapter 2 – Construction and Chapter 5 – On-going waste management for non-residential developments.
State and National legislation and guidelines	
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.
Educational Facilities Standards and Guidelines (EFSG)	The Educational Facilities Standards and Guidelines is a document prepared by the NSW Department of Education to guide personnel involved in the planning and development of government schools. While the Development is not a government school, the document provides some helpful guidance for waste management in educational institutions. Section 02.07 - Waste Management provides guidance for the removal of unnecessary waste through effective planning and resource use.
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.

[1] https://www.legislation.nsw.gov.au/view/html/inforce/current/epi-2014-0320

[2] https://eservices.northernbeaches.nsw.gov.au/ePlanning/live/pages/plan/book.aspx?exhibit=PDCP

[3] https://www.northernbeaches.nsw.gov.au/services/rubbish-and-recycling/building-waste

Legislation and Guidance	Objectives
NSW EPA (2014) NSW Waste Avoidance and Resource Recovery Strategy 2014-21	The NSW Waste Avoidance and Resource Recovery Strategy 2014-21 is aimed at ultimately 'improving environment and community well-being by reducing the environmental impact of waste and using resources more efficiently' by presenting a framework intended to avoid and reduce waste generation, increase recycling, divert more waste from landfill, manage problem wastes better, reduce litter and reduce illegal dumping.
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 wastes that may be recovered for beneficial re-use. These wastes typically include those from demolition and construction works, as well as ongoing wastes such as food waste. • Resource recovery orders present conditions which generators and processors of waste must meet to supply the waste material for beneficial re-use. • 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 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 wastes generated during the demolition, construction and operational phases of a development, as well as the system for licencing waste transport and disposal.
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 *The 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: • encouraging efficient use of resources • 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 • ensuring industry and the community share responsibility in reducing/dealing with waste, and • efficiently funding of waste and resource management planning, programs and service delivery. 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.

5 Site Clearance and Construction Waste and Recycling Management

5.1 Targets for Resource Recovery

The construction of each development should aim to contribute to the following target in accordance with the NSW EPA (2014) *NSW Waste Avoidance and Resource Recovery Strategy 2014-21*:

- 80%[4] of total construction and demolition waste diverted for reuse and recycled, with receipts sufficient in demonstrating the achieved target.

The objective of waste management at site preparation and construction stages is to reuse and recycle as much generated waste as possible and minimise waste output. This is done through planned work staging, on-site waste storage and waste separation at the source.

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 site preparation and construction stages of the Development.

5.2 Waste Streams and Classifications

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

- excavation material
- construction wastes
- plant maintenance waste
- packaging waste
- green waste from site clearing activities, and
- work compound waste from on-site employees.

A summary of likely waste types generated from site preparation and construction activities, along with their waste classifications and proposed management methods, is provided in **Table 2**.

For further information on how to classify a waste type refer to the NSW EPA (2014) *Waste Classification Guidelines*[5]. Further information on managing site preparation and construction wastes is available from the NSW EPA website[6].

4 NSW EPA, NSW Waste Avoidance and Resource Recovery Strategy 2014-21, dated December 2014, available from: https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/wastestrategy/140876-warr-strategy-14-21.pdf

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

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

Table 2 Potential waste types, classifications and management methods

Waste Types	NSW EPA Waste Classification	Proposed Management Method
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)	Off-site recycling; Cleaned for reuse, rendered over or crushed for landscaping or driveway use
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	General solid waste (non-putrescible)	Off-site recycling
Conduits and pipes	General solid waste (non-putrescible)	Off-site recycling
Timber	General solid waste (non-putrescible)	Off-site recycling; *Treated*: reused for formwork, bridging, blocking, propping or second hand supplier; *Untreated*: reused for floorboards, fencing, furniture, mulched second hand supplier
Doors, Windows, Fittings	General solid waste (non-putrescible)	Off-site recycling at second hand 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	Hazardous waste	Off-site disposal
Fluorescent light fittings and bulbs	Hazardous waste	Off-site recycling or disposal; contact *FluoroCycle* for more information[7]
Paint	Hazardous waste	Off-site recycling, Paintback collection[8] or disposal
Synthetic Rubber or carpet underlay	General solid waste (non-putrescible)	Off-site recycling; reprocessed and used in safety devices and speed humps
Carpet	General solid waste (non-putrescible)	Off-site recycling or disposal; reused for landscaping, insulation or equestrian uses
Plant Maintenance		

[7] http://www.fluorocycle.org.au/ or http://www.environment.gov.au/settlements/waste/lamp-mercury.html
[8] https://www.paintback.com.au/

Waste Types	NSW EPA Waste Classification	Proposed Management Method
Empty oil and other drums or containers, such as fuel, chemicals, paints, spill clean ups	Hazardous waste: 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. General solid waste (non-putrescible): Containers have been cleaned by washing or vacuuming.	Transport to comply with the transport of Dangerous Goods Code applies in preparation for off-site recycling or disposal at licensed facility
Air filters and rags	General solid waste (non-putrescible)	Off-site disposal
Oil filters	Hazardous waste	Off-site recycling
Batteries	Hazardous waste	Off-site recycling; Contact the Australian Battery Recycling Initiative[9] for more information
Packaging		
Packaging materials, including wood, plastic, including stretch wrap or LLPE, 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[10]
Work Compound and Associated Offices		
Food Waste	General solid (putrescible) waste	Compost on site. Alternatively dispose to landfill with general garbage
Recyclable beverage containers, including glass and plastic bottles, aluminium cans and steel cans	General solid waste (non-putrescible)	Co-mingled recycling at off-site licensed facility or at a local NSW container deposit scheme 'Return and Earn' off-site licensed facility[11]
Clean paper and cardboard	General solid waste (non-putrescible)	Paper and cardboard recycling at off-site licensed facility
General domestic waste generated by workers including soiled paper and cardboard, food stuffs and polystyrene	General solid waste (non-putrescible) mixed with putrescible waste	Disposal at landfill

5.3 Site Preparation Waste Types and Quantities

As the site is currently vacant, site preparation waste is expected to be primarily green waste, excavated fill, soil and/or rock.

9 http://www.batteryrecycling.org.au/home

10 http://businessrecycling.com.au/search/

11 http://returnandearn.org.au/

In the absence of cut and fill quantities and information on exact dimensions, SLR is unable to estimate quantities of excavation waste. During earthworks and site preparation works, care should be taken to minimise site disturbance and limit unnecessary excavation.

Excavated spoil, if any, is to be classified by an appropriately experienced environmental consultant and separated into contaminated materials, if any, uncontaminated fill or ENM. Refer to **Section 5.7** for management of stockpiles. Uncontaminated fill or ENM should be retained on site and managed appropriately for beneficial re-use for filling earthworks. As a last resort, remaining uncontaminated fill of ENM is to be sent off-site to a licenced facility in accordance with the Protection of the Environment Operations (Waste) Regulation 2014.

For contaminated material management, refer **Section 5.8** of this WMP.

SLR recommends that waste disposal records for all excavated materials is kept on-site at all times in case regulatory authorities make enquiries into the management of excavation waste.

5.4 Construction Waste Types and Quantities

The construction activities for the Project are identified in **Section 2.2.**

Council's guidelines do not provide waste generation rates for construction activities. In the absence of readily available construction waste generation rates from Council, SLR has adopted the 'Factory' and 'Office' waste generation rates from Appendix A of The Hills Development Control Plan 2012 for estimating the type and quantities of waste generated from construction of the Development. In the absence of readily available published information for 'driveway' construction waste generation rates, SLR has developed 'Driveway' construction rates based on the 'Office' rates by:

- Removing timber, bricks and gyprock as these materials are unlikely to be present in significant quantities in a modern carpark structure, and
- Increasing the rates for concrete, sand or soil, metal and 'other', in proportion, to maintain the total assumed tonnage per 1000 m^2 of construction.

The waste generation rates used to estimate the waste generated from the construction of Development are shown in **Table 3**.

Table 3 Waste generation rates applied to the Project's construction

Rate Type	Floor Area (m^2)	Waste types and quantities (m^3)						
		Timber	Concrete	Bricks	Gyprock	Sand or Soil	Metal	Other
Factory	1,000	0.25	2.10	1.65	0.45	4.80	0.60	0.50
Office	1,000	5.1	18.8	8.5	8.6	8.8	2.75	5
Driveway	1,000	--	30.6	--	--	14.3	4.5	8.1

The generation rates for 'Factory' are applied to calculate the waste quantities from the construction of the warehouses, public amenities and the storage units, the rates for 'Office' are applied to calculate the waste quantities from the construction of the offices and the 'Driveway' waste generation rates are applied to calculate the waste quantities from the construction of all access roads, driveways stairs and ramps. These estimates are provided in **Table 4**. The areas shown in **Table 4** are based on the areas provided in the architectural drawings attached in **Appendix A**.

Actual waste quantities and composition will vary; however, this estimate is provided so that the Construction Site Manager can make provision for on-site or off-site re-use and recycling opportunities.

Table 4 Anticipated types and estimated quantities of construction waste

Location	Area (m^2)	Waste types and quantities (m^3)						
		Timber	Concrete	Bricks	Gyprock	Sand or Soil	Metal	Other
Offices	956	5	20	10	10	10	5	5
Storage units	1,551	5	5	5	5	10	5	5
Warehouses	1,491	5	5	5	5	10	5	5
Public amenities	7	5	5	5	5	5	5	5
Driveways, stairs and ramp	3,208	0	100	0	0	50	15	30
Total	**7,213**	**20**	**135**	**25**	**25**	**85**	**35**	**50**

Waste quantity estimates have been rounded up to the nearest 5 m^3.

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

5.5 Waste Avoidance

The Building Contractor, Building Designer or equivalent roles should follow better practice waste management and the principles of Ecologically Sustainable Development. Recommendations for the Building Designer include:

- Using prefabricated components
- Avoiding printing where possible
- Using low formaldehyde wood products, post-consumer reused timber and/or Forest Stewardship Council certified timber
- Using fittings and furnishings that have been recycled, are made from or incorporate recycled materials and have been certified as sustainable or environmentally friendly by a recognised third-party certification scheme
- Reducing the use of polyvinyl chloride products
- Preferentially using paints, floor coverings and adhesives with low VOC (volatile organic compound) content
- Avoiding unsustainable timber imports including western red cedar, oregon, meranti, luan or merbau
- Selecting materials based on low embodied energy properties that suit the Development, such as recycled materials including recycled steel and glass-wool insulation, or concrete with slag and fly ash content
- Centralising wet areas together to minimise piping, and
- Designing for deconstruction rather than demolition.

Recommendations for the Building Contractor include:

- Applying practical building designs and construction techniques
- Minimising excavation works
- Investigating leased equipment and machinery rather than purchase and disposal
- Sorting and segregating demolition and construction wastes to ensure efficient recycling of wastes
- Preferentially selecting building materials, fittings and furnishings, including structural framing, roofing and façade cladding, that have longer life and better re-use and recycling potential

- Storing wastes on-site appropriately to prevent cross-contamination and/or mixing of different waste types
- Considering future changes proposed for the Development and preferentially selecting building materials that are adaptable and durable
- Preferentially using materials which can be disassembled for reuse
- Reducing 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.
- Arranging deliveries 'as needed' to mitigate degradation, weathering or moisture damage, and
- Ensuring subcontractors are informed of and implement site waste minimisation and management procedures.

5.6 Re-use, 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 2** 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 and Council's Waste Management Guidelines, the following specific procedures should be implemented:

- Facilitate on-site source separation to ensure efficient recycling, as outlined in **Section 5.7.1**
- Where source separation is utilised, materials are to be kept uncontaminated to guarantee the highest possible re-use value
- Facilitate re-use of materials on-site
- Assess excavation spoil for contamination status and beneficial re-use
- Dispose of all asbestos, hazardous and intractable wastes in accordance with SafeWork NSW and NSW EPA requirements
- Retain used crates for storage purposes unless damaged
- Provide separate waste bins for recyclable and non-recyclable general wastes
- Concrete will be reused for filling, levelling or road base or recycled off-site
- Tiles and bricks will be reused or crushed for landscaping and driveways
- Steel will be recycled off-site, and all other metals will be recycled where economically viable
- Framing timber will be reused as fencing, furniture, mulch or recycled off-site at second-hand timber suppliers

- Windows, doors and joinery will be recycled off-site at second-hand suppliers, where possible
- All glass that can be economically recycled will be recycled
- All solid waste timber, brick, concrete, rock that cannot be reused or recycled will be taken to an appropriate facility for treatment to recover further resources or for disposal to landfill in an approved manner
- Deliver batteries to drop off-site recycling facility, and
- Provide sufficient space for storage of garden waste and other waste materials on-site.

5.7 Waste Segregation, Storage and Servicing

5.7.1 Waste Segregation and Storage

Waste materials produced from demolition and construction activities are to 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.

5.7.2 Waste Storage Areas

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

In accordance with better practice waste management and Council's Waste Management Guidelines, areas designated for waste storage should:

- Allow unimpeded access by site personnel and waste disposal contractors
- Take into account environmental factors which could potentially cause an impact to the waste storage, such as slope, drainage, personnel, vehicular access and the location of watercourses and native vegetation
- Allow sufficient 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 and accessibility in their selection, and
- Not present hazards to human health or the environment.

5.7.3 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 and receipts 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
- Ensure waste disposal is to suitably licensed facilities lawfully able to accept the material.
- 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.

5.8 Contaminated and Hazardous Wastes

During the demolition and construction phases, SLR recommends that a qualified and certified contractor is engaged to remove all contaminated or hazardous materials, for example, asbestos, and dispose of all contaminated or hazardous waste at an appropriately licenced facility.

All asbestos and other hazardous waste must be handled according to appropriate legislation and regulation including the Work Health and Safety Regulation 2017.

5.9 Signage

For best practice, 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[12] and should be used where applicable. A selection of signs prepared by NSW EPA is provided in **Figure 3.**

Figure 3 Examples of NSW EPA labels for waste skips and bins

5.10 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 Development 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.

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

5.11 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:

1. Conduct waste audits of current projects where feasible.
2. Note waste generated and disposal methods.
3. Look at past waste disposal receipts.
4. Record this information to track waste avoidance, reuse and recycling performance and to help in waste estimations for future waste management plans.

Records of waste volumes recycled, reused or contractor removed are to be maintained. Additionally, it is recommended that dockets or receipts verifying recycling and disposal in accordance with this WMP are kept and 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.

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.

5.12 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 comply with the WMP at all times.

Where possible, an Environmental Management Representative should be appointed for the Development. Suggested roles and responsibilities are provided in **Table 5**.

Table 5 Construction waste management responsibility allocation

Responsible Person	General Tasks
Construction Site Manager	Ensuring plant and equipment are well maintained.
	Ordering only the required amount 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.
Environmental Management Representative or equivalent role	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.

Responsible Person	General Tasks
	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.

6 Operational waste management

6.1 Targets for Resource Recovery

The waste management performance of each new development should contribute to the overall NSW State targets for recycling outlined in the *NSW Waste Avoidance and Resource Recovery Strategy 2014-21*. The targets include increasing waste diverted from landfill to 75% and recycling 70% of commercial, industrial and municipal solid waste[13]. Each commercial and industrial development has the ability to contribute to this NSW State target through an effective waste management plan.

It is anticipated that the waste minimisation measures in the following sections will assist the Development to meet the state's targets. Waste reporting and audits can be used to determine the actual percentage of waste that are being, or have been, recycled during operation.

6.2 Waste Streams and Classifications

The operation of the Project will generate the following broad waste streams:

- domestic wastes generated by employees, including food waste
- bulk packaging wastes, including polystyrene, plastic wrapping and cardboard boxes
- office waste
- bulky waste items such as furniture and e-waste, and
- stores, plant and general maintenance wastes.

Potential operational waste types, their associated waste classifications, and management methods are provided in **Table 6.** For further information on how to determine a waste's classification, refer to the NSW EPA (2014) *Waste Classification Guidelines*.[14] Suggestions for recycling drop off locations and contacts can be found on https://businessrecycling.com.au/ for each waste type.

Table 6 Potential operational waste types, classifications and management methods

Waste Types	NSW EPA Classification	Proposed Management Method
General Operations		
Clean paper	General solid (non-putrescible) waste	Paper recycling at off-site licensed facility
Cardboard and bulky cardboard boxes	General solid (non-putrescible) waste	Cardboard recycling at off-site licensed facility
Recyclable containers including glass and plastic bottles, aluminium cans and steel cans	General solid (non-putrescible) waste	Recycling at off-site licensed facility Some containers that attract a deposit under the NSW Government's *Return and Earn Scheme*, may be separated by staff or contactors for redemption.
Food waste	General solid (putrescible) waste	Donate, if suitable; alternatively compost on or off-site or dispose to landfill with general garbage
Batteries	Hazardous waste	Off-site recycling. Contact the Australian Battery Recycling Initiative for more information

[13] https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/wastestrategy/140876-warr-strategy-14-21.pdf?la=en&hash=EC6685E6624995242B0538B18C2E80C0CA2E51B3

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

Waste Types	NSW EPA Classification	Proposed Management Method
Mobile Phones	Hazardous waste	Off-site recycling. Contact Mobile Muster for more information
Clothes	General solid (non-putrescible) waste	Off-site reuse or recycling such as donations to St Vincent's De Paul
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	Hazardous waste	Off-site recycling
Printer toners and ink cartridges	Hazardous waste	Storage on-site, 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		
Glass other than containers	General solid (non-putrescible) waste	Off-site recycling
Light bulbs and fluorescent tubes	Hazardous waste	Storage on-site; off-site recycling or disposal. Contact FluoroCycle[15] or Lamp Recyclers[16] for more information
Empty oil, paint drums and chemical containers	Hazardous waste if containers used to store Dangerous Goods (Class 1, 3, 4, 5 or 8) and residues have not been removed by washing or vacuuming. General solid (non-putrescible) waste if containers cleaned by washing or vacuuming.	Storage on-site or transported to off-site recycling or disposal at licensed facility. Transport to comply with the transport of Dangerous Goods Code.
Garden organics including lawn mowing, tree branches, hedge cuttings, leaves	General solid (non-putrescible) waste	Reuse on-site or contractor removal for recycling at licenced facility

6.3 Waste Generation Rates

In accordance with Council's Waste Management Guidelines, the waste and recycling storage area for the Development must be large enough to adequately store all ongoing waste and recycling generated quantities between collections. Calculations have been undertaken below to calculate the storage space required to store the waste and recycling generated from the Development.

Operational waste and recycling quantities have only been calculated for the warehouse and office areas. The storage units are anticipated to be used for storage purposes only and are not expected to generate any waste and recycling quantities. The Client has specified that no bins will be provided for storage unit customers.

To calculate the anticipated waste and recycling quantities for the Development, SLR has adopted the 'Office' and 'Warehouses' waste generation rates published in Council's Waste Management Guidelines. The operational waste generation rates used are shown below in **Table 7**.

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

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

Table 7 Waste generation rates applied to the operations of the Project

Type of Premises	General Waste Generation (L/100 m²/day)	Recycling Generation (L/100 m²/day)
Warehouse	30	30
Offices	10	10

Using the waste generation rates in **Table 7** above, the approximate weekly waste quantities for the Development have been calculated and are shown in **Table 8**. The operational waste quantities were calculated based on the following assumptions:

- The floor areas as presented on the architectural drawings attached in **Appendix A**
- Waste storage is not provided for the storage units
- A week comprising seven days of operation, and
- General recycling consisting of approximately 60% paper and cardboard, and 40% other recycling[17].

Table 8 Estimated quantities of operational waste, recycling and food waste

Unit		Area (m²)	Operational waste quantities (L/week)		
			General Waste	Paper and Cardboard Recycling	Other Recycling
Ground Floor	Warehouse 01	104	245	140	105
	Office 01	48	35	35	35
	Total - Tenancy 01	152	280	175	140
	Warehouse 02	98	210	140	105
	Office 02	40	35	35	35
	Total - Tenancy 02	138	245	175	140
	Warehouse 03	69	175	105	70
	Office 03	55	70	35	35
	Total - Tenancy 03	124	245	140	105
	Warehouse 04	39	105	70	35
	Office 04	36	35	35	35
	Total - Tenancy 04	75	140	105	70
	Warehouse 05	49	105	70	70
	Office 05	36	35	35	35
	Total - Tenancy 05	85	140	105	105
Level 01	Warehouse 06	45	105	70	70
	Office 06	39	35	35	35
	Total - Tenancy 06	84	140	105	105
	Warehouse 07	46	105	70	70
	Office 07	39	35	35	35
	Total - Tenancy 07	85	140	105	105
	Warehouse 08	46	105	70	70

17 https://www.epa.nsw.gov.au/~/media/EPA/Corporate%20Site/resources/warrlocal/140442-audits-2011.ashx

Unit		Area (m^2)	Operational waste quantities (L/week)		
			General Waste	Paper and Cardboard Recycling	Other Recycling
	Office 08	39	35	35	35
	Total - Tenancy 08	85	140	105	105
	Warehouse 09	46	105	70	70
	Office 09	39	35	35	35
	Total - Tenancy 09	85	140	105	105
	Warehouse 10	46	105	70	70
	Office 10	39	35	35	35
	Total - Tenancy 10	85	140	105	105
	Warehouse 11	46	105	70	70
	Office 11	39	35	35	35
	Total - Tenancy 11	85	140	105	105
	Warehouse 12	47	105	70	70
	Office 12	32	35	35	35
	Total - Tenancy 12	79	140	105	105
	Warehouse 13	58	140	105	70
	Office 13	44	35	35	35
	Total - Tenancy 13	102	175	140	105
	Warehouse 14	80	175	105	70
	Office 14	50	35	35	35
	Total - Tenancy 14	130	210	140	105
	Warehouse 15	80	175	105	70
	Office 15	51	70	35	35
	Total - Tenancy 15	131	245	140	105
	Warehouse 16	60	140	105	70
	Office 16	33	35	35	35
	Total - Tenancy 16	93	175	140	105
	Warehouse 17	74	175	105	70
	Office 17	33	35	35	35
	Total - Tenancy 17	107	210	140	105
	Warehouse 18	98	210	140	105
	Office 18	36	35	35	35
	Total - Tenancy 18	134	245	175	140
	Warehouse 19	54	140	70	70
	Office 19	36	35	35	35
	Total - Tenancy 19	90	175	105	105
	Warehouse 20	54	140	70	70
	Office 20	36	35	35	35
	Total - Tenancy 20	90	175	105	105
	Warehouse 21	54	140	70	70

Unit		Area (m²)	Operational waste quantities (L/week)		
			General Waste	Paper and Cardboard Recycling	Other Recycling
	Office 21	36	35	35	35
	Total - Tenancy 21	90	175	105	105
	Warehouse 22	55	140	70	70
	Office 22	36	35	35	35
	Total - Tenancy 22	91	175	105	105
	Warehouse 23	55	140	70	70
	Office 23	36	35	35	35
	Total - Tenancy 23	91	175	105	105
	Warehouse 24	88	210	140	105
	Office 24	48	35	35	35
	Total - Tenancy 24	136	245	175	140

Waste quantity estimates have been rounded up to the nearest 5 L.

'Other Recycling': comingled recycling excluding paper and cardboard.

6.4 Waste Storage Areas

6.4.1 Waste Storage Area Size

The Client has advised that each tenancy will engage its own private contractor to collect and manage waste. Hence, SLR has calculated the waste storage area required for each tenancy.

The estimated number of bins and storage areas required for weekly storage of operational waste and recycling generated by the Development are shown in **Table 9** and are based on:

- The estimated quantities of operational waste and recycling as shown in **Table 8**
- Bin dimensions from SLR's database
- Garbage and recycling collection frequency of once per week.

Table 9 Recommended minimum bins, collections, and storage areas

Tenancy	Weekly Storage Required			Recommended Storage Area (m²)
	General Waste	Paper and Cardboard Recycling	Comingled Recycling	
01	2 x 240 L	1 x 240 L	1 x 240 L	3.41
02	2 x 240 L	1 x 240 L	1 x 240 L	3.41
03	2 x 240 L	1 x 240 L	1 x 240 L	3.41
04	1 x 240 L	1 x 240 L	1 x 240 L	2.56
05	1 x 240 L	1 x 240 L	1 x 240 L	2.56
06	1 x 240 L	1 x 240 L	1 x 240 L	2.56
07	1 x 240 L	1 x 240 L	1 x 240 L	2.56
08	1 x 240 L	1 x 240 L	1 x 240 L	2.56
09	1 x 240 L	1 x 240 L	1 x 240 L	2.56
10	1 x 240 L	1 x 240 L	1 x 240 L	2.56
11	1 x 240 L	1 x 240 L	1 x 240 L	2.56
12	1 x 240 L	1 x 240 L	1 x 240 L	2.56

Tenancy	Weekly Storage Required			Recommended Storage Area (m²)
	General Waste	Paper and Cardboard Recycling	Comingled Recycling	
13	1 x 240 L	1 x 240 L	1 x 240 L	2.56
14	1 x 240 L	1 x 240 L	1 x 240 L	2.56
15	2 x 240 L	1 x 240 L	1 x 240 L	3.41
16	1 x 240 L	1 x 240 L	1 x 240 L	2.56
17	1 x 240 L	1 x 240 L	1 x 240 L	2.56
18	2 x 240 L	1 x 240 L	1 x 240 L	3.41
19	1 x 240 L	1 x 240 L	1 x 240 L	2.56
20	1 x 240 L	1 x 240 L	1 x 240 L	2.56
21	1 x 240 L	1 x 240 L	1 x 240 L	2.56
22	1 x 240 L	1 x 240 L	1 x 240 L	2.56
23	1 x 240 L	1 x 240 L	1 x 240 L	2.56
24	2 x 240 L	1 x 240 L	1 x 240 L	3.41
Total				**66.50**

To allow for ready movement of bins into and out of the bin storage area, the bin storage area is to provide a floor area that is at least twice of the total minimum bin gross floor area. This can also act as a contingency in the event of spikes in waste generation. This has been considered in the calculation of the waste storage areas for each tenancy in the Development.

SLR recommends that scheduled waste audits are undertaken approximately one month into the operational phase of the Development to quantify actual waste generation rates generated by the Development. The assessment of generated waste volumes will be influenced by staff and student attitude to recycling and disposal, and the adequacy of signage and education provided for occupants.

The PDCP specifies that the locations and dimensions of the waste storage areas for the Development should be detailed on the architectural drawings. The architectural drawings 'Ground Floor Plan' and 'Level 1 Floor Plan' show that a waste storage room has been designated to each tenancy in the Development. The architectural drawings are attached in **Appendix A**. The waste storage rooms in the drawings are labelled "WS" and shown to be in total 77.59 m^2. The waste storage area for each tenancy is shown in **Table 10**. Based on **Table 9** above, a minimum of 66.50 m^2 is required for the storage of the waste and recycling quantities generated from the Development. Hence the waste storage rooms designated for the Development are adequate to accommodate the estimated quantities of operational waste and recycling waste in between collections and also provide enough additional storage space for any future storage of additional bins.

Table 10 Designated waste storage areas for the Development

Tenancy	Recommended Storage Area (m²)	Designated Storage Area (m²)
01	3.41	4.26
02	3.41	3.41
03	3.41	3.41
04	2.56	2.56
05	2.56	3.41
06	2.56	3.41
07	2.56	2.56
08	2.56	2.56

Tenancy	Recommended Storage Area (m^2)	Designated Storage Area (m^2)
09	2.56	2.56
10	2.56	2.56
11	2.56	2.56
12	2.56	3.41
13	2.56	3.41
14	2.56	3.41
15	3.41	3.41
16	2.56	3.41
17	2.56	3.41
18	3.41	3.41
19	2.56	3.41
20	2.56	3.41
21	2.56	3.41
22	2.56	3.41
23	2.56	3.41
24	3.41	3.41
Total	**66.50**	**77.59**

6.4.2 Bulky Waste

While the PDCP and Council's Waste Management Guidelines do not prescribe provisions for the management of bulky or hazardous waste for industrial developments, SLR recommends an area is provided in the Development to store large or bulky items and hazardous waste that cannot be disposed of in the general waste or recyclable streams. This may include broken pallets, furniture, disused equipment or broken electronic equipment.

An area 4 m^2 is recommended for the Development for bulky and hazardous waste storage.

The Development's management may consider organising a separate casual collection service for as required, to remove bulky waste items, or engaging a contractor to collect and transport these items for reuse, recycling or disposal.

6.4.3 Waste storage area location

In accordance with the Northern Beaches Council Waste Management Guidelines, the waste storage areas for each tenancy should be located so that they are:

- Be no closer than 3 m^2 to a given building entrance
- Be void of any stormwater or wastewater entry points
- Be entirely within the site boundary
- Preserve visual amenity through landscaping, and
- Not be visible to the public.

6.4.4 Waste Storage Area Features

In accordance with Council's Waste Management Guidelines, the waste storage areas should have to have the following features:

- Designated space to accommodate waste, recycling containers, crates, pallets and other reusable items
- Be clear of any service and utilities infrastructure
- Be easily kept clean and tidy at all times
- Comply with the BCA, related Australian Standards and legislation, and
- Be graded and drained to a drainage system approved by Sydney Water.

6.5 Waste Servicing

The Client has advised that each tenancy will engage its own private contractor to collect and manage waste.

In accordance with better practice waste management, it is recommended that the following measures are undertaken:

- Waste collection vehicles should have convenient access to waste collection areas
- Waste collection vehicles should be able to enter and exit the Development in a forward direction, and
- A valid waste and recycling collection contract is recommended to demonstrate disposal at a waste facility lawfully able to accept the waste and the recycling when the private waste contractor is engaged. Written evidence of the valid contract is recommended to be kept on-site.
- Drawings to show the site's entry point, vehicle's route of travel and manoeuvring
- Swept path models must illustrate how a standard waste collection vehicle will enter, service and exit the site
- Unobstructed access, adequate driveways and ramps of sufficient strength to support waste collection.

Heavy vehicle compliance and access to the waste storage areas should be assessed by a traffic specialist. Heavy vehicle access is shown on the 'Level 1 Floor Plan' attached in **Appendix A.**

6.5.1 Bin Servicing

In accordance with better practice waste management, it is recommended that the following measures are undertaken:

- All bins are to have a fixed tight-fitting lid and a smooth, washable internal surface
- All bins are always to be kept in serviceable condition and at the agreed bin numbers, and
- Cleaning of bins is to be conducted on a regular basis.

6.6 Waste Avoidance, Re-use and Recycling

6.6.1 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 durable cups, mugs, crockery and cutlery rather than disposable items in places such kitchens used by staff
- Presenting all waste reduction initiatives to staff as part of their induction program
- Collecting recyclable containers and participating in the state's Container Deposit Scheme[18], and
- Leasing equipment and machinery rather than outright purchase and disposal.

6.6.2 Re-use

Possible re-use opportunities include establishing in-house systems to transport products in re-useable packaging.

6.6.3 Recycling

Additional recycling opportunities include:

- Collecting and recycling e-wastes
- Plastic stretch wrapping and general soft plastics collection with a baler for ease of recycling
- Flattening or baling cardboard to reduce the volume of paper and cardboard wastes
- Printer toners and ink cartridges, if purchased, are collected in allocated bins for appropriate contractor recycling
- Paper recycling trays provided in communal areas for scrap paper collection and recycling
- Development of 'buy recycled' purchasing policy, and
- Providing separate recycling collections for paper, plastics, cans and glass.

6.7 Communication Strategies

Waste management initiatives and management measures should be clearly communicated to building managers, owners, employees, customers and cleaners. 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
- increased recovery of recyclables and organics material, if implemented, and
- greater contribution to targets for waste reduction and resource recovery, the environment and heritage conservation.

[18] https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/return-and-earn

To realise the above benefits, the following communication strategies should be considered:

- Use consistent signage and colour coding throughout the Development
- Ensure all staff are trained in correct waste separation and management procedures
- Provide directional signage to show location of and routes to waste storage area
- General waste and recycling bins should be clearly labelled and colour-coded to ensure no cross contamination, where applicable
- Employees and cleaners should adhere to the WMP for compliance, in consultation with management, and
- Repair signs and labels promptly to avoid breakdown of communications.

6.8 Signage

The waste storage and collection areas should be provided with appropriate signage. These signs should clearly identify waste management procedures and provisions to contractors, tenants and visitors should be distributed around the Development.

Signs which clearly identify waste management procedures and provisions to staff and visitors should be distributed around the Development. Key signage considerations are:

- 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 4**
- 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 and system for signs throughout the Development, and
- Emergency contact information for reporting issues associated with waste or recycling management.

Colour-coded and labelled bin lids are necessary for identifying bins. Bins should be designed and colour-coded in accordance with the Australian Standard AS 4123: Mobile Garbage Containers.

All signage should conform to the relevant Australian Standard and use labels approved by the NSW EPA[19]. The design and use of safety signs for waste rooms and enclosures should comply with Australian Standard AS 1319 Safety Signs for the Occupational Environment and clearly describes the types of materials designated for each bin.

[19] NSW EPA waste signage and label designs http://www.epa.nsw.gov.au/wastetools/signs-posters-symbols.htm

Figure 4 Example of bin labels for operational waste

6.9 Monitoring and Reporting

Monitoring is recommended to ensure waste and recycling management arrangements and provisions for the Development are functional, practical and are maintained to the standard outlined in this plan, at a minimum.

Visual assessments of bins and bin storage areas should be conducted by the building manager, at minimum:

- Weekly, in the first two months of operation to ensure the waste management system is sufficient for the operation, and
- Every six months, to ensure waste is being managed to the standards outlined in this document.

In addition, audits are to be conducted on a half-yearly basis to ensure WMP provisions are maintained.

Quantities of waste and recycling associated with disposal of waste and recycling, including dockets, receipts and other physical records should be recorded by the Building Manager. This is to allow reviews of the waste management arrangements and provisions at the site over time. Records of waste disposal should also be available to regulatory authorities such as the NSW EPA and SafeWork NSW, upon request.

Any deficiencies identified in the waste management system, including, but not limited to, unexpected waste quantities, is to be rectified by the Building Manager as soon as it is practical. Where audits show that recycling is not carried out effectively, management should carry out additional staff training, signage re-examination and reviews of the waste management system where the audit or other reviewing body has deemed necessary. If this WMP no longer sufficiently meets the needs of the Development, review and updates to maintain suitability must be undertaken.

6.10 Roles and Responsibilities

It is the responsibility of the Building 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. SLR recommends that any subcontractors enlisted by the Client are to have roles and responsibilities identified and the Development's waste management system clearly explained. A summary of recommended roles and responsibilities are provided in **Table 11**.

Table 11 Operational waste management responsibility allocation

Responsible Person	General Tasks
Management	Ensure the WMP is implemented throughout the life of the operation.
	Update the WMP on a regular basis (e.g. annually) to ensure the Plan remains applicable.
	Undertake liaison and management of contracted waste collections.
	Organise internal waste audits on a regular basis.
	Manage any complaints and non-compliances reported through waste audits etc.
	Perform inspections of all waste storage areas and waste management equipment on a regular basis.
	Organise cleaning and maintenance requirements for waste management equipment.
	Monitor bins to ensure no overfilling occurs.
	Ensure effective signage, communication and education is provided to alert visitors, employees 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.
	Ensure waste and recycling storage rooms are kept tidy.
	Ensure that regular cleaning and daily transfer of bins is being undertaken by the cleaners
	Ultimately responsible for the management of all waste management equipment, cleaning requirements, waste transfer and collection arrangements.
Cleaners and Staff	Removal of general waste, recyclables, cardboard waste and hazardous waste from floor areas for transfer to centralised waste and recycling collection rooms daily or as required.
	Cleaning of all bins and waste and recycling rooms on a weekly basis or as required.
	Compliance with the provisions of this WMP.

APPENDIX A
ARCHITECTURAL DRAWINGS

Development Schedule		
Site Area	4,555	sqm
Offices	956	sqm
Storage units (Excluding Public amenities)	1,551	sqm
Warehouses	1,491	sqm
Public Amenities (Excluding Warehouse Amenities)	7	sqm
Building Gross Floor Area	4,005	sqm
Site Cover	88	%
Floor Space Ratio	0.88	:1
Areas Excluded from GFA		
Staging Zone	706	sqm
Waste Storage Area	78	sqm
Stairs (Including Fire Stairs)	102	sqm
Driveways	3,208	sqm
Total Gross Floor Area	4,094	sqm
Carparking		
Ground (Inclusive of x1 Disabled Parking Space)	9	
Level 1 (Inclusive of x1 Disabled Parking Space)	30	
Total Carparking	39	

LEGEND

- Building Setback Line
- Existing trees to be removed.
- Easements
- Landscape area
- Paved Area
- Building Area

01 DA100 Site & Site Analysis Plan 1:500

DEVELOPMENT APPLICATION

SBA ARCHITECTS
Commercial Industrial Residential Retail Industrial Design
Suite 702, 83 Mount Street, North Sydney, NSW 2060
T: 02 9929 9988 F: 02 9929 8899
E: info@sbaarch.com.au W: www.sbaarch.com.au

ISSUE	REV.	DESCRIPTION	DATE
	A	Development Application Issue	30.04.2021

Proposed Industrial Development

15 Jubilee Avenue, Warriewood, NSW 2102

DRAWING TITLE
Site, Roof & Site Analysis Plan

DATE	SCALE	JOB NO.	DRAWING NO.	
30.04.2021	1:500@A3	20259	DA 100	A

Lengend

- Building Setback
- Fence
- 6.4m Vehicle Swept Path
- Easement

01 DA600

02 DA600

Jubilee Avenue

2330

54060 (Storage Units 1 to 13)

EX SMH

EX TEL

Vehicle Entry / Exit

11040 Warehouse

9025 Warehouse

RL 18.71

RL 18.76

RL 19.21

RL 18.40

RL 20.87

RL 18.40

Boundary

6000 Setback

Access Path

Sliding Gate

1255 Clear

Above Ground Bioretention basin

x3 Underground RWT

Line of Ramp Over

DP

WS

AWC

COL

Kitch

Office Over

Warehouse **01**
WH - 104 Sq.m
OFF - 48 Sq.m

Staging Zone

Warehouse **02**
WH - 98 Sq.m
OFF - 40 Sq.m

Motorcycle Parking (4)

12755

OSD Tank Shown Dashed (Below Ground)

5000 RSD

RSD

Entry Only

Entry/ Exit

MSB & Comms Room

Acc WC

Storage Unit **01** 30 Sq.m

Storage Unit **02** 26 Sq.m

Storage Unit **03** 26 Sq.m

Storage Unit **04** 26 Sq.m

Storage Unit **05** 26 Sq.m

Storage Unit **06** 26 Sq.m

Storage Unit **07** 26 Sq.m

Storage Unit **08** 26 Sq.m

Storage Unit **09** 27 Sq.m

Stair

Exit

Storage Unit **10** 26 Sq.m

Storage Unit **11** 26 Sq.m

6900

Storage Unit **12** 31 Sq.m

Storage Unit **13** 83 Sq.m

3000 TYP RSD

Driveway

TYP 2700 RSD

FFL 18.40

6000 Aisle

TYP 3000 RSD

Storage Unit **14** 28 Sq.m

Storage Unit **15** 28 Sq.m

Storage Unit **16** 28 Sq.m

Storage Unit **17** 28 Sq.m

Storage Unit **18** 28 Sq.m

Storage Unit **19** 81 Sq.m

Storage Unit **20** 26 Sq.m

Storage Unit **21** 25 Sq.m

Storage Unit **22** 25 Sq.m

Storage Unit **23** 25 Sq.m

Storage Unit **24** 25 Sq.m

Storage Unit **25** 25 Sq.m

Storage Unit **26** 25 Sq.m

Storage Unit **27** 25 Sq.m

Storage Unit **28** 25 Sq.m

Storage Unit **29** 25 Sq.m

Storage Unit **30** 25 Sq.m

Storage Unit **31** 25 Sq.m

Storage Unit **32** 25 Sq.m

Storage Unit **33** 37 Sq.m

Storage Unit **34** 22 Sq.m

Storage Unit **35** 22 Sq.m

Storage Unit **36** 22 Sq.m

Storage Unit **37** 22 Sq.m

Storage Unit **38** 22 Sq.m

Storage Unit **39** 22 Sq.m

Storage Unit **40** 22 Sq.m

Storage Unit **41** 22 Sq.m

Storage Unit **42** 22 Sq.m

Storage Unit **43** 22 Sq.m

Storage Unit **44** 22 Sq.m

Storage Unit **45** 22 Sq.m

Storage Unit **46** 23 Sq.m

Storage Unit **47** 23 Sq.m

Storage Unit **48** 22 Sq.m

Storage Unit **49** 22 Sq.m

Storage Unit **50** 22 Sq.m

Storage Unit **51** 22 Sq.m

Storage Unit **52** 22 Sq.m

Storage Unit **53** 22 Sq.m

Storage Unit **54** 22 Sq.m

Storage Unit **55** 22 Sq.m

Storage Unit **56** 22 Sq.m

Storage Unit **57** 22 Sq.m

Storage Unit **58** 22 Sq.m

Storage Unit **59** 22 Sq.m

12015

6700

Exit Only

Entry/ Exit

TYP 2700 RSD

Boundary

Stormwater Easement

15000

9665

Office Over

Staging Zone

Warehouse **03**
WH - 69 Sq.m
OFF - 55 Sq.m

Warehouse **04**
WH - 39 Sq.m
OFF - 36 Sq.m

Warehouse **05**
WH - 49 Sq.m
OFF - 36 Sq.m

Sewer Easement

Driveway

4500 RSD

8540

3500 RSD

1000

47619 (Storage Units 36 to 63)

60000 (Storage Units 19 - 33)

7950

3000 Setback

3000 Easement

10695 Warehouse

7760 Warehouse

10005 Warehouse

5495

DEVELOPMENT APPLICATION

SBA ARCHITECTS
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ISSUE	REV.	DESCRIPTION	DATE
	A	Development Application Issue	30.04.2021

Proposed Industrial Development

15 Jubilee Avenue, Warriewood, NSW 2102

DRAWING TITLE
Ground Floor Plan

DATE	SCALE	JOB NO.	DRAWING NO.	
30.04.2021	1:250@A3	20259	DA 200	A

Lengend

- Building Setback
- Fence
- 6.4m Vehicle Swept Path
- Easement

Jubilee Avenue

11193
9053
4165
8935
01 - Office
48 Sq.m
FFL 20.80
Entry
Stair
02 - Office
40.0 Sq.m
FFL 20.80
Entry
Stair
Void
(Warehouse)
Void
(Warehouse)
RSD (Below)
RSD (Below)

Driveway (Below)

9545
6570
8535
03 - Office
55 Sq.m
FFL 20.80
Entry
Stair
RSD (Below)
RSD (Below)
04 - Office
36 Sq.m
FFL 20.80
05 - Office
36 Sq.m
FFL 20.80
Line of Warehouse Below
Entry
Entry
Stair
Stair
RSD (Below)
Void
(Warehouse)
Void
(Warehouse)
Void
(Warehouse)

5450
3805
3805

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ISSUE	REV.	DESCRIPTION	DATE
	A	Development Application Issue	30.04.2021

Proposed Industrial Development

15 Jubilee Avenue, Warriewood, NSW 2102

DRAWING TITLE
Ground Mezzanine Floor Plan

DATE	SCALE	JOB NO.	DRAWING NO.	
30.04.2021	1:250@A3	20259	DA 201	A

Legend

- Building Setback
- Fence
- 6.4m Vehicle Swept Path
- Easement

01 DA600

02 DA600

Jubilee Avenue

Boundary

Vehicle Entry / Exit

RL 22.50

RL 22.70

RL 23.90

Sliding Gate

1:20 (5.00%)

Ramp Up 1:11 (8.75%)

1:16 (6.25%)

Pedestrian Ramp (1:14)

16060

17205

6000 Setback

11100

11650

15715

Stormwater Easement.

Boundary

11396 | 8801 | 9775 | 8530 | 8530 | 8530 | 8530 | 8530 | 8555 | 1085

300 | 300

Warehouse **14** WH - 80 Sq.m OFF - 50 Sq.m

Warehouse **13** WH - 58 Sq.m OFF - 44 Sq.m

Warehouse **12** WH - 47 Sq.m OFF - 32 Sq.m

Warehouse **11** WH - 46 Sq.m OFF - 39 Sq.m

Warehouse **10** WH - 46 Sq.m OFF - 39 Sq.m

Warehouse **09** WH - 46 Sq.m OFF - 39 Sq.m

Warehouse **08** WH - 46 Sq.m OFF - 39 Sq.m

Warehouse **07** WH - 46 Sq.m OFF - 39 Sq.m

Warehouse **06** WH - 45 Sq.m OFF - 39 Sq.m

Warehouse **15** WH - 80 Sq.m OFF - 51 Sq.m

Warehouse **16** WH - 60 Sq.m OFF - 33 Sq.m

Warehouse **17** WH - 74 Sq.m OFF - 33 Sq.m

Warehouse **18** WH - 98 Sq.m OFF - 36 Sq.m

Warehouse **19** WH - 54 Sq.m OFF - 36 Sq.m

Warehouse **20** WH - 54 Sq.m OFF - 36 Sq.m

Warehouse **21** WH - 54 Sq.m OFF - 36 Sq.m

Warehouse **22** WH - 55 Sq.m OFF - 36 Sq.m

Warehouse **23** WH - 55 Sq.m OFF - 36 Sq.m

Warehouse **24** WH - 88 Sq.m OFF - 48 Sq.m

Staging Zone | RSD | WS | DP | Stair | AWC | Kitch | Void | Office Over | Columns under | Removable Bridge

4000 RSD | 3400 RSD | 39 Sq.m | 44 Sq.m | 32 Sq.m | 50 Sq.m | 51 Sq.m | 33 Sq.m | 36 Sq.m | 48 Sq.m

Driveway

FFL 23.90

6400 Aisle

Acoustic Panels (dashed) to Eng Details

3000 Easement | 9610 | 8255 | 10820 | 10255 | 7815 | 7815 | 7815 | 7815 | 7815 | 10665 | 3000 Setback

01 DA300 Level 1 Floor Plan 1:250

DEVELOPMENT APPLICATION

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ISSUE	REV.	DESCRIPTION	DATE
	A	Development Application Issue	30.04.2021

Proposed Industrial Development

15 Jubilee Avenue, Warriewood, NSW 2102

DRAWING TITLE: **Level 1 Floor Plan**

DATE	SCALE	JOB NO.	DRAWING NO.	
30.04.2021	1:250@A3	20259	DA 300	A

Lengend

- Building Setback
- Fence
- 6.4m Vehicle Swept Path
- Easement

01 / DA600

02 / DA600

Jubilee Avenue

Vehicle Entry / Exit

Void (Warehouse)

Stair

Entry

RSD (Below)

Line of Warehouse Below

14 - Office
50 Sq.m
FFL 26.40

13 - Office
44 Sq.m
FFL 26.40

12 - Office
32 Sq.m
FFL 26.40

11 - Office
39 Sq.m
FFL 26.40

10 - Office
39 Sq.m
FFL 26.40

09 - Office
39 Sq.m
FFL 26.40

08 - Office
39 Sq.m
FFL 26.40

07 - Office
39 Sq.m
FFL 26.40

06 - Office
39 Sq.m
FFL 26.40

Driveway (Below)

15 - Office
51 Sq.m
FFL 26.40

16 - Office
33 Sq.m
FFL 26.40

17 - Office
33 Sq.m
FFL 26.40

Metal Shades to Windows
Shown Dashed

18 - Office
36 Sq.m
FFL 26.40

19 - Office
36 Sq.m
FFL 26.40

20 - Office
36 Sq.m
FFL 26.40

21 - Office
36 Sq.m
FFL 26.40

22 - Office
36 Sq.m
FFL 26.40

23 - Office
36 Sq.m
FFL 26.40

24 - Office
48 Sq.m
FFL 26.40

01 / DA300 Level 1 Mezzanine Floor Plan 1:250

DEVELOPMENT APPLICATION

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ISSUE	REV.	DESCRIPTION	DATE
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Proposed Industrial Development

15 Jubilee Avenue, Warriewood, NSW 2102

DRAWING TITLE
Level 1 Mezzanine Floor Plan

DATE	SCALE	JOB NO.	DRAWING NO.	
30.04.2021	1:250@A3	20259	DA 301	A

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