26-28 Eden St. & 161-179 Princes Hwy, Arncliffe

Mixed-Use Development

OPERATIONAL WASTE MANAGEMENT PLAN

29/06/2021
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Revision D

Client

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GLOSSARY OF ABBREVIATIONS AND TERMS

TERM	DESCRIPTION
Baler	A device that compresses waste into a mould to form bales which may be self-supporting or retained in shape by strapping
Bin-carting Route	Travel route for transferring bins from the storage area to a nominated collection point
Chute	A ventilated, vertical pipe passing from floor to floor of a building with openings as required to connect with hoppers and normally terminating at its lower end at the roof of the central waste room(s)
Chute Discharge	The point at which refuse exits from the refuse chute
Chute Discharge Room	A secure, enclosed area or room housing the discharge and associated equipment for the refuse chute
Collection Area/Point	The identified position or area where general waste or recyclables are loaded onto the collection vehicle
Compactor	A machine for compressing waste into disposable or reusable containers
Composter	A container/machine used for composting specific food scraps
Crate	A plastic box used for the collection of recyclable materials
DA	Development Application
DCP	Development Control Plan
EPA	Environmental Protection Authority
HRV	Heavy Rigid Vehicle described by AS 2890.2-2002 Parking facilities – Off-street commercial vehicle facilities
L	Litre(s)
LEP	Local Environmental Plans guide planning decisions for local government areas
Liquid Waste	Non-hazardous liquid waste generated by commercial premises that must be connected to sewer or collected for treatment and disposal by a liquid waste contractor (including grease trap waste)
Mixed Use Development	A development comprised of two or more different uses
MUD	Multi-Unit Dwellings comprise of a development with more than one dwelling. This ranges from dual occupancies and attached dwellings to high-rise residential developments
Mobile Garbage Bin(s) (MGB)	A waste container generally constructed of plastic with wheels with a capacity in litres of 120, 240, 360, 660, 1000 or 1100
MRV	Medium Rigid Vehicle described by AS 2890.2-2002 Parking facilities – Off-street commercial vehicle facilities
Onsite Collection	When the collection vehicle enters the property and services the development within the property boundary from a designated loading area

Owners Corporation	An organisation or group of persons that is identified by a particular name and acts, or may act, as an entity
WHS	Workplace Health and Safety
Wheel-in wheel-out service	A type of waste collection service offered by local councils where the council waste collection personnel enter the premises to collect the bins and returns them to the property
SRV	Small Rigid Vehicle described by AS 2890.2-2002 Parking facilities – Off-street commercial vehicle facilities

1.0 INTRODUCTION

This operational waste management plan (OWMP) is submitted to the Department of Planning, Industry and Environment (DPIE) in support of a State Significant Development Application (SSDA-11429726) for the development of land identified at 26-42 Eden Street and 161-179 Princes Highway, Arncliffe (the site) for the purposes of a mixed-use precinct with open space, retail, and residential uses, comprising social and market housing as part of the NSW Land and Housing Corporation (LAHC)'s 'Communities Plus' Program.

SSDA-11429726 seeks approval for the following development:

- *Demolition of all existing buildings and structures on the site;*
- *Site preparation works, excavation and tree removal;*
- *The construction of a mixed-use development comprising:*
    - *744 apartments across (4) buildings between 19-23 storeys in height, as follows:*
        - *186 market housing apartments in Building A;*
        - *202 market housing apartments in Building B;*
        - *180 social housing apartments in Building C; and*
        - *176 market housing apartments in Building D;*
    - *3,113m2 retail gross floor area;*
    - *240m2 for a future childcare centre;*
    - *3,706m2 of communal open space;*
    - *813 spaces of lower ground and basement car parking; and*
- *4,870m2 of publicly accessible open space including a 4,000m2 park, an 870m2 public plaza (meeting space), and through site link connecting Eden Street and the Princes Highway.*

In accordance with section 4.39 of the Environmental Planning & Assessment Act 1979 (EP&A Act), the Secretary's Environmental Assessment Requirements (SEARs) for SSDA-11429726 were issued on 18 December 2020. This report has been prepared to respond to the following SEARs:

SEAR	Relevant section of report
19. Waste and servicing The EIS must: 1. Identify, quantify, and classify the likely waste to generated during construction and operation, 2. Describe measures to be implemented to minimise, reuse, recycle and safely dispose of this waste, and 3. Identify appropriate servicing arrangements.	1. Sections 4.1, 5.0, 6.1, and 8.0. Note that construction and demolition waste management is provided in a separate report. 2. Sections 4.2, 5.3, 5.5, 8.0, 9.0, 9.1. 3. Sections 4.3, 4.4, and 5.4.

1.1 SCOPE OF REPORT

Elephants Foot Recycling Solutions (EFRS) has been engaged to prepare the following waste management plan for the operational management of waste generated by the proposed mixed use development located at 26-28 Eden St., and 161-179 Princes Hwy, Arncliffe NSW.

Waste management strategies and audits are required for new developments in order to support the design and sustainable performance of the building. It is EFRS's belief that a successful waste management strategy contains three key objectives:

i. ***Promote responsible source separation*** to reduce the amount of waste that goes to landfill by implementing convenient and efficient waste management systems.

ii. ***Ensure adequate waste provisions and robust procedures*** that will cater for potential changes during the operational phase of the development.

iii. ***Comply*** with all relevant council codes, policies, and guidelines.

To achieve these objectives, this operational waste management plan (OWMP) identifies the different waste streams likely to be generated during the operational phase of the development, as well as how the waste will be handled and disposed, details of bin sizes/quantities and waste rooms, descriptions of the proposed waste management equipment used, and information on waste collection points and frequencies.

It is essential that this OWMP is integrated into the overall management of the building and is clearly communicated to all relevant stakeholders.

This operational waste management plan (OWMP) only applies to the **operational** phase of the proposed development; therefore, the requirements outlined in this OWMP must be implemented during the operational phase of the site and may be subject to review upon further expansion of, and/or changes to the development.

The waste management of the **construction** and **demolition** phases of the development are addressed in a separate report.

1.2 REPORT CONDITIONS

The purpose of this report is to document an OWMP as part of a development application, which is supplied by EFRS with the following limitations:

- Drawings, estimates, and information contained in this OWMP have been prepared by analysing the information, plans and documents supplied by the client and third parties including Council and other government agencies. The assumptions based on the information contained in the OWMP is outside the control of EFRS,
- The figures presented in the report are an estimate only – the actual amount of waste generated will be dependent on the occupancy rate of the building/s and waste generation intensity as well as the building management's approach to educating residents and tenants regarding waste management operations and responsibilities,
- The building manager will adjust waste management operations as required based on actual waste volumes (e.g. if waste is greater than estimated) and increase the number of bins and collections accordingly,
- The report will not be used to determine or forecast operational costs or prepare any feasibility study or to document any safety or operational procedures,
- The report has been prepared with all due care; however no assurance is made that the OWMP reflects the actual outcome of the proposed waste facilities, services, and operations, and EFRS will not be liable for plans or results that are not suitable for purpose due to incorrect or unsuitable information or otherwise,
- EFRS offer no warranty or representation of accuracy or reliability of the OWMP unless specifically stated,
- Any manual handling equipment recommended in this OWMP should be provided at the recommendation of the appropriate equipment provider who will assess the correct equipment for supply,
- Design of waste management chute equipment and systems must be approved by the supplier,
- EFRS cannot be held accountable for late changes to the design after the OWMP has been submitted to Council,
- EFRS will provide specifications and recommendations on bin access and travel paths within the OWMP, however it is the architect's responsibility to ensure the architectural drawings meet these provisions,
- EFRS are not required to provide information on collection vehicle swept paths, head heights, internal manoeuvring or loading requirements. It is assumed this information will be provided by a traffic consultant,
- Council are subject to changing waste and recycling policies and requirements at their own discretion.

This OWMP is only finalised once the Draft Watermark has been removed. If the Draft Watermark is present, the information in the OWMP is not confirmed.

2.0 LEGISLATION & GUIDANCE

Waste management and resource recovery regulation in Australia is administered by the Australian Constitution, Commonwealth laws, and international agreements. State and territory governments maintain primary responsibility for controlling development and regulating waste. The following legislation has been enacted in New South Wales and provides the lawful underpinnings of this OWMP.

- NSW Environmental Planning & Assessment Act 1979
- NSW Protection of the Environment Operations Act 1997
- NSW Waste Avoidance & Resource Recovery Act 2001

At the local level, councils, or Local Government Areas (LGAs) require OWMPs to be included in new development applications. This OWMP is specifically required by:

- Rockdale Development Control Plan 2011
- Rockdale Local Environmental Plan 2011
- The issued Secretary's Environmental Assessment Requirements (SEARs)

The primary purpose of a development control plan (DCP) is to guide development according to the aims of the corresponding local environmental plan (LEP). The DCP must be read in conjunction with the provisions of the relevant LEP.

Information provided in this OWMP comes from a wide range of waste management guidance at the local, state, and federal levels. The primary sources of guidance include:

- Rockdale Development Control Plan 2011
- Rockdale Technical Specification, Waste Minimisation and Management 2011
- NSW Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities 2012
- NSW Better practice guide for resource recovery in residential developments 2019
- NSW Waste Avoidance and Resource Recovery (WARR) Strategy 2014-2021
- NSW Waste Classification Guidelines 2014
- Australia's National Waste Policy 2018

2.1 COUNCIL OBJECTIVES

Bayside Council is committed to sustainable resource management and waste minimisation. As such, Council aims to:

- Maximise reuse and recycling of household waste and industrial/commercial waste,
- Provide guidance with regard to space, storage, amenity, and management of waste management facilities,
- Ensure waste management systems are compatible with collection services,
- Minimise risks and impacts on public domain and residential amenity associated with waste management at all stages of development.

3.0 DEVELOPMENT OVERVIEW

The proposed development falls under the LGA of Bayside Council, and will consist of:

- Building A
  - 189 residential units
  - 21 levels
- Building B
  - 207 residential units
  - 22 levels
- Building C
  - 180 residential units
  - 17 levels
- Building D
  - 170 residential units
  - 19 levels

In addition, there will be approximately 3353m^2 of retail space, including an anticipated neighbourhood supermarket and childcare centre.

All figures and calculations are based on area schedules as advised by our client and shown on architectural drawings.

3.1 SITE LOCATION

The site is located 26-28 Eden St., and 161-179 Princes Hwy, Arncliffe NSW. The development will have frontage to Eden Street and Princes Highway, with vehicle entryway access via Eden Street and Princes Highway.

Figure 1. Site Location

Source: Nearmap

4.0 RESIDENTIAL WASTE MANAGEMENT

The following section outlines best practice waste management for the residential component of the development, including waste generation estimates and waste disposal and collection procedures.

4.1 WASTE GENERATION ESTIMATES

The *Rockdale Technical Specification, Waste Minimisation and Management 2011*, has been referenced to calculate the total number of bins required for the residential units. Calculations are based on generic figures, and waste generation rates may differ according to the residents' actual waste management practice.

During operation, it is the responsibility of the building manager to monitor the number of bins required. Waste and recycling volumes may change according to residents' attitudes to waste disposal and recycling, building occupancy levels or development's management.

The following table shows the estimated volume (L) of general waste and recyclables generated by the residential component of the development.

Table 1. Estimated Residential Waste and Recycling Volumes – Building A

Bldg	# Units	Waste Generation Rate (L/unit/week)	Compacted Waste 2:1 (L/week)	Recycling Generation Rate (L/unit/week)	Generated Recyclables (L/week)
A	186	120	11160	60	11160
TOTAL	**186**		**11160**		**11160**
Collections		Waste Bin Size (L)	1100	Recycling Bin Size (L)	1100
		Waste Collections/Week	2	Recycling Collections/Week	2
		Bins Per Day	1.4	Bins Per Day	1.4
		Bins Per Collection	**6**	Bins Per Collection	**6**

Table 2. Estimated Residential Waste and Recycling Volumes – Building B

Bldg	# Units	Waste Generation Rate (L/unit/week)	Compacted Waste 2:1 (L/week)	Recycling Generation Rate (L/unit/week)	Generated Recyclables (L/week)
B	202	120	12120	60	12120
TOTAL	**202**		**12120**		**12120**
Collections		Waste Bin Size (L)	1100	Recycling Bin Size (L)	1100
		Waste Collections/Week	2	Recycling Collections/Week	2
		Bins Per Day	1.6	Bins Per Day	1.6
		Bins Per Collection	**6**	Bins Per Collection	**6**

Table 3. Estimated Residential Waste and Recycling Volumes – Building C

Bldg	# Units	Waste Generation Rate (L/unit/week)	Compacted Waste 2:1 (L/week)	Recycling Generation Rate (L/unit/week)	Generated Recyclables (L/week)
C	180	120	10800	60	10800
TOTAL	**180**		**10800**		**10800**
Collections		Waste Bin Size (L)	1100	Recycling Bin Size (L)	1100
		Waste Collections/Week	2	Recycling Collections/Week	2
		Bins Per Day	1.4	Bins Per Day	1.4
		Bins Per Collection	**5**	Bins Per Collection	**5**

Table 4. Estimated Residential Waste and Recycling Volumes – Building D

Bldg	# Units	Waste Generation Rate (L/unit/week)	Compacted Waste 2:1 (L/week)	Recycling Generation Rate (L/unit/week)	Generated Recyclables (L/week)
D	176	120	10560	60	10560
TOTAL	**176**		**10560**		**10560**
Collections		Waste Bin Size (L)	1100	Recycling Bin Size (L)	1100
		Waste Collections/Week	2	Recycling Collections/Week	2
		Bins Per Day	1.4	Bins Per Day	1.4
		Bins Per Collection	**5**	Bins Per Collection	**5**

BIN SUMMARY

Based on the estimated waste generated by the residents in this development, the recommended bin quantities and collection frequencies are as follows:

General Waste: 22 x 1100L MGBs collected **2 x weekly**

Commingled Recyclables: 22 x 1100L MGB collected **2 x weekly**

Bin sizes, quantities, and/or collection frequencies may be modified by the building manager, in accordance with Council, once the proposed development is operational.

4.2 WASTE DISPOSAL PROCEDURES

BUILDINGS A, B, D

One single waste chute will be installed with access on each residential level. Residents will wrap or bag their general waste before placing in the chute. Bagged waste should not exceed 3kg in weight, or 35cm x 35cm x 35cm. The general waste will discharge from the chute into 1100L MGBs on a linear track system on Basement 2. General waste will be compacted (2:1).

A separate cupboard for the storage of 240L MGBs will be provided near each waste chute for the interim storage of commingled recyclables. Residents will be responsible for loosely placing their recyclables into the 240L MGBS. Recyclables must not be bagged.

As the 240L MGBs are filled, the building caretaker is responsible for transporting them to the chute discharge room of the respective building and decanting into 1100L MGBs with a bin lifter. After decanting, the 240L MGBs will be returned to each level to resume operational use. The building caretaker will use the lifts to transport the 240L MGBs during off-peak times to reduce impact on resident use.

BUILDING C

One dual chute for the disposal of waste and recovery of recyclables will be installed with access on each residential level. Residents will wrap or bag their general waste before placing in the chute. Bagged waste should not exceed 3kg in weight, or 35cm x 35cm x 35cm. Recyclables must be placed loosely in the chute and not bagged.

The general waste and recyclables will discharge from the chute into 1100L MGBs on a linear track system on Basement 2. General waste will be compacted (2:1). Recyclables are not compacted.

Refer to Council guidance for the types of materials accepted in the general waste and recycling waste streams.

4.3 WASTE COLLECTION PROCEDURES

Council will nominate a day of the week for the collection of general waste and recyclables.

Prior to collection, the building caretaker will be responsible for transporting the 1100L MGBs from each chute discharge room on Basement 1 to the Residential Waste Collection Room on Upper Ground Level. This can be accomplished utilising either a bin tug on the car ramps or the residential loading lift. Service bins should be placed under the chutes during this time.

To service the bins, a Council collection vehicle will enter the site from Eden Street and reverse into the designated loading bay on Upper Ground Level (see Appendix A.1). The vehicle driver will be able to access the residential bins from the Residential Waste Collection Room. Once the bins have been serviced the vehicle will exit the site onto Eden Street in a forward direction. The building caretaker will be responsible for returning the bins to the chute discharge rooms to resume operational use.

Quantities, sizes, and servicing of bins may be modified according to actual waste generation rates by residents. Please note that the collection of residential bins should occur on separate days from the collection of retail bins to ensure proper segregation of waste streams.

4.4 BULKY WASTE PROCEDURES

Residents will need to liaise with building management regarding the transportation of bulky items to the respective Bulky Waste Room. It is the caretaker's responsibility to arrange collection dates with Council and then coordinate with the residents.

Prior to the collection of bulky goods, the building caretaker will be responsible for transporting the items to the Residential Waste Collection Room via the lifts.

On the day of bulky waste collection, a Council collection vehicle will enter the site from Eden Street and park in the designated loading bay. The vehicle driver will be able to access the bulky goods in the Residential Waste Collection Room. Once the items have been loaded, the vehicle will exit the site onto Eden Street in a forward direction.

Per advice from Council, the Bulky Waste Room area has been calculated at the rate of $6m^2$ up to 40 units and an additional $1m^2$ for every 10 units thereafter.

Note that the collection of bulky waste must occur on a separate day from the residential bins. Refer to Council's website for acceptable items and other information regarding bulky waste collection.

5.0 COMMERCIAL/RETAIL WASTE MANAGEMENT

The following section outlines best practice waste management for the retail component of the development, including waste generation estimates and waste disposal and collection procedures.

5.1 WASTE GENERATION ESTIMATES

The *NSW Better practice guide for resource recovery in residential developments 2019* has been referenced to calculate the total number of bins required for the anticipated tenants.

Calculations are based on generic figures, and waste generation rates may differ according to the tenant's actual waste management practice.

The following table shows the estimated volume (L) of general waste and recyclables that will be generated by the anticipated retail activities. Since tenancies are not known at this stage, the total retail floor area has been divided into 3 possible tenancy types. The estimates for food retailers are based on a seven-day operating week, and the estimates for non-food retailers are based on a five-day operating week.

Table 5. Estimated Commercial/Retail Waste and Recycling Volumes

Tenancy Type	NLA m²	Waste Generation Rate (L/100m²/Day)	Generated Waste (L/Week)	Recycling Generation Rate (L/100m²/Day)	Paper/ Cardboard (L/Week)	Commingled Recyclables (L/Week)
Retail: restaurant	784.7	400	21970.7	280	10253.0	5126.5
Retail: café	784.7	100	5492.7	120	4394.1	2197.1
Retail: office-based	784.7	30	1177.0	40	1046.2	523.1
Childcare*	40	5	1400.0	5	933.3	466.7
TOTALS	**2354**		**30040**		**16627**	**8313**
Collections		Bin Size (L)	1100	Bin Size (L)	1100	660
		Bins/Day	3.9	Bins/Day	2.2	1.8
		Collections/Wk	3	Collections/Wk	3	3
		Total Bins	**10**	Total Bins	**5**	**5**

**Note that the childcare rate is based on per child.*

5.2 BIN SUMMARY

Based on the estimated waste generated by the retail component of this development, the recommended bin quantities and collection frequencies are as follows:

General Waste: 10 x 1100L MGBs collected **3 x weekly**

Recycled Cardboard/Paper: 5 x 1100L MGBs collected **3 x weekly**

Commingled Recyclables: 5 x 660L MGBs collected **3 x weekly**

Bin sizes, quantities, and/or collection frequencies may be modified by the building manager once the proposed development is operational. Seasonal peak periods such as public and school holidays should also be considered.

5.3 WASTE DISPOSAL PROCEDURES

Retail and childcare centre staff will be responsible for the storage and maintenance of general waste, paper/cardboard, and commingled recyclables back of house. General waste and recycling receptacles should be paired next to each other in convenient locations such as offices, kitchens, and reception areas.

On completion of each trading day or as required, nominated staff, or contracted cleaners will transport all general waste and recyclables to the Retail Waste Room on Upper Ground Level and place into the appropriate collection bins (see APPENDIX A.1). Waste will not be compacted, and recyclables are not baled.

5.4 WASTE COLLECTION PROCEDURES

A private waste collection contractor will be engaged to collect the general waste and recyclables per an agreed schedule.

To service the bins, a private collection vehicle will enter the site from Eden Street and reverse in the designated loading area on Upper Ground Level (see Appendix A.1). The driver will be able to access the bins from the Retail Waste Room. Once the bins have been serviced, the vehicle will exit the site onto Eden Street in a forward direction.

Quantities, sizes, and servicing of bins may be modified according to actual waste generation rates by retail tenancies. Please note that the collection of retail bins should occur on separate days from the collection of residential bins to ensure proper segregation of waste streams.

5.5 OTHER WASTE MANAGEMENT CONSIDERATIONS

Based on the types of tenancies anticipated for this development, the following waste management practices are recommended.

5.5.1 KITCHEN, OFFICE TEA ROOMS AND FOOD PREPARATION AREAS

Any food preparation area, including kitchens and office tea rooms will be provided with dedicated source separation bins including a general waste bin, paper bin, and commingled recycling bin. Cleaners or nominated staff will be responsible for monitoring these bins and emptying them as required.

5.5.2 BATHROOMS

Washroom facilities should be supplied with collection bins for paper towels (if used). Sanitary bins for female restroom facilities must also be arranged with an appropriate contractor.

5.5.3 PRINTING & PHOTOCOPYING ROOMS

It is recommended that printing rooms and photocopying rooms are supplied with bins for the collection of paper, as well as separate receptacles for ink toner cartridges for recycling. The cleaners or nominated staff are responsible for monitoring these bins and ensuring the items are collected and recycled by an appropriate contractor.

5.5.4 FOOD WASTE

The tenant may elect to segregate food scraps and engage a private waste contractor to collect food waste on a regular basis. Food waste can otherwise be placed in the general waste bin.

5.5.5 LIQUID WASTE

Liquid wastes such cleaning products, chemicals, paints, and cooking oil, etc., will be stored in a secure space that is bunded and drained to a grease trap in accordance with State government authorities and legislation.

5.5.6 PROBLEM WASTE

The building manager is responsible for making arrangements for the disposal and recycling of problem waste streams with an appropriate contractor. Problem wastes cannot be placed in the general waste stream since they can have adverse impacts to human health and the environment if disposed of in landfill. Retail and Commercial tenants will need to liaise with the building manager when disposing of problem waste streams.

Problem waste streams include:

- Chemical Waste
- Liquid wastes
- Toner cartridges
- Lightbulbs
- eWaste
- Batteries

6.0 SUPERMARKET TENANCY

The supermarket tenant is responsible for developing a separate waste management plan in accordance with their nationwide store policies and procedures. The supermarket tenant will also nominate their preferred waste equipment (e.g., compactors, balers, and/or bins) as part of designing the layout of their loading docks.

Waste and recyclables generated by the supermarket are usually stored and managed separately from all other tenancies. In general, it is expected that the supermarket staff will dispose of waste and recyclables near the loading area, and an appointed waste collection contractor will remove the waste from the loading area or waste room on an arranged schedule.

6.1 WASTE GENERATION ESTIMATES

The table below estimates the volumes of waste and recyclables likely to be generated by each supermarket. A 7-day operating week is assumed.

All figures and calculations are based on area schedules as advised by our client and shown on architectural drawings.

Table 6. Estimated Waste Generation – Supermarket

Tenancy Type	NLA m^2	Waste Generation Rate ($L/100m^2$/Day)	Generated Waste (L/Week)	Recycling Generation Rate ($L/100m^2$/Day)	Paper/ Cardboard (L/Week)	Commingled Recyclables (L/Week)
Supermarket	500	240	8400.0	300	7000.0	3500.0
TOTALS	**500**		**8400**		**7000**	**3500**

6.2 WASTE DISPOSAL PROCEDURES

To be outlined separately in the supermarket waste management plan.

6.3 WASTE COLLECTION PROCEDURES

To be outlined separately in the supermarket waste management plan.

7.0 STAKEHOLDER ROLES & RESPONSIBILITIES

The following table demonstrates the primary roles and responsibilities of the respective stakeholders:

Table 7. Stakeholder Roles and Responsibilities

Roles	Responsibilities
Strata or Management	• Ensuring that all waste service providers submit monthly reports on all equipment movements and waste quantities/weights; • Organising internal waste audits/visual assessments on a regular basis; and • Managing any non-compliances/complaints reported through waste audits.
Building Manager or Waste Caretaker	• Coordinating general waste and recycling collections; • Cleaning and transporting bins as required; • Organising replacement or maintenance requirements for bins; • Organising, maintaining and cleaning the waste holding area; • Organising bulky goods collection when required • Investigating and ensuring prompt clean-up of illegally dumped waste materials. • Preventing storm water pollution by taking necessary precautions (securing bin rooms, preventing overfilling of bins) • Abiding by all relevant WH&S legislation, regulations, and guidelines; • Providing staff/contractors with equipment manuals, training, health and safety procedures, risk assessments, and PPE to control hazards associated with all waste management; • Assessing any manual handling risks and preparing a manual handling control plan for waste and bin transfers; • Ensuring site safety for residents, children, visitors, staff and contractors; and • Ensuring effective signage, communication and education is provided to occupants, tenants, maintenance staff, and cleaning contractors.
Residents	• Dispose of all general waste and recycling in the MGBs provided; • Ensure adequate separation of general waste and recycling; and • Compliance with the provisions of Council and the OWMP.
Retail/ Commercial Tenants	• Managing the back of house storage of generated waste and recycling during daily operation. • Correctly separating waste and recycling streams. Including bagging general waste and ensuring recyclables are not bagged. • Flattening cardboard within the recycling bin. • If required, making arrangements for storing used and unused cooking oil in a bunded storage area, • Organizing grease interceptor trap servicing, • Ensure dry basket arrestors are provided to the floor wastes in the food preparation, and • Ensuring the suitable storage for chemicals, pesticides, and cleaning products waste back of house.
Waste Collection Contractor	• Provide a reliable and appropriate waste collection service; • Provide feedback to building managers/residents regarding contamination of recyclables; and • Work with building managers to customise waste systems where possible.
Gardening/ Landscaping Contractor	• Removal of all garden organic waste generated during gardening maintenance activities for recycling at an offsite location.
Building Contractors	• Removing all construction related waste offsite in a manner that meets all authority requirements.

8.0 SOURCE SEPARATION

Better practice waste management includes the avoidance, reuse, and recovery of unwanted items, which can be achieved through source separation. The table below outlines what is typically included in various waste streams and how they can be managed. Refer to your local council for a list of accepted materials. Planet Ark can be accessed online to find other facilities that recover unwanted items.

Table 8. Operational Waste Streams

Waste Stream	Description	Typical Destination	Waste Stream Management
General Waste	The remaining portion of the waste stream that is not recovered for re-use, processing, or recycling. May include soft plastics, food scraps, polystyrene, etc.	Landfill	Waste should be bagged before placing in the chute or designated waste bins.
Paper and Cardboard Recyclables	Cardboard and paper products are recyclable materials that can be re-processed into new products.	Resource Recovery Centre	Cardboard should be flattened before placing in the designated cardboard bin.
Commingled Recyclables	A mixture of items that are commonly recycled usually segregated through a MRF. Typically include food and beverage containers (e.g. aluminium, glass, steel, hard plastics, cartons).	Materials Recovery Facility (MRF)	Commingled recyclables must not be bagged, and instead should be placed loosely in the chute or designated recycling bins.
Secure Documents	Secure documents are printed paper materials that contain sensitive information.	Recycling Facility	Secure documents are placed in allocated secure document bins. Private contractor removes bins from site.
Green Waste	Green waste consists of unwanted organic materials that are easily biodegradable and/or compostable (e.g. lawn clippings, branches)	Resource Recovery Centre	Green waste will be collected in council or private contractor bins and removed from site. Residents may choose to compost at home.
Food Waste	Food waste consists of unwanted or uneaten kitchen scraps that are easily compostable/biodegradable (e.g. vegetable peels, fruit rinds, coffee grounds).	Composting facility or Landfill	Food waste can be composted on-site, off-site, or else included in the general waste stream.
Electronic Waste	Discarded e-waste, electronic components and materials such as computers, mobile phones, keyboards, etc.	Resource Recovery Centre	Building manager arranges collection for e-waste recycling as needed by residents. Commercial/retail tenants arrange for recycling of their own e-waste.
Bulky Items	Items that are to too large to place into general rubbish collection. This includes disused and/or broken furniture, mattresses, white goods, etc.	Resource Recovery Centre or Landfill	Residents liaise with building manager to store in Bulky Waste Room. Building manager arranges with Council for removal. Commercial tenants are responsible for removal of their bulky items.
Sanitary Waste	Feminine hygiene waste generated from female bathrooms.	Incineration or Landfill	Sanitary bins are serviced by sanitary waste contractor.
Other	Other recyclable items that require special recovery may include ink cartridges, batteries, chemical waste, fluorescent tubes, etc.	Resource Recovery Facility	Building manager arranges collection by appropriate recycling services when required.

9.0 EDUCATION

Educational materials encouraging correct separation of general waste and recyclables must be provided to each resident and commercial/retail tenant. This should include the correct disposal process for bulky waste such as old furniture, large, discarded items, and other materials including electronic and chemical wastes. It is recommended that the building caretaker provides information in multiple languages to support correct behaviours, and to minimise the possibility of chute blockages and contamination in communal waste bins.

Education and communication must be provided consistently on a regular basis to encourage behaviour change and account for transient building personnel such as new residents, tenants, or cleaning staff. It is also recommended that the owners' corporation website contain information for residents' referral regarding use of the chute. Information should include:

- Directions on using the chute doors;
- Descriptions of items accepted in the recycling and general waste streams (refer to Council guidance);
- How to dispose of bulky goods and any other items that are not general waste or recycling (refer to Council guidance);
- Residents' obligations to health and safety as well as building management; and
- How to prevent damage or blockages to the chute (example below).

To prevent damage or blockage to rubbish chute DO NOT dispose of any umbrellas, bedding, cigarettes, cartons, coat hangers, brooms, mops, large plastic wrappings from furniture, white goods, any sharp objects, hot liquid or ashes, oil, unwrapped vacuum dust, syringes, paint and solvents, car parts, bike parts, chemicals, corrosive and flammable items, soil, timber, furniture, bricks or other building materials down the chute.

9.1 SIGNAGE

Signage and education are essential components to support best practice waste management including resource recovery, source separation, and diversion of waste from landfill.

Signage should include:

- Clear and correctly labelled waste and recycling bins,
- Instructions for separating and disposing of waste items. Different languages should be considered,
- Locations of, and directions to, the waste storage areas with directional signs, arrows, or lines,
- The identification of all hazards or potential dangers associated with the waste facilities, and
- Emergency contact information should there be issues with the waste systems or services in the building.

The building manager is responsible for waste room signage including safety signage (see APPENDIX C.2). Appropriate signage must be prominently displayed on doors, walls and above all bins, clearly stating what type of waste or recyclables is to be placed in each bin.

All signage should conform to the relevant Australian Standards.

9.2 POLLUTION PREVENTION

Building management shall be responsible for the following to minimise dispersion of site litter and prevent stormwater pollution to avoid impact to the environment and local amenity:

- Promoting adequate waste disposal into the bins
- Securing all bin rooms (whilst affording access to staff/contractors)
- Prevent overfilling of bins, keep all bin lids closed and bungs leak-free
- Taking action to prevent dumping or unauthorised use of waste areas
- Require collection contractor/s to clean up any spillage when clearing bins

10.0 EQUIPMENT SUMMARY

Table 9. Equipment Summary

Component	Part	Qty	Notes
Equipment A	Single waste chute	3	See Appendix B.1
Equipment B	Dual waste chute	1	See Appendix B.2
Equipment C	2-bin 1100L linear track system for general waste	3	See Appendix B.3
Equipment D	Dual 2-bin 1100L linear track system for general waste and recyclables	1	See Appendix B.3
Equipment E	Bin lifter	3	See Appendix B.4
Equipment F	Bin tug	1	See Appendix C.4

11.0 WASTE ROOMS

The areas allocated for waste storage and collection areas are detailed in the table below, and are estimates only. Final areas will depend on room and bin layouts.

Table 10. Waste Room Areas

Level	Waste Room Type	Equipment	Bins	Estimated Area Required (m^2)	Actual Area Provided (m^2)
B2	Bldg A Waste Room	Single chute 2-bin 1100L linear tracks for waste + compactor Bin lifter	6 x 1100L MGBs for general waste 6 x 1100L MGB commingled recyclables 1 x 1100L service bins	47	48
B2	Bldg A Bulky Goods Room	NA	1 x 1100L MGB for bulky cardboard	21	17
B2	Bldg B Waste Room	Single chute 2-bin 1100L linear tracks for waste + compactor Bin lifter	6 x 1100L MGBs for general waste 6 x 1100L MGB commingled recyclables 1 x 1100L service bins	47	50
B2	Bldg B Bulky Goods Room	NA	1 x 1100L MGB for bulky cardboard	23	28
B2	Bldg C Waste Room	Dual chute Dual 2-bin 1100L linear tracks for waste + compactor	5 x 1100L MGBs for general waste 5 x 1100L MGB commingled recyclables 2 x 1100L service bins	47	40
B2	Bldg C Bulky Goods Room	NA	1 x 1100L MGB for bulky cardboard	20	31
B2	Bldg D Waste Room	Single chute 2-bin 1100L linear tracks for waste + compactor Bin lifter	5 x 1100L MGBs for general waste 5 x 1100L MGB commingled recyclables 1 x 1100L service bins	42	48
B2	Bldg D Bulky Goods Room	NA	1 x 1100L MGB for bulky cardboard	20	26
UG	Residential Waste Collection Room	Bin Tug	22 x 1100L MGBs for general waste 22 x 1100L MGB commingled recyclables	121	120
UG	Retail Waste Room	NA	10 x 1100L MGBs for general waste 5 x 1100L MGBs for paper/cardboard 5 x 660L MGBs for commingled recyclables	53	49
UG	Supermarket Waste	TBD by supermarket	TBD by supermarket	TBD	31

EFRS recommends these bins/sizes/collection frequencies and/or equipment for best practice waste management at this site, however EFRS also acknowledges there are a range of other suitable options that may alter waste room requirements (e.g., floor area, accessibility, head height, etc.). Note that EFRS design engineers have not reviewed the layout of chute discharge/equipment to confirm suitability for operational use.

The waste room areas have been calculated based on equipment requirements and/or bin dimensions with an additional 70% of bin GFA factored in for manoeuvrability. In addition, all doorways and passageways must be wide enough to facilitate the movement of bins and/or bulky waste items (e.g., 1500mm wide).

The following table provides further waste room requirements.

Table 11. Waste Room Requirements

Waste Room Type	Waste Room Requirements
Chute Discharge Room	• Ceiling clearance height must be a minimum of 3000mm. • The chute penetration must have a minimum 500mm clearance of any service pipes or other overhead obstacles. • All waste discharge points should be caged off to ensure the safety of any personnel accessing the waste room. • 200mm clearance is required around compaction equipment. • Where a chute offset is required, the angle of the offset must not exceed 45 degrees.
Bulky Waste Storage Room	• May be a dedicated room or caged area within another waste room. • Must be in close proximity to the collection area.
Retail/Commercial Waste Room	• In order to ensure staff safety, all bins should be arranged so they can be accessed without moving another bin.

11.1 BIN MOVEMENTS

The transfer of bins should minimise manual handling where possible, and must be assessed by the building caretaker. Per the NSW Better Practice Guide, the routes along the bin moving path should:

- Allow for a continuous route that is wholly within the property boundary
- Be free from obstruction and obstacles such as steps and kerbs
- Be constructed of solid materials with a non-slip surface
- Be a minimum of 300mm wider than the largest bin used on site
- Not exceed a grade of 1:14 (for 240L MGBs), and 1:30 (for 660L MGBs and larger) if the bins are moved manually
- Should not exceed the maximum operating grade of a bin moving device if one is used to transfer bins

The developer is responsible for supplying all equipment required for moving bins including bin lifters, bin moving devices, and waste transfer bins. This equipment must be new and appropriate for the site. The developer should contact a bin-tug, trailer, or tractor consultant for equipment recommendations.

Once the site becomes operational, it will be the responsibility of the building proprietors/strata for maintaining, repairing, and replacing waste management equipment.

11.2 CONSTRUCTION REQUIREMENTS

Waste room and chute construction must comply with the minimum standards as outlined in Council's DCP in order to minimise odours, deter vermin, protect surrounding areas, and make it a user-friendly and safe area.

The *NSW Better practice guide for resource recovery in residential developments (2019)* also states that better practice bin storage areas should achieve more than the minimum compliance requirements, which are as follows:

- Ensuring BCA compliance, including ventilation. Where required, ventilation system must comply with AS1668.4-2012 The use of ventilation and air conditioning in buildings.
- Ensuring storage areas are well lit (sensor lighting preferred) and have lighting available 24 hours a day.
- Provision of bin washing facilities, including taps for hot and cold water provided through a centralised mixing valve. The taps must be protected from bins and be located where they can be easily accessed even when the area is at bin capacity.
- Floor constructed of concrete at least 75mm thick.
- Floor graded so that any water is directed to a sewer authority approved drainage connection to ensure washing bins and/or waste storage areas do not discharge flow into the stormwater drain.
- Provision of smooth, cleanable and durable floor and wall surfaces that extend up the wall to a height equivalent to any bins held in the area.
- Ensuring ceilings are finished with a smooth-faced non-absorbent material capable of being cleaned.
- All surfaces (walls, ceiling and floors) finished in a light colour.

ADDITIONAL CONSIDERATIONS

- Waste room floor to be sealed with a two-pack epoxy;
- All corners coved and sealed 100mm up, this is to eliminate build-up of dirt;
- Tap height and light switch height of 1.6m;
- Storm water access preventatives (grate);
- All walls painted with light colour and washable paint;
- Equipment electric outlets to be installed 1700mm above finished floor level;
- The room must be mechanically ventilated;
- Optional automatic odour and pest control system installed
- If 660L or 1100L bins are utilised, 2 x 820mm (minimum) double-doors must be used;
- All personnel doors are hinged, lockable and self-closing;
- Conform to the Building Code of Australia, Australian standards and local laws; and
- Childproofing and public/operator safety shall be assessed and ensured

VENTILATION

Waste and recycling rooms must have their own exhaust ventilation system either;

- Mechanically - exhausting at a rate of 5L/m² floor area, with a minimum rate of 100L/s minimum; or
- Naturally - permanent, unobstructed, and opening direct to the external air, not less than one-twentieth (1/20) of the floor area

Mechanical exhaust systems shall comply with AS1668.4.2012 and not cause any inconvenience, noise, or odour problem.

USEFUL CONTACTS

EFRS does not warrant or make representation for goods or services provided by suppliers.

LOCAL COUNCIL

Bayside Customer Service	Ph: 1300 463 954	E: council@bayside.nsw.gov.au

PRIVATE WASTE COLLECTION PROVIDER

Capital City Waste Services	Ph: 02 9599 9999	E: service@ccws.net.au
Remondis	Ph: 02 9032 7100	
Suez Environmental	Ph: 13 13 35	
Wastewise NSW	Ph: 1300 550 408	E: admin@wastewise.com.au

BIN MOVING DEVICE SUPPLIERS

Electrodrive	Ph: 1800 333 002	E: sales@electrodrive.com.au
Sitecraft	Ph: 1300 363 152	E: sales@sitecraft.com.au
Spacepac	Ph: 1300 763 444	

ORGANIC DIGESTERS AND DEHYDRATORS

Closed Loop	Ph: 1300 762 166	
Orca		E: contact.australia@feedtheorca.com
Soil Food	Ph: 1300 556 628	
Waste Master	Ph: 1800 614 272	E: hello@wastemasterpacific.com.au

COOKING OIL CONTAINERS AND DISPOSAL

Auscol	Ph: 1800 629 476	E: sales@auscol.com

ODOUR CONTROL

Purifying Solutions	Ph: 1300 636 877	E: sales@purifyingsolutions.com.au

SOURCE SPERATION BINS

Source Separation Systems	Ph: 1300 739 913	E: info@sourceseparationsystems.com.au

MOBILE GARBAGE BINS, BULK BINS AND BIN EQUIPMENT

SULO	Ph: 1300 364 388	E: sales@sulo.com.au
OTTO Australia	Ph: 02 9153 6999	

CHUTES, COMPACTORS AND EDIVERTER SYSTEMS

Elephants Foot Recycling Solutions	Ph: 1800 025 073	E: info@elephantsfoot.com.au

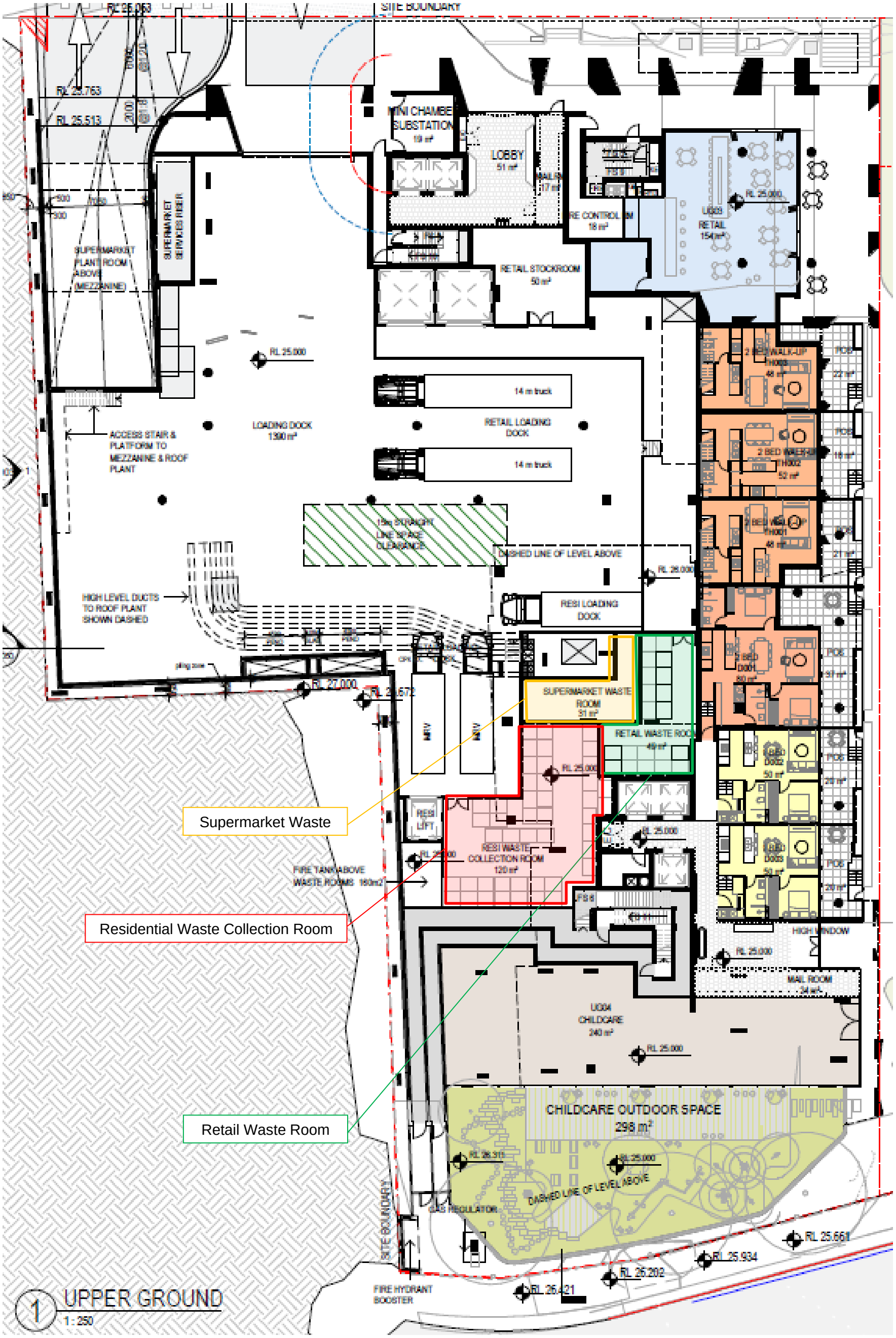
APPENDIX A: ARCHITECTURAL PLANS

APPENDIX A.1 FLOOR PLAN: BASEMENT 1 – WASTE ROOMS

Dwg No. DA 2003, Issue A, 28/05/2021

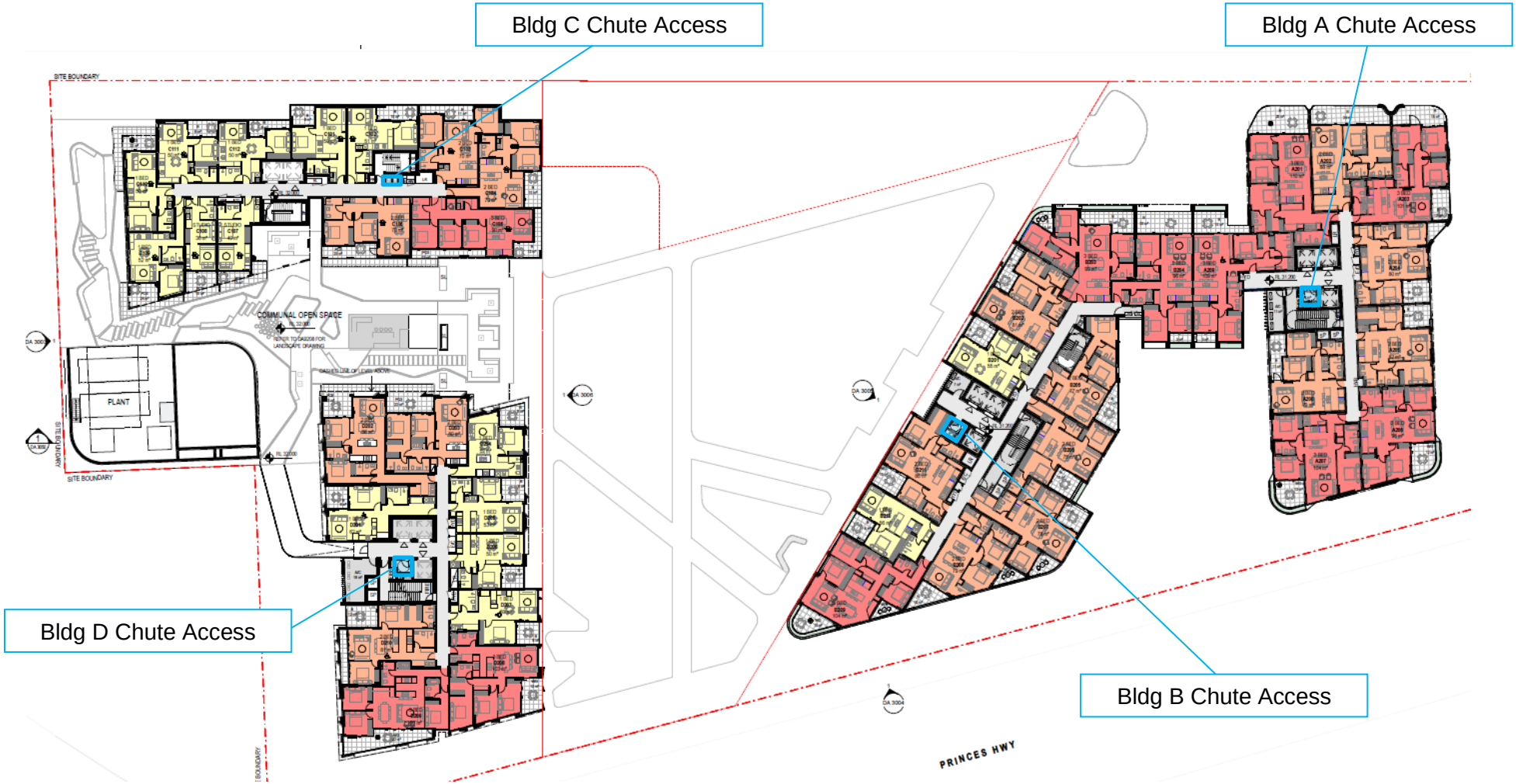
APPENDIX A.2 FLOOR PLAN: UPPER GROUND – WASTE COLLECTION

Dwg No. DA 2005, Issue A, 28/5/2021



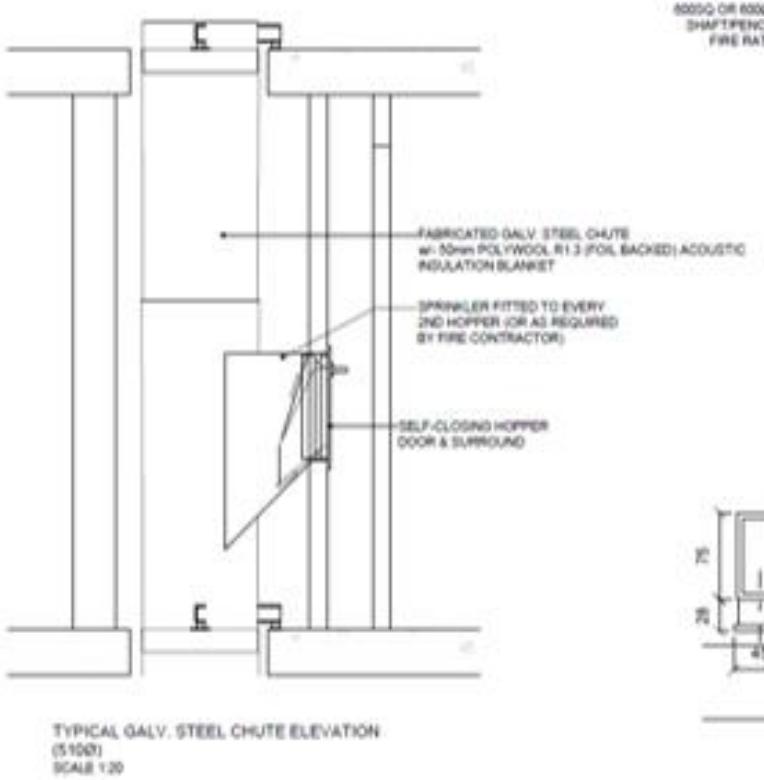
APPENDIX A.2 FLOOR PLAN: UPPER GROUND

Dwg No. DA 2007, Issue A, 28/5/2021

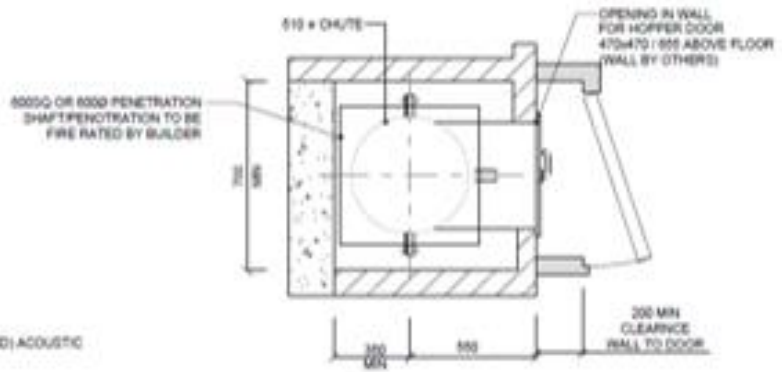


APPENDIX B: INSTALLATION EQUIPMENT

APPENDIX B.1 EXAMPLE SINGLE CHUTE SPECIFICATIONS

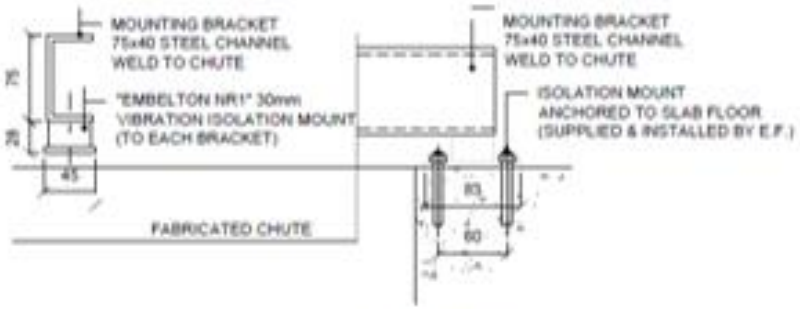


TYPICAL GALV. STEEL CHUTE ELEVATION
(510Ø)
SCALE 1:20



TYPICAL GALV. STEEL SINGLE CHUTE LAYOUT
(510Ø)
SCALE 1:20

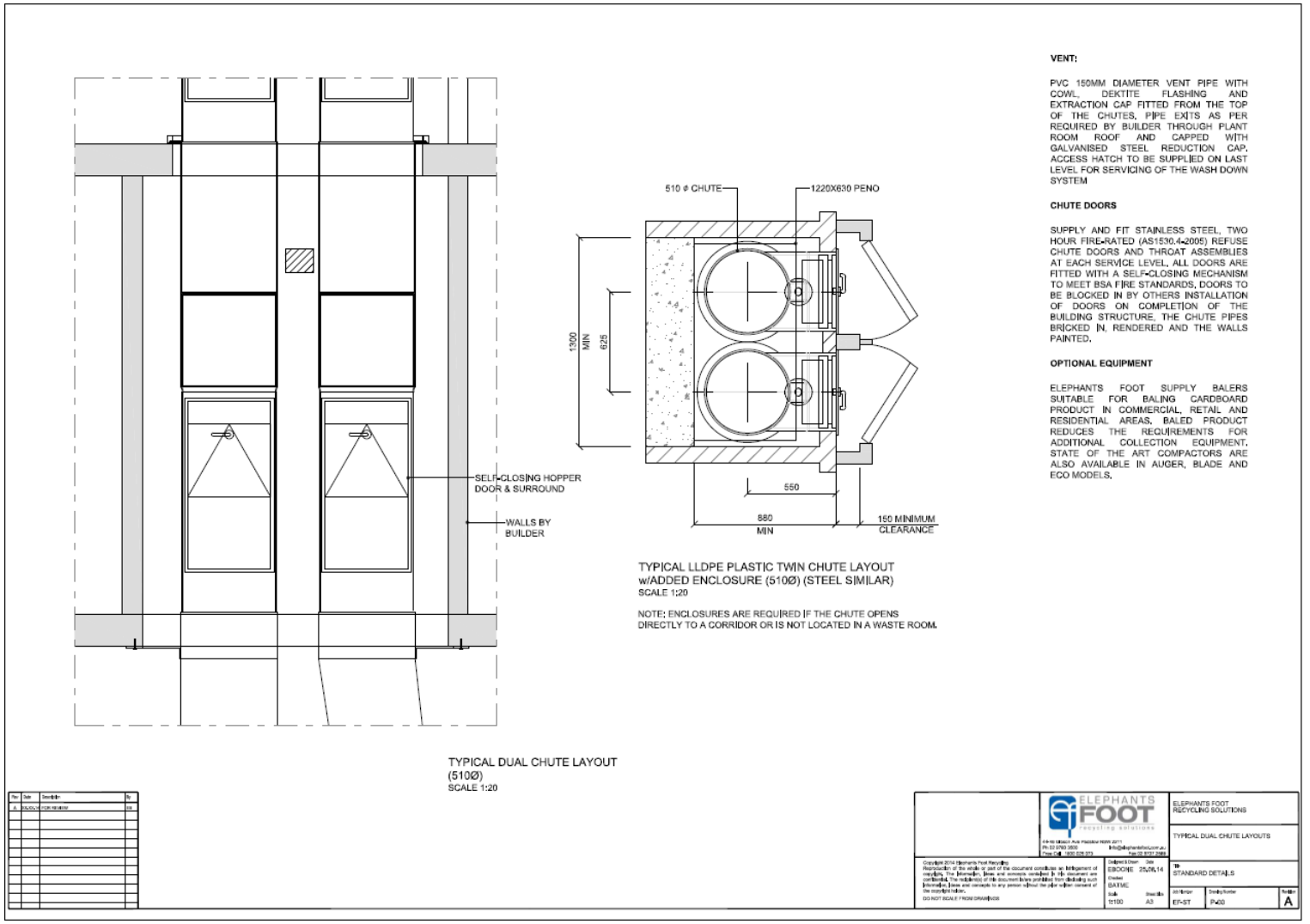
NOTE: ENCLOSURES ARE REQUIRED IF THE CHUTE OPENS
DIRECTLY TO A CORRIDOR OR IS NOT LOCATED IN A WASTE ROOM



MOUNTING DETAIL
SCALE 1:5

This is an example only. Refer to supplier's information and specification.

APPENDIX B.2 EXAMPLE DUAL CHUTE LAYOUT



APPENDIX B.3 TYPICAL LINEAR TRACK SYSTEM (1100L MGBS)

ELEPHANTS FOOT RECYCLING SOLUTIONS
44-46 GIBSON AVE, PADSTOW NSW 2211
E info@elephantsfoot.com.au W elephantsfoot.com.au
Free Call: 1300 4 ELEPHANT (1300 435 374)

1100 LITRE LINEAR TRACK SYSTEM

PRODUCT INFORMATION

Elephants Foot 1100 Litre bin Linear Track System is a versatile waste handling solution for many types of multi-storey or multi-level developments. The Linear Track System collects waste or recycling being disposed from the floors above through the chute system, discharging the material via a hopper that feeds the bins. Electromechanically driven with automated operation, the system utilises linear motion to automatically change over full bins. Once all the bins are filled, an indicator light will illuminate signifying that the bins are ready for withdrawal and collection. Available with or without compaction unit, our standard 660 litre bin Linear Track System is available in the standard 2 bin option. Our 3 Bin option is available as a special order.

SPECIFICATIONS

System Control	Electric PLC
Power Supply	415 V AC / 10A / 5 PIN
Motor Size (kW)	1.1
Maximum bin load	440 kg
Noise (dBA)	<85
Bin Size (L)	1100
Cycle time (sec)	60
Bin Quantity options	2 or 3

OPTIONAL EXTRAS

- Compaction unit – Please refer to the bin compactor product information sheet for details and specifications
- Enhanced safety add on's – Interlocking barriers, occupancy sensors or safety light curtains (presence sensing light barriers)
- Full bin SMS and email notification
- CMMS and BMS integration
- Extend warranty – Terms and conditions apply

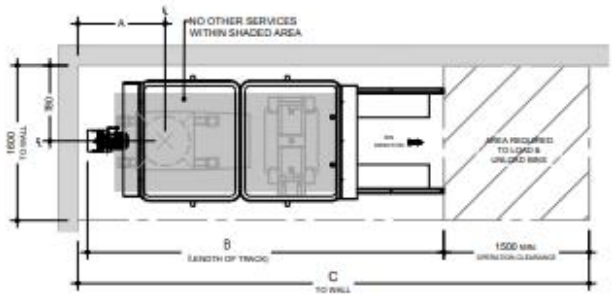
STANDARD FEATURES & BENEFITS

- Simple operation with user friendly controls
- Increased waste servicing efficiency for the development.
- Automatic system control with manual override
- Robust unit construction for long performance life
- Low service and maintain costs
- Rotating flashing beacon (activated during operation)
- Quiet and efficient system operation
- Maximise safety for residents, caretakers and collectors
- Restrained design with minimal moving parts
- Can suit low ceiling clearances
- Floor contact components fully galvanised steel
- Retro fitting options to suit other chutes systems
- Compliant with relevant Building Codes and Standards
- Standard 12 month warranty

ELEPHANTS FOOT recycling solutions

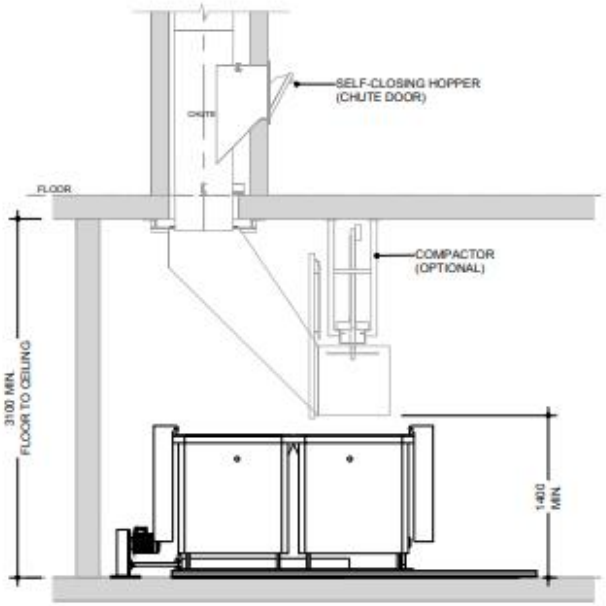
ELEPHANTS FOOT RECYCLING SOLUTIONS
44-46 GIBSON AVE, PADSTOW NSW 2211
E info@elephantsfoot.com.au W elephantsfoot.com.au
Free Call: 1300 4 ELEPHANT (1300 435 374)

LINEAR TRACK SYSTEM



1100 LITRE BIN

1100 LITRE BIN LINEAR TRACK SYSTEM			
No. of Bins	Reference (mm)		
	A	B	C
2	900	3700	5300
3	2100	5940	7550



Notes:
Bins not provided by Elephants Foot

Drawings shown are for general information purposes only and provide minimum equipment spacial requirements for waste room design.

These drawings are not intended for site specific use or for construction. Each project is unique and will be designed to suit.

Additional equipment options, systems and configurations are available. For design assessment, information and advice, please contact an Elephants Foot design consultant on 1300 435 374

Please note: this is an example only – please refer to supplier's information and specification.

APPENDIX B.4 EXAMPLE BIN LIFTER

120-240 Litre Binlifter

The single bin lifter is designed to safely empty wheelie bins into large dumpsters and compactors. With easy operating push button instructions, the bin lifter is complemented by a safety cage.

Features	120-240 litre bin lifter
Lifting capacity	140 kg
Bin compatibility	120 & 240 litre bins
Operation method	Automatic
Hydraulic	yes
Dimensions	850mm (W) x 1800mm (L)
Safety	Safety cage & control box
Emergency stop	yes
Tipping height	1350mm variable
Clearance	2650mm
Suitability in tipping into	bins , dumpsters and compactors
Power	240 volt, 10amp
Can it be customised?	yes
Weighing & data capture	no

APPENDIX C: PRIMARY WASTE MANAGEMENT PROVISIONS

APPENDIX C.1 TYPICAL BIN SPECIFICATIONS

Mobile bins

Mobile bins come in a variety of sizes and are designed for lifting and emptying by purpose-built equipment.

Mobile bins with capacities of up to 1700L must comply with *AS4123.6-2006 Mobile waste containers* which specifies standard sizes and sets out the colour designations for the bodies and lids of mobile waste containers indicating the type of materials they are used to collect.

The most common bin sizes are provided below, although not all sizes are shown. The dimensions are a guide only and differ slightly between manufacturers. Some bins have flat or domed lids and are used with different lifting devices. Refer to *AS4123.6-2006* for further details.

Table G1.1: Average dimension ranges for two-wheel mobile bins

Wheelie bin

Bin capacity	80L	120L		140L		240L	360L
Height (mm)	870	940	1065	1080	1100		
Depth (mm)	530	530		540		735	820
Width (mm)	450	485		500		580	600
Approximate footprint (m^2)	0.24	0.26–0.33		0.27-0.33		0.41–0.43	0.49
Approximate weight (kg)	8.5	9.5		10.4		15.5	23
Approximate maximum load (kg)	32	48		56		96	Not known

Sources include Sulo, Single Waste, Cleanaway, SUEZ, just wheelie bins and Perth Waste for two-wheel mobile bins

Table G1.2: Average dimension ranges for four-wheel bulk bins

Dome or flat lid container

Bin capacity	660L	770L	1100L	1300L	1700L
Height (mm)	1250	1425	1470	1480	1470
Depth (mm)	850	1100	1245	1250	1250
Width (mm)	1370	1370	1370	1770	1770
Approx footprint (m^2)	0.86–1.16	1.51	1.33–1.74	2.21	2.21
Approx weight (kg)	45	Not known	65	Not known	Not known
Approx maximum load (kg)	310	Not known	440	Not known	Not known

Sources include Sulo, Signal Waste, Cleanaway, SUEZ, Just Wheelie Bins and Perth Waste

SOURCE: Better Practice Guide For Resource Recovery In Residential Developments 2019, NSW Environmental Protection Authority

APPENDIX C.2 SIGNAGE FOR WASTE & RECYCLING BINS

Waste signs

Signs and educational materials perform several functions including:

- informing residents why it is important to recover resources and protect the environment
- providing clear instructions on how to use the bins and services provided
- alerting people to any dangers or hazards within the bin storage areas.

All waste, recycling and organic bins should be Australian Standard colours and clearly and correctly labelled, such as by a sticker on the lid and/or the body of the bin.

Communal bin storage areas should be clearly signposted with signs outlining how to correctly separate waste into the bins provided. The local council responsible for waste services may be a good source of signs and posters and can advise on what signs are suitable.

Information on who to contact to find out more about the recycling and/or other resource recovery services in the building should also be displayed in communal areas, such as on a noticeboard.

The Planet Ark website also has resources available free of charge for use by businesses and councils. These signs can be found at businessrecycling.com.au/research/signage.cfm

Figure I1.1: Examples of waste wall posters (EPA supplied)

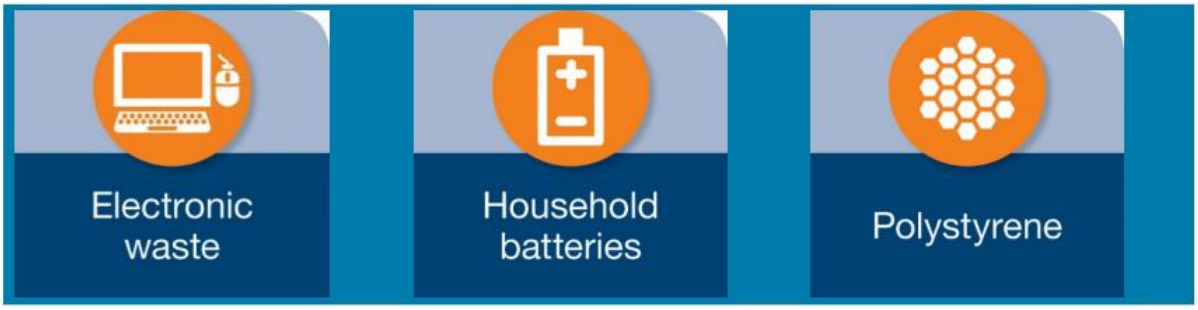
Figure I1.2: Examples of bin lid stickers (EPA supplied)

SOURCE: Better Practice Guide For Resource Recovery In Residential Developments 2019, NSW Environmental Protection Authority

Problem waste signs

The EPA has also produced a range of images and signs that can be used for problem wastes, such as fluoro globes and tubes, household and car batteries, e-waste and smoke detectors. To access these resources, contact the NSW EPA. Some examples are shown below.

Figure I2.1: Problem waste signs



Safety signs

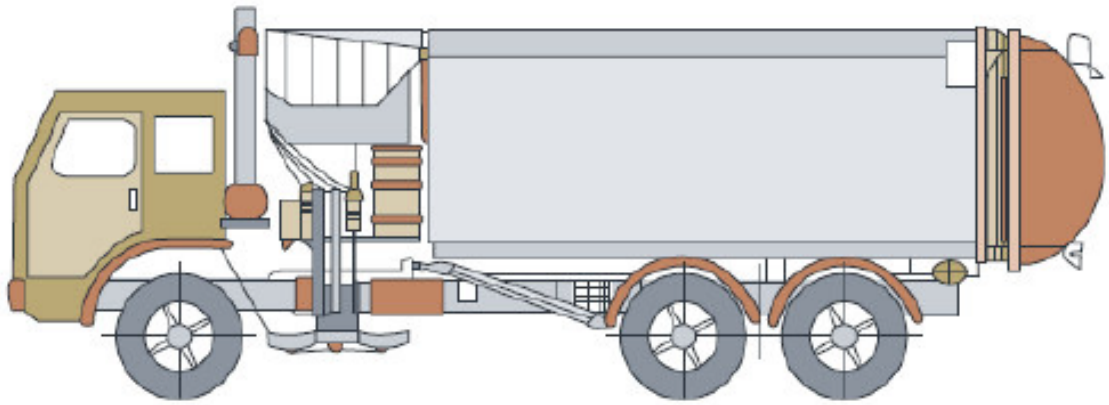
The use of safety signs for waste resource recovery rooms must comply with *AS1319 Safety signs for occupational environments*. Safety signs must be used to regulate and control safety related to behaviour, warn of hazards and provide emergency information, including fire protection information. Suitable signs should be decided for each development as required.

Figure I3.1: Example safety signs

SOURCE: Better Practice Guide For Resource Recovery In Residential Developments 2019, NSW Environmental Protection Authority

APPENDIX C.3 TYPICAL COLLECTION VEHICLE INFORMATION

Typical Council Garbage Truck used for Domestic Waste Collection	
Length overall	9.64m
Front overhang	1.51m
Wheelbase	5.20m
Rear overhang	2.93m
Turning circle kerb to kerb	17.86m
Turning circle wall to wall	20.56m
Front of vehicle to collection arm	3.8m
Maximum reach of side arm	3.0m
Travel height	3.63m
Clearance height for loading	3.9m



SOURCE: Rockdale Technical Specification

SOURCE: Better Practice Guide For Resource Recovery In Residential Developments 2019, NSW Environmental Protection Authority

APPENDIX C.4 TYPICAL BIN MOVERS

Battery powered tug with a 1 or 2 tonne tow capacity

Features at a glance

One tonne (Evo 1T) or two tonne (Evo 2T) tow capacity
Auto latching hitch
Three speed motor with emergency stop

Typical applications

The Tug Evo is suitable for airports, factories, warehouses, apartment buildings or large facilities. This powered tug is also suitable for transporting medical carts around hospitals or moving heavy specialist equipment.

Features:

- 1 or 2 tonne tow capacity of inclines up to 6 degrees
- 500kg tow capacity if inclines up to 14 degrees
- CE Compliant
- 5 km/h max speed
- 2 x 12V 42Ah MK-gel batteries with 24V smart charger.
- Powerful transaxle

Safety Features:

- Intuitive control with standard automatic safety brake, forward and reverse drive.
- Emergency stop button.

Emergency back-off button

Source: http://www.electrodrive.com.au/products/tugs/tug-evo.aspx

SITECRAFT

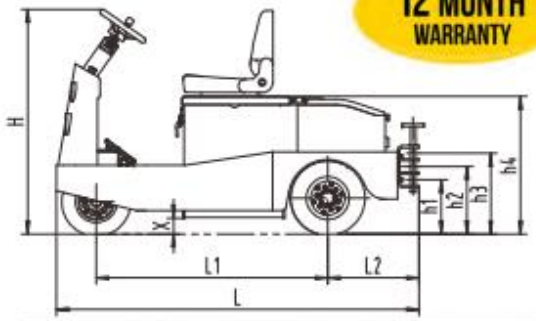
MATERIALS HANDLING EQUIPMENT

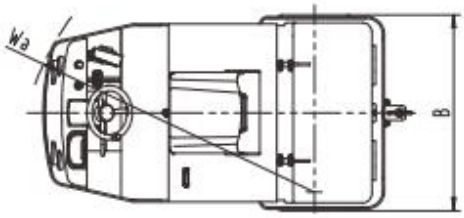
17 Macquarie Drive, Thomastown, VIC 3074
Phone: 1300 363 152 Fax: 1300 722 383
E: sales@sitecraft.com.au ABN: 36 423 328 526

SITECRAFT HEAVY DUTY ELECTRIC TOW TRACTOR

- Towing capacities from 2000 kg to 6,000 kg
- **Full AC electric system** has a brake-releasing function, making the unit easy and effortless to operate; The maintenance-free motor completely solves the issues of DC motor carbon brush.
- Batteries located in the lowest part of frame ensures excellent stability
- Quick open back service cover for easy maintenance and part replacement
- CANbus technology reduces wiring complexity and increases reliability
- H type axle design provides excellent stability
- New high-range steering design; light steering and easy to maintain.
- New large-screen instrument display provides information clearly and directly to the operator.

12 MONTH WARRANTY





Model		ST-2000AC	ST-3000AC	ST-5000AC	ST-6000AC
Towing Capacity	Kg	2000	3000	5000	6000
Drawbar Centre Height	h1/h2/h3 mm	280/350/420	280/350/420	280/350/420	280/350/420
Motor	Kw / V	3Kw / 36V	3Kw / 36V	5Kw / 48V	5Kw / 48V
Total Size	L x B x H mm	1720 x 968 x 1270	1720 x 968 x 1270	1975 x 1100 x 1270	1975 x 1100 x 1270
Total Weight (With Batteries)	Kg	740	780	1240	1280
Wheel Size	Solid Rubber	15*4-8	15*4-8	15*4-8	15*4-8
Wheelbase	L1 mm	1055	1055	1280	1280
Rear Hanging Distance	L2 mm	382	382	500	500
Seat Height	h4 mm	910	910	910	910
Ground Clearance	X mm	90	90	90	90
Turning Radius	Wa mm	1500	1500	1650	1650
Maximum Speed	Km/h	10	8	14	12
Battery	V/Ah	36/200	36/250	48/360	48/400
Battery Weight	Kg	200	250	610	650
Charger	On-board V/Ah	36/30	36/30	48/50	48/50

SITECRAFT
MATERIALS HANDLING EQUIPMENT
17 Macquarie Drive, Thomastown, VIC 3074
Phone: 1300 363 152 Fax: 1300 722 383
E: sales@sitecraft.com.au ABN: 36 423 328 526

SITECRAFT HEAVY DUTY ELECTRIC TOW TRACTOR

Sitecraft ST3000-AC tow tug moving 660 & 1100 litre bins

Sitecraft ST3000-AC tow tug moving 660 & 1100 litre bins

ST3000-AC tow tug complete with 6 x 250AH heavy duty batteries

Optional steel / aluminium trailers for moving waste bins, linen trolleys, food trolleys, delivery boxes, etc ...

Source: https://www.sitecraft.net.au/materials-handling/tow-tugs-powered-vehicles/electric-tow-vehicles/

APPENDIX D: SECONDARY WASTE MANAGEMENT PROVISIONS

APPENDIX D.1 TYPICAL WORM FARM SPECIFICATIONS

Worm farms

Worm farms or vermiculture systems transform food and other organic material into vermicast (worm compost) and vermi-liquid (liquid extraction from a worm farm). Seafood, seafood shells, meat or bones, and dairy products are not an acceptable part of the worms' diet and should not be appled to these systems. Worm farms can occupy a small footprint and be located on balconies or in gardens. The worm farm should be placed in a sheltered position to avoid getting too hot in summer.

Worm farms come in different sizes and designs and are sold through hardware stores and often at local government offices. Medium and large-scale worm farms can service many households and commercial acticities. These larger systems need a management process to ensure they are properly maintained.

Onsite composting

Compost tumblers and bins and compost bays transform food and other organic material into useful soil enhancer (compost). They are more versatlie than worm farms as they can generally process a wider range of materials, including woody garden organics and can be placed in the sun. A variety of compost bins and tumblers are available from hardware stores or some local councils. There are also various online resources on how to construct them using recycling materials such as timber pallets. The footprint area requirement for a typical single household compost bin is about 1m x 1m x 1m.

Before setting up an onsite composter or worm-farm system, check with council for any local requirements such as setback distances from property boundaries.

SOURCE: Better practice guide for resource recovery in residential developments 2019, NSW Environmental Protection Authority

APPENDIX D.2. SAMPLE FOOD WASTE CONTAINER

Apartment Style Compost bin – available from hardware stores

Suitable for:

- Vegetables
- Coffee grounds and filters
- Tea and tea bags
- Crushed eggshells (but not eggs)
- Nutshells
- Houseplants
- Leaves
- Cardboard rolls, cereal
- Boxes, brown paper bags
- Clean paper
- Shredded newspaper
- Fireplace ashes
- Wood chips, sawdust,
- Toothpicks, burnt matches
- Cotton and wool rags
- Dryer and vacuum cleaner lint
- Hair and fur
- Hay and straw

APPENDIX D.3 TYPICAL COOKING OIL CONTAINERS

Drums 205L

Pour in Bulk Tank

View Brochure

Oil Kaddy System

View Brochure

Eco Systems

Direct-Connect to Fryer

SOURCE: http://www.auscol.com/services/collection-systems/

APPENDIX D.4 TYPICAL BOH BINS FOR RETAIL/COMMERCIAL USE

SOURCE: https://www.sourceseparationsystems.com.au/