

Document Status Control Record

**Section 16 Planning Application for Proposed Hotel
at 16 Kimberley Road, Tsim Sha Tsui
K.I.L. 6022 s.B R.P.**

Traffic Review Study

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	Approved by: SLN	SLN	Date: 9 July 2025
	Revision No.: -		Date of Issue: 9 July 2025

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1 INTRODUCTION

1.1 Background

- 1.1.1 The owner of 16 Kimberley Road, Tsim Sha Tsui (hereafter, referred to as “the Site”) intends to demolish the existing building and redevelop the Site into a non-domestic building for hotel use (hereafter, referred to as “the proposed hotel”) with a relaxation in plot ratio. The location of the Site is shown in **Figure 1**.
- 1.1.2 LLA Consultancy Limited was commissioned by the owner to undertake a traffic review study to support the S16 submission. This report presents the findings of the study.

1.2 Study Objectives

- 1.2.1 The objective of this study aims to review the potential traffic impact and provide justifications for transport facilities provisions in the proposed hotel.

2 THE PROPOSED DEVELOPMENT

2.1 The Development Site Location

2.1.1 As shown in **Figure 1**, the Site is located at 16 Kimberley Road, Tsim Sha Tsui and has a site area of about 1,141m².

2.1.2 The Site enjoys extremely high accessibility to public transport facilities, including MTR and bus services. Tsim Sha Tsui MTR Station Entrance is located about 260m south of the Site. Furthermore, there are over 70 bus routes running along Nathan Road. **Table 2.1** and **Figure 2** show the existing bus routes serving the vicinity of the Site.

Table 2.1 Existing Public Transport Routes

Mode	Route No.	Origin - Destination	Frequency (min)
Bus	1	Chuk Yuen Estate – Star Ferry	8 – 25
	1A	Sau Mau Ping (Central) – Star Ferry	7 – 20
	1R	Hung Hom (Hung Luen Road) – Ngong Ping	3 trips per day
	2	Star Ferry – Cheung Sha Wan (So Uk Estate)	15 – 25
	3X	Tsz Wan Shan (North) – China Ferry Terminal (Via Fu Shan)	9 trips per day
	6	Star Ferry – Lai Chi Kok	8 – 25
	7	Star Ferry – Lok Fu	15 – 30
	9	Choi Fook – Tsim Sha Tsui East (Mody Road)	15 – 30
	13X	Po Tat – Tsim Sha Tsui East	10 – 30
	14X	Yau Tong (Shung Tak Wai) – Tsim Sha Tsui (Circular)	15 – 30
	26	Shun Tin – Tsim Sha Tsui East	8 – 25
	26X	Tsim Sha Tsui East – Shun Tin	4 trips per day
	35A	Kwai Chung (On Yam Estate) – Tsim Sha Tsui East	5 – 20
	35X	Kwai Chung (On Yam Estate) – Tsim Sha Tsui East	20 – 30
	36X	Lei Muk Shue – Tsim Sha Tsui East (Mody Road)	5 trips per day
	37X	Chi Fu Fa Yuen – Central (Circular)	15 – 20
	41A	Tsing Yi (Cheung On Estate) – Tsim Sha Tsui East	10 – 25
	50	Tuen Mun (Ching Tin And Wo Tin) – Tsim Sha Tsui (Kowloon Station)	20 – 30
	79P	Queen'S Hill Fanling – Hsr West Kowloon Station	4 trips per day
	81C	Yiu On – Tsim Sha Tsui East (Mody Road)	10 – 30
	87D	Kam Ying Court – Hung Hom Station	6 – 25
	87E	Nai Chung – Tsim Sha Tsui	2 trips per day
	87C	Kam Ying Court – Hung Hom Station	12 – 20
	98D	Hang Hau (North) (Tseung Kwan O Hospital) – Tsim Sha Tsui East	6 – 30
	98P	Hong Sing Garden – Tsim Sha Tsui East	5 trips per day
	203C	Sham Shui Po (Tai Hang Tung) – Tsim Sha Tsui East (Mody Road)	20 – 30
	203S	Chak On Estate – Tsim Sha Tsui East (Mody Road)	1 trip per day

Mode	Route No.	Origin - Destination	Frequency (min)
	208	Broadcast Drive – Tsim Sha Tsui East	25 – 30
	213X	On Tai (South) (Hang Tai House) – Tsim Sha Tsui (Circular)	12 – 30
	219X	Laguna City – Tsim Sha Tsui(Circular)	16 – 40
	224X	Kai Yip – Tsim Sha Tsui East (Circular)	25 – 30
	230X	Tsuen Wan (Allway Gardens) – Whampoa Garden	3 trips per day
	234P	Tsuen Wan (Bayview Garden) – Star Ferry	1 trip per day
	234X	Tsim Sha Tsui East (Mody Road) – Tsuen Wan (Bayview Garden)	15 – 25
	242X	Tsing Yi (Cheung Hang Estate) – Tsim Sha Tsui	4 trips per day
	252B	Handsome Court – Tsim Sha Tsui	3 trips per day
	259C	Sun Tuen Mun Centre – Tsim Sha Tsui	2 trips per day
	259B	Tuen Mun Pier Head – Tsim Sha Tsui	3 trips per day
	260X	Tuen Mun (Po Tin Estate) – Hung Hom Station	5 – 20
	260B	Tuen Mun Central – Tsim Sha Tsui	4 trips per day
	261B	Tuen Mun (Sam Shing Estate) – Kowloon Station	3 trips per day
	268B	Long Ping Station – Hung Hom (Hung Luen Road)	5 trips per day
	269B	Tin Shui Wai Town Centre – Hung Hom (Hung Luen Road)	12 – 30
	270A	Sheung Shui – Tsim Sha Tsui East (Mody Road)	10 – 30
	270S	Tsim Sha Tsui East (Mody Road) – Fanling (Luen Wo Hui)	4 trips per day
	270C	Fanling (Luen Wo Hui) – Tsim Sha Tsui East (Mody Road)	2 trips per day
	271	Tai Po (Fu Heng) – Jordan (West Kowloon Station)	6 – 60
	271B	Tai Po (Fu Heng) – Jordan (West Kowloon Station)	8 trips per day
	271X	Jordan (West Kowloon Station) – Tai Po (Fu Heng)	5 trips per day
	271S	Hung Hom Station – Tai Po (Tai Wo)	1 trip per day
	271P	Kau Lung Hang – Tsim Sha Tsui (Canton Road)	2 trips per day
	280X	Sui Wo Court – Tsim Sha Tsui East (Mody Road)	15 – 30
	281B	Shek Mun Estate – Tsim Sha Tsui East (Mody Road)	15 – 30
	281X	Yiu On – Tsim Sha Tsui East (Mody Road)	15 – 25
	281A	Kwong Yuen – Kowloon Station	10 – 25
	281E	Haiphong Road Tsim Sha Tsui – Kwong Yuen	2 trips per day
	287D	Hung Hom Station – Kam Ying Court	2 trips per day
	296D	Sheung Tak – Kowloon Station (Via M+)	15 – 30
	790	Oscar By The Sea – Tsim Sha Tsui (Mody Road)	20
	796P	Tseung Kwan O Station – Tsim Sha Tsui (East)	20 – 30
	A21	Hung Hom Station – Airport (Ground Transportation Centre)	8 – 30
	H2K	Central (Star Ferry) – West Kowloon Cultural (Circular)	14 trips per day
	N21	Tsim Sha Tsui (Star Ferry) – Airport (Ground Transportation Centre)	20 – 30

Mode	Route No.	Origin - Destination	Frequency (min)
	N21A	Tsim Sha Tsui (Star Ferry) – Airport (Via Yat Tung Estate)	3 trips per day
	N41X	Hung Hom Station – Tsing Yi (Cheung Wang Estate)	2 trips per day
	N50	Tuen Mun (Ching Tin And Wo Tin) – Tsim Sha Tsui (Kowloon Station)	4 trips per day
	N213	Tsim Sha Tsui East (Mody Road) – On Tai (West)	2 trips per day
	N216	Yau Tong – Hung Hom Station	25 – 30
	N241	Hung Hom Station – Tsing Yi (Cheung Wang Estate)	25 – 30
	N271	Tai Po (Fu Heng) – Hung Hom Station	20 – 30
	N281	Kam Ying Court – Hung Hom Station	25 – 30
	N283	Tsim Sha Tsui East (Mody Road) – Wong Nai Tau	3 trips per day
	N287	Tsim Sha Tsui East (Mody Road) – Wu Kai Sha Station	3 trips per day
	N796	Tsim Sha Tsui East (Chatham Road South) – Lohas Park	20 – 30
	NA20	Whampoa Garden – HZMB Hong Kong Port	2 trips per day

2.2 Proposed Development Content

2.2.1 It is understood that a set of GBP was approved in September 2024 for a development of 99 guestrooms hotel cum retail use (hereafter, referred to as “the approved scheme”). The development content of the approved scheme is summarized in **Table 2.2**.

Table 2.2 Development Parameters of the Approved Scheme and the Proposed Hotel

Use	Development Parameters	
	Approved Scheme	Proposed Hotel
Hotel	99 guestrooms	159 guestrooms
Conference and Banquet Facilities	4,123.684 m ²	5,921.563 m ²
Retail	888.403 m ²	Nil

2.2.2 The proposed hotel will be mainly for hotel use with supporting hotel facilities. Due to an increase in hotel room numbers, no retail area will be provided. **Table 2.2** also summarizes the development parameters of the proposed hotel.

3 POTENTIAL TRAFFIC IMPACT

3.1 Traffic Generation of the Approved Scheme

- 3.1.1 For the approved scheme in September 2024, the traffic volume that would be induced can be estimated based on the trip rates documented in the Transport Planning Design Manual ("TPDM"), Volume 1, Chapter 3 – Transport Considerations of Town Plans and summarized in **Table 3.1**.

Table 3.1 Traffic Generation of the Approved Scheme

	Unit/Content	AM Peak Hour			PM Peak Hour		
		Gen.	Att.	2-way	Gen.	Att.	2-way
Adopted Trip Rates ⁽¹⁾							
Hotel (99 rooms)	pcu/hr/room	0.1329	0.1457	-	0.1290	0.1546	-
Retail (888.403 m² GFA)	pcu/hr/100m²	0.2296	0.2434	-	0.3100	0.3563	-
Traffic Generation (pcu/hr)							
Hotel	99 rooms	14	15	29	13	16	29
Retail	888.403 m²	3	3	6	3	4	7
Total		17	18	35	16	20	36

Note: Gen. – Generation; Att. – Attraction
(1) TPDM mean trip rates are adopted.

3.2 Traffic Generation of the Proposed Hotel

- 3.2.1 Based on the development parameters as listed in **Table 2.2**, the development traffic generation of the proposed hotel were estimated and summarized in **Table 3.2**, based on the trip rates documented in TPDM Volume 1 Chapter 3 – Transport Considerations of Town Plans.

Table 3.2 Traffic Generation of the Proposed Hotel

159 guestrooms	Unit/Content	AM Peak Hour			PM Peak Hour		
		Gen.	Att.	2-way	Gen.	Att.	2-way
Adopted Trip Rates	pcu/hr/room	0.1329	0.1457	-	0.1290	0.1546	-
Traffic Generations	pcu/hr	22	24	46	21	25	46

Note: Gen. – Generation; Att. - Attraction

3.3 Comparison of Traffic Generation between the Proposed Hotel and the Approved Scheme

- 3.3.1 As shown in **Table 3.2**, the proposed hotel will generate a two-way traffic of 46 pcu/hr in both AM and PM peak hour, respectively. As compared with the traffic generation of the approved scheme estimated in **Table 3.1**, the comparison result is presented in **Table 3.3**.

Table 3.3 Comparison of Development Traffic Generation

Use	AM Peak Hour			PM Peak Hour		
	Gen.	Att.	Total	Gen.	Att.	Total
Approved Scheme (A)	17	18	35	16	20	36
Proposed Hotel (B)	22	24	46	21	25	46
Net Increase (B) – (A)	5	6	11	5	5	10

Note: Gen. – Generation; Att. - Attraction

- 3.3.2 Based on the comparison result with the approved scheme, the proposed hotel will only induce additional two-way traffic of 11 and 10 pcu/hr during the AM and the PM peak hour, respectively. Even the cumulative impact of 46 and 46 pcu/hr in the two peak hours is considered insignificant to the surrounding road network, in particular with the high accessibility of public transport services.

4 PROVISION OF TRANSPORT FACILITIES

4.1 Vehicular Access

4.1.1 In the proposed hotel, the vehicular access remains the same position as the approved scheme at Kimberly Road in order to provide access to internal transport facilities. The width of the vehicular access will be of 6.0m and the access's sightline is demonstrated in **Figure 3**.

4.2 HKPSG Requirements in Car Parking and Loading/Unloading Provisions

4.2.1 The requirements of car parking and loading/unloading facilities should be estimated, taking into consideration of the latest Hong Kong Planning Standards and Guidelines (HKPSG) requirements. The required car parking and loading/unloading facilities for the proposed hotel as required under the HKPSG is listed in **Table 4.1**.

Table 4.1 Car Parking and Loading/Unloading Facilities as Required by HKPSG

Component	HKPSG Requirements	Required Provision Under HKPSG		Proposed Provision	
		Nos.	Dimension	Nos.	Dimension
Hotel – 159 guestrooms and 5,921.563 m ² GFA for Conference and Banquet Facilities;					
Car Parking Space	<u>Guestroom:</u> 1 car space per 100 rooms	2		2	
	<u>Conference and banquet facilities:</u> 0.5 – 1 car space per 200m ²	15 – 30		28 ⁽¹⁾	
TOTAL CAR PARKING		17 – 32	16 – 31 @ 5.0m(L) x 2.5m(W) x 2.4m (L) 1 @ 5.0m(L) x 3.5m(W) x 2.4m (L)	30	29 @ 5.0m(L) x 2.5m(W) x 2.4m (L) 1 @ 5.0m(L) x 3.5m(W) x 2.4m (L)
Loading/ Unloading Space	1 goods vehicle bay per 100 rooms	2	1 @ 11.0m(L) x 3.5m(W) x 4.7m (L) 1 @ 7.0m(L) x 3.5m(W) x 3.6m (L)	2	2 @ 8.0m(L) x 3.5m(W) x 3.6m (L) ₍₂₎₍₃₎
Motorcycle Parking Space	5 – 10 % of total provision for private cars	1 – 3	1 – 3 @ 2.0m(L) x 1.0m(W)	3	3 @ 2.0m(L) x 1.0m(W)
Lay-by for Taxi and Private Car	2 spaces for ≤ 299 rooms	2	2 @ 5.0m(L) x 2.5m(W) x 2.4m (L)	2	2 @ 5.0m(L) x 2.5m(W) x 2.4m (L)
Lay-by for Single-Deck Tour Bus	1 space for ≤ 299 rooms	1	1 @ 12.0m(L) x 3.5m(W) x 3.8m (L)	1	1 @ 8.0m(L) x 3.5m(W) x 3.6m (L) ₍₃₎₍₄₎

- Notes:
- (1) 0.93 car space per 200m² is adopted for Conference and Banquet Facilities.
 - (2) In view of the size of the Site, only LGV loading/unloading bays are provided.
 - (3) The spaces can be share-used by goods vehicles and light buses and are therefore proposed to be 8.0m (L) x 3.5m (W).
 - (4) In view of the size of the Site, only light bus parking space are provided.

4.2.2 The proposed hotel will provide a total of 30 car parking spaces, 2 LGV loading/unloading bays, 3 motorcycle parking spaces, 2 lay-bys for taxi and private cars and 1 light bus lay-by to meet the HKPSG requirements. The car park layout plan is enclosed in **Appendix A** and it is clearly demonstrated that two basement floors are fully utilized to provide internal transport facilities which are serving by two carlifts.

4.2.3 In formulating the ground floor layout, the 2 nos. of taxi and private car lay-by is being arranged in the most effective and efficient manner such that the vehicles will conduct the pick-up/drop-off activities within the proposed hotel instead of along the Kimberley Road kerbside. As a result, it is not anticipated to induce additional pick-up/drop-off demand on public road.

4.3 Practical Dimensions of Loading/Unloading Bays and Single Deck Tour Bus Lay-by

4.3.1 Due to site constraints, it is proposed to limit the use of LGV loading/unloading bays (8m in length) and light bus lay-by (8m in length) only and to replace the HGV loading/unloading bays (11m in length) and lay-by for single deck tour bus (12m in length) with full justifications listed in **Table 4.2**. Traffic management plan will be set up in place by the hotel operator to reject HGV and large tour bus during the operational phase.

Table 4.2 Justifications on Dimensions of the Internal Transport Facilities

No.	Considerations	Justifications for Proposed Dimension of Loading/unloading Space												
1	Area and shape of Site	The dimension of the Site is about 21m (W) x 50m (L). Given the small site area, after providing the necessary floor space to accommodate the ramp, entrance lobby, staircases, lift core and M&E facilities etc., the remaining area is not sufficient to provide a 11m long loading/unloading space because the 11m long HGV cannot make a 3-point turn manoeuvring at the remaining area. Please refer to the swept path analysis in Appendix B demonstrating that a HGV cannot make a 3-point turn within the Site.												
2	No tour group	The proposed small hotel with 159 rooms is not targeted for large tour groups with coaches as transportation. The provision of light bus lay-by will be sufficient to meet the demand.												
3	Negligible Loading/unloading Demand	<p>According to the operating of similar hotels with less than 200 rooms, the loading/unloading demand for these hotels was very minimal. In general, the normal operation of a small hotel will induce loading/unloading demand because of the activities as shown below. The subsequent recorded/estimated loading/unloading trips are also shown below.</p> <table border="1"> <thead> <tr> <th>Activity</th><th>Loading/unloading Demand</th><th>Required Duration</th></tr> </thead> <tbody> <tr> <td>Regular Delivery of Consumables</td><td>Maximum 1 trips per day</td><td>5 minutes</td></tr> <tr> <td>Out-source Laundry Service</td><td>1 trips per day</td><td>10 minutes</td></tr> <tr> <td>Total</td><td>Not more than 2 trips per day</td><td>-</td></tr> </tbody> </table> <p>In view of the small loading/unloading frequency, the provision of LGV bays will be sufficient to meet the demand of the proposed building.</p>	Activity	Loading/unloading Demand	Required Duration	Regular Delivery of Consumables	Maximum 1 trips per day	5 minutes	Out-source Laundry Service	1 trips per day	10 minutes	Total	Not more than 2 trips per day	-
Activity	Loading/unloading Demand	Required Duration												
Regular Delivery of Consumables	Maximum 1 trips per day	5 minutes												
Out-source Laundry Service	1 trips per day	10 minutes												
Total	Not more than 2 trips per day	-												

4.4 Car Lift Assessment

- 4.4.1 To assess the performance of the car lift system, it is necessary to adopt an appropriate arrival rate (attraction rate) in the assessment. With reference to the trip rates as documented in the latest Transport Planning and Design Manual, Volume 1, Chapter 3 prepared by the Transport Department, the peak traffic attraction rate of the proposed hotel is estimated.
- 4.4.2 The servicing rate of the car lift system is estimated based on the operation data provided by the car lift supplier.
- 4.4.3 A M/M/N queuing model is adopted to assess the probability of nos. of vehicle queuing in the car lift system. In case only 3 vehicles in the system, this implies that the 2 car lifts and the waiting space(s) are being occupied. If 4 or above vehicles in the system, there will be traffic queuing onto the public road and the system performance is undesirable.
- 4.4.4 From the assessment result, the probability of queuing onto the public road is about 1%. In other words, there is 99% confidence level that no traffic queue will occur in the public road and the system performance is found to be satisfactory. The details of the car lift assessment calculation are shown in **Appendix C**.

4.5 Swept Path Analysis

- 4.5.1 To ensure smooth manoeuvring of the parking area, swept path analysis was conducted to demonstrate that adequate space is provided for the vehicles for manoeuvring as shown in **Appendix D**.

4.6 Building Setback

- 4.6.1 At present, the footpath width along the site frontage is about 2.5 m. In the proposed hotel development, 1.5 m setback will be provided to increase the footpath width to 4.0 m to enhance the pedestrian walking environment.

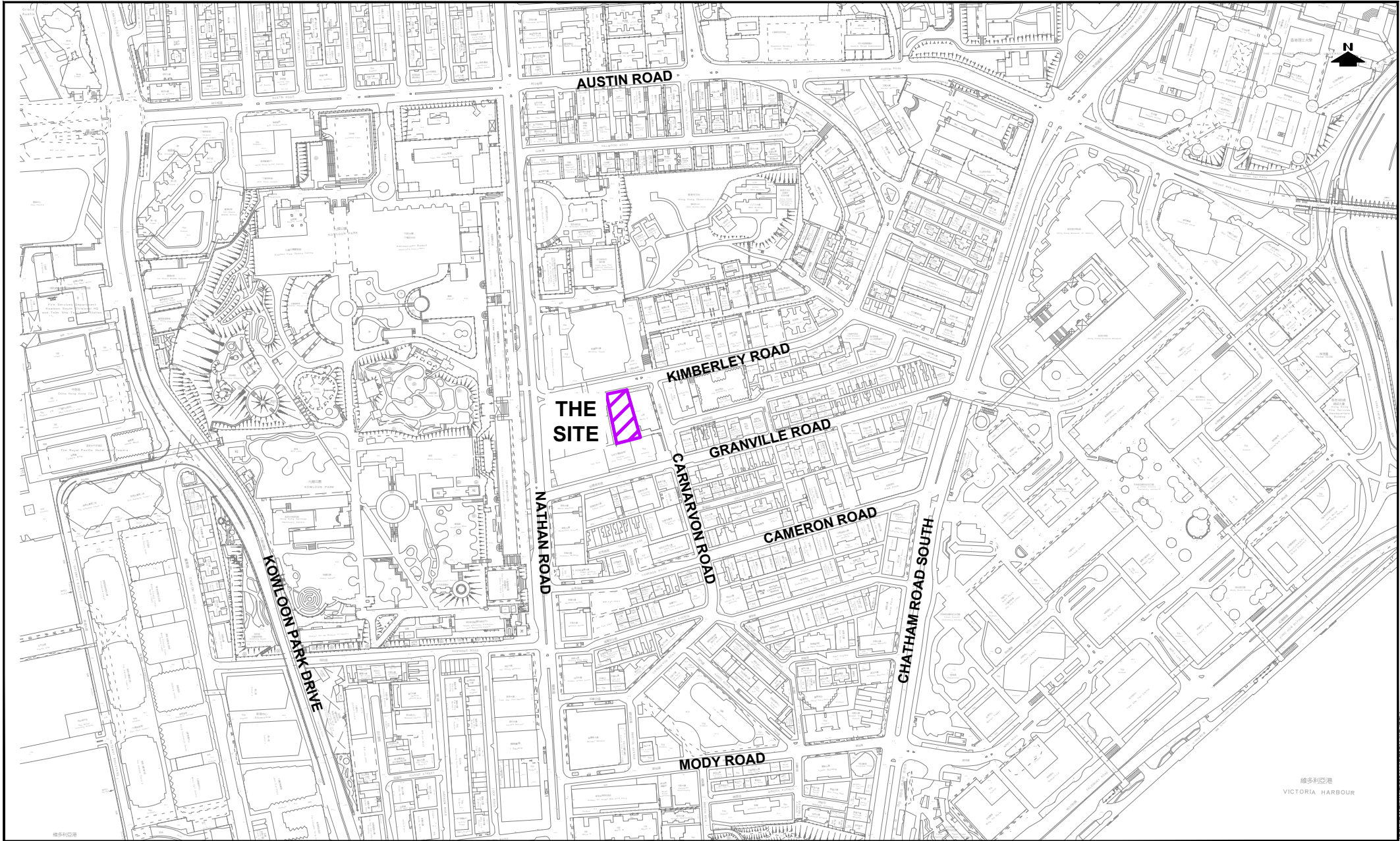
5 SUMMARY AND CONCLUSION

5.1 Summary

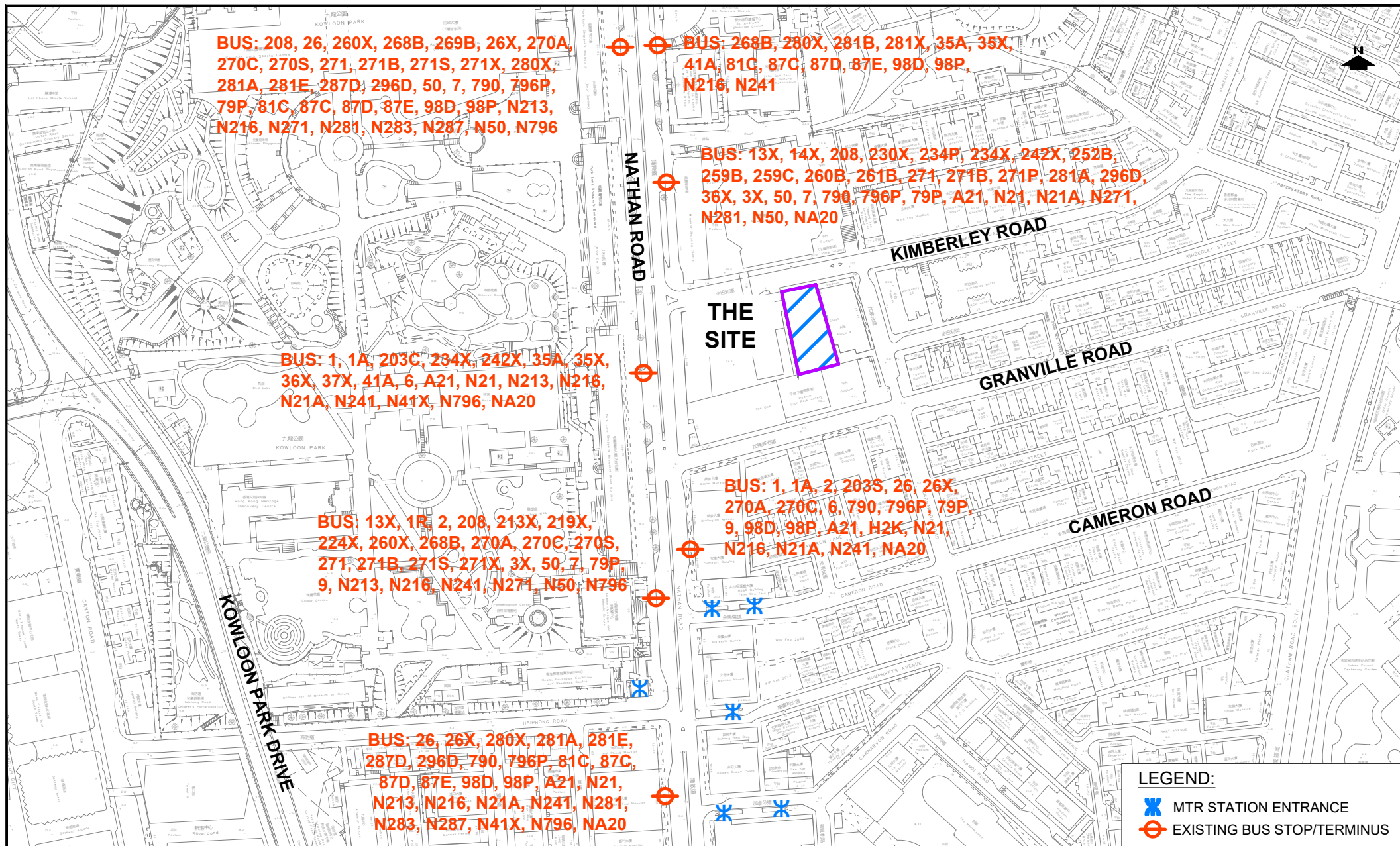
- 5.1.1 The owner of the Site at 16 Kimberley Road, Tsim Sha Tsui intends to redevelop the Site into a non-domestic building as a hotel.
- 5.1.2 The proposed hotel enjoys excellent accessibility to public transport facilities, including MTR, bus and minibus services. Tsim Sha Tsui MTR Station Entrance is located about 260m south of the Site.
- 5.1.3 As compared with the approved GBP submission in September 2024, the proposed hotel will only induce additional two-way traffic of 11 and 10 pcu/hr during the AM and the PM peak hour respectively. The cumulative traffic impact is considered insignificant to the surrounding road network. For the proposed hotel, the same vehicular access as the approved GBP scheme is adopted at Kimberly Road.
- 5.1.4 The proposed hotel will provide a total of 30 car parking spaces, 2 LGV loading/unloading bays, 3 motorcycle parking spaces, 2 lay-bys for taxi and private cars and 1 light bus parking space to meet the HKPSG requirements. Two basement floors are parking spaces to serve the proposed hotel.
- 5.1.5 Due to the Site constraint, for the small hotel (159 rooms only), relaxation is required and the provision of the LGV loading/unloading bays and light bus lay-bys would be sufficient to meet the guests' demand.
- 5.1.6 Car lift assessment was conducted and the result shows that the probability of queuing onto the public road is about 1%. In other words, there is 99% confidence level that no traffic queue will be incurred in Kimberly Road and the system performance is found to be satisfactory.

5.2 Conclusion

- 5.2.1 Based on the findings of the traffic review study, it can be concluded that the proposed hotel development, with the provision of adequate internal transport facilities, will not induce significant adverse traffic impact and is acceptable from traffic engineering perspective.

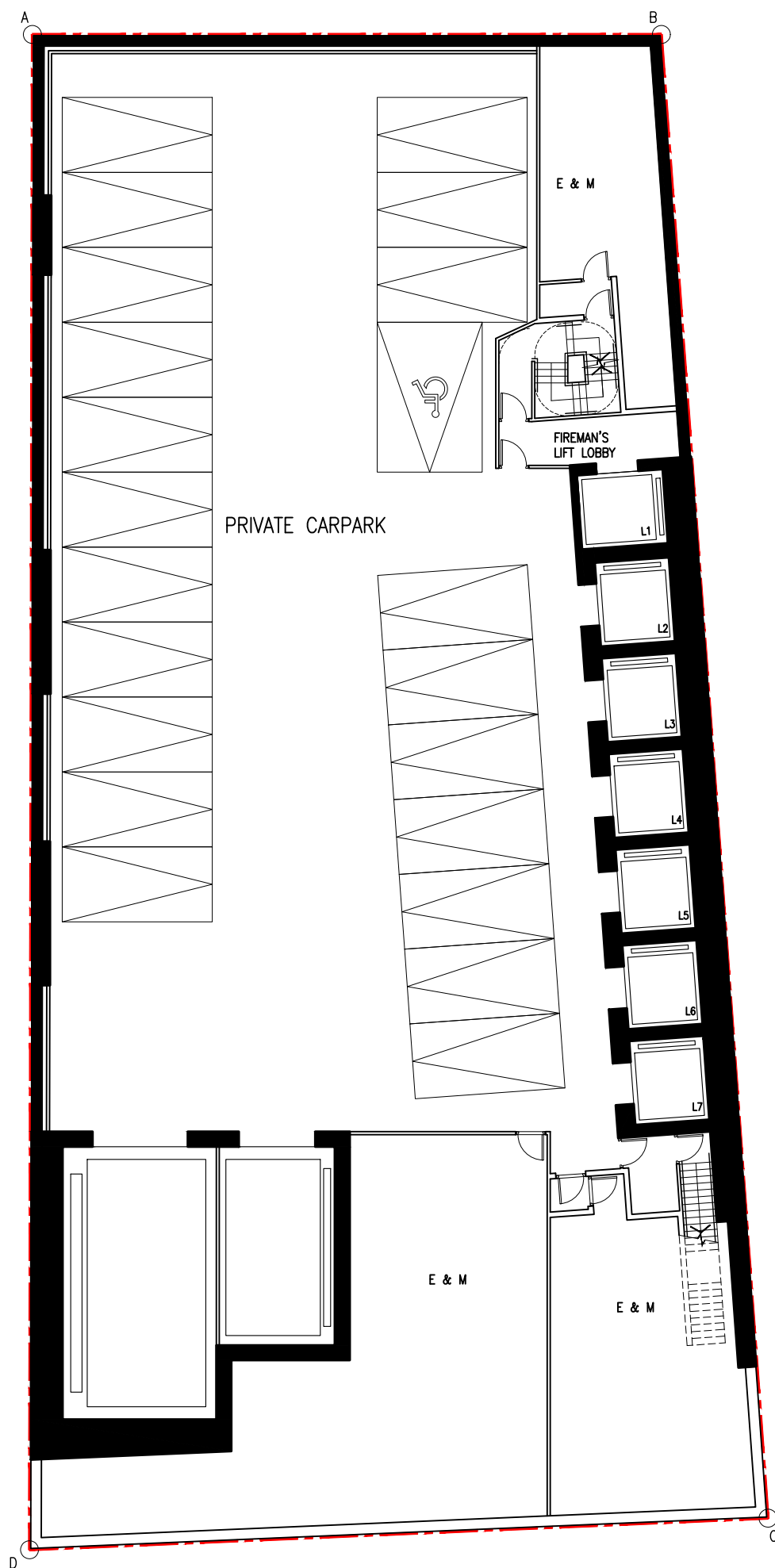


PROJECT NO. 41000		PROJECT TITLE SECTION 16 PLANNING APPLICATION FOR PROPOSED HOTEL AT 16 KIMBERLEY ROAD, TSIM SHA TSUI, K.I.L. 6022 S.B R.P.		DRAWING NO. FIGURE 1	REV. .
DESIGNED SKL	DATE JUL 2025	DRAWING TITLE LOCATION PLAN		LLA 顧問有限公司 Consultancy Limited	
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Appendix A
Car Park Layout Plan



SECTION 16 PLANNING APPLICATION FOR PROPOSED HOTEL WITH MINOR RELAXATION
OF PLOT RATIO AND BUILDING HEIGHT RESTRICTIONS
AT 16 KIMBERLEY ROAD, TSIM SHA TSUI, KOWLOON

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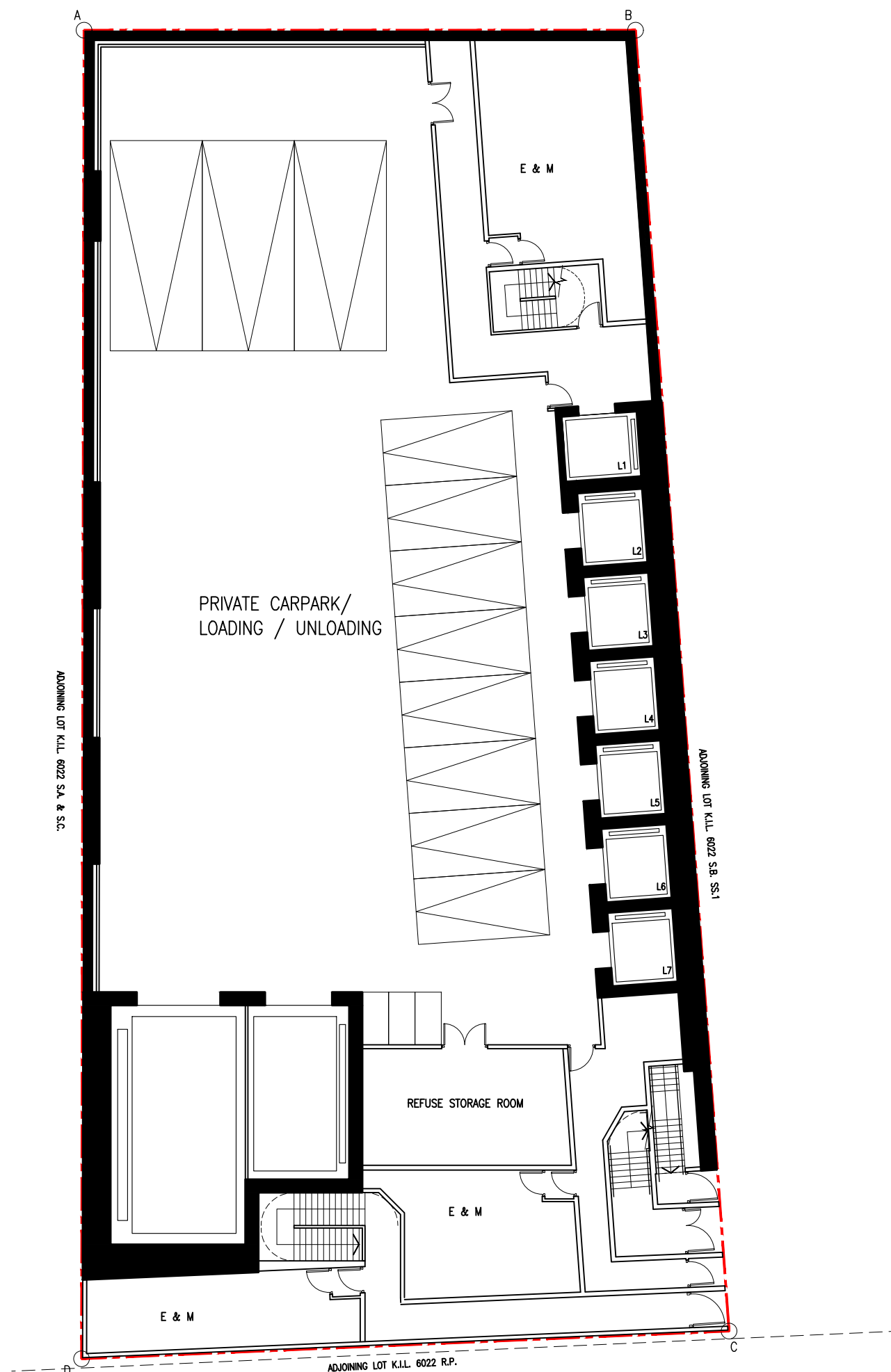


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SECTION 16 PLANNING APPLICATION FOR PROPOSED HOTEL WITH MINOR RELAXATION
OF PLOT RATIO AND BUILDING HEIGHT RESTRICTIONS
AT 16 KIMBERLEY ROAD, TSIM SHA TSUI, KOWLOON

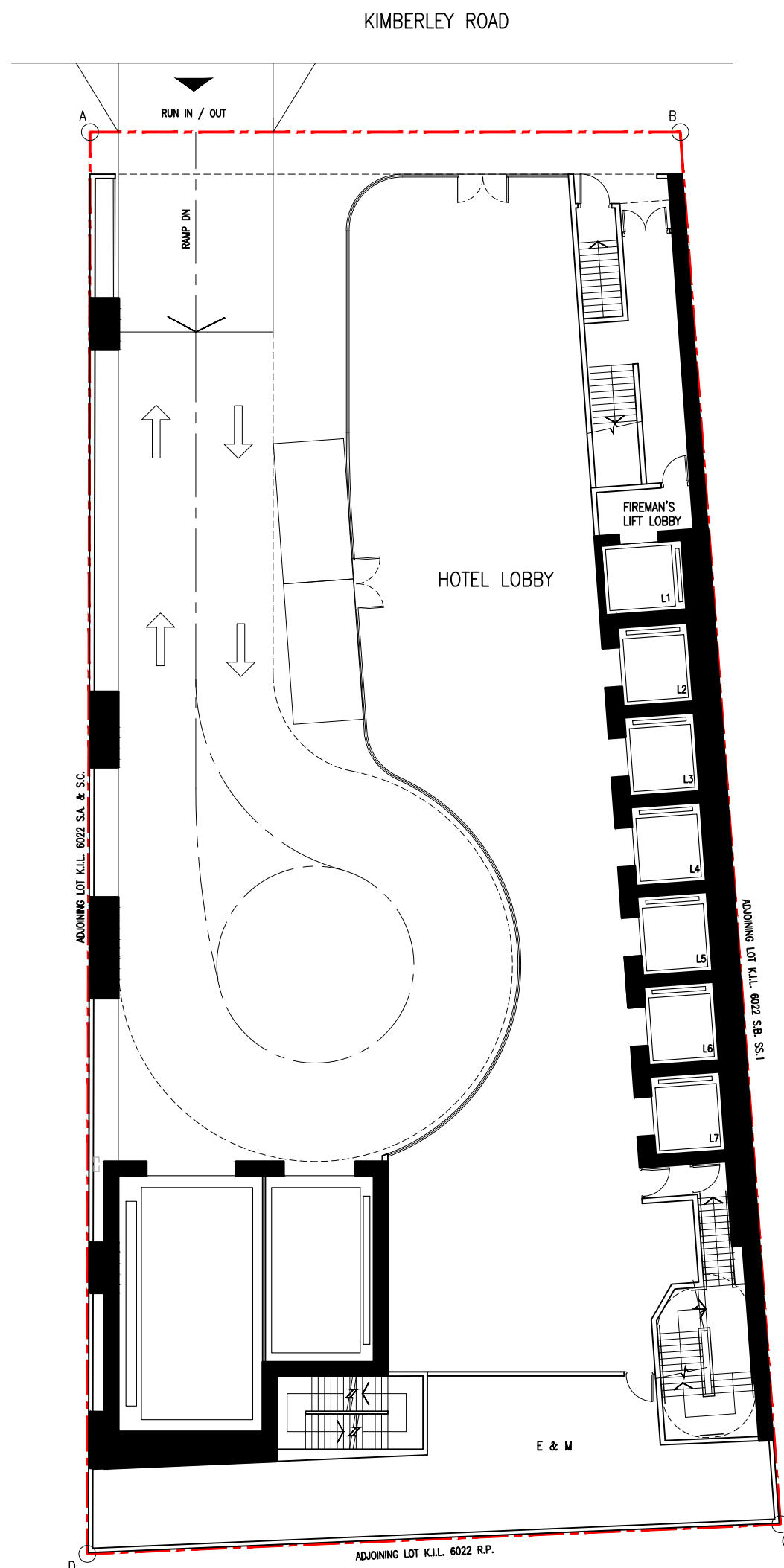


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SECTION 16 PLANNING APPLICATION FOR PROPOSED HOTEL WITH MINOR RELAXATION
OF PLOT RATIO AND BUILDING HEIGHT RESTRICTIONS
AT 16 KIMBERLEY ROAD, TSIM SHA TSUI, KOWLOON



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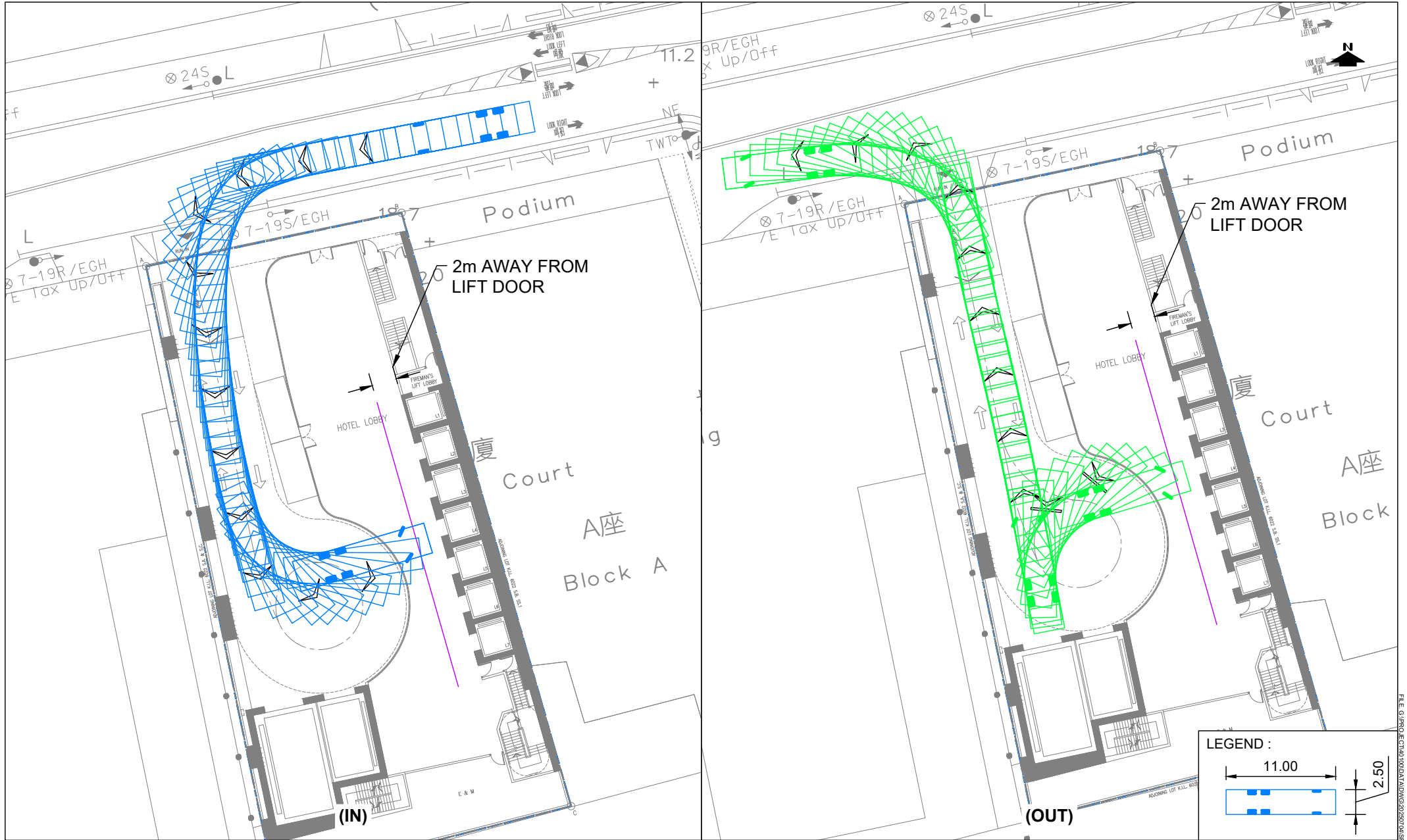
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GROUND FLOOR PLAN

DRAWING NUMBER / 圖號
SK-04

Appendix B

Swept Path Analysis

– To Demonstrate HGV Cannot Make a 3-point Turn Within the Site



SWEPT PATH ANALYSIS - HGV (G/F)

(SCALE 1:400 @ A4)

Appendix C

Car Lift Assessment

APPENDIX C - CAR LIFT ASSESSMENT

Section 16 Planning Application for Proposed Hotel at 16 Kimberley Road, Tsim Sha Tsui, K.I.L. 6022 s.B R.P.

1. Carpark Spaces Arrangement

No. of Carlift		[n]	=	2
No. of Parking Space(s) & Waiting Spaces(s)				
G/F (+10.845m)	=	0	waiting spaces(s)	
B1/F (+6.295m)	=	0	waiting spaces(s)	+ 14 parking space(s)
B2/F (+2.595m)	=	0	waiting spaces(s)	+ 22 parking space(s)
Total	=			36 parking spaces(s)

2. Arrival Rate Estimate

Peak Hour Arrival Rate	=	25 veh/hr
Peak Hour Arrival Rate - Car Park Oriented (40% of the Peak Hour Arrival Rate)	=	10 veh/hr
Peak 15-minute Arrival Rate - Car Park Oriented (50% of the Peak Hour Arrival Rate - Car Park Oriented)	[λ]	= 5 veh/15-min

3. Estimate of Round Trip Time of Car Lift

Level Difference between G/F and parking floor (Weighted Average)	=	6.8 m
Travelling Speed of the Car Lift	=	0.5 m/s
Weighted Average Travelling Time from G/F	=	13.6 s
Door Open	=	8.0 s
Vehicle Out	=	8.0 s
Vehicle Enters	=	8.0 s
Safety Buffer	=	5.0 s
Door Close	=	8.0 s
Weighted Average Travelling Time from G/F	=	13.6 s
Door Open	=	8.0 s
Vehicle Out	=	8.0 s
Vehicle Enters	=	8.0 s
Safety Buffer	=	5.0 s
Door Close	=	8.0 s
Weight Average Travelling Time to G/F	=	13.6 s
Round Trip Time	=	101.2 s
Total Round Trip Time	[1/μ]	= 102.0 s

4. Estimated Average Servicing Rate

Average Servicing Rate per Carlift	[μ]	= 900s / 102
		= 8.82 veh/15-min
With 2 car lifts available, (M/M/N) model is used.		
Peak 15-minute Arrival Rate - Car Park Oriented	[λ]	= 5.00 veh/15-min
Traffic Intensity	[ρ = λ/μ]	= 5.00 / 8.82
		= 0.5667

5. Estimated Average Servicing Rate

Probability of no vehicle in the system,	P(x=n)	= 0.5584
Probability of one car lift in use,		= 0.3165
Probability of two car lifts in use,		= 0.0897
Probability of two car lifts in use & waiting space is in use,		= 0.0254

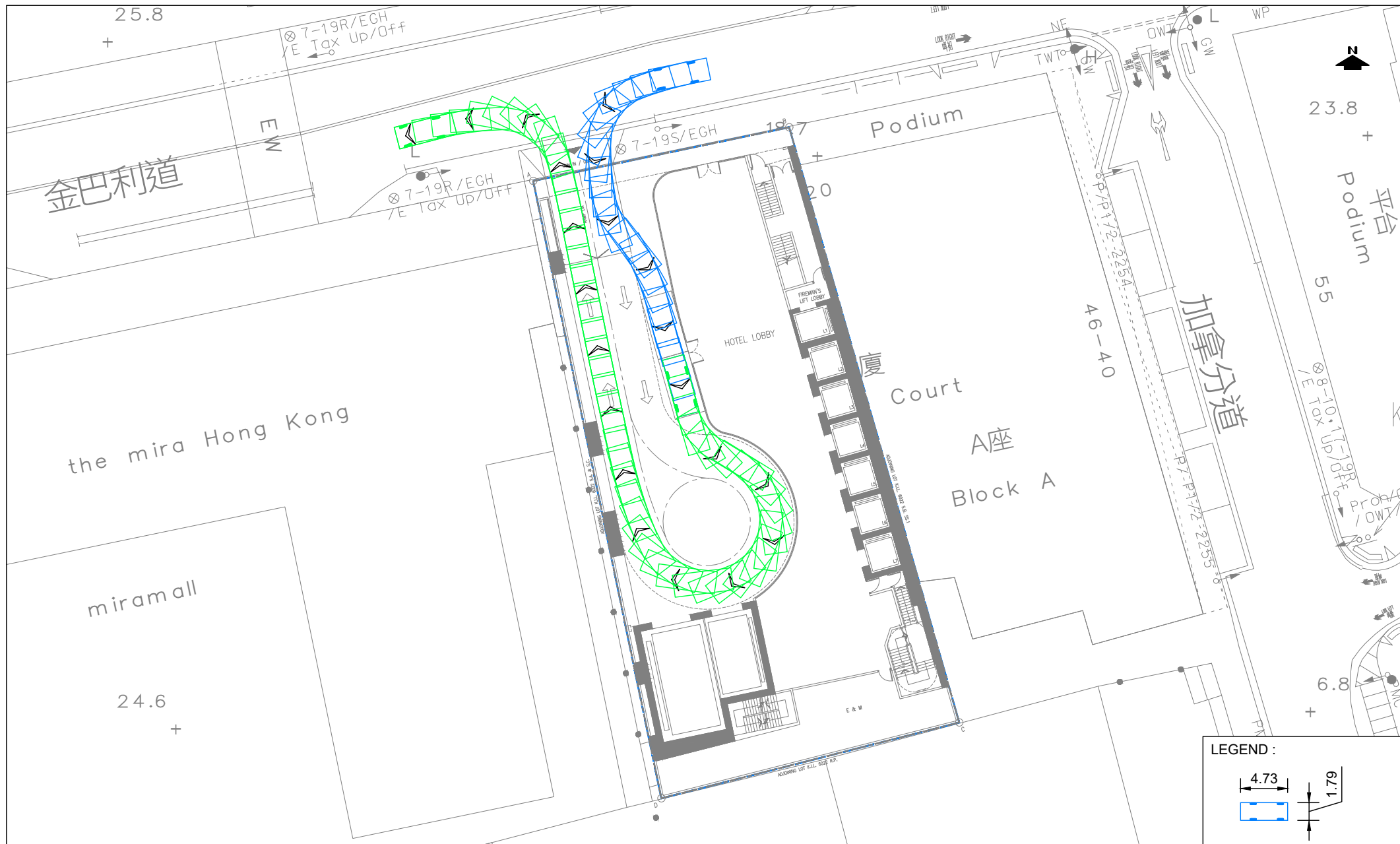
Sum of P(x≤n) =	0.5584 + 0.3165 + 0.0897 + 0.0254 =	=	0.9900
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The chances that car park traffic will queue up on public road is less than =	1 - 0.9900 =	1.0%
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Appendix D

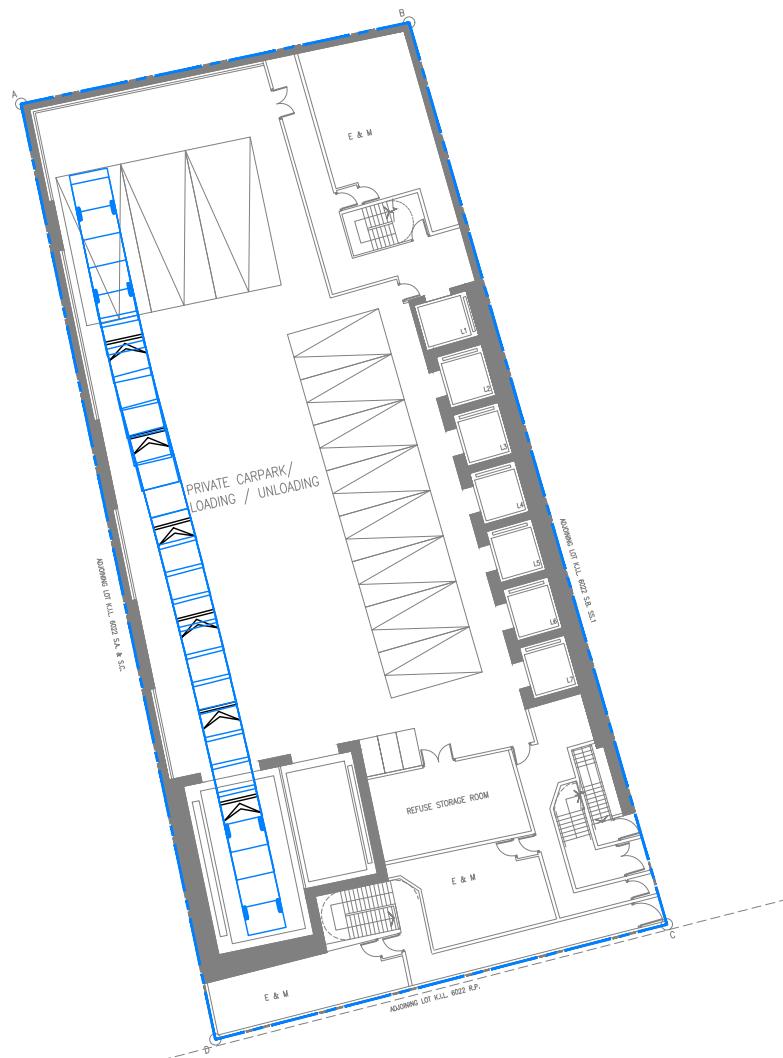
Swept Path Analysis

– To Demonstrate the Feasibility of Vehicles Manoeuvring Within the Site

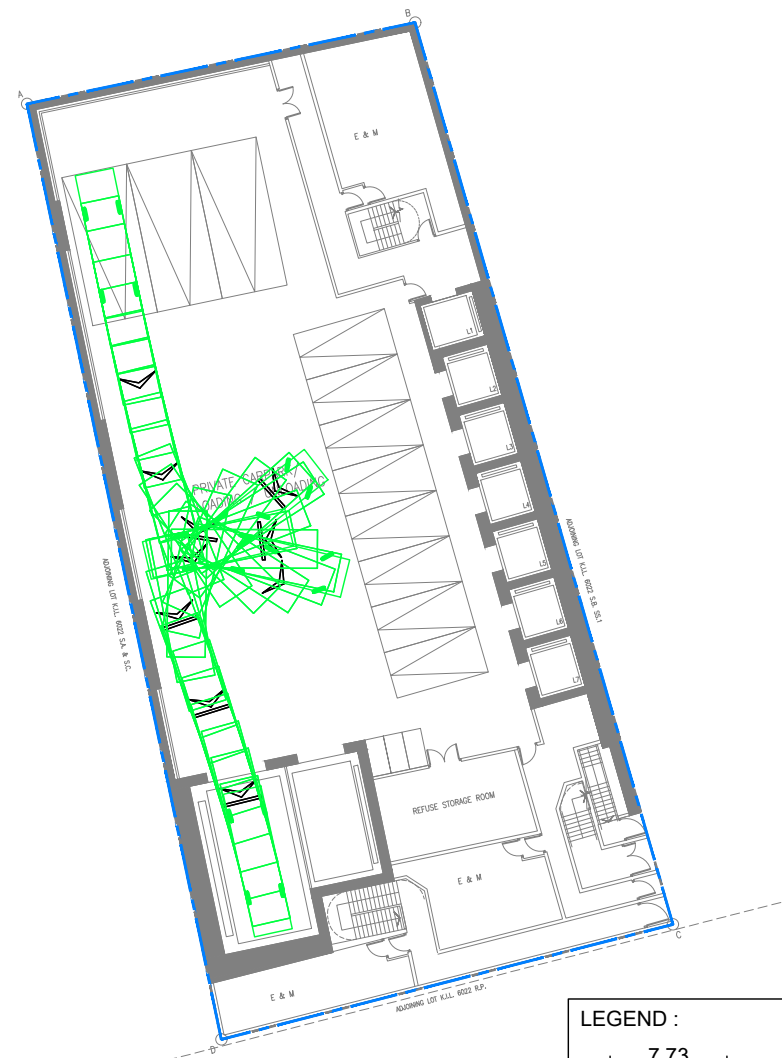


SWEPT PATH ANALYSIS - PC (G/F) (1 OF 2)

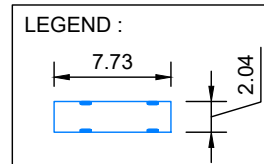
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(IN)

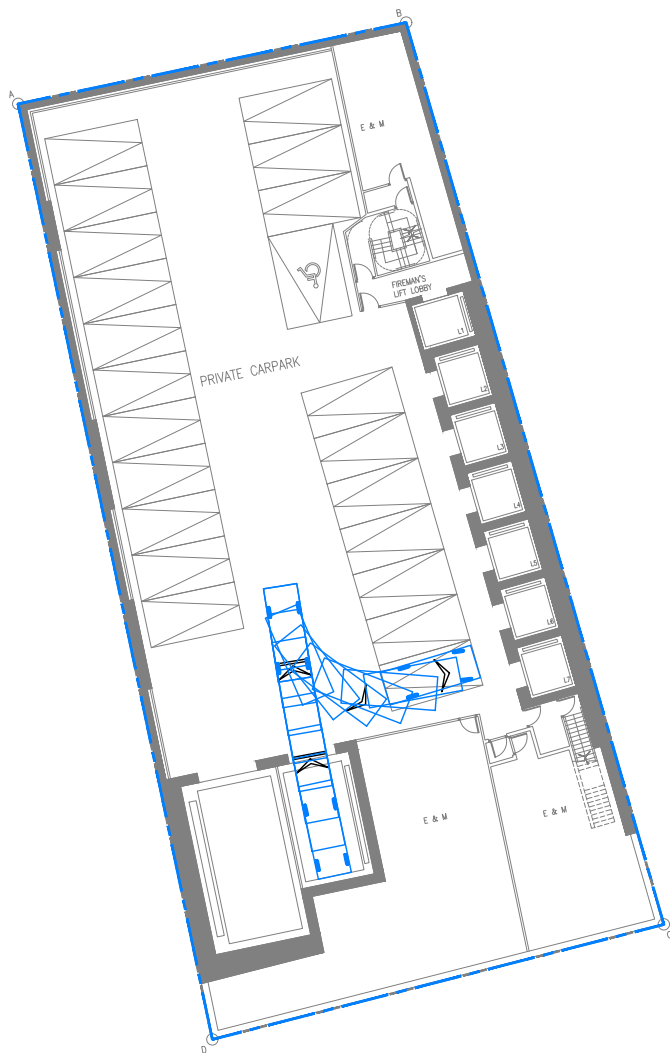


(OUT)

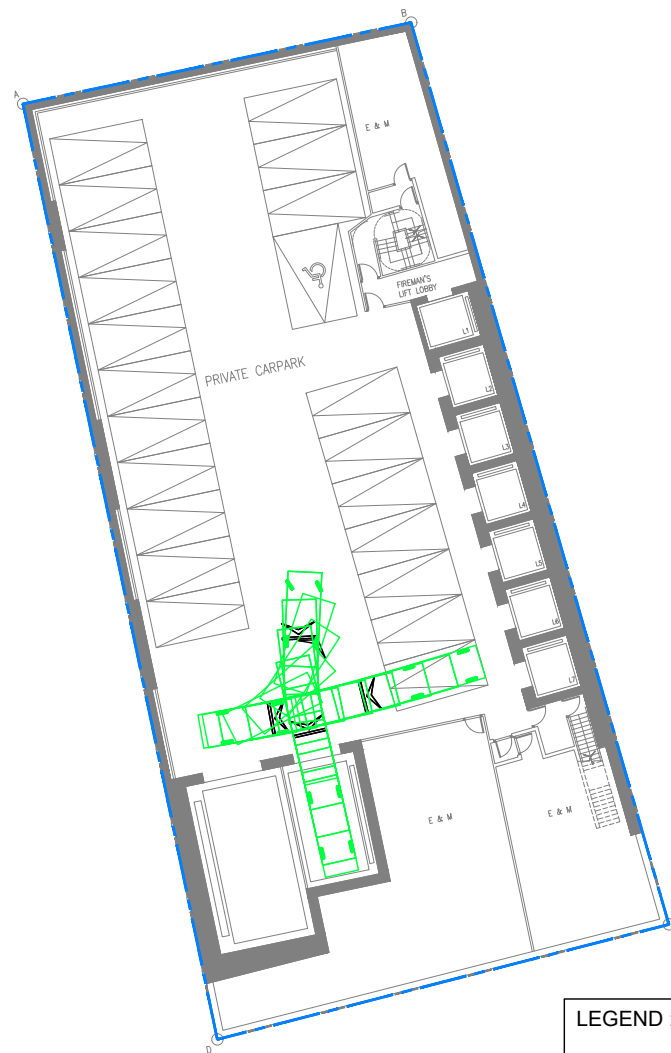


SWEPT PATH ANALYSIS - 28 SEATERS (B1/F)

(SCALE 1:400 @ A4)

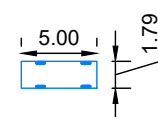


(IN)



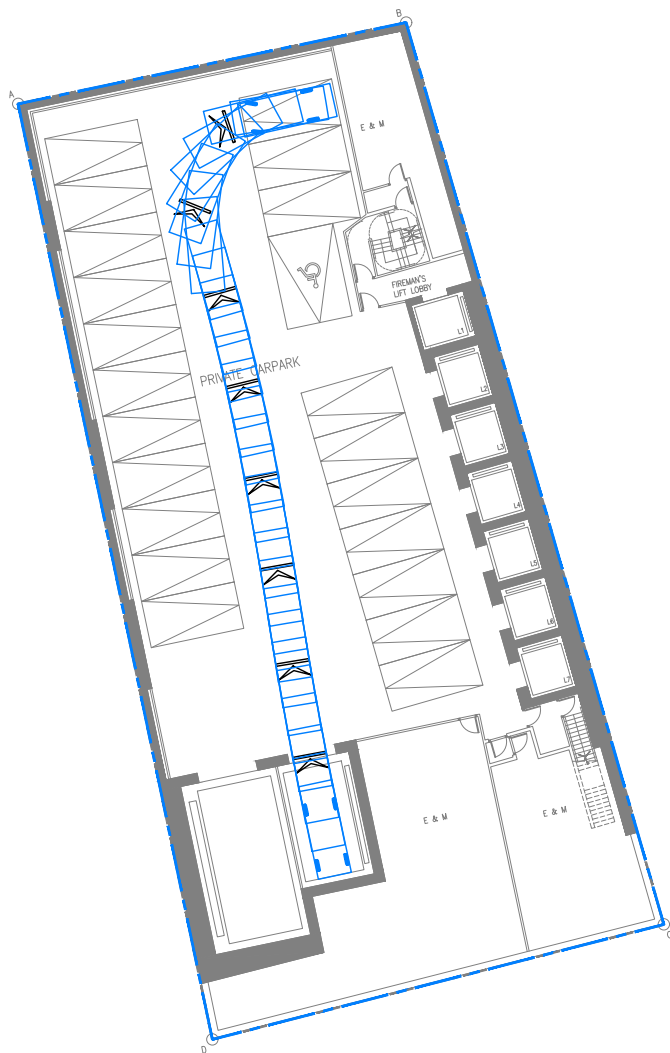
(OUT)

LEGEND :

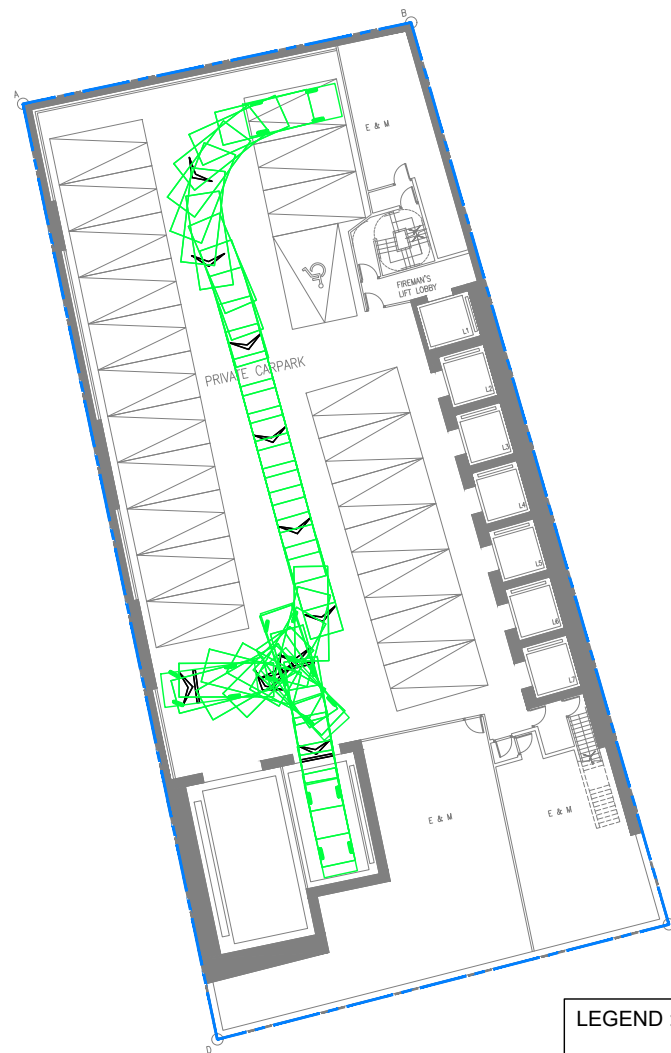


SWEPT PATH ANALYSIS - PC (B2/F) (1 OF 3)

(SCALE 1:400 @ A4)

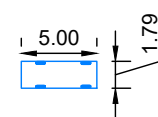


(IN)



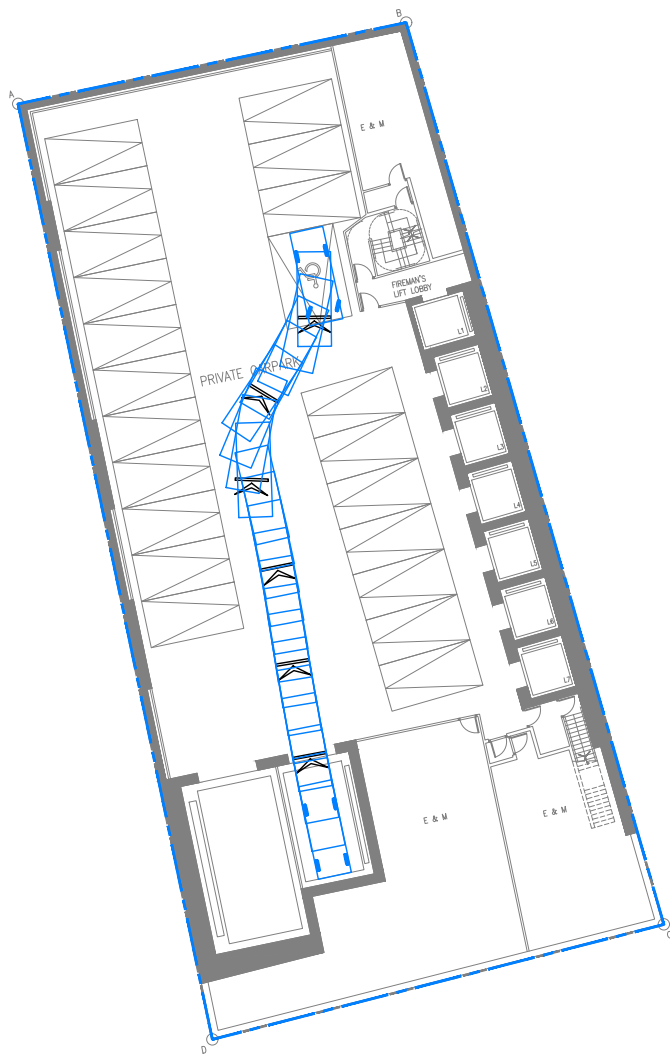
(OUT)

LEGEND :

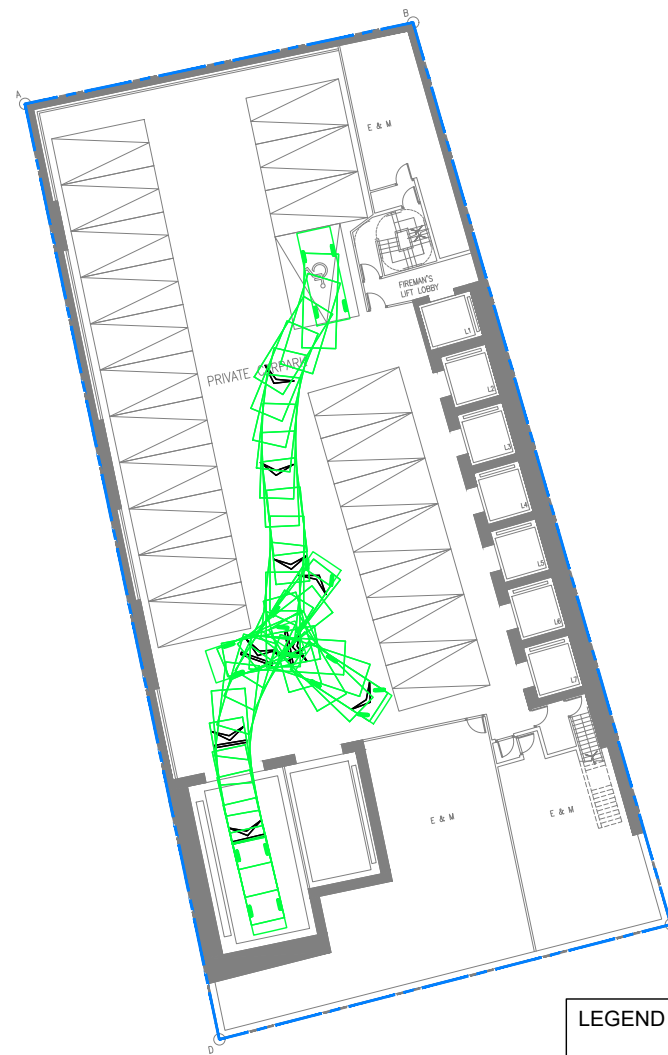


SWEPT PATH ANALYSIS - PC (B2/F) (2 OF 3)

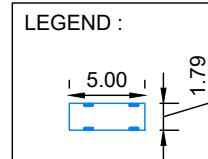
(SCALE 1:400 @ A4)



(IN)



(OUT)



SWEPT PATH ANALYSIS - PC (B2/F) (3 OF 3)

(SCALE 1:400 @ A4)