

Appendix B

Traffic Impact Assessment

**Proposed Rezoning from “Residential (Group B)1” Zone to
“Residential (Group B)4” Zone for Medium-Density Housing
Development to Include a Footpath for Public use at Various
Lots and Adjacent Government Land in DD130, Lam Tei, Tuen
Mun**

Traffic Impact Assessment

**Final Report
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Proposed Rezoning from “Residential (Group B)1” Zone to “Residential (Group B)4” Zone for Medium-Density Housing Development to Include a Footpath for Public use at Various Lots and Adjacent Government Land in DD130, Lam Tei, Tuen Mun

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1.0 INTRODUCTION

Background

- 1.1 The subject site is located in D.D.130, Lam Tei, Tuen Mun (the “Subject Site”). At present, the Subject Site is unoccupied, and access to the Subject Site is via an existing unnamed road which is connected to Ng Lau Road. The location of the Subject Site is shown in **Figure 1.1**.
- 1.2 A Section 12A planning application for the minor relaxation of the maximum plot ratio restriction to 2.5 for residential use at the Subject Site was approved by the Town Planning Board (TPB ref: Y/TM-LTTY/9) on 24th September 2021 (the “Approved Scheme”). This Section 12A planning application is for minor relaxation of the maximum plot ratio restriction for residential use at the Subject Site from the approved 2.5 to 5.0 (the “Proposed Development”).
- 1.3 Against this background, CKM Asia Limited, a traffic and transportation planning consultancy firm, was commissioned by the Owner to conduct a traffic impact assessment in support of the Proposed Development. This report presents the findings and recommendations of the traffic impact assessment for the Proposed Development.

Structure of Report

- 1.4 The report is structured as follows:

Chapter One	- Gives the background of the project;
Chapter Two	- Describes the existing situation;
Chapter Three	- Presents the Proposed Development;
Chapter Four	- Describes the traffic impact analysis; and
Chapter Five	- Gives the overall conclusion.

2.0 EXISTING SITUATION

The Subject Site

- 2.1 The Subject Site is bounded by the Tuen Mun - Yuen Long Light Rail Transit (“LRT”) and the Tuen Ma Line to the East, and a nullah to the West. Access to the Subject Site is from the south and is via a bridge over the nullah. The Access Road is connected to Ng Lau Road.

The Road Network

- 2.2 Ng Lau Road is a single carriageway 2-lane 2-way local distributor which connects with the Lam Tei Interchange to the south and Castle Peak Road - Lam Tei underneath the Kong Sham Western Highway. It provides access to villages, e.g., San Hing Tsuen, Tuen Tsz Wai, and Tsing Chuen Wai.
- 2.3 Lam Tei Interchange connects Tsing Lun Road, Hong Po Road, Ng Lau Road, Castle Peak Road – Lam Tei, Yuen Long Highway and Tuen Mun Road. It is the main access for traffic accessing the Subject Site and strategic routes.

Existing Traffic Flows

- 2.4 To quantify the traffic flows in the vicinity of the Subject Site, manual classified counts were conducted on Tuesday, 18th April 2023, Wednesday, 19th April 2023 and Wednesday, 26th April 2023 during the AM and PM peak at the following junctions:
- J1: Unnamed Road/ Access Road;
 - J2: Ng Lau Road/ Unnamed Road;
 - J3: Ng Lau Road / Lam Tei Interchange;
 - J4: Tsing Lun Road/ Hong Po Road/ Lam Tei Interchange;
 - J5: Lam Tei Interchange;
 - J6: Lam Tei Interchange/ Castle Peak Road – Lam Tei;
 - J7: Tsing Lun Road/ Tsz Tin Road;
 - J8: San Hing Road / Ng Lau Road (Southern); and
 - J9: San Hing Road / Ng Lau Road (Northern).

- 2.5 The locations of these junctions and the area of influence (“AOI”) are shown in **Figure 2.1** and the layouts are shown in **Figures 2.2 – 2.10** respectively.

- 2.6 The traffic counts are classified by vehicle type to enable traffic flows in passenger car units (“pcu”) to be calculated. The AM and PM peak hours identified from the surveys are found to be between 0800 – 0900 hours and 1700 – 1800 hours respectively. The existing AM and PM peak hour traffic flows in pcu/hour are presented in **Figure 2.11**.

Existing Junction Performance

- 2.7 The existing junction performance of the surveyed junctions are calculated based on the existing traffic flows, and the analysis was undertaken using the methods outlined in Volume 2 of the Transport Planning and Design Manual (“TPDM”). The results are summarised in **Table 2.1** and the detailed calculations are found in **Appendix A**.

TABLE 2.1 EXISTING JUNCTION PERFORMANCE

Ref.	Junction	Type of Junction (Parameter)	AM Peak	PM Peak
J1	Unnamed Road/ Access Road	Priority (DFC)	0.000	0.000
J2	Ng Lau Road/ Unnamed Road	Priority (DFC)	0.033	0.030
J3	Ng Lau Road/ Lam Tei Interchange	Signal (RC)	104%	95%
J4	Tsing Lun Road/ Hong Po Road/ Lam Tei Interchange	RA (DFC)	0.501	0.548
J5	Lam Tei Interchange	RA (DFC)	0.480	0.453
J6	Lam Tei Interchange/ Castle Peak Road – Lam Tei	Signal (RC)	129%	223%
J7	Tsing Lun Road/ Tsz Tin Road	Signal (RC)	67%	111%
J8	San Hing Road/ Ng Lau Road (Southern)	Priority (DFC)	0.057	0.037
J9	San Hing Road/ Ng Lau Road (Northern)	Priority (DFC)	0.223	0.496

Note: RC – reserve capacity; DFC – design flow/capacity ratio, RA – Roundabout

- 2.8 The above results indicate that the surveyed junctions currently operate with capacities during the AM and PM peak hours.

Public Transport Facilities

- 2.9 The Subject Site is located close to public transport services, including franchised buses and public light buses and these operate within 500 metres or some 10-minutes’ walk away. Details of these public transport services are presented in **Table 2.2**. The location and major pedestrian routes of these public transport services are shown in **Figure 2.12**.

TABLE 2.2 ROAD-BASED PUBLIC TRANSPORT SERVICES OPERATING CLOSE TO THE SUBJECT SITE

Route	Routing	Frequency (min)
CTB 50 ⁽¹⁾	Tuen Mun (Ching Tin and Wo Tin) → Tsim Sha Tsui (Kowloon Station) ^(A)	4 per day
	Tsim Sha Tsui (Kowloon Station) → Tuen Mun (Ching Tin and Wo Tin) ^(B)	4 per day
CTB 55 ⁽¹⁾	Tuen Mun (Ching Tin and Wo Tin) → Kwun Tong Ferry Pier ^(A)	4 per day
	Kwun Tong Ferry Pier → Tuen Mun (Ching Tin and Wo Tin) ^(B)	4 per day
CTB 56 ⁽¹⁾	Tuen Mun (Ching Tin and Wo Tin) → Sheung Shui (Tin Ping Estate) ^(A)	4 per day
	Sheung Shui (Tin Ping Estate) → Tuen Mun (Ching Tin and Wo Tin) ^(B)	4 per day
CTB 56A ⁽¹⁾	Tuen Mun (Ching Tin and Wo Tin) → Queen’s Hill Fanling (via: Sheung Shui Station) ^(C)	3 per day
	Queen’s Hill Fanling (via: Sheung Shui Station) → Tuen Mun (Ching Tin and Wo Tin) ^(C)	2 per day
CTB 950 ⁽¹⁾	Tuen Mun (Ching Tin and Wo Tin) → Exhibition Centre Station ^(A)	1 per day
	Exhibition Centre Station → Tuen Mun (Ching Tin and Wo Tin) ^(B)	1 per day
CTB 955 ⁽¹⁾	Tuen Mun (Ching Tin and Wo Tin) → Sai Wan Ho ^(A)	1 per day
	Sai Wan Ho → Tuen Mun (Ching Tin and Wo Tin) ^(B)	1 per day
CTB B3A	Shan King Estate - Shenzhen Bay Port	30 - 60
CTB N969 ^(D)	Tin Shui Wai Town Centre - Causeway Bay (Moreton Terrace)	20 - 45
KMB 53	Yoho Mall (Yuen Long) - Tsuen Wan (Nina Tower)	25 - 35
KMB 63X	Hung Shui Kiu (Hung Fuk Estate) - Jordan (West Kowloon Station)	12 - 30
KMB 67M	Tuen Mun (Siu Hong Court) - Kwai Fong Station	5 - 20
KMB 67X	Tuen Mun (Siu Hong Court) - Mong Kok East Station	6 - 25
KMB 68A	Long Ping Estate - Tsing Yi Station	8 - 25
KMB 258A ⁽¹⁾	Hung Shui Kiu (Hung Fuk Estate) → Lam Tin Station	2 per day
KMB 258P ⁽²⁾	Hung Shui Kiu (Hung Fuk Estate) - Lam Tin Station	12 - 30
KMB 261P	Tuen Mun (Siu Hong Court) → Sheung Shui (Tin Ping) ^{(2)(A)}	2 - 3 per day
	Sheung Shui (Tin Ping) → Tuen Mun (Siu Hong Court) ^{(1)(B)}	1 per day
KMB 267X ⁽¹⁾	Tuen Mun (Siu Hong Court) → Lam Tin Station ^(A)	2 per day
	Lam Tin Station → Tuen Mun (Siu Hong Court) ^(B)	2 per day

TABLE 2.2 ROAD-BASED PUBLIC TRANSPORT SERVICES OPERATING CLOSE TO THE SUBJECT SITE (CONT'D)

KMB 960A ⁽¹⁾	Central → Hung Shui Kiu (Hung Fuk Estate) ^(B)	1 per day
KMB 960C ⁽¹⁾	Tuen Mun (Fu Tai Estate) → Causeway Bay (Victoria Park) ^(A)	2 per day
	Causeway Bay (Victoria Park) → Tuen Mun (Fu Tai Estate) ^(B)	1 per day
KMB 960P	Hung Shui Kiu (Hung Yuen Road) → Causeway Bay (Victoria Park)	10 - 35
	Causeway Bay (Victoria Park) → Hung Shui Kiu (Hung Yuen Road) ^{(1)(B)}	1 per day
KMB 960X ⁽¹⁾	Hung Shui Kiu (Hung Yuen Road) → Quarry Bay (King's Road) ^(A)	8 per day
	Quarry Bay (King's Road) → Hung Shui Kiu (Hung Yuen Road) ^(B)	8 per day
KMB N260 ^(D)	Tuen Mun Pier Head - Mei Foo	20 - 25
LWB A34	Hung Shui Kiu (Hung Yuen Road) - Airport (Ground Transportation Centre)	20 - 60
LWB E33P	Siu Hong Station (South) - Airport (Ground Transportation Centre)	12 - 45
LWB NA33 ^(D)	Tuen Mun (Fu Tai Estate) → Cathay Pacific City	3 per day
	Cathay Pacific City → Tuen Mun (Fu Tai Estate)	5 per day
LWB NA37 ^(D)	Tin Shui Wai Town Centre → Cathay Pacific City	5 per day
	Cathay Pacific City → Tin Shui Wai Town Centre	6 per day
NLB B2	Yuen Long MTR Station - Shenzhen Bay Port	25 - 40
GMB 42	Tsing Chuen Wai - Tuen Mun Town Centre	13 - 15
GMB 606S ^(D)	Yuen Long (Fung Cheung Rd) - Tsim Sha Tsui East	6 - 13

KMB – Kowloon Motor Bus LWB – Long Win Bus CTB – CityBus GMB – Green Minibus

NLB – New Lantao Bus

Note: ⁽¹⁾ Monday to Friday. (Except public holidays) ⁽²⁾ Monday to Saturday (Except public holidays)

^(A) AM peak only ^(B) PM peak only ^(C) AM and PM peak only ^(D) Overnight service

3.0 THE PROPOSED DEVELOPMENT

Key Parameters

3.1 The Proposed Development key parameters are presented in **Table 3.1**.

TABLE 3.1 KEY PARAMETERS

Item		Proposed Development
Site Area		About 8,896 m ²
Domestic Plot Ratio		5.0
Domestic GFA		44,480 m ²
Flat Mix (GFA)	Flat Size ≤ 40m ²	1,110
	40m ² < Flat Size ≤ 70m ²	275
Total number of Flats		1,385

Provision of Internal Transport Facilities

3.2 The internal transport facilities for the Proposed Development are provided in accordance with the recommendations of the Hong Kong Planning Standards and Guidelines (“HKPSG”) and are presented in **Table 3.2**.

TABLE 3.2 PROVISION OF INTERNAL TRANSPORT FACILITIES FOR PROPOSED DEVELOPMENT

Facility	HKPSG Recommendation	Provision	
Car Parking Space	<p>For Residents: Parking Requirement = $GPS \times R1 \times R2 \times R3$ Global Parking Standard (GPS): 1 car parking space per 4 - 7 flats Demand Adjustment Ratio (R1): 0.5 for flat size ≤ 40 m² GFA 1.2 for flat size 40 – 70 m² GFA Accessibility Adjustment Ratio(R2): 1.0 outside 500m-radius of rail station Development Intensity Adjustment Ratio (R3): 1.0 for Plot Ratio 2.0 – 5.0</p> <p>For 1,100 flats with flat size less than 40 m² GFA Minimum: $(1,110 / 7 \times 0.5 \times 1.0 \times 1.0) = 79.3$, say 80 nos. Maximum: $(1,110 / 4 \times 0.5 \times 1.0 \times 1.0) = 138.8$, say 139 nos.</p> <p>For 275 flats with flat size 40 – 70 m² GFA Minimum: $(275 / 7 \times 1.2 \times 1.0 \times 1.0) = 47.2$, say 48 nos. Maximum: $(275 / 4 \times 1.2 \times 1.0 \times 1.0) = 82.5$, say 83 nos.</p> <p>Total Minimum = $80 + 48 = 128$ nos. Maximum = $139 + 83 = 222$ nos.</p>	<p>222 nos. @ 5.0m (L) x 2.5m (W) x 2.4m (H) = HKPSG maximum</p>	
	<p>For Visitors: Visitor car parking for private residential developments with more than 75 units per block should be provided at 5 visitor spaces per block in addition to the recommendations, or as determined by the Authority.</p> <p>For 5 blocks: 5×5 nos. = 25 nos.</p>		<p>25 nos. (22 nos. @ 5.0m(L) x 2.5m(W) x 2.4m(H) + 3 nos. @ 5.0m(L) x 3.5m(W) x 2.4m(H) for person with disabilities) = HKPSG maximum</p>
	<p>Total Car Parking Space: Minimum = $128 + 25 = 153$ nos. Maximum = $222 + 25 = 247$ nos. Note: For total no. of car parking space in lot = 151 – 250 nos., the Building (planning) regulation 72 require provision of 3 accessible car parking spaces</p>		

TABLE 3.2 PROVISION OF INTERNAL TRANSPORT FACILITIES FOR PROPOSED DEVELOPMENT (CONT'D)

Facility	HKPSG Recommendation	Provision
Motorcycle Parking Space	For Residential Uses: 1 motorcycle parking space per 100 – 150 flats excluding non-residential elements For 1,385 flats: 10 – 14 nos.	14 nos. @ 2.4m (L) x 1.0m (W) x Min. 2.4m (H) = HKPSG maximum, OK
Goods Vehicle Loading/ Unloading Bay	For Residential Uses: Minimum of 1 loading / unloading 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. For 5 blocks, each block less than 800 flats: 5 no.	5 nos. @ 11.0m (L) x 3.5m (W) x Min. 4.7m (H) = HKPSG minimum, OK
Bicycle Parking Spaces	For Residential Uses: Within 0.5 – 2km to rail station, 1 space per 15 flats with flat size < 70m ² = 1,385 ÷ 15 = 93 nos.	93 no. @ 1.8m (L) x 0.8m (W) x Min. 2.4m (H) = comply HKPSG, OK

3.3 **Table 3.2** shows that the internal transport facilities provided comply with the recommendations of the HKPSG. The master layout plan of the Proposed Development is shown in **Figure 3.1**.

Planned Road Works near the Proposed Development

3.4 The existing access road and unnamed road connecting the Proposed Development with Ng Lau Road is planned to be improved, to provide a 7.3m-wide road carriageway, a 2m-wide footpath and a 2m-wide cycle track (the “Planned Road Works”). The Planned Road Works to be implemented by the Owner as part of the Approved Scheme and is found in **Appendix B**.

Swept Path Analysis

3.5 The CAD-based swept path analysis programme, Autodesk Vehicle Tracking, was used to check the ease of manoeuvring of vehicles within the Proposed Development, and the swept path analysis drawings are found in **Appendix C**. Vehicles are found to have no manoeuvring problems.

4.0 TRAFFIC IMPACT

Design Year

- 4.1 The Proposed Development is expected to be completed in 2030, and the design year adopted for the traffic assessment is, whichever later of the 2: (i) at least 3 years after the planned completion of the development, i.e., 2033, or (ii) 5 years from the date of this application, i.e., 2028. Therefore, Year 2033 is adopted for junction capacity analysis.

Traffic Forecasting

- 4.2 Year 2033 peak hour traffic flows for the junction capacity analysis is produced (i) with reference to the BDTM; (ii) estimated growth from 2031 to 2033; (iii) expected traffic generation by the planned / committed developments in the vicinity; and (iv) expected traffic generation by the 2 cases, i.e., Approved Scheme and Proposed Development.

Estimated Traffic Growth Rate from 2031 to 2033

- 4.3 Reference is made to the “Hong Kong Population Projections 2020 – 2069” published by Census and Statistics Department. The information is presented in **Table 4.1**.

TABLE 4.1 HONG KONG POPULATION PROJECTIONS FROM CENSUS AND STATISTICS DEPARTMENT

Year	Population in Hong Kong (thousands)
2031	7,945.8
2033	7,998.4
Average Annual Growth (2031 – 2033)	0.33%

- 4.4 **Table 4.1** shows that the annual population growth between 2031 and 2033 is 0.33%, and is adopted for estimated traffic growth rate from 2031 to 2033.

Additional Planned/ Committed Developments near the Subject Site

- 4.5 The additional planned/ committed developments near the Subject Site after 2019 which are not considered in the BDTM are included in the forecast. The major additional planned / committed developments are listed in **Table 4.2** and the locations are presented in **Figure 4.1**.

TABLE 4.2 THE MAJOR ADDITIONAL PLANNED / COMMITTED DEVELOPMENTS NEAR THE SUBJECT SITE

Ref. No.	Development	Intake Year	Land Use	GFA (m ²)	No. of Flat (no.)	Average Flat Size (m ²)	No.
Tuen Mun Area 54⁽¹⁾							
A	Site 1 & 1A Wo Tin Estate	2022	PRH	--	4,232	--	--
			Retail	2,420	--	--	--
			SWF	1,060	--	--	--
			Kindergarten	--	--	--	1 no.
B	Site 2 Yan Tin Estate	2017	PRH	--	4,688	--	--
			Retail	4,250	--	--	--
			SWF	3,600	--	--	--
C	Site 3 & 4 (East) Ching Tin Estate	2022	PRH	--	5,183	--	--
			Retail	3,130	--	--	--
			SWF	1,810	--	--	--
			Kindergarten	--	--	--	1 no.
D	Site 3 & 4 (West) Novo Land	2025	Private Housing	--	4,600	--	--
			Retail	5,000	--	--	--
E	Site 4A (East)	--	Primary School	--	--	--	1 no.
			Secondary School	--	--	--	1 no.
F	Site 4A (West)	--	Sport Centre & Community Hall	--	--	--	1 no.
G	Site 4A (South)	2028	PRH	--	1,475	--	--
			Kindergarten	--	--	--	1 no.
H	Site 5	2028	SSF	--	1,020	--	--
			SWF	1,300	--	--	--
Development at San Hing Road and Hong Po Road, Tuen Mun⁽²⁾							
I	San Hing Road Site	2031	PRH / SSF	--	9,400	--	--
			Primary School	--	--	--	2 nos.
			Kindergarten	--	--	--	2 nos.
			SWF	N/A	--	--	--
J	San Hing Road Site Extension	2030	PRH / SSF	--	1,700	--	--
			Retail	5,000 ⁽⁴⁾	--	--	--
			Secondary School	--	--	--	1 no.
			Primary School	--	--	--	2 no.
K	Ho Pong Road Site	2033	PRH / SSF	--	10,500	--	--
			Retail	5,000 ⁽⁴⁾	--	--	--
			Kindergarten	--	--	--	2 no.
			SWF	N/A	--	--	--
Other Planning Applications Nearby⁽³⁾							
L	A/TM-LTYY/ 426	2026	Private Housing	--	184	31	--
M	Y/TM-LTYY/ 10	--	Private Housing	--	288	40	--
N	A/TM-LTYY/ 301	--	NTEH ⁽³⁾	--	1	195	--
O	A/TM-LTYY/ 335	--	NTEH ⁽³⁾	--	1	195	--
P	A/TM-LTYY/ 336	--	NTEH ⁽³⁾	--	1	195	--
Q	A/TM-LTYY/ 370	--	NTEH ⁽³⁾	--	1	195	--
R	A/TM-LTYY/ 371	--	NTEH ⁽³⁾	--	1	195	--
S	A/TM-LTYY/ 372	--	NTEH ⁽³⁾	--	1	195	--

PRH – Public Rental Housing SSF – Subsidised Sale Flats NTEH – New Territories Exempted House
SWF – Social Welfare Facilities

(1) extracted from TIA of Approved Planning Applications A/TM/500 and A/TM/583

(2) extracted from Chapter 2 of EIA report of “Development at San Hing Road and Hong Po Road, Tuen Mun”

(3) extracted from Planning Statement of Approved Planning Applications

(4) No information on area for retail uses is found in public domain, assumed 5,000 m² GFA of retail

Planned Road Improvement works by the Development at San Hing Road and Hong Po Road

4.6 Some road improvement works are planned under the “Site Formation and Infrastructural Works for the Development at San Hing Road and Hong Po Road, Tuen Mun – Feasibility Study” (Agreement No. CE 68/2017 (CE)) by Civil

Engineering and Development Department (“CEDD”), and these are summarized in **Table 4.3**. The road improvement works are found in **Appendix D**.

TABLE 4.3 PLANNED ROAD IMPROVEMENT WORKS NEAR PROPOSED DEVELOPMENT BY CEDD

Ref	Brief Description of the Improvement
J3	Provide 2 left-turn lanes at Ng Lau Road southbound
	Provide 1 left-turn lane at Lam Tei Interchange eastbound
J4	Provide exclusive left-turn lane from Hong Po Road southbound
	Modify the entry lanes from Lam Tei Interchange westbound
J6	Provide 3 left-turn and 1 straight ahead lane at Castle Peak Road – Lam Tei northbound
	rearrange the channelized island at Castle Peak Road – Lam Tei northbound
	Provide a channelized island at Castle Peak Road – Lam Tei southbound
J7	Provide a channelized island at Tsz Tin Road eastbound
	Rearrange 4 lanes at southern-side of Tsing Lun Road at the junction to provide 2 northbound and 2 southbound lanes

4.7 The improvement work described in **Table 4.3** will be completed gradually before 2030 – 2033, i.e., the intake of public housing of San Hing Road site, and San Hing Road site extension and Hong Po Road site (Note: These are items I, J and K in **Table 4.2**). These improvement works are adopted for the Year 2033 junction capacity analysis.

Net Increase in Traffic Generation between the Approved Scheme and the Proposed Development

4.8 The Proposed Development average flat size is around 32m² GFA, and to estimate its traffic generation, reference is made to the smallest flat size in the TPDM, i.e., 60m² GFA. The adopted trip generation rates and the estimated AM and PM peak hour traffic generation are presented in **Table 4.4**.

TABLE 4.4 ADOPTED TRIP RATES AND TRAFFIC GENERATION FOR PROPOSED DEVELOPMENT

Proposed Development	AM Peak		PM Peak	
	Generation	Attraction	Generation	Attraction
<i>Trip Rates (pcu/ flat/ hr)</i>				
Residential Use with average 60m ² GFA	0.0718	0.0425	0.0286	0.0370
<i>Traffic Generations (pcu/ hr)</i>				
1,385 flats with average flat about 32m² GFA	100	59	40	52
	159		92	

4.9 The traffic generation of Approved Scheme found in the approved traffic impact assessment is presented in **Table 4.5**.

TABLE 4.5 ADOPTED TRAFFIC GENERATION FOR APPROVED SCHEME

Scheme	AM Peak		PM Peak	
	Generation	Attraction	Generation	Attraction
Approved Scheme	37	22	18	23
	59		41	

4.10 The net increase in traffic generation between the Approved Scheme and the Proposed Development is presented in **Table 4.6**.

TABLE 4.6 NET INCREASE IN TRAFFIC GENERATION

Scheme	Traffic Generation (pcu/ hr)			
	AM Peak		PM Peak	
	Generation	Attraction	Generation	Attraction
Proposed Development (from Table 4.4) [a]	100	59	40	52
Approved Scheme (from Table 4.5) [b]	37	22	18	23
Net Increase [a] – [b]:	+63	+37	+22	+29
	+100		+51	

- 4.11 **Table 4.6** shows that the Proposed Development is expected to generate 100 and 51 additional pcu (2-way) in AM and PM peak respectively.

Year 2033 Traffic Flows

- 4.12 Year 2033 traffic flows for the following cases are derived:

Year 2033 With Approved = Traffic flows derived with reference to 2031 NTW1 BDTM Scheme [A] + estimated traffic growth between 2031 and 2033 + estimated traffic generation of the planned / committed developments after 2019 + estimated traffic generation for Approved Scheme

Year 2033 With Proposed = [A] + net increase in traffic generation by Proposed Development [B] Development

- 4.13 Year 2033 peak hour traffic flows for the above two cases are shown in **Figures 4.2 and 4.3** respectively.

Year 2033 Junction Capacity Analysis

- 4.14 Year 2033 junction capacity analysis for the cases, i.e., with Approved Scheme and with Proposed Development are summarised in **Table 4.7** and detailed calculations are found in the **Appendix A**.

TABLE 4.7 YEAR 2033 JUNCTION PERFORMANCE

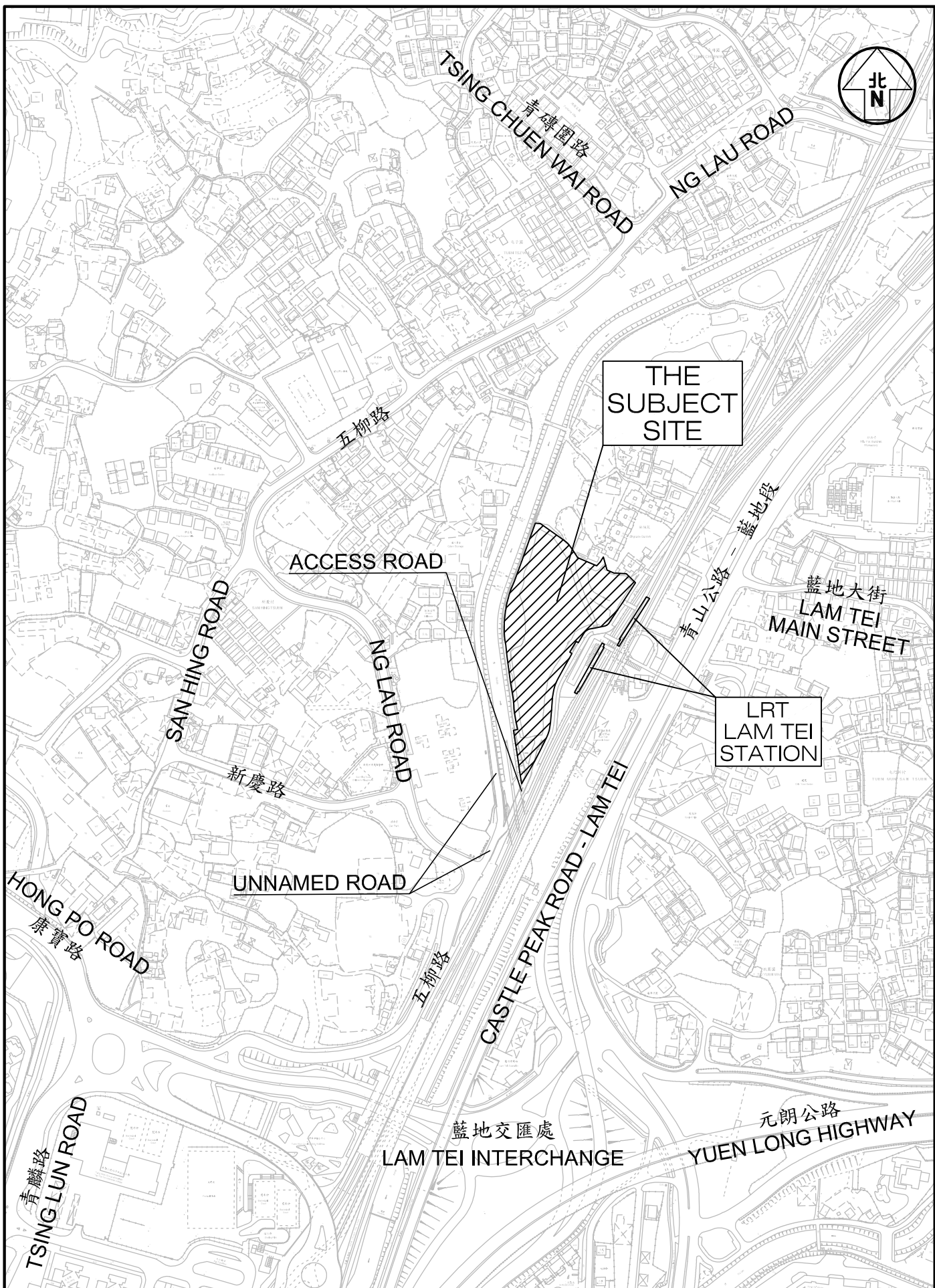
Ref	Junction	Type of Junction (Parameter)	2033 With Approved Scheme		2033 With Proposed Development	
			AM Peak	PM Peak	AM Peak	PM Peak
J1	Unnamed Road/ Access Road	Priority (DFC)	0.057	0.050	0.059	0.051
J2	Ng Lau Road/ Unnamed Road	Priority (DFC)	0.121	0.079	0.238	0.119
J3	Ng Lau Road/ Lam Tei Interchange	Signal (RC)	28%	42%	23%	39%
J4	Tsing Lun Road/ Hong Po Road/ Lam Tei Interchange	RA (DFC)	0.754	0.681	0.775	0.691
J5	Lam Tei Interchange	RA (DFC)	0.816	0.694	0.844	0.710
J6	Lam Tei Interchange/ Castle Peak Road – Lam Tei	Signal (RC)	29%	27%	29%	26%
J7	Tsing Lun Road/ Tsz Tin Road	Signal (RC)	24%	56%	23%	55%
J8	San Hing Road/ Ng Lau Road (Southern)	Priority (DFC)	0.093	0.056	0.093	0.056
J9	San Hing Road/ Ng Lau Road (Northern)	Priority (DFC)	0.243	0.519	0.243	0.519

Note: RC – reserve capacity; RA – Roundabout, DFC – design flow/capacity ratio

- 4.15 **Table 4.7** shows that the Proposed Development has negligible traffic impact to the road junctions analysed.

5.0 SUMMARY

- 5.1 The Subject Site is located in D.D.130, Lam Tei, Tuen Mun. At present, the Subject Site is unoccupied, and access to the Subject Site is via an existing unnamed road which is connected to Ng Lau Road. This Section 12A planning application is for minor relaxation of the maximum plot ratio restriction for residential use at the Subject Site from the approved 2.5 to 5.0.
- 5.2 Manual classified counts were conducted at junctions which are located in the vicinity in order to establish the existing traffic flows during AM Peak and PM peak hours.
- 5.3 The internal transport facilities provided for residential use comply with recommendations of the HKPSG.
- 5.4 Year 2033 peak hour traffic flows for the junction capacity analysis is produced (i) with reference to the BDTM; (ii) estimated growth from 2031 to 2033; (iii) expected traffic generation by the planned / committed developments in the vicinity; and (iv) expected traffic generation by the 2 cases, i.e., Approved Scheme and Proposed Development.
- 5.5 This TIA concluded that the Proposed Development has negligible traffic impact to the surrounding road network, and, is acceptable from traffic terms.



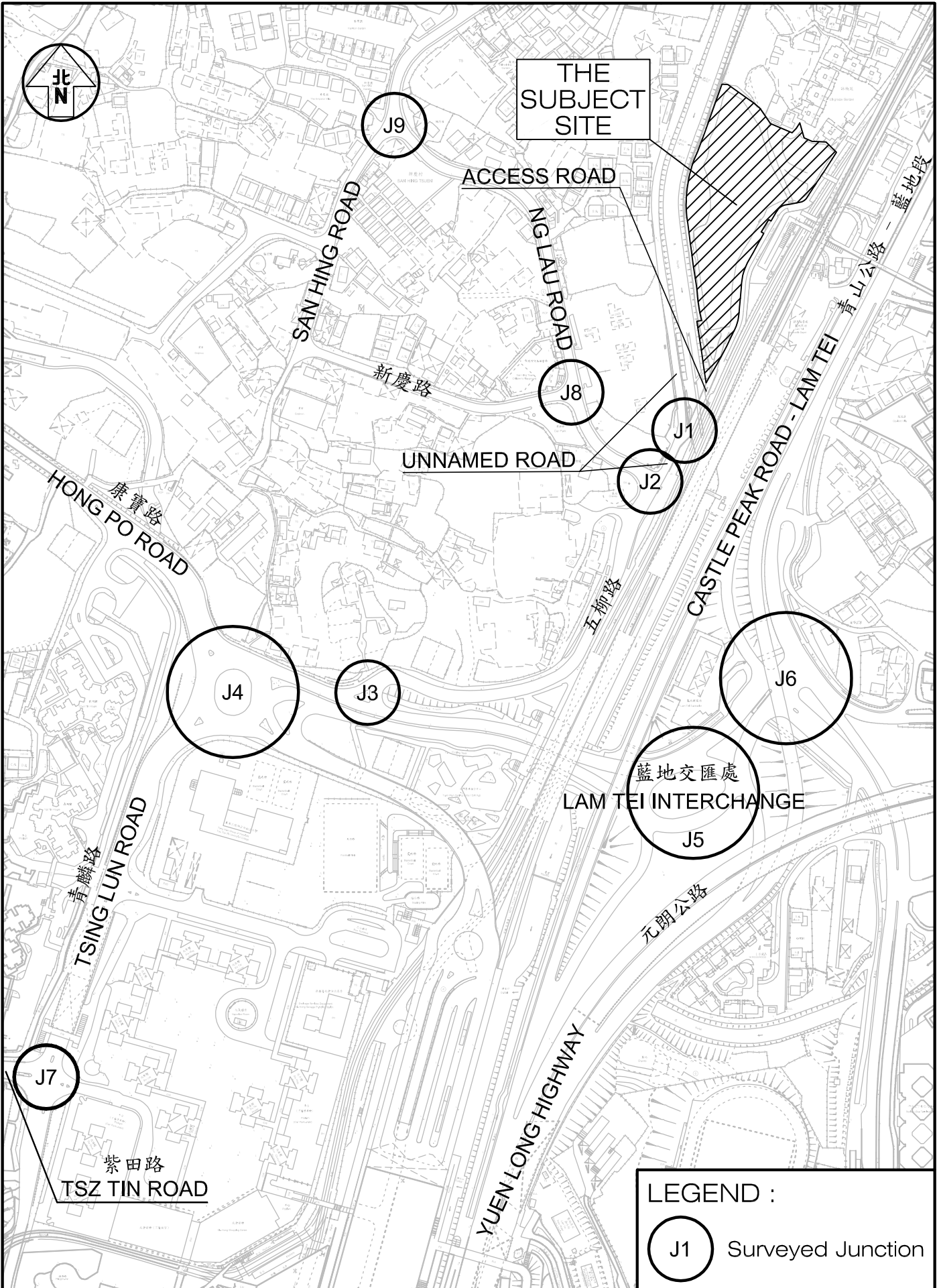
Project Title PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN

Figure Title LOCATION OF THE SUBJECT SITE

Job No. J7265	Figure No. 1.1	Scale in A4 1 : 4,000
Designed by L K W	Drawn by W S W	Checked by K C F
		Revision F
		Date 11 JAN 2024

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Project Title PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN

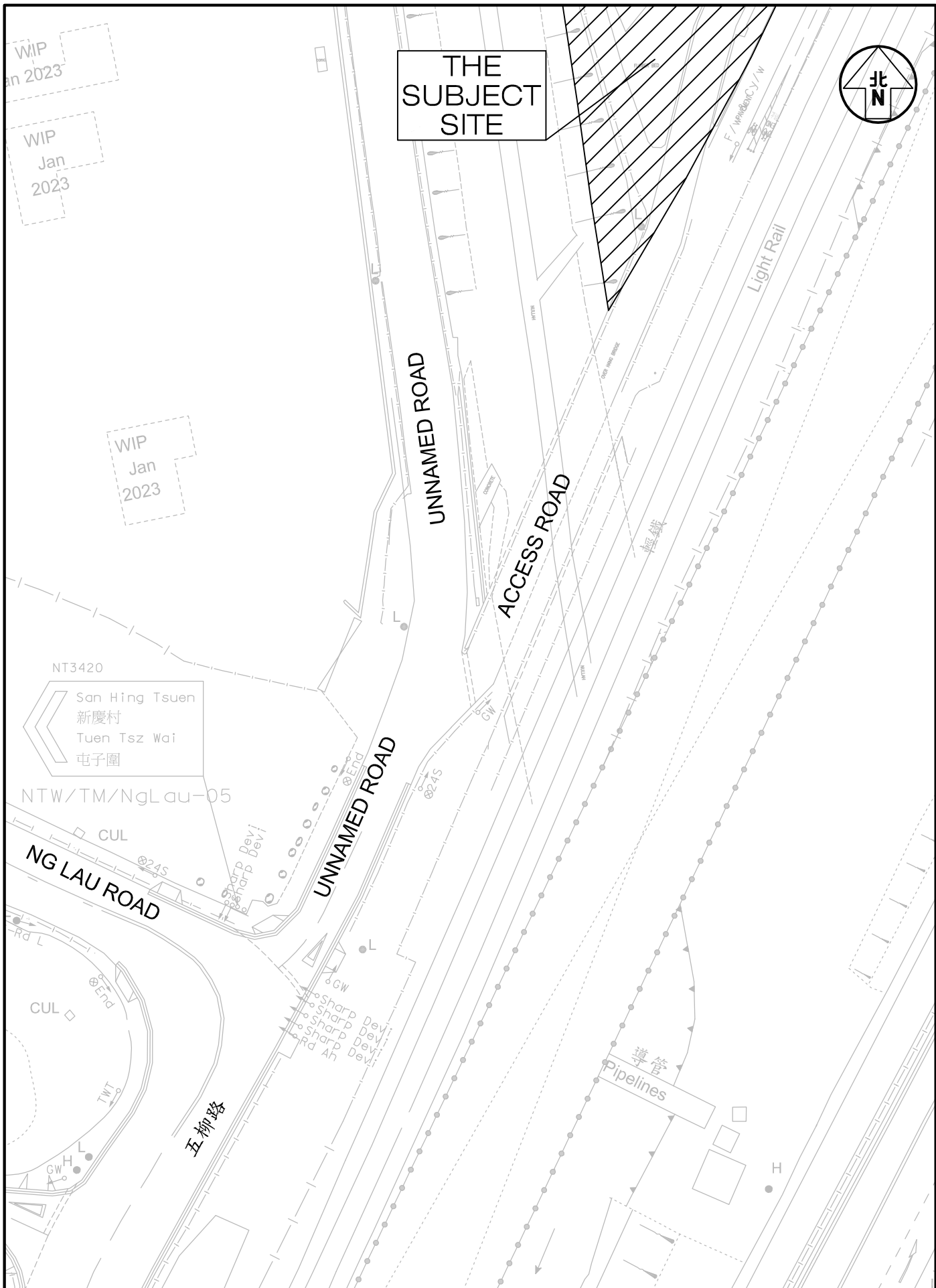
Job No. J7265	Figure No. 2.1	Scale in A4 1 : 5,000
Designed by L K W	Drawn by W S W	Checked by K C
	Revision F	Date 11 JAN 2024

Figure Title

LOCATION OF SURVEYED JUNCTIONS

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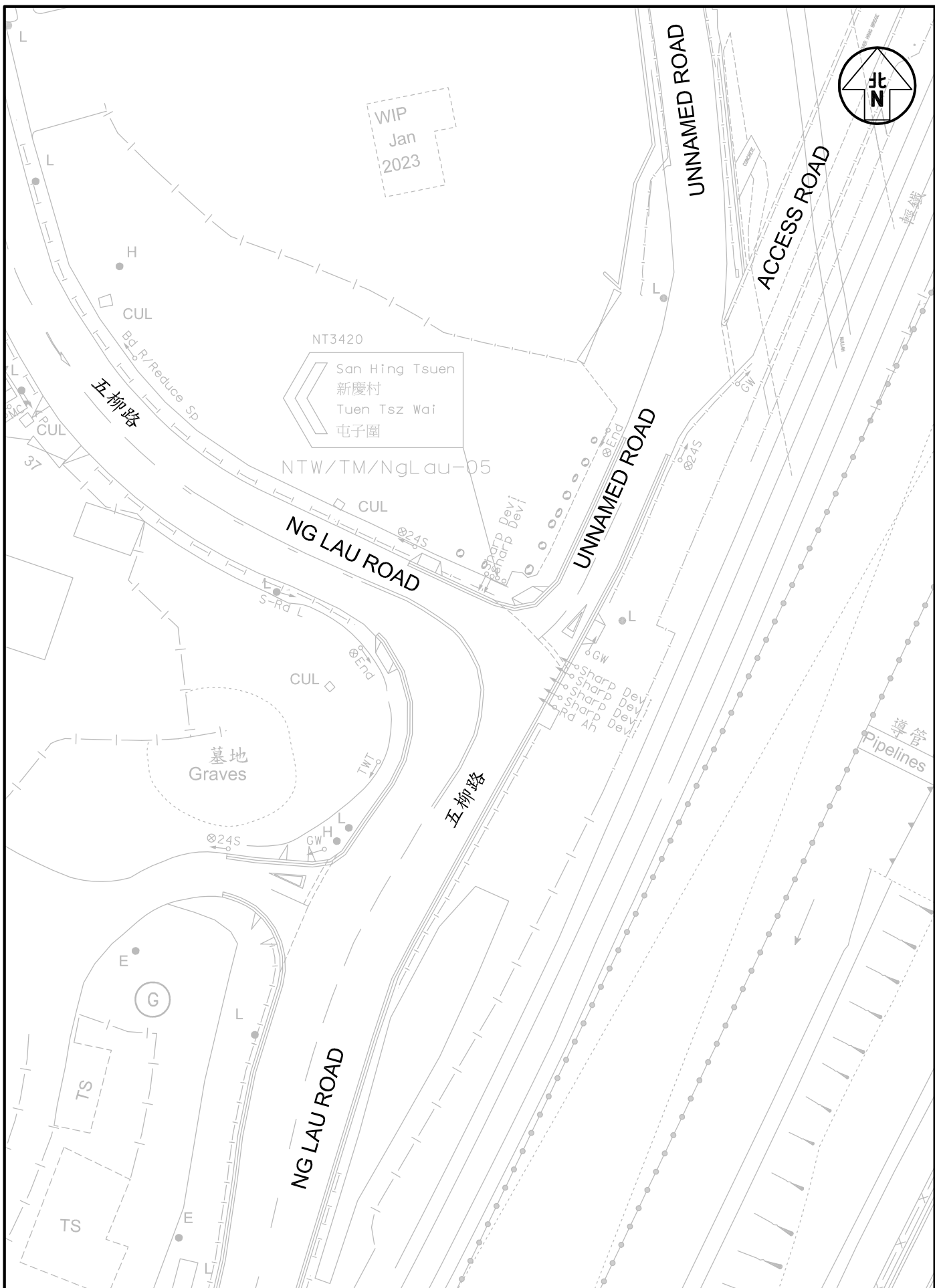
Project Title PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN

Figure Title **LAYOUT OF JUNCTION OF UNNAMED ROAD / ACCESS ROAD**

Job No. J7265	Figure No. 2.2	Scale in A4 1 : 500	
Designed by L K W	Drawn by W S W	Checked by K C F	Revision Date 11 JAN 2024

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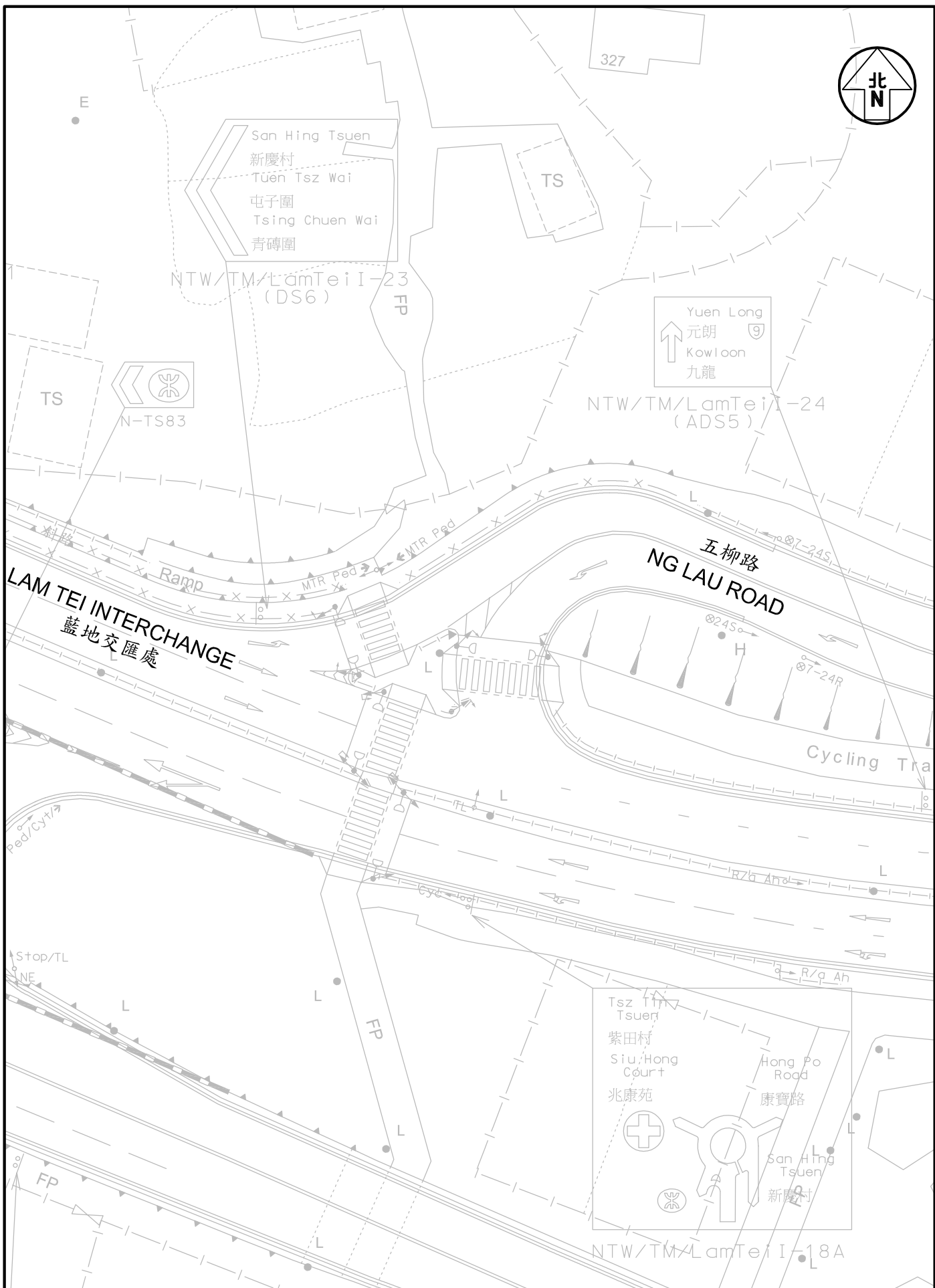
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Job No. J7265	Figure No. 2.3	Scale in A4 1 : 500	
Designed by L K W	Drawn by W S W	Checked by K C F	Revision Date 11 JAN 2024

Figure Title
LAYOUT OF JUNCTION OF NG LAU ROAD / UNNAMED ROAD

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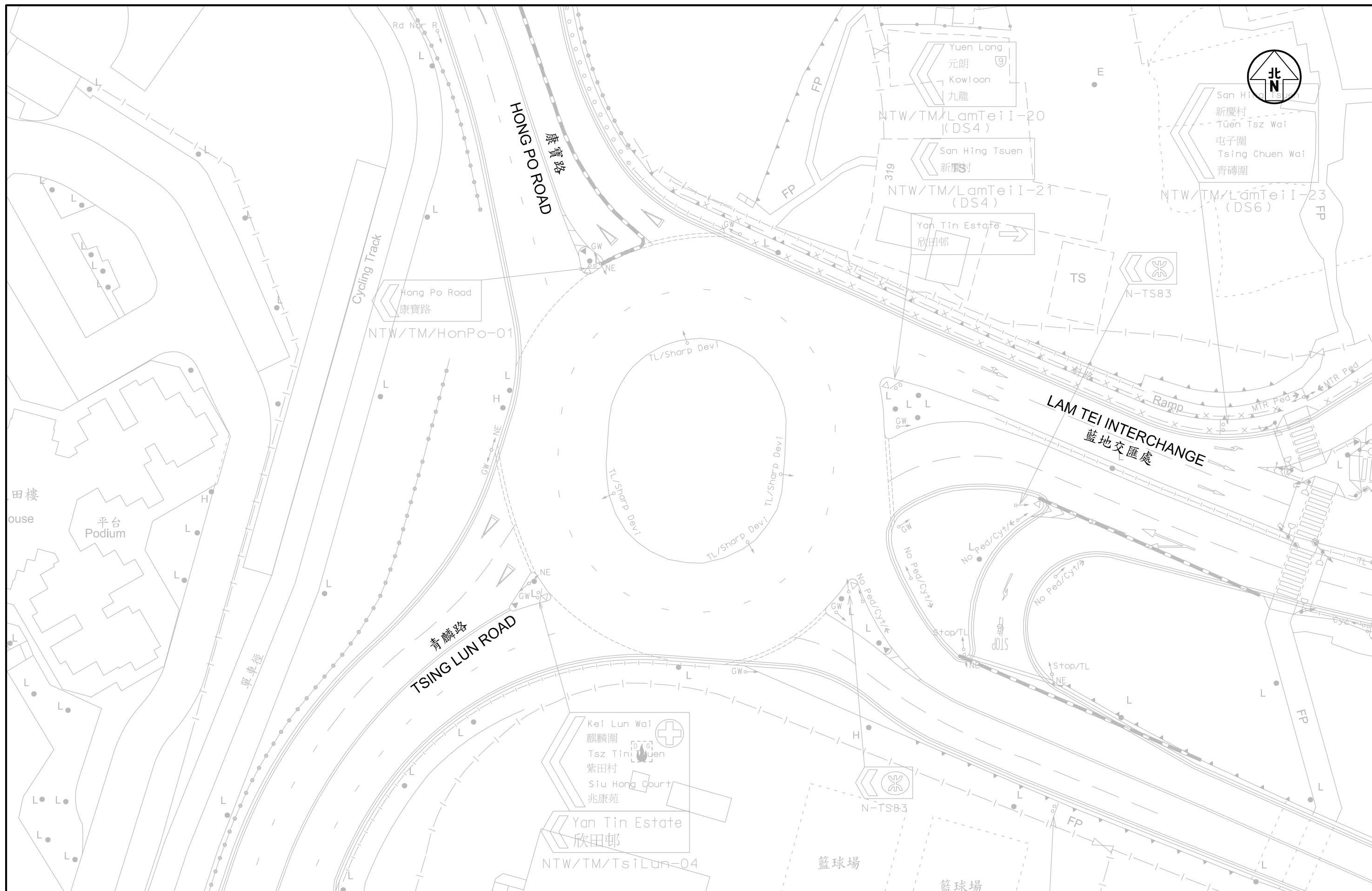


Project Title PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN

Figure Title **LAYOUT OF JUNCTION OF NG LAU ROAD / LAM TEI INTERCHANGE**

Job No. J7265	Figure No. 2.4	Scale in A4 1 : 500
Designed by L K W	Drawn by W S W	Checked by K C
		Revision F
		Date 11 JAN 2024
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Project Title PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN

J7265

Figure No.

2.5

Revision

F

Figure Title

LAYOUT OF JUNCTION OF
TSING LUN ROAD / HONG PO ROAD / LAM TEI INTERCHANGE

Designed by
L K W

Drawn by
W S W

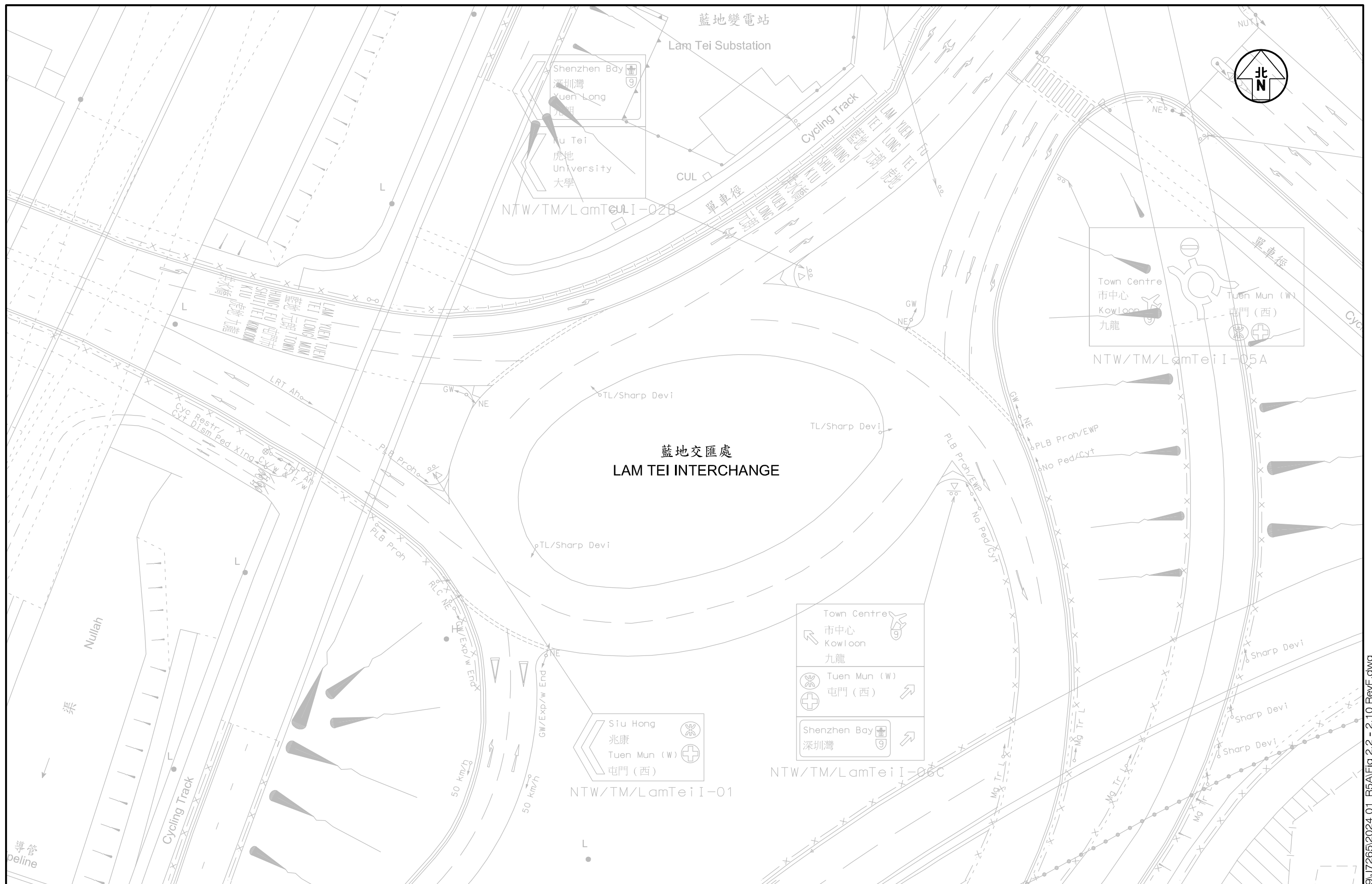
Checked by
K C

Scale in A3
1 : 500

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Project Title PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN

J7265

Figure No. 2.6

Revision F

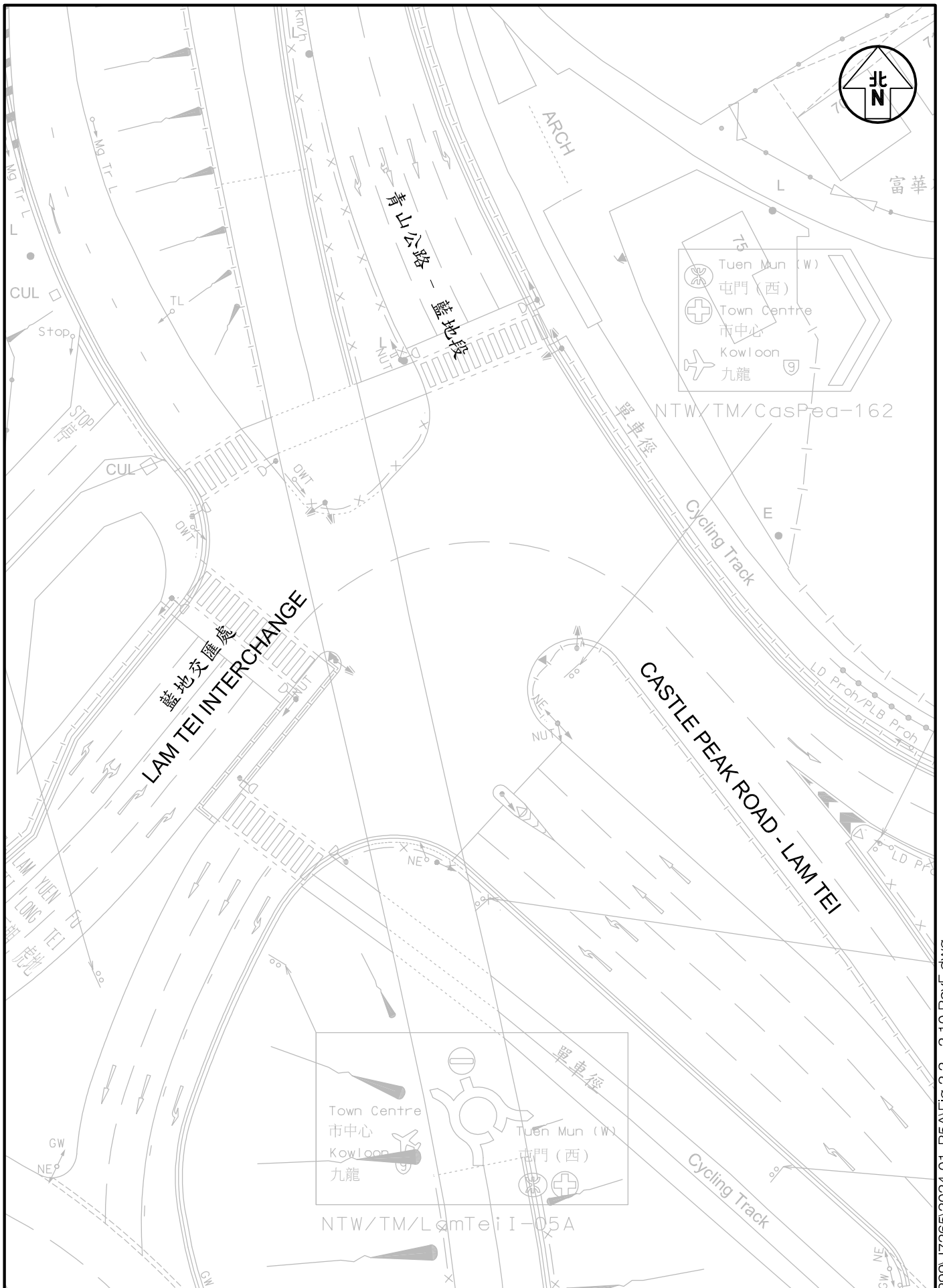
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Figure Title LAYOUT OF JUNCTION OF LAM TEI INTERCHANGE

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Scale in A3 1 : 500	Date 11 JAN 2024	

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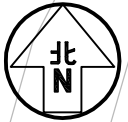
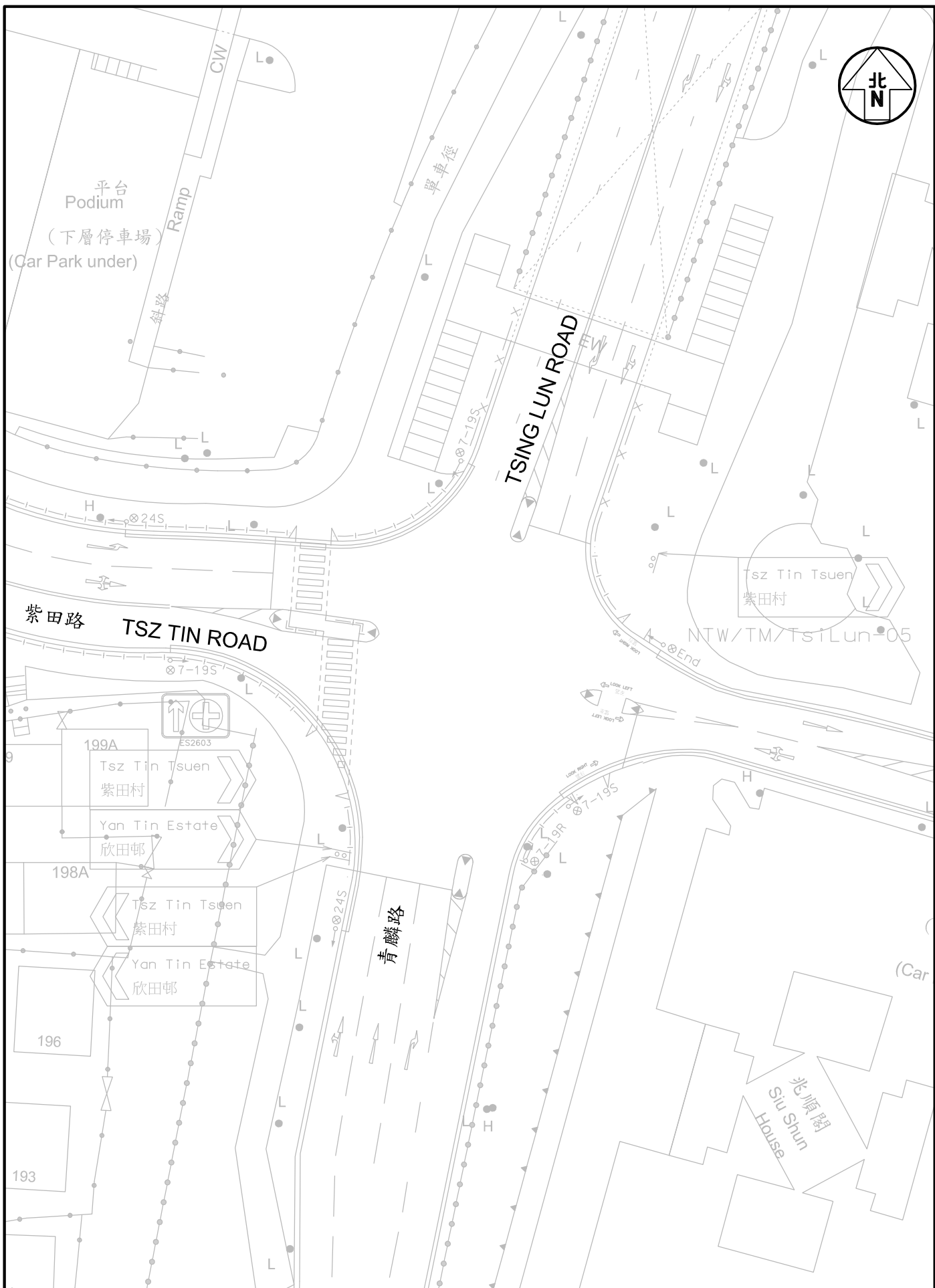
Project Title PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN

Job No. J7265	Figure No. 2.7	Scale in A4 1 : 500
Designed by L K W	Drawn by W S W	Checked by K C
	Revision F	Date 11 JAN 2024

Figure Title
**LAYOUT OF JUNCTION OF
LAM TEI INTERCHANGE / CASTLE PEAK ROAD - LAM TEI**

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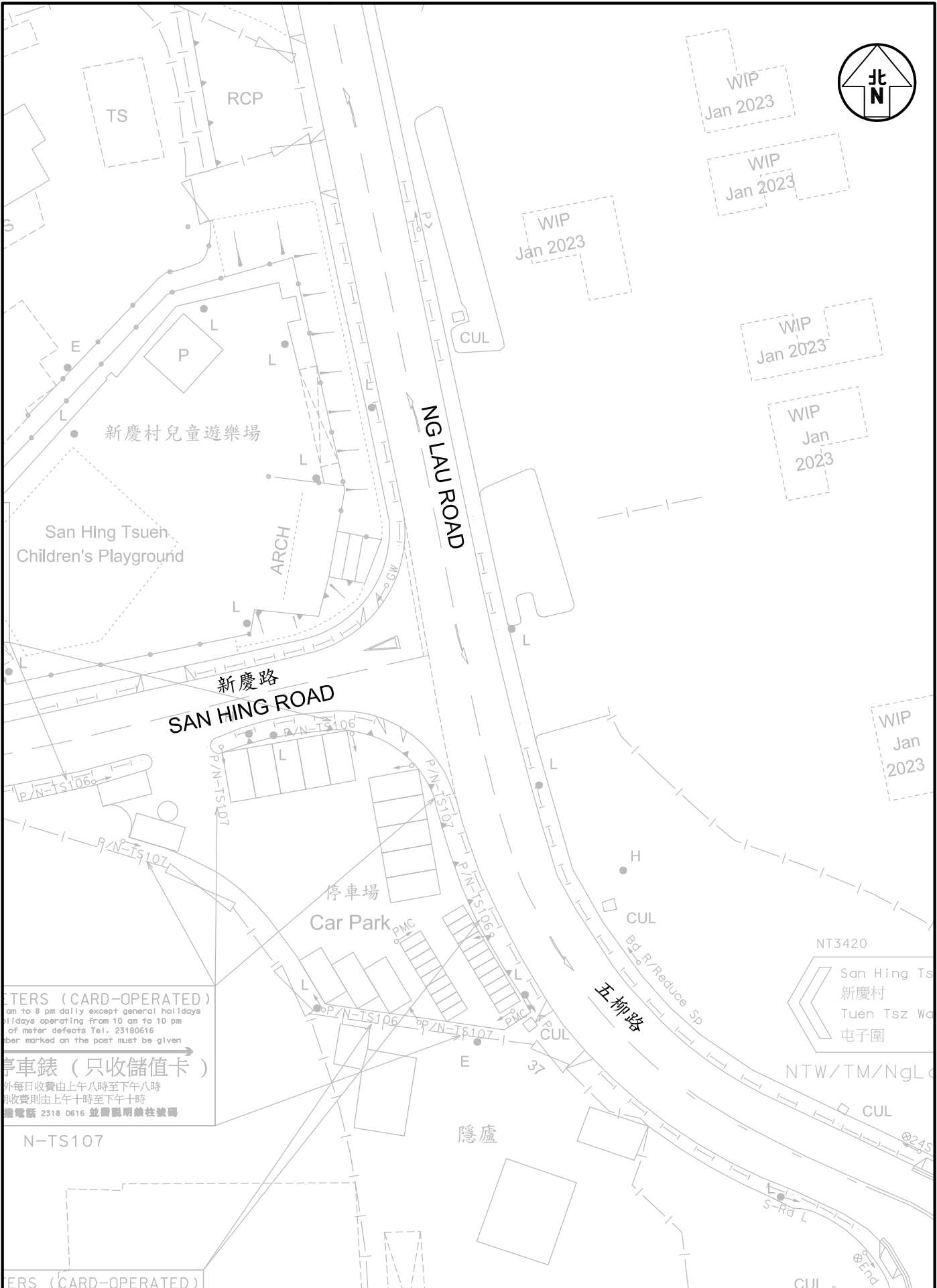
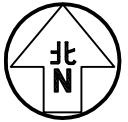
Project Title **PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN**

Figure Title **LAYOUT OF JUNCTION OF TSING LUN ROAD / TSZ TIN ROAD**

Job No. J7265	Figure No. 2.8	Scale in A4 1 : 500	
Designed by L K W	Drawn by W S W	Checked by K C	Revision F
		Date 11 JAN 2024	

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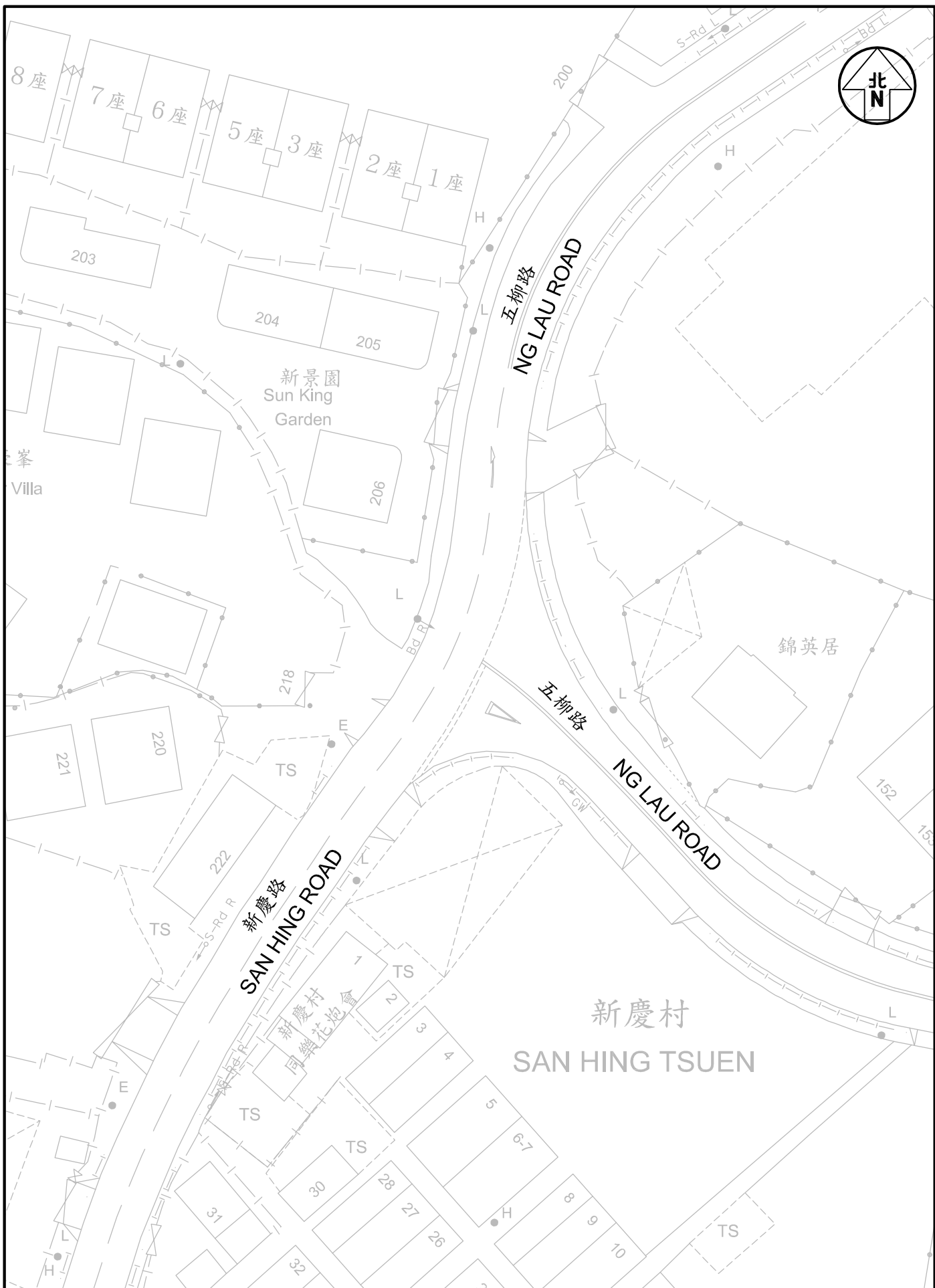
Project Title **PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN**

Job No. J7265	Figure No. 2.9	Scale in A4 1 : 500	
Designed by L K W	Drawn by W S W	Checked by K C F	Revision Date 11 JAN 2024

Figure Title **LAYOUT OF JUNCTION OF SAN HING ROAD / NG LAU ROAD (SOUTHERN)**

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Project Title PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN

Job No. J7265	Figure No. 2.10	Scale in A4 1 : 500	
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		Date 11 JAN 2024	

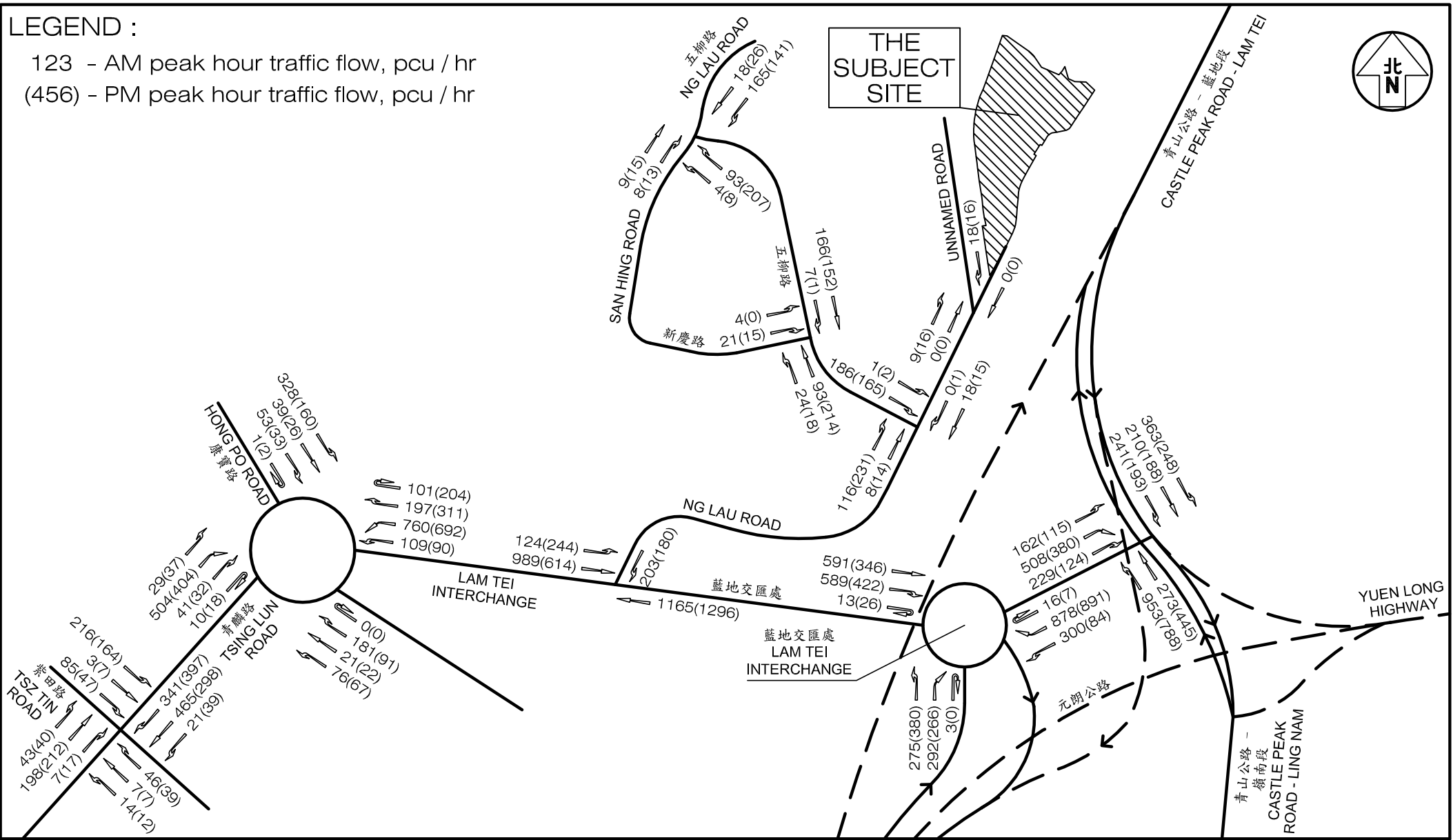
Figure Title LAYOUT OF JUNCTION OF SAN HING ROAD / NG LAU ROAD (NORTHERN)

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LEGEND :

123 - AM peak hour traffic flow, pcu / hr
 (456) - PM peak hour traffic flow, pcu / hr



Project Title **PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN**

Figure No. **J7265**
 2.11

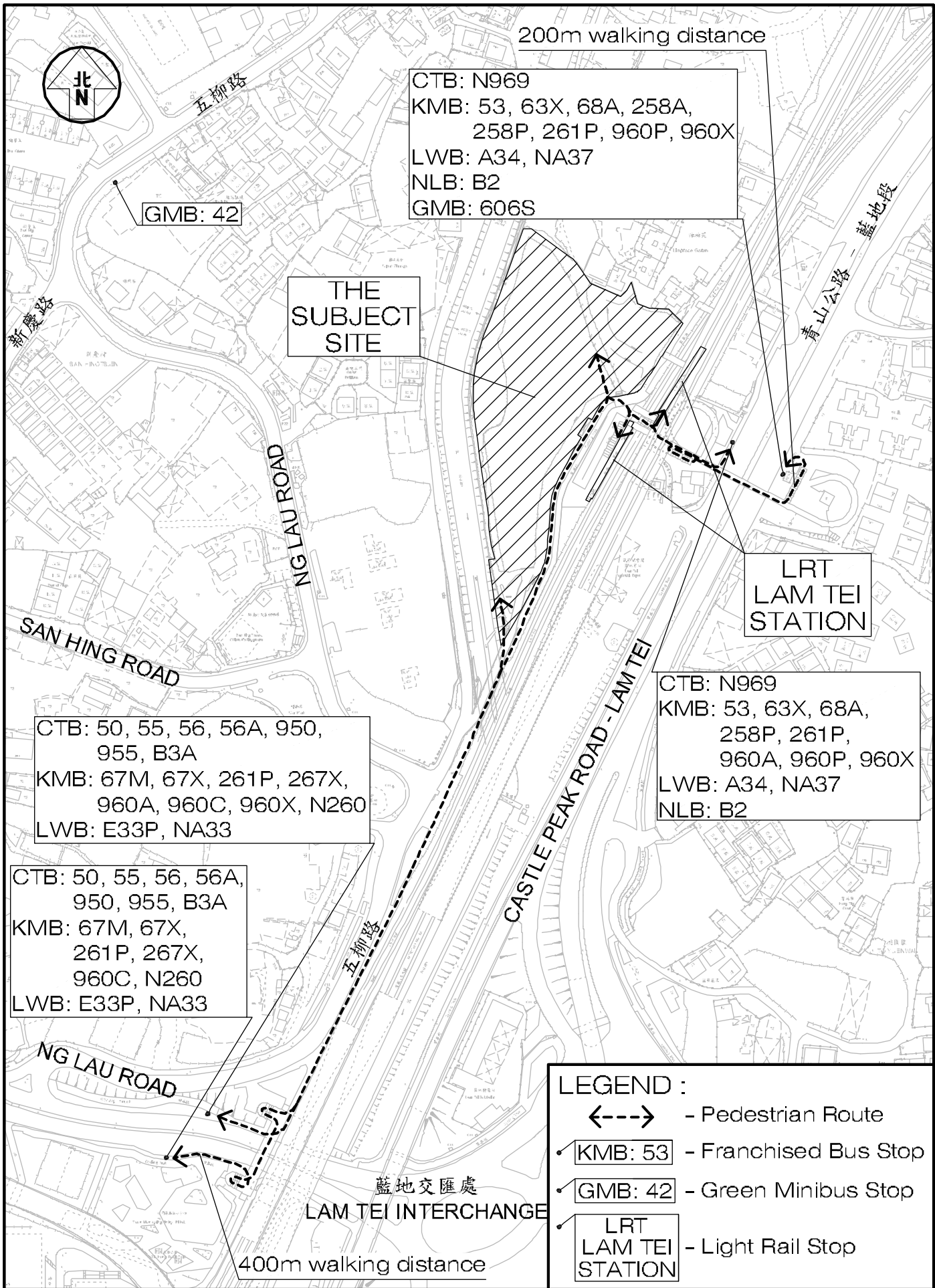
Revision **F**
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Figure Title **EXISTING PEAK HOUR TRAFFIC FLOWS**

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 Checked by **K C**
 Scale in A4 **N.T.S.**
 Date **11 JAN 2024**

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GMB: 42

CTB: N969
 KMB: 53, 63X, 68A, 258A,
 258P, 261P, 960P, 960X
 LWB: A34, NA37
 NLB: B2
 GMB: 606S

THE
 SUBJECT
 SITE

LRT
 LAM TEI
 STATION

CTB: 50, 55, 56, 56A, 950,
 955, B3A
 KMB: 67M, 67X, 261P, 267X,
 960A, 960C, 960X, N260
 LWB: E33P, NA33

CTB: N969
 KMB: 53, 63X, 68A,
 258P, 261P,
 960A, 960P, 960X
 LWB: A34, NA37
 NLB: B2

CTB: 50, 55, 56, 56A,
 950, 955, B3A
 KMB: 67M, 67X,
 261P, 267X,
 960C, N260
 LWB: E33P, NA33

LEGEND :

- ←---→ - Pedestrian Route
- ⤴ KMB: 53 - Franchised Bus Stop
- ⤵ GMB: 42 - Green Minibus Stop
- ⤴ LRT LAM TEI STATION - Light Rail Stop

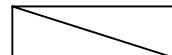
Project Title PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN

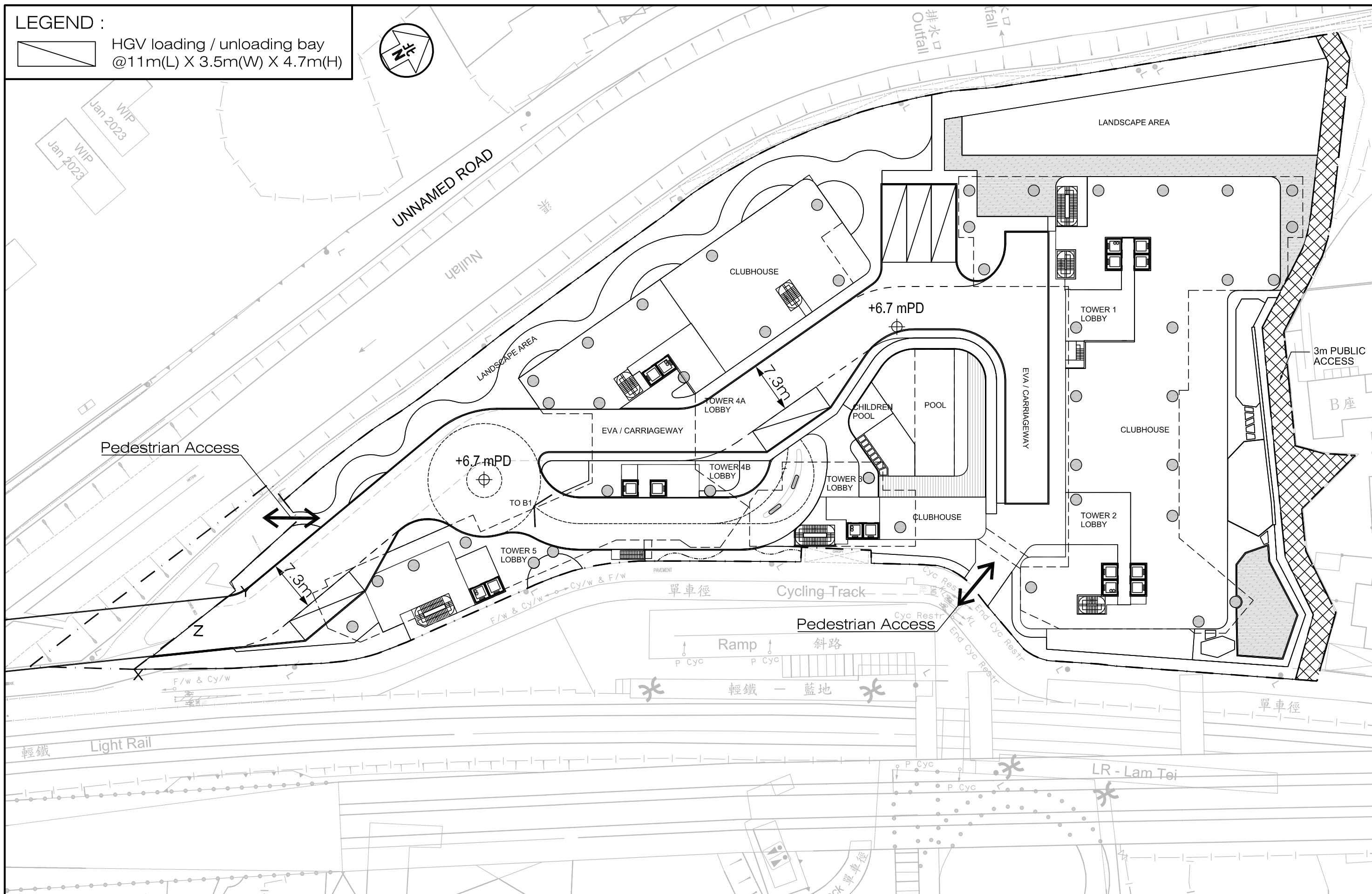
Figure Title ROAD-BASED PUBLIC TRANSPORT SERVICES OPERATING CLOSE TO THE SUBJECT SITE

Job No. J7265	Figure No. 2.12	Scale in A4 1 : 2,500
Designed by L K W	Drawn by W S W	Checked by K C F
	Revision F	Date 11 JAN 2024

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LEGEND :

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



Project Title
PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN

Figure Title
MASTER LAYOUT PLAN

Figure No.
3.1

Revision
F

CKM Asia Limited

Designed by
L K W

Drawn by
W S W

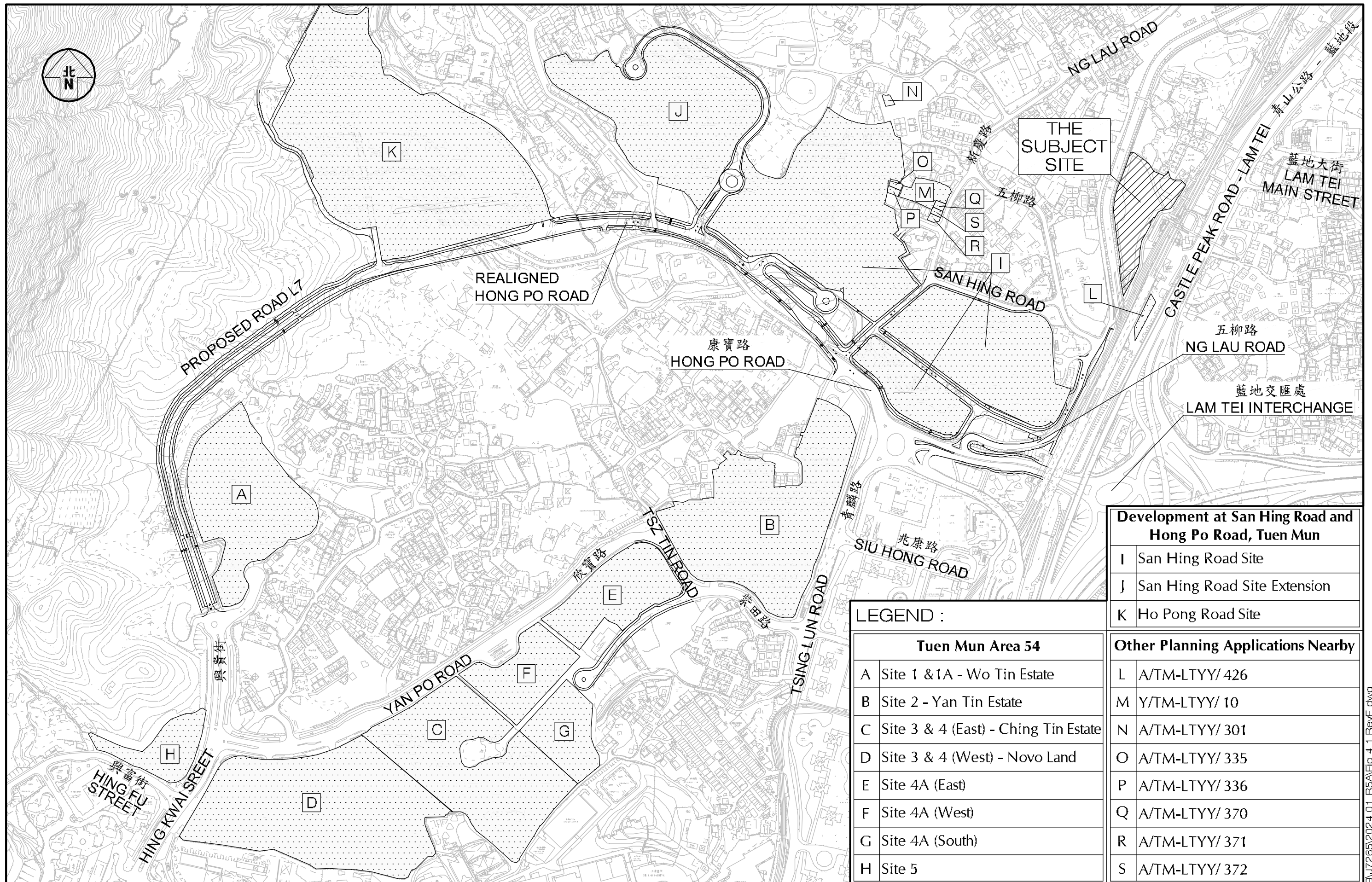
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Date
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Development at San Hing Road and Hong Po Road, Tuen Mun

I	San Hing Road Site
J	San Hing Road Site Extension
K	Ho Pong Road Site

LEGEND :

Tuen Mun Area 54	
A	Site 1 & 1A - Wo Tin Estate
B	Site 2 - Yan Tin Estate
C	Site 3 & 4 (East) - Ching Tin Estate
D	Site 3 & 4 (West) - Novo Land
E	Site 4A (East)
F	Site 4A (West)
G	Site 4A (South)
H	Site 5

Other Planning Applications Nearby

L	A/TM-LTYT/ 426
M	Y/TM-LTYT/ 10
N	A/TM-LTYT/ 301
O	A/TM-LTYT/ 335
P	A/TM-LTYT/ 336
Q	A/TM-LTYT/ 370
R	A/TM-LTYT/ 371
S	A/TM-LTYT/ 372

Project Title: PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN

J7265

Figure No. 4.1

Revision F

Figure Title: THE MAJOR ADDITIONAL PLANNED / COMMITTED DEVELOPMENTS NEAR THE SUBJECT SITE

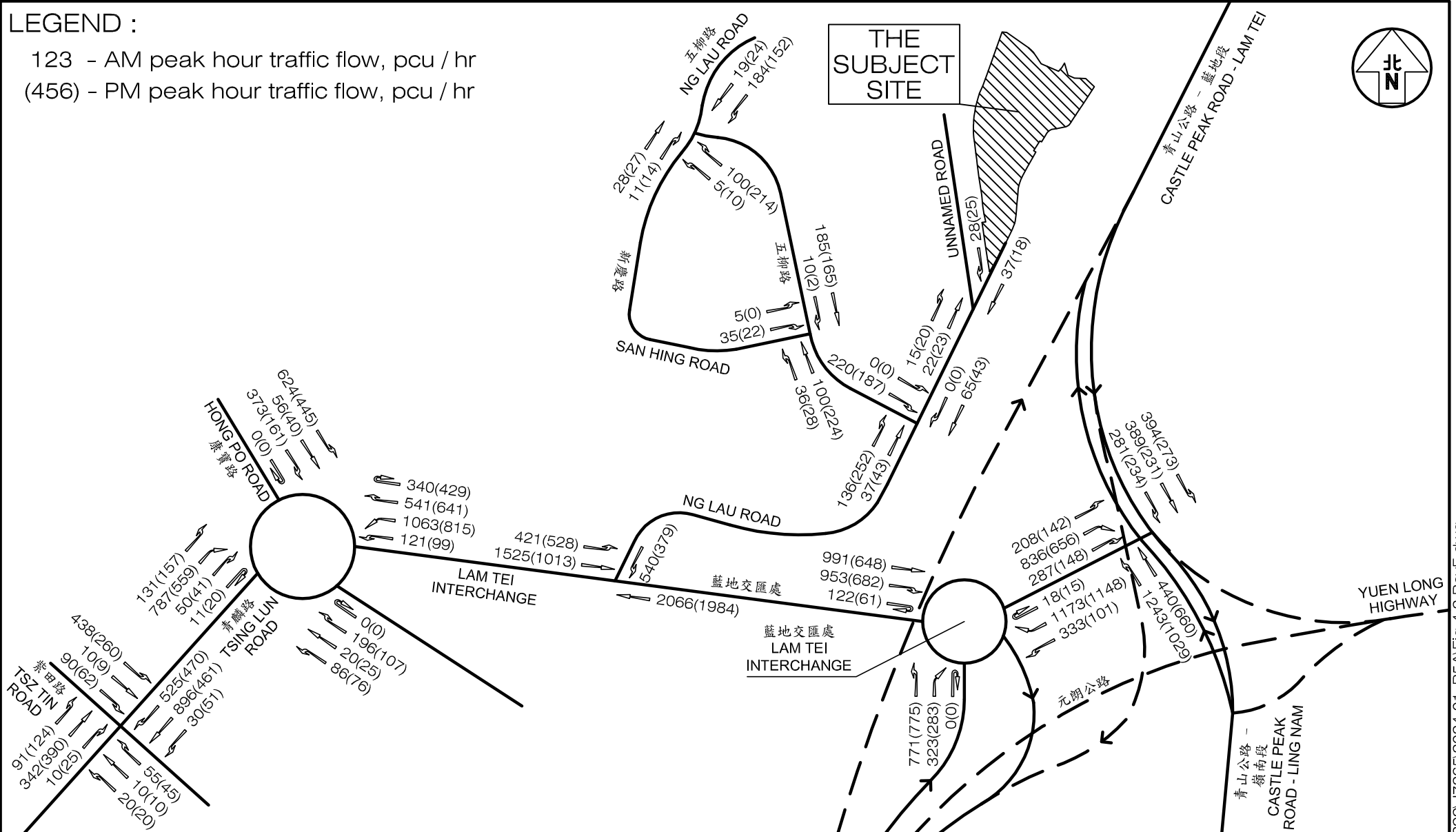
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LEGEND :

123 - AM peak hour traffic flow, pcu / hr
 (456) - PM peak hour traffic flow, pcu / hr



Project Title **PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN**

Figure Title **YEAR 2033 PEAK HOUR TRAFFIC FLOWS WITH APPROVED SCHEME**

Figure No. **4.2**

Revision **F**

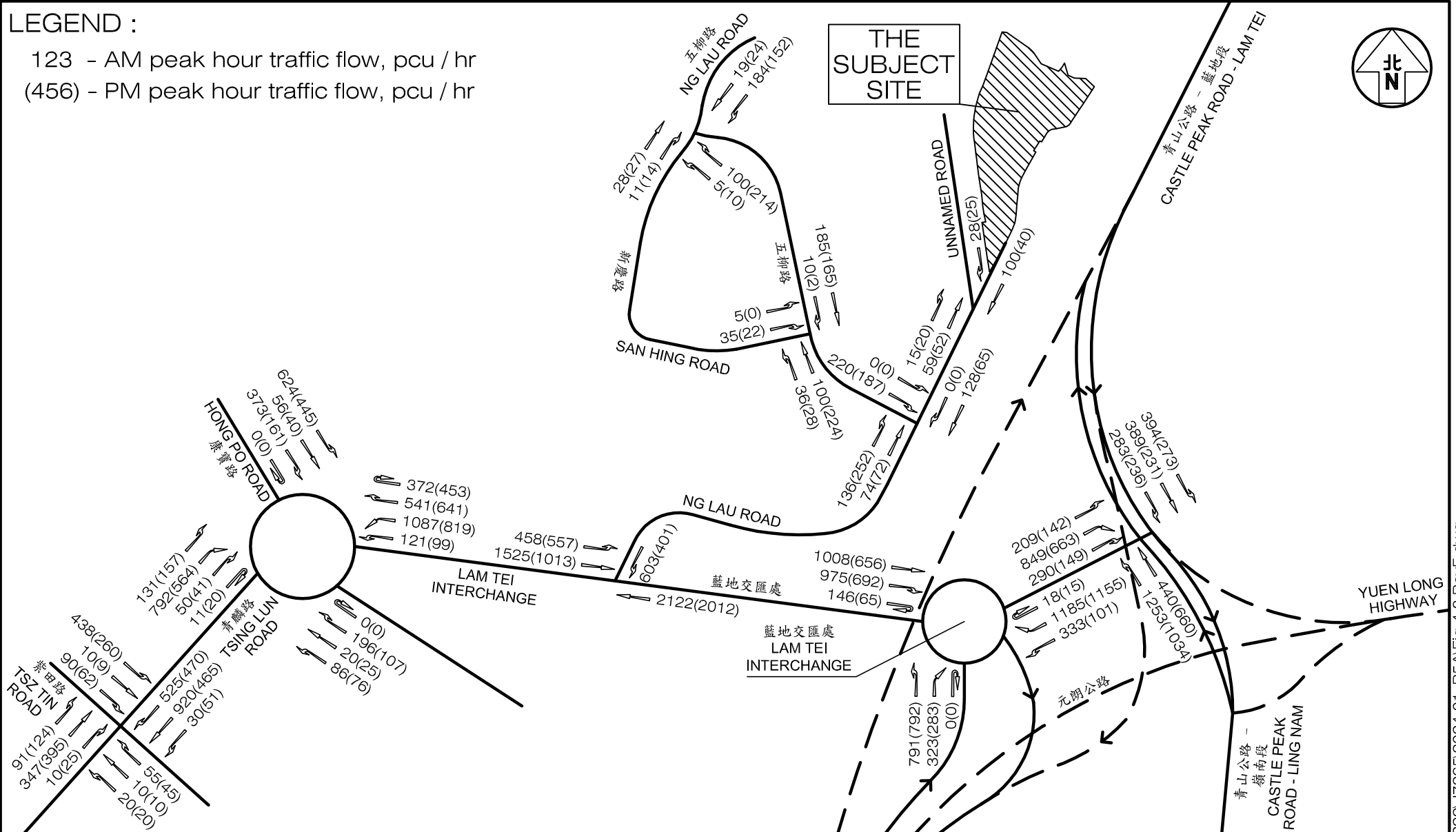
Designed by **L K W** Drawn by **W S W** Checked by **K C**

Scale in A4 **N.T.S.** Date **11 JAN 2024**

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LEGEND :

123 - AM peak hour traffic flow, pcu / hr
 (456) - PM peak hour traffic flow, pcu / hr



Project Title **PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN**

Figure Title **YEAR 2033 PEAK HOUR TRAFFIC FLOWS WITH PROPOSED DEVELOPMENT**

Figure No. **4.3**

Revision **F**

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 Drawn by **W S W**
 Checked by **K C**

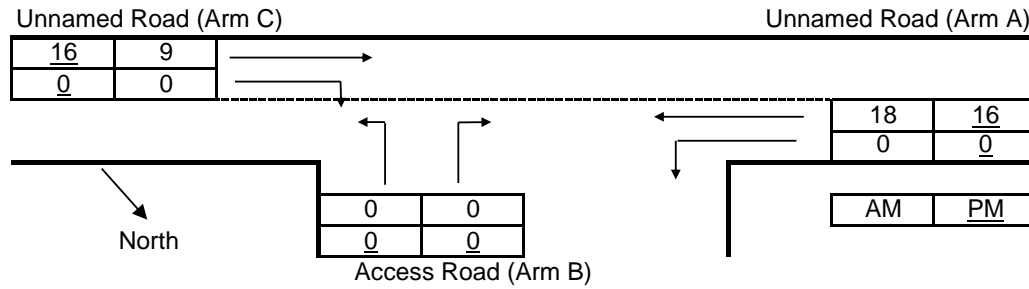
Scale in A4 **N.T.S.**
 Date **11 JAN 2024**

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Appendix A – Junction Capacity Analysis

Priority Junction Analysis

Junction:	Unnamed Road / Access Road		
Design Year:	2023	Job Number: J7265	Date: 14 Sep 2023
Scenario:	Existing Condition	P. 1	



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

Geometry :	Input		Input		Input		Calculated	
	W	5.70	V-rBA	100	w-BA	2.05	D	0.8093
	W-CR	0.00	V-IBA	100	w-BC	2.05	E	0.8343
			V-rBC	100	w-CB	2.70	F	0.8943
			V-rCB	100			Y	0.8034

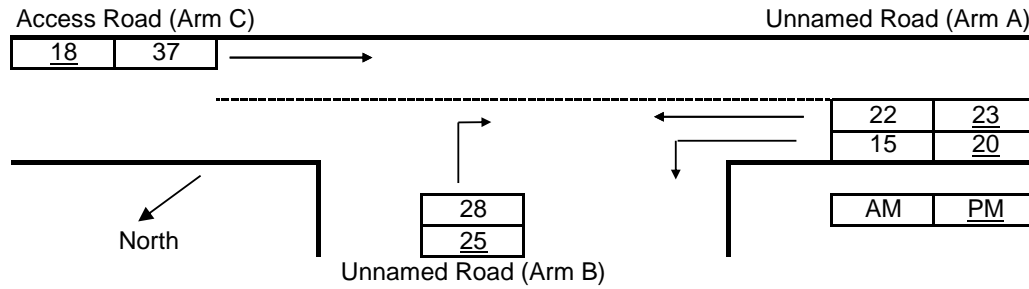
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	9	16	Q-BA	502	501
q-CB	0	0	Q-BC	617	618
q-AB	0	0	Q-CB	662	662
q-AC	18	16	Q-BAC	502	501
q-BA	0	0			
q-BC	0	0			
f	0.000	0.000			

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

Priority Junction Analysis

Junction:	Unnamed Road / Access Road		
Design Year:	2033	Job Number: J7265	Date: 14 Sep 2023
Scenario:	With Approved Scheme		P. 2



The predictive equations of capacity of movement are:

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

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

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

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

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

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

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

where $Y = 1 - 0.0345W$

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

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

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

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

Geometry :	Input		Input		Input		Calculated	
	W	6.90	V-rBA	60	w-BA	4.70	D	0.8093
	W-CR	0.00	V-IBA	90	w-BC	0.00	E	0.8343
			V-rBC	0.00	w-CB	0.00	F	0.8943
			V-rCB	55			Y	0.8034

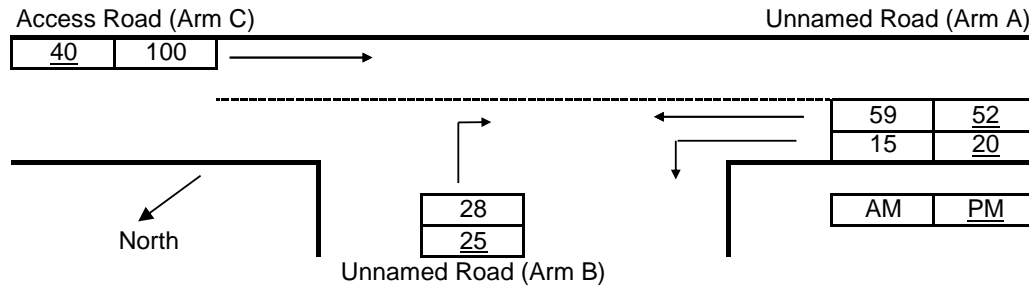
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr		AM	PM
q-CA	37	18	Q-BA		495	497
q-CB	0	0	Q-BC		615	614
q-AB	15	20	Q-CB		657	655
q-AC	22	23	Q-BAC		495	497
q-BA	28	25				
q-BC	0	0				
f	0.000	0.000				

Ratio-of-flow to Capacity	AM	PM
B-A	0.057	0.050
B-C	0.000	0.000
C-B	0.000	0.000
B-AC	0.057	0.050

Priority Junction Analysis

Junction:	Unnamed Road / Access Road		
Design Year:	2033	Job Number:	J7265
Scenario:	With Proposed Development	Date:	14 Sep 2023
			P. 3



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

Geometry :	Input		Input		Input		Calculated	
	W	6.90	V-rBA	60	w-BA	4.70	D	0.8093
	W-CR	0.00	V-IBA	90	w-BC	0.00	E	0.8343
			V-rBC	0.00	w-CB	0.00	F	0.8943
			V-rCB	55			Y	0.8034

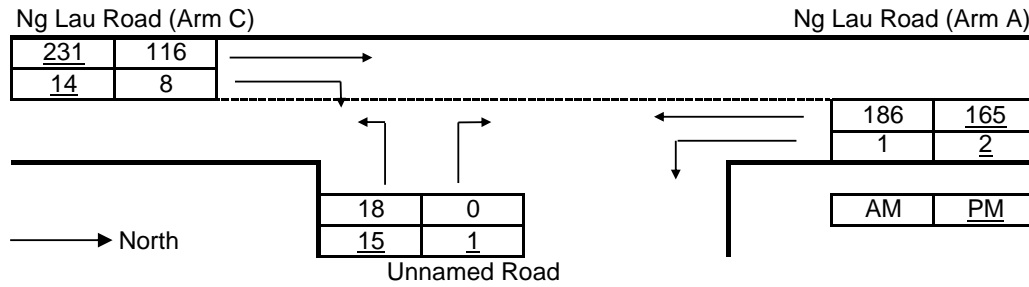
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr		AM	PM
q-CA	100	40	Q-BA		477	487
q-CB	0	0	Q-BC		606	607
q-AB	15	20	Q-CB		647	647
q-AC	59	52	Q-BAC		477	487
q-BA	28	25				
q-BC	0	0				
f	0.000	0.000				

Ratio-of-flow to Capacity	AM	PM
B-A	0.059	0.051
B-C	0.000	0.000
C-B	0.000	0.000
B-AC	0.059	0.051

Priority Junction Analysis

Junction:	Ng Lau Road / Unnamed Road		
Design Year:	2023	Job Number:	J7265
Scenario:	Existing Condition	Date:	14 Sep 2023
			P. 4



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

Geometry :	Input		Input		Input		Calculated	
	W	8.65	V-rBA	30	w-BA	2.05	D	0.7574
	W-CR	0.00	V-IBA	100	w-BC	2.05	E	0.7808
			V-rBC	30	w-CB	4.70	F	1.0394
			V-rCB	60			Y	0.7016

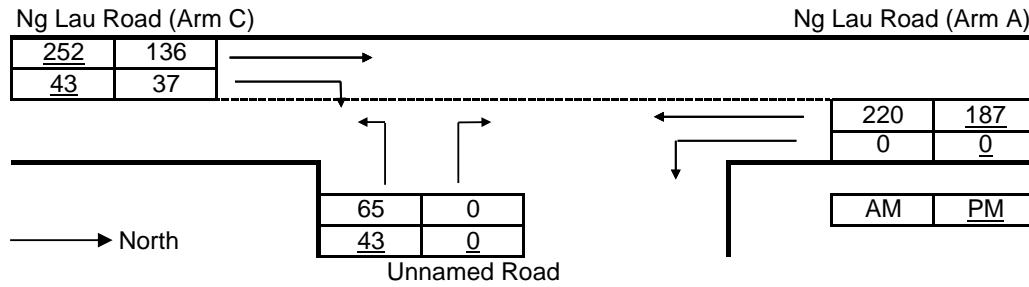
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr		AM	PM
q-CA	116	231	Q-BA		422	411
q-CB	8	14	Q-BC		545	549
q-AB	1	2	Q-CB		725	730
q-AC	186	165	Q-BAC		545	537
q-BA	0	1				
q-BC	18	15				
f	1.000	0.938				

Ratio-of-flow to Capacity	AM	PM
B-A	0.000	0.002
B-C	0.033	0.027
C-B	0.011	0.019
B-AC	0.033	0.030

Priority Junction Analysis

Junction:	Ng Lau Road / Unnamed Road		
Design Year:	2033	Job Number:	J7265
Scenario:	With Approved Scheme	Date:	14 Sep 2023
			P. 5



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

Geometry :	Input		Input		Input		Calculated	
	W	7.50	V-rBA	20	w-BA	2.05	D	0.7574
	W-CR	0.00	V-IBA	90	w-BC	2.05	E	0.7808
			V-rBC	20	w-CB	4.70	F	1.0394
			V-rCB	25			Y	0.7016

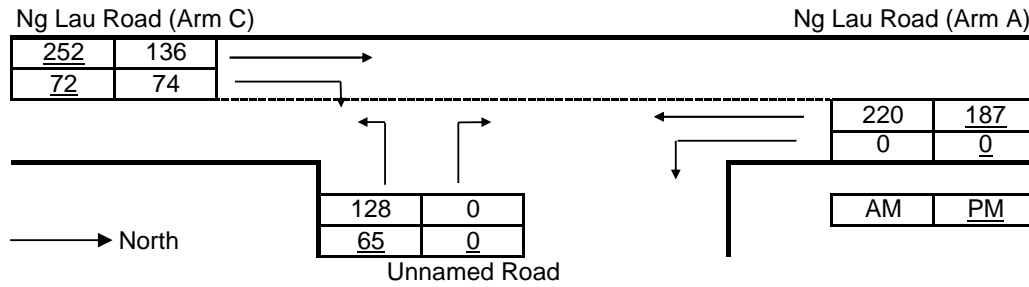
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr		AM	PM
q-CA	136	252	Q-BA		406	396
q-CB	37	43	Q-BC		538	544
q-AB	0	0	Q-CB		716	725
q-AC	220	187	Q-BAC		538	544
q-BA	0	0				
q-BC	65	43				
f	1.000	1.000				

Ratio-of-flow to Capacity	AM	PM
B-A	0.000	0.000
B-C	0.121	0.079
C-B	0.052	0.059
B-AC	0.121	0.079

Priority Junction Analysis

Junction:	Ng Lau Road / Unnamed Road		
Design Year:	2033	Job Number:	J7265
Scenario:	With Proposed Development	Date:	14 Sep 2023
			P. 6



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

Geometry :	Input		Input		Input		Calculated	
	W	7.50	V-rBA	20	w-BA	2.05	D	0.7574
	W-CR	0.00	V-IBA	90	w-BC	2.05	E	0.7808
			V-rBC	20	w-CB	4.70	F	1.0394
			V-rCB	25			Y	0.7016

Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	136	252	Q-BA	395	388
q-CB	74	72	Q-BC	538	544
q-AB	0	0	Q-CB	716	725
q-AC	220	187	Q-BAC	538	544
q-BA	0	0			
q-BC	128	65			
f	1.000	1.000			

Ratio-of-flow to Capacity	AM	PM
B-A	0.000	0.000
B-C	0.238	0.119
C-B	0.103	0.099
B-AC	0.238	0.119

Signal Junction Analysis

Junction: <u>Ng Lau Road / Lam Tei Interchange</u>										Job Number: <u>J7265</u>																								
Scenario: <u>Existing Condition</u>										P. <u>7</u>																								
Design Year: <u>2023</u>			Designed By: _____			Checked By: _____			Date: <u>14 Sep 2023</u>																									
Approach	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	Turning %	Sat. Flow (pcu/hr)	AM Peak			PM Peak																							
								Flow (pcu/hr)	y value	Critical y	Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y																			
Lam Tei Interchange EB	SA+LT	A1	1	3.65	30.0		23	1957	534	0.273		60	1922	408	0.212																			
	SA	A2	1	3.65				2120	579	0.273			2120	450	0.212																			
Lam Tei Interchange WB	SA+LT	A3	1	3.65	15.0		0	1980	563	0.284	0.284	0	1980	626	0.316	0.316																		
	SA	A4	1	3.65				2120	602	0.284			2120	670	0.316																			
Ng Lau Road SB	LT	B1	2	4.00	12.0		100	1791	203	0.113	0.113	100	1791	180	0.100	0.100																		
pedestrian phase		C _(P)	1			min crossing time =	8	sec GM +	8	sec FGM =	16	sec																						
		D _(P)	2			min crossing time =	8	sec GM +	9	sec FGM =	17	sec																						
AM Traffic Flow (pcu/hr)						PM Traffic Flow (pcu/hr)								<p>S = 1940 + 100 (W-3.25) S = 2080 + 100 (W-3.25)</p> <p>SM = S / (1 + 1.5 f/r) SM = (S - 230) / (1 + 1.5 f/r)</p>		Note:																		
										<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>AM Peak</th> <th>PM Peak</th> </tr> </thead> <tbody> <tr> <td>1 + 2</td> <td></td> <td>1 + 2</td> </tr> <tr> <td>Sum y</td> <td>0.398</td> <td>0.417</td> </tr> <tr> <td>L (s)</td> <td>8</td> <td>8</td> </tr> <tr> <td>C (s)</td> <td>82</td> <td>82</td> </tr> <tr> <td>practical y</td> <td>0.812</td> <td>0.812</td> </tr> <tr> <td>R.C. (%)</td> <td>104%</td> <td>95%</td> </tr> </tbody> </table>			AM Peak	PM Peak	1 + 2		1 + 2	Sum y	0.398	0.417	L (s)	8	8	C (s)	82	82	practical y	0.812	0.812	R.C. (%)	104%	95%		
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1		2		3		4		5																										
AM		G = I/G = 5		G = I/G = 5		G = I/G =		G = I/G =		G = I/G =		G = I/G =		G = I/G =																				
PM		G = I/G = 5		G = I/G = 5		G = I/G =		G = I/G =		G = I/G =		G = I/G =		G = I/G =																				

Junction: <u>Ng Lau Road / Lam Tei Interchange</u>										Job Number: <u>J7265</u>																																								
Scenario: <u>With Approved Scheme</u>										P. 8																																								
Design Year: <u>2033</u>			Designed By: _____			Checked By: _____			Date: <u>14 Sep 2023</u>																																									
Approach	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	Turning %	AM Peak				PM Peak																																							
							Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y	Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y																																			
Lam Tei Interchange EB	LT	A1	1	4.00	30.0		100	1919	421	0.219		100	1919	528	0.275																																			
	SA	A2	1	4.00				2155	763	0.354			2155	507	0.235																																			
	SA	A3	1	4.00				2155	762	0.354			2155	506	0.235																																			
Lam Tei Interchange WB	SA+LT	B1	1	4.00	15.0		0	2015	998	0.495	0.495	0	2015	959	0.476	0.476																																		
	SA	B2	1	4.00				2155	1068	0.496			2155	1025	0.476																																			
							0					0																																						
Ng Lau Road SB	LT	C1	2	5.50	10.0		100	1883	259	0.138	0.138	100	1883	181	0.096	0.096																																		
	LT	C2	2	5.00	15.0		100	2050	281	0.137		100	2050	198	0.097																																			
pedestrian phase			D _(P)	1		min crossing time =	5	sec GM +	13	sec FGM =	18	sec																																						
			E _(P)	2		min crossing time =	10	sec GM +	12	sec FGM =	22	sec																																						
			F _(P)	2		min crossing time =	5	sec GM +	7	sec FGM =	12	sec																																						
AM Traffic Flow (pcu/hr)					PM Traffic Flow (pcu/hr)					S = 1940 + 100 (W-3.25) S = 2080 + 100 (W-3.25) SM = S / (1 + 1.5 f/r) SM = (S - 230) / (1 + 1.5 f/r)																																								
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AM	G =	I/G = 5	G =	I/G = 5	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =																																		
	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =																																		
PM	G =	I/G = 5	G =	I/G = 5	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =																																		
	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =																																		

Junction: <u>Ng Lau Road / Lam Tei Interchange</u>											Job Number: <u>J7265</u>						
Scenario: <u>With Proposed Development</u>											P. <u>9</u>						
Design Year: <u>2033</u>			Designed By: _____				Checked By: _____				Date: <u>14 Sep 2023</u>						
Approach	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	Turning %	AM Peak				PM Peak						
							Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y	Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y		
Lam Tei Interchange EB	LT	A1	1	4.00	30.0	100	1919	458	0.239		100	1919	557	0.290			
	SA	A2	1	4.00			2155	763	0.354			2155	507	0.235			
	SA	A3	1	4.00			2155	762	0.354			2155	506	0.235			
Lam Tei Interchange WB	SA+LT	B1	1	4.00	15.0	0	2015	1025	0.509	0.509	0	2015	972	0.482	0.482		
	SA	B2	1	4.00			2155	1097	0.509			2155	1040	0.483			
							0				0						
Ng Lau Road SB	LT	C1	2	5.50	10.0	100	1883	289	0.154	0.154	100	1883	192	0.102	0.102		
	LT	C2	2	5.00	15.0	100	2050	314	0.153		100	2050	209	0.102			
pedestrian phase		D _(P)	1			min crossing time =	5	sec GM +	13	sec FGM =	18	sec					
		E _(P)	2			min crossing time =	10	sec GM +	12	sec FGM =	22	sec					
		F _(P)	2			min crossing time =	5	sec GM +	7	sec FGM =	12	sec					
AM Traffic Flow (pcu/hr)						PM Traffic Flow (pcu/hr)								<p>S = 1940 + 100 (W-3.25) S = 2080 + 100 (W-3.25)</p> <p>SM = S / (1 + 1.5 f/r) SM = (S - 230) / (1 + 1.5 f/r)</p>			
		1		2		3		4		5							
AM	G =	I/G = 5	G =	I/G = 5	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =		
	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =		
PM	G =	I/G = 5	G =	I/G = 5	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =		
	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =		

Roundabout Analysis

Location Tsing Lun Road / Hong Po Road / Lam Tei Interchange

Scenario Existing Condition

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Design Year 2023

Job Number J7265

Date 14 September 2023

AM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q _c *
From A	101	109	760	197					1167	253
From B	181	0	76	21					278	1231
From C	504	41	10	29					584	610
From D	328	39	53	1					421	946
From E										
From F										
From G										
From H										
Total	1114	189	899	248					2450	

* q_c in existing condition is adjusted due to Temporary Traffic Arrangement

PM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q _c *
From A	204	90	692	311					1297	201
From B	91	0	67	22					180	1350
From C	404	32	18	37					491	720
From D	160	26	33	2					221	839
From E										
From F										
From G										
From H										
Total	859	148	810	372					2189	

* q_c in existing condition is adjusted for TTA

Legend

Arm	Road (in clockwise order)
A	Slip Road from Lam Tei Interchange
B	Access Road from Siu Hong Station
C	Tsing Lun Road
D	Hong Po Road
E	
F	
G	
H	

Geometric Parameters

Arm	e (m)	v (m)	r (m)	L (m)	D (m)	∅ (°)	S
From A	10.0	7.3	20.0	10.0	55	45	0.4
From B	9.0	6.8	28.0	4.0	55	19	0.9
From C	11.5	7.8	100.0	9.0	55	23	0.7
From D*	6.0	4.5	27.0	6.0	55	10	0.4
From E							
From F							
From G							
From H							

* Parameter in existing condition is adjusted for TTA

Predictive Equation $Q_E = K(F - f_c q_c)$

Q _E	Entry Capacity
q _c	Circulating Flow across the Entry
K	= 1-0.00347(∅-30)-0.978[(1/r)-0.05]
F	= 303x ₂
f _c	= 0.210t _D (1+0.2x ₂)
t _D	= 1+0.5/(1+M)
M	= exp[(D-60)/10]
x ₂	= v+(e-v)/(1+2S)
S	= 1.6(e-v)/L

Limitation

e	Entry Width	4.0 - 15.0 m
v	Approach Half Width	2.0 - 7.3 m
r	Entry Radius	6.0 - 100.0 m
L	Effective Length of Flare	1.0 - 100.0 m
D	Inscribed Circle Diameter	15 - 100 m
∅	Entry Angle	10° - 60°
S	Sharpness of Flare	0.0 - 3.0

Ratio-of-Flow to Capacity (RFC)

Arm	x ₂	M	t _D	K	F	f _c	Q _E		Entry Flow		RFC	
							AM	PM	AM	PM	AM	PM
From A	8.748	0.607	1.311	0.948	2651	0.757	2331	2369	1167	1297	0.501	0.548
From B	7.597	0.607	1.311	1.051	2302	0.694	1522	1435	278	180	0.183	0.125
From C	9.398	0.607	1.311	1.063	2848	0.793	2514	2421	584	491	0.232	0.203
From D	5.333	0.607	1.311	1.082	1616	0.569	1166	1232	421	221	0.361	0.179
From E												
From F												
From G												
From H												

Roundabout Analysis

Location Tsing Lun Road / Hong Po Road / Lam Tei Interchange

Scenario With Approved Scheme

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Design Year 2033

Job Number J7265

Date 14 September 2023

AM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q _c
From A	340	0	1063	541					1944	490
From B	196	0	86	20					302	2328
From C	787	50	11	131					979	1097
From D	624	56	373	0					1053	1384
From E										
From F										
From G										
From H										
Total	1947	106	1533	692					4278	

PM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q _c
From A	429	0	815	641					1885	262
From B	107	0	76	25					208	2066
From C	559	41	20	157					777	1202
From D	445	40	161	0					646	1156
From E										
From F										
From G										
From H										
Total	1540	81	1072	823					3516	

Legend

Arm	Road (in clockwise order)
A	Slip Road to Lam Tei Interchange
B	Access Road to Siu Hong Station
C	Tsing Lun Road
D	Hong Po Road
E	
F	
G	
H	

Geometric Parameters

Arm	e (m)	v (m)	r (m)	L (m)	D (m)	∅ (°)	S
From A	11.0	7.8	30.0	10.0	55	20	0.5
From B	9.0	6.8	28.0	6.0	55	19	0.6
From C	11.5	7.8	100.0	9.0	55	23	0.7
From D	14.0	8.5	40.0	10.0	55	10	0.9
From E							
From F							
From G							
From H							

Predictive Equation $Q_E = K(F - f_c q_c)$

Q _E	Entry Capacity
q _c	Circulating Flow across the Entry
K	= 1-0.00347(∅-30)-0.978[(1/r)-0.05]
F	= 303x ₂
f _c	= 0.210t _D (1+0.2x ₂)
t _D	= 1+0.5/(1+M)
M	= exp[(D-60)/10]
x ₂	= v+(e-v)/(1+2S)
S	= 1.6(e-v)/L

Limitation

e	Entry Width	4.0 - 15.0 m
v	Approach Half Width	2.0 - 7.3 m
r	Entry Radius	6.0 - 100.0 m
L	Effective Length of Flare	1.0 - 100.0 m
D	Inscribed Circle Diameter	15 - 100 m
∅	Entry Angle	10° - 60°
S	Sharpness of Flare	0.0 - 3.0

Ratio-of-Flow to Capacity (RFC)

Arm	x ₂	M	t _D	K	F	f _c	Q _E		Entry Flow		RFC	
							AM	PM	AM	PM	AM	PM
From A	9.381	0.607	1.311	1.051	2842	0.792	2580	2769	1944	1885	0.754	0.681
From B	7.812	0.607	1.311	1.051	2367	0.706	761	956	302	208	0.397	0.218
From C	9.398	0.607	1.311	1.063	2848	0.793	2103	2015	979	777	0.465	0.386
From D	10.493	0.607	1.311	1.094	3179	0.853	2186	2399	1053	646	0.482	0.269
From E												
From F												
From G												
From H												

Roundabout Analysis

Location Tsing Lun Road / Hong Po Road / Lam Tei Interchange

Scenario With Proposed Development

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Design Year 2033

Job Number J7265

Date 14 September 2023

AM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q _c
From A	372	0	1087	541					2000	490
From B	196	0	86	20					302	2384
From C	792	50	11	131					984	1129
From D	624	56	373	0					1053	1421
From E										
From F										
From G										
From H										
Total	1984	106	1557	692					4339	

PM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q _c
From A	453	0	819	641					1913	262
From B	107	0	76	25					208	2094
From C	564	41	20	157					782	1226
From D	0	40	161	0					201	1185
From E										
From F										
From G										
From H										
Total	1124	81	1076	823					3104	

Legend

Arm	Road (in clockwise order)
A	Slip Road to Lam Tei Interchange
B	Access Road to Siu Hong Station
C	Tsing Lun Road
D	Hong Po Road
E	
F	
G	
H	

Geometric Parameters

Arm	e (m)	v (m)	r (m)	L (m)	D (m)	∅ (°)	S
From A	11.0	7.8	30.0	10.0	55	20	0.5
From B	9.0	6.8	28.0	4.0	55	19	0.9
From C	11.5	7.8	100.0	9.0	55	23	0.7
From D	14.0	8.5	40.0	10.0	55	10	0.9
From E							
From F							
From G							
From H							

Predictive Equation $Q_E = K(F - f_c q_c)$

Q _E	Entry Capacity
q _c	Circulating Flow across the Entry
K	= 1-0.00347(∅-30)-0.978[(1/r)-0.05]
F	= 303x ₂
f _c	= 0.210t _D (1+0.2x ₂)
t _D	= 1+0.5/(1+M)
M	= exp[(D-60)/10]
x ₂	= v+(e-v)/(1+2S)
S	= 1.6(e-v)/L

Limitation

e	Entry Width	4.0 - 15.0 m
v	Approach Half Width	2.0 - 7.3 m
r	Entry Radius	6.0 - 100.0 m
L	Effective Length of Flare	1.0 - 100.0 m
D	Inscribed Circle Diameter	15 - 100 m
∅	Entry Angle	10° - 60°
S	Sharpness of Flare	0.0 - 3.0

Ratio-of-Flow to Capacity (RFC)

Arm	x ₂	M	t _D	K	F	f _c	Q _E		Entry Flow		RFC	
							AM	PM	AM	PM	AM	PM
From A	9.381	0.607	1.311	1.051	2842	0.792	2580	2769	2000	1913	0.775	0.691
From B	7.597	0.607	1.311	1.051	2302	0.694	681	893	302	208	0.443	0.233
From C	9.398	0.607	1.311	1.063	2848	0.793	2076	1994	984	782	0.474	0.392
From D	10.493	0.607	1.311	1.094	3179	0.853	2151	2372	1053	201	0.489	0.085
From E												
From F												
From G												
From H												

Roundabout Analysis

Location Lam Tei Interchange

Scenario Existing Condition

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Design Year 2023

Job Number J7265

Date 14 September 2023

AM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q _c
From A	16	0	878						894	605
From B	292	3	275						570	907
From C	315	589	13						917	311
From D										
From E										
From F										
From G										
Total	623	592	1166						2381	

PM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q _c
From A	7	0	891						898	448
From B	266	0	380						646	924
From C	175	422	26						623	273
From D										
From E										
From F										
From G										
From H										
Total	448	422	1297						2167	

Legend

Arm	Road (in clockwise order)
A	Slip Road to Castle Peak Road
B	Slip Road to Tuen Mun Road
C	Slip Road to Tsing Lun Road
D	
E	
F	
G	
H	

Geometric Parameters

Arm	e (m)	v (m)	r (m)	L (m)	D (m)	∅ (°)	S
From A	7.3	7.3	40.0	1.0	45	22	0.0
From B	8.8	7.3	65.0	3.0	45	26	0.8
From C	7.7	6.0	100.0	8.0	45	17	0.3
From D							
From E							
From F							
From G							
From H							

Predictive Equation $Q_E = K(F - f_c q_c)$

Q _E	Entry Capacity
q _c	Circulating Flow across the Entry
K	= 1-0.00347(∅-30)-0.978[(1/r)-0.05]
F	= 303x ₂
f _c	= 0.210t _D (1+0.2x ₂)
t _D	= 1+0.5/(1+M)
M	= exp[(D-60)/10]
x ₂	= v+(e-v)/(1+2S)
S	= 1.6(e-v)/L

Limitation

e	Entry Width	4.0 - 15.0 m
v	Approach Half Width	2.0 - 7.3 m
r	Entry Radius	6.0 - 100.0 m
L	Effective Length of Flare	1.0 - 100.0 m
D	Inscribed Circle Diameter	15 - 100 m
∅	Entry Angle	10° - 60°
S	Sharpness of Flare	0.0 - 3.0

Ratio-of-Flow to Capacity (RFC)

Arm	x ₂	M	t _D	K	F	f _c	Q _E		Entry Flow		RFC	
							AM	PM	AM	PM	AM	PM
From A	7.300	0.223	1.409	1.052	2212	0.728	1864	1984	894	898	0.480	0.453
From B	7.877	0.223	1.409	1.048	2387	0.762	1777	1763	570	646	0.321	0.366
From C	7.012	0.223	1.409	1.084	2125	0.711	2064	2093	917	623	0.444	0.297
From D												
From E												
From F												
From G												
From H												

Roundabout Analysis

Location Lam Tei Interchange

Scenario With Approved Scheme

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Design Year 2033

Job Number J7265

Date 14 September 2023

AM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q _c
From A	18	0	1173						1191	1075
From B	323	0	771						1094	1313
From C	591	953	122						1666	341
From D										
From E										
From F										
From G										
From H										
Total	932	953	2066						3951	

PM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q _c
From A	15	0	1148						1163	743
From B	283	0	775						1058	1224
From C	380	682	61						1123	298
From D										
From E										
From F										
From G										
From H										
Total	678	682	1984						3344	

Legend

Arm	Road (in clockwise order)
A	Slip Road to Castle Peak Road
B	Slip Road to Tuen Mun Road
C	Slip Road to Tsing Lun Road
D	
E	
F	
G	
H	

Geometric Parameters

Arm	e (m)	v (m)	r (m)	L (m)	D (m)	∅ (°)	S
From A	7.3	7.3	40.0	1.0	45	22	0.0
From B	8.8	7.3	65.0	3.0	45	26	0.8
From C	7.7	6.0	100.0	8.0	45	17	0.3
From D							
From E							
From F							
From G							
From H							

Predictive Equation $Q_E = K(F - f_c q_c)$

Q _E	Entry Capacity
q _c	Circulating Flow across the Entry
K	= 1-0.00347(∅-30)-0.978[(1/r)-0.05]
F	= 303x ₂
f _c	= 0.210t _D (1+0.2x ₂)
t _D	= 1+0.5/(1+M)
M	= exp[(D-60)/10]
x ₂	= v+(e-v)/(1+2S)
S	= 1.6(e-v)/L

Limitation

e	Entry Width	4.0 - 15.0 m
v	Approach Half Width	2.0 - 7.3 m
r	Entry Radius	6.0 - 100.0 m
L	Effective Length of Flare	1.0 - 100.0 m
D	Inscribed Circle Diameter	15 - 100 m
∅	Entry Angle	10° - 60°
S	Sharpness of Flare	0.0 - 3.0

Ratio-of-Flow to Capacity (RFC)

Arm	x ₂	M	t _D	K	F	f _c	Q _E		Entry Flow		RFC	
							AM	PM	AM	PM	AM	PM
From A	7.300	0.223	1.409	1.052	2212	0.728	1504	1758	1191	1163	0.792	0.661
From B	7.877	0.223	1.409	1.048	2387	0.762	1452	1524	1094	1058	0.753	0.694
From C	7.012	0.223	1.409	1.084	2125	0.711	2041	2074	1666	1123	0.816	0.542
From D												
From E												
From F												
From G												
From H												

Roundabout Analysis

Location Lam Tei Interchange

Scenario With Proposed Development

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Design Year 2033

Job Number J7265

Date 14 September 2023

AM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	Q _c
From A	18	0	1185						1203	1121
From B	323	0	791						1114	1349
From C	601	975	146						1722.211	341
From D										
From E										
From F										
From G										
From H										
Total	942.2107	975	2122						4039.211	

PM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	Q _c
From A	15	0	1155						1170	757
From B	283	0	792						1075	1235
From C	384	692	65						1141.386	298
From D										
From E										
From F										
From G										
From H										
Total	682.3857	692	2012						3386.386	

Legend

Arm	Road (in clockwise order)
A	Slip Road to Castle Peak Road
B	Slip Road to Tuen Mun Road
C	Slip Road to Tsing Lun Road
D	
E	
F	
G	
H	

Geometric Parameters

Arm	e (m)	v (m)	r (m)	L (m)	D (m)	∅ (°)	S
From A	7.3	7.3	40.0	1.0	45	22	0.0
From B	8.8	7.3	65.0	3.0	45	26	0.8
From C	7.7	6.0	100.0	8.0	45	17	0.3
From D							
From E							
From F							
From G							
From H							

Predictive Equation Q_E = K(F - f_cQ_c)

Q _E	Entry Capacity
Q _c	Circulating Flow across the Entry
K	= 1-0.00347(∅-30)-0.978[(1/r)-0.05]
F	= 303x ₂
f _c	= 0.210t _D (1+0.2x ₂)
t _D	= 1+0.5/(1+M)
M	= exp[(D-60)/10]
x ₂	= v+(e-v)/(1+2S)
S	= 1.6(e-v)/L

Limitation

e	Entry Width	4.0 - 15.0 m
v	Approach Half Width	2.0 - 7.3 m
r	Entry Radius	6.0 - 100.0 m
L	Effective Length of Flare	1.0 - 100.0 m
D	Inscribed Circle Diameter	15 - 100 m
∅	Entry Angle	10° - 60°
S	Sharpness of Flare	0.0 - 3.0

Ratio-of-Flow to Capacity (RFC)

Arm	x ₂	M	t _D	K	F	f _c	Q _E		Entry Flow		RFC	
							AM	PM	AM	PM	AM	PM
From A	7.300	0.223	1.409	1.052	2212	0.728	1469	1748	1203	1170	0.819	0.669
From B	7.877	0.223	1.409	1.048	2387	0.762	1424	1515	1114	1075	0.782	0.710
From C	7.012	0.223	1.409	1.084	2125	0.711	2041	2074	1722	1141	0.844	0.550
From D												
From E												
From F												
From G												
From H												

Signal Junction Analysis

Junction: <u>Lam Tei Interchange / Castle Peak Road – Lam Tei</u>										Job Number: <u>J7265</u>				
Scenario: <u>Existing Condition</u>										P. 16				
Design Year: <u>2023</u>			Designed By: _____			Checked By: _____			Date: <u>14 Sep 2023</u>					

Approach	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	Turning %	AM Peak					PM Peak				
							Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y	Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y	
Castle Peak Road -Lam Tei SB	LT	A1	1,4	3.25	80.0	100	1904	363	0.191	0.191	100	1904	248	0.130	0.130	
	SA	A2	1,4	3.25			2080	156	0.075			2080	132	0.063		
	SA+RT	A3	1	3.25	22.5	64	1995	150	0.075		56	2005	127	0.063		
	RT	A4	1	3.25	20.0	100	1935	145	0.075		100	1935	122	0.063		
Slip Road from Lam Tei Interchange	LT	B1	2,3	3.50	8.0	100	1655	162	0.098		100	1655	115	0.069		
	LT+RT	B2	2,3	3.50	30.0	100	2005	255	0.127		100	2005	191	0.095		
	RT	B3	2,3	3.50	26.0	100	1990	253	0.127	0.127	100	1990	189	0.095	0.095	
	RT	B4	2,3	3.50	23.0	100	1976	229	0.116		100	1976	124	0.063		
Castle Peak Road NB	LT	C1	3,4	3.50	14.0	100	1775	454	0.256		100	1775	375	0.211		
	LT	C2	3,4	3.50	19.0	100	1951	499	0.256		100	1951	413	0.212		
	SA	D1	4	3.50			2105	137	0.065			2105	223	0.106		
	SA	D2	4	3.50			2105	136	0.065			2105	222	0.105		
pedestrian phase	E _(P)	1,3			min crossing time =	6	sec GM +	12	sec FGM =	18	sec					
	F _(P)	1			min crossing time =	5	sec GM +	7	sec FGM =	12	sec					
	G _(P)	2			min crossing time =	6	sec GM +	11	sec FGM =	17	sec					
	H _(P)	2			min crossing time =	5	sec GM +	9	sec FGM =	14	sec					

<p>AM Traffic Flow (pcu/hr)</p>	<p>PM Traffic Flow (pcu/hr)</p>	<p>Note:</p> <p>S = 1940 + 100 (W-3.25) S = 2080 + 100 (W-3.25)</p> <p>SM = S / (1 + 1.5 f/r) SM = (S - 230) / (1 + 1.5 f/r)</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>AM Peak</th> <th>PM Peak</th> </tr> </thead> <tbody> <tr> <td>1,4+2,3</td> <td></td> <td>1,4+2,3</td> </tr> <tr> <td>Sum y</td> <td>0.318</td> <td>0.225</td> </tr> <tr> <td>L (s)</td> <td>21</td> <td>21</td> </tr> <tr> <td>C (s)</td> <td>110</td> <td>110</td> </tr> <tr> <td>practical y</td> <td>0.728</td> <td>0.728</td> </tr> <tr> <td>R.C. (%)</td> <td>129%</td> <td>223%</td> </tr> </tbody> </table>		AM Peak	PM Peak	1,4+2,3		1,4+2,3	Sum y	0.318	0.225	L (s)	21	21	C (s)	110	110	practical y	0.728	0.728	R.C. (%)	129%	223%
	AM Peak	PM Peak																					
1,4+2,3		1,4+2,3																					
Sum y	0.318	0.225																					
L (s)	21	21																					
C (s)	110	110																					
practical y	0.728	0.728																					
R.C. (%)	129%	223%																					

1	2	3	4	
AM	G = I/G = 15	G = I/G =	G = I/G = 8	G = I/G =
	G = I/G = 15	G = I/G =	G = I/G = 7	G = I/G = 7
PM	G = I/G = 15	G = I/G =	G = I/G = 8	G = I/G =
	G = I/G = 15	G = I/G =	G = I/G = 7	G = I/G = 7

Signal Junction Analysis

Junction: <u>Lam Tei Interchange / Castle Peak Road – Lam Tei</u>											Job Number: <u>J7265</u>				
Scenario: <u>With Approved Scheme</u>											P. 17				
Design Year: <u>2033</u>			Designed By: _____				Checked By: _____				Date: <u>14 Sep 2023</u>				

Approach	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	Turning %	Sat. Flow (pcu/hr)	AM Peak			PM Peak																					
								Flow (pcu/hr)	y value	Critical y	Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y																	
Castle Peak Road SB	LT	A1	1,4	3.50	80.0		100	1929	394	0.204		100	1929	273	0.142																	
	SA	A2	1	3.50	85.0			2105	230	0.109	0.109		2105	160	0.076																	
	SA+RT	A3	1	3.50	25.0		30	2068	226	0.109		54	2039	155	0.076																	
	RT	A4	1	3.50	20.0		100	1958	214	0.109		100	1958	150	0.077	0.077																
Slip Road from	LT+(To YL Hwy)RT	B2	2,3	3.50	30.0		100	2105	537	0.255	0.255	100	2005	391	0.195	0.195																
Lam Tei Interchange	(To YL Hwy) RT	B3	2,3	3.50	25.0		100	1986	507	0.255		100	2086	407	0.195																	
	(To CPR) RT	B4	2,3	3.50	20.0		100	1958	287	0.147		100	1958	148	0.076																	
Castle Peak Road NB	LT	C1	3,4	3.50	25.0		100	1854	399	0.215		100	1854	322	0.174																	
	LT	C2	3,4	3.50	20.0		100	1958	422	0.216		100	1958	341	0.174																	
	LT	C3	3,4	3.50	20.0		100	1958	422	0.216		100	2105	366	0.174																	
	SA	C4	4	3.50				2105	440	0.209	0.209		2105	660	0.314	0.314																
pedestrian phase	D _(P)	1																														
	E _(P)	1,4																														
	F _(P)	2																														
	G _(P)	2,3																														
AM Traffic Flow (pcu/hr)		PM Traffic Flow (pcu/hr)		Note:																												
				$S = 1940 + 100 (W-3.25)$ $S = 2080 + 100 (W-3.25)$ $SM = S / (1 + 1.5 f/r)$ $SM = (S - 230) / (1 + 1.5 f/r)$		<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th></th> <th>AM Peak</th> <th>PM Peak</th> </tr> </thead> <tbody> <tr> <td>1 + 2,3 + 4</td> <td></td> <td>1 + 2,3 + 4</td> </tr> <tr> <td>Sum y</td> <td>0.573</td> <td>0.585</td> </tr> <tr> <td>L (s)</td> <td>19</td> <td>19</td> </tr> <tr> <td>C (s)</td> <td>108</td> <td>108</td> </tr> <tr> <td>practical y</td> <td>0.742</td> <td>0.742</td> </tr> <tr> <td>R.C. (%)</td> <td>29%</td> <td>27%</td> </tr> </tbody> </table>			AM Peak	PM Peak	1 + 2,3 + 4		1 + 2,3 + 4	Sum y	0.573	0.585	L (s)	19	19	C (s)	108	108	practical y	0.742	0.742	R.C. (%)	29%	27%				
	AM Peak	PM Peak																														
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Sum y	0.573	0.585																														
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practical y	0.742	0.742																														
R.C. (%)	29%	27%																														
AM	G =	I/G = 8	G =	I/G =	G =	I/G = 7	G =	I/G = 7	G =																							
	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =																							
PM	G =	I/G = 8	G =	I/G =	G =	I/G = 7	G =	I/G = 7	G =																							
	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =																							

Junction: <u>Lam Tei Interchange / Castle Peak Road – Lam Tei</u>											Job Number: <u>J7265</u>						
Scenario: <u>With Proposed Development</u>											P. 18						
Design Year: <u>2033</u>			Designed By: _____				Checked By: _____				Date: <u>14 Sep 2023</u>						
Approach	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	Turning %	Sat. Flow (pcu/hr)	AM Peak			PM Peak						
								Flow (pcu/hr)	y value	Critical y	Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y		
Castle Peak Road SB	LT	A1	1,4	3.50	80.0		100	1929	394	0.204		100	1929	273	0.142		
	SA	A2	1	3.50	85.0			2105	231	0.110	0.110		2105	161	0.076		
	SA+RT	A3	1	3.50	25.0		30	2068	227	0.110		55	2038	156	0.077		
	RT	A4	1	3.50	20.0		100	1958	214	0.109		100	1958	150	0.077	0.077	
Slip Road from	LT+(To YL Hwy)RT	B2	2,3	3.50	30.0		100	2105	544	0.258	0.258	100	2005	395	0.197	0.197	
Lam Tei Interchange	(To YL Hwy) RT	B3	2,3	3.50	25.0		100	1986	514	0.259		100	2086	410	0.197		
	(To CPR) RT	B4	2,3	3.50	20.0		100	1958	290	0.148		100	1958	149	0.076		
Castle Peak Road NB	LT	C1	3,4	3.50	25.0		100	1854	403	0.217		100	1854	324	0.175		
	LT	C2	3,4	3.50	20.0		100	1958	425	0.217		100	1958	342	0.175		
	LT	C3	3,4	3.50	20.0		100	1958	425	0.217		100	2105	368	0.175		
	SA	C4	4	3.50				2105	440	0.209	0.209		2105	660	0.314	0.314	
pedestrian phase	D _(P)	1				min crossing time =	7	sec GM +	10	sec FGM =	17	sec					
	E _(P)	1,4				min crossing time =	12	sec GM +	15	sec FGM =	27	sec					
	F _(P)	2				min crossing time =	9	sec GM +	11	sec FGM =	20	sec					
	G _(P)	2,3				min crossing time =	11	sec GM +	14	sec FGM =	25	sec					
AM Traffic Flow (pcu/hr)		PM Traffic Flow (pcu/hr)		Note:		S = 1940 + 100 (W-3.25)		S = 2080 + 100 (W-3.25)		SM = S / (1 + 1.5 f/r)		SM = (S - 230) / (1 + 1.5 f/r)					
						AM Peak		PM Peak									
						1 + 2.3 + 4		1 + 2.3 + 4									
						Sum y		0.577		0.587							
						L (s)		19		19							
						C (s)		108		108							
						practical y		0.742		0.742							
						R.C. (%)		28%		26%							
1		2		3		4		5									
AM		PM		AM		PM		AM		PM		AM		PM		AM	
G =		I/G = 8		G =		I/G = 7		G =		I/G = 7		G =		I/G = 7		G =	
G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =	
G =		I/G = 8		G =		I/G = 7		G =		I/G = 7		G =		I/G = 7		G =	
G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =	

Signal Junction Analysis

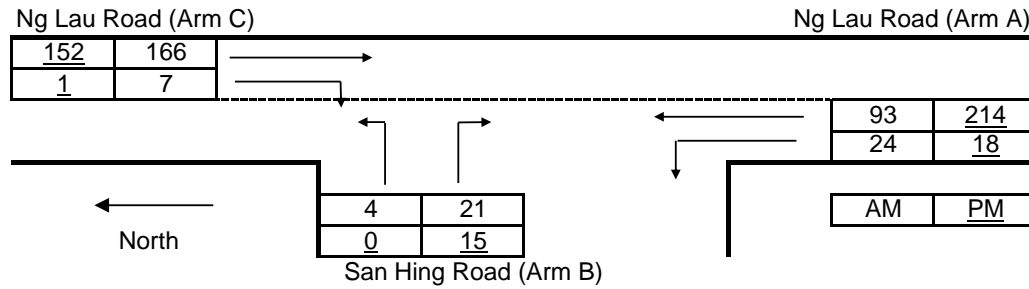
Junction: <u>Tsing Lun Road/ Tsz Tin Road/ Access Road to Siu Hong Court</u>											Job Number: <u>J7265</u>																															
Scenario: <u>Existing Condition</u>											P. <u>19</u>																															
Design Year: <u>2023</u>			Designed By: _____			Checked By: _____			Date: <u>14 Sep 2023</u>																																	
Approach	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	Turning %	Sat. Flow (pcu/hr)	AM Peak			PM Peak																															
								Flow (pcu/hr)	y value	Critical y	Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y																											
Tsing Lun Road SB	LT+SA	A1	1	3.65	13.0		4	1971	486	0.247	0.247	12	1953	337	0.173																											
	RT	A2	1	3.65	15.0		100	1927	341	0.177		100	2120	397	0.187	0.187																										
Tsing Lun Road NB	LT+SA	C1	2	3.30	23.0		37	1899	115	0.061	0.061	33	1904	120	0.063	0.063																										
	SA	C2	2	3.40				2095	126	0.060			2095	132	0.063																											
	RT	C3	2	3.40	15.0		100	1905	7	0.004		100	1905	17	0.009																											
Access Road to Siu Hong Court WB	LT+SA+RT	D1	3	3.50	15.0		90	1803	67	0.037	0.037	88	1806	58	0.032	0.032																										
Tsz Tin Road EB	LT	B1	4	3.38	10.0		100	1698	143	0.084	0.084	100	1698	98	0.058	0.058																										
	LT+SA+RT	B2	4	3.37	15.0		98	1905	161	0.085		94	2092	120	0.057																											
pedestrian phase	E _(P)	2				min crossing time =	5	sec GM +	10	sec FGM =	15	sec																														
	F _(P)	3				min crossing time =	5	sec GM +	6	sec FGM =	11	sec																														
AM Traffic Flow (pcu/hr)											PM Traffic Flow (pcu/hr)																															
$S = 1940 + 100 (W-3.25)$ $SM = S / (1 + 1.5 f/r)$											$S = 2080 + 100 (W-3.25)$ $SM = (S - 230) / (1 + 1.5 f/r)$																															
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AM	G =	I/G = 6	G =	I/G = 6	G =	I/G = 9	G =	I/G = 7	G =																																	
	G =	I/G = 6	G =	I/G = 6	G =	I/G = 9	G = 14	I/G = 7	G =																																	
PM	G =	I/G = 6	G =	I/G = 6	G =	I/G = 9	G =	I/G = 7	G =																																	
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Junction: <u>Tsing Lun Road/ Tsz Tin Road/ Access Road to Siu Hong Court</u>											Job Number: <u>J7265</u>																												
Scenario: <u>With Approved Scheme</u>											P. 20																												
Design Year: <u>2033</u>			Designed By: _____				Checked By: _____				Date: <u>14 Sep 2023</u>																												
Approach	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	Turning %	Sat. Flow (pcu/hr)	AM Peak			PM Peak																												
								Flow (pcu/hr)	y value	Critical y	Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y																								
Tsing Lun Road SB	LT+SA	A1	1	3.65	13.0		4	1971	724	0.367		10	1957	494	0.252																								
	SA+RT	A2	1	3.65	15.0		72	1978	727	0.368	0.368	96	1934	488	0.252	0.252																							
Tsing Lun Road NB	LT+SA	C1	2	3.30	23.0		43	1892	210	0.111	0.111	51	1882	243	0.129	0.129																							
	SA+RT	C2	2	3.40	20.0			2095	233	0.111			2095	271	0.129																								
Access Road to Siu Hong Court WB	LT+SA+RT	D1	3	3.50	15.0		88	1806	85	0.047	0.047	87	1808	75	0.041	0.041																							
Tsz Tin Road EB	LT	B1	4,1	3.38	10.0		100	1698	438	0.258		100	1698	260	0.153																								
	SA+RT	B2	4	3.37	15.0		90	1919	100	0.052	0.052	87	1925	71	0.037	0.037																							
pedestrian phase	E _(P)	2				min crossing time =	5	sec GM +	10	sec FGM =	15	sec																											
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<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%; vertical-align: top;"> <p>AM Traffic Flow (pcu/hr)</p> </td> <td style="width:33%; vertical-align: top;"> <p>PM Traffic Flow (pcu/hr)</p> </td> <td style="width:34%; vertical-align: top;"> <p>Note:</p> <p>S = 1940 + 100 (W-3.25) S = 2080 + 100 (W-3.25)</p> <p>SM = S / (1 + 1.5 f/r) SM = (S - 230) / (1 + 1.5 f/r)</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th></th> <th>AM Peak</th> <th>PM Peak</th> </tr> <tr> <td>1+2+3+4</td> <td></td> <td>1+2+3+4</td> </tr> <tr> <td>Sum y</td> <td>0.578</td> <td>0.460</td> </tr> <tr> <td>L (s)</td> <td>24</td> <td>24</td> </tr> <tr> <td>C (s)</td> <td>118</td> <td>118</td> </tr> <tr> <td>practical y</td> <td>0.717</td> <td>0.717</td> </tr> <tr> <td>R.C. (%)</td> <td>24%</td> <td>56%</td> </tr> </table> </td> </tr> </table>																<p>AM Traffic Flow (pcu/hr)</p>	<p>PM Traffic Flow (pcu/hr)</p>	<p>Note:</p> <p>S = 1940 + 100 (W-3.25) S = 2080 + 100 (W-3.25)</p> <p>SM = S / (1 + 1.5 f/r) SM = (S - 230) / (1 + 1.5 f/r)</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th></th> <th>AM Peak</th> <th>PM Peak</th> </tr> <tr> <td>1+2+3+4</td> <td></td> <td>1+2+3+4</td> </tr> <tr> <td>Sum y</td> <td>0.578</td> <td>0.460</td> </tr> <tr> <td>L (s)</td> <td>24</td> <td>24</td> </tr> <tr> <td>C (s)</td> <td>118</td> <td>118</td> </tr> <tr> <td>practical y</td> <td>0.717</td> <td>0.717</td> </tr> <tr> <td>R.C. (%)</td> <td>24%</td> <td>56%</td> </tr> </table>		AM Peak	PM Peak	1+2+3+4		1+2+3+4	Sum y	0.578	0.460	L (s)	24	24	C (s)	118	118	practical y	0.717	0.717	R.C. (%)	24%	56%
<p>AM Traffic Flow (pcu/hr)</p>	<p>PM Traffic Flow (pcu/hr)</p>	<p>Note:</p> <p>S = 1940 + 100 (W-3.25) S = 2080 + 100 (W-3.25)</p> <p>SM = S / (1 + 1.5 f/r) SM = (S - 230) / (1 + 1.5 f/r)</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th></th> <th>AM Peak</th> <th>PM Peak</th> </tr> <tr> <td>1+2+3+4</td> <td></td> <td>1+2+3+4</td> </tr> <tr> <td>Sum y</td> <td>0.578</td> <td>0.460</td> </tr> <tr> <td>L (s)</td> <td>24</td> <td>24</td> </tr> <tr> <td>C (s)</td> <td>118</td> <td>118</td> </tr> <tr> <td>practical y</td> <td>0.717</td> <td>0.717</td> </tr> <tr> <td>R.C. (%)</td> <td>24%</td> <td>56%</td> </tr> </table>		AM Peak	PM Peak	1+2+3+4		1+2+3+4	Sum y	0.578	0.460	L (s)	24	24	C (s)	118	118	practical y	0.717	0.717	R.C. (%)	24%	56%																
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Junction: <u>Tsing Lun Road/ Tsz Tin Road/ Access Road to Siu Hong Court</u>										Job Number: <u>J7265</u>																																
Scenario: <u>With Proposed Development</u>										P. 21																																
Design Year: <u>2033</u>			Designed By: _____			Checked By: _____			Date: <u>14 Sep 2023</u>																																	
Approach	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	Turning %	Sat. Flow (pcu/hr)	AM Peak			PM Peak																															
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Tsing Lun Road SB	LT+SA	A1	1	3.65	13.0		4	1971	736	0.373		10	1957	496	0.253																											
	SA+RT	A2	1	3.65	15.0		71	1979	739	0.373	0.373	96	1934	490	0.253	0.253																										
Tsing Lun Road NB	LT+SA	C1	2	3.30	23.0		43	1892	213	0.113	0.113	51	1882	246	0.131	0.131																										
	SA+RT	C2	2	3.40	20.0			2095	235	0.112			2095	273	0.130																											
Access Road to Siu Hong Court WB	LT+SA+RT	D1	3	3.50	15.0		88	1806	85	0.047	0.047	87	1808	75	0.041	0.041																										
Tsz Tin Road EB	LT	B1	4.1	3.38	10.0		100	1698	438	0.258		100	1698	260	0.153																											
	SA+RT	B2	4	3.37	15.0		90	1919	100	0.052	0.052	87	1925	71	0.037	0.037																										
pedestrian phase	E _(P)	2				min crossing time =	5	sec GM +	10	sec FGM =	15	sec																														
	F _(P)	3				min crossing time =	5	sec GM +	6	sec FGM =	11	sec																														
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td rowspan="2" style="width:30%;">AM Traffic Flow (pcu/hr)</td> <td rowspan="2" style="width:30%;">PM Traffic Flow (pcu/hr)</td> <td rowspan="2" style="width:30%; vertical-align: top;"> $S = 1940 + 100 (W-3.25)$ $S = 2080 + 100 (W-3.25)$ $SM = S / (1 + 1.5 f/r)$ $SM = (S - 230) / (1 + 1.5 f/r)$ </td> <td rowspan="2" style="width:10%; vertical-align: top;">Note:</td> </tr> <tr> <td> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th></th> <th>AM Peak</th> <th>PM Peak</th> </tr> <tr> <td>1+2+3+4</td> <td></td> <td></td> </tr> <tr> <td>Sum y</td> <td>0.585</td> <td>0.462</td> </tr> <tr> <td>L (s)</td> <td>24</td> <td>24</td> </tr> <tr> <td>C (s)</td> <td>118</td> <td>118</td> </tr> <tr> <td>practical y</td> <td>0.717</td> <td>0.717</td> </tr> <tr> <td>R.C. (%)</td> <td>23%</td> <td>55%</td> </tr> </table> </td> </tr> </table>																	AM Traffic Flow (pcu/hr)	PM Traffic Flow (pcu/hr)	$S = 1940 + 100 (W-3.25)$ $S = 2080 + 100 (W-3.25)$ $SM = S / (1 + 1.5 f/r)$ $SM = (S - 230) / (1 + 1.5 f/r)$	Note:	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th></th> <th>AM Peak</th> <th>PM Peak</th> </tr> <tr> <td>1+2+3+4</td> <td></td> <td></td> </tr> <tr> <td>Sum y</td> <td>0.585</td> <td>0.462</td> </tr> <tr> <td>L (s)</td> <td>24</td> <td>24</td> </tr> <tr> <td>C (s)</td> <td>118</td> <td>118</td> </tr> <tr> <td>practical y</td> <td>0.717</td> <td>0.717</td> </tr> <tr> <td>R.C. (%)</td> <td>23%</td> <td>55%</td> </tr> </table>		AM Peak	PM Peak	1+2+3+4			Sum y	0.585	0.462	L (s)	24	24	C (s)	118	118	practical y	0.717	0.717	R.C. (%)	23%	55%
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Priority Junction Analysis

Junction:	San Hing Road / Ng Lau Road (Southern)		
Design Year:	2023	Job Number:	J7265
Scenario:	Existing Condition	Date:	14 Sep 2023
			P. 22



The predictive equations of capacity of movement are:

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

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

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

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

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

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

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

where $Y = 1 - 0.0345W$

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

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

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

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

Geometry :	Input		Input		Input		Calculated	
	W	6.65	V-rBA	23	w-BA	2.40	D	0.7441
	W-CR	0.00	V-IBA	23	w-BC	2.40	E	0.8078
			V-rBC	26	w-CB	3.00	F	0.8857
			V-rCB	57			Y	0.7706

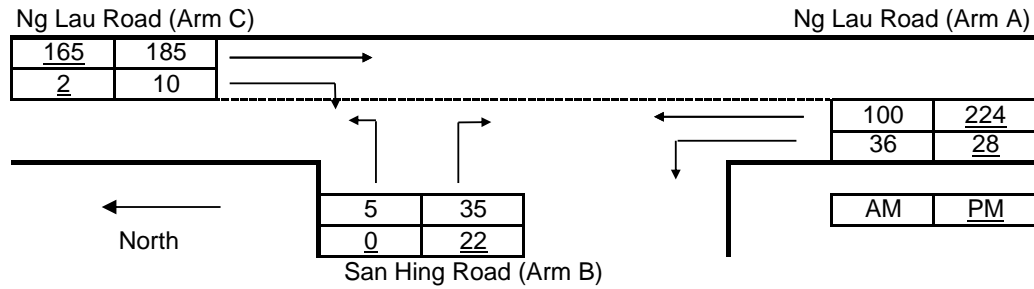
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr		AM	PM
q-CA	166	152	Q-BA		421	400
q-CB	7	1	Q-BC		579	552
q-AB	24	18	Q-CB		631	602
q-AC	93	214	Q-BAC		440	400
q-BA	21	15				
q-BC	4	0				
f	0.160	0.000				

Ratio-of-flow to Capacity	AM	PM
B-A	0.050	0.037
B-C	0.007	0.000
C-B	0.011	0.002
B-AC	0.057	0.037

Priority Junction Analysis

Junction:	San Hing Road / Ng Lau Road (Southern)		
Design Year:	2033	Job Number:	J7265
Scenario:	With Approved Scheme	Date:	14 Sep 2023
			P. 23



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

Geometry :	Input		Input		Input		Calculated	
	W	6.65	V-rBA	23	w-BA	2.40	D	0.7441
	W-CR	0.00	V-IBA	23	w-BC	2.40	E	0.8078
			V-rBC	26	w-CB	3.00	F	0.8857
			V-rCB	57			Y	0.7706

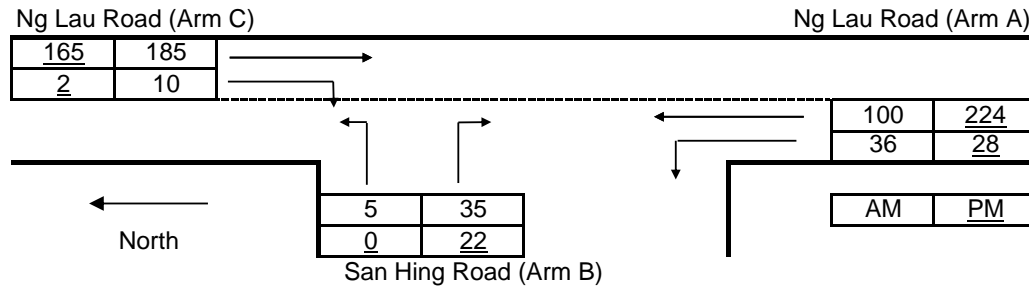
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr		AM	PM
q-CA	185	165	Q-BA		415	395
q-CB	10	2	Q-BC		576	549
q-AB	36	28	Q-CB		626	597
q-AC	100	224	Q-BAC		430	395
q-BA	35	22				
q-BC	5	0				
f	0.125	0.000				

Ratio-of-flow to Capacity	AM	PM
B-A	0.084	0.056
B-C	0.009	0.000
C-B	0.016	0.003
B-AC	0.093	0.056

Priority Junction Analysis

Junction:	San Hing Road / Ng Lau Road (Southern)		
Design Year:	2033	Job Number:	J7265
Scenario:	With Proposed Development	Date:	14 Sep 2023
			P. 24



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

Geometry :	Input		Input		Input		Calculated	
	W	6.65	V-rBA	23	w-BA	2.40	D	0.7441
	W-CR	0.00	V-IBA	23	w-BC	2.40	E	0.8078
			V-rBC	26	w-CB	3.00	F	0.8857
			V-rCB	57			Y	0.7706

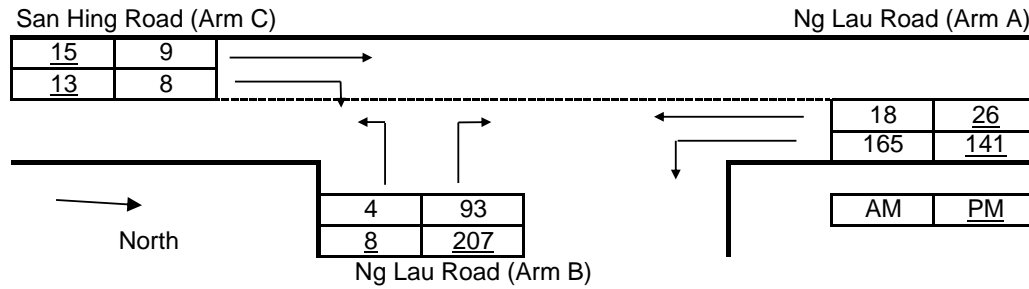
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	185	165	Q-BA	415	395
q-CB	10	2	Q-BC	576	549
q-AB	36	28	Q-CB	626	597
q-AC	100	224	Q-BAC	430	395
q-BA	35	22			
q-BC	5	0			
f	0.125	0.000			

Ratio-of-flow to Capacity	AM	PM
B-A	0.084	0.056
B-C	0.009	0.000
C-B	0.016	0.003
B-AC	0.093	0.056

Priority Junction Analysis

Junction:	San Hing Road / Ng Lau Road (Northern)		
Design Year:	2023	Job Number:	J7265
Scenario:	Existing Condition	Date:	14 Sep 2023
			P. 25



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

Geometry :	Input		Input		Input		Calculated	
	W	6.63	V-rBA	45	w-BA	1.90	D	0.7207
	W-CR	0.00	V-IBA	25	w-BC	1.90	E	0.7768
			V-rBC	42	w-CB	3.50	F	0.9344
			V-rCB	62			Y	0.7714

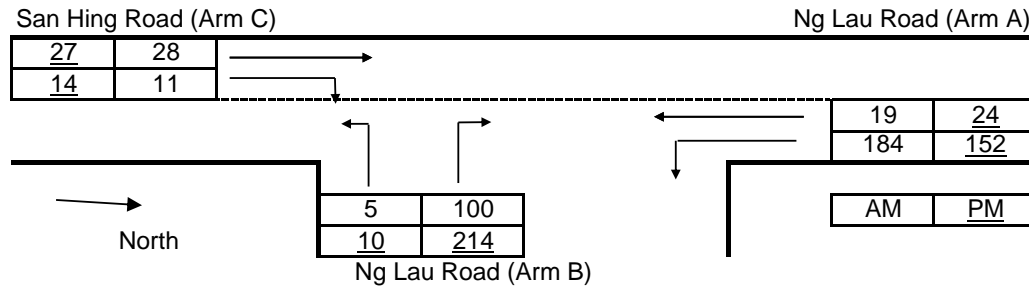
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr		AM	PM
q-CA	9	15	Q-BA		432	430
q-CB	8	13	Q-BC		561	561
q-AB	165	141	Q-CB		648	652
q-AC	18	26	Q-BAC		436	433
q-BA	93	207				
q-BC	4	8				
f	0.041	0.037				

Ratio-of-flow to Capacity	AM	PM
B-A	0.216	0.482
B-C	0.007	0.014
C-B	0.012	0.020
B-AC	0.223	0.496

Priority Junction Analysis

Junction:	San Hing Road / Ng Lau Road (Northern)		
Design Year:	2033	Job Number:	J7265
Scenario:	With Approved Scheme	Date:	14 Sep 2023
			P. 26



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

Geometry :	Input		Input		Input		Calculated	
	W	6.63	V-rBA	45	w-BA	1.90	D	0.7207
	W-CR	0.00	V-IBA	25	w-BC	1.90	E	0.7768
			V-rBC	42	w-CB	3.50	F	0.9344
			V-rCB	62			Y	0.7714

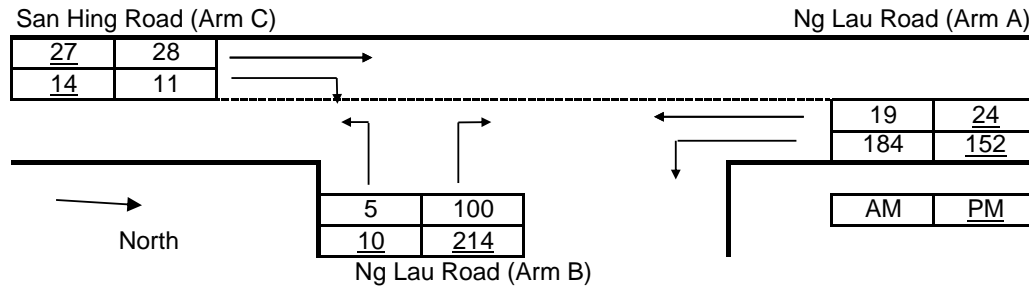
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	28	27	Q-BA	427	427
q-CB	11	14	Q-BC	559	560
q-AB	184	152	Q-CB	643	650
q-AC	19	24	Q-BAC	431	432
q-BA	100	214			
q-BC	5	10			
f	0.048	0.045			

Ratio-of-flow to Capacity	AM	PM
B-A	0.234	0.501
B-C	0.009	0.018
C-B	0.017	0.022
B-AC	0.243	0.519

Priority Junction Analysis

Junction:	San Hing Road / Ng Lau Road (Northern)		
Design Year:	2033	Job Number:	J7265
Scenario:	With Proposed Development	Date:	14 Sep 2023
			P. 27



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

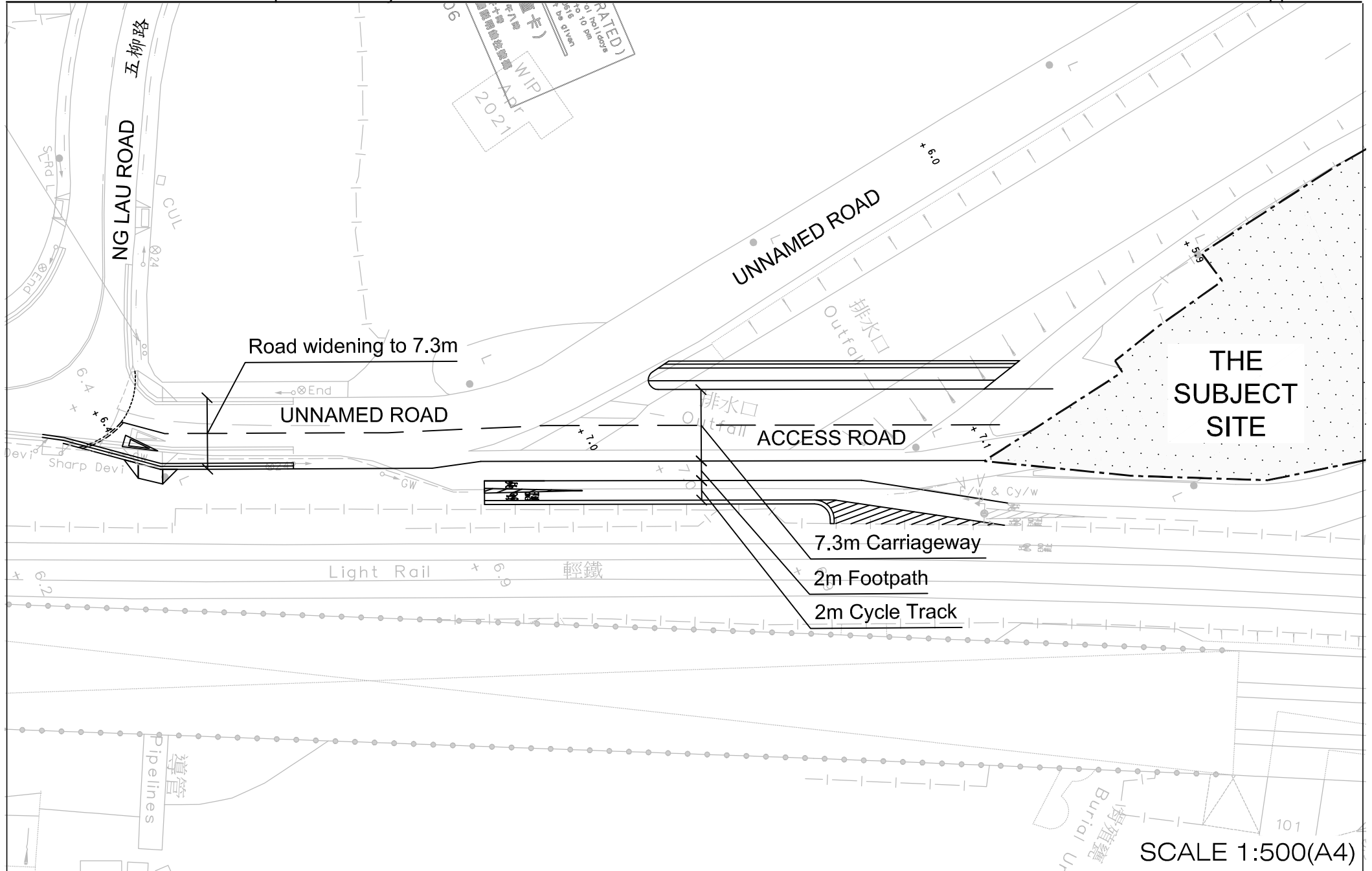
Geometry :	Input		Input		Input		Calculated	
	W	6.63	V-rBA	45	w-BA	1.90	D	0.7207
	W-CR	0.00	V-IBA	25	w-BC	1.90	E	0.7768
			V-rBC	42	w-CB	3.50	F	0.9344
			V-rCB	62			Y	0.7714

Analysis :

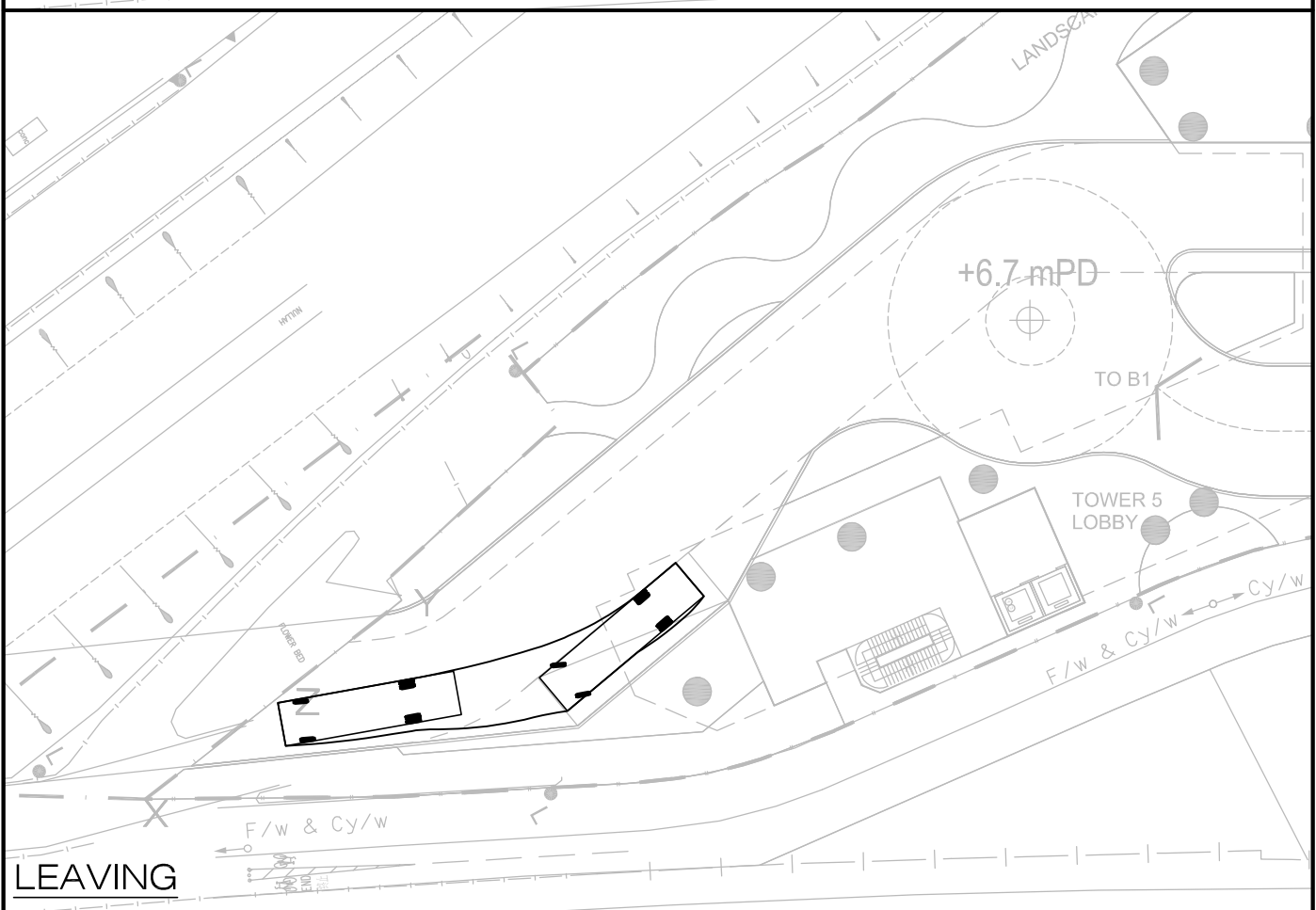
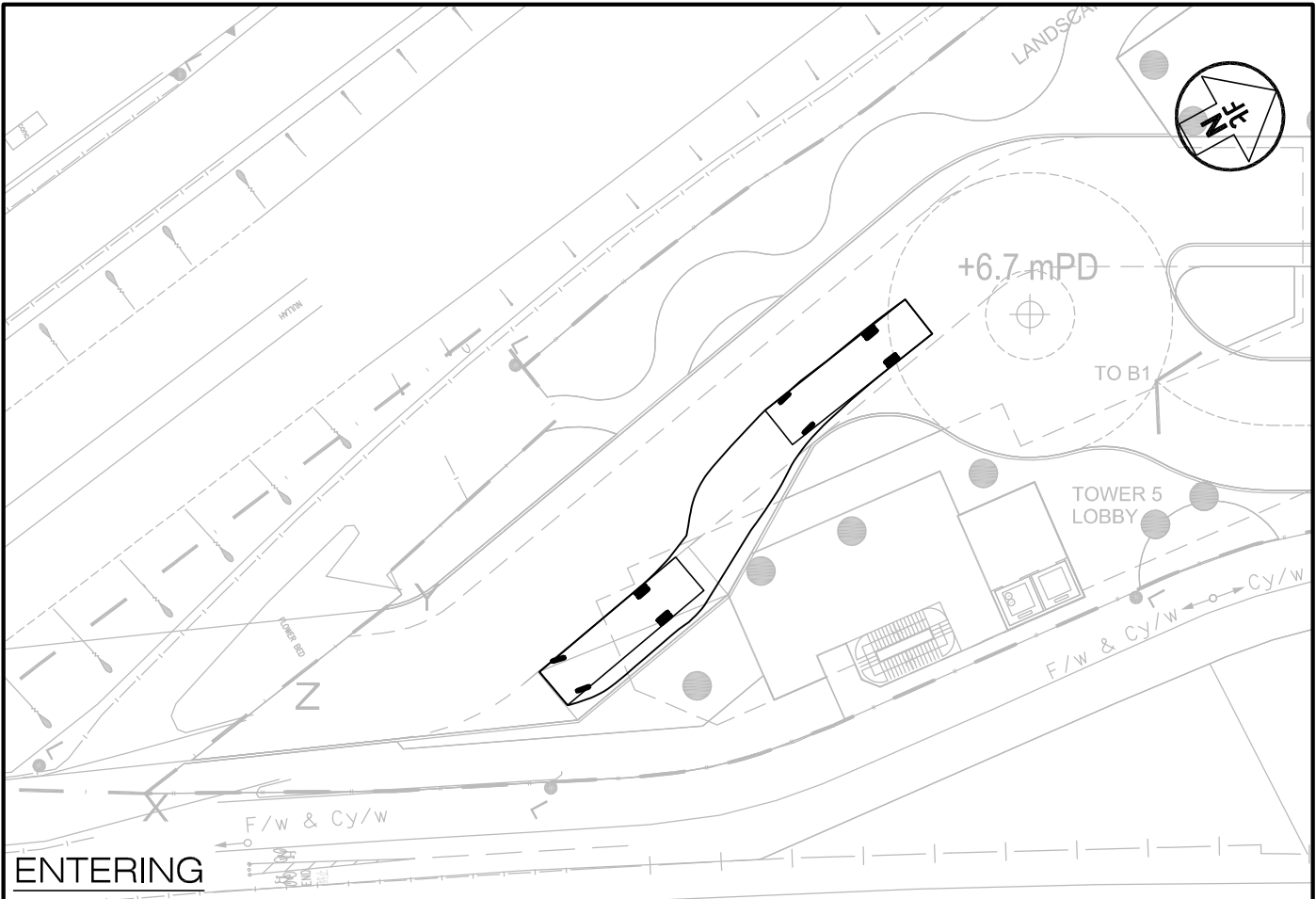
Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	28	27	Q-BA	427	427
q-CB	11	14	Q-BC	559	560
q-AB	184	152	Q-CB	643	650
q-AC	19	24	Q-BAC	431	432
q-BA	100	214			
q-BC	5	10			
f	0.048	0.045			

Ratio-of-flow to Capacity	AM	PM
B-A	0.234	0.501
B-C	0.009	0.018
C-B	0.017	0.022
B-AC	0.243	0.519

**Appendix B – Planned Road Works to be
implemented by the Owner**



Appendix C – Swept Path Analysis



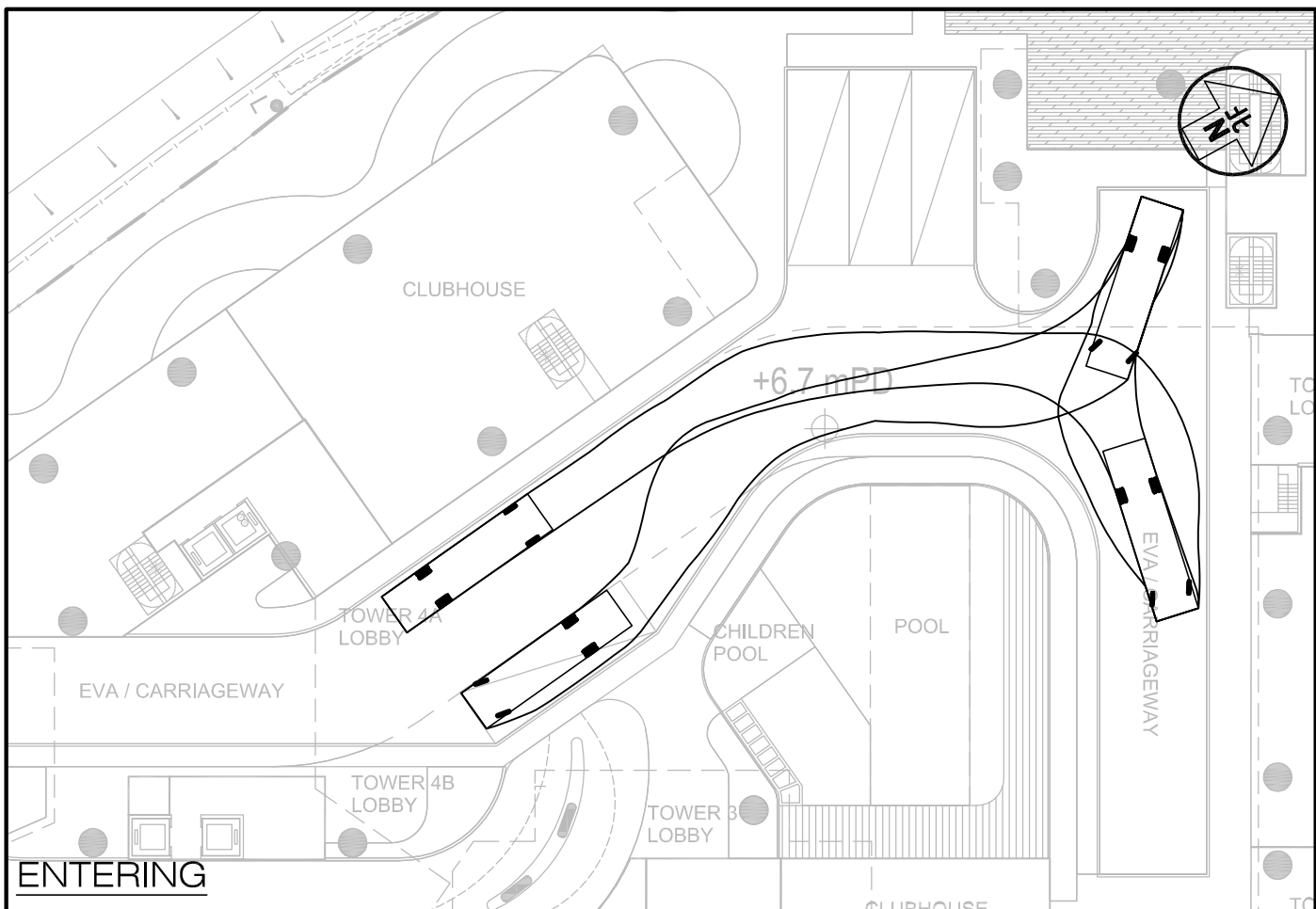
Project Title **PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN**

Job No. J7265	Figure No. SP1	Scale in A4 1 : 400	
Designed by L K W	Drawn by W S W	Checked by K C	Revision F
		Date 11 JAN 2024	

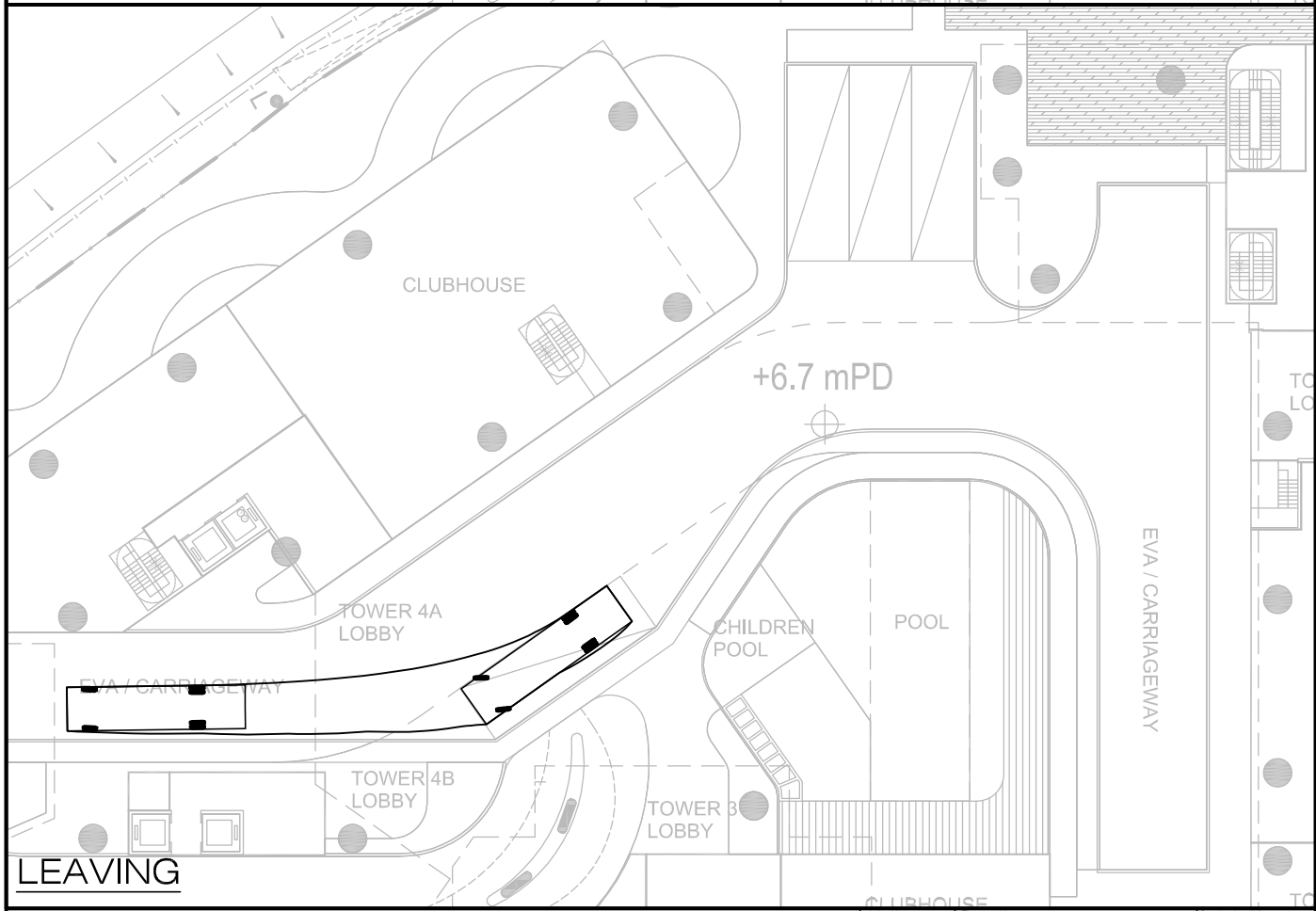
Figure Title **SWEPT PATH OF HGV ENTERING AND LEAVING THE LOADING / UNLOADING BAY**

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

T:\JOB\J7265\J7265\2024_01_R5A\Fig SP1 - SP4 RevF.dwg



ENTERING



LEAVING

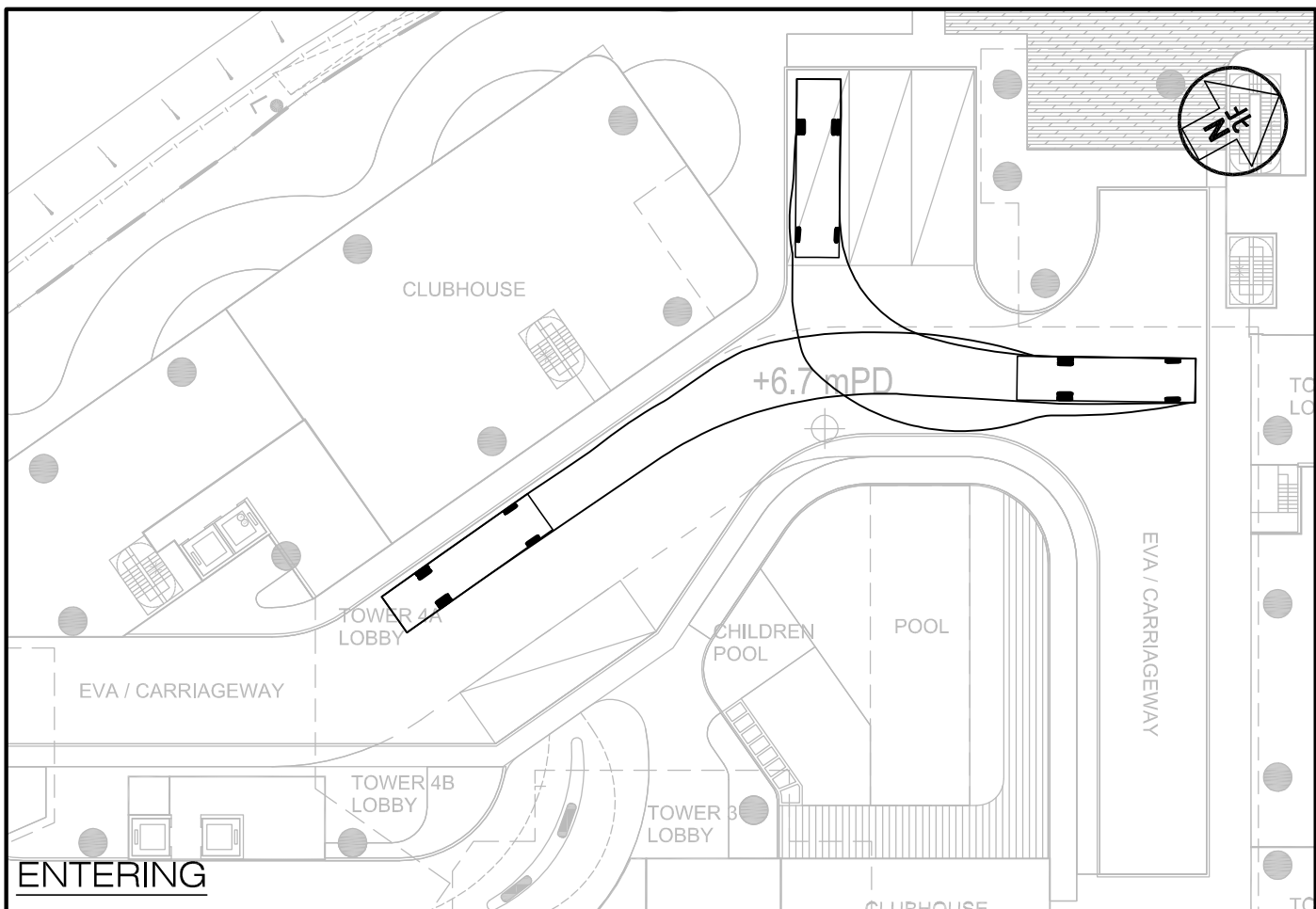
Project Title PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN

Job No. J7265	Figure No. SP2	Scale in A4 1 : 400	
Designed by L K W	Drawn by W S W	Checked by K C	Revision F
		Date 11 JAN 2024	

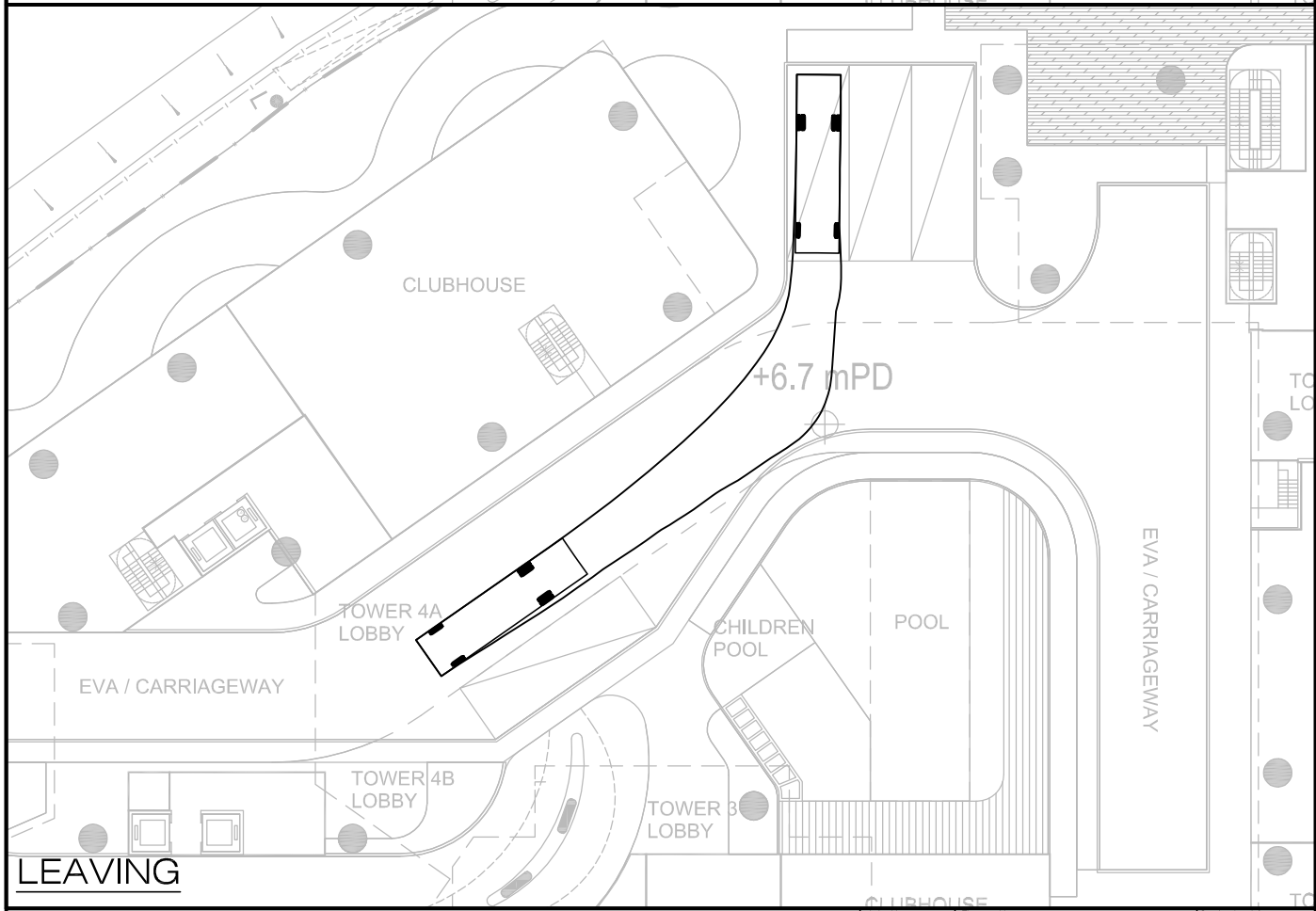
Figure Title
SWEPT PATH OF HGV ENTERING AND LEAVING THE LOADING / UNLOADING BAY

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ENTERING



LEAVING

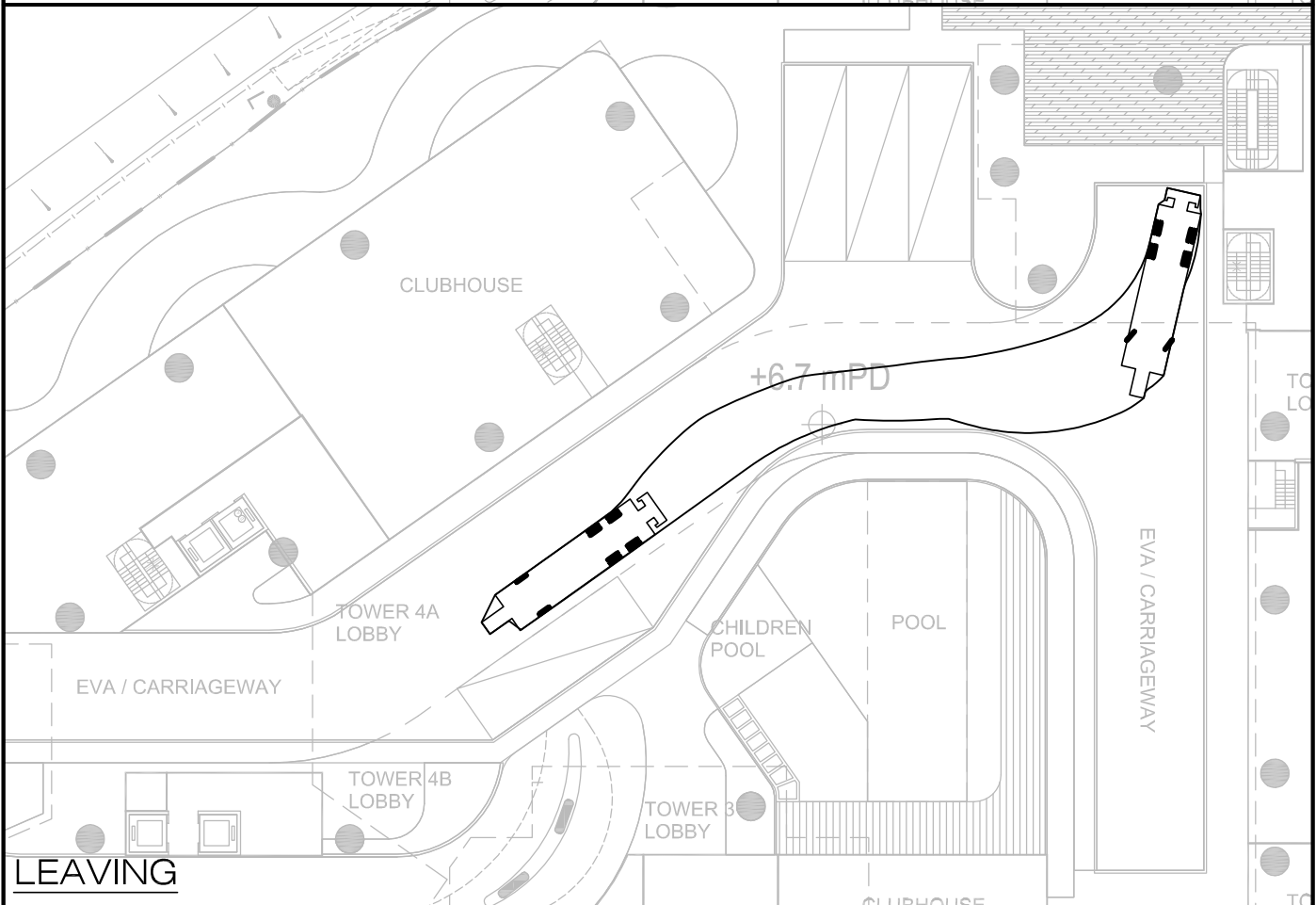
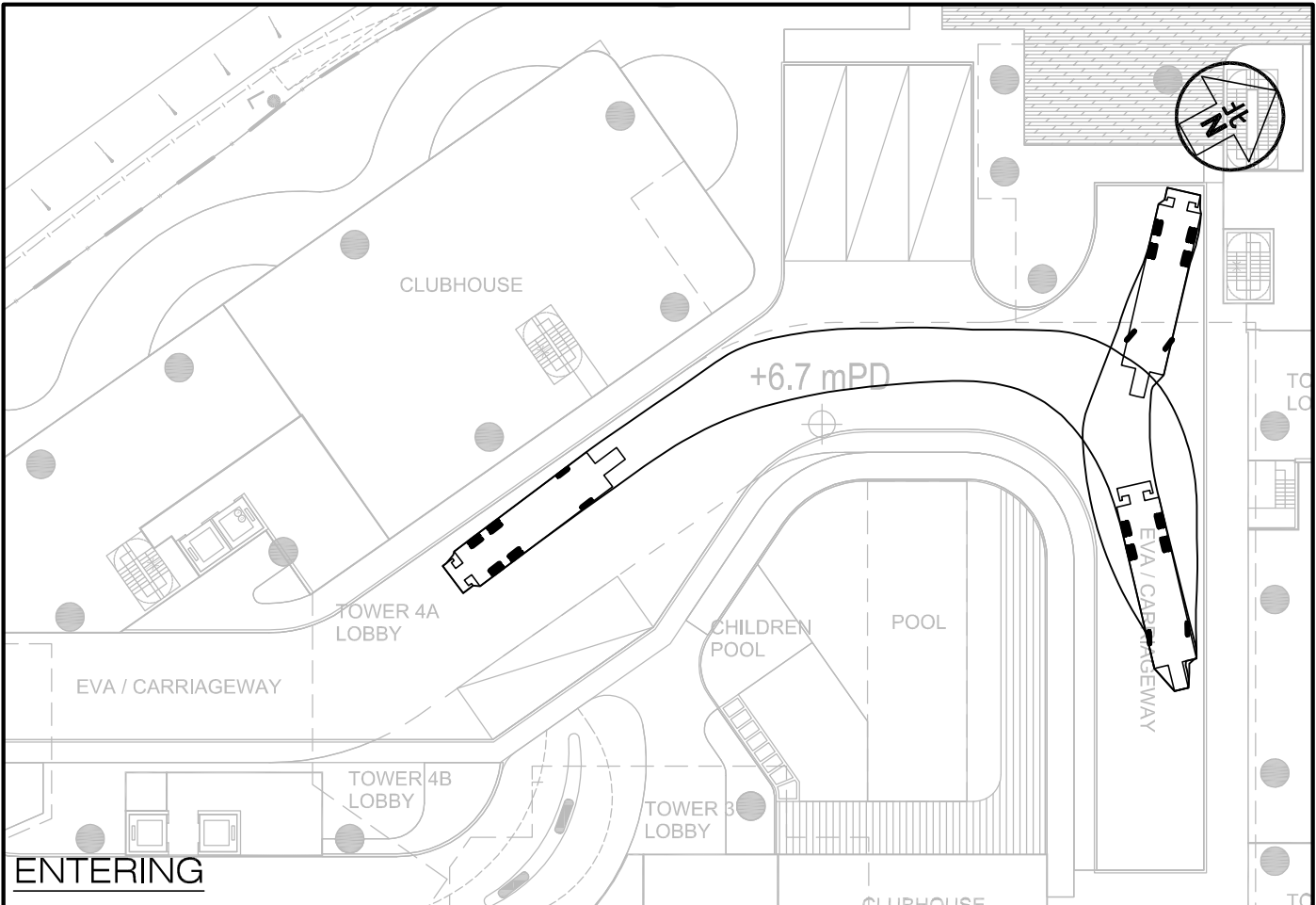
Project Title PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN

Job No. J7265	Figure No. SP3	Scale in A4 1 : 400	
Designed by L K W	Drawn by W S W	Checked by K C	Revision F
		Date 11 JAN 2024	

Figure Title
SWEPT PATH OF HGV ENTERING AND LEAVING THE LOADING / UNLOADING BAY

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Job No. J7265	Figure No. SP4	Scale in A4 1 : 400	
Designed by L K W	Drawn by W S W	Checked by K C	Revision F
		Date 11 JAN 2024	

Figure Title **SWEPT PATH OF FIRE APPLIANCE ENTERING AND LEAVING THE SUBJECT SITE**

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**Appendix D – Junction Improvements
Planned near Proposed Development**

