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Waste Management Plan for

103-109 Laycock Street, Cranebrook, NSW

Prepared by

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1. Introduction

Loka Consulting Engineers Pty Ltd has been engaged by Alvaro Architects to provide a Waste Management Plan for the site at 103-109 Laycock Street, Cranebrook, NSW located within Penrith City Council (refer to Figure 1.1 and Figure 1.2).

A waste management plan and report are required for the proposed development to support the design during demolition, construction and service conditions, along with achieving the objectives to promote sustainable operation of the development. The development achieves the waste management objectives set out in the council codes as well as any statutory requirements. The details which will be addressed include:

- a description of the site and details of the development proposal;
- reuse, recycling and disposal of materials during demolition, construction and service conditions;
- a review of the design features of the proposed waste management system for compliance with relevant codes, standards and regulations; and
- identification of procedures for on-going waste management.

Figure 1.1: Subject site (Source: SIX Maps)

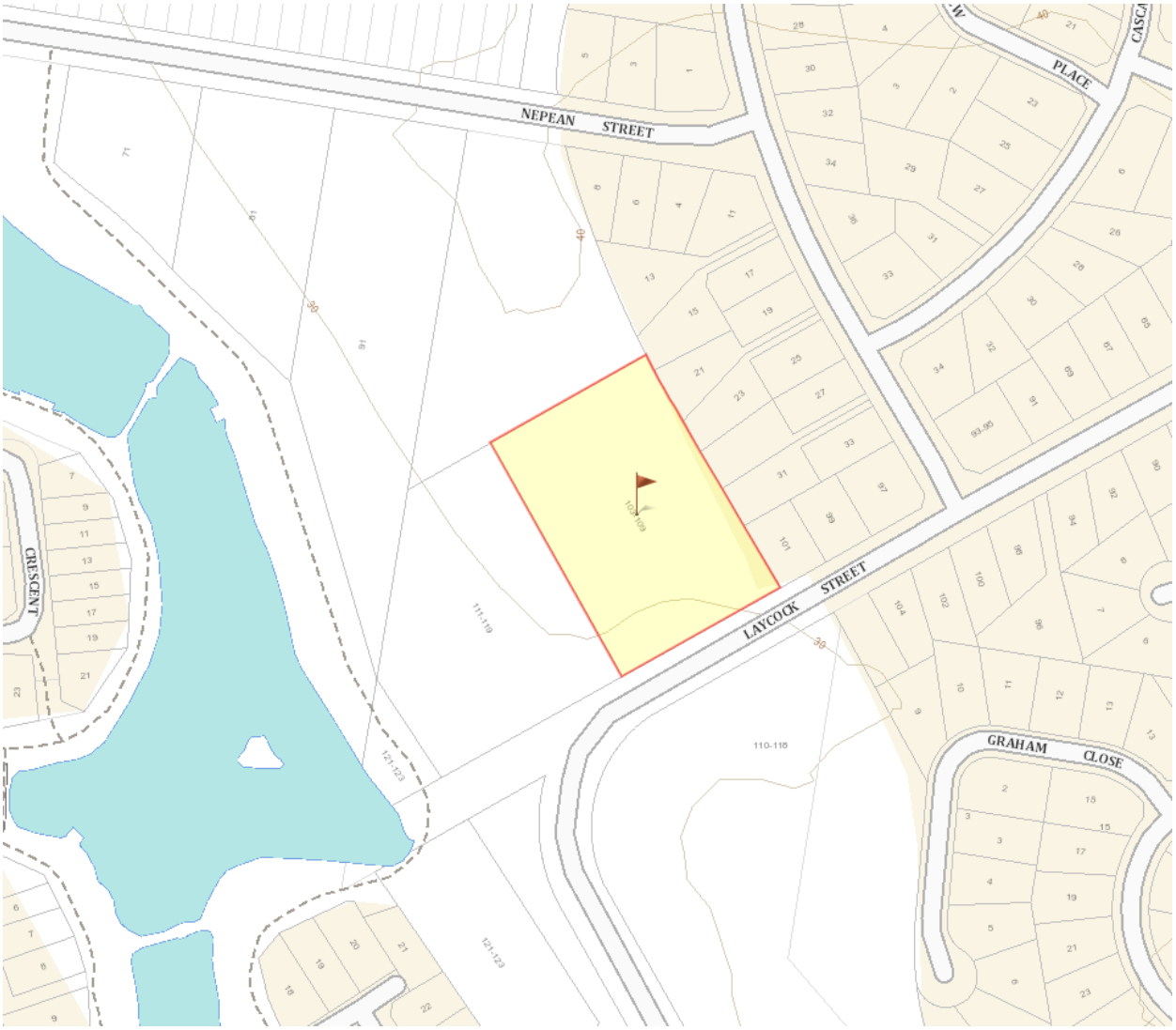

Figure 1.2: Site location (Source: SIX Maps)

2. Property Description

The proposed development will facilitate the construction of a seniors housing development within a site area of approximately 7974m^2.

The proposed development is bounded by:

- 101 Laycock St, 15, 21, 23, 29, 31 Camelot Dr on the East;
- 111-119 Laycock St on the West;
- 22 Nepean St on the North; and
- Laycock Street on the South.

3. Project Proposal

Waste storage and transportation will be managed during demolition and construction stages as well as in service conditions. Waste produced from the demolition and construction stages will be reused or recycled as appropriate, or disposed using certified waste collection contractors.

The management of waste during service conditions of the development will involve the strata maintaining Waste Storage and Recycling Area located on site, with the collection of general waste and recycling primarily involving the council. It is proposed that a total of **8 x 240L** garbage bins and **8 x 240L** recycling bins are provided. The strata will transfer all the bins to kerb side where they will be collected by council.

4. Demolition

Materials from the demolition stage shall be reused, recycled or disposed in accordance with the provisions outlined in this WMP and the requirements of the Protection of the Environment Operations (Waste) Regulation 2014.

Where possible, waste materials should be managed so most materials will be reused or recycled, with only a small proportion of waste going to landfill.

Prior to any demolition works, a suitably qualified inspector shall conduct inspection of asbestos construction materials (ACMs) on the existing structures to be demolished. The inspector shall certify to council in writing if the asbestos materials are less than $10m^2$. If more than $10m^2$, a licensed asbestos remover shall conduct the asbestos removal and tipping. In the latter case, the name, address and asbestos license number of the remover, as well as the name and address of the licensed landfill where all asbestos will be taken shall be informed to the council. All records covering All records covering the transport and tipping of any asbestos construction materials or any asbestos contaminated materials must be maintained on site for the inspection of a Council officer or other Principal Certifying Authority.

Asbestos-contaminated soils must be wetted down. All asbestos waste must be transported in a part of the vehicle that is covered and leak-proof; and disposed of at a landfill site that can lawfully receive it. The project manager will ensure a unique consignment number is created and report to EPA using WasteLocate if over 100 kilograms or 10 square meters of asbestos is being disposed of. No asbestos waste is disposed to general waste or recycle bin; or reuse, recycle or illegally dumped.

4.1 Managing Materials from Demolition

Table 1 below details the amount of material that is estimated to be produced from the demolition stage, as well as the planned reuse, recycling or disposal plans.

Table 1: Management of demolition materials

Materials on-site		**Reuse and recycling**		
Type of Material	**Estimated volume (m^3) or area (m^2) or weight (t)**	**On-site** How materials will be reused or recycled on-site	**Off-site** Contractor and recycling outlet **(or appointed by sub-contractor)**	**Disposal** Contractor and landfill site **(or appointed by sub-contractor)**
Timber	1.5 m^3	Reuse for formwork, landscaping, shoring	**Bingo Eastern Creek Recycling Ecology** 1 Kangaroo Ave, Eastern Creek 2766	**Cleanaway Erskine Park Landfill** 85 Quarry Rd, Erskine Park 2759
Concrete	2 m^3	N/A	**Bingo Eastern Creek Recycling Ecology** 1 Kangaroo Ave, Eastern Creek 2766	Nil to landfill
Bricks/Pavers	1 m^3	Clean & reuse for landscaping, bricks in good condition used for internal walls	**Bingo Eastern Creek Recycling Ecology** 1 Kangaroo Ave, Eastern Creek 2766	Nil to landfill
Roof tiles	1 m^3	Brake up and use as fill, aggregate	**Bingo Eastern Creek Recycling Ecology** 1 Kangaroo Ave, Eastern Creek 2766	Nil to landfill
Plasterboard	2 m^3	Break up and use in landscaping	**Bingo Eastern Creek Recycling Ecology** 1 Kangaroo Ave, Eastern Creek 2766	**Cleanaway Erskine Park Landfill** 85 Quarry Rd, Erskine Park 2759
Metals	0.5 m^3	N/A	**Bingo Eastern Creek Recycling Ecology** 1 Kangaroo Ave, Eastern Creek 2766	**Cleanaway Erskine Park Landfill** 85 Quarry Rd, Erskine Park 2759
Green waste	1 m^3	Separated, chipped and stored on site for reuse in landscaping	**Bingo Eastern Creek Recycling Ecology** 1 Kangaroo Ave, Eastern Creek 2766	**Cleanaway Erskine Park Landfill** 85 Quarry Rd, Erskine Park 2759

4.2 Site Operation and Management

The site operation will be managed to reduce waste creation and maximise reuse and recycling by setting waste management requirements in contracts with sub-contractors, on-going checks by supervisors on site and the use of clear signage at designated waste areas.

In addition, the project team leader will:

- Liaise with contractors to identify areas where they can reduce waste and reuse materials in their respective trades
- Meet local, state and federal waste minimisation legislation and environmental standards
- Prevent pollution and damage to the environment
- Protect the safety and health or our employees and the public

Waste will be separated and stored onsite for reuse and recycling through maintaining separate areas for sorted wastes with one area for recyclables and another area for waste going to landfill. Utilising selective deconstruction rather than straight demolition will ensure that good quality material can be reused or recycled.

5. Construction

Materials that are not used in the construction stage shall be reused, recycled or disposed in accordance with the provisions outlined in this WMP and the requirements of the Protection of the Environment Operations (Waste) Regulation 2014.

Where possible, waste materials should be managed so most materials will be reused or recycled, with only a small proportion of waste going to landfill.

5.1 Managing Waste Materials from Construction

Table 2 below details the amount of waste material that is estimated to be produced from the construction stage, as well as the planned reuse, recycling or disposal plans.

Table 2: Management of waste construction materials

Materials on-site		**Reuse and recycling**		
Type of Material	**Estimated volume (m^3) or area (m^2) or weight (t)**	**On-site** How materials will be reused or recycled on-site	**Off-site** Contractor and recycling outlet **(or appointed by sub-contractor)**	**Disposal** Contractor and landfill site **(or appointed by sub-contractor)**
Timber	5-7%	N/A	**Bingo Eastern Creek Recycling Ecology** 1 Kangaroo Ave, Eastern Creek 2766	**Cleanaway Erskine Park Landfill** 85 Quarry Rd, Erskine Park 2759
Concrete	3-5%	N/A	**Bingo Eastern Creek Recycling Ecology** 1 Kangaroo Ave, Eastern Creek 2766	Nil to landfill

Bricks/Pavers	5-10%	Clean & reuse for landscaping, bricks in good condition used for internal walls	**Bingo Eastern Creek Recycling Ecology** 1 Kangaroo Ave, Eastern Creek 2766	Nil to landfill
Plasterboard	5-20%	Break up and use in landscaping	**Bingo Eastern Creek Recycling Ecology** 1 Kangaroo Ave, Eastern Creek 2766	**Cleanaway Erskine Park Landfill** 85 Quarry Rd, Erskine Park 2759

5.2 Construction Design and Management

Waste avoidance has been incorporated into the design by incorporating as much detail as possible within the design, and using pre-fabricated materials to ensure a reduction in waste generated on-site. Materials purchased will be checked against previously known quantities required to build similar projects, and adjusted as construction progresses for this particular project. Reduction in waste can also be achieved through the reuse of building materials in good condition from the demolition phase.

6. Management of Waste

6.1 Design Requirements

6.1.1 Waste production and storage per unit

According to Penrith City Council Multi-Unit Dwellings Waste Management Guidelines, waste generate rate has been given as follow:

Weekly Waste Generation Volumes (L)	240L Bin Allocation
Residual	2 dwellings per bin
Recycling	2 dwellings per bin

The waste generated and required number of bins is shown in Table 3.

Table 3: Calculations for waste/recycling storage space required

Service type	Number of units	Number of containers
General waste	16	8 x 240L
Recycling		8 x 240L

6.1.2 Collection frequency and bins required

To service the generation of waste/recycling expected from the proposed development, the following number of bins and frequency of collection is outlined in the Table 4 below.

Table 4: Waste collection service requirements

Service type	Number of containers	Collection frequency
General waste	8 x 240L	Twice per week
Recycling	8 x 240L	Once per week

6.2 Design Detail

6.2.1 Overall waste and recycling storage and servicing within the complex

Waste service will be provided by council.

There are two separate bin storage areas, which are interim bin storage area in the middle and bin store area near the kerb. The interim bin storage area is for the occupants of Unit 5 to Unit 12. The maximum distance for these occupants to reach the interim bin storage area is approximately 50m. The interim bin storage area is approximately 15.1 m^2. The total required bin area for 8 x 240L is approximately 3.5 m^2. The other bin storage area near the kerb is approximately 17.8 m^2. The total required bin area for 8 x 240L is approximately 3.5 m^2. Therefore, waste storage area can accommodate all the required bins as shown in Figure 6.1 and Figure 6.2 below.

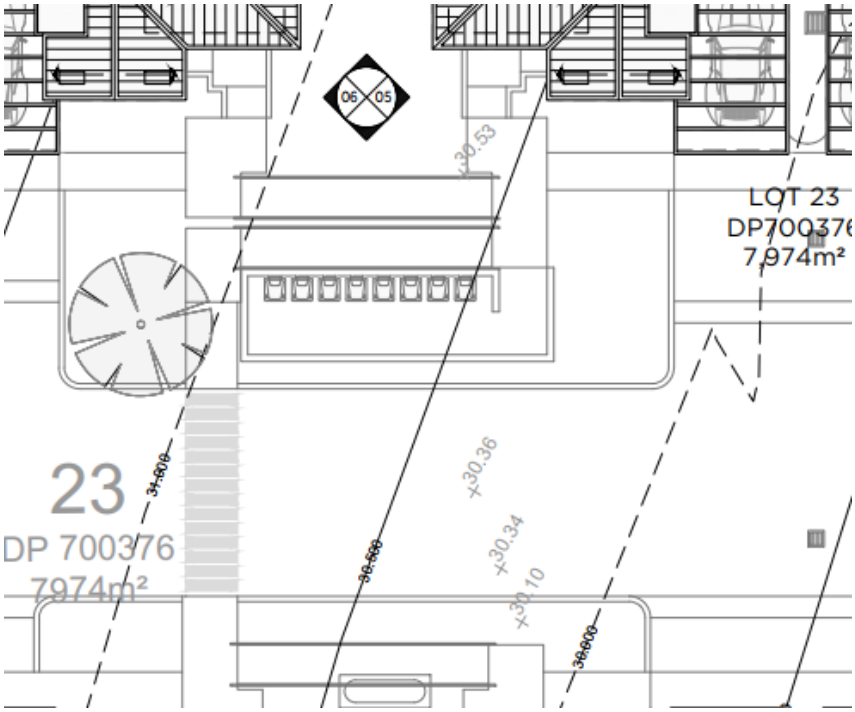

Figure 6.1 Interim bin storage area

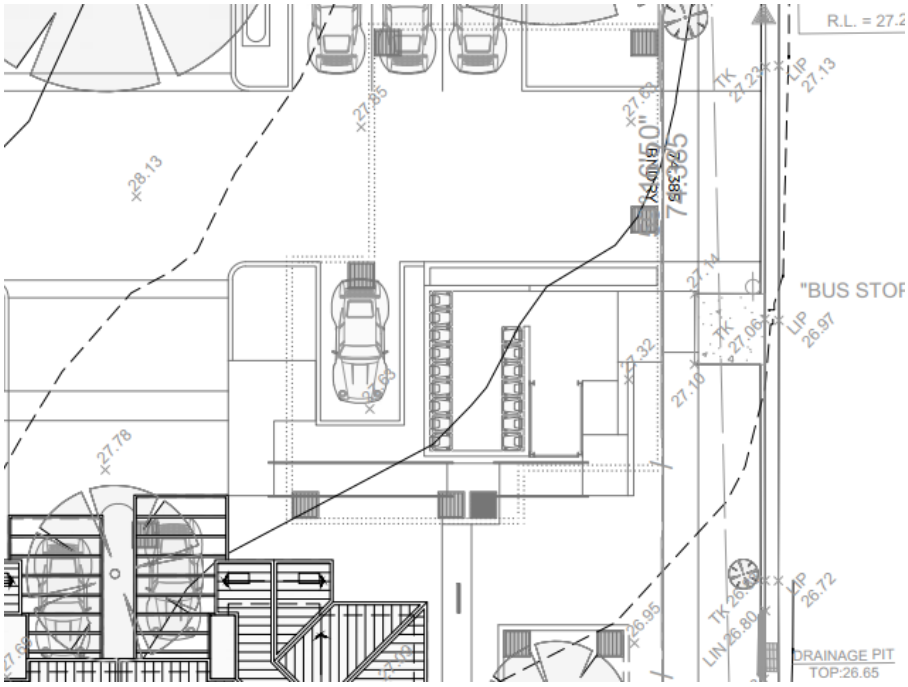

Figure 6.2 Bin storage area

This is complying with council's guideline as shown in below Figure 6.3.

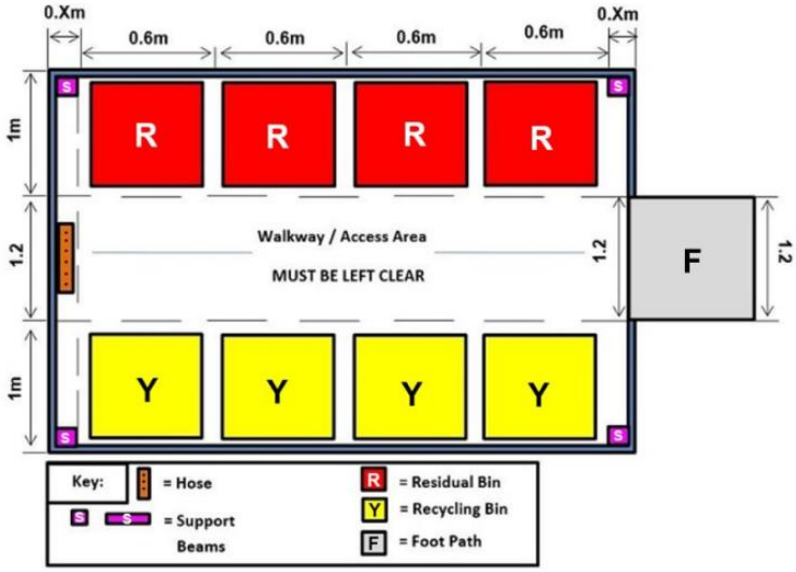

Figure 6.3 Model configuration of a double-sided communal waste collection area

The strata will manage the bin placement and bin transportation from the interim bin storage area to the bin storage area near the kerb. The distance for bin transportation of two storage areas is approximately 61m. The bin transportation path is shown in Figure 6.4 below.

The strata will take responsibility for transportation of mobile bins from the bin storage area to the kerbside for council collection of waste and recycling. The distance for bin transportation path is less than 10m. The maximum number of bins placed on the street frontage on the days when general waste & recycling is 16. The bin transportation path and bin collection point are shown in Figure 6.5 below.

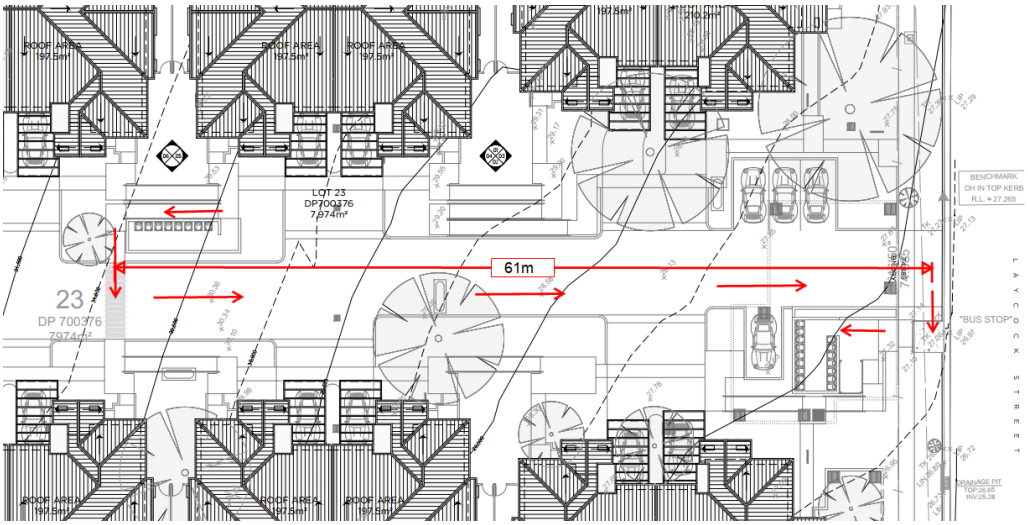

Figure 6.4 Bin transportation path

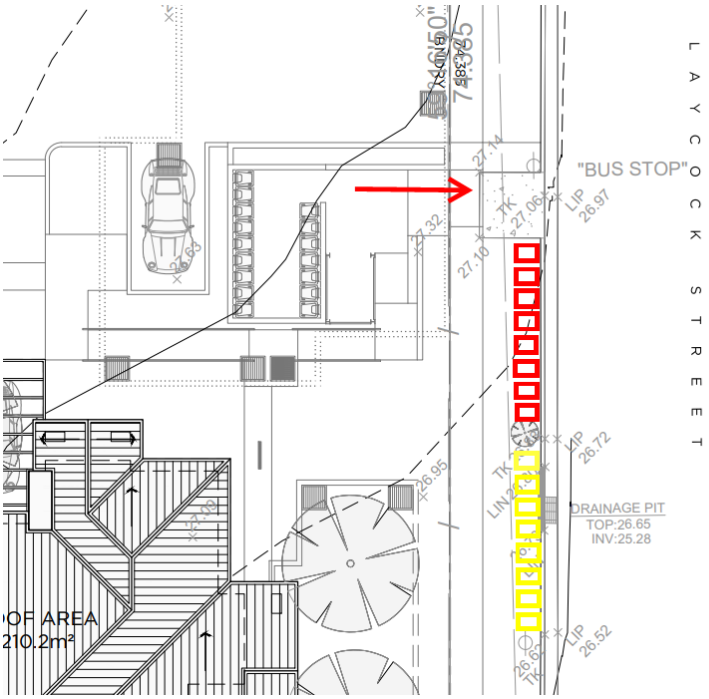

Figure 6.5 Bin transportation path and bin collection point

Bins shall be placed to minimise the impacts on traffic on the road and not block access to driveways and pedestrian footpaths.

6.2.2 Bulky waste

According to Penrith City Council Multi-Unit Dwellings Waste Management Guidelines, bulky waste storage area should be more than 2.5m^2. A minimum 1m front and side setback is required to permit adequate separation and facilitate the implementation of a landscape treatment. The bulky waste storage area of 6.5m^2 is provided as shown in Figure 6.4 below.

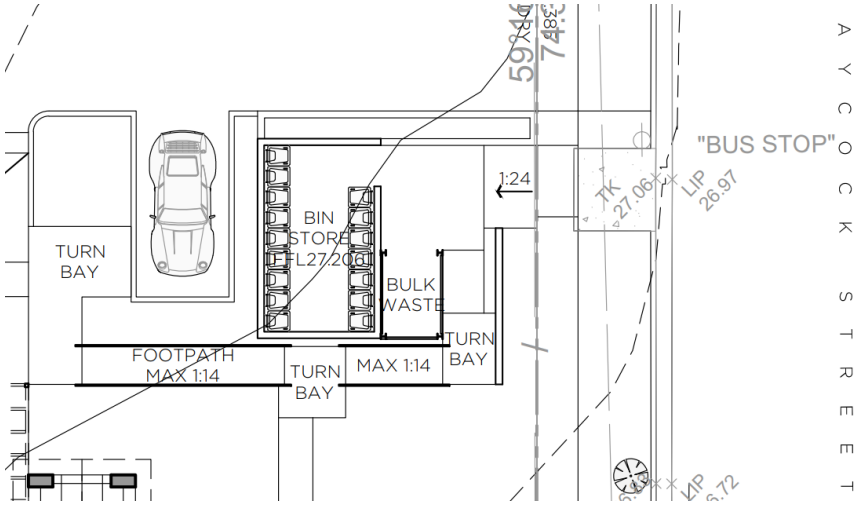

Figure 6.6 Bulky waste storage area

This is complying with council's guideline as shown in below Figure 6.5.

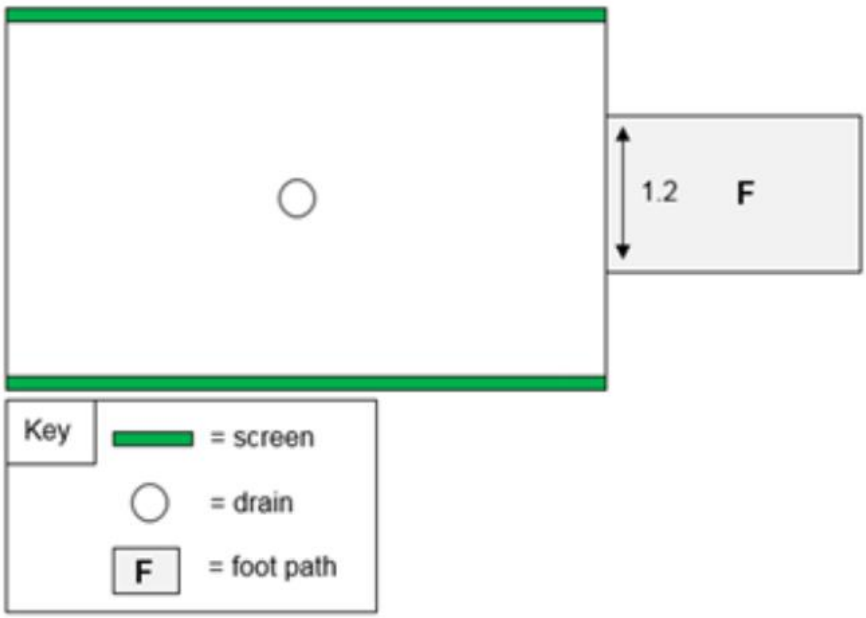

Figure 6.5 Model configuration of a bulky goods collection area

6.3 Further Design Requirements

Other design details that will be required as per Council and other relevant regulations are listed below:

- Waste water in waste storage areas discharge to sewer, with a cold water tap to facilitate cleaning of floor waste
- Waste storage is aesthetically pleasing and integrated with overall design
- Floors and walls are to be finished with a smooth, impervious and easily cleaned material
- Cavities and penetrations are to be sealed to prevent access to vermin
- Inclusion of signage to guide correct usage of facilities in compliance with AS1319
- Building management/caretaker will take responsibility for the provision of bin servicing and transport as well as maintaining waste areas
- Storage is of adequate size to store the required number of bins
- Amenities are easily accessible to residents, but not for non-residents to discourage illegal dumping
- Ventilation complying with AS1668, with ventilation openings located close to ceiling and floor and away from windows of dwellings
- All lighting and electrical components will be built to comply with standards and building regulations

6.4 On-going Waste Management

The on-going management of waste on-site will be stipulated with conditions set out in the conditions presented to occupants before they use the facility. The strata will transport the bins to and from the storage area for collection and clean the waste area at a regular interval of once a week.

The occupants must bag their waste before depositing into waste bins; however, recycling must not be bagged.

Signage and written information will be provided, so the occupants are aware of how to use and manage the waste and recycling services.

Appendix A – Signage used in waste storage areas

Appendix B –Indicative Bin Sizes

Bin Size and Type	Height (mm)	Length (mm)	Width (mm)
240L	1100	740	600

Table 1: Standard Bin Size and Dimensions

Figure 1: Image of typical 240L residual and recycling bins

Source: Penrith City Council Multi-Unit Dwellings Waste Management Guidelines