

DICKENS SOLUTIONS

WASTE MANAGEMENT PLAN

FOR URBAN LINK (VENTUS GROUP)

PROPOSED RESIDENTIAL FLAT BUILDING

@
9-13 GOULBURN STREET,
WARWICK FARM
OCTOBER 2016

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PART 1 – OVERVIEW AND PROPOSAL

1.1 EXECUTIVE SUMMARY

This Waste Management Plan (WMP) describes in detail the manner in which all waste and other materials resulting from the demolition, construction and on-going use of the building on the site are to be dealt with.

The aims and objectives of this WMP are to: -

- a) Satisfy all State and Local Government regulatory controls regarding waste management and minimisation practices;
- b) Promote the use of recyclable materials in the excavation, demolition, construction and on-going operation of the building;
- c) Maximise waste reduction, material separation, and resource recovery in all stages of the development;
- d) Ensure the design of waste and recycling storage facilities are of an adequate size, appropriate for the intended use of the building, hygienic with safe and manoeuvrable access; and,
- e) Ensure that the provision of waste and recycling services to the completed buildings are carried out in an efficient manner, which will not impact negatively on the health, safety and convenience of all stakeholders.

This WMP is prepared in accordance with: -

- Liverpool Local Environment Plan 2008;
- Liverpool DCP 2008 – Part 1.25 – Waste Disposal and Re-use Facilities;
- All conditions of consent issued under the approved Development Application;
- The ‘Better Practice Guide for Waste Management in Multi Unit Dwellings’;
- Current industry standards and practices for the storage and collection of waste within Multi Unit Dwellings; and,
- The objective of ensuring that all waste management facilities and collection services will provide an outcome that will be effective and efficient, as well as promote the principles of health, safety and convenience.

This Waste Management Plan has been prepared for a Development Application to be submitted to Liverpool City Council, for the construction of a nine (9) storey Residential Flat Building containing a total of 101, one, two and three bedroom units, with two (2) levels of basements with the provision for car parking, servicing and ancillary facilities, at 9-13 Goulburn Street, Warwick Farm.

This WMP is dated 11 October 2016.

1.2 INTRODUCTION

This Waste Management Plan (WMP) has been specifically designed for the development described below: -

DESCRIPTION	9 Storey Residential Flat Building
NUMBER OF UNITS	101 Sole Occupancy Residential Units consisting of: - - 14 x 1 bedroom units; - 75 x 2 bedroom units; - 12 x 3 bedroom units; and, two (2) basement Levels for the provision of car parking, service and ancillary facilities
LOCATION	9-13 Goulburn Street, Warwick Farm
LGA	Liverpool City Council

1.3 DESCRIPTION OF PROPERTY

PROPERTY DESCRIPTION	The development is to be constructed over three (3) existing Torrens Title lots: - No 9 Goulburn Street – Lot 202, DP 1025972; No 11 Goulburn Street – Lot 11, DP 35110; and, No 13 Goulburn Street – Lot 12, DP 35110.
STREET ADDRESS	9-13 Goulburn Street, Liverpool
DIMENSIONS	- Front (East) Boundary – 52.43m; - Rear (West) Boundary – 52.43m; - Side (North) Boundary – 51.46m; and, - Side (South) Boundary – 51.37m.
AREA	2,687 square metres
ZONING	Zone R4 – High Density Residential
PLANNING INSTRUMENTS	Liverpool LEP 2008 Liverpool Development Control Plan 2008

The site is located on the western side of Goulburn Street, between the Hume Highway to the north and Lachlan Street, to the south. The site currently comprises of three (3) existing Torrens Title allotments – 9, 11 and 13 Goulburn Street, upon which two existing dwellings are situated, with the property and No 9, being vacant land.

The site is approximately 1km north east of the Liverpool CBD, where the major feature is a large Westfield Shopping Centre, with a mix of low rise commercial buildings. The Hume Highway is approximately 300 metres north of the site, with the Warwick Farm Railway Station a short distance to the east.

The immediate surrounding development primarily consists of a mix of medium and high density residential flat buildings. Upon its consolidation the development will occupy all of three (3) allotments.

1.4 APPLICANTS DETAILS

APPLICANT	Urban Link Pty Ltd (Ventus Group)
ADDRESS	PO Box 2223, Burwood North. NSW. 2134.
TELEPHONE	02 9745 2014
E-MAIL	tony@urbanlink.com.au

1.5 PROPOSAL

The proposal involves the construction of a nine (9) storey residential flat building containing a total of 101 sole occupancy units comprising of: -

- 14 x 1 bedroom units;
- 75 x 2 bedroom units; and,
- 12 x 3 bedroom units.

Two basement levels will be constructed under the building, providing: -

- Car parking for 54 spaces in Basement 1;
- Car parking for 60 spaces in Basement 2;
- Waste storage facilities in the form of two 'Garbage (Chute) Rooms', a 'Collection Bay', and Bulky Waste Storage Area, located in Basement 1; and,
- Ancillary storage space for the units, areas for lift wells, fire isolated stairways, bicycle racks, and other facilities in each basement.

Egress from the basements will be onto Goulburn Street on the eastern side of the development.

Current structures on the site (all of which are to be demolished) are: -

- No 9 Goulburn Street – vacant land;
- No 11 Goulburn Street – a single storey timber frame fibro dwelling; and,
- No 13 Goulburn Street – a single storey timber framed weatherboard dwelling with a tile roof, brick chimney and a large outdoor concrete paved area.

The project consists of: -

- a) The demolition of all existing buildings on the site;
- b) The removal of all demolished materials in accordance with this WMP;
- c) The excavation of the site to construct two (2) basement levels for car parking and other services;
- d) The construction of a nine (9) storey residential flat building;
- e) The provision of landscaping, driveways, concrete pathways and other elements associated with the development; and,
- f) The on-going use of the building.

Council requires that the provision of all waste and recycling services to the development, shall be take place from Basement Level 1. This WMP has been developed on that basis.

PART 2 – DEMOLITION

2.1 DEMOLITION

2.1.1 General Requirements

It is recognised that Sydney has an ever increasing waste problem, and this practice is not sustainable. In alignment with current NSW waste management legislation, this WMP aims, where possible, to promote waste avoidance, reuse and the recycling of material, particularly during the course of demolition and construction works.

Part 2.2 on Pages 6, 7, 8, 9, 10 and 11 of this WMP describes the manner in which waste is to be managed during the course of the demolition of the existing structures.

The processes outlined in Part 2.2 are to be read in conjunction with, and comply with the Development Consent issued in respect of the proposal. It will be the developer's overall responsibility to ensure compliance in this regard.

All material moved offsite shall be transported in accordance with the requirements of the Protection of the Environment Operations Act (1997).

Approved receptacles of an appropriate size will be located on site for the collection of food scraps, beverage containers, and other waste generated on site by workers.

2.1.2 Management of Hazardous Materials

Generation, storage, treatment and the disposal of hazardous waste (including asbestos) will be conducted in accordance with relevant waste legislation administered by the NSW EPA and any applicable WH&S legislation administered by Work Cover NSW.

2.2 DEMOLITION – RECYCLING, REUSE & DISPOSAL DETAILS

The following details prescribe the manner in which all material involved in the demolition of the building will be dealt with, and includes: -

- a) An estimate of the types and volumes of waste and recyclables to be generated;
- b) A site plan showing sorting and storage areas for demolition waste and vehicle access to these areas (see Part 2.3 of this Plan);
- c) How excavation and demolition waste materials will be reused, and, or recycled and where residual wastes will be disposed (see below); and,
- d) The total percentage of demolition waste that will be reused or recycled.

It is noted that the quantities of materials detailed in this part (Part 2.2) are estimates only, based on current industry standards and quantity analysis, and may vary due to the prevailing nature of site constraints, weather conditions, and any other unforeseeable activities associated with the demolition works, which are beyond the control of the developer, including but not being limited to theft, accidents, and, or, other acts of misadventure.

Notwithstanding any of the above, the developer will provide Council with all details in relation to any major variations in this regard.

1. Excavated Materials & Overburden

Volume / Weight	800 cubic metres / 1,360 Tonnes
On Site Reuse	Yes. Keep and reuse topsoil for landscaping. Shore on site. Use some for support of retaining walls (Excavated Materials are only to be used if the material is not contaminated or has been remediated in accordance with any requirements specified by any Environmental Consultancy engaged to carry out any contamination assessment of excavated material).
Percentage Reused or Recycled	To be determined (see above comments)
Off Site Destination	To an approved Agency – excavated materials may need to be assessed to determine the quality of the material to ensure that all excavated material will be acceptable to the designated receival authority.

2. Green Waste

Volume / Weight	15 cubic metres / 2.25 Tonnes
On Site Reuse	To be separated. Chipped and stored on site for re-use in landscaping.
Percentage Reused or Recycled	90%
Off Site Destination	Ecocycle, 155 Newtown Road, Wetherill Park (Tel 02 0757 2999), or, Australian Native Landscapes, Lot 22, Martin Road, Badgerys Creek (Tel 02 4774 8484)

3. Bricks

Volume / Weight	7 cubic metres / 7 Tonnes
On Site Reuse	Clean and remove lime mortar from bricks. Re-use in new footings. Broken bricks for internal walls. Crush and reuse as drainage backfill. Crushed and used as aggregate.
Percentage Reused or Recycled	75% - 90%
Off Site Destination	Brandown, Lot 9 Elizabeth Drive, Kemps Creek (Tel 02 9826 1256) or, Bingo Industries, 3-5 Duck Street, Auburn (Tel 1300 651 116) or, Jacks Gully Waste Management Centre, Richardson Road, Narellan (Tel 1300 651 116)

4. Concrete

Volume / Weight	21 cubic metres / 50.4 Tonnes
On Site Reuse	Existing driveways to be retained during construction. Crushed and used as aggregate, drainage backfill.
Percentage Reused or Recycled	60% - 75%
Off Site Destination	Brandown, Lot 9 Elizabeth Drive, Kemps Creek (Tel 02 9826 1256) or, Bingo Industries, 3-5 Duck Street, Auburn (Tel 1300 651 116) or, Jacks Gully Waste Management Centre, Richardson Road, Narellan (Tel 1300 651 116)

5. Timber

Volume / Weight	42 cubic metres / 16.8 Tonnes
On Site Reuse	Re-use for formwork and studwork, landscaping, shoring.
Percentage Reused or Recycled	65% - 90%
Off Site Destination	Artistic Popular Furniture, 10 Raglan Road, Auburn (Tel 02 96443054) or, Hallinan's Recycling Centre, 37 Lee Holm Road, St.Marys (Tel 02 9833 0883)

6. Plasterboard & Fibro

Volume / Weight	25 cubic metres / 8.75 Tonnes
On Site Reuse	Break up and use in landscaping. Any material containing asbestos will be dealt with separately
Percentage Reused or Recycled	To be determined (dependent on asbestos content)
Off Site Destination	Ecocycle, 155 Newtown Road, Wetherill Park (Tel 02 0757 2999) or, Jacks Gully Waste Management Centre, Richardson Road, Narellan (Tel 1300 651 116)
Off Site Destination (Asbestos)	Jacks Gully Waste Management Centre, Richardson Road, Narellan (Tel 1300 651 116) or, Enviroguard, Cnr Mamre and Erskine Roads, Erskine Park (Tel 02 9834 3411).

7. Metals / Steel / Guttering & Downpipes

Volume / Weight	24 cubic metres / 6 Tonnes
On Site Reuse	No
Percentage Reused or Recycle	60% - 90%
Off Site Destination	Sydney Wide Scrap Metal, 4/18 Alfred Street, Chipping Norton (Tel 9738 9771) or, Boral Recycling, 3 Thackeray Street, Camelia (Tel 9529 4424) or, Hallinan's Recycling Centre, 37 Lee Holm Road, St.Marys (Tel 02 9833 0883) or, Bingo Industries, 3-5 Duck Street, Auburn (Tel 1300 651 116)

8. Roof Tiles / Tiles

Volume / Weight	24 cubic metres / 18 Tonnes
On Site Reuse	Broken up and used as fill, aggregate, driveways.
Percentage Reused or Recycle	80% - 90%
Off Site Destination	Obsolete Tiles, 3 South Street, Rydalmere. (Tel 02 9684 6333) or, Hallinan's Recycling Centre, 37 Lee Holm Road, St.Marys (Tel 02 9833 0883) or, Bingo Industries, 3-5 Duck Street, Auburn (Tel 1300 651 116)

9. Fixture & Fittings (Doors Fittings, Other Fixtures, etc)

Volume	16 cubic metres / 5.6 Tonnes
On Site Reuse	Broken up and used as fill.
Percentage Reused or Recycle	80% - 90%
Off Site Destination	Hallinan's Recycling Centre, 37 Lee Holm Road, St.Marys (Tel 02 9833 0883) or, Bingo Industries, 3-5 Duck Street, Auburn (Tel 1300 651 116)

10. Glass, Electrical & Light Fittings, PC Items, Ceramics, etc

Volume / Weight	16 cubic metres / 2.4 Tonnes
On Site Reuse	No
Percentage Reused or Recycle	To be determined (dependent upon nature of material)
Off Site Destination	To an approved agency, or agencies.

11. Residual Waste

Volume / Weight	99 cubic metres / 99 Tonnes
On Site Reuse	No
Off Site Destination	Jacks Gully Waste Management Centre, Richardson Road, Narellan (Tel 1300 651 116) or, Bingo Industries, 3-5 Duck Street, Auburn (Tel 1300 424 646), or, other authorised facility
Notes on calculation of volume of residual waste	1. In calculating the amount of residual waste produced from the demolition of all buildings on site, it is estimated that approximately 10% of it, will be residual waste. 2. As all of the materials vary in weight per volume, a figure of 1 cubic metre of material is equal to 1 tonne in weight has been used.

The facilities and agencies that have been nominated to receive the materials listed above have been identified within the NSW waste industry as being a facility or agency that will accept the materials specified in each respective table.

The developer understands that any costs associated with the transportation and receipt of these materials will be their responsibility.

The developer is under no obligation to use any nominated facility or agency, but should any alternative arrangements be made, it will be the developers' responsibility to ensure that all demolished materials removed from the site are disposed of, or processed, appropriately.

The developer will keep a written record of all documentation associated with the transportation, disposal and processing of all materials associated with the demolition of all structures on site.

2.3 DEMOLITION – ON SITE STORAGE OF MATERIALS

During the demolition stage of the project, an area will be set aside on the site as a compound for the on-site storage of materials prior to their removal from the site. This compound will provide for: -

- Material sorting;
- Segregation of materials that may be hazardous and which will be required to be disposed of;
- Recovery equipment, such as concrete crushers, chippers, and skip bins;
- Material storage; and,
- Access for transport equipment.

Appropriate vehicular access will be provided on and off site, and to the compound, to enable the efficient removal of reusable, recyclable, and waste materials.

Prior to the commencement of demolition works, the developer will provide Council with a 'Site Plan for the On Site Storage of Materials at Demolition'. This plan will show in detail the location of each area within the compound, set aside for the segregated storage of all materials involved in the demolition of all buildings on the site.

2.4 DEMOLITION – EXCAVATED MATERIAL

All excavated material removed from the site, as a result of the demolition of all buildings, must be classified in accordance with the Department of Environment, Climate Change and Water NSW Waste Classification Guidelines prior to their removal, transportation and disposal to an approved waste management facility.

All relevant details must be reported to the PCA.

PART 3 – CONSTRUCTION

3.1 CONSTRUCTION – GENERALLY

Upon completion of all demolition works, construction of the building will commence with the excavation of the site for the basement levels of the building. All materials sourced from these activities will be disposed of in accordance with the information provided in Part 3.2 on pages 12, 13, 14, 15 and 16 of this WMP.

Additionally, all materials used in the construction of the building that are not required to be incorporated into it, shall be recycled, reused or disposed of in accordance with these provisions, and the requirements of the Protection of the Environment Operations Act (1997). It will be the developer's overall responsibility to ensure compliance in this regard.

Mobile Bins of an appropriate size will be located on site for the collection of food scraps, beverage containers, and other waste generated on site by workers.

3.2 CONSTRUCTION – RECYCLING, REUSE & DISPOSAL DETAILS

The following details prescribe the manner in which all materials surplus to the construction of the building will be dealt with, and includes: -

- a) An estimate of the types and volumes of waste and recyclables to be generated;
- b) A site plan showing sorting and storage areas for construction waste and vehicle access to these areas (see Part 3.3 of this Plan);
- c) How excavated and other materials surplus to construction will be reused or recycled and where residual wastes will be disposed (see below); and,
- d) The total percentage of waste surplus to construction to be reused or recycled.

1. Excavated Materials

Volume / Weight	17,465 cubic metres / 29,690 Tonnes
On Site Reuse	Yes. Keep and reuse topsoil for landscaping. Shore on site. Use some for support of retaining walls (Excavated Materials are only to be used if the material is not contaminated or has been remediated in accordance with any requirements specified by any Environmental Consultancy engaged to carry out any contamination assessment of excavated material).
Percentage Reused or Recycled	To be determined (see above comments)
Off Site Destination	To an approved Agency – excavated materials may need to be assessed to determine the quality of the material to ensure that all excavated material will be acceptable to the designated receival authority.

2. Bricks

Volume / Weight	5 cubic metres / 6.5 Tonnes
On Site Reuse	Clean and remove lime mortar from bricks. Broken bricks for internal walls. Crush and reuse as drainage backfill. Crushed and used as aggregate.
Percentage Reused or Recycle	75% - 90%
Off Site Destination	Brandown, Lot 9 Elizabeth Drive, Kemps Creek (Tel 02 9826 1256) or, Bingo Industries, 3-5 Duck Street, Auburn (Tel 1300 651 116) or, Jacks Gully Waste Management Centre, Richardson Road, Narellan (Tel 1300 651 116)

3. Concrete

Volume / Weight	2.5 cubic metres / 6 Tonnes
On Site Reuse	Existing driveway to be retained during construction. Crushed and used as aggregate, drainage backfill.
Percentage Reused or Recycled	60% - 75%
Off Site Destination	Brandown, Lot 9 Elizabeth Drive, Kemps Creek (Tel 02 9826 1256) or, Bingo Industries, 3-5 Duck Street, Auburn (Tel 1300 651 116) or, Jacks Gully Waste Management Centre, Richardson Road, Narellan (Tel 1300 651 116)

4. Timber

Volume / Weight	5 cubic metres / 7 Tonnes
On Site Reuse	Re-use for formwork and studwork, and for landscaping
Percentage Reused or Recycled	65% - 90%
Off Site Destination	Artistic Popular Furniture, 10 Raglan Road, Auburn (Tel 02 96443054) or, Hallinan's Recycling Centre, 37 Lee Holm Road, St.Marys (Tel 02 9833 0883)

5. Plasterboard & Fibro

Volume / Weight	12 cubic metres / 4 Tonnes
On Site Reuse	Break up and use in landscaping. Any material containing asbestos will be dealt with separately
Percentage Reused or Recycled	To be determined – depended on quantities of asbestos
Off Site Destination	Ecocycle, 155 Newtown Road, Wetherill Park (Tel 02 0757 2999) or, Jacks Gully Waste Management Centre, Richardson Road, Narellan (Tel 1300 651 116)
Off Site Destination (Asbestos)	Jacks Gully Waste Management Centre, Richardson Road, Narellan (Tel 1300 651 116) or, Enviroguard, Cnr Mamre and Erskine Roads, Erskine Park (Tel 02 9834 3411).

6. Metals / Steel / Guttering & Downpipes

Volume / Weight	15 cubic metres / 3.75 Tonnes
On Site Reuse	No
Percentage Reused or Recycled	60 – 90%
Off Site Destination	Boral Recycling, 3 Thackeray Street, Camelia (Tel 9529 4424) or, Hallinan's Recycling Centre, 37 Lee Holm Road, St.Marys (Tel 02 9833 0883) or, Bingo Industries, 3-5 Duck Street, Auburn (Tel 1300 651 116)

7. Roof Tiles / Tiles

Volume / Weight	8 cubic metres / 6 Tonnes
On Site Reuse	Broken up and used as fill.
Percentage Reused or Recycled	80% - 90%
Off Site Destination	Obsolete Tiles, 3 South Street, Rydalmere. (Tel 02 9684 6333) or, Hallinan's Recycling Centre, 37 Lee Holm Road, St.Marys (Tel 02 9833 0883) or, Bingo Industries, 3-5 Duck Street, Auburn (Tel 1300 651 116)

8. Plastics

Volume / Weight	6 cubic metres / 1 Tonne
On Site Reuse	Nil
Percentage Reused or Recycled	80% - 95%
Off Site Destination	Recycle Works, 45 Parramatta Road, Annandale (Tel 02 9517 2711)

9. Glass, Electrical & Light Fittings, PC items

Volume / Weight	6 cubic metres / 1 Tonne
On Site Reuse	No
Percentage Reused or Recycled	70% - 90%
Off Site Destination	To an approved agency, or agencies.

10. Fixture & Fittings (Doors Fittings, Other Fixtures, etc)

Volume	25 cubic metres / 8 Tonnes
On Site Reuse	Broken up and used as fill.
Percentage Reused or Recycle	80% - 90%
Off Site Destination	Hallinan's Recycling Centre, 37 Lee Holm Road, St.Marys (Tel 02 9833 0883) or, Bingo Industries, 3-5 Duck Street, Auburn (Tel 1300 651 116) or, Recycle Works, 45 Parramatta Road, Annandale (Tel 02 9517 2711)

11. Pallets

Volume / Weight	25 cubic metres / 8 Tonne
On Site Reuse	No
Percentage Reused or Recycle	90% - 100%
Off Site Destination	To an approved agency, or agencies, for reuse and resale.

It is noted that the quantities of materials detailed in this section (Part 3.2) are estimates only, based on current industry standards and quantity analysis, and may vary due to the prevailing nature of construction constraints, weather conditions, and any other unforeseeable activities associated with the construction of the buildings,

which are beyond the control of the developer, including but not being limited to theft, accidents, and other acts of misadventure.

Notwithstanding any of the above, the developer will provide Council with all details in relation to any major variations in this regard.

The developer will keep a record of all documentation associated with the transportation, disposal and processing of all materials surplus to the construction of the building.

Should any of the facilities nominated above, for any reason be unable to accommodate the receipt of these materials, the developer will be responsible for making alternative arrangements that will ensure that all materials, excess to construction requirements, that are removed from the site are disposed of, or processed, appropriately.

Additionally, during the construction of the building, every effort will be made to reduce and minimise the amount of building materials excess to its construction.

3.3 CONSTRUCTION – ON SITE STORAGE OF MATERIALS

During the construction of the buildings, an area will be set aside on the site as a compound for the on-site storage of materials prior to their removal from the site. This compound will provide for: -

- Material sorting;
- Segregation of materials that may be hazardous and which will be required to be disposed of;
- Recovery equipment, such as concrete crushers, chippers, and skip bins;
- Material storage; and,
- Access for transport equipment.

Appropriate vehicular access will be provided on and off site, and to the compound, to enable the efficient removal of reusable, recyclables, and waste materials.

Prior to the commencement of construction works, the developer will provide Council with a 'Site Plan for the On Site Storage of Materials at Construction'. This plan will show in detail the location of each area within the compound, set aside for the segregated storage of all materials involved in the demolition of all buildings on the site.

3.4 CONSTRUCTION – EXCAVATED MATERIAL

All excavated material removed from the site, as a result of any activities associated with the construction of the building, must be classified in accordance with the Department of Environment, Climate Change and Water NSW Waste Classification Guidelines prior to removal, transportation and disposal to an approved waste management facility.

All relevant details must be reported to the PCA.

PART 4 – GARBAGE CHUTE SYSTEM

4.1 DESIGN REQUIREMENTS

A linear Garbage Chute System, will be incorporated into the building design for the reception of waste material only.

Two (2) Garbage Chute Systems will be installed in the building: -

- Chute 1 – Northern Core; and,
- Chute 2 – Southern Core.

All waste deposited into the waste chutes, will discharge into an 1100 litre mobile bin located in the bin room of that core of the building (see Basement 1 Floor Plan).

At a minimum the Garbage Chute System will be designed to meet the following requirements: -

1. Chutes and service openings must be constructed of metal or other smooth faced, durable, fire resistant and impervious material of a non-corrosive nature.
2. Chutes will be cylindrical in section with a minimal internal diameter of 500 mm. The diameter around each chute will be a minimum width of 750 mm to allow for infrastructure fittings, such as fixing brackets and noise insulation.
3. Chutes will be vertical without bends or “off-sets” (except for the chute outlets) and not be reduced in diameter.
4. Chute 1 in the Northern Core will terminate in Bin Room 1 located in Basement 1 of the building and discharge all waste directly into an 1100 litre mobile bin located directly below the chute outlet.
5. Chute 2 in the Southern Core will terminate in Bin Room 2 located in Basement 1 of the building and discharge all waste directly into an 1100 litre mobile bin located directly below the chute outlet.
6. The Chutes and service openings must be capable of being easily cleaned.
7. Chutes must be ventilated to ensure that air does not flow from the chute through any service opening.
8. The Garbage Chute systems must comply with the relative provisions of the Building Code of Australia, and relevant Australian Standards (e.g., AS1530.4-2005).
9. The chute point will be caged in accordance with the manufacturers specification.

4.2 USE & OPERATION OF GARBAGE CHUTE 1 – NORTHERN CORE

In the Northern Core of the building, a service room in the form of a ‘Waste Room’ (see Floor Plans) will be provided on each residential floor level. Each Waste Room will be located on the main corridor on each floor immediately next to the fire stairway and opposite the lift.

The Waste Rooms will have dimensions of 2.3 metres x 1.6 metres, with a floor area of 3.7 square metres, and will provide space for: -

- 1 x 240 litre recycling bin;
- A Garbage Chute compartment, which will have internal dimensions of 750 mm x 750 mm. The Garbage Chute will be installed within these confines in a fire rated compartment.

Residents will deposit waste material into the chute inlet hopper. Waste from the chute outlet will fall directly into an 1100 litre mobile waste bin located in the Garbage Chute Outlet Compartment of Bin Room 1, in Basement 1.

Representatives of the Owners Corporation, will monitor all activities associated with the use and operation of the Chute, the depositing of waste into it in order to ensure that there will be no spillage as a result of these activities, and that the system operates effectively.

Representatives of the Owners Corporation will be responsible for transferring full 1100 litre waste bins from Bin Room 1, into the Garbage Room, located in the western end of Basement 1 (see Architectural Drawings). Bins will be transferred to the Garbage Room by way of an approved bin towing device.

The Garbage Chute Outlet Compartment will be inspected daily in order to ensure that receptacles will be removed when full. Full bins will be removed from the Chute compartment and replaced immediately with an empty one.

4.3 USE & OPERATION OF GARBAGE CHUTE 2 – SOUTHERN CORE

In the Southern Core of the building, a service room in the form of a 'Waste Room' (see Floor Plans) will be provided on each residential floor level. Each Waste Room will be located on the main corridor on each floor immediately next to the fire stairway and lift.

The Waste Rooms will have dimensions of 2.3 metres x 1.6 metres, with a floor area of 3.7 square metres, and will provide space for: -

- 1 x 240 litre recycling bin;
- A Garbage Chute compartment, which will have internal dimensions of 750 mm x 750 mm. The Garbage Chute will be installed within these confines in a fire rated compartment.

Residents will deposit waste material into the chute inlet hopper. Waste from the chute outlet will fall directly into an 1100 litre mobile waste bin located in the Garbage Chute Outlet Compartment of Bin Room 2, in Basement 1.

Representatives of the Owners Corporation, will monitor all activities associated with the use and operation of the Chute, the depositing of waste into it in order to ensure that there will be no spillage as a result of these activities, and that the system operates effectively.

Representatives of the Owners Corporation will be responsible for transferring full 1100 litre waste bins from Bin Room 2, into the Garbage Room, located in the western end of Basement 1 (see Architectural Drawings). Bins will be transferred to the Garbage Room by way of an approved bin towing device.

The Garbage Chute Outlet Compartment will be inspected daily in order to ensure that receptacles will be removed when full. Full bins will be removed from the Chute compartment and replaced immediately with an empty one.

4.4 ON GOING MANAGEMENT & MAINTENANCE OF CHUTE SYSTEM

4.4.1 Generally

The Owners Corporation will be responsible for all issues associated with the on-going management and maintenance of the Garbage Chute Systems and all activities associated with it.

These activities will include, but not be limited, to the following: -

- a) Displaying signage indicating appropriate use of all waste management systems, including what is and what is not recyclable.
- b) Educating residents in the correct use of the chute, and the need to keep bulky items out of the chute systems.
- c) Providing regular maintenance, including cleaning and unblocking chutes.
- d) Regular inspection of the Garbage Chute Compartments, the Garbage Chute Outlet Compartments, and the Bin Rooms to ensure that all waste and recyclables are managed appropriately.
- e) Educating residents in the correct use of each chute, to ensure that waste material is not deposited into the recycling chute, and that recycling material is not placed into the waste chute.

4.4.2 Chute Room Infrastructure

In accordance with Council requirements, the following infrastructure will be incorporated into the design of all chute rooms: -

- a) Suitable door access for the service of bins;
- b) All floors will be finished with a non-slip and smooth and even surface covered at all intersections;
- c) The floor will be graded to a central drainage point connected to the sewer;
- d) The room will be fully enclosed and roofed with a minimum internal room height in accordance with the BCA 2016
- e) The room is to be provided with an adequate supply of water through a centralised mixing valve with hose cock; and.
- f) Incorporation of adequate light and ventilation to meet the requirements of the BCA 2016.

4.5 MANAGEMENT OF RECYCLING

Residents will place their recycling material into a 240 litre mobile recycling bin located in the Waste Room in the Core of that level of the building.

A representative of the Owners Corporation will be responsible for transporting the 240 litre mobile bin from the Waste Room on each floor of both Northern and Southern Cores into the Garbage Room, located in the western end of Basement 1 of the complex.

Larger 660 litre bins will be used for the servicing of the recycling material. As such it will be necessary for the contents of full 240 litre bins to be emptied into the 660 bins, which will be permanently stored in the Garbage Room. It will be the responsibility of the Owners Corporation to organise for this to take place.

This activity will take place in the Garbage Room, on a regular basis, where an approved hydraulically operated bin lifting apparatus will be used to decant this material.

Once the recycling material has been transferred into the 660 bins. The 660 recycling bins will remain stored within the confines of the Garbage Room until presented for servicing.

An empty 240 litre mobile recycling bin will be placed in the Waste Room when the full one is removed.

Servicing and replacement of 240 litre recycling bins located in the Waste Room on each residential level of the building will take place on a regular basis to avoid hygiene, spillage and dumping problems.

All waste handing activities (including the transfer of recycling bins) will be undertaken by representatives of the Owners Corporation.

PART 5 – ON GOING USE OF BUILDING

5.1 OBJECTIVES

1. To ensure that the storage, amenity and management of waste is sufficient to meet the needs of the development.
2. To ensure that all waste management activities are carried out effectively and efficiently, and in a manner that promotes the principles of health, safety and, convenience.
3. To promote waste minimisation practices.

5.2 ASSUMPTIONS

In preparing this proposal, the following assumptions have been made: -

1. Two (2) Garbage Chute Systems will be incorporated into the development, with separate Chute Systems being installed in both its northern and southern cores.
2. Waste Rooms will be provided to all residential levels of both cores for the use of residents to deposit both waste (into the garbage chute) and recyclable material (into a 240 litre mobile bin) – (see Floor Plans).
3. Within each Waste Room will be the garbage chute and 240 litre recycling bin.
4. There will be a Bin Room for each core, which will be the outlet point for the garbage chute system.
5. Bin Room 1 is located on the northern side of the ramp into Basement 1 adjacent to the lift.
6. Bin Room 2 is located in the southern end of Basement 1 adjacent to the lift.
7. A Garbage Chute Outlet compartment will be located in each bin room. Within this compartment will be a waste outlet chute and a storage area for spare 1100 litre bins.
8. All waste from the waste outlet chutes will fall into an 1100 waste bin located directly under the chute outlet.
9. A Garbage Room is provided as the main storage area for all waste and recyclables allocated to the development. This area is located in the western end of Basement 1, directly opposite the driveway ramp into the basements (See Basement 1 Floor Plan).
10. A waste collection area (Collection Bay) is located immediately next to the Garbage Room. All collection activities will take place from this area.
11. All waste and recycling services will take place from a designated waste collection point within the confines of the Waste Collection Area.
12. The number and size of bins have been calculated from information provided by Liverpool City Council, by Council staff and from information contained in Liverpool Council's DCP 2008 and the document entitled 'Changes to Waste Management Services for residential flat buildings' – Version 1: December 2014.
13. All waste material for both buildings will be stored in 6 x 1100 litre mobile bins.
14. All recycling material for both buildings be stored in 10 x 660 litre mobile bins.
15. Waste services will be provided twice weekly.
16. Recycling services will be provided twice weekly.
17. Liverpool City Council's respective waste and recycling contractors will provide all waste and recycling services to the development.

18. The Owners Corporation will appoint a Building Manager / Caretaker, whose responsibility it will be to supervise and manage all waste management activities.

5.3 WASTE HANDLING & MANAGEMENT

A cabinet will be located within each residential unit so that a receptacle, or receptacles, may be stored or housed in a convenient and practical location within the unit, for the reception of waste and recyclable material.

All residents will be responsible for depositing their waste and recycling material into the appropriate bins. All waste is to be placed in the red lidded waste bins. All recyclable material is to be placed in the yellow lidded recycling bins.

All waste and recyclables should be appropriately bagged or wrapped prior to being deposited into the designated bin.

Appropriate signage will be erected in the Waste Rooms to assist residents in placing their waste and recyclables into the appropriate bins.

5.4 WASTE & RECYCLING – SERVICE REQUIREMENTS

All waste and recycling materials will be stored in approved receptacles of an appropriate size as specified in this WMP. The lids of the bins shall be closed at all times to reduce litter, stormwater pollution, odour and vermin.

The Council in general requires that colour coded receptacle lids that distinguish each service component are to be provided: -

- Waste Service – Red Lidded receptacle;
- Recycling Service – Yellow Lidded receptacle; and,
- Green Waste – Green Lidded receptacle.

No formal green waste service will be provided to the building. All green waste will be disposed of privately by a contractor to be appointed by the Owners Corporation.

It will be the responsibility of the Owners Corporation to ensure that all green waste is removed from the complex in an appropriate manner.

5.5 WASTE & RECYCLING – SERVICE ARRANGEMENTS

The following table (Table 1) specifies the criteria for waste and recycling generation rates (as specified by Liverpool City Council) based on: -

- Waste – 120 litres of bin space per unit per week; and,
- Recycling – 120 litres of bin space per unit per week.

All waste and recycling generation rates were obtained from discussions Liverpool City Council, by Council staff and from information contained in Liverpool Council's DCP 2008 and the document entitled 'Changes to Waste Management Services for residential flat buildings' – Version 1: December 2014.

TABLE 1 – RESIDENTIAL WASTE & RECYCLING GENERATION RATES

SERVICE TYPE	UNITS	BIN SPACE PER UNIT	TOTAL SPACE REQUIRED	BINS SIZE	SERVICES PER WEEK	BINS REQUIRED	BINS PROVIDED
Waste	101	120	12,120	1100	2	5.51	6
Recycling	101	120	12,120	660	2	9.18	10

The following table (Table 2) specifies the proposed bin servicing requirements for the building and is based on the above waste and recycling generation rates: -

TABLE 2 – PROPOSED SERVICING ARRANGEMENTS

WASTE	RECYCLING
6 x 1100 litre bins / 2 x week	10 x 660 litre bins / 2 x weekly

5.6 PROVISION OF WASTE & RECYCLING SERVICES

5.6.1 Waste and Recycling Collection Service Provider Details

Liverpool City Council's waste and recycling collection contractors will provide all waste and recycling services to the building.

5.6.2 Details of Mobile Containers

In relation to the size and design of the waste and recycling mobile bins, the following technical information is provided: -

CONTAINER TYPE	HEIGHT (metres)	LENGTH (metres)	WIDTH (metres)
240 litre mobile container	1.060	0.730	0.535
660 litre mobile container	1.270	1.420	0.780
1100 litre mobile container	1.420	1.420	1.100

In addition to the 6 x 1100 litre mobile waste bins required by Council as part of their service requirements, the Owners Corporation will provide an additional number of 1100 litre mobile waste bins in order to ensure that a bin is provided at all times below the Garbage Chute Outlet.

The Owners Corporation will provide an appropriate number of 240 litre mobile recycling bins in order to ensure that a bin is provided at all times to the Waste Rooms of each residential floor the building.

A Mobile Bin Towing Device, of an approved type, will be provided to transport and manoeuvre bins through the development. The towing device will be stored in an approved location in either Bin Room 1 or 2.

5.6.3 Waste & Recycling Requirements

Waste and recycling requirements are provided in the table below.

SERVICE	NUMBER OF CONTAINERS	COLLECTION FREQUENCY
Waste Service	6 x 1100 litre mobile containers	Twice per week
Recycling Service	10 x 660 litre mobile containers	Twice per Week

5.6.4 Location, Design, and Construction of Waste Storage and Collection Areas

Details of all storage and collection areas are provided below.

5.6.4.1 Waste Rooms

Waste Rooms are provided on all residential floor levels of the building in each of the two cores. Each Waste Room will have dimensions of 2.3 metres x 1.6 metres, with a floor area of 3.7 square metres, and will provide space for: -

- 1 x 240 litre recycling bin; and,
- A Garbage Chute compartment, which will have internal dimensions of 750 mm x 750 mm. The Garbage Chute will be installed within these confines in a fire rated compartment.

5.6.4.2 Bin Room 1 – Chute 1 (Northern Core)

Bin Room 1 is located on the northern side of the driveway ramp into Basement 1, adjacent to the lift. Within its confines is a Garbage Chute Outlet Compartment for the reception of all waste derived from the chute system in this core of the building.

All waste from the waste outlet chutes will fall into an 1100 waste bin located directly under the chute outlet. Also located in Bin Room 1, is storage space for an additional 3 x 1100 waste bins.

The bin room is a fully enclosed rectangular structure, with dimensions of 5.0m x 4.0m, with a total floor area of approximately 20 square metres (see Architectural Drawings – Basement 1 Floor Plan).

In assessing the size and design of Bin Room 1, it is considered that it is of a sufficient size and dimension to adequately house the chute system as well as, store and manoeuvre (for collection and return) all of the required number of bins and ancillary facilities.

All electrical equipment, including the provision of lighting, will be installed in accordance with the relevant Australian Standards.

Natural and mechanical ventilation will be required to be installed within the WSA in accordance with the provisions of the Building Code of Australia.

5.6.4.3 Bin Room 2 – Chute 2 (Southern Core)

Bin Room 2 is located in the southern end of Basement 1, adjacent to the lift. Within its confines is a Garbage Chute Outlet Compartment for the reception of all waste derived from the chute system in this core of the building.

All waste from the waste outlet chutes will fall into an 1100 waste bin located directly under the chute outlet. Also located in Bin Room 1, is storage space for an additional 3 x 1100 waste bins.

The bin room is a fully enclosed rectangular structure, with dimensions of 6.5m x 4.4m, with a total floor area of approximately 28.6 square metres (see Architectural Drawings – Basement 1 Floor Plan).

In assessing the size and design of Bin Room 1, it is considered that it is of a sufficient size and dimension to adequately house the chute system as well as, store and

manoeuvre (for collection and return) all of the required number of bins and ancillary facilities.

All electrical equipment, including the provision of lighting, will be installed in accordance with the relevant Australian Standards.

Natural and mechanical ventilation will be required to be installed within the WSA in accordance with the provisions of the Building Code of Australia.

5.6.4.4 Garbage Room and Waste Collection Area (Collection Bay)

The Garbage Room and Waste Collection Area are the main waste storage and collection points for the complex. They are located at the western end of Basement 1, directly opposite the ramp to the driveway into the building.

According to the architectural drawings the combined areas of the Garbage Room and Collection Area is approximately 88 square metres (10.6m x 8.3m).

In assessing the size and design of each area of this area, it is considered that it is of a sufficient size and dimension to adequately store and manoeuvre (for collection and return) all of the required number of bins and ancillary facilities.

All electrical equipment, including the provision of lighting, will be installed in accordance with the relevant Australian Standards.

Natural and mechanical ventilation will be required to be installed within each Garbage Room in accordance with the relative provisions of the Building Code of Australia.

All 6 x 1100 waste bins and 10 x 660 litre recycling bins will be stored within the confines of the Garbage Room prior to collection.

All 1100 waste bins will be removed from each of the Bin Rooms (1 and 2), and transported to the Garbage Room on the evenings prior to their servicing.

The Owners Corporation will ensure that the contents of each 240 litre recycling bin removed from the Waste Rooms on each floor of the building are transferred into the 660 litre recycling bins for servicing.

A hydraulically operated bin lifting device will be used to ensure that this procedure is done correctly. The bin lifting device will be an approved device manufactured and operated in accordance with the manufacturers specification and relevant Australian Standard.

All collection and servicing activities will take place wholly within the confines of the collection area from a designated collection point, where all waste and recycling bins will be removed from the adjacent storage area and presented for servicing.

The area has been designed to ensure that all collection activities do not interfere with the movement of traffic both in and out of the basements below.

5.6.5 Servicing Arrangements – Waste Collections

All waste services will be provided by Liverpool City Council's waste collection contractor, using a rear loading collection vehicle, that will enable all collections to be carried out effectively and efficiently, and in a manner that will aim to not impact negatively on the principles of health, safety or convenience.

Representatives of the Owners Corporation will be responsible for presenting waste bins for servicing and returning them to the Garbage Room after collection.

On each collection day the waste bins will be removed from the Garbage Room, and placed onto a designated collection space within the Collection Bay in a manner that will not adversely impact on the principles of health, safety or convenience.

Waste bins will be returned to the Garbage Room immediately after they have been serviced.

Waste bins will be presented for collection at a suitably arranged time, in accordance with an agreement made between the Owners Corporation and Council.

The waste bins will be serviced twice weekly, on days to be determined by Council.

All 6 1100 litre mobile waste bins will be presented for servicing on each collection day.

5.6.6 Servicing Arrangements – Recycling Collections

All recycling services will be provided by Liverpool City Council's recycling collection contractor, using a rear loading collection vehicle, that will enable all collections to be carried out effectively and efficiently, and in a manner that will aim not to impact negatively on the principles of health, safety or convenience.

Representatives of the Owners Corporation will be responsible for presenting recycling bins for servicing and returning them to the Garbage Room after collection.

On each collection day the recycling bins will be removed from the Garbage Room, and placed onto a designated collection space within the Collection Bay in a manner that will not adversely impact on the principles of health, safety or convenience.

Recycling bins will be returned to the Garbage Room immediately after they have been serviced.

Recycling bins will be presented for collection at a suitably arranged time, in accordance with an agreement made between the Owners Corporation and Council.

The recycling bins will be serviced twice weekly, on days to be determined by Council.

All 10 x 660 litre mobile waste bins will be presented for servicing on each collection day.

4.7 GREEN WASTE

No formal green waste service will be provided to the development.

It will be the responsibility of the Owners Corporation to ensure that all green waste generated from the on-going use of the development is disposed of appropriately.

4.8 BULKY WASTE STORAGE

Secure storage spaces are required to be provided for each residential unit in accordance with the provisions of Council's DCP 2008.

This space may be used to store bulky waste items that can be disposed of as part of any Council Clean Up services to be provided to this complex.

Consistent with these requirements, a Bulky Waste Storage Area has been provided for residents to place unwanted materials awaiting collection and removal. Council requires a minimum of 6 square metres.

The Bulky Waste Storage Area is situated in a secure location immediately next to the Garbage Room. This area has dimensions of 3.9m x 2.9m, with a total floor area of approximately 11.3 square metres.

All residents of the building will be provided with unrestricted 24-hour access to this facility.

The Owners Corporation will monitor this area regularly to ensure that all materials stored within its confines are done so in a manner that will not adversely impact on the health, safety and convenience.

Regular maintenance of the Bulky Waste Storage Area will be carried out.

The Owners Corporation will also be responsible for arranging 'Clean Ups' to ensure the efficient and regular removal of these materials.

It will be the responsibility of the occupants of individual residential units, to dispose of this material, appropriately.

4.9 ON GOING OPERATION, USE & MAINTENANCE OF WASTE MANAGEMENT FACILITIES

All waste management facilities will be maintained in a clean and hygienic condition that will promote the principles of health, safety and convenience.

In order to achieve these objectives, the following facilities and devices will be required: -

1. The walls and floors of both the Bin Rooms, Garbage Room and Collection Bay are to be constructed of smooth faced masonry or concrete, and all walls will be painted with light coloured and washable paint.
2. The junction between all floors and walls will be coved and sealed up to 100mm above the floor level, in order to eliminate the build-up of dirt and grime.
3. A floor waste, connected to the Sydney Water drainage system in accordance with that Authority's requirements, will be provided to Bin Rooms, the Garbage Room and Collection Bay, and the respective floors will be graded to drain into them.
4. Appropriate washing facilities will be provided to Bin Rooms, the Garbage Room and Collection Bay, including appropriate plumbing and drainage fixtures and fittings, and the provision of running water.
5. The Bin Rooms, Garbage Room and Collection Bay are to be washed and cleaned on a regular basis.
6. All mobile bins will be washed and cleaned on a regular basis.
7. All electrical equipment, including the provision of lighting, will be installed in accordance with the relevant Australian Standards.
8. Natural and mechanical ventilation will be required to be installed within the Bin Rooms, the Garbage Room and Collection Bay in accordance with the relative provisions of the Building Code of Australia.
9. Appropriate signage will be displayed in both basements clearly identifying the location of both the Bin Rooms, Garbage Room and Collection Bay.
10. Appropriate signage will be erected in suitable locations, providing instruction to residents on how to use waste and recycling facilities, including what is and what is not recyclable.
11. The Owners Corporation will be responsible for ensuring that all waste and recyclable matter and materials are placed and stored within the appropriate containers provided.

PART 5 – SUMMARY

5.1 SUMMARY

In summarising this proposal, the following information is provided:

1. Liverpool Council have insisted that all activities associated with the installation of waste management facilities and the provision of waste management services are to take place in, and from, the Garbage Room and Collection Bay in Basement 1 of the building.
2. This Waste Management Plan has been developed and documented in accordance with the Council's directions.
3. The number and size of bins have been calculated from information provided by Liverpool City Council.
4. All waste and recycling services will be provided by Liverpool Council's waste and recycling contractors.
5. The Owners Corporation will be responsible for ensuring that all on-going waste management activities are carried out in accordance with the provisions of this Waste Management Plan.

This is a unique development with a unique set of arrangements for its waste management activities.

The measures set out in this WMP aim to demonstrate that all such activities will be carried out effectively and efficiently, in a healthy, safe and convenient manner, to acceptable community standards, and to the requirements of Liverpool City Council.
