

Crows Nest Over Station Development (Site A)

Detailed SSDA – Vertical Transportation Report
Reference: SSD-75660711

Prepared for: Thirdi Group

Project No: SYD3163
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Revision: 1



Project: Crows Nest Over Station Development (Site A)

Location: Crows Nest Road
Waverton NSW 2060

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Project No: SYD3163

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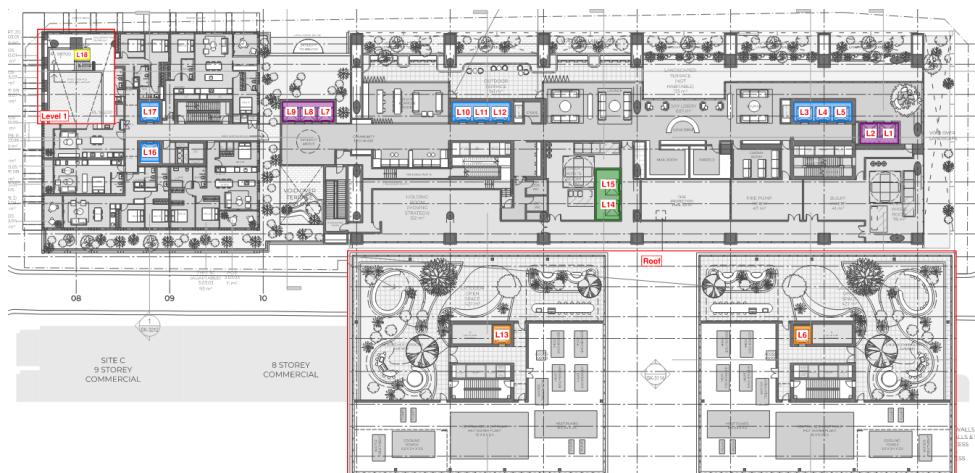
1. Introduction

The following is an overview of the vertical transportation services and applicable standards associated with the project.

1.1 Vertical Transportation Overview

The Vertical Transportation Services base building design totals **Eighteen (18)** lifts comprising of:

- **Podium**
 - > Two (2) Tower 1 Shuttle lifts providing access to residents from Ground Level Entrance to Sky Lobby on Level 3
 - > Three (3) Tower 2/Gym Shuttle lifts providing access to public from Ground Level Entrance to Pool, Gym levels and Sky Lobby for Tower 2 residents
 - > Two (2) Podium Goods lifts providing access from the Shared Loading Zone up to Sky Lobby on Level 3
 - > One (1) DDA Platform lift on Gym level for Pool access
- **Tower 1**
 - > Three (3) Tower 1 Residential lifts providing access to residents from Sky Lobby up to Apartment levels
 - > One (1) Tower 1 Rooftop lift providing access from Level 25 up to Rooftop Level
- **Tower 2**
 - > Three (3) Tower 2 Residential lifts providing access to residents from Sky Lobby up to Apartment levels
 - > One (1) Tower 2 Rooftop lift providing access from Level 25 up to Rooftop Level
- **Tower 3**
 - > Two (2) Tower 3 Residential lifts providing access to residents from Ground Level Lobby up to the Apartment levels



Refer to Appendix A for full Lift Locality Plan

The intent of the Vertical Transportation services is to:

- > Provide **accessibility** to persons with limited mobility
- > Provide an acceptable **quality of service (QoS)** in line with the building profile
- > Comply with the relevant **lift codes and standards**
- > Provide a **redundancy of service** for persons with limited mobility
- > Suit a range of **services and goods movements** in line with the building operation requirements
- > Minimise **capital costs** whilst maintaining acceptable running costs

2. Design Criteria

2.1 Codes & Standards

The Vertical Transportation Services will be specified to comply with the following Standards and Codes:

- > NCC 2022 – Building Code of Australia
- > AS1735.1.1:2022 – Lifts, Escalators and Moving Walks - General Requirements
- > AS1735.1.2:2021 / EN81-20:2020 – Safety Rules for the Construction and Installation of Lifts – Passenger and Goods Passenger Lifts
- > AS1735.1.3:2021 / EN81-50:2020 – Safety Rules for the Construction and Installation of Lifts – Examinations & Tests
- > AS1735.11:1986 – Fire Rated Landing Doors
- > AS1735.12:1999 – Facilities for Persons with Disabilities
- > AS1735.19:2019 – Remote Alarms on Passenger and Goods Passenger Lifts
- > AS3000:2018 – Electrical Installations (Australian/New Zealand Wiring Rules)
- > Disability Discrimination Act 1992
- > ISO 8100-32:2020 – Simulation Method for ‘Standard’ residential type buildings

2.2 Code Requirements for Lift Sizing

- > As per NCC Section E3D8, minimum floor dimensions of **1100mm W x 1400mm D** must be provided for all lifts which **travel not more than 12m** except a stairway platform lift.
- > As per NCC Section E3D8, minimum floor dimensions of **1400mm W x 1600mm D** must be provided for all lifts which **travel more than 12m**.
- > As per NCC Section E3D3, where lifts are installed to serve any level **above an effective height of 12m**, at least one lift must be provided with **stretcher facilitation**.
 - **Stretcher facilitation** means that a raised stretcher with a patient lying on it horizontally must be accommodated by providing a clear space of no less than **600mm W x 2000mm D x 1400mm H**.

2.3 Code Requirements for Emergency Lifts

Where a building has an effective height greater than 25m, NCC Section E3D5 requires emergency lifts be provided. The following provisions apply:

- > Where there are two or more passenger lift installed, at least two (2) must be emergency lifts and ensure that all storeys served by passenger lift are served by at least one passenger lift
- > Where lifts are located within different shafts, at least one lift must be provided to each shaft
- > Emergency lifts must have their power supplied by a dedicated circuit as per the requirements of AS3000
- > Emergency lifts must be supplied with a warden intercom point (WIP) handset in accordance with AS1670.4§

3. Lift Service

The lift service schematic for the development is presented in Figure 1 below.

Figure 1 Lift Service Schematic

Development Overview				Lift Services										
Level	Height (m)	RL (m)	Description	Shuttle		T1 & T2 Residential				Podium Goods		T3 Residential		
				1 2	7 8 9	3 12	4 11	5 10	6 13	14	15	16	17	18
Overrun			Overrun						Overrun					
Roof		176.3	Roof				Overrun		🚗					
Level 25	3.30	173.0	Apartments				🚗	🚗🚗	🚗					
Level 24	3.05	169.9	Apartments				🚗	🚗🚗	🚗	Sus. Pit				
Level 23	3.05	166.9	Apartments			Overrun	🚗	🚗🚗🚗						
Level 22	3.05	163.8	Apartments			🚗	🚗	🚗🚗🚗						
Level 21	3.05	160.8	Apartments			🚗	🚗	🚗🚗🚗						
Level 20	3.05	157.7	Apartments			🚗	🚗	🚗🚗🚗						
Level 19	3.05	154.7	Apartments			🚗	🚗	🚗🚗🚗						
Level 18	3.05	151.6	Apartments			🚗	🚗	🚗🚗🚗						
Level 17	3.05	148.6	Apartments			🚗	🚗	🚗🚗🚗						
Level 16	3.05	145.5	Apartments			🚗	🚗	🚗🚗🚗						
Level 15	3.05	142.5	Apartments			🚗	🚗	🚗🚗🚗						
Level 14	3.05	139.4	Apartments			🚗	🚗	🚗🚗🚗						
Level 13	3.05	136.4	Apartments			🚗	🚗	🚗🚗🚗						
Level 12	3.05	133.3	Apartments			🚗	🚗	🚗🚗🚗				Overrun		
Level 11 T3 Amenities	3.05	130.3	Apartments			🚗	🚗	🚗🚗🚗				🚗	🚗🚗🚗	
	Level 10	3.05	127.2	Apartments			🚗	🚗	🚗🚗🚗			🚗	🚗	🚗🚗🚗
Level 9	3.05	124.2	Apartments			🚗	🚗	🚗🚗🚗				🚗	🚗	🚗🚗🚗
Level 8	3.05	121.1	Apartments			🚗	🚗	🚗🚗🚗				🚗	🚗	🚗🚗🚗
Level 7	3.05	118.1	Apartments			🚗	🚗	🚗🚗🚗				🚗	🚗	🚗🚗🚗
Level 6	3.05	115.0	Apartments			🚗	🚗	🚗🚗🚗				🚗	🚗	🚗🚗🚗
Level 5	3.05	112.0	Apartments			🚗	🚗	🚗🚗🚗				🚗	🚗	🚗🚗🚗
Level 4	3.05	108.9	Apartments	Overrun	Overrun	🚗	🚗	🚗🚗🚗		Overrun		🚗	🚗	🚗🚗🚗
Level 3	4.78	104.2	Resident's Lounge / Amenities / Pool	🚗	🚗	🚗🏠	🚗🏠	🚗🚗🏠		🚗	🚗	🚗	🚗	🚗🚗🚗
Level 2	3.78	100.4	Gym / Bike Parking	🚗	🚗	Sus. Pit					🚗	🚗	-	-
Level 1	6.40	94.0	Void	-	🚗					-	-	-	-	🚗
Ground	5.19	88.8	Street Entrance / Retail / Metro	-	🚗🏠					-	-	🚗🏠	🚗🚗🚗	🚗🏠
Lower Ground	3.00	85.8	Street Entrance	🚗🏠	Sus. Pit					🚗🏠	🚗🏠	Pit		
				Sus. Pit						Sus. Pit				

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4. Traffic Analysis

4.1 ISO 8100-32:2020

Lift traffic analysis results are generated via simulation using the latest revision of Elevate. The methodology follows that outlined in ISO8100-32:2020 which consists of running a constant traffic profile for 2 hours. An average of the results is recorded excluding the first 15 minutes and last 5 minutes of analysis as per ISO 8100-32:2020 Section 8.3 Note e).

The handling capacity (HC), average waiting time (AWT), and nominal travel time (NTT) criteria are adopted as per the simulation method of lift traffic analysis for residential lift installations and are presented in Table 1 below.

Table 1 Residential Lift Traffic Analysis Simulation Criteria – ISO 8100-32:2020 Table 3 & Table 7

Traffic Mix	HC (%)	AWT (s)	NTT (s)
Two-way (50% Incoming / 50% outgoing)	≥ 7	≤ 60	35

4.2 Analysis Results

Table 2 below presents the theoretical lift traffic analysis results for residential lifts based on ISO 8100-32:2020. For Levels 23–25 on Towers 1 & 2, only two lifts serve the apartments, as one lift terminates at Level 22 to share shaft space with the rooftop lift. Average waiting times for the residents on these specific levels are also included. Note results are theoretical only.

Table 2 Residential Lifts Traffic Analysis Results

	Tower 1	Tower 2	Tower 3
Key Parameters			
No. Lifts in Group	3	3	2
Controls	Conventional	Conventional	Conventional
Rated Speed (m/s)	2.5	2.5	1.6
Rated Load (kg / ppl)	2x 1350 / 18 & 1x 1600 / 21	2x 1350 / 18 & 1x 1600 / 21	2x 1275 / 17
Results			
Handling Capacity (HC, %)	≥ 7	≥ 7	≥ 7
Nominal Travel Time (NTT)	35	35	35
Average Waiting Time (AWT, s)	23	23	17
Average Waiting Time (AWT, s) – L23	42	42	-
Average Waiting Time (AWT, s) – L24	40	40	-
Average Waiting Time (AWT, s) – L25	40	40	-
Criteria Satisfied	Yes	Yes	Yes

The results of the lift traffic analysis indicate the following:

- > For Towers 1 & 2, three (3) Residential lifts at 2.5 m/s rated speed satisfies the ISO8100-32:2020 'Standard' residential type building design criteria with an AWT of 23 seconds at 7% HC demand.
- > For Towers 1 & 2, on Levels 23 – 25, limiting the lift service to two (2) Residential lifts satisfies the ISO8100-32:2020 'Standard' residential type building design criteria with AWTs of 42, 40, and 40 seconds respectively.
- > For Tower 3, two (2) Residential lifts at 1.6 m/s rated speed satisfies the ISO8100-32:2020 'Standard' residential type building design criteria with an AWT of 17 seconds at 7% HC demand.

5. VT Technical Schedule

General	Lift Identification	Units	Tower 1 / 2									Tower 3				
	Identification		L1 & L2	L7 - L9	L3 / L12	L4 / L11	L5 / L10	L6	L13	L14	L15	L16	L17	L18		
	Design Intent		T1 Shuttle	T2 Shuttle	Passenger	Passenger	Pass. / Goods	T1 Rooftop	T2 Rooftop	Podium Goods			Passenger	Pass. / Goods	DDA Platform	
	No. Units in Group		2	3	3 Per Tower			1	1	2			2		1	
	Entrance Type		Single	Through	Single	Single	Single	Single	Single	Through			Single	Single	Through	
	No. Levels Served		2	5	20	23	23	2	2	3			13	13	1	
	Front Openings		LG, L2 & L3	G, L1 & L3	L3 - L22	L3 - L25	L3 - L25	L25 & R	L25 & R	LG & L2			G, M, L3 - L10 & A		L1 - RL 97.2	
	Rear Openings		-	M & L2	-	-	-	-	-	L3			-		L1 - RL 98.7	
	Travel Distance	mm	16575	14635	59675	68825	68825	3300	3300	16225			38310	38310	1500	
	Machine Type		MRL Gearless	MRL Gearless	MRL Gearless			MRL Gearless	MRL Gearless	MRL Gearless			MRL Gearless		Hydraulic	
Control Type		Conventional	Conventional	Conventional			Conventional	Conventional	Conventional			Conventional		Conventional		
Drive System		VVVF Regenerative		VVVF Regenerative			VVVF	VVVF	VVVF Regenerative			VVVF Regenerative		VVVF		
Design Codes		NCC 2022 / AS 1735.1.1 / AS 1735.12												NCC 2022 / AS 1735.1.1 / AS 1735.12		AS 1735.15 - Unenclosed
Car	Rated Speed (min.)	m/s	1.00	1.00	2.50	2.50	2.50	1.00	1.00	1.00			1.60	1.60	0.15	
	Load Rating	kg	1179	1179	1350	1350	1600	1179	1179	2000			1275	1275	400	
	Passenger Rating	people	15	15	18	18	21	15	15	26			17	17	-	
	Width	mm	1400	1400	1400	1400	1600	1400	1400	1600			1400	1400	1100	
	Depth	mm	1970	1970	2100	2100	2100	1970	1970	2600			2000	2000	1400	
	Height (clear)	mm	2400	2400	2500	2500	2800	2400	2400	2800			2500	2500	-	
Doors	Width	mm	1000	1000	1000	1000	1100	1000		1400			1000	1000	1100	
	Height	mm	2100	2100	2400	2400	2400	2100		2400			2100	2100	-	
	Type		2PCO	2PCO	2PCO	2PCO	2PCO	2PCO		2PCO			2PCO	2PCO	Swing	
Shaft	Shaft Width (Per lift)	mm	2200	2200	2350	2350	2550	2200	2200	3150			2300	2300	1350	
	Shaft Width (Group)	mm	4550	6900	7550			-	-	6450			-	-	-	
	Depth	mm	2300	2300	2500			2300	2300	3100			2400	2400	1850	
	Trimmer Beam Width	mm	150	150	150			-	-	150			-	-	-	
	Overrun	mm	3350	3350	5450			3350	3350	6450			4700	4700	2000	
	Pit	mm	1100 - Suspended	1100 - Suspended	2800 - Suspended			1100 - Suspended	1100 - Suspended	2150 - Suspended			1850 - Suspended	1850 - Suspended	-	
Other Features	CWT Safety		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	-	
	Auto. Rescue Device		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
	Generator Back-Up		-	-	-	-	-	-	-	-	-	-	Yes	Yes	-	
	Stretcher Facility		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	
	Emergency Lift		Yes - L1	Yes - L7	-	-	Yes - L5 & L10	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	
	Pit Access Door		-	-	-	-	-	-	-	-	-	-	-	-	-	
	Proximity Card Reader		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	
	CCTV Inside Lift		TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	-	
	-	-	Schindler Low Headroom Solution	Allowed for Tier 1			Schindler Low Headroom Solution		Allowed for Tier 1			Allowed for Tier 1				

6. Features

6.1 General

The following general features apply to all lifts:

- > Lift controllers to be microprocessor-based technology
- > Variable-Voltage Variable-Frequency (VVVF) with regenerative drives
- > Permanent Magnet Synchronous (PMS) high efficiency gearless machines
- > Infrared passenger protection to lift doors
- > 4G VoLTE/5G based emergency communication systems complete with dual-SIM redundancy and a minimum 2-hour battery back-up inclusive of a minimum 15-minute talk time
- > Lift car interior finishes supplied by the lift contractor to the architect's selection **(To be coordinated with the Architect)**
- > Security provisions including access control card readers and CCTV **(Security Provisions TBC)**
- > Battery backup to enable lifts to travel to the nearest landing in the event of a loss of normal power supply and allow any entrapped passengers to safely alight
- > All features required by AS1735.12 as referenced by the NCC including but not limited to handrails, control buttons, and visual and audible information
- > Minimum 12-month defects liability period (DLP)
- > Energy saving features and modes of operation to all lifts including LED lighting and turning off non-essential components after periods of non-use
- > NCC compliant fire service controls
- > Remote lift monitoring for fault identification and troubleshooting
- > Emergency lifts as per the NCC and include provisions required by AS3000 and AS1670.4 (refer Section 2.3)

6.2 Goods and Furniture Movements

When lifts 5, 10, or 17 are required to be used for the transportations of goods or deliveries to the residents, the building's facilities manager is recommended to enforce the following protocols:

- > Restrict the use of the lift(s) to off-peak periods only to limit impacts to the lift service quality provided to occupants during peak-periods
- > Limit the duration of lift usage, especially when required to be 'locked out'
- > Lifts 5, 10, and 17 have been nominated as shared passenger/goods lift
- > Ensure protective blankets are used to limit damage to lift interiors during large / bulky goods transfers.
 - Protective blankets will be required to be supplied by the Vertical Transportation contractor to the following lifts:
 - > Lifts 5, 10, 14, 15 & 17

Lifts have been designed to accommodate the item in the Goods Movement Table below.

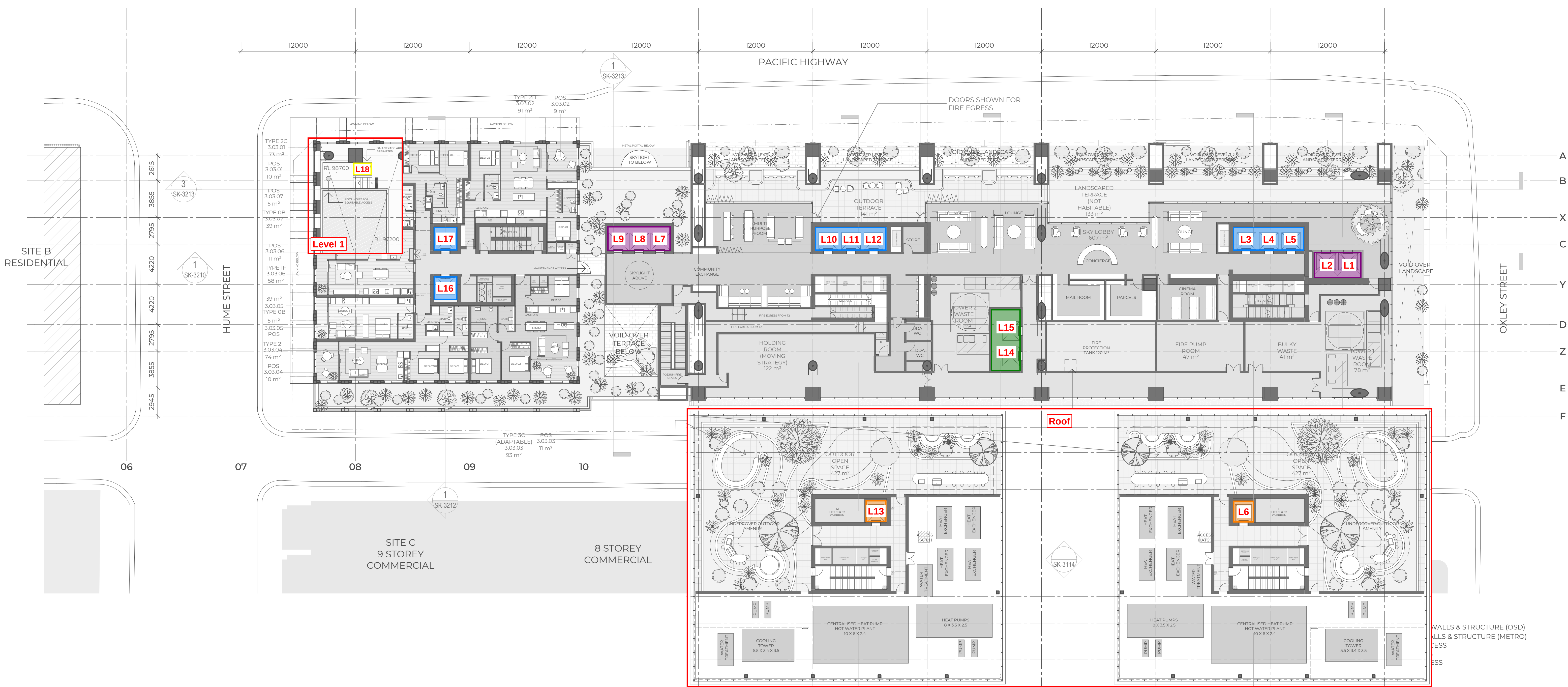
Table 3 Goods / Furniture Movement

Goods / Furniture Movements Table							
Category	Typical Items	Width	Depth	Height	L5 / L10	L14 / L15	L17
Appliances	Fridge (Med)	762	816	1680	Yes	Yes	Yes
Appliances	Fridge (Large)	905	905	1780	Yes	Yes	Yes
Beds	Single	920	200	1870	Yes	Yes	Yes
Beds	King Single	1060	200	2030	Yes	Yes	Yes
Beds	Double	1370	200	1870	Yes	Yes	Yes
Beds	Queen	1530	200	2030	Yes	Yes	Yes
Beds	King	1830	200	2030	Yes	Yes	Yes
Bins	240L Bin (SULO)	585	730	1060	Yes	Yes	Yes
Bins	360L Bin (SULO)	680	848	1100	Yes	Yes	Yes
Bins	660L Bin (SULO)	1360	780	1200	Yes	Yes	Yes
Bins	1100L Bin (SULO)	1370	1090	1330	No	Yes	No
Cleaning	High Capacity Cleaning Cart	566	1264	1121	Yes	Yes	Yes
Furniture	Arm Chair	810	900	840	Yes	Yes	Yes
Furniture	2 Seat Couch	1470	900	840	Yes	Yes	Yes
Furniture	3 Seat Couch or Modular	2100	900	840	Yes	Yes	Yes
Furniture	4 Seat Couch (non-mod.)	2500	980	810	Yes	Yes	No
Furniture	4-Seat Table (Round)	910	910	750	Yes	Yes	Yes
Furniture	6-Seat Table (Round)	1370	1370	750	Yes	Yes	Yes
Furniture	8-Seat Table (Round)	1520	1520	750	Yes	Yes	Yes
Furniture	4-Seat Table (Square)	910	910	750	Yes	Yes	Yes
Furniture	6-Seat Table (Square)	1220	1220	750	Yes	Yes	Yes
Furniture	8-Seat Table (Square)	1830	1830	750	Yes	Yes	Yes
Furniture	4-6 Seat Table (Rectangular)	760	1520	750	Yes	Yes	Yes
Furniture	6-8 Seat Table (Rectangular)	910	1830	750	Yes	Yes	Yes
Furniture	Ikea KALLAX Shelf Unit (5x5)	1820	390	1820	Yes	Yes	Yes
Furniture	6 Tier Shelf	910	400	2200	Yes	Yes	Yes
Goods	2700mm Plasterboard (x10)	1200	13	2700	Yes	Yes	Yes
Pianos	Baby Grand Piano w/o Legs	1490	1610	800	Yes	Yes	Yes
Sport Equipment	Rower	559	2197	1073	Yes	Yes	Yes
Sport Equipment	Elliptical	749	1486	1880	Yes	Yes	Yes
Strollers / Prams	Single Pram	605	1110	1110	Yes	Yes	Yes
Strollers / Prams	Double Pram	775	1045	1095	Yes	Yes	Yes
Bicycle	Standard bicycle	600	1800	1200	Yes	Yes	Yes
Bicycle	Bicycle and child seat	600	1800	1400	Yes	Yes	Yes

Appendix A

Lift Locality Plan

Lift Locality Plan



DRAFT



Inspire a better world through influence and design.

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