

寄件者: Camille Lam [REDACTED]
寄件日期: 2026年07月22日星期三 22:07
收件者: TPB Submission/PLAND
副本: Andrea Wing Yin YAN/PLAND; Ivan Sze Yuet FUNG/PLAND; Pauline Lam
主旨: RE: Submission of Further Information of s.12 Planning Application No. Y/YL-KTN/6
類別: Internet Email

Dear TPB Secretariat,

Please be informed that the updated Further Information (FI) No. 5 of the captioned S12A Application for replacement of the FI No. 5 submitted at 5:28pm today has been uploaded to the link:

https://fespld.pland.gov.hk/FsShare?key=Y_YL-KTN_6

Thanks.

Rgds,

Camille Lam

Principal Town Planner

KTA Planning Limited
[REDACTED]

From: Camille Lam

Sent: Wednesday, July 22, 2026 5:28 PM

To: 'TPB Submission/PLAND' <tpbsubmission@pland.gov.hk>

Cc: 'Andrea Wing Yin YAN/PLAND' <awyyan@pland.gov.hk>; 'Ivan Sze Yuet FUNG/PLAND' <isyfung@pland.gov.hk>; Pauline Lam <paulinelam@ktaplanning.com>

Subject: RE: Submission of Further Information of s.12 Planning Application No. Y/YL-KTN/6

Dear TPB Secretariat,

Please be informed that Further Information No. 5 of the captioned S12A Application has been submitted to TPB and uploaded to the link: https://fespld.pland.gov.hk/FsShare?key=Y_YL-KTN_6

Rgds,

Camille Lam

Principal Town Planner

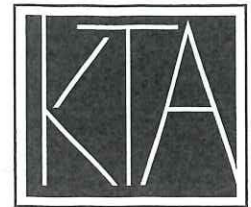
KTA Planning Limited

By Email

Our Ref: S3045a/KTR/25/010Lg

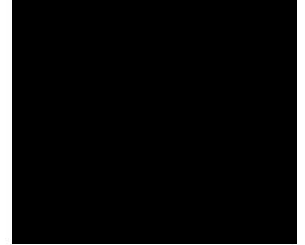
22 July 2026

Secretary, Town Planning Board
15/F, North Point Government Offices
333 Java Road
North Point
Hong Kong



PLANNING LIMITED

規劃顧問有限公司



Dear Sir / Madam,

**Rezoning from “Residential (Group C) 2” (“R(C)2”) and “Open Space” (“O”) zones to
“R(C)4” zone for a Proposed Residential Development
at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and adjoining Government land,
and
Rezoning from “R(C)2” to “O” zone
at Lot Nos. 121, 137, 138, 139 S.A and 139 RP (part) in D.D. 110
and adjoining Government land, Shek Kong, Yuen Long, N.T.
(S12A Amendment of Plan Application No. Y/YL-KTN/6)
- Further Information No. 5 -**

We refer to the captioned S12A Application received by the Town Planning Board (“TPB”) on 11 November 2025.

In response to the departmental comments from Transport Department (TD) received on 17 and 20 July 2026, we hereby submit a response-to-comment table with the Revised Traffic Impact Assessment.

Should you have any queries in relation to the above or attached, please do not hesitate to contact the undersigned at [REDACTED]

Thank you for your kind attention.

Yours faithfully
For and on behalf of
KTA PLANNING LIMITED

Camille LAM

Encl.
cc. the Applicant & Team

PL/CL/vy



FS 579819



Proposed Rezoning of the Application Site from (i) “Residential (Group C) 2” and “Open Space “ Zones to “Residential (Group C) 4” Zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and adjoining Government land and (ii) from “Residential (Group C) 2” to “Open Space” Zones at Lot Nos. 121, 137, 138, 139 S.A and 139 RP (part) in D.D. 110 and adjoining Government land at Shek Kong, Yuen Long, N.T. (S12A Amendment of Plan Application No. Y/YL-KTN/6)

Comments Forwarded from Fanling, Sheung Shui and Yuen Long East District Planning Office (FSS&YLE DPO)

Comments	Responses
Comments from Transport Department (received on 17 July 2026) Contact person: Mr Phil CAI; Tel. No.: 2399 2421	
Para 2.4.2 - It is not appropriate for a TIA to provide a PWP status / programme. The para. should be amended.	Noted. The paragraph was revised in the TIA report.
Table 4.5 - It was stated in footnote (2) that Grand Mayfair I and II were completed, while the traffic generation and attraction should be dependent on full population intake. Please review and revise the statement if necessary.	As discussed and clarified, Grand Mayfair I&II were completed and only Grand Mayfair III will be added in future. On the other hand, KSRS Phase II was also included in the assessment.
Table 7.5 - The TPDM clause is wrongly quoted in footnote (3).	Noted. The clause was revised in the TIA report.
Section 8 - Proposed improvement work by the applicant should be summarised in this section.	The proposed improvement works by the applicant are summarized in Section 8 of the TIA report.
Figure 2.3 - The location of L/UL space is designed away from the towers, e.g. T1 and T6. This could be reviewed during detailed design stage.	Noted. The location of L/UL spaces will be reviewed during the detailed design stage.
Figure 7.3 - According to the TIA, the current footpath along Kam Tin Road at both sides are approx. 1.5m wide. However, due to the presence of street furniture such as beam barriers, lamppost, railing etc., the pedestrian flow arisen from the development may have difficulties going to / from the adjacent attraction, e.g. public transport. The applicant should review	Noted. It is proposed to locally widen the northern footpath of Kam Tin Road to min. 2m as shown in Figure 7.3 of the TIA report.

Comments	Responses
the pedestrian connectivity and identify whether local improvement for footpath is required.	
The revised calculation from the traffic consultant for junction C shall be incorporated in the TIA.	Noted and incorporated in the TIA report.
Comments from Transport Department (received on 20 July 2026) Contact person: Mr Phil CAI; Tel. No.: 2399 2421	
Proposed Bus stop modifications as shown on Figure No. 3.12 indicate a bus-stop extension on Kam Tin Road eastbound. However, bus stop on westbound is more critical as passengers would wait there for buses heading for Kam Sheung Road Station / Tai Lam BBI. The traffic consultant should clarify whether they forecast any passenger queue along the eastbound bus stop and how long the queue would be in order to justify the proposed large-scale modifications for the bus-stop extension on Kam Tin Road eastbound as shown in Figure No. 3.12.	The bus stop shown in Figure 3.12 is proposed and carried out by HyD under PWP item no.6820TH but not by the applicant. Assessment on bus stop is added in Section 6.4 of the TIA report. While passengers would wait at the westbound stop for buses heading for Kam Sheung Road Station / Tai Lam BBI, the eastbound stop would be used for alighting and going back to the proposed development but not waiting there. Therefore, the westbound stop is more critical and assessment would be carried out for this stop. It is noted that the existing bus stop is sufficient to cater future passenger demand including the passenger of our proposed development. Therefore, no improvement is required on the bus stops by the Applicant.

Encl.:
Revised Traffic Impact Assessment

Compiled by: KTA
Date: 22 July 2026
File Ref.: 20260722_s3045a_RtC FI5

**Rezoning from “Residential (Group C)2” and “Open Space”
zones to “Residential (Group C)4” zone for a
Proposed Residential Development at Lot Nos.
519 RP (part) and 520 RP in D.D. 110 and the
Adjoining Government land, Shek Kong, Yuen Long, N.T.**

Traffic Impact Assessment

Revised Final Report

July 2026



CTA Consultants Limited

志達顧問有限公司

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Appendix I – Kam Tin South Housing Development – Layout Plan

Appendix II – Junction Calculation Sheets



1. INTRODUCTION

1.1 Background

1.1.1 The Development Site is located at DD110, Shek Kong, Kam Tin Road, Yuen Long New Territories. The site location is shown in **Figure 1.1**.

1.1.2 The Applicant intends to rezone the Development Site from "Residential (Group C)2" and "Open Space" to "Residential (Group C)4" to enable the proposed residential development.

1.1.3 In support of the aforesaid application, a traffic impact assessment is required to review and appraise any possible traffic impact induced by the proposed development on the adjacent road network.

1.1.4 CTA Consultants Limited (CTA) was therefore commissioned as the traffic consultant to prepare the Traffic Impact Assessment (TIA) and provide technical justifications in supporting the application from traffic engineering point of view.

1.2 Study Objectives

1.2.1 Main objectives of this study are listed below:

- To assess the existing and proposed traffic arrangement & provision of internal transport facilities at the subject site;
- To assess the existing traffic condition in the vicinity of the proposed development;
- To estimate traffic trips related to the proposed development;
- To carry out forecasts about traffic demand of the adjacent road network in design year;
- To appraise any possible traffic impact induced by the proposed development on the adjacent road network;
- To recommend traffic improvement measures to alleviate any foreseeable traffic problem to the surrounding road network, if any.



2. THE PROPOSED DEVELOPMENT

2.1 Site Location

2.1.1 The Development Site is located in D.D. 110, Kam Tin, Yuen Long, New Territories. The site location is shown in **Figure 1.1**.

2.2 Development Proposal

2.2.1 Parameters of the proposed development are listed in **Table 2.1**.

Table 2.1 Parameters of the Proposed Development

	Development Parameters	
Proposed Use	Residential Use	
Development Site Area	8,580 m ²	
Domestic GFA	8,580 m ²	
Plot Ratio	1.0	
No. of Tower	6	
No. of Units	≤ 40 m ²	120
	40 m ² < FS ≤ 70 m ²	120

2.2.2 It is anticipated that the proposed development will be completed in year 2031.

2.2.3 The Master layout plan of the proposed development is shown in **Figures 2.1** (w/o PWP) and **2.2** (w PWP). The Ground floor plan is shown in **Figures 2.3** (w/o PWP) and **2.4** (w PWP).

2.3 Provision of Internal Transport Facilities

2.3.1 According to the requirements stipulated in the latest Hong Kong Planning Standards and Guidelines (HKPSG), the internal transport facilities provision for the proposed development is summarized in **Table 2.2**.



Table 2.2 Internal Transport Facilities Provision required under the HKPSG

Proposed Development			Parking Requirement					Loading/Unloading Requirement	
			Private Car Parking Space				Motorcycle Parking Space	Bicycle Parking	Loading / Unloading Bay for Goods Vehicles
Private Housing	Resident						1 space per 100-150 flats	1 space for 15 flats with flat size $\leq 70\text{m}^2$	Provision of minimum 1 L/UL bay for goods vehicles within the site for every 800 flats or part thereof, subject to a minimum of 1 bay for each housing block or as determined by the Authority
	Flat Size (GFA) (m ²)	No. of Flat	GPS: 1 space per 4-7 flats			GPS x R1 X R2 X R3			
			R1	R2	R3				
	FS ≤ 40	120	0.5	1	1.3	12 to 20			
	40 <FS ≤ 70	120	1.2	1	1.3	27 to 47			
	70 < FS ≤ 100	0	2.4	1	1.3	0			
	100 < FS ≤ 130	0	4.1	1	1.3	0			
	130 < FS ≤ 160	0	5.5	1	1.3	0			
	FS > 160	0	7.0	1	1.3	0			
	Subtotal	240	39 to 67						
Visitor									
No. of Block	Average No. of Unit per Block	> 75 units per block: 5 visitor spaces per block, ≤ 75 units per block: Determined by TD							
6	40	12 ⁽²⁾							
Total			51 to 79 ⁽¹⁾				2 to 3	16	6 HGV

Notes: (1) Including 2 accessible car parking spaces for total 51-150 number of parking spaces

(2) Average about 40 units per block. As discussed with TD in previous planning application no. Y/YL-KTN/4, 2 visitor spaces per block is adopted.

2.3.2 The details of proposed internal transport facilities of the proposed development complying with the HKPSG requirements are summarized in **Table 2.3**.

Table 2.3 Proposed Internal Transport Facilities of Proposed Development

Type		Proposed Number of Spaces	
Private Housing			
Private Cars	Resident	67	79 ⁽¹⁾
	Visitor	12 ⁽²⁾	
Motorcycles		3	
Bicycle Parking		16	
L/UL for HGV		6	

(1) Including 2 accessible car parking spaces for total 51-150 number of parking spaces.

(2) Average about 40 units per block. As discussed with TD in previous planning application no. Y/YL-KTN/4, 2 visitor spaces per block is adopted.



2.4 Upgrade of Kam Tin Road

2.4.1 Kam Tin Road will be upgraded by Highway Department under Public Works Programme (PWP) item No. 6820TH “Upgrading of Remaining Sections of Kam Tin Road and Lam Kam Road”. The works include:

- (i) upgrading of a section of Kam Tin Road of approximately 1.9 kilometres long between Tung Wui Road and Fan Kam Road to a 10.3 metres wide single two lane carriageway
- (ii) upgrading of a section of Kam Tin Road of approximately 2.1 kilometres long between Fan Kam Road and Lam Kam Road and a section of Lam Kam Road of approximately 1.3 kilometres long between Kam Tin Road and Kadoorie Farm and Botanic Garden to a 7.3 metres wide single two-lane carriageway;

2.4.2 Scenarios with these PWP works are included in this assessment.

2.5 Development Access

Without Kam Tin Road Widening

2.5.1 The access arrangement and the traffic signs are shown in **Figure 2.1**.

2.5.2 As shown in the swept paths in **Figures 2.1 (SP1) to 2.1 (SP5)**, most of the vehicles can ingress and egress simultaneously, except for vehicles longer than 7m. To minimize the impact to the public road, it is proposed that all egress vehicles longer than **7m** are only allowed to turn right to westbound. One-way traffic flow will be adopted for the internal road. Ingress traffic cannot turn right but go straight inward to reduce conflicts with the egress traffic. Separate gates will be provided for ingress and egress traffic. The waiting area before the ingress gate could hold about 1 HGV plus 1 PV/LGV to avoid queue back to public road. Ingress traffic has priority to enter the proposed development. When long vehicles enter the proposed development, egress traffic must wait behind the egress gate until the long vehicles ingress. Traffic warden will be deployed at the entrance to assist vehicles in and out.



2.5.3 Besides, reference has been made to the surveyed trip distribution at Season Villas next to the proposed development to estimate the M/HGV trips of our proposed development. The estimated trips are shown below:

Table 2.4 Estimated M/HGV of the Proposed Development

	Traffic Trips (pcu/hr)			
	Weekday AM Peak		Weekday PM Peak	
	Gen.	Att.	Gen.	Att.
Estimated Trips of the Proposed Development (From Table 4.7 in the Chapter 4 below)	25	18	10	13
Surveyed % of M/HGV of Season Villas	0%	0%	13%	0%
Estimated M/HGV of the Proposed Development	0	0	1	0

2.5.4 It is revealed that the trips of M/HGV for the proposed development will be very low. Together with the above access arrangement and management, the chance of queuing back to the public road will be very small and negligible and therefore our proposed arrangement is acceptable.

With Kam Tin Road Widening

2.5.5 Under the "with Kam Tin Road Widening" scenario, the same arrangements are proposed (i.e. all egress vehicles longer than 7m are only allowed to turn right to westbound, one-way internal traffic, etc.). The access arrangement and the traffic signs are shown in **Figure 2.2**. Swept paths are shown in **Figure 2.2 (SP1)** and **2.2 (SP5)**.



3. EXISTING TRAFFIC CONDITION

3.1 Existing Road Network

3.1.1 The proposed development locates at Kam Tin Road. Kam Tin Road is a two-lane two-way road and connects to Kam Tin By-pass and Fan Kam Road.

3.2 Critical Junctions

3.2.1 Seven junctions are identified to be critical for the Traffic Impact Assessment due to the proposed development. Relevant details are listed in **Table 3.1** and shown in **Figure 3.1**. Existing junction layouts are tabulated in **Figures 3.2 to 3.8** respectively.

Table 3.1 Identified Critical Junctions

Ref.	Junction	Type	Figure No.
A	Kam Tin Bypass / Kam Tin Road / Tung Wui Road	Roundabout	3.2
B	Kam Tin Bypass / Kong Tai Road	Signalized	3.3
C	Kam Tin Road / Kam Tai Road	Priority	3.4
D	Kam Tin Road / Fan Kam Road	Roundabout	3.5
E	Kam Tin Road	Signalized	3.6
F	Kam Tin Road / Tsing Long Highway slip road	Signalized	3.7
G	Kam Tin Road / Kam Tin Bypass	Roundabout	3.8

3.2.2 As mentioned in Section 2.4, Kam Tin Road will be upgraded under HyD PWP item No. 6820TH. Therefore, junctions along Kam Tin Road (Junctions C, D and E) will also be improved. As there is no detail future layout of these junctions can be obtained from public domain, the conceptual future layouts of these junctions are drawn which are based on the existing layouts and gazette layout plans. Also, Junction improvement to Junctions F and G are constructing by CEDD under Contract No. YL/2017/01 (Original Target Completion Date: Mid 2022). The future layouts are shown in **Figures 3.10 to 3.14** respectively.



- 3.2.3 In order to study the existing traffic condition of the above critical junctions and **Tai Lam Tunnel**, traffic survey in the form of manual-classified count was carried out during the Weekday AM and PM peak periods on 5 May 2026 from 07:30AM to 09:30AM and 17:00PM to 19:00PM respectively. The survey provides most up-to-date details of the traffic condition within the study area under normal operation. Based on the observed traffic flows, it reveals that Weekday AM and PM peak hour occurred from 07:30AM to 08:30AM, 17:00PM to 18:00PM respectively.
- 3.2.4 Observed traffic data indicates that both morning peak hour, evening peak hour and the surveyed traffic flows are shown in **Figure 3.9**.
- 3.2.5 The operational performances of the critical junctions are listed in **Table 3.2** below.

Table 3.2 Operational Performances of Critical Junctions in 2026

Ref.	Junction	Method of Control	Year 2026 RC/DFC ⁽¹⁾	
			AM Peak	PM Peak
A	Kam Tin Bypass / Kam Tin Road / Tung Wui Road	Roundabout	0.36	0.34
B	Kam Tin Bypass / Kong Tai Road	Signalized	60%	92%
C	Kam Tin Road / Kam Tai Road	Priority	0.68	0.60
D	Kam Tin Road / Fan Kam Road	Roundabout	0.59	0.64
E	Kam Tin Road	Signalized	61%	71%
F ⁽²⁾	Kam Tin Road / Tsing Long Highway slip road	Signalized	24%	28%
G	Kam Tin Road / Kam Tin Bypass	Roundabout	0.54	0.50

Notes: (1) RC = Reserve Capacity for Signal Junction;

DFC = Design Ratio of Flow to Capacity for Priority Junction/Roundabout

(2) Effect of TTA was considered



Table 3.3 V/C Ratio of Critical Road Link in Year 2026

Index	Road Name	Direction	Cap. (pcu/hr) (C)	Observed Scenario			
				Flow (pcu/hr) (V)		V/C	
				AM Peak	PM Peak	AM Peak	PM Peak
L1	Kam Tin Road	EB	3,600	2,105	1,895	0.58	0.53
		WB	3,600	1,930	1,855	0.54	0.52
L2	Kam Tin Bypass	EB	3,600	685	625	0.19	0.17
		WB	3,600	690	705	0.19	0.20
L3	Kam Tin Road	EB	900	315	265	0.35	0.29
		WB	900	250	285	0.28	0.32
L4	Kam Tin Road	EB	900	860	820	0.96	0.91
		WB	900	910	855	1.01	0.95
L5	Kam Tin Road	EB	900	910	810	1.01	0.90
		WB	900	935	955	1.04	1.06
Tai Lam Tunnel		NB	5,400	1,820	3,410	0.34	0.63
		SB	5,400	5,250	2,565	0.97	0.48

Note:

(1) Index please refer to Figure 3.1

3.2.6 The assessment results in **Table 3.2** and **3.3** indicate that all critical junctions and road links are at present operating with ample capacities during the peak hours except Link L4, L5 over 1.0 but below 1.2 indicates a manageable degree of congestion.

3.3 Public Transport Services in the Vicinity

3.3.1 Numerous road-based public transport services, for instance, franchised buses and GMB are also provided in vicinity of the proposed development. Details of the current services of franchised buses and GMB routes within the catchment area of 500 meters are listed in **Table 3.4** and shown in **Figure 3.15**.



Table 3.4 Public Transport Services in the Vicinity of the Proposed Development

Service	Route	Origin - Destination	Frequency (mins)
Franchised Bus	54	Yuen Long (West) - Sheung Tsuen (Circular)	20 - 30
	77K	Yuen Long (Fung Cheung Road) – Sheung Shui	15 - 30
		Sheung Shui – Yuen Long (Fung Cheung Road)	12 - 30
		Sheung Shui – Yuen Long (West)	06:55 ⁽¹⁾
		Sheung Shui – Kam Sheung Road Station	07:25 ⁽¹⁾
	251B	Pat Heung Road - Sheung Tsuen (Circular)	20 - 30
	251M	Sheung Tsuen - Tsuen Wan Station	07:00, 08:00, 09:00 ⁽¹⁾
GMB	608	Wang Toi Shan (Pat Heung) – Yuen Long (Fung Cheung Road) (Circular)	10-13
		Wang Toi Shan (Pat Heung) – Kam Sheung Road Station (Circular)	10-13
	608S	CONCORDIA Tsat Sing Kong Public Light Bus Terminus – Kam Sheung Road Station Public Transit Interchange (Circular)	15 – 30
RMB	18	Yuen Long - Sheung Shui	Non-regular
	Tai Po – Yuen Long	Tai Po – Yuen Long	Non-regular

Note:

(1) Peak Hour Services only



4. FUTURE TRAFFIC CONDITION & TRAFFIC IMPACT ASSESSMENT

4.1 Design Year

4.1.1 It is anticipated that the proposed development would be completed in 2031 tentatively with full intended operation. In order to assess the possible traffic impacts to the local road network due to the proposed development, year 2034 (i.e. 3 years after completion) has been adopted as the design year for this study.

4.2 Traffic Forecast

4.2.1 To estimate the reference traffic flow in year 2034 (without the proposed development) in the local road network, an appropriate growth factor has to be identified for the area in the first instance. The following approaches have been adopted to derive the growth factor for the Area of Influence.

Historical Trend

4.2.2 TD has traffic count stations in the vicinity of the proposed development. The past 6 years traffic counts reported in the Annual Traffic Census (ATC) are shown in **Table 4.1**.

Table 4.1 Average Annual Daily Traffic (A.A.D.T.) Data in the Vicinity of the Proposed Development from ATC

ATC Stn.	Road Name	Annual Average Daily Traffic (AADT)						Average Annual Growth Rate
		2019	2020	2021	2022	2023	2024	
6207	Kam Tin Rd (Kam Sheung Rd western junction to Fan Kam Rd)	21,300	21,640	20,490	20,520	21,510	20,230	-1.03%
6212	Fan Kam Rd (From Kam Tin Rd to Fanling Highway)	11,660	12,250	12,450	12,400	13,890	13,920	3.61%
6208	Kam Sheung Rd (From Kam Tin Rd to Kam Tin Rd)	8,080	9,400	8,960	9,600	10,460	10,060	4.48%
5254	Kam Tin Rd (From Fan Kam Rd to kam Sheung Rd eastern junctino)	18,510	18,330	19,040	18,850	15,740	16,320	-2.49%
Total		59,550	61,620	60,940	61,370	61,600	60,530	0.33%



4.2.3 The Average Annual Daily Traffic (AADT) flows in **Table 4.1** shows the average traffic growth on surrounding roads which increased at the rate of **+0.33%** per annum.

Planning Data

4.2.4 Reference has also been made to the latest 2021-Based Territorial Population Employment Data Matrices (TPEDM) planning data published by the Planning Department for projection of population and employment within the study district. The average annual growth rates in terms of population and employment from 2026 to 2031 are tabulated in **Table 4.2**.

Table 4.2 2021-Based Planning Data from 2026 to 2031

Yuen Long Districts			
Data	Year		Average Annual Growth Rate
	2026	2031	
Population	685,000	760,600	2.12%
Employment	238,500	258,200	1.60%
Total	923,500	1,018,800	1.98%
Revised ⁽¹⁾			
Population	685,000	691,131 ⁽¹⁾	0.18%
Employment	238,500	258,200	1.60%
Total	923,500	943,331	0.55%

Note (1) To avoid double counting, population of adjacent developments in Table 4.3 and 4.4 were deducted.

Adopted Growth Rate

4.2.5 A.A.D.T. of ATC indicates that the traffic flow of the local road network has an average annual growth rate of +0.33% from year 2019 to year 2024.

4.2.6 Whilst, the planning data indicates that the population and employment of the study area are expected to grow with an average annual growth rate of +0.55% from 2026 to 2031.



- 4.2.7 As a conservative approach, annual growth rate **+0.55%** p.a. has been adopted for projecting traffic forecasts from 2026 to year 2034. It is deemed sufficient to allow for any unexpected future growth as a result of some changes in land use or development in the study area.

4.3 Reference Traffic Flow in Year 2034

- 4.3.1 The year 2034 reference traffic flow is estimated by applying the adopted growth rate to the year 2026 observed traffic flow.

Adjacent New Developments

- 4.3.2 Additional traffic generation and attraction of major committed/planned developments in the vicinity have been estimated and superimposed onto the road network to derive the year 2034 reference traffic flow. The committed/planned developments in the vicinity are summarized **Tables 4.3** and **4.4** and illustrated in **Figure 4.1** and **Appendix I**.

Table 4.3 Development Schedule of Proposed Residential Development at Vicinity

Ref.	Development Site / Planning Application No.	Use	Development Parameters ⁽¹⁾	Population ⁽²⁾
A	A/YL-KTN/604	Residential	Not more than 3,891 flats	10,506
B	A/YL-KTN/663 (Park Yoho Phase 2)	Residential	Not more than 1,154 flats	3,116
C	A/YL-KTN/761	Residential	12 houses	32
D	A/YL-KTN/791	Residential	243 flats 87 houses	891
E	A/YL-KTN/964	Residential	615 flats	1,661
F	Y/YL-SK/1	Residential	850 flats	2,295

Note: (1) According to their TIA reports / Planning Statement

(2) Average Household size 2.7 for Yuen Long from Population Census is adopted



Table 4.4 Development Schedules of Developments of Kam Tin South

Development Parameters	Proposed Scheme					
	KSRS Phase 1 (Remaining Grand Mayfair III)	KSRS Phase 2	PHMC	Site 1	Site 4a	Site 6
Residential Type	Private	Private	Private	PRH/SSF	PRH/SSF	PRH/SSF
No. of Flats	Total: 2,200 Grand Mayfair III: 680	1,290	6,060	4,100	3,800	1,700
Average Flat Size	69m ²	~55.3 m ²	70m ²	46m ²	46m ²	50m ²
Population	6,600		14,800	12,628	11,704	5,236
Commercial / Retail GFA	-	40,750m ²	3,000m ²	4,000m ²	2,900m ²	-
Kindergarten	-	1	-	1	1	1
School	-	-	2	-	-	-

Note: - According to the TIA report of Sites 1, 4a and 6 in support of Proposed Amendments to the Approved Kam Tin South Outline Zoning Plan No. S/YL-KTS/13 (RNTPC Paper No. 8/17) and the approved Planning Briefs of Site 1, 4a and 6

- Grand Mayfair I&II were completed in 2024, which are included in the traffic survey. Remaining Grand Mayfair III is included in this assessment. 2,200 and 680 are latest no. of units of total KSRS Phase 1 and Grand Mayfair III obtained from real estate agency website. Assume there is no change in average flat size.

- Information of KSRS Phase 2 from developer website.

4.3.3 The adopted estimated trips of the proposed developments in vicinity are listed in below **Table 4.5**.



Table 4.5 Estimated Traffic Generations of Planned Vicinity Development

Developments	Trip Rates Units	AM Peak		PM Peak	
		Gen.	Att.	Gen.	Att.
Private Housing (60m ²)	(pcu/hr/flat)	0.0718	0.0425	0.0286	0.037
Private Housing (70m ²)	(pcu/hr/flat)	0.0888	0.0515	0.0356	0.048
Retail	(pcu/hr/100 sqm GFA)	0.2296	0.2434	0.3100	0.3563
Developments		Trips (Pcu/hr)			
A/YL-KTN/604 ⁽¹⁾		335	223	149	185
A/YL-KTN/663 ⁽¹⁾		83	50	34	43
A/YL-KTN/761 ⁽¹⁾		4	2	2	3
A/YL-KTN/791 ⁽¹⁾		56	25	17	38
A/YL-KTN/964 ⁽¹⁾		63	44	26	29
Y/YL-SK/1 ⁽¹⁾		87	60	35	39
Grand Mayfair III ⁽²⁾		60	35	24	33
KSRS Phase 2		187	154	163	193
PHMC (via Kam Ho Road Access) ⁽¹⁾		176	117	72	96
PHMC (via Pat Heung Road Access) ⁽¹⁾		383	256	155	208
Site 1 ⁽¹⁾		318	266	184	250
Site 4a ⁽¹⁾		239	165	116	156
Site 6 ⁽¹⁾		113	102	51	69

Note: (1) According to their TIA reports

(2) As Grand Mayfair I&II of KSRS Phase 1 were completed in 2024, which are included in the traffic survey. Remaining Grand Mayfair III is included in this assessment.

4.3.4 The 2034 reference traffic flows are presented in **Figure 4.2**.

$$\begin{array}{l}
 \text{2034 Reference} \\
 \text{Flows (without} \\
 \text{proposed} \\
 \text{development)} \\
 \end{array}
 =
 \begin{array}{l}
 \text{2026} \\
 \text{Observed Flows} \\
 \end{array}
 \times
 \begin{array}{l}
 \text{Adopted Growth} \\
 \text{Factor} \\
 \text{i.e. +0.55 \% p.a. for} \\
 \text{8 years} \\
 \end{array}
 +
 \begin{array}{l}
 \text{Traffic Flows of} \\
 \text{Adjacent} \\
 \text{Developments} \\
 \end{array}$$



4.4 Traffic Trips of the Proposed Development

4.4.1 In order to estimate the traffic generation and attraction of the proposed development, reference has been made to the trip generation rates as stipulated in Volume 1 Chapter 3 Appendix D Table 1 of the latest T.P.D.M. published by Transport Department. The adopted trip rates are summarized in below **Table 4.6**.

Table 4.6 Adopted TPDM Trip Rates for the Development

Avg. Flat Size	Adopted Avg. Flat Size of TPDM	TPDM Upper Limit Trip Rates (pcu/flat/hr)			
		AM Peak		PM Peak	
		Gen	Att	Gen	Att
$FS \leq 40m^2$	60 m ²	0.1021	0.0709	0.0415	0.0464
$40m^2 < FS \leq 70 m^2$	70 m ²	0.1117	0.0729	0.0454	0.0551

4.4.2 Based on the adopted trip rate listed in the above **Table 4.6** and the development parameters in **Table 2.1**, the trip generated and attracted by the proposed development are estimated and summarized in the following **Table 4.7**.



Table 4.7 Estimated Traffic Generations and Attractions of Proposed Development

Proposed Development	Average Flat Size (m ²)	Nos. of Flat / GFA	AM Peak Hour		PM Peak Hour	
			Gen.	Att.	Gen.	Att.
			pcu/hr			
Resident	FS ≤ 40m ²	120	12	9	5	6
	40m ² < FS ≤ 70 m ²	120	13	9	5	7
Total			25	18	10	13

4.5 Traffic Forecast for Design Year 2034

4.5.1 The net traffic trips of the proposed development is then superimposed onto the year 2034 reference traffic flow (without the proposed development) as shown in **Figure 4.2** to derive the year 2034 design traffic flow (with the proposed development).

$$\begin{array}{lcl}
 \text{Year 2034 Design} & & \text{Year 2034 Reference} \\
 \text{Flow (with the} & = & \text{Flow} \\
 \text{Proposed} & & \text{(without the Proposed} \\
 \text{Development)} & & \text{Development)} \\
 & & + \text{Traffic Trips of the} \\
 & & \text{Proposed} \\
 & & \text{Development}
 \end{array}$$

4.5.2 The traffic flow during AM and PM peak periods in the design year 2034 (with the proposed development) are shown in **Figure 4.3**. The development trips are shown in **Figure 4.4**.



5. TRAFFIC IMPACT ASSESSMENT

5.1 Operational Assessment

Reference Case in Year 2034

5.1.1 To assess traffic impacts due to the proposed development, operational assessment of the critical junctions identified in Chapter 3 are carried out for both reference (without the proposed development) and design (with the proposed development) scenarios in year 2034. The results are summarized in **Table 5.1**.

Table 5.1 Operational Performance of Critical Junctions for Reference Case in Year 2034

Ref.	Junction	Method of Control	Year 2034 RC/DFC ⁽¹⁾	
			Reference Scenario (Without the Proposed Development)	
			AM Peak	PM Peak
A	Kam Tin Bypass / Kam Tin Road / Tung Wui Road	Roundabout	0.45	0.42
B	Kam Tin Bypass / Kong Tai Road	Signalized	29%	51%
C	Kam Tin Road / Kam Tai Road	Priority	w/o PWP	0.81
			w PWP ⁽²⁾	0.50
D	Kam Tin Road / Fan Kam Road	Roundabout	w/o PWP	0.70
			w PWP ⁽²⁾	0.59
E	Kam Tin Road	Signalized	w/o PWP	39%
			w PWP ⁽²⁾	48%
F ⁽³⁾	Kam Tin Road / Tsing Long Highway slip road	Signalized	31%	32%
G ⁽³⁾	Kam Tin Road / Kam Tin Bypass	Roundabout	0.77	0.64

Notes: (1) RC = Reserve Capacity for Signal Junction;

DFC = Design Ratio of Flow to Capacity for Priority Junction/Roundabout

(2)Based on future PWP 6820's layouts shown in Figures 3.10 to 3.12

(3)Based on future CEDD's layouts shown in Figures 3.13 to 3.14



Table 5.2 V/C Ratio of Critical Road Link for Reference Case in Year 2034

Index	Road Name	Direction	Cap. (pcu/hr) (C)	Reference Scenario (Without the Proposed Development)			
				Flow (pcu/hr) (V)		V/C	
				AM Peak	PM Peak	AM Peak	PM Peak
L1	Kam Tin Road	EB	5,400 ⁽²⁾	3,185	2,755	0.59	0.51
		WB	3,600	3,140	2,560	0.87	0.71
L2	Kam Tin Bypass	EB	3,600	955	880	0.27	0.24
		WB	3,600	730	745	0.20	0.21
L3	Kam Tin Road	EB	900	360	285	0.40	0.32
		WB	900	280	310	0.31	0.34
L4 (w/o PWP)	Kam Tin Road	EB	900	1,035	935	1.15	1.04
		WB	900	1,055	990	1.17	1.10
L4 (w PWP)	Kam Tin Road	EB	1400 ⁽³⁾	1,035	935	0.74	0.67
		WB	1400 ⁽³⁾	1,055	990	0.75	0.71
L5 (w/o PWP)	Kam Tin Road	EB	900	1,065	920	1.18	1.02
		WB	900	1,060	1,070	1.18	1.19
L5 (w PWP)	Kam Tin Road	EB	1400 ⁽³⁾	1,085	920	0.78	0.66
		WB	1400 ⁽³⁾	1,060	1,080	0.76	0.77
Tai Lam Tunnel		NB	5,400	2,565	4,155	0.48	0.77
		SB	5,400	6,410	3,140	1.19	0.58
		NB (with Route 11) ⁽⁴⁾	5,400	1,495	2,425	0.28	0.45
		SB (with Route 11) ⁽⁴⁾	5,400	3,740	1,830	0.69	0.34

Note: (1) Index please refer to Figure 3.1

(2) Widening to 3 lanes by CEDD

(3) Widening to 10.3m single 2-lane carriageway under HyD's PWP works

(4) Estimated the V/C with reference from Tuen Mun DC TTC paper 04/2021 that V/C will drop from 1.2 to 0.7 with after the Route 11 and associated major roads are complete, which means the traffic flow of Tai Lam Tunnel will be about 58.3% of the original flow.

Design Case in Year 2034

5.1.2 The operational assessment of the critical junctions for the Design Scenario (with the proposed development) in year 2034 was carried out and the results are summarized in **Table 5.3**.



Table 5.3 Operational Performance of Critical Junctions for Design Case in Year 2034

Ref.	Junction	Method of Control		Year 2034 RC/DFC ⁽¹⁾	
				Design Scenario (With the Proposed Development)	
				AM Peak	PM Peak
A	Kam Tin Bypass / Kam Tin Road / Tung Wui Road	Roundabout		0.46	0.42
B	Kam Tin Bypass / Kong Tai Road	Signalized		29%	51%
C	Kam Tin Road / Kam Tai Road	Priority	w/o PWP	0.81	0.72
			w PWP ⁽²⁾	0.51	0.45
D	Kam Tin Road / Fan Kam Road	Roundabout	w/o PWP	0.71	0.74
			w PWP ⁽²⁾	0.59	0.55
E	Kam Tin Road	Signalized	w/o PWP	36%	47%
			w PWP ⁽²⁾	45%	56%
F ⁽³⁾	Kam Tin Road / Tsing Long Highway slip road	Signalized		31%	32%
G ⁽³⁾	Kam Tin Road / Kam Tin Bypass	Roundabout		0.77	0.64

Notes: (1) RC = Reserve Capacity for Signal Junction;

DFC = Design Ratio of Flow to Capacity for Priority Junction/Roundabout

(2)Based on future PWP 6820's layouts shown in Figures 3.10 to 3.12

(3)Based on future CEDD's layouts shown in Figures 3.13 to 3.14



Table 5.4 V/C Ratio of Critical Road Link for Design Case in Year 2034

Index	Road Name	Direction	Cap. (pcu/hr) (C)	Design Scenario (With the Proposed Development)			
				Flow (pcu/hr) (V)		V/C	
				AM Peak	PM Peak	AM Peak	PM Peak
L1	Kam Tin Road	EB	5,400 ⁽²⁾	3,190	2,760	0.59	0.51
		WB	3,600	3,150	2,565	0.88	0.71
L2	Kam Tin Bypass	EB	3,600	960	885	0.27	0.25
		WB	3,600	740	750	0.21	0.21
L3	Kam Tin Road	EB	900	360	285	0.40	0.32
		WB	900	280	310	0.31	0.34
L4 (w/o PWP)	Kam Tin Road	EB	900	1,050	945	1.17	1.05
		WB	900	1,075	995	1.19	1.11
L4 (w PWP)	Kam Tin Road	EB	1400 ⁽³⁾	1,050	945	0.75	0.68
		WB	1400 ⁽³⁾	1,075	995	0.77	0.71
L5 (w/o PWP)	Kam Tin Road	EB	900	1,075	920	1.19	1.02
		WB	900	1,070	1,070	1.19	1.19
L5 (w PWP)	Kam Tin Road	EB	1400 ⁽³⁾	1,095	920	0.78	0.66
		WB	1400 ⁽³⁾	1,070	1,080	0.76	0.77
Tai Lam Tunnel		NB	5,400	2,570	4,160	0.48	0.77
		SB	5,400	6,420	3,145	1.19	0.58
		NB (with Route 11) ⁽⁴⁾	5,400	1,500	2,425	0.28	0.45
		SB (with Route 11) ⁽⁴⁾	5,400	3,745	1,835	0.69	0.34

Note: (1) Index please refer to Figure 3.1

(2) Widening to 3 lanes by CEDD

(3) Widening to 10.3m single 2-lane carriageway under HyD's PWP works

(4) Estimated the V/C with reference from Tuen Mun DC TTC paper 04/2021 that V/C will drop from 1.2 to 0.7 with after the Route 11 and associated major roads are complete, which means the traffic flow of Tai Lam Tunnel will be about 58.3% of the original flow.

5.1.3 The assessment result in **Tables 5.1 to 5.4** reveals that all Junctions and V/C will operate with ample capacities in both reference and design scenarios with planned PWP's works in year 2034. Tai Lam Tunnel southbound will over 1.0 but below 1.2 in AM peak indicates a manageable degree of congestion.



5.1.4 According to Tuen Mun DC TTC paper 04/2021, the traffic flow would be redistributed by the strategic road planning Route 11 and associated major roads. The V/C ratio of Tai Lam Tunnel will drop from 1.2 to 0.7 after the Route 11 and associated major roads are completed, which means the traffic flow of Tai Lam Tunnel will be about 58.3% of the original flow. Based on this assumption, Tai Lam Tunnel with Route 11 is estimated and the V/C ratios will be dropped to below 0.85. Therefore, the congestion of Tai Lam Tunnel would be relieved and become acceptable after the completion of Route 11 and associated major roads.

5.2 Sensitivity Test on Remaining Sites of Land Use Review for Kam Tin and Pat Heung (LUR)

5.2.1 There are 9 remaining sites under LUR. They are still in the review stage and therefore have no target year of completion. It is believed that developments at these sites should only be completed after our design year.

5.2.2 This sensitivity test is carried out to see the effect if all the remaining sites are being considered.

Table 5.5 Development Parameters of Remaining Sites under LUR

Site No.	Use	Planned/ Target PR ⁽¹⁾	Expected Completion	No. of Units (about) ⁽¹⁾
2	Private Housing	2.1	N/A	452
3	Private Housing	2.1	N/A	1,106
4b	Public Housing	3.0	N/A	5,700
4c	Private Housing	2.1	N/A	626
5a	Public Housing	3.0	N/A	3,300
5b	Private Housing	0.8	N/A	289
7	Private Housing	1.5	N/A	3,018
8	Private Housing	1.5	N/A	882
9	Private Housing	0.8	N/A	1,676

Note: (1) TPB Paper No. 9590 refers.



Table 5.6 Estimated Traffic Generations of Remaining Sites under LUR

Development Site No.	AM Peak		PM Peak	
	Gen.	Att.	Gen.	Att.
	Pcu/hr			
2	41	24	17	22
3	99	57	40	54
4b	355	243	170	229
4c	56	33	23	31
5a	206	141	99	133
5b	26	15	11	14
7	268	156	108	145
8	79	46	32	43
9	149	87	60	81

Note: Assume average 50m² for Public Housing and average 70m² for Private Housing

5.2.3 The traffic generation of the remaining sites under LUR are superimposed to the network and the results are shown below.

Table 5.7 Operational Performance for Reference Case in Year 2034 (With Remaining Sites under LUR)

Ref.	Junction	Method of Control		Year 2034 RC/DFC ⁽¹⁾	
				Reference Scenario (Without the Proposed Development, With Remaining Sites under LUR)	
				AM Peak	PM Peak
A	Kam Tin Bypass / Kam Tin Road / Tung Wui Road	Roundabout		0.46	0.42
B	Kam Tin Bypass / Kong Tai Road	Signalized		29%	51%
C	Kam Tin Road / Kam Tai Road	Priority	w/o PWP	0.84	0.75
			w PWP ⁽²⁾	0.52	0.46
D	Kam Tin Road / Fan Kam Road	Roundabout	w/o PWP	0.73	0.77
			w PWP ⁽²⁾	0.61	0.57
E	Kam Tin Road	Signalized	w/o PWP	35%	43%
			w PWP ⁽²⁾	43%	52%
F ⁽³⁾	Kam Tin Road / Tsing Long Highway slip road	Signalized		16%	25%
G ⁽³⁾	Kam Tin Road / Kam Tin Bypass	Roundabout		0.84	0.70

Notes: (1) RC = Reserve Capacity for Signal Junction;

DFC = Design Ratio of Flow to Capacity for Priority Junction/Roundabout

(2) Based on future PWP 6820's layouts shown in Figures 3.10 to 3.12

(3) Based on future CEDD's layouts shown in Figures 3.13 to 3.14



**Table 5.8 V/C Ratio of Critical Road Link for Reference Case in Year 2034
(With Remaining Sites under LUR)**

Index	Road Name	Direction	Cap. (pcu/hr) (C)	Reference Scenario (Without the Proposed Development, With Remaining Sites under LUR)			
				Flow (pcu/hr) (V)		V/C	
				AM Peak	PM Peak	AM Peak	PM Peak
L1	Kam Tin Road	EB	5,400 ⁽²⁾	3,450	3,005	0.64	0.56
		WB	3,600	3,570	2,745	0.99	0.76
L2	Kam Tin Bypass	EB	3,600	955	880	0.27	0.24
		WB	3,600	730	745	0.20	0.21
L3	Kam Tin Road	EB	900	360	285	0.40	0.32
		WB	900	280	310	0.31	0.34
L4 (w/o PWP)	Kam Tin Road	EB	900	1,085	960	1.21	1.07
		WB	900	1,085	1,020	1.21	1.13
L4 (w PWP)	Kam Tin Road	EB	1400 ⁽³⁾	1,085	960	0.78	0.69
		WB	1400 ⁽³⁾	1,085	1,020	0.78	0.73
L5 (w/o PWP)	Kam Tin Road	EB	900	1,115	945	1.24	1.05
		WB	900	1,090	1,100	1.21	1.22
L5 (w PWP)	Kam Tin Road	EB	1400 ⁽³⁾	1,135	945	0.81	0.68
		WB	1400 ⁽³⁾	1,090	1,110	0.78	0.79
Tai Lam Tunnel		NB	5,400	2,925	4,495	0.54	0.83
		SB	5,400	6,985	3,390	1.29	0.63
		NB (with Route 11) ⁽⁴⁾	5,400	1,705	2,620	0.32	0.49
		SB (with Route 11) ⁽⁴⁾	5,400	4,075	1,980	0.75	0.37

Note: (1) Index please refer to Figure 3.1

(2) Widening to 3 lanes by CEDD

(3) Widening to 10.3m single 2-lane carriageway under HyD's PWP works

(4) Estimated the V/C with reference from Tuen Mun DC TTC paper 04/2021 that V/C will drop from 1.2 to 0.7 with after the Route 11 and associated major roads are complete, which means the traffic flow of Tai Lam Tunnel will be about 58.3% of the original flow.



Table 5.9 Operational Performance for Design Case in Year 2034 (With Remaining Sites under LUR)

Ref.	Junction	Method of Control	Year 2034 RC/DFC ⁽¹⁾	
			Design Scenario (With the Proposed Development, With Remaining Sites under LUR)	
			AM Peak	PM Peak
A	Kam Tin Bypass / Kam Tin Road / Tung Wui Road	Roundabout	0.47	0.43
B	Kam Tin Bypass / Kong Tai Road	Signalized	29%	51%
C	Kam Tin Road / Kam Tai Road	Priority	w/o PWP	0.84
			w PWP ⁽²⁾	0.75
D	Kam Tin Road / Fan Kam Road	Roundabout	w/o PWP	0.74
			w PWP ⁽²⁾	0.57
E	Kam Tin Road	Signalized	w/o PWP	33%
			w PWP ⁽²⁾	43%
F ⁽³⁾	Kam Tin Road / Tsing Long Highway slip road	Signalized	16%	25%
G ⁽³⁾	Kam Tin Road / Kam Tin Bypass	Roundabout	0.84	0.70

Notes: (1) RC = Reserve Capacity for Signal Junction;

DFC = Design Ratio of Flow to Capacity for Priority Junction/Roundabout

(2)Based on future PWP 6820's layouts shown in Figures 3.10 to 3.12

(3)Based on future CEDD's layouts shown in Figures 3.13 to 3.14

**Table 5.10 V/C Ratio of Critical Road Link for Design Case in Year 2034
(With Remaining Sites under LUR)**

Index	Road Name	Direction	Cap. (pcu/hr) (C)	Design Scenario (With the Proposed Development, With Remaining Sites under LUR)			
				Flow (pcu/hr) (V)		V/C	
				AM Peak	PM Peak	AM Peak	PM Peak
L1	Kam Tin Road	EB	5,400 ⁽²⁾	3,455	3,010	0.64	0.56
		WB	3,600	3,580	2,750	0.99	0.76
L2	Kam Tin Bypass	EB	3,600	960	885	0.27	0.25
		WB	3,600	740	750	0.21	0.21
L3	Kam Tin Road	EB	900	360	285	0.40	0.32
		WB	900	280	310	0.31	0.34
L4 (w/o PWP)	Kam Tin Road	EB	900	1,100	970	1.22	1.08
		WB	900	1,105	1,025	1.23	1.14
L4 (w PWP)	Kam Tin Road	EB	1400 ⁽³⁾	1,100	970	0.79	0.69
		WB	1400 ⁽³⁾	1,105	1,025	0.79	0.73
L5 (w/o PWP)	Kam Tin Road	EB	900	1,125	945	1.25	1.05
		WB	900	1,100	1,100	1.22	1.22
L5 (w PWP)	Kam Tin Road	EB	1400 ⁽³⁾	1,145	945	0.82	0.68
		WB	1400 ⁽³⁾	1,100	1,110	0.79	0.79
Tai Lam Tunnel		NB	5,400	2,930	4,500	0.54	0.83
		SB	5,400	6,995	3,395	1.30	0.63
		NB (with Route 11) ⁽⁴⁾	5,400	1,710	2,625	0.32	0.49
		SB (with Route 11) ⁽⁴⁾	5,400	4,080	1,980	0.76	0.37

Note: (1) Index please refer to Figure 3.1

(2) Widening to 3 lanes by CEDD

(3) Widening to 10.3m single 2-lane carriageway under HyD's PWP works

(4) Estimated the V/C with reference from Tuen Mun DC TTC paper 04/2021 that V/C will drop from 1.2 to 0.7 with after the Route 11 and associated major roads are complete, which means the traffic flow of Tai Lam Tunnel will be about 58.3% of the original flow.

5.2.4 The assessment result in **Tables 5.7 to 5.10** reveals that all Junctions and V/C will operate with ample capacities in both reference and design scenarios with planned PWP's works and with the Remaining Sites under LUR in year 2034. Tai Lam Tunnel southbound in AM peak will be over 1.2, but it will below 0.85 after the completion of Route 11 and associated major roads.



5.3 Mitigation Measure

5.3.1 In case there is no PWP work, an improvement scheme is proposed for Junction C.

5.3.2 Although Junction C will still operate within its capacity (DFC 0.81), it is near DFC 0.85. To minimize the traffic impact, an improvement scheme is proposed as shown in **Figure 5.1**. The Applicant considers carrying out the improvement works as per the improvement scheme, in case there is no PWP work.

Table 5.11 Operational Performance of Critical Junctions for Design Case in Year 2034

Ref.	Junction	Proposed Improvement	Year 2034 RC/DFC ⁽¹⁾			
			Design Scenario (Without Proposed Improvement)		Design Scenario (With Proposed Improvement)	
			AM Peak	PM Peak	AM Peak	PM Peak
C	Kam Tin Road / Kam Tai Road	- Local Widening on Kam Tin Road - A right-turn pocket is added to allow traffic wait and turn from Kam Tin Road westbound into Kam Tai Road	0.81	0.72	0.71	0.63

Notes: (1) RC = Reserve Capacity for Signal Junction;

DFC = Design Ratio of Flow to Capacity for Priority Junction/Roundabout

5.3.3 The assessment results in **Table 5.11** indicate that junction would be operating with ample capacity with the proposed improvement scheme. The improvement will provide a proper exclusive turning bay for right turn traffic, the chance of blocking straight traffic will be reduced.

5.3.4 This improvement will be carried out by the Applicant to minimize the impact to traffic, in case of there is no PWP work.



6. PUBLIC TRANSPORT DEMAND

6.1 Survey on Existing Public Transport Service

6.1.1 The proposed development is not close to MTR station and the public transport service is not comprehensive. A public transport survey was carried out at the existing bus/GMB stops on Kam Tin Road as shown in **Figure 3.15**.

6.1.2 The survey was carried out on 5 May 2026 during the morning / evening peak periods. The findings are presented in the **Tables 6.1** to **6.4** below.

Table 6.1 Public Transport Survey at Stop P1 – Eastbound (To Sheung Shui / Tsuen Wan)

P1						
Eastbound (To Sheung Shui / Tsuen Wan)						
		Routes	Observed Trips	Average Occupancy	Spare Capacity (passenger)	
AM Peak (0730-0830)	BUS	54	2	38%	89	327
		77K	3	43%	114	
		251B	2	23%	124	
	GMB	608	17	69%	84	202
		608S	3	38%	30	
	RMB	18	11	50%	88	
		-	7	100%	0	
PM Peak (1700-1800)	BUS	54	3	38%	132	435
		77K	4	49%	124	
		251B	3	25%	179	
	GMB	608	13	94%	12	32
		608S	2	63%	12	
	RMB	18	7	100%	0	
		Tai Po – Yuen Long	8	94%	8	

Notes: (a) Full capacity of 120 passengers with max. 75% for double-decked Franchised Bus is assumed.
(b) Part of the observed GMBs are 19-seater. For conservative, full capacity of 16 passengers for minibus is assumed.



Table 6.2 Summary of Public Transport Survey – Eastbound (To Sheung Shui / Tsuen Wan)

P1			
Eastbound (To Sheung Shui / Tsuen Wan)			
Period	PT	Total Spare Capacity in 2026 (passenger)	Expected Spare Capacity in 2034 (passenger) ^(a)
AM Peak (0730-0830)	Bus	327	313
	Minibus	202	193
PM Peak (1700-1800)	Bus	435	416
	Minibus	32	31

Notes: (a) 2.18% growth rate adopted in Section 4.2

Table 6.3 Public Transport Survey at Stop P2 – Westbound (To Yuen Long / Kam Sheung Road)

P2						
Westbound (To Yuen Long / Kam Sheung Road)						
		Routes	Observed Trips	Average Occupancy	Spare Capacity (passenger)	
AM Peak (0730-0830)	BUS	54	2	49%	62	361
		77K	5	53%	131	
		251B	2	28%	114	
		251M	1	30%	54	
	GMB	608	21	113%	-44	-1
		608S	1	119%	-3	
	RMB	18	14	81%	43	
		-	3	94%	3	
PM Peak (1700-1800)	BUS	54	2	20%	133	445
		77K	3	25%	179	
		251B	2	20%	133	
	GMB	608	11	100%	0	33
		608S	3	50%	24	
	RMB	18	9	94%	9	
		Tai Po – Yuen Long	5	100%	0	

Notes: (a) Full capacity of 120 passengers with max. 75% for double-decked Franchised Bus is assumed.
(b) Part of the observed GMBs are 19-seater. For conservative, full capacity of 16 passengers for minibus is assumed.



Table 6.4 Summary of Public Transport Survey – Westbound (To Yuen Long / Kam Sheung Road)

P2			
Westbound (To Yuen Long / Kam Sheung Road)			
Period	PT	Total Spare Capacity in 2026 (passenger)	Expected Spare Capacity in 2034 (passenger) ^(a)
AM Peak (0730-0830)	Bus	361	345
	Minibus	-1	-1
PM Peak (1700-1800)	Bus	445	426
	Minibus	33	32

Notes: (a) 2.18% growth rate adopted in Section 4.2

6.2 Assessment on Public Transport Demand

6.2.1 Reference is made to the “Travel Characteristics Survey 2022 Report” as published by Transport Department in 2025 to derive the estimated public transport demand due to the proposed development.

6.2.2 In view of the planned residential development (Planning Application No. A/YL-KTN/761) in close proximity of the concerned bus/GMB stops at Kam Tin Road, the public transport demand due to this planned development is also assessed.

6.2.3 The total trips generated from the said planned development and proposed developments are derived from development parameters and assumptions from the TCS Report 2022. The calculation of total trips during peak hours is summarized in **Table 6.5** below:



Table 6.5 Calculation of Total Passenger Trips from Planned and Proposed Development

Item	Planned Development (A/YL-KTN/761)	Proposed Development
Nos. of units	12	240
Average household size	2.7 ppl/unit*	
Total population	= 12 x 2.7 = 33 ppl	= 240 x 2.7 = 648 ppl
Trip Rate per Person	1.69**	
Daily trips generated from proposed development	= 33 ppl x 1.69 = 56 trips	= 648 ppl x 1.69 = 1,095 trips
Peak Hour Factor	14%**	
Peak hour trips (Two-ways)	= 56 trips x 14% = 8 trips	= 1,095 trips x 14% = 153 trips
Total Peak hour trips (Two-ways)	161 trips	

Notes: * Average household size 2.7 for Yuen Long from Census and Statistics Department is adopted

**Data extracted from TCS Report 2022

6.2.4 The distribution of trips by transport mode derived from 2021 Population Census is given in below **Table 6.6**. As the nearest MTR station is outside walking distance, no ferry services, and assumes there is no residential coach service from the proposed development, the modal split is therefore re-distributed on a conservative approach, and the model split after re-distribution is also shown in **Table 6.6**.



Table 6.6 Distribution of Transport Modal Split

Year 2021 Census (Yuen Long)													
Yuen Long District	Mass Transit Railway	Bus	On foot only	Private car/ Passenger van	Public light bus	Company bus/ van	Light Rail	Taxi	Residential coach service	Ferry/ Vessel	Others	Total	
Number of Persons	90,523	59,345	16,860	24,012	7,913	6,848	20,458	1,275	2,628	468	4,146	234,476	
Modal Split	39%	25%	7%	10%	3%	3%	9%	1%	1%	0%	2%	100%	
Number of Persons (excluded on foot only)	90,523	59,345	-	24,012	7,913	6,848	20,458	1,275	2,628	468	4,146	217,616	
Modal Split (excluded on foot only)	42%	27%	-	11%	4%	3%	9%	1%	1%	0%	2%	100%	
Adjusted Modal Split for the Development Site	PT	51%	27%	-	-	4%	-	-	-	-	-	82%	100%
	Non-PT	-	-	-	14%	-	-	-	1%	-	3%	18%	
Adjusted Modal Split for the Development Site (MTR services by feeder bus/GMB)	PT	-	71%	-	-	11%	-	-	-	-	-	82%	100%
	Non-PT	-	-	-	14%	-	-	-	1%	-	3%	18%	

Notes: Example for PT:

Example for Non-PT:

Adjusted Modal Split of MTR = 42% + 9% = 51%

%Sum of Remaining Non related Model Split = 3% + 1% + 0% = 4%

%Sum of Remaining related Model Split = 11% + 1% + 2% = 14%

Adjusted Modal Split of PV = 11% + 4% x 11% / 14% = 14%

Example for Further Adjust on PT:

Adjusted Modal Split of Bus = 51% x (27% / (27% + 4%)) + 27% = 71%

6.2.5 Taking into consideration that the majority of residents will go out to work at AM peak and back at PM peak and the critical bus stops would be westbound stop at AM peak and eastbound stop at PM peak.

6.2.6 For conservative approach, assume all residents will go out at AM peak and come back at PM peak and all the 82% public transport passengers will use westbound stop at AM peak and eastbound stop at PM peak in the assessment.

6.2.7 The distribution of the planned and proposed development trips are summarized in **Table 6.7**.

Table 6.7 Estimated Passenger Trips using Public Transports at Critical Stop

Period	Stop	Passenger trips
AM Peak	Stop P2 Westbound (To Kam Sheung Road MTR)	= 161 x 82% = 133 ppl
PM Peak	Stop P1 Eastbound (From Kam Sheung Road MTR)	= 161 x 82% = 133 ppl

Table 6.8 Estimated Passenger Trips using Bus and Mini-buses

PT Passenger trips					
Period	Stop P2 Westbound (To Yuen Long / Kam Sheung Road)				
	Total Trips	Bus		Minibus	
		Demand	Spare Capacity ^(b)	Demand	Spare Capacity ^(b)
AM Peak	133	161 x 71% = 115	< 345, OK	161 x 11% = 18	> -1, Not OK
Period	Stop P1 Eastbound (To Sheung Shui / Tsuen Wan)				
	Total Trips	Bus		Minibus	
		Demand	Spare Capacity ^(a)	Demand	Spare Capacity ^(a)
PM Peak	133	161 x 71% = 115	< 416, OK	161 x 11% = 18	< 31, OK

Note: (a) Refer to Table 6.2
(b) Refer to Table 6.4

6.2.8 Based on the assessment results shows in **Table 6.8**, part of the forecast spare capacity (GMB stop P2 during AM Peak) are not able to meet the expected public transport demand due to the planned / proposed development in design year 2034. However, it is noted that the said GMB stop (route nos. 608, 608S) are already overloaded even without proposed development. Also, it is anticipated the bus stop P2 with 230 surplus capacity (345 spare capacity – 115 bus demand) could effectively absorb the estimated 18 passenger trips of minibus demand by the planned / proposed development. Alternatively, it is also possible to increase the no. of PT trips as estimated in **Table 6.9** below.



Table 6.9 Additional Bus and Mini-buses Trips

	PT Passenger trips	
Period	Westbound (To Yuen Long / Kam Sheung Road)	
	Minibus	
	Spaces Required ^(a)	No. of Additional GMB Trips Required
AM Peak	18 – (-1) = 19	19 / 19 = 1

Note: (a) Refer to Table 6.8
(b) 19 seaters GMB are proposed to use

6.3 Bus Stop Bay Assessment

6.3.1 At present, there is one bay at the eastbound and westbound bus stop respectively. Kam Tin Road will be widened by Highway Department and the bus stops will be upgraded to standard one bay bus layby.

6.3.2 The queuing situation can be assessed based on a single channel queuing system, thus Poisson distribution and multi-server queuing (M/M/N) theory is used.

6.3.3 The assessment is work out the probability that n bus are in the bus bay.

The formula in deriving the probability is given by:

$$P(n) = \frac{1}{\sum_{n=0}^{N-1} \frac{e^n}{n!} + \frac{e^N}{N! \left(1 - \frac{e}{N}\right)}} \quad \text{for } n = 0$$

$$P(n) = \frac{e^n}{n!} P(0) \quad \text{for } 0 < n \leq N$$

$$P(n) = \frac{e^n}{N^{n-N} N!} P(0) \quad \text{for } n > N$$

where:

$P(n)$	= Probability of n buses in the system
λ	= Peak 15-minutes arrival rate
μ	= Servicing rate
n	= Number of bus in the system
N	= Number of bus bay
e	= λ / μ

Peak 15-minutes arrival Rate (λ)

6.3.4 Based on the survey result shown in **Tables 6.1** and **6.3**, the no of bus/GMB arrive/departure to the bus stop is shown in **Table 6.10** below.

Table 6.10 Trip Rates for Bus Stop

Bus Stop			Period	
			AM Peak	PM Peak
Stop P1 Eastbound (To Sheung Shui / Tsuen Wan)	Bus	No of trips (veh/hr)	7	10
	Minibus	No of trips (veh/hr)	38	30
	Total	No of trips (veh/hr)	45	40
Stop P2 Westbound (To Yuen Long / Kam Sheung Road)	Bus	No of trips (veh/hr)	10	7
	Minibus	No of trips (veh/hr)	39	28
	Total	No of trips (veh/hr)	49	35

6.3.5 Based on the data shown in **Table 6.10** above, the maximum peak 15-minutes arrival rate is 13 veh/15min/bay (= 49 x 15 minutes/60 minutes).

6.3.6 As mentioned in **Section 6.2.8**, 1 no. of GMB trip/hr is proposed to be added. Therefore, the Peak 15-minutes arrival Rate (λ) is 13 veh/15min/bay (= (49+ 1) x 15 minutes/60 minutes).

Servicing Rate (μ)

6.3.7 Based on site observation and internal survey, a bus/GMB will pick-up/drop-off for an average 20 sec = 0.33 min.

6.3.8 For conservative, assume a GMB would occupy a whole bus bay during pick-up/drop-off.

6.3.9 The average servicing rate (μ) is 60 / 0.33 = 180 veh/hr = 45 veh/15min

The probability that n vehicles are in the bus bay is given by:

$$P(n) = \frac{1}{\sum_{n=0}^{N-1} \frac{e^n}{n!} + \frac{e^N}{N! \left(1 - \frac{e}{N}\right)}} \quad \text{for } n = 0$$

$$P(n) = \frac{e^n}{n!} P(0) \quad \text{for } 0 < n \leq N$$

$$P(n) = \frac{e^n}{N^{n-N} N!} P(0) \quad \text{for } n > N$$

where:	$P(n)$	= Probability of n vehicles in the system	
	λ	= Peak 15-minutes arrival rate	= <u>13</u>
	μ	= Servicing rate	= <u>45 veh/15min</u>
	N	= Number of bus bay	= 1
	e	= λ / μ	= <u>0.289</u>
	n	= Number of bus in the system	

6.3.10 Probability of requiring more than 1 bus bay

Table 6.11 Probability of requiring more than 1 bus bay

n	λ	μ	e	N	$P(n)$
0	13	45	0.289	1	0.7111111111
1	13	45	0.289	1	0.205432099
Total					0.916543210

6.3.11 As can be seen, it is anticipated that the probability for more than one bus / PLB coming to the bus stop / PLB and waiting outside the bus bay is 0.083456790 (= 1 - **0.916543210**), i.e. approximately 4 out of 50 expected vehicles in the peak hour.

6.3.12 Based on the assessment results and the above points of view, it is concluded that one bus bay for one bus stop is considered acceptable and no further lengthening is required.



6.4 Assessment Waiting Area of Bus/ GMB Stop

6.4.1 Analysis on the estimated waiting passengers due to the proposed development is required to assess whether the bus GMB/ bus stops will have sufficient space for waiting passenger.

6.4.2 Based on the assessment in Section 6.1 to 6.3 and the frequency of the public transport service recorded, the number of waiting passengers per one vehicular trip can be estimated and are resulted in the Table 6.12.

6.4.3 Since passengers would wait at westbound stop for buses heading for Kam Sheung Road Station / Tai Lam BBI, while eastbound stop would be used for alighting and go back to the proposed development but not waiting there. Therefore, westbound stop is more critical and assessment would be carried out on this stop.

Table 6.12 Average No. of Waiting Passenger at Bus/GMB Stops during Peak Hours in Year 2034

Period of time	Stop	Mode	Observed No. of Bus/GMB Trips ⁽¹⁾	No. of Waiting Passenger (/hr)		Average No. of Waiting Passenger per Bus/GMB trip
				Year 2026 Observed	Year 2034 Design Scenario (With proposed development) ⁽²⁾	Year 2034 Design Scenario (With proposed development)
Westbound						
AM Peak	P2	Bus	10	11	126	126/10 = 13
	P2	GMB	39	6	24	24/39 = 1
PM Peak	P2	Bus	7	7	122	122/7 = 18
	P2	GMB	28	19	38	38/28 = 2

Note: (1) Observed trips from Table 6.10

(2) Include growth rate of 0.55% adopted in Section 4.2 and addition trip from Tables 6.8

6.4.4 In order to ensure a desirable waiting/walking environment along the layby, the concept of the Level of Service (LOS) has been applied LOS directly relates to the pedestrian comfort and ease with which pedestrian proceed along the walkway.

6.4.5 The Break Points of LOS levels are determined on the basis of flow rate, pedestrian spacing, and the probabilities of conflict at various concentrations. These standards with relevant descriptions are summarized in Table 6.13



Table 6.13 LOS Standard Criteria for Queuing Area

LOS	Average Pedestrian Space (m ² /p)	Description
A	>1.2	Standing and free circulation through the queuing area is possible without disturbing others within the queue.
B	>0.9 – 1.2	Standing and partially restricted circulation to avoid disturbing others in the queue is possible.
C	>0.6 – 0.9	Standing and restricted circulation through the queue area by disturbing others in the queue is possible; this density is within the range of personal comfort.
D	>0.3 – 0.6	Standing without touching is possible; circulation is severely restricted within the queue and forward movement is only possible as a group; long-term waiting at this density is uncomfortable.
E	>0.2 – 0.3	Standing in physical contact with others is unavoidable; circulation in the queue is not possible; queuing can only be sustained for a short period without serious discomfort.
F	≤0.2	Virtually all persons within the queue are standing in direct physical contact with others; this density is extremely uncomfortable; no movement is possible in the queue; there is potential for panic in large crowds at this density.

Source: Chapter 11 of *Highways Capacity Manual 2000*.

6.4.6 The LOS is calculated and results are given in **Table 6.14** below.



Table 6.14 LOS Assessment on Waiting Space at the Bus/ GMB Stops in Peak Hour in year 2034

Period of time	Stop	Mode	Approx. Length (m)	Approx. Width (m)	Approx. Waiting Space Area (m ²)	Waiting Space (m ² /p) ⁽¹⁾	LOS
Westbound							
AM Peak	P2	Bus	20	0.9	18	$= \frac{18}{13} = 1.38$	A
	P2	GMB	6	0.5	3	$= \frac{3}{1} = 3$	A
PM Peak	P2	Bus	20	0.9	18	$= \frac{18}{18} = 1$	B
	P2	GMB	6	0.5	3	$= \frac{3}{2} = 1.5$	A

Note: (1) Average No. of Waiting Passenger per Bus/GMB trip from Table 6.12

6.4.7 Based on the above calculation and assessment, LOS A to B could be achieved in peak hours. They are considered acceptable in traffic engineering point of view. And no improvement is required.

6.5 Railway Assessment

6.5.1 Railway Assessment is carried out to assess the impact by the proposed development. The existing railway information was obtained from “Reply Serial No. TLB187 of Replies to initial written questions raised by Legislative Council Members in examining the Estimates of Expenditure 2026-2027”. The assessment of Tuen Ma Line is summarized in **Table 6.15** below:

Table 6.15 Railway Assessment

Item	Tuen Ma Line				
	2025	2034		2034	
	Existing ^(a)	Reference (without Proposed development)		Design (with Proposed development)	
Carrying Capacity (6 ppsm)	58,800	58,800	70,000 ^{(a)(e)}	58,800	70,000 ^{(a)(e)}
Passenger Throughput	38,400	45,811 ^(b)	45,811	$45,811 + (153^{(c)} * 51\%^{(d)}) = 45,889$	45,889
Loading (6 ppsm) [Passenger Throughput / Carrying Capacity]	65% (Tsuen Wan West to Mei Foo)	77.9%	65.4%	78.0%	65.6%
Loading (4 ppsm) [Loading (6 ppsm) / 71.2%]	92%	109.4%	91.9%	109.6%	92.1%



Notes:

(a) Source of the data: “Reply Serial No. TLB187 of Replies to initial written questions raised by Legislative Council Members in examining the Estimates of Expenditure 2026-2027”

(b) 1.98% growth rate (before deduction of adjacent developments) in Table 4.2 is adopted

(c) Expected passenger trips from Table 6.5

(d) MTR modal Split from Table 6.6

(e) Maximum carrying capacity of TML when train frequency is maximised (6 ppsm)

6.5.2 From the result, it is revealed that the loading (6 ppsm) of Tuen Ma Line would be below 100% but loading (4 ppsm) would be over 100% even without the proposed development. However, the change of loading is very small (+0.1% to +0.2%) with the proposed development and thus the impact by the proposed development is insignificant. Moreover, the existing train frequency of TML is not maximised and could be increased to maximum 70,000 (6 ppsm). The loading (4 ppsm) could be reduced to below 100% if increasing the train frequency.

6.6 Conclusion

6.6.1 Based on the surveyed results and the forecast spare capacity for the public transport in 2034, the forecast spare capacity is able to meet the expected public transport demand, except the GMB demand in the AM Peak which is already overload at present. The GMB demand could be absorbed by existing bus capacities, or by providing additional maximum 1 GMB trip/hr. The impact by the proposed development to Tuen Ma Line is very small and insignificant.



7. PEDESTRIAN ASSESSMENT

7.1 Existing Pedestrian Condition

7.1.1 In order to acquire the existing pedestrian condition around the proposed development, a pedestrian headcount survey was conducted at concerned footpath sections during periods on a typical weekday on 5 May 2026 from 07:30 to 09:30 and 17:00 to 19:00 respectively. The layout of the critical sections of footpath is shown in **Figure 7.1**.

Footpath Assessment

7.1.2 The level-of-services (LOS) for the observed pedestrian flows of the identified critical sections are shown in **Table 7.1**.

Table 7.1 Operational Performance of Critical Footpath in Existing Scenario

Critical Section	Total Footpath Width (m)	Effective Width (m) ⁽¹⁾	Year 2026 Observed Scenario					
			AM Peak			PM Peak		
			Two-way Pedestrian Flow (ped/hr)	Two-way Pedestrian Flow Rate (ped/min/m) ⁽²⁾	LOS ⁽³⁾	Two-way Pedestrian Flow (ped/hr)	Two-way Pedestrian Flow Rate (ped/min/m) ⁽²⁾	LOS ⁽³⁾
F1	1.50	1.00	40	0.67	A	30	0.50	A
F2	1.50	1.00	30	0.50	A	35	0.58	A

Notes:

(1) Effective Width = Total Footpath Width – Death Width (0.5m from railings or walls each for both sides and 1m from shop frontage).

(2) Two-way Pedestrian Flow Rate (ped/min/m) = Peak Pedestrian Flow / 60 min / Effective Width.

(3) LOS details extracted from the HCM are tabulated in TPDM Volume 6 Chapter 10 **Clause 10.6.2.2**.

7.1.3 The assessment results shown in **Table 7.1** indicate that critical sections are operating within LOS A.

Pedestrian Crossing

7.1.4 The V/C Ratio of the pedestrian at the pedestrian crossing of the identified critical section are shown in **Tables 7.2**.



Table 7.2 V/C Ratio of Critical Crossing in Existing Scenario

Critical Sections	Lateral Width of Ped. Crossing [W] (m)	Year 2026 Observed Scenario											
		AM Peak						PM Peak					
		Two-way Ped. Flow (ped/hr)	Ped. Green + Flashing Green Time	Cycle time	Green Time Proportion [GTP]	Ped. Crossing Capacity [PC] (ped/hr)	V/C	Two-way Ped. Flow (ped/hr)	Ped. Green + Flashing Green Time	Cycle time	Green Time Proportion [GTP]	Ped. Crossing Capacity [PC] (ped/hr)	V/C
C1	4.00	30	12	120	0.10	760	0.04	15	12	120	0.10	760	0.02

Note:

$$(1) PC = K \times GTP \times W$$

where PC = Pedestrian crossing capacity in pedestrians per hour
GTP = Green time proportion
i.e. (Pedestrian green + flashing green time) / Cycle time
W = Lateral width of pedestrian crossing
K = A constant equivalent to saturation flow for pedestrians (1900 ped/metre/hours)

7.1.5 The assessment results shown in **Tables 7.2** indicate that all critical sections are operating within acceptable criteria ($V/C < 0.85$), and therefore considered acceptable.

7.2 Pedestrian Traffic Forecast

Reference Scenario (Without the Proposed Development)

7.2.1 To assess the future impact due to the proposed development, based on the survey flow and the growth rate of +0.55% adopted in **Chapter 4**, future reference pedestrian flows (without the proposed development) at the critical sections are estimated. The estimated trips by the planned residential development (Planning Application No. A/YL-KTN/761 in **Table 6.5** of **Chapter 6** above) in the vicinity are also superimposed to the network.

Footpath Assessment

7.2.2 The LOS are assessed and summarized in **Table 7.3** below:



Table 7.3 Operational Performance of Critical Footpath in Reference Scenario (Without the Proposed Development)

Critical Section	Total Footpath Width (m)	Effective Width (m) ⁽¹⁾	Year 2034 Reference Scenario (Without the Proposed Development)					
			AM Peak			PM Peak		
			Two-way Pedestrian Flow (ped/hr)	Two-way Pedestrian Flow Rate (ped/min/m) ⁽²⁾	LOS ⁽³⁾	Two-way Pedestrian Flow (ped/hr)	Two-way Pedestrian Flow Rate (ped/min/m) ⁽²⁾	LOS ⁽³⁾
F1 (without Widening)	1.5	1.0	50	0.83	A	40	0.67	A
F1 (with Widening)	2.0 ⁽⁴⁾	1.5	50	0.56	A	40	0.44	A
F2 (without Widening)	1.5	1.0	40	0.67	A	45	0.75	A
F2 (with Widening)	2.0 ⁽⁴⁾	1.5	40	0.44	A	45	0.50	A

Notes:

(1) Effective Width = Total Footpath Width – Death Width (0.5m from railings or walls each for both sides and 1m from shop frontage).

(2) Two-way Pedestrian Flow Rate (ped/min/m) = Peak Pedestrian Flow / 60 min / Effective Width.

(3) LOS details extracted from the HCM are tabulated in TPDM Volume 6 Chapter 10 [Clause 10.6.2.2](#).

(4) Widening of Kam Tin Road will be carried out by HyD and 2m footpaths will be provided along both sides of the road.

7.2.3 The assessment results shown in **Table 7.3** indicate that critical sections are operating within LOS A.

Pedestrian Crossing

7.2.4 The V/C Ratio of the pedestrian at the pedestrian crossing of the identified critical section are shown in **Tables 7.4**.



Table 7.4 V/C Ratio of Critical Crossing in Reference Scenario (Without the Proposed Development)

Critical Sections	Lateral Width of Ped. Crossing [W] (m)	Year 2034 Reference Scenario (Without the Proposed Development)											
		AM Peak						PM Peak					
		Two-way Ped. Flow (ped/hr)	Ped. Green + Flashing Green Time	Cycle time	Green Time Proportion [GTP]	Ped. Crossing Capacity [PC] (ped/hr)	V/C	Two-way Ped. Flow (ped/hr)	Ped. Green + Flashing Green Time	Cycle time	Green Time Proportion [GTP]	Ped. Crossing Capacity [PC] (ped/hr)	V/C
C1 (without Widening)	4	40	12	120	0.10	760	0.05	25	12	120	0.10	760	0.03
C1 (with Widening)	4	40	11 ⁽²⁾	120	0.09	695	0.06	25	11 ⁽²⁾	120	0.09	695	0.04

Note:

(1) $PC = K \times GTP \times W$

where PC = Pedestrian crossing capacity in pedestrians per hour

GTP = Green time proportion

i.e. (Pedestrian green + flashing green time) / Cycle time

W = Lateral width of pedestrian crossing

K = A constant equivalent to saturation flow for pedestrians (1900 ped/metre/hours)

(2) Future crossing layout carried out by HyD is used for assessment.

7.2.5 The assessment results shown in **Tables 7.4** indicate that all critical sections are operating within acceptable criteria ($V/C < 0.85$), and therefore considered acceptable.

Design Scenario (With the Proposed Development)

7.2.6 The total trips generated from the proposed development are estimated in **Tables 6.5** of **Chapter 6** above.

Footpath Assessment

7.2.7 The estimated trips are superimposed to the network. The assessment of the design scenario is summarized in **Tables 7.5**.



Table 7.5 Operational Performance of Critical Footpath in Design Scenario (With the Proposed Development)

Critical Section	Total Footpath Width (m)	Effective Width (m) ⁽¹⁾	Year 2034 Design Scenario (With the Proposed Development)					
			AM Peak			PM Peak		
			Two-way Pedestrian Flow (ped/hr)	Two-way Pedestrian Flow Rate (ped/min/m) ⁽²⁾	LOS ⁽³⁾	Two-way Pedestrian Flow (ped/hr)	Two-way Pedestrian Flow Rate (ped/min/m) ⁽²⁾	LOS ⁽³⁾
F1 (without Widening)	1.5	1.0	205	3.42	A	195	3.25	A
F1 (with Widening)	2.0 ⁽⁴⁾	1.5	205	2.28	A	195	2.17	A
F2 (without Widening)	1.5	1.0	195	3.25	A	200	3.33	A
F2 (with Widening)	2.0 ⁽⁴⁾	1.5	195	2.17	A	200	2.22	A

Notes:

(1) Effective Width = Total Footpath Width – Death Width (0.5m from railings or walls each for both sides and 1m from shop frontage).

(2) Two-way Pedestrian Flow Rate (ped/min/m) = Peak Pedestrian Flow / 60 min / Effective Width.

(3) LOS details extracted from the HCM are tabulated in TPDM Volume 6 Chapter 10 [Clause 10.6.2.2](#).

(4) Widening of Kam Tin Road will be carried out by HyD and 2m footpaths will be provided along both sides of the road.

7.2.8 The assessment results in **Table 7.5** shows that all critical footpaths would operate with LOS A and therefore considered acceptable.

Pedestrian Crossing

7.2.9 As a cautionary crossing was planned to be constructed near the proposed development under HyD’s PWP works as shown in **Figure 7.2**. Part of the pedestrians will be diverted to use this crossing. The V/C Ratio and LOS of the pedestrian at the pedestrian crossing of the identified critical section are shown in **Tables 7.6** and **7.7**.



Table 7.6 V/C Ratio of Critical Crossing in Design Scenario (With the Proposed Development)

Critical Sections	Lateral Width of Ped. Crossing [W] (m)	Year 2034 Design Scenario (With the Proposed Development)											
		AM Peak						PM Peak					
		Two-way Ped. Flow (ped/hr)	Ped. Green + Flashing Green Time	Cycle time	Green Time Proportion [GTP]	Ped. Crossing Capacity [PC] (ped/hr)	V/C	Two-way Ped. Flow (ped/hr)	Ped. Green + Flashing Green Time	Cycle time	Green Time Proportion [GTP]	Ped. Crossing Capacity [PC] (ped/hr)	V/C
C1 (without Widening)	4	195	12	120	0.10	760	0.26	180	12	120	0.10	760	0.24
C1 (with Widening)	4	115	11 ⁽²⁾	120	0.09	695	0.17	100	11 ⁽²⁾	120	0.09	695	0.14

Note:

(1) $PC = K \times GTP \times W$

where PC = Pedestrian crossing capacity in pedestrians per hour

GTP = Green time proportion

i.e. (Pedestrian green + flashing green time) / Cycle time

W = Lateral width of pedestrian crossing

K = A constant equivalent to saturation flow for pedestrians (1900 ped/metre/hours)

(2) Future crossing layout carried out by HyD is used for assessment.

Table 7.7 Operational Performance of Cautionary Crossing in Design Scenario

Critical Sections	Input Parameters		Year 2034 Design Scenario (With HyD's PWP works)	
			AM Peak	PM Peak
C2	S_p	= average pedestrian walking speed (m/s)	1.2	1.2
	t_s	= pedestrian start-up time and end clearance time (s)	3	3
	L	= crosswalk length (m)	4.8	4.8
	v_p	= pedestrian flow rate (p/h)	75	75
		= pedestrian flow rate (p/s)	0.02	0.02
	v	= vehicular flow rate (veh/h)	875	805
		= vehicular flow rate (veh/s)	0.24	0.22
	W_E	= effective crosswalk (m)	3	3
Step				
1	t_c	= single pedestrian critical gap	7	7
2	N_c	= total number of pedestrian in the crossing platoon (p)	1.2	1.2
3	N_p	= spatial distribution of pedestrian (p)	1	1
4	t_G	= group critical gap (s)	7	7
5	d_p	= average pedestrian delay (s)	11.2	9.7
6	LOS	= Level of Services	<u>C</u>	<u>B</u>



7.2.10 The assessment results shown in **Tables 7.6** and **7.7** indicate that all critical sections are operating within acceptable criteria ($V/C < 0.85$, $LOS \leq C$), and therefore considered acceptable.

7.2.11 If there is no PWP work, the Applicant will provide a pedestrian crossing at the same location of planned cautionary crossing at Kam Tin Road (**Figure 7.3** refers). Also, to provide a better walking environment, it is proposed to locally widen the northern footpath of Kam Tin Road to min. 2m as shown in **Figure 7.3**. Details arrangement would be discussed with government departments at detailed design stage.

7.3 Conclusion

7.3.1 Based on the assessment results, the critical footpath and crossing facilities are able to meet the future pedestrian demand due to the proposed development. It is revealed that footpaths and the pedestrian crossing at Kam Tin Road will be upgraded by HyD and thus the future walking condition will be improved.



8. SUMMARY AND CONCLUSION

8.1 Summary

- 8.1.1 The Applicant intends to rezone the Development Site from "Residential (Group C)2" and "Open Space" to "Residential (Group C)4" to enable the proposed residential development.
- 8.1.2 CTA Consultants Limited (CTA), are therefore commissioned as the traffic consultant to prepare the Traffic Impact Assessment (TIA) and provide technical justifications in supporting the application from traffic engineering point of view.
- 8.1.3 To appraise the existing traffic condition, a vehicular survey in the form of manual-classified count was conducted at the surrounding road network of the proposed development. Current operational performance of the critical junctions has been assessed with the observed traffic flow. The results reveal that all critical junctions are at present operating within its capacities, except Link L4, L5 over 1.0 but below 1.2 indicates a manageable degree of congestion.
- 8.1.4 Assessment of operational performance of the critical junctions indicates that all critical junctions will still operate within their capacities in both reference and design scenarios with planned PWP's works in year 2034, except Tai Lam Tunnel southbound in AM peak will over 1.0 but below 1.2 indicates a manageable degree of congestion. The congestion of Tai Lam Tunnel would be relieved and become acceptable after the completion of Route 11 and associated major roads.
- 8.1.5 To improve the operational performance of Junction C (Kam Tin Road / Kam Tai Road), a junction improvement scheme (**Figure 5.1 refers**) is proposed and will be implemented by the Applicant in case **there is no PWP work**.



- 8.1.6 Assessment of public transport indicates that the existing public transport could cater the future public transport demand, except GMB demand in the AM Peak which is already overload at present. The GMB demand could be absorbed by existing bus capacities, or by providing additional maximum 1 GMB trip/hr. The impact by the proposed development to the loading of railway is very small and insignificant.
- 8.1.7 Assessment of pedestrian indicates that all footpath and pedestrian crossing could cater the future pedestrian demand in both reference and design scenarios in year 2034. To provide a better walking environment, it is proposed to locally widen the northern footpath of Kam Tin Road to min. 2m (Figure 7.3 refers). A pedestrian crossing is also proposed to be provided (Figure 7.3 refers).
- 8.1.8 The traffic generated by the proposed development is very small and would induce insignificant impact on the surrounding road network. Therefore, the application is supported from the traffic points of view.

8.2 Conclusion

- 8.2.1 In conclusion, this Traffic Impact Assessment (TIA) study demonstrated that the related traffic trips related to the proposed development can be absorbed by the nearby road network and no significant traffic impact will be induced.
- 8.2.2 Therefore, the proposed residential development is reckoned feasible from traffic engineering point of view.

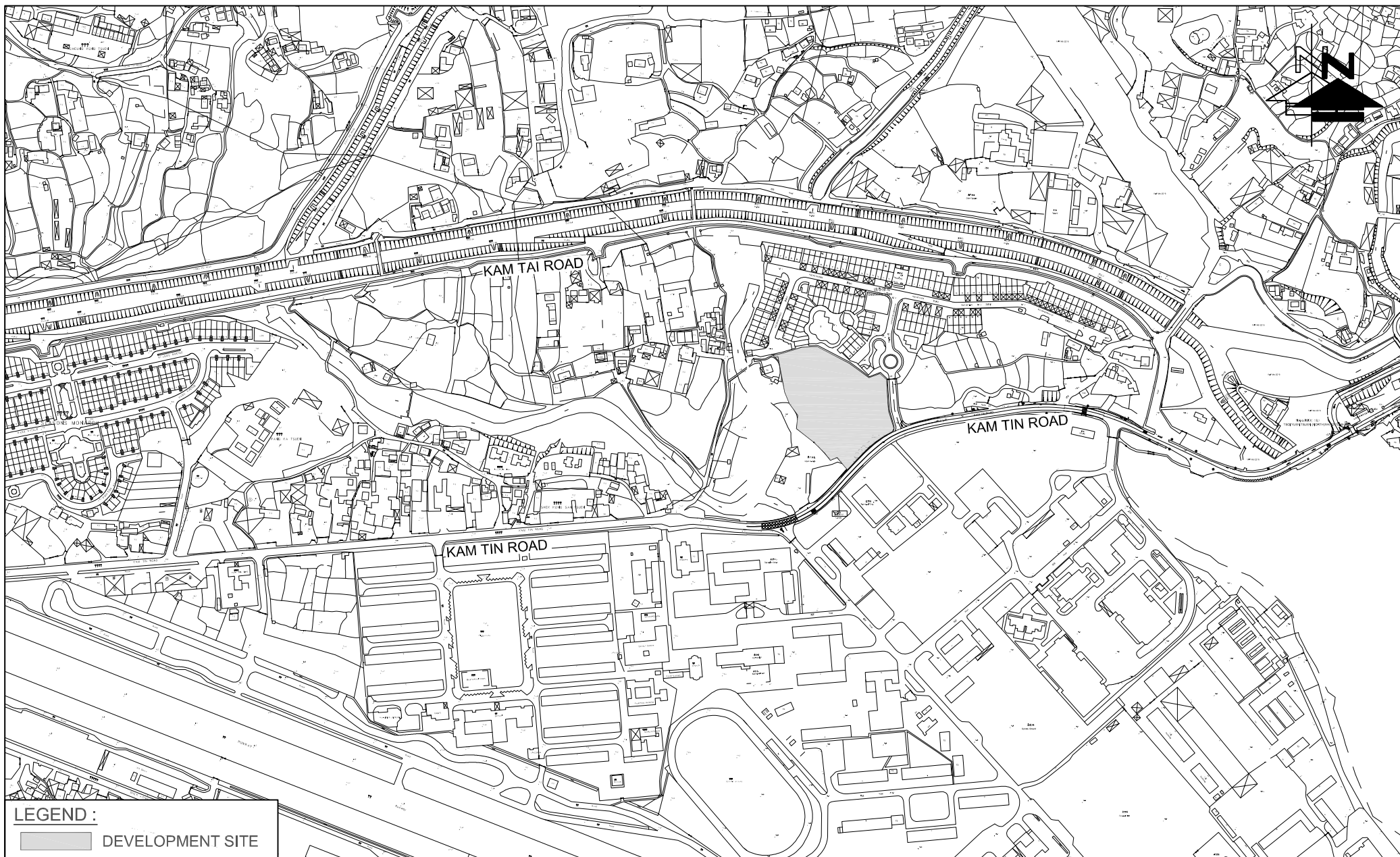


FIGURE NO.: 1.1	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: SITE LOCATION PLAN	
SCALE: 1 : 500 @A4	DATE: 14 JUL 2025	

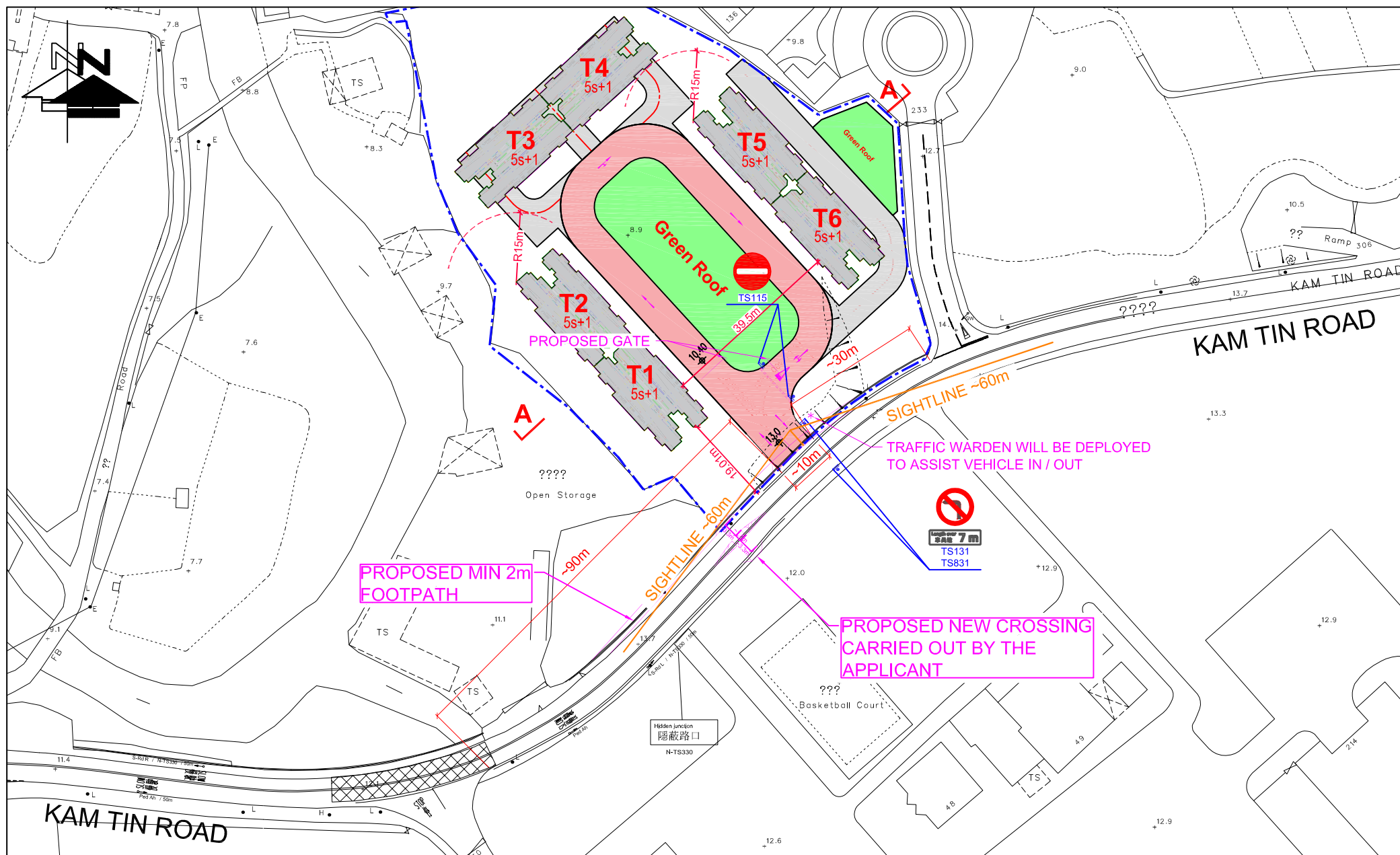


FIGURE NO.: 2.1	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: MASTER LAYOUT PLAN (WITHOUT KAM TIN ROAD WIDENING)	
SCALE: 1 : 1100 @A4	DATE: 22 JUL 2026	

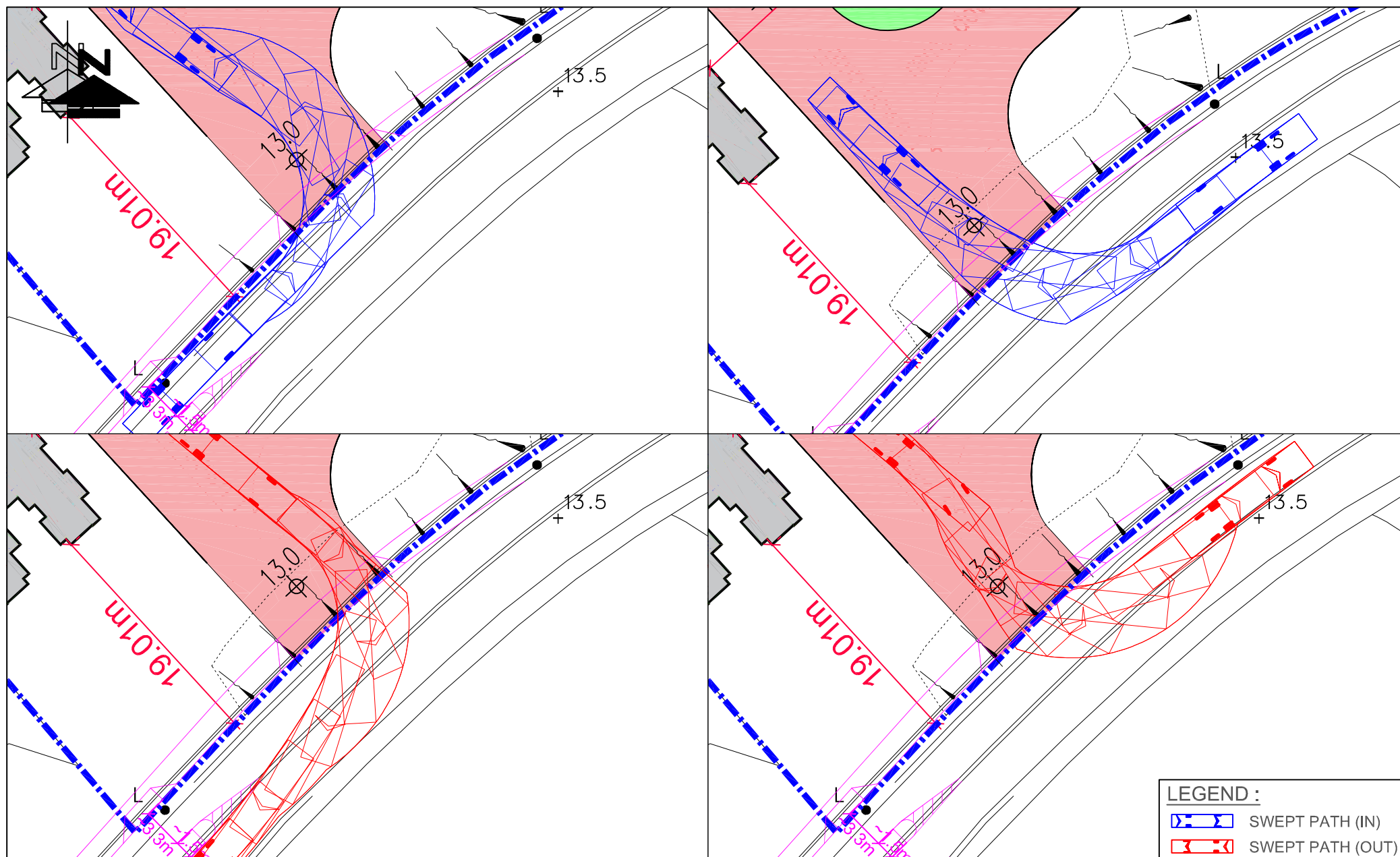


FIGURE NO.: 2.1(SP1)	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: SWEPT PATH ANALYSIS OF 12M FIRE ENGINE OF MASTER LAYOUT PLAN (WITHOUT KAM TIN ROAD WIDENING)	
SCALE: 1 : 400 @A4	DATE: 22 JUL 2026	

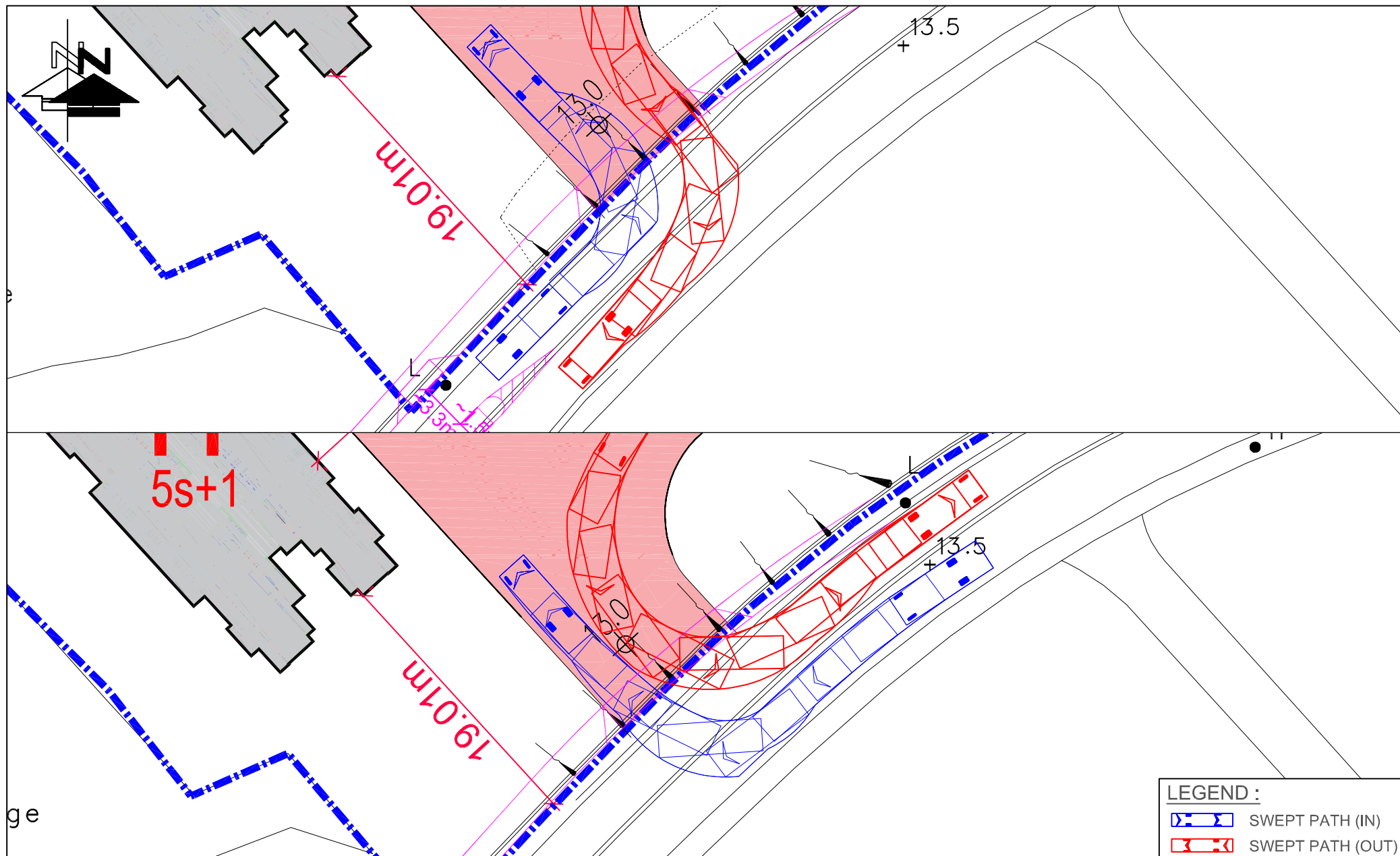
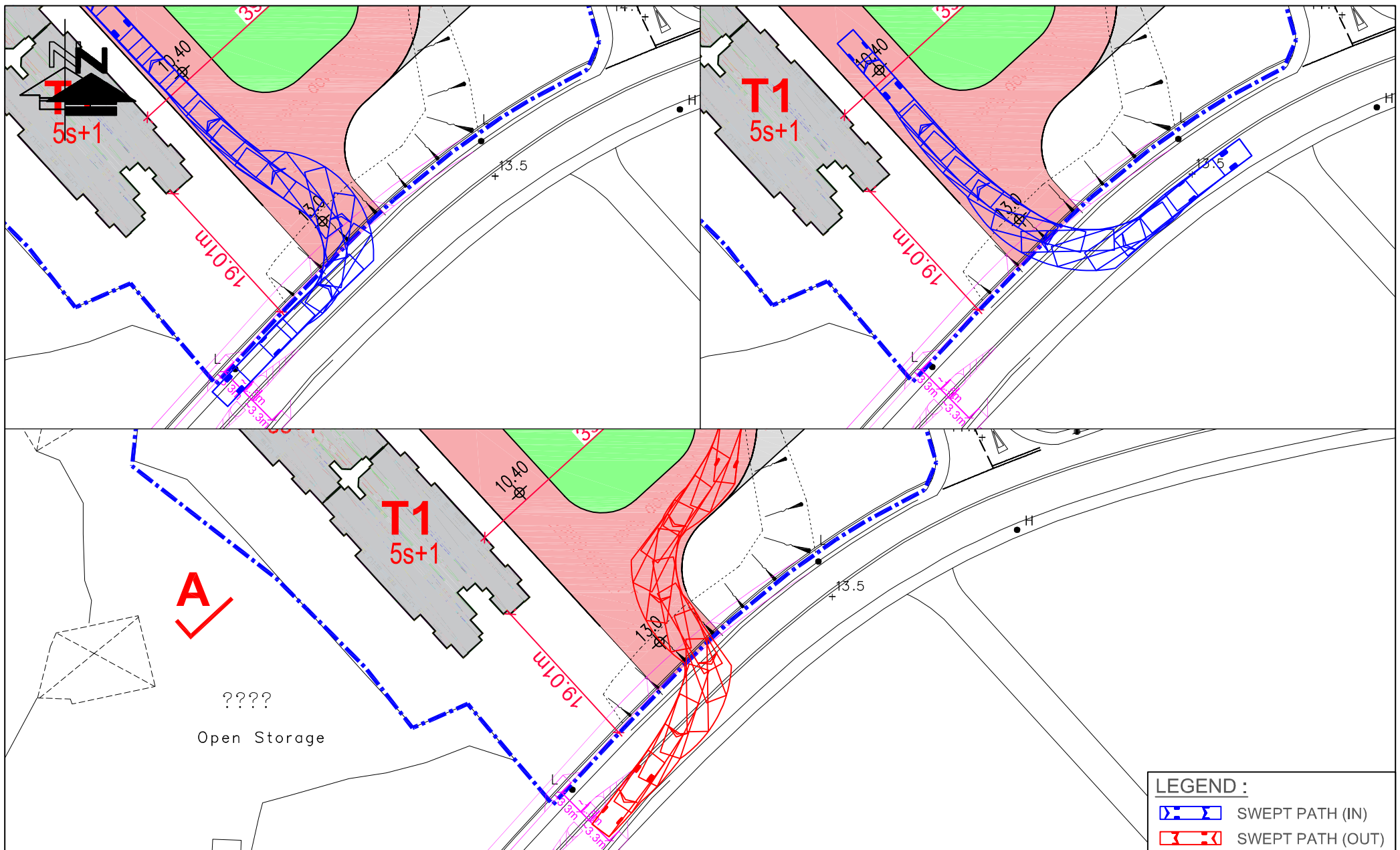


FIGURE NO.: 2.1(SP2)	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: SWEPT PATH ANALYSIS OF 5M VEHICLE OF MASTER LAYOUT PLAN (WITHOUT KAM TIN ROAD WIDENING)	
SCALE: 1 : 350 @A4	DATE: 22 JUL 2026	



LEGEND :

- SWEEP PATH (IN)
- SWEEP PATH (OUT)

FIGURE NO.: 2.1(SP3)	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: SWEPT PATH ANALYSIS OF 11M VEHICLE OF MASTER LAYOUT PLAN (WITHOUT KAM TIN ROAD WIDENING)	
SCALE: 1 : 600 @A4	DATE: 22 JUL 2026	

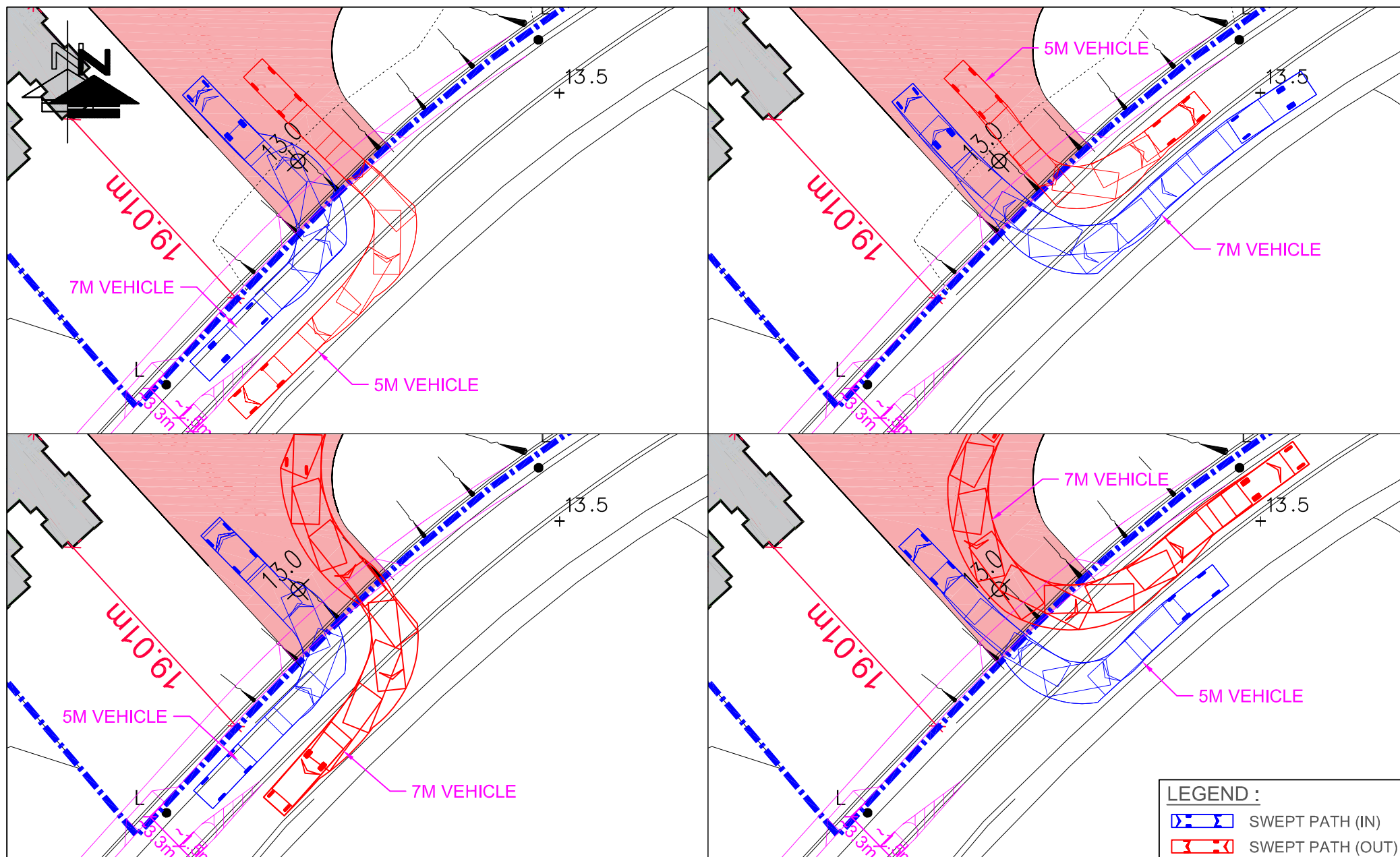


FIGURE NO.: 2.1(SP4)	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: SWEPT PATH ANALYSIS OF 5M AND 7M VEHICLE OF MASTER LAYOUT PLAN (WITHOUT KAM TIN ROAD WIDENING)	
SCALE: 1 : 400 @A4	DATE: 22 JUL 2026	

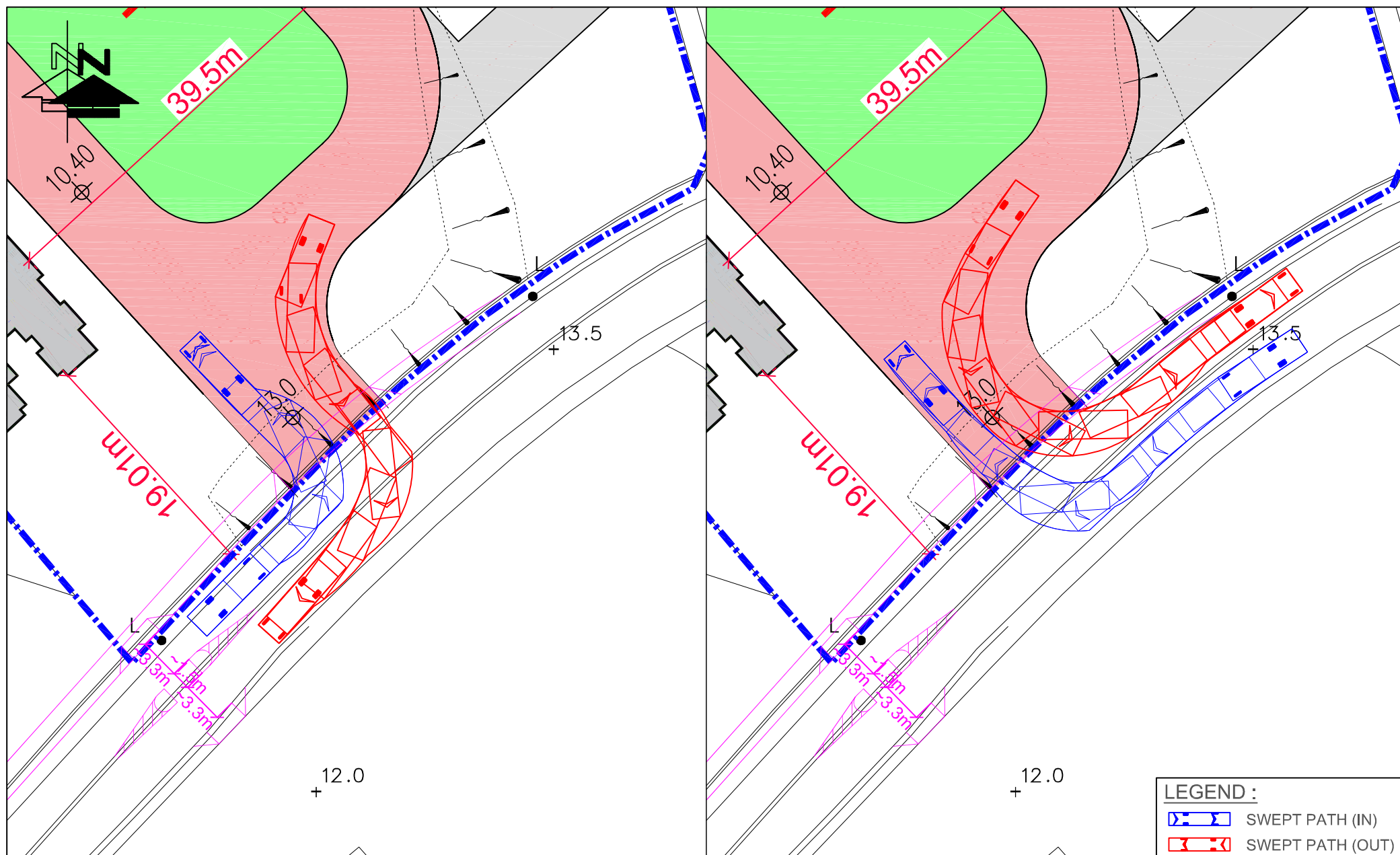


FIGURE NO.: 2.1(SP5)	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: SWEPT PATH ANALYSIS OF 7M VEHICLE OF MASTER LAYOUT PLAN (WITHOUT KAM TIN ROAD WIDENING)	
SCALE: 1 : 400 @A4	DATE: 22 JUL 2026	

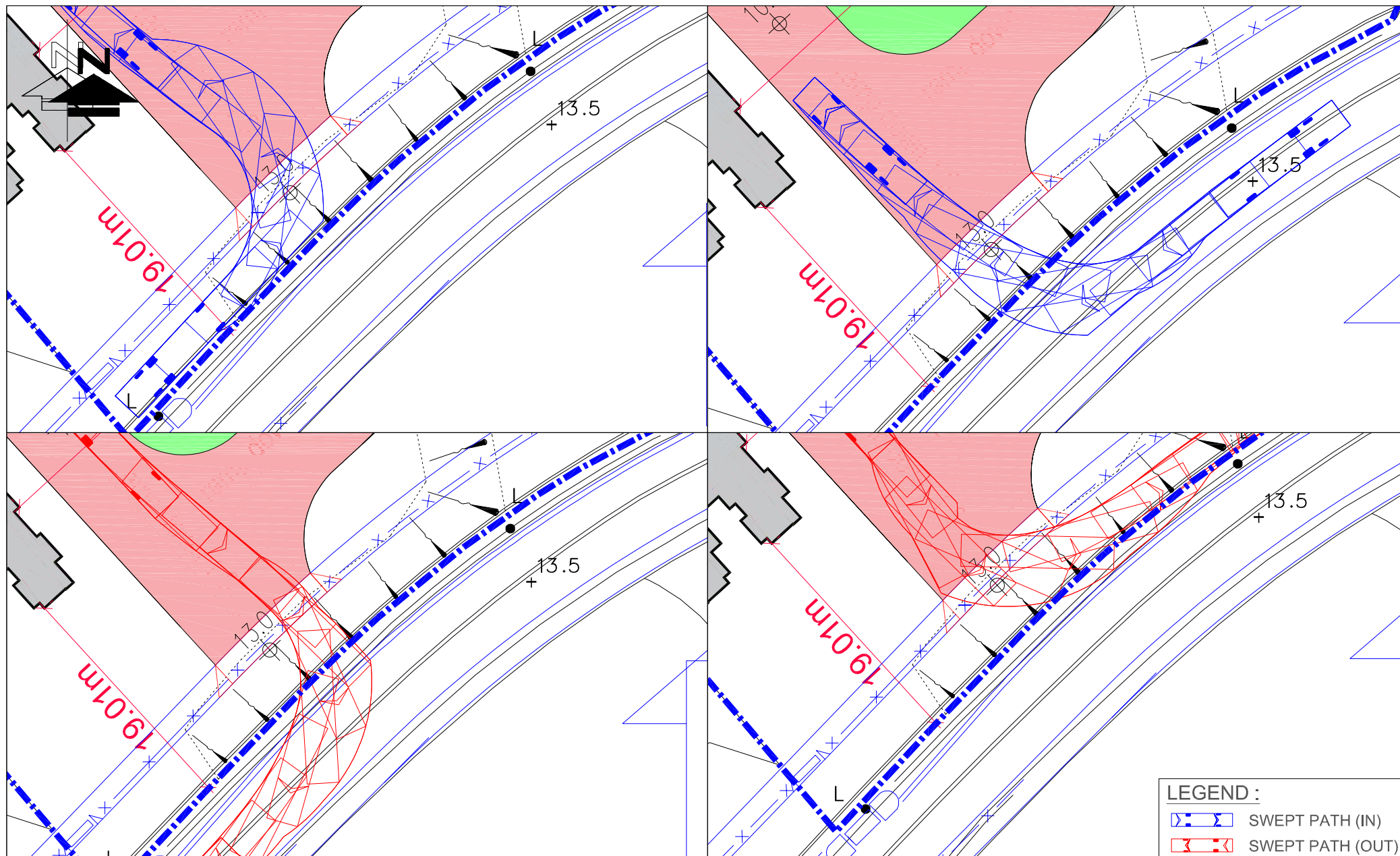


FIGURE NO.: 2.2(SP1)	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: SWEPT PATH ANALYSIS OF 12M FIRE ENGINE OF MASTER LAYOUT PLAN (WITH KAM TIN ROAD WIDENING)	
SCALE: 1 : 400 @A4	DATE: 25 MAR 2026	

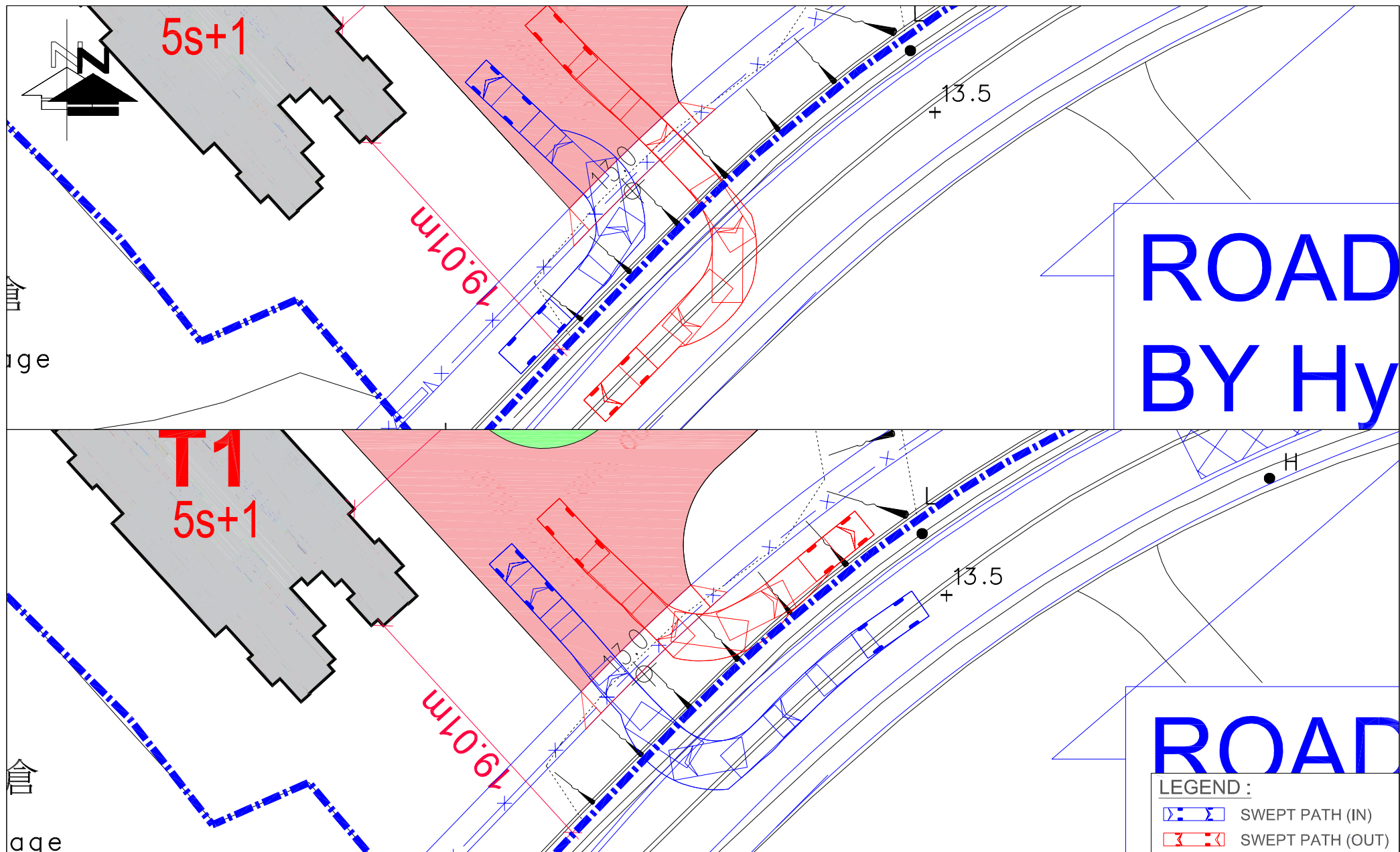


FIGURE NO.: 2.2(SP2)	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: SWEPT PATH ANALYSIS OF 5M VEHICLE OF MASTER LAYOUT PLAN (WITH KAM TIN ROAD WIDENING)	
SCALE: 1 : 350 @A4	DATE: 25 MAR 2026	

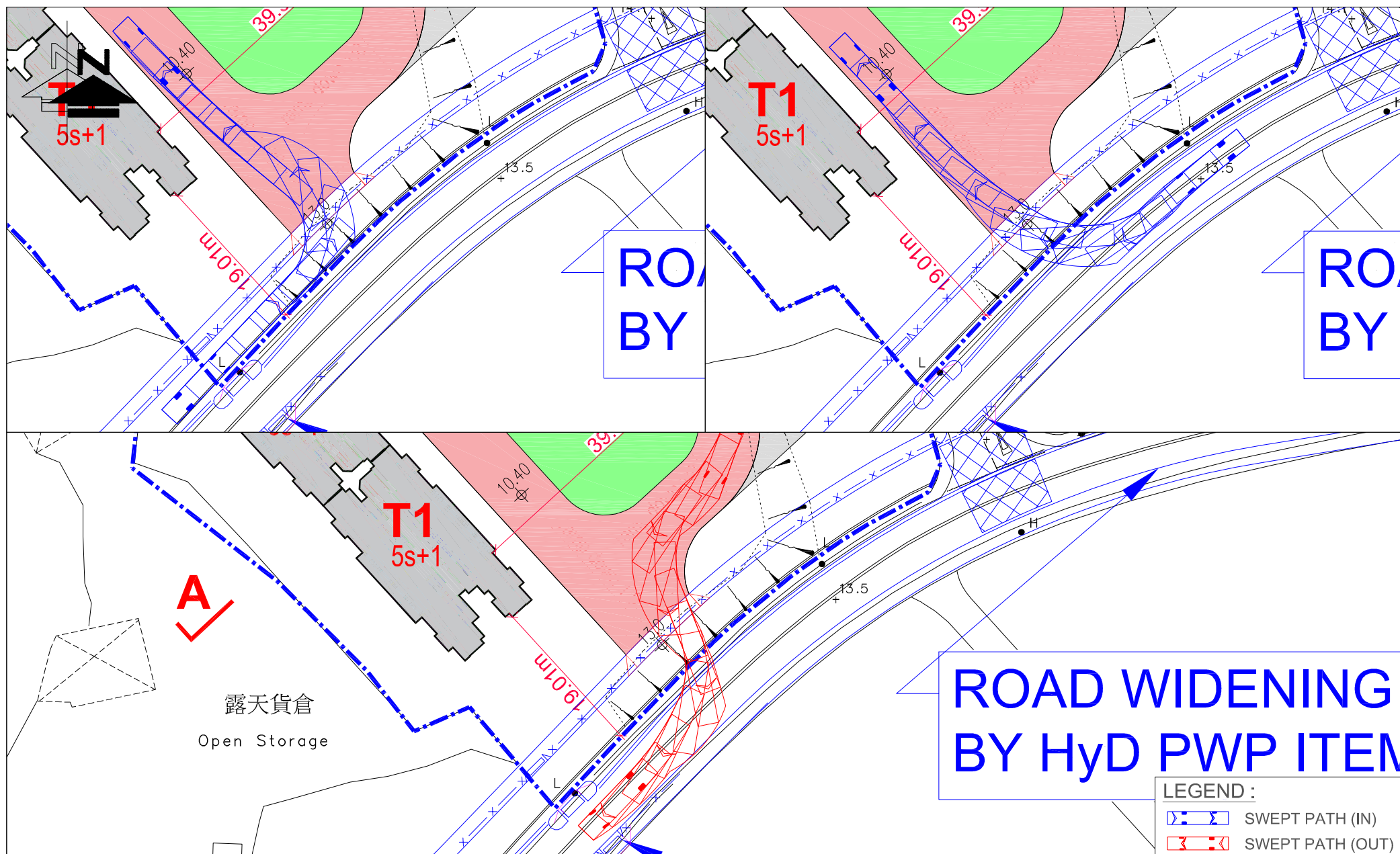


FIGURE NO.: 2.2(SP3)	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: SWEPT PATH ANALYSIS OF 11M VEHICLE OF MASTER LAYOUT PLAN (WITH KAM TIN ROAD WIDENING)	
SCALE: 1 : 600 @A4	DATE: 25 MAR 2026	

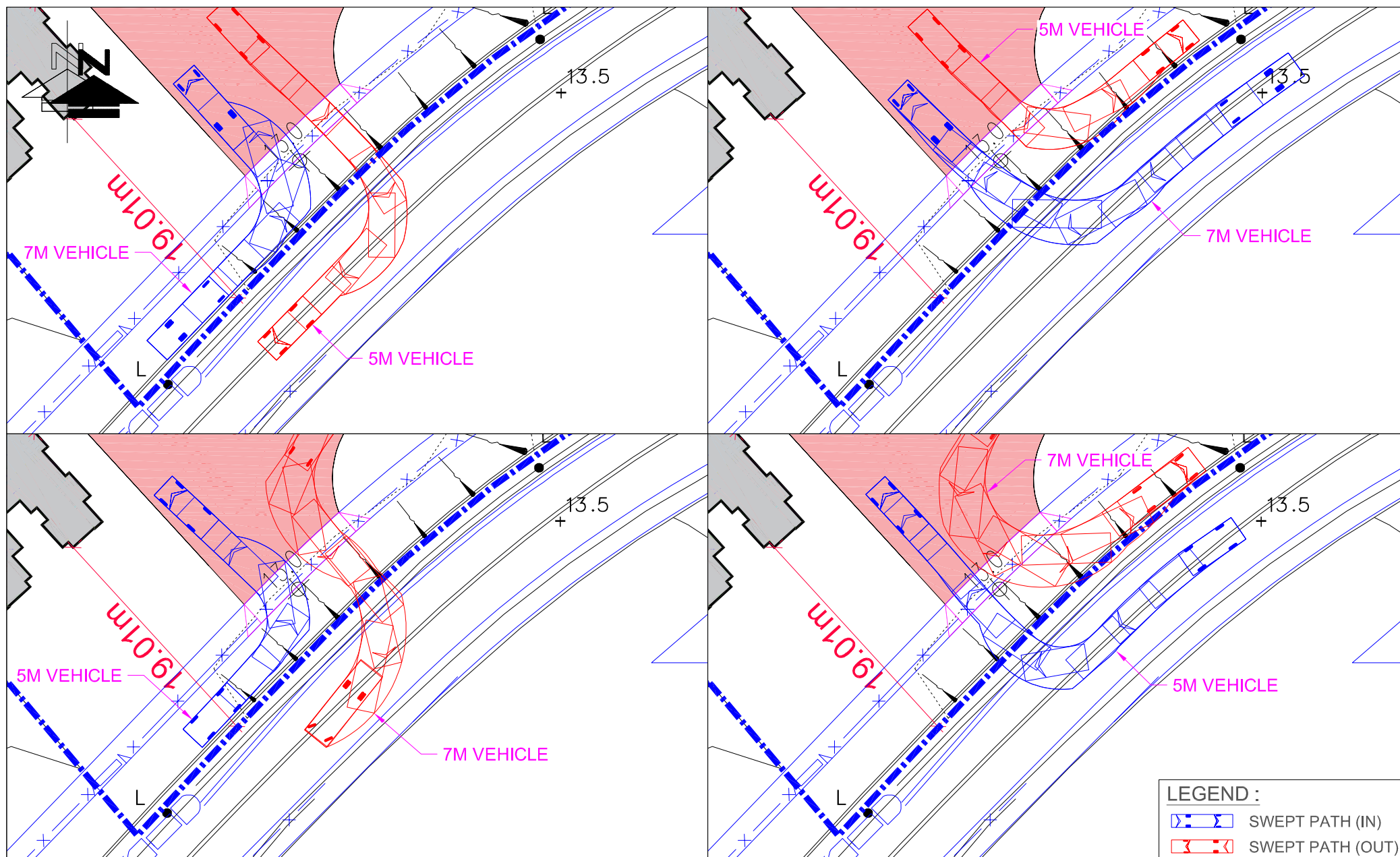


FIGURE NO.:
2.2(SP4)

PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.

PROJECT NO.:
25009HK

DRAWING TITLE:
**SWEPT PATH ANALYSIS OF 5M AND 7M VEHICLE OF
MASTER LAYOUT PLAN
(WITH KAM TIN ROAD WIDENING)**

SCALE: 1 : 400 @A4
DATE: 26 MAR 2026

CTA Consultants Limited
志達顧問有限公司

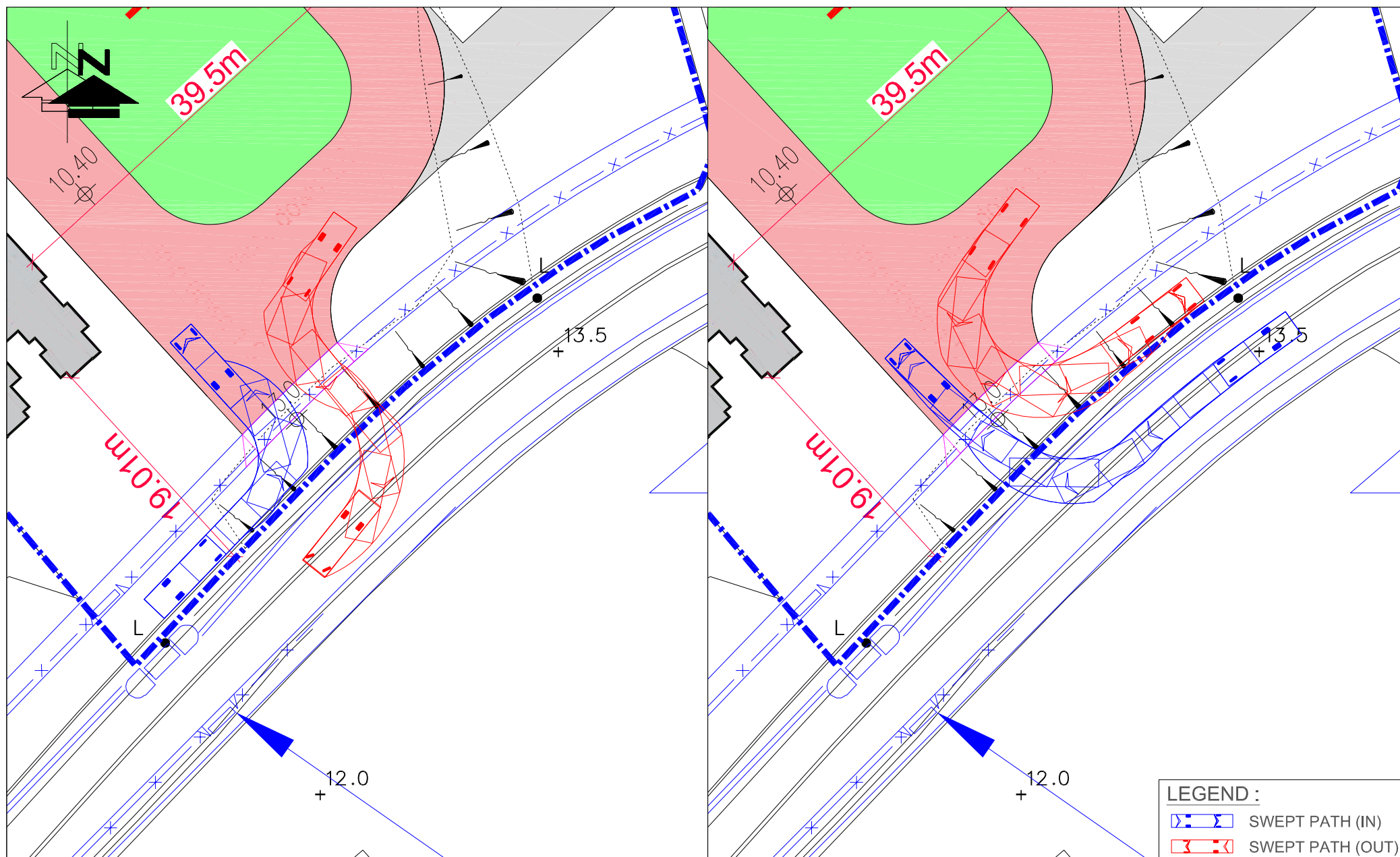


FIGURE NO.:
2.2(SP5)

PROJECT NO.:
25009HK

SCALE:
1 : 400 @A4

DATE:
27 MAR 2026

PROJECT TITLE:
Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.

DRAWING TITLE:
**SWEPT PATH ANALYSIS OF 7M VEHICLE OF
MASTER LAYOUT PLAN
(WITH KAM TIN ROAD WIDENING)**

LEGEND :

SWEPT PATH (IN)
 SWEPT PATH (OUT)

CTA Consultants Limited
志達顧問有限公司

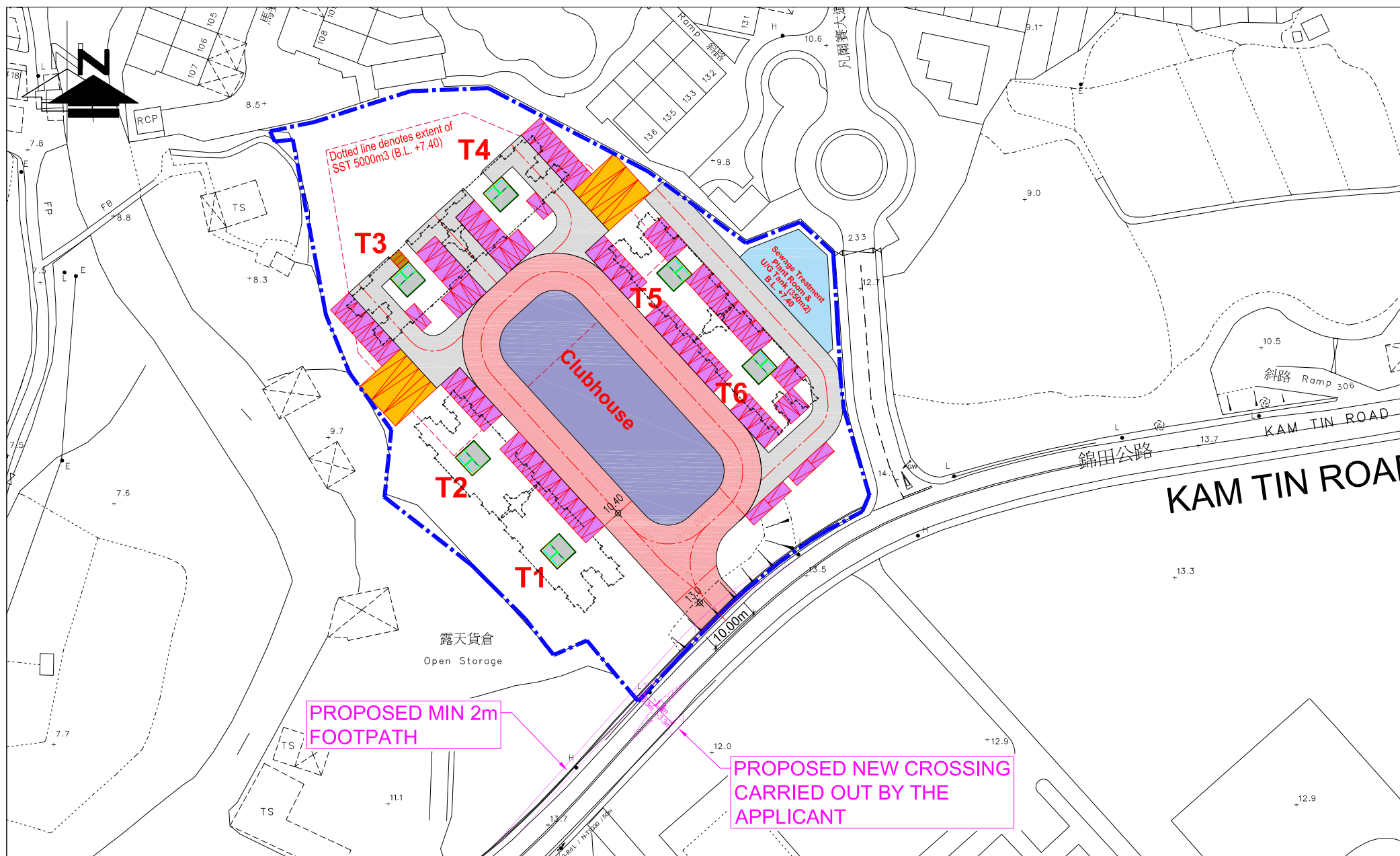


FIGURE NO.: 2.3	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: GROUND FLOOR PLAN (WITHOUT KAM TIN ROAD WIDENING)	
SCALE: 1 : 1000 @A4	DATE: 22 JUL 2026	

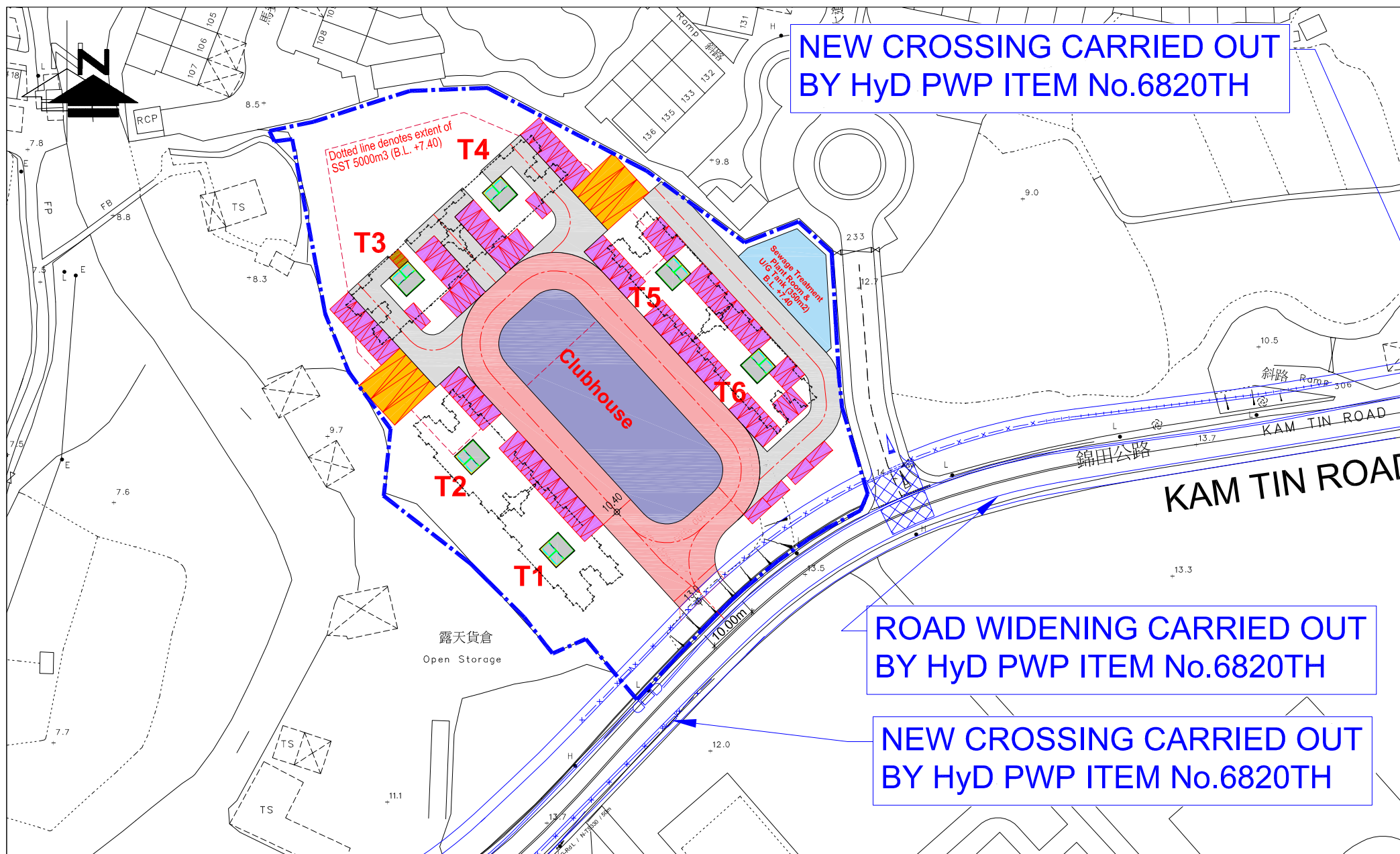
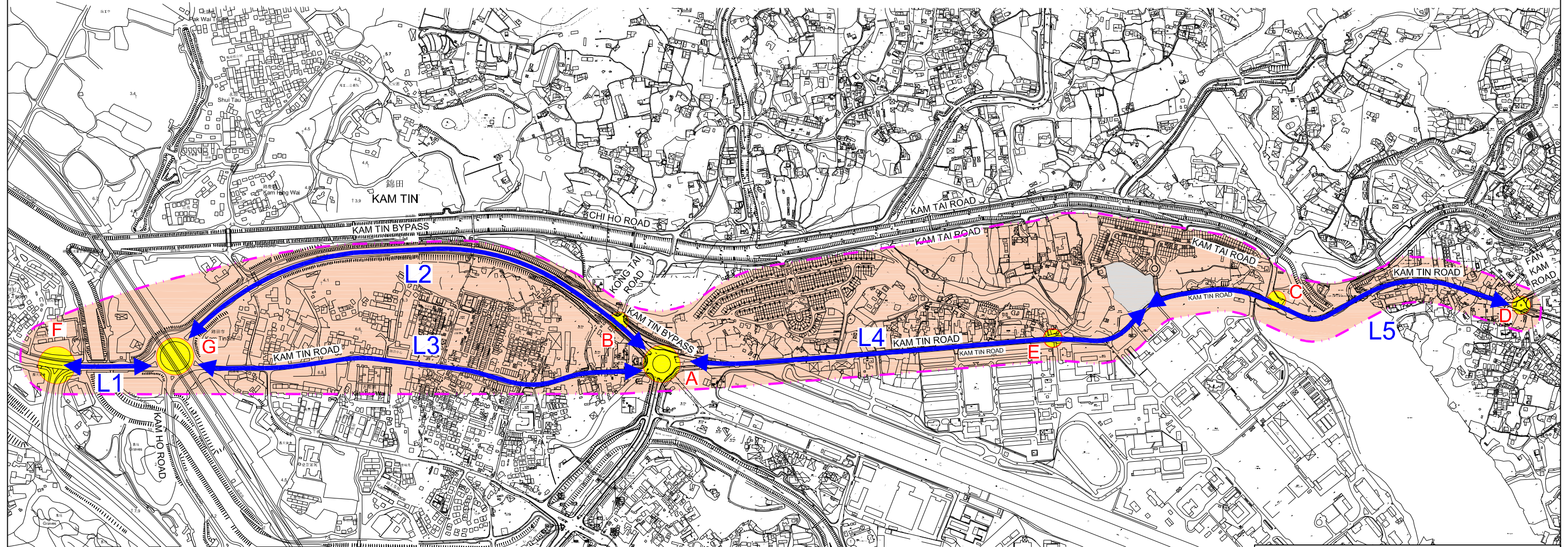
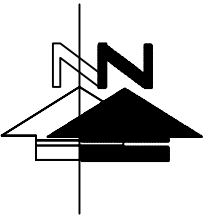


FIGURE NO.: 2.4	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: GROUND FLOOR PLAN (WITH KAM TIN ROAD WIDENING)	
SCALE: 1 : 1000 @A4	DATE: 26 MAR 2026	



LEGEND :

- DEVELOPMENT SITE
- CRITICAL JUNCTION
- AREA OF INFLUENCE
- CRITICAL ROAD LINK

FIGURE NO.:

3.1

PROJECT TITLE:

Rezoning from “Residential (Group C)2” and “Open Space” zones to “Residential (Group C)4” zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.

PROJECT NO.:

25009HK

DRAWING TITLE:

IDENTIFIED CRITICAL JUNCTIONS

SCALE:

1 : 8700 @A3

DATE:

05 MAY 2026

 CTA Consultants Limited
志達顧問有限公司

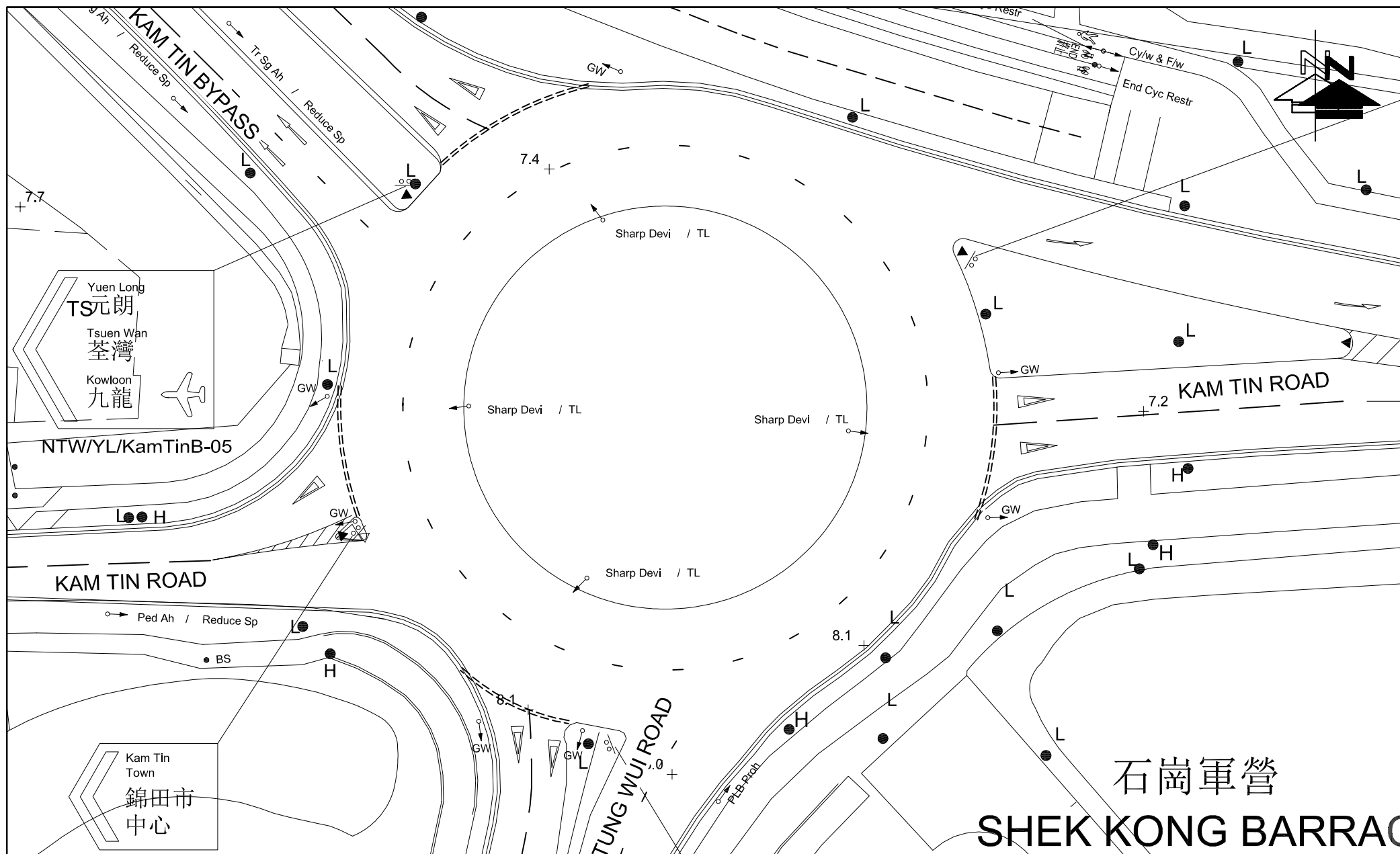


FIGURE NO.: 3.2	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF KAM TIN BYPASS / KAM TIN ROAD / TUNG WUI ROAD (A)	
SCALE: 1 : 500 @A4	DATE: 01 APR 2025	

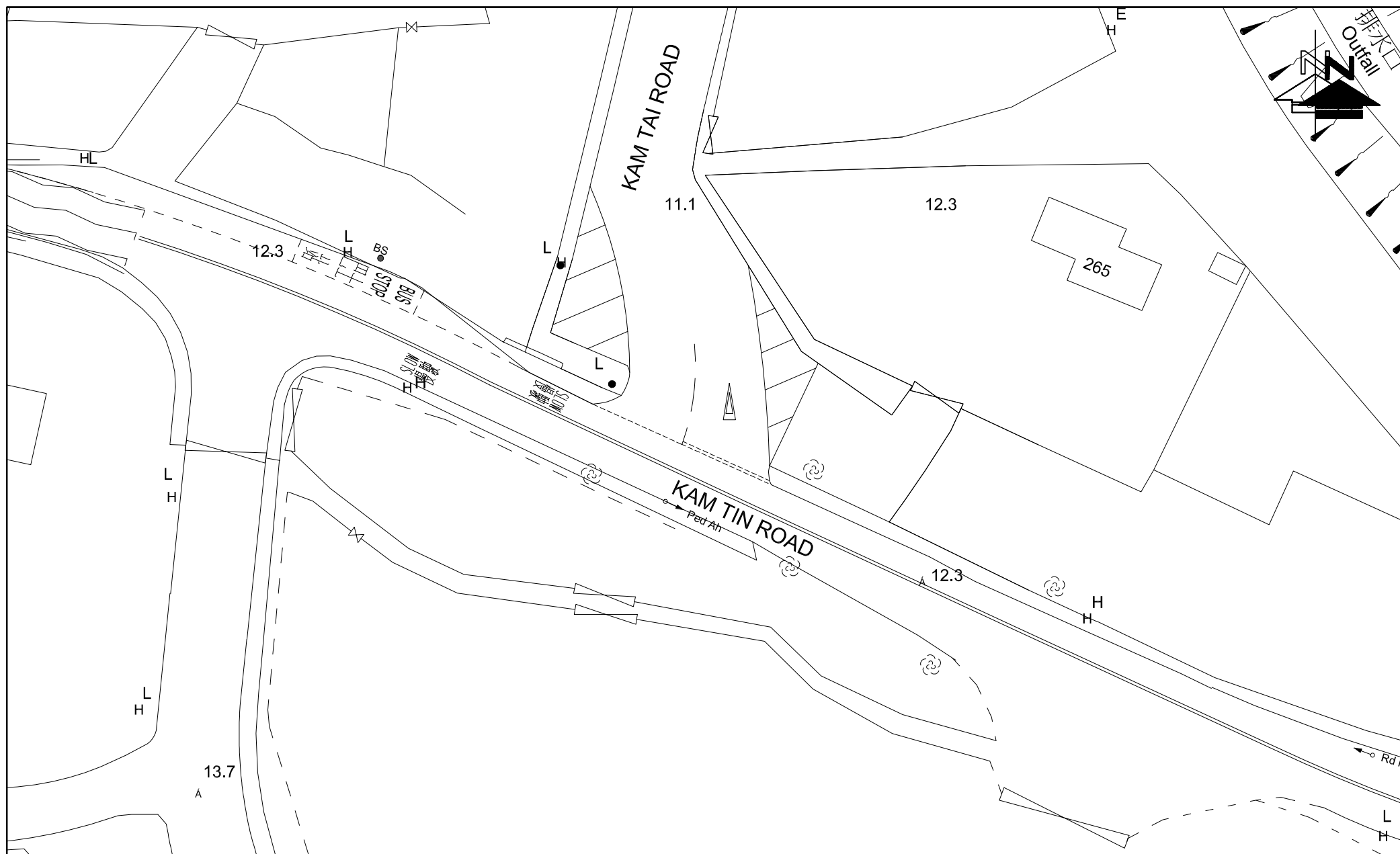


FIGURE NO.: 3.4	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF KAM TIN ROAD / KAM TAI ROAD (C)	
SCALE: 1 : 500 @A4	DATE: 05 NOV 2025	

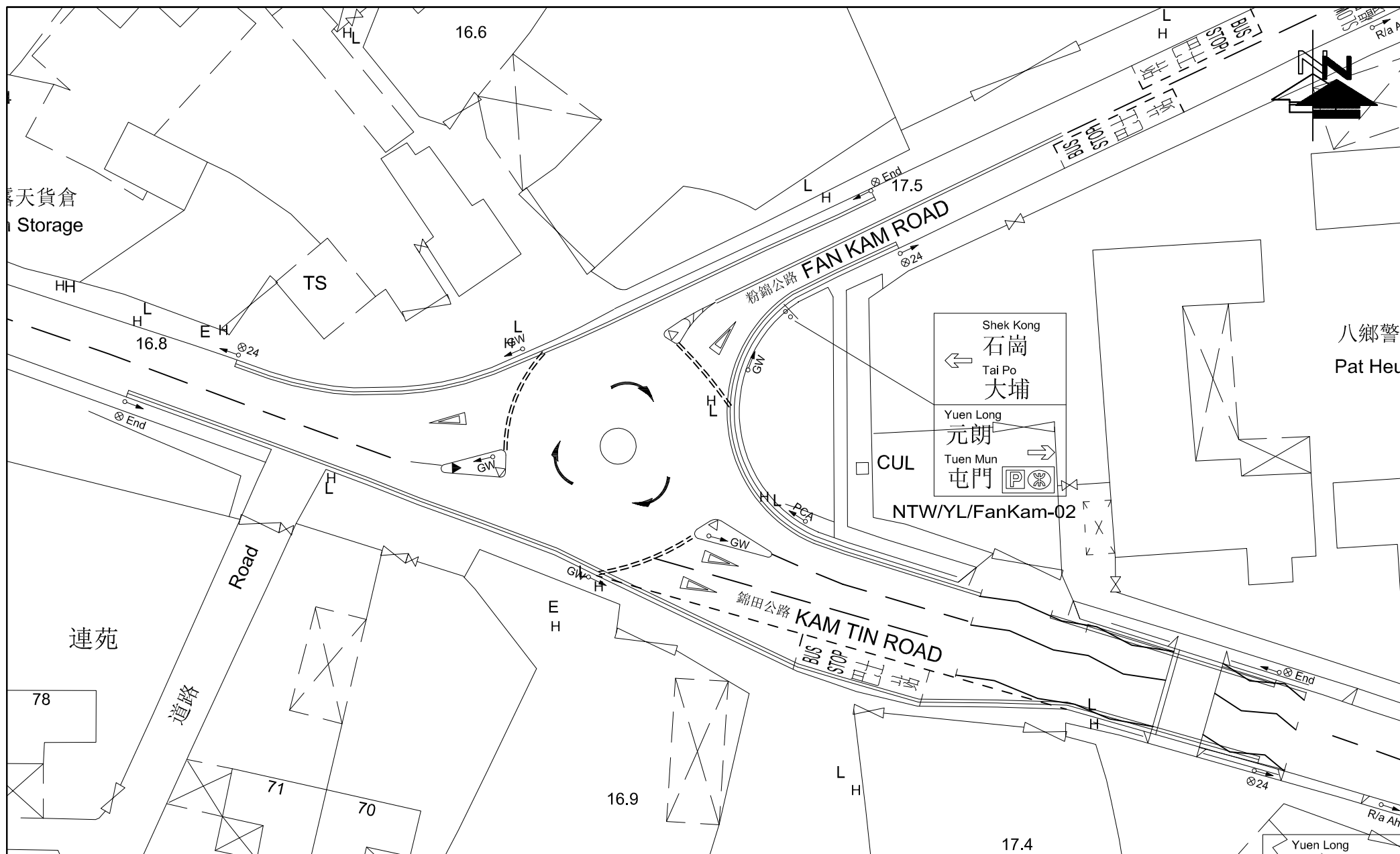
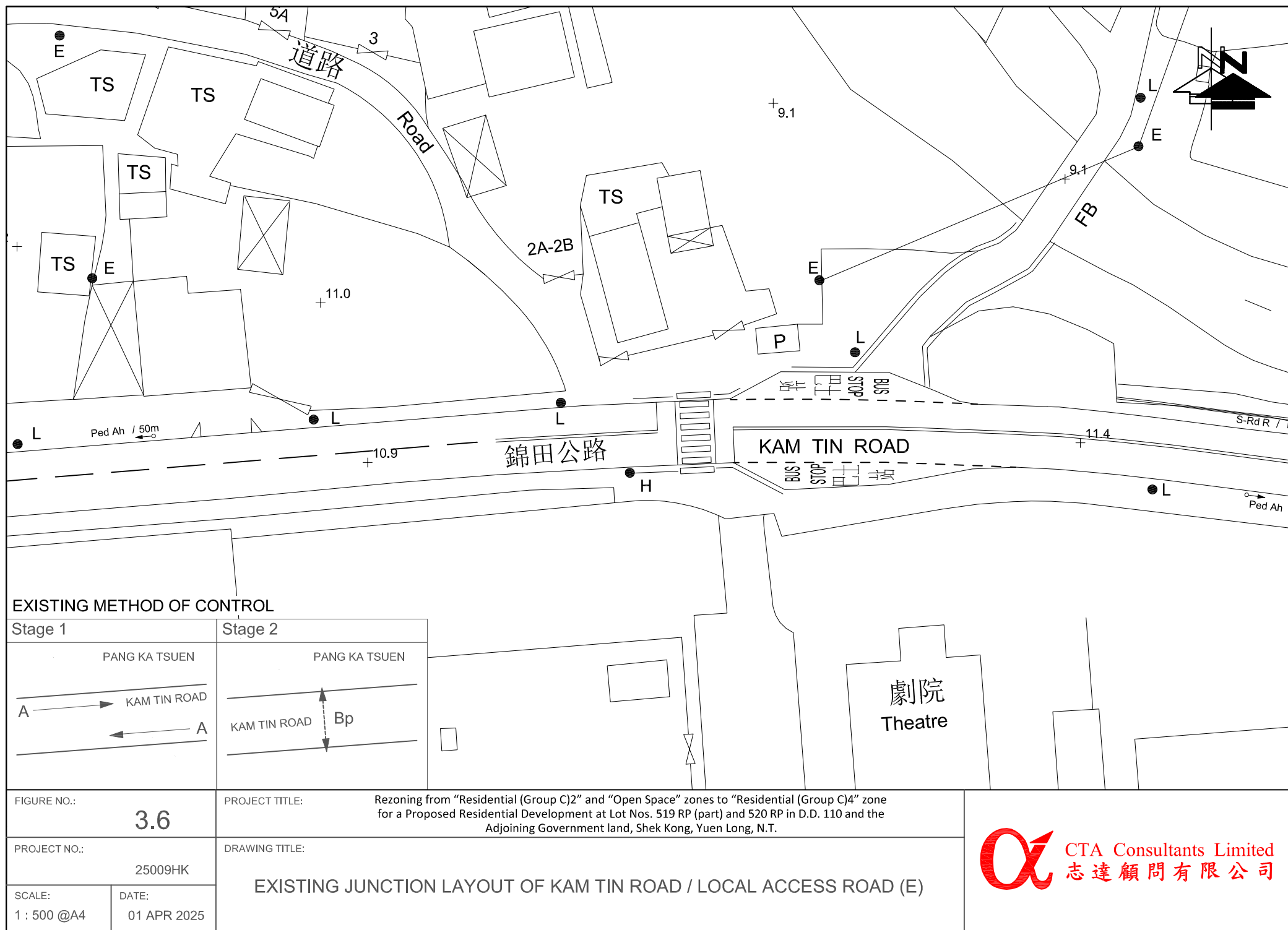


FIGURE NO.: 3.5		PROJECT TITLE: Rezoning from “Residential (Group C)2” and “Open Space” zones to “Residential (Group C)4” zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK		DRAWING TITLE: EXISTING JUNCTION LAYOUT OF KAM TIN ROAD / FAN KAM ROAD (D)	
SCALE: 1 : 500 @A4	DATE: 01 APR 2025		



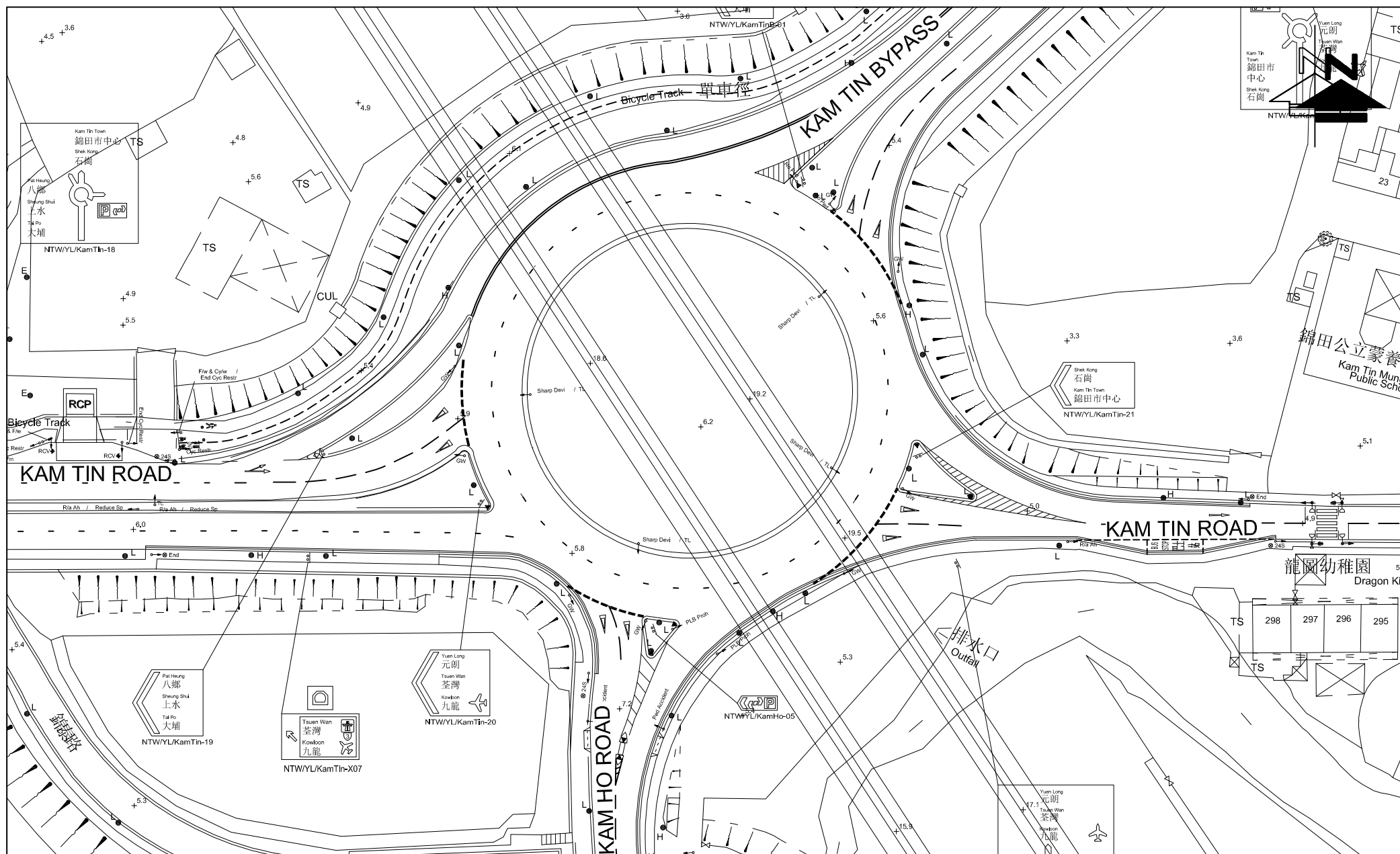
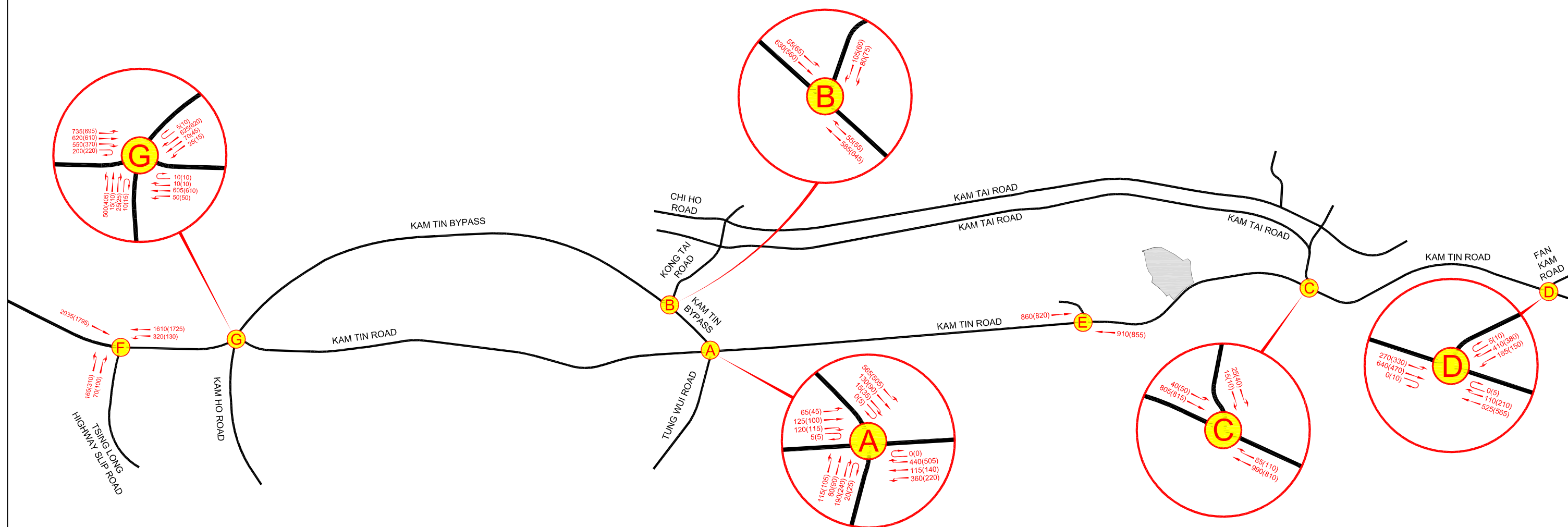
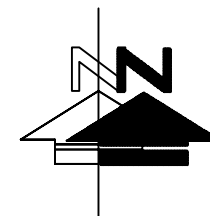


FIGURE NO.: 3.8	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF KAM TIN ROAD / KAM TIN BYPASS / KAM HO ROAD (G)	
SCALE: 1 : 1000 @A4	DATE: 01 APR 2025	



LEGEND :

DEVELOPMENT SITE

595(540) AM (PM) PEAK HOUR TRAFFIC FLOW (IN PCU / HR)

FIGURE NO.:

3.9

PROJECT TITLE:

Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.

PROJECT NO.:

25009HK

DRAWING TITLE:

2026 OBSERVED TRAFFIC FLOWS

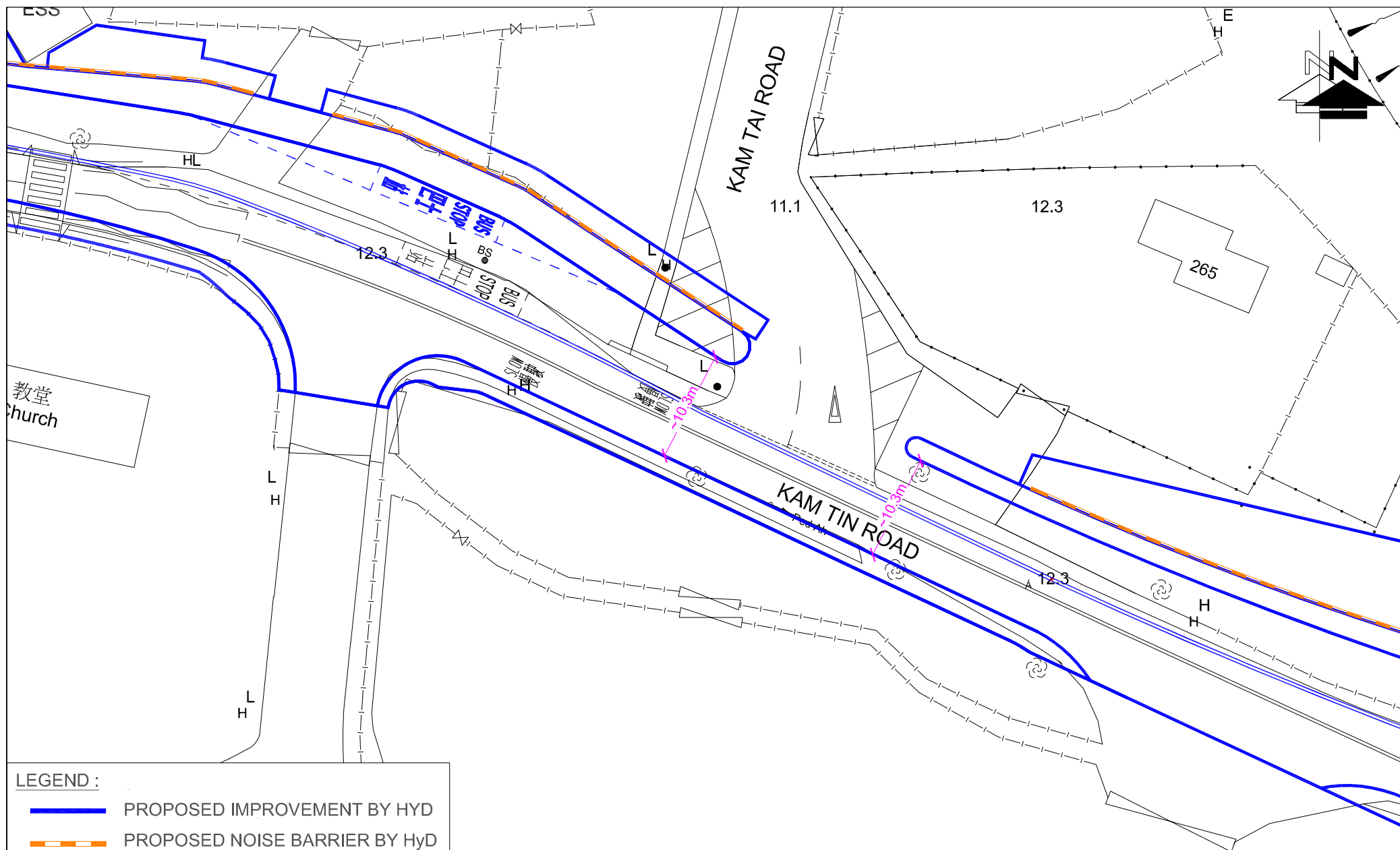
SCALE:

N. T. S. @A3

DATE:

18 MAY 2026

CTA Consultants Limited
志達顧問有限公司



LEGEND :

- PROPOSED IMPROVEMENT BY HYD
- - - PROPOSED NOISE BARRIER BY HyD

FIGURE NO.: 3.10		PROJECT TITLE: Rezoning from “Residential (Group C)2” and “Open Space” zones to “Residential (Group C)4” zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK		DRAWING TITLE: CONCEPTUAL JUNCTION IMPROVEMENT LAYOUT OF KAM TIN ROAD / KAM TAI ROAD (C) (CARRIED OUT BY HyD PWP ITEM No.6820TH)	
SCALE: 1 : 500 @A4	DATE: 22 JUL 2026		

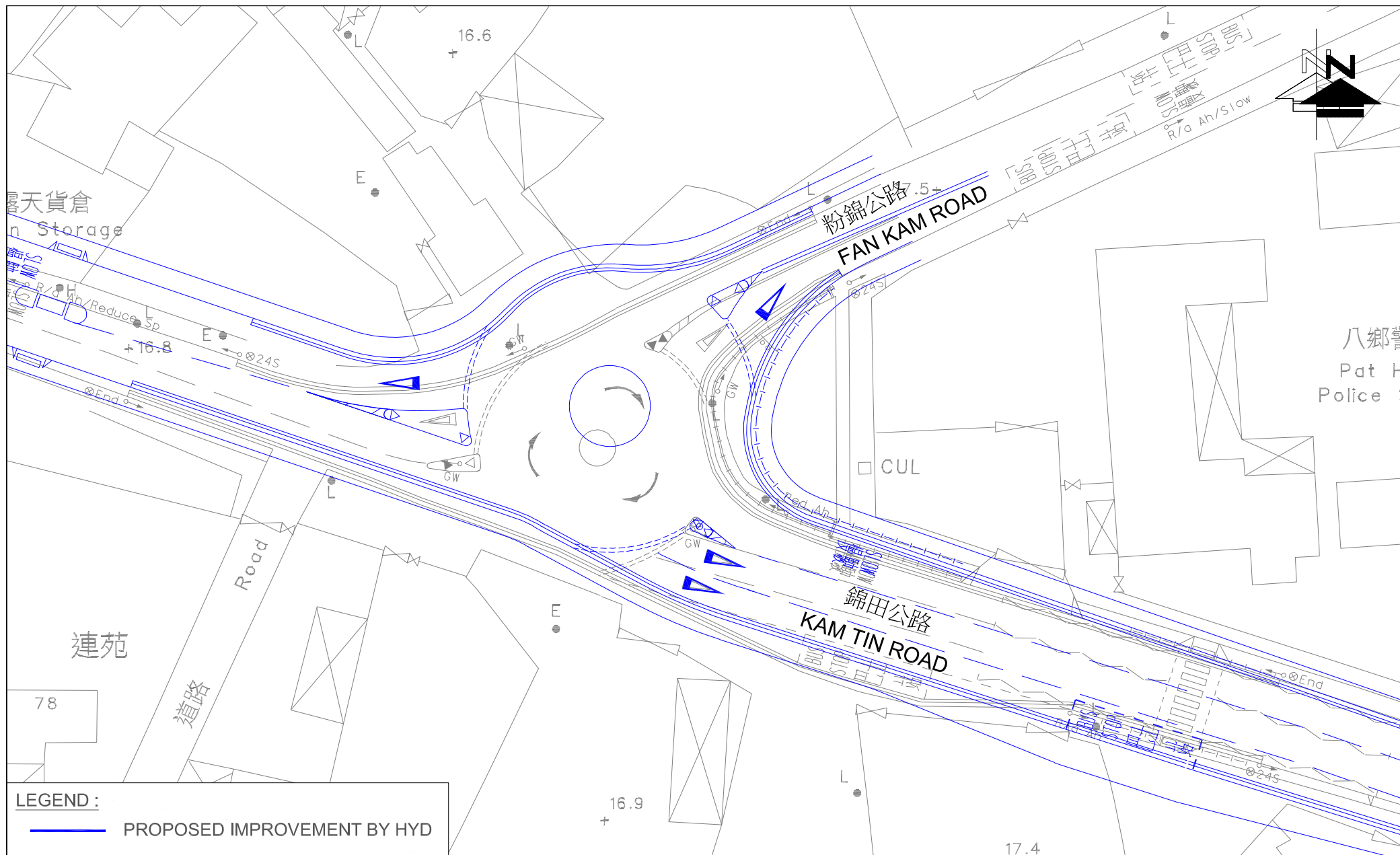


FIGURE NO.: 3.11	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: PROPOSED JUNCTION IMPROVEMENT OF KAM TIN ROAD / FAN KAM ROAD (D) (CARRIED OUT BY Hyd UNDER PWP ITEM No.6820TH)	
SCALE: 1 : 500 @A4	DATE: 22 JUL 2026	

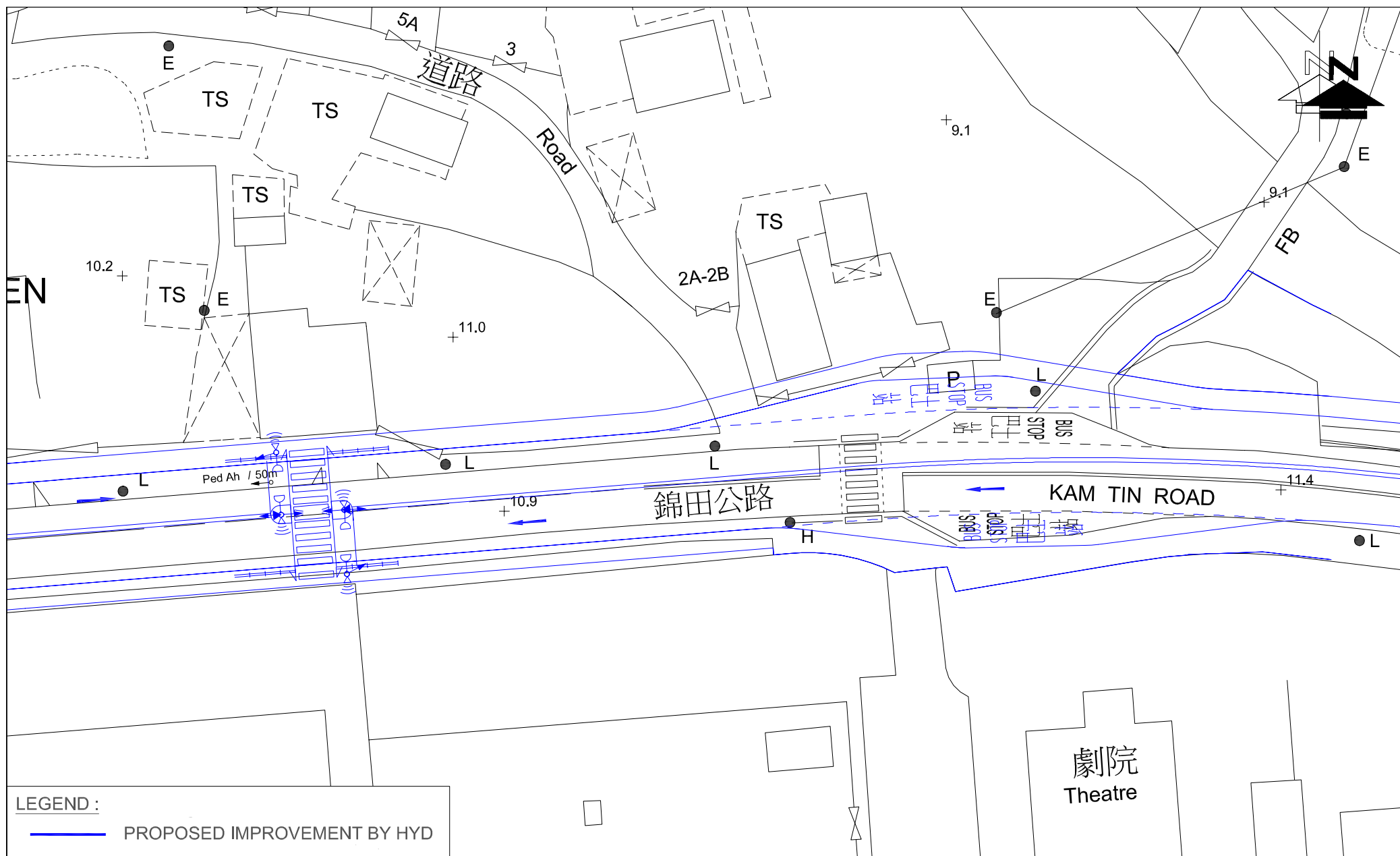


FIGURE NO.: 3.12		PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	
PROJECT NO.: 25009HK		DRAWING TITLE: CONCEPTUAL JUNCTION IMPROVEMENT OF KAM TIN ROAD / LOCAL ACCESS ROAD (E) (CARRIED OUT BY Hyd PWP ITEM No.6820TH)	
SCALE: 1 : 500 @A4	DATE: 22 JUL 2026	 CTA Consultants Limited 志達顧問有限公司	

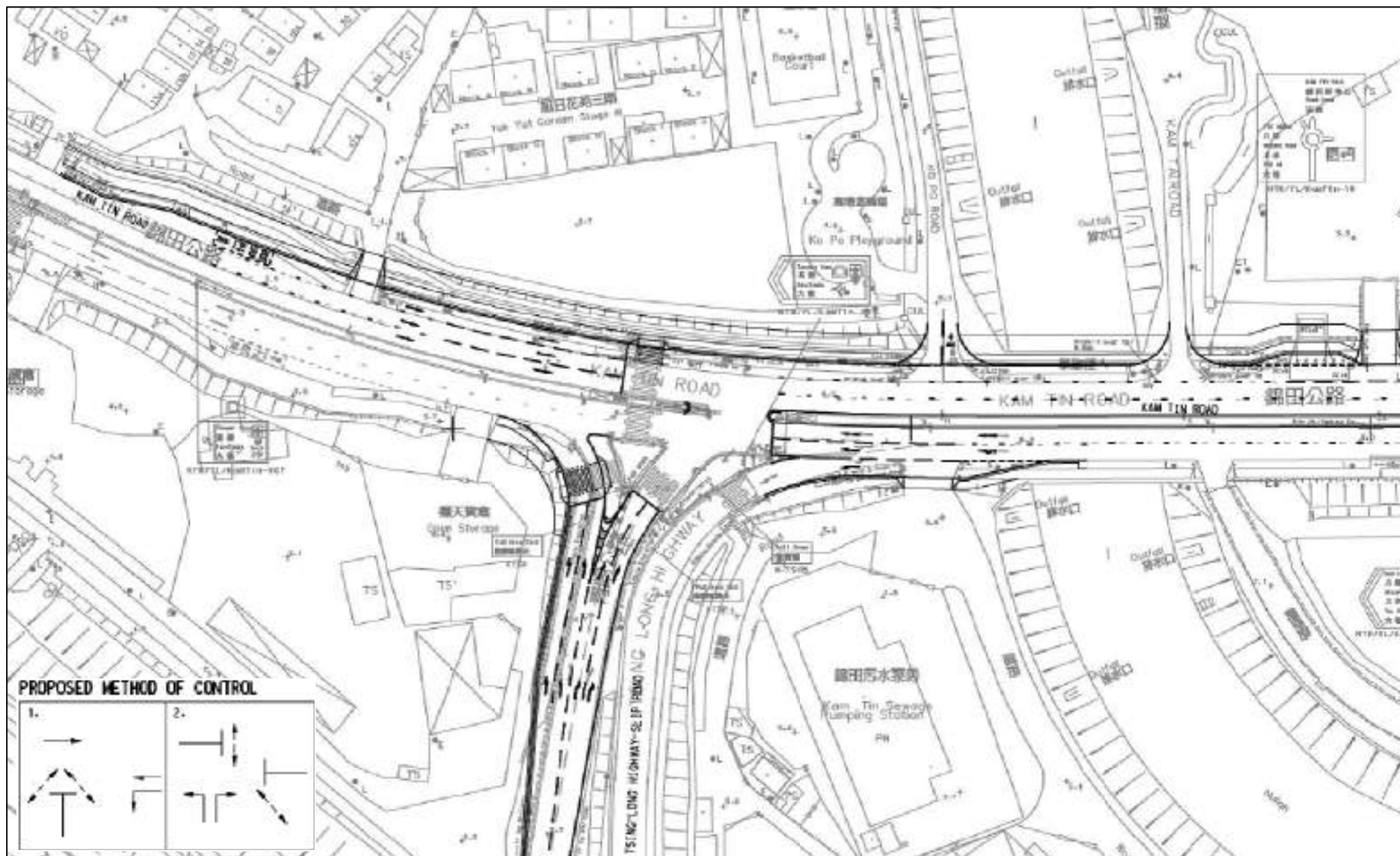
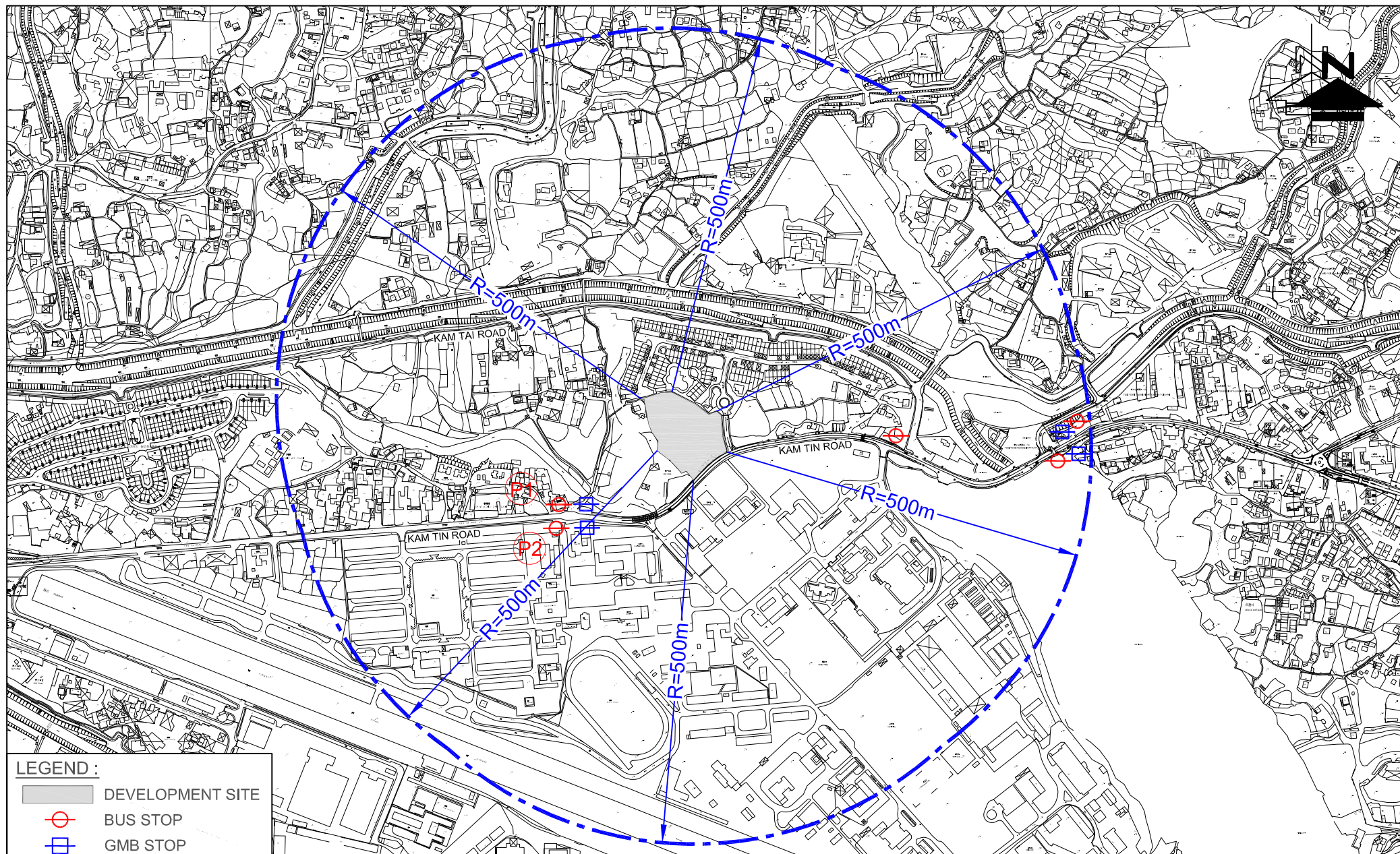


FIGURE NO.: 3.13		PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK		DRAWING TITLE: FUTURE JUNCTION LAYOUT OF KAM TIN ROAD / TSING LONG HIGHWAY SLIP ROAD (F) (CARRIED OUT BY CEDD UNDER CONTRACT NO. YL/2017/01)	
SCALE: N.T.S. @A4	DATE: 01 APR 2025		

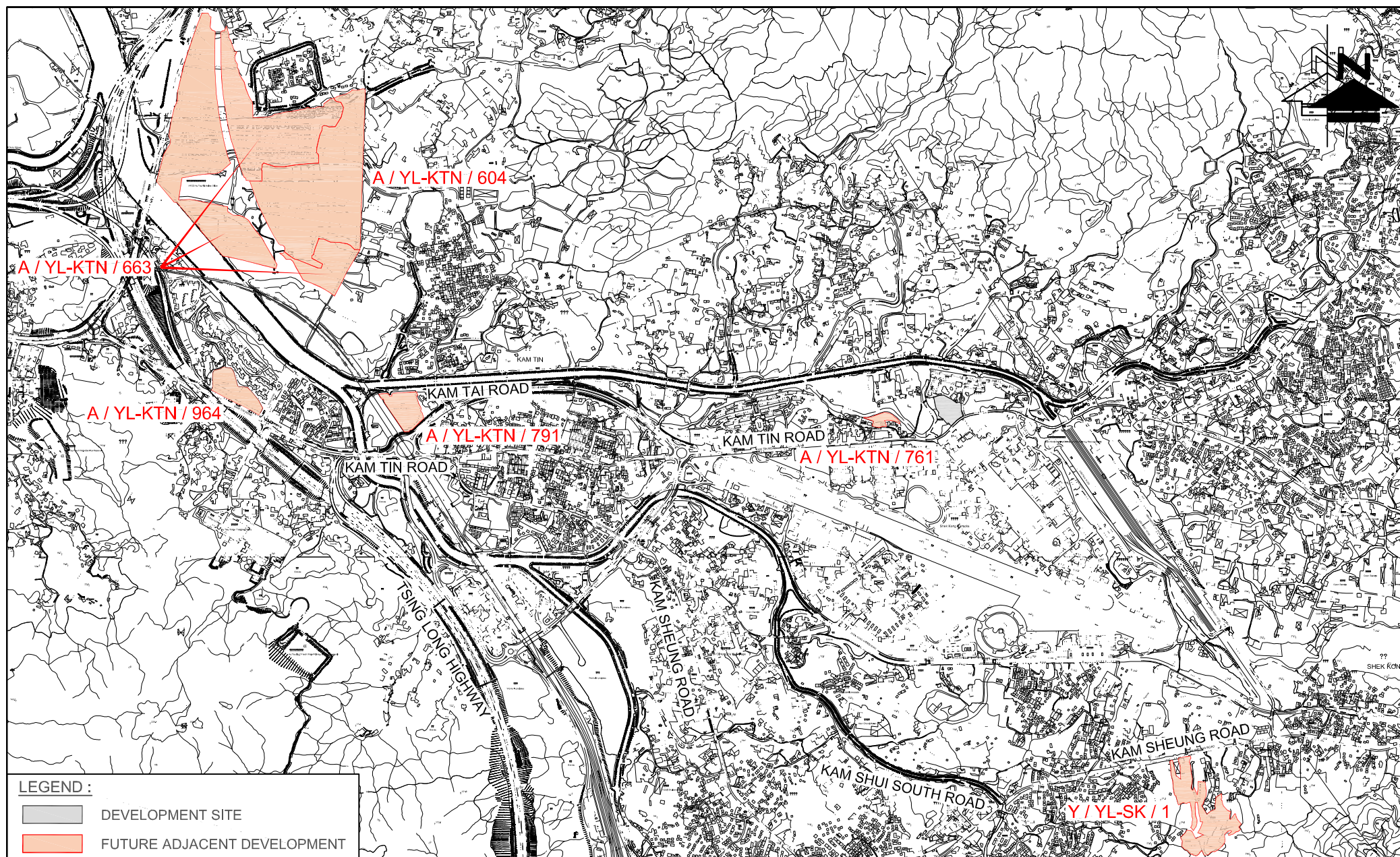


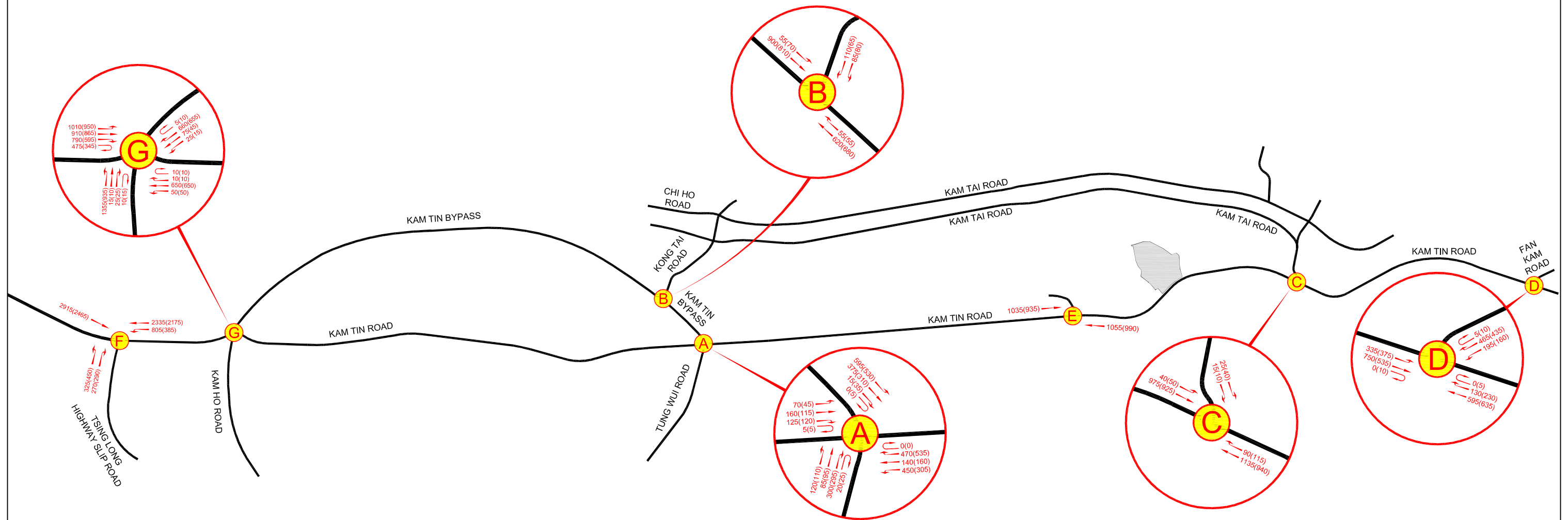
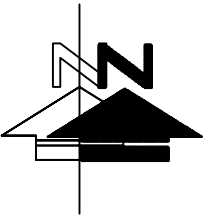
FIGURE NO.: 3.14	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: FUTURE JUNCTION LAYOUT OF KAM TIN ROAD / KAM TIN BYPASS / KAM HO ROAD (G) (CARRIED OUT BY CEDD UNDER CONTRACT NO. YL/2017/01)	
SCALE: N.T.S. @A4 DATE: 01 APR 2025		



LEGEND :	
	DEVELOPMENT SITE
	BUS STOP
	GMB STOP

FIGURE NO.: 3.15		PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK		DRAWING TITLE: PUBLIC TRANSPORT SERVICES IN THE VICINITY	
SCALE: 1 : 7000 @A4	DATE: 14 JUL 2025		





LEGEND :

 DEVELOPMENT SITE

595(540) AM (PM) PEAK HOUR
TRAFFIC FLOW (IN PCU / HR)

FIGURE NO.:

4.2

PROJECT TITLE:

Rezoning from “Residential (Group C)2” and “Open Space” zones to “Residential (Group C)4” zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.

PROJECT NO.:

25009HK

DRAWING TITLE:

2034 REFERENCE TRAFFIC FLOWS

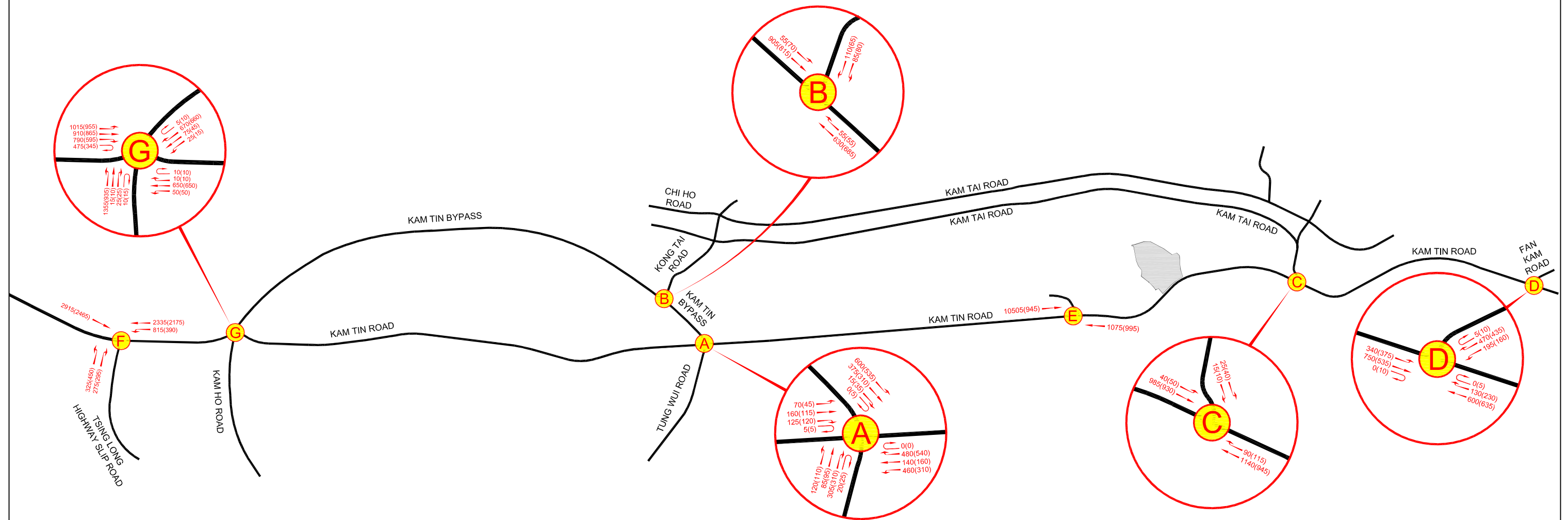
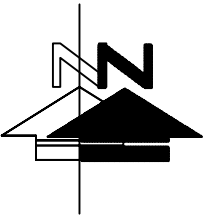
SCALE:

N. T. S. @A3

DATE:

22 JUL 2026

 **CTA Consultants Limited**
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LEGEND :

 DEVELOPMENT SITE

595(540) AM (PM) PEAK HOUR
TRAFFIC FLOW (IN PCU / HR)

FIGURE NO.:

4.3

PROJECT TITLE:

Rezoning from “Residential (Group C)2” and “Open Space” zones to “Residential (Group C)4” zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.

PROJECT NO.:

25009HK

DRAWING TITLE:

2034 DESIGN TRAFFIC FLOWS

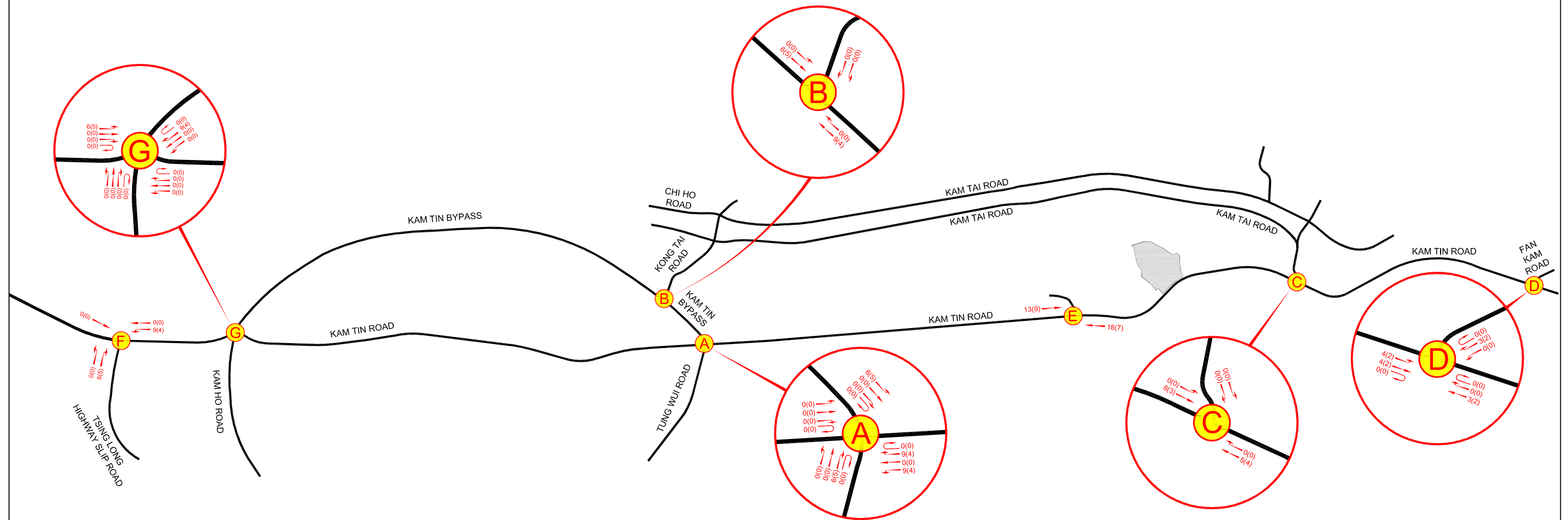
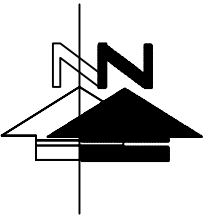
SCALE:

N. T. S. @A3

DATE:

22 JUL 2026

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志達顧問有限公司



LEGEND :

-  DEVELOPMENT SITE
- 595(540)** AM (PM) PEAK HOUR
TRAFFIC FLOW (IN PCU / HR)

FIGURE NO.:

4.4

PROJECT TITLE:

Rezoning from “Residential (Group C)2” and “Open Space” zones to “Residential (Group C)4” zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.

PROJECT NO.:

25009HK

DRAWING TITLE:

2034 DEVELOPMENT TRAFFIC FLOWS

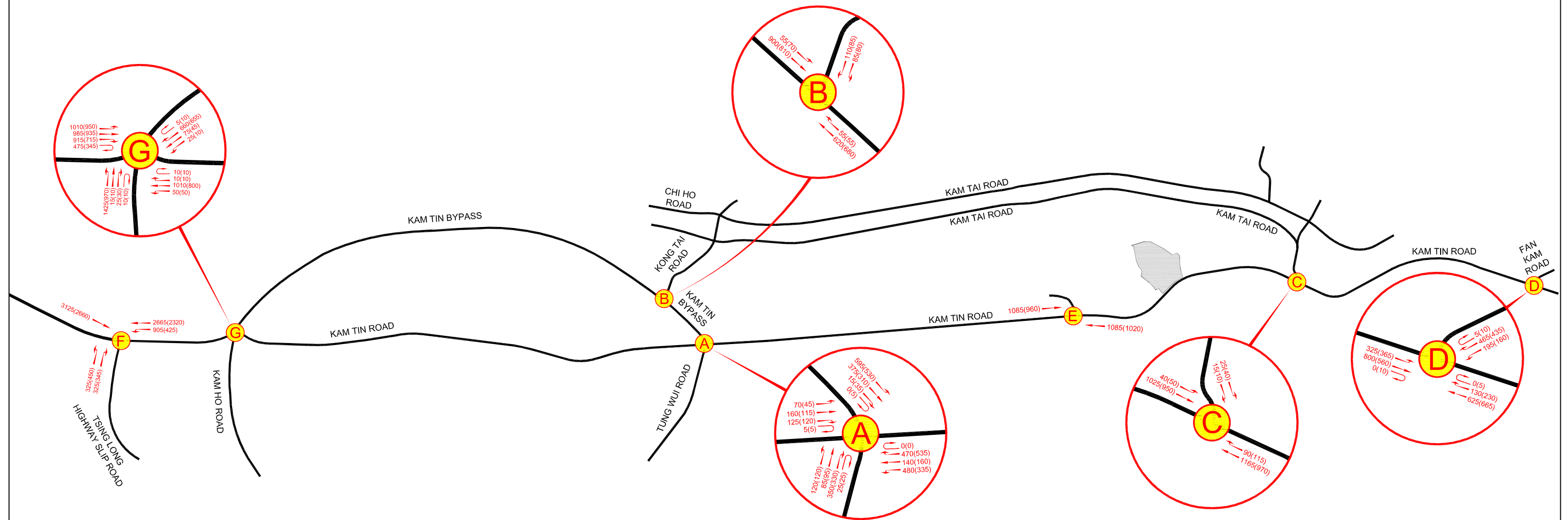
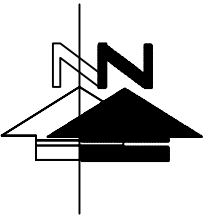
SCALE:

N. T. S. @A3

DATE:

18 MAY 2026

 **CTA Consultants Limited**
志達顧問有限公司



LEGEND :

-  DEVELOPMENT SITE
-  AM (PM) PEAK HOUR TRAFFIC FLOW (IN PCU / HR)

FIGURE NO.:

4.5

PROJECT TITLE:

Rezoning from “Residential (Group C)2” and “Open Space” zones to “Residential (Group C)4” zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.

PROJECT NO.:

25009HK

DRAWING TITLE:

2034 REFERENCE TRAFFIC FLOWS
(WITH REMAINING SITES OF LUR)

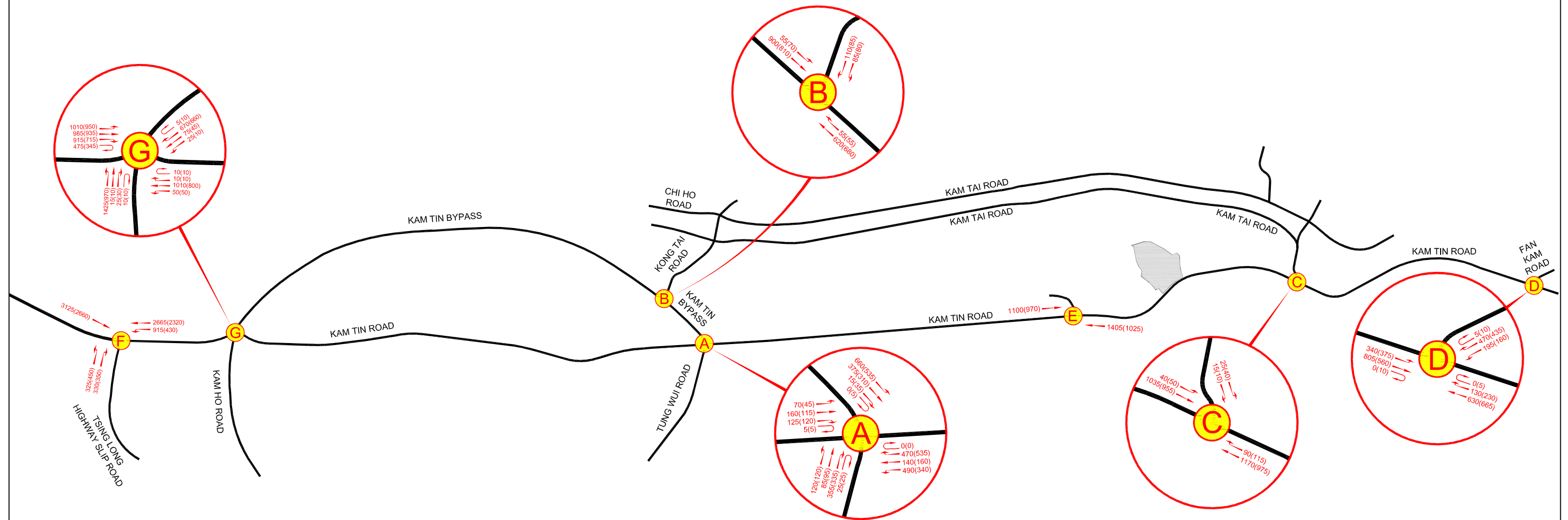
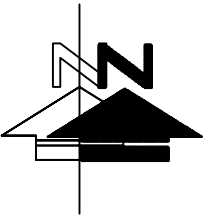
SCALE:

N. T. S. @A3

DATE:

22 JUL 2026

 CTA Consultants Limited
志達顧問有限公司



LEGEND :

 DEVELOPMENT SITE

595(540) AM (PM) PEAK HOUR
TRAFFIC FLOW (IN PCU / HR)

FIGURE NO.:		PROJECT TITLE:	
4.6		Rezoning from “Residential (Group C)2” and “Open Space” zones to “Residential (Group C)4” zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	
PROJECT NO.:		DRAWING TITLE:	
25009HK		2034 DESIGN TRAFFIC FLOWS (WITH REMAINING SITES OF LUR)	
SCALE:	DATE:		
N. T. S. @A3	22 JUL 2026		

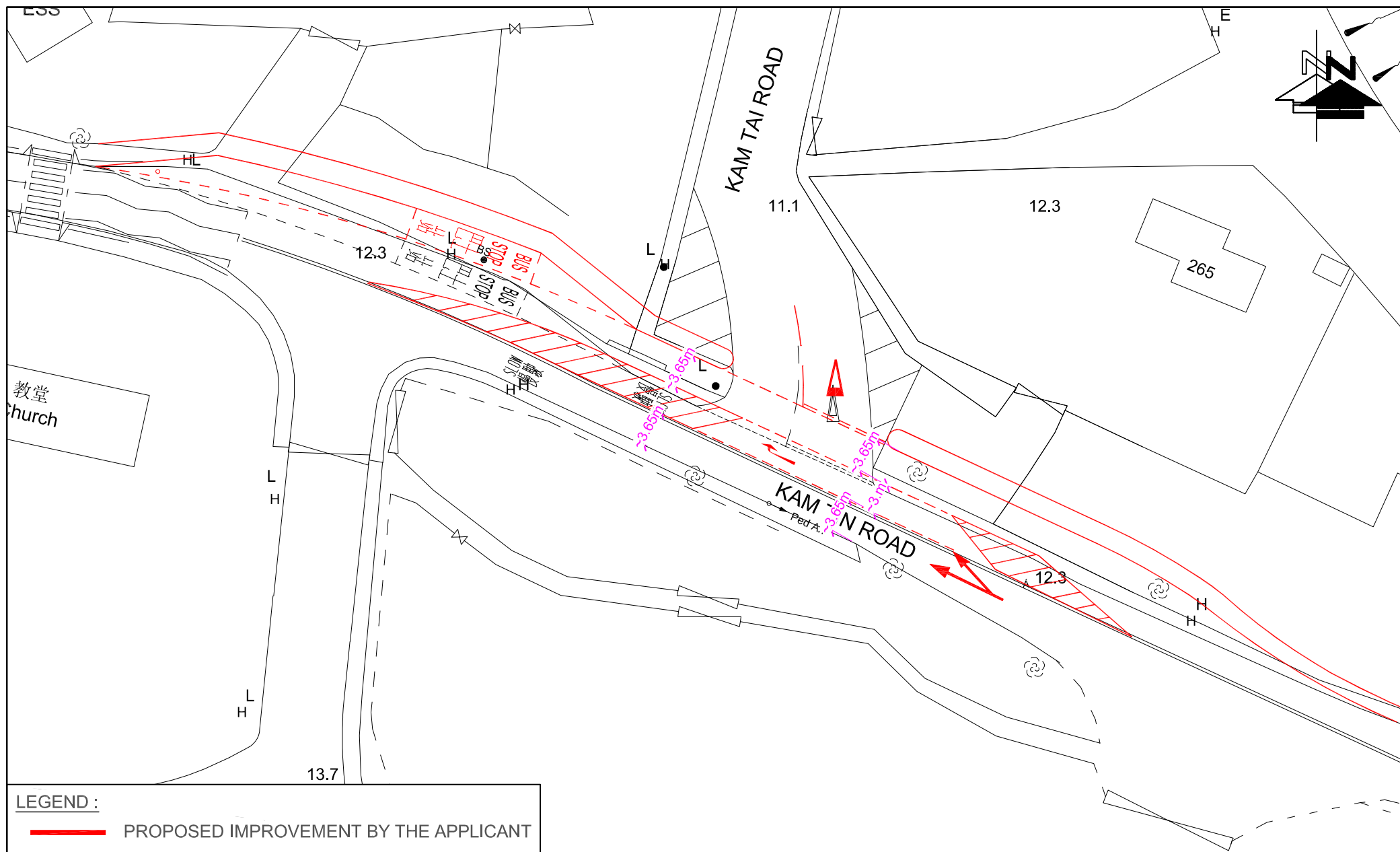
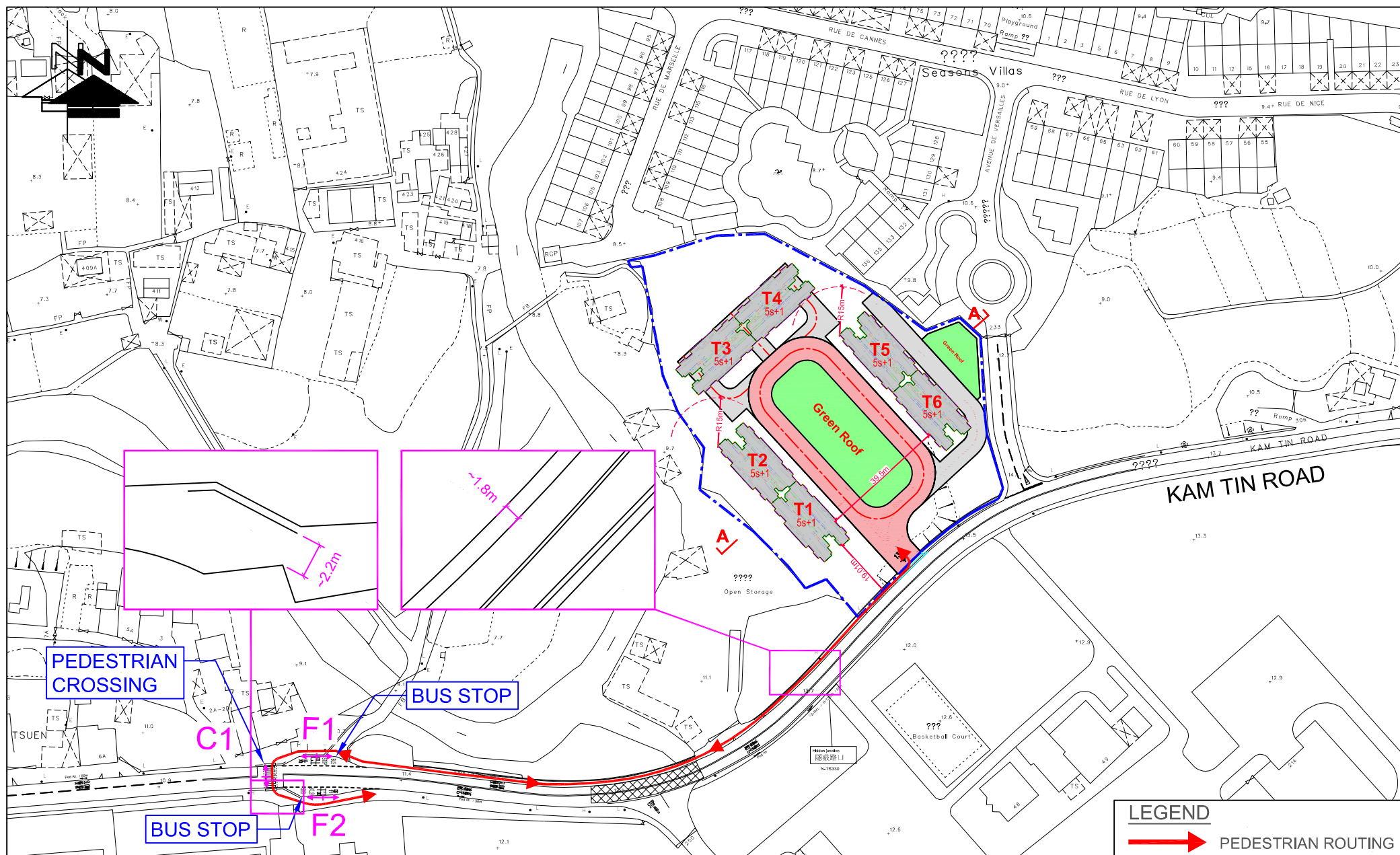


FIGURE NO.: 5.1		PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK		DRAWING TITLE: PROPOSED IMPROVEMENT LAYOUT OF JUNCTION KAM TIN ROAD / KAM TAI ROAD (C)	
SCALE: 1 : 500 @A4	DATE: 24 APR 2026		



LEGEND
 PEDESTRIAN ROUTING

FIGURE NO.: 7.1	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: CRITICAL FOOTPATH AND CROSSING (WITHOUT KAM TIN ROAD WIDENING)	
SCALE: 1 : 1600 @A4	DATE: 05 FEB 2026	

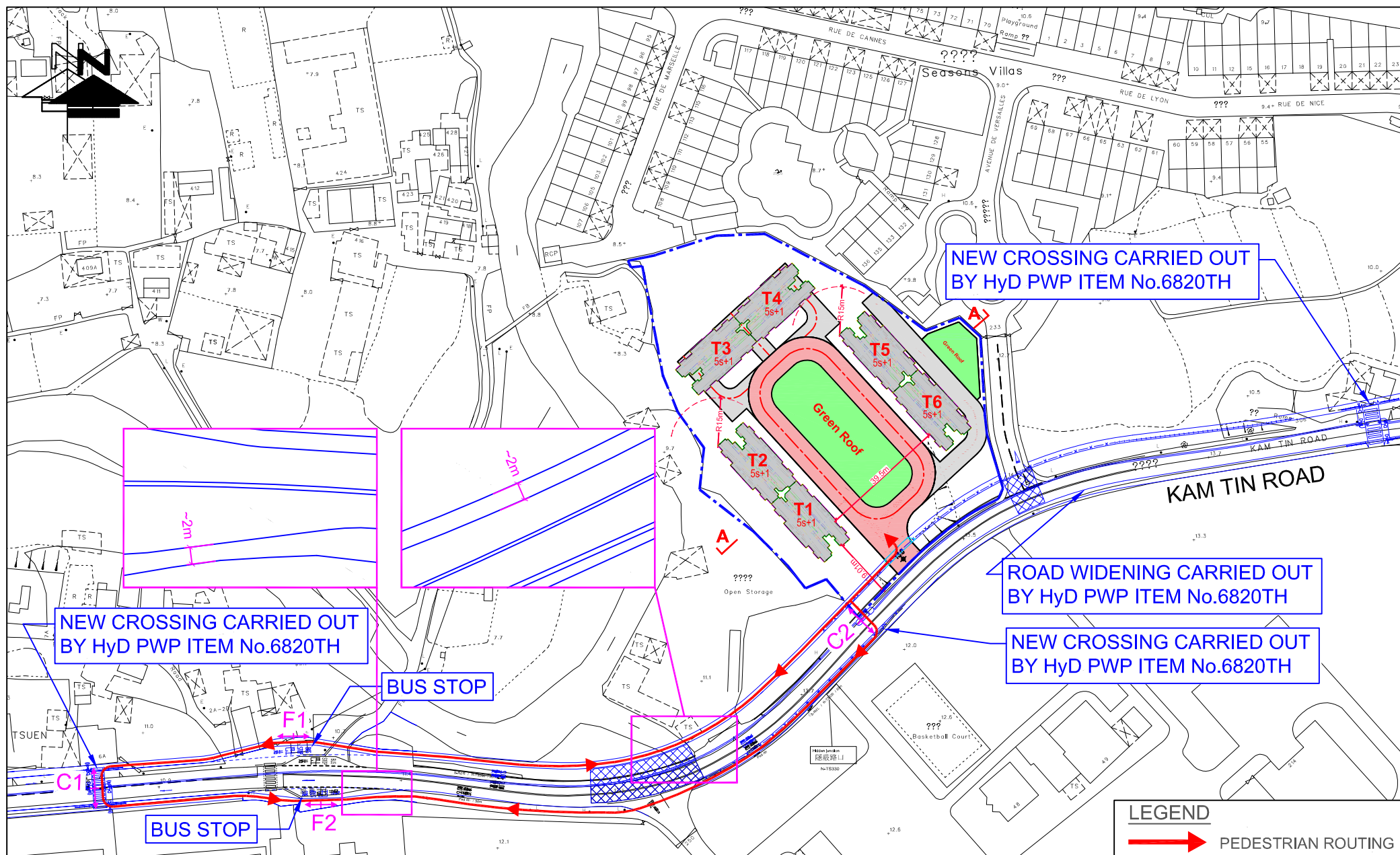


FIGURE NO.: 7.2	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: CRITICAL FOOTPATH AND CROSSING (WITH KAM TIN ROAD WIDENING)	
SCALE: 1 : 1600 @A4	DATE: 05 FEB 2026	

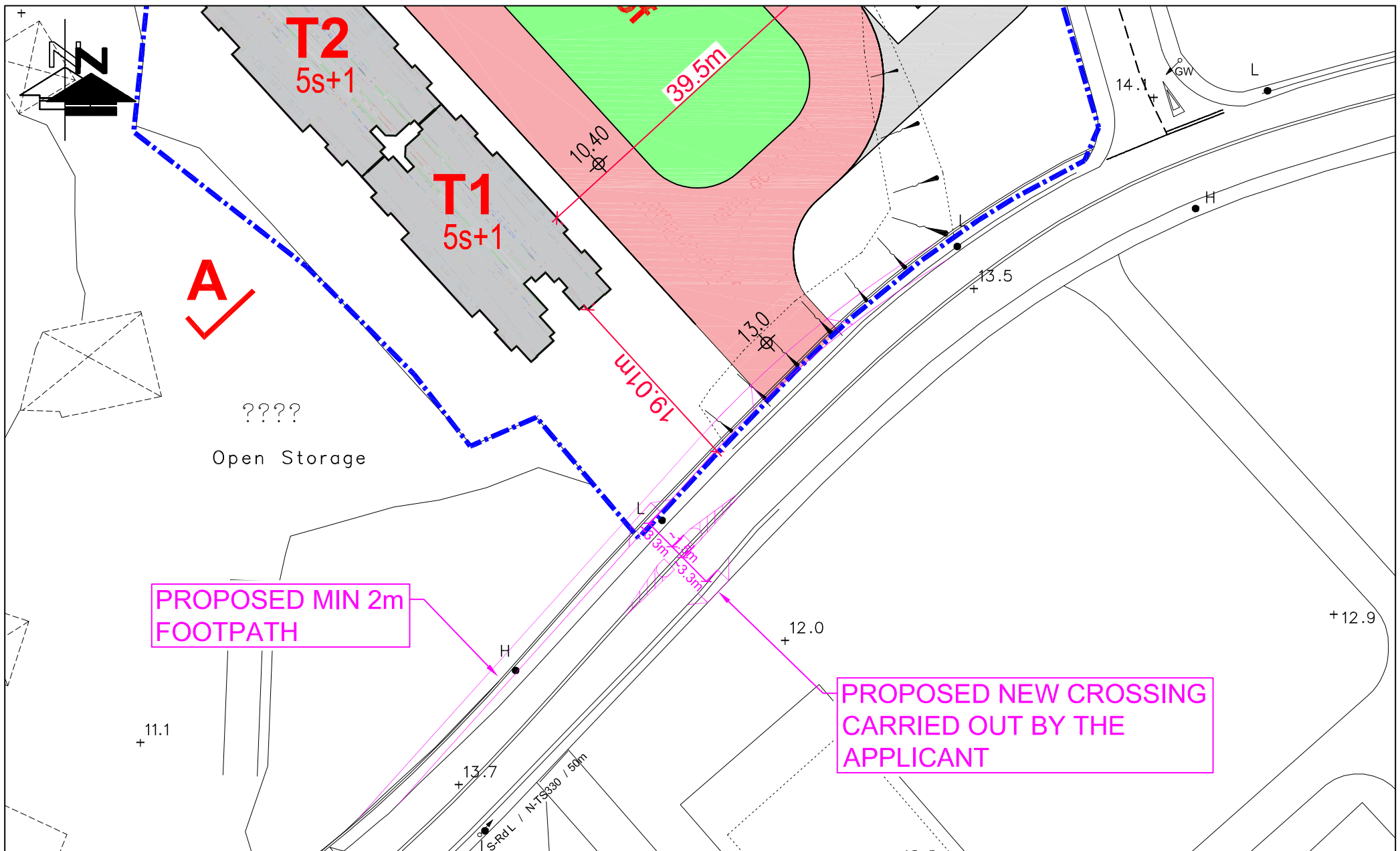
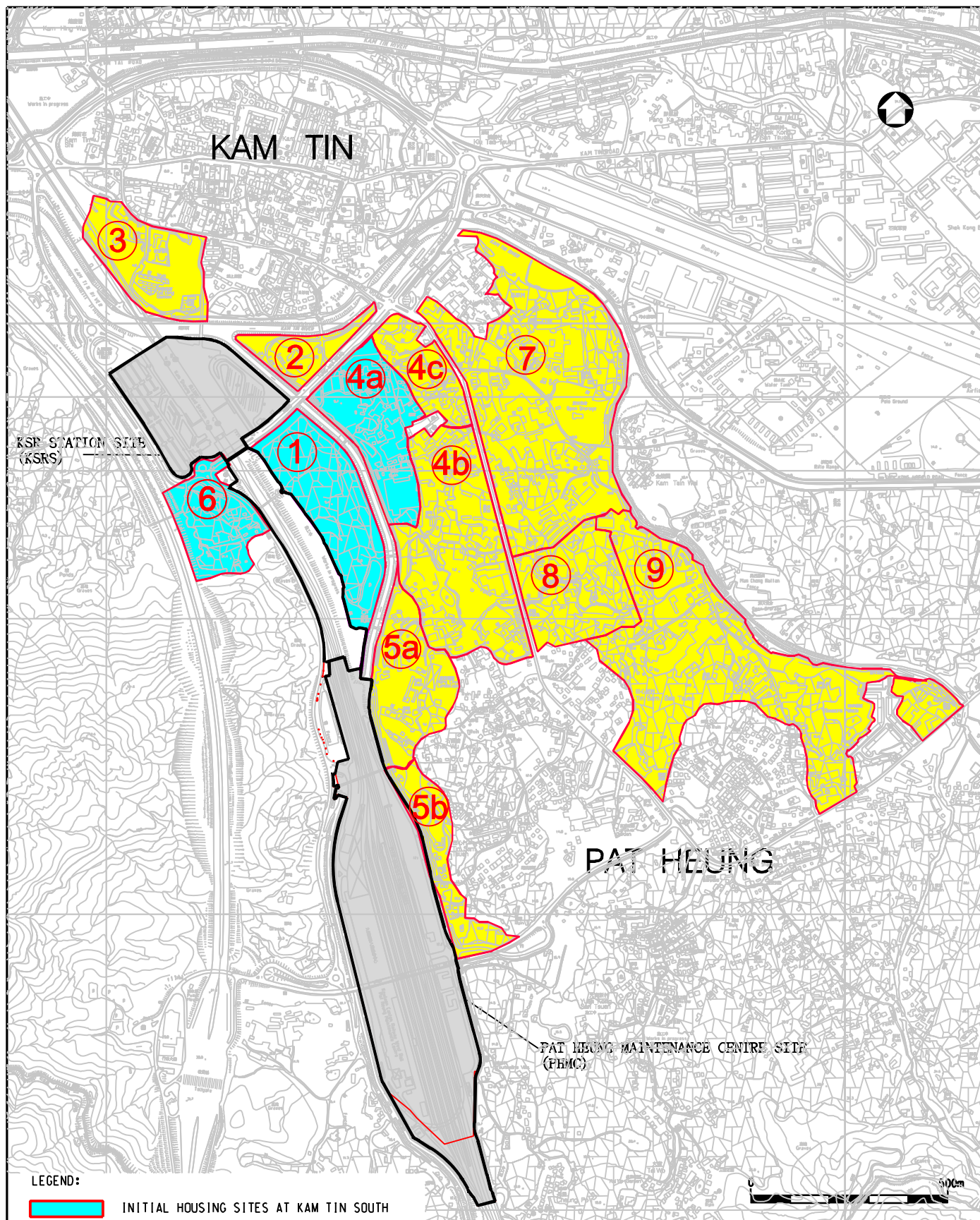


FIGURE NO.: 7.3	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: PROPOSED FOOTPATH WIDENING AND PEDESTRIAN CROSSING (IN CASE NO PWP'S WORKS)	
SCALE: 1 : 500 @A4	DATE: 22 JUL 2026	



Appendix I

Kam Tin South Housing Development – Layout Plan



LEGEND:



INITIAL HOUSING SITES AT KAM TIN SOUTH



REMAINING HOUSING SITES AT KAM TIN SOUTH

A	12.08.2014	TITLE BLOCK UPDATED	SIGNED	SIGNED
編號	日期	內容摘要	核對	核准
no.	date	description	checked	approved

修訂 REVISION

繪圖	簽署	日期	項目編號	辦事處
drawn	initial	date	item no.	office
S M CHU	SIGNED	18.10.13		新界西拓展處
核對	簽署	日期	比例	NEW TERRITORIES WEST DEVELOPMENT OFFICE
checked	initial	date	scale	
H S KO	SIGNED	18.10.13	AS SHOWN	
核准	簽署	日期	圖則編號	土木工程拓展署
approved	initial	date	drawing no.	CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
K L CHEUNG	SIGNED	18.10.13	NTNZ1855A	

圖則名稱 drawing title

KAM TIN SOUTH HOUSING DEVELOPMENT -LAYOUT PLAN

*ate filename

(Updated as at 30 JUL 2014) L:\Drawing\IS\NTnz1855-1856\Ntnz1855A.dgn

A3 297MM X 420MM



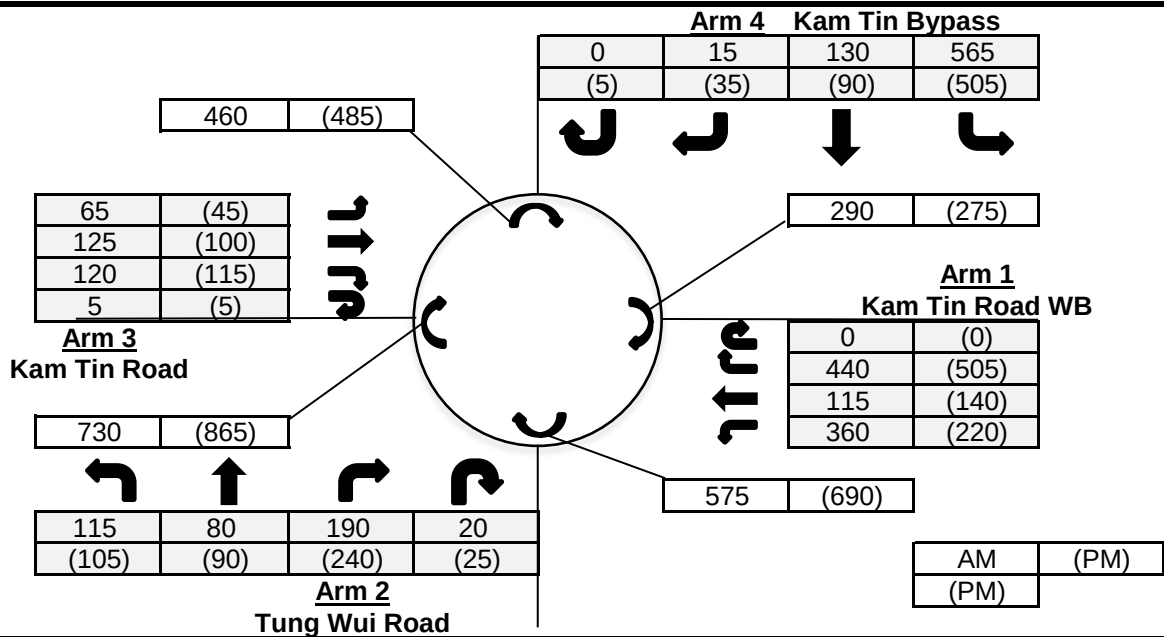
Appendix II

Junction Calculation Sheets

Roundabout Junction Calculation

Junction : (A) Kam Tin Bypass / Kam Tin Road / Tung Wui Road Job No.: 25009HK

Scenario : 2026 Observed Traffic Flows



Input Parameters

			Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)	7.3	7.2	3.6	7.3
E	=	Entry width (m)	11.5	10.1	11.8	13.5
L	=	Effective length of flare (m)	12.6	9.4	14	12.5
R	=	Entry radius	26	20	18.4	36
D	=	Inscribed circle diameter (m)	64	64	64	64
A	=	Entry angle (degree)	42	27	45	23
Q	=	Entry flow (pcu/hr)	AM 915 PM 865	405 460	315 265	710 635
Qc	=	Circulating flow across entry (pcu/hr)				
			AM 290 PM 275	575 690	730 865	460 485

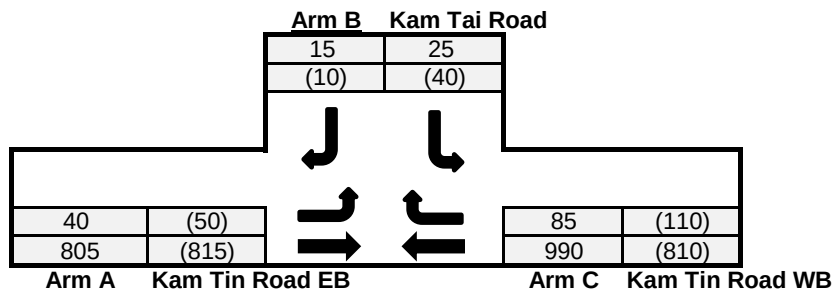
Output Parameters

			Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = $1.6 \cdot (E-V)/L$	0.53	0.49	0.94	0.79
K	=	$1 - 0.00347 \cdot (A-30) - 0.978 \cdot (1/R - 0.05)$	0.97	1.01	0.94	1.05
X2	=	$V + ((E-V)/(1+2 \cdot S))$	9.33	8.66	6.45	9.70
M	=	$\text{Exp}((D-60)/10)$	1.49	1.49	1.49	1.49
F	=	$303 \cdot X2$	2828	2624	1955	2938
Td	=	$1 + (0.5/(1+M))$	1.20	1.20	1.20	1.20
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$	0.72	0.69	0.58	0.74
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$	AM 2539 PM 2549	2251 2171	1447 1374	2717 2697
DFC	=	Entry Flow/Capacity = Q/Qe				
			AM 0.36 PM 0.34	0.18 0.21	0.22 0.19	0.26 0.24

DFC of Critical Approach = AM 0.36
PM 0.34

Priority Junction Calculation

Junction :	(C) Kam Tin Road / Kam Tai Road	Job No.:	25009HK
Scenario :	2026 Observed Traffic Flows		



AM	(PM)
(PM)	

The predictive equations of capacity of movement are:

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

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

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

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

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

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

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

where

$$Y = 1 - 0.0345W$$

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

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

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

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

$$W = 6.4 - 20$$

$$W-CR = 1.2 - 9.0$$

$$w = 2.05 - 4.70$$

$$Vr = 17.0 - 250.0$$

$$VI = 22.0 - 250.0$$

Geometry :		Input				Calculated		
	W	6.4	V-rBA	50	w-BA	4.7	D	0.968
	W-CR	0	V-IBA	50	w-BC	4.7	E	1.029
	C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	1	V-rBC	50	w-CB	3.2	F	0.897
	Minor Road Share LT&RT? (Yes: 1, No: 0)	1	V-rCB	50			Y	0.779

Analysis :	Traffic Flow	AM	PM	Capacity	AM	PM
	pcu/hr			pcu/hr		
	q-CA	990	810	Q-BA	177	195
	q-CB	85	110	Q-BC	527	523
	q-AB	40	50	Q-CB	453	448
	q-AC	805	815	Q-CA	1463	1358
	q-BA	15	10	Q-BAC	303	391
	q-BC	25	40			
	f	0.625	0.800			

(If C-B blocked C-A)
(If Minor Road Share LT&RT)

Results :	Ratio of Flow-to-Capacity	AM	PM
	B-A	N/A	N/A
	B-C	N/A	N/A
	C-B	0.19	0.25
	C-A	0.68	0.60
	B-AC	0.13	0.13

Critical DFC

0.68

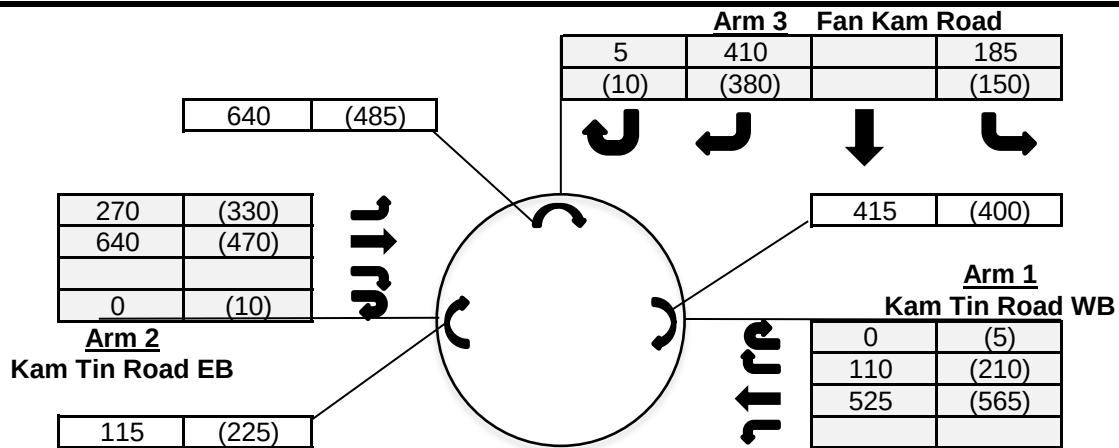
0.60

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (D) Kam Tin Road / Fan Kam Road Job No.: 25009HK

Scenario : 2026 Observed Traffic Flows



AM	(PM)
(PM)	

Input Parameters

			Arm 1	Arm 2	Arm 3
V	=	Approach half width (m)	3	7	3
E	=	Entry width (m)	8	8	5.9
L	=	Effective length of flare (m)	7.8	12	10
R	=	Entry radius	100	33	13.4
D	=	Inscribed circle diameter (m)	20	20	20
A	=	Entry angle (degree)	30	10	15
Q	=	Entry flow (pcu/hr)			
		AM	635	910	600
		PM	780	810	540
Qc	=	Circulating flow across entry (pcu/hr)			
		AM	415	115	640
		PM	400	225	485

Output Parameters

			Arm 1	Arm 2	Arm 3
S	=	Sharpness of flare = $1.6 \cdot (E-V)/L$	1.03	0.13	0.46
K	=	$1 - 0.00347 \cdot (A-30) - 0.978 \cdot (1/R - 0.05)$	1.04	1.09	1.03
X2	=	$V + ((E-V)/(1+2 \cdot S))$	4.64	7.79	4.50
M	=	$\text{Exp}((D-60)/10)$	0.02	0.02	0.02
F	=	$303 \cdot X2$	1406	2360	1365
Td	=	$1 + (0.5/(1+M))$	1.49	1.49	1.49
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$	0.60	0.80	0.60
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$			
		AM	1200	2469	1011
		PM	1210	2373	1106
DFC	=	Entry Flow/Capacity = Q/Qe			
		AM	0.53	0.37	0.59
		PM	0.64	0.34	0.49

DFC of Critical Approach = AM 0.59
PM 0.64

CTA Consultants Ltd.Description: **2026 Observed Traffic Flows**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside O/I	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak		
						Left	Right		A.M.	P.M.			A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Kam Tin Road	W	←	A	1	3.4	0	0	1	0%	0%	1955	1955	1955	1955	1955	1955	910	0.465	0.465	855	0.437	0.437
Kam Tin Road	E	→	A	1	3.4	0	0	1	0%	0%	1955	1955	1955	1955	1955	1955	860	0.440		820	0.419	
Pedestrian crossing <-> Bp2Min. Crossing Time = 5GM + 7FGM = 12s																						
Notes:									Traffic Flow (pcu / hr) 860(820) → ← 910(855)								A.M. Check Phase εy 0.465 L (sec) 20 C (sec) 120 y pract. 0.750 R.C. (%) 61%			P.M. Check Phase εy 0.437 L (sec) 20 C (sec) 120 y pract. 0.750 R.C. (%) 71%		
Stage/Phase Diagram: 1 → ←			2 ├─┤ ↑ ↓ ─┬─┘																			
I/G = 5s			I/G = 4s + 12s																			

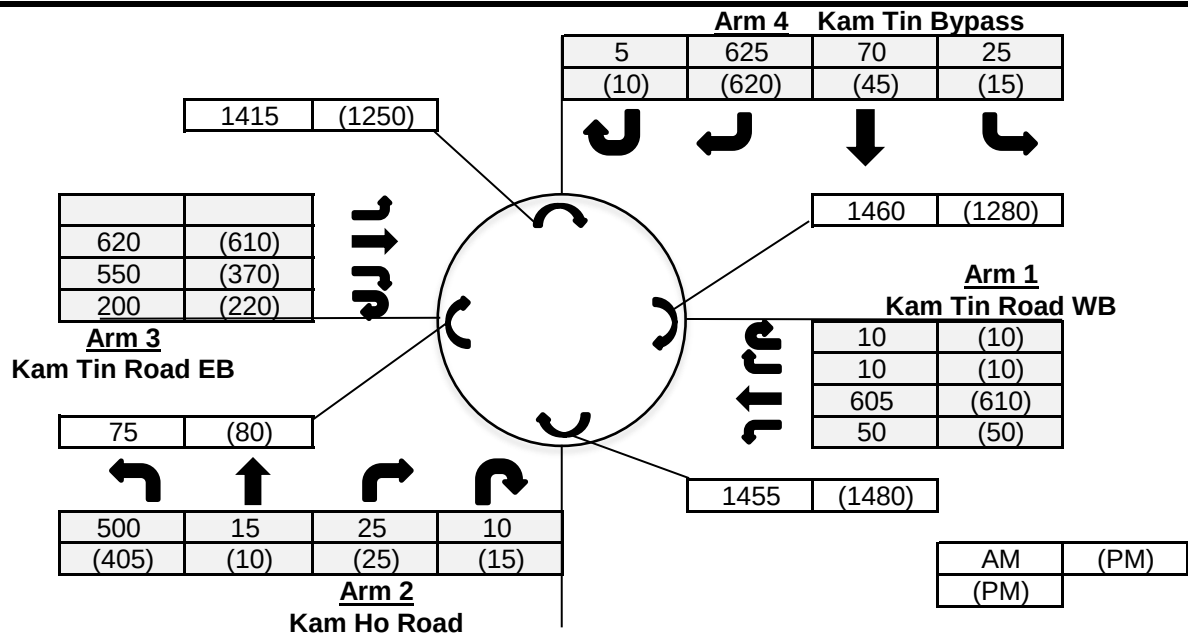
Junction: (F) Kam Tin Road / Tsing Long Highway Slip Road																				
Description: 2026 Observed Traffic Flows (With TTA)																				
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak				
						Left	Right		A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y		
Kam Tin Road	E	→	1	A	3.65	0	0	1	0%	0%	1980	1980	983	0.496	0.496	867	0.438			
	E	→	1	A	3.65	0	0	0	0%	0%	2120	2120	1052	0.496		928	0.438			
Kam Tin Road	W	←	2	A	3.80	0	0	0	0%	0%	2135	2135	805	0.377		863	0.404	0.438		
	W	←	2	A	3.80	0	0	0	0%	0%	2135	2135	805	0.377		863	0.404			
	W	↙	2	A	5.00	15	0	1	100%	100%	1925	1925	320	0.166		130	0.068			
Tsing Long Highway Slip Road	N	↗	3	B	5.60	25	0	1	100%	100%	2050	2050	165	0.080	0.117	310	0.151	0.167		
	N	→	3	B	3.60	0	30	0	100%	100%	525	525	61	0.117		88	0.167			
	N	↘	3	B	3.50	0	28	0	100%	100%	75	75	9	0.117		13	0.167			
(*revised saturation flow)																				
*Pedestrian Crossing			4p	A	Min. Crossing Time				=	7 Gm + 7 Fm = 14s										
			5p	B	Min. Crossing Time				=	7 Gm + 7 Fm = 14s										
Notes:						Traffic Flow (pcu / hr)						[AM (PM)]			Check Phase			Check Phase		
						2035(1795)→ ↙ ↘ 165(310) 70(100)						← 1610(1725) √ 320(130)			εy	0.613	εy	0.604		
															L (sec)	15	L (sec)	15		
															C (sec)	96	C (sec)	106		
															y pract.	0.759	y pract.	0.773		
															R.C. (%)	24%	R.C. (%)	28%		
Stage / Phase Diagrams																				
A				B																
I/G = 7				I/G = 10																

Roundabout Junction Calculation

Junction : (G) Kam Tin Road / Kam Tin Bypass

Job No.: 25009HK

Scenario : 2026 Observed Traffic Flows



Input Parameters

			Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)	3.5	5	7.3	6.5
E	=	Entry width (m)	12	10	11	11
L	=	Effective length of flare (m)	13	9.5	13	15
R	=	Entry radius	100	20	42.5	42.5
D	=	Inscribed circle diameter (m)	88	88	88	88
A	=	Entry angle (degree)	23	38	29	39
Q	=	Entry flow (pcu/hr)	AM 675 PM 680	550 455	1370 1200	725 690
Qc	=	Circulating flow across entry (pcu/hr)				
			AM 1460 PM 1280	1455 1480	75 80	1415 1250

Output Parameters

			Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = $1.6 \cdot (E-V)/L$	1.05	0.84	0.46	0.48
K	=	$1 - 0.00347 \cdot (A-30) - 0.978 \cdot (1/R - 0.05)$	1.06	0.97	1.03	0.99
X2	=	$V + ((E-V)/(1+2 \cdot S))$	6.25	6.86	9.24	8.80
M	=	$\exp((D-60)/10)$	16.44	16.44	16.44	16.44
F	=	$303 \cdot X2$	1893	2079	2799	2665
Td	=	$1 + (0.5/(1+M))$	1.03	1.03	1.03	1.03
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$	0.49	0.51	0.62	0.60
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$	AM 1259 PM 1352	1297 1284	2833 2830	1812 1910
DFC	=	Entry Flow/Capacity = Q/Qe				
			AM 0.54 PM 0.50	0.42 0.35	0.48 0.42	0.40 0.36

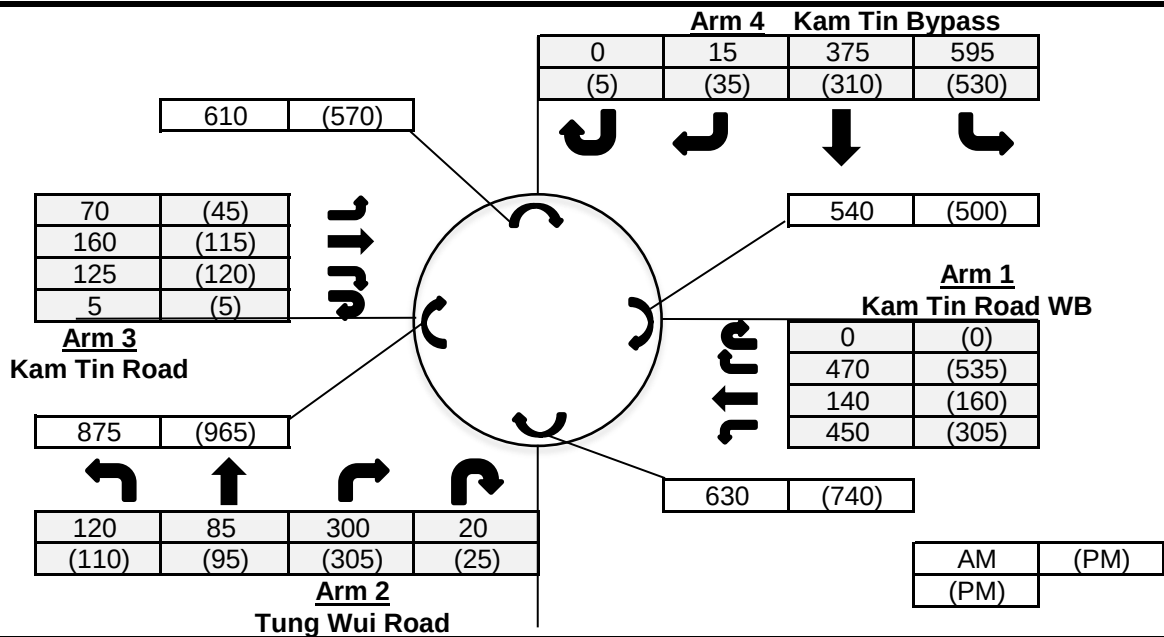
DFC of Critical Approach = AM 0.54
PM 0.50

Roundabout Junction Calculation

Junction : (A) Kam Tin Bypass / Kam Tin Road / Tung Wui Road

Job No.: 25009HK

Scenario : 2034 Reference Traffic Flows



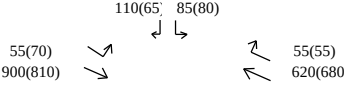
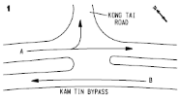
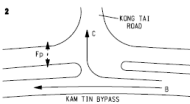
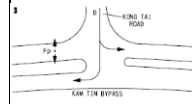
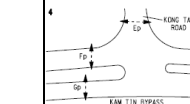
Input Parameters

			Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)	7.3	7.2	3.6	7.3
E	=	Entry width (m)	11.5	10.1	11.8	13.5
L	=	Effective length of flare (m)	12.6	9.4	14	12.5
R	=	Entry radius	26	20	18.4	36
D	=	Inscribed circle diameter (m)	64	64	64	64
A	=	Entry angle (degree)	42	27	45	23
Q	=	Entry flow (pcu/hr)	AM 1060 PM 1000	525 535	360 285	985 880
Qc	=	Circulating flow across entry (pcu/hr)				
			AM 540 PM 500	630 740	875 965	610 570

Output Parameters

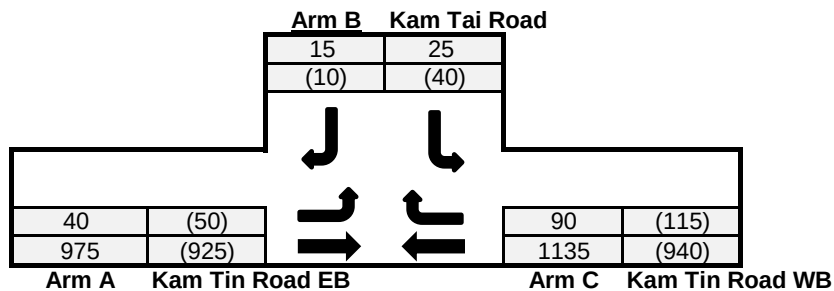
			Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = $1.6 \cdot (E-V)/L$	0.53	0.49	0.94	0.79
K	=	$1 - 0.00347 \cdot (A-30) - 0.978 \cdot (1/R - 0.05)$	0.97	1.01	0.94	1.05
X2	=	$V + ((E-V)/(1+2 \cdot S))$	9.33	8.66	6.45	9.70
M	=	$\text{Exp}((D-60)/10)$	1.49	1.49	1.49	1.49
F	=	$303 \cdot X2$	2828	2624	1955	2938
Td	=	$1 + (0.5/(1+M))$	1.20	1.20	1.20	1.20
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$	0.72	0.69	0.58	0.74
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$	AM 2363 PM 2391	2213 2136	1368 1319	2600 2631
DFC	=	Entry Flow/Capacity = Q/Qe				
			AM 0.45 PM 0.42	0.24 0.25	0.26 0.22	0.38 0.33

DFC of Critical Approach = AM 0.45
PM 0.42

TRAFFIC SIGNALS CALCULATION														Job No: 25009HK														CTA Consultants Ltd.					
Junction: (B) Kam Tin Bypass / Kong Tai Road																																	
Description: 2034 Reference Traffic Flows																																	
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak													
						Left	Right		A.M.	P.M.			A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y											
Kam Tin Bypass	W		C	2	3.0	0	15	0	100%	100%	2055	2055	1870	1870	1870	1870	55	0.029		55	0.029												
	W		B	1,2	3.5	0	0	0	0%	0%	2105	0	2105	2105	0	0	336	0.160		369	0.175												
	W		B	1,2	3.0	0	0	1	0%	0%	1775	3880	1775	1775	3880	3880	284	0.160		311	0.175												
Kam Tin Bypass	E		A	1	3.0	13	0	1	12%	17%	1915	3970	1890	1880	3945	3935	457	0.242	0.242	420	0.224	0.224											
	E		A	1	3.0	0	0	0	0%	0%	2055	0	2055	2055	0	0	498	0.242		460	0.224												
Kong To Road	S		D	3	3.5	10	12	1	44% / 56%	55% / 45%	1461	1461	1285	1285	1285	1285	195	0.152	0.152	145	0.113	0.113											
Pedestrian crossing		Ep	4						Min. Crossing Time = 12GM + 15FGM = 27s																								
		Fp	2,3,4						Min. Crossing Time = 7GM + 7FGM = 14s																								
		Gp	4						Min. Crossing Time = 7GM + 7FGM = 14s																								
Notes:								Traffic Flow (pcu / hr)										A.M. Check Phase				P.M. Check Phase											
																		E _y 0.394 L (sec) 47 C (sec) 108 y pract. 0.508 R.C. (%) 29%				E _y 0.336 L (sec) 47 C (sec) 108 y pract. 0.508 R.C. (%) 51%											
Stage/Phase Diagram:																																	
I/G=3s				I/G=6s + 5s				I/G=5s				I/G=4s (Min. Green Time for Ep=27s)																					

Priority Junction Calculation

Junction :	(C) Kam Tin Road / Kam Tai Road	Job No.:	25009HK
Scenario :	2034 Reference Traffic Flows		



AM	(PM)
(PM)	

The predictive equations of capacity of movement are:

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

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

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

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

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

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

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

where

$$Y = 1 - 0.0345W$$

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

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

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

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

$$W = 6.4 - 20$$

$$W-CR = 1.2 - 9.0$$

$$w = 2.05 - 4.70$$

$$Vr = 17.0 - 250.0$$

$$VI = 22.0 - 250.0$$

Geometry :		Input			Calculated			
	W	6.4	V-rBA	50	w-BA	4.7	D	0.968
	W-CR	0	V-IBA	50	w-BC	4.7	E	1.029
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)		1	V-rBC	50	w-CB	3.2	F	0.897
Minor Road Share LT&RT? (Yes: 1, No: 0)		1	V-rCB	50			Y	0.779

Analysis :	Traffic Flow	AM	PM	Capacity	AM	PM
	pcu/hr			pcu/hr		
	q-CA	1135	940	Q-BA	104	140
	q-CB	90	115	Q-BC	478	491
	q-AB	40	50	Q-CB	410	420
	q-AC	975	925	Q-CA	1405	1308
	q-BA	15	10	Q-BAC	203	327
	q-BC	25	40			
	f	0.625	0.800			

(If C-B blocked C-A)
(If Minor Road Share LT&RT)

Results :	Ratio of Flow-to-Capacity	AM	PM
	B-A	N/A	N/A
	B-C	N/A	N/A
	C-B	0.22	0.27
	C-A	0.81	0.72
	B-AC	0.20	0.15

Critical DFC

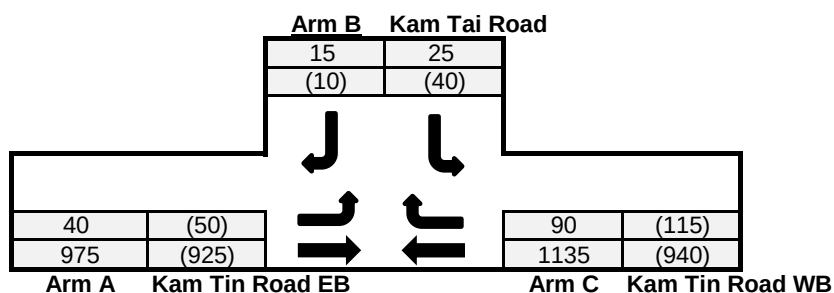
0.81

0.72

CTA Consultants Ltd.

Priority Junction Calculation

Junction :	(C) Kam Tin Road / Kam Tai Road	Job No.:	25009HK
Scenario :	2034 Reference Traffic Flows (With Planned Improvement)		



AM	(PM)
(PM)	

The predictive equations of capacity of movement are:

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

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

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

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

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

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

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

where

$$Y = 1 - 0.0345W$$

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

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

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

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

$$W = 6.4 - 20$$

$$W-CR = 1.2 - 9.0$$

$$w = 2.05 - 4.70$$

$$Vr = 17.0 - 250.0$$

$$VI = 22.0 - 250.0$$

Geometry :		Input			Calculated			
	W	10.3	V-rBA	50	w-BA	4.7	D	0.968
	W-CR	0	V-IBA	50	w-BC	4.7	E	1.029
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)		1	V-rBC	50	w-CB	4.7	F	1.029
Minor Road Share LT&RT? (Yes: 1, No: 0)		1	V-rCB	50			Y	0.645

Analysis :	Traffic Flow	AM	PM	Capacity	AM	PM
	pcu/hr			pcu/hr		
	q-CA	1135	940	Q-BA	190	221
	q-CB	90	115	Q-BC	528	539
	q-AB	40	50	Q-CB	522	531
	q-AC	975	925	Q-CA	2261	2104
	q-BA	15	10	Q-BAC	317	418
	q-BC	25	40			
	f	0.625	0.800			

(If C-B blocked C-A)
(If Minor Road Share LT&RT)

Results :	Ratio of Flow-to-Capacity	AM	PM
	B-A	N/A	N/A
	B-C	N/A	N/A
	C-B	0.17	0.22
	C-A	0.50	0.45
	B-AC	0.13	0.12

Critical DFC

0.50

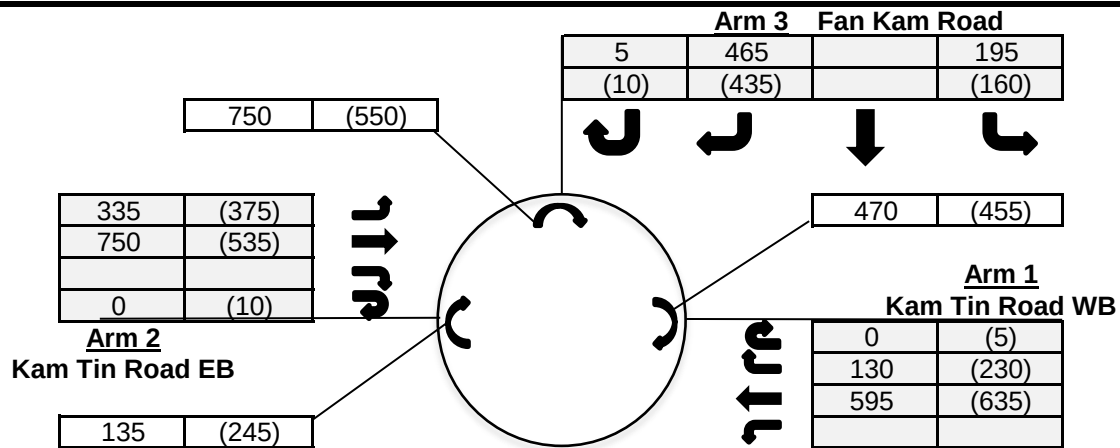
0.45

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (D) Kam Tin Road / Fan Kam Road Job No.: 25009HK

Scenario : 2034 Reference Traffic Flows



AM	(PM)
(PM)	

Input Parameters

			Arm 1	Arm 2	Arm 3
V	=	Approach half width (m)	3	7	3
E	=	Entry width (m)	8	8	5.9
L	=	Effective length of flare (m)	7.8	12	10
R	=	Entry radius	100	33	13.4
D	=	Inscribed circle diameter (m)	20	20	20
A	=	Entry angle (degree)	30	10	15
Q	=	Entry flow (pcu/hr)	AM	725	1085
			PM	870	920
Qc	=	Circulating flow across entry (pcu/hr)	AM	470	135
			PM	455	245

Output Parameters

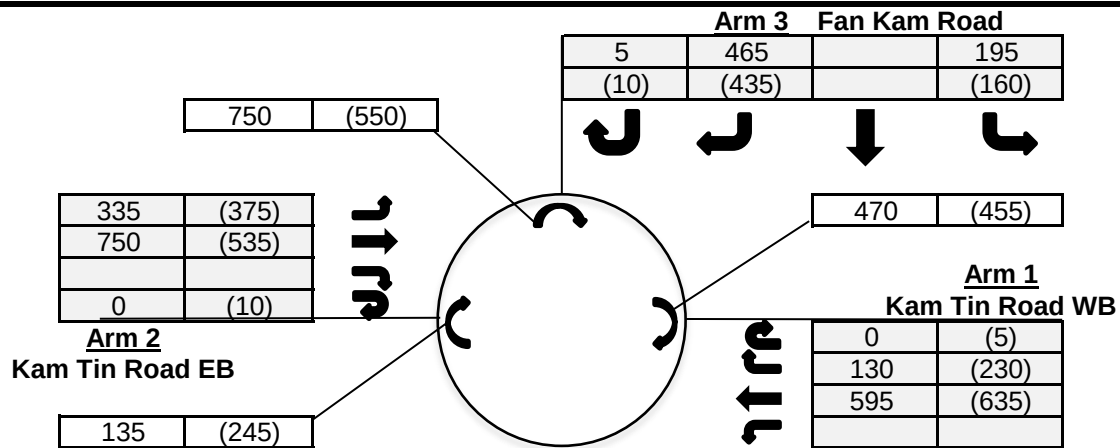
			Arm 1	Arm 2	Arm 3
S	=	Sharpness of flare = $1.6 \cdot (E-V)/L$	1.03	0.13	0.46
K	=	$1 - 0.00347 \cdot (A-30) - 0.978 \cdot (1/R - 0.05)$	1.04	1.09	1.03
X2	=	$V + ((E-V)/(1+2 \cdot S))$	4.64	7.79	4.50
M	=	$\text{Exp}((D-60)/10)$	0.02	0.02	0.02
F	=	$303 \cdot X2$	1406	2360	1365
Td	=	$1 + (0.5/(1+M))$	1.49	1.49	1.49
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$	0.60	0.80	0.60
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$	AM	1166	2452
			PM	1175	2356
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.62	0.44
			PM	0.74	0.39

DFC of Critical Approach = AM 0.70
PM 0.74

Roundabout Junction Calculation

Junction : (D) Kam Tin Road / Fan Kam Road Job No.: 25009HK

Scenario : 2034 Reference Traffic Flows (With Planned Improvement)



AM	(PM)
(PM)	

Input Parameters

			Arm 1	Arm 2	Arm 3
V	=	Approach half width (m)	5	7	3.2
E	=	Entry width (m)	6.5	7.5	6.5
L	=	Effective length of flare (m)	12	3.6	15
R	=	Entry radius	100	15.8	25
D	=	Inscribed circle diameter (m)	28	28	28
A	=	Entry angle (degree)	33	10	20
Q	=	Entry flow (pcu/hr)	AM	725	1085
			PM	870	920
Qc	=	Circulating flow across entry (pcu/hr)	AM	470	135
			PM	455	245

Output Parameters

			Arm 1	Arm 2	Arm 3
S	=	Sharpness of flare = $1.6 \cdot (E-V)/L$	0.20	0.22	0.35
K	=	$1 - 0.00347 \cdot (A-30) - 0.978 \cdot (1/R - 0.05)$	1.03	1.06	1.04
X2	=	$V + ((E-V)/(1+2 \cdot S))$	6.07	7.35	5.14
M	=	$\text{Exp}((D-60)/10)$	0.04	0.04	0.04
F	=	$303 \cdot X2$	1840	2226	1556
Td	=	$1 + (0.5/(1+M))$	1.48	1.48	1.48
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$	0.69	0.77	0.63
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$	AM	1560	2242
			PM	1570	2153
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.46	0.48
			PM	0.55	0.43

DFC of Critical Approach = AM 0.59
PM 0.55

TRAFFIC SIGNALS CALCULATION										Job No: 25009HK										CTA Consultants Ltd.									
Junction: (E) Kam Tin Road																													
Description: 2034 Reference Traffic Flows																													
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak									
						Left	Right		A.M.	P.M.			A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y							
Kam Tin Road	W	←	A	1	3.4	0	0	1	0%	0%	1955	1955	1955	1955	1955	1955	1055	0.540	0.540	990	0.506	0.506							
Kam Tin Road	E	→	A	1	3.4	0	0	1	0%	0%	1955	1955	1955	1955	1955	1955	1035	0.529		935	0.478								
Pedestrian crossing ↔ Bp 2 Min. Crossing Time = 5GM + 7FGM = 12s																													
Notes:										Traffic Flow (pcu / hr)										A.M. Check Phase			P.M. Check Phase						
										1035(935) →																			

CTA Consultants Ltd.

Description: **2034 Reference Traffic Flows (With Planned Improvement)**

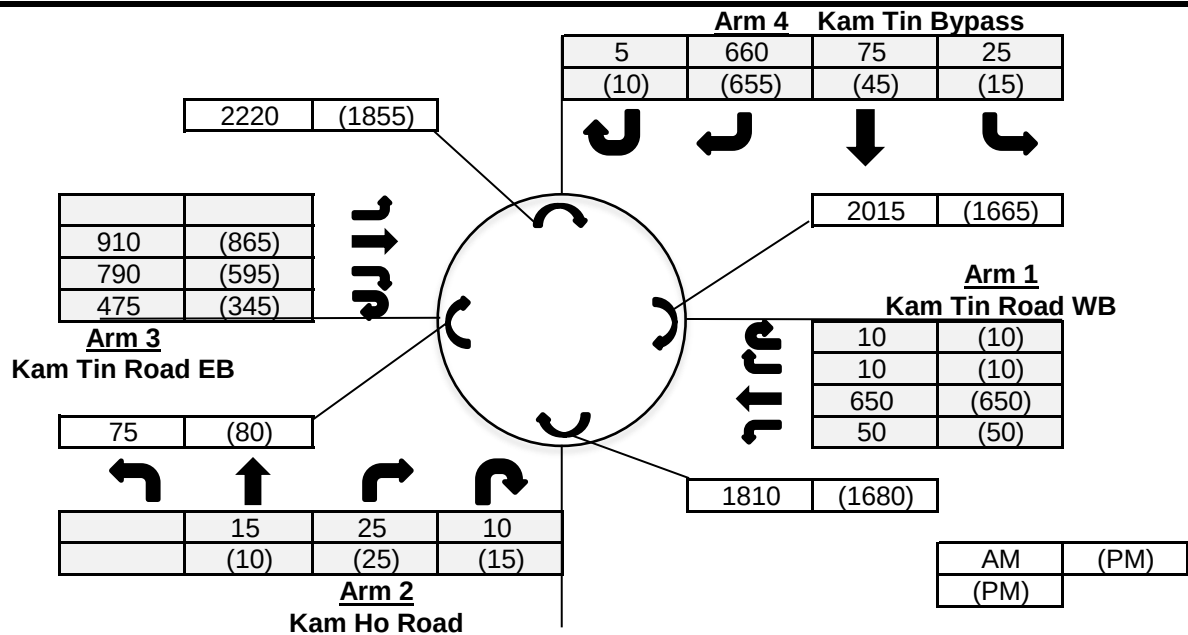
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak		
						Left	Right		A.M.	P.M.			A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Kam Tin Road	W	←	A	1	4.4	0	0	1	0%	0%	2055	2055	2055	2055	2055	2055	1055	0.513	0.513	990	0.482	0.482
Kam Tin Road	E	→	A	1	4.4	0	0	1	0%	0%	2055	2055	2055	2055	2055	2055	1035	0.504		935	0.455	
Pedestrian crossing																						
↔ Bp 2 Min. Crossing Time = 5GM + 6FGM = 11s																						
Notes:																						
									Traffic Flow (pcu / hr)								A.M. Check Phase			P.M. Check Phase		
									1035(935) → ← 1055(990)								εy 0.513			εy 0.482		
																	L (sec) 19			L (sec) 19		
																	C (sec) 120			C (sec) 120		
																	y pract. 0.758			y pract. 0.758		
																	R.C. (%) 48%			R.C. (%) 57%		
Stage/Phase Diagram:																						
1 → ←			2 — ↑ ↓ —																			
I/G = 5s			I/G = 4s + 11s																			

Junction: (F) Kam Tin Road / Tsing Long Highway Slip Road																				
Description: 2034 Reference Traffic Flows (With Planned Improvement)																				
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak				
						Left	Right		A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y		
Kam Tin Road	E	→	1	A	3.65	0	0	1	0%	0%	1980	1980	928	0.469		785	0.396			
	E	→	1	A	3.65	0	0	0	0%	0%	2120	2120	994	0.469		840	0.396			
	E	→	1	A	3.65	0	0	0	0%	0%	2120	2120	994	0.469		840	0.396			
Kam Tin Road	W	←	2	A	3.80	0	0	0	0%	0%	2135	2135	1168	0.547	0.547	1088	0.509	0.509		
	W	←	2	A	3.80	0	0	0	0%	0%	2135	2135	1168	0.547		1088	0.509			
	W	↙	2	A	5.00	15	0	1	100%	100%	1925	1925	805	0.418		385	0.200			
Tsing Long Highway Slip Road	N	↖	3	B	3.50	20	0	1	100%	100%	1830	1830	156	0.085	0.085	216	0.118	0.118		
	N	↖	3	B	3.50	25	0	0	100%	100%	1985	1985	169	0.085		234	0.118			
	N	↖	3	B	3.60	0	30	0	100%	100%	2015	2015	136	0.067		146	0.072			
	N	↖	3	B	3.50	0	28	0	100%	100%	2000	2000	134	0.067		144	0.072			
*Pedestrian Crossing			4p	A	Min. Crossing Time				=	7 Gm + 7 Fm = 14s										
			5p	B	Min. Crossing Time				=	7 Gm + 7 Fm = 14s										
Notes:						Traffic Flow (pcu / hr) [AM (PM)]						Check Phase			Check Phase					
						2915(2465)→ ↖ ↗ 325(450) 270(290) ← 2335(2175) ↓ 805(385)						εy 0.632			εy 0.627					
												L (sec) 10			L (sec) 10					
												C (sec) 120			C (sec) 120					
												y pract. 0.825			y pract. 0.825					
												R.C. (%) 31%			R.C. (%) 32%					
Stage / Phase Diagrams																				
A				B																
I/G = 5				I/G = 7																

Roundabout Junction Calculation

Junction : (G) Kam Tin Road / Kam Tin Bypass Job No.: 25009HK

Scenario : 2034 Reference Traffic Flows (With Planned Improvement)



Input Parameters

			Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)	7.3	7.3	7.3	6.5
E	=	Entry width (m)	13	10	11	11
L	=	Effective length of flare (m)	12	9.5	13	15
R	=	Entry radius	70	20	42.5	42.5
D	=	Inscribed circle diameter (m)	88	88	88	88
A	=	Entry angle (degree)	30	38	29	39
Q	=	Entry flow (pcu/hr)	AM 720	50	2175	765
			PM 720	50	1805	725
Qc	=	Circulating flow across entry (pcu/hr)	AM 2015	1810	75	2220
			PM 1665	1680	80	1855

Output Parameters

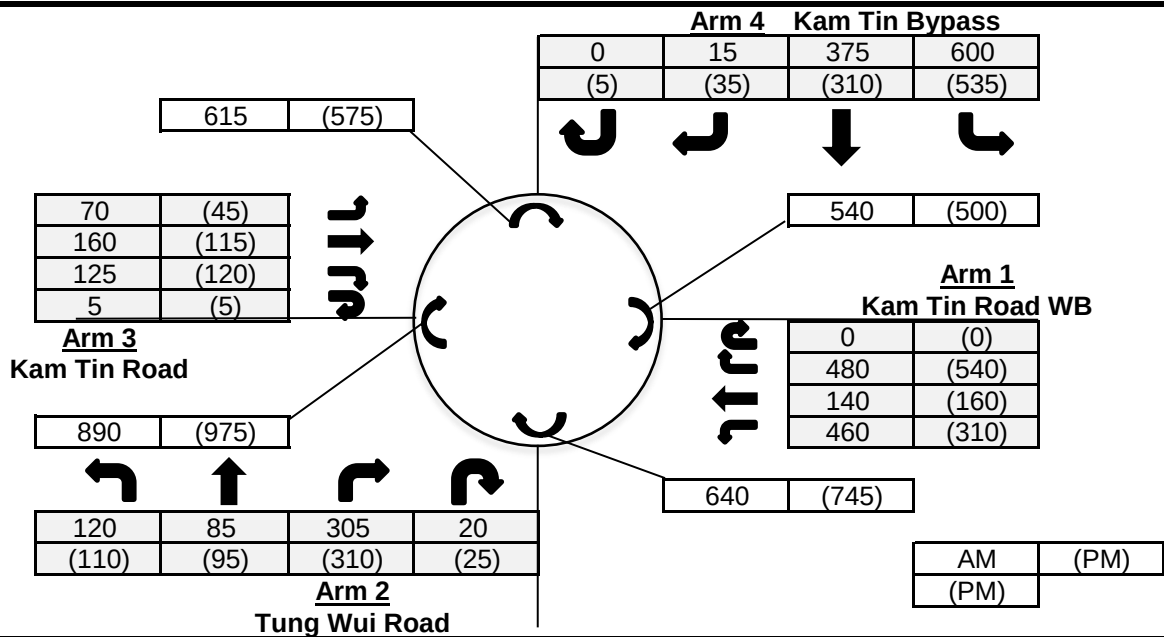
			Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = $1.6 \cdot (E-V)/L$	0.76	0.45	0.46	0.48
K	=	$1 - 0.00347 \cdot (A-30) - 0.978 \cdot (1/R - 0.05)$	1.03	0.97	1.03	0.99
X2	=	$V + ((E-V)/(1+2 \cdot S))$	9.56	8.71	9.24	8.80
M	=	$\exp((D-60)/10)$	16.44	16.44	16.44	16.44
F	=	$303 \cdot X2$	2897	2640	2799	2665
Td	=	$1 + (0.5/(1+M))$	1.03	1.03	1.03	1.03
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$	0.63	0.59	0.62	0.60
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$	AM 1686	1524	2833	1335
			PM 1914	1599	2830	1551
DFC	=	Entry Flow/Capacity = Q/Qe	AM 0.43	0.03	0.77	0.57
			PM 0.38	0.03	0.64	0.47

DFC of Critical Approach = AM 0.77
PM 0.64

Roundabout Junction Calculation

Junction : (A) Kam Tin Bypass / Kam Tin Road / Tung Wui Road Job No.: 25009HK

Scenario : 2034 Design Traffic Flows



Input Parameters

			Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)	7.3	7.2	3.6	7.3
E	=	Entry width (m)	11.5	10.1	11.8	13.5
L	=	Effective length of flare (m)	12.6	9.4	14	12.5
R	=	Entry radius	26	20	18.4	36
D	=	Inscribed circle diameter (m)	64	64	64	64
A	=	Entry angle (degree)	42	27	45	23
Q	=	Entry flow (pcu/hr)	AM 1080 PM 1010	530 540	360 285	990 885
Qc	=	Circulating flow across entry (pcu/hr)				
			AM 540 PM 500	640 745	890 975	615 575

Output Parameters

			Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = $1.6 \cdot (E-V)/L$	0.53	0.49	0.94	0.79
K	=	$1 - 0.00347 \cdot (A-30) - 0.978 \cdot (1/R - 0.05)$	0.97	1.01	0.94	1.05
X2	=	$V + ((E-V)/(1+2 \cdot S))$	9.33	8.66	6.45	9.70
M	=	$\text{Exp}((D-60)/10)$	1.49	1.49	1.49	1.49
F	=	$303 \cdot X2$	2828	2624	1955	2938
Td	=	$1 + (0.5/(1+M))$	1.20	1.20	1.20	1.20
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$	0.72	0.69	0.58	0.74
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$	AM 2363 PM 2391	2206 2133	1360 1314	2596 2627
DFC	=	Entry Flow/Capacity = Q/Qe				
			AM 0.46 PM 0.42	0.24 0.25	0.26 0.22	0.38 0.34

DFC of Critical Approach = AM 0.46
PM 0.42

TRAFFIC SIGNALS CALCULATION										Job No: 25009HK										CTA Consultants Ltd.															
Junction: (B) Kam Tin Bypass / Kong Tai Road																																			
Description: 2034 Design Traffic Flows																																			
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak															
						Left	Right		A.M.	P.M.			A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y													
Kam Tin Bypass	W	↗	C	2	3.0	0	15	0	100%	100%	2055	2055	1870	1870	1870	1870	55	0.029		55	0.029														
	W	↖	B	1,2	3.5	0	0	0	0%	0%	2105	0	2105	2105	0	0	342	0.162		372	0.177														
	W	↖	B	1,2	3.0	0	0	1	0%	0%	1775	3880	1775	1775	3880	3880	288	0.162		313	0.177														
Kam Tin Bypass	E	↘	A	1	3.0	13	0	1	12%	17%	1915	3970	1890	1880	3945	3935	460	0.243	0.243	423	0.225	0.225													
	E	↘	A	1	3.0	0	0	0	0%	0%	2055	0	2055	2055	0	0	500	0.243		462	0.225														
Kong To Road	S	↓	D	3	3.5	10	12	1	44% / 56%	55% / 45%	1461	1461	1285	1285	1285	1285	195	0.152	0.152	145	0.113	0.113													
Pedestrian crossing	↔	Ep	4	Min. Crossing Time = 12GM + 15FGM = 27s																															
	↔	Fp	2,3,4	Min. Crossing Time = 7GM + 7FGM = 14s																															
	↔	Gp	4	Min. Crossing Time = 7GM + 7FGM = 14s																															
Notes:									Traffic Flow (pcu / hr)									A.M. Check Phase				P.M. Check Phase													
									110(65) 85(80) 55(70) 905(815) 55(55) 630(685)									Ey 0.395 L (sec) 47 C (sec) 108 y pract. 0.508 R.C. (%) 29%				Ey 0.338 L (sec) 47 C (sec) 108 y pract. 0.508 R.C. (%) 51%													
Stage/Phase Diagram:																																			
I/G=3s									I/G=6s + 5s									I/G=5s									I/G=4s (Min. Green Time for Ep=27s)								

Priority Junction Calculation

Junction :	(C) Kam Tin Road / Kam Tai Road	Job No.:	25009HK
Scenario :	2034 Design Traffic Flows		

Arm B Kam Tai Road

15	25
(10)	(40)

Arm A Kam Tin Road EB **Arm C Kam Tin Road WB**

40	(50)	90	(115)
985	(930)	1140	(945)

AM	(PM)
(PM)	

The predictive equations of capacity of movement are:

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

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

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

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

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

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

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

where

$$Y = 1 - 0.0345W$$

q-AB, etc = the design flow of movement AB, etc
W = major road width
W-CR = central reserve width
w-BA, etc = lane width to vehicle
v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc
v-IBA = visibility to the left for waiting vehicles in stream BA, etc

W = 6.4 - 20
W-CR = 1.2 - 9.0
w = 2.05 - 4.70
Vr = 17.0 - 250.0
VI = 22.0 - 250.0

Geometry :	Input	Calculated
W	6.4	D 0.968
W-CR	0	E 1.029
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	1	F 0.897
Minor Road Share LT&RT? (Yes: 1, No: 0)	1	Y 0.779

Analysis :	Traffic Flow pcu/hr	AM	PM	Capacity pcu/hr	AM	PM
q-CA	1140	945	Q-BA	100	138	
q-CB	90	115	Q-BC	475	490	
q-AB	40	50	Q-CB	408	419	
q-AC	985	930	Q-CA	1403	1306	(If C-B blocked C-A)
q-BA	15	10	Q-BAC	197	324	(If Minor Road Share LT&RT)
q-BC	25	40				
f	0.625	0.800				

Results :	Ratio of Flow-to-Capacity	AM	PM
	B-A	N/A	N/A
	B-C	N/A	N/A
	C-B	0.22	0.27
	C-A	0.81	0.72
	B-AC	0.20	0.15
	Critical DFC	0.81	0.72

Priority Junction Calculation

Junction :	(C) Kam Tin Road / Kam Tai Road	Job No.:	25009HK
Scenario :	2034 Design Traffic Flows (With Proposed Improvement)		

AM	(PM)
(PM)	

Arm B Kam Tai Road
 15 25
 (10) (40)
 ↓ ↓
 40 (50) 90 (115)
 985 (930) 1140 (945)
Arm A Kam Tin Road EB Arm C Kam Tin Road WB

The predictive equations of capacity of movement are:

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

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

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

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

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

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

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

where

$$Y = 1 - 0.0345W$$

q-AB, etc = the design flow of movement AB, etc
 W = major road width
 W-CR = central reserve width
 w-BA, etc = lane width to vehicle
 v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc
 v-IBA = visibility to the left for waiting vehicles in stream BA, etc

W = 6.4 - 20
 W-CR = 1.2 - 9.0
 w = 2.05 - 4.70
 Vr = 17.0 - 250.0
 VI = 22.0 - 250.0

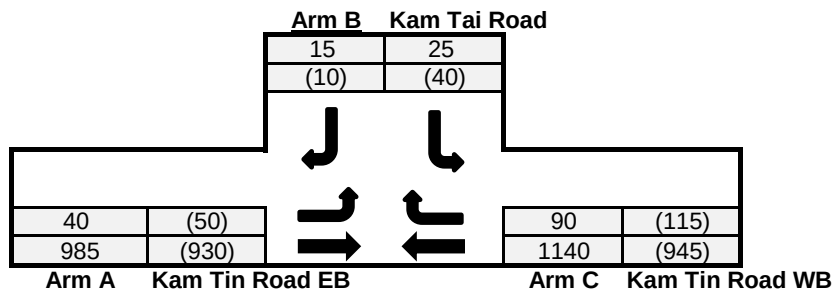
Geometry :	Input	Calculated
W	7.3	D 0.968
W-CR	0	E 1.029
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	1	F 0.915
Minor Road Share LT&RT? (Yes: 1, No: 0)	1	Y 0.748
V-rBA	50	
V-IBA	50	
V-rBC	50	
V-rCB	50	
w-BA	4.7	
w-BC	4.7	
w-CB	3	

Analysis :	Traffic Flow pcu/hr	AM	PM	Capacity pcu/hr	AM	PM
q-CA	1140	945	Q-BA	120	156	
q-CB	90	115	Q-BC	486	501	
q-AB	40	50	Q-CB	426	437	
q-AC	985	930	Q-CA	1600	1490	(If C-B blocked C-A)
q-BA	15	10	Q-BAC	227	348	(If Minor Road Share LT&RT)
q-BC	25	40				
f	0.625	0.800				

Results :	Ratio of Flow-to-Capacity	AM	PM
B-A	N/A	N/A	N/A
B-C	N/A	N/A	N/A
C-B	0.21	0.26	
C-A	0.71	0.63	
B-AC	0.18	0.14	
Critical DFC		0.71	0.63

Priority Junction Calculation

Junction :	(C) Kam Tin Road / Kam Tai Road	Job No.:	25009HK
Scenario :	2034 Design Traffic Flows (With Planned Improvement)		



AM	(PM)
(PM)	

The predictive equations of capacity of movement are:

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

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

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

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

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

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

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

where

$$Y = 1 - 0.0345W$$

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

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

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

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

$$W = 6.4 - 20$$

$$W-CR = 1.2 - 9.0$$

$$w = 2.05 - 4.70$$

$$Vr = 17.0 - 250.0$$

$$VI = 22.0 - 250.0$$

Geometry :		Input			Calculated			
	W	10.3	V-rBA	50	w-BA	4.7	D	0.968
	W-CR	0	V-IBA	50	w-BC	4.7	E	1.029
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)		1	V-rBC	50	w-CB	4.7	F	1.029
Minor Road Share LT&RT? (Yes: 1, No: 0)		1	V-rCB	50			Y	0.645

Analysis :	Traffic Flow	AM	PM	Capacity	AM	PM
	pcu/hr			pcu/hr		
	q-CA	1140	945	Q-BA	187	219
	q-CB	90	115	Q-BC	525	538
	q-AB	40	50	Q-CB	519	530
	q-AC	985	930	Q-CA	2257	2102
	q-BA	15	10	Q-BAC	313	416
	q-BC	25	40			
	f	0.625	0.800			

(If C-B blocked C-A)
(If Minor Road Share LT&RT)

Results :	Ratio of Flow-to-Capacity	AM	PM
	B-A	N/A	N/A
	B-C	N/A	N/A
	C-B	0.17	0.22
	C-A	0.51	0.45
	B-AC	0.13	0.12

Critical DFC

0.51

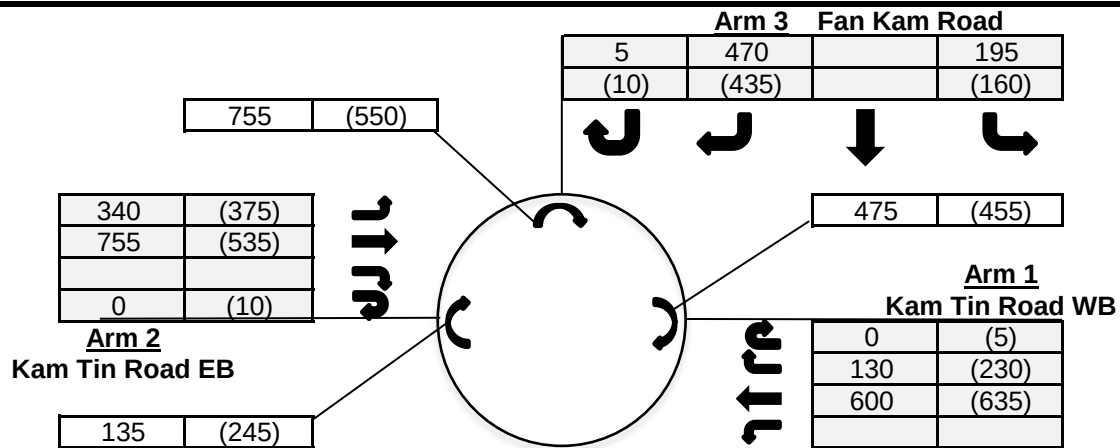
0.45

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (D) Kam Tin Road / Fan Kam Road Job No.: 25009HK

Scenario : 2034 Design Traffic Flows



AM	(PM)
(PM)	

Input Parameters

			Arm 1	Arm 2	Arm 3
V	=	Approach half width (m)	3	7	3
E	=	Entry width (m)	8	8	5.9
L	=	Effective length of flare (m)	7.8	12	10
R	=	Entry radius	100	33	13.4
D	=	Inscribed circle diameter (m)	20	20	20
A	=	Entry angle (degree)	30	10	15
Q	=	Entry flow (pcu/hr)	AM	730	1095
			PM	870	920
Qc	=	Circulating flow across entry (pcu/hr)	AM	475	135
			PM	455	245

Output Parameters

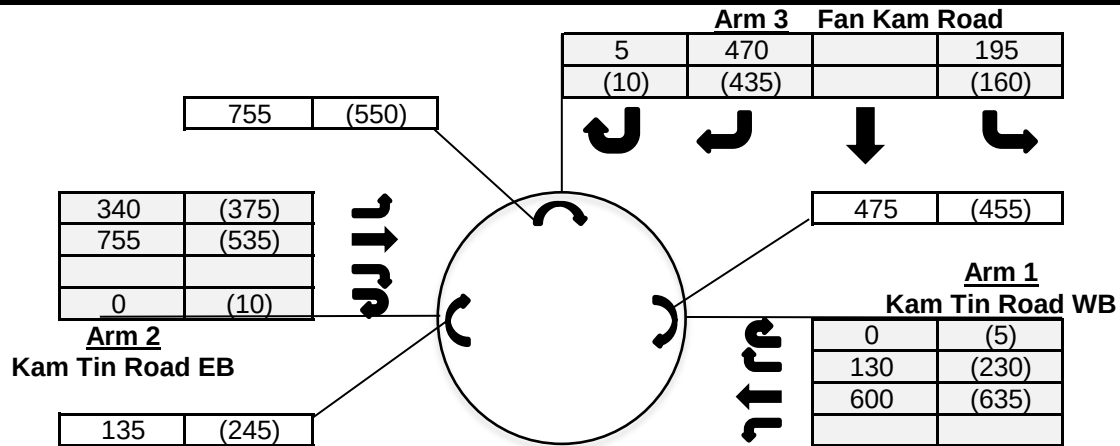
			Arm 1	Arm 2	Arm 3
S	=	Sharpness of flare = $1.6 \cdot (E-V)/L$	1.03	0.13	0.46
K	=	$1 - 0.00347 \cdot (A-30) - 0.978 \cdot (1/R - 0.05)$	1.04	1.09	1.03
X2	=	$V + ((E-V)/(1+2 \cdot S))$	4.64	7.79	4.50
M	=	$\text{Exp}((D-60)/10)$	0.02	0.02	0.02
F	=	$303 \cdot X2$	1406	2360	1365
Td	=	$1 + (0.5/(1+M))$	1.49	1.49	1.49
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$	0.60	0.80	0.60
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$	AM	1163	2452
			PM	1175	2356
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.63	0.45
			PM	0.74	0.39

DFC of Critical Approach = AM 0.71
PM 0.74

Roundabout Junction Calculation

Junction : (D) Kam Tin Road / Fan Kam Road Job No.: 25009HK

Scenario : 2034 Design Traffic Flows (With Planned Improvement)



AM	(PM)
(PM)	

Input Parameters

			Arm 1	Arm 2	Arm 3
V	=	Approach half width (m)	5	7	3.2
E	=	Entry width (m)	6.5	7.5	6.5
L	=	Effective length of flare (m)	12	3.6	15
R	=	Entry radius	100	15.8	25
D	=	Inscribed circle diameter (m)	28	28	28
A	=	Entry angle (degree)	33	10	20
Q	=	Entry flow (pcu/hr)	AM	730	1095
			PM	870	920
Qc	=	Circulating flow across entry (pcu/hr)	AM	475	135
			PM	455	245

Output Parameters

			Arm 1	Arm 2	Arm 3
S	=	Sharpness of flare = $1.6 \cdot (E-V)/L$	0.20	0.22	0.35
K	=	$1 - 0.00347 \cdot (A-30) - 0.978 \cdot (1/R - 0.05)$	1.03	1.06	1.04
X2	=	$V + ((E-V)/(1+2 \cdot S))$	6.07	7.35	5.14
M	=	$\text{Exp}((D-60)/10)$	0.04	0.04	0.04
F	=	$303 \cdot X2$	1840	2226	1556
Td	=	$1 + (0.5/(1+M))$	1.48	1.48	1.48
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$	0.69	0.77	0.63
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$	AM	1556	2242
			PM	1570	2153
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.47	0.49
			PM	0.55	0.43

DFC of Critical Approach = AM 0.59
PM 0.55

CTA Consultants Ltd.Description: **2034 Design Traffic Flows**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak							
						Left	Right		A.M.	P.M.			A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y					
Kam Tin Road	W	←	A	1	3.4	0	0	1	0%	0%	1955	1955	1955	1955	1955	1955	1075	0.550	0.550	995	0.509	0.509					
Kam Tin Road	E	→	A	1	3.4	0	0	1	0%	0%	1955	1955	1955	1955	1955	1955	1050	0.537		945	0.483						
Pedestrian crossing																											
↔ Bp 2 Min. Crossing Time = 5GM + 7FGM = 12s																											
Notes:																											
Traffic Flow (pcu / hr)									A.M. Check Phase									P.M. Check Phase									
1050(945) →									← 1075(995)									εy 0.550					εy 0.509				
																		L (sec) 20					L (sec) 20				
																		C (sec) 120					C (sec) 120				
																		y pract. 0.750					y pract. 0.750				
																		R.C. (%) 36%					R.C. (%) 47%				
Stage/Phase Diagram:			1			2																					
			→			←																					
			↔			↕																					
I/G = 5s			I/G = 4s + 12s																								

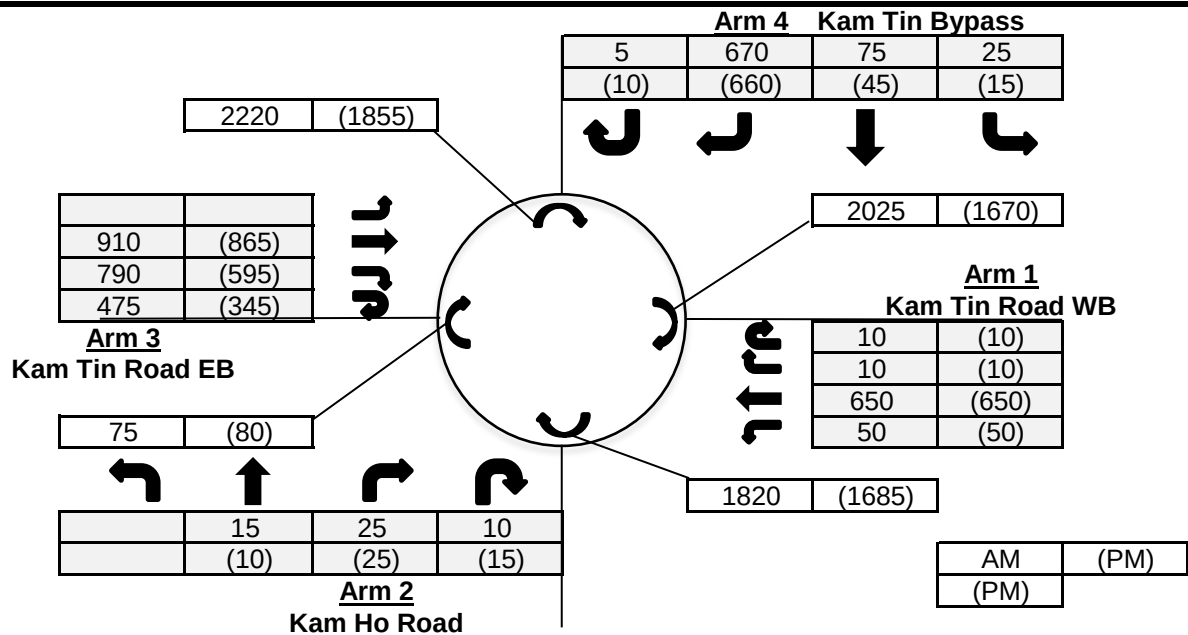
TRAFFIC SIGNALS CALCULATION															Job No: 25009HK										CTA Consultants Ltd.					
Junction: (E) Kam Tin Road																														
Description: 2034 Design Traffic Flows (With Planned Improvement)																														
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak										
						Left	Right		A.M.	P.M.			A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y								
Kam Tin Road	W	←	A	1	4.4	0	0	1	0%	0%	2055	2055	2055	2055	2055	2055	1075	0.523	0.523	995	0.484	0.484								
Kam Tin Road	E	→	A	1	4.4	0	0	1	0%	0%	2055	2055	2055	2055	2055	2055	1050	0.511		945	0.460									
Pedestrian crossing ↔ Bp 2 Min. Crossing Time = 5GM + 6FGM = 11s																														
Notes:									Traffic Flow (pcu / hr)								A.M. Check Phase				P.M. Check Phase									
									1050(945) →																					

Junction: (F) Kam Tin Road / Tsing Long Highway Slip Road																				
Description: 2034 Design Traffic Flows (With Planned Improvement)																				
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak				
						Left	Right		A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y		
Kam Tin Road	E	→	1	A	3.65	0	0	1	0%	0%	1980	1980	928	0.469		785	0.396			
	E	→	1	A	3.65	0	0	0	0%	0%	2120	2120	994	0.469		840	0.396			
	E	→	1	A	3.65	0	0	0	0%	0%	2120	2120	994	0.469		840	0.396			
Kam Tin Road	W	←	2	A	3.80	0	0	0	0%	0%	2135	2135	1168	0.547	0.547	1088	0.509	0.509		
	W	←	2	A	3.80	0	0	0	0%	0%	2135	2135	1168	0.547		1088	0.509			
	W	↙	2	A	5.00	15	0	1	100%	100%	1925	1925	815	0.423		390	0.203			
Tsing Long Highway Slip Road	N	↖	3	B	3.50	20	0	1	100%	100%	1830	1830	156	0.085	0.085	216	0.118	0.118		
	N	↖	3	B	3.50	25	0	0	100%	100%	1985	1985	169	0.085		234	0.118			
	N	↗	3	B	3.60	0	30	0	100%	100%	2015	2015	138	0.068		148	0.073			
	N	↗	3	B	3.50	0	28	0	100%	100%	2000	2000	137	0.068		147	0.073			
*Pedestrian Crossing			4p	A	Min. Crossing Time			=	7 Gm + 7 Fm = 14s											
			5p	B	Min. Crossing Time			=	7 Gm + 7 Fm = 14s											
Notes:						Traffic Flow (pcu / hr) [AM (PM)]						Check Phase			Check Phase					
						2915(2465)→ ↙ ↘ 325(450) 275(295) ← ↘ 2335(2175) ↓ 815(390)						εy	0.632	εy			0.627			
												L (sec)	10	L (sec)			10			
												C (sec)	120	C (sec)			120			
												y pract.	0.825	y pract.			0.825			
												R.C. (%)	31%	R.C. (%)			32%			
Stage / Phase Diagrams																				
A				B																
I/G = 5				I/G = 7																

Roundabout Junction Calculation

Junction : (G) Kam Tin Road / Kam Tin Bypass Job No.: 25009HK

Scenario : 2034 Design Traffic Flows (With Planned Improvement)



Input Parameters

			Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)	7.3	7.3	7.3	6.5
E	=	Entry width (m)	13	10	11	11
L	=	Effective length of flare (m)	12	9.5	13	15
R	=	Entry radius	70	20	42.5	42.5
D	=	Inscribed circle diameter (m)	88	88	88	88
A	=	Entry angle (degree)	30	38	29	39
Q	=	Entry flow (pcu/hr)	AM 720	50	2175	775
			PM 720	50	1805	730
Qc	=	Circulating flow across entry (pcu/hr)	AM 2025	1820	75	2220
			PM 1670	1685	80	1855

Output Parameters

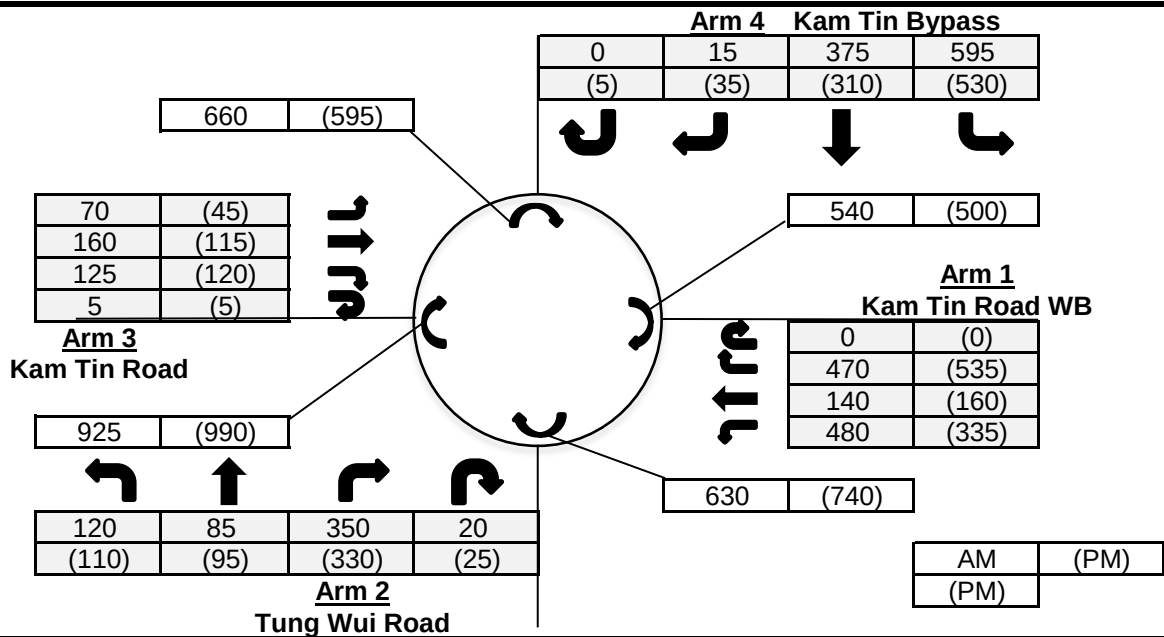
			Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = $1.6 \cdot (E-V)/L$	0.76	0.45	0.46	0.48
K	=	$1 - 0.00347 \cdot (A-30) - 0.978 \cdot (1/R - 0.05)$	1.03	0.97	1.03	0.99
X2	=	$V + ((E-V)/(1+2 \cdot S))$	9.56	8.71	9.24	8.80
M	=	$\exp((D-60)/10)$	16.44	16.44	16.44	16.44
F	=	$303 \cdot X2$	2897	2640	2799	2665
Td	=	$1 + (0.5/(1+M))$	1.03	1.03	1.03	1.03
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$	0.63	0.59	0.62	0.60
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$	AM 1680	1519	2833	1335
			PM 1911	1596	2830	1551
DFC	=	Entry Flow/Capacity = Q/Qe	AM 0.43	0.03	0.77	0.58
			PM 0.38	0.03	0.64	0.47

DFC of Critical Approach = AM 0.77
PM 0.64

Roundabout Junction Calculation

Junction : (A) Kam Tin Bypass / Kam Tin Road / Tung Wui Road Job No.: 25009HK

Scenario : 2034 Reference Traffic Flows (With Remaining Site under LUR)



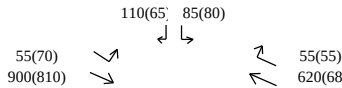
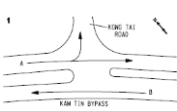
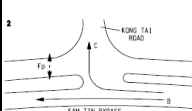
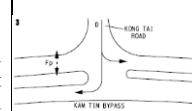
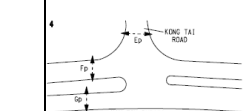
Input Parameters

			Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)	7.3	7.2	3.6	7.3
E	=	Entry width (m)	11.5	10.1	11.8	13.5
L	=	Effective length of flare (m)	12.6	9.4	14	12.5
R	=	Entry radius	26	20	18.4	36
D	=	Inscribed circle diameter (m)	64	64	64	64
A	=	Entry angle (degree)	42	27	45	23
Q	=	Entry flow (pcu/hr)	AM 1090 PM 1030	575 560	360 285	985 880
Qc	=	Circulating flow across entry (pcu/hr)				
			AM 540 PM 500	630 740	925 990	660 595

Output Parameters

			Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = $1.6*(E-V)/L$	0.53	0.49	0.94	0.79
K	=	$1-0.00347*(A-30)-0.978*(1/R-0.05)$	0.97	1.01	0.94	1.05
X2	=	$V+((E-V)/(1+2*S))$	9.33	8.66	6.45	9.70
M	=	$\text{Exp}((D-60)/10)$	1.49	1.49	1.49	1.49
F	=	$303*X2$	2828	2624	1955	2938
Td	=	$1+(0.5/(1+M))$	1.20	1.20	1.20	1.20
Fc	=	$0.21*Td*(1+0.2*X2)$	0.72	0.69	0.58	0.74
Qe	=	Capacity = $K*(F-Fc*Qc)$	AM 2363 PM 2391	2213 2136	1341 1306	2562 2612
DFC	=	Entry Flow/Capacity = Q/Qe				
			AM 0.46 PM 0.43	0.26 0.26	0.27 0.22	0.38 0.34

DFC of Critical Approach = AM 0.46
PM 0.43

TRAFFIC SIGNALS CALCULATION															Job No: 25009HK										CTA Consultants Ltd.									
Junction: (B) Kam Tin Bypass / Kong Tai Road																																		
Description: 2034 Reference Traffic Flows (With Remaining Site under LUR)																																		
Approach	Direction	Movement notation	Phase	Stage	Width (m)		Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak													
							Left	Right		A.M.	P.M.			A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y											
Kam Tin Bypass	W		C	2	3.0	0	15	0	100%	100%	2055	2055	1870	1870	1870	1870	55	0.029		55	0.029													
	W		B	1,2	3.5	0	0	0	0%	0%	2105	0	2105	2105	0	0	336	0.160		369	0.175													
	W		B	1,2	3.0	0	0	1	0%	0%	1775	3880	1775	1775	3880	3880	284	0.160		311	0.175													
Kam Tin Bypass	E		A	1	3.0	13	0	1	12%	17%	1915	3970	1890	1880	3945	3935	457	0.242	0.242	420	0.224	0.224												
	E		A	1	3.0	0	0	0	0%	0%	2055	0	2055	2055	0	0	498	0.242		460	0.224													
Kong To Road	S		D	3	3.5	10	12	1	44% / 56%	55% / 45%	1461	1461	1285	1285	1285	1285	195	0.152	0.152	145	0.113	0.113												
Pedestrian crossing		Ep	4						Min. Crossing Time = 12GM + 15FGM = 27s																									
		Fp	2,3,4						Min. Crossing Time = 7GM + 7FGM = 14s																									
		Gp	4						Min. Crossing Time = 7GM + 7FGM = 14s																									
Notes:									Traffic Flow (pcu / hr)										A.M. Check Phase					P.M. Check Phase										
																			Ey 0.394 L (sec) 47 C (sec) 108 y pract. 0.508 R.C. (%) 29%					Ey 0.336 L (sec) 47 C (sec) 108 y pract. 0.508 R.C. (%) 51%										
Stage/Phase Diagram:																																		
																																		
I/G=3s					I/G=6s + 5s					I/G=5s					I/G=4s (Min. Green Time for Ep=27s)																			

Priority Junction Calculation

Junction :	(C) Kam Tin Road / Kam Tai Road	Job No.:	25009HK
Scenario :	2034 Reference Traffic Flows (With Remaining Site under LUR)		

AM	(PM)
(PM)	

The predictive equations of capacity of movement are:

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

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

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

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

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

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

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

where

$$Y = 1 - 0.0345W$$

q-AB, etc = the design flow of movement AB, etc
W = major road width
W-CR = central reserve width
w-BA, etc = lane width to vehicle
v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc
v-IBA = visibility to the left for waiting vehicles in stream BA, etc

W = 6.4 - 20
W-CR = 1.2 - 9.0
w = 2.05 - 4.70
Vr = 17.0 - 250.0
VI = 22.0 - 250.0

Geometry :	Input	Calculated
W	6.4	D 0.968
W-CR	0	E 1.029
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	1	F 0.897
Minor Road Share LT&RT? (Yes: 1, No: 0)	1	Y 0.779

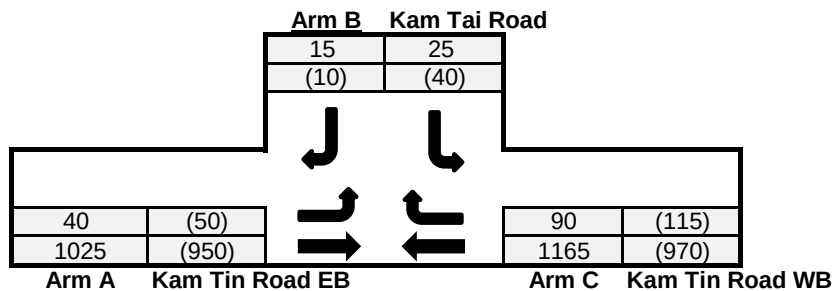
Analysis :	Traffic Flow pcu/hr	AM	PM	Capacity pcu/hr	AM	PM
q-CA	1165	970	Q-BA	85	128	
q-CB	90	115	Q-BC	463	484	
q-AB	40	50	Q-CB	397	414	
q-AC	1025	950	Q-CA	1392	1300	(If C-B blocked C-A)
q-BA	15	10	Q-BAC	173	311	(If Minor Road Share LT&RT)
q-BC	25	40				
f	0.625	0.800				

Results :	Ratio of Flow-to-Capacity	AM	PM
	B-A	N/A	N/A
	B-C	N/A	N/A
	C-B	0.23	0.28
	C-A	0.84	0.75
	B-AC	0.23	0.16

Critical DFC	0.84	0.75
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Priority Junction Calculation

Junction : (C) Kam Tin Road / Kam Tai Road Job No.: 25009HK
 Scenario : 2034 Reference Traffic Flows (With Remaining Site under LUR) (With Planned Improvement)



AM	(PM)
(PM)	

The predictive equations of capacity of movement are:

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

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

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

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

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

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

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

where

$$Y = 1 - 0.0345W$$

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

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

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

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

$$W = 6.4 - 20$$

$$W-CR = 1.2 - 9.0$$

$$w = 2.05 - 4.70$$

$$Vr = 17.0 - 250.0$$

$$VI = 22.0 - 250.0$$

Geometry :		Input			Calculated			
	W	10.3	V-rBA	50	w-BA	4.7	D	0.968
	W-CR	0	V-IBA	50	w-BC	4.7	E	1.029
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)		1	V-rBC	50	w-CB	4.7	F	1.029
Minor Road Share LT&RT? (Yes: 1, No: 0)		1	V-rCB	50			Y	0.645

Analysis :	Traffic Flow	AM	PM	Capacity	AM	PM
	pcu/hr			pcu/hr		
	q-CA	1165	970	Q-BA	175	211
	q-CB	90	115	Q-BC	516	533
	q-AB	40	50	Q-CB	510	525
	q-AC	1025	950	Q-CA	2241	2092
	q-BA	15	10	Q-BAC	298	408
	q-BC	25	40			
	f	0.625	0.800			

(If C-B blocked C-A)
(If Minor Road Share LT&RT)

Results :	Ratio of Flow-to-Capacity	AM	PM
	B-A	N/A	N/A
	B-C	N/A	N/A
	C-B	0.18	0.22
	C-A	0.52	0.46
	B-AC	0.13	0.12

Critical DFC

0.52

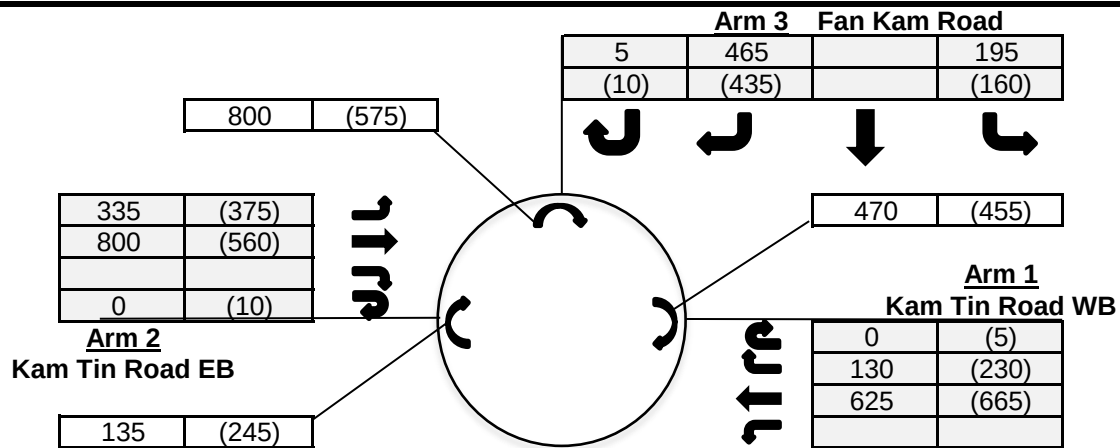
0.46

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (D) Kam Tin Road / Fan Kam Road Job No.: 25009HK

Scenario : 2034 Reference Traffic Flows (With Remaining Site under LUR)



Input Parameters

			Arm 1	Arm 2	Arm 3
V	=	Approach half width (m)	3	7	3
E	=	Entry width (m)	8	8	5.9
L	=	Effective length of flare (m)	7.8	12	10
R	=	Entry radius	100	33	13.4
D	=	Inscribed circle diameter (m)	20	20	20
A	=	Entry angle (degree)	30	10	15
Q	=	Entry flow (pcu/hr)	AM	755	1135
			PM	900	945
Qc	=	Circulating flow across entry (pcu/hr)	AM	470	135
			PM	455	245

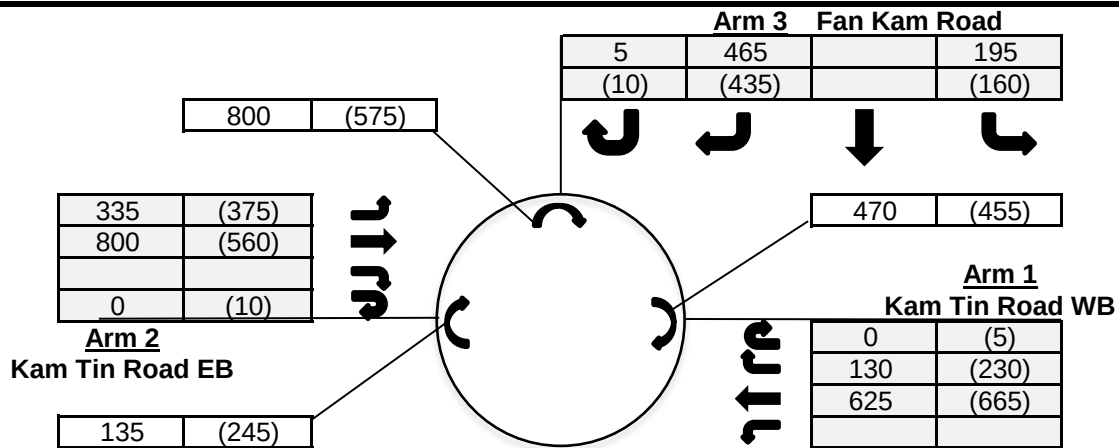
Output Parameters

			Arm 1	Arm 2	Arm 3
S	=	Sharpness of flare = $1.6 \cdot (E-V)/L$	1.03	0.13	0.46
K	=	$1 - 0.00347 \cdot (A-30) - 0.978 \cdot (1/R - 0.05)$	1.04	1.09	1.03
X2	=	$V + ((E-V)/(1+2 \cdot S))$	4.64	7.79	4.50
M	=	$\text{Exp}((D-60)/10)$	0.02	0.02	0.02
F	=	$303 \cdot X2$	1406	2360	1365
Td	=	$1 + (0.5/(1+M))$	1.49	1.49	1.49
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$	0.60	0.80	0.60
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$	AM	1166	2452
			PM	1175	2356
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.65	0.46
			PM	0.77	0.40

DFC of Critical Approach = AM 0.73
PM 0.77

Roundabout Junction Calculation

Junction : (D) Kam Tin Road / Fan Kam Road Job No.: 25009HK
 Scenario : 2034 Reference Traffic Flows (With Remaining Site under LUR) (With Planned Improvement)



AM	(PM)
(PM)	

Input Parameters

			Arm 1	Arm 2	Arm 3
V	=	Approach half width (m)	5	7	3.2
E	=	Entry width (m)	6.5	7.5	6.5
L	=	Effective length of flare (m)	12	3.6	15
R	=	Entry radius	100	15.8	25
D	=	Inscribed circle diameter (m)	28	28	28
A	=	Entry angle (degree)	33	10	20
Q	=	Entry flow (pcu/hr)	AM	755	1135
			PM	900	945
Qc	=	Circulating flow across entry (pcu/hr)	AM	470	135
			PM	455	245

Output Parameters

			Arm 1	Arm 2	Arm 3
S	=	Sharpness of flare = $1.6 \cdot (E-V)/L$	0.20	0.22	0.35
K	=	$1 - 0.00347 \cdot (A-30) - 0.978 \cdot (1/R - 0.05)$	1.03	1.06	1.04
X2	=	$V + ((E-V)/(1+2 \cdot S))$	6.07	7.35	5.14
M	=	$\text{Exp}((D-60)/10)$	0.04	0.04	0.04
F	=	$303 \cdot X2$	1840	2226	1556
Td	=	$1 + (0.5/(1+M))$	1.48	1.48	1.48
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$	0.69	0.77	0.63
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$	AM	1560	2242
			PM	1570	2153
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.48	0.51
			PM	0.57	0.44

DFC of Critical Approach = AM 0.61
 PM 0.57

CTA Consultants Ltd.

Description: **2034 Reference Traffic Flows (With Remaining Site under LUR)**

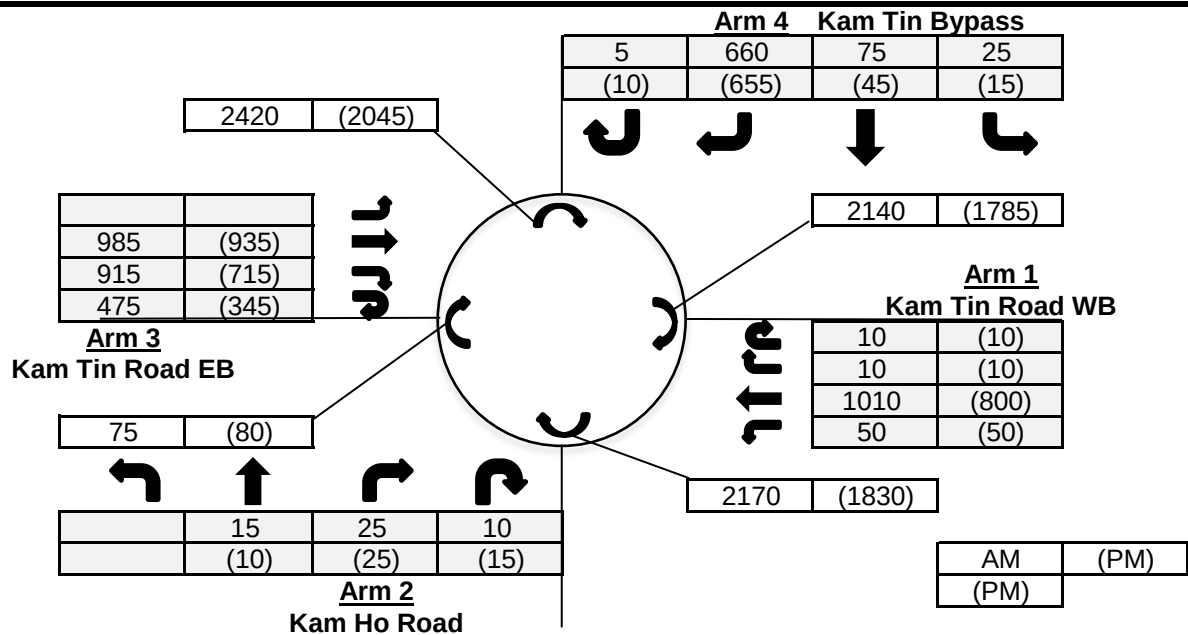
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside O/I	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak		
						Left	Right		A.M.	P.M.			A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Kam Tin Road	W	←	A	1	3.4	0	0	1	0%	0%	1955	1955	1955	1955	1955	1955	1085	0.555	0.555	1020	0.522	0.522
Kam Tin Road	E	→	A	1	3.4	0	0	1	0%	0%	1955	1955	1955	1955	1955	1955	1085	0.555		960	0.491	
Pedestrian crossing↔Bp 2 Min. Crossing Time = 5GM + 7FGM = 12s																						
Notes:									Traffic Flow (pcu / hr) 1085(960) → ← 1085(1020)								A.M. Check Phase εy 0.555 L (sec) 20 C (sec) 120 y pract. 0.750 R.C. (%) 35%			P.M. Check Phase εy 0.522 L (sec) 20 C (sec) 120 y pract. 0.750 R.C. (%) 44%		
Stage/Phase Diagram: 1 → ←			2 — ↑ ↓ —																			
I/G = 5s			I/G = 4s + 12s																			

TRAFFIC SIGNALS CALCULATION										Job No: 25009HK										CTA Consultants Ltd.															
Junction: (E) Kam Tin Road																																			
Description: 2034 Reference Traffic Flows (With Remaining Site under LUR) (With Planned Improvement)																																			
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak															
						Left	Right		A.M.	P.M.			A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y													
Kam Tin Road	W	←	A	1	4.4	0	0	1	0%	0%	2055	2055	2055	2055	2055	2055	1085	0.528	0.528	1020	0.496	0.496													
Kam Tin Road	E	→	A	1	4.4	0	0	1	0%	0%	2055	2055	2055	2055	2055	2055	1085	0.528		960	0.467														
Pedestrian crossing ↔ Bp 2 Min. Crossing Time = 5GM + 6FGM = 11s																																			
Notes:									Traffic Flow (pcu / hr)									A.M. Check Phase						P.M. Check Phase											
									1085(960) → ← 1085(1020)									εy 0.528 L (sec) 19 C (sec) 120 y pract. 0.758 R.C. (%) 43%						εy 0.496 L (sec) 19 C (sec) 120 y pract. 0.758 R.C. (%) 53%											
Stage/Phase Diagram:																																			
1 → ←			2 — ↑ ↓ —																																
I/G = 5s			I/G = 4s + 11s																																

Junction: (F) Kam Tin Road / Tsing Long Highway Slip Road																				
Description: 2034 Reference Traffic Flows (With Remaining Site under LUR) (With Planned Improvement)																				
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak				
						Left	Right		A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y		
Kam Tin Road	E	→	1	A	3.65	0	0	1	0%	0%	1980	1980	995	0.502		847	0.428			
	E	→	1	A	3.65	0	0	0	0%	0%	2120	2120	1065	0.502		907	0.428			
	E	→	1	A	3.65	0	0	0	0%	0%	2120	2120	1065	0.502		907	0.428			
Kam Tin Road	W	←	2	A	3.80	0	0	0	0%	0%	2135	2135	1333	0.624	0.624	1160	0.543	0.543		
	W	←	2	A	3.80	0	0	0	0%	0%	2135	2135	1333	0.624		1160	0.543			
	W	↙	2	A	5.00	15	0	1	100%	100%	1925	1925	905	0.470		425	0.221			
Tsing Long Highway Slip Road	N	↖	3	B	3.50	20	0	1	100%	100%	1830	1830	156	0.085	0.085	216	0.118	0.118		
	N	↖	3	B	3.50	25	0	0	100%	100%	1985	1985	169	0.085		234	0.118			
	N	↖	3	B	3.60	0	30	0	100%	100%	2015	2015	163	0.081		173	0.086			
	N	↖	3	B	3.50	0	28	0	100%	100%	2000	2000	162	0.081		172	0.086			
*Pedestrian Crossing			4p	A	Min. Crossing Time				=	7 Gm + 7 Fm = 14s										
			5p	B	Min. Crossing Time				=	7 Gm + 7 Fm = 14s										
Notes:						Traffic Flow (pcu / hr) [AM (PM)]						Check Phase			Check Phase					
						3125(2660)→ ↖ ↗ 325(450) 325(345) ← 2665(2320) ↓ 905(425)						E _y 0.709			E _y 0.661					
												L (sec) 10			L (sec) 10					
												C (sec) 120			C (sec) 120					
												y pract. 0.825			y pract. 0.825					
												R.C. (%) 16%			R.C. (%) 25%					
Stage / Phase Diagrams																				
A				B																
I/G = 5				I/G = 7																

Roundabout Junction Calculation

Junction : (G) Kam Tin Road / Kam Tin Bypass Job No.: 25009HK
 Scenario : 2034 Reference Traffic Flows (With Remaining Site under LUR) (With Planned Improvement)



Input Parameters

			Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)	7.3	7.3	7.3	6.5
E	=	Entry width (m)	13	10	11	11
L	=	Effective length of flare (m)	12	9.5	13	15
R	=	Entry radius	70	20	42.5	42.5
D	=	Inscribed circle diameter (m)	88	88	88	88
A	=	Entry angle (degree)	30	38	29	39
Q	=	Entry flow (pcu/hr)	AM	1080	50	2375
			PM	870	50	1995
Qc	=	Circulating flow across entry (pcu/hr)	AM	2140	2170	75
			PM	1785	1830	80

Output Parameters

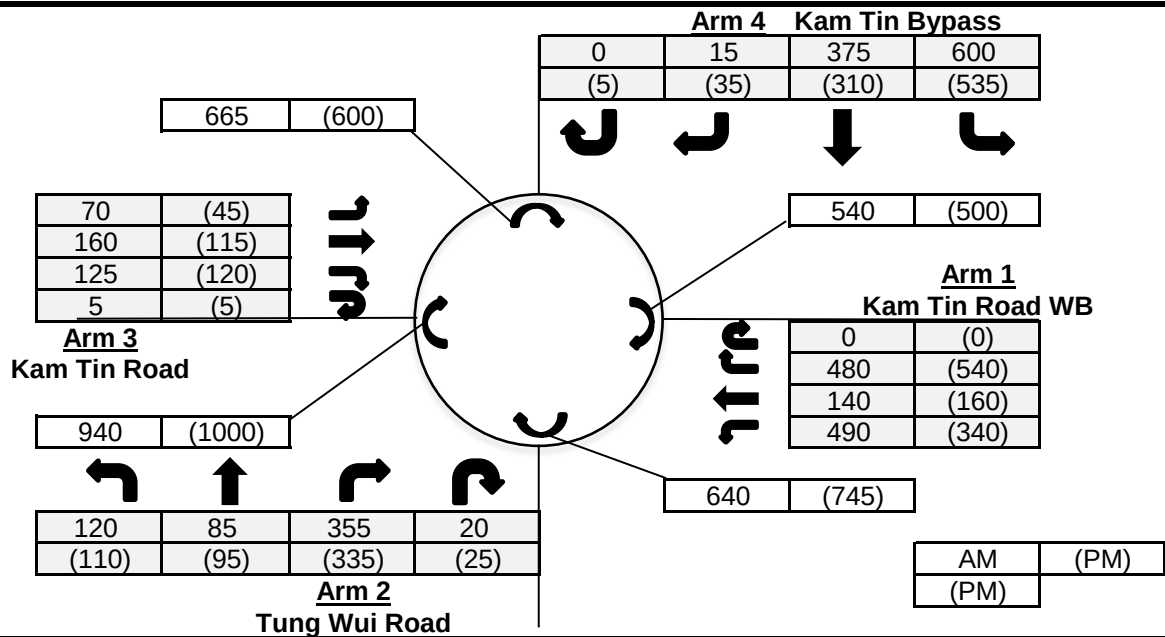
			Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = $1.6 \cdot (E-V)/L$	0.76	0.45	0.46	0.48
K	=	$1 - 0.00347 \cdot (A-30) - 0.978 \cdot (1/R - 0.05)$	1.03	0.97	1.03	0.99
X2	=	$V + ((E-V)/(1+2 \cdot S))$	9.56	8.71	9.24	8.80
M	=	$\exp((D-60)/10)$	16.44	16.44	16.44	16.44
F	=	$303 \cdot X2$	2897	2640	2799	2665
Td	=	$1 + (0.5/(1+M))$	1.03	1.03	1.03	1.03
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$	0.63	0.59	0.62	0.60
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$	AM	1605	1317	2833
			PM	1836	1513	2830
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.67	0.04	0.84
			PM	0.47	0.03	0.70

DFC of Critical Approach = AM 0.84
 PM 0.70

Roundabout Junction Calculation

Junction : (A) Kam Tin Bypass / Kam Tin Road / Tung Wui Road Job No.: 25009HK

Scenario : 2034 Design Traffic Flows (With Remaining Site under LUR)



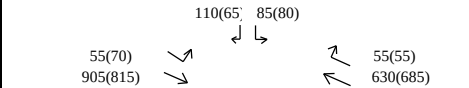
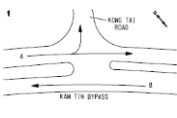
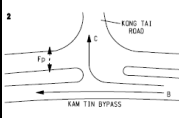
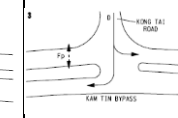
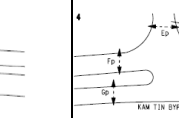
Input Parameters

Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		7.3	7.2	3.6	7.3
E	=	Entry width (m)		11.5	10.1	11.8	13.5
L	=	Effective length of flare (m)		12.6	9.4	14	12.5
R	=	Entry radius		26	20	18.4	36
D	=	Inscribed circle diameter (m)		64	64	64	64
A	=	Entry angle (degree)		42	27	45	23
Q	=	Entry flow (pcu/hr)	AM	1110	580	360	990
			PM	1040	565	285	885
Qc	=	Circulating flow	AM	540	640	940	665
		across entry (pcu/hr)	PM	500	745	1000	600

Output Parameters

Output Parameters			Arm 1	Arm 2	Arm 3	Arm 4	
S	=	Sharpness of flare = 1.6*(E-V)/L	0.53	0.49	0.94	0.79	
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)	0.97	1.01	0.94	1.05	
X2	=	V+((E-V)/(1+2*S))	9.33	8.66	6.45	9.70	
M	=	Exp((D-60)/10)	1.49	1.49	1.49	1.49	
F	=	303*X2	2828	2624	1955	2938	
Td	=	1+(0.5/(1+M))	1.20	1.20	1.20	1.20	
Fc	=	0.21*Td*(1+0.2*X2)	0.72	0.69	0.58	0.74	
Qe	=	Capacity = K*(F-Fc*Qc)	AM	2363	2206	1333	2558
			PM	2391	2133	1300	2608
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.47	0.26	0.27	0.39
			PM	0.43	0.26	0.22	0.34

DFC of Critical Approach = AM 0.47
PM 0.43

TRAFFIC SIGNALS CALCULATION														Job No: 25009HK										CTA Consultants Ltd.							
Junction: (B) Kam Tin Bypass / Kong Tai Road																															
Description: 2034 Design Traffic Flows (With Remaining Site under LUR)																															
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak											
						Left	Right		A.M.	P.M.			A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y									
Kam Tin Bypass	W		C	2	3.0	0	15	0	100%	100%	2055	2055	1870	1870	1870	1870	55	0.029		55	0.029										
	W		B	1,2	3.5	0	0	0	0%	0%	2105	0	2105	2105	0	0	342	0.162		372	0.177										
	W		B	1,2	3.0	0	0	1	0%	0%	1775	3880	1775	1775	3880	3880	288	0.162		313	0.177										
Kam Tin Bypass	E		A	1	3.0	13	0	1	12%	17%	1915	3970	1890	1880	3945	3935	460	0.243	0.243	423	0.225	0.225									
	E		A	1	3.0	0	0	0	0%	0%	2055	0	2055	2055	0	0	500	0.243		462	0.225										
Kong To Road	S		D	3	3.5	10	12	1	44% / 56%	55% / 45%	1461	1461	1285	1285	1285	1285	195	0.152	0.152	145	0.113	0.113									
Pedestrian crossing		Ep	4						Min. Crossing Time = 12GM + 15FGM = 27s																						
		Fp	2,3,4						Min. Crossing Time = 7GM + 7FGM = 14s																						
		Gp	4						Min. Crossing Time = 7GM + 7FGM = 14s																						
Notes:								Traffic Flow (pcu / hr)										A.M. Check Phase				P.M. Check Phase									
																		εy 0.395 L (sec) 47 C (sec) 108 y pract. 0.508 R.C. (%) 29%				εy 0.338 L (sec) 47 C (sec) 108 y pract. 0.508 R.C. (%) 51%									
Stage/Phase Diagram:																															
																															
I/G=3s								I/G=6s + 5s								I/G=5s								I/G=4s (Min. Green Time for Ep=27s)							

Priority Junction Calculation

Junction :	(C) Kam Tin Road / Kam Tai Road	Job No.:	25009HK
Scenario :	2034 Design Traffic Flows (With Remaining Site under LUR)		

Arm B Kam Tai Road

15	25
(10)	(40)

Arm A Kam Tin Road EB **Arm C Kam Tin Road WB**

40	(50)	90	(115)
1035	(955)	1170	(975)

AM	(PM)
(PM)	

The predictive equations of capacity of movement are:

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

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

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

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

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

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

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

where

$$Y = 1 - 0.0345W$$

q-AB, etc = the design flow of movement AB, etc
W = major road width
W-CR = central reserve width
w-BA, etc = lane width to vehicle
v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc
v-IBA = visibility to the left for waiting vehicles in stream BA, etc

W = 6.4 - 20
W-CR = 1.2 - 9.0
w = 2.05 - 4.70
Vr = 17.0 - 250.0
VI = 22.0 - 250.0

Geometry :	Input	Calculated
W	6.4	D 0.968
W-CR	0	E 1.029
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	1	F 0.897
Minor Road Share LT&RT? (Yes: 1, No: 0)	1	Y 0.779

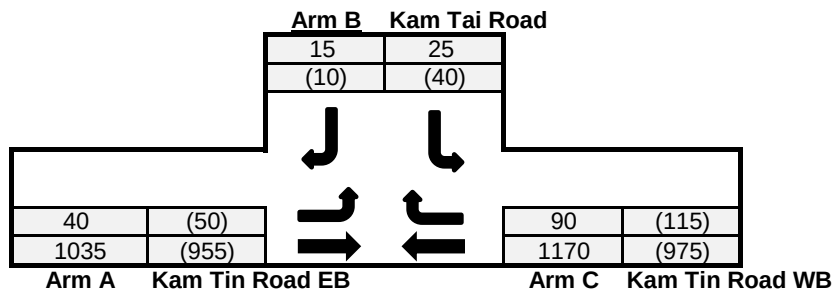
Analysis :	Traffic Flow pcu/hr	AM	PM	Capacity pcu/hr	AM	PM
q-CA	1170	975	Q-BA	81	126	
q-CB	90	115	Q-BC	460	482	
q-AB	40	50	Q-CB	395	413	
q-AC	1035	955	Q-CA	1390	1298	(If C-B blocked C-A)
q-BA	15	10	Q-BAC	167	308	(If Minor Road Share LT&RT)
q-BC	25	40				
f	0.625	0.800				

Results :	Ratio of Flow-to-Capacity	AM	PM
	B-A	N/A	N/A
	B-C	N/A	N/A
	C-B	0.23	0.28
	C-A	0.84	0.75
	B-AC	0.24	0.16

Critical DFC	0.84	0.75
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Priority Junction Calculation

Junction : (C) Kam Tin Road / Kam Tai Road Job No.: 25009HK
 Scenario : 2034 Design Traffic Flows (With Remaining Site under LUR) (With Planned Improvement)



AM	(PM)
(PM)	

The predictive equations of capacity of movement are:

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

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

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

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

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

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

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

where

$$Y = 1 - 0.0345W$$

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

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

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

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

$$W = 6.4 - 20$$

$$W-CR = 1.2 - 9.0$$

$$w = 2.05 - 4.70$$

$$Vr = 17.0 - 250.0$$

$$VI = 22.0 - 250.0$$

Geometry :		Input			Calculated			
	W	10.3	V-rBA	50	w-BA	4.7	D	0.968
	W-CR	0	V-IBA	50	w-BC	4.7	E	1.029
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)		1	V-rBC	50	w-CB	4.7	F	1.029
Minor Road Share LT&RT? (Yes: 1, No: 0)		1	V-rCB	50			Y	0.645

Analysis :	Traffic Flow	AM	PM	Capacity	AM	PM
	pcu/hr			pcu/hr		
	q-CA	1170	975	Q-BA	172	209
	q-CB	90	115	Q-BC	513	531
	q-AB	40	50	Q-CB	507	524
	q-AC	1035	955	Q-CA	2237	2090
	q-BA	15	10	Q-BAC	294	406
	q-BC	25	40			
	f	0.625	0.800			

(If C-B blocked C-A)
(If Minor Road Share LT&RT)

Results :	Ratio of Flow-to-Capacity	AM	PM
	B-A	N/A	N/A
	B-C	N/A	N/A
	C-B	0.18	0.22
	C-A	0.52	0.47
	B-AC	0.14	0.12

Critical DFC

0.52

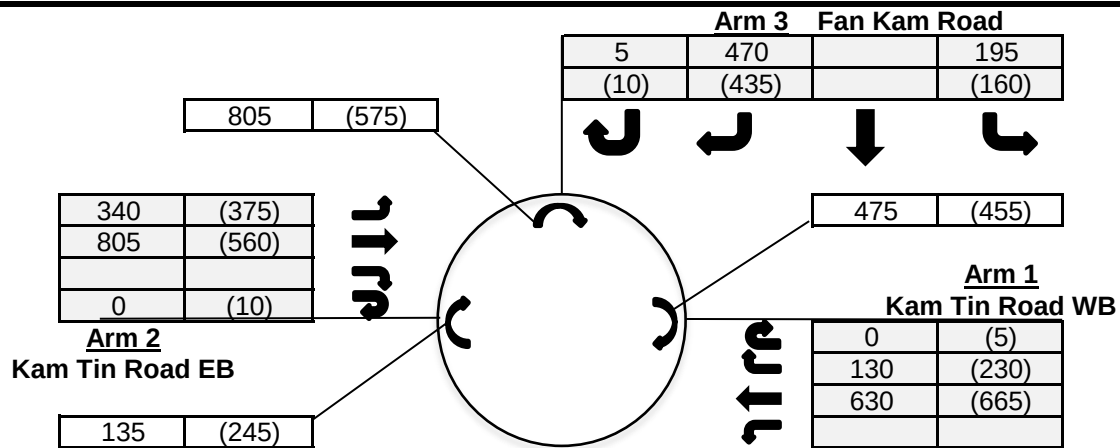
0.47

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (D) Kam Tin Road / Fan Kam Road Job No.: 25009HK

Scenario : 2034 Design Traffic Flows (With Remaining Site under LUR)



Input Parameters

			Arm 1	Arm 2	Arm 3
V	=	Approach half width (m)	3	7	3
E	=	Entry width (m)	8	8	5.9
L	=	Effective length of flare (m)	7.8	12	10
R	=	Entry radius	100	33	13.4
D	=	Inscribed circle diameter (m)	20	20	20
A	=	Entry angle (degree)	30	10	15
Q	=	Entry flow (pcu/hr)	AM	760	1145
			PM	900	945
Qc	=	Circulating flow across entry (pcu/hr)	AM	475	135
			PM	455	245

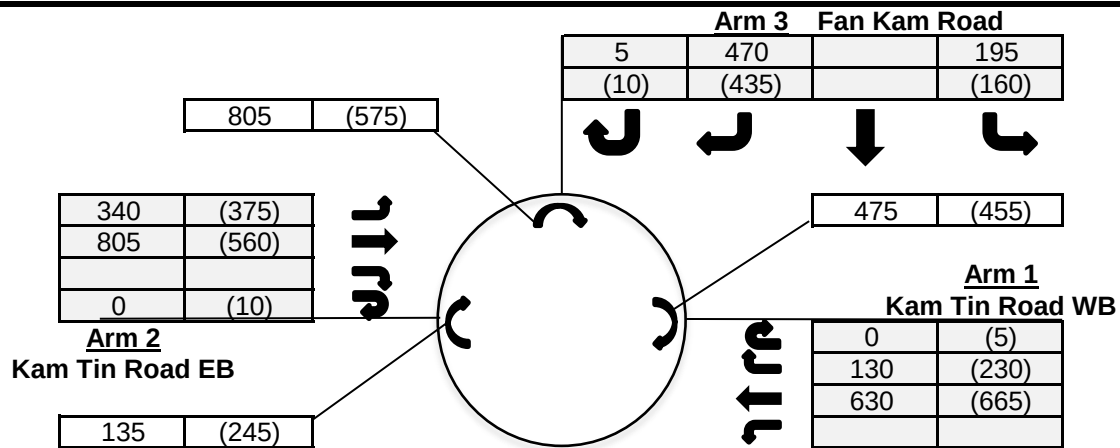
Output Parameters

			Arm 1	Arm 2	Arm 3
S	=	Sharpness of flare = $1.6 \cdot (E-V)/L$	1.03	0.13	0.46
K	=	$1 - 0.00347 \cdot (A-30) - 0.978 \cdot (1/R - 0.05)$	1.04	1.09	1.03
X2	=	$V + ((E-V)/(1+2 \cdot S))$	4.64	7.79	4.50
M	=	$\text{Exp}((D-60)/10)$	0.02	0.02	0.02
F	=	$303 \cdot X2$	1406	2360	1365
Td	=	$1 + (0.5/(1+M))$	1.49	1.49	1.49
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$	0.60	0.80	0.60
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$	AM	1163	2452
			PM	1175	2356
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.65	0.47
			PM	0.77	0.40

DFC of Critical Approach = AM 0.74
PM 0.77

Roundabout Junction Calculation

Junction : (D) Kam Tin Road / Fan Kam Road Job No.: 25009HK
 Scenario : 2034 Design Traffic Flows (With Remaining Site under LUR) (With Planned Improvement)



Input Parameters

			Arm 1	Arm 2	Arm 3
V	=	Approach half width (m)	5	7	3.2
E	=	Entry width (m)	6.5	7.5	6.5
L	=	Effective length of flare (m)	12	3.6	15
R	=	Entry radius	100	15.8	25
D	=	Inscribed circle diameter (m)	28	28	28
A	=	Entry angle (degree)	33	10	20
Q	=	Entry flow (pcu/hr)	AM	760	1145
			PM	900	945
Qc	=	Circulating flow across entry (pcu/hr)	AM	475	135
			PM	455	245

Output Parameters

			Arm 1	Arm 2	Arm 3
S	=	Sharpness of flare = $1.6 \cdot (E-V)/L$	0.20	0.22	0.35
K	=	$1 - 0.00347 \cdot (A-30) - 0.978 \cdot (1/R - 0.05)$	1.03	1.06	1.04
X2	=	$V + ((E-V)/(1+2 \cdot S))$	6.07	7.35	5.14
M	=	$\text{Exp}((D-60)/10)$	0.04	0.04	0.04
F	=	$303 \cdot X2$	1840	2226	1556
Td	=	$1 + (0.5/(1+M))$	1.48	1.48	1.48
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$	0.69	0.77	0.63
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$	AM	1556	2242
			PM	1570	2153
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.49	0.51
			PM	0.57	0.44

DFC of Critical Approach = AM 0.61
 PM 0.57

CTA Consultants Ltd.

Description: **2034 Design Traffic Flows (With Remaining Site under LUR)**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak		
						Left	Right		A.M.	P.M.			A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Kam Tin Road	W	←	A	1	3.4	0	0	1	0%	0%	1955	1955	1955	1955	1955	1955	1105	0.565	0.565	1025	0.524	0.524
Kam Tin Road	E	→	A	1	3.4	0	0	1	0%	0%	1955	1955	1955	1955	1955	1955	1100	0.563		970	0.496	
Pedestrian crossing																						
↔ Bp 2 Min. Crossing Time = 5GM + 7FGM = 12s																						
Notes:																						
									Traffic Flow (pcu / hr)								A.M. Check Phase			P.M. Check Phase		
									1100(970) → ← 1105(1025)								εy 0.565			εy 0.524		
																	L (sec) 20			L (sec) 20		
																	C (sec) 120			C (sec) 120		
																	y pract. 0.750			y pract. 0.750		
																	R.C. (%) 33%			R.C. (%) 43%		
Stage/Phase Diagram:																						
1 → ←			2 — ↑ ↓ —																			
I/G = 5s			I/G = 4s + 12s																			

CTA Consultants Ltd.

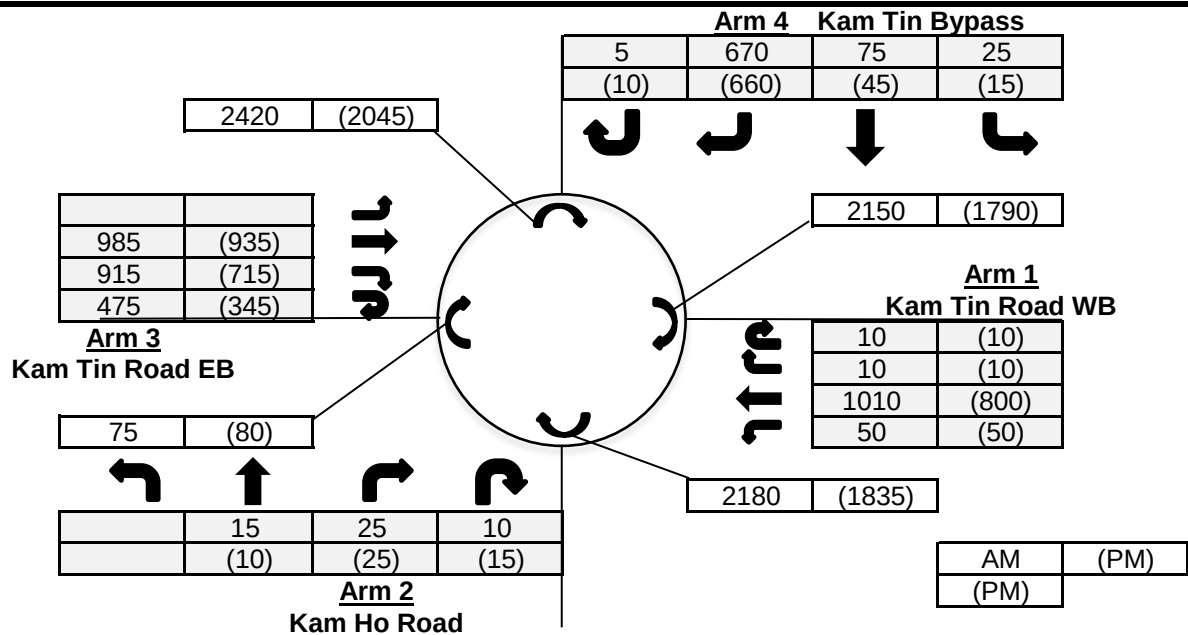
Description: 2034 Design Traffic Flows (With Remaining Site under LUR) (With Planned Improvement)

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak				
						Left	Right		A.M.	P.M.			A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y		
Kam Tin Road	W	←	A	1	4.4	0	0	1	0%	0%	2055	2055	2055	2055	2055	2055	1105	0.538	0.538	1025	0.499	0.499		
Kam Tin Road	E	→	A	1	4.4	0	0	1	0%	0%	2055	2055	2055	2055	2055	2055	1100	0.535		970	0.472			
Pedestrian crossing																								
		↔	Bp	2	Min. Crossing Time = 5GM + 6FGM = 11s																			
Notes:																								
									Traffic Flow (pcu / hr)								A.M. Check Phase				P.M. Check Phase			
									1100(970) →								← 1105(1025)				εy 0.538		εy 0.499	
																					L (sec) 19		L (sec) 19	
																					C (sec) 120		C (sec) 120	
																					y pract. 0.758		y pract. 0.758	
																					R.C. (%) 41%		R.C. (%) 52%	
Stage/Phase Diagram:																								
1 →			2																					
←			— ↑																					
			↓ —																					
I/G = 5s			I/G = 4s + 11s																					

Junction: (F) Kam Tin Road / Tsing Long Highway Slip Road																				
Description: 2034 Design Traffic Flows (With Remaining Site under LUR) (With Planned Improvement)																				
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak				
						Left	Right		A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y		
Kam Tin Road	E	→	1	A	3.65	0	0	1	0%	0%	1980	1980	995	0.502		847	0.428			
	E	→	1	A	3.65	0	0	0	0%	0%	2120	2120	1065	0.502		907	0.428			
	E	→	1	A	3.65	0	0	0	0%	0%	2120	2120	1065	0.502		907	0.428			
Kam Tin Road	W	←	2	A	3.80	0	0	0	0%	0%	2135	2135	1333	0.624	0.624	1160	0.543	0.543		
	W	←	2	A	3.80	0	0	0	0%	0%	2135	2135	1333	0.624		1160	0.543			
	W	↙	2	A	5.00	15	0	1	100%	100%	1925	1925	915	0.475		430	0.223			
Tsing Long Highway Slip Road	N	↖	3	B	3.50	20	0	1	100%	100%	1830	1830	156	0.085	0.085	216	0.118	0.118		
	N	↖	3	B	3.50	25	0	0	100%	100%	1985	1985	169	0.085		234	0.118			
	N	↗	3	B	3.60	0	30	0	100%	100%	2015	2015	166	0.082		176	0.087			
	N	↗	3	B	3.50	0	28	0	100%	100%	2000	2000	164	0.082		174	0.087			
*Pedestrian Crossing			4p	A	Min. Crossing Time			=	7 Gm + 7 Fm = 14s											
			5p	B	Min. Crossing Time			=	7 Gm + 7 Fm = 14s											
Notes:						Traffic Flow (pcu / hr) [AM (PM)]						Check Phase			Check Phase					
						3125(2660)→ ↖ ↗ 325(450) 330(350) ← ↙ 915(430)						E _y 0.709			E _y 0.661					
												L (sec) 10			L (sec) 10					
												C (sec) 120			C (sec) 120					
												y pract. 0.825			y pract. 0.825					
												R.C. (%) 16%			R.C. (%) 25%					
Stage / Phase Diagrams																				
A				B																
I/G = 5				I/G = 7																

Roundabout Junction Calculation

Junction : (G) Kam Tin Road / Kam Tin Bypass Job No.: 25009HK
 Scenario : 2034 Design Traffic Flows (With Remaining Site under LUR) (With Planned Improvement)



Input Parameters

			Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)	7.3	7.3	7.3	6.5
E	=	Entry width (m)	13	10	11	11
L	=	Effective length of flare (m)	12	9.5	13	15
R	=	Entry radius	70	20	42.5	42.5
D	=	Inscribed circle diameter (m)	88	88	88	88
A	=	Entry angle (degree)	30	38	29	39
Q	=	Entry flow (pcu/hr)	AM	1080	50	2375
			PM	870	50	1995
Qc	=	Circulating flow across entry (pcu/hr)	AM	2150	2180	75
			PM	1790	1835	80

Output Parameters

			Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = $1.6 \cdot (E-V)/L$	0.76	0.45	0.46	0.48
K	=	$1 - 0.00347 \cdot (A-30) - 0.978 \cdot (1/R - 0.05)$	1.03	0.97	1.03	0.99
X2	=	$V + ((E-V)/(1+2 \cdot S))$	9.56	8.71	9.24	8.80
M	=	$\exp((D-60)/10)$	16.44	16.44	16.44	16.44
F	=	$303 \cdot X2$	2897	2640	2799	2665
Td	=	$1 + (0.5/(1+M))$	1.03	1.03	1.03	1.03
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$	0.63	0.59	0.62	0.60
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$	AM	1599	1311	2833
			PM	1833	1510	2830
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.68	0.04	0.84
			PM	0.47	0.03	0.70

DFC of Critical Approach = AM 0.84
 PM 0.70