
Appendix C
Traffic Impact Assessment

Reference number CHK50769410

**SECTION 16 PLANNING APPLICATION FOR PROPOSED
RESIDENTIAL CARE HOMES FOR THE ELDERLY IN
“VILLAGE TYPE DEVELOPMENT” ZONE AT LOT NO. 76
S.G & 76 S.H IN D.D. 101, MAI PO, YUEN LONG**



TRAFFIC IMPACT ASSESSMENT REPORT

IDENTIFICATION TABLE	
Client/Project owner	Gotland Enterprises Limited
Project	Section 16 Planning Application for Proposed Residential Care Homes for the Elderly in “Village Type Development” Zone at Lot No. 76 S.G & 76 S.H in D.D. 101, Mai Po, Yuen Long
Type of document	Traffic Impact Assessment Report
Date	13/09/2024
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1. INTRODUCTION

1.1 Background

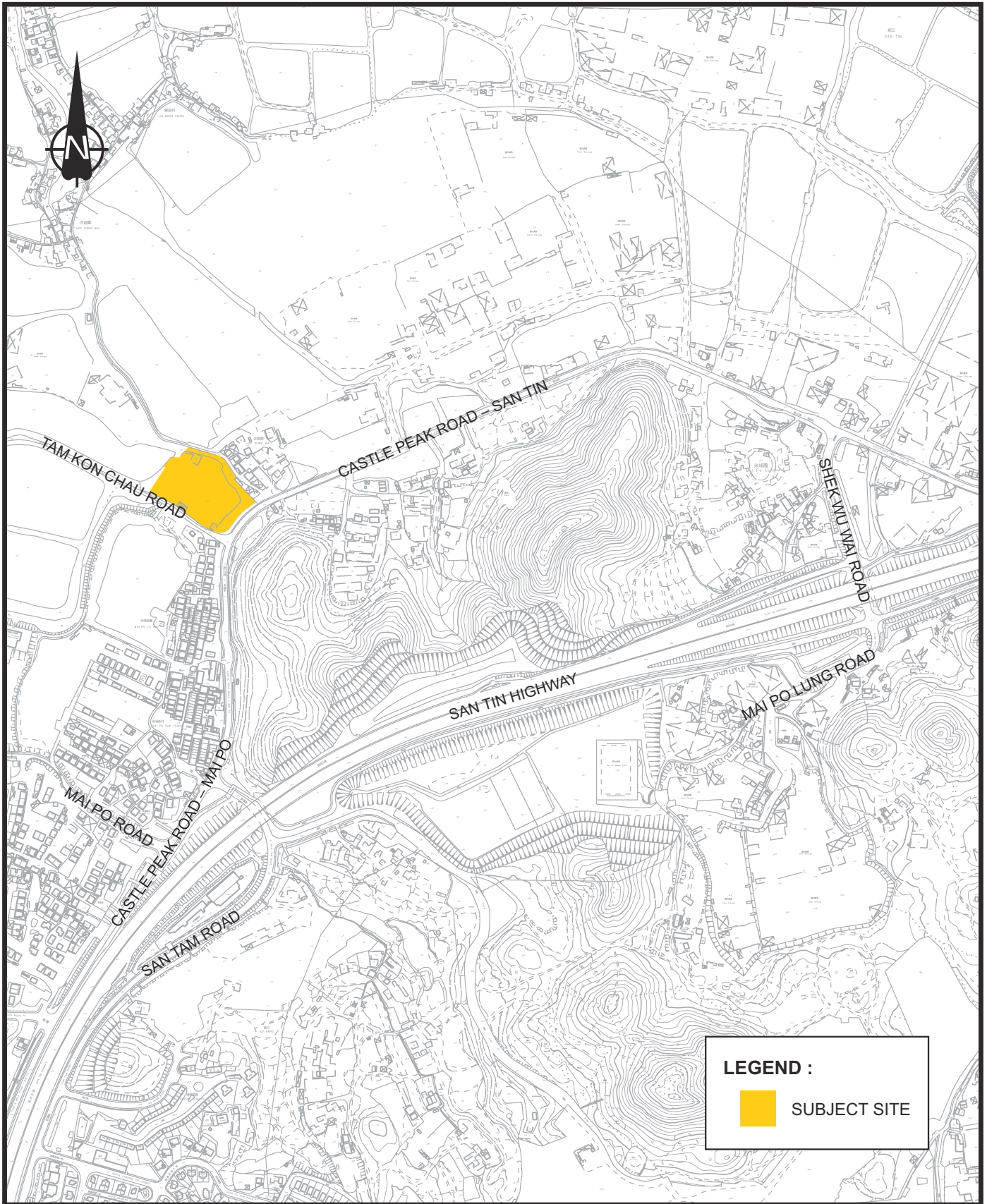
- 1.1.1 The application site is located at Tam Kon Chau Road, as indicated in **Drawing 1.1**. It is currently zoned as a “Village Type Development (V)” under the latest approved Mai Po & Fairview Park Outline Zoning Plan (OZP) no. S/YL-MP/6.
- 1.1.2 The application site is currently a temporary parking lot located at the junction Castle Peak Road / TAM Kon Chau Road, and it is proposed to be redeveloped into a Residential Care Home for the Elderly (RCHE).

1.2 Study Objective

- 1.2.1 The main objective of this study is to investigate the anticipated traffic impact of Residential Care Home for the Elderly (RCHE) Redevelopment to the adjacent local road network, by performing the following tasks:
- review the current traffic condition in the vicinity;
 - study the traffic related matters of the proposed MLP;
 - produce traffic forecasts on the adjacent local road network;
 - assess the traffic impact of this development scheme to the adjacent local road network and suggest mitigation measures, if applicable.

1.3 Report Structure

- 1.3.1 Following this introductory chapter, there are five further chapters.
- Chapter 2 – Traffic Context, review the current traffic condition in the vicinity;
 - Chapter 3 – The Redevelopment, introduces the proposed Residential Care Home for the Elderly (RCHE) scheme, planning parameters, internal transport facilities and etc.;
 - Chapter 4 – Traffic Forecasts, describes the traffic forecasting methodology and presents the results;
 - Chapter 5 – Traffic Impact Assessment, presents the assessment findings and suggests mitigation measures, if applicable; and,
 - Chapter 6 – Summary and Conclusion, summarises the study findings and presents the conclusion accordingly.



LEGEND :

SUBJECT SITE

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Project Title
TRAFFIC CONSULTANCY SERVICES FOR PROPOSED ELDERLY HOME IN LOT DD101 76 S.G. & 76 S.H. IN MAI PO, NT

Drawing Title
SITE LOCATION PLAN



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2. TRAFFIC CONTEXT

2.1 Existing Road Network

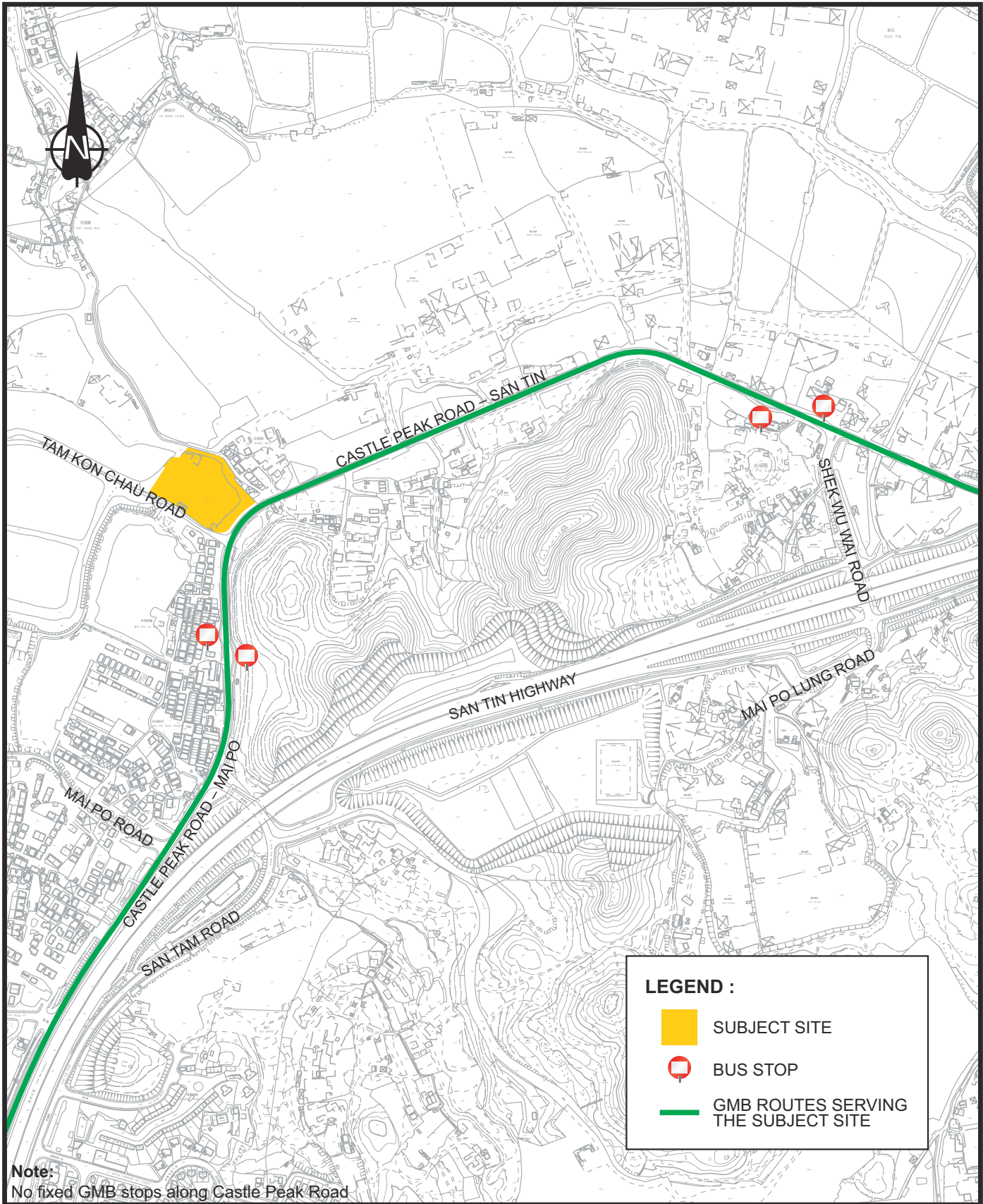
- 2.1.1 The application site is located at the north-east side of Tam Kon Chau Road. The Subject Site is bounded by Tam Kon Chau Road to the Southwest, Castle Peak Road – San Tin to the Southeast, the location is indicated in **Drawing 1.1**. The vehicular access routes of the application site are through Tam Kon Chau Road, Castle Peak Road – Mai Po, Castle Peak Road – San Tin, San Tin Highway, Shek Wu Wai Road and Kwu Tung Road.
- 2.1.2 Tam Kon Chau Road connects the application site to the Castle Peak Road -San Tin & Mai Po.
- 2.1.3 Castle Peak Road – Mai Po & San Tin are both single 2-lane rural road, linking up Castle Peak Road (Tam Mei) on the South and Castle Peak Road (Chau Tau) on the North respectively.
- 2.1.4 San Tin Highway is a dual 6-lane expressway. San Tin Highway connects Fanling Highway as its north-eastern, and Yuen Long Highway at the southwestern end of the San Tin Highway.
- 2.1.5 Shek Wu Wai Road is a single 2-lane carriageway, which connects Castle Peak Road – San Tin to the north and Mai Po Lung Road to the south.
- 2.1.6 Kwu Tung Road is also a single 2-lane carriageway, which starts from the Kwu Tung Castle Peak Road in North District, and ends at the San Tin Castle Peak Road in Yuen Long District.

2.2 Public Transport Services

- 2.2.1 There are two bus stations near the application site, which are Mai Po Lung Bus Station and Mai Po Bus Station. There is one franchised bus route - 76K, and three Green Mini-Bus (GMB) routes – 75, 76 & 78, stopping at these two bus stations. In addition, GMB Route 75 also has a special route and only stops at Mai Po Bus Station.
- 2.2.2 The nearby public transport services are indicated in **Drawing 2.1**, and shown in **Table 2.1**.

Table 2.1 Public Transport Details and Servicing Schedules

Route No.	Destinations		Frequency (min)
Franchised Bus			
76K	Long Ping Estate	Ching Ho Estate	20
GMB			
75	Lok Ma Chau Spur Line	Yuen Long (Fook Hong Street)	15
75 (Special Trip)	Ha Wan Tsuen	Yuen Long (Fook Hong Street)	15
76	Siu Hum Tsuen	Yuen Long (Fook Hong Street)	15
78	Lok Ma Chau (San Tin)	Pat Heung Road (Tai Lam Interchange)	20



Note:
No fixed GMB stops along Castle Peak Road

LEGEND :

- SUBJECT SITE
- BUS STOP
- GMB ROUTES SERVING THE SUBJECT SITE

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Project Title
TRAFFIC CONSULTANCY SERVICES FOR PROPOSED ELDERLY HOME IN LOT DD101 76 S.G. & 76 S.H. IN MAI PO, NT

Drawing Title
EXISTING PUBLIC TRANSPORT SERVICES



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2.3 Junction Operational Performance

2.3.1 A total of five key local junctions have been identified for assessment purpose in this study. The identified key local junctions, as listed in **Table 2.2**, are indicated in **Drawing 2.2**.

Table 2.2 Identified Key Local Junctions

Ref. ⁽¹⁾	Junction	Control Method	Drawing No.
A	Castle Peak Road / TAM Kon Chau Road	Priority	2.3
B	Castle Peak Road / San Tam Road	Priority	2.4
C	Castle Peak Road / Mai Po Road	Priority	2.5
D	Castle Peak Road / Shek Wu Wai Road	Priority	2.6
E	Castle Peak Road / Kwu Tung Road	Priority	2.7

Remarks:

(1) Refer to **Drawing 2.2**.

2.3.2 In order to establish the current peak hour traffic condition in the area, traffic surveys in the form of manual classified count were conducted at the identified key local junctions during the morning and evening peak hours of a typical weekday.

2.3.3 The traffic surveys were arranged and conducted during morning peak hours between 07:30 – 09:30 and the evening peak hours between 17:00 – 19:00 on a typical weekday in early-January 2024. The survey results reveal that the weekday morning and evening peak hour occur during 08:30 – 09:30 and 17:15 – 18:15 respectively. The observed peak hour traffic flows are summarised in **Drawing 2.8**.

2.3.4 Junction capacity assessments have been conducted to evaluate the current operational performance of the identified key local junctions. The assessments would be validated with the site observations, such as queue length, by applying appropriate site factors and adjustments accordingly in order to reflect the actual site conditions. The assessment results are summarised in **Table 2.3**. The junction calculation sheets are attached in **Appendix A**.

Table 2.3 Current Junction Operational Performance

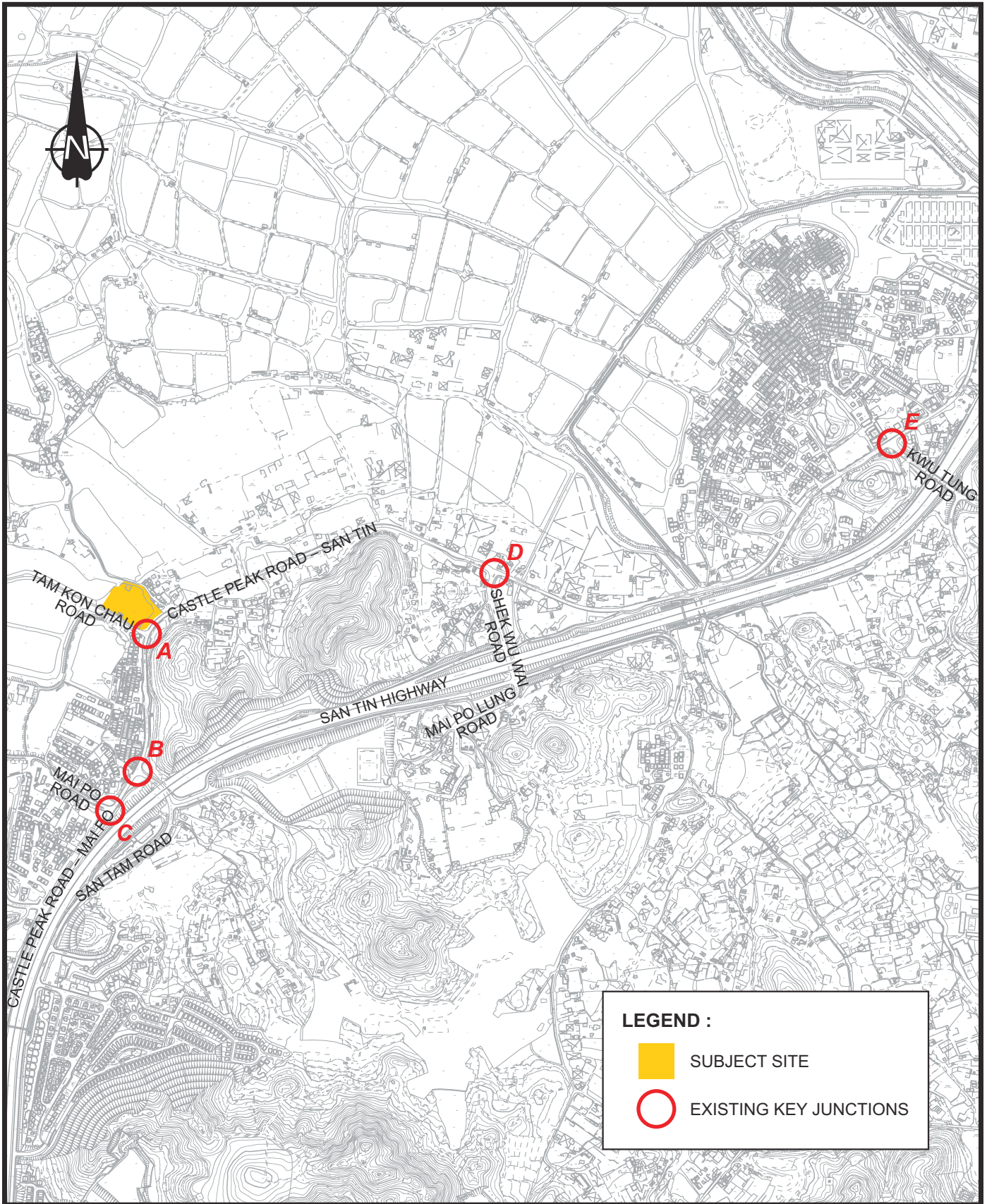
Ref. ⁽¹⁾	Junction	RC/RFC ⁽²⁾	
		AM Peak	PM Peak
A	Castle Peak Road / TAM Kon Chau Road	0.16	0.18
B	Castle Peak Road / San Tam Road	0.20	0.17
C	Castle Peak Road / Mai Po Road	0.11	0.12
D	Castle Peak Road / Shek Wu Wai Road	0.78	0.63
E	Castle Peak Road / Kwu Tung Road	0.40	0.41

Remarks:

(1) Refer to **Drawing 2.2**.

(2) The operational performance of a signal junction is represented in Reserve Capacity (RC), which is defined as overloaded while the RC is less than 0%, The operational performance of a priority/roundabout is represented in Ratio to Flow Capacity (RFC), which is defined as overloaded if RFC over 1.00.

2.3.5 The assessment results indicate that all the identified key local junctions are currently operating with adequate capacity with RFC value less than 0.85 during the weekday peak hour periods.



LEGEND :

- SUBJECT SITE
- EXISTING KEY JUNCTIONS

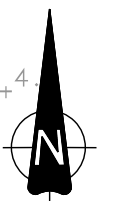
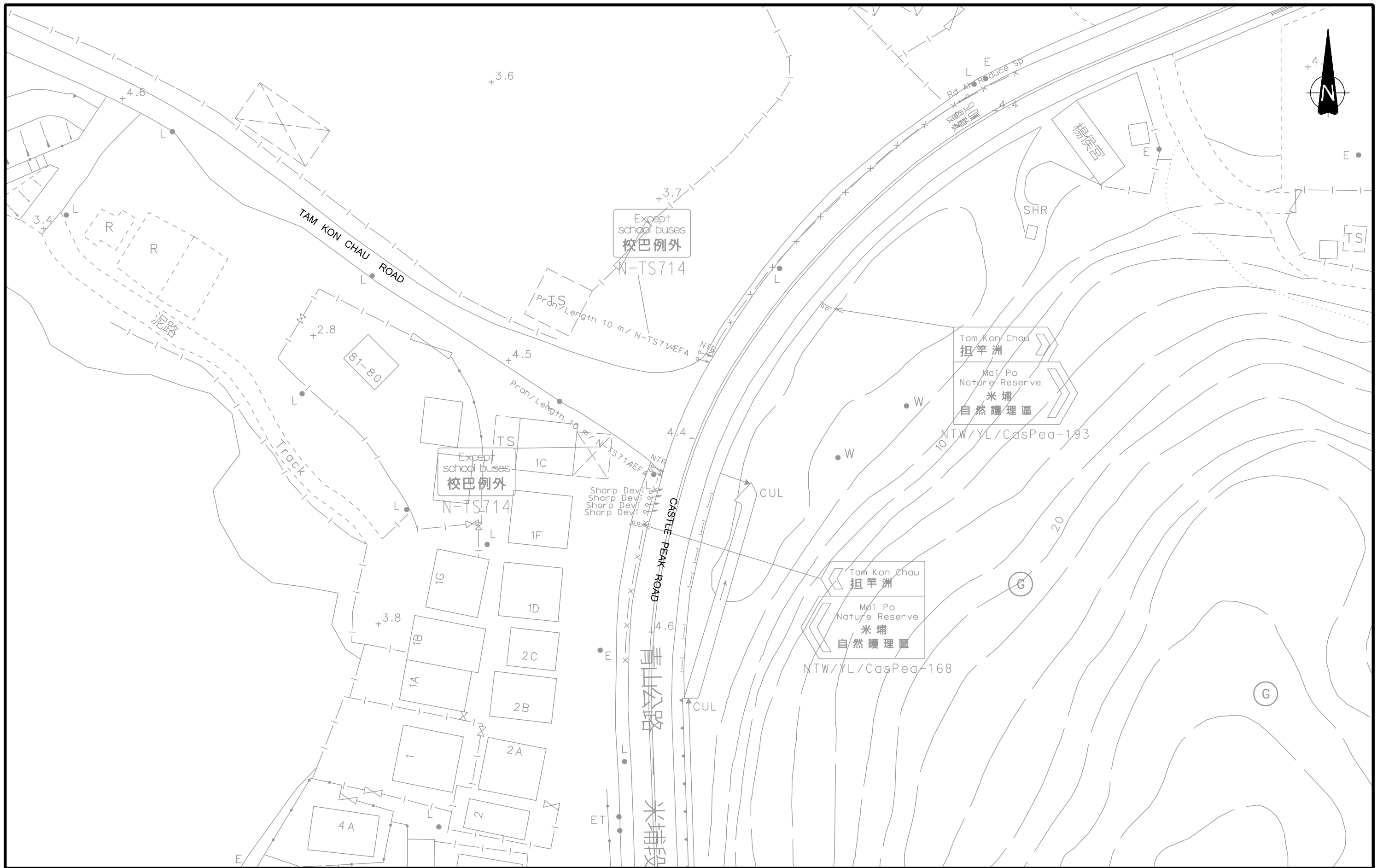
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Project Title
TRAFFIC CONSULTANCY SERVICES FOR PROPOSED ELDERLY HOME IN LOT DD101 76 S.G. & 76 S.H. IN MAI PO, NT

Drawing Title
IDENTIFIED KEY LOCAL JUNCTIONS



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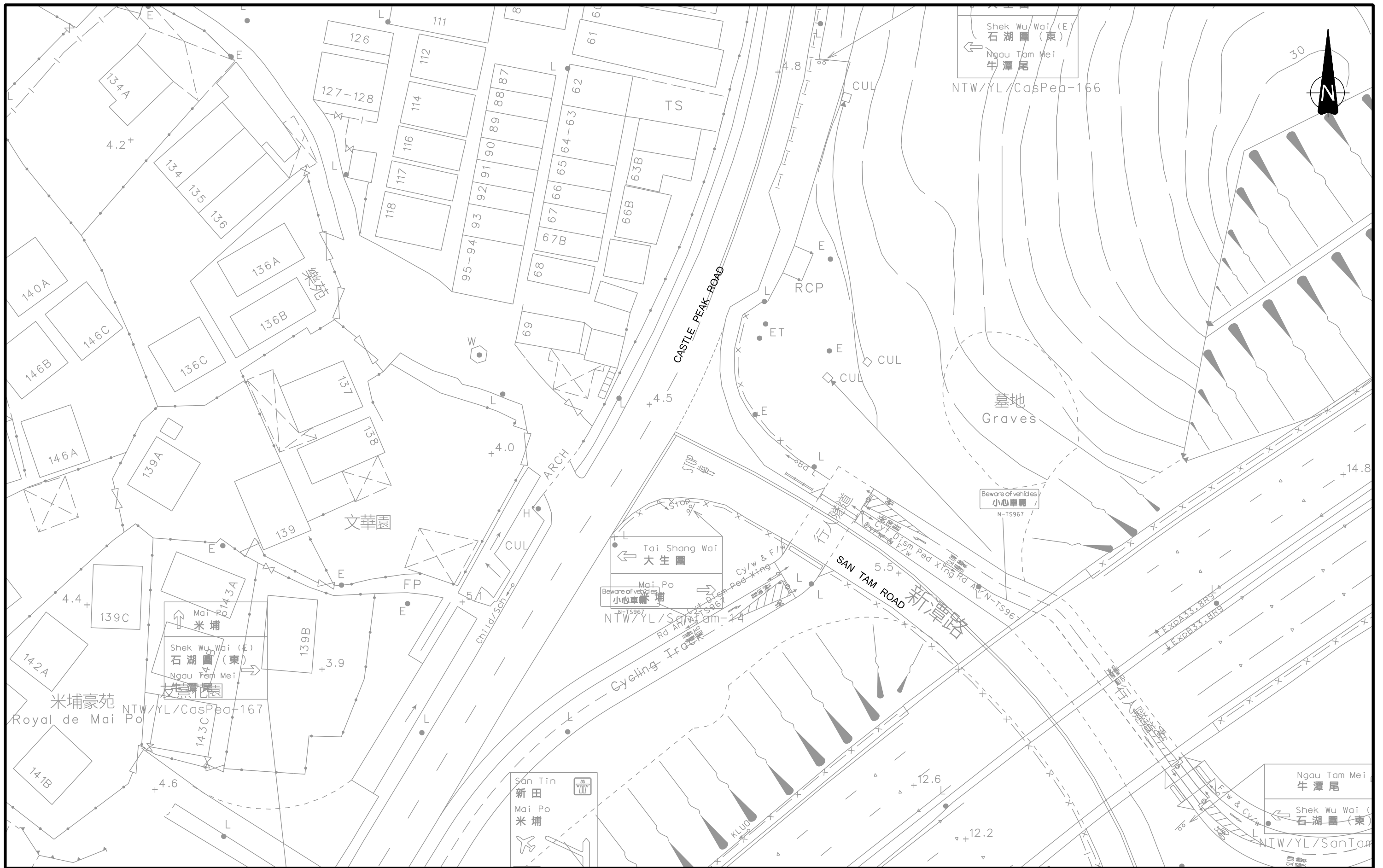


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Project Title
**TRAFFIC CONSULTANCY SERVICES FOR
 PROPOSED ELDERLY HOME IN
 LOT DD101 76 S.G. & 76 S.H. IN
 MAI PO. NT**

Drawing Title EXISTING JUNCTION LAYOUT OF CASTLE PEAK ROAD / TAM KON CHAU ROAD (A)			
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Drawing No. 2.3		Rev. -	





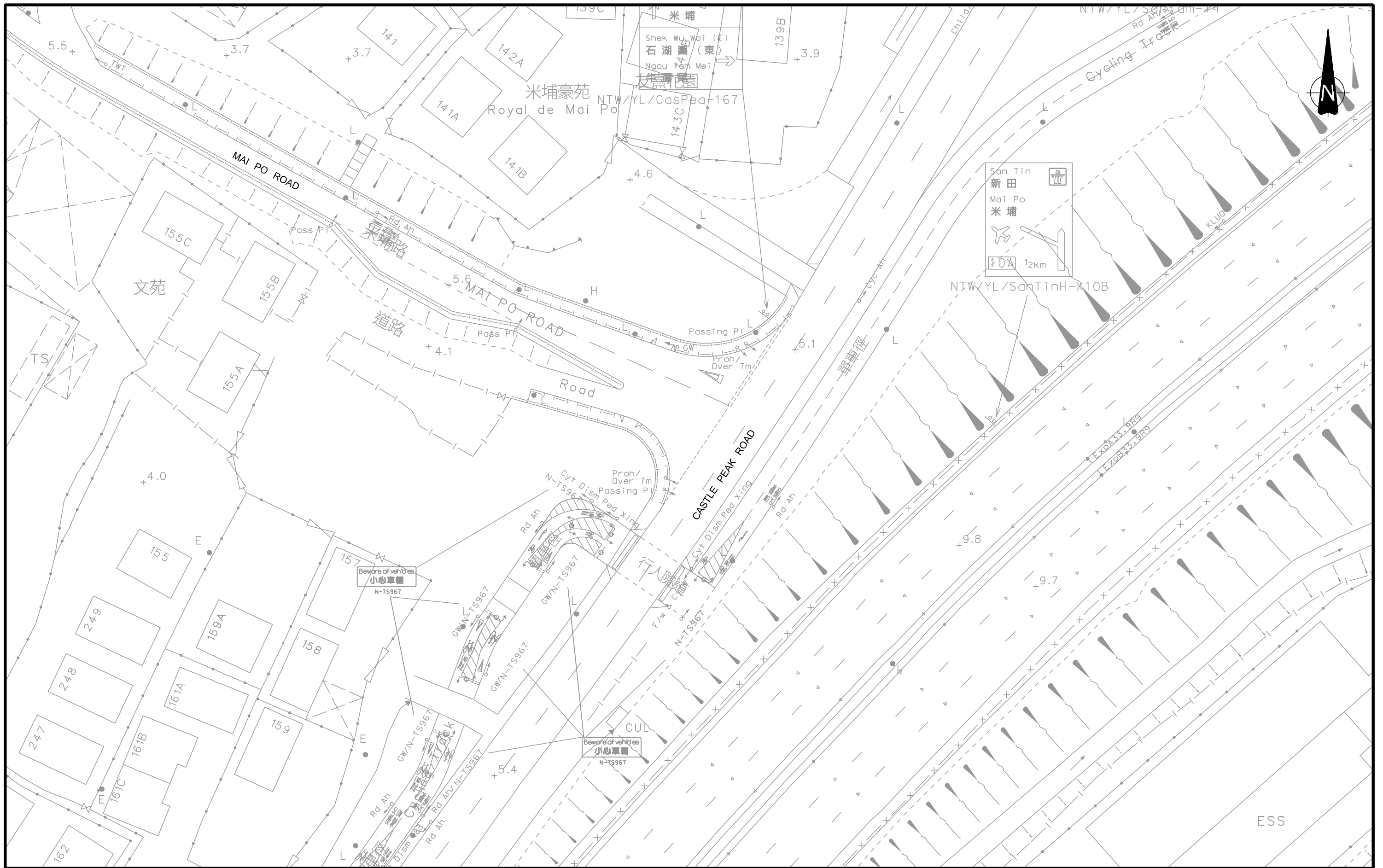
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**TRAFFIC CONSULTANCY SERVICES FOR
 PROPOSED ELDERLY HOME IN
 LOT DD101 76 S.G. & 76 S.H. IN
 MAI PO. NT**

Drawing Title
**EXISTING JUNCTION LAYOUT OF
 CASTLE PEAK ROAD / SAN TAM ROAD(B)**

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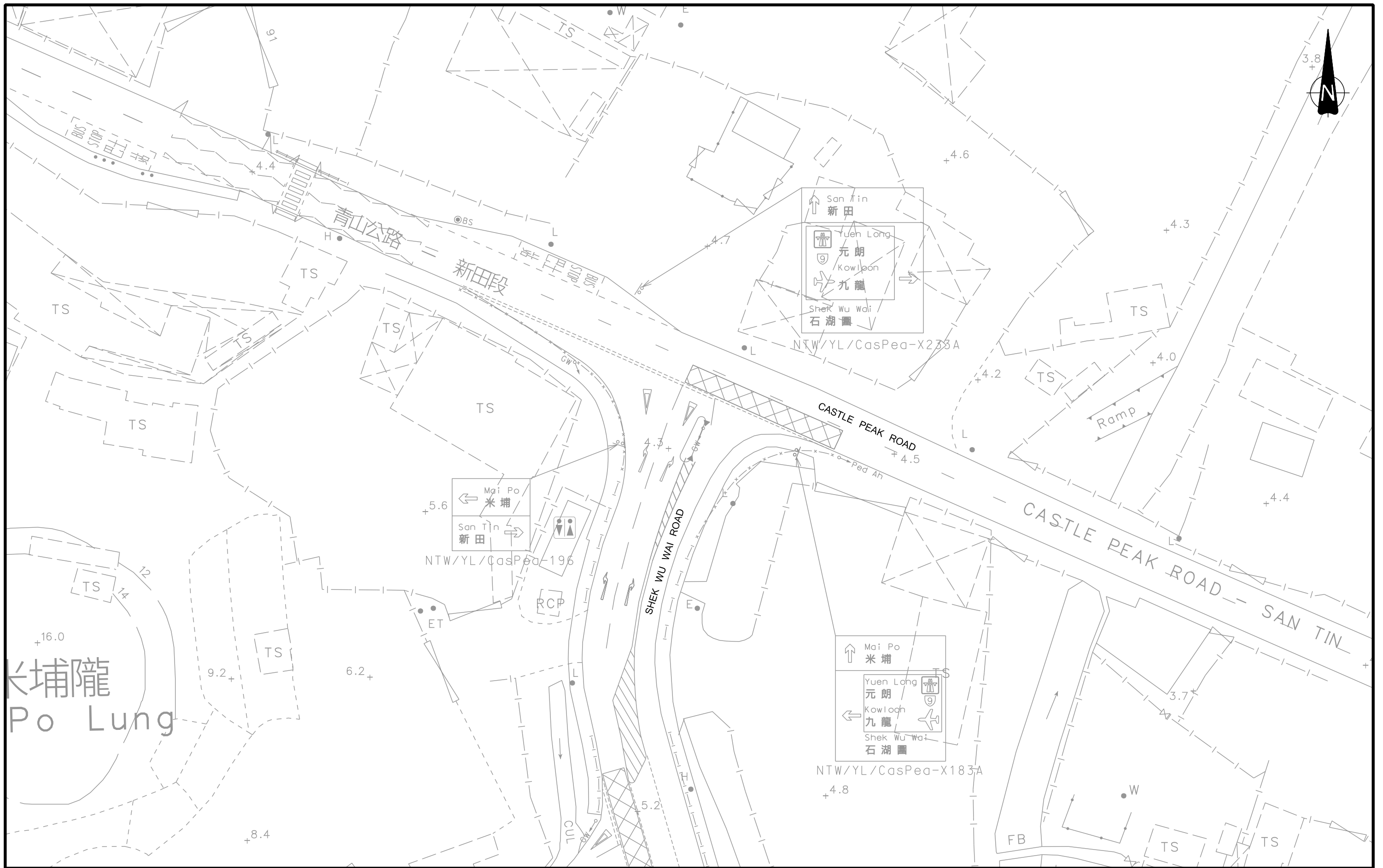


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Project Title
**TRAFFIC CONSULTANCY SERVICES FOR
 PROPOSED ELDERLY HOME IN
 LOT DD101 76 S.G. & 76 S.H. IN
 MAI PO. NT**

Drawing Title EXISTING JUNCTION LAYOUT OF CASTLE PEAK ROAD / MAI PO ROAD(C)			
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Drawing No. 2.5		Rev. -	





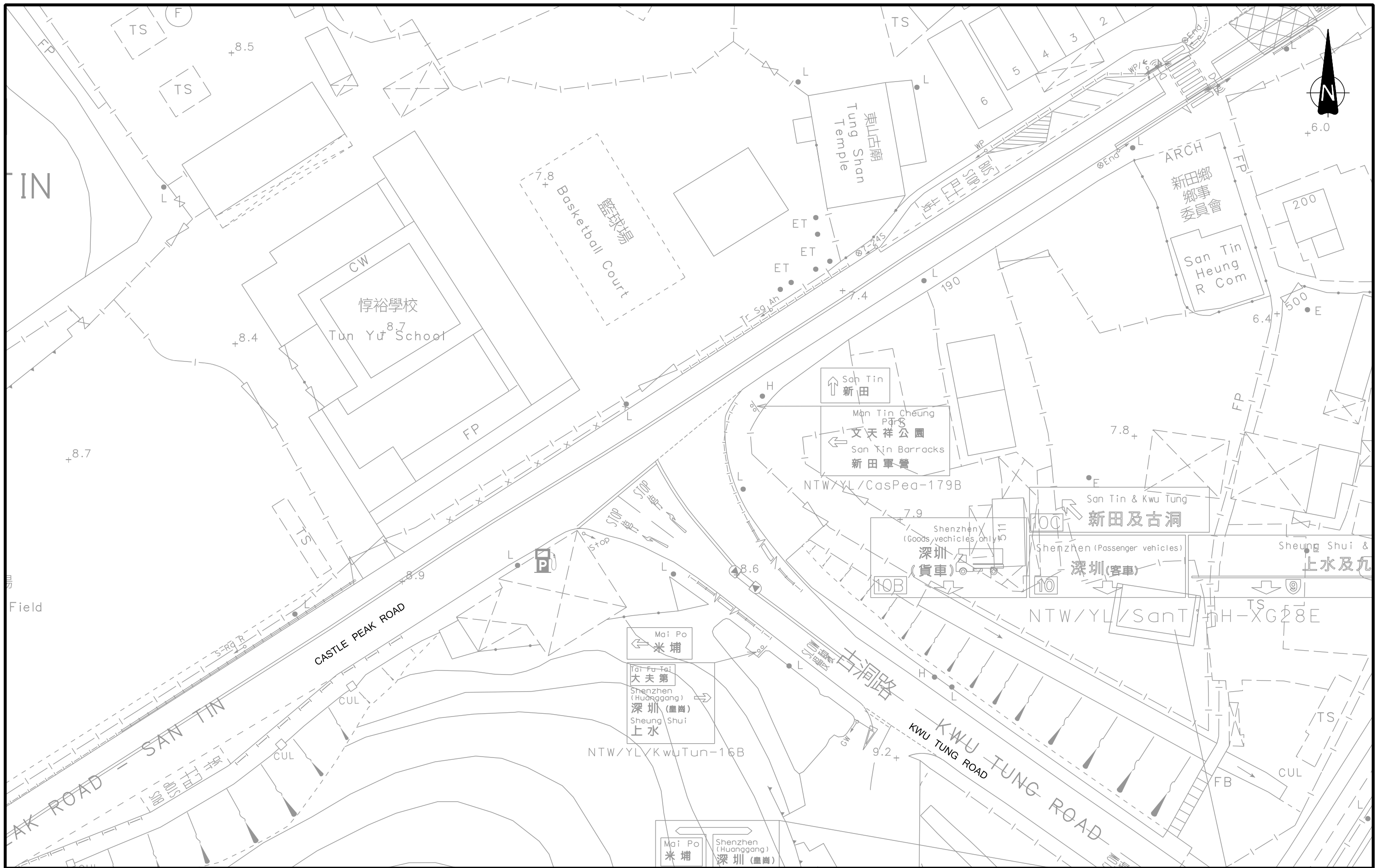
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Project Title
**TRAFFIC CONSULTANCY SERVICES FOR
 PROPOSED ELDERLY HOME IN
 LOT DD101 76 S.G. & 76 S.H. IN
 MAI PO, NT**

Drawing Title
**EXISTING JUNCTION LAYOUT OF
 CASTLE PEAK ROAD / SHEK WU WAI ROAD (D)**

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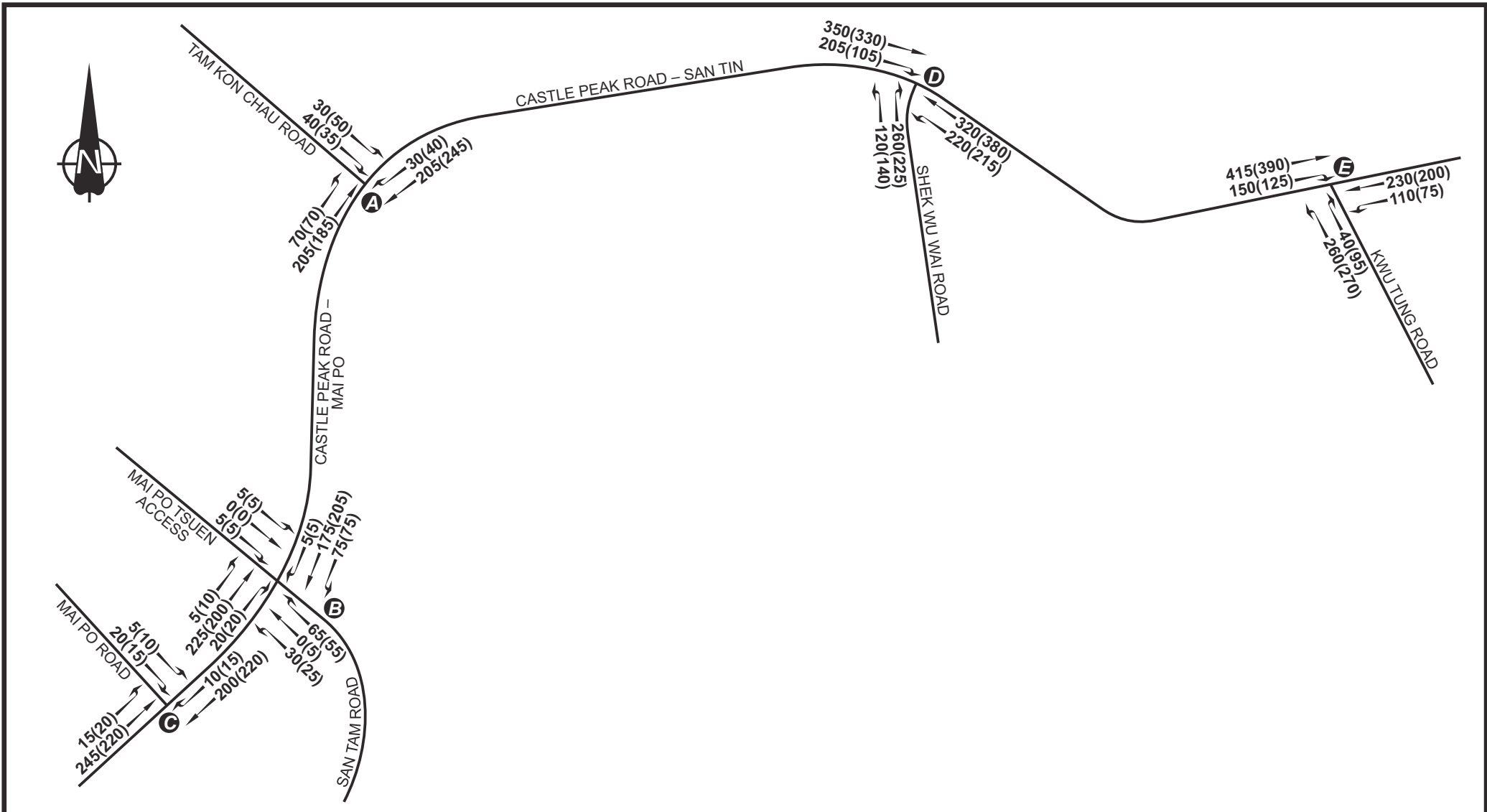


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Project Title
**TRAFFIC CONSULTANCY SERVICES FOR
 PROPOSED ELDERLY HOME IN
 LOT DD101 76 S.G. & 76 S.H. IN
 MAI PO, NT**

Drawing Title EXISTING JUNCTION LAYOUT OF CASTLE PEAK ROAD / KWU TUNG ROAD (E)			
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Drawing No. 2.7		Rev. -	





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Project Title				Drawing Title							
TRAFFIC CONSULTANCY SERVICES FOR PROPOSED ELDERLY HOME IN LOT DD101 76 S.G. & 76 S.H. IN MAI PO, NT				YEAR 2024 OBSERVED TRAFFIC FLOWS							
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3. THE REDEVELOPMENT

3.1 Development Parameter

- 3.1.1 For the purpose of Section 16 planning application, Lot DD101 76 S.G. and 76 S.H. in Mai Po is this TIA study area.
- 3.1.2 Currently, the site is a temporary parking lot located at the junction Castle Peak Road / Tam Kon Chau Road, and it is proposed to be redeveloped into a Residential Care Home for the Elderly (RCHE). The proposed main development parameters of the Lot DD101 76 S.G. and 76 S.H. are summarised in **Table 3.1** and the indicative MLP is shown in **Drawing 3.1**.

Table 3.1 Proposed Development Parameters

Component	Proposed Scheme for the Development Site
Site Area (m ²)	approx. 8,429 m ²
Key Development Parameters	
No. of beds	716
No. of Parking Spaces	76

- 3.1.3 The proposed development is scheduled to be completed by year 2028 tentatively.

3.2 Internal Traffic Arrangement

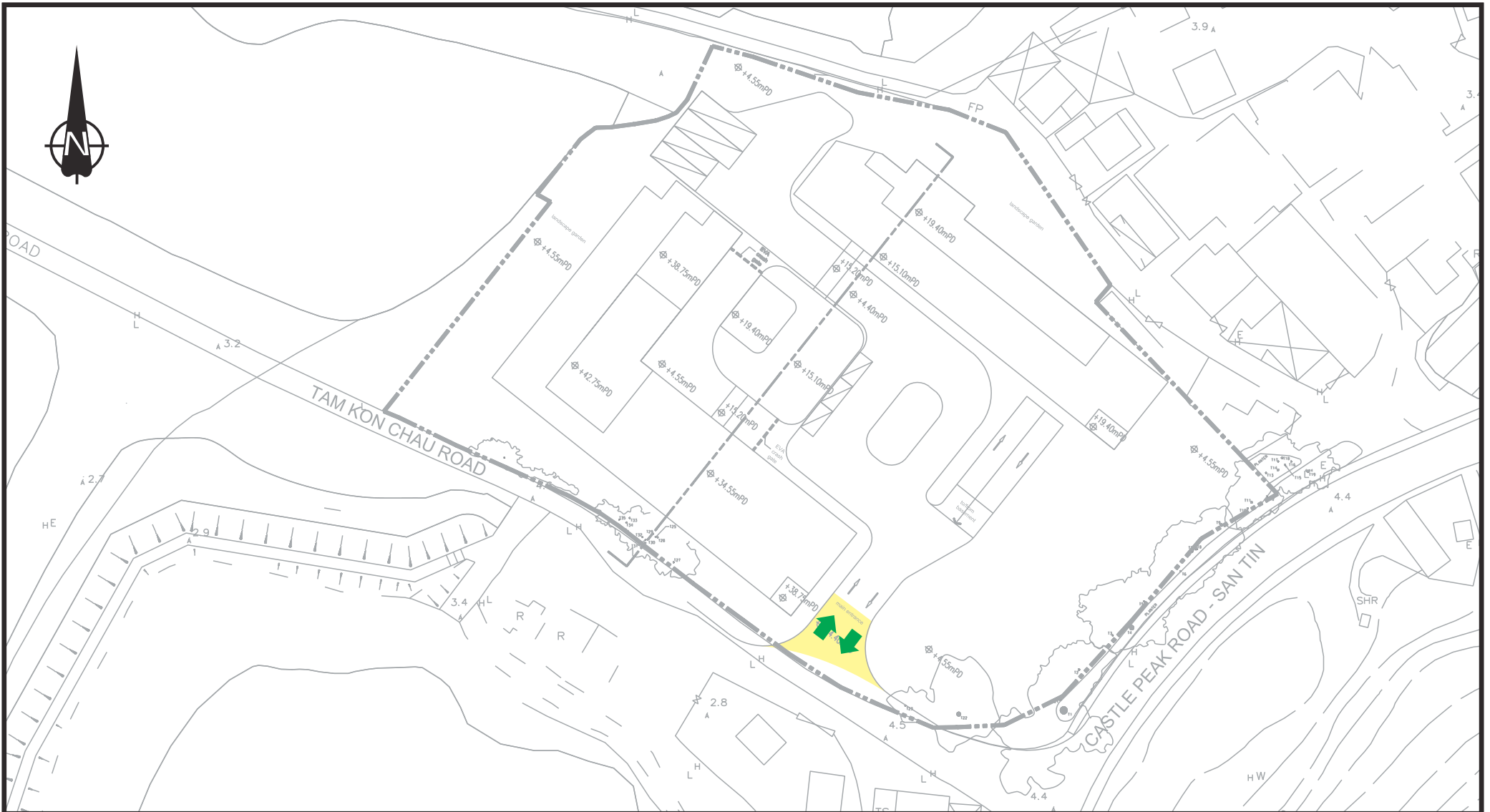
Vehicular Access

- 3.2.1 Under the proposed MLP, there is one vehicular access of subject site and is located TAM Kon Chau Road. A short section of widening of Tam Kon Chau Road is proposed, allowing full 2-way, 2-lane access to the site. The location of the vehicular access of Lot DD101 76 S.G. and 76 S.H. under the proposed MLP is indicated in **Drawing 3.1**.
- 3.2.2 All the traffic would enter / leave the site via Tam Kon Chau Road and Castle Peak Road – San Tin & Mai Po. The traffic going to/from Yuen Long would pass through Castle Peak Road – Mai Po / Tam Kon Chau Road. As for the traffic going to/from Kowloon, Hong Kong Island and New Territories West would pass through San Tin Highway / Shek Wu Wai Road / Castle Peak Road – San Tin. And the traffic going to /from New Territories East would pass through Castle Peak Road – San Tin / Kwu Tung Road. The traffic ingress and egress routings of the site are illustrated in **Drawing Nos. 3.2 to 3.3**.

Internal Driveway

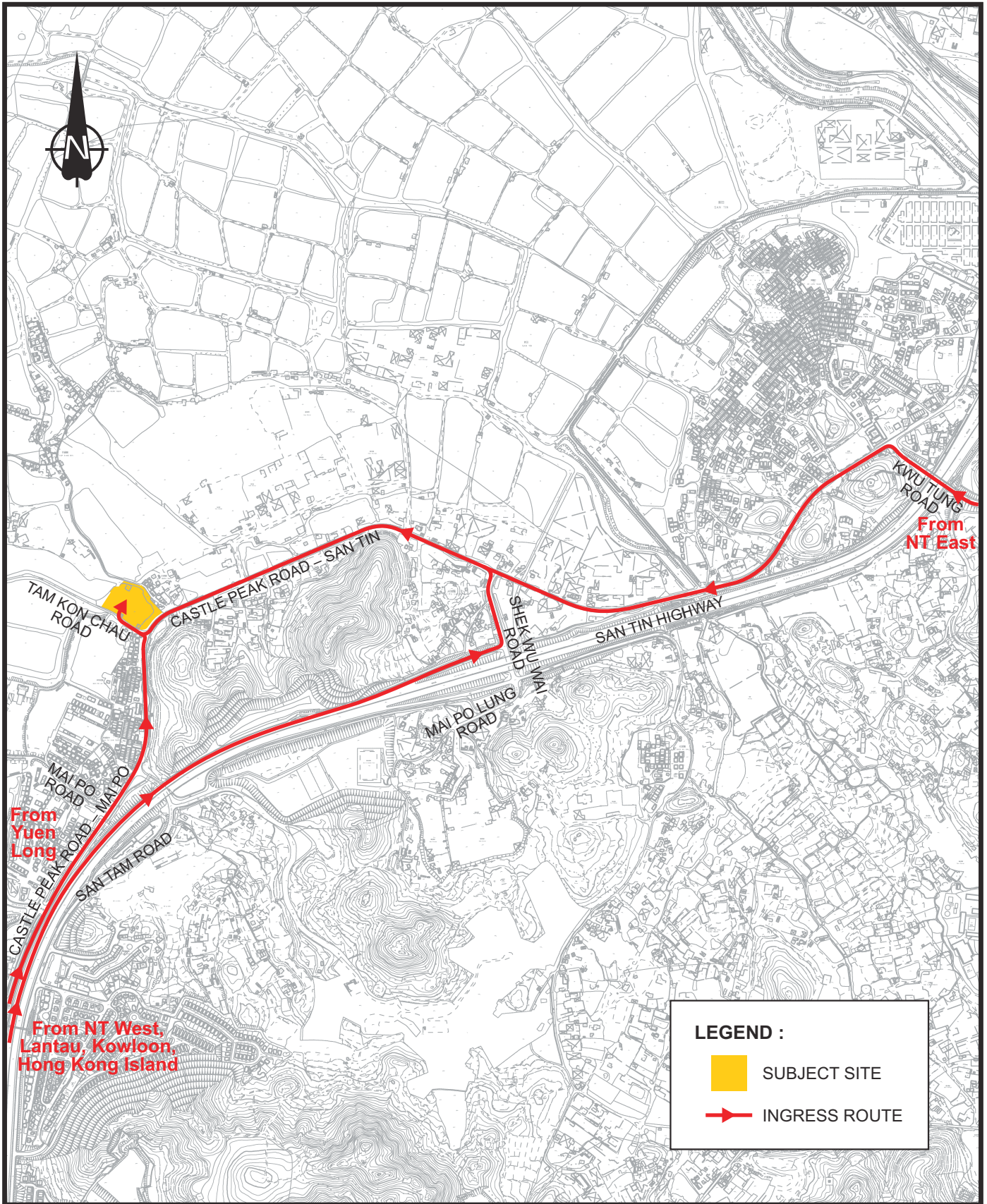
- 3.2.3 The vehicular accesses and the internal transport facilities are linked up by internal driveway. Car park is located at the basement levels, and the drop-off area and loading/unloading bays are located at ground level.

Swept Path Analysis



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Project Title				Drawing Title							
TRAFFIC CONSULTANCY SERVICES FOR PROPOSED ELDERLY HOME IN LOT DD101 76 S.G. & 76 S.H. IN MAI PO, NT				MASTER LAYOUT PLAN							
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LEGEND :

- SUBJECT SITE
- INGRESS ROUTE

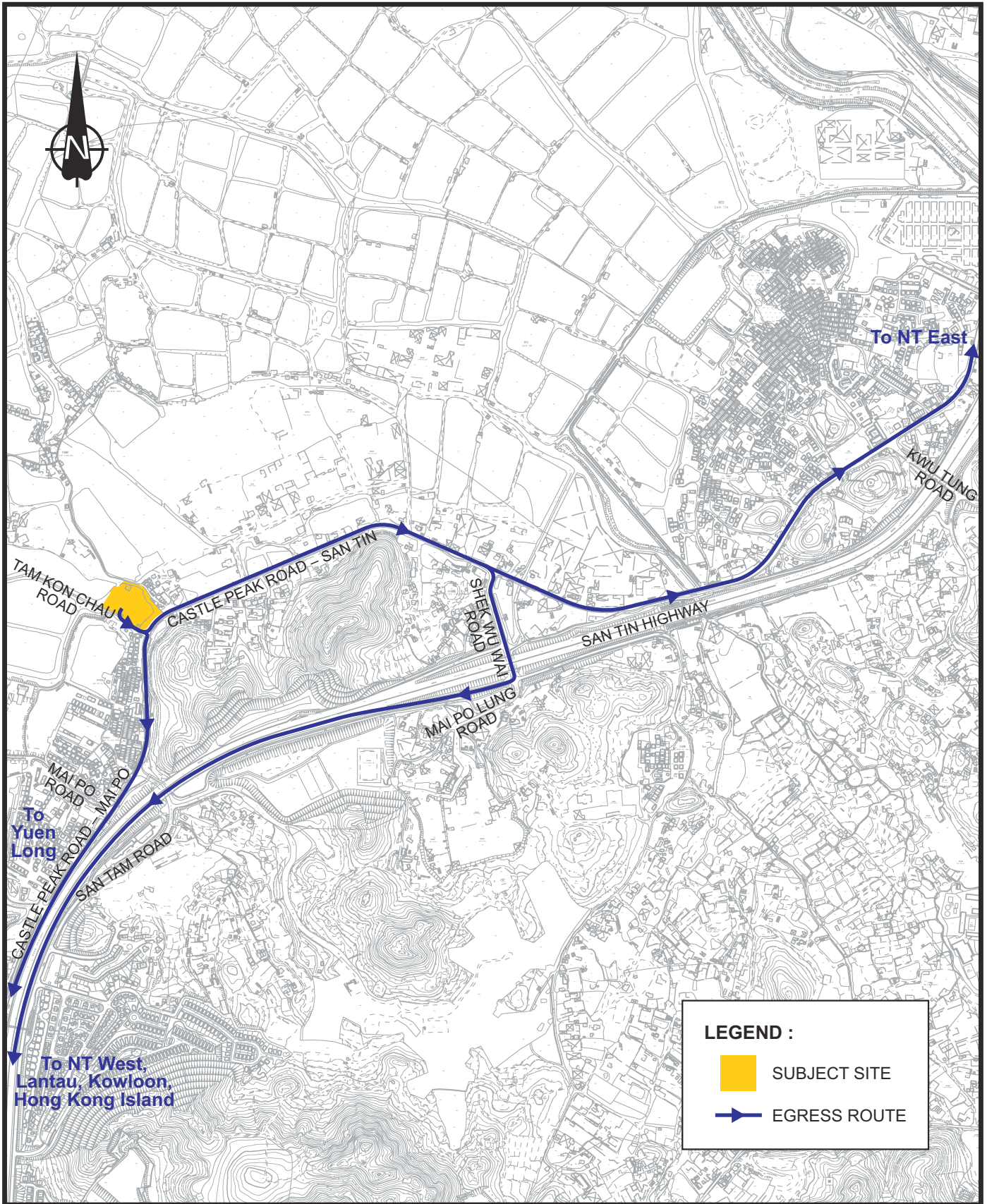
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Project Title
TRAFFIC CONSULTANCY SERVICES FOR PROPOSED ELDERLY HOME IN LOT DD101 76 S.G. & 76 S.H. IN MAI PO, NT

Drawing Title
DEVELOPMENT INGRESS ROUTE



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Drawing Title							
DEVELOPMENT EGRESS ROUTE							
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				Date	AUG 2024	Drawing No.	3.3
				Rev.	-		

3.2.4 The swept path analysis for all vehicles heading to all lay-bys and loading/unloading area, and swept path for vehicles ramping up and down to the basement carpark and within the basement carpark are all provided in **Appendix B**. The swept path analysis shows that all the vehicles can manoeuvre smoothly when entering, leaving and within the site.

3.3 Internal Transport Facility

3.3.1 Since there is no parking standard in the latest Hong Kong Planning Standard Guideline (HKPSG) for RCHE, case study research on similar RCHE has been conducted to obtain the appropriate provision rate for internal transport facilities. **Table 3.2** summarises the transport facilities provision on the relevant RCHE in Hong Kong.

Table 3.2 Provision of Internal Transport Facility on relevant RCHE

Project	Location	No. of Beds	No. of Parking	Parking rate No./bed
<i>Caritas Fung Wong Fung Ting Home, Ta Kwu Ling</i>	<i>Ta Kwu Ling</i>	120	6	0.050
<i>Fung Creek Nursing and Attention Home, Sheung Shui</i>	<i>Sheung Shui</i>	232	8	0.034
<i>Asia Women's League Limited Ho Leung Kit Ting Care and Attention Home for the Elderly</i>	<i>Kowloon Tong</i>	339	8	0.024
<i>Asia Women's League Limited Self-Financing Home for the Elderly</i>				
<i>Asia Women's League Limited Chan Kwun Tung Care and Attention Home for the Elderly</i>				
<i>Caritas Harold H. W. Lee Care and Attention Home</i>	<i>Shatin</i>	276	6	0.022
<i>Chuk Yuen Home for Aged</i>	<i>Yuen Long</i>	60	4	0.067
<i>Chuk Lam Ming Tong Care & Attention Home for the Aged</i>	<i>Pok Fu Lam</i>	175	3	0.017
<i>Jockey Club Rehabilitation Complex</i>	<i>Aberdeen</i>	1352	43	0.032
<i>Wong Cho Tong Care and Attention Home</i>	<i>Ho Man Tin</i>	278	8	0.029
<i>Tai Tung Pui Hostel</i>	<i>Tuen Mun</i>	121	8	0.066

3.3.2 Based on the aforementioned study, a conservative rate of 0.067 parking space/bed is proposed for considering parking provisions for the subject site, and 48 private car parking spaces need to be provided. In addition, there are 6 medical consulting rooms will be proposed within the site, according to HKPSG, 1.5 car parking spaces/consulting room is required, so 9 parking spaces need to be provided. Moreover, refer to the 'Revised Recommended Outline Development Plan of San Tin Technopole' published in 2023, AFCD Wetland Conservation Park Management Office will be built on the east side of the subject site in the future, which may attract traffic or tourists. Therefore, additional 19 parking spaces as public car parking will be provided as well.

3.3.3 The proposed provisions, including Loading/Unloading bays, Non-emergency Medical Transportation Lay-by and etc., are based on the operation needs. **Table 3.3** summaries the proposed provisions of internal transport facility of subject site.

Table 3.3 Proposed Internal Transport Facility

Component		Proposed Provision
No. of Car Parking Spaces	Private Car Parking (5.0m x 2.5m) for RCHE ⁽¹⁾	48 ⁽¹⁾
	Clinic ⁽²⁾	9 ⁽²⁾
	Public Parking	19
	Total	76
Parking for Disabilities ⁽³⁾ (5.0m x 3.5m)		2
Taxi/ Private Car Lay-by (5.0m x 2.5m)		3
Non-emergency Medical Transportation Lay-by (9.0m x 3.0m)		2
Loading/Unloading Bays (11.0m x 3.5m) & Refuse Collection Vehicles Bays (11.0m x 3.5m)		2

Remarks:

- (1) Since there is no requirement in HKPSG for parking provision for RCHE, 0.067 parking space/bed is proposed for considering parking provisions based on existing RCHE study
- (2) As per HKPSG, parking provision for clinics is 1 to 1.5 car parking spaces for each consulting room.
- (3) Included in the total number of car parking spaces

3.3.4 **Table 3.3** suggests that the Lot DD101 76 S.G. and 76 S.H. development would provide total 76 car parking spaces, in which 2 spaces would be reserved for disabilities. Besides, 2 loading/unloading bays, 3 Taxi/Private Car Lay-bys and 2 Non-emergency Medical Transportation Lay-bys as ancillary transport facilities.

4. TRAFFIC FORECASTS

4.1 Forecasting Assumptions and Methodology

Design Year

- 4.1.1 The proposed development is anticipated to be completed by year 2028. Following the guidelines and requirements of TIA as published by Transport Department, the design year of year 2031 (i.e. 3 years upon completion year) is adopted for traffic forecast purpose.
- 4.1.2 To evaluate the traffic impact to the surrounding road junctions due to the Development Proposal, the Reference Scenario (with Adjacent Planned Development but without the Development Proposal) and Design Scenario (with Adjacent Planned Development and Proposed Development) have been identified for year 2031.

Traffic Growth Rate

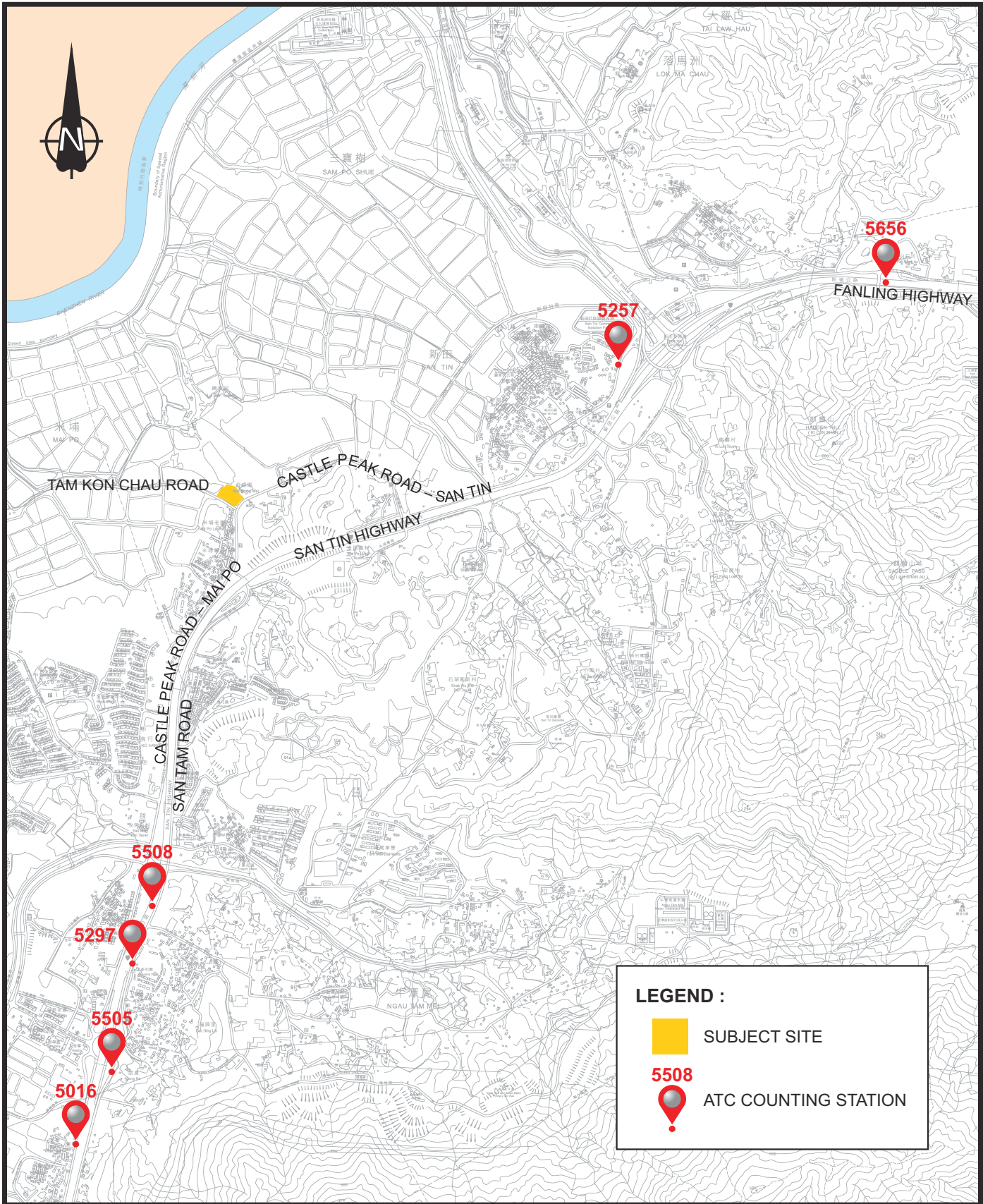
- 4.1.3 To estimate the year 2031 reference traffic flows in the local road network, an appropriate growth factor was identified for the area. The derivation of the growth rate is determined with reference to historical growth trends and planning data, which are summarised below.

Historical Growth Trends

- 4.1.4 According to the latest Annual Traffic Census (ATC) published by Transport Department, the Average Annual Daily Traffic (AADT) of the nearby count station between Year 2016 and Year 2022 have been taken into account to establish the historical growth trend, the findings are summarised in **Table 4.1** and location of count stations are indicated in **Drawing 4.1**.

Table 4.1 AADT of nearby ATC Traffic Counts between Years 2016 to 2022

Road	Station No.	Annual Average Daily Traffic (AADT)							Growth Rate (p.a.) 2022/ 2016
		2016	2017	2018	2019	2020	2021	2022	
San Tin Highway, Castle Peak Rd & San Tam Rd (Kam Tin Rd-Fairview Park Boulevard)	3080	92,230	90,650	86,230	90,860	81,870	86,620	82,820	-1.8%
San Tam Rd (Fairview Park Boulevard RA - End)	2750	12,590	12,390	12,700	13,330	13,420	13,960	13,540	+1.2%
San Tam Rd (Castle Peak Rd - Fairview Park Boulevard RA)	2230	6,400	6,300	8,540	7,530	7,220	7,510	7,280	+2.2%
San Tin Highway (Fairview Park Boulevard - Lok Ma Chau Rd)	2010	90,760	90,110	92,980	80,460	82,010	86,000	82,190	-1.6%



LEGEND :

- SUBJECT SITE
- 5508 ATC COUNTING STATION

-	-	-	-	-	-	-	-
Rev.	Description	Checked	Date	Rev.	Description	Checked	Date

Project Title
TRAFFIC CONSULTANCY SERVICES FOR PROPOSED ELDERLY HOME IN LOT DD101 76 S.G. & 76 S.H. IN MAI PO, NT

Drawing Title
LOCATION OF ATC COUNTING STATIONS IN THE VICINITY



Designed	CCT	Checked	JPP	Scale	NTS	Date	FEB 2024	Drawing No.	4.1	Rev.	-
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Road	Station No.	Annual Average Daily Traffic (AADT)							Growth Rate (p.a.) 2022/2016
		2016	2017	2018	2019	2020	2021	2022	
Castle Peak Rd - Tam Mi, Mai Po & San Tin (Fairview Park Boulevard - Lok Ma Chau Rd)	1930	10,940	10,770	11,980	11,910	11,420	11,880	11,520	+0.9%
Fanling Highway (Fan Kam Rd - Lok Ma Chau Rd)	3230	65,300	64,830	66,900	69,560	66,440	63,880	61,050	-1.1%
Sum up		278,220	275,050	279,330	73,650	262,380	269,850	258,400	-1.2%

4.1.5 As showed in **Table 4.1** above, the average annual growth rate of the AADT of the nearby count stations from Year 2016 to 2022 is -1.2% per annum. Due to the effect of the COVID-19 from 2020 to 2022, the historical traffic data did not effectively represent the actual traffic growth. In addition, the strategic development like San Tin Technopole will attract more district-wide traffic volumes to the vicinity. Therefore, the growth rate form ATC is not appropriate to be adopted in this traffic forecast due to the two reasons mentioned above.

Projected Population data (From The Census and Statistics Department (C&SD))

4.1.6 According to the Census and Statistics Department (C&SD), the Hong Kong resident population will increase to 7.8 million in 2031, and the average growth rate from years 2024 to 2031 is +0.548%. The Hong Kong Resident Population between Year 2024 and Year 2031 are summarised in **Table 4.2**.

Table 4.2 Hong Kong Resident Population between Year 2024 and Year 2031

Year	Hong Kong Resident Population
2024	7,526,800
2025	7,559,800
2026	7,596,800
2027	7,638,700
2028	7,684,500
2029	7,731,100
2030	7,777,100
2031	7,820,200
Annual Growth Rate (p.a.) – 2031/2024	+0.548%

4.1.7 The location of the subject site is in the underdeveloped area of Northwest New Territories, the overall population growth rate of Hong Kong may not reflect the actual situation of population growth in this area. Therefore, narrowing the research scope of growth rate to Yuen Long District will have more reference value.

Planning Data (From Working Group on Population Distribution Projections (WGPD))

- 4.1.8 Based on the Projected Population by Tertiary Planning Unit(TPU) from WGPD, the population of TPU where the proposed development located in has been projected with the average growth rate of 2.14% from 2024 to 2025. The detail of average annual growth rate from years 2024 to 2025 is illustrated in **Table 4.3**.

Table 4.3 Projected Population by Tertiary Planning Unit (TPU), 2024-2025

TPU	Population		Growth Rate (p.a.)
	2024	2025	2024-2025
542	13,900	14,100	1.44%
543&546	4,800	5,000	4.17%
Sum up	18,700	19,100	2.14%

- 4.1.9 Reference has also been made to the Projected Population by New Town/Other Area in the New Territories from WGPD, it was found that the growth rate of population in Tuen Mun/Yuen Long Other Area is 6.18% from 2025 to 2029. The detail of average annual growth rate from years 2025 to 2029 is illustrated in **Table 4.4**.

Table 4.4 Projected Population by New Town/Other Area in the New Territories, 2025-2029

New Town/Other Area in the New Territories	Population					Growth Rate (p.a.)
	2025	2026	2027	2028	2029	2025-2029
Tuen Mun/Yuen Long Other Area	212,900	220,500	230,800	254,500	270,600	6.18%

Planning Data (From Territorial Population and Employment Data Matrix (TPEDM))

- 4.1.10 According to the latest 2019 – based Territorial Population and Employment Data Matrix (TPEDM) planning data from 2019 to 2031 in study district, the average growth in terms of population and employment from 2019 to 2031 was tabulated in **Table 4.5**.

Table 4.5 2019 – based Territorial Population and Employment Data Matrix

District	Data	Year			Growth Rate (p.a.)	
		2019	2026	2031	2019-2031	2026-2031
Yuen Long	Population	175,150	172,350	159,850	-0.76%	-1.50%
	Employment	68,100	70,700	70,250	0.26%	-0.13%
	Sub-total	243,250	243,050	230,100	-0.47%	-1.09%
Fanling / Sheung Shui	Population	258,300	274,100	352,350	2.63%	5.16%
	Employment	64,100	66,650	79,400	1.80%	3.57%
	Sub-total	322,400	340,750	431,750	2.47%	4.85%
Northwest New Territories	Population	222,800	239,250	353,900	3.94%	8.15%
	Employment	58,400	76,850	140,150	7.57%	12.77%
	Sub-total	281,200	316,100	494,050	4.81%	9.35%
	Population	105,400	143,050	240,600	7.13%	10.96%

Northeast New Territories	Employment	36,050	38,300	65,550	5.11%	11.35%
	Sub-total	141,450	181,350	306,150	6.65%	11.05%
Sum up	Population	761,650	828,750	1,106,700	3.17%	5.96%
	Employment	226,650	252,500	355,350	3.82%	7.08%
	Total	988,300	1,081,250	1,462,050	3.32%	6.23%

4.1.11 According to the data presented in **Table 4.5**, the North New Territories, Fanling/Sheung Shui, and Yuen Long are expected to experience a substantial population and employment growth due to significant planned development in the future. The projected annual growth rate from 2019 to 2031 is estimated at 3.32%. Notably, the Northwest New Territories where the project is located exhibits an even higher growth rate, especially between 2026 and 2031, with an annual growth rate of as high as 9.35%.

4.1.12 Considering the substantial planned development and population/employment growth in the northern New Territories, the growth rates adopted in this traffic forecast will be allocated based on strategic roads and rural roads. Moreover, the growth rate has been closely aligns with the study area, taking into account project and road locations. The detailed growth data adopted can be found in **Table 4.6**.

Table 4.6 Adopted Growth Rate by Road Type

Road Type	Year	Growth Rate (p.a.)
Rural road	2024-2025	2.14% ⁽¹⁾
	2025-2029	6.18% ⁽²⁾
	2029-2031	9.35% ⁽³⁾
Expressway	2024-2031	3.32% ⁽³⁾

Remarks:

- (1) Reference to Projected Population by Tertiary Planning Unit(TPU), 2024-2025
- (2) Reference to Projected Population by New Town/Other Area in the New Territories, 2025-2029
- (3) Reference to 2019 – based Territorial Population and Employment Data Matrix

Nearby Planned Developments

4.1.13 The planned and committed developments in subjected study area, as listed in **Table 4.7** Error! Reference source not found., which would have traffic contribution to the road network in the vicinity, have been considered in the traffic forecast for the year 2031. The peak hour traffic trips of each developments are also summarised in **Table 4.7**.

Table 4.7 Estimated Trip Generations of Adjacent Planned Developments

Ref.	Development	Type	Peak Hour Traffic Trip (pcu/hr)			
			AM Peak		PM Peak	
			Gen	Att	Gen	Att
1.	A/ YL-MP/ 291	- 789 houses ⁽¹⁾	149	75	69	96
2.	Y/YL-NTM/5	- 1,980 residential units ⁽²⁾	143	85	57	74
3.	Y/YL-NTM/6	- 1,990 residential units ⁽²⁾	143	85	57	74
4.	A/ YL-NTM/178	- Domestic GFA about 46,365 sqm for 322 houses ⁽²⁾	87	59	56	65

Remarks:

- (1) As extracted from newspaper articles / online information.

(2) As extracted from the latest approved planning application.

4.2 Forecasting Scenarios

4.2.1 The derived peak hour traffic trips of the subject site would be assigned onto the local road network in accordance with the observed traffic circulation pattern. The distributions of the peak hour development traffic trips are shown in **Drawing 4.2**.

The existing car park Traffic Trips

4.2.2 The current status of the project is an open-air parking lot, and the traffic flow of the parking lot during peak hours was obtained through manual surveys, as summarised in **Table 4.8**.

Table 4.8 The Survey Trip Generation and Attraction for Existing Car Park

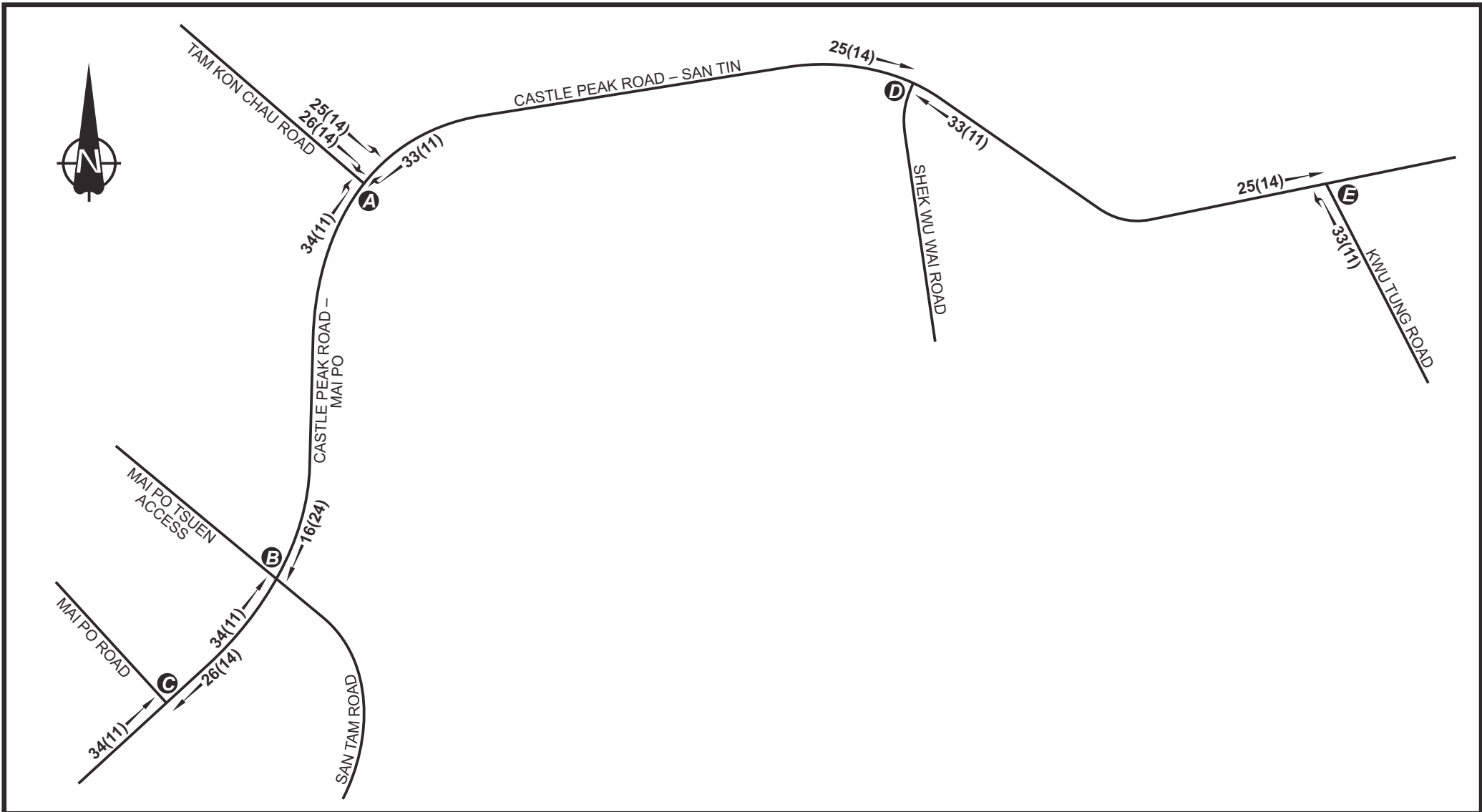
Ref.	Use	Peak Hour Traffic Trip (pcu/hr)			
		AM Peak		PM Peak	
		Gen	Att	Gen	Att
1.	Car Park	11	14	11	12

The proposed development Traffic Trips

4.2.3 According to the latest T.P.D.M., due to the absence of trip rate specific for RCHE, case studies were conducted on traffic generation and attraction for similar RCHE through manual surveys. Detailed data can be found in **Table 4.9**. The tabulated data reveals that Caritas Harold H.W. Lee Care and Attention Home in Sha Tin exhibits a higher trip rate per bed. Therefore, adopting a conservative analytical approach, the trip rate of Caritas Harold H.W. Lee Care and Attention Home with an additional factor of 1.5 was adopted as the foundation for this traffic forecasting of the proposed development. The traffic trip of proposed development would be estimated in **Table 4.9**.

Table 4.9 Estimated Traffic Trips for Proposed Development

Ref	Development	Item	AM			PM		
			Att	Gen	2-WAY	Att	Gen	2-WAY
1	Fung Creek Nursing and Attention Home, Sheung Shui	Trips (pcu/hr)	9	4.5	13.5	2	3	5
		No. of beds	232					
		Trip rates (pcu/hr/bed)	0.0388	0.0194	0.0582	0.0086	0.0129	0.0216
2	Caritas Harold H.W. Lee Care and Attention Home, Sha Tin	Trips (pcu/hr)	13	10	23	2	3	5
		No. of beds	276					
		Trip rates (pcu/hr/bed)	0.0471	0.0362	0.0833	0.0072	0.0109	0.0181
3	Lot DD101 76 S.G. & 76 S.H.	Trips ⁽²⁾ (pcu/hr)	51	39	90	10	14	24
		No. of beds	716					
		Trip rates ⁽¹⁾ (pcu/hr/bed)	0.0471	0.0362	0.0833	0.0086	0.0129	0.0216



Rev.	Description	Checked	Date	Rev.	Description	Checked	Date	Rev.	Description	Checked	Date
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Project Title				Drawing Title							
<p>TRAFFIC CONSULTANCY SERVICES FOR PROPOSED ELDERLY HOME IN LOT DD101 76 S.G. & 76 S.H. IN MAI PO, NT</p>				<p>DEVELOPMENT TRAFFIC FLOWS</p>							
Designed	CCT	Checked	JPP	Scale	NTS	Date	AUG 2024	Drawing No.	4.2	Rev.	-

4	Clinic	Trips (pcu/hr)	8	4	12	4	6	10
		No. of consulting room	6					
		Trip rates ⁽³⁾ (pcu/hr/room)	1.33	0.67	2.00	0.67	1.00	1.67
5	Public Car Park	Trips (pcu/hr)	8	8	16	8	8	16
		No. of parking space	19					
		Trip rates ⁽⁴⁾ (pcu/hr/car)	0.42	0.42	0.84	0.42	0.42	0.84

Remarks:

- (1) With reference to trip rate of Caritas Harold H.W. Lee Care and Attention Home in Sha Tin, the higher reference trip rate will be adopted.
- (2) On a conservative estimate, 1.5 factor will be adopted.
- (3) Adopted trip rate refers to similar development projects.
- (4) Adopted trip rate is from similar public car park survey.

4.2.4 The proposed RCHE in subject site would generate a two-way total of 90 pcu/hr and 24 pcu/hr in the AM and PM peak respectively in year 2031. The current (2024) and future (2031) traffic trip of this site are summarised in **Table 4.10**.

Table 4.10 Trip Generations of Current Land-use and Proposed Future Land-use

	Peak Hour Traffic Trip (pcu/hr)			
	AM Peak		PM Peak	
	Generation	Attraction	Generation	Attraction
Observed 2024	11	14	11	12
Forecasts 2031	39	51	14	10
Net Difference (Forecasts - Observed)	+28	+37	+3	-2

4.2.5 The result in **Table 4.10** reveals the net difference of traffic flows between current use of open-air parking and the future RCHE. The additional impact of the development onto the road network would actually be smaller.

4.2.6 The annual traffic growth rate and the adjacent planned developments as discussed in **Section 4.1** would be considered to produce the year 2031 reference traffic flows during the typical weekday morning and evening peak hours of the local road network.

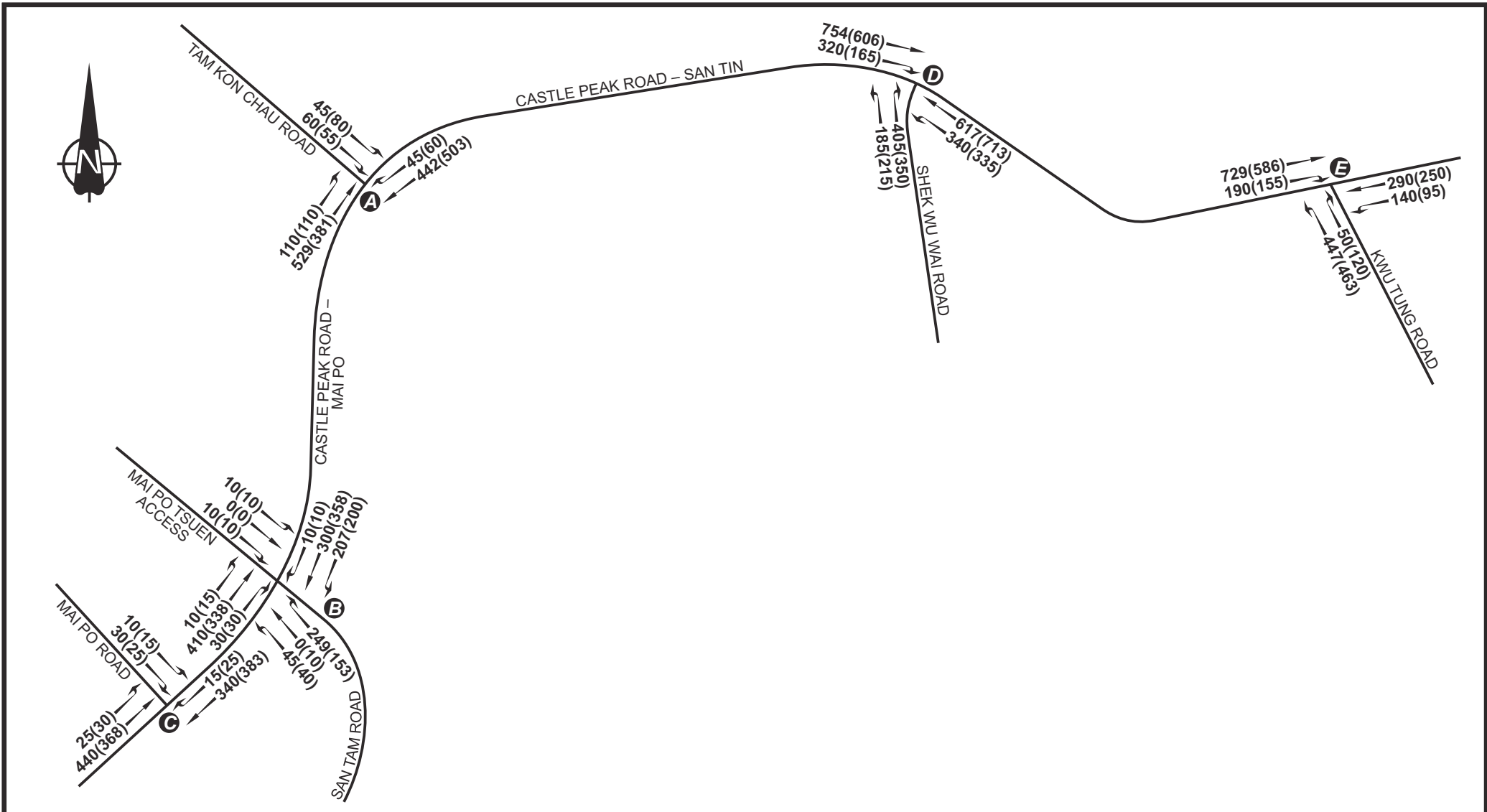
4.2.7 The traffic trips of the proposed RCHE in subjected site would be superimposed onto the reference traffic flows to produce the anticipated year 2031 peak hour traffic flows for design scenarios.

4.2.8 The general formulae of the forecasting scenarios of year 2031 are as follows:

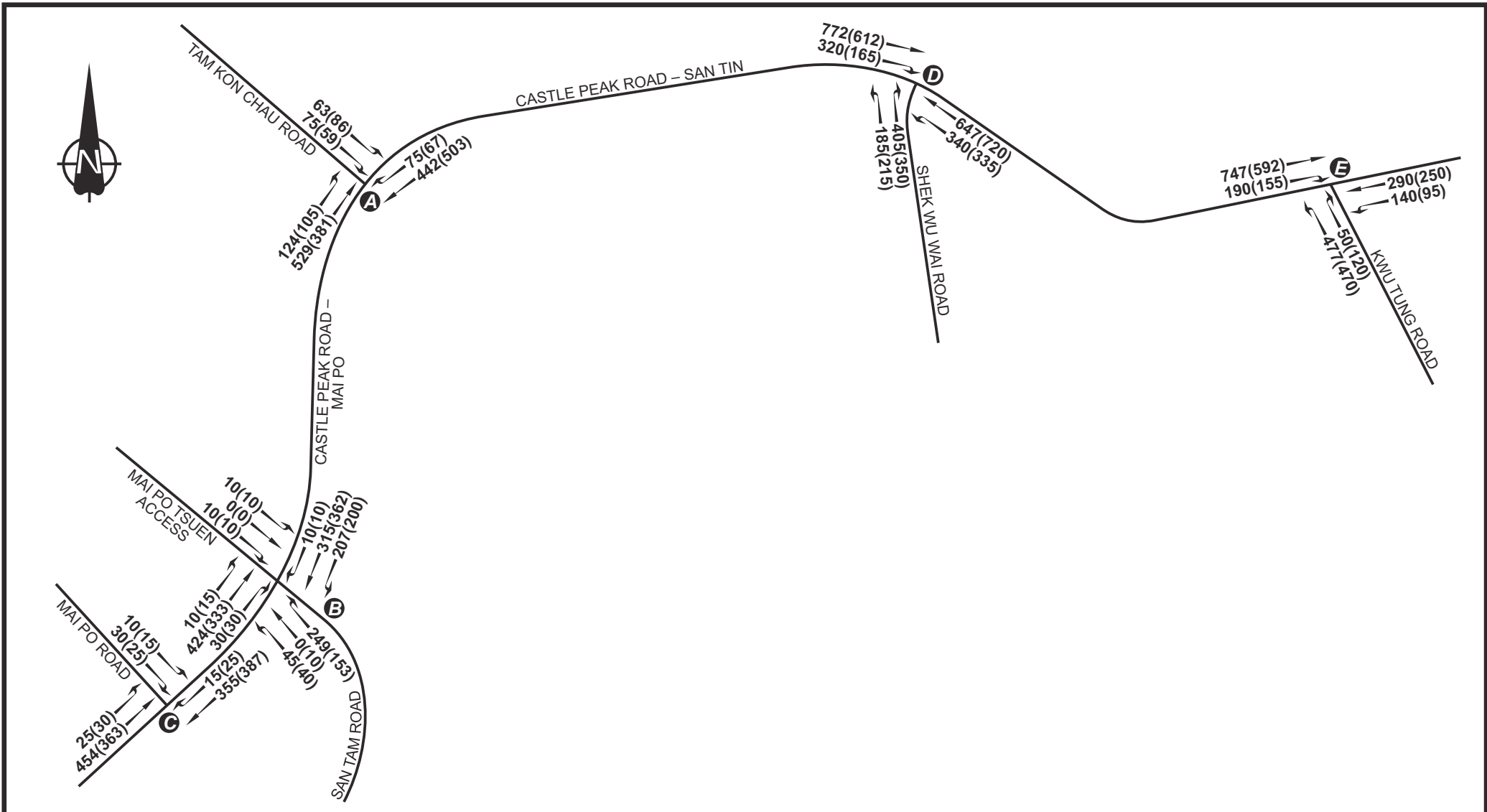
Reference Traffic Flows = 2024 Observed Traffic Flow x Adopted Growth Rate + Traffic Flow of Adjacent Planned Developments

Design Traffic Flows = Year 2031 Reference Traffic Flows + Traffic Trips for Proposed Development

4.2.9 The reference traffic flows and design traffic flows in year 2031 as shown in **Drawings 4.3** and **Drawing 4.4** respectively.



Rev.	Description	Checked	Date	Rev.	Description	Checked	Date	Rev.	Description	Checked	Date
-	-	-	-	-	-	-	-	-	-	-	-
Project Title				Drawing Title							
TRAFFIC CONSULTANCY SERVICES FOR PROPOSED ELDERLY HOME IN LOT DD101 76 S.G. & 76 S.H. IN MAI PO, NT				YEAR 2031 REFERENCE TRAFFIC FLOWS							
Designed	CCT	Checked	JPP	Scale	NTS	Date	AUG 2024				



Rev.	Description	Checked	Date	Rev.	Description	Checked	Date	Rev.	Description	Checked	Date
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Project Title				Drawing Title							
TRAFFIC CONSULTANCY SERVICES FOR PROPOSED ELDERLY HOME IN LOT DD101 76 S.G. & 76 S.H. IN MAI PO, NT				YEAR 2031 DESIGN TRAFFIC FLOWS							
Designed	CCT	Checked	JPP	Scale	NTS	Date	AUG 2024				

5. TRAFFIC IMPACT ASSESSMENT

5.1 Junction Operational Performance

- 5.1.1 The identified five key local junctions would be assessed in accordance with the anticipated year 2031 traffic flows for both reference and design scenarios in order to investigate the traffic impact of the proposed RCHE development with respect to the background situation.
- 5.1.2 The junction assessments are based on the existing layouts and arrangements of the respective junctions. The assessment results of year 2031 traffic flows for both reference and design scenarios are summarised in **Table 5.1**. The junction calculation sheets are attached in **Appendix A**.

Table 5.1 Junction Operational Performance in Year 2031

Ref. (1)	Junction	RC/RFC (2)			
		Reference		Design	
		AM Peak	PM Peak	AM Peak	PM Peak
A	Castle Peak Road / TAM Kon Chau Road	0.31	0.34	0.41	0.36
B	Castle Peak Road / San Tam Road	0.75	0.51	0.76	0.51
C	Castle Peak Road / Mai Po Road	0.19	0.22	0.20	0.22
D	Castle Peak Road / Shek Wu Wai Road	>1.5	>1.5	>1.5	>1.5
E	Castle Peak Road / Kwu Tung Road	0.72	0.72	0.77	0.74

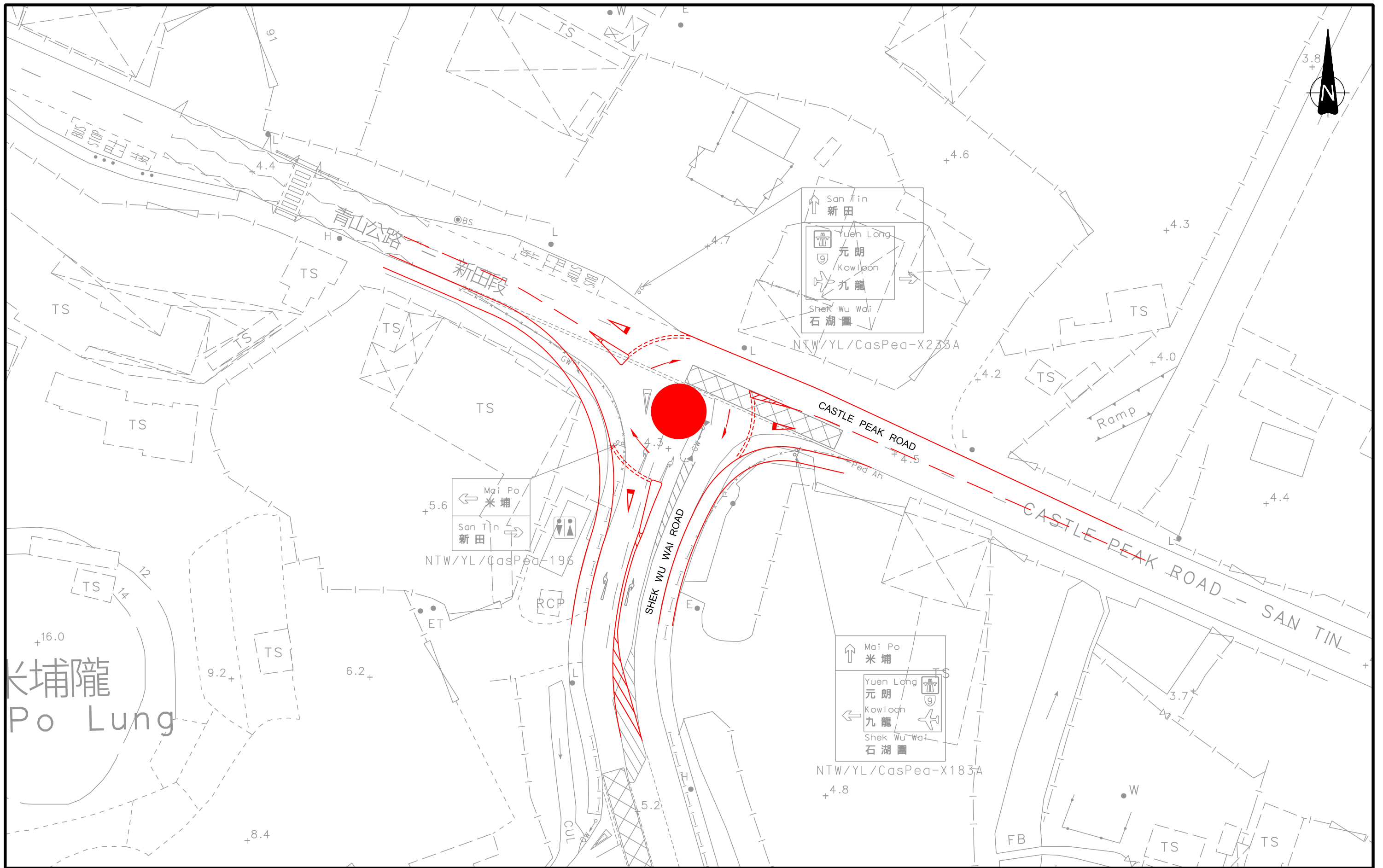
Remarks:

- (1) Refer to **Drawing 2.2**;
- (2) The operational performance of a signal junction is represented in Reserve Capacity (RC), which is defined as overloaded while the RC is less than 0%, The operational performance of a priority/roundabout is represented in Ratio to Flow Capacity (RFC), which is defined as overloaded if RFC over 1.00.

- 5.1.3 The findings presented in **Table 5.1** demonstrate that, except for the priority junction J/O Castle Peak Road / Shek Wu Wai Road (D), other key junctions will operate with sufficient traffic capacity in reference and design scenario in year 2031. Junction D is envisaged to operate above capacity due to the significant population and employment growth in the Northwest New Territories.
- 5.1.4 The priority junction J/O Castle Peak Road / Shek Wu Wai Road (D), located within the San Tin Technopole area, is expected to be improved through the planning of San Tin Technopole. However, due to the absence of detailed planning scheme for the Junction D currently, this traffic assessment report will initially focus on a small-scale optimization.

5.2 Improvement Measures

- 5.2.1 For the priority junction J/O Castle Peak Road / Shek Wu Wai Road (D), based on the existing junction layout and configuration, improvement scheme of roundabout is suggested. The preliminary proposal is in **Drawing 5.1**.
- 5.2.2 With the proposed improvement measure, the operational performance at critical junction for reference and design scenario in year 2031 would be improved and the results are presented in **Table 5.2**. The table indicates that J/O Castle Peak Road / Shek Wu Wai Road (D) will operate with adequate capacity.



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Rev.	Description	Checked	Date

Project Title
**TRAFFIC CONSULTANCY SERVICES FOR
 PROPOSED ELDERLY HOME IN
 LOT DD101 76 S.G. & 76 S.H. IN
 MAI PO, NT**

Drawing Title SUGGESTED JUNCTION LAYOUT OF CASTLE PEAK ROAD / SHEK WU WAI ROAD (D)			
Designed CCT	Checked JPP	Scale 1:500(A3)	Date MAR 2024
Drawing No. 5.1		Rev. -	



Table 5.2 Junction Operational Performance in Year 2031 – With Improvement Measures

Ref.	Junction	RC/RFC ⁽²⁾			
		Reference		Design	
		AM Peak	PM Peak	AM Peak	PM Peak
D ⁽¹⁾	Castle Peak Road / Shek Wu Wai Road	0.81	0.82	0.83	0.83

Remarks:

- (1) Junction Layout please refer to **Drawing 5.1**;
- (2) The operational performance of a signal junction is represented in Reserve Capacity (RC), which is defined as overloaded while the RC is less than 0%, The operational performance of a priority/roundabout is represented in Ratio to Flow Capacity (RFC), which is defined as overloaded if RFC over 1.00.

5.3 Link Assessment

5.3.1 Tam Kon Chau Road is a single track access road, with a road width of 3.2m. Tam Kon Chau Road also is a prohibited zone 24 hours daily for all motor vehicles exceeding 10 metres in length.

5.3.2 Therefore, apart from junction capacity assessment, road link assessment for Tam Kon Chau Road is also carried out. Performance of the Tam Kon Chau Road is assessed in terms of traffic volume / capacity (V/C) ratio and the results are presented in **Table 5.3**.

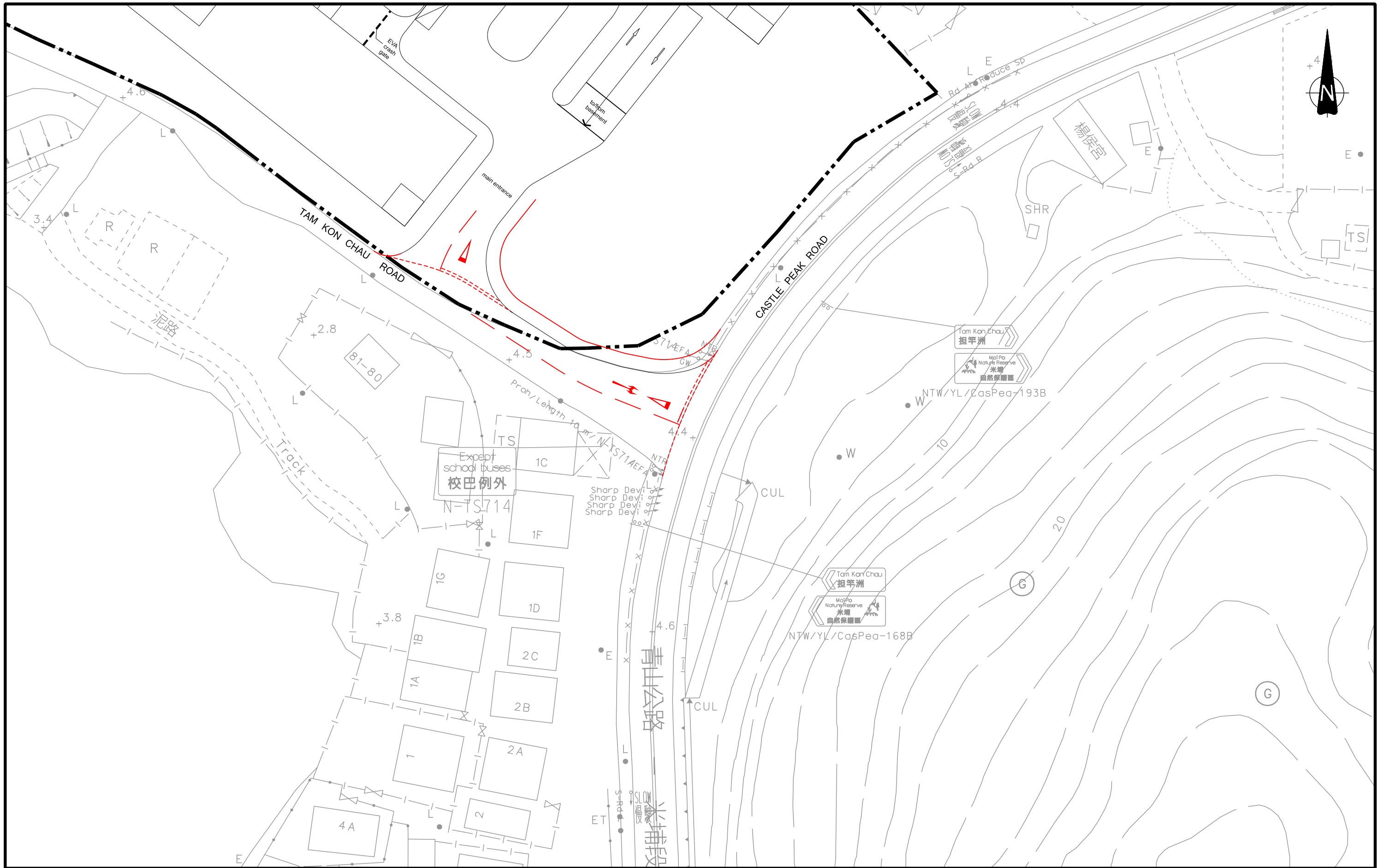
Table 5.3 Tam Kon Chau Road Assessment in Year 2024 and Year 2031 Reference Case

Road	Direction	Capacity (pcu/hr)	2024 Observed Flow		2031 Reference Case	
			V/C Ratio		V/C Ratio	
			AM	PM	AM	PM
Tam Kon Chau Road	North Bound	150	0.67	0.73	1.03	1.13
	South Bound	150	0.47	0.57	0.70	0.90

5.3.3 The table above indicates that Tam Kon Chau Road is operating with ample capacity at present, but will be over its capacity in the year 2031 reference case. Therefore, it is suggested that Tam Kon Chau Road needs to be widened, the details of proposed road widening scheme as shown in **Drawing 5.2**. With the proposed improvement, Tam Kon Chau Road will operate with adequate capacity. **Table 5.4** shows the link performance in year 2031 design case.

Table 5.4 Tam Kon Chau Road Assessment in Year 2031 Design Case

Road	Direction	Capacity (pcu/hr)	2031 Design Case	
			V/C Ratio	
			AM	PM
Tam Kon Chau Road	North Bound	500	0.39	0.34
	South Bound	500	0.28	0.29



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Rev.	Description	Checked	Date

Project Title
**TRAFFIC CONSULTANCY SERVICES FOR
 PROPOSED ELDERLY HOME IN
 LOT DD101 76 S.G. & 76 S.H. IN
 MAI PO. NT**

Drawing Title
**SUGGESTED ROAD WIDENING SCHEME BETWEEN
 THE SITE ACCESS AND THE JUNCTION OF
 CASTLE PEAK ROAD / TAM KON CHAU ROAD (A)**

Designed CCT Checked JPP Scale 1:500(A3) Date AUG 2024 Drawing No. **5.2** Rev. -



6. CONCLUSION

6.1 Summary

- 6.1.1 The application site is currently zoned as a “Village Type Development (V)” under the latest approved Mai Po & Fairview Park Outline Zoning Plan (OZP) no. S/YL-MP/6. The application site is intended to be re-developed into a Residential Care Home for the Elderly (RCHE).
- 6.1.2 The subject site is currently a temporary parking lot, and will be redeveloped into a Residential Care Home for the Elderly with 3 blocks, 716 beds, and a total of 10 floors.
- 6.1.3 Since there is no parking standard in the latest Hong Kong Planning Standard Guideline (HKPSG) for RCHE, case study research on similar RCHE has been conducted to obtain the appropriate provision rate for internal transport facilities.
- 6.1.4 In order to review the traffic impact of the new developments on the vicinity, traffic surveys have been conducted to establish the current peak hour traffic condition in the vicinity.
- 6.1.5 The proposed development would be completed in year 2028. The design year of 2031, three years after full occupation, is therefore adopted in this study for forecasting and assessment purposes. This study have considered the future local developments and the latest Government planning assumptions.
- 6.1.6 Operational performances at the key junctions have been assessed in accordance with the anticipated year 2031 traffic flow and it is found that the Junction D will be overloaded.
- 6.1.7 For the J/O Castle Peak Road / Shek Wu Wai Road (D), the proposed roundabout scheme is suggested.
- 6.1.8 Due to Tam Kon Chau Road is a prohibited zone, link assessment for Tam Kon Chau Road has been conducted, and the result shows that Tam Kon Chau Road is operating with ample capacity at present but will over its capacity in the year 2031 reference case. Therefore, road widening scheme for Tam Kon Chau Road is proposed.

6.2 Conclusion

- 6.2.1 In view of the above, the proposed development under this Section 16 application is considered acceptable in traffic term.

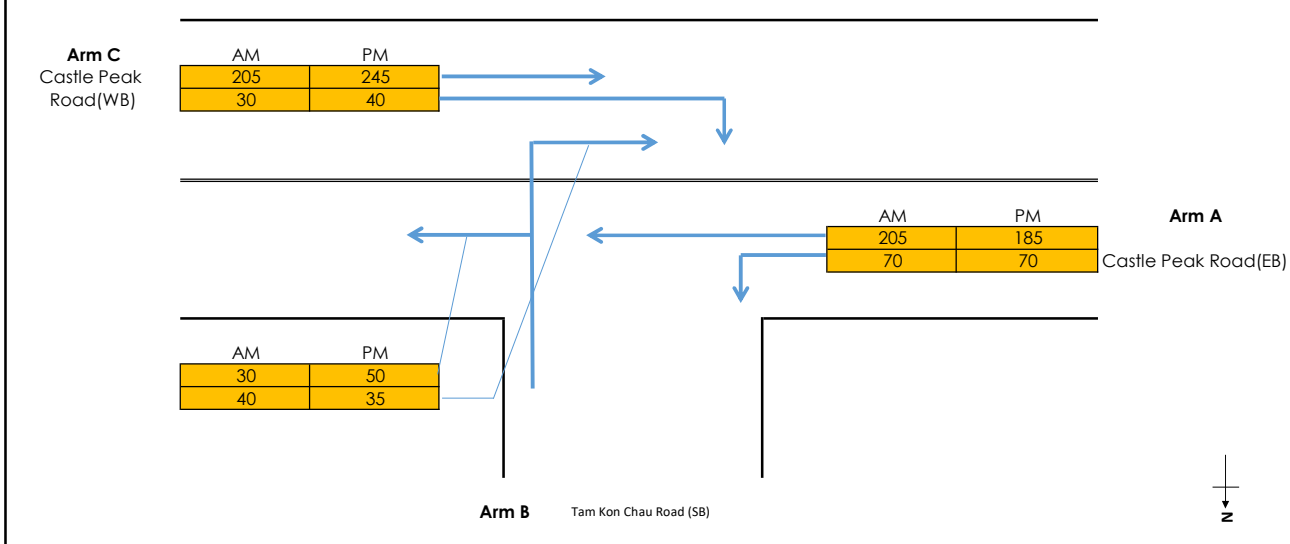
Appendix A

Signal Calculation Sheets

Simplified Priority Junction Capacity Calculation



Job Title: Elderly Home in Lot DD101 76 S.G. & 76 S.H. in Mai Po	Designed by: GTL
Junction: Castle Peak Road - TAM Kon Chau Road (A)	Checked by: JPP
Scheme: Observed Flow	Date: Sep-24
Design Year: 2031	Job No.: CHK50769410
Arm A: Castle Peak Road(EB)	
Arm B: Tam Kon Chau Road (SB)	
Arm C: Castle Peak Road(WB)	



GEOMETRY

Major Road Width (m)	W	6.25	Lane widths (m)	w(b-a)	2.65
Central Reserve Width (m)	Wcr	0.00		w(b-c)	2.65
Blockage of major road right turn	Y/N?	Y		w(c-b)	3.25
Combined stream on minor arm	Y/N?	Y			

Visibility Distances (m)	Vr(b-a)	25	Calculated Parameters	D	0.7649
	VI(b-a)	22		E	0.8285
	Vr(b-c)	25		F	0.8948
	Vr(c-b)	42		Y	0.7844

ANALYSIS

		AM PEAK	PM PEAK
TRAFFIC FLOWS (pcu/hr)	q(c-a)	205	245
	q(c-b)	30	40
	q(a-b)	70	70
	q(a-c)	205	185
	q(b-a)	40	35
	q(b-c)	30	50
	f	0.43	0.59
CAPACITIES (pcu/hr)	Q(b-ac)	449.883	475.84
	Q(c-a)	1709.46	1680.3
	Q(c-b)	596.396	601.51
RFC's	c-a	0.12	0.15
	c-b	0.05	0.07
	b-ac	0.16	0.18
RFC		0.16	0.18

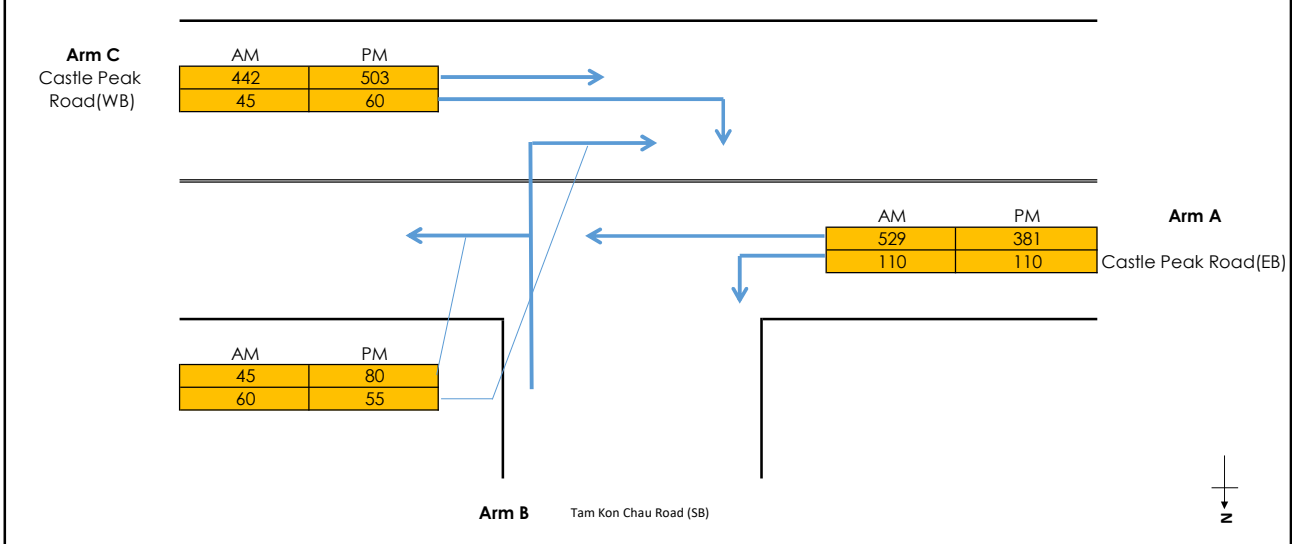
Where VI and Vr are visibility distances to the left or right of the respective streams
 $D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(VI(b-a)-150))$
 $E = (1+0.094f(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))$
 $F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))$
 $Y = 1-0.0345W$
 f = proportion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

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

Simplified Priority Junction Capacity Calculation



Job Title: Elderly Home in Lot DD101 76 S.G. & 76 S.H. in Mai Po	Designed by: GTL
Junction: Castle Peak Road - TAM Kon Chau Road (A)	Checked by: JPP
Scheme: Reference Flow	Date: Sep-24
Design Year: 2031	Job No.: CHK50769410
Arm A: Castle Peak Road (EB)	
Arm B: Tam Kon Chau Road (SB)	
Arm C: Castle Peak Road (WB)	



GEOMETRY

Major Road Width (m)	W	6.25	Lane widths (m)	w(b-a)	2.65
Central Reserve Width (m)	Wcr	0.00		w(b-c)	2.65
Blockage of major road right turn	Y/N?	Y		w(c-b)	3.25
Combined stream on minor arm	Y/N?	Y			

Visibility Distances (m)	Vr(b-a)	25	Calculated Parameters	D	0.7649
	VI(b-a)	22		E	0.8285
	Vr(b-c)	25		F	0.8948
	Vr(c-b)	42		Y	0.7844

ANALYSIS

		AM PEAK	PM PEAK
TRAFFIC FLOWS (pcu/hr)	q(c-a)	442	503
	q(c-b)	45	60
	q(a-b)	110	110
	q(a-c)	529	381
	q(b-a)	60	55
	q(b-c)	45	80
	f	0.43	0.59
CAPACITIES (pcu/hr)	Q(b-ac)	341.09	398.58
	Q(c-a)	1639.09	1600.4
	Q(c-b)	503.399	541.21
RFC's	c-a	0.27	0.31
	c-b	0.09	0.11
	b-ac	0.31	0.34
RFC		0.31	0.34

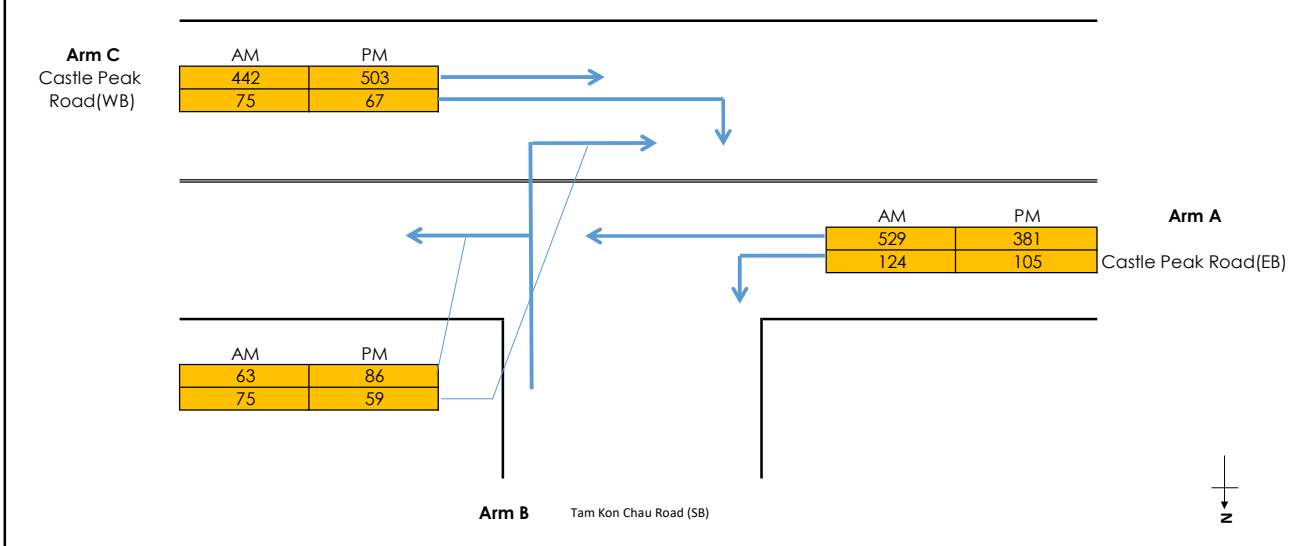
Where VI and Vr are visibility distances to the left or right of the respective streams
 $D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(VI(b-a)-150))$
 $E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))$
 $F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))$
 $Y = 1-0.0345W$
 f = proportion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

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

Simplified Priority Junction Capacity Calculation



Job Title: Elderly Home in Lot DD101 76 S.G. & 76 S.H. in Mai Po	Designed by: GTL
Junction: Castle Peak Road - TAM Kon Chau Road (A)	Checked by: JPP
Scheme: Design Flow	Date: Sep-24
Design Year: 2031	Job No.: CHK50769410
Arm A: Castle Peak Road (EB)	
Arm B: Tam Kon Chau Road (SB)	
Arm C: Castle Peak Road (WB)	



GEOMETRY

Major Road Width (m)	W	6.25	Lane widths (m)	w(b-a)	2.65
Central Reserve Width (m)	Wcr	0.00		w(b-c)	2.65
Blockage of major road right turn	Y/N?	Y		w(c-b)	3.25
Combined stream on minor arm	Y/N?	Y			
Visibility Distances (m)	Vr(b-a)	25	Calculated Parameters	D	0.7649
	VI(b-a)	22		E	0.8285
	Vr(b-c)	25		F	0.8948
	Vr(c-b)	42		Y	0.7844

ANALYSIS

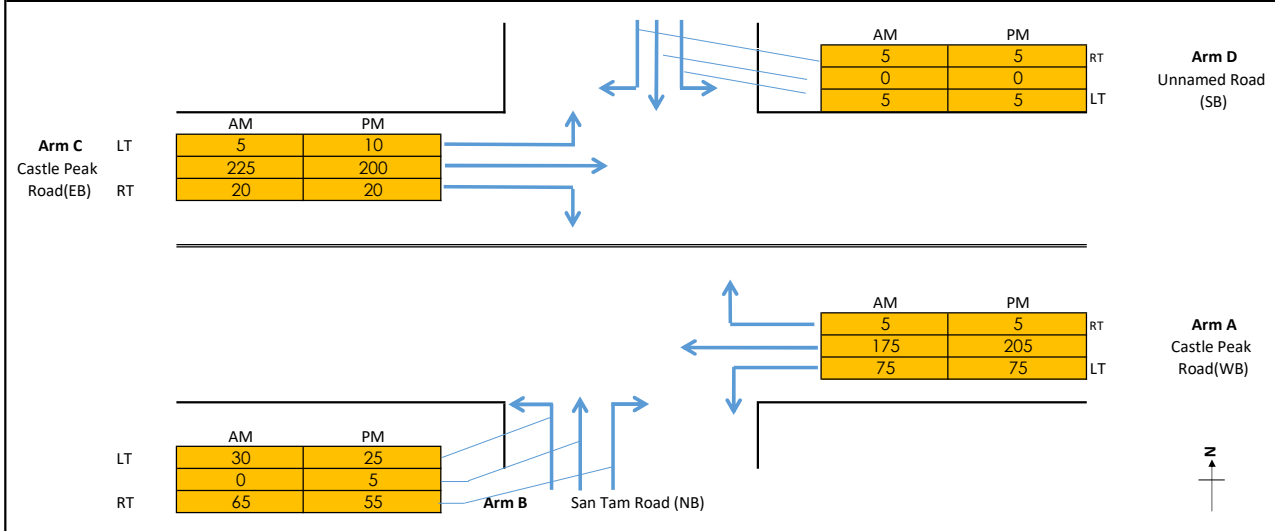
		AM PEAK	PM PEAK
TRAFFIC FLOWS (pcu/hr)	q(c-a)	442	503
	q(c-b)	75	67
	q(a-b)	124	105
	q(a-c)	529	381
	q(b-a)	75	59
	q(b-c)	63	86
	f	0.46	0.59
	CAPACITIES (pcu/hr)	Q(b-ac)	336.845
Q(c-a)		1529.9	1577.7
Q(c-b)		499.822	542.49
RFC's	c-a	0.29	0.32
	c-b	0.15	0.12
	b-ac	0.41	0.36
RFC		0.41	0.36

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

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

Simplified Priority Junction Capacity Calculation

Job Title:	Elderly Home in Lot DD101 76 S.G. & 76 S.H. in Mai Po	Designed by:	GTL
Junction:	Castle Peak Road - San Tam Road (B)	Checked by:	JPP
Scheme:	Observed Flow	Date:	Sep-24
Design Year:	2031	Job No.:	CHK50769410
Arm A:	Castle Peak Road(WB)		
Arm B:	San Tam Road (NB)		
Arm C:	Castle Peak Road(EB)		
Arm D:	Unnamed Road (SB)		



GEOMETRY

Major Road Width (m)	W	7.25
Central Reserve Width (m)	Wcr	0.00

Arm B				Arm D							
Lane widths (m)	w(b-a)	3.55	Blockage of major road	Lane widths (m)	w(d-a)	2.50	Blockage of major road				
	w(b-c)	3.55	RT (c-b block c-a)?		w(d-c)	2.50	RT (a-d block a-c)?				
	w(c-b)	4.00	Y		w(a-d)	3.25	Y				
			Combined stream on minor arm B?				Combined stream on minor arm D?				
			Y				Y				
Visibility Distances (m)	Vr(b-a)	30	Calculated	D	0.8415	Visibility	Vr(d-c)	17	Calculated	D	0.7471
	VI(b-a)	24	Parameters	E	0.9104	Distances (m)	VI(d-c)	22	Parameters	E	0.8092
	Vr(b-c)	30	F	0.9678			Vr(d-a)	17	F	1.0317	
	Vr(c-b)	50	Y	0.7499			Vr(a-d)	200	Y	0.7499	

ANALYSIS

		AM Peak	PM Peak			AM Peak	PM Peak
TRAFFIC FLOWS (pcu/hr)	q(c-a)	225	200	TRAFFIC FLOWS (pcu/hr)	q(a-c)	175	205
	q(c-b)	20	20		q(a-d)	5	10
	q(a-b)	75	75		q(c-d)	5	10
	q(a-c)	180	210		q(c-a)	245	220
	q(b-a)	65	55		q(d-c)	5	5
	q(b-c)	30	30		q(d-a)	5	5
	f	0.32	0.35		f	0.50	0.50

		AM Peak	PM Peak			AM Peak	PM Peak
CAPACITIES (pcu/hr)	Q(b-ac)	485.9	487.63	CAPACITIES (pcu/hr)	Q(d-ac)	458.6	460.0
	Q(c-a)	1744.9	1744.3		Q(a-c)	1787.1	1774.4
	Q(c-b)	653.7	645.74		Q(a-d)	698.2	703.8

		AM Peak	PM Peak			AM Peak	PM Peak
RFC's	c-a	0.13	0.11	RFC's	a-c	0.10	0.12
	c-b	0.03	0.03		a-d	0.01	0.01
	b-ac	0.20	0.17		d-ac	0.02	0.02

RFC

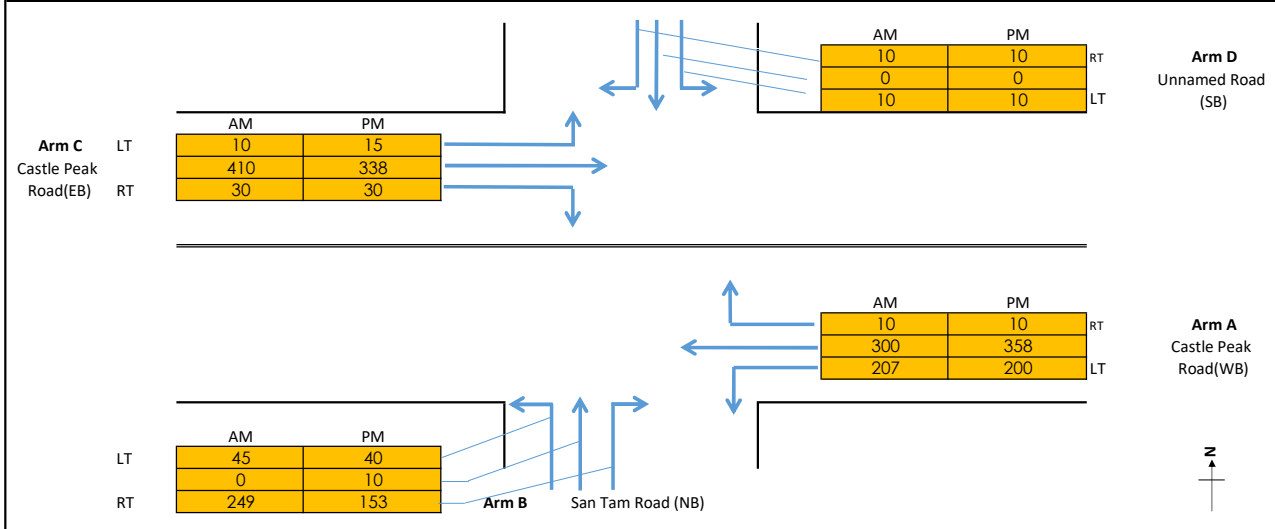
		0.20	0.17
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Where VI and Vr are visibility distances to the left or right of the respective streams
 $D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(VI(b-a)-150))$
 $E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))$
 $F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))$
 $Y = 1-0.0345W$
 f = proportion of minor traffic turning left
 $Q(b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a)$ Capacity of combined streams

All the above formulas are in accordance to T.P.D.M. V.2.4 Appendix 1

Simplified Priority Junction Capacity Calculation

Job Title:	Elderly Home in Lot DD101 76 S.G. & 76 S.H. in Mai Po	Designed by:	GTL
Junction:	Castle Peak Road - San Tam Road (B)	Checked by:	JPP
Scheme:	Reference Flow	Date:	Sep-24
Design Year:	2031	Job No.:	CHK50769410
Arm A:	Castle Peak Road(WB)		
Arm B:	San Tam Road (NB)		
Arm C:	Castle Peak Road(EB)		
Arm D:	Unnamed Road (SB)		



GEOMETRY

Major Road Width (m)	W	7.25
Central Reserve Width (m)	Wcr	0.00

Arm B				Arm D							
Lane widths (m)	w(b-a)	3.55	Blockage of major road	Lane widths (m)	w(d-a)	2.50	Blockage of major road				
	w(b-c)	3.55	RT (c-b block c-a)?		w(d-c)	2.50	RT (a-d block a-c)?				
	w(c-b)	4.00	Y		w(a-d)	3.25	Y				
			Combined stream on minor arm B?				Combined stream on minor arm D?				
			Y				Y				
Visibility Distances (m)	Vr(b-a)	30	Calculated	D	0.8415	Visibility	Vr(d-c)	17	Calculated	D	0.7471
	VI(b-a)	24	Parameters	E	0.9104	Distances (m)	VI(d-c)	22	Parameters	E	0.8092
	Vr(b-c)	30	F	0.9678		Vr(d-a)	17	F	1.0317		
	Vr(c-b)	50	Y	0.7499		Vr(a-d)	200	Y	0.7499		

ANALYSIS

AM Peak				PM Peak			
TRAFFIC FLOWS (pcu/hr)	q(c-a)	410	338	q(a-c)	300	358	
	q(c-b)	30	30	q(a-d)	10	20	
	q(a-b)	207	200	q(c-d)	10	15	
	q(a-c)	310	368	q(c-a)	440	368	
	q(b-a)	249	153	q(d-c)	10	10	
	q(b-c)	45	50	q(d-a)	10	10	
	f	0.15	0.25	f	0.50	0.50	

AM Peak				PM Peak			
CAPACITIES (pcu/hr)	Q(b-ac)	390.4	401.26	Q(d-ac)	403.8	411.5	
	Q(c-a)	1707.6	1705.4	Q(a-c)	1772.0	1745.5	
	Q(c-b)	584.5	570.98	Q(a-d)	641.9	660.8	

AM Peak				PM Peak			
RFC's	c-a	0.24	0.20	a-c	0.17	0.21	
	c-b	0.05	0.05	a-d	0.02	0.03	
	b-ac	0.75	0.51	d-ac	0.05	0.05	

RFC	0.75	0.51
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Where VI and Vr are visibility distances to the left or right of the respective streams

$$D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(VI(b-a)-150))$$

$$E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))$$

$$F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))$$

$$Y = 1-0.0345W$$

f = proportion of minor traffic turning left

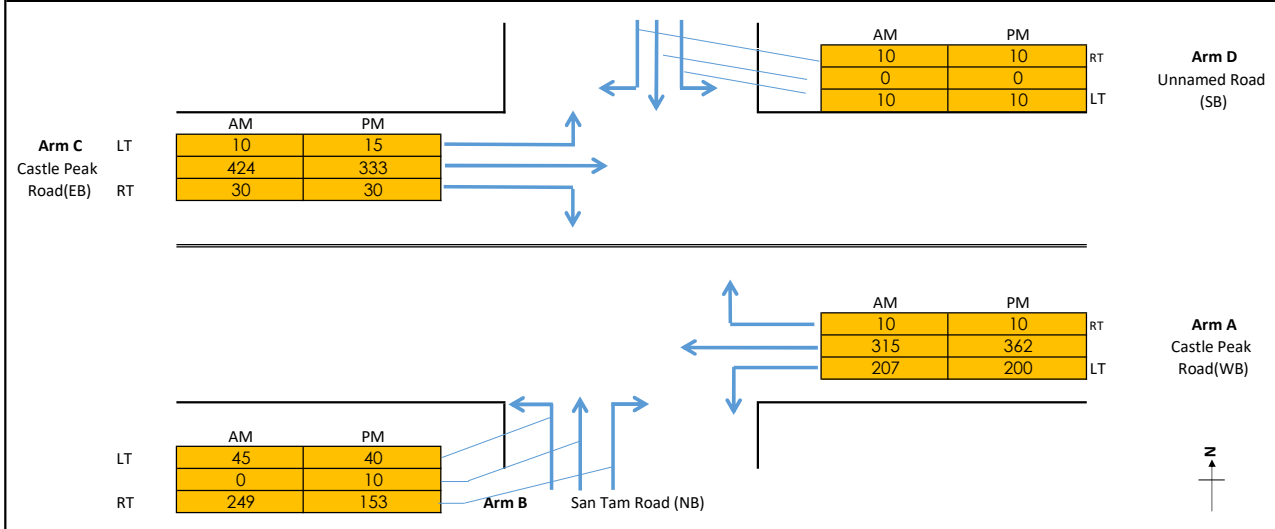
$$Q(b-ac) = Q(b-c) * Q(b-a) / (1-f) * Q(b-c) + f * Q(b-a)$$

Capacity of combined streams

All the above formulas are in accordance to T.P.D.M. V.2.4 Appendix 1

Simplified Priority Junction Capacity Calculation

Job Title:	Elderly Home in Lot DD101 76 S.G. & 76 S.H. in Mai Po	Designed by:	GTL
Junction:	Castle Peak Road - San Tam Road (B)	Checked by:	JPP
Scheme:	Design Flow	Date:	Sep-24
Design Year:	2031	Job No.:	CHK50769410
Arm A:	Castle Peak Road(WB)		
Arm B:	San Tam Road (NB)		
Arm C:	Castle Peak Road(EB)		
Arm D:	Unnamed Road (SB)		



GEOMETRY

Major Road Width (m)	W	7.25
Central Reserve Width (m)	Wcr	0.00

Arm B				Arm D							
Lane widths (m)	w(b-a)	3.55	Blockage of major road	Lane widths (m)	w(d-a)	2.50	Blockage of major road				
	w(b-c)	3.55	RT (c-b block c-a)?		w(d-c)	2.50	RT (a-d block a-c)?				
	w(c-b)	4.00	Combined stream on minor arm B?		w(a-d)	3.25	Combined stream on minor arm D?				
			Y				Y				
Visibility Distances (m)	Vr(b-a)	30	Calculated	D	0.8415	Visibility Distances (m)	Vr(d-c)	17	Calculated	D	0.7471
	VI(b-a)	24	Parameters	E	0.9104		VI(d-c)	22	Parameters	E	0.8092
	Vr(b-c)	30		F	0.9678		Vr(d-a)	17		F	1.0317
	Vr(c-b)	50		Y	0.7499		Vr(a-d)	200		Y	0.7499

ANALYSIS

		AM Peak		PM Peak				AM Peak		PM Peak	
TRAFFIC FLOWS (pcu/hr)	q(c-a)	424	333	q(a-c)	315	362	TRAFFIC FLOWS (pcu/hr)	q(a-c)	315	362	
	q(c-b)	30	30	q(a-d)	10	20		q(a-c)	1771.8	1745.6	
	q(a-b)	207	200	q(c-d)	10	15		q(a-d)	637.9	662.2	
	q(a-c)	325	372	q(c-a)	454	363					
	q(b-a)	249	153	q(d-c)	10	10					
	q(b-c)	45	50	q(d-a)	10	10					
	f	0.15	0.25	f	0.50	0.50					

		AM Peak		PM Peak				AM Peak		PM Peak	
CAPACITIES (pcu/hr)	Q(b-ac)	384.9	400.96	Q(d-ac)	399.4	412.3	CAPACITIES (pcu/hr)	Q(d-ac)	399.4	412.3	
	Q(c-a)	1707.0	1705.3	Q(a-c)	1771.8	1745.6		Q(a-c)	1771.8	1745.6	
	Q(c-b)	580.5	569.92	Q(a-d)	637.9	662.2		Q(a-d)	637.9	662.2	

RFC's		AM Peak		PM Peak		AM Peak		PM Peak			
	c-a	0.25	0.20		a-c	0.18	0.21		a-c	0.18	0.21
	c-b	0.05	0.05		a-d	0.02	0.03		a-d	0.02	0.03
	b-ac	0.76	0.51		d-ac	0.05	0.05		d-ac	0.05	0.05

RFC

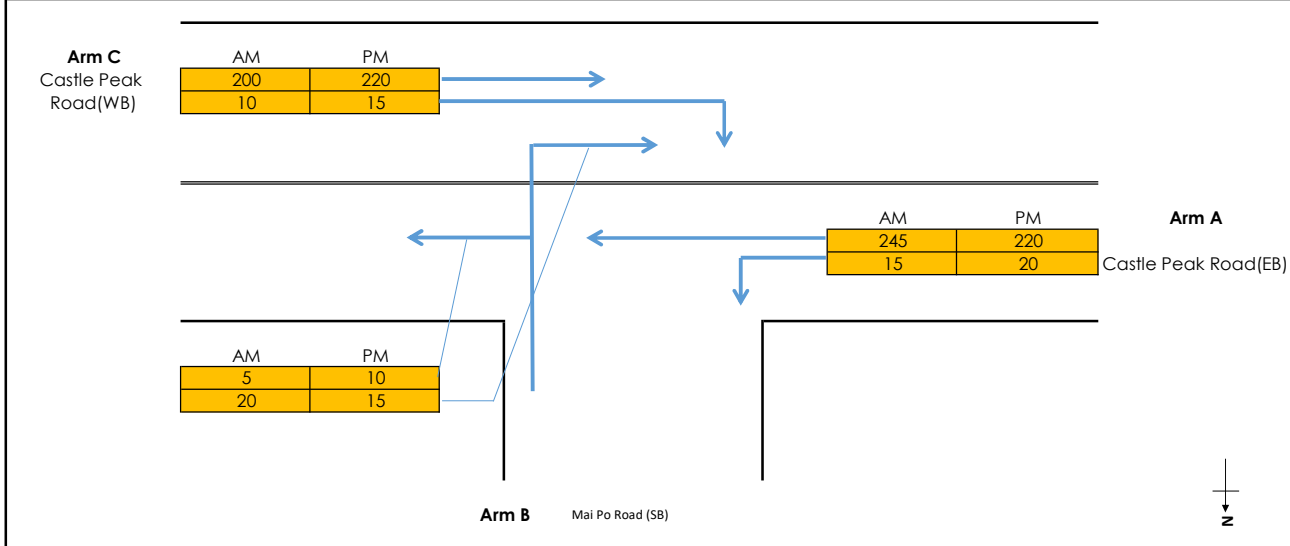
Where VI and Vr are visibility distances to the left or right of the respective streams
 $D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(VI(b-a)-150))$
 $E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))$
 $F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))$
 $Y = 1-0.0345W$
 f = proportion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

All the above formulas are in accordance to T.P.D.M. V.2.4 Appendix 1

Simplified Priority Junction Capacity Calculation



Job Title: Elderly Home in Lot DD101 76 S.G. & 76 S.H. in Mai Po	Designed by: GTL
Junction: Castle Peak Road - Mai Po Road (C)	Checked by: JPP
Scheme: Observed Flow	Date: Sep-24
Design Year: 2031	Job No.: CHK50769410
Arm A: Castle Peak Road(EB)	
Arm B: Mai Po Road (SB)	
Arm C: Castle Peak Road(WB)	



GEOMETRY

Major Road Width (m)	W	6.95	Lane widths (m)	w(b-a)	3.05
Central Reserve Width (m)	Wcr	0.00		w(b-c)	3.05
Blockage of major road right turn	Y/N?	Y		w(c-b)	3.50
Combined stream on minor arm	Y/N?	Y			

Visibility Distances (m)	Vr(b-a)	55	Calculated Parameters	D	0.8324
	VI(b-a)	45		E	0.8884
	Vr(b-c)	55		F	1.0569
	Vr(c-b)	200		Y	0.7602

ANALYSIS

		AM PEAK	PM PEAK
TRAFFIC FLOWS (pcu/hr)	q(c-a)	200	220
	q(c-b)	10	15
	q(a-b)	15	20
	q(a-c)	245	220
	q(b-a)	20	15
	q(b-c)	5	10
	f	0.20	0.40
CAPACITIES (pcu/hr)	Q(b-ac)	457.517	488.48
	Q(c-a)	1774.7	1762.4
	Q(c-b)	711.339	717.19
RFC's	c-a	0.11	0.12
	c-b	0.01	0.02
	b-ac	0.05	0.05
RFC		0.11	0.12

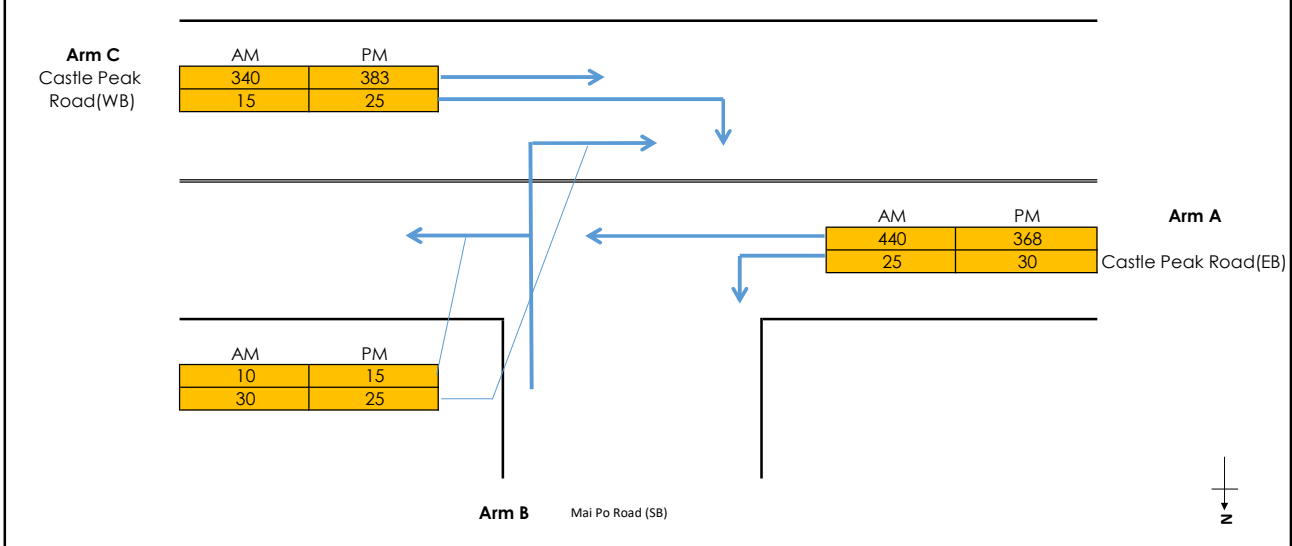
Where VI and Vr are visibility distances to the left or right of the respective streams
 $D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(VI(b-a)-150))$
 $E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))$
 $F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))$
 $Y = 1-0.0345W$
 f = proportion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

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

Simplified Priority Junction Capacity Calculation



Job Title: Elderly Home in Lot DD101 76 S.G. & 76 S.H. in Mai Po	Designed by: GTL
Junction: Castle Peak Road - Mai Po Road (C)	Checked by: JPP
Scheme: Reference Flow	Date: Sep-24
Design Year: 2031	Job No.: CHK50769410
Arm A: Castle Peak Road(EB)	
Arm B: Mai Po Road (SB)	
Arm C: Castle Peak Road(WB)	



GEOMETRY

Major Road Width (m)	W	6.95	Lane widths (m)	w(b-a)	3.05
Central Reserve Width (m)	Wcr	0.00		w(b-c)	3.05
Blockage of major road right turn	Y/N?	Y		w(c-b)	3.50
Combined stream on minor arm	Y/N?	Y			

Visibility Distances (m)	Vr(b-a)	55	Calculated Parameters	D	0.8324
	VI(b-a)	45		E	0.8884
	Vr(b-c)	55		F	1.0569
	Vr(c-b)	200		Y	0.7602

ANALYSIS

		AM PEAK	PM PEAK
TRAFFIC FLOWS (pcu/hr)	q(c-a)	340	383
	q(c-b)	15	25
	q(a-b)	25	30
	q(a-c)	440	368
	q(b-a)	30	25
	q(b-c)	10	15
	f	0.25	0.38
CAPACITIES (pcu/hr)	Q(b-ac)	397.863	426.32
	Q(c-a)	1758.55	1732.9
	Q(c-b)	651.384	670.98
RFC's	c-a	0.19	0.22
	c-b	0.02	0.04
	b-ac	0.10	0.09
RFC		0.19	0.22

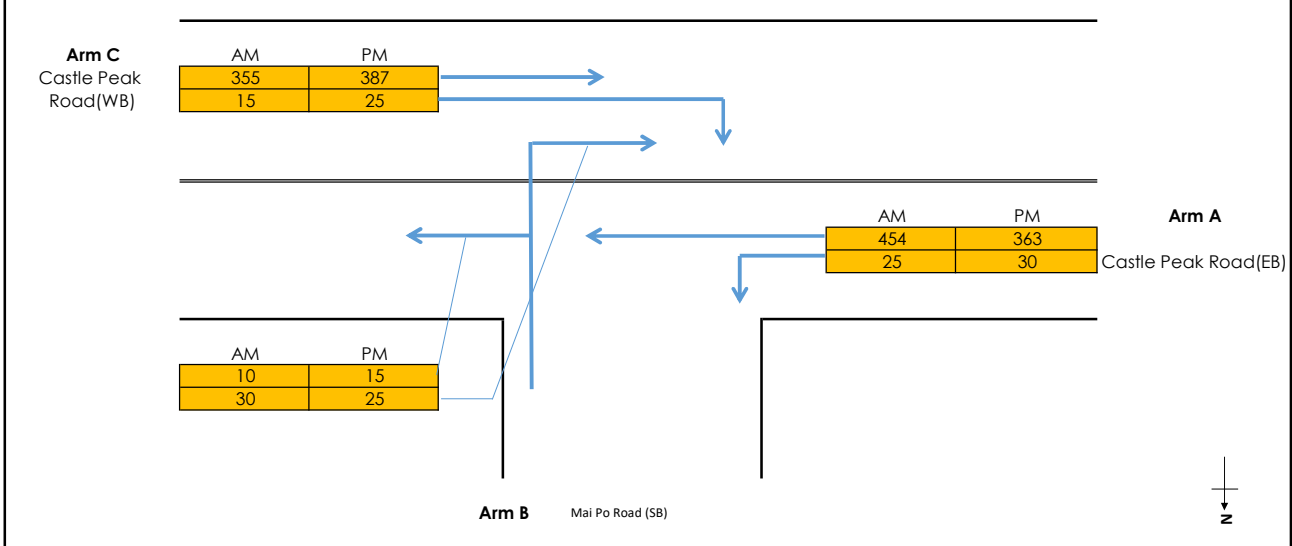
Where VI and Vr are visibility distances to the left or right of the respective streams
 $D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(VI(b-a)-150))$
 $E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))$
 $F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))$
 $Y = 1-0.0345W$
 f = proportion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

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

Simplified Priority Junction Capacity Calculation



Job Title: Elderly Home in Lot DD101 76 S.G. & 76 S.H. in Mai Po	Designed by: GTL
Junction: Castle Peak Road - Mai Po Road (C)	Checked by: JPP
Scheme: Design Flow	Date: Sep-24
Design Year: 2031	Job No.: CHK50769410
Arm A: Castle Peak Road(EB)	
Arm B: Mai Po Road (SB)	
Arm C: Castle Peak Road(WB)	



GEOMETRY

Major Road Width (m)	W	6.95	Lane widths (m)	w(b-a)	3.05
Central Reserve Width (m)	Wcr	0.00		w(b-c)	3.05
Blockage of major road right turn	Y/N?	Y		w(c-b)	3.50
Combined stream on minor arm	Y/N?	Y			

Visibility Distances (m)	Vr(b-a)	55	Calculated Parameters	D	0.8324
	VI(b-a)	45		E	0.8884
	Vr(b-c)	55		F	1.0569
	Vr(c-b)	200		Y	0.7602

ANALYSIS

		AM PEAK	PM PEAK
TRAFFIC FLOWS (pcu/hr)	q(c-a)	355	387
	q(c-b)	15	25
	q(a-b)	25	30
	q(a-c)	454	363
	q(b-a)	30	25
	q(b-c)	10	15
	f	0.25	0.38
CAPACITIES (pcu/hr)	Q(b-ac)	392.576	427.05
	Q(c-a)	1758.29	1733.1
	Q(c-b)	647.289	672.44
RFC's	c-a	0.20	0.22
	c-b	0.02	0.04
	b-ac	0.10	0.09
RFC		0.20	0.22

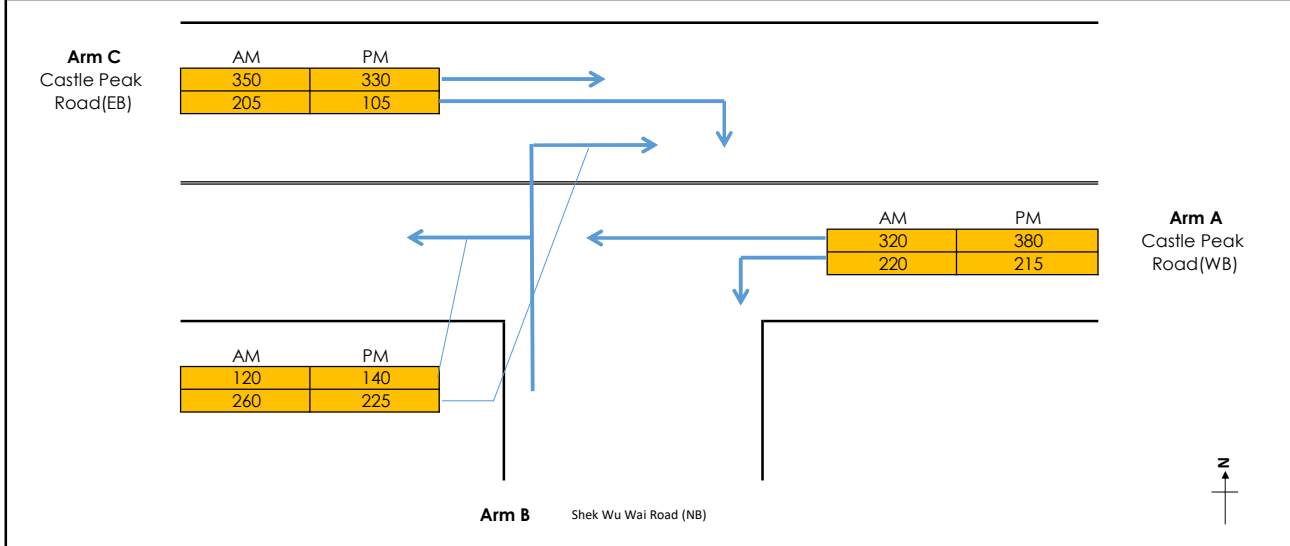
Where VI and Vr are visibility distances to the left or right of the respective streams
 $D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(VI(b-a)-150))$
 $E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))$
 $F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))$
 $Y = 1-0.0345W$
 f = proportion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

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

Simplified Priority Junction Capacity Calculation



Job Title: Elderly Home in Lot DD101 76 S.G. & 76 S.H. in Mai Po	Designed by: GTL
Junction: Castle Peak Road - Shek Wu Wai Road (D)	Checked by: JPP
Scheme: Observed Flow	Date: Sep-24
Design Year: 2031	Job No.: CHK50769410
Arm A: Castle Peak Road(WB)	
Arm B: Shek Wu Wai Road (NB)	
Arm C: Castle Peak Road(EB)	



GEOMETRY

Major Road Width (m)	W	6.60	Lane widths (m)	w(b-a)	4.20
Central Reserve Width (m)	Wcr	0.00		w(b-c)	4.70
Blockage of major road right turn	Y/N?	Y		w(c-b)	3.25
Combined stream on minor arm	Y/N?	N			

Visibility Distances (m)	Vr(b-a)	30	Calculated Parameters	D	0.9074
	VI(b-a)	48		E	1.0137
	Vr(b-c)	34		F	1.049
	Vr(c-b)	220		Y	0.7723

ANALYSIS

		AM PEAK	PM PEAK
TRAFFIC FLOWS (pcu/hr)	q(c-a)	350	330
	q(c-b)	205	105
	q(a-b)	220	215
	q(a-c)	320	380
	q(b-a)	260	225
	q(b-c)	120	140
	f	0.32	0.38
CAPACITIES (pcu/hr)	Q(b-a)	334.226	359.07
	Q(b-c)	639.19	622.66
	Q(c-a)	1207.01	1488.1
	Q(c-b)	622.273	606.05
RFC's	c-a	0.29	0.22
	c-b	0.33	0.17
	b-a	0.78	0.63
	b-c	0.19	0.22
RFC		0.78	0.63

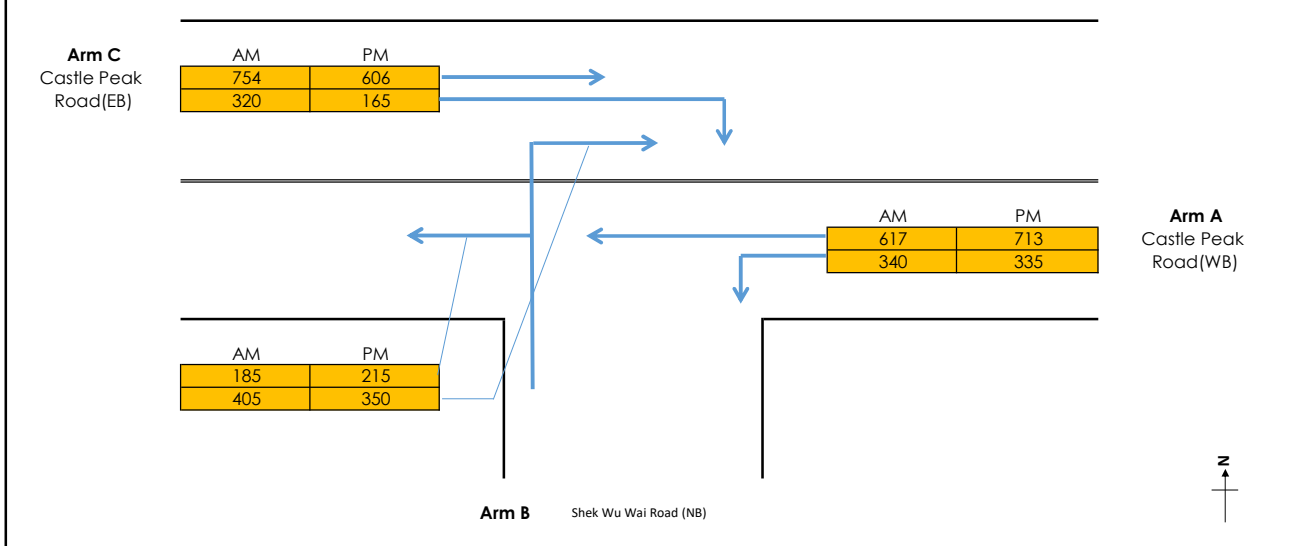
Where VI and Vr are visibility distances to the left or right of the respective streams
 $D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(VI(b-a)-150))$
 $E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))$
 $F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))$
 $Y = 1-0.0345W$
 f = proportion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

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

Simplified Priority Junction Capacity Calculation



Job Title: Elderly Home in Lot DD101 76 S.G. & 76 S.H. in Mai Po	Designed by: GTL
Junction: Castle Peak Road - Shek Wu Wai Road (D)	Checked by: JPP
Scheme: Reference Flow	Date: Sep-24
Design Year: 2031	Job No.: CHK50769410
Arm A: Castle Peak Road(WB)	
Arm B: Shek Wu Wai Road (NB)	
Arm C: Castle Peak Road(EB)	



GEOMETRY			
Major Road Width (m)	W	6.60	Lane widths (m)
Central Reserve Width (m)	Wcr	0.00	w(b-a)
Blockage of major road right turn	Y/N?	Y	w(b-c)
Combined stream on minor arm	Y/N?	N	w(c-b)
Visibility Distances (m)	Vr(b-a)	30	Calculated Parameters
	VI(b-a)	48	D
	Vr(b-c)	34	E
	Vr(c-b)	220	F
			Y
			D
			E
			F
			Y

ANALYSIS		AM PEAK	PM PEAK
TRAFFIC FLOWS (pcu/hr)	q(c-a)	754	606
	q(c-b)	320	165
	q(a-b)	340	335
	q(a-c)	617	713
	q(b-a)	405	350
	q(b-c)	185	215
	f	0.31	0.38
CAPACITIES (pcu/hr)	Q(b-a)	139.623	195.87
	Q(b-c)	541.03	514.24
	Q(c-a)	646.387	1171.4
	Q(c-b)	499.301	472.47
RFC's	c-a	1.17	0.52
	c-b	0.64	0.35
	b-a	2.90	1.79
	b-c	0.34	0.42
RFC		2.90	1.79

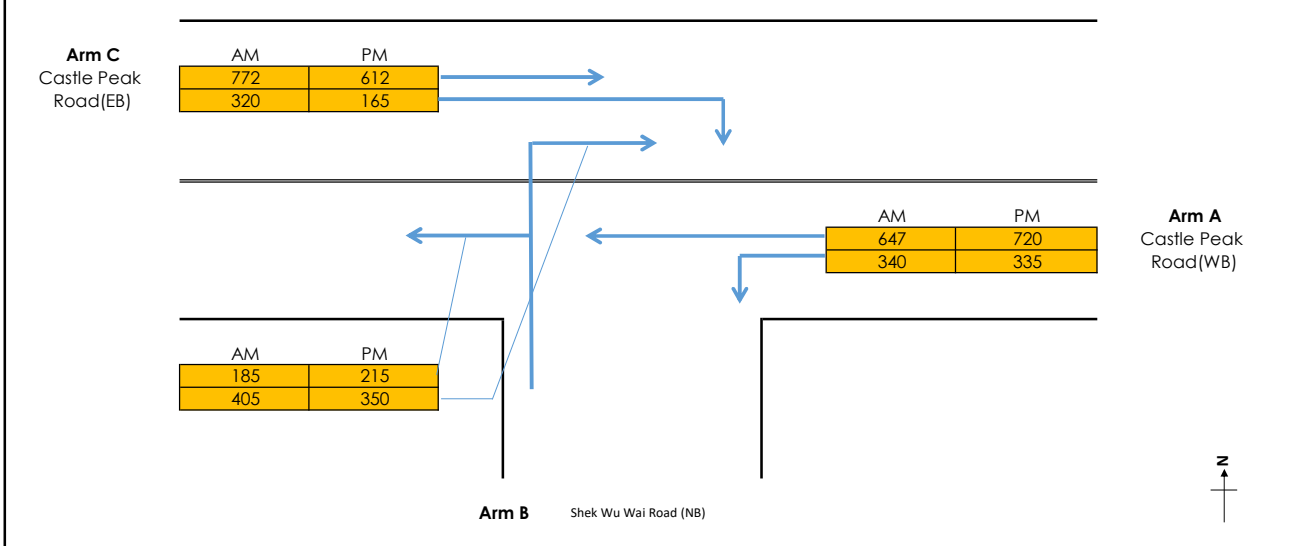
Where VI and Vr are visibility distances to the left or right of the respective streams
 $D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(VI(b-a)-150))$
 $E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))$
 $F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))$
 $Y = 1-0.0345W$
 f = proportion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

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

Simplified Priority Junction Capacity Calculation



Job Title: Elderly Home in Lot DD101 76 S.G. & 76 S.H. in Mai Po	Designed by: GTL
Junction: Castle Peak Road - Shek Wu Wai Road (D)	Checked by: JPP
Scheme: Design Flow	Date: Sep-24
Design Year: 2031	Job No.: CHK50769410
Arm A: Castle Peak Road(WB)	
Arm B: Shek Wu Wai Road (NB)	
Arm C: Castle Peak Road(EB)	



GEOMETRY

Major Road Width (m)	W	6.60	Lane widths (m)	w(b-a)	4.20
Central Reserve Width (m)	Wcr	0.00		w(b-c)	4.70
Blockage of major road right turn	Y/N?	Y		w(c-b)	3.25
Combined stream on minor arm	Y/N?	N			

Visibility Distances (m)	Vr(b-a)	30	Calculated Parameters	D	0.9074
	VI(b-a)	48		E	1.0137
	Vr(b-c)	34		F	1.049
	Vr(c-b)	220		Y	0.7723

ANALYSIS

		AM PEAK	PM PEAK
TRAFFIC FLOWS (pcu/hr)	q(c-a)	772	612
	q(c-b)	320	165
	q(a-b)	340	335
	q(a-c)	647	720
	q(b-a)	405	350
	q(b-c)	185	215
	f	0.31	0.38
CAPACITIES (pcu/hr)	Q(b-a)	129.082	193.12
	Q(b-c)	532.481	512.24
	Q(c-a)	625.578	1168.6
	Q(c-b)	490.454	470.4
RFC's	c-a	1.23	0.52
	c-b	0.65	0.35
	b-a	3.14	1.81
	b-c	0.35	0.42
RFC		3.14	1.81

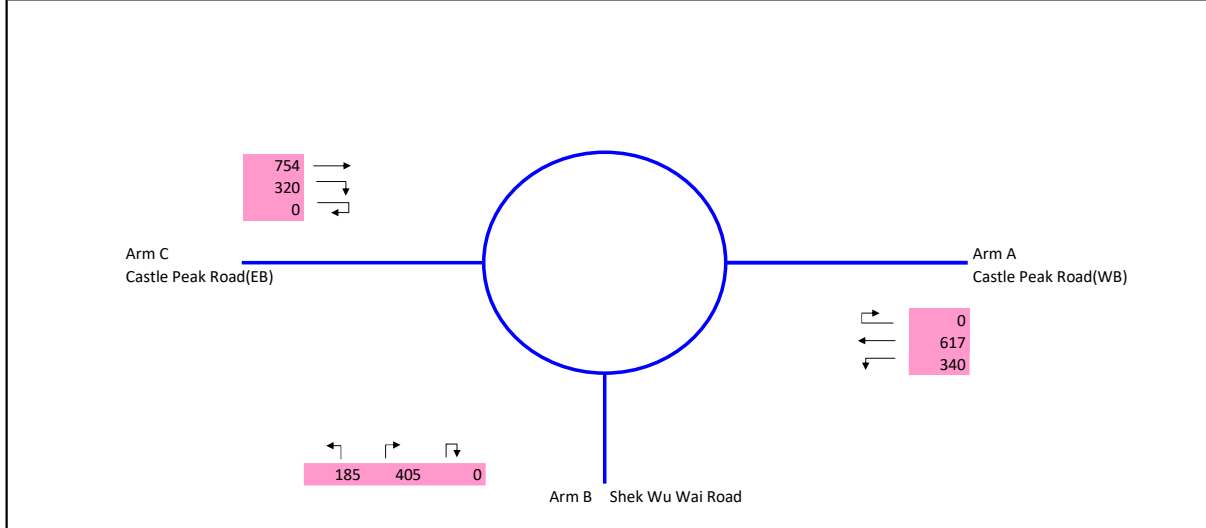
Where VI and Vr are visibility distances to the left or right of the respective streams
 $D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(VI(b-a)-150))$
 $E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))$
 $F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))$
 $Y = 1-0.0345W$
 f = proportion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

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

Roundabout Capacity Calculation



Job Title:	Lot DD101 76 S.G. & 76 S.H TIA		Designed by:	GTL
Junction:	Castle Peak Road / Shek Wu Wai Road		Checked by:	JPP
Scheme:	2031 Reference Flows AM Peak		Date:	SEP, 2024
Design Year:	2031	Job No.:	CHK50769410	
Arm A	Castle Peak Road(WB)			
Arm B	Shek Wu Wai Road			
Arm C	Castle Peak Road(EB)			
Arm D				
Arm E				



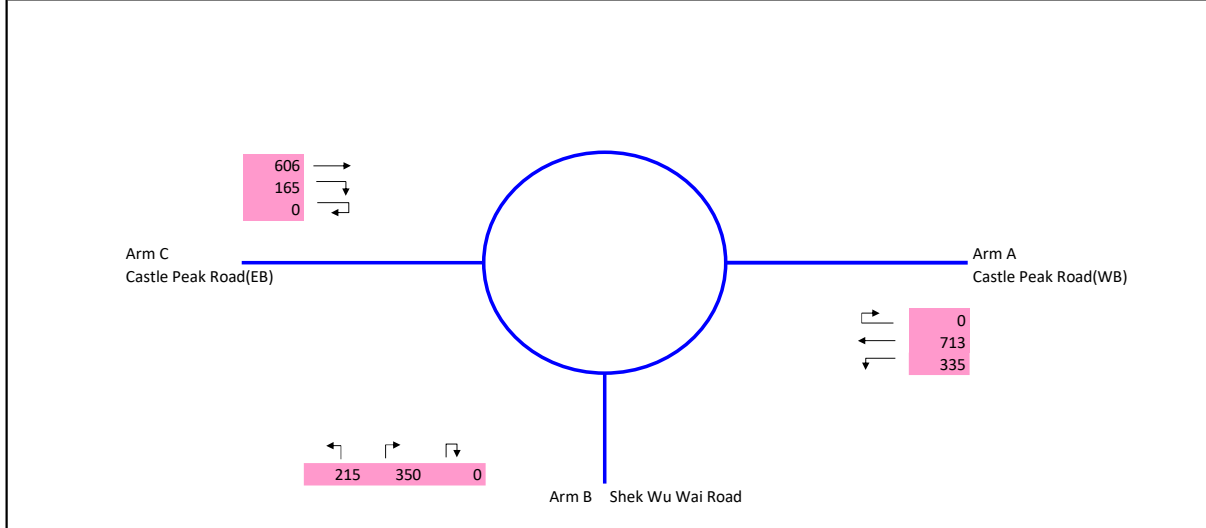
ENTRY ARM		A	B	C		
INPUT PARAMETERS						
V	Approach Half Width (m)	3.65	4.50	3.25		
E	Entry Width (m)	7.53	5.42	6.14		
L	Effective Length of Flare (m)	4.89	1.94	9.69		
R	Entry Radius (m)	12.00	28.00	100.00		
D	Inscribed Circle Diameter (m)	21.00	21.00	21.00		
A	Entry Angle (degree)	34.00	22.50	2.50		
Q	Entry Flow (pcu/hour)	957	590	1,074		
Qc	Circulating Flow Across Entry (pcu/hour)	320	617	405		
OUTPUT PARAMETERS						
S	= 1.6 (E - V) / L Sharpness of flare	1.27	0.76	0.48		
K	= 1 - 0.00347 (A-30) - 0.978 (1/R - 0.05)	0.95	1.04	1.13		
X2	= V + ((E-V) / (1+2S))	4.75	4.87	4.73		
M	= EXP ((D-60) / 10)	0.02	0.02	0.02		
F	= 303 * X2	1438	1474	1433		
Td	= 1 + (0.5 / (1+M))	1.49	1.49	1.49		
Fc	= 0.21 * Td (1 + 0.2 * X2)	0.61	0.62	0.61		
Qe	= K (F - Fc * Qc)	1185	1137	1346		
DFC	= Q / Qe	0.808	0.519	0.798		
	Design Flow / Capacity	0.808				
	Total Entry Flows	2,621				

All the above formulas are in accordance to T.P.D.M. Vol.2 Chp.4 Sec 4.5.9

Roundabout Capacity Calculation



Job Title:	Lot DD101 76 S.G. & 76 S.H TIA		Designed by:	GTL
Junction:	Castle Peak Road / Shek Wu Wai Road		Checked by:	JPP
Scheme:	2031 Reference Flows PM Peak		Date:	SEP, 2024
Design Year:	2031	Job No.:	CHK50769410	
Arm A	Castle Peak Road(WB)			
Arm B	Shek Wu Wai Road			
Arm C	Castle Peak Road(EB)			
Arm D				
Arm E				



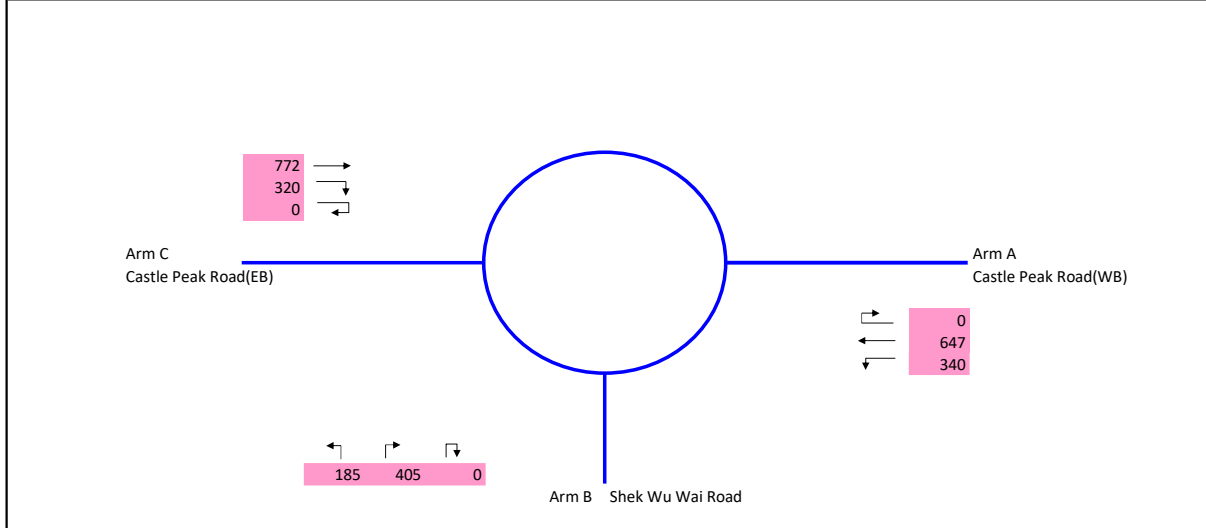
ENTRY ARM		A	B	C		
INPUT PARAMETERS						
V	Approach Half Width (m)	3.65	4.50	3.25		
E	Entry Width (m)	7.53	5.42	6.14		
L	Effective Length of Flare (m)	4.89	1.94	9.69		
R	Entry Radius (m)	12.00	28.00	100.00		
D	Inscribed Circle Diameter (m)	21.00	21.00	21.00		
A	Entry Angle (degree)	34.00	22.50	2.50		
Q	Entry Flow (pcu/hour)	1,048	565	771		
Qc	Circulating Flow Across Entry (pcu/hour)	165	713	350		
OUTPUT PARAMETERS						
S	= 1.6 (E - V) / L Sharpness of flare	1.27	0.76	0.48		
K	= 1 - 0.00347 (A-30) - 0.978 (1/R - 0.05)	0.95	1.04	1.13		
X2	= V + ((E-V) / (1+2S))	4.75	4.87	4.73		
M	= EXP ((D-60) / 10)	0.02	0.02	0.02		
F	= 303 * X2	1438	1474	1433		
Td	= 1 + (0.5 / (1+M))	1.49	1.49	1.49		
Fc	= 0.21 * Td (1 + 0.2 * X2)	0.61	0.62	0.61		
Qe	= K (F - Fc * Qc)	1275	1075	1384		
DFC	= Q / Qe	0.822	0.525	0.557		
	Design Flow / Capacity	0.822				
	Total Entry Flows	2,384				

All the above formulas are in accordance to T.P.D.M. Vol.2 Chp.4 Sec 4.5.9

Roundabout Capacity Calculation



Job Title:	Lot DD101 76 S.G. & 76 S.H TIA		Designed by:	GTL
Junction:	Castle Peak Road / Shek Wu Wai Road		Checked by:	JPP
Scheme:	2031 Design Flows AM Peak		Date:	SEP, 2024
Design Year:	2031	Job No.:	CHK50769410	
Arm A	Castle Peak Road(WB)			
Arm B	Shek Wu Wai Road			
Arm C	Castle Peak Road(EB)			
Arm D				
Arm E				



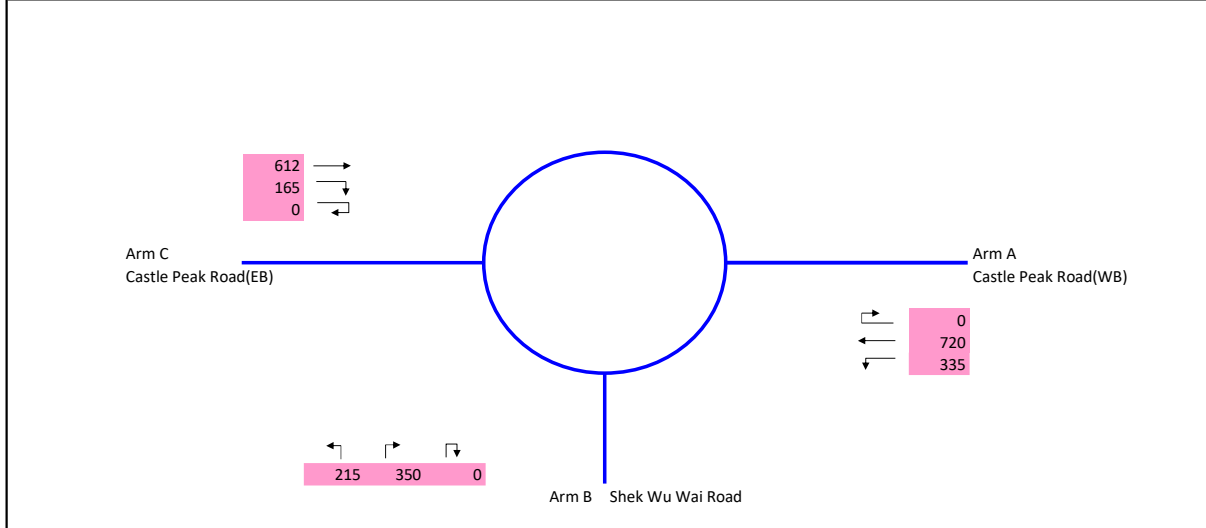
ENTRY ARM		A	B	C		
INPUT PARAMETERS						
V	Approach Half Width (m)	3.65	4.50	3.25		
E	Entry Width (m)	7.53	5.42	6.14		
L	Effective Length of Flare (m)	4.89	1.94	9.69		
R	Entry Radius (m)	12.00	28.00	100.00		
D	Inscribed Circle Diameter (m)	21.00	21.00	21.00		
A	Entry Angle (degree)	34.00	22.50	2.50		
Q	Entry Flow (pcu/hour)	987	590	1,092		
Qc	Circulating Flow Across Entry (pcu/hour)	320	647	405		
OUTPUT PARAMETERS						
S	= $1.6 (E - V) / L$ Sharpness of flare	1.27	0.76	0.48		
K	= $1 - 0.00347 (A-30) - 0.978 (1/R - 0.05)$	0.95	1.04	1.13		
X2	= $V + ((E-V) / (1+2S))$	4.75	4.87	4.73		
M	= $EXP ((D-60) / 10)$	0.02	0.02	0.02		
F	= $303 * X2$	1438	1474	1433		
Td	= $1 + (0.5 / (1+M))$	1.49	1.49	1.49		
Fc	= $0.21 * Td (1 + 0.2 * X2)$	0.61	0.62	0.61		
Qe	= $K (F - Fc * Qc)$	1185	1118	1346		
DFC	= Q / Qe	0.833	0.528	0.811		
	Design Flow / Capacity	0.833				
	Total Entry Flows	2,669				

All the above formulas are in accordance to T.P.D.M. Vol.2 Chp.4 Sec 4.5.9

Roundabout Capacity Calculation



Job Title:	Lot DD101 76 S.G. & 76 S.H TIA		Designed by:	GTL
Junction:	Castle Peak Road / Shek Wu Wai Road		Checked by:	JPP
Scheme:	2031 Design Flows PM Peak		Date:	SEP, 2024
Design Year:	2031	Job No.:	CHK50769410	
Arm A	Castle Peak Road(WB)			
Arm B	Shek Wu Wai Road			
Arm C	Castle Peak Road(EB)			
Arm D				
Arm E				



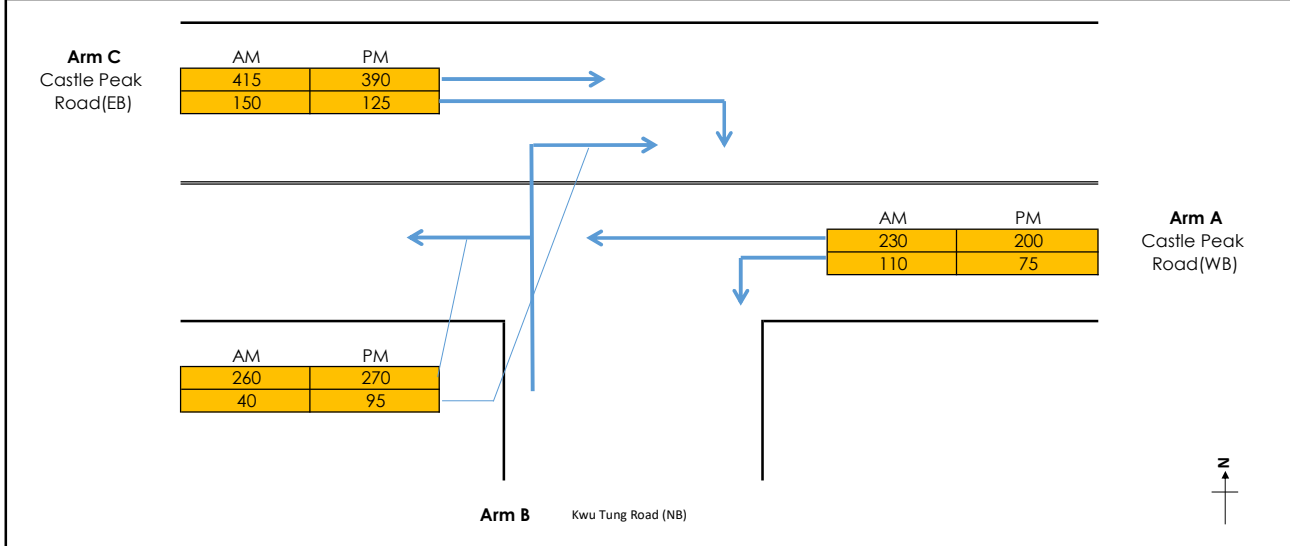
ENTRY ARM		A	B	C		
INPUT PARAMETERS						
V	Approach Half Width (m)	3.65	4.50	3.25		
E	Entry Width (m)	7.53	5.42	6.14		
L	Effective Length of Flare (m)	4.89	1.94	9.69		
R	Entry Radius (m)	12.00	28.00	100.00		
D	Inscribed Circle Diameter (m)	21.00	21.00	21.00		
A	Entry Angle (degree)	34.00	22.50	2.50		
Q	Entry Flow (pcu/hour)	1,055	565	777		
Qc	Circulating Flow Across Entry (pcu/hour)	165	720	350		
OUTPUT PARAMETERS						
S	= 1.6 (E - V) / L Sharpness of flare	1.27	0.76	0.48		
K	= 1 - 0.00347 (A-30) - 0.978 (1/R - 0.05)	0.95	1.04	1.13		
X2	= V + ((E-V) / (1+2S))	4.75	4.87	4.73		
M	= EXP ((D-60) / 10)	0.02	0.02	0.02		
F	= 303 * X2	1438	1474	1433		
Td	= 1 + (0.5 / (1+M))	1.49	1.49	1.49		
Fc	= 0.21*Td (1 + 0.2*X2)	0.61	0.62	0.61		
Qe	= K (F - Fc*Qc)	1275	1071	1384		
DFC	= Q / Qe	0.827	0.528	0.561		
	Design Flow / Capacity	0.827				
	Total Entry Flows	2,397				

All the above formulas are in accordance to T.P.D.M. Vol.2 Chp.4 Sec 4.5.9

Simplified Priority Junction Capacity Calculation



Job Title: Elderly Home in Lot DD101 76 S.G. & 76 S.H. in Mai Po	Designed by: GTL
Junction: Castle Peak Road - Kwu Tung Road (E)	Checked by: JPP
Scheme: Observed Flow	Date: Sep-24
Design Year: 2031	Job No.: CHK50769410
Arm A: Castle Peak Road(WB)	
Arm B: Kwu Tung Road (NB)	
Arm C: Castle Peak Road(EB)	



GEOMETRY					
Major Road Width (m)	W	6.50	Lane widths (m)	w(b-a)	4.29
Central Reserve Width (m)	Wcr	0.00		w(b-c)	4.00
Blockage of major road right turn	Y/N?	Y		w(c-b)	3.25
Combined stream on minor arm	Y/N?	N			
Visibility Distances (m)	Vr(b-a)	36	Calculated Parameters	D	0.9059
	VI(b-a)	24		E	0.9622
	Vr(b-c)	44		F	1.0317
	Vr(c-b)	200		Y	0.7758

ANALYSIS		AM PEAK	PM PEAK
TRAFFIC FLOWS (pcu/hr)	q(c-a)	415	390
	q(c-b)	150	125
	q(a-b)	110	75
	q(a-c)	230	200
	q(b-a)	40	95
	q(b-c)	260	270
	f	0.87	0.74
CAPACITIES (pcu/hr)	Q(b-a)	376.442	400.82
	Q(b-c)	642.558	654.47
	Q(c-a)	1396.75	1473.2
	Q(c-b)	669.562	688.5
RFC's	c-a	0.30	0.26
	c-b	0.22	0.18
	b-a	0.11	0.24
	b-c	0.40	0.41
RFC		0.40	0.41

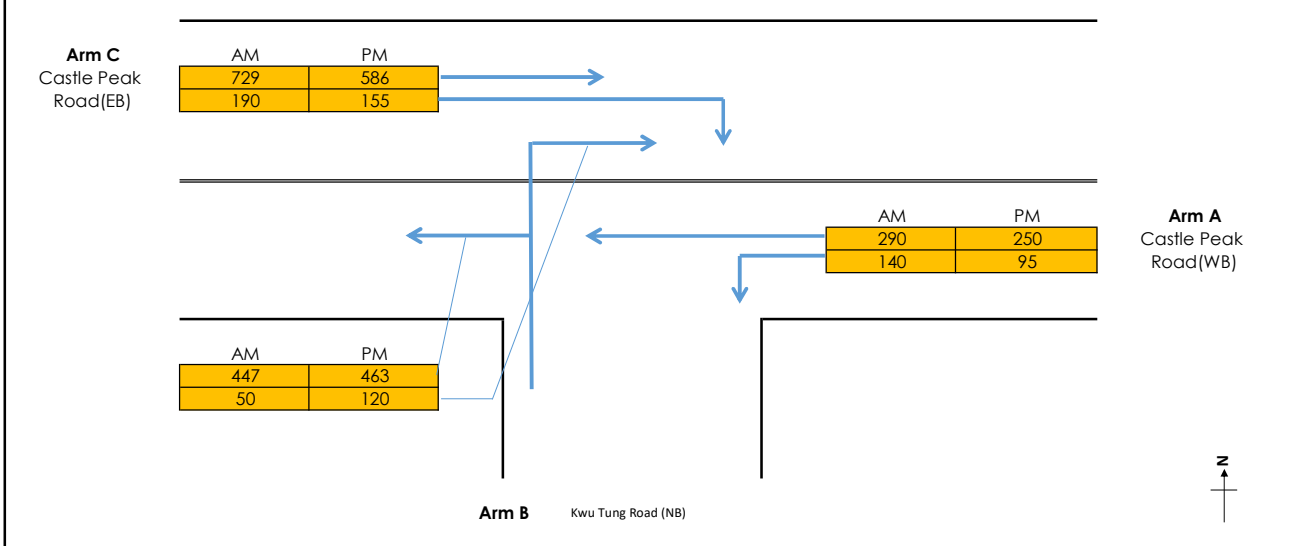
Where VI and Vr are visibility distances to the left or right of the respective streams
 $D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(VI(b-a)-150))$
 $E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))$
 $F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))$
 $Y = 1-0.0345W$
 f = proportion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

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

Simplified Priority Junction Capacity Calculation



Job Title: Elderly Home in Lot DD101 76 S.G. & 76 S.H. in Mai Po	Designed by: GTL
Junction: Castle Peak Road - Kwu Tung Road (E)	Checked by: JPP
Scheme: Reference Flow	Date: Sep-24
Design Year: 2031	Job No.: CHK50769410
Arm A: Castle Peak Road(WB)	
Arm B: Kwu Tung Road (NB)	
Arm C: Castle Peak Road(EB)	



GEOMETRY					
Major Road Width (m)	W	6.50	Lane widths (m)	w(b-a)	4.29
Central Reserve Width (m)	Wcr	0.00		w(b-c)	4.00
Blockage of major road right turn	Y/N?	Y		w(c-b)	3.25
Combined stream on minor arm	Y/N?	N			
Visibility Distances (m)	Vr(b-a)	36	Calculated Parameters	D	0.9059
	VI(b-a)	24		E	0.9622
	Vr(b-c)	44		F	1.0317
	Vr(c-b)	200		Y	0.7758

ANALYSIS		AM PEAK	PM PEAK
TRAFFIC FLOWS (pcu/hr)	q(c-a)	729	586
	q(c-b)	190	155
	q(a-b)	140	95
	q(a-c)	290	250
	q(b-a)	50	120
	q(b-c)	447	463
	f	0.90	0.79
CAPACITIES (pcu/hr)	Q(b-a)	292.907	343.5
	Q(b-c)	623.03	638.74
	Q(c-a)	1268.4	1382.4
	Q(c-b)	643.343	668.1
RFC's	c-a	0.57	0.42
	c-b	0.30	0.23
	b-a	0.17	0.35
	b-c	0.72	0.72
RFC		0.72	0.72

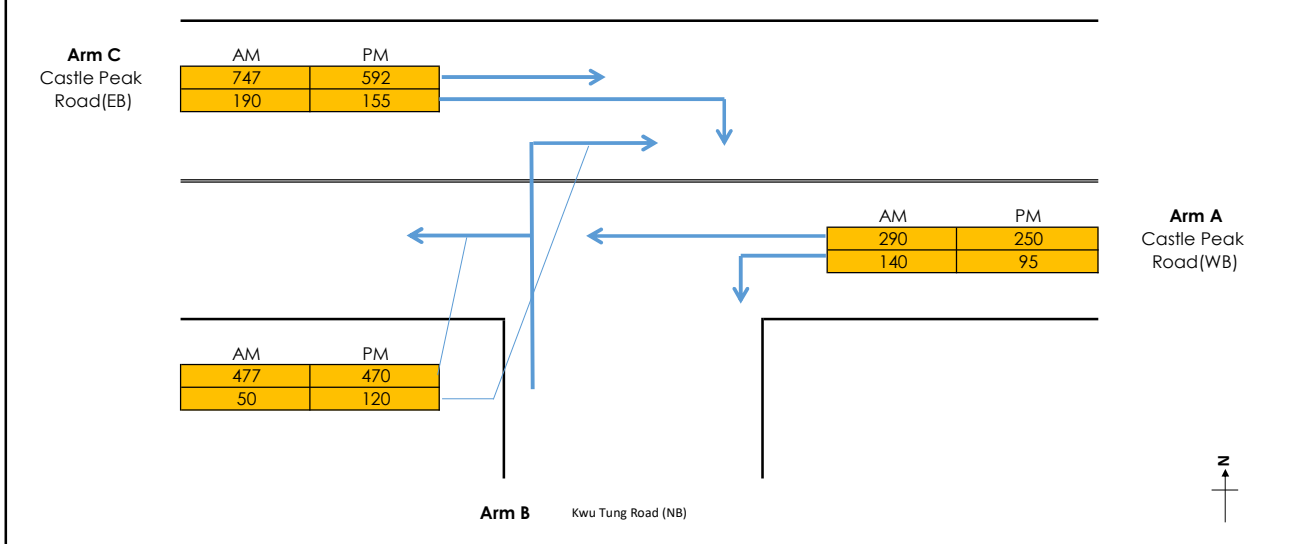
Where VI and Vr are visibility distances to the left or right of the respective streams
 $D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(VI(b-a)-150))$
 $E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))$
 $F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))$
 $Y = 1-0.0345W$
 f = proportion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

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

Simplified Priority Junction Capacity Calculation



Job Title: Elderly Home in Lot DD101 76 S.G. & 76 S.H. in Mai Po	Designed by: GTL
Junction: Castle Peak Road - Kwu Tung Road (E)	Checked by: JPP
Scheme: Design Flow	Date: Sep-24
Design Year: 2031	Job No.: CHK50769410
Arm A: Castle Peak Road(WB)	
Arm B: Kwu Tung Road (NB)	
Arm C: Castle Peak Road(EB)	



GEOMETRY			
Major Road Width (m)	W	6.50	Lane widths (m)
Central Reserve Width (m)	Wcr	0.00	w(b-a)
Blockage of major road right turn	Y/N?	Y	w(b-c)
Combined stream on minor arm	Y/N?	N	w(c-b)
Visibility Distances (m)	Vr(b-a)	36	Calculated Parameters
	VI(b-a)	24	D
	Vr(b-c)	44	E
	Vr(c-b)	200	F
			Y

ANALYSIS		AM PEAK	PM PEAK
TRAFFIC FLOWS (pcu/hr)	q(c-a)	747	592
	q(c-b)	190	155
	q(a-b)	140	95
	q(a-c)	290	250
	q(b-a)	50	120
	q(b-c)	477	470
	f	0.91	0.80
CAPACITIES (pcu/hr)	Q(b-a)	290.01	342.53
	Q(b-c)	623.03	638.74
	Q(c-a)	1268.4	1382.4
	Q(c-b)	643.343	668.1
RFC's	c-a	0.59	0.43
	c-b	0.30	0.23
	b-a	0.17	0.35
	b-c	0.77	0.74
RFC		0.77	0.74

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

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

Appendix B

Swept Path Analysis





ROAD

TAM KON CHAU ROAD

CASTLE PEAK ROAD - SAN TIN

2.5 A

3.9 A

3.4 A

3.2 A

2.7 A

4.4 A

3.4 A

2.8 A

4.4 A

泥路

Track

TS

SHR

HW

HW

TO

PO

landscape garden

FP

Φ+4.55mPD

landscape garden
Φ+4.55mPD

Φ+38.75mPD

Φ+19.40mPD

Φ+42.75mPD

Φ+4.55mPD

Φ+15.10mPD

Φ+1.20mPD
EVA
creek gate

Φ+1.20mPD
EVA
creek gate

Φ+15.10mPD

Φ+34.55mPD

Φ+38.75mPD
main entrance

Φ+4.45mPD

Φ+19.40mPD

Φ+4.55mPD

Φ+4.55mPD

CU

HE

2.9 A

HL

R

R

L

H

L

H

L

H

L

H

E

H

L

H

L

H

L

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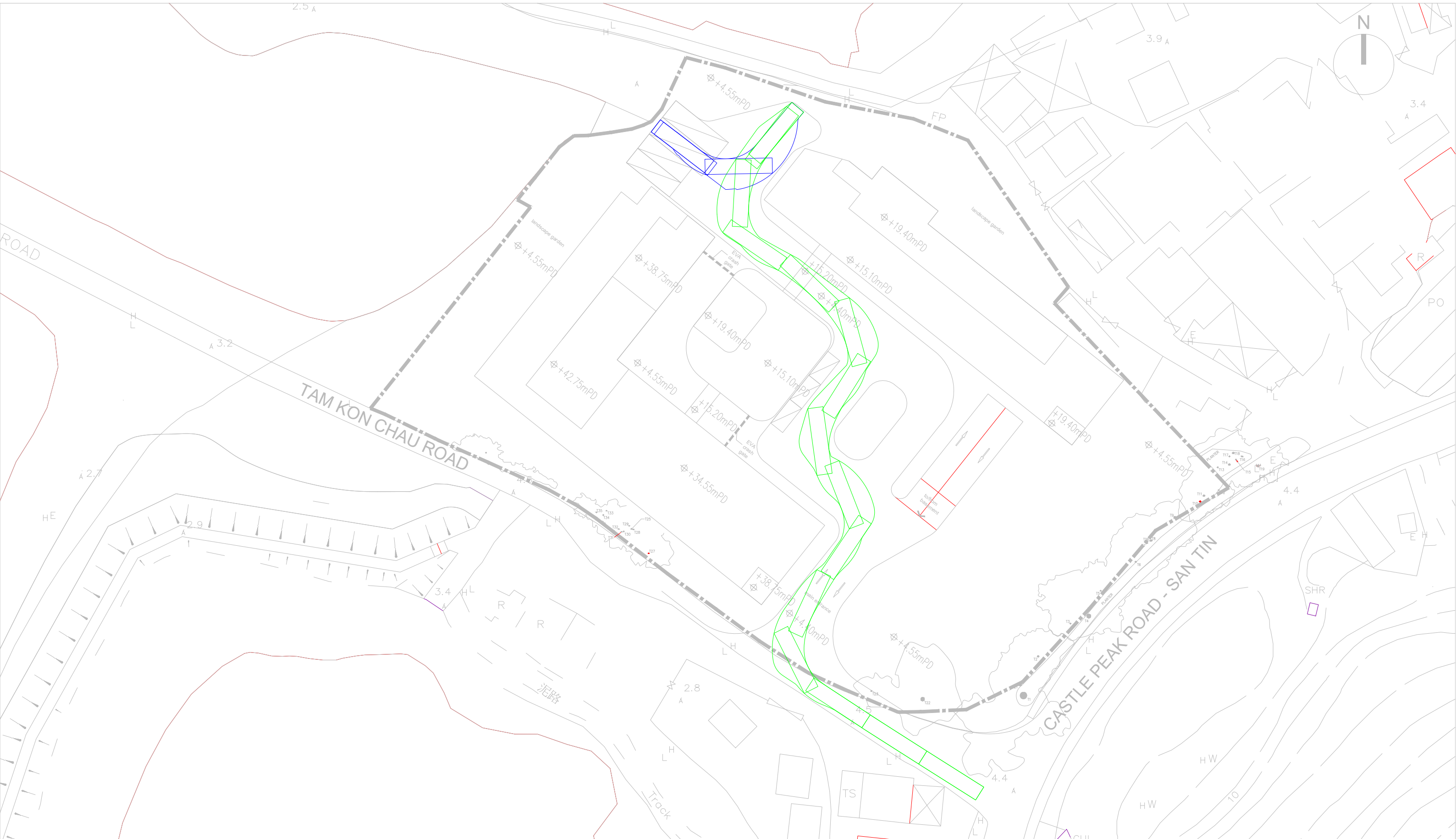
H

L

H

L

H





TAM KON CHAU ROAD

CASTLE PEAK ROAD - SAN TIN

泥路

Track

TS

SHR

TO

PO

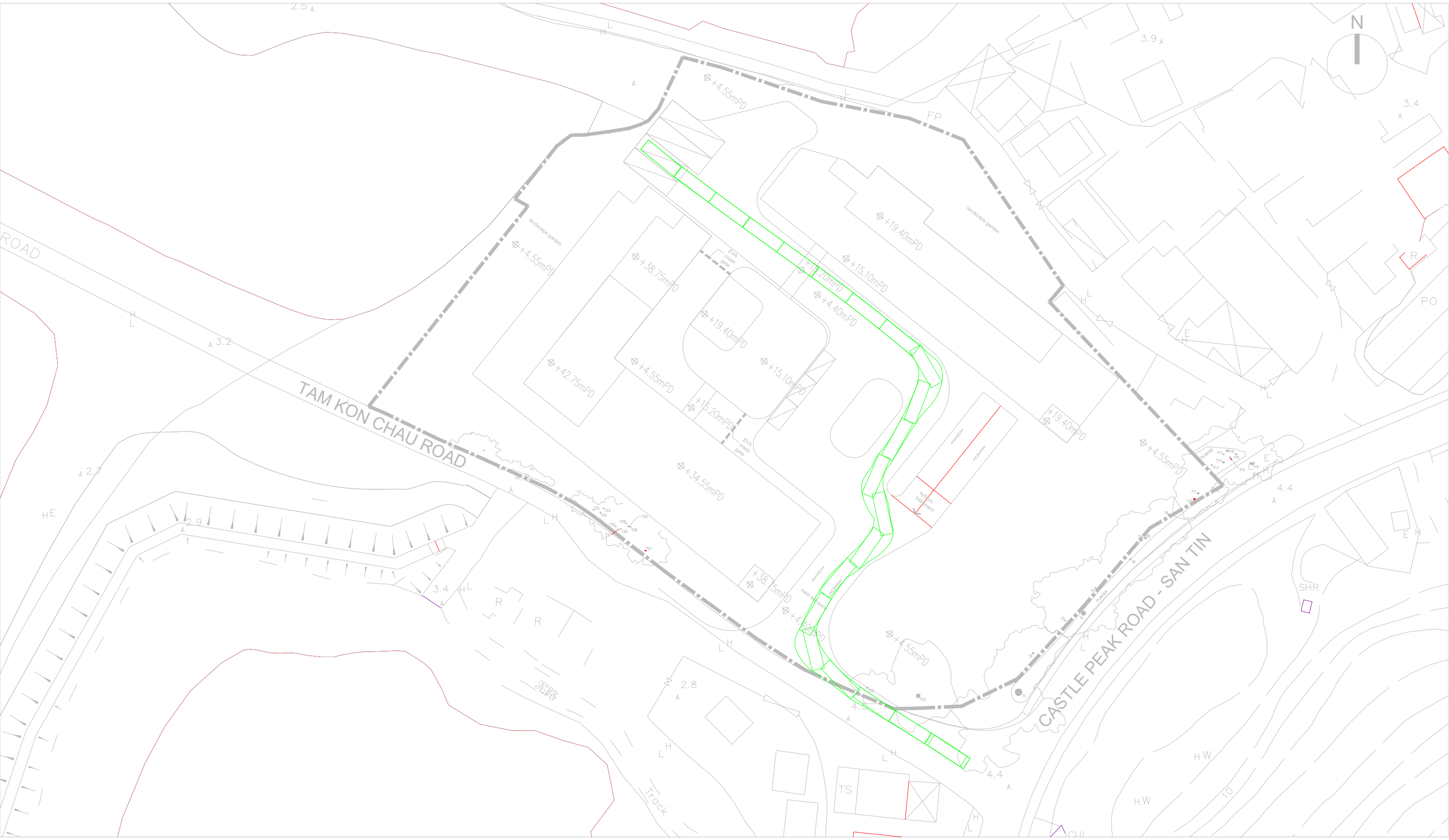
E H

HE

HW

HW





2.5 A

3.9 A



3.4 A

⊕+4.55mPD

FP

landscape garden

⊕+19.40mPD

⊕+4.55mPD

⊕+38.75mPD

⊕+15.10mPD

⊕+4.40mPD

⊕+19.40mPD

⊕+42.75mPD

⊕+4.55mPD

⊕+15.10mPD

⊕+19.20mPD

⊕+34.55mPD

TAM KON CHAU ROAD

⊕+19.40mPD

⊕+4.55mPD

2.7 A

3.2 A

HE

3.9 A

3.4 A

R

2.8 A

泥路

Track

TS

CASTLE PEAK ROAD - SAN TIN

⊕+4.55mPD

⊕+4.20mPD

⊕+38.75mPD

4.4 A

SHR

HW

HW

TO

CU











TAM KON CHAU ROAD

CASTLE PEAK ROAD - SAN TIN

泥路

泥路

泥路

