

PLANNING LIMITED
規劃顧問有限公司

By Email

Our Ref: S3045a/KTR/25/009Lg

26 June 2026

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

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. 4 -**

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

The Applicant would like to clarify that the proposed "R(C)4" zone is subject to a maximum domestic GFA of 8,580m² instead of a maximum plot ratio of 1.0, in order to optimise the development potential of the site irrespective of the implementation programme of the Upgrading of Kam Tin Road to be undertaken by the Government. The proposed "R(C)4" zone is also subject to a maximum building height of 6 storeys (29mPD) including car park (excluding underground utility and basement). Accordingly, the proposed Paragraph (g) under the Remarks of "R(C)" Zone on the Statutory Notes is deleted. Please refer to the revised *Figure 5.3 – Proposed Amendments to the Remarks of the "R(C)" Zone* in the Updated Planning Statement.

The Applicants would also like to clarify that there is at least 5m building setback from site boundaries of each side, some of which with landscape planting along the boundary.

In response to the departmental comments from Planning Department (PlanD) and for clarification in the Traffic Impact Assessment (TIA) in the submitted Further Information No. 3, we hereby submit a response-to-comment table with the relevant annexes:

- Annex 1 Updated Planning Statement
- Annex 2 MLP with indication of minimum setback distance from the site boundary
- Annex 3 Updated 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].



Our Ref: S3045a/KTR/25/009Lg
Date: 26 June 2026



PLANNING LIMITED
規劃顧問有限公司

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

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 Planning Department (received on 23 April 2026) Contact person: Ms Andrea YAN; Tel. No.: 3168 4049	
I refer to your submission dated 2.4.2026. It is noted that the site is involved in a withdrawn application No. Y/YL-KTN/4 submitted by the same applicants, and Site 2 under the current application was part of the proposed residential development under the withdrawn application. Please elaborate why the current scheme is pursued. Thank you.	The withdrawn S12A Application No. Y/YL-KTN/4 was submitted by the same Applicants, with the subject site involving the current Site 1 and Site 2 as well as the other adjoining land. The total site area was about 3.27 ha, half of which was zoned “O” and proposed to be rezoned to “R(C)4”. Without alternative proposal to compensate for the loss of “O” zoned land, it was considered hardly justified to gain the public support and hence the TPB approval. Besides, the site configuration presented faces more technical challenges, if not impossible, in which the location and position of the vehicular access for connecting Kam Tin Road would be constrained by the existing rural settlements to the west and the big mature tree to the east, in result of taking up more Government land and the land zoned “O”. The concerned big tree is <i>Ficus macrocarpa</i> (細葉榕) with DBH of 1.591m, height of 20m and spread of 25m^[1] (see tree location and tree photo below). It also involved the existing local footpath frequently used by the nearby residents, drawing high concerns from them on the impact to the day-to-day access, even with reprovisioning (detour) proposal. The current scheme under this S12A Application is considered to present more merits as compared to the withdrawn Y/YL-KTN/4 Scheme due to the following reasons: 1. Reduced Development Scale – The current scheme for proposed residential development at Site 1 only is aimed to yield a total domestic GFA of 8,580m² only with a flat number of about 240, about one third of that under the withdrawn one (with a total domestic GFA of not more than 30,174m² with a flat number of about 916). This would be deemed more acceptable taking into account traffic demand and the local communities’ sentiment. 2. Increase in Land Area zoned “O” – The withdrawn Y/YL-KTN/4 Scheme aimed to convert the whole subject site to “R(C)4” zone, resulting in a total loss of about 17,600m²

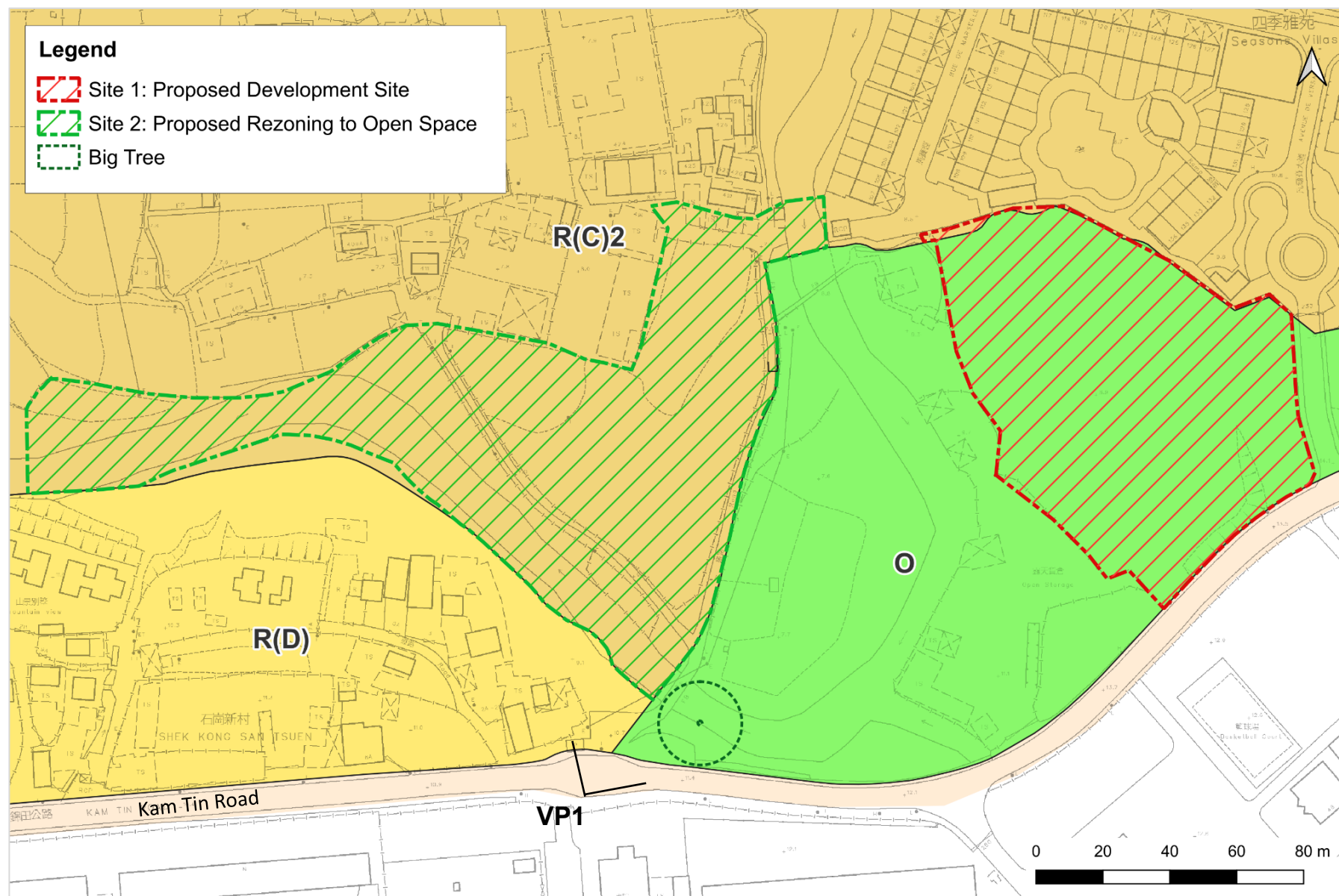
Comments	Responses
	of land area zoned “O”. In contrast, the Current Scheme will result in a net increase in “O” zoned land of about 3,807m². 3. Longer Street Frontage for Access – Under the withdrawn Y/YL-KTN/4 Scheme, there was technical challenge and constraint for the location and position of the vehicular access for connecting Kam Tin Road. In contrast, the subject site under the Current Scheme has longer and direct frontage along Kam Tin Road (about 57m). 4. Limited Impact to Existing Use / Nearby Residents – Under the withdrawn Y/YL-KTN/4 Scheme, the existing local footpath frequently used by the nearby residents would be affected. Under the current scheme, Site 2 is zoned “Open Space” and the local context including the existing footpath and light poles will be unaffected should there be no particular implementation program of the open space by the Government. 5. No Decking Over Existing Watercourse Needed – Under the withdrawn Y/YL-KTN/4 Scheme, it requires decking over the existing watercourse for residential development. Under the current scheme, the existing topography and the existing watercourse in Site 2 will not be affected for residential development. More importantly, the proposed aggregated site area (for Sites 1 & 2) is primarily owned by the Applicants. The synergizing proposal represents a win-win situation in which there will not only been an increase in “Open Space” zoned land area, but also ensuring the implementation certainty of the planned residential development in Site 1. Note: [1] Based on Tree Survey conducted on 15th and 16th Jan, 4th Apr and 26th Jun 2022; and 19th Mar 2024; for the withdrawn S12 Application No. Y/YL-KTN/4.

Encl.:**Location of the concerned *Ficus macrocarpa* (細葉榕)****Annex 1: Updated Planning Statement****Annex 2: MLP with indication of minimum setback distance from the site boundary****Annex 3: Updated Traffic Impact Assessment**

Compiled by: KTA

Date: 26 June 2026

File Ref.: 20260626_s3045a_RtC FI4



Location of the concerned *Ficus macrocarpa* (細葉榕) (T112)



Tree photo of the concerned *Ficus macrocarpa* (細葉榕) (T112) viewed from VP1

Annex 1

Updated Planning Statement

**S12A AMENDMENT OF PLAN APPLICATION
APPROVED KAM TIN NORTH OZP NO. S/YL-KTN/11**

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.

AND

Rezoning from “Residential (Group C) 2” to “Open Space” zone at Lot Nos. 121, 137, 138, 139 S.A and 139 RP (part) in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.

SUPPORTING PLANNING STATEMENT

June 2026 (Rev. 1)

Applicants:

**Kimpton Investments Limited
Pacific Top Development Limited
Worldchamp Investments Limited**

Consultancy Team:

**KTA Planning Ltd.
CTA Consultants Ltd.
Mott MacDonalds Hong Kong Ltd.
Ramboll Hong Kong Ltd.
Scenic Landscape Studio Ltd.
Westwood Hong & Associates Ltd.
Greg Wong & Associates Ltd.**



PLANNING LIMITED
規 劃 顧 問 有 限 公 司

Executive Summary

This Planning Application is prepared and submitted on behalf of **Kimpton Investments Limited, Pacific Top Development Limited** and **Worldchamp Investments Limited** (the “Applicants”) to seek approval from the Town Planning Board (“TPB”/the “Board”) under section 12A of the Town Planning Ordinance for:

- (1) rezoning of the Site from “Residential (Group C) 2” (“R(C)2”) and “Open Space” (“O”) to “Residential (Group C) 4” (“R(C)4”) under the approved Kam Tin North Outline Zoning Plan (“OZP”) No. S/YL-KTN/11, to enable the proposed residential development (“Proposed Development”) at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and adjoining Government land, Kam Tin Road, Shek Kong, Yuen Long (“Site 1” / “Development Site”); and
- (2) rezoning of the Site from “R(C)2” to “O” under the same approved OZP at Lot Nos. 121, 137, 138, 139 S.A and 139 RP (part) in D.D. 110 and adjoining Government land, Kam Tin Road, Shek Kong, Yuen Long (“Site 2”).

With the unique site characteristics and changing strategic planning circumstances of the Kam Tin area from rural to suburban township, it is proposed to rezone the Development Site (Site 1), with a total site area of about **8,580m²**, for residential development. Site 1 involves about 8,496m² of land zoned “O” and 84m² of land zoned “R(C)2” under the prevailing OZP. **The proposed total maximum domestic Gross Floor Area (“GFA”) is 8,580m², equivalent to a domestic PR of 1.0,** providing about a total of 240 residential units. It comprises a total of 6 nos. of residential towers with 6 storeys **(29mPD)** (including G/F for entrance lobby / car park / E&M facilities, **but excluding underground utility and basement**). The clubhouse is not more than one-storey high above ground; sewage treatment plant (STP) involves one storey above ground and one-storey tank below ground; the stormwater storage tank (SST) involves one storey below ground. With site formation level at 10.4mPD, the referencing building height is about **29mPD**.

Meanwhile, the Applicants also propose rezoning of a site (namely “Site 2”) from “R(C)2” to “O”, which is located to the immediate west of the prevailing “O” zone that the Development Site falls within. Site 2 has an area of about **12,303m²**. As a result, there will be a **net increase in about 0.38 ha** in total area of “Open Space” zone under the prevailing Kam Tin North OZP.

The proposal is fully justified based on the following reasons:

- The Proposed Rezoning is In-line with Government’s policies on increasing housing land supply;
- The Sites are highly suitable for residential development and public open space respectively, in view of land use compatibility, accessibility, as well as coherence and tranquility of the open space to be maintained.

- The existing local access falling within an area currently zoned “R(C)2” zone, which is frequently used by the nearby villagers and residents will be retained in the proposed “Open Space” zone in Site 2;
- The Proposed Development will unleash the development potential of the “Open Space” Zone which has been long designated without any development program in the Application Site;
- The Development Proposal has devised an appropriate development intensity in the Proposed “R(C)4” Zone;
- The Proposed Scheme has incorporated various urban design merits;
- The Proposed Development is readily implementable; and
- Various technical assessments have been carried out and the findings concluded that the Proposal is technically feasible.

In light of the above, support on this Planning Application from the members of the TPB is respectfully requested.

行政摘要 (內文如有差異，應以英文版本為準)

本規劃申請書是代表金濤投資有限公司(Kimpton Investments Limited)、恒泰發展有限公司(Pacific Top Development Limited)及集威投資有限公司(Worldchamp Investments Limited)(下稱「申請人」)根據城市規劃條例第 12A 條，向城市規劃委員會(下稱「城規會」)申請修訂錦田北分區計劃大綱核准圖編號 S/YL-KTN/11(下稱「核准圖」)，將：

- (一)、位於新界丈量約份第 110 約地段第 519 號餘段(部分)及第 520 號餘段和毗連政府土地的用地(下稱「地盤一」)，由「住宅(丙類)2」地帶及「休憩用地」地帶改劃為「住宅(丙類)4」地帶，以作住宅發展用途；
- (二)、位於丈量約份第 110 約地段第 121 號、第 137 號、第 138 號、第 139 號 A 段及第 139 號餘段(部分)及毗連政府土地的用地(下稱「地盤二」)，由「住宅(丙類)2」地帶改劃為「休憩用地」地帶。

考慮到申請地點的錦田地區逐漸由鄉郊轉型為郊區鄉鎮，申請人致力將地盤一內面積約 8,580 平方米的用地改劃作住宅發展，當中「休憩用地」地帶面積佔約 8,496 平方米，而「住宅(丙類)2」地帶約 84 平方米。此擬議發展的最高住用樓面面積為 8,580 平方米，相當於住用地積比率 1.0，提供約 240 個住宅單位。發展項目包括 6 座 6 層高的住宅樓宇(主水平基準上 29 米)(包括 1 層地下住宅大堂/停車場/機電設施，不包括地下公用設施及地庫)。住客會所不高於地面 1 層；和污水處理廠包括地面一層及地底一層的儲水池；而蓄洪池則位於地下一層。地盤的平整水平為主水平基準上 10.4 米，建築物的高度為主水平基準上約 29 米。

此外，申請人提出將現時位於地盤一所屬的「休憩用地」地帶以西的地盤二，由「住宅(丙類)2」地帶改劃為「休憩用地」地帶，而地盤二的面積佔約 12,303 平方米。因此，擬議發展將為錦田北分區計劃大綱核准圖的「休憩用地」地帶總面積帶來約 0.38 公頃的淨增長。

擬議發展計劃理據如下：

- 擬議改劃方案與政府現時推行的積極增加房屋土地供應的政策相符合；
- 申請地點交通方便，適合分別用作住宅發展及休憩用地用途，擬議用途亦與鄰近土地用途協調，而當中就地盤二擬議改劃作「休憩用地」地帶，可維持休憩用地的完整性及寧靜環境；
- 因應地盤二擬議由「住宅(丙類)2」地帶改劃作「休憩用地」地帶，位處地盤二之內而鄰近村民及居民常用的行人通道得以保留；
- 擬建發展將釋放位處申請地點內尚未落實的「休憩用地」地帶的發展潛力；
- 擬議方案在擬議的「住宅(丙類)4」地帶制定了合適的發展密度；
- 建議發展將採納多項設計優點以與周邊環境融合，同時改善錦田鄉郊環境；
- 擬議發展可以迅速落實發展；及
- 申請人已進行了各種技術評估，結果均證明該發展方案是技術上可行的。

根據以上各點，申請人懇請是次的修訂圖則申請能獲得城規會支持。

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S12A AMENDMENT OF PLAN APPLICATION
Approved Kam Tin North OZP No. S/YL-KTN/11

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 adjoining Government land, Shek Kong, Yuen Long, N.T.

AND

Rezoning from “Residential (Group C) 2” to “Open Space” 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.

Supporting Planning Statement

1. INTRODUCTION

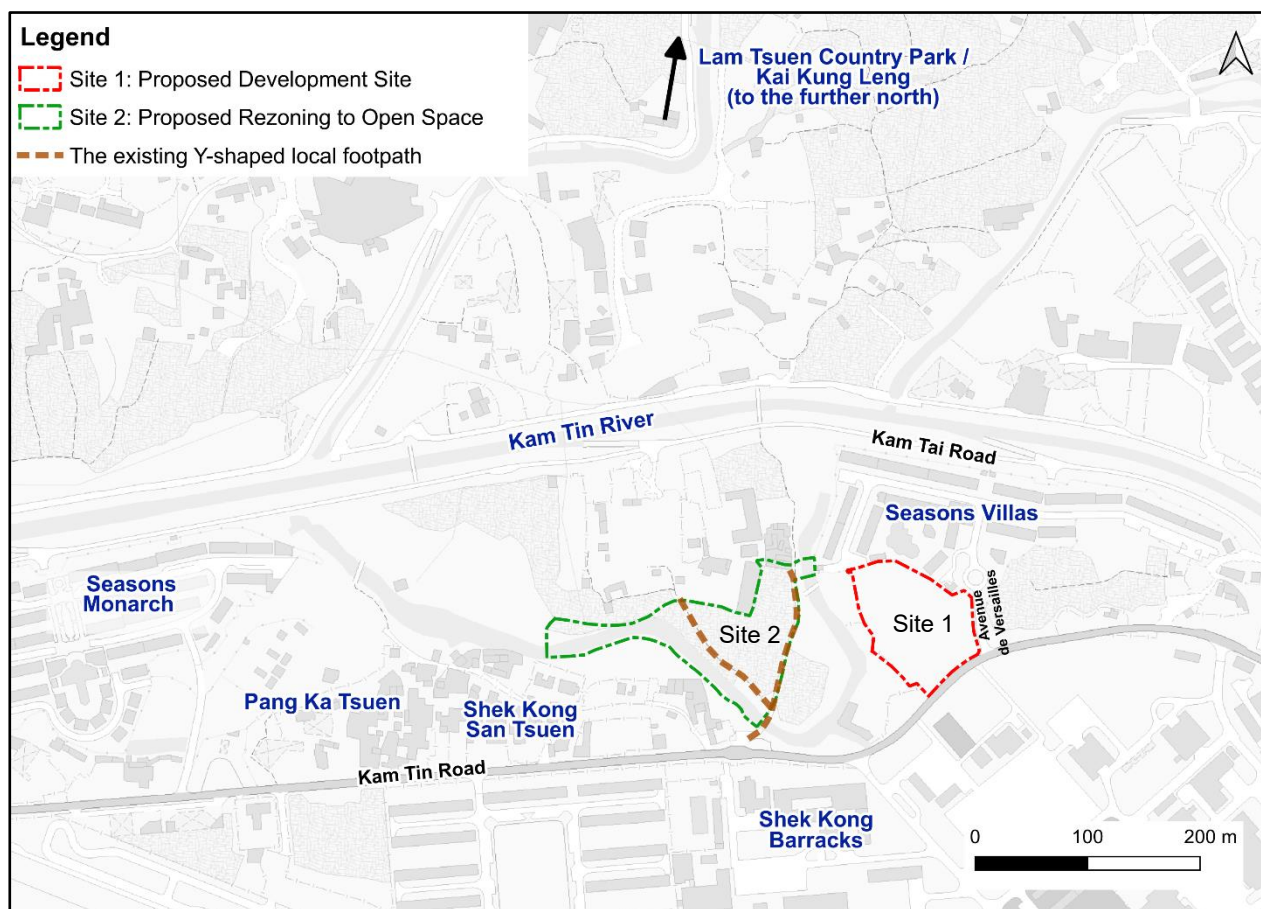
1.1 Purpose

1.1.1 This Amendment of Plan Application is prepared and submitted on behalf of Kimpton Investments Limited, Pacific Top Development Limited and Worldchamp Investments Limited (the “Applicants”) to seek approval from the Town Planning Board (“TPB”/the “Board”) under section 12A of the Town Planning Ordinance for (1) rezoning of an area from “Residential (Group C) 2” (“R(C)2”) and “Open Space” (“O”) to “Residential (Group C) 4” (“R(C)4”) under the approved Kam Tin North Outline Zoning Plan (“OZP”) No. S/YL-KTN/11, to enable the proposed residential development (“Proposed Development”) at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and adjoining Government land, Kam Tin Road, Shek Kong, Yuen Long (“Site 1” / “Development Site”); and (2) rezoning of an area from “R(C)2” to “O” under the approved OZP at Lot Nos. 121, 137, 138, 139 S.A and 139 RP (part) in D.D. 110 and adjoining Government land, Kam Tin Road, Shek Kong, Yuen Long (“Site 2”) (**Figure 1.1** refers). “Site 1” and “Site 2” altogether form the Application Site. This Supporting Planning Statement is to provide the TPB with the necessary information to facilitate consideration of this Planning Application.

1.2 Report Structure

1.2.1 Following this introductory section, the Application Site and the related statutory and non-statutory Planning Context will be set out in Section 2. Discussions of “R(C)” and “O” zones are outlined in Section 3. The Indicative Development Scheme for the Proposed Development will be described in Section 4. Section 5 will outline the proposed zoning amendment while the planning merits and justifications for the Proposed Development will be stated in Section 6. Section 7 concludes and summarizes this Supporting Planning Statement.

Figure 1.1: Site Location Plan



2. SITE AND PLANNING CONTEXT

2.1 Site Location and Surrounding Condition

- 2.1.1 The Application Site is located in Kam Tin North. The Application Site abuts Kam Tin Road to its immediate south. Two low-rise, low-density residential developments in the same “R(C)2” zone that Site 2 falls within, namely Seasons Villas and Seasons Monarch, are located to the immediate north-east and further west. Rural settlements including Shek Kong San Tsuen and Pang Ka Tsuen are located to the west of the Site. The areas to the immediate southwest of Site 1 is an open storage site. Shek Kong Barracks is located to the south of the Site across Kam Tin Road (**Figure 1.1** refers).
- 2.1.2 Site 1 sits on a gently sloping land with gradient gradually descending from the southeast at about +13.50mPD towards the northwest at about +8.10mPD in general. Site 1 is currently sparsely vegetated. Site 2 involves vegetated land gradient gradually descending from the north at about +8.30mPD to the lowest point at the west at about +7.0mPD. The watercourse runs from the south towards the west. Site 2 also involves a “Y-shaped” local footpath, which connects the pavement along Kam Tin Road to the south via a local footbridge across the watercourse with the rural settlements to the north of Site 2 (**Figure 2.1** refers).



Existing View of Site 1 from Kam Tin Road



Existing vegetation at Site 1



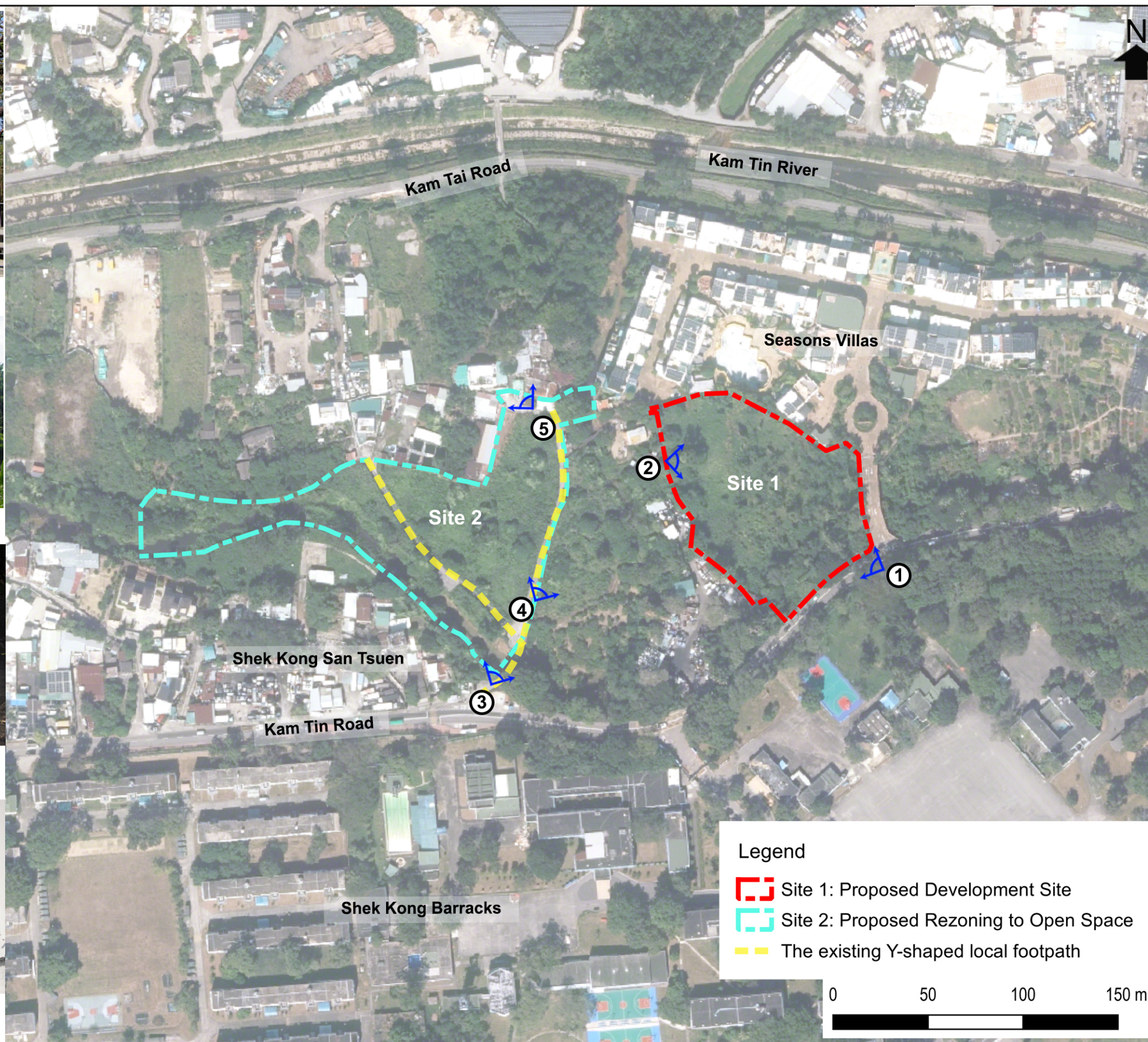
Existing entrance of local access in Site 2 connecting the local village / rural settlements with Kam Tin Road



Existing Y-shaped local footpath in Site 2



Domestic rural settlements to the north of Site 2



2.2 Land Status

2.2.1 The Site is composed of various Lots in DD 110 and adjoining Government Land (**Figure 2.2** refers). It has a total site area of about 20,883m², including Site 1 (about 8,580m²) and Site 2 (about 12,303m²). In Site 1, there is about 572m² of Government land involved, which mainly refers to the strip of Government land between Lot 519 RP (part) in D.D. 110 and the northern footpath along Kam Tin Road, which is deemed necessary for the Development Site to have street frontage and run in/out connecting Kam Tin Road. The distribution of private land and Government land is listed in **Table 2.1** while the ownership pattern of the private lots is listed in **Table 2.2**.

Table 2.1: Land Status

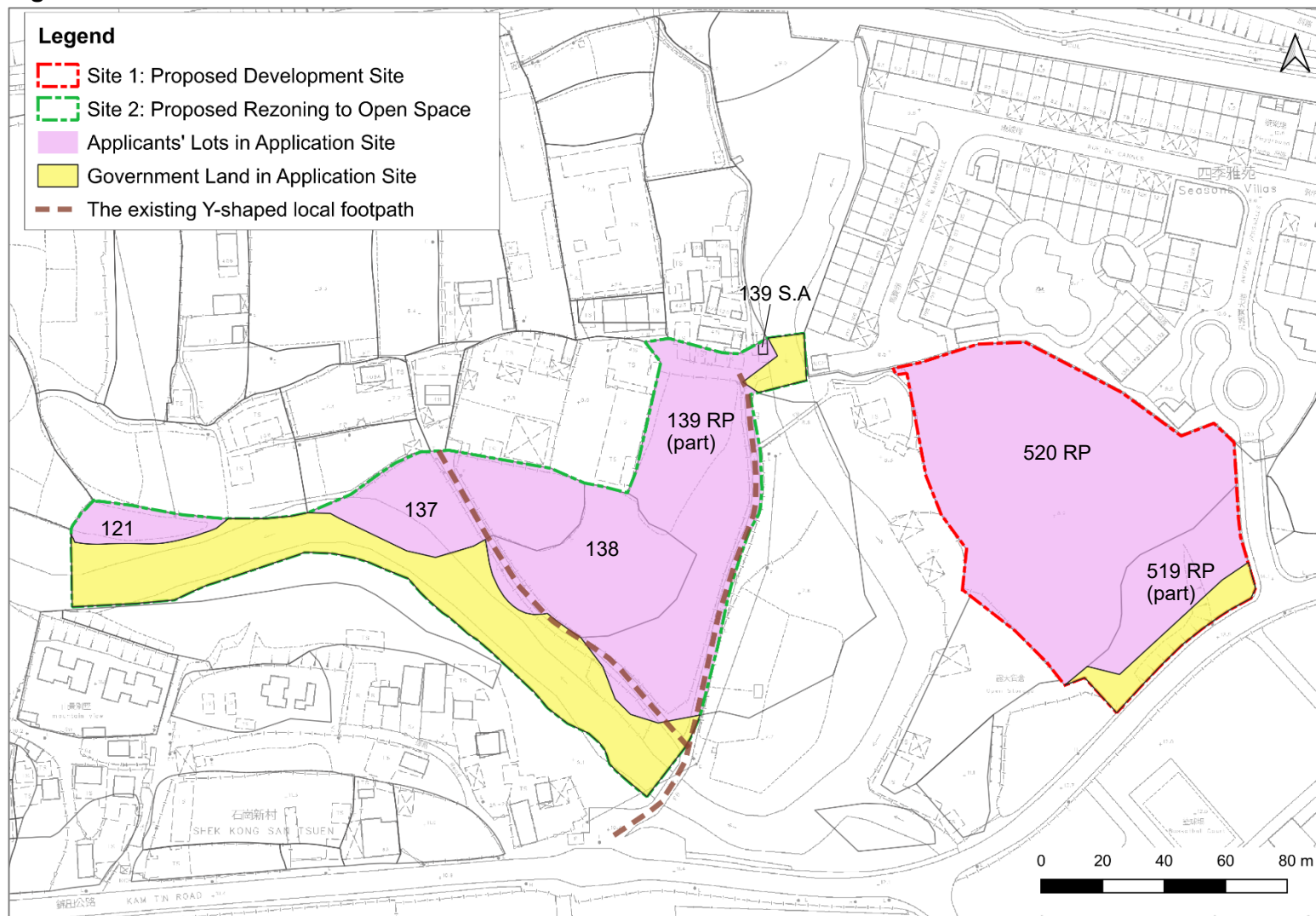
Area in Prevailing Zonings (m ²) (approx.)	Private Lot (m ²) (approx.)	G. Land (m ²) (approx.)	Total (m ²) (approx.)
Site 1: Development Site (Proposed Rezoning to “R(C)4”)			
R(C)2	84	0	84
O	7,924	572	8,496
Total	8,008 (93.3%)	572 (6.7%)	8,580 (100%)
Site 2: Open Space (Proposed Rezoning to “O”)			
R(C)2	8,255 (67.1%)	4,048 (32.9%)	12,303 (100%)
OVERALL			
OVERALL	16,263 (77.9%)	4,620 (22.1%)	20,883 (100%)

Note: The area of the private land is based on measurement in GIS only; the accurate area is subject to land survey when setting out the site boundary.

Table 2.2: Ownership of the Private Lots Involved

Private Lot in D.D. 110	Owner
Site 1: Development Site (Proposed Rezoning to “R(C)4”)	
Lot 519 RP (part)	Pacific Top Development Limited
Lot 520 RP	Pacific Top Development Limited
Site 2: Open Space Zone (Proposed Rezoning to “O”)	
Lot 121	Kimpton Investments Limited
Lot 137	Worldchamp Investments Limited
Lot 138	Worldchamp Investments Limited
Lot 139 S.A	Worldchamp Investments Limited
Lot 139 RP (part)	Worldchamp Investments Limited

Figure 2.2: Land Status Plan



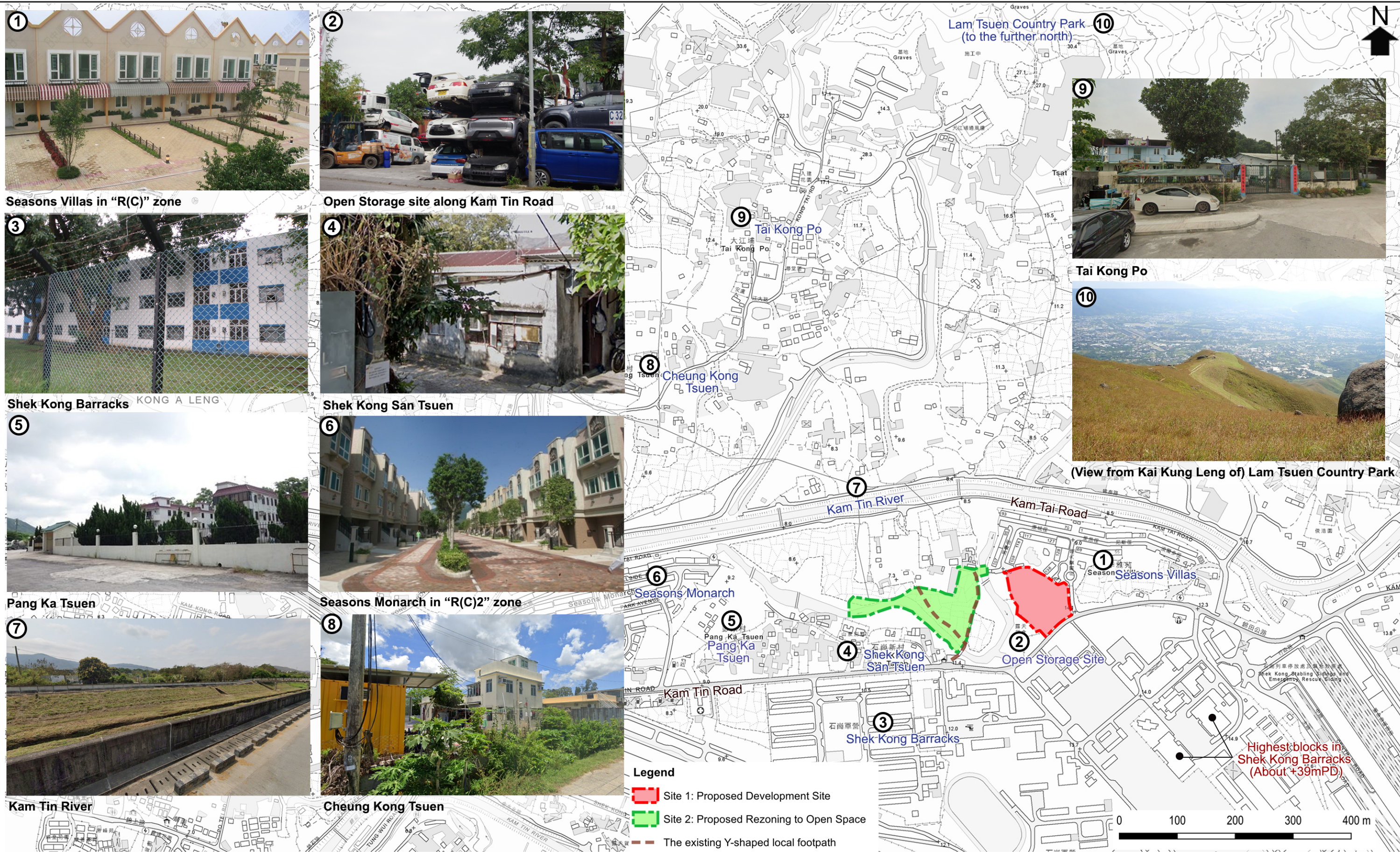
2.3 Surrounding Context

2.3.1 The Site is located in an area with mixed land uses including village settlements, low-rise residential development, temporary workshops and open storages (**Figure 2.3** refers). Details of surrounding land uses are as follows:

- In a wider context, the Application Site lies at the bottom of a valley surrounded by slopes of the summit of Kai Kung Leng, Lam Tsuen Country Park to the further north.
- Predominantly low-rise settlements are found in Cheung Kong Tsuen, Tai Kong Po and Tsat Sing Kong at the foothill of Kai Kung Leng, in the north across Kam Tai Road and Kam Tin River.
- There are low-rise, low-density residential developments, namely Seasons Villas and Seasons Monarch, located to the immediate north-east of the Application Site (to the immediate north of Site 1) and further west to the Application Site.
- Low-rise rural settlements in Shek Kong San Tsuen and Pang Ka Tsuen are found to the west of the Site.
- Kam Tin River runs in parallel to Kam Tai Road to the north.
- Kam Tin Road is located to the south, with the proposed vehicular access of the Development Site (Site 1) immediately abutting Kam Tin Road. Shek Kong Barracks (with blocks of building heights ranging from about +15mPD to +39mPD) are located to the south of the Application Site across Kam Tin Road.
- The existing open storage site of vehicle components at the immediately south-west of Site 1 sits on a piece of paved land.
- Some land parcels in Kam Tin South located to the further south-west of the Application Site have been reserved for various residential developments (with rezoning yet to be initiated) with plot ratio ranging from 0.8 to 3 under Government's Land Use Review for Kam Tin South and Pat Heung.
- The existing Kam Sheung Road Station and Pat Heung Maintenance Centre located about 1.5km and 2km south-west of the Application Site respectively have been planned for high-rise residential/commercial developments with maximum building heights ranging from +69mPD to +109mPD.

Shek Kong Barracks

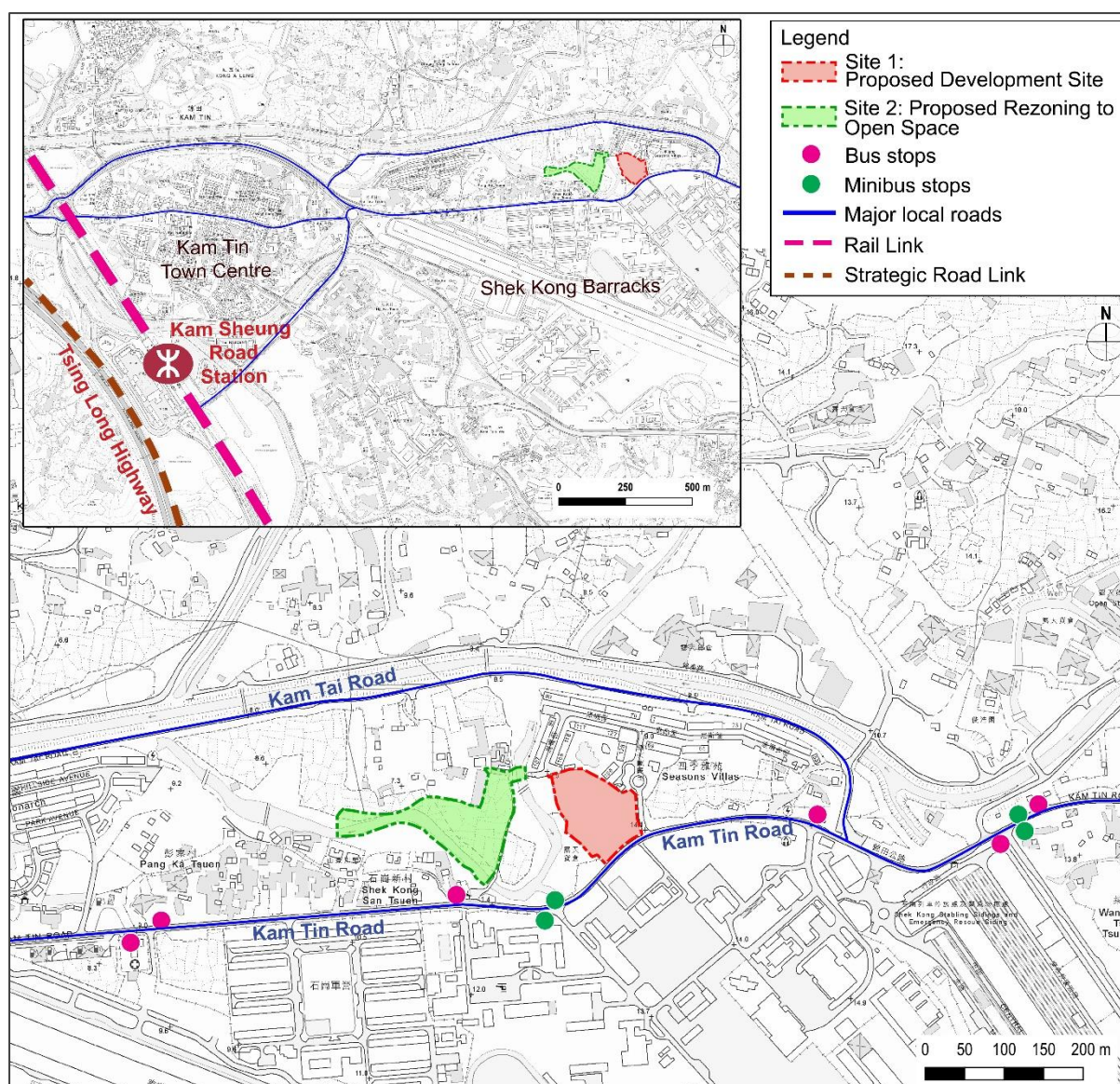
- 2.3.2 Shek Kong Barracks with Shek Kong Airfield is located to the south of the Development Site. Developments in close proximity to Shek Kong Airfield is subject to building height restriction of about +69mPD, as referred to the Plan of the Shek Kong Airfield Height Restriction No. YLM6917a. Developments in the Area would also be subject to occasional aircraft noise from aircraft operations at the Shek Kong Airfield (Para. 5.5 of Explanatory Statement of the approved KTN OZP refers).



2.4 Accessibility

2.4.1 As shown in **Figure 2.4**, both Site 1 and Site 2 are accessible via Kam Tin Road. Both sites are served by various franchised buses and minibuses which provide feeder public transport services to Kam Sheung Road MTR Station, Yuen Long Town Centre and Sheung Shui Town Centre. Bus/minibus stops along Kam Tin Road are within short walking distance from the Site. On a regional scale, the Site being in Kam Tin North, is strategically located in proximity to Kam Tin Town Centre and connected with the urban areas by strategic rail (i.e. West Rail Line) and road (i.e. Tsing Long Highway) link.

Figure 2.4: Local Accessibility of the Application Site (Site 1 and Site 2)



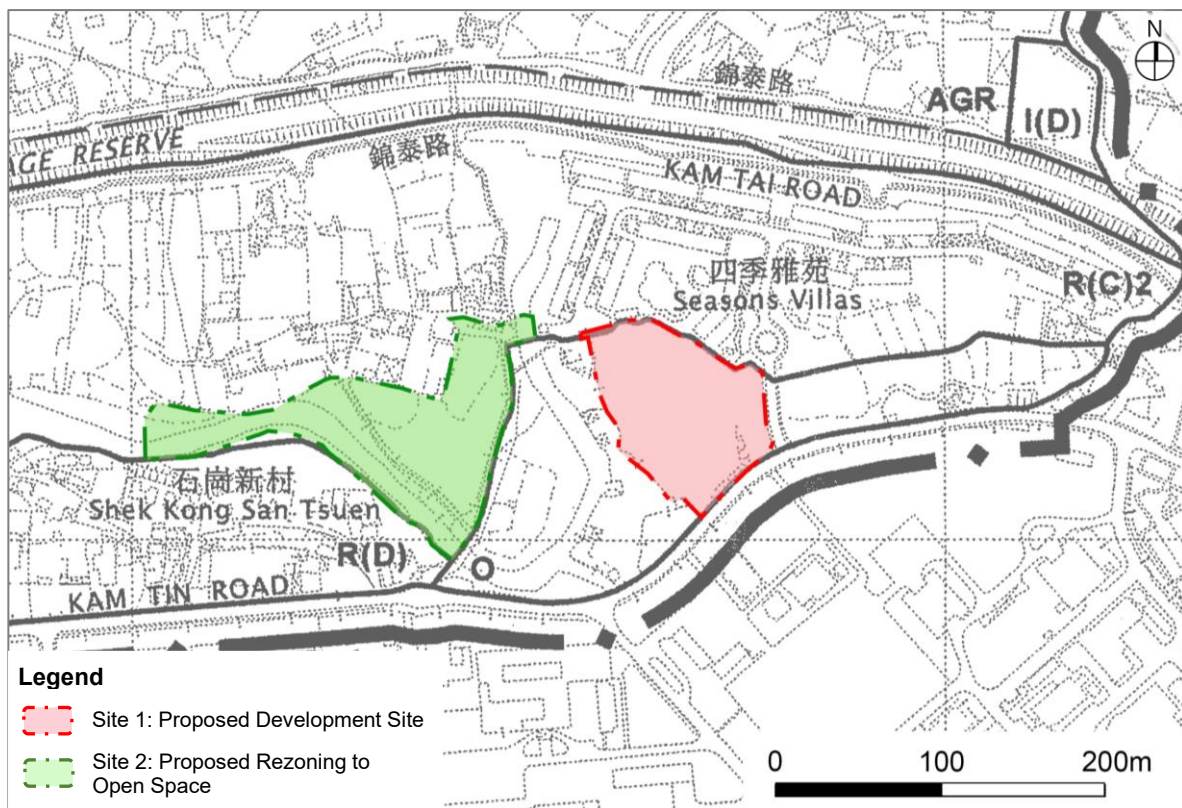
2.5 Zoning History

- 2.5.1 The Site was first zoned “Unspecified Use” on the Draft Kam Tin North Interim Development Permission Area (“DPA”) Plan No. IDPA/YL-KTN/1 gazetted on 5 October 1990. It was later re-zoned to “Residential (Group C) 2” (“R(C)”2) and “Open Space” (“O”) zone on the Draft Kam Tin North OZP No. S/YL-KTN/1 gazetted on 17 June 1994. Since then, the zoning of the Site remains unchanged.

2.6 Statutory Planning Context

- 2.6.1 Site 1 falls primarily within an area zoned “Open Space” (“O”) with a minor portion of it in the north falling within the “Residential (Group C) 2” (“R(C)”2) zone, while Site 2 falls entirely within an area zoned “R(C)”2 on the prevailing approved OZP No. S/YL-KTN/11 (**Figure 2.5** refers).
- 2.6.2 The planning intention of the “R(C)”2 zone, according to the Notes of the Approved OZP, is intended primarily for *“low-rise, low-density residential developments where commercial uses serving the residential neighbourhood may be permitted on application to the Town Planning Board”*. The Remarks of the Statutory Notes of the “R(C)”2 zone also specify that *“no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum plot ratio of 0.4 and a maximum building height of 3 storeys (9m) including car park”*.
- 2.6.3 In addition, the planning intention of the subject “O” zone is intended primarily *“for the provision of outdoor open-air public space for active and/or passive recreational uses serving the needs of local residents as well as the general public”*.

Figure 2.5: Zoning Context Plan



(Extracted from Approved OZP No. S/YL-KTN/11)

2.7 Site Boundary Setting-out

- 2.7.1 For Site 1 proposed for residential development, it covers entirely Lot 520 RP and Lot 519 RP (part) in D.D. 110 bounded by Avenue de Versailles to the east. Site 1 also covers the strip of Government land to the southeast of Lot 519 RP (part) in D.D. 110 bounded by Kam Tin Road to allow for street frontage and run in/out connecting to Kam Tin Road. This strip of Government land largely encroaches onto Kam Tin Road widening planned by Highways Department (HyD)¹. Should this S12A be approved and the strip of Government land be granted to the Applicants, the Applicants are willing to reserve and surrender the part of land for Kam Tin Road widening upon request by the Government in the future.
- 2.7.2 For Site 2 proposed for rezoning to “Open Space” zone, it mainly covers the private lots owned by the Applicants, which are currently zoned “R(C)2”, including Lot Nos. 121, 137, 138, 139 S.A and 139 RP (part) in D.D. 110, as well as the adjoining Government land bounded by the “Residential (Group D)” zone and the subject site of the approved S16 Planning Application No. A/YL-KTN/761 to the south.

¹ The actual program for the road widening of Kam Tin Road by Highways Department is yet to be confirmed.

2.7.3 Considerations of site boundary setting-out are illustrated in **Figures 2.6 and 2.6a** below.

Figure 2.6: Considerations of Site Boundary Setting-out

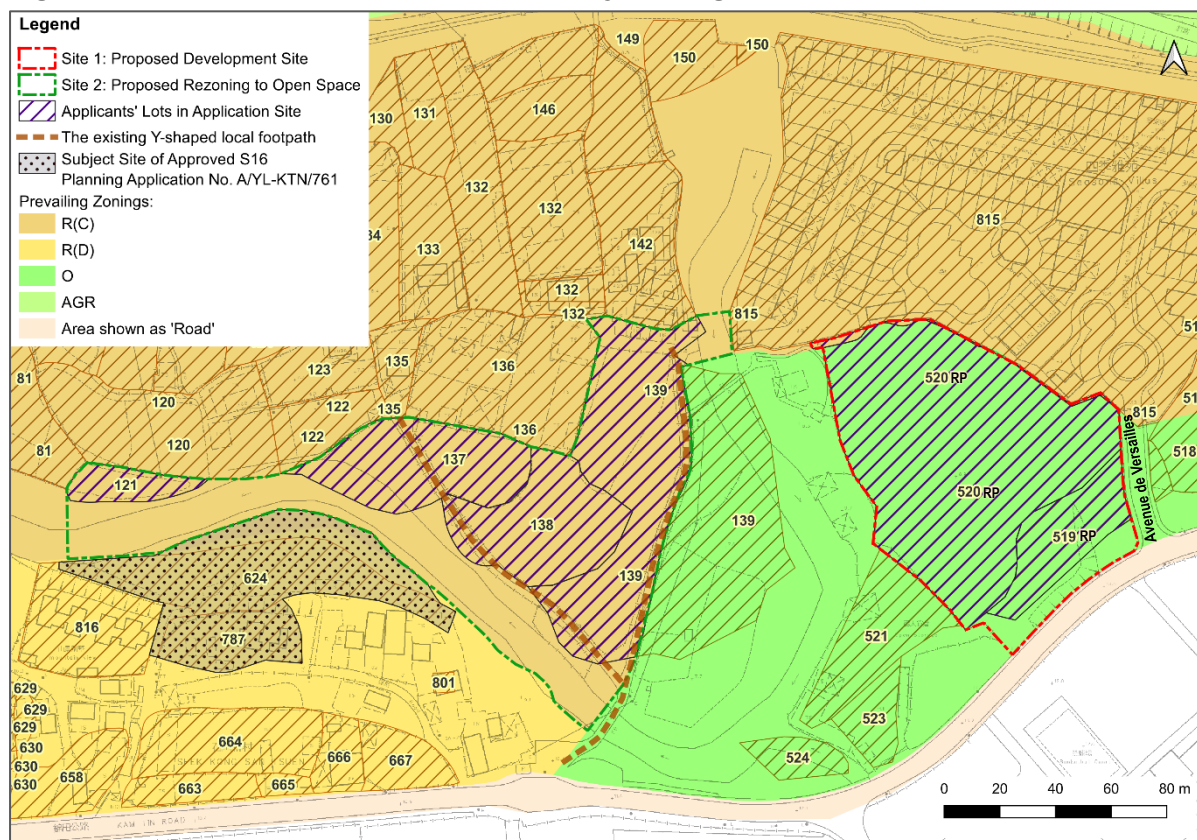
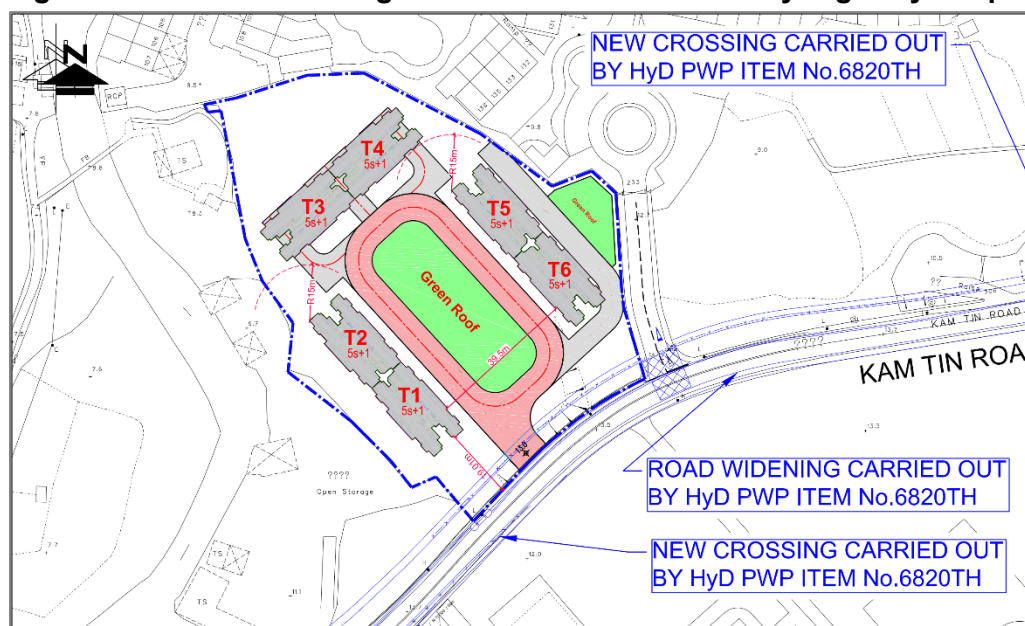


Figure 2.6a: Road Widening Scheme of Kam Tin Road by Highways Department



(extracted from Figure 2.2 of TIA in Appendix 6)

2.8 Government's Policies to Increase Housing Supply

2.8.1 The Government has put strong emphasis on increasing supply of housing land since ten more years ago to resolve the housing and land shortage problems in Hong Kong, even though the market value of private residential properties is dropping in the recent years. Some of the major policies to increase housing land supply are highlighted as follows:

Long Term Housing Strategy

2.8.2 The Long Term Housing Strategy ("LTHS") was first released by the Transport and Housing Bureau on 16 December 2014 to address the structural issues pertaining to Hong Kong's housing problem, and is being updated annually to make timely adjustments accordingly. With reference to the latest Annual Progress Report released in November 2024, the Government will put forward the following three directions:

- (a) To continue adopting the "supply-led" and "flexible" principles to increase housing supply;
- (b) To enhance the housing ladder to promote home ownership among young people; and
- (c) To safeguard the rational use of public rental housing (PRH) resources and encourage PRH tenants to move up the housing ladder.

2.8.3 Based on the latest Annual Progress Report of LTHS, the total housing supply target for the ten-year period from 2025-26 to 2034-35 is around 440,000 units, including public and **private housing supply target** of 308,000 units and **132,000 units** respectively. The public/private split for the supply of new housing units would maintain at 70:30. The Government will make available land capable of providing around **80,000** private housing units through land sale and railway property developments in the coming five years.

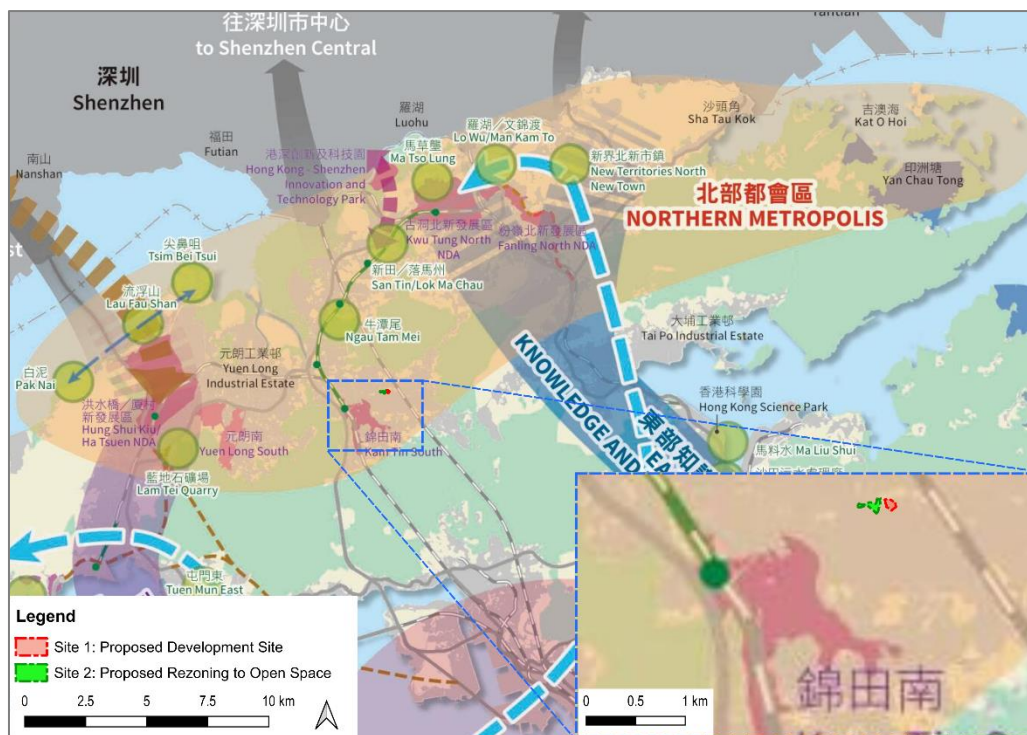
Task Force on Land Supply

2.8.4 The Government endorsed the final report completed by the Task Force on Land Supply (the "Task Force") by end of 2018 with recommendations to the overall land supply strategy and prioritizing different land supply options for the Government. **"Unleashing development potential of private agricultural land" in the NT is one of the three short-to-medium term supply options suggested by the Task Force after wide consultations with the public.** In this regard, the Applicants' intention in rezoning the inactive and privately own agricultural land within the Site for residential uses echoes with the policy directive of delivering housing supply in short to medium term.

The Northern Metropolis Development Strategy

- 2.8.5 The *Northern Metropolis Development Strategy* (“the Development Strategy”) is formulated on the basis of the HK 2030+, which is unveiled in the Policy Address 2021, to meet the medium to long term land demand. The Northern Metropolis encompasses an area of about 30,000 hectares, covering two district administration areas: Yuen Long and North Districts, which include the new towns in Yuen Long, Tin Shui Wai, Fanling / Sheung Shui, various NDAs and development nodes in different planning and construction stages as well as their neighbouring rural areas. The Northern Metropolis is aimed to provide multi-functional land uses with highly concentrated residential and working population to drive the economic development in Hong Kong for the next 20 years, which would be the major source of housing supply in the period of 10 to 15 years after 2031-32. The extent of the Northern Metropolis would marginally cover the areas of Kam Tin North including the Application Site (**Figure 2.7** refers).

Figure 2.7: The Application Site within the Northern Metropolis

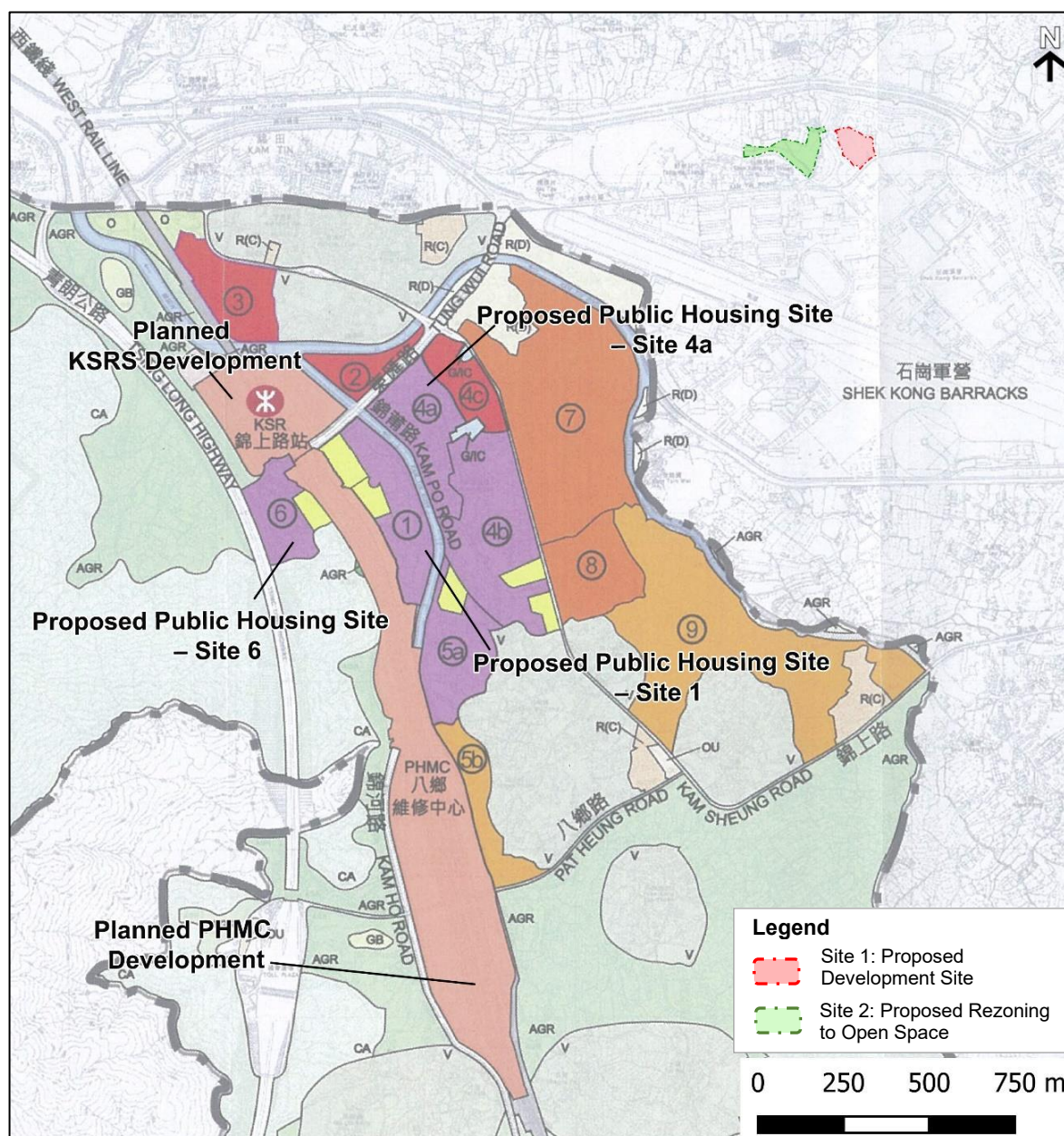


2.9 Land Use Review of Kam Tin South and Pat Heung

- 2.9.1 As announced in the 2013 Policy Address, the Government would increase the supply of housing land in short to medium term by taking forward the planning for residential development at West Rail Line (“WRL”) Kam Sheung Road Station (“KSRS”) and Pat Heung Maintenance Centre (“PHMC”) as well as conducting engineering studies to identify potential land for both public and private housing development in the adjoining Kam Tin South area.

- 2.9.2 In March 2014, Planning Department and the Mass Transit Railway Corporation Limited have jointly completed a land use review (“LUR”) for Kam Tin South and Pat Heung Area with the aim to identify suitable sites within the study area of about 785 hectares, which falls within the boundary of the Kam Tin South OZP. As illustrated in **Figure 2.8** and **Table 2.3**, a total of 14 potential development sites with a total area of about 152 hectares had been identified in Kam Tin South area for both private and public housing developments. The Application Site is located at about 1.3km north-east to these potential development sites in the LUR.
- 2.9.3 According to the LUR, the Kam Tin South area will be developed into a suburban township, where potential housing developments are planned within walking distance from the KSRS. The development intensity of the 14 nos. of potential development sites has paid due consideration to the building height restrictions of the Shek Kong Airfield. The KSRS and PHMC sites and the adjoining public housing sites are allocated with the maximum plot ratio (PR) of 3.0 and maximum building heights (BHs) ranging from 69mPD to 109mPD where appropriate. For private housing sites further away from the railway station, a lower PR and BHs have been designated.

Figure 2.8: Potential Development Sites identified in the Land Use Review for Kam Tin South and Pat Heung



- 2.9.4 The KSRS and PHMC sites (with a total area of about 41 hectares) are reserved for private residential/commercial developments. Five sites (with a total area of 40 hectares) adjacent to the KSRS are designated for medium-density public housing development. The rest of the potential housing sites (about 71 hectares) are designated for private residential use. As shown in **Table 2.3**, upon full development, the total of 14 sites (illustrated in **Figure 2.8** above) would produce over 35,400 flats for a total population of over 90,000. Various GIC and commercial facilities would be provided appropriately to serve the future population intake.
- 2.9.5 5 out of 14 sites identified in the LUR (i.e. KSRS site, PHMC site and Public Housing Sites 1, 4a and 6) were rezoned in 2015 and 2017 for residential and related uses, including “Residential (Group A)” (R(A)) and “Other Specific Uses” (“OU”) annotated “Railway Station and Public Transport Interchange with Commercial/Residential Development”, and “Railway Station and Public Transport Interchange with Commercial/Residential Development)” subject to a plot ratio restriction of 3 and building height restrictions ranging from 69mPD to 109mPD. The remaining 9 sites (i.e. Sites 2, 3, 7, 4b, 4c, 5a, 5b, 8 and 9) with rezoning yet to be initiated for residential uses with target PR ranges from 0.8 to 3 are currently zoned “AGR”, “CDA”, “R(C)”, “R(D)” and “OU(Rural Use)” on the Approved OZP.

Table 2.3: Potential Development Sites identified in the Land Use Review for Kam Tin South and Pat Heung

Site	Location	Prevailing Zoning under OZP [Development restriction]	Proposed Zoning under the Land Use Review [Development restriction]	Planned/ Target PR ^[1]	Expected Completion	No. of Units (about)
Potential Development Sites with Rezoning Completed/ at Advance Stage						
1	KSRS	“OU(Railway Station and Public Transport Interchange with Commercial/Residential Development)” [Dom GFA: 186,234m ² ; Non-dom GFA: 53,535m ² ; BH: 69mPD]		3.0	2024-2025 ^[2]	2,692 ^[3]
2	PHMC	“OU(Railway Station and Public Transport Interchange with Commercial/Residential Development)” [Dom GFA: 422,340m ² ; Non-dom GFA: 3,000m ² ; BH: 109mPD for Area (a)]		3.0	No available information	6,060 ^[3]
3	Public housing development at Site 1	“R(A)” [PR: 3.0; BH: 69mPD]		3.0	2026/27 to 2027/28 ^[4]	4,100 ^[4]
4	Public housing development at Site 4a	“R(A)” [PR: 3.0; BH: 69mPD]		3.0	2027/28 to 2030/31 ^[4]	3,800 ^[4]
5	Public housing development at Site 6	“R(A)” [PR: 3.0; BH: 69mPD]		3.0	2026/27 to 2027/28 ^[4]	1,700 ^[4]
Potential Development Sites with Rezoning to be Initiated						
6	Private housing development at Site 2	“CDA” [PR: 0.4 BH: 3 storeys (9m)]	N/A	2.1	N/A	452 ^[1]
7	Private housing development at Site 3	“R(C)” [PR: 0.8, SC: 40%; BH: 4 storeys (12m)]	N/A	2.1	N/A	1,106 ^[1]
8	Private housing development at Site 7	“R(D)” [PR: 0.2 BH: 2 storeys (6m)]	N/A	1.5	N/A	3,018 ^[1]
9	Public housing development at Site 4b	OU(Rural Use) [PR: 0.4 BH: 3 storeys (9m)]	N/A	3.0	N/A	5,700 ^[1]
10	Private housing development at Site 4c	OU(Rural Use) [PR: 0.4 BH: 3 storeys (9m)]	N/A	2.1	N/A	626 ^[1]

Site	Location	Prevailing Zoning under OZP [Development restriction]	Proposed Zoning under the Land Use Review [Development restriction]	Planned/ Target PR ^[1]	Expected Completion	No. of Units (about)
11	Public housing development at Site 5a	Agriculture [nil]	N/A	3.0	N/A	3,300 ^[1]
12	Private housing development at Site 5b	Agriculture [nil]	N/A	0.8	N/A	289 ^[1]
13	Private housing development at Site 8	Agriculture [nil]	N/A	1.5	N/A	882 ^[1]
14	Private housing development at Site 9	Agriculture [nil]	N/A	0.8	N/A	1,676 ^[1]
						Total No. of Units: 35,401
Remarks: [1] TPB Paper No. 9590 refers. [2] Legislative Council Paper No. PWSC(2018-19)17 refers. [3] RNTPC Paper No. 6/15 refers. [4] Traffic Impact assessment Report of Sites 1, 4a and 6 and the approved Planning Briefs refer.						

3. REVIEW OF THE “RESIDENTIAL (GROUP C)” AND “OPEN SPACE” ZONES

3.1 Development Potential of “R(C)” zones in Rural Context

Permissible Plot Ratio and Building Height Restrictions

- 3.1.1 The planning intention of “R(C)” zone is “*primarily for low-rise, low-density residential developments*”. Areas zoned “R(C)” and its sub-zones falling within rural OZPs constitute a total of about **464.91 ha** of rural land in North East New Territories, Yuen Long, Tuen Mun, Sai Kung and parts of Lantau Island². Upon preliminary review of the statutory notes, the “R(C)” zones in the rural OZPs are generally subject to a plot ratio of 0.4 and a building height of 3 storeys including carport (9m). **Some rural “R(C)” zones are permissible for developments with plot ratios widely ranging from 0.2 to 1.58; and subject to maximum number of storeys of 2 to 7 (excluding basement levels) and various building height restrictions ranging from 6m to 24.5m or as high as 55mPD³.**

3.2 Open Space Provision in the Yuen Long Area

Sufficient Planned Open Space Provision in Yuen Long Area in 2023

- 3.2.1 According to the Hong Kong Planning Standards and Guidelines (HKPSG), a minimum of 1m² per person, each for district open space and local open space, should be provided. **According to latest available information in August 2023⁴, there are 15.43ha and 78.61ha of surplus district open space and surplus local open space respectively in the Yuen Long District.**

- 3.2.2 The open space provision covered by Kam Tin North OZP has been reviewed. It is revealed that there would be a deficit of about 3.94 ha of district open space but a surplus of about 1.07 ha of local open space in Kam Tin North, where the Application Site is located.

Insufficient Planned Open Space Provision in Kam Tin North Area since Late 2022

- 3.2.3 In Dec 2022, PlanD proposed to amend the Kam Tin North OZP to enable public housing development in Sha Po near Fung Kat Heung, providing a total of about 16,300 housing units for a design population of about 46,000 persons. Taking into

² The “R(C)” zones on the approved Discovery Bay Outline Zoning Plan No. S/I-DB/6 are excluded, as the area specific planning and development background different from other rural OZPs. There are “R(C)” zones on this OZP subject to building height restriction of 25 storeys and 132mPD as the highest.

³ There are three areas zoned “R(C)1” and “R(C)2” on the approved Tung Chung Valley Outline Zoning Plan No. S/I-TCV/2 subject to a relatively high building height restriction of 30mPD, 45mPD and 55mPD. The areas have current site formation levels of about +20mPD to +39mPD.

⁴ With reference to *Annex VIII – Provision of Major Community Facilities and Open Space in Yuen Long District Council Area* of TPB Paper No. 10916 – Consideration of Representations No. TPB/R/S/YL-KTN/10 – R1 to R5 and Comments No. TPB/R/S/YL-KTN/10 – C1 to C2 for Consideration by the TPB on 1.9.2023.

account the additional planned population yet with no initiative of designating additional land to be zoned “O”, the provision of local open space in the planning scheme area of Kam Tin North would see a surplus from previous +5 ha to +1.07ha, which has reduced by 3.93ha; while the district open space provision would result in a deficit, down to 3.94ha. According to the relevant TPB Paper of OZP amendment, there will be at least some 5.25 ha of local open space within the planned public housing development zoned “R(A)” in Sha Po, aimed for serving the future residents of the public housing development. **Table 3.1** below shows the comparison of the planned provision of open space on the approved OZP and the previous OZP.

- 3.2.4 In view of the occurrence of the deficit in district open space in Kam Tin North, the Applicants have reviewed the indicative development scheme to explore means to compensate or, at the very least, not to contribute to the further loss of the open space area resulting from the proposed development, by proposing a swapping of the area of Site 1 (for residential development) in exchange for future provision of open space area in Site 2.

Table 3.1: Comparison of the Planned Provision of Open Space on the Approved OZP and the Previous OZP

Planning Scheme Area	District Open Space (Surplus/Deficit)		Local Open Space (Surplus/Deficit)	
	Previous OZP (S/YL-KTN/9)	Approved OZP (S/YL-KTN/11)	Previous OZP (S/YL-KTN/9)	Approved OZP (S/YL-KTN/11)
Kam Tin North	+1ha	-3.94ha	+5ha	+1.07ha

3.3 Status of Private Land zoned “Open Space” in Yuen Long Rural Areas

Considerable Amount of Private Land zoned “Open Space”

- 3.3.1 Amongst all the areas in “O” zones covered by Yuen Long rural OZPs (of total area of about 50.93ha), the total amount of private land accounts to about 21.37ha (about 42%). The proportion of private land in area zoned “O” in the respective planning scheme areas in Yuen Long rural areas ranges from 10% to as much as 72%. In the prevailing Kam Tin North OZP where the Application Site falls within, there is about 2.89ha of private land zoned “O” taking up about 65% of the land area in the respective “O” zones (**Table 3.2** below refers).

Table 3.2: Area and Proportion of Private Lots in Respective “O” Zones in Rural Yuen Long Areas

Planning Scheme Area	Area zoned “O”	Area of Private land zoned “O”	Proportion of Private Land in Respective “O” Zone
Kam Tin North	4.45ha	2.89ha	65%
Kam Tin South	3.20ha	0.33ha	10%
Shek Kong	0.63ha	0.41ha	66%
Mai Po & Fairview Park	6.35ha	4.54ha	72%
Ping Shan	3.46ha	0.90ha	26%
Tai Tong	7.86ha	1.83ha	23%
Tong Yan San Tsuen	16.24ha	10.48ha	65%
Nam Sang Wai	8.75ha	Negligible (<0.005ha)	Negligible
Ngau Tam Mei	Nil	Nil	Nil
Pat Heung	Nil	Nil	Nil
Ha Tsuen Fringe	Nil	Nil	Nil
Lau Fau Shan & Tsim Bei Tsui	Nil	Nil	Nil
Sheung Pak Nai & Ha Pak Nai	Nil	Nil	Nil
Total	50.93ha	21.37ha	42%

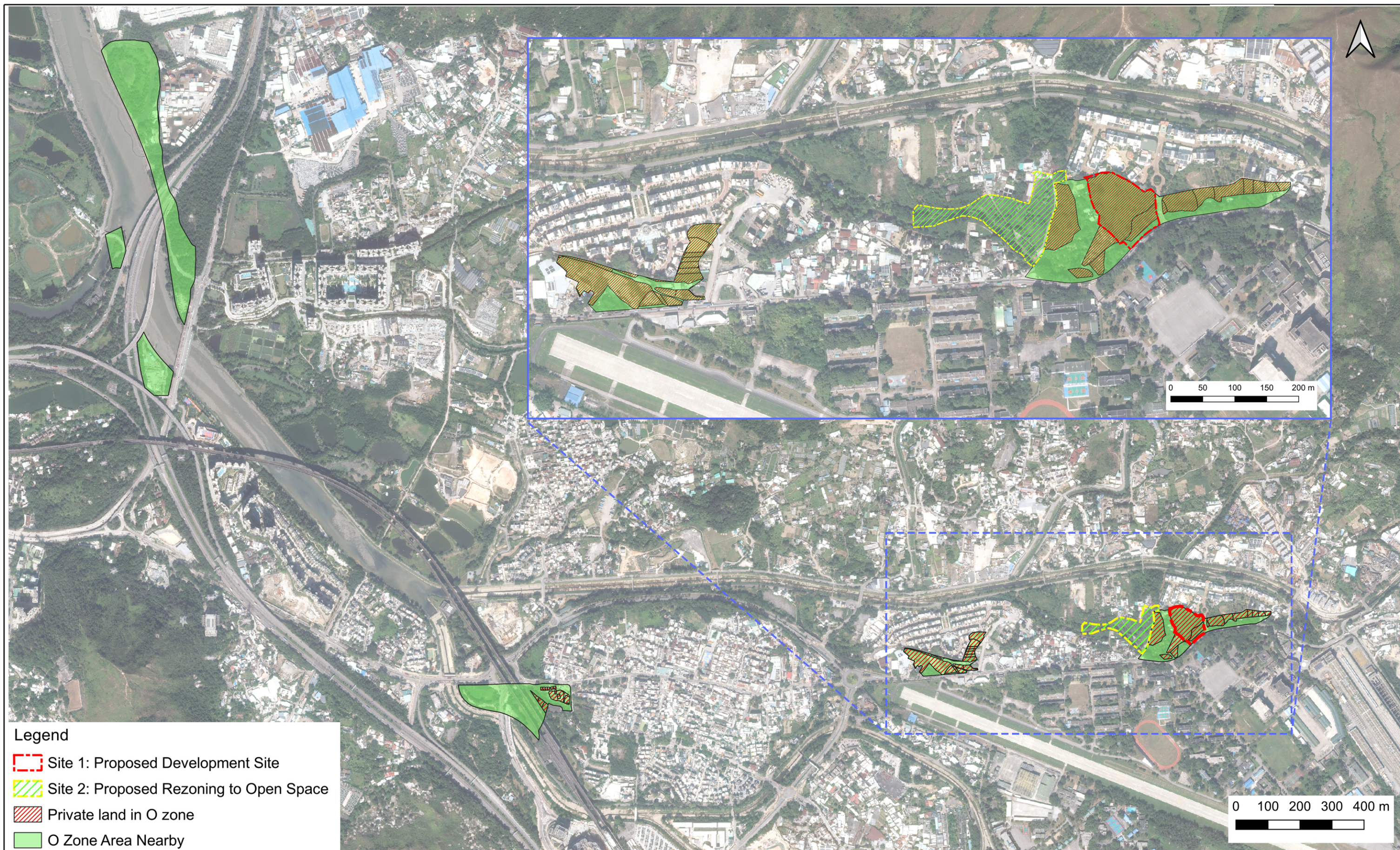
No Signs of Implementation of Open Space in Private Lots Zoned “Open Space”

- 3.3.2 The review of survey sheets and the review of latest aerial photographs from Lands Department reveals that the private land zoned “O” in Yuen Long rural areas is mostly occupied by land parcels intermingled with temporary structures, vacant paved land, vegetation, fallow agricultural land and open storage sites, similar to the current condition of the land zoned “O” included in the Application Site (**Figure 3.1** refers). As observed from available aerial photographs, there appears no signs of provision of outdoor open-air open space for recreational uses in the private lots zoned “O” in Yuen Long.

Unrealised Development Potential of Private Lots in the “Open Space” Zone in Kam Tin North and the Application Site

- 3.3.3 The 2.9ha of private land zoned “O” in the prevailing Kam Tin North OZP is occupied by two areas abutting Kam Tin Road to the south of the Seasons Villas and Seasons Monarch respectively. The two areas have been zoned “O” since the gazettal of the first Kam Tin North OZP in June 1994 (**Figure 3.1** refers). However, there has been no implementation programme for a long period (i.e. 31

years) for the provision of open space in the subject “O” zones, let alone any open space development on the private land in these two “O” zones. Having regard to the non-implementation of the private land zoned “O” and to echo with Government’s policy initiatives of optimising land resources, the Applicants considered it is timely to unleash the full development potential of the “O” zone in the Application Site by proposing compatible and gainful uses such as the proposed residential use.



4. THE INDICATIVE DEVELOPMENT PROPOSAL

4.1 Indicative Development Proposal

Residential Development

- 4.1.1 An Indicative Master Layout Plan (“MLP”) (**Appendix 1** refers) illustrates the Proposed Development at Site 1 with a total site area of about 8,580m². With an aim to yield a total domestic Gross Floor Area (“GFA”) of not more than 8,580m², equivalent to a maximum domestic plot ratio of 1.0, the indicative development scheme would provide about a total of 240 residential units. It comprises a total of 6 nos. of residential towers with 6 storeys above ground (including G/F for entrance lobby / car park / E&M facilities). With site formation level at 10.4mPD, the referencing building height is about 29mPD.
- 4.1.2 The 1-storey clubhouse with green roof is located in the central portion; the sewage treatment plant (STP) involves 1 storey above ground and the underground storage tank; while the stormwater storage tank (SST) involves one storey below ground (tentatively below Tower 3 and Tower 4). Carparking spaces and L/UL bays are provided on the ground level, minimising the need for extensive excavation.
- 4.1.3 The site formation level is set at 10.4mPD. As the spot level of the run in/out on Kam Tin Road is at about 13mPD, it takes about 20.8m for the internal access ramping down to 10.4mPD with a gradient of 1:8. Further lowering the site level would require longer ramp, affecting the arrangement of internal transport facilities. Therefore, the proposed site formation level at 10.4mPD is considered appropriate.
- 4.1.4 The purpose of this Indicative MLP is to demonstrate the development intensity of the rezoning proposal is appropriate and feasible. A set of architectural drawings (**Appendix 1**) including the indicative MLP, G/F plan and Section Plan is devised for reference only and is subject to detailed design at later stage. Development schedule of the Proposed Development is provided in **Table 4.1**.

Table 4.1: Key Development Parameters

Key Parameters		
Development Site Area ⁽¹⁾	About 8,580 m ²	
Max. GFA (domestic)	About 8,580 m ² (equivalent to max. domestic PR of 1.0)	
Proposed Max. Building Height (BH)	Residential Towers	6 storeys above Ground (Reference BH at about 29mPD)
	Clubhouse	1 storey above Ground
	Sewage Treatment Plant (STP)	1 storey above Ground, with the tank underground
	Stormwater Storage Tank (SST)	underground
No. of blocks	Residential Towers: 6 Clubhouse: 1 STP: 1	
Site Coverage	Not more than 56%	
No. of units	240	
Average unit size	About 35.8 m ² in GFA	
Anticipated Population	648 ⁽²⁾	
Private Communal Open Space	Not less than 648 m ² (1 m ² per person)	
Greenery provision	Not less than 20% of development site area	
Target complete year	Year 2031	

Note

(1): The area of the private land is based on measurement in GIS only; the accurate area is subject to land survey when setting out the site boundary.

(2): Average household size of 2.7 is adopted, by making reference to the territorial average household size in the 2021 Population Census.

Open Space Portion

4.1.5 This Application also involves rezoning of a site (Site 2) from “R(C)2” to “O” zone, which is located to the immediate west of the prevailing “O” zone that the Development Site falls within. Site 2 has an area of about 12,303m². As a result, there will be a net increase in about 3,807m² in total area of “Open Space” zone⁵ under the prevailing Kam Tin North OZP.

4.1.6 Site 2 involves private land area of about 8,255m², which is all owned by the Applicants. Implementation of Site 2 will be detached from the development of Site 1 and will not form part of the private residential development of Site 1 nor condition or requirement in the land exchange application of Site 1. Upon approval of the rezoning request including, the rezoning of Site 2 from “R(C)2” to

⁵ Net increase area zoned “O” = 12,303m² – 8,496m² (area currently zoned “O” in Site 1) = 3,807m².

“O” zone, the Applicants are prepared to keep their private land in Site 2 as status quo until the Government has a program to resume the land in Site 2 for implementation of the public open space.

4.2 Sensible Design Measures

4.2.1 In view of the sub-urban township location of the Application Site, the Applicants have made tremendous efforts to incorporate various sensible design measures aiming to enhance the existing built environment while respecting the existing building height in the vicinity. The sensible design measures included are as follows:

a. Appropriate Building Height

The building height of the Proposed Development has been carefully devised to create a harmonious built form of the adjacent suburban township. The building height is at maximum 6-storey above ground (29mPD). The Proposed Development is in general visually compatible with surrounding private residential developments (about +16 to +18mPD), village clusters (about +13 to 15mPD), and blocks in the Shek Kong Barracks (about +15 to +39mPD), which could enhance the visual interest of the Proposed Development.

b. Maintaining Building Setback from Shek Kong Barracks

There is at least 19m setback distance of the nearest blocks (i.e. T1 and T6) from the southern site boundary of Site 1 / about 28m from the site boundary of Shek Kong Barracks. This could maintain minimal visual impact to the Barracks.

c. Podium Free Design

The towers sit on ground level with car parking spaces and L/UL bays either outdoor or below towers. The clubhouse with green roof is located in the central portion. This would create a comfortable living environment internally as well as reducing the bulkiness as viewed from the outside.

d. Central Courtyard Design

As the clubhouse with green roof is located in the central portion, it creates greenery in the central part; providing visual relief to the future residents surrounding it. It also provides adequate central separation amongst the three clusters of towers.

e. Outdoor Communal Open Space and Landscaped Area in the North

The area in the northern portion (i.e. to the north of T3 and T4) is reserved mainly for communal open space and landscaped area for the future residents. Although there would be underground SST, the Ground level provide opportunities for tree planting (in raised planter) and recreational use. It also acts as a buffer between the blocks of the Proposed Development

and Seasons Villas to the north.

f. **Setback from Site Boundary with Periphery Tree Planting**

It is aimed to maintain at least 5m setback from site boundaries of each side, which provides space for periphery tree planting to soften the edge of the development site.

g. **Building Gaps allowing Wind Penetration**

The six blocks are situated in three main clusters, maintaining at least 15m separation between each of the clusters. There is also at least 5m building setback from site boundary of each side. As revealed from Air Ventilation Assessment – Expert Evaluation (AVA-EE) in **Appendix 5**, the building gaps and building setback could facilitate wind permeability. The building height is 6-storey only so that the wind flowing atop the towers can still reach further downwind pedestrian area. Therefore, it is concluded that the Proposed Development with the design measures is unlikely to impose significant adverse impact on the surrounding sites from air ventilation perspective.

4.3 Landscape Considerations

4.3.1 The proposed building disposition and orientation is designed to maximise the area for landscape and greening for the enjoyment of the future residents. Where possible a landscape buffer will be formed around the perimeter of the Development Site allowing for the planting of trees and shrubs. This will help integrate the proposals into their future landscape context and minimise the impacts on surrounding communities while enhancing the overall landscape quality of the area. Please refer to **Figure 4.1** Landscape Master Plan for the Proposed Development and the details on the landscape design are presented in the Landscape Proposal in **Appendix 2**.

Incorporation of Boundary Landscape Treatment and Setting Back of the Fence Wall along Kam Tin Road

4.3.2 Where space allows, the landscape buffer will be planted with new tree and shrub planting to help integrate the Proposed Development at Site 1 with its surrounding, provide screening effect in views from the adjacent village areas and maximise areas of visible greenery. Climbing plants are used to soften the form of the proposed wall. There is also landscape setback from Kam Tin Road to enhance appearance of the boundary.

Various Landscape Treatments for Future Residents

4.3.3 The landscape design for the residential development should provide an enjoyable route home, with landscaped main entrance, streetscape for the internal circulation and featuring of the lobby entrances of the towers. The clubhouse, swimming pool terrace and outdoor garden areas provide opportunities for landscape features for the enjoyment of the future residents. Tranquil Trail is

also proposed under the dappled shade of the trees within the landscape screen planting (i.e. along the western boundary of the Development Site).

Open space Proposal and Site Coverage of Greenery

4.3.4 Private Open Space of not less than 648 m² will be provided in the northern part as well as at the roof top of the central clubhouse. The provision will adequately satisfy the relevant open space requirements in the HKPSG (i.e. 1m² per person).

4.3.5 The site coverage of greenery provision will be not less than 20% of the area of the Development Site, in accordance with the Buildings Department Practice Notes PNAP APP-152 Sustainable Building Design Guidelines and DEVB Technical Circular (Works) No. 4/2020.

4.4 Vehicular Access Arrangement and Internal Transport Facilities

4.4.1 Vehicular access to the Development Site will be provided from Kam Tin Road (to the south of the Site). Internal transport facilities would be provided at G/F in accordance with the requirements as stipulated in the Hong Kong Planning Standards and Guidelines (“HKPSG”). The Internal transport provision for the Schematic Design is presented in **Table 4.2**.

Table 4.2: Internal Transport Facilities

Type of Facilities	Proposed Provision
Private Carparking Space	Total 79 *
▪ Residents	67
▪ Visitors	12
Motorcycle Parking Spaces	3
Bicycle Parking Space	16
L/UL Bay for Heavy Goods Vehicle	6

* Incl. 2 accessible carparking spaces

4.5 Implementation Programme

4.5.1 Following the approval of this S12A Planning Application by the TPB, appropriate lands procedure and building plan submission will be carried out. It is anticipated that the Proposed Development will be completed in 2031.

Figure 4.1: Landscape Master Plan (extracted from Appendix 2)



5 PROPOSED ZONING AMENDMENTS

5.1 The Rezoning Proposal

- 5.1.1 Site 1 currently falls within area zoned “R(C)2” and “O” on the approved Kam Tin North OZP. The portion of the Site located in the prevailing “R(C)2” zone is subject to a maximum plot ratio of 0.4 and a maximum building height of 3 storeys (9m).
- 5.1.2 Having regard to the latest policy initiatives in increasing housing supply, local planning context in transforming Kam Tin area from a rural to suburban township as well as development compatibility with surrounding developments, this rezoning proposal aims to put forward a site-specific “Residential (Group C) 4” (“R(C)4”) zone for Site 1 to enable the proposed residential development.
- 5.1.3 A max. domestic GFA of 8,580m² is proposed for the new “R(C)4” zone, which is equivalent to a maximum domestic PR of 1.0. The maximum building height restrictions are proposed to be 6 storeys (29mPD) (including G/F for entrance lobby / car park / E&M facilities and excluding underground utility and basement).
- 5.1.4 For Site 2 currently falling with area zoned “R(C)2” on the approved OZP, it is proposed to rezone the site to “O” zone. This will enable formation of large coherent “O” zone land of about 2.67 ha in area, despite the rezoning of Site 1 into “R(C)4”, resulting in a net increase of total “O” zoned land area of about 0.38 ha in Kam Tin North OZP area.
- 5.1.5 The proposed amendments to the Plan, Statutory Notes and the Remarks of the Notes of the “R(C)” zone on the approved OZP are presented in **Figures 5.1 to Figures 5.3**.

Figure 5.1: Proposed Amendment to the Plan under OZP No. S/YL-KTN/11

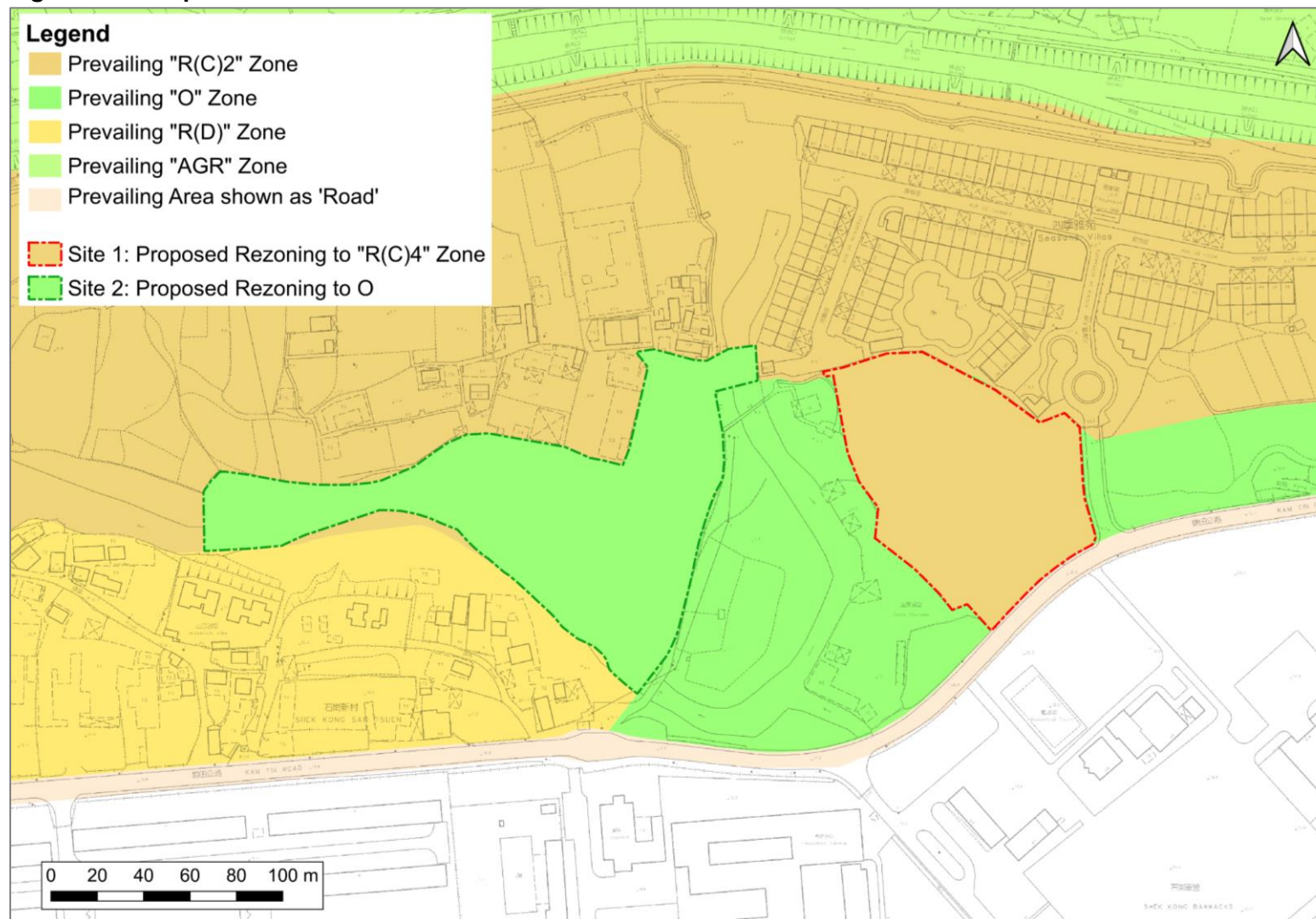


Figure 5.2: Proposed Amendments to the Statutory Notes of the “R(C)” Zone

For illustration only
S/YL-KTN/12

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<u>RESIDENTIAL (GROUP C)</u>	
Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Flat Government Use (Police Reporting Centre, Post Office only) House Utility Installation for Private Project	Ambulance Depot Eating Place Educational Institution Government Refuse Collection Point Government Use (not elsewhere specified) Institutional Use (not elsewhere specified) Library Place of Recreation, Sports or Culture Private Club Public Clinic Public Convenience Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle) Recyclable Collection Centre Religious Institution Residential Institution Rural Committee/Village Office School Shop and Services Social Welfare Facility Training Centre

Planning Intention

This zone is intended primarily for low-rise, low-density residential developments where commercial uses serving the residential neighbourhood may be permitted on application to the Town Planning Board.

Figure 5.3: Proposed Amendments to the Remarks of the “R(C)” Zone

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<u>RESIDENTIAL (GROUP C) (cont'd)</u>		
<u>Remarks</u>		
(a)	On land designated “Residential (Group C)1”, no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum plot ratio of 0.8, a maximum site coverage of 40% and a maximum building height of 4 storeys (12m), or the plot ratio, site coverage and height of the building which was in existence on the date of the first publication in the Gazette of the notice of the interim development permission area plan, whichever is the greater.	
(b)	On land designated “Residential (Group C)2”, no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum plot ratio of 0.4 and a maximum building height of 3 storeys (9m) including car park, or the plot ratio and height of the building which was in existence on the date of the first publication in the Gazette of the notice of the interim development permission area plan, whichever is the greater.	
(c)	On land designated “Residential (Group C)3”, no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum plot ratio of 0.5 and a maximum building height of 2 storeys (12m) including car park, or the plot ratio and height of the existing building, whichever is the greater.	
(d)	On land designated "Residential (Group C)4", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum domestic GFA of 8,580m ² , a maximum building height of 6 storeys (29mPD) including car park (excluding underground utility and basement), or the GFA and height of the existing building, whichever is the greater.	
(e)	Based on the individual merits of a development or redevelopment proposal, minor relaxation of the plot ratio, GFA , site coverage and/or building height restrictions stated in paragraphs (a), (b), (c) and (d) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.	
(f)	In determining the maximum plot ratio, GFA and/or site coverage for the purposes of paragraphs (a), (b), (c) and (d) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room, caretaker's office, caretaker's quarters or recreational facilities for the use and benefit of all the owners or occupiers of the domestic building or domestic part of the building, provided such uses and facilities are ancillary and directly related to the development or redevelopment, may be disregarded.	

6 PLANNING MERITS AND JUSTIFICATIONS

6.1 The Proposed Rezoning is In-line with Government's Policies on Increasing Housing Land Supply

- 6.1.1 The Government has adopted multi-pronged approaches to increasing land supply for housing through land creation strategy by unlocking development potential through transport infrastructure and rezoning sites to untap the development potential of underutilized land. Moreover, reviewing on existing brownfield sites and deserted agricultural land in the New Territories has been identified by the Task Force on Land Supply as one of the key actions in increasing housing land supply. The Site has reasonably good accessibility and the proposed rezoning from "R(C)2" and "O" to "R(C)4" would represent a more efficient use of scarce land resources. It is also in line with Government's earlier rezoning initiatives in 2017 to enable the housing developments at Kam Tin South area as well as in the Northern Metropolis.

6.2 The Sites are Highly Suitable for Residential Development and Public Open Space Respectively

Land Use Compatibility

- 6.2.1 The Application Site is located in Kam Tin area which is planned to be gradually transformed into a suburban township with the implementation of various comprehensive residential/commercial development and public housing developments in the vicinity. Located in close proximity to KSRS and PHMC which are planned for private residential/commercial development, as well as a number of potential development sites for residential developments, the Proposed Development at Site 1 will be compatible with the surrounding land use context, with Site 2 to be realized as public open space by the Government to serve the local communities. The Proposed Development will help to speed up the regeneration of the Kam Tin North rural township with the timely provision of housing supply at a suitable and appropriate location.

Accessibility

- 6.2.2 The Application Site would be accessible from Kam Tin Road and is well-served by various franchised buses and minibuses which provide feeder public transport services to Kam Sheung Road MTR Station, Yuen Long Town Centre and Sheung Shui Town Centre. Bus/minibus stops along Kam Tin Road are within short walking distance from the Site. On a regional scale, the Application Site is strategically located in proximity to Yuen Long Town and connected with the urban areas by strategic rail (i.e. West Rail Line) and road (i.e. Tsing Long Highway) link.

Coherence of "Open Space" Zone

- 6.2.3 Through swapping of the area of Site 1 (for residential development) in exchange for future provision of open space area in Site 2, a complete and coherent "Open Space" zone is formed with the adjoining land currently zoned "O".

Tranquility of the Open Space Maintained

- 6.2.4 The private lots in Site 2 are all owned by the Applicants. Upon approval of the rezoning request including, inter alia, the rezoning of Site 2 from “R(C)2” to “O” zone, the Applicants are prepared to keep the private lots in Site 2 as status quo until the Government department has a program to implement the public open space, such that the local context of the area would remain unaffected (i.e. keeping the natural tranquility of the area including the natural watercourse and vegetation); as well as the existing local access frequently used by the local villagers and residents (**Section 6.3** refers).

Rationalised Swapping of Site 1 and Site 2

- 6.2.5 The rationales for the ‘swapping’ proposal with residential development proposed at Site 1 instead of Site 2 are discussed below:

1. Rationalised Site Configuration – Site 2 is in irregular shape and without direct frontage along Kam Tin Road. For connection with Kam Tin Road, the location and position of the vehicular access will be constrained by the existing rural settlements to the west and the big mature tree to the east, in result of taking up more Government land and the land zoned “O”. In contrast, Site 1 is more rational in shape and has longer and direct frontage along Kam Tin Road (about 57m).

2. Limited Impact to Existing Use / Nearby Residents – Site 2 involves the existing local footpath frequently used by the nearby residents. With reference to the public comments on the previously withdrawal Application No. Y/YL-KTN/4, the local residents have high concern on the impact to the local footpaths due to proposed residential development at Site 2, even with reprovisioning (detour) proposal. Under the current ‘swapping’ proposal, the local context including the existing footpath and light poles will be unaffected should there be no particular implementation program of the open space by the Government.

Site 1 is adjoining to the established low-rise residential cluster, Seasons Villas to its northeast, which is compatible in land use. Site 1 only involves abandoned agricultural land without watercourse nor existing footpaths.

3. Implementation Certainty – Cumulatively, with longer frontage for vehicular access arrangement and limited impact to other stakeholders, implementation certainty for proposed residential development at Site 1 is expected to be much higher than that at Site 2. Site 2 is recommended to be maintained as status quo until the Government has program to implement it as open space.

6.3 No Impact on the Existing Local Access

- 6.3.1 It is understood that the local residents nearby are very concerned about the existing local access of footpath connecting Kam Tin Road to the rural settlements in the north. Under the current proposal, the existing Y-shaped local access falling within Site 2 (proposed for rezoning into “Open Space”) will not be affected by proposed residential development. The existing local access could also form part of the open space to be implemented by the Government later so that the public open space can be accessible from the nearby settlements / residential developments in different directions.

6.4 The Proposed Development will Unleash the Development Potential of the Unimplemented “Open Space” Zone in the Application Site

- 6.4.1 The area in the prevailing “O” zone that the Development Site (Site 1) falls within has been zoned “O” since the gazettal of the first Kam Tin North OZP in June 1994. However, there has been no implementation programme for a long period (i.e. 31 years) for the provision of open space in the concerned subject “O” zone, let alone any planned open space development on the subject private lands zoned “O” within the Site.
- 6.4.2 As reviewed in *Section 3.3*, the area of private land amounts to about 42% of the total area in “O” zones covered by Yuen Long rural OZPs. The figure even reaches about 65% under Kam Tin North OZP. It is observed that the private land zoned “O” in Yuen Long rural areas is mostly occupied by land parcels intermingled with temporary structures, vacant paved land, vegetation, fallow agricultural land and open storage sites, so as the area zoned “O” within the Application Site. Having regard to the non-implementation of the private lots zoned “O” and to echo with Government’s policy initiatives of optimising land resources, the Applicants considered it is timely to unleash the full development potential of the “O” zone in the Application Site by proposing compatible and gainful uses such as the proposed residential use for the area.

6.5 The Development Proposal has Devised an Appropriate Development Intensity in the Proposed “R(C)4” Zone

- 6.5.1 Due consideration has been given to the planning context with the future planned Kam Tin South development, compatibility with the adjacent rural and low-density residential developments in the adjacent “R(C)2” zone and the incorporation of consolidated private land titles within the Application Site to devise an appropriate development intensity in the proposed “R(C)4” zone.
- 6.5.2 It is reviewed in *Section 3.1* that some “R(C)” zones in areas covered by rural OZPs are subject to plot ratio ranging from about 0.2 to 1.58 and subject to maximum number of storeys of 2 to 7 (excluding basement levels) and various building height restrictions ranging from 6m to 24.5m or as high as 55mPD. With the unique site characteristics of the Development Site (Site 1), a site-specific zone i.e. “R(C)4” is proposed to cater for the Proposed Development with compatible development

intensity at max. domestic GFA of 8,580m² (equivalent to a plot ratio of not more than 1.0) and max. building height of 6 storeys above ground.

- 6.5.3 With a view to achieving a compatible development with other existing developments in the adjacent residential developments (about +13 to +15mPD) and existing blocks in Shek Kong Barracks (about +15 to 39mPD) while optimizing the utilization of scarce land resources, the proposed building height in the Proposed Development is at max. 6-storey above ground (about 29mPD), such that a coherent and harmonious development pattern can be achieved.

6.6 The Proposed Scheme has Incorporated Various Design Merits

- 6.6.1 In view of the sub-urban township location of the Development Site, the Applicants have made tremendous efforts to incorporate various sensible design measures in the Proposed Residential Development aiming to enhance the existing built environment while respecting the existing building height in the vicinity. The sensible design measures included (1) adoption of appropriate building height (max. 6 storeys, about 29mPD); (2) maintaining building setback from Shek Kong Barracks; (3) podium free design; (4) central courtyard design; (5) outdoor communal open space and landscaped area in the north; (6) building setback from site boundary with periphery tree planting; and (7) building gaps allowing wind penetration (**Section 4.2.1** refers).

6.7 The Proposed Development is Readily Implementable

- 6.7.1 In Site 1, all private lots involved are owned by the Applicants without other private lots involved, which occupy about 93% of the total site area (**Table 2.1** refers). The remaining area is all Government land (7%). There are also no existing permanent structures in Site 1. This would allow an optimal and readily implementable low-density residential development (at a plot ratio not more than 1) in a tailor-made “R(C)4” zone that would respect the sub-urban setting of Kam Tin area.
- 6.7.2 In Site 2, all private lots involved are also owned by the Applicants without other private lots involved, which occupy about 67% of the total site area. There are also no existing permanent structures in Site 2⁶. This would allow the Government to implement the public open space at the rezoned Site 2 together with the adjoining “O” zoned land when there is a program, or otherwise keeping the area as status quo with the local context being unaffected.

6.8 No Insurmountable Technical Impacts *Trees and Landscape*

- 6.8.1 According to the Tree Preservation Proposal (**Appendix 3** refers), the majority of the existing trees within the Site are largely comprised of common native species. There are no rare or protected tree species, Champion Trees nor Old and Valuable

⁶ In Site 2, there are some existing street light poles along the Y-shaped local footpath and some temporary structures.

Trees found within the Development Site.

6.8.2 The proposed architectural design has sought to minimise disturbance to the existing landscape and hence the future development context through the retention of as many of the existing trees in-situ as possible. Based on the tree survey, there are in total 100 nos. of existing trees within Site 1. Given the extent of the architectural scheme and the necessary infrastructure to be incorporated, it would be possible to retain some 9 nos. of trees and to fell 65 nos. of trees. For the remaining 26 nos. of trees, they are identified as *Leucaena leucocephala* which is invasive weed tree species and compensation for its removal is not required.

6.8.3 In order to compensate for the 65 nos. of existing trees recommended for felling and to enhance the future landscape character of the Proposed Development, about 65 nos. of new heavy standard trees will be planted to achieve a new tree planting ratio of about 1:1 in terms of tree numbers (total number of new trees to be planted : total number of trees proposed to be felled).

Visual

6.8.4 Based on the appraisal demonstrated in the Visual Impact Assessment (“VIA”) in **Appendix 4**, the visual impact associated with the Proposed Development in the Development Site is considered negligible (at **VP 4**) to slightly adverse (at **VPs 1, 2, 3** and 5). With the provision of various sensible design measures including appropriate building height, suitably spaced building layout, building setback from site boundary and adoption of natural color tone in façade treatment, the Proposed Development with max. building height of **about 29mPD** at the Development Site is considered acceptable in visual terms.

Air Ventilation

6.8.5 An Air Ventilation Assessment (Expert Evaluation) (“AVA-EE”) has been conducted for the Proposed Development (**Appendix 5** refers). According to the findings of this AVA-EE, the annual wind of the Site is mainly from NE, ENE and E, while the summer wind is mainly coming from the E, S and SSW directions. Comparing the potential air ventilation impacts of the Development Site to the existing site conditions with no structure, good design measures to enhance air ventilation performance are proposed, which include keeping not less than 5m building setback from site boundaries in all direction, as well as not less than 15m building separation between building clusters. These will facilitate wind penetration and maintain good air ventilation performance to the surrounding area. With the max. 6-storey BHR, wind flowing atop of the towers can still reach further downwind pedestrian area. Therefore, the Proposed Development with the design measures should not have significant adverse impact on the surrounding environment from air ventilation perspective.

Traffic

- 6.8.6 The Traffic Impact Assessment (“TIA”) (**Appendix 6** refers) has estimated that the Proposed Development would generate (attract) traffic flow of 25(18) pcu/hr in the AM peak and 10(13) pcu/hr in the PM peak. The traffic generated by the Proposed Development would induce insignificant impact on the surrounding road network. The assessment indicates that all critical junctions will still operate within their capacities in both reference and design scenarios with planned PWP’s works (the Highway Department’s upgrading works of sections of Kam Tin Road (under PWP item No. 6820TH)) in year 2034, except Link L4, L5, Tai Lam Tunnel above 0.85 but still lower than 1.0. With the traffic flow to be redistributed by the planned Route 11 and associated major roads, the V/C ratio of Tai Lam Tunnel will drop from 1.2 to 0.7. Besides, proposed improvement on Junction C will be carried out by the Applicant to minimize the impact to traffic, in case of programme mi-match between the development and the abovementioned public works project. For public transport demand, it is assessed that the demand due to the new population in the Proposed Development could be solved by providing additional max. 1 GMB trip per hour. Therefore, the TIA has concluded that the Proposed Development is considered acceptable from traffic point of view.

Noise

Road Traffic Noise

- 6.8.7 A noise impact assessment (NIA) (**Appendix 7** refers) has been conducted based on the maximum traffic flow data in 15 years after occupation of the Proposed Development (i.e. 2031+15=2046). In order to achieve noise compliance of the stipulated 70dB(A) noise criterion, provision of acoustic window (baffle type) is proposed to mitigate the noise impact from Kam Tin Road.

Fixed Noise

- 6.8.8 In terms of fixed noise sources impact, a number of fixed noise sources have been identified within 300m of the Site, including a number of car repairing workshop and open storage sites. According to the NIA, the predicted noise levels from the identified fixed noise sources are anticipated to be within the stipulated noise limits (i.e. 60dB(A) Leq(30min) during 0700 to 2300 and 50dB(A) Leq(30min) during 2300 to 0700) in the Noise Control Ordinance.

Aircraft and Helicopter Noise

- 6.8.9 The runway of the Shek Kong Airfield is located at more than 300m south of the Proposed Development. The maximum measured helicopter noise level L_{max} 55dB(A) within the Development Site is within the criteria for helicopter noise stated in HKPSG (i.e. 85dB(A) L_{max}). Therefore, adverse impact from helicopter noise to the Proposed Development is not anticipated.

Air Quality

Industrial Emission

- 6.8.10 Air Quality Impact Assessment (AQIA) has been conducted (**Appendix 8** refers). In terms of industrial emission, no industrial chimney was identified within 500m of the Site. Therefore, no adverse air quality impacts due to industrial emission on the Proposed Development are anticipated.

Vehicular Emission

- 6.8.11 Kam Tin Road abutting the Development Site is classified as “Rural Road” according to the Annual Traffic Census 2024 by Transport Department, while Avenue De Versailles (i.e. the access road leading to Kam Tin Road from Seasons Villas to the east) is considered “Feeder Road” as advised by the traffic consultant. Buffer distance of 10m and 5m have been adopted for Kam Tin Road and Avenue De Versailles respectively. Under the current proposal, the Proposed Development has allowed for a buffer distance of 12m and 7m from Kam Tin Road (with road widening) and from Avenue De Versailles respectively. Therefore, adverse air quality impact due to vehicle emission is not anticipated for the Proposed Development.

Mitigation Measures for Construction Work

- 6.8.12 During the construction phase, dust and gaseous would be generated from construction activities such as vehicles movement on haul roads, excavation, loading or unloading stockpile material, stockpiling of material and wind erosion of exposed areas and the use of construction machineries and construction vehicles. Appropriate dust control measures stipulated in the Air Pollution Control (Construction Dust) Regulation would be implemented during construction stage to reduce the dust emission. Therefore, no adverse air quality impact associated with the Proposed Development during construction phase is anticipated (**Appendix 8** refers).

Water Quality

- 6.8.13 According to the Water Quality Impact Assessment (**Appendix 9** refers), water sensitive receivers (WSRs) within 500m from the Development Site boundary are identified. During construction stage, no direct discharge without treatment of construction site will be allowed. The discharge will be collected and treated through screening facilities before being discharged into the nearby storm drains.

Land Contamination

- 6.8.14 Based on the observation from the site inspection and the review of historical aerial photographs (Land Contamination Assessment in **Appendix 10** refers), the Development Site had been used for agricultural purpose without any potential land contamination activities. It was mainly vacant and vegetated with some shrubs and trees, without any underground facilities and transformers. There were no observed signs of chemical spills / oil stains. No off-site contamination from the surroundings is anticipated. Although there is a vehicle repair workshop to the

immediate west, it is entirely on paved area located 2 to 3m away from the Development Site and is mainly used as storage only, with no potential off-site land contamination affecting the Development Site. Information from Environmental Protection Department (EPD) and Fire Services Department (FSD) indicated that there were no chemical spillage or leakage records at the Site. Therefore, potential contamination and associated impact is not anticipated in the Site.

Waste Management

- 6.8.15 The construction works of the Proposed Development mainly include site excavation, site foundation works and superstructure construction. The estimated quantity of construction and demolition materials generated from the construction of the Proposed Development are assessed in the Waste Management Assessment (WMA) (**Appendix 11** refers). Proper implementation of good construction site practice and mitigation measures will be adopted. As regards the operation phase, the major type of wastes generated from the operation phase is general refuse. With the implementation of appropriate control measures as stated in the WMA, adverse waste management implication is not anticipated during construction and operation phases.

Sewage / Sewerage

- 6.8.16 As shown in the Sewerage Impact Assessment ("SIA") (**Appendix 12** refers), since the Development Site is far away from the existing public sewage network, an on-site sewage treatment plant (about 350m² in area with a daily capacity of 248m³/d) is proposed to provide treatment for sewage generated from the Proposed Development (about 247.5m³/day) and the treated effluent is proposed to be discharged to the stormwater drainage system. The proposed sewage treatment plant will adopt Membrane Bioreactor technology with ultra-filtration to meet EPD's effluent discharge standard.

Drainage

- 6.8.17 According to the Drainage Impact Assessment ("DIA") (**Appendix 13** refers), under the existing condition, the surface runoff running on the existing Development Site is currently discharged to an existing watercourse to the west of the Development Site. The watercourse is then discharged to an engineering channel (Kam Tin River) via a 2-cell box culvert. To avoid impact to the downstream of existing watercourse serving nearby villages, runoff from the Site will be collected and discharged via proposed 750 mm and 900 mm diameter pipes. A storage tank with a size of about 5,000m³ will be provided to temporarily store the additional runoff and the stored runoff will be discharged to a new outlet pipe of size from 750 mm to 900 mm connecting to the existing watercourse via a 450mm pipe after the peak of storm. There are no changes or slight improvement in the predicted peak water levels for the 10 years, 50 years and 200 years flood event for the existing watercourse and thus no significant adverse impact from the Proposed Development with the proposed drainage system and storage tank from drainage point of view.

Water Supply

- 6.8.18 As illustrated in the Water Supply Impact Assessment (“WSIA”) (**Appendix 14** refers), the total mean daily fresh water and total flushing water demand for the Proposed Development are estimated to be about 345m³ per day. For supplying water to the Proposed Development, it is proposed to branch off a DN100 fresh water main from the existing DN450 fresh water main at Kam Tin Road.

Geotechnical Aspect

- 6.8.19 Geotechnical Planning Review Report (“GPRR”) (**Appendix 15** refers) has been prepared, which reveals that there are three existing features (slope or retaining wall) within or in close vicinity to Development Site (Site 1), among which only part of slope feature No. 6NE-B/F 17 is encroached by the development site. Slope feature No. 6NE-B/F 17 is maintained by Lands Department and the part encroached by the development site will be excavated. The other two slope feature Nos. 6NE-B/FR 26 and 6NE-B/R 11 to the northeast and east respectively are not encroached by the development site. For details, please refer to the GPRR in **Appendix 15**.

6.9 More Merits Compared to the Withdrawn Y/YL-KTN/4 Scheme

- 6.9.1 The withdrawn S12A Application No. Y/YL-KTN/4 was submitted by the same Applicants, with the subject site involving the current Site 1 and Site 2 as well as the other adjoining land. The total site area was about 3.27 ha, half of which was zoned “O” and proposed to be rezoned to “R(C)4”. Without alternative proposal to compensate for the loss of “O” zoned land, it was considered hardly justified to gain the public support and hence the TPB approval.

- 6.9.2 Besides, the site configuration presented faces more technical challenges, if not impossible, in which the location and position of the vehicular access for connecting Kam Tin Road would be constrained by the existing rural settlements to the west and the big mature tree to the east, in result of taking up more Government land and the land zoned “O”. The concerned big tree is *Ficus macrocarpa* (細葉榕) with DBH of 1.591m, height of 20m and spread of 25m⁷. It also involved the existing local footpath frequently used by the nearby residents, drawing high concerns from them on the impact to the day-to-day access, even with reprovisioning (detour) proposal.

- 6.9.3 The current scheme under this S12A Application is considered to present more merits as compared to the withdrawn Y/YL-KTN/4 Scheme due to the following reasons:

1. **Reduced Development Scale** – The current scheme for proposed residential development at Site 1 only is aimed to yield a total domestic GFA of 8,580m² only with a flat number of about 240, about 28% of that under the withdrawn one (with a total domestic GFA of not more than 30,174m² with a flat number of about 916). This would be deemed more acceptable taking into account traffic

⁷ Based on Tree Survey conducted on 15th and 16th Jan, 4th Apr and 26th Jun 2022; and 19th Mar 2024; for the withdrawn S12 Application No. Y/YL-KTN/4.

demand and the local communities' sentiment.

2. **Increase in Land Area zoned "O"** – The withdrawn Y/YL-KTN/4 Scheme aimed to convert the whole subject site to "R(C)4" zone, resulting in a total loss of about 17,600m² of land area zoned "O". In contrast, the Current Scheme will result in a net increase in "O" zoned land of about 3,807m².
3. **Longer Street Frontage for Access** – Under the withdrawn Y/YL-KTN/4 Scheme, there was technical challenge and constraint for the location and position of the vehicular access for connecting Kam Tin Road. In contrast, the subject site under the Current Scheme has longer and direct frontage along Kam Tin Road (about 57m).
4. **Limited Impact to Existing Use / Nearby Residents** – Under the withdrawn Y/YL-KTN/4 Scheme, the existing local footpath frequently used by the nearby residents would be affected. Under the current scheme, Site 2 is zoned "Open Space" and the local context including the existing footpath and light poles will be unaffected should there be no particular implementation program of the open space by the Government.
5. **No Decking Over Existing Watercourse Needed** – Under the withdrawn Y/YL-KTN/4 Scheme, it requires decking over the existing watercourse for residential development. Under the current scheme, the existing topography and the existing watercourse in Site 2 will not be affected for residential development.

6.9.4 More importantly, the proposed aggregated site area (for Sites 1 & 2) is primarily owned by the Applicants. The synergizing proposal represents a win-win situation in which there will not only been an increase in "Open Space" zoned land area, but also ensuring the implementation certainty of the planned residential development in Site 1.

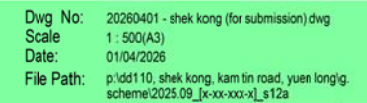
7 SUMMARY AND CONCLUSION

7.1 In light of all the above, members of the TPB are respectfully requested to give favourable consideration to support the proposed amendments to the approved Kam Tin North OZP: (1) rezoning of an area from “R(C)2” and “O” to “R(C)4”, to enable the proposed residential development (“Proposed Development”) at Site 1; and (2) rezoning of an area from “R(C)2” to “O” at Site 2, due to the following reasons:

- The Proposed Rezoning is In-line with Government’s Policies on Increasing Housing Land Supply;
- The Sites are highly suitable for residential development and public open space respectively, in view of land use compatibility, accessibility, as well as coherence and tranquility of the open space to be maintained.
- The existing local access falling within an area currently zoned “R(C)2” zone, which is frequently used by the nearby villagers and residents will be retained in the proposed “O” zone in Site 2;
- The Proposed Development will Unleash the Development Potential of the “Open Space” Zone which has been long designated without any development program in the Application Site;
- The Development Proposal has Devised an Appropriate Development Intensity in the Proposed “R(C)4” Zone;
- The Proposed Scheme has Incorporated Various Urban Design Merits;
- The Proposed Development is Readily Implementable;
- Various technical assessments have been carried out and the findings concluded that the Proposal is technically feasible.

Annex 2

MLP with indication of minimum setback distance from the site boundary



Annex 3

Revised Traffic Impact Assessment

**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

June 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** and **2.2**. The Ground floor plan is shown in **Figures 2.3** and **2.4**.

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 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 There is no programme for the upgrade of Kam Tin Road released yet, but scenarios with these PWP works are added 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)**.

2.5.6 The existing beam barrier and railings at proposed vehicular access will be removed as shown in **Figures 2.5**. Detailed modifications will be reviewed at the detail design stage.



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, 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 junction)	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	PHMC	Site 1	Site 4a	Site 6
Residential Type	Private	Private	PRH/SSF	PRH/SSF	PRH/SSF
No. of Flats	2,692	6,060	4,100	3,800	1,700
Average Flat Size	69m ²	70m ²	46m ²	46m ²	50m ²
Population	6,600	14,800	12,628	11,704	5,236
Commercial / Retail GFA	40,000m 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

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	AM Peak		PM Peak	
	Gen.	Att.	Gen.	Att.
	Pcu/hr			
A/YL-KTN/604	335	223	149	185
A/YL-KTN/663	83	50	34	43
A/YL-KTN/761	4	2	2	3
A/YL-KTN/791	56	25	17	38
A/YL-KTN/964	63	44	26	29
Y/YL-SK/1	87	60	35	39
KSRS ⁽²⁾	99	78	66	81
PHMC (via Kam Ho Road Access)	176	117	72	96
PHMC (via Pat Heung Road Access)	383	256	155	208
Site 1	318	266	184	250
Site 4a	239	165	116	156
Site 6	113	102	51	69

Note: (1) According to their TIA reports

(2) Grand Mayfair I&II were completed in 2024, which are included in the traffic survey.
Remaining about 30% remaining for 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 ≤ 40m ²	60 m ²	0.1021	0.0709	0.0415	0.0464
40m ² < FS ≤ 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).

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

- 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	0.44	0.41
B	Kam Tin Bypass / Kong Tai Road	Signalized	29%	51%
C	Kam Tin Road / Kam Tai Road	Priority	w/o PWP	0.80
			w PWP ⁽²⁾	0.75
D	Kam Tin Road / Fan Kam Road	Roundabout	w/o PWP	0.70
			w PWP ⁽²⁾	0.58
E	Kam Tin Road	Signalized	w/o PWP	40%
			w PWP ⁽²⁾	49%
F ⁽³⁾	Kam Tin Road / Tsing Long Highway slip road	Signalized	34%	34%
G ⁽³⁾	Kam Tin Road / Kam Tin Bypass	Roundabout	0.74	0.60

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⁾	3,110	2,655	0.58	0.49
		WB	3,600	3,025	2,460	0.84	0.68
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	1,020	920	1.13	1.02
		WB	900	1,045	975	1.16	1.08
L4 (w PWP)	Kam Tin Road	EB	1400 ⁽³⁾	1,020	920	0.73	0.66
		WB	1400 ⁽³⁾	1,045	975	0.75	0.70
L5 (w/o PWP)	Kam Tin Road	EB	900	1,070	905	1.19	1.01
		WB	900	1,050	1,060	1.17	1.18
L5 (w PWP)	Kam Tin Road	EB	1400 ⁽³⁾	1,070	905	0.76	0.65
		WB	1400 ⁽³⁾	1,050	1,060	0.75	0.76
Tai Lam Tunnel		NB	5,400	2,515	4,090	0.47	0.76
		SB	5,400	6,345	3,090	1.18	0.57
		NB (with Route 11) ⁽⁴⁾	5,400	1,465	2,385	0.27	0.44
		SB (with Route 11) ⁽⁴⁾	5,400	3,700	1,805	0.69	0.33

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		0.45	0.42
B	Kam Tin Bypass / Kong Tai Road	Signalized		29%	51%
C	Kam Tin Road / Kam Tai Road	Priority	w/o PWP	0.80	0.71
			w PWP ⁽²⁾	0.76	0.66
D	Kam Tin Road / Fan Kam Road	Roundabout	w/o PWP	0.70	0.73
			w PWP ⁽²⁾	0.59	0.55
E	Kam Tin Road	Signalized	w/o PWP	38%	50%
			w PWP ⁽²⁾	46%	59%
F ⁽³⁾	Kam Tin Road / Tsing Long Highway slip road	Signalized		34%	34%
G ⁽³⁾	Kam Tin Road / Kam Tin Bypass	Roundabout		0.74	0.60

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⁾	3,115	2,660	0.58	0.49
		WB	3,600	3,035	2,465	0.84	0.68
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	1,035	930	1.15	1.03
		WB	900	1,065	980	1.18	1.09
L4 (w PWP)	Kam Tin Road	EB	1400 ⁽³⁾	1,035	930	0.74	0.66
		WB	1400 ⁽³⁾	1,065	980	0.76	0.70
L5 (w/o PWP)	Kam Tin Road	EB	900	1,080	905	1.20	1.01
		WB	900	1,060	1,060	1.18	1.18
L5 (w PWP)	Kam Tin Road	EB	1400 ⁽³⁾	1,080	905	0.77	0.65
		WB	1400 ⁽³⁾	1,060	1,060	0.76	0.76
Tai Lam Tunnel		NB	5,400	2,520	4,095	0.47	0.76
		SB	5,400	6,355	3,095	1.18	0.57
		NB (with Route 11) ⁽⁴⁾	5,400	1,470	2,390	0.27	0.44
		SB (with Route 11) ⁽⁴⁾	5,400	3,705	1,805	0.69	0.33

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	0.83	0.73
			w PWP ⁽²⁾	0.78	0.68
D	Kam Tin Road / Fan Kam Road	Roundabout	w/o PWP	0.72	0.75
			w PWP ⁽²⁾	0.60	0.56
E	Kam Tin Road	Signalized	w/o PWP	36%	46%
			w PWP ⁽²⁾	45%	55%
F ⁽³⁾	Kam Tin Road / Tsing Long Highway slip road	Signalized		19%	27%
G ⁽³⁾	Kam Tin Road / Kam Tin Bypass	Roundabout		0.81	0.67

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⁾	3,375	2,905	0.63	0.54
		WB	3,600	3,455	2,645	0.96	0.73
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	1,070	945	1.19	1.05
		WB	900	1,075	1,005	1.19	1.12
L4 (w PWP)	Kam Tin Road	EB	1400 ⁽³⁾	1,070	945	0.76	0.68
		WB	1400 ⁽³⁾	1,075	1,005	0.77	0.72
L5 (w/o PWP)	Kam Tin Road	EB	900	1,120	930	1.24	1.03
		WB	900	1,080	1,090	1.20	1.21
L5 (w PWP)	Kam Tin Road	EB	1400 ⁽³⁾	1,120	930	0.80	0.66
		WB	1400 ⁽³⁾	1,080	1,090	0.77	0.78
Tai Lam Tunnel		NB	5,400	2,875	4,430	0.53	0.82
		SB	5,400	6,920	3,340	1.28	0.62
		NB (with Route 11) ⁽⁴⁾	5,400	1,675	2,585	0.31	0.48
		SB (with Route 11) ⁽⁴⁾	5,400	4,035	1,950	0.75	0.36

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	0.83
			w PWP ⁽²⁾	0.74
D	Kam Tin Road / Fan Kam Road	Roundabout	w/o PWP	0.73
			w PWP ⁽²⁾	0.68
E	Kam Tin Road	Signalized	w/o PWP	0.75
			w PWP ⁽²⁾	0.56
F ⁽³⁾	Kam Tin Road / Tsing Long Highway slip road	Signalized	34%	45%
G ⁽³⁾	Kam Tin Road / Kam Tin Bypass	Roundabout	42%	54%
			19%	27%
			0.81	0.67

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⁾	3,380	2,910	0.63	0.54
		WB	3,600	3,465	2,650	0.96	0.74
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	1,085	955	1.21	1.06
		WB	900	1,095	1,010	1.22	1.12
L4 (w PWP)	Kam Tin Road	EB	1400 ⁽³⁾	1,085	955	0.78	0.68
		WB	1400 ⁽³⁾	1,095	1,010	0.78	0.72
L5 (w/o PWP)	Kam Tin Road	EB	900	1,130	930	1.26	1.03
		WB	900	1,090	1,090	1.21	1.21
L5 (w PWP)	Kam Tin Road	EB	1400 ⁽³⁾	1,130	930	0.81	0.66
		WB	1400 ⁽³⁾	1,090	1,090	0.78	0.78
Tai Lam Tunnel		NB	5,400	2,880	4,435	0.53	0.82
		SB	5,400	6,930	3,345	1.28	0.62
		NB (with Route 11) ⁽⁴⁾	5,400	1,680	2,585	0.31	0.48
		SB (with Route 11) ⁽⁴⁾	5,400	4,045	1,950	0.75	0.36

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 As the programme of PWP works are still under review, the PWP works maybe delayed and the programme may be mis-match between the development and the public works project.

5.3.2 Although Junction C will still operate within its capacity (DFC 0.80), 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 of programme mis-match between the development and the public works project.

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	0.80	0.71	0.79	0.70
		- A right-turn pocket is added to allow traffic wait and turn from Kam Tin Road westbound into Kam Tai Road				

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 programme mis-match between the development and the public works project.



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

Period	PT Passenger trips	
	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	0.711111111
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 Railway Assessment

6.4.1 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 6.12 below:

Table 6.12 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)

6.4.2 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.



6.5 Conclusion

- 6.5.1 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 10.4.2.3.

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 10.4.2.3.

(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 10.4.2.3.

(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 As the programme of PWP works are still under review, the PWP works maybe delayed. In case delay occurs, to facilitate residents crossing, the Applicant will provide a pair of dropped kerbs at the same location of planned cautionary crossing at Kam Tin Road 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**) is proposed and will be implemented by the Applicant in case of the programme may be mis-match between the development and the public works project.



- 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.
- 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.

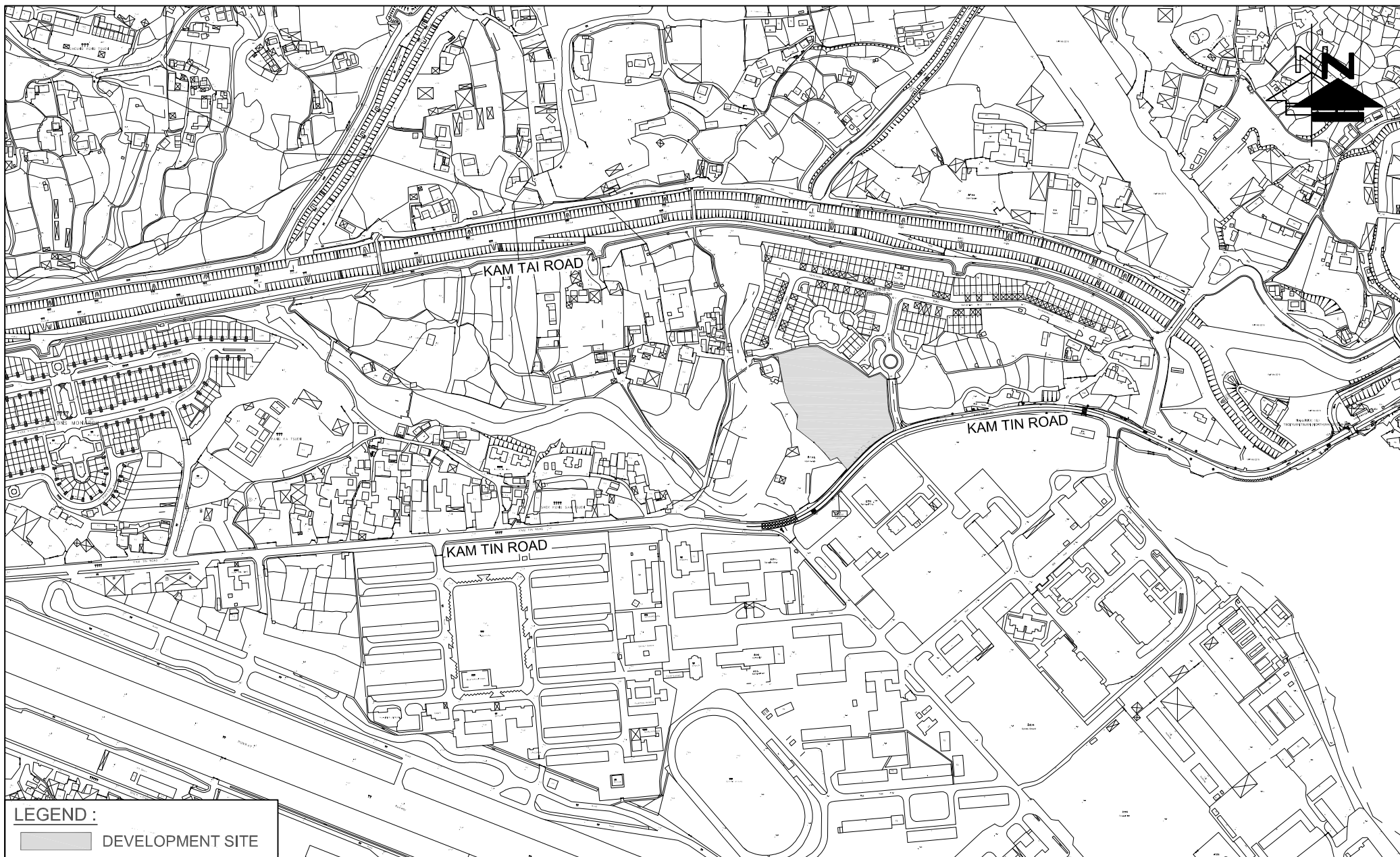


FIGURE NO.: 1.1	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited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

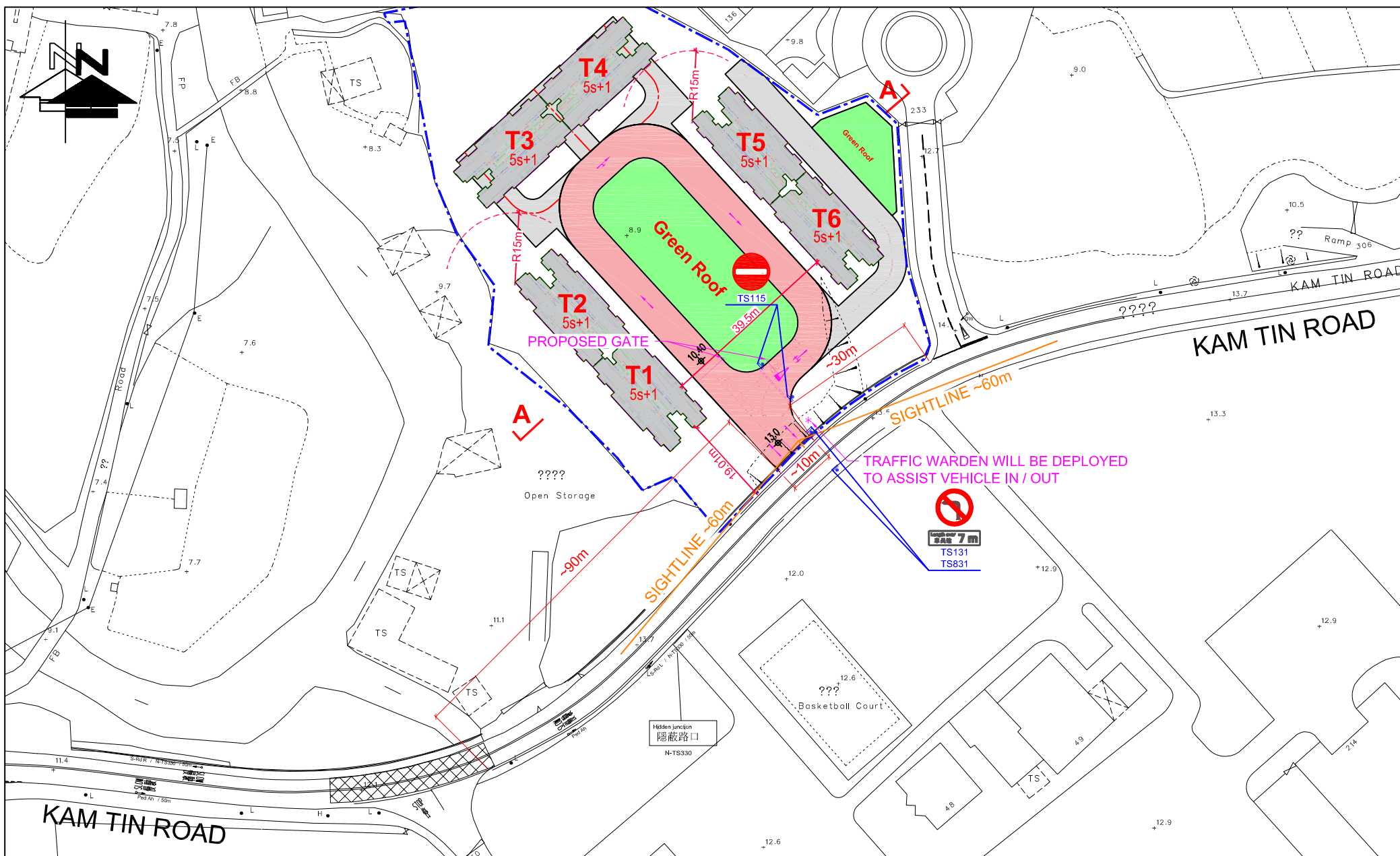


FIGURE NO.: 2.1	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 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: 19 MAY 2026	

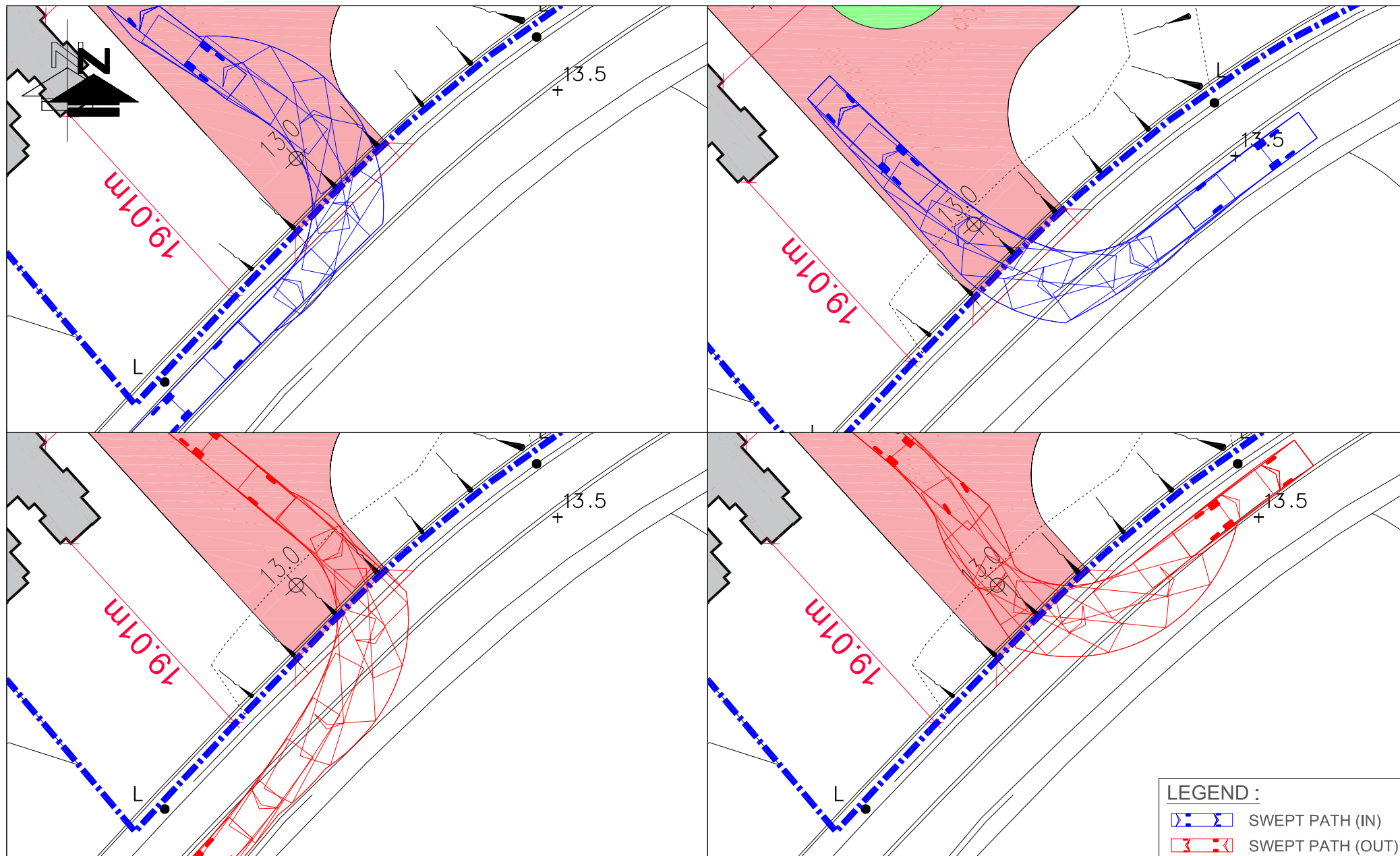
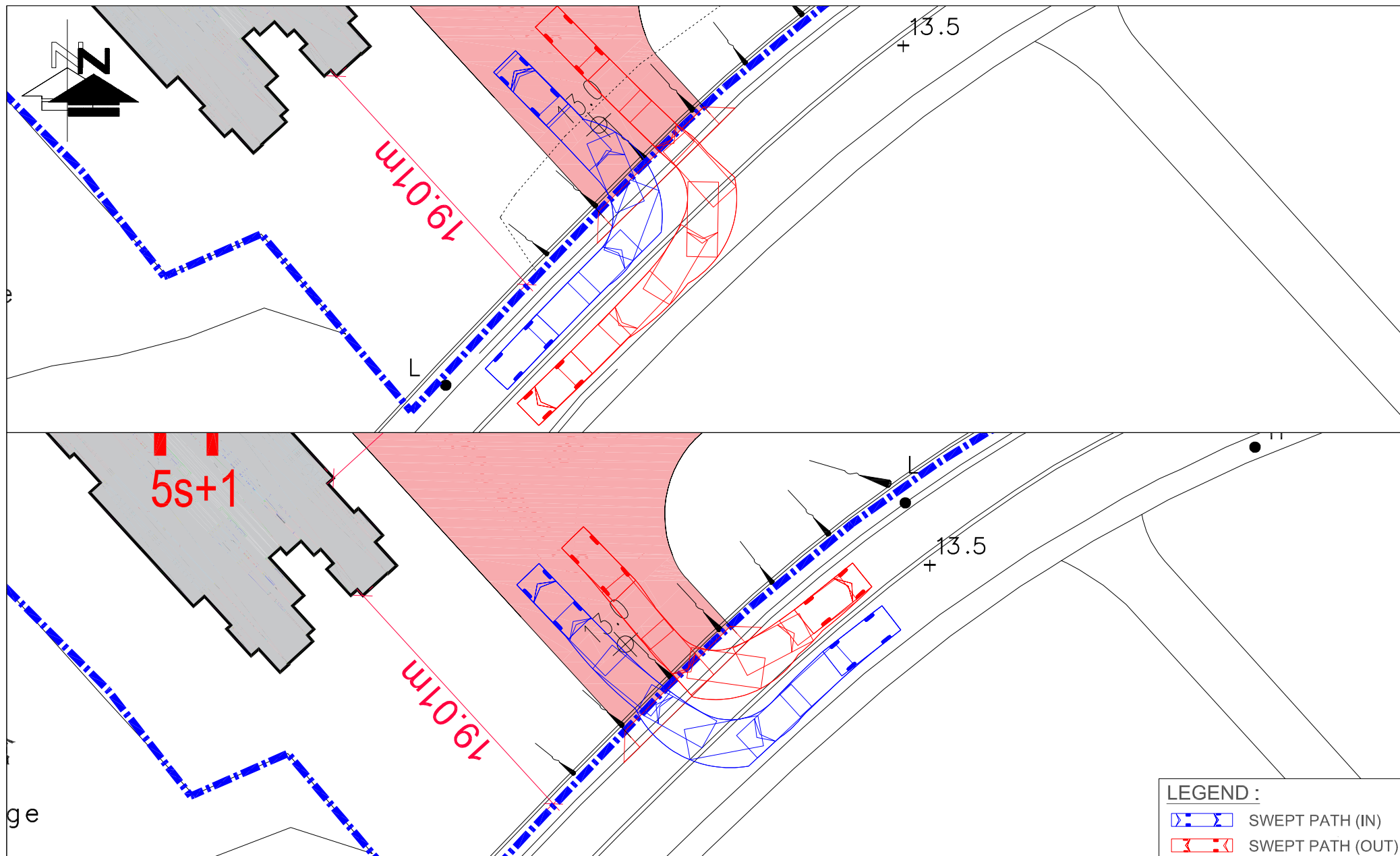


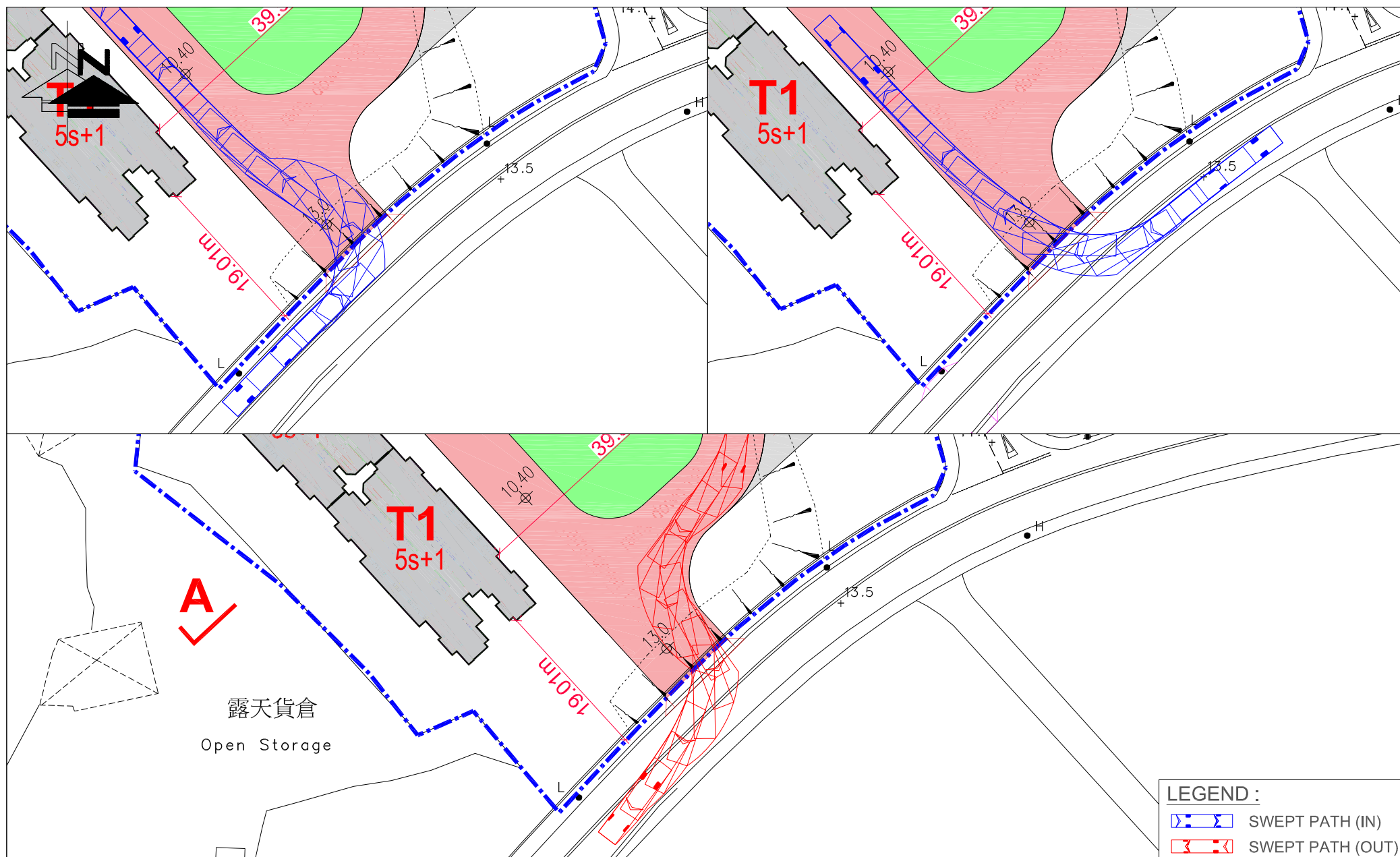
FIGURE NO.: 2.1(SP1)	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 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: 25 MAR 2026	



LEGEND :

- +—+—+— SWEEP PATH (IN)
- +—+—+— SWEEP PATH (OUT)

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.	
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: 25 MAR 2026	α CTA Consultants Limited 志達顧問有限公司	



LEGEND :

- SWEPT PATH (IN)
- SWEPT 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.

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:
25 MAR 2026

CTA Consultants Limited
志達顧問有限公司

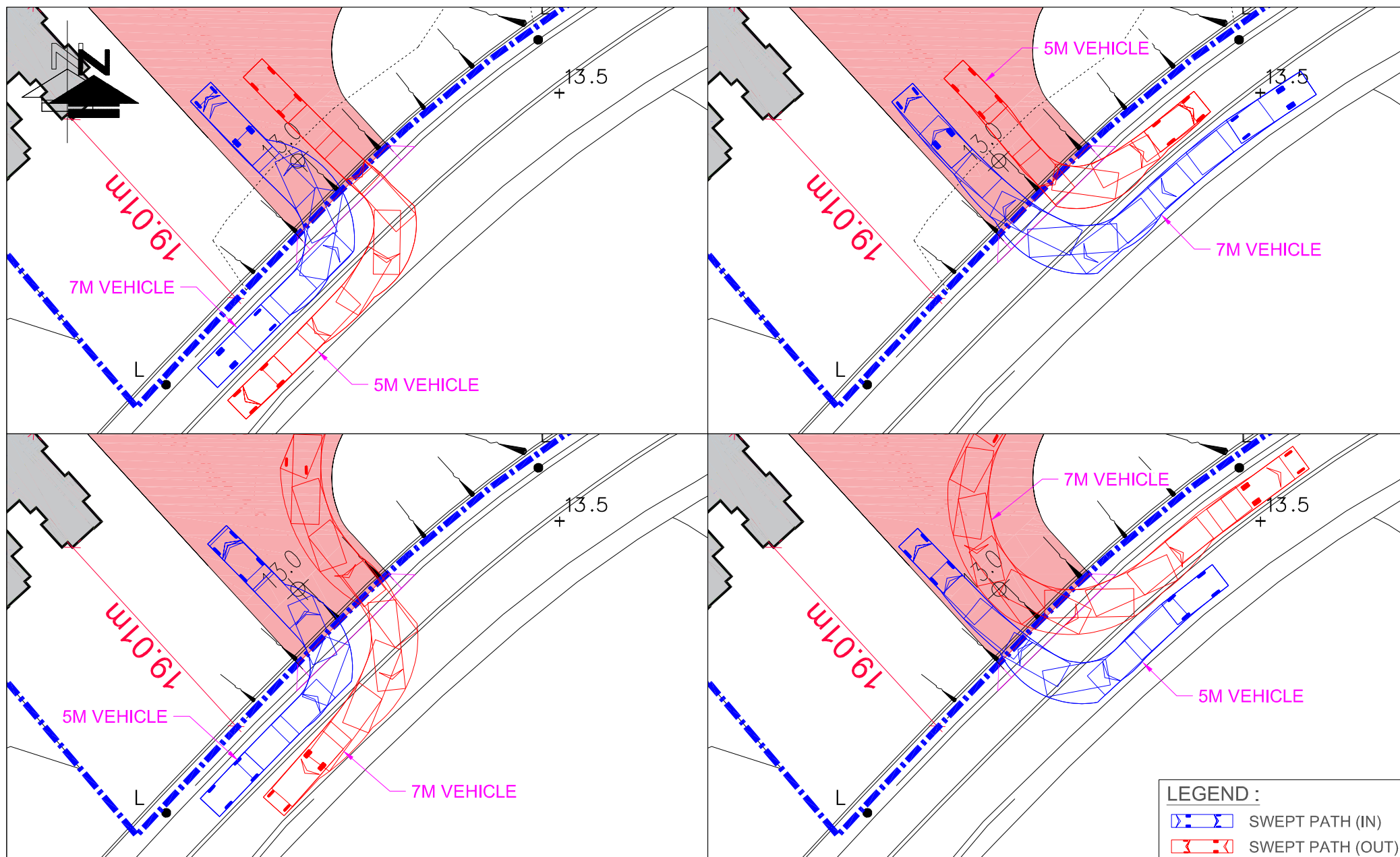


FIGURE NO.: 2.1(SP4)	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 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: 27 MAR 2026	

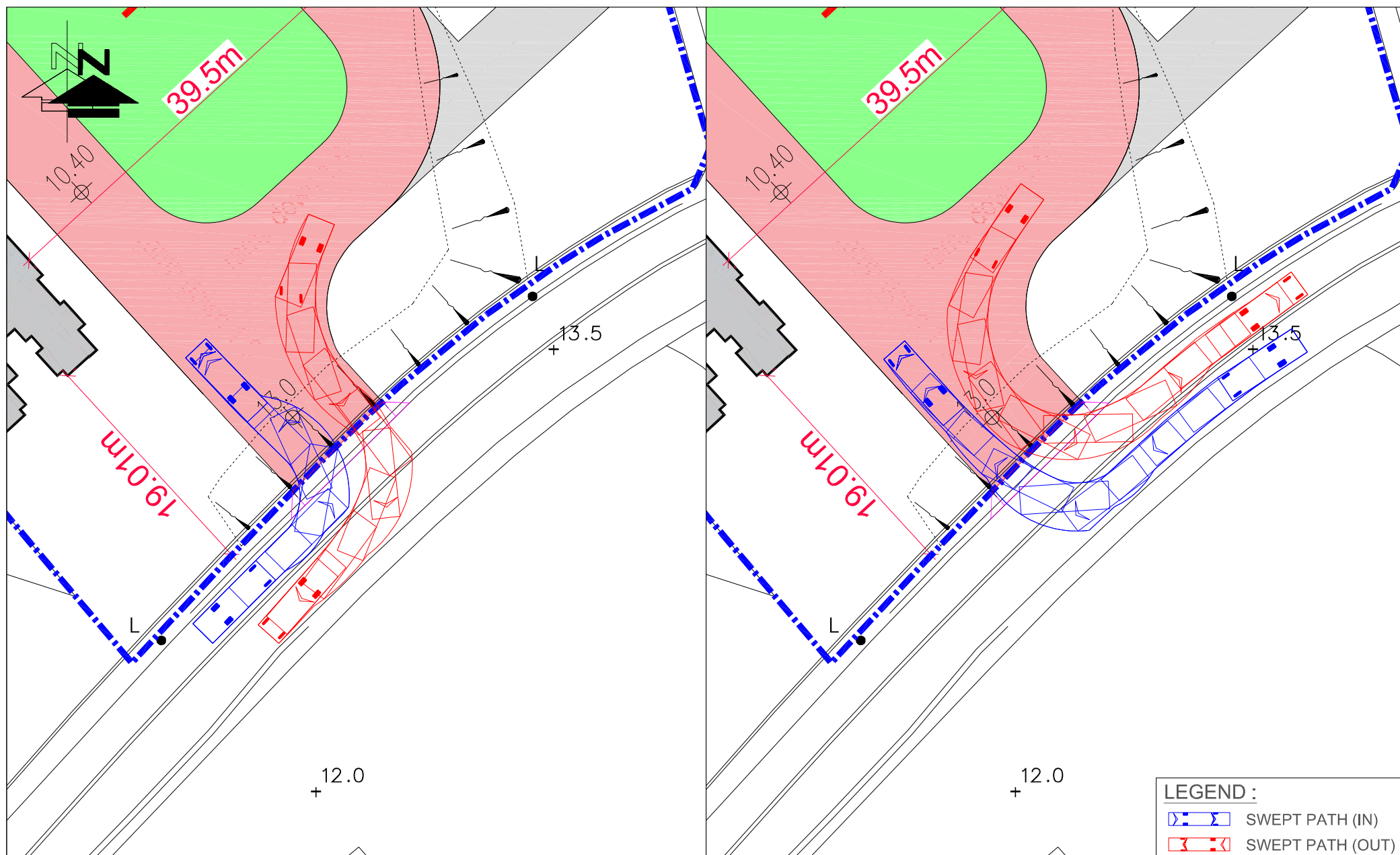


FIGURE NO.: 2.1(SP5)		PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	
PROJECT NO.: 25009HK		DRAWING TITLE: SWEPT PATH ANALYSIS OF 7M VEHICLE OF MASTER LAYOUT PLAN (WITHOUT KAM TIN ROAD WIDENING)	
SCALE: 1 : 400 @A4	DATE: 27 MAR 2026	 CTA Consultants Limited 志達顧問有限公司	

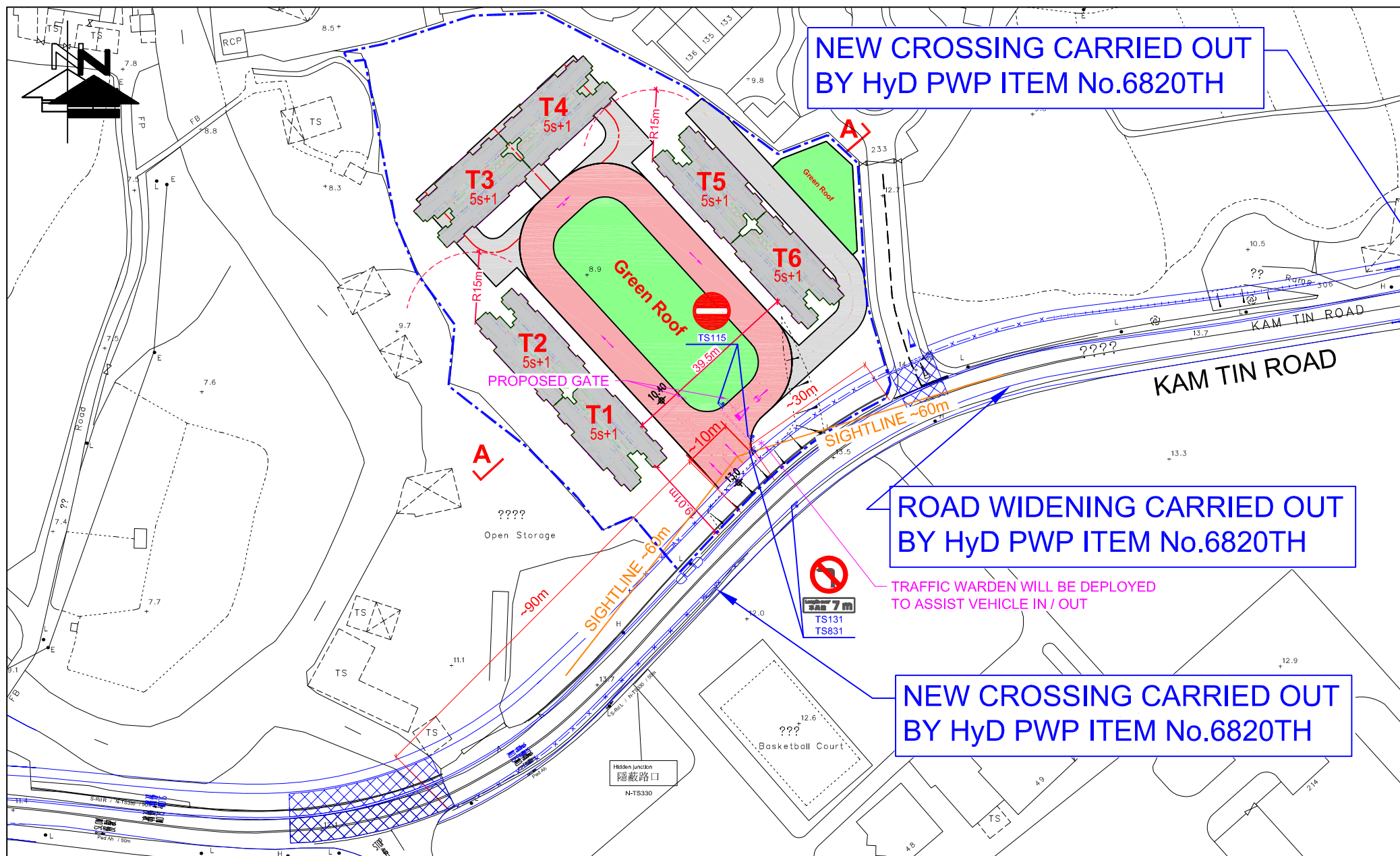


FIGURE NO.: 2.2	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: MASTER LAYOUT PLAN (WITH KAM TIN ROAD WIDENING)	
SCALE: 1 : 1100 @A4	DATE: 19 MAY 2026	

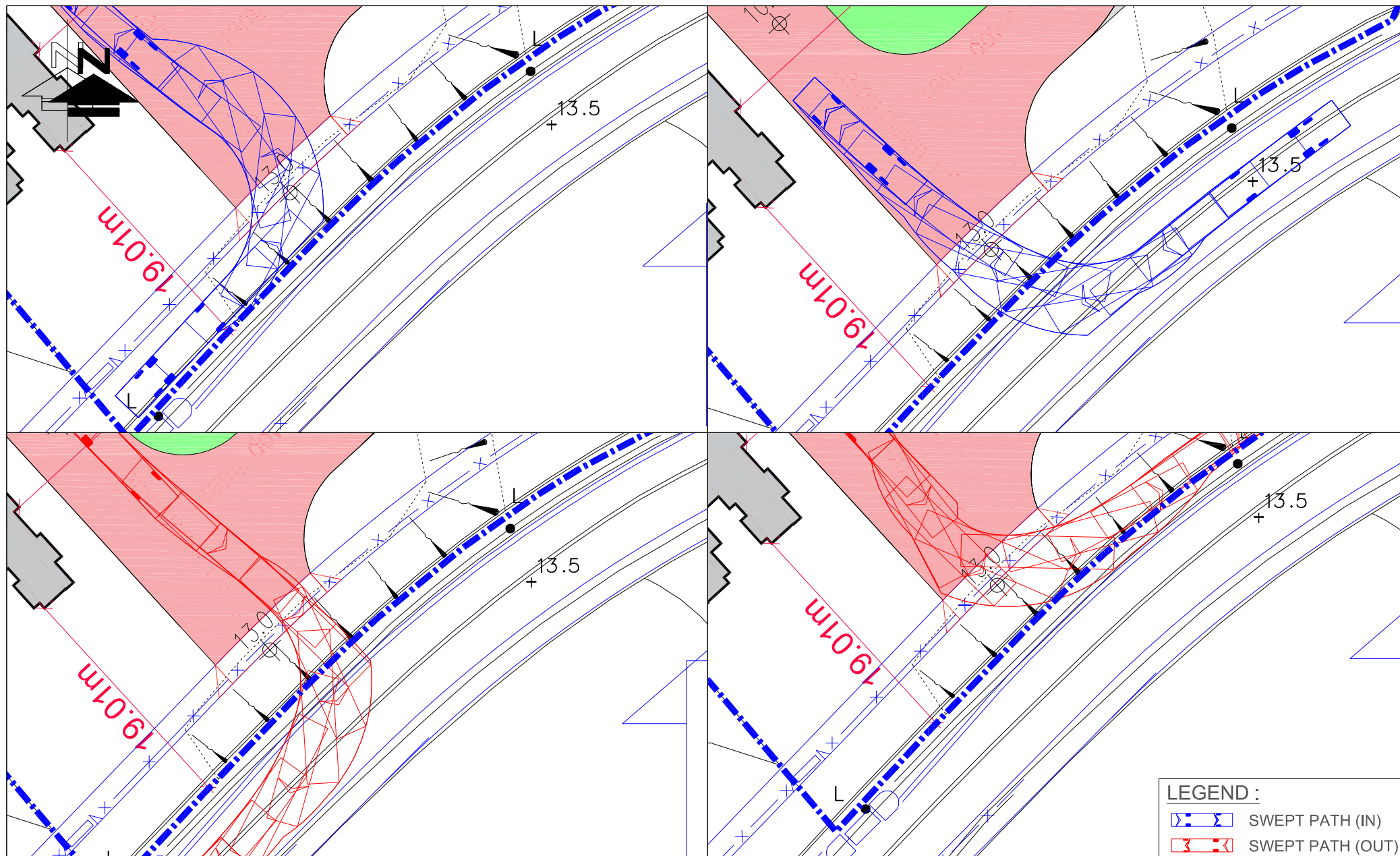


FIGURE NO.: 2.2(SP1)	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 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	

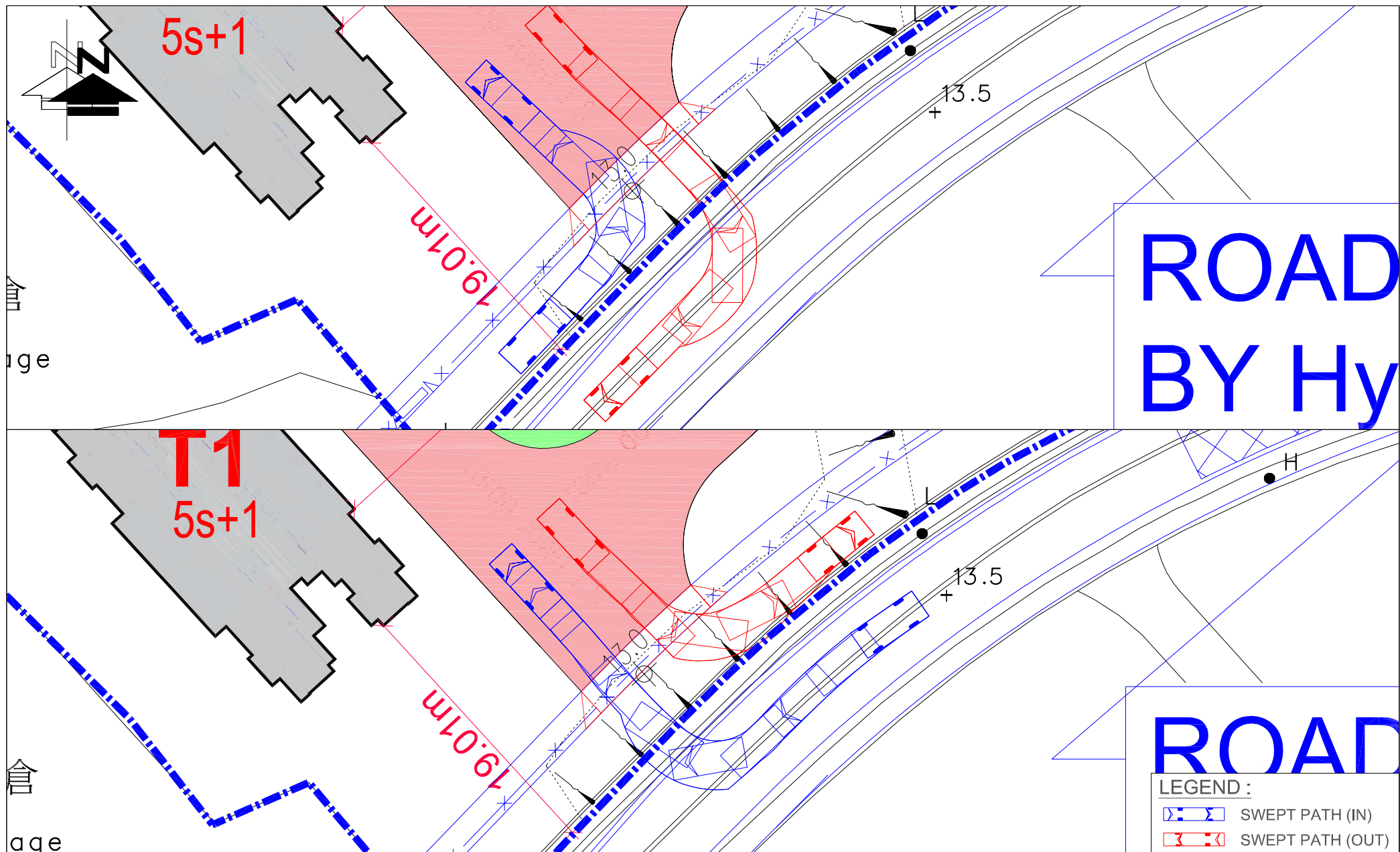


FIGURE NO.: 2.2(SP2)	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 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	

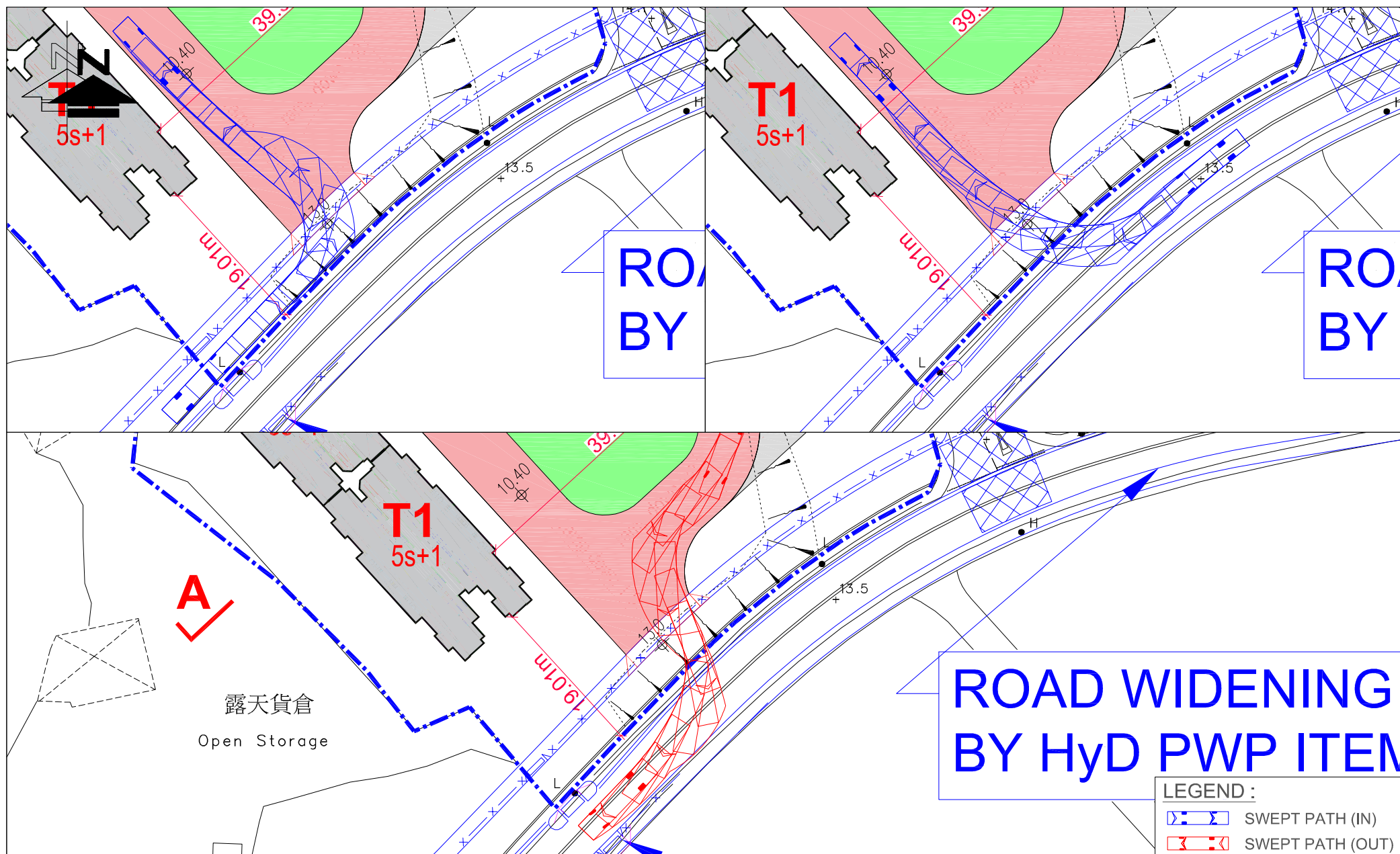


FIGURE NO.: 2.2(SP3)	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 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	

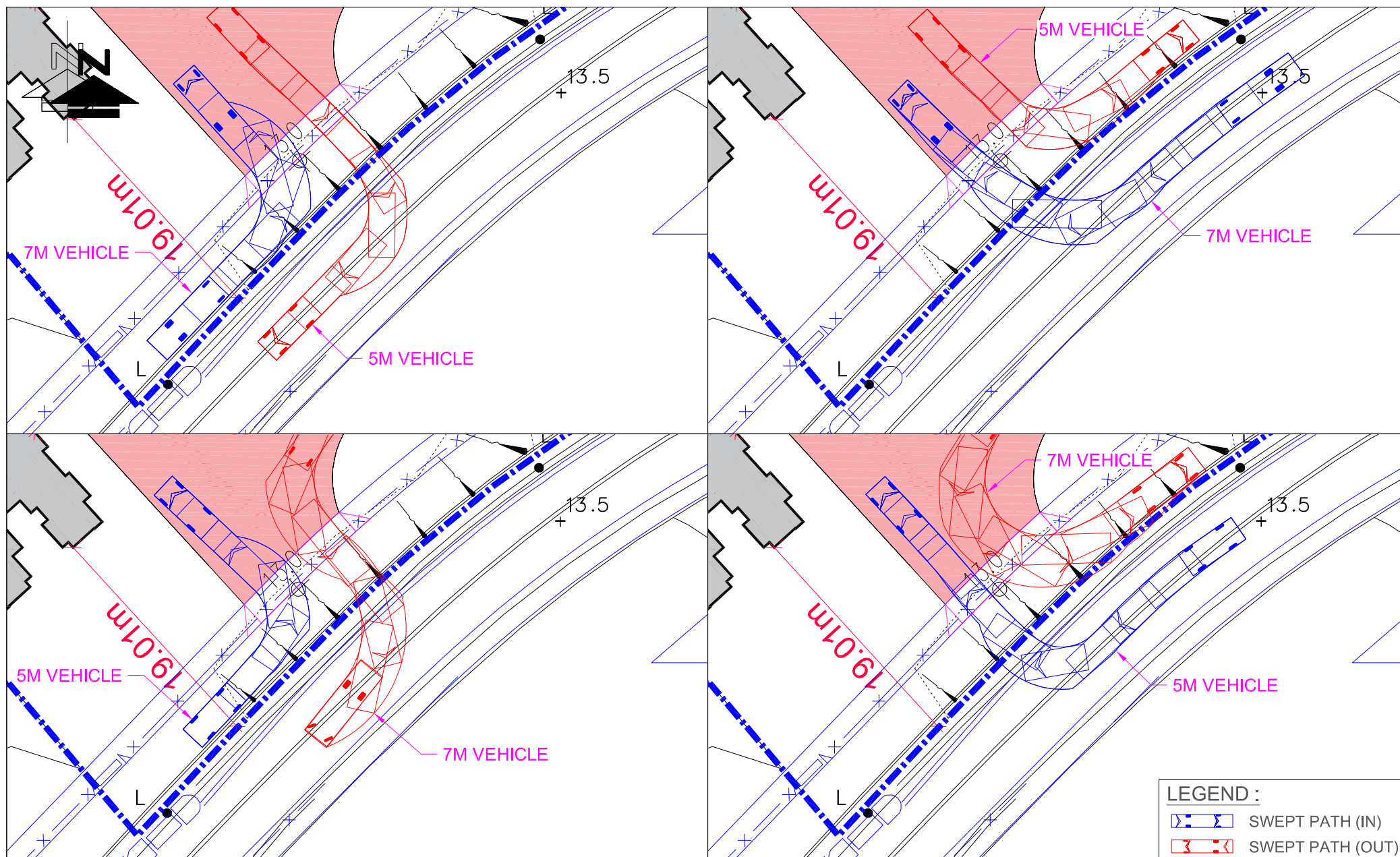


FIGURE NO.:
2.2(SP4)

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

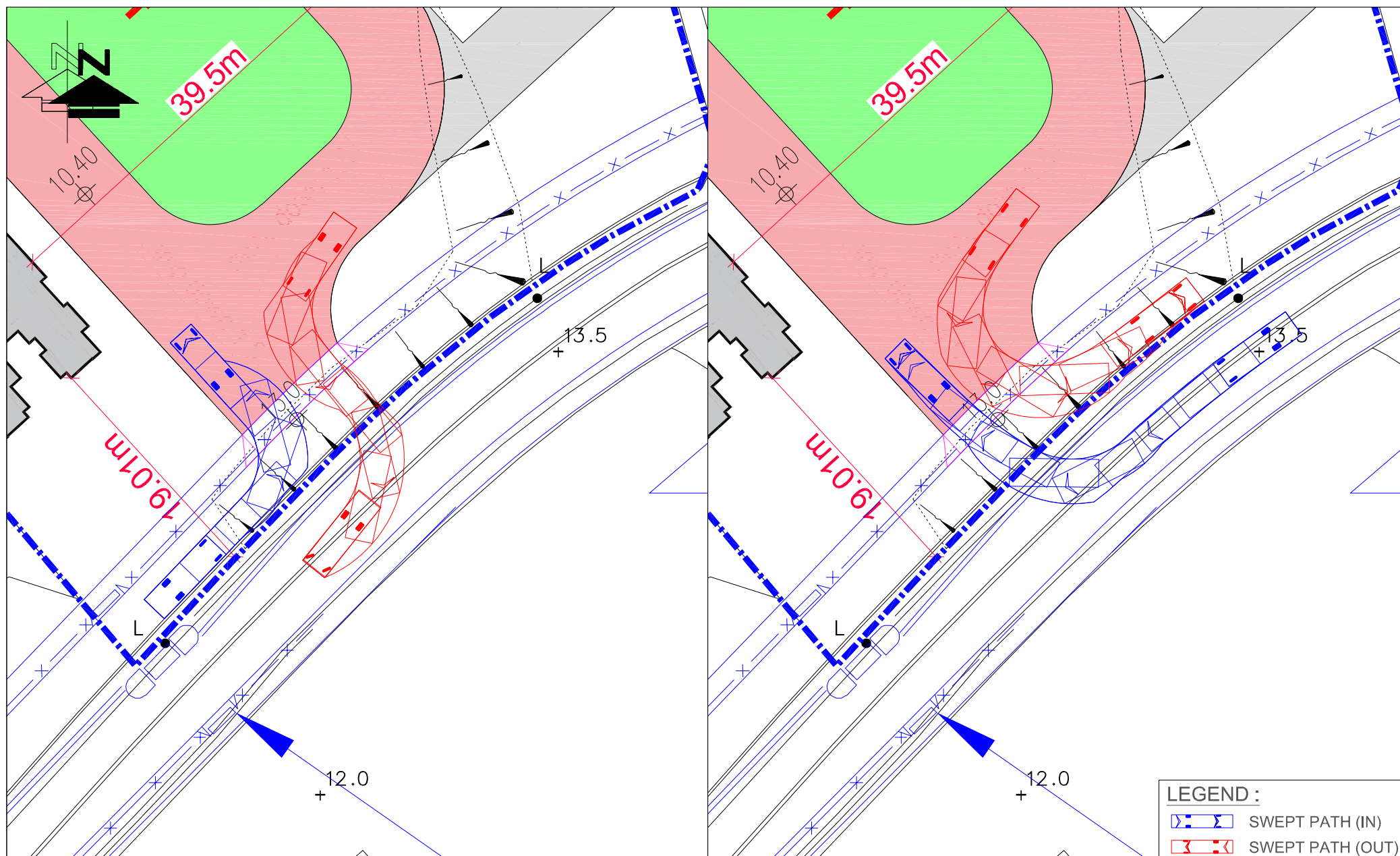


FIGURE NO.: 2.2(SP5)

PROJECT 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.



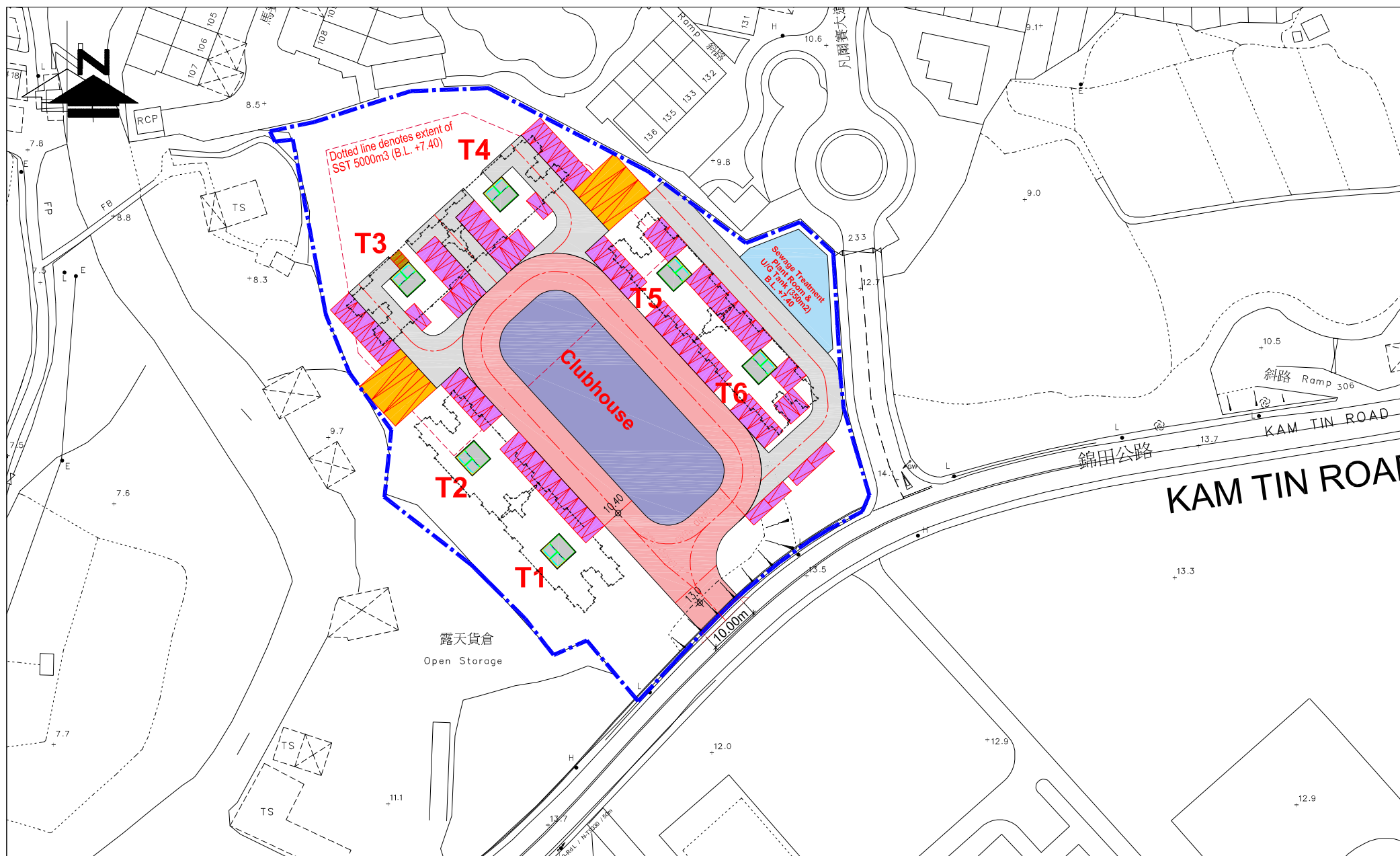


FIGURE NO.: 2.3	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 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: 26 MAR 2026	

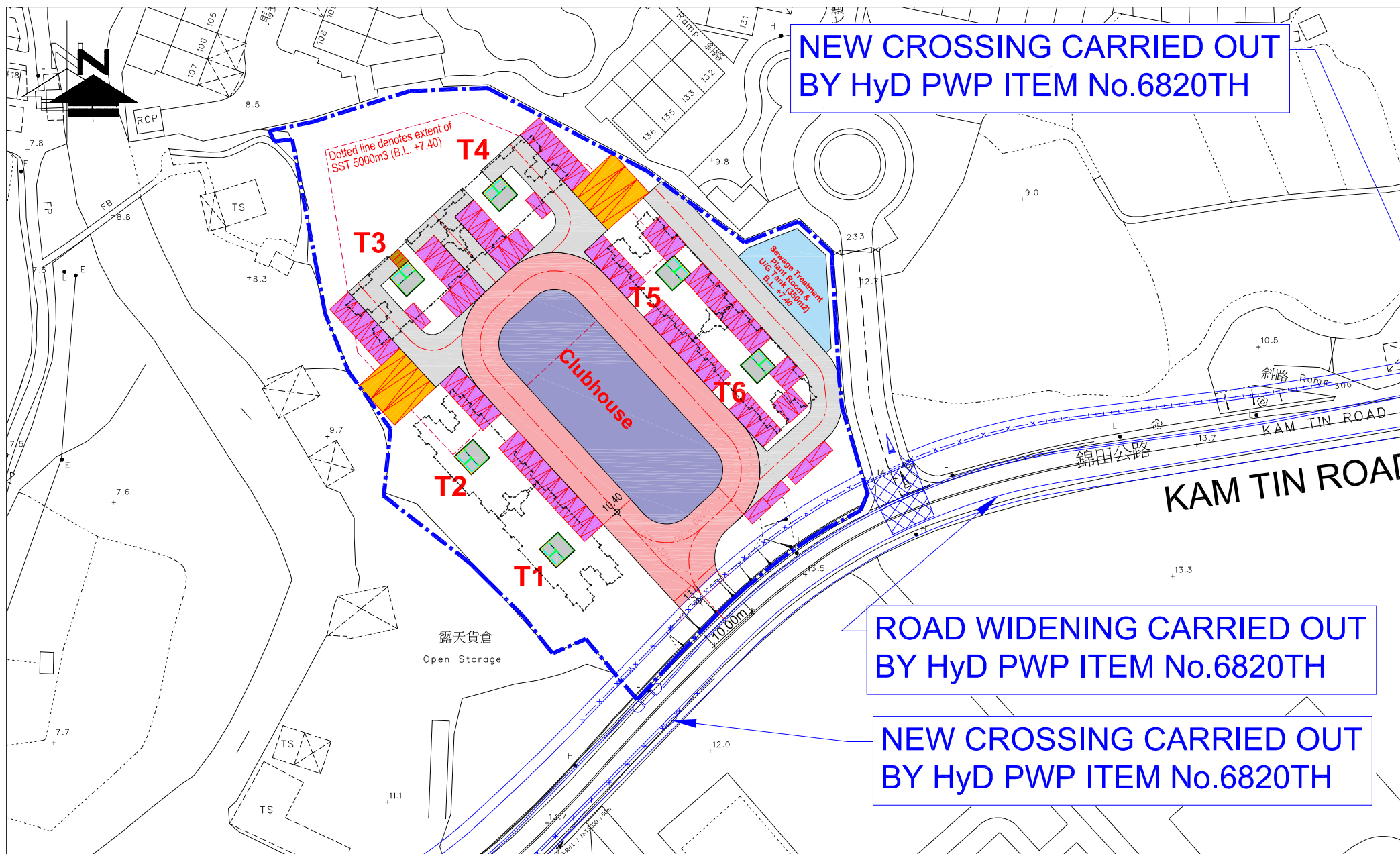
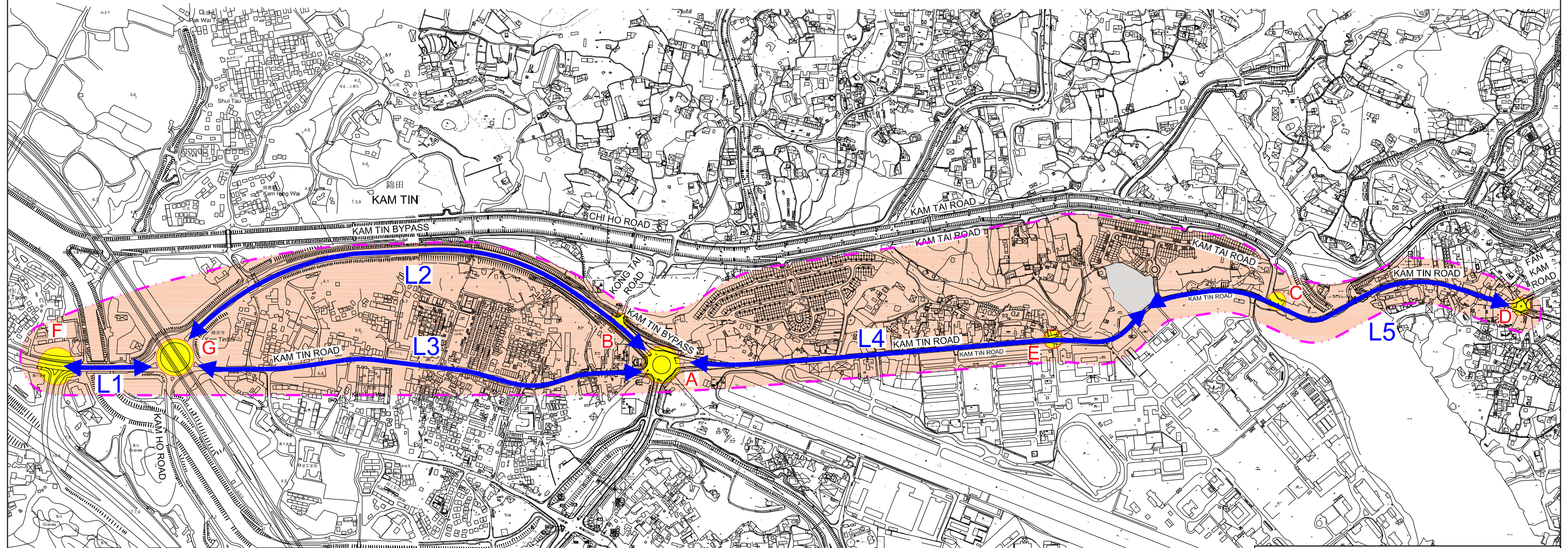
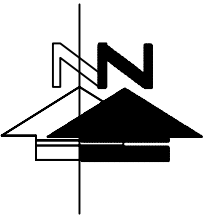


FIGURE NO.: 2.4	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 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 :

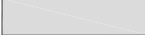
-  DEVELOPMENT SITE
-  CRITICAL JUNCTION
-  AREA OF INFLUENCE
-  CRITICAL ROAD LINK

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

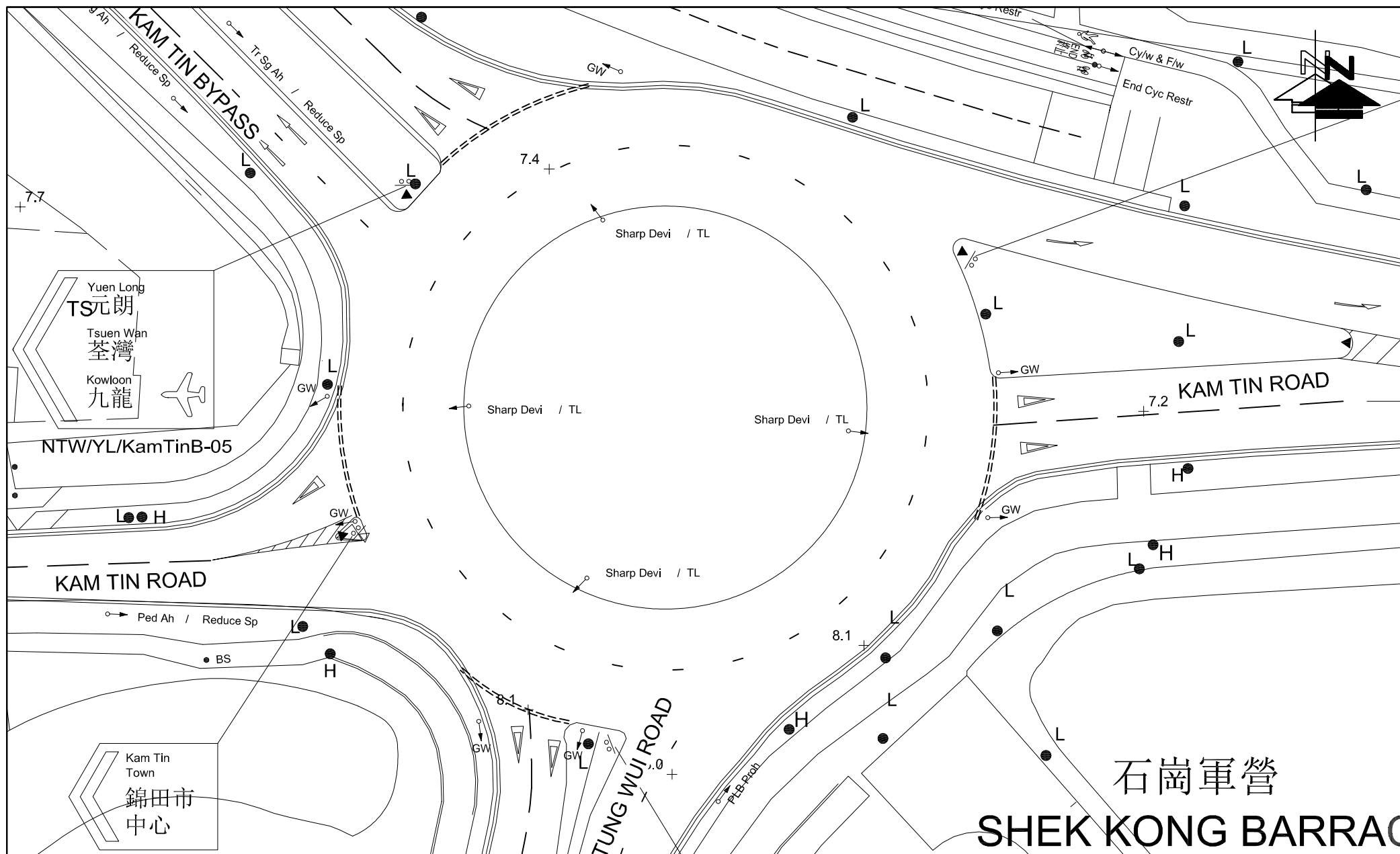


FIGURE NO.: 3.2	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 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	

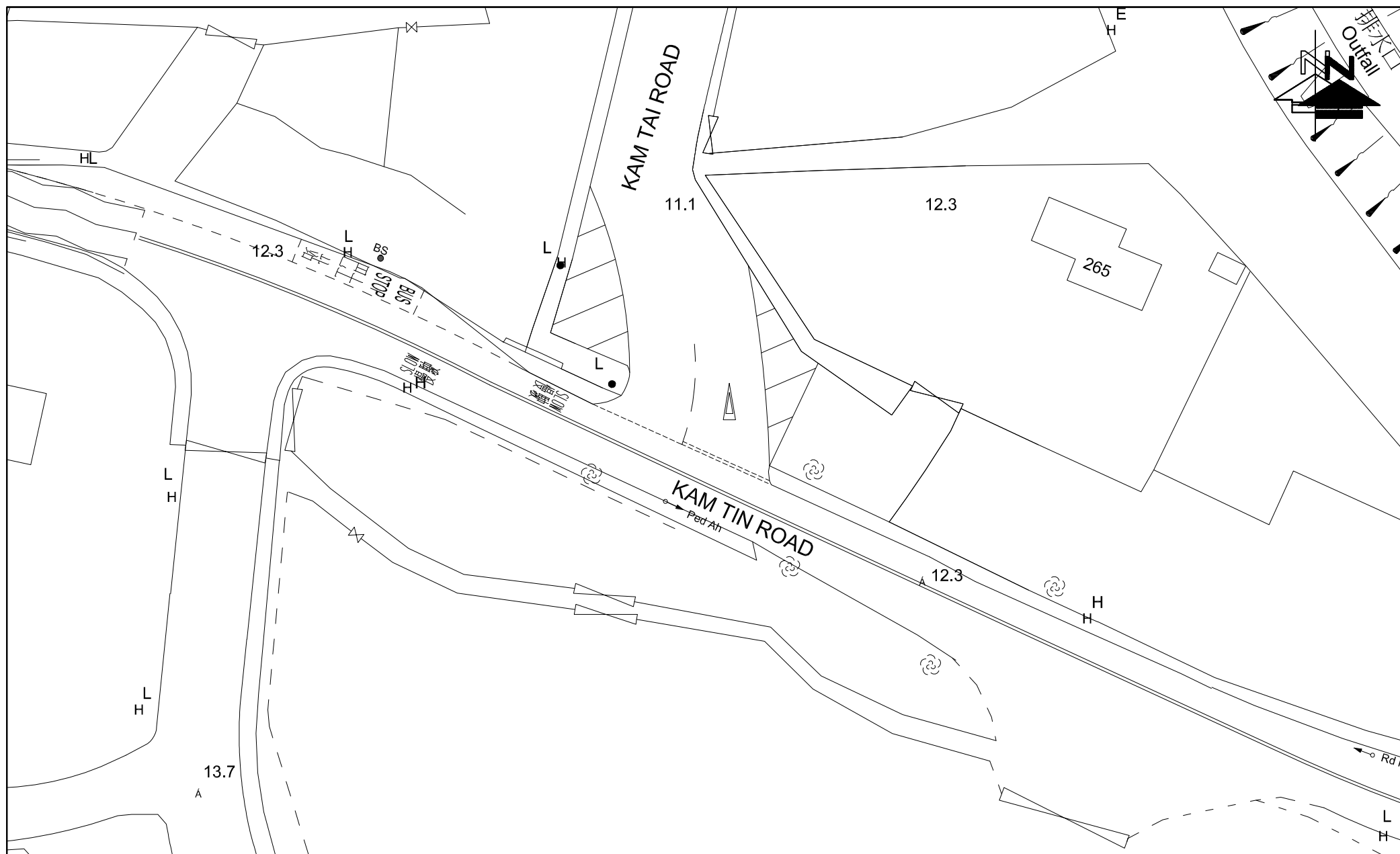


FIGURE NO.: 3.4		PROJECT TITLE: Rezoning from “Residential (Group C)2” and “Open Space” zones to “Residential (Group C)4” zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 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		

DATE:
05 NOV 2025

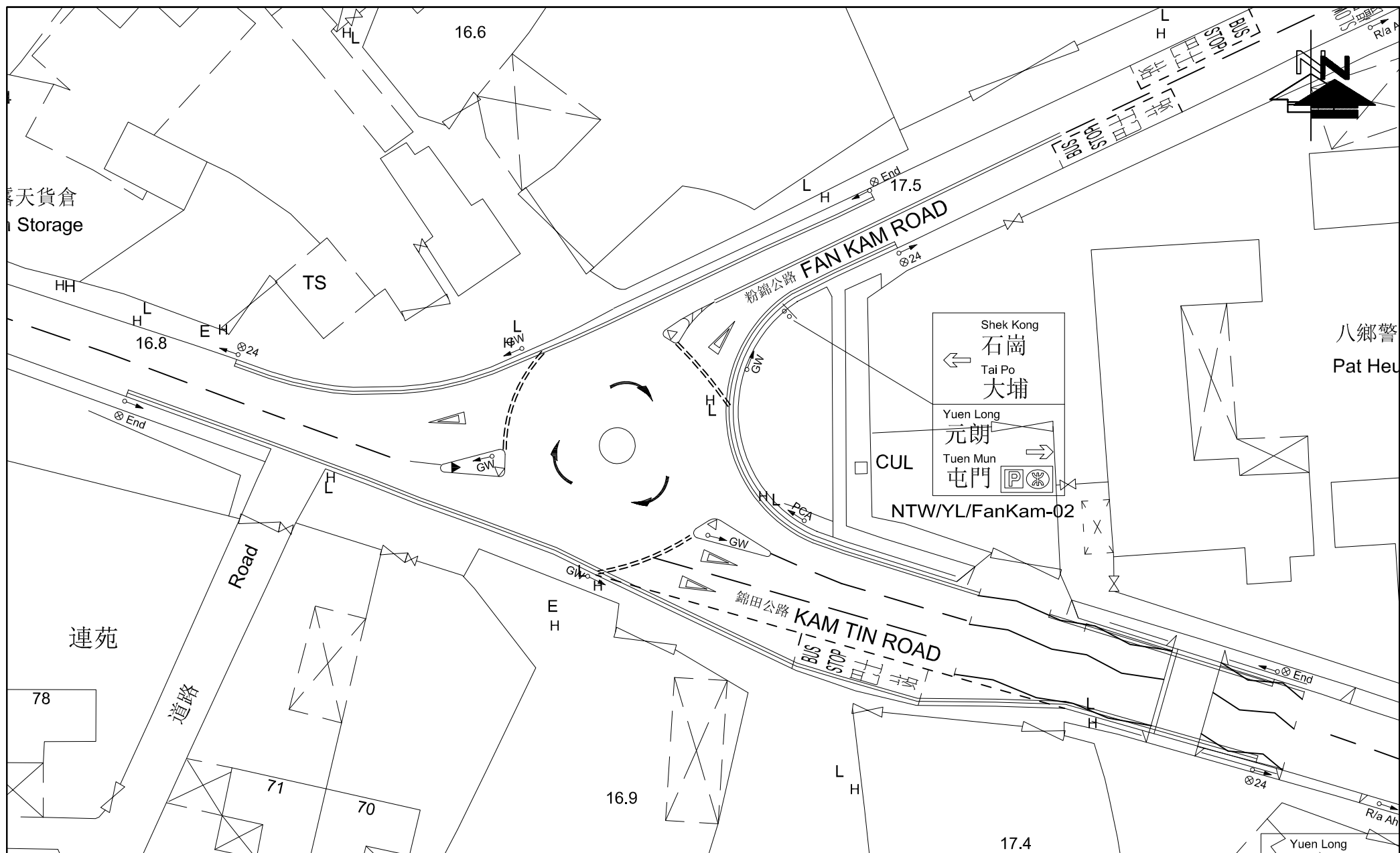
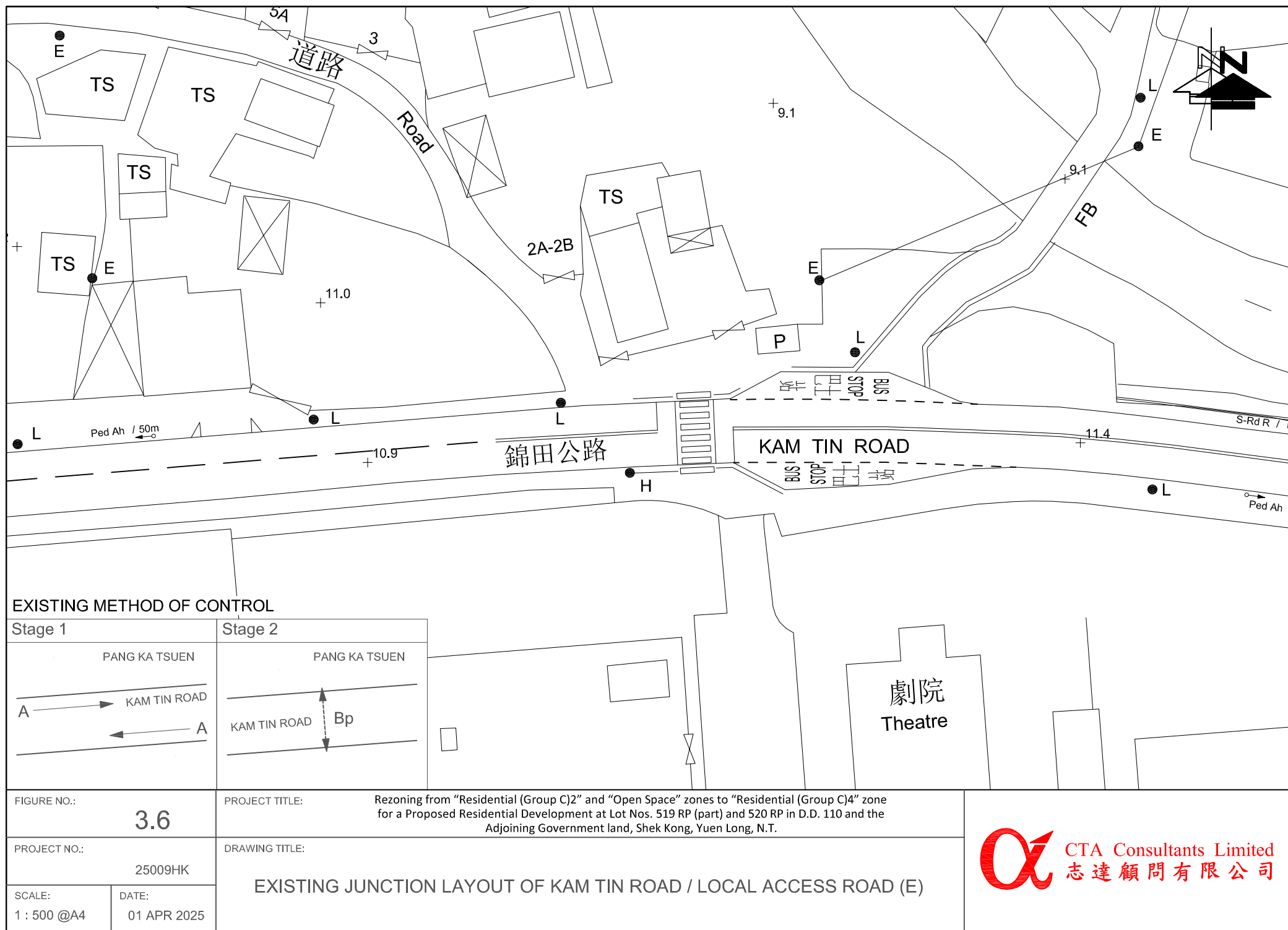


FIGURE NO.: 3.5		PROJECT TITLE: Rezoning from “Residential (Group C)2” and “Open Space” zones to “Residential (Group C)4” zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 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		



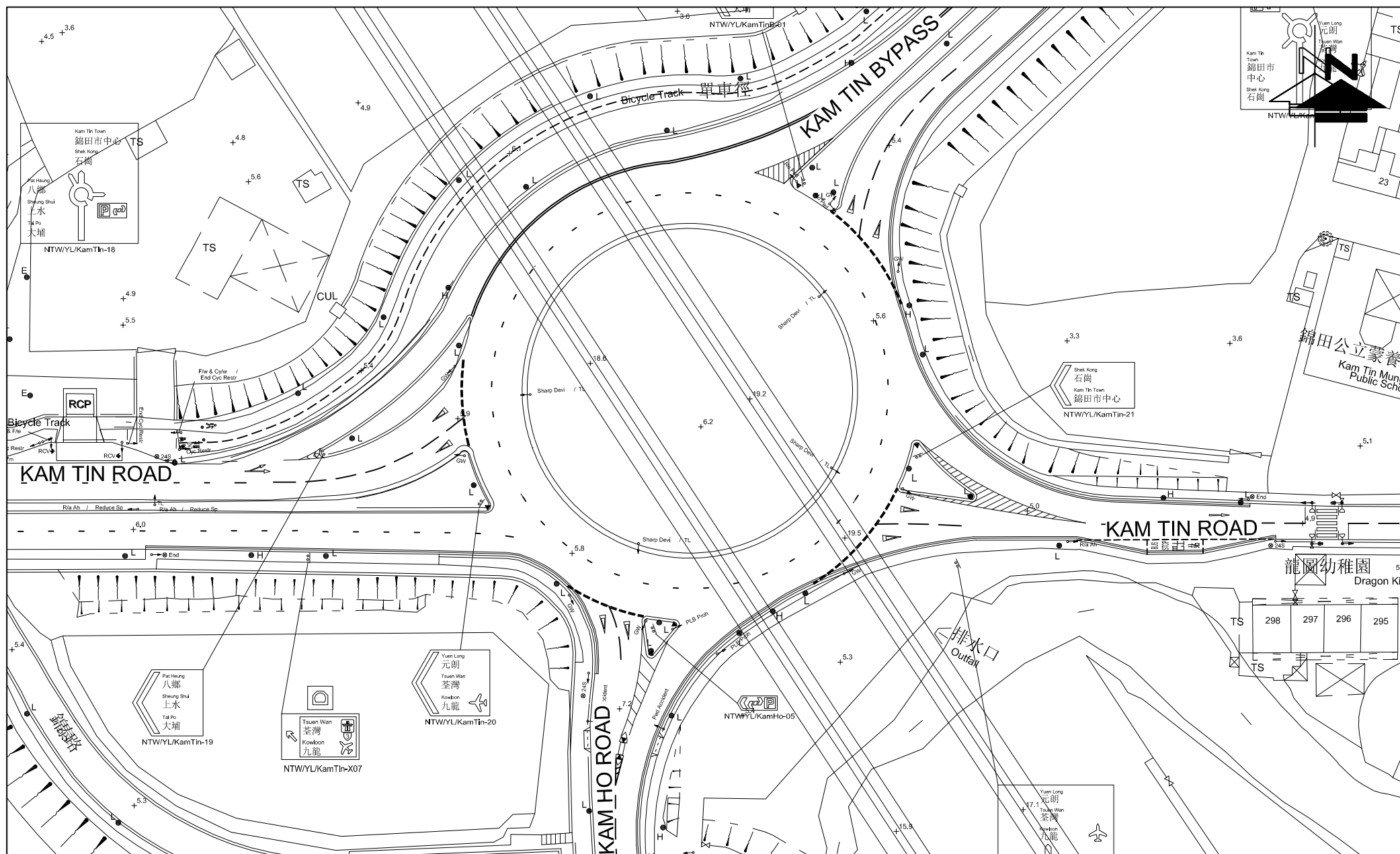
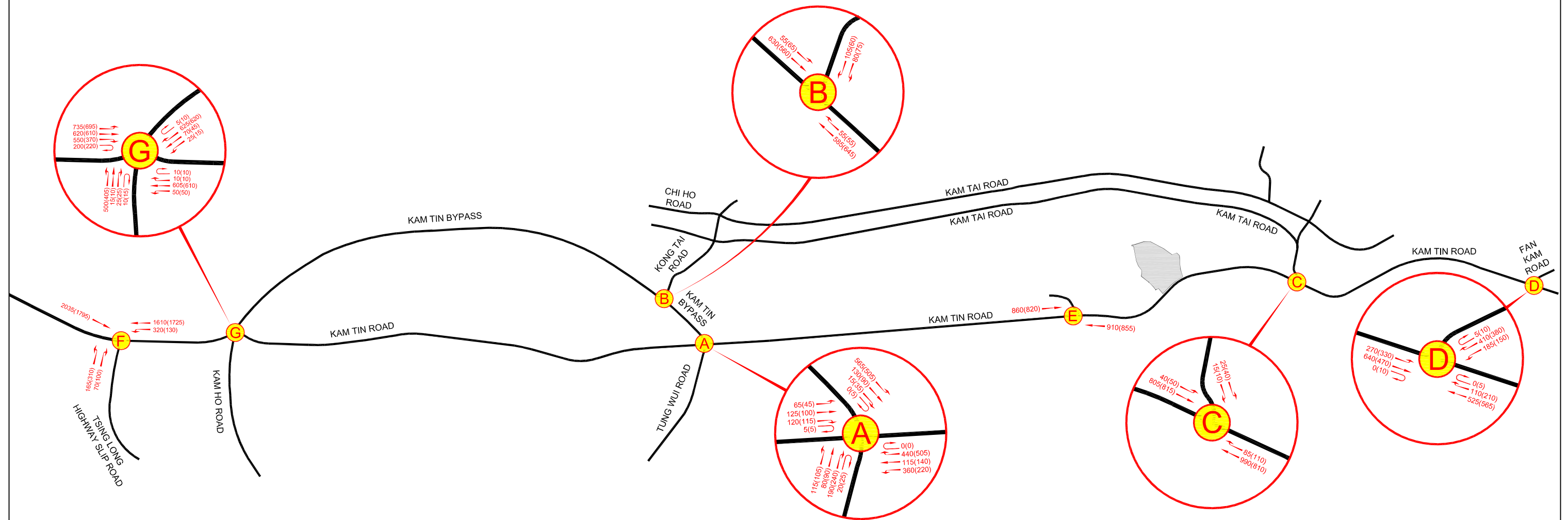
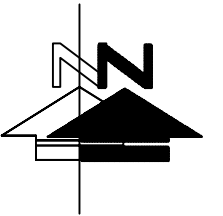


FIGURE NO.: 3.8	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 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	

2026 OBSERVED TRAFFIC FLOWS

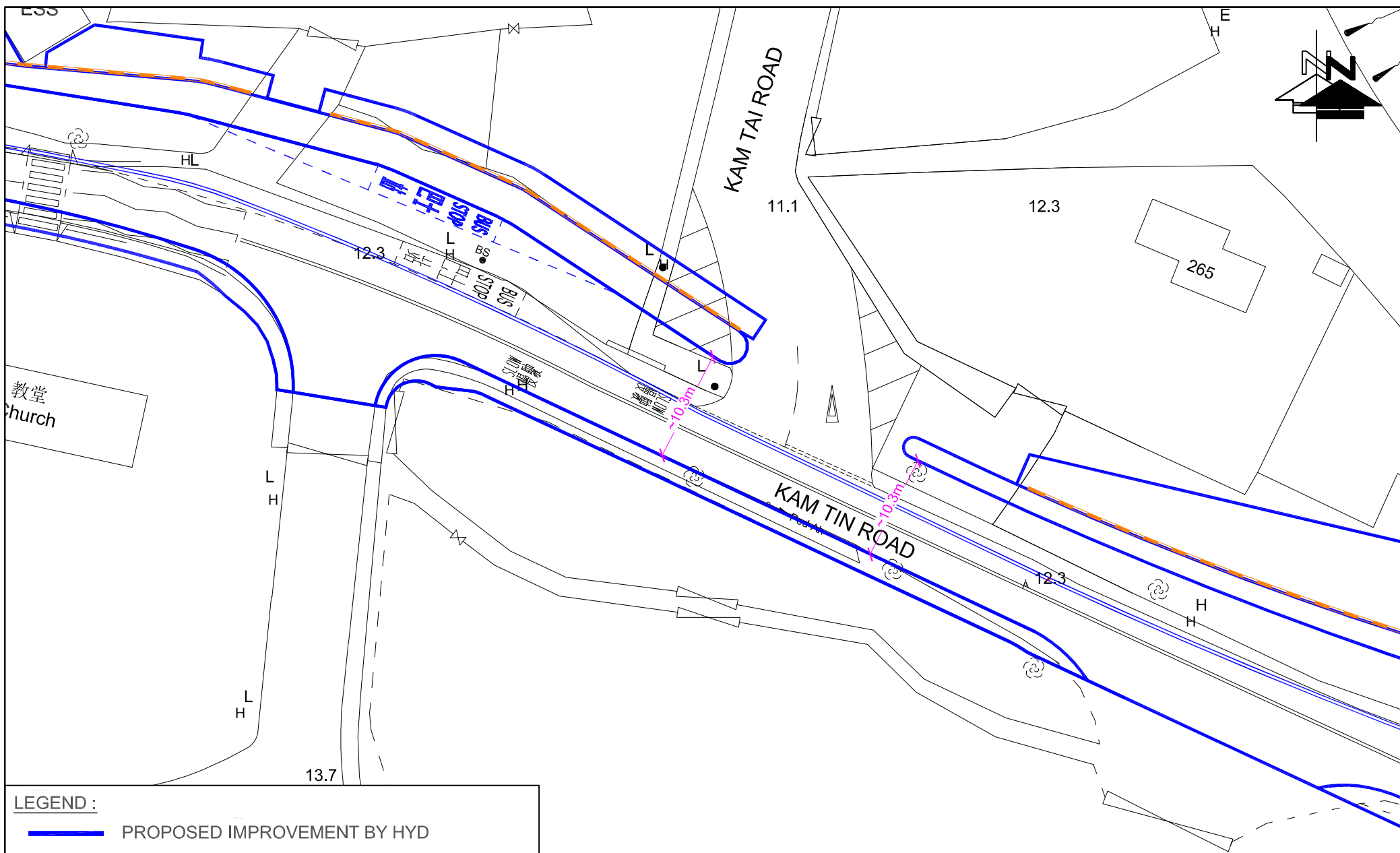


FIGURE NO.: 3.10		PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 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: 24 APR 2026		

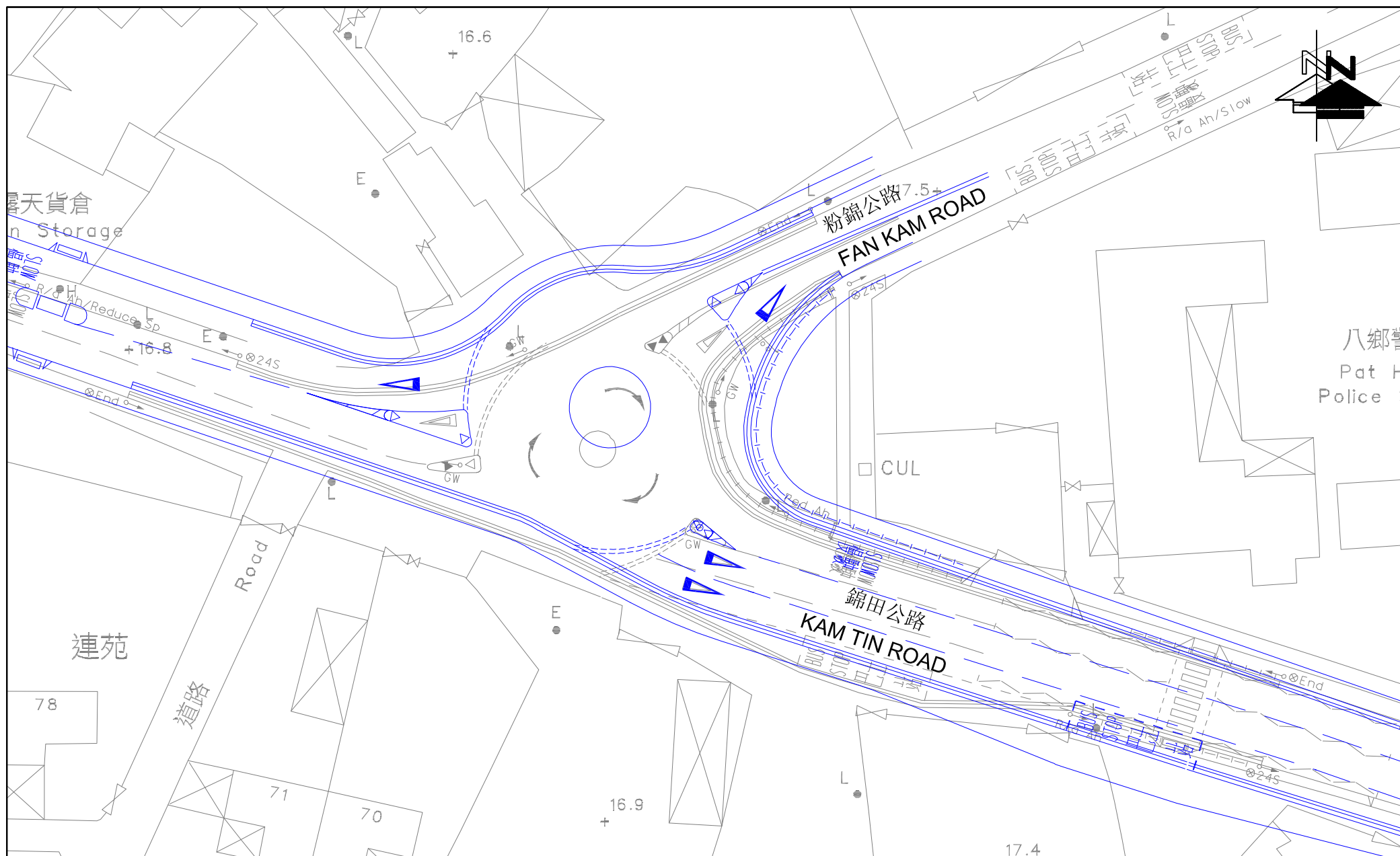


FIGURE NO.: 3.11		PROJECT TITLE: Rezoning from “Residential (Group C)2” and “Open Space” zones to “Residential (Group C)4” zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.
PROJECT NO.: 25009HK		DRAWING 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: 24 APR 2025	



CTA Consultants Limited
志達顧問有限公司

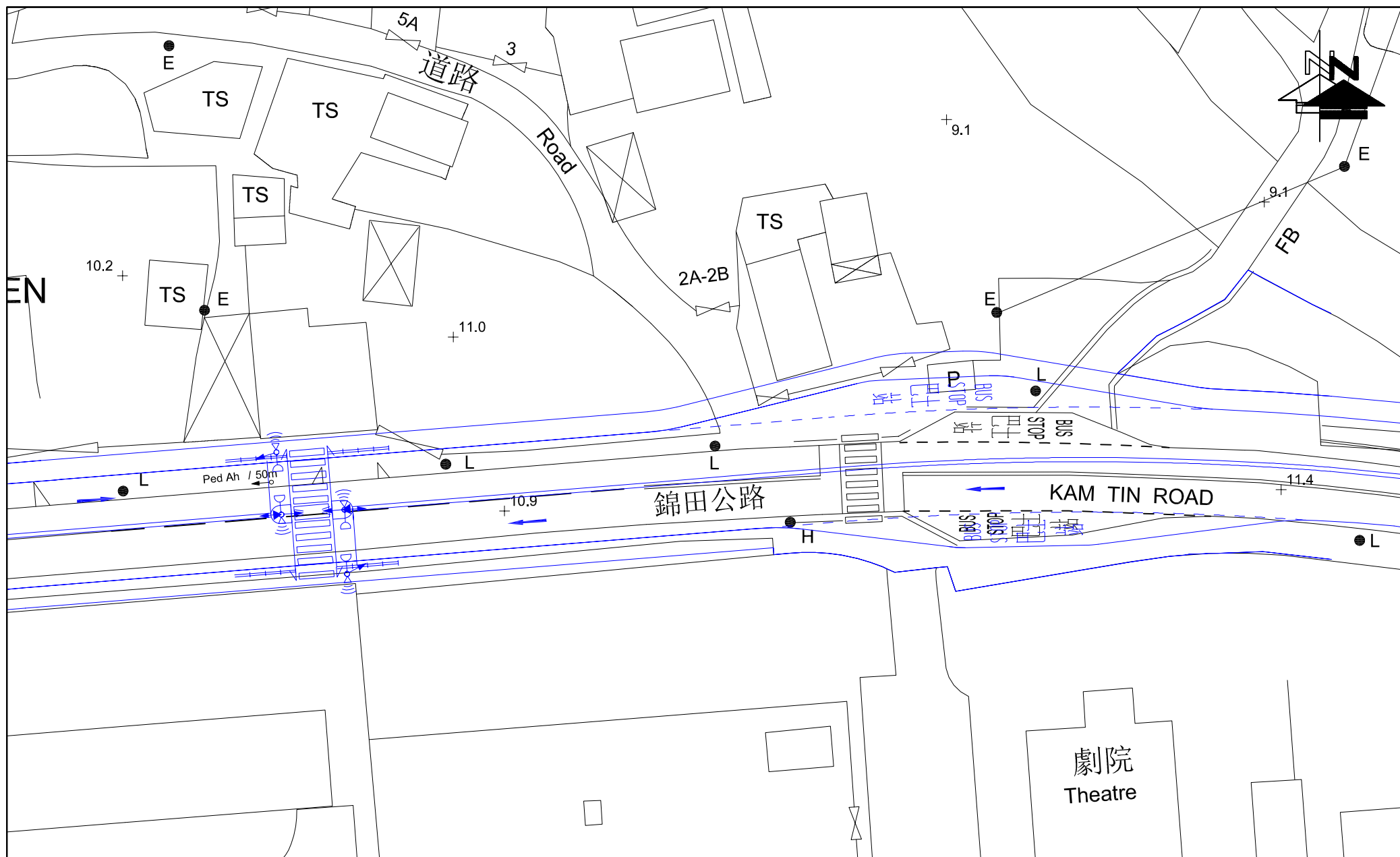


FIGURE NO.: 3.12		PROJECT TITLE: Rezoning from “Residential (Group C)2” and “Open Space” zones to “Residential (Group C)4” zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 志達顧問有限公司
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: 24 APR 2025		

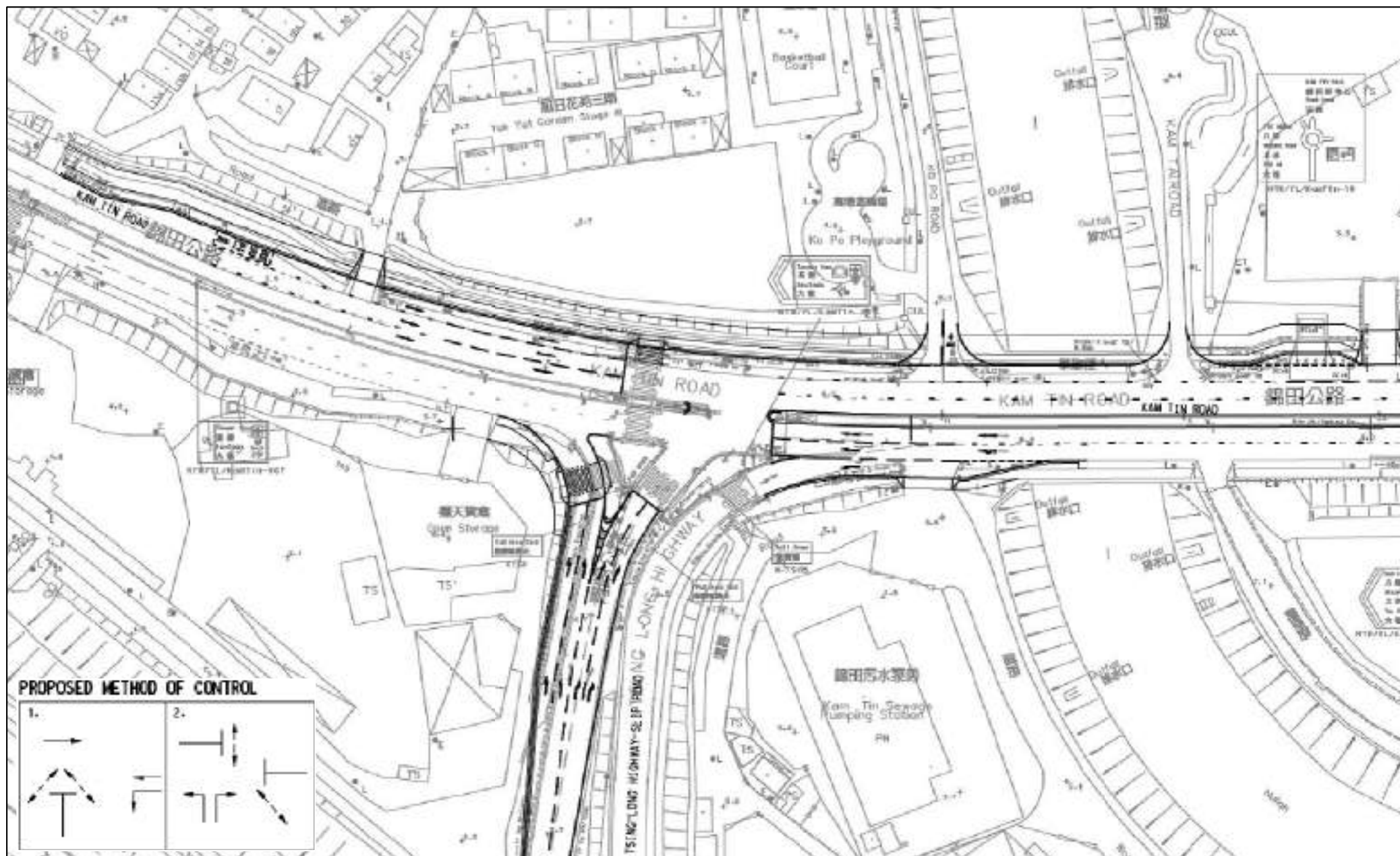
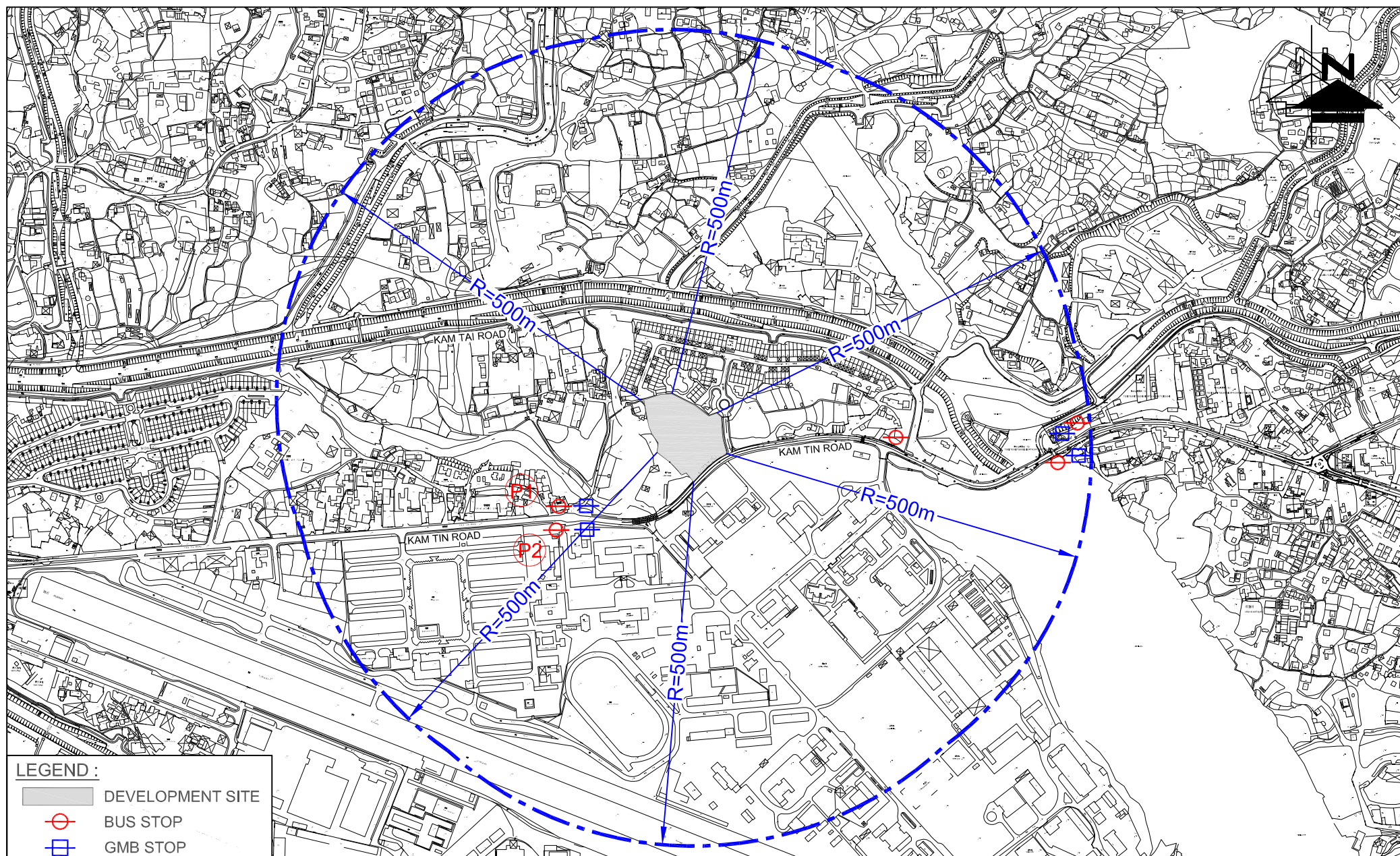


FIGURE NO.: 3.13		PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 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		

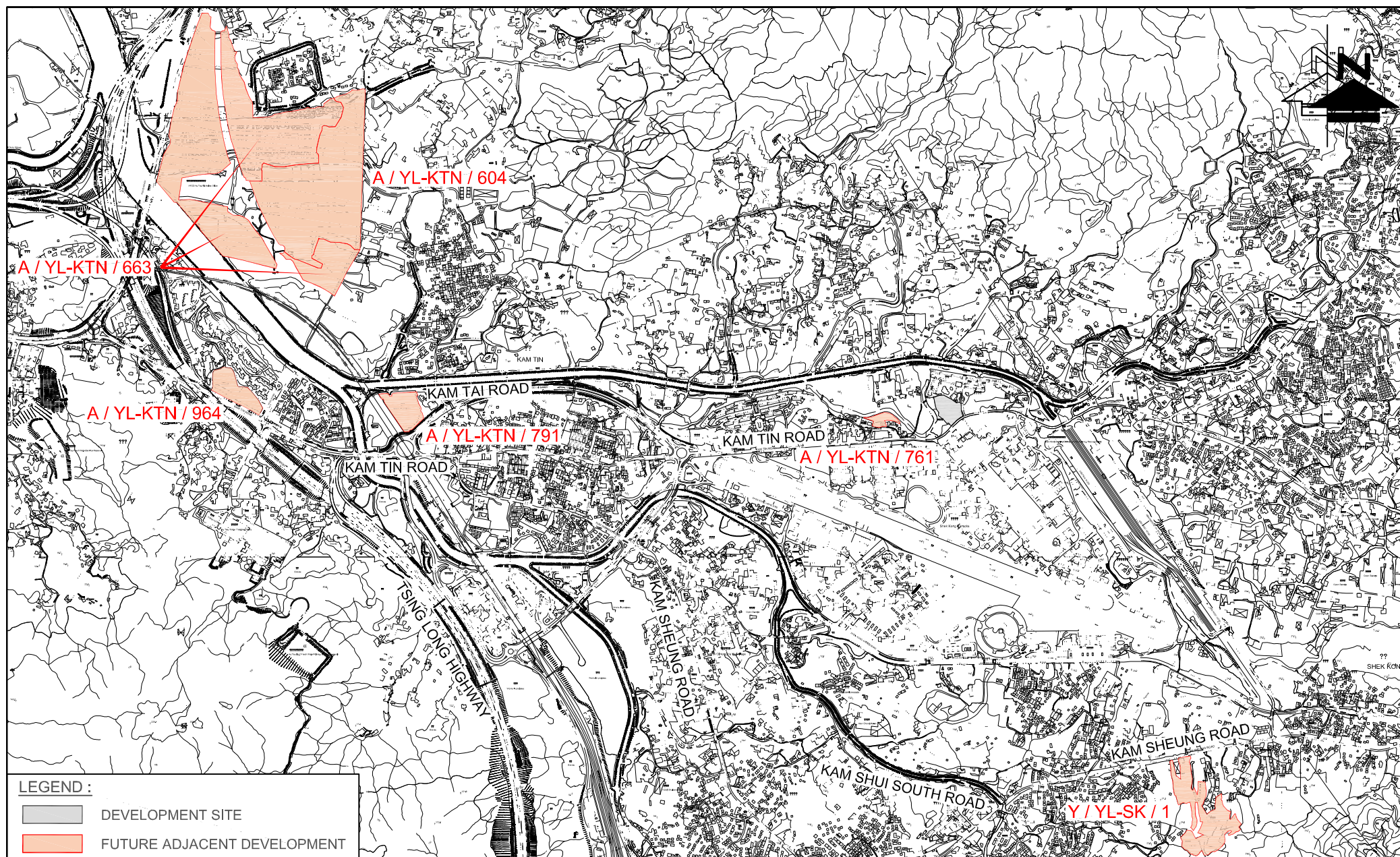


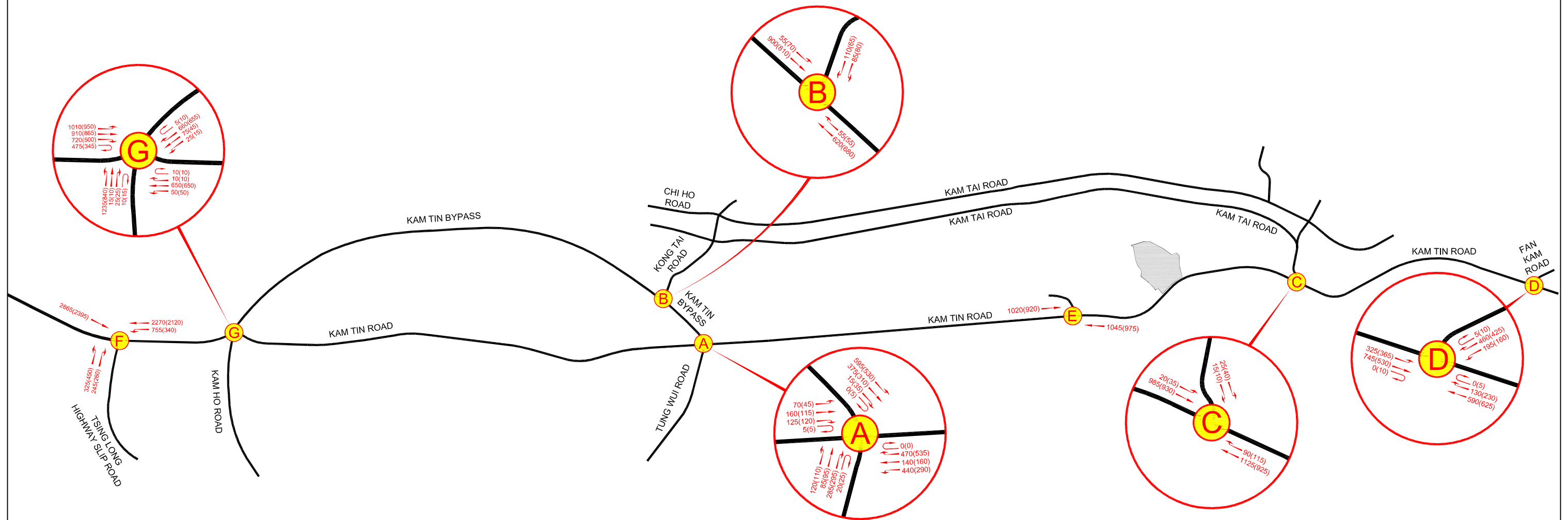
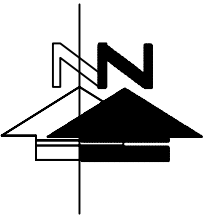
FIGURE NO.: 3.14	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 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.	
PROJECT NO.: 25009HK		DRAWING TITLE: PUBLIC TRANSPORT SERVICES IN THE VICINITY	
SCALE: 1 : 7000 @A4	DATE: 14 JUL 2025	 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.:

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

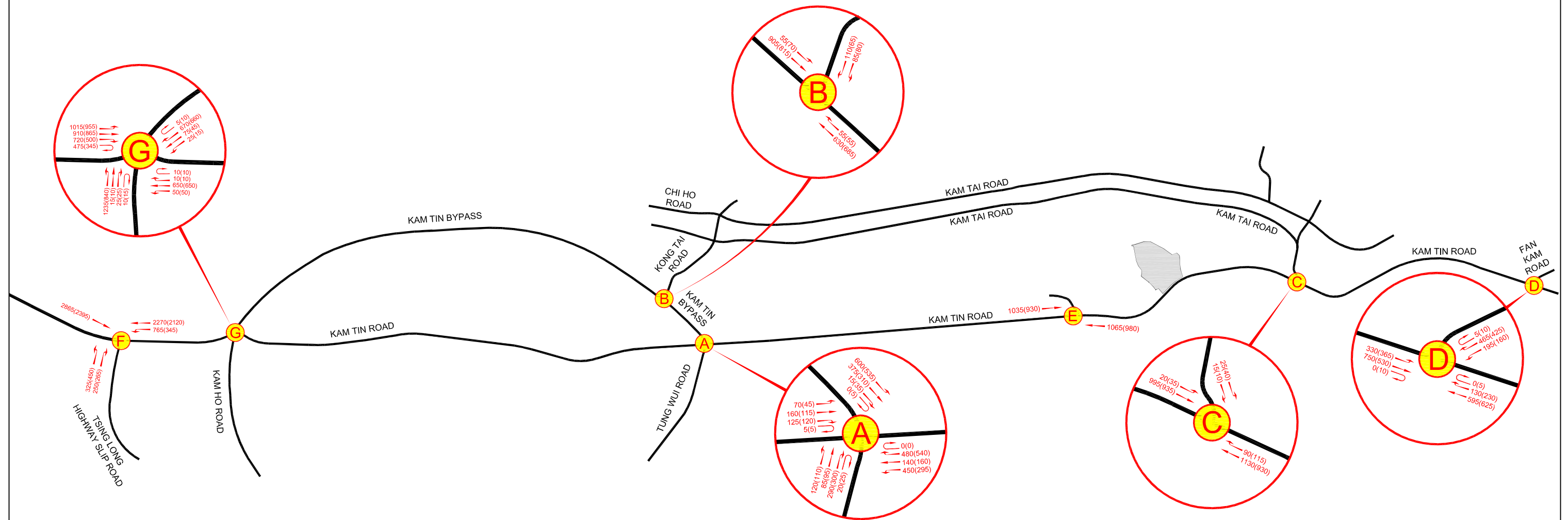
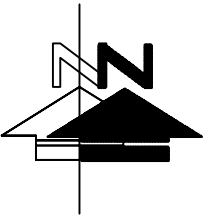
SCALE:

N. T. S. @A3

DATE:

18 MAY 2026

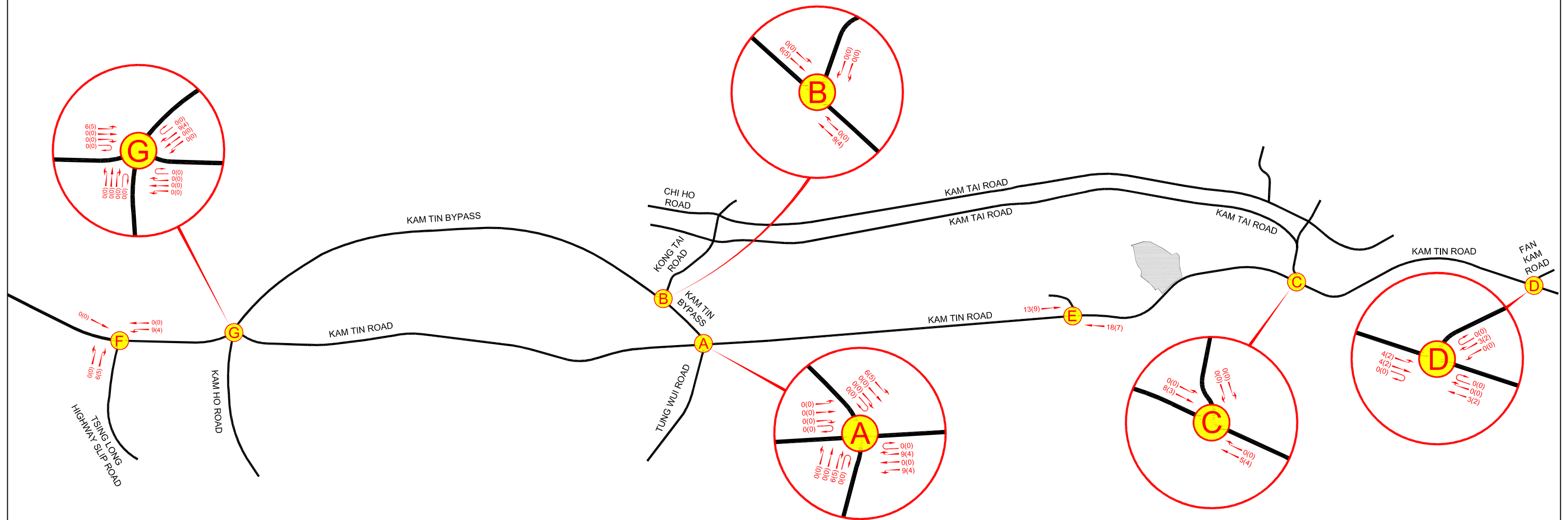
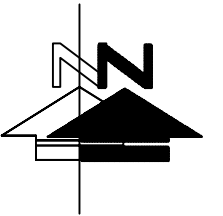
 CTA Consultants Limited
志達顧問有限公司



LEGEND :

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

FIGURE NO.: 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: 18 MAY 2026	



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

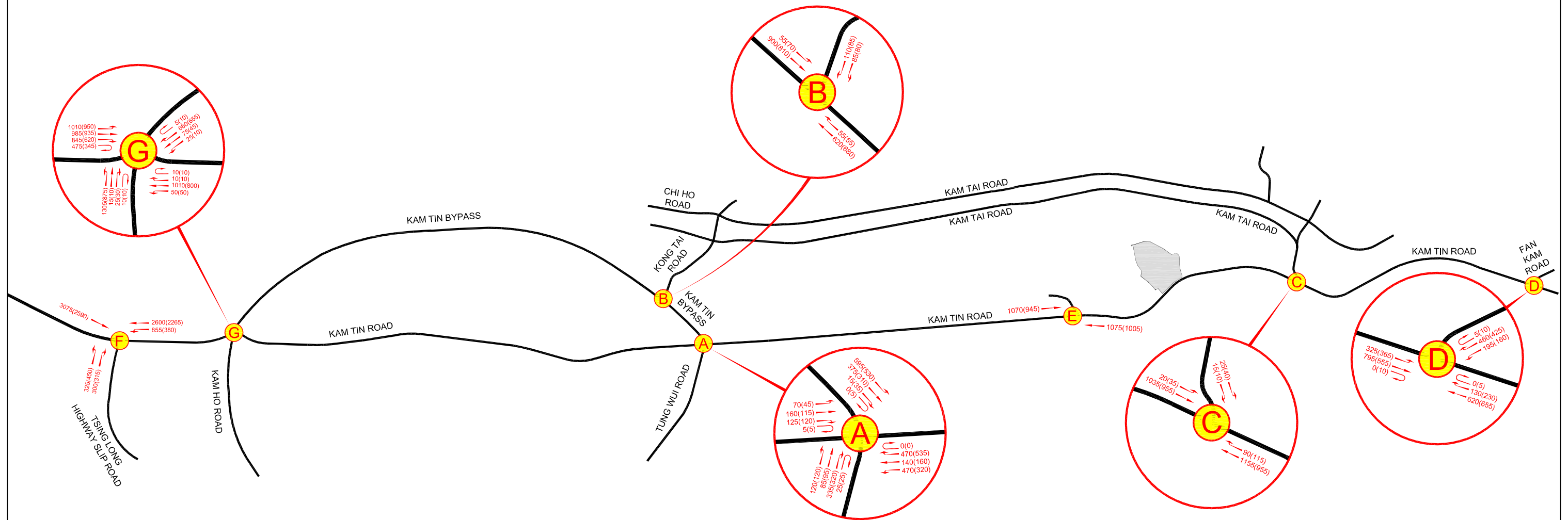
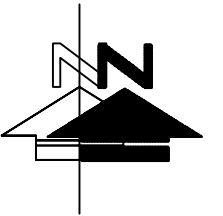
SCALE:

N. T. S. @A3

DATE:

18 MAY 2026

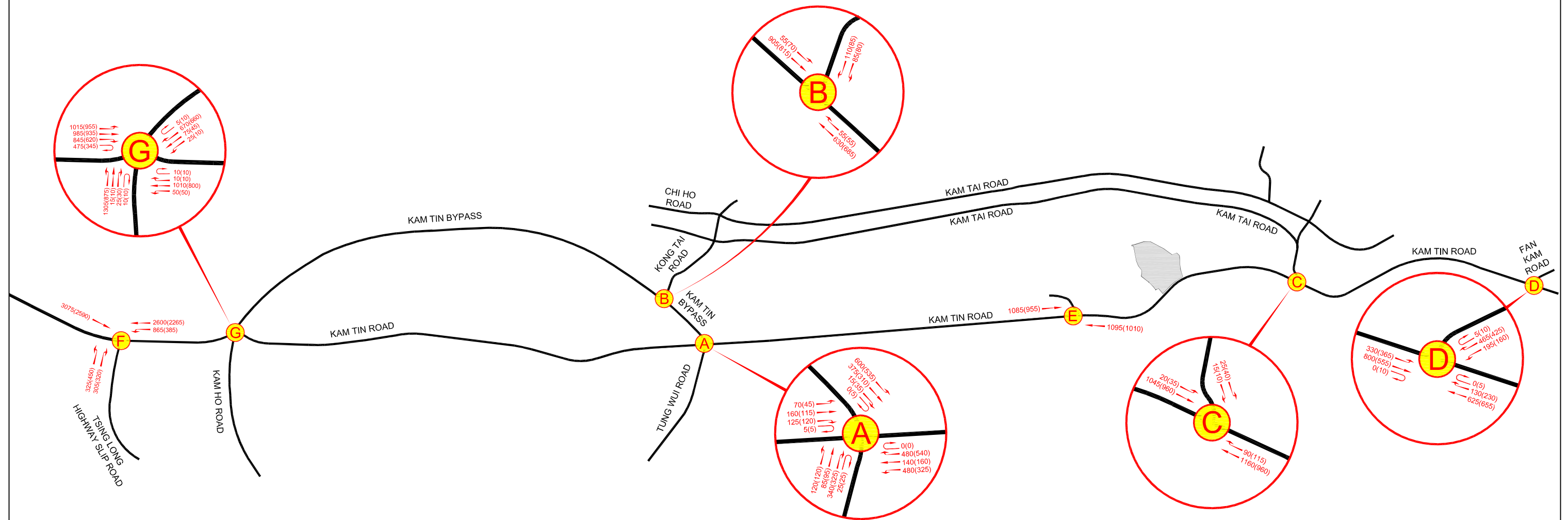
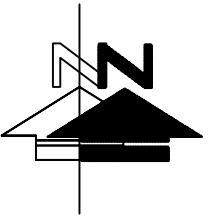
 CTA Consultants Limited
志達顧問有限公司



LEGEND :

-  DEVELOPMENT SITE
- 595(540)** 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: 18 MAY 2026		



LEGEND :

DEVELOPMENT SITE

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

FIGURE NO.:

4.6

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
(WITH REMAINING SITES OF LUR)

SCALE:

N. T. S. @A3

DATE:

18 MAY 2026

CTA Consultants Limited
志達顧問有限公司

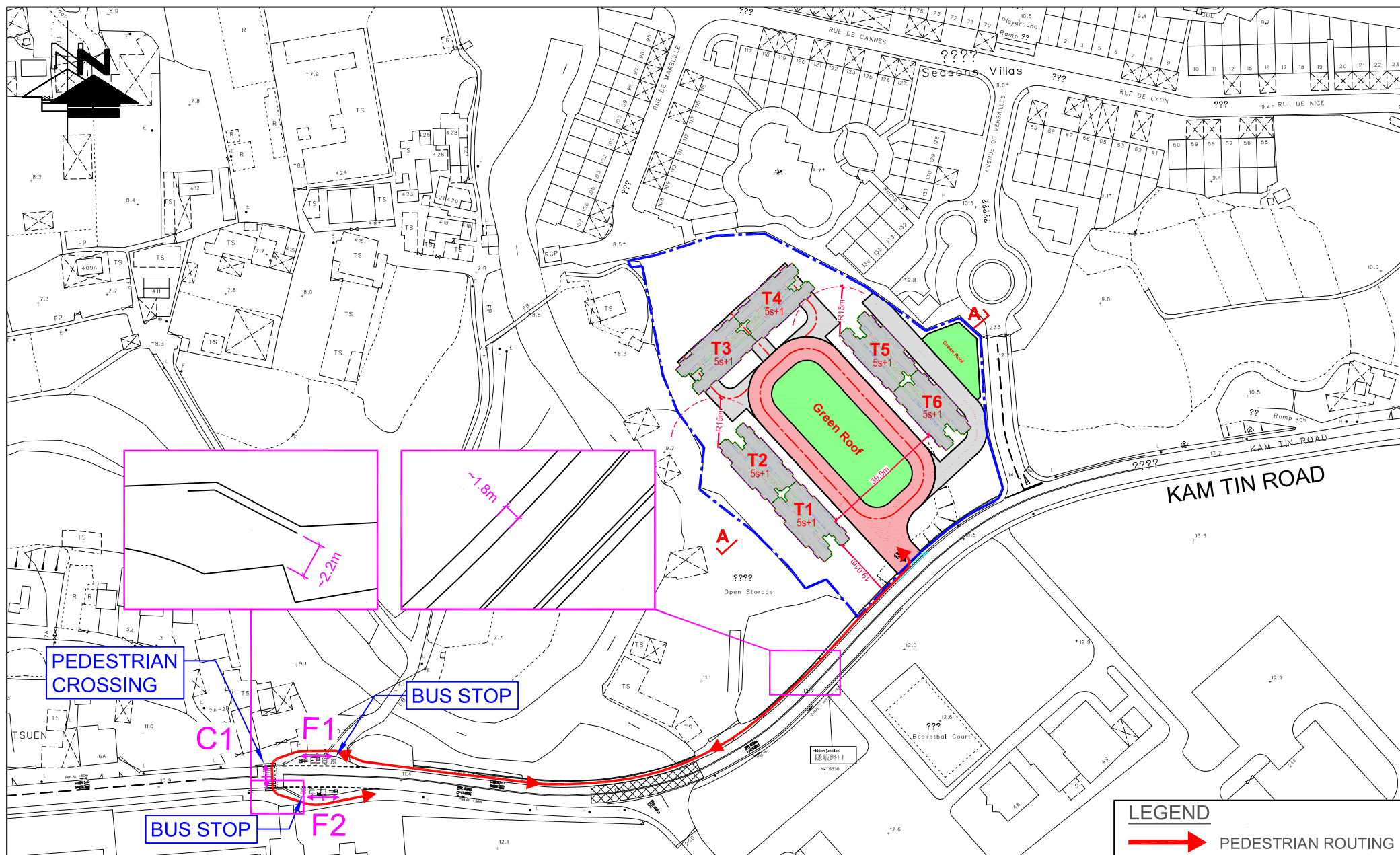


FIGURE NO.: 7.1	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 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	

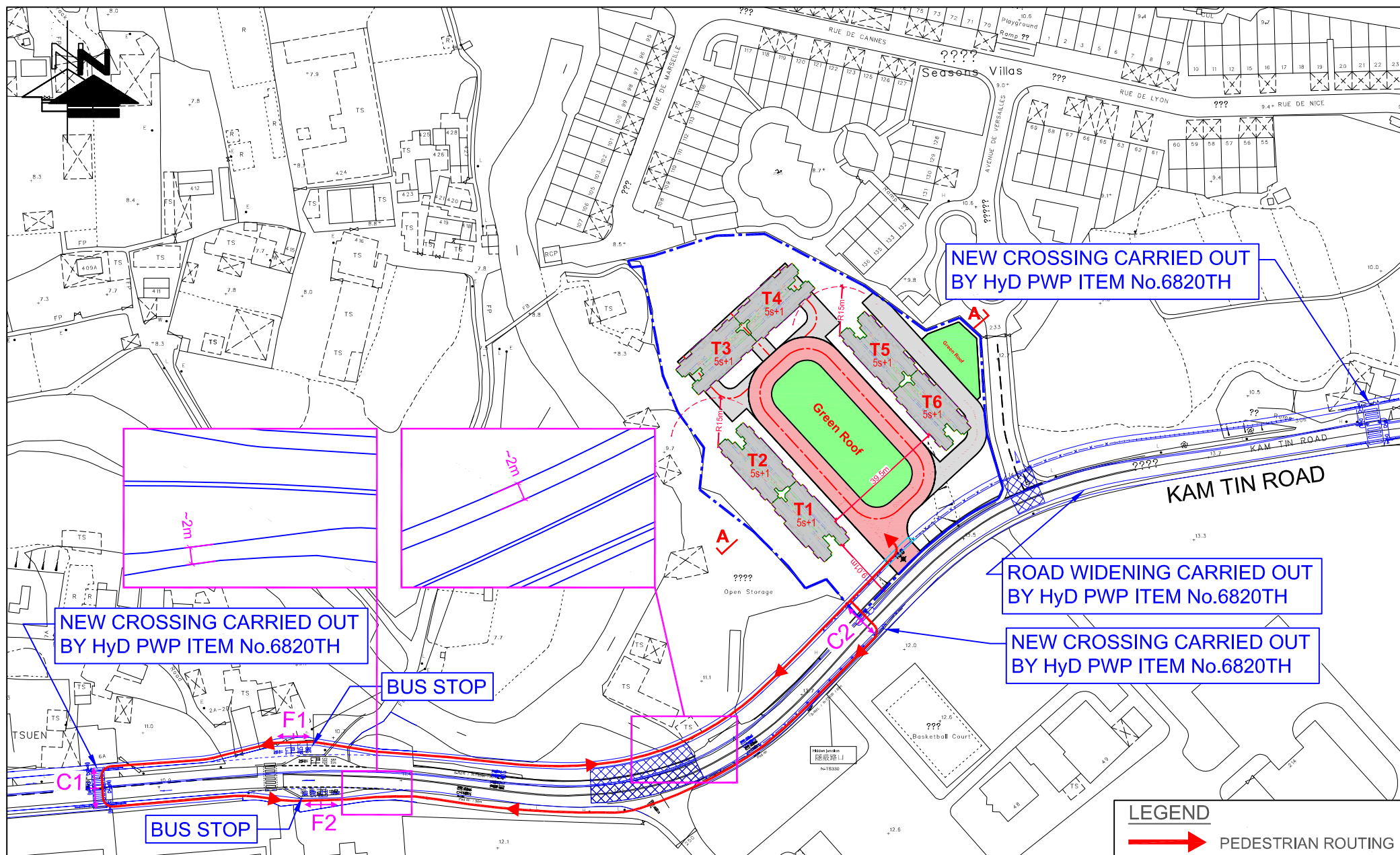


FIGURE NO.: 7.2	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 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	

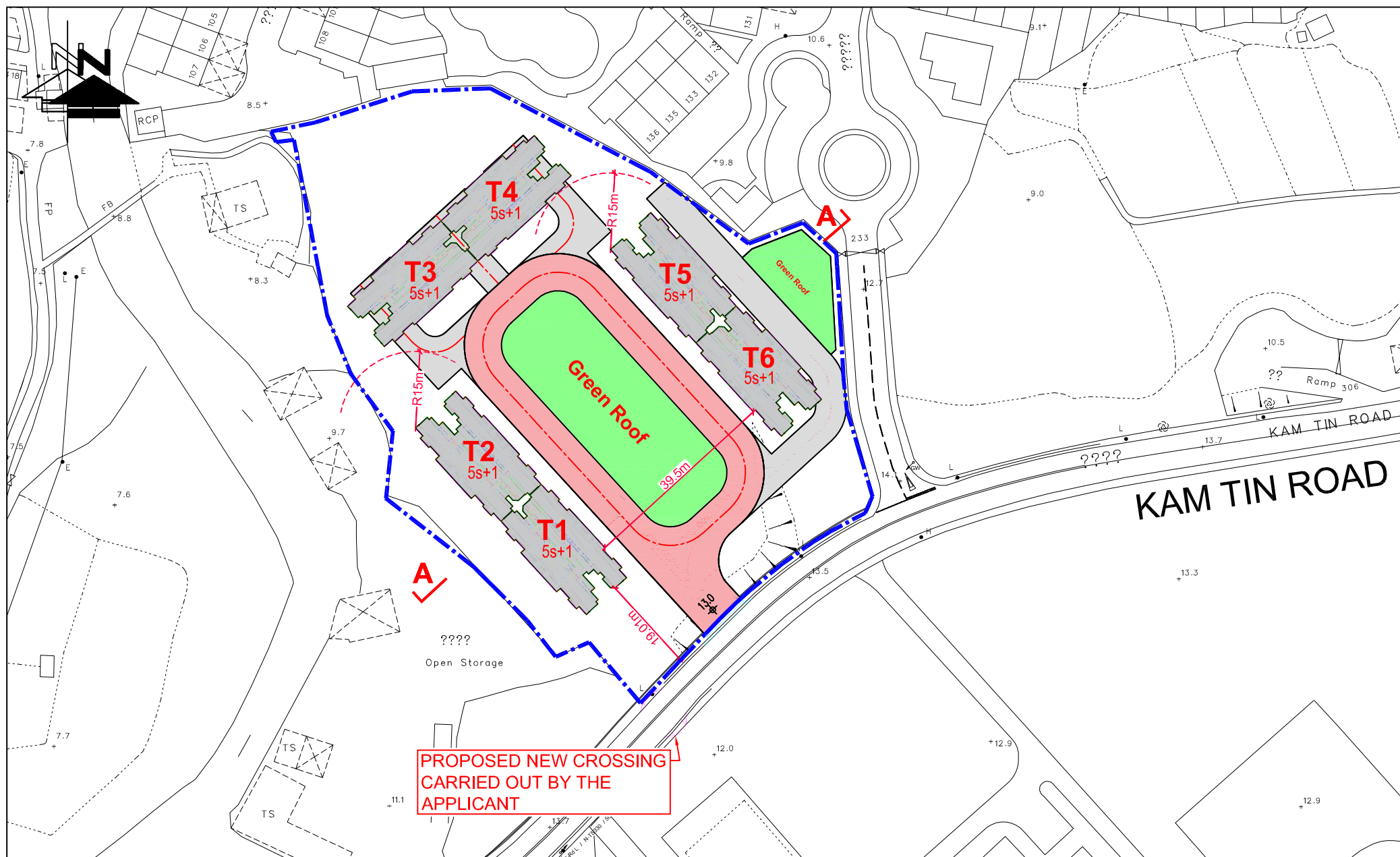
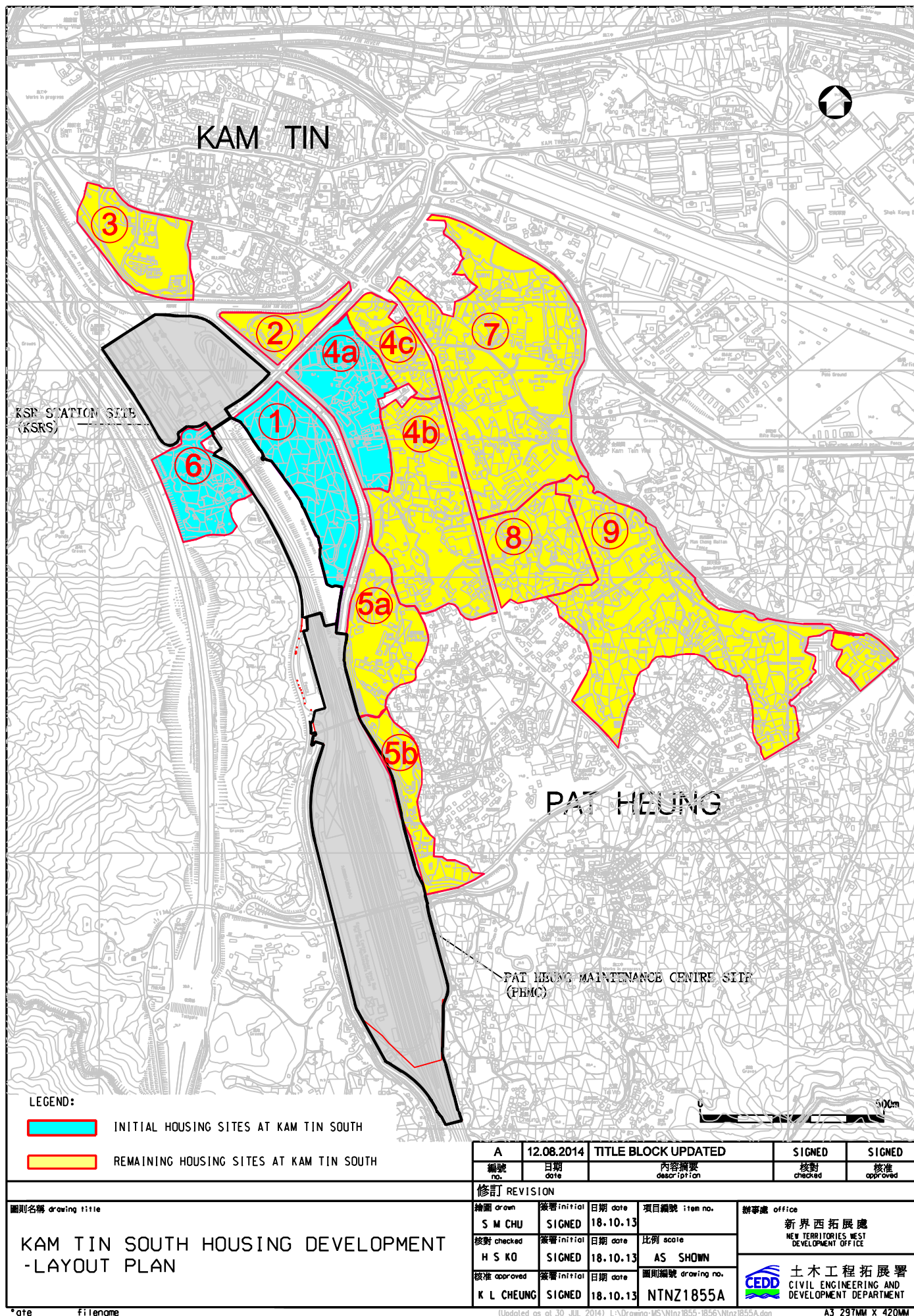


FIGURE NO.: 7.3	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: PROPOSED PEDESTRIAN CROSSING (PRIOR TO PWP'S WORKS)	
SCALE: 1 : 1000 @A4 DATE: 05 FEB 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 no.	日期 date	內容摘要 description	核對 checked	核准 approved

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

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



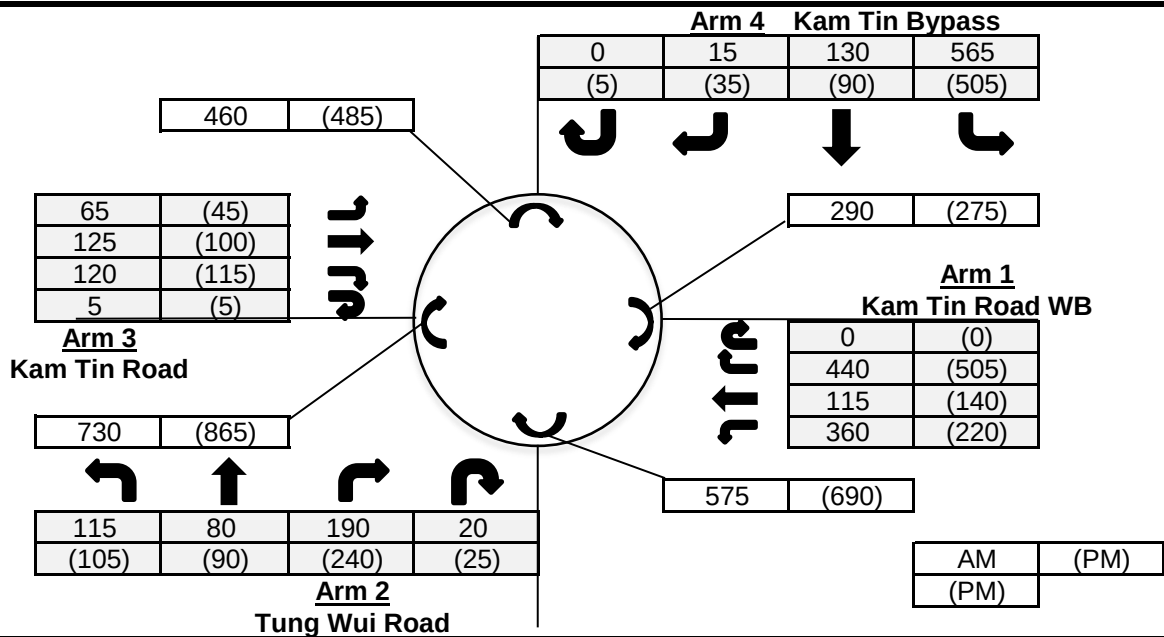
Appendix II

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



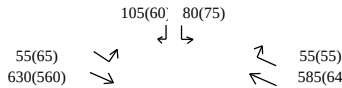
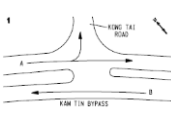
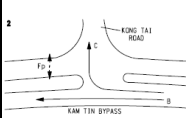
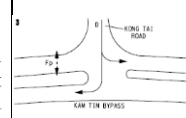
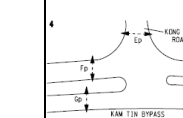
Input Parameters

			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

TRAFFIC SIGNALS CALCULATION										Job No: 25009HK										CTA Consultants Ltd.									
Junction: (B) Kam Tin Bypass / Kong Tai Road																													
Description: 2026 Observed 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	317	0.151		350	0.166								
	W		B	1,2	3.0	0	0	1	0%	0%	1775	3880	1775	1775	3880	3880	268	0.151		295	0.166								
Kam Tin Bypass	E		A	1	3.0	13	0	1	17%	22%	1915	3970	1880	1870	3935	3925	327	0.174	0.174	298	0.159	0.159							
	E		A	1	3.0	0	0	0	0%	0%	2055	0	2055	2055	0	0	358	0.174		327	0.159								
Kong To Road	S		D	3	3.5	10	12	1	43% / 57%	56% / 44%	1461	1461	1285	1285	1285	1285	185	0.144	0.144	135	0.105	0.105							
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 0.318 L (sec) 47 C (sec) 108 y pract. 0.508 R.C. (%) 60%				Ey 0.264 L (sec) 47 C (sec) 108 y pract. 0.508 R.C. (%) 92%									
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 :	2026 Observed Traffic Flows		

Arm B Kam Tai Road

15	25
(10)	(40)

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

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)

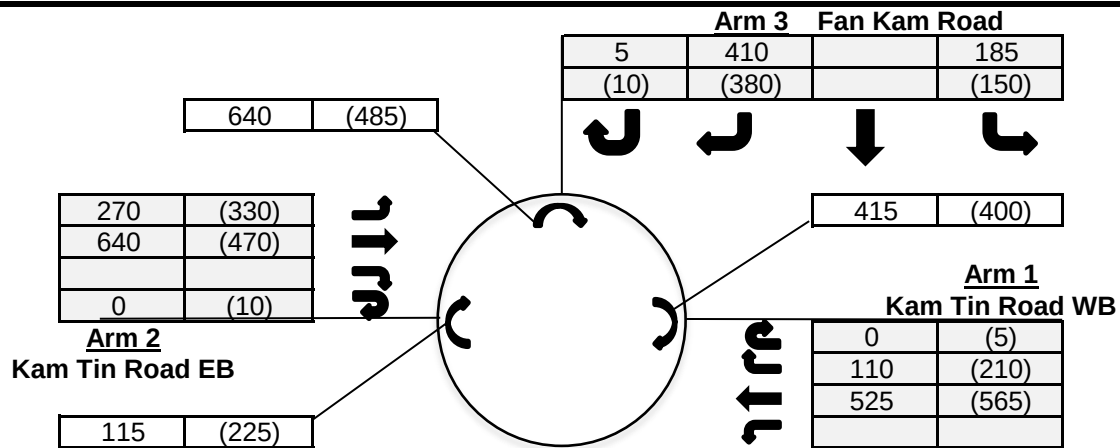
Results :	Ratio of Flow-to-Capacity	AM	PM
	B-A	N/A	N/A
	B-C	N/A	N/A
	C-B	0.19	0.25
	C-A	0.68	0.60
	B-AC	0.13	0.13

Critical DFC	0.68	0.60
--------------	------	------

Roundabout Junction Calculation

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

Scenario : 2026 Observed Traffic Flows



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 PM 780	910 810	600 540
Qc	=	Circulating flow across entry (pcu/hr)			
			AM 415 PM 400	115 225	640 485

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 PM 1210	2469 2373	1011 1106
DFC	=	Entry Flow/Capacity = Q/Qe			
			AM 0.53 PM 0.64	0.37 0.34	0.59 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 ↔ Bp 2 Min. 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																				

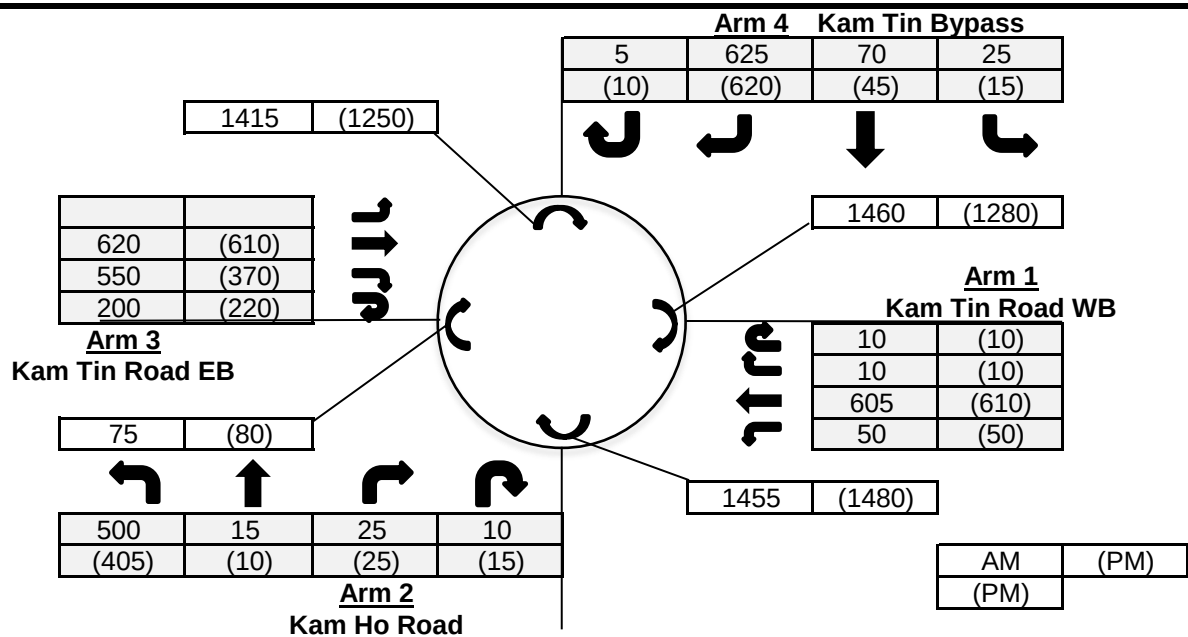
Junction: (F) Kam Tin Road / Tsing Long Highway Slip Road																				
Description: 2026 Observed Traffic Flows (With TTA)																				
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. 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 L (sec) 15 C (sec) 96 y pract. 0.759 R.C. (%) 24%			εy 0.604 L (sec) 15 C (sec) 106 y pract. 0.773 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

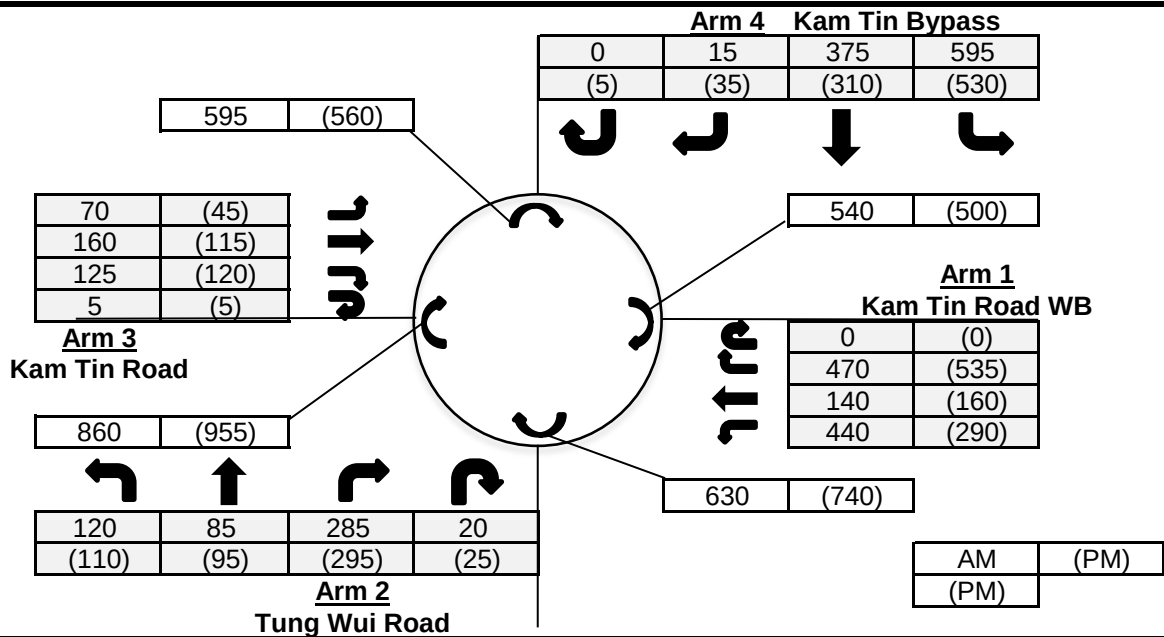
DFC of Critical Approach = AM 0.54
PM 0.50

Roundabout Junction Calculation

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

Job No.: 25009HK

Scenario : 2034 Reference Traffic Flows



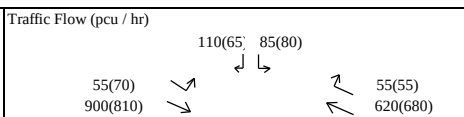
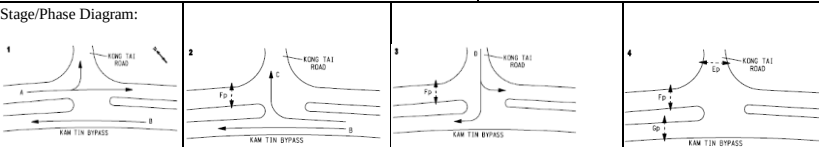
Input Parameters

			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 1050 PM 985	510 525	360 285	985 880
Qc	=	Circulating flow across entry (pcu/hr)				
			AM 540 PM 500	630 740	860 955	595 560

Output Parameters

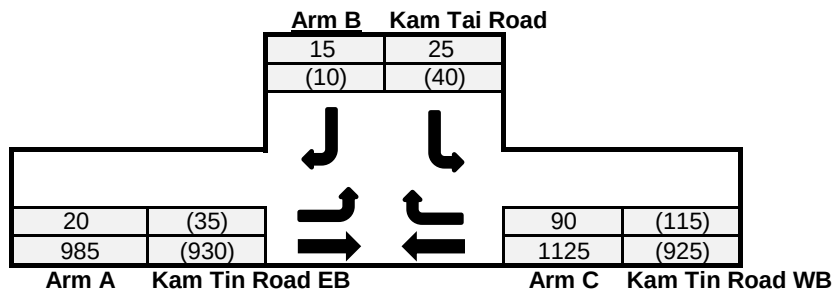
			Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = $1.6 \cdot (E-V)/L$	0.53	0.49	0.94	0.79
K	=	$1 - 0.00347 \cdot (A-30) - 0.978 \cdot (1/R - 0.05)$	0.97	1.01	0.94	1.05
X2	=	$V + ((E-V)/(1+2 \cdot S))$	9.33	8.66	6.45	9.70
M	=	$\text{Exp}((D-60)/10)$	1.49	1.49	1.49	1.49
F	=	$303 \cdot X2$	2828	2624	1955	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	1376 1325	2612 2639
DFC	=	Entry Flow/Capacity = Q/Qe				
			AM 0.44 PM 0.41	0.23 0.25	0.26 0.22	0.38 0.33

DFC of Critical Approach = AM 0.44
PM 0.41

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	1125	925	Q-BA	105	143
	q-CB	90	115	Q-BC	477	491
	q-AB	20	35	Q-CB	413	423
	q-AC	985	930	Q-CA	1408	1311
	q-BA	15	10	Q-BAC	204	330
	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	0.80	0.71
	B-AC	0.20	0.15

Critical DFC

0.80

0.71

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Priority Junction Calculation

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

The predictive equations of capacity of movement are:

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

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

$$Q\text{-CB} = F(745 - 0.364Y(q\text{-AC} + q\text{-AB}))$$

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

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

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

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

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	1125	925	Q-BA	191	223
	q-CB	90	115	Q-BC	527	539
	q-AB	20	35	Q-CB	524	534
	q-AC	985	930	Q-CA	1491	1412
	q-BA	15	10	Q-BAC	318	420
	q-BC	25	40			
	f	0.625	0.800			

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

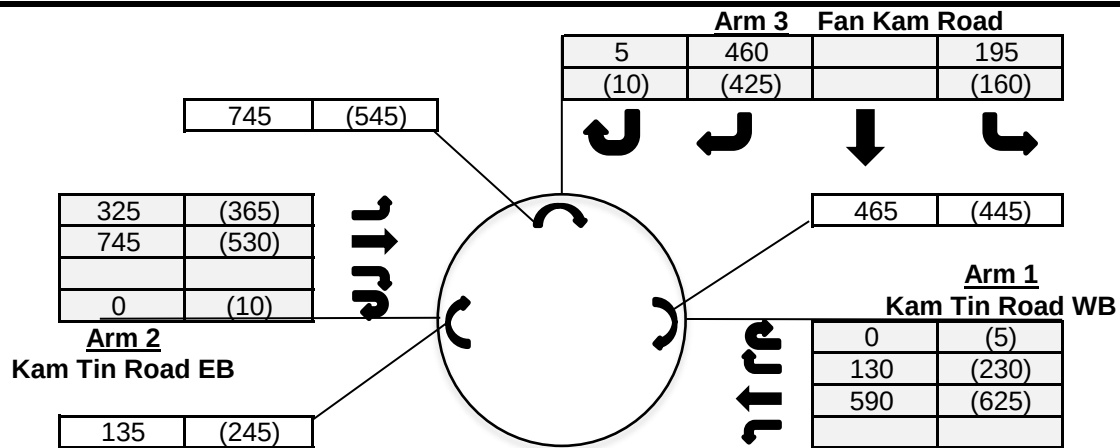
Results :	Ratio of Flow-to-Capacity																		
	<table style="width: 100%;"> <tr> <td></td> <td style="text-align: center;">AM</td> <td style="text-align: center;">PM</td> </tr> <tr> <td>B-A</td> <td style="text-align: center;">N/A</td> <td style="text-align: center;">N/A</td> </tr> <tr> <td>B-C</td> <td style="text-align: center;">N/A</td> <td style="text-align: center;">N/A</td> </tr> <tr> <td>C-B</td> <td style="text-align: center;">0.17</td> <td style="text-align: center;">0.22</td> </tr> <tr> <td>C-A</td> <td style="text-align: center;">0.75</td> <td style="text-align: center;">0.65</td> </tr> <tr> <td>B-AC</td> <td style="text-align: center;">0.13</td> <td style="text-align: center;">0.12</td> </tr> </table>		AM	PM	B-A	N/A	N/A	B-C	N/A	N/A	C-B	0.17	0.22	C-A	0.75	0.65	B-AC	0.13	0.12
	AM	PM																	
B-A	N/A	N/A																	
B-C	N/A	N/A																	
C-B	0.17	0.22																	
C-A	0.75	0.65																	
B-AC	0.13	0.12																	
Critical DFC	0.75 0.65																		

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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	720	1070
			PM	860	905
Qc	=	Circulating flow across entry (pcu/hr)	AM	465	135
			PM	445	245

Output Parameters

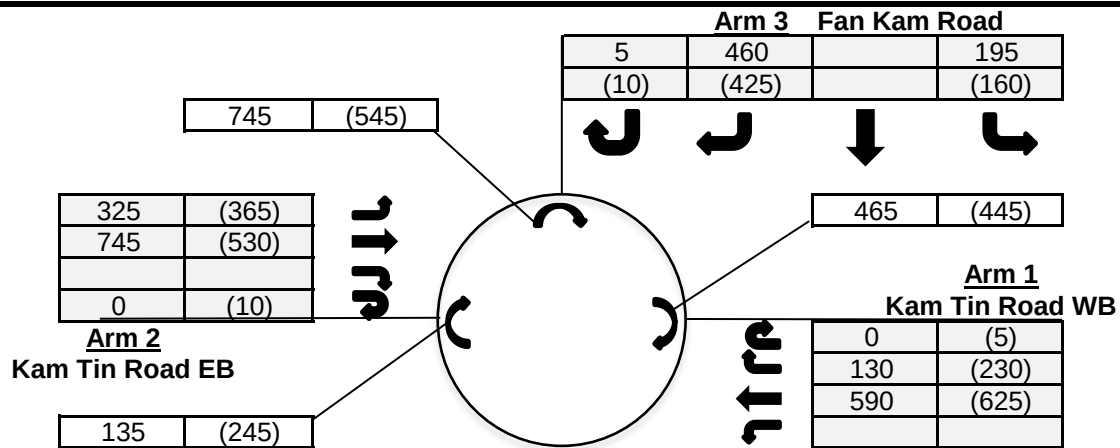
			Arm 1	Arm 2	Arm 3
S	=	Sharpness of flare = $1.6 \cdot (E-V)/L$	1.03	0.13	0.46
K	=	$1 - 0.00347 \cdot (A-30) - 0.978 \cdot (1/R - 0.05)$	1.04	1.09	1.03
X2	=	$V + ((E-V)/(1+2 \cdot S))$	4.64	7.79	4.50
M	=	$\text{Exp}((D-60)/10)$	0.02	0.02	0.02
F	=	$303 \cdot X2$	1406	2360	1365
Td	=	$1 + (0.5/(1+M))$	1.49	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	1169	2452
			PM	1181	2356
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.62	0.44
			PM	0.73	0.38

DFC of Critical Approach = AM 0.70
PM 0.73

Roundabout Junction Calculation

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

Scenario : 2034 Reference Traffic Flows (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 720 PM 860	1070 905	660 595
Qc	=	Circulating flow across entry (pcu/hr)			
			AM 465 PM 445	135 245	745 545

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 1563 PM 1577	2242 2153	1135 1267
DFC	=	Entry Flow/Capacity = Q/Qe			
			AM 0.46 PM 0.55	0.48 0.42	0.58 0.47

DFC of Critical Approach = AM 0.58
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	1045	0.535	0.535	975	0.499	0.499
Kam Tin Road	E	→	A	1	3.4	0	0	1	0%	0%	1955	1955	1955	1955	1955	1955	1020	0.522		920	0.471	
Pedestrian crossing ↔ Bp 2 Min. Crossing Time = 5GM + 7FGM = 12s																						
Notes:									Traffic Flow (pcu / hr)								A.M. Check Phase			P.M. Check Phase		
									1020(920) →													

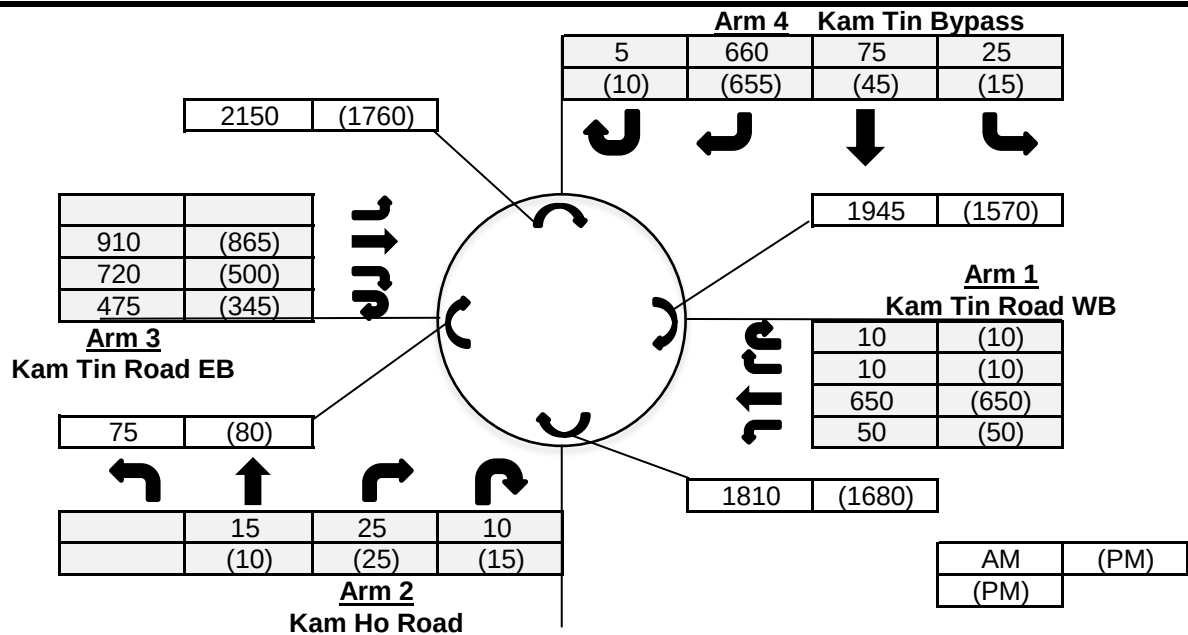
TRAFFIC SIGNALS CALCULATION																		Job No: 25009HK						CTA Consultants Ltd.					
Junction: (E) Kam Tin Road																													
Description: 2034 Reference Traffic Flows (With Planned Improvement)																													
Approach	Direction	Movement notation	Phase	Stage	Width (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	1045	0.509	0.509	975	0.474	0.474							
Kam Tin Road	E	→	A	1	4.4	0	0	1	0%	0%	2055	2055	2055	2055	2055	2055	1020	0.496		920	0.448								
Pedestrian crossing ↔ Bp 2 Min. Crossing Time = 5GM + 6FGM = 11s																													
Notes:									Traffic Flow (pcu / hr)								A.M. Check Phase				P.M. Check Phase								
									1020(920) → ← 1045(975)								εy 0.509 L (sec) 19 C (sec) 120 y pract. 0.758 R.C. (%) 49%				εy 0.474 L (sec) 19 C (sec) 120 y pract. 0.758 R.C. (%) 60%								
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	912	0.461		762	0.385	
	E	→	1	A	3.65	0	0	0	0%	0%	2120	2120	976	0.461		816	0.385	
	E	→	1	A	3.65	0	0	0	0%	0%	2120	2120	976	0.461		816	0.385	
Kam Tin Road	W	←	2	A	3.80	0	0	0	0%	0%	2135	2135	1135	0.532	0.532	1060	0.496	0.496
	W	←	2	A	3.80	0	0	0	0%	0%	2135	2135	1135	0.532		1060	0.496	
	W	↙	2	A	5.00	15	0	1	100%	100%	1925	1925	755	0.392		340	0.177	
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	123	0.061		130	0.065	
	N	↖	3	B	3.50	0	28	0	100%	100%	2000	2000	122	0.061		130	0.065	
*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			
						2865(2395)→ ↖ ↗ 325(450) 245(260) ↖ ↗ 755(340)						E _y 0.617			E _y 0.614			
												L (sec) 10			L (sec) 10			
												C (sec) 120			C (sec) 120			
												y pract. 0.825			y pract. 0.825			
												R.C. (%) 34%			R.C. (%) 34%			
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	2105
			PM	720	50	1710
Qc	=	Circulating flow across entry (pcu/hr)	AM	1945	1810	75
			PM	1570	1680	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	1732	1524	2833
			PM	1976	1599	2830
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.42	0.03	0.74
			PM	0.36	0.03	0.60

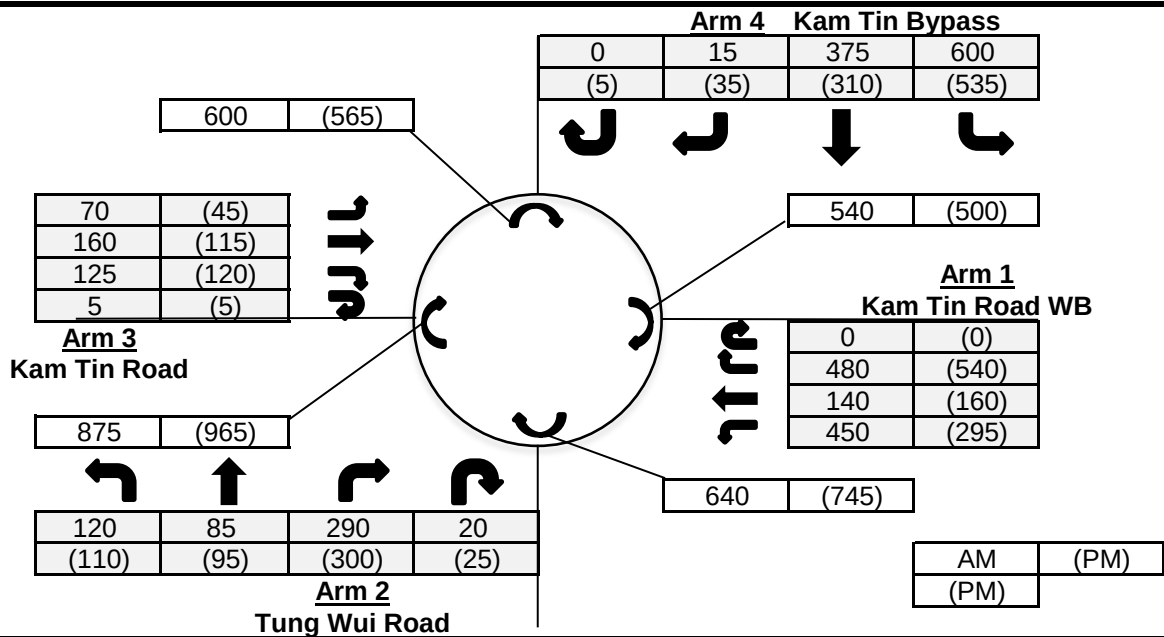
DFC of Critical Approach = AM 0.74
PM 0.60

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 1070 PM 995	515 530	360 285	990 885
Qc	=	Circulating flow across entry (pcu/hr)				
			AM 540 PM 500	640 745	875 965	600 565

Output Parameters

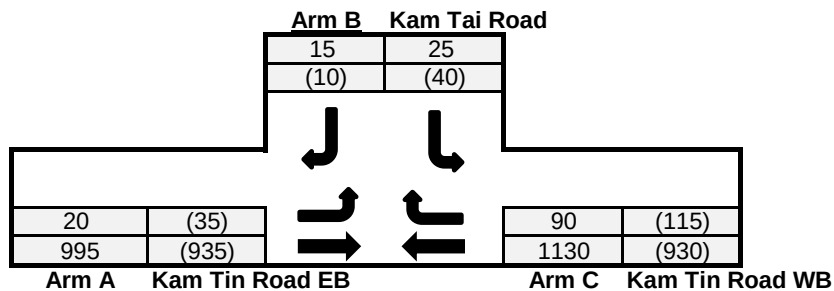
			Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = $1.6 \cdot (E-V)/L$	0.53	0.49	0.94	0.79
K	=	$1 - 0.00347 \cdot (A-30) - 0.978 \cdot (1/R - 0.05)$	0.97	1.01	0.94	1.05
X2	=	$V + ((E-V)/(1+2 \cdot S))$	9.33	8.66	6.45	9.70
M	=	$\text{Exp}((D-60)/10)$	1.49	1.49	1.49	1.49
F	=	$303 \cdot X2$	2828	2624	1955	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	1368 1319	2608 2635
DFC	=	Entry Flow/Capacity = Q/Qe				
			AM 0.45 PM 0.42	0.23 0.25	0.26 0.22	0.38 0.34

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 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:																																	
1									2									3									4						
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		



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	1130	930	Q-BA	101	141
	q-CB	90	115	Q-BC	474	490
	q-AB	20	35	Q-CB	410	422
	q-AC	995	935	Q-CA	1405	1309
	q-BA	15	10	Q-BAC	199	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	0.80	0.71
	B-AC	0.20	0.15

Critical DFC

0.80

0.71

CTA Consultants Ltd.

Priority Junction Calculation

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

Arm B Kam Tai Road

15	25
(10)	(40)

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

20	(35)	90	(115)
995	(935)	1130	(930)

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	D	0.968
W-CR	0	E	1.029
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	1	F	1.029
Minor Road Share LT&RT? (Yes: 1, No: 0)	1	Y	0.645

Analysis :	Traffic Flow pcu/hr	AM	PM	Capacity pcu/hr	AM	PM
q-CA	1130	930	Q-BA	188	221	
q-CB	90	115	Q-BC	525	538	
q-AB	20	35	Q-CB	522	533	
q-AC	995	935	Q-CA	1490	1411	(If C-B blocked C-A)
q-BA	15	10	Q-BAC	314	418	(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	0.17	0.22	
C-A	0.76	0.66	
B-AC	0.13	0.12	

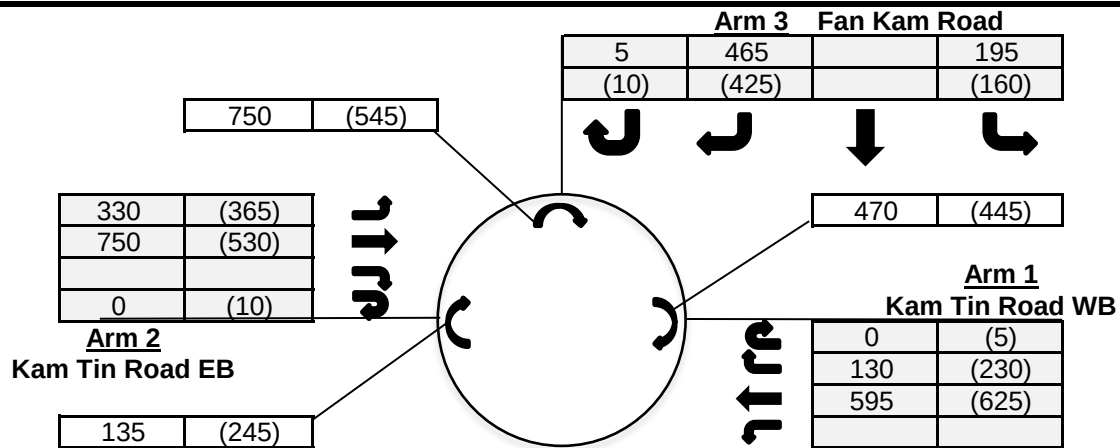
Critical DFC	0.76	0.66
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Roundabout Junction Calculation

Junction : (D) Kam Tin Road / Fan Kam Road

Job No.: 25009HK

Scenario : 2034 Design Traffic Flows



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	1080	665
			PM 860	905	595
Qc	=	Circulating flow across entry (pcu/hr)	AM 470	135	750
			PM 445	245	545

Output Parameters

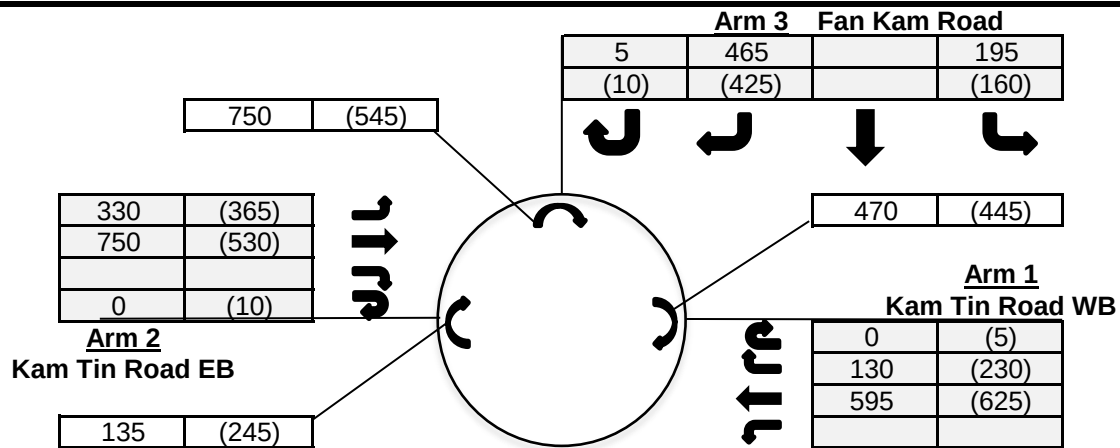
			Arm 1	Arm 2	Arm 3
S	=	Sharpness of flare = $1.6 \cdot (E-V)/L$	1.03	0.13	0.46
K	=	$1 - 0.00347 \cdot (A-30) - 0.978 \cdot (1/R - 0.05)$	1.04	1.09	1.03
X2	=	$V + ((E-V)/(1+2 \cdot S))$	4.64	7.79	4.50
M	=	$\text{Exp}((D-60)/10)$	0.02	0.02	0.02
F	=	$303 \cdot X2$	1406	2360	1365
Td	=	$1 + (0.5/(1+M))$	1.49	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	944
			PM 1181	2356	1069
DFC	=	Entry Flow/Capacity = Q/Qe	AM 0.62	0.44	0.70
			PM 0.73	0.38	0.56

DFC of Critical Approach = AM 0.70
PM 0.73

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	725	1080
			PM	860	905
Qc	=	Circulating flow across entry (pcu/hr)	AM	470	135
			PM	445	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	1577	2153
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.46	0.48
			PM	0.55	0.42

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 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	1065	0.545	0.545	980	0.501	0.501
Kam Tin Road	E	→	A	1	3.4	0	0	1	0%	0%	1955	1955	1955	1955	1955	1955	1035	0.529		930	0.476	
Pedestrian crossing <-> Bp 2 Min. Crossing Time = 5GM + 7FGM = 12s																						
Notes:									Traffic Flow (pcu / hr) 1035(930) → ← 1065(980)								A.M. Check Phase εy 0.545 L (sec) 20 C (sec) 120 y pract. 0.750 R.C. (%) 38%			P.M. Check Phase εy 0.501 L (sec) 20 C (sec) 120 y pract. 0.750 R.C. (%) 50%		
Stage/Phase Diagram: 1 → ←			2 — ↑↓—																			
I/G = 5s			I/G = 4s + 12s																			

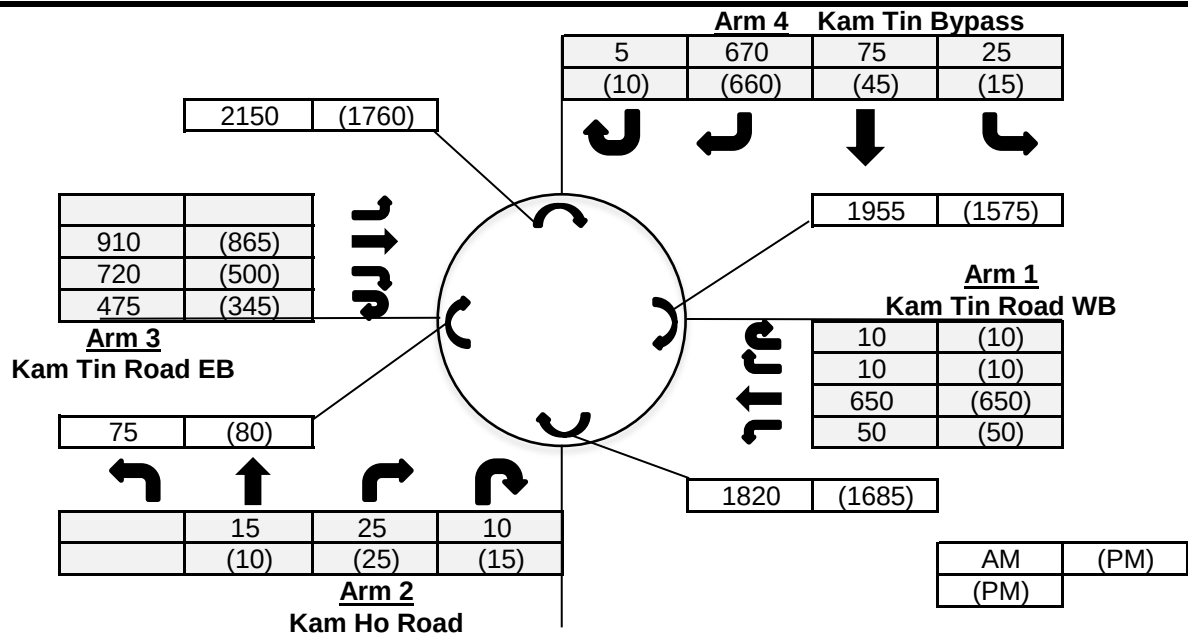
TRAFFIC SIGNALS CALCULATION										Job No: 25009HK										CTA Consultants Ltd.									
Junction: (E) Kam Tin Road																													
Description: 2034 Design Traffic Flows (With Planned Improvement)																													
Approach	Direction	Movement notation	Phase	Stage	Width (m)	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	1065	0.518	0.518	980	0.477	0.477							
Kam Tin Road	E	→	A	1	4.4	0	0	1	0%	0%	2055	2055	2055	2055	2055	2055	1035	0.504		930	0.453								
Pedestrian crossing ↔ Bp 2 Min. Crossing Time = 5GM + 6FGM = 11s																													
Notes:									Traffic Flow (pcu / hr)								A.M. Check Phase					P.M. Check Phase							
									1035(930) →																				

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	912	0.461		762	0.385			
	E	→	1	A	3.65	0	0	0	0%	0%	2120	2120	976	0.461		816	0.385			
	E	→	1	A	3.65	0	0	0	0%	0%	2120	2120	976	0.461		816	0.385			
Kam Tin Road	W	←	2	A	3.80	0	0	0	0%	0%	2135	2135	1135	0.532	0.532	1060	0.496	0.496		
	W	←	2	A	3.80	0	0	0	0%	0%	2135	2135	1135	0.532		1060	0.496			
	W	↙	2	A	5.00	15	0	1	100%	100%	1925	1925	765	0.397		345	0.179			
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	125	0.062		133	0.066			
	N	↖	3	B	3.50	0	28	0	100%	100%	2000	2000	125	0.062		132	0.066			
*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					
						2865(2395)→ ↖ ↗ 325(450) 250(265) ← 2270(2120) ↓ 765(345)						εy 0.617			εy 0.614					
												L (sec) 10			L (sec) 10					
												C (sec) 120			C (sec) 120					
												y pract. 0.825			y pract. 0.825					
												R.C. (%) 34%			R.C. (%) 34%					
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	2105	775
			PM 720	50	1710	730
Qc	=	Circulating flow across entry (pcu/hr)	AM 1955	1820	75	2150
			PM 1575	1685	80	1760

Output Parameters

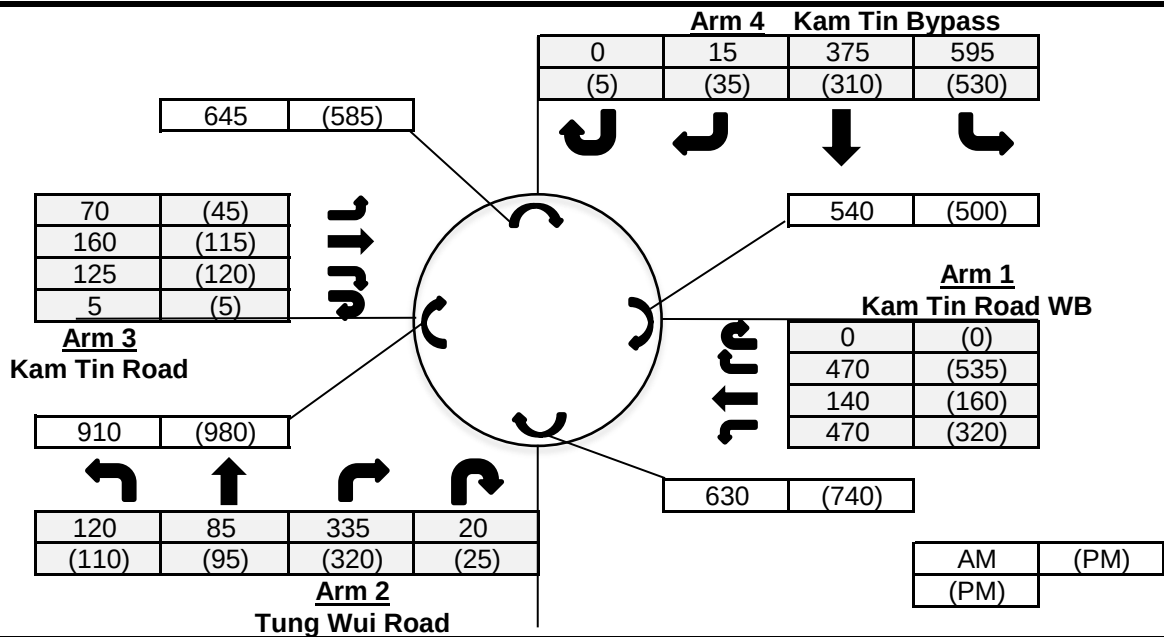
			Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = $1.6 \cdot (E-V)/L$	0.76	0.45	0.46	0.48
K	=	$1 - 0.00347 \cdot (A-30) - 0.978 \cdot (1/R - 0.05)$	1.03	0.97	1.03	0.99
X2	=	$V + ((E-V)/(1+2 \cdot S))$	9.56	8.71	9.24	8.80
M	=	$\exp((D-60)/10)$	16.44	16.44	16.44	16.44
F	=	$303 \cdot X2$	2897	2640	2799	2665
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 1726	1519	2833	1376
			PM 1973	1596	2830	1608
DFC	=	Entry Flow/Capacity = Q/Qe	AM 0.42	0.03	0.74	0.56
			PM 0.36	0.03	0.60	0.45

DFC of Critical Approach = AM 0.74
PM 0.60

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 1080 PM 1015	560 550	360 285	985 880
Qc	=	Circulating flow across entry (pcu/hr)				
			AM 540 PM 500	630 740	910 980	645 585

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	1349 1311	2573 2620
DFC	=	Entry Flow/Capacity = Q/Qe				
			AM 0.46 PM 0.42	0.25 0.26	0.27 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 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				
										110(65) 85(80) 55(70) 900(810) 55(55) 620(680)										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:																													
1										2					3					4									
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

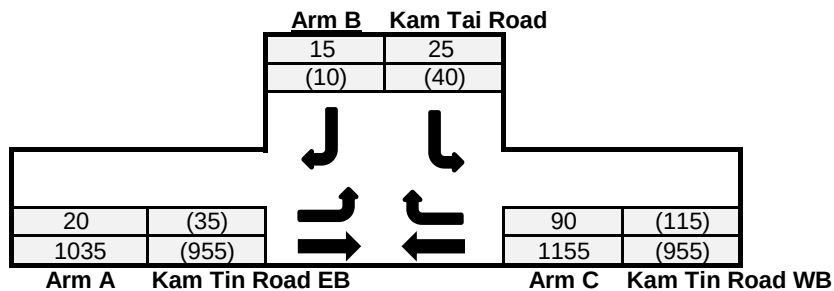
Analysis :	Traffic Flow pcu/hr	AM	PM	Capacity pcu/hr	AM	PM
q-CA	1155	955	Q-BA	86	131	
q-CB	90	115	Q-BC	462	484	
q-AB	20	35	Q-CB	400	417	
q-AC	1035	955	Q-CA	1395	1303	(If C-B blocked C-A)
q-BA	15	10	Q-BAC	175	314	(If Minor Road Share LT&RT)
q-BC	25	40				
f	0.625	0.800				

Results :	Ratio of Flow-to-Capacity	AM	PM
	B-A	N/A	N/A
	B-C	N/A	N/A
	C-B	0.22	0.28
	C-A	0.83	0.73
	B-AC	0.23	0.16

Critical DFC	0.83	0.73
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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	1155	955	Q-BA	176	213
	q-CB	90	115	Q-BC	515	533
	q-AB	20	35	Q-CB	512	528
	q-AC	1035	955	Q-CA	1484	1408
	q-BA	15	10	Q-BAC	299	410
	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	0.78	0.68
	B-AC	0.13	0.12

Critical DFC

0.78

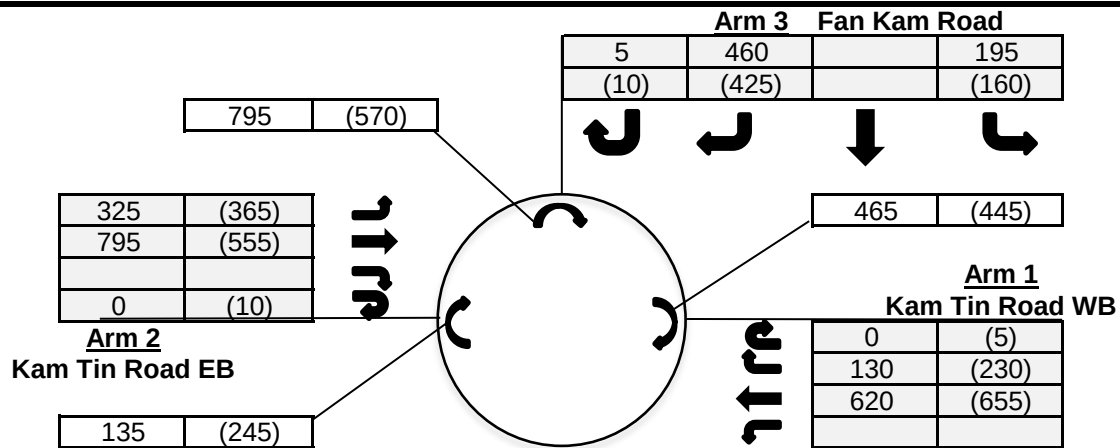
0.68

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)



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	750	1120
			PM	890	930
Qc	=	Circulating flow across entry (pcu/hr)	AM	465	135
			PM	445	245

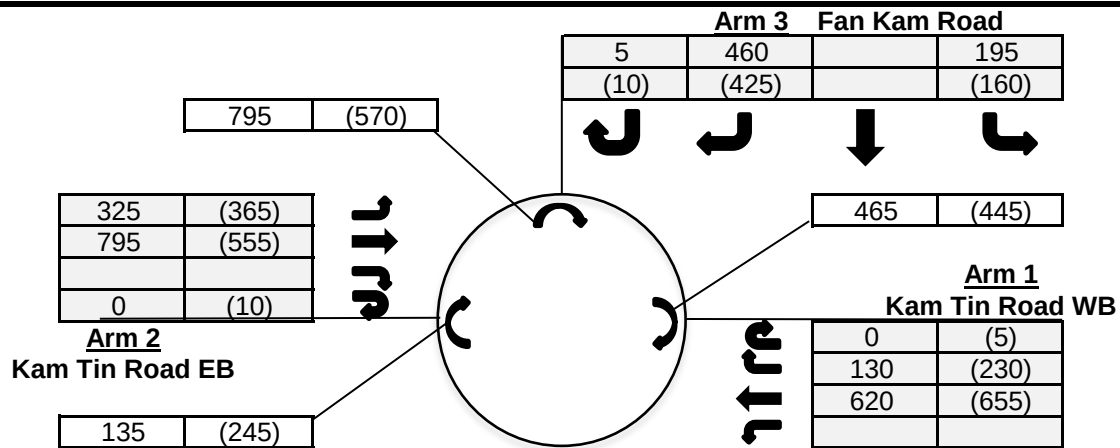
Output Parameters

			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	1169	2452
			PM	1181	2356
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.64	0.46
			PM	0.75	0.39

DFC of Critical Approach = AM 0.72
PM 0.75

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)



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)	750	1120	660
		AM			
		PM	890	930	595
Qc	=	Circulating flow	465	135	795
		AM			
		PM	445	245	570

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 = $K \cdot (F - Fc \cdot Qc)$	1563	2242	1102
		AM			
		PM	1577	2153	1250
DFC	=	Entry Flow/Capacity = Q/Qe	0.48	0.50	0.60
		AM			
		PM	0.56	0.43	0.48

DFC of Critical Approach = AM 0.60
 PM 0.56

CTA Consultants Ltd.

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

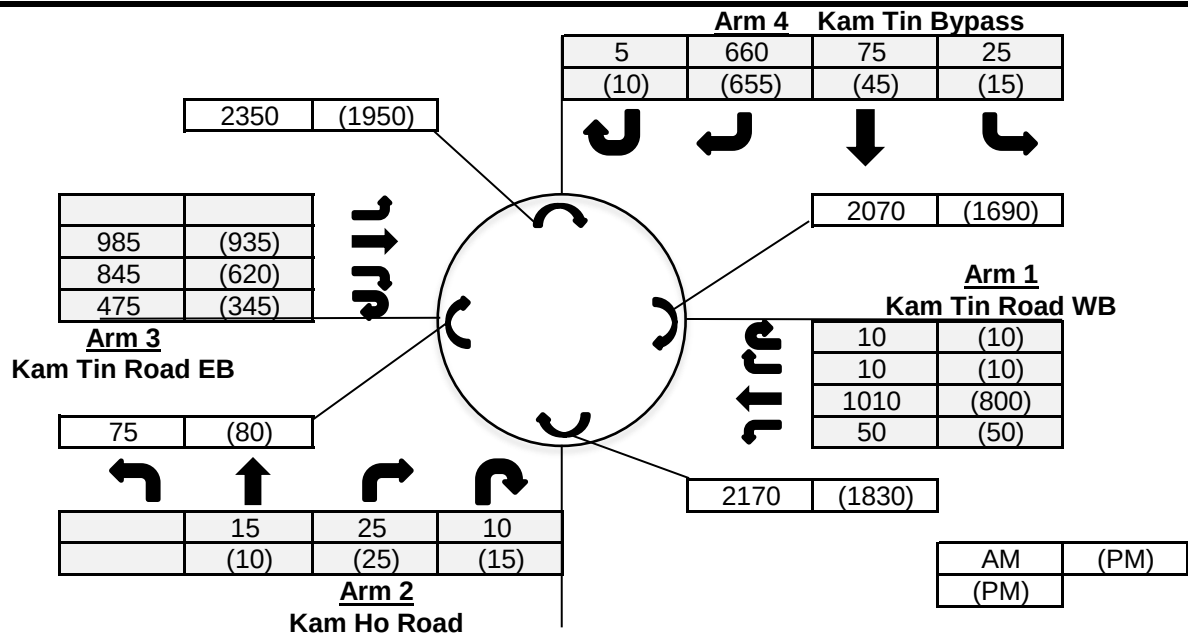
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak							
						Left	Right		A.M.	P.M.			A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y					
Kam Tin Road	W	←	A	1	3.4	0	0	1	0%	0%	1955	1955	1955	1955	1955	1955	1075	0.550	0.550	1005	0.514	0.514					
Kam Tin Road	E	→	A	1	3.4	0	0	1	0%	0%	1955	1955	1955	1955	1955	1955	1070	0.547		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									
1070(945) →									← 1075(1005)									εy 0.550					εy 0.514				
																		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. (%) 46%				
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	1075	0.523	0.523	1005	0.489	0.489							
Kam Tin Road	E	→	A	1	4.4	0	0	1	0%	0%	2055	2055	2055	2055	2055	2055	1070	0.521		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								
									1070(945) → ← 1075(1005)									εy 0.523			εy 0.489								
																		L (sec) 19			L (sec) 19								
																		C (sec) 120			C (sec) 120								
																		y pract. 0.758			y pract. 0.758								
																		R.C. (%) 45%			R.C. (%) 55%								
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	979	0.494		824	0.416		
	E	→	1	A	3.65	0	0	0	0%	0%	2120	2120	1048	0.494		883	0.416		
	E	→	1	A	3.65	0	0	0	0%	0%	2120	2120	1048	0.494		883	0.416		
Kam Tin Road	W	←	2	A	3.80	0	0	0	0%	0%	2135	2135	1300	0.609	0.609	1133	0.530	0.530	
	W	←	2	A	3.80	0	0	0	0%	0%	2135	2135	1300	0.609		1133	0.530		
	W	↙	2	A	5.00	15	0	1	100%	100%	1925	1925	855	0.444		380	0.197		
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	151	0.075		158	0.078		
	N	↖	3	B	3.50	0	28	0	100%	100%	2000	2000	149	0.075		157	0.078		
*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				
						3075(2590)→ ↖ ↗ 325(450) 300(315) ← 2600(2265) ↘ 855(380)						εy	0.694	εy		0.648			
												L (sec)	10	L (sec)		10			
												C (sec)	120	C (sec)		120			
												y pract.	0.825	y pract.		0.825			
												R.C. (%)	19%	R.C. (%)		27%			
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	2305
			PM	870	50	1900
Qc	=	Circulating flow across entry (pcu/hr)	AM	2070	2170	75
			PM	1690	1830	80

Output Parameters

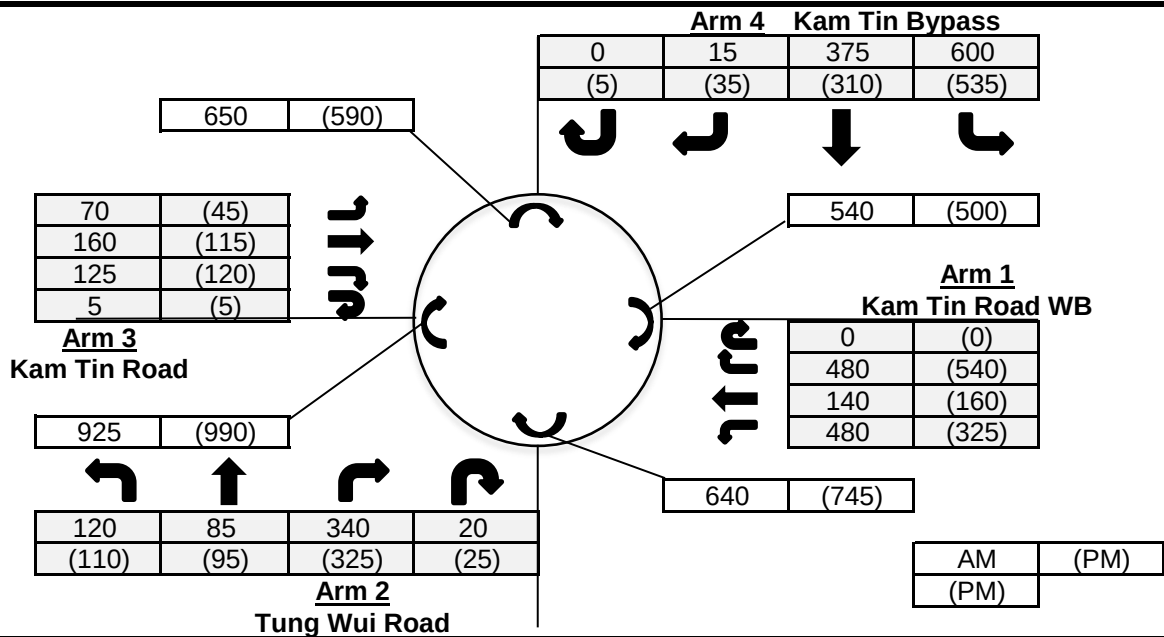
			Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = $1.6 \cdot (E-V)/L$	0.76	0.45	0.46	0.48
K	=	$1 - 0.00347 \cdot (A-30) - 0.978 \cdot (1/R - 0.05)$	1.03	0.97	1.03	0.99
X2	=	$V + ((E-V)/(1+2 \cdot S))$	9.56	8.71	9.24	8.80
M	=	$\exp((D-60)/10)$	16.44	16.44	16.44	16.44
F	=	$303 \cdot X2$	2897	2640	2799	2665
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	1651	1317	2833
			PM	1898	1513	2830
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.65	0.04	0.81
			PM	0.46	0.03	0.67

DFC of Critical Approach = AM 0.81
 PM 0.67

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)



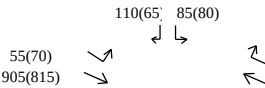
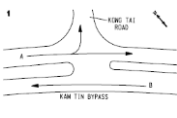
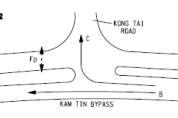
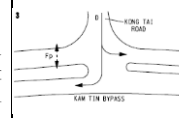
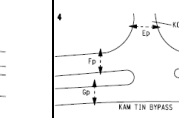
Input Parameters

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	1100	565	360	990
			PM	1025	555	285	885
Qc	=	Circulating flow	AM	540	640	925	650
		across entry (pcu/hr)	PM	500	745	990	590

Output Parameters

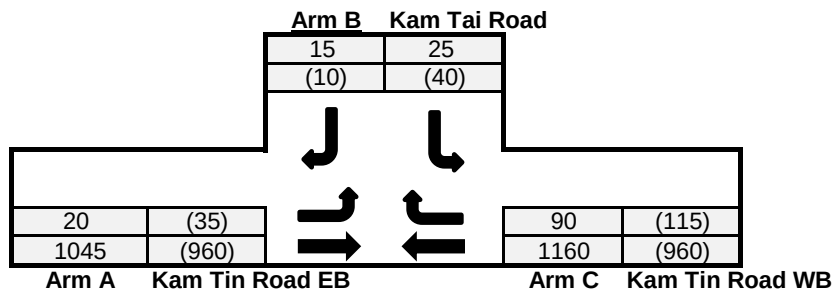
Output Parameters			Arm 1	Arm 2	Arm 3	Arm 4	
S	=	Sharpness of flare = 1.6*(E-V)/L	0.53	0.49	0.94	0.79	
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)	0.97	1.01	0.94	1.05	
X2	=	V+((E-V)/(1+2*S))	9.33	8.66	6.45	9.70	
M	=	Exp((D-60)/10)	1.49	1.49	1.49	1.49	
F	=	303*X2	2828	2624	1955	2938	
Td	=	1+(0.5/(1+M))	1.20	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	1341	2569
			PM	2391	2133	1306	2616
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													
																			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 (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	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	1160	960	Q-BA	82	129
	q-CB	90	115	Q-BC	460	483
	q-AB	20	35	Q-CB	397	415
	q-AC	1045	960	Q-CA	1392	1302
	q-BA	15	10	Q-BAC	169	311
	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	0.23	0.28
	C-A	0.83	0.74
	B-AC	0.24	0.16

Critical DFC

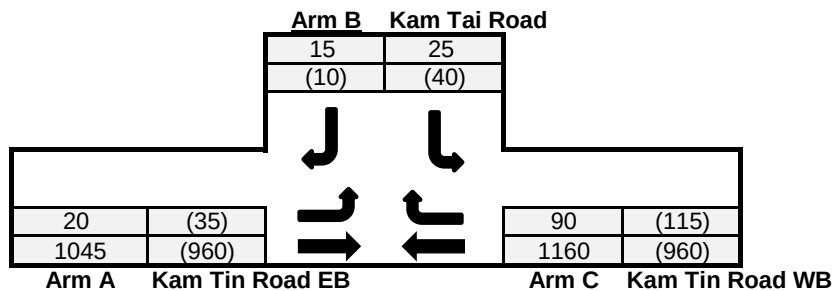
0.83

0.74

CTA Consultants Ltd.

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	1160	960	Q-BA	173	211
	q-CB	90	115	Q-BC	513	532
	q-AB	20	35	Q-CB	510	527
	q-AC	1045	960	Q-CA	1482	1407
	q-BA	15	10	Q-BAC	295	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	0.78	0.68
	B-AC	0.14	0.12

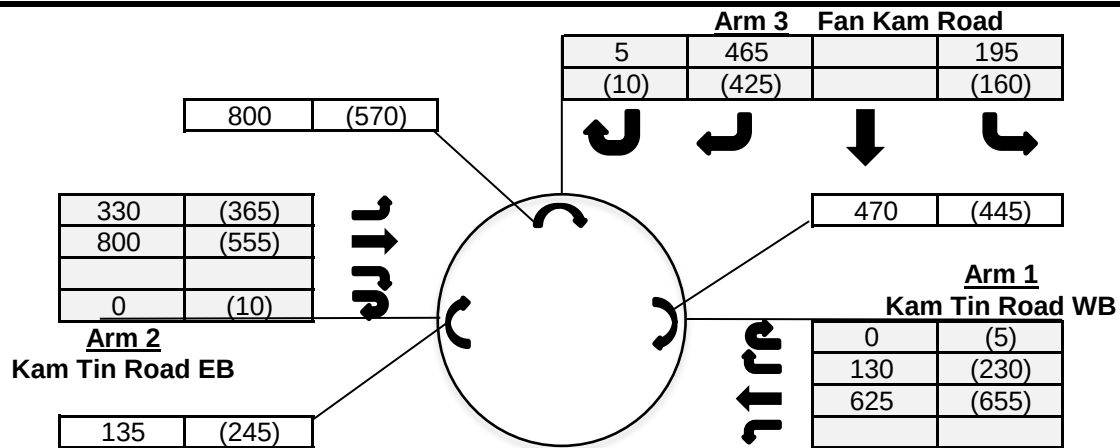
Critical DFC	0.78	0.68
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CTA Consultants Ltd.

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 755	1130	665
			PM 890	930	595
Qc	=	Circulating flow across entry (pcu/hr)	AM 470	135	800
			PM 445	245	570

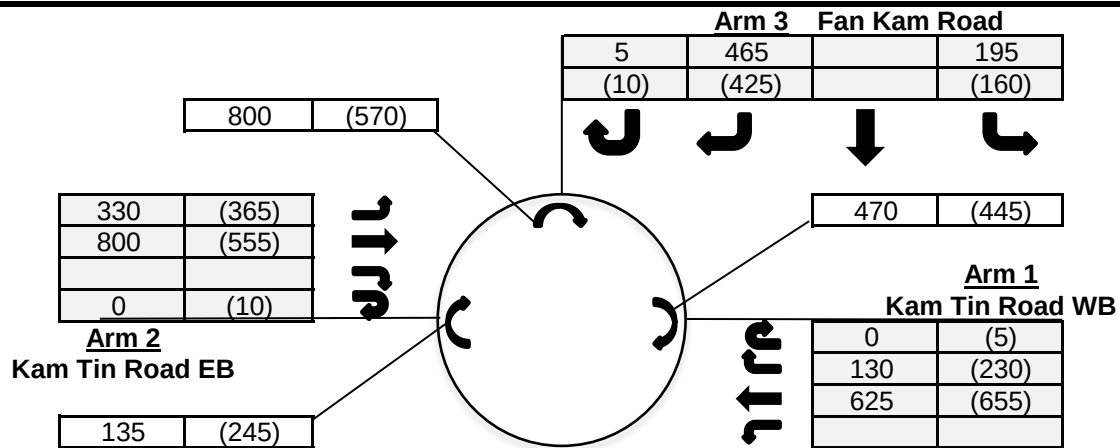
Output Parameters

			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	913
			PM 1181	2356	1054
DFC	=	Entry Flow/Capacity = Q/Qe	AM 0.65	0.46	0.73
			PM 0.75	0.39	0.56

DFC of Critical Approach = AM 0.73
PM 0.75

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)



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	1130
			PM	890	930
Qc	=	Circulating flow across entry (pcu/hr)	AM	470	135
			PM	445	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	1577	2153
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.48	0.50
			PM	0.56	0.43

DFC of Critical Approach = AM 0.61
 PM 0.56

CTA Consultants Ltd.

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

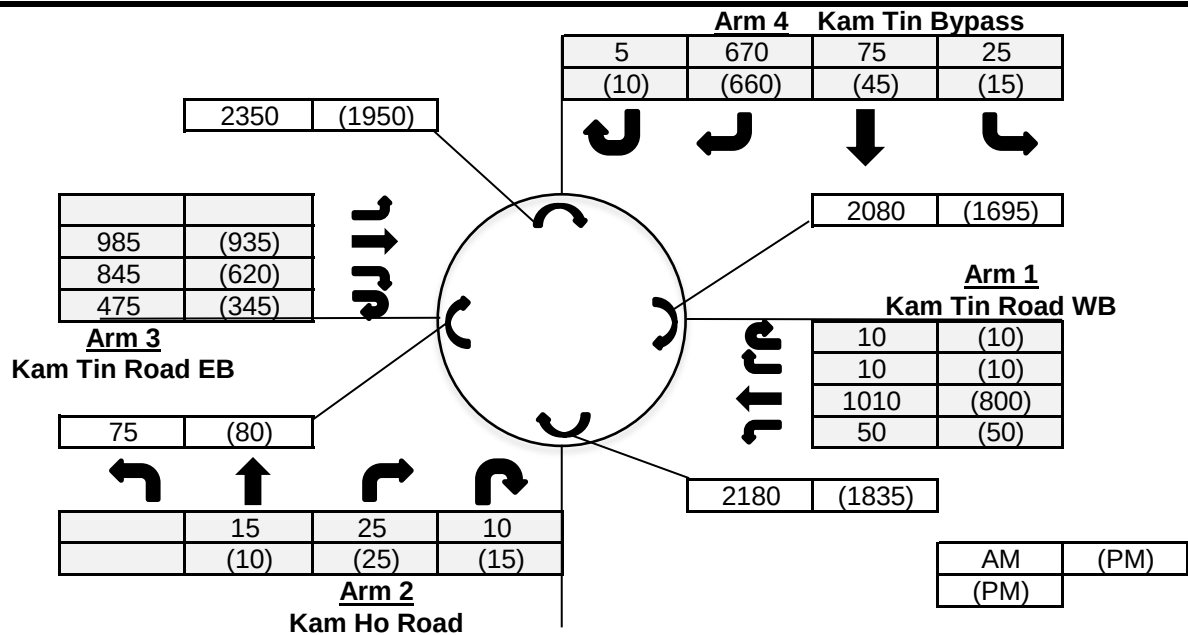
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak		
						Left	Right		A.M.	P.M.			A.M.	P.M.	A.M.	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	1095	0.560	0.560	1010	0.517	0.517
Kam Tin Road	E	→	A	1	3.4	0	0	1	0%	0%	1955	1955	1955	1955	1955	1955	1085	0.555		955	0.488	
Pedestrian crossing																						
↔ Bp 2 Min. Crossing Time = 5GM + 7FGM = 12s																						
Notes:																						
									Traffic Flow (pcu / hr)								A.M. Check Phase			P.M. Check Phase		
									1085(955) → ← 1095(1010)								εy 0.560			εy 0.517		
																	L (sec) 20			L (sec) 20		
																	C (sec) 120			C (sec) 120		
																	y pract. 0.750			y pract. 0.750		
																	R.C. (%) 34%			R.C. (%) 45%		
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 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	1095	0.533	0.533	1010	0.491	0.491							
Kam Tin Road	E	→	A	1	4.4	0	0	1	0%	0%	2055	2055	2055	2055	2055	2055	1085	0.528		955	0.465								
Pedestrian crossing ↔ Bp 2 Min. Crossing Time = 5GM + 6FGM = 11s																													
Notes:									Traffic Flow (pcu / hr)								A.M. Check Phase					P.M. Check Phase							
									1085(955) →																				

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	979	0.494		824	0.416			
	E	→	1	A	3.65	0	0	0	0%	0%	2120	2120	1048	0.494		883	0.416			
	E	→	1	A	3.65	0	0	0	0%	0%	2120	2120	1048	0.494		883	0.416			
Kam Tin Road	W	←	2	A	3.80	0	0	0	0%	0%	2135	2135	1300	0.609	0.609	1133	0.530	0.530		
	W	←	2	A	3.80	0	0	0	0%	0%	2135	2135	1300	0.609		1133	0.530			
	W	↙	2	A	5.00	15	0	1	100%	100%	1925	1925	865	0.449		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	153	0.076		161	0.080			
	N	↖	3	B	3.50	0	28	0	100%	100%	2000	2000	152	0.076		159	0.080			
*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					
						3075(2590)→ ↖ ↗ 325(450) 305(320) ← 2600(2265) ↘ 865(385)						εy 0.694			εy 0.648					
												L (sec) 10			L (sec) 10					
												C (sec) 120			C (sec) 120					
												y pract. 0.825			y pract. 0.825					
												R.C. (%) 19%			R.C. (%) 27%					
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	2305
			PM	870	50	1900
Qc	=	Circulating flow across entry (pcu/hr)	AM	2080	2180	75
			PM	1695	1835	80

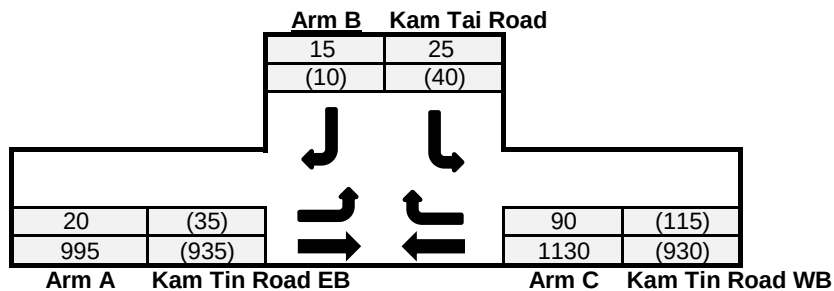
Output Parameters

			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	1644	1311	2833
			PM	1895	1510	2830
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.66	0.04	0.81
			PM	0.46	0.03	0.67

DFC of Critical Approach = AM 0.81
 PM 0.67

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)	

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	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	F	0.915
Minor Road Share LT&RT? (Yes: 1, No: 0)		1	V-rCB	50			Y	0.748

Analysis :	Traffic Flow	AM	PM	Capacity	AM	PM
	pcu/hr			pcu/hr		
	q-CA	1130	930	Q-BA	121	159
	q-CB	90	115	Q-BC	486	501
	q-AB	20	35	Q-CB	429	440
	q-AC	995	935	Q-CA	1422	1330
	q-BA	15	10	Q-BAC	228	350
	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	0.21	0.26
	C-A	0.79	0.70
	B-AC	0.18	0.14

Critical DFC

0.79

0.70

CTA Consultants Ltd.