

HORSLEY LOGISTICS PARK

Mod 4 Lot 204 Waste Management Plan

Prepared for:

ESR
Level 29
20 Bond St
Sydney, 2000,
NSW Australia

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EXECUTIVE SUMMARY

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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 ESR (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.

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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
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1 Introduction

1.1 Overview

SLR prepared the original waste management plan (WMP) for the State Significant Development Application 10436 (SSDA) for the whole Horsley Logistics Park site, which was approved March 2021, and for MOD-1, which was approved August 2021. There have been some modifications to the original approved design for Lot 204, including changes to the size of the warehouses. This WMP is required for MOD 4 to the SSDA for Lot 204 given the updates to the design. A separate WMP applies for all other lots.

The modification for Lot 204 seeks to reconfigure the warehouse to divide it into two tenancies. There are also changes to the allocation of parking and hard stand areas.

This WMP is for the construction and operational activities of the development and has been prepared using architectural drawings supplied by the Client and attached in **Appendix A**.

1.2 Objectives

The principal objective of this WMP is to identify all potential wastes likely to be generated at the Development site during 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 Fairfield City Council's (Council) requirements.

The objectives of this WMP are as follows:

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

2 Project Description

2.1 Overview of Proposed Development

The Client is developing an industrial estate at 327-335 Burley Road, Horsley Park as part of the ESR Horsley Logistics Park. The Client has received approval for the proposed industrial estate through an SSDA. SLR has been advised that by the time this modification is lodged, there will be a consent to cover the entire estate. This WMP applies specifically to Lot 204.

2.2 Overview of Proposed Construction Work

The Development works will include construction activities. The site plan for development of the Lot 204 of the ESR Horsley Logistics Park is shown below in **Figure 1**.

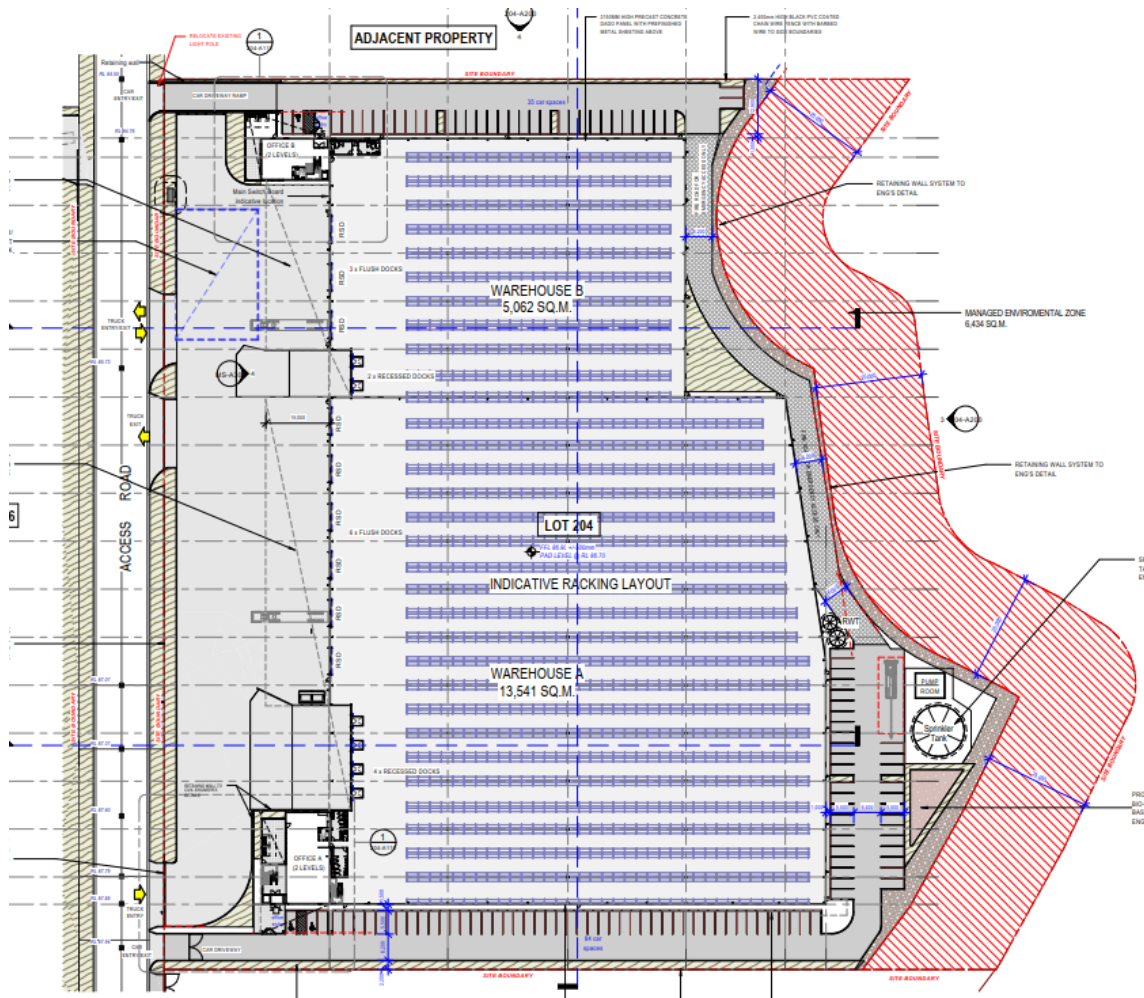


Figure 1 Lot 204 Site Plan

The anticipated works for this development include construction of:

- Two warehouse buildings
- Two two-storey ancillary office buildings
- Truck and car parking areas and associated site hardstands, and
- Minor landscaping areas, sprinkler tanks and pump rooms.

2.3 Overview of Proposed Operations

The Client has advised SLR that the Development will function as a standard warehouse and distribution precinct.

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 **Table 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.

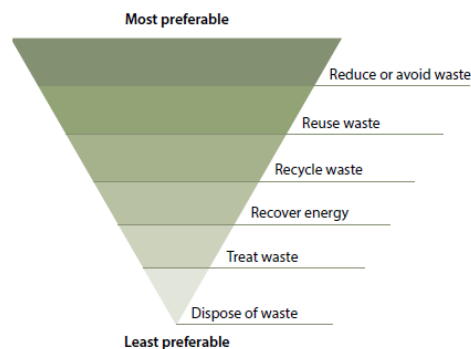


Image from NSW EPA (2014) NSW Waste Avoidance and Resource Recovery Strategy 2014-21.

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 demolition, construction and operational phases of the Development.

Table 1 Legislation and guidance

Legislation and Guidance	Objectives
Council legislation and guidelines	
Secretary's Environmental Assessment Requirements (SEARs)	SEARs provide the additional requirements that must be completed when a critical state significant infrastructure project is submitted in a DA in NSW. The objective of SEARs submissions is to achieve better environmental outcomes by focusing on environmentally sensitive areas and areas of the greatest community concern. The provisions of the SEARs must be met for DA approval including the provision of a construction and operational waste management plan.
Fairfield Local Environmental Plan 2013 (FLEP 2013) ¹	The Fairfield LEP came into force for the local government area in 2013 and guides land use and development by zoning land, identifying what land uses are allowed in each zone, and specifying development standards such as maximum height and minimum lot sizes. LEPs are the main planning tool to shape the future of development in Fairfield City.
Fairfield Citywide Development Control Plan 2013 ²	The Fairfield DCP came into effect in 2013 and provides greater planning detail for developments, supplementing the zoning and development standards contained within the FLEP 2013. The DCP helps promote better development throughout the city, protecting the community's lifestyle and enjoyment of town centres and neighbourhoods. One of the objectives of the DCP is to assist in reducing Fairfield's ecological footprint by encouraging the diversion of waste from landfill. This WMP specifically addresses Appendix E of the DCP for demolition and construction waste and the waste management guidelines in chapter 9 for industrial use.
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 2019	The National Construction Code 2019 sets the minimum requirements for the design, construction and performance of buildings throughout Australia.
National Waste Policy Action Plan 2019	This National Action Plan presents targets and actions to implement the 2018 National Waste Policy. These targets and actions will guide investment and national efforts to 2030 and beyond, including achieving 80% average resource recovery rate from all waste streams following the waste hierarchy by 2030
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	This strategy updates the previous <i>Waste Avoidance and Resource Recovery Strategy 2014–2021</i> . This strategy focuses on waste reduction and recycling, including environmental benefits and economic opportunities in how waste is managed in NSW. The strategy also includes a commitment to adopt the set of targets set out in the 2019 National Waste Policy Action Plan and to measure progress against these targets.

¹ <https://www.legislation.nsw.gov.au/view/html/inforce/current/epi-2013-0213>

² https://www.fairfieldcity.nsw.gov.au/files/assets/public/documents/plan_build/fairfield-citywide-dcp-2013-amendment-no.22-21-september-20203.pdf

Legislation and Guidance	Objectives
NSW EPA Resource Recovery Orders and Resource Recovery Exemptions	<p>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 operational wastes such as food waste.</p> <ul style="list-style-type: none"> 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	<p>The NSW EPA <i>Waste Classification Guidelines</i> 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 <i>POEO Act 1997</i> and its associated regulations.</p>
<i>Protection of the Environment Operations Act (POEO) 1997 and Amendment Act 2011</i>	<p>The <i>POEO Act 1997</i> and <i>POEO Amendment Act 2011</i> 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 wastes generated during the demolition, construction and operational phases of a development, as well as the system for licencing waste transport and disposal.</p>
The Work Health and Safety Regulation 2011	<p>The Work Health and Safety Regulation 2011 provide detailed actions and guidance associated with the topics discussed in <i>The Work Health and Safety Act 2011</i>. 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.</p>
<i>Waste Avoidance and Resource Recovery Act 2001</i>	<p>The <i>Waste Avoidance and Resource Recovery Act 2001</i> aims to promote waste avoidance and resource recovery and repeals the <i>Waste Minimisation and Management Act 1995</i>. Specific objectives of the <i>Waste Avoidance and Resource Recovery Act 2001</i> include:</p> <ul style="list-style-type: none"> 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/resource management planning, programs and service delivery. <p>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.</p>

5 Construction Waste and Recycling Management

5.1 Targets for Resource Recovery

The performance of each new development should contribute to the target proposed in the NSW Waste and Sustainable Materials Strategy 2041 of 80 % average recovery rate from all waste streams (including construction and demolition waste) by 2030.

It is anticipated that the waste minimisation and recovery measures presented in the following sections will assist the Development to meet this target. Waste reporting and audits can be used to determine the actual percentage of wastes that have been recycled during the construction stage of the Development.

5.2 Waste Streams and Classifications

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

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

A summary of likely waste types generated from 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*³. Further information on managing construction wastes is available from the NSW EPA website⁴ and Council's DCP⁵.

³ Available online from <https://www.epa.nsw.gov.au/your-environment/waste/classifying-waste/waste-classification-guidelines>

⁴ <http://www.epa.nsw.gov.au/your-environment/waste/industrial-waste/construction-demolition>

⁵ http://www.fairfieldcity.nsw.gov.au/info/20002/planning_and_building/231/dcps_and_structure_plans

Table 2 Potential waste types and their 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)	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	General solid waste (non-putrescible)	Off-site recycling, Chip for landscaping, Sell for firewood <i>Treated</i> : reused for formwork, bridging, blocking, propping or second-hand supplier <i>Untreated</i> : reused for floorboards, fencing, furniture, mulched second hand supplier Remainder to landscape supplies.
Doors, Windows, Fittings	General solid waste (non-putrescible)	Off-site recycling at second hand building 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 at a licenced landfill facility.
Fluorescent light fittings and bulbs	Hazardous waste	Off-site recycling or disposal; contact <i>FluoroCycle</i> for more information ⁶
Paint	Hazardous waste	Off-site recycling, Paintback collection ⁷ or disposal
Synthetic Rubber or carpet underlay	General solid waste (non-putrescible)	Off-site recycling; reprocessed and used in safety devices and speed humps

⁶ Available online from <http://www.fluorocycle.org.au/> or <http://www.environment.gov.au/settlements/waste/lamp-mercury.html>

⁷ Available online from <https://www.paintback.com.au/>

Waste Types	NSW EPA Waste Classification	Proposed Management Method
Ceramics including tiles	General solid waste (non-putrescible)	Off-site recycling at a crushing and recycling company
Carpet	General solid waste (non-putrescible)	Off-site recycling or disposal; reused for landscaping, insulation or equestrian uses
Plant Maintenance		
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 ⁸ 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 <i>Business Recycling</i> for more information ⁹
Work Compound and Associated Offices		
Food Waste	General solid (putrescible) waste	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 deliver to local NSW container deposit scheme 'Return and Earn' facility ¹⁰
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 and polystyrene	General solid waste (non-putrescible) mixed with putrescible waste	Disposal at landfill

⁸ <http://www.batteryrecycling.org.au/home>

⁹ Available online from <http://businessrecycling.com.au/search/>

¹⁰ Available online from <http://returnandearn.org.au/>

5.3 Construction Waste Types and Quantities

5.3.1 Construction waste generation rates

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.

In the absence of readily available construction waste generation rates from Council, SLR has adopted the waste generation rates from Appendix A of The Hills Development Control Plan (DCP) 2012 for estimating the type and quantities of waste generated from construction of the Development. The waste generation rates listed in the Hills DCP include '2 Bedroom', '3 Bedroom', 'Block of Flats', 'Factory' and 'Office'. SLR has adopted the 'Factory' and 'Office' rates to measure waste expected from the Development, as the construction of a factory and office is the most relevant in representing the construction of the industrial warehouse and office precinct.

In the absence of readily available published information for 'Carpark', construction waste generation rates, SLR has developed 'Carpark' 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 m² of construction.

The waste generation rates are shown in **Table 3**.

Table 3 Average waste generation rates for the construction of the Development

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
Carpark	1,000	--	30.6	--	--	14.3	4.5	8.1

These waste generation rates are used to estimate the waste generated from the construction of the Development. The anticipated construction waste quantities for are shown in **Section 5.3.1** below.

The waste generation rates for 'Factory' are applied to calculate the waste quantities from the construction of each of the warehouses and associated areas. The 'Office' waste generation rates are applied to calculate the waste quantities from all office administration areas. The 'Carpark' waste generation rates are applied to calculate the waste quantities from the construction of all external hard surface areas including access roads, carparks, light duty pavement and heavy-duty pavement. The areas are based on area information provided by the Client.

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.

5.3.2 Construction waste quantities

The construction waste quantities anticipated from Lot 204 are provided in **Table 4**. The areas are based on area information provided by the Client's site plans in **Appendix A**.

Table 4 Estimated types and quantities of construction waste from Development

Development Component		Area (m ²)	Waste types and quantities (m ³)						
			Timber	Concrete	Brick	Gyprock	Sand and Soil	Metal	Other
Lot 204	Total warehouse area	18,603	5	39	31	8	89	11	9
	Total office area	1,150	6	22	10	10	10	3	6
	Heavy Duty Pavement	6,278	-	192	-	-	90	28	51
	Light duty Pavement	4,155	-	127	-	-	59	19	34
Totals		30,186	11	380	40	18	249	61	100

Council's DCP requires architectural drawings to show details of the location of containers, separated materials, and treatment of construction waste. Council's checklist is provided in **Appendix B**, which will aid in checking the drawings against Council's requirement. The form is also available on Council's website¹¹.

At the time of preparing this plan, architectural drawings with storage details for construction waste were not available. This is to be updated by the site manager once waste streams, estimated quantities, and final disposal locations and recycling services have been identified.

5.4 Waste Avoidance

In accordance with best practice waste management, the building contractor, building designer and/or equivalent roles should:

- Develop a purchasing policy based on the approximate volumes 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:

¹¹ https://www.fairfieldcity.nsw.gov.au/files/assets/public/documents/building_development/waste_management_form.pdf

- 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.

5.5 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 2** for an outline of the proposed reuse, recycling and disposal methods for potential 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.
- 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.

5.6 Waste Storage and Servicing

5.6.1 Waste Segregation and Storage

As outlined in the DCP and better practice waste management, Waste materials from site preparation, demolition and construction activities are to be separated at the source and stored separately on-site. It is anticipated that the Development will provide sorting bins and areas on-site for recycling and disposal of building waste materials and indicated on the site plans or drawings. Enough space should be for separate storage, for example, separate skip bins or appropriately managed stockpiles, of the following waste types:

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

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.

5.6.2 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.

Where a skip is required and on-site constraints do not enable it to be located on the property, a separate application for a road occupancy license is required.

In accordance with the Council DCP and better practice waste management, areas designated for waste storage should:

- Allow for appropriate vehicular access to enable the removal of waste materials for reuse, recycling and/or disposal.
- Ensure construction materials are to be stored separately from waste and recycling materials to enable easy access for waste collectors.
- 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
- Consider visual amenity, safety, accessibility, and convenience in their selection, and
- Not present hazards to human health or the environment.

5.6.3 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.
- 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.

5.6.4 Contaminated or Hazardous Waste Management

During the site preparation 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 2011, the Protection of the Environment Operations (Waste) Regulation 2005 and the Council DCP.

5.7 Site Inductions

All staff, including sub-contractors and labourers, employed during the construction phase 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.

5.8 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 online¹² 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

5.9 Monitoring and Reporting

The following monitoring practices are to be undertaken to improve 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 waste management plans.

As per Council's DCP, all demolition and construction waste dockets must be kept which show which facility received the material for recycling or disposal. Audits may be conducted by Council to verify that dockets have been kept and waste recycled and disposed of as described within the WMP. Dockets will need to show the company's Australian Business Number (ABN). 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.

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.

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

5.10 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 5**.

Table 5 Suggested roles and responsibilities for construction waste management

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.
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.

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 target for recycling and recovery outlined in the *NSW Waste and Sustainable Materials Strategy 2041*. The target includes achieving 80 % average recovery rate from all waste streams by 2030. Each commercial and industrial development can 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 Development is anticipated to generate the following broad waste streams:

- Domestic wastes generated by employees, including food wastes
- Bulk packaging wastes, including polystyrene, plastic wrapping and cardboard boxes
- Office waste
- Garden organic waste from landscaped areas
- Bulky waste items such as furniture and e-waste, and
- Stores, plant and general maintenance wastes.

Potential ongoing 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. Suggestions for recycling drop off locations and contacts can be found on <https://businessrecycling.com.au/> for each waste type.

Table 6 Potential waste types, classifications and management methods for operational waste

Waste Types	NSW EPA 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
Batteries	Hazardous waste	Off-site recycling, alternatively contact the Australian Battery Recycling Initiative for more information

Waste Types	NSW EPA Classification	Proposed Management Method
Mobile Phones	Hazardous waste	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	Hazardous waste	Off-site recycling
Printer toners and ink cartridges	Hazardous waste	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 ¹³	General solid (non-putrescible) waste, or Hazardous waste (some commercial varieties)	Disposal to landfill, or off-site disposal at licensed facility
Glass, other than containers	General solid (non-putrescible) waste	Off-site recycling
Light bulbs and fluorescent tubes	Hazardous waste	Off-site recycling or disposal, contact FluoroCycle ¹⁴ or Lamp Recyclers ¹⁵ for more information
Cleaning chemicals, solvents, area wash downs, empty oil or paint drums, 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.	Transport to comply with the transport of Dangerous Goods Code applies in preparation for off-site recycling or disposal at licensed facility.
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

6.3 Estimated Quantities of Operational Waste

In the absence of waste generation rates from Council, SLR has adopted the waste generation rates for 'Offices' from the 'Offices' from the *Better Practice Guide for Resource Recovery in Residential Developments* (NSW EPA, 2019) and waste generation rates for 'Warehouse' from the Penrith City Council DCP 2014 section 3.3.4¹⁶ for estimating the type and quantities of waste generated for from the operational activities of the Development. The operational waste generation rates used are shown below in **Table 7**.

¹³ 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.

¹⁴ <https://www.fluorocycle.org.au/>

¹⁵ <https://www.lamprecyclers.com.au/>

¹⁶ <https://www.penrithcity.nsw.gov.au/building-development/planning-zoning/planning-controls/development-control-plans>

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

Type of Premises	General Waste Generation (L/100 m ² /day)	Recycling Generation (L/100 m ² /day)
Warehouse	10	10
Offices	10	15

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 additionally calculated based on the below assumptions:

- GFAs as presented on the architectural drawings shown in **Appendix A**, and
- A week comprising seven days of operation.

Table 8 Estimated quantities of operational general waste and recycling

Location	Area (m ²)	General Waste (L/week)	Recycling (L/week)
Warehouse A	13,541	9,479	9,479
Office A (2 levels)	700	490	735
Total	14,241	9,969	10,214
Warehouse B	5,062	3,543	3,543
Office B (2 levels)	450	315	473
Total	5,512	3,858	4,016

Based on the Development's activities, SLR estimates that large quantities of the recycling stream will include pallets and plastic and cardboard packaging waste. To minimise packaging waste generated in the recyclables stream, it is recommended that packing waste is returned to the suppliers where possible. Standard pallets are recommended to be returned to their owners and non-standard and broken pallets are to be stockpiled and collected as required by a private waste contractor.

If additional collection services are required, such as secured document destruction, these can be organised with a private waste contractor who can provide additional bins and take collected waste to an off-site licenced facility.

The Development is anticipated to produce minimal quantities of garden organics, less than 100 L per week. This waste will be taken by a landscaping contractor who will dispose of it at an off-site licenced facility.

6.4 Waste Storage Area Size

The areas required for the waste storage rooms consider bin sizes, bin numbers and additional space for easy and safe movement of bins. The waste storage area must be large enough to adequately store all quantities of operational waste and recycling between collections.

In the absence of bin dimensions from Council, SLR has adopted the bin dimensions from the Penrith City Council DCP 2014 section 3. See **Table 9** below for the dimensions and approximate footprint of bins.

Table 9 Dimensions and approximate footprint of bins

Dimension	Height (mm)	Depth (mm)	Width (mm)	Footprint (m ²)
3 m ³ bin	1,590	2040	2,060	4.2

The estimated number of bins required for weekly storage of operational waste and recycling generated by the development are in Table 10 and are based on:

- The estimated quantities of operational waste and recycling as shown in **Table 8**
- Bin dimensions from as shown in Table 9

Table 10 Recommended number of bins and minimum storage area for weekly operations

Location	Area (m ²)	Bins Required		Collection Frequency per Week		Recommended Storage Area (m ²)
		General Waste	Comingled Recycling	General Waste	Comingled Recycling	
Warehouse A	14,241	1 x 3 m ³	1 x 3 m ³	4	4	16.8
Warehouse B	5,512	1 x 3 m ³	1 x 3 m ³	2	2	16.8

SLR has assumed that there will be adequate space inside the warehouses and offices for bins for temporary storage of garbage and recycling. Onsite staff will be responsible for emptying these bins into the appropriate 3 m³ skip bins located in the waste storage areas.

6.4.1 Bulky Waste

Council's DCP does not specifically outline requirements for bulky waste storage. SLR understands that from time to time, bulky waste including broken pallets, broken storage units, e-waste and other materials that cannot be disposed of in the general or recyclable waste stream will likely be generated. SLR notes that there is adequate space in the allocated waste storage areas to store bulky waste that could accumulate during operations. The client could consider hiring a hook-lift truck from time to time to collect the bulky waste if and when needed.

6.5 Waste Storage Room Location

In accordance with better practice waste management and recommendations from Council's DCP, the waste storage area should be located so that:

- It is away from adjoining residential dwellings
- It does not cause any negative impacts, in terms of visual appearance, noise or smell, to adjoining properties, or to the street
- It is near any on-site loading bays
- It is convenient, safe, functional and directly accessible to users in each tenancy and servicing collection staff, but inaccessible to the public
- It avoids pedestrian or vehicular traffic hazards likely to be caused by waste collection and storage,

In accordance with waste management best practice, and previous comments from Council, the architectural drawings, attached in **Appendix A**, should be updated to show the location and size of the waste storage areas. SLR recommends this WMP be updated when the architectural plans are show the location and size of the waste storage areas to comply with Council's waste storage area size and location requirements.

6.6 Waste Storage Area Features

In accordance with best practice waste management and Fairfield DCP, the Development's waste storage areas should have the following features:

- Be designed so that the floors and walls can be washed on a regular basis
- Include separation facilities for waste to be divided into separate waste streams in order to recycle materials
- Blend into the design of the wider development and the surrounding streetscape
- Be well lit and well-ventilated
- Fully enclosed and walled
- Adequate vermin prevention measures
- Reduce potential noise and odour impacts
- Enhance safety for the public
- Be connected to a water outlet for washing purposes
- Equipped with a hot and cold tap-based water supply centralised mixing valve
- Floor graded to a central drainage point which is connected to the sewer
- Have water discharge from washing flow to a sewer approved by the relevant authority
- Waterproofed and sealed non-slip floor constructed in accordance with the Building Code of Australia.
- Waste equipment is protected from theft and vandalism
- Be fully enclosed, walled and not permit through access to other on-site waste infrastructure
- Adequate lighting and natural or mechanical ventilation in accordance with the Building Code of Australia
- Provide administrative management, including signage to ensure appropriate use
- Be screened from public areas to reduce the impacts of noise, odour and visual amenity, and
- Flexible in design to allow for future changes in operation, tenancies and uses.

6.7 Waste Servicing

The following general waste servicing access requirements should be implemented:

- Waste will be removed regularly.
- Arrangements should be in place so that the waste and recycling storage rooms are not accessible to the general public.

In accordance with best practice waste management, the following is recommended for the access provisions for of waste collection vehicles:

- Collection vehicles should be able to enter and exit the collection area in a forward direction
- Drawings should show the site's entry point, vehicle's route of travel and manoeuvring
- Swept path models should 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

SLR recommends that the design of the Development is reviewed by a traffic specialist and that the drawings are updated accordingly. This WMP should then be updated to reflect those updates.

Once a private waste contractor is engaged, a valid waste and recycling collection contract is recommended to demonstrate disposal at a waste facility lawfully able to accept it. Written evidence of the valid contract should be kept on-site.

6.8 Waste Avoidance, Reuse and Recycling Measures

6.8.1 Waste Avoidance

Waste avoidance measures include:

- Participating in take-back services to suppliers to reduce waste further along the supply chain
- Avoiding printing where possible
- Review of packaging design to reduce waste but maintain 'fit for purpose'
- Providing ceramic cups, mugs, crockery and cutlery rather than disposable items
- Purchasing consumables in bulk to avoid unnecessary packaging
- Presenting all waste reduction initiatives to staff as part of their induction program, and
- Investigating leased office equipment and machinery rather than purchase and disposal.

6.8.2 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.

6.8.3 Recycling

Recycling opportunities include:

- Collecting and recycling e-wastes
- Flatten or bale cardboard to reduce number of bins required
- Paper recycling trays provided in office areas for scrap paper collection and recycling
- Collecting printer toners and ink cartridges in allocated bins for appropriate contractor recycling, and
- Development of 'buy recycled' purchasing policy.

6.9 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.

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 co-mingled 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.

6.10 Signage

In accordance with best practice waste management, 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. All signage should conform to the relevant Australian Standard and use labels approved by the NSW EPA¹⁷. 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.



Figure 4 Example of bin labels for operational waste

6.11 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 Environmental Protection Authority 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 waste management plan no longer sufficiently meets the needs of the Development, review and updates to maintain suitability must be undertaken.

¹⁷ NSW EPA waste signage and label designs <http://www.epa.nsw.gov.au/wastetools/signs-posters-symbols.htm>

6.12 Roles and Responsibilities

It is the responsibility of the Building Manager, or equivalent role, to implement this WMP and a responsibility of all warehouse tenants and staff to follow the waste management procedures set out by the WMP. SLR recommends that all 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.
	Regularly update the WMP, for example, yearly, to ensure it 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 and by other means.
	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.
Gardening Contractor, as applicable	Removal of all garden organics waste generated during gardening maintenance activities for recycling at an off-site location or reuse as organic mulch on landscaped areas.

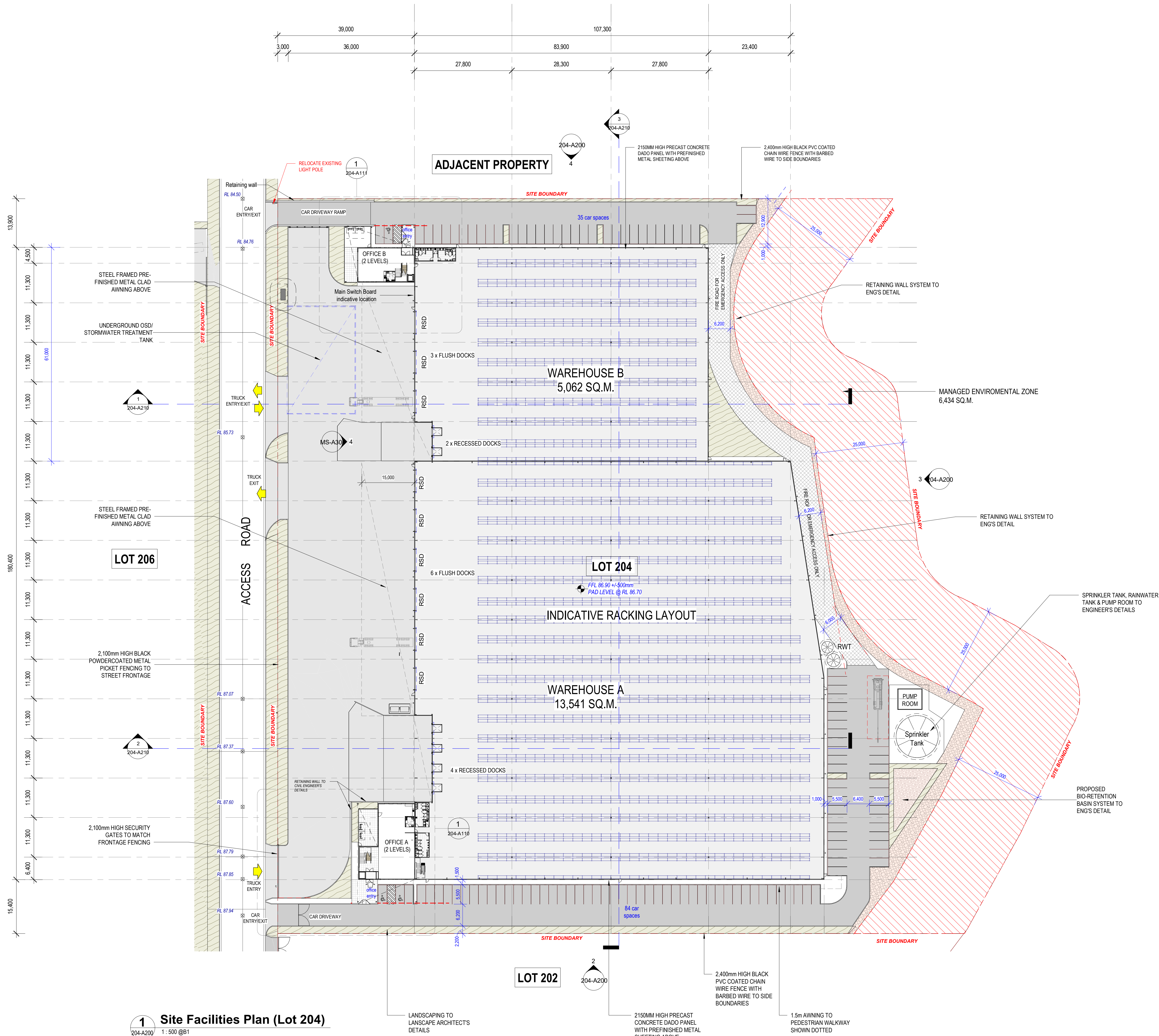
APPENDIX A

Site plans

DEVELOPMENT SUMMARY (LOT 204)	
SITE AREA (LOT 204) (Approx.)	40,272 sqm
OVERALL BUILDING AREA	19,753 sqm
EFFICIENCY	48.9 %
WAREHOUSE A	13,541 sqm
OFFICE A (2 LEVELS)	700 sqm
TOTAL BUILDING AREA	14,241 sqm
AWNING (5M)	122 sqm
AWNING (15M)	1,088 sqm
CARPARKING PROVIDED	84 spaces
WAREHOUSE B	5,062 sqm
OFFICE B (2 LEVELS)	490 sqm
TOTAL BUILDING AREA	5,512 sqm
AWNING (5M)	55 sqm
AWNING (15M)	515 sqm
CARPARKING PROVIDED	35 spaces
HEAVY DUTY PAVEMENT (H)	6,276 sqm
LIGHT DUTY PAVEMENT (L)	4,155 sqm
TOTAL WAREHOUSE AREA	18,603 sqm
TOTAL OFFICE AREA	1,190 sqm
CAR PARKING REQUIRED	90 spaces
WH 1:300, OFF 1:140	
TOTAL CARPARKING PROVIDED	119 spaces

Parking Schedule (Lot 204A)		
Type	Description	Count
PK-CP1	PK-CP1-5500 x 2500mm - 90 deg	80
PK-CP1	PK-CP1-5500 x 2500mm - (Disable)	2
Grand total		84

Parking Schedule (Lot 204B)		
Type	Description	Count
PK-CP1	PK-CP1-5500 x 2500mm - 90 deg	34
PK-CP1	PK-CP1-5500 x 2500mm - (Disable)	1
Grand total		35



1 Site Facilities Plan (Lot 204)
204-A200 1:500 @B1

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