

Appendix 2

Traffic Impact Assessment

Reference number CHK50808310/CHC/L2601018/sys

**SECTION 16 PLANNING APPLICATION FOR PROPOSED
MINOR RELAXATION OF PLOT RATIO AND BUILDING
HEIGHT RESTRICTION FOR COMPREHENSIVE
DEVELOPMENT IN HANG TAU TAI PO, KWU TUNG
SOUTH**

TRAFFIC IMPACT ASSESSMENT

Final Report



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1. INTRODUCTION

1.1 Background

- 1.1.1 The Application Site located at Hang Tau Road consists of various lots in D.D. 92 and D.D.94 and the adjoining government land at Hang Tau Tai Po, Kwu Tung South in Sheung Shui, with site area of about 17,990.9m². The site location is shown in **Drawing No. 1.1**.
- 1.1.2 A Section 12A (S12A application) planning application (application no. Y/NE-KTS/13) for dividing a “Comprehensive Development Area (CDA)” site into two areas and relaxing their plot ratio, building height and site coverage restrictions was approved by Town Planning Board (TPB) in December 2021. Such amendments to the CDA site have been reflected in the prevailing Kwu Tung South Outline Zoning Plan (OZP) as gazetted on 31 May 2024.
- 1.1.3 Under the proposed scheme (the previous scheme) in the approved S12A application in 2021, Area (a) of the CDA site consists of the Application Site was proposed to be redeveloped for 302 residential flats together with provisions of retail facilities and a residential care home for elderly (RCHE) with the plot ratio (PR) of 1.41 including domestic PR of 1.23 and non-domestic PR of 0.18. Whilst, Area (b) of the CDA site was proposed in the scheme for a potential residential tower with 18 residential units at the domestic PR of 1.23. The master layout plan of previous scheme under the approved S12A application is attached in **Appendix A** for reference.
- 1.1.4 To well utilize the development potential, the MLP for Area (a) of the CDA site, i.e. the Application Site, with proposed minor relaxation of PR from 1.41 to 1.692 (the Proposed MLP) is developed by the Applicant. To enable the Proposed MLP, a Section 16 planning application (S16 application) is required in order to obtain permission from TPB.
- 1.1.5 MVA Hong Kong Limited was commissioned by the Applicant as a traffic consultant to carry out a traffic impact assessment in support of the S16 application for the Proposed MLP with minor relaxation of PR.
- 1.1.6 The purpose of this study is to review the traffic conditions and assess the potential traffic impact on the adjacent local road network caused by the Proposed MLP in the design year.

1.2 Study Objectives

- 1.2.1 The main objectives of this study are:
 - To present the details on the Proposed MLP such as the proposed development parameters, access arrangement, internal transport provision, the set back for road widening as per the requirement in OZP as well as the proposed public transport facilities;
 - To determine the existing traffic conditions in the vicinity of the Application Site by undertaking manual classified count traffic surveys;
 - To study and assess the existing travel patterns, road and junction capacities in the local area adjacent to the application site;
 - To identify the traffic generation from the Application Site under the Proposed MLP and carry out distribution and assignment of the generated traffic;
 - To estimate the future traffic flows for the design year on the surrounding local road network;

- To assess the traffic impact due to the Proposed MLP on the surrounding local road network and junctions for the design year;
- To recommend traffic improvement measures to alleviate the foreseeable traffic problems on the surrounding local road networks, if necessary;
- To derive long term traffic forecast for Noise Impact Assessment (NIA) study purpose.

1.3 Structure of the Report

1.3.1 Following this introductory chapter, there are six further chapters.

1.3.2 **Chapter 2 – *The Proposed Master Layout Plan***, which presents the development schedule for the Proposed MLP in the subject S16 application. The proposed vehicular access arrangements, car parking, loading/unloading and layby provisions, set back for road widening, and the road widening scheme for improvement of pedestrian crossing will also be discussed.

1.3.3 **Chapter 3 – *Existing Traffic Conditions***, which describes the existing road network and public transport facilities in the vicinity of the application site, presents the summary of traffic count survey and assesses the existing traffic conditions.

1.3.4 **Chapter 4 – *Traffic Forecast***, which discusses the design year and the future scenarios for assessment in this study, anticipates the potential traffic generation and attraction of the application site under the Proposed MLP, summarises the methodology for future traffic forecasts, and presents the traffic forecast for the design year.

1.3.5 **Chapter 5 – *Traffic Impact Assessment***, which presents the findings of the traffic impact assessment in the future design year and recommends improvement measures if necessary.

1.3.6 **Chapter 6 – *Long Term Traffic Forecast for Noise Impact Assessment (NIA)***, which describes the forecasting methodology and presents the results of long term traffic forecast for NIA.

1.3.7 **Chapter 7 – *Summary and Conclusion***, which summarises the findings of the study and presents the conclusions regarding the traffic issues associated with the Proposed MLP.

2. THE PROPOSED MASTER LAYOUT PLAN

2.1 Site Location

- 2.1.1 The Application Site is located at Hang Tau Road in Hang Tau Tai Po, and it is situated to the west of Hang Tau Road and surrounded by low-rise village-type houses and temporary structures.
- 2.1.2 The Application Site together with the adjoining private lot and government land were rezoned to a CDA site in year 2018. Subsequently, an 12A application for dividing the Application Site into an area (namely Area (a)) separated with the adjoining private lot and the government land (namely Area (b)) was approved by TPB in December 2021.

2.2 Proposed Development Schedule

- 2.2.1 Under the previous scheme in the approved S12A application, the Application Site was proposed to be redeveloped for 302 residential flats together with provisions of retail facilities and a RCHE with the PR of 1.41 including domestic PR of 1.23 and non-domestic PR of 0.18. The details of the previous scheme in the approved S12A application are summarized in **Table 2.1**.
- 2.2.2 To well utilize the development potential, a MLP for the development at the Application Site (the Proposed Development) with minor increase of PR by 20% from 1.41 to 1.692 is developed. The details of development schedule as proposed in this S16 application are presented in **Table 2.1**, and the Proposed MLP is presented in **Drawing No. 2.1**.

Table 2.1 Development Schedules

Development Schedule for Development at the Application Site			Previous Scheme (Approved S12A in 2021)	Proposed MLP
Site Area			17,990.9 m ²	
GFA	Domestic		22,087 m ²	26,554 m ²
	Non-domestic	Retail	406 m ²	319 m ²
		RCHE	2,777 m ² (for 100 places in total)	3,567 m ² (for 100 places in total)
		Total	3,183 m ²	3,886 m ²
	Overall	Overall	25,270 m ²	30,440 m ²
Plot Ratio	Domestic	Domestic	1.23	1.476
	Non-domestic	Non-domestic	0.18	0.216
	Overall	Overall	1.4	1.692
Total no. of Residential Blocks			3	4
Total no. of Flats			302	334
Average Unit Size (m ²)			73.14 m ²	79.50 m ²

- 2.2.4 The Proposed Development at the Application Site is tentatively scheduled to be completed by year 2031.

2.3 Access Arrangement

- 2.3.1 The current access points to the Application Site are located at Hang Tau Road and the single track access road to the north (namely Access Road A). Taking into consideration of accessibility, the future vehicular access point for the Proposed Development is proposed at Hang Tau Road where is at the same similar location of access for the site as proposed in the previous scheme of the approved S12A application. While, the existing access point on Access Road A will be no longer provided for the Application Site. The proposed access arrangement for the Proposed Development at the Application Site is shown in **Drawing No. 2.1**.
- 2.3.2 The swept path analysis for the ingress and egress of the Proposed Development are demonstrated in **Appendix B**.

2.4 Internal Transport Provision

- 2.4.1 The provision of internal transport facilities, i.e. car parking spaces and loading/unloading bays, for the Proposed Development are reviewed and proposed with reference to the guidelines stipulated in the latest Hong Kong Planning Standards & Guidelines (HKPSG).
- 2.4.2 Since the provision requirements for RCHE are not specified in HKPSG, the provision of parking spaces for private light buses and loading/unloading area are proposed with following the Social Welfare Department (SWD)'s ancillary requirements for RCHE as adopted in the previous approved S12A application, while the provision of car parking spaces are proposed with reference to the parking ratios of several previously approved planning applications with similar social welfare developments as listed in **Table 2.2**.

Table 2.2 Review on Car Parking Provision in the Similar Applications with RCHE

Application No.	Application Site Location	No. of Places / Beds	No. of Car Parking Spaces	Derived Parking Ratio
Y/NE-KTS/16	Kam Hang Road, Kwu Tung South	150	4	1 space per 38 places
A/FSS/288	Tin Ping Road, Sheung Shui	210	4	1 space per 53 places
A/YL-NSW/349	Nam Sang Wai, Yuen Long	240	11	1 space per 22 places
A/YL-TYST/870	Tai Tao Tsuen, Yuen Long	248	3	1 space per 83 places
A/YL/263	Ex-Hang Heung Bakery Factory, Yuen Long	380	8	1 space per 48 places
A/YL/276	Ma Tin Pok, Shap Pat Heung Road, Yuen Long	197	4	1 space per 49 places
A/YL/302	Tai Tong Road, Yuen Long	241	2	1 space per 121 places
A/YL-NSW/292	Pun Uk, Yuen Long	531	6	1 space per 89 places
A/SK-SKT/30	2 Hong Ting Road, Sai Kung	160	3	1 space per 53 places
A/SK-SKT/31	6 Hong Ting Road, Sai Kung	337	6	1 space per 56 places
A/SK-SKT/32	7 Hong Ting Road, Sai Kung	205	4	1 space per 51 places
A/SK-TMT/74	Tsam Chuk Wan, Sai Kung	110	2	1 space per 55 places

- 2.4.3 As shown in the **Table 2.2**, the ratios of car parking provision in the similar applications are ranged from 1 space per 22 places to 121 places, and therefore 5 nos. of car parking spaces for the proposed RCHE (i.e. a ratio of 1 space per 20 places) is considered reasonable. The proposed internal transport facilities are summarized in **Table 2.3**.

Table 2.3 Provision of Internal Transport Facilities

Transport Facilities		HKPSG Requirement	Flat Size in m ² (FS)	Adjustment Factors			No. of Flat	Required Provision	Proposed Provision
				R1	R2	R3			
Residential	Residential Car Parking Spaces	Global Parking Standard of 1 space per 4-7 flats x Adjustment Factors (R1) x (R2) x (R3)	40 < FS ≤ 70	1.2	1 ⁽¹⁾	1.1 ⁽²⁾	228	43-75	160
			70 < FS ≤ 100	2.4			73	28-48	
			100 < FS ≤ 130	4.1			33	21-37	
			Total				334	92-160	
	Visitor Car Parking Spaces	5 spaces per block	4 Blocks				20	20	
	Motorcycle Parking Spaces	1 space per 100 – 150 flats	334 flats				2 - 3	3	
	Loading/unloading bays	1 bay per block	4 Blocks				4	4	
Retail Shops (319m ² GFA)	Car Parking Spaces	1 space per 150 – 300 m ² GFA					1-2	2	
	Loading/unloading bays	1 loading/unloading bay for every 800 to 1200 m ² , or part thereof GFA					1	1	
RCHE (100-p in total)	Car Parking Spaces	(Not specified in HKPSG)					-	5 ⁽⁶⁾	
	Parking Spaces for private light buses ⁽³⁾						2 ⁽⁷⁾	2	
	Shared loading/Unloading area ⁽⁴⁾⁽⁵⁾						1 ⁽⁷⁾	1	

- Notes:
- (1) R2 = 1 as the site is outside 500m-radius of rail station.
 - (2) R3 = 1.1 for the Proposed Development with plot ratio 1.692 (i.e. 1 < PR ≤ 2).
 - (3) Parking space measuring 8m x 3m with minimum headroom of 3.3m as per SWD's requirements in the previous approved S12A application (no. Y/NE-KTS/13)
 - (4) A shared loading / unloading area for private light buses and ambulance/other vehicles as per SWD's requirements in the previous approved S12A application (no. Y/NE-KTS/13).
 - (5) Loading/unloading area measuring 9m x 3m with minimum headroom of 4.7m as per SWD's requirements in the previous approved S12A application (no. Y/NE-KTS/13).
 - (6) Including 1 no. of accessible car parking space.
 - (7) Since no change in total places provided at the RCHE, the provisions as adopted in the previous approved S12A application (no. Y/NE-KTS/13) are followed.
 - (8) 3 nos. of accessible car parking spaces will be reserved for total number of parking spaces in the development ranged 151-250 nos. in accordance with Buildings Department's Design Manual: *Barrier Free Access 2008 (2024 Edition)*.
 - (9) In addition to the proposed provisions in **Table 2.3**, one space for refuse collection will be provided in the Proposed Development.

2.5 Development Set Back and Road Widening Scheme at Hang Tau Road

Road Widening Scheme in Approved S12A Application

- 2.5.1 In the Explanatory Statement in the OZP, it is remarked that the future development in the subject CDA zone should be set back to make allowance for future widening of Hang Tau Road, such as provision of standard footpaths and 7.3m wide single two-way carriageway in accordance with requirement of HKPSG.
- 2.5.2 For fulfilment of the set back requirement, development set back was taken into account in the previous scheme of the approved S12A application.

- 2.5.3 Besides, the previous road widening scheme, as exhibited in **Appendix A**, also included the provisions of a proper pedestrian crossing facility, an on-street layby for Green Mini-bus (GMB) and a vehicle turnaround facility in a form of mini-roundabout at Hang Tau Road for enhancement of pedestrian accessibility as well as the public transport facility.

Revised Road Widening Scheme

- 2.5.4 Having had further discussion with Transport Department subsequent to the approval of the previous S12A application, the road widening scheme is further reviewed and revised for further enhancement.
- 2.5.5 In the latest road widening scheme as proposed under this application, the intersection of the access to the development and existing Hang Tau Road is converted from a mini-roundabout into a priority T-junction. Besides, further set back of the site is also proposed for the relocation of the GMB layby and vehicle turnaround facility from Hang Tau Road, as shown in **Drawing No. 2.2**.
- 2.5.6 Notwithstanding the above changes, road widening of Hang Tau Road section abutting the Application Site for 7.3m carriageway with 3m footpath alongside remain in the revised scheme. Meanwhile, a pedestrian crossing facility at Hang Tau Road has also incorporated.
- 2.5.7 The revised road widening scheme will be implemented by this project, and managed and maintained by the relevant government departments upon completion of widening work.

Enhancement of Public Transport Facility

- 2.5.8 Given that the current public transport service for the Hang Tau Tai Po area is limited with one GMB route no. 50K only and there is absent of proper layby along Hang Tau Road, the proposed layby under the revised road widening scheme would serve future enhancement of public transport service (i.e. increase of GMB route) for the existing and future residents in the area. Meanwhile, the proposed vehicle turnaround facility in the scheme would facilitate a proper turnaround facility to allow GMB turns around without the need of passing through the narrow roads in Hang Tau Village.
- 2.5.9 Together with the proposed pedestrian crossing at Hang Tau Road, the proposed road widening scheme would offer a more accessible and safer public transport facility to serve the residents in the Hang Tau Tai Po area as demonstrated in **Drawing No. 2.3**.
- 2.5.10 According to the RNTPC Paper of the approved S12A application (paper no. Y/NE-KTS/13C), it is noted that the Commissioner for Transport (C for T) had a comment on the proposed GMB layby in the road improvement scheme that the GMB layby should be 26m long to accommodate 3 GMBs. In response to the previous comment on the GMB layby from C for T, the revised road widening scheme proposed in this S16 application has incorporated such requirement, as shown in **Drawing No. 2.2**.
- 2.5.11 With the proposed new public transport facilities (i.e. the 26m long GMB layby and vehicle turnaround facility), provision of short working departures of the GMB route no. 50K to/from MTR Sheung Shui station with the existing intermediate stops would be possible by utilizing the proposed GMB layby as the terminus of the route, as illustrated in **Drawing No. 2.4**.
- 2.5.12 Similar to the road widening scheme, the public transport facility will be implemented by this project, and managed and maintained by the government upon completion.
- 2.5.13 The swept path analysis for the proposed GMB layby are demonstrated in **Appendix B**.

3. EXISTING TRAFFIC CONDITIONS

3.1 Existing Road Network

- 3.1.1 The existing local road network is shown in **Drawing No. 3.1**.
- 3.1.2 The Application Site is mainly served by the local distributors Kwu Tung Road, Kam Hang Road and Hang Tau Road.
- 3.1.3 Kwu Tung Road is a single two-lane local distributor providing local connection between Kwu Tung and San Tin areas. Its eastern end connects with Castle Peak Road – Kwu Tung, while its western end connects with Castle Peak Road – San Tin.
- 3.1.4 Kam Hang Road is a single two-lane local distributor branch off from Kwu Tung Road. It provides local access for residents at Casas Domingo and Ascot Park, and it connects Kam Tsin Road at the eastern end.
- 3.1.5 Hang Tau Road is a single two-lane local distributor widened from a single track access road. It connects Kam Hang Road at the northern end and provides the vehicular access to and from the Application Site and the Kwu Tung South area. The local access roads branched-off from Hang Tau Road in the south are currently serving the accesses of the scattered low-rise village housing in the Hang Tau Tai Po area.

3.2 Existing Public Transport Services

- 3.2.1 The Application Site is located in rural area remote from railway station, and the travel distance between the application site and the MTR Sheung Shui Station is about 4km. The area in the vicinity of the Application Site is only served by one Green Minibus (GMB) service i.e. route no. 50K, providing service along Hang Tau Road.
- 3.2.2 Other than the GMB route no. 50K, there are also a GMB service route no. 50A (Kwu Tung South - MTR Sheung Shui Station) and a franchised bus route no. 76K (Sheung Shui Ching Ho Estate Bus Terminus – Yuen Long Long Ping Estate) providing services for Kwu Tung area. However, the walking distance from the Application Site to the nearest GMB stop and bus stop is about 1 km.
- 3.2.3 The details of the abovementioned public transport services are listed in **Table 3.1** and indicated in **Drawing No. 3.2**.

Table 3.1 Existing Public Transport Services

Route No.	Origin – Destination	Bound	Operation Hours	Headway (minutes) ⁽¹⁾	Average Occupancy Rates ⁽¹⁾
GMB Route					
50A	Kwu Tung South – MTR Sheung Shui Station	Kwu Tung South	05:40-23:00	10 – 15 [10 – 15]	90% ⁽²⁾ [80%]
		Sheung Shui Station	05:40-23:00	10 – 12 [10 – 15]	95% ⁽³⁾ [60%]
50K	Hang Tau – MTR Sheung Shui Station	Hang Tau	04:45-00:30	3 – 12 [5 – 25]	95% ⁽²⁾ [65%]
		Sheung Shui Station	04:55-00:45	3 – 12 [5 – 25]	95% ⁽³⁾ [35%]
Franchised Bus Route (KMB)					
76K	Ching Ho Estate Bus Terminus – Long Ping Estate	Ching Ho Estate	05:45-23:20	25 – 30 [20 – 30]	50% ⁽²⁾ [15%]
		Long Ping Estate	06:00-23:30	20 – 30 [20 – 30]	50% ⁽³⁾ [40%]

Notes : (1) Numbers in bracket [] refer to non-peak hours (time periods from 9:30 to 17:00)
(2) Critical peak period was observed in PM during the period of 17:00 – 19:00
(3) Critical peak period was observed in AM during the period of 7:30 – 9:30

3.2.4 Although the GMB route no. 50A and the franchised bus route no. 76K are providing services for the Kwu Tung area, their stops' locations are relatively remote from the Application Site and its adjacent village housing at Hang Tau Tai Po as shown in **Drawing No. 3.2**. In contrast, the GMB route no. 50K provides stops along Hang Tau Road with terminus at Hang Tau Village which is considered the main public transport service (except for taxi) for the local residents in the Hang Tau and Hang Tau Tai Po areas.

3.2.5 From site observations, it is noted that the existing passenger outbound demand at the terminus of GMB route no. 50K in Hang Tau Village has already occupied over 90% capacity of the GMB route. To allow future enhancement of GMB services for the Proposed Development as well as the other local residents in the Hang Tau Tai Po area, a provision of GMB layby has been included in the proposed road widening scheme, as discussed in the previous **Section 2.5**.

3.3 Identified Junctions for Assessment

3.3.1 Traffic count surveys were carried out to examine 4 junctions along the ingress and egress traffic routes of the Application Site. The surveys were undertaken between the hours of 7:30am to 9:30am and 5:00pm to 7:00pm on a typical weekday in May 2024. The locations of these junctions are identified in **Drawing No. 3.1** and **Table 3.2** below.

Table 3.2 Surveyed Key Junctions for Assessment

Junction No.	Junction	Method of Control	Drawing No.
J1	Kwu Tung Road / Kam Hang Road	Priority	3.3
J2	Kam Hang Road / Hang Tau Road	Priority	
J3	Hang Tau Road / Local Track to Sheung Yue River / Access of Jockey Club River Beas Lodge	Priority	3.4
J4	Hang Tau Road / Access Road A	Priority	3.5

- 3.3.2 Observed traffic data indicates that the AM peak hour and PM peak hour are from 7:45am to 8:45am and 5:15pm to 6:15pm respectively and the surveyed traffic flows are shown in **Drawing No. 3.6**. The existing layouts of the junctions to be assessed are shown in **Drawing Nos. 3.3 to 3.5**.
- 3.3.3 To evaluate the existing traffic condition in the vicinity of the Application Site, the operational performance of the identified junctions were assessed based on the observed traffic flows and their existing junction layouts and control method. The results are summarised in **Table 3.3**.

Table 3.3 Existing Junction Performance

Junction No.	Junction	Method of Control	2024 DFC ⁽¹⁾	
			AM Peak	PM Peak
J1	Kwu Tung Road / Kam Hang Road	Priority	0.59	0.39
J2	Kam Hang Road / Hang Tau Road	Priority	0.30	0.24
J3	Hang Tau Road / Local Track to Sheung Yue River / Access of Jockey Club River Beas Lodge	Priority	0.08	0.09
J4	Hang Tau Road / Access Road A	Priority	0.06	0.08

Note: (1) DFC = Design flow / capacity ratio for a priority junction

- 3.3.4 The results presented in **Table 3.3** indicate that all assessed junctions are currently operating with adequate capacities during the both morning peak and evening peak. The details of junction assessments are attached in **Appendix C**.

4. TRAFFIC FORECAST

4.1 Design Year and Future Scenarios to be Assessed

Design Year

- 4.1.1 It is anticipated that the Proposed Development would be completed by year 2031. In order to assess the impact of the Proposed Development related traffic on the local road network, year 2034 (i.e. anticipated completion year 2031 + 3 years) is adopted as the design year for traffic impact assessment study.

Future Scenario to be Assessed

- 4.1.2 To evaluate the effect to the surrounding road junctions due to the Proposed Development under the Proposed MLP with minor relaxation of PR, the below future scenarios will be assessed:
- **Reference Scenario in Year 2034** – Future scenario in year 2034 with the previous scheme for the Application Site in the approved S12A application (i.e. without the proposed relaxation of GFA); and
 - **Design Scenario in Year 2034** – Future scenario in year 2034 with the Proposed MLP for the Application Site (i.e. with the proposed relaxation of GFA).

4.2 Traffic Forecasts for Reference Scenario

Background Traffic Growth

- 4.2.1 To derive the year 2034 reference traffic flows, the background growth in traffic should be reviewed and identified for the area, which are made reference to the historical growth trend and the population and employment projections.
- 4.2.2 Castle Peak Road – Kwu Tung and Kwu Tung Road are the two nearest traffic count stations to the Application Site in Transport Department's latest Annual Traffic Census (ATC). The average annual daily traffic (A.A.D.T) data from year 2013 to 2024 as reported in the latest ATC are summarized in **Table 4.1**.

Table 4.1 Average Annual Daily Traffic (A.A.D.T.) Data of ATC Station no. 6602 & 6606

ATC Stn. No.	Road	AADT (Vehicle/Day)												Derived Growth Rate (% p.a.)
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2024/2013
6602	Castle Peak Rd - Kwu Tung	10,670	11,120	10,560	10,690	11,540	10,800	10,660	11,000	11,000	10,480	10,060	9,900	-0.68%
6606	Kwu Tung Rd	2,980	3,290	3,670	4,070	4,450	4,630	4,610	4,050	4,290	4,280	4,480	4,060	2.85%
Total		13,650	14,410	14,230	14,760	15,990	15,430	15,270	15,050	15,290	14,760	14,540	13,960	+0.20%

Source: The Annual Traffic Census 2013 – 2024 as available on TD's website

- 4.2.3 The A.A.D.T. flows in **Table 4.1** show that the overall average traffic growth on the road sections in the vicinity of the Application Site decreased at the rate of +0.2% per annum for year 2013 to 2024.

- 4.2.4 Other than the historical trend, the population and employment estimates from Territorial Population and Employment Data Matrix (TPEDM) as available on Planning Department's website are also reviewed. The population and employment estimates for North District in year 2021, 2026 and 2031 are presented in **Table 4.2**.

Table 4.2 Population and Employment Estimates from TPEDM

North District	Estimates from TPEDM			Growth Rate (% p.a.)	
	2021	2026	2031	2026/2021	2031/2026
Population	309,650	352,000	435,550	+2.6%	+4.4%
Employment	84,150	104,050	144,850	+4.3%	+6.8%
Total	393,800	456,050	580,400	+3.0%	+4.9%

Source: 2021 - based Territorial Population and Employment Data Matrix as available on Planning Department's website

- 4.2.5 As presented in **Table 4.2**, the growth rates as derived from the TPEDM estimates for North District from year 2021 to 2031 are ranged from +3% to +4.9% p.a.
- 4.2.6 By considering the extensive coverage by North District in TPEDM, it can be seen that the increment in population and employment between 2021-2031 have been accounted by the intake of Kwu Tung North New Development Area (KTN NDA) and Fanling North New Development Area (FLN NDA).
- 4.2.7 Whilst the application site is situated near the southern fringe of Kwu Tung South, the major access routes and road network for the application site would be substantially different from those by the development traffic of KTN NDA and FLN NDA.
- 4.2.8 Therefore, the TPEDM growth rate may not be representative to reflect the background traffic growth for the local road network in the vicinity of the Kwu Tung South area.
- 4.2.9 In view of the above, a traffic growth rate of +1% per annum as referred to the rounded growth rate from ATC is adopted for this study to reflect the background traffic growth in the area from year 2024 to 2034.

Development Traffic of the Application Site in Reference Scenario

- 4.2.10 In the reference scenario, it is assumed that the Application Site would be developed in accordance with the previous scheme in the approved S12A application, i.e. the development schedule without the proposed minor relaxation of GFA as presented in **Table 2.1**. The estimated potential traffic generation and attraction of the Application Site in Reference Scenario are summarized in **Table 4.3**.

Table 4.3 Estimated Traffic Generation and Attraction of the Application Site in Reference Scenario of 2034

Development at Application Site In Reference Scenario (Approved S12A in 2021)	AM Peak Hour		PM Peak Hour	
	Generation	Attraction	Generation	Attraction
Residential - 302 flats				
Adopted Trip Rates ⁽¹⁾ (pcu/hr/flat)	0.0888	0.0515	0.0356	0.0480
Estimated Trips (pcu/hr)	27	16	11	14
Retail - 406 m² GFA				
Adopted Trip Rates ⁽²⁾ (pcu/hr/100m ² GFA)	0.2296	0.2434	0.3100	0.3563
Estimated Trips (pcu/hr)	1	1	1	1
RCHE - 100 places in total				
Adopted Trip Rates ⁽³⁾ (pcu/hr/place)	0.0385	0.0346	0.0308	0.0308
Estimated Trips (pcu/hr)	4	3	3	3
Total Trips (pcu/hr)	32	20	15	18

Notes: (1) TPDM mean trip rates for Private Housing: High-Density /R(A) with Ave. Flat Size of 70m²
 (2) TPDM mean trip rates for retail / Shopping Complex

(3) Consultant's in-house trip rate as surveyed at Caritas Li Ka Shing C&A Home adopted.

4.2.11 Apart from the development traffic of the Application Site, the potential increases in GMB traffic due to the proposed provision of GMB layby under the approved S12A application are also taken into account.

4.2.12 Taking into account there is only one GMB route no.50K currently serving the areas, it was anticipated in the approved S12A application that a GMB route in addition to the existing service would be provided upon availability of the proposed GMB layby at Hang Tau Road. With the assumption on an additional GMB route will be operated in 3mins headway during the peak hours which is similar to the peak headway of the existing route No.50K, it was anticipated that additional GMB traffic of about 30 pcu/hr (i.e. [60mins/3mins headway] x 1.5 pcu factor) would be generated on Hang Tau Road.

Other Planned/Potential Future Developments

Planned/Potential Future Developments in the Vicinity

4.2.13 It is noted that there are future residential developments planned in the vicinity of the Application Site including the adjoining Area (b) of the same CDA site. The locations of these future residential developments are indicated in **Drawing No. 4.1**, and the adjacent future developments of the Application Site are also indicated in **Drawing No. 4.2**. Their details are summarised in **Table 4.4**.

Table 4.4 Planned / Potential Future Developments in the Vicinity

Site	Planned / Potential Future Developments in the Vicinity ⁽¹⁾	Details ⁽²⁾
A	Private Residential Development at Area (b) of the CDA site in D.D.92 and D.D 94 and Adjoining Government Land, Hang Tau Tai Po, Kwu Tung South (Y/NE-KTS/13)	- Domestic plot ratio 1.23 - A total GFA of about 900m² with 18 Flats
B	Private Residential Development at Various Lots in D.D. 94, Hang Tau Tai Po, Kwu Tung South (A/NE-KTS/525)	- Plot ratio not more than 0.48 - A total GFA of 5,808m² with 42 Flats
C	Private Residential Houses at No. 106 Hang Tau Road, Kwu Tung South (A/NE-KTS/528)	- Plot ratio not more than 0.4 - A total GFA of not more than 518.32m² with 2 Houses
D	Private Residential Development at Various Lots in D.D. 94 and adjoining Government Land, Hang Tau Tai Po, Kwu Tung South (Y/NE-KTS/466)	- Plot ratio 0.48 - A total GFA of about 2,700m² with 19 Flats
E	Residential Care Home for the Elderly at Lot No. 953 RP (Part) in D.D. 92 and adjoining Government Land, Kam Hang Road, Kwu Tung South (Y/NE-KTS/16)	- Plot ratio about 2.94 - A total GFA of about 5,025m²
F	Private Residential Development at Various Lots in D.D. 92 and adjoining Government Land, Kam Hang Road, Kwu Tung South (Y/NE-KTS/17)	- Plot ratio about 2.4 - A total GFA of about 23,732m² with 360 Flats
G	Private Residential Development at Various Lots in D.D. 92 and Adjoining Government Land, Kam Hang Road, Kwu Tung South (Y/NE-KTS/14) – <u>Partially Approved Site A</u>	- Plot ratio not more than 3 - A total GFA of about 62,529m² with 971 Flats
H	Private Residential Development at Various Lots in D.D. 92 and adjoining Government Land, Kwu Tung South (A/NE-KTS/565)	- Plot ratio about 2.012 - Domestic GFA about 39,400m² with 1,062 Flats
I	Comprehensive Residential Development with Commercial and Social Welfare Facilities at Lot 2579 in D.D. 92, Kwu Tung South (A/NE-KTS/506)	- Plot ratio about 3 - Domestic GFA not more than 112,680m² with 2,589 Flats

Notes: (1) Locations are indicated in **Drawing Nos. 4.1 and 4.2**.

(2) Refer to information as available from the Statutory Planning Portal 3 by Town Planning Board.

4.2.14 According to the available information from TPB's website, it is noted that the planned/potential future residential developments as listed in **Table 4.4** would be completed in or before year 2032, and therefore the traffic induced by these planned future developments will be taken into account in the traffic forecast.

4.2.15 To evaluate the potential traffic induced by the planned future residential developments in the vicinity, the traffic trip rates for the residential development as stipulated in Transport Planning & Design Manual (TPDM) and the consultant's in-house trip rates are referred. The adopted trip rates and the estimated potential traffic generation and attraction of these planned future development are presented and summarized in **Table 4.5**.

Table 4.5 Adopted Trip Rates and Estimated Trips for the Planned / Potential Future Developments in the Vicinity

		AM Peak Hour		PM Peak Hour	
		Generation	Attraction	Generation	Attraction
Site A – 18 Flats at avg. size of 50m²					
Adopted Trip Rates (pcu/hr/flat) ⁽¹⁾		0.0718	0.0425	0.0286	0.0370
Estimated Trips (pcu/hr)		1	1	1	1
Site B – 42 Houses at avg. size of 138.3m²					
Adopted Trip Rates (pcu/hr/flat) ⁽²⁾		0.3021	0.2234	0.2258	0.2226
Estimated Trips (pcu/hr)		13	9	9	9
Site C – 2 Houses at avg. size of 259.2m²					
Adopted Trip Rates (pcu/hr/flat) ⁽³⁾		0.3524	0.2837	0.2842	0.3948
Estimated Trips (pcu/hr)		1	1	1	1
Site D – 19 House at avg. size of 142.1m²					
Adopted Trip Rates (pcu/hr/flat) ⁽²⁾		0.3021	0.2234	0.2258	0.2226
Estimated Trips (pcu/hr)		6	4	4	4
Site E – Proposed Residential Care Home for the Elderly with 150 beds					
Elderly Home 150 places	Adopted Trip Rates (pcu/hr/place) ⁽⁴⁾	0.0385	0.0346	0.0308	0.0308
	Estimated Trips (pcu/hr)	6	5	5	5
Site F – 360 Flats at avg. size of 65.9m²					
Residential Portion 360 Flats	Adopted Trip Rates (pcu/hr/flat) ⁽⁵⁾	0.0888	0.0515	0.0356	0.0480
	Estimated Trips (pcu/hr)	32	19	13	17
Site G – 971 Flats at avg. size of 64.4m²					
Adopted Trip Rates (pcu/hr/flat) ⁽⁵⁾		0.0888	0.0515	0.0356	0.0480
Estimated Trips (pcu/hr)		86	50	35	47
Site H – 1,062 Flats at avg. size of 37.1m²					
Estimated Trips (pcu/hr) ⁽⁶⁾		65	45	30	40
Site I – 2,589 Flats at avg. size of 43.5m²					
Residential Portion 2,589 Flats	Adopted Trip Rates (pcu/hr/flat) ⁽¹⁾	0.0718	0.0425	0.0286	0.0370
	Estimated Trips (pcu/hr)	186	110	74	96
Enhancement of Public Transport Services for Sites E, F, H and I					
Public Transport Service for Site E & F	Adopted Trip Rates	-	-	-	-
	Estimated Trips (pcu/hr) ⁽⁷⁾	39	39	39	39
Public Transport Service for Site I & H	Adopted Trip Rates	-	-	-	-
	Estimated Trips (pcu/hr) ⁽⁸⁾	39	39	39	39

- Notes:
- (1) TPDM mean trip rates for private housing with average flat size of 60m² adopted for house development
 - (2) TPDM upper trip rates for private housing with average flat size of 140m² adopted for house development
 - (3) TPDM upper trip rates for private housing with average flat size of 240m² adopted for house development
 - (4) Consultant's in-house trip rate as surveyed at Caritas Li Ka Shing C&A Home adopted
 - (5) TPDM mean trip rates for private housing with average flat size of 70m² adopted for medium rise residential development
 - (6) Refer to the development trips adopted in the TIA of the latest approved application no. A/NE-KTS/565 from the Town Planning Board
 - (7) Refer to information on the approved application no. Y/NE-KTS/16 and Y/NE-KTS/17 as inspected from the Town Planning Board
 - (8) Refer to information on the approved application no. Y/NE-KTS/15 and A/NE-KTS/506 as inspected from the Town Planning Board

Other Planned/Potential Future Developments in North District

- 4.2.16 Other than the planned/potential developments in the vicinity of the Application Site as listed in the above **Table 4.4**, it is also noted that there are also various planned/potential future developments in the North District including the developments at Queen's Hill, FLN NDA and KTN NDA.
- 4.2.17 As mentioned in **paragraph 3.1.2 in Section 3.1**, the Application Site is mainly served by the local distributors Kwu Tung Road, Kam Hang Road and Hang Tau Road, which the major access routes would be substantially different from the development traffic of the other planned/potential future developments in North District. Thus, the future traffic of these other planned/potential future developments on the local distributors in the vicinity of the Application Site should be insignificant.
- 4.2.18 Nevertheless, traffic flows of the other planned/potential future developments in North District have also been revised and taken into consideration into the Reference Scenario for a conservative approach. The details and the estimated traffic of the other planned/potential future developments in North District are presented in **Tables 4.6 and 4.7** respectively.

Table 4.6 Other Planned / Potential Future Developments in North District

Site	Planned Future Developments in North District ⁽¹⁾	Details
Planned/Potential Private Developments		
J	Private Residential Development at Lots 684 RP, 705 RP, 706 RP, 709 RP (Part), 711 RP (Part), 712, 713 RP, 714 RP, 715, 716, 717 RP (Part), 718 RP (Part), 719, 721 RP (Part) and 2158 RP (Part) in D.D. 92 and adjoining Government Land, Kwu Tung North (Y/KTN/2)	<u>Southern Portion</u> - Domestic plot ratio 3 - Domestic GFA of 20,271 m² with 478 Flats⁽²⁾ <u>Northern Portion</u> - Domestic plot ratio 1.1 - Domestic GFA of 9,517.2 m² with 49 Houses⁽²⁾
K	Private Residential Development at Lot No. 4076 RP in DD91, 663 Fan Kam Road, Fanling	765 Flats ⁽³⁾
L	Private Residential Development at Sheung Shui Lot 2 RP and adjoining Government land, New Territories (Y/FSS/19)	- Domestic plot ratio of about 4.3 - Domestic GFA of 128,401.87 m² with 969 Flats and 100 beds in RCHE⁽²⁾
M	Private Residential Development at Fanling Area 40 (Y/FSS/13)	- Domestic plot ratio 5.46 - Domestic GFA of 19,750 m² with 300 Flats⁽²⁾
N	Private Residential Development at Various Lots in D.D. 51 and Adjoining Government Land, Fanling, New Territories (Y/FSS/18)	- Domestic plot ratio of not more than 5 - Domestic GFA of about 66,155 m² with 1,638 Flats and 120 beds in RCHE⁽²⁾
O	Private Residential Development at Fanling Area 17 (Fan Garden) Sites B1 & B2	- Domestic plot ratio of not more than 6 1,600 Flats⁽⁴⁾
Other Planned Public Housing Developments		
P1 & P2	Kwu Tung North New Development Area & Fanling North New Development Area	- Public Housing: 57,500 Flats - Private Housing: 28,700 Flats - Commercial GFA of 554,000 m²⁽⁵⁾
P3	Planned Public Housing at Po Shek Wu Road, Sheung Shui, FSS Area 4	1,850 Flats - Commercial GFA of 3,000 m²⁽⁶⁾

Table 4.6 Other Planned / Potential Future Developments in North District (Cont'd)

Site	Planned Future Developments in North District ⁽¹⁾	Details
P4	Planned Public Housing Development in Sheung Shui Areas 4 and 30 (Site 1 & 2)	<u>Site 1</u> • 2,088 Flats • Retail GFA of 400 m²⁽⁷⁾ <u>Site 2</u> • 1,556 Flats • Retail GFA of 700 m²⁽⁷⁾
P5	Planned Public Housing Development at Fanling Area 36 Phase 4 (Ching Ho Extension)	• 772 Flats • Retail GFA of 2,600 m²⁽⁸⁾
P6	Planned Public Housing Development at Ching Hiu Road, Sheung Shui (Site B in OZP no. S/FSS/25)	620 Flats ⁽⁹⁾
P7	Planned Public Housing Development at Tai Tau Leng, Sheung Hui (Site C1 in OZP no. S/FSS/25)	3,100 Flats ⁽¹⁰⁾
P8	Planned Public Housing Development at Choi Whun Street, Sheung Shui (Site D1 & 2 in OZP no. S/FSS/25)	2,330 Flat ⁽¹¹⁾
P9	Planned Public Housing Development near Queen's Hill	4,030 Flats ⁽¹²⁾
P10	Planned Subsidised Housing Site at Jockey Club Road, FSS Area 11	640 Flats ⁽¹³⁾
P11	Planned Public Housing Development at Fanling Area 17 (Fan Garden) Site A	8,300 Flat ⁽¹⁴⁾
P12	Planned Public Housing Development at Fanling Area 48	4,200 Flat ⁽¹⁵⁾
P13	Planned Public Housing Development at San Wan Road, Fanling	450 Flats ⁽¹⁶⁾

- Notes:
- (1) Locations are indicated in **Drawing No. 4.1**
 - (2) Refer to information as available from the Statutory Planning Portal 3 by Town Planning Board.
 - (3) Refer to information on Particulars of Applications for Presale Consent and Consent To Assign Pending Approval as at 30/04/2024 by Lands Department.
 - (4) Refer to information on Discussion Papers No. 45/2021 as available on North District Council of HKSAR's website
 - (5) Refer to information on LC Paper No. CB(1)341/2024(03) as discussed by the Panel on Development of Legislative Council on 26 March 2024.
 - (6) Refer to information on Planning Brief (May 2019) from Hong Kong Housing Authority
 - (7) Refer to information on Addendum to the Approved Planning Brief (July 2021) from Hong Kong Housing Authority
 - (8) Refer to information on Addendum to the Approved Planning Brief (November 2019) from Hong Kong Housing Authority
 - (9) Refer to information on Discussion Paper No. 5/2023 of Committee on Land Development, Housing and Works as available on North District Council of HKSAR's website
 - (10) Refer to information on Discussion Paper No. 9/2023 of Committee on Land Development, Housing and Works as available on North District Council of HKSAR's website
 - (11) Refer to information on Planning Brief (December 2022) from Hong Kong Housing Authority
 - (12) Refer to information on Planning Brief (May 2023) from Hong Kong Housing Authority
 - (13) Refer to information on Discussion Paper No. 19/2021 of Committee on Land Development, Housing and Works as available on North District Council of HKSAR's website
 - (14) Refer to information on Discussion Paper No. 2/2023 of Committee on Land Development, Housing and Works as available on North District Council of HKSAR's website
 - (15) Refer to information on Discussion Paper No. 3/2023 of Committee on Land Development, Housing and Works as available on North District Council of HKSAR's website
 - (16) Refer to information on Planning Brief (January 2022) from Hong Kong Housing Authority

Table 4.7 Adopted Trip Rates and Estimated Trips for Other Planned / Potential Future Developments in North District

		AM Peak Hour		PM Peak Hour	
		Generation	Attraction	Generation	Attraction
Planned/Potential Private Developments					
Site J - 478 Flats at avg. size of 42.4m² and 49 Houses at avg. size of 194.2m²					
Southern Portion 478 Flats	Adopted Trip Rates (pcu/hr/flat) ⁽²⁾	0.0718	0.0425	0.0286	0.0370
	Estimated Trips (pcu/hr)	34	20	14	18
Northern Portion 49 Houses	Adopted Trip Rates (pcu/hr/flat) ⁽⁵⁾	0.3524	0.2837	0.2842	0.3948
	Estimated Trips (pcu/hr)	17	14	14	19
Estimated Total Trips (pcu/hr)		51	34	28	37
Site K – 765 Flats at avg. size of 34.5m²					
Adopted Trip Rates (pcu/hr/flat) ⁽²⁾		0.0718	0.0425	0.0286	0.0370
Estimated Trips (pcu/hr)		55	33	22	28
Site L – 969 Flats at avg. size of 132.5m²					
Adopted Trip Rates (pcu/hr/flat) ⁽⁶⁾		0.3021	0.2234	0.2258	0.2226
Estimated Trips (pcu/hr)		293	216	219	216
Site M – 300 Flats at avg. size of 65.8m²					
Adopted Trip Rates (pcu/hr/flat) ⁽²⁾		0.0718	0.0425	0.0286	0.0370
Estimated Trips (pcu/hr)		22	13	9	11
Site N – 1,638 Flats at avg. size of 40.4m²					
Adopted Trip Rates (pcu/hr/flat) ⁽²⁾		0.0718	0.0425	0.0286	0.0370
Estimated Trips (pcu/hr)		118	70	47	61
Site O – 1,600 Flats					
Adopted Trip Rates (pcu/hr/flat) ⁽²⁾		0.0718	0.0425	0.0286	0.0370
Estimated Trips (pcu/hr)		115	68	46	59
Other Planned Public Housing Developments					
Sites P1 & P2 – 86,200 Flats and Commercial Facilities					
Public Housing 57,500 Flats	Adopted Trip Rates (pcu/hr/flat) ⁽⁹⁾	0.0432	0.0326	0.0237	0.0301
	Estimated Trips (pcu/hr)	2,484	1,875	1,363	1,731
Private Residential Portion 287,00 Flats	Adopted Trip Rates (pcu/hr/flat) ⁽⁹⁾	0.0718	0.0425	0.0286	0.0370
	Estimated Trips (pcu/hr)	2,061	1,220	821	1,062
Commercial 554,000m ²	Adopted Trip Rates (pcu/hr/100m ²) ⁽¹⁰⁾	0.2296	0.2434	0.3100	0.3563
	Estimated Trips (pcu/hr)	1,272	1,348	1,717	1,974
Estimated Total Trips (pcu/hr)		5,817	4,443	3,901	4,767
Site P3 – 1,850 Flats, Retail and Kindergarten					
Residential Portion 1,850 Flats	Adopted Trip Rates (pcu/hr/flat) ⁽¹¹⁾	0.0622	0.0426	0.0297	0.0401
	Estimated Trips (pcu/hr)	115	79	55	74
Retail Portion 3,000m ²	Adopted Trip Rates (pcu/hr/100m ²) ⁽¹⁰⁾	0.2296	0.2434	0.3100	0.3563
	Estimated Trips (pcu/hr)	7	7	9	11
Kindergarten 6 classrooms	Adopted Trip Rates (pcu/hr/classroom) ⁽¹²⁾	2.4444	2.6667	1.1111	1.3333
	Estimated Trips (pcu/hr)	15	16	7	8
Estimated Total Trips (pcu/hr)		137	102	71	93

Table 4.7 Adopted Trip Rates and Estimated Trips for Other Planned / Potential Future Developments in North District (Cont'd)

		AM Peak Hour		PM Peak Hour	
		Generation	Attraction	Generation	Attraction
Site P4 – 3,644 Flats, Retail and Kindergarten					
Site 1 – Residential Portion 2,088 Flats	Adopted Trip Rates (pcu/hr/flat) ⁽¹¹⁾	0.0622	0.0426	0.0297	0.0401
	Estimated Trips (pcu/hr)	130	89	62	84
Site 1 – Retail Portion 400m ²	Adopted Trip Rates (pcu/hr/100m ²) ⁽¹⁰⁾	0.2296	0.2434	0.3100	0.3563
	Estimated Trips (pcu/hr)	1	1	1	1
Site 1 – Kindergarten 6 classrooms	Adopted Trip Rates (pcu/hr/classroom) ⁽¹²⁾	2.4444	2.6667	1.1111	1.3333
	Estimated Trips (pcu/hr)	15	16	7	8
Site 2 – Residential Portion 1,556 Flats	Adopted Trip Rates (pcu/hr/flat) ⁽¹¹⁾	0.0622	0.0426	0.0297	0.0401
	Estimated Trips (pcu/hr)	97	66	46	62
Site 2 – Retail Portion 700m ²	Adopted Trip Rates (pcu/hr/100m ²) ⁽¹⁰⁾	0.2296	0.2434	0.3100	0.3563
	Estimated Trips (pcu/hr)	2	2	2	2
Estimated Total Trips (pcu/hr)		245	174	118	157
Site P5 – 772 Flats with Retail					
Residential Portion 772 Flats	Adopted Trip Rates (pcu/hr/flat) ⁽⁹⁾	0.0432	0.0326	0.0237	0.0301
	Estimated Trips (pcu/hr)	33	25	18	23
Retail Portion 2,600m ²	Adopted Trip Rates (pcu/hr/100m ²) ⁽¹⁰⁾	0.2296	0.2434	0.3100	0.3563
	Estimated Trips (pcu/hr)	6	6	8	9
Estimated Total Trips (pcu/hr)		39	31	26	32
Site P6 – 620 Flats					
Adopted Trip Rates (pcu/hr/flat) ⁽¹¹⁾		0.0622	0.0426	0.0297	0.0401
Estimated Trips (pcu/hr)		39	26	18	25
Site P7 – 3,100 Flats					
Adopted Trip Rates (pcu/hr/flat) ⁽¹¹⁾		0.0622	0.0426	0.0297	0.0401
Estimated Trips (pcu/hr)		193	132	92	124
Site P8 – 2,330 Flats with Public Vehicle Park					
Residential Portion 2,330 Flats	Adopted Trip Rates (pcu/hr/flat) ⁽¹¹⁾	0.0622	0.0426	0.0297	0.0401
	Estimated Trips (pcu/hr)	145	99	69	93
Public Vehicle Park 70 spaces	Adopted Trip Rates (pcu/hr/space) ⁽¹³⁾	0.0929	0.5897	0.4619	0.1500
	Estimated Trips (pcu/hr)	7	41	32	11
Estimated Total Trips (pcu/hr)		152	140	101	104
Site P9 – 4,030 Flats					
Adopted Trip Rates (pcu/hr/flat) ⁽⁹⁾		0.0432	0.0326	0.0237	0.0301
Estimated Trips (pcu/hr)		174	131	96	121
Site P10 – 640 Flats					
Adopted Trip Rates (pcu/hr/flat) ⁽¹¹⁾		0.0622	0.0426	0.0297	0.0401
Estimated Trips (pcu/hr)		40	27	19	26
Site P11 – 8,300 Flats					
Adopted Trip Rates (pcu/hr/flat) ⁽¹¹⁾		0.0622	0.0426	0.0297	0.0401
Estimated Trips (pcu/hr)		516	354	247	333

Table 4.7 Adopted Trip Rates and Estimated Trips for Other Planned / Potential Future Developments in North District (Cont'd)

	AM Peak Hour		PM Peak Hour	
	Generation	Attraction	Generation	Attraction
Site P12 – 4,200 Flats				
Adopted Trip Rates (pcu/hr/flat) ⁽¹¹⁾	0.0622	0.0426	0.0297	0.0401
Estimated Trips (pcu/hr)	261	179	125	168
Site P13 – 450 Flats				
Adopted Trip Rates (pcu/hr/flat) ⁽¹¹⁾	0.0622	0.0426	0.0297	0.0401
Estimated Trips (pcu/hr)	28	19	13	18

- Notes:
- (1) Consultant's in-house trip rate as surveyed at Caritas Li Ka Shing C&A Home are adopted
 - (2) TPDM mean trip rates for private housing with average flat size of 60m² adopted for medium rise residential development
 - (3) TPDM mean trip rates for private housing with average flat size of 70m² adopted for medium rise residential development
 - (4) TPDM mean trip rates for Retail / Shopping Complex
 - (5) TPDM upper trip rates for private housing with average flat size of 240m² adopted for house development
 - (6) TPDM upper trip rates for private housing with average flat size of 140m² adopted for house development
 - (7) Proposed public transport services under Planning Applications Y/NE-KTS/15 and A/NE KTS-506
 - (8) Proposed public transport services under Planning Applications Y/NE-KTS/16 and A/NE KTS-17
 - (9) TPDM mean trip rates for public housing with average flat size of 40m² adopted for subsidised housing: public rental
 - (10) TPDM mean trip rates for Retail / Shopping Complex
 - (11) TPDM mean trip rates for public housing with average flat size of 50m² adopted for subsidised housing: HOS/PSPS
 - (12) Consultant's in-house trip rate as surveyed at Precious Blood Kindergarten are adopted
 - (13) Trip rates derived from the consultant's surveyed trip rates from ex-Murray Road Multi-storey Car Park

Year 2034 Reference Traffic Flows

4.2.19 The 2034 reference traffic flows are derived by:

- (i) Applying a growth rate of 1% p.a. on the 2024 observed flows upto the design year 2034; and
- (ii) Superimposing the potential traffic as induced by the Application Site in accordance with the previous scheme of the approved S12A in **Table 4.3** and the additional GMB traffic as discussed in **Paragraph 4.1.11** onto the traffic flows in (i).
- (iii) Superimposing the potential traffic as induced by the planned/potential future developments in the vicinity of the Application Site (**Table 4.5**) and other planned/potential future developments in North District (**Table 4.7**) onto the traffic flows in (ii);

4.2.20 The year 2034 reference traffic flows are presented in **Drawing No. 4.3**.

4.3 Traffic Forecasts for Design Scenario

Development Traffic of the Application Site in Design Scenario of Year 2034

4.3.1 In the design scenario of year 2034, it is adopted that the Application Site will be developed in accordance with the latest development schedule of the Proposed MLP with minor relaxation of PR as listed in **Table 2.1**.

4.3.2 The estimated potential traffic generation and attraction of the Application Site in the Design Scenario of 2034 are shown in **Table 4.8**.

Table 4.8 Estimated Traffic Generation and Attraction of the Application Site in Design Scenario of 2034

Development at Application Site In Design Scenario (Proposed MLP with Minor Relaxation of Plot Ratio)	AM Peak Hour		PM Peak Hour	
	Generation	Attraction	Generation	Attraction
Residential - 334 flats				
Adopted Trip Rates ⁽¹⁾ (pcu/hr/flat)	0.1058	0.0605	0.0426	0.0590
Estimated Trips (pcu/hr)	35	20	14	20
Retail - 319 m² GFA				
Adopted Trip Rates ⁽²⁾ (pcu/hr/100m ² GFA)	0.2296	0.2434	0.3100	0.3563
Estimated Trips (pcu/hr)	1	1	1	1
RCHE – 100 places in total				
Adopted Trip Rates ⁽³⁾ (pcu/hr/place)	0.0385	0.0346	0.0308	0.0308
Estimated Trips (pcu/hr)	4	3	3	3
Total Trips (pcu/hr)	40	24	18	24

Notes: (1) TPDM mean trip rates for Private Housing: High-Density /R(A) with Ave. Flat Size of 80m²
(2) TPDM mean trip rates for retail / Shopping Complex
(3) Consultant's in-house trip rate as surveyed at Caritas Li Ka Shing C&A Home adopted.

- 4.3.3 As compared with the previous scheme in the approved S12A, the Proposed MLP with minor relaxation of PR would only induce minimal additional 2-way traffic of 12 pcu/hr in the morning peak hour and 9 pcu/hr in the evening peak hour. The comparison of development traffic of the Application Site in Reference and Design Scenarios are shown in **Table 4.9**.

Table 4.9 Comparison of Development Traffic in Reference and Design Scenarios

Future Scenario	Total Development Traffic of the Application Site (pcu/hr)			
	AM Peak Hour		PM Peak Hour	
	Generation	Attraction	Generation	Attraction
Reference Scenario – Previous Scheme in Approved S12A	32	20	15	18
Design Scenario – Proposed MLP with Minor Relaxation of Plot Ratio	40	24	18	24
Net Increase	+8	+4	+3	+6

Year 2034 Design Traffic Flows

- 4.3.4 The year 2034 design flows are derived by superimposing the net increases in development traffic of the Application Site due to the Proposed MLP with minor relaxation of PR as presented in **Table 4.9** onto the year 2034 reference traffic flows (**Drawing No. 4.3**).
- 4.3.5 The year 2034 design traffic flows are presented in **Drawing No. 4.4**.

5. TRAFFIC IMPACT ASSESSMENT

5.1 Junction Assessments for Year 2034 Reference and Design Scenarios

- 5.1.1 The operational performances of the junctions identified in **Section 3.3** are assessed with the derived 2034 reference and design traffic flows under the existing layouts and method of control. Apart from the existing junctions, the junction of Hang Tau Road and the access of the Proposed Development (i.e. Junction J5) is also assessed.
- 5.1.2 The assessment results for reference and design year of 2034 are summarised in **Table 5.1**, and the details of junction assessments are attached in **Appendix C**.

Table 5.1 Year 2034 Operational Performance of the Identified Key Junctions

Junction No.	Location	Method of Control	Year 2034 DFC ⁽¹⁾			
			Reference Scenario		Design Scenario	
			AM	PM	AM	PM
J1	Kwu Tung Road / Kam Hang Road	Priority	1.99	1.19	2.01	1.20
J2	Kam Hang Road / Hang Tau Road	Priority	0.74	0.52	0.75	0.52
J3	Hang Tau Road / Local Track to Sheung Yue River / Access of Jockey Club River Beas Lodge	Priority	0.12	0.13	0.12	0.14
J4	Hang Tau Road / Access Road A	Priority	0.10	0.12	0.10	0.12
J5	Hang Tau Road / Proposed Development Access	Roundabout	0.21	0.15	N/A	
		Priority	N/A		0.11	0.09

Note: (1) DFC = Design flow / capacity ratio for a priority junction and roundabout

- 5.1.3 The assessment results in **Table 5.1** show that the Proposed MLP with minor relaxation of PR will have inapparent effect on the junction performance, and all identified junctions will still be operating within their capacities during both morning and evening peak hours in the Design Scenario of year 2034 except for Junction J1. It is assessed that Junction J1 will be overloaded during both the morning and evening peak hours in the future year 2034 even though the application site to be developed in accordance with the scheme in the approved S12A without the proposed minor relaxation in the Reference Scenario.

5.2 Road Improvement Scheme for Kam Hang Road as Proposed in Application Nos. Y/NE-KTS/12 and Y/NE-KTS/14

- 5.2.1 Rezoning applications for the CDA(1) site (Application No. Y/NE-KTS/12) and the CDA(2) site (Application No. Y/NE-KTS/14) at Kam Hang Road with the proposed increase of plot ratio to 3.0 (i.e. Sites I and G as in listed in **Table 4.4** of **Section 4.2** respectively) were approved and partially approved by TPB in September 2019 and December 2020 respectively. The rezoning of these CDA (1) and CDA(2) sites have been amended in the prevailing OZP, and they have been taken into account in deriving the traffic forecast for this study as discussed in **Section 4.2**.
- 5.2.2 In accordance with the available information on the rezoning applications as inspected from TPB, it is noted that a road improvement scheme for Kam Hang Road (the Kam Hang Road improvement scheme) was proposed in the approved Application Nos. Y/NE-KTS/12 for improving the road capacity along Kam Hang Road including the junction of Kwu Tung Road / Kam Hang Road (J1) in order to serve for the rezoning proposal. Subsequently, further junction modification works at Junction J1 were proposed under the approved Application No. Y/NE-KTS/14 as shown in **Drawing No. 5.1**.

5.2.3 With the future implementation of the Kam Hang Road improvement scheme proposed in Application Nos. Y/NE-KTS/12 and Y/NE-KTS/14, it is assessed that Junction J1 will be able to cater for the future traffic in the Design Scenario of year 2034 with ample capacity, as shown in **Table 5.2**. The details of the junction assessments are included in **Appendix C**.

Table 5.2 Year 2034 Operational Performance of Junction J1 under Kam Hang Road Improvement Scheme

Junction No.	Location	Layout & Method of Control	Year 2034 DFC ⁽¹⁾			
			Reference Scenario		Design Scenario	
			AM	PM	AM	PM
J1	Kwu Tung Road / Kam Hang Road	Priority – with junction modification proposed under Application Nos. Y/NE-KTS/12 & Y/NE-KTS/14	0.83	0.44	0.84	0.45

Note: (1) DFC = Design flow/ capacity ratio for a priority junction

5.3 Road Link Assessments for Year 2034 Reference and Design Scenarios

5.3.1 To review the potential impact on the road link capacity due to the Proposed MLP with minor relaxation of PR, road link capacity assessments are also conducted to assess the flow/capacity ratio (i.e. V/C ratio) of the key road links in the vicinity of the Application Site in design year 2034. The assessment results are summarized in **Table 5.3**.

Table 5.3 Design Year 2034 V/C ratio of Key Road Links

Road Link ⁽¹⁾	Direction	Link Capacity ⁽⁴⁾ (pcu/hr)	Year 2034 Reference Scenario				Year 2034 Design Scenario			
			Peak Hour Flows ⁽⁵⁾ (pcu/hr)		Flow/Capacity Ratio (V/C Ratio)		Peak Hour Flows ⁽⁶⁾ (pcu/hr)		Flow/Capacity Ratio (V/C Ratio)	
			AM	PM	AM	PM	AM	PM	AM	PM
Link L1 - Kwu Tung Road (North of Kam Hang Road)	Northbound	980	410	305	0.42	0.31	415	305	0.42	0.31
	Southbound	980	480	480	0.49	0.49	485	485	0.49	0.49
Link L2 - Kwu Tung Road (South of Kam Hang Road)	Northbound	980	270	295	0.28	0.30	270	295	0.28	0.30
	Southbound	980	605	365	0.62	0.37	610	370	0.62	0.38
Link L3 - Kam Hang Road ⁽²⁾ (West of Hang Tau Road)	Eastbound	1,140	605	595	0.53	0.52	610	600	0.54	0.53
	Westbound	2,300	870	490	0.38	0.21	880	495	0.38	0.22
Link L4 - Kam Hang Road (East of Hang Tau Road)	Eastbound	715	300	275	0.42	0.38	300	275	0.42	0.38
	Westbound	715	425	235	0.59	0.33	425	235	0.59	0.33
Link L5 - Hang Tau Road (South of Kam Hang Road)	Northbound	740	460	280	0.62	0.38	470	285	0.64	0.39
	Southbound	740	320	345	0.43	0.47	325	350	0.44	0.47
Link L6 - Hang Tau Road (North of Access Road A)	Northbound	740	325	190	0.44	0.26	330	195	0.45	0.26
	Southbound	740	215	240	0.29	0.32	215	245	0.29	0.33
Link L7 - Hang Tau Road ⁽³⁾ (South of Access Road A)	Northbound	980	275	165	0.28	0.17	285	170	0.29	0.17
	Southbound	980	165	210	0.17	0.21	170	215	0.17	0.22

Notes:

- (1) Refer to **Drawing No. 3.1**.
- (2) With junction modification works proposed under the approved Application Nos. Y/NE-KTS/12 and Y/NE-KTS/14 as shown in **Drawing No. 5.1**.
- (3) With proposed road widening scheme at Hang Tau Road as shown in **Drawing No. 2.3**.

- (4) The road link capacities are derived with reference to Table 2.4.1.1 in TPDM Volume 2 Chapter 2 by applying an observed average pcu factor of 1.15 and taking into account the narrowest widths of the road sections.
- (5) Refer to the year 2034 reference traffic flows in **Drawing No. 4.3**.
- (6) Refer to the year 2034 design traffic flows in **Drawing No. 4.4**.

5.3.2 The assessment results in **Table 5.3** show that the Proposed MLP with minor relaxation of PR will have inapparent effect on the road link capacities, and all assessed road links will operate with adequate capacities during peak hours in both Reference and Design Scenario of year 2034.

5.4 Review on Public Transport

5.4.1 Apart from the junction operational performance and road link capacity, the future public transport demand with the Proposed Development at the Application Site is also reviewed.

5.4.2 To review the future public transport demand at the Hang Tau Tai Po area, the potential public transport demands induced by the Application Site as well as the adjacent planned/potential future developments in the area are estimated as shown in **Table 5.4**.

Table 5.4 Derivation of Future Public Transport Demand of the Proposed Development

Parameters	Formula	Adjacent Planned/Potential Future Developments in Hang Tau Tai Po Area ⁽¹⁾⁽²⁾ (Application Nos. Y/NE-KTS/13, A/NE-KTS/525, A/NE-KTS/460 and Y/NE-KTS/466)	Application Site in Design Scenario with Proposed MLP ⁽³⁾
Residential Units	-	18 + 42 + 2 + 19 = 81	334
Estimated Population ⁽⁴⁾	(a)	227	936
Average daily mechanised trips per person ⁽⁵⁾	(b)	1.83	
Peak hour factor (AM/PM) to daily total ⁽⁶⁾	(c)	12%	
Estimated mechanised trips per hour (AM/PM Peak) per person	(d) = (b) x (c) x 0.9 ⁽⁷⁾	0.1976	
Estimated mechanised trips per hour (AM/PM Peak)	(e) = (a) x (d)	45	185
Mode share of public transport (excluding private cars and taxi) ⁽⁸⁾	(f)	70%	
Estimated public transport demand per hour (AM/PM peak)	(g) = (e) x (f)	32	130
	Total	162	

- Notes:
- (1) Details refer to Sites A, B, C and D as listed in **Table 4.4**.
- (2) Site locations refer to **Drawing Nos. 4.1 and 4.2**.
- (3) Details refer to **Table 2.1**
- (4) The average domestic household size of 2.8 adopted.
- (5) The average daily mechanised trips per person as derived by the information from Travel Characteristics Survey 2011 as available on TD's website.
- (6) The peak hour factor as derived by the information from Travel Characteristics Survey 2011 as available on TD's website.

- (7) It is assumed that 90% of mechanised trips are the outbound trips during the AM Peak or the inbound trips during the PM Peak.
- (8) Since the Application Site is located at a considerable distance from the railway station, and there is no franchised bus service available in the Hang Tau Tai Po area, it is anticipated that the GMB service will be the only available mode of public transport. Therefore, the mode share of 70% for public transport for the area is adopted with reference to the distributions of boardings by rail 30%, by franchised bus 27% and by public light bus 13% for all purposes as detailed in Table 3.6 of the Travel Characteristics Survey 2011.

- 5.4.3 As shown in **Table 5.4**, it is estimated that the total public transport demand induced by the Application Site as well as the adjacent planned/potential future developments in Hang Tau Tai Po area would be about 162 passengers during the peak hour.
- 5.4.4 Given that there is only one GMB route (no. 50K) currently serving the area, and the existing passenger outbound demand at the terminus of the route in Hang Tau Village has already occupied over 90% capacity of the current service, an off-street GMB layby together with a vehicle turnaround facility have been proposed at the Proposed Development to allow future enhancement of GMB services as discussed in **Section 2.5**.
- 5.4.5 Subject to the detailed review in later design stage, the proposed route would serve as a special short working route of GMB No. 50K travelling between the subject Development and Sheung Shui Station with the existing intermediate stops.
- 5.4.6 With the assumption of a new short working GMB route of 50K to be operated at 3 mins headway which is similar to its existing scheduled headway, an additional capacity of up to about 380 passengers per hour (i.e. $[60\text{mins}/3\text{mins headway}] \times 19$ passengers per GMB) can be provided. Since the future additional demand of 162 passengers per hour will only take approximately 43% of the capacity, it is considered the proposal would be well sufficient to cater for the future demand in the Hang Tau Tai Po area.
- 5.4.7 Since the alighting passengers will leave the GMB layby immediately, the queuing area will be reviewed with the boarding passengers only, and the assessment is summarized in **Table 5.5**.

Table 5.5 Estimated Passenger Queue Length at the Proposed GMB Layby

Peak Estimated Passenger Demand		Headway of GMB Services (min)	Estimated Passenger Queue	
Persons / hour	Persons / minute		In person	In length ⁽¹⁾
162	3	3	9	5.4m

Note: (1) Assumed each passenger will occupy a length of 0.6m

- 5.4.8 As presented in **Table 5.5**, the estimated passenger queue will be about 5.4m in length. Since the proposed footpath adjacent to the proposed 26m GMB layby is about 36m in length and 3m in width as shown in **Drawing No. 5.2**, it is sufficient to serve the passenger queue and to provide a passenger shelter as per TPDM's requirement.

5.5 Review on Construction Traffic Impact

- 5.5.1 Taking into account of the site area of the Application Site as well as the development scale, it is preliminarily estimated by the project team that the peak hourly construction traffic demand related to the Application Site would be 5 vehicles/hour for both ingress and egress directions, i.e. about 10 pcu/hour for both directions.
- 5.5.2 As compared the construction traffic with the estimated future traffic generation and attraction of the Proposed Development in the previous scheme in the approved S12A (Reference Scenario) and the Proposed MLP (Design Scenario), **Table 5.6** shows that the construction traffic would not be more than the future operation traffic in both Reference and

Design Scenarios. Therefore, it will cause no adverse traffic impact to the surrounding road junctions and road links based on the results as revealed in **Sections 5.1 to 5.3**.

Table 5.6 Comparison of Anticipated Construction Traffic and Estimated Traffic in Reference and Design Scenarios

	Estimated Traffic Flows (pcu/hr)			
	AM Peak Hour		PM Peak Hour	
	Generation	Attraction	Generation	Attraction
Reference Scenario	32	20	15	18
2-way Traffic Flows	52		33	
Design Scenario	40	24	18	24
2-way Traffic Flows	64		42	
Construction Traffic of the Application Site	10	10	10	10
2-way Traffic Flows	20		20	

Note: (1) Refer to **Table 4.9**.

- 5.5.3 The details of construction time periods and necessary temporary traffic management scheme would be further reviewed and submitted for the relevant authorities' approval at the detailed design stage prior to the commencement of construction works.

6. LONG TERM TRAFFIC FORECAST FOR NOISE IMPACT ASSESSMENT (NIA)

6.1 Design Year for NIA Study

- 6.1.1 Taking into consideration that the Proposed Development are tentatively scheduled to be completed by year 2031, design year of 2046 (completion year of the Proposed Development + 15 years) have been adopted for NIA study. The year 2046 peak hour traffic forecasts (solely used for NIA study of this project) together with the vehicle composition breakdown are summarized in **Drawing No. 6.1**.

6.2 Methodology of Traffic Forecast for NIA Study

- 6.2.1 To derive the year 2046 long term traffic forecast data for the NIA study, a set of year 2034 design peak hour traffic flows is firstly derived by the observed traffic flows of the road network with adopting the same traffic forecast methodology and the same estimated trip generation of the planned/committed future developments as discussed in **Chapter 4**.
- 6.2.2 For the long-term traffic growth from year 2034 to 2046, reference was made to (i) the population projections from “Hong Kong Population Projections 2022 – 2046” as published by Census and Statistics Department; and (ii) the rounded growth rate of 1% p.a. as derived from ATC in **Table 4.1** of **Section 4.2**.
- 6.2.3 Based on the population projections as presented in **Table 6.1**, it is derived that the annual growth rate of population from year 2034 to 2046 is +0.25% p.a.

Table 6.1 Population Projections from “Hong Kong Population Projections 2022 – 2046”

Projected Population (thousand persons)		Growth Rate (% p.a.)
2034	2046	2034/2046
7,945.1	8190.4	0.25%

- 6.2.4 Since the growth rate of 0.25% p.a. as derived from population projections is much lower than the growth rate of 1% p.a. as from ATC, the latter is adopted for background traffic growth from year 2034 to 2046 for conservative assessment.
- 6.2.5 The 2046 long term traffic forecasted flows are derived by applying a growth rate of 1% p.a. onto the year 2034 design traffic flows upto the design year 2046.

6.3 Vehicle Class

- 6.3.1 The types of vehicles in the traffic forecast were firstly sectorised into 12-class according to surveyed vehicle distribution.
- 6.3.2 For NIA purpose, it is understood that vehicles with an unladen weight of 1,525kg should be categorized as heavy vehicles (HV). Therefore, HV percentage including the category of goods vehicle (GV) (comprise with light goods vehicle (LGV), medium/heavy goods vehicle (MGV/HGV) and container trucks) and the category of public transport (PT) (comprise with public light bus (PLB), non-franchised buses (SPB) and franchised buses (FB)) are adopted in accordance with the traffic noise impact assessment requirement.

7. SUMMARY AND CONCLUSION

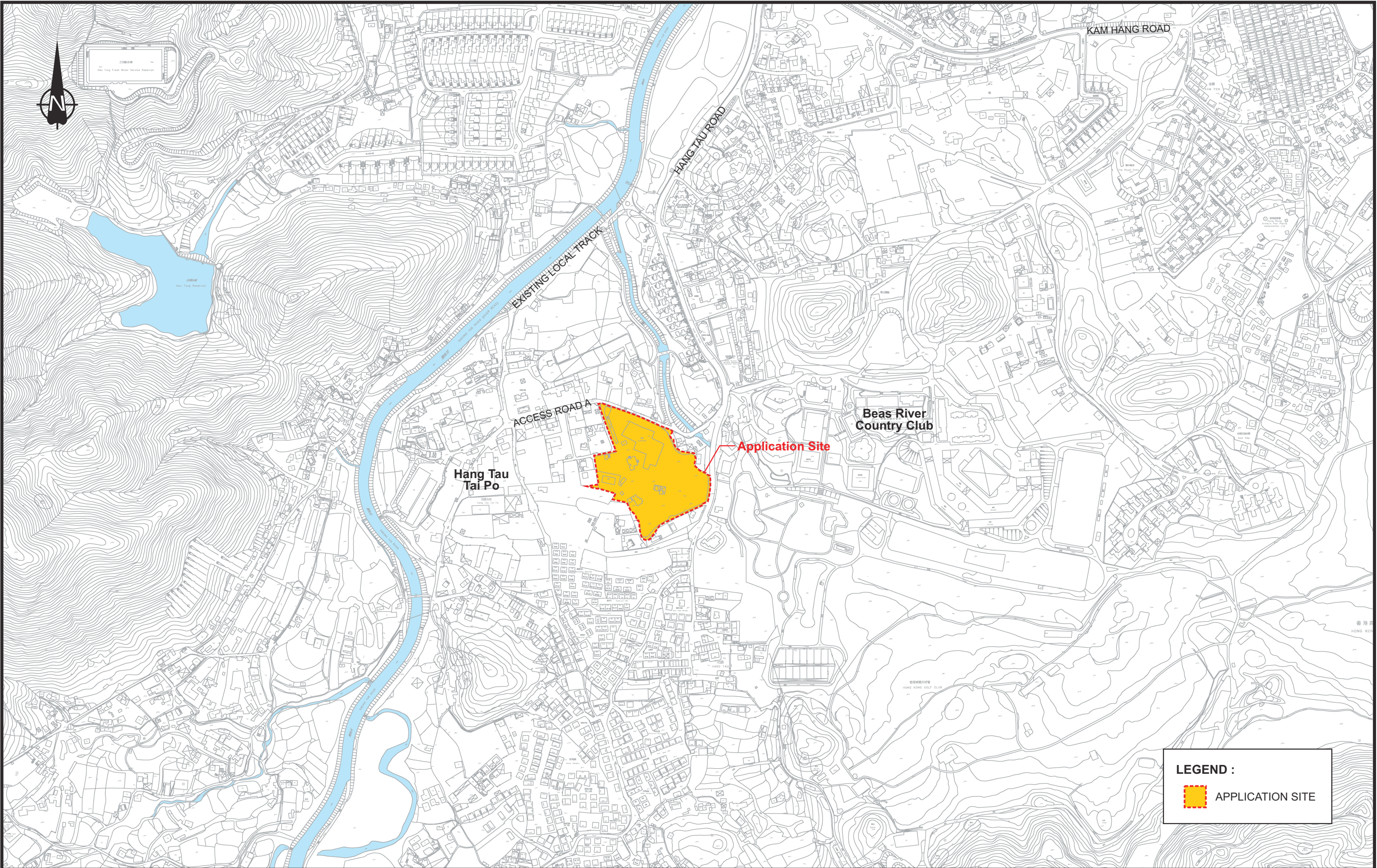
7.1 Summary

- 7.1.1 The Application Site located at Hang Tau Road consists of various lots in D.D. 92 and D.D.94 and the adjoining government land at Hang Tau Tai Po, Kwu Tung South in Sheung Shui, with site area of about 17,990.9m².
- 7.1.2 A S12A application (application no. Y/NE-KTS/13) for dividing a CDA site into two areas and relaxing their plot ratio, building height and site coverage restrictions was approved by TPB in December 2021. Such amendments to the CDA site have been reflected in the prevailing OZP as gazetted on 31 May 2024.
- 7.1.3 Under the previous scheme in the approved S12A application in 2021, Area (a) of the CDA site consists of the Application Site was proposed to be redeveloped for 302 residential flats together with provisions of retail facilities and a RCHE with the PR of 1.41 including domestic PR of 1.23 and non-domestic PR of 0.18. Whilst, Area (b) of the CDA site was proposed in the scheme for a potential residential tower with 18 residential units at the domestic PR of 1.23.
- 7.1.4 To well utilize the development potential, the MLP for Area (a) of the CDA site, i.e. the Application Site, with proposed minor relaxation of PR from 1.41 to 1.692 was developed by the Applicant. To enable the Proposed MLP, a S16 application is required in order to obtain permission from TPB.
- 7.1.5 MVA Hong Kong Limited was commissioned by the Applicant as a traffic consultant to carry out a traffic impact assessment in support of the S16 application for the Proposed MLP with minor relaxation of PR.
- 7.1.6 Taking into consideration of accessibility, the future vehicular access point for the Proposed Development was proposed at Hang Tau Road where is at the same similar location of access for the site as proposed in the previous scheme of the approved S12A application.
- 7.1.7 For further enhancement of the road widening scheme, the intersection of the access to the development and existing Hang Tau Road is converted from a mini-roundabout into a priority T-junction. Besides, further set back of the Proposed Development is proposed for provision of an off-street GMB layby together with a vehicle turnaround facility.
- 7.1.8 To fulfil the set back requirement as remarked in OZP, the future road widening of Hang Tau Road with 7.3m wide carriageway and 3m footpath has also been taken into account in the revised road widening scheme.
- 7.1.9 For the sake of enhancing pedestrian accessibility and improving pedestrian safety, a scheme of provision of a proper pedestrian crossing at Hang Tau Road was proposed.
- 7.1.10 The provisions of internal transport facilities for the Proposed Development under the development schedule of the Proposed MLP were reviewed and proposed with reference to HKPSG and by following the SWD's ancillary requirements for RCHE as adopted in the approved S12A application.
- 7.1.11 To review the existing traffic condition, traffic count surveys have been carried out at the identified key access junctions on a typical weekday in May 2024. Based on the observed traffic flows, the junction operational assessment results revealed that all identified junctions are currently operating with reserve capacities.

- 7.1.12 Taking into consideration the Proposed Development at the Application Site was targeted to be completed by 2031, year 2034 was adopted as the design year for assessment in this study.
- 7.1.13 Traffic forecasts for Design Scenario, i.e. the future scenario with the Proposed MLP and minor relaxation of PR for the Application Site in the design year 2034, are formulated by taking into consideration (i) the background traffic growth as derived from AADT; (ii) the future traffic induced by the planned/potential developments in the vicinity of the Application Site and the other planned/potential future developments in North District; (iii) the potential increases in GMB traffic due to the proposed provision of GMB layby at Proposed Development; and (iv) the net increase of traffic generation and attraction due to the Proposed MLP with minor relaxation of PR for the Application Site.
- 7.1.14 Operational performance of the identified junctions and key road links are assessed with the derived future traffic flows in the design year 2034. The results of junction operational assessment indicated that all assessed junctions will be operated with adequate capacities in the Design Scenario of year 2034 by taking into account the Kam Hang Road improvement scheme as proposed in the approved rezoning application Nos. Y/NE-KTS/12 and Y/NE-KTS/14. The results of road link capacity assessment also showed that all assessed key road links in the vicinity will be still operated with adequate capacities in the Design Scenarios of year 2034.

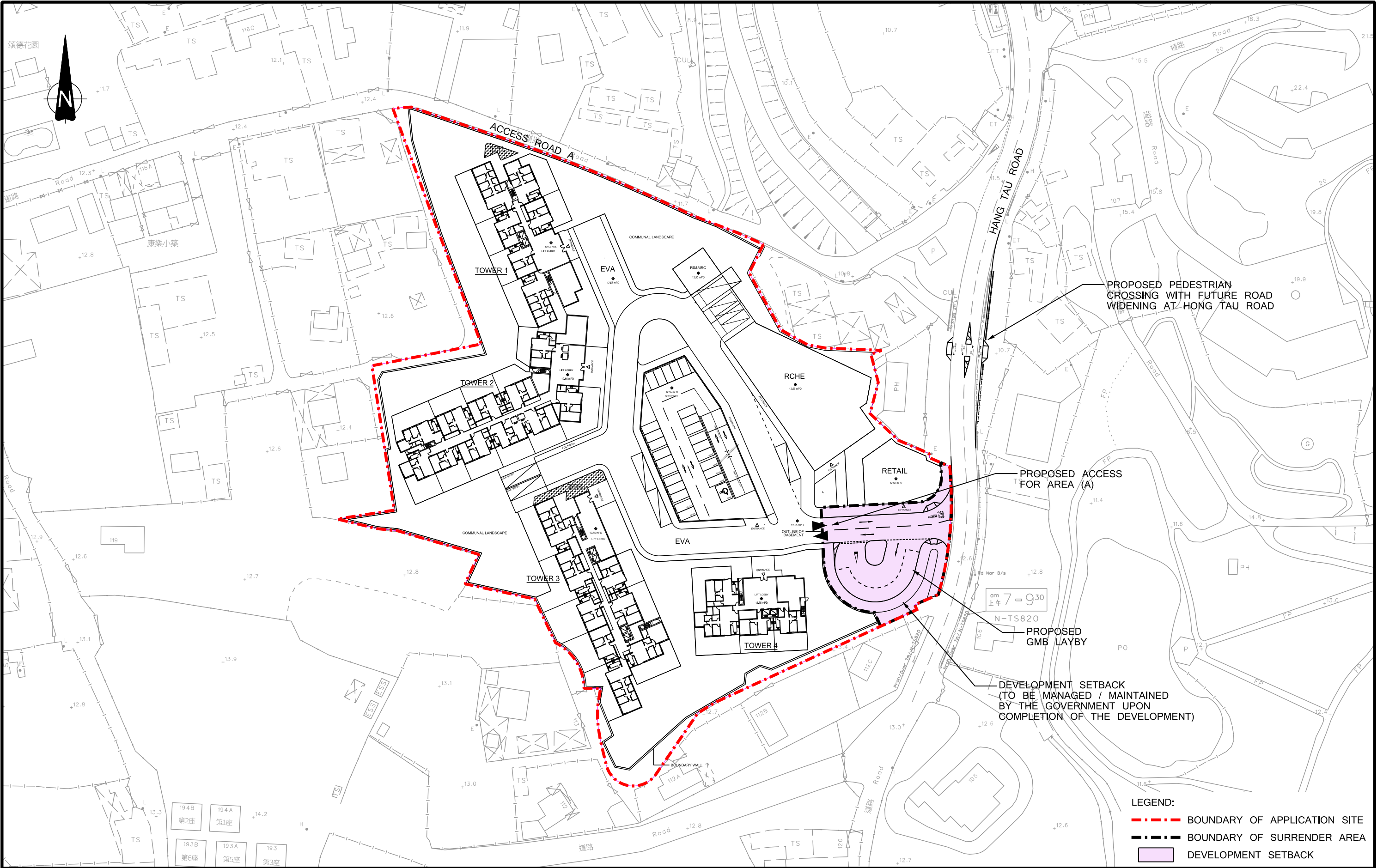
7.2 Conclusion

- 7.2.1 The traffic impact assessment has demonstrated that the future traffic induced by developments in the application site under the Proposed MLP with the proposed minor relaxation of PR as well as the planned future developments in the vicinity can all be absorbed by the surrounding road network with the road improvement scheme which was already proposed by others.
- 7.2.2 The arrangements of vehicular access, as well as provisions of internal transport facilities and public transport facility are justified for the Proposed Development, while the revised road widening scheme by further set back of the Proposed Development as enabled by the Proposed MLP are also considered beneficial to the general public.
- 7.2.3 In conclusion, the subject S16 application for the Proposed MLP with the proposed minor relaxation of PR is supported from a traffic engineering viewpoint.



-	-	-	Project Title SECTION 16 PLANNING APPLICATION FOR PROPOSED MINOR RELAXATION OF PLOT RATIO AND BUILDING HEIGHT RESTRICTION FOR COMPREHENSIVE DEVELOPMENT IN HANG TAU TAI PO, KWU TUNG SOUTH	Drawing Title SITE LOCATION						SYSTRA MVA					
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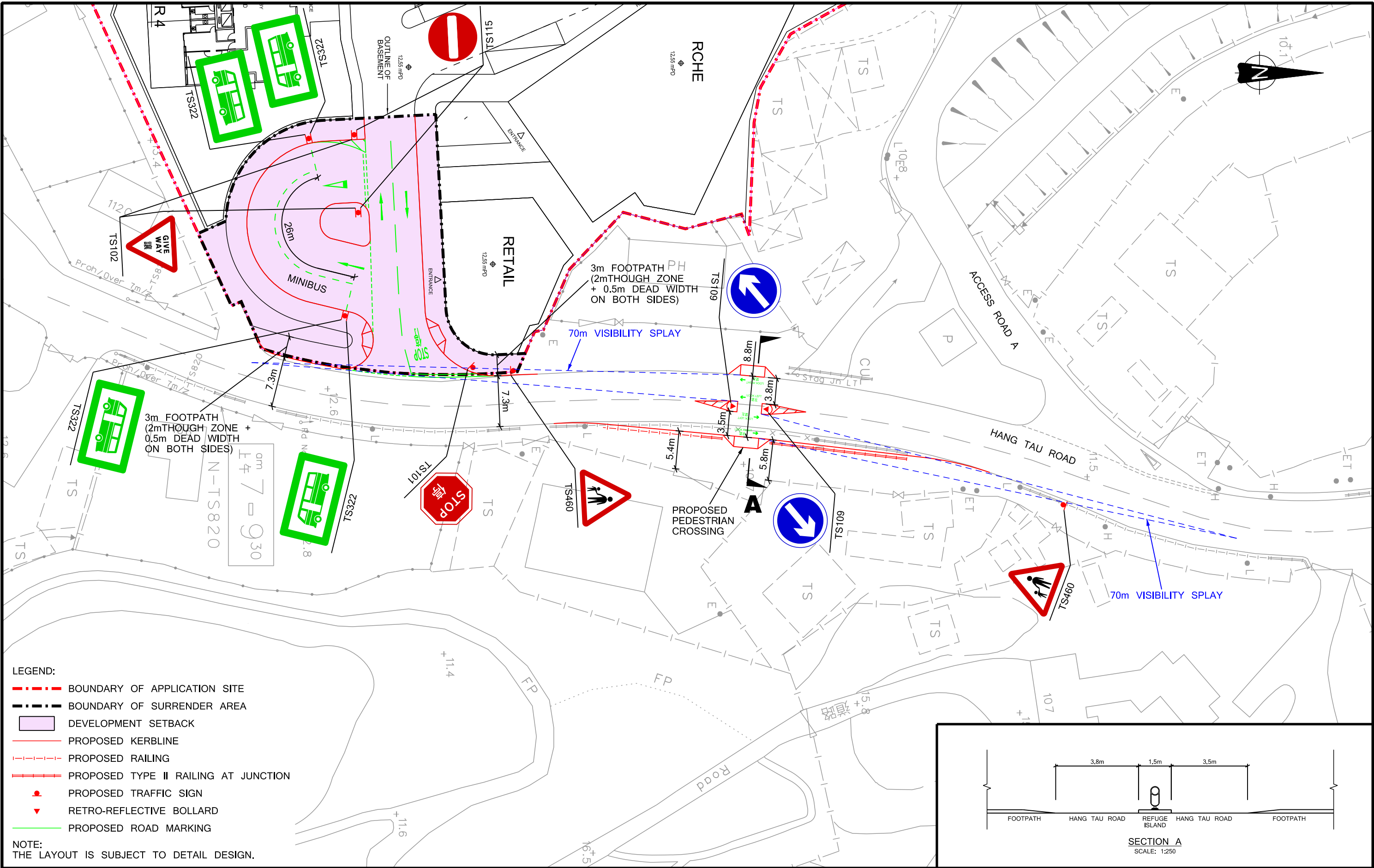
Project Title

SECTION 16 PLANNING APPLICATION FOR PROPOSED
MINOR RELAXATION OF PLOT RATIO AND BUILDING HEIGHT
RESTRICTION FOR COMPREHENSIVE DEVELOPMENT
IN HANG TAU TAI PO, KWU TUNG SOUTH

Drawing Title					
PROPOSED MASTER LAYOUT PLAN AND ACCESS ARRANGEMENT					
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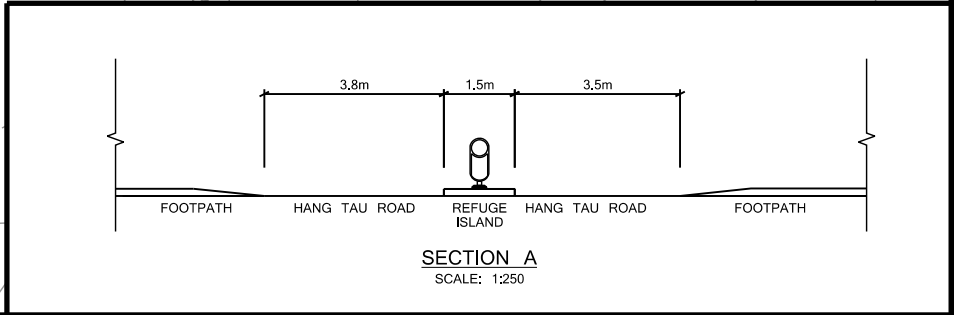


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DATE: 24-Jun-26
TIME: 4:21:14 PM



- LEGEND:
- BOUNDARY OF APPLICATION SITE
 - BOUNDARY OF SURRENDER AREA
 - DEVELOPMENT SETBACK
 - PROPOSED KERBLINE
 - PROPOSED RAILING
 - PROPOSED TYPE II RAILING AT JUNCTION
 - PROPOSED TRAFFIC SIGN
 - RETRO-REFLECTIVE BOLLARD
 - PROPOSED ROAD MARKING

NOTE:
THE LAYOUT IS SUBJECT TO DETAIL DESIGN.



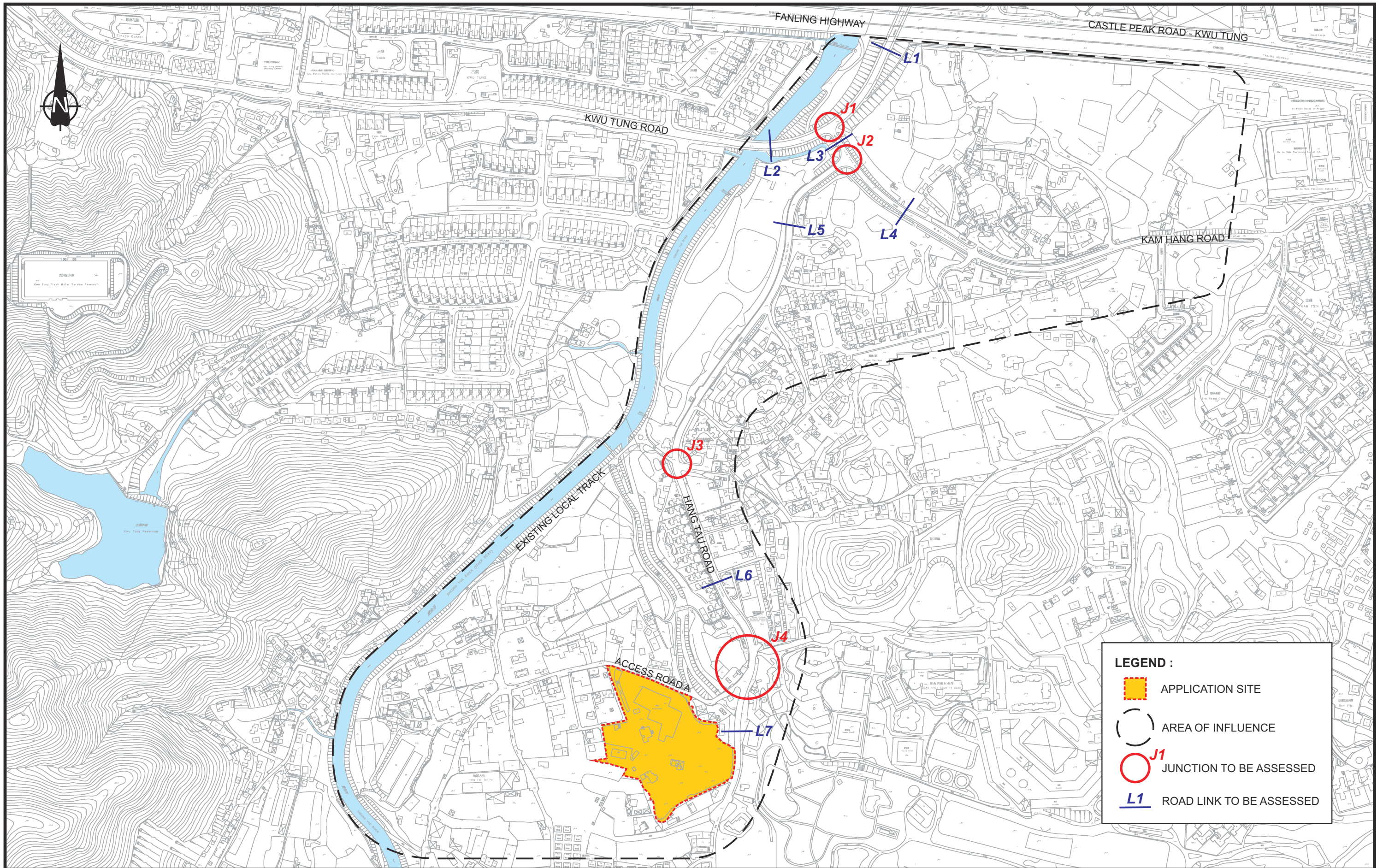
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Rev.	Description	Checked	Date

Project Title

SECTION 16 PLANNING APPLICATION FOR PROPOSED
MINOR RELAXATION OF PLOT RATIO AND BUILDING HEIGHT
RESTRICTION FOR COMPREHENSIVE DEVELOPMENT
IN HANG TAU TAI PO, KWU TUNG SOUTH

Drawing Title					
PROPOSED ROAD WIDENING SCHEME AT HANG TAU ROAD					
Designed	CNM	Checked	CHC	Scale	1:500(A3)
Date	JUN 2026	Drawing No.	2.2	Rev.	-





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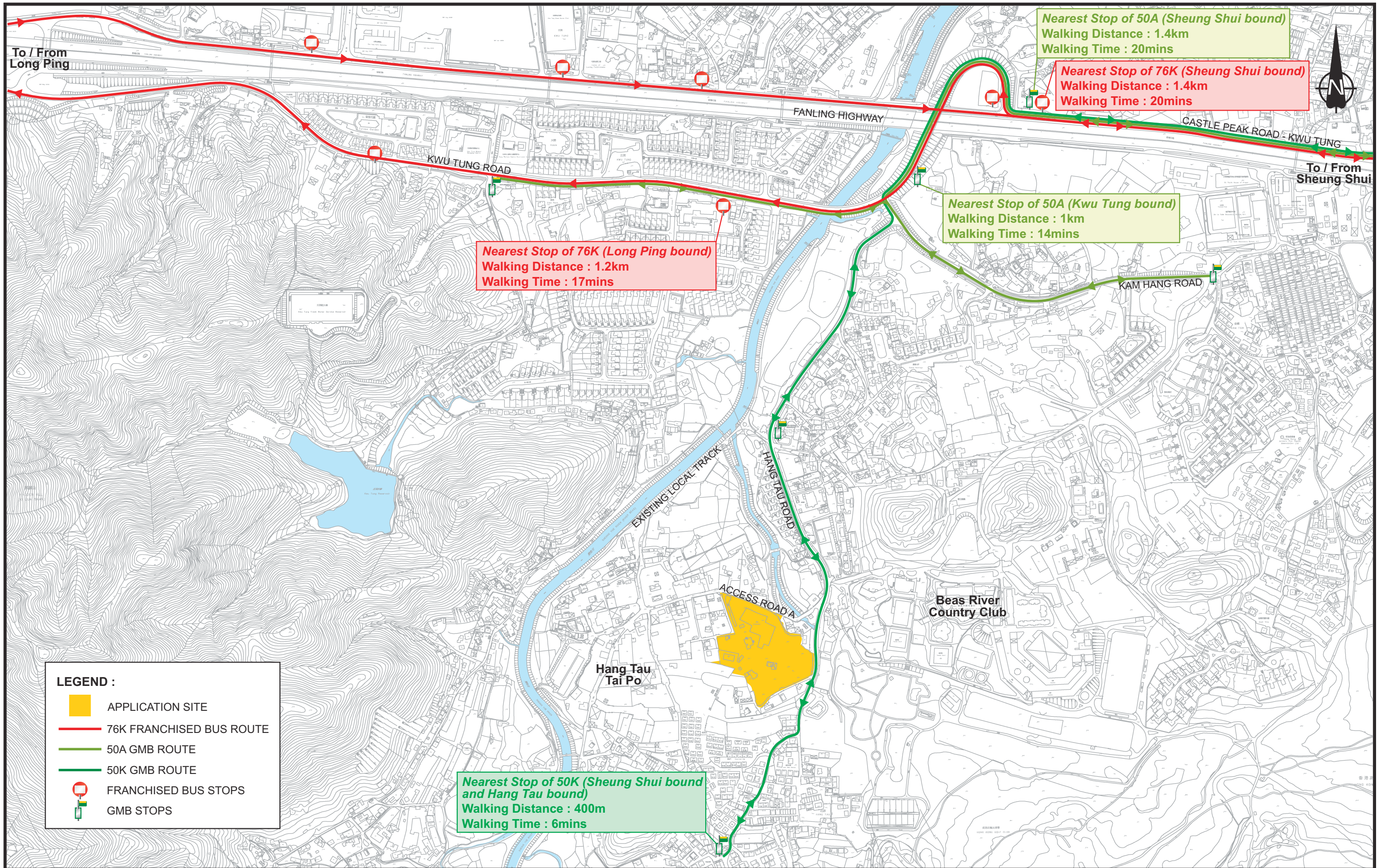
APPLICATION SITE

AREA OF INFLUENCE

JUNCTION TO BE ASSESSED

ROAD LINK TO BE ASSESSED

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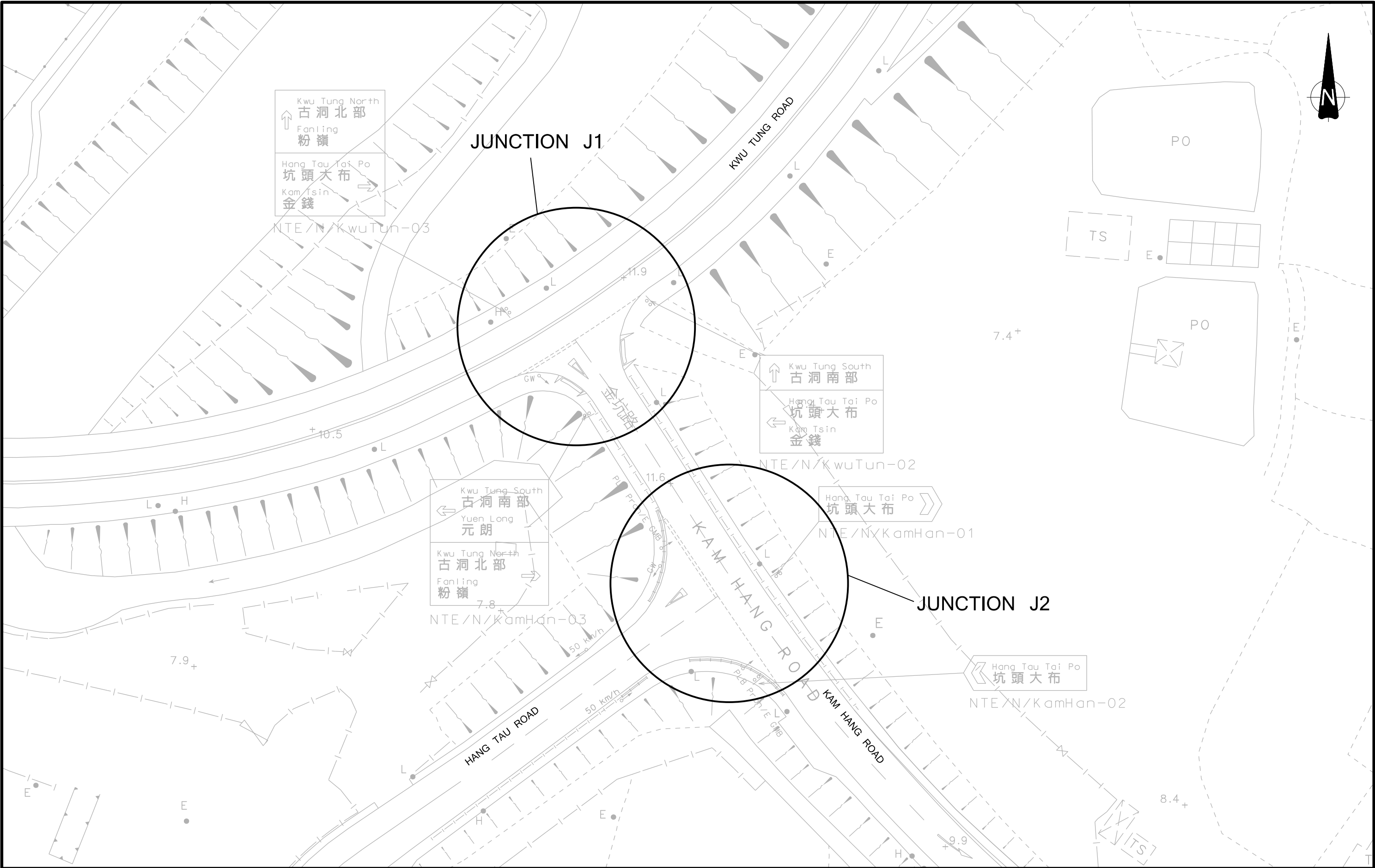
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Rev.	Description	Checked	Date

Project Title
SECTION 16 PLANNING APPLICATION FOR PROPOSED MINOR RELAXATION OF PLOT RATIO AND BUILDING HEIGHT RESTRICTION FOR COMPREHENSIVE DEVELOPMENT IN HANG TAU TAI PO, KWU TUNG SOUTH

Drawing Title											
EXISTING PUBLIC TRANSPORT SERVICES											
Designed	CNM	Checked	CHC	Scale	NTS	Date	MAR 2026	Drawing No.	3.2	Rev.	-



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Rev.	Description	Checked	Date

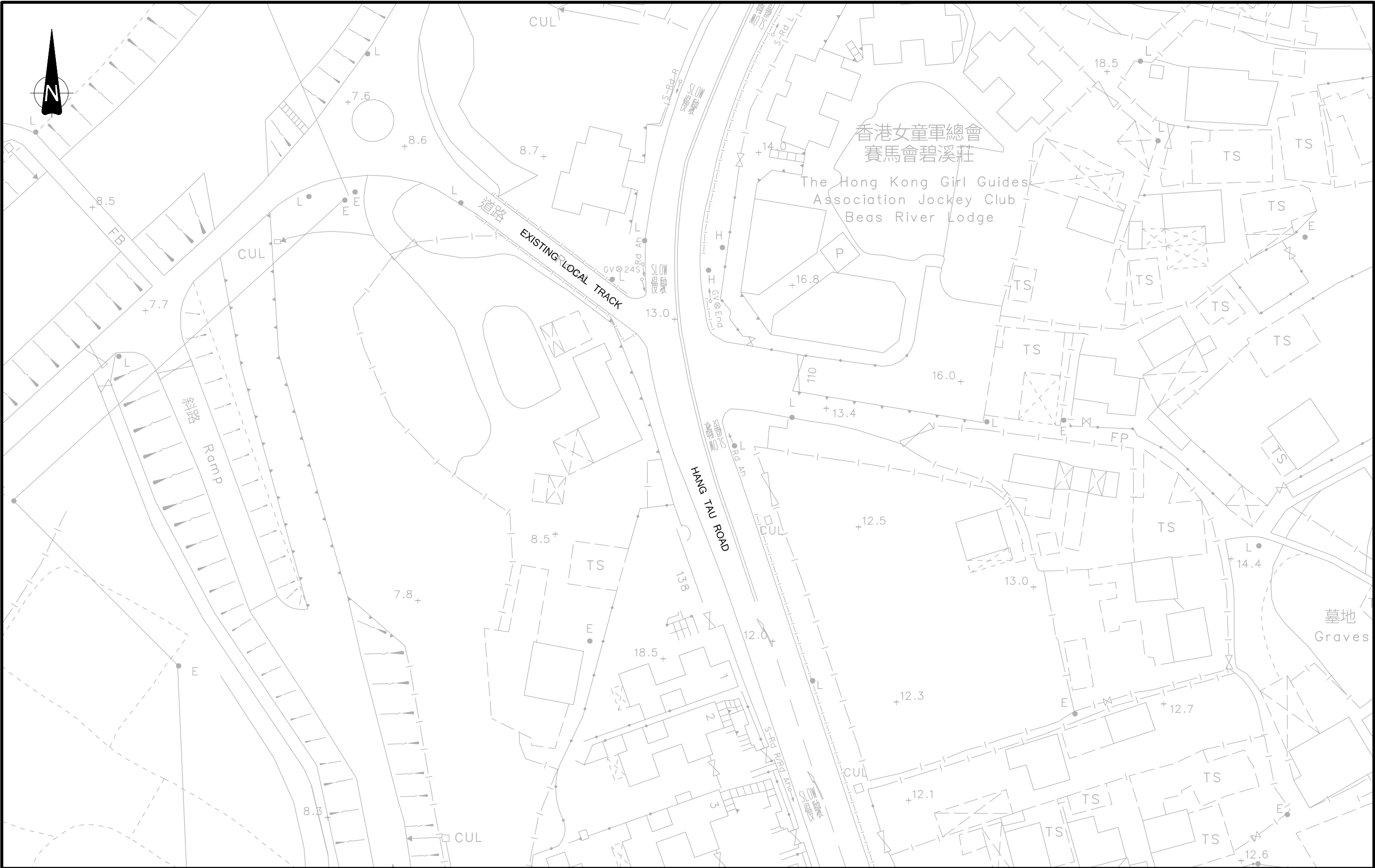
Project Title

SECTION 16 PLANNING APPLICATION FOR PROPOSED
MINOR RELAXATION OF PLOT RATIO AND BUILDING HEIGHT
RESTRICTION FOR COMPREHENSIVE DEVELOPMENT
IN HANG TAU TAI PO, KWU TUNG SOUTH

Drawing Title			
EXISTING JUNCTION LAYOUT OF KWU TUNG ROAD / KAM HANG ROAD (J1) AND KAM HANG ROAD / HANG TAU ROAD (J2)			
Designed	Checked	Scale	Date
CNM	CHC	1:500(A3)	MAR 2026
Drawing No.		Rev.	
3.3		-	



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Rev.	Description	Checked	Date

Project Title

SECTION 16 PLANNING APPLICATION FOR PROPOSED
MINOR RELAXATION OF PLOT RATIO AND BUILDING HEIGHT
RESTRICTION FOR COMPREHENSIVE DEVELOPMENT
IN HANG TAU TAI PO, KWU TUNG SOUTH

Drawing Title			
EXISTING JUNCTION LAYOUT OF HANG TAU ROAD / LOCAL TRACK TO SHEUNG YUE RIVER / ACCESS OF JOCKEY CLUB RIVER BEAS LODGE (J3)			
Designed	CNM	Checked	CHC
Scale	1:500(A3)	Date	MAR 2026
Drawing No.	3.4	Rev.	-



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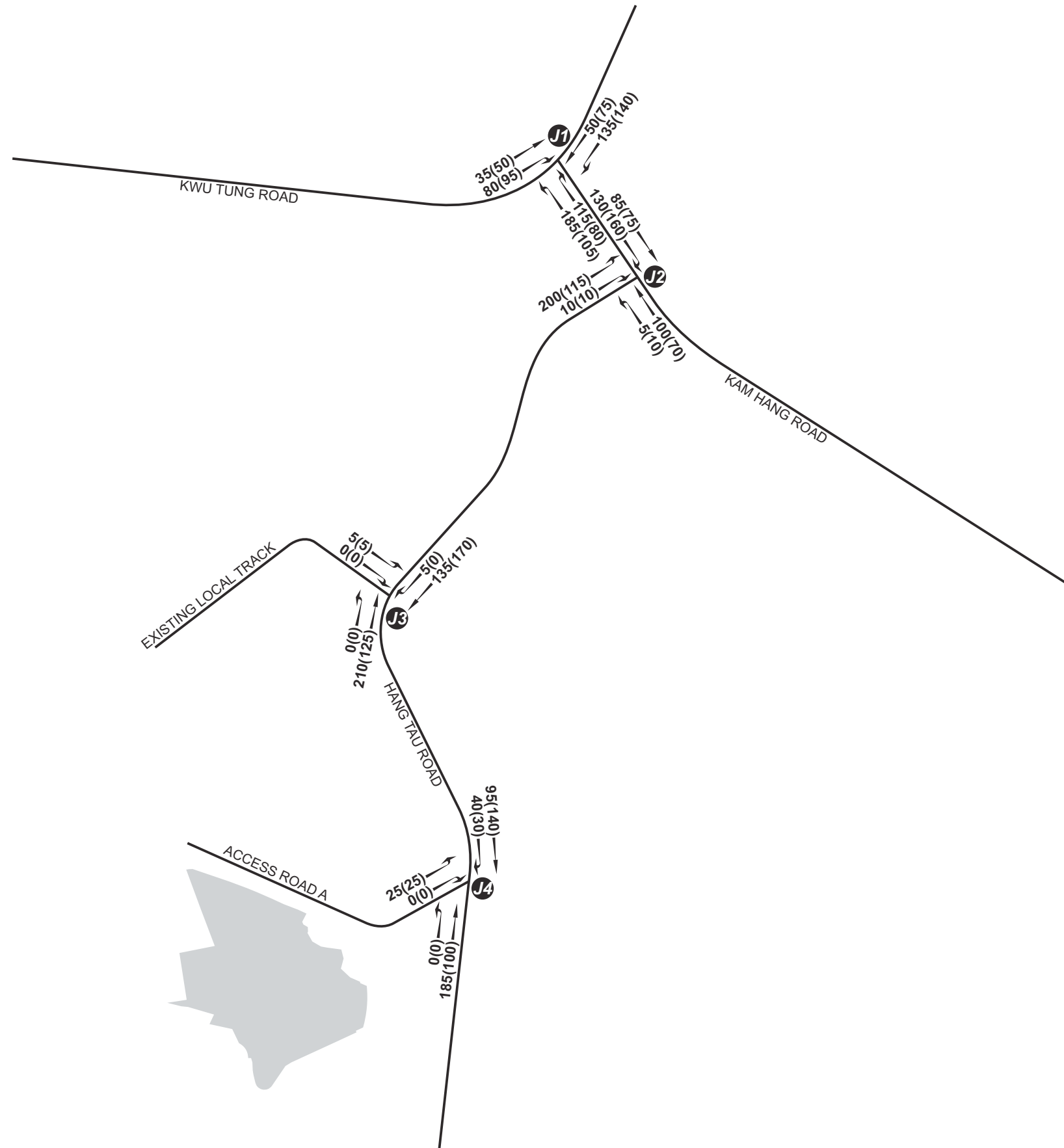
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Rev.	Description	Checked	Date

Project Title

SECTION 16 PLANNING APPLICATION FOR PROPOSED
MINOR RELAXATION OF PLOT RATIO AND BUILDING HEIGHT
RESTRICTION FOR COMPREHENSIVE DEVELOPMENT
IN HANG TAU TAI PO, KWU TUNG SOUTH

Drawing Title			
EXISTING JUNCTION LAYOUT OF HANG TAU ROAD / ACCESS ROAD A (J4)			
Designed CNM	Checked CHC	Scale 1:500(A3)	Date MAR 2026
Drawing No. 3.5		Rev. -	





LEGEND :

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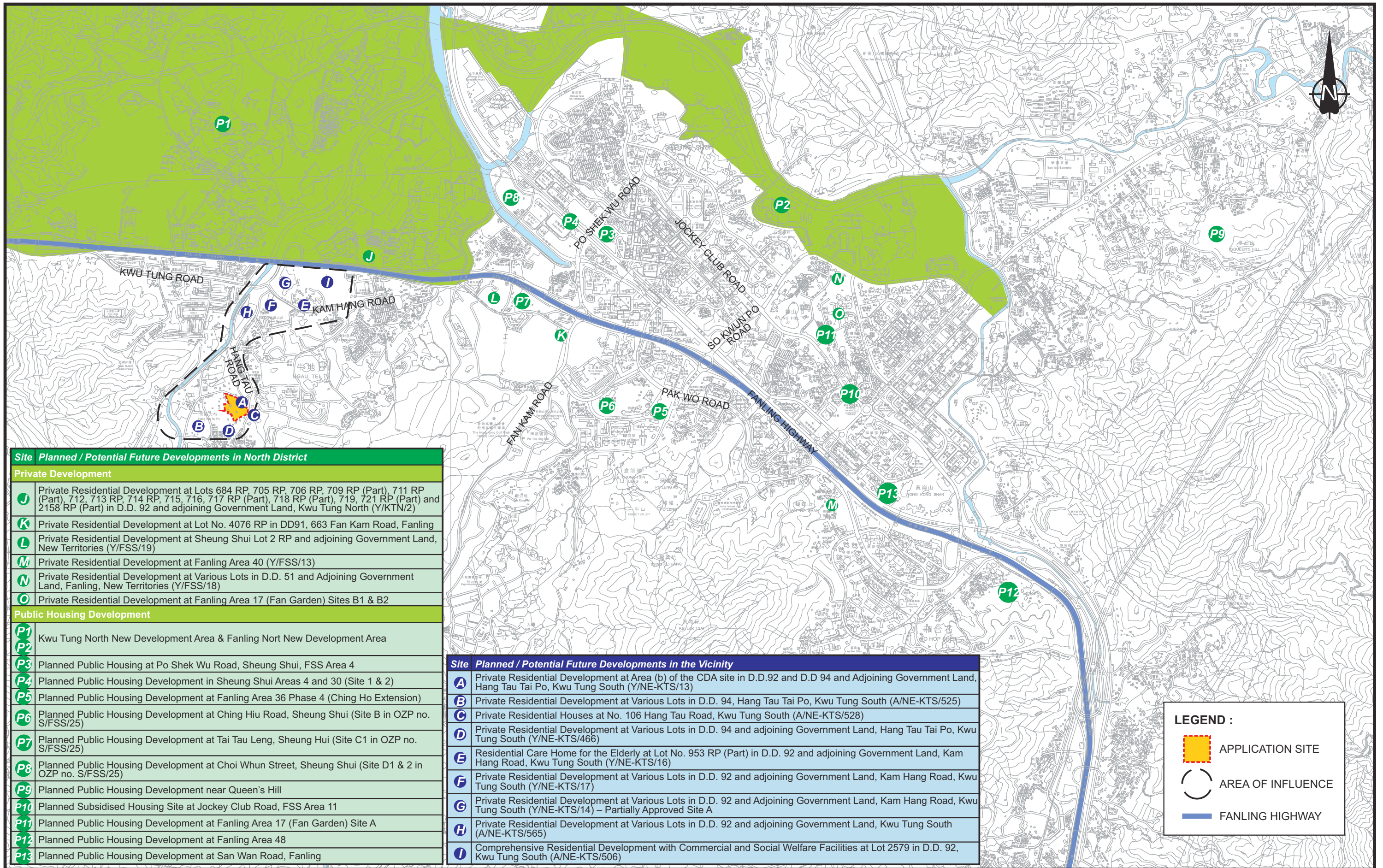
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Rev.	Description	Checked	Date

Project Title

SECTION 16 PLANNING APPLICATION FOR
PROPOSED MINOR RELAXATION OF PLOT RATIO
AND BUILDING HEIGHT RESTRICTION FOR
COMPREHENSIVE DEVELOPMENT IN HANG TAU TAI PO,
KWU TUNG SOUTH

Drawing Title											
YEAR 2024 OBSERVED TRAFFIC FLOWS											
Designed	CNM	Checked	CHC	Scale	NTS	Date	MAR 2026	Drawing No.	3.6	Rev.	-

SYSTRA
MVA



Site Planned / Potential Future Developments in North District	
Private Development	
J	Private Residential Development at Lots 684 RP, 705 RP, 706 RP, 709 RP (Part), 711 RP (Part), 712, 713 RP, 714 RP, 715, 716, 717 RP (Part), 718 RP (Part), 719, 721 RP (Part) and 2158 RP (Part) in D.D. 92 and adjoining Government Land, Kwu Tung North (Y/KTN/2)
K	Private Residential Development at Lot No. 4076 RP in DD91, 663 Fan Kam Road, Fanling
L	Private Residential Development at Sheung Shui Lot 2 RP and adjoining Government Land, New Territories (Y/FSS/19)
M	Private Residential Development at Fanling Area 40 (Y/FSS/13)
N	Private Residential Development at Various Lots in D.D. 51 and Adjoining Government Land, Fanling, New Territories (Y/FSS/18)
O	Private Residential Development at Fanling Area 17 (Fan Garden) Sites B1 & B2
Public Housing Development	
P1 P2	Kwu Tung North New Development Area & Fanling Nort New Development Area
P3	Planned Public Housing at Po Shek Wu Road, Sheung Shui, FSS Area 4
P4	Planned Public Housing Development in Sheung Shui Areas 4 and 30 (Site 1 & 2)
P5	Planned Public Housing Development at Fanling Area 36 Phase 4 (Ching Ho Extension)
P6	Planned Public Housing Development at Ching Hiu Road, Sheung Shui (Site B in OZP no. S/FSS/25)
P7	Planned Public Housing Development at Tai Tau Leng, Sheung Hui (Site C1 in OZP no. S/FSS/25)
P8	Planned Public Housing Development at Choi Whun Street, Sheung Shui (Site D1 & 2 in OZP no. S/FSS/25)
P9	Planned Public Housing Development near Queen's Hill
P10	Planned Subsidised Housing Site at Jockey Club Road, FSS Area 11
P11	Planned Public Housing Development at Fanling Area 17 (Fan Garden) Site A
P12	Planned Public Housing Development at Fanling Area 48
P13	Planned Public Housing Development at San Wan Road, Fanling

Site Planned / Potential Future Developments in the Vicinity	
A	Private Residential Development at Area (b) of the CDA site in D.D.92 and D.D 94 and Adjoining Government Land, Hang Tau Tai Po, Kwu Tung South (Y/NE-KTS/13)
B	Private Residential Development at Various Lots in D.D. 94, Hang Tau Tai Po, Kwu Tung South (A/NE-KTS/525)
C	Private Residential Houses at No. 106 Hang Tau Road, Kwu Tung South (A/NE-KTS/528)
D	Private Residential Development at Various Lots in D.D. 94 and adjoining Government Land, Hang Tau Tai Po, Kwu Tung South (Y/NE-KTS/466)
E	Residential Care Home for the Elderly at Lot No. 953 RP (Part) in D.D. 92 and adjoining Government Land, Kam Hang Road, Kwu Tung South (Y/NE-KTS/16)
F	Private Residential Development at Various Lots in D.D. 92 and adjoining Government Land, Kam Hang Road, Kwu Tung South (Y/NE-KTS/17)
G	Private Residential Development at Various Lots in D.D. 92 and Adjoining Government Land, Kam Hang Road, Kwu Tung South (Y/NE-KTS/14) – Partially Approved Site A
H	Private Residential Development at Various Lots in D.D. 92 and adjoining Government Land, Kwu Tung South (A/NE-KTS/565)
I	Comprehensive Residential Development with Commercial and Social Welfare Facilities at Lot 2579 in D.D. 92, Kwu Tung South (A/NE-KTS/506)

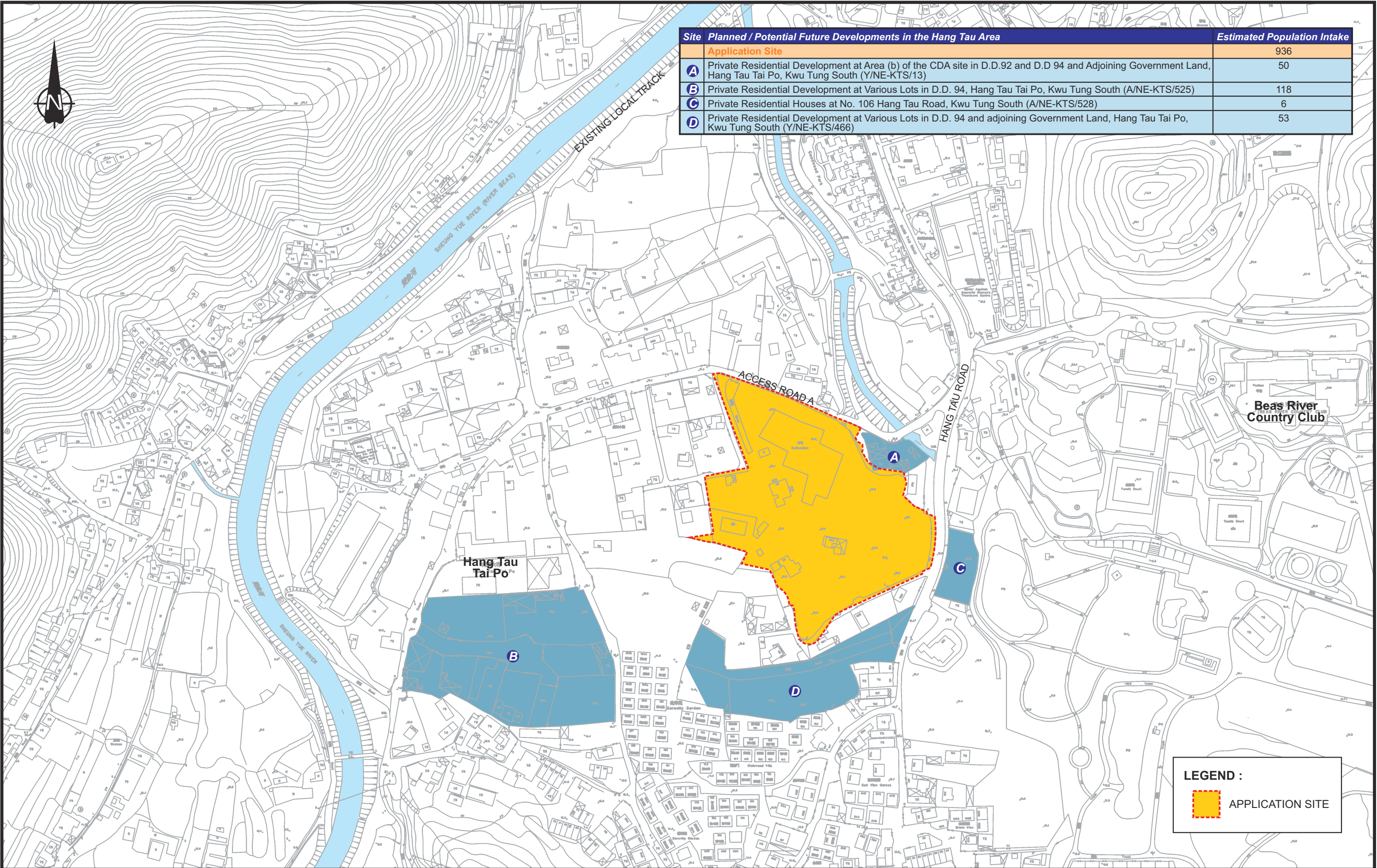
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APPLICATION SITE

AREA OF INFLUENCE

FANLING HIGHWAY

-	-	-	-	Project Title SECTION 16 PLANNING APPLICATION FOR PROPOSED MINOR RELAXATION OF PLOT RATIO AND BUILDING HEIGHT RESTRICTION FOR COMPREHENSIVE DEVELOPMENT IN HANG TAU TAI PO, KWU TUNG SOUTH	Drawing Title PLANNED / POTENTIAL FUTURE KEY DEVELOPMENTS IN THE VICINITY AND NORTH DISTRICT (1 OF 2)							
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Rev.	Description	Checked	Date									
					Designed CNM	Checked CHC	Scale NTS	Date MAR 2026	Drawing No. 4.1	Rev. -		

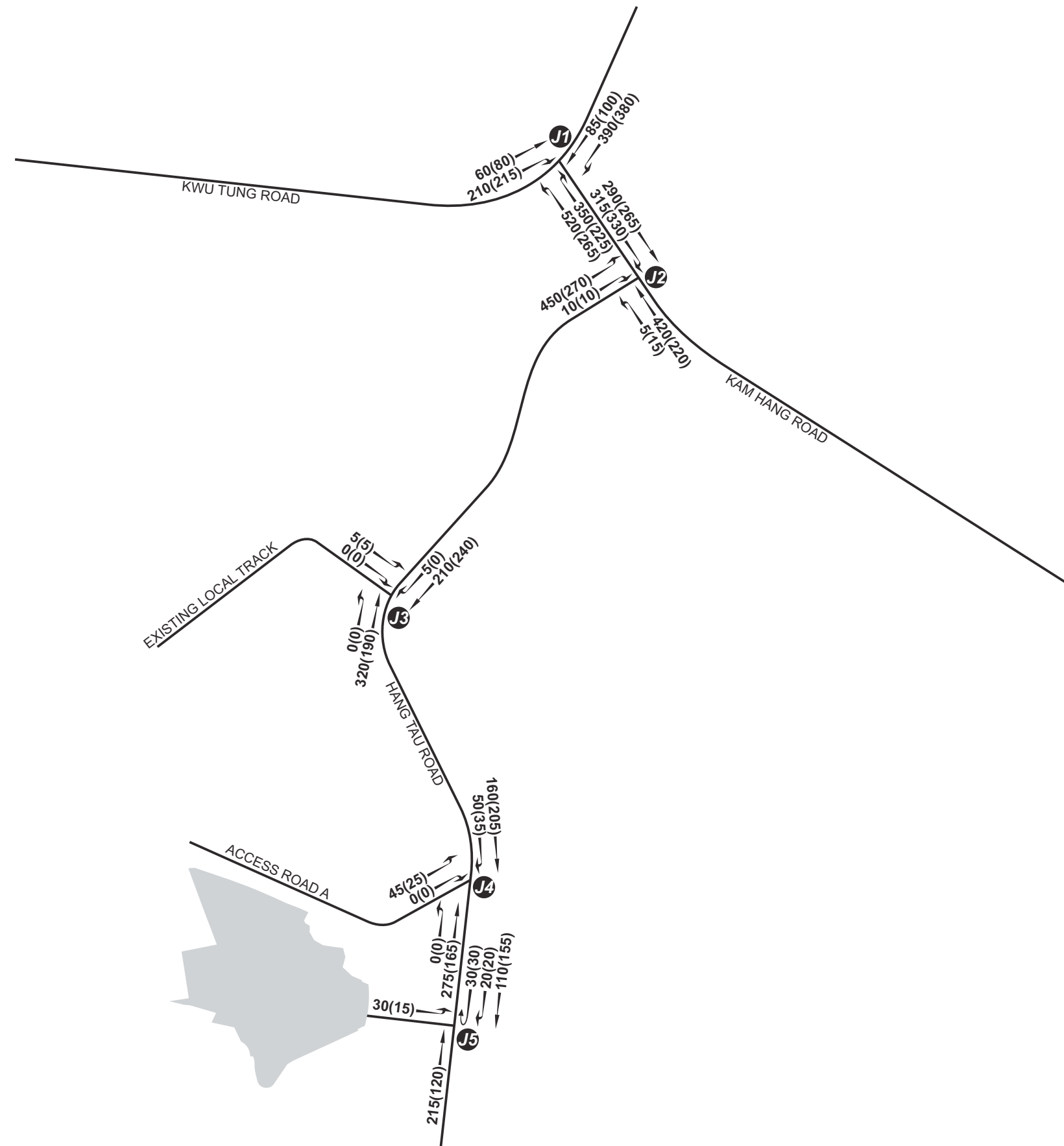


Planned / Potential Future Developments in the Hang Tau Area		Estimated Population Intake
Application Site		936
A	Private Residential Development at Area (b) of the CDA site in D.D.92 and D.D. 94 and Adjoining Government Land, Hang Tau Tai Po, Kwu Tung South (Y/NE-KTS/13)	50
B	Private Residential Development at Various Lots in D.D. 94, Hang Tau Tai Po, Kwu Tung South (A/NE-KTS/525)	118
C	Private Residential Houses at No. 106 Hang Tau Road, Kwu Tung South (A/NE-KTS/528)	6
D	Private Residential Development at Various Lots in D.D. 94 and adjoining Government Land, Hang Tau Tai Po, Kwu Tung South (Y/NE-KTS/466)	53

LEGEND :

APPLICATION SITE

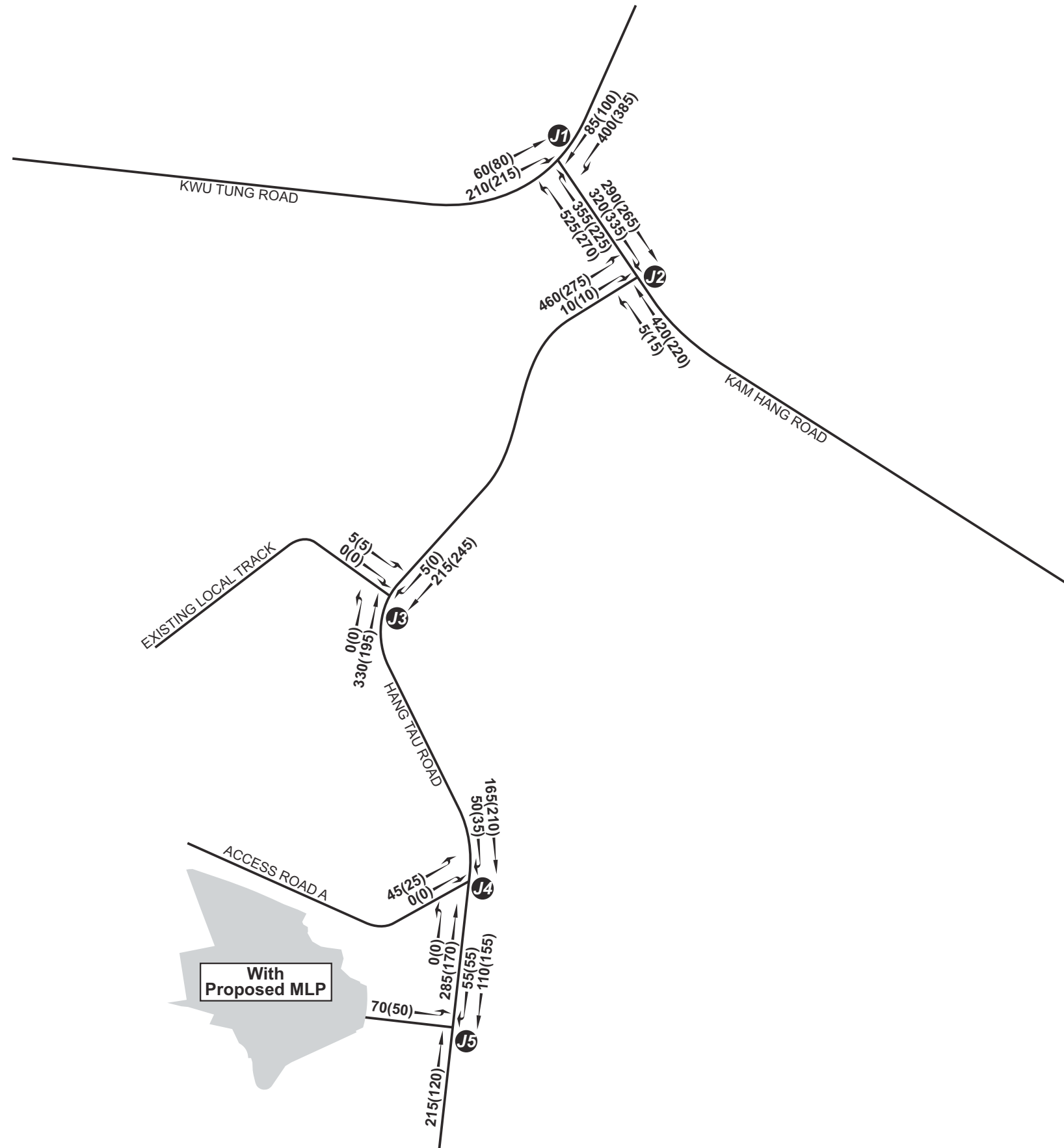
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-	-	-			PLANNED / POTENTIAL FUTURE KEY DEVELOPMENTS IN THE VICINITY AND NORTH DISTRICT (2 OF 2)												
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Rev.	Description	Checked	Date			Designed	CNM	Checked	CHC	Scale	NTS	Date	MAR 2026	Drawing No.	4.2	Rev.	-



LEGEND :

- APPLICATION SITE
- 420(220) AM(PM) PEAK HOURLY TRAFFIC FLOW IN PCU/HR (ROUND TO NEAREST 5)

-	-	-	-	Project Title SECTION 16 PLANNING APPLICATION FOR PROPOSED MINOR RELAXATION OF PLOT RATIO AND BUILDING HEIGHT RESTRICTION FOR COMPREHENSIVE DEVELOPMENT IN HANG TAU TAI PO, KWU TUNG SOUTH	Drawing Title YEAR 2034 REFERENCE TRAFFIC FLOWS											
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Rev.	Description	Checked	Date													
					Designed CNM	Checked CHC	Scale NTS	Date MAR 2026	Drawing No. 4.3	Rev. -						



LEGEND :

- APPLICATION SITE
- 420(220) AM(PM) PEAK HOURLY TRAFFIC FLOW IN PCU/HR (ROUND TO NEAREST 5)

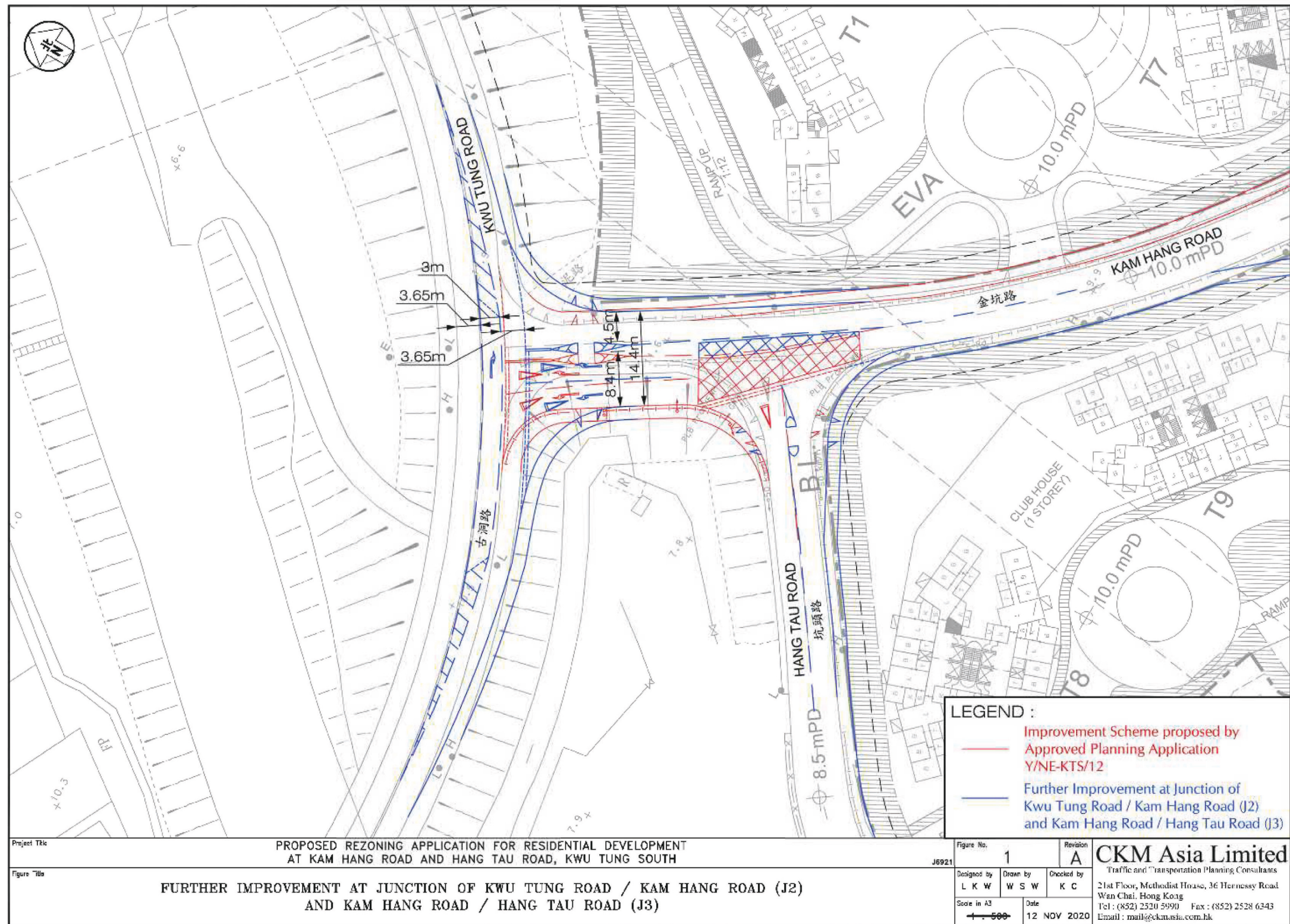
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Rev.	Description	Checked	Date

Project Title

SECTION 16 PLANNING APPLICATION FOR PROPOSED MINOR RELAXATION OF PLOT RATIO AND BUILDING HEIGHT RESTRICTION FOR COMPREHENSIVE DEVELOPMENT IN HANG TAU TAI PO, KWU TUNG SOUTH

Drawing Title											
YEAR 2034 DESIGN TRAFFIC FLOWS											
Designed	CNM	Checked	CHC	Scale	NTS	Date	MAR 2026	Drawing No.	4.4	Rev.	-

SYSTRAMVA



(資料來源:申請人於 16. 11. 2020 呈交的資料)
(Source : Applicant's Submission of 16.11.2020)

參考編號
REFERENCE No.
Y/NE-KTS/14

繪圖 DRAWING
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Rev.	Description	Checked	Date

Project Title
SECTION 16 PLANNING APPLICATION FOR PROPOSED MINOR RELAXATION OF PLOT RATIO AND BUILDING HEIGHT RESTRICTION FOR COMPREHENSIVE DEVELOPMENT IN HANG TAU TAI PO, KWU TUNG SOUTH

Drawing Title
MODIFICATION OF JUNCTION J1 UNDER THE KAM HANG ROAD IMPROVEMENT SCHEME AS PROPOSED IN APPLICATION NO. Y/NE-KTS/12 AND Y/NE-KTS/14

Designed	CNM	Checked	CHC	Scale	NTS	Date	MAR 2026	Drawing No.	5.1	Rev.	-
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SYSTRA
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Year 2046 AM Peak Hour Traffic Flows

Road ID	Road Section	Road Type	Peak Hour 2-way Traffic Flow (Vehicles/hr)			Vehicle Composition		
			LV ⁽¹⁾⁽³⁾	HV ⁽²⁾⁽³⁾	Total	LV ⁽¹⁾	HV ⁽²⁾	Total
1	Hang Tau Road	Local Distributor	360	125	485	74%	26%	100%
2	Hang Tau Road	Local Distributor	305	100	405	75%	25%	100%
3	Hang Tau Road	Local Distributor	250	80	330	75%	25%	100%
4	Access Road A	Local Access Road	60	20	80	78%	22%	100%
5	Access Road to Development	Local Access Road	50	25	75	67%	33%	100%
6	Access Road of GMB Layby ⁽⁴⁾	Local Access Road	0	20	20	0%	100%	100%

Year 2046 PM Peak Hour Traffic Flows

Road ID	Road Section	Road Type	Peak Hour 2-way Traffic Flow (Vehicles/hr)			Vehicle Composition		
			LV ⁽¹⁾⁽³⁾	HV ⁽²⁾⁽³⁾	Total	LV ⁽¹⁾	HV ⁽²⁾	Total
1	Hang Tau Road	Local Distributor	300	105	405	74%	26%	100%
2	Hang Tau Road	Local Distributor	250	90	340	74%	26%	100%
3	Hang Tau Road	Local Distributor	215	65	280	77%	23%	100%
4	Access Road A	Local Access Road	55	15	70	78%	22%	100%
5	Access Road to Development	Local Access Road	30	25	60	58%	42%	100%
6	Access Road of GMB Layby ⁽⁴⁾	Local Access Road	0	20	20	0%	100%	100%

Note:

- (1) LV (Light Vehicle) includes motorcycle, private car and taxi
(2) HV (Heavy Vehicle) includes light/medium/heavy goods vehicle, container truck, non-franchised bus, public light bus and franchised bus
(3) Figures rounded to nearest 5
(4) This road section is one-way traffic

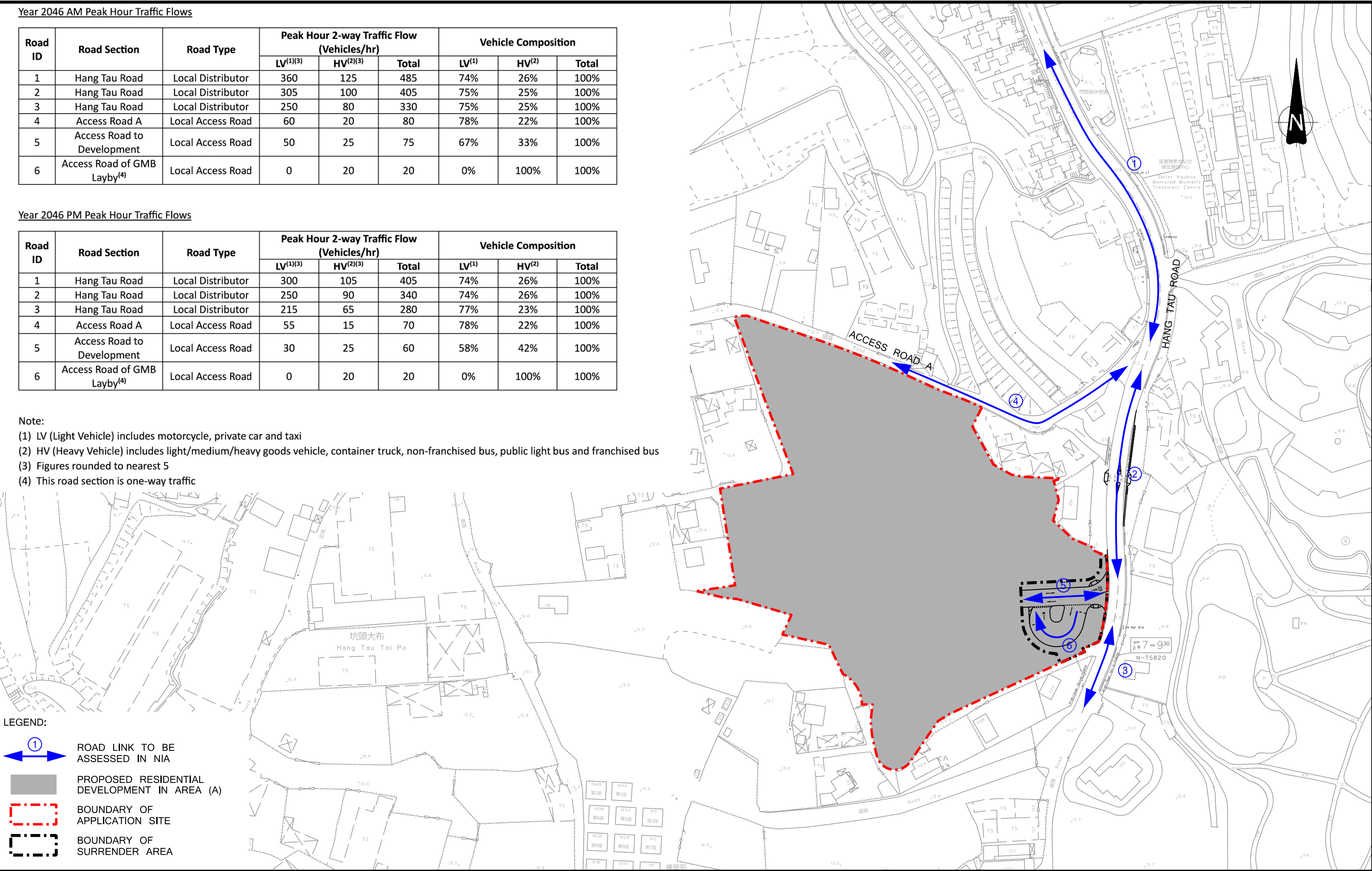
LEGEND:

- ① ROAD LINK TO BE ASSESSED IN NIA
- PROPOSED RESIDENTIAL DEVELOPMENT IN AREA (A)
- BOUNDARY OF APPLICATION SITE
- BOUNDARY OF SURRENDER AREA

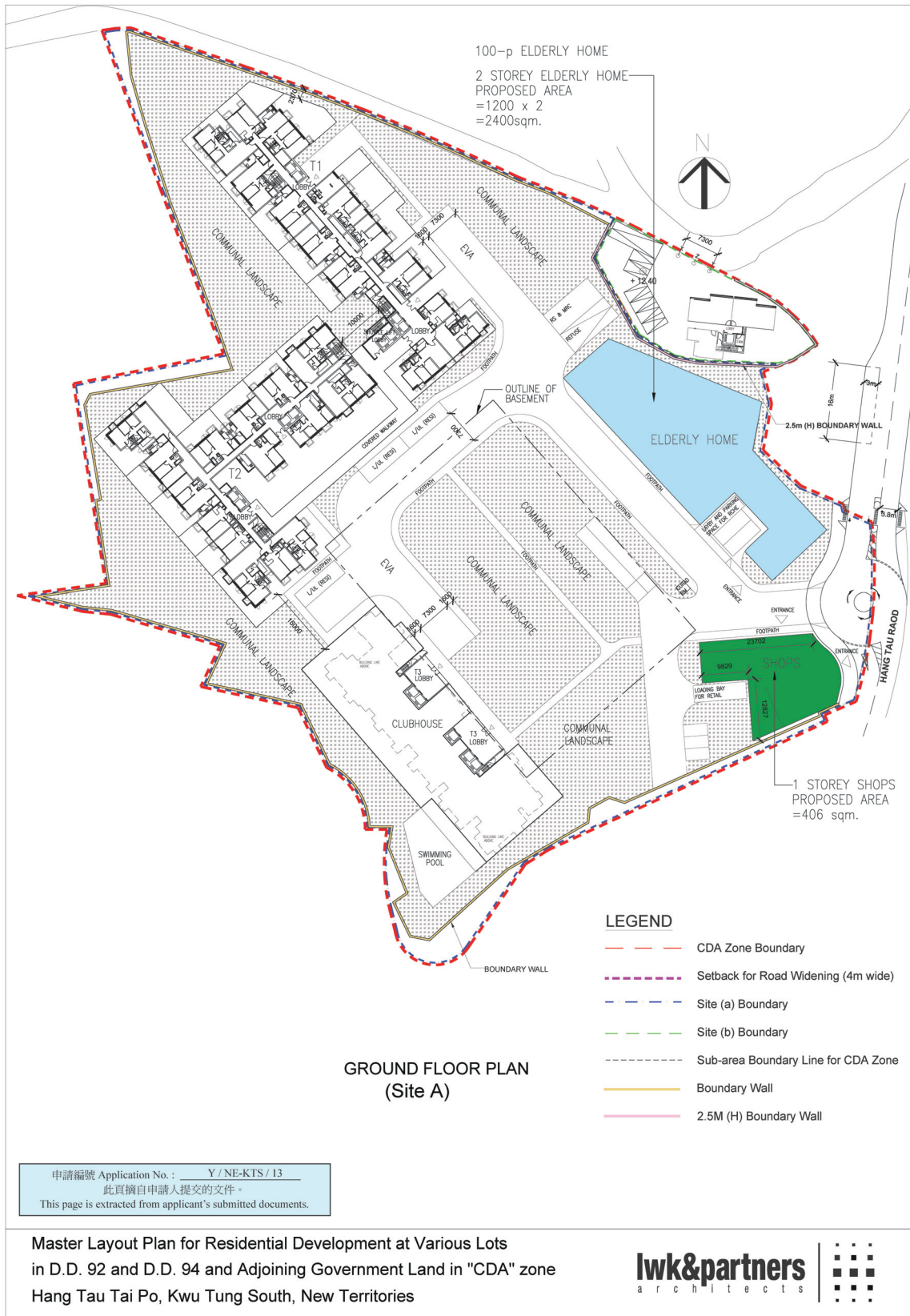
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Rev.	Description	Checked	Date

Project Title
SECTION 16 PLANNING APPLICATION FOR PROPOSED MINOR RELAXATION OF PLOT RATIO AND BUILDING HEIGHT RESTRICTION FOR COMPREHENSIVE DEVELOPMENT IN HANG TAU TAI PO, KWU TUNG SOUTH

Drawing Title				
YEAR 2046 PEAK HOURS TRAFFIC FORECAST AND VEHICLE COMPOSITION				
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				N.T.S.
Date	MAR 2026	Drawing No.	6.1	Rev.
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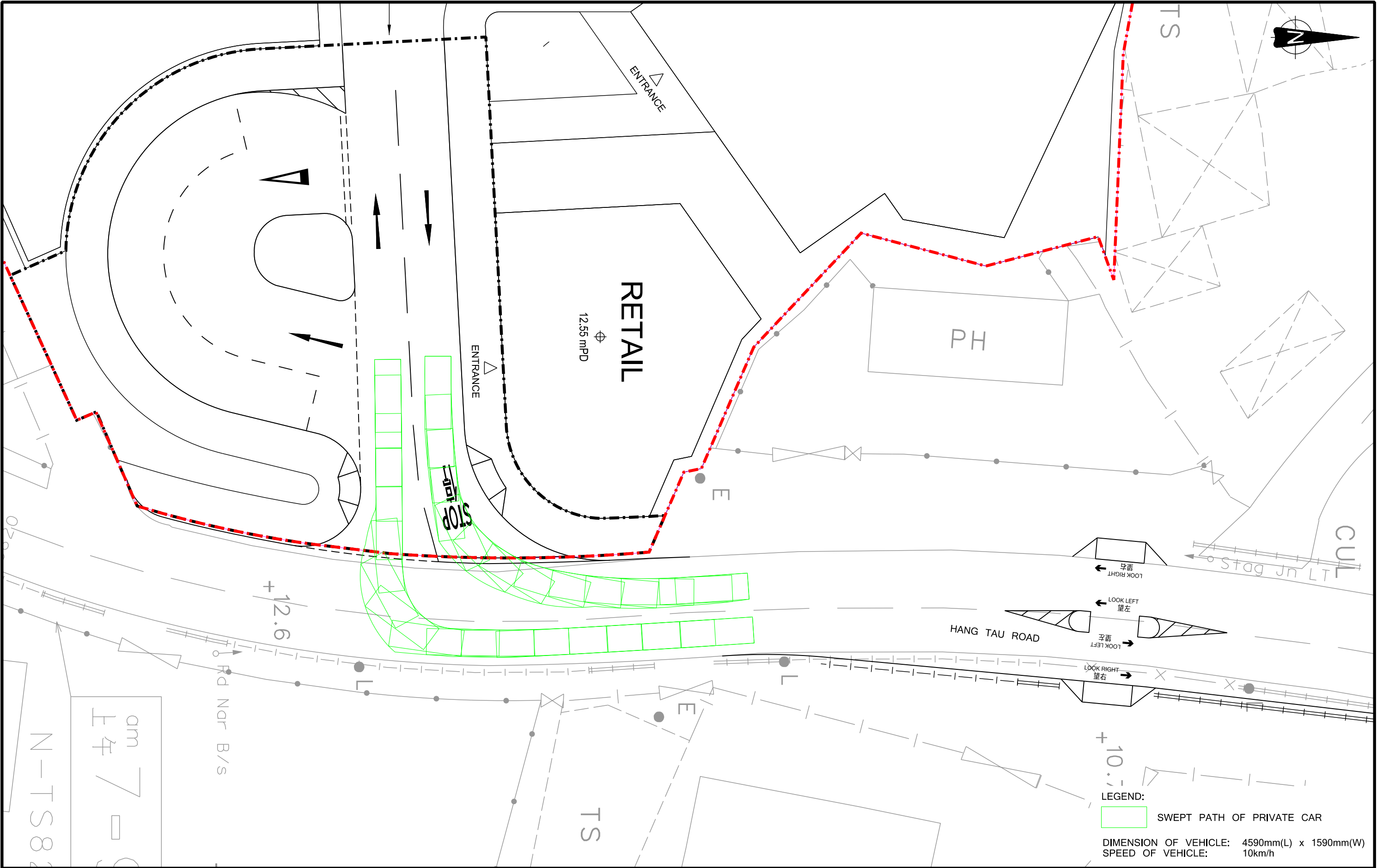
APPENDIX A – MASTER LAYOUT PLAN UNDER PREVIOUS SCHEME OF THE APPROVED S12A APPLICATIONS



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Rev.	Description	Checked	Date	Rev.	Description	Checked	Date
Project Title SECTION 16 PLANNING APPLICATION FOR PROPOSED MINOR RELAXATION OF PLOT RATIO AND BUILDING HEIGHT RESTRICTION FOR COMPREHENSIVE DEVELOPMENT IN HANG TAU TAI PO, KWU TUNG SOUTH							
Drawing Title							
MASTER LAYOUT PLAN OF PREVIOUS SCHEME UNDER THE APPROVED S12A APPLICATION							
Designed	CNM	Checked	CHC	Scale	NTS	Date	MAR 2026
Drawing No.	A1			Rev.	-		

APPENDIX B – SWEPT PATH ANALYSES

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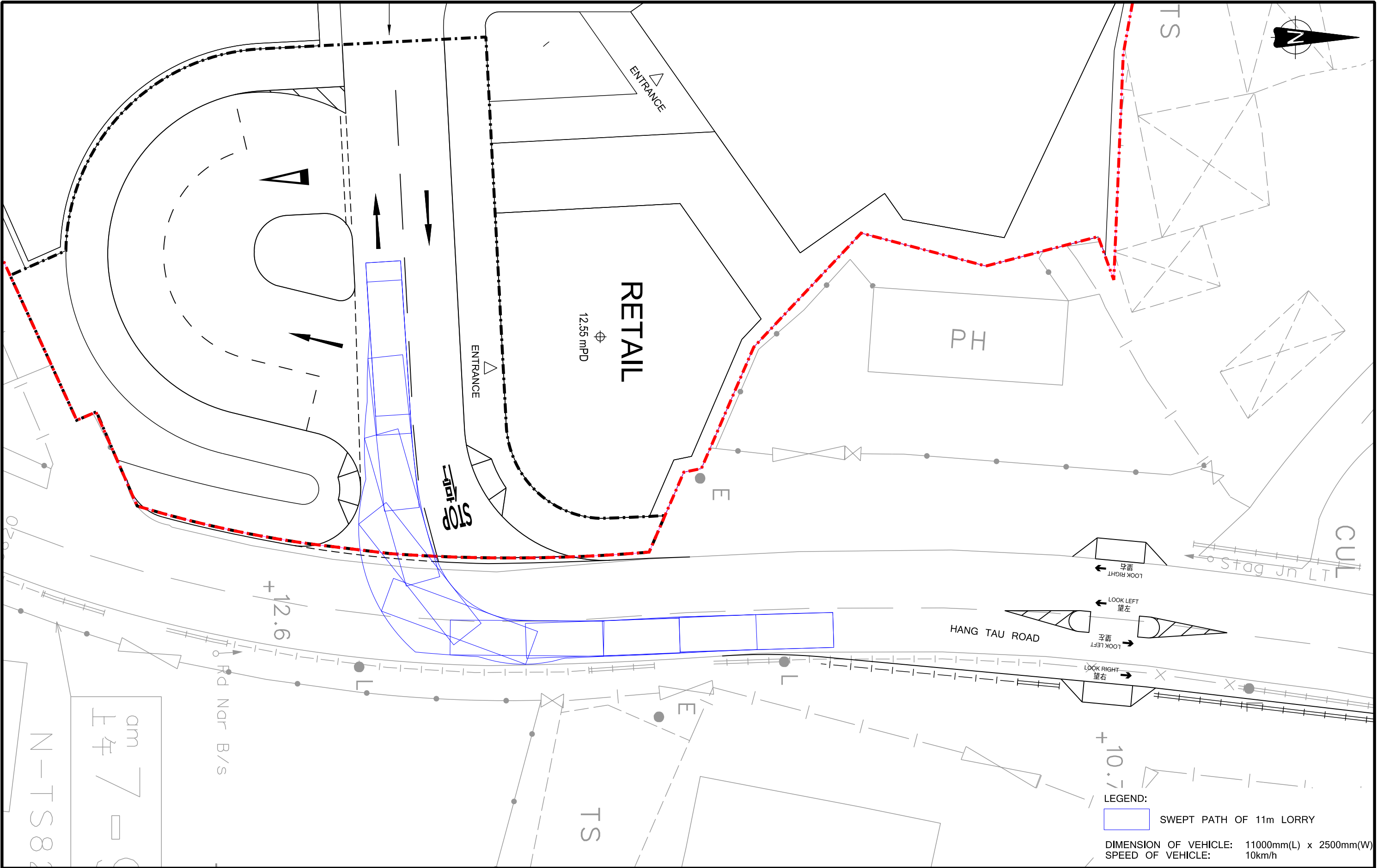
Project Title

SECTION 16 PLANNING APPLICATION FOR PROPOSED
MINOR RELAXATION OF PLOT RATIO AND BUILDING HEIGHT
RESTRICTION FOR COMPREHENSIVE DEVELOPMENT
IN HANG TAU TAI PO, KWU TUNG SOUTH

Drawing Title			
SWEPT PATH OF PRIVATE CAR IN / OUT			
Designed	Checked	Scale	Date
CNM	CHC	1:250(A3)	JUN 2026
Drawing No.			Rev.
B1			-



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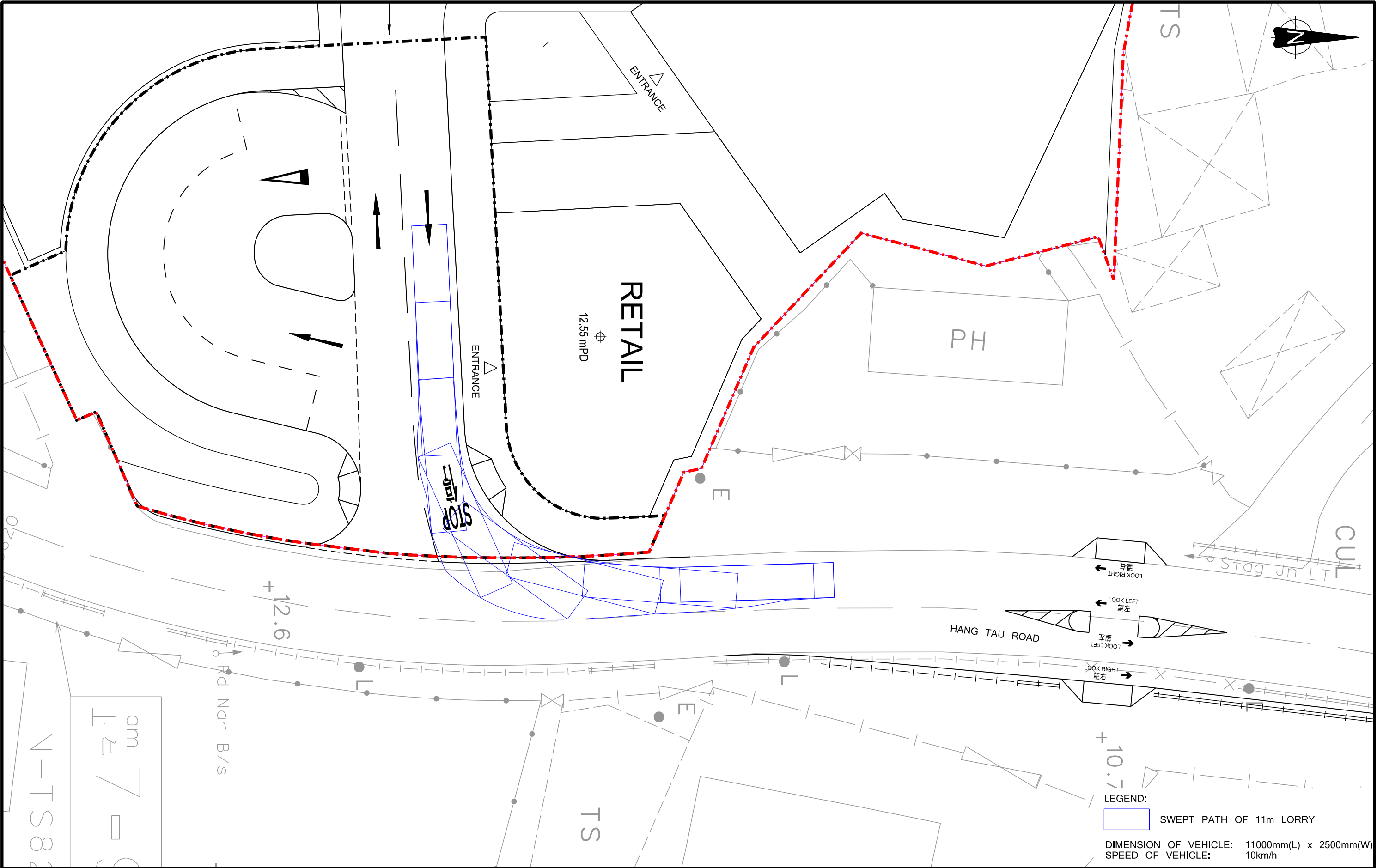
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SECTION 16 PLANNING APPLICATION FOR PROPOSED
MINOR RELAXATION OF PLOT RATIO AND BUILDING HEIGHT
RESTRICTION FOR COMPREHENSIVE DEVELOPMENT
IN HANG TAU TAI PO, KWU TUNG SOUTH

Drawing Title			
SWEPT PATH OF 11m LORRY (INGRESS)			
Designed	Checked	Scale	Date
CNM	CHC	1:250(A3)	JUN 2026
Drawing No.		Rev.	
B2		-	

Original Size : A3

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PRINTED BY: cchan
DATE: 24-Jun-26
TIME: 4:23:06 PM



LEGEND:
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DIMENSION OF VEHICLE: 11000mm(L) x 2500mm(W)
SPEED OF VEHICLE: 10km/h

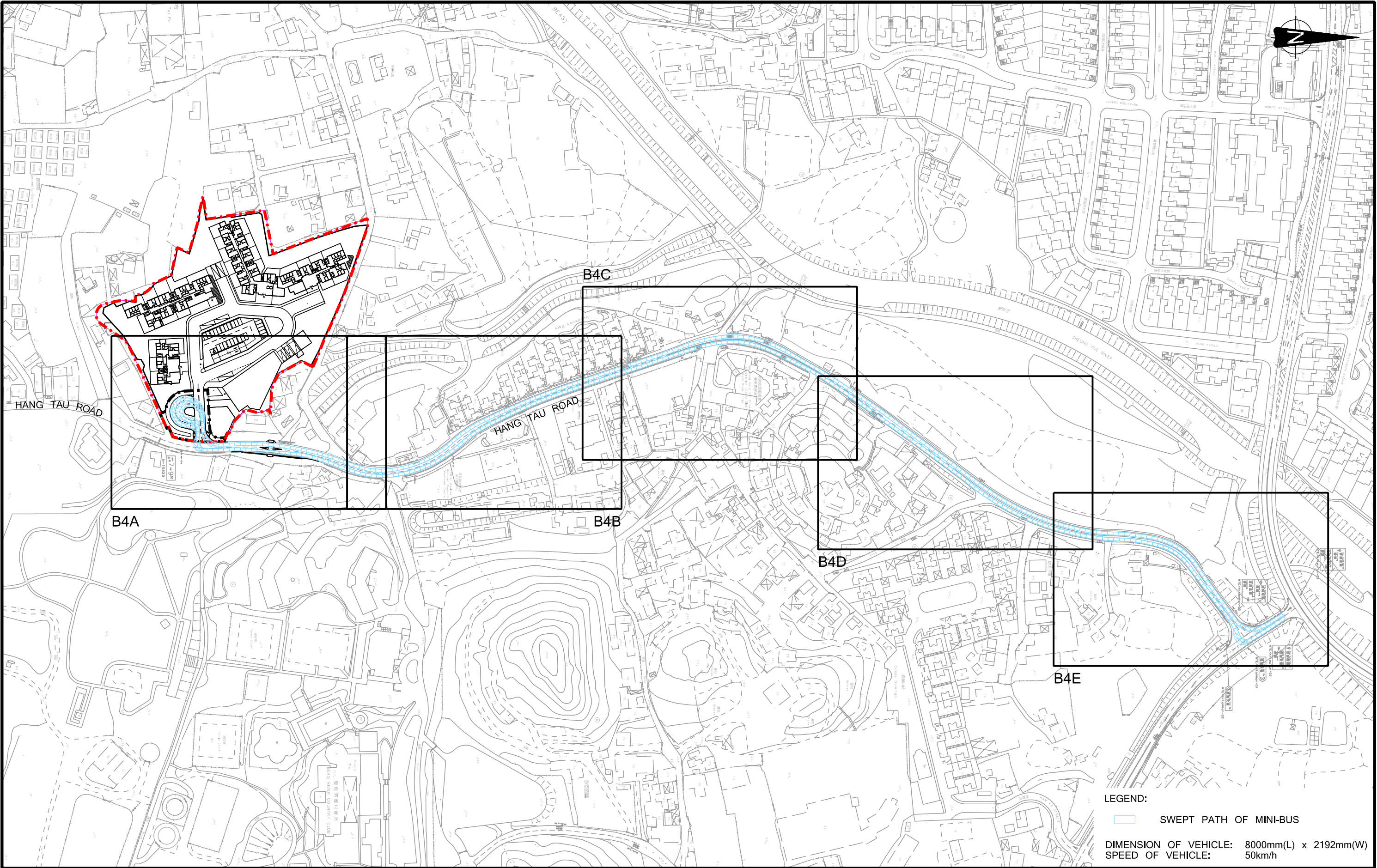
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Project Title
SECTION 16 PLANNING APPLICATION FOR PROPOSED
MINOR RELAXATION OF PLOT RATIO AND BUILDING HEIGHT
RESTRICTION FOR COMPREHENSIVE DEVELOPMENT
IN HANG TAU TAI PO, KWU TUNG SOUTH

Drawing Title SWEPT PATH OF 11m LORRY (EGRESS)			
Designed CNM	Checked CHC	Scale 1:250(A3)	Date JUN 2026
Drawing No. B3		Rev. -	



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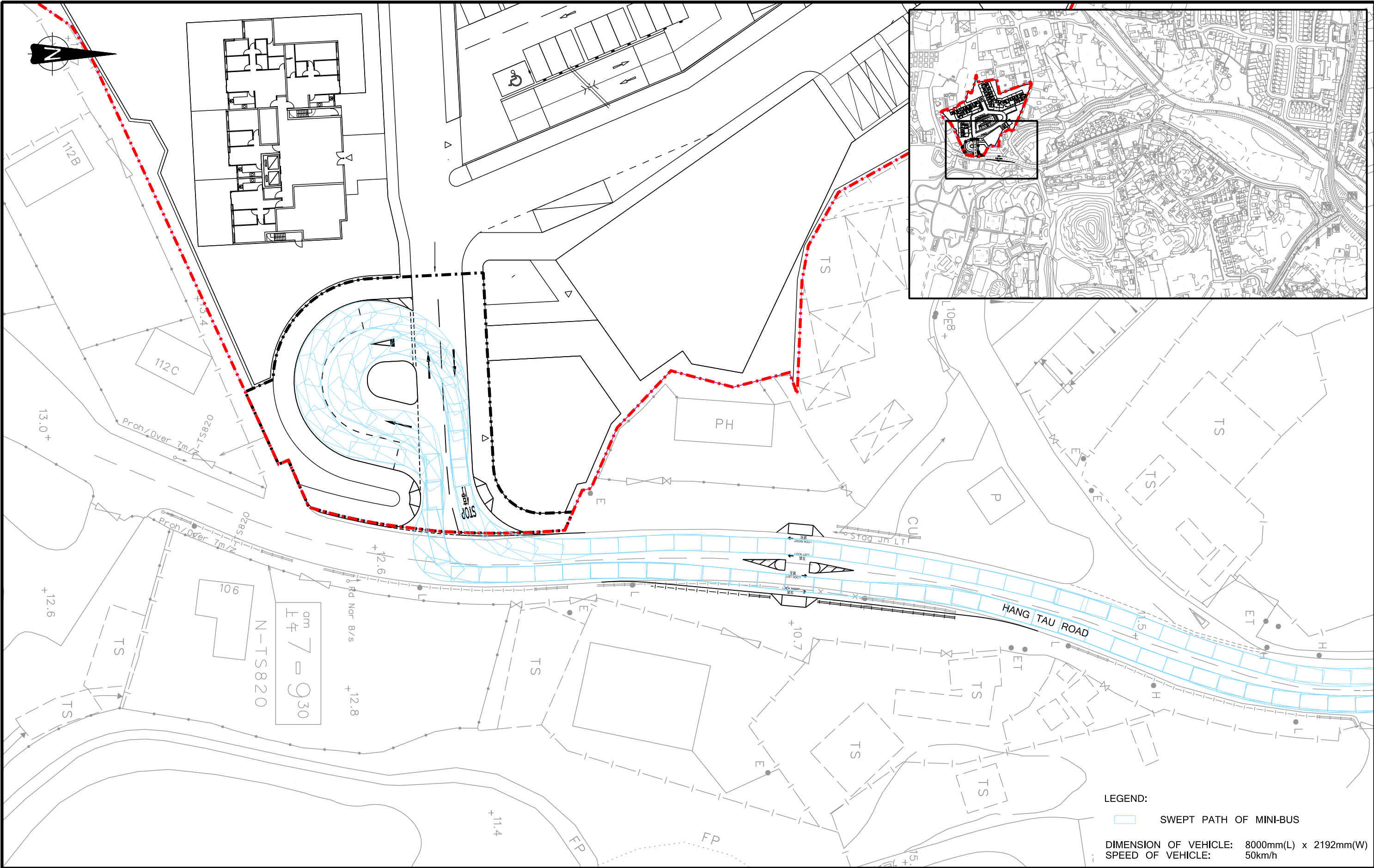
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SECTION 16 PLANNING APPLICATION FOR PROPOSED
MINOR RELAXATION OF PLOT RATIO AND BUILDING HEIGHT
RESTRICTION FOR COMPREHENSIVE DEVELOPMENT
IN HANG TAU TAI PO, KWU TUNG SOUTH

Drawing Title			
SWEEP PATH OF MINI-BUS ALONG HANG TAU ROAD (KEYPLAN)			
Designed	Checked	Scale	Date
CNM	CHC	1:2500(A3)	JUN 2026
Drawing No.		Rev.	
B4		-	



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SPEED OF VEHICLE: 50km/h

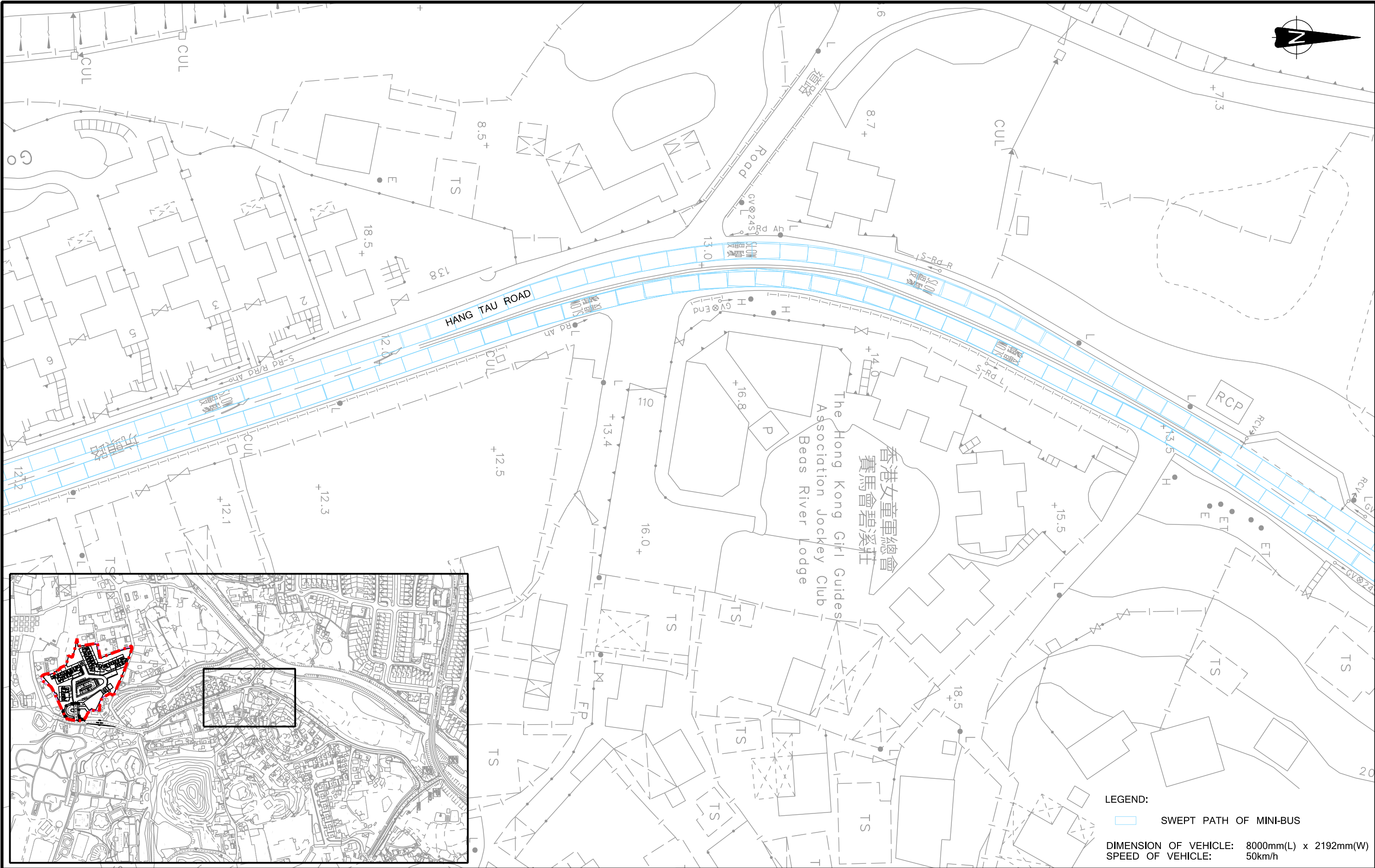
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Project Title
SECTION 16 PLANNING APPLICATION FOR PROPOSED
MINOR RELAXATION OF PLOT RATIO AND BUILDING HEIGHT
RESTRICTION FOR COMPREHENSIVE DEVELOPMENT
IN HANG TAU TAI PO, KWU TUNG SOUTH

Drawing Title SWEPT PATH OF MINI-BUS ALONG HANG TAU ROAD (SHEET 1 OF 5)			
Designed CNM	Checked CHC	Scale 1:500(A3)	Date JUN 2026
Drawing No. B4A		Rev. -	



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DIMENSION OF VEHICLE: 8000mm(L) x 2192mm(W)
SPEED OF VEHICLE: 50km/h

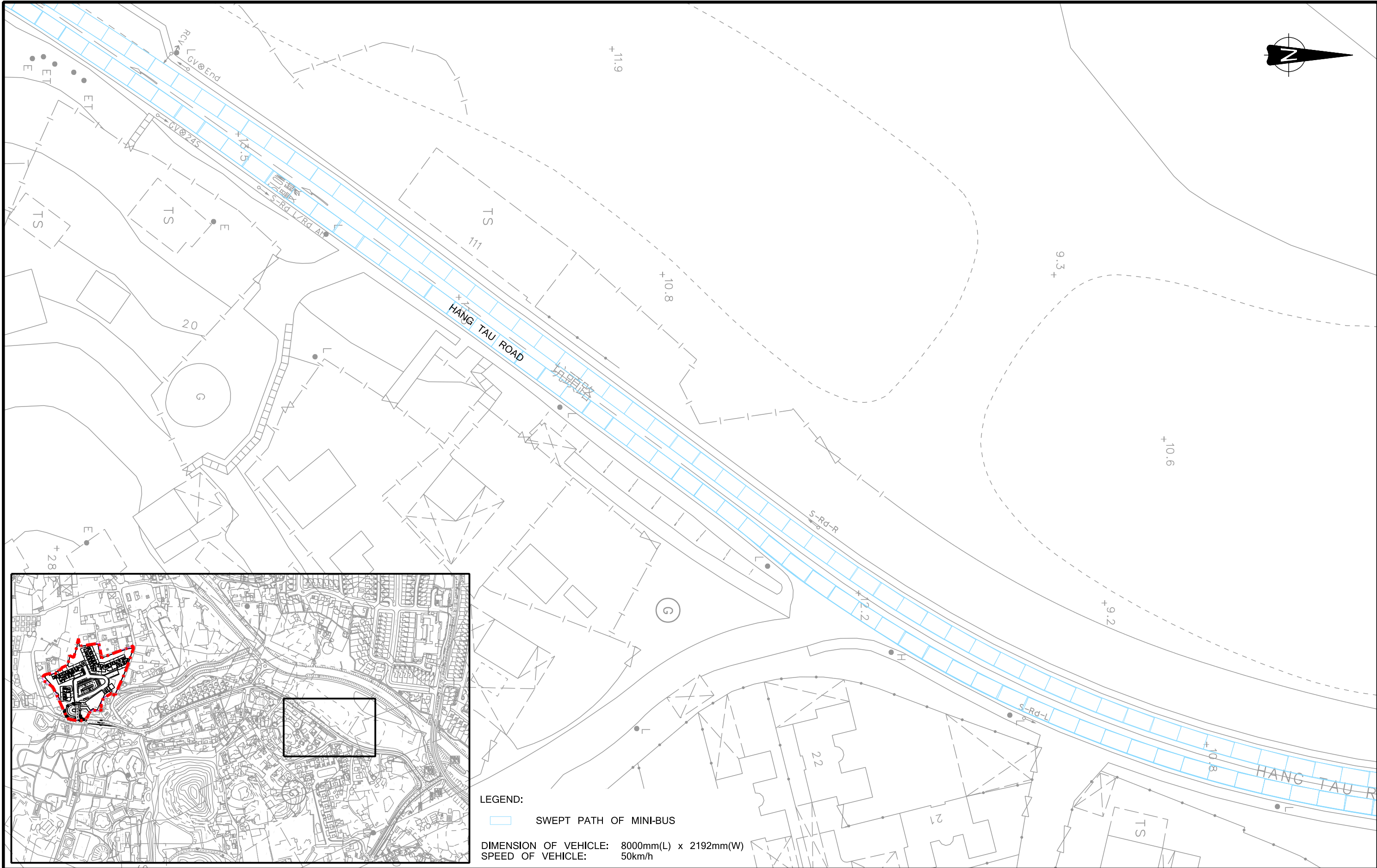
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Project Title
SECTION 16 PLANNING APPLICATION FOR PROPOSED
MINOR RELAXATION OF PLOT RATIO AND BUILDING HEIGHT
RESTRICTION FOR COMPREHENSIVE DEVELOPMENT
IN HANG TAU TAI PO, KWU TUNG SOUTH

Drawing Title SWEPT PATH OF MINI-BUS ALONG HANG TAU ROAD (SHEET 3 OF 5)			
Designed CNM	Checked CHC	Scale 1:500(A3)	Date JUN 2026
Drawing No. B4C		Rev. -	



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SWEEP PATH OF MINI-BUS

DIMENSION OF VEHICLE: 8000mm(L) x 2192mm(W)
SPEED OF VEHICLE: 50km/h

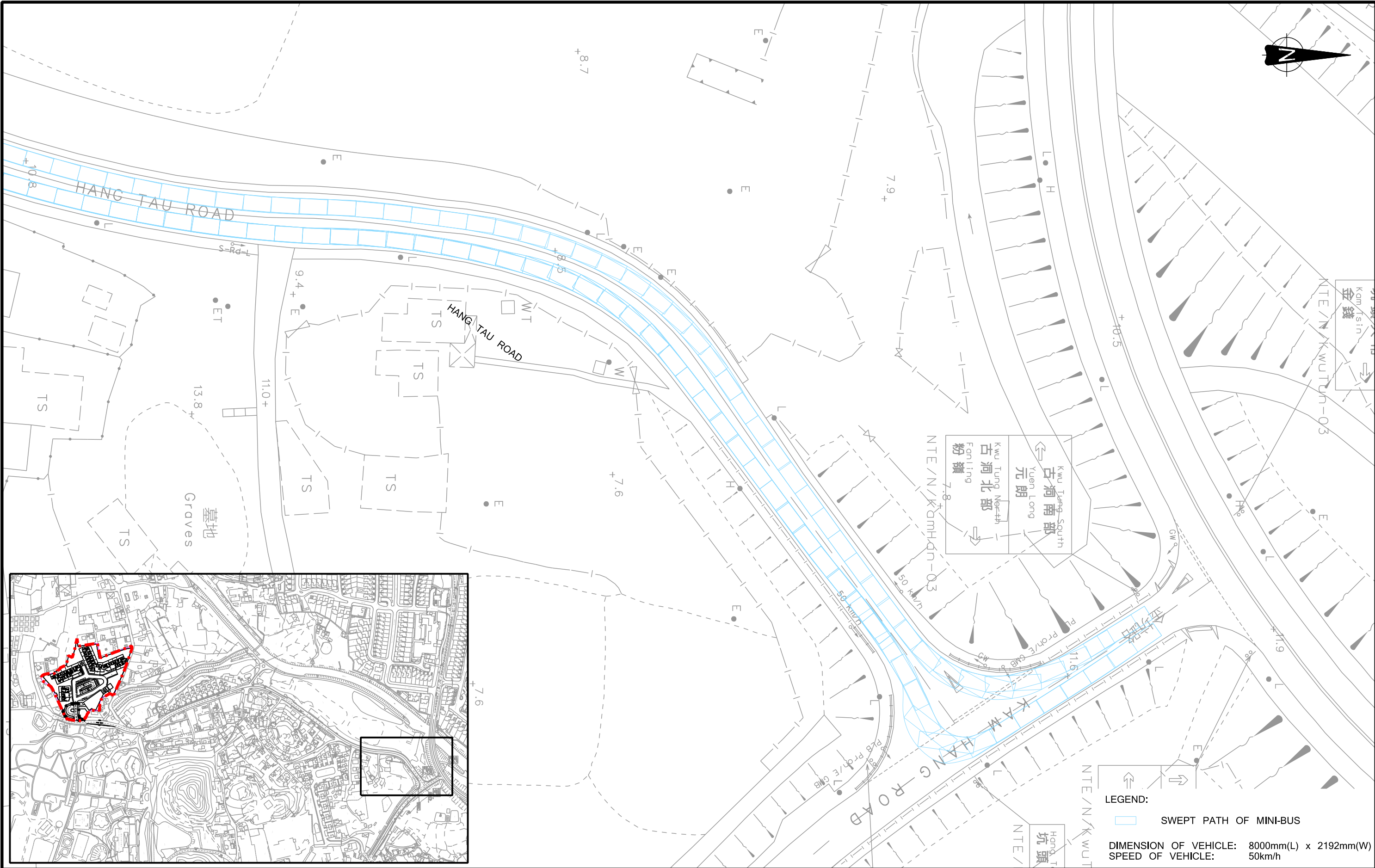
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Rev.	Description	Checked	Date

Project Title
SECTION 16 PLANNING APPLICATION FOR PROPOSED MINOR RELAXATION OF PLOT RATIO AND BUILDING HEIGHT RESTRICTION FOR COMPREHENSIVE DEVELOPMENT IN HANG TAU TAI PO, KWU TUNG SOUTH

Drawing Title			
SWEEP PATH OF MINI-BUS ALONG HANG TAU ROAD (SHEET 4 OF 5)			
Designed CNM	Checked CHC	Scale 1:500(A3)	Date JUN 2026
Drawing No. B4D		Rev. -	



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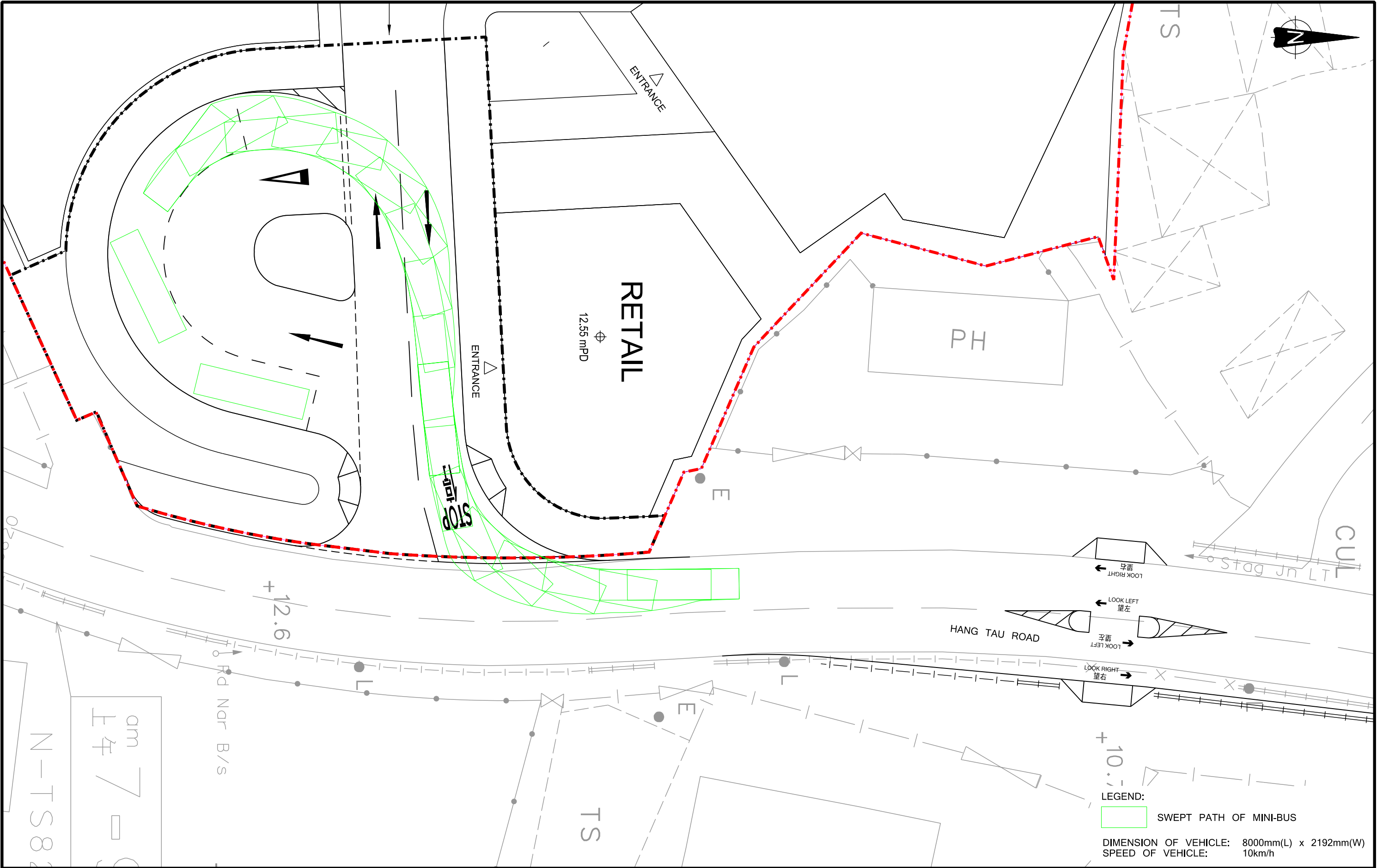
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SECTION 16 PLANNING APPLICATION FOR PROPOSED
MINOR RELAXATION OF PLOT RATIO AND BUILDING HEIGHT
RESTRICTION FOR COMPREHENSIVE DEVELOPMENT
IN HANG TAU TAI PO, KWU TUNG SOUTH

Drawing Title			
SWEPT PATH OF MINI-BUS ALONG HANG TAU ROAD (SHEET 5 OF 5)			
Designed	CNM	Checked	CHC
Scale	1:500(A3)	Date	JUN 2026
Drawing No.	B4E	Rev.	-



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DIMENSION OF VEHICLE: 8000mm(L) x 2192mm(W)
SPEED OF VEHICLE: 10km/h

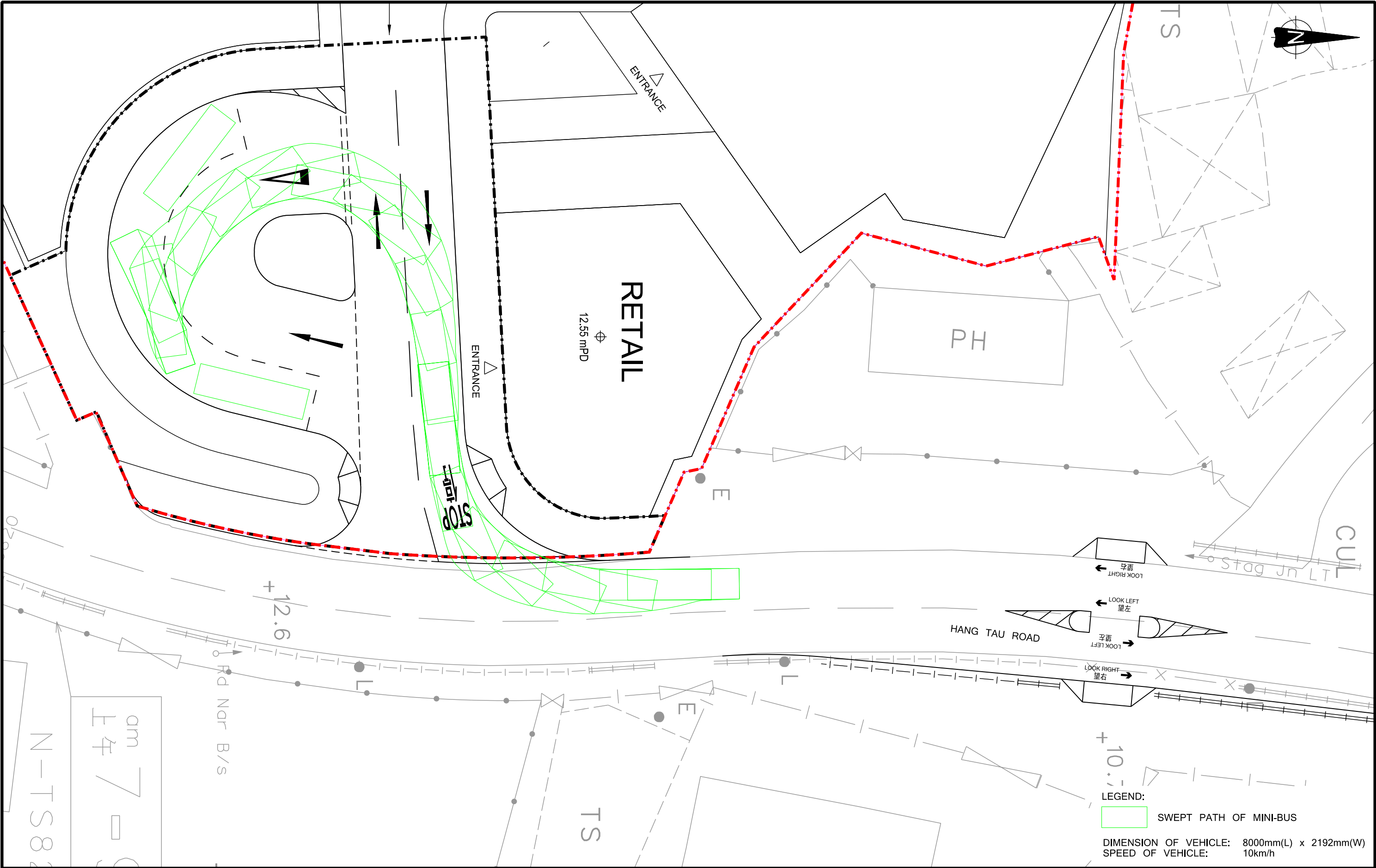
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Rev.	Description	Checked	Date

Project Title
SECTION 16 PLANNING APPLICATION FOR PROPOSED
MINOR RELAXATION OF PLOT RATIO AND BUILDING HEIGHT
RESTRICTION FOR COMPREHENSIVE DEVELOPMENT
IN HANG TAU TAI PO, KWU TUNG SOUTH

Drawing Title SWEPT PATH OF MINI-BUS AT PROPOSED LAYBY (SHEET 1 OF 3)			
Designed CNM	Checked CHC	Scale 1:250(A3)	Date JUN 2026
Drawing No. B5A		Rev. -	



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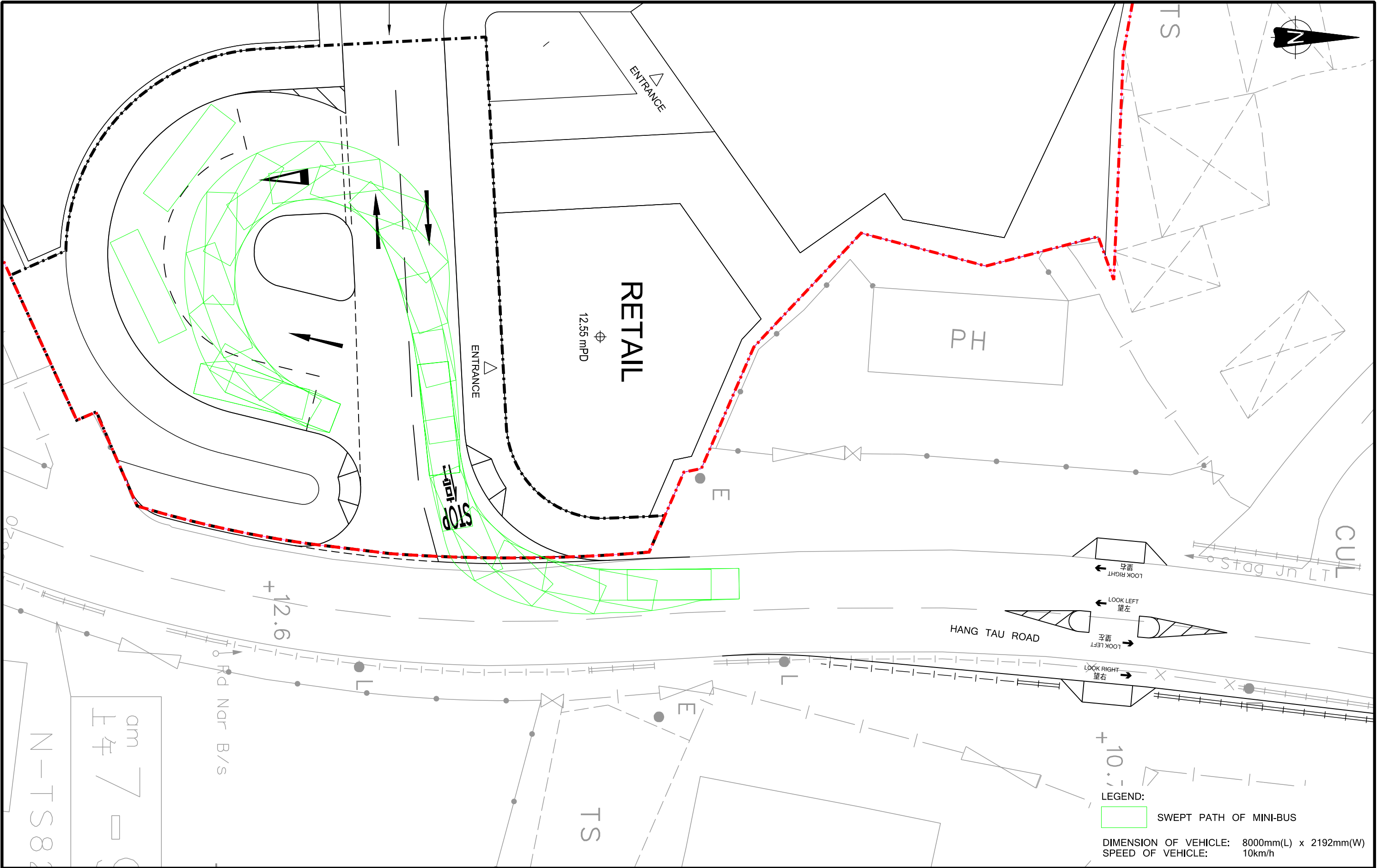
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SECTION 16 PLANNING APPLICATION FOR PROPOSED
MINOR RELAXATION OF PLOT RATIO AND BUILDING HEIGHT
RESTRICTION FOR COMPREHENSIVE DEVELOPMENT
IN HANG TAU TAI PO, KWU TUNG SOUTH

Drawing Title			
SWEPT PATH OF MINI-BUS AT PROPOSED LAYBY (SHEET 2 OF 3)			
Designed CNM	Checked CHC	Scale 1:250(A3)	Date JUN 2026
Drawing No. B5B		Rev. -	



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Project Title

SECTION 16 PLANNING APPLICATION FOR PROPOSED
MINOR RELAXATION OF PLOT RATIO AND BUILDING HEIGHT
RESTRICTION FOR COMPREHENSIVE DEVELOPMENT
IN HANG TAU TAI PO, KWU TUNG SOUTH

Drawing Title			
SWEPT PATH OF MINI-BUS AT PROPOSED LAYBY (SHEET 3 OF 3)			
Designed	Checked	Scale	Date
CNM	CHC	1:250(A3)	JUN 2026
Drawing No.		Rev.	
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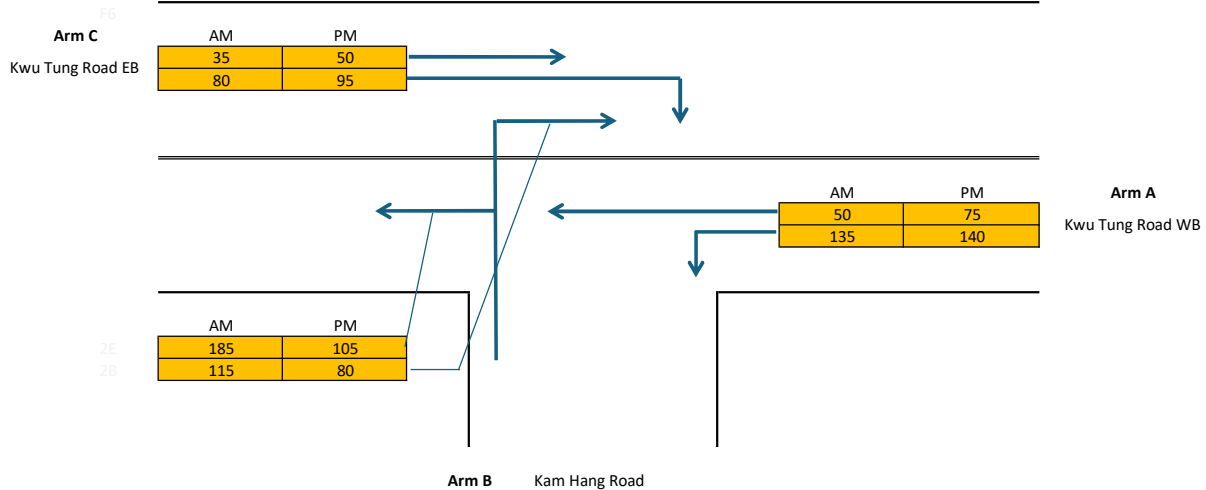


APPENDIX C – DETAILS OF JUNCTION ASSESSMENTS

2024 Observed

Simplified Priority Junction Capacity Calculation

Job Title:	Section 16 Planning Application For Proposed Minor Relaxation of Plot Ratio and Building Height Restriction For Comprehensive Development in Hang Tau Tai Po, Kwu Tung South		
Junction:	(J1) Kwu Tung Road / Kam Hang Road		Designed by: TCW
Scheme:	Existing		Checked by: CHC
Design Year:	2024	Job No.: CHK50808310	Date: Mar-26
Arm A:	Kwu Tung Road WB		
Arm B:	Kam Hang Road		
Arm C:	Kwu Tung Road EB		



GEOMETRY

Major Road Width (m)	W	7.30	Lane widths (m)	w(b-a)	0.00
Central Reserve Width (m)	Wcr	0.00		w(b-c)	3.75
Blockage of major road right turn	Y/N?	Y		w(c-b)	3.60
Combined stream on minor arm	Y/N?	Y			

Visibility Distances (m)	Vr(b-a)	100	Calculated Parameters	D	0.6141
	Vl(b-a)	70		E	0.9912
	Vr(b-c)	100		F	0.9505
	Vr(c-b)	70		Y	0.7482

ANALYSIS

		AM PEAK	PM PEAK
TRAFFIC FLOWS (pcu/hr)	q(c-a)	35	50
	q(c-b)	80	95
	q(a-b)	135	140
	q(a-c)	50	75
	q(b-a)	115	80
	q(b-c)	185	105
	f	0.62	0.57

CAPACITIES (pcu/hr)	Q(b-ac)	505.277	476.92
	Q(c-a)	1581.9	1537.9
	Q(c-b)	660.244	652.48

RFC's	c-a	0.02	0.03
	c-b	0.12	0.15
	b-ac	0.59	0.39

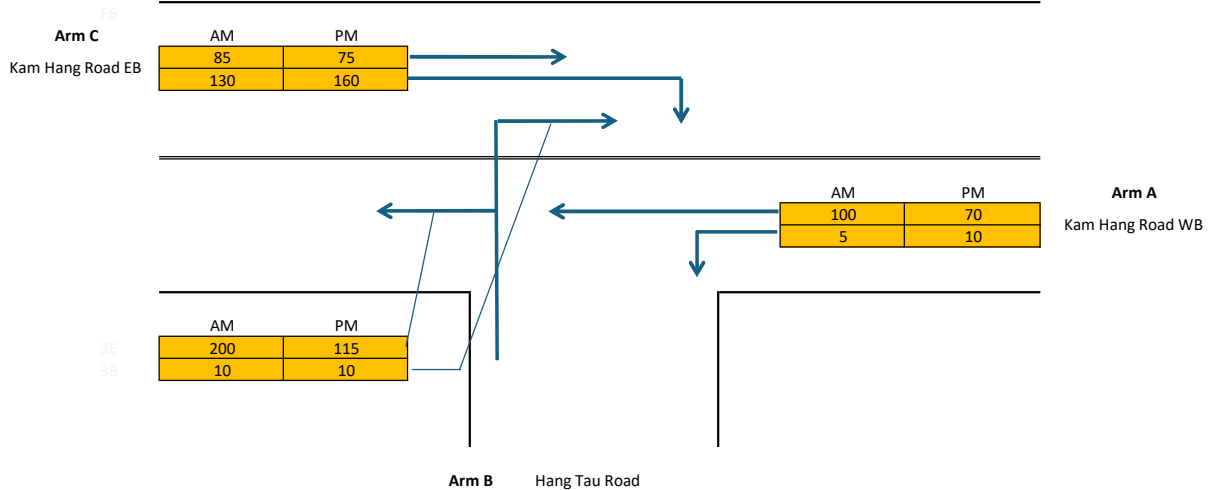
RFC	0.59	0.39
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Where Vl and Vr are visibility distances to the left or right of the respective streams
 $D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(Vl(b-a)-150))$
 $E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))$
 $F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))$
 $Y = 1-0.0345W$
 f = proportion of minor traffic turning left
 $Q(b-ac) = Q(b-c) * Q(b-a) / ((1-f) * Q(b-c) + f * Q(b-a))$ Capacity of combined streams

All the above formulas are in accordance to T.P.D.M. Volume 2 Chapter 4 Appendix 1

Simplified Priority Junction Capacity Calculation

Job Title:	Section 16 Planning Application For Proposed Minor Relaxation of Plot Ratio and Building Height Restriction For Comprehensive Development in Hang Tau Tai Po, Kwu Tung South		
Junction:	(J2) Kam Hang Road / Hang Tau Road		Designed by: TCW
Scheme:	Observed		Checked by: CHC
Design Year:	2024	Job No.: CHK50808310	Date: Mar-26
Arm A:	Kam Hang Road WB		
Arm B:	Hang Tau Road		
Arm C:	Kam Hang Road EB		



GEOMETRY

Major Road Width (m)	W	6.60	Lane widths (m)	w(b-a)	0.00
Central Reserve Width (m)	Wcr	0.00		w(b-c)	4.25
Blockage of major road right turn	Y/N?	Y		w(c-b)	3.30
Combined stream on minor arm	Y/N?	Y			

Visibility Distances (m)	Vr(b-a)	100	Calculated Parameters	D	0.6044
	Vl(b-a)	45		E	1.0469
	Vr(b-c)	110		F	0.941
	Vr(c-b)	90		Y	0.7723

ANALYSIS

		AM PEAK	PM PEAK
TRAFFIC FLOWS (pcu/hr)	q(c-a)	85	75
	q(c-b)	130	160
	q(a-b)	5	10
	q(a-c)	100	70
	q(b-a)	10	10
	q(b-c)	200	115
	f	0.95	0.92
CAPACITIES (pcu/hr)	Q(b-ac)	705.063	683.16
	Q(c-a)	1452.44	1376.4
	Q(c-b)	673.261	679.87
RFC's	c-a	0.06	0.05
	c-b	0.19	0.24
	b-ac	0.30	0.18

RFC

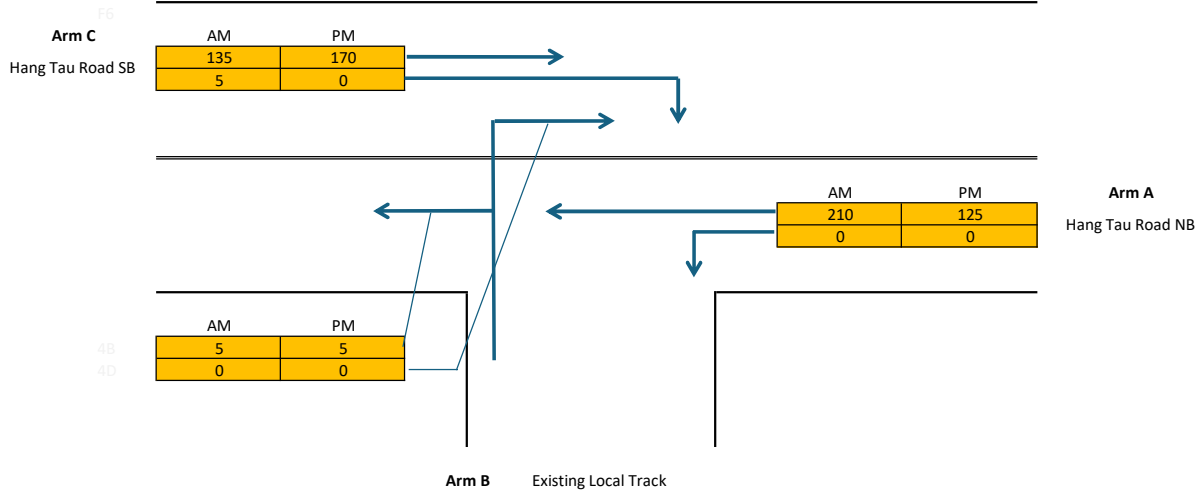
0.30 0.24

Where Vl and Vr are visibility distances to the left or right of the respective streams
 $D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(Vl(b-a)-150))$
 $E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))$
 $F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))$
 $Y = 1-0.0345W$
 f = proportion of minor traffic turning left
 $Q(b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a)$ Capacity of combined streams

All the above formulas are in accordance to T.P.D.M. Volume 2 Chapter 4 Appendix 1

Simplified Priority Junction Capacity Calculation

Job Title:	Section 16 Planning Application For Proposed Minor Relaxation of Plot Ratio and Building Height Restriction For Comprehensive Development in Hang Tau Tai Po, Kwu Tung South		
Junction:	(J3) Hang Tau Road / Local Track to Sheung Yue River / Access of Jockey Club River Beas Lodge		Designed by: TCW
Scheme:	Observed		Checked by: CHC
Design Year:	2024	Job No.: CHK50808310	Date: Mar-26
Arm A:	Hang Tau Road NB		
Arm B:	Existing Local Track		
Arm C:	Hang Tau Road SB		



GEOMETRY

Major Road Width (m)	W	7.80	Lane widths (m)	w(b-a)	0.00
Central Reserve Width (m)	Wcr	0.00		w(b-c)	3.50
Blockage of major road right turn	Y/N?	Y		w(c-b)	3.90
Combined stream on minor arm	Y/N?	Y			

Visibility Distances (m)	Vr(b-a)	100	Calculated Parameters	D	0.6257
	Vl(b-a)	100		E	0.9682
	Vr(b-c)	100		F	0.9867
	Vr(c-b)	80		Y	0.7309

ANALYSIS

		AM PEAK	PM PEAK
TRAFFIC FLOWS (pcu/hr)	q(c-a)	135	170
	q(c-b)	5	0
	q(a-b)	0	0
	q(a-c)	210	125
	q(b-a)	0	0
	q(b-c)	5	5
	f	1.00	1.00

CAPACITIES (pcu/hr)	Q(b-ac)	667.184	689.08
	Q(c-a)	1786.76	1800
	Q(c-b)	679.933	702.25

RFC's	c-a	0.08	0.09
	c-b	0.01	0.00
	b-ac	0.01	0.01

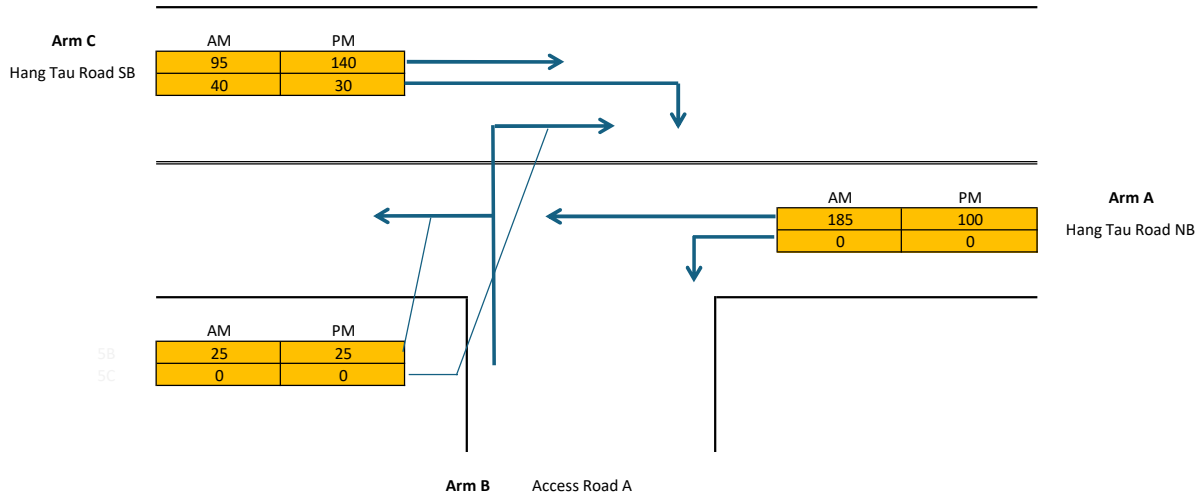
RFC		0.08	0.09
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Where Vl and Vr are visibility distances to the left or right of the respective streams
 $D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(Vl(b-a)-150))$
 $E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))$
 $F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))$
 $Y = 1-0.0345W$
 f = proportion of minor traffic turning left
 $Q(b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a)$ Capacity of combined streams

All the above formulas are in accordance to T.P.D.M. Volume 2 Chapter 4 Appendix 1

Simplified Priority Junction Capacity Calculation

Job Title:	Section 16 Planning Application For Proposed Minor Relaxation of Plot Ratio and Building Height Restriction For Comprehensive Development in Hang Tau Tai Po, Kwu Tung South		
Junction:	(J4) Hang Tau Road / Access Road A		Designed by: TCW
Scheme:	Observed		Checked by: CHC
Design Year:	2024	Job No.: CHK50808310	Date: Mar-26
Arm A:	Hang Tau Road NB		
Arm B:	Access Road A		
Arm C:	Hang Tau Road SB		



GEOMETRY

Major Road Width (m)	W	7.00	Lane widths (m)	w(b-a)	0.00
Central Reserve Width (m)	Wcr	4.50		w(b-c)	3.30
Blockage of major road right turn	Y/N?	Y		w(c-b)	3.30
Combined stream on minor arm	Y/N?	Y			
Visibility Distances (m)	Vr(b-a)	30	Calculated Parameters	D	0.5573
	Vl(b-a)	22		E	0.8888
	Vr(b-c)	30		F	0.8888
	Vr(c-b)	30		Y	0.7585

ANALYSIS

		AM PEAK	PM PEAK
TRAFFIC FLOWS (pcu/hr)	q(c-a)	95	140
	q(c-b)	40	30
	q(a-b)	0	0
	q(a-c)	185	100
	q(b-a)	0	0
	q(b-c)	25	25
	f	1.00	1.00
CAPACITIES (pcu/hr)	Q(b-ac)	616.734	637.59
	Q(c-a)	1683.26	1715.3
	Q(c-b)	616.734	637.59
RFC's	c-a	0.06	0.08
	c-b	0.06	0.05
	b-ac	0.04	0.04
RFC		0.06	0.08

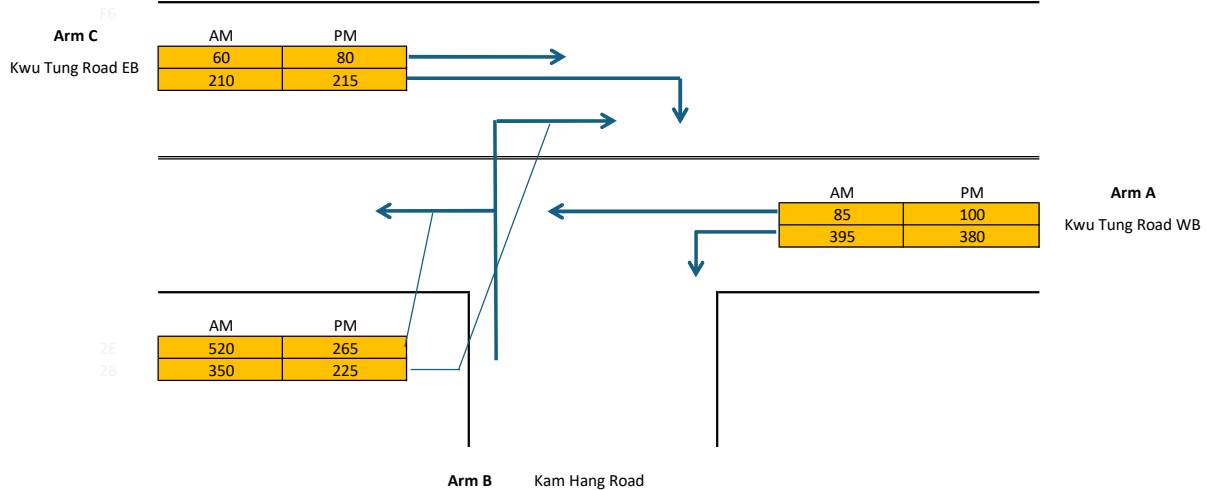
Where Vl and Vr are visibility distances to the left or right of the respective streams
 $D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(Vl(b-a)-150))$
 $E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))$
 $F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))$
 $Y = 1-0.0345W$
 f = proportion of minor traffic turning left
 $Q(b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a)$ Capacity of combined streams

All the above formulas are in accordance to T.P.D.M. Volume 2 Chapter 4 Appendix 1

2034 Reference

Simplified Priority Junction Capacity Calculation

Job Title:	Section 16 Planning Application For Proposed Minor Relaxation of Plot Ratio and Building Height Restriction For Comprehensive Development in Hang Tau Tai Po, Kwu Tung South		
Junction:	(J1) Kwu Tung Road / Kam Hang Road		Designed by: TCW
Scheme:	Reference		Checked by: CHC
Design Year:	2034	Job No.: CHK50808310	Date: Mar-26
Arm A:	Kwu Tung Road WB		
Arm B:	Kam Hang Road		
Arm C:	Kwu Tung Road EB		



GEOMETRY					
Major Road Width (m)	W	7.30	Lane widths (m)	w(b-a)	0.00
Central Reserve Width (m)	Wcr	0.00		w(b-c)	3.75
Blockage of major road right turn	Y/N?	Y		w(c-b)	3.60
Combined stream on minor arm	Y/N?	Y			
Visibility Distances (m)	Vr(b-a)	100	Calculated Parameters	D	0.6141
	Vl(b-a)	70		E	0.9912
	Vr(b-c)	100		F	0.9505
	Vr(c-b)	70		Y	0.7482
ANALYSIS			AM PEAK		PM PEAK
TRAFFIC FLOWS (pcu/hr)	q(c-a)		60		80
	q(c-b)		210		215
	q(a-b)		395		380
	q(a-c)		85		100
	q(b-a)		350		225
	q(b-c)		520		265
	f		0.60		0.54
CAPACITIES (pcu/hr)	Q(b-ac)		437.925		412.14
	Q(c-a)		1152.61		1137.2
	Q(c-b)		583.883		583.88
RFC's	c-a		0.05		0.07
	c-b		0.36		0.37
	b-ac		1.99		1.19
RFC			1.99		1.19

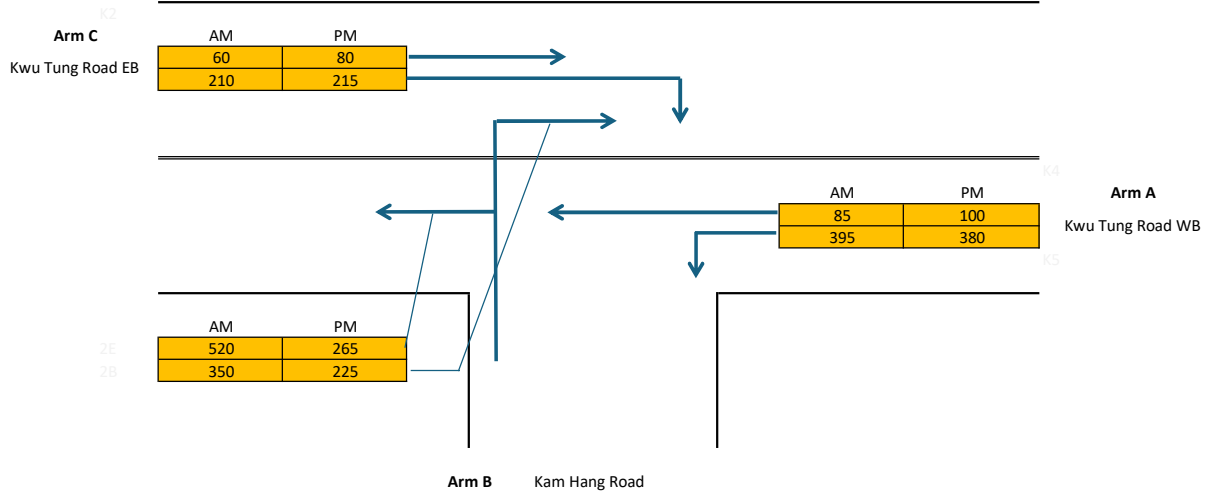
Where Vl and Vr are visibility distances to the left or right of the respective streams
 $D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(Vl(b-a)-150))$
 $E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))$
 $F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))$
 $Y = 1-0.0345W$
 f = proportion of minor traffic turning left
 $Q(b-ac) = Q(b-c) * Q(b-a) / (1-f) * Q(b-c) + f * Q(b-a)$ Capacity of combined streams

All the above formulas are in accordance to T.P.D.M. Volume 2 Chapter 4 Appendix 1

Simplified Priority Junction Capacity Calculation



Job Title:	Section 16 Planning Application For Proposed Minor Relaxation of Plot Ratio and Building Height Restriction For Comprehensive Development in Hang Tau Tai Po, Kwu Tung South		
Junction:	(J1) Kwu Tung Road / Kam Hang Road		Designed by: TCW
Scheme:	Reference (with Improvement scheme under Y/NE-KTS/14)		Checked by: CHC
Design Year:	2034	Job No.: CHK50808310	Date: Mar-26
Arm A:	Kwu Tung Road WB		
Arm B:	Kam Hang Road		
Arm C:	Kwu Tung Road EB		



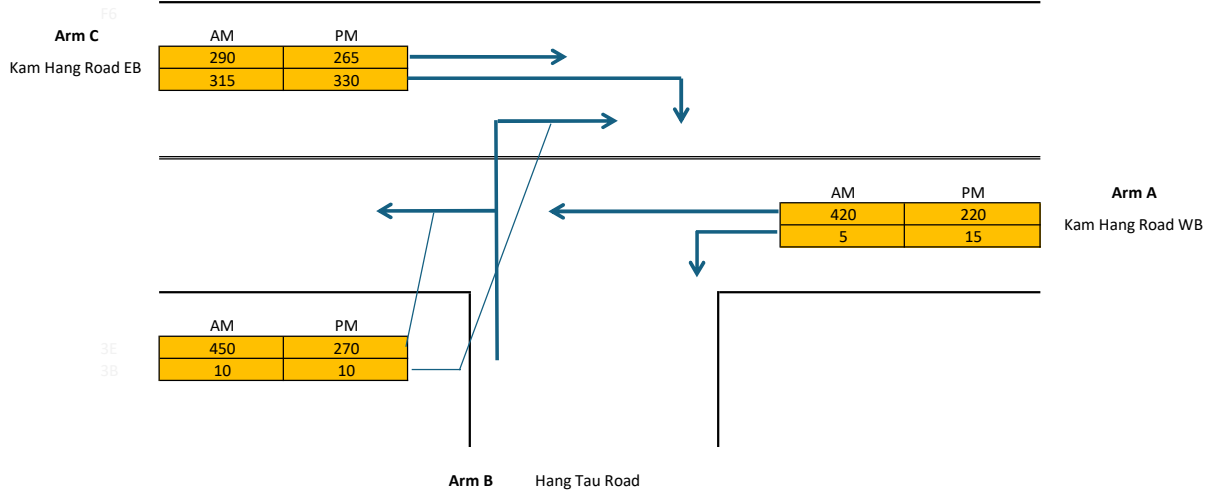
GEOMETRY					
Major Road Width (m)	W	7.30	Lane widths (m)	w(b-a)	4.70
Central Reserve Width (m)	Wcr	0.00		w(b-c)	4.70
Blockage of major road right turn	Y/N?	N		w(c-b)	3.00
Combined stream on minor arm	Y/N?	N			
Visibility Distances (m)	Vr(b-a)	135	Calculated Parameters	D	1.0968
	VI(b-a)	125		E	1.1135
	Vr(b-c)	135		F	0.922
	Vr(c-b)	100		Y	0.7482
ANALYSIS			AM PEAK		PM PEAK
TRAFFIC FLOWS (pcu/hr)	q(c-a)		60		80
	q(c-b)		210		215
	q(a-b)		395		380
	q(a-c)		85		100
	q(b-a)		350		225
	q(b-c)		520		265
	f		0.60		0.54
CAPACITIES (pcu/hr)	Q(b-a)		514.764		506.16
	Q(b-c)		756.42		753.67
	Q(b-c)(0)		627.843		669.92
	Q(c-b)		566.369		566.37
RFC's	c-b		0.37		0.38
	b-a		0.68		0.44
	b-c	b-c(0)	0.69	0.83	0.35
RFC			0.83		0.44

Where VI and Vr are visibility distances to the left or right of the respective streams
 $D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(VI(b-a)-150))$
 $E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))$
 $F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))$
 $Y = 1-0.0345W$
f = proportion of minor traffic turning left
 $Q(b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a)$ Capacity of combined streams

All the above formulas are in accordance to T.P.D.M. Volume 2 Chapter 4 Appendix 1

Simplified Priority Junction Capacity Calculation

Job Title:	Section 16 Planning Application For Proposed Minor Relaxation of Plot Ratio and Building Height Restriction For Comprehensive Development in Hang Tau Tai Po, Kwu Tung South		
Junction:	(J2) Kam Hang Road / Hang Tau Road		Designed by: TCW
Scheme:	Reference		Checked by: CHC
Design Year:	2034	Job No.: CHK50808310	Date: Mar-26
Arm A:	Kam Hang Road WB		
Arm B:	Hang Tau Road		
Arm C:	Kam Hang Road EB		



GEOMETRY

Major Road Width (m)	W	6.60	Lane widths (m)	w(b-a)	0.00
Central Reserve Width (m)	Wcr	0.00		w(b-c)	4.25
Blockage of major road right turn	Y/N?	Y		w(c-b)	3.30
Combined stream on minor arm	Y/N?	Y			

Visibility Distances (m)	Vr(b-a)	100	Calculated Parameters	D	0.6044
	Vl(b-a)	45		E	1.0469
	Vr(b-c)	110		F	0.941
	Vr(c-b)	90		Y	0.7723

ANALYSIS

		AM PEAK	PM PEAK
TRAFFIC FLOWS (pcu/hr)	q(c-a)	290	265
	q(c-b)	315	330
	q(a-b)	5	15
	q(a-c)	420	220
	q(b-a)	10	10
	q(b-c)	450	270
	f	0.98	0.96

CAPACITIES (pcu/hr)	Q(b-ac)	624.757	664.26
	Q(c-a)	836.717	870.24
	Q(c-b)	588.612	638.87

RFC's	c-a	0.35	0.30
	c-b	0.54	0.52
	b-ac	0.74	0.42

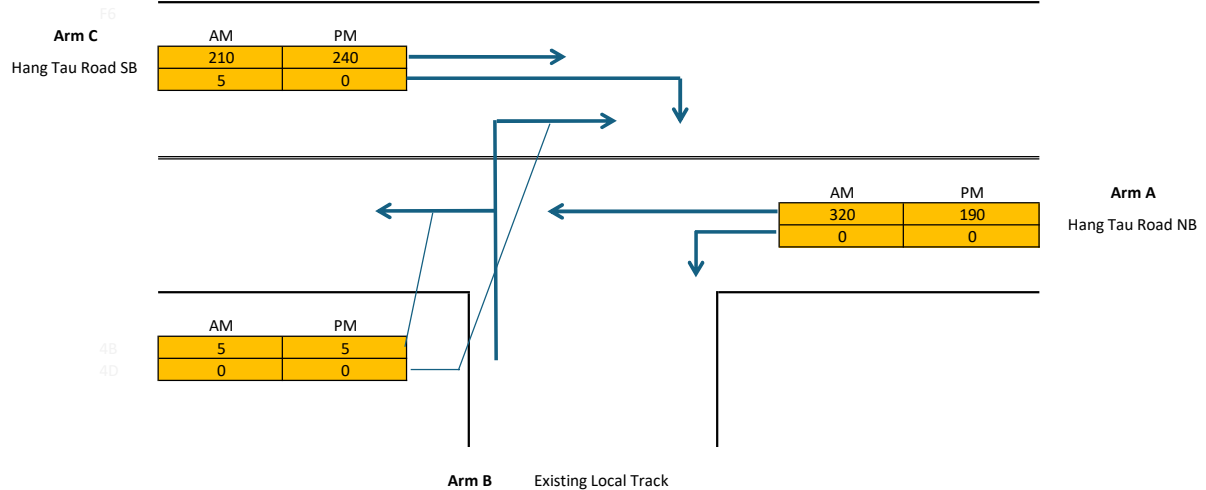
RFC	0.74	0.52
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Where Vl and Vr are visibility distances to the left or right of the respective streams
 $D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(Vl(b-a)-150))$
 $E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))$
 $F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))$
 $Y = 1-0.0345W$
 f = proportion of minor traffic turning left
 $Q(b-ac) = Q(b-c) * Q(b-a) / (1-f) * Q(b-c) + f * Q(b-a)$ Capacity of combined streams

All the above formulas are in accordance to T.P.D.M. Volume 2 Chapter 4 Appendix 1

Simplified Priority Junction Capacity Calculation

Job Title:	Section 16 Planning Application For Proposed Minor Relaxation of Plot Ratio and Building Height Restriction For Comprehensive Development in Hang Tau Tai Po, Kwu Tung South		
Junction:	(J3) Hang Tau Road / Local Track to Sheung Yue River / Access of Jockey Club River Beas Lodge		Designed by: TCW
Scheme:	Reference		Checked by: CHC
Design Year:	2034	Job No.: CHK50808310	Date: Mar-26
Arm A:	Hang Tau Road NB		
Arm B:	Existing Local Track		
Arm C:	Hang Tau Road SB		



GEOMETRY

Major Road Width (m)	W	7.80	Lane widths (m)	w(b-a)	0.00
Central Reserve Width (m)	Wcr	0.00		w(b-c)	3.50
Blockage of major road right turn	Y/N?	Y		w(c-b)	3.90
Combined stream on minor arm	Y/N?	Y			

Visibility Distances (m)	Vr(b-a)	100	Calculated Parameters	D	0.6257
	Vl(b-a)	100		E	0.9682
	Vr(b-c)	100		F	0.9867
	Vr(c-b)	80		Y	0.7309

ANALYSIS

		AM PEAK	PM PEAK
TRAFFIC FLOWS (pcu/hr)	q(c-a)	210	240
	q(c-b)	5	0
	q(a-b)	0	0
	q(a-c)	320	190
	q(b-a)	0	0
	q(b-c)	5	5
	f	1.00	1.00

CAPACITIES (pcu/hr)	Q(b-ac)	638.851	672.34
	Q(c-a)	1786.18	1800
	Q(c-b)	651.058	685.18

RFC's	c-a	0.12	0.13
	c-b	0.01	0.00
	b-ac	0.01	0.01

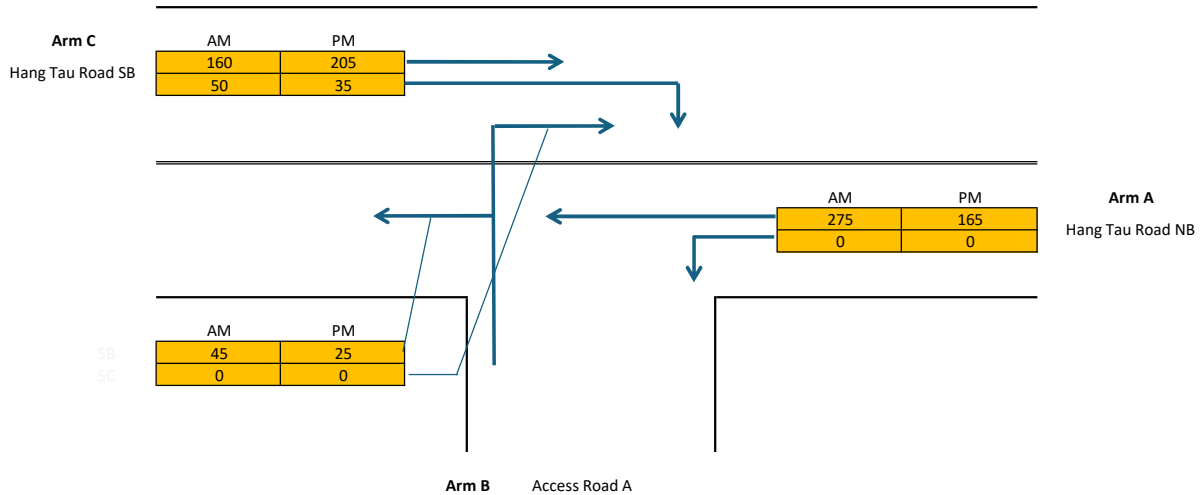
RFC		0.12	0.13
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Where Vl and Vr are visibility distances to the left or right of the respective streams
 $D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(Vl(b-a)-150))$
 $E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))$
 $F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))$
 $Y = 1-0.0345W$
 f = proportion of minor traffic turning left
 $Q(b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a)$ Capacity of combined streams

All the above formulas are in accordance to T.P.D.M. Volume 2 Chapter 4 Appendix 1

Simplified Priority Junction Capacity Calculation

Job Title:	Section 16 Planning Application For Proposed Minor Relaxation of Plot Ratio and Building Height Restriction For Comprehensive Development in Hang Tau Tai Po, Kwu Tung South		
Junction:	(J4) Hang Tau Road / Access Road A		Designed by: TCW
Scheme:	Reference		Checked by: CHC
Design Year:	2034	Job No.: CHK50808310	Date: Mar-26
Arm A:	Hang Tau Road NB		
Arm B:	Access Road A		
Arm C:	Hang Tau Road SB		



GEOMETRY					
Major Road Width (m)	W	7.00	Lane widths (m)	w(b-a)	0.00
Central Reserve Width (m)	Wcr	4.50		w(b-c)	3.30
Blockage of major road right turn	Y/N?	Y		w(c-b)	3.30
Combined stream on minor arm	Y/N?	Y			
Visibility Distances (m)	Vr(b-a)	30	Calculated Parameters	D	0.5573
	Vl(b-a)	22		E	0.8888
	Vr(b-c)	30		F	0.8888
	Vr(c-b)	30		Y	0.7585
ANALYSIS			AM PEAK	PM PEAK	
TRAFFIC FLOWS (pcu/hr)	q(c-a)		160	205	
	q(c-b)		50	35	
	q(a-b)		0	0	
	q(a-c)		275	165	
	q(b-a)		0	0	
	q(b-c)		45	25	
	f		1.00	1.00	
CAPACITIES (pcu/hr)	Q(b-ac)		594.65	621.64	
	Q(c-a)		1648.65	1698.7	
	Q(c-b)		594.65	621.64	
RFC's	c-a		0.10	0.12	
	c-b		0.08	0.06	
	b-ac		0.08	0.04	
RFC			0.10	0.12	

Where Vl and Vr are visibility distances to the left or right of the respective streams
 $D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(Vl(b-a)-150))$
 $E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))$
 $F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))$
 $Y = 1-0.0345W$
 f = proportion of minor traffic turning left
 $Q(b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a)$ Capacity of combined streams

All the above formulas are in accordance to T.P.D.M. Volume 2 Chapter 4 Appendix 1

Diagram of a roundabout with three arms:

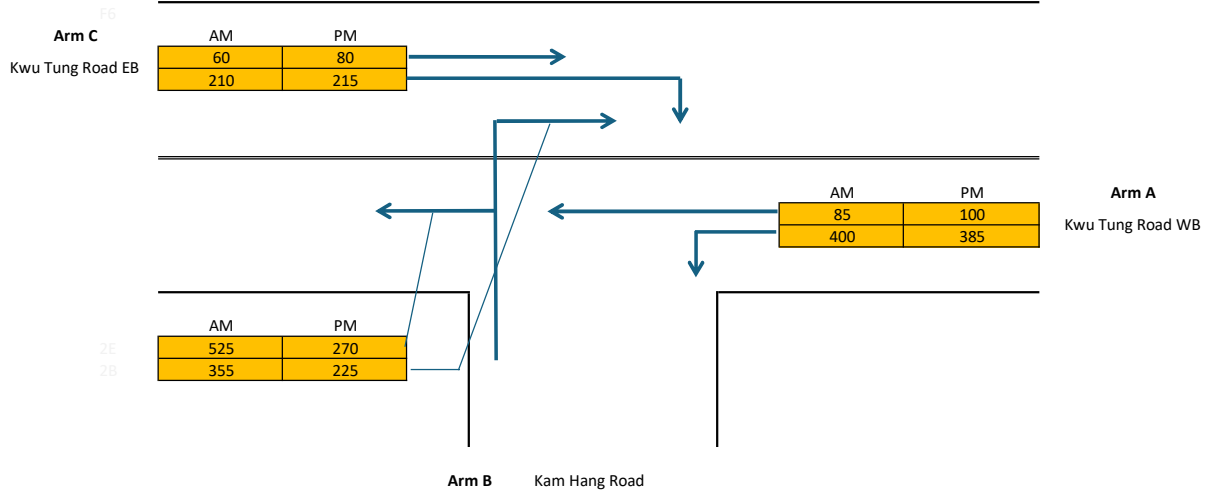
- Arm A: Hang Tau Road (Southbound)**
 - Left Turn: 30 (AM), 20 (PM)
 - Through: 30 (AM), 30 (PM)
 - Right Turn: 110 (AM), 155 (PM)
- Arm B: Hang Tau Road (Northbound)**
 - Through: 215 (AM), 120 (PM)
 - Right Turn: 0 (AM), 0 (PM)
- Arm C: Development Access**
 - Through: 0 (AM), 0 (PM)
 - Right Turn: 0 (AM), 15 (PM)

ENTRY ARM				A	B	C	
INPUT PARAMETERS							
V	Approach Half Width (m)			3.90	3.65	3.65	
E	Entry Width (m)			4.50	4.50	4.00	
L	Effective Length of Flare (m)			3.00	2.00	2.00	
R	Entry Radius (m)			40.00	15.00	18.00	
D	Inscribed Circle Diameter (m)			18.00	18.00	18.00	
A	Entry Angle (degree)			25.00	60.00	35.00	
OUTPUT PARAMETERS							
S	= $1.6 (E - V) / L$	Sharpness of flare		0.32	0.68	0.28	
K	= $1 - 0.00347 (A-30) - 0.978 (1/R - 0.05)$			1.04	0.88	0.98	
X2	= $V + ((E-V) / (1+2S))$			4.27	4.01	3.87	
M	= $EXP ((D-60) / 10)$			0.01	0.01	0.01	
F	= $303 * X2$			1293	1215	1174	
Td	= $1 + (0.5 / (1+M))$			1.49	1.49	1.49	
Fc	= $0.21 * Td (1 + 0.2 * X2)$			0.58	0.56	0.56	
AM RESULT							
Q	Entry Flow (pcu/hour)			160	215	30	
Qc	Circulating Flow Across Entry (pcu/hour)			0	50	245	
Qe	= $K (F - Fc * Qc)$			1347	1044	1014	
DFC	= Q / Qe	Design Flow / Capacity	0.21	0.12	0.21	0.03	
		Total Entry Flows	405				
PM RESULT							
Q	Entry Flow (pcu/hour)			205	120	15	
Qc	Circulating Flow Across Entry (pcu/hour)			0	50	150	
Qe	= $K (F - Fc * Qc)$			1347	1044	1066	
DFC	= Q / Qe	Design Flow / Capacity	0.15	0.15	0.11	0.01	
		Total Entry Flows	340				
All the above formulas are in accordance to T.P.D.M. Vol.2 Chp.4 Sec 4.5.9							

2034 Design

Simplified Priority Junction Capacity Calculation

Job Title:	Section 16 Planning Application For Proposed Minor Relaxation of Plot Ratio and Building Height Restriction For Comprehensive Development in Hang Tau Tai Po, Kwu Tung South		
Junction:	(J1) Kwu Tung Road / Kam Hang Road		Designed by: TCW
Scheme:	Design		Checked by: CHC
Design Year:	2034	Job No.: CHK50808310	Date: Mar-26
Arm A:	Kwu Tung Road WB		
Arm B:	Kam Hang Road		
Arm C:	Kwu Tung Road EB		



GEOMETRY

Major Road Width (m)	W	7.30	Lane widths (m)	w(b-a)	0.00
Central Reserve Width (m)	Wcr	0.00		w(b-c)	3.75
Blockage of major road right turn	Y/N?	Y		w(c-b)	3.60
Combined stream on minor arm	Y/N?	Y			

Visibility Distances (m)	Vr(b-a)	100	Calculated Parameters	D	0.6141
	Vl(b-a)	70		E	0.9912
	Vr(b-c)	100		F	0.9505
	Vr(c-b)	70		Y	0.7482

ANALYSIS

		AM PEAK	PM PEAK
TRAFFIC FLOWS (pcu/hr)	q(c-a)	60	80
	q(c-b)	210	215
	q(a-b)	400	385
	q(a-c)	85	100
	q(b-a)	355	225
	q(b-c)	525	270
	f	0.60	0.55

CAPACITIES (pcu/hr)	Q(b-ac)	437.061	413.32
	Q(c-a)	1151.17	1135.7
	Q(c-b)	582.589	582.59

RFC's	c-a	0.05	0.07
	c-b	0.36	0.37
	b-ac	2.01	1.20

RFC		2.01	1.20
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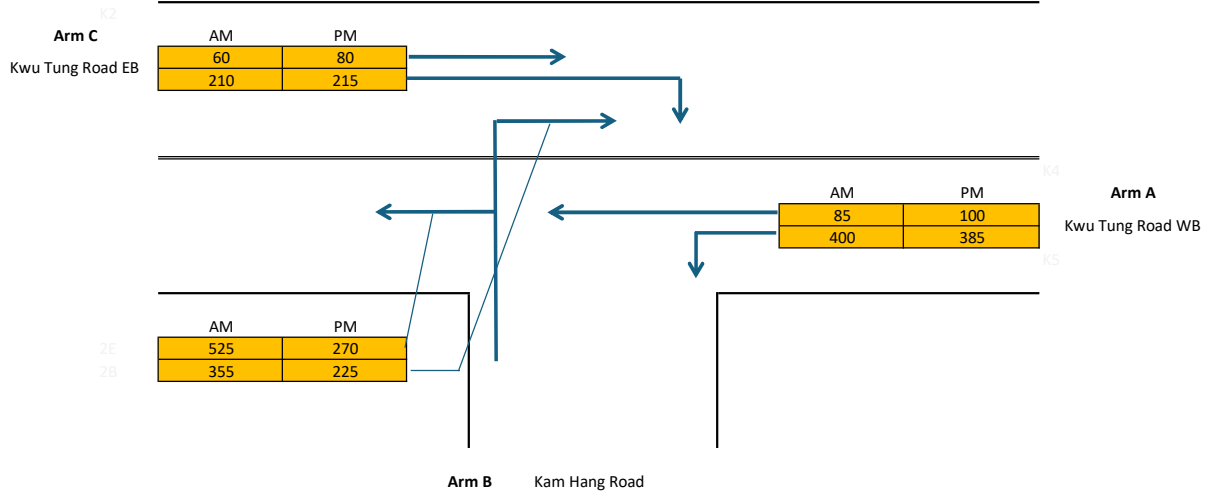
Where Vl and Vr are visibility distances to the left or right of the respective streams
 $D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(Vl(b-a)-150))$
 $E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))$
 $F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))$
 $Y = 1-0.0345W$
 f = proportion of minor traffic turning left
 $Q(b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a)$ Capacity of combined streams

All the above formulas are in accordance to T.P.D.M. Volume 2 Chapter 4 Appendix 1

Simplified Priority Junction Capacity Calculation



Job Title:	Section 16 Planning Application For Proposed Minor Relaxation of Plot Ratio and Building Height Restriction For Comprehensive Development in Hang Tau Tai Po, Kwu Tung South		
Junction:	(J1) Kwu Tung Road / Kam Hang Road		Designed by: TCW
Scheme:	Design (with Improvement scheme under Y/NE-KTS/14)		Checked by: CHC
Design Year:	2034	Job No.: CHK50808310	Date: Mar-26
Arm A:	Kwu Tung Road WB		
Arm B:	Kam Hang Road		
Arm C:	Kwu Tung Road EB		



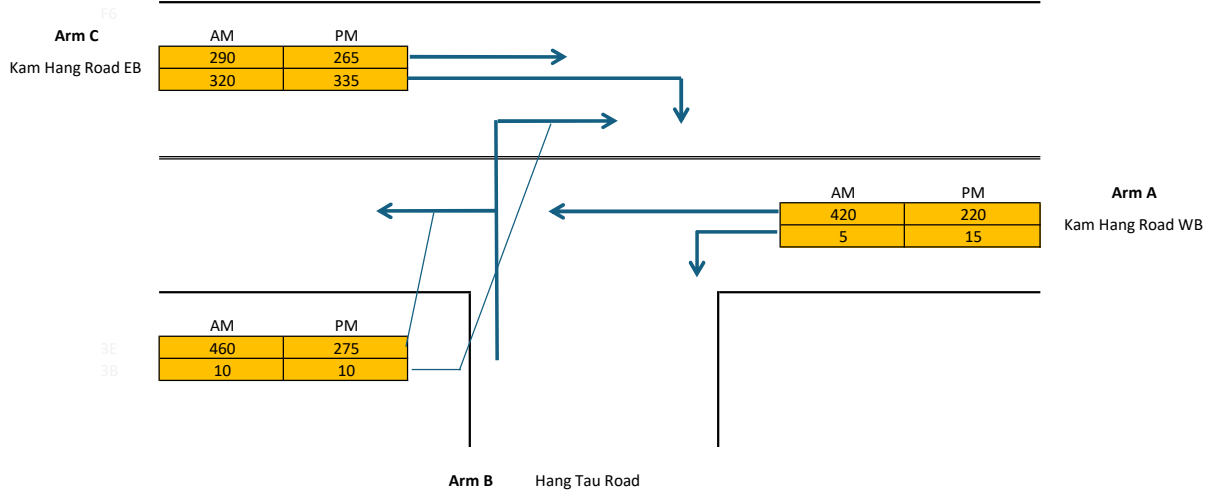
GEOMETRY					
Major Road Width (m)	W	7.30	Lane widths (m)	w(b-a)	4.70
Central Reserve Width (m)	Wcr	0.00		w(b-c)	4.70
Blockage of major road right turn	Y/N?	N		w(c-b)	3.00
Combined stream on minor arm	Y/N?	N			
Visibility Distances (m)	Vr(b-a)	135	Calculated Parameters	D	1.0968
	VI(b-a)	125		E	1.1135
	Vr(b-c)	135		F	0.922
	Vr(c-b)	100		Y	0.7482
ANALYSIS			AM PEAK		PM PEAK
TRAFFIC FLOWS (pcu/hr)	q(c-a)		60		80
	q(c-b)		210		215
	q(a-b)		400		385
	q(a-c)		85		100
	q(b-a)		355		225
	q(b-c)		525		270
	f		0.60		0.55
CAPACITIES (pcu/hr)	Q(b-a)		514.173		505.57
	Q(b-c)		755.82		753.07
	Q(b-c)(0)		625.36		669.28
	Q(c-b)		565.114		565.11
RFC's	c-b		0.37		0.38
	b-a		0.69		0.45
	b-c	b-c(0)	0.69	0.84	0.36
					0.40
RFC			0.84		0.45

Where VI and Vr are visibility distances to the left or right of the respective streams
 $D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(VI(b-a)-150))$
 $E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))$
 $F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))$
 $Y = 1-0.0345W$
f = proportion of minor traffic turning left
 $Q(b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a)$ Capacity of combined streams

All the above formulas are in accordance to T.P.D.M. Volume 2 Chapter 4 Appendix 1

Simplified Priority Junction Capacity Calculation

Job Title:	Section 16 Planning Application For Proposed Minor Relaxation of Plot Ratio and Building Height Restriction For Comprehensive Development in Hang Tau Tai Po, Kwu Tung South		
Junction:	(J2) Kam Hang Road / Hang Tau Road		Designed by: TCW
Scheme:	Design		Checked by: CHC
Design Year:	2034	Job No.: CHK50808310	Date: Mar-26
Arm A:	Kam Hang Road WB		
Arm B:	Hang Tau Road		
Arm C:	Kam Hang Road EB		



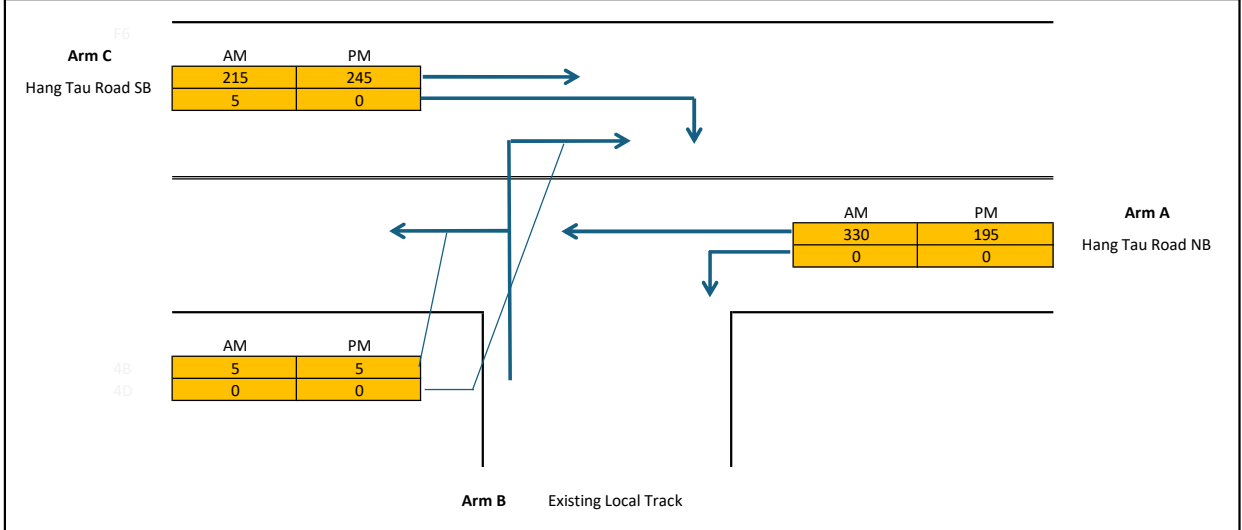
GEOMETRY					
Major Road Width (m)	W	6.60	Lane widths (m)	w(b-a)	0.00
Central Reserve Width (m)	Wcr	0.00		w(b-c)	4.25
Blockage of major road right turn	Y/N?	Y		w(c-b)	3.30
Combined stream on minor arm	Y/N?	Y			
Visibility Distances (m)	Vr(b-a)	100	Calculated Parameters	D	0.6044
	Vl(b-a)	45		E	1.0469
	Vr(b-c)	110		F	0.941
	Vr(c-b)	90		Y	0.7723
ANALYSIS			AM PEAK	PM PEAK	
TRAFFIC FLOWS (pcu/hr)	q(c-a)		290	265	
	q(c-b)		320	335	
	q(a-b)		5	15	
	q(a-c)		420	220	
	q(b-a)		10	10	
	q(b-c)		460	275	
	f		0.98	0.96	
CAPACITIES (pcu/hr)	Q(b-ac)		625.131	664.71	
	Q(c-a)		821.426	856.15	
	Q(c-b)		588.612	638.87	
RFC's	c-a		0.35	0.31	
	c-b		0.54	0.52	
	b-ac		0.75	0.43	
RFC			0.75	0.52	

Where Vl and Vr are visibility distances to the left or right of the respective streams
 $D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(Vl(b-a)-150))$
 $E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))$
 $F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))$
 $Y = 1-0.0345W$
 f = proportion of minor traffic turning left
 $Q(b-ac) = Q(b-c) * Q(b-a) / (1-f) * Q(b-c) + f * Q(b-a)$ Capacity of combined streams

All the above formulas are in accordance to T.P.D.M. Volume 2 Chapter 4 Appendix 1

Simplified Priority Junction Capacity Calculation

Job Title:	Section 16 Planning Application For Proposed Minor Relaxation of Plot Ratio and Building Height Restriction For Comprehensive Development in Hang Tau Tai Po, Kwu Tung South		
Junction:	(J3) Hang Tau Road / Local Track to Sheung Yue River / Access of Jockey Club River Beas Lodge		Designed by: TCW
Scheme:	Design		Checked by: CHC
Design Year:	2034	Job No.: CHK50808310	Date: Mar-26
Arm A:	Hang Tau Road NB		
Arm B:	Existing Local Track		
Arm C:	Hang Tau Road SB		



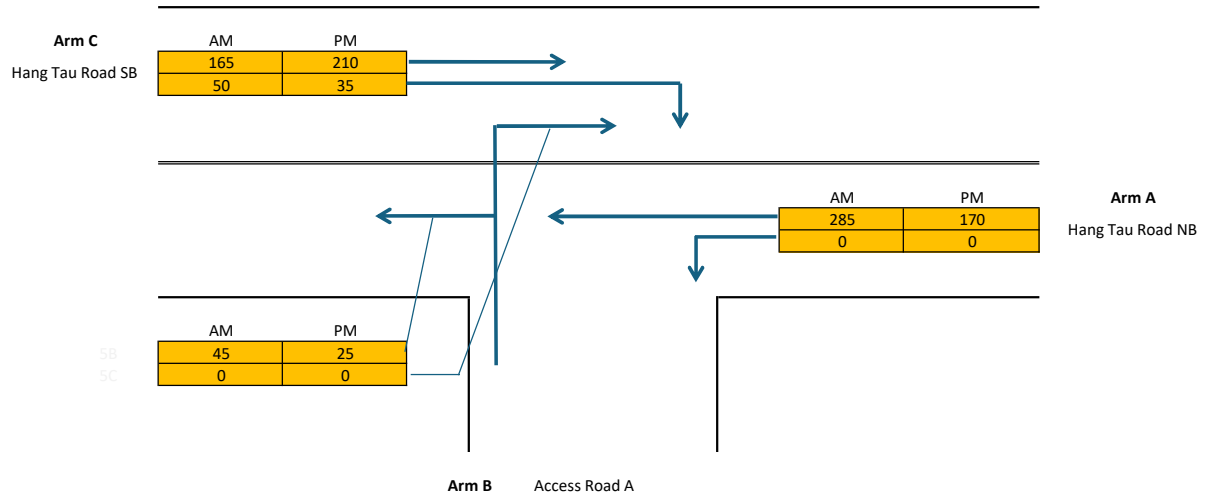
GEOMETRY					
Major Road Width (m)	W	7.80	Lane widths (m)	w(b-a)	0.00
Central Reserve Width (m)	Wcr	0.00		w(b-c)	3.50
Blockage of major road right turn	Y/N?	Y		w(c-b)	3.90
Combined stream on minor arm	Y/N?	Y			
Visibility Distances (m)	Vr(b-a)	100	Calculated Parameters	D	0.6257
	Vl(b-a)	100		E	0.9682
	Vr(b-c)	100		F	0.9867
	Vr(c-b)	80		Y	0.7309
ANALYSIS			AM PEAK	PM PEAK	
TRAFFIC FLOWS (pcu/hr)	q(c-a)		215	245	
	q(c-b)		5	0	
	q(a-b)		0	0	
	q(a-c)		330	195	
	q(b-a)		0	0	
	q(b-c)		5	5	
	f		1.00	1.00	
CAPACITIES (pcu/hr)	Q(b-ac)		636.275	671.05	
	Q(c-a)		1786.12	1800	
	Q(c-b)		648.433	683.87	
RFC's	c-a		0.12	0.14	
	c-b		0.01	0.00	
	b-ac		0.01	0.01	
RFC			0.12	0.14	

Where Vl and Vr are visibility distances to the left or right of the respective streams
 $D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(Vl(b-a)-150))$
 $E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))$
 $F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))$
 $Y = 1-0.0345W$
 f = proportion of minor traffic turning left
 $Q(b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a)$ Capacity of combined streams

All the above formulas are in accordance to T.P.D.M. Volume 2 Chapter 4 Appendix 1

Simplified Priority Junction Capacity Calculation

Job Title:	Section 16 Planning Application For Proposed Minor Relaxation of Plot Ratio and Building Height Restriction For Comprehensive Development in Hang Tau Tai Po, Kwu Tung South		
Junction:	(J4) Hang Tau Road / Access Road A		Designed by: TCW
Scheme:	Design		Checked by: CHC
Design Year:	2034	Job No.: CHK50808310	Date: Mar-26
Arm A:	Hang Tau Road NB		
Arm B:	Access Road A		
Arm C:	Hang Tau Road SB		



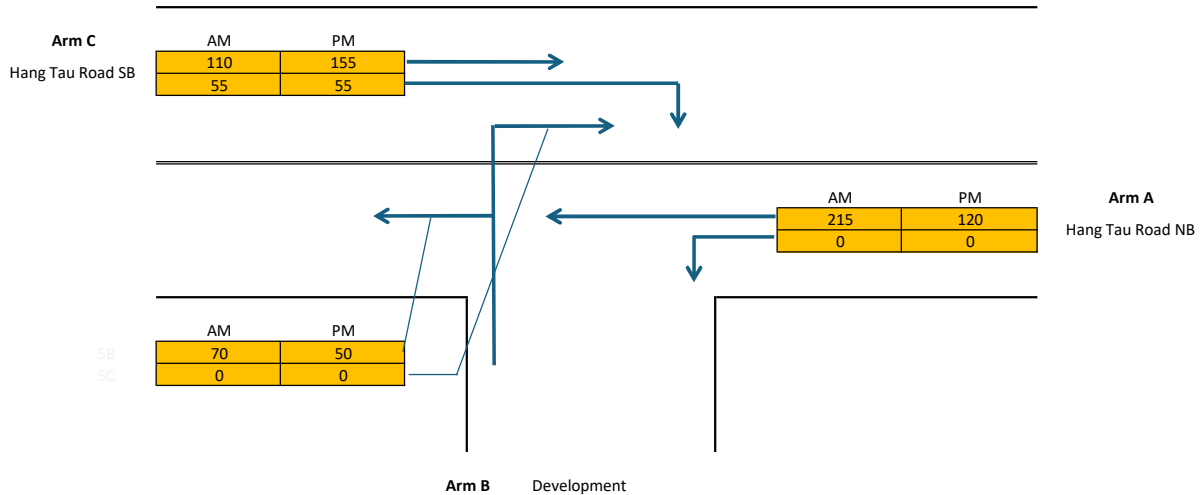
GEOMETRY					
Major Road Width (m)	W	7.00	Lane widths (m)	w(b-a)	0.00
Central Reserve Width (m)	Wcr	0.00		w(b-c)	3.30
Blockage of major road right turn	Y/N?	Y		w(c-b)	3.30
Combined stream on minor arm	Y/N?	Y			
Visibility Distances (m)	Vr(b-a)	30	Calculated Parameters	D	0.5573
	Vl(b-a)	22		E	0.8888
	Vr(b-c)	30		F	0.8888
	Vr(c-b)	30		Y	0.7585
ANALYSIS			AM PEAK		PM PEAK
TRAFFIC FLOWS (pcu/hr)	q(c-a)		165		210
	q(c-b)		50		35
	q(a-b)		0		0
	q(a-c)		285		170
	q(b-a)		0		0
	q(b-c)		45		25
	f		1.00		1.00
CAPACITIES (pcu/hr)	Q(b-ac)		592.196		620.41
	Q(c-a)		1648.02		1698.5
	Q(c-b)		592.196		620.41
RFC's	c-a		0.10		0.12
	c-b		0.08		0.06
	b-ac		0.08		0.04
RFC			0.10		0.12

Where Vl and Vr are visibility distances to the left or right of the respective streams
 $D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(Vl(b-a)-150))$
 $E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))$
 $F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))$
 $Y = 1-0.0345W$
 f = proportion of minor traffic turning left
 $Q(b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a)$ Capacity of combined streams

All the above formulas are in accordance to T.P.D.M. Volume 2 Chapter 4 Appendix 1

Simplified Priority Junction Capacity Calculation

Job Title:	Section 16 Planning Application For Proposed Minor Relaxation of Plot Ratio and Building Height Restriction For Comprehensive Development in Hang Tau Tai Po, Kwu Tung South		
Junction:	(J4) Hang Tau Road / Access Road A		Designed by: TCW
Scheme:	Design		Checked by: CHC
Design Year:	2034	Job No.: CHK50808310	Date: Mar-26
Arm A:	Hang Tau Road NB		
Arm B:	Development		
Arm C:	Hang Tau Road SB		



GEOMETRY

Major Road Width (m)	W	7.30	Lane widths (m)	w(b-a)	0.00
Central Reserve Width (m)	Wcr	0.00		w(b-c)	3.65
Blockage of major road right turn	Y/N?	Y		w(c-b)	3.20
Combined stream on minor arm	Y/N?	Y			

Visibility Distances (m)	Vr(b-a)	55	Calculated Parameters	D	0.5999
	Vl(b-a)	100		E	0.9415
	Vr(b-c)	55		F	0.9318
	Vr(c-b)	90		Y	0.7482

ANALYSIS

		AM PEAK	PM PEAK
TRAFFIC FLOWS (pcu/hr)	q(c-a)	110	155
	q(c-b)	55	55
	q(a-b)	0	0
	q(a-c)	215	120
	q(b-a)	0	0
	q(b-c)	70	50
	f	1.00	1.00

CAPACITIES (pcu/hr)	Q(b-ac)	646.292	670.65
	Q(c-a)	1645.23	1650.9
	Q(c-b)	639.663	663.77

RFC's	c-a	0.07	0.09
	c-b	0.09	0.08
	b-ac	0.11	0.07

RFC	0.11	0.09
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Where Vl and Vr are visibility distances to the left or right of the respective streams
 $D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(Vl(b-a)-150))$
 $E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))$
 $F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))$
 $Y = 1-0.0345W$
 f = proportion of minor traffic turning left
 $Q(b-ac) = Q(b-c) * Q(b-a) / (1-f) * Q(b-c) + f * Q(b-a)$ Capacity of combined streams

All the above formulas are in accordance to T.P.D.M. Volume 2 Chapter 4 Appendix 1