

Proposed Information Technology and
Telecommunication Industries
(Data Centre) Development
at 7 – 11 Wing Kin Road
Kwai Chung
New Territories

Traffic Impact Assessment
Final Report
February 2025

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Proposed Information Technology and
Telecommunication Industries (Data Centre) Development
at 7 – 11 Wing Kin Road, Kwai Chung

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1.0 INTRODUCTION

Background

- 1.1 The Subject Site is located at 7 – 11 Wing Kin Road in Kwai Chung. Figure 1.1 shows the location of the Subject Site.
- 1.2 On 28 July 2023, the Town Planning Board (“TPB”) approved the application for the Industrial Use at 7 – 11 Wing Kin Road (TPB ref.: A/KC/496) (the “Approved A/KC/496”). The owner has the intention to redevelop the Subject Site into Information Technology and Telecommunication Industries (Data Centre) with the total GFA of 10,991.880m² (the “Proposed Data Centre”).
- 1.3 Against this background, CKM Asia Limited, a traffic and transportation planning consultancy firm, was commissioned by the owner to conduct a traffic impact assessment in support of the Proposed Data Centre. This report describes the traffic study undertaken.

Structure of the Report

- 1.4 The report is structured as follows:

- Chapter One - Gives the background of the project;
- Chapter Two - Describes the existing situation;
- Chapter Three - Explains the Proposed Industrial Development and presents the internal transport facilities provided;
- Chapter Four - Describes the traffic impact analysis;
- Chapter Five - Describes the pedestrian impact analysis; and
- Chapter Six - Gives the overall conclusion.

2.0 THE EXISTING SITUATION

The Subject Site

- 2.1 The Subject Site fronts onto Wing Kin Road to the east and Wing Chong Street to the west. It is bounded by other industrial developments, including the Global Trade Centre to the north and the Hou Feng Industrial Building to the south. The existing building has 2 run-in/outs and these are located at Wing Kin Road and Wing Chong Street. This building is vacant when this Traffic Impact Assessment is being prepared.

Existing Road Network

- 2.2 Wing Kin Road is a local distributor. It is of single carriageway standard and is 1-way northbound from Kwai Hei Street to Wing Kei Road.
- 2.3 Wing Chong Street is a local distributor. It is of a single carriageway standard and is 1-way southbound from Wing Kin Road to Kwai Hei Street.
- 2.4 Wing Kei Road is a local distributor. It is of single carriageway standard with 2 lanes road connecting between Wing Kin Road and Kwai Hei Street.

Traffic Survey

- 2.5 To reflect the latest traffic condition, manual classified count was re-conducted on Friday, 29 November 2024 during the AM and PM peak periods. The locations of the surveyed junctions are presented in Figure 2.1 and their layouts are shown in Figures 2.2 to 2.9.
- 2.6 The surveyed junctions include the following:
- J1: Priority Junction of Wing Kei Road / Wing Kin Road;
 - J2: Priority Junction of Kwai Hei Street / Wing Kei Road;
 - J3: Priority Junction of Kwai Hei Street / Wing Chong Street;
 - J4: Priority Junction of Kwai Hei Street / Wing Kin Road;
 - J5: Signalised Junction of Wing Kei Road / Kwai Fuk Road;
 - J6: Priority Junction of Shing Yiu Street / Wing Kei Road;
 - J7: Signalised Junction of Kwai Fuk Road / Kwai Hei Street; and
 - J8: Priority Junction of Kwai Hei Street / Tsuen Wan Road
- 2.7 The counts were classified by vehicle type to enable traffic flows in passenger car units ("pcu") to be calculated. From the survey, the AM and PM peak hours were found to be between 0800 - 0900 and 1700 – 1800 hours respectively, and the existing AM and PM peak hour traffic flows are presented in Figure 2.10.

Operational Performance of the Surveyed Junctions

- 2.8 The existing operational performance of the surveyed junctions is calculated based on the observed traffic counts and the analysis is undertaken using the methods outlined in Volume 2 of Transport Planning and Design Manual ("TPDM"). The existing operational performance of the junctions are summarised in Table 2.1 and the detailed calculations are found in Appendix 1.

TABLE 2.1 EXISTING JUNCTION OPERATIONAL PERFORMANCE

Ref.	Junction	Type of Junction	Parameter ⁽¹⁾	AM Peak Hour	PM Peak Hour
J1	Wing Kei Road / Wing Kin Road	Priority	RFC	0.341	0.460
J2	Kwai Hei Street / Wing Kei Road	Priority	RFC	0.392	0.227
J3	Kwai Hei Street / Wing Chong Street	Priority	RFC	0.075	0.143
J4	Kwai Hei Street / Wing Kin Road	Priority	RFC	0.120	0.215
J5	Wing Kei Road / Kwai Fuk Road	Signalised	RC	86%	112%
J6	Shing Yiu Street / Wing Kei Road	Priority	RFC	0.281	0.107
J7	Kwai Fuk Road / Kwai Hei Street	Signalised	RC	70%	97%
J8	Kwai Hei Street / Tsuen Wan Road	Priority	RFC	0.257	0.232

Notes: ⁽¹⁾ RC – reserve capacity RFC – Ratio of Flow to Capacity

Traffic Generation of the Surveyed Data Centres

- 2.9 The TPDM does not have trip generation information for data centre, and to estimate the traffic generation of the Proposed Data Centre, trip generation surveys were conducted during the weekday AM and PM peak periods at 3 data centres. Details of the surveyed data centres and the derived trip rates are presented in Tables 2.2 and 2.3.

TABLE 2.2 DETAILS OF THE SURVEYED DATA CENTRES

Ref.	Data Centre	Address	Approximate GFA (m ²)
1	iTech Tower	28 Pak Tin Par Street, Tsuen Wan	18,300
2	NTT Com Tai Po Data Centre	2 Dai Hei Street, Tai Po Industrial Estate, Tai Po	19,700
3	HKG3 Kwai Chung Data Center	43 Container Port Road, Kwai Chung	25,300

TABLE 2.3 TRIP RATES OF THE SURVEYED DATA CENTRES

Ref.	Data Centre	AM Peak Hour		PM Peak Hour	
		IN	OUT	IN	OUT
Traffic Generation (pcu/hr)					
1	iTech Tower	2	2	2	2
2	NTT Com Tai Po Data Centre	9	6	7	13
3	HKG3 Kwai Chung Data Center	10	3	4	9
Trip Rates (pcu/hour/100m ²)					
1	iTech Tower	0.0109	0.0109	0.0109	0.0109
2	NTT Com Tai Po Data Centre	0.0457	0.0305	0.0355	0.0660
3	HKG3 Kwai Chung Data Center	0.0395	0.0119	0.0158	0.0356
Adopted (maximum rates) =		0.0457	0.0305	0.0355	0.0660

Pedestrian Generation Rates for Surveyed Data Centres

- 2.10 The TPDM does not have pedestrian generation information for data centre, and to estimate the pedestrian generation of the Proposed Data Centre, pedestrian generation surveys were conducted during the weekday AM and PM peak periods at the 3 data centres listed in Table 2.2. The derived pedestrian trip rates from the surveys are presented in Table 2.4.

TABLE 2.4 PEDESTRIAN TRIP RATES OF THE SURVEYED DATA CENTRES

Ref.	RCHE	AM Peak Hour		PM Peak Hour	
		IN	OUT	IN	OUT
Pedestrian Generation (pedestrian/15 min)					
1	iTech Tower	12	2	3	12
2	NTT Com Tai Po Data Centre	13	2	3	13
3	HKG3 Kwai Chung Data Center	15	1	3	14
Pedestrian Trip Rates (pedestrian/15 min/100m ²)					
1	iTech Tower	0.0656	0.0109	0.0164	0.0656
2	NTT Com Tai Po Data Centre	0.0660	0.0102	0.0152	0.0660
3	HKG3 Kwai Chung Data Center	0.0595	0.0040	0.0119	0.0555
Adopted (maximum rates) =		0.0660	0.0109	0.0164	0.0660

Public Transport Facilities

- 2.11 The Subject Site is located close to public transport services. Details of the franchised bus and green minibus ("GMB") routes operating in the vicinity of the Subject Site are presented in Figure 2.11 and Table 2.5.

TABLE 2.5 FRANCHISED BUS AND GMB SERVICES OPERATING CLOSE TO THE SUBJECT SITE

Route	Routing	Frequency (minutes)
KMB 32H	Cheung Shan – Lai Chi Kok	30 – 60
KMB 34	Kwai Shing (Central) – Tsuen Wan (Bayview Garden)	12 – 25
KMB 38	Kwai Shing (East) – Ping Tin	6 – 25
KMB 43D	Tsing Yi (Cheung Wang Estate) – Kwai Shing	AM Peak ⁽¹⁾
KMB 73P	Tai Mei Tuk – Tsuen Wan (Nina Tower)	AM, PM Peak ⁽¹⁾
GMB 87	Tsuen Wan (Ham Tin Street) – Kwai Shing (Shing Fong Street)	8 – 10
GMB 87K	Kwai Fong Station – Hoi Kwai Road Public Transport Interchange	6 – 10
GMB 89B	Kwai Shing North (Kwai Hau Street) – Hoi Kwai Road Public Transport Interchange	10 – 12
GMB 91	Tsuen Wan (Ham Tin Street) – Lai Kong Street	5 – 13
GMB 93	Tsuen Wan (Ham Tin Street) – Wah Yuen Chuen	6 – 15
GMB 93A	Wonderland Villas – Tsuen Wan (Ham Tin Street)	15 – 25
GMB 94	Shek Wai Kok – Kwai Shing	8 – 15
GMB 94A	Lei Muk Shue Estate Public Transport Interchange – Kwai Shing	10 – 15 ⁽¹⁾
GMB 98	Tsuen Wan (Ho Pui Street) – High Prosperity Terrace (Circular)	10
GMB 404M	Kwai Fong Station – Riviera Gardens (Circular)	10 - 12
GMB 406	Shek Lei – Kwai Shing (Circular)	AM, PM Peak ⁽¹⁾
GMB 407	Cheung Wang Estate – Princess Margaret Hospital	4 - 10

Note: NWFb – New World First Bus

CTB – City Bus

GMB – Green Minibus

⁽¹⁾ Mondays – Fridays only

⁽²⁾ Sunday and Public Holiday

Utilisation of Existing Bus Stops

- 2.12 Utilisation surveys were conducted during the weekday AM and PM peak periods at 5 bus stops. Details of the bus stops are presented in Table 2.6 and their locations are found in Figure 2.12.

TABLE 2.6 THE LOCATION OF SURVEYED BUS STOPS

No.	Location	Walking Distance	Route
1	Wing Kei Road Southbound	100m (1 minute's walk)	GMB: 404M
2	Kwai Fuk Road Westbound	600m (8 minutes' walk)	KMB: 73P GMB: 87, 87K, 91, 93, 93A, 98, 404M, 406, 407
3	Kwai Fuk Road Eastbound	650m (9 minutes' walk)	KMB: 73P GMB: 87, 87K, 91, 93, 93A, 98, 404M, 406, 407
4	Kwai Shing Swimming Pool Eastbound	600m (10 minutes' walk)	KMB: 32H, 34, 43D GMB: 87, 87K, 89B, 406, 407, 94, 94A
5	Kwai Shing Swimming Pool Westbound	600m (10 minutes' walk)	KMB: 32H, 38 GMB: 87, 87K, 89B, 407, 94, 94A

Note: KMB – Kowloon Motor Bus GMB – Green Minibus

- 2.13 The existing utilisation of the public transport services at 5 surveyed bus stops are summarised in Table 2.7 and the detailed calculations are found in Appendix 2.

TABLE 2.7 THE EXISTING UTILISATION OF THE PUBLIC TRANSPORT SERVICES AT THE 5 SURVEYED STOPS

No.	Location	Occupancy of Public Transport Service	
		AM Peak	PM Peak
1	Wing Kei Road Southbound	67.1%	77.3%
2	Kwai Fuk Road Northbound	67.1%	77.0%
3	Kwai Fuk Road Southbound	65.6%	80.1%
4	Kwai Shing Swimming Pool Eastbound	50.5%	38.0%
5	Kwai Shing Swimming Pool Westbound	45.0%	51.2%

3.0 THE PROPOSED DATA CENTRE

Development Schedule

- 3.1 The Proposed Data Centre has total GFA of 10,991.880m², and run-in/out is provided at Wing Kin Road, which is at the same location as the Approved A/KC/496.

Provision of Internal Transport Facilities

- 3.2 The internal transport facilities for the Proposed Data Centre are provided in accordance to the provision rates found in the draft Provisional Basic Terms Offer (“draft PBTO”) and these are presented in Table 3.1. The draft PBTO is found in Appendix 3.

TABLE 3.1 INTERNAL TRANSPORT FACILITIES OF THE PROPOSED DATA CENTRE

Draft PBTO	Proposed Provision (Data Centre GFA 10,991.880m ²)
<u>Car Parking Space</u>	
<u>Clause 22(a)(i)(l)</u> one space for every 1,000 square metres or part thereof the gross floor area of the building or buildings erected or to be erected on the lot or part or parts of the building or buildings for the purpose of data centre <u>Calculation:</u> 10,991.880 / 1,000 = 10.99, say 11 nos.	11 nos. comprising of: (i) 10 nos. @ 5m (L) x 2.5m (W) x 2.4m, (ii) 1 no. @ 5m (L) x 3.5m (W) x 2.4m (H) for persons with disabilities = requirement of Draft PBTO, OK
<u>Motorcycle Parking Space</u>	
<u>Clause 22(c)(i)(l)</u> 10% of the total number of the Data Centre Parking Spaces <u>Calculation:</u> 11 x 10% = 1.10, say 2 nos.	2 nos. @ 2.4m (L) x 1m (W) x 2.4m (H) = requirement of Draft PBTO, OK

TABLE 3.1 PROPOSED INTERNAL TRANSPORT FACILITIES (CONT'D)

Draft PBTO	Proposed Provision (Data Centre GFA 10,991.880m ²)
<u>Goods Vehicle Loading / Unloading Bay</u>	
<p><u>Clause 22(e)(i)(l)</u> one space for every 3,400 square metres or part thereof of the gross floor area of the building or buildings erected or to be erected on the lot or part or parts of the building or buildings for the purpose of data centre</p> <p><u>Calculation:</u> $10,991.880 / 3,400 = 3.23$, say <u>4 nos.</u></p> <p><u>Clause 22(e)(ii)(l)(A)</u> the first 65% of the total number of spaces shall each measure 3.5 metres in width and 7.0 metres in length with a minimum headroom of 3.6 metres provided that if the number of spaces so calculated is a decimal number, the C for T may at his absolute discretion round up or down the number to a whole number; and</p> <p><u>Clause 22(e)(ii)(l)(B)</u> the remaining number of spaces shall each measure 3.5 metres in width and 11.0 metres in length with a minimum headroom of 4.7 metres.</p> <p><u>Calculation:</u> LGV = $4 \times 65\% = 2.6$, say <u>3 nos.</u> HGV = $4 - 3 = 1$ no.</p> <p><u>Clause 22(e)(iii)(l)</u> the first 60% of the spaces of the respective dimensions as provided under sub-clauses (e)(ii)(l)(A) and (e)(ii)(l)(B) of this Special Condition (as may be varied under Special Condition No. (23) hereof) shall be used for the loading and unloading of goods vehicles.....and the remaining number of spaces shall be used for parking of goods vehicles.</p> <p><u>Calculation:</u> <u>3 nos. LGV</u> L/UL = $3 \times 60\% = 1.8$, say 2 nos. Parking = $3 - 2 = 1$ no. <u>1 no. HGV</u> L/UL = $1 \times 60\% = 0.6$, say 1no. Parking = 0</p>	<p><u>4 nos.</u> comprising of:</p> <p>(i) 1 no. HGV @ 11m (L) x 3.5m (W) x 4.7m (H) & (ii) 3 nos. LGV @ 7m (L) x 3.5m (W) x 3.6m (H)</p> <p><u>= requirement of Draft PBTO, OK</u></p>

3.3 Table 3.1 shows that the internal transport facilities provided comply with the requirement of draft PBTO.

3.4 The carpark layout plans for G/F and B1/F are shown in Figures 3.1 – 3.2.

Vehicle Lift Analysis

3.5 A light goods vehicle lift is provided to access B1/F from G/F. A vehicle lift analysis was conducted to check on the operation of the vehicle lift system, and it was found that the vehicle lift system is acceptable and can serve the Proposed Data Centre. The vehicle lift analysis is attached in Appendix 4.

Swept Path Analysis

- 3.6 The CAD-based swept path analysis program, Autodesk Vehicle Tracking, was used to check the ease of vehicle manoeuvring. Vehicles are found to have no manoeuvring problems and all vehicles could enter and leave the spaces with ease. The swept path analysis drawings for critical movements are found in Appendix 5.

4.0 TRAFFIC IMPACT

Design Year

- 4.1 The Proposed Data Centre is expected to be completed by 2029, and the design year adopted for the capacity analysis is 2032, i.e. 3 years after the completion of the Proposed Data Centre.

Traffic Forecasting

- 4.2 The 2032 traffic flows used for the junction analysis are produced with reference to the following:
- (i) 2031 traffic flows derived with reference to Base District Traffic Model ("BDTM");
 - (ii) estimated traffic growth from 2031 to 2032 based on the higher of the (a) 2021 – based Territorial Population and Employment Data Matrix ("TPEDM") data produced by Planning Department ("PlanD") for Kwai Tsing District, (b) Hong Kong Population Projections 2022 – 2046 published by Census and Statistics Department ("C&SD"), or (c) historic Annual Average Daily Traffic Growth ("AADT") produced by TD; and
 - (iii) traffic generated by the Proposed Data Centre.

Estimated Traffic Growth Rate from 2031 to 2032

- 4.3 The (a) 2021 – based TPEDM data for Kwai Tsing District, and the (b) Hong Kong Population Projections 2022 – 2046, and (c) historic AADT are summarised in Tables 4.1 – 4.3 respectively.

TABLE 4.1 2021-BASED TPEDM DATA FOR KWAI TSING DISTRICT

Item	TPEDM Estimation / Projection			Annual Growth Rate		
	2021	2026	2031	2021 to 2026	2026 to 2031	2021 to 2031
Population	495,800	488,750	483,050	-0.20%	-0.23%	-0.22%
Employment	226,350	223,400	227,800	-0.19%	0.39%	0.05%

TABLE 4.2 HONG KONG POPULATION PROJECTIONS 2022 – 2046

Whole Territory Population		Annual Growth Rate
Year 2031	Year 2032	2031 to 2032
7,820,200	7,862,100	+ 0.54%

TABLE 4.3 AADT OF THE STATION IN THE VICINITY OF THE SUBJECT SITE

Station	5224	6022	6645
Road	Kwai Fuk Road	Kwai Fuk Road	Wing Kei Road
From	Shing Fuk Street	Shing Fuk Street	Wing Kin Road
To	Texaco Road	Hing Fong Road	Kwai Hei Street
2014	15,660	25,720	3,830
2015	15,960	26,200	3,690
2016	16,400	26,930	3,990
2017	16,700	24,700	3,800
2018	12,760	24,160	2,690
2019	15,370	24,070	3,180
2020	15,220	23,840	3,790
2021	15,800	24,760	3,600
2022	15,640	29,760	3,560
2023	15,680	26,420	3,600

Average Annual Growth	-0.01%	-0.30%	-0.69%
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- 4.4 Table 4.1 shows that the highest annual growth rate for population is -0.20% and for employment is +0.39%. Table 4.2 shows that the annual growth rate from 2031 to 2032 is +0.54%. Table 4.3 shows that in the historic AADT of the stations between 2014 and 2023 in the vicinity has highest growth rate of only -0.30% per annum. To be conservative, the growth rate of +1% per annum is adopted to estimate the traffic growth from 2031 to 2032.

Traffic Generated by the Proposed Data Centre

- 4.5 Traffic generation associated with the Proposed Data Centre is calculated based on results presented in Table 2.3, and the calculation is presented in Table 4.4. The comparison of traffic generation between Approved A/KC/496 and the Proposed Data Centre is presented in Table 4.4.

TABLE 4.4 COMPARISON OF TRAFFIC GENERATION BETWEEN APPROVED A/KC/496 AND THE PROPOSED DATA CENTRE

Item	AM Peak Hour			PM Peak Hour		
	In	Out	2-way	In	Out	2-way
Trip Generation Rates (pcu/hour/100m ² GFA) in Table 2.3						
Data Centre	0.0457	0.0305	NA	0.0355	0.0660	NA
Traffic Generation of Proposed Data Centre (pcu/hour)						
The Proposed Data Centre: 10,991.880m ² [a]	<u>6</u>	<u>4</u>	<u>10</u>	<u>4</u>	<u>8</u>	<u>12</u>
Approved A/KC/496 [b]	<u>19</u>	<u>13</u>	<u>32</u>	<u>14</u>	<u>19</u>	<u>33</u>
Difference [a] – [b]	<u>-13</u>	<u>-9</u>	<u>-22</u>	<u>-10</u>	<u>-11</u>	<u>-21</u>

- 4.6 Table 4.4 shows that compared with the Approved A/KC/496, the Proposed Data Centre generates 22 and 21 pcu (2-way) less during the AM and PM peak hours. It can be concluded from traffic generation aspect that compared with the Approved A/KC/496, the Proposed Data Centre is better-off scheme.
- 4.7 The ingress / egress route for traffic generated by the Proposed Data Centre is shown in Figure 4.1.

2032 Traffic Flows

- 4.8 Year 2032 traffic flows for the following cases are derived:

2032 without the Proposed = (i) 2031 traffic flows derived with reference to BD TM
Data Centre [A] + (ii) estimated total growth from 2031 to 2032

2032 with the Proposed = [A] + (iii) Traffic generated by the Proposed Data
Data Centre [B] Centre (Table 4.4)

- 4.9 The 2032 peak hour traffic flows for the cases without and with the Proposed Data Centre, are shown in Figures 4.2 - 4.3, respectively.

2032 Junction Operational Performance

- 4.10 Year 2032 capacity analysis for the cases without and with the Proposed Data Centre are summarised in Table 4.5 and detailed calculations are found in the Appendix 1.

TABLE 4.5 2032 JUNCTION OPERATIONAL PERFORMANCE

Ref.	Junction	Type of Junction / Parameter ⁽¹⁾	Without the Proposed Data Centre		With the Proposed Data Centre	
			AM Peak	PM Peak	AM Peak	PM Peak
J1	Wing Kei Road / Wing Kin Road	Priority / RFC	0.363	0.497	0.367	0.505
J2	Kwai Hei Street / Wing Kei Road	Priority / RFC	0.426	0.246	0.433	0.254
J3	Kwai Hei Street / Wing Chong Street	Priority / RFC	0.084	0.157	0.084	0.157
J4	Kwai Hei Street / Wing Kin Road	Priority / RFC	0.132	0.231	0.136	0.234
J5	Wing Kei Road / Kwai Fuk Road	Signalised / RC	66%	97%	66%	97%
J6	Shing Yiu Street / Wing Kei Road	Priority / RFC	0.305	0.119	0.305	0.119
J7	Kwai Fuk Road / Kwai Hei Street	Signalised / RC	57%	83%	57%	82%
J8	Kwai Hei Street / Tsuen Wan Road	Priority / RFC	0.285	0.250	0.285	0.251

Notes: ⁽¹⁾ RC – reserve capacity RFC – Ratio of Flow to Capacity

- 4.11 Table 4.5 shows that the junctions operate with capacities during the AM and PM peak hours for the cases without and with the Proposed Data Centre.

2032 Link Capacity Assessment

- 4.12 2032 link capacity of Wing Kei Road, Wing Kin Road and Kwai Hei Street are assessed and the results are shown in Table 4.6.

TABLE 4.6 2032 LINK CAPACITY ASSESSMENT

Ref	Links	Design Flow (veh/hr)	Scenario (Without / With Proposed Development)	Traffic Flow (veh/hr)		V/C Ratio	
				AM Peak	PM Peak	AM Peak	PM Peak
L1	Wing Kei Road	800	Without	334	203	0.418	0.254
			With	335	203	0.419	0.254
L2	Wing Kin Road	400	Without	217	280	0.543	0.700
			With	221	281	0.553	0.703
L3	Kwai Hei Street	800	Without	409	338	0.511	0.423
			With	413	341	0.516	0.426

- 4.13 Table 4.6 shows that the traffic generation associated with the Proposed Data Centre has negligible traffic impact to the road link analysed.

Impact on Utilisation of 5 Surveyed Bus Stops

- 4.14 The number of passengers associated with the Proposed Data Centre using public transport is calculated based on the pedestrian generation of the Proposed Data Centre. The comparison of pedestrian generation between Approved A/KC/496 and the Proposed Data Centre is presented in Table 4.7.

TABLE 4.7 COMPARISON OF PEDESTRAIN GENERATION BETWEEN APPROVED A/KC/496 AND THE PROPOSED DATA CENTRE

Item	AM Peak Hour			PM Peak Hour		
	In	Out	2-way	In	Out	2-way
Pedestrian Generation Rates (ped/15 min/100m ²) in Table 2.4						
Data Centre	0.0660	0.0109	NA	0.0164	0.0660	NA
Pedestrian Generation of Proposed Data Centre (ped/15 min)						
The Proposed Data Centre: 10,991.880m ²	<u>8</u>	<u>2</u>	<u>10</u>	<u>2</u>	<u>8</u>	<u>10</u>
Pedestrian Generation of Proposed Data Centre (ped/1 hour)						
The Proposed Data Centre: 10,991.880m ² [a]	<u>32</u>	<u>8</u>	<u>40</u>	<u>8</u>	<u>32</u>	<u>40</u>
Approved A/KC/496 [b]	40	12	52	12	36	48
Difference [a] – [b]	-8	-4	-12	-4	-4	-8

4.15 Table 4.7 shows that compared with the Approved A/KC/496, the Proposed Data Centre generates 12 and 8 pedestrians (2-way) less during the AM and PM peak hours. It can be concluded from traffic generation aspect that compared with the Approved A/KC/496, the Proposed Data Centre is better-off scheme.

4.16 To be conservative, it is assumed that all pedestrians generated by the Proposed Data Centre use public transport services and the public transport utilisation analysis is presented in Table 4.8.

TABLE 4.8 THE UTILISATION OF THE PUBLIC TRANSPORT SERVICES FOR THE CASE WITH THE PROPOSED DATA CENTRE

No.	Location	Occupancy of Public Transport Service	
		AM Peak	PM Peak
1	Wing Kei Road Southbound	70.6%	82.9%
2	Kwai Fuk Road Northbound	67.4%	77.4%
3	Kwai Fuk Road Southbound	66.0%	80.5%
4	Kwai Shing Swimming Pool Eastbound	51.0%	38.5%
5	Kwai Shing Swimming Pool Westbound	45.7%	51.9%

4.17 Table 4.9 shows that the public transport service have capacity to accommodate the passenger demand generated by the Proposed Data Centre.

5.0 PEDESTRIAN ASSESSMENT

Location of Surveyed Footpaths

- 5.1 The pedestrian assessment is undertaken for footpaths likely used by the occupants and visitors to the Proposed Data Centre. The location of the surveyed footpaths is shown in Figure 5.1.

Estimation of Future Pedestrian Flows

- 5.2 The year 2032 pedestrian flow is estimated based on the following:
- (i) Existing pedestrian flows;
 - (ii) Estimated annual pedestrian growth rates from 2024 to 2032; and
 - (iii) Pedestrian generated by the Proposed Data Centre in Table 4.7.

Existing Pedestrian Flows

- 5.3 To quantify the existing pedestrian flows using the footpaths presented in Figure 5.1, pedestrian counts were conducted during the AM and PM peak periods on Friday, 29 November 2024. The existing peak 15-minute two-way pedestrian flows, which are obtained from the pedestrian counts, are presented in Figure 5.2.

Estimated Annual Pedestrian Growth Rates from 2024 to 2032

- 5.4 The 2032 reference pedestrian flow is estimated based on the 2024 observed pedestrian flows and the annual pedestrian growth rate from 2024 to 2032. The pedestrian growth rate from 2024 to 2033 is assumed to be +1% annum which is taken from Paragraph 4.4.

2032 Pedestrian Flows

- 5.5 The 2032 pedestrian flows without and with the Proposed Data Centre are derived using the following method:

2032 without the Proposed Data Centre [A] = (i) existing pedestrian flows + (ii) estimated annual pedestrian growth rates from 2023 to 2032

2032 with the Proposed Data Centre [B] = [A] + (iii) pedestrian generated by the Proposed Data Centre (Table 4.7)

- 5.6 The 2032 pedestrian flows without and with the Proposed Data Centre are presented in Figures 5.3 and 5.4.

Level-of-Service

- 5.7 The level-of-service (LOS) of a pedestrian facility is dependent on its width and the number of pedestrians using the facility. Description of the LOS is obtained from the TPDM, and is given in Table 5.1.

TABLE 5.1 DESCRIPTION OF PEDESTRIAN FACILITY LOS

LOS	Maximum Pedestrian Flow Rate - ped/min/m	Description
A	< = 16	Pedestrians basically move in desired paths without altering their movements in response to other pedestrians. Walking speeds are freely selected and conflicts between pedestrians are unlikely.
B	> 16 - 23	Sufficient space is provided for pedestrians to freely select walking speeds, to bypass other pedestrians and to avoid crossing conflicts with others. At this level, pedestrians begin to be aware of other pedestrians and to respond to their presence in the selection of walking paths.
C	> 23 – 33	Sufficient space is available to select normal walking speeds and to bypass other pedestrians primarily in unidirectional streams. Where reverse directions or crossing movements exist, minor conflicts will occur, and speed and volume will be somewhat lower.
D	> 33 - 49	Freedom to select individual walking speed and bypass other pedestrians is restricted. Where crossing or reverse-flow movements exist, the probability of conflict is high and its avoidance requires frequent changes in speed and position. The LOS provides reasonably fluid flow; however considerable friction and interaction between pedestrians is likely to occur.
E	> 49 – 75	Virtually, all pedestrians would have their normal walking speed restricted. At the lower range of this LOS, forward movement is possible only by shuffling. Space is insufficient to pass over slower pedestrians. Cross- or reverse-flow movements are possible only with extreme difficulties. Design volumes approach the limit of walkway capacity with resulting stoppages and interruptions to flow.
F	> 75	Walking speeds are severely restricted. Forward progress is made only by "shuffling". There is frequent and unavoidable contact with other pedestrians. Cross- and reverse-flow movements are virtually impossible. Flow is sporadic and unstable. Space is more characteristic of queued pedestrians than of moving pedestrian streams.

Source: Transport Planning & Design Manual Volume 6, Transport Department

5.8 The effective width of the surveyed footpaths is presented in Table 5.2.

TABLE 5.2 EFFECTIVE WIDTH OF THE SURVEYED FOOTPATHS

Ref.	Location		Footpath Width (m)	Effective Width (m)
1	Wing Kin Road between Wing Kei Road and Kwai Hei Street	Western footpath	2.6	1.6
2	Wing Kei Road between Wing Kin Road and Kwai Hei Street	Eastern footpath	3.7	2.7
3	Kwai Hei Street between Wing King Road and Wing Kei Road	Northern footpath	2.3	1.3

5.9 The 2032 weekday LOS at the surveyed footpaths for the cases without and with the Proposed Data Centre is presented in Table 5.3.

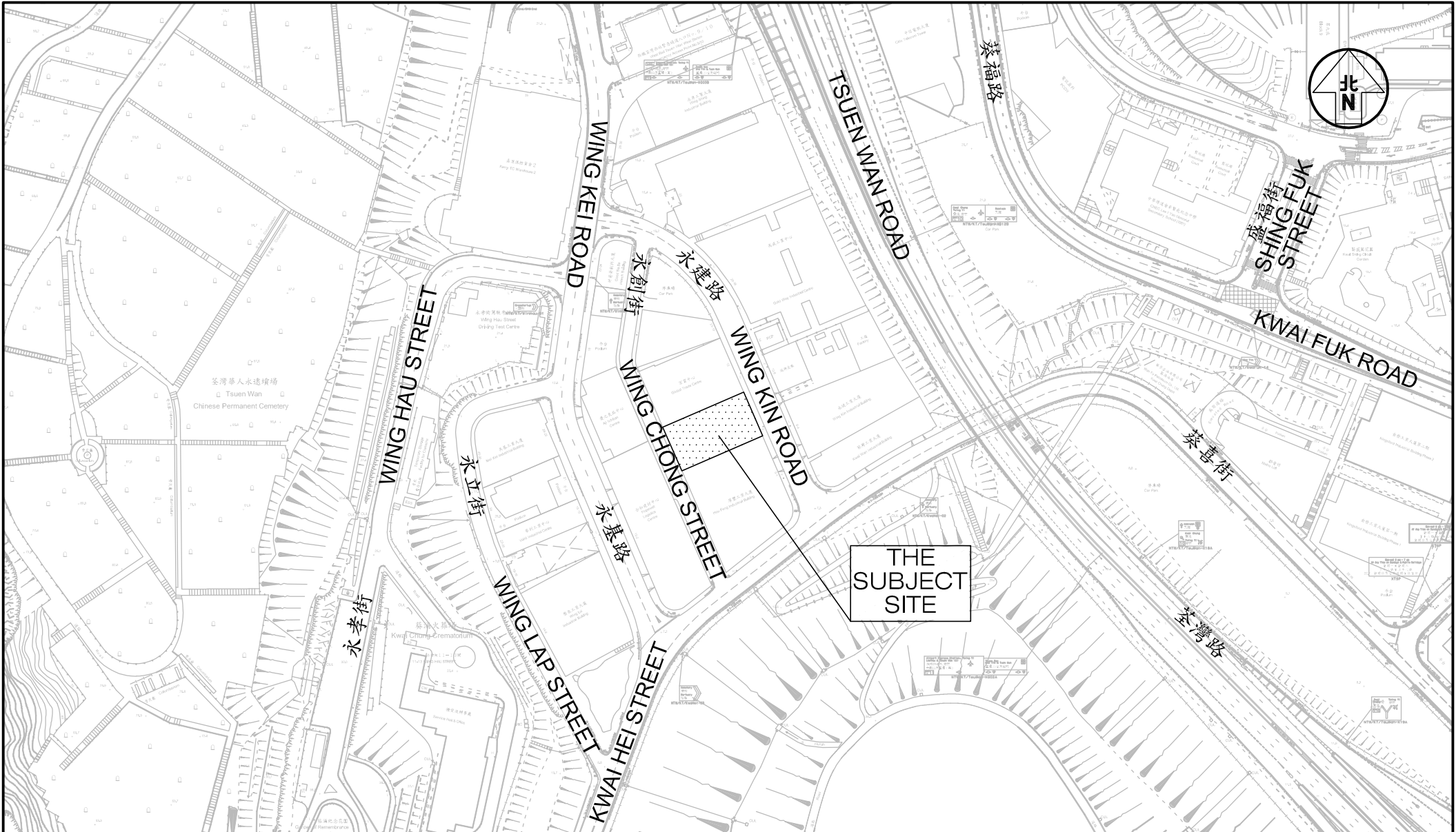
TABLE 5.3 2032 LOS WITHOUT AND WITH THE PROPOSED DATA CENTRE

Ref.	Location		Peak Period	Year 2032 without the Proposed Data Centre			Year 2032 with the Proposed Data Centre		
				Ped / 15 min	Ped / min/m	LOS	Ped / 15 min	Ped / min/m	LOS
1	Wing Kin Road between Wing Kei Road and Kwai Hei Street	Western footpath	AM	19	0.8	A	29	1.2	A
			PM	45	1.9	A	55	2.3	A
2	Wing Kei Road between Wing Kin Road and Kwai Hei Street	Eastern footpath	AM	16	0.4	A	21	0.5	A
			PM	15	0.4	A	20	0.5	A
3	Kwai Hei Street between Wing King Road and Wing Kei Road	Northern footpath	AM	17	0.9	A	22	1.1	A
			PM	22	1.1	A	27	1.4	A

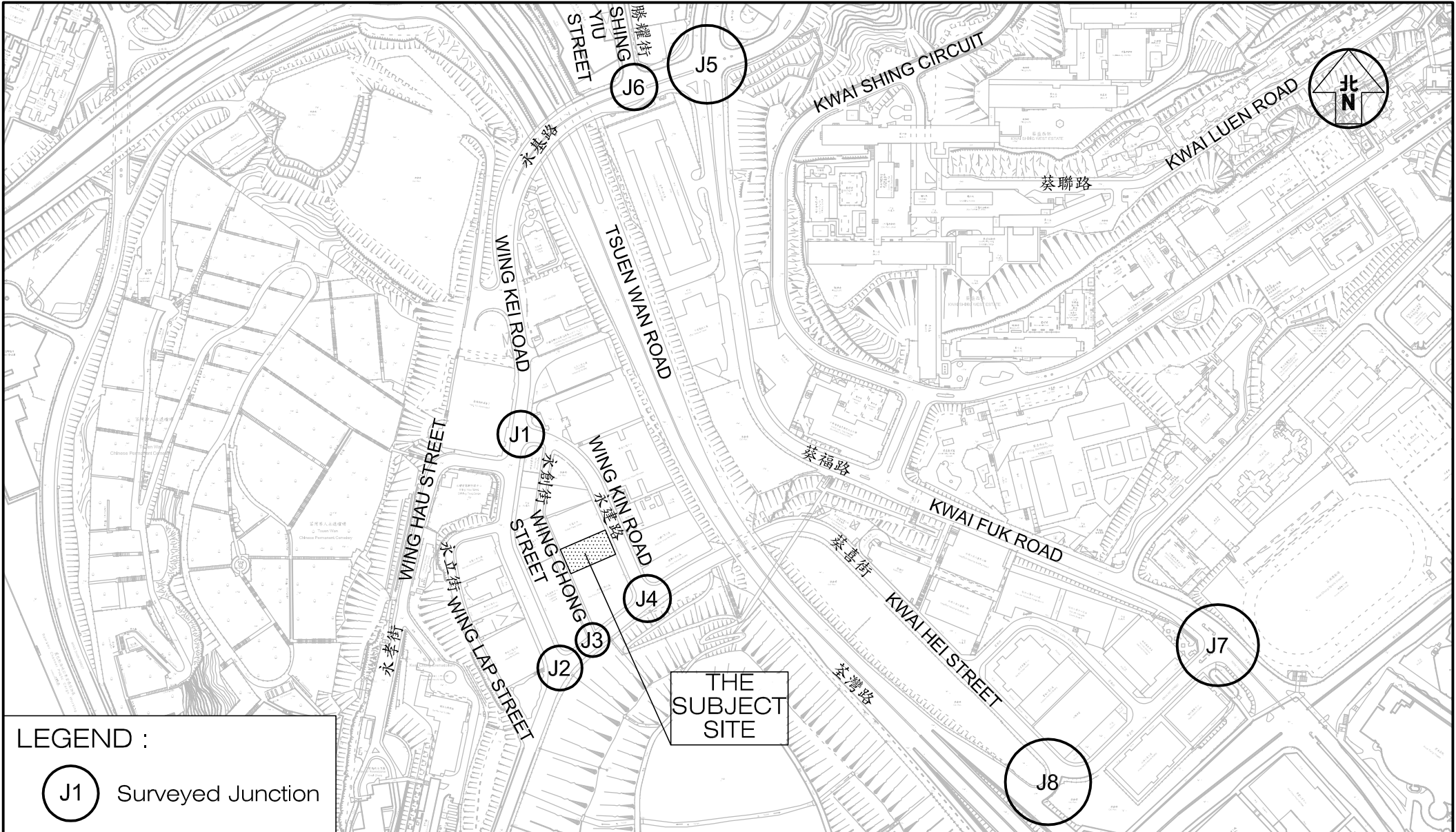
5.10 Table 5.3 shows that all surveyed footpaths achieve LOS A, which concludes that the Proposed Data Centre will have no adverse impact to the footpaths in the vicinity.

6.0 CONCLUSION

- 6.1 The Subject Site is located at 7 – 11 Wing Kin Road in Kwai Chung. The existing building is vacant when this Traffic Impact Assessment is being prepared.
- 6.2 On 28 July 2023, the TPB approved the application for the Industrial Use at 7 – 11 Wing Kin Road (TPB ref.: A/KC/496). The owner now intends to redevelop the Subject Site into a Data Centre with a total GFA of 10,991.880m².
- 6.3 Manual classified counts were conducted at the key junctions located in the vicinity of the Proposed Data Centre in order to establish the peak hour traffic flows. Currently, the key junctions operate with capacities during the AM and PM peak hours.
- 6.4 The internal transport facilities provided for the Proposed Data Centre comply with the requirement of draft PBT0. A light goods vehicle lift is provided to access B1/F from G/F. All vehicles could enter and leave the Proposed Data Centre and their respective space / bay with ease.
- 6.5 The run-in/out is provided at Wing Kin Road, which is at the same location as the Approved A/KC/496.
- 6.6 The Proposed Data Centre is expected to be completed by 2029, and the junction capacity analysis and link capacity analysis are undertaken for year 2032. For the design year 2032, the junctions and road links analysed are expected to operate with capacities during the peak hours for the case without and with the Proposed Data Centre.
- 6.7 The public transport services at the 5 surveyed bus stops have capacity to accommodate the passenger demand generated by the Proposed Data Centre.
- 6.8 The pedestrian assessment conducted found that the surveyed footpaths would operate with LOS A in 2032 for the cases without and with the Proposed Data Centre.
- 6.9 It is concluded that the Proposed Data Centre will result in no adverse traffic impact to the surrounding road network and the footpaths in the vicinity. From traffic engineering grounds, the Proposed Data Centre is acceptable.



Project Title	PROPOSED INFORMATION TECHNOLOGY AND TELECOMMUNICATION INDUSTRIES (DATA CENTRE) DEVELOPMENT AT 7 - 11 WING KIN ROAD, KWAI CHUNG, NEW TERRITORIES	Figure No. 1.1	Revision A	CKM Asia Limited Traffic and Transportation Planning Consultants 21st Floor, Methodist House, 36 Hennessy Road, Wan Chai, Hong Kong Tel : (852) 2520 5990 Fax : (852) 2528 6343 Email : mail@ckmasia.com.hk	
Figure Title	LOCATION OF SUBJECT SITE	Designed by L C H	Drawn by N C M		Checked by K C
		Scale in A4 1 : 2500	Date 13 FEB 2025		



LEGEND :

J1 Surveyed Junction

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Figure Title LOCATION OF SURVEYED JUNCTIONS	Designed by C Y Y	Drawn by N C M		Checked by K C
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Project Title PROPOSED INFORMATION TECHNOLOGY AND TELECOMMUNICATION INDUSTRIES (DATA CENTRE) DEVELOPMENT AT 7 - 11 WING KIN ROAD, KWAI CHUNG, NEW TERRITORIES J7384

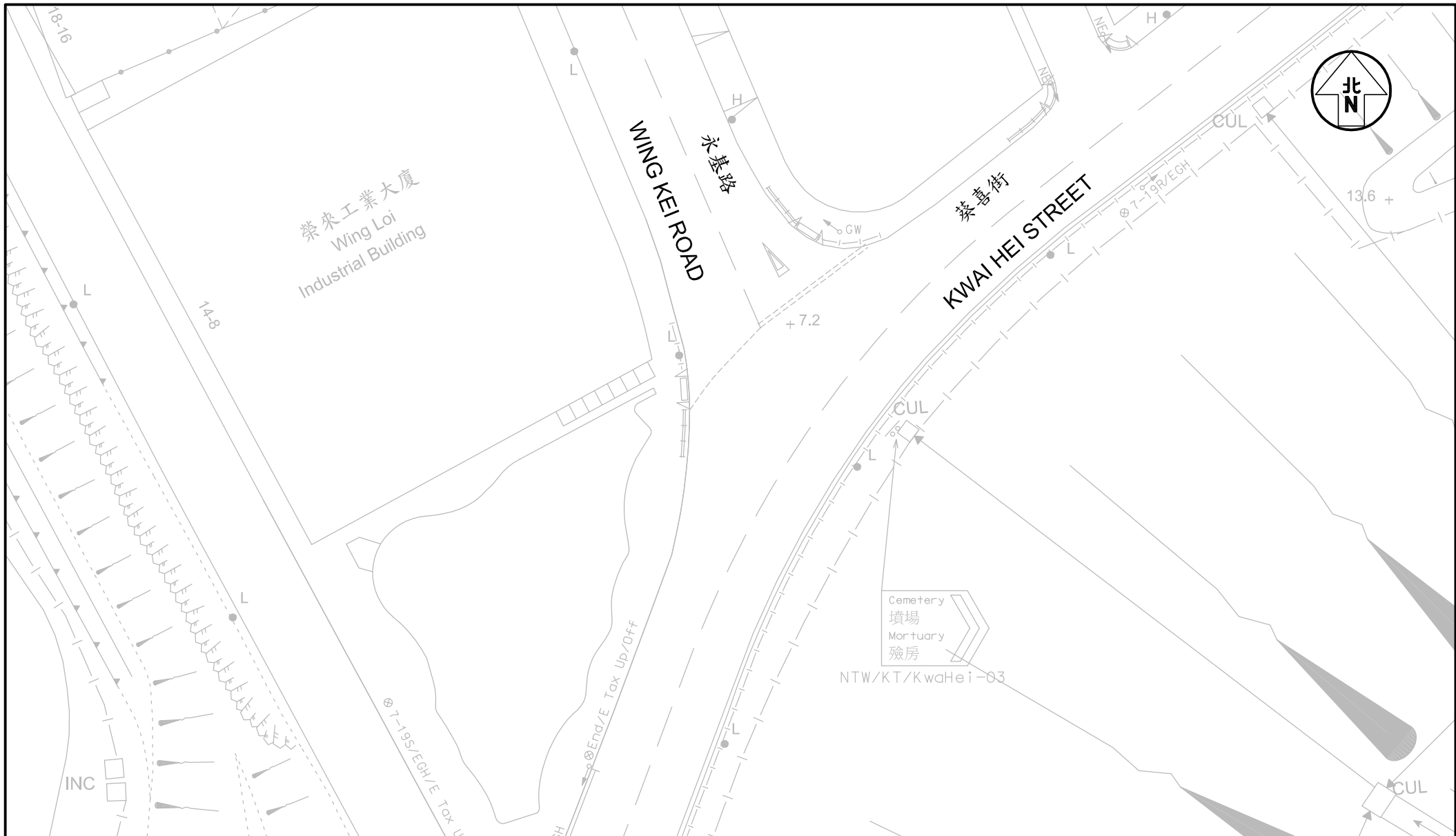
Figure No. 2.2 Revision A

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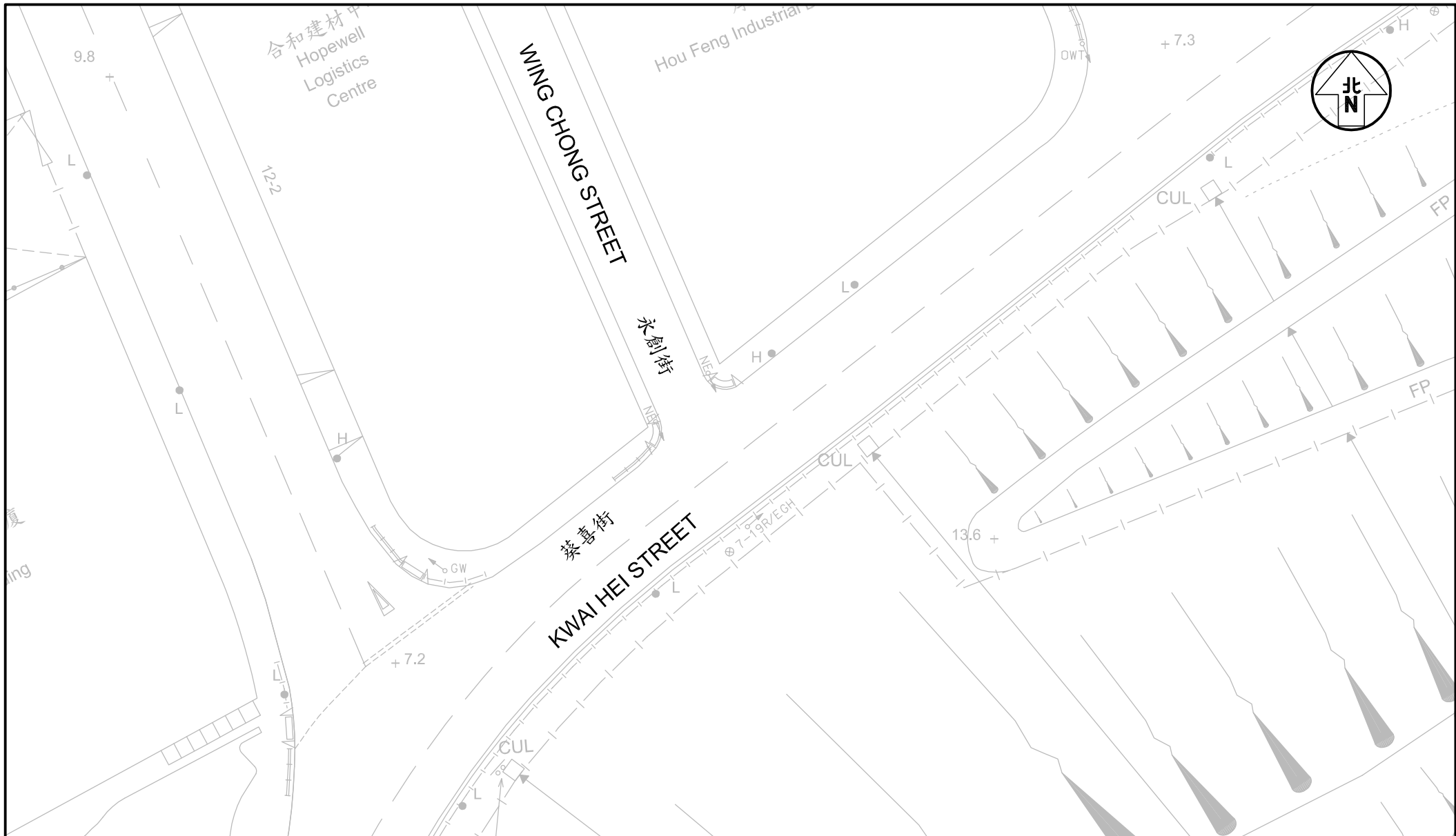
Figure Title LAYOUT OF JUNCTION OF WING KEI ROAD / WING KIN ROAD

Designed by C Y Y Drawn by N C M Checked by K C
Scale in A4 1 : 500 Date 13 FEB 2025

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Figure Title	LAYOUT OF JUNCTION OF KWAI HEI STREET / WING KEI ROAD	Designed by C Y Y	Drawn by N C M		Checked by K C
		Scale in A4 1 : 500	Date 13 FEB 2025		



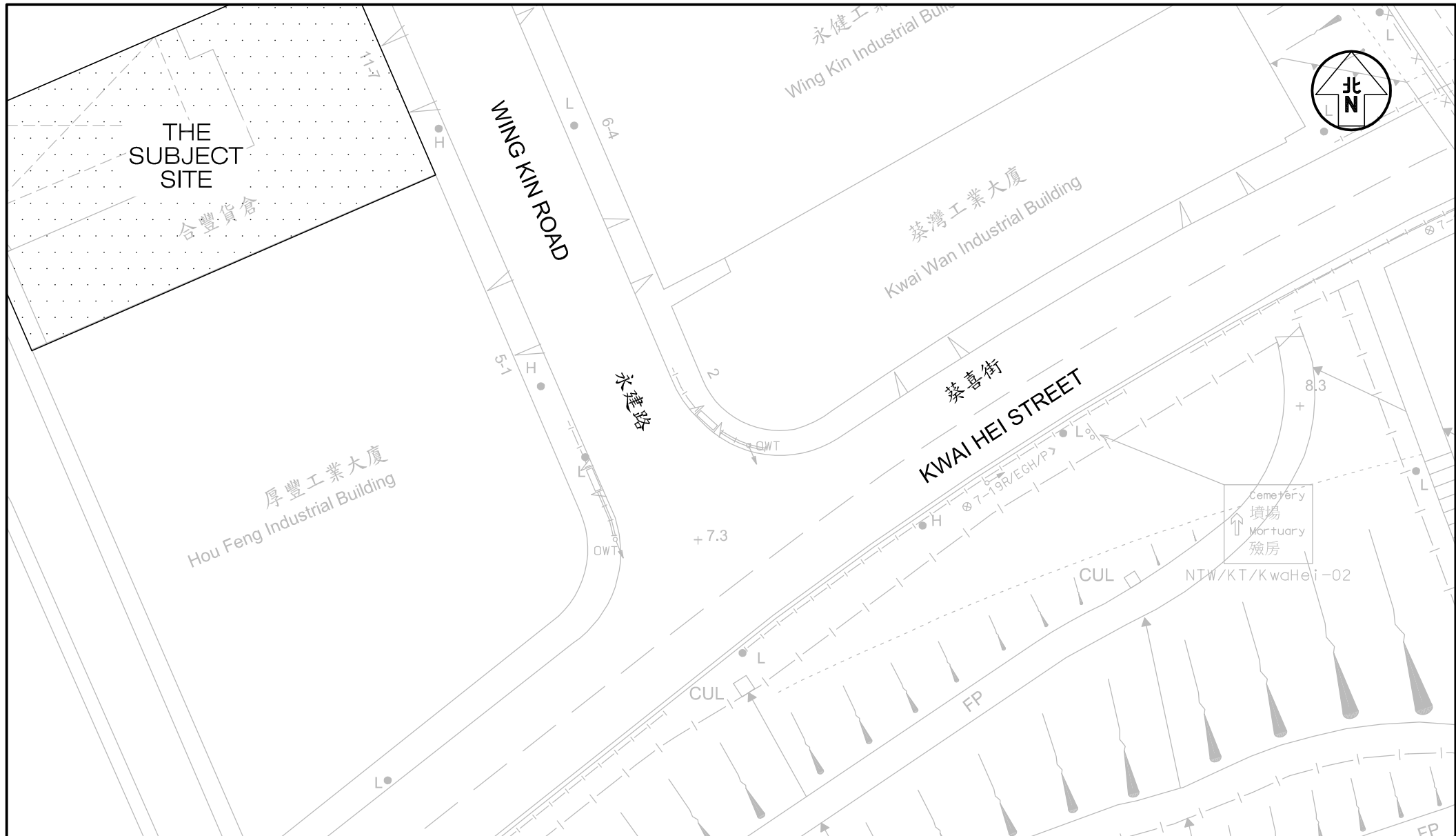
Project Title **PROPOSED INFORMATION TECHNOLOGY AND TELECOMMUNICATION INDUSTRIES (DATA CENTRE) DEVELOPMENT AT 7 - 11 WING KIN ROAD, KWAI CHUNG, NEW TERRITORIES** J7384

Figure No. **2.4** Revision **A**

Figure Title **LAYOUT OF JUNCTION OF KWAI HEI STREET / WING CHONG STREET**

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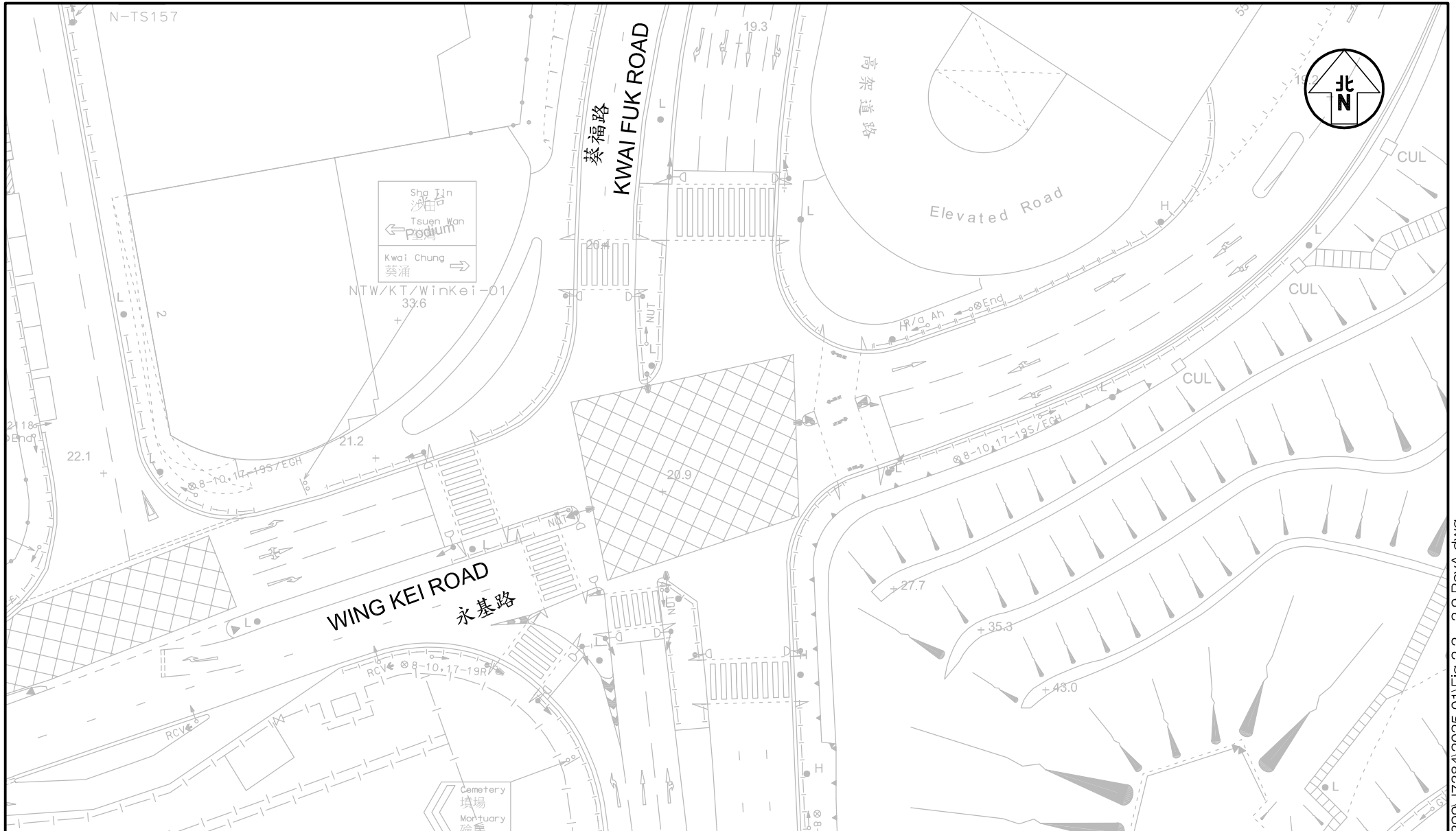
Project Title PROPOSED INFORMATION TECHNOLOGY AND TELECOMMUNICATION INDUSTRIES (DATA CENTRE) DEVELOPMENT AT 7 - 11 WING KIN ROAD, KWAI CHUNG, NEW TERRITORIES J7384

Figure No. 2.5 Revision A

Figure Title LAYOUT OF JUNCTION OF KWAI HEI STREET / WING KIN ROAD

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Project Title **PROPOSED INFORMATION TECHNOLOGY AND TELECOMMUNICATION INDUSTRIES (DATA CENTRE) DEVELOPMENT AT 7 - 11 WING KIN ROAD, KWAI CHUNG, NEW TERRORIES**

Figure No. **2.6**
Revision **A**

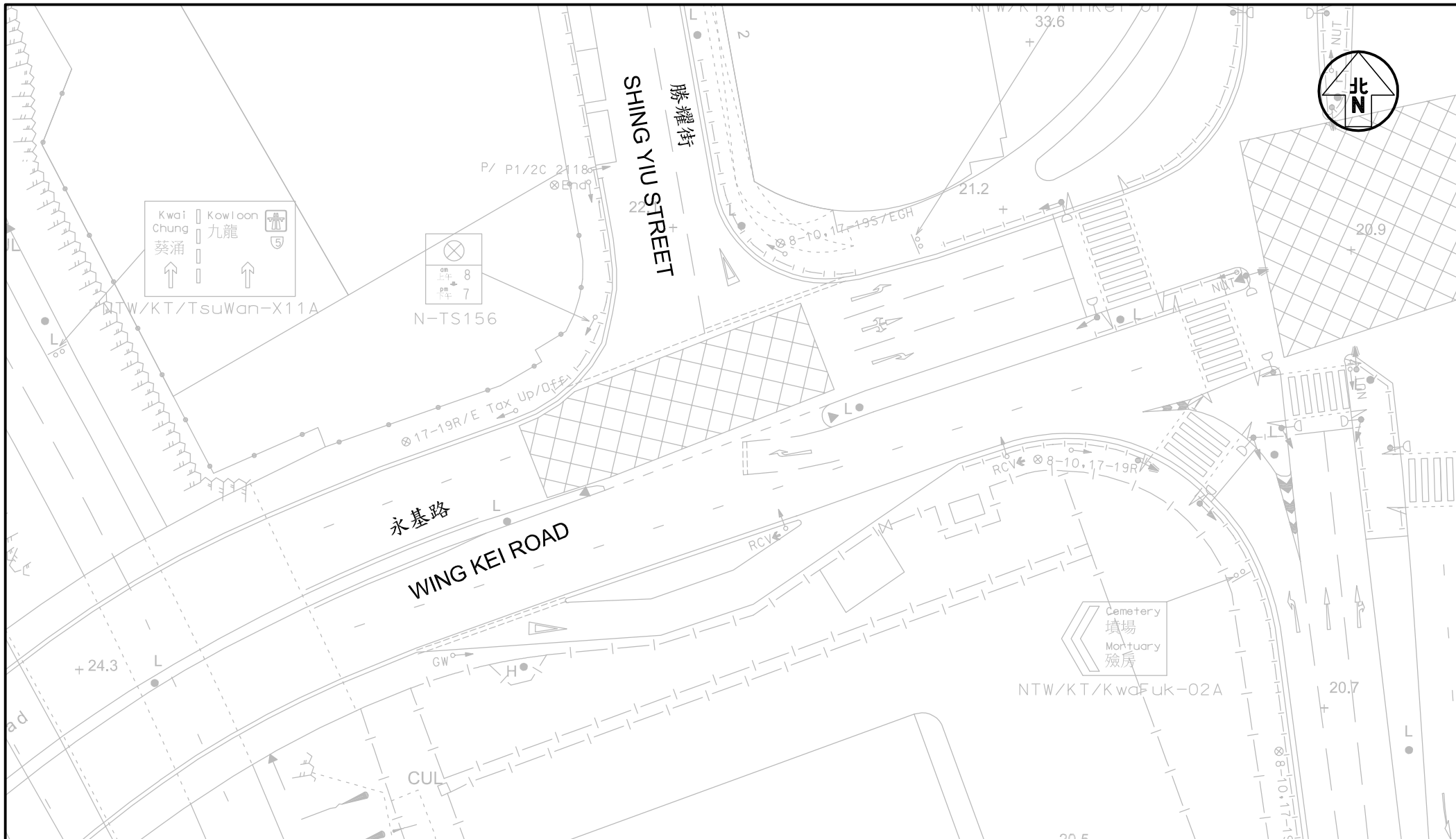
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Figure Title **LAYOUT OF JUNCTION OF WING KEI ROAD / KWAI FUK ROAD**

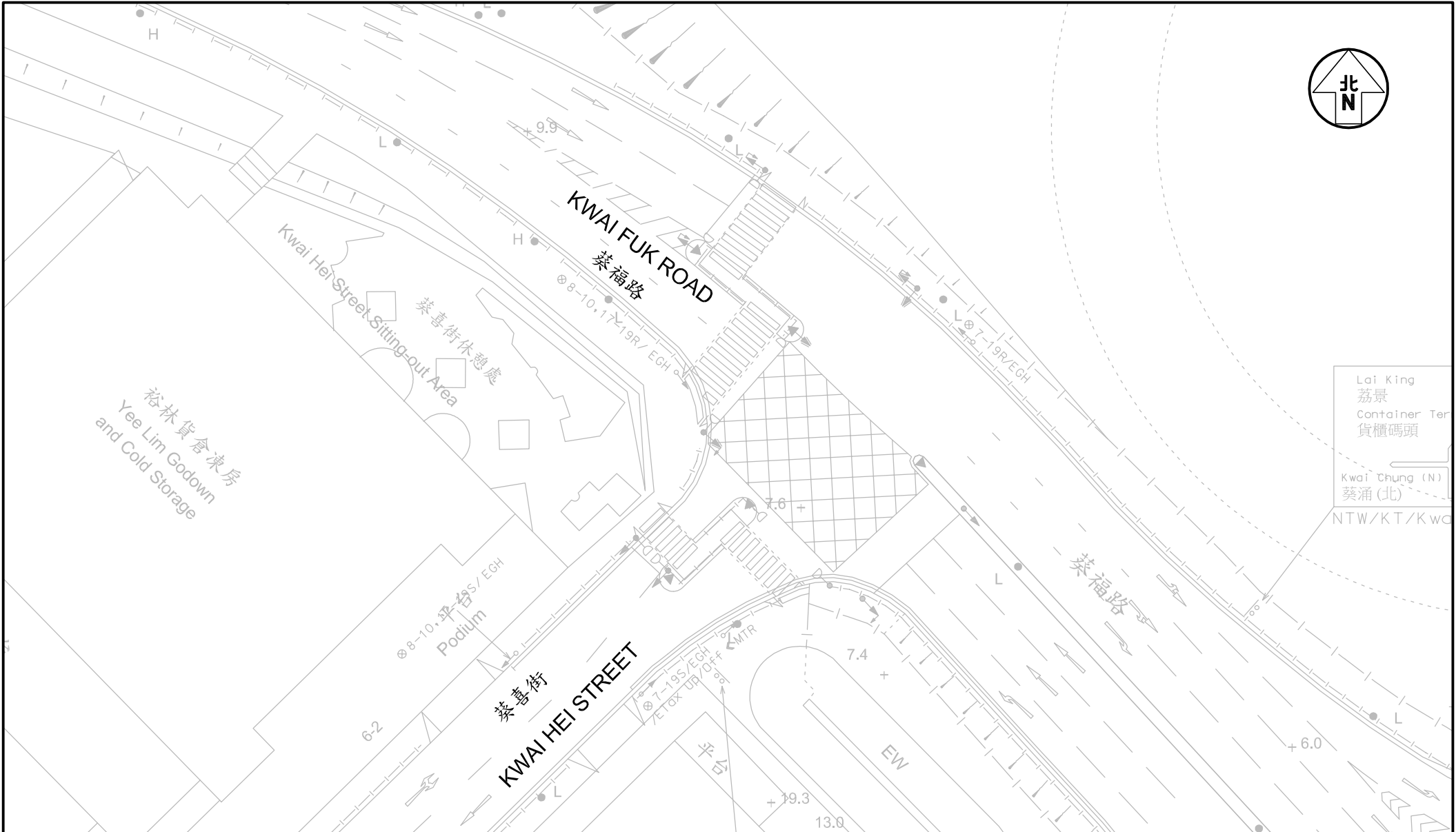
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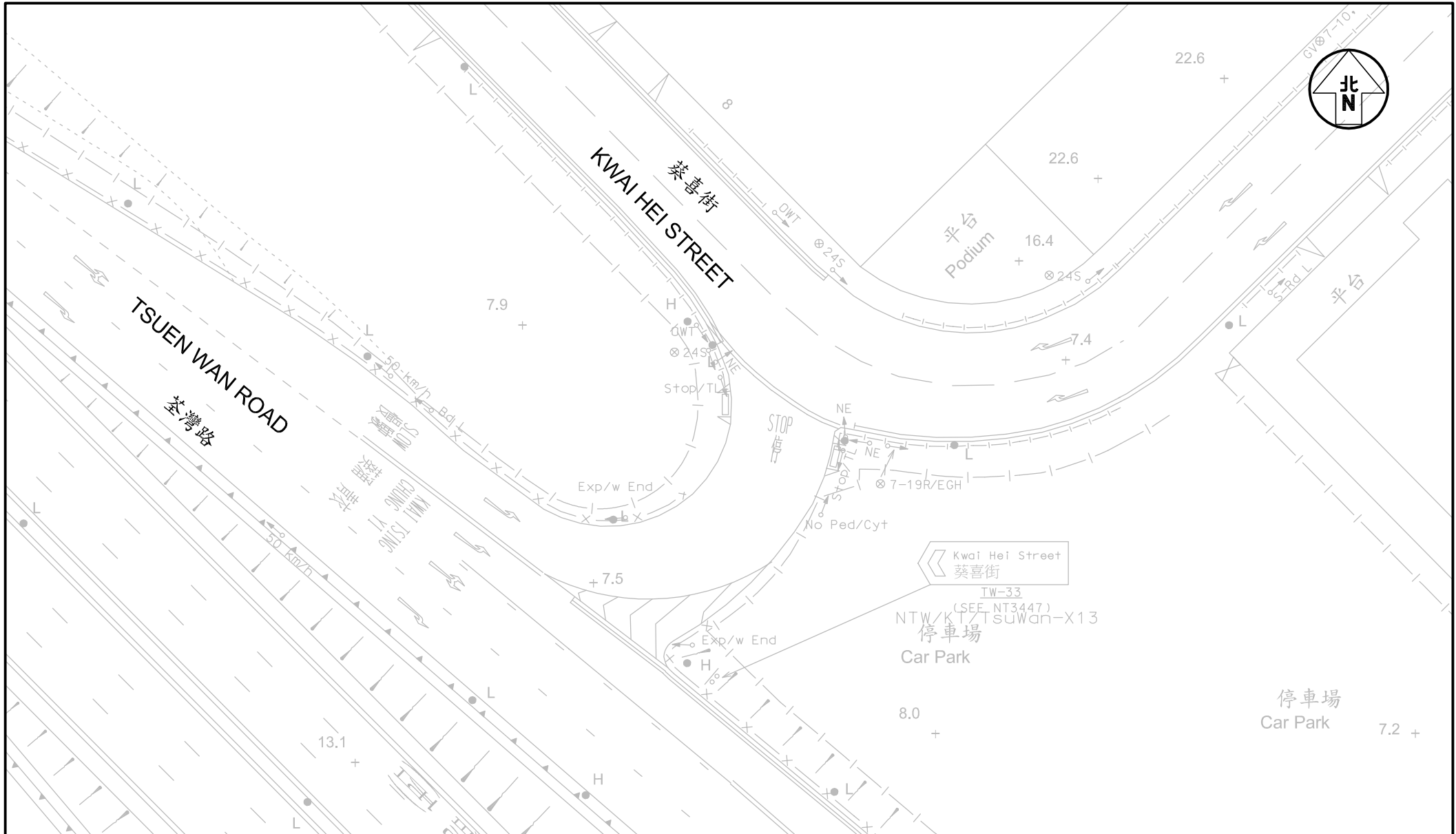


Project Title PROPOSED INFORMATION TECHNOLOGY AND TELECOMMUNICATION INDUSTRIES (DATA CENTRE) DEVELOPMENT AT 7 - 11 WING KIN ROAD, KWAI CHUNG, NEW TERRITORIES	Figure No. 2.7	Revision A	CKM Asia Limited Traffic and Transportation Planning Consultants 21st Floor, Methodist House, 36 Hennessy Road, Wan Chai, Hong Kong Tel : (852) 2520 5990 Fax : (852) 2528 6343 Email : mail@ckmasia.com.hk	
Figure Title LAYOUT OF JUNCTION OF SHING YIU STREET / WING KEI ROAD	Designed by C Y Y	Drawn by N C M		Checked by K C
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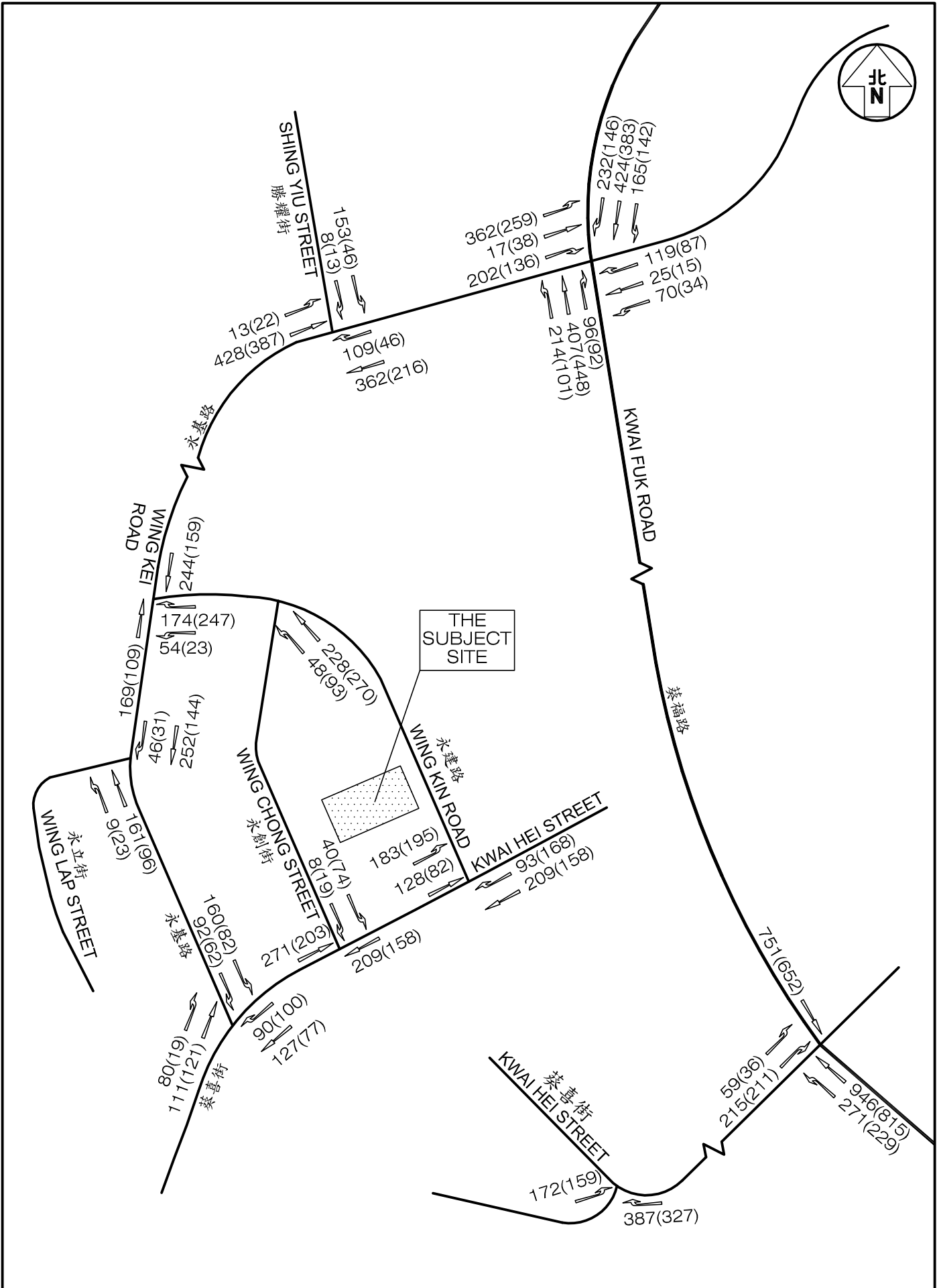
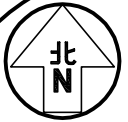


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Figure Title LAYOUT OF JUNCTION OF KWAI FUK ROAD / KWAI HEI STREET	Designed by C Y Y	Drawn by N C M		Checked by K C
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Project Title PROPOSED INFORMATION TECHNOLOGY AND TELECOMMUNICATION INDUSTRIES (DATA CENTRE) DEVELOPMENT AT 7 - 11 WING KIN ROAD, KWAI CHUNG, NEW TERRORIES	Figure No. 2.9	Revision A	CKM Asia Limited Traffic and Transportation Planning Consultants 21st Floor, Methodist House, 36 Hennessy Road, Wan Chai, Hong Kong Tel : (852) 2520 5990 Fax : (852) 2528 6343 Email : mail@ckmasia.com.hk	
Figure Title LAYOUT OF JUNCTION OF KWAI HEI STREET / TSUEN WAN ROAD	Designed by C Y Y	Drawn by N C M		Checked by K C
	Scale in A4 1 : 500	Date 13 FEB 2025		



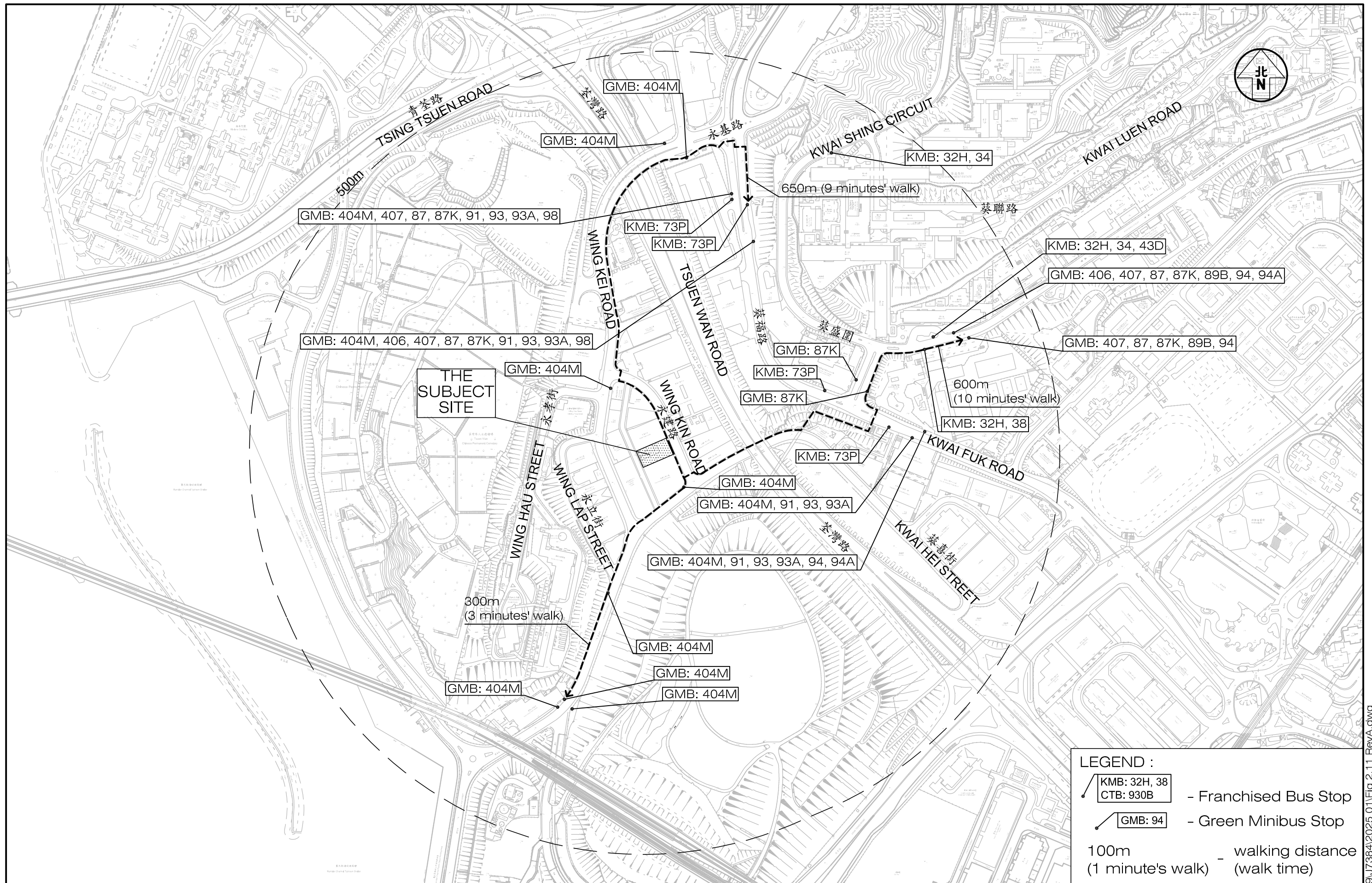
Project Title
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Job No. J7384	Figure No. 2.10	Scale in A4 N.T.S.
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Figure Title
EXISTING PEAK HOUR TRAFFIC FLOWS

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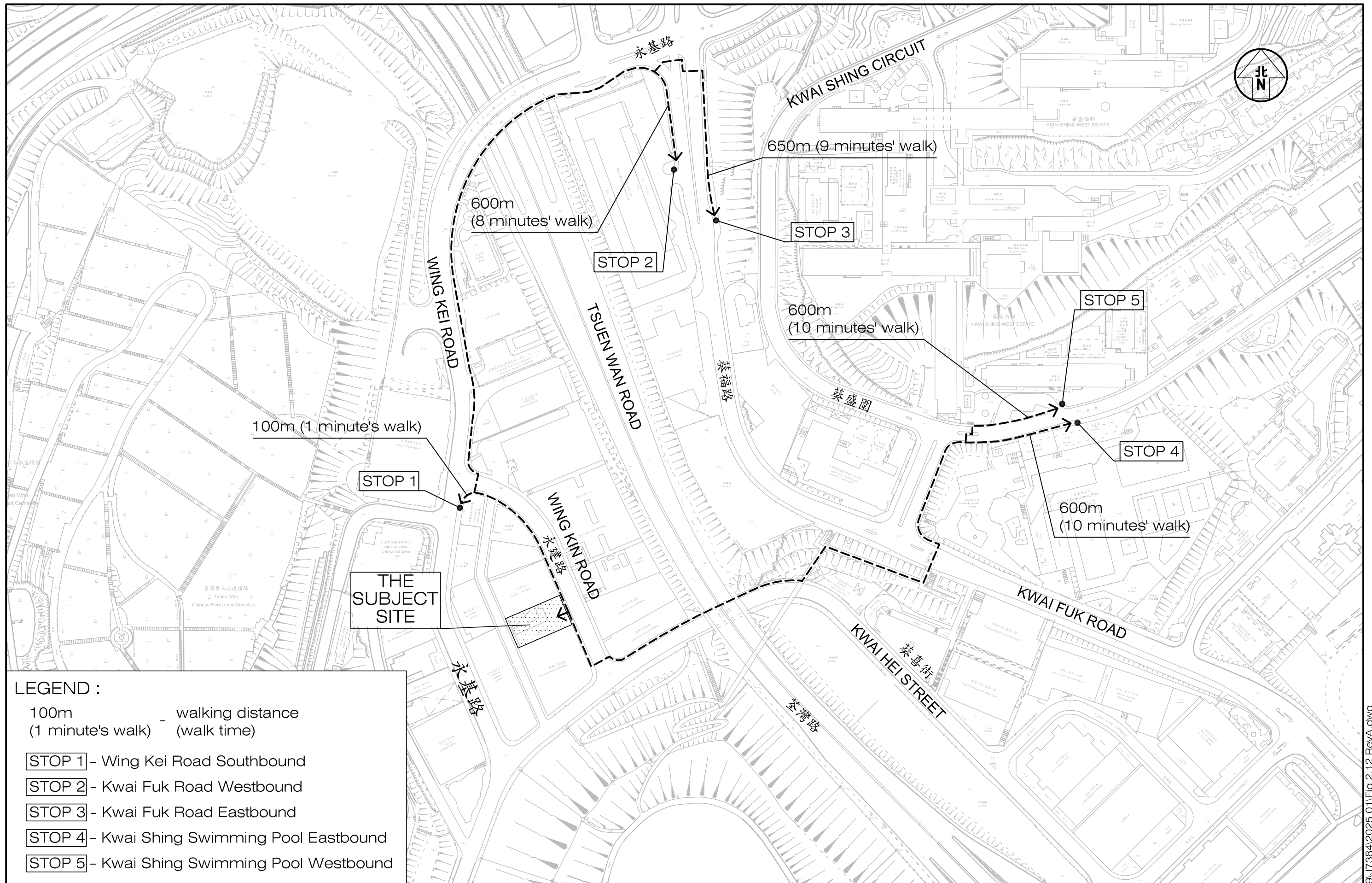


LEGEND :

- KMB: 32H, 38
CTB: 930B - Franchised Bus Stop
- GMB: 94 - Green Minibus Stop
- 100m walking distance (1 minute's walk)
- (1 minute's walk) (walk time)

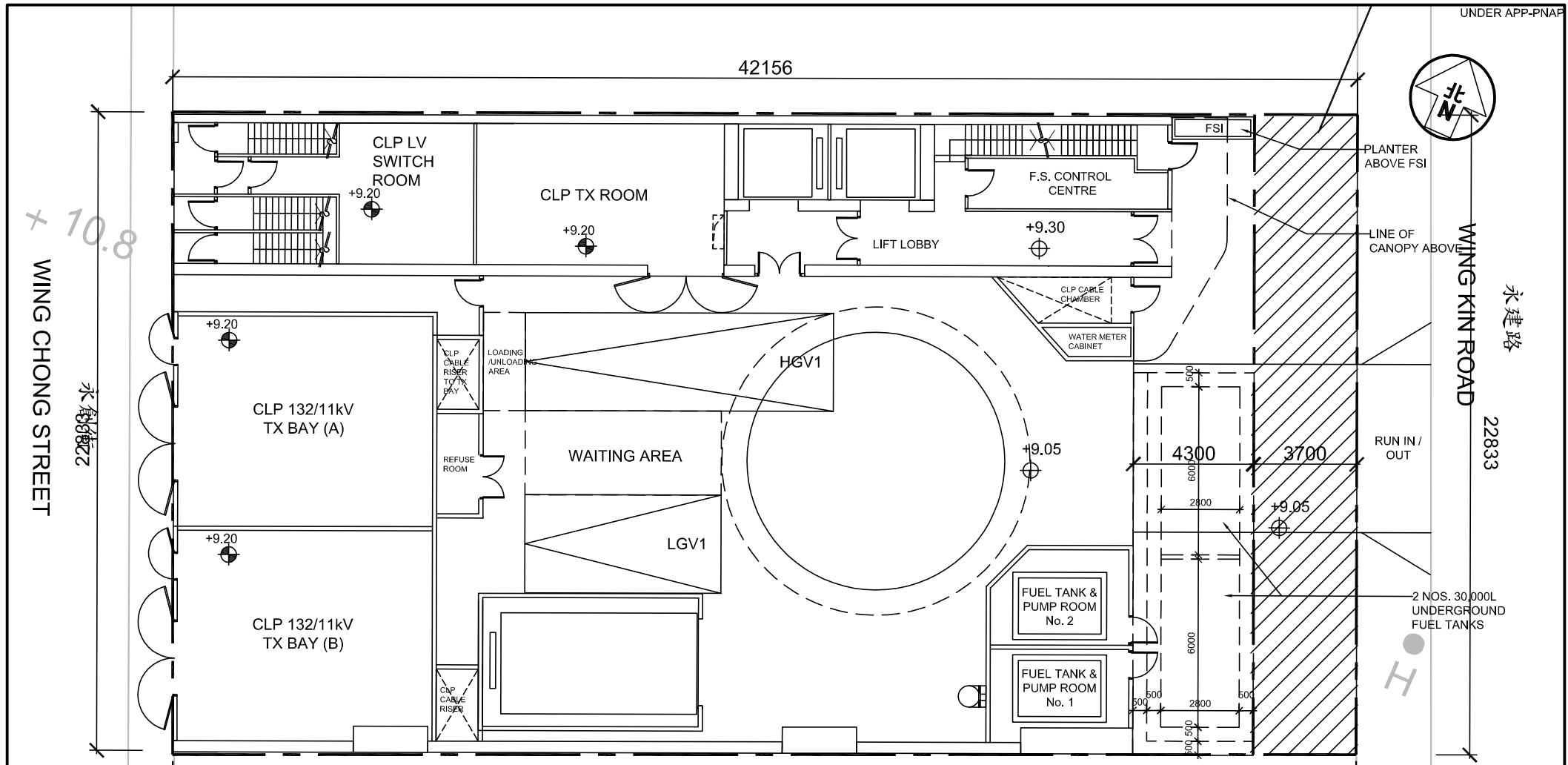
Project Title	PROPOSED INFORMATION TECHNOLOGY AND TELECOMMUNICATION INDUSTRIES (DATA CENTRE) DEVELOPMENT AT 7 - 11 WING KIN ROAD, KWAI CHUNG, NEW TERRITORIES	Figure No. J7384	2.11	Revision A	CKM Asia Limited
Figure Title	THE PUBLIC TRANSPORT SERVICES PROVIDED IN THE VICINITY OF THE SUBJECT SITE	Designed by C Y Y	Drawn by N C M	Checked by K C	Traffic and Transportation Planning Consultants 21st Floor, Methodist House, 36 Hennessy Road Wan Chai, Hong Kong Tel : (852) 2520 5990 Fax : (852) 2528 6343 Email : mail@ckmasia.com.hk
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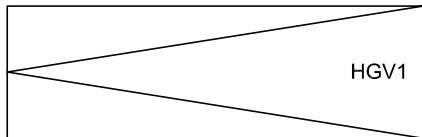


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Figure Title	LOCATION OF THE SURVEYED PUBLIC TRANSPORT STOPS	Designed by	L C H	Drawn by	N C M	Checked by		K C
		Scale in A3	1 : 2500	Date	13 FEB 2025			

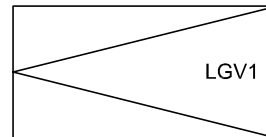
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LEGEND :



HGV1 HGV loading / unloading bay
@11m(L) X 3.5m(W) X 4.7m(H)



LGV1 LGV loading / unloading bay
@7m(L) X 3.5m(W) X 3.6m(H)

Project Title PROPOSED INFORMATION TECHNOLOGY AND TELECOMMUNICATION INDUSTRIES (DATA CENTRE) DEVELOPMENT AT 7 - 11 WING KIN ROAD, KWAI CHUNG, NEW TERRITORIES

Figure No. 3.1 Revision A

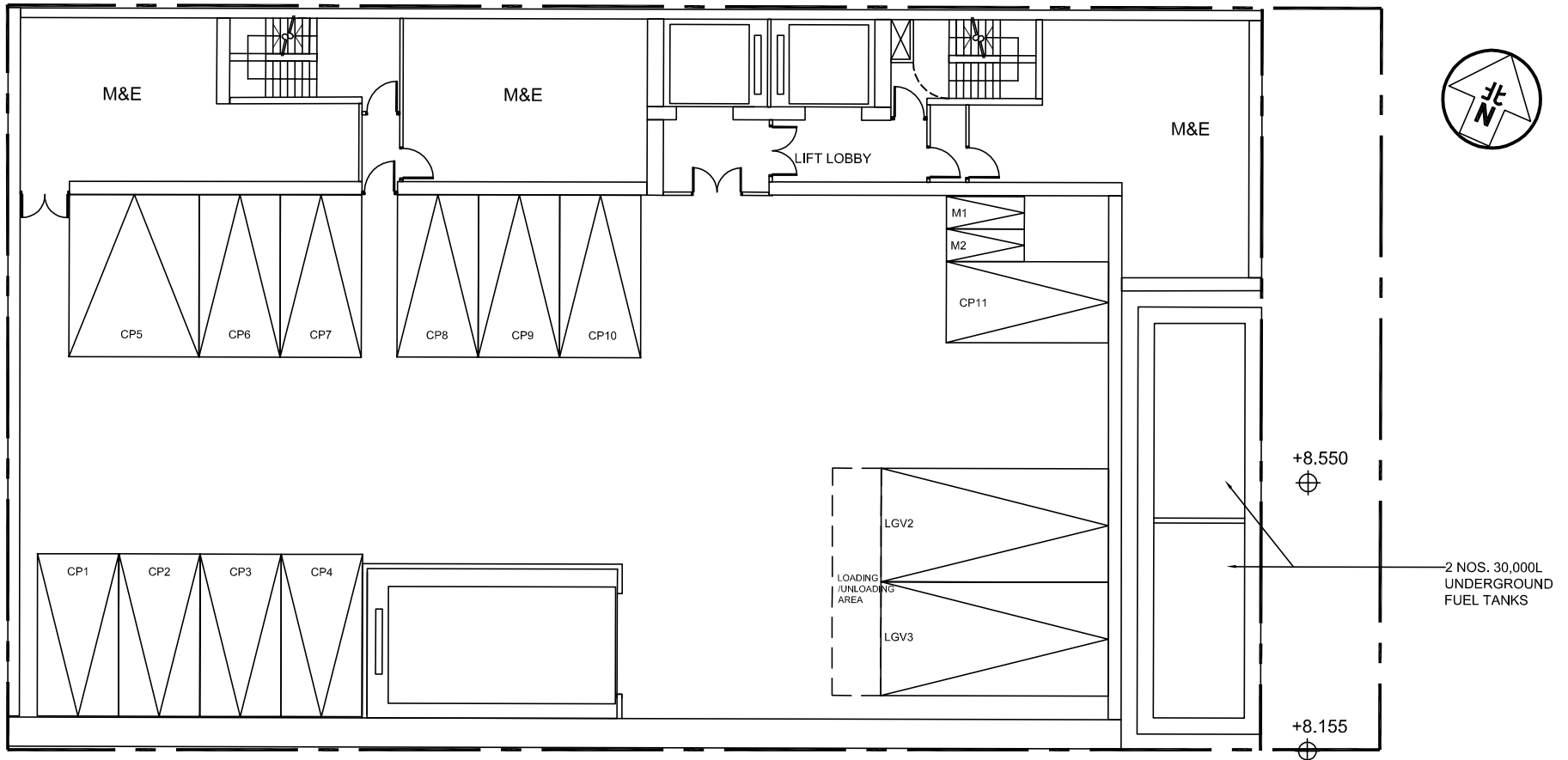
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Figure Title G/F LAYOUT PLAN

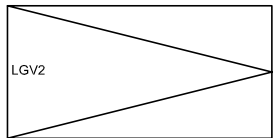
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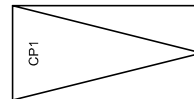
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LEGEND :



LGV2
LGV loading / unloading bay
@7m(L) X 3.5m(W) X 3.6m(H)

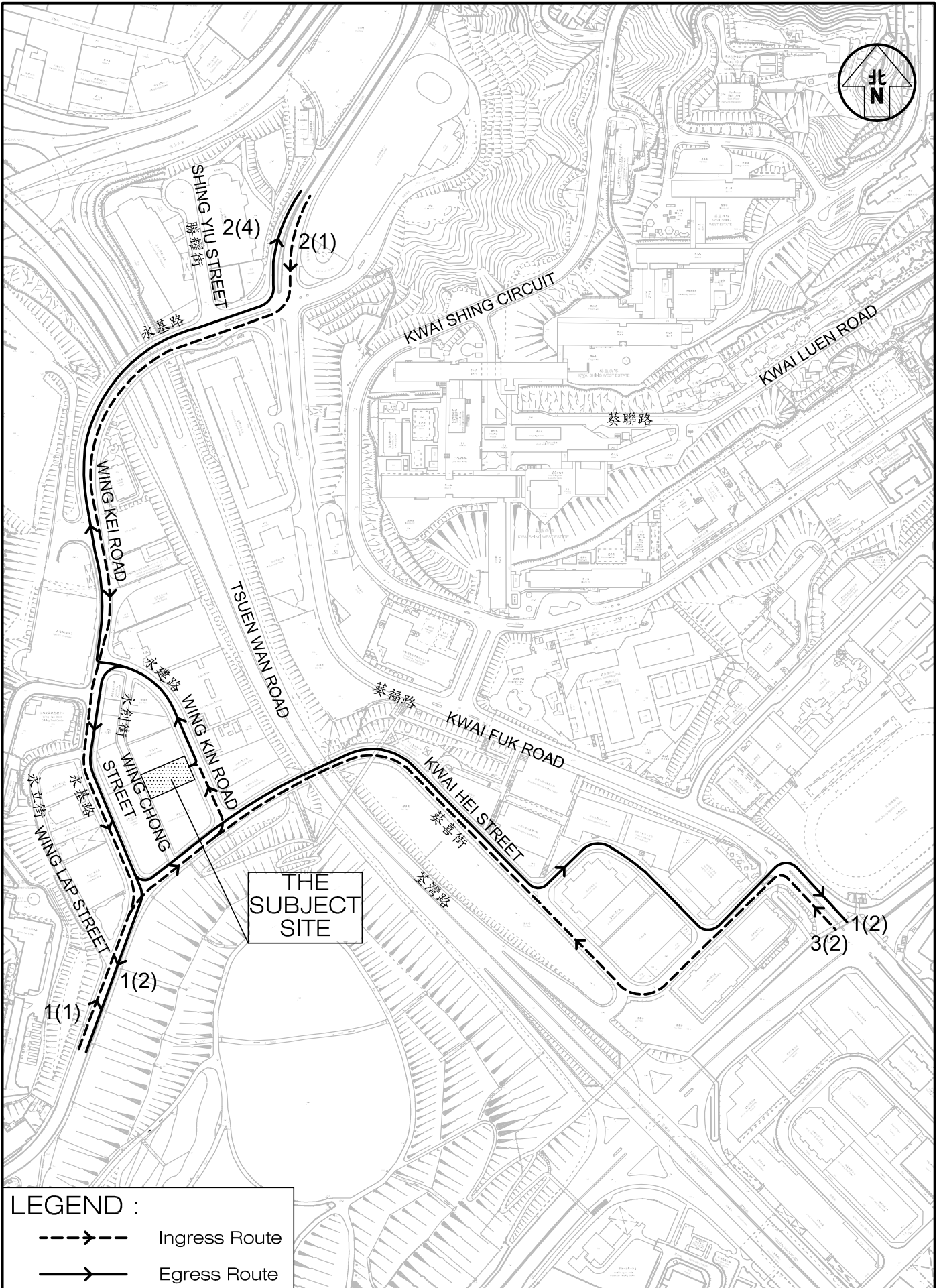


CP1
Private car parking space
@5m(L) X 2.5m(W) X 2.4m(H)



M1
Motorcycle parking space
@2.4m(L) X 1m(W) X 2.4m(H)

Project Title PROPOSED INFORMATION TECHNOLOGY AND TELECOMMUNICATION INDUSTRIES (DATA CENTRE) DEVELOPMENT AT 7 - 11 WING KIN ROAD, KWAI CHUNG, NEW TERRITORIES	Figure No. 3.2	Revision A	CKM Asia Limited Traffic and Transportation Planning Consultants 21st Floor, Methodist House, 36 Hennessy Road, Wan Chai, Hong Kong Tel : (852) 2520 5990 Fax : (852) 2528 6343 Email : mail@ckmasia.com.hk	
Figure Title B1/F LAYOUT PLAN	Designed by L C H	Drawn by N C M		Checked by K C
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LEGEND :

	Ingress Route
	Egress Route

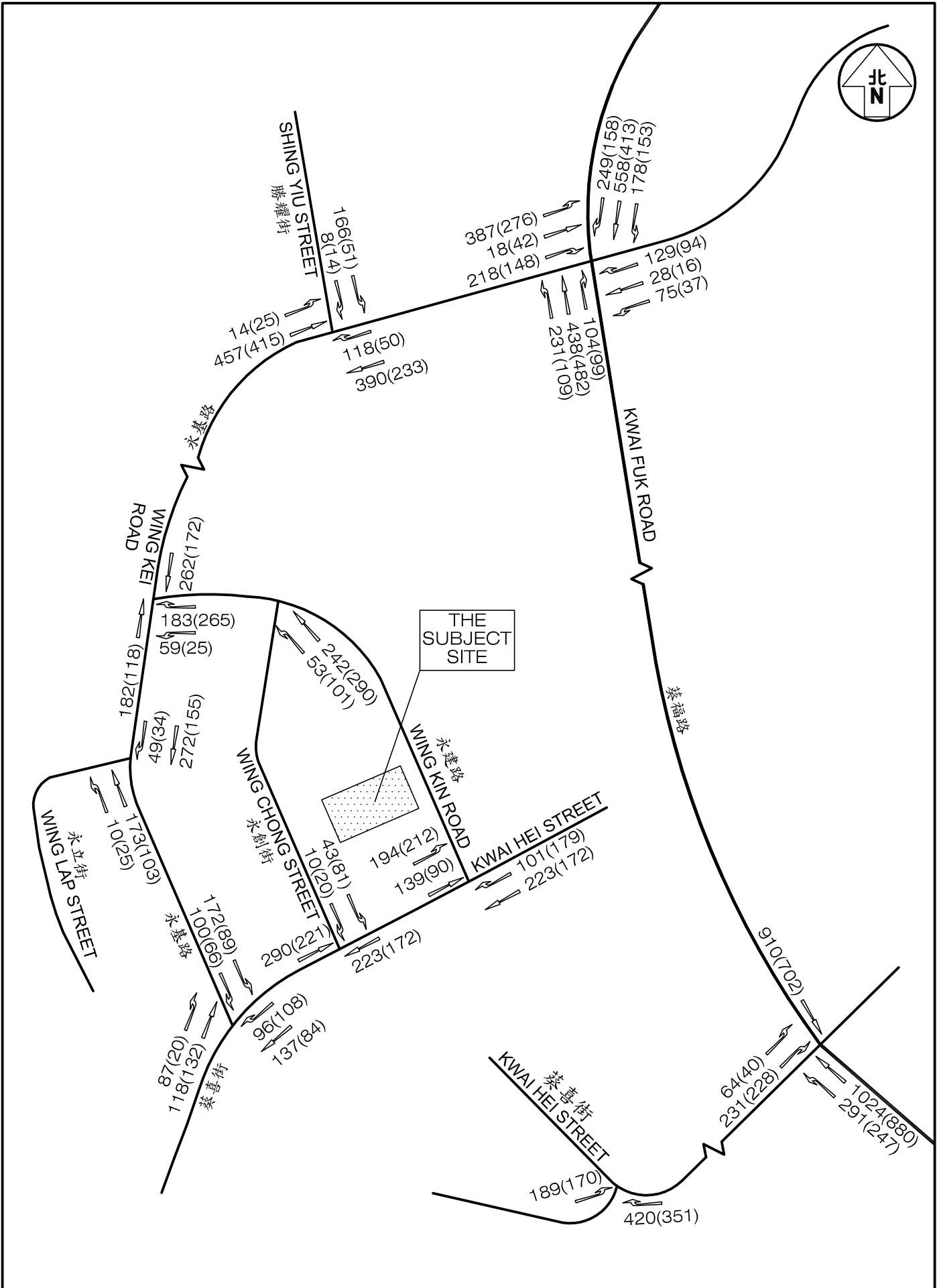
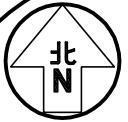
Project Title **PROPOSED INFORMATION TECHNOLOGY AND TELECOMMUNICATION INDUSTRIES (DATA CENTRE) DEVELOPMENT AT 7 - 11 WING KIN ROAD, KWAI CHUNG, NEW TERRITORIES**

Job No. J7384	Figure No. 4.1	Scale in A4 N.T.S.	
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		Date 13 FEB 2025	

Figure Title **INGRESS / EGRESS ROUTE FOR TRAFFIC GENERATED BY THE PROPOSED DATA CENTRE**

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T:\JOB\J7350-J7399\J7384\2025 01\Fig 4.1 RevA.dwg

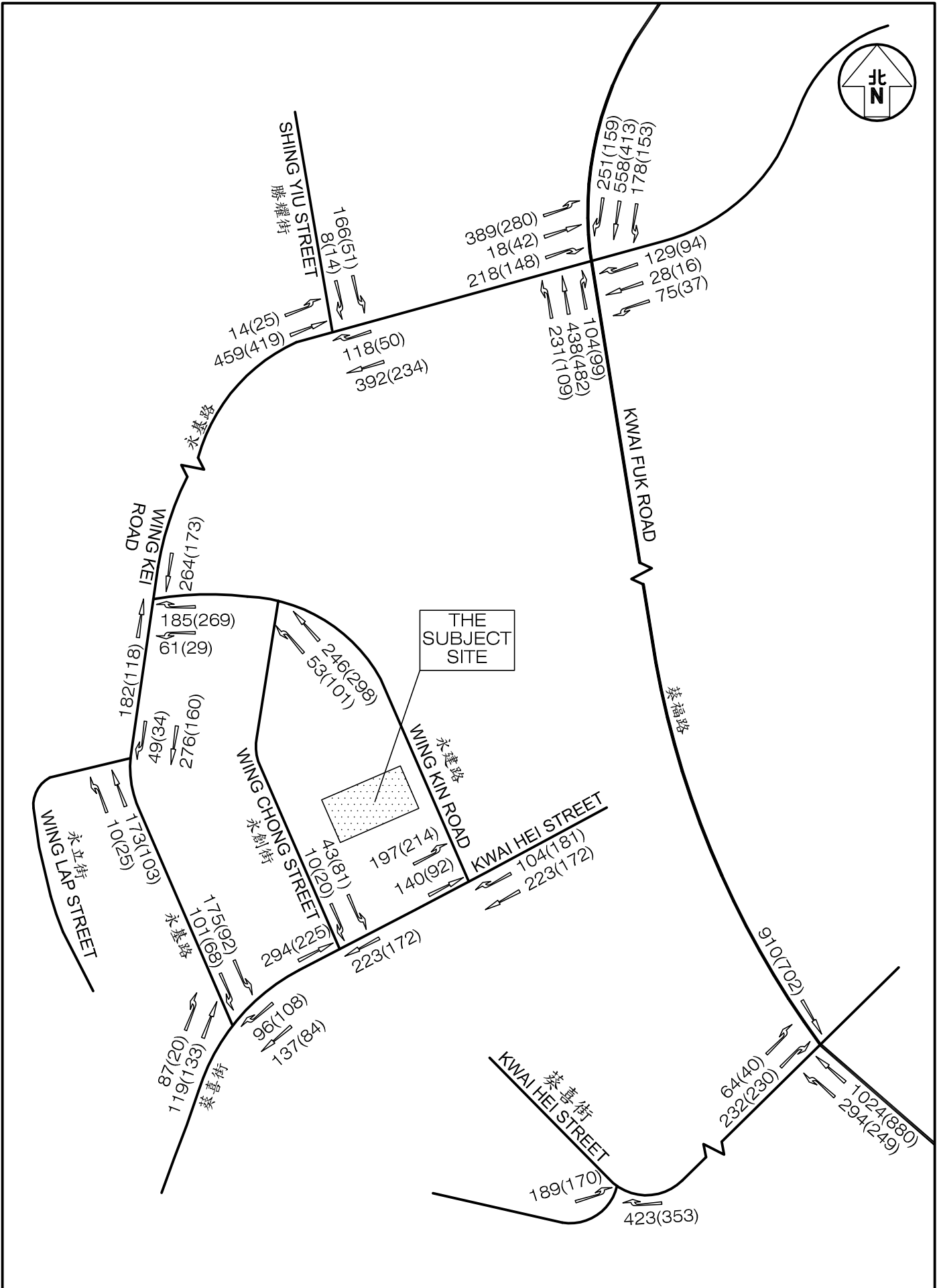
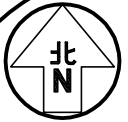


Project Title
PROPOSED INFORMATION TECHNOLOGY AND TELECOMMUNICATION INDUSTRIES (DATA CENTRE) DEVELOPMENT AT 7 - 11 WING KIN ROAD, KWAI CHUNG, NEW TERRITORIES

Job No. J7384	Figure No. 4.2	Scale in A4 N.T.S.	
Designed by C Y Y	Drawn by N C M	Checked by K C	Revision A
		Date 13 FEB 2025	

Figure Title
YEAR 2032 PEAK HOUR TRAFFIC FLOWS WITHOUT THE PROPOSED DATA CENTRE

CKM Asia Limited
 Traffic and Transportation Planning Consultants
 21st Floor, Methodist House, 36 Hennessy Road, Wan Chai, Hong Kong
 Tel : (852) 2520 5990 Fax : (852) 2528 6343 Email : mail@ckmasia.com.hk



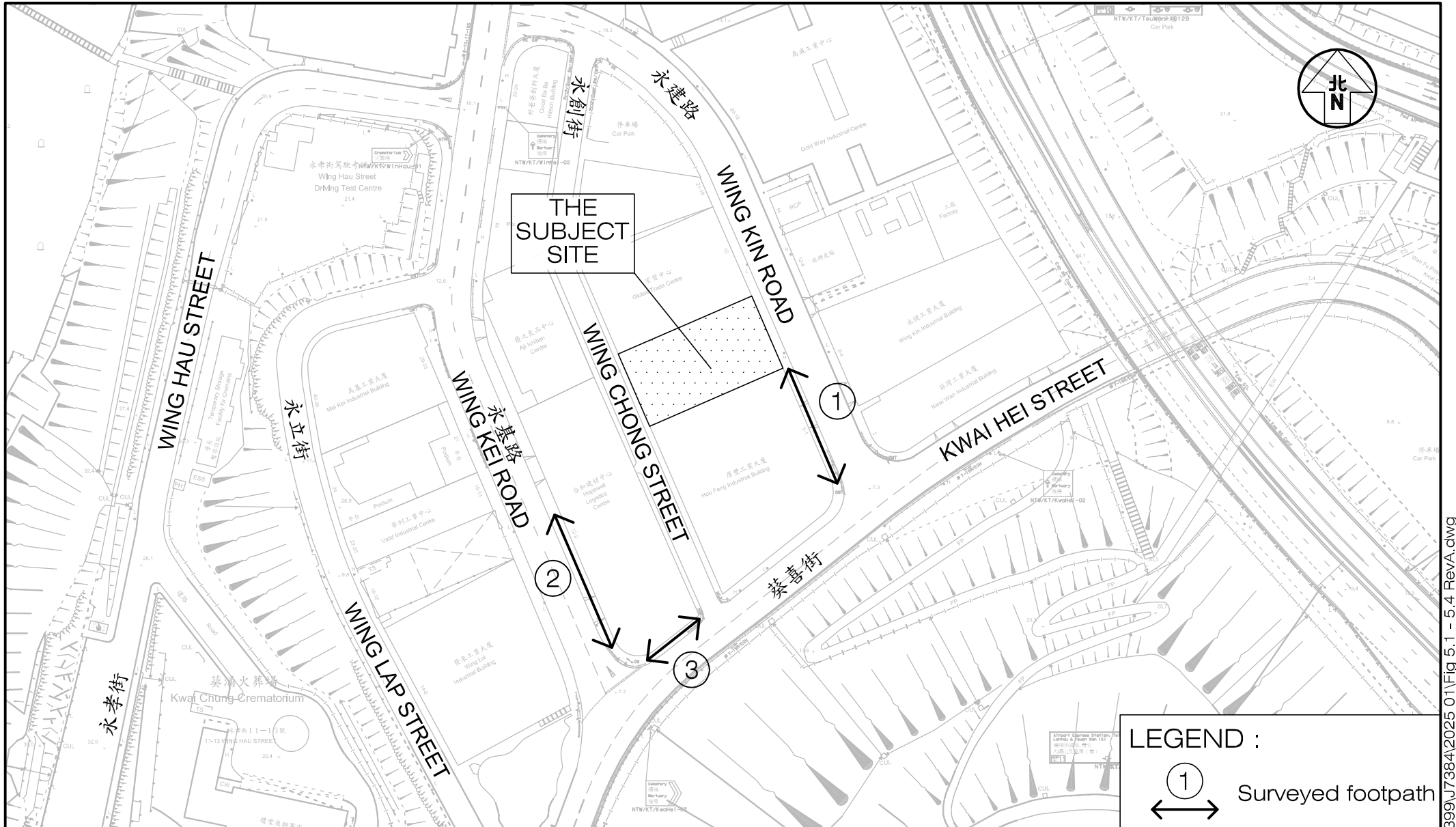
Project Title
PROPOSED INFORMATION TECHNOLOGY AND TELECOMMUNICATION INDUSTRIES (DATA CENTRE) DEVELOPMENT AT 7 - 11 WING KIN ROAD, KWAI CHUNG, NEW TERRITORIES

Job No. J7384	Figure No. 4.3	Scale in A4 N.T.S.	
Designed by C Y Y	Drawn by N C M	Checked by K C	Revision A
Date 13 FEB 2025			

Figure Title
YEAR 2032 PEAK HOUR TRAFFIC FLOWS WITH THE PROPOSED DATA CENTRE

CKM Asia Limited
 Traffic and Transportation Planning Consultants
 21st Floor, Methodist House, 36 Hennessy Road, Wan Chai, Hong Kong
 Tel : (852) 2520 5990 Fax : (852) 2528 6343 Email : mail@ckmasia.com.hk

T:\JOB\J7350-J7399\J7384\2025 01\Fig 4.3 RevA.dwg



Project Title **PROPOSED INFORMATION TECHNOLOGY AND TELECOMMUNICATION INDUSTRIES (DATA CENTRE) DEVELOPMENT AT 7 - 11 WING KIN ROAD, KWAI CHUNG, NEW TERRORIES** J7384

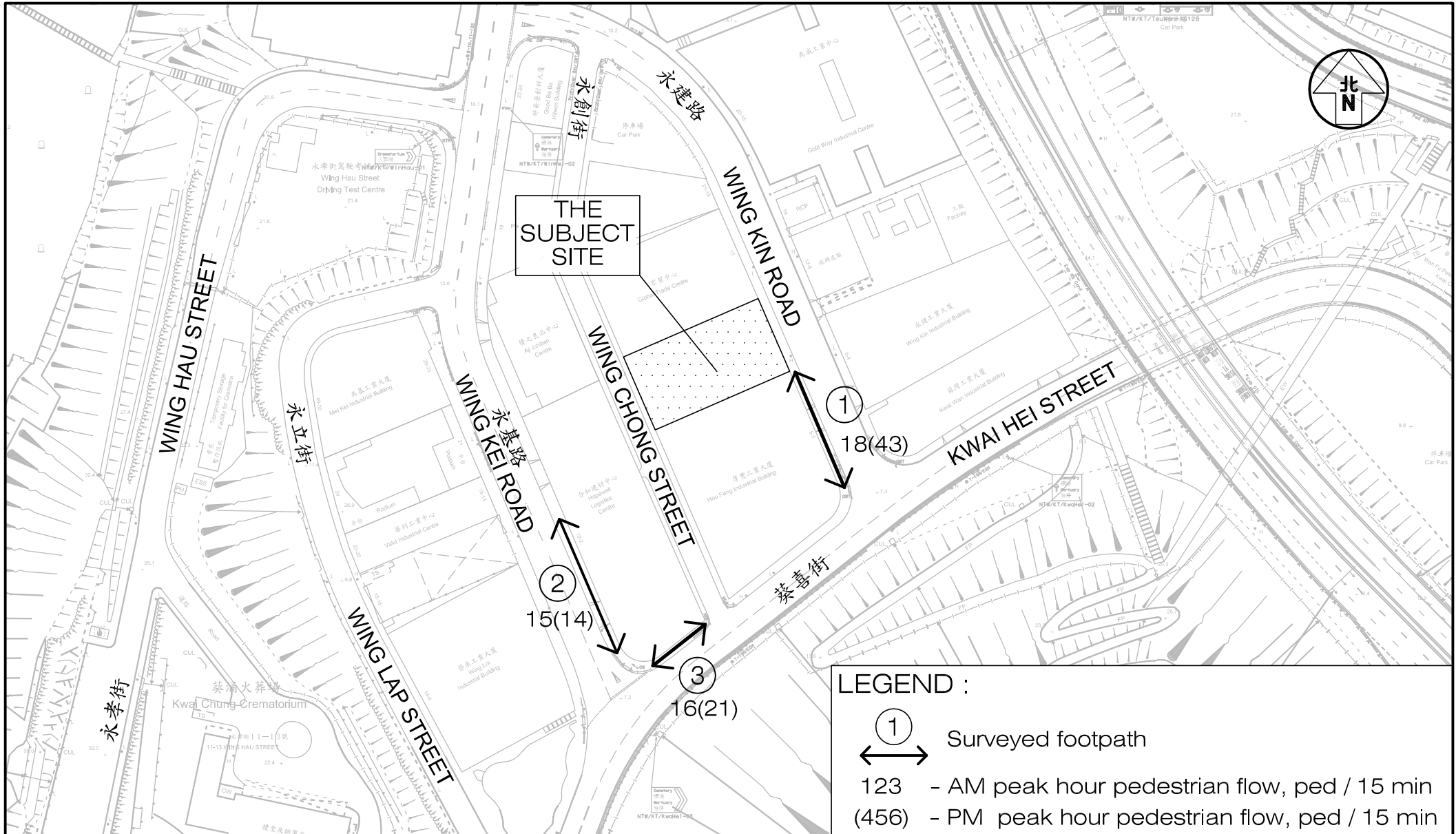
Figure No. **5.1** Revision **A**

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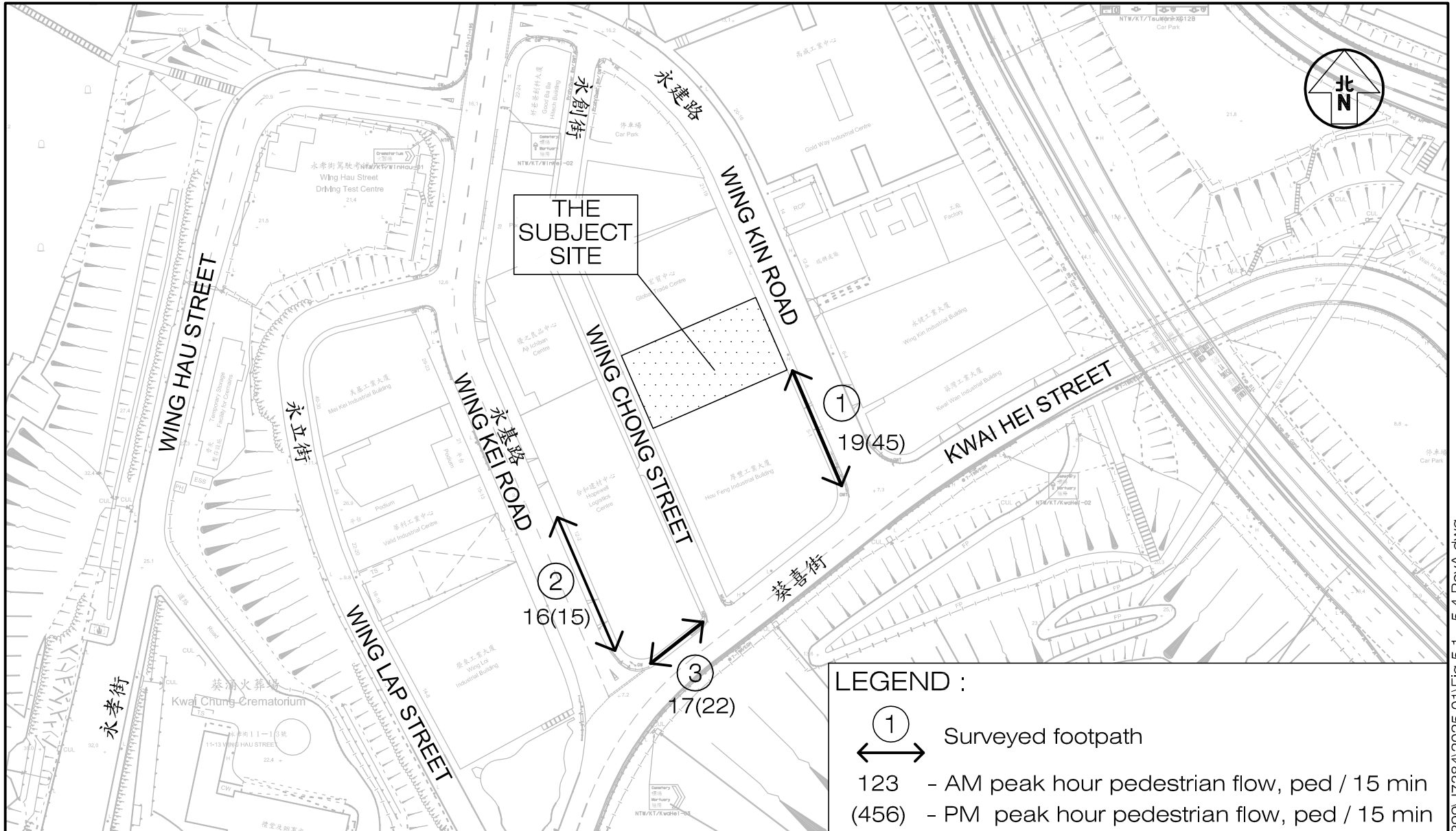
Figure Title **LOCATION OF SURVEYED FOOTPATHS**

Designed by **C Y Y** Drawn by **N C M** Checked by **K C**
Scale in A4 **1 : 1500** Date **13 FEB 2025**

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Project Title PROPOSED INFORMATION TECHNOLOGY AND TELECOMMUNICATION INDUSTRIES (DATA CENTRE) DEVELOPMENT AT 7 - 11 WING KIN ROAD, KWAI CHUNG, NEW TERRITORIES	Figure No. 5.2	Revision A	CKM Asia Limited Traffic and Transportation Planning Consultants 21st Floor, Methodist House, 36 Hennessy Road, Wan Chai, Hong Kong Tel : (852) 2520 5990 Fax : (852) 2528 6343 Email : mail@ckmasia.com.hk	
Figure Title EXISTING PEAK 15-MINUTE TWO-WAY PEDESTRIAN FLOWS	Designed by C Y Y	Drawn by N C M		Checked by K C
Scale in A4 1 : 1500	Date 13 FEB 2025			



Project Title **PROPOSED INFORMATION TECHNOLOGY AND TELECOMMUNICATION INDUSTRIES (DATA CENTRE) DEVELOPMENT AT 7 - 11 WING KIN ROAD, KWAI CHUNG, NEW TERRITORIES**

Figure No. **5.3**

Revision **A**

CKM Asia Limited

Traffic and Transportation Planning Consultants

Figure Title

YEAR 2032 PEDESTRIAN FLOWS WITHOUT THE PROPOSED DATA CENTRE

Designed by **C Y Y**

Drawn by **N C M**

Checked by **K C**

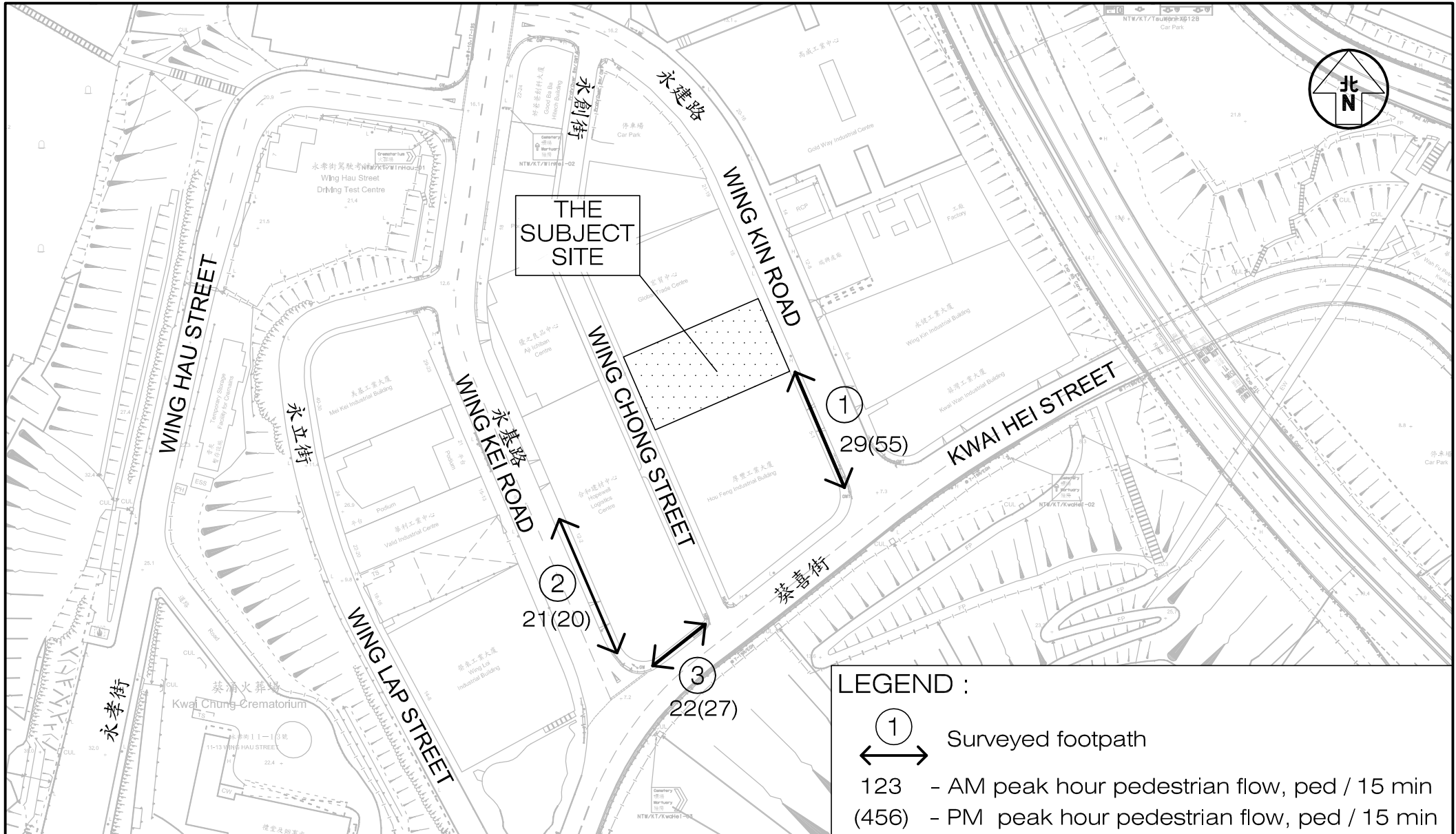
Scale in A4 **1 : 1500**

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Tel : (852) 2520 5990 Fax : (852) 2528 6343

Email : mail@ckmasia.com.hk

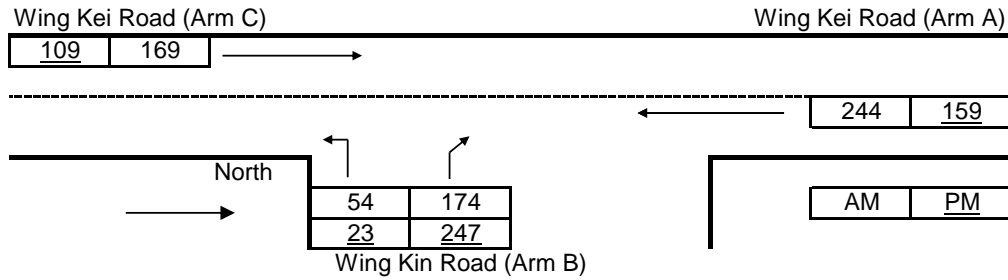
T:\JOB\J7350-J7399\J7384\2025 01\Fig 5.1 - 5.4 RevA.dwg



Project Title PROPOSED INFORMATION TECHNOLOGY AND TELECOMMUNICATION INDUSTRIES (DATA CENTRE) DEVELOPMENT AT 7 - 11 WING KIN ROAD, KWAI CHUNG, NEW TERRITORIES	Figure No. 5.4	Revision A	CKM Asia Limited Traffic and Transportation Planning Consultants 21st Floor, Methodist House, 36 Hennessy Road, Wan Chai, Hong Kong Tel : (852) 2520 5990 Fax : (852) 2528 6343 Email : mail@ckmasia.com.hk	
Figure Title YEAR 2032 PEDESTRIAN FLOWS WITH THE PROPOSED DATA CENTRE	Designed by C Y Y	Drawn by N C M		Checked by K C
Scale in A4 1 : 1500	Date 13 FEB 2025			

Priority Junction Analysis

Junction:	Wing Kei Road / Wing Kin Road		
Design Year:	2024	Job Number: J7384	Date: 21 January 2025
Scenario:	Existing Condition		P. 1



The predictive equations of capacity of movement are:

$$Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]$$

$$Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]$$

$$Q-CB = F[745 - 0.364Y(q-AC + q-AB)]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-IBA - 150)]$$

$$E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]$$

$$F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	10.50	V-rBA	25	w-BA	4.70	D	0.9354
	W-CR		V-IBA	35	w-BC	4.70	E	1.0196
			V-rBC	40	w-CB		F	0.5860
			V-rCB				Y	0.6378

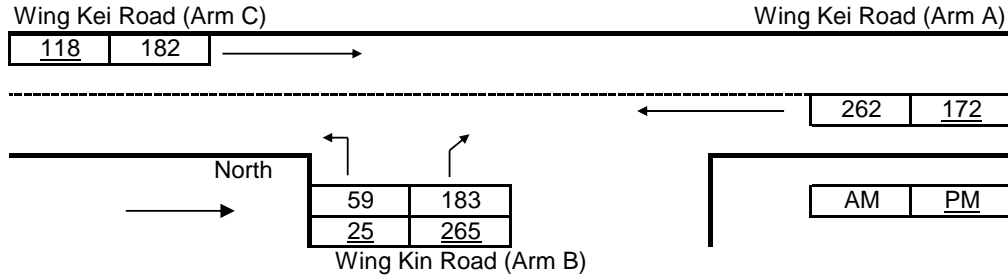
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr		AM	PM
q-CA	169	109	Q-BA		510	537
q-CB	0	0	Q-BC		702	722
q-AB	0	0	Q-CB		403	415
q-AC	244	159	Q-BAC		546	549
q-BA	174	247				
q-BC	54	23				
f	0.237	0.085				

Ratio-of-flow to Capacity	AM	PM
B-A	0.341	0.460
B-C	0.077	0.032
C-B	0.000	0.000

Priority Junction Analysis

Junction:	Wing Kei Road / Wing Kin Road		
Design Year:	2032	Job Number:	J7384
Scenario:	Without Proposed Redevelopment	Date:	21 January 2025
			P. 2



The predictive equations of capacity of movement are:

$$Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]$$

$$Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]$$

$$Q-CB = F[745 - 0.364Y(q-AC + q-AB)]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-IBA - 150)]$$

$$E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]$$

$$F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

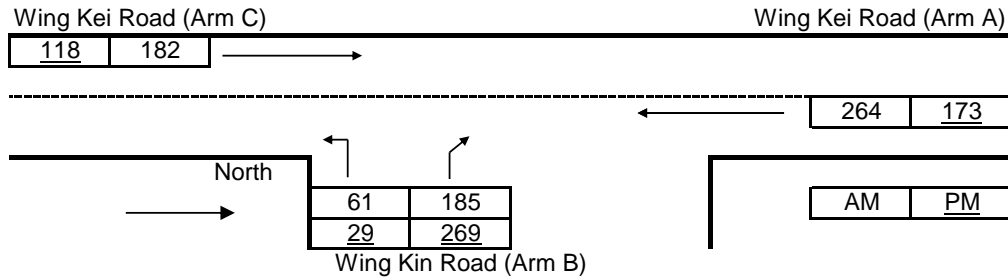
Geometry :	Input	Input	Input	Calculated
	W	10.50	V-rBA	25
	W-CR		V-IBA	35
			V-rBC	40
			V-rCB	
	w-BA	4.70	w-BC	4.70
	w-CB			
				D
				E
				F
				Y
				0.9354
				1.0196
				0.5860
				0.6378

Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	182	118	Q-BA	505	533
q-CB	0	0	Q-BC	698	719
q-AB	0	0	Q-CB	401	413
q-AC	262	172	Q-BAC	541	545
q-BA	183	265			
q-BC	59	25			
f	0.244	0.086			
			Ratio-of-flow to Capacity	AM	PM
			B-A	0.363	0.497
			B-C	0.085	0.035
			C-B	0.000	0.000

Priority Junction Analysis

Junction:	Wing Kei Road / Wing Kin Road		
Design Year:	2032	Job Number: J7384	Date: 21 January 2025
Scenario:	With Proposed Redevelopment		P. 3



The predictive equations of capacity of movement are:

$$Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]$$

$$Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]$$

$$Q-CB = F[745 - 0.364Y(q-AC + q-AB)]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-IBA - 150)]$$

$$E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]$$

$$F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	10.50	V-rBA	25	w-BA	4.70	D	0.9354
	W-CR		V-IBA	35	w-BC	4.70	E	1.0196
			V-rBC	40	w-CB		F	0.5860
			V-rCB				Y	0.6378

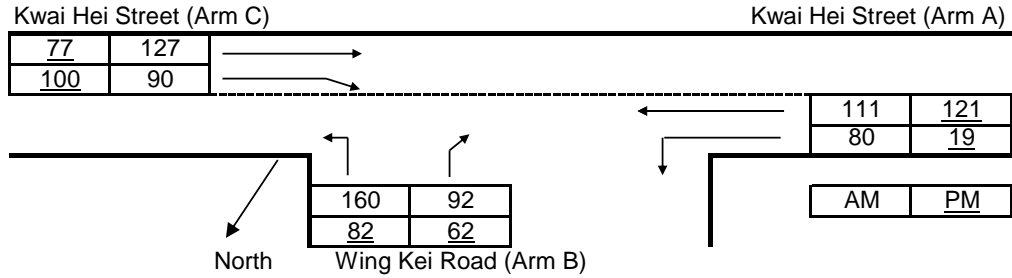
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr		AM	PM
q-CA	182	118	Q-BA		504	533
q-CB	0	0	Q-BC		697	719
q-AB	0	0	Q-CB		401	413
q-AC	264	173	Q-BAC		541	547
q-BA	185	269				
q-BC	61	29				
f	0.248	0.097				

Ratio-of-flow to Capacity	AM	PM
B-A	0.367	0.505
B-C	0.088	0.040
C-B	0.000	0.000

Priority Junction Analysis

Junction:	Kwai Hei Street / Wing Kei Road		
Design Year:	2024	Job Number: J7384	Date: 21 January 2025
Scenario:	Existing Condition		P. 4



The predictive equations of capacity of movement are:

$$Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]$$

$$Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]$$

$$Q-CB = F[745 - 0.364Y(q-AC + q-AB)]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-IBA - 150)]$$

$$E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]$$

$$F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	10.00	V-rBA	60	w-BA	4.70	D	0.9645
	W-CR		V-IBA	30	w-BC	4.70	E	1.0394
			V-rBC	60	w-CB	4.70	F	1.1185
			V-rCB	140			Y	0.6550

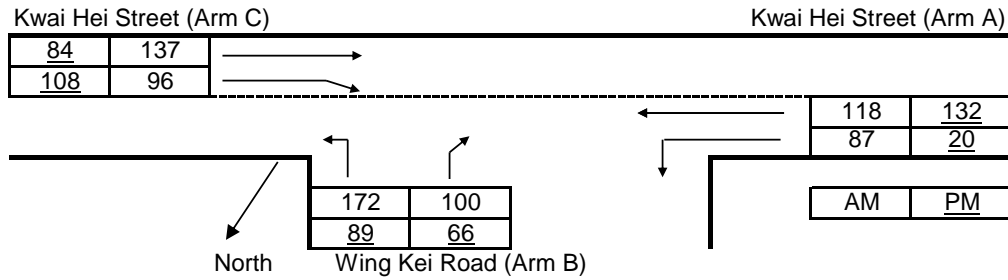
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr		AM	PM
q-CA	127	77	Q-BA		524	531
q-CB	90	100	Q-BC		739	742
q-AB	80	19	Q-CB		782	796
q-AC	111	121	Q-BAC		643	634
q-BA	92	62				
q-BC	160	82				
f	0.635	0.569				

Ratio-of-flow to Capacity	AM	PM
B-A	0.176	0.117
B-C	0.217	0.110
C-B	0.115	0.126
B-AC	0.392	0.227 (for shared lane BA, BC)

Priority Junction Analysis

Junction:	Kwai Hei Street / Wing Kei Road		
Design Year:	2032	Job Number: J7384	Date: 21 January 2025
Scenario:	Without Proposed Redevelopment		P. 5



The predictive equations of capacity of movement are:

$$Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]$$

$$Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]$$

$$Q-CB = F[745 - 0.364Y(q-AC + q-AB)]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-IBA - 150)]$$

$$E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]$$

$$F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	10.00	V-rBA	60	w-BA	4.70	D	0.9645
	W-CR		V-IBA	30	w-BC	4.70	E	1.0394
			V-rBC	60	w-CB	4.70	F	1.1185
			V-rCB	140			Y	0.6550

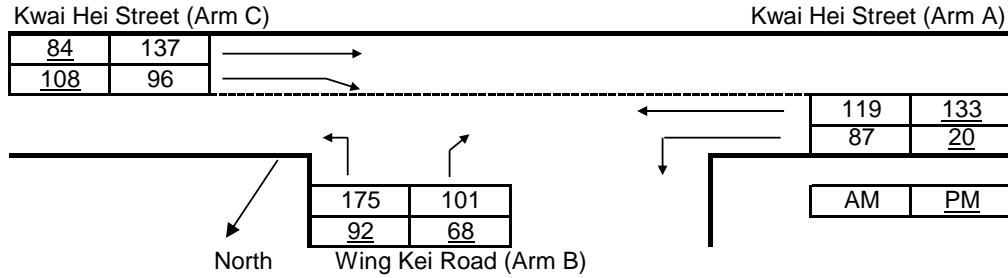
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	137	84	Q-BA	518	525
q-CB	96	108	Q-BC	737	740
q-AB	87	20	Q-CB	779	793
q-AC	118	132	Q-BAC	638	630
q-BA	100	66			
q-BC	172	89			
f	0.632	0.574			

Ratio-of-flow to Capacity	AM	PM
B-A	0.193	0.126
B-C	0.234	0.120
C-B	0.123	0.136
B-AC	0.426	0.246 (for shared lane BA, BC)

Priority Junction Analysis

Junction:	Kwai Hei Street / Wing Kei Road		
Design Year:	2032	Job Number:	J7384
Scenario:	With Proposed Redevelopment	Date:	21 January 2025
			P. 6



The predictive equations of capacity of movement are:

$$Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]$$

$$Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]$$

$$Q-CB = F[745 - 0.364Y(q-AC + q-AB)]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-IBA - 150)]$$

$$E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]$$

$$F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input	Input	Input	Calculated				
	W	10.00	V-rBA	60	w-BA	4.70	D	0.9645
	W-CR		V-IBA	30	w-BC	4.70	E	1.0394
			V-rBC	60	w-CB	4.70	F	1.1185
			V-rCB	140			Y	0.6550

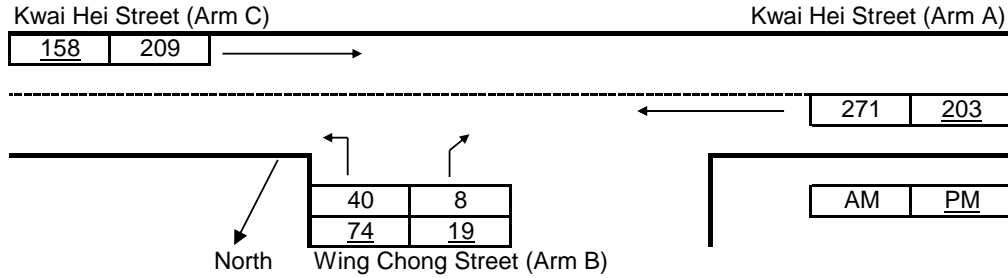
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	137	84	Q-BA	518	525
q-CB	96	108	Q-BC	736	739
q-AB	87	20	Q-CB	778	792
q-AC	119	133	Q-BAC	638	630
q-BA	101	68			
q-BC	175	92			
f	0.634	0.575			

Ratio-of-flow to Capacity	AM	PM
B-A	0.195	0.130
B-C	0.238	0.124
C-B	0.123	0.136
B-AC	0.433	0.254 (for shared lane BA, BC)

Priority Junction Analysis

Junction:	Kwai Hei Street / Wing Chong Street		
Design Year:	2024	Job Number: J7384	Date: 21 January 2025
Scenario:	Existing Condition		P. 7



The predictive equations of capacity of movement are:

$$Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]$$

$$Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]$$

$$Q-CB = F[745 - 0.364Y(q-AC + q-AB)]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-IBA - 150)]$$

$$E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]$$

$$F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	10.00	V-rBA	20	w-BA	4.70	D	0.9218
	W-CR		V-IBA	20	w-BC	4.70	E	0.9998
			V-rBC	20	w-CB		F	0.5860
			V-rCB				Y	0.6550

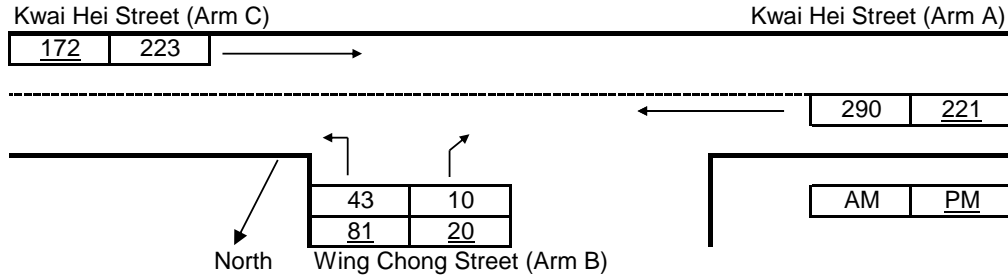
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr		AM	PM
q-CA	209	158	Q-BA		490	512
q-CB	0	0	Q-BC		680	696
q-AB	0	0	Q-CB		399	408
q-AC	271	203	Q-BAC		639	649
q-BA	8	19				
q-BC	40	74				
f	0.833	0.796				

Ratio-of-flow to Capacity	AM	PM
B-A	0.016	0.037
B-C	0.059	0.106
C-B	0.000	0.000
B-AC	0.075	0.143 (for shared lane BA, BC)

Priority Junction Analysis

Junction:	Kwai Hei Street / Wing Chong Street		
Design Year:	2032	Job Number:	J7384
Scenario:	Without Proposed Redevelopment		Date: 21 January 2025
			P. 8



The predictive equations of capacity of movement are:

$$Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]$$

$$Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]$$

$$Q-CB = F[745 - 0.364Y(q-AC + q-AB)]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-IBA - 150)]$$

$$E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]$$

$$F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input	Input	Input	Calculated				
	W	10.00	V-rBA	20	w-BA	4.70	D	0.9218
	W-CR		V-IBA	20	w-BC	4.70	E	0.9998
			V-rBC	20	w-CB		F	0.5860
			V-rCB				Y	0.6550

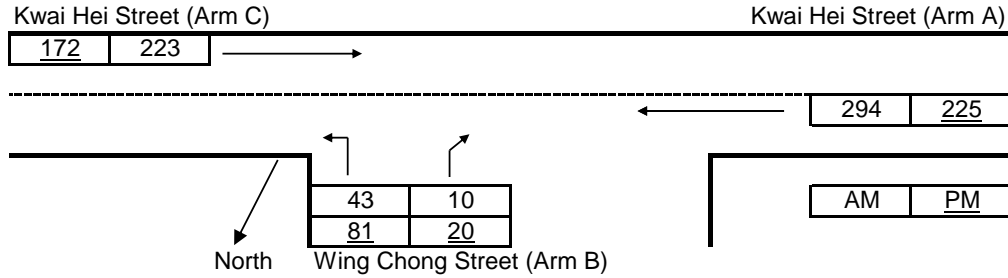
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	223	172	Q-BA	483	506
q-CB	0	0	Q-BC	676	692
q-AB	0	0	Q-CB	396	406
q-AC	290	221	Q-BAC	629	645
q-BA	10	20			
q-BC	43	81			
f	0.811	0.802			

Ratio-of-flow to Capacity	AM	PM
B-A	0.021	0.040
B-C	0.064	0.117
C-B	0.000	0.000
B-AC	0.084	0.157 (for shared lane BA, BC)

Priority Junction Analysis

Junction:	Kwai Hei Street / Wing Chong Street		
Design Year:	2032	Job Number:	J7384
Scenario:	With Proposed Redevelopment	Date:	21 January 2025
			P. 9



The predictive equations of capacity of movement are:

$$Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]$$

$$Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]$$

$$Q-CB = F[745 - 0.364Y(q-AC + q-AB)]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-IBA - 150)]$$

$$E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]$$

$$F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input	Input	Input	Calculated				
	W	10.00	V-rBA	20	w-BA	4.70	D	0.9218
	W-CR		V-IBA	20	w-BC	4.70	E	0.9998
			V-rBC	20	w-CB		F	0.5860
			V-rCB				Y	0.6550

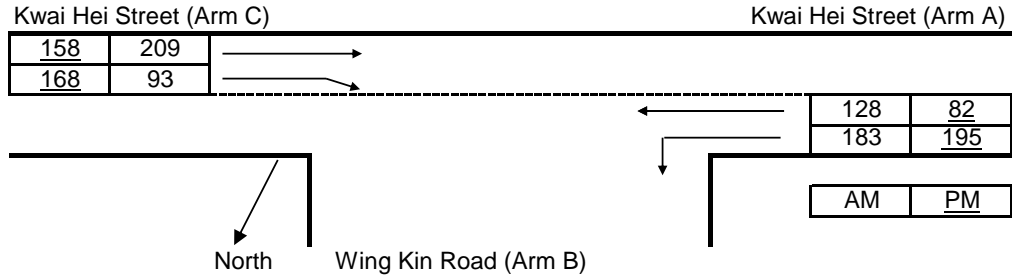
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	223	172	Q-BA	483	505
q-CB	0	0	Q-BC	675	691
q-AB	0	0	Q-CB	395	405
q-AC	294	225	Q-BAC	628	644
q-BA	10	20			
q-BC	43	81			
f	0.811	0.802			

Ratio-of-flow to Capacity	AM	PM
B-A	0.021	0.040
B-C	0.064	0.117
C-B	0.000	0.000
B-AC	0.084	0.157 (for shared lane BA, BC)

Priority Junction Analysis

Junction:	Kwai Hei Street / Wing Kin Road		
Design Year:	2024	Job Number: J7384	Date: 21 January 2025
Scenario:	Existing Condition		P. 10



The predictive equations of capacity of movement are:

$$Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]$$

$$Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]$$

$$Q-CB = F[745 - 0.364Y(q-AC + q-AB)]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-IBA - 150)]$$

$$E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]$$

$$F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

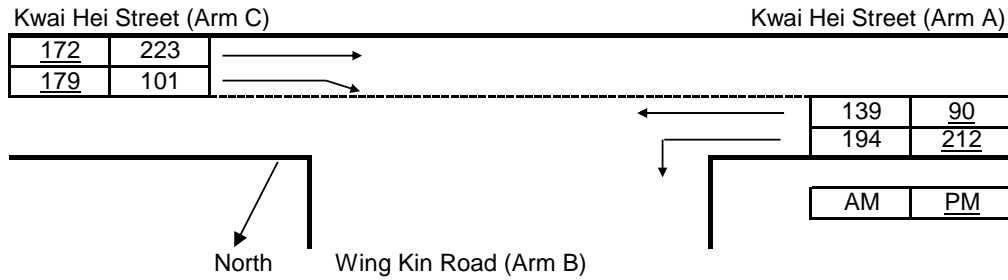
Geometry :	Input	Input	Input	Calculated
	W	10.40	V-rBA	D
	W-CR		V-IBA	E
			V-rBC	F
			V-rCB	Y
			w-BA	0.5332
			w-BC	0.5860
			w-CB	1.1481
		4.70		1.6412
		170		

Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	209	158	Q-BA	276	272
q-CB	93	168	Q-BC	409	415
q-AB	183	195	Q-CB	772	781
q-AC	128	82	Q-BAC	276	272
q-BA	0	0			
q-BC	0	0			
f	0.000	0.000			
	Ratio-of-flow to Capacity		AM	PM	
			0.000	0.000	
			0.000	0.000	
			0.120	0.215	

Priority Junction Analysis

Junction:	Kwai Hei Street / Wing Kin Road		
Design Year:	2032	Job Number: J7384	Date: 21 January 2025
Scenario:	Without Proposed Redevelopment		P. 11



The predictive equations of capacity of movement are:

$$Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]$$

$$Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]$$

$$Q-CB = F[745 - 0.364Y(q-AC + q-AB)]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-IBA - 150)]$$

$$E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]$$

$$F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

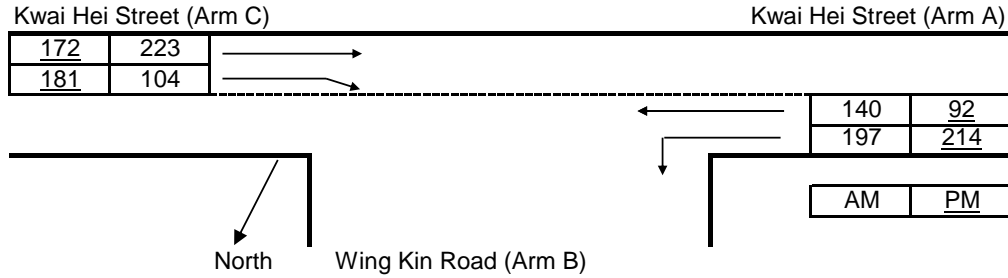
Geometry :	Input	Input	Input	Calculated
	W	10.40	V-rBA	D
	W-CR		V-IBA	E
			V-rBC	F
			V-rCB	Y
			w-BA	0.5332
			w-BC	0.5860
			w-CB	1.1481
		4.70		1.6412
		170		

Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	223	172	Q-BA	272	267
q-CB	101	179	Q-BC	407	413
q-AB	194	212	Q-CB	766	774
q-AC	139	90	Q-BAC	272	267
q-BA	0	0			
q-BC	0	0			
f	0.000	0.000			
	Ratio-of-flow to Capacity		AM	PM	
			0.000	0.000	
			0.000	0.000	
			0.132	0.231	

Priority Junction Analysis

Junction:	Kwai Hei Street / Wing Kin Road		
Design Year:	2032	Job Number:	J7384
Scenario:	With Proposed Redevelopment	Date:	21 January 2025
			P. 12



The predictive equations of capacity of movement are:

$$Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]$$

$$Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]$$

$$Q-CB = F[745 - 0.364Y(q-AC + q-AB)]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-IBA - 150)]$$

$$E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]$$

$$F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input	Input	Input	Calculated
	W	10.40	V-rBA	D
	W-CR		V-IBA	E
			V-rBC	F
			w-CB	Y
			V-rCB	
			170	
			4.70	
				0.5332
				0.5860
				1.1481
				0.6412

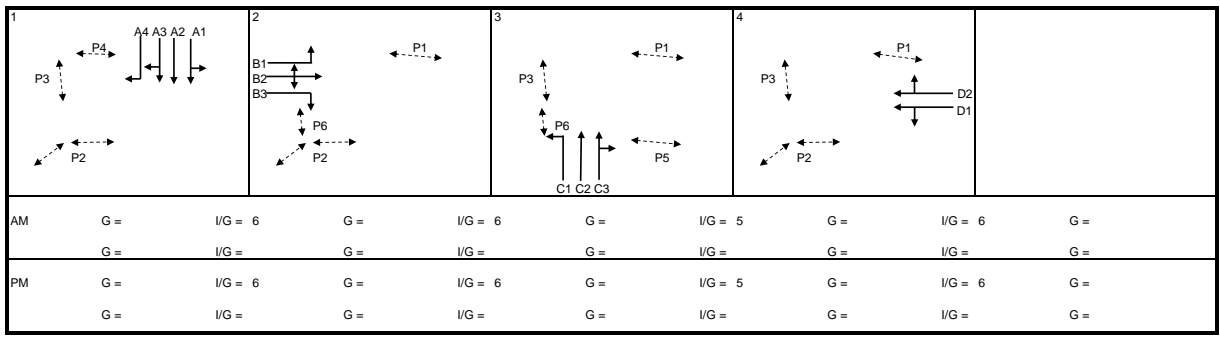
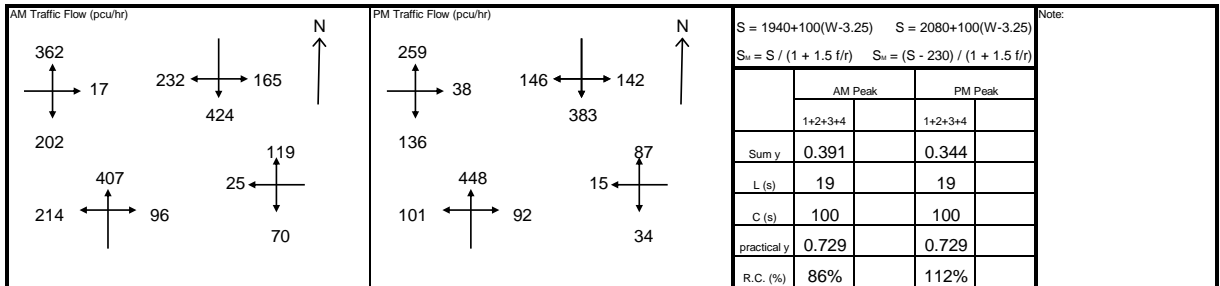
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	223	172	Q-BA	271	267
q-CB	104	181	Q-BC	407	412
q-AB	197	214	Q-CB	765	773
q-AC	140	92	Q-BAC	271	267
q-BA	0	0			
q-BC	0	0			
f	0.000	0.000			
	Ratio-of-flow to Capacity		AM	PM	
			0.000	0.000	
			0.000	0.000	
			0.136	0.234	

Signal Junction Analysis

Junction: Wing Kei Road / Kwai Fuk Road Job Number: J7384
 Scenario: Existing Condition Page 13
 Design Year: 2024 Designed By: _____ Checked By: _____ Date: 21 January 2025

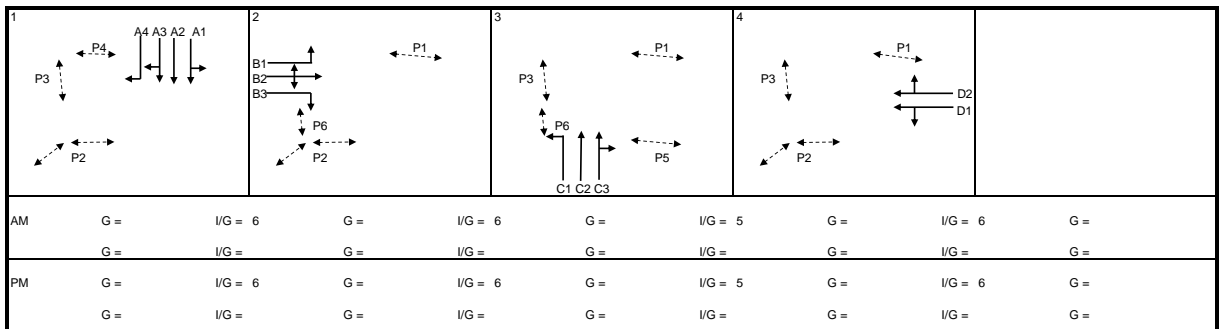
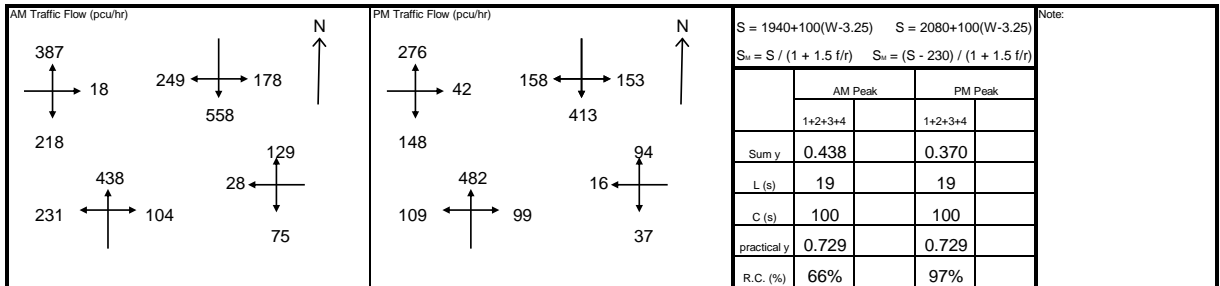
Approach	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	Turning %	AM Peak				PM Peak				
							Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y	Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y
Kwai Fuk Road SB	LT+SA	A1	1	3.10	16.0	88	1778	187	0.105		93	1771	158	0.089	0.089
	SA	A2	1	3.10			2065	217	0.105	0.105		2065	184	0.089	
	SA+RT	A3	1	3.10	17.0	14	2040	215	0.105		0	2065	183	0.089	
	RT	A4	1	3.10	20.0	100	1921	202	0.105		100	1921	146	0.076	
Wing Kei Road EB	LT	B1	2	3.20	20.0	100	1800	183	0.102		100	1800	141	0.078	
	LT+SA+RT	B2	2	3.20	26.0	92	1970	200	0.102	0.102	76	1988	156	0.078	0.078
	RT	B3	2	3.20	23.0	100	1948	198	0.102		100	1948	136	0.070	
Kwai Fuk Road NB	LT	C1	3	3.90	20.0	100	1865	214	0.115		100	1865	101	0.054	
	SA	C2	3	3.20			2075	255	0.123	0.123		2075	273	0.132	0.132
	SA+RT	C3	3	3.20	24.0	39	2026	248	0.122		34	2032	267	0.131	
Wing Kei Road WB	LT+SA	D1	4	3.60	15.0	49	1883	95	0.050		33	1912	49	0.026	
	SA+RT	D2	4	3.60	16.0	100	1934	119	0.062	0.062	100	1934	87	0.045	0.045
pedestrian phase		P1	2,3,4			min crossing time =	5	sec GM +		12	sec FGM =	17	sec		
		P2	1,2,4			min crossing time =	5	sec GM +		8	sec FGM =	13	sec		
		P3	1,3,4			min crossing time =	5	sec GM +		9	sec FGM =	14	sec		
		P4	1			min crossing time =	5	sec GM +		8	sec FGM =	13	sec		
		P5	3			min crossing time =	5	sec GM +		8	sec FGM =	13	sec		
		P6	2,3			min crossing time =	5	sec GM +		8	sec FGM =	13	sec		



Signal Junction Analysis

Junction: Wing Kei Road / Kwai Fuk Road Job Number: J7384
 Scenario: Without Proposed Redevelopment Page 14
 Design Year: 2032 Designed By: _____ Checked By: _____ Date: 21 January 2025

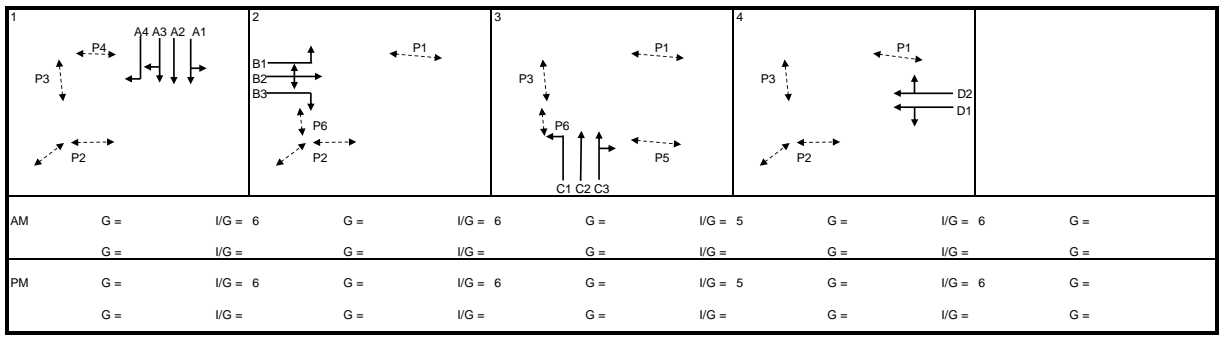
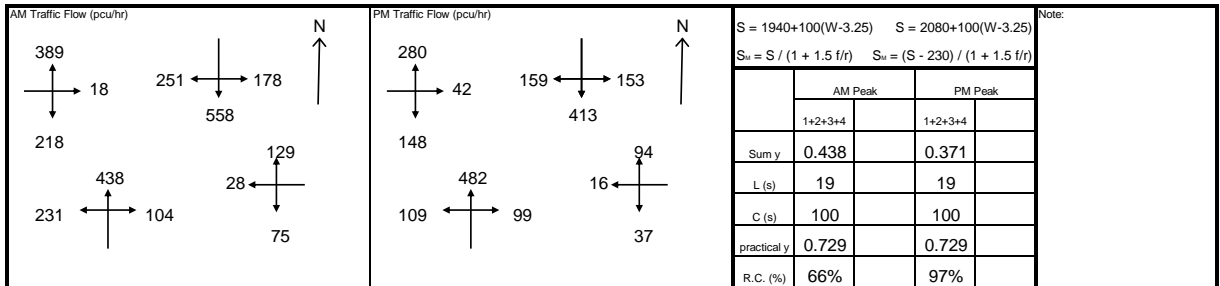
Approach	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	Turning %	AM Peak				PM Peak				
							Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y	Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y
Kwai Fuk Road SB	LT+SA	A1	1	3.10	16.0	87	1780	225	0.126		67	1811	173	0.096	0.096
	SA	A2	1	3.10			2065	262	0.127	0.127		2065	197	0.095	
	SA+RT	A3	1	3.10	17.0	31	2010	255	0.127		9	2049	196	0.096	
	RT	A4	1	3.10	20.0	100	1921	243	0.126		100	1921	158	0.082	
Wing Kei Road EB	LT	B1	2	3.20	20.0	100	1800	193	0.107		100	1800	151	0.084	
	LT+SA+RT	B2	2	3.20	26.0	84	1979	212	0.107		77	1987	167	0.084	0.084
	RT	B3	2	3.20	23.0	100	1948	218	0.112	0.112	100	1948	148	0.076	
Kwai Fuk Road NB	LT	C1	3	3.90	20.0	100	1865	231	0.124		100	1865	109	0.058	
	SA	C2	3	3.20			2075	274	0.132	0.132		2075	293	0.141	0.141
	SA+RT	C3	3	3.20	24.0	40	2024	268	0.132		24	2044	288	0.141	
Wing Kei Road WB	LT+SA	D1	4	3.60	15.0	74	1839	103	0.056		69	1848	53	0.029	
	SA+RT	D2	4	3.60	16.0	100	1934	129	0.067	0.067	100	1934	94	0.049	0.049
pedestrian phase		P1	2,3,4			min crossing time =	5	sec GM +		12	sec FGM =	17	sec		
		P2	1,2,4			min crossing time =	5	sec GM +		8	sec FGM =	13	sec		
		P3	1,3,4			min crossing time =	5	sec GM +		9	sec FGM =	14	sec		
		P4	1			min crossing time =	5	sec GM +		8	sec FGM =	13	sec		
		P5	3			min crossing time =	5	sec GM +		8	sec FGM =	13	sec		
		P6	2,3			min crossing time =	5	sec GM +		8	sec FGM =	13	sec		



Signal Junction Analysis

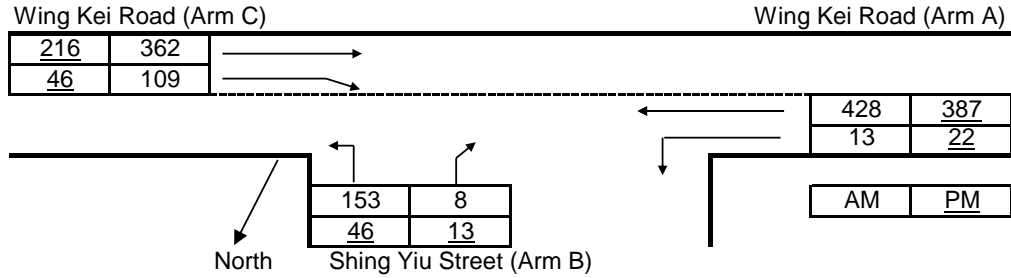
Junction: Wing Kei Road / Kwai Fuk Road Job Number: J7384
 Scenario: With Proposed Redevelopment Page 15
 Design Year: 2032 Designed By: _____ Checked By: _____ Date: 21 January 2025

Approach	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	Turning %	AM Peak				PM Peak				
							Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y	Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y
Kwai Fuk Road SB	LT+SA	A1	1	3.10	16.0	86	1781	226	0.127		68	1810	173	0.096	0.096
	SA	A2	1	3.10			2065	262	0.127	0.127		2065	197	0.095	
	SA+RT	A3	1	3.10	17.0	33	2007	255	0.127		11	2045	196	0.096	
	RT	A4	1	3.10	20.0	100	1921	244	0.127		100	1921	159	0.083	
Wing Kei Road EB	LT	B1	2	3.20	20.0	100	1800	194	0.108		100	1800	153	0.085	
	LT+SA+RT	B2	2	3.20	26.0	85	1978	213	0.108		78	1986	169	0.085	0.085
	RT	B3	2	3.20	23.0	100	1948	218	0.112	0.112	100	1948	148	0.076	
Kwai Fuk Road NB	LT	C1	3	3.90	20.0	100	1865	231	0.124		100	1865	109	0.058	
	SA	C2	3	3.20			2075	274	0.132	0.132		2075	293	0.141	0.141
	SA+RT	C3	3	3.20	24.0	40	2024	268	0.132		24	2044	288	0.141	
Wing Kei Road WB	LT+SA	D1	4	3.60	15.0	74	1839	103	0.056		69	1848	53	0.029	
	SA+RT	D2	4	3.60	16.0	100	1934	129	0.067	0.067	100	1934	94	0.049	0.049
pedestrian phase		P1	2,3,4	min crossing time =		5	sec GM +		12	sec FGM =		17	sec		
		P2	1,2,4	min crossing time =		5	sec GM +		8	sec FGM =		13	sec		
		P3	1,3,4	min crossing time =		5	sec GM +		9	sec FGM =		14	sec		
		P4	1	min crossing time =		5	sec GM +		8	sec FGM =		13	sec		
		P5	3	min crossing time =		5	sec GM +		8	sec FGM =		13	sec		
		P6	2,3	min crossing time =		5	sec GM +		8	sec FGM =		13	sec		



Priority Junction Analysis

Junction:	Shing Yiu Street / Wing Kei Road		
Design Year:	2024	Job Number:	J7384
Scenario:	Existing Condition	Date:	21 January 2025
			P. 16



The predictive equations of capacity of movement are:

$$Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]$$

$$Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]$$

$$Q-CB = F[745 - 0.364Y(q-AC + q-AB)]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-IBA - 150)]$$

$$E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]$$

$$F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	17.20	V-rBA	35	w-BA	2.90	D	0.8043
	W-CR	1.60	V-IBA	45	w-BC	2.90	E	0.8584
			V-rBC	35	w-CB	4.00	F	1.0143
			V-rCB	100			Y	0.4066

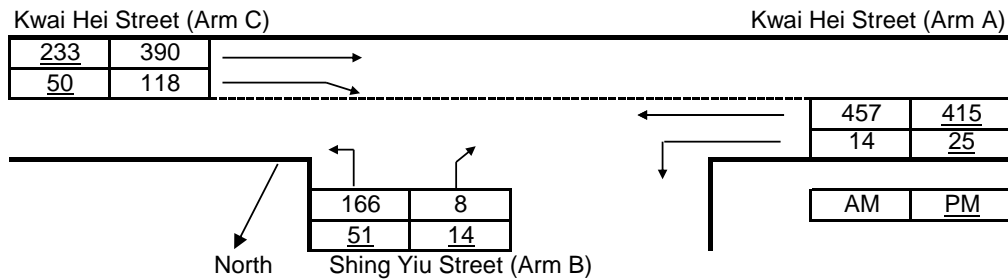
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr		AM	PM
q-CA	362	216	Q-BA		425	451
q-CB	109	46	Q-BC		584	589
q-AB	13	22	Q-CB		689	694
q-AC	428	387	Q-BAC		574	552
q-BA	8	13				
q-BC	153	46				
f	0.950	0.780				

Ratio-of-flow to Capacity	AM	PM
B-A	0.019	0.029
B-C	0.262	0.078
C-B	0.158	0.066
B-AC	0.281	0.107 (for shared lane BA, BC)

Priority Junction Analysis

Junction:	Shing Yiu Street / Wing Kei Road		
Design Year:	2032	Job Number:	J7384
Scenario:	Without Proposed Redevelopment		Date: 21 January 2025
			P. 17



The predictive equations of capacity of movement are:

$$Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]$$

$$Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]$$

$$Q-CB = F[745 - 0.364Y(q-AC + q-AB)]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-IBA - 150)]$$

$$E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]$$

$$F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	17.20	V-rBA	35	w-BA	2.90	D	0.8043
	W-CR	1.60	V-IBA	45	w-BC	2.90	E	0.8584
			V-rBC	35	w-CB	4.00	F	1.0143
			V-rCB	100			Y	0.4066

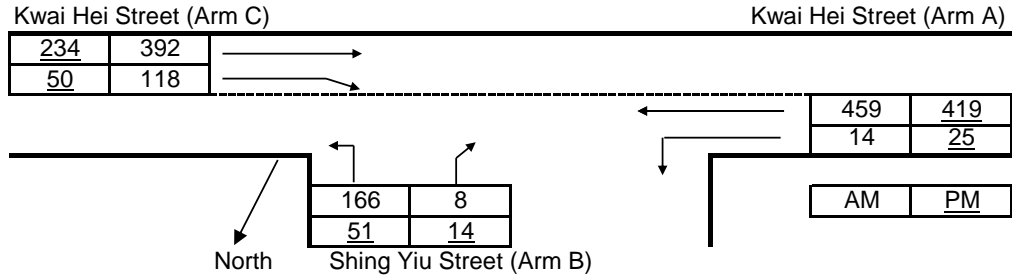
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr		AM	PM
q-CA	390	233	Q-BA		418	446
q-CB	118	50	Q-BC		581	586
q-AB	14	25	Q-CB		685	690
q-AC	457	415	Q-BAC		571	548
q-BA	8	14				
q-BC	166	51				
f	0.954	0.785				

Ratio-of-flow to Capacity	AM	PM
B-A	0.019	0.031
B-C	0.286	0.087
C-B	0.172	0.073
B-AC	0.305	0.119 (for shared lane BA, BC)

Priority Junction Analysis

Junction:	Shing Yiu Street / Wing Kei Road		
Design Year:	2032	Job Number:	J7384
Scenario:	With Proposed Redevelopment		Date: 21 January 2025
			P. 18



The predictive equations of capacity of movement are:

$$Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]$$

$$Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]$$

$$Q-CB = F[745 - 0.364Y(q-AC + q-AB)]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-IBA - 150)]$$

$$E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]$$

$$F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	17.20	V-rBA	35	w-BA	2.90	D	0.8043
	W-CR	1.60	V-IBA	45	w-BC	2.90	E	0.8584
			V-rBC	35	w-CB	4.00	F	1.0143
			V-rCB	100			Y	0.4066

Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr		AM	PM
q-CA	392	234	Q-BA		418	445
q-CB	118	50	Q-BC		580	585
q-AB	14	25	Q-CB		685	689
q-AC	459	419	Q-BAC		570	548
q-BA	8	14				
q-BC	166	51				
f	0.954	0.785				

Ratio-of-flow to Capacity	AM	PM
B-A	0.019	0.031
B-C	0.286	0.087
C-B	0.172	0.073
B-AC	0.305	0.119 (for shared lane BA, BC)

Signal Junction Analysis

Junction: Kwai Fuk Road / Kwai Hei Street Job Number: J7384
 Scenario: Existing Condition Page 19
 Design Year: 2024 Designed By: _____ Checked By: _____ Date: 21 January 2025

Approach Opposed Turni Nearside	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak					PM Peak					
						Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y	Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y	
Kwai Fuk Road SB	SA	A1	2,3	3.30			1945	362	0.186			1945	315	0.162		
	SA	A2	2,3	3.30			2085	389	0.187			2085	337	0.162		
Kwai Hei Street EB	LT+RT	B1	1	3.20	15.0		100	1759	274	0.156	0.156	100	1759	247	0.140	0.140
Kwai Fuk Road NB	LT	C1	1,2	3.50	18.0		100	1943	271	0.139		100	1943	229	0.118	
	SA	C2	2	3.50				2105	473	0.225	0.225		2105	408	0.194	0.194
	SA	C3	2	3.50				2105	473	0.225			2105	407	0.193	
pedestrian phase						P1	3		min crossing time =	5	sec GM +	7	sec FGM =	12	sec	
						P2	2,3		min crossing time =	5	sec GM +	4	sec FGM =	9	sec	
						P3	3		min crossing time =	5	sec GM +	10	sec FGM =	15	sec	
						P4	1		min crossing time =	5	sec GM +	7	sec FGM =	12	sec	

<p>AM Traffic Flow (pcu/hr)</p>	<p>PM Traffic Flow (pcu/hr)</p>	<p>Note:</p> $S = 1940 + 100(W-3.25\beta) = 2080 + 100(W-3.25)$ $S_w = S / (1 + 1.5 ffr) \quad S_u = (S - 230) / (1 + 1.5 ffr)$ <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2"></th> <th colspan="2">AM Peak</th> <th colspan="2">PM Peak</th> </tr> <tr> <th>1+2</th> <th>1+2,3</th> <th>1+2</th> <th>1+2,3</th> </tr> </thead> <tbody> <tr> <td>Sum y</td> <td>0.380</td> <td>0.342</td> <td>0.334</td> <td>0.302</td> </tr> <tr> <td>L (s)</td> <td>34</td> <td>11</td> <td>32</td> <td>11</td> </tr> <tr> <td>C (s)</td> <td>120</td> <td>120</td> <td>120</td> <td>120</td> </tr> <tr> <td>practical y</td> <td>0.645</td> <td>0.818</td> <td>0.660</td> <td>0.818</td> </tr> <tr> <td>R.C. (%)</td> <td>70%</td> <td>139%</td> <td>97%</td> <td>170%</td> </tr> </tbody> </table>		AM Peak		PM Peak		1+2	1+2,3	1+2	1+2,3	Sum y	0.380	0.342	0.334	0.302	L (s)	34	11	32	11	C (s)	120	120	120	120	practical y	0.645	0.818	0.660	0.818	R.C. (%)	70%	139%	97%	170%
	AM Peak			PM Peak																																
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<p>1</p>	<p>2</p>	<p>3</p>		
AM	G = I/G = 7	G = I/G = 3	G = 24 I/G = 2	G = I/G =
	G = I/G = 7	G = I/G =	G = I/G = 6	G = I/G =
PM	G = I/G = 7	G = I/G = 3	G = 22 I/G = 2	G = I/G =
	G = I/G = 7	G = I/G =	G = I/G = 6	G = I/G =

Signal Junction Analysis

Junction: Kwai Fuk Road / Kwai Hei Street Job Number: J7384
 Scenario: Without Proposed Redevelopment Page 20
 Design Year: 2032 Designed By: _____ Checked By: _____ Date: 21 January 2025

Approach Opposed Turni Nearside	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak					PM Peak					
						Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y	Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y	
Kwai Fuk Road SB	SA	A1	2,3	3.30			1945	439	0.226			1945	339	0.174		
	SA	A2	2,3	3.30			2085	471	0.226			2085	363	0.174		
Kwai Hei Street EB	LT+RT	B1	1	3.20	15.0		100	1759	295	0.168	0.168	100	1759	268	0.152	0.152
Kwai Fuk Road NB	LT	C1	1,2	3.50	18.0		100	1943	291	0.150		100	1943	247	0.127	
	SA	C2	2	3.50				2105	512	0.243	0.243		2105	440	0.209	0.209
	SA	C3	2	3.50				2105	512	0.243			2105	440	0.209	
pedestrian phase		P1	3			min crossing time =	5	sec GM +	7			sec FGM =	12	sec		
		P2	2,3			min crossing time =	5	sec GM +	4			sec FGM =	9	sec		
		P3	3			min crossing time =	5	sec GM +	10			sec FGM =	15	sec		
		P4	1			min crossing time =	5	sec GM +	7			sec FGM =	12	sec		

<p>AM Traffic Flow (pcu/hr)</p>	<p>PM Traffic Flow (pcu/hr)</p>	<p>Note:</p> $S = 1940 + 100(W-3.25\beta) = 2080 + 100(W-3.25)$ $S_w = S / (1 + 1.5 ffr) \quad S_u = (S - 230) / (1 + 1.5 ffr)$ <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2"></th> <th colspan="2">AM Peak</th> <th colspan="2">PM Peak</th> </tr> <tr> <th>1+2</th> <th>1+2,3</th> <th>1+2</th> <th>1+2,3</th> </tr> </thead> <tbody> <tr> <td>Sum y</td> <td>0.411</td> <td>0.394</td> <td>0.361</td> <td>0.327</td> </tr> <tr> <td>L (s)</td> <td>34</td> <td>11</td> <td>32</td> <td>11</td> </tr> <tr> <td>C (s)</td> <td>120</td> <td>120</td> <td>120</td> <td>120</td> </tr> <tr> <td>practical y</td> <td>0.645</td> <td>0.818</td> <td>0.660</td> <td>0.818</td> </tr> <tr> <td>R.C. (%)</td> <td>57%</td> <td>108%</td> <td>83%</td> <td>150%</td> </tr> </tbody> </table>		AM Peak		PM Peak		1+2	1+2,3	1+2	1+2,3	Sum y	0.411	0.394	0.361	0.327	L (s)	34	11	32	11	C (s)	120	120	120	120	practical y	0.645	0.818	0.660	0.818	R.C. (%)	57%	108%	83%	150%
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<p>1</p>	<p>2</p>	<p>3</p>		
AM	G = I/G = 7	G = I/G = 3	G = 24 I/G = 2	G = I/G =
	G = I/G = 7	G = I/G =	G = I/G = 6	G = I/G =
PM	G = I/G = 7	G = I/G = 3	G = 22 I/G = 2	G = I/G =
	G = I/G = 7	G = I/G =	G = I/G = 6	G = I/G =

Signal Junction Analysis

Junction: Kwai Fuk Road / Kwai Hei Street Job Number: J7384
 Scenario: With Proposed Redevelopment Page 21
 Design Year: 2032 Designed By: _____ Checked By: _____ Date: 21 January 2025

Approach Opposed Turni Nearside	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak					PM Peak					
						Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y	Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y	
Kwai Fuk Road SB	SA	A1	2,3	3.30			1945	439	0.226			1945	339	0.174		
	SA	A2	2,3	3.30			2085	471	0.226			2085	363	0.174		
Kwai Hei Street EB	LT+RT	B1	1	3.20	15.0		100	1759	296	0.168	0.168	100	1759	270	0.153	0.153
Kwai Fuk Road NB	LT	C1	1,2	3.50	18.0		100	1943	294	0.151		100	1943	249	0.128	
	SA	C2	2	3.50				2105	512	0.243	0.243		2105	440	0.209	0.209
	SA	C3	2	3.50				2105	512	0.243			2105	440	0.209	
pedestrian phase		P1	3			min crossing time =	5	sec GM +	7		sec FGM =	12	sec			
		P2	2,3			min crossing time =	5	sec GM +	4		sec FGM =	9	sec			
		P3	3			min crossing time =	5	sec GM +	10		sec FGM =	15	sec			
		P4	1			min crossing time =	5	sec GM +	7		sec FGM =	12	sec			

AM Traffic Flow (pcu/hr)

PM Traffic Flow (pcu/hr)

Note:

$$S = 1940 + 100(W-3.25\beta) = 2080 + 100(W-3.25)$$

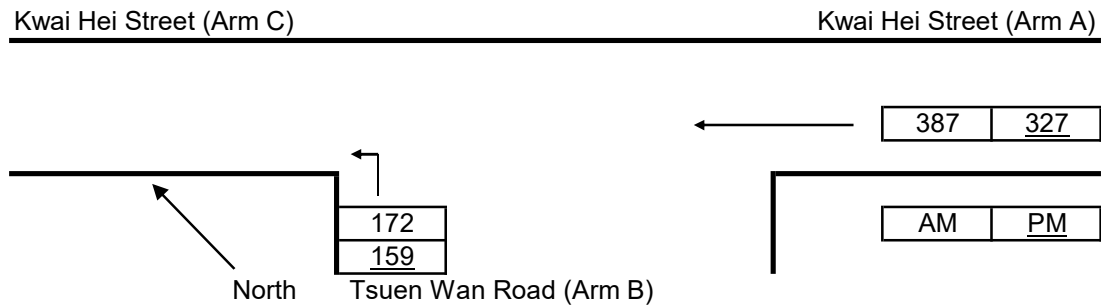
$$S_w = S / (1 + 1.5 ffr) \quad S_w = (S - 230) / (1 + 1.5 ffr)$$

	AM Peak		PM Peak	
	1+2	1+2,3	1+2	1+2,3
Sum y	0.412	0.394	0.363	0.328
L (s)	34	11	32	11
C (s)	120	120	120	120
practical y	0.645	0.818	0.660	0.818
R.C. (%)	57%	107%	82%	149%

	1	2	3						
AM	G = I/G = 7	G = I/G = 7	G = I/G = 3	G = 24 I/G = 2	G = I/G = 6	G = I/G =	G = I/G =	G = I/G =	G = I/G =
PM	G = I/G = 7	G = I/G = 7	G = I/G = 3	G = 22 I/G = 2	G = I/G = 6	G = I/G =	G = I/G =	G = I/G =	G = I/G =

Priority Junction Analysis

Junction:	Kwai Hei Street / Tsuen Wan Road		
Design Year:	2024	Job Number:	J7384
Scenario:	Existing Condition	Date:	21 January 2025
			P. 22



The predictive equations of capacity of movement are:

$$Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]$$

$$Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]$$

$$Q-CB = F[745 - 0.364Y(q-AC + q-AB)]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-IBA - 150)]$$

$$E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]$$

$$F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	11.00	V-rBA	0	w-BA	0.00	D	0.5332
	W-CR	0.00	V-IBA	0	w-BC	4.70	E	1.0196
			V-rBC	40	w-CB	0.00	F	0.5860
			V-rCB	0			Y	0.6205

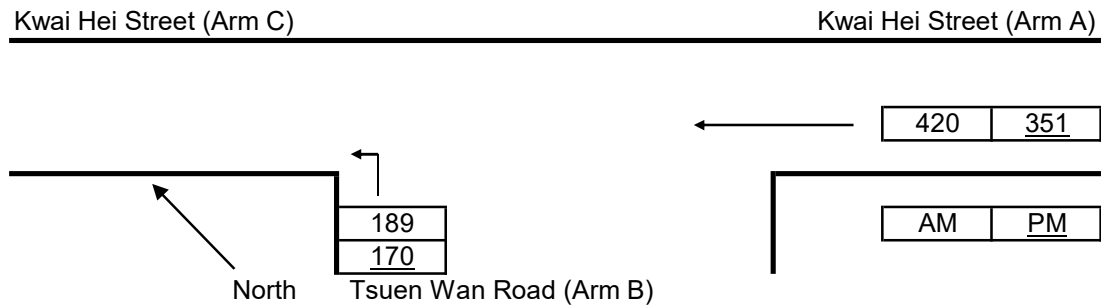
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr		AM	PM
q-CA	0	0	Q-BA		288	295
q-CB	0	0	Q-BC		670	684
q-AB	0	0	Q-CB		385	393
q-AC	387	327	Q-BAC		670	684
q-BA	0	0				
q-BC	172	159				
f	1.000	1.000				

Ratio-of-flow to Capacity	AM	PM
B-A	0.000	0.000
B-C	0.257	0.232
C-B	0.000	0.000

Priority Junction Analysis

Junction:	Kwai Hei Street / Tsuen Wan Road		
Design Year:	2032	Job Number:	J7384
Scenario:	Without Proposed Redevelopment		Date: 21 January 2025
			P. 23



The predictive equations of capacity of movement are:

$$Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]$$

$$Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]$$

$$Q-CB = F[745 - 0.364Y(q-AC + q-AB)]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-IBA - 150)]$$

$$E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]$$

$$F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	11.00	V-rBA	0	w-BA	0.00	D	0.5332
	W-CR	0.00	V-IBA	0	w-BC	4.70	E	1.0196
			V-rBC	40	w-CB	0.00	F	0.5860
			V-rCB	0			Y	0.6205

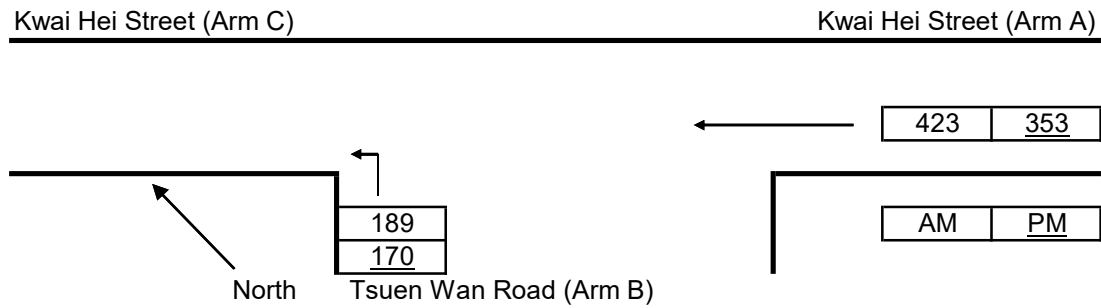
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr		AM	PM
q-CA	0	0	Q-BA		284	292
q-CB	0	0	Q-BC		663	679
q-AB	0	0	Q-CB		381	390
q-AC	420	351	Q-BAC		663	679
q-BA	0	0				
q-BC	189	170				
f	1.000	1.000				

Ratio-of-flow to Capacity	AM	PM
B-A	0.000	0.000
B-C	0.285	0.250
C-B	0.000	0.000

Priority Junction Analysis

Junction:	Kwai Hei Street / Tsuen Wan Road		
Design Year:	2032	Job Number:	J7384
Scenario:	With Proposed Redevelopment	Date:	21 January 2025
			P. 24



The predictive equations of capacity of movement are:

$$Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]$$

$$Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]$$

$$Q-CB = F[745 - 0.364Y(q-AC + q-AB)]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-IBA - 150)]$$

$$E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]$$

$$F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	11.00	V-rBA	0	w-BA	0.00	D	0.5332
	W-CR	0.00	V-IBA	0	w-BC	4.70	E	1.0196
			V-rBC	40	w-CB	0.00	F	0.5860
			V-rCB	0			Y	0.6205

Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr		AM	PM
q-CA	0	0	Q-BA		283	292
q-CB	0	0	Q-BC		662	678
q-AB	0	0	Q-CB		381	390
q-AC	423	353	Q-BAC		662	678
q-BA	0	0				
q-BC	189	170				
f	1.000	1.000				

Ratio-of-flow to Capacity	AM	PM
B-A	0.000	0.000
B-C	0.285	0.251
C-B	0.000	0.000

Appendix 2 –
Bus Stop Utilisation

The results of utilisation survey conducted at the 5 bus stops during AM and PM peak on Friday, 28 April 2023, are presented in **Tables A1 – A5**. The 5 bus stops are:

- STOP 1 – Wing Kei Road Southbound
- STOP 2 – Kwai Fuk Road Westbound
- STOP 3 – Kwai Fuk Road Eastbound
- STOP 4 – Kwai Shing Swimming Pool Eastbound
- STOP 5 – Kwai Shing Swimming Pool Westbound

TABLE A1 RESULTS OF THE UTILIZATION SURVEY OF PUBLIC TRANSPORT SERVICES AT STOP 1 - WING KEI ROAD SOUTHBOUND

Route ⁽¹⁾	No. of Vehicle	No. of Passenger on Vehicle ⁽²⁾ [a]	Capacity [b]	Vacant [b] – [a]	Occupancy [a] / [b]
AM Peak					
GMB 404M	16	194	289	95	67.1%
PM Peak					
GMB 404M	10	140	181	41	77.3%

Note: ⁽¹⁾ GMB – Green Minibus

⁽²⁾ Passenger was counted at the moment before the bus arrived

TABLE A2 RESULTS OF THE UTILIZATION SURVEY OF PUBLIC TRANSPORT SERVICES AT STOP 2 - KWAI FUK ROAD WESTBOUND

Route ⁽¹⁾	No. of Vehicle	No. of Passenger on Vehicle ⁽²⁾ [a]	Capacity [b]	Vacant [b] – [a]	Occupancy [a] / [b]
AM Peak					
KMB 73P	2	77	272	195	28.3%
GMB 87	7	107	121	14	88.4%
GMB 87K	13	210	226	16	92.9%
GMB 91	8	93	146	53	63.7%
GMB 93	4	49	64	15	76.6%
GMB 93A	4	50	67	17	74.6%
GMB 98	10	129	181	52	71.3%
GMB 404M	16	219	289	70	75.8%
GMB 407	6	51	102	51	50.0%
Total	70	985	1468	483	67.1%
PM Peak					
GMB 87	11	137	188	51	72.9%
GMB 87K	12	179	216	37	82.9%
GMB 91	5	65	83	18	78.3%
GMB 93	4	47	64	17	73.4%
GMB 93A	3	45	51	6	88.2%
GMB 98	10	149	184	35	81.0%
GMB 404M	10	126	181	55	69.6%
GMB 407	10	129	172	43	75.0%
Total	65	877	1139	262	77.0%

Note: ⁽¹⁾ KMB – Kowloon Motor Bus GMB – Green Minibus

⁽²⁾ Passenger was counted at the moment before the bus arrived

TABLE A3 RESULTS OF THE UTILIZATION SURVEY OF PUBLIC TRANSPORT SERVICES AT STOP 3 - KWAI FUK ROAD EASTBOUND

Route ⁽¹⁾	No. of Vehicle	No. of Passenger on Vehicle ⁽²⁾ [a]	Capacity [b]	Vacant [b] – [a]	Occupancy [a] / [b]
AM Peak					
GMB 87	7	93	121	28	76.9%
GMB 87K	14	171	251	80	68.1%
GMB 91	8	99	143	44	69.2%
GMB 93	4	33	67	34	49.3%
GMB 93A	4	40	67	27	59.7%
GMB 98	15	117	267	150	43.8%
GMB 404M	13	160	238	78	67.2%
GMB 406	2	25	32	7	78.1%
GMB 407	18	243	309	66	78.6%
Total	85	981	1495	514	65.6%
PM Peak					
KMB 73P	1	17	136	119	12.5%
GMB 87	10	157	172	15	91.3%
GMB 87K	13	206	232	26	88.8%
GMB 91	6	97	108	11	89.8%
GMB 93	4	47	64	17	73.4%
GMB 93A	3	45	51	6	88.2%
GMB 98	14	248	254	6	97.6%
GMB 404M	10	171	178	7	96.1%
GMB 407	8	79	137	58	57.7%
Total	69	1067	1332	265	80.1%

Note: ⁽¹⁾ KMB – Kowloon Motor Bus GMB – Green Minibus
⁽²⁾ Passenger was counted at the moment before the bus arrived

TABLE A4 RESULTS OF THE UTILIZATION SURVEY OF PUBLIC TRANSPORT SERVICES AT STOP 4 - KWAI SHING SWIMMING POOL EASTBOUND

Route ⁽¹⁾	No. of Vehicle	No. of Passenger on Vehicle ⁽²⁾ [a]	Capacity [b]	Vacant [b] – [a]	Occupancy [a] / [b]
AM Peak					
KMB 32H	2	51	152	101	33.6%
KMB 34	7	303	952	649	31.8%
GMB 87	7	93	121	28	76.9%
GMB 87K	14	161	251	90	64.1%
GMB 89B	4	57	64	7	89.1%
GMB 406	2	25	32	7	78.1%
GMB 407	18	248	309	61	80.3%
GMB 94	8	59	131	72	45.0%
GMB 94A	4	51	64	13	79.7%
Total	66	1048	2076	1028	50.5%
PM Peak					
KMB 32H	1	15	76	61	19.7%
KMB 34	8	263	1088	825	31.9%
GMB 87	10	121	172	51	70.3%
GMB 87K	13	201	232	31	86.6%
GMB 89B	3	6	48	42	12.5%
GMB 407	8	95	137	42	69.3%
GMB 94	8	13	128	115	10.2%
Total	51	714	1881	1167	38.0%

Note: ⁽¹⁾ KMB – Kowloon Motor Bus GMB – Green Minibus
⁽²⁾ Passenger was counted at the moment before the bus arrived

TABLE A5 RESULTS OF THE UTILIZATION SURVEY OF PUBLIC TRANSPORT SERVICES AT STOP 5 - KWAI SHING SWIMMING POOL WESTBOUND

Route ⁽¹⁾	No. of Vehicle	No. of Passenger on Vehicle ⁽²⁾ [a]	Capacity [b]	Vacant [b] – [a]	Occupancy [a] / [b]
AM Peak					
KMB 38	7	314	934	620	33.6%
GMB 87	7	92	121	29	76.0%
GMB 87K	13	146	226	80	64.6%
GMB 89B	3	34	48	14	70.8%
GMB 407	6	59	102	43	57.8%
GMB 94	7	50	112	62	44.6%
Total	43	695	1543	848	45.0%
PM Peak					
KMB 32H	1	38	76	38	50.0%
KMB 38	5	243	685	442	35.5%
GMB 87	11	122	188	66	64.9%
GMB 87K	12	166	216	50	76.9%
GMB 89B	3	6	48	42	12.5%
GMB 407	10	115	172	57	66.9%
GMB 94	8	85	128	43	66.4%
GMB 94A	1	38	76	38	50.0%
Total	50	775	1513	738	51.2%

Note: ⁽¹⁾ KMB – Kowloon Motor Bus GMB – Green Minibus
⁽²⁾ Passenger was counted at the moment before the bus arrived

The existing utilisation of the public transport services at the 5 stops is summarised in **Table A6**.

TABLE A6 THE EXISTING UTILISATION OF THE PUBLIC TRANSPORT SERVICES at the 5 surveyed stops

No.	Location	Occupancy	
		AM Peak	PM Peak
1	Wing Kei Road Southbound	67.1%	77.3%
2	Kwai Fuk Road Northbound	67.1%	77.0%
3	Kwai Fuk Road Southbound	65.6%	80.1%
4	Kwai Shing Swimming Pool Eastbound	50.5%	38.0%
5	Kwai Shing Swimming Pool Westbound	45.0%	51.2%

The pedestrians generated by the Proposed Data Centre is estimated using the pedestrian generation rates in Table 5.2 of the Traffic Impact Assessment Report and is presented in **Table A7**.

TABLE A7 PEDESTRIAN GENERATION OF PROPOSED DATA CENTRE

Item	AM Peak			PM Peak		
	In	Out	2-way	In	Out	2-way
Proposed Data Centre (10,991.880m ² GFA)	Pedestrian Generation Rates, ped / 15min / 100m ²					
	0.0660	0.0109	NA	0.0164	0.0660	NA
	Pedestrian Generation, ped / hour					
	32	8	40	8	32	40

To be conservative, it is assumed that all pedestrians generated use public transport services and the analysis is presented in **Table A8**.

TABLE A8 THE UTILISATION OF THE PUBLIC TRANSPORT SERVICES FOR THE CASE WITH THE PROPOSED DATA CENTRE

No.	Location	Occupancy	
		AM Peak	PM Peak
1	Wing Kei Road Southbound	70.6%	82.9%
2	Kwai Fuk Road Northbound	67.4%	77.4%
3	Kwai Fuk Road Southbound	66.0%	80.5%
4	Kwai Shing Swimming Pool Eastbound	51.0%	38.5%
5	Kwai Shing Swimming Pool Westbound	45.7%	51.9%

Table A8 shows that the public transport service have capacity to accommodate the passenger demand generated by the Proposed Data Centre.

Restriction on partitioning

(21) Except for the surrender and carving out of the Pink Hatched Blue Area in accordance with Special Condition No. (9)(f)(i) hereof, the Grantee shall not, without the prior written consent of the Director, partition (whether by way of assignment or other disposal or by any other means) the lot or any part thereof or any section which has been partitioned with the prior written consent of the Director under this Special Condition.

Parking requirements

(22) (a) (i) Spaces shall be provided within the lot to the satisfaction of the Commissioner for Transport (hereinafter referred to as "the C for T") for the parking of motor vehicles licensed under the Road Traffic Ordinance, any regulations made thereunder and any amending legislation (hereinafter referred to as "the Road Traffic Ordinance") at the following rates—

Data Centre Parking Spaces

(I) one space for every 1,000 square metres or part thereof of the gross floor area of the building or buildings erected or to be erected on the lot or part or parts of the building or buildings for the purpose of data centre (the spaces to be provided under this sub-clause (a)(i)(I) (as may be varied under Special Condition No. (23) hereof) are hereinafter referred to as "the Data Centre Parking Spaces"); and

Industrial Parking Spaces

(II) one space for every 1,000 square metres or part thereof of the gross floor area of the building or buildings erected or to be erected on the lot or part or parts of the building or buildings for purposes permitted under Special Condition No. (11) hereof excluding data centre (the spaces to be provided under this sub-clause (a)(i)(II) (as may be varied under Special Condition No. (23) hereof) are hereinafter referred to as "the Industrial Parking Spaces").

(ii) For the purpose of calculating the number of the Data Centre Parking Spaces and the Industrial Parking Spaces to be provided under sub-clauses (a)(i)(I) and (a)(i)(II) of this Special Condition, any floor area to be used for parking, loading and unloading purposes shall be excluded. For the purposes of these Conditions, "motor vehicle" shall be as defined in the Road Traffic Ordinance.

(iii) The Data Centre Parking Spaces and the Industrial Parking Spaces shall not be used for any purpose other than for the parking of motor vehicles licensed under the Road Traffic Ordinance and in particular the said

spaces shall not be used for the storage, display or exhibiting of motor vehicles for sale or otherwise or for the provision of motor vehicle cleaning and beauty services.

Parking Spaces for Disabled Persons

(b) (i) Out of the Data Centre Parking Spaces and the Industrial Parking Spaces, the Grantee shall reserve and designate such number of spaces for the parking of motor vehicles by disabled persons (which spaces to be so reserved and designated are hereinafter referred to as "the Parking Spaces for Disabled Persons") as the Building Authority may require or approve. For the purpose of these Conditions, "disabled persons" shall be as defined in the Road Traffic Ordinance.

(ii) The Parking Spaces for Disabled Persons shall not be used for any purpose other than for the parking of motor vehicles licensed under the Road Traffic Ordinance by disabled persons and in particular the said spaces shall not be used for the storage, display or exhibiting of motor vehicles for sale or otherwise or for the provision of motor vehicle cleaning and beauty services.

Motor Cycle Parking Spaces

(c) (i) Spaces shall be provided within the lot to the satisfaction of the C for T for the parking of motor cycles licensed under the Road Traffic Ordinance at at the following rates—

Data Centre Motor Cycle Parking Spaces

(I) 10% of the total number of the Data Centre Parking Spaces (the spaces to be provided under this sub-clause (c)(i)(I) (as may be varied under Special Condition No. (23) hereof) are hereinafter referred to as "the Data Centre Motor Cycle Parking Spaces"); and

Industrial Motor Cycle Parking Spaces

(II) 10% of the total number of the Industrial Parking Spaces (the spaces to be provided under this sub-clause (c)(i)(II) (as may be varied under Special Condition No. (23) hereof) are hereinafter referred to as "the Industrial Motor Cycle Parking Spaces").

If the number of the Data Centre Motor Cycle Parking Spaces or the Industrial Motor Cycle Parking Spaces to be provided under sub-clauses (c)(i)(I) and (c)(i)(II) of this Special Condition is a decimal number, the same shall be rounded up to the next whole number. For the purposes of these Conditions, "motor cycle" shall be as defined in the Road Traffic Ordinance.

- (ii) The Data Centre Motor Cycle Parking Spaces and the Industrial Motor Cycle Parking Spaces shall not be used for any purpose other than for the parking of motor cycles licensed under the Road Traffic Ordinance and in particular the said spaces shall not be used for the storage, display or exhibiting of motor vehicles for sale or otherwise or for the provision of motor vehicle cleaning and beauty services.

Dimensions of parking spaces

- (d) (i) Except for the Parking Spaces for Disabled Persons, each of the Data Centre Parking Spaces and the Industrial Parking Spaces shall measure 2.5 metres in width and 5.0 metres in length with a minimum headroom of 2.4 metres.
- (ii) The dimensions of each of the Parking Spaces for Disabled Persons shall be as the Building Authority may require or approve.
- (iii) Each of the Data Centre Motor Cycle Parking Spaces and the Industrial Motor Cycle Parking Spaces shall measure 1.0 metre in width and 2.4 metres in length with a minimum headroom of 2.4 metres.

Spaces for goods vehicles (excluding goods vehicles with trailers with their prime movers attached)

- (e) (i) Spaces shall be provided within the lot to the satisfaction of the C for T for the parking, loading and unloading of goods vehicles (excluding goods vehicles with trailer with their prime movers attached) licensed under the Road Traffic Ordinance at the following rates—

- (I) one space for every 3,400 square metres or part thereof of the gross floor area of the building or buildings erected or to be erected on the lot or part or parts of the building or buildings for the purpose of data centre; and
- (II) one space for every 700 square metres or part thereof of the gross floor area of the building or buildings erected or to be erected on the lot or part or parts of the building or buildings for purposes permitted under Special Condition No. (11) hereof excluding data centre.

For the purposes of these Conditions, “goods vehicles” shall be as defined in the Road Traffic Ordinance.

- (ii) (I) Out of the total number of spaces provided under sub-clause (e)(i)(I) of this Special Condition (as

may be varied under Special Condition No. (23) hereof),

- (A) the first 65% of the total number of spaces shall each measure 3.5 metres in width and 7.0 metres in length with a minimum headroom of 3.6 metres provided that if the number of spaces so calculated is a decimal number, the C for T may at his absolute discretion round up or down the number to a whole number; and
 - (B) the remaining number of spaces shall each measure 3.5 metres in width and 11.0 metres in length with a minimum headroom of 4.7 metres.
- (II) Out of the total number of spaces provided under sub-clause (e)(i)(II) of this Special Condition (as may be varied under Special Condition No. (23) hereof),
- (A) the first 65% of the total number of spaces shall each measure 3.5 metres in width and 7.0 metres in length with a minimum headroom of 3.6 metres provided that if the number of spaces so calculated is a decimal number, the C for T may at his absolute discretion round up or down the number to a whole number; and
 - (B) the remaining number of spaces shall each measure 3.5 metres in width and 11.0 metres in length with a minimum headroom of 4.7 metres.
- (iii) (I) The first 60% of the spaces of the respective dimensions as provided under sub-clauses (e)(ii)(I)(A) and (e)(ii)(I)(B) of this Special Condition (as may be varied under Special Condition No. (23) hereof) shall be used for the loading and unloading of goods vehicles (excluding goods vehicles with trailers with their prime movers attached) (the loading and unloading spaces to be provided under this sub-clause (e)(iii)(I) (as may be varied under Special Condition No. (23) hereof) are hereinafter referred as “the Data Centre Goods Vehicle Loading and Unloading Spaces”) provided that if the number of spaces so calculated is a decimal

number, the C for T may at his absolute discretion round up or down the number to a whole number and the remaining number of spaces shall be used for the parking of goods vehicles (excluding goods vehicles with trailers with their prime movers attached) (the parking spaces to be provided under this sub-clause (e)(iii)(I) (as may be varied under Special Condition No. (23) hereof) are hereinafter referred as "the Data Centre Goods Vehicle Parking Spaces").

(II) The first 50% of the spaces of the respective dimensions as provided under sub-clauses (e)(ii)(II)(A) and (e)(ii)(II)(B) of this Special Condition (as may be varied under Special Condition No. (23) hereof) shall be used for the loading and unloading of goods vehicles (excluding goods vehicles with trailers with their prime movers attached) (the loading and unloading spaces to be provided under this sub-clause (e)(iii)(II) (as may be varied under Special Condition No. (23) hereof) are hereinafter referred as "the Industrial Goods Vehicle Loading and Unloading Spaces") provided that if the number of spaces so calculated is a decimal number, the C for T may at his absolute discretion round up or down the number to a whole number and the remaining number of spaces shall be used for the parking of goods vehicles (excluding goods vehicles with trailers with their prime movers attached) (the parking spaces to be provided under this sub-clause (e)(iii)(II) (as may be varied under Special Condition No. (23) hereof) are hereinafter referred as "the Industrial Goods Vehicle Parking Spaces").

(iv) The Data Centre Goods Vehicle Loading and Unloading Spaces and the Industrial Goods Vehicle Loading and Unloading Spaces shall about a goods handling platform or area which shall be provided and laid out in such a manner that goods loaded or unloaded from or to such platform or area may be transported to all parts of the building or buildings erected or to be erected on the lot vertically and horizontally. The design and layout of the goods handling platform or area giving such access to the building or buildings erected or to be erected on the lot shall comply with the Code of Practice issued by the

Building Authority on provision of means of escape in case of fire and any related requirements which are or may at any time be made by the Building Authority under the Buildings Ordinance.

- (v) For the purpose of calculating the number of spaces to be provided under sub-clauses (e)(i)(I) and (e)(i)(II) of this Special Condition (as may be respectively varied under Special Condition No. (23) hereof), any floor area to be used for parking, loading and unloading purposes shall be excluded.
- (vi) The Data Centre Goods Vehicle Parking Spaces and the Industrial Goods Vehicle Parking Spaces shall not be used for any purpose other than for the parking of goods vehicles (excluding containers on trailers with their prime movers attached) licensed under the Road Traffic Ordinance and in particular the said spaces shall not be used for the storage, display or exhibiting of motor vehicles for sale or otherwise or for the provision of motor vehicle cleaning and beauty services.
- (vii) The Data Centre Goods Vehicle Loading and Unloading Spaces shall not be used for any purpose other than for the loading and unloading of goods vehicles (excluding goods vehicles with trailers with their prime movers attached) licensed under the Road Traffic Ordinance in connection with the building or buildings or part or parts of the building or buildings erected or to be erected on the lot for the purpose of data centre.
- (viii) The Industrial Goods Vehicle Loading and Unloading Spaces shall not be used for any purpose other than for the loading and unloading of goods vehicles (excluding goods vehicles with trailers with their prime movers attached) licensed under the Road Traffic Ordinance in connection with the building or buildings or part or parts of the building or buildings erected or to be erected on the lot for purposes permitted under Special Condition No. (11) hereof excluding data centre.

(f) The spaces provided for vehicle manoeuvring and the parking, loading and unloading of vehicles shall be laid out in such manner that on entering and leaving the lot, no reversing movement of vehicles including containers on trailers with their prime movers attached from or onto the road or roads abutting the lot will be necessary.

Flexibility in parking,
loading and unloading
provisions

(23) Notwithstanding Special Conditions Nos. (22)(a)(i), (22)(c)(i), (22)(d)(i), (22)(d)(iii), (22)(e)(i), (22)(e)(ii) and (22)(e)(iii) hereof, the

Grantee may increase or reduce the respective numbers and dimensions of spaces required to be provided under the said sub-clauses to such other numbers and dimensions as may be approved in writing by the C for T, and such increase or reduction shall also be subject to the prior written approval of the Director, who may, at his sole and absolute discretion, give his approval subject to such terms and conditions as he sees fit, including the payment by the Grantee of any premium and administrative fee as shall be determined by the Director.

Access for inspection

(24) (a) The Grantee shall at all times throughout the term hereby agreed to be granted permit the Government, the C for T, their officers, contractors, agents, workmen and any other persons authorized by any of them, with or without tools, equipment, plant, machinery or motor vehicles free of charge to have the right of free and unrestricted ingress, egress and regress to, from and through the lot and the Green Area (while the Grantee is in possession of the same) or any part of any of them and any building erected or to be erected thereon for the purposes of inspecting, checking or ascertaining that there is no breach of or failure to comply with Special Conditions Nos. (22) and (23) hereof by the Grantee.

(b) The Government shall have no responsibility or liability for any loss, damage, nuisance or disturbance whatsoever and howsoever caused to or suffered by the Grantee or any other person arising whether directly or indirectly out of, in connection with or incidental to the exercise or non-exercise by the Government, the C for T, their officers, contractors, agents, workmen or any other persons authorized by any of them of the rights conferred under sub-clause (a) of this Special Condition, and no claim whatsoever shall be made against the Government by the Grantee in respect of any such loss, damage, nuisance or disturbance.

(c) The Grantee shall indemnify and keep indemnified the Government from and against all liabilities, claims, losses, damages, expenses, charges, costs, demands, actions and proceedings whatsoever and howsoever arising whether directly or indirectly out of, in connection with or incidental to the exercise or non-exercise by the Government, the C for T, their officers, contractors, agents, workmen or any other persons authorized by any of them of the rights conferred under sub-clause (a) of this Special Condition.

Parking, loading and unloading spaces etc. excluded from gross floor area calculation

(25) (a) For the purpose of calculating the total gross floor area stipulated in Special Condition No. (16)(c) hereof,

(i) there shall not be taken into account

(I) the Data Centre Parking Spaces, the Industrial Parking Spaces, the Data Centre Motor Cycle Parking Spaces, the Industrial Motor Cycle Parking Spaces, the Data Centre Goods Vehicle

Parking Spaces and the Industrial Goods Vehicle Parking Spaces (hereinafter collectively referred to as "the Spaces"), if they are provided below the ground level;

(II) the Data Centre Goods Vehicle Loading and Unloading Spaces and the Industrial Goods Vehicle Loading and Unloading Spaces, if they are provided at or below the ground level; and

(III) the Spaces, provided in any one (but not more than one) floor at or above the ground level of any building erected or to be erected on the lot if there are at least two floors below the ground level of such building, which in the opinion of the Building Authority fully utilize the lot (as to which the opinion of the Building Authority shall be conclusive), and are provided for the purpose of parking, loading and unloading of motor vehicles, and the Spaces, for that reason, have been excluded by the Building Authority from calculation of gross floor area under the Buildings Ordinance; and

(ii) other than the spaces referred to in sub-clause (a)(i)(III) of this Special Condition, if the Spaces are provided at or above the ground level or the Data Centre Goods Vehicle Loading and Unloading Spaces and the Industrial Goods Vehicle Loading and Unloading Spaces are provided above the ground level, 50% of such spaces together with 50% of the other areas including but not limited to lift lobbies, landings, pedestrian access routes, manoeuvring and circulation areas and plant rooms serving such spaces shall be taken into account for the calculation of the total gross floor area stipulated in Special Condition No. (16)(c) hereof as to which the decision of the Director shall be final and binding on the Grantee.

(b) Notwithstanding sub-clause (a)(ii) of this Special Condition, the Director at his sole discretion may subject to the payment by the Grantee of any premium and administrative fee as shall be determined by the Director exclude any spaces and other areas referred to in sub-clause (a)(ii) of this Special Condition from the calculation of total gross floor area stipulated in Special Condition No. (16)(c) hereof as to which the decision of the Director shall be final and binding on the Grantee.

(c) For the purpose of this Special Condition, the decision of the Director as to what constitutes the ground level or whether any space is at, above or below the ground level shall be final and binding on the

Appendix 4 –
Car Lift Analysis

Vehicle Lift Analysis

Job Title Proposed Information Technology and Telecommunication Industries (Data Centre) Development at 7 – 11 Wing Kin Road, Kwai Chung, New Territories

Ground floor to typical car park floor (m)	4.50
Average Speed (m/s)	0.50
Travel time (s)	9.00

<u>Activity</u>	<u>Time (s)</u>
Car lift travels from ground floor to typical car park floor	9
Lift door opens	5
Car exits lift in forward gear on typical car park floor	5
Car enters lift in reverse gear on typical car park floor	15
Door closes	5
Car lift travels from typical car park floor to ground floor	9
Lift door opens	5
Car exits lift in forward gear on ground floor	5
Car enters lift in reverse gear on ground floor	15
Door closes	5
<u>Total</u>	78

Number of lift servers, k	1
Number of waiting space(s)	1
Cycle time ω (s)	78
Arrival rate λ (veh / hr)	4
Service rate μ of one lift server (veh / hr)	46

<u>Number of Cars N</u>	<u>Probability of Exact N Cars in the Lift System</u>	<u>Probability of N Cars or Less in the Lift System</u>	<u>Probability of More Than N Cars in the Lift System</u>
0	91.33%	91.33%	8.67%
1	7.92%	99.25%	0.75%
2	0.69%	99.93%	0.07%
3	0.06%	99.99%	0.01%
4	0.01%	100.00%	0.00%
5	0.00%	100.00%	0.00%
6	0.00%	100.00%	0.00%
7	0.00%	100.00%	0.00%

Conclusion

The probability of 1 car arriving when 1 car lift and 1 waiting space being occupied is 0.07%. The provision of 1 waiting space is sufficient.

Formulae:		[A]	[B]	[A] * [B]
Floor	Level (m)	Distance from G/F	No. of parking spaces	
8/F		0		0
7/F		0		0
6/F		0		0
5/F		0		0
4/F		0		0
3/F		0		0
2/F		0		0
1/F		0		0
G/F	0.00	0		0
B1	-4.50	4.5	15	67.5
B2		0.0		0
B3		0		0
B4		0		0
B5		0		0
B6		0		0
B7		0		0
B8		0		0
			total parking spaces	typical floor distance
			15	4.5

Note:

k is the number of lift servers.

λ is the arrival rate in vehicles per hour.

μ is the service rate of a lift server in vehicles per hour.

N $1/N! * (\lambda/\mu)^N$ summation from N=0 to N=k-1

0	1	1
1	0	1
2	0	1
3	0	1
4	0	1
5	0	1
6	0	1
7	0	1
8	0	1
9	0	1
10	0	1

The assessment is based on the multi-server queuing (M/M/N) theory, and the equations applied are listed below:

Probability of having exactly zero cars in the lift system:

$$P(0) = \frac{1}{\left[\sum_{N=0}^{k-1} \frac{1}{N!} \left(\frac{\lambda}{\mu} \right)^N \right] + \frac{1}{k!} \left(\frac{\lambda}{\mu} \right)^k \frac{k\mu}{k\mu - \lambda}}$$

Probability of having exactly N cars in the lift system:

For $N < k$:

$$P(N) = \frac{1}{N!} \left(\frac{\lambda}{\mu} \right)^N P(0)$$

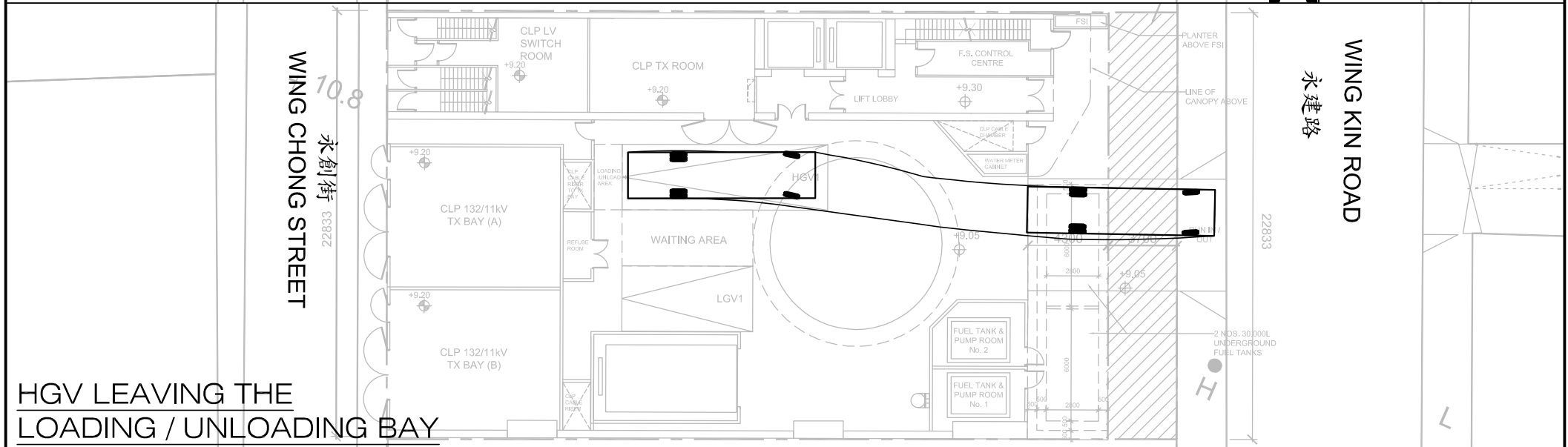
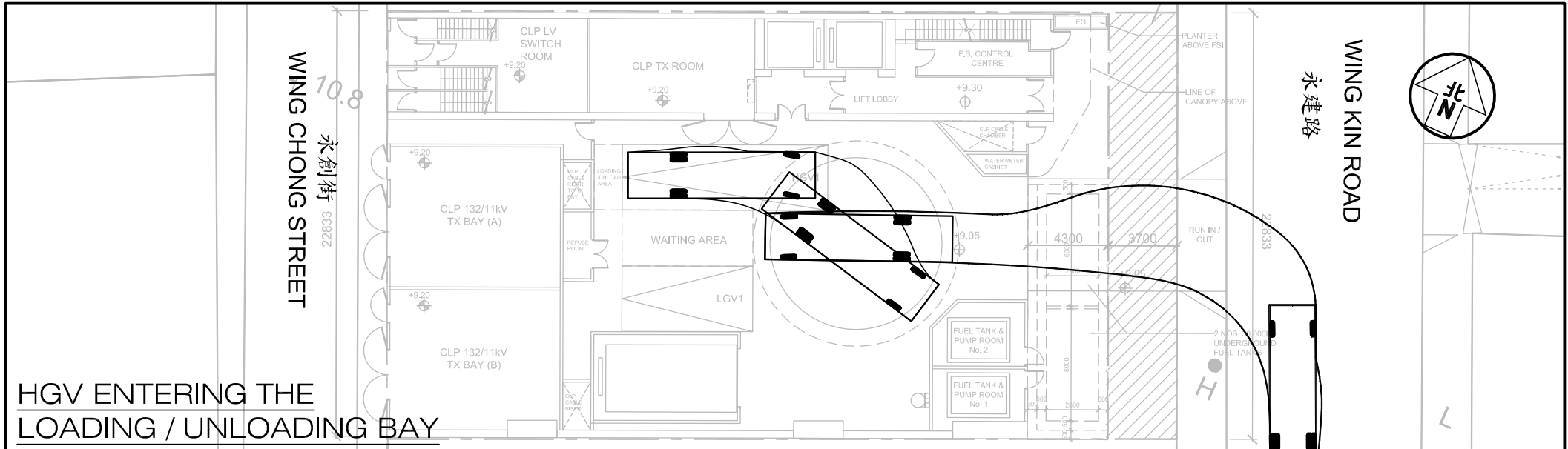
For $N \geq k$:

$$P(N) = \frac{1}{k! k^{N-k}} \left(\frac{\lambda}{\mu} \right)^N P(0)$$

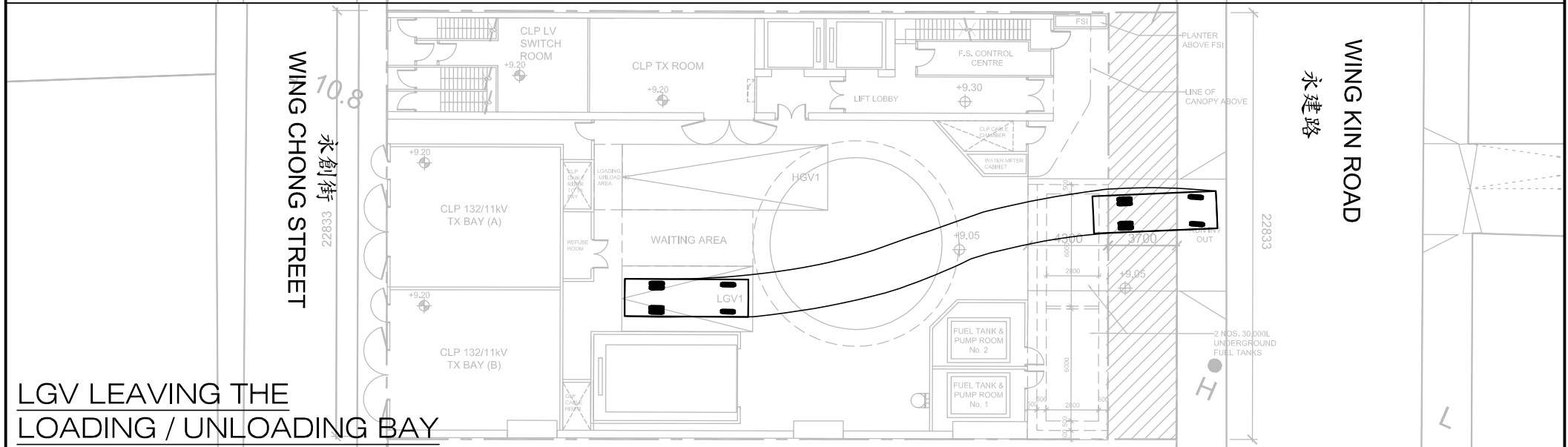
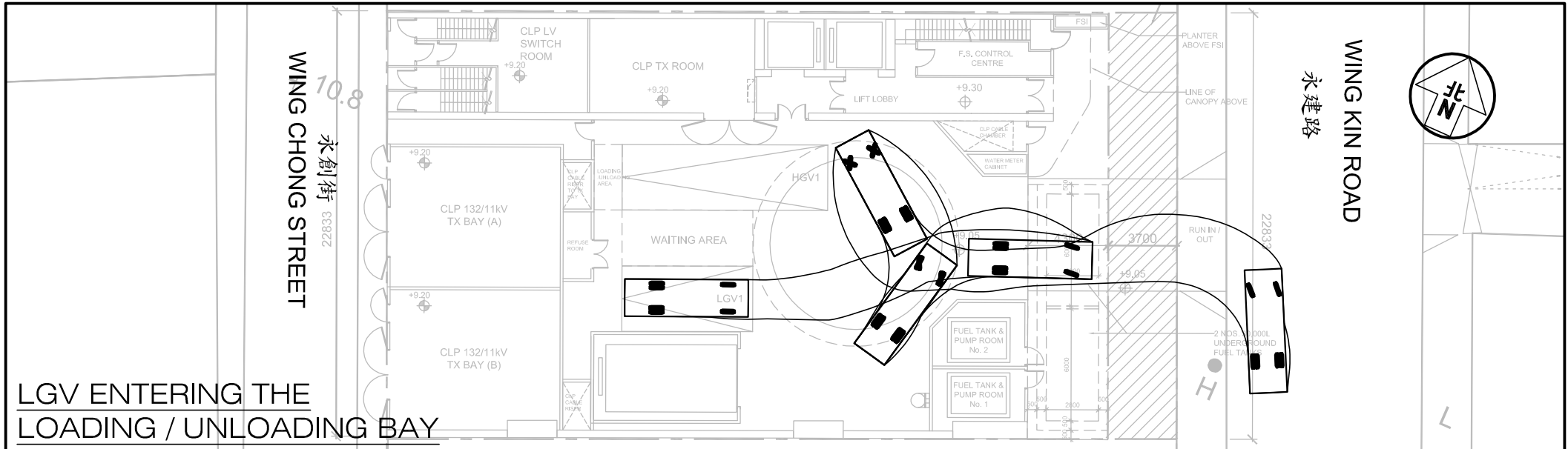
k -- number of lift servers

λ -- arrival rate

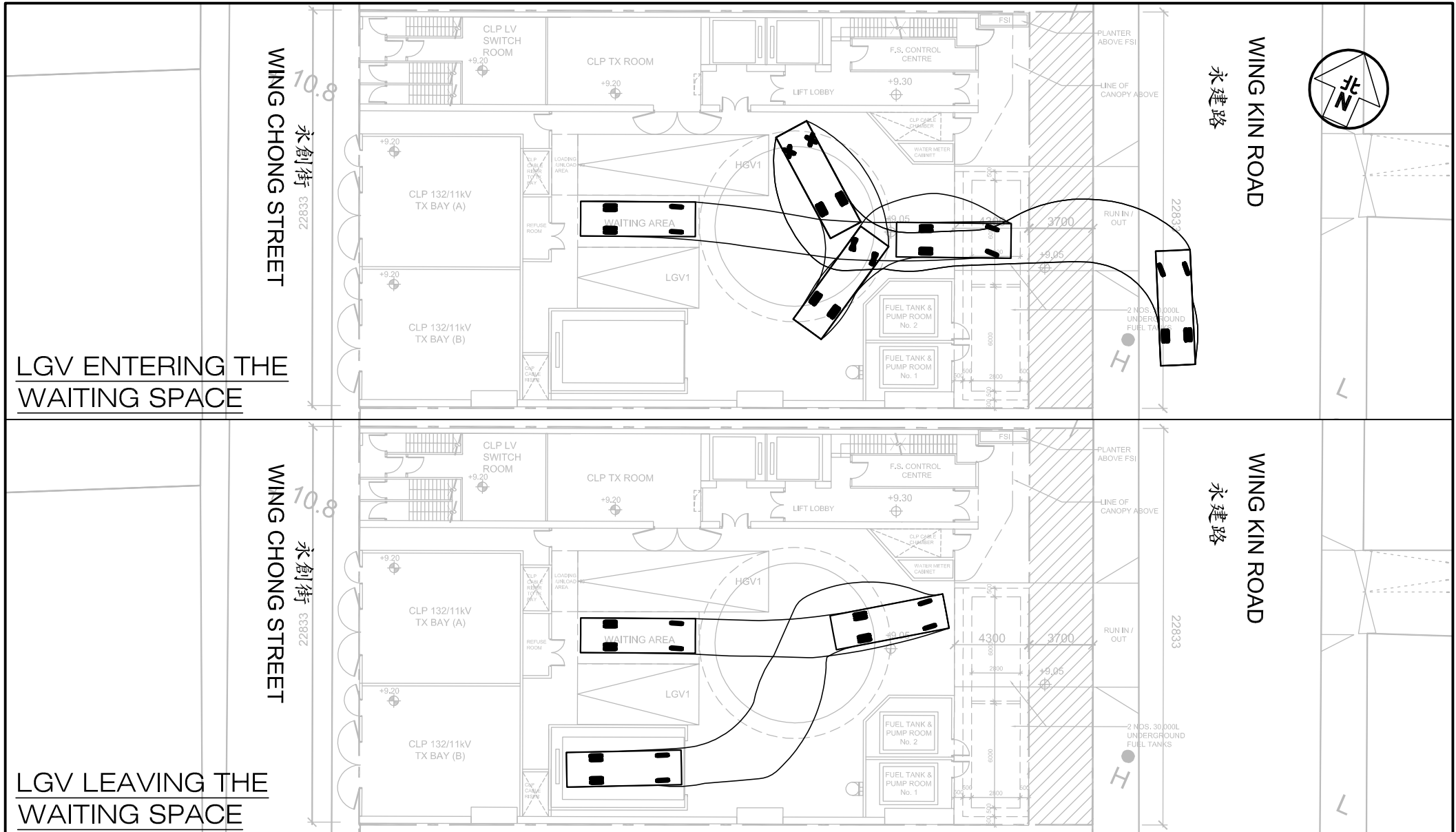
μ -- service rate



Project Title	PROPOSED INFORMATION TECHNOLOGY AND TELECOMMUNICATION INDUSTRIES (DATA CENTRE) DEVELOPMENT AT 7 - 11 WING KIN ROAD, KWAI CHUNG, NEW TERRITORIES	Figure No. SP1	Revision A	CKM Asia Limited Traffic and Transportation Planning Consultants 21st Floor, Methodist House, 36 Hennessy Road, Wan Chai, Hong Kong Tel : (852) 2520 5990 Fax : (852) 2528 6343 Email : mail@ckmasia.com.hk	
Figure Title	SWEPT PATH OF HGV ENTERING AND LEAVING THE LOADING / UNLOADING BAY HGV1 ON G/F	Designed by L C H	Drawn by N C M		Checked by K C
		Scale in A4 1 : 300	Date 13 FEB 2025		



Project Title	PROPOSED INFORMATION TECHNOLOGY AND TELECOMMUNICATION INDUSTRIES (DATA CENTRE) DEVELOPMENT AT 7 - 11 WING KIN ROAD, KWAI CHUNG, NEW TERRITORIES	Figure No. J7384	Revision A	CKM Asia Limited Traffic and Transportation Planning Consultants 21st Floor, Methodist House, 36 Hennessy Road, Wan Chai, Hong Kong Tel : (852) 2520 5990 Fax : (852) 2528 6343 Email : mail@ckmasia.com.hk	
Figure Title	SWEPT PATH OF LGV ENTERING AND LEAVING THE LOADING / UNLOADING BAY LGV1 ON G/F	Designed by L C H	Drawn by N C M		Checked by K C
		Scale in A4 1 : 300	Date 13 FEB 2025		

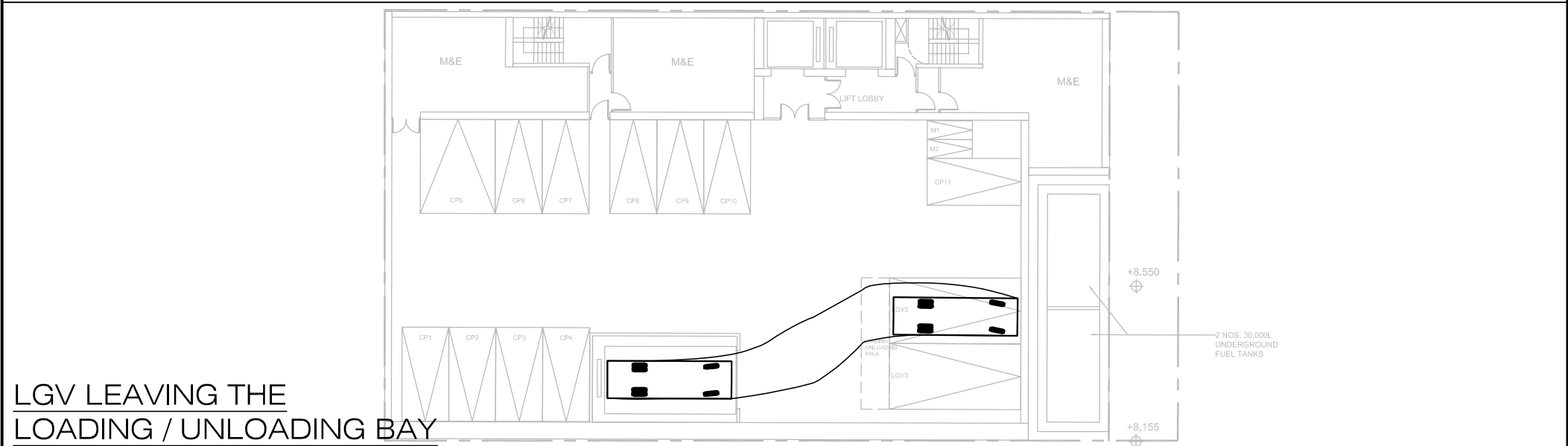
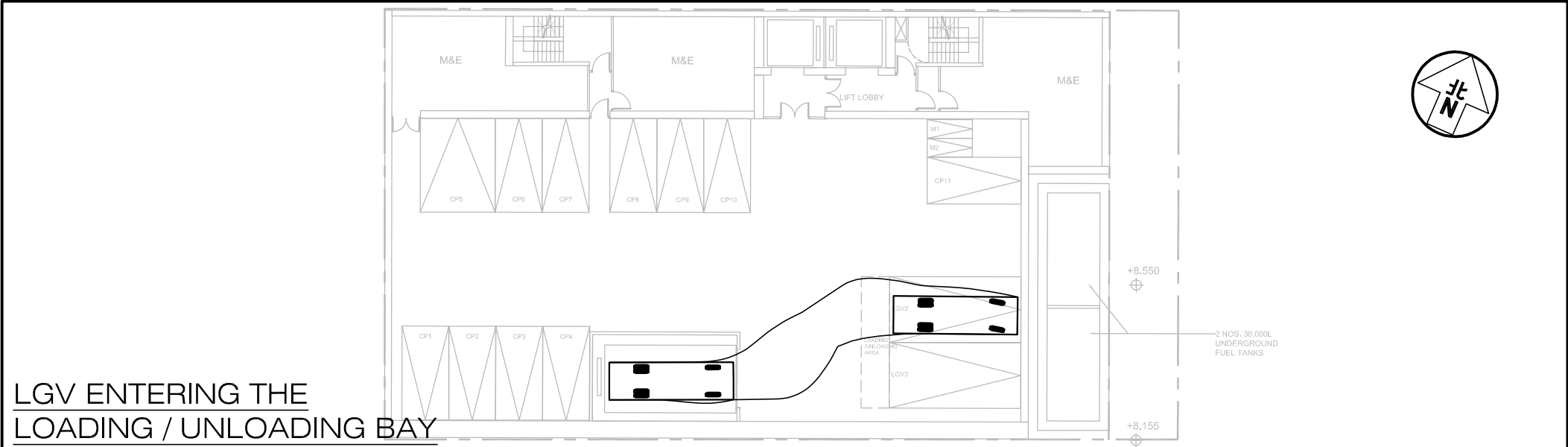


LGV ENTERING THE WAITING SPACE

LGV LEAVING THE WAITING SPACE

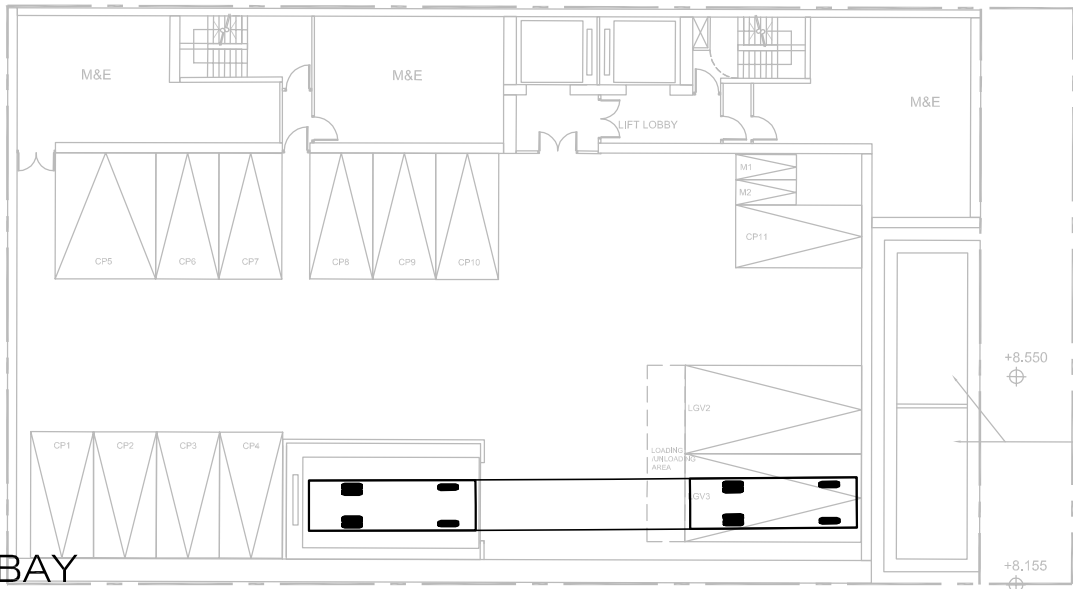
Project Title	PROPOSED INFORMATION TECHNOLOGY AND TELECOMMUNICATION INDUSTRIES (DATA CENTRE) DEVELOPMENT AT 7 - 11 WING KIN ROAD, KWAI CHUNG, NEW TERRITORIES	Figure No. J7384	Revision A	CKM Asia Limited Traffic and Transportation Planning Consultants 21st Floor, Methodist House, 36 Hennessy Road, Wan Chai, Hong Kong Tel : (852) 2520 5990 Fax : (852) 2528 6343 Email : mail@ckmasia.com.hk	
Figure Title	SWEPT PATH OF LGV ENTERING AND LEAVING THE WAITING SPACE ON G/F	Designed by L C H	Drawn by N C M		Checked by K C
		Scale in A4 1 : 300	Date 13 FEB 2025		

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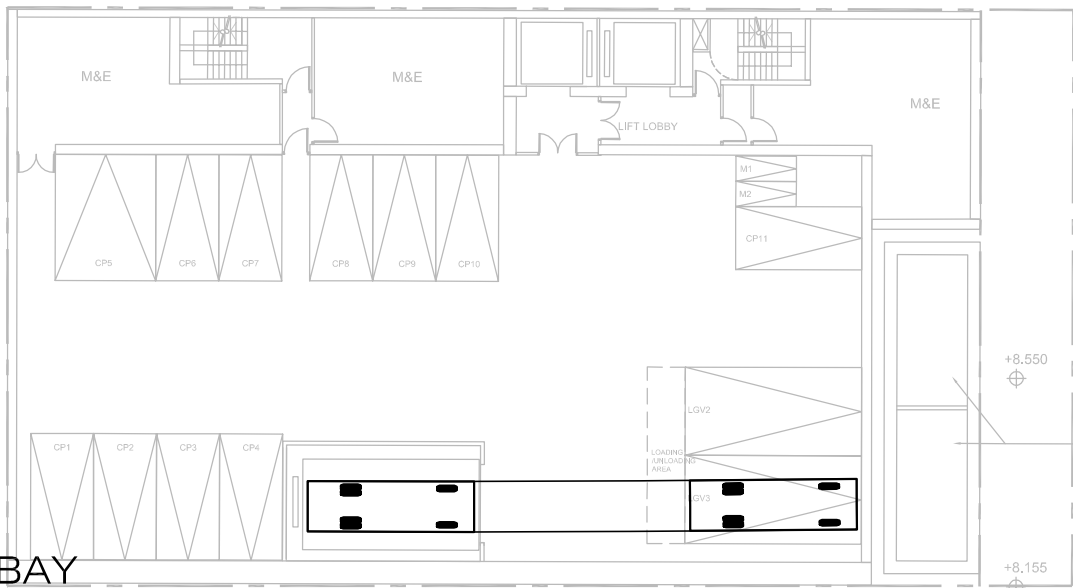


Project Title PROPOSED INFORMATION TECHNOLOGY AND TELECOMMUNICATION INDUSTRIES (DATA CENTRE) DEVELOPMENT AT 7 - 11 WING KIN ROAD, KWAI CHUNG, NEW TERRITORIES	Figure No. SP4	Revision A
Figure Title SWEPT PATH OF LGV ENTERING AND LEAVING THE LOADING / UNLOADING BAY LGV2 ON B1/F	Designed by L C H	Checked by K C
Scale in A4 1 : 300		Date 24 JAN 2025

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**LGV ENTERING THE
LOADING / UNLOADING BAY**

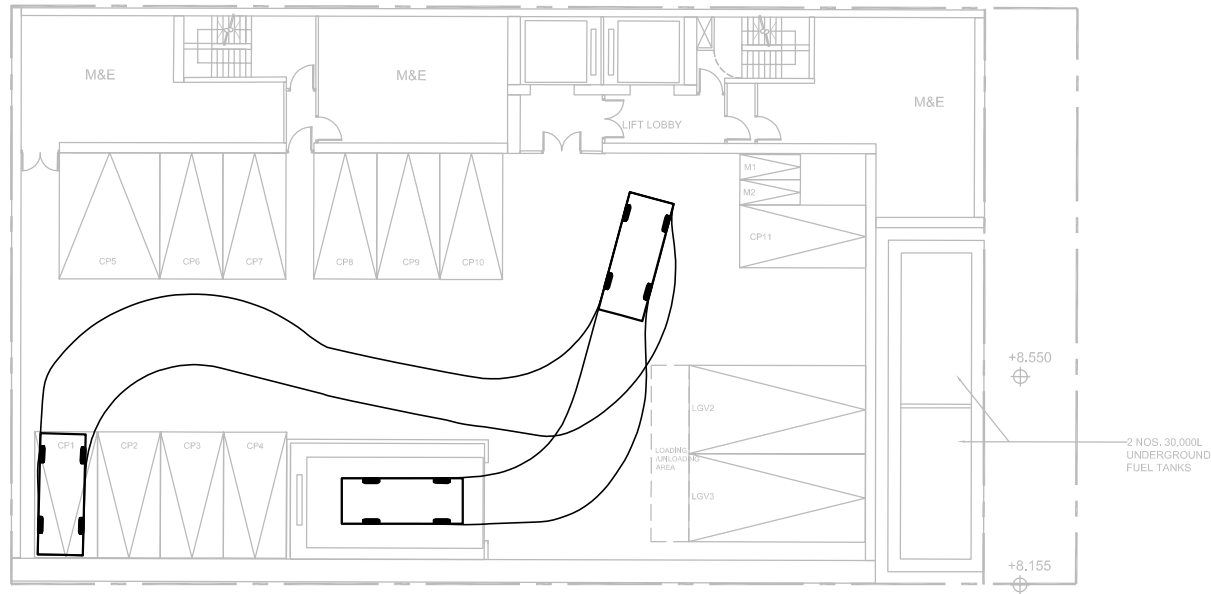


**LGV LEAVING THE
LOADING / UNLOADING BAY**

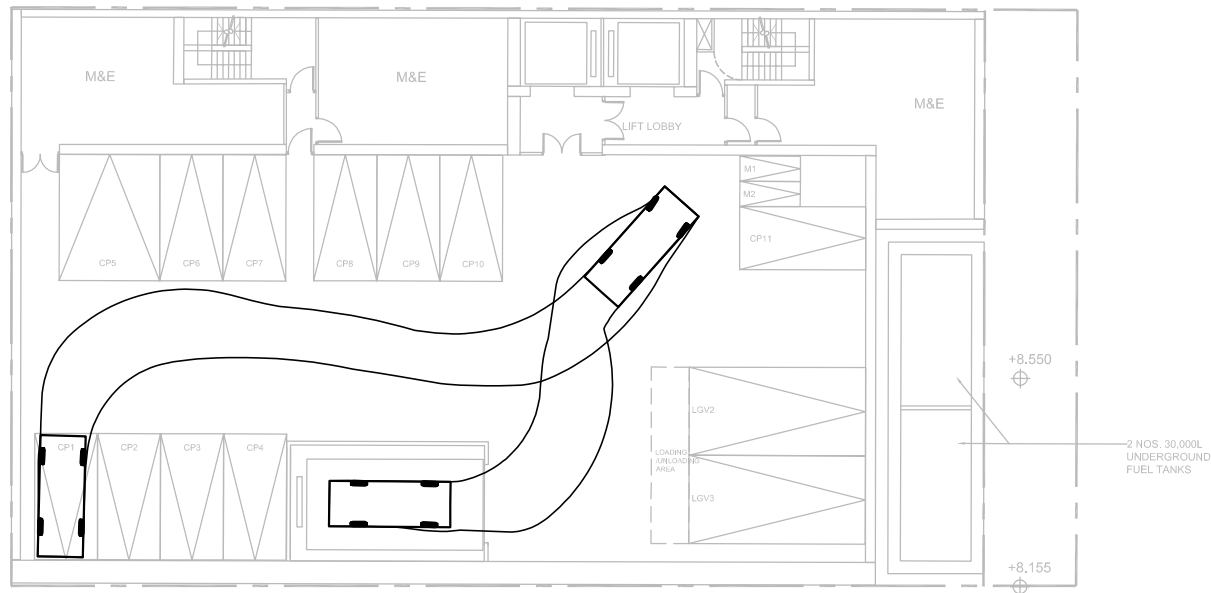
Project Title PROPOSED INFORMATION TECHNOLOGY AND TELECOMMUNICATION INDUSTRIES (DATA CENTRE) DEVELOPMENT AT 7 - 11 WING KIN ROAD, KWAI CHUNG, NEW TERRITORIES	Figure No. SP5	Revision A	CKM Asia Limited Traffic and Transportation Planning Consultants
Figure Title SWEPT PATH OF LGV ENTERING AND LEAVING THE LOADING / UNLOADING BAY LGV3 ON B1/F	Designed by L C H	Drawn by N C M	Checked by K C 21st Floor, Methodist House, 36 Hennessy Road, Wan Chai, Hong Kong Tel : (852) 2520 5990 Fax : (852) 2528 6343 Email : mail@ckmasia.com.hk
Scale in A4 1 : 300		Date 24 JAN 2025	

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**CAR ENTERING THE
CAR PARKING SPACE**



**CAR LEAVING THE
CAR PARKING SPACE**



Project Title PROPOSED INFORMATION TECHNOLOGY AND TELECOMMUNICATION INDUSTRIES (DATA CENTRE)
DEVELOPMENT AT 7 - 11 WING KIN ROAD, KWAI CHUNG, NEW TERRITORIES

J7384

Figure No. **SP6** Revision **A**

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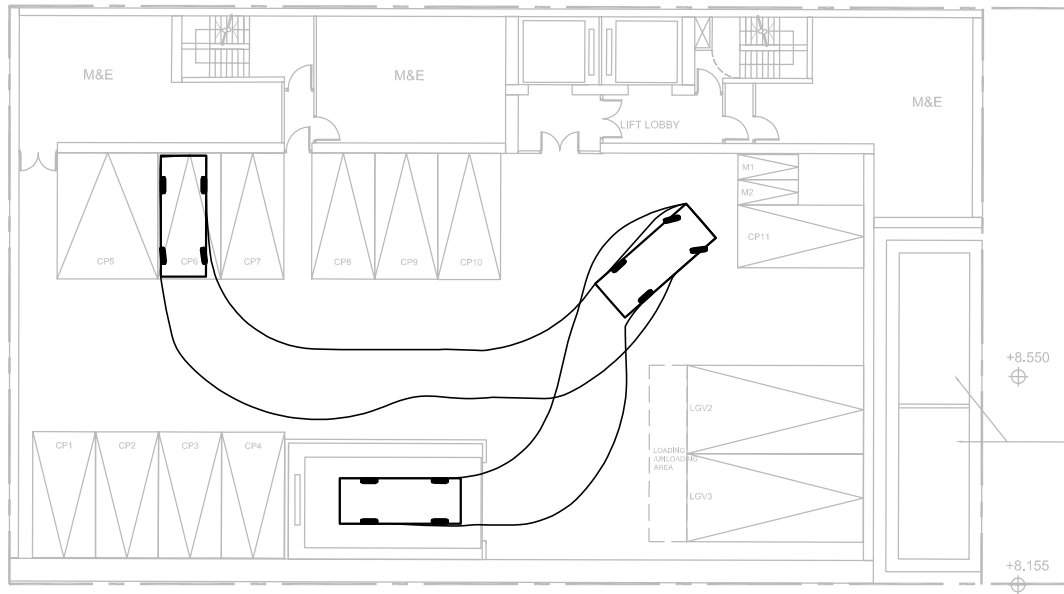
Figure Title **SWEPT PATH OF PRIVATE CAR ENTERING
AND LEAVING THE PARKING SPACE CP1 ON B1/F**

Designed by **L C H** Drawn by **N C M** Checked by **K C**

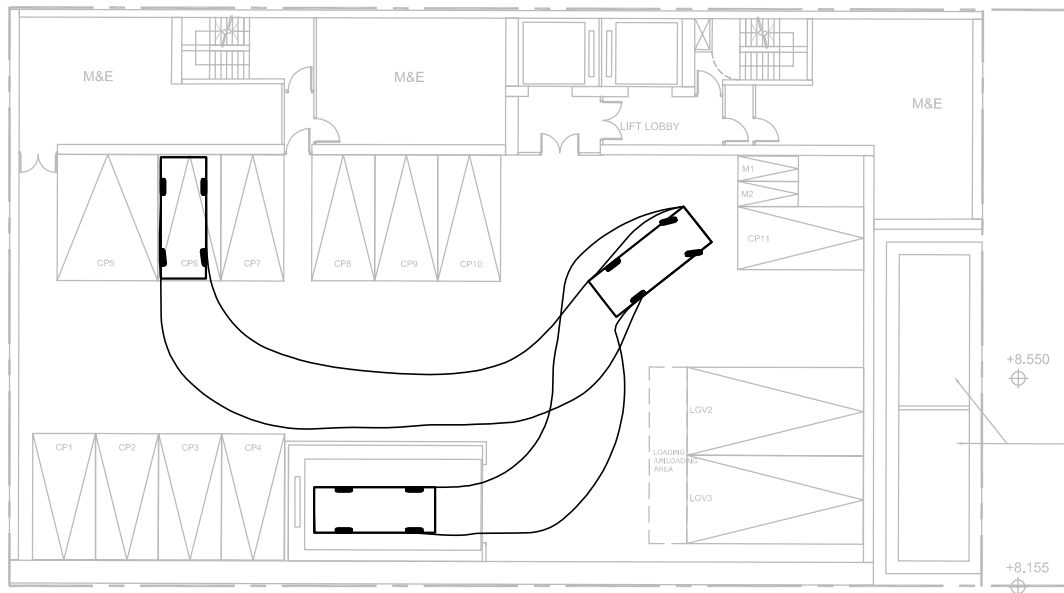
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Email : mail@ckmasia.com.hk

Scale in A4 **1 : 300** Date **13 FEB 2025**

**CAR ENTERING THE
CAR PARKING SPACE**



**CAR LEAVING THE
CAR PARKING SPACE**



Project Title PROPOSED INFORMATION TECHNOLOGY AND TELECOMMUNICATION INDUSTRIES (DATA CENTRE)
DEVELOPMENT AT 7 - 11 WING KIN ROAD, KWAI CHUNG, NEW TERRITORIES

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Figure No. **SP7** Revision **A**

CKM Asia Limited

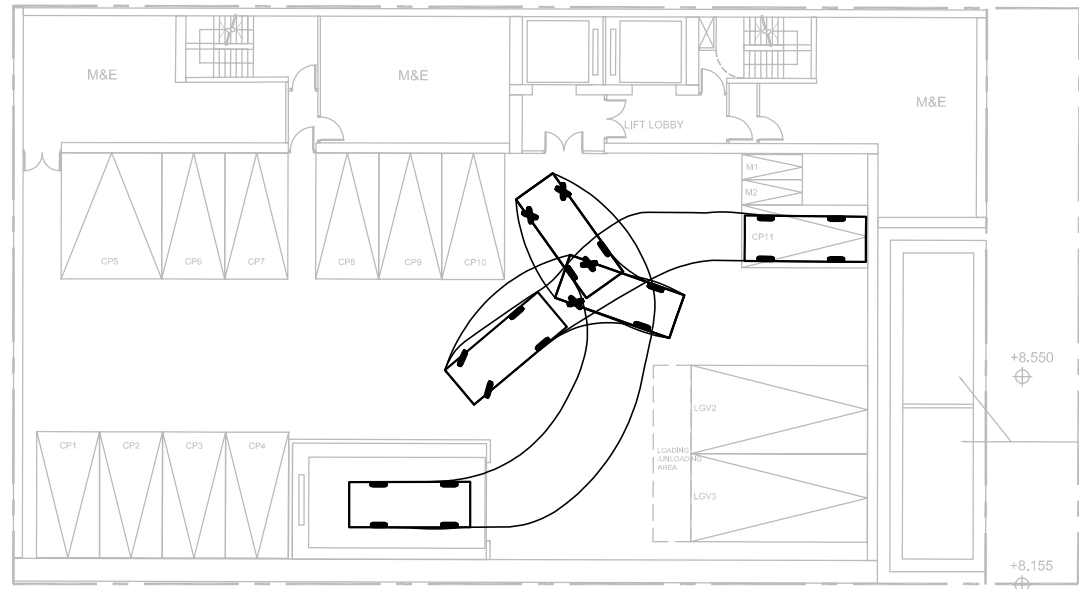
Figure Title **SWEPT PATH OF PRIVATE CAR ENTERING
AND LEAVING THE PARKING SPACE CP6 ON B1/F**

Designed by **L C H** Drawn by **N C M** Checked by **K C**
Scale in A4 **1 : 300** Date **13 FEB 2025**

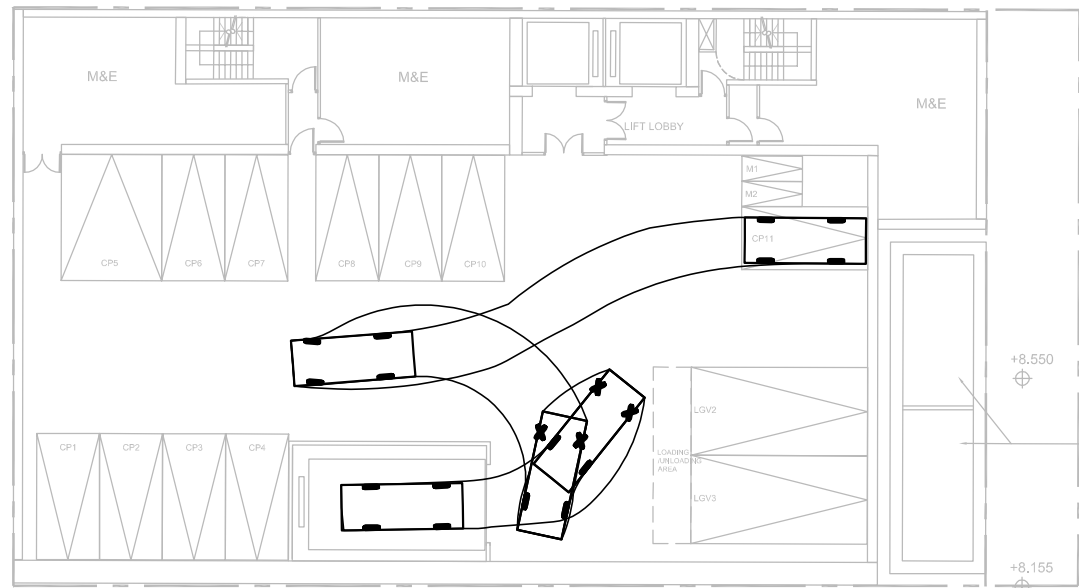
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**CAR ENTERING THE
CAR PARKING SPACE**



**CAR LEAVING THE
CAR PARKING SPACE**



Project Title PROPOSED INFORMATION TECHNOLOGY AND TELECOMMUNICATION INDUSTRIES (DATA CENTRE) DEVELOPMENT AT 7 - 11 WING KIN ROAD, KWAI CHUNG, NEW TERRITORIES	Figure No. SP8	Revision A
Figure Title SWEEP PATH OF PRIVATE CAR ENTERING AND LEAVING THE PARKING SPACE CP11 ON B1/F	Designed by L C H	CKM Asia Limited Traffic and Transportation Planning Consultants 21st Floor, Methodist House, 36 Hennessy Road, Wan Chai, Hong Kong Tel : (852) 2520 5990 Fax : (852) 2528 6343 Email : mail@ckmasia.com.hk

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