Appendix C

Traffic Impact Assessment

Reference number CHK50791710/PTC/L2500339/sys

03/03/2025

SECTION 16 PLANNING APPLICATION FOR PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS LOTS IN D.D. 221 AND ADJOINING GOVERNMENT LAND, SHA HA, SAI KUNG

TRAFFIC IMPACT ASSESSMENT

SYSTRA MVA

CONTENTS

TABLES

DRAWINGS

1. INTRODUCTION

1.1 Background

1.1.1 The application site is at various lots in DD221 and adjoining Government land, Sai Kung, as shown in **Drawing 1.1**. It is currently in an area shown as "Road" in the approved Sai Kung Town Outline Zoning Plan (OZP) S/SK-SKT/6.

1.1.2 The applicant intends to develop the site into a residential development with a view to better utilizing the "leftover" land resources between the CDA(1) zone and Tai Mong Tsai Road taking into account the ongoing Hiram's Highway Improvement Stage 2. This Traffic Impact Assessment (TIA) study is to review the potential traffic impact on the adjacent local road network by the proposed residential development to support the Section 16 Application.

1.2 Study Objective

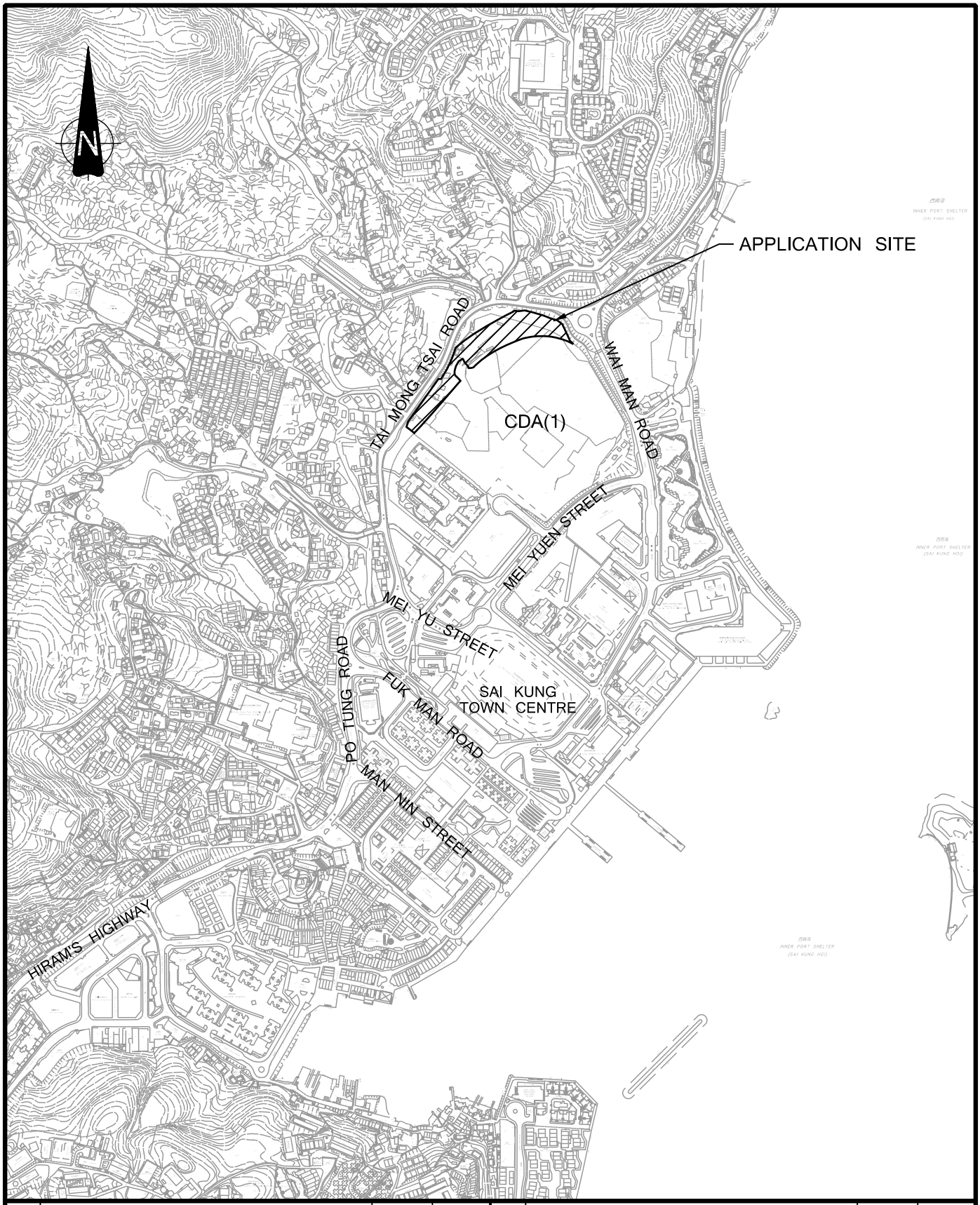
1.2.1 The objectives of this study are summarised as follows:

- review the current traffic condition and circulation pattern in the adjacent local road network;
- review the proposed development schedule;
- produce future traffic forecasts on the adjacent local road network with considerations of the planned developments in the vicinity;
- investigate the traffic impact on the adjacent local road network with operation of the proposed development at Design Year.

1.3 Report Structure

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

- **Chapter 2** – Proposed Development, presents the development parameters and the transport provisions of the proposed scheme;
- **Chapter 3** – Traffic Context, describes the current traffic condition and future traffic planning in the vicinity;
- **Chapter 4** – Traffic Forecasts, describes the methodology of traffic forecasting exercise and presents the results;
- **Chapter 5** – Traffic Impact Assessment, presents the assessment findings of the anticipated traffic condition upon occupation of the proposed development, and suggests, if necessary, improvement measures to alleviate the foreseeable traffic problem;
- **Chapter 6** – Public Transport Service Assessment, presents the assessment results on the utilisation of the public transport upon occupation of the proposed development, and suggests, if necessary, improvement measures to alleviate the foreseeable problem;
- **Chapter 7** – Pedestrian Impact Assessment, describes the pedestrian forecasting methodology and presents the results;
- **Chapter 8** –Conclusion, summarises the study findings and presents the conclusion accordingly.



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Project Title
SECTION 16 PLANNING APPLICATION FOR PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS LOTS IN D.D. 221 AND ADJOINING GOVERNMENT LAND, SHA HA, SAI KUNG

Drawing Title

SITE LOCATION

Designed	Checked	Scale	Date	Drawing No.	Rev.
MLC	PTC	N.T.S.	SEP 2024	1.1	-

CHK50791710/TIA/F11.DGN/CKC/12SEP24

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2. PROPOSED DEVELOPMENT

2.1 Site Location

2.1.1 The application site is located in Sha Ha. It is bounded by Tai Mong Tsai Road to the north, existing residential developments to the west and planned CDA(1) site to the south.

2.2 Development Parameters

2.2.1 The subject site is proposed to be developed into a residential development. The proposed development parameters are summarised in **Table 2.1**. It is anticipated to be completed in year 2032. The Master Layout Plan (MLP) and basement plan are illustrated in **Drawing 2.1** and **Drawing 2.2** respectively.

Table 2.1 Proposed Development Parameters

	Parameter
Plot Ratio	about 1.5
Domestic GFA	about 11,421m^2
No. of Blocks	3
No. of Units	about 280
Average Flat size	approx. 40.79m^2
Anticipated Population	about 756$^{(1)}$

Remark : (1) Adopting the average domestic household size of 2.7 in the District Council Constituency Area Q01 Sai Kung Central in 2021 Population Census.

2.3 Vehicular Access Arrangement

2.3.1 The vehicular access for the proposed development is Tai Mong Tsai Road, which is the only road abutting the site. A left-in/left-out arrangement is proposed for the vehicular access to minimize the traffic impact to Tai Mong Tsai Road. The indicative design of the vehicular access is illustrated in **Drawing No. 2.3**. The access design is subject to change in the later detailed design stage.

2.4 Provision of Public Pedestrian Walkway

2.4.1 It is noted that a 6m wide public pedestrian walkway will be provided by others to connect Tai Mong Tsai Road and Mei Fuk Street for public use according to the approved planning application of nearby CDA(1) site (Application No. A/SK-SKT/28). As part of the planned pedestrian walkway will fall within boundary of the application site, a 6m wide public pedestrian walkway will be reserved on the west of the application site. The proposed 6m public pedestrian walkway within the site is indicated in the **Drawing 2.1**.

2.5 Internal Transport Facility

2.5.1 The proposed residential development would be provided with internal transport facilities in accordance with the latest Hong Kong Planning Standards and Guidelines (HKPSG). In addition, public parking spaces are proposed to increase the parking space supply to the community. Taking into consideration of the basement extent, 10 nos. public parking spaces for private car are proposed. The proposed provisions are summarised in **Table 2.2**.

Table 2.2 Proposed Internal Transport Facility Provisions

Item	High-end of HKPSG Requirements					Parameters	Provision (nos.)
Residential Development							
Private Car	GPS(1)	R1(1)		R2(1)	R3(1)		
	1 space per 4 units	FS ≤ 40m^2	0.5	1	1.1	160 units	22
		40m^2<FS≤70m^2	1.2			120 units	40
Visitor Parking	4 spaces for each block with 61-75 units(2)					2 blocks	8
	5 spaces for each block with more than 75 units					1 block	5
						Total	75(3)
Motorcycle Parking	1 space per 100 units					280 units	3
HGV Loading/Unloading Bays	1 bay per residential block					3 blocks	3
Public Parking Spaces							
Private Car	-					-	10

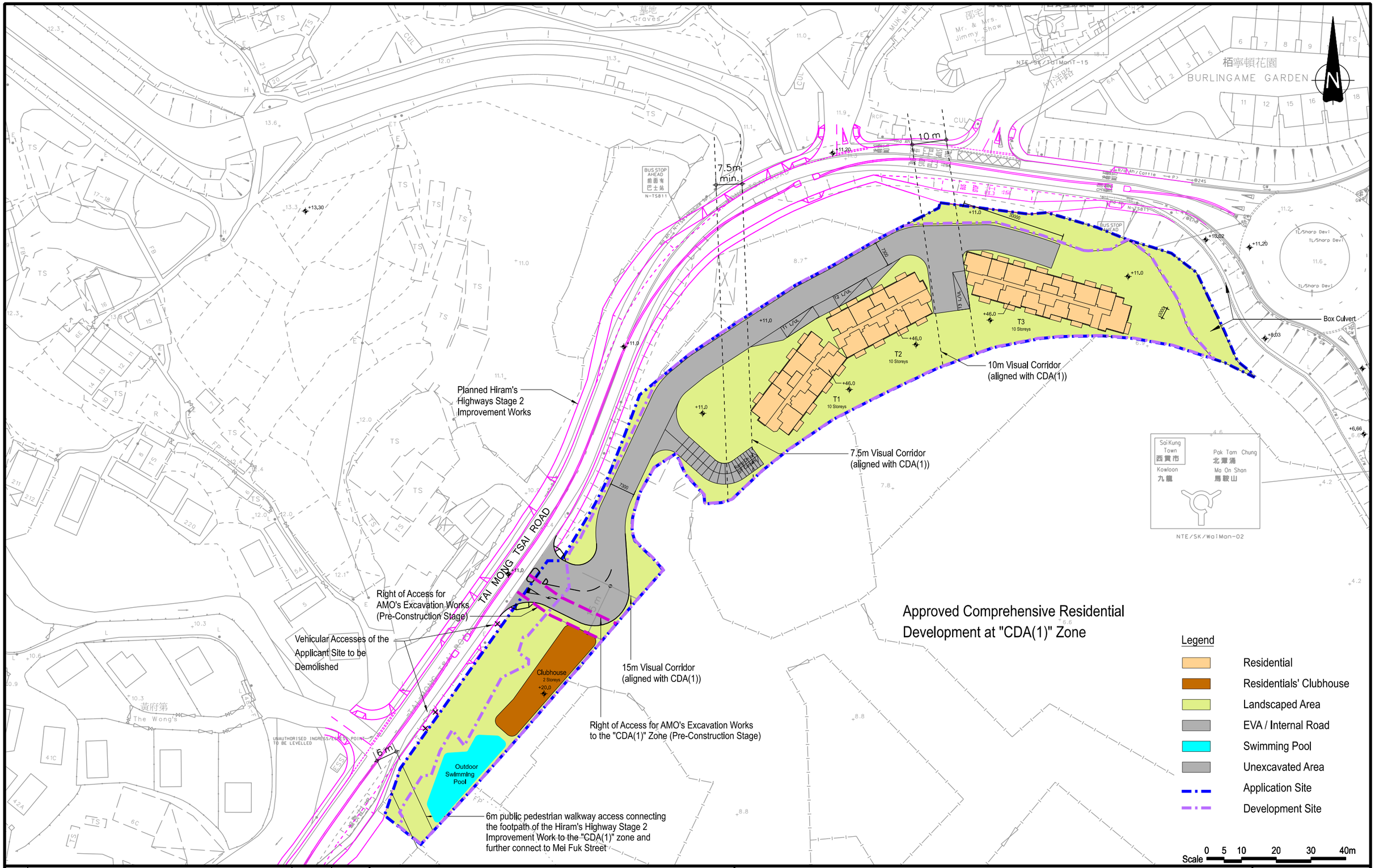
Remarks:

(1) Parking Requirement = GPS x R1 x R2 x R3, where GPS = 1 car space per 4 flats, R1=1.2 for flat size 40m^2<FS≤70m^2, R2=1 for the site outside a 500-radius of rail station, R3=1.1 for domestic plot ratio 1<PR≤2.

(2) With reference to the other similar residential developments.

(3) Including 2 disabled spaces for total 51-150 parking spaces, with reference to Regulation 72 of the Building (Planning) Regulations.

2.5.2 Both the ancillary carpark and public parking spaces would be located in the basement, whilst the loading/unloading bays would be located on the ground floor level along the 7.3m wide internal driveway.



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A	MINOR AMENDMENT	PTC	03MAR25

Project Title

SECTION 16 PLANNING APPLICATION FOR PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS LOTS IN D.D. 221 AND ADJOINING GOVERNMENT LAND, SHA HA, SAI KUNG

Drawing Title

MASTER LAYOUT PLAN

Designed	Checked	Scale	Date	Drawing No.	Rev.
HZF	PTC	1:1000(A3)	DEC 2024	2.1	A

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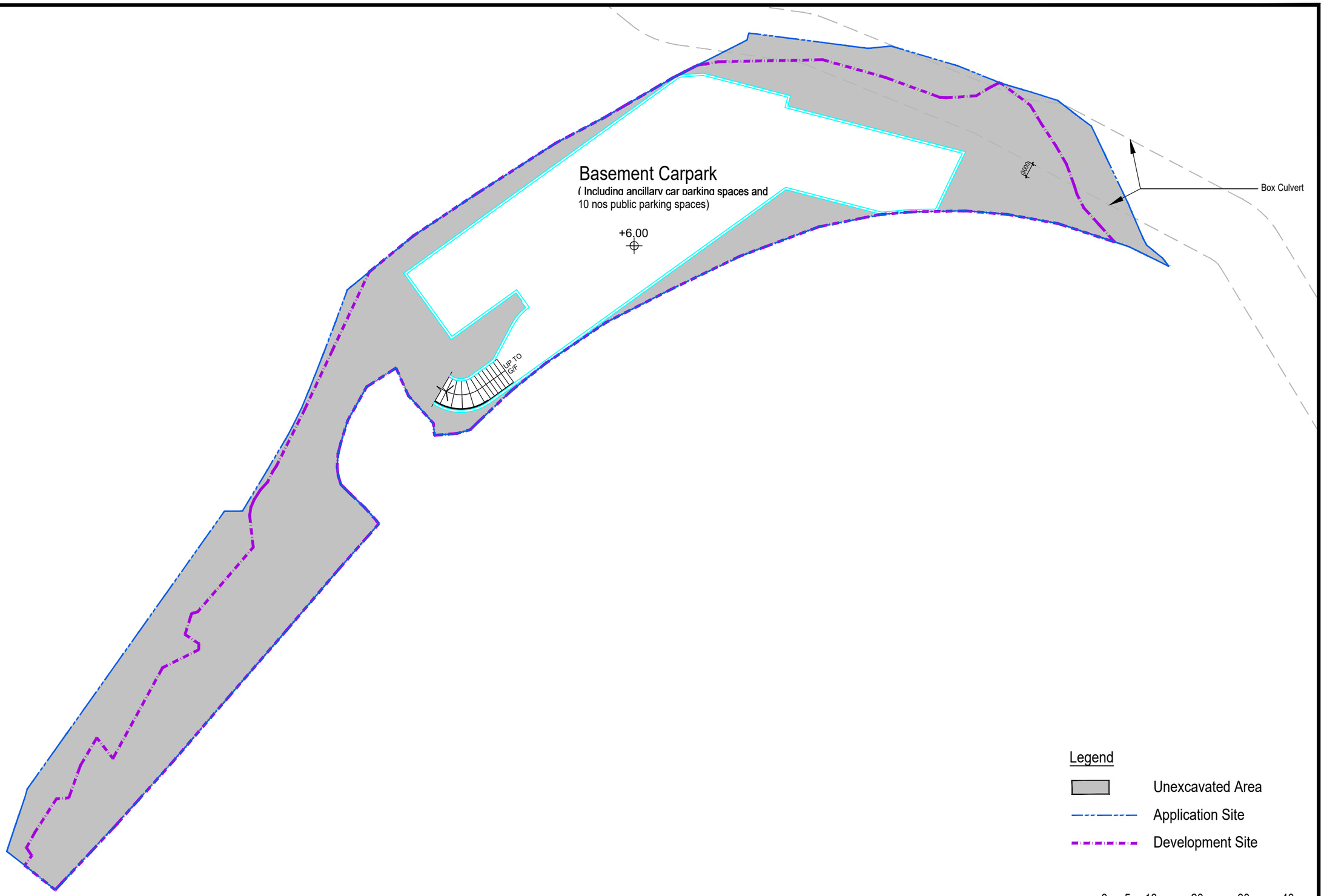

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SECTION 16 PLANNING APPLICATION FOR PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS LOTS IN D.D. 221 AND ADJOINING GOVERNMENT LAND, SHA HA, SAI KUNG

Drawing Title

BASEMENT PLAN

Designed	Checked	Scale	Date	Drawing No.	Rev.
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SYSTRA MVA

CHK50791710/TIA/F22.DWG/LHO/28FEB25

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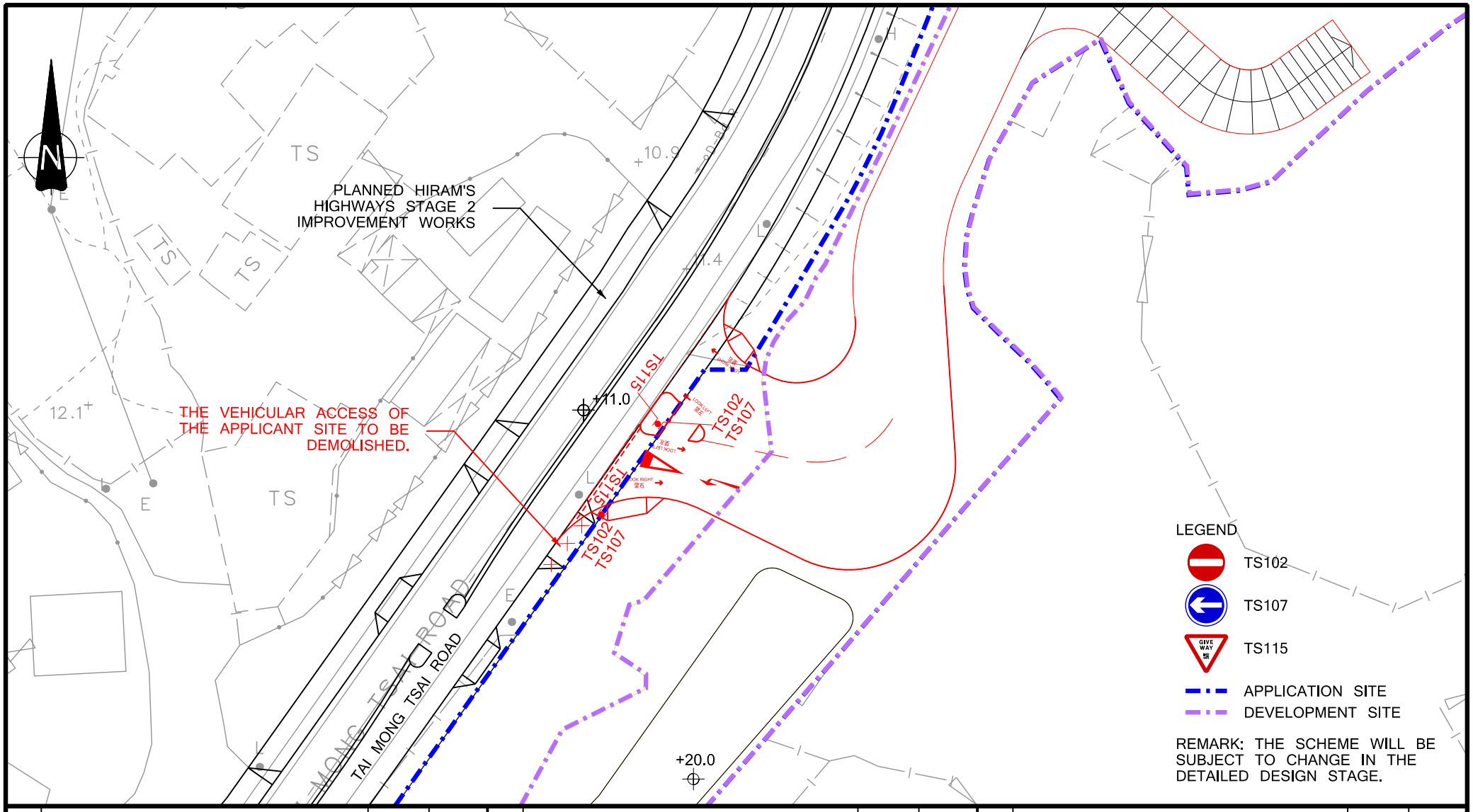

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SECTION 16 PLANNING APPLICATION FOR PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS LOTS IN D.D. 221 AND ADJOINING GOVERNMENT LAND, SHA HA, SAI KUNG

Drawing Title

INDICATIVE ACCESS DESIGN

Designed	Checked	Scale	Date	Drawing No.	Rev.
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SYSTRA MVA

CHK50791710/TIA/F23.DGN/LHO/03MAR25

Original Size : A4

3. TRAFFIC CONTEXT

3.1 Road Network

Existing Road Network

3.1.1 Sha Ha area is mainly served by Tai Mong Tsai Road, a rural road which functions as local distributor running in north-south direction. It connects Po Tung Road to Hiram's Highway and to Clear Water Bay Road further on the south and Sai Sha Road on the north.

3.1.2 Hiram's Highway is a strategic road linking up Sai Kung to East Kowloon and Tseung Kwan O. The existing Hiram's Highway between Marina Cove to Sai Kung Town is generally a single 2-lane carriageway.

Planned Road Network

3.1.3 Improvement works to Hiram's Highway has been planned by Highways Department (HyD), with the objectives to relieve existing traffic congestion and enhance the resilience to unexpected incidents. The works has been divided into 2 stages. Stage 1 works included the road widening of Hiram's Highway between Clear Water Bay Road and Marina Cove, which has been completed in 2021.

3.1.4 The Stage 2 works includes widening of the road section between Marina Cove to Sai Kung Town, which covered Hiram's Highway, Po Tung Road and a section of Tai Mong Tsai Road abutting the application site. According to the HyD's press releases dated 29 September 2023, the design and construction of the works is scheduled to commence in the Q2 2024 and will take about 84 months to complete. As such, it is anticipated that the improvement works would be completed by 2032. **Drawing No. 3.1** shows the extent of the planned Stage 2 improvement works.

3.2 Existing Traffic Condition

3.2.1 A total of nine local junctions and six road links have been identified with reference to the major ingress and egress routes of the proposed development for assessment purpose. The key local junctions are listed in **Table 3.1**, whilst their locations are indicated in **Drawing 3.2**.

Table 3.1 Identified Key Local Junctions and Road Links

Ref. (1)	Junction/Road Link	Type	Drawing No.
Junction			
A	Tai Mong Tsai Road/Wai Man Road	Roundabout	**3.3**
B	Tai Mong Tsai Road/Mei Yu Street/Po Tung Road	Priority	**3.4**
C	Po Tung Road/Fuk Man Road	Roundabout	**3.5**
D	Po Tung Road/Man Nin Street	Priority	**3.6**
E	Pedestrian Crossing near Yau Ma Po Street	Signal	**3.7**
F	Po Tung Road/Yau Ma Po Street	Priority	**3.8**
G	Hiram's Highway/Chui Tong Road	Priority	**3.8**
H	Hiram's Highway/Po Lo Che Road /Hong Kin Road	Signal	**3.9**
I	Tai Mong Tsai Road /Sai Sha Road	Roundabout	**3.10**

Table 3.1 Identified Key Local Junctions and Road Links (Cont'd)

Ref. (1)	Junction/Road Link	Type	Drawing No.
Road Link			
S1	Tai Mong Tsai Road (section between Wai Man Road and Sha Ha Path)	Single-2	**3.2**
S2	Tai Mong Tsai Road (section between Sha Kok Mei Road and Sha Kok Mei Village (North)	Single-2	**3.2**
S3	Fuk Man Road (section between Po Tung Road and Chan Man Street)	Single-2	**3.2**
S4	Po Tung Road (section between Fuk Man Road and Man Nin Street)	Single-2	**3.2**
S5	Hiram's Highway (section between Hong Kin Road and Po Lo Che Path)	Single-2	**3.2**
S6	Sai Sha Road (section near its roundabout with Tai Mong Tsai Road)	Single-2	**3.2**

Remark: (1) Locations refer to **Drawing 3.2**.

3.2.2 In order to establish the current traffic condition in the area, traffic surveys in form of manual classified count were conducted at the identified key local junctions. Since Sai Kung is not only a residential area, but also is a popular recreational place during the weekends, the traffic surveys were not only conducted during the typical weekday morning and evening peak hours, but also the weekend peak period.

3.2.3 The traffic surveys were arranged and conducted on a typical weekday in April 2024 during morning peak hours between 07:30-09:30 and the evening peak hours between 17:00-19:00 and a typical weekend in April 2024 (Saturday) during the hours of 12:00-19:00.

3.2.4 The observed traffic data indicates that the weekday morning and evening peak hours occurred from 07:45 to 08:45 and 17:30 to 18:30 respectively while the weekend peak hour occurred from 13:45 to 14:45. The observed peak hour traffic flows are shown in **Drawing 3.11**.

Junction Operational Performance

3.2.5 Junction capacity assessments have been conducted to evaluate the current operational performance of the identified key local junctions. The assessment results are summarised in **Table 3.2**.

Table 3.2 Current Junction Operational Performance

Ref. (1)	Junction	Type	Reserve Capacity / Ratio to Flow Capacity		
			Weekday		Weekend Peak
			AM Peak	PM Peak	
A	Tai Mong Tsai Road/Wai Man Road	Roundabout	0.62	0.48	0.53
B	Tai Mong Tsai Road/Mei Yu Street/Po Tung Road	Priority	0.03	0.05	0.07
C	Po Tung Road/Fuk Man Road	Roundabout	1.14	1.02	1.29
D	Po Tung Road/Man Nin Street	Priority	0.65	0.91	1.34
E	Pedestrian Crossing near Yau Ma Po Street	Signal	37%	41%	32%
F	Po Tung Road/Yau Ma Po Street	Priority	0.21	0.22	0.13
G	Hiram's Highway/Chui Tong Road	Priority	0.19	0.30	0.37
H	Hiram's Highway/Po Lo Che Road /Hong Kin Road	Signal	45%	43%	44%
I	Tai Mong Tsai Road /Sai Sha Road	Roundabout	0.32	0.33	0.30

Remark: (1) Locations refer to **Drawing 3.2**.

3.2.6 The assessment results indicated that all the identified key junctions are currently operating with capacity, except the roundabout of Po Tung Road/Fuk Man Road (C) and the priority junction of Po Tung Road/Man Nin Street (D).

Road Link Operational Performance

3.2.7 Traffic surveys have also been conducted to establish the current traffic flows at the identified road links as indicated in **Drawing 3.2**. The Volume to Capacity (V/C) ratio of each identified road links have been evaluated and the results are summarised in **Table 3.3**.

Table 3.3 Current Road Link Operational Performance

Ref. (1)	Road Link	Dir	Observed Flows (pcu/hr)			Observed Flows (Veh/hr)			Design Capacity (Veh/hr) (2)	V/C Ratio		
			AM	PM	WE	AM	PM	WE		AM	PM	WE
S1	Tai Mong Tsai Road	NB	500	630	655	442	571	592	850	0.52	0.67	0.70
		SB	685	535	590	621	494	527	850	0.73	0.58	0.62
S2	Tai Mong Tsai Road	NB	435	585	585	402	548	539	850	0.47	0.64	0.63
		SB	605	470	505	549	441	450	850	0.65	0.52	0.53
S3	Fuk Man Road	WB	455	495	615	400	400	530	850	0.47	0.47	0.62
		EB	485	420	555	408	345	470	850	0.48	0.41	0.55
S4	Po Tung Road	NB	750	900	960	667	811	851	850	0.78	0.95	1.00
		SB	945	835	980	844	753	876	850	0.99	0.89	1.03
S5	Hiram's Highway	NB	810	970	935	720	886	822	850	0.85	1.04	0.97
		SB	1065	860	975	955	774	876	850	1.12	0.91	1.03
S6	Sai Sha Road	NB	500	615	505	448	580	457	850	0.53	0.68	0.54
		SB	565	410	440	520	391	393	850	0.61	0.46	0.46

Remarks:

(1) Refer to **Drawing 3.2**.
(2) Design capacity of 850 veh/hr for each bound of single 2-lane carriageway, as extracted from TPDM Volume 2 Chapter 2.4.

3.2.8 The assessment results in **Table 3.3** indicated that all the identified sections are currently operating within capacity, except the road link of Po Tung Road (S4) and a section of Hiram's Highway near Hong Kin Road (S5).

3.3 Existing Public Transport Services

3.3.1 Franchised bus and minibus are the major public transport services in Sai Kung. The nearby public transport facilities of the site are indicated in **Drawing 3.12**, whilst the details and servicing schedules are summarised in **Table 3.4**.

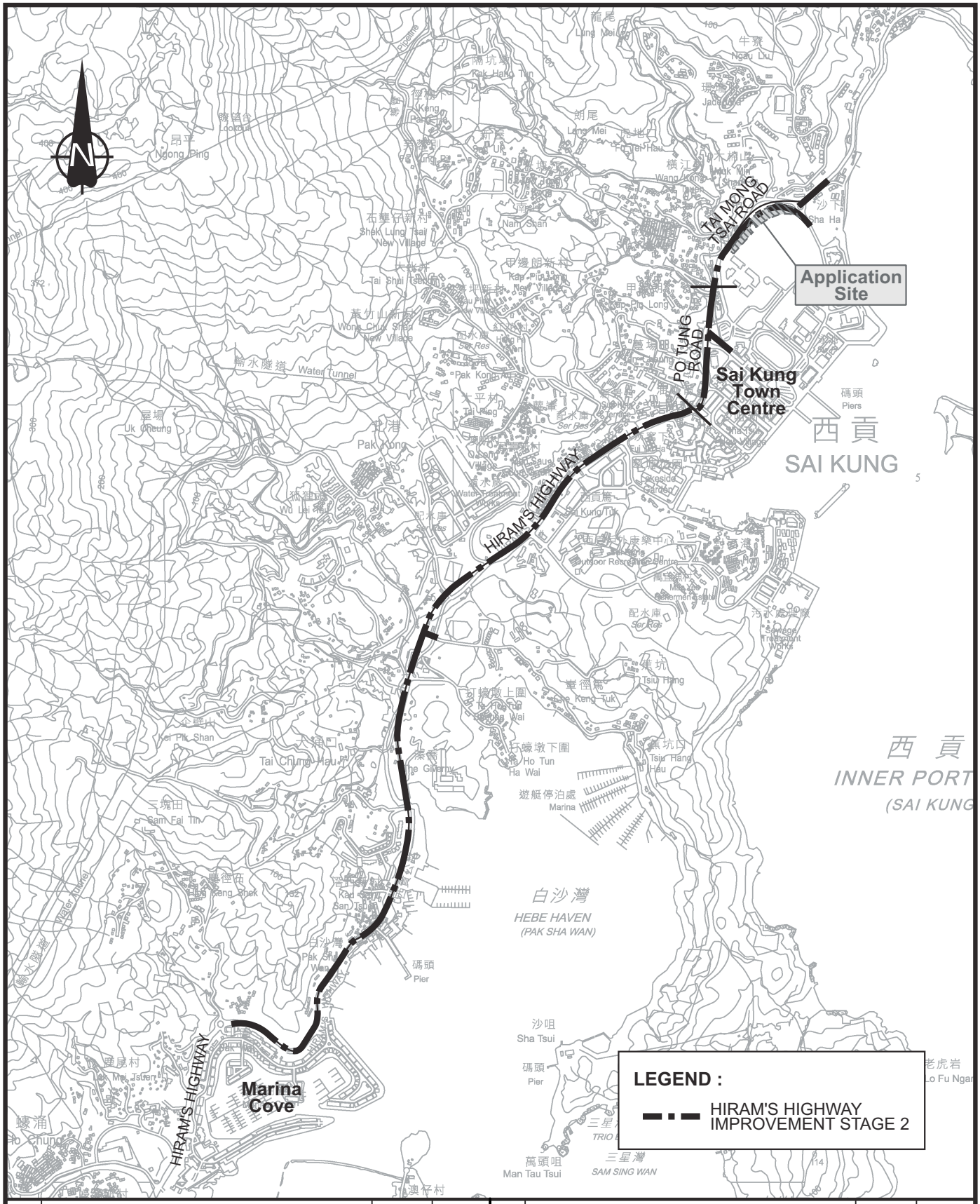
Table 3.4 Existing Public Transport Services

Route	Origin/Destination	Frequency (min.)	Remark
Franchised Bus			
92	Diamond Hill Railway Station <–> Sai Kung	10 – 30	-
92R	Sai Kung → Tsim Sha Tsui Star Ferry	From Tsim Sha Tsui Star Ferry: 60 From Sai Kung: 20-30	Saturday, Sunday and Public Holiday only
94	Wong Shek Pier <–> Sai Kung	20 – 40	-
96R	Diamond Hill Railway Station <–> Wong Shek Pier	18 – 30	Saturday, Sunday and Public Holiday only
99	Heng On Bus Terminus <–> Sai Kung	15 – 30	-
99R	University Railway Station Bus Terminus <–> Sai Kung North Bus Terminus	60	Public Holiday only
292P	Sai Kung → Kwun Tong	--- (for ref. one trip at 7:30a.m only)	Weekday Morning Peak Hour only
299X	Shatin Central Bus Terminus <–> Sai Kung	15 – 20	-
792M	Tseung Kwan O Station <–> Sai Kung	15 –30	-
Green Minibus			
1	Kowloon Bay (Telford Gardens) <–> Sai Kung	8 – 20	-
1A(1)	Diamond Hill (Choi Hung Road) Public Transport Interchange <–> Sai Kung	4	-
1S	Diamond Hill (Choi Hung Road) Public Transport Interchange <–> Sai Kung	10 – 15	Overnight Service only
7	Hoi Ha <–> Sai Kung	20 – 30	-
9	Lady Maclehose Holiday Village <–> Sai Kung	30	-
12	Po Lam <–> Sai Kung	10 – 15	-
101M (2)	Hang Hau Station <–> Sai Kung	3 – 30	-
Red Minibus			
-	Causeway Bay <–> Sai Kung	Non-scheduled	-
-	Kwun Tong <–> Sai Kung	Non-scheduled	-
-	Mong Kok <–> Sai Kung	Non-scheduled	-

Remarks:

(1) Apart from regular services, short-working journeys from Sai Kung North Public Transport Interchange will be operated daily from 5:30 am and 9:00 am at a frequency of 20 minutes.

(2) Apart from regular services, special trips (between Sai Kung and Hang Hau Station (via Sai Kung North Public Transport Interchange)) are operated from 7:00 am to 9:30 am between Mondays and Fridays (except public holidays) and from 4:00 pm to 6:30pm daily at a frequency of 10 minutes.



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Project Title

SECTION 16 PLANNING APPLICATION FOR PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS LOTS IN D.D. 221 AND ADJOINING GOVERNMENT LAND, SHA HA, SAI KUNG

Drawing Title

PLANNED IMPROVEMENT OF HIRAM'S HIGHWAY

Designed	Checked	Scale	Date	Drawing No.	Rev.
MLC	PTC	NTS	SEP 2024	3.1	-

SYSTRA MVA

CHK50791710/TIA/F31.CDR/LLH/12SEP24

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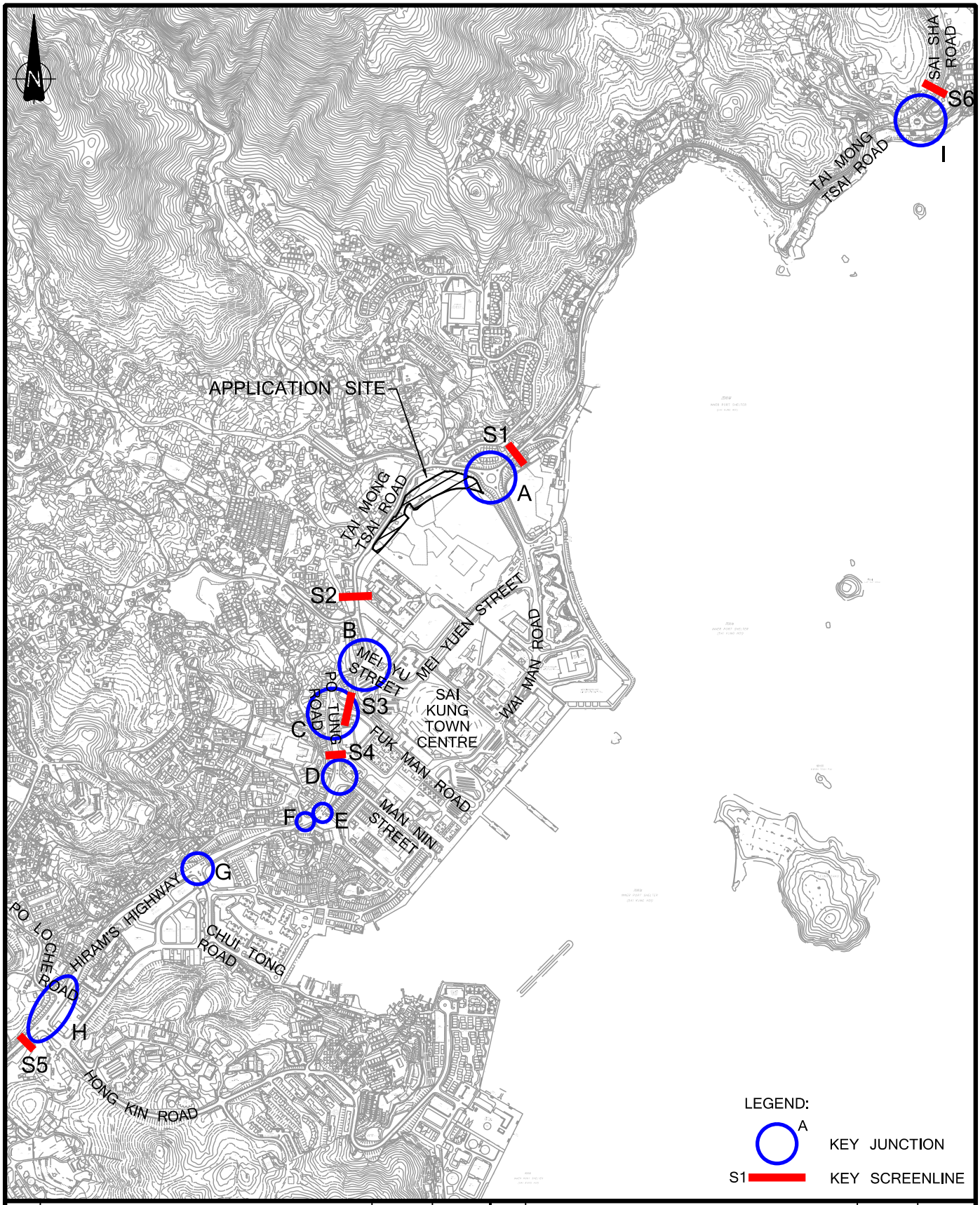

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A	MINOR AMENDMENT	PTC	23DEC24	-	-	-	-

Project Title

SECTION 16 PLANNING APPLICATION FOR PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS LOTS IN D.D. 221 AND ADJOINING GOVERNMENT LAND, SHA HA, SAI KUNG

Drawing Title

IDENTIFIED KEY LOCAL JUNCTIONS AND SCREENLINES

Designed	Checked	Scale	Date	Drawing No.	Rev.
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CHK50791710/TIA/F32-A.DGN/CKC/23DEC24

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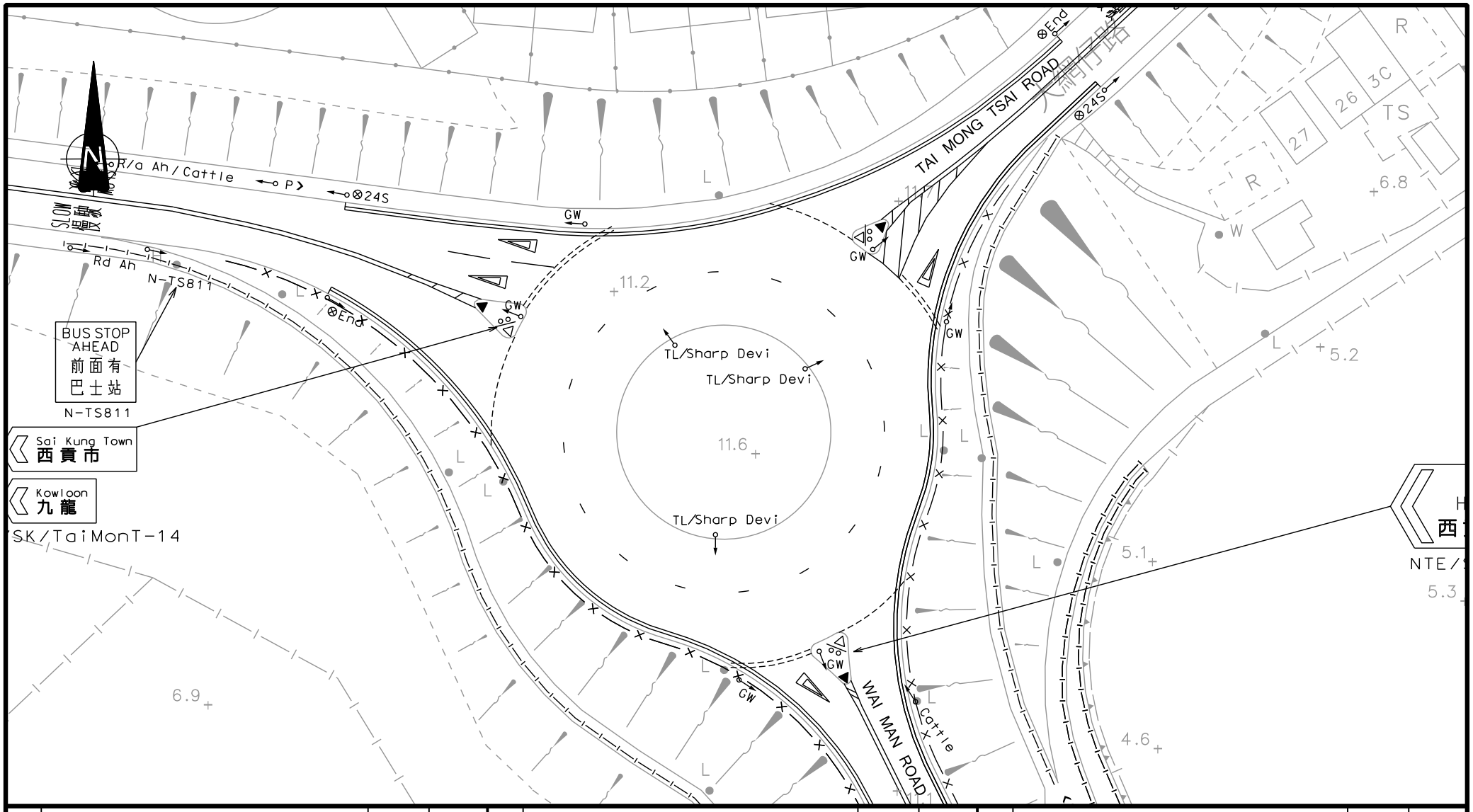

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Project Title

SECTION 16 PLANNING APPLICATION FOR PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS LOTS IN D.D. 221 AND ADJOINING GOVERNMENT LAND, SHA HA, SAI KUNG

Drawing Title

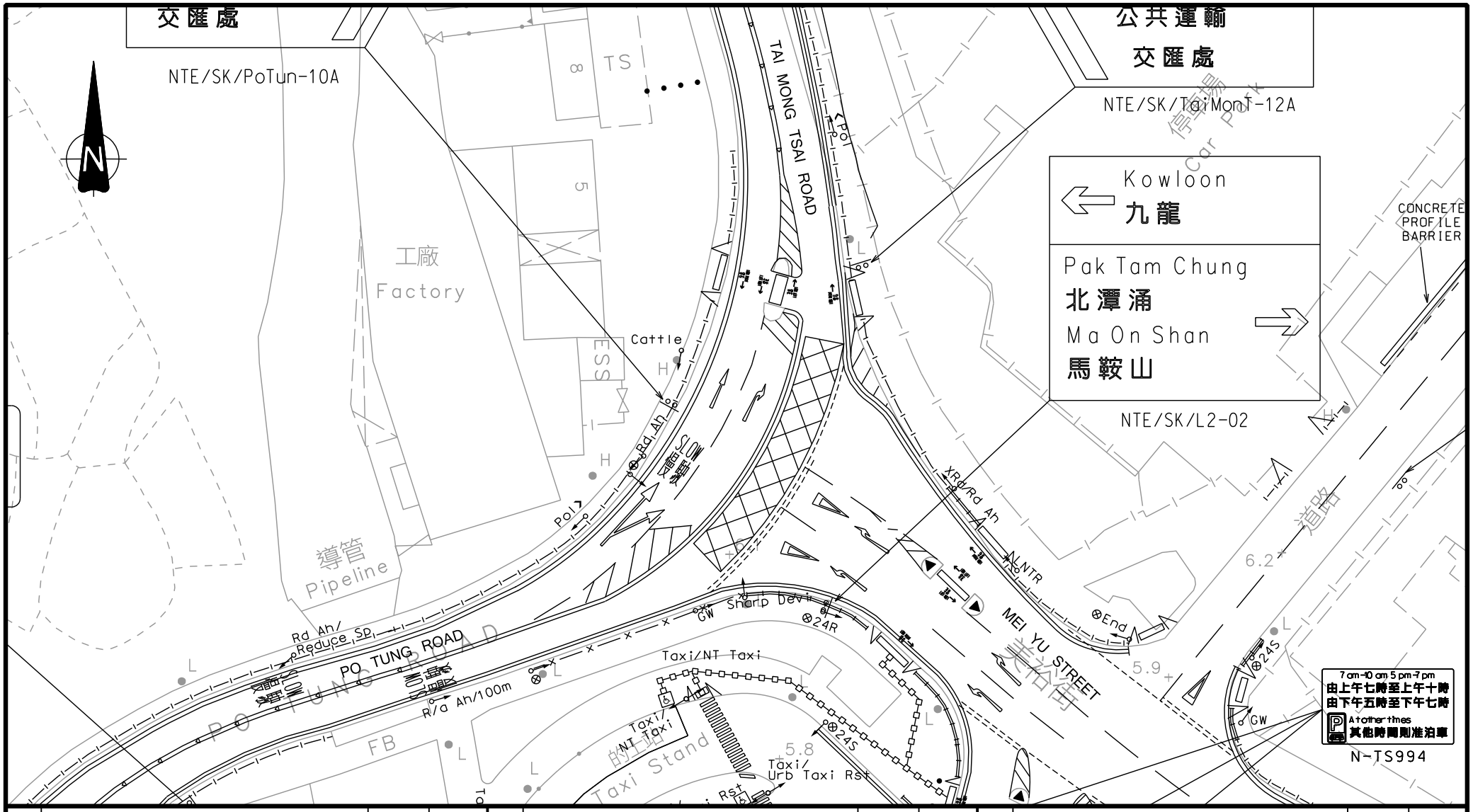
EXISTING JUNCTION LAYOUT OF TAI MONG TSAI ROAD / WAI MAN ROAD (A)

Designed	Checked	Scale	Date	Drawing No.	Rev.
MLC	PTC	1:500(A4)	SEP 2024	3.3	-

SYSTRA MVA

CHK50791710/TIA/F33.DGN/CKC/12SEP24

Original Size : A4



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Project Title

SECTION 16 PLANNING APPLICATION FOR PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS LOTS IN D.D. 221 AND ADJOINING GOVERNMENT LAND, SHA HA, SAI KUNG

Drawing Title

EXISTING JUNCTION LAYOUT OF TAI MONG TSAI ROAD / MEI YU STREET / PO TUNG ROAD (B)

Designed	Checked	Scale	Date	Drawing No.	Rev.
MLC	PTC	1:500(A4)	SEP 2024	3.4	-

SYSTRA MVA

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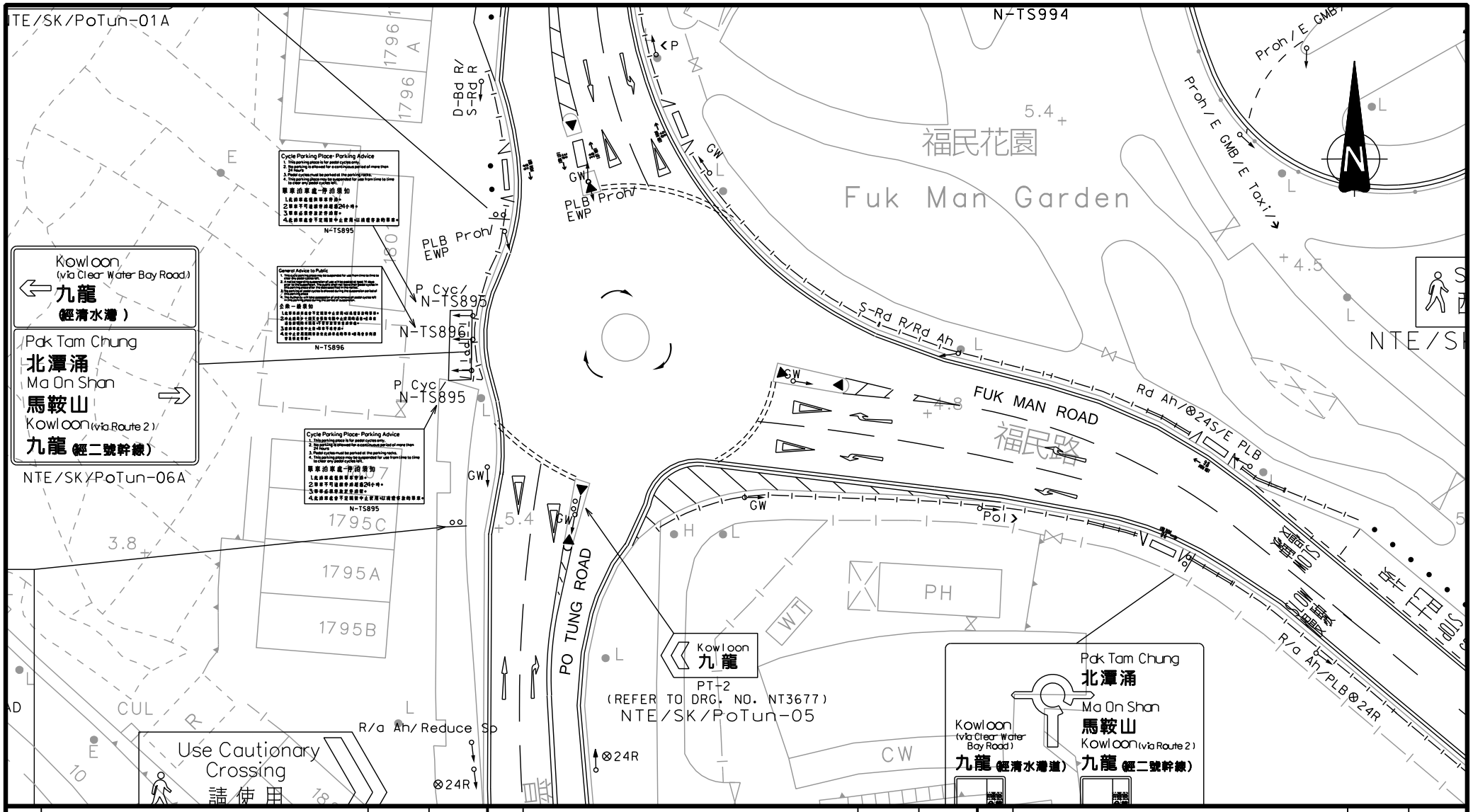

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Project Title

SECTION 16 PLANNING APPLICATION FOR PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS LOTS IN D.D. 221 AND ADJOINING GOVERNMENT LAND, SHA HA, SAI KUNG

Drawing Title

EXISTING JUNCTION LAYOUT OF PO TUNG ROAD / FUK MAN ROAD (C)

Designed	Checked	Scale	Date	Drawing No.	Rev.
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SYSTRA MVA

CHK50791710/TIA/F35.DGN/CKC/12SEP24

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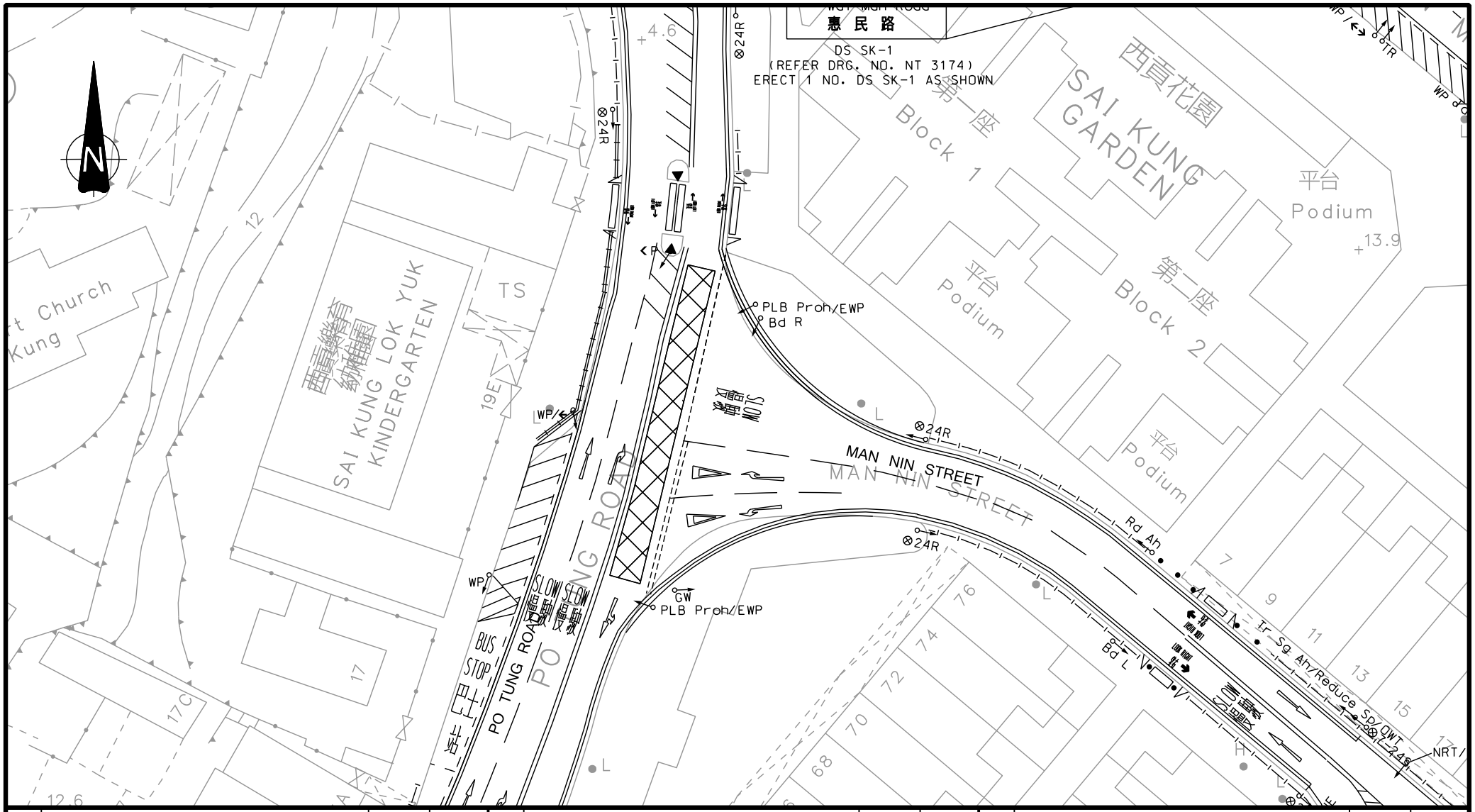

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Project Title

SECTION 16 PLANNING APPLICATION FOR PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS LOTS IN D.D. 221 AND ADJOINING GOVERNMENT LAND, SHA HA, SAI KUNG

Drawing Title

EXISTING JUNCTION LAYOUT OF PO TUNG ROAD / MAN NIN STREET (D)

Designed	Checked	Scale	Date	Drawing No.	Rev.
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SYSTRA MVA

CHK50791710/TIA/F36.DGN/CKC/14JUN24

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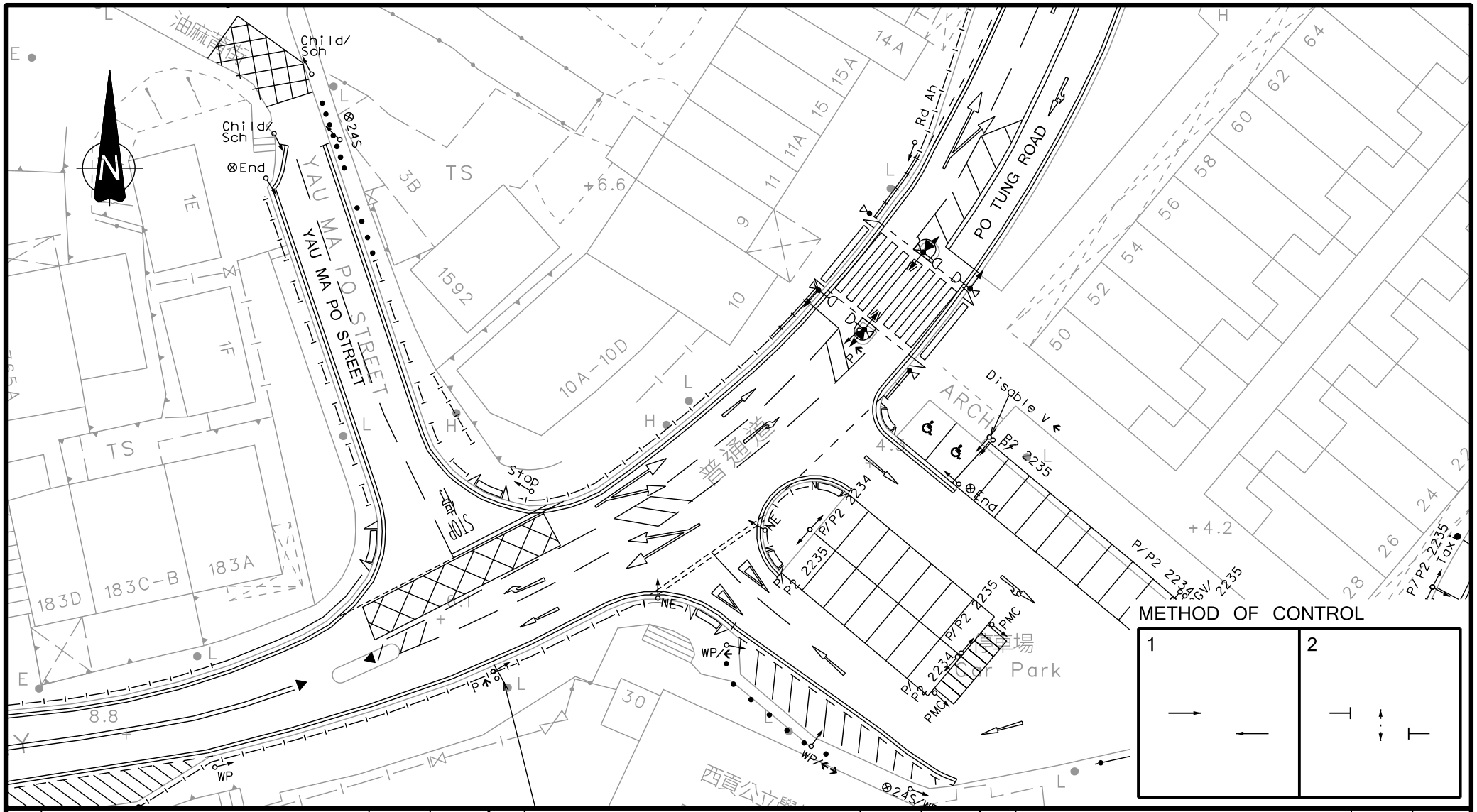

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Rev.	Description	Checked	Date	Rev.	Description	Checked	Date	Rev.	Description	Checked	Date

Project Title

SECTION 16 PLANNING APPLICATION FOR PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS LOTS IN D.D. 221 AND ADJOINING GOVERNMENT LAND, SHA HA, SAI KUNG

Drawing Title

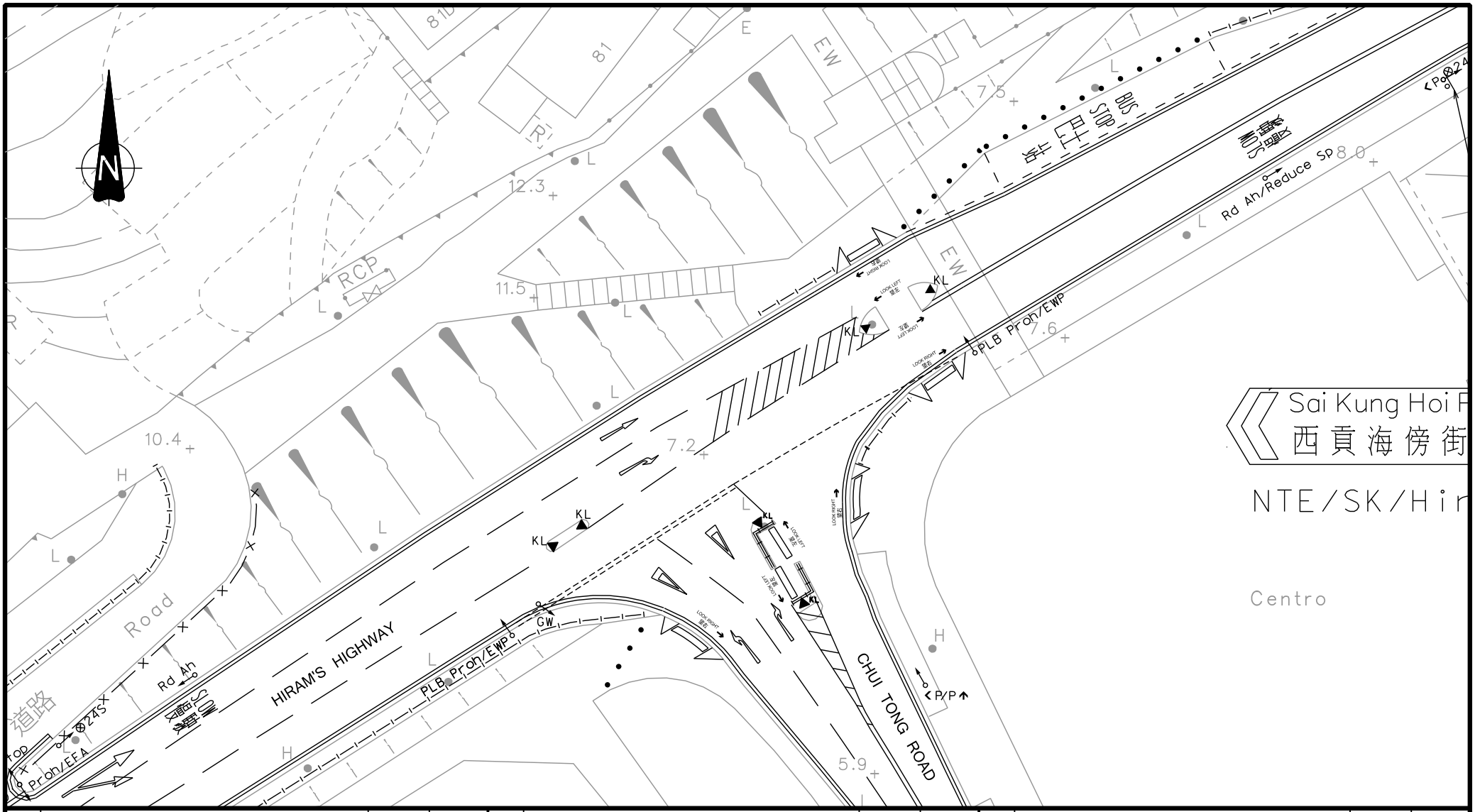
EXISTING LAYOUT OF PEDESTRIAN CROSSING NEAR YAU MA PO STREET (E) AND JUNCTION AT PO TUNG ROAD/YAU MA PO STREET (F)

Designed	Checked	Scale	Date	Drawing No.	Rev.
MLC	PTC	1:500(A4)	SEP 2024	3.7	-

SYSTRA MVA

CHK50791710/TIA/F37.DGN/CKC/12SEP24

Original Size : A4



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

Project Title

SECTION 16 PLANNING APPLICATION FOR PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS LOTS IN D.D. 221 AND ADJOINING GOVERNMENT LAND, SHA HA, SAI KUNG

Drawing Title

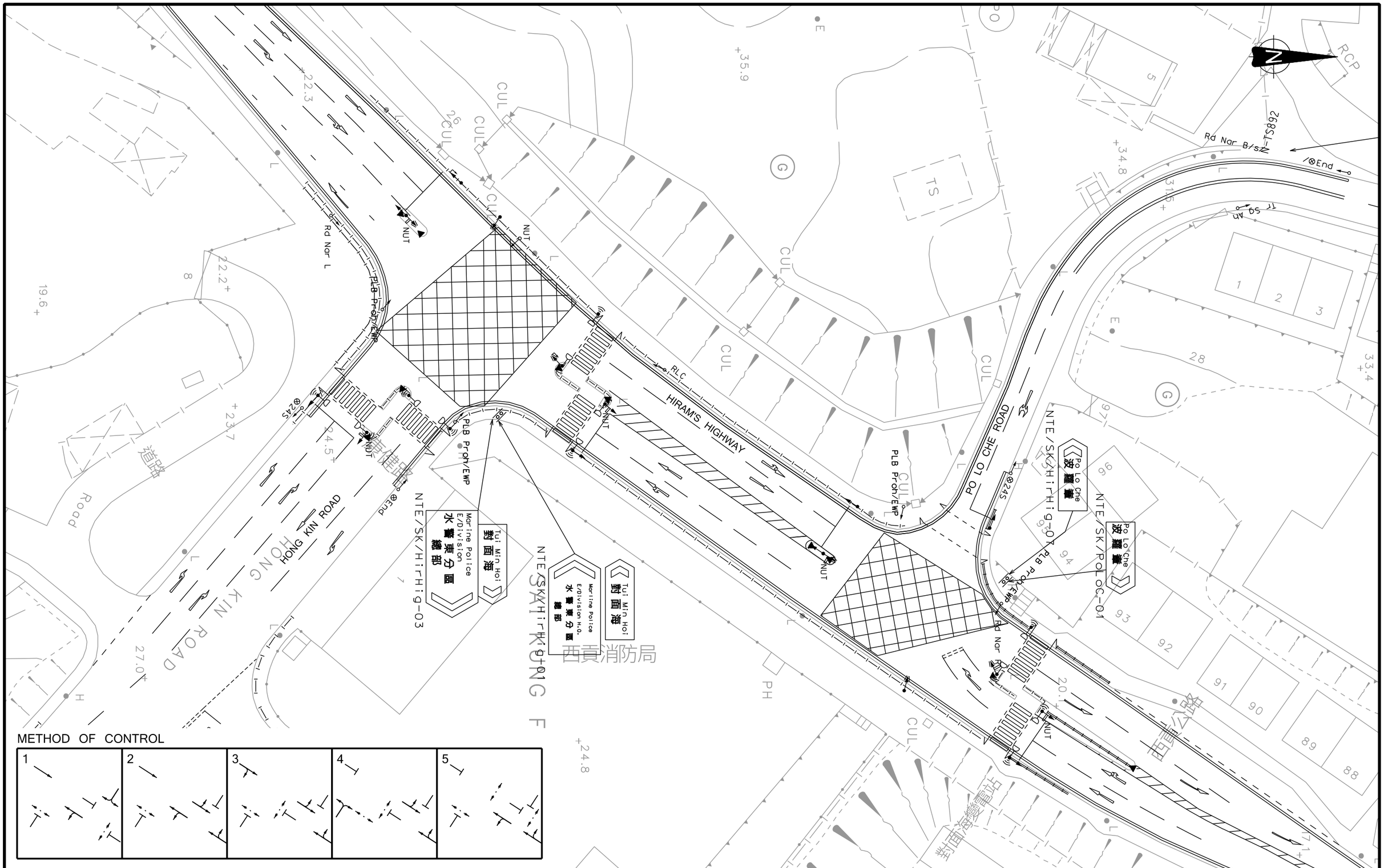
EXISTING JUNCTION LAYOUT OF HIRAM'S HIGHWAY/ CHUI TONG ROAD (G)

Designed	Checked	Scale	Date	Drawing No.	Rev.
MLC	PTC	1:500(A4)	SEP 2024	**3.8**	-

SYSTRA MVA

CHK50791710/TIA/F38.DGN/CKC/12SEP24

Original Size : A4



Rev.	Description	Checked	Date
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Project Title

SECTION 16 PLANNING APPLICATION FOR
PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS
LOTS IN D.D. 221 AND ADJOINING GOVERNMENT LAND,
SHA HA, SAI KUNG

Drawing Title

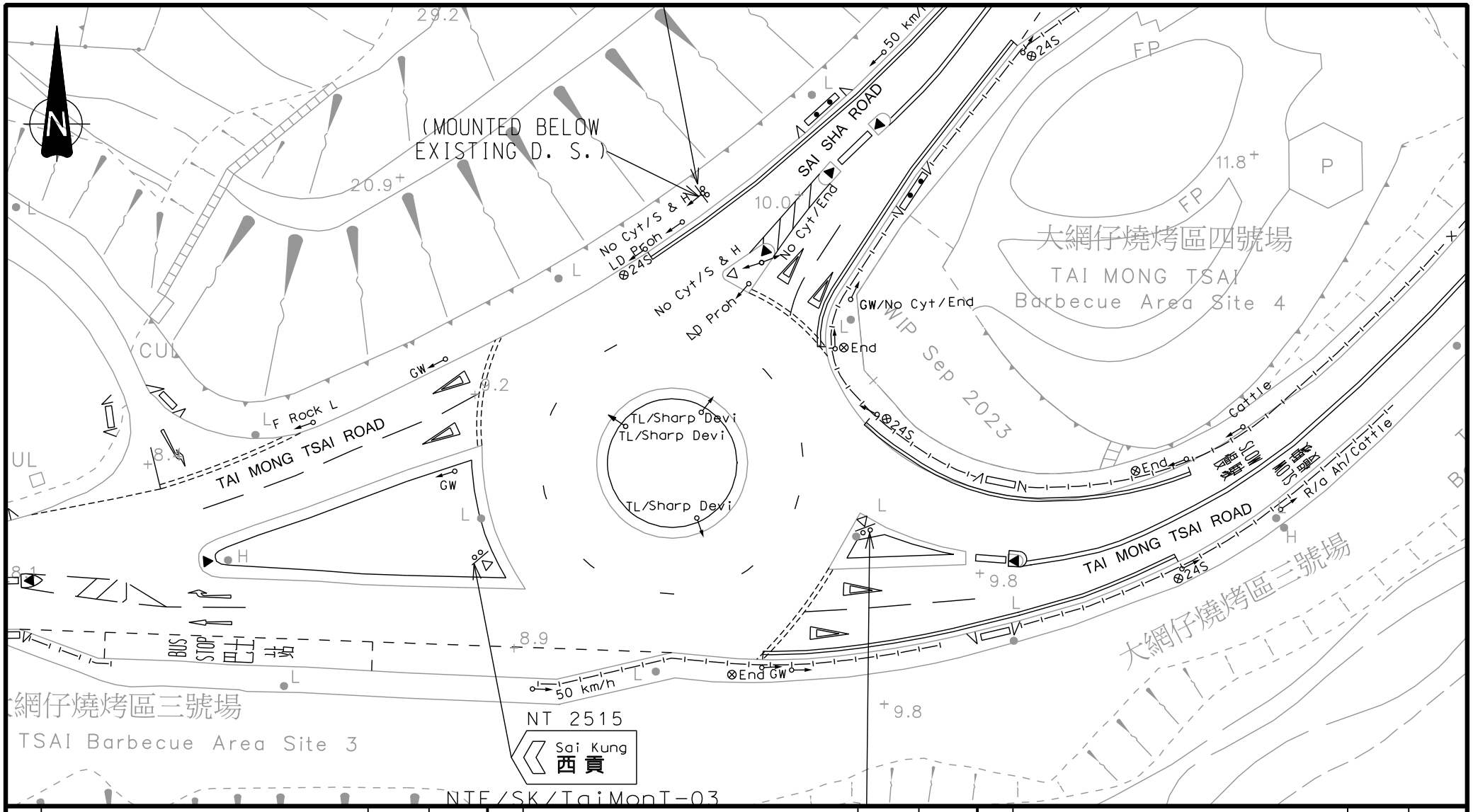
EXISTING JUNCTION LAYOUT OF HIRAM'S HIGHWAY/ PO LO CHE ROAD/HONG KIN ROAD (H)

Designed	Checked	Scale	Date	Drawing No.	Rev.
MLC	PTC	1:500(A3)	SEP 2024	3.9	-

SYSTRA MVA

CHK50791710/TIA/F39.DGN/CKC/12SEP24

Original Size : A3



A	MINOR AMENDMENT	PTC	18DEC24	-	-	-	-	-	-	-	-
Rev.	Description	Checked	Date	Rev.	Description	Checked	Date	Rev.	Description	Checked	Date

Project Title

SECTION 16 PLANNING APPLICATION FOR PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS LOTS IN D.D. 221 AND ADJOINING GOVERNMENT LAND, SHA HA, SAI KUNG

Drawing Title

EXISTING JUNCTION LAYOUT OF TAI MONG TSAI ROAD / SAI SHA ROAD (I)

Designed	Checked	Scale	Date	Drawing No.	Rev.
MLC	PTC	1:500(A4)	DEC 2024	3.10	A

SYSTRA MVA

CHK50791710/TIA/F310-A.DGN/LHO/19DEC24

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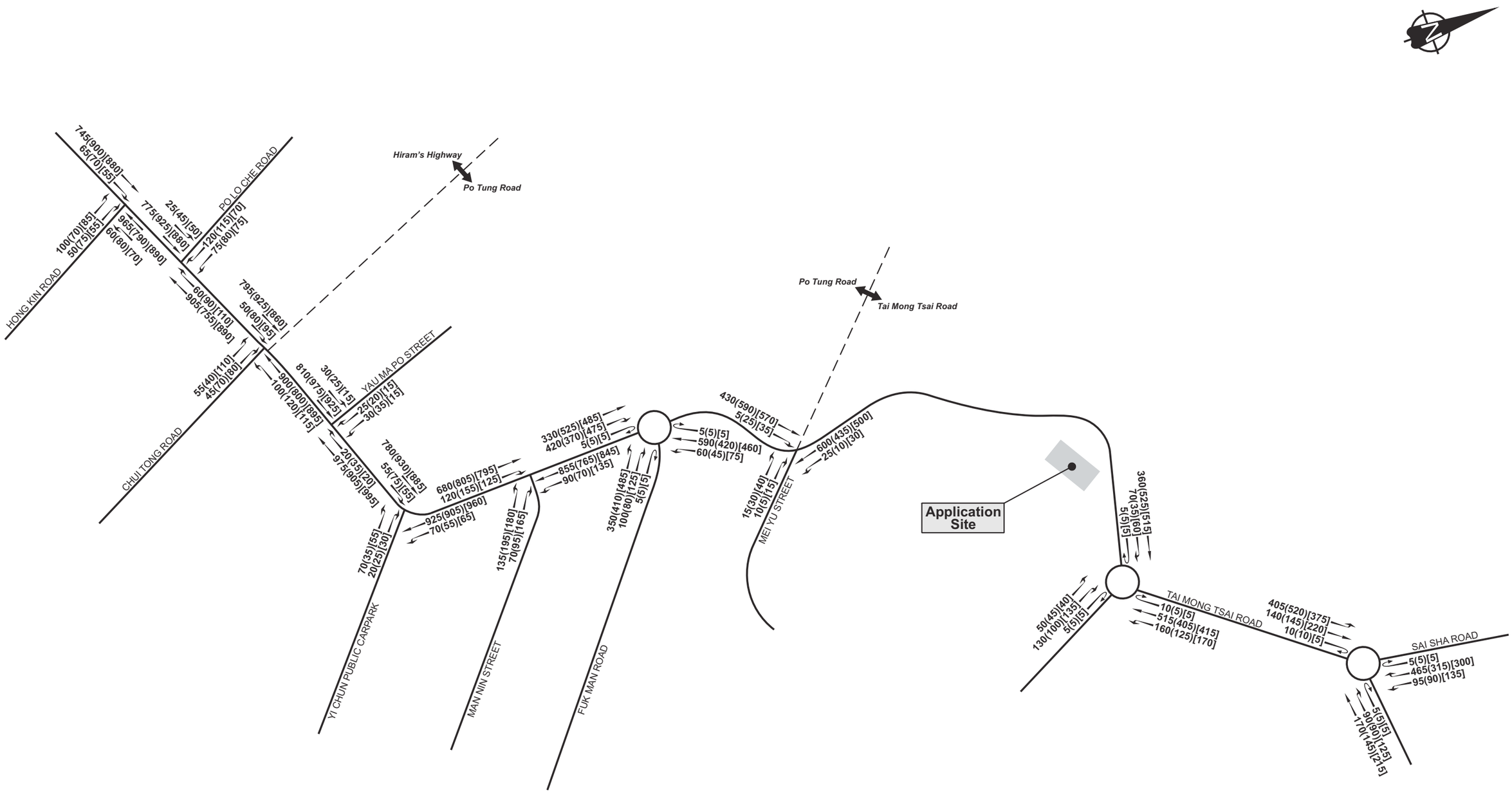

LEGEND :

600 WEEKDAY AM PEAK HOUR TRAFFIC FLOWS (PCU/HR)

(435) WEEKDAY PM PEAK HOUR TRAFFIC FLOWS (PCU/HR)

[500] WEEKEND PEAK HOUR TRAFFIC FLOWS (PCU/HR)

Rev.	Description	Checked	Date
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-	-	-	-
A	MINOR AMENDMENT	PTC	19DEC24

Project Title

SECTION 16 PLANNING APPLICATION FOR
PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS LOTS
IN D.D. 221 AND ADJOINING GOVERNMENT LAND,
SHA HA, SAI KUNG

Drawing Title

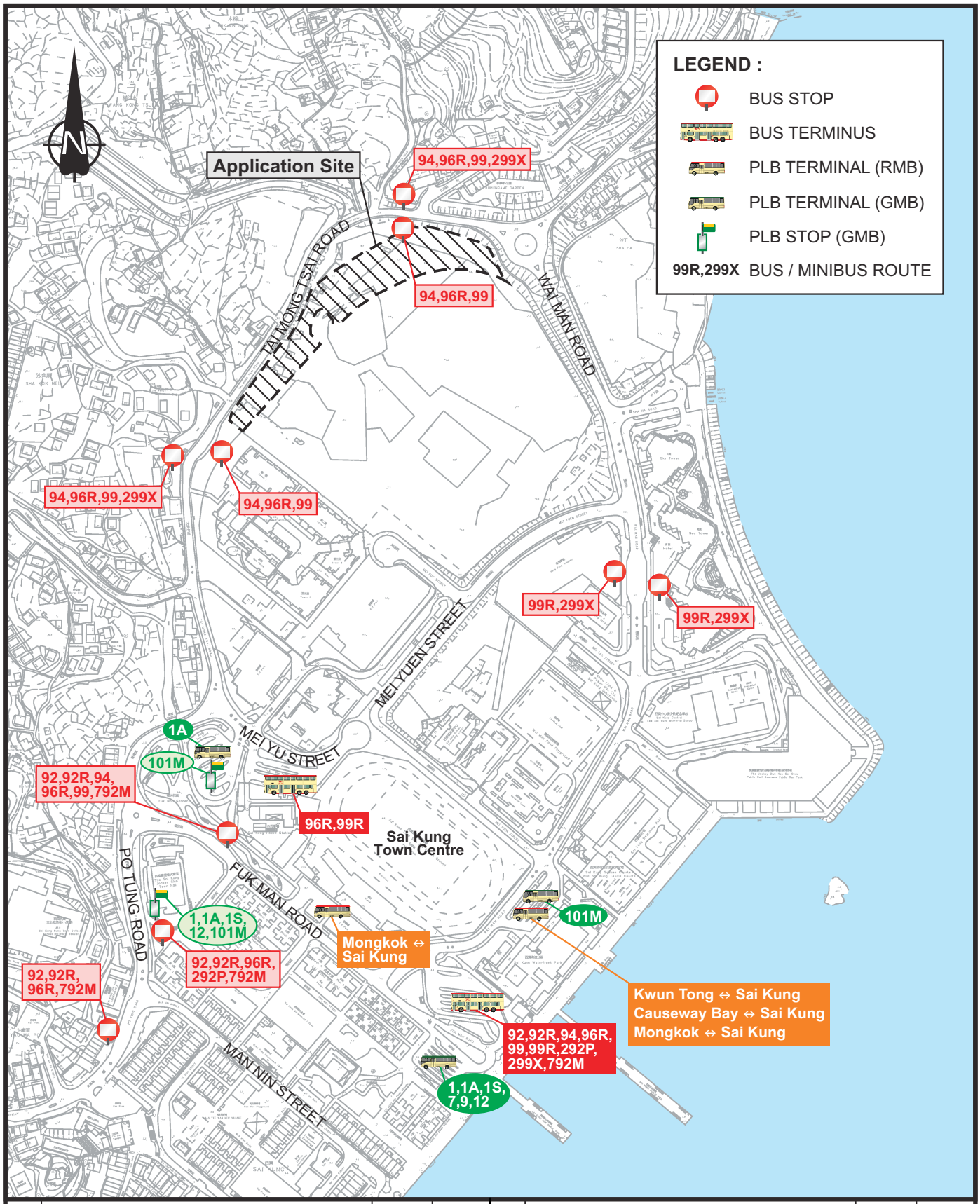
OBSERVED TRAFFIC FLOWS

Designed	Checked	Scale	Date	Drawing No.	Rev.
HZF	PTC	NTS	SEP 2024	3.11	A

SYSTRA MVA

CHK50791710/TIA/F311-A.CDR/LLH/19DEC24

Original Size : A3



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Rev.	Description	Checked	Date	Rev.	Description	Checked	Date

Project Title
SECTION 16 PLANNING APPLICATION FOR PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS LOTS IN D.D. 221 AND ADJOINING GOVERNMENT LAND, SHA HA, SAI KUNG

Drawing Title

EXISTING PUBLIC TRANSPORT SERVICES

Designed	Checked	Scale	Date	Drawing No.	Rev.
HZF	PTC	NTS	DEC 2024	3.12	-

SYSTRA MVA

CHK50791710/TIA/F312.CDR/LLH/18DEC24

Original Size : A4

4. TRAFFIC FORECASTING

4.1 Design Year

4.1.1 The tentative completion year of the proposed development is year 2032. Hence, the design year of 2035 three years upon operation of the proposed development, has been adopted for traffic forecast and assessment purposes.

4.2 Forecast Assumptions

Traffic Growth Rate from 2024 to 2035

4.2.1 As Hiram's Highway would still be the only major road to serve the area (with or without the improvement works), the current general traffic circulation pattern in the vicinity at the design year of 2035 is expected to be very similar to the current situation. Therefore, the simple growth rate method is adopted for the traffic forecasting exercise.

Historical Trend

4.2.2 Annual Traffic Census (ATC) traffic count stations are available in the vicinity of the development. The annual traffic counts in the latest Annual Traffic Census (ATC) report published by Transport Department (TD) over a period between Year 2019 and Year 2023 are summarised in **Table 4.1**.

Table 4.1 ATC Traffic Counts between Year 2019 to Year 2023

Station no.	Road	Annual Average Daily Traffic (AADT)					Annual Growth Rate
		2019	2020	2021	2022	2023	2019/2023
5258	Po Tung Road & Tai Mong Tsai Road	31,970	30,760*	32,210*	30,800*	28400	-2.92%
6055	Hiram's Highway	24,280*	23,360*	24,460*	23,480	22860	-1.50%
	Total	56,250	54,120	56,670	54,280	51,260	-2.30%

Note: (*) AADT estimated by growth factor.

4.2.3 As shown in **Table 4.1**, the average annual traffic growth rates are -2.3% per annum over the past 5 years.

Planning Data

4.2.4 Besides, reference has been made to the latest available 2019-Based Territorial Population and Employment Data Matrices (TPEDM) published by Planning Department for determination of traffic growth rate. The average annual growth rates in terms of population and employment from year 2019 to 2031 in Southeast New Territories (Other Area) are illustrated in **Table 4.2**. The relevant zone plan in TPEDM is indicated in **Drawing 4.1**

Table 4.2 2019-based TPEDM Population and Employment Growths in Southeast New Territories (Other Area)

Zone (1)	Population		Annual Growth Rate (p.a.)	Employment		Annual Growth Rate (p.a.)
	2019	2031	2019/2031	2019	2031	2019/2031
Southeast New Territories (Other Area)	68,900	59,750	-1.18%	27,250	28,100	+0.26%

Remark: (1) Refer to **Drawing 4.1**.

4.2.5 The TPEDM population data indicates that the annual population and employment growth rate in Southeast New Territories (Other Area) is -1.18% p.a. and +0.26% p.a. respectively.

4.2.6 Having reviewed the historical growth trend and planning data, a traffic growth rate of +0.26% p.a. was adopted for producing the traffic forecast from Year 2024 up to Year 2035.

Adjacent Planned/Committed Development

4.2.7 According to the latest available information from public domain, there is a planned residential development in CDA(1) zone adjacent to the Applicant site that are expected to be completed by year 2035. The estimated trip generations of this planned development is listed in **Table 4.3**. which would be considered in the traffic forecast.

Table 4.3 Estimated Trip Generations of Planned and Committed Developments

	No. of Units	Weekday				Weekend Peak	
		AM Peak		PM Peak			
		GEN	ATT	GEN	ATT	GEN	ATT
Proposed Residential Development in CDA(1) zone (1)	972	192	109	94	129	108	134

Note: (1) As extracted from the approved TIA report for the Section 16 planning application No. A/SK-SKT/28).

4.3 Development Trips

4.3.1 The proposed residential development will provide 280 units with average flat size of about 40.8m^2. The development trips for residential portion was estimated with reference to the trip rates in Transport Planning Design Manual (TPDM) published by TD.

4.3.2 Besides, 10 nos. public parking spaces for private car will be provided within the site. To estimate the trips of proposed public parking spaces, a trip generation survey was conducted at the existing nearby Public Vehicle Park (i.e. Kau Sai Chau Public Golf Course) on the same survey period as described in **Section 3.2**. The observed trip rates of surveyed PVP during the peak hours are computed and summarized in **Table 4.4**.

Table 4.4 Observed Trip Rates of Existing PVP at Kau Sai Chau Public Golf Course

	No. of Space	Weekday				Weekend Peak	
		AM Peak		PM Peak			
		GEN	ATT	GEN	ATT	GEN	ATT
Observed Trips (pcu/hr)	283	4	8	5	15	39	40
Trip Rates (pcu/hr/space)		0.0141	0.0283	0.0177	0.0530	0.138	0.142

4.3.3 Based on above, the estimated development trips during the weekday morning and evening and weekend peak hours are summarised in **Table 4.5**.

Table 4.5 Estimated Development Traffic Trips

	Parameter	Weekday				Weekend Peak	
		AM Peak		PM Peak			
		GEN	ATT	GEN	ATT	GEN	ATT
Residential							
Trip Rates (pcu/hr/unit)(1)	-	0.0718	0.0425	0.0286	0.037	0.0258(2)	0.0393(2)
Trips (pcu/hr)	280 units	20	12	8	10	7	11
PVP							
Trip Rates (pcu/hr/space)	-	0.0141	0.0283	0.0177	0.0530	0.138	0.142
Trips (pcu/hr)	10	1	1	1	1	2	2
Total		21	13	9	11	9	13

Notes :

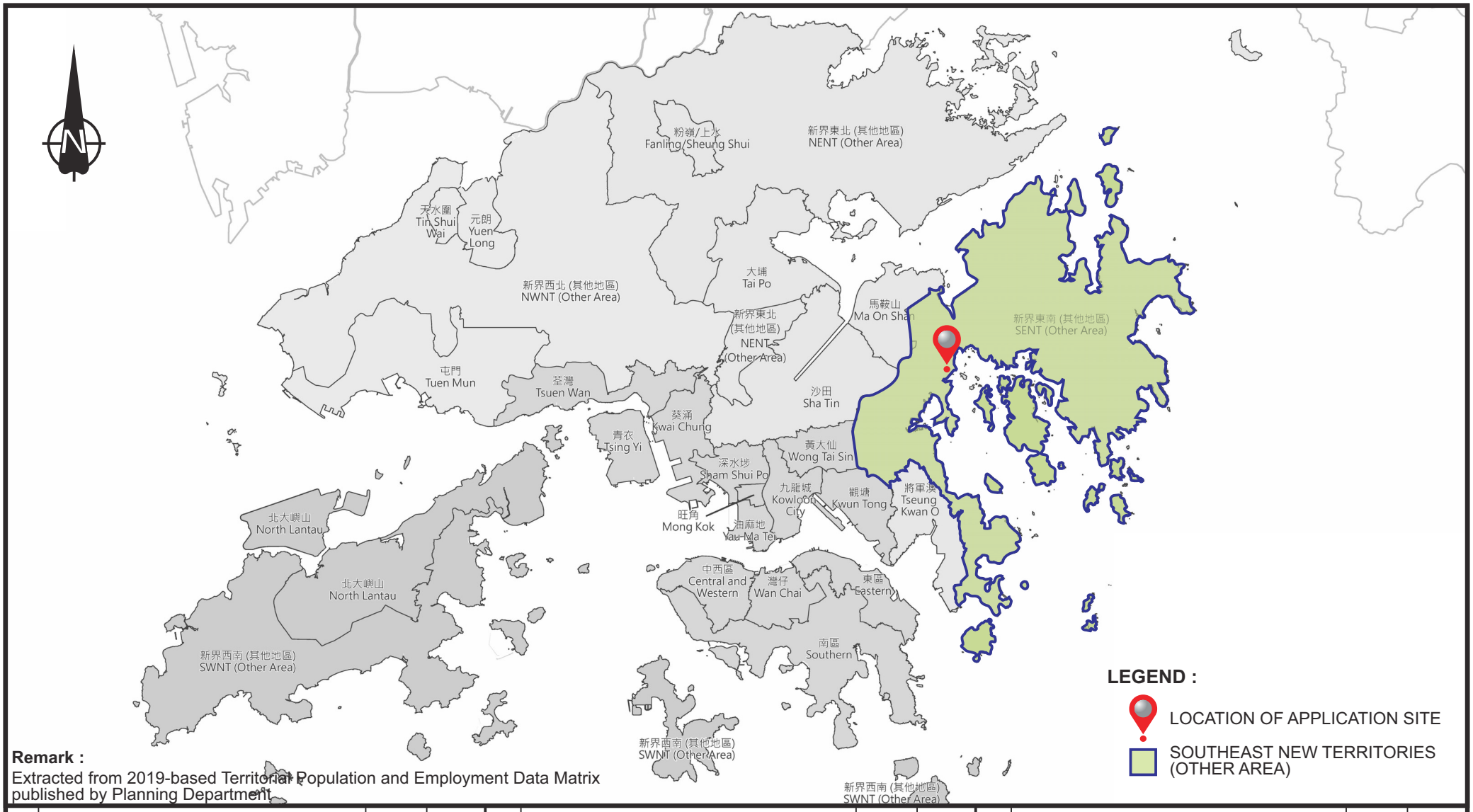
(1) Mean value of trip rates for private housing with average flat size of 60 m^2 in TPDM is adopted for weekday peak scenarios.

(2) Ratios of weekday PM trips to weekend trips were applied. The ratios were derived with reference to the trip generation survey at the similar residential development in the vicinity (i.e. The Mediterranean) in April 2024.

4.3.4 As indicated in **Table 4.5**, the proposed development would generate the two-way trips total of 34, 20 and 22 pcu/hr during the weekday morning, evening and weekend peak hours respectively.

4.3.5 According to the above, the anticipated 2035 peak hour reference traffic flows are obtained by applying the adopted growth rates to the 2024 traffic flows and superimposing the estimated trip generations of the planned development. The 2035 reference peak-hour traffic flows are shown in **Drawing 4.2**.

4.3.6 The estimated development trips summarised in **Table 4.5** would be superimposed onto the year 2035 reference peak hour traffic flows to produce the anticipated year2035 design peak hour traffic flows (with proposed development), as shown in **Drawing 4.3**.



Remark :

Extracted from 2019-based Territorial Population and Employment Data Matrix published by Planning Department

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

Rev.	Description	Checked	Date
-	-	-	-

Project Title

SECTION 16 PLANNING APPLICATION FOR PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS LOTS IN D.D. 221 AND ADJOINING GOVERNMENT LAND, SHA HA, SAI KUNG

Drawing Title

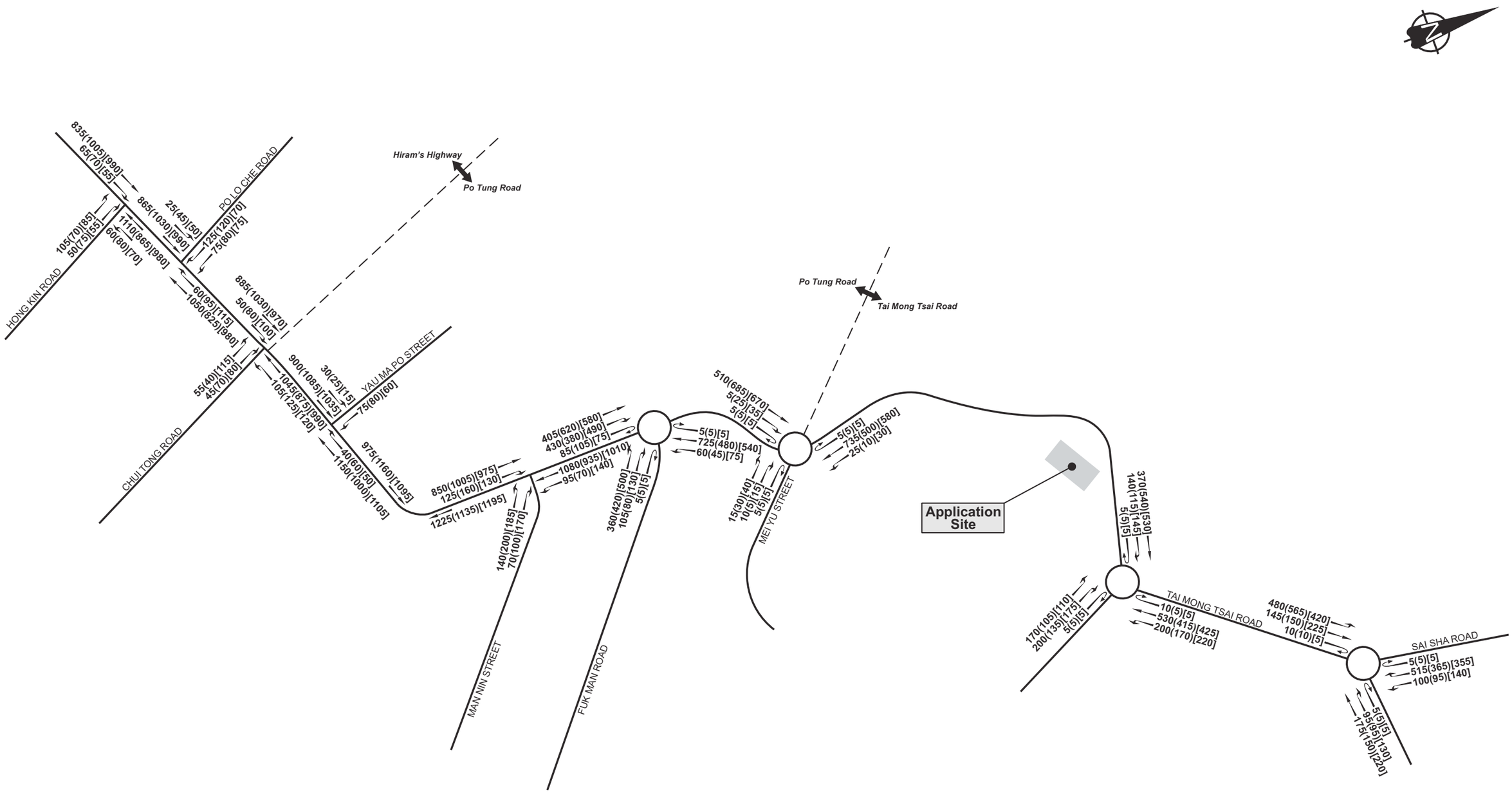
ZONING PLAN OF 2019-BASED TPEDM

Designed	Checked	Scale	Date	Drawing No.	Rev.
MLC	PTC	NTS	SEP 2024	4.1	-

SYSTRA MVA

CHK50791710/TIA/F41.CDR/LLH/12SEP24

Original Size : A4



LEGEND :

735 WEEKDAY AM PEAK HOUR TRAFFIC FLOWS (PCU/HR)

(500) WEEKDAY PM PEAK HOUR TRAFFIC FLOWS (PCU/HR)

[580] WEEKEND PEAK HOUR TRAFFIC FLOWS (PCU/HR)

Rev.	Description	Checked	Date
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-	-	-	-
A	MINOR AMENDMENT	PTC	19DEC24

Project Title

SECTION 16 PLANNING APPLICATION FOR
PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS LOTS
IN D.D. 221 AND ADJOINING GOVERNMENT LAND,
SHA HA, SAI KUNG

Drawing Title

YEAR 2035 REFERENCE TRAFFIC FLOWS

Designed	Checked	Scale	Date	Drawing No.	Rev.
HZF	PTC	NTS	SEP 2024	4.2	A

SYSTRA MVA

CHK50791710/TIA/F42-A.CDR/LLH/19DEC24

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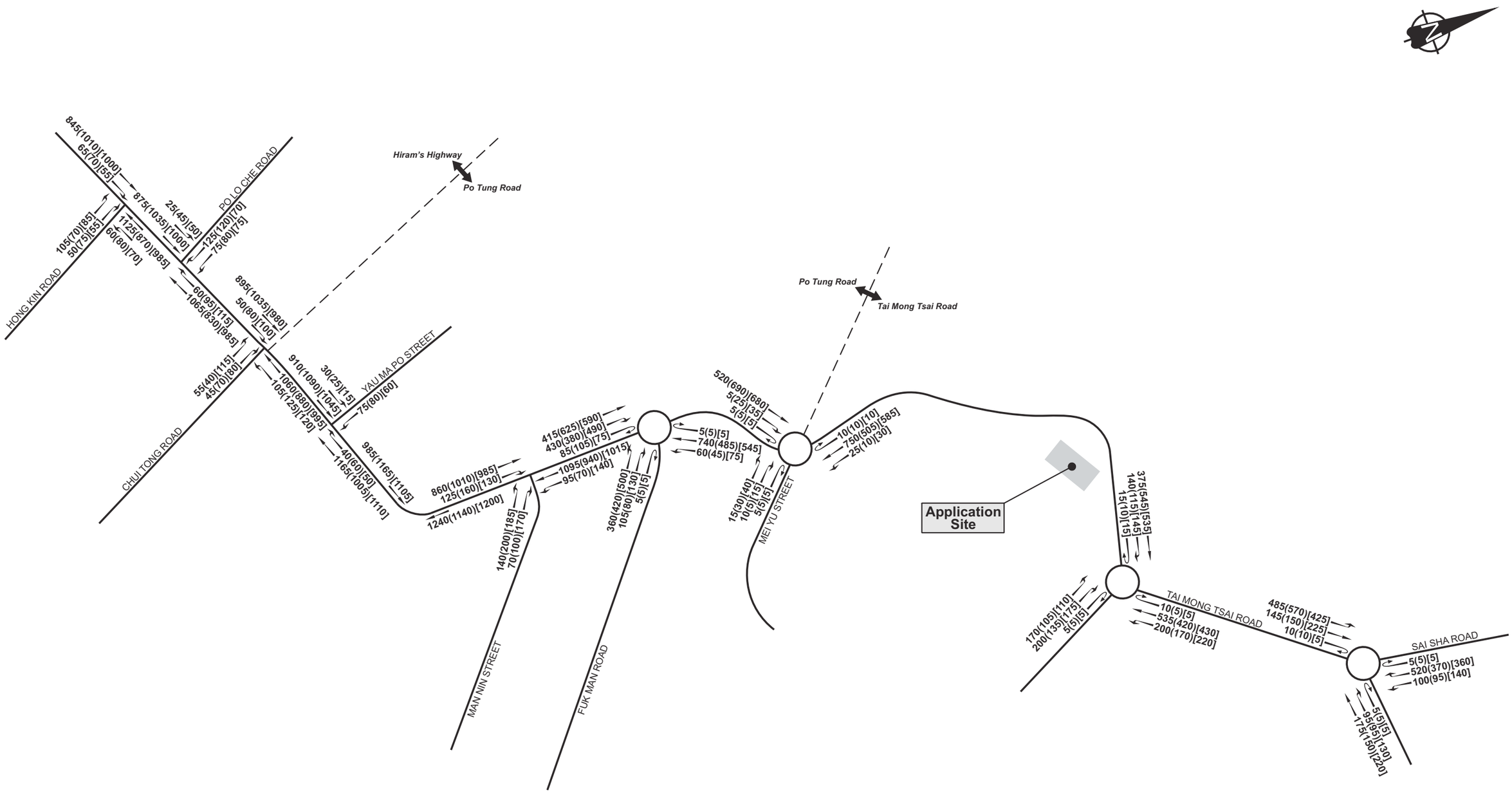

LEGEND :

750 WEEKDAY AM PEAK HOUR TRAFFIC FLOWS (PCU/HR)

(505) WEEKDAY PM PEAK HOUR TRAFFIC FLOWS (PCU/HR)

[585] WEEKEND PEAK HOUR TRAFFIC FLOWS (PCU/HR)

Rev.	Description	Checked	Date
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A	MINOR AMENDMENT	PTC	20DEC24

Project Title

SECTION 16 PLANNING APPLICATION FOR
PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS LOTS
IN D.D. 221 AND ADJOINING GOVERNMENT LAND,
SHA HA, SAI KUNG

Drawing Title

YEAR 2035 DESIGN TRAFFIC FLOWS

Designed	Checked	Scale	Date	Drawing No.	Rev.
HZF	PTC	NTS	SEP 2024	4.3	A

SYSTRA MVA

CHK50791710/TIA/F43-A.CDR/LLH/20DEC24

Original Size : A3

5. TRAFFIC IMPACT ASSESSMENT

5.1 Traffic Impact Assessment

5.1.1 To investigate the traffic impact of the proposed development on the surrounding road network at the design year 2035, operational performance of the identified key local junctions and critical links have been assessed for both reference and design scenarios.

Planned Hiram's Highway Improvement Stage 2

5.1.2 As mentioned in **Section 3.1**, the planned improvement works to Hiram's Highway has been gazetted and is anticipated to be completed by 2032. The planned road and junction improvements works under the project were adopted in the assessment. The possible planned junction layouts, which has been adopted in the assessment, are summarized in **Table 5.1** and illustrated in **Drawing Nos. 5.1 – 5.6**.

Table 5.1 Identified Key Local Junctions

Ref. (1)	Junction	Type	Drawing No.
B	Tai Mong Tsai Road/Mei Yu Street/Po Tung Road	Roundabout	**5.1**
C	Po Tung Road/Fuk Man Road	Roundabout	**5.2**
D	Po Tung Road/Man Nin Street	Signal	**5.3**
E	Pedestrian Crossing near Yau Ma Po Street	Signal	**5.4**
F	Po Tung Road/Yau Ma Po Street	Priority	**5.4**
G	Hiram's Highway/Chui Tong Road	Signal	**5.5**
H	Hiram's Highway/Po Lo Che Road /Hong Kin Road	Signal	**5.6**

Remark: (1) Locations refer to **Drawing 3.2**.

Junction Operational Performance

5.1.3 Based on the existing/planned layouts, the junction assessment results for the 2035 reference and design scenarios are summarized in **Table 5.2**. The junction calculation sheets are attached in **Appendix A**.

Table 5.2 Junction Operational Performance at Year 2035

Ref. (1)	Junction	Type	Reserve Capacity / Ratio to Flow Capacity					
			Reference Case			Design Case		
			Weekday		Weekend Peak	Weekday		Weekend Peak
			AM Peak	PM Peak		AM Peak	PM Peak	
A	Tai Mong Tsai Road/ Wai Man Road	Roundabout	0.69	0.55	0.61	0.70	0.55	0.62
B	Tai Mong Tsai Road/Mei Yu Street/Po Tung Road (2)	Roundabout	0.57	0.49	0.49	0.59	0.49	0.49
C	Po Tung Road/Fuk Man Road (2)	Roundabout	0.42	0.37	0.44	0.43	0.37	0.44
D	Po Tung Road/Man Nin Street (2)	Signal	51%	43%	29%	50%	42%	28%
E	Pedestrian Crossing near Yau Ma Po Street (2)	Signal	>100%	>100%	>100%	>100%	>100%	>100%
F	Po Tung Road/Yau Ma Po Street (2)	Priority	0.15	0.18	0.13	0.15	0.18	0.13
G	Hiram's Highway/Chui Tong Road (2)	Signal	80%	91%	51%	78%	91%	50%
H	Hiram's Highway/Po Lo Che Road/ Hong Kin Road (2)	Signal	86%	>100%	>100%	84%	>100%	>100%
I	Tai Mong Tsai Road /Sai Sha Road	Roundabout	0.35	0.36	0.33	0.36	0.36	0.33

Remarks: (1) Locations refer to **Drawing 3.2**.
(2) Based on the possible planned junction layout under Hiram's Highway Improvement Stage 2.

5.1.4 The assessment results in **Table 5.2** indicate that all identified key junctions would operate within their capacity under the reference (without the proposed development) and design cases (with the proposed development).

Road Link Performance

5.1.5 Apart from junction capacity assessment, the road link operation performance was also undertaken for both reference and design scenarios. Based on the existing/planned layouts with traffic forecast, the results of the assessment are summarized in **Tables 5.3** and **5.4**.

Table 5.3 Year 2035 Road Link Operational Performance for Reference Case

Ref. (1)	Road Link	Dir	Reference Traffic Flows (pcu/hr)			Reference Traffic Flows (Veh/hr)			Design Capacity (Veh/hr) (2)	V/C Ratio		
			AM	PM	WE	AM	PM	WE		AM	PM	WE
S1	Tai Mong Tsai Road	NB	580	680	710	520	620	645	850	0.61	0.73	0.76
		SB	740	590	650	675	550	585	850	0.79	0.65	0.69
S2	Tai Mong Tsai Road	NB	515	680	685	480	645	635	850	0.56	0.76	0.75
		SB	740	530	585	685	505	530	850	0.81	0.59	0.62
S3	Fuk Man Road	WB	470	505	635	410	410	545	850	0.48	0.48	0.64
		EB	495	430	570	420	355	485	850	0.49	0.42	0.57
S4	Po Tung Road	NB	920	1105	1145	810	990	1010	2,600	0.31	0.38	0.39
		SB	1175	1005	1150	1045	900	1020	2,600	0.40	0.35	0.39
S5	Hiram's Highway	NB	900	1075	1045	810	990	930	2,600	0.31	0.38	0.36
		SB	1215	935	1065	1100	845	970	2,600	0.42	0.33	0.37
S6	Sai Sha Road	NB	580	665	555	530	625	510	850	0.62	0.74	0.60
		SB	620	465	500	575	445	450	850	0.68	0.52	0.53

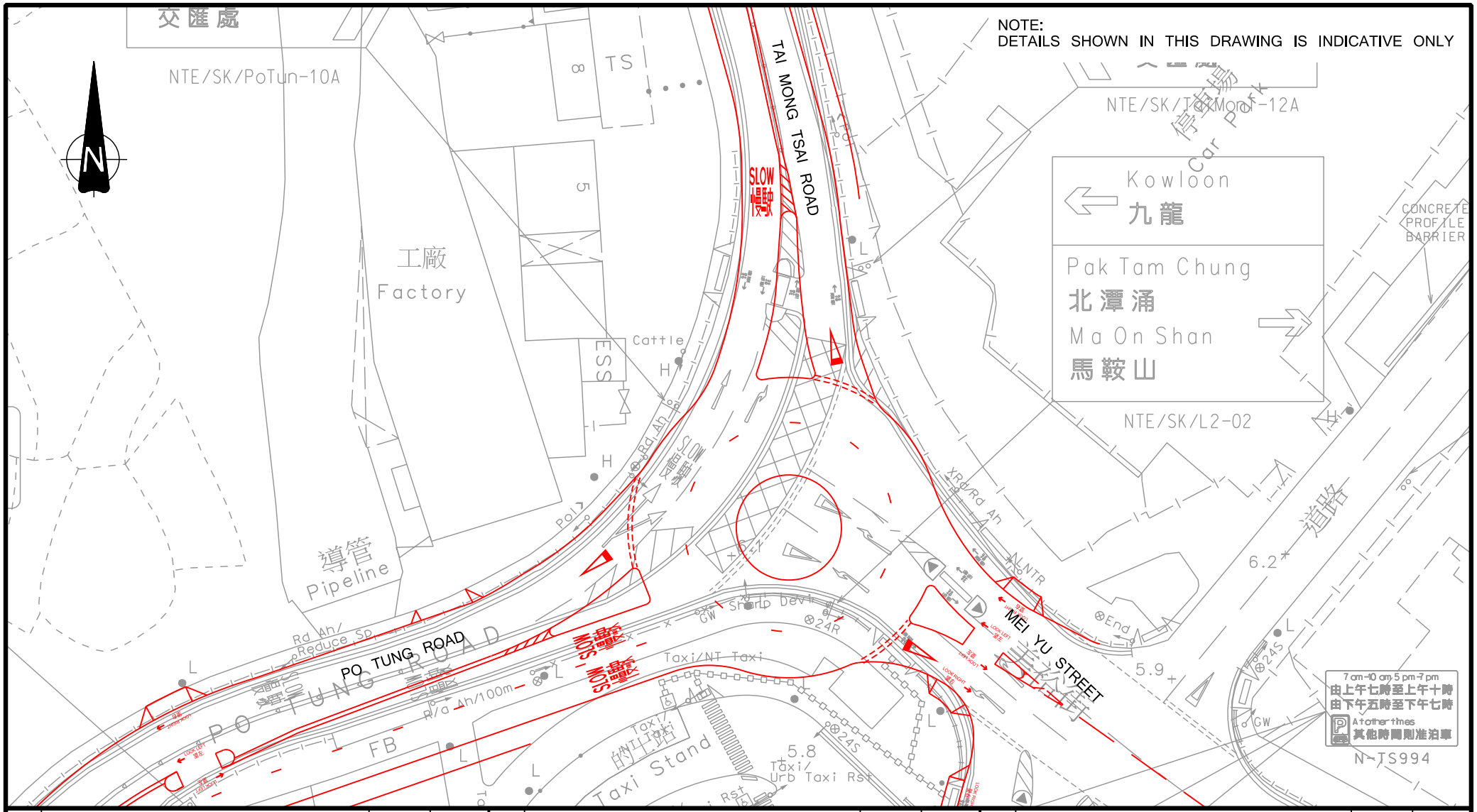
Remarks:
(1) Refer to **Drawing 3.2**.
(2) Design capacity of 850 veh/hr for each bound of single 2-lane carriageway and 2,600 veh/hr for each bound of dual 2 lane carriageway , as extracted from TPDM Volume 2 Chapter 2.4.

Table 5.4 Year 2035 Road Link Operational Performance for Design Case Scenario

Ref. (1)	Road Link	Dir	Design Traffic Flows (pcu/hr)			Design Traffic Flows (Veh/hr)			Design Capacity (Veh/hr) (2)	V/C Ratio		
			AM	PM	WE	AM	PM	WE		AM	PM	WE
S1	Tai Mong Tsai Road	NB	585	685	715	525	620	650	850	0.62	0.73	0.76
		SB	745	595	655	680	555	590	850	0.80	0.65	0.69
S2	Tai Mong Tsai Road	NB	530	690	695	495	655	650	850	0.58	0.77	0.76
		SB	755	535	590	695	510	535	850	0.82	0.60	0.63
S3	Fuk Man Road	WB	470	505	635	410	410	545	850	0.48	0.48	0.64
		EB	495	430	570	420	355	485	850	0.49	0.42	0.57
S4	Po Tung Road	NB	930	1110	1155	820	1000	1020	2,600	0.32	0.38	0.39
		SB	1190	1010	1155	1060	905	1030	2,600	0.41	0.35	0.40
S5	Hiram's Highway	NB	910	1080	1055	815	1000	935	2,600	0.31	0.38	0.36
		SB	1230	940	1070	1115	850	975	2,600	0.43	0.33	0.38
S6	Sai Sha Road	NB	585	670	560	535	630	515	850	0.63	0.74	0.61
		SB	625	470	505	580	445	455	850	0.68	0.52	0.54

Remarks:
(1) Refer to **Drawing 3.2**.
(2) Design capacity of 850 veh/hr for each bound of single 2-lane carriageway and 2,600 veh/hr for each bound of dual 2 lane carriageway , as extracted from TPDM Volume 2 Chapter 2.4.

5.1.6 The assessment results in **Table 5.3** and **Table 5.4** indicated that all identified road links would operate within their capacity under the reference (without the proposed development) and design cases (with the proposed development).



A	MINOR AMENDMENT	PTC	18DEC24	-	-	-	-	-	-	-	-
Rev.	Description	Checked	Date	Rev.	Description	Checked	Date	Rev.	Description	Checked	Date

Project Title

SECTION 16 PLANNING APPLICATION FOR PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS LOTS IN D.D. 221 AND ADJOINING GOVERNMENT LAND, SHA HA, SAI KUNG

Drawing Title

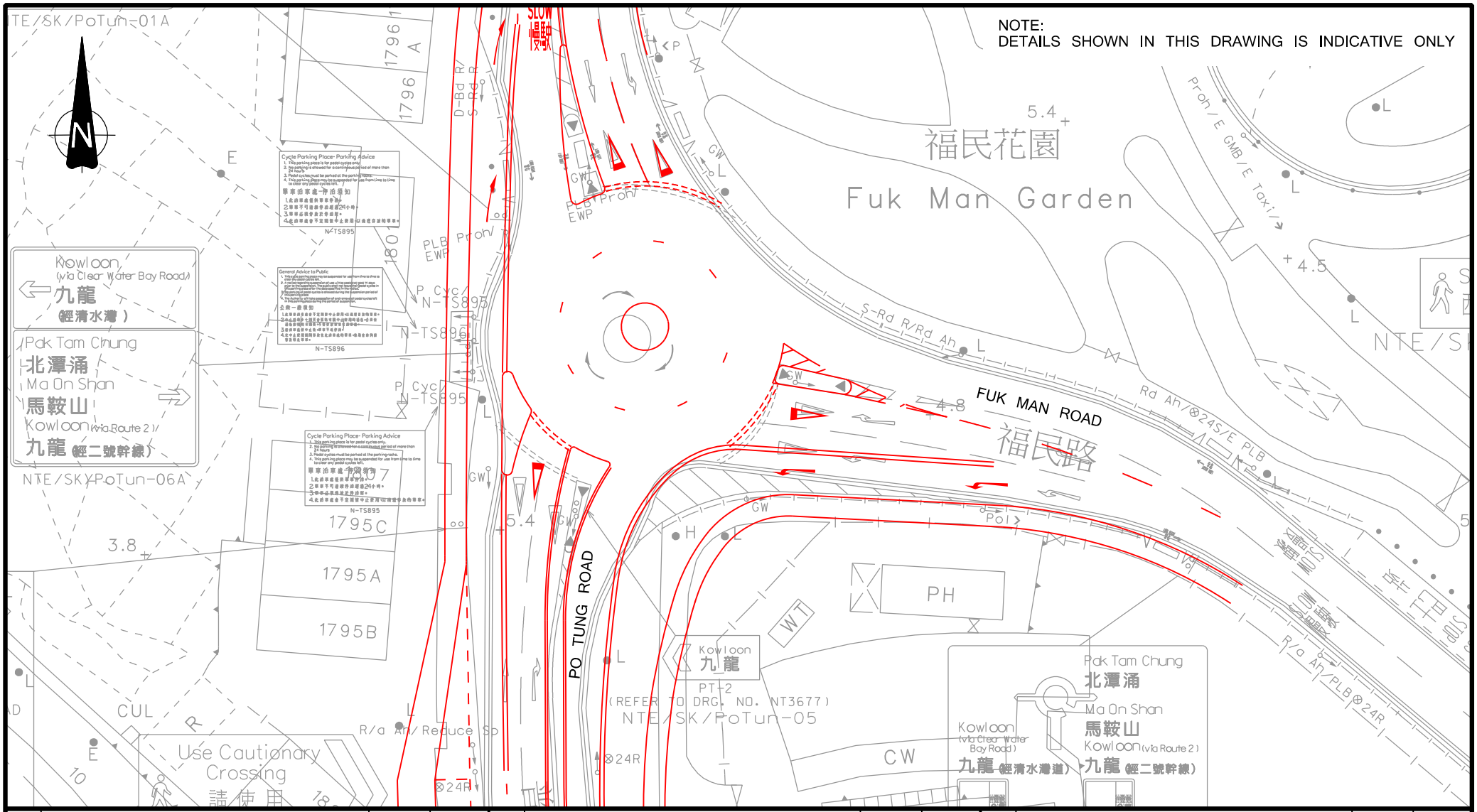
PLANNED JUNCTION LAYOUT OF TAI MONG TSAI ROAD / MEI YU STREET / PO TUNG ROAD (B)

Designed	Checked	Scale	Date	Drawing No.	Rev.
MLC	PTC	1:500(A4)	SEP 2024	5.1	A

SYSTRA MVA

CHK50791710/TIA/F51-A.DGN/LHO/18DEC24

Original Size : A4



A	MINOR AMENDMENT	PTC	18DEC24	-	-	-	-	-	-	-	-
Rev.	Description	Checked	Date	Rev.	Description	Checked	Date	Rev.	Description	Checked	Date

Project Title

SECTION 16 PLANNING APPLICATION FOR PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS LOTS IN D.D. 221 AND ADJOINING GOVERNMENT LAND, SHA HA, SAI KUNG

Drawing Title

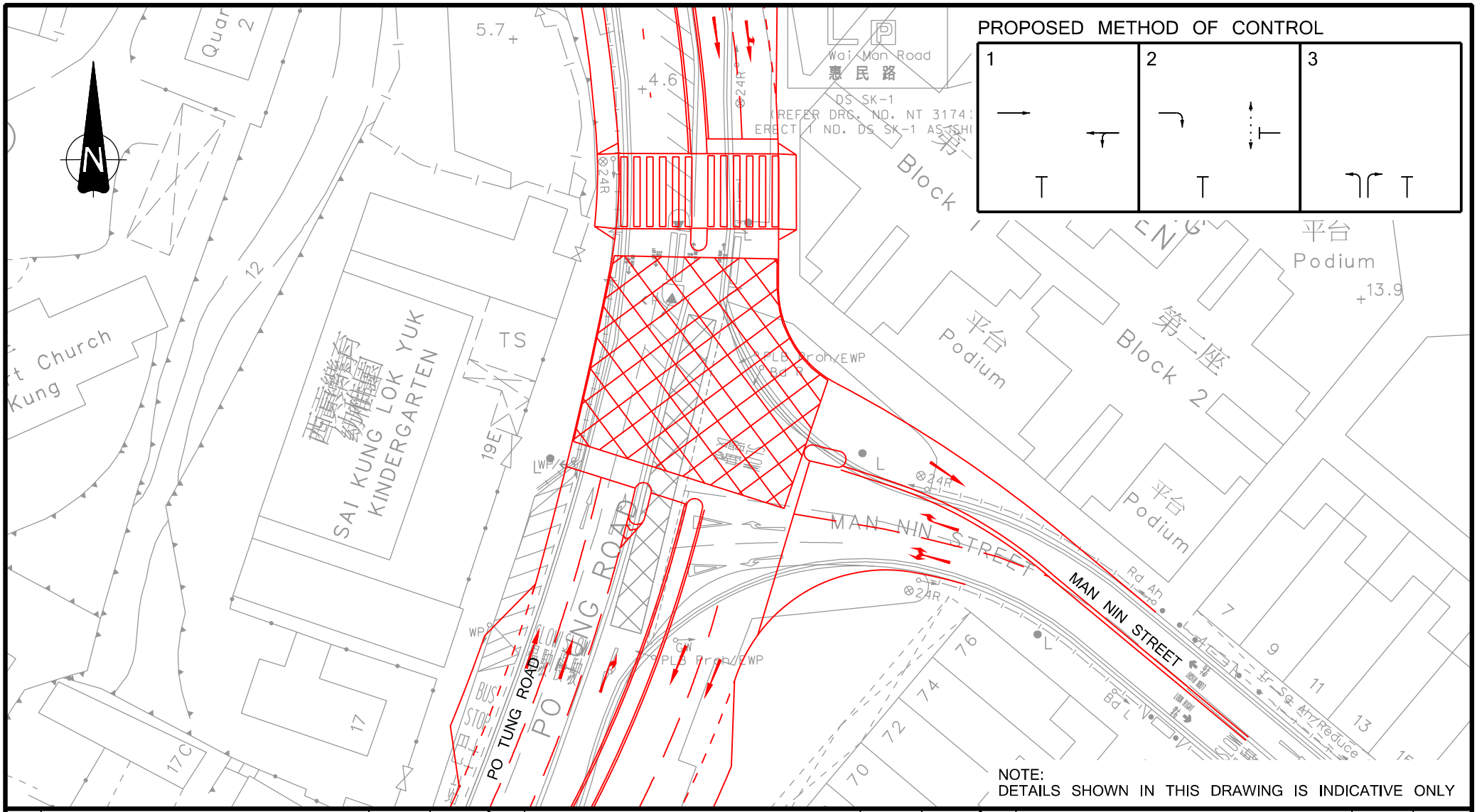
PLANNED JUNCTION LAYOUT OF PO TUNG ROAD / FUK MAN ROAD (C)

Designed	Checked	Scale	Date	Drawing No.	Rev.
MLC	PTC	1:500(A4)	SEP 2024	5.2	A

SYSTRA MVA

CHK50791710/TIA/F52-A.DGN/LHO/18DEC24

Original Size : A4



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A	MINOR AMENDMENT	PTC	18DEC24

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Project Title

SECTION 16 PLANNING APPLICATION FOR PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS LOTS IN D.D. 221 AND ADJOINING GOVERNMENT LAND, SHA HA, SAI KUNG

Drawing Title

PLANNED JUNCTION LAYOUT OF PO TUNG ROAD / MAN NIN STREET (D)

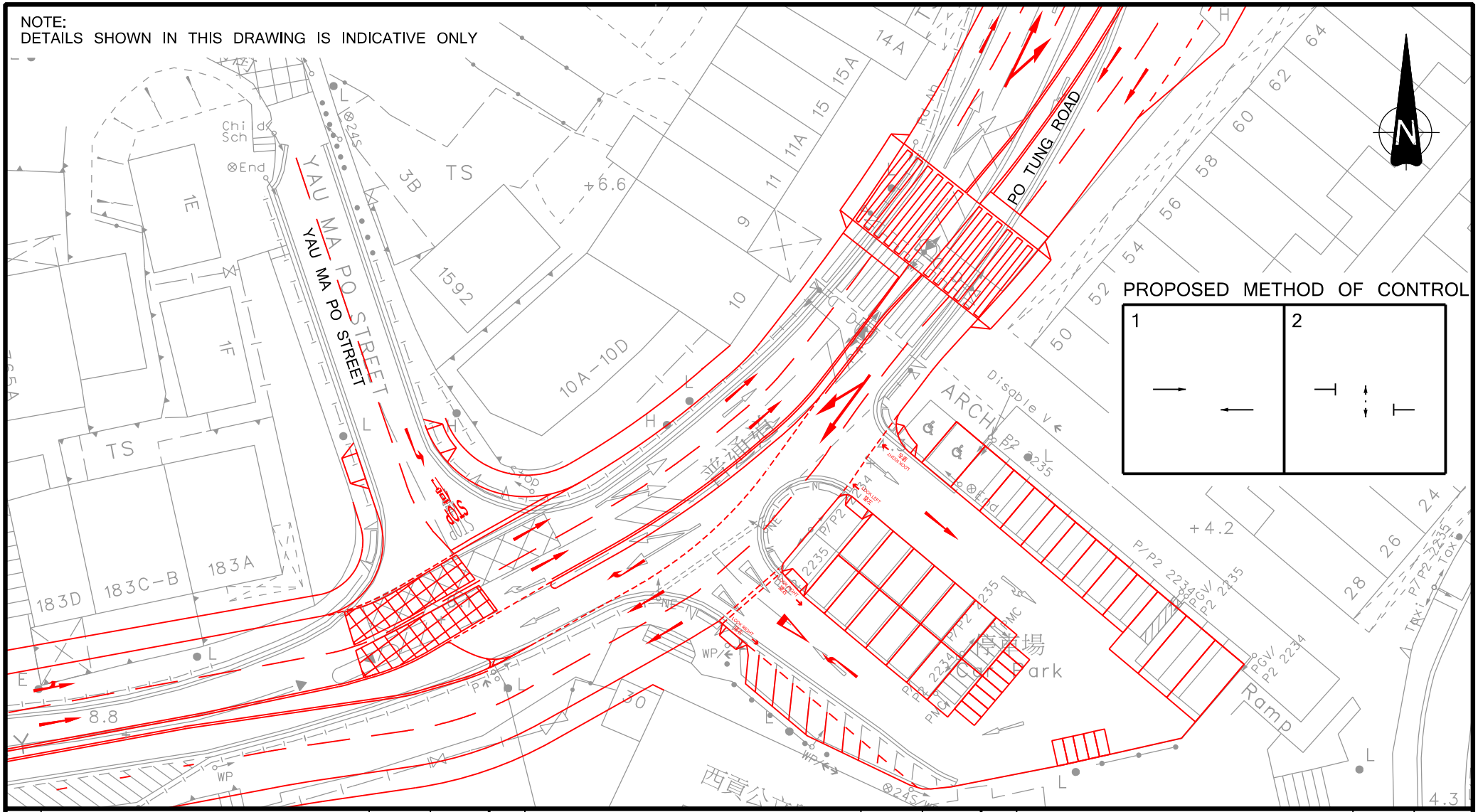
Designed	Checked	Scale	Date	Drawing No.	Rev.
MLC	PTC	1:500(A4)	SEP 2024	5.3	A

SYSTRA MVA

CHK50791710/TIA/F53-A.DGN/LHO/18DEC24

Original Size : A4

NOTE:
DETAILS SHOWN IN THIS DRAWING IS INDICATIVE ONLY



Rev.	Description	Checked	Date	Rev.	Description	Checked	Date	Rev.	Description	Checked	Date
A	MINOR AMENDMENT	PTC	18DEC24	-	-	-	-	-	-	-	-

Project Title

SECTION 16 PLANNING APPLICATION FOR PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS LOTS IN D.D. 221 AND ADJOINING GOVERNMENT LAND, SHA HA, SAI KUNG

Drawing Title

PLANNED LAYOUT OF PEDESTRIAN CROSSING NEAR YAU MA PO STREET (E) AND JUNCTION AT PO TUNG ROAD/YAU MA PO STREET (F)

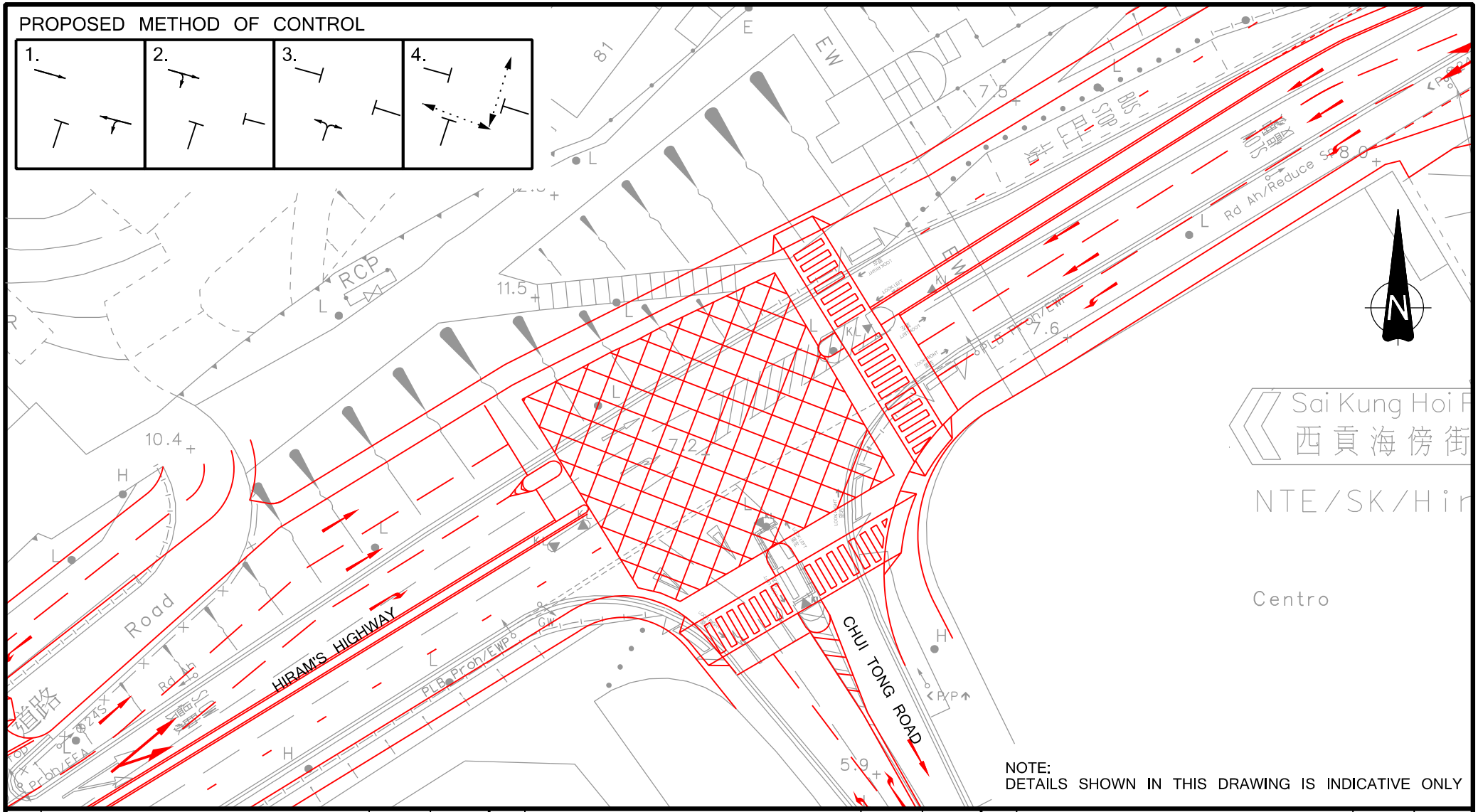
Designed	Checked	Scale	Date	Drawing No.	Rev.
MLC	PTC	1:500(A4)	SEP 2024	5.4	A

SYSTRA MVA

CHK50791710/TIA/F54-A.DGN/LHO/18DEC24

Original Size : A4

PROPOSED METHOD OF CONTROL



NOTE:
DETAILS SHOWN IN THIS DRAWING IS INDICATIVE ONLY

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A	MINOR AMENDMENT	PTC	18DEC24

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Project Title

SECTION 16 PLANNING APPLICATION FOR PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS LOTS IN D.D. 221 AND ADJOINING GOVERNMENT LAND, SHA HA, SAI KUNG

Drawing Title

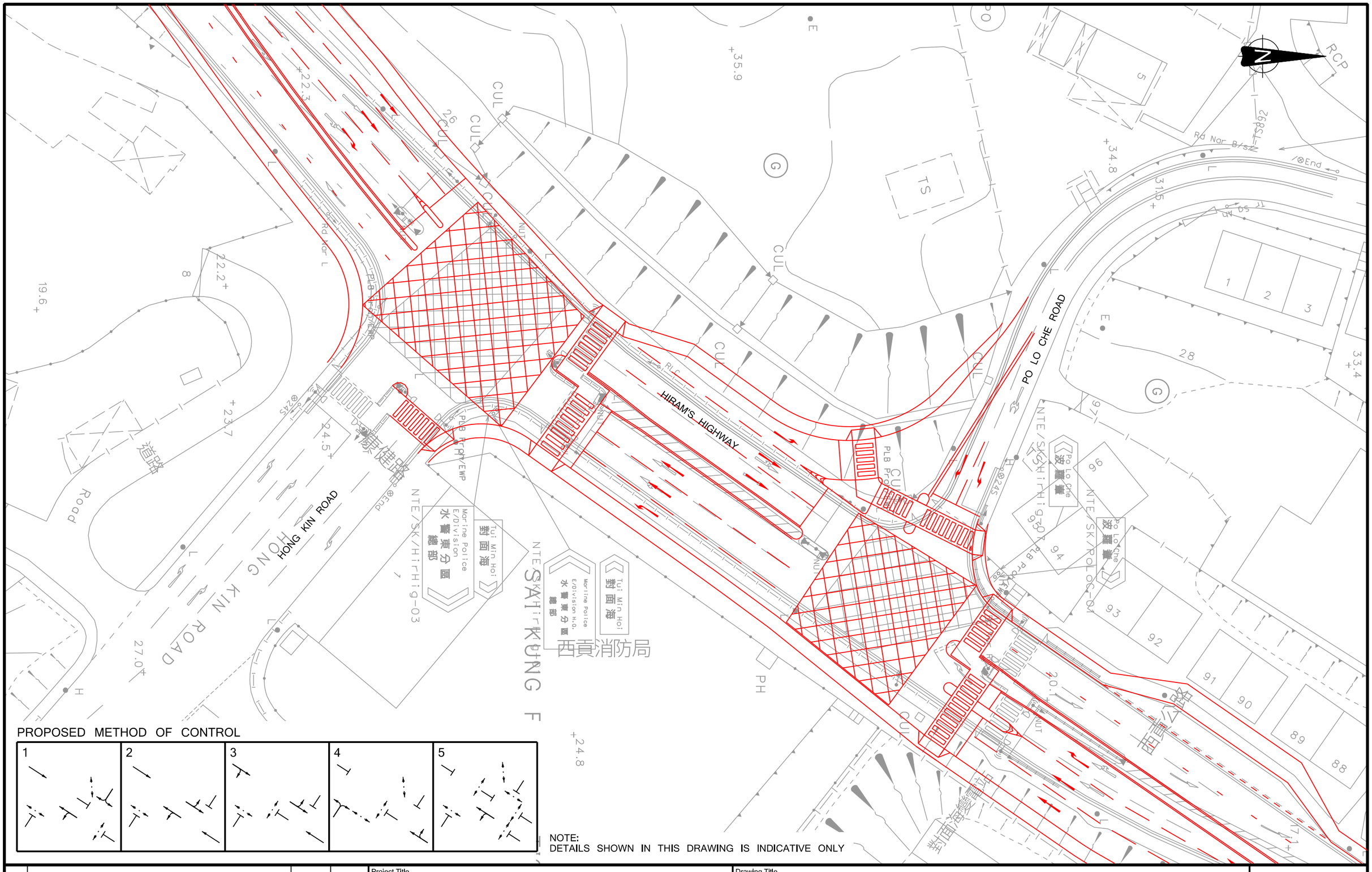
PLANNED JUNCTION LAYOUT OF HIRAM'S HIGHWAY/ CHUI TONG ROAD (G)

Designed	Checked	Scale	Date	Drawing No.	Rev.
MLC	PTC	1:500(A4)	SEP 2024	**5.5**	A

SYSTRA MVA

CHK50791710/TIA/F55-A.DGN/LHO/18DEC24

Original Size : A4



PROPOSED METHOD OF CONTROL

NOTE:
DETAILS SHOWN IN THIS DRAWING IS INDICATIVE ONLY

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A	MINOR AMENDMENT	PTC	19DEC24

Project Title

SECTION 16 PLANNING APPLICATION FOR PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS LOTS IN D.D. 221 AND ADJOINING GOVERNMENT LAND, SHA HA, SAI KUNG

Drawing Title

PLANNED JUNCTION LAYOUT OF HIRAM'S HIGHWAY/ PO LO CHE ROAD/HONG KIN ROAD (H)

Designed	Checked	Scale	Date	Drawing No.	Rev.
MLC	PTC	1:500(A3)	SEP 2024	5.6	A

SYSTRA MVA

CHK50791710/TIA/F56-A.DGN/CKC/19DEC24

Original Size : A3

6. PUBLIC TRANSPORT SERVICE ASSESSMENT

6.1 Existing Public Transport Services

6.1.1 Since the Application Site would be developed as a residential development, it is anticipated that most of the public transport trip generations would be the outbound trips to work and school during weekday morning peak period. As such, the weekday AM peak will be considered as peak scenario to be adopted in the assessment.

6.1.2 As mentioned in **Section 3**, franchised bus and minibus are the major public transport modes in Sai Kung, which serve as feeder routes to MTR stations. The existing public transport services during weekday peak hour is shown in **Drawing 6.1**.

6.1.3 In order to establish the current public transport demand, a public transport survey was conducted at bus/GMB bus stops in Sai Kung Town Center and the peak loading points on a typical weekday from 07:00 to 09:00 during the morning peak period in April 2024. Analysis of the survey results suggested that the peak passenger demand of PT services in the morning peak hour was occurred during 08:00 to 09:00. The corresponding peak hour results are summarised in **Table 6.1**.

Table 6.1 Observed Public Transport Demand (Outbound) during AM Peak Hour

Route No.	Destinations	Observed Trips (veh/hr)	Bus Capacity (pax/hr) (1)	Average Peak Hourly Occupancy	Observed Passenger Pattern of PT Demand
Franchised Buses					
92	Diamond Hill Railway Station	4	480	56%	15%
99	Heng On Bus Terminus	4	480	33%	16%
292P	Kwun Tong	0	0	0%	0%
299X	Shatin Central Bus Terminus	3	360	60%	50%
792M	Tseung Kwan O Station	3	360	48%	19%
	Total	14	1680	-	100%
Minibus					
GMB 1	Kowloon Bay (Telford Gardens)	4	76	95%	8%
GMB 1A	Diamond Hill Railway Station	21	399	91%	37%
GMB 12	Po Lam	5	95	51%	5%
GMB 101M	Hang Hau Station	24	456	88%	39%
RMB	Mongkok	5	95	48%	3%
RMB	Kwun Tong	8	152	45%	8%
	Total	67	1273	-	100%

Note : (1) The passenger capacities of bus and minibus are assumed 120 pax/hr and 19 pax/hr during peak hours.

6.1.4 The assessment results in **Table 6.1** indicates that local public transport services in Sai Kung area (outbound) are operating with capacities during the weekday morning peak hour.

6.1.5 Besides, the distribution of passenger trips among bus and minibus in Sai Kung Town Center was also identified in the PT survey. Based on the observed total number of boarding and alighting passengers at the bus/minibus stops in Sai Kung Town Center, 18% was bus passengers and 82% was minibus passengers.

6.2 Future Public Transport Demand

6.2.1 With reference to Travel Characteristics Survey 2011 (TCS 2011) published by Transport Department (TD), the pedestrian trips of the proposed development in morning peak hour has been derived in **Table 6.2**.

Table 6.2 Anticipated Transport Demand of Proposed development

Location	Estimated Population[1] [i]	Average daily mechanized trips per person [2] [ii]	Peak hour factor [3] [iii]	Peak hour transport demand (pax/hr) =[i] x [ii] x [iii]
Proposed Development (280 units)	756	1.83	12%	166

Notes: (1) Refer to **Table 2.1**.
(2) Average daily mechanised trips per person as extracted from TCS 2011.
(3) Weekday morning peak hour factor for all merchandised trips of 20% as a conservative approach (with reference to TCS 2011) and peak direction split of 60% assumed (i.e. 1-way Peak hour factor = 20% x 60% = 12%).

6.2.2 Based on the calculation in **Table 6.2**, it is anticipated that the pedestrian trips of the proposed development is 166 nos. during the morning peak hour.

Review on Transport Modal Splits

6.2.3 To identify the transport mode shares in local area, Population Census 2021 published by Census and Statistics Department has also been reviewed. The extracted transport modal splits for Large Tertiary Planning Unit Group - Sai Kung Area are analysed in **Table 6.3**.

Table 6.3 Transport Modal Splits of Local Area

Main Mode of Transport to Place of Work	Modal Split
Mass Transit Railway	19.4%
Franchised Bus	9.1%
On foot only	12.8%
Public light bus [4]	39.8%
Private car / Passenger van	15.6%
Company bus / van	1.3%
Mass Transit Railway (Light Rail)	0%
Taxi	0.6%
Residential coach service	0.1%
Ferry/ Vessel	0%
Others [5]	1.3%
Total	**100%**

Note : (1) Data of Large Tertiary Planning Unit Group Nos. 821 and 826 - 828 under "Working Population with Fixed Place of Work in Hong Kong by Year, Main Mode of Transport to Place of Work and Large Subunit Group" in Population Census 2021.

6.2.4 With reference to the transport modal splits in **Table 6.3** and the existing available transport modes in Sai Kung Town Centre, it is assumed that the modal splits for PT mode and non-PT (i.e. private car and taxi) are 83.8% and 16.2% respectively. The PT mode was further split to bus and minibus mode based on the surveyed distribution of passenger trips among bus and minibus in Sai Kung area. The estimated pedestrian trips of proposed development in weekday are summarized in **Table 6.4**.

Table 6.4 Estimated Pedestrian Trips of Proposed Development during peak hours in Weekday

Transport Mode		Modal Split	Pedestrian Trips for (ped/hr)
PT (83.8%)(1)	Bus	15.1%(2)	25
	Minibus	68.7%(2)	114
Non-PT (including Taxi/Private Car)		16.2%(1)	27
Total		100%	166

Remarks:
(1) Based on the Population Census 2021.
(2) Based on the surveyed distribution of passenger trips among bus and minibus in Sai Kung Town Centre. 82% was minibus passengers and 18% was bus passengers.

6.2.5 As shown in **Table 6.4**, it is estimated that 139 nos. pedestrian from the proposed development would rely on the road-based public transport services.

6.2.6 It is noted that there is a planned residential development in CDA(1) zone adjacent to the Application Site. According to TIA report of its planning application, the planned development will provide 972 units with 2,615 population. Based on above same methodology, the estimated PT trips of the planned development would be 481 nos. (including 394 nos. for minibus passenger and 87 nos. for bus passenger), which would be considered in the traffic forecast.

Capacity Assessment on Public Transport Services

6.2.7 Based on the observed passenger pattern of PT demand in Sai Kung area in **Table 6.1**, the PT demand of the proposed development and planned development were split to the existing bus and minibus services. The anticipated bus and minibus demands during peak hours are shown in **Table 6.5**.

Table 6.5 Future Public Transport Demand (Outbound) during AM Peak Hour

Route No.	Destinations	Bus Capacity (pax/hr) (1) [B]	Reference Case (Without the Proposed Development)		Design Case (with the Proposed Development)		
			Future PT demand (Without Proposed Development) [E]	Anticipated Average Peak Hourly Occupancy [E]/ [B]	PT Demand of Proposed Development (pax/hr) [F]	Anticipated PT demand (With Proposed Development) [G] = [E] + [F]	Anticipated Average Peak Hourly Occupancy(3) [G]/ [B]
Franchised Buses							
92	Diamond Hill Railway Station	480	282	59%	4	286	60%
99	Heng On Bus Terminus	480	172	36%	4	176	37%
292P(2)	Kwun Tong	-	-	-	-	-	-
299X	Shatin Central Bus Terminus	360	260	72%	13	273	76%
792M	Tseung Kwan O Station	360	190	53%	5	195	54%
Total		1680	904	-	26	930	-
MiniBus							
GMB 1	Kowloon Bay (Telford Gardens)	76	104	137%	9	113	149%
GMB 1A	Diamond Hill Railway Station	399	509	128%	42	551	138%
GMB 12	Po Lam	95	68	72%	6	74	78%
GMB 101M	Hang Hau Station	456	555	122%	44	599	131%
RMB	Mongkok	95	58	61%	3	61	64%
RMB	Kwun Tong	152	100	66%	9	109	72%
Total		1273	1394	-	113	1507	-

Notes : (1) The passenger capacities of bus and minibus are assumed 120 pax/hr and 19 pax/hr during peak hours.
(2) No trip was observed during the identified peak hour in the survey.
(3) According to the Guidelines on Bus Service Improvement and Reduction published by TD, TD may consider frequency improvement if the average occupancy of bus route reaches 75% during peak hour to enhance the service level.

According to **Table 6.5**, it is anticipated that the existing services of GMB routes No. 1, 1A and 101M would be overcapacities upon population intakes in the vicinity of Sha Ha Area. Taking into consideration that the bus and GMB services in Sai Kung area are both served as feeders to MTR Stations, the GMB passenger is assumed to be shifted to use the bus service as alternative transport service when the GMBs are full. The anticipated bus and minibus demands during peak hours are re-distributed and shown in **Table 6.6**.

Table 6.6 Future Public Transport Demand (Outbound) during AM Peak Hour

	Bus Capacity (pax/hr) [B]	Anticipated PT demand (With Proposed Development) [H]	Anticipated Average Peak Hourly Occupancy[3] [H]/ [B]
Bus			
KMB 92 (to Diamond Hill)	480	475[1]	99%
CTB 792M (to TKO Station)	480	338[2]	70%
GMB			
GMB 1 (to Kowloon Bay)	76	76[1]	100%
GMB 1A (to Diamond Hill)	399	399[1]	100%
GMB 101M (Hang Hau Station)	456	456[2]	100%

Remarks: (1) Refer to Column G in **Table 6.5**. 189 nos. passengers of GMB Route Nos. 1 and 1A are assumed to be shifted to use the KMB's bus route no. 92 when the GMBs are full.

(2) Refer to Column G in **Table 6.5**. 143 nos. passengers of GMB Route No. 101M is assumed to be shifted to use the CTB's bus route no. 792M when the GMB is full.

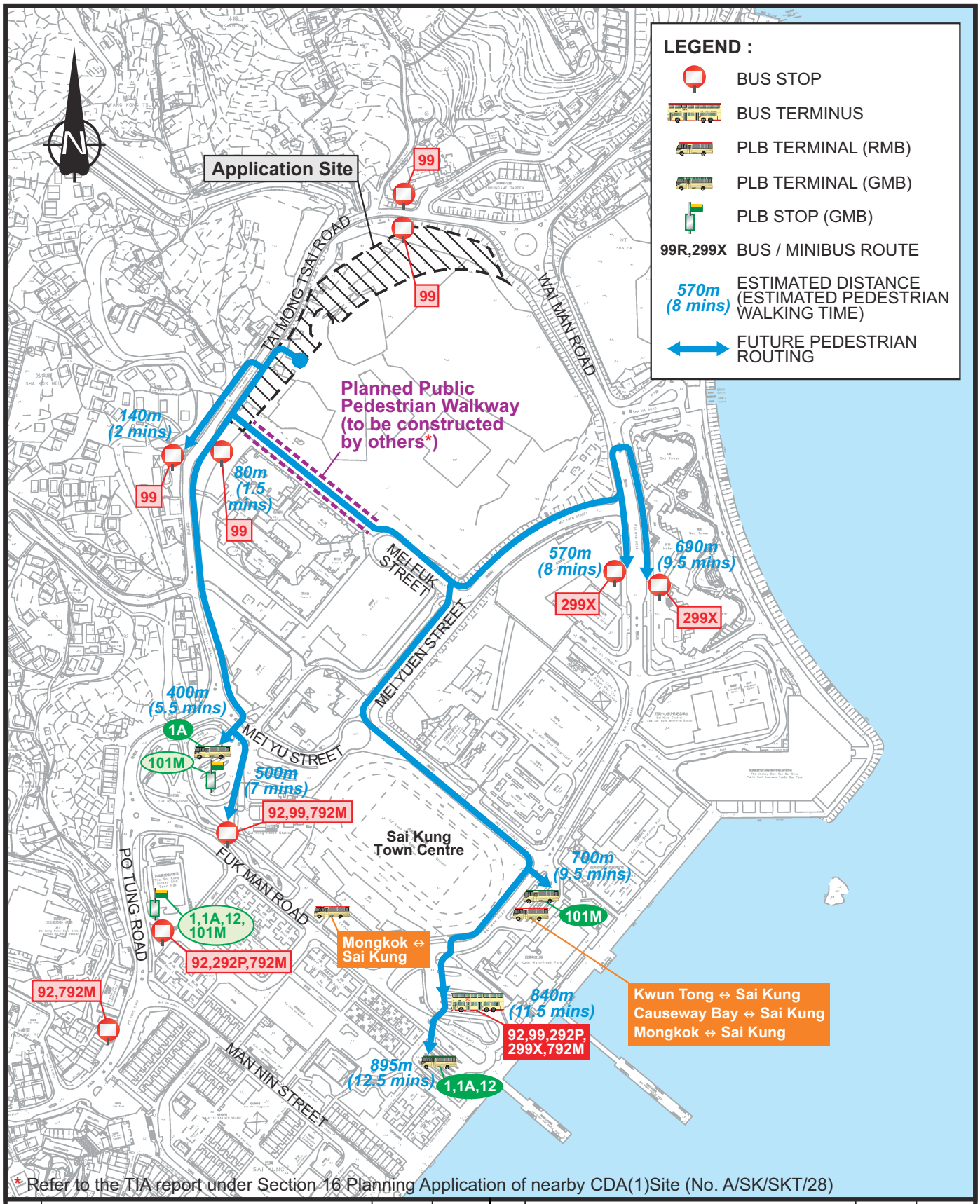
6.2.8 Based on the assessment result in **Table 6.5** and **Table 6.6**, enhancement of the existing PT services would be required under both reference and design cases (i.e. with and without the proposed development) to meet the passenger demand arising from the population intakes in the vicinity of Sha Ha area. The suggested enhancement of PT services for TD's future planning are discussed in the following paragraphs.

Frequency Improvement of Existing Bus Route 299x

6.2.9 Based on **Table 6.5**, it is suggested to increase additional 1 trip for bus route 299x (Shatin bound) during AM peak hour period to enhance the service level. Actual service enhancement is subject to the Transport Department's review at a later stage and actual passenger demand.

Frequency Improvement of Existing Bus Route KMB 92

6.2.10 Based on **Table 6.6**, it is suggested to increase additional 2 trips for bus route KMB 92 (Diamond Hill bound) during AM peak hour period to meet the passenger demand arising from the population intakes in the vicinity of Sha Ha area. Actual service enhancement is subject to the Transport Department's review at a later stage and actual passenger demand.



* Refer to the TIA report under Section 16 Planning Application of nearby CDA(1)Site (No. A/SK/SKT/28)

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A	MINOR AMENDMENT	PTC	27FEB25	-	-	-	-

Project Title
SECTION 16 PLANNING APPLICATION FOR PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS LOTS IN D.D. 221 AND ADJOINING GOVERNMENT LAND, SHA HA, SAI KUNG

Drawing Title

EXISTING PUBLIC TRANSPORT SERVICES IN WEEKDAY PEAK HOUR

Designed	Checked	Scale	Date	Drawing No.	Rev.
HZF	PTC	NTS	SEP 2024	6.1	A

SYSTRA MVA

CHK50791710/TIA/F61-A.CDR/LLH/27FEB25

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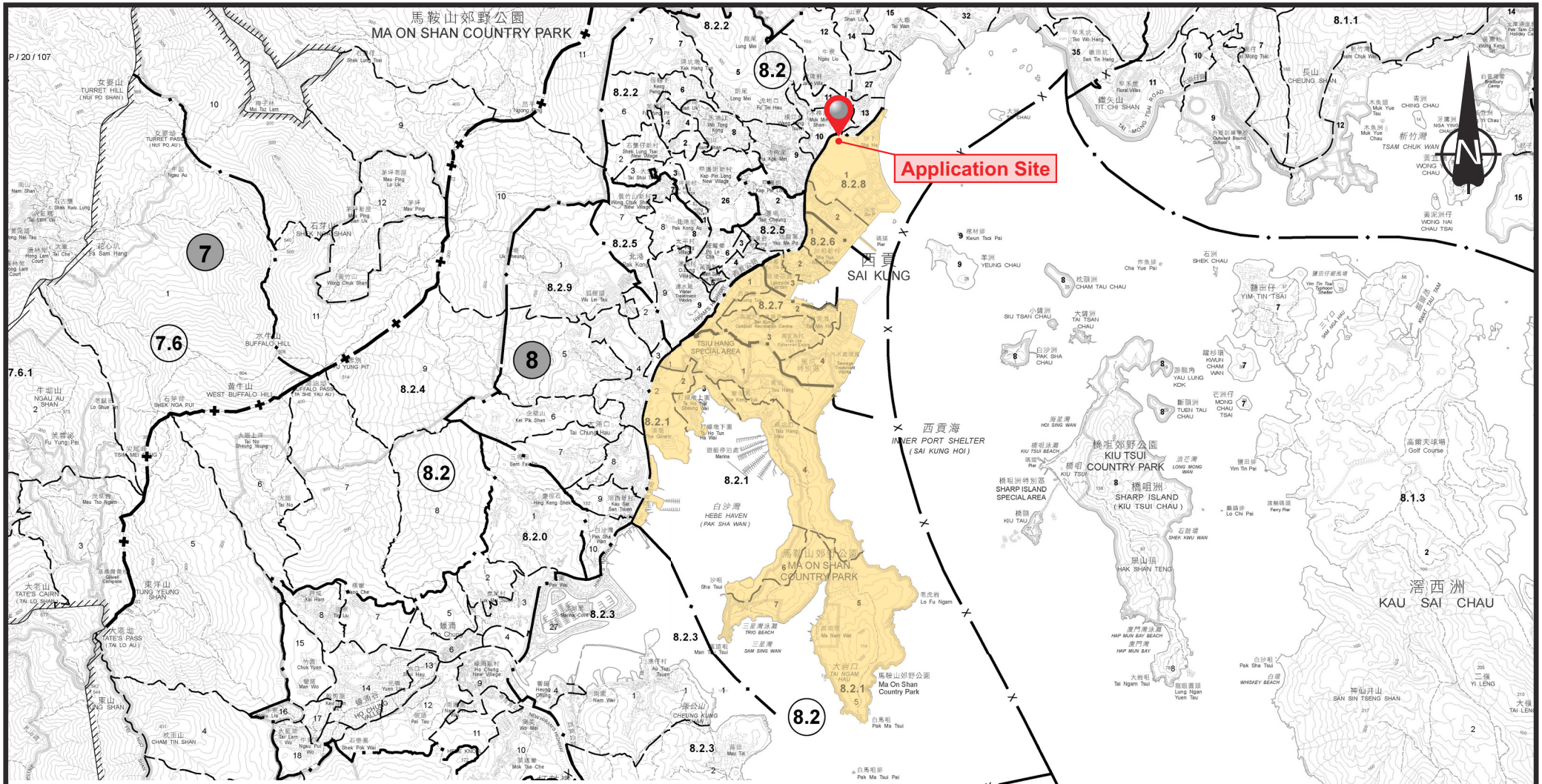

Remark :

Extracted from “Primary, Secondary & Tertiary Planning Unit and Subunit Boundaries Sai Kung Peninsula, 2021 Population Census.” published by Planning Department

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Project Title

SECTION 16 PLANNING APPLICATION FOR PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS LOTS IN D.D. 221 AND ADJOINING GOVERNMENT LAND, SHA HA, SAI KUNG

Drawing Title

TPU BOUNDARY PLAN UNDER 2021 POPULATION CENSUS

Designed	Checked	Scale	Date	Drawing No.	Rev.
MLC	PTC	NTS	SEP 2024	6.2	-

SYSTRA MVA

CHK50791710/TIA/F62.CDR/LLH/12SEP24

Original Size : A4

7. PEDESTRIAN IMPACT ASSESSMENT

7.1 Existing Pedestrian Connections

7.1.1 At present, footpaths and crossings are provided in the vicinity of the site along Tai Mong Tsai Road, Mei Yuen Street and Wai Man Road to facilitate pedestrians to/from the nearby bus/minibus stops.

7.1.2 In order to establish the current pedestrian demand in the area, pedestrian head count survey was conducted at the key sections of footpaths along the anticipated access routes of the sites during the morning peak 07:00-09:00 and evening peak 17:00-19:00 on a typical weekday in February 2025. The locations of the surveyed sections are shown in **Drawing No. 7.1**.

7.1.3 The survey result indicated that the observed peak-hour pedestrian demand occurred during 07:10 to 08:10 and 17:10 to 18:10 in the morning and evening peak periods respectively. With the observed pedestrian flows, the key footpaths were assessed under the 'Level of Service (LOS)' approach in accordance with TPDM**.** The results of the Level of Service (LOS) assessment for existing footpaths are summarized in **Table 7.1**.

Table 7.1 LOS Assessments of Existing Footpaths

Ref (1)	Section	Existing Footpath Width (m)	Effective Width(2) (m)	Two-way Observed Flows (pph)		Flow Rate (ppm/m)		Level of Service (3)	
				AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
A	Tai Mong Tsai Road (Eastern Footpath)	2.3	1.3	60	135	0.8	1.7	A	A
B	Mei Fuk Street (Northern Footpath)	2.5	1.5	15	10	0.2	0.1	A	A
C	Mei Yuen Street (Western Footpath)	3.1	2.1	15	10	0.1	0.1	A	A
D	Wai Man Road (Northern Footpath)	3	2	90	85	0.8	0.7	A	A

Remarks: (1) Location refer to **Drawing No. 7.1.**

(2) Effective width = Existing Width – 1m Dead width (i.e. 0.5m clearance for each side of kerb/tree pit/railing)

(3) Details of Pedestrian Walkway LOS refer to TPDM. Volume 6 Chapter 10 Section 10.4.2. The definitions of different level of LOS on footpaths extracted from TPDM is shown in **Appendix B**.

7.1.4 As shown in **Table 7.1,** all existing footpaths are operating within capacity (i.e. LOS C or better).

7.2 Future Pedestrian Connections

7.2.1 As mentioned in **Section 2.4**, a 6m wide footpath will be provided by others to connect Tai Mong Tsai Road and Mei Fuk Street for public use according to the approved planning application of nearby CDA(1) site (Application No. A/SK-SKT/28). This would facilitate residents of the proposed development to/from the bus/minibus termini near Sai Kung Pier.

7.2.2 Besides, as mentioned in **Section 3.1**, the planned improvement works to Hiram's Highway is anticipated to be completed by 2032 before the completion of the proposed development. The planned road works at Tai Mong Tsai Road was adopted in the assessment.

7.3 Year 2035 Pedestrian Forecast

7.3.1 In order to investigate the impact induced by the proposed development to the surrounding pedestrian network, year 2035 (i.e. three years upon completion of the proposed development) has been adopted for the pedestrian assessment.

Pedestrian Growth

7.3.2 Same as traffic forecast as discussed in **Section 4.2**, the traffic growth rate of +0.26% will be adopted for the pedestrian forecast.

Pedestrian Trips of the Proposed Development and Adjacent Planned Development

7.3.3 As discussed in **Section 6.2**, the pedestrian trips of the proposed development and adjacent planned development during peak hours are 166 pax/hr and 574 pax/hr respectively.

Table 7.2 Anticipated Pedestrian Trips during Peak Hours

	No. of Units	Estimated Pedestrian Trips during peak hours(1) (pax/hr)
Proposed Development	280	166
Planned residential development in CDA(1) zone (Application No. A/SK-SKT/28)	972	574

Remark: (1) Details refer to **Section 6.2.**

7.3.4 According to the above, the anticipated 2035 pedestrian forecast are obtained by applying the adopted growth rates to the observed pedestrian flows and superimposing the anticipated pedestrian trips of the proposed development and the adjacent planned development.

7.3.5 The anticipated 2035 pedestrian forecast with the LOS assessment result at the critical footpaths are shown in **Table 7.3**.

Table 7.3 LOS Assessments of Footpaths in Design Year 2035

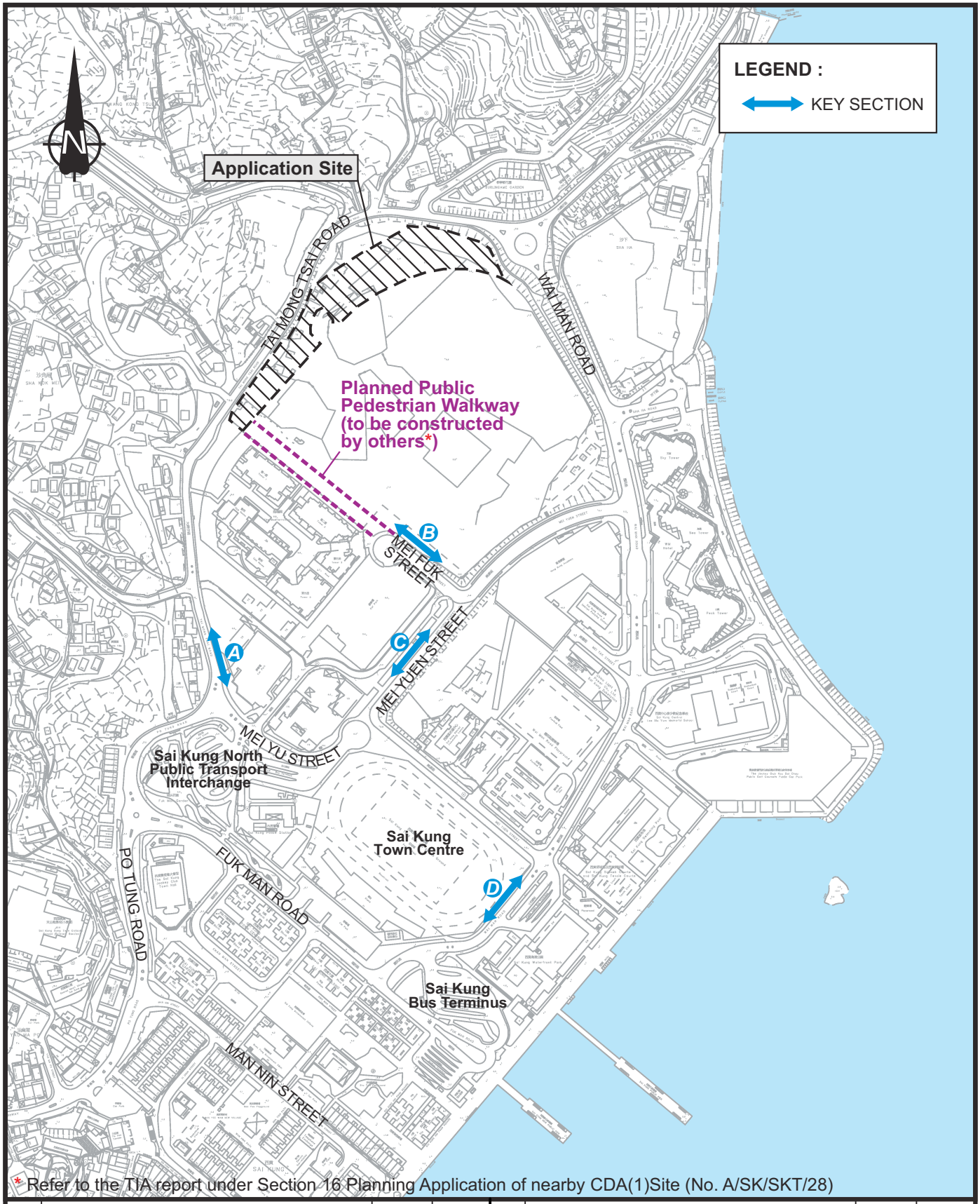
Ref (1)	Section	Footpath Width (m)	Effective Width(2) (m)	Two-way Observed Flows (pph)		Flow Rate (ppm/m)		Level of Service (3)	
				AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
A	Planned Tai Mong Tsai Road (Eastern Footpath)	2	1	175	265	2.9	4.4	A	A
B	Mei Fuk Street (Northern Footpath)	2.5	1.5	600	585	6.7	6.5	A	A
C	Mei Yuen Street (Western Footpath)	3.1	2.1	590	570	4.7	4.5	A	A
D	Wai Man Road (Northern Footpath)	3	2	220	210	1.8	1.8	A	A

Remarks: (1) Location refer to **Drawing No. 7.1.**

(2) Effective width = Footpath Width – 1m Dead width (i.e. 0.5m clearance for each side of kerb/tree pit/railing)

(3) Details of Pedestrian Walkway LOS refer to T.P.D.M. Volume 6 Chapter 10 Section 10.4.2. The definitions of different level of LOS on footpaths is extracted from TPDM is shown in **Appendix B**.

7.3.6 The assessment results in **Table 7.3** indicated that all the critical footpaths will still be operating within capacity (i.e. LOS C or better) during peak hours upon completion of the proposed development.



* Refer to the TIA report under Section 16 Planning Application of nearby CDA(1)Site (No. A/SK/SKT/28)

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Project Title
SECTION 16 PLANNING APPLICATION FOR PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS LOTS IN D.D. 221 AND ADJOINING GOVERNMENT LAND, SHA HA, SAI KUNG

Drawing Title

IDENTIFIED KEY FOOTPATHS

Designed	Checked	Scale	Date	Drawing No.	Rev.
HZF	PTC	NTS	FEB 2025	7.1	-

CHK50791710/TIA/F71.CDR/LLH/28FEB25

Original Size : A4

8. SUMMARY & CONCLUSION

8.1 Summary

8.1.1 The application site is at various lots in DD221 and adjoining Government land, Sai Kung. It is currently in an area shown as "Road" in the approved Sai Kung Town Outline Zoning Plan (OZP) S/SK-SKT/6. The applicant intends to develop the site into a residential development with a view to better utilizing the "leftover" land resources between the CDA(1) zone and the planned Tai Mong Tsai Road.

8.1.2 The applicant intends to develop the site into a residential development with about 280 units. The tentative completion year of the development is year 2032.

8.1.3 The development vehicular access will be located at Tai Mong Tsai Road. The internal transport facilities provisions will be provided in accordance with the relevant guidelines stipulated in the latest HKPSG. Also, 10 nos. public parking space for private car have been included in the proposed MLP in order to increase the parking space supply to the community.

8.1.4 Traffic surveys have been conducted to establish the current traffic condition in the vicinity of the subject site. The junction and link capacity assessments revealed that all the identified local junctions and road links are currently operating with ample capacity except the roundabout of Po Tung Road/Fuk Man Road (C), the priority junction of Po Tung Road/Man Nin Street (D), a section of Po Tung Road (S4) and a section of Hiram's Highway near Hong Kin Road (S5).

8.1.5 Improvement works to Hiram's Highway has been planned by Highways Department (HyD), with the objectives to relieve existing traffic congestion and enhance the resilience to unexpected incidents. The works is divided into 2 stages. Stage 1 works included the road widening of Hiram's Highway between Clear Water Bay Road and Marina Cove, which has been completed in 2021. The Stage 2 works includes widening of the road section between Marina Cove to Sai Kung Town, which included Hiram's Highway, Po Tung Road and a section of Tai Mong Tsai road abutting the application site. According to the HyD's press releases dated 29 September 2023, the design and construction of the works is scheduled to commence in the Q2 2024 and will take about 84 months to complete. As such, it is anticipated that the improvement works would be completed by 2032. This planned improvement works was adopted for assessment.

8.1.6 Operational performance of the identified local junctions and road links have been assessed based on the anticipated year 2035 traffic flows and the existing/planned layouts. The assessment results as shown in **Table 5.1** and **Table 5.2** revealed that all identified key junctions and road links will operate with ample capacity.

8.1.7 Public transport service assessments have been conducted with full occupation of the proposed development. To meet the passenger demand arising from the population intake in the vicinity of Sha Ha area, enhancement of the existing PT services are suggested for Transport Department's planning. Actual service enhancement is subject to the Transport Department's review at a later stage and actual passenger demand.

8.1.8 Performance of the identified critical footpaths has also been assessed and the results revealed that all the identified sections will still be operating with satisfactory performance upon completion of the proposed development.

8.2 Conclusion

8.2.1 In conclusion, the traffic impact assessment has demonstrated that the development traffic generation by the subject site can be absorbed by the nearby road network and would not cause any adverse traffic impact. Hence it can be concluded that the proposed development is considered acceptable in traffic terms.

Appendix A

Junction Calculation Sheets

Simplified Roundabout Capacity Calculation

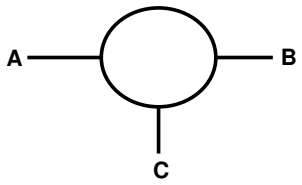
Job Title:	Proposed Residential Development In Area Shown As 'Road', Various Lots In D.D. 221 And Adjoining Government Land, Sha Ha, Sai Kung		
Junction:	Tai Mong Tsai Road/Wai Man Road		Ref. No.: A (Obs)
Scheme:	Year 2024 Observed Flow		Ref. No.:
Year:	2024	Job No.: CHK50791710	Rev.:

AM PM

ARM A: Tai Mong Tsai Road Southern

ARM B: Tai Mong Tsai Road Northern

ARM C: Wai Man Road



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	3.00	7.50	15	50	42	30	0.48
B	3.20	4.80	7	30	42	60	0.37
C	3.60	5.00	7	30	42	50	0.32

AM FLOWS

from \ to	A	B	C	Circ	Entry
A	5	360	70	145	435
B	515	10	160	80	685
C	50	130	5	530	185

PM FLOWS

from \ to	A	B	C	Circ	Entry
A	5	525	35	110	565
B	405	5	125	45	535
C	45	100	5	415	150

WEEKEND FLOWS

from \ to	A	B	C	Circ	Entry
A	5	515	60	145	580
B	415	5	170	70	590
C	40	135	5	425	180

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	Q_E WEEKEND	RFC AM	RFC PM	RFC WEEKEND
A	1.03	5.30	0.17	1605	1.43	0.62	1560	1582	1560	0.28	0.36	0.37
B	0.91	4.12	0.17	1250	1.43	0.55	1100	1117	1105	0.62	0.48	0.53
C	0.95	4.45	0.17	1349	1.43	0.57	993	1055	1049	0.19	0.14	0.17

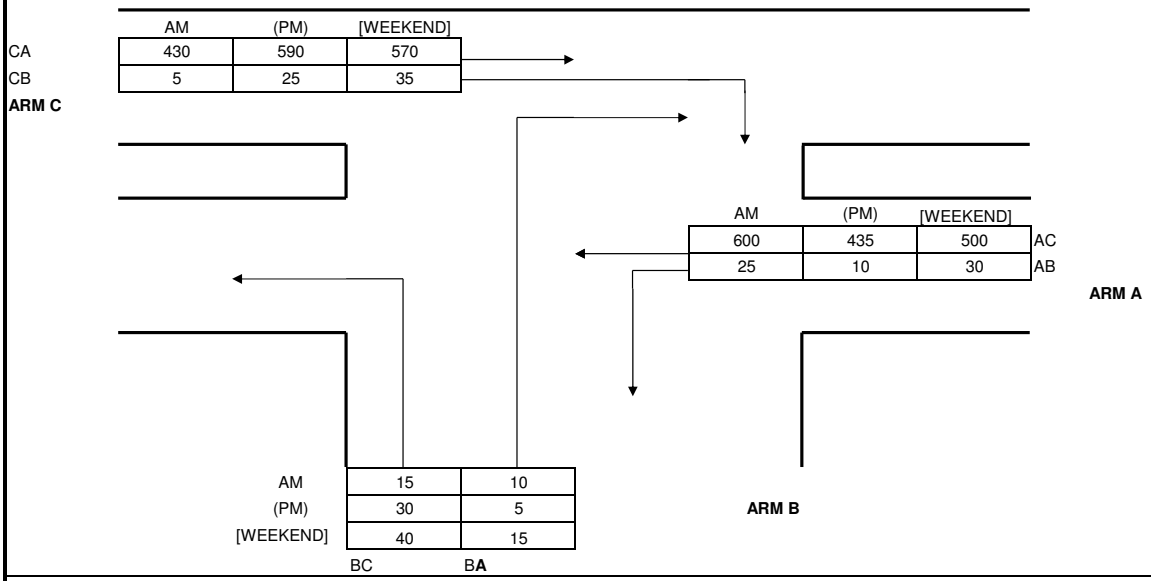
Crtical Arm:	**B**	**B**	**B**
RFC:	**0.62**	**0.48**	**0.53**
	AM	**PM**	**WEEKEND**

- In accordance with TPDM V2 Ch4

Calculated by:	Date: Dec-24	Checked by:

Simplified Priority Junction Capacity Calculation

Job Title:	Proposed Residential Development In Area Shown As 'Road', Various Lots In D.D. 221 And Adjoining Government Land, Sha Ha, Sai Kung		
Junction:	Po Tung Road/Mei Yu Street/Tai Mong Tsai Road	Ref. No.:	B (Obs)
Scheme:	Year 2024 Observed Flow	Ref. No.:	
Year:	2024	Job No.: CHK50791710	Rev.:
ARM A:	Po Tung Road (Northern)		
ARM B:	Mei Yu Street		
ARM C:	Po Tung Road (Southern)		



GEOMETRY					
Major road width	W	9.00	Lane widths	w(b-a)	3.35
Central Reserve width	Wcr	0.00		w(b-c)	3.35
2 Lane Minor Arm (Y/N)		Y		w(c-b)	3.85
Visibilities	Vr(b-a)	140	Calculated	D	0.95
	Vl(b-a)	90		E	1.00
	Vr(b-c)	150		F	0.96
	Vr(c-b)	55		Y	0.69

ANALYSIS					
			AM PEAK	(PM) PEAK	[WEEKEND] PEAK
TRAFFIC FLOWS	q(c-a)		430	590	570
	q(c-b)		5	25	35
	q(a-b)		25	10	30
	q(a-c)		600	435	500
	q(b-a)		10	5	15
	q(b-c)		15	30	40
	f		0.60	0.86	0.73
		Factor			
CAPACITIES	Q(b-a)	1	386	395	378
	Q(b-c)	1	591	634	615
	Q(c-b)	1	564	607	587
	Q(b-ac)	1	487	583	525
RFC's	b-a		0.026	0.013	0.040
	b-c		0.025	0.047	0.065
	c-b		0.009	0.041	0.060
	b-ac		0.000	0.000	0.000
Worst RFC			**0.026**	**0.047**	**0.065**

Where Vl and Vr are visibility distances to the left or right of the respective streams

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

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

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

Y = 1-0.0345W

f = proportion of minor traffic turning left

Q (b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a) Capacity of combined streams

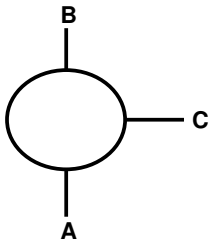
'- In accordance with TPDM V2 Ch4

Calculated by:	Date: Dec-24	Checked by:

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Residential Development In Area Shown As 'Road', Various Lots In D.D. 221 And Adjoining Government Land, Sha Ha, Sai Kung		
Junction:	Tai Mong Tsai Road/Fuk Man Road		Ref. No.: C (Obs)
Scheme:	Year 2024 Observed Flow		Ref. No.:
Year:	2024	Job No.: CHK50791710	Rev.:

	AM	PM	
ARM A:	Po Tung Road		SB
ARM B:	Po Tung Road		NB
ARM C:	Fuk Man Road		



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	7.00	7.50	1	20	28	35	0.80
B	3.50	9.00	43	40	28	35	0.20
C	3.50	8.50	35	10	28	40	0.23

AM FLOWS

from \ to	A	B	C	Circ	Entry
A	5	330	420	110	755
B	590	5	60	430	655
C	350	100	5	600	455

PM FLOWS

from \ to	A	B	C	Circ	Entry
A	5	525	370	90	900
B	420	5	45	380	470
C	410	80	5	430	495

WEEKEND FLOWS

from \ to	A	B	C	Circ	Entry
A	5	485	475	135	965
B	460	5	75	485	540
C	485	125	5	470	615

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	Q_E WEEKEND	RFC AM	RFC PM	RFC WEEKEND
A	0.98	7.19	0.04	2179	1.48	0.76	2060	2074	2041	0.37	0.43	0.47
B	1.01	7.40	0.04	2243	1.48	0.77	572	584	559 #	1.14	0.81	0.97
C	0.92	6.93	0.04	2100	1.48	0.74	451	485	477 #	1.01	1.02	1.29

Remark: (#) Site factors have been applied to reflect the observed long traffic queues on Po Tung Road southbound and Fuk Man Road on weekend peak

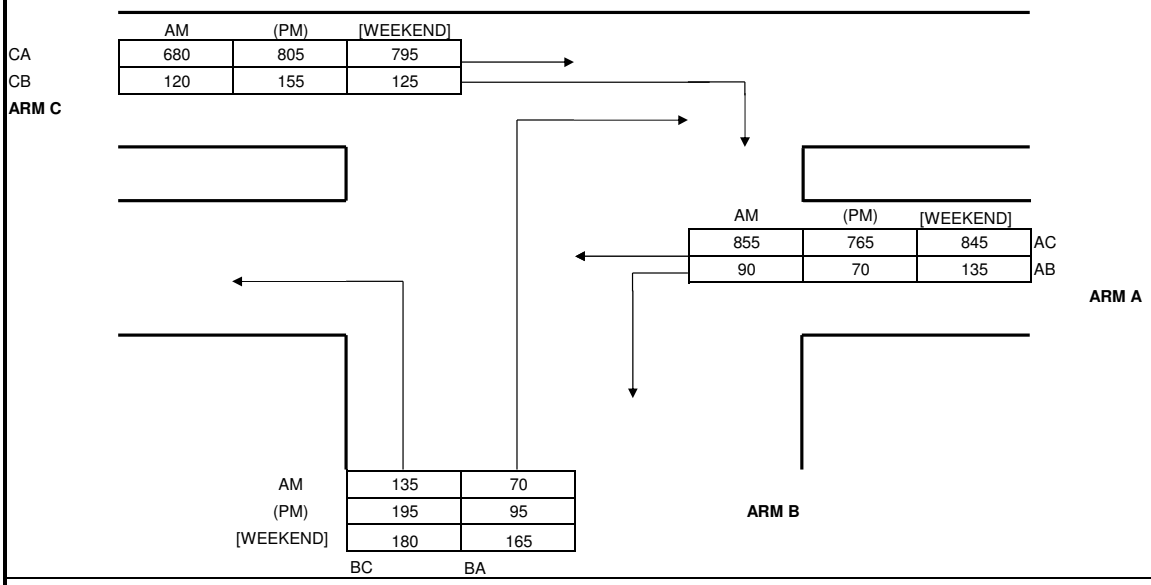
	AM	PM	WEEKEND
Crtical Arm:	**B**	**C**	**C**
RFC:	**1.14**	**1.02**	**1.29**

'- In accordance with TPDM V2 Ch4

Calculated by:	Date: Dec-24	Checked by:

Simplified Priority Junction Capacity Calculation

Job Title:	Proposed Residential Development In Area Shown As 'Road', Various Lots In D.D. 221 And Adjoining Government Land, Sha Ha, Sai Kung		
Junction:	Po Tung Road/Man Nin Street	Ref. No.:	D (Obs)
Scheme:	Year 2024 Observed Flow	Ref. No.:	
Year:	2024	Job No.: CHK50791710	Rev.:
ARM A:	Po Tung Road (Northern)		
ARM B:	Man Nin Street		
ARM C:	Po Tung Road (Southern)		



GEOMETRY

Major road width	W	7.50	Lane widths	w(b-a)	3.65
Central Reserve width	Wcr	0.00		w(b-c)	3.65
2 Lane Minor Arm (Y/N)		n		w(c-b)	3.00
Visibilities	Vr(b-a)	30	Calculated	D	0.86
	Vl(b-a)	40		E	0.92
	Vr(b-c)	30		F	0.92
	Vr(c-b)	100		Y	0.74

ANALYSIS

		Factor	AM PEAK	(PM) PEAK	[WEEKEND] PEAK
TRAFFIC FLOWS	q(c-a)		680	805	795
	q(c-b)		120	155	125
	q(a-b)		90	70	135
	q(a-c)		855	765	845
	q(b-a)		70	95	165
	q(b-c)		135	195	180
	f		0.66	0.67	0.52
CAPACITIES	Q(b-a)	1	193	186	173
	Q(b-c)	1	422	426	352
	Q(c-b)	1	452	479	443
	Q(b-ac)	1	314	319	257
RFC's	b-a		0.36	0.51	0.95
	b-c		0.32	0.46	0.51
	c-b		0.27	0.32	0.28
	b-ac		0.65	0.91	1.34
Worst RFC			**0.65**	**0.91**	**1.34**

Where Vl and Vr are visibility distances to the left or right of the respective streams

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

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

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

Y = 1-0.0345W

f = proportion of minor traffic turning left

Q (b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a) Capacity of combined streams - in accordance with TPDM V2 Ch4

Calculated by:	Date: Dec-24	Checked by:

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50791710 **MVA HONG KONG LIMITED**

Junction: Pedestrian Crossing near Yau Ma Po Street (JE) Design Year: 2024

Description: Year 2024 Observed Traffic Flow Designed By: MLC Checked By: PTC

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Hiram's Highway (NB)	→	A	1	3.500						1965	1965	800	0.407		960	0.489	0.489
Hiram's Highway (SB)	←	B	1	3.500						1965	1965	990	0.504	0.504	960	0.489	
Pedestrian Crossing		Cp	2	MIN GREEN + FLASH =			6	+	5	=	11			*			*

Notes:

Flow: (pcu/hr)

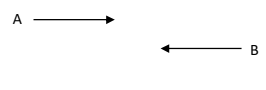
N

800(960) → 990(960) ←

Group	A,Cp	B,Cp	Group	A,Cp	A,Cp
y	0.407	0.504	y	0.489	0.489
L (sec)	20	20	L (sec)	20	20
C (sec)	85	85	C (sec)	85	85
y pract.	0.688	0.688	y pract.	0.688	0.688
R.C. (%)	69%	37%	R.C. (%)	41%	41%

Stage / Phase Diagrams

1.



2.

3.

4.

5.

I/G= 4		I/G= 6	11	I/G=		I/G=		I/G=	
I/G= 4		I/G= 6	11	I/G=		I/G=		I/G=	

Date: DEC, 2024

Junction: Ⓔ Pedestrian Crossing near Yau Ma Po Street

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50791710 **MVA HONG KONG LIMITED**

Junction: Pedestrian Crossing near Yau Ma Po Street (JE) Design Year: 2024

Description: Year 2024 Observed Traffic Flow Designed By: MLC Checked By: LLW

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) WE	Pro. Turning (%) WE	Revised Saturation Flow (pcu/hr) WE	Revised Saturation Flow (pcu/hr) WE	WE Flow (pcu/hr)	WE y Value	WE Critical y	WE Flow (pcu/hr)	WE y Value	WE Critical y
Hiram's Highway (NB)	→	A	1	3.500						1965	1965	920	0.468		920	0.468	
Hiram's Highway (SB)	←	B	1	3.500						1965	1965	1025	0.522	0.522	1025	0.522	0.522
Pedestrian Crossing		Cp	2	MIN GREEN + FLASH =			6	+	5	=	11			*			*

Notes:

Flow: (pcu/hr)

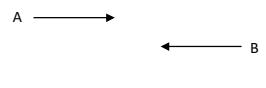
N

920(920) → 1025(1025) ←

Group	A,Cp	B,Cp	Group	A,Cp	B,Cp
y	0.468	0.522	y	0.468	0.522
L (sec)	20	20	L (sec)	20	20
C (sec)	85	85	C (sec)	85	85
y pract.	0.688	0.688	y pract.	0.688	0.688
R.C. (%)	47%	32%	R.C. (%)	47%	32%

Stage / Phase Diagrams

1.



2.

3.

4.

5.

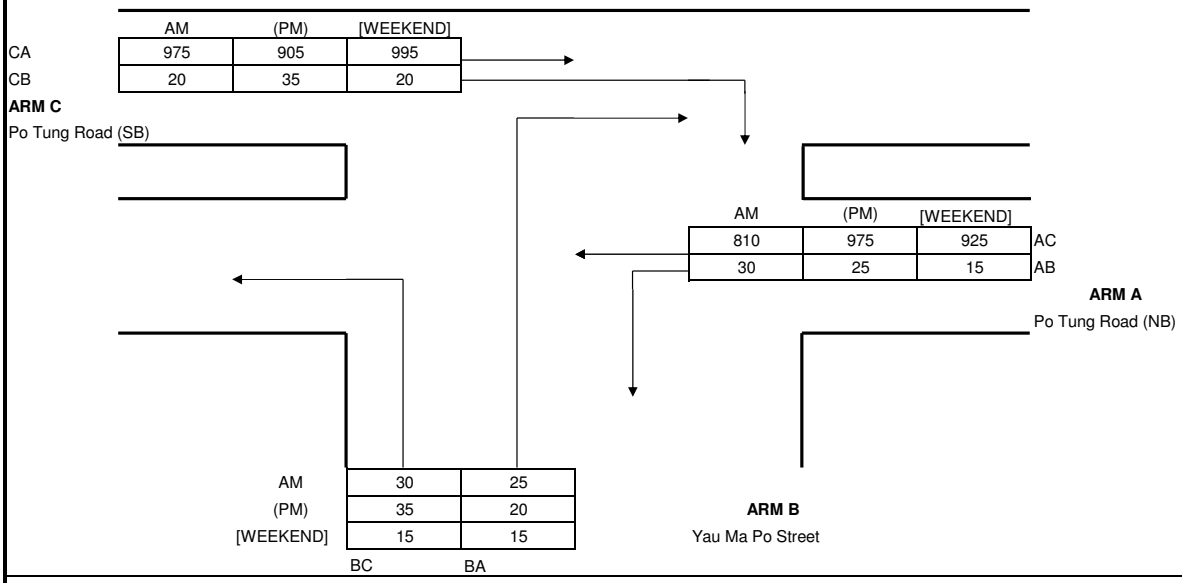
I/G= 4		I/G= 6	11	I/G=		I/G=		I/G=	
I/G= 4		I/G= 6	11	I/G=		I/G=		I/G=	

Date: DEC, 2024

Junction: (E) Pedestrian Crossing near Yau Ma Po Street

Simplified Priority Junction Capacity Calculation

Job Title:	Proposed Residential Development In Area Shown As 'Road', Various Lots In D.D. 221 And Adjoining Government Land, Sha Ha, Sai Kung		
Junction:	Po Tung Road/Yau Ma Po Street	Ref. No.:	F (Obs)
Scheme:	Year 2024 Observed Flow	Ref. No.:	
Year:	2024	Job No.: CHK50791710	Rev.:
ARM A:	Po Tung Road (NB)		
ARM B:	Yau Ma Po Street		
ARM C:	Po Tung Road (SB)		



GEOMETRY

Major road width	W	7.50	Lane widths	w(b-a)	2.75
Central Reserve width	Wcr	0.00		w(b-c)	2.75
2 Lane Minor Arm (Y/N)		n		w(c-b)	2.50
Visibilities	Vr(b-a)	25	Calculated	D	0.78
	Vl(b-a)	45		E	0.84
	Vr(b-c)	25		F	0.86
	Vr(c-b)	80		Y	0.74

ANALYSIS

		Factor	AM PEAK	(PM) PEAK	[WEEKEND] PEAK
TRAFFIC FLOWS	q(c-a)		975	905	995
	q(c-b)		20	35	20
	q(a-b)		30	25	15
	q(a-c)		810	975	925
	q(b-a)		25	20	15
	q(b-c)		30	35	15
	f		0.55	0.64	0.50
CAPACITIES	Q(b-a)	1	182	152	156
	Q(b-c)	1	423	388	403
	Q(c-b)	1	446	409	422
	Q(b-ac)	1	267	251	227
RFC's	b-a		0.137	0.132	0.096
	b-c		0.071	0.090	0.037
	c-b		0.045	0.086	0.047
	b-ac		0.206	0.219	0.132
Worst RFC			**0.21**	**0.22**	**0.13**

Where Vl and Vr are visibility distances to the left or right of the respective streams

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

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

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

Y = 1-0.0345W

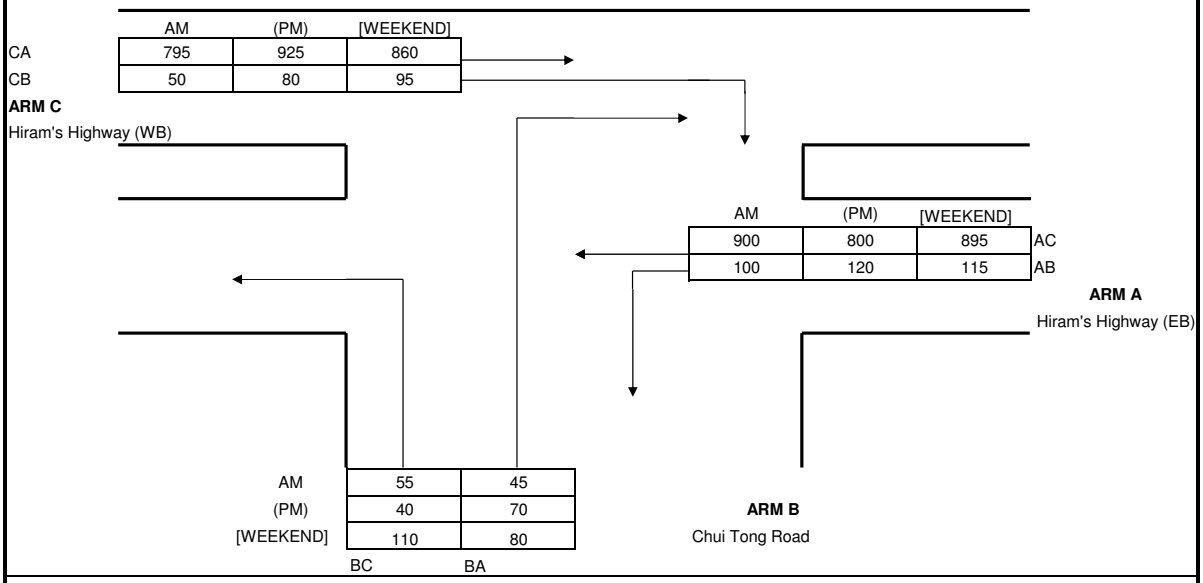
f = proportion of minor traffic turning left

Q (b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a) Capacity of combined streams - in accordance with TPDM V2 Ch4

Calculated by:	Date: Dec-24	Checked by:

Simplified Priority Junction Capacity Calculation

Job Title:	Proposed Residential Development In Area Shown As 'Road', Various Lots In D.D. 221 And Adjoining Government Land, Sha Ha, Sai Kung		
Junction:	Hiram's Highway/Chui Tong Road	Ref. No.:	G (Obs)
Scheme:	Year 2024 Observed Flow	Ref. No.:	
Year:	2024 Job No.: CHK50791710	Rev.:	
ARM A:	Hiram's Highway (EB)		
ARM B:	Chui Tong Road		
ARM C:	Hiram's Highway (WB)		



GEOMETRY

Major road width	W	9.00	Lane widths	w(b-a)	4.00
Central Reserve width	Wcr	0.00		w(b-c)	4.00
2 Lane Minor Arm (Y/N)		y		w(c-b)	4.50
Visibilities	Vr(b-a)	80	Calculated	D	0.97
	Vl(b-a)	100		E	1.00
	Vr(b-c)	80		F	1.11
	Vr(c-b)	150		Y	0.69

ANALYSIS

		Factor	AM PEAK	(PM) PEAK	[WEEKEND] PEAK
TRAFFIC FLOWS	q(c-a)		795	925	860
	q(c-b)		50	80	95
	q(a-b)		100	120	115
	q(a-c)		900	800	895
	q(b-a)		45	70	80
	q(b-c)		55	40	110
	f		0.55	0.36	0.58
CAPACITIES	Q(b-a)	1	239	231	214
	Q(b-c)	1	483	490	459
	Q(c-b)	1	548	570	545
	Q(b-ac)	1	337	291	322
RFC's	b-a		0.188	0.303	0.374
	b-c		0.114	0.082	0.240
	c-b		0.091	0.140	0.174
	b-ac		0.000	0.000	0.000
Worst RFC			**0.19**	**0.30**	**0.37**

Where Vl and Vr are visibility distances to the left or right of the respective streams

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

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

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

Y = 1-0.0345W

f = proportion of minor traffic turning left

Q (b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a) Capacity of combined streams - in accordance with TPDM V2 Ch4

Calculated by:	Date: Dec-24	Checked by:

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50791710 **MVA HONG KONG LIMITED**

Junction: Hiram's Highway/Hong Kin Road (JH) Design Year: 2024

Description: Year 2024 Observed Traffic Flow Designed By: MLC Checked By: PTC

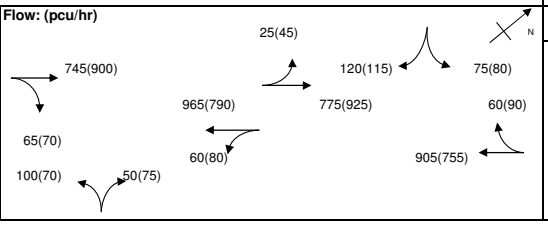
Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Hiram's Highway	→	C	1,2,3	3.500						1965	1965	745	0.379		900	0.458	0.458
NB	↘	D	1,2,3	3.500		20				1960	1960	65	0.033		70	0.036	
Hiram's Highway	↖↓	A	1,2,5	3.500	20			13%	20%	1750 *	1740	466	0.266		394	0.226	
SB	←	A	1,2,5	3.500						2105	2105	559	0.266		476	0.226	
Hong Kin Road	↰	G	4	4.000	15					1830	1830	100	0.055		70	0.038	0.038
WB	↱	G	4	4.000		20				2005	2005	50	0.025		75	0.037	
Hiram's Highway	↗	E	2,3,4	3.500	10			6%	9%	1945	1940	405	0.208		491	0.253	
NB	→	E	2,3,4	3.500						1895 *	1895	395	0.208		479	0.253	
Hiram's Highway	←	F	2,3,4,5	3.500						1965	1965	905	0.461	0.461	755	0.384	
SB	↰	F	2,3,4,5	3.500		20				1745	1745	60	0.034		90	0.052	
Po Lo Che Road EB	↓	B	1	3.000	15	20		38% / 62%	41% / 59%	1765	1765	195	0.110	0.110	195	0.110	

Pedestrian Crossing	Hp	1,2,3,5	MIN GREEN + FLASH =	5	+	7	=	12	
	Mp	4	MIN GREEN + FLASH =	5	+	6	=	11	
	Kp	3,4	MIN GREEN + FLASH =	5	+	6	=	11	
	Lp	5	MIN GREEN + FLASH =	5	+	6	=	11	*
	Jp	1	MIN GREEN + FLASH =	5	+	6	=	11	

Notes:

*Site Factor of 0.9 is applied due to merging lane at the exit arm

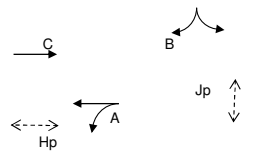
Flow: (pcu/hr)



Group	C,G,Lp	B,F	Group	C,Mp,Lp	C,G,Lp
y	0.434	0.571	y	0.458	0.496
L (sec)	27	8	L (sec)	32	27
C (sec)	100	100	C (sec)	128	128
y pract.	0.657	0.828	y pract.	0.675	0.710
R.C. (%)	51%	45%	R.C. (%)	47%	43%

Stage / Phase Diagrams

1.



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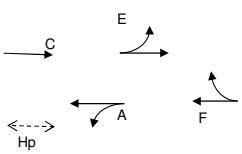

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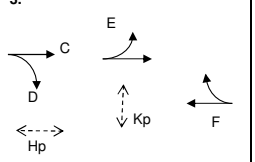

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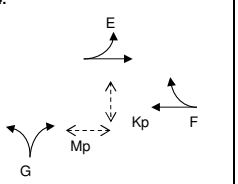

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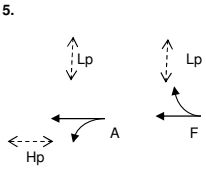


I/G= 5		I/G= 5		I/G=		I/G=		I/G=			
I/G= 2		I/G=		I/G=		I/G= 5		I/G= 11	11		

Date: DEC, 2024 **Junction:** Hiram's Highway/Hong Kin Road (H)

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50791710 **MVA HONG KONG LIMITED**

Junction: Hiram's Highway/Hong Kin Road (JH) Design Year: 2024

Description: Year 2024 Observed Traffic Flow Designed By: MLC Checked By: PTC

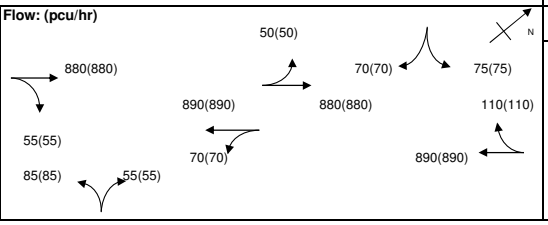
Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) WE Peak	Pro. Turning (%) WE Peak	Revised Saturation Flow (pcu/hr) WE Peak	Revised Saturation Flow (pcu/hr) WE Peak	WE Peak Flow (pcu/hr)	WE Peak y Value	WE Peak Critical y	WE Peak Flow (pcu/hr)	WE Peak y Value	WE Peak Critical y
Hiram's Highway	→	C	1,2,3	3.500						1965	1965	880	0.448	0.448	880	0.448	0.448
NB	↘	D	1,2,3	3.500		20				1960	1960	55	0.028		55	0.028	
Hiram's Highway	↖↓	A	1,2,5	3.500	20			16%	16%	1745 *	1745	435	0.249		435	0.249	
SB	←	A	1,2,5	3.500						2105	2105	525	0.249		525	0.249	
Hong Kin Road	↰	G	4	4.000	15					1830	1830	85	0.046	0.046	85	0.046	0.046
WB	↱	G	4	4.000		20				2005	2005	55	0.027		55	0.027	
Hiram's Highway	↑→	E	2,3,4	3.500	10			11%	11%	1935	1935	470	0.243		470	0.243	
NB	→	E	2,3,4	3.500						1895 *	1895	460	0.243		460	0.243	
Hiram's Highway	↑	F	2,3,4,5	3.500						1965	1965	890	0.453		890	0.453	
SB	↱	F	2,3,4,5	3.500		20				1745	1745	110	0.063		110	0.063	
Po Lo Che Road EB	↓→	B	1	3.000	15	20		52% / 48%	52% / 48%	1760	1760	145	0.082		145	0.082	

Pedestrian Crossing	Hp	1,2,3,5	MIN GREEN + FLASH =	5	+	7	=	12	
	Mp	4	MIN GREEN + FLASH =	5	+	6	=	11	
	Kp	3,4	MIN GREEN + FLASH =	5	+	6	=	11	
	Lp	5	MIN GREEN + FLASH =	5	+	6	=	11	*
	Jp	1	MIN GREEN + FLASH =	5	+	6	=	11	

Notes:

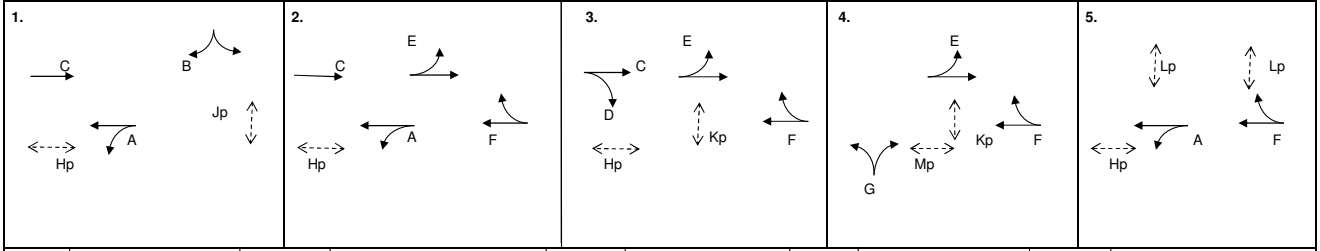
*Site Factor of 0.9 is applied due to merging lane at the exit arm

Flow: (pcu/hr)



Group	C,Mp,Lp	C,G,Lp	Group	C,Mp,Lp	C,G,Lp
y	0.448	0.494	y	0.448	0.494
L (sec)	32	27	L (sec)	32	27
C (sec)	128	128	C (sec)	128	128
y pract.	0.675	0.710	y pract.	0.675	0.710
R.C. (%)	51%	44%	R.C. (%)	51%	44%

Stage / Phase Diagrams



I/G= 2		I/G=		I/G=		I/G= 5		I/G= 11	11
I/G= 2		I/G=		I/G=		I/G= 5		I/G= 11	11

Date: DEC, 2024 **Junction:** Ⓗ Hiram's Highway/Hong Kin Road

Simplified Roundabout Capacity Calculation

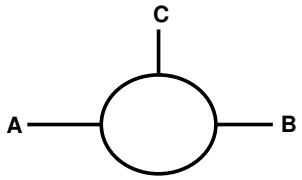
Job Title:	Proposed Residential Development In Area Shown As 'Road', Various Lots In D.D. 221 And Adjoining Government Land, Sha Ha, Sai Kung		
Junction:	Tai Mong Tsai Road/Sai Sha Road		Ref. No.: I (obs)
Scheme:	Year 2024 Observed Flow		Ref. No.:
Year:	2024	Job No.: CHK50791710	Rev.:

AM PM

ARM A: Tai Mong Tsai Road (West)

ARM B: Tai Mong Tsai Road (East)

ARM C: Sai Sha Road



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	3.4	8.2	36	100	35	35	0.21
B	3.4	8.1	15	100	35	20	0.50
C	4.2	7.7	13	10	35	35	0.43

AM FLOWS

from \ to	A	B	C	Circ	Entry
A	10	405	140	100	555
B	465	5	95	155	565
C	170	90	5	480	265

PM FLOWS

from \ to	A	B	C	Circ	Entry
A	10	520	145	100	675
B	315	5	90	380	410
C	145	90	5	685	240

WEEKEND FLOWS

from \ to	A	B	C	Circ	Entry
A	5	375	220	135	600
B	300	5	135	230	440
C	215	125	5	310	345

CALCULATIONS

							Q_E			RFC		
ARM	K	X_2	M	F	t_D	f_c	AM	PM	WEEKEND	AM	PM	WEEKEND
A	1.02	6.76	0.08	2050	1.46	0.72	2020	2020	1995	0.27	0.33	0.30
B	1.07	5.75	0.08	1741	1.46	0.66	1760	1601	1707	0.32	0.26	0.26
C	0.93	6.08	0.08	1842	1.46	0.68	1415	1285	1523	0.19	0.19	0.23

Crtical Arm:	**B**	**A**	**A**
RFC:	**0.32**	**0.33**	**0.30**
	AM	**PM**	**WEEKEND**

- In accordance with TPDM V2 Ch4

Calculated by:	Date: Dec-24	Checked by:

Simplified Roundabout Capacity Calculation

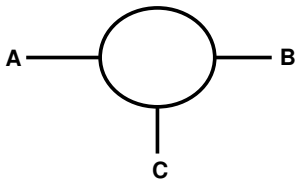
Job Title:	Proposed Residential Development In Area Shown As 'Road', Various Lots In D.D. 221 And Adjoining Government Land, Sha Ha, Sai Kung		
Junction:	Tai Mong Tsai Road/Wai Man Road		Ref. No.: A (Ref)
Scheme:	Year 2035 Reference Flow		Ref. No.:
Year:	2035	Job No.: CHK50791710	Rev.:

AM PM

ARM A: Tai Mong Tsai Road Southern

ARM B: Tai Mong Tsai Road Northern

ARM C: Wai Man Road



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	3.00	7.50	15	50	42	30	0.48
B	3.20	4.80	7	30	42	60	0.37
C	3.60	5.00	7	30	42	50	0.32

AM FLOWS

from \ to	A	B	C	Circ	Entry
A	5	370	140	215	515
B	530	10	200	150	740
C	170	200	5	545	375

PM FLOWS

from \ to	A	B	C	Circ	Entry
A	5	540	115	145	660
B	415	5	170	125	590
C	105	135	5	425	245

WEEKEND FLOWS

from \ to	A	B	C	Circ	Entry
A	5	530	145	185	680
B	425	5	220	155	650
C	110	175	5	435	290

CALCULATIONS

							Q_E			RFC		
ARM	K	AD2	M	F	t_D	f_c	AM	PM	WEEKEND	AM	PM	WEEKEND
A	1.03	5.30	0.17	1605	1.43	0.62	1515	1560	1534	0.34	0.42	0.44
B	0.91	4.12	0.17	1250	1.43	0.55	1065	1077	1062	0.69	0.55	0.61
C	0.95	4.45	0.17	1349	1.43	0.57	985	1049	1044	0.38	0.23	0.28

Crtical Arm:	**B**	**B**	**B**
RFC:	**0.69**	**0.55**	**0.61**
	AM	**PM**	**WEEKEND**

- In accordance with TPDM V2 Ch4

Calculated by:	Date: Dec-24	Checked by:

Simplified Roundabout Capacity Calculation

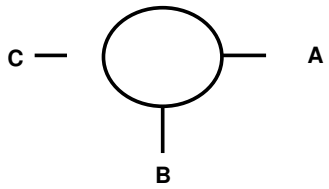
Job Title:	Proposed Residential Development In Area Shown As 'Road', Various Lots In D.D. 221 And Adjoining Government Land, Sha Ha, Sai Kung		
Junction:	Po Tung Road/Mei Yu Street/Tai Mong Tsai Road		Ref. No.: B (Ref)
Scheme:	Year 2035 Reference Flow		Ref. No.:
Year:	2035	Job No.: CHK50791710	Rev.:

AM PM

ARM A: Tai Mong Tsai Road (N)

ARM B: Mei Yu Street

ARM C: Po Tung Road (S)



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	3.65	4.50	12	35	28	30	0.11
B	4.00	4.00	1	12	28	40	0.00
C	5.00	5.00	1	45	28	45	0.00

AM FLOWS

from \ to	A	B	C	Circ	Entry
A	5	25	735	15	765
B	10	5	15	745	30
C	510	5	5	20	520

PM FLOWS

from \ to	A	B	C	Circ	Entry
A	5	10	500	35	515
B	5	5	30	510	40
C	685	25	5	15	715

WEEKEND FLOWS

from \ to	A	B	C	Circ	Entry
A	5	30	580	45	615
B	15	5	40	590	60
C	670	35	5	25	710

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	Q_E WEEKEND	RFC AM	RFC PM	RFC WEEKEND
A	1.02	4.34	0.04	1316	1.48	0.58	1335	1323	1317	0.57	0.39	0.47
B	0.93	4.00	0.04	1212	1.48	0.56	742	864	822	0.04	0.05	0.07
C	0.98	5.00	0.04	1515	1.48	0.62	1465	1468	1462	0.35	0.49	0.49

Crtical Arm:	**A**	**C**	**C**
RFC:	**0.57**	**0.49**	**0.49**
	AM	**PM**	**WEEKEND**

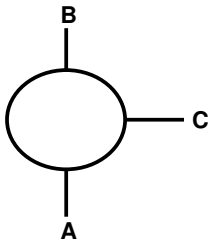
- In accordance with TPDM V2 Ch4

Calculated by:	Date: Dec-24	Checked by:

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Residential Development In Area Shown As 'Road', Various Lots In D.D. 221 And Adjoining Government Land, Sha Ha, Sai Kung		
Junction:	Tai Mong Tsai Road/Fuk Man Road		Ref. No.: C (Ref)
Scheme:	Year 2035 Reference Flow		Ref. No.:
Year:	2035	Job No.: CHK50791710	Rev.:

	AM	PM	
ARM A:	Po Tung Road		Southern
ARM B:	Po Tung Road		Northern
ARM C:	Fuk Man Road		



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	4.50	4.50	1	10	26	15	0.00
B	7.00	8.50	5	40	26	45	0.48
C	3.50	6.00	12	10	26	30	0.33

AM FLOWS

from \ to	A	B	C	Circ	Entry
A	85	0	430	115	515
B	725	5	60	520	790
C	0	105	5	815	110

PM FLOWS

from \ to	A	B	C	Circ	Entry
A	105	0	380	90	485
B	480	5	45	490	530
C	0	80	5	590	85

WEEKEND FLOWS

from \ to	A	B	C	Circ	Entry
A	75	0	490	140	565
B	540	5	75	570	620
C	0	130	5	620	135

CALCULATIONS

							Q_E			RFC		
ARM	K	X_2	M	F	t_D	f_c	AM	PM	WEEKEND	AM	PM	WEEKEND
A	1.00	4.50	0.03	1364	1.48	0.59	1299	1314	1285	0.40	0.37	0.44
B	0.97	7.77	0.03	2353	1.48	0.80	1886	1909	1847	0.42	0.28	0.34
C	0.95	5.00	0.03	1515	1.48	0.62	958	1091	1073	0.11	0.08	0.13

Crtical Arm:	**B**	**A**	**A**
RFC:	**0.42**	**0.37**	**0.44**
	AM	**PM**	**WEEKEND**

- In accordance with TPDM V2 Ch4

Calculated by:	Date: Dec-24	Checked by:

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50791710 **MVA HONG KONG LIMITED**

Junction: Po Tung Road/ Man Nin Street (JD) Design Year: 2035

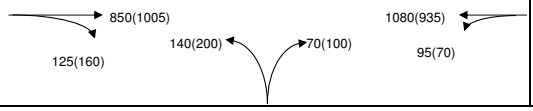
Description: 2035 Reference Traffic Flow Designed By: MLC Checked By: PTC

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Po Tung Road NB	→	A	1	3.400						1955	1955	410	0.210		485	0.248	
	→	A	1	3.400						2095	2095	440	0.210		520	0.248	0.248
	↴	B	2	3.400		15				1905	1905	125	0.066		160	0.084	
Po Tung Road SB	↙	C	1	3.400	15			17%	15%	1925	1925	562	0.292		482	0.250	
	←	C	1	3.400						2095	2095	613	0.293	0.293	523	0.250	
Man Nin Street WB	↰↑	D	3	3.800	15	20		67% / 33%	67% / 33%	1900 *	1900 *	210	0.111	0.111	300	0.158	0.158
Pedestrian Crossing		Ep	2	MIN GREEN + FLASH =			13	+	7	=	20			*			*

Notes:

*Additional saturation flow of 80 pcu/hr due to the additional pocket provided (3600s / 90s per cycle * release 2 pcu/cycle)

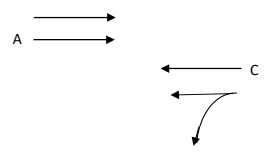
Flow: (pcu/hr)



Group	C,B,D	C,Ep ,D	Group	C,Ep ,D	A,Ep ,D
y	0.469	0.403	y	0.408	0.406
L (sec)	13	29	L (sec)	29	32
C (sec)	90	90	C (sec)	90	90
y pract.	0.770	0.610	y pract.	0.610	0.580
R.C. (%)	64%	51%	R.C. (%)	49%	43%

Stage / Phase Diagrams

1.



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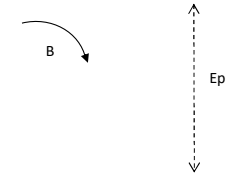
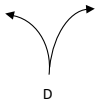


3.



4.

5.

I/G= 5		I/G= 4	20	I/G= 2		I/G=	I/G=
I/G= 5		I/G= 7	20	I/G= 2		I/G=	I/G=

Date: DEC, 2024 **Junction:** (D) Po Tung Road/ Man Nin Street

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50791710 **MVA HONG KONG LIMITED**

Junction: Po Tung Road/ Man Nin Street (JD) Design Year: 2035

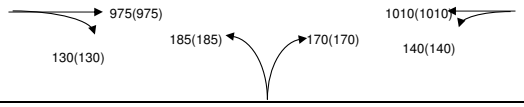
Description: 2035 Reference Traffic Flow Designed By: MLC Checked By: PTC

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) WE	Pro. Turning (%) WE	Revised Saturation Flow (pcu/hr) WE	Revised Saturation Flow (pcu/hr) WE	WE Flow (pcu/hr)	WE y Value	WE Critical y	WE Flow (pcu/hr)	WE y Value	WE Critical y
Po Tung Road NB	→	A	1	3.400						1955	1955	471	0.241		471	0.241	
	→	A	1	3.400						2095	2095	504	0.241		504	0.241	
	→	B	2	3.500		15				1915	1915	130	0.068		130	0.068	
Po Tung Road SB	←	C	1	3.400	15			26%	26%	1905	1905	548	0.288	0.288	548	0.288	0.288
	←	C	1	3.400						2095	2095	602	0.287		602	0.287	
Man Nin Street WB	← →	D	3	3.800	15	20		52% / 48%	52% / 48%	1905 *	1905 *	355	0.186	0.186	355	0.186	0.186
Pedestrian Crossing		Ep	2	MIN GREEN + FLASH =			13	+	7	=	20			*			*

Notes:

*Additional saturation flow of 80 pcu/hr due to the additional pocket provided (3600s / 90s per cycle * release 2 pcu/cycle)

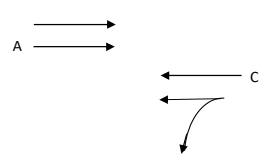
Flow: (pcu/hr)



Group	A,Ep,D	C,Ep,D	Group	A,Ep,D	C,Ep,D
y	0.427	0.474	y	0.427	0.474
L (sec)	32	29	L (sec)	32	29
C (sec)	90	90	C (sec)	90	90
y pract.	0.580	0.610	y pract.	0.580	0.610
R.C. (%)	36%	29%	R.C. (%)	36%	29%

Stage / Phase Diagrams

1.



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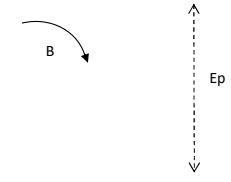
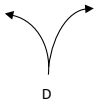


3.



4.

5.

I/G= 5		I/G= 4	20	I/G= 2		I/G=	I/G=
I/G= 5		I/G= 4	20	I/G= 2		I/G=	I/G=

Date: DEC, 2024 **Junction:** (D) Po Tung Road/ Man Nin Street

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50791710 **MVA HONG KONG LIMITED**

Junction: Pedestrian Crossing near Yau Ma Po Street (JE) Design Year: 2035

Description: Year 2035 Reference Traffic Flow Designed By: MLC Checked By: PTC

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Hiram's Highway	→	A	1	3.400						1955	1955	471	0.241		560	0.286	0.286
(NB)	→	A	1	3.400						2095	2095	504	0.241		600	0.286	
Hiram's Highway	←	B	1	3.400						1955	1955	591	0.302		548	0.280	
(SB)	←	B	1	3.400						2095	2095	634	0.303	0.303	587	0.280	
Pedestrian Crossing		Cp	2	MIN GREEN + FLASH =	13		+	7	=	20				*			*

Notes:

Flow: (pcu/hr)

N

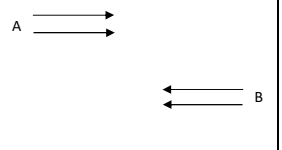
975(1160) →

← 1225(1135)

Group	A,Cp	B,Cp	Group	B,Cp	A,Cp
y	0.241	0.303	y	0.280	0.286
L (sec)	26	26	L (sec)	26	26
C (sec)	90	90	C (sec)	90	90
y pract.	0.640	0.640	y pract.	0.640	0.640
R.C. (%)	166%	111%	R.C. (%)	128%	123%

Stage / Phase Diagrams

1.



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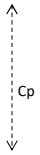


3.

4.

5.

I/G= 3		I/G= 4	20	I/G=		I/G=		I/G=	
I/G= 3		I/G= 4	20	I/G=		I/G=		I/G=	

Date: DEC, 2024

Junction: Pedestrian Crossing near Yau Ma Po Street (E)

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50791710 **MVA HONG KONG LIMITED**

Junction: Pedestrian Crossing near Yau Ma Po Street (JE) Design Year: 2035

Description: Year 2035 Reference Traffic Flow Designed By: MLC Checked By: PTC

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) WE	Pro. Turning (%) WE	Revised Saturation Flow (pcu/hr) WE	Revised Saturation Flow (pcu/hr) WE	WE Flow (pcu/hr)	WE y Value	WE Critical y	WE Flow (pcu/hr)	WE y Value	WE Critical y
Hiram's Highway	→	A	1	3.400						1955	1955	529	0.271		529	0.271	
(NB)	→	A	1	3.400						2095	2095	566	0.270		566	0.270	
Hiram's Highway	←	B	1	3.400						1955	1955	577	0.295	0.295	577	0.295	0.295
(SB)	←	B	1	3.400						2095	2095	618	0.295		618	0.295	
Pedestrian Crossing		Cp	2	MIN GREEN + FLASH =	13		+	7	=	20				*			*

Notes:

Flow: (pcu/hr)

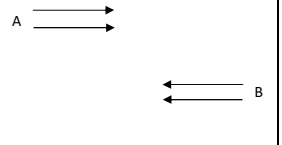
N

1095(1095) → ← 1195(1195)

Group	A,Cp	B,Cp	Group	A,Cp	B,Cp
y	0.271	0.295	y	0.271	0.295
L (sec)	26	26	L (sec)	26	26
C (sec)	90	90	C (sec)	90	90
y pract.	0.640	0.640	y pract.	0.640	0.640
R.C. (%)	137%	117%	R.C. (%)	137%	117%

Stage / Phase Diagrams

1.



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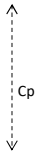


3.

4.

5.

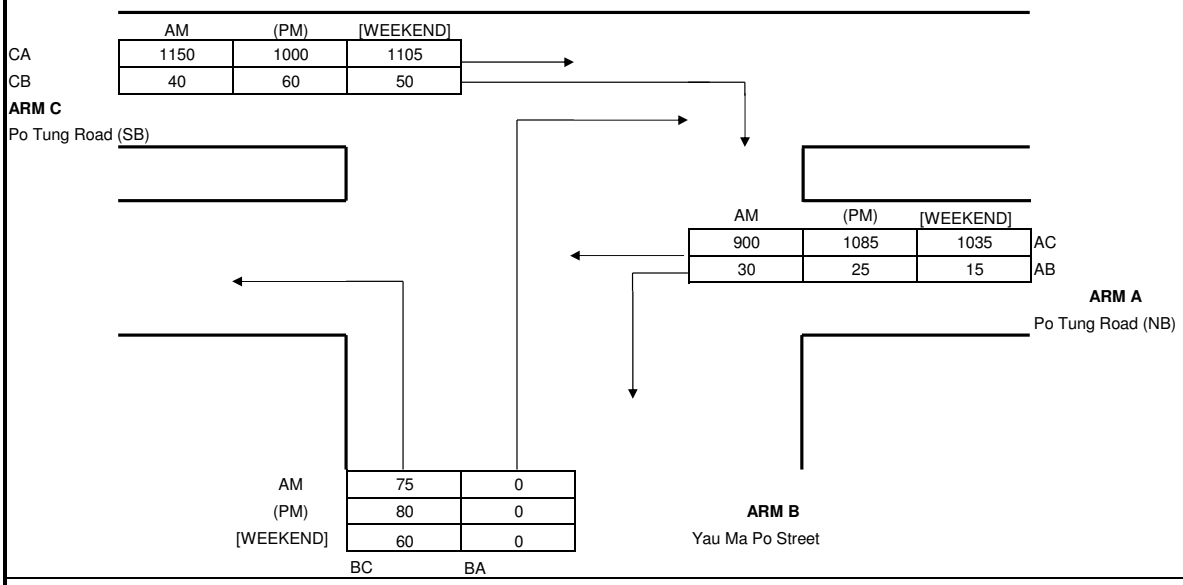
I/G= 3		I/G= 4	20	I/G=		I/G=		I/G=	
I/G= 3		I/G= 4	20	I/G=		I/G=		I/G=	

Date: DEC, 2024

Junction: (E) Pedestrian Crossing near Yau Ma Po Street

Simplified Priority Junction Capacity Calculation

Job Title:	Proposed Residential Development In Area Shown As 'Road', Various Lots In D.D. 221 And Adjoining Government Land, Sha Ha, Sai Kung		
Junction:	Po Tung Road/Yau Ma Po Street	Ref. No.:	F (Ref)
Scheme:	Year 2035 Referene Flow	Ref. No.:	
Year:	2035	Job No.: CHK50791710	Rev.:
ARM A:	Po Tung Road (NB)		
ARM B:	Yau Ma Po Street		
ARM C:	Po Tung Road (SB)		



GEOMETRY

Major road width	W	11.00	Lane widths	w(b-a)	0.00
Central Reserve width	Wcr	1.50		w(b-c)	3.50
2 Lane Minor Arm (Y/N)		n		w(c-b)	3.30
Visibilities	Vr(b-a)	0	Calculated	D	0.53
	Vl(b-a)	0		E	0.91
	Vr(b-c)	35		F	0.89
	Vr(c-b)	35		Y	0.62

ANALYSIS

		Factor	AM PEAK	(PM) PEAK	[WEEKEND] PEAK
TRAFFIC FLOWS	q(c-a)		1150	1000	1105
	q(c-b)		40	60	50
	q(a-b)		30	25	15
	q(a-c)		900	1085	1035
	q(b-a)		0	0	0
	q(b-c)		75	80	60
	f		1.00	1.00	1.00
CAPACITIES	Q(b-a)	1	142	128	128
	Q(b-c)	1	491	453	464
	Q(c-b)	1	478	441	454
	Q(b-ac)	1	491	453	464
RFC's	b-a		0.000	0.000	0.000
	b-c		0.153	0.177	0.129
	c-b		0.084	0.136	0.110
	b-ac		0.153	0.177	0.129
Worst RFC			**0.15**	**0.18**	**0.13**

Where Vl and Vr are visibility distances to the left or right of the respective streams

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

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

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

Y = 1-0.0345W

f = proportion of minor traffic turning left

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

Capacity of combined streams
- in accordance with TPDM V2 Ch4

Calculated by:	Date: Dec-24	Checked by:

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50791710 **MVA HONG KONG LIMITED**

Junction: Hiram's Highway / Chui Tong Road (JG) Design Year: 2035

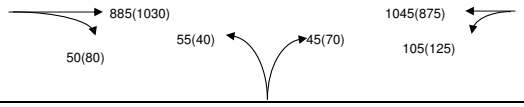
Description: 2035 Reference Traffic Flow Designed By: MLC Checked By: PTC

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Hiram's Highway	→	A	1,2	4.300						2045	2045	428	0.209		498	0.244	
NB	→	A	1,2	4.300						2185	2185	457	0.209		532	0.243	
	↴	E	2	4.300		15				1985	1985	50	0.025	0.025	80	0.040	0.040
Hiram's Highway	↰	B	1	3.300	20					1810	1810	105	0.058		125	0.069	
(SB)	←	B	1	3.300						2085	2085	523	0.251	0.251	438	0.210	0.210
	←	B	1	3.300						2085	2085	522	0.250		437	0.210	
Chui Tong Road	↰↱	C	3	3.300	15	22.5		55% / 45%	36% / 64%	1850 *	1860 *	100	0.054	0.054	110	0.059	0.059
Pedestrian Crossing		Fp	4	MIN GREEN + FLASH =	10	+	8	=	18								
		Hp	4	MIN GREEN + FLASH =	11	+	10	=	21					*			*

Notes:

*Additional saturation flow of 60 pcu/hr is added due to pocket provided (3600s / 120s per cycle * release 2 pcu/cycle)

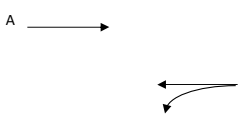
Flow: (pcu/hr)



Group	B,E,C,Fp	B,E,C,Hp	Group	A,C,Hp	B,E,C,Hp
y	0.330	0.330	y	0.303	0.310
L (sec)	31	41	L (sec)	36	41
C (sec)	120	120	C (sec)	120	120
y pract.	0.668	0.593	y pract.	0.630	0.593
R.C. (%)	102%	80%	R.C. (%)	108%	91%

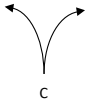
Stage / Phase Diagrams

1.



2.

3.



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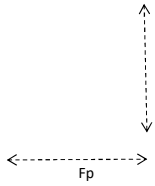


5.

I/G= 3		I/G= 5		I/G= 5		I/G= 10	21
I/G= 3		I/G= 5		I/G= 5		I/G= 10	21

I/G= | I/G=

Date: DEC, 2024 **Junction:** Hiram's Highway / Chui Tong Road (G)

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50791710 **MVA HONG KONG LIMITED**

Junction: Hiram's Highway / Chui Tong Road (JG) Design Year: 2035

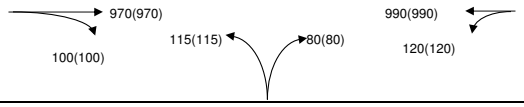
Description: 2035 Reference Traffic Flow Designed By: MLC Checked By: PTC

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) WE	Pro. Turning (%) WE	Revised Saturation Flow (pcu/hr) WE	Revised Saturation Flow (pcu/hr) WE	WE Flow (pcu/hr)	WE y Value	WE Critical y	WE Flow (pcu/hr)	WE y Value	WE Critical y
Hiram's Highway	→	A	1,2	4.300						2045	2045	469	0.229		469	0.229	
NB	→	A	1,2	4.300						2185	2185	501	0.229		501	0.229	
	↴	E	2	4.300		15				1985	1985	100	0.050	0.050	100	0.050	0.050
Hiram's Highway	↰	B	1	3.300	20					1810	1810	120	0.066		120	0.066	
(SB)	←	B	1	3.300						2085	2085	495	0.237	0.237	495	0.237	0.237
	←	B	1	3.300						2085	2085	495	0.237		495	0.237	
Chui Tong Road	↰↱	C	3	3.300	15	22.5		59% / 41%	59% / 41%	1845	1845	195	0.106	0.106	195	0.106	0.106
Pedestrian Crossing		Fp	4	MIN GREEN + FLASH =	10	+	8	=	18								
		Hp	4	MIN GREEN + FLASH =	11	+	10	=	21					*			*

Notes:

*Additional saturation flow of 60 pcu/hr is added due to pocket provided (3600s / 120s per cycle * release 2 pcu/cycle)

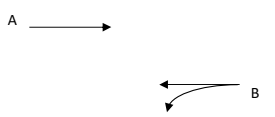
Flow: (pcu/hr)



Group	B,E,C,Fp	B,E,C,Hp	Group	B,E,C,Fp	B,E,C,Hp
y	0.393	0.393	y	0.393	0.393
L (sec)	31	41	L (sec)	31	41
C (sec)	120	120	C (sec)	120	120
y pract.	0.668	0.593	y pract.	0.668	0.593
R.C. (%)	70%	51%	R.C. (%)	70%	51%

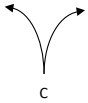
Stage / Phase Diagrams

1.

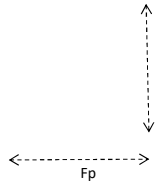


2.

3.



4.



5.

I/G= 3		I/G= 5		I/G= 5		I/G= 10	21
I/G= 3		I/G= 5		I/G= 5		I/G= 10	21

I/G= | I/G=

Date: DEC, 2024 **Junction:** Hiram's Highway / Chui Tong Road (G)

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50791710 **MVA HONG KONG LIMITED**

Junction: Hiram's Highway/Hong Kin Road (JH) Design Year: 2035

Description: 2035 Reference Traffic Flow Designed By: MLC Checked By: PTC

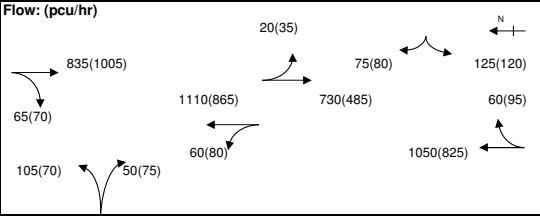
Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Hiram's Highway	→	C	1,2,3	3.400						1955	1955	403	0.206		485	0.248	
NB	→	C	1,2,3	3.400						2095	2095	432	0.206		520	0.248	
	↘	O	3	4.000		18				1990	1990	65	0.033		70	0.035	
Hiram's Highway	↖	A	1,2,5	3.300	15					1770	1770	60	0.034		80	0.045	
SB	←	A	1,2,5	3.300						2085	2085	555	0.266		433	0.208	
	←	A	1,2,5	3.300						2085	2085	555	0.266		432	0.207	
Hong Kin Road	↰	G	4	3.700	20					1845	1845	105	0.057		70	0.038	
WB	↱	G	4	3.700		18				1960	1960	50	0.026		75	0.038	
Hiram's Highway	↗	E	2,3	3.400	20					1820	1820	20	0.011		35	0.019	
NB	→	E	2,3	3.400						2095	2095	365	0.174	0.174	243	0.116	0.116
	→	E	2,3	3.400						2095	2095	365	0.174		242	0.116	
Hiram's Highway	←	F	2,3,4	3.400						1955	1955	507	0.259		398	0.204	
SB	←	F	2,3,4	3.400						2095	2095	543	0.259		427	0.204	
	↰	P	4	3.500		18				1945	1945	60	0.031	0.031	95	0.049	0.049
Po Lo Che Road EB	↓→	B	1	3.000	10	15		38% / 63%	40% / 60%	1745 *	1740 *	200	0.115	0.115	200	0.115	0.115

Pedestrian Crossing	Hp	1,2,3,5	MIN GREEN + FLASH =	5	+	7	=	12	
	Mp	4	MIN GREEN + FLASH =	5	+	6	=	11	
	Kp	3,4	MIN GREEN + FLASH =	5	+	8	=	13	
	Lp	5	MIN GREEN + FLASH =	5	+	7	=	12	
	Jp	1,5	MIN GREEN + FLASH =	5	+	10	=	15	
	Np	5	MIN GREEN + FLASH =	9	+	5	=	14	*

Notes:

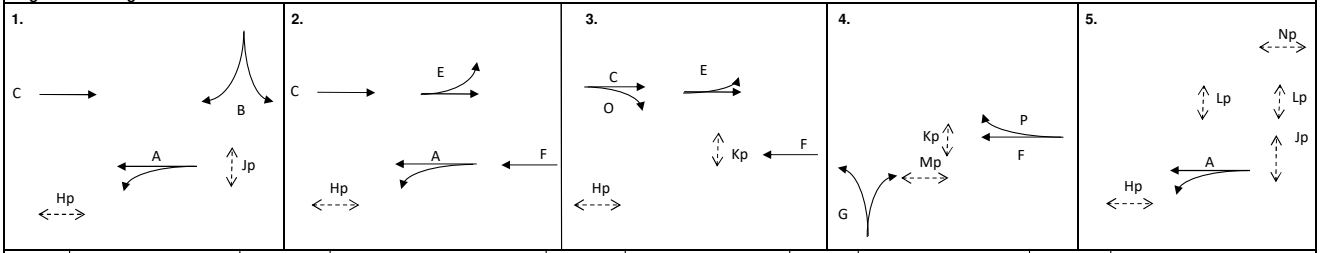
Additional saturation flow of 36 pcu/hr is added due to pocket provided (3600s / 100s per cycle * release 1 pcu/cycle)

Flow: (pcu/hr)



Group	B,E,G,Lp	B,E,P,Np	Group	B,F,Np	B,E,P,Np
y	0.346	0.320	y	0.319	0.280
L (sec)	27	34	L (sec)	20	34
C (sec)	100	100	C (sec)	100	100
y pract.	0.657	0.594	y pract.	0.720	0.594
R.C. (%)	90%	86%	R.C. (%)	126%	112%

Stage / Phase Diagrams



I/G= 3		I/G= 5		I/G=		I/G= 5		I/G= 10	14
I/G= 3		I/G= 5		I/G=		I/G= 5		I/G= 10	14

Date: DEC, 2024 **Junction:** Hiram's Highway/Hong Kin Road (H)

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50791710 **MVA HONG KONG LIMITED**

Junction: Hiram's Highway/Hong Kin Road (JH) Design Year: 2035

Description: 2035 Reference Traffic Flow Designed By: MLC Checked By: PTC

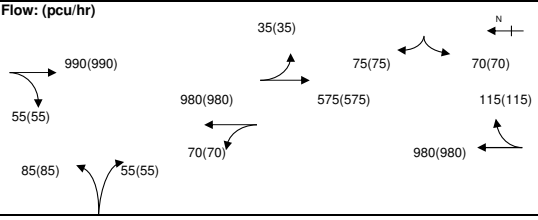
Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) WE	Pro. Turning (%) WE	Revised Saturation Flow (pcu/hr) WE	Revised Saturation Flow (pcu/hr) WE	WE Flow (pcu/hr)	WE y Value	WE Critical y	WE Flow (pcu/hr)	WE y Value	WE Critical y
Hiram's Highway	→	C	1,2,3	3.400						1955	1955	478	0.245		478	0.245	
NB	→	C	1,2,3	3.400						2095	2095	512	0.244		512	0.244	
	↘	O	3	4.000		18				1990	1990	55	0.028		55	0.028	
Hiram's Highway	↰	A	1,2,5	3.300	15					1770	1770	70	0.040		70	0.040	
SB	←	A	1,2,5	3.300						2085	2085	490	0.235		490	0.235	
	←	A	1,2,5	3.300						2085	2085	490	0.235		490	0.235	
Hong Kin Road	↰	G	4	3.700	20					1845	1845	85	0.046		85	0.046	
WB	↱	G	4	3.700		18				1960	1960	55	0.028		55	0.028	
Hiram's Highway	↗	E	2,3	3.400	20					1820	1820	35	0.019		35	0.019	
NB	→	E	2,3	3.400						2095	2095	288	0.137	0.137	288	0.137	0.137
	→	E	2,3	3.400						2095	2095	287	0.137		287	0.137	
Hiram's Highway	←	F	2,3,4	3.400						1955	1955	473	0.242		473	0.242	
SB	←	F	2,3,4	3.400						2095	2095	507	0.242		507	0.242	
	↰	P	4	3.500		18				1945	1945	115	0.059	0.059	115	0.059	0.059
Po Lo Che Road EB	↓→	B	1	3.000	10	15		52% / 48%	52% / 48%	1735 *	1735 *	145	0.084	0.084	145	0.084	0.084

Pedestrian Crossing								
Hp	1,2,3,5	MIN GREEN + FLASH =	5	+	7	=	12	
Mp	4	MIN GREEN + FLASH =	5	+	6	=	11	
Kp	3,4	MIN GREEN + FLASH =	5	+	8	=	13	
Lp	5	MIN GREEN + FLASH =	5	+	10	=	15	
Jp	1,5	MIN GREEN + FLASH =	5	+	10	=	15	
Np	5	MIN GREEN + FLASH =	9	+	5	=	14	

Notes:

Additional saturation flow of 36 pcu/hr is added due to pocket provided (3600s / 100s per cycle * release 1 pcu/cycle)

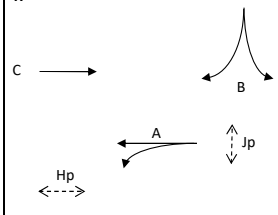
Flow: (pcu/hr)



Group	B,F,Np	B,E,P,Np	Group	B,F,Np	B,E,P,Np
y	0.326	0.280	y	0.326	0.280
L (sec)	20	34	L (sec)	20	34
C (sec)	100	100	C (sec)	100	100
y pract.	0.720	0.594	y pract.	0.720	0.594
R.C. (%)	121%	112%	R.C. (%)	121%	112%

Stage / Phase Diagrams

1.



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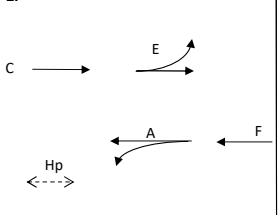

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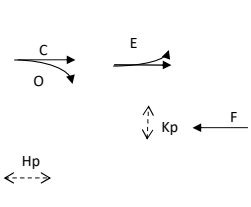

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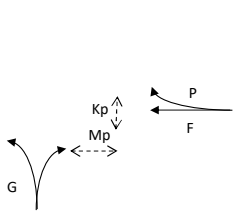

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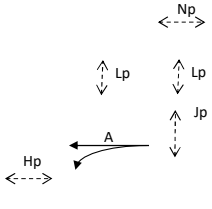


I/G= 3		I/G= 5		I/G=		I/G= 5		I/G= 10	14
I/G= 3		I/G= 5		I/G=		I/G= 5		I/G= 10	14

Date: DEC, 2024 **Junction:** (H) Hiram's Highway/Hong Kin Road

Simplified Roundabout Capacity Calculation

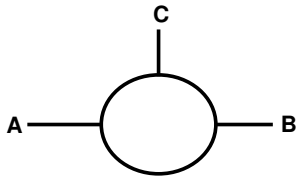
Job Title:	Proposed Residential Development In Area Shown As 'Road', Various Lots In D.D. 221 And Adjoining Government Land, Sha Ha, Sai Kung		
Junction:	Tai Mong Tsai Road/Sai Sha Road		Ref. No.: I (Ref)
Scheme:	Year 2035 Reference Flows		Ref. No.:
Year:	2035 Ref	Job No.: CHK50791710	Rev.:

AM PM

ARM A: Tai Mong Tsai Road (West)

ARM B: Tai Mong Tsai Road (East)

ARM C: Sai Sha Road



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	3.4	8.2	36	100	35	35	0.21
B	3.4	8.1	15	100	35	20	0.50
C	4.2	7.7	13	10	35	35	0.43

AM FLOWS

from \ to	A	B	C	Circ	Entry
A	10	480	145	105	635
B	515	5	100	160	620
C	175	95	5	530	275

PM FLOWS

from \ to	A	B	C	Circ	Entry
A	10	565	150	105	725
B	365	5	95	390	465
C	150	95	5	745	250

WEEKEND FLOWS

from \ to	A	B	C	Circ	Entry
A	5	420	225	140	650
B	355	5	140	235	500
C	220	130	5	365	355

CALCULATIONS

							Q_E			RFC		
ARM	K	X_2	M	F	t_D	f_c	AM	PM	WEEKEND	AM	PM	WEEKEND
A	1.02	6.76	0.08	2050	1.46	0.72	2017	2017	1991	0.31	0.36	0.33
B	1.07	5.75	0.08	1741	1.46	0.66	1756	1593	1703	0.35	0.29	0.29
C	0.93	6.08	0.08	1842	1.46	0.68	1384	1247	1488	0.20	0.20	0.24

Crtical Arm:	**B**	**A**	**A**
RFC:	**0.35**	**0.36**	**0.33**
	AM	**PM**	**WEEKEND**

- In accordance with TPDM V2 Ch4

Calculated by:	Date: Dec-24	Checked by:

Simplified Roundabout Capacity Calculation

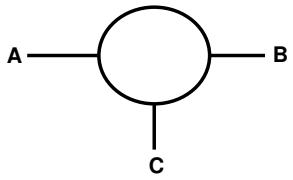
Job Title:	Proposed Residential Development In Area Shown As 'Road', Various Lots In D.D. 221 And Adjoining Government Land, Sha Ha, Sai Kung		
Junction:	Tai Mong Tsai Road/Wai Man Road	Ref. No.:	A (Des)
Scheme:	Year 2035 Design Flow	Ref. No.:	
Year:	2035	Job No.: CHK50791710	Rev.:

AM PM

ARM A: Tai Mong Tsai Road Southern

ARM B: Tai Mong Tsai Road Northern

ARM C: Wai Man Road



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	3.00	7.50	15	50	42	30	0.48
B	3.20	4.80	7	30	42	60	0.37
C	3.60	5.00	7	30	42	50	0.32

AM FLOWS

from \ to	A	B	C	Circ	Entry
A	15	375	140	215	530
B	535	10	200	160	745
C	170	200	5	560	375

PM FLOWS

from \ to	A	B	C	Circ	Entry
A	10	545	115	145	670
B	420	5	170	130	595
C	105	135	5	435	245

WEEKEND FLOWS

from \ to	A	B	C	Circ	Entry
A	15	535	145	185	695
B	430	5	220	165	655
C	110	175	5	450	290

CALCULATIONS

							Q_E			RFC		
ARM	K	X_2	M	F	t_D	f_c	AM	PM	WEEKEND	AM	PM	WEEKEND
A	1.03	5.30	0.17	1605	1.43	0.62	1515	1560	1534	0.35	0.43	0.45
B	0.91	4.12	0.17	1250	1.43	0.55	1060	1075	1057	0.70	0.55	0.62
C	0.95	4.45	0.17	1349	1.43	0.57	977	1044	1036	0.38	0.23	0.28

Crtical Arm:	**B**	**B**	**B**
RFC:	**0.70**	**0.55**	**0.62**
	AM	**PM**	**WEEKEND**

- In accordance with TPDM V2 Ch4

Calculated by:	Date: Dec-24	Checked by:

Simplified Roundabout Capacity Calculation

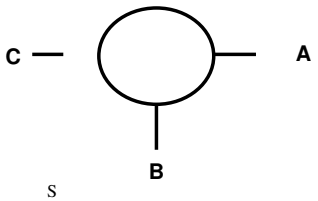
Job Title:	Proposed Residential Development In Area Shown As 'Road', Various Lots In D.D. 221 And Adjoining Government Land, Sha Ha, Sai Kung		
Junction:	Po Tung Road/Mei Yu Street/Tai Mong Tsai Road	Ref. No.:	B (Des)
Scheme:	Year 2035 Design Flow	Ref. No.:	
Year:	2035	Job No.: CHK50791710	Rev.:

AM PM

ARM A: Tai Mong Tsai Road (N)

ARM B: Mei Yu Street

ARM C: Po Tung Road (S)



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	3.65	4.50	12	35	28	30	0.11
B	4.00	4.00	1	12	28	40	0.00
C	5	5	1	45	28	45	0.00

AM FLOWS

from \ to	A	B	C	Circ	Entry
A	8	25	750	15	783.29487
B	10	5	15	763.29487	30
C	520	5	5	23.294874	530

PM FLOWS

from \ to	A	B	C	Circ	Entry
A	10	10	505	35	525
B	5	5	30	520	40
C	690	25	5	20	720

WEEKEND FLOWS

from \ to	A	B	C	Circ	Entry
A	10	30	585	45	625
B	15	5	40	600	60
C	680	35	5	30	720

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	Q_E WEEKEND	RFC AM	RFC PM	RFC WEEKEND
A	1.02	4.34	0.04	1316	1.48	0.58	1335	1323	1317	0.59	0.40	0.47
B	0.93	4.00	0.04	1212	1.48	0.56	732	859	817	0.04	0.05	0.07
C	0.98	5.00	0.04	1515	1.48	0.62	1463	1465	1459	0.36	0.49	0.49

Crtical Arm:	**A**	**C**	**C**
RFC:	**0.59**	**0.49**	**0.49**
	AM	**PM**	**WEEKEND**

- In accordance with TPDM V2 Ch4

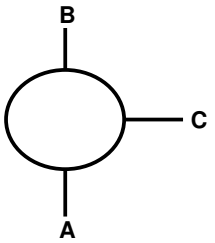
Calculated by:	Date: Dec-24	Checked by:

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Residential Development At Various Lots In DD221 And Adjoining Government Land, Sha Ha, Sai Kung		
Junction:	Tai Mong Tsai Road/Wai Man Road		Ref. No.: C (Des)
Scheme:	Year 2035 Design Flow		Ref. No.:
Year:	2035	CHK50557510	Rev.:

AM

ARM A:	Po Tung Road	Southern
ARM B:	Po Tung Road	Northern
ARM C:	Fuk Man Road	



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	4.50	4.50	1	10	26	15	0.00
B	7.00	8.50	5	40	26	45	0.48
C	3.50	6.00	12	10	26	30	0.33

AM FLOWS

from \ to	A	B	C	Circ	Entry
A	85	0	430	115	515
B	740	5	60	520	805
C	0	105	5	830	110

FLOWS

from \ to	A	B	C	Circ	Entry
A	105	0	380	90	485
B	485	5	45	490	535
C	0	80	5	595	85

WEEKEND FLOWS

from \ to	A	B	C	Circ	Entry
A	75	0	490	140	565
B	545	5	75	570	625
C	0	130	5	625	135

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E 0	Q_E WEEKEND	RFC AM	RFC 0	RFC WEEKEND
A	1.00	4.50	0.03	1364	1.48	0.59	1299	1314	1285	0.40	0.37	0.44
B	0.97	7.77	0.03	2353	1.48	0.80	1886	1909	1847	0.43	0.28	0.34
C	0.95	5.00	0.03	1515	1.48	0.62	949	1088	1070	0.12	0.08	0.13

Crtical Arm:	**B**	**A**	**A**
RFC:	**0.43**	**0.37**	**0.44**
	AM	**0**	**WEEKEND**

- In accordance with TPDM V2 Ch4

Calculated by:	Date: Dec-24	Checked by:

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50791710 **MVA HONG KONG LIMITED**

Junction: Po Tung Road/ Man Nin Street (JD) Design Year: 2035

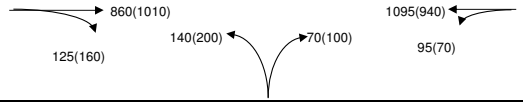
Description: 2035 Design Traffic Flow Designed By: MLC Checked By: PTC

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Po Tung Road NB	→	A	1	3.400						1955	1955	415	0.212		488	0.250	0.250
	→	A	1	3.400						2095	2095	445	0.212		522	0.249	
	→	B	2	3.400		15				1905	1905	125	0.066		160	0.084	
Po Tung Road SB	←	C	1	3.400	15			17%	14%	1925	1925	570	0.296	0.296	484	0.251	
	←	C	1	3.400						2095	2095	620	0.296		526	0.251	
Man Nin Street WB	← →	D	3	3.800	15	20		67% / 33%	67% / 33%	1900 *	1900 *	210	0.111	0.111	300	0.158	0.158
Pedestrian Crossing		Ep	2	MIN GREEN + FLASH =			13	+	7	=	20			*			*

Notes:

*Additional saturation flow of 80 pcu/hr due to the additional pocket provided (3600s / 90s per cycle * release 2 pcu/cycle)

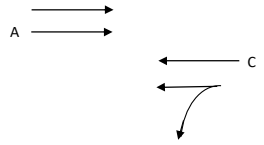
Flow: (pcu/hr)



Group	C,B,D	C,Ep,D	Group	C,Ep,D	A,Ep,D
y	0.472	0.407	y	0.409	0.408
L (sec)	13	29	L (sec)	29	32
C (sec)	90	90	C (sec)	90	90
y pract.	0.770	0.610	y pract.	0.610	0.580
R.C. (%)	63%	50%	R.C. (%)	49%	42%

Stage / Phase Diagrams

1.



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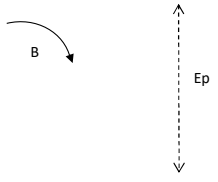

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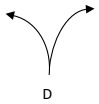


4.

5.

I/G= 5		I/G= 4	20	I/G= 2		I/G=	I/G=
I/G= 5		I/G= 7	20	I/G= 2		I/G=	I/G=

Date: DEC, 2024

Junction: (D) Po Tung Road/ Man Nin Street

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50557510 **MVA HONG KONG LIMITED**

Junction: Po Tung Road/ Man Nin Street (JD) Design Year: 2035

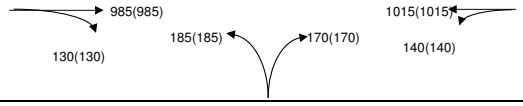
Description: 2035 Design Traffic Flow Designed By: MLC Checked By: PTC

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) WE	Pro. Turning (%) WE	Revised Saturation Flow (pcu/hr) WE	Revised Saturation Flow (pcu/hr) WE	WE Flow (pcu/hr)	WE y Value	WE Critical y	WE Flow (pcu/hr)	WE y Value	WE Critical y
Po Tung Road NB	→	A	1	3.400						1955	1955	475	0.243		475	0.243	
	→	A	1	3.400						2095	2095	510	0.243		510	0.243	
	→	B	2	3.400		15				1905	1905	130	0.068		130	0.068	
Po Tung Road SB	←	C	1	3.400	15			25%	25%	1905	1905	550	0.289		550	0.289	
	←	C	1	3.400						2095	2095	605	0.289	0.289	605	0.289	0.289
Man Nin Street WB	← →	D	3	3.800	15	20		52% / 48%	52% / 48%	1905 *	1905 *	355	0.186	0.186	355	0.186	0.186
Pedestrian Crossing		Ep	2	MIN GREEN + FLASH =			13	+	7	=	20			*			*

Notes:

*Additional saturation flow of 80 pcu/hr due to the additional pocket provided (3600s / 90s per cycle * release 2 pcu/cycle)

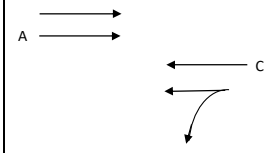
Flow: (pcu/hr)



Group	A,Ep,D	C,Ep,D	Group	A,Ep,D	C,Ep,D
y	0.430	0.475	y	0.430	0.475
L (sec)	32	29	L (sec)	32	29
C (sec)	90	90	C (sec)	90	90
y pract.	0.580	0.610	y pract.	0.580	0.610
R.C. (%)	35%	28%	R.C. (%)	35%	28%

Stage / Phase Diagrams

1.



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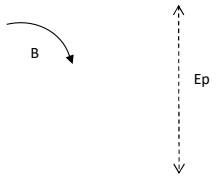

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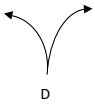


4.

5.

I/G= 5		I/G= 4	20	I/G= 2		I/G=		I/G=	
I/G= 5		I/G= 4	20	I/G= 2		I/G=		I/G=	

Date: DEC, 2024

Junction: (D) Po Tung Road/ Man Nin Street

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50557510 **MVA HONG KONG LIMITED**

Junction: Pedestrian Crossing near Yau Ma Po Street (JE) Design Year: 2035

Description: 2035 Design Traffic Flow Designed By: MLC Checked By: PTC

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Hiram's Highway	→	A	1	3.400						1955	1955	475	0.243		562	0.287	
(NB)	→	A	1	3.400						2095	2095	510	0.243		603	0.288	0.288
Hiram's Highway	←	B	1	3.400						1955	1955	599	0.306	0.306	550	0.281	
(SB)	←	B	1	3.400						2095	2095	641	0.306		590	0.282	
Pedestrian Crossing		Cp	2	MIN GREEN + FLASH =			13	+	7	=	20			*			*

Notes:

Flow: (pcu/hr)

N

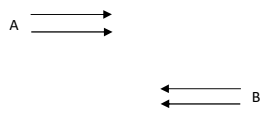
985(1165) →

← 1240(1140)

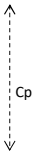
Group	A,Cp	B,Cp	Group	B,Cp	A,Cp
y	0.243	0.306	y	0.282	0.288
L (sec)	26	26	L (sec)	26	26
C (sec)	90	90	C (sec)	90	90
y pract.	0.640	0.640	y pract.	0.640	0.640
R.C. (%)	163%	109%	R.C. (%)	127%	122%

Stage / Phase Diagrams

1.



2.



3.

4.

5.

I/G= 3		I/G= 4	20	I/G=		I/G=		I/G=	
I/G= 3		I/G= 4	20	I/G=		I/G=		I/G=	

Date: DEC, 2024

Junction: (E) Pedestrian Crossing near Yau Ma Po Street

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50557510 **MVA HONG KONG LIMITED**

Junction: Pedestrian Crossing near Yau Ma Po Street (JE) Design Year: 2035

Description: 2035 Design Traffic Flow Designed By: MLC Checked By: PTC

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) WE Peak	Pro. Turning (%) WE Peak	Revised Saturation Flow (pcu/hr) WE Peak	Revised Saturation Flow (pcu/hr) WE Peak	WE Peak Flow (pcu/hr)	WE Peak y Value	WE Peak Critical y	WE Peak Flow (pcu/hr)	WE Peak y Value	WE Peak Critical y
Hiram's Highway (NB)	→	A	1	3.400						1955	1955	533	0.273		533	0.273	
	→	A	1	3.400						2095	2095	572	0.273		572	0.273	
Hiram's Highway (SB)	←	B	1	3.400						1955	1955	579	0.296		579	0.296	
	←	B	1	3.400						2095	2095	621	0.296	0.296	621	0.296	0.296
Pedestrian Crossing		Cp	2	MIN GREEN + FLASH =	13			+ 7		= 20				*			*

Notes:

Flow: (pcu/hr)

N

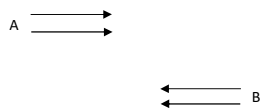
1105(1105) →

← 1200(1200)

Group	A,Cp	B,Cp	Group	A,Cp	B,Cp
y	0.273	0.296	y	0.273	0.296
L (sec)	28	26	L (sec)	28	26
C (sec)	90	90	C (sec)	90	90
y pract.	0.620	0.640	y pract.	0.620	0.640
R.C. (%)	127%	116%	R.C. (%)	127%	116%

Stage / Phase Diagrams

1.



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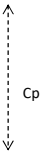


3.

4.

5.

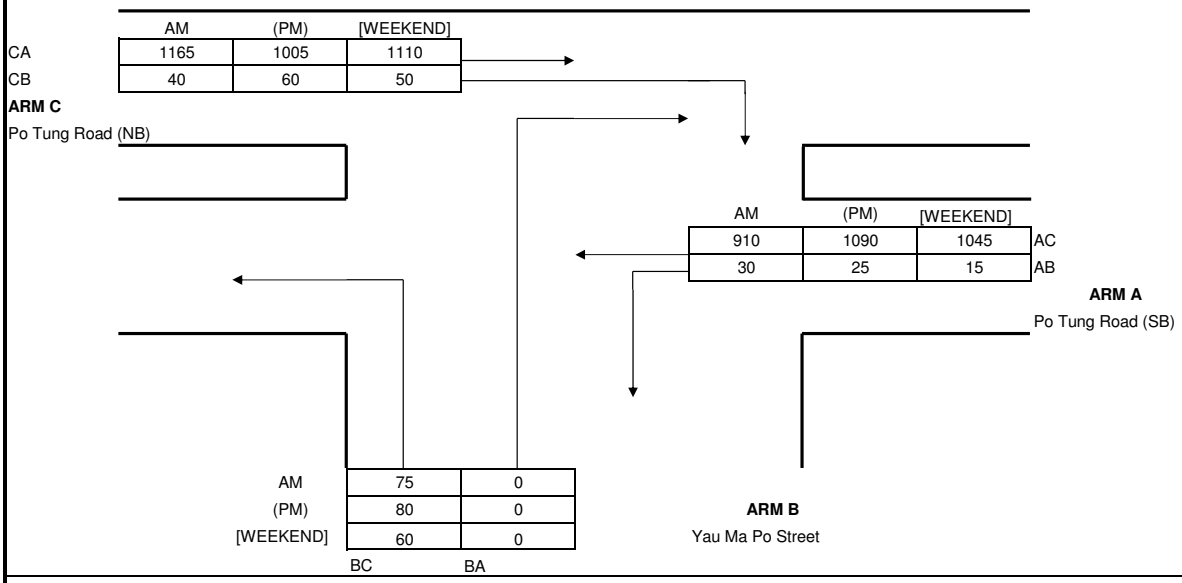
I/G= 3		I/G= 4	20	I/G=		I/G=	
I/G= 3		I/G= 4	20	I/G=		I/G=	

Date: DEC, 2024

Junction: (E) Pedestrian Crossing near Yau Ma Po Street

Simplified Priority Junction Capacity Calculation

Job Title:	Proposed Residential Development In Area Shown As 'Road', Various Lots In D.D. 221 And Adjoining Government Land, Sha Ha, Sai Kung		
Junction:	Po Tung Road/Yau Ma Po Street	Ref. No.:	F (Des)
Scheme:	Year 2035 Design Flow	Ref. No.:	
Year:	2035	Job No.: CHK50791710	Rev.:
ARM A:	Po Tung Road (SB)		
ARM B:	Yau Ma Po Street		
ARM C:	Po Tung Road (NB)		



GEOMETRY

Major road width	W	11.00	Lane widths	w(b-a)	0.00
Central Reserve width	Wcr	1.50		w(b-c)	3.50
2 Lane Minor Arm (Y/N)		n		w(c-b)	3.30
Visibilities	Vr(b-a)	0	Calculated	D	0.53
	Vl(b-a)	0		E	0.91
	Vr(b-c)	35		F	0.89
	Vr(c-b)	35		Y	0.62

ANALYSIS

		Factor	AM PEAK	(PM) PEAK	[WEEKEND] PEAK
TRAFFIC FLOWS	q(c-a)		1165	1005	1110
	q(c-b)		40	60	50
	q(a-b)		30	25	15
	q(a-c)		910	1090	1045
	q(b-a)		0	0	0
	q(b-c)		75	80	60
	f		1.00	1.00	1.00
CAPACITIES	Q(b-a)	1	139	127	126
	Q(b-c)	1	489	452	462
	Q(c-b)	1	476	440	452
	Q(b-ac)	1	489	452	462
RFC's	b-a		0.000	0.000	0.000
	b-c		0.153	0.177	0.130
	c-b		0.084	0.136	0.111
	b-ac		0.153	0.177	0.130
Worst RFC			**0.15**	**0.18**	**0.13**

Where Vl and Vr are visibility distances to the left or right of the respective streams

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

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

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

Y = 1-0.0345W

f = proportion of minor traffic turning left

Q (b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a) Capacity of combined streams - in accordance with TPDM V2 Ch4

Calculated by:	Date: Dec-24	Checked by:

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50791710 **MVA HONG KONG LIMITED**

Junction: Hiram's Highway / Chui Tong Road (JG) Design Year: 2035

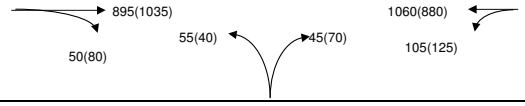
Description: 2035 Design Traffic Flow Designed By: MLC Checked By: PTC

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Hiram's Highway	→	A	1,2	4.300						2045	2045	433	0.212		500	0.244	
NB	→	A	1,2	4.300						2185	2185	462	0.211		535	0.245	
	↴	E	2	4.300		15				1985	1985	50	0.025		80	0.040	0.040
Hiram's Highway	↰	B	1	3.300	20					1810	1810	105	0.058		125	0.069	
(SB)	←	B	1	3.300						2085	2085	530	0.254	0.254	440	0.211	0.211
	←	B	1	3.300						2085	2085	530	0.254		440	0.211	
Chui Tong Road	↰↱	C	3	3.300	15	22.5		55% / 45%	36% / 64%	1850 *	1860 *	100	0.054	0.054	110	0.059	0.059
Pedestrian Crossing		Fp	4	MIN GREEN + FLASH =			10	+	8	=	18						
		Hp	4	MIN GREEN + FLASH =			11	+	10	=	21			*			*

Notes:

*Additional saturation flow of 60 pcu/hr is added due to pocket provided (3600s / 120s per cycle * release 2 pcu/cycle)

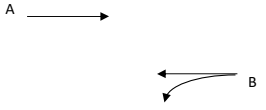
Flow: (pcu/hr)



Group	B,E,C,Fp	B,E,C,Hp	Group	A,C,Hp	B,E,C,Hp
y	0.333	0.308	y	0.304	0.310
L (sec)	31	47	L (sec)	36	41
C (sec)	120	120	C (sec)	120	120
y pract.	0.668	0.548	y pract.	0.630	0.593
R.C. (%)	100%	78%	R.C. (%)	107%	91%

Stage / Phase Diagrams

1.



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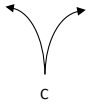
3.



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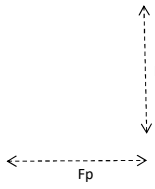


5.

I/G= 3		I/G= 5	5	I/G= 5		I/G= 10	21	I/G=	
I/G= 3		I/G= 5		I/G= 5		I/G= 10	21	I/G=	

Date: DEC, 2024

Junction: Hiram's Highway / Chui Tong Road (G)

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50791710 **MVA HONG KONG LIMITED**

Junction: Hiram's Highway / Chui Tong Road (JG) Design Year: 2035

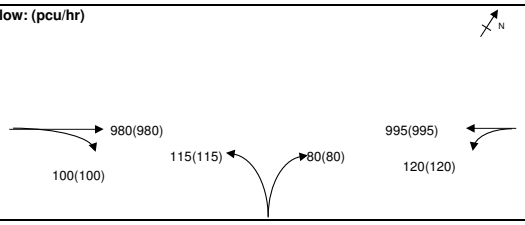
Description: 2035 Design Traffic Flow Designed By: MLC Checked By: PTC

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) WE	Pro. Turning (%) WE	Revised Saturation Flow (pcu/hr) WE	Revised Saturation Flow (pcu/hr) WE	WE Flow (pcu/hr)	WE y Value	WE Critical y	WE Flow (pcu/hr)	WE y Value	WE Critical y
Hiram's Highway	→	A	1,2	4.300						2045	2045	474	0.232		474	0.232	
NB	→	A	1,2	4.300						2185	2185	506	0.232		506	0.232	
	↴	E	2	4.300		15				1985	1985	100	0.050	0.050	100	0.050	0.050
Hiram's Highway	↰	B	1	3.300	20					1810	1810	120	0.066		120	0.066	
(SB)	←	B	1	3.300						2085	2085	498	0.239	0.239	498	0.239	0.239
	←	B	1	3.300						2085	2085	497	0.238		497	0.238	
Chui Tong Road	↰↱	C	3	3.300	15	22.5		59% / 41%	59% / 41%	1845 *	1845 *	195	0.106	0.106	195	0.106	0.106
Pedestrian Crossing		Fp	4	MIN GREEN + FLASH =			10	+	8	=	18						
		Hp	4	MIN GREEN + FLASH =			11	+	10	=	21			*			*

Notes:

*Additional saturation flow of 60 pcu/hr is added due to pocket provided (3600s / 120s per cycle * release 2 pcu/cycle)

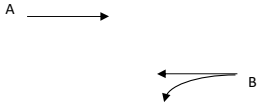
Flow: (pcu/hr)



Group	B,E,C,Fp	B,E,C,Hp	Group	B,E,C,Fp	B,E,C,Hp
y	0.395	0.395	y	0.395	0.395
L (sec)	31	41	L (sec)	31	41
C (sec)	120	120	C (sec)	120	120
y pract.	0.668	0.593	y pract.	0.668	0.593
R.C. (%)	69%	50%	R.C. (%)	69%	50%

Stage / Phase Diagrams

1.



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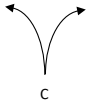

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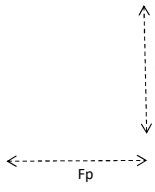


5.

I/G= 3		I/G= 5		I/G= 5		I/G= 10	21	I/G=	
I/G= 3		I/G= 5		I/G= 5		I/G= 10	21	I/G=	

Date: DEC, 2024

Junction: (G) Hiram's Highway / Chui Tong Road

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50791710 **MVA HONG KONG LIMITED**

Junction: Hiram's Highway/Hong Kin Road (JH) Design Year: 2035

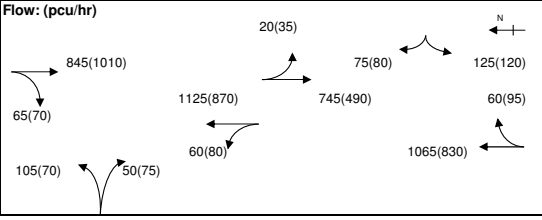
Description: 2035 Design Traffic Flow Designed By: MLC Checked By: PTC

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) AM	Pro. Turning (%) PM	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Hiram's Highway NB	→	C	1,2,3	3.400						1955	1955	408	0.209		488	0.250	
	→	C	1,2,3	3.400						2095	2095	437	0.209		522	0.249	
	↘	O	3	4.000		18				1990	1990	65	0.033		70	0.035	
Hiram's Highway SB	↙	A	1,2,5	3.300	15					1770	1770	60	0.034		80	0.045	
	←	A	1,2,5	3.300						2085	2085	563	0.270		435	0.209	
	←	A	1,2,5	3.300						2085	2085	562	0.270		435	0.209	
Hong Kin Road WB	↰	G	4	3.700	20					1845	1845	105	0.057		70	0.038	
	↱	G	4	3.700		18				1960	1960	50	0.026		75	0.038	
Hiram's Highway NB	↗	E	2,3	3.400	20					1820	1820	20	0.011		35	0.019	
	→	E	2,3	3.400						2095	2095	373	0.178	0.178	245	0.117	0.117
	→	E	2,3	3.400						2095	2095	372	0.178		245	0.117	
Hiram's Highway SB	←	F	2,3,4	3.400						1955	1955	514	0.263		401	0.205	
	←	F	2,3,4	3.400						2095	2095	551	0.263		429	0.205	
	↖	P	4	3.500		18				1945	1945	60	0.031	0.031	95	0.049	0.049
Po Lo Che Road EB	↓→	B	1	3.000	10	15		38% / 63%	40% / 60%	1745 *	1740 *	200	0.115	0.115	200	0.115	0.115
Pedestrian Crossing		Hp	1,2,3,5	MIN GREEN + FLASH =			5	+	7	=	12						
		Mp	4	MIN GREEN + FLASH =			5	+	6	=	11						
		Kp	3,4	MIN GREEN + FLASH =			5	+	8	=	13						
		Lp	5	MIN GREEN + FLASH =			5	+	7	=	12						
		Jp	1,5	MIN GREEN + FLASH =			5	+	10	=	15						
		Np	5	MIN GREEN + FLASH =			9	+	5	=	14			*			*

Notes:

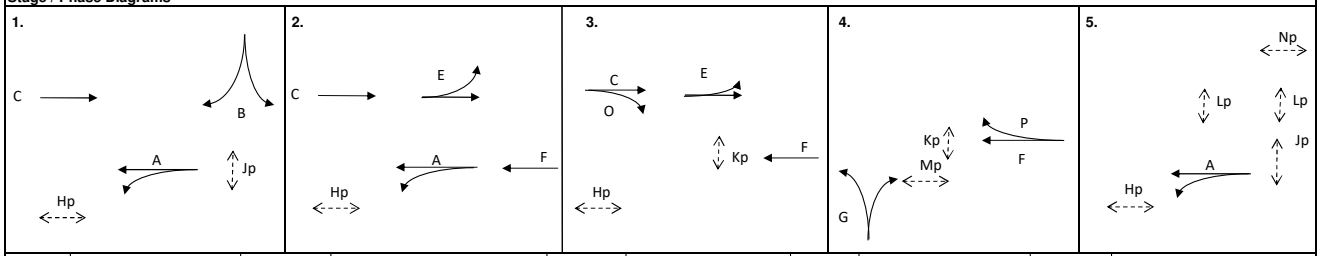
Additional saturation flow of 36 pcu/hr is added due to pocket provided (3600s / 100s per cycle * release 1 pcu/cycle)

Flow: (pcu/hr)



Group	B,E,G,Lp	B,E,P,Np	Group	B,F,Np	B,E,P,Np
y	0.350	0.324	y	0.320	0.281
L (sec)	27	34	L (sec)	20	34
C (sec)	100	100	C (sec)	100	100
y pract.	0.657	0.594	y pract.	0.720	0.594
R.C. (%)	88%	84%	R.C. (%)	125%	112%

Stage / Phase Diagrams



I/G= 3		I/G= 5		I/G=		I/G= 5		I/G= 10	14
I/G= 3		I/G= 5		I/G=		I/G= 5		I/G= 10	14

Date: DEC, 2024

Junction: (H) Hiram's Highway/Hong Kin Road

TRAFFIC SIGNALS CALCULATION

Job No.: CHK50791710 **MVA HONG KONG LIMITED**

Junction: Hiram's Highway/Hong Kin Road (JH) Design Year: 2035

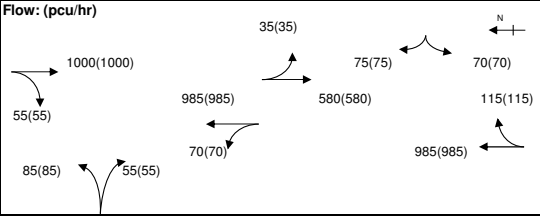
Description: 2035 Design Traffic Flow Designed By: MLC Checked By: PTC

Approach	Movements	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Gradient (%)	Pro. Turning (%) WE	Pro. Turning (%) WE	Revised Saturation Flow (pcu/hr) WE	Revised Saturation Flow (pcu/hr) WE	WE Flow (pcu/hr)	WE y Value	WE Critical y	WE Flow (pcu/hr)	WE y Value	WE Critical y
Hiram's Highway NB	→	C	1,2,3	3.400						1955	1955	483	0.247		483	0.247	
	→	C	1,2,3	3.400						2095	2095	517	0.247		517	0.247	
	↘	O	3	4.000		18				1990	1990	55	0.028		55	0.028	
Hiram's Highway SB	↰	A	1,2,5	3.300	15					1770	1770	70	0.040		70	0.040	
	←	A	1,2,5	3.300						2085	2085	493	0.236		493	0.236	
	←	A	1,2,5	3.300						2085	2085	492	0.236		492	0.236	
Hong Kin Road WB	↰	G	4	3.700	20					1845	1845	85	0.046		85	0.046	
	↱	G	4	3.700		18				1960	1960	55	0.028		55	0.028	
Hiram's Highway NB	↱	E	2,3	3.400	20					1820	1820	35	0.019		35	0.019	
	→	E	2,3	3.400						2095	2095	290	0.138	0.138	290	0.138	0.138
	→	E	2,3	3.400						2095	2095	290	0.138		290	0.138	
Hiram's Highway SB	←	F	2,3,4	3.400						1955	1955	475	0.243		475	0.243	
	←	F	2,3,4	3.400						2095	2095	510	0.243		510	0.243	
	↰	P	4	3.500		18				1945	1945	115	0.059	0.059	115	0.059	0.059
Po Lo Che Road EB	↓→	B	1	3.000	10	15		52% / 48%	52% / 48%	1735 *	1735 *	145	0.084	0.084	145	0.084	0.084
Pedestrian Crossing		Hp	1,2,3,5	MIN GREEN + FLASH =			5	+	7	=	12						
		Mp	4	MIN GREEN + FLASH =			5	+	6	=	11						
		Kp	3,4	MIN GREEN + FLASH =			5	+	8	=	13						
		Lp	5	MIN GREEN + FLASH =			5	+	7	=	12						
		Jp	1,5	MIN GREEN + FLASH =			5	+	10	=	15						
		Np	5	MIN GREEN + FLASH =			9	+	5	=	14			*			*

Notes:

Additional saturation flow of 36 pcu/hr is added due to pocket provided (3600s / 100s per cycle * release 1 pcu/cycle)

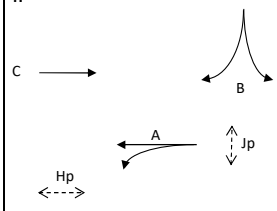
Flow: (pcu/hr)



Group	B,F,Np	B,E,P,Np	Group	B,F,Np	B,E,P,Np
y	0.327	0.281	y	0.327	0.281
L (sec)	20	34	L (sec)	20	34
C (sec)	100	100	C (sec)	100	100
y pract.	0.720	0.594	y pract.	0.720	0.594
R.C. (%)	120%	111%	R.C. (%)	120%	111%

Stage / Phase Diagrams

1.



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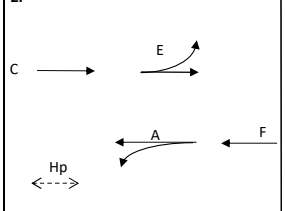

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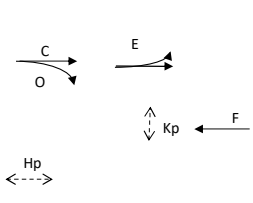
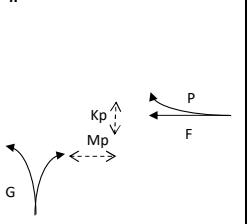
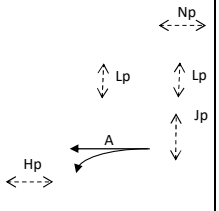


4.



5.



I/G= 3		I/G= 5		I/G=		I/G= 5		I/G= 10	14
I/G= 3		I/G= 5		I/G=		I/G= 5		I/G= 10	14

Date: DEC, 2024 **Junction:** (H) Hiram's Highway/Hong Kin Road

Simplified Roundabout Capacity Calculation

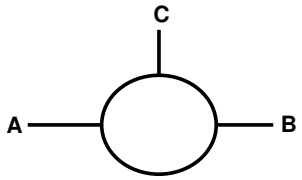
Job Title:	Proposed Residential Development In Area Shown As 'Road', Various Lots In D.D. 221 And Adjoining Government Land, Sha Ha, Sai Kung		
Junction:	Tai Mong Tsai Road/Sai Sha Road		Ref. No.: I (Des)
Scheme:	Year 2035 Design Flows		Ref. No.:
Year:	2035 design	Job No.: CHK50791710	Rev.:

AM PM

ARM A: Tai Mong Tsai Road (West)

ARM B: Tai Mong Tsai Road (East)

ARM C: Sai Sha Road



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	3.4	8.2	36	100	35	35	0.21
B	3.4	8.1	15	100	35	20	0.50
C	4.2	7.7	13	10	35	35	0.43

AM FLOWS

from \ to	A	B	C	Circ	Entry
A	10	485	145	105	640
B	520	5	100	160	625
C	175	95	5	535	275

PM FLOWS

from \ to	A	B	C	Circ	Entry
A	10	570	150	105	730
B	370	5	95	390	470
C	150	95	5	750	250

WEEKEND FLOWS

from \ to	A	B	C	Circ	Entry
A	5	425	225	140	655
B	360	5	140	235	505
C	220	130	5	370	355

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	Q_E WEEKEND	RFC AM	RFC PM	RFC WEEKEND
A	1.02	6.76	0.08	2050	1.46	0.72	2017	2017	1991	0.32	0.36	0.33
B	1.07	5.75	0.08	1741	1.46	0.66	1756	1593	1703	0.36	0.29	0.30
C	0.93	6.08	0.08	1842	1.46	0.68	1380	1244	1485	0.20	0.20	0.24

Crtical Arm:	**B**	**A**	**A**
RFC:	**0.36**	**0.36**	**0.33**
	AM	**PM**	**WEEKEND**

- In accordance with TPDM V2 Ch4

Calculated by:	Date: Dec-24	Checked by:

Appendix B

Description of Level-of-Service (LOS)

on Footpaths

Appendix B - Description of Level-of-Service (LOS) for Footpaths

LOS	Flow Rate (ped/min/m)	Description
A	≤ 16	Pedestrians basically move in desired paths without altering their movements in response to other pedestrians. Walking speeds are freely selected, and conflicts between pedestrians are unlikely.
B	16 - 23	Sufficient space is provided for pedestrians to freely select their walking speeds, to bypass other pedestrians and to avoid crossing conflicts with others. At this level, pedestrians begin to be aware of other pedestrians and to respond to their presence in the selection of walking paths.
C	23 - 33	Sufficient space is available to select normal walking speeds and to bypass other pedestrians primarily in unidirectional stream. Where reverse direction or crossing movement exist, minor conflicts will occur, and speed and volume will be somewhat lower.
D	33 - 49	Freedom to select individual walking speeds and bypass other pedestrians is restricted. Where crossing or reverse-flow movements exist, the probability of conflicts is high and its avoidance requires changes of speeds and position. The LOS provides reasonable fluid flow; however considerable friction and interactions between pedestrians are likely to occur.
E	49 - 75	Virtually, all pedestrians would have their normal walking speeds restricted. At the lower range of this LOS, forward movement is possible only by shuffling. Space is insufficient to pass over slower pedestrians. Cross- and reverse-movement are possible only with extreme difficulties. Design volumes approach the limit of walking capacity with resulting stoppages and interruptions to flow.
F	> 75	Walking speeds are severely restricted. Forward progress is made only by shuffling. There are frequent and unavoidable conflicts with other pedestrians. Cross- and reverse-movements are virtually impossible. Flow is sporadic and unstable. Space is more characteristics of queued pedestrians than of moving pedestrian streams.

Source from Transport Planning & Design Manual. Volume 6 Chapter 10 Section 10.4.2.