

Catholic Healthcare, Lewisham: Waste Management Plan

A submission to Catholic Healthcare

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Glossary

Terminology	Description
AS	Australian Standard
DA	Development Application
DC	Development Consent
C&D	Construction and Demolition
DECC	Department of Environment and Climate Change
IWC	Inner West Council
MC	Marrickville Council (former)
MDCP	Marrickville Development Control Plan 2011
MLEP	Marrickville Local Environmental Plan 2011
DCP	Development Control Plan
ENM	Excavated Natural Material
VENM	Virgin Excavated Natural Material
EPA	Environment Protection Authority
LGA	Local Government Area
MGB	Mobile Garbage Bin
C&I	Commercial and Industrial
MSW	Municipal Solid Waste (also referred to as domestics or residential waste)
WMP	Waste Management Plan
WNDCP	Waste Not Development Control Policy
WSP	Waste Service Provider
WSRA	Waste Storage and Recycling Area

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1 Introduction

MRA Consulting Group (MRA) was engaged by Catholic Healthcare Limited (CHL), to prepare a Waste Management Plan (WMP) for a proposed residential aged care facility at 2B West Street, Lewisham (the 'site'); situated in the Inner West Council (IWC) Local Government Area (LGA).

The site is currently utilised for aged care and seniors living for 96 residents. The proposed development will involve the staged demolition of buildings and structures located on site, refurbishment of existing buildings, excavation of basement carparking levels and the construction of three aged care facility towers supporting 144 Residential Aged Care Facility (RACF) units and 135 Independent Living Units (ILUs) across:

- RACFs across approximately 4 storeys of podium level;
- Independent Living Units across 3 buildings ranging from 5-11 storeys;
- Renovations to the Ann Walsh and Novitiate buildings; and
- Ancillary facilities and infrastructure.

This WMP addresses the requirements of the Consent Authority, Inner West Council (IWC) and conforms to the following reference documents:

- *Marrickville Local Environmental Plan 2011 (MLEP 2011);*
- *Marrickville Development Control Plan 2011 (MDCP 2011); and*
- *Marrickville Council Site Facilities and Waste Management Development Control Policy 2011 (MSFWMDCP 2011).*

Consideration has been given to the following supplementary documents in the preparation of this WMP:

- *Better practice guide for waste management in multi-unit dwellings (NSW EPA, 2012).*

This WMP has been prepared to inform the development design and assist in the delivery of better practice waste management, promoting sustainable outcomes for the demolition, construction and operational phases for the development. The WMP addresses waste generation and storage associated to the demolition, excavation, construction and ongoing occupation of the proposed development.

The MDCP 2011 outlines generic provisions for site facilities and waste management which sets several waste management objectives. The objectives of this Section of the MDCP include:

- 01.** To ensure adequate provision is made for site facilities.
- 02.** To ensure site facilities are accessible to all residents and easy to maintain.
- 03.** To ensure site facilities are thoughtfully and sensitively integrated into the development so as not to be obtrusive or unsightly.
- 04.** To ensure the design of waste and recycling storage/collection systems in buildings and land use activities are of an adequate size and are hygienic, accessible, safe to operate, quiet to operate, and visually compatible with their surroundings.
- 05.** To achieve waste reduction, waste separation and resource recovery in the demolition, design, construction and operation of buildings and land use activities.
- 06.** To promote the principles of ecologically sustainable development (ESD) through waste avoidance, resource recovery, recycling and alternate waste treatment methods.
- 07.** To minimise the volume of waste that is directed to landfill sites.
- 08.** To reduce stormwater and windblown pollution that may result from the poor design of waste and recycling storage areas or from the poor management of such areas.

This WMP has been developed to comply with all relevant Council's codes and with other statutory requirements.

2 Background

2.1 Description of Proposed Development

Development related to the proposal will aim to expand the capacity and capability of the current facility. The proposed development will include the staged demolition of some existing buildings and services, construction of new Residential Aged Care Facility (RACF), Independent Living Units (ILUs) and associated facilities and infrastructure.

The construction of the RACF and ILUs will require:

1. Demolition of existing buildings and structures;
2. Clearing of vegetation;
3. Excavation of a basement level; and
4. Construction works.

2.2 Site Description

The Catholic Healthcare Nursing Home living complex is located at 2B West Street, Lewisham 2049 and is legally described as Lot 1 DP 1116995. West Street is a main arterial road that provides access to the site and connects to the Great Western Highway (Parramatta Road) to the north. The site is bordered by the Church of St. Thomas of Canterbury and Maternal Health of Mary Catholic Church on the western and northern boundaries respectively. Railway infrastructure exists directly south, and Petersham Park and residential premises are on the opposite side of the road to the east.

The site was formerly part of Lewisham Hospital which is heritage listed as having local heritage significance for 'Former Lewisham Hospital, Convent and grounds, including interiors'. The site is currently occupied by the Lewisham Aged Care which is owned by the Catholic Health Care and is a stand-alone facility with the following built characteristics:

- **Ann Walsh Building:** a 3-storey building to the north of the site which is currently unoccupied and was a former outpatient building;
- **Former Novitiate building:** a 5-storey square building with a central courtyard in the centre of the site, which is used as an aged care facility with 46 standard rooms and 5 shared rooms with common bathroom facilities;
- **Aged care hostel:** located in the southern part of the site and incorporates a series of 2-storey buildings which offer low care accommodation for 40 residents.

2.3 Zoning and Surrounding Land Use

The site is zoned as SP2 – Infrastructure: Community Facilities Use in the Marrickville LEP. Key objectives of this zone are as follows:

- To provide for infrastructure and related uses.
- To prevent development that is not compatible with or that may detract from the provision of infrastructure.
- To protect and provide for land used for community purposes.

Seniors living is permitted in the above zone, under the SEPP Housing for Seniors or People with Disability 2004, subject to a Site Compatibility Certificate which was issued by the Department of Planning and Environment in December 2016.

The site currently exists as built area with some trees and interspersed vegetation, some part of which may be required to be cleared prior to demolition and construction works. Zones surrounding the site include Community Facilities (SP2), Public Recreation (RE1), High Density Residential (R4), Low Density Residential (R2), General Residential (R1) and Rail Infrastructure Facilities (SP2). Figure 1 below depicts the site in relation to surrounding roadways and land uses.

Figure 1: Proposed development site at 2B West Street, Lewisham and surrounding



Source: Nearmap, 2018

2.4 Assumptions

This report is a WMP, forming part of the development application documentation and assumes:

- Drawings and information that have been used in waste management planning for this WMP are the final reference/indicative design set for the demolition plan and development plan from the project architect, Jackson Teece (11th June, 2020);
- This WMP is a living document and therefore, waste management equipment and systems described in this report are subject to change based on future operations and available technology;
- All recommendations presented in this WMP with reference to private waste services, equipment or infrastructure are for information only and are subject to further investigation by the developer; and
- The *Marrickville Council Site Facilities and Waste Management Development Control Policy (2011)* outlines waste generation rates and services available for new developments which have been considered in the preparation of this report.

3 Demolition, Excavation and Construction

Demolition, excavation and construction activities at the site will generate a range of construction and demolition (C&D) wastes. In addition to building materials, vegetation waste and excavated soils will be generated during works. C&D materials will be reused and recycled where possible, minimising the disposal (landfilling) of materials other than those that are contaminated or unsuitable for processing.

The quantities, densities and bulking factors for waste and recyclables will differ on site based on actual materials and practice. Waste storage during demolition, excavation and construction will involve stockpiling of excavated and reusable material, and placement of skip bins for separation of materials for recycling. A C&D waste storage area (Figure 3, Appendix A) shall be set aside and shall be sufficient to manage the various waste streams expected during operations. The waste storage areas during demolition, excavation and construction will be kept clear to maintain vehicular access and shall also be kept tidy to encourage separation of waste materials and for WHS reasons.

The proposed C&D waste storage area placement has been determined based on maintaining safe and efficient access to the area for appropriate management and disposal of all C&D waste. Skip bins may require alternative placement during construction operations to facilitate safe and efficient storage of materials. Skip bins should be placed within property boundaries to avoid illegal dumping.

The waste management principles and facilities in use on the site shall be included as part of the site induction for all personnel working on the site.

All works associated with the Ann Walsh and Novitiate buildings would be conducted according to the relevant heritage requirements. All personnel working on the Ann Walsh and Novitiate buildings would be briefed in their site induction of the heritage requirements for works related to these buildings.

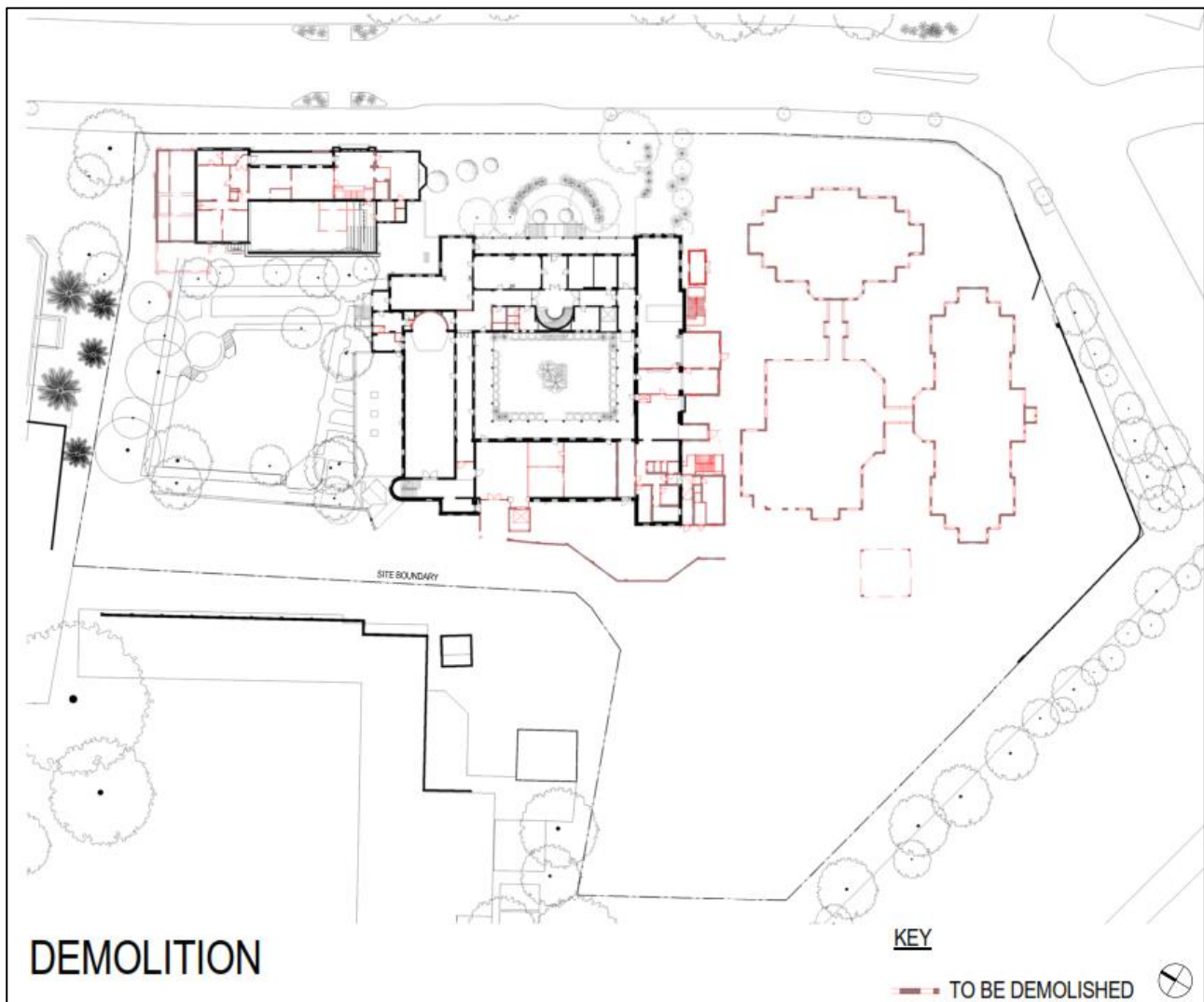
3.1 Demolition

The Proposed development will involve the demolition of several multi-storey red brick aged care complexes to make way for new multi-storey towers. Buildings to be demolished as part of the proposed development include the following (see Figure 2):

- 3 low-rise (three storey) aged care complexes with structural connections;
- Small storage shed;
- Internal renovation (including removal of some walls) of Ann Walsh and Novitiate buildings; and
- Excavation of some road, pathways and vegetated/landscaped areas.

Table 1 provides a breakdown of the expected waste types and quantities for the demolition phase of the proposed development.

Figure 2: Proposed demolition plan



Source: Jackson Teece, 2018

Table 1: Demolition waste generation estimate.

Type of waste generated	Quantity	Reuse	Recycling	Disposal	Methods for reuse, recycling and disposal
Excavation material	250m ³	✓	-	-	Reuse: On site stockpiling for reuse as fill and/or landscaping where possible.
Concrete	850m ³	✓	✓	-	On site: To be separated wherever possible to enhance resource recovery. C&D Processor: Crushing and recycling for recovered products.
Bricks/pavers	2,500m ³	✓	✓	-	On site: Cleaned and separated wherever possible

Type of waste generated	Quantity	Reuse	Recycling	Disposal	Methods for reuse, recycling and disposal
					for reuse or to enhance resource recovery. C&D Processor: Recovery for reuse where possible, crushing and recycling for recovered aggregate products.
Roof Tiles	50m ³	✓	✓	-	On site: Separated wherever possible for reuse or to enhance resource recovery. C&D Processor: Reuse where possible, crushing and recycling for recovered aggregate products.
Timber	150m ³	✓	✓	-	On site: To be separated wherever possible to enhance resource recovery. Reuse: Surplus and offcut material returned to manufacturer for reuse. C&D Processor: Recovery and recycling for recovered product (e.g. mulch) or organics processing.
Metal (ferrous and non-ferrous)	20m ³	-	✓	-	On site: To be separated wherever possible to enhance resource recovery. C&D Processor: Metals recovery and recycling.
Plasterboard	40m ³	✓	✓	-	On site: To be separated wherever possible to enhance resource recovery. Reuse: Surplus and offcut material returned to manufacturer for reuse where possible or replacement for gypsum in landscaping.
Glass	20m ³	✓	✓	-	On site: To be separated wherever possible to enhance resource recovery. Reuse: Surplus and offcut material returned to manufacturer for reuse where possible. Glass recycler: Recovery and recycling or crushing.

Type of waste generated	Quantity	Reuse	Recycling	Disposal	Methods for reuse, recycling and disposal
Fixtures and fittings	20m ³	✓	✓	-	On site: Reuse wherever possible or return to manufacturer. Reuse: Surplus and offcut material returned to manufacturer for reuse where possible. C&D Processor: Recovery and recycling.
Floor coverings	120m ³	✓	✓	-	On site: To be separated wherever possible to enhance resource recovery. Reuse: Surplus and offcut material returned to manufacturer for reuse where possible. C&D Processor: Recovery and recycling.
Packaging (used pallets, pallet wrap)	5m ³	✓	✓	-	On site: To be separated wherever possible to enhance resource recovery. C&D processor: Recycling of timbers and plastic.
Garden organics	10m ³	✓	✓	-	Minimal garden organic waste from landscaping. Organics Processor: Storage on-site (from minor excavations) processing for recovered product (e.g. mulch or other blended recovered fines) or organics treatment.
Containers (cans, plastic, glass)	<5m ³	-	✓	-	Commercial contractor: Recycling of containers.
Paper/cardboard	<5m ³	-	✓	-	Commercial contractor: Recycling of fibres with segregation of paper, cardboard or other streams.
Residual waste	<5m ³	-	-	✓	Separate recyclables where possible and dispose at licensed waste facility.
Hazardous/special waste (e.g. spills and contaminated wastes)	Unknown	-	-	✓	Appropriate management methods specified by a licensed asbestos and site hygienist should hazardous or special waste be found at the site.

3.2 Excavation

The excavation of soil for a basement level will result in the generation of excavated natural material (ENM) or virgin excavated natural material (VENM). Opportunities exist for the application of ENM or VENM to land without requiring EPA approval.

VENM as defined in the PoEO Act 1997 is 'natural material (such as clay, gravel, sand, soil or rock fines): (a) that has been excavated or quarried from areas that are not contaminated with manufactured chemicals, or with process residues, as a result of industrial, commercial, mining or agricultural activities and (b) that does not contain any sulfidic ores or soils or any other waste.

Excavated natural material means naturally occurring rock and soil (including but not limited to materials such as sandstone, shale, clay and soil) that has: a) been excavated from the ground, and b) contains at least 98% (by weight) natural material, and c) does not meet the definition of Virgin Excavated Natural Material.

The excavated natural material order 2014 and the excavated natural material exemption 2014 exemption would apply to the recovery of soil from the proposed operations. All the conditions of the resource recovery order and exemption would be met for ENM to be applied to land. The resource recovery order outlines sampling requirements, chemical and other materials requirements, testing methods, notification and record keeping. The exemption provides details of the waste, persons and premises to which the exemption applies, and the conditions of the exemption.

3.3 Construction

The proposed development will include some excavation works, construction of new high-rise aged care buildings and refurbishment of existing buildings. Works would include the following:

- Removal of trees;
- Excavation;
- Laying of concrete slabs and driveways;
- Construction of 3 residential aged care towers; and
- Redevelopment and refurbishment of existing buildings (Ann Walsh and Novitiante).

Construction waste is generated from additional materials required during the construction process, surplus to need, breakages or errors. Table 2 below describes the expected construction waste quantities and appropriate management methods for each material type.

The information below presents multiple options for materials reuse, recycling and disposal where applicable (e.g. return to manufacturer, recycled at construction and demolition (C&D) processor, or disposed to landfill if contaminated).

Table 2: Construction waste generation estimate.

Type of waste generated	Quantity	Reuse	Recycling	Disposal	Methods for reuse, recycling and disposal
Excavation material	35,000m ³	✓	-	-	Reuse: On site stockpiling for reuse as fill and/or landscaping where possible.
Concrete	400m ³	✓	✓	-	On site: To be separated wherever possible to enhance resource recovery. C&D Processor: Crushing and recycling for recovered products.

Type of waste generated	Quantity	Reuse	Recycling	Disposal	Methods for reuse, recycling and disposal
Bricks/pavers	10m ³	✓	✓	-	On site: Cleaned and separated wherever possible for reuse or to enhance resource recovery. C&D Processor: Recovery for reuse where possible, crushing and recycling for recovered aggregate products.
Timber	25m ³	✓	✓	-	On site: To be separated wherever possible to enhance resource recovery. Reuse: Surplus and offcut material returned to manufacturer for reuse. C&D Processor: Recovery and recycling for recovered product (e.g. mulch) or organics processing.
Metal (ferrous and non-ferrous)	25m ³	-	✓	-	On site: To be separated wherever possible to enhance resource recovery. C&D Processor: Metals recovery and recycling.
Plasterboard	50m ³	✓	✓	-	On site: To be separated wherever possible to enhance resource recovery. Reuse: Surplus and offcut material returned to manufacturer for reuse where possible or replacement for gypsum in landscaping.
Glass	10m ³	✓	✓	-	On site: To be separated wherever possible to enhance resource recovery. Reuse: Surplus and offcut material returned to manufacturer for reuse where possible. Glass recycler: Recovery and recycling.
Fixtures and fittings	<5m ³	✓	✓	-	On site: Reuse wherever possible or return to manufacturer. Reuse: Surplus and offcut material returned to

Type of waste generated	Quantity	Reuse	Recycling	Disposal	Methods for reuse, recycling and disposal
					manufacturer for reuse where possible. C&D Processor: Recovery and recycling.
Floor coverings	20m ³	✓	✓	-	On site: To be separated wherever possible to enhance resource recovery. Reuse: Surplus and offcut material returned to manufacturer for reuse where possible. C&D Processor: Recovery and recycling.
Packaging (used pallets, pallet wrap)	50m ³	✓	✓	-	On site: To be separated wherever possible to enhance resource recovery. C&D processor: Recycling of timbers and plastic.
Garden organics	10m ³	✓	✓	-	Minimal garden organic waste from landscaping. Organics Processor: Storage on-site (from minor excavations) processing for recovered product (e.g. mulch or other blended recovered fines) or organics treatment.
Containers (cans, plastic, glass)	<5m ³	-	✓	-	Commercial contractor: Recycling of containers.
Paper/cardboard	10m ³	-	✓	-	Commercial contractor: Recycling of fibres with segregation of paper, cardboard or other streams.
Residual waste	10m ³	-	-	✓	Separate recyclables where possible and disposal at principal licensed waste facility.
Hazardous/special waste (e.g. spills and contaminated wastes)	Unknown	-	-	✓	Appropriate management methods specified by a licensed asbestos and site hygienist should hazardous or special waste be found at the site.

3.4 Waste Contractors and Facilities

To ensure best practice waste management, appropriate contractors and facilities have been proposed based on their location and service offerings (Table 3).

Table 3: Waste service contractors and facilities

Role	Details
Recommended Waste Collection Contractor	C&D waste service provider as elected by the site demolition or construction manager.
Principal Off-Site Recycler	C&D processing facility as elected by the elected C&D waste service provider.
Principal Licensed Landfill Site	Dial a Dump Eastern Creek Landfill.

3.5 Site documentation

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

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

A logbook that records waste management and collection will be maintained on site, with entries including:

- Time and date;
- Description of waste and quantity;
- Waste/processing facility that will receive the waste; and
- Vehicle registration and company name.

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

4 Ongoing Waste Management

Waste management strategies related to site operations have been established according to the documents outlined in Section 1. Waste generation and associated equipment requirements for the operational phase of the development will be addressed in applying waste generation rates outlined in Section 4.1. Waste storage and recycling areas (WSRA) were determined with reference to waste generation rates and have been addressed separately in Section 4.3 (Figure 5, Appendix A and Appendix B).

Ongoing waste management at the site will be distributed across several waste storage and management areas for each of the buildings on site. The following summary outlines waste management across the site:

- Chute core for general waste through residential towers to service ILUs;
- 240L recycling bins on each ILU level to service ILU units, to be managed by the site waste caretaker and decanted into larger 1,100L bins on a regular basis (as 240L bins become full);
- Direct servicing of all RACF levels and manual transfer of waste to basement holding area (via lift core) for servicing of recycling;
- 3 basement level 1 WSRA's (associated with residential towers);
- Waste storage room in the Ann Walsh building at basement level 2, for direct disposal of waste from Ann Walsh ILUs; and
- Waste storage room in the Novitiate building at basement level 1, for direct disposal of waste from Novitiate ILUs.

Site waste management responsibilities have been outlined in Section 5.

Site management and the site waste caretaker will maintain all waste management areas and waste management practices at the site.

A mechanical or automatic bin lifter may be necessary for the management of 240L recycling bins for tipping into larger 1,100L bins. Appendix C outlines several examples of assistive bin lifter equipment that may be retained on site. The bin lifter should be maintained in the holding area with 1,100L recycling bins to maintain servicing efficiency.

4.1 Ongoing Waste Generation

The MDCP (2011) outlines waste generation rates for residential dwellings, including aged care and seniors housing facilities (Table 4). Considering the location and nature of the proposed development, bins would be collected according to a tailored waste collection schedule to be provided by Council or a private waste service provider (WSP) for onsite collection.

Table 4: Type and number of bins required for different types of residential developments

Type of development	Recycling Bins	General Waste Bins	Green Waste Bins (Optional)
Attached dwellings, dwelling houses, semi-detached dwellings, group home and secondary dwellings.	1 x 240L per dwelling	1 x 140L per dwelling	1 x 140L or 1 x 240L (optional) per dwelling
Multi-dwelling housing, residential flat buildings, seniors housing, residential components of shop top housing developments and	72L per dwelling in 240L bins (rounded up to the nearest	72L per dwelling in 240L bins (rounded up to the nearest	1 x 140L or 1 x 240: (optional) per 2 dwellings or part thereof.

residential components of mixed-use developments.	whole number of bins)	whole number of bins)	
Boarding houses, hostels, residential care facilities and tourist and visitor accommodation.	1 x 240L per 6 residential occupant rooms or part thereof	1 x 240L per 6 residential occupant rooms or part thereof	1 x 240L per 6 residential occupant rooms of part thereof

Source: MDCP, 2011.

It is noted that landscaping at the site will be maintained by an external contractor who will remove all vegetation waste from maintenance activities. In addition, since the proposed development is for a multi-unit dwelling complex featuring independent living apartments and assisted living units, it is unlikely that high amounts of garden waste will be produced due to small amounts of private garden space. Therefore, garden organics bins are unlikely to be necessary for retention at the site.

From the above requirements and expectations, the following (Table 5 and Table 6) site-specific waste generation rates have been derived, based on the assumption that each waste stream would be collected on a weekly basis.

Table 5: Site specific waste generation rates

Facility		Units	General Waste (L)	Recycling Waste (L)
Residential Tower RACFs		144	5,760	5,760
Residential Tower ILUs	North	28	2,016	2,016
	Central	20	1,440	1,440
	South	24	1,728	1,728
Ann Walsh		12	864	864
Novitiate		34	2,448	2,448
Total			14,256	14,256

Table 6: Site specific bin requirements and collection frequency

Facility		Bin Type	GW (1/wk)	Rec (1/wk)	GW (2/wk)	Rec (2/wk)	GW (3/wk)	Rec (3/wk)
Residential Tower RACFs		1,100L	6	6	3	3	2	2
Residential Tower ILUs	North	1,100L	3	2	2	1	2	1
	Central	1,100L	3	2	2	1	2	1
	South	1,100L	3	3	2	2	2	1
Ann Walsh ILUs		240L	4	4	2	2	2	2
Novitiate ILUs		240L	11	11	6	6	3*	3*

*to avoid collection of smaller Novitiate bins (240L), an additional 1 x 1,100L general waste and 1 x 1,100L Recycling bin can be retained within the waste holding room for decanting of novitiate bins and collection according to residential tower collection schedule.

4.2 Storage Requirements

Table 7 outlines mobile garbage bin (MGB) dimensions and capacity, meant to inform the overall requirement of the proposed WSRA. Based on the approximate footprint of 240L and 1,100L bins, the total waste storage space required for each of the proposed site uses is outlined in Table 8.

Table 7: MGB capacity and footprint

Bin Capacity (L)	Height (mm)	Depth (mm)	Width (mm)	Footprint (Approx. m ²)
140	915	615	535	0.33
240	1,060	730	585	0.43
660	1,220	780	1,260	0.98
1,100	1,330	1,070	1,240	1.33

Waste storage areas at the site are based on the waste generation rate outlined in Section 4.1. Waste bins outlined in Table 8 assume a collection schedule as outlined in Table 6.

Table 8: Bin numbers for each WSRA

Facility		Bin Type	General Waste	Recycling
Waste holding area		1,100L	3	6
Chute rooms	North	1,100L	2	-
	Central	1,100L	2	-
	South	1,100L	2	-
Ann Walsh WSRA		240L	2	2
Novitiate WSRA		240L	3	3

4.2.1 Bulky waste

RACF units will be pre-furnished and are unlikely to create any bulky waste during occupation. Should furniture from RACF units require replacement, all bulky waste items would be removed from the site immediately, with the replacement of new furniture. ILUs may produce some bulky waste which will be managed by the waste contractor for the site.

Space has been provided for storage of bulky waste items in each of the tower chute rooms, Ann Walsh and Novitiate WSRA (Appendix B) for interim storage of ILU bulky waste.

Bulky waste will be collected on a need's basis, as the bulky waste storage area becomes full. Since it is not expected that large amounts of bulky waste will be produced because of regular occupation of the site, an on-call service provides the proposed development flexibility to arrange collections as necessary and thus reduce requirement for excessive bulky waste storage space. Bulky waste collection will occur in the same manner as regular general waste and recycling collections.

Should additional requirements for bulky waste disposal be required for the site, building management or the site waste caretaker will be responsible for organising an appropriately qualified contractor to collect and dispose of bulky waste.

4.3 Waste Storage and Recycling Areas

Table 9 (below) shows waste bin and space requirements based on various collection frequencies. Appendix B (Figure 6 - Figure 7) outlines the location of each WSRA, including transfer paths related to collection of bins.

Table 9: Waste storage and recycling area footprints

Facility	Waste Storage Area	Bin type utilised	Approximate Waste Management and Storage Space provided
Residential Tower RACFs	Garbage Holding Room	1,100L	57m ²
Residential Tower ILUs	North Tower Chute Room	1,100L	17.7m ²
	Central Tower Chute Room		15.2m ²
	South Tower Chute Room		11.2m ²
Ann Walsh	Garbage Room	240L	9.5m ²
Novitiate ILUs	Waste Room	240L	14m ²

Note: Adequate handling and manoeuvring space has been provided in each of the waste storage and management areas.

The waste holding area on the ground floor will accommodate all 1,100L recycling bins for the residential towers and 1,100L general waste bins associated with the RACF units. Waste will be disposed of directly by site waste caretaker and cleaners into these bins. Additionally, the waste holding area will also maintain a spare general waste bins to replace under the south tower WSRA during collections. Should a bin lifter be necessary to aid the management of smaller interim bins, this piece of equipment should be maintained in the holding area for efficiency (See Figure 7 for indicative placement).

The WSRA's proposed for the site sufficiently fulfil waste storage and management requirements, facilitating safe access and manoeuvring of all bins and equipment according to a collection schedule of 3 times per week for both general waste and recycling bins.

All residents of the site will utilise a site WSRA, general waste chute and/or a recycling bin kept on each ILU level for disposal of their general and recycling waste.

All site WSRA's will be enclosed and concealed from general view to maintain site amenity while also reducing the risk of windblown litter, vandalism and illegal dumping.

5 Equipment and Waste Management Systems

5.1 Management responsibilities

A site waste management caretaker will be engaged to manage waste at the site. The site waste caretaker will be responsible for the overall waste management duties at the site during operation. Responsibilities include the following:

- Using this WMP to inform waste management operations, design and infrastructure;
- Providing educational materials and information on sorting methods for recycled waste, awareness of waste management procedures for waste minimisation and resource recovery;
- Manage recycling bins retained on ILU levels and decant into larger 1,100L bins on a regular basis;
- Maintain valid and current contract with a licensed waste service provider for waste and recycling collection and disposal;
- Manoeuvre bins to specified collection points prior to/after scheduled collection of bins;
- Rotate full and empty bins to maintain serviceability of each WSRA;
- Organise, maintain and clean WSRA's, and service areas as part of a regular maintenance schedule;
- Maintenance of equipment and infrastructure for waste where possible;
- Organise relevant waste contractor for additional maintenance or waste management for the site;
- Ensure bin allocation and waste/recycling collection frequency is adequate. Request additional infrastructure or services where necessary; and
- Monitoring any vermin and pest issues and arranging appropriate controls (traps or fumigating) and maintenance of doors or other points of potential entry.

5.2 Bin transfer details

Waste and recycling bins stored in the tower chute rooms and Novitiate bin storage area will be transferred to the ground floor holding area for servicing at the loading dock. Bins will be moved by the waste caretaker to the waste holding area and loading dock via MGB travel routes (see Figure 6 and Figure 8). Routes between WSRA's and collection points need to be suitable for safe and efficient handling. Since there is a significant distance between the waste holding area and the basement chute rooms & novitiate bin storage area, the waste caretaker will make use of a mobile tow tractor with attached bin cart (examples of tow and cart shown in Appendix D) for the manoeuvring of bins between interim chute/bin storage rooms and the holding area.

Novitiate bins will be transferred to the waste holding room for decanting into 1,100L bins retained in the waste holding area. Bins will be manually transferred to the northern tower chute room through the access corridor connecting the towers and Novitiate building (located on basement level 2). Bins will then be transferred to the waste holding area using the bin cart to reduce manual handling over long distances (Figure 6).

All bins required to be retained in the Novitiate bin room or tower chute rooms will be replaced with empty bins following the scheduled collection.

5.3 Collection and loading

The existing aged care facility currently employs waste services by a private waste contractor (SUEZ). The proposed development will result in changes to site waste management requirements and therefore, may require alternative arrangements with the existing or an alternative waste contractor to ensure waste is managed appropriately. Appendix E outlines the SUEZ collection vehicle and bin type that would be used for the proposal.

Collection points for the waste service provider (WSP) and areas for handling and loading are as follows:

- Collection and loading at the internal loading dock and holding area located on the ground floor (Figure 7); and
- Adjacent to Ann Walsh building for collection of Ann Walsh waste (Figure 8).

Councils collection contractor or a private WSP will service all waste and recycling bins associated with the proposed development.

Table 10 outlines relevant collection and loading area specifications.

Table 10: Collection points and loading areas specifications

Component	Specification	Details
Collection point	Allow safe waste collection and loading operations	<ul style="list-style-type: none"> - Adequate clearance and manoeuvring space; - Sufficient clearance for the safe handling of materials and equipment; and - Sectioned loading bay does not impede upon traffic and pedestrian safety.
Vehicle manoeuvring and loading space	Truck space for adequate lift clearance, manoeuvring and operation for a contractor collection vehicle	<ul style="list-style-type: none"> - Adequate loading bay dimensions do not impede rear lift clearance; - Operational clearance for truck manoeuvring in a forward direction in and out of the basement; and - The provision of space clear of vehicle parking spaces.
Operating times	Appropriate collection times to limit noise and traffic disturbance	<ul style="list-style-type: none"> - Collection times will be arranged to ensure minimal disturbance to residents, pedestrians and visitors.

Ann Walsh waste will be collected from a loading area on internal roads, adjacent to the western side of the Ann Walsh building. The site waste caretaker will ensure all bins are placed at the designated collection area prior to the scheduled collection time for servicing and will return bins to the WSRAs upon completion of servicing (Figure 8).

All other waste bins will be collected from the site waste holding and loading area, where bins from the Novitiate, RACF and tower ILUs will be retained for ease of access at the time of collection (see Section 5.2 for bin transfer details).

Should a specialist private contractor such as Waste Wise Environmental (Waste Wise) be contracted to service the site, the loading dock and basement WSRAs could be serviced directly. Waste Wise employ a mini rear loader vehicle, capable of providing direct access to the loading dock and basement level 1 WSRAs for collection (Appendix G), therefore avoiding the need to move bins from WSRAs to the loading area. Waste Wise provide a full general waste, recycling and bulk item collection service on a timeframe agreed with the site operator.

5.4 Resident waste disposal and recycling method

Waste management systems provide accessible and convenient disposal and recycling methods for residents. The flow of waste from each aspect of occupation at the site is achieved through several steps outlined as follows –

Tower RACFs:

- Receptacles for waste and recycling kept in each RACF room for intermediate storage of a minimum of 2-days waste and recycling;
- RACF room waste serviced by cleaning/service staff on a regular basis; and

- General waste and recycling collected from RACF rooms is taken down to the basement level holding area for disposal into larger 1,100L general waste and recycling bins.

Tower ILUs:

- Receptacles for waste and recycling kept in each ILU for intermediate storage of a minimum of 2-days waste and recycling;
- General waste generated from each ILU to be disposed of by residents in the available chute hopper on each ILU level;
- Recycling waste generated from each ILU to be disposed of by residents in the available 240L recycling bin in chute hopper area on each ILU level;
- Chute for general waste feeds directly into bulk 1,100L MGBs located in basement level 1;
- Interim 240L recycling bins managed by site waste caretaker and cleaning staff, decanting recyclables on a regular basis into bulk 1,100L recycling bins located in basement level 1 holding area; and
- 1,100L general waste bins to be replaced as needed for collection with spare bins kept in holding area.

Ann Walsh and Novitiate ILUs:

- Receptacles for waste and recycling kept in each ILU for intermediate storage of a minimum of 2-days waste and recycling; and
- Residents to walk general waste and recycling down to Ann Walsh and Novitiate WSRAs for disposal in bins provided.

5.5 Site waste management systems

Site management will engage a waste caretaker to enact and monitor day to day waste management operations. Should there be any issues that impact on the operational efficiency, safety and suitability of waste management, the waste caretaker will inform management. Operation of the waste management system is the responsibility of building management and the waste caretaker.

Building management is responsible for:

- Using this WMP to inform waste management operations, design and infrastructure;
- Providing educational materials and information to tenants and residents on sorting methods for recycled waste, awareness of waste management procedures for minimisation and recovery;
- Making information available to residents, tenants, visitors and workers about waste management procedures;
- Appropriate signage in waste service and chute hopper inlet areas per floor and all waste management areas;
- Holding a valid and current contract with licensed collector(s) for waste and recycling collection and disposal;
- Encouraging waste avoidance and achievement of resource recovery targets;
- Providing operational management for delivery of waste objectives; and
- Organising waste, recycling and bulky pick-ups by elected contractor for the site.

Waste caretaker duties include:

- Organising, maintaining and cleaning the WSRAs and service rooms;

- Arranging access to WSRA's and bins on collection days and to liaise with the WSP for operational issues;
- Cleaning and exchanging all bins;
- Monitoring any vermin and pest issues and arranging appropriate controls (traps or fumigating) and maintenance of doors or other points of potential entry; and
- Coordinating washing and clearing of blockages of the chute system based on supplier instructions (frequency and method of using in-built wash down system).

5.6 Waste Storage and Recycling Area Specifications

WSRA's on site will provide centralised storage that has adequate capacity to receive and store the maximum likely generation of waste and recycling between collection times. Each WSRA will be constructed to improve amenity, minimise odour, protect surrounding areas and promote user safety. WSRA specifications include the following:

- Signage for safety and waste bin identification;
- Safety precautions, staff training and signage for plant;
- Noise attenuation for waste management and WSRA's that limits effects to residents from compactor, bin transfer and collection vehicle noise;
- Floors constructed of concrete or other approved solid, impervious material that can be cleaned easily;
- Grading and draining to an approved drainage fitting located in the room;
- Smooth, even surface covered with vertical wall and plinth faces;
- Doorway ramp (if not level);
- Light colour finish for all room surfaces;
- Adequate supply of water with hose cock as close as practicable to the doorway;
- Close fitting and self-closing door;
- Suitable construction including limited entry paths to prevent vermin;
- Ventilation through permanent unobstructed ventilation (5% of floor area) or mechanical exhaust ventilation system (5L/s per m² of floor area); and
- Security and lighting.

5.7 Waste chute and Recycling

The chute system accept waste only, providing convenience to residents of the residential towers for general waste disposal. Each level of ILUs in each of the tower buildings will also include interim storage for recyclables near the chute hopper inlet. Interim recycling storage will be managed by the site waste caretaker, being removed and emptied into larger 1,100L recycling bins located in the basement level 1 holding area. The chute system includes: access areas on each ILU floor, chute core, service access points and chute outlet to the basement level 1 WSRA chute rooms. Chute cores have been indicated on each floor as required on the reference/indicative drawings. A full chute specification includes:

- A waste chute system in either 600mm galvanised steel or 510mm recycled LLPDE polyethylene plastic;
- A minimum two-hour fire rated door;

- To minimise noise disturbance, chutes and hoppers will be wrapped with noise insulation foil (e.g. 50mm poly-wool R3.1) and the walls of the shaft area surrounding the chute system are to be built to an appropriate sound reduction index (e.g. Rw50) specification;
- Minimal offsets of the chute in relation to outlet i.e. chutes perform optimally when vertical alignment is plumb, and any deviation should be minimised;
- Vents exiting at the top of each chute and wash down system. Frequency of maintenance and upkeep (washing) to be instructed by chute supplier; and
- Chute openings for placement of fire sprinklers on every second level.

Appendix H shows chute specifications from by WasTech.

5.8 Signage and Education

Signage that promotes resource recovery, waste minimisation, safety and amenity follows the *Australian Standard for safety signs for the occupational environment* (Standards Australia 1994, Figure 2 and 3).

Signage is designed to consider language and accessibility (i.e. to be understood as clearly as possible by those with different abilities of vision, knowledge of the English language, intellectual ability and with other conditions). Signage is to be prominently posted in each WSRA and relevant waste service area indicating:

- Detail on acceptable recyclables;
- Recyclables are to be decanted loose (not bagged);
- No standing and danger warnings apply to the area surrounding the WSRA;
- Contact details for site waste caretaker, site management and other relevant emergency contacts; and
- The area is to be kept tidy.

Standard signage requirements and guidance for application apply (see Appendix H).

5.9 Prevention of Pollution, Illegal Dumping and Litter Reduction

To minimise dispersion of litter and prevent pollution (to water and land via contamination of runoff, dust and hazardous materials), site management will also be responsible for:

- Maintenance of communal areas and the WSRA;
- Securing the waste storage area from vandalism and the escape of litter;
- Identification and appropriate disposal of goods with hazardous material content (paints, e-waste, fluorescent tubes);
- Acting to prevent dumping and unauthorised use of waste areas; and
- Requiring contractors to clean up any spillage that may occur during waste servicing or other work.

6 References

- Australian Building Codes Board, 2016. National Construction Code (NCC).
- Blue Environment (2016) Australian National Waste Report.
- Department of Environment and Climate Change (2008) NSW Model Waste Not DCP Chapter.
- Department of Environment, Climate Change & Water (2010) House deconstruction fact sheet: Bricks and concrete removal.
- Department of the Environment (2016) Working together to reduce food waste in Australia, Australian Government.
- Environment Protection and Heritage Council, 2009. National Waste Policy: Less Waste, More Resources. Available at: <http://www.nepc.gov.au/system/files/resources/906a04da-bad6-c554-1d0d-45216011370d/files/wastemgt-rpt-national-waste-policy-framework-less-waste-more-resources-print-ver-200911.pdf>.
- Marrickville Development Control Plan (MDCP) 2011.
- Marrickville Council Site Facilities and Waste Management Development Control Policy 2011.
- Marrickville Local Environmental Plan (MLEP) 2011.
- NSW EPA, 2016b. Recycling Signs, Posters and Symbols. Available at: <http://www.epa.nsw.gov.au/wastetools/signs-posters-symbols.htm>.
- NSW OEH, 2008b. NSW Better Practice Guide for Waste Management in Multi-Unit Dwellings, Australian Standards and Statutory Requirements.
- Standards Australia, 1994. *AS 1319: Safety signs for the occupational environment*, Homebush, NSW: Standards Australia.
- Standards Australia, 2008. AS 4123 Mobile waste containers.
- WorkCover, 2011. Managing Work Environment Facilities Code of Practice.

Appendix A Site Plans

Figure 3: Site Demolition Plan (Lower Ground to Level 2) and C&D waste management area

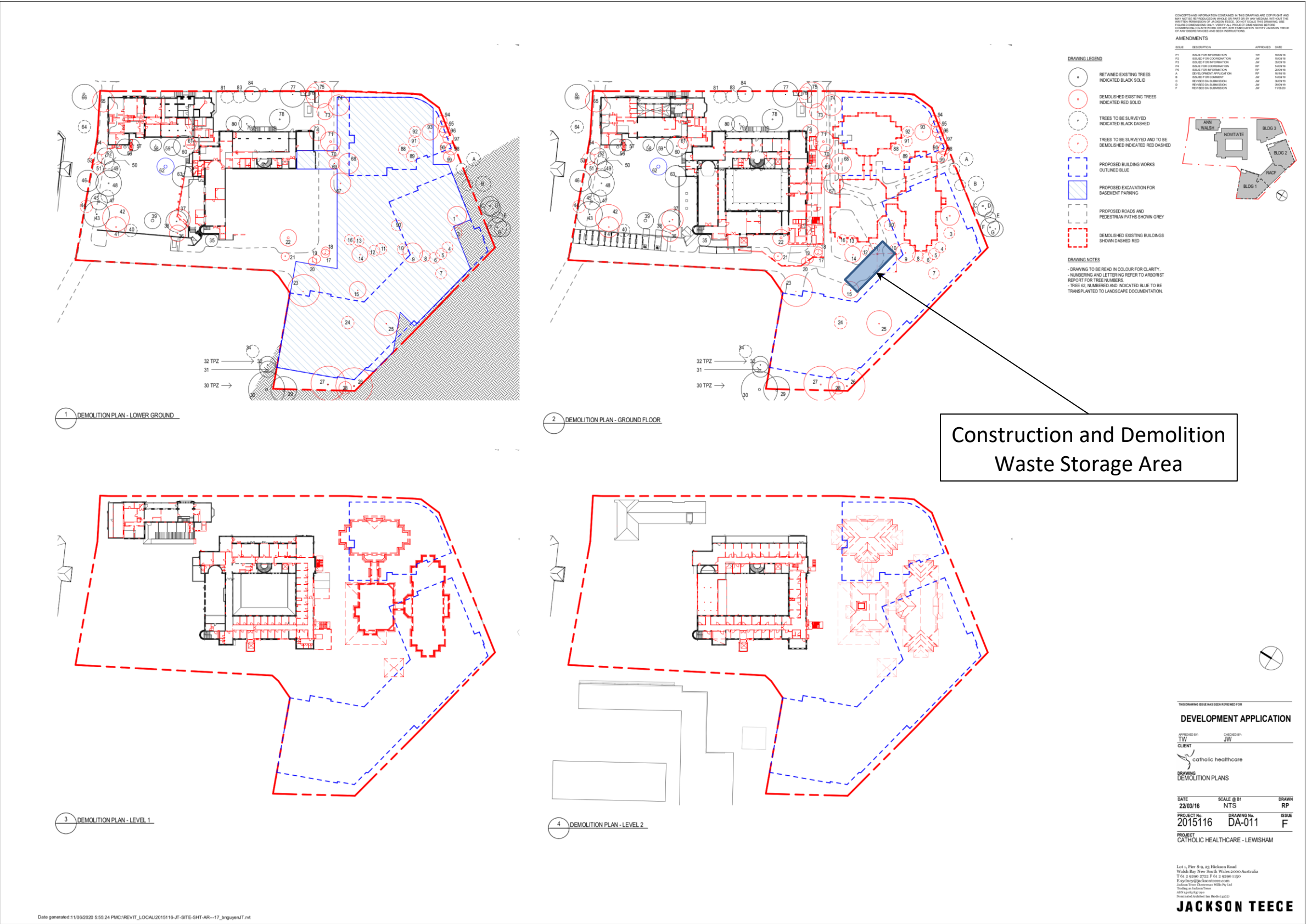


Figure 4: Site Demolition Plan (Level 3 to Level 5)

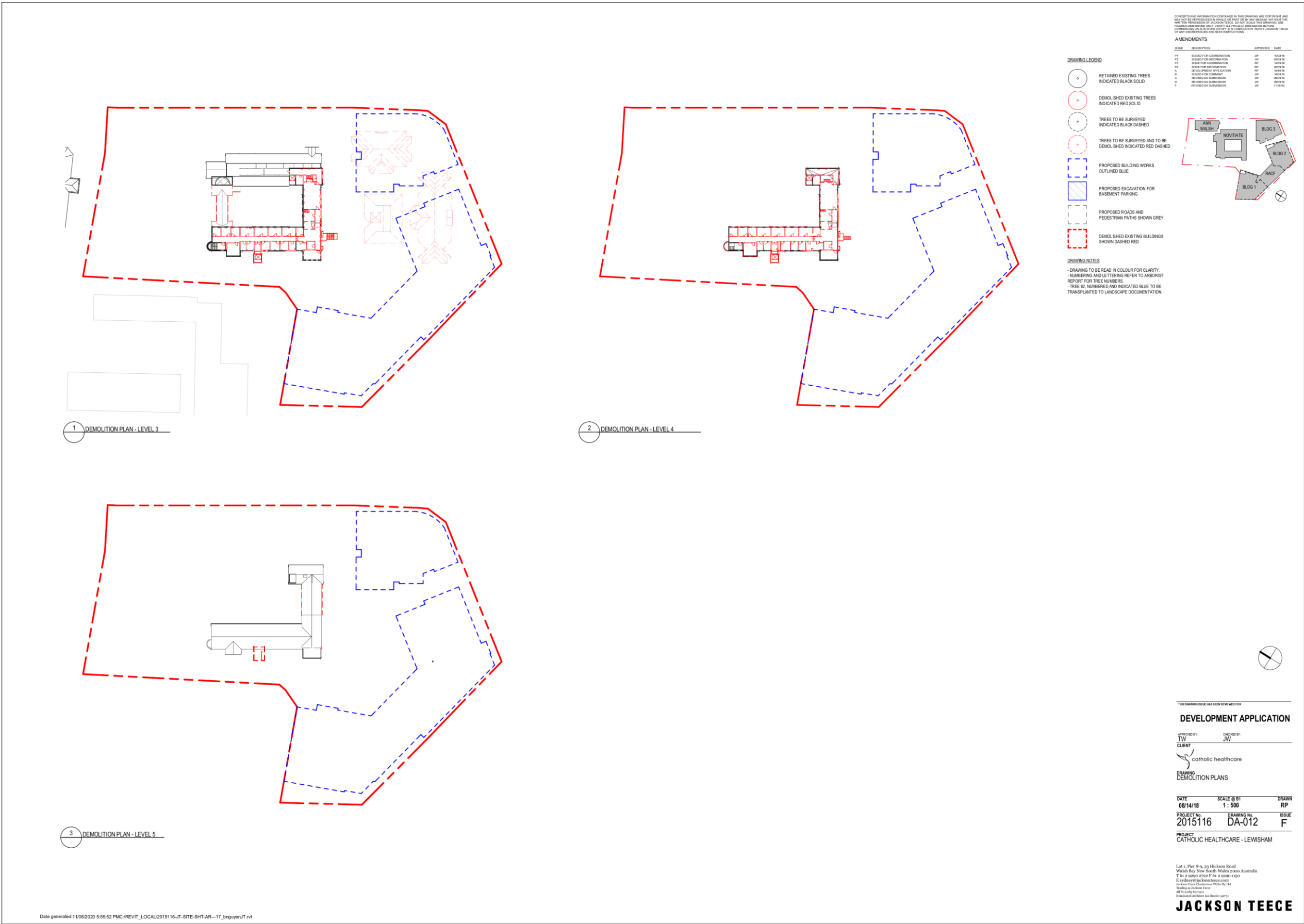
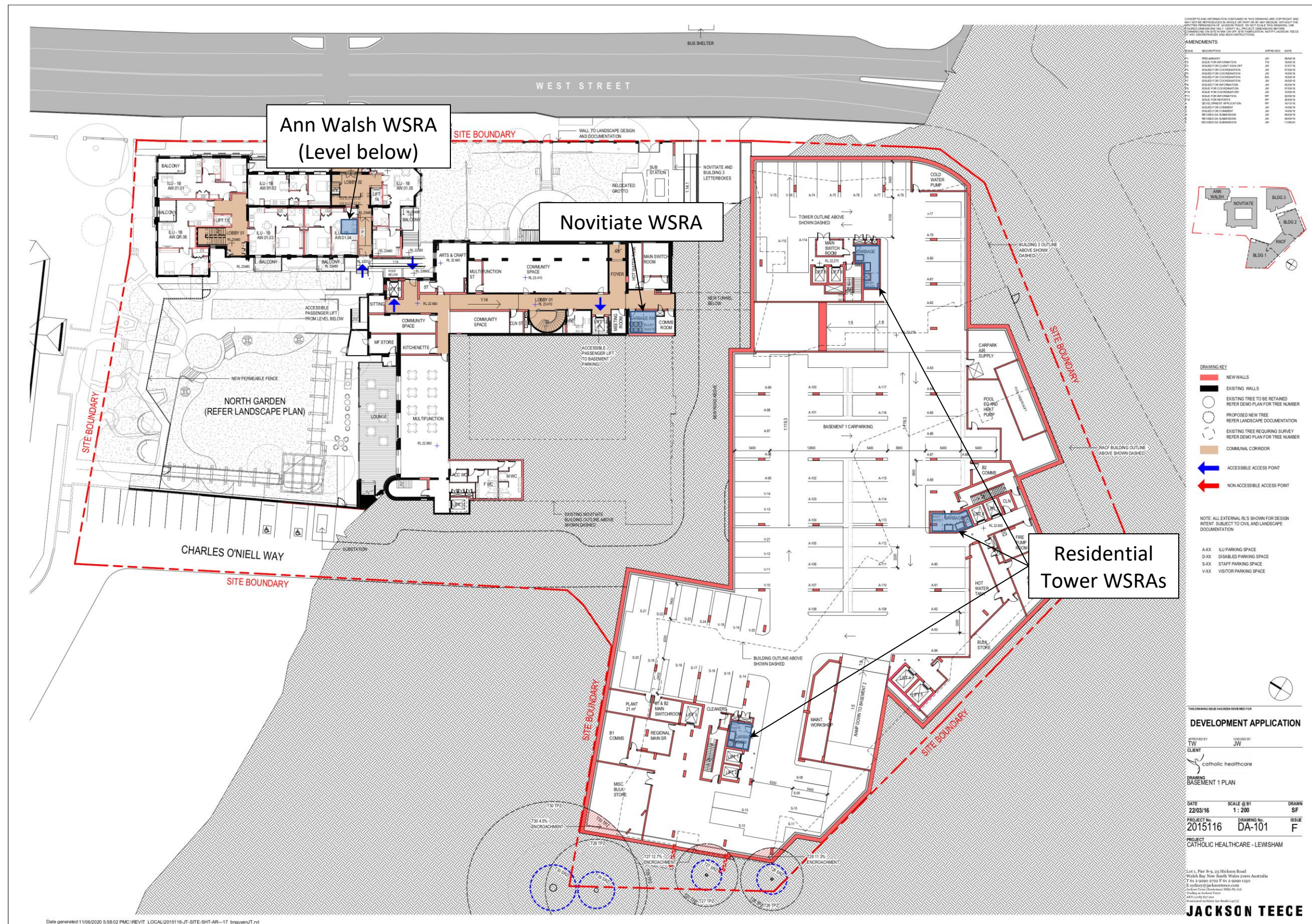


Figure 5: Site waste storage areas and ongoing waste management arrangement



Appendix B Waste storage and management area layouts

Figure 6: Building 1 chute room (North)

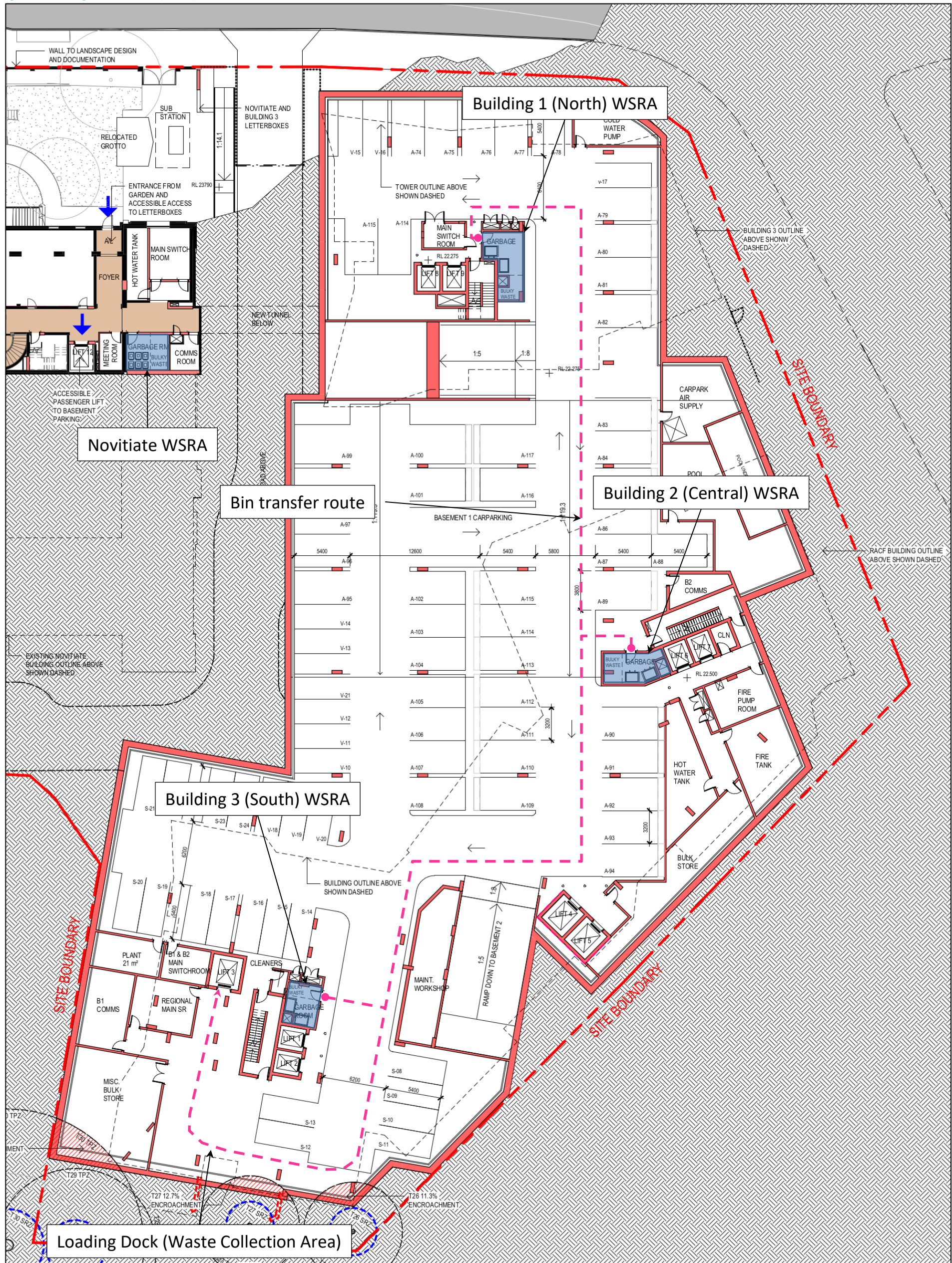


Figure 7: Ground floor waste holding room and loading area plan

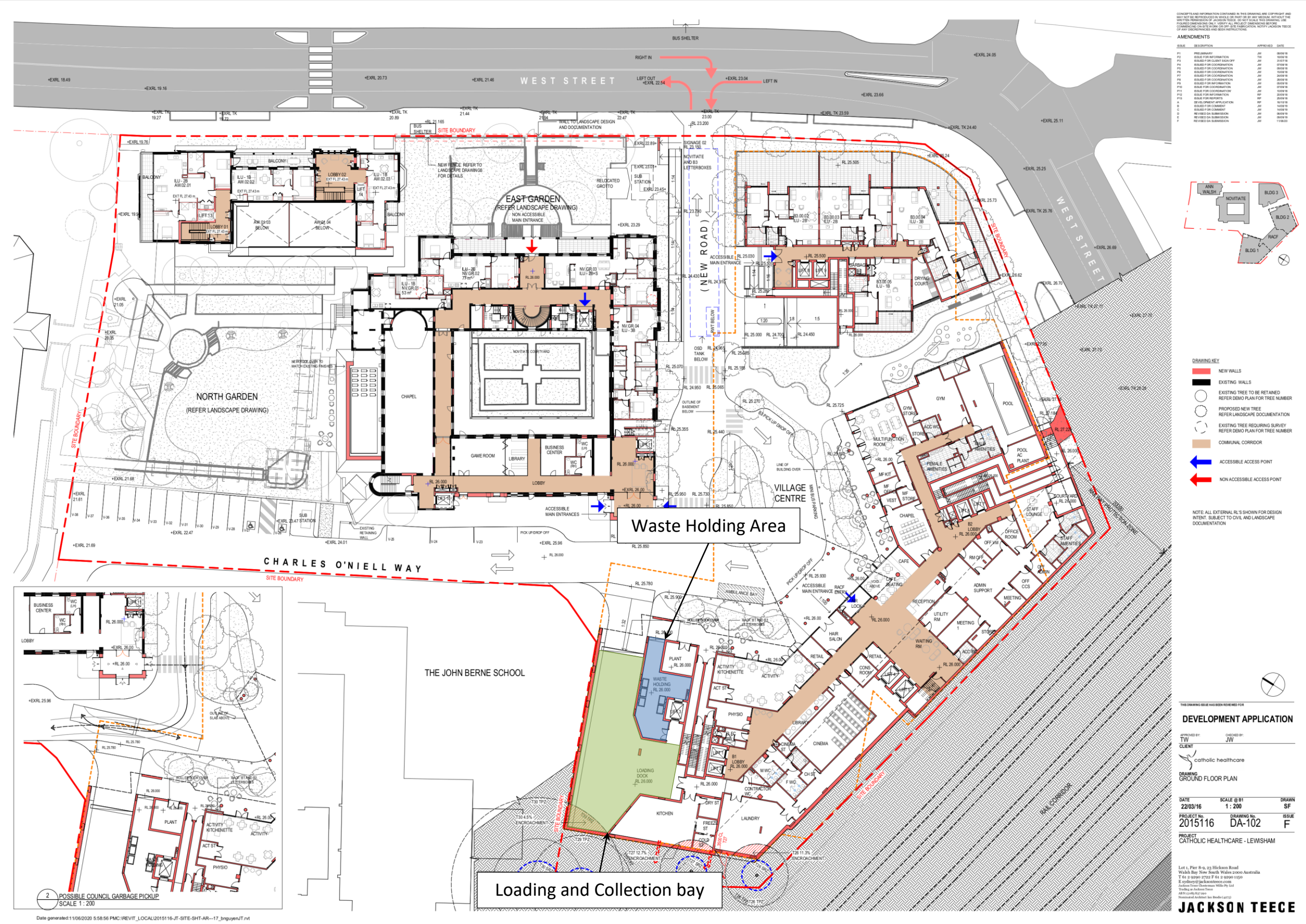
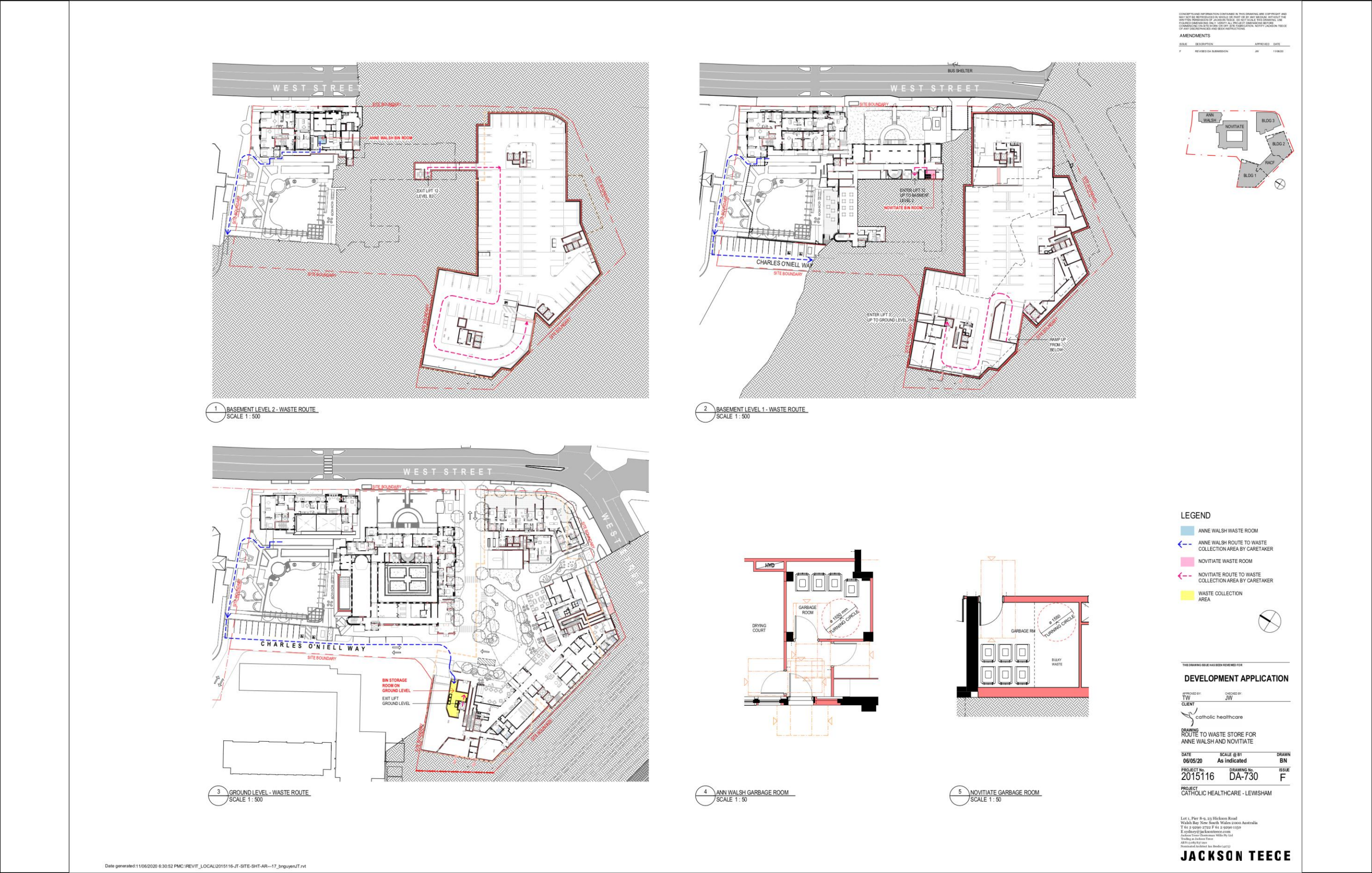


Figure 8: Ann Walsh waste storage room (basement level 2), Novitiate waste storage room (Basement Level 1), bin transfer path and collection point



Appendix C Bin Lifters (Electrodrive)

Introducing the smart way to empty heavy wheelie bins.







Thirty one per cent of Australian workplace injuries are from lifting, pushing or pulling objects. This is the single highest cause of workplace injuries in Australia.

While some workplaces previously allowed manual lifting, pushing or pulling of heavy loads, the crippling costs of injuries has meant a major change is being implemented.

Our range of *Liftmaster* bin lifters have been designed to allow a single operator to lift and empty wheelie bins safely, whilst reducing the risk of back and side strain from pushing and pulling.

Taking out the rubbish will never be a pain again.



						
Model	NiftyLift NIFTYLIFT30	EcoLift ECOLIFT50	Rugged (manual) BLHP1500/1800	Rugged (powered) BLEH1500/1800	Simplicity Plus SIMPLUS150HY1800	Universal UBL250HYD1800
Lift capacity (kg)	30	50	100	150	150	250
Operation	Manual with assisted lift	Manual winding crank handle	Hydraulic hand pump	Electro-hydraulic	Electro-hydraulic	Electro-hydraulic
Shipping L/W/H (mm)	950/950/1800	1450/1000/2150	BLHP1500/BLEH1500 950/950/1800		1700/1200/2300	1700/1200/2300
			BLHP1800/BLEH1800 950/950/2100			

For more information, contact:

Electrodrive Pty Ltd | 1800 333 002 | sales@electrodrive.com.au | www.electrodrive.com.au

Victoria
 2A Ayton Street
 North Sunshine VIC 3020

Queensland
 Unit 4/11 Christensen Road
 Stapylton QLD 4207

Appendix D Mobile tow tractor and bin cart examples

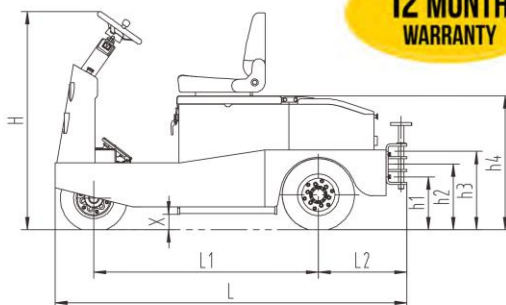
SITECRAFT
 MATERIALS HANDLING EQUIPMENT



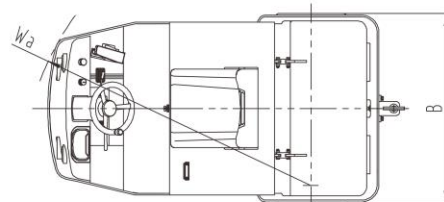
17 Macquarie Drive, Thomastown, VIC 3074
 Phone: 1300 363 152 Fax: 1300 722 383
 E: sales@sitecraft.com.au ABN: 36 423 328 526

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

Page 1 of 2

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 ...

Appendix E SUEZ rear load waste service

SUEZ full range of collection services include:

GENERAL WASTE

Plastic bags
Food scraps
Non-recyclable packaging
Broken ceramics & glass

FOOD ORGANICS

Food leftovers
Fruit, vegetables, dairy & meat
Tea bags & coffee grounds
Tissues & paper towels

FLUORESCENT TUBE RECYCLING

Fluorescent tubes
Lamps
Globes

PRODUCT DESTRUCTION

Product recall items
Out of date stock
Electronic records/documents

SANITARY WASTE

Air fresheners & soap dispensers
Toilet sanitisers
Product refills

HAZARDOUS WASTE

Heavy chemicals
Contaminated soils & material
Bituminous products

QUARANTINE WASTE

Quarantine waste

PAPER & CARDBOARD

Newspapers & magazines
Office paper
Cardboard boxes
Shredded paper
Envelopes

DRY MATERIALS

Plastic bags
Non-recyclable packaging
Ceramics & broken glass
Wood & textiles

ELECTRONIC WASTE

Televisions
Computers & Laptops
Mobile phones & tablets

METALS

Steel sheets & offcuts
Aluminium sheets & offcuts
Brass
Copper

PLASTICS

Shrink wrap
Bubble wrap
plastic strapping

TIMBER

Softwood
Hardwood
Chipboard
Timber pallets

CO-MINGLED CONTAINERS

Glass bottles & jars
Aluminium cans
Steel & tin cans
Plastic bottles & containers

BATTERIES

Industrial batteries
Household batteries

DOCUMENT DESTRUCTION

Business records
Personnel records
Contracts
Office files

CONSTRUCTION WASTE

Concrete, bricks & asphalt
Plasterboard
Mixed fill

LIQUID WASTE

Oily water
Grease trap
Septic waste
Dangerous goods waste
Surfactants

MEDICAL & CLINICAL WASTE

Pharmaceutical & cytotoxic
Sanitary & hygiene
Sharps

contact SUEZ to discuss your waste management and recycling requirements

13 13 35
suez.com.au



The rear lift collection system is best suited to sites with **limited access and space**.

Vehicle specifications

Overall length	8.0m
Overall width	2.5m
Height (travel)	3.4m
Height (in operation)	3.4m
Weight (vehicle only)	13.0t
Weight (payload)	9.5t
Turning circle	25.0m



SUEZ has procedures in place to help ensure our operations are conducted in a manner that protects the health and safety of our employees, customers, contractors, suppliers and the general public, providing a safe and healthy working environment.

Overview

- Best suited for lightweight and small to mid-sized waste volumes
- Ideal for workshops, offices, restaurants and retail outlets
- Suits businesses that generate odorous food wastes as the waste can be bagged and cleared daily
- Perfect secondary partner for a primary Front Lift or Roll-on/Roll-off (RORO) system
- Convenient range of standard containers from 120L to 1100L capacities
- Bins are colour-coded to Australian Standards for easy identification of waste streams
- Reduced labour costs when bin is located close to waste generation source
- Easily maneuverable due to solid rubber wheels
- Equally suitable for indoor or outdoor use
- Carts can be supplied in a range of sizes ensuring flexibility and total compatibility with the customer's site

Businesses look for waste services that can deliver **total waste solutions that are cost effective**. By adopting simple and reliable collection systems tailored

to the waste generation profile of your business, you can improve corporate social responsibility and build environmentally sustainable performance.

Container options and accessories

- Foot pedal operated lid
- Wheel locking device
- Range of bin sizes
- Tow hitches
- Flip top and roll top lids
- Wheel brakes
- Liners
- Security posts
- Cart cradle
- Waste ID labels
- Bin lifters
- Padlocks and chains



Container specifications

Plastic (polyethylene)

Capacity	120L	240L	660L	1100L
Height	0.92m	1.075m	1.235m	1.485m
Width	0.54m	0.58m	1.36m	1.36m
Length	0.62m	0.715m	0.765m	1.07m
Weight	9.5kg	13.5kg	45kg	65kg



Appendix F Mini rear-loader (Waste Wise Environmental)



Introducing the WASTE WISE MINI



REAR LOADER

Waste Wise Environmental introduced the first MINI rear loader vehicle into Australia in September 2011.

The success of the MINI rear loader has been well documented over the first 12 months of service. The ability to manoeuvre in confined areas within basement car parks, where bin rooms are located, and laneways where other vehicles find difficulty in reversing is unique, but achievable for this compact unit.

With an overall height of just 2.08 metres and length of 6.40 metres, this vehicle can enter most car parks, going down three (3) basement levels or climbing up eight (8) car park levels to empty MGB 240 litre & MGB 660 litre bins within its own height capacity.

MGB 1100 litre bins will be lifted higher than the vehicle and generally find a spot within the complex to do so.

The MINI rear loader is valuable to all: architects, developers, owners corporations (space saving and cost saving) and councils (no bins at kerbside affecting the streetscape).



The Waste Wise Environmental fleet of MINI'S has successfully demonstrated its ability as the most valuable & versatile MINI rear loader on the road today. Not only in confined areas, but also under standard rear loader conditions at street level.



1300 550 408

Appendix G Chute specifications (WasTech)

Technical Specifications

Smoothtubes™ Plastic Chutes

Chute Construction

Nominal Internal Diameter: Garbage 530mm
Material LLDPE (linear low density polyethylene). Internal surface is closed cell, ultra smooth finish that resists waste residue build up, odour, blockages, corrosion and liquid. +Fire hazard property tests in accordance with BCA Clause C1.10 and Specification C1. 10 in complying with Australian Standard AS1530 by Warrington Fire Research (Aust) Pty Ltd.

Material Thickness: Chute tubes 5mm nominal.

Mounts: Designed to be flexible and smoke seal at every level.

Noise & Vibration Prevention: Acoustic lagging is not necessary. Refer to #acoustic report. Isolation is provided at every level under the floor mounts. Flexible mount is isolated from concrete using polyurethane sealant that is acoustically rated.

Ventilation: 200mm diameter galvanised steel ventilation fan and discharge cowl assembly. The fan is supplied with 240 volt single phase plug and lead. The cowl assembly comes complete with dektite flashing. The vent is connected to the top of the chute by a flexible duct.

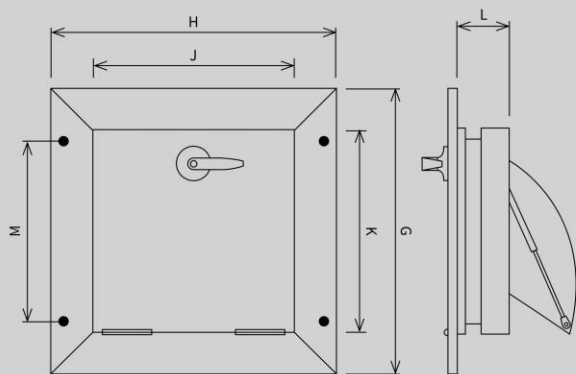
Loading throat door: Smoothtubes™ Loading Throats are molded within the chute tube creating a smooth flowing entry to reduce impact noise and minimise blockages. Loading doors -304 grade Stainless Steel with a fire block core, door frame sealed to wall using fire sealant. Compliance to Australian Standards AS.1530.1 (FRL:-/120/30). Doors are self closing. Key locks are supplied standard for Linen doors, Garbage and recycling doors. Fire sprinklers are installed in every loading throat ready for connection to fire services by others.

Deflector: The discharge of the chute has a 3 or 5mm thick Galvanised Steel deflector, set at 45 degrees (min) for discharge directly into a bin. The deflector is fitted with a fire activated fusible link close-off door which can be manually overridden, to close the chute for bin changes. For garbage discharge into an EcoPack Compactor the fire door is not required as the Compactor isolates the chute at all times.

Installation

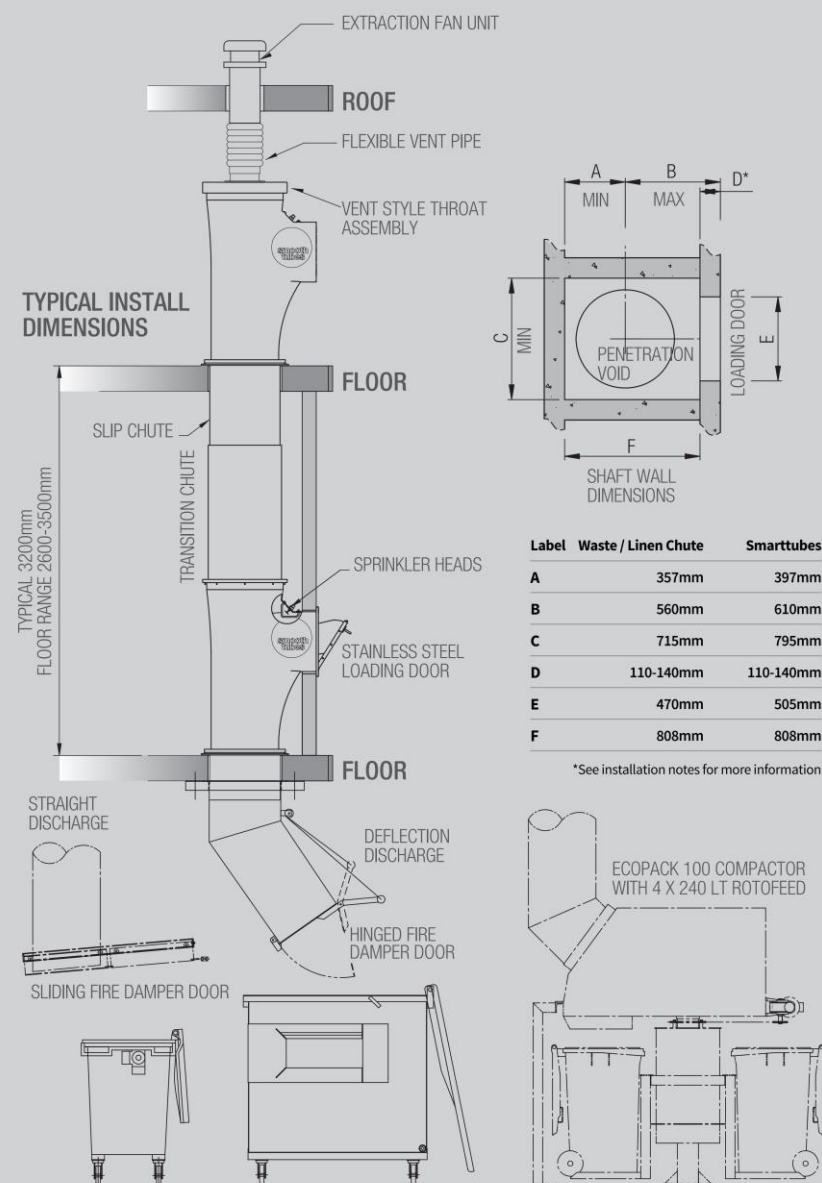
Chute sections weigh no more than 15kg each allowing easy transport and installation by hand without reliance on Tower Cranes. Bricking up instructions are detailed on the front panel of every loading throat, which stays fitted until installation of loading door to prevent unauthorised use and potential damage from building rubble.

Chute Door Dimensions



Dimensions

Label	Waste Door	Linen Door	Recycling Door
G	603mm	573mm	603mm
H	603mm	573mm	603mm
J	435mm	432mm	432mm
K	435mm	432mm	432mm
L	110mm	110mm	110mm
M	380mm	380mm	380mm



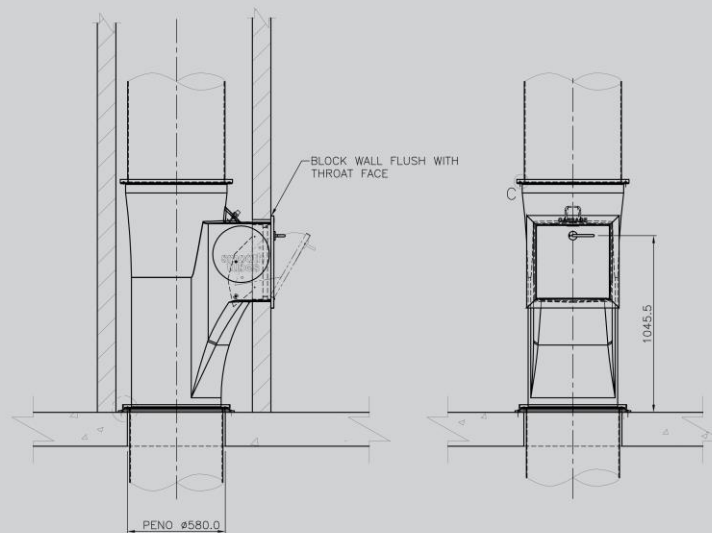
Wastech reserves the right to make improvements, adjustments and amendments to design and dimensions.

13

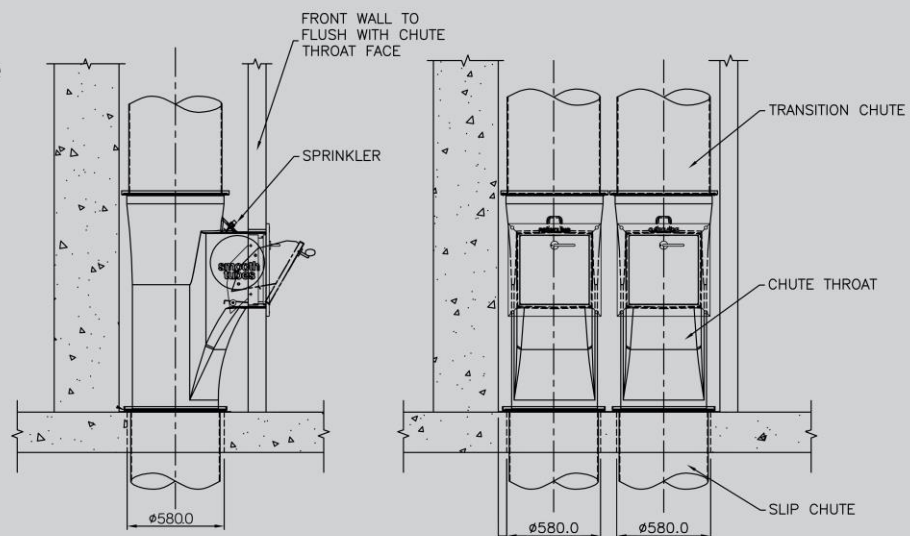
Technical Specifications

Smoothtubes™ Chute Assembly

Single Chute
Assembly
Example



Dual Chute
Assembly
Example



14 A large range of configuration options and layouts are available. For more information or specifications, please contact a Wastech consultant on 1800 465 465.

Source: WasTech – Waste Chute Systems

Appendix H Standard signage

Waste Signage

Signs for garbage, recycling and organics bins should comply with the standard signs promoted by the NSW Office of Environment and Heritage (NSW OEH 2008b).

Standard symbols for use in signage, bin facade and educational materials are promoted through the NSW Environment Protection Authority. They are available for download from the NSW EPA website (NSW EPA 2016b), in black and white and colour versions. The Australian Standard series AS 4123 (Part 7) details colours for mobile waste containers (Standards Australia 2008).

Figure 9: Examples of standard signage for bin uses



Safety Signs

The design and use of safety signs for waste and recycling rooms and enclosures should comply with AS 1319 (Standards Australia 1994). Safety signs should be used to regulate, and control safety related to behaviour, warn of hazards and provide emergency information, including fire protection information. Below are some examples. Clear and easy to read 'NO STANDING' and 'DANGER' warning signs must be fixed to the external face of each waste and recycling room where appropriate.

Figure 10: Example and layout of safety signage



(d) Horizontal

FIGURE D5 TYPICAL ARRANGEMENTS OF DANGER SIGNS

