57 Mulgoa Road, Penrith

Demolition & Construction Waste Management Plan June 2020

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1. Introduction

This Demolition and Construction Waste Management Plan has been prepared by Waste Audit & Consultancy Services (Aust) Pty Ltd for Hardi Aged Care to provide guidance on sound management of waste materials during the demolition and construction phases of the proposed development at 57 Mulgoa Road, Penrith.

The aim of this Plan is to ensure that all waste resulting from construction and demolition activities is managed in an effective and environmentally aware manner, specifically:

- To minimise the generation of waste to landfill
- To maximise waste avoidance and reuse of materials on site
- To ensure that an efficient recycling procedure is applied to waste materials
- To make employees and subcontractors aware of their waste management responsibilities

Preparation of this Demolition and Construction Waste Management Plan has been undertaken with reference to industry best practices.

Section 143 of the *Protection of the Environment Operations Act 1997* requires waste to be transported to a place that can lawfully accept it. It will be the responsibility of the site's developer to ensure that all contractors:

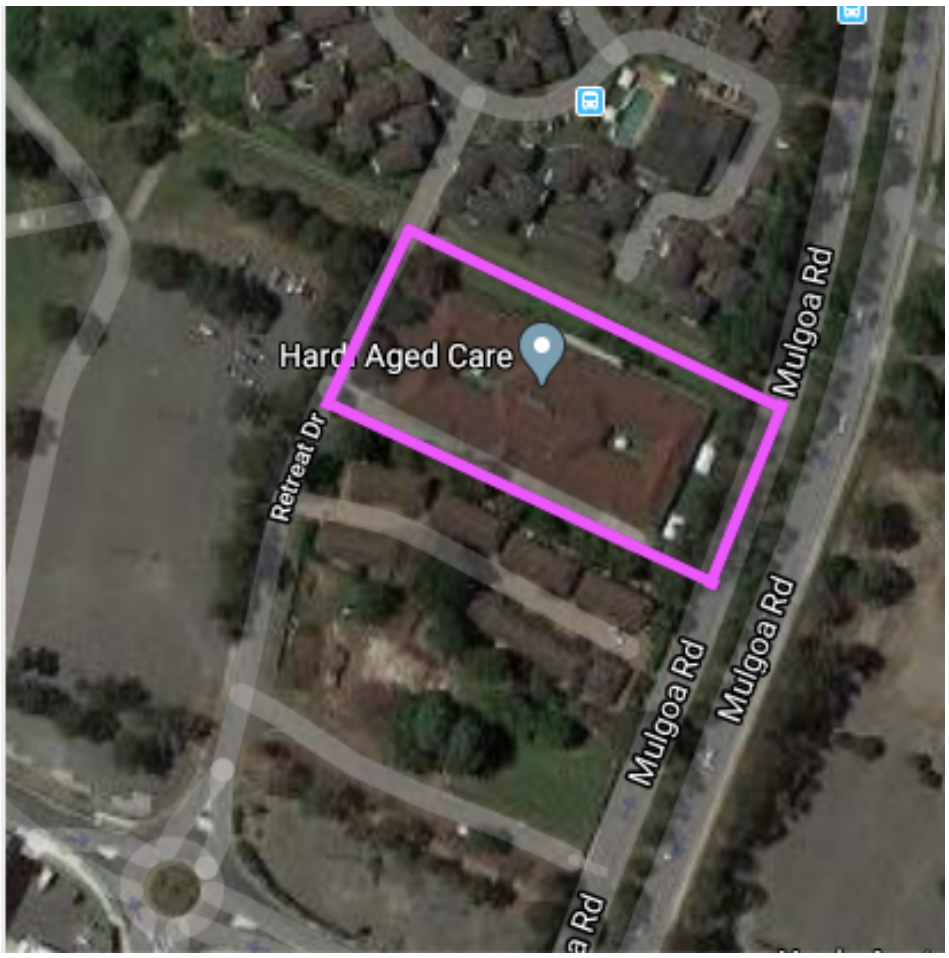
- Provide details of their operating licence to transport waste
- Clearly specify where all wastes are to be transported
- Confirm the capacity of the nominated facilities to receive/manage the waste
- Retain demolition, excavation, and construction waste/recycling dockets on site to confirm which authorised waste/recycling facilities received the material for recycling and disposal
- Provide reports on management aspects (types, quantities and disposal pathways).

2. Site Overview

The site of the proposed redevelopment is currently a single-story complex occupied by Hardi Aged Care. The redevelopment proposes partial demolition and refurbishment of the existing structure, illustrated in Figure 1, and construction of a second level. Figure 2, provides and aerial map of the facility and immediate surrounds. Estimates of the volumes of waste expected to be produced by demolition of the existing building are based on these parameters.

Figure 1: Existing Structures

Figure 2: Site Map



3. Waste Management Strategy

3.1 Waste Management Principles

The waste management hierarchy below has been used to guide the waste management plan:

Avoid
Adopt sound work practices during the demolition and construction processes that avoid the creation of waste products in the first place

Reduce
Reduce the use of materials during the demolition process that require treatment or disposal

Reuse
Ensure that wherever possible, materials are reused either on site or offsite:

- Implement systems to separate and store materials that can be reused onsite
- Identify the potential applications for reuse offsite and facilitate this process

Recycle/Recover

Identify all recyclable waste products to be produced on site:

- Provide systems for separating and stockpiling of recyclables
- Provide clear signage to ensure recyclable materials are separated
- Process the material for recycling either onsite or offsite

Note: In some cases it may be more economical to send the unsorted waste to specialised waste contractors who will separate and recycle materials at an offsite location.

Treat/Dispose

Waste products which cannot be reused or recycled will be removed and treated/disposed of at appropriately licensed facilities, ensuring the following:

- Chosen waste disposal contractor complies with OEH requirements
- Bins to be monitored for fullness and collected on an efficient schedule

3.2 Record Keeping

Records will be required to be kept of all wastes and recyclables generated and either re-used on site or transported off-site. It will be a condition of appointment that all contractors provide these records and that they also contain details of the facilities that the materials are transported to. These records will be made available to relevant authorities on request.

3.3 Materials Storage

All waste and recycling materials will be stored in bins provided by the appointed contractor(s). These bins should be appropriately coloured and signed to indicate what materials are to be deposited into them and located so as to maximise recovery of reusable/recyclable materials.

3.4 Liquid Waste

- Ensure water is used in moderation and no taps are left continuously running
- Only discharge clean water into storm water
- Manage all wastewater and runoff in accordance with Sydney Water requirements

3.5 Asbestos

Based on the age of the building to be demolished, it is unlikely that it contains asbestos. However, this should be confirmed before demolition works commence. Should any materials be suspected of being (or containing) asbestos, the following process will be followed:

i. Treat the material as asbestos unless proven otherwise
ii. Do not disturb the material (i.e., shift or place into a container)
iii. Seek advice from a suitably qualified laboratory to test the material(s) to determine if it is or is not asbestos
iv. If determined not to be asbestos, then it can be managed as an inert waste
v. If determined to be asbestos then it must be managed by a licenced contractor for packaging, removal and disposal
vi. If the material has accidently been uncovered, then the area should be cleared, barriers erected to prevent access and if the material is broken, it should be covered with a fine spray/mist of water. NSW WorkCover and EPA should be notified as required under relevant legislation.

For what has been conclusively identified as asbestos-containing materials (including soils), a specialist/licensed asbestos contractor will be used. As required, only workers trained in asbestos removal techniques will be allowed to manage the removal of asbestos-contaminated soil and any material contained in the buildings.

In regard to disposal of asbestos-containing materials, there are regulatory requirements under Clause 42 of the *Protection of the Environment Operations (Waste) Regulation 2005* that apply to the management of asbestos waste, including:

- Waste must be stored on the premises in an environmentally safe manner.
- Non-friable asbestos material must be securely packaged at all times.
- Friable asbestos material must be kept in a sealed container.
- Asbestos-contaminated soil must be wetted down.
- All asbestos waste must be transported in a covered, leak-proof vehicle.
- It is illegal to re-use, recycle or dump asbestos waste.

4. Demolition Phase

Table 1 shows estimated quantities in m^3 of demolition waste to be generated, and the recommended management strategy for each type of material.

It is recommended that opportunities for reusing this material either on site or at an off-site location, or locations, be further investigated.

All contractors and sub-contractors, once appointed, will be required to detail all intended and actual disposal facilities used, in order to ensure the guiding principles of the waste hierarchy are upheld and maximum diversion from landfill is achieved.

Table 1: Demolition Waste - Expected Materials Streams

Materials on Site		Destination/Treatment Options		
Type of Material	**Estimated Volume (m^3)**	**Onsite (Reuse/Recycle)**	**Offsite (Reuse/Recycle)**	**Disposal (Landfill)**
Structural Concrete	**1 m^3**	Separated onsite and crushed for use in pavement and/or temporary access road construction	Collected by contractor and taken to recycling facility. Re-used for filling, levelling, or road base	No disposal to landfill
Structural Steel	**15 m^3**	No onsite reuse or recycling	Collected by contractor and taken to recycling facility	No disposal to landfill
Metal Ductwork, Lighting Fixtures	**3 m^3**	No onsite reuse or recycling	Collected by contractor and taken to recycling facility	No disposal to landfill
Carpet	**4 m^3**	No onsite reuse or recycling	Disposed of into a designated bin and collected for recycling if of the required quality, or disposal to landfill if not. Can be sent to recyclers or reused in landscaping	Material that cannot be recycled will be disposed of at landfill facility
Roof Tiles	**50 m^3**	No onsite reuse or recycling	Separated and stockpiled onsite and collected by contractor for recycling. Can be cleaned and re-used or crushed for use in landscaping and driveways	Material that cannot be recycled will be disposed of at landfill facility

Materials on Site		Destination/Treatment Options		
Type of Material	**Estimated Volume (m^3)**	**Onsite (Reuse/Recycle)**	**Offsite (Reuse/Recycle)**	**Disposal (Landfill)**
Electrical Pipework, Fixtures	**4 m^3**	No onsite reuse or recycling	Removed if still serviceable and sold for reuse to an appropriate contractor, or collected by specialist contractor for recycling	No disposal to landfill
Plasterboard	**18 m^3**	No onsite reuse or recycling	Separated and stockpiled onsite and collected by contractor for recycling. Possible use as soil improver with gypsum removed by recycler	Material that cannot be recycled will be disposed of at landfill facility
Window Glass	**6 m^3**	No onsite reuse or recycling	Collected by contractor and taken to recycling facility	No disposal to landfill
Garden Organics	**2 m^3**	No onsite reuse or recycling	Collected by contractor and taken to recycling facility. Can be used for mulching, composting	No disposal to landfill
Electrical Wiring	**2 m^3**	No onsite reuse or recycling	Collected by contractor and taken to recycling facility	No disposal to landfill
Plumbing Pipework, Fixtures	**3 m^3**	No onsite reuse or recycling	Collected by contractor and taken to recycling facility	No disposal to landfill
Misc. General Waste	**10 m^3**	No onsite reuse or recycling	Separated onsite into dedicated receptacles and collected by the waste contractor for disposal	Disposal to landfill
Wood	**10 m^3**	No onsite reuse or recycling	Collected by contractor and taken to recycling facility. Re-used as formwork, bridging, blocking and propping, mulching or sent to second hand timber suppliers	No disposal to landfill
Cabinetry	**8 m^3**	No onsite reuse or recycling	Removed if still serviceable and sold for reuse to an appropriate contractor, or collected by specialist contractor for recycling	No disposal to landfill
Bathroom Tiles	**3 m^3**	No onsite reuse or recycling	Collected by specialist contractor for recycling if possible	Material that cannot be recycling will be disposed of at landfill facility
Glass	**2 m^3**	No onsite reuse or recycling	Collected by contractor and taken to recycling facility. Re-used as glazing or aggregate for concrete production	No disposal to landfill
Bricks/Pavers	**20 m^3**	No onsite reuse or recycling	Removed if still serviceable and sold for reuse to an appropriate contractor, or collected by specialist contractor for recycling. Can be cleaned for re-use or rendered over or crushed for use in landscaping and driveways	No disposal to landfill

Materials on Site		Destination/Treatment Options		
Type of Material	Estimated Volume (m^3)	Onsite (Reuse/Recycle)	Offsite (Reuse/Recycle)	Disposal (Landfill)
TOTAL VOLUME OF MATERIALS	180 m^3			
POTENTIAL RECOVERY	>94%			

In total, the development's demolition phase will produce around **180 cubic metres** of waste materials, of which **94%-95% by volume** can potentially be diverted from landfill if the demolition process is properly managed.

5. Construction Phase

Table 2 shows estimated quantities in m^3 of construction waste to be generated, and the recommended management strategy for each type of material.

All contractors and sub-contractors, once appointed, will be required to detail disposal facilities used, in order to ensure the guiding principles of the waste hierarchy are upheld and maximum diversion from landfill is achieved.

Table 2: Construction Waste - Expected Materials Streams

Materials on Site		Destination Options		
Type of Material	Estimated Volume (m^3)	Onsite (Reuse or Recycle)	Offsite (Reuse or Recycle)	Disposal (Landfill)
Used Pallets	**15 m^3**	Reused on site for storage where possible	Collected by contractor and disposed of at recycling facility	No disposal to landfill
Mixed Recyclables	**15 m^3**	No on-site reuse or recycling	Separated onsite into dedicated receptacles and collected by contractor for recycling	No disposal to landfill
General Waste (All Other Materials)	**5 m^3**	No on-site reuse or recycling	Separated onsite into dedicated receptacles and collected by contractor for disposal	Disposal to landfill
Timber Offcuts	**10 m^3**	Reuse for formwork where possible	Untreated recyclable timber will be collected and recycled at appropriate timber yard. Unrecyclable (treated) timber will be disposed of at landfill	Material that cannot be recycled will be disposed of at landfill facility
Plasterboard Offcuts	**10 m^3**	No on-site reuse	Separated and stockpiled onsite and collected by contractor for recycling. Possible use as soil improver with gypsum removed by recycler	Material that cannot be recycled will be disposed of at landfill facility
Concrete (Excess)	**3 m^3**	No on-site reuse	Collected by contractor and taken to concrete recycling facility	No disposal to landfill
Floor Coverings	**5 m^3**	No on-site reuse	Collected in designated bin and sent for recycling if of required quality; otherwise sent to landfill	Material that cannot be recycled will be disposed of at landfill facility

Materials on Site		Destination Options		
Type of Material	**Estimated Volume (m^3)**	**Onsite (Reuse or Recycle)**	**Offsite (Reuse or Recycle)**	**Disposal (Landfill)**
Metal Offcuts, Sheeting, Wiring, etc.	**3 m^3**	No on-site reuse	Collected by specialist metal subcontractor for separation into different metal types for recycling	No disposal to landfill
Glass (Excess)	**4 m^3**	No on-site reuse	Recyclers consulted as to potential for recycling	No disposal to landfill
TOTAL VOLUME OF MATERIALS	**66 m^3**			
POTENTIAL RECOVERY	**>92%**			

In total, the development's construction phase will produce around **66 cubic metres** of waste materials, of which **92%-95% by volume** should be able to be diverted from landfill disposal, either by being reused on or off site, or recycled off-site at a specialised facility.

6. Contractor Management

Each subcontractor working on the site will be required to adhere to this Waste Management Plan. The Head Contractor will ensure each subcontractor:

- Takes practical measures to prevent waste being generated from their work
- Implements procedures to ensure any waste that is created will be actively managed and where possible recycled, as part of the overall site recycling strategy or separately
- Ensures that the right quantities of materials are ordered, minimally packaged and where practical pre-fabricated, and any oversupplied materials are returned to the supplier
- Implements source separation of off-cuts to facilitate reuse, resale or recycling

The Site Manager will be responsible for:

- Ensuring there is a secure location for on-site storage of materials to be reused on site, and for separated materials for recycling off site
- Engaging qualified contractors to remove waste and recycling materials from the site
- Coordinating subcontractors to maximise on site reuse of materials
- Regular monitoring of bins by site supervisors to detect any contamination or leakage
- Ensuring the site has clear signs directing staff to the correct location for recycling and stockpiling, and that each bin/skip/stockpile is clearly signposted
- Providing training to all site employees and subcontractors in regard to the WMP as detailed in Section 8 below

Should a subcontractor cause a bin to be significantly contaminated, the Site Manager will be advised through a non-conformance report and the offending subcontractor will then be required to take corrective action, at their own cost. The non-conformance process would be managed by the Head Contractor's Quality Management System.

7. Training and Education

All site employees and sub-contractors will be required to attend an induction that will outline the components of the WMP and explain the site-specific practicalities of the waste reduction and recycling strategies outlined in the WMP.

All employees are to have a clear understanding of which products are being reused/recycled on site, and where they are stockpiled, and are also to be made aware of waste reduction efforts in regard to packaging.

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June 11, 2020

Operational Waste Management Plan
57 Mulgoa Road - Penrith

June 2020

Waste Audit and Consultancy Services (Aust) Pty Ltd

[redacted]

This report has been compiled by Waste Audit and Consultancy Services (Aust) Pty Ltd for Hardi Aged Care development and contains confidential information.

This Operational Waste Management Plan is not a substitute for legal advice on relevant environmental legislation, which applies to Hardi Aged Care, contractors or other bodies.

Accordingly, Waste Audit and Consultancy Services (Aust) Pty Ltd will not be liable for any loss or damage that may arise out of this project, other than loss or damage caused as a direct result of Waste Audit and Consultancy Services (Aust) Pty Ltd's negligence.

1. Introduction

This Operational Waste Management Plan has been prepared by Waste Audit & Consultancy Services (Waste Audit) for Census Advisory to accompany a Development Application for Hardi Aged Care located at 57 Mulgoa Road, Penrith, NSW. The development falls within Penrith City Council.

The project involves the refurbishment of the existing residential accommodation from 99 to 100 beds through the reorganisation of the first floor and construction of the second floor. Back of house areas will also be refurbished and redesigned and the facility's existing waste storage area to be relocated to a designated waste enclosure to accommodate the facilities waste and recycling infrastructure.

The Operational and C&D Waste Management Plans have three key objectives:

1. To ensure waste is managed to reduce the amount of material sent to landfill
2. Recover, reuse, and/or recycle generated waste wherever possible
3. Achieve compliance with all relevant regulations, policies, and guidelines

2. Waste & Recycling Generation

2.1 Current Arrangements

Suez Environmental currently provides the following services to Hardi Aged Care, at 57 Mulgoa Road, Penrith:

Table 1: Current Bins, Collection Schedules, & Weekly Volumes

Waste/Recycling Stream	Bin Size	No.	Weekly Collections	Collection Days
General Waste	1100-litre	3	3	Mon/Wed/Sat
Cardboard & Paper Recycling	1100-litre	4	1	Wed
Nappy/Soiled Waste	120-litre	10	6	Mon-Sat
General Waste – Litres/Week				**9,900**
Paper/Cardboard Recycling – Litres/Week				**4,400**
Nappy/Soiled Waste – Litres/Week				**7,200**
TOTAL LITRES/WEEK				**21,500**

2.2 Waste & Recycling Generation Estimates

Calculations of types and quantities of operational recyclables and general waste that will be generated following completion of the development are based on industry averages, existing waste volumes and Penrith Council's guidelines for waste and recycling generation rates.

The major change to current systems that we recommend is to implement a commingled recycling program. Expected weekly quantities of general waste, recycling and nappy/soiled waste, are detailed in Table 2 below.

Table 2: Estimated Future General Waste & Recycling Volumes

Waste/Recycling Stream	Bin Size	No.	Weekly Collections	Collection Days
General Waste	1100-litre	3	3	Mon/Wed/Sat
Cardboard & Paper Recycling	1100-litre	2	1	Wed
Commingled Recycling	1100-litre	2	1	Wed
Nappy/Soiled Waste	120-litre	10	6	Mon-Sat
General Waste - Litres/Week				**9,900**
Paper/Cardboard Recycling - Litres/Week				**2,200**
Commingled Recycling - Litres/Week				**2,200**
Nappy/Soiled Waste - Litres/Week				**7,200**
TOTAL LITRES/WEEK				**21,500**

Assuming correct segregation of materials, it is estimated that the development will generate a total of **21,500 litres of general waste and recyclables per week,** based on the proposed recycling streams. Please note that this excludes clinical and hazardous wastes.

3. Waste & Recycling Storage

3.1 Storage Area Locations

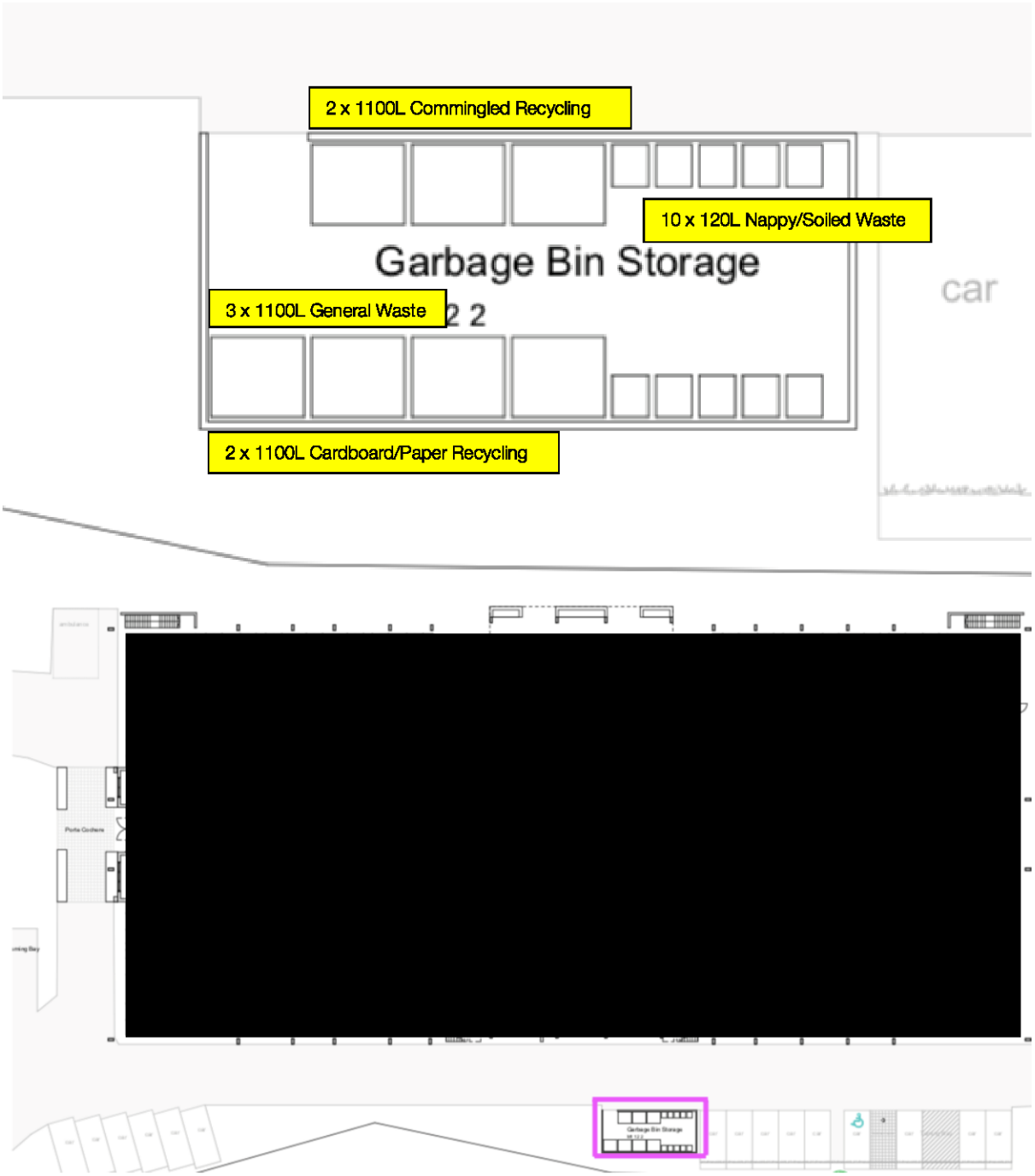
Currently, the existing bins are stored on the side of the main driveway, in a slated area acting as a temporary enclosure. The proposed solution involves situating the waste storage area into a dedicated room next to the main driveway to conceal the waste in a locked enclosure, accessible by staff and cleaners. The location of this new bin storage area is shown in Figure 1.

Table 3: External Storage Area

Waste/Recycling Stream	Bin Size	No.	Footprint m^2
General Waste	1100-litre	3	6.65
Cardboard & Paper Recycling	1100-litre	2	4.43
Commingled Recycling	1100-litre	2	4.43
Nappy/Soiled Waste	120-litre	10	3.53
Total Bin Footprint			**19.05 m^2**
Total Available Area			**32.86 m^2**

The proposed waste storage location is shown below. The main external bin store will be used for storage of 1100-litre general waste, cardboard/paper and commingled recycling bins and 120-litre nappy/soiled waste bins.

Figure 1: Proposed Waste Storage Facilities



3.2 Storage Area Specifications

All general waste and recycling bins will be clearly differentiated through clearly visible signage, and colour coding based on Standards Australia guidelines (AS 4123), with each stream located in its own designated area within the storage compound.

The external waste storage area will align with Penrith Council's '*Industrial, Commercial and Mixed-Use Waste Management Guidelines'* and should incorporate the following features:

- The room is to be large enough to accommodate the entire fleet of bins plus 0.2m between bins to allow adequate manoeuvrability.
- 1.8m unobstructed clearance zone between the stored bins and the entrance to permit access and manoeuvrability.

- The room to provide suitable dual door access for the service of bins with a minimum width of 1.8m and accessed by a minimum 1.8m unobstructed access corridor.
- The room is to be located within close proximity to the on-site loading bay
- The room is to be fully enclosed, walled and not permit through access to other on-site waste infrastructure.
- The floor is to be waterproofed, non-slip and sealed in accordance with the Building Code of Australia to permit the use of wash facilities.
- The floor is to be graded to a central drainage point connected to the sewer, enabling all waste to be contained and safely disposed of.
- The room is to be partitioned and enclosed with a minimum 2.7m unobstructed internal room height in accordance with the Building Code of Australia.
- The room is to be provided with an adequate supply of water through a centralised mixing valve and hose cock.
- The room to incorporate adequate lighting and natural/mechanical ventilation in accordance with the Building Code of Australia.

4. Waste Management Systems

4.1 General Waste

There will be no fundamental change to the way in which general waste is managed, other than enclosing the bin storage area in a dedicated lockable room. With implementation of commingled recycling, there will be a reduction in the amount of material placed in the general waste bins, compared with a 'business as usual' scenario as the increased general waste from the expanded facility will be offset by the introduction of this new recycling stream.

Cleaners will be responsible for checking bins for leakage of recyclable materials (most likely paper, cardboard, and plastic containers) into the landfill stream, monitoring contamination in recycling bins, and reporting any examples of this to facilities management.

4.2 Cardboard, Paper, & Commingled Recycling

The current paper and cardboard system will continue as usual and does not require any modifications, other than ensuring that staff are diligent with regard to paper recycling, that all common areas that generate paper have suitable bins, and that new signage is installed in all areas (see Appendix A for examples).

With the introduction of a commingled recycling service, our recommendation is to have an accompanying education program for all staff and cleaners to ensure that recyclable items are not being disposed to landfill. Cleaning staff will be responsible for monitoring commingled bins to ensure correct separation, and also making sure that bins are arranged within storage areas to ensure they are easily accessible and suitably presented for collection by the contractor.

4.3 Nappy/Soiled Waste

The current arrangement of nappy soiled bins will be maintained accordingly. Cleaners and staff will remain responsible for managing the manoeuvring and disposal of empty/full bins within the waste storage room and internally if required.

4.4 Bulky Waste

Due to the intermittent nature of bulky waste generation, there will not be a designated area for bulky waste storage on site. Hardi Aged Care operational procedure for this to have a dedicated contractor available to collect this material on demand as it is generated, and take it to an off-site storage facility.

4.5 Education & Signage

Cleaning contractors are a vital part of waste reduction efforts and should meet regularly with facilities management to identify new opportunities for improving diversion from landfill.

Given the necessity of preventing hazardous materials from entering the wrong disposal pathways, all information provided to staff, including any signage posted, must be comprehensive and specific. Examples of suitable signage for non-hazardous streams are included in Appendix A.

5. Vehicle Access

5.1 General Requirements

- On-site Collection The vehicle must be able to safely and efficiently access the site and the nominated collection point to perform on-site waste collection.
- There must be sufficient manoeuvring area on-site to allow the collection vehicle to enter and exit the site in a forward direction and service the development efficiently with little or no need to reverse.
- Service Clearances For rear loaded vehicles an additional 2m unobstructed loading zone is required behind the vehicle for the loading of 660L and 1,100L bins. Additionally, a 0.5m side clearance is require on either side of the vehicle for driver movements and accessibility

It is also recommended that a Marshal will be present to guide the waste collection vehicle whist it is undertaking the three-point turn.

5.2 Collection Vehicle Route

Waste collection vehicles will enter and leave the site in a forward direction, entering from Retreat Drive into the truck turning bay where it will reverse along the internal driveway to the collection area and exit in a forward direction back along Retreat Drive.

The following diagram illustrates the route that will be taken by Suez's collection vehicles. The inclusion of the turning bay will substantially improve on the existing truck pathway (which currently uses Retreat Drive entering and exiting in a forward direction) by providing a clear and identifiable area where the truck is able to complete the required three-point turn to access the waste collection area which is outlined in Figure 2.

Figure 2: Collection Vehicle Route

Appendix A: Signage Examples (Non-Hazardous Waste Streams)