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Tower B, Sydney One, Alfred Street, Circular Quay, Sydney

Waste Management Plan

14 April 2016

Rev_2

Wanda Group

14 April 2016

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Glossary of terms and acronyms

Cart	Wheeled, open top bin often used for bulky items such as cardboard
Chute	In multi-storey buildings, a 'chute' is literally a shaft built into the construction that allows waste and/or recyclable material to be easily transported to the ground floor level from upper levels.
Commingled recycling	Common recyclables, mostly packaging; such as glass, plastics, aluminium, steel, liquid paper board (milk cartons). Commingled recycling may include paper but often, and particularly in offices, paper and cardboard are collected separately.
Compactor	In commercial buildings, industrial compactors are used to literally 'compact' or compress the waste material into a smaller volume to allow for optimal use of space.
General Waste	Material that is intended for disposal to landfill (or in some States, incineration), normally what remains after the recyclables have been collected separately.
MGB	Mobile Garbage Bin – A wheeled bin with a lid often used for kerbside collection of waste or recyclables. (Often called a 'wheelie bin').
MRB	Mobile Recycling Bin – A wheeled bin ("wheelie" bin) with a lid often used for kerbside collection of recyclables (similar to an MGB). Generally have a different colour body and/or lid to MGBs.
Organic waste	Separated food and/or 'green' material (e.g. grass clippings or vegetation prunings).
Recyclable	Material that can be collected separately from the general waste and sent for recycling. The precise definition will vary, depending upon location (i.e. systems exist for the recycling of some materials in some areas and not in others).
Recycling	Where a material or product undergoes a form of processing to produce a feedstock suitable for the manufacture of new products.
Reuse	The transfer of a product to another user, with no major dismantling or processing required. The term "reuse" can also be applied in circumstances where an otherwise disposable item is replaced by a more durable item hence avoiding the creation of waste (e.g. using a ceramic coffee mug in place of disposable cups).

1 Introduction

This Waste Management Plan (WMP) has been prepared for Crone Partners on behalf of their client Wanda Group for the Stage 1 Development Application for the proposed Hotel development at Tower B, Sydney One, Alfred Street, Circular Quay, Sydney.

The proposed development will consist of 190 hotel rooms, and other facilities including restaurants, bars, function space, retail and leisure facilities.

This WMP also includes the residential and commercial bin stores for Tower A which are located within the shared basement of both towers.

This WMP has been prepared based on the following information:

- Architectural plans provided by Crone Partners Architects (24 March 2016)
- Liaison with City of Sydney regarding Council waste management requirements
- The Council of City of Sydney Policy for Waste Minimisation in New Developments, 2005
- Green Star Multi Residential tool credit requirements for Tower A.

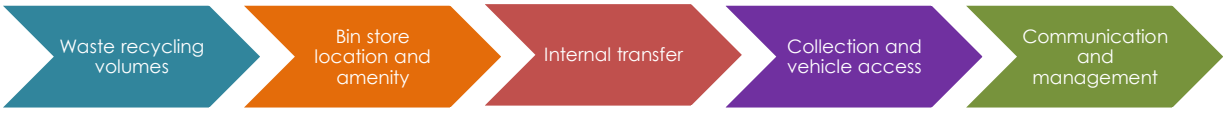
1.1 Context

For efficient and effective waste management, the collection and centralisation of waste and recyclables should be carefully considered at the building design phase. Key factors to consider at the design phase include:

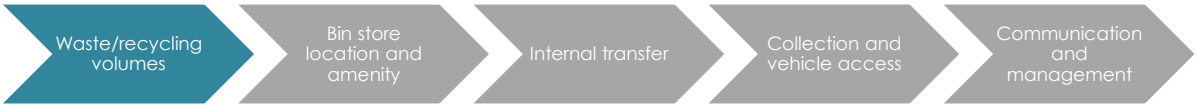
- The volumes of waste and recyclables likely to be generated during building operation
- Size of bin storage area
- Safety for all operatives involved in waste management
- Access to bins and storage areas from within the building
- Access for trucks for waste collection
- Local council requirements
- Amenity (odours and noise)
- The ongoing management of waste and recycling services

1.2 Key components of the WMP

This WMP consists of five core components. The following report will present detailed information on each of the following components.



2 Estimated waste and recycling volumes



2.1 Local government minimum requirements for waste volumes and bin type

The City of Sydney has a policy for waste and recycling management for new developments which include waste and recycling generation rates which has been used to calculate the waste generation for Towers A and B. Encycle's experience and knowledge of the use of the development is also used to calculate the breakdown of recyclable material streams generated from the development.

2.2 Number and type of bins required for development

The basement 1 level of this building will accommodate three bin stores:

1. Residential waste and recycling Tower A east and west core
2. Tower A food & beverage tenancy waste and recycling
3. Hotel Tower B waste and recycling

2.2.1 Residential and commercial (Tower A)

The number of bins required for the residential apartments of Tower A and their collection frequency are shown in tables 1 & 2.

Table 1: Number of bins to be stored in the residential bin store (west core)

68 residential apartments	Bin size (L)	Number of bins	Collection frequency
General waste (compacted)	660	2 (plus 1 spare)	Three times per week
Commingled recycling	1100	3 (plus 1 spare)	Weekly
Bulk cardboard	1100	1	As required
Bulk general waste	1100	1	As required
Charity bin	1100	1	As required

Table 2: Number of bins to be stored in the residential bin store (east core)

101 standard residential apartments plus 21 penthouses	Bin size (L)	Number of bins	Collection frequency
General waste (compacted)	660	5 (plus 1 spare)	Three times per week
Commingled recycling	1100	6 (plus 1 spare)	Weekly
Bulk cardboard	1100	1	As required
Bulk general waste	1100	1	As required
Charity bin	1100	1	As required

The number of bins to be stored in Tower A food and beverage bin store are set out in table 3.

Table 3: Number of bins to be stored in the food and beverage bin store (473 m² total NLA)

	Bin size (L)	Number of bins	Collection frequency
General waste	660	5	Daily
Commingled recycling	660	1	Daily
Cardboard	660	1	Daily
Glass	240	3	Daily
Polystyrene	660	1	As required
Soft plastic	240	1	As required
Cooking oil	800	1	Twice weekly
Food waste	120	6	Daily

2.2.2 Hotel (Tower B)

The bin numbers for the Tower B hotel are shown in table 4.

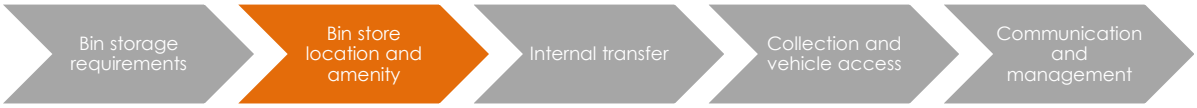
Table 4: Number of bins to be store in the Hotel Tower B bin store.

	Bin size (L)	Number of bins	Collection frequency
General waste (excluding food waste)	660	22	Daily
Commingled recycling	1100	2	Daily
Paper	240	1	Weekly
Cardboard	1100	3	Daily
Glass	240	22	Daily
Soft plastic	660	1	As required
Used cooking oil	800 L unit	1	As required
Polystyrene	660	1	As required
Food waste	120	28	Daily

2.3 Chute system (Tower A)

Two dual chute systems will be installed in the east and west cores of the residential tower A. The dual chute system is a set of two chutes: one for general waste and one for commingled recyclables. The chutes will terminate at the residential bin stores on basement level 1 and will discharge waste (compacted) and recycling (uncompacted) into bins on sets of two rotating carousels. General waste will be compacted prior to being deposited into the bins. The compaction ratio is approximately 2:1.

3 Bin stores



3.1 Bin store location

The building will have three bin stores to allow for the separate storage and collection of:

1. Residential waste and recycling Tower A east and west core
2. Tower A food & beverage tenancy waste and recycling
3. Hotel Tower B waste and recycling

All bin stores will be located on basement level 1(refer Figure 1). The residential bin store will accomodate the two bin carousels connected to the waste and recycling chutes. The general waste chute/carousel system will include a compaction system.

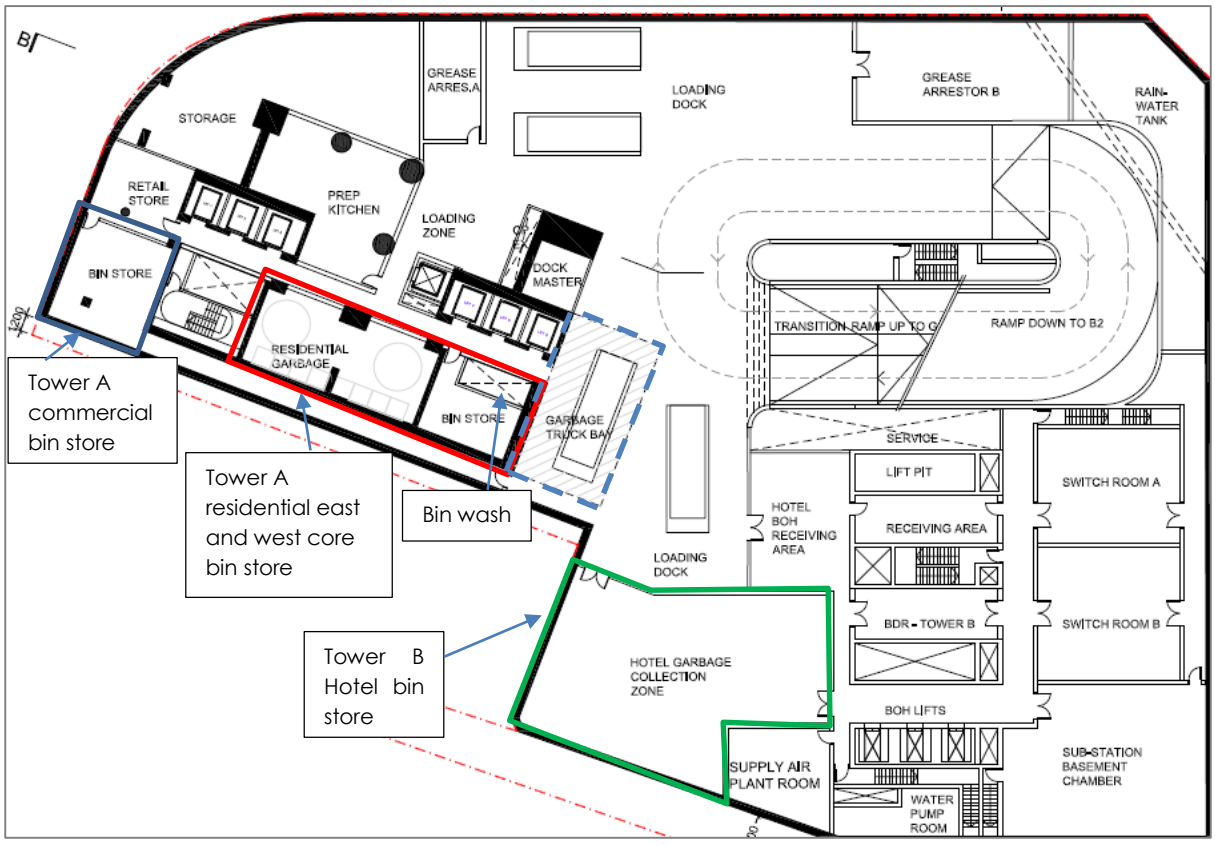
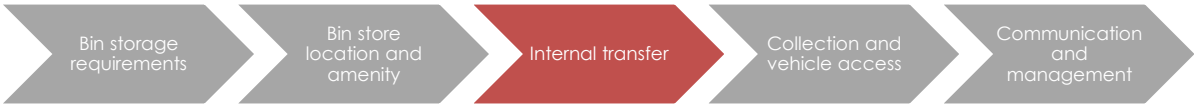


Figure 1: Basement level 1 floor plan showing the three bin stores

3.2 Bin store amenity

Bin Transfer	
Isle door and lift width:	All doors, corridors and lifts on the transfer route are designed for the largest bin to fit through.
General health and safety:	Waste systems are designed to ensure that bins (particularly when full) are not required to be moved over any significant distances, up/down steep ramps (grade of slope <1:14) and definitely avoid stairs or other potential hazards.
	Manual handling of waste in garbage bags is excluded from the waste management systems where possible.
Bin store	
Washing bins and waste storage area:	Impermeable floors grading to an industrial floor waste (including a charged 'water-trap' connected to sewer or an approved septic system), with a hose cock to enable bins and /or the enclosure to be washed out. 100 mm floor waste gully to waste outlet. Both hot and cold water will be available.
Bin store walls and ceilings:	All internal walls in bin stores will be cement rendered (solid and impervious) to enable easy cleaning. Ceilings will be finished with a smooth faced, non-absorbent material capable of being easily cleaned. Walls and ceilings will be finished or painted in a light colour.
Ventilation and odour:	The design of bin store/s will provide for adequate separate ventilation with a system that complies with Australian Standard 1668 (AS1668). The ventilation outlet is not in the vicinity of windows or intake vents associated with other ventilation systems.
Doors:	Ventilated roller doors will be specified both internally and externally to enable bins to be easily wheeled into and out of the bin stores.
Vermin:	Self-closing doors to the bin store/s will be installed to eliminate access by vermin
Lighting:	Bin store/s will be provided with artificial lighting, sensor or switch controlled both internal/external to the room.
Noise:	Noise is to be minimised to prevent disruption to occupants or neighbours.
Fully Enclosed:	The bin store/s will be fully enclosed and only be accessible by residents, tenancy staff and the waste service provider.
Aesthetics:	The bin store/s will consistent with the overall aesthetics of the development.
Signage:	Visual aids and signage will be provided to ensure that the area works as intended.

4 Internal transfer



4.1 Transfer of waste from apartments (Tower A)

Residents will be responsible for segregating and storing waste and recyclables separately within their apartment.

Residents will be responsible for disposing of waste and recycling down the correct chute by using the chute hatches on each level. Items not suitable for disposing down the chutes, such as cardboard boxes, bulky waste items and clothing/bedding are to be taken down the lifts to the residential bin store and placed in the correct bin.

A charity bin is provided for unwanted clothing and bedding items and is stored in the residential bin store. With the transient nature of people in large multi-unit developments there is a tendency to throw away items of this nature when relocating.

A bulk bin is provided for cardboard boxes that are generated from deliveries and residents who are moving in or purchasing large goods.

A bulk general waste bin is provided for bulky general waste such as umbrellas, mops and other bulk items not suitable for disposing down the chute.

Composting facilities will be available for residents use.

The communication of the chute system and bulk bins will be incorporated into the ongoing communicate to residents as part of the education for the successful performance of a chute system for the apartments.

4.2 Transfer of waste from food and beverage tenancies (Tower A)

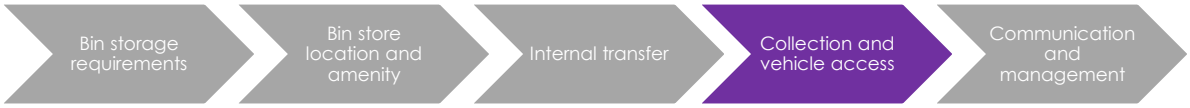
Staff from the food and beverage tenancies will manually transfer waste and recyclables via the goods lifts to the basement bin store in wheeled bins or trolleys.

4.3 Transfer of waste from Hotel (Tower B)

In the hotel, waste and recyclables will be generated from: guest bedrooms (collected by housekeeping), restaurant, bar and leisure areas.

Staff from the hotel will manually transfer waste and recyclables via the back of house corridors and goods lifts throughout the hotel to the basement bin store using wheeled bins and trolleys. Hotel housekeepers will transfer bins from each hotel floor to the bin store using 240 L bins.

5 Collection and vehicle access



The City of Sydney will service the residential general waste and recycling bins for Tower A, while private service providers will undertake the commercial waste and recycling collections for both Towers A & B.

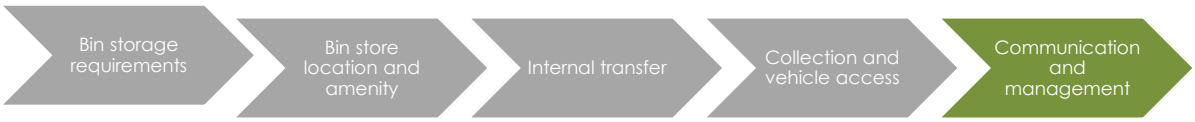
On collection days rear-lift vehicles for general waste and recycling will enter the building via Pitt Street at ground level and drive down the ramp to basement 1. The vehicles will drive in a forwards motion and park adjacent to the bin stores. With assistance by the caretaker, the operatives will enter the bin stores to retrieve and service the bins.

Access to the grease trap will be from Pitt Street at ground level and drive down the ramp to basement 1.

Sufficient height clearance is provided to accommodate a range of waste and recycling vehicles.

Swept path analysis for vehicle ingress and egress has been completed by taking into consideration the specifications of the City of Sydney waste collection vehicles (see Appendix A).

6 Ongoing communication and management



6.1 Management

The building management teams for Towers A & B will be responsible for overseeing the waste management systems. The staff will be trained and informed about their responsibility to work closely with the private service provider and City of Sydney regarding the schedule for collection and presentation of bins. The staff member will be responsible for maintaining the bin store in a clean and tidy condition at all times and ensuring bins are washed regularly.

The caretaker for Tower A residential bin stores will be responsible for rotating full bins at the base of each chute with empty bins.

6.2 Communication

All residents and commercial tenants in Tower A, and the hotel management/staff for Tower B will be made aware through a body corporate document (or equivalent) of the waste and recycling systems and how they should be used. An operational Waste Management Plan suitable for presenting to building users, including how the plan should be communicated will be developed and implemented during both the initial occupation and ongoing management of the building.

Building management will be responsible for the continuing education of residents on correct segregation of waste and recyclables and usage of the chutes to ensure successful performance of the dual chute system within the residential component of the building.

Communication to residents about correct use of the chute system will be ongoing, using formats such as good signage at the chute hatches, newsletters, noticeboards, social media, etc.

Appendix A: Swept path analysis

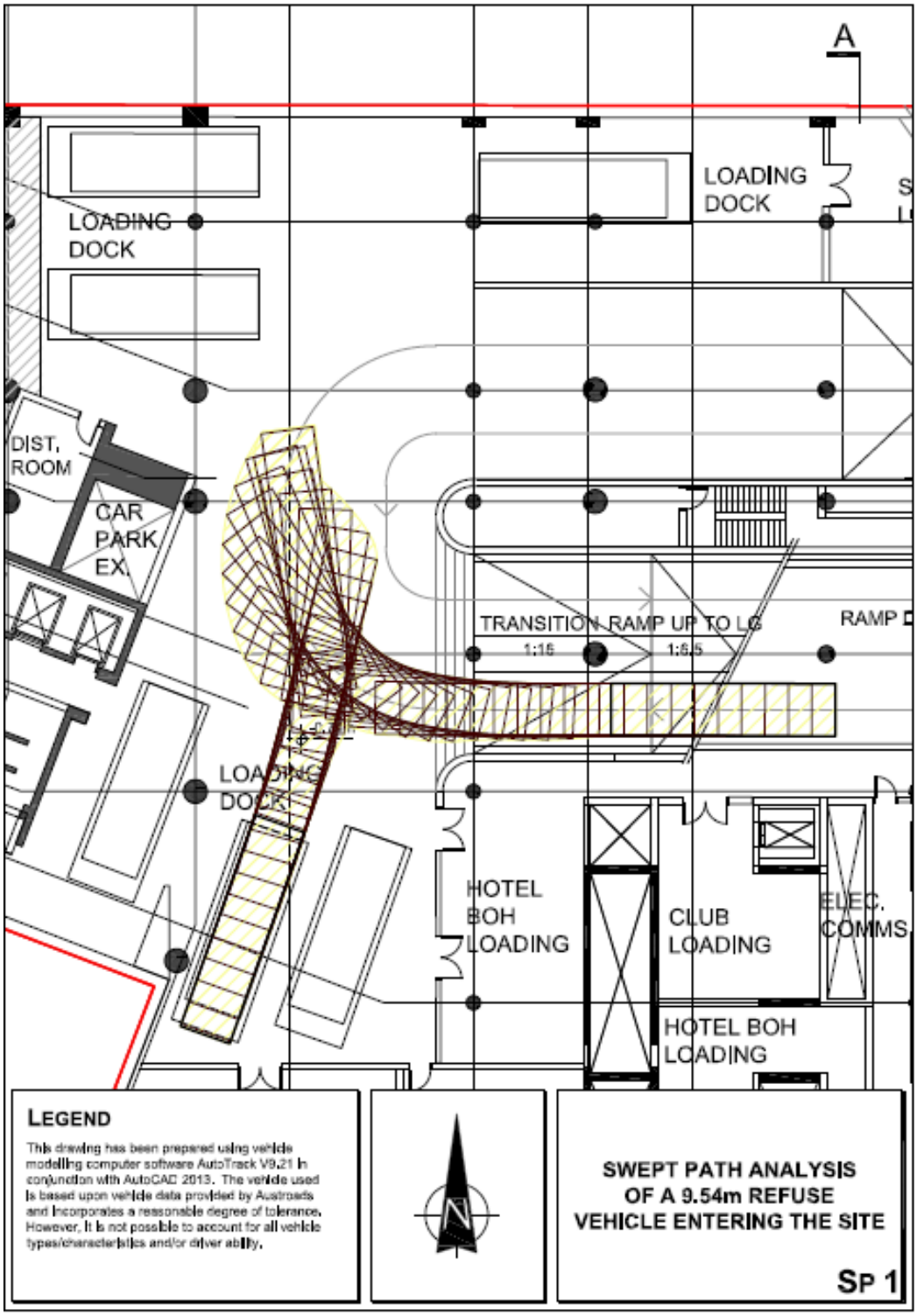


Figure 2: Swept path analysis showing Ingress for waste and recycling collection vehicle at hotel loading dock

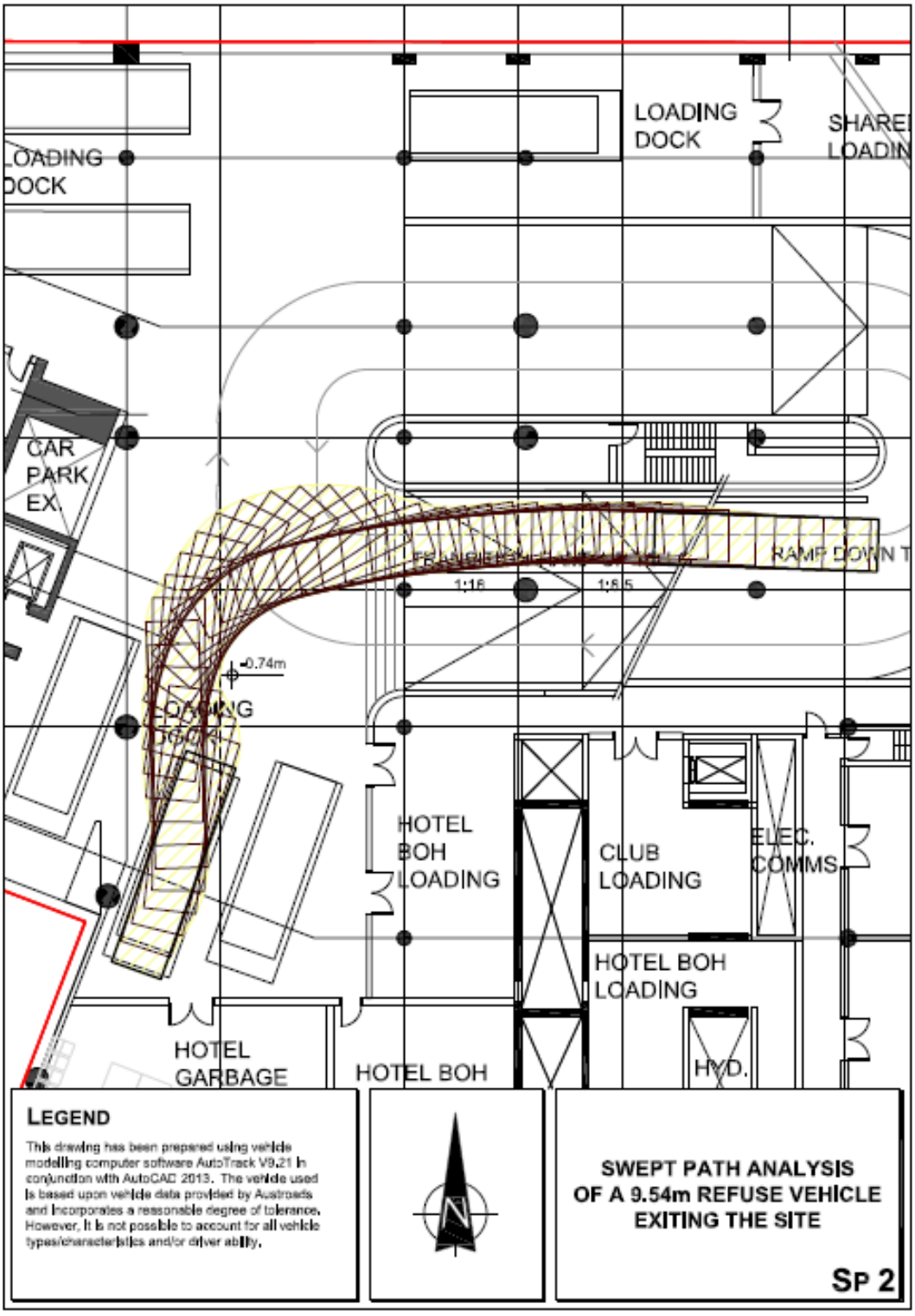


Figure 3: Swept path analysis showing egress for waste and recycling collection vehicle at hotel loading dock

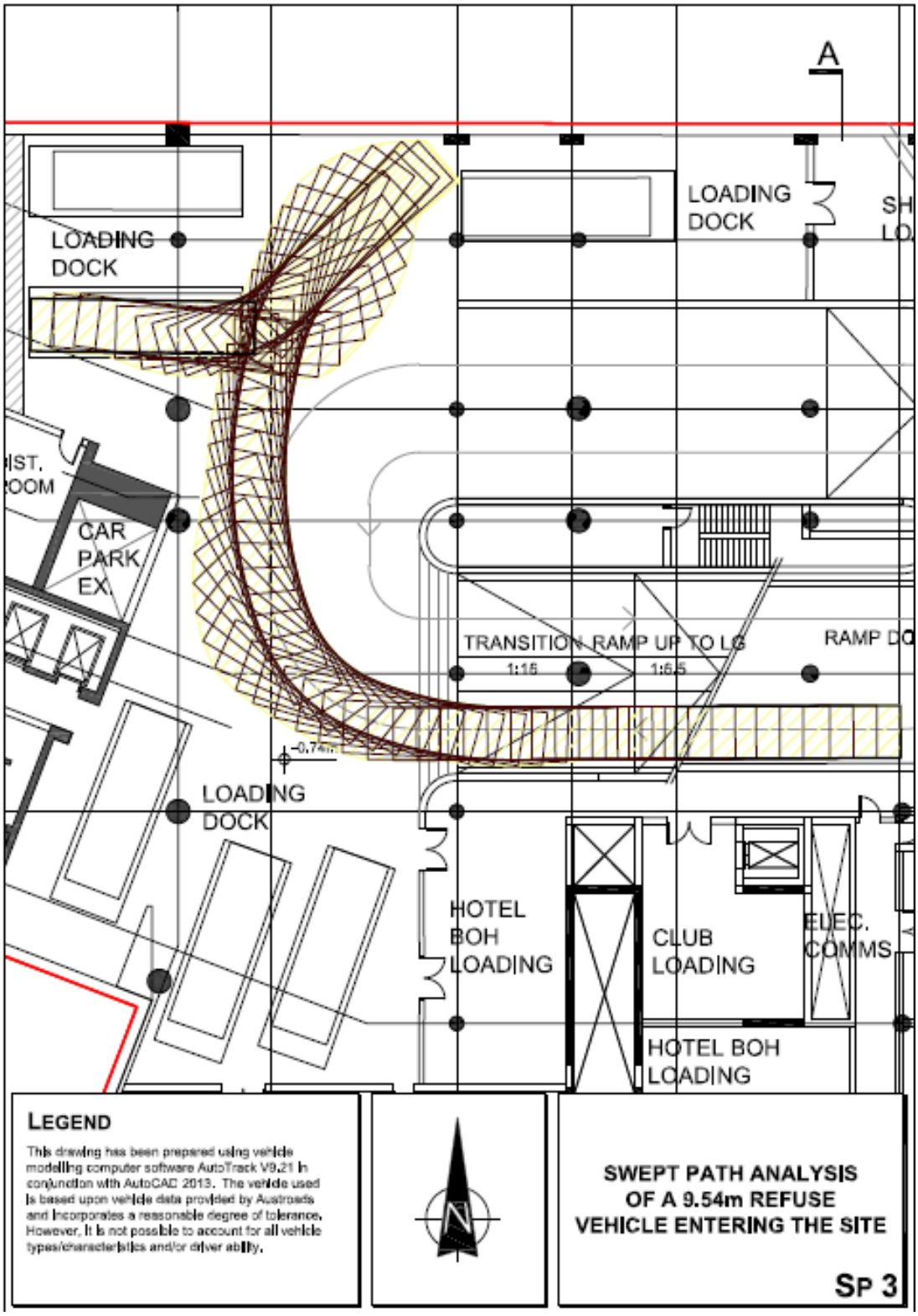


Figure 4: Swept path analysis showing Ingress for waste and recycling collection vehicle at residential and commercial loading dock

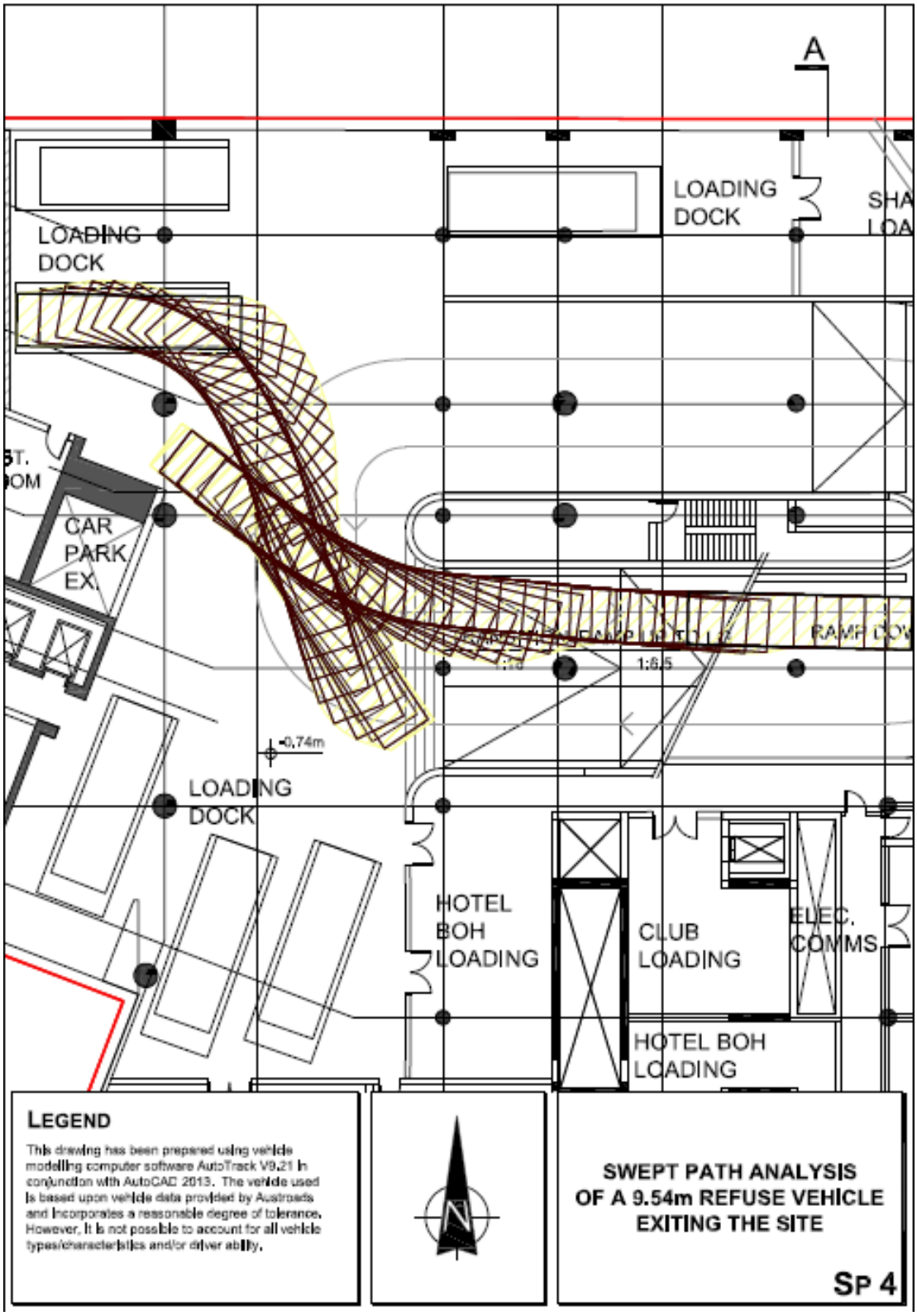


Figure 5: Swept path analysis showing egress for waste and recycling collection vehicle at residential and commercial loading dock