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Waste Management Plan for **67 Mars Rd, Lane Cove West, NSW**

Prepared by

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1. Introduction

Loka Consulting Engineers Pty Ltd has been engaged by Architex PTY LTD to provide a Waste Management Plan for the site at 67 Mars Rd Lane Cove West, NSW located within Lane Cove Municipal Council (refer to Figure 1.1 and Figure 1.2).

A waste management plan is 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;
- waste management during service conditions;
- a review of the design features of the existing 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 business centre development within a site area of approximately 9431m².

The existing development is bounded by

- No 1A, 3, 5, 7, 9-11 Chaplin Drive on the East;
- Sirius Rd on the West;
- Alto Hyundai Service Centre on the North;
- Mars Rd on the South.

3. Project Proposal

The proposed development will involve the construction of two storey and 3 basement level business centre development that consists a total of 19 units, 44 self-store units, 228 visitor parking spaces, 16 visitor disabled parking spaces, 16 truck parking bay, 18 loading bay, 16 motorcycle bay and 14 visitor bicycle racks.

Waste storage and transportation will be managed during the 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 business buildings will involve the manager or staffs of each units maintaining Waste Storage and Recycling Area located on site, with the collection of general waste and recycling primarily involving the services of private waste collection contractor. It is proposed that a total of **29 x 660L** garbage bin and **29 x 6600L** recycling bins are provided for proposed business centre.

4. Demolition and Excavation

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 10m². If more than 10m², 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	10 m ³	Reuse for formwork, landscaping, shoring	Bingo Artarmon Recycling Centre 10 McLachlan Ave, Artarmon 2064	Greenwood Landfill 447 Mona Vale Rd, St. Ives 2075
Concrete	10 m ³	N/A	Bingo Artarmon Recycling Centre 10 McLachlan Ave, Artarmon 2064	Nil to landfill
Bricks/Pavers	10 m ³	Clean & reuse for landscaping, bricks in good condition used for internal walls	Bingo Artarmon Recycling Centre 10 McLachlan Ave, Artarmon 2064	Nil to landfill
Roof tiles	3 m ³	Break up and use as fill, aggregate	Bingo Artarmon Recycling Centre 10 McLachlan Ave, Artarmon 2064	Nil to landfill
Plasterboard	5 m ³	Break up and use in landscaping	Bingo Artarmon Recycling Centre 10 McLachlan Ave, Artarmon 2064	Greenwood Landfill 447 Mona Vale Rd, St. Ives 2075
Metals	5 m ³	N/A	Bingo Artarmon Recycling Centre 10 McLachlan Ave, Artarmon 2064	Greenwood Landfill 447 Mona Vale Rd, St. Ives 2075
Green waste	3 m ³	Separated, chipped and stored on site for reuse in landscaping	Bingo Artarmon Recycling Centre 10 McLachlan Ave, Artarmon 2064	Greenwood Landfill 447 Mona Vale Rd, St. Ives 2075

4.2 Managing Materials from Excavation

Excavated materials from the Excavation 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.

Table 2: Management of Excavated materials

Materials on-site		Reuse and recycling		Disposal
Type of Material	Estimated volume (m ³)	On-site	Off-site Contractor and recycling outlet	Contractor and landfill site

	or area (m²) or weight (t)	How materials will be reused or recycled on-site	(or appointed by private contractor)	(or appointed by private contractor)
Excavated material	19,299.5m ³	Reuse for backfilling and landscaping	Bingo Artarmon Recycling Centre 10 McLachlan Ave, Artarmon 2064	Greenwood Landfill 447 Mona Vale Rd, St. Ives 2075

4.3 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 of 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 Artarmon Recycling Centre 10 McLachlan Ave, Artarmon 2064	Greenwood Landfill 447 Mona Vale Rd, St. Ives 2075
Concrete	5-10%	N/A	Bingo Artarmon Recycling Centre 10 McLachlan Ave, Artarmon 2064	Nil to landfill
Bricks/Pavers	10-20%	Clean & reuse for landscaping, bricks in good condition used for internal walls	Bingo Artarmon Recycling Centre 10 McLachlan Ave, Artarmon 2064	Nil to landfill
Plasterboard	5-20%	Break up and use in landscaping	Bingo Artarmon Recycling Centre 10 McLachlan Ave, Artarmon 2064	Greenwood Landfill 447 Mona Vale Rd, St. Ives 2075

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

Waste services will not be provided by council. The Lane Cove Municipal Council DCP do not have waste and recycling generation rates for business centre development.

Table 2 sets out the waste and recycling generation rates for business centre development from current standard NSW established by the Combined Sydney Region of Councils in the Model Development Control Plan and Local Approvals Policy (1996).

Table 2 Waste and Recycling Generation rates

Service type	Land Use	Generation rates
Waste	Business Centre	50 litres per 100m ² GFA per day
Recycling (may be separated into paper/ cardboard and metals/ plastics/ glass)		25 litres per 100m ² GFA per day

6.2.Design Detail

6.2.1. Overall waste and recycling storage and servicing within the complex

All individual units will be required to have a commercial waste services provided inside each unit to accommodate Waste and recycling generation rates in Table 2. All commercial waste services will be provided by a licensed private waste contractor.

For example, Unit 1 has a Gross floor area of 720m² expected a generation rate of 50 litres per 100 square metre of waste and 25 litres per 100 square metre of recycling materials per day (assuming the development operates six days per week and private contractor collect bins twice per week). We have: $(50/100) \times 720 \times 3 = 1080$ litres of Waste and $(25/100) \times 720 \times 3 = 540$ litres of Recycling materials. Unit 1 will require 2 x 660L Waste mobile bin and 2 x 660L Recycling mobile bin to be collected twice a week for general and once a week for recycling. Waste and recycle bins allocation for all other units are to be calculated similarly.

Table 6.1 summarises the required number of general waste and recycling bins:

Table 6.1 Number of Waste and Recycling Bins required

	Floor area (sqm)	Waste generation for twice a week collection (Litres)	Recycling generation for once-a-week collection	Number of 660L waste bin required	Number of 660L Recycling bin required
Unit 1	720	1080.0	1080.0	2	2
Unit 2	467	700.5	700.5	2	2
Unit 3	363	544.5	544.5	1	1
Unit 4	471	706.5	706.5	2	2
Unit 5	304	456.0	456.0	1	1
Unit 6	522	783.0	783.0	2	2
Unit 7	510	765.0	765.0	2	2
Unit 8	392	588.0	588.0	1	1
Unit 9	515	772.5	772.5	2	2

Unit 10	385	577.5	577.5	1	1
Unit 11	338	507.0	507.0	1	1
Unit 12	467	700.5	700.5	2	2
Unit 13	363	544.5	544.5	1	1
Unit 14	471	706.5	706.5	2	2
Unit 15	304	456.0	456.0	1	1
Unit 16	224	336.0	336.0	1	1
Unit 17	511	766.5	766.5	2	2
Unit 18	392	588.0	588.0	1	1
Unit 19	514	771.0	771.0	2	2
Total	8233			29	29

Table 6.2 summarises the collection frequency for required number of bins:

Table 6.2 Total number of required bins and their collection frequency

Type of waste	Total number of bins	Collection frequency
General waste	29 x 6600L	Twice a week
Recycling waste	29 x 6600L	Once a week

The garbage bins shall be collected in front of each unit twice a week by designated private contractor. Each unit manager/staff will take responsibility for the transportation of mobile bins to the front of the unit for the private contractor to allow for efficient collection of waste and recycling.

Waste service will be provided by a private waste contractor. The required number of bins are stored within the individual units (refer to figure 6.1 and 6.2 for more details).

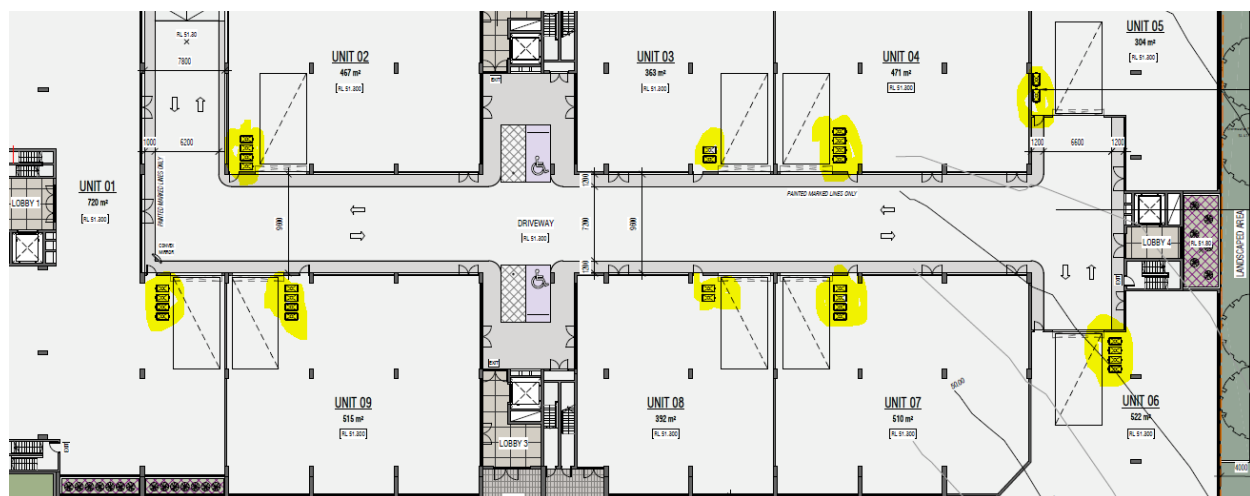


Figure 6.1: Location of bins for unit 1 to 9

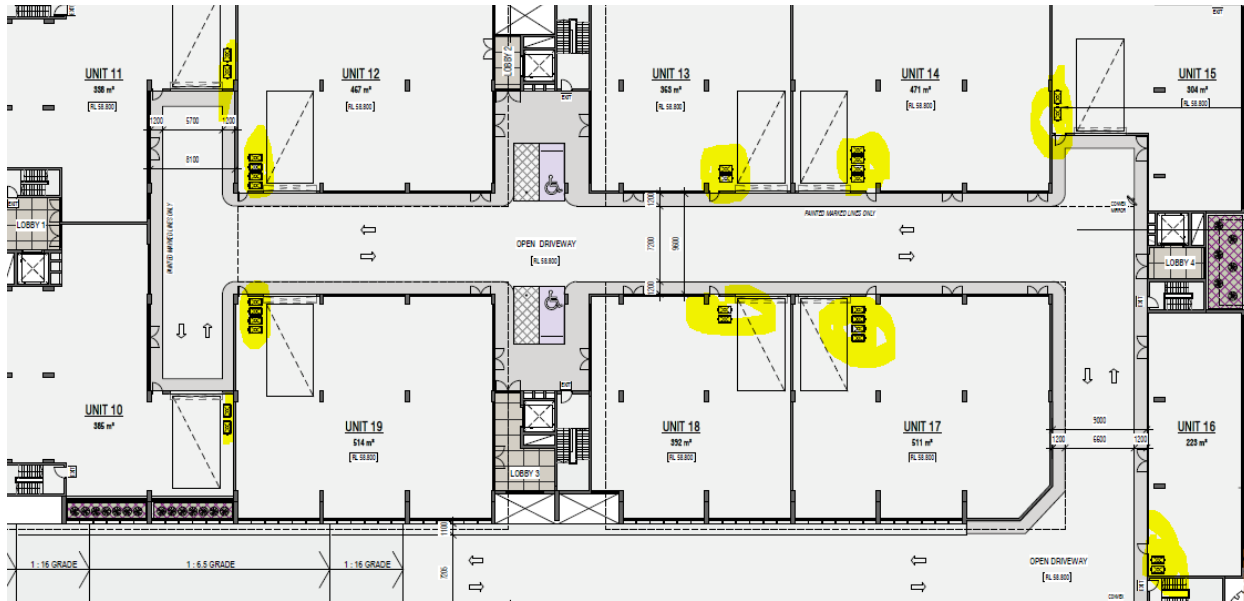


Figure 6.2: Location of bins for unit 10 to 19

The bins will be collected by the private waste contractor from the front of each unit by entering the building (refer to figures 6.3 & 6.4 and Appendix C swept path analysis for more details).

Bins shall be placed to allow sufficient manoeuvring while being collected by the private waste contractor.

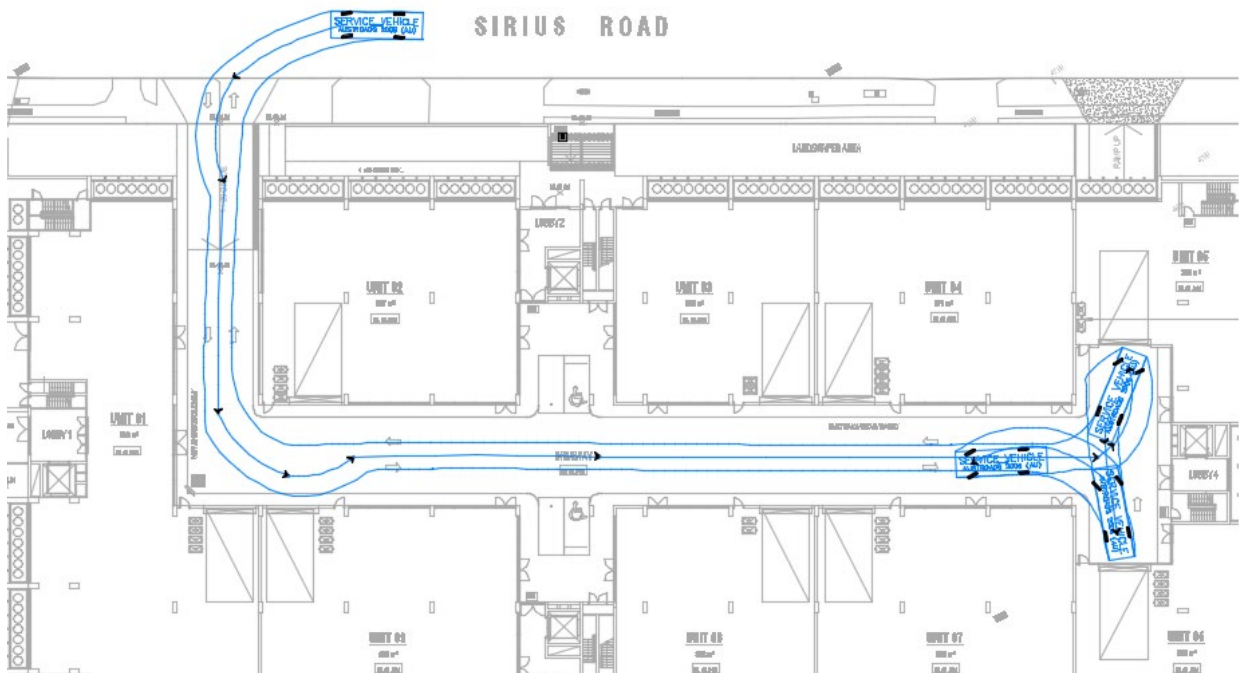


Figure 6.3: Waste vehicle transportation route for bins collection for units 1 to 9

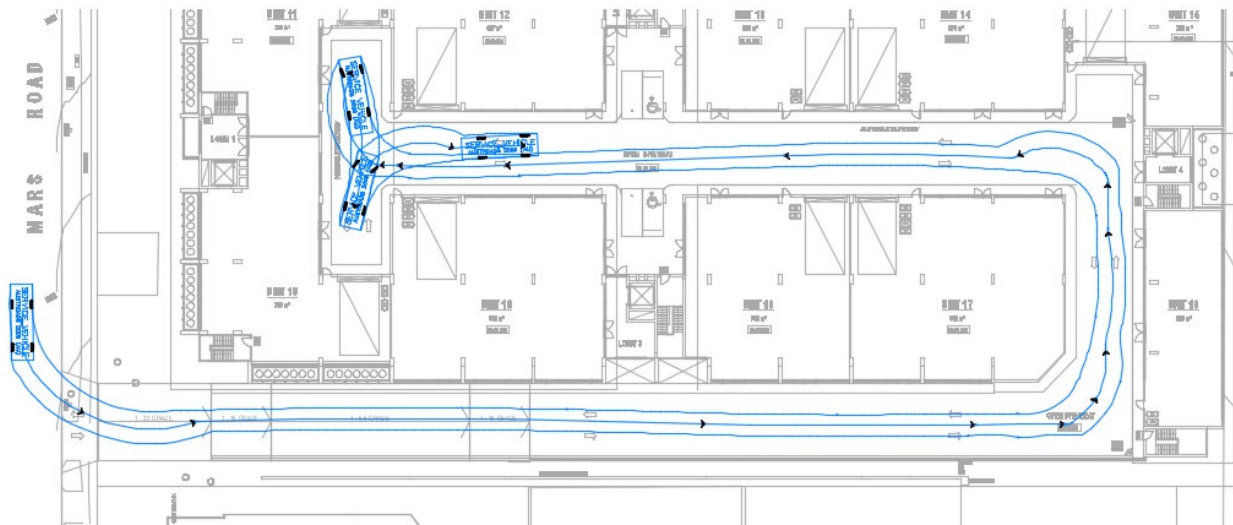


Figure 6.4: Waste vehicle transportation route for bins collection for unit 10 to 19

6.2.2. Green waste

Green waste shall be disposed by private green waste removalist contractor when required.

6.2.3. Bulky Waste

Bulk storage area will not be serviced as this component is considered negligible for this complex. Building management will provide services to cater for any bulk item waste accordingly.

6.3 Further Design Requirements

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

- Adequate access must be provided for the users, waste collection staff and collection vehicles. Where collection vehicles are required to drive into a property to collect waste and recycling:
 - i. The site must be designed to allow collection vehicles to enter and exit the property in a forward direction with minimal need for reversing and to be operated with adequate clearances; and
 - ii. The driveway and manoeuvring space are to be suitable for the collection vehicle in terms of pavement strength, spatial design, access width and clearances.
- Location and design should minimise adverse impacts associated with noise generated by collection vehicles accessing the site and odours emanating from the room.
- Containers used for recycling materials should be separate from other waste containers to minimise contamination.

6.4 On-going Waste Management

The on-going management of waste on-site will be stipulated with conditions set out as presented to the staffs of the proposed business centre before the occupancy. The staffs are expected to bag their waste materials and deposit into bins kept within the units; however, recycling materials must not be bagged. The manager or staffs of each unit will clean bins location area at a regular interval of once a week.

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


Appendix A – Signage used in waste storage areas



Source: Department of Environment & Climate Change NSW

Appendix B – Indicative Bin Sizes and Dimensions

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




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

Wheelie bin

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

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

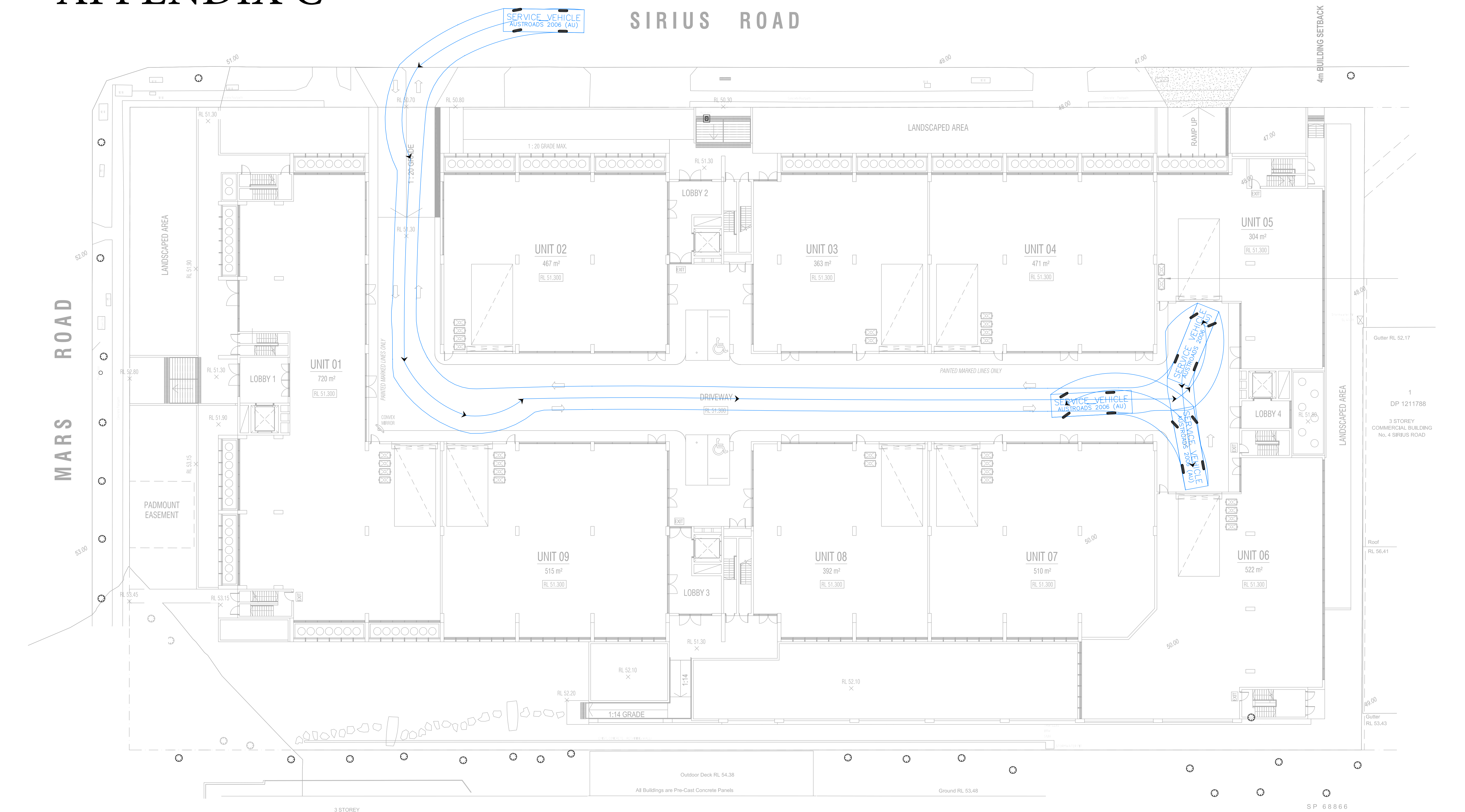


Bin capacity	660L	770L	1100L	1300L	1700L
Height (mm)	1250	1425	1470	1480	1470
Depth (mm)	850	1100	1245	1250	1250
Width (mm)	1370	1370	1370	1770	1770
Approx footprint (m ²)	0.86–1.16	1.51	1.33–1.74	2.21	2.21
Approx weight (kg)	45	Not known	65	Not known	Not known
Approx maximum load (kg)	310	Not known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

Dome or flat lid container

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

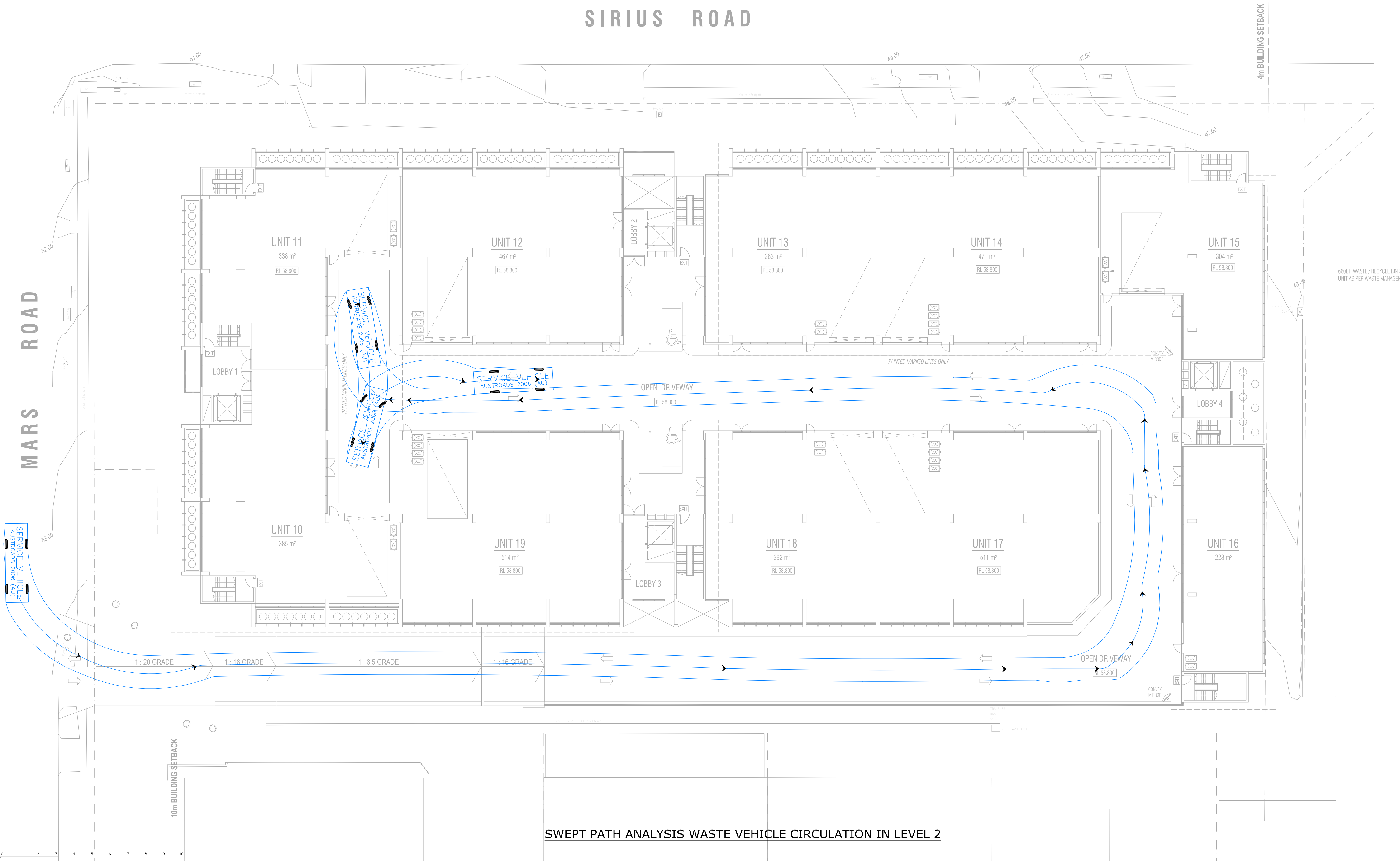
APPENDIX C



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SIRIUS ROAD

MARS ROAD



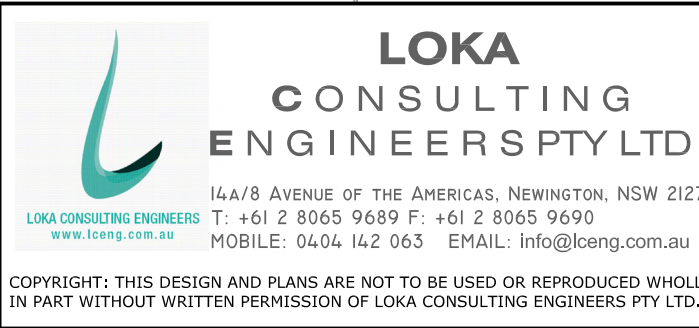
SWEPT PATH ANALYSIS WASTE VEHICLE CIRCULATION IN LEVEL 2

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AUTHORISED NERMEIN LOKA		DWG No W02	REV A