

Industrial Warehouse Development COPE Sensitive Freight Waste Management Plan

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HB&B Property

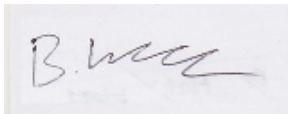
Industrial Warehouse Development COPE Sensitive Freight

Waste Management Plan

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Acronyms and Abbreviations

Acronym	Definition
AIBP	Alsip Industrial Business Park
DCP	Development Control Plan
MGB	Mobile Garbage Bin - Small bins that have two wheels so can only be moved forwards and backwards (not sideways).
WMP	Waste Management Plan

1 Introduction

Arcadis has been engaged by HB&B Property Ltd to prepare a Waste Management Plan (WMP) for the proposed COPE Sensitive Freight DC industrial warehouse development at 221 Luddenham Road, Orchard Hills.

This WMP has been prepared to support a Development Penrith City Council, and applies to the waste generated from the demolition and construction stages of the Development.

1.1 Scope

This WMP details:

- Waste generating activities during the demolition, construction and operational stage and the likely types of waste to be generated
- Estimated volumes for reuse, recycling and disposal
- Mitigation measures aligned with the waste management hierarchy
- Servicing arrangements including the transfer and collection of waste

1.2 Sources of information

Table 1-1 below lists the key sources of information and documents that have informed this WMP.

Table 1-1: Key sources of information

Aspect	Source
Proposed site details	<ul style="list-style-type: none"> • Architectural Drawing Set (Nettletontribe) <ul style="list-style-type: none"> – Series 13102 P3 dated 09/10/202
Floor space usage	<ul style="list-style-type: none"> • Architectural Drawing Set (Nettletontribe) <ul style="list-style-type: none"> – Series 13102 P3 dated 09/10/
Development requirements and guidelines	<ul style="list-style-type: none"> • Penrith Council's DCP Industrial, Commercial and Mixed-Use Waste Management Guidelines
Industrial waste generation rates	<ul style="list-style-type: none"> • Hills Shire Development Control Plan 2012- Appendix A • Penrith Council's DCP Industrial, Commercial and Mixed-Use Waste Management Guidelines • the City of Sydney's Guidelines for Waste Management in New Developments
Current COPE waste management practices	<ul style="list-style-type: none"> • RFI issued from HB&B received 4 October 2023

2 Context

2.1 Location

The subject site is located on Luddenham Road, south of Patons Lane, in Orchard Hills. Located approximately 30 kilometres west of Parramatta CBD, the proposed COPE Sensitive Freight warehouse is part of the larger Alspec Industrial Business Park (AIBP) development. The AIBP site is irregular in shape, with frontages across both Luddenham Road and Patons Lane.

The subject site is broadly rectangular in shape, with a total area of 78,106sqm. The site has frontage to an internal road within the AIBP site. The internal access road provides access to the broader road network via Patons Lane and Luddenham Road.

The site location is shown in Figure 2-1, with the location of the COPE site within the AIBP development shown in Figure 2-3

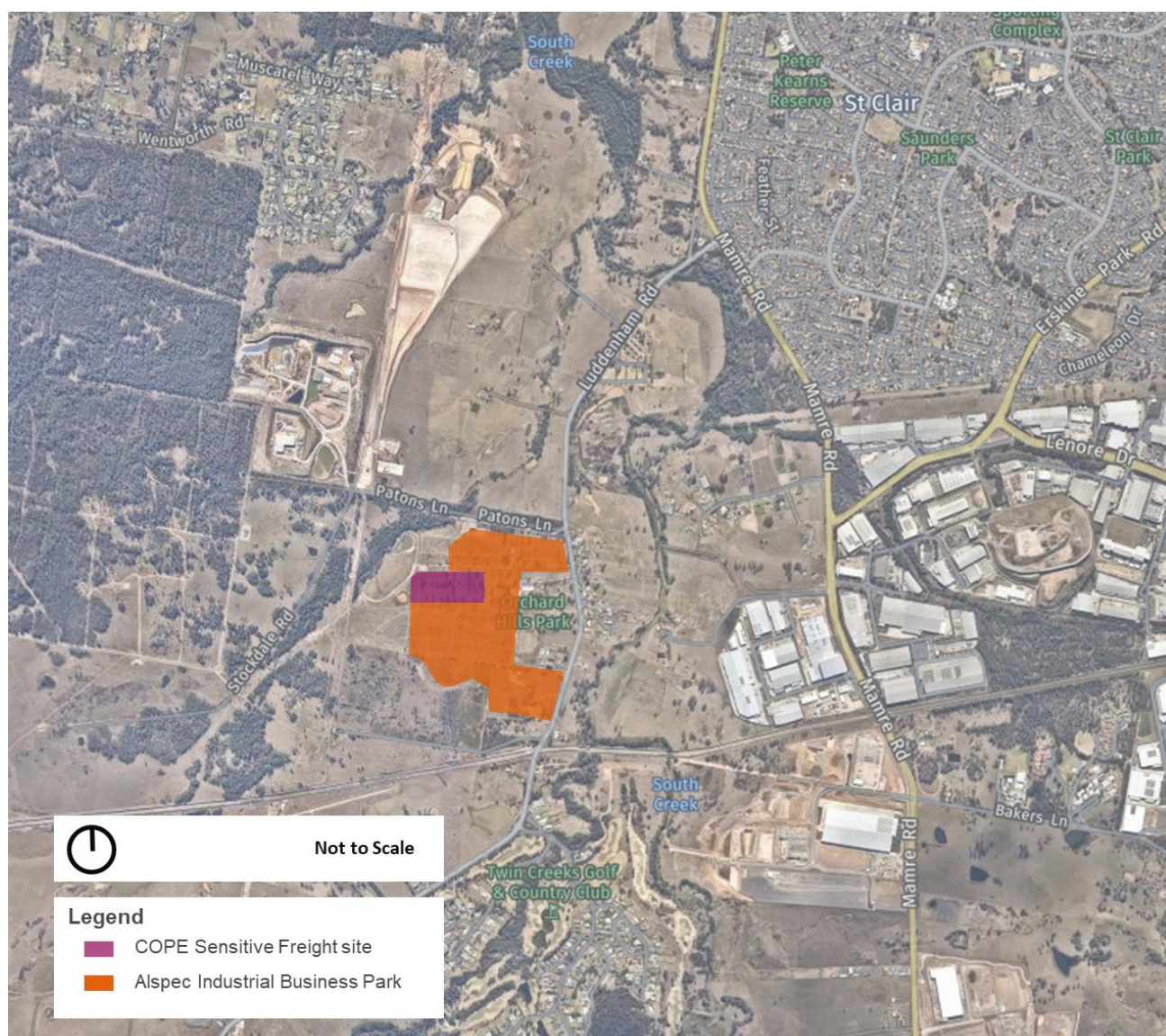


Figure 2-1 AIBP Site Location

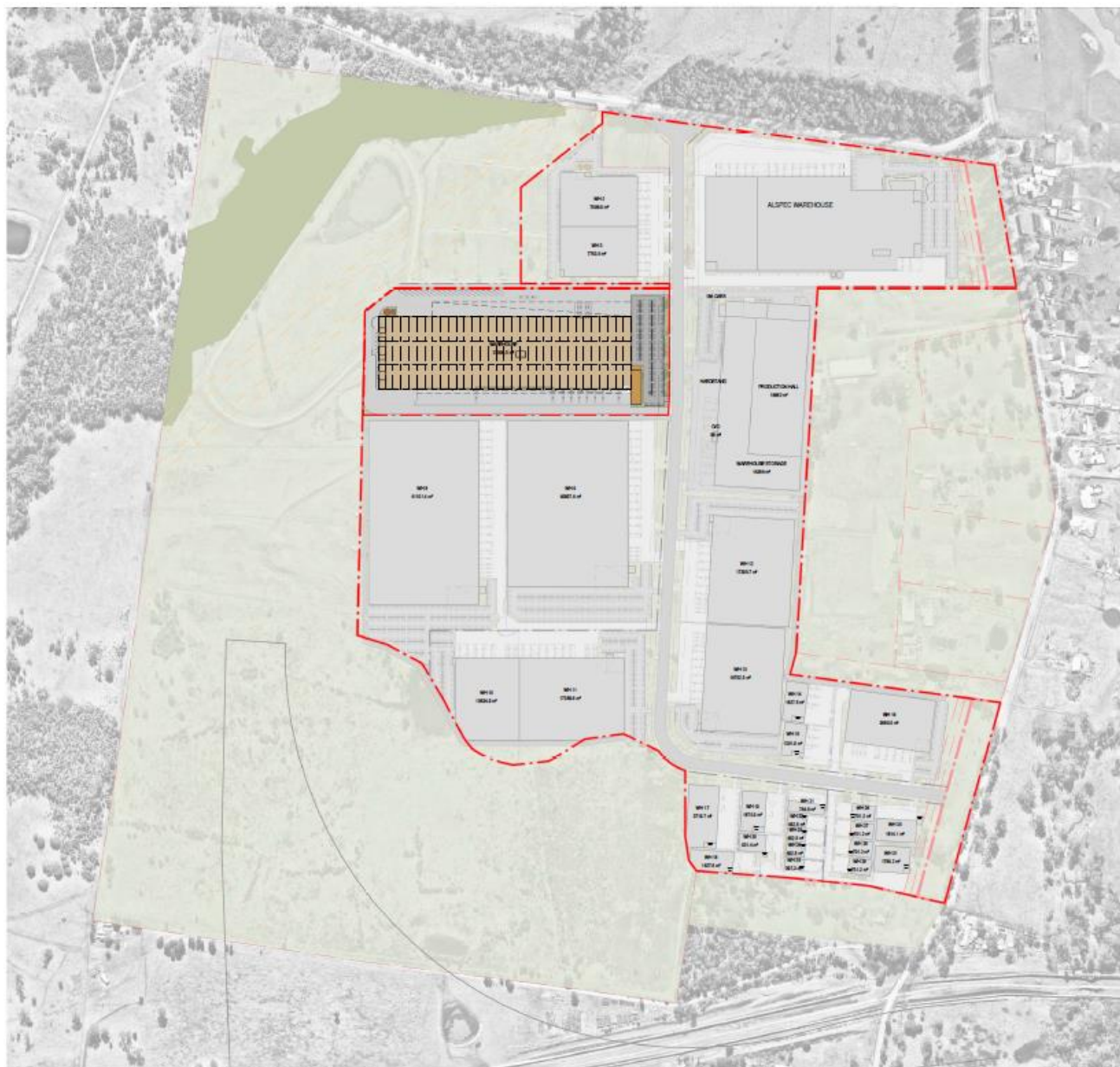


Figure 2-2 Location of COPE site within the AIBP development

2.2 Zoning and Land Use

As shown in Figure 2-3, the subject site is in a Rural Landscape Zone (RU2). The region surrounding the site is a mix of Environmental Conservation (E2) and Rural Landscape Zone (RU2). To the east of Mamre Road, the more common land uses are General Industrial (IN1) and Low Density Residential (R2).

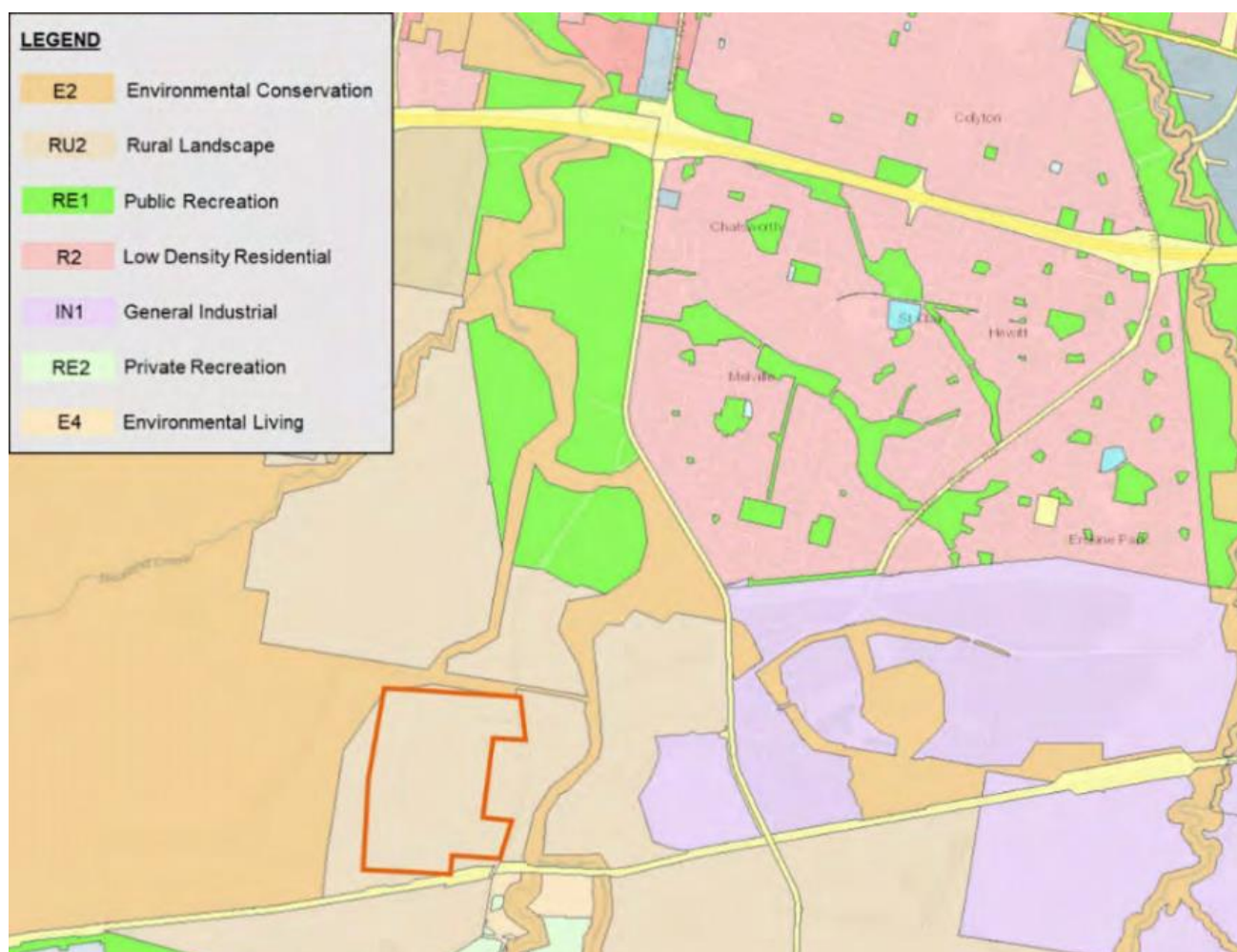


Figure 2-3 Land Zoning Map (Source: ePlanning Spatial Viewer - NSW Planning Portal)

2.3 Waste management approach

The objective for waste management across the Project is to prioritise the prevention and minimisation of waste generation, followed by the effective management of wastes (storage, handling, transport, recycling and disposal) in a manner that minimises impact on the environment.

The NSW EPA waste management hierarchy has been adopted as the guiding framework for waste management of this Project, depicted in Figure 2-4. This hierarchy underpins the objectives of the *Waste Avoidance and Resource Recovery Act 2001* and is a key element for guiding waste management practices in New South Wales.

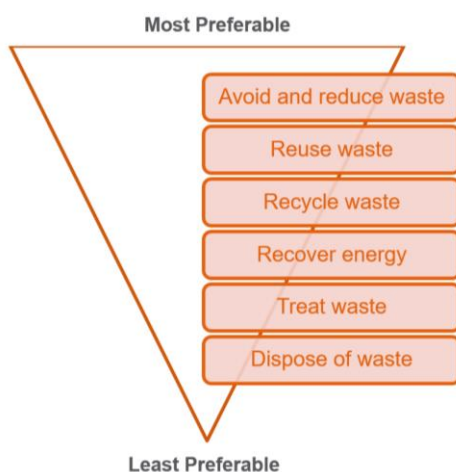


Figure 2-4 Waste management hierarchy (NSW EPA)

3 Proposed Development

The proposal is for the development of a 7.8-hectare parcel of land as part of Stage 2 of the wider AIBP development. The COPE Sensitive Freight development will comprise of Warehouse and office land uses, as well as supporting car parking for both heavy vehicles and cars.

A summary of the land use mix for the COPE Sensitive Freight development is provided in Table 3-1.

Table 3-1 Indicative land use mix for COPE Sensitive Freight development

	Land Use	Total building GFA (m ²)
COPE Sensitive Freight Proposal	Warehouse	37,0000
	Office	1,500
	Carpark – Heavy Duty	30,528
	Carpark – Light Duty	6,242
	Total Building	38,500
	Total Carpark	36,770
	Total Site Area	78,106

A copy of the architectural drawings used in completing this WMP are provided in Appendix A.

4 Construction waste management

4.1 Waste generation

This section identifies, classifies and quantifies the waste streams likely to be generated during the construction of the proposed development.

The waste generation rates for the proposed site uses are summarised in Table 5 1.

4.1.1 Demolition Waste

The proposed development will be constructed on land that is generally greenfield in nature. A small area of the broader AIBP development site is occupied by residential buildings, which is expected to be cleared under a separate Development Application for earthworks as part of the AIBP site.

No additional waste is expected to be generated on site with regards to demolition or site preparation works for the proposed development.

4.1.2 Construction waste

Penrith Council's guidelines do not provide generation rates for construction waste. For the purposes of this assessment, the construction waste generation rates from the Hills Shire Development Control Plan 2012-Appendix A have been adopted.

The waste generation rates for the proposed site uses are summarised in Table 4-1.

Table 4-1 Construction waste generated per 1000m² floor area

Land Use	Timber	Concrete	Bricks	Gyprock	Sand/ Soil	Metal	Other
Warehouse	0.25	2.1	1.65	0.45	4.8	0.6	0.5
Office	5.1	18.8	8.5	8.6	8.8	2.75	5

Using the waste generation rates in the table above, the approximate construction waste quantities for the Project have been calculated. The calculated quantities and the recommended management approach for each stream is provided in

Table 4-2.

Table 4-2 Summary of construction waste generation and management

Materials	Volume generated (m3)	Reuse?	Recycle?	Disposal?	Typical waste management
Excavation (eg soil, rock)	200m3	✓	✓		Excavated soil and rock can be reused on- site or in other civil applications or landscaping.
Green waste	<10m3	✓	✓		Minimal garden organic waste from landscaping.
Bricks	80 m3	✓	✓		Extraneous bricks can be reused in other developments. Broken bricks can be crushed into aggregate for use in civil construction applications.
Concrete	110 m3	✓	✓		Concrete can be crushed into aggregate for reuse on- site or in other civil applications or landscaping.
Timber	20 m3	✓	✓		Timber to be separated wherever possible to enhance resource recovery. Surplus and offcut material returned to manufacturer for reuse.
Plasterboard	30 m3	✓	✓	✓	Good quality plasterboard pieces can be reused in building construction. Plasterboard can also be recycled into gypsum products. Painted plasterboard can be recycled if paper coverings and other contaminants are removed from the gypsum core
Metal (ferrous and non-ferrous)	30 m3	✓	✓		Metals can be recycled and would be transported to a suitably licensed facility.
Other	30 m3	✓	✓		Glass can be crushed at an external construction and demolition (C&D) waste facility to produce glass sand. Otherwise, extraneous, good quality glass panels can be reused in other building applications
• Glass		✓	✓		
• Fixtures and fittings		✓	✓		Fixtures and fittings to be reused wherever possible or returned to manufacturer
• Floor coverings		✓		✓	Good quality floor coverings can be reused in other construction applications. Poor quality floor coverings are suitable for disposal only.
• Packaging			✓	✓	Packaging such as cardboard is largely suitable for recycling. Some soft plastics may be recycled. Styrofoam and other plastic packing materials are not recyclable and must be disposed of carefully. Proper storage and disposal of Styrofoam is required to prevent windblown litter within the site and in the local area.
Hazardous/ special waste	Unknown			✓	Appropriate management methods to be undertaken should hazardous or special waste be found at the site.

4.2 Waste management

4.2.1 Waste minimisation

Where possible, the construction contractor should review material ordering to ensure appropriate volumes of construction materials are purchased for the development. Excess material such as brick, concrete, timber, and finishings like paint or floor coverings may be returned to the supplier or resold or retained for other projects.

To align with Penrith Council's DCP, an 80% target for recycling and reuse for construction stages has been set for the proposed development. The construction contractor will be responsible for monitoring levels of wastage and meeting the 80% target for recycling and reuse of materials.

Practices that can be adopted to achieve this target include:

- Maximising the re-use and recycling of existing materials as part of material section
- Planning deliveries to ensure the right quantity of materials is provided at the right time in the construction process to avoid damage and wastage, and returning unused materials
- Considering the full lifecycle of the development in planning for the re-use and recycling of materials.

4.2.2 Waste storage

All demolition and construction waste generated on site will be stored in bins by material type. Bins will largely constitute skip bins of a range of sizes, and for smaller waste streams 240L MGBs will be provided. Special wastes (such as liquids and hazardous wastes) will not be disposed of via skip bins and will be managed separately in accordance with the waste type and legislative requirements.

Figure 4-1 provides an indicative location of construction waste storage for the proposed development.

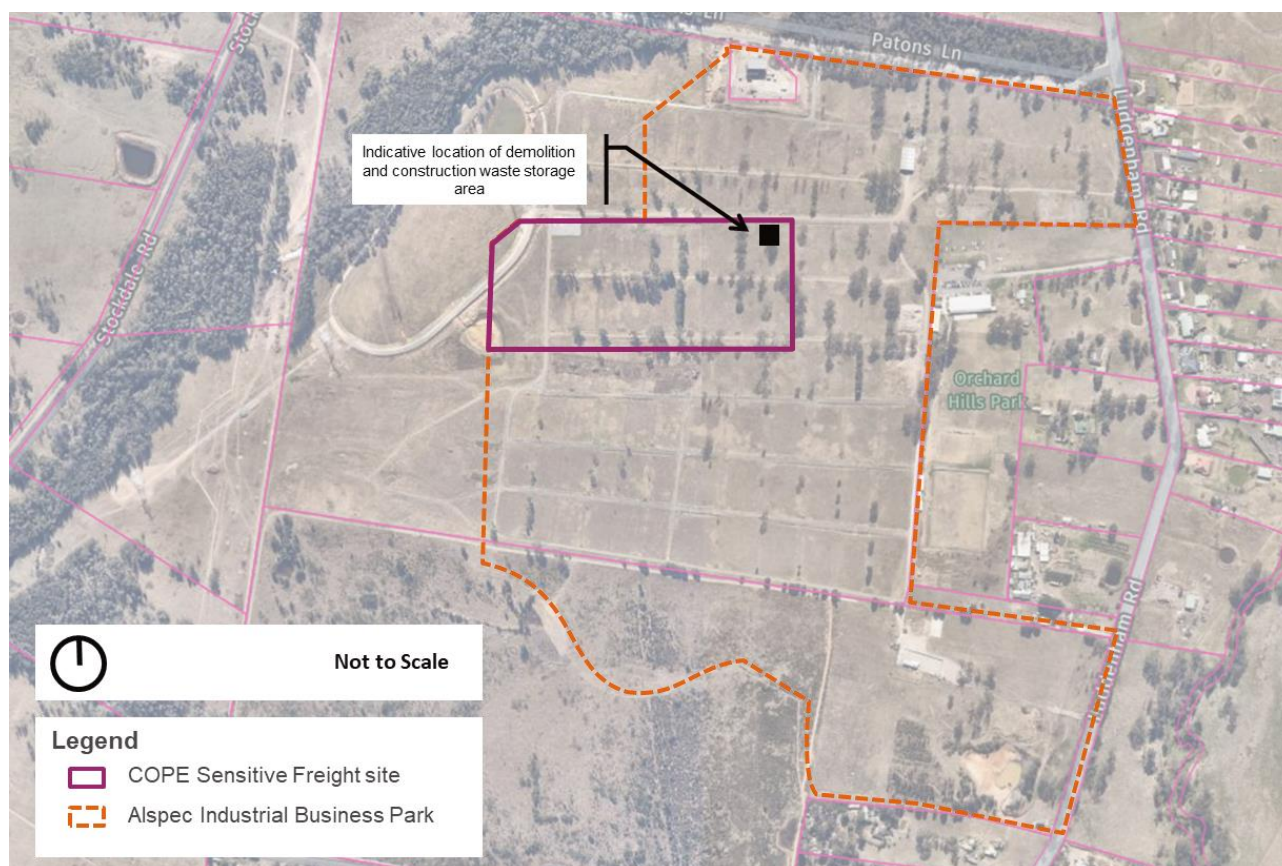


Figure 4-1: Indicative location of construction waste storage area

The construction and demolition waste storage area is to be confirmed by the construction management team upon commencement of construction works and may be relocated as each stage commences. At a minimum, the waste storage area location selection will consider environmental factors including slope, drainage,

location of watercourses, proximity to native vegetation and amenity impacts (such as dust emissions from waste and noise from collection) on occupants of neighbouring properties.

Bins will be clearly marked in accordance with the contents and be positioned in an area that is easily accessible for collection vehicles, away from stormwater drainage infrastructure, clear of overhead obstacles, and covered when not in use to avoid the risk of creating windblown litter.

Examples of bin signage are provided in Figure 4-2 below.



Figure 4-2: Example signage for construction waste bins

4.2.3 Waste collection

A waste contractor will be engaged to perform waste collection services at the site throughout the demolition and construction stages. Vehicle access to the waste storage area will be via the Site Access Road via a temporary driveway.

Waste collection will be performed by an appropriately licensed waste collection contractor and all wastes will be transported to appropriately licensed facilities, suitable for each waste type. The waste collection contractor will be responsible for transportation of waste in accordance with the requirements of the Protection of the Environment Operations Act 1997.

All wastes that cannot be reused or recycled will be disposed of in accordance with the Protection of the Environment Operations Act 1997 and the Waste Avoidance and Resource Recovery Act 2001 and will be disposed of offsite to an EPA approved waste management facility following classification.

Hazardous waste will be removed by an accredited contractor and treated or disposed of at an EPA licensed facility.

4.2.4 Special or hazardous wastes

A preliminary assessment of the current site does not indicate the presence of any hazardous building materials such as asbestos. However, a protocol for unexpected hazardous waste finds (such as asbestos) will be prepared and followed in order to minimise potential harm to human health or the environment.

Any hazardous waste found will be removed and transported by appropriately licensed and accredited individuals and in accordance with relevant legislation.

4.2.5 Waste contractor and waste facilities

Contractors engaged for the collection and transportation of waste materials generated from demolition and construction stages are to be selected in consideration of past and current environmental performance, qualification and licensing, and destination and fate of wastes. Contractors that prioritise reuse and recycling of materials will be given higher preference.

The construction contractor will also be responsible for retaining waste dockets from the waste collection contractor.

Waste facilities, where the choice is made by the developer, will be chosen with high regard to recovery rates, environmental performance, and proximity to the Site.

Potential options for receiving waste facilities include Bingo Recycling on Patons Lane directly west of the site, or further afield at Bingo Recycling in Kemps Creek, Breen Resources in Kurnell, or Bingo Recycling in Alexandria.

4.2.6 Record keeping

This WMP will be retained on-site during the demolition, excavation and construction phases of the development, along with other waste management documentation (e.g. contracts with waste service providers).

Responsibility for the WMP, waste documentation and processes during construction will be with the site manager or builder.

Accurate records will be kept of wastes generated throughout demolition and construction stages.

Construction waste dockets to confirm which facility received the material for recycling or disposal are to be retained onsite in accordance with State Government waste requirements. A log book will be maintained that details:

- Time and date of each trip where waste is removed from the site
- A description of waste and quantity
- The facility that will receive the waste
- The intended use of the waste (reuse, recycled, stockpiled or disposed)
- Reference number (such as invoice or receiving facility reference number), vehicle registration and company name.

Waste management documentation, the logbook and associated dockets and receipts will be made available for inspection by an authorised Council Officer at any time during site works.

5 Operational Waste Management

5.1 Waste Generation

This section identifies, classifies and quantifies the waste streams likely to be generated during the development's operation. Waste generation rates have been adopted from Penrith Council's DCP Industrial, Commercial and Mixed-Use Waste Management Guidelines for estimating the type and quantities of waste generated from the operational activities

The waste generation rates for the proposed site uses are summarised in Table 5-1.

Table 5-1: Waste generation rates for the site

Land use	General Waste Generation (L/100 m2/day)	Recycling Generation (L/100 m2/day)
Warehouse	10	10
Office	10	10

Using the waste generation rates in the table above, the approximate weekly waste quantities for the proposed development have been calculated. The operational waste quantities were also calculated based on the below assumptions:

- The floor areas as presented on the architectural drawings attached in Appendix A, and
- A week comprising seven days of operation

The estimated quantities of operational waste generated by the proposed development is provided in Table 5-2.

Table 5-2: Estimated general waste and recycling volumes from warehouse operation

Land Use	Floorspace (m2)	General waste (L/day)	Recycling (L/day)	General waste (L/week)	Recycling (L/week)
Warehouse	37,000	3,700	3,700	25,900	25,900
Office	1,500	150	150	1,050	1,050

Information provided by the COPE Freight identifies operational waste from the warehouse is generally limited to pallets and cartons, timber, plastic (stretch and bubble wrap), and metals (strapping and others).

Small quantities of the following waste streams are expected to be generated in the office spaces:

- E-waste such as electronic equipment
- Toner cartridges
- Problem wastes such as batteries and fluorescent light tubes

This waste should be managed and stored within the bulky waste storage area in the Warehouse, with monitoring in place for the collection and removal of these wastes once sufficient volumes have been generated.

While no food waste has been identified in the calculations above, Penrith Council's DCP requires food scraps should be placed in specialised containment bins and collected on a regular basis. To minimise food waste in the general waste stream, it is recommended that the food is donated, composted on site or sent off-site to a composting facility.

5.2 Bulky and Hazardous Waste Management

The Penrith DCP requires additional storage space for the bulky waste stream to be provided for materials that cannot be disposed of in the general or recyclable waste stream. This includes broken pallets, broken storage units and e-waste.

Penrith Council's guidelines do not provide storage area dimensions for bulky waste. For the purposes of this assessment, the storage area dimensions for bulky waste from the City of Sydney's Guidelines for Waste Management in New Developments has been adopted.

For storing bulky waste, the adopted guidelines require:

- 4 m² for developments between 100 m² and 2,000 m², and
- An additional 4m² for developments over 2,000 m² and for every 20,000 m² of building space.

Using the above specifications 12sqm of area is recommended to be allocated for bulky waste storage for proposed development.

5.3 Waste Storage

The estimated size of the waste storage area is provided in Table 5-3. This has based on:

- The estimated quantities of operational waste and recycling identified in Section 5.1
- The Bulky and Hazardous Waste spatial requirements identified in Section 5.2
- Bin selection has been based on existing COPE operational waste practices

Table 5-3: Waste storage infrastructure and collection frequency

Waste Stream	Weekly generation (L)	Bin size and number required	Collection frequency	Minimum space requirement
General waste	25,900 (Warehouse)	1 x RORO 31m ³	Once per week	17sqm
	1,050 (office)	1 x 3 m ³	Once per week	3sqm
Recycling	26,950 (Combined)	1 x RORO 31m ³	Once per week	17 sqm
Bulky and Hazardous Waste	-	-	As needed	12sqm
Total area required				49sqm

An indicative waste storage area in accordance with the above and Penrith Council's requirements is provided in Figure 5-1.



Figure 5-1: Proposed waste area

5.4 Waste Servicing and access

Waste vehicles would enter the site from the southern truck access on the Site Access Road, travel around the site to the hardstand area to access the waste loading area, and exit the site from the northern truck access back onto the Site Access Road.

The proposed waste vehicle path of travel is provided in Figure 5-2.

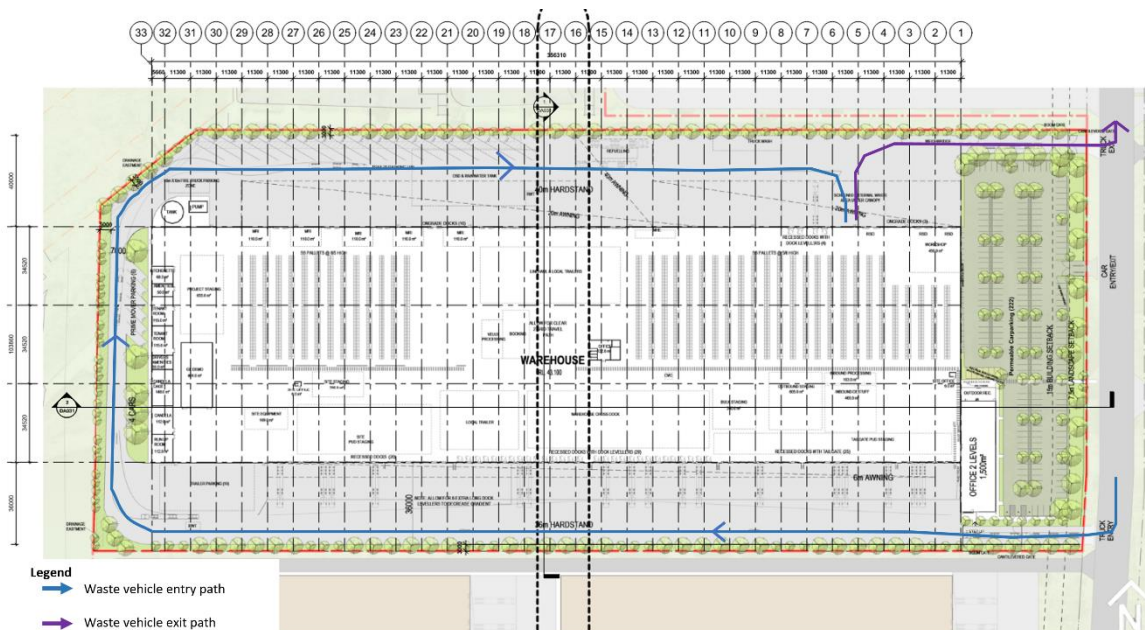


Figure 5-2 Waste vehicle path of travel through the site

Waste vehicles will enter and exit the site in a forward direction, with some reversing manoeuvres required for vehicles to correctly position within the collection point. All waste collection activities would occur fully within the confines of the site, in an area clearly marked loading areas.

Collection of the 3m³ bin is expected to occur via a 10.5 m front lift truck. A clearance of 5.5m is required to ensure the lift action can be completed without interference from vertical obstructions over the waste area.

Collection of the 31m³ RORO skip bins will be accommodated by a 9m HRV hook truck. A clearance of up to 8.5m is required to ensure the lift action can be completed without interference from vertical obstructions over the waste area.

The access and hardstand areas have been designed to safely accommodate a B-Double vehicle moving through the site.

Hazardous waste produced at the site will be collected by appropriately licensed specialised services.

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.

5.5 Waste Management System Summary

The various waste streams generated on-site are summarised as follows:

pallets and cartons, timber, plastic (stretch and bubble wrap), and metals (strapping and others)

- **General waste** - General office waste shall be placed within a tied plastic bag prior to transferring into the general waste bin. Smaller receptacles will be situated throughout the office and warehouse to aid in collection. For general warehouse waste, large items will be transferred directly to the RORO bins for collection.
- **Recycling:** All recyclables will be transferred directly to the RORO bins for collection. Depending on recycling waste generated, future consideration of separate commingled bins for different streams (including paper, cardboard, mixed plastic, glass, aluminium, steel) should be considered.
- **Paper and cardboard:** Paper and cardboard can represent more than 75% of all recyclables generated by industrial uses. It may be suitable to incorporate a separate paper and cardboard collection or cardboard baler to reduce waste collection costs and improve resource recovery potential. All cardboard should be flattened prior to placement into the RORO bin.
- **Plastic (stretch and bubble wrap)** – the proposed development is expected to generate a plastic film waste which can be managed with a separate collection. A 1m³ bag and frame setups for collection by specialist contractor should be considered as part of the broader waste management strategy.
- **Garden Waste:** Minimal garden waste is expected to be generated on site. Any garden waste generated through the maintenance of landscaped areas around the site would be managed and removed by the landscape management contractor.
- **Food Waste:** Minimal food waste is expected to be generated on site. It is recommended that any food waste or excess food is donated, composted on site or sent off-site to a composting facility.
- **Bulky and other hazardous waste** - The disposal of hard, bulky, liquid or potentially hazardous wastes shall be organised as necessary. A storage area has been provided within the development to accommodate the storage of bulky waste prior to collection.

Appendix A - Site Plans

About Arcadis

Arcadis is the leading global Design & Consultancy firm for natural and built assets. Applying our deep market sector insights and collective design, consultancy, engineering, project and management services we work in partnership with our clients to deliver exceptional and sustainable outcomes throughout the lifecycle of their natural and built assets. We are 27,000 people, active in over 70 countries that generate €3.3 billion in revenues. We support UN-Habitat with knowledge and expertise to improve the quality of life in rapidly growing cities around the world.

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