

Appendix C

Revised Traffic Impact Assessment

**Application for Amendment of Plan
Under Section 12A of the Town
Planning Ordinance (Cap. 131) for
Proposed Innovation and Technology
Hub at Various Lots in D.D. 82 and
D.D. 86 and Adjoining Government
Land, Man Kam To, New Territories**
Traffic Impact Assessment Report

2nd Formal Submission | September 2024

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 287082-02

Arup Hong Kong Limited
Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong
Kowloon
Hong Kong
www.arup.com

ARUP

Contents

	Page
1	INTRODUCTION 1
1.1	Background 1
1.2	Objectives of this Report 1
1.3	Scope of Study 1
1.4	Structure of the Report 2
2	EXISTING TRAFFIC CONDITION 3
2.1	Site Characteristics 3
2.2	Existing Road Network 3
2.3	Existing Road Improvement Works Under Construction 3
2.4	Existing Traffic Performance 5
2.5	Existing Public Transport Facilities 8
3	THE INDICATIVE SCHEME 9
3.1	Development Schedule 9
3.2	Proposed Self-containment Arrangement 9
3.3	Proposed Vehicular and Pedestrian Access Arrangement 9
3.4	Internal Transport Facilities Provision 10
4	TRAFFIC IMPACT ASSESSMENT 18
4.1	Trip Generation and Attraction of Indicative Scheme 18
4.2	Future Traffic Growth 20
4.3	Planned/ Committed Developments in North District 20
4.4	Planned/ Committed Junction Improvement Schemes in North District 21
4.5	Assessment Scenarios 22
4.6	Junction Capacity Assessment 23
4.7	Link Capacity Assessment 26
4.8	Public Transport Assessment 27
5	CONCLUSION 31
5.1	Summary 31
5.2	Conclusion 32

Figures

- Figure 1.1 Location of Application Site
- Figure 2.1 Location of Identified Key Junctions and Road Links in the Vicinity of Application Site – Overview
- Figure 2.2 Location of Identified Key Junctions and Road Links in the Vicinity of Application Site – Man Kam To / Lin Ma Hang Area
- Figure 2.3 Location of Identified Key Junctions and Road Links in the Vicinity of Application Site – Fanling Area
- Figure 2.4 Location of Identified Key Junctions and Road Links in the Vicinity of Application Site – Sheung Shui Area
- Figure 2.5 Year 2022 Existing Traffic Flow – Man Kam To / Lin Ma Hang Area
- Figure 2.6 Year 2022 Existing Traffic Flow – Sheung Shui Area
- Figure 2.7 Year 2022 Existing Traffic Flow – Queen’s Hill Area
- Figure 2.8 Public Transport Facilities in the Vicinity of Application Site
- Figure 3.1 Master Layout Plan of Indicative Scheme
- Figure 3.2 B1 Basement Layout Plan of Indicative Scheme
- Figure 3.3 B2 Basement Layout Plan of Indicative Scheme
- Figure 3.4 B3 Basement Layout Plan of Indicative Scheme
- Figure 3.5 Section Plan of Indicative Scheme
- Figure 3.6 Proposed Access Road and Signalised Junction of Indicative Scheme
- Figure 3.7 Swept Path Analysis of the Proposed Access Road and Signalised Junction of Indicative Scheme – Proposed Access Road
- Figure 3.8 Swept Path Analysis of the Proposed Access Road and Signalised Junction of Indicative Scheme – Lin Ma Hang Road Eastbound
- Figure 3.9 Swept Path Analysis of the Proposed Access Road and Signalised Junction of Indicative Scheme – Lin Ma Hang Road Westbound
- Figure 3.10 Major Ingress Vehicular Routes of Indicative Scheme
- Figure 3.11 Major Egress Vehicular Routes of Indicative Scheme
- Figure 4.1 Year 2031 Reference Traffic Flow – Man Kam To / Lin Ma Hang Area
- Figure 4.2 Year 2031 Reference Traffic Flow – Fanling Area
- Figure 4.3 Year 2031 Reference Traffic Flow – Sheung Shui Area
- Figure 4.4 Year 2031 Design Traffic Flow – Man Kam To / Lin Ma Hang Area
- Figure 4.5 Year 2031 Design Traffic Flow – Fanling Area
- Figure 4.6 Year 2031 Design Traffic Flow – Sheung Shui Area
- Figure 4.7 Proposed Junction Modification for J2 – Lin Ma Hang Road / Ping Che Road
- Figure 4.8 Swept Path Analysis of Proposed Junction Modification for J2 – Lin Ma Hang Road / Ping Che Road
- Figure 4.9 Proposed Junction Modification for J8 – Sha Tau Kok Road / Sui Wan Road
- Figure 4.10 Proposed Junction Modification for J13 – Po Shek Wu Road / Po Wan Road
- Figure 4.11 Proposed Junction Modification for J23 – San Wan Road / Fanling Station Road
- Figure 4.12 Swept Path Analysis of Proposed Junction Modification for J2 – San Wan Road / Fanling Station Road
- Figure 4.13 Proposed Routing of Proposed Feeder Services and Long-haul Services
- Figure 4.14 Proposed Layout of Terminating Facilities

Figure 4.15 Swept Path Analysis of 12.8m long Bus between the Proposed Transport Interchange and the En-route Bus Stops

Figure 4.16 Swept Path Analysis of 12.8m long Bus on Bus Bay 1, 3, 5

Figure 4.17 Swept Path Analysis of 12.8m long Bus on Bus Bay 2, 4

Figure 4.18 Swept Path Analysis of 12.8m long Bus on Bus Stacking Area

Figure 4.19 Swept Path Analysis of 5m long Taxi on Taxi Stands

Appendices

Appendix A Existing Road Improvement Works under Construction

Appendix B Planned / Committed Infrastructures in North District

Appendix C Junction Calculation Sheets

Appendix D Junction Calculation Sheets for Proposed Junction Improvement

1 INTRODUCTION

1.1 Background

1.1.1 The Application Site is located at Various Lots in D.D. 82 & D.D. 86 and Adjoining Government Land, Man Kam To, New Territories. It is currently zoned as mainly in Agriculture (“AGR”), and minor parts in Green Belt (“GB”), Government, Institution or Community (“G/IC”) under the Approved Man Kam To (MKT) Outline Zoning Plan (OZP) No. S/NE-MKT/4 (the OZP). The location of Application Site is shown in **Figure 1.1**.

1.1.2 The Applicant proposes amendments to rezone the Application Site with a sizeable site area of about 125,863m² (Development site area of about 102,461m²) into an Innovation and Technology Hub with Ancillary Facilities (the “Indicative Scheme”), subject to a non-domestic gross floor area (GFA) of 365,180m², which consists of R&D Centre with 268,780m² GFA and Data Centre with 86,400m² GFA to nurture the development of I&T industry, as well as a Commercial Centre with 9,276m² to support the daily needs of the working and living population. A kindergarten of 724m² will be provided on the ground floor of Ancillary Dormitories. In addition, there will be a domestic GFA of 170,400m², which consists of Private Residential Blocks providing a total of 2,320 units together with a 3,500m² Clubhouse, and Ancillary Dormitories with 63,900m² which provide 1,392 units for the working population of R&D Centre.

1.1.3 Arup Hong Kong Limited (Arup) was commissioned to carry out a Traffic Impact Assessment (TIA) report in support of the Section 12A planning application for the proposed amendment of plan.

1.2 Objectives of this Report

1.2.1 The objective of the Study is to evaluate the potential traffic impact associated with the Proposed Innovation and Technology Hub at the Application Site.

1.3 Scope of Study

1.3.1 The tasks for this TIA study are outlined as follows:

- Carry out traffic surveys at critical junctions to appreciate current traffic condition;
- Update the inventory regarding traffic circulation patterns, traffic conditions, as well as the constraints of the existing road network in the vicinity;
- Investigate the public transport in the vicinity;
- Recommend the proposed internal transport facilities provisions;
- Set up the reference scenario should there be no Indicative Scheme at the site location, i.e. reference scenario with the existing situation;
- Assess the volume of traffic likely to be generated by the Indicative Scheme;
- Compare and evaluate the likely traffic impact, if any, associated with the Indicative Scheme; and

- Assess future traffic condition, taking into account any future traffic growth, as well as the traffic generated by the Indicative Scheme and other planned/committed development, if any, to be built in the vicinity.

1.4 Structure of the Report

1.4.1 The structure of this TIA report is as follows:

<u>Chapter</u>	<u>Title</u>	<u>Aims</u>
1	Introduction	Provide project background and scope of the Study
2	Existing Traffic Condition	Review and appreciate the existing traffic condition
3	The Subject Development	Provide information of the Indicative Scheme
4	Traffic Impact Assessment	Illustrate the results of Traffic Impact Assessment
5	Conclusion	Summarize the findings of this Study

2 EXISTING TRAFFIC CONDITION

2.1 Site Characteristics

- 2.1.1 The Application Site is located in Zone with major part in Agriculture (“AGR”), and minor parts in Green Belt (“GB”), Government, Institution or Community (“G/IC”) at Various Lots in D.D.82 & D.D.86, Man Kam To, New Territories.
- 2.1.2 The site boundary is surrounding existing Ta Ku Ling Ling Ying Public School and is bounded by existing Chow Tin Tsuen to the east and Lin Ma Hang Road to the north. **Figure 1.1** shows the location and the environs of the Application Site.

2.2 Existing Road Network

- 2.2.1 Some major roads in the vicinity of the Application Site are listed as follows:
- Lin Ma Hang Road is a rural road connecting Man Kam To Road at western end and Shan Tsui Village Road at eastern end. It is in single-two carriageway configuration for the section between Man Kam To Road and Ping Yuen River and the section between Ping Che Road and Tsung Yuen Ha, and in form of a single-track access road with passing bays for the remaining section.
 - Man Kam To Road is a rural road in single-three carriageway configuration which consists of two lanes in Northbound and one lane in Southbound. It connects Jockey Club Road at southern end and Boundary (Man Kam To Control Point) at northern end.
 - Ping Che Road is a district distributor in single-two carriageway configuration which connects Sha Tau Kok Road at southern end and Lin Ma Hang Road at northern end.
 - Heung Yuen Wai Highway is a Rural Trunk Road in dual two-lane carriageway configuration connecting the Fanling Highway and the Heung Yuen Wai Boundary Control Point (Heung Yuen Wai BCP).

2.3 Existing Road Improvement Works Under Construction

- 2.3.1 Road works under construction currently in the vicinity of the Application Site are identified as follows:
- Widening Part of Lin Ma Hang Road (Man Kam To Road to Ping Yuen River) – under CEDD project number 5758CL

The proposed road works are required to serve the anticipated traffic demand induced by the future development of innovation and technology (I&T) and related purposes at Sandy Ridge, which include widening of a section of the existing Lin Ma Hang Road of about 1.4 kilometres to a 7.3-m-wide carriageway with footpaths. The road works are anticipated to be completed in December 2022.

Site Formation and Associated Infrastructural Works for Development of Columbarium, Crematorium and Related Facilities at Sandy Ridge Cemetery

<https://www.cedd.gov.hk/eng/our-projects/major-projects/index-id-73.html>

- Widening of western section of Lin Ma Hang Road between Ping Yuen River and Ping Che Road – under HyD PWP Item 863TH

Upon the opening up of the Frontier Closed Area, the estimated traffic demand will exceed the capacity of the concerned road section. The proposed road works include (a) widening of a section of Lin Ma Hang Road of approximately 750m long between Ping Yuen River and Ping Che Road to a single two-lane carriageway with a 2m wide footpath on both sides, (b) construction of a vehicular bridge for EB traffic of approximately 70m long and 8.3m wide across Ping Yuen River and (c) a slope structure would be constructed due to the level difference of Lin Ma Hang Road eastbound and westbound carriageway between River Ganges Pumping Station and Ping Yuen River. The road works are anticipated to be completed in August 2023.

Legislative Council Panel on Transport, 863TH – Widening of Western Section of Lin Ma Hang Road Between Ping Yuen River and Ping Che Road, LC Paper No. CB(4)288/18-19(05)

(<https://www.legco.gov.hk/yr18-19/english/panels/tp/papers/tp20181214cb4-288-5-e.pdf>)

- Advance Site Formation and Engineering Infrastructure Works at Kwu Tung North (KTN) and Fanling North (FLN) New Development Area (NDA) – under CEDD project number 7747CL

The project is part of the First Phase of the KTN and FLN NDA Development, which include (a) construction of an approximately 2 km long dual two-lane Fanling Bypass Eastern Section between Shek Wu San Tsuen North and Lung Yeuk Tau comprising viaduct, at-grade road and underpass sections, (b) construction of Lung Yeuk Tau Interchange connecting Fanling Bypass Eastern Section with existing Sha Tau Kok Road – Lung Yeuk Tau, (c) construction of an approximately 2 km long dual two-lane Fanling Bypass Eastern Section between Shung Him Tong and Kau Lung Hang mainly on viaducts with two long span overbridges across the existing East Rail Line and (d) construction of local roads for First Phase Development within the KTN and FLN NDA. The Fanling Bypass Eastern Section is anticipated to be completed in Mid 2025, while the remaining road works are anticipated to be completed in Early 2026.

Advance Site Formation and Engineering Infrastructure Works at Kwu Tung North and Fanling North New Development Areas

(<https://www.cedd.gov.hk/eng/our-projects/major-projects/index-id-36.html>)

2.3.2 The corresponding Gazette Plans are attached in **Appendix A**.

2.4 Existing Traffic Performance

2.4.1 To appreciate the existing traffic conditions, comprehensive classified traffic counts were conducted at the following identified key junctions and road links in the vicinity of the Application Site. Locations of these surveyed junctions and road links are listed below and shown in **Figure 2.1** to **Figure 2.4**.

Identified Key Junctions:

J1	- Lin Ma Hang Road / Man Kam To Road	(Priority)
J2	- Lin Ma Hang Road / Ping Che Road	(Priority)
J3	- Lin Ma Hang Road / Heung Yuen Wai Highway Slip Road	(Roundabout)
J4	- Lin Ma Hang Road / Heung Yuen Wai Highway Slip Road	(Priority)
J5	- Sha Tau Kok Road / Ping Che Road	(Roundabout)
J6	- Sha Tau Kok Road / Lau Shui Heung Road	(Roundabout)
J7	- Sha Tau Kok Road / Lung Ma Road	(Roundabout)
J8	- Sha Tau Kok Road / Sui Wan Road	(Signalised)
J9	- Man Kam To Road / Kong Nga Po Road	(Priority)
J10	- Jockey Club Road / Po Wan Road	(Signalised)
J11	- Jockey Club Road / Tin Ping Road	(Signalised)
J12	- Po Shek Wu Road / Jockey Club Road	(Roundabout)
J13	- Po Shek Wu Road / Po Wan Road	(Signalised)
J14	- Po Shek Wu Road / Choi Yuen Road	(Signalised)
J15	- Lin Ma Hnag Road / Proposed Access Road	(Signalised)
J16	- Sha Tau Kok Road / Fanling Bypass	(Roundabout)
J17	- Man Kam To Road / Fanling Bypass	(Roundabout)
J18	- Man Kam To Road / Road L4	(Signalised)
J19	- Sha Tau Kok Road / Luen On Street	(Signalised)
J20	- Sha Tau Kok Road / Fan Leng Lau Road	(Signalised)
J21	- Sha Tau Kok Road / Jockey Club Road	(Roundabout)
J22	- Sha Tau Kok Road / San Wan Road	(Roundabout)
J23	- San Wan Road / Fanling Station Road	(Signalised)
J24	- Choi Yuen Road / Pak Wo Road	(Roundabout)

Identified Key Road Links:

L1	- Lin Ma Hang Road (near Man Kam To Road junction)
L2	- Lin Ma Hang Road (near Ping Che Road junction)
L3	- Lung Shan Tunnel (Fanling Highway – Sha Tau Kok Road)
L4	- Fanling Highway (at the south of Lung Shan Tunnel)
L5	- Sha Tau Kok Road (Sui Wan Road – Ma Sik Road)
L6	- Jockey Club Road (Tin Ping Road – Po Shek Wu Road)
L7	- Po Shek Wu Road (Po Wan Road – Choi Yuen Road)
L8	- Fanling Highway (at the west of Po Shek Wu Road Interchange)
L9	- Proposed Access Road

- 2.4.2 The counts were undertaken on typical weekdays during the periods 07:00-10:00 and 17:00-20:00 in May 2023.
- 2.4.3 The AM and PM peak hours were found to be 08:00-09:00 and 17:30-18:30 respectively. The observed traffic flows during these peak hours are adjusted accordingly and presented in **Figure 2.5** to **Figure 2.7**.
- 2.4.4 Junction capacity analysis was carried out at the identified key junctions in the vicinity of the Application Site. Results of the capacity assessment are shown in **Table 2.3.1** below.

Table 2.3.1 Year 2023 Key Junction Performance

Junction		Type	Performance ⁽¹⁾	
			AM	PM
J1	Lin Ma Hang Road / Man Kam To Road	Priority	0.29	0.27
J2	Lin Ma Hang Road / Ping Che Road	Priority	0.40	0.41
J3	Lin Ma Hang Road / Heung Yuen Wai Highway Slip Road	Roundabout	0.21	0.19
J4	Lin Ma Hang Road / Heung Yuen Wai Highway Slip Road	Priority	0.15	0.10
J5	Sha Tau Kok Road / Ping Che Road	Roundabout	0.41	0.46
J6	Sha Tau Kok Road / Lau Shui Heung Road	Roundabout	0.35	0.38
J7	Sha Tau Kok Road / Lung Ma Road	Roundabout	0.45	0.43
J8	Sha Tau Kok Road / Sui Wan Road	Signalised	41%	49%
J9	Man Kam To Road / Kong Nga Po Road	Priority	0.30	0.32
J10	Jockey Club Road / Po Wan Road	Signalised	53%	66%
J11	Jockey Club Road / Tin Ping Road	Signalised	66%	87%
J12	Po Shek Wu Road / Jockey Club Road	Roundabout	0.44	0.43
J13	Po Shek Wu Road / Po Wan Road	Signalised	43%	23%
J14	Po Shek Wu Road / Choi Yuen Road	Signalised	36%	42%
J15	Lin Ma Hnag Road / Proposed Access Road	Signalised	N.A.	
J16	Sha Tau Kok Road / Fanling Bypass	Roundabout		
J17	Man Kam To Road / Fanling Bypass	Roundabout		
J18	Man Kam To Road / Road L4	Signalised		
J19	Sha Tau Kok Road / Luen On Street	Signalised	65%	74%
J20	Sha Tau Kok Road / Fan Leng Lau Road	Signalised	33%	34%
J21	Sha Tau Kok Road / Jockey Club Road	Roundabout	0.53	0.57
J22	Sha Tau Kok Road / San Wan Road	Roundabout	0.39	0.42
J23	San Wan Road / Fanling Station Road	Signalised	22%	22%
J24	Choi Yuen Road / Pak Wo Road	Roundabout	0.34	0.40

Notes:

- (1) Figures shown represent “Reserve Capacity” (RC) in % for signalized junctions and “Design Flow Capacity” (DFC) ratio for roundabouts and priority junctions.

2.4.5 Results of the analysis indicate that the identified key junctions in the vicinity of the Application Site are currently operating with ample capacity during both AM and PM peak hours in Year 2023.

2.4.6 The road link capacity assessment has also been carried out to examine the volume to capacity (V/C) ratio of the assessed road links. Results of the road link assessment are shown in **Table 2.3.2** below.

Table 2.3.2 Year 2023 Key Link Performance

Link		Type ⁽¹⁾	Configuration	Direction	Capacity	Link Performance ⁽²⁾			
						AM		PM	
						Flow ⁽³⁾	V/C	Flow ⁽³⁾	V/C
L1	Lin Ma Hang Road (near Man Kam To Road junction)	RR	6.75m wide Single two-lane carriageway	Two-way	1,160	410	0.36	375	0.33
L2	Lin Ma Hang Road (near Ping Che Road junction)	RR	3.5m wide single-track access road with passing bays	Two-way	600	490	0.82	455	0.76
L3	Lung Shan Tunnel (Fanling Highway – Sha Tau Kok Road)	RT	Dual two-lane carriageway	NB	3,000	885	0.3	780	0.26
				SB	3,000	685	0.23	625	0.21
L4	Fanling Highway (at the south of Lung Shan Tunnel)	EX	Dual four-lane carriageway	NB	8,200	6,065	0.74	5,360	0.66
				SB	8,200	5,745	0.71	5,230	0.64
L5	Sha Tau Kok Road (Lung Ma Road – Sui Wan Road)	RR	Dual two-lane carriageway	NB	2,800	1,345	0.49	1,420	0.51
				SB	2,800	1,310	0.47	1,550	0.56
L6	Jockey Club Road (Tin Ping Road – Po Shek Wu Road)	PD	Dual two-lane carriageway	NB	2,800	1,080	0.39	960	0.35
				SB	2,800	1,240	0.45	1,190	0.43
L7	Po Shek Wu Road (Po Wan Road – Choi Yuen Road)	PD	Dual two-lane carriageway	NB	2,800	1,295	0.47	1,255	0.45
				SB	2,800	1,460	0.53	1,585	0.57
L8	Fanling Highway (at the west of Po Shek Wu Road Interchange)	EX	Dual three-lane carriageway	EB	6,100	4,970	0.82	4,710	0.78
				WB	6,100	4,950	0.82	4,275	0.71
L9	Proposed Access Road	-	10.5m wide Single two-lane carriageway	Two-way	1,800	N.A.			

Notes:

- (1) Abbreviation: EX – Expressway; PD – Primary Distributor; RR – Rural Road; RT – Rural Trunk Road
- (2) A V/C ratio below 1.0 is considered acceptable. A V/C ratio above 1.0 indicates the onset of mild congestion and a V/C ratio between 1.0 and 1.2 would indicate a manageable degree of congestion. A V/C ratio above 1.2 indicates the onset of more serious congestion.
- (3) Figures are rounded to the nearest 5.

2.4.7 Results of the analysis indicate that the performance of identified key road links in the vicinity of the Application Site are considered acceptable during both AM and PM peak hours in Year 2023.

2.5 Existing Public Transport Facilities

2.5.1 Existing public transport facilities are illustrated in **Figure 2.8** and summarised in **Table 2.4.1** below. These include:

- Green Minibus Services – The Application Site is served by GMB services operating along Lin Ma Hang Road.

Table 2.4.1 Existing Franchised Bus and GMB Services

Route No.	Origin / Destination	Peak Hour Headway (mins)
<i>Green Minibus Services</i>		
59K	Sheung Shui Station – Lin Ma Hang	15 - 30
59S	Sheung Shui Station – Heung Yuen Wai BCP	3 - 8

2.5.2 In summary, the Application Site is only served by limited existing public transport services.

2.5.3 To improve the accessibility of the Application Site, it is proposed to provide public transport feeder services and long-haul services with sufficient transport facilities in appropriate locations for the Indicative Scheme in order to minimise the impact to the existing public transport services. Details are further discussed in **Section 4.8**.

3 THE INDICATIVE SCHEME

3.1 Development Schedule

- 3.1.1 The Applicant intends to redevelop the site into Innovation and Technology Hub together with residential, commercial and I&T use.
- 3.1.2 The Indicative Scheme is envisaged to be completed by Year 2028.
- 3.1.3 The proposed development schedule of Indicative Scheme is summarized in **Table 3.1**, and the master layout plan, preliminary layout plans for basement levels and section plans are presented in **Figure 3.1** to **Figure 3.5** respectively.

Table 3.1 Development Schedule

Development Site Area (m ²)	Type		GFA (m ²)	Flat Mix			
				No. of Blocks	Flat Size	No. of Flats	
102,461	Non-Domestic	Office (R&D Centre)	268,780	-			
		Data Centre	86,400				
		Commercial Centre	9,276				
		6-classroom Kindergarten	724				
	Domestic	Private Housing		106,500	5	~26m ²	532
						~33m ²	1,016
						~43m ²	482
						~77m ²	290
		Ancillary Dormitories		63,900	3	~26m ²	336
						~33m ²	660
~43m ²	222						
~77m ²	174						
Club House		3,500 ⁽²⁾	-				

Notes:

(1) Club House is proposed to be exempted from GFA calculation.

3.2 Proposed Self-containment Arrangement

- 3.2.1 Ancillary Dormitories would be provided for application by employees of the I&T Hub (including R&D Centres and Data Centres) to achieve the Self-containment Arrangement. Flats with size < 40m² will be assigned as one-person units while flats with size > 40m² will be assigned as family units.
- 3.2.2 With the self-containment arrangement, it is anticipated that the employees living in Dormitories will commute within the Application Site during weekday peak period. The associated parking demand as well as external trip generation and attraction would be low. Therefore, low-end parking provision rate and lower limit trip rate are adopted for one-person units, to avoid over-provision of parking spaces and over-estimation of external trips.
- 3.2.3 Taking into consideration of family members of the employees living in family units, high-end parking provision rate and mean trip rate are adopted for family units for conservative assessment approach.

3.3 Proposed Vehicular and Pedestrian Access Arrangement

3.3.1 The Application Site is located at the south of Lin Ma Hang Road near Ping Yuen River. Currently, there is no vehicular access and footpath connecting between the Application Site and the external road network.

Proposed Vehicular Access Road and Footpath

3.3.2 In order to provide vehicular and pedestrian access to the Application Site, the existing access road of River Ganges Pumping Station and its Substation is proposed to be widened and extended. A new standard single two-lane carriageway in width of minimum 10.5m with 2.5m-wide footpath on both sides is proposed connecting the Application Site and Lin Ma Hang Road (“Access Road”), with access point relocation of River Ganges Pumping Station and its Substation.

Proposed Signalized Junction of Lin Ma Hang Road / Access Road

3.3.3 In addition, signalized junction of Lin Ma Hang Road / Access Road is proposed to cater for the anticipated traffic demand arising from the Indicative Scheme.

3.3.4 Access Road will be further widened at junction approaches for providing additional traffic lanes to ensure the sufficient junction capacity. Despite the local road widening of Access Road, the vehicular accesses of River Ganges Pumping Station and its Substation will be maintained.

3.3.5 It is proposed to modify the road markings of Lin Ma Hang Road westbound carriageway to provide two traffic lanes at junction. Moreover, to ensure the junction operational performance, further widening of Lin Ma Hang Road eastbound carriageway (* without beyond the Frontier Closed Area Boundary) under the current road works by HyD PWP Item 863TH is also proposed. The slope structure in the middle of Lin Ma Hang Road carriageway between River Ganges Pumping Station and Ping Yuen River constructed under the same road works is proposed to be rearranged to facilitate the right-turn movements from the Access Road to Lin Ma Hang Road Eastbound and right-turn movement from Lin Ma Hang Road Eastbound to the Access Road.

3.3.6 The proposed junction layout and swept path analysis are illustrated in **Figure 3.6 to Figure 3.9**. The major ingress and egress routes for vehicular traffic approaching and leaving the Application Site are illustrated in **Figure 3.10 and Figure 3.11** respectively.

3.4 Internal Transport Facilities Provision

3.4.1 The internal transport facilities provision for the Indicative Scheme will be provided in accordance with the high-end requirements of Hong Kong Planning Standards and Guidelines (HKPSG) and TD’s Departmental Circular No. 6/2012 – Standards for Goods Vehicle Parking and Loading/Unloading for Data Centres (TD Circular No. 6/2012).

3.4.2 The internal transport facilities provision for the Indicative Scheme are summarized in **Table 3.4.1 to Table 3.4.6**.

Table 3.4.1 HKPSG Required Internal Transport Provision for the Proposed Office Development (R&D Centre)

Type of Development	Facilities	HKPSG Requirement	HKPSG Required Provision		Proposed Provision		
			Low-end	High-end			
Office (R & D Centre) Total GFA (m ²) 268,780	Private Car Parking	Private Car (5m (L) x 2.5m (W) x 2.4m (H))	921 (incl. accessible car parking space)	1369 (incl. accessible car parking space)	1369		
		For the first 15000m ² GFA: 1 car space per 150 – 200 m ² GFA; Above 15000m ² GFA: 1 car space per 200 – 300 m ² GFA					
		Accessible Car Parking (5m (L) x 3.5m (W) x 2.4m (H))					
		6 spaces for total number of car parking spaces above 450	6	6			
	Motorcycle Parking	Motorcycle (2.4m (L) x 1m (W) x 2.4m (H))	47	137	137		
		5 to 10% of the total provision for private cars with respect to each type of development should be provided					
	L/UL Bay	1 loading/unloading bay for goods vehicles for every 2000 – 3000 m ² , or part thereof, GFA	90	135	HGV: 88 LGV: 47		
		TOTAL					
		LGV Loading/Unloading (7m (L) x 3.5m (W) x 3.6m (H))				59	88
		HGV Loading/Unloading (11m (L) x 3.5m (W) x 4.7m (H))				31	47
Lay-by for Taxis and Private Cars	Taxi/Private Car (5m (L) x 2.5m (W) x 2.4m (H))	14	14	14			
	For sites of at least 5000m ² net site area, 1 picking up/setting down lay-by for taxis and private cars for every 20000m ² , or part thereof, GFA.						

Table 3.4.2 HKPSG / TD Circular No. 6/2012 Required Internal Transport Provision for the Proposed Data Centre

Type of Development	Facilities	HKPSG / TD Circular No. 6/2012 Requirement	HKPSG Required Provision		Proposed Provision
			Low-end	High-end	
Data Centre m ² GFA 86,400	Private Car Parking ⁽¹⁾	Private Car (5m (L) x 2.5m (W) x 2.4m (H))	116 (incl. accessible car parking space)	144 (incl. accessible car parking space)	144 (incl. accessible car parking space)
		1 car space per 600 – 750 m ² GFA			
		Accessible Car Parking (5m (L) x 3.5m (W) x 2.4m (H))			
		2 spaces for 51-150 total number of car parking spaces	2	2	
	Motorcycle Parking ⁽¹⁾	Motorcycle (2.4m (L) x 1m (W) x 2.4m (H))	6	15	15
		5 to 10% of the total provision for private cars with respect to each type of development should be provided			
	L/UL Bay ⁽²⁾	For the first 20,000m ² GFA: 1 no. per 3,400 – 3,800 m ² GFA; Above 20,000m ² GFA: 1 no. per 5500 – 6100m ² GFA	17	18	LGV: 12 HGV: 6
		TOTAL			
		Loading/Unloading bays are to be provided as such: 60% for loading / unloading and 40% for parking; 65% are for LGV and 35% are for HGV			
		LGV Loading/Unloading (7m (L) x 3.5m (W) x 3.6m (H))	12	12	
		For L/UL	7	7	
		For Parking	5	5	
		HGV Loading/Unloading (11m (L) x 3.5m (W) x 4.7m (H))	5	6	
		For L/UL	3	4	
	For Parking	2	2		
Lay-by for Taxis and Private Cars	Taxi/Private Car (5m (L) x 2.5m (W) x 2.4m (H))	-	-	2 ⁽³⁾	
	-				

Notes:

- (1) In accordance with HKPSG requirements.
- (2) In accordance with TD's Circular No. 6/2012 – Standards for Goods Vehicle Parking and Loading/Unloading for Data Centres.
- (3) There is no requirement of lay-by for taxis and private cars for Data Centre under HKPSG nor TD Circular No. 6/2012, lay-by provision is recommended to cater for operational need.

Table 3.4.3 HKPSG Required Internal Transport Provision for the Proposed Commercial Centre

Type of Development	Facilities	HKPSG Requirement	HKPSG Required Provision		Proposed Provision
			Low-end	High-end	
Commercial Centre m ² GFA 9,406	Private Car Parking	Private Car (5m (L) x 2.5m (W) x 2.4m (H))	31 (incl. accessible car parking space)	62 (incl. accessible car parking space)	62 (incl. accessible car parking space)
		1 car space per 150 - 300 m ² GFA			
		Accessible Car Parking (5m (L) x 3.5m (W) x 2.4m (H))			
		1 space for total number of car parking spaces below 50			
		2 spaces for 51-150 total number of car parking spaces			
	Motorcycle	Motorcycle (2.4m (L) x 1m (W) x 2.4m (H))	2	7	7
		5 to 10% of the total provision for private cars with respect to each type of development should be provided			
	L/UL Bay	1 loading/unloading bay for goods vehicles for every 800 - 1200 m ² , or part thereof, GFA	8	12	LGV: 8 HGV: 4
		TOTAL			
		LGV Loading/Unloading (7m (L) x 3.5m (W) x 3.6m (H))	6	8	
HGV Loading/Unloading (11m (L) x 3.5m (W) x 4.7m (H))		2	4		

Table 3.4.4 HKPSG Required Internal Transport Provision for the Proposed Kindergarten

Type of Development	Facilities	HKPSG Requirement	HKPSG Required Provision		Proposed Provision
			Low-end	High-end	
Kindergarten No. of Classrooms 6	Private Car Parking	Private Car (5m (L) x 2.5m (W) x 2.4m (H))	0 (incl. accessible car parking space)	2 (incl. accessible car parking space)	2
		0 to 1 car parking space per 4 to 6 classrooms			
		Accessible Car Parking (5m (L) x 3.5m (W) x 2.4m (H))			
	1 space for 1-50 total number of car parking spaces	0	1		
	Lay-by for Taxis and Private Cars	Private Car/Taxi (5m (L) x 3.5m (W) x 2.4m (H))	1	2	2
		1 lay-by for taxis and private cars for every 5 to 8 classrooms			
Lay-by for School Buses	School Bus (12m (L) x 3.5m (W) x 3.8m (H)) (OR mini-bus/nanny van (7m (L) x 3m (W) x 3.3m (H)))	2 (5)	2 (5)	2	
	A minimum of 2 lay-bys for school buses (OR substituted by 5 lay-bys of size 3m x 7m for mini-bus/nanny van which can provide a total number of seats equivalent to that provided by 2 large school buses)				

Table 3.4.5 HKPSG Required Internal Transport Provision for the Proposed Residential Development

Type of Development	Facilities	HKPSG Requirement		HKPSG Required Provision		Proposed Provision		
				Low-end	High-end			
Private Housing <u>No. of Flats</u> FS≤40m ² : 1,548 40m ² < FS < 70m ² : 482 70m ² < FS < 100m ² : 290 <u>No. of Blocks</u> 5	Private Car Parking	Private Car (Residential) (5m (L) x 2.5m (W) x 2.4m (H))		293 (incl. accessible car parking space)	513 (incl. accessible car parking space)	538 (incl. visitor parking space & accessible car parking space)		
		Global Parking Standard (GPS)					1 car space per 4-7 flats	
		Demand Adjustment Ratio (R1)	Flat Size (FS) (m ² GFA)				FS≤40	0.5
							40<FS≤70	1.2
							70<FS≤100	2.4
							100<FS≤130	4.1
							130<FS≤160	5.5
							FS>160	7
		Accessibility Adjustment Ratio (R2)	Within a 500m-radius of rail station				0.75	
			Outside a 500m-radius of rail station				1	
		Development Intensity Adjustment Ratio (R3)	Domestic Plot Ratio (PR)	0.00<PR≤1.00	1.3			
				1.00<PR≤2.00	1.1			
				2.00<PR≤5.00	1			
				5.00<PR≤8.00	0.9			
				PR>8.00	0.75			
		Parking Requirement = GPS x R1 x R2 x R3						
		Private Car (Visitors) (5m (L) x 2.5m (W) x 2.4m (H))		5 visitor spaces per block in addition to the recommendations, or as determined by the Authority			25	25
Accessible Car Parking (5m (L) x 3.5m (W) x 2.4m (H))		4 spaces for 251-350 total number of car parking spaces		4	6			
		6 spaces for total number of car parking spaces above 450						
				318	538			
TOTAL Private Car Parking (5m (L) x 2.5m (W) x 2.4m (H))				(incl. accessible car parking space)	(incl. accessible car parking space)			
Motorcycle Parking	Motorcycle (2.4m (L) x 1m (W) x 2.4m (H))		1 motorcycle parking space per 100-150 flats excluding non-residential elements		16	24	24	
	L/UL Bay	HGV Loading/Unloading (11m (L) x 3.5m (W) x 4.7m (H))		Minimum of 1 loading/unloading bay for goods vehicles within the site for every 800 flats or part thereof, subject to a minimum of 1 bay for each housing block or as determined by the Authority		5	5	5

Table 3.4.6 HKPSG Required Internal Transport Provision for the Proposed Ancillary Dormitories

Type of Development	Facilities	HKPSG Requirement		HKPSG Required Provision		Proposed Provision		
				Low-end	High-end			
Ancillary Dormitories No. of Flats⁽¹⁾ FS≤40m ² : 996 40m ² < FS < 70m ² : 222 70m ² < FS < 100m ² : 174 No. of Blocks 3	Private Car Parking	Private Car (Residential) (5m (L) x 2.5m (W) x 2.4m (H))		One-person Unit	One-person Unit	243⁽¹⁾ (incl. visitor parking space & accessible car parking space)		
		Global Parking Standard (GPS)		1 car space per 4-7 flats	72		125	
		Demand Adjustment Ratio (R1)	Flat Size (FS) (m ² GFA)	FS≤40	0.5		Family Unit	Family Unit
				40<FS≤70	1.2		97	171
				70<FS≤100	2.4		Total	Total
				100<FS≤130	4.1		169	296
				130<FS≤160	5.5		(incl. accessible car parking space)	(incl. accessible car parking space)
				FS>160	7			
		Accessibility Adjustment Ratio (R2)	Within a 500m-radius of rail station		0.75			
			Outside a 500m-radius of rail station		1			
		Development Intensity Adjustment Ratio (R3)	Domestic Plot Ratio (PR)	0.00<PR≤1.00	1.3			
				1.00<PR≤2.00	1.1			
				2.00<PR≤5.00	1			
				5.00<PR≤8.00	0.9			
				PR>8.00	0.75			
Parking Requirement = GPS x R1 x R2 x R3								
Private Car (Visitors) (5m (L) x 2.5m (W) x 2.4m (H))		5 visitor spaces per block in addition to the recommendations, or as determined by the Authority		15	15			
Accessible Car Parking (5m (L) x 3.5m (W) x 2.4m (H))		3 spaces for 151-250 total number of car parking spaces		3	4			
		4 spaces for 251-350 total number of car parking spaces						
				184	311			
TOTAL Private Car Parking (5m (L) x 2.5m (W) x 2.4m (H))				(incl. accessible car parking space)	(incl. accessible car parking space)			
Motorcycle Parking ⁽¹⁾	Motorcycle (2.4m (L) x 1m (W) x 2.4m (H))		Single Flat	Single Flat	11 ⁽¹⁾			
	1 motorcycle parking space per 100-150 flats excluding non-residential elements		7	10				
L/UL Bay	HGV Loading/Unloading (11m (L) x 3.5m (W) x 4.7m (H))		Family Flat	Family Flat	3			
	Minimum of 1 loading/unloading bay for goods vehicles within the site for every 800 flats or part thereof, subject to a minimum of 1 bay for each housing block or as determined by the Authority		3	3				

Notes:

(1) As referred to the self-containment arrangement in Section 3.2

3.4.3 The proposed total provision of internal transport facilities of the Indicative Scheme is summarized in **Table 3.4.7** below.

Table 3.4.7 Summary of Proposed Total Internal Transport Facilities Provision

Facilities (L x W H)	Development Use	Proposed Provision
Private Car Parking Space (5m x 3.5m x 2.4m)	Office (R&D Centre)	1,369
	Data Centre	144
	Commercial Centre	62
	Kindergarten	2
	Private Housing	538
	Ancillary Dormitories	243
	Total (incl. visitor parking space & accessible car parking space)	2,358
Accessible Car Parking Space (5m x 3.5m x 2.4m)	Office (R&D Centre)	6
	Data Centre	2
	Commercial Centre	2
	Kindergarten	1
	Private Housing	6
	Ancillary Dormitories	3
	Total	20
Motorcycle Parking Space (2.4m x 1m x 2.4m)	Office (R&D Centre)	137
	Data Centre	15
	Commercial Centre	7
	Private Housing	24
	Ancillary Dormitories	11
	Total	194
LGV Loading/Unloading Bay (7m x 3.5m x 3.6m)	Office (R&D Centre)	88
	Data Centre	12
	Commercial Centre	8
	Total	108
HGV Loading/Unloading Bay (11m x 3.5m x 4.7m)	Office (R&D Centre)	47
	Data Centre	6
	Commercial Centre	4
	Private Housing	5
	Ancillary Dormitories	3
	Total	65
Lay-by for Taxis and Private Cars (5m x 3.5m x 2.4m)	Office (R&D Centre)	14
	Data Centre	2
	Kindergarten	2
	Total	18
Lay-by for School Buses (12m x 3.5m x 3.8m)	Kindergarten	2
	Total	2

- 3.4.4 The proposed internal transport facilities for the Indicative Scheme will be self-contained within the respective site boundary, located on ground floor and basement parking floors of the Indicative Scheme.

Private Car Parking Space Provision

- 3.4.5 A total of 2,358 nos. private car parking spaces (including 20 nos. accessible car parking spaces) as per HKPSG high-end requirements will be provided in the basement levels, which will be accessed via the car-ramp system of basement of corresponding type of development.

Accessible Car Parking Provision

- 3.4.6 A total of 20 nos. accessible car parking spaces (part of the 2,358 private car parking spaces), as per HKPSG high-end requirements will be provided in the basement levels, which will be accessed via the car-ramp system of basement of corresponding type of development.

Motorcycle Parking Space Provision

- 3.4.7 A total of 194 nos. motorcycle parking spaces as per HKPSG high-end requirements will be provided in the basement levels, which will be accessed via the car-ramp system of basement of corresponding type of development.

Loading / Unloading Bay Provision

- 3.4.8 A total of 108 nos. loading/unloading bays for LGV and 65 nos. loading/unloading bays for HGV as per HKPSG high-end requirement and recommended provision will be provided in both the basement levels and ground floors of corresponding type of development.

Lay-by Provision for Taxis and Private Cars

- 3.4.9 A total of 18 nos. lay-bys for taxis/private cars as per HKPSG high-end requirement and recommended provision will be provided on ground floor of corresponding type of development.

Lay-by Provision for School Buses

- 3.4.10 A total of 2 nos. lay-bys for school buses as per HKPSG high-end requirement will be provided on ground floor of corresponding School.

4 TRAFFIC IMPACT ASSESSMENT

4.1 Trip Generation and Attraction of Indicative Scheme

Data Centre

- 4.1.1 To establish appropriate trip generation and attraction rates for Data Centre of the Indicative Scheme, trip generation survey has been conducted on typical weekdays at various existing data centre developments as summarised in **Table 4.1.1**.

Table 4.1.1 Peak Hour Trip Generation and Attraction at the Surveyed Data Centres

Development		AM Peak		PM Peak	
		Generation	Attraction	Generation	Attraction
NTT Hong Kong Financial Data Centre at 6 Chun Kwang St, Tseung Kwan O (70,000 m ² GFA)	Observed Trips (pcu/hr)	34.1	27.7	17.95	8.1
	Trip Rate (pcu/hr/100 sqm GFA)	0.049	0.040	0.026	0.012
iTech Tower 1 at 28 Pak Tin Par Street, Tsuen Wan (17,652m ² GFA)	Observed Trips (pcu/hr)	2.1	1	2	1
	Trip Rate (pcu/hr/100 sqm GFA)	0.012	0.006	0.011	0.006
iTech Tower 2 at 54-56 Ta Chuen Ping Street, Kwai Chung (9,125m ² GFA)	Observed Trips (pcu/hr)	2.5	3.5	2	0
	Trip Rate (pcu/hr/100 sqm GFA)	0.027	0.038	0.022	0.000
NTT Hong Kong Tai Po Data Centre at 2 Dai Hei Street, Tai Po (19,700 m ² GFA)	Observed Trips (pcu/hr)	9	6.1	7.1	13
	Trip Rate (pcu/hr/100 sqm GFA)	0.046	0.031	0.036	0.066

- 4.1.2 For conservative assessment, the highest of the rates above were adopted for applying to Data Centre of the Indicative Scheme, as shown in **Table 4.1.2** below.

Other types of Developments

- 4.1.3 The likely amount of traffic generation and attraction associated with the Indicative Scheme, except Data Centre, was calculated based on the mean values of ‘Traffic Rates for Residential Development at 95% Confidence Level’ and ‘Traffic Rates for Non-residential Development at 95% Confidence Level’ adopted in the TPDM Vol. 1 Table 1 and Table 2.
- 4.1.4 Public transport feeder service with ancillary transport facilities in appropriate locations, including terminating facilities and en-route bus stops, has been proposed to/from the railway stations and bus interchange as discussed in **Section 4.8**. It is anticipated that the feeder service is significant to enhance the convenience for residents/ employees using public transport services. The Indicative Scheme would be well-served by public transport services to cater for the effect of “remote site”. It is hence considered that “Mean” value is appropriate to be adopted. The adopted rates are shown in **Table 4.1.2** below.

Table 4.1.2 Adopted Trip Generation and Attraction Rates of the Indicative Scheme

Sources	Component		AM Peak		PM Peak	
			Generation	Attraction	Generation	Attraction
In-house surveys	Data Centre (pcu/hr/100 sqm GFA)		0.049	0.040	0.036	0.066
TPDM Vol. 1	Housing	Lower Limit, Average Flat Size 40sqm (pcu/flat/hr)	0.0325	0.0213	0.0196	0.0263
		Mean, Average Flat Size 50sqm (pcu/flat/hr)	0.0622	0.0426	0.0297	0.0401
		Mean, Average Flat Size 60sqm (pcu/flat/hr)	0.0718	0.0425	0.0286	0.0370
		Mean, Average Flat Size 80sqm (pcu/flat/hr)	0.1058	0.0605	0.0426	0.0590
	Office, Mean (pcu/hr/100 sqm GFA)		0.1703	0.2452	0.1573	0.1175
	Retail, Mean (pcu/hr/100 sqm GFA)		0.2296	0.2434	0.3100	0.3563

4.1.5 The peak traffic arriving and leaving the kindergarten are generally observed and occurred before school start time (i.e. 8am) and school finish time (i.e. 5pm) which will not overlap with the daily commuting AM and PM peak hours. For conservative approach, nominal school-related traffic flows 10 pcu/hr have been considered and superimposed on the traffic forecast for the same daily commuting AM and PM peak hours for assessment purpose.

4.1.6 The associated traffic generation and attraction for the Indicative Scheme are summarised in **Table 4.1.3**.

Table 4.1.3 Traffic Generation and Attraction of the Indicative Scheme (pcu/hr)

Type of Development	AM Peak		PM Peak	
	Generation	Attraction	Generation	Attraction
Office (R&D Centre)	305	439	282	211
Data Centre	43	35	32	58
Commercial Centre	22	23	29	34
Kindergarten	10	10	10	10
Private Housing	177	104	71	93
Ancillary Dormitories ⁽¹⁾	65	42	34	46
Additional bus trips ⁽²⁾	53	53	53	53
Total	675	705	510	505

Notes:

(1) As referred to the self-containment arrangement in Section 3.2

(2) Based on the proposed public transport services by double-decked bus as discussed in Section 4.8.

4.1.7 As indicated in table above, the total trips would be around **1,380** pcu/hr and **1,015** pcu/hr (two-way) during the AM and PM peak periods respectively.

4.2 Future Traffic Growth

4.2.1 The Indicative Scheme is targeted for completion in Year 2028. In order to assess the traffic impact of the development-related traffic on the adjacent road network, Year 2031 (i.e., 3 years after completion) is adopted as the design year of the study.

4.3 Planned/ Committed Developments in North District

4.3.1 In addition to the development flow, the traffic generated and attracted by adjacent major planned/committed developments which would anticipatedly induce traffic implication on the identified key junctions/ road links have been taken into account for the traffic forecast.

4.3.2 Under the 2019-based BDTM, the major planned / committed developments incorporated in design year 2031 BDTM trip matrices are listed in **Table 4.3.1**.

Table 4.3.1 Planned / Committed Developments in North District under 2019-based BDTM

Type of Development		Ref. Index in BDTM
KTN/ FLN NDA	Various Lots in D.D. 51, D.D. 83, D.D. 95 and D.D. 96 and Adjoining Government Land in Fanling North and Kwu Tung North, New Territories	P18-5-2
	CDA site Hang Tau Tai Po, Kwu Tung South (Y/NE-KTS/13)	P19-5-9 & P19-5-11
	CDA site to the west of Hang Tau Road, Kwu Tung South (Y/NE-KTS/15)	P19-5-3
Public / Subsidised Housing	Sheung Shui Areas 4 and 30	HN10 & HN11
	Ching Ho Estate Extension (Phase 4)	HN21
	Po Shek Wu Road	HN12
	Pak Wo Road (A/FSS/254)	B19-5-5
	Queen's Hill Extension	HN37
Private Housing	Residential Development at Ma Sik Road, Area 18, Fanling Sheung Shui Town Lot No. 262 (<i>Private Housing</i>)	P19-5-10
	Ling Hill (Y/FSS/18)	P19-5-8
Commercial	1 Lun Fat Street	B18-5-7

4.3.3 Apart from the major planned / committed developments incorporated in the design year 2031 BDTM trip matrices, the following major planned / committed developments have been further incorporated into the traffic forecast and summarized in **Table 4.3.2** below.

Table 4.3.2 Planned / Committed Developments in North District

Type of Development		Tentative Completion Year
KTN/ FLN NDA	“CDA(2)” Kam Hang Road, Kwu Tung South (Y/NE-KTS/14)	2025
	Yin Kong CDA (Y/KTN/2)	2026
	“CDA(1)” Lot 2579 in D.D. 92, Kam Hang Road (A/NE-KTS/506)	2027
Public / Subsidised Housing	Fanling Area 15 East Phase 1 & 2 (No. A/FLN/28) ⁽¹⁾	2025/26
	Jockey Club Road	2025/26
	Fanling Area 48	2029
	Ching Hiu Road	2028/29
	Choi Shun Street	2029/30
	San Wan Road	2026/27
	Fanling Area 17 Site A	2031/32
Traditional Housing	“Pok Oi Sing Ping Village” at Ping Che Road, Ta Kwu Ling (No. A/NE-TKL/692)	2024
Private Housing	I Lun Fat Street (No. A/FSS/282) ⁽²⁾	2025
	Fanling Area 40 (Y/FSS/13)	2027/28
	Sheung Shui Lot 2 RP (Oi Yuen) (Y/FSS/19)	2028
	“R(A)12” at Ma Sik Road (No. A/FSS/294) ⁽³⁾	2029
	Fanling Area 17 Sites B1 and B2	2030/31
Others	North District Hospital Extension	2028
	New Territories East Cultural Centre	2027/28
	Community Health Centre cum Social Welfare Facilities at Pak Wo Road	2024
	Social Welfare Facility (Residential Care Home for the Elderly) and Flat (A/FSS/288)	2031
	Kong Nga Po Police Training Facilities	2026/27

Notes:

- (1) Same site with Planned Development Ref. Index “P18-5-2” incorporated in BDTM. Only additional trip generation/attraction due to the increased nos. of flats from this application are further included in the traffic forecast
- (2) Same site with Planned Development Ref. Index “B18-5-7” incorporated in BDTM. Only additional trip generation/attraction due to the additional land use of private residential development with 119 nos. of flats from this application are further included in the traffic forecast
- (3) Same site with Planned Development Ref. Index “P19-5-8” incorporated in BDTM. Only additional trip generation/attraction due to the increased nos. of flats from this application are further included in the traffic forecast

4.4 Planned/ Committed Junction Improvement Schemes in North District

4.4.1 As North District is undergoing numerous planned large-scale developments, apart from the ongoing road improvements works as aforementioned in **Chapter 2.3**, transportation infrastructures have been planned and anticipated to be completed before the completion of the Indicative Scheme. Associated Road/Junction Improvement works which would anticipatedly induce traffic implication on the identified key junctions/ road links have been taken into account for the traffic forecast and summarised in **Table 4.4.1**.

Table 4.4.1 Planned/ Committed Infrastructures/ Junction Improvement Schemes in North District

Description		Proposed by Project	Tentative Completion Year	
Transports Infrastructures	<p><u>CEDD Project Number 7835CL</u> (Source: https://www.cedd.gov.hk/eng/our-projects/major-projects/index-id-87.html)</p> <ul style="list-style-type: none"> - Construction Fanling Bypass Western Section - Widening of Fanling Highways between Chau Tau and Po Shek Wu Interchange from dual-three lane to dual-four lane - Provision of Po Shek Wu Road Flyover linking Po Shek Wu Road (Po Wan Road – Choi Yuen Road) and Fanling Highway (Kwu Tung Section) WB Construction of local roads for Remaining Phase Development within the KTN/FLN NDA area		KTN/FLN NDA	Before 2031
	Po Shek Wu Road/ Po Wan Road (J13) <ul style="list-style-type: none"> - Lane arrangement of Po Shek Wu Road southbound to be revised for allowing straight-ahead traffic to use three traffic lanes - Lane arrangement of Po Wan Road eastbound to be revised for allowing right-turn traffic to use two traffic lanes - Land arrangement of Po Shek Wu Road northbound to be revised for allowing left-turn traffic to use two traffic lanes - Local widening of Po Wan Road westbound from 1 to 2 lanes 		Kong Nga Po	Completed
Junction Improvement Schemes	Po Shek Wu Road/ Choi Yuen Road (J14) <ul style="list-style-type: none"> - Local widening of entry arm of Po Shek Wu Road NB to allow straight-ahead traffic to use three traffic lanes - Po Shek Wu Road Interchange Improvement which provides a flyover to allow the right turning traffic from Po Shek Wu Road SB to Fanling Highway WB to bypass the existing Po Shek Wu Road Interchange - Entry arm of Po Shek Wu Road SB would be narrowed from 5 lanes to 4 lanes 		Kong Nga Po	2023 (not yet completed)
			KTN/FLN NDA	2029

4.4.2 The corresponding discussion paper of the planned/ committed junction improvement schemes is attached in **Appendix B**.

4.5 Assessment Scenarios

4.5.1 To evaluate the traffic impact likely to be induced by the traffic associated with the Indicative Scheme, two scenarios are analysed and compared. **Scenario 1** is the Reference Scenario (without the Indicative Scheme) in Year 2031. **Scenario 2** is the Design Scenario (with the Indicative Scheme) in Year 2031.

Scenario 1

Year 2031 Reference Scenario

= Adjusted Year 2031 BDTM traffic flows

Plus traffic generations of major planned/committed developments in the vicinity not incorporated in 2031 BDTM

Scenario 2

Year 2031 Design Scenario

= Year 2031 Reference Scenario

Plus trip generation and attraction associated with the Indicative Scheme as indicated in **Table 4.1.3**

4.5.2 The forecasted traffic flows for the above two scenarios are presented in **Figure 4.1** to **Figure 4.6**.

4.6 Junction Capacity Assessment

4.6.1 Junction capacity assessment was carried out at the identified key junctions for Year 2031 Reference and Design Scenarios. Assessment results are summarized in **Table 4.6.1** below. The detailed junction calculation sheets are attached in **Appendix C**.

Table 4.6.1 Year 2031 Future Junction Performance

Junction		Type	Performance ⁽¹⁾			
			2031 Reference		2031 Design	
			AM	PM	AM	PM
J1	Lin Ma Hang Road / Man Kam To Road	Priority	0.46	0.53	0.94	0.89
J2	Lin Ma Hang Road / Ping Che Road	Priority	0.63	0.73	1.32	1.13
J3	Lin Ma Hang Road / Heung Yuen Wai Highway Slip Road	Roundabout	0.31	0.33	0.48	0.44
J4	Lin Ma Hang Road / Heung Yuen Wai Highway Slip Road	Priority	0.25	0.18	0.57	0.39
J5	Sha Tau Kok Road / Ping Che Road	Roundabout	0.70	0.67	0.80	0.74
J6	Sha Tau Kok Road / Lau Shui Heung Road	Roundabout	0.49	0.53	0.53	0.56
J7	Sha Tau Kok Road / Lung Ma Road	Roundabout	0.59	0.68	0.63	0.72
J8	Sha Tau Kok Road / Sui Wan Road	Signalised	-2%	12%	-6%	7%
J9	Man Kam To Road / Kong Nga Po Road	Priority	0.50	0.57	0.73	0.66
J10	Jockey Club Road / Po Wan Road	Signalised	43%	33%	20%	18%
J11	Jockey Club Road / Tin Ping Road	Signalised	47%	48%	25%	31%
J12	Po Shek Wu Road / Jockey Club Road	Roundabout	0.54	0.56	0.66	0.65
J13	Po Shek Wu Road / Po Wan Road ⁽²⁾	Signalised	26%	19%	6%	9%
J14	Po Shek Wu Road / Choi Yuen Road ⁽²⁾	Signalised	25%	31%	15%	21%
J15	Lin Ma Hnag Road / Proposed Access Road	Signalised	-	-	25%	46%
J16	Sha Tau Kok Road / Fanling Bypass	Roundabout	0.59	0.58	0.63	0.61
J17	Man Kam To Road / Fanling Bypass	Roundabout	0.55	0.62	0.73	0.74
J18	Man Kam To Road / Road L4	Signalised	44%	49%	22%	31%
J19	Sha Tau Kok Road / Luen On Street	Signalised	24%	43%	19%	37%
J20	Sha Tau Kok Road / Fan Leng Lau Road	Signalised	24%	20%	21%	19%
J21	Sha Tau Kok Road / Jockey Club Road	Roundabout	0.64	0.67	0.67	0.68
J22	Sha Tau Kok Road / San Wan Road	Roundabout	0.47	0.49	0.48	0.50
J23	San Wan Road / Fanling Station Road	Signalised	8%	7%	6%	5%
J24	Choi Yuen Road / Pak Wo Road	Roundabout	0.42	0.45	0.43	0.46

Notes:

(1) Figures shown represent “Reserve Capacity” (RC) in % for signalized junctions and “Design Flow Capacity” (DFC) ratio for roundabouts and priority junctions.

(2) With implementation of infrastructures/ junction improvement works as discussed in Section 2.3/ 4.4

4.6.2 The results revealed that all the identified key junctions would operate within capacity with the Indicative Scheme in Year 2031, except J2, J8, J13 and J23.

4.6.3 Considering that the junction capacity for junction J2 – Lin Ma Hang Road / Ping Che Road would be overloaded during AM and PM peak period respectively under Year 2031 Design Scenario, J8 – Sha Tau Kok Road / Sui Wan Road would be overloaded and operated near capacity during AM and PM peak period

respectively under both Year 2031 Reference and Design Scenario, J13 – Po Shek Wu Road / Po Wan Road would be operated near capacity during both AM and PM peak period under Year 2031 Design Scenario, and J23 – San Wan Road / Fanling Station Road would be operated near capacity during both AM and PM peak period under both Year 2031 Reference and Design Scenario, improvement proposals have been explored to improve the performance of the junctions.

J2 - Lin Ma Hang Road / Ping Che Road

4.6.4 Under the existing junction arrangement, Lin Ma Hang Road is currently operated as the minor arm of the priority junction.

4.6.5 Upon the commissioning of the Indicative Scheme, it is anticipated that traffic flow on Lin Ma Hang Road will become the major traffic movement of this junction. Therefore, it is proposed to modify the junction configuration by classifying Lin Ma Hang Road and Ping Che Road as the major arm and the minor arm of the junction respectively as presented in **Figure 4.7** to suit the future traffic pattern, with corresponding swept path analysis presented in **Figure 4.8**.

J8 - Sha Tau Kok Road / Sui Wan Road

4.6.6 Under the existing Method of Control arrangement (MOC), there is one exclusive stage for right-turn movement from Sha Tau Kok Road NB to Sui Wan Road EB, which limit the green time for straight-ahead movement along Sha Tau Kok Road.

4.6.7 Upon the commissioning of the Indicative Scheme as well as the Queen's Hill Extension, it is anticipated that straight-ahead traffic flow along Sha Tau Kok Road will be more significant of this junction. Therefore, it is proposed to improve the junction by, (1) banning of right-turn movements at Sui Wan Road WB, (2) banning of left-turn movements at Sui Wan Road EB, (3) banning of right-turn movements at both Sha Tau Kok Road NB and SB, (4) road marking modification of far-side traffic lane of approaching arm of Sha Tau Kok Road SB to provide a new straight-ahead traffic lane, and (5) road marking modification of Sha Tau Kok Road NB far-side traffic lane and rearrangement of central divider/traffic island of Sha Tau Kok Road near the concerned junction J8 to provide a new traffic lane of leaving arm of Sha Tau Kok Road SB with approx. 50m weaving length. The proposed junction improvement scheme with proposed MOC is presented in **Figure 4.9**.

4.6.8 Affected traffic would use J7 – Sha Tau Kok Road/ Lung Ma Road Roundabout and J16 – Future Sha Tau Kok Road / Fanling Bypass Roundabout for resuming to Sui Wan Road and Sha Tau Kok Road. In view of the detoured traffic volume and travelling distance, the resultant traffic diversion is considered immaterial.

J13 - Po Shek Wu Road / Po Wan Road

4.6.9 Alternatively, local widening for exit arm of Po Shek Wu Road NB to allow straight-ahead traffic to use three lanes is proposed. With the consideration that left-turn traffic is much less significant than straight-ahead traffic, it is proposed to rearrange the lane movement to fit in the aforementioned local widening, such that nearside lane will be shared by left-turn traffic and straight-ahead traffic, while 2nd and 3rd lane will allow straight-ahead traffic only.

4.6.10 Furthermore, subsequent to the implementation of local widening of exit arm of Po Shek Wu Road SB, local widening of entry arm of Po Shek Wu Road SB is further proposed such that there would be three exclusive lanes for straight-ahead traffic and one exclusive lanes for left-turn traffic.

4.6.11 The proposed junction improvement scheme is presented in **Figure 4.10**.

J23 - San Wan Road / Fanling Station Road

4.6.12 Under the existing junction arrangement, the nearside lane from San Wan Road EB is exclusively for left-turn traffic. As the corresponding exit arm is only an access road to Cheung Wah Estate, the left-turn traffic flow volume is significantly low and such lane arrangement is not optimised. With the consideration that both straight-ahead traffic and right-turn traffic are the major traffic movement for San Wan Road EB, it is proposed to maintain the existing lane arrangement for right-turn traffic but share the nearside lane for straight-ahead traffic. Lane warning line road marking is further proposed to guide the straight-ahead movement to enhance the vehicular safety. The proposed junction improvement scheme is presented in **Figure 4.11**, corresponding swept path analysis at the junction is presented in **Figure 4.12**.

4.6.13 With the proposed junction improvement / modification, the junction J2, J7, J8, J13, J16 and J23 have been reassessed and the corresponding junction performance is summarized in **Table 4.6.2** below. The detailed junction calculation sheets for the proposed junction improvement schemes are attached in **Appendix D**.

Table 4.6.2 Year 2031 Future Junction Performance – With Junction Improvement / Modification

Junction	Type	2031 Design Performance ⁽¹⁾				
		Without Junction Improvement		With Junction Improvement		
		AM	AM	PM	PM	
J2	Lin Ma Hang Road / Ping Che Road	Priority	1.32	1.13	0.75	0.68
J7	Sha Tau Kok Road / Lung Ma Road ⁽²⁾	Roundabout	0.63	0.72	0.67	0.76
J8	Sha Tau Kok Road / Sui Wan Road	Signalised	-6%	7%	18%	24%
J13	Po Shek Wu Road / Po Wan Road	Signalised	6%	9%	24%	16%
J16	Sha Tau Kok Road / Fanling Bypass ⁽²⁾	Roundabout	0.63	0.61	0.65	0.62
J23	San Wan Road / Fanling Station Road	Signalised	6%	5%	22%	20%

Notes:

- (1) Figures shown represent “Reserve Capacity” (RC) in % for signalized junctions and “Design Flow Capacity” (DFC) ratio for priority junctions.
- (2) With the proposed junction improvement of J8

4.6.14 The above results revealed that under the Design Scenario in Year 2031, the DFC of J2 would be improved from 1.32 to 0.75 and 1.13 to 0.68 during AM peak and PM peak periods respectively, the RC of J8 would be improved from -6% to 18% and 7% to 24% during AM peak and PM peak periods respectively, the RC of J13 would be improved from 6% to 24% and 9% to 16% during AM peak and PM peak periods respectively, and the RC of J23 would be improved from 6% to 22% and 5% to 20% during AM peak and PM peak periods respectively.

4.6.15 On the other hand, due to the diverted traffic by the proposed junction modification of J8, the DFC of J7 would be slightly increase from 0.63 to 0.67 and 0.72 to 0.76 during AM peak and PM peak periods respectively, while the DFC of J16 would be slightly increase from 0.63 to 0.65 and 0.61 to 0.62 during AM peak and PM peak periods respectively. It is hence anticipated that the traffic implication to J7 and J16 associated with the proposed junction modification of J8 is immaterial.

4.6.16 With the above improvement proposal, it is anticipated that the performance of junction J2, J8, J13 and J23 would be enhanced, and all junctions would be operated within capacity with the Indicative Scheme in Year 2031.

4.7 Link Capacity Assessment

4.7.1 Key road links within the study area are identified and assessed in both Reference and Design scenarios in Design Year 2031. Assessment results are summarised in Table 4.7.1 below.

Table 4.7.1 Year 2031 Future Link Performance

Link	Type ⁽¹⁾	Configuration	Direction	Capacity	Link Performance ⁽²⁾								
					2031 Reference				2031 Design				
					AM		PM		AM		PM		
					Flow ⁽³⁾	V/C	Flow ⁽³⁾	V/C	Flow ⁽³⁾	V/C	Flow ⁽³⁾	V/C	
L1	Lin Ma Hang Road (near Man Kam To Road junction) ⁽⁴⁾	RR	7.3m wide Single two-lane carriageway	Two-way	1,500	625	0.42	620	0.42	1,310	0.88	1,120	0.75
L2	Lin Ma Hang Road (near Ping Che Road junction) ⁽⁴⁾	RR	7.3m wide Single two-lane carriageway	Two-way	1,500	750	0.50	760	0.51	1,450	0.97	1,275	0.85
L3	Lung Shan Tunnel (Fanling Highway – Sha Tau Kok Road)	RT	Dual two-lane carriageway	NB	3,000	1,570	0.53	1,075	0.36	1,735	0.58	1,175	0.40
				SB	3,000	1,375	0.46	1,275	0.43	1,510	0.51	1,395	0.47
L4	Fanling Highway (at the south of Lung Shan Tunnel)	EX	Dual four-lane carriageway	NB	8,200	6,945	0.85	7,245	0.89	7,165	0.88	7,380	0.90
				SB	8,200	8,600	1.05	7,065	0.87	8,780	1.08	7,220	0.89
L5	Sha Tau Kok Road (Sui Wan Road – Fanling Bypass)	RR	Dual two-lane carriageway	NB	2,800	1,860	0.67	2,065	0.74	1,970	0.71	2,170	0.78
				SB	2,800	2,195	0.79	1,800	0.65	2,330	0.84	1,880	0.68
L6	Jockey Club Road (Tin Ping Road – Po Shek Wu Road)	PD	Dual two-lane carriageway	NB	2,800	1,215	0.44	1,035	0.37	1,545	0.56	1,285	0.46
				SB	2,800	1,435	0.52	1,540	0.55	1,755	0.63	1,770	0.64
L7	Po Shek Wu Road (Po Wan Road – Choi Yuen Road)	PD	Dual two-lane carriageway	NB	2,800	1,760	0.63	1,650	0.59	2,065	0.74	1,875	0.67
				SB	2,800	2,125	0.76	2,340	0.84	2,425	0.87	2,565	0.92
L8	Fanling Highway (at the west of Po Shek Wu Road Interchange) ⁽⁴⁾	EX	Dual four-lane carriageway	EB	8,200	6,815	0.84	6,620	0.81	7,090	0.87	6,800	0.83
				WB	8,200	6,610	0.81	5,805	0.71	6,850	0.84	6,000	0.74
L9	Proposed Access Road	-	10.5m wide Single two-lane carriageway	Two-way	1,800	-	-	-	-	1,380	0.77	1,015	0.57

Notes:

- (1) Abbreviation: EX – Expressway; PD – Primary Distributor; RR – Rural Road; RT – Rural Trunk Road
- (2) A V/C ratio below 1.0 is considered acceptable. A V/C ratio above 1.0 indicates the onset of mild congestion and a V/C ratio between 1.0 and 1.2 would indicate a manageable degree of congestion. A V/C ratio above 1.2 indicates the onset of more serious congestion.
- (3) Figures are rounded to the nearest 5.
- (4) With implementation of infrastructures/ junction improvement works as discussed in Section 2.3/ 4.4

4.7.2 The above results revealed that all key road links assessed will be performing satisfactorily with spare capacity in both Reference and Design scenarios in Year 2031, except L4.

4.7.3 The assessment result indicated that the V/C ratio of L4 – Fanling Highway (at the south of Lung Shan Tunnel) would fall within 1.0 and 1.2 during AM peak period under both Reference and Design scenarios in Year 2031. According to TPDM,

V/C ratio between 1.0 and 1.2 indicates the onset of mild congestion and little or no room to manoeuvre within traffic stream while a V/C ratio above 1.2 indicates the onset of more serious congestion. In the consideration that the traffic condition would be more or less the same in both Reference and Design scenarios in Year 2031, it is hence anticipated that the traffic implication to Fanling Highway (at the south of Lung Shan Tunnel) associated with the Indicative Scheme is immaterial.

4.7.4 Similar to junction performance, due to the diverted traffic by the proposed junction modification of J8, L5 has been reassessed and the corresponding link performance is summarized in **Table 4.7.2** below.

Table 4.7.2 Year 2031 Future Link Performance – With Junction Improvement / Modification

Link	Type ⁽¹⁾	Configuration	Direction	Capacity	2031 Design Performance ⁽²⁾								
					Without Junction Improvement				With Junction Improvement				
					AM		PM		AM		PM		
					Flow ⁽³⁾	V/C	Flow ⁽³⁾	V/C	Flow ⁽³⁾	V/C	Flow ⁽³⁾	V/C	
L5	Sha Tau Kok Road (Sui Wan Road – Fanling Bypass)	RR	Dual two-lane carriageway	NB	2,800	1,970	0.71	2,170	0.78	2,030	0.73	2,200	0.79
				SB	2,800	2,330	0.84	1,880	0.68	2,390	0.86	1,910	0.69

Notes:

- (1) Abbreviation: EX – Expressway; PD – Primary Distributor; RR – Rural Road; RT – Rural Trunk Road
- (2) A V/C ratio below 1.0 is considered acceptable. A V/C ratio above 1.0 indicates the onset of mild congestion and a V/C ratio between 1.0 and 1.2 would indicate a manageable degree of congestion. A V/C ratio above 1.2 indicates the onset of more serious congestion.
- (3) Figures are rounded to the nearest 5.

4.7.5 The above results revealed that the V/C ratio of Sha Tau Kok Road (Sui Wan Road – Fanling Bypass) Northbound would be slightly increase from **0.71 to 0.73** and **0.78 to 0.79** during AM peak and PM peak periods respectively, while the V/C ratio of Sha Tau Kok Road (Sui Wan Road – Fanling Bypass) Southbound would be slightly increase from **0.84 to 0.86** and **0.68 to 0.69** during AM peak and PM peak periods respectively. It is hence anticipated that the traffic implication to L5 associated with the proposed junction modification of J8 is immaterial.

4.8 Public Transport Assessment

4.8.1 Currently, the Application Site is only directly served by GMB Route 59K and 59S, which is the major feeder service between Sheung Shui Station and Lin Ma Hang / Heung Yuen Wai BCP. The existing service level is summarised in the **Table 4.8.1**.

Table 4.8.1 Existing Service Level of GMB Route 59K

	GMB Route 59K	GMB Route 59S
Peak Hour Headway	15-30 min	3-8 min
Level of Service in Peak Hour	2 to 4 trips/hr	7 to 20 trips/hr
Hourly Capacity	38 to 76 pax/hr	133 to 380 pax/hr
	Total: 171 to 456 pax/hr	

4.8.2 Considering that the GMB Route 59K and 59S would be serving all the private residential developments in the vicinity, the applicant therefore proposes to provide **public transport services** in order to minimise the impact to the existing public transport services.

4.8.3 The anticipated population of the Private Housing and family units of the ancillary dormitories of the Indicative Scheme is about 6,264 and 1,070 respectively. According to “Travel Characteristics Survey (TCS) 2011” published by Transport Department, the daily mechanised trip rate is 1.83 trips per person and the morning peak hour accounted for about 12% of the daily trips. Considering this travel pattern in TCS 2011, it is estimated that the Indicative Scheme would generate a total of 1,611 passengers / hour (i.e., $7,334 \times 1.83 \times 0.12$) during the morning peak hour. For conservative approach, a factor of 1.2 is further applied on the peak hour trip generation (i.e., $1,611 \times 1.2 = 1,934$) which deems sufficient to consider the unforeseen growth of peak hour trip generation. The anticipated passenger trips generated in the morning peak hour is summarized in Table 4.8.2.

Table 4.8.2 Passenger Trips Generated from Indicative Scheme in the Morning Peak Hour

Development Parameters	
No. of private residential units & family units in dormitories ⁽¹⁾	2,716 flats
Population ⁽²⁾	7,334
Peak Hours Trip Generation	1,933 pax/hr

Notes:

- (1) Assuming single flats in dormitories will not generate / attract trips to external road network during daily commuting peaks as discussed in Section 3.2
 (2) Average domestic household size of 2.7 is assumed based on the 2021 Population Census in North District.

4.8.4 The modal split for residents in North District extracted from Table B203 and C204 under District Council District “North” from 2021 Population Census published by Census and Statistics Department is summarised in Table 4.8.3.

Table 4.8.3 Main Mode of Transport to Place of Study and Work in North District

Mode of Transport	Place of Study (from B203)	Place of Work (from C204)	Total	
	Persons	Persons	Persons	%
MTR (Local line)	12,118	46,153	58,271	39.0%
Bus	8,238	22,781	31,019	21.0%
On foot only	12,822	11,285	24,107	16.0%
School bus	4,145	-	4,145	3.0%
Public light bus	3,541	7,802	11,343	8.0%
Private car/ Passenger van	3,400	7,887	11,287	7.5%
Company bus/ van	-	3,002	3,002	2.0%
MTR (Light Rail)	-	-	-	-
Taxi	214	711	925	0.5%
Residential coach service	489	580	1,069	0.5%
Ferry/ Vessel	-	18	18	0.0%
Others	888	3,212	4,100	2.5%
Total	45,855	103,431	149,286	100%

4.8.5 With the consideration of the locality of the Application Site, it is assumed that company bus/van, ferry/vessel are not the available for the residents of the Indicative Scheme, and the associated passenger trips will be evenly distributed into MTR and bus. On the other hand, in order to minimise the disturbance of the residents from private residential developments in the vicinity using the existing GMB 59K and 59S services, it is assumed that public light bus is also not available for the residents of the Indicative Scheme, and all the associated passenger trips will be distributed into bus. The adjusted modal split for the Indicative Scheme is summarized in Table 4.8.4.

Table 4.8.4 Adjusted Modal Split for the Indicative Scheme

Original Passenger Trip at North District	Adjusted Modal Split for the Indicative Scheme								
	MTR (Local line)	Bus	School bus	Taxi	Residential coach service	Private car/ Passenger van	On foot only	Others	Total
MTR (Local line)	58,271								58,271
Franchised Bus		31,019							31,019
On foot only							24,107		24,107
School bus			4,145						4,145
Public light bus		11,343							11,343
Private car/ Passenger van						11,287			11,287
Company bus/ van	1,501	1,501							3,002
MTR (Light Rail)	-	-							-
Taxi				925					925
Residential coach service					1,069				1,069
Ferry/ Vessel	9	9							18
Others								4,100	4,100
Total	59,781	43,872	4,145	925	1,069	11,287	24,107	4,100	149,286
Proportion	40.0%	30.0%	3.0%	0.5%	0.5%	7.5%	16.0%	2.5%	100.0%

4.8.6 With no MTR station nearby the Application Site, the applicant proposes to provide feeder services by double-decked buses to suitable MTR stations for anticipated MTR passengers. On the other hand, with no existing franchised bus route serving the Application Site, the applicant further proposes to provide long-haul services by double-decked buses to other districts for anticipated bus passengers. The estimated passenger demand from Indicative Scheme in peak hour is summarized in **Table 4.8.5**.

Table 4.8.5 Estimated Passenger Demand from Indicative Scheme in Peak Hour

Mode of Transport	Proportion	Passenger Demand from Indicative Scheme (pax/hr)
Feeder Services (MTR (Local line))	40.0%	773
Long-haul Services (Bus)	30.0%	580
School bus	3.0%	58
Taxi	0.5%	10
Residential coach service	0.5%	10
Private car/ Passenger van	7.5%	145
On foot only	16.0%	309
Others	2.5%	48
Total	100%	1,933

4.8.7 According to the above table, details of the proposed feeder services and long-haul services are summarised in **Table 4.8.6**.

Table 4.8.6 Proposed Feeder Service and Long-haul Service for the Indicative Scheme

Item	Proposed Feeder Service	Proposed Long-haul Service
Proposed No. of Routes	2	3
Deployment of Vehicle	Double-decked bus	Double-decked bus
Average Handling Capacity	90 ⁽¹⁾	90 ⁽¹⁾
Morning & Evening Peak Hour Headway	10 minutes/route	20 minutes/route
Level of Service in Peak Hour	Average 6 trips/hr/route (= 12 trips/hr)	Average 3 trips/hr/route (= 9 trips/hr)
Hourly Capacity	1080 pax/hr	810 pax/hr

Notes:

(1) Assuming carrying capacity taken as 75% of 120 pax for a double-decked bus

4.8.8 The detailed routings of the proposed feeder services and long-haul services will be discussed and confirmed with authorities and bus operators in later stage. For technical assessment purposes, it is assumed that the proposed 2 nos. feeder services would be connected to nearby railway stations (i.e. Sheung Shui Station and Fanling Station), while the proposed 3 nos. long-haul services would be connected to New Territories West, Kowloon and Hong Kong Island. The planned routings of the proposed feeder services and long-haul services are shown in **Figure 4.13**. The associated bus trips have been distributed into the road network and incorporated into the traffic forecast.

4.8.9 Besides, it is proposed to provide transport interchange with 5 nos. bus bays and 10 nos. stacking bays for the proposed feeder services and long-haul services underneath the R&D Centre 2, together with taxi stand to accommodate 5 nos. taxis urban taxi and 5 nos. NT taxi in accordance with the TPDM requirement as illustrated in **Figure 4.14**. Sufficient area for charging-enabling facilities as well as associated ancillary facilities such as bus regulator office, rest room with toilets as per TPDM requirement has also been reserved, with detailed arrangement to be incorporated with the detailed design of the R&D Centre 2 in later stage.

4.8.10 Furthermore, two sets of en-route bus stops would be provided outside the Residential Area and Data Centre in order to enhance the efficiency of the proposed feeder services and long-haul services. It is hence anticipated that the accessibility of the Indicative Scheme is considered acceptable, and the Indicative Scheme would not impose adverse impact to existing PT services.

4.8.11 The swept path analysis of 12.8m long bus manoeuvring along the proposed signalized junction of Lin Ma Hang Road / Proposed Access Road is presented from **Figure 3.7** to **Figure 3.9**, while the swept path analysis of 12.8m long bus manoeuvring between the proposed transport interchange and the en-route bus stops is presented in **Figure 4.15**.

4.8.12 On the other hand, the swept path analysis of 12.8m long bus manoeuvring along each bus bay and stacking bay is presented from **Figure 4.16** to **Figure 4.18**, while the swept path analysis of 5m long taxi manoeuvring along the taxi stand is presented in **Figure 4.19**.

5 CONCLUSION

5.1 Summary

- 5.1.1 The Application Site is located in Zone with major part in Agriculture (“AGR”), and minor parts in Green Belt (“GB”), Government, Institution or Community (“G/IC”) at Various Lots in D.D.82 & D.D.86, Man Kam To, New Territories.
- 5.1.2 The Applicant proposes amendments to rezone the Application Site with a sizeable site area of about 125,863m² (Development site area of about 102,461m²) into an Innovation and Technology Hub with Ancillary Facilities (the “Indicative Scheme”), subject to a non-domestic gross floor area (GFA) of 365,180m², which consists of R&D Centre with 268,780m² GFA and Data Centre with 86,400m² GFA to nurture the development of I&T industry, as well as a Commercial Centre with 9,276m² to support the daily needs of the working and living population. A kindergarten of 724m² will be provided on the ground floor of Ancillary Dormitories. In addition, there will be a domestic GFA of 170,400m², which consists of Private Residential Blocks providing a total of 2,320 units together with a 3,500m² Clubhouse, and Ancillary Dormitories with 63,900m² which provide 1,392 units for the working population of R&D Centre.
- 5.1.3 A Traffic Impact Assessment (TIA) study was carried out to evaluate the likely traffic impact associated with the Indicative Scheme, in support of the S12A planning application for proposed amendment of plan.
- 5.1.4 This TIA is to examine the impact of traffic induced by the Indicative Scheme on the existing and planned road networks, in particular with respect to the performances of the affected junctions in the vicinity; and present the findings on related traffic and transport issues. Any deficiency would be identified, and improvement proposal would be recommended as necessary to resolve any foreseeable problem from the deficiencies.
- 5.1.5 The proposed provision of internal transport facilities for the subject development is in full compliance with the HKPSG and TD Circular No. 6/2012 requirements, as well as with reference to project with similar use. The proposed internal transport facilities will be provided on ground floor and basement parking floors.
- 5.1.6 In order to assess the future traffic impacts associated with the Proposed Development in year 2031, the latest available 2019-based Base District Traffic Model (BDTM) no. NTE1 which covers Northeast New Territories area (purchased from Transport Department) has been adopted for developing the traffic forecast. The BDTM covers models of validated year 2019, design years 2026 and 2031. The design year 2031 BDTM trip matrices have been refined and adjusted to match with 2023 traffic count data through the typical matrix estimation process, taking account the existing developments, traffic aids, junction layouts and method of control in the Study Area.
- 5.1.7 Traffic impact assessment scenarios were set up to evaluate the associated traffic impact likely to be induced by the Indicative Scheme. **Scenario 1** is the Reference Scenario (without the Indicative Scheme) in Year 2031. **Scenario 2** is the Design Scenario (with the Indicative Scheme) in 2031.
- 5.1.8 The junction assessment results revealed that all identified key junctions would operate within capacity with the Indicative Scheme in Year 2031, except J2 – Lin

Ma Hang Road/ Ping Che Road, J8 – Sha Tau Kok Road/ Sui Wan Road, J13 – Po Shek Wu Road/ Po Wan Road, and J23 – San Wan Road / Fanling Station Road.

- 5.1.9 J2 – Lin Ma Hang Road / Ping Che Road would be overloaded during AM and PM peak period respectively under Year 2031 Design Scenario, J8 – Sha Tau Kok Road / Sui Wan Road would be overloaded and operated near capacity during AM and PM peak period respectively under both Year 2031 Reference and Design Scenario, J13 – Po Shek Wu Road / Po Wan Road would be operated near capacity during both AM and PM peak period under Year 2031 Design Scenario, and J23 – San Wan Road / Fanling Station Road would be operated near capacity during both AM and PM peak period under both Year 2031 Reference and Design Scenario, improvement proposals have been explored to improve the performance of the junctions.
- 5.1.10 With the proposed junction improvement at J2, J8, J13 and J23, it is anticipated that the implication to the road network with the Indicative Scheme would be minimal.
- 5.1.11 The road link assessment results revealed that all identified key road links assessed will be performing satisfactorily with spare capacity in both Reference and Design scenarios in Year 2031, except L4.
- 5.1.12 The assessment result indicated that the v/c ratio of L4 – Fanling Highway (at the south of Lung Shan Tunnel) would fall within 1.0 and 1.2 in both Reference and Design scenarios in Year 2031. According to TPDM, V/C ratio between 1.0 and 1.2 indicates the onset of mild congestion and little or no room to manoeuvre within traffic stream while a V/C ratio above 1.2 indicates the onset of more serious congestion. In the consideration that the traffic condition would be more or less the same in both Reference and Design scenarios in Year 2031, it is anticipated that the traffic implication to Fanling Highway (at the south of Lung Shan Tunnel) associated with the Indicative Scheme is immaterial.
- 5.1.13 The Applicant proposes to provide public transport feeder services and long-haul services, together with transport interchange with 5 nos. bus bays and 10 nos. stacking bays together with 1 no. taxi stand underneath the R&D Centre 2, and two sets of en-route bus stops outside Residential Area and Data Centre in order to enhance the efficiency of the proposed feeder services and long-haul services. It is hence anticipated that the accessibility of the Indicative Scheme is considered acceptable, and the Indicative Scheme would not impose adverse impact to existing PT services.

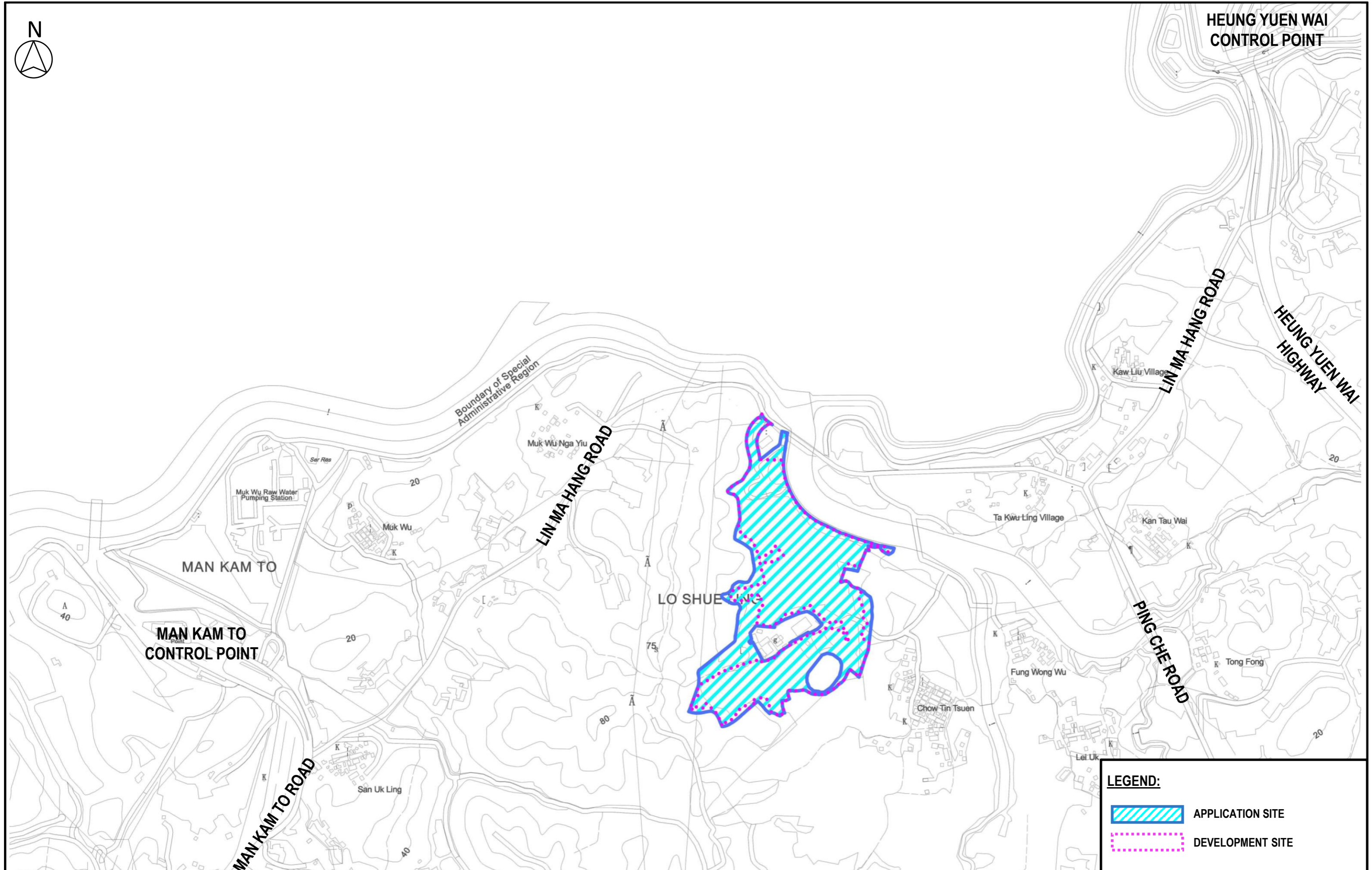
5.2 Conclusion

- 5.2.1 It could be concluded that the Indicative Scheme will not impose adverse traffic impact on the surrounding road network, and thus is feasible from the traffic engineering point of view.

Figures



HEUNG YUEN WAI
CONTROL POINT



MAN KAM TO
CONTROL POINT

Boundary of Special
Administrative Region

LIN MA HANG ROAD

LO SHUE WAI

LIN MA HANG ROAD

HEUNG YUEN WAI
HIGHWAY

PING CHE ROAD

MAN KAM TO ROAD

LEGEND:

-  APPLICATION SITE
-  DEVELOPMENT SITE

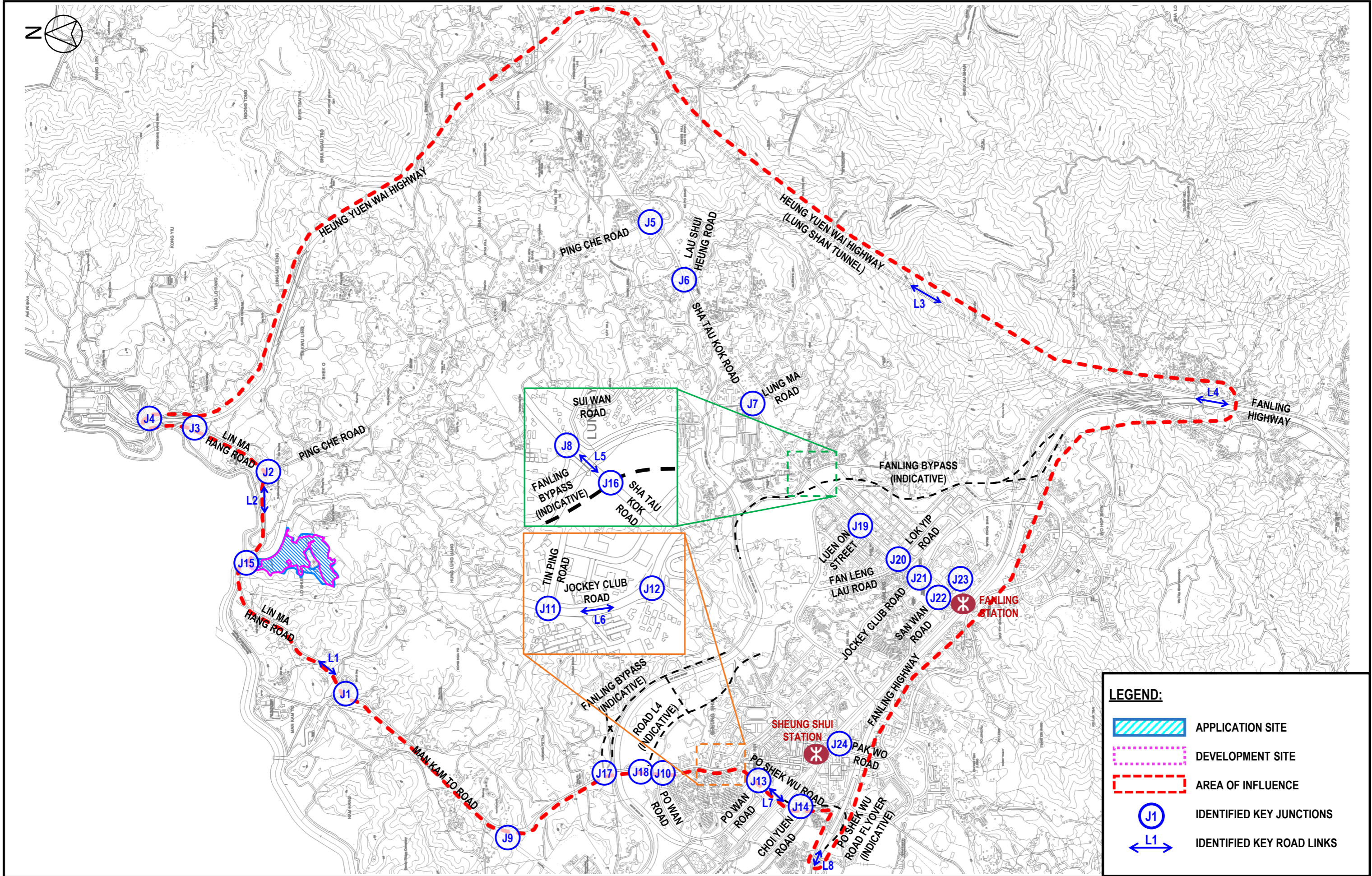
Job Title APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES

FIGURE 1.1






Date	Scale	Drawing Title
SEPT 24	NTS	LOCATION OF APPLICATION SITE
Drawn	Job No.	
CKTY	287082-02	

LOCATION OF APPLICATION SITE





LEGEND:

-  APPLICATION SITE
-  DEVELOPMENT SITE
-  AREA OF INFLUENCE
-  IDENTIFIED KEY JUNCTIONS
-  IDENTIFIED KEY ROAD LINKS

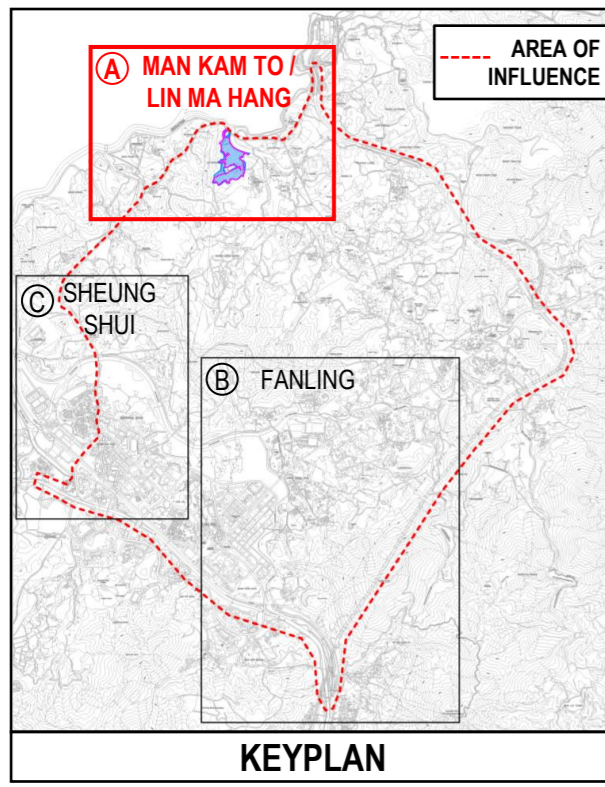
Job Title APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES

FIGURE 2.1

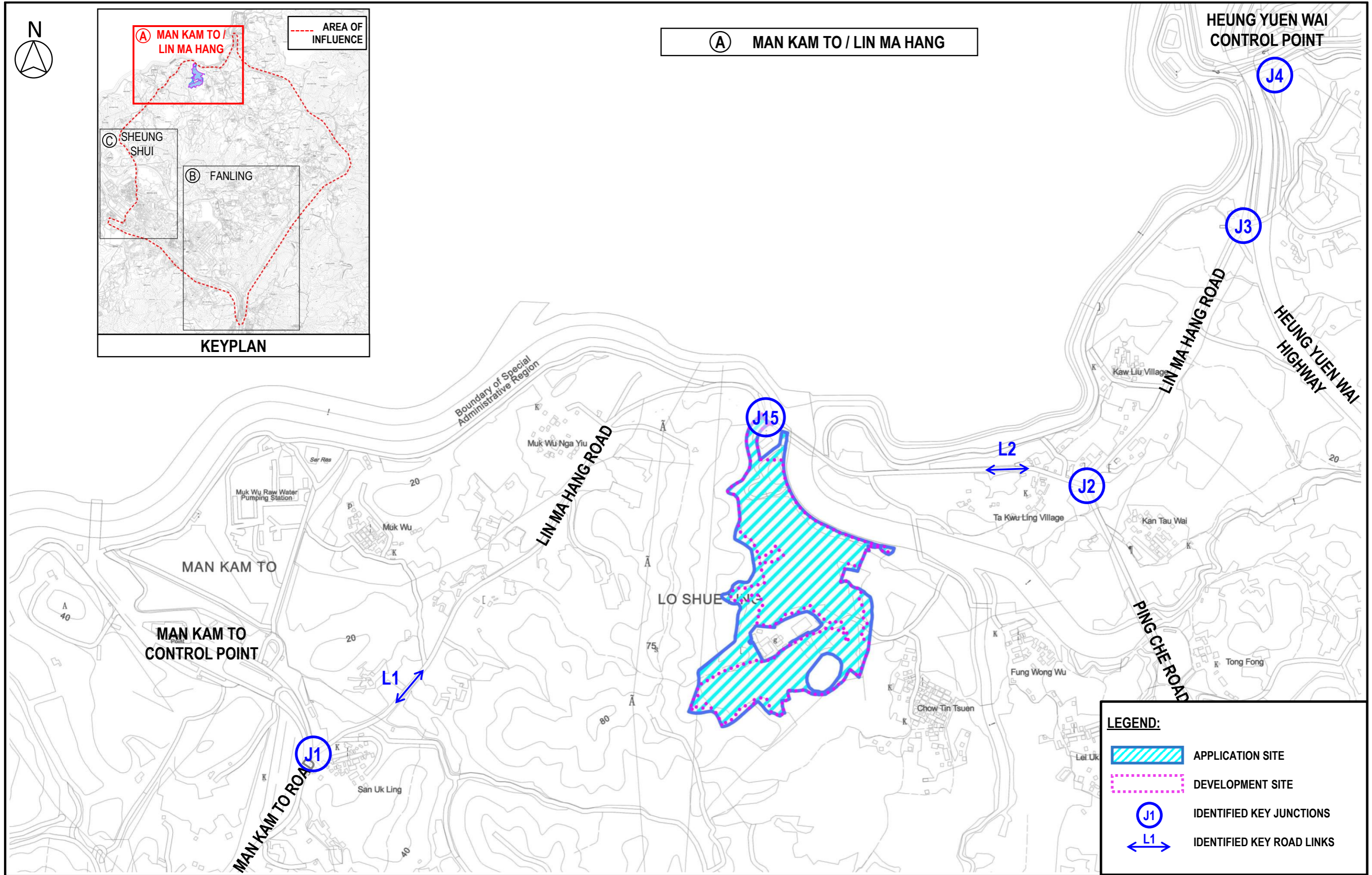
Date	Scale	Drawing Title
SEPT 24	NTS	
Drawn	Job No.	
CKTY	287082-02	

LOCATION OF IDENTIFIED KEY JUNCTIONS AND ROAD LINKS IN THE VICINITY OF APPLICATION SITE – OVERVIEW









① MAN KAM TO / LIN MA HANG



LEGEND:

-  APPLICATION SITE
-  DEVELOPMENT SITE
-  IDENTIFIED KEY JUNCTIONS
-  IDENTIFIED KEY ROAD LINKS

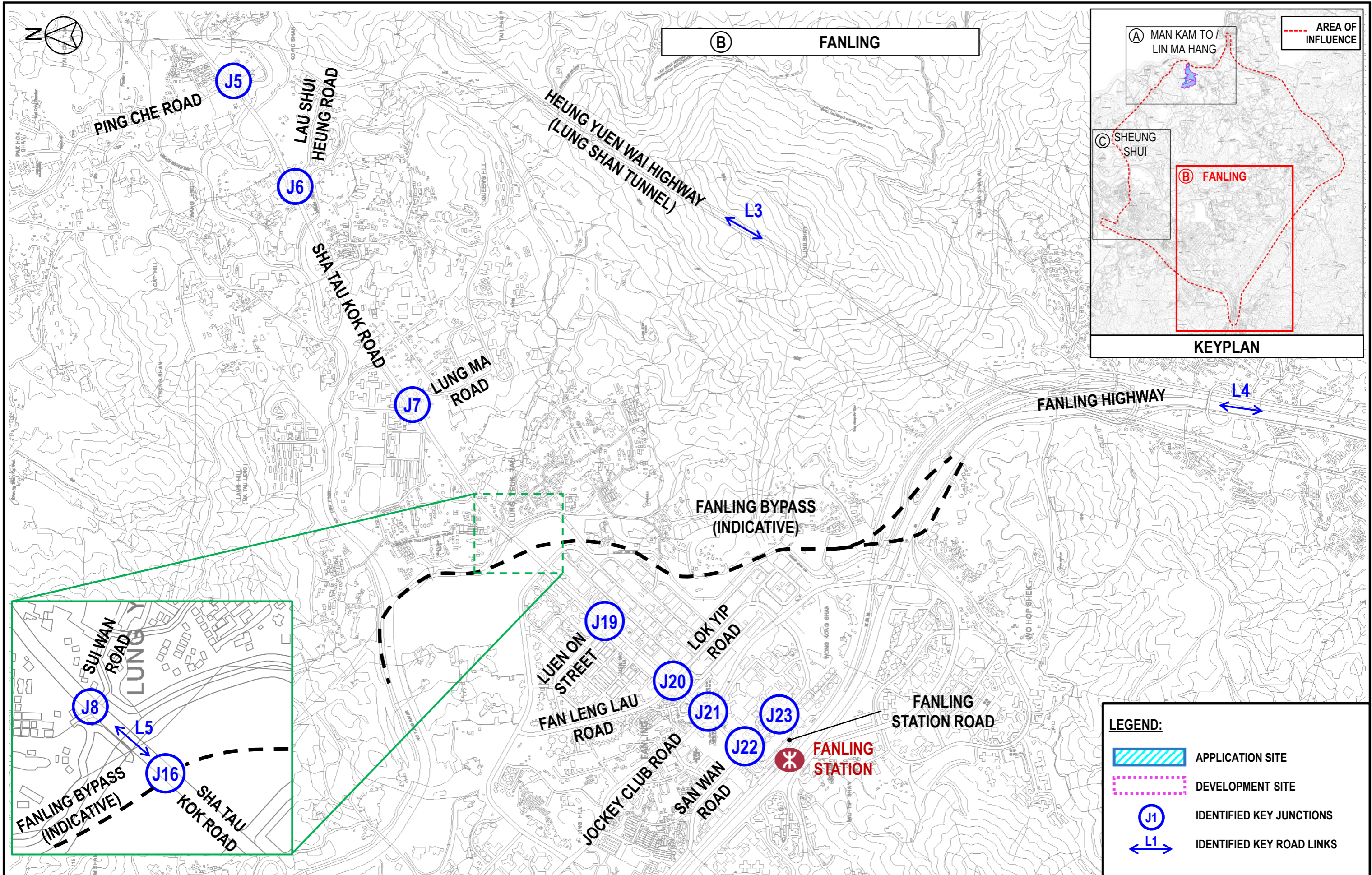
Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES

FIGURE 2.2

Date	Scale	Drawing Title
SEPT 24	NTS	
Drawn	Job No.	
CKTY	287082-02	

LOCATION OF IDENTIFIED KEY JUNCTIONS AND ROAD LINKS IN THE VICINITY OF APPLICATION SITE – MAN KAM TO / LIN MA HANG AREA





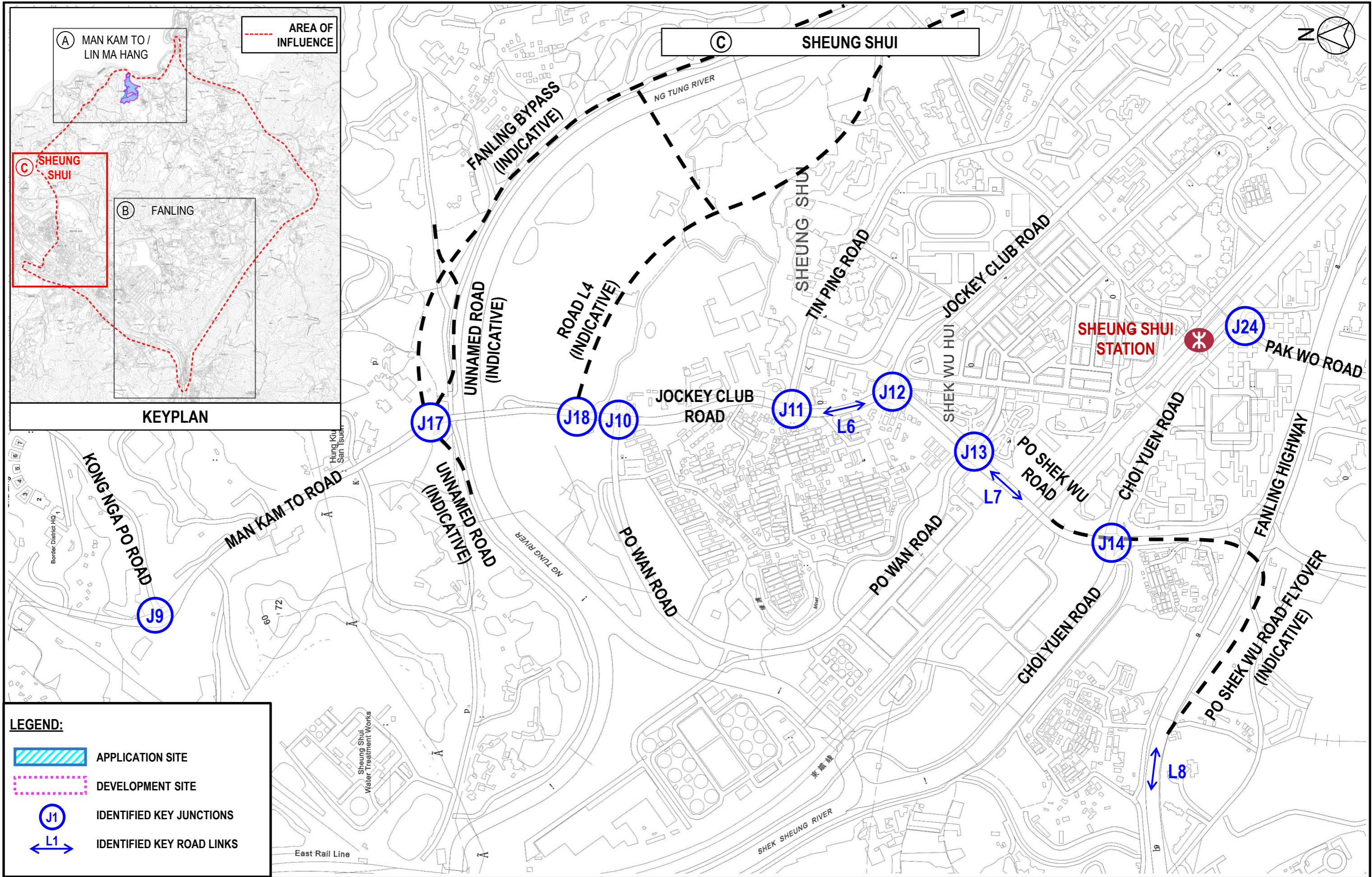
Job Title APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES

FIGURE 2.3

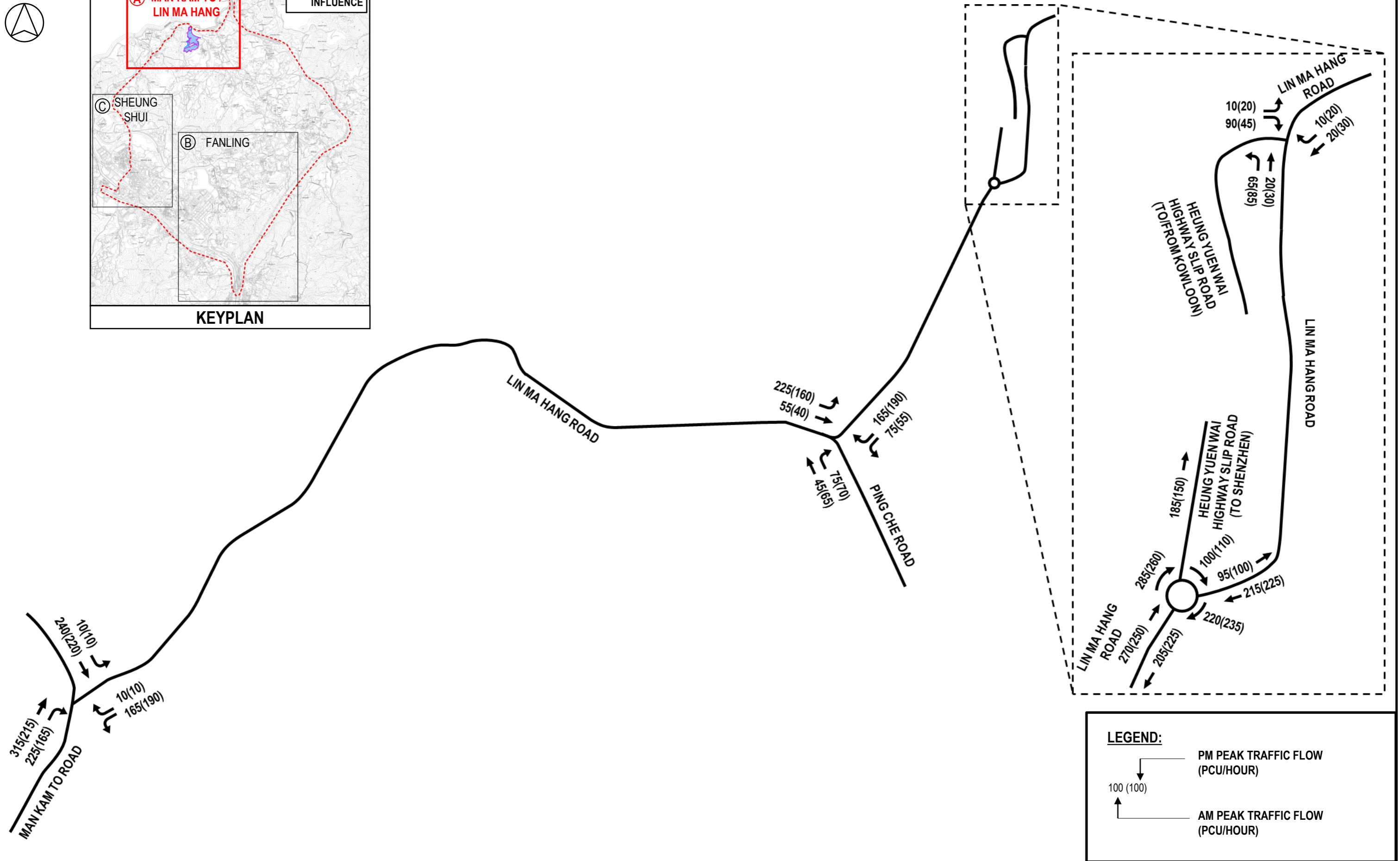
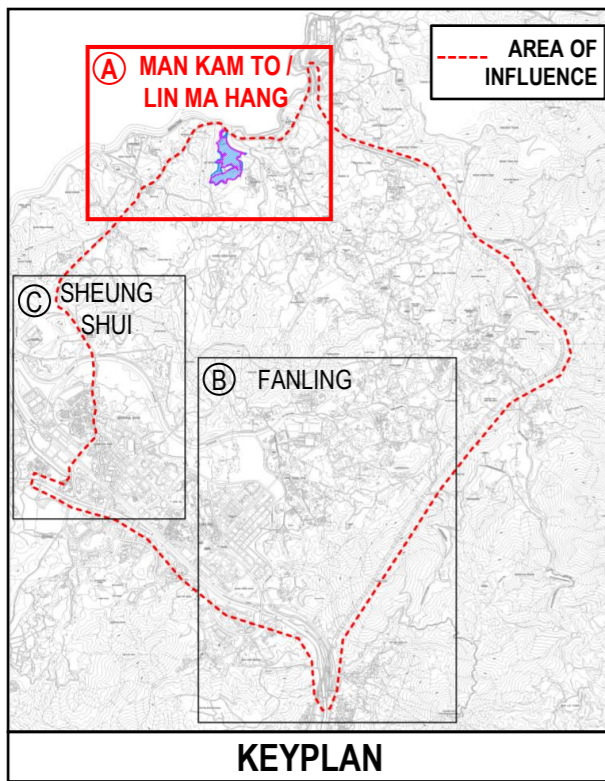
Date	Scale	Drawing Title
SEPT 24	NTS	LOCATION OF IDENTIFIED KEY JUNCTIONS AND ROAD LINKS IN THE VICINITY OF APPLICATION SITE – FANLING AREA
Drawn	Job No.	
CKTY	287082-02	

LOCATION OF IDENTIFIED KEY JUNCTIONS AND ROAD LINKS IN THE VICINITY OF APPLICATION SITE – FANLING AREA





Job Title		APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES	
Date	Scale	Drawing Title	
SEPT 24	NTS	LOCATION OF IDENTIFIED KEY JUNCTIONS AND ROAD LINKS IN THE VICINITY OF APPLICATION SITE – SHEUNG SHUI AREA	
Drawn	Job No.		
CKTY	287082-02		



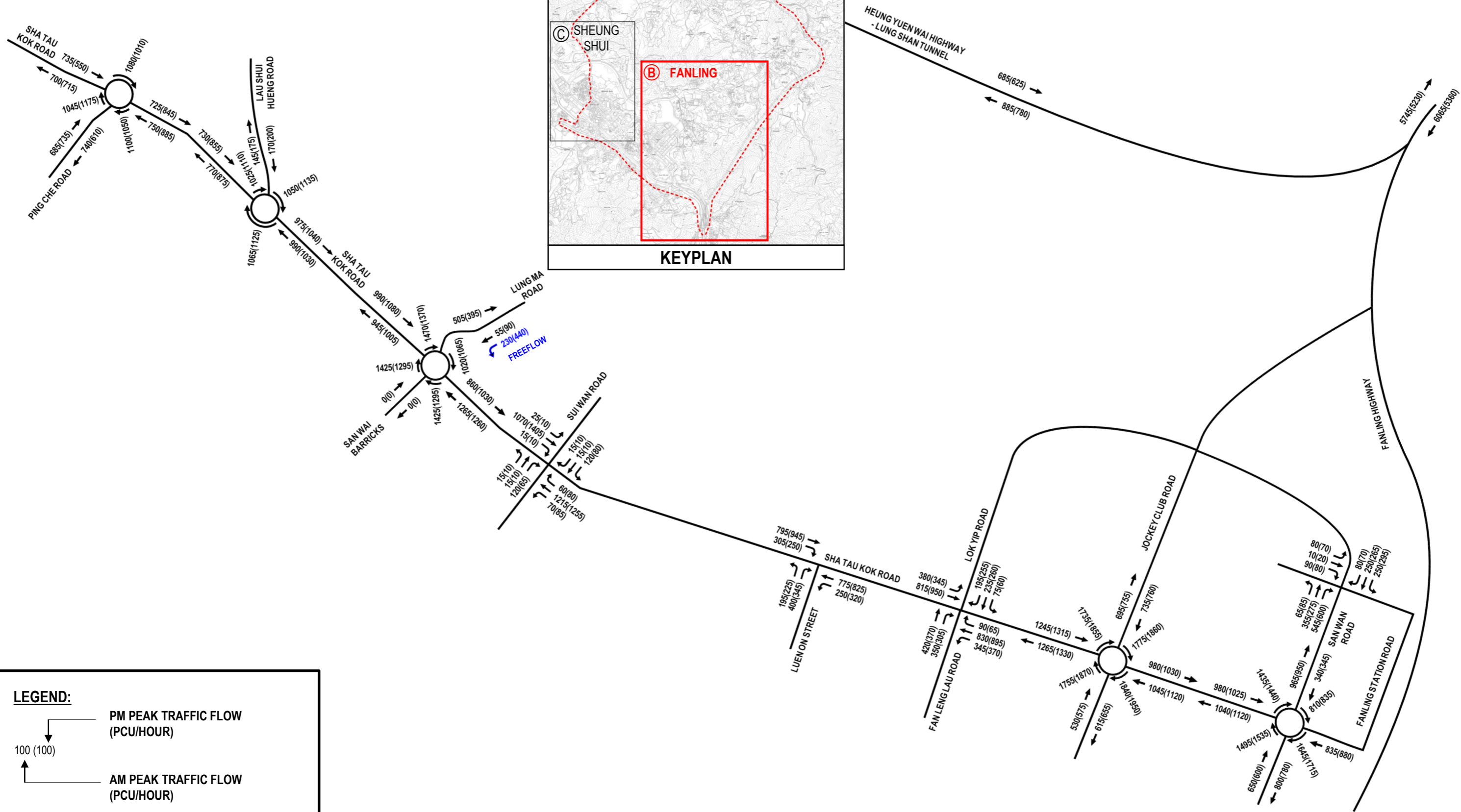
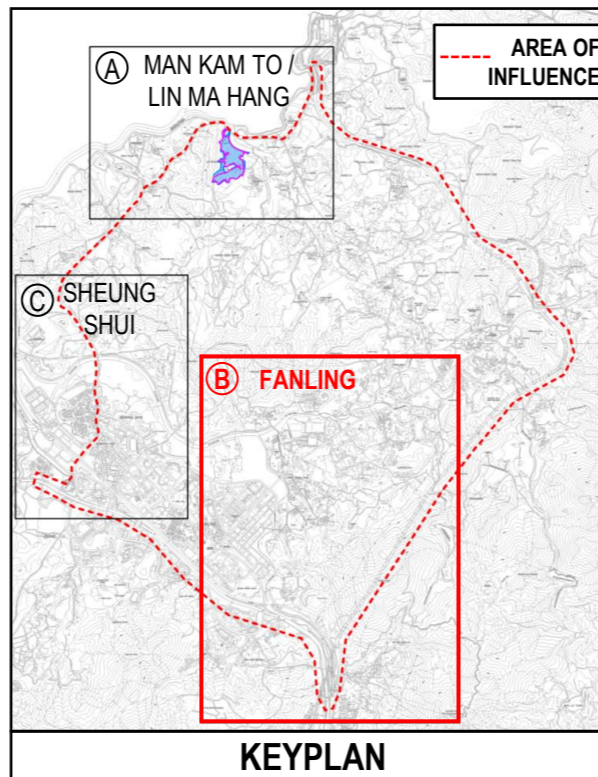
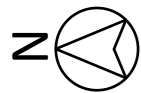
Job Title APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES

Date SEPT 24
 Scale NTS
 Drawing Title
 Drawn CKTY
 Job No. 287082-02

YEAR 2023 EXISTING TRAFFIC FLOW – MAN KAM TO / LIN MA HANG AREA

FIGURE 2.5





LEGEND:

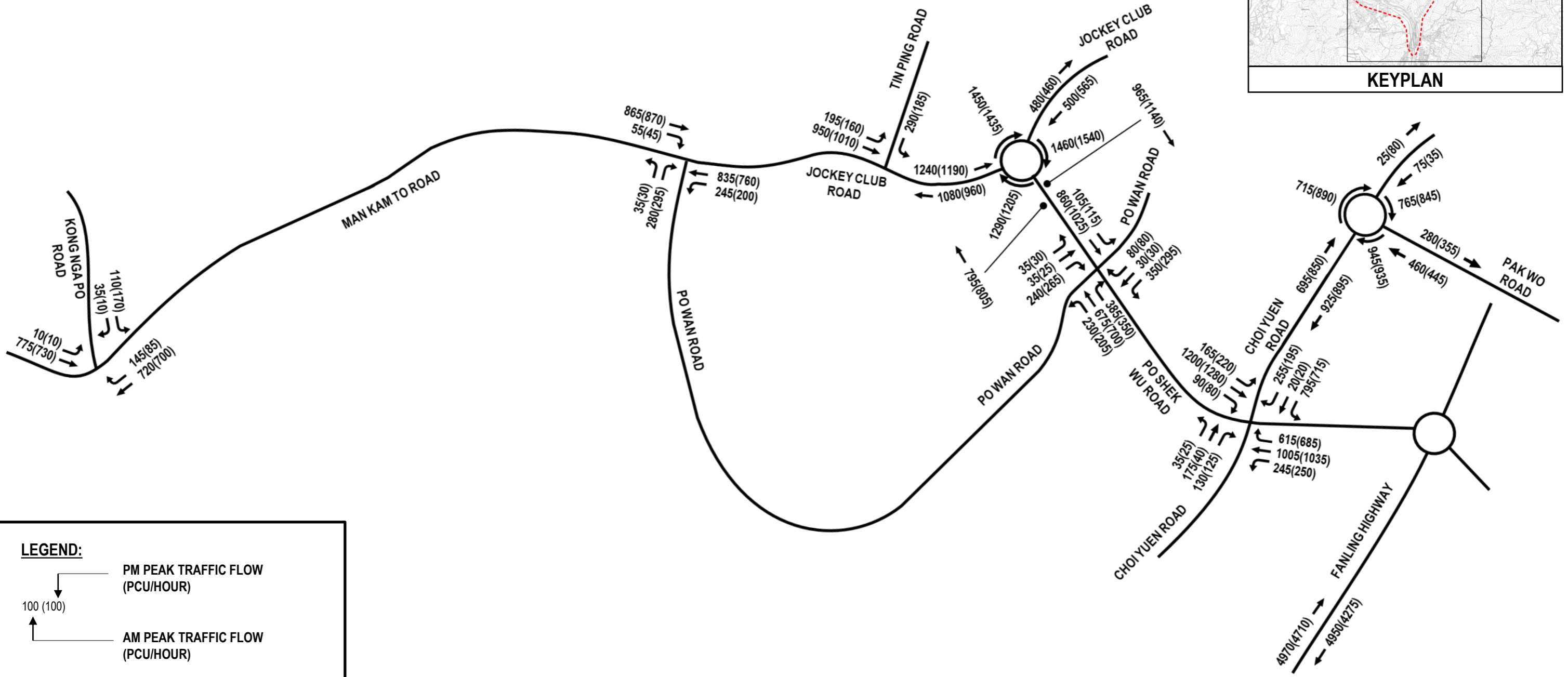
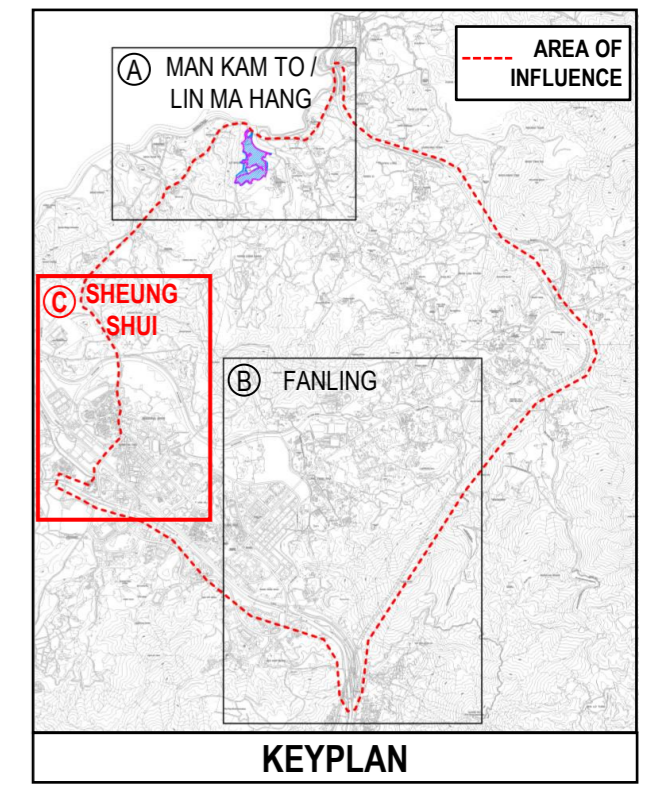
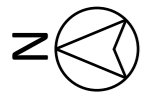
PM PEAK TRAFFIC FLOW (PCU/HOUR)
 AM PEAK TRAFFIC FLOW (PCU/HOUR)

Job Title APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES

FIGURE 2.6

Date	Scale	Drawing Title
SEPT 24	NTS	YEAR 2023 EXISTING TRAFFIC FLOW – FANLING AREA
Drawn	Job No.	
CKTY	287082-02	





Job Title APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES

FIGURE 2.7

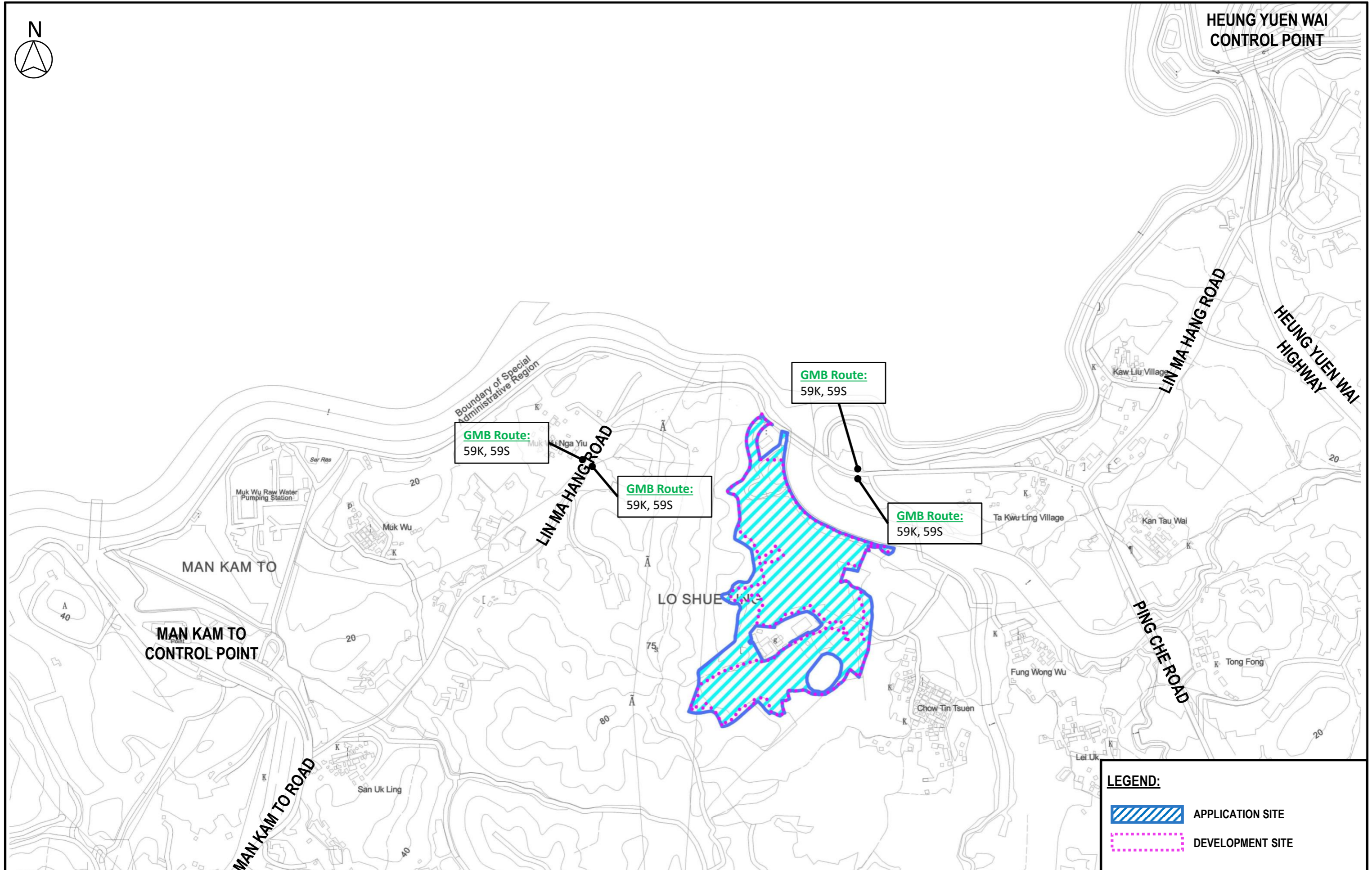
Date	Scale	Drawing Title
SEPT 24	NTS	YEAR 2023 EXISTING TRAFFIC FLOW – SHEUNG SHUI AREA
Drawn	Job No.	
CKTY	287082-02	

YEAR 2023 EXISTING TRAFFIC FLOW – SHEUNG SHUI AREA





HEUNG YUEN WAI
CONTROL POINT





GMB Route:
59K, 59S

GMB Route:
59K, 59S

GMB Route:
59K, 59S

GMB Route:
59K, 59S

LEGEND:

-  APPLICATION SITE
-  DEVELOPMENT SITE

Job Title APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES

FIGURE 2.8

Date SEPT 24 Scale NTS

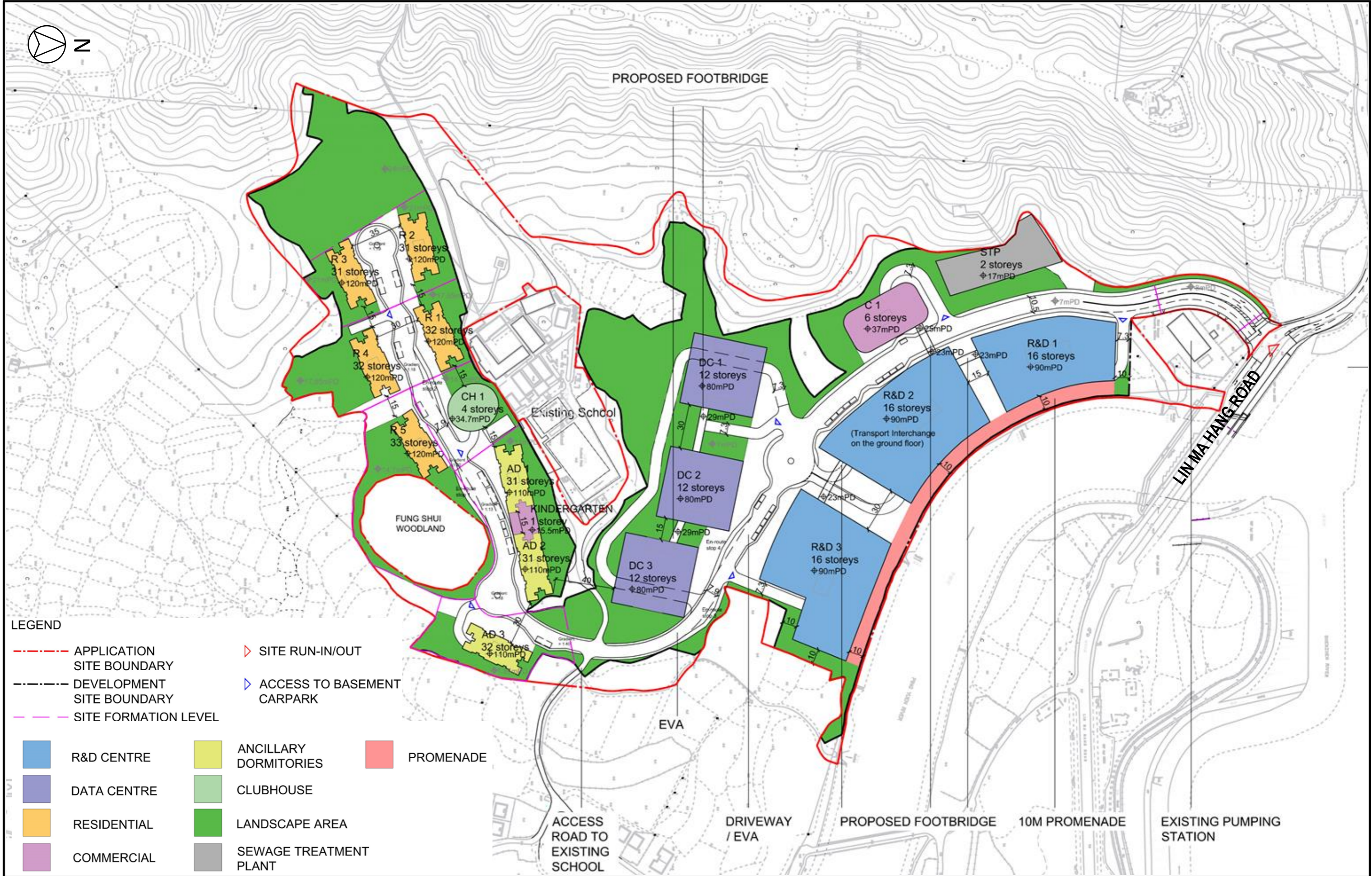
Drawing Title PUBLIC TRANSPORT FACILITIES IN THE VICINITY OF APPLICATION SITE

Drawn CKTY Job No. 287082-02





PROPOSED FOOTBRIDGE



LEGEND

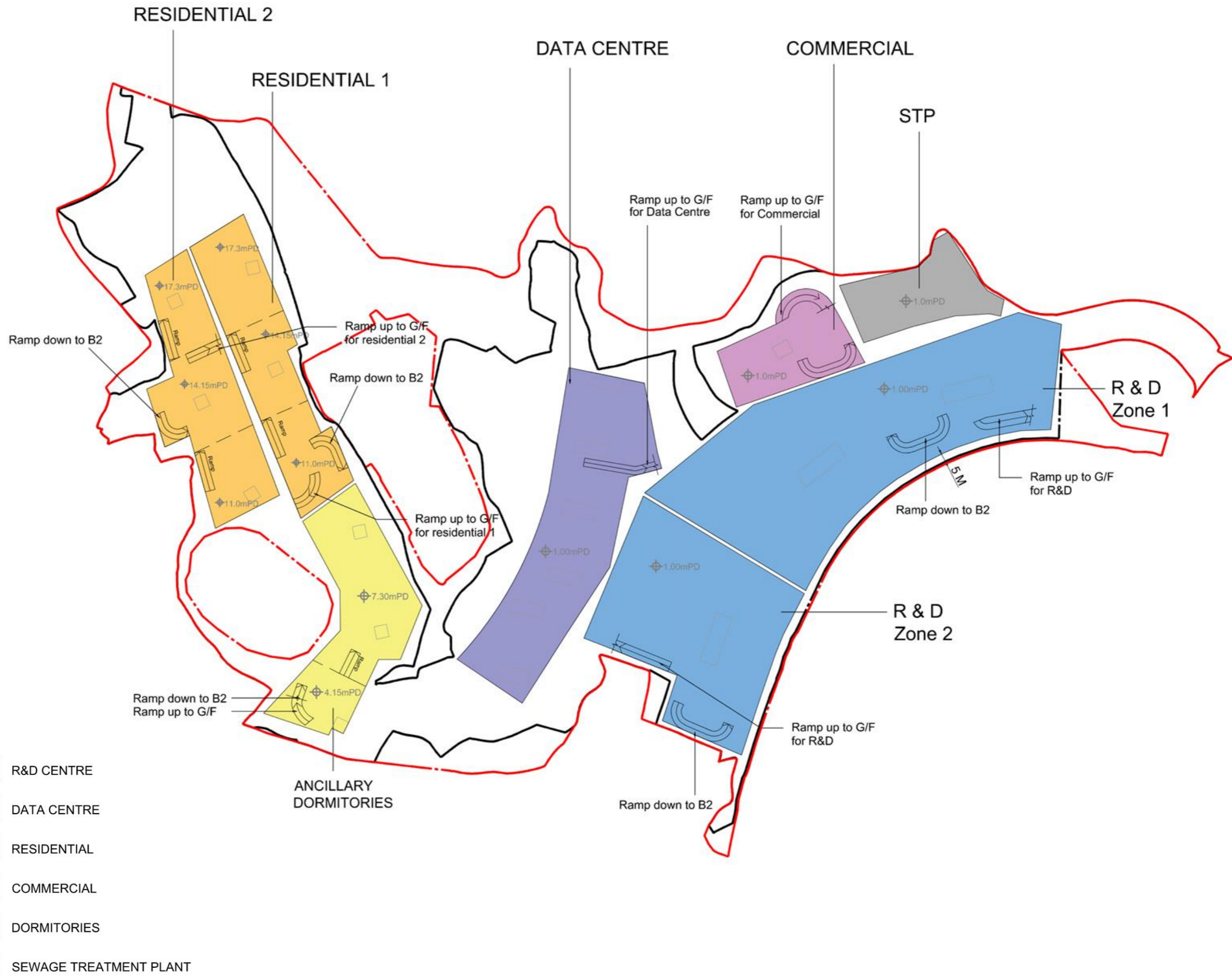
- - - APPLICATION SITE BOUNDARY
- - - DEVELOPMENT SITE BOUNDARY
- - - SITE FORMATION LEVEL
- ▶ SITE RUN-IN/OUT
- ▶ ACCESS TO BASEMENT CARPARK
- R&D CENTRE
- DATA CENTRE
- RESIDENTIAL
- COMMERCIAL
- ANCILLARY DORMITORIES
- CLUBHOUSE
- LANDSCAPE AREA
- SEWAGE TREATMENT PLANT
- PROMENADE

Job Title APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES

FIGURE 3.1

Date	Scale	Drawing Title
SEPT 24	NTS	MASTER LAYOUT PLAN OF INDICATIVE SCHEME
Drawn	Job No.	
CKTY	287082-02	





LEGEND

- - - APPLICATION SITE BOUNDARY
- - - DEVELOPMENT SITE BOUNDARY
- R&D CENTRE
- DATA CENTRE
- RESIDENTIAL
- COMMERCIAL
- DORMITORIES
- SEWAGE TREATMENT PLANT

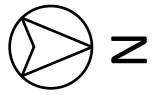
Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES

FIGURE 3.2

Date	Scale
SEPT 24	NTS
Drawn	Job No.
CKTY	287082-02

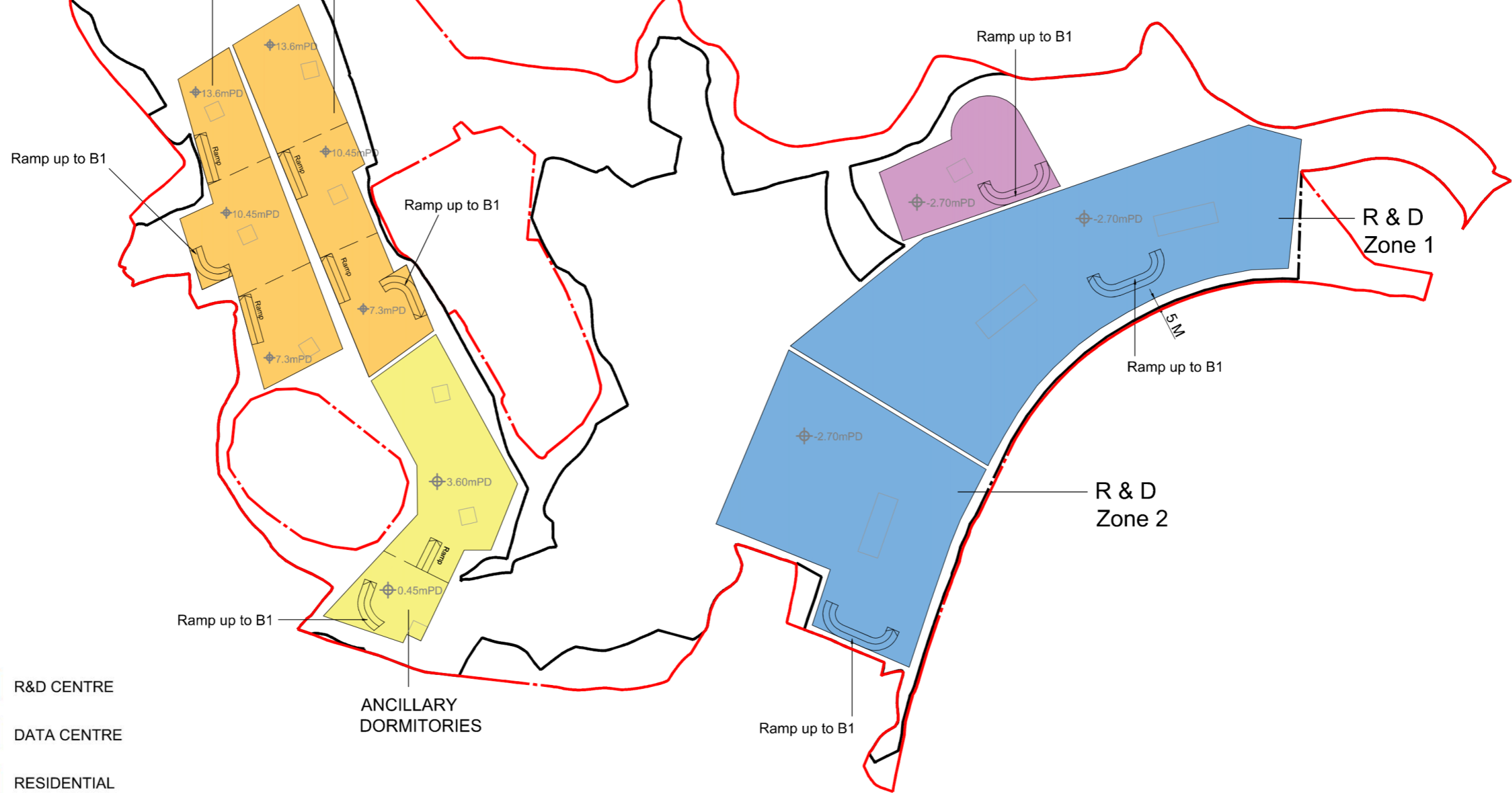
B1 BASEMENT LEVEL PLAN OF INDICATIVE SCHEME





RESIDENTIAL 2

RESIDENTIAL 1



LEGEND

- APPLICATION SITE BOUNDARY
- DEVELOPMENT SITE BOUNDARY
- R&D CENTRE
- DATA CENTRE
- RESIDENTIAL
- COMMERCIAL
- DORMITORIES
- SEWAGE TREATMENT PLANT

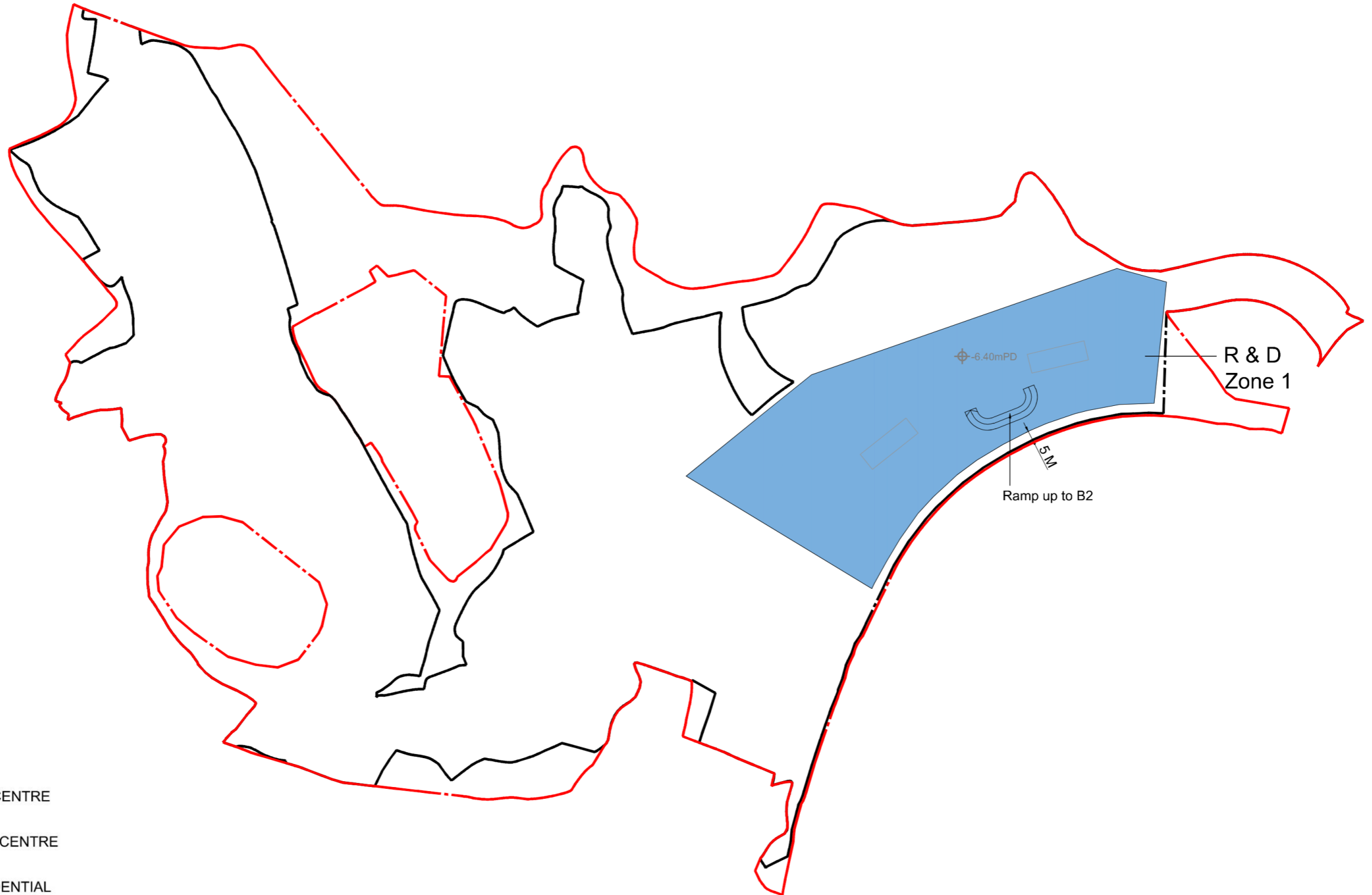
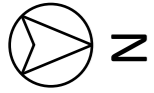
Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES

FIGURE 3.3

Date: SEPT 24
 Scale: NTS
 Drawn: CKTY
 Job No.: 287082-02

B2 BASEMENT LEVEL PLAN OF INDICATIVE SCHEME





LEGEND

- APPLICATION SITE BOUNDARY
- DEVELOPMENT SITE BOUNDARY
- R&D CENTRE
- DATA CENTRE
- RESIDENTIAL
- COMMERCIAL
- DORMITORIES
- SEWAGE TREATMENT PLANT

Job Title APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES

FIGURE 3.4

Date	Scale
SEPT 24	NTS
Drawn	Job No.
CKTY	287082-02

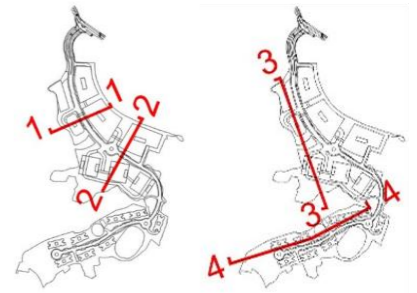
Drawing Title

B3 BASEMENT LEVEL PLAN OF INDICATIVE SCHEME

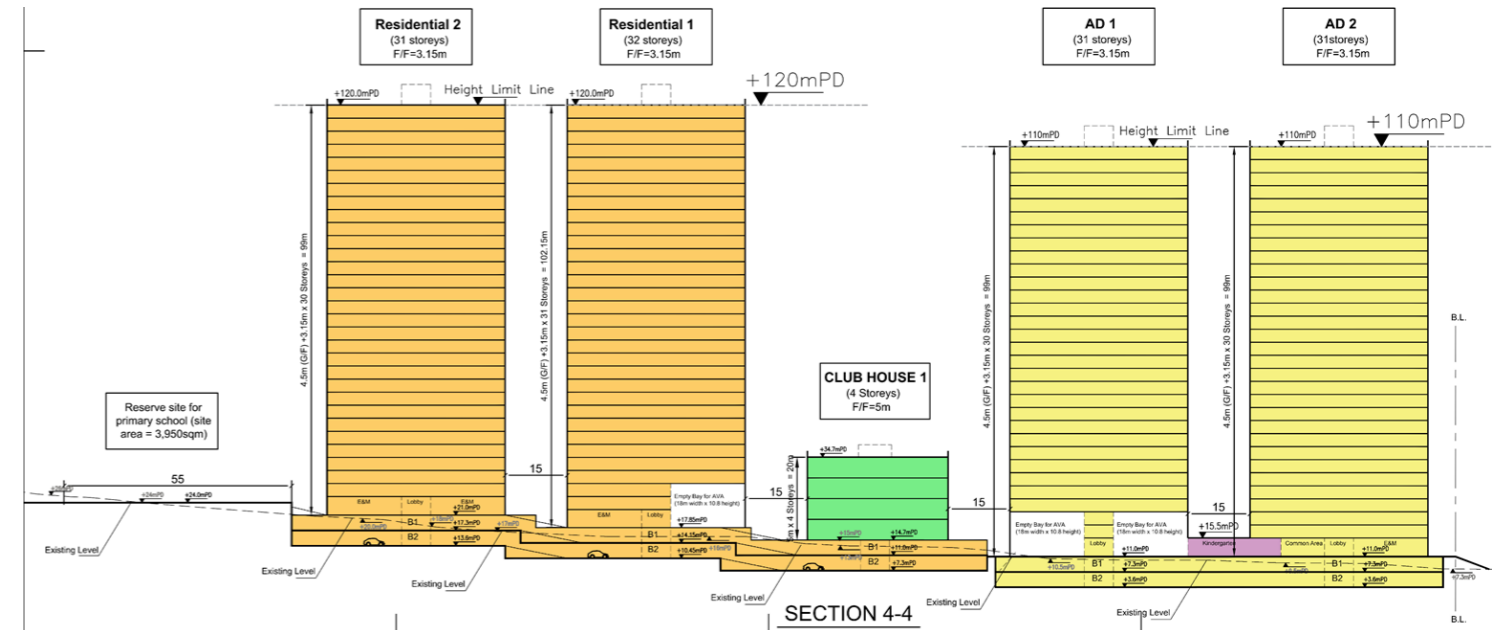
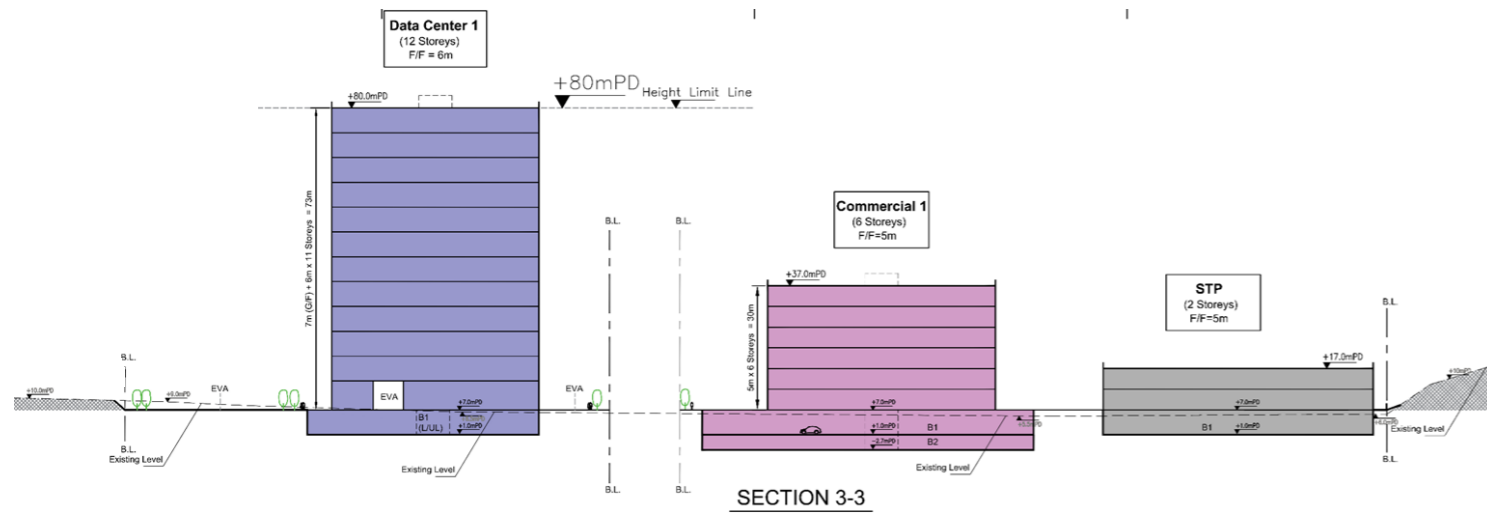
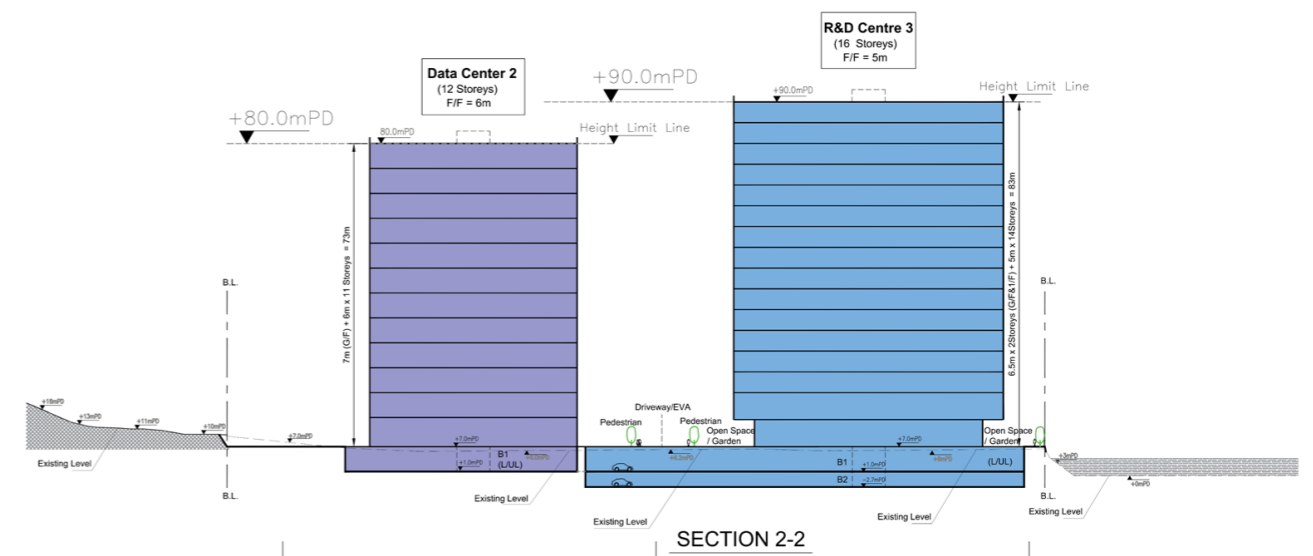
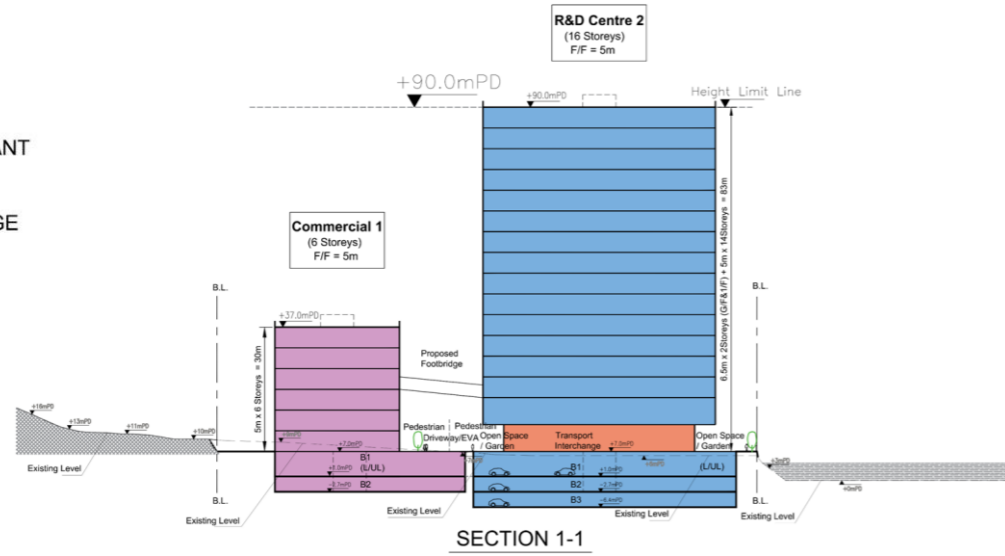


LEGEND

- R&D CENTRE
- DATA CENTRE
- ANCILLARY DORMITORY
- RESIDENTIAL
- COMMERCIAL
- CLUBHOUSE
- SEWAGE TREATMENT PLANT
- TRANSPORT INTERCHANGE



Key Plan



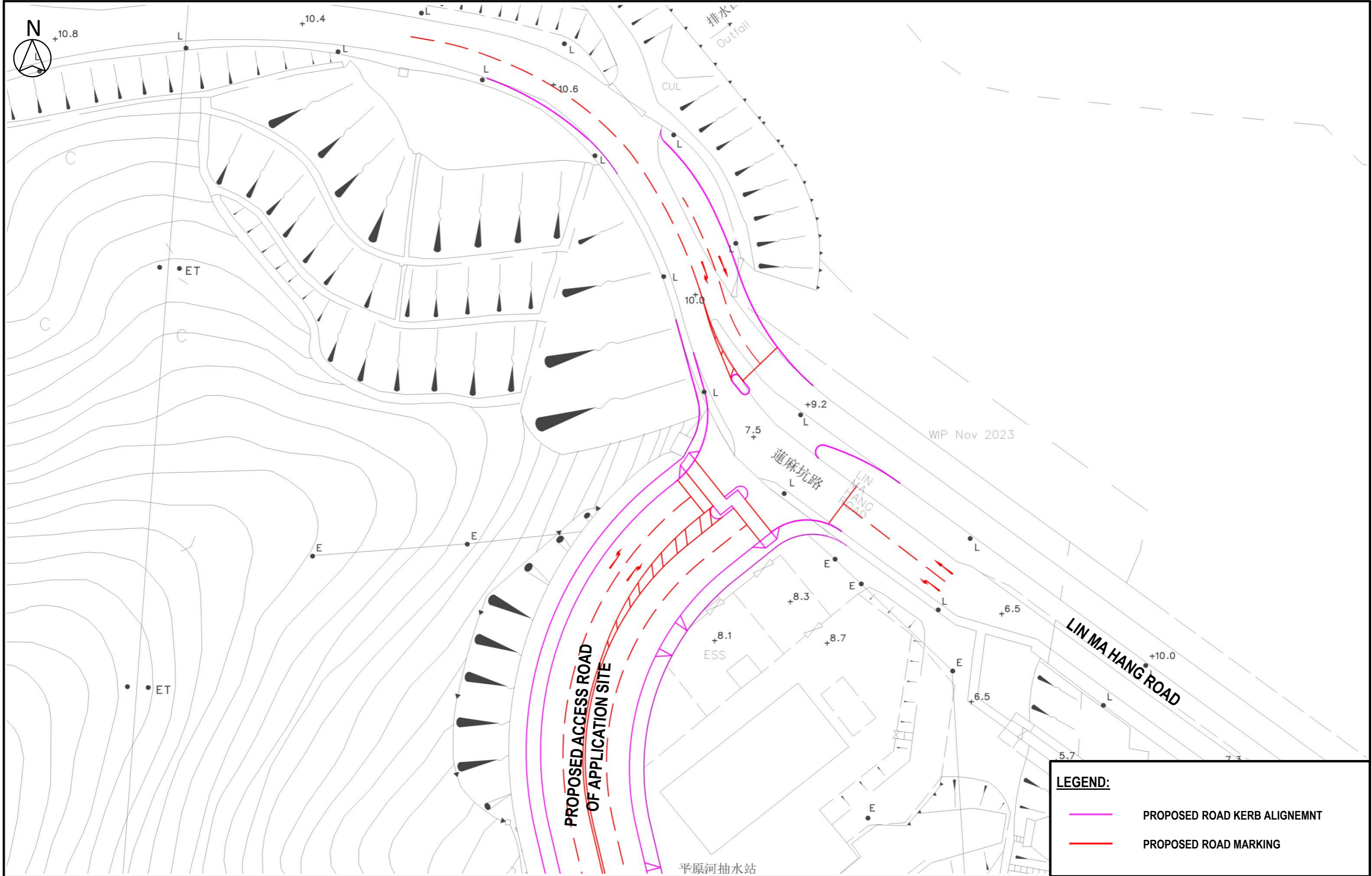
Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES

FIGURE 3.5

Date	Scale	Drawing Title
SEPT 24	NTS	SECTION PLAN OF INDICATIVE SCHEME
Drawn	Job No.	
CKTY	287082-02	

SECTION PLAN OF INDICATIVE SCHEME





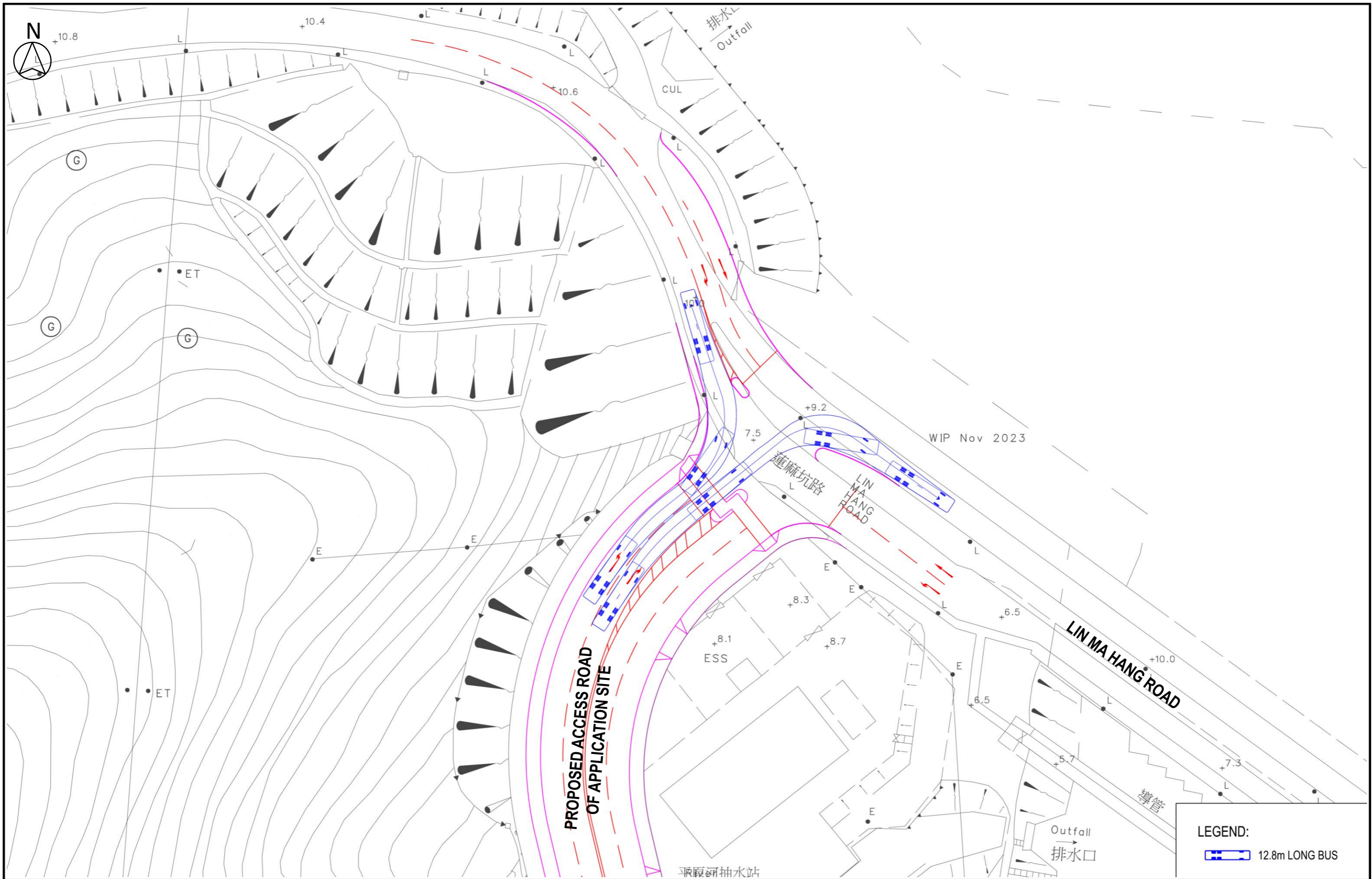
Job Title APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES

FIGURE 3.6

Date	Scale	Drawing Title
SEPT 24	NTS	PROPOSED ACCESSES ROAD AND SIGNALISED JUNCTION OF INDICATIVE SCHEME
Drawn	Job No.	
CKTY	287082-02	

PROPOSED ACCESSES ROAD AND SIGNALISED JUNCTION OF INDICATIVE SCHEME





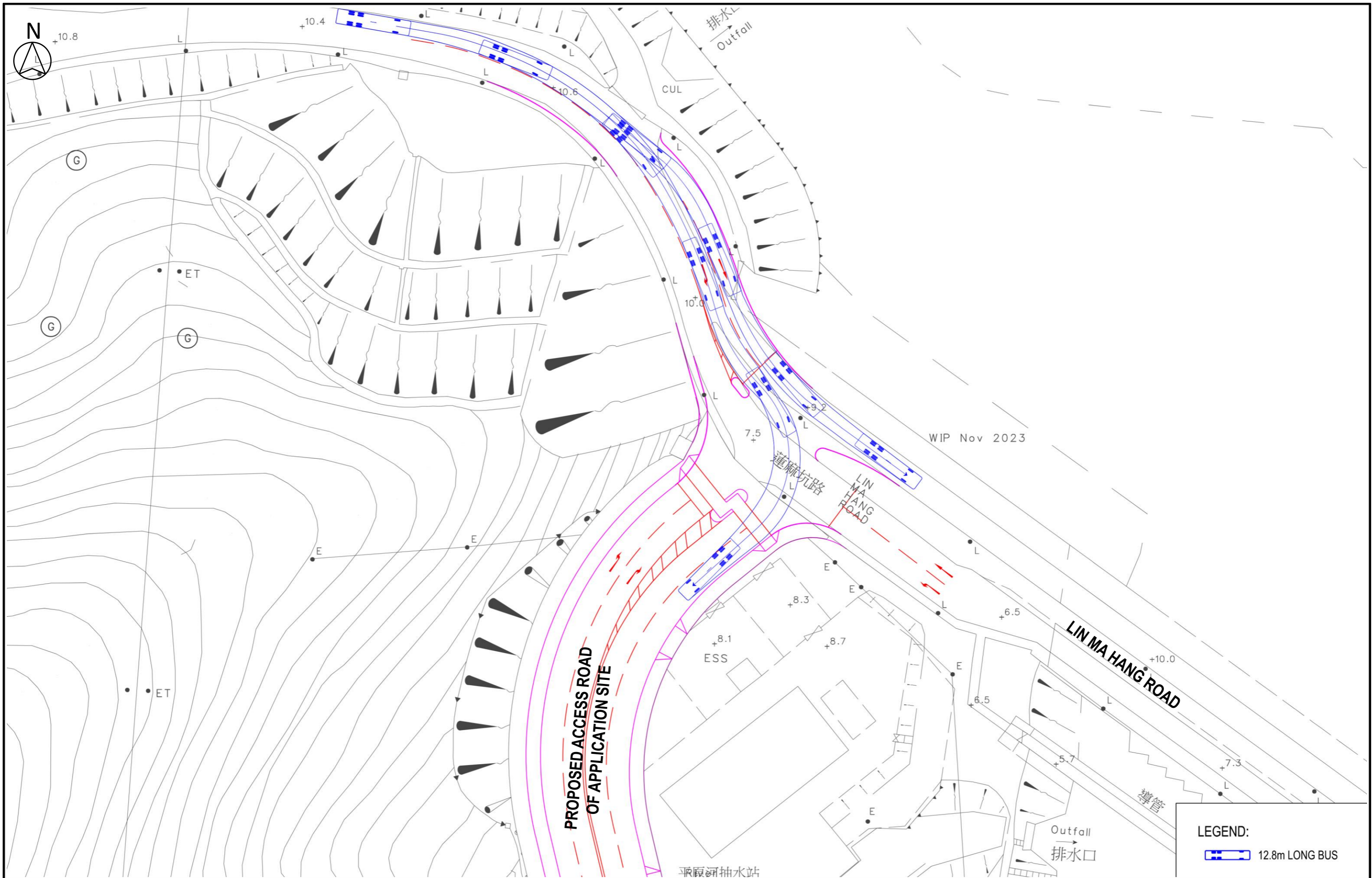
Job Title **APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES**

FIGURE 3.7

Date **SEPT 24**
 Scale **NTS**
 Drawn **CKTY**
 Job No. **287082-02**

Drawing Title **SWEPT PATH ANALYSIS OF THE PROPOSED ACCESSES ROAD AND SIGNALISED JUNCTION OF INDICATIVE SCHEME – PROPOSED ACCESS ROAD**





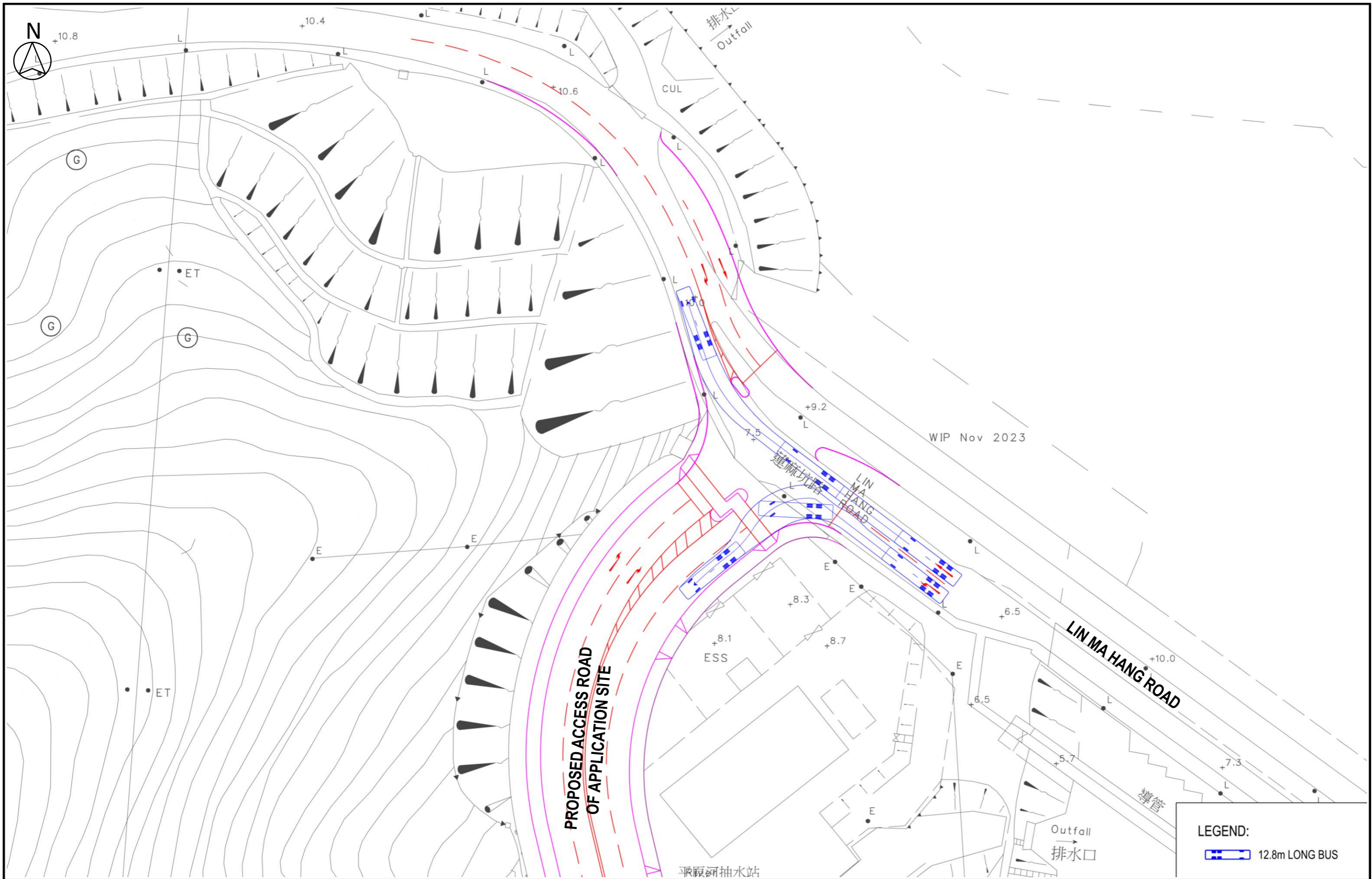
Job Title **APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES**

FIGURE 3.8

Date **SEPT 24**
 Scale **NTS**
 Drawn **CKTY**
 Job No. **287082-02**

Drawing Title **SWEPT PATH ANALYSIS OF THE PROPOSED ACCESSES ROAD AND SIGNALISED JUNCTION OF INDICATIVE SCHEME – LIN MA HANG ROAD EASTBOUND**





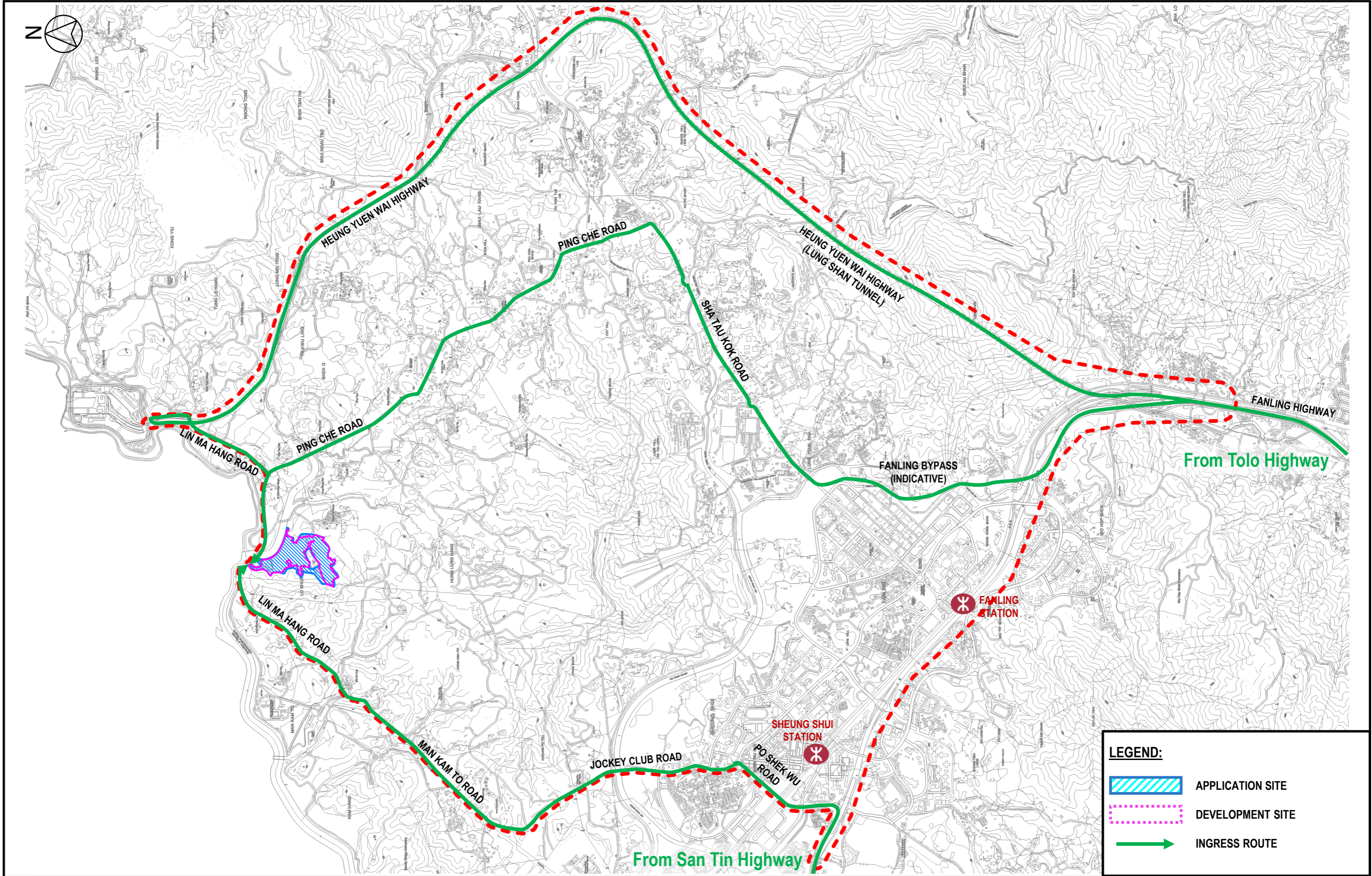
Job Title **APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES**

FIGURE 3.9




Date **SEPT 24**
 Scale **NTS**
 Drawn **CKTY**
 Job No. **287082-02**

Drawing Title **SWEPT PATH ANALYSIS OF THE PROPOSED ACCESSES ROAD AND SIGNALISED JUNCTION OF INDICATIVE SCHEME – LIN MA HANG ROAD WESTBOUND**





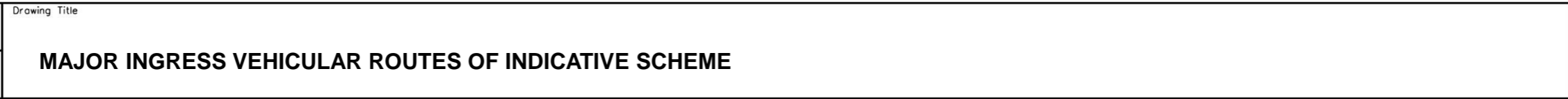
LEGEND:

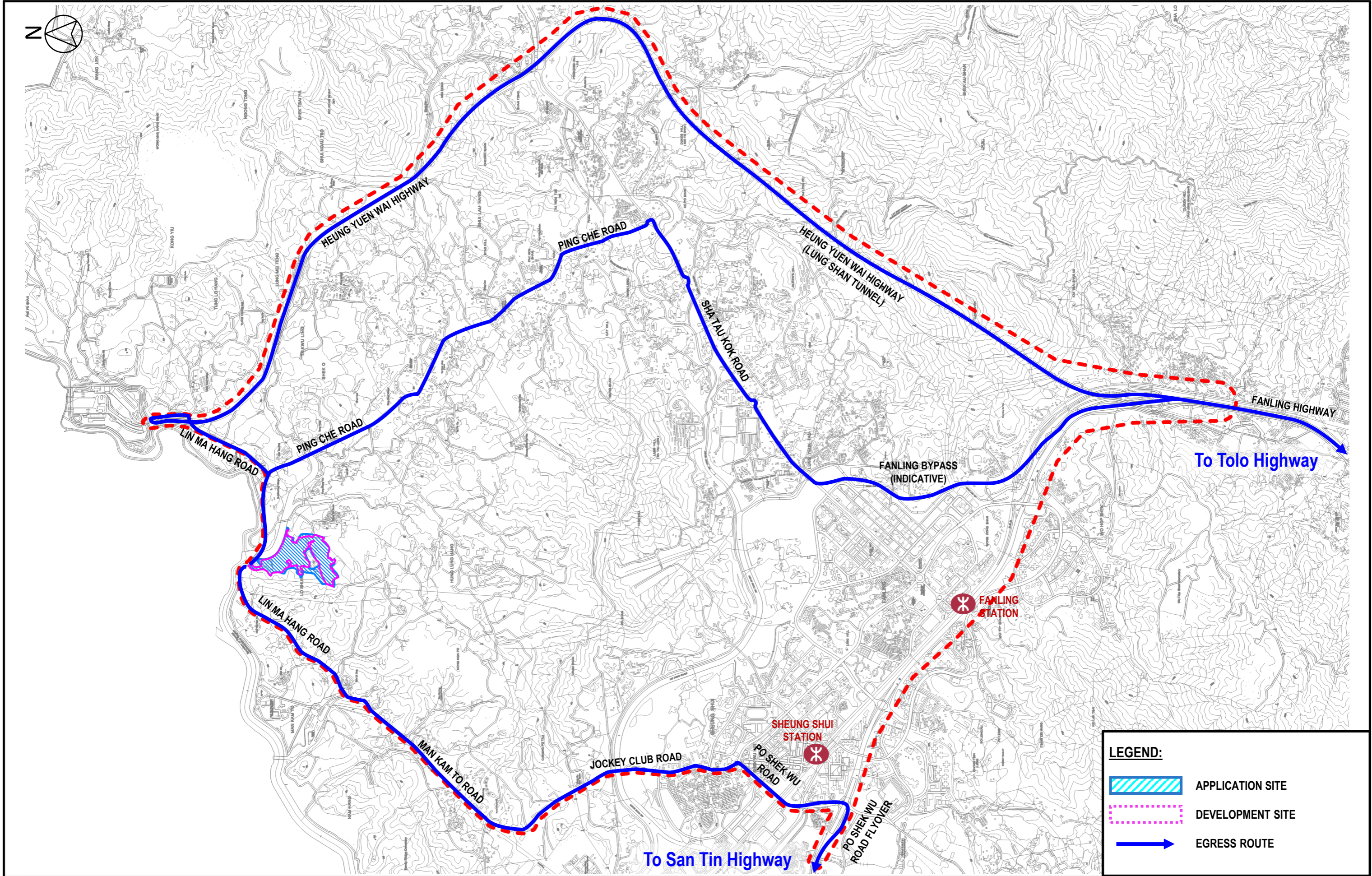
-  APPLICATION SITE
-  DEVELOPMENT SITE
-  INGRESS ROUTE

Job Title APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES

FIGURE 3.11

Date	Scale	Drawing Title
SEPT 24	NTS	MAJOR INGRESS VEHICULAR ROUTES OF INDICATIVE SCHEME
Drawn	Job No.	
CKTY	287082-02	

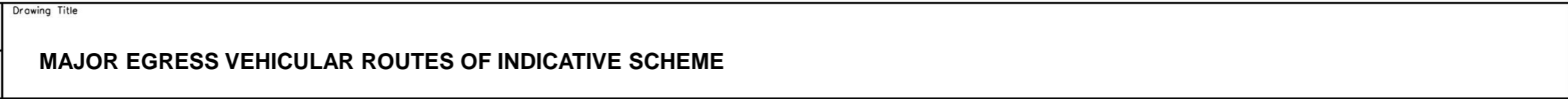


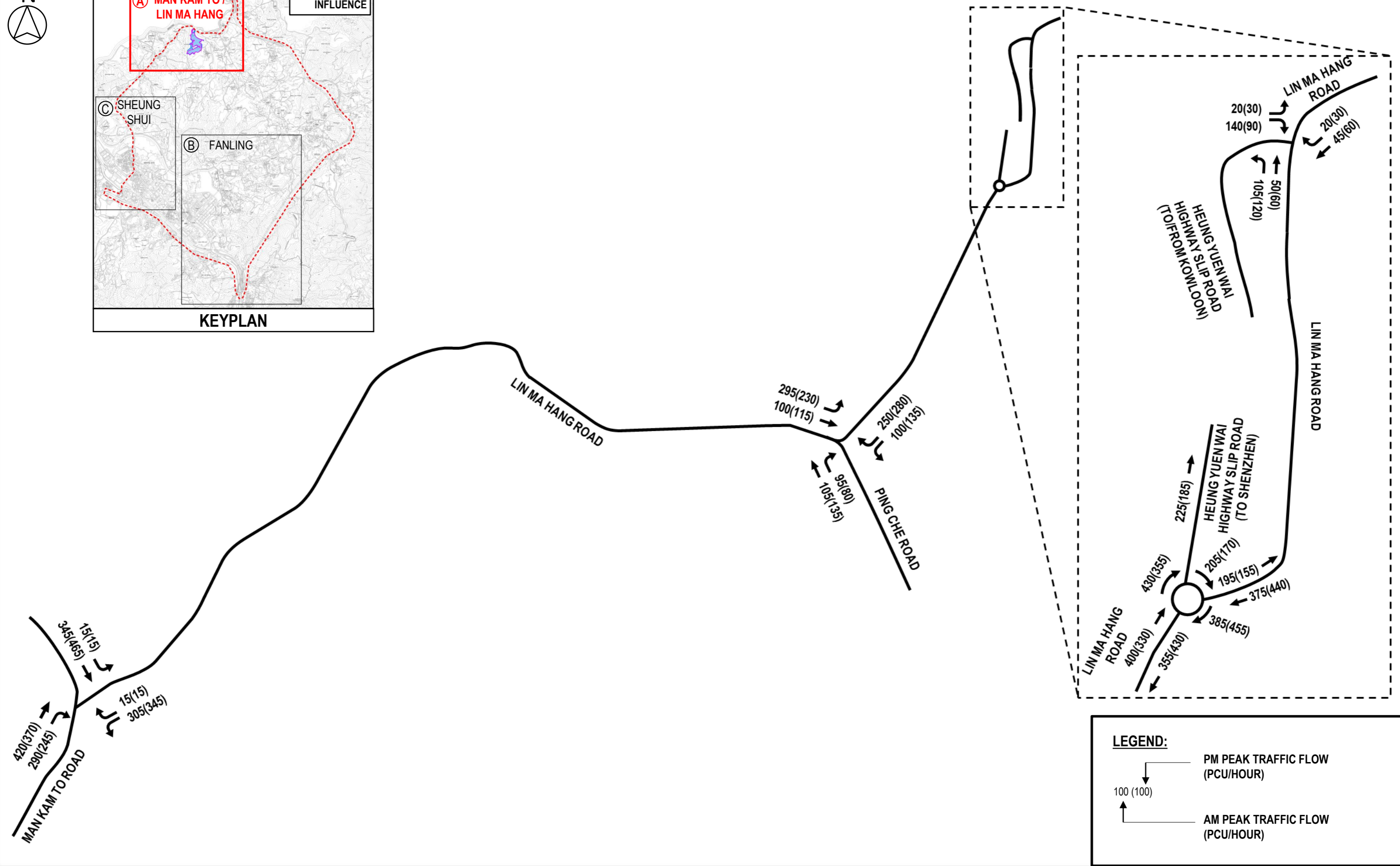
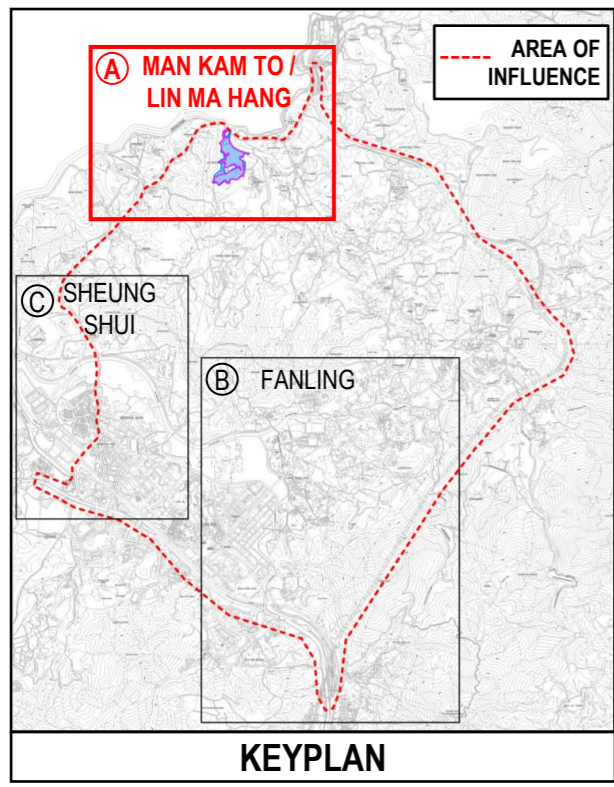
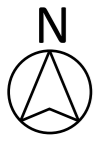


Job Title APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES

FIGURE 3.10

Date	Scale	Drawing Title
SEPT 24	NTS	MAJOR EGRESS VEHICULAR ROUTES OF INDICATIVE SCHEME
Drawn	Job No.	
CKTY	287082-02	





LEGEND:

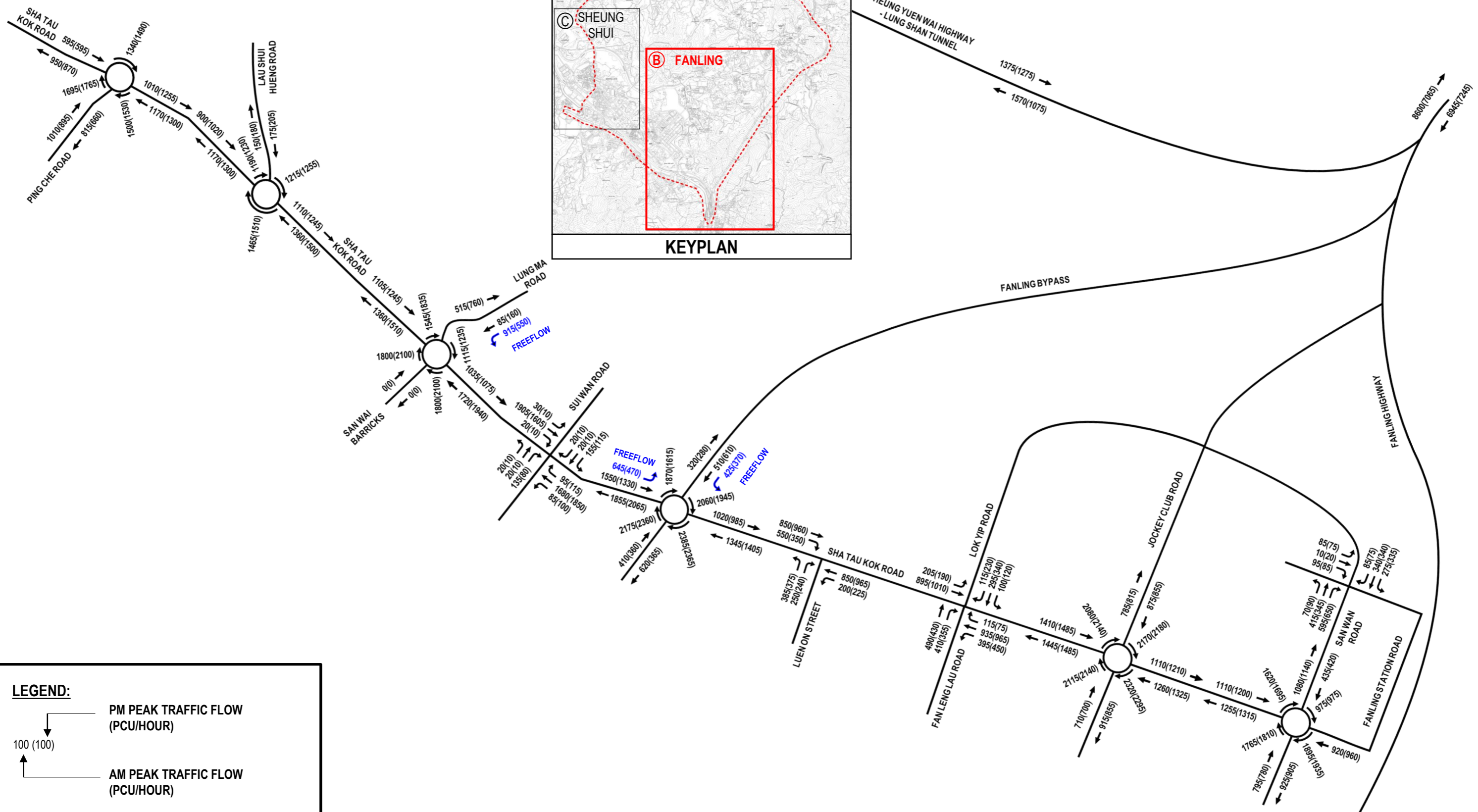
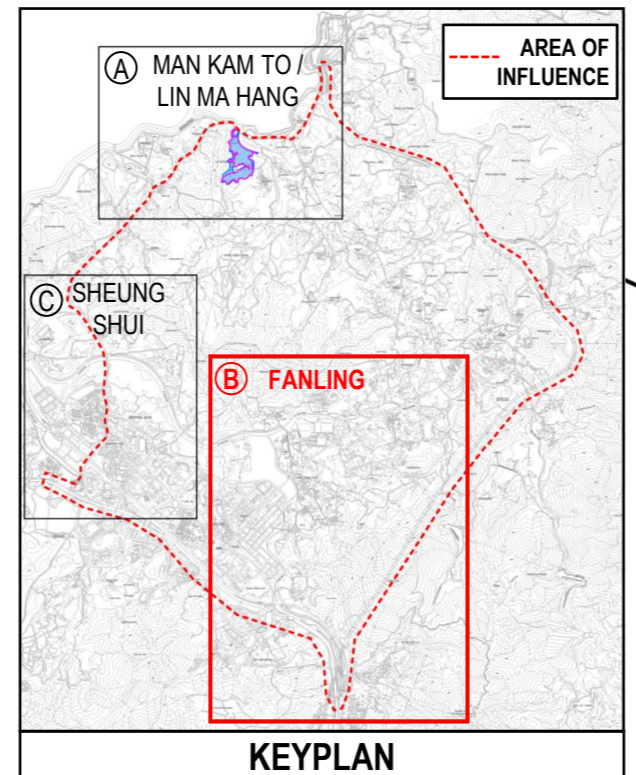
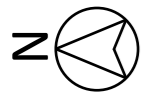
- PM PEAK TRAFFIC FLOW (PCU/HOUR)
- ← AM PEAK TRAFFIC FLOW (PCU/HOUR)

Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES

FIGURE 4.1

Date	Scale	Drawing Title
SEPT 24	NTS	YEAR 2031 REFERENCE TRAFFIC FLOW – MAN KAM TO / LIN MA HANG AREA
Drawn	Job No.	
CKTY	287082-02	





LEGEND:

PM PEAK TRAFFIC FLOW (PCU/HOUR)
 AM PEAK TRAFFIC FLOW (PCU/HOUR)

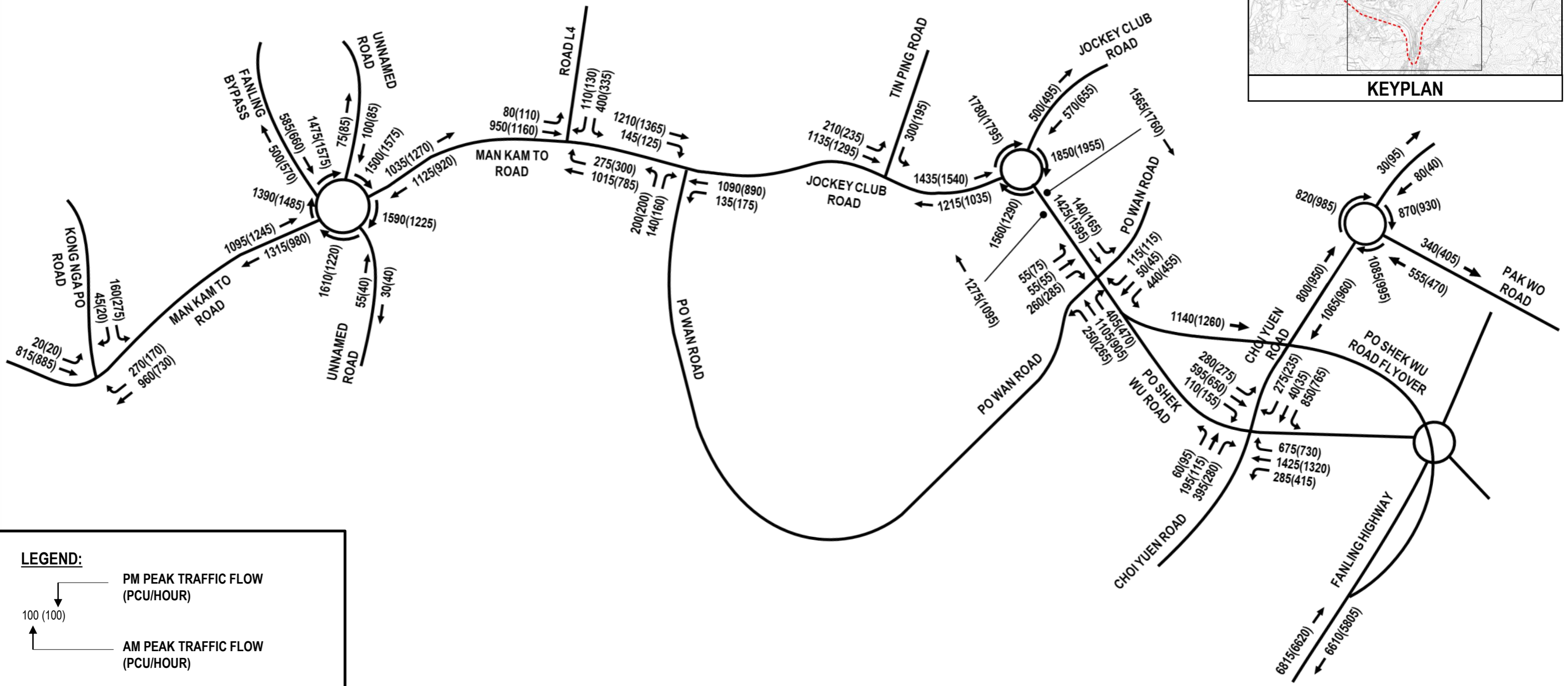
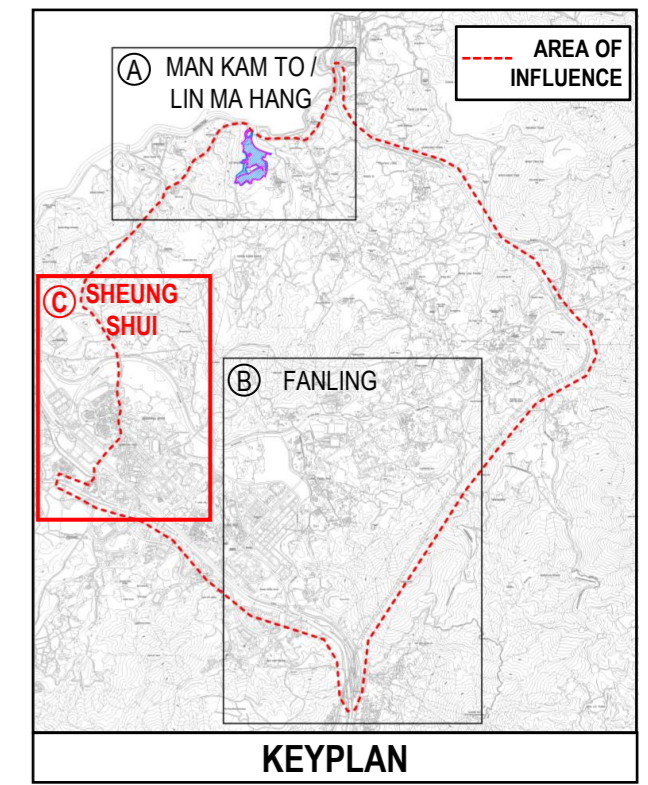
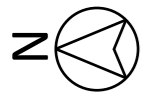
100 (100)

Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES

FIGURE 4.2

Date	Scale	Drawing Title
SEPT 24	NTS	YEAR 2031 REFERENCE TRAFFIC FLOW - FANLING AREA
Drawn	Job No.	
CKTY	287082-02	





LEGEND:

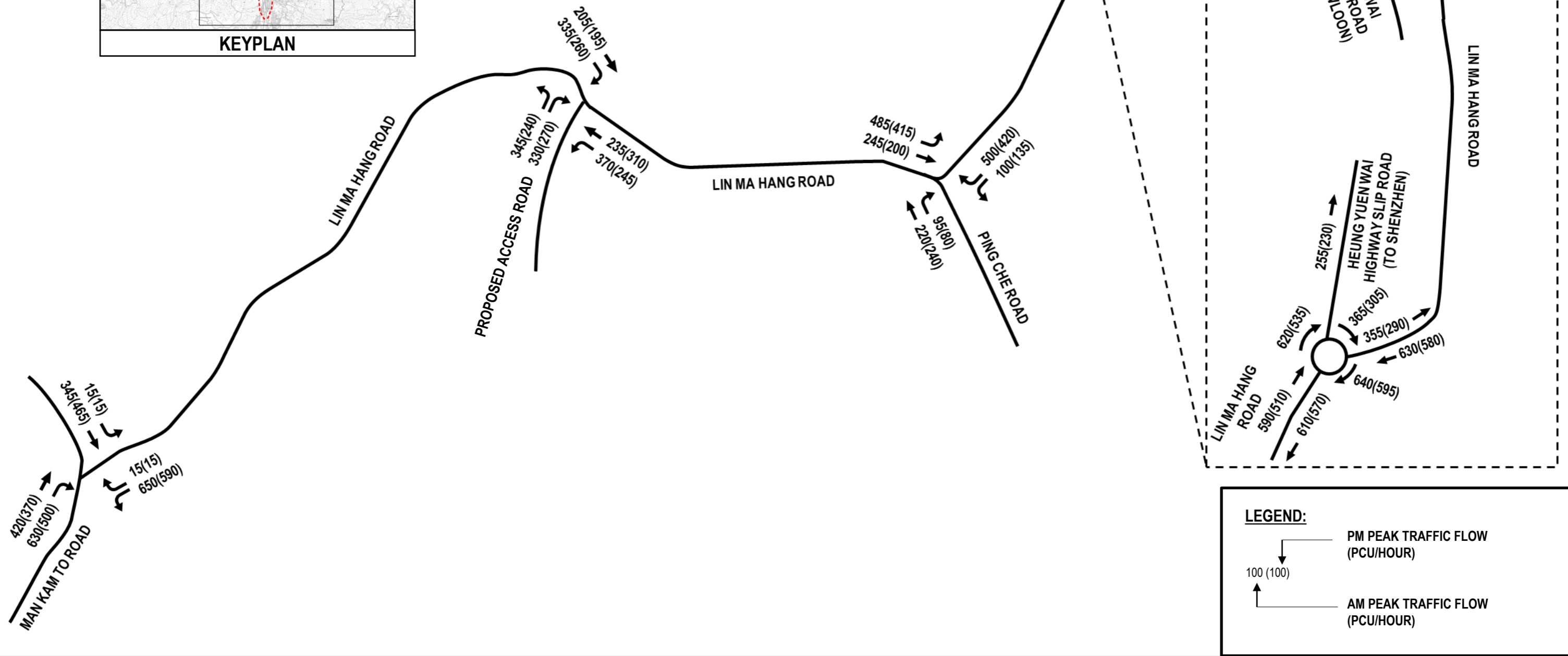
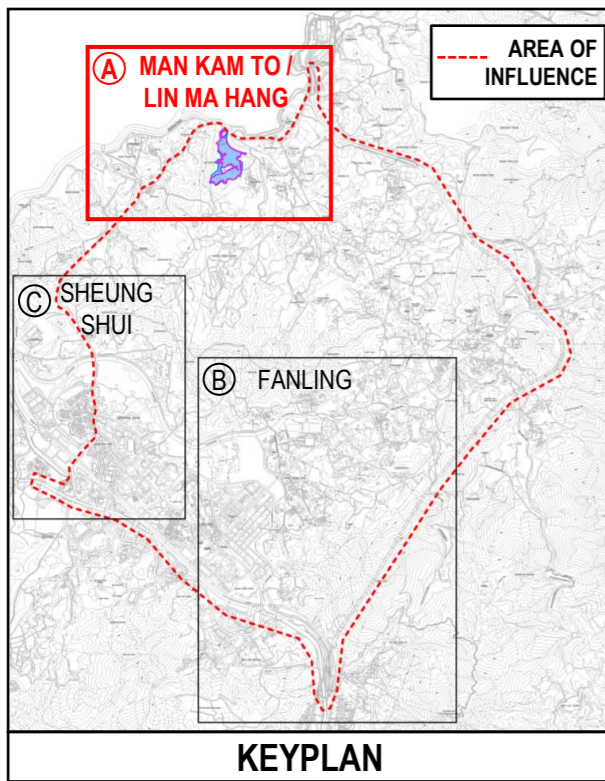
PM PEAK TRAFFIC FLOW (PCU/HOUR)
 AM PEAK TRAFFIC FLOW (PCU/HOUR)

Job Title APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES

FIGURE 4.3

Date	Scale	Drawing Title
SEPT 24	NTS	YEAR 2031 REFERENCE TRAFFIC FLOW – SHEUNG SHUI AREA
Drawn	Job No.	
CKTY	287082-02	





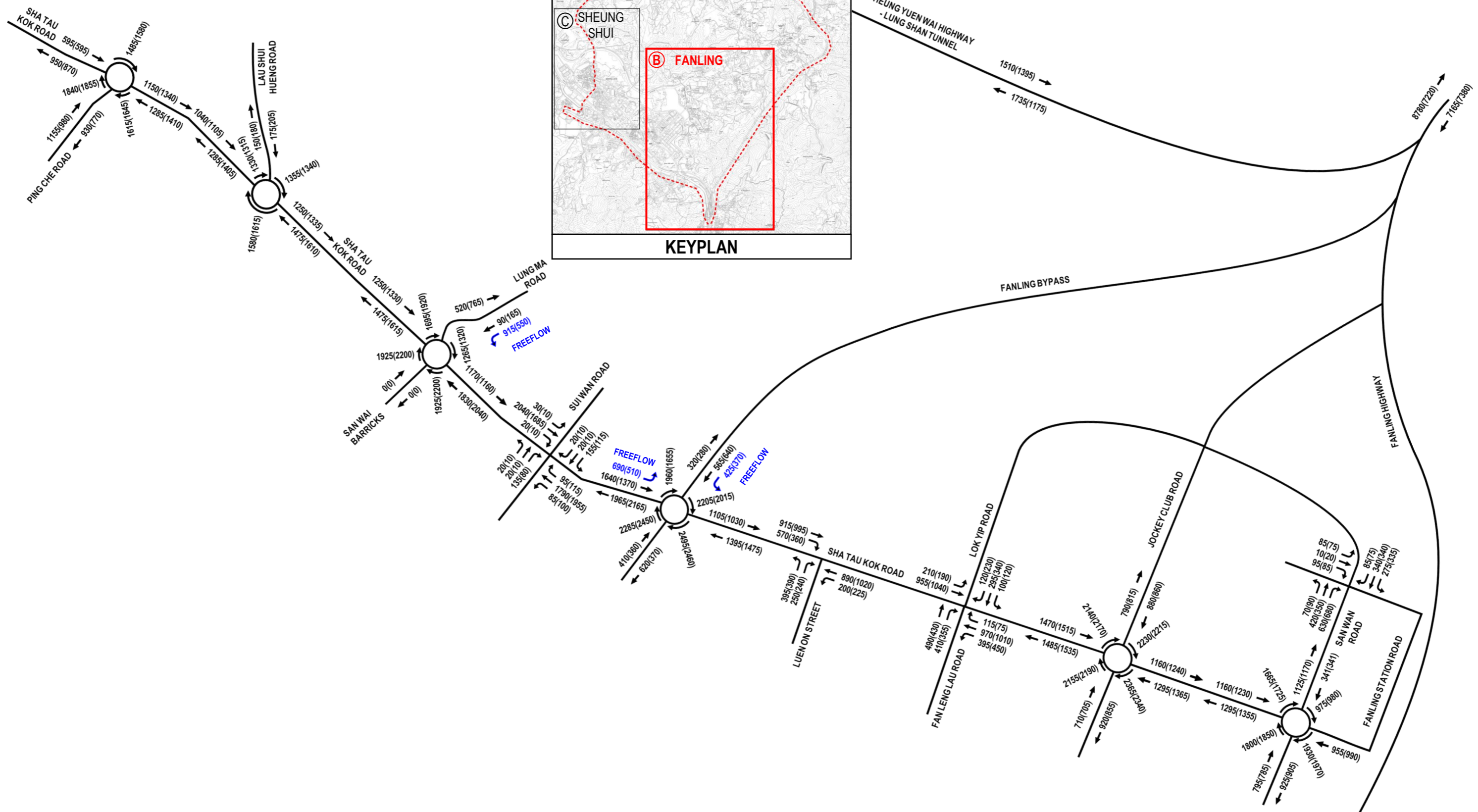
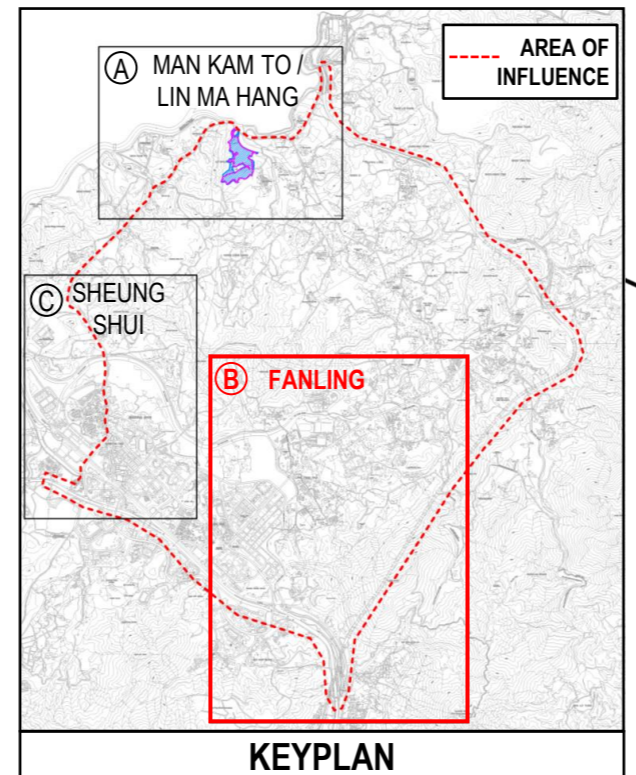
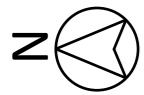
Job Title APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES

FIGURE 4.4

Date	Scale
SEPT 24	NTS
Drawn	Job No.
CKTY	287082-02

YEAR 2031 DESIGN TRAFFIC FLOW – MAN KAM TO / LIN MA HANG AREA



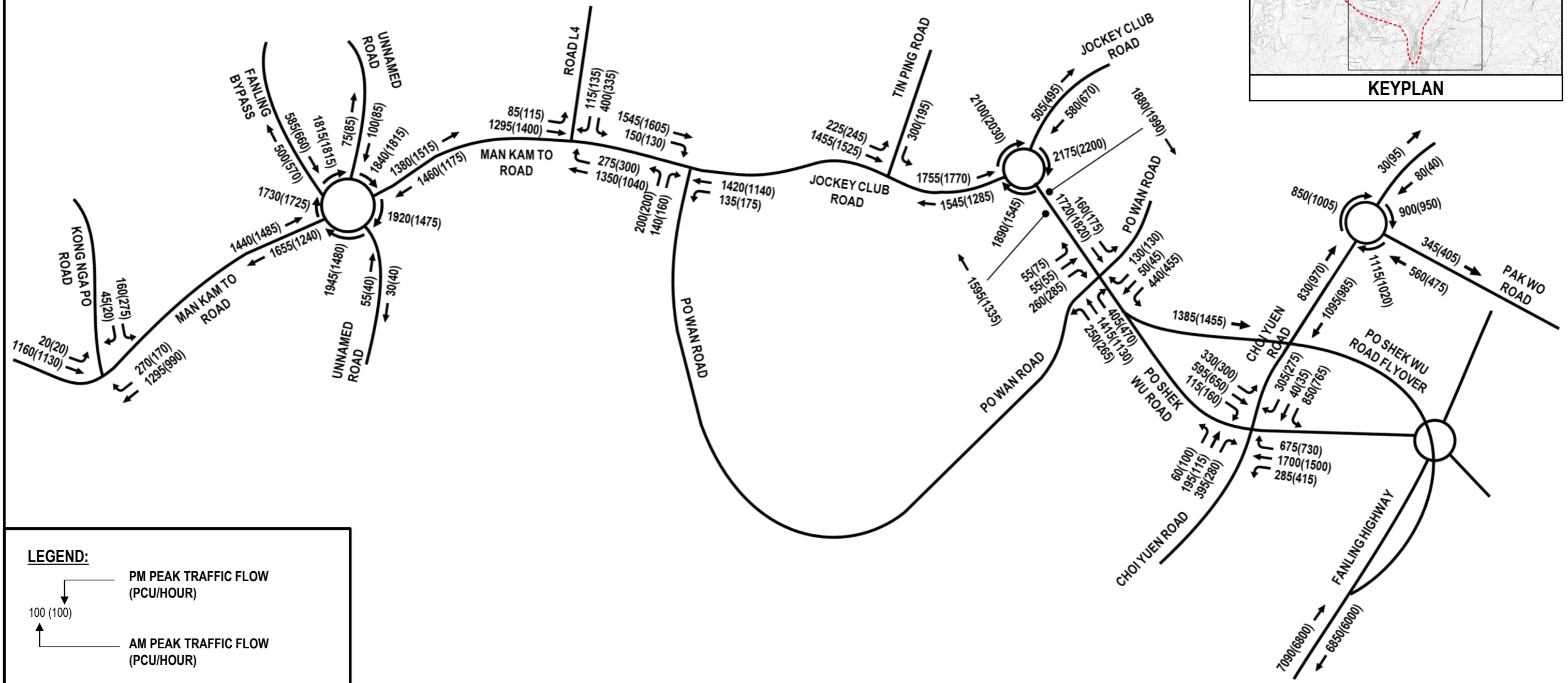
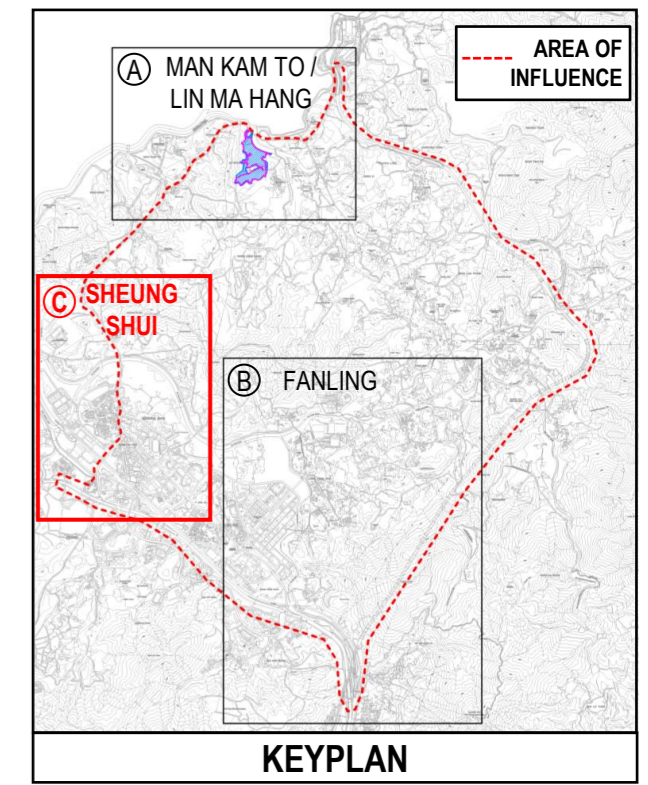
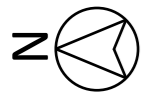


Job Title APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES

FIGURE 4.5

Date	Scale	Drawing Title
SEPT 24	NTS	YEAR 2031 DESIGN TRAFFIC FLOW – FANLING AREA
Drawn	Job No.	
CKTY	287082-02	





LEGEND:

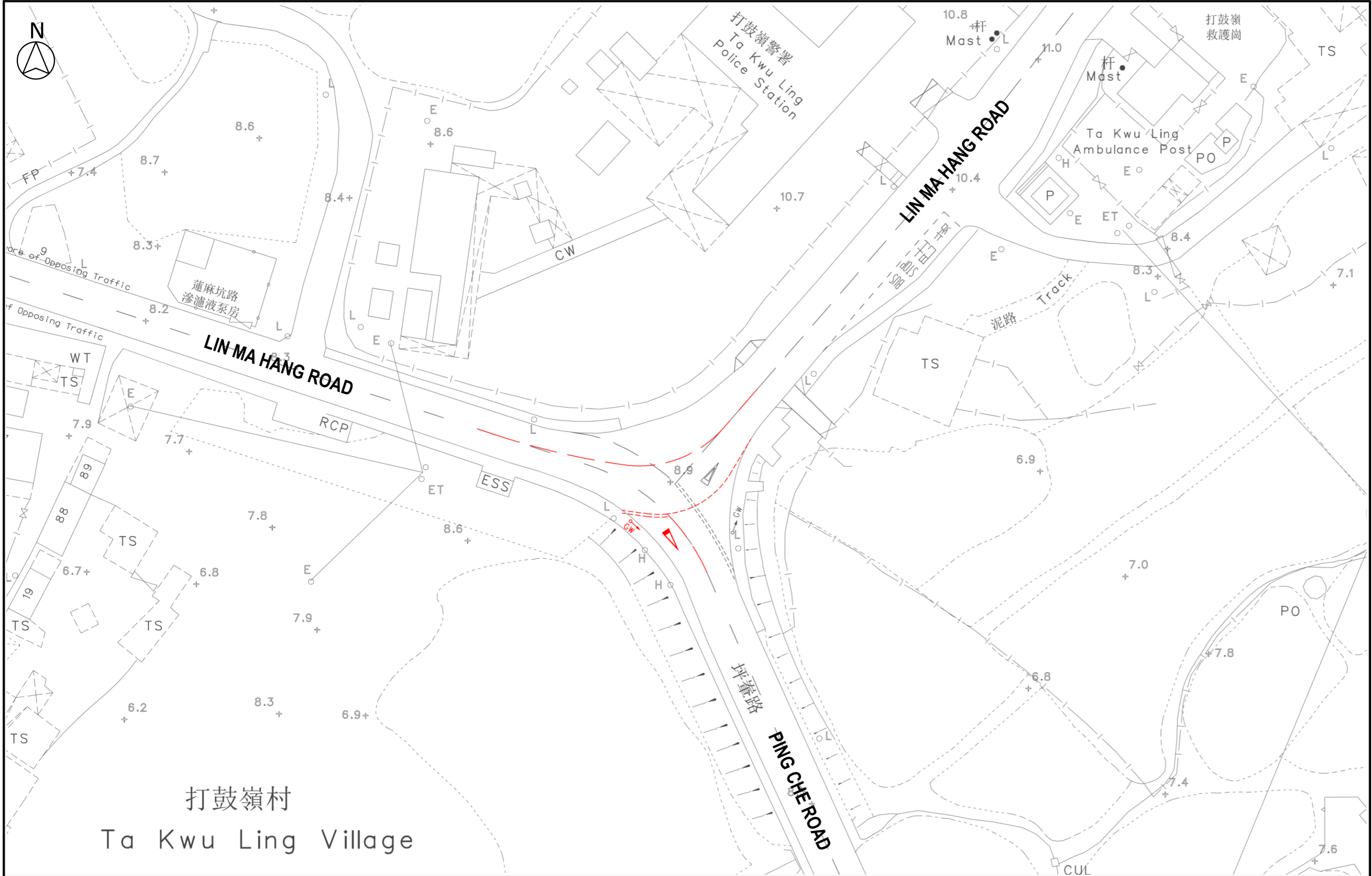
- PM PEAK TRAFFIC FLOW (PCU/HOUR)
- AM PEAK TRAFFIC FLOW (PCU/HOUR)

Job Title APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES

FIGURE 4.6

Date	Scale	Drawing Title
SEPT 24	NTS	YEAR 2031 DESIGN TRAFFIC FLOW – SHEUNG SHUI AREA
Drawn	Job No.	
CKTY	287082-02	





打鼓嶺村
Ta Kwu Ling Village

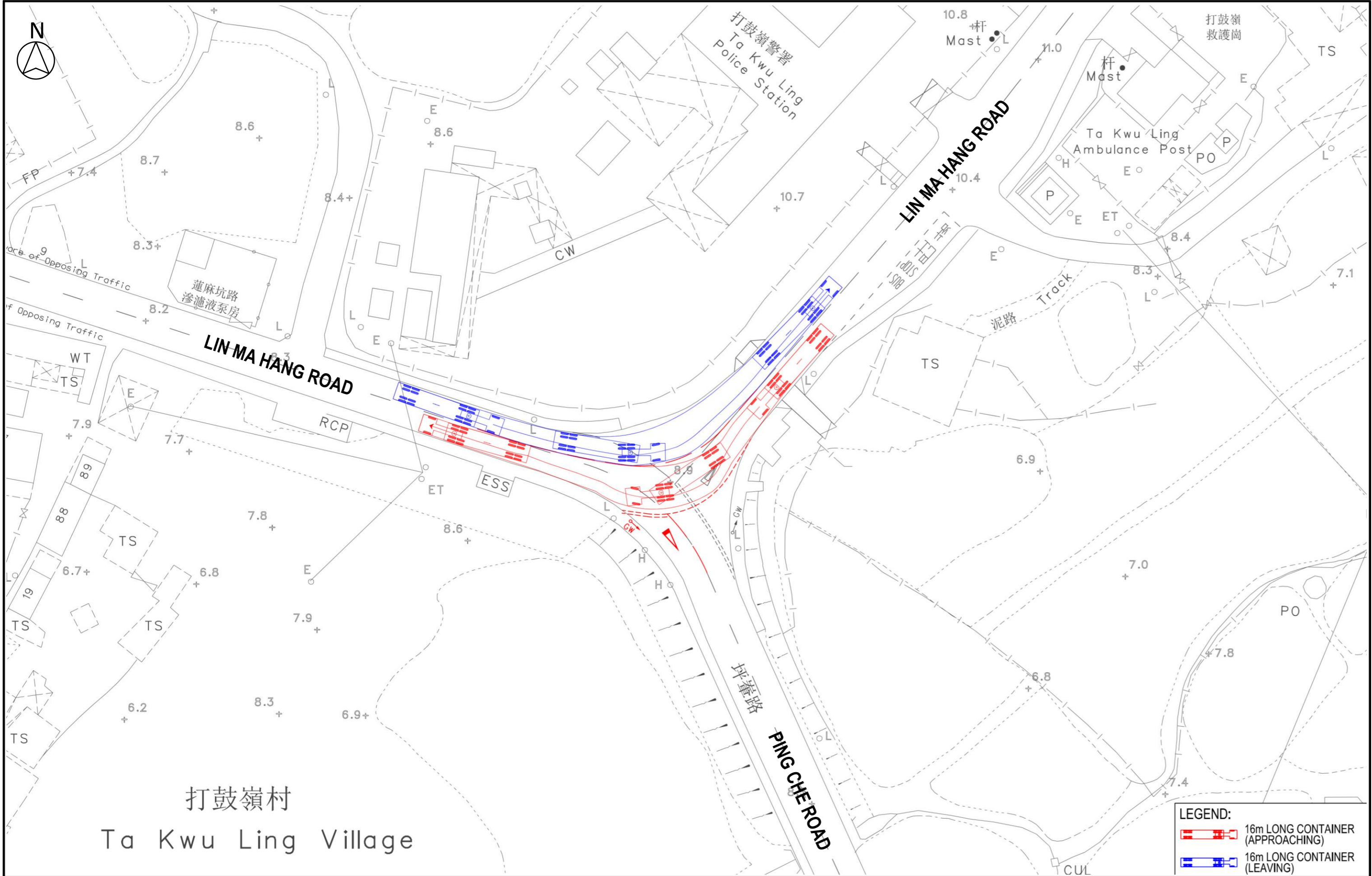
Job Title APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES

FIGURE 4.7

Date	Scale
SEPT 24	NTS
Drawn	Job No.
CKTY	287082-02

Drawing Title
PROPOSED JUNCTION MODIFICATION FOR J2 – LIN MA HANG ROAD / PING CHE ROAD





LEGEND:

- 16m LONG CONTAINER (APPROACHING)
- 16m LONG CONTAINER (LEAVING)

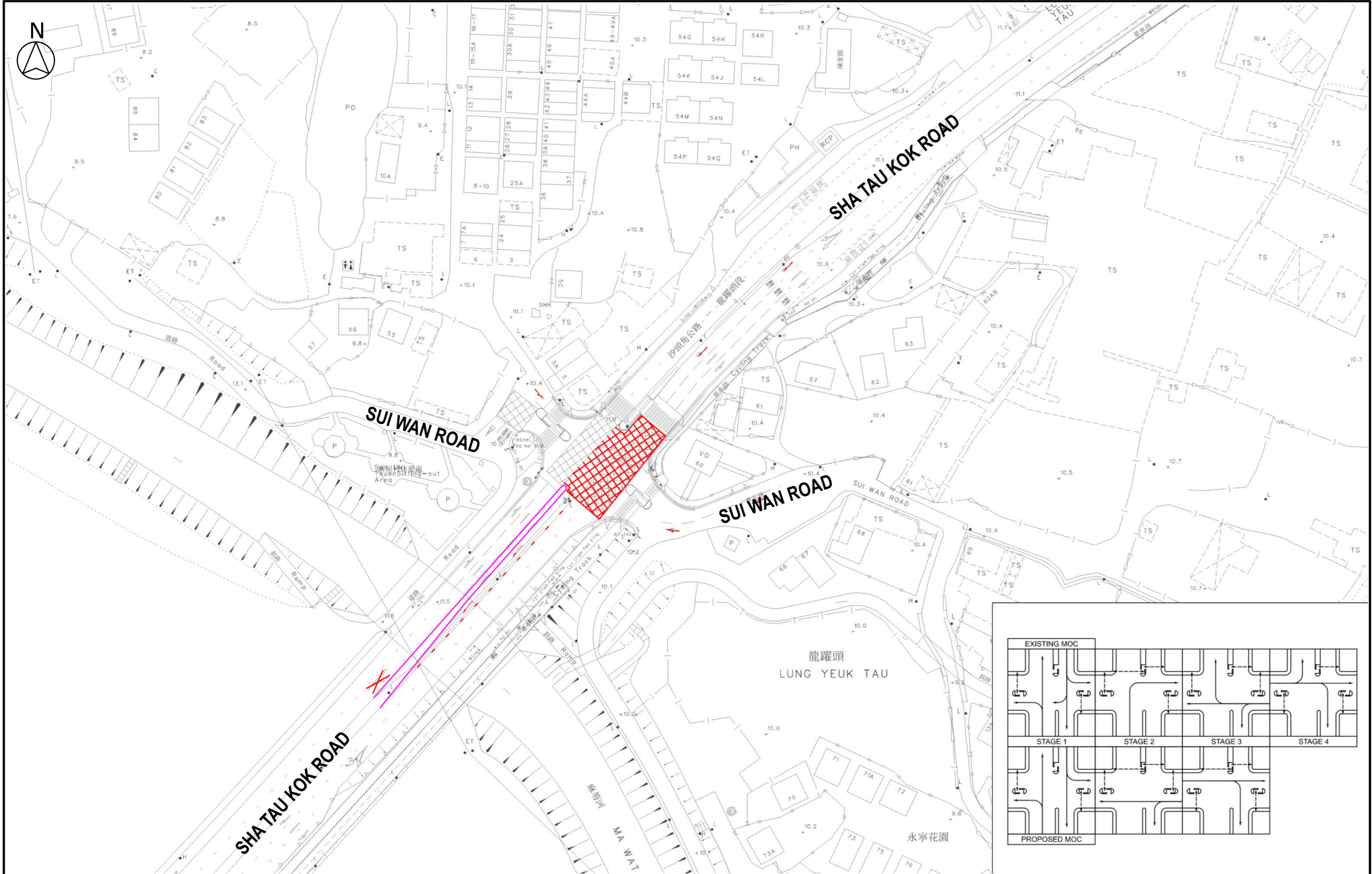
Job Title **APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES**

FIGURE 4.8

Date **SEPT 24**
 Scale **NTS**
 Drawn **CKTY**
 Job No. **287082-02**

Drawing Title **SWEPT PATH ANALYSIS OF PROPOSED JUNCTION MODIFICATION FOR J2 – LIN MA HANG ROAD / PING CHE ROAD**



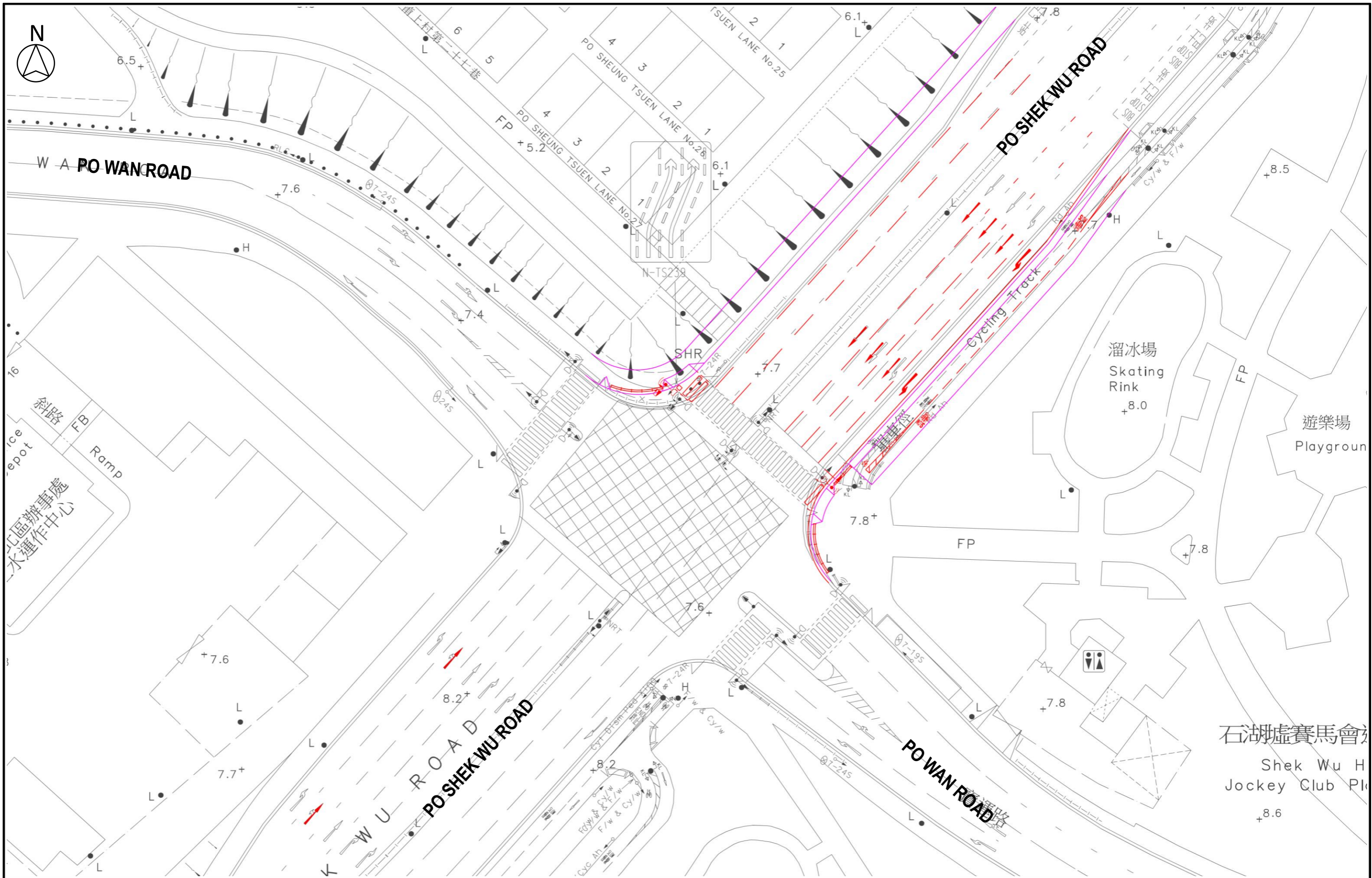


Job Title **APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES**

FIGURE 4.9

Date	Scale	Drawing Title
SEPT 24	NTS	PROPOSED JUNCTION MODIFICATION FOR J8 – SHA TAU KOK ROAD / SUI WAN ROAD
Drawn	Job No.	
CKTY	287082-02	

ARUP



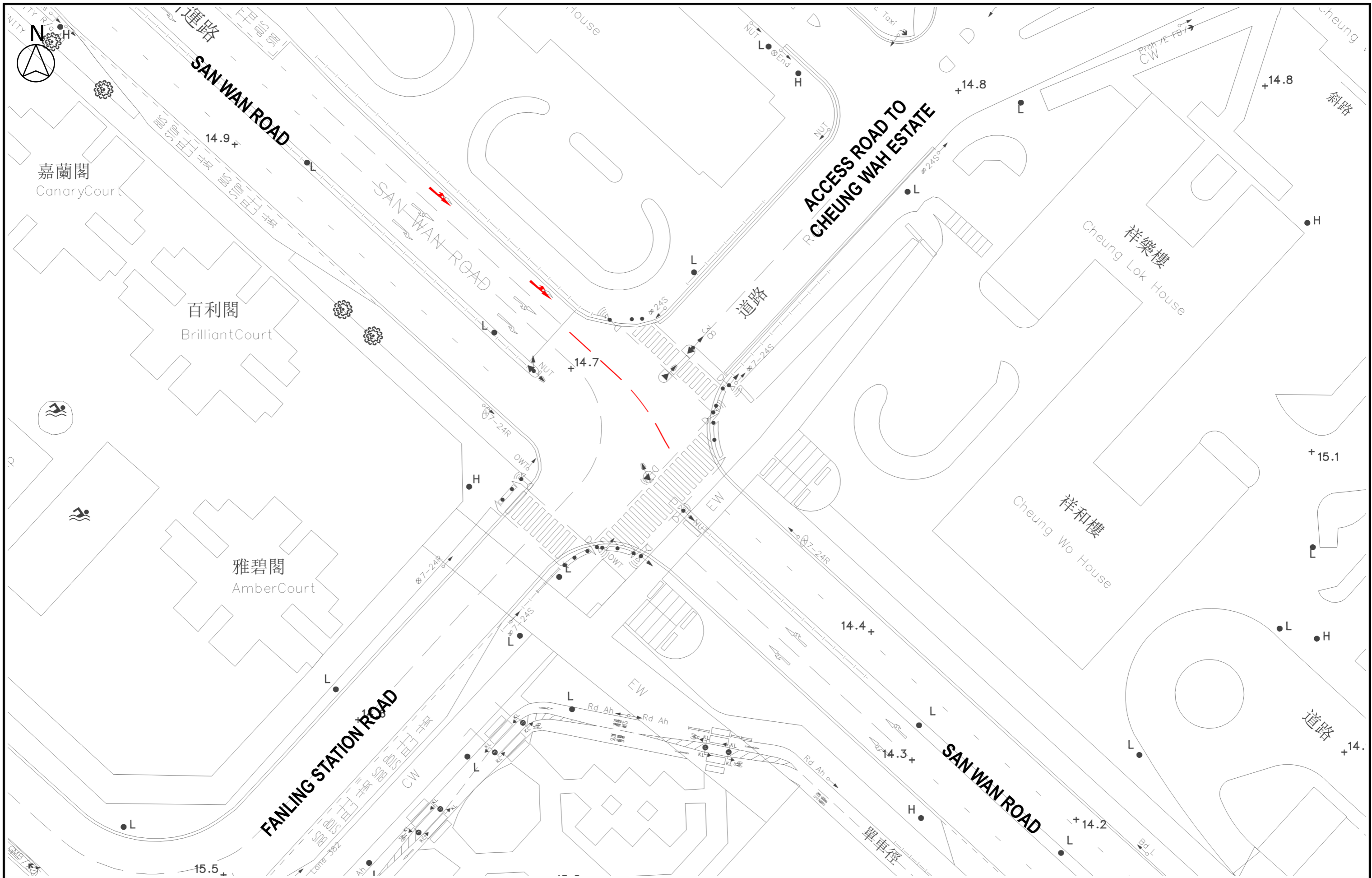
Job Title APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES

FIGURE 4.10

Date	Scale	Drawing Title
SEPT 24	NTS	PROPOSED JUNCTION MODIFICATION FOR J13 – PO SHEK WU ROAD / PO WAN ROAD
Drawn	Job No.	
CKTY	287082-02	

PROPOSED JUNCTION MODIFICATION FOR J13 – PO SHEK WU ROAD / PO WAN ROAD



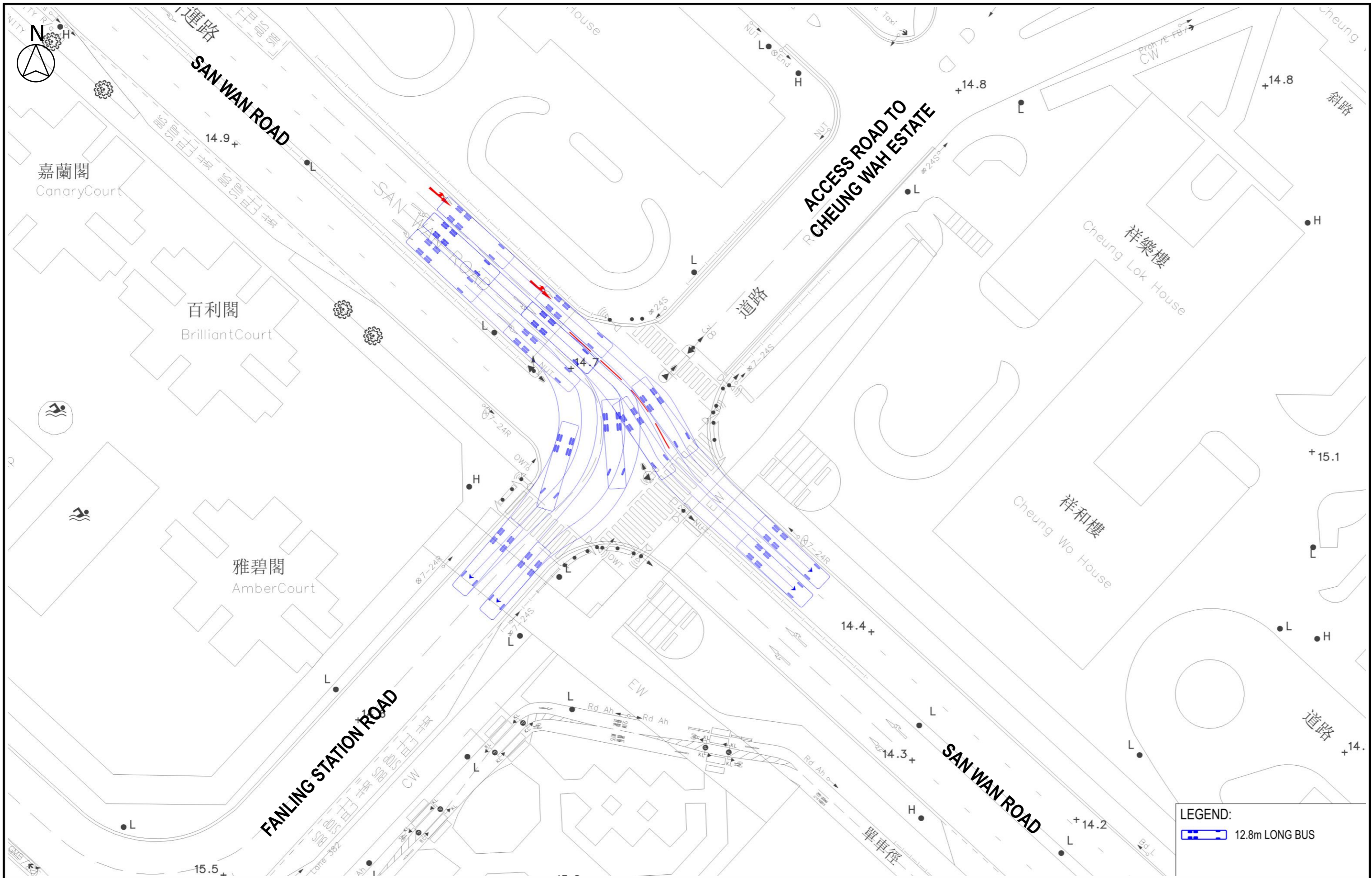


Job Title **APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES**

FIGURE 4.11

Date	Scale	Drawing Title
SEPT 24	NTS	PROPOSED JUNCTION MODIFICATION FOR J23 – SAN WAN ROAD / FANLING STATION ROAD
Drawn	Job No.	
CKTY	287082-02	





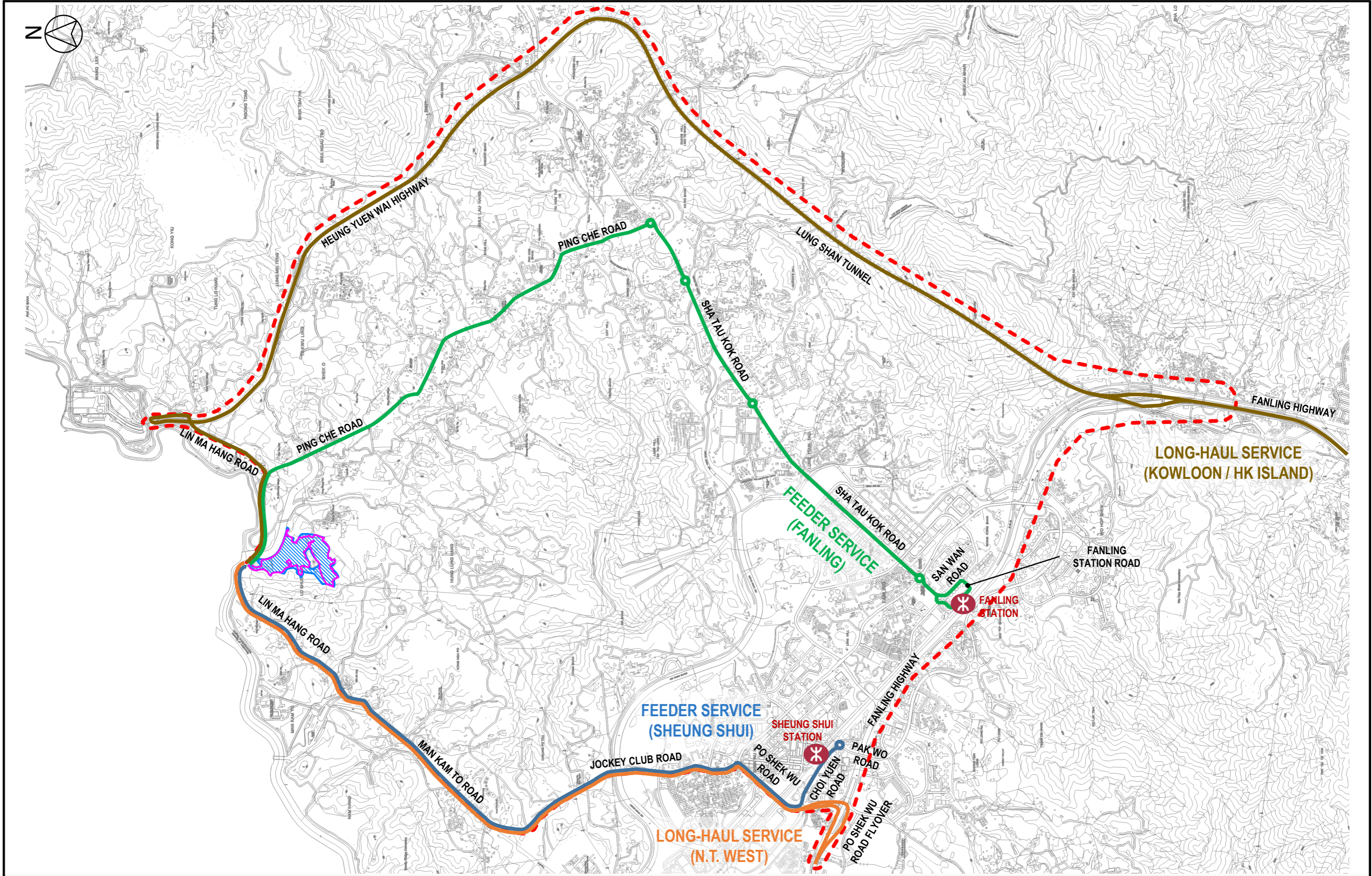
Job Title **APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES**

FIGURE 4.12

Date	Scale	Drawing Title
SEPT 24	NTS	
Drawn	Job No.	
CKTY	287082-02	

SWEPT PATH ANALYSIS OF PROPOSED JUNCTION MODIFICATION FOR J23 – SAN WAN ROAD / FANLING STATION ROAD





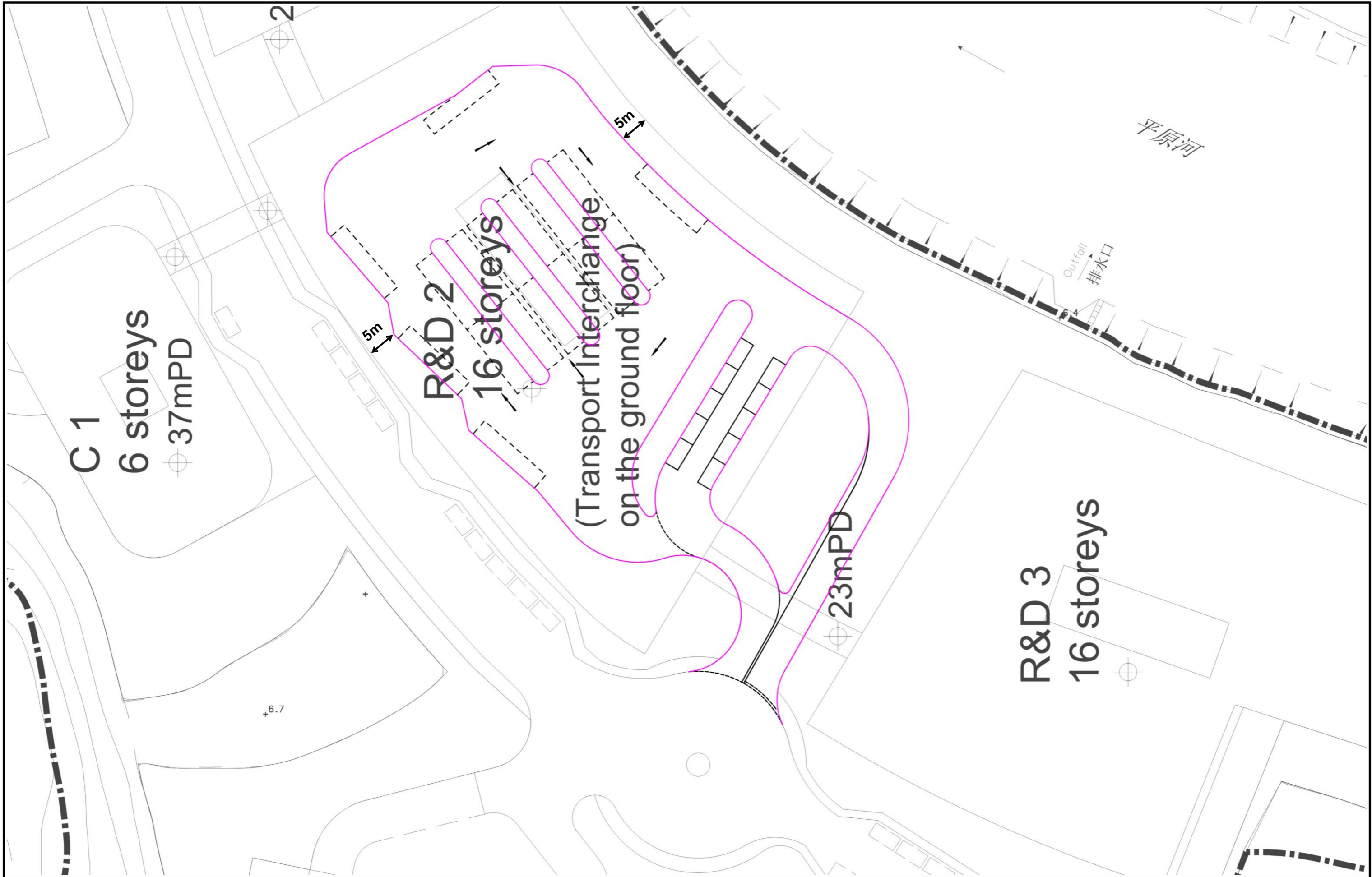
Job Title APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES

FIGURE 4.13

Date	Scale	Drawing Title
SEPT 24	NTS	PROPOSED ROUTING OF PROPOSED FEEDER SERVICES AND LONG-HAUL SERVICES
Drawn	Job No.	
CKTY	287082-02	

PROPOSED ROUTING OF PROPOSED FEEDER SERVICES AND LONG-HAUL SERVICES





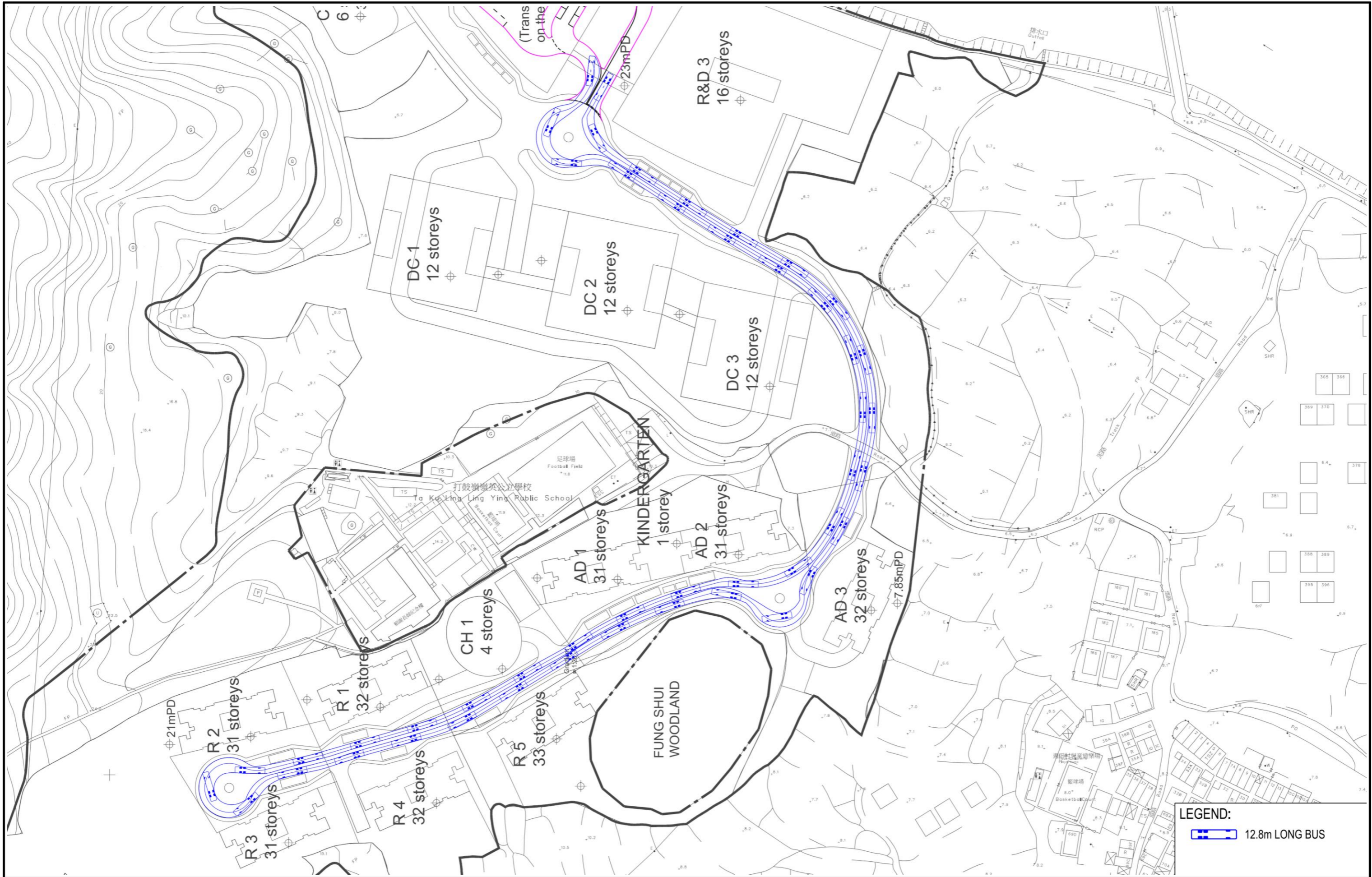
Job Title APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES

FIGURE 4.14

Date	Scale
SEPT 24	NTS
Drawn	Job No.
CKTY	287082-02

Drawing Title
PROPOSED LAYOUT OF TERMINATING FACILITIES





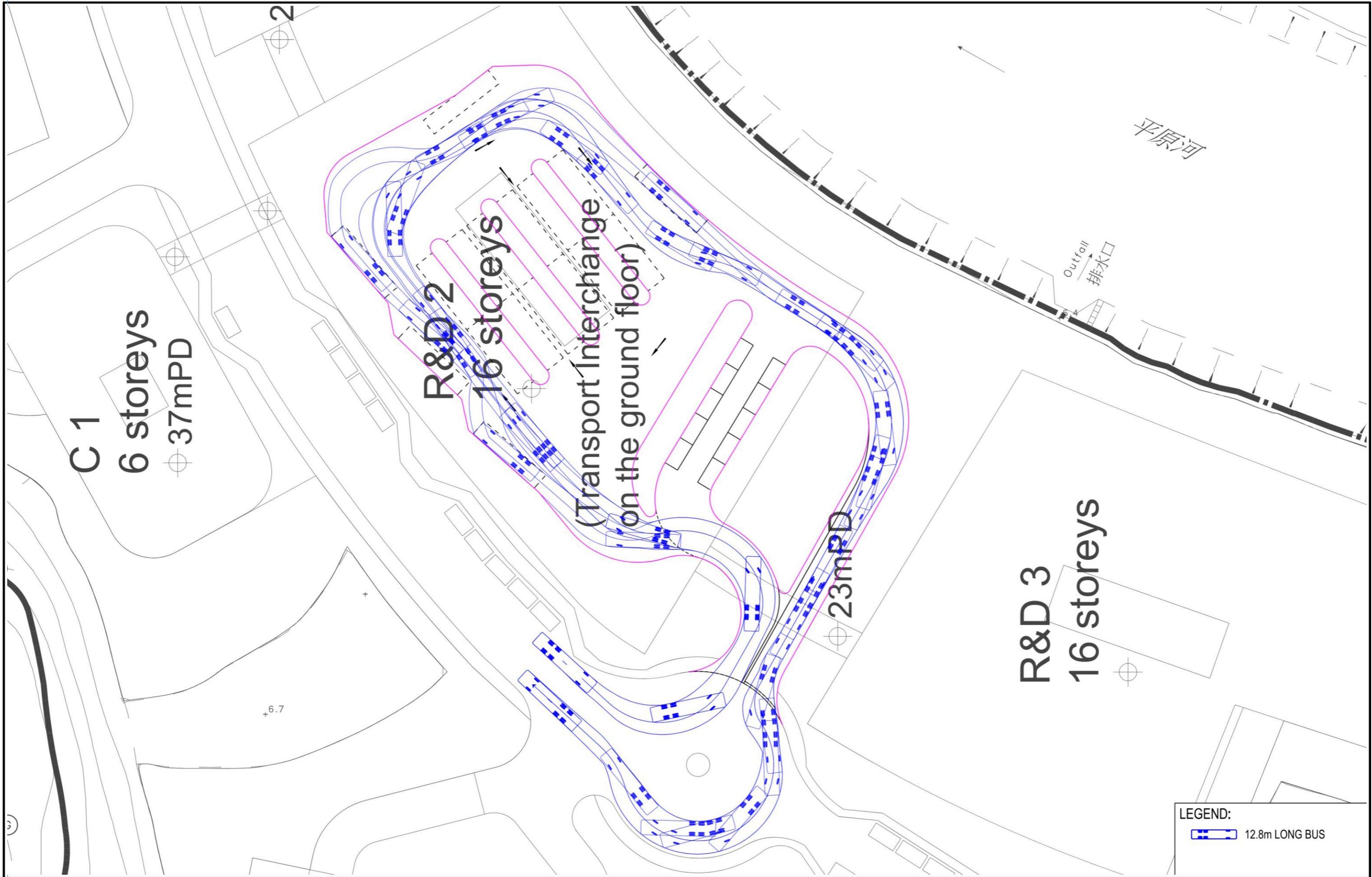
Job Title **APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES**

FIGURE 4.15

Date	Scale	Drawing Title
SEPT 24	NTS	SWEPT PATH ANALYSIS OF 12.8m LONG BUS BETWEEN THE PROPOSED TRANSPORT INTERCHANGE AND THE EN-ROUTE BUS STOPS
Drawn	Job No.	
CKTY	287082-02	

SWEPT PATH ANALYSIS OF 12.8m LONG BUS BETWEEN THE PROPOSED TRANSPORT INTERCHANGE AND THE EN-ROUTE BUS STOPS





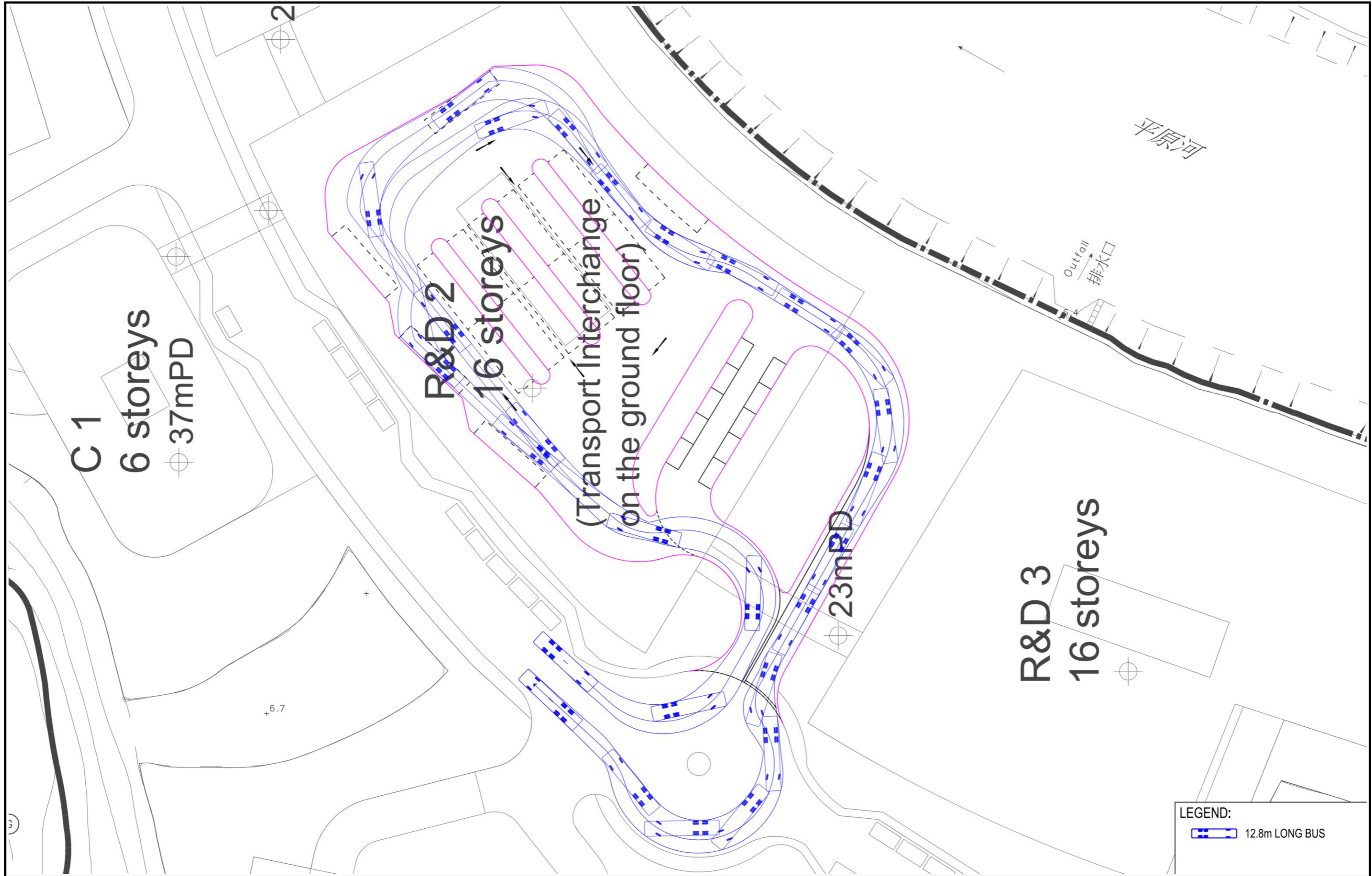
Job Title APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES

FIGURE 4.16

Date	Scale
SEPT 24	NTS
Drawn	Job No.
CKTY	287082-02

Drawing Title
SWEPT PATH ANALYSIS OF 12.8m LONG BUS ON BUS BAY 1, 3, 5



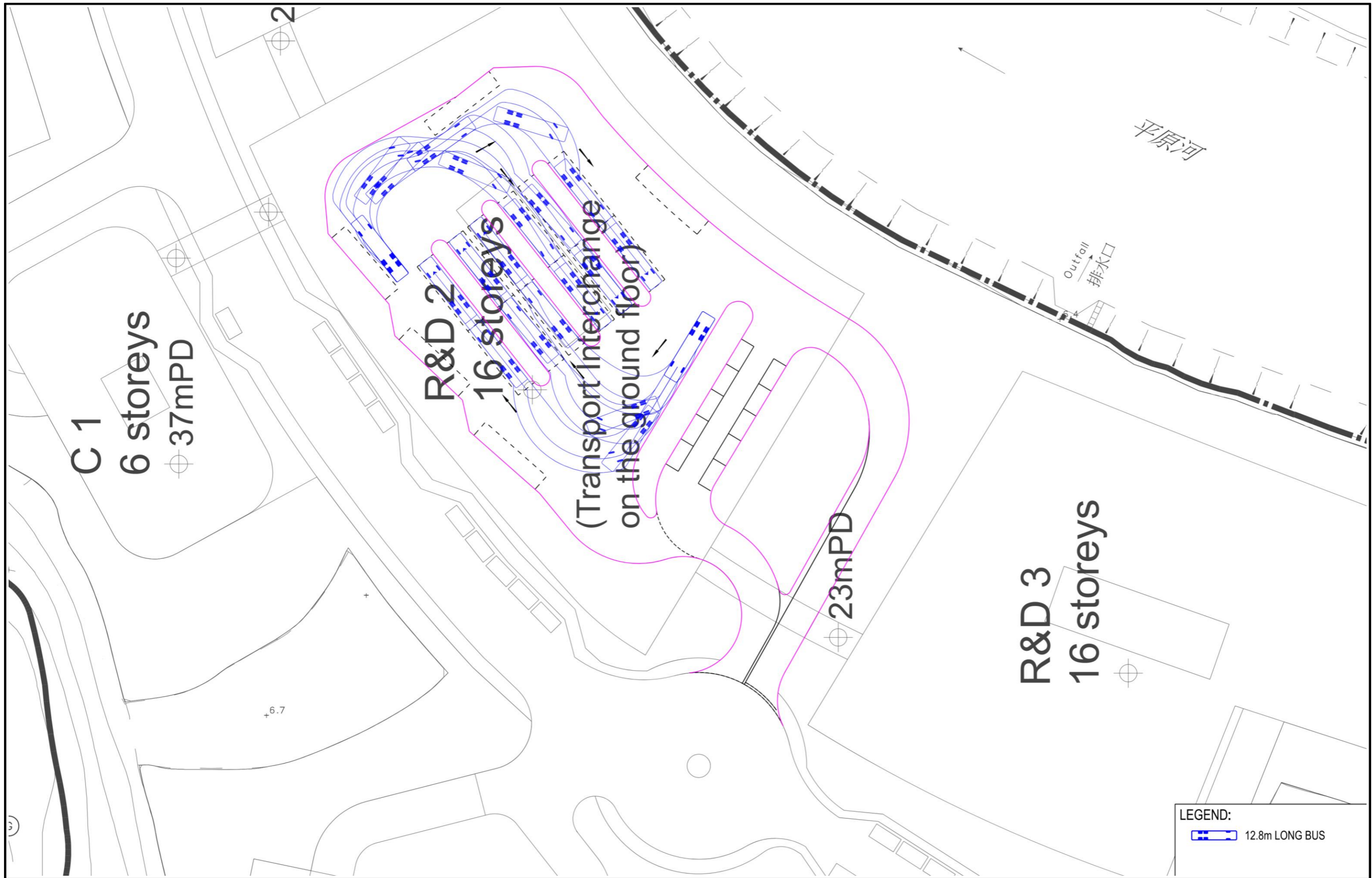


Job Title APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES

FIGURE 4.17

Date	Scale	Drawing Title
SEPT 24	NTS	SWEPT PATH ANALYSIS OF 12.8m LONG BUS ON BUS BAY 2, 4
Drawn	Job No.	
CKTY	287082-02	





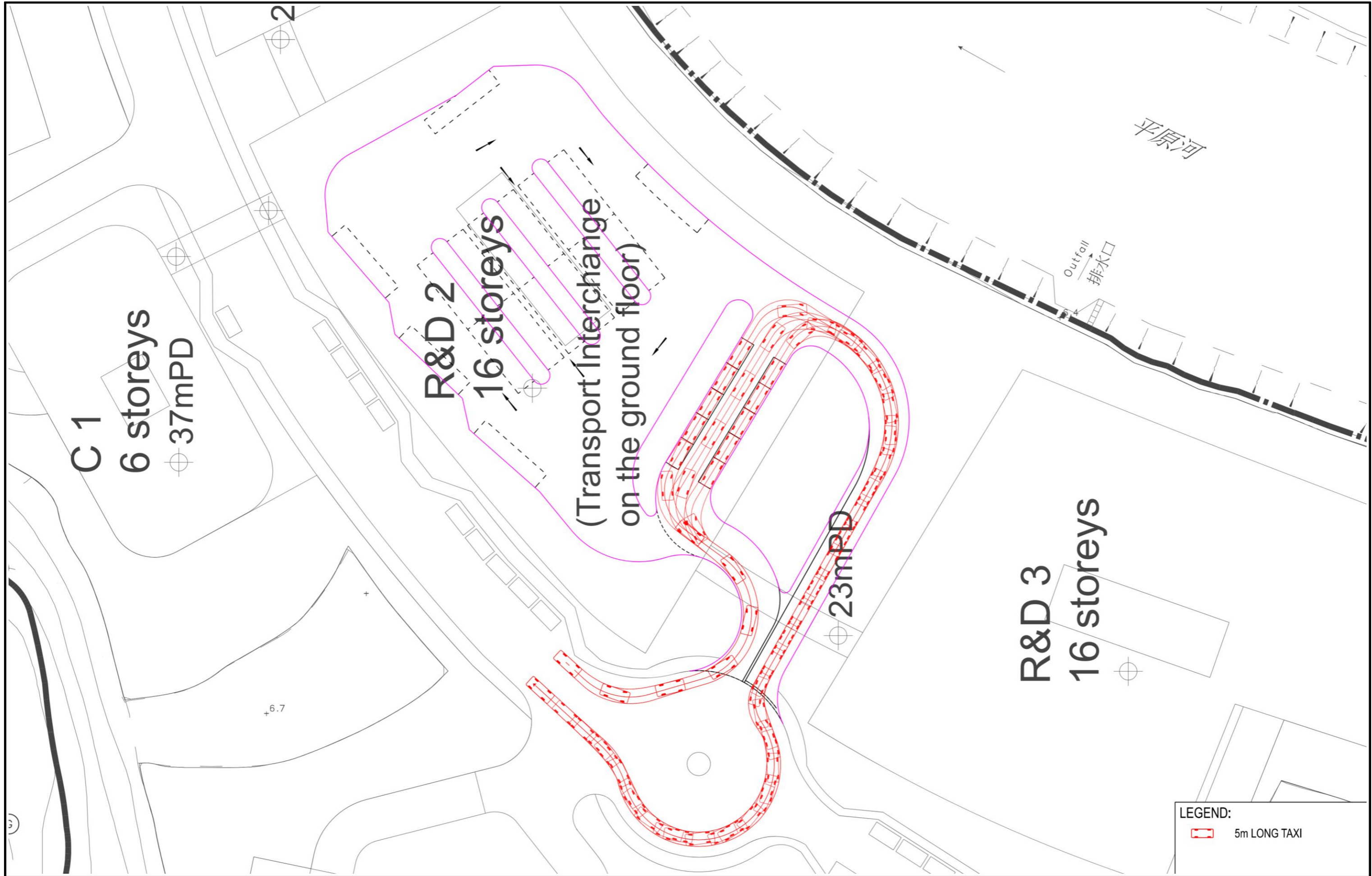
Job Title APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES

FIGURE 4.18

Date	Scale
SEPT 24	NTS
Drawn	Job No.
CKTY	287082-02

Drawing Title
SWEPT PATH ANALYSIS OF 12.8m LONG BUS ON BUS STACKING AREA





LEGEND:
 5m LONG TAXI

Job Title **APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES**

FIGURE 4.19

Date **SEPT 24**
 Scale **NTS**
 Drawn **CKTY**
 Job No. **287082-02**

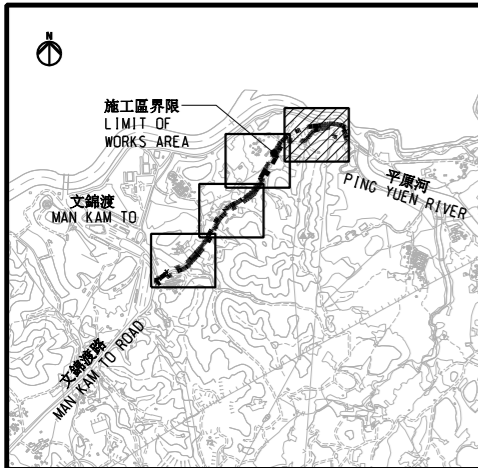
Drawing Title **SWEPT PATH ANALYSIS OF 5m LONG TAXI ON TAXI STANDS**



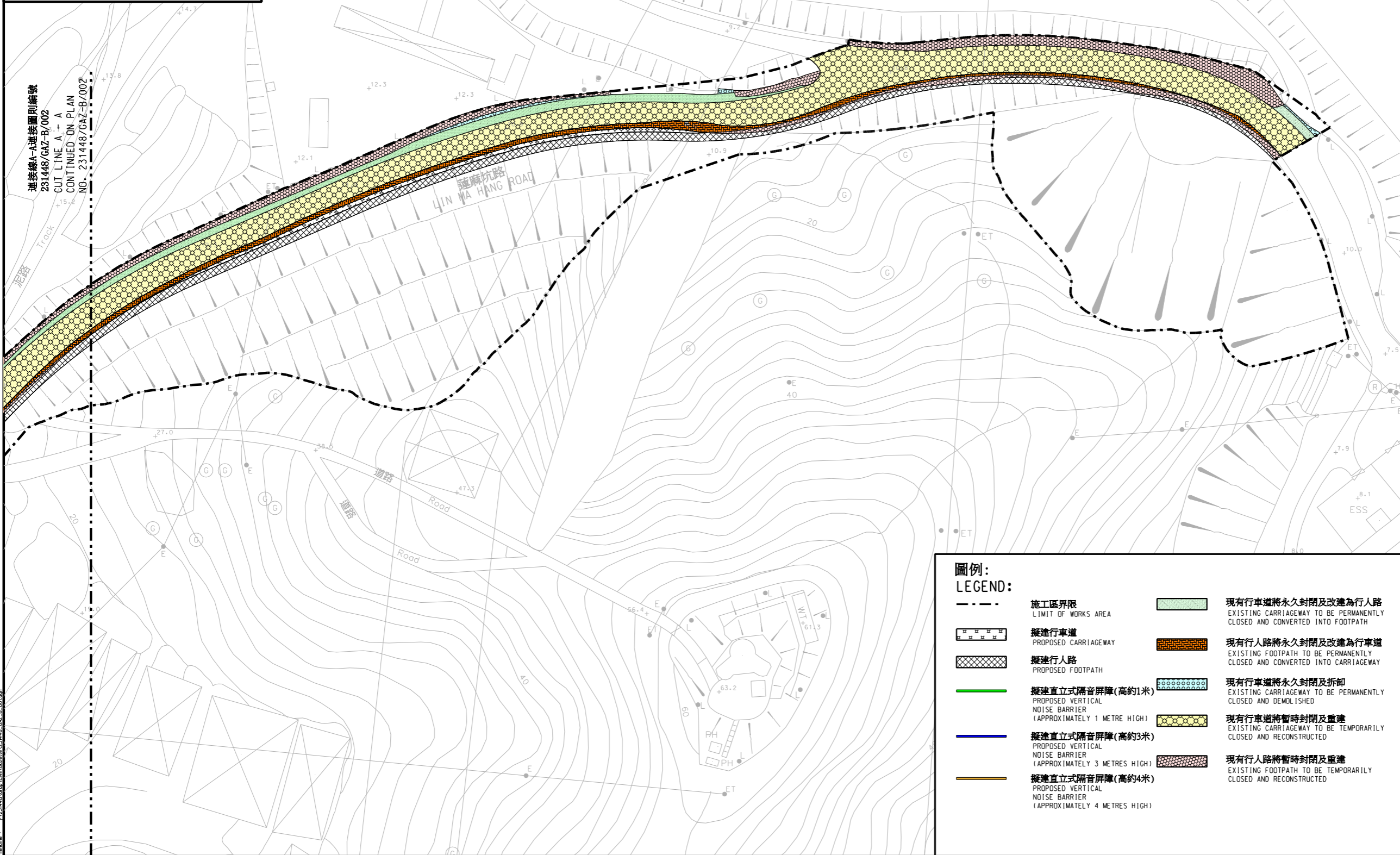
Appendix A

Existing Road Improvement Works under Construction

Widening Part of Lin Ma Hang Road (Man Kam To Road to Ping Yuen River) – under CEDD project number 5758CL



位置圖
LOCATION PLAN
比例 SCALE A1 1:20000



連接線A-A連接圖則編號
231448/GAZ-B/002
CUT LINE A - A
CONTINUED ON PLAN
NO. 231448/GAZ-B/002

- 註
NOTE:
- 除在其他方面指定外，全部以米為量度單位。
ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
 - 所有水平均為約數，以米為單位，並在香港水平基準以上(+)或以下(-)。
ALL LEVELS ARE APPROXIMATE VALUES AND IN METRES ABOVE (+) OR BELOW (-) HONG KONG PRINCIPAL DATUM.
 - 如有需要，施工區界限內現有行車道及行人路或會分階段暫時封閉。
SECTIONS OF THE EXISTING CARRIAGEWAYS AND FOOTPATHS WITHIN THE LIMIT OF WORKS AREA MAY BE TEMPORARILY CLOSED IN PHASES AS AND WHEN REQUIRED.

工程名稱 PROJECT TITLE
工務計劃項目第5758CL號
沙嶺墳場興建骨灰龕、火葬場及有關設施
的土地平整及相關基建工程
- 擴闊部份蓮麻坑路
PWP ITEM NO. 5758CL
SITE FORMATION AND ASSOCIATED
INFRASTRUCTURAL WORKS FOR DEVELOPMENT
OF COLUMBARIUM, CREMATORIUM AND RELATED
FACILITIES AT SANDY RIDGE CEMETERY
- WIDENING PART OF LIN MA HANG ROAD

圖則名稱 PLAN TITLE
根據《道路(工程、使用及補償)條例》(第370章)
而在憲報公布之圖則
PLAN FOR GAZETTING UNDER
ROADS(WORKS, USE AND COMPENSATION)
ORDINANCE (CHAPTER 370)

圖則編號 PLAN NO. 231448/GAZ-B/001
比例 SCALE 1:500 @ A1

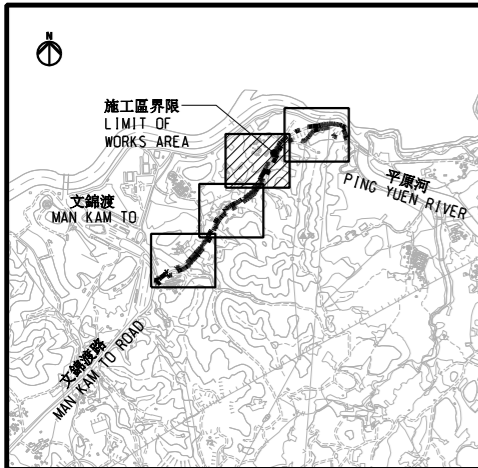
辦事處 OFFICE
土木工程處 土地工程處
LAND WORKS DIVISION
CIVIL ENGINEERING OFFICE



圖例:
LEGEND:

	施工區界限 LIMIT OF WORKS AREA		現有行車道將永久封閉及改建為行人路 EXISTING CARRIAGEWAY TO BE PERMANENTLY CLOSED AND CONVERTED INTO FOOTPATH
	擬建行車道 PROPOSED CARRIAGEWAY		現有行人路將永久封閉及改建為行車道 EXISTING FOOTPATH TO BE PERMANENTLY CLOSED AND CONVERTED INTO CARRIAGEWAY
	擬建行人路 PROPOSED FOOTPATH		現有行車道將永久封閉及拆卸 EXISTING CARRIAGEWAY TO BE PERMANENTLY CLOSED AND DEMOLISHED
	擬建直立式隔音屏障(高約1米) PROPOSED VERTICAL NOISE BARRIER (APPROXIMATELY 1 METRE HIGH)		現有行車道將暫時封閉及重建 EXISTING CARRIAGEWAY TO BE TEMPORARILY CLOSED AND RECONSTRUCTED
	擬建直立式隔音屏障(高約3米) PROPOSED VERTICAL NOISE BARRIER (APPROXIMATELY 3 METRES HIGH)		現有行人路將暫時封閉及重建 EXISTING FOOTPATH TO BE TEMPORARILY CLOSED AND RECONSTRUCTED
	擬建直立式隔音屏障(高約4米) PROPOSED VERTICAL NOISE BARRIER (APPROXIMATELY 4 METRES HIGH)		

Printed by: 2/12/2015
File name: 231448/GAZ-B/001.dwg

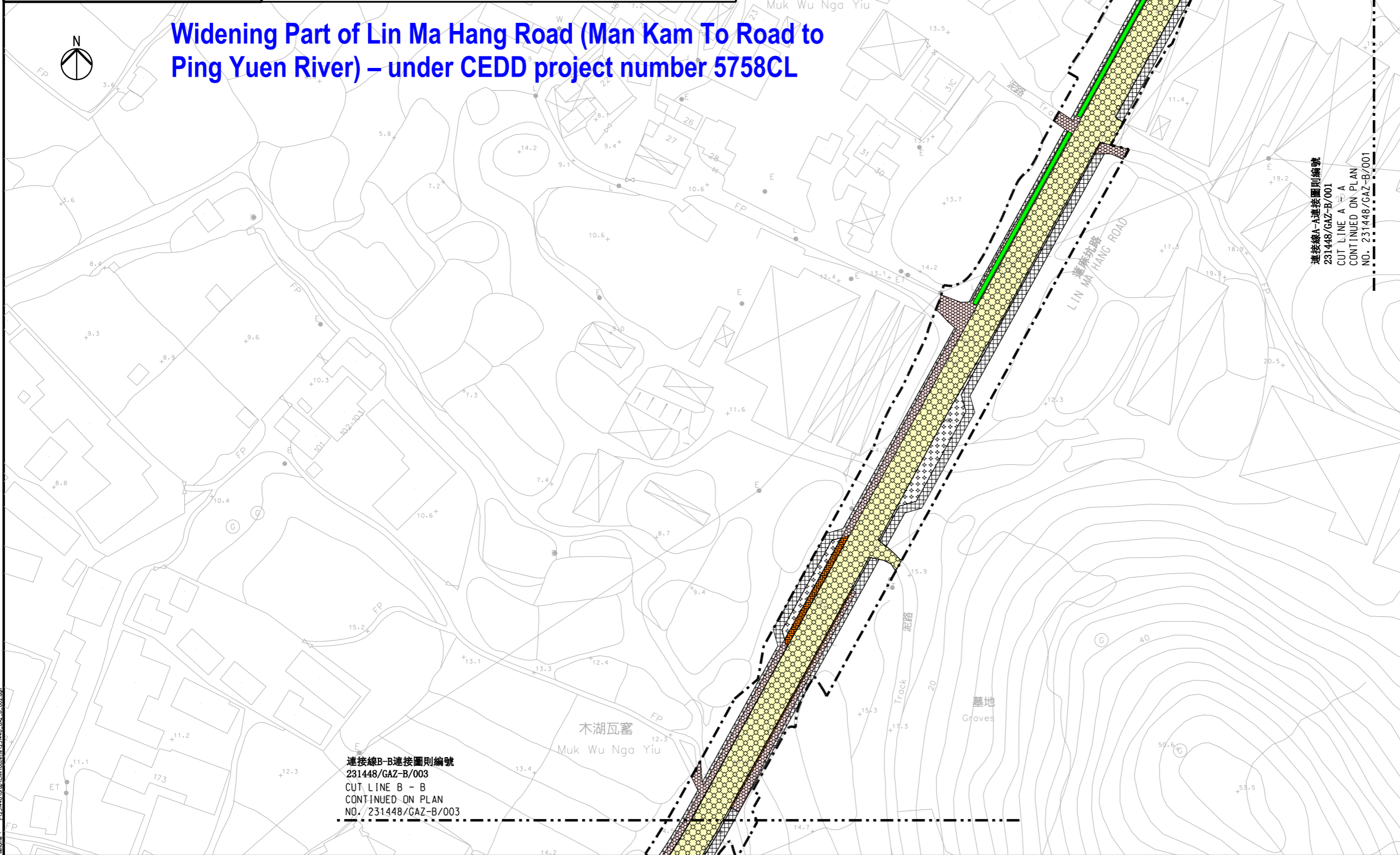


位置圖
LOCATION PLAN
比例 SCALE A1 1:20000

圖例: LEGEND:

	施工區界限 LIMIT OF WORKS AREA		現有行車道將永久封閉及改建為行人路 EXISTING CARRIAGEWAY TO BE PERMANENTLY CLOSED AND CONVERTED INTO FOOTPATH
	擬建行車道 PROPOSED CARRIAGEWAY		現有行人路將永久封閉及改建為行車道 EXISTING FOOTPATH TO BE PERMANENTLY CLOSED AND CONVERTED INTO CARRIAGEWAY
	擬建行人路 PROPOSED FOOTPATH		現有行車道將永久封閉及拆卸 EXISTING CARRIAGEWAY TO BE PERMANENTLY CLOSED AND DEMOLISHED
	擬建直立式隔音屏障(高約1米) PROPOSED VERTICAL NOISE BARRIER (APPROXIMATELY 1 METRE HIGH)		現有行車道將暫時封閉及重建 EXISTING CARRIAGEWAY TO BE TEMPORARILY CLOSED AND RECONSTRUCTED
	擬建直立式隔音屏障(高約3米) PROPOSED VERTICAL NOISE BARRIER (APPROXIMATELY 3 METRES HIGH)		現有行人路將暫時封閉及重建 EXISTING FOOTPATH TO BE TEMPORARILY CLOSED AND RECONSTRUCTED
	擬建直立式隔音屏障(高約4米) PROPOSED VERTICAL NOISE BARRIER (APPROXIMATELY 4 METRES HIGH)		

Widening Part of Lin Ma Hang Road (Man Kam To Road to Ping Yuen River) – under CEDD project number 5758CL



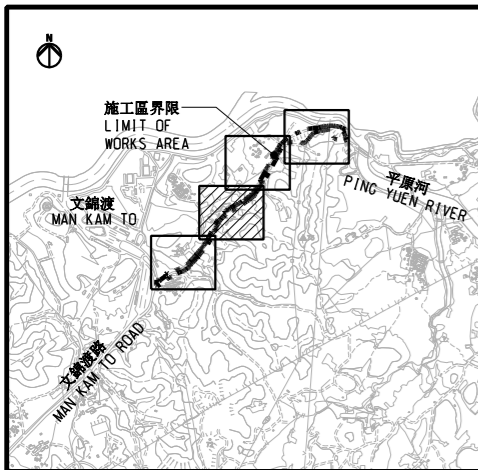
連接線B-B連接圖則編號
231448/GAZ-B/003
CUT LINE B - B
CONTINUED ON PLAN
NO. 231448/GAZ-B/003

連接線A-A連接圖則編號
231448/GAZ-B/001
CUT LINE A - A
CONTINUED ON PLAN
NO. 231448/GAZ-B/001

註 NOTE:

- 除在其他方面指定外，全部以米為量度單位。
ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
- 所有水平均為約數，以米為單位，並在香港水平基準以上(+)或以下(-)。
ALL LEVELS ARE APPROXIMATE VALUES AND IN METRES ABOVE (+) OR BELOW (-) HONG KONG PRINCIPAL DATUM.
- 如有需要，施工區界限內現有行車道及行人路或會分階段暫時封閉。
SECTIONS OF THE EXISTING CARRIAGEWAYS AND FOOTPATHS WITHIN THE LIMIT OF WORKS AREA MAY BE TEMPORARILY CLOSED IN PHASES AS AND WHEN REQUIRED.

工程名稱 PROJECT TITLE 工務計劃項目第5758CL號 沙墳墳場興建骨灰龕、火葬場及有關設施 的土地平整及相關基建工程 - 擴闊部份蓮麻坑路	
PWP ITEM NO. 5758CL SITE FORMATION AND ASSOCIATED INFRASTRUCTURAL WORKS FOR DEVELOPMENT OF COLUMBARIUM, CREMATORIUM AND RELATED FACILITIES AT SANDY RIDGE CEMETERY - WIDENING PART OF LIN MA HANG ROAD	
圖則名稱 PLAN TITLE 根據《道路(工程、使用及補償)條例》(第370章) 而在憲報公布之圖則 PLAN FOR GAZETTING UNDER ROADS(WORKS, USE AND COMPENSATION) ORDINANCE (CHAPTER 370)	
圖則編號 PLAN NO.	比例 SCALE
231448/GAZ-B/002	1:500 @ A1
辦事處 OFFICE 土木工程處 土地工程部 LAND WORKS DIVISION CIVIL ENGINEERING OFFICE	
土木工程拓展署 CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT	

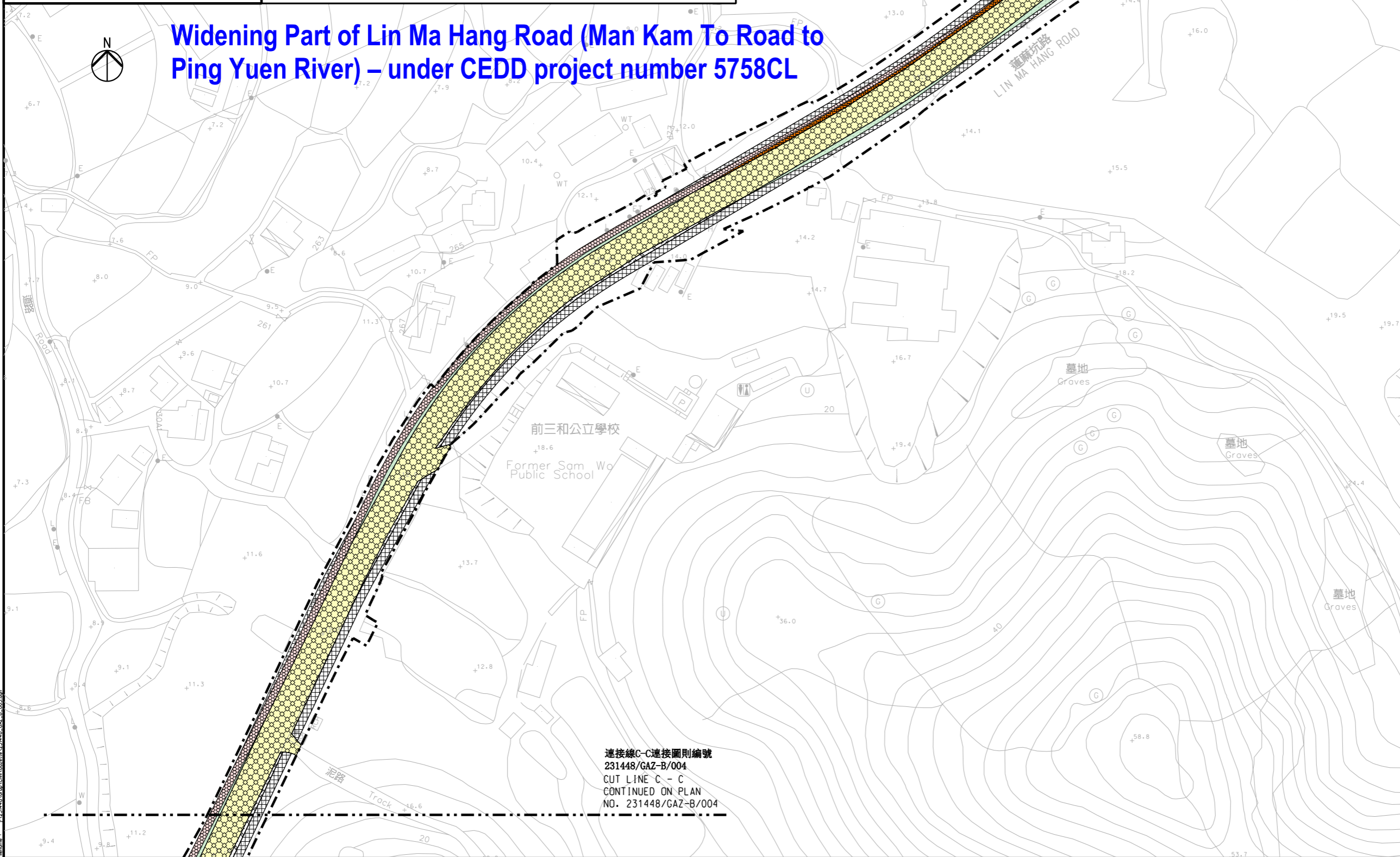


位置圖
LOCATION PLAN
比例 SCALE A1 1:20000

圖例:
LEGEND:

	施工區界限 LIMIT OF WORKS AREA		現有行車道將永久封閉及改建為行人路 EXISTING CARRIAGEWAY TO BE PERMANENTLY CLOSED AND CONVERTED INTO FOOTPATH
	擬建行車道 PROPOSED CARRIAGEWAY		現有行人路將永久封閉及改建為行車道 EXISTING FOOTPATH TO BE PERMANENTLY CLOSED AND CONVERTED INTO CARRIAGEWAY
	擬建行人路 PROPOSED FOOTPATH		現有行車道將永久封閉及拆卸 EXISTING CARRIAGEWAY TO BE PERMANENTLY CLOSED AND DEMOLISHED
	擬建直立式隔音屏障(高約1米) PROPOSED VERTICAL NOISE BARRIER (APPROXIMATELY 1 METRE HIGH)		現有行車道將暫時封閉及重建 EXISTING CARRIAGEWAY TO BE TEMPORARILY CLOSED AND RECONSTRUCTED
	擬建直立式隔音屏障(高約3米) PROPOSED VERTICAL NOISE BARRIER (APPROXIMATELY 3 METRES HIGH)		現有行人路將暫時封閉及重建 EXISTING FOOTPATH TO BE TEMPORARILY CLOSED AND RECONSTRUCTED
	擬建直立式隔音屏障(高約4米) PROPOSED VERTICAL NOISE BARRIER (APPROXIMATELY 4 METRES HIGH)		

Widening Part of Lin Ma Hang Road (Man Kam To Road to Ping Yuen River) – under CEDD project number 5758CL



註
NOTE:

- 除在其他方面指定外，全部以米為量度單位。
ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
- 所有水平均為約數，以米為單位，並在香港水平基準以上(+)或以下(-)。
ALL LEVELS ARE APPROXIMATE VALUES AND IN METRES ABOVE (+) OR BELOW (-) HONG KONG PRINCIPAL DATUM.
- 如有需要，施工區界限內現有行車道及行人路或會分階段暫時封閉。
SECTIONS OF THE EXISTING CARRIAGEWAYS AND FOOTPATHS WITHIN THE LIMIT OF WORKS AREA MAY BE TEMPORARILY CLOSED IN PHASES AS AND WHEN REQUIRED.

工程名稱 PROJECT TITLE
工務計劃項目第5758CL號
沙墳墳場興建骨灰龕、火葬場及有關設施
的土地平整及相關基建工程
- 擴闊部份蓮麻坑路

PWP ITEM NO. 5758CL
SITE FORMATION AND ASSOCIATED
INFRASTRUCTURAL WORKS FOR DEVELOPMENT
OF COLUMBARIUM, CREMATORIUM AND RELATED
FACILITIES AT SANDY RIDGE CEMETERY
- WIDENING PART OF LIN MA HANG ROAD

圖則名稱 PLAN TITLE
根據《道路(工程、使用及補償)條例》(第370章)
而在憲報公布之圖則

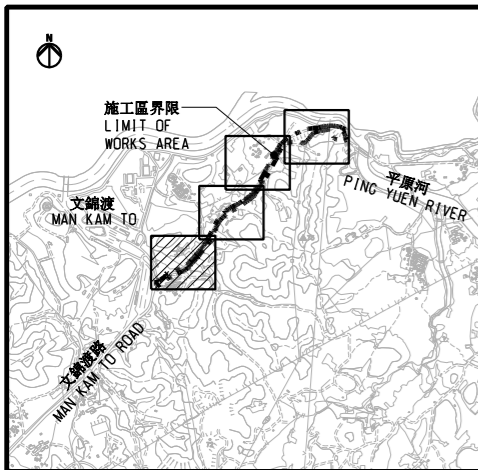
PLAN FOR GAZETTING UNDER
ROADS (WORKS, USE AND COMPENSATION)
ORDINANCE (CHAPTER 370)

圖則編號 PLAN NO. 231448/GAZ-B/003 比例 SCALE 1:500 @ A1

辦事處 OFFICE
土木工程處 土地工程部
LAND WORKS DIVISION
CIVIL ENGINEERING OFFICE

土木工程拓展署
CIVIL ENGINEERING AND
DEVELOPMENT DEPARTMENT

Printed by: 2/12/2015 11:24:48 AM C:\Users\Public\Desktop\231448_GAZ-B_003.dwg



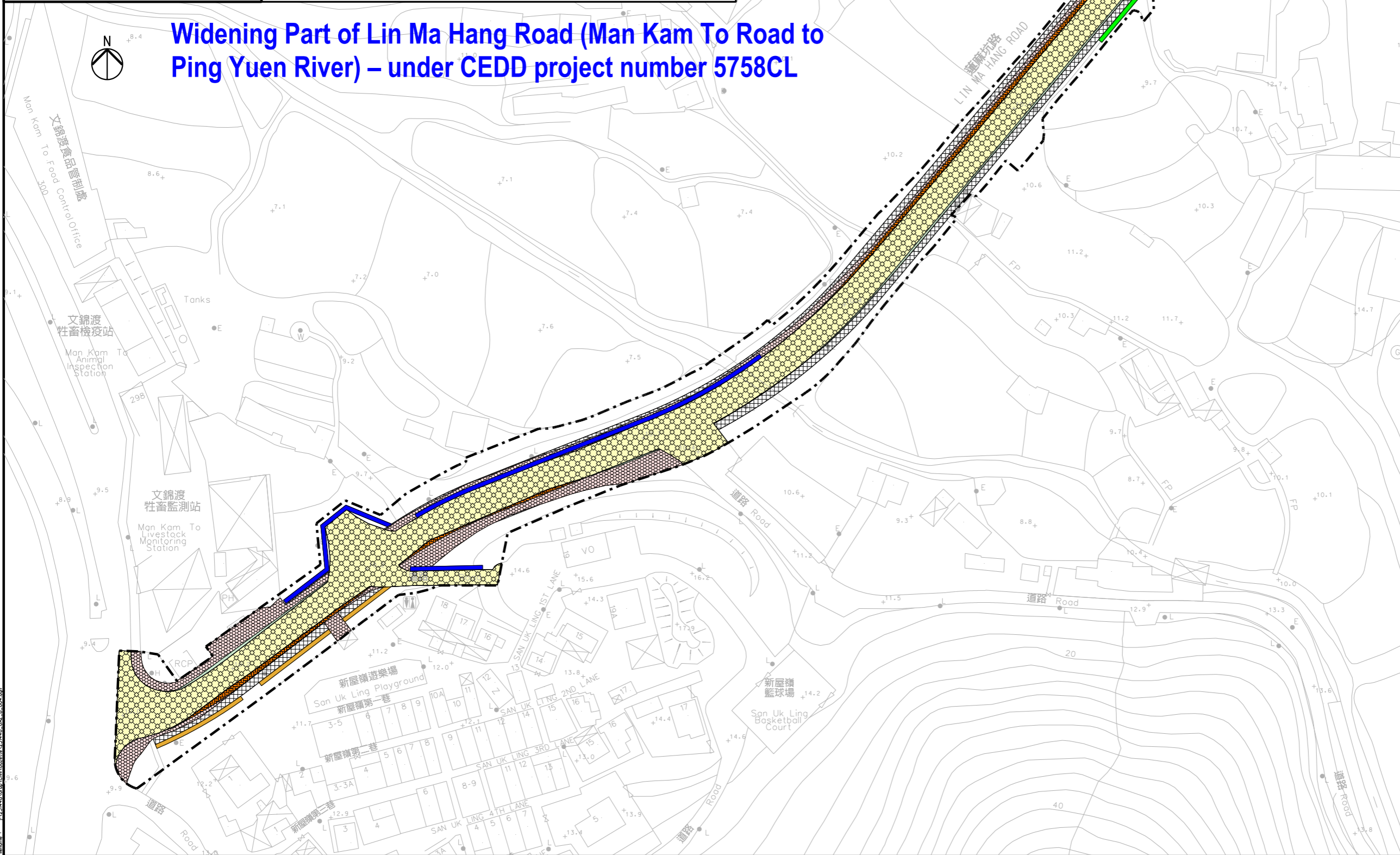
位置圖
LOCATION PLAN
比例 SCALE A1 1:20000

圖例: LEGEND:

	施工區界限 LIMIT OF WORKS AREA		現有行車道將永久封閉及改建為行人路 EXISTING CARRIAGEWAY TO BE PERMANENTLY CLOSED AND CONVERTED INTO FOOTPATH
	擬建行車道 PROPOSED CARRIAGEWAY		現有行人路將永久封閉及改建為行車道 EXISTING FOOTPATH TO BE PERMANENTLY CLOSED AND CONVERTED INTO CARRIAGEWAY
	擬建行人路 PROPOSED FOOTPATH		現有行車道將永久封閉及拆卸 EXISTING CARRIAGEWAY TO BE PERMANENTLY CLOSED AND DEMOLISHED
	擬建直立式隔音屏障(高約1米) PROPOSED VERTICAL NOISE BARRIER (APPROXIMATELY 1 METRE HIGH)		現有行車道將暫時封閉及重建 EXISTING CARRIAGEWAY TO BE TEMPORARILY CLOSED AND RECONSTRUCTED
	擬建直立式隔音屏障(高約3米) PROPOSED VERTICAL NOISE BARRIER (APPROXIMATELY 3 METRES HIGH)		現有行人路將暫時封閉及重建 EXISTING FOOTPATH TO BE TEMPORARILY CLOSED AND RECONSTRUCTED
	擬建直立式隔音屏障(高約4米) PROPOSED VERTICAL NOISE BARRIER (APPROXIMATELY 4 METRES HIGH)		

連接線C-C連接圖則編號
231448/GAZ-B/003
CUT LINE C - C
CONTINUED ON PLAN
NO. 231448/GAZ-B/003

Widening Part of Lin Ma Hang Road (Man Kam To Road to Ping Yuen River) – under CEDD project number 5758CL



註 NOTE:

- 除在其他方面指定外，全部以米為量度單位。
ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
- 所有水平均為約數，以米為單位，並在香港水平基準以上(+)或以下(-)。
ALL LEVELS ARE APPROXIMATE VALUES AND IN METRES ABOVE (+) OR BELOW (-) HONG KONG PRINCIPAL DATUM.
- 如有需要，施工區界限內現有行車道及行人路或會分階段暫時封閉。
SECTIONS OF THE EXISTING CARRIAGEWAYS AND FOOTPATHS WITHIN THE LIMIT OF WORKS AREA MAY BE TEMPORARILY CLOSED IN PHASES AS AND WHEN REQUIRED.

工程名稱 PROJECT TITLE
工務計劃項目第5758CL號
沙嶺墳場興建骨灰龕、火葬場及有關設施
的土地平整及相關基建工程
- 擴闊部份蓮麻坑路

PWP ITEM NO. 5758CL
SITE FORMATION AND ASSOCIATED
INFRASTRUCTURAL WORKS FOR DEVELOPMENT
OF COLUMBARIUM, CREMATORIUM AND RELATED
FACILITIES AT SANDY RIDGE CEMETERY
- WIDENING PART OF LIN MA HANG ROAD

圖則名稱 PLAN TITLE
根據《道路(工程、使用及補償)條例》(第370章)
而在憲報公布之圖則

PLAN FOR GAZETTING UNDER
ROADS(WORKS, USE AND COMPENSATION)
ORDINANCE (CHAPTER 370)

圖則編號 PLAN NO. 231448/GAZ-B/004 比例 SCALE 1:500 @ A1

辦事處 OFFICE
土木工程處 土地工程處
LAND WORKS DIVISION
CIVIL ENGINEERING OFFICE



Printed by: 2/12/2015 11:23:48 AM C:\Users\Gazette\231448_GAZ_B_004.dgn

Widening of western section of Lin Ma Hang Road between Ping Yuen River and Ping Che Road – under HyD PWP Item 863TH

附件一
(兩張中的第一張)

ENCLOSURE 1
(SHEET 1 OF 2)

0 mm

100

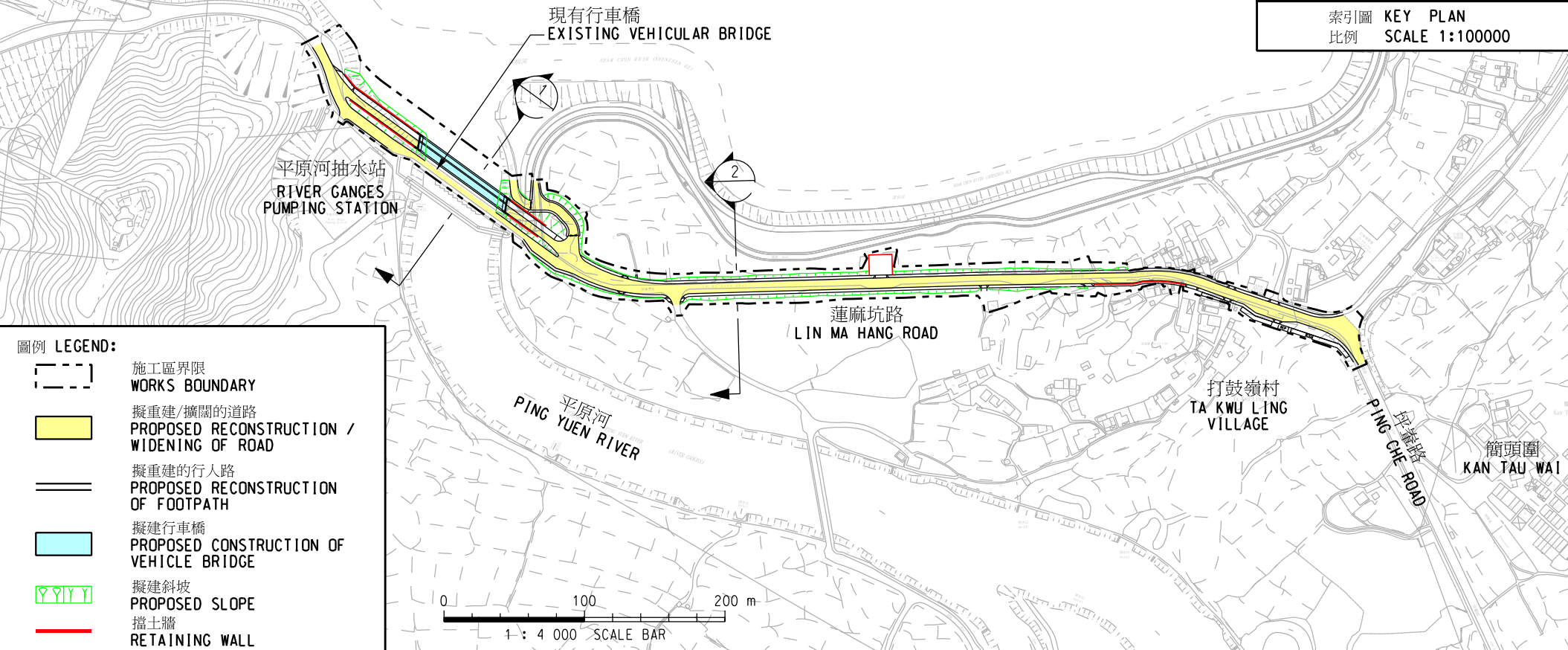
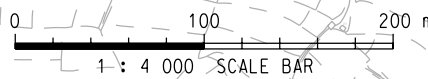
200



索引圖 KEY PLAN
比例 SCALE 1:10000

圖例 LEGEND:

- 施工區界限
WORKS BOUNDARY
- 擬重建/擴闊的道路
PROPOSED RECONSTRUCTION / WIDENING OF ROAD
- 擬重建的行人路
PROPOSED RECONSTRUCTION OF FOOTPATH
- 擬建行車橋
PROPOSED CONSTRUCTION OF VEHICLE BRIDGE
- 擬建斜坡
PROPOSED SLOPE
- 擋土牆
RETAINING WALL



圖則名稱 plan title

工務計劃項目第6863TH號蓮麻坑路西段(平原河至坪輦路)擴闊工程 - 平面圖

PWP ITEM NO. 6863TH WIDENING OF WESTERN SECTION OF LIN MA HANG ROAD BETWEEN PING YUEN RIVER AND PING CHE ROAD - LAYOUT PLAN

圖則編號 plan no. HMW6863TH-SK0007
比例 scale 1:4000 或圖示 Or As Shown

© 版權所有 COPYRIGHT RESERVED



Widening of western section of Lin Ma Hang Road between Ping Yuen River and Ping Che Road – under HyD PWP Item 863TH

附件一
(兩張中的第二張)

ENCLOSURE 1
(SHEET 2 OF 2)

0 mm

100

200

現有單線行車道
供作西行行車道
EXISTING SINGLE
LANE CARRIAGEWAY
FOR FUTURE
WESTBOUND TRAFFIC

擬建單線行車道
供作東行行車道
PROPOSED SINGLE
LANE CARRIAGEWAY
FOR FUTURE
EASTBOUND TRAFFIC

擬建緊急/公用設施通道
PROPOSED EMERGENCY/
UTILITIES ACCESS

現有行人路
EXISTING
FOOTPATH

擬建主圍網
PROPOSED PRIMARY
BOUNDARY FENCE

現有行車橋
EXISTING
VEHICULAR
BRIDGE

擬建防欄
PROPOSED
SECURITY
FENCE

擬建行車橋
PROPOSED
VEHICULAR BRIDGE

平原河
PING YUEN RIVER

橫切面 SECTION 1-1

施工區界限
WORKS BOUNDARY

擬建西行行車道
PROPOSED
WESTBOUND
CARRIAGEWAY

擬建東行行車道
PROPOSED
EASTBOUND
CARRIAGEWAY

擬建行人路
PROPOSED
FOOTPATH

擬建行人路
PROPOSED
FOOTPATH

擬建7.3米
雙線雙程行車道
PROPOSED 7.3m
TWO-LANE TWO-WAY
CARRIAGEWAY

橫切面 SECTION 2-2

圖則名稱 plan title

工務計劃項目第6863TH號蓮麻坑路西段(平原河至坪輦路)擴闊工程 - 切面圖

PWP ITEM NO. 6863TH WIDENING OF WESTERN SECTION OF LIN MA HANG ROAD
BETWEEN PING YUEN RIVER AND PING CHE ROAD - SECTIONS

圖則編號 plan no.

HMW6863TH-SK0008

比例 scale

示意圖
DIAGRAMMATIC








© 版權所有 COPYRIGHT RESERVED

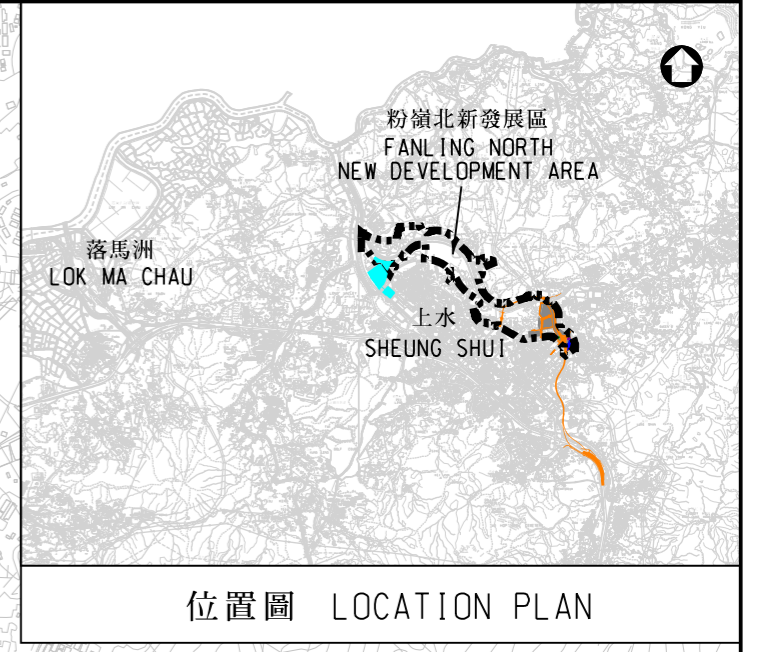
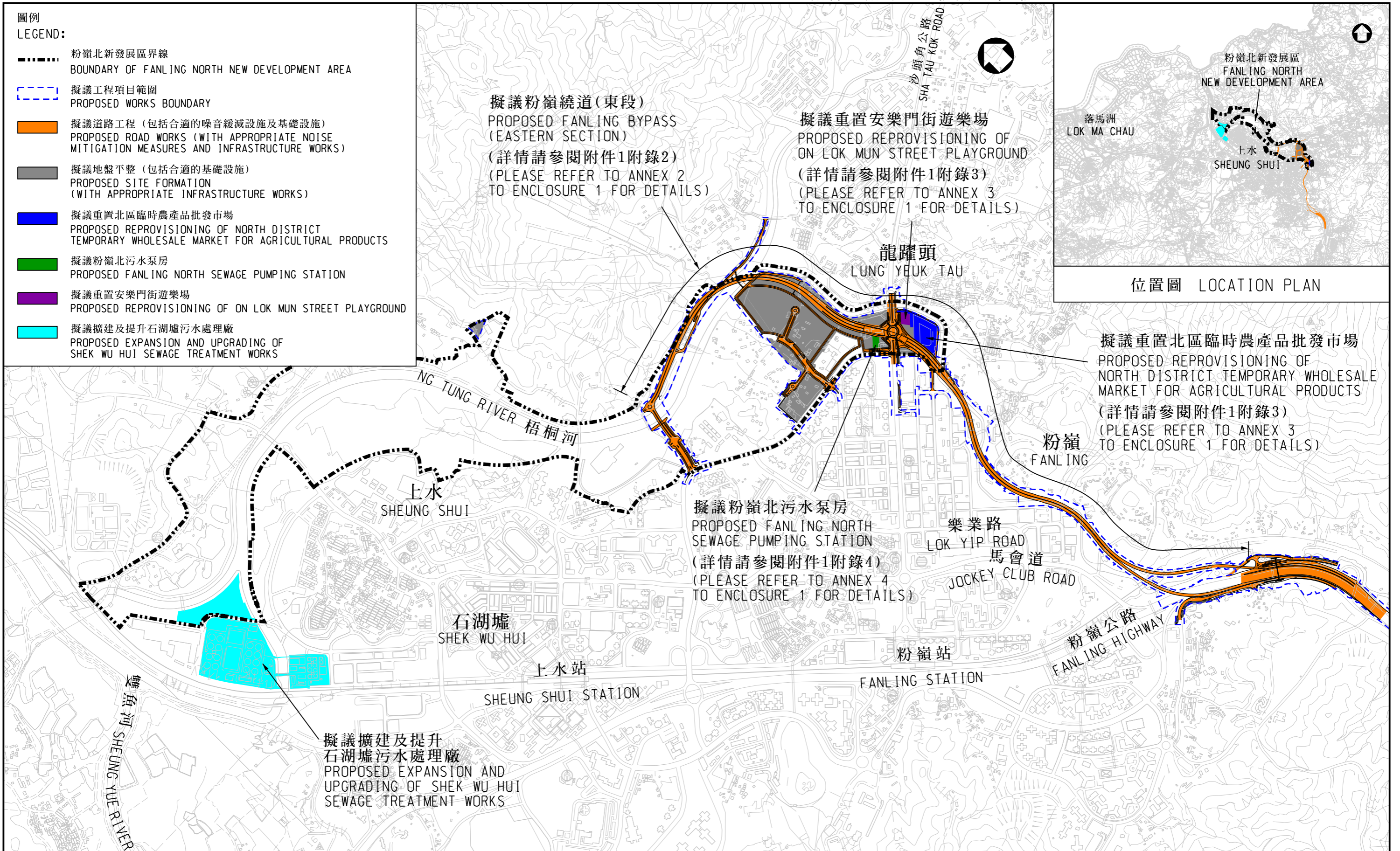


HIGHWAYS
DEPARTMENT
HONG KONG

路
政
署
香
港

圖例
LEGEND:

-  粉嶺北新發展區界線
BOUNDARY OF FANLING NORTH NEW DEVELOPMENT AREA
-  擬議工程項目範圍
PROPOSED WORKS BOUNDARY
-  擬議道路工程 (包括合適的噪音緩減設施及基礎設施)
PROPOSED ROAD WORKS (WITH APPROPRIATE NOISE MITIGATION MEASURES AND INFRASTRUCTURE WORKS)
-  擬議地盤平整 (包括合適的基礎設施)
PROPOSED SITE FORMATION (WITH APPROPRIATE INFRASTRUCTURE WORKS)
-  擬議重置北區臨時農產品批發市場
PROPOSED REPROVISIONING OF NORTH DISTRICT TEMPORARY WHOLESALE MARKET FOR AGRICULTURAL PRODUCTS
-  擬議粉嶺北污水泵房
PROPOSED FANLING NORTH SEWAGE PUMPING STATION
-  擬議重置安樂門街遊樂場
PROPOSED REPROVISIONING OF ON LOK MUN STREET PLAYGROUND
-  擬議擴建及提升石湖墟污水處理廠
PROPOSED EXPANSION AND UPGRADING OF SHEK WU HUI SEWAGE TREATMENT WORKS



位置圖 LOCATION PLAN

工務計劃項目第747CL號
古洞北新發展區及粉嶺北新發展區前期地盤平整和基礎設施工程-平面圖 (粉嶺北新發展區)
PWP ITEM NO. 747CL
ADVANCE SITE FORMATION AND INFRASTRUCTURE WORKS FOR KWU TUNG NORTH NEW DEVELOPMENT AREA AND FANLING NORTH NEW DEVELOPMENT AREA-
LAYOUT PLAN (FANLING NORTH NEW DEVELOPMENT AREA)

**Construction of Fanling Bypass (Eastern Section) –
under CEDD project number 7747CL**

Appendix B

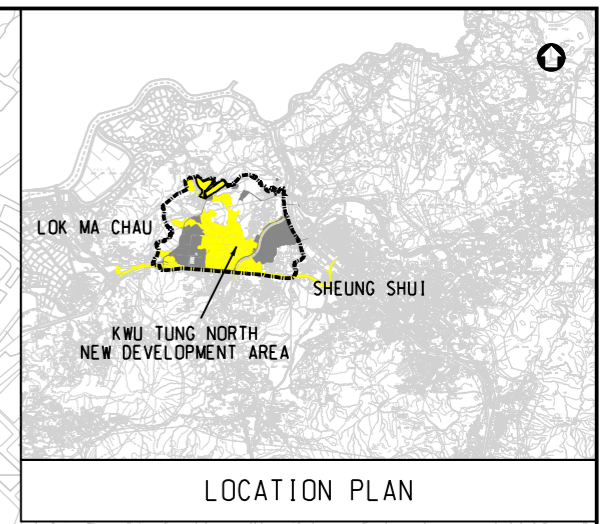
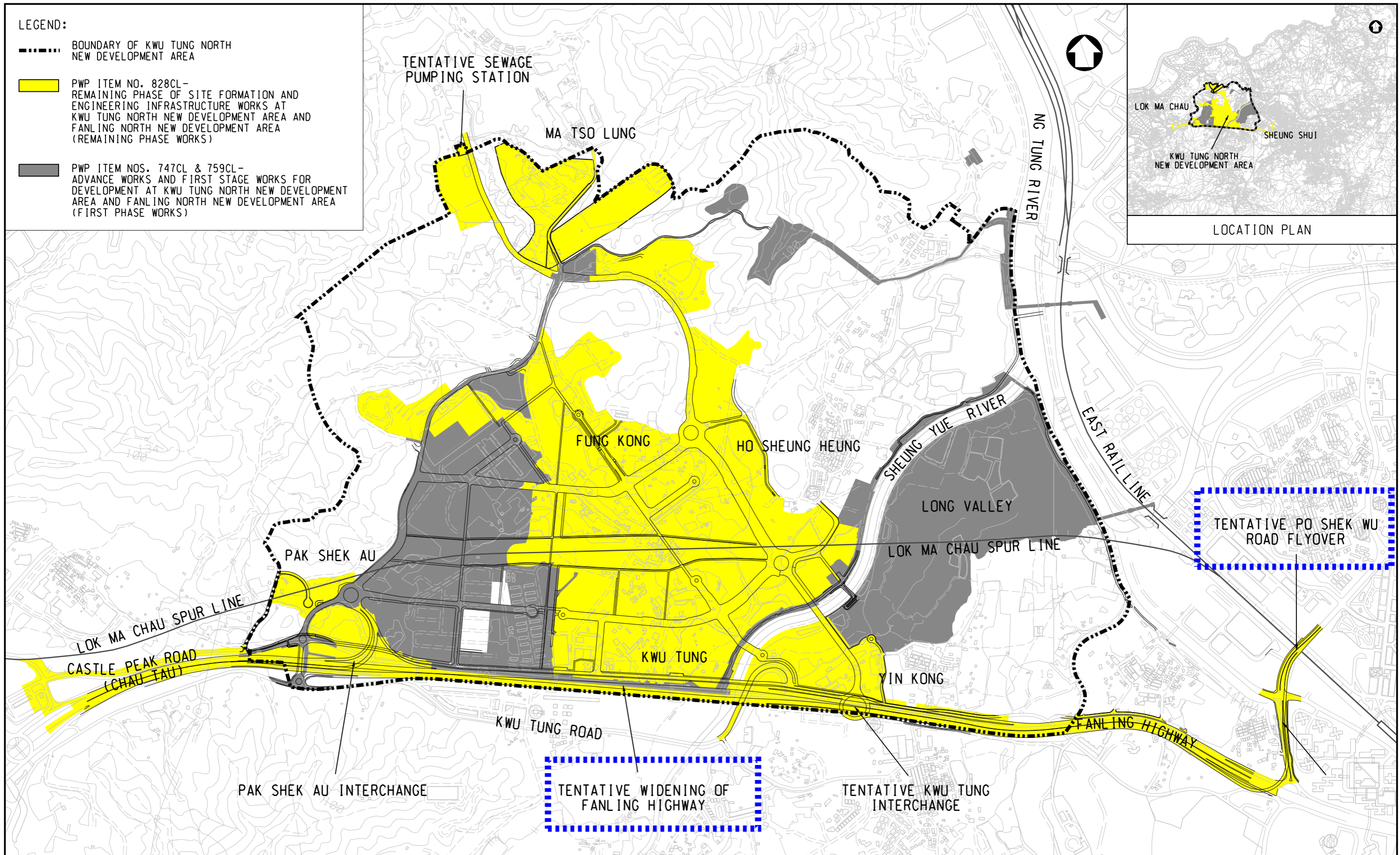
Planned / Committed Infrastructures in North District

LEGEND:

- BOUNDARY OF KWU TUNG NORTH NEW DEVELOPMENT AREA

- PWP ITEM NO. 828CL - REMAINING PHASE OF SITE FORMATION AND ENGINEERING INFRASTRUCTURE WORKS AT KWU TUNG NORTH NEW DEVELOPMENT AREA AND FANLING NORTH NEW DEVELOPMENT AREA (REMAINING PHASE WORKS)

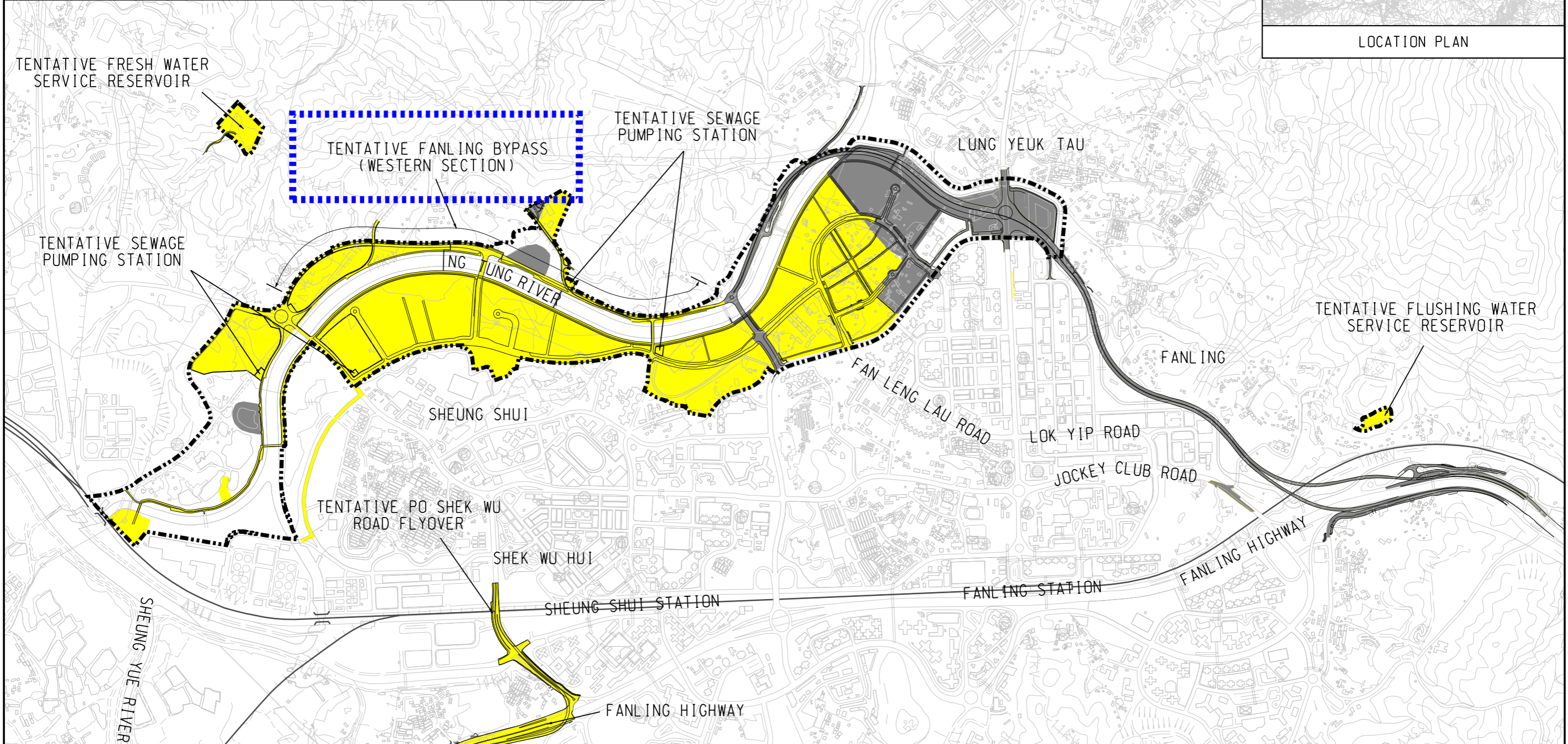
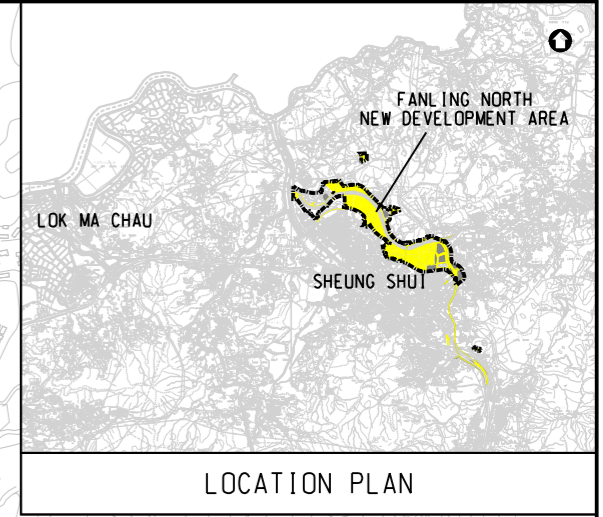
- PWP ITEM NOS. 747CL & 759CL - ADVANCE WORKS AND FIRST STAGE WORKS FOR DEVELOPMENT AT KWU TUNG NORTH NEW DEVELOPMENT AREA AND FANLING NORTH NEW DEVELOPMENT AREA (FIRST PHASE WORKS)



圖則名稱 drawing title PHASING OF THE DEVELOPMENT OF KWU TUNG NORTH AND FANLING NORTH NEW DEVELOPMENT AREAS - LAYOUT PLAN (KWU TUNG NORTH NEW DEVELOPMENT AREA)	繪圖 drawn	簽署 initial	日期 date	項目編號 item no.	辦事處 office 北拓展處 NORTH DEVELOPMENT OFFICE 土木工程拓展署 CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
	W K LAU		04.04.19		
	核對 checked	簽署 initial	日期 date	比例 scale	
P Y MAK		04.04.19	1:12 000 (A3)		
核准 approved	簽署 initial	日期 date	圖則編號 drawing no.		
F O HO		04.04.19	CDNKFNZ0117		

LEGEND:

- BOUNDARY OF FANLING NORTH NEW DEVELOPMENT AREA
- PWP ITEM NO. 828CL - REMAINING PHASE OF SITE FORMATION AND ENGINEERING INFRASTRUCTURE WORKS AT KWU TUNG NORTH NEW DEVELOPMENT AREA AND FANLING NORTH NEW DEVELOPMENT AREA (REMAINING PHASE WORKS)
- PWP ITEM NOS. 747CL & 759CL - ADVANCE WORKS AND FIRST STAGE WORKS FOR DEVELOPMENT AT KWU TUNG NORTH NEW DEVELOPMENT AREA AND FANLING NORTH NEW DEVELOPMENT AREA (FIRST PHASE WORKS)



圖則名稱 drawing title PHASING OF THE DEVELOPMENT OF KWU TUNG NORTH AND FANLING NORTH NEW DEVELOPMENT AREAS - LAYOUT PLAN (FANLING NORTH NEW DEVELOPMENT AREA)	繪圖 drawn	簽署 initial	日期 date	項目編號 item no.	辦事處 office 北拓展處 NORTH DEVELOPMENT OFFICE 土木工程拓展署 CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
	W K LAU		04.04.19		
	核對 checked	簽署 initial	日期 date	比例 scale	
P Y MAK		04.04.19	1:15 000 (A3)		
核准 approved	簽署 initial	日期 date	圖則編號 drawing no.		
F O HO		04.04.19	CDNKFNZ0118		

Summary of Junction Improvement Schemes

Junction		Description	Proposed by Project	Anticipated Implementation Schedule	Plan No.
J2	Po Shek Wu Road/ Po Wan Road	- Lane arrangement of Po Shek Wu Road southbound to be revised for allowing straight-ahead traffic to use three traffic lanes	Kong Nga Po	2023	H-6b
		- Lane arrangement of Po Wan Road eastbound to be revised for allowing right-turn traffic to use two traffic lanes			
J3	Po Shek Wu Road/ Choi Yuen Road	- Land arrangement of Po Shek Wu Road northbound to be revised for allowing left-turn traffic to use two traffic lanes	Sheung Shui Areas 4 and 30 (junction improvement works to be incorporated in Kong Nga Po project)	2023	H-6b
		- Local widening of Po Wan Road westbound from 1 to 2 lanes			
J3	Po Shek Wu Road/ Choi Yuen Road	- Lane arrangement of Choi Yuen Road westbound to be revised for providing two left-turn lanes	Queen's Hill	Completed	H-6c
		- Local widening of Po Shek Wu Road northbound to allow straight-ahead traffic to use three traffic lanes	Kong Nga Po	2023	H-6d
		- Po Shek Wu Road Interchange Improvement which provides a flyover to allow the right turning traffic from Po Shek Wu Road southbound to Fanling Highway westbound to bypass the existing Po Shek Wu Road Interchange	Kwu Tung North and Fanling North New Development Area (NDA)	2029	H-6e
- Po Shek Wu Road southbound would be narrowed from 5 lanes to 4 lanes					

Appendix C

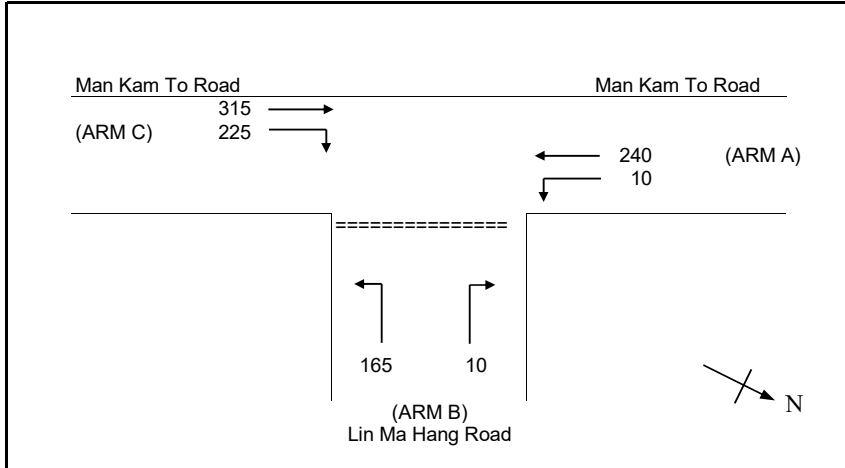
Junction Calculation Sheets

PROJECT NO: 287082 DESIGNED BY:

J1 - Lin Ma Hang Road / Man Kam To Road

J1_2023_EXT_AM

DATE : 25/9/2024 FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

- W = MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
- W cr = CENTRAL RESERVE WIDTH (0m, 1.2-9m)
- W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
- W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
- W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
- VI b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
- Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
- Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
- Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
- D = STREAM-SPECIFIC B-A
- E = STREAM-SPECIFIC B-C
- F = STREAM-SPECIFIC C-B
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)
 W = 12.50 (metres)
 W cr = 0.00 (metres)
 q a-b = 10 (pcu/hr)
 q a-c = 240 (pcu/hr)

MAJOR ROAD (ARM C)
 W c-b = 5.00 (metres)
 Vr c-b = 100 (metres)
 q c-a = 315 (pcu/hr)
 q c-b = 225 (pcu/hr)

MINOR ROAD (ARM B)
 W b-a = 4.50 (metres)
 W b-c = 4.50 (metres)
 VI b-a = 80 (metres)
 Vr b-a = 120 (metres)
 Vr b-c = 120 (metres)
 q b-a = 10 (pcu/hr)
 q b-c = 165 (pcu/hr)

GEOMETRIC FACTORS :

D = 1.03
 E = 1.08
 F = 1.11
 Y = 0.57

THE CAPACITY OF MOVEMENT :

Q b-a = 485
 Q b-c = 750
 Q c-b = 767
 Q b-ac = 727.3

TOTAL FLOW = 965 (PCU/HR)

COMPARISON OF DESIGN FLOW TO CAPACITY:

DFC b-a = 0.02
 DFC b-c = 0.22
 DFC c-b = 0.29
 DFC b-ac = 0.24

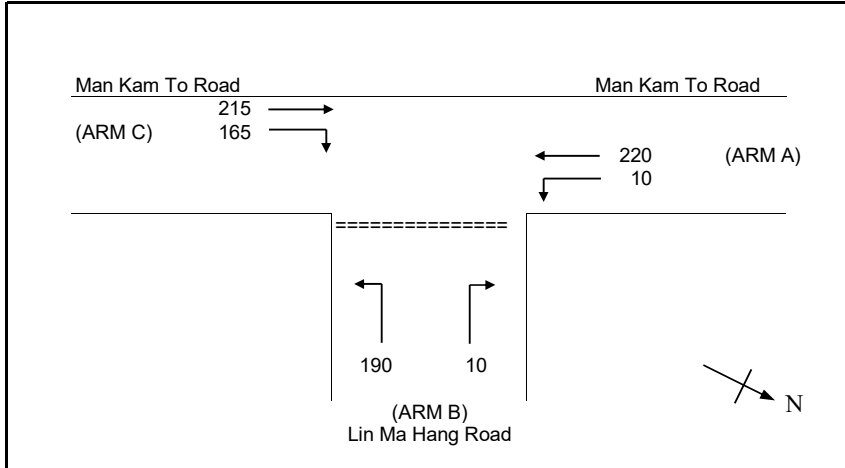
CRITICAL DFC = 0.29

PROJECT NO: 287082 DESIGNED BY:

J1 - Lin Ma Hang Road / Man Kam To Road

J1_2023_EXT_PM

DATE : 25/9/2024 FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

- W = MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
- W cr = CENTRAL RESERVE WIDTH (0m, 1.2-9m)
- W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
- W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
- W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
- Vi b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
- Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
- Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
- Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
- D = STREAM-SPECIFIC B-A
- E = STREAM-SPECIFIC B-C
- F = STREAM-SPECIFIC C-B
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)
 W = 12.50 (metres)
 W cr = 0.00 (metres)
 q a-b = 10 (pcu/hr)
 q a-c = 220 (pcu/hr)

MAJOR ROAD (ARM C)
 W c-b = 5.00 (metres)
 Vr c-b = 100 (metres)
 q c-a = 215 (pcu/hr)
 q c-b = 165 (pcu/hr)

MINOR ROAD (ARM B)
 W b-a = 4.50 (metres)
 W b-c = 4.50 (metres)
 Vi b-a = 80 (metres)
 Vr b-a = 120 (metres)
 Vr b-c = 120 (metres)
 q b-a = 10 (pcu/hr)
 q b-c = 190 (pcu/hr)

GEOMETRIC FACTORS :

D = 1.03
 E = 1.08
 F = 1.11
 Y = 0.57

THE CAPACITY OF MOVEMENT :

Q b-a = 521
 Q b-c = 754
 Q c-b = 772
 Q b-ac = 737.5

TOTAL FLOW = 810 (PCU/HR)

COMPARISON OF DESIGN FLOW TO CAPACITY:

DFC b-a = 0.02
 DFC b-c = 0.25
 DFC c-b = 0.21
 DFC b-ac = 0.27

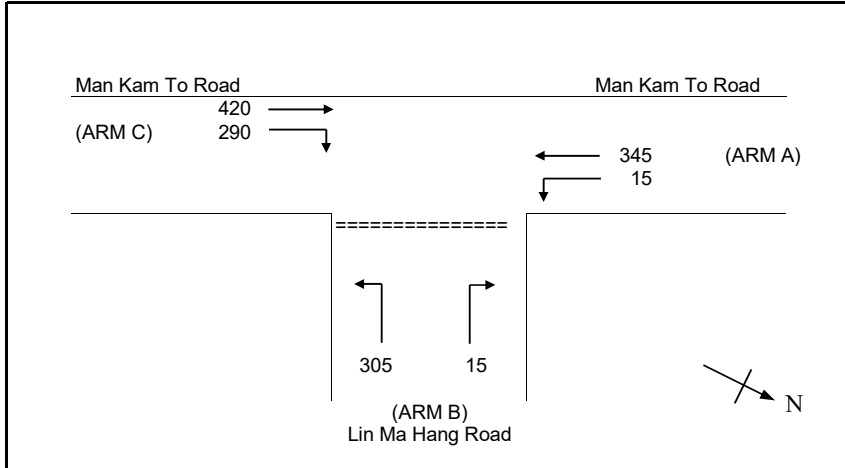
CRITICAL DFC = 0.27

PROJECT NO: 287082 DESIGNED BY:

J1 - Lin Ma Hang Road / Man Kam To Road

J1_2031_REF_AM

DATE : 25/9/2024 FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

- W = MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
- W cr = CENTRAL RESERVE WIDTH (0m, 1.2-9m)
- W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
- W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
- W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
- Vi b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
- Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
- Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
- Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
- D = STREAM-SPECIFIC B-A
- E = STREAM-SPECIFIC B-C
- F = STREAM-SPECIFIC C-B
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)
 W = 12.50 (metres)
 W cr = 0.00 (metres)
 q a-b = 15 (pcu/hr)
 q a-c = 345 (pcu/hr)

MAJOR ROAD (ARM C)
 W c-b = 5.00 (metres)
 Vr c-b = 100 (metres)
 q c-a = 420 (pcu/hr)
 q c-b = 290 (pcu/hr)

MINOR ROAD (ARM B)
 W b-a = 4.50 (metres)
 W b-c = 4.50 (metres)
 Vi b-a = 80 (metres)
 Vr b-a = 120 (metres)
 Vr b-c = 120 (metres)
 q b-a = 15 (pcu/hr)
 q b-c = 305 (pcu/hr)

GEOMETRIC FACTORS :

D = 1.03
 E = 1.08
 F = 1.11
 Y = 0.57

THE CAPACITY OF MOVEMENT :

Q b-a = 428
 Q b-c = 726
 Q c-b = 742
 Q b-ac = 703.1

TOTAL FLOW = 1390 (PCU/HR)

COMPARISON OF DESIGN FLOW TO CAPACITY:

DFC b-a = 0.04
 DFC b-c = 0.42
 DFC c-b = 0.39
 DFC b-ac = 0.46

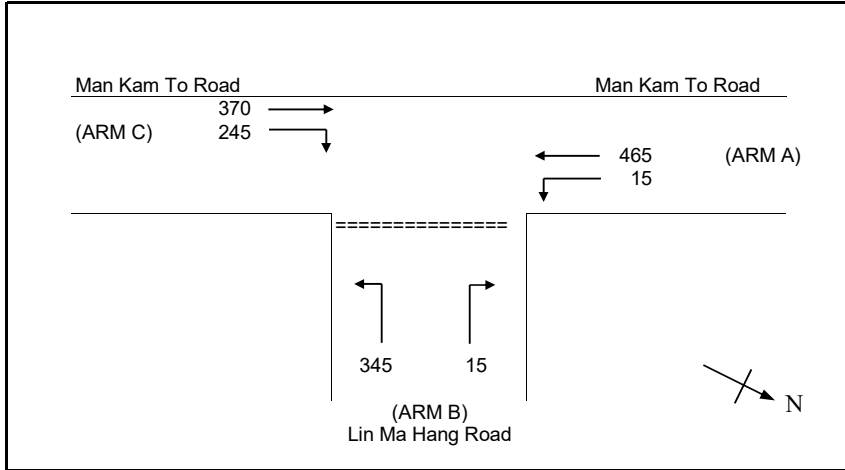
CRITICAL DFC = 0.46

PROJECT NO: 287082 DESIGNED BY:

J1 - Lin Ma Hang Road / Man Kam To Road

J1_2031_REF_PM

DATE : 25/9/2024 FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

- W = MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
- W cr = CENTRAL RESERVE WIDTH (0m, 1.2-9m)
- W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
- W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
- W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
- Vi b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
- Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
- Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
- Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
- D = STREAM-SPECIFIC B-A
- E = STREAM-SPECIFIC B-C
- F = STREAM-SPECIFIC C-B
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)
 W = 12.50 (metres)
 W cr = 0.00 (metres)
 q a-b = 15 (pcu/hr)
 q a-c = 465 (pcu/hr)

MAJOR ROAD (ARM C)
 W c-b = 5.00 (metres)
 Vr c-b = 100 (metres)
 q c-a = 370 (pcu/hr)
 q c-b = 245 (pcu/hr)

MINOR ROAD (ARM B)
 W b-a = 4.50 (metres)
 W b-c = 4.50 (metres)
 Vi b-a = 80 (metres)
 Vr b-a = 120 (metres)
 Vr b-c = 120 (metres)
 q b-a = 15 (pcu/hr)
 q b-c = 345 (pcu/hr)

GEOMETRIC FACTORS :

D = 1.03
 E = 1.08
 F = 1.11
 Y = 0.57

THE CAPACITY OF MOVEMENT :

Q b-a = 423
 Q b-c = 699
 Q c-b = 714
 Q b-ac = 680.5

TOTAL FLOW = 1455 (PCU/HR)

COMPARISON OF DESIGN FLOW TO CAPACITY:

DFC b-a = 0.04
 DFC b-c = 0.49
 DFC c-b = 0.34
 DFC b-ac = 0.53

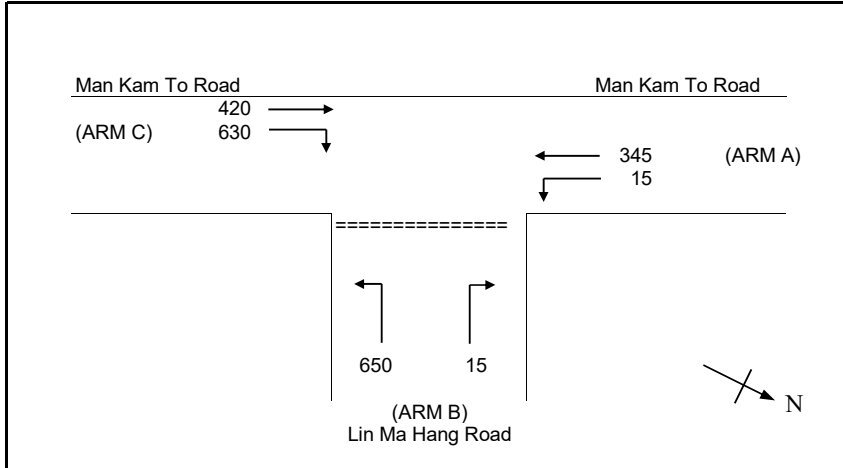
CRITICAL DFC = 0.53

PROJECT NO: 287082 DESIGNED BY:

J1 - Lin Ma Hang Road / Man Kam To Road

J1_2031_DES_AM

DATE : 25/9/2024 FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

- W = MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
- W cr = CENTRAL RESERVE WIDTH (0m, 1.2-9m)
- W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
- W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
- W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
- VI b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
- Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
- Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
- Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
- D = STREAM-SPECIFIC B-A
- E = STREAM-SPECIFIC B-C
- F = STREAM-SPECIFIC C-B
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W = 12.50 (metres)
 W cr = 0.00 (metres)
 q a-b = 15 (pcu/hr)
 q a-c = 345 (pcu/hr)

MAJOR ROAD (ARM C)

W c-b = 5.00 (metres)
 Vr c-b = 100 (metres)
 q c-a = 420 (pcu/hr)
 q c-b = 630 (pcu/hr)

MINOR ROAD (ARM B)

W b-a = 4.50 (metres)
 W b-c = 4.50 (metres)
 VI b-a = 80 (metres)
 Vr b-a = 120 (metres)
 Vr b-c = 120 (metres)
 q b-a = 15 (pcu/hr)
 q b-c = 650 (pcu/hr)

GEOMETRIC FACTORS :

D = 1.03
 E = 1.08
 F = 1.11
 Y = 0.57

THE CAPACITY OF MOVEMENT :

Q b-a = 324
 Q b-c = 726
 Q c-b = 742
 Q b-ac = 706

TOTAL FLOW = 2075 (PCU/HR)

COMPARISON OF DESIGN FLOW TO CAPACITY:

DFC b-a = 0.05
 DFC b-c = 0.90
 DFC c-b = 0.85
 DFC b-ac = 0.94

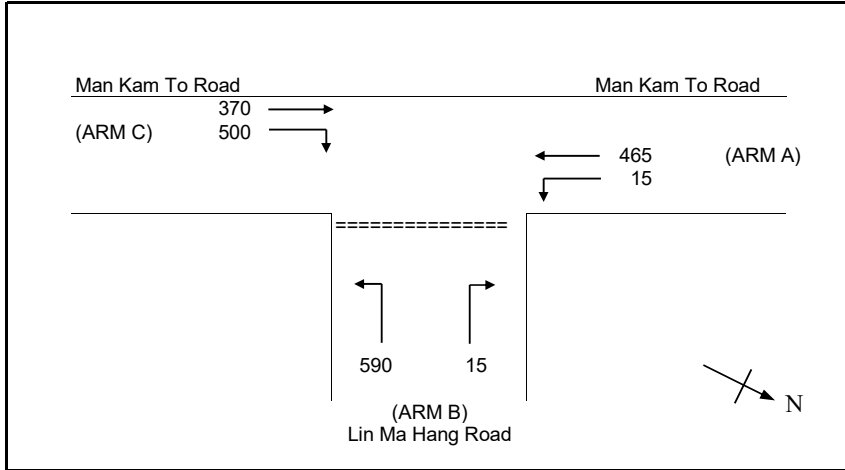
CRITICAL DFC = 0.94

PROJECT NO: 287082 DESIGNED BY:

J1 - Lin Ma Hang Road / Man Kam To Road

J1_2031_DES_PM

DATE : 25/9/2024 FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

- W = MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
- W cr = CENTRAL RESERVE WIDTH (0m, 1.2-9m)
- W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
- W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
- W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
- Vi b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
- Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
- Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
- Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
- D = STREAM-SPECIFIC B-A
- E = STREAM-SPECIFIC B-C
- F = STREAM-SPECIFIC C-B
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)
 W = 12.50 (metres)
 W cr = 0.00 (metres)
 q a-b = 15 (pcu/hr)
 q a-c = 465 (pcu/hr)

MAJOR ROAD (ARM C)
 W c-b = 5.00 (metres)
 Vr c-b = 100 (metres)
 q c-a = 370 (pcu/hr)
 q c-b = 500 (pcu/hr)

MINOR ROAD (ARM B)
 W b-a = 4.50 (metres)
 W b-c = 4.50 (metres)
 Vi b-a = 80 (metres)
 Vr b-a = 120 (metres)
 Vr b-c = 120 (metres)
 q b-a = 15 (pcu/hr)
 q b-c = 590 (pcu/hr)

GEOMETRIC FACTORS :

D = 1.03
 E = 1.08
 F = 1.11
 Y = 0.57

THE CAPACITY OF MOVEMENT :

Q b-a = 345
 Q b-c = 699
 Q c-b = 714
 Q b-ac = 681.7

TOTAL FLOW = 1955 (PCU/HR)

COMPARISON OF DESIGN FLOW TO CAPACITY:

DFC b-a = 0.04
 DFC b-c = 0.84
 DFC c-b = 0.70
 DFC b-ac = 0.89

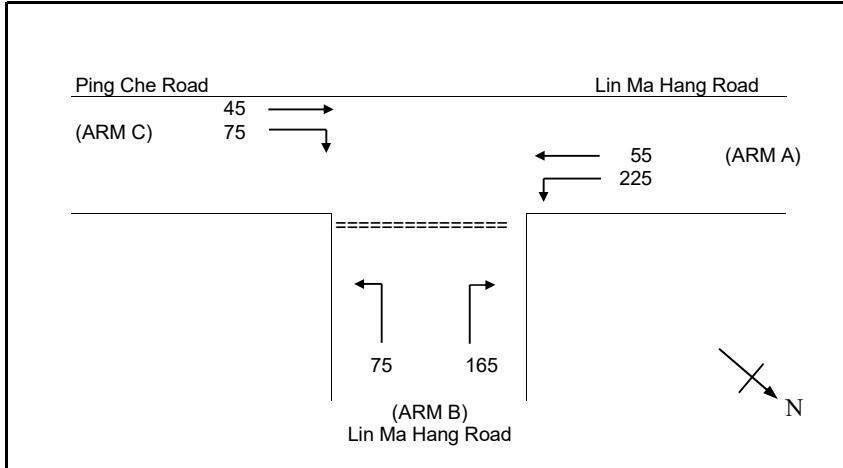
CRITICAL DFC = 0.89

PROJECT NO: 287082 DESIGNED BY:

J2 - Lin Ma Hang Road / Ping Che Road

J2_2023_EXT_AM

DATE : 25/9/2024 FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

- W = MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
- W cr = CENTRAL RESERVE WIDTH (0m, 1.2-9m)
- W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
- W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
- W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
- VI b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
- Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
- Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
- Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
- D = STREAM-SPECIFIC B-A
- E = STREAM-SPECIFIC B-C
- F = STREAM-SPECIFIC C-B
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

- W = 7.00 (metres)
- W cr = 0.00 (metres)
- q a-b = 225 (pcu/hr)
- q a-c = 55 (pcu/hr)

MAJOR ROAD (ARM C)

- W c-b = 3.30 (metres)
- Vr c-b = 100 (metres)
- q c-a = 45 (pcu/hr)
- q c-b = 75 (pcu/hr)

MINOR ROAD (ARM B)

- W b-a = 3.50 (metres)
- W b-c = 4.50 (metres)
- VI b-a = 200 (metres)
- Vr b-a = 100 (metres)
- Vr b-c = 100 (metres)
- q b-a = 165 (pcu/hr)
- q b-c = 75 (pcu/hr)

GEOMETRIC FACTORS :

- D = 1
- E = 1.06
- F = 0.95
- Y = 0.76

THE CAPACITY OF MOVEMENT :

- Q b-a = 548
- Q b-c = 748
- Q c-b = 634
- Q b-ac = 598

TOTAL FLOW = 640 (PCU/HR)

COMPARISON OF DESIGN FLOW TO CAPACITY:

- DFC b-a = 0.30
- DFC b-c = 0.10
- DFC c-b = 0.12
- DFC b-ac = 0.40

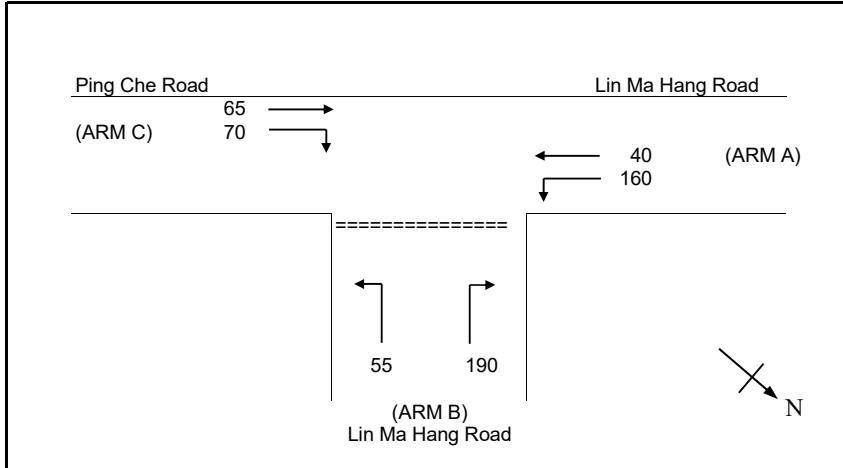
CRITICAL DFC = 0.40

PROJECT NO: 287082 DESIGNED BY:

J2 - Lin Ma Hang Road / Ping Che Road

J2_2023_EXT_PM

DATE : 25/9/2024 FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

- W = MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
- W cr = CENTRAL RESERVE WIDTH (0m, 1.2-9m)
- W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
- W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
- W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
- Vi b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
- Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
- Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
- Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
- D = STREAM-SPECIFIC B-A
- E = STREAM-SPECIFIC B-C
- F = STREAM-SPECIFIC C-B
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

- W = 7.00 (metres)
- W cr = 0.00 (metres)
- q a-b = 160 (pcu/hr)
- q a-c = 40 (pcu/hr)

MAJOR ROAD (ARM C)

- W c-b = 3.30 (metres)
- Vr c-b = 100 (metres)
- q c-a = 65 (pcu/hr)
- q c-b = 70 (pcu/hr)

MINOR ROAD (ARM B)

- W b-a = 3.50 (metres)
- W b-c = 4.50 (metres)
- Vi b-a = 200 (metres)
- Vr b-a = 100 (metres)
- Vr b-c = 100 (metres)
- q b-a = 190 (pcu/hr)
- q b-c = 55 (pcu/hr)

GEOMETRIC FACTORS :

- D = 1
- E = 1.06
- F = 0.95
- Y = 0.76

THE CAPACITY OF MOVEMENT :

- Q b-a = 558
- Q b-c = 760
- Q c-b = 655
- Q b-ac = 593.4

TOTAL FLOW = 580 (PCU/HR)

COMPARISON OF DESIGN FLOW TO CAPACITY:

- DFC b-a = 0.34
- DFC b-c = 0.07
- DFC c-b = 0.11
- DFC b-ac = 0.41

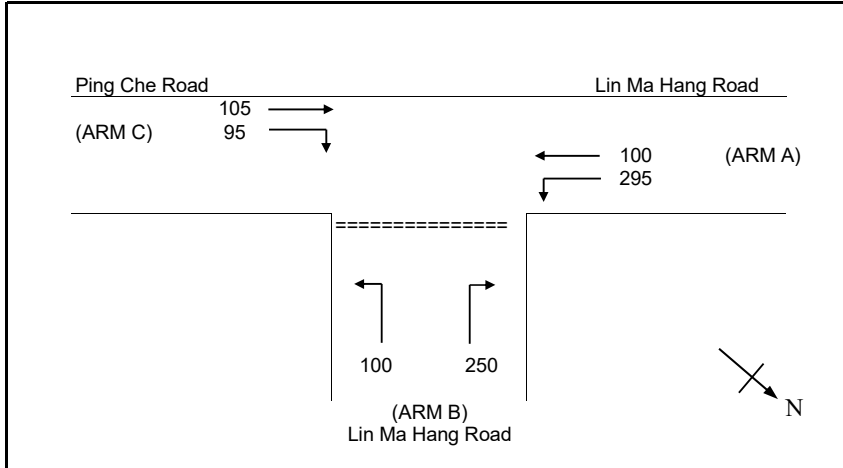
CRITICAL DFC = 0.41

PROJECT NO: 287082 DESIGNED BY:

J2 - Lin Ma Hang Road / Ping Che Road

J2_2031_REF_AM

DATE : 25/9/2024 FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

- W = MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
- W cr = CENTRAL RESERVE WIDTH (0m, 1.2-9m)
- W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
- W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
- W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
- VI b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
- Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
- Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
- Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
- D = STREAM-SPECIFIC B-A
- E = STREAM-SPECIFIC B-C
- F = STREAM-SPECIFIC C-B
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

- W = 7.00 (metres)
- W cr = 0.00 (metres)
- q a-b = 295 (pcu/hr)
- q a-c = 100 (pcu/hr)

MAJOR ROAD (ARM C)

- W c-b = 3.30 (metres)
- Vr c-b = 100 (metres)
- q c-a = 105 (pcu/hr)
- q c-b = 95 (pcu/hr)

MINOR ROAD (ARM B)

- W b-a = 3.50 (metres)
- W b-c = 4.50 (metres)
- VI b-a = 200 (metres)
- Vr b-a = 100 (metres)
- Vr b-c = 100 (metres)
- q b-a = 250 (pcu/hr)
- q b-c = 100 (pcu/hr)

GEOMETRIC FACTORS :

- D = 1
- E = 1.06
- F = 0.95
- Y = 0.76

THE CAPACITY OF MOVEMENT :

- Q b-a = 510
- Q b-c = 727
- Q c-b = 604
- Q b-ac = 557.5

TOTAL FLOW = 945 (PCU/HR)

COMPARISON OF DESIGN FLOW TO CAPACITY:

- DFC b-a = 0.49
- DFC b-c = 0.14
- DFC c-b = 0.16
- DFC b-ac = 0.63

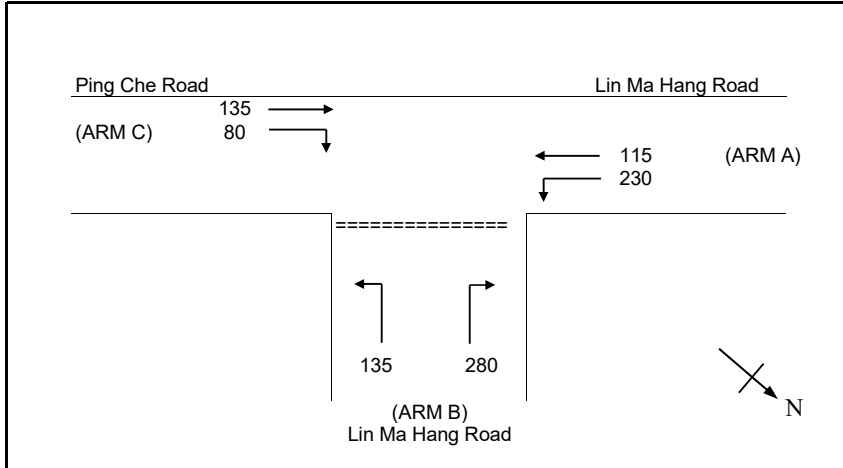
CRITICAL DFC = 0.63

PROJECT NO: 287082 DESIGNED BY:

J2 - Lin Ma Hang Road / Ping Che Road

J2_2031_REF_PM

DATE : 25/9/2024 FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

- W = MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
- W cr = CENTRAL RESERVE WIDTH (0m, 1.2-9m)
- W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
- W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
- W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
- VI b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
- Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
- Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
- Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
- D = STREAM-SPECIFIC B-A
- E = STREAM-SPECIFIC B-C
- F = STREAM-SPECIFIC C-B
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W = 7.00 (metres)
 W cr = 0.00 (metres)
 q a-b = 230 (pcu/hr)
 q a-c = 115 (pcu/hr)

MAJOR ROAD (ARM C)

W c-b = 3.30 (metres)
 Vr c-b = 100 (metres)
 q c-a = 135 (pcu/hr)
 q c-b = 80 (pcu/hr)

MINOR ROAD (ARM B)

W b-a = 3.50 (metres)
 W b-c = 4.50 (metres)
 VI b-a = 200 (metres)
 Vr b-a = 100 (metres)
 Vr b-c = 100 (metres)
 q b-a = 280 (pcu/hr)
 q b-c = 135 (pcu/hr)

GEOMETRIC FACTORS :

D = 1
 E = 1.06
 F = 0.95
 Y = 0.76

THE CAPACITY OF MOVEMENT :

Q b-a = 514
 Q b-c = 730
 Q c-b = 617
 Q b-ac = 568.7

TOTAL FLOW = 975 (PCU/HR)

COMPARISON OF DESIGN FLOW TO CAPACITY:

DFC b-a = 0.54
 DFC b-c = 0.18
 DFC c-b = 0.13
 DFC b-ac = 0.73

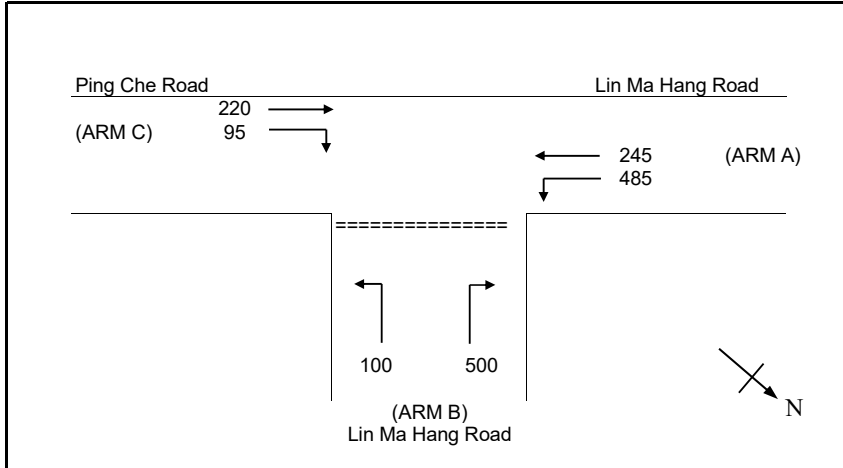
CRITICAL DFC = 0.73

PROJECT NO: 287082 DESIGNED BY:

J2 - Lin Ma Hang Road / Ping Che Road

J2_2031_DES_AM

DATE : 25/9/2024 FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

- W = MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
- W cr = CENTRAL RESERVE WIDTH (0m, 1.2-9m)
- W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
- W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
- W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
- VI b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
- Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
- Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
- Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
- D = STREAM-SPECIFIC B-A
- E = STREAM-SPECIFIC B-C
- F = STREAM-SPECIFIC C-B
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

- W = 7.00 (metres)
- W cr = 0.00 (metres)
- q a-b = 485 (pcu/hr)
- q a-c = 245 (pcu/hr)

MAJOR ROAD (ARM C)

- W c-b = 3.30 (metres)
- Vr c-b = 100 (metres)
- q c-a = 220 (pcu/hr)
- q c-b = 95 (pcu/hr)

MINOR ROAD (ARM B)

- W b-a = 3.50 (metres)
- W b-c = 4.50 (metres)
- VI b-a = 200 (metres)
- Vr b-a = 100 (metres)
- Vr b-c = 100 (metres)
- q b-a = 500 (pcu/hr)
- q b-c = 100 (pcu/hr)

GEOMETRIC FACTORS :

- D = 1
- E = 1.06
- F = 0.95
- Y = 0.76

THE CAPACITY OF MOVEMENT :

- Q b-a = 429
- Q b-c = 662
- Q c-b = 516
- Q b-ac = 455.7

TOTAL FLOW = 1645 (PCU/HR)

COMPARISON OF DESIGN FLOW TO CAPACITY:

- DFC b-a = 1.17
- DFC b-c = 0.15
- DFC c-b = 0.18
- DFC b-ac = 1.32

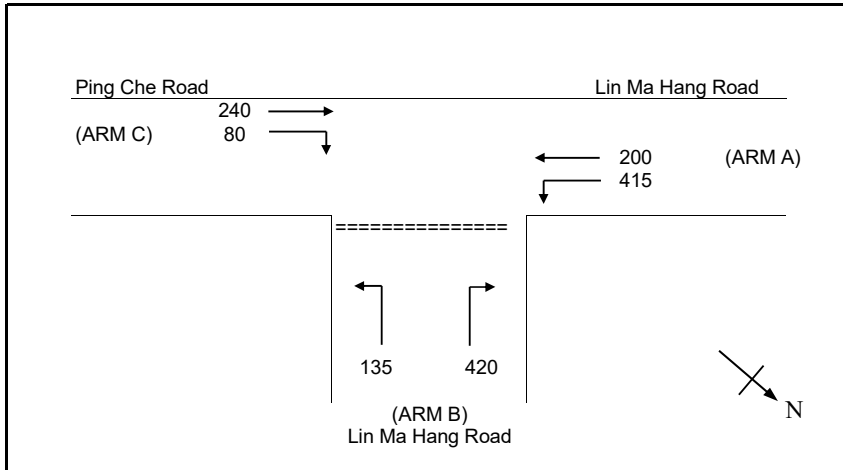
CRITICAL DFC = 1.32

PROJECT NO: 287082 DESIGNED BY:

J2 - Lin Ma Hang Road / Ping Che Road

J2_2031_DES_PM

DATE : 25/9/2024 FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

- W = MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
- W cr = CENTRAL RESERVE WIDTH (0m, 1.2-9m)
- W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
- W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
- W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
- VI b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
- Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
- Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
- Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
- D = STREAM-SPECIFIC B-A
- E = STREAM-SPECIFIC B-C
- F = STREAM-SPECIFIC C-B
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

- W = 7.00 (metres)
- W cr = 0.00 (metres)
- q a-b = 415 (pcu/hr)
- q a-c = 200 (pcu/hr)

MAJOR ROAD (ARM C)

- W c-b = 3.30 (metres)
- Vr c-b = 100 (metres)
- q c-a = 240 (pcu/hr)
- q c-b = 80 (pcu/hr)

MINOR ROAD (ARM B)

- W b-a = 3.50 (metres)
- W b-c = 4.50 (metres)
- VI b-a = 200 (metres)
- Vr b-a = 100 (metres)
- Vr b-c = 100 (metres)
- q b-a = 420 (pcu/hr)
- q b-c = 135 (pcu/hr)

GEOMETRIC FACTORS :

- D = 1
- E = 1.06
- F = 0.95
- Y = 0.76

THE CAPACITY OF MOVEMENT :

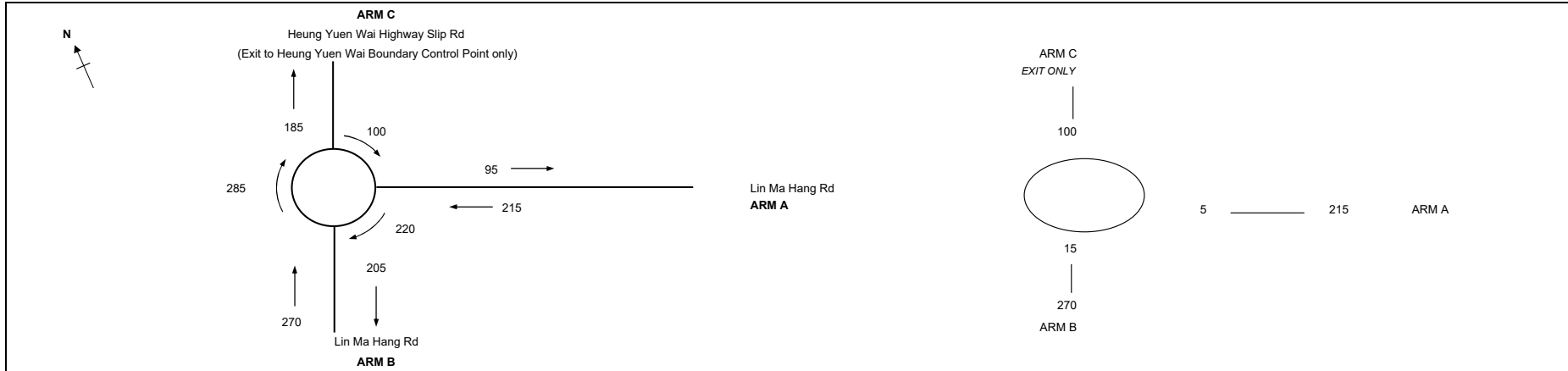
- Q b-a = 452
- Q b-c = 683
- Q c-b = 546
- Q b-ac = 492.5

TOTAL FLOW = 1490 (PCU/HR)

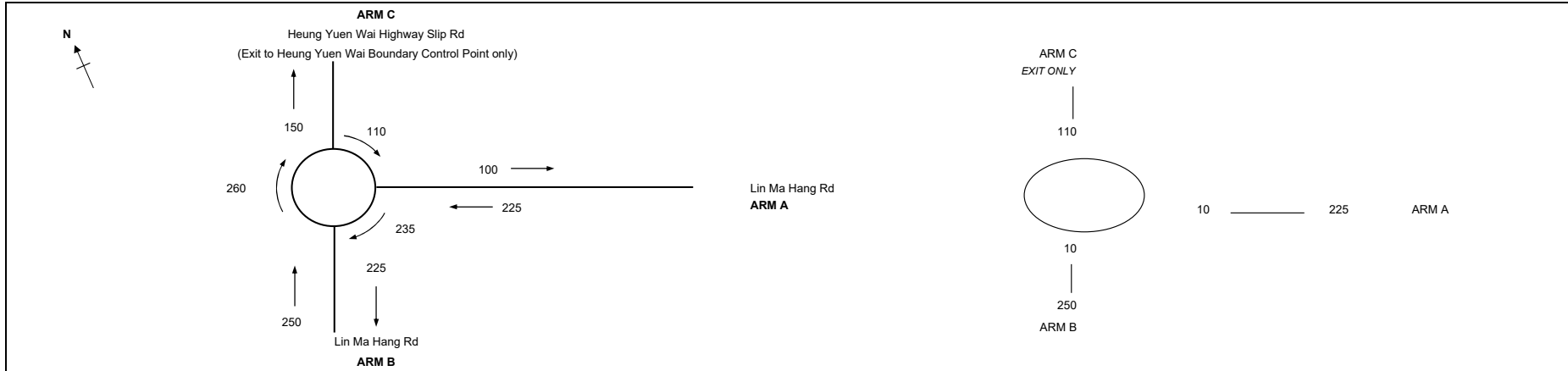
COMPARISON OF DESIGN FLOW TO CAPACITY:

- DFC b-a = 0.93
- DFC b-c = 0.20
- DFC c-b = 0.15
- DFC b-ac = 1.13

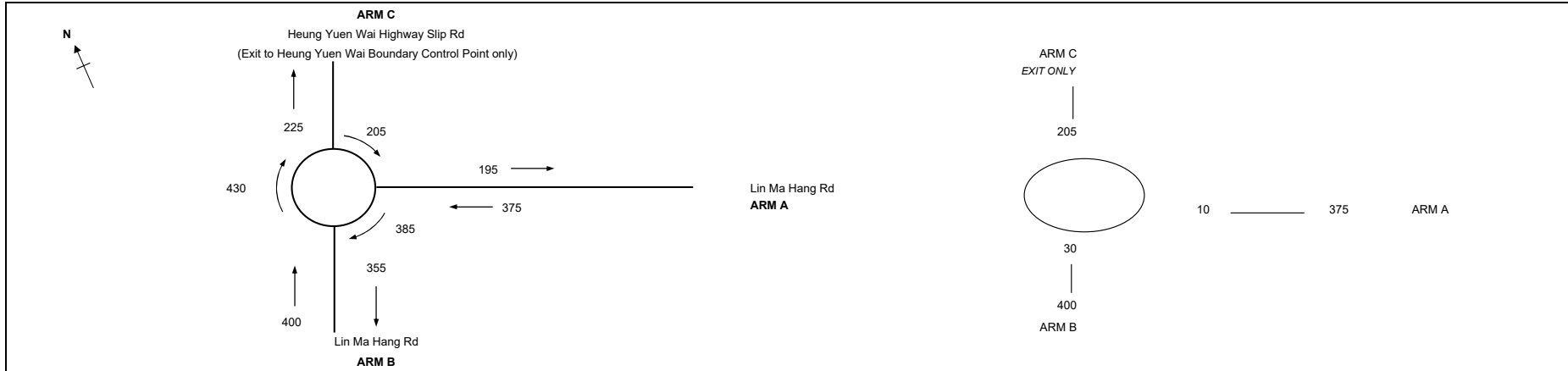
CRITICAL DFC = 1.13



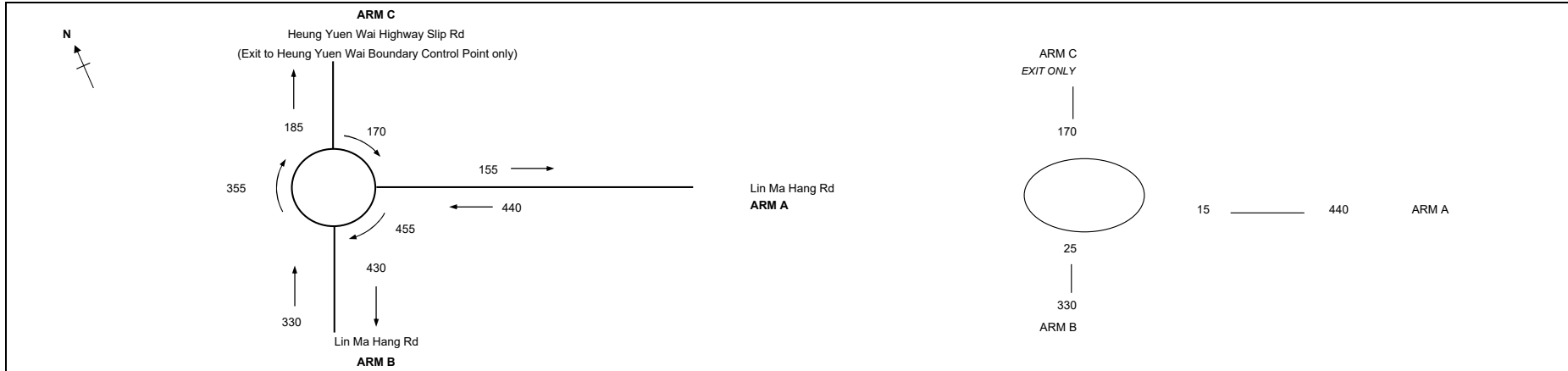
ARM	A	B
INPUT PARAMETERS:		
V = Approach half width (m)	3.65	3.65
E = Entry width (m)	4.00	4.00
L = Effective length of flare (m)	10	10
R = Entry radius (m)	100	45
D = Inscribed circle diameter (m)	25	25
A = Entry angle (degree)	10	15
Q = Entry flow (pcu/h)	215	270
Qc = Circulating flow across entry (pcu/h)	5	15
OUTPUT PARAMETERS:		
S = Sharpness of flare = $1.6(E-V)/L$	0.06	0.06
K = $1-0.00347(A-30)-0.978(1/R-0.05)$	1.11	1.08
X2 = $V + ((E-V)/(1+2S))$	3.96	3.96
M = $EXP((D-60)/10)$	0.03	0.03
F = $303 \times X2$	1201	1201
Td = $1+(0.5/(1+M))$	1.49	1.49
Fc = $0.21 \times Td(1+0.2 \times X2)$	0.56	0.56
Qe = $K(F-Fc \times Qc)$	1329	1287
DFC = Design flow/Capacity = Q/Qe	0.16	0.21
Total In Sum =		485 PCU
DFC of Critical Approach =		0.21



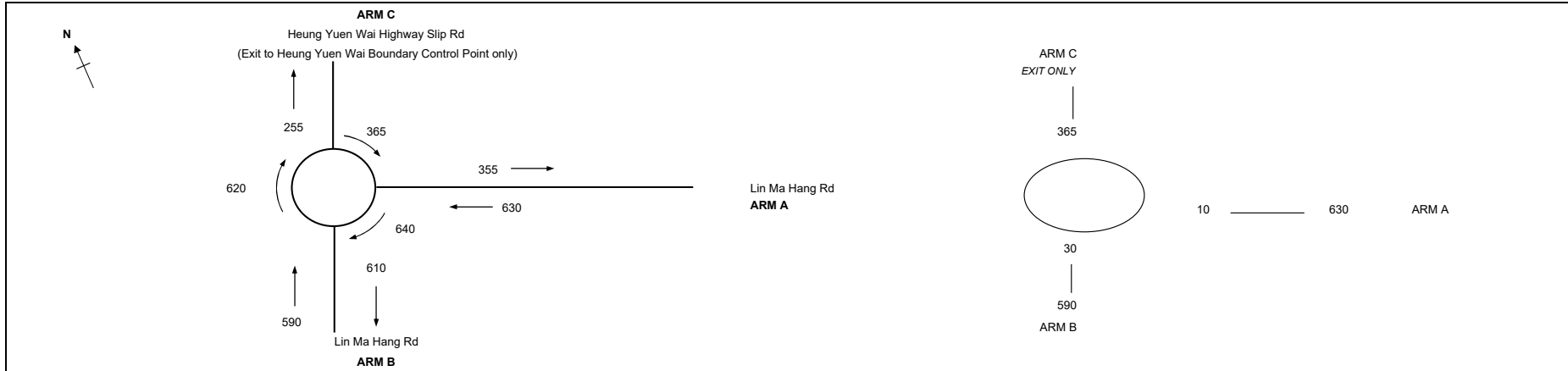
ARM	A	B		
INPUT PARAMETERS:				
V = Approach half width (m)	3.65	3.65		
E = Entry width (m)	4.00	4.00		
L = Effective length of flare (m)	10	10		
R = Entry radius (m)	100	45		
D = Inscribed circle diameter (m)	25	25		
A = Entry angle (degree)	10	15		
Q = Entry flow (pcu/h)	225	250		
Qc = Circulating flow across entry (pcu/h)	10	10		
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.06	0.06		
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.11	1.08		
X2 = V + ((E-V)/(1+2S))	3.96	3.96		
M = EXP((D-60)/10)	0.03	0.03		
F = 303*X2	1201	1201		
Td = 1+(0.5/(1+M))	1.49	1.49		
Fc = 0.21*Td(1+0.2*X2)	0.56	0.56		
Qe = K(F-Fc*Qc)	1325	1290		
DFC = Design flow/Capacity = Q/Qe	0.17	0.19		
			Total In Sum =	475 PCU
			DFC of Critical Approach =	0.19



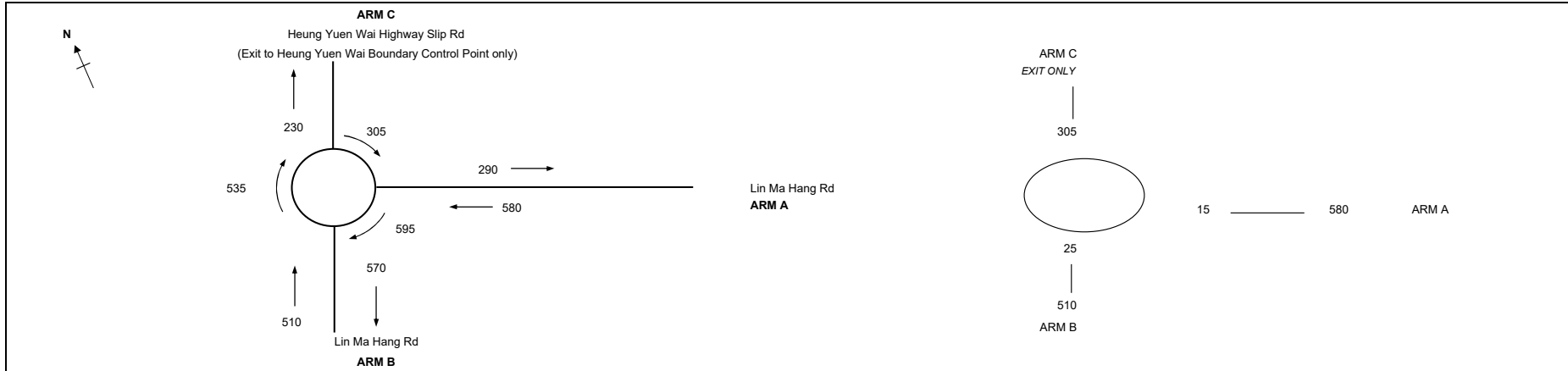
ARM	A	B
INPUT PARAMETERS:		
V = Approach half width (m)	3.65	3.65
E = Entry width (m)	4.00	4.00
L = Effective length of flare (m)	10	10
R = Entry radius (m)	100	45
D = Inscribed circle diameter (m)	25	25
A = Entry angle (degree)	10	15
Q = Entry flow (pcu/h)	375	400
Qc = Circulating flow across entry (pcu/h)	10	30
OUTPUT PARAMETERS:		
S = Sharpness of flare = $1.6(E-V)/L$	0.06	0.06
K = $1-0.00347(A-30)-0.978(1/R-0.05)$	1.11	1.08
X2 = $V + ((E-V)/(1+2S))$	3.96	3.96
M = $EXP((D-60)/10)$	0.03	0.03
F = $303 \times X2$	1201	1201
Td = $1+(0.5/(1+M))$	1.49	1.49
Fc = $0.21 \times Td(1+0.2 \times X2)$	0.56	0.56
Qe = $K(F-Fc \times Qc)$	1325	1278
DFC = Design flow/Capacity = Q/Qe	0.28	0.31
Total In Sum =		775 PCU
DFC of Critical Approach =		0.31



ARM	A	B
INPUT PARAMETERS:		
V = Approach half width (m)	3.65	3.65
E = Entry width (m)	4.00	4.00
L = Effective length of flare (m)	10	10
R = Entry radius (m)	100	45
D = Inscribed circle diameter (m)	25	25
A = Entry angle (degree)	10	15
Q = Entry flow (pcu/h)	440	330
Qc = Circulating flow across entry (pcu/h)	15	25
OUTPUT PARAMETERS:		
S = Sharpness of flare = $1.6(E-V)/L$	0.06	0.06
K = $1-0.00347(A-30)-0.978(1/R-0.05)$	1.11	1.08
X2 = $V + ((E-V)/(1+2S))$	3.96	3.96
M = $EXP((D-60)/10)$	0.03	0.03
F = $303 \times X2$	1201	1201
Td = $1+(0.5/(1+M))$	1.49	1.49
Fc = $0.21 \times Td(1+0.2 \times X2)$	0.56	0.56
Qe = $K(F-Fc \times Qc)$	1322	1281
DFC = Design flow/Capacity = Q/Qe	0.33	0.26
Total In Sum =		770 PCU
DFC of Critical Approach =		0.33



ARM	A	B
INPUT PARAMETERS:		
V = Approach half width (m)	3.65	3.65
E = Entry width (m)	4.00	4.00
L = Effective length of flare (m)	10	10
R = Entry radius (m)	100	45
D = Inscribed circle diameter (m)	25	25
A = Entry angle (degree)	10	15
Q = Entry flow (pcu/h)	630	590
Qc = Circulating flow across entry (pcu/h)	10	30
OUTPUT PARAMETERS:		
S = Sharpness of flare = 1.6(E-V)/L	0.06	0.06
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.11	1.08
X2 = V + ((E-V)/(1+2S))	3.96	3.96
M = EXP((D-60)/10)	0.03	0.03
F = 303*X2	1201	1201
Td = 1+(0.5/(1+M))	1.49	1.49
Fc = 0.21*Td(1+0.2*X2)	0.56	0.56
Qe = K(F-Fc*Qc)	1325	1278
DFC = Design flow/Capacity = Q/Qe	0.48	0.46
Total In Sum =		1220 PCU
DFC of Critical Approach =		0.48



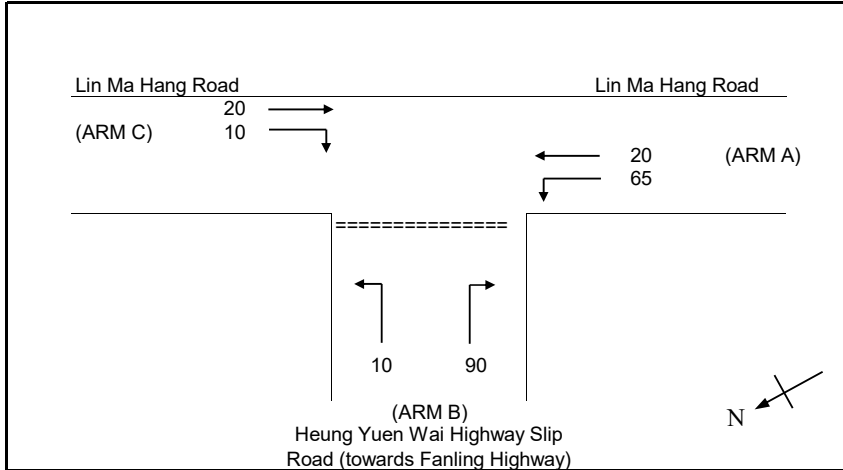
ARM	A	B		
INPUT PARAMETERS:				
V =	Approach half width (m)	3.65	3.65	
E =	Entry width (m)	4.00	4.00	
L =	Effective length of flare (m)	10	10	
R =	Entry radius (m)	100	45	
D =	Inscribed circle diameter (m)	25	25	
A =	Entry angle (degree)	10	15	
Q =	Entry flow (pcu/h)	580	510	
Qc =	Circulating flow across entry (pcu/h)	15	25	
OUTPUT PARAMETERS:				
S =	Sharpness of flare = $1.6(E-V)/L$	0.06	0.06	
K =	$1-0.00347(A-30)-0.978(1/R-0.05)$	1.11	1.08	
X2 =	$V + ((E-V)/(1+2S))$	3.96	3.96	
M =	$EXP((D-60)/10)$	0.03	0.03	
F =	$303 \times X2$	1201	1201	
Td =	$1+(0.5/(1+M))$	1.49	1.49	
Fc =	$0.21 \times Td(1+0.2 \times X2)$	0.56	0.56	
Qe =	$K(F-Fc \times Qc)$	1322	1281	
DFC =	Design flow/Capacity = Q/Qe	0.44	0.40	
Total In Sum =				1090 PCU
DFC of Critical Approach =				0.44

PROJECT NO: 287082 DESIGNED BY:

J4 - Lin Ma Hang Road / Heung Yuen Wai Highway Slip Road

J4_2023_EXT_AM

DATE : 25/9/2024 FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

- W = MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
- W cr = CENTRAL RESERVE WIDTH (0m, 1.2-9m)
- W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
- W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
- W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
- VI b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
- Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
- Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
- Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
- D = STREAM-SPECIFIC B-A
- E = STREAM-SPECIFIC B-C
- F = STREAM-SPECIFIC C-B
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

- W = 7.30 (metres)
- W cr = 0.00 (metres)
- q a-b = 65 (pcu/hr)
- q a-c = 20 (pcu/hr)

MAJOR ROAD (ARM C)

- W c-b = 3.65 (metres)
- Vr c-b = 50 (metres)
- q c-a = 20 (pcu/hr)
- q c-b = 10 (pcu/hr)

MINOR ROAD (ARM B)

- W b-a = 5.00 (metres)
- W b-c = 5.00 (metres)
- VI b-a = 100 (metres)
- Vr b-a = 100 (metres)
- Vr b-c = 100 (metres)
- q b-a = 90 (pcu/hr)
- q b-c = 10 (pcu/hr)

GEOMETRIC FACTORS :

- D = 1.07
- E = 1.11
- F = 0.94
- Y = 0.75

THE CAPACITY OF MOVEMENT :

- Q b-a = 652
- Q b-c = 811
- Q c-b = 676
- Q b-ac = 665

TOTAL FLOW = 215 (PCU/HR)

COMPARISON OF DESIGN FLOW TO CAPACITY:

- DFC b-a = 0.14
- DFC b-c = 0.01
- DFC c-b = 0.01
- DFC b-ac = 0.15

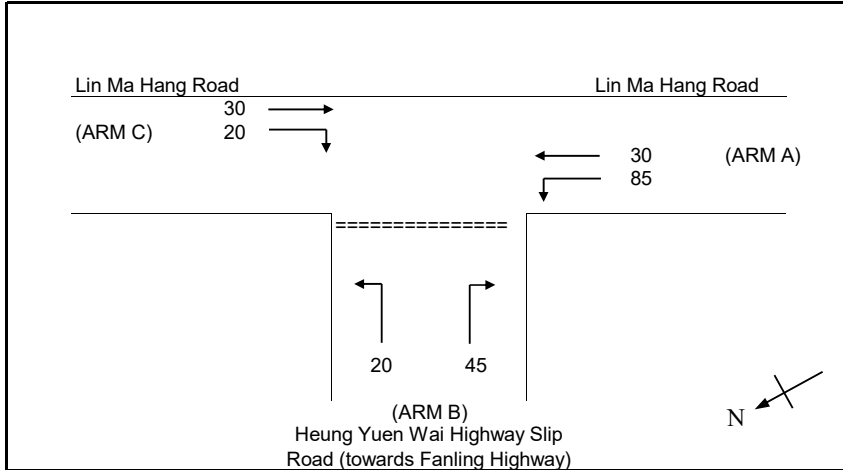
CRITICAL DFC = 0.15

PROJECT NO: 287082 DESIGNED BY:

J4 - Lin Ma Hang Road / Heung Yuen Wai Highway Slip Road

J4_2023_EXT_PM

DATE : 25/9/2024 FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

- W = MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
- W cr = CENTRAL RESERVE WIDTH (0m, 1.2-9m)
- W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
- W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
- W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
- Vi b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
- Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
- Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
- Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
- D = STREAM-SPECIFIC B-A
- E = STREAM-SPECIFIC B-C
- F = STREAM-SPECIFIC C-B
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W = 7.30 (metres)
 W cr = 0.00 (metres)
 q a-b = 85 (pcu/hr)
 q a-c = 30 (pcu/hr)

MAJOR ROAD (ARM C)

W c-b = 3.65 (metres)
 Vr c-b = 50 (metres)
 q c-a = 30 (pcu/hr)
 q c-b = 20 (pcu/hr)

MINOR ROAD (ARM B)

W b-a = 5.00 (metres)
 W b-c = 5.00 (metres)
 Vi b-a = 100 (metres)
 Vr b-a = 100 (metres)
 Vr b-c = 100 (metres)
 q b-a = 45 (pcu/hr)
 q b-c = 20 (pcu/hr)

GEOMETRIC FACTORS :

D = 1.07
 E = 1.11
 F = 0.94
 Y = 0.75

THE CAPACITY OF MOVEMENT :

Q b-a = 641
 Q b-c = 805
 Q c-b = 669
 Q b-ac = 683.9

TOTAL FLOW = 230 (PCU/HR)

COMPARISON OF DESIGN FLOW TO CAPACITY:

DFC b-a = 0.07
 DFC b-c = 0.02
 DFC c-b = 0.03
 DFC b-ac = 0.10

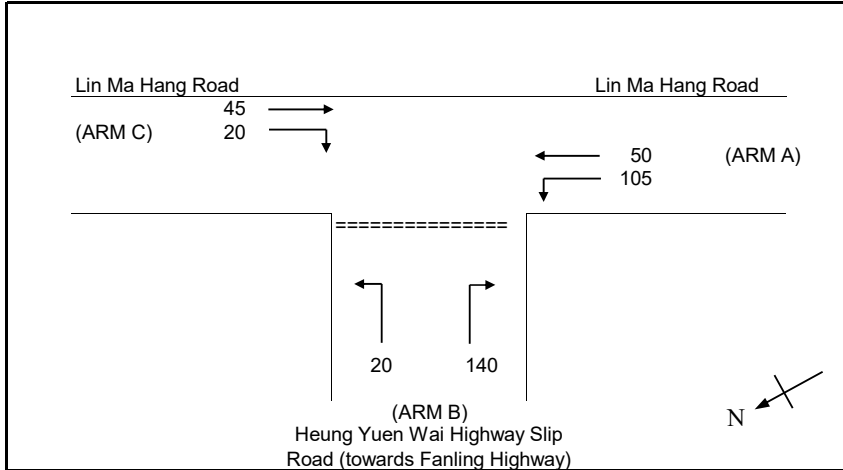
CRITICAL DFC = 0.10

PROJECT NO: 287082 DESIGNED BY:

J4 - Lin Ma Hang Road / Heung Yuen Wai Highway Slip Road

J4_2031_REF_AM

DATE : 25/9/2024 FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

- W = MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
- W cr = CENTRAL RESERVE WIDTH (0m, 1.2-9m)
- W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
- W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
- W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
- VI b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
- Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
- Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
- Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
- D = STREAM-SPECIFIC B-A
- E = STREAM-SPECIFIC B-C
- F = STREAM-SPECIFIC C-B
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W = 7.30 (metres)
 W cr = 0.00 (metres)
 q a-b = 105 (pcu/hr)
 q a-c = 50 (pcu/hr)

MAJOR ROAD (ARM C)

W c-b = 3.65 (metres)
 Vr c-b = 50 (metres)
 q c-a = 45 (pcu/hr)
 q c-b = 20 (pcu/hr)

MINOR ROAD (ARM B)

W b-a = 5.00 (metres)
 W b-c = 5.00 (metres)
 VI b-a = 100 (metres)
 Vr b-a = 100 (metres)
 Vr b-c = 100 (metres)
 q b-a = 140 (pcu/hr)
 q b-c = 20 (pcu/hr)

GEOMETRIC FACTORS :

D = 1.07
 E = 1.11
 F = 0.94
 Y = 0.75

THE CAPACITY OF MOVEMENT :

Q b-a = 630
 Q b-c = 797
 Q c-b = 659
 Q b-ac = 646.9

TOTAL FLOW = 380 (PCU/HR)

COMPARISON OF DESIGN FLOW TO CAPACITY:

DFC b-a = 0.22
 DFC b-c = 0.03
 DFC c-b = 0.03
 DFC b-ac = 0.25

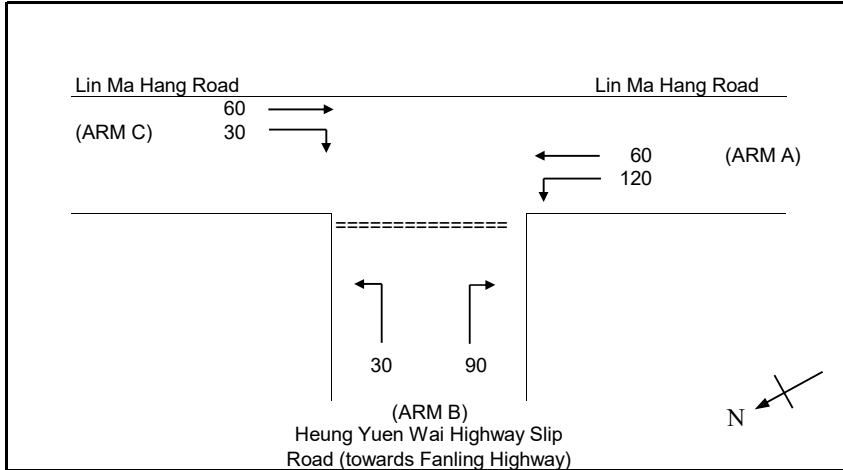
CRITICAL DFC = 0.25

PROJECT NO: 287082 DESIGNED BY:

J4 - Lin Ma Hang Road / Heung Yuen Wai Highway Slip Road

J4_2031_REF_PM

DATE : 25/9/2024 FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

- W = MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
- W cr = CENTRAL RESERVE WIDTH (0m, 1.2-9m)
- W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
- W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
- W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
- VI b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
- Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
- Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
- Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
- D = STREAM-SPECIFIC B-A
- E = STREAM-SPECIFIC B-C
- F = STREAM-SPECIFIC C-B
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W = 7.30 (metres)
 W cr = 0.00 (metres)
 q a-b = 120 (pcu/hr)
 q a-c = 60 (pcu/hr)

MAJOR ROAD (ARM C)

W c-b = 3.65 (metres)
 Vr c-b = 50 (metres)
 q c-a = 60 (pcu/hr)
 q c-b = 30 (pcu/hr)

MINOR ROAD (ARM B)

W b-a = 5.00 (metres)
 W b-c = 5.00 (metres)
 VI b-a = 100 (metres)
 Vr b-a = 100 (metres)
 Vr b-c = 100 (metres)
 q b-a = 90 (pcu/hr)
 q b-c = 30 (pcu/hr)

GEOMETRIC FACTORS :

D = 1.07
 E = 1.11
 F = 0.94
 Y = 0.75

THE CAPACITY OF MOVEMENT :

Q b-a = 618
 Q b-c = 792
 Q c-b = 652
 Q b-ac = 653.9

TOTAL FLOW = 390 (PCU/HR)

COMPARISON OF DESIGN FLOW TO CAPACITY:

DFC b-a = 0.15
 DFC b-c = 0.04
 DFC c-b = 0.05
 DFC b-ac = 0.18

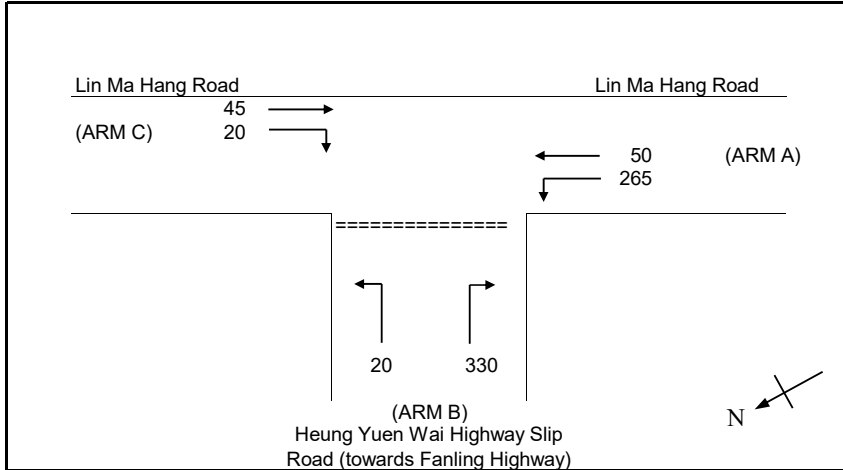
CRITICAL DFC = 0.18

PROJECT NO: 287082 DESIGNED BY:

J4 - Lin Ma Hang Road / Heung Yuen Wai Highway Slip Road

J4_2031_DES_AM

DATE : 25/9/2024 FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

- W = MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
- W cr = CENTRAL RESERVE WIDTH (0m, 1.2-9m)
- W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
- W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
- W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
- Vi b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
- Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
- Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
- Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
- D = STREAM-SPECIFIC B-A
- E = STREAM-SPECIFIC B-C
- F = STREAM-SPECIFIC C-B
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)
 W = 7.30 (metres)
 W cr = 0.00 (metres)
 q a-b = 265 (pcu/hr)
 q a-c = 50 (pcu/hr)

MAJOR ROAD (ARM C)
 W c-b = 3.65 (metres)
 Vr c-b = 50 (metres)
 q c-a = 45 (pcu/hr)
 q c-b = 20 (pcu/hr)

MINOR ROAD (ARM B)
 W b-a = 5.00 (metres)
 W b-c = 5.00 (metres)
 Vi b-a = 100 (metres)
 Vr b-a = 100 (metres)
 Vr b-c = 100 (metres)
 q b-a = 330 (pcu/hr)
 q b-c = 20 (pcu/hr)

GEOMETRIC FACTORS :

D = 1.07
 E = 1.11
 F = 0.94
 Y = 0.75

THE CAPACITY OF MOVEMENT :

Q b-a = 611
 Q b-c = 778
 Q c-b = 618
 Q b-ac = 618.6

TOTAL FLOW = 730 (PCU/HR)

COMPARISON OF DESIGN FLOW TO CAPACITY:

DFC b-a = 0.54
 DFC b-c = 0.03
 DFC c-b = 0.03
 DFC b-ac = 0.57

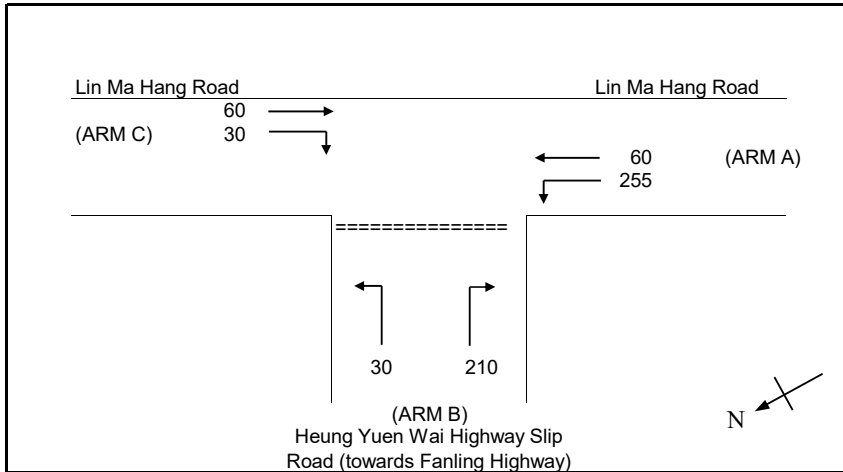
CRITICAL DFC = 0.57

PROJECT NO: 287082 DESIGNED BY:

J4 - Lin Ma Hang Road / Heung Yuen Wai Highway Slip Road

J4_2031_DES_PM

DATE : 25/9/2024 FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

- W = MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
- W cr = CENTRAL RESERVE WIDTH (0m, 1.2-9m)
- W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
- W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
- W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
- Vi b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
- Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
- Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
- Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
- D = STREAM-SPECIFIC B-A
- E = STREAM-SPECIFIC B-C
- F = STREAM-SPECIFIC C-B
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)
 W = 7.30 (metres)
 W cr = 0.00 (metres)
 q a-b = 255 (pcu/hr)
 q a-c = 60 (pcu/hr)

MAJOR ROAD (ARM C)
 W c-b = 3.65 (metres)
 Vr c-b = 50 (metres)
 q c-a = 60 (pcu/hr)
 q c-b = 30 (pcu/hr)

MINOR ROAD (ARM B)
 W b-a = 5.00 (metres)
 W b-c = 5.00 (metres)
 Vi b-a = 100 (metres)
 Vr b-a = 100 (metres)
 Vr b-c = 100 (metres)
 q b-a = 210 (pcu/hr)
 q b-c = 30 (pcu/hr)

GEOMETRIC FACTORS :

D = 1.07
 E = 1.11
 F = 0.94
 Y = 0.75

THE CAPACITY OF MOVEMENT :

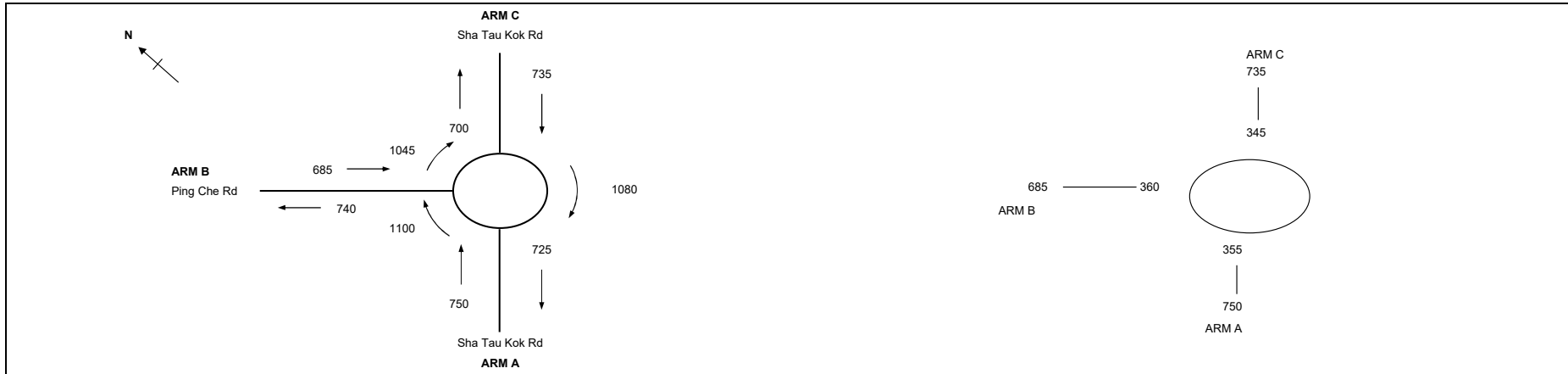
Q b-a = 602
 Q b-c = 776
 Q c-b = 618
 Q b-ac = 619.4

TOTAL FLOW = 645 (PCU/HR)

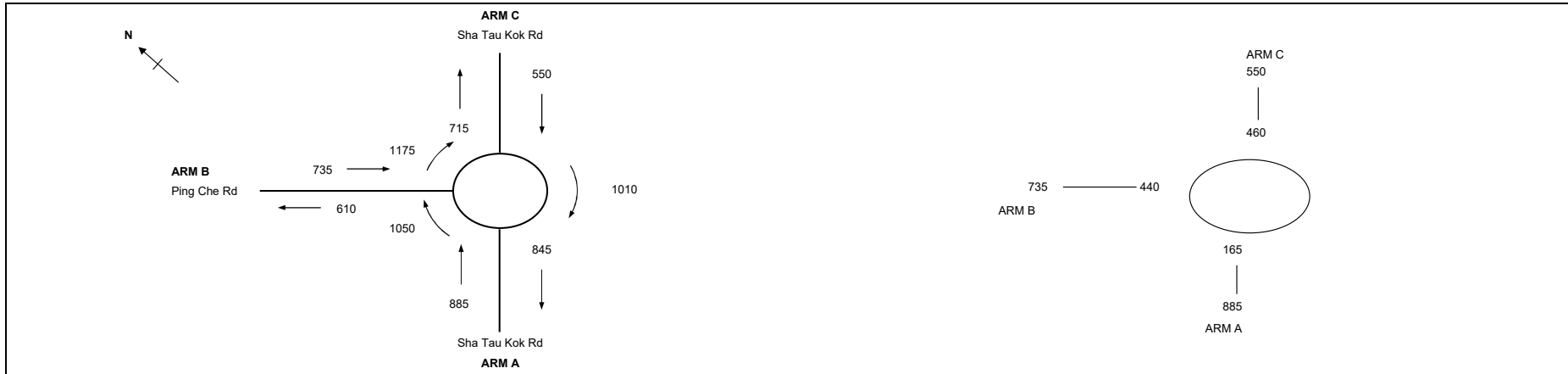
COMPARISON OF DESIGN FLOW TO CAPACITY:

DFC b-a = 0.35
 DFC b-c = 0.04
 DFC c-b = 0.05
 DFC b-ac = 0.39

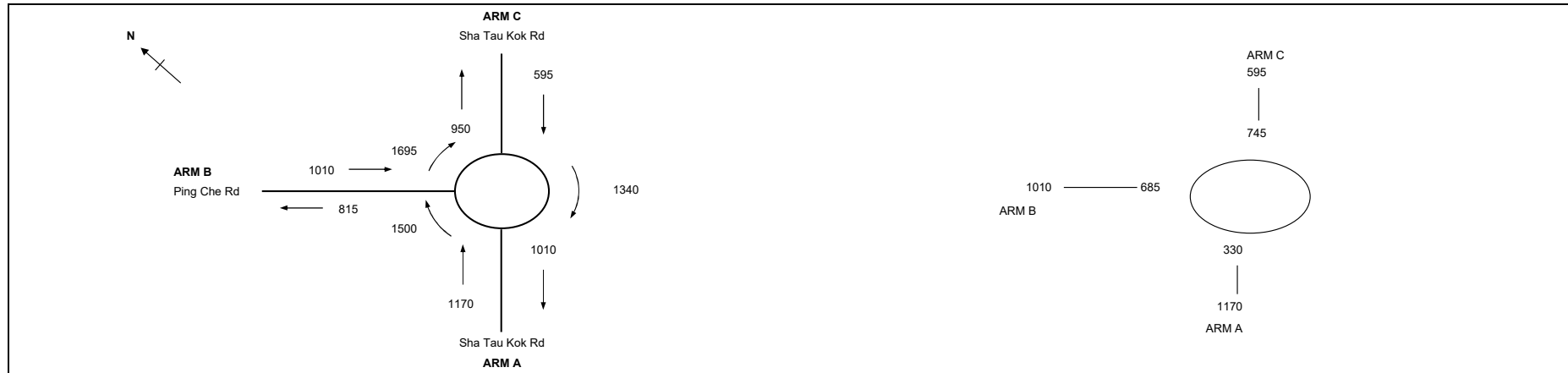
CRITICAL DFC = 0.39



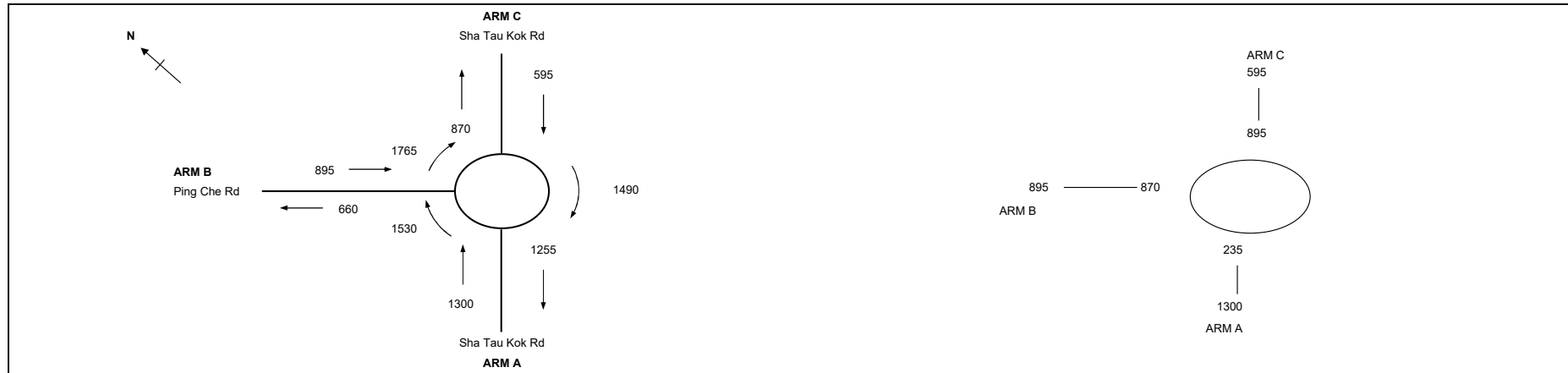
ARM	A	B	C		
INPUT PARAMETERS:					
V = Approach half width (m)	7.30	5.50	7.30		
E = Entry width (m)	9.00	8.50	9.00		
L = Effective length of flare (m)	5	5	5		
R = Entry radius (m)	40	15	40		
D = Inscribed circle diameter (m)	50	50	50		
A = Entry angle (degree)	20	40	25		
Q = Entry flow (pcu/h)	750	685	735		
Qc = Circulating flow across entry (pcu/h)	355	360	345		
OUTPUT PARAMETERS:					
S = Sharpness of flare = 1.6(E-V)/L	0.54	0.96	0.54		
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.06	0.95	1.04		
X2 = V + ((E-V)/(1+2S))	8.11	6.53	8.11		
M = EXP((D-60)/10)	0.37	0.37	0.37		
F = 303*X2	2459	1978	2459		
Td = 1+(0.5/(1+M))	1.37	1.37	1.37		
Fc = 0.21*Td(1+0.2*X2)	0.75	0.66	0.75		
Qe = K(F-Fc*Qc)	2321	1651	2291		
DFC = Design flow/Capacity = Q/Qe	0.32	0.41	0.32		
				Total In Sum =	2170 PCU
				DFC of Critical Approach =	0.41



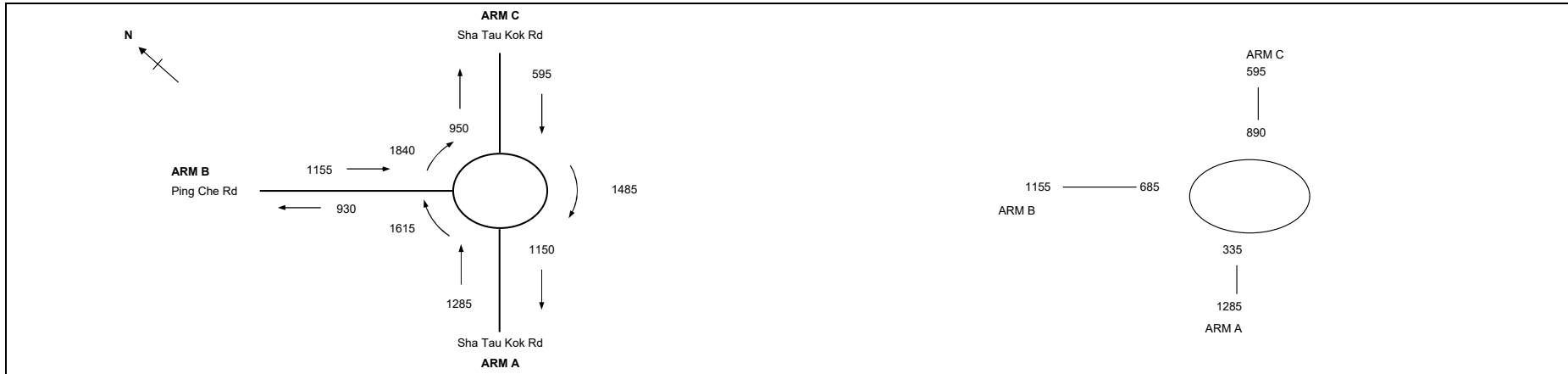
ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	7.30	5.50	7.30
E = Entry width (m)	9.00	8.50	9.00
L = Effective length of flare (m)	5	5	5
R = Entry radius (m)	40	15	40
D = Inscribed circle diameter (m)	50	50	50
A = Entry angle (degree)	20	40	25
Q = Entry flow (pcu/h)	885	735	550
Qc = Circulating flow across entry (pcu/h)	165	440	460
OUTPUT PARAMETERS:			
S = Sharpness of flare = $1.6(E-V)/L$	0.54	0.96	0.54
K = $1-0.00347(A-30)-0.978(1/R-0.05)$	1.06	0.95	1.04
X2 = $V + ((E-V)/(1+2S))$	8.11	6.53	8.11
M = $EXP((D-60)/10)$	0.37	0.37	0.37
F = $303 \times X2$	2459	1978	2459
Td = $1+(0.5/(1+M))$	1.37	1.37	1.37
Fc = $0.21 \times Td(1+0.2 \times X2)$	0.75	0.66	0.75
Qe = $K(F-Fc \times Qc)$	2473	1601	2201
DFC = Design flow/Capacity = Q/Qe	0.36	0.46	0.25
Total In Sum =			2170 PCU
DFC of Critical Approach =			0.46



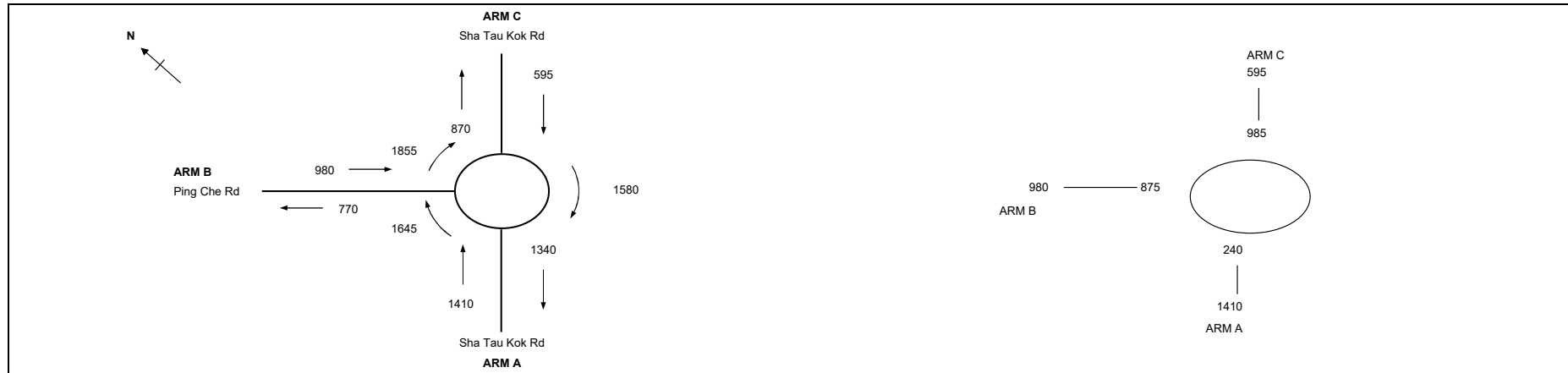
ARM	A	B	C	
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	5.50	7.30	
E = Entry width (m)	9.00	8.50	9.00	
L = Effective length of flare (m)	5	5	5	
R = Entry radius (m)	40	15	40	
D = Inscribed circle diameter (m)	50	50	50	
A = Entry angle (degree)	20	40	25	
Q = Entry flow (pcu/h)	1170	1010	595	
Qc = Circulating flow across entry (pcu/h)	330	685	745	
OUTPUT PARAMETERS:				
S = Sharpness of flare = $1.6(E-V)/L$	0.54	0.96	0.54	
K = $1-0.00347(A-30)-0.978(1/R-0.05)$	1.06	0.95	1.04	
X2 = $V + ((E-V)/(1+2S))$	8.11	6.53	8.11	
M = $EXP((D-60)/10)$	0.37	0.37	0.37	
F = $303 \times X2$	2459	1978	2459	
Td = $1+(0.5/(1+M))$	1.37	1.37	1.37	
Fc = $0.21 \times Td(1+0.2 \times X2)$	0.75	0.66	0.75	
Qe = $K(F-Fc \times Qc)$	2341	1447	1978	
DFC = Design flow/Capacity = Q/Qe	0.50	0.70	0.30	
Total In Sum =				2775 PCU
DFC of Critical Approach =				0.70



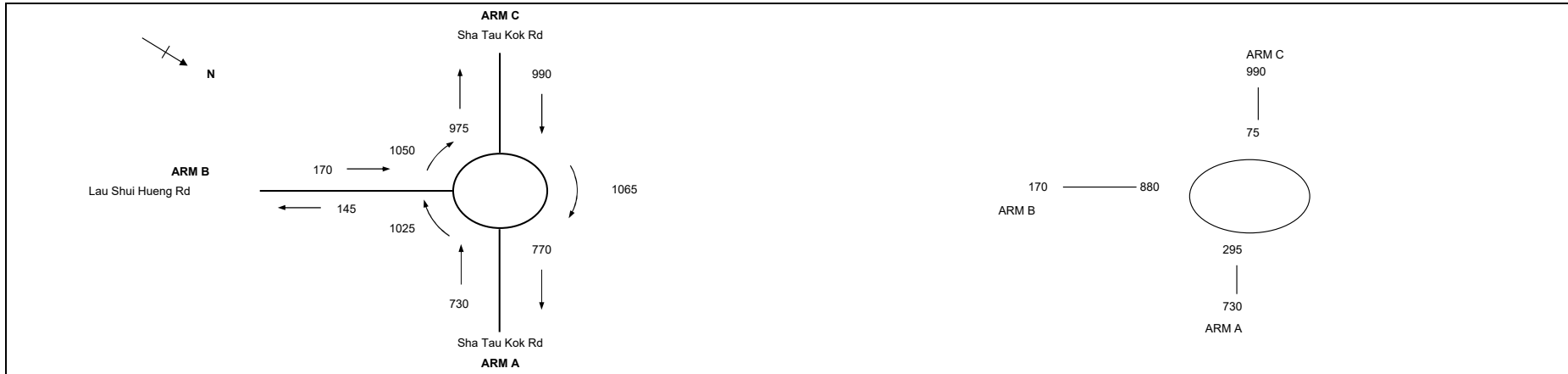
ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	7.30	5.50	7.30
E = Entry width (m)	9.00	8.50	9.00
L = Effective length of flare (m)	5	5	5
R = Entry radius (m)	40	15	40
D = Inscribed circle diameter (m)	50	50	50
A = Entry angle (degree)	20	40	25
Q = Entry flow (pcu/h)	1300	895	595
Qc = Circulating flow across entry (pcu/h)	235	870	895
OUTPUT PARAMETERS:			
S = Sharpness of flare = $1.6(E-V)/L$	0.54	0.96	0.54
K = $1-0.00347(A-30)-0.978(1/R-0.05)$	1.06	0.95	1.04
X2 = $V + ((E-V)/(1+2S))$	8.11	6.53	8.11
M = $EXP((D-60)/10)$	0.37	0.37	0.37
F = $303 \times X2$	2459	1978	2459
Td = $1+(0.5/(1+M))$	1.37	1.37	1.37
Fc = $0.21 \times Td(1+0.2 \times X2)$	0.75	0.66	0.75
Qe = $K(F-Fc \times Qc)$	2417	1331	1860
DFC = Design flow/Capacity = Q/Qe	0.54	0.67	0.32
Total In Sum =			2790 PCU
DFC of Critical Approach =			0.67



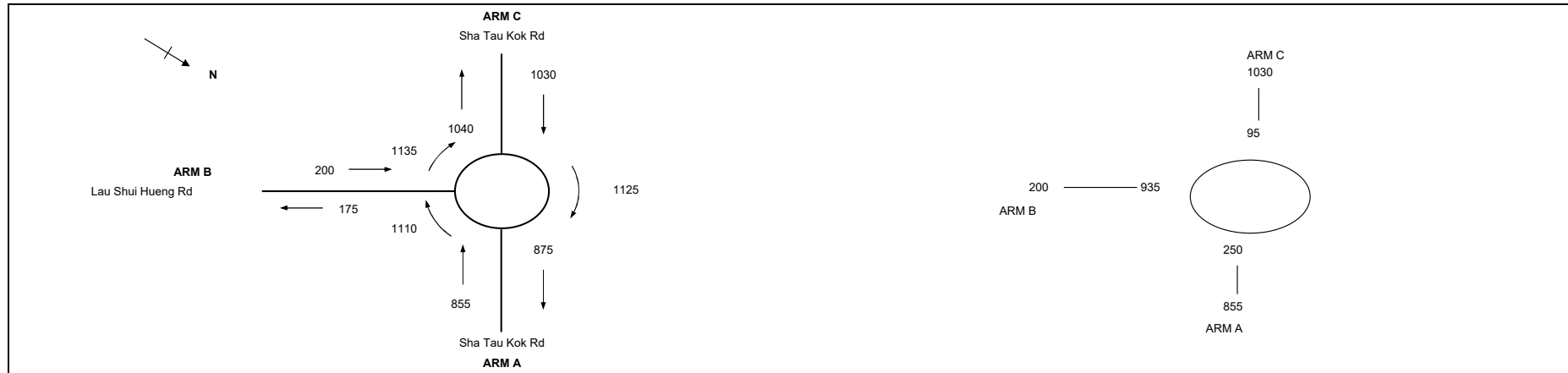
ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	7.30	5.50	7.30
E = Entry width (m)	9.00	8.50	9.00
L = Effective length of flare (m)	5	5	5
R = Entry radius (m)	40	15	40
D = Inscribed circle diameter (m)	50	50	50
A = Entry angle (degree)	20	40	25
Q = Entry flow (pcu/h)	1285	1155	595
Qc = Circulating flow across entry (pcu/h)	335	685	890
OUTPUT PARAMETERS:			
S = Sharpness of flare = $1.6(E-V)/L$	0.54	0.96	0.54
K = $1-0.00347(A-30)-0.978(1/R-0.05)$	1.06	0.95	1.04
X2 = $V + ((E-V)/(1+2S))$	8.11	6.53	8.11
M = $EXP((D-60)/10)$	0.37	0.37	0.37
F = $303 \times X2$	2459	1978	2459
Td = $1+(0.5/(1+M))$	1.37	1.37	1.37
Fc = $0.21 \times Td(1+0.2 \times X2)$	0.75	0.66	0.75
Qe = $K(F-Fc \times Qc)$	2337	1447	1864
DFC = Design flow/Capacity = Q/Qe	0.55	0.80	0.32
Total In Sum =			3035 PCU
DFC of Critical Approach =			0.80



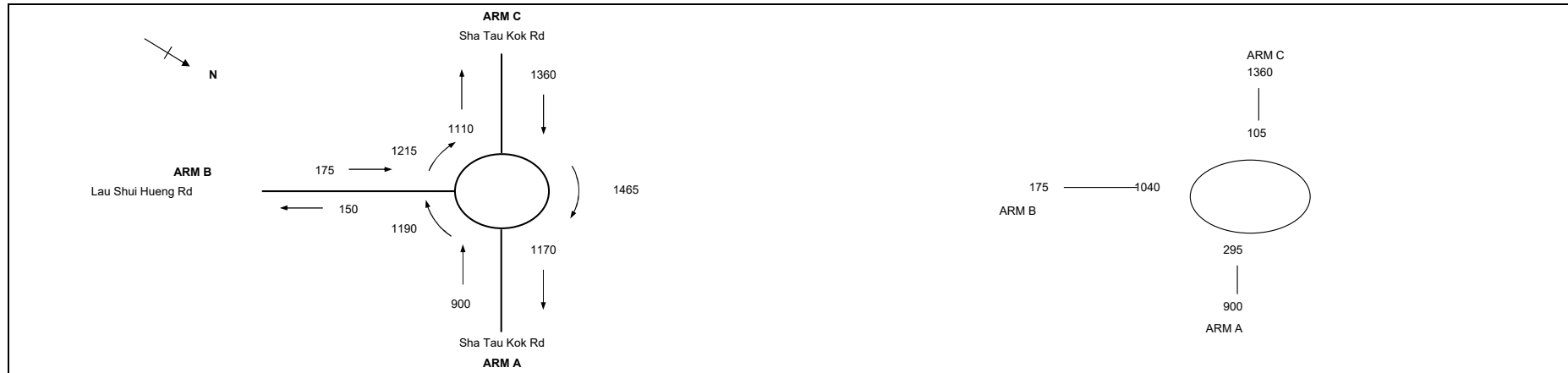
ARM	A	B	C	
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	5.50	7.30	
E = Entry width (m)	9.00	8.50	9.00	
L = Effective length of flare (m)	5	5	5	
R = Entry radius (m)	40	15	40	
D = Inscribed circle diameter (m)	50	50	50	
A = Entry angle (degree)	20	40	25	
Q = Entry flow (pcu/h)	1410	980	595	
Qc = Circulating flow across entry (pcu/h)	240	875	985	
OUTPUT PARAMETERS:				
S = Sharpness of flare = $1.6(E-V)/L$	0.54	0.96	0.54	
K = $1-0.00347(A-30)-0.978(1/R-0.05)$	1.06	0.95	1.04	
X2 = $V + ((E-V)/(1+2S))$	8.11	6.53	8.11	
M = $EXP((D-60)/10)$	0.37	0.37	0.37	
F = $303 \times X2$	2459	1978	2459	
Td = $1+(0.5/(1+M))$	1.37	1.37	1.37	
Fc = $0.21 \times Td(1+0.2 \times X2)$	0.75	0.66	0.75	
Qe = $K(F-Fc \times Qc)$	2413	1328	1790	
DFC = Design flow/Capacity = Q/Qe	0.58	0.74	0.33	
				Total In Sum = 2985 PCU
				DFC of Critical Approach = 0.74



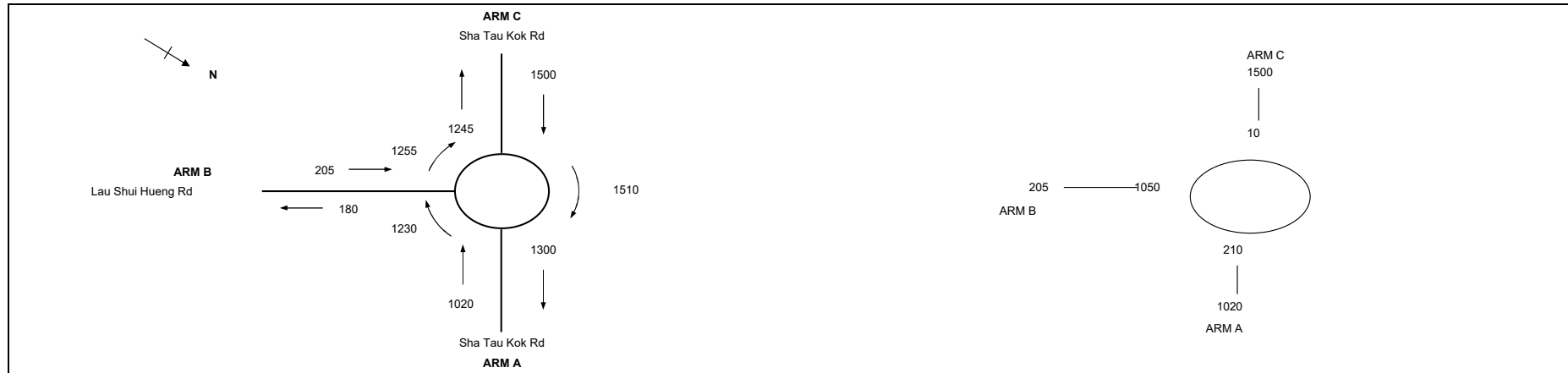
ARM	A	B	C		
INPUT PARAMETERS:					
V =	Approach half width (m)	7.30	3.30	7.30	
E =	Entry width (m)	9.00	5.00	9.00	
L =	Effective length of flare (m)	15	5	15	
R =	Entry radius (m)	15	80	80	
D =	Inscribed circle diameter (m)	50	50	50	
A =	Entry angle (degree)	40	25	10	
Q =	Entry flow (pcu/h)	730	170	990	
Qc =	Circulating flow across entry (pcu/h)	295	880	75	
OUTPUT PARAMETERS:					
S =	Sharpness of flare = $1.6(E-V)/L$	0.18	0.54	0.18	
K =	$1-0.00347(A-30)-0.978(1/R-0.05)$	0.95	1.05	1.11	
X2 =	$V + ((E-V)/(1+2S))$	8.55	4.11	8.55	
M =	$EXP((D-60)/10)$	0.37	0.37	0.37	
F =	$303 \times X2$	2590	1247	2590	
Td =	$1+(0.5/(1+M))$	1.37	1.37	1.37	
Fc =	$0.21 \times Td(1+0.2 \times X2)$	0.78	0.52	0.78	
Qe =	$K(F-Fc \times Qc)$	2240	829	2800	
DFC =	Design flow/Capacity = Q/Qe	0.33	0.21	0.35	
				Total In Sum =	1890 PCU
				DFC of Critical Approach =	0.35



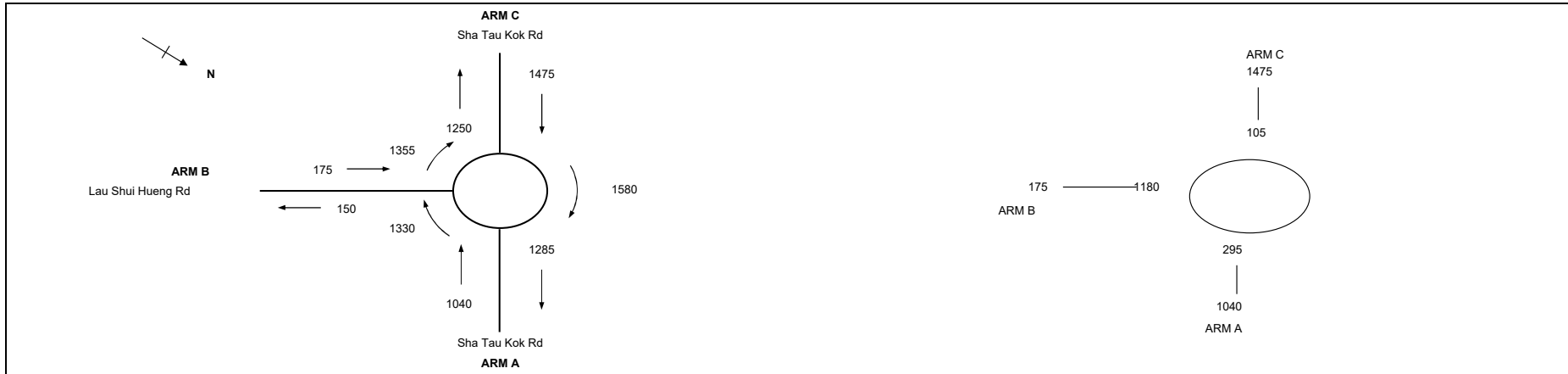
ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	7.30	3.30	7.30
E = Entry width (m)	9.00	5.00	9.00
L = Effective length of flare (m)	15	5	15
R = Entry radius (m)	15	80	80
D = Inscribed circle diameter (m)	50	50	50
A = Entry angle (degree)	40	25	10
Q = Entry flow (pcu/h)	855	200	1030
Qc = Circulating flow across entry (pcu/h)	250	935	95
OUTPUT PARAMETERS:			
S = Sharpness of flare = $1.6(E-V)/L$	0.18	0.54	0.18
K = $1-0.00347(A-30)-0.978(1/R-0.05)$	0.95	1.05	1.11
X2 = $V + ((E-V)/(1+2S))$	8.55	4.11	8.55
M = $EXP((D-60)/10)$	0.37	0.37	0.37
F = $303 \times X2$	2590	1247	2590
Td = $1+(0.5/(1+M))$	1.37	1.37	1.37
Fc = $0.21 \times Td(1+0.2 \times X2)$	0.78	0.52	0.78
Qe = $K(F-Fc \times Qc)$	2273	799	2783
DFC = Design flow/Capacity = Q/Qe	0.38	0.25	0.37
Total In Sum =			2085 PCU
DFC of Critical Approach =			0.38



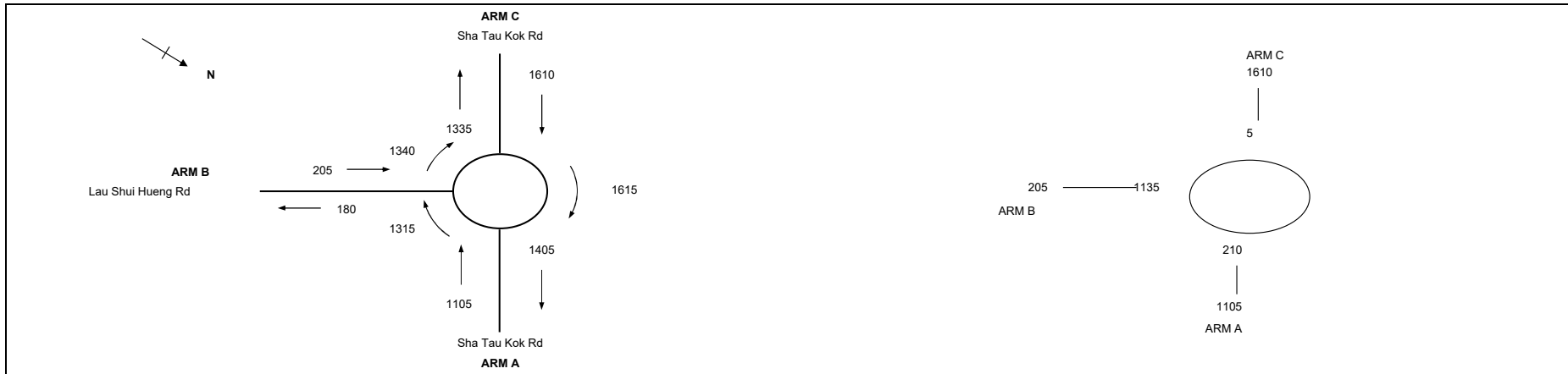
ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	7.30	3.30	7.30
E = Entry width (m)	9.00	5.00	9.00
L = Effective length of flare (m)	15	5	15
R = Entry radius (m)	15	80	80
D = Inscribed circle diameter (m)	50	50	50
A = Entry angle (degree)	40	25	10
Q = Entry flow (pcu/h)	900	175	1360
Qc = Circulating flow across entry (pcu/h)	295	1040	105
OUTPUT PARAMETERS:			
S = Sharpness of flare = $1.6(E-V)/L$	0.18	0.54	0.18
K = $1-0.00347(A-30)-0.978(1/R-0.05)$	0.95	1.05	1.11
X2 = $V + ((E-V)/(1+2S))$	8.55	4.11	8.55
M = $EXP((D-60)/10)$	0.37	0.37	0.37
F = $303 \times X2$	2590	1247	2590
Td = $1+(0.5/(1+M))$	1.37	1.37	1.37
Fc = $0.21 \times Td(1+0.2 \times X2)$	0.78	0.52	0.78
Qe = $K(F-Fc \times Qc)$	2240	741	2774
DFC = Design flow/Capacity = Q/Qe	0.40	0.24	0.49
Total In Sum =			2435 PCU
DFC of Critical Approach =			0.49



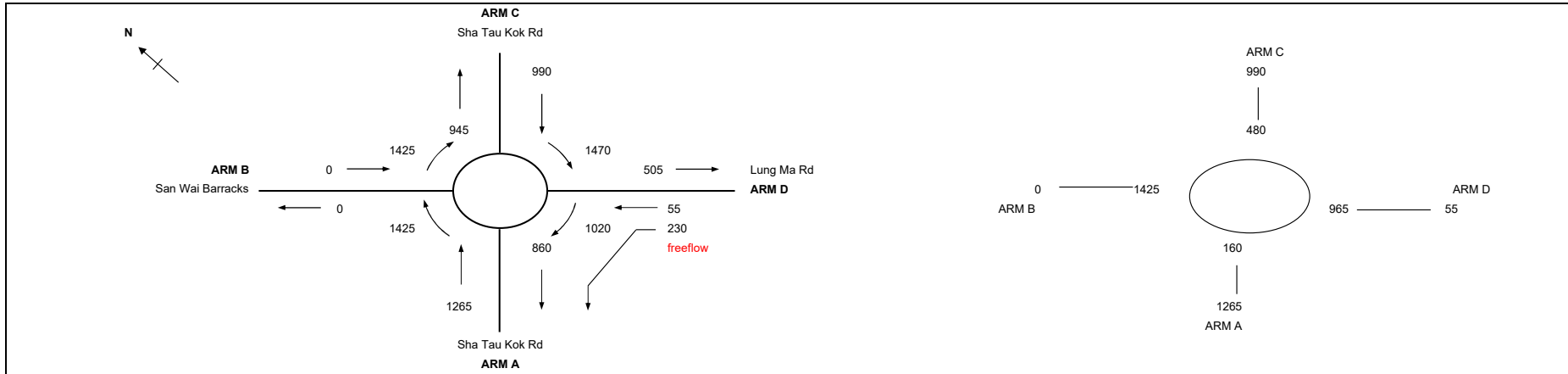
ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	7.30	3.30	7.30
E = Entry width (m)	9.00	5.00	9.00
L = Effective length of flare (m)	15	5	15
R = Entry radius (m)	15	80	80
D = Inscribed circle diameter (m)	50	50	50
A = Entry angle (degree)	40	25	10
Q = Entry flow (pcu/h)	1020	205	1500
Qc = Circulating flow across entry (pcu/h)	210	1050	10
OUTPUT PARAMETERS:			
S = Sharpness of flare = $1.6(E-V)/L$	0.18	0.54	0.18
K = $1-0.00347(A-30)-0.978(1/R-0.05)$	0.95	1.05	1.11
X2 = $V + ((E-V)/(1+2S))$	8.55	4.11	8.55
M = $EXP((D-60)/10)$	0.37	0.37	0.37
F = $303 \times X2$	2590	1247	2590
Td = $1+(0.5/(1+M))$	1.37	1.37	1.37
Fc = $0.21 \times Td(1+0.2 \times X2)$	0.78	0.52	0.78
Qe = $K(F-Fc \times Qc)$	2303	735	2856
DFC = Design flow/Capacity = Q/Qe	0.44	0.28	0.53
Total In Sum =			2725 PCU
DFC of Critical Approach =			0.53



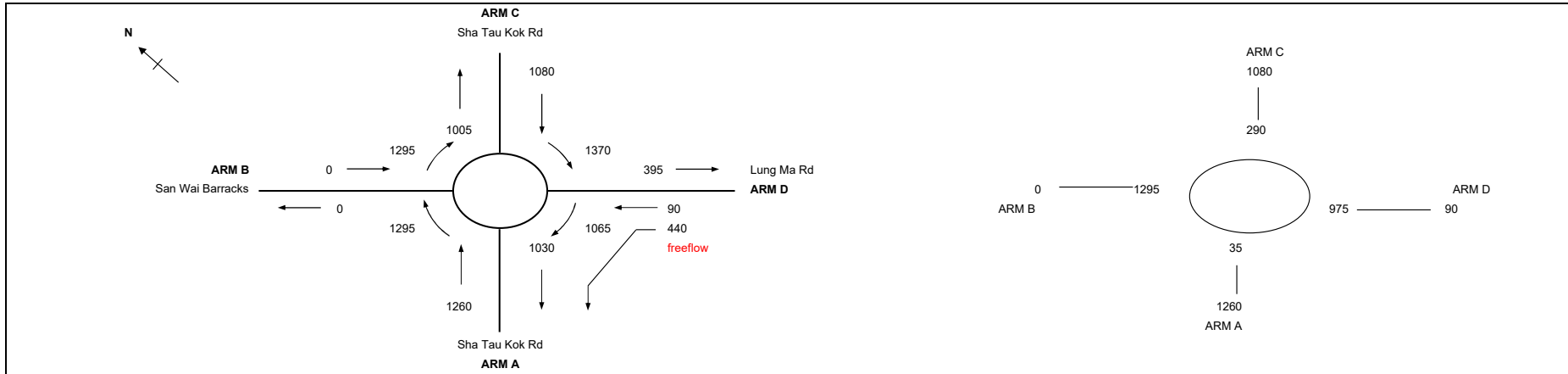
ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	7.30	3.30	7.30
E = Entry width (m)	9.00	5.00	9.00
L = Effective length of flare (m)	15	5	15
R = Entry radius (m)	15	80	80
D = Inscribed circle diameter (m)	50	50	50
A = Entry angle (degree)	40	25	10
Q = Entry flow (pcu/h)	1040	175	1475
Qc = Circulating flow across entry (pcu/h)	295	1180	105
OUTPUT PARAMETERS:			
S = Sharpness of flare = $1.6(E-V)/L$	0.18	0.54	0.18
K = $1-0.00347(A-30)-0.978(1/R-0.05)$	0.95	1.05	1.11
X2 = $V + ((E-V)/(1+2S))$	8.55	4.11	8.55
M = $EXP((D-60)/10)$	0.37	0.37	0.37
F = $303 \times X2$	2590	1247	2590
Td = $1+(0.5/(1+M))$	1.37	1.37	1.37
Fc = $0.21 \times Td(1+0.2 \times X2)$	0.78	0.52	0.78
Qe = $K(F-Fc \times Qc)$	2240	664	2774
DFC = Design flow/Capacity = Q/Qe	0.46	0.26	0.53
Total In Sum =			2690 PCU
DFC of Critical Approach =			0.53



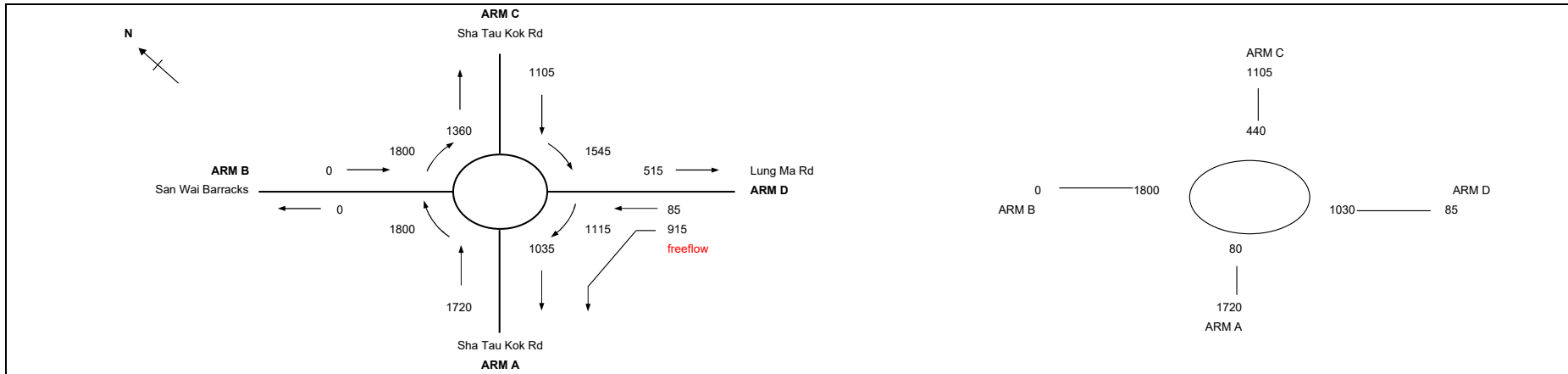
ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	7.30	3.30	7.30
E = Entry width (m)	9.00	5.00	9.00
L = Effective length of flare (m)	15	5	15
R = Entry radius (m)	15	80	80
D = Inscribed circle diameter (m)	50	50	50
A = Entry angle (degree)	40	25	10
Q = Entry flow (pcu/h)	1105	205	1610
Qc = Circulating flow across entry (pcu/h)	210	1135	5
OUTPUT PARAMETERS:			
S = Sharpness of flare = $1.6(E-V)/L$	0.18	0.54	0.18
K = $1-0.00347(A-30)-0.978(1/R-0.05)$	0.95	1.05	1.11
X2 = $V + ((E-V)/(1+2S))$	8.55	4.11	8.55
M = $EXP((D-60)/10)$	0.37	0.37	0.37
F = $303 \times X2$	2590	1247	2590
Td = $1+(0.5/(1+M))$	1.37	1.37	1.37
Fc = $0.21 \times Td(1+0.2 \times X2)$	0.78	0.52	0.78
Qe = $K(F-Fc \times Qc)$	2303	689	2860
DFC = Design flow/Capacity = Q/Qe	0.48	0.30	0.56
Total In Sum =			2920 PCU
DFC of Critical Approach =			0.56



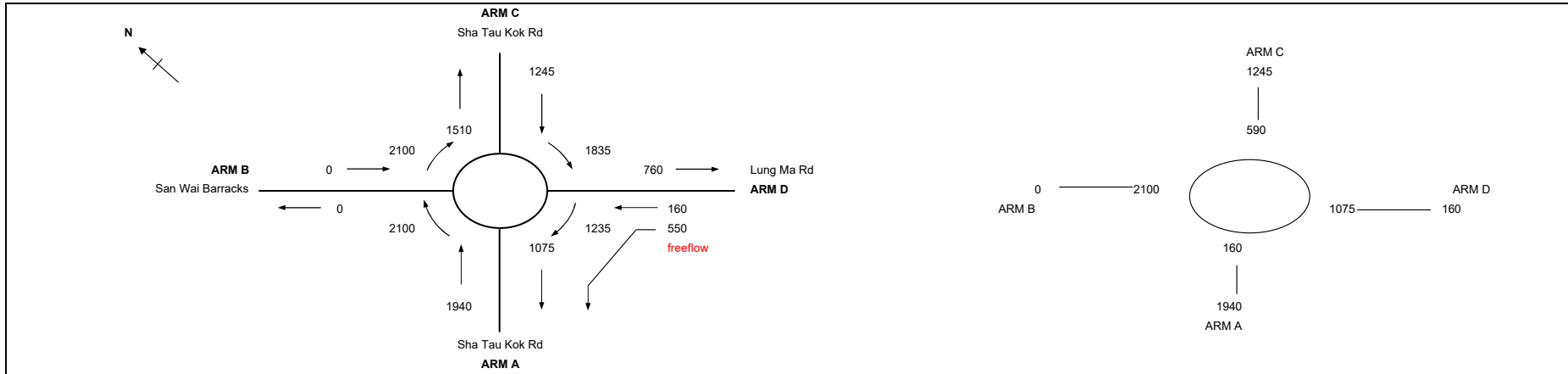
ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	3.30	7.30	3.50
E = Entry width (m)	10.00	5.00	10.00	5.00
L = Effective length of flare (m)	20	5	10	5
R = Entry radius (m)	30	60	30	70
D = Inscribed circle diameter (m)	50	50	50	50
A = Entry angle (degree)	15	15	25	15
Q = Entry flow (pcu/h)	1265	0	990	55
Qc = Circulating flow across entry (pcu/h)	160	1425	480	965
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.22	0.54	0.43	0.48
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.08	1.03	1.09
X2 = V + ((E-V)/(1+2S))	9.19	4.11	8.75	4.27
M = EXP((D-60)/10)	0.37	0.37	0.37	0.37
F = 303*X2	2783	1247	2651	1292
Td = 1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc = 0.21*Td(1+0.2*X2)	0.81	0.52	0.79	0.53
Qe = K(F-Fc*Qc)	2834	544	2349	847
DFC = Design flow/Capacity = Q/Qe	0.45	0.00	0.42	0.06
Total In Sum = 2255 PCU				
DFC of Critical Approach = 0.45				



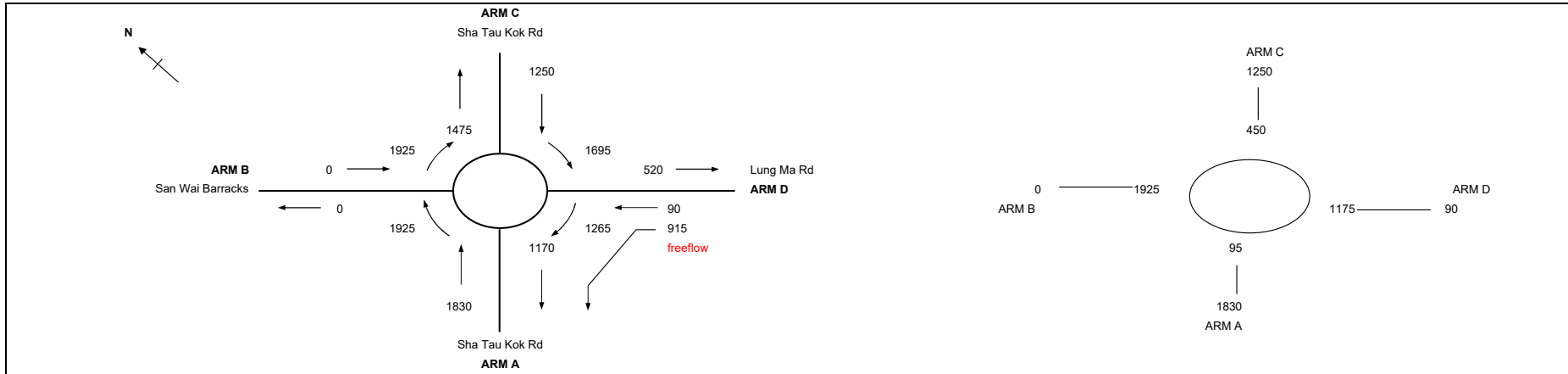
ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	3.30	7.30	3.50
E = Entry width (m)	10.00	5.00	10.00	5.00
L = Effective length of flare (m)	20	5	10	5
R = Entry radius (m)	30	60	30	70
D = Inscribed circle diameter (m)	50	50	50	50
A = Entry angle (degree)	15	15	25	15
Q = Entry flow (pcu/h)	1260	0	1080	90
Qc = Circulating flow across entry (pcu/h)	35	1295	290	975
OUTPUT PARAMETERS:				
S = Sharpness of flare = $1.6(E-V)/L$	0.22	0.54	0.43	0.48
K = $1-0.00347(A-30)-0.978(1/R-0.05)$	1.07	1.08	1.03	1.09
X2 = $V + ((E-V)/(1+2S))$	9.19	4.11	8.75	4.27
M = $EXP((D-60)/10)$	0.37	0.37	0.37	0.37
F = $303 \times X2$	2783	1247	2651	1292
Td = $1+(0.5/(1+M))$	1.37	1.37	1.37	1.37
Fc = $0.21 \times Td(1+0.2 \times X2)$	0.81	0.52	0.79	0.53
Qe = $K(F-Fc \times Qc)$	2943	618	2504	842
DFC = Design flow/Capacity = Q/Qe	0.43	0.00	0.43	0.11
Total In Sum = 2340 PCU				
DFC of Critical Approach = 0.43				



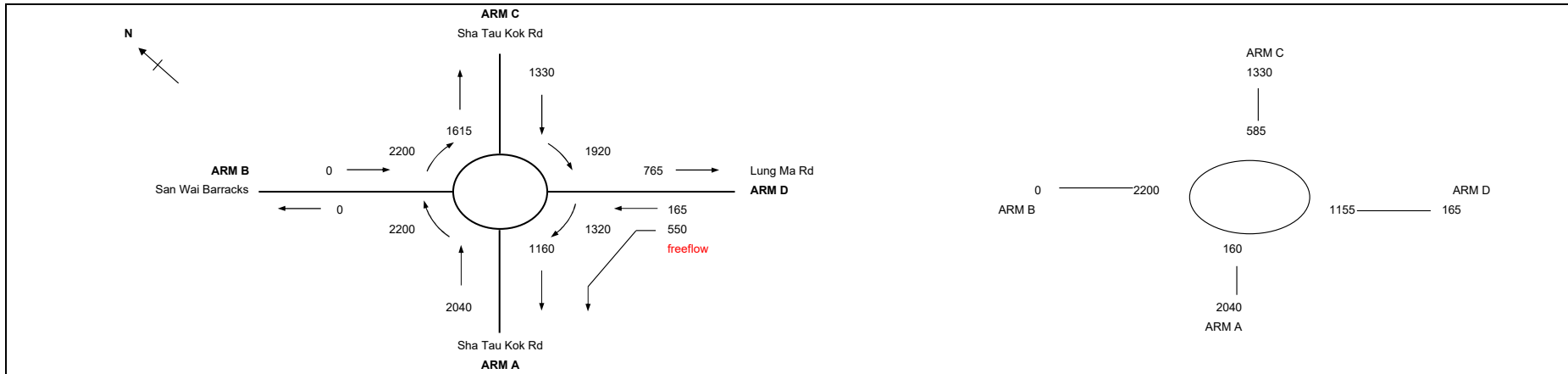
ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	3.30	7.30	3.50
E = Entry width (m)	10.00	5.00	10.00	5.00
L = Effective length of flare (m)	20	5	10	5
R = Entry radius (m)	30	60	30	70
D = Inscribed circle diameter (m)	50	50	50	50
A = Entry angle (degree)	15	15	25	15
Q = Entry flow (pcu/h)	1720	0	1105	85
Qc = Circulating flow across entry (pcu/h)	80	1800	440	1030
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.22	0.54	0.43	0.48
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.08	1.03	1.09
X2 = V + ((E-V)/(1+2S))	9.19	4.11	8.75	4.27
M = EXP((D-60)/10)	0.37	0.37	0.37	0.37
F = 303*X2	2783	1247	2651	1292
Td = 1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc = 0.21*Td(1+0.2*X2)	0.81	0.52	0.79	0.53
Qe = K(F-Fc*Qc)	2904	332	2381	810
DFC = Design flow/Capacity = Q/Qe	0.59	0.00	0.46	0.10
Total In Sum = 2825 PCU				
DFC of Critical Approach = 0.59				



ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	3.30	7.30	3.50
E = Entry width (m)	10.00	5.00	10.00	5.00
L = Effective length of flare (m)	20	5	10	5
R = Entry radius (m)	30	60	30	70
D = Inscribed circle diameter (m)	50	50	50	50
A = Entry angle (degree)	15	15	25	15
Q = Entry flow (pcu/h)	1940	0	1245	160
Qc = Circulating flow across entry (pcu/h)	160	2100	590	1075
OUTPUT PARAMETERS:				
S = Sharpness of flare = $1.6(E-V)/L$	0.22	0.54	0.43	0.48
K = $1-0.00347(A-30)-0.978(1/R-0.05)$	1.07	1.08	1.03	1.09
X2 = $V + ((E-V)/(1+2S))$	9.19	4.11	8.75	4.27
M = $EXP((D-60)/10)$	0.37	0.37	0.37	0.37
F = $303 \times X2$	2783	1247	2651	1292
Td = $1+(0.5/(1+M))$	1.37	1.37	1.37	1.37
Fc = $0.21 \times Td(1+0.2 \times X2)$	0.81	0.52	0.79	0.53
Qe = $K(F-Fc \times Qc)$	2834	161	2259	784
DFC = Design flow/Capacity = Q/Qe	0.68	0.00	0.55	0.20
Total In Sum = 3185 PCU				
DFC of Critical Approach = 0.68				



ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	3.30	7.30	3.50
E = Entry width (m)	10.00	5.00	10.00	5.00
L = Effective length of flare (m)	20	5	10	5
R = Entry radius (m)	30	60	30	70
D = Inscribed circle diameter (m)	50	50	50	50
A = Entry angle (degree)	15	15	25	15
Q = Entry flow (pcu/h)	1830	0	1250	90
Qc = Circulating flow across entry (pcu/h)	95	1925	450	1175
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.22	0.54	0.43	0.48
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.08	1.03	1.09
X2 = V + ((E-V)/(1+2S))	9.19	4.11	8.75	4.27
M = EXP((D-60)/10)	0.37	0.37	0.37	0.37
F = 303*X2	2783	1247	2651	1292
Td = 1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc = 0.21*Td(1+0.2*X2)	0.81	0.52	0.79	0.53
Qe = K(F-Fc*Qc)	2891	261	2373	726
DFC = Design flow/Capacity = Q/Qe	0.63	0.00	0.53	0.12
Total In Sum = 3080 PCU				
DFC of Critical Approach = 0.63				

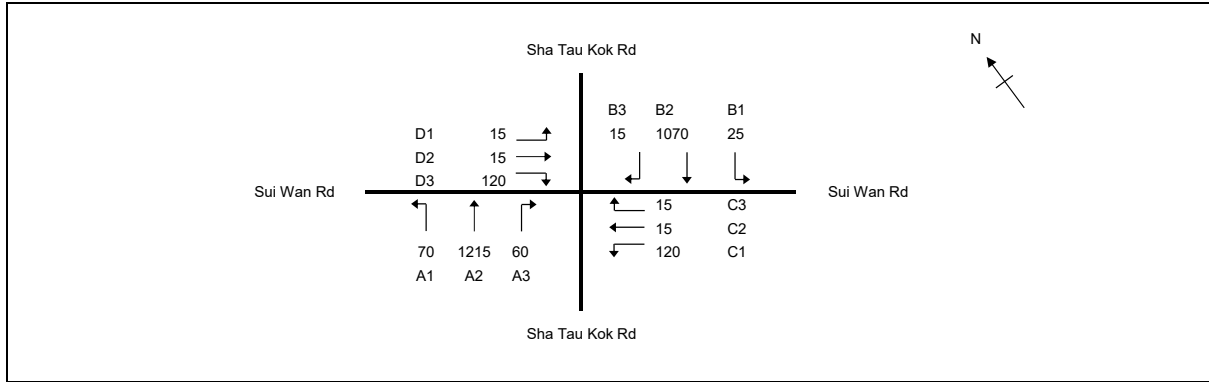


ARM	A	B	C	D		
INPUT PARAMETERS:						
V = Approach half width (m)	7.30	3.30	7.30	3.50		
E = Entry width (m)	10.00	5.00	10.00	5.00		
L = Effective length of flare (m)	20	5	10	5		
R = Entry radius (m)	30	60	30	70		
D = Inscribed circle diameter (m)	50	50	50	50		
A = Entry angle (degree)	15	15	25	15		
Q = Entry flow (pcu/h)	2040	0	1330	165		
Qc = Circulating flow across entry (pcu/h)	160	2200	585	1155		
OUTPUT PARAMETERS:						
S = Sharpness of flare = $1.6(E-V)/L$	0.22	0.54	0.43	0.48		
K = $1-0.00347(A-30)-0.978(1/R-0.05)$	1.07	1.08	1.03	1.09		
X2 = $V + ((E-V)/(1+2S))$	9.19	4.11	8.75	4.27		
M = $EXP((D-60)/10)$	0.37	0.37	0.37	0.37		
F = $303 \times X2$	2783	1247	2651	1292		
Td = $1+(0.5/(1+M))$	1.37	1.37	1.37	1.37		
Fc = $0.21 \times Td(1+0.2 \times X2)$	0.81	0.52	0.79	0.53		
Qe = $K(F-Fc \times Qc)$	2834	105	2263	738		
DFC = Design flow/Capacity = Q/Qe	0.72	0.00	0.59	0.22		
					Total In Sum =	3370 PCU
					DFC of Critical Approach =	0.72

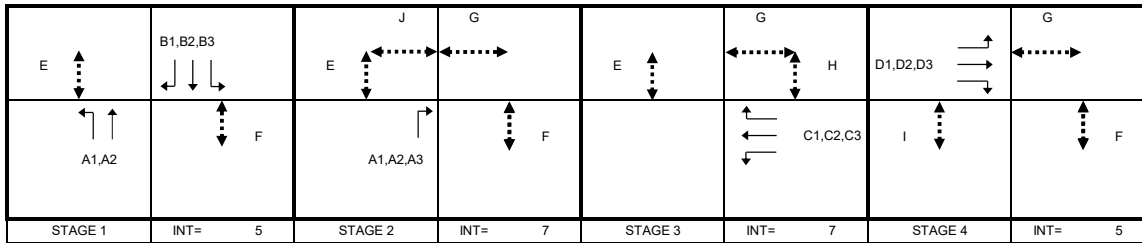
PROJECT NO: 287082 Junction No. J8
 DATE : 25/9/2024 FILENAME :

J8 - Sha Tau Kok Road / Sui Wan Road

J8_2023_EXT_AM



No. of stages per cycle	N = 4
No. of stage using for calculation	N = 3
Cycle time	C = 135 sec
Sum(y)	Y = 0.477
Loss time	L = 34 sec
Total Flow	= 2755 pcu
Co	= (1.5*L+5)/(1-Y) = 107.0 sec
Cm	= L/(1-Y) = 65.0 sec
Yult	= 0.645
R.C.ult	= (Yult-Y)/Y*100% = 35.3 %
Cp	= 0.9*L/(0.9-Y) = 72.3 sec
Ymax	= 1-L/C = 0.748
R.C.(C)	= (0.9*Ymax-Y)/Y*100% = 41 %



Pedestrian Phase	Width (m)	Green Time Required (s)		Green Time Provided (s)		Check
		SG	Delay	SG	Delay	
E	5	6	2	6	6	OK
F	5	6	2	6	6	OK
G	10.5	6	5	12	12	OK
H	5	6	2	6	6	OK
I	5	6	2	6	6	OK
J	8	6	5	9	9	OK

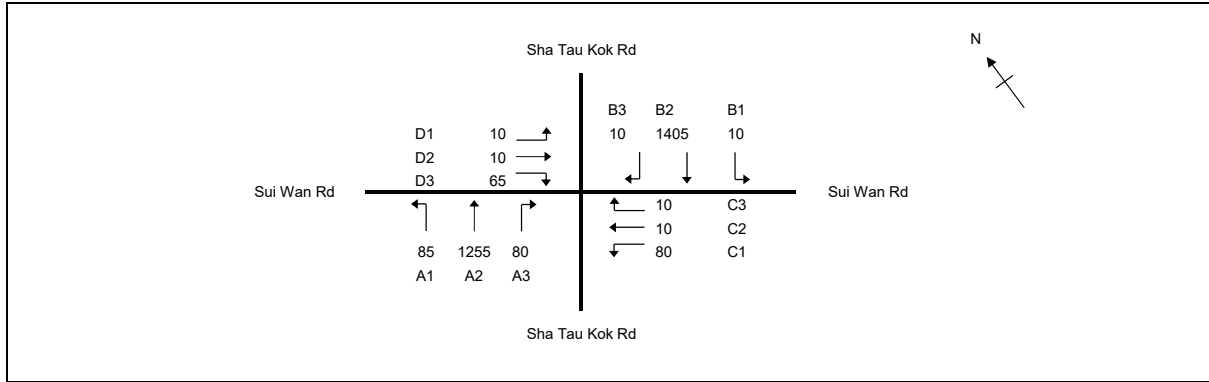
Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
B1,B2	1	3.50	B	1	10		N	1965	25	502	527	0.05	1951			1951	0.270	0.308	14	57	65	0.559	61	
B2	1	3.50	B	1				2105		568	568	0.00	2105			2105	0.270			57	65	0.559	66	
B3	1	3.50	B	1		O		2105		15	15	0.00	1875			1875	0.008			2	65	0.017	2	
A1,A2	1	3.50	A	1	10			2105	70	567	637	0.11	2071			2071	0.308			65	65	0.637	74	
A2	1	3.50	A	1				2105		648	648	0.00	2105			2105	0.308			65	65	0.637	75	
A3	2	3.50	A	1	10			2105		60	60	1.00	1830			1830	0.033			7	14	0.316	12	
C1,C2,C3	3	4.00	C	1	10		N	2015	120	15	150	0.90	1775			1775	0.084	0.084		18	18	0.637	29	
D1,D2,D3	4	4.00	D	1	10		N	2015	15	15	150	0.90	1775			1775	0.084	0.084		18	18	0.637	29	
PED	2		J																20					

NOTE : 'O' - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

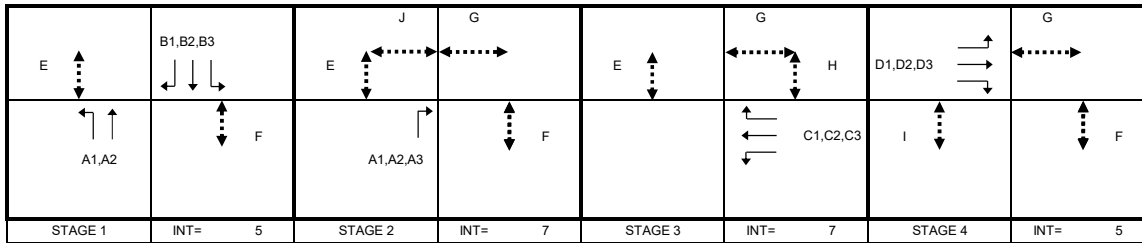
PROJECT NO: 287082 Junction No. J8
 DATE : 25/9/2024 FILENAME :

J8 - Sha Tau Kok Road / Sui Wan Road

J8_2023_EXT_PM



No. of stages per cycle	N = 4
No. of stage using for calculation	N = 3
Cycle time	C = 135 sec
Sum(y)	Y = 0.452
Loss time	L = 34 sec
Total Flow	= 3030 pcu
Co	= (1.5*L+5)/(1-Y) = 102.2 sec
Cm	= L/(1-Y) = 62.1 sec
Yult	= 0.645
R.C.ult	= (Yult-Y)/Y*100% = 42.6 %
Cp	= 0.9*L/(0.9-Y) = 68.4 sec
Ymax	= 1-L/C = 0.748
R.C.(C)	= (0.9*Ymax-Y)/Y*100% = 49 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
E	5	6	2	6	110	2	6	OK
F	5	6	2	6	106	2	6	OK
G	10.5	6	5	12	34	5	12	OK
H	5	6	2	6	11	2	6	OK
I	5	6	2	6	7	2	6	OK
J	8	6	5	9	6	5	9	OK

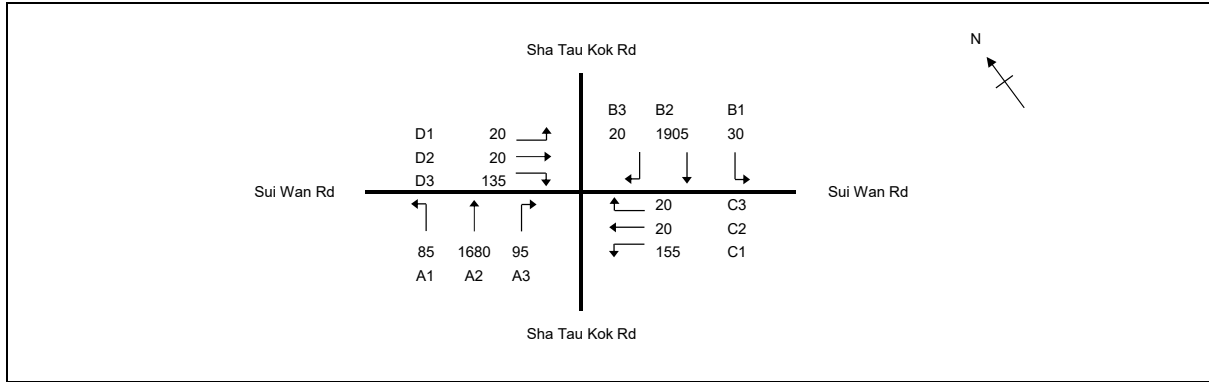
Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
B1,B2	1	3.50	B	1	10		N	1965	10	672		682	0.01	1961		1961	0.348	0.348	14	78	78	0.604	65	
B2	1	3.50	B	1				2105		733		733	0.00	2105		2105	0.348			78	78	0.605	70	
B3	1	3.50	B	1		O		2105		10		10	0.00	1875		1875	0.005			1	78	0.009	1	
A1,A2	1	3.50	A	1	10			2105	85	579		664	0.13	2065		2065	0.321			72	78	0.558	63	
A2	1	3.50	A	1				2105		676		676	0.00	2105		2105	0.321			72	78	0.558	64	
A3	2	3.50	A	1	10			2105		80	80	80	1.00	1830		1830	0.044			10	14	0.421	16	
C1,C2,C3	3	4.00	C	1	10		N	2015	80	10	10	100	0.90	1775		1775	0.056	0.056		13	13	0.605	20	
D1,D2,D3	4	4.00	D	1	10		N	2015	10	10	65	85	0.88	1779		1779	0.048	0.048		11	11	0.605	18	
PED	2		J																20					

NOTE : 'O' - OPPOSING TRAFFIC 'N' - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

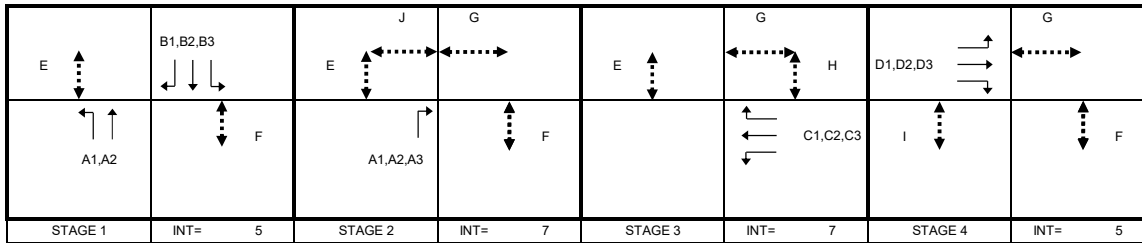
PROJECT NO: 287082 Junction No. J8
 DATE : 25/9/2024 FILENAME :

J8 - Sha Tau Kok Road / Sui Wan Road

J8_2031_REF_AM



No. of stages per cycle	N = 4
No. of stage using for calculation	N = 3
Cycle time	C = 135 sec
Sum(y)	Y = 0.685
Loss time	L = 34 sec
Total Flow	= 4185 pcu
Co	= (1.5*L+5)/(1-Y) = 177.7 sec
Cm	= L/(1-Y) = 107.9 sec
Yult	= 0.645
R.C.ult	= (Yult-Y)/Y*100% = -5.8 %
Cp	= 0.9*L/(0.9-Y) = 142.2 sec
Ymax	= 1-L/C = 0.748
R.C.(C)	= (0.9*Ymax-Y)/Y*100% = -2 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
E	5	6	2	6	106	2	6	OK
F	5	6	2	6	103	2	6	OK
G	10.5	6	5	12	42	5	12	OK
H	5	6	2	6	14	2	6	OK
I	5	6	2	6	11	2	6	OK
J	8	6	5	9	6	5	9	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
B1,B2	1	3.50	B	1	10		N	1965	30	902		932	0.03	1956		1956	0.477	0.477	14	70	70	0.915	101	
B2	1	3.50	B	1				2105		1003		1003	0.00	2105		2105	0.476			70	70	0.915	108	
B3	1	3.50	B	1		O		2105		20		20	0.00	1875		1875	0.011			2	70	0.020	2	
A1,A2	1	3.50	A	1	10			2105	85	791		876	0.10	2075		2075	0.422			62	70	0.811	94	
A2	1	3.50	A	1				2105		889		889	0.00	2105		2105	0.422			62	70	0.811	96	
A3	2	3.50	A	1	10			2105		95		95	1.00	1830		1830	0.052			8	14	0.500	19	
C1,C2,C3	3	4.00	C	1	10		N	2015	155	20	20	195	0.90	1776		1776	0.110	0.110		16	16	0.915	48	
D1,D2,D3	4	4.00	D	1	10		N	2015	20	20	135	175	0.89	1779		1779	0.098	0.098		15	15	0.915	46	
PED	2		J																20					

NOTE : 'O' - OPPOSING TRAFFIC 'N' - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

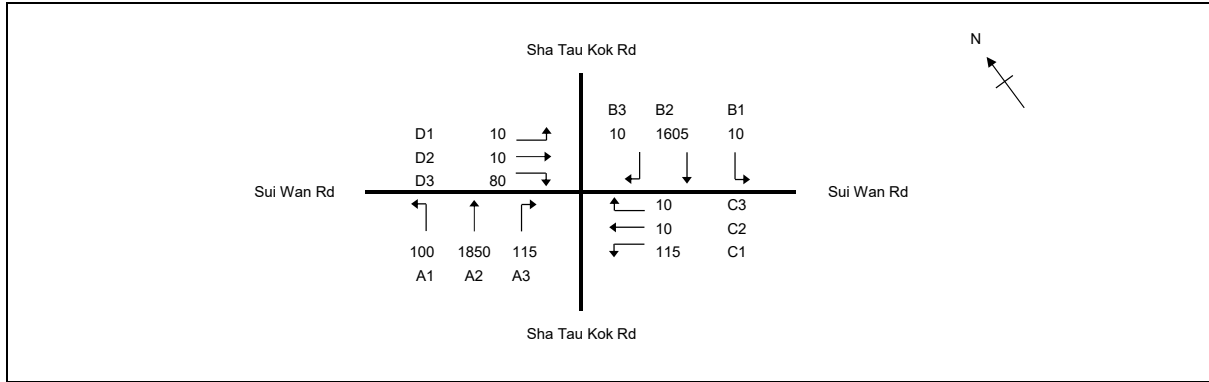
PROJECT NO: 287082 Junction No. J8

J8 - Sha Tau Kok Road / Sui Wan Road

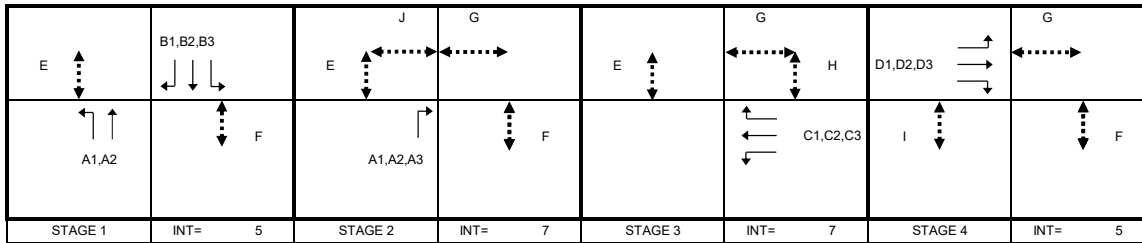
J8_2031_REF_PM

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N = 4
No. of stage using for calculation	N = 2
Cycle time	C = 135 sec
Sum(y)	Y = 0.543
Loss time	L = 44 sec
Total Flow	= 3925 pcu
Co	= (1.5*L+5)/(1-Y) = 155.5 sec
Cm	= L/(1-Y) = 96.3 sec
Yult	= 0.570
R.C.ult	= (Yult-Y)/Y*100% = 4.9 %
Cp	= 0.9*L/(0.9-Y) = 111.0 sec
Ymax	= 1-L/C = 0.674
R.C.(C)	= (0.9*Ymax-Y)/Y*100% = 12 %



Pedestrian Phase	Width (m)	Green Time Required (s)		Green Time Provided (s)			Check	
		SG	Delay	SG	Delay	FG		
E	5	6	2	6	111	2	6	OK
F	5	6	2	6	106	2	6	OK
G	10.5	6	5	12	34	5	12	OK
H	5	6	2	6	11	2	6	OK
I	5	6	2	6	6	2	6	OK
J	8	6	5	9	6	5	9	OK

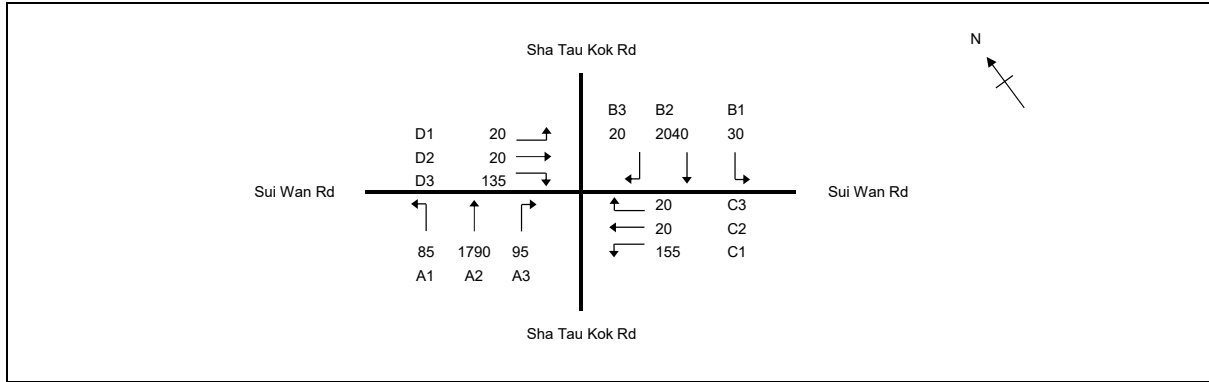
Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
B1, B2	1	3.50	B	1	10		N	1965	10	769		779	0.01	1961		1961	0.397		10	67	78	0.686	74	
B2	1	3.50	B	1				2105		836		836	0.00	2105		2105	0.397			67	78	0.685	79	
B3	1	3.50	B	1		O		2105		10		10	0.00	1875		1875	0.005			1	78	0.009	1	
A1, A2	1	3.50	A	1	10			2105	100	867		967	0.10	2073		2073	0.467	0.467		78	78	0.805	92	
A2	1	3.50	A	1				2105		983		983	0.00	2105		2105	0.467			78	78	0.806	93	
A3	2	3.50	A	1	10			2105			115	115	1.00	1830		1830	0.063			11	14	0.606	23	
C1, C2, C3	3	4.00	C	1	10		N	2015	115	10	10	135	0.93	1769		1769	0.076	0.076		13	13	0.806	27	
D1, D2, D3	4	4.00	D	1	10		N	2015	10	10	80	100	0.90	1775		1775	0.056			9	10	0.760	21	
PED	2		J																20					
PED	4		I																14					

NOTE : 'O' - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

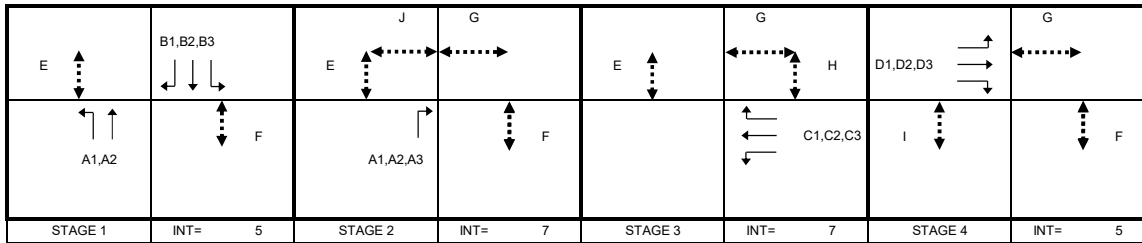
PROJECT NO: 287082 Junction No. J8
 DATE : 25/9/2024 FILENAME :

J8 - Sha Tau Kok Road / Sui Wan Road

J8_2031_DES_AM



No. of stages per cycle	N = 4
No. of stage using for calculation	N = 3
Cycle time	C = 135 sec
Sum(y)	Y = 0.718
Loss time	L = 34 sec
Total Flow	= 4430 pcu
Co	= (1.5*L+5)/(1-Y) = 198.5 sec
Cm	= L/(1-Y) = 120.5 sec
Yult	= 0.645
R.C.ult	= (Yult-Y)/Y*100% = -10.2 %
Cp	= 0.9*L/(0.9-Y) = 168.1 sec
Ymax	= 1-L/C = 0.748
R.C.(C)	= (0.9*Ymax-Y)/Y*100% = -6 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
E	5	6	2	6	107	2	6	OK
F	5	6	2	6	104	2	6	OK
G	10.5	6	5	12	40	5	12	OK
H	5	6	2	6	13	2	6	OK
I	5	6	2	6	10	2	6	OK
J	8	6	5	9	6	5	9	OK

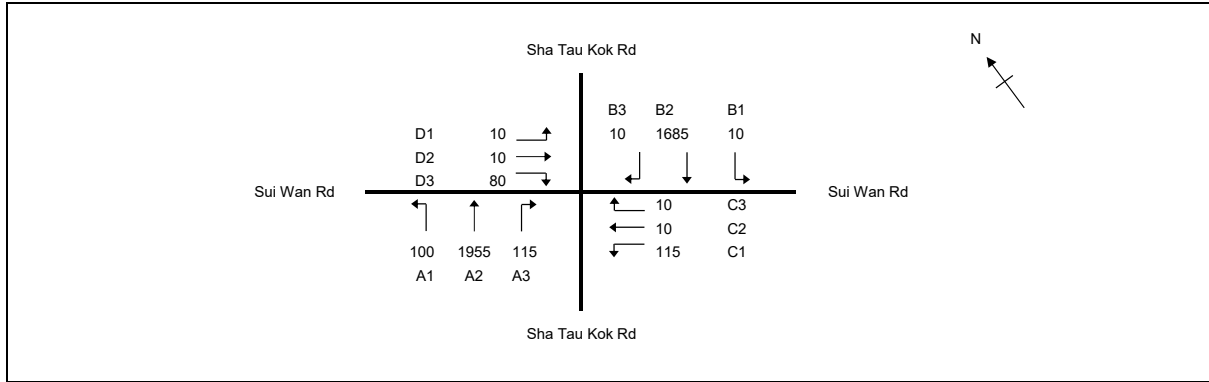
Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
B1,B2	1	3.50	B	1	10		N	1965	30	967		997	0.03	1956		1956	0.510	0.510	14	72	72	0.959	110	
B2	1	3.50	B	1				2105		1073		1073	0.00	2105		2105	0.510			72	72	0.960	117	
B3	1	3.50	B	1		O		2105		20		20	0.00	1875		1875	0.011			2	72	0.020	2	
A1,A2	1	3.50	A	1	10			2105	85	846		931	0.09	2077		2077	0.448			63	72	0.844	98	
A2	1	3.50	A	1				2105		944		944	0.00	2105		2105	0.448			63	72	0.844	100	
A3	2	3.50	A	1	10			2105		95		95	1.00	1830		1830	0.052			7	14	0.500	19	
C1,C2,C3	3	4.00	C	1	10		N	2015	155	20		195	0.90	1776		1776	0.110	0.110		15	15	0.960	88	
D1,D2,D3	4	4.00	D	1	10		N	2015	20	20		175	0.89	1779		1779	0.098	0.098		14	14	0.960	85	
PED	2		J																20					

NOTE : 'O' - OPPOSING TRAFFIC 'N' - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

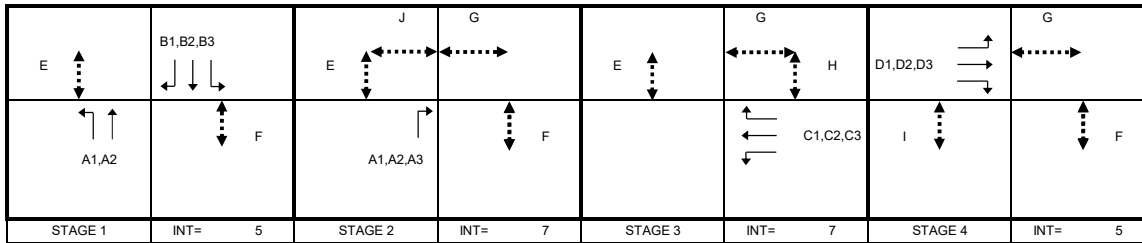
PROJECT NO: 287082 Junction No. J8
 DATE : 25/9/2024 FILENAME :

J8 - Sha Tau Kok Road / Sui Wan Road

J8_2031_DES_PM



No. of stages per cycle	N = 4
No. of stage using for calculation	N = 2
Cycle time	C = 135 sec
Sum(y)	Y = 0.568
Loss time	L = 44 sec
Total Flow	= 4110 pcu
Co	= (1.5*L+5)/(1-Y) = 164.3 sec
Cm	= L/(1-Y) = 101.8 sec
Yult	= 0.570
R.C.ult	= (Yult-Y)/Y*100% = 0.4 %
Cp	= 0.9*L/(0.9-Y) = 119.3 sec
Ymax	= 1-L/C = 0.674
R.C.(C)	= (0.9*Ymax-Y)/Y*100% = 7 %



Pedestrian Phase	Width (m)	Green Time Required (s)		Green Time Provided (s)		Check		
		SG	Delay	FG	SG		Delay	FG
E	5	6	2	6	111	2	6	OK
F	5	6	2	6	107	2	6	OK
G	10.5	6	5	12	33	5	12	OK
H	5	6	2	6	10	2	6	OK
I	5	6	2	6	6	2	6	OK
J	8	6	5	9	6	5	9	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
B1,B2	1	3.50	B	1	10		N	1965	10	808		818	0.01	1961		1961	0.417		10	67	79	0.715	77	
B2	1	3.50	B	1				2105		877		877	0.00	2105		2105	0.417			67	79	0.714	82	
B3	1	3.50	B	1		O		2105		10		10	0.00	1875		1875	0.005			1	79	0.009	1	
A1,A2	1	3.50	A	1	10			2105	100	920		1020	0.10	2074		2074	0.492	0.492		79	79	0.843	96	
A2	1	3.50	A	1				2105		1035		1035	0.00	2105		2105	0.492			79	79	0.843	97	
A3	2	3.50	A	1	10			2105		115		115	1.00	1830		1830	0.063			10	14	0.606	23	
C1,C2,C3	3	4.00	C	1	10		N	2015	115	10	10	135	0.93	1769		1769	0.076	0.076		12	12	0.843	28	
D1,D2,D3	4	4.00	D	1	10		N	2015	10	10	80	100	0.90	1775		1775	0.056			9	9	0.843	21	
PED	2		J																20					
PED	4		I																14					

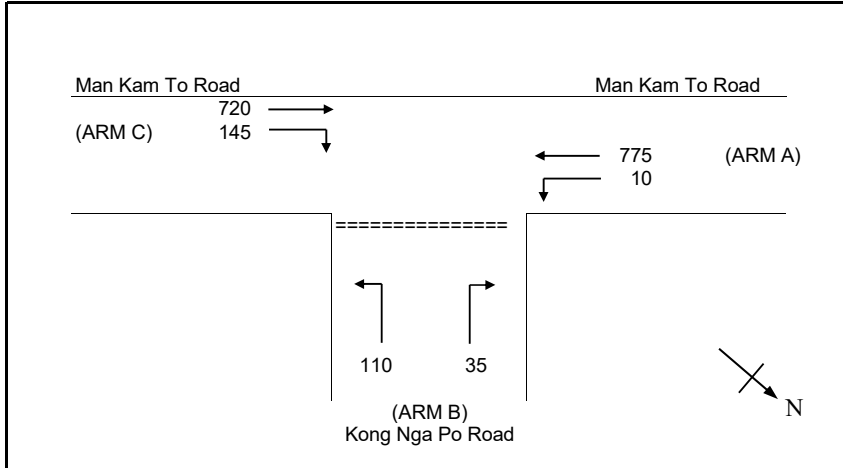
NOTE : 'O' - OPPOSING TRAFFIC 'N' - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

PROJECT NO: 287082 DESIGNED BY:

J9 - Man Kam To Road / Kong Nga Po Road

J9_2023_EXT_AM

DATE : 25/9/2024 FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

- W = MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
- W cr = CENTRAL RESERVE WIDTH (0m, 1.2-9m)
- W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
- W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
- W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
- VI b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
- Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
- Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
- Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
- D = STREAM-SPECIFIC B-A
- E = STREAM-SPECIFIC B-C
- F = STREAM-SPECIFIC C-B
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)
 W = 11.00 (metres)
 W cr = 2.00 (metres)
 q a-b = 10 (pcu/hr)
 q a-c = 775 (pcu/hr)

MAJOR ROAD (ARM C)
 W c-b = 4.00 (metres)
 Vr c-b = 50 (metres)
 q c-a = 720 (pcu/hr)
 q c-b = 145 (pcu/hr)

MINOR ROAD (ARM B)
 W b-a = 4.00 (metres)
 W b-c = 4.50 (metres)
 VI b-a = 100 (metres)
 Vr b-a = 50 (metres)
 Vr b-c = 50 (metres)
 q b-a = 35 (pcu/hr)
 q b-c = 110 (pcu/hr)

GEOMETRIC FACTORS :

D = 0.94
 E = 1.01
 F = 0.97
 Y = 0.62

THE CAPACITY OF MOVEMENT :

Q b-a = 310
 Q b-c = 576
 Q c-b = 549
 Q b-ac = 477.2

TOTAL FLOW = 1795 (PCU/HR)

COMPARISON OF DESIGN FLOW TO CAPACITY:

DFC b-a = 0.11
 DFC b-c = 0.19
 DFC c-b = 0.26
 DFC b-ac = 0.30

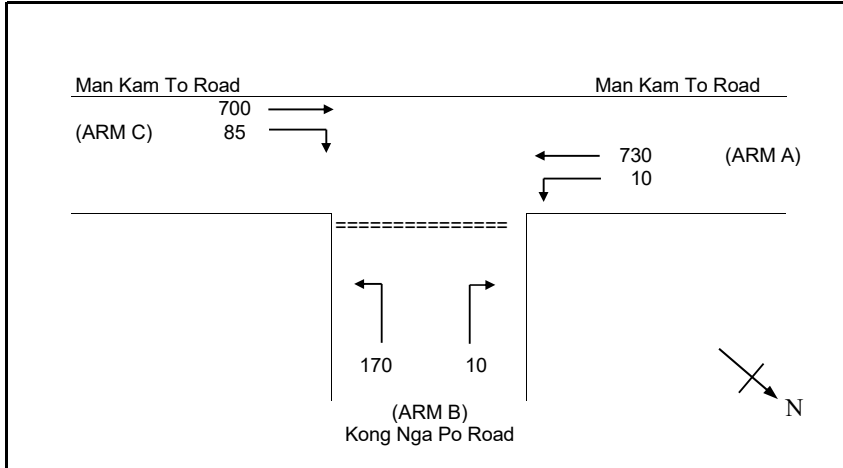
CRITICAL DFC = 0.30

PROJECT NO: 287082 DESIGNED BY:

J9 - Man Kam To Road / Kong Nga Po Road

J9_2023_EXT_PM

DATE : 25/9/2024 FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

- W = MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
- W cr = CENTRAL RESERVE WIDTH (0m, 1.2-9m)
- W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
- W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
- W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
- VI b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
- Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
- Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
- Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
- D = STREAM-SPECIFIC B-A
- E = STREAM-SPECIFIC B-C
- F = STREAM-SPECIFIC C-B
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W = 11.00 (metres)
 W cr = 2.00 (metres)
 q a-b = 10 (pcu/hr)
 q a-c = 730 (pcu/hr)

MAJOR ROAD (ARM C)

W c-b = 4.00 (metres)
 Vr c-b = 50 (metres)
 q c-a = 700 (pcu/hr)
 q c-b = 85 (pcu/hr)

MINOR ROAD (ARM B)

W b-a = 4.00 (metres)
 W b-c = 4.50 (metres)
 VI b-a = 100 (metres)
 Vr b-a = 50 (metres)
 Vr b-c = 50 (metres)
 q b-a = 10 (pcu/hr)
 q b-c = 170 (pcu/hr)

GEOMETRIC FACTORS :

D = 0.94
 E = 1.01
 F = 0.97
 Y = 0.62

THE CAPACITY OF MOVEMENT :

Q b-a = 340
 Q b-c = 586
 Q c-b = 559
 Q b-ac = 563.4

TOTAL FLOW = 1705 (PCU/HR)

COMPARISON OF DESIGN FLOW TO CAPACITY:

DFC b-a = 0.03
 DFC b-c = 0.29
 DFC c-b = 0.15
 DFC b-ac = 0.32

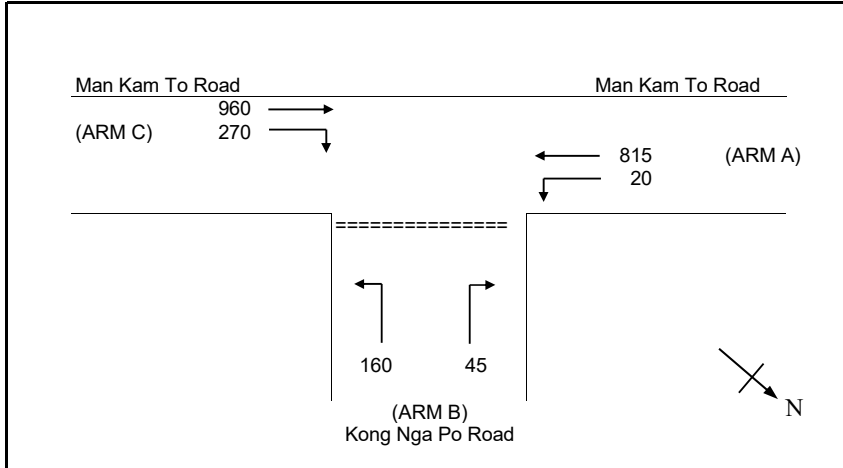
CRITICAL DFC = 0.32

PROJECT NO: 287082 DESIGNED BY:

J9 - Man Kam To Road / Kong Nga Po Road

J9_2031_REF_AM

DATE : 25/9/2024 FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

- W = MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
- W cr = CENTRAL RESERVE WIDTH (0m, 1.2-9m)
- W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
- W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
- W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
- VI b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
- Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
- Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
- Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
- D = STREAM-SPECIFIC B-A
- E = STREAM-SPECIFIC B-C
- F = STREAM-SPECIFIC C-B
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)
 W = 11.00 (metres)
 W cr = 2.00 (metres)
 q a-b = 20 (pcu/hr)
 q a-c = 815 (pcu/hr)

MAJOR ROAD (ARM C)
 W c-b = 4.00 (metres)
 Vr c-b = 50 (metres)
 q c-a = 960 (pcu/hr)
 q c-b = 270 (pcu/hr)

MINOR ROAD (ARM B)
 W b-a = 4.00 (metres)
 W b-c = 4.50 (metres)
 VI b-a = 100 (metres)
 Vr b-a = 50 (metres)
 Vr b-c = 50 (metres)
 q b-a = 45 (pcu/hr)
 q b-c = 160 (pcu/hr)

GEOMETRIC FACTORS :

D = 0.94
 E = 1.01
 F = 0.97
 Y = 0.62

THE CAPACITY OF MOVEMENT :

Q b-a = 231
 Q b-c = 566
 Q c-b = 539
 Q b-ac = 429.3

TOTAL FLOW = 2270 (PCU/HR)

COMPARISON OF DESIGN FLOW TO CAPACITY:

DFC b-a = 0.19
 DFC b-c = 0.28
 DFC c-b = 0.50
 DFC b-ac = 0.48

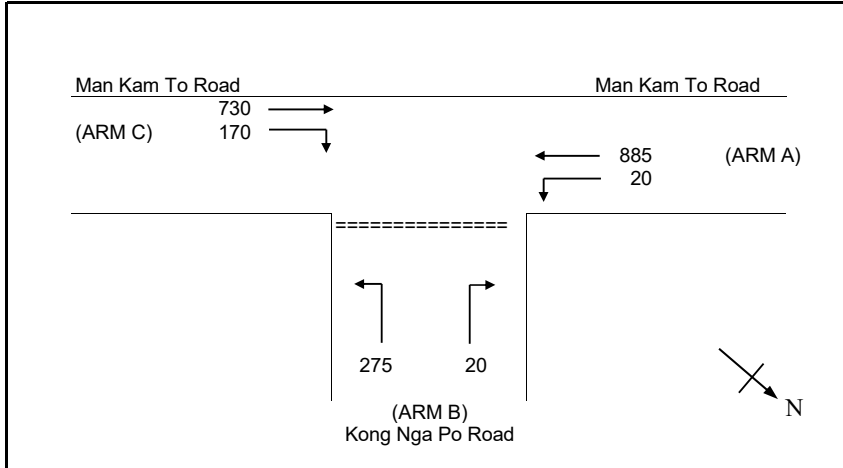
CRITICAL DFC = 0.50

PROJECT NO: 287082 DESIGNED BY:

J9 - Man Kam To Road / Kong Nga Po Road

J9_2031_REF_PM

DATE : 25/9/2024 FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

- W = MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
- W cr = CENTRAL RESERVE WIDTH (0m, 1.2-9m)
- W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
- W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
- W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
- VI b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
- Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
- Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
- Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
- D = STREAM-SPECIFIC B-A
- E = STREAM-SPECIFIC B-C
- F = STREAM-SPECIFIC C-B
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W = 11.00 (metres)
 W cr = 2.00 (metres)
 q a-b = 20 (pcu/hr)
 q a-c = 885 (pcu/hr)

MAJOR ROAD (ARM C)

W c-b = 4.00 (metres)
 Vr c-b = 50 (metres)
 q c-a = 730 (pcu/hr)
 q c-b = 170 (pcu/hr)

MINOR ROAD (ARM B)

W b-a = 4.00 (metres)
 W b-c = 4.50 (metres)
 VI b-a = 100 (metres)
 Vr b-a = 50 (metres)
 Vr b-c = 50 (metres)
 q b-a = 20 (pcu/hr)
 q b-c = 275 (pcu/hr)

GEOMETRIC FACTORS :

D = 0.94
 E = 1.01
 F = 0.97
 Y = 0.62

THE CAPACITY OF MOVEMENT :

Q b-a = 277
 Q b-c = 550
 Q c-b = 523
 Q b-ac = 515.6

TOTAL FLOW = 2100 (PCU/HR)

COMPARISON OF DESIGN FLOW TO CAPACITY:

DFC b-a = 0.07
 DFC b-c = 0.50
 DFC c-b = 0.33
 DFC b-ac = 0.57

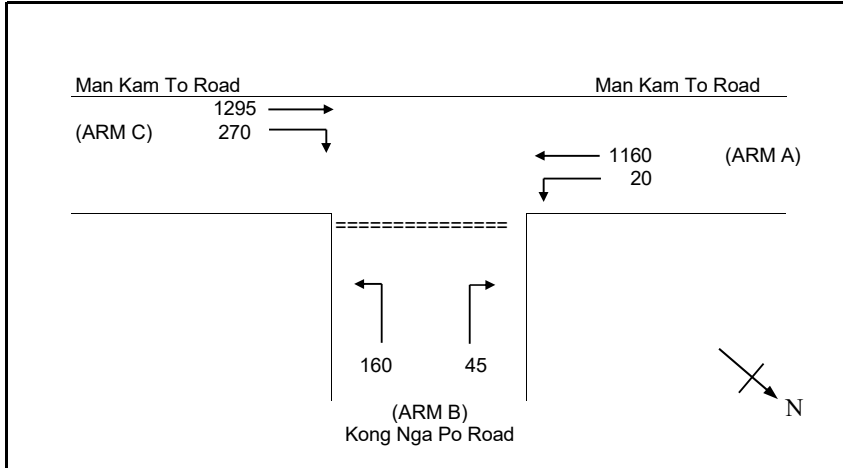
CRITICAL DFC = 0.57

PROJECT NO: 287082 DESIGNED BY:

J9 - Man Kam To Road / Kong Nga Po Road

J9_2031_DES_AM

DATE : 25/9/2024 FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

- W = MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
- W cr = CENTRAL RESERVE WIDTH (0m, 1.2-9m)
- W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
- W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
- W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
- VI b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
- Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
- Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
- Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
- D = STREAM-SPECIFIC B-A
- E = STREAM-SPECIFIC B-C
- F = STREAM-SPECIFIC C-B
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W = 11.00 (metres)
 W cr = 2.00 (metres)
 q a-b = 20 (pcu/hr)
 q a-c = 1160 (pcu/hr)

MAJOR ROAD (ARM C)

W c-b = 4.00 (metres)
 Vr c-b = 50 (metres)
 q c-a = 1295 (pcu/hr)
 q c-b = 270 (pcu/hr)

MINOR ROAD (ARM B)

W b-a = 4.00 (metres)
 W b-c = 4.50 (metres)
 VI b-a = 100 (metres)
 Vr b-a = 50 (metres)
 Vr b-c = 50 (metres)
 q b-a = 45 (pcu/hr)
 q b-c = 160 (pcu/hr)

GEOMETRIC FACTORS :

D = 0.94
 E = 1.01
 F = 0.97
 Y = 0.62

THE CAPACITY OF MOVEMENT :

Q b-a = 113
 Q b-c = 487
 Q c-b = 463
 Q b-ac = 282.1

TOTAL FLOW = 2950 (PCU/HR)

COMPARISON OF DESIGN FLOW TO CAPACITY:

DFC b-a = 0.40
 DFC b-c = 0.33
 DFC c-b = 0.58
 DFC b-ac = 0.73

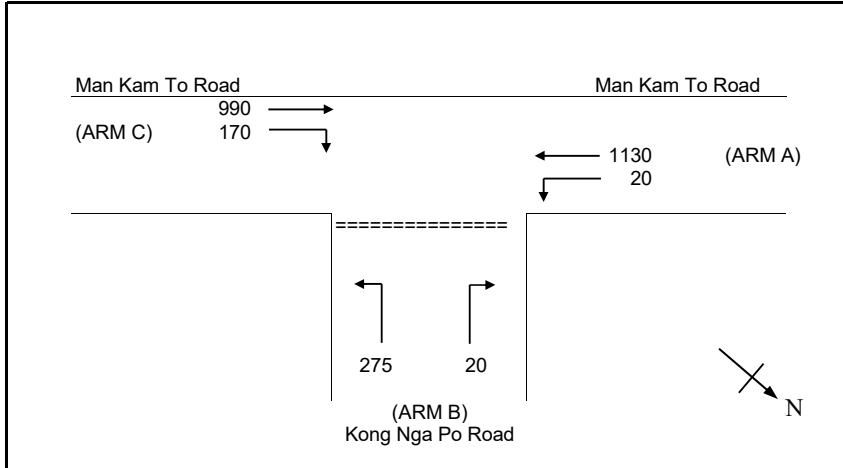
CRITICAL DFC = 0.73

PROJECT NO: 287082 DESIGNED BY:

J9 - Man Kam To Road / Kong Nga Po Road

J9_2031_DES_PM

DATE : 25/9/2024 FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

- W = MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
- W cr = CENTRAL RESERVE WIDTH (0m, 1.2-9m)
- W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
- W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
- W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
- VI b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
- Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
- Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
- Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
- D = STREAM-SPECIFIC B-A
- E = STREAM-SPECIFIC B-C
- F = STREAM-SPECIFIC C-B
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W = 11.00 (metres)
 W cr = 2.00 (metres)
 q a-b = 20 (pcu/hr)
 q a-c = 1130 (pcu/hr)

MAJOR ROAD (ARM C)

W c-b = 4.00 (metres)
 Vr c-b = 50 (metres)
 q c-a = 990 (pcu/hr)
 q c-b = 170 (pcu/hr)

MINOR ROAD (ARM B)

W b-a = 4.00 (metres)
 W b-c = 4.50 (metres)
 VI b-a = 100 (metres)
 Vr b-a = 50 (metres)
 Vr b-c = 50 (metres)
 q b-a = 20 (pcu/hr)
 q b-c = 275 (pcu/hr)

GEOMETRIC FACTORS :

D = 0.94
 E = 1.01
 F = 0.97
 Y = 0.62

THE CAPACITY OF MOVEMENT :

Q b-a = 190
 Q b-c = 494
 Q c-b = 470
 Q b-ac = 445.7

TOTAL FLOW = 2605 (PCU/HR)

COMPARISON OF DESIGN FLOW TO CAPACITY:

DFC b-a = 0.11
 DFC b-c = 0.56
 DFC c-b = 0.36
 DFC b-ac = 0.66

CRITICAL DFC = 0.66

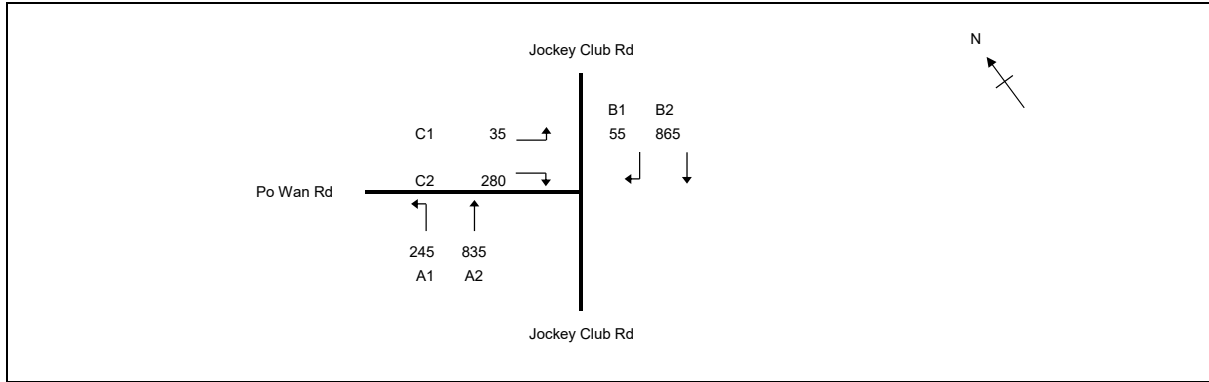
PROJECT NO: 287082 Junction No. J10

J10 - Jockey Club Road / Po Wan Road

J10_2023_EXT_AM

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N = 4
No. of stage using for calculation	N = 2
Cycle time	C = 90 sec
Sum(y)	Y = 0.359
Loss time	L = 35 sec
Total Flow	= 2315 pcu
Co	= (1.5*L+5)/(1-Y) = 89.8 sec
Cm	= L/(1-Y) = 54.6 sec
Yult	= 0.638
R.C.ult	= (Yult-Y)/Y*100% = 77.4 %
Cp	= 0.9*L/(0.9-Y) = 58.3 sec
Ymax	= 1-L/C = 0.611
R.C.(C)	= (0.9*Ymax-Y)/Y*100% = 53 %

	B1,B2		B1,B2	C1,C2		E	
	↙ ↘		↙ ↘	→		→	
				↔			
	A1,A2					D	
	↙ ↘					↕	
STAGE 1	INT= 5	STAGE 2	INT= 6	STAGE 3	INT= 6	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
D	8	7	2	7	11	2	7	OK
E	8	7	6	7	7	6	7	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1,A2	1	3.30	C	1	15		N	1945	245	264		509	0.48	1856		1856	0.274	0.274	9	42	42	0.588	41	
A2	1	3.30	C	1				2085		571		571	0.00	2085		2085	0.274			42	42	0.587	46	
B1,B2	1,2	3.30	B	1	20	O		2085	55	392		447	0.12	1838		1838	0.243			37	48	0.456	31	
B2	1,2	3.30	B	1			N	1945		473		473	0.00	1945		1945	0.243			37	48	0.456	33	
C1,C2	3	3.30	D	1	15		N	1945	35		115	150	1.00	1768		1768	0.085	0.085		13	13	0.586	19	
C2	3	3.30	D	1	20			2085			165	165	1.00	1940		1940	0.085			13	13	0.588	21	
	2 4		PED																6 20					

NOTE : 'O' - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

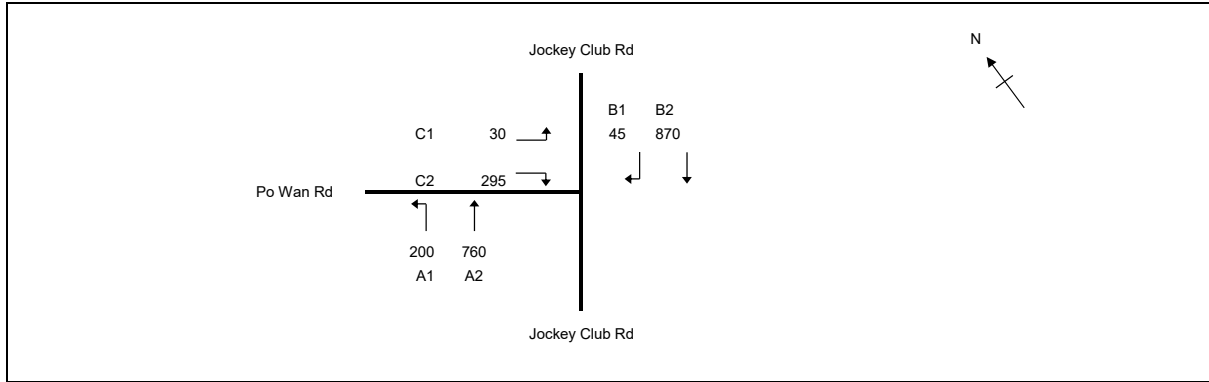
PROJECT NO: 287082 Junction No. J10

J10 - Jockey Club Road / Po Wan Road

J10_2023_EXT_PM

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N = 4
No. of stage using for calculation	N = 2
Cycle time	C = 90 sec
Sum(y)	Y = 0.331
Loss time	L = 35 sec
Total Flow	= 2200 pcu
Co	= (1.5*L+5)/(1-Y) = 85.9 sec
Cm	= L/(1-Y) = 52.3 sec
Yult	= 0.638
R.C.ult	= (Yult-Y)/Y*100% = 92.7 %
Cp	= 0.9*L/(0.9-Y) = 55.3 sec
Ymax	= 1-L/C = 0.611
R.C.(C)	= (0.9*Ymax-Y)/Y*100% = 66 %

	B1,B2		B1,B2	C1,C2			E
	↙ ↘		↙ ↘	→			→
				↔			
	A1,A2						D
	↙ ↘						↕
STAGE 1	INT= 5	STAGE 2	INT= 6	STAGE 3	INT= 6	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
D	8	7	2	7	11	2	7	OK
E	8	7	6	7	7	6	7	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1,A2	1	3.30	C	1	15		N	1945	200	253		453	0.44	1863		1863	0.243	0.243	9	40	40	0.541	37	
A2	1	3.30	C	1				2085		507		507	0.00	2085		2085	0.243			40	40	0.541	42	
B1,B2	1,2	3.30	B	1	20	O		2085	45	400		445	0.10	1841		1841	0.242			40	46	0.469	32	
B2	1,2	3.30	B	1			N	1945		470		470	0.00	1945		1945	0.242			40	46	0.468	34	
C1,C2	3	3.30	D	1	15		N	1945	30		125	155	1.00	1768		1768	0.088	0.088		15	15	0.541	19	
C2	3	3.30	D	1	20			2085			170	170	1.00	1940		1940	0.088			15	15	0.541	21	
	2 4		PED																6 20					

NOTE : 'O' - OPPOSING TRAFFIC 'N' - NEAR SIDE LANE 'SG' - STEADY GREEN 'FG' - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

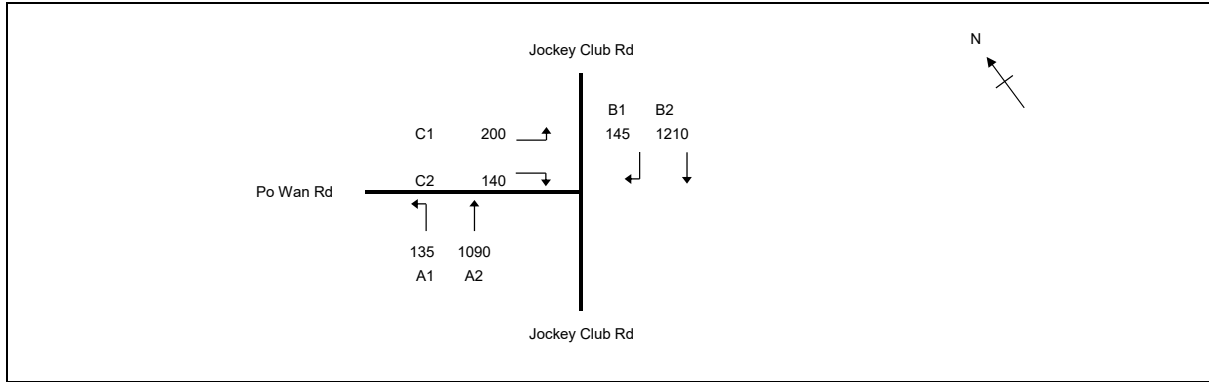
PROJECT NO: 287082 Junction No. J10

J10 - Jockey Club Road / Po Wan Road

J10_2031_REF_AM

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N = 4
No. of stage using for calculation	N = 2
Cycle time	C = 120 sec
Sum(y)	Y = 0.473
Loss time	L = 30 sec
Total Flow	= 2920 pcu
Co	= (1.5*L+5)/(1-Y) = 94.8 sec
Cm	= L/(1-Y) = 56.9 sec
Yult	= 0.675
R.C.ult	= (Yult-Y)/Y*100% = 42.8 %
Cp	= 0.9*L/(0.9-Y) = 63.2 sec
Ymax	= 1-L/C = 0.750
R.C.(C)	= (0.9*Ymax-Y)/Y*100% = 43 %

	B1,B2		B1,B2	C1,C2			E
	↓		↓	→			→
	↑		↑	←			←
	A1,A2					D	
	←					↓	
	→					↑	
STAGE 1	INT= 5	STAGE 2	INT= 6	STAGE 3	INT= 6	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
D	8	7	2	7	11	2	7	OK
E	8	7	6	7	7	6	7	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1,A2	1	3.30	C	1	15		N	1945	135	449	584	0.23	1901			1901	0.307		10	59	62	0.590	56	
A2	1	3.30	C	1				2085		641	641	0.00	2085			2085	0.307			59	62	0.591	61	
B1,B2	1,2	3.30	B	1	20	O		2085	145	511	656	0.22	1825			1825	0.360	0.360		68	68	0.630	56	
B2	1,2	3.30	B	1			N	1945		699	699	0.00	1945			1945	0.359			68	68	0.630	60	
C1,C2	3	3.30	D	1	15		N	1945	200	0	200	1.00	1768			1768	0.113	0.113		22	22	0.630	33	
C2	3	3.30	D	1	20			2085		140	140	1.00	1940			1940	0.072			14	22	0.402	23	
	4		PED																20					

NOTE : 'O' - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

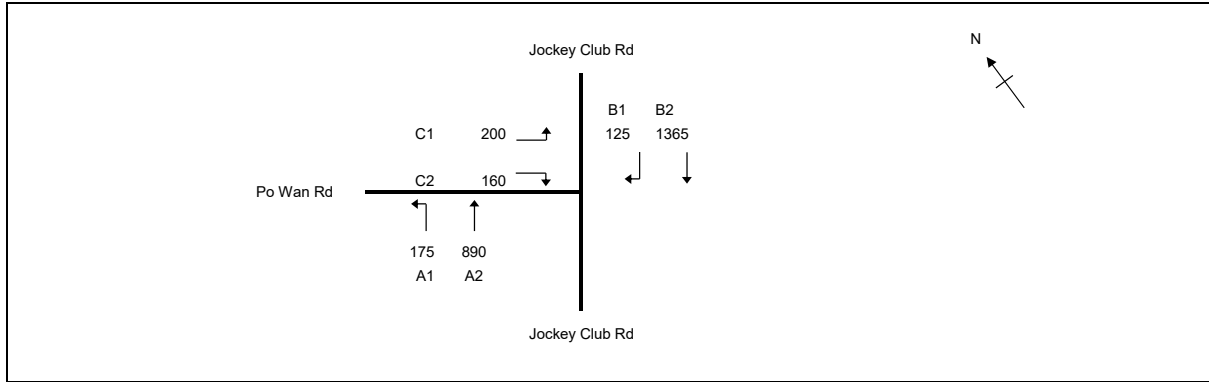
PROJECT NO: 287082 Junction No. J10

J10 - Jockey Club Road / Po Wan Road

J10_2031_REF_PM

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N = 4
No. of stage using for calculation	N = 2
Cycle time	C = 120 sec
Sum(y)	Y = 0.508
Loss time	L = 30 sec
Total Flow	= 2915 pcu
Co	= (1.5*L+5)/(1-Y) = 101.6 sec
Cm	= L/(1-Y) = 61.0 sec
Yult	= 0.675
R.C.ult	= (Yult-Y)/Y*100% = 32.9 %
Cp	= 0.9*L/(0.9-Y) = 68.9 sec
Ymax	= 1-L/C = 0.750
R.C.(C)	= (0.9*Ymax-Y)/Y*100% = 33 %

	B1,B2		B1,B2	C1,C2			E
	↓		↓	→			→
	↑		↑	←			←
	A1,A2						D
	←						↓
	→						↑
STAGE 1	INT= 5	STAGE 2	INT= 6	STAGE 3	INT= 6	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
D	8	7	2	7	11	2	7	OK
E	8	7	6	7	7	6	7	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1,A2	1	3.30	C	1	15		N	1945	175	330		505	0.35	1880			1880	0.269		10	48	64	0.504	47
A2	1	3.30	C	1				2085		560		560	0.00	2085			2085	0.269			48	64	0.504	52
B1,B2	1,2	3.30	B	1	20	O		2085	125	598		723	0.17	1831			1831	0.395	0.395		70	70	0.677	60
B2	1,2	3.30	B	1			N	1945		767		767	0.00	1945			1945	0.394			70	70	0.676	64
C1,C2	3	3.30	D	1	15		N	1945	200	0		200	1.00	1768			1768	0.113	0.113		20	20	0.677	33
C2	3	3.30	D	1	20			2085		160		160	1.00	1940			1940	0.082			15	20	0.494	27
	4		PED																	20				

NOTE : 'O' - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

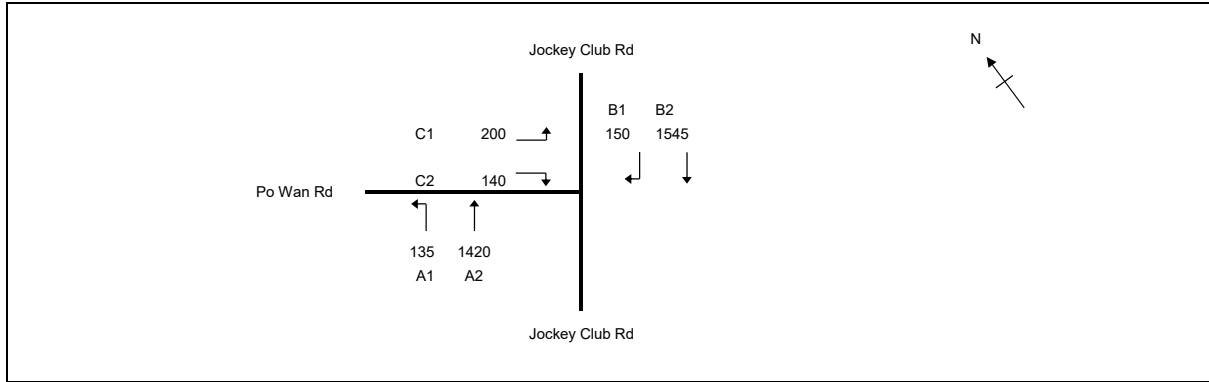
PROJECT NO: 287082 Junction No. J10

J10 - Jockey Club Road / Po Wan Road

J10_2031_DES_AM

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N = 4
No. of stage using for calculation	N = 2
Cycle time	C = 120 sec
Sum(y)	Y = 0.562
Loss time	L = 30 sec
Total Flow	= 3590 pcu
Co	= (1.5*L+5)/(1-Y) = 114.3 sec
Cm	= L/(1-Y) = 68.6 sec
Yult	= 0.675
R.C.ult	= (Yult-Y)/Y*100% = 20.0 %
Cp	= 0.9*L/(0.9-Y) = 80.0 sec
Ymax	= 1-L/C = 0.750
R.C.(C)	= (0.9*Ymax-Y)/Y*100% = 20 %

	B1,B2		B1,B2	C1,C2			E
	↙ ↓		↙ ↓	→			→
				→			→
	A1,A2						D
	↙ ↑						↓
STAGE 1	INT= 5	STAGE 2	INT= 6	STAGE 3	INT= 6	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
D	8	7	2	7	11	2	7	OK
E	8	7	6	7	7	6	7	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1,A2	1	3.30	C	1	15		N	1945	135	608		743	0.18	1910			1910	0.389		10	62	66	0.709	67
A2	1	3.30	C	1				2085		812		812	0.00	2085			2085	0.389			62	66	0.710	73
B1,B2	1,2	3.30	B	1	20	O		2085	150	671		821	0.18	1830			1830	0.449	0.449		72	72	0.750	66
B2	1,2	3.30	B	1			N	1945		874		874	0.00	1945			1945	0.449			72	72	0.751	70
C1,C2	3	3.30	D	1	15		N	1945	200	0		200	1.00	1768			1768	0.113	0.113		18	18	0.750	34
C2	3	3.30	D	1	20			2085		140		140	1.00	1940			1940	0.072			12	18	0.479	24
	4		PED																	20				

NOTE : 'O' - OPPOSING TRAFFIC 'N' - NEAR SIDE LANE 'SG' - STEADY GREEN 'FG' - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

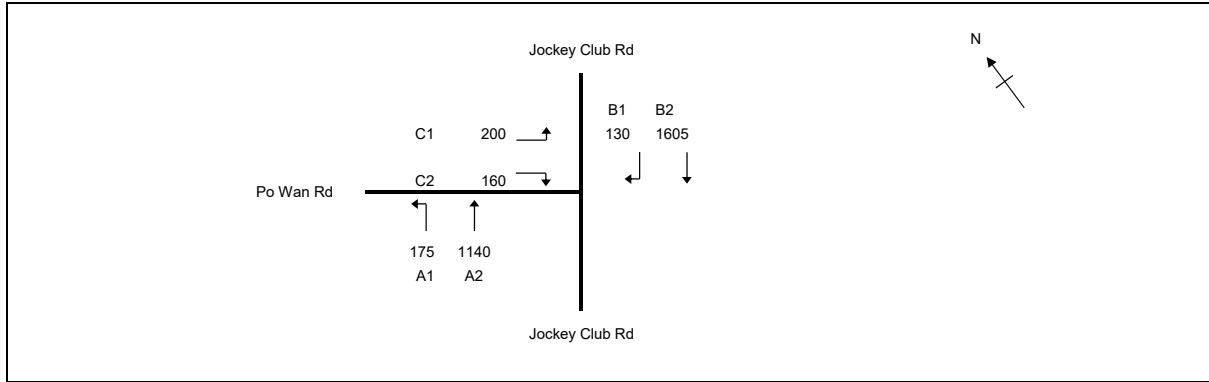
PROJECT NO: 287082 Junction No. J10

J10 - Jockey Club Road / Po Wan Road

J10_2031_DES_PM

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N = 4
No. of stage using for calculation	N = 2
Cycle time	C = 120 sec
Sum(y)	Y = 0.572
Loss time	L = 30 sec
Total Flow	= 3410 pcu
Co	= (1.5*L+5)/(1-Y) = 116.9 sec
Cm	= L/(1-Y) = 70.1 sec
Yult	= 0.675
R.C.ult	= (Yult-Y)/Y*100% = 18.0 %
Cp	= 0.9*L/(0.9-Y) = 82.4 sec
Ymax	= 1-L/C = 0.750
R.C.(C)	= (0.9*Ymax-Y)/Y*100% = 18 %

	B1,B2		B1,B2	C1,C2			E
	↓	↓	↓	→			→
	↑	↑	↑	←			←
	A1,A2					D	
STAGE 1	INT= 5	STAGE 2	INT= 6	STAGE 3	INT= 6	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
D	8	7	2	7	11	2	7	OK
E	8	7	6	7	7	6	7	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1,A2	1	3.30	C	1	15		N	1945	175	450		625	0.28	1892					10	52	66	0.599	56	
A2	1	3.30	C	1				2085		690		690	0.00	2085						52	66	0.600	62	
B1,B2	1,2	3.30	B	1	20	O		2085	130	712		842	0.15	1834			0.459	0.459		72	72	0.763	67	
B2	1,2	3.30	B	1			N	1945		893		893	0.00	1945			0.459			72	72	0.763	71	
C1,C2	3	3.30	D	1	15		N	1945	200		0	200	1.00	1768			0.113	0.113		18	18	0.763	34	
C2	3	3.30	D	1	20			2085			160	160	1.00	1940			0.082			13	18	0.556	27	
	4		PED																20					

NOTE : 'O' - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J11 - Jockey Club Road / Tin Ping Road

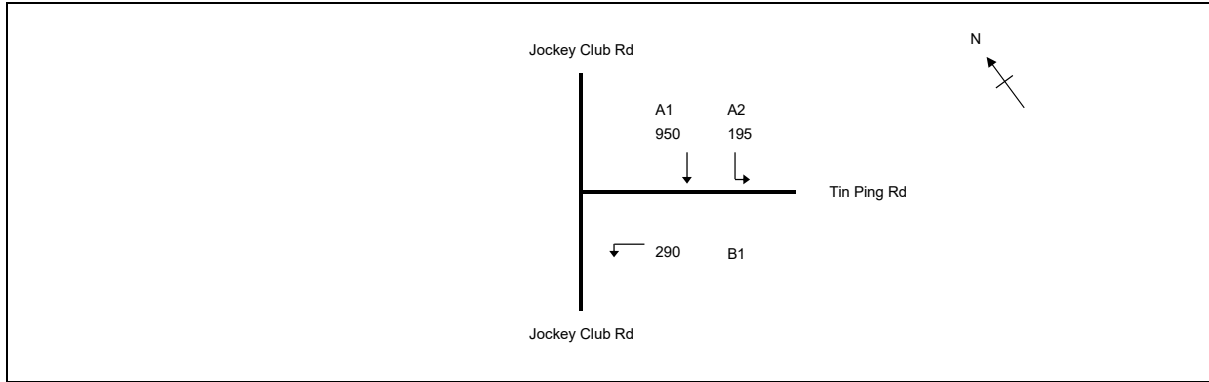
J11_2023_EXT_AM

PROJECT NO: 287082

Junction No. J11

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	2
Cycle time	C =	70 sec
Sum(y)	Y =	0.340
Loss time	L =	26 sec
Total Flow	=	1435 pcu
Co	= (1.5*L+5)/(1-Y)	= 66.7 sec
Cm	= L/(1-Y)	= 39.4 sec
Yult	=	0.705
R.C.ult	= (Yult-Y)*100%	= 107.3 %
Cp	= 0.9*L/(0.9-Y)	= 41.8 sec
Ymax	= 1-L/C	= 0.629
R.C.(C)	= (0.9*Ymax-Y)*100%	= 66 %

	A1,A2 ↓ ↓		A1 ↓	C ↑ ↓	A2 ↓		
					B1 ←		
STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3	INT= 6	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check OK
		SG	Delay	FG	SG	Delay	FG	
C	8	7	4	6	7	4	6	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A2	3	3.50	C	1	10		N	1965	195		195	1.00	1709			1709	0.114		9	15	20	0.390	16	
A1,A2	1	3.50	B	1	10		N	1965	0	357	357	0.00	1965			1965	0.182	0.182		24	24	0.541	28	
A1	1	3.50	B	1				2105		382	382	0.00	2105			2105	0.181			23	24	0.540	30	
A1	2	3.50	B	1				2105		211	211	0.00	2105			2105	0.100			13	13	0.540	20	
B1	3	3.50	D	1	10			2105	290		290	1.00	1830			1830	0.158	0.158		20	20	0.541	24	
PED	2		C																17					

NOTE : 'O' - OPPOSING TRAFFIC

N - NEAR SIDE LANE

SG - STEADY GREEN

FG - FLASHING GREEN

PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s

QUEUING LENGTH = AVERAGE QUEUE * 6m

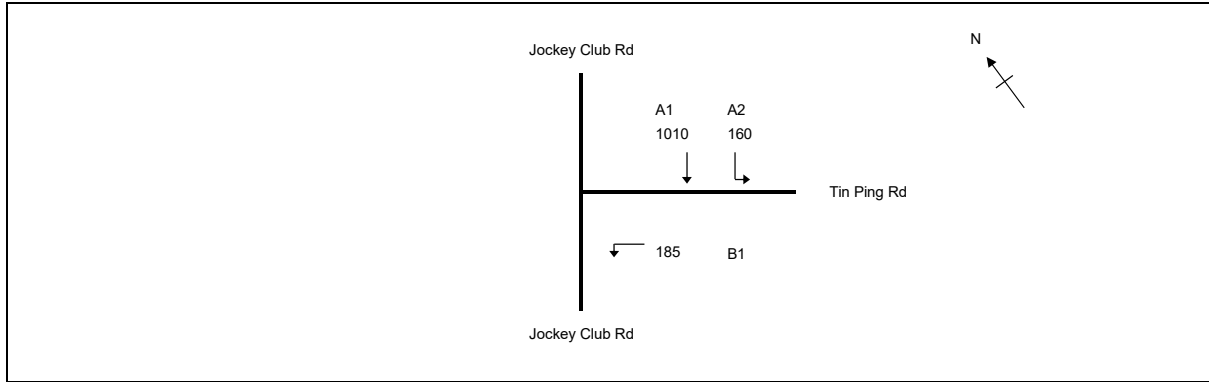
PROJECT NO: 287082 Junction No. J11

J11 - Jockey Club Road / Tin Ping Road

J11_2023_EXT_PM

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	2
Cycle time	C =	70 sec
Sum(y)	Y =	0.303
Loss time	L =	26 sec
Total Flow	=	1355 pcu
Co	= (1.5*L+5)/(1-Y)	= 63.1 sec
Cm	= L/(1-Y)	= 37.3 sec
Yult	=	0.705
R.C.ult	= (Yult-Y)*100%	= 132.6 %
Cp	= 0.9*L/(0.9-Y)	= 39.2 sec
Ymax	= 1-L/C	= 0.629
R.C.(C)	= (0.9*Ymax-Y)*100%	= 87 %

	A1,A2 ↓ ↓		A1 ↓	C ↑ ↓	A2 ↓		
					B1 ←		
STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3	INT= 6	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check OK
		SG	Delay	FG	SG	Delay	FG	
C	8	7	4	6	7	4	6	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A2	3	3.50	C	1	10		N	1965	160		160	1.00	1709			1709	0.094		9	14	15	0.447	15	
A1,A2	1	3.50	B	1	10		N	1965	0	397	397	0.00	1965			1965	0.202	0.202		29	29	0.482	27	
A1	1	3.50	B	1				2105		425	425	0.00	2105			2105	0.202			29	29	0.482	29	
A1	2	3.50	B	1				2105		188	188	0.00	2105			2105	0.089			13	13	0.481	18	
B1	3	3.50	D	1	10			2105	185		185	1.00	1830			1830	0.101	0.101		15	15	0.482	17	
PED	2		C																17					

NOTE : 'O' - OPPOSING TRAFFIC

N - NEAR SIDE LANE

SG - STEADY GREEN

FG - FLASHING GREEN

PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s

QUEUING LENGTH = AVERAGE QUEUE * 6m

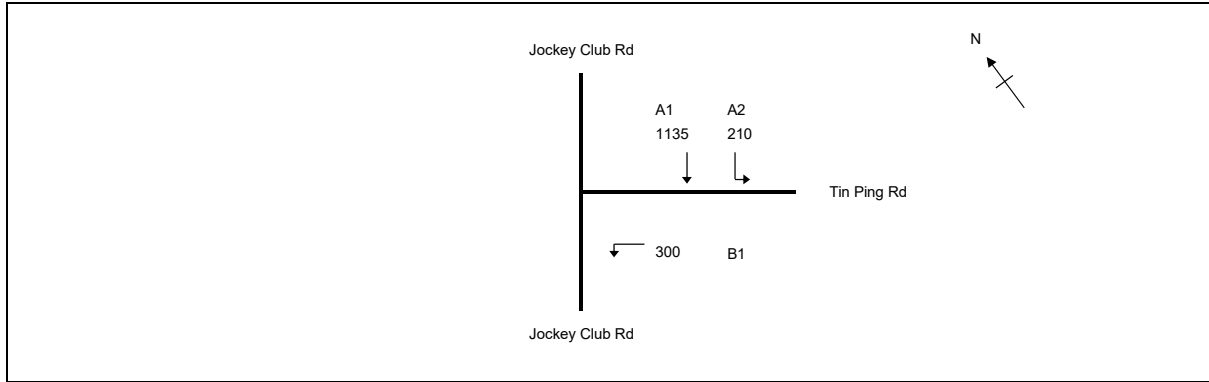
PROJECT NO: 287082 Junction No. J11

J11 - Jockey Club Road / Tin Ping Road

J11_2031_REF_AM

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	2
Cycle time	C =	70 sec
Sum(y)	Y =	0.384
Loss time	L =	26 sec
Total Flow	=	1645 pcu
Co	= (1.5*L+5)/(1-Y)	= 71.5 sec
Cm	= L/(1-Y)	= 42.2 sec
Yult	=	0.705
R.C.ult	= (Yult-Y)*100%	= 83.4 %
Cp	= 0.9*L/(0.9-Y)	= 45.4 sec
Ymax	= 1-L/C	= 0.629
R.C.(C)	= (0.9*Ymax-Y)*100%	= 47 %

	A1,A2 ↓ ↓		A1 ↓	C ↑ ↓		A2 ↓				
							B1 ←			
STAGE 1	INT=	5	STAGE 2	INT=	5	STAGE 3	INT=	6	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check OK
		SG	Delay	FG	SG	Delay	FG	
C	8	7	4	6	7	4	6	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.	
									Left pcu/h	Straight pcu/h	Right pcu/h														
A2	3	3.50	C	1	10		N	1965	210		210	1.00	1709						9						
A1,A2	1	3.50	B	1	10		N	1965	0	432	432	0.00	1965								25	25	0.610	32	
A1	1	3.50	B	1				2105		464	464	0.00	2105								25	25	0.611	35	
A1	2	3.50	B	1				2105		239	239	0.00	2105								13	13	0.611	23	
B1	3	3.50	D	1	10			2105	300	0	300	1.00	1830								19	19	0.611	26	
PED	2		C																	17					

NOTE : 'O' - OPPOSING TRAFFIC

N - NEAR SIDE LANE

SG - STEADY GREEN

FG - FLASHING GREEN

PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s

QUEUING LENGTH = AVERAGE QUEUE * 6m

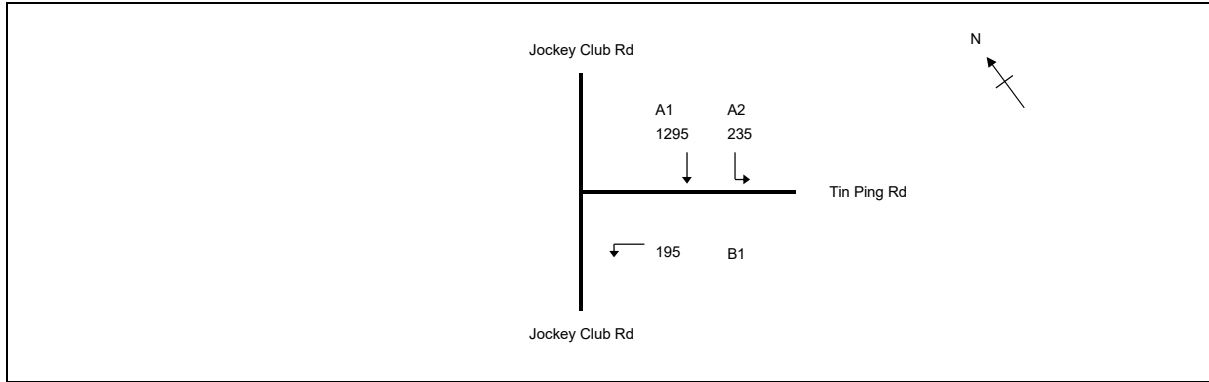
PROJECT NO: 287082 Junction No. J11

J11 - Jockey Club Road / Tin Ping Road

J11_2031_REF_PM

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	2
Cycle time	C =	70 sec
Sum(y)	Y =	0.382
Loss time	L =	26 sec
Total Flow	=	1725 pcu
Co	= (1.5*L+5)/(1-Y)	= 71.2 sec
Cm	= L/(1-Y)	= 42.0 sec
Yult	=	0.705
R.C.ult	= (Yult-Y)*100%	= 84.8 %
Cp	= 0.9*L/(0.9-Y)	= 45.1 sec
Ymax	= 1-L/C	= 0.629
R.C.(C)	= (0.9*Ymax-Y)*100%	= 48 %

	A1,A2 ↓ ↓		A1 ↓	C ↑ ↓	A2 ↓		
STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3	INT= 6	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check OK
		SG	Delay	FG	SG	Delay	FG	
C	8	7	4	6	7	4	6	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A2	3	3.50	C	1	10		N	1965	182		182	1.00	1709						9	12	12	0.607	18	
A1,A2	1	3.50	B	1	10		N	1965	53	479	532	0.10	1936							32	32	0.606	34	
A1	1	3.50	B	1				2105		579	579	0.00	2105							32	32	0.607	37	
A1	2	3.50	B	1				2105		237	237	0.00	2105							13	13	0.606	23	
B1	3	3.50	D	1	10			2105	195	0	195	1.00	1830							12	12	0.607	19	
PED	2		C																17					

NOTE : 'O' - OPPOSING TRAFFIC

N - NEAR SIDE LANE

SG - STEADY GREEN

FG - FLASHING GREEN

PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s

QUEUING LENGTH = AVERAGE QUEUE * 6m

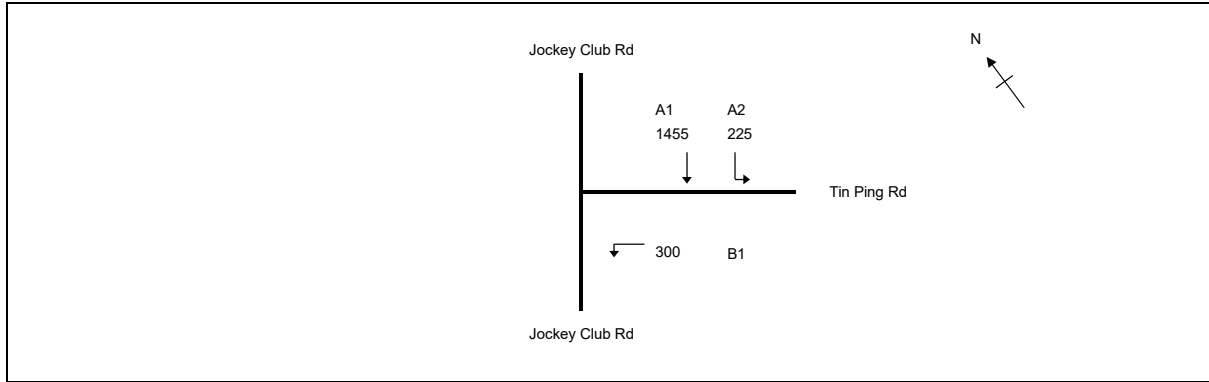
PROJECT NO: 287082 Junction No. J11

J11 - Jockey Club Road / Tin Ping Road

J11_2031_DES_AM

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	2
Cycle time	C =	70 sec
Sum(y)	Y =	0.452
Loss time	L =	26 sec
Total Flow	=	1980 pcu
Co	= (1.5*L+5)/(1-Y)	= 80.4 sec
Cm	= L/(1-Y)	= 47.5 sec
Yult	=	0.705
R.C.ult	= (Yult-Y)*100%	= 55.8 %
Cp	= 0.9*L/(0.9-Y)	= 52.3 sec
Ymax	= 1-L/C	= 0.629
R.C.(C)	= (0.9*Ymax-Y)*100%	= 25 %

	A1,A2 ↓ ↓		A1 ↓	C ↑ ↓	A2 ↓		
					B1 ←		
STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3	INT= 6	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check OK
		SG	Delay	FG	SG	Delay	FG	
C	8	7	4	6	7	4	6	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.	
									Left pcu/h	Straight pcu/h	Right pcu/h														
A2	3	3.50	C	1	10		N	1965	225		225	1.00	1709						9						
A1,A2	1	3.50	B	1	10		N	1965	0	567	567	0.00	1965												
A1	1	3.50	B	1				2105		607	607	0.00	2105												
A1	2	3.50	B	1				2105		281	281	0.00	2105												
B1	3	3.50	D	1	10			2105	300	0	300	1.00	1830												
PED	2		C																	17					

NOTE : 'O' - OPPOSING TRAFFIC

N - NEAR SIDE LANE

SG - STEADY GREEN

FG - FLASHING GREEN

PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s

QUEUING LENGTH = AVERAGE QUEUE * 6m

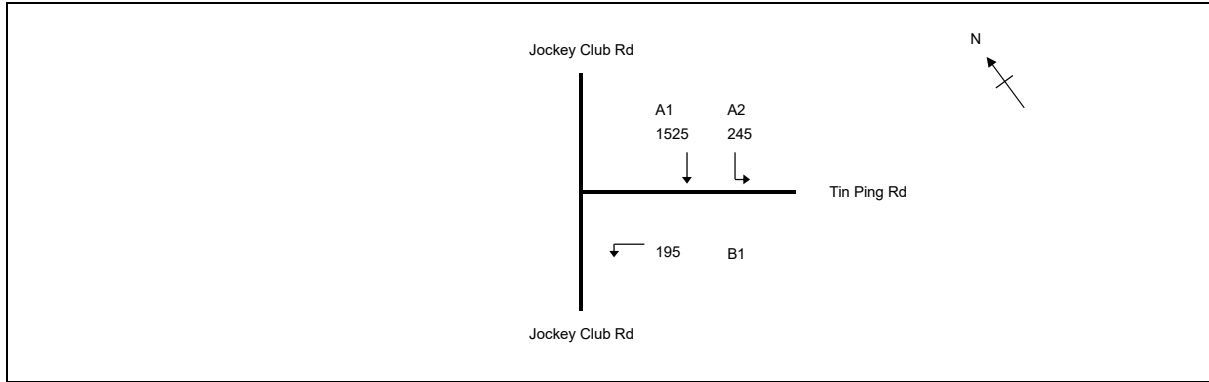
PROJECT NO: 287082 Junction No. J11

J11 - Jockey Club Road / Tin Ping Road

J11_2031_DES_PM

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	2
Cycle time	C =	70 sec
Sum(y)	Y =	0.433
Loss time	L =	26 sec
Total Flow	=	1965 pcu
Co	= (1.5*L+5)/(1-Y)	= 77.6 sec
Cm	= L/(1-Y)	= 45.9 sec
Yult	=	0.705
R.C.ult	= (Yult-Y)*100%	= 62.8 %
Cp	= 0.9*L/(0.9-Y)	= 50.1 sec
Ymax	= 1-L/C	= 0.629
R.C.(C)	= (0.9*Ymax-Y)*100%	= 31 %

	A1,A2 ↓ ↓		A1 ↓	C ↑ ↓		A2 ↓			
							B1 ←		
STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3	INT= 6	STAGE 4	INT=		

Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check OK
		SG	Delay	FG	SG	Delay	FG	
C	8	7	4	6	7	4	6	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.	
									Left pcu/h	Straight pcu/h	Right pcu/h														
A2	3	3.50	C	1	10		N	1965	182		182	1.00	1709						9						
A1,A2	1	3.50	B	1	10		N	1965	63	569	632	0.10	1936								11	11	0.689	18	
A1	1	3.50	B	1				2105		687	687	0.00	2105								33	33	0.689	39	
A1	2	3.50	B	1				2105		269	269	0.00	2105								33	33	0.689	42	
A1	2	3.50	B	1				2105			269	0.00	2105								13	13	0.688	26	
B1	3	3.50	D	1	10			2105	195	0	195	1.00	1830								11	11	0.689	19	
PED	2		C																	17					

NOTE : 'O' - OPPOSING TRAFFIC

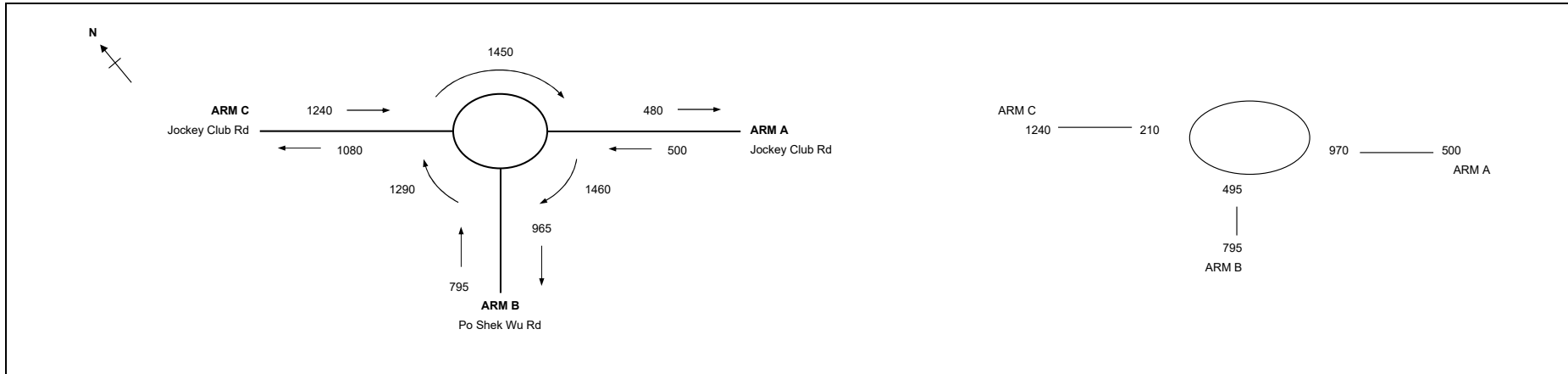
N - NEAR SIDE LANE

SG - STEADY GREEN

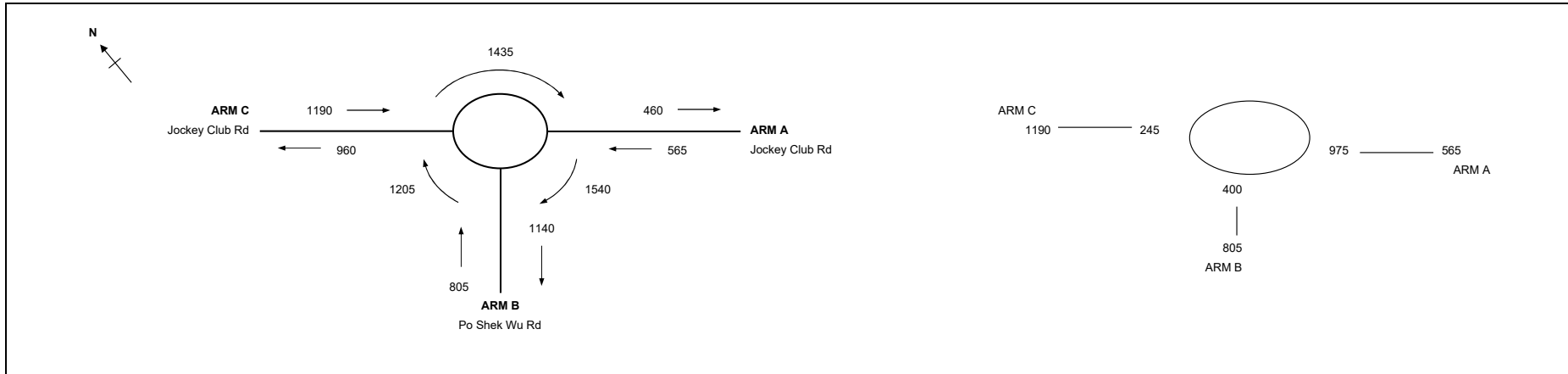
FG - FLASHING GREEN

PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s

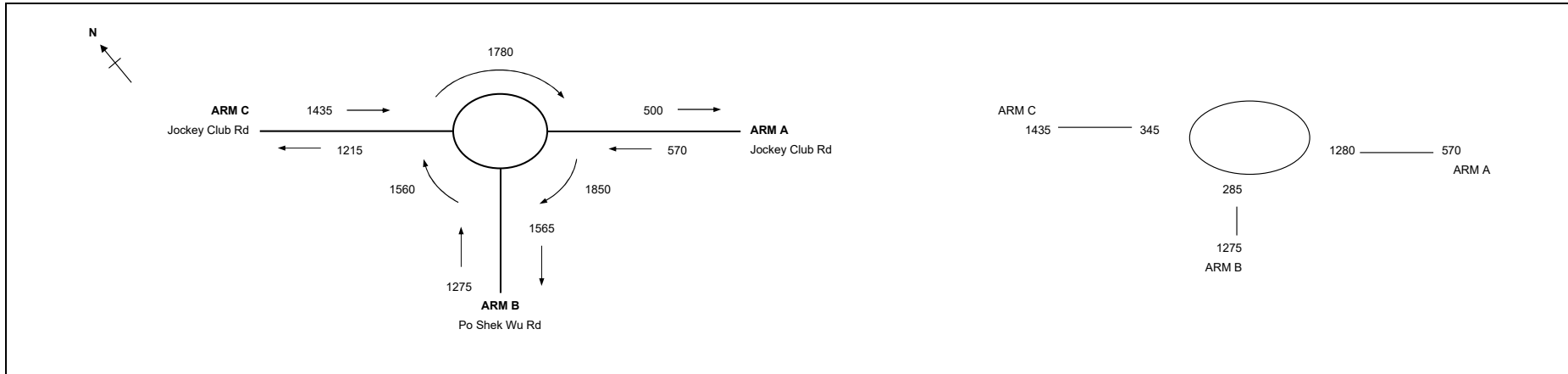
QUEUING LENGTH = AVERAGE QUEUE * 6m



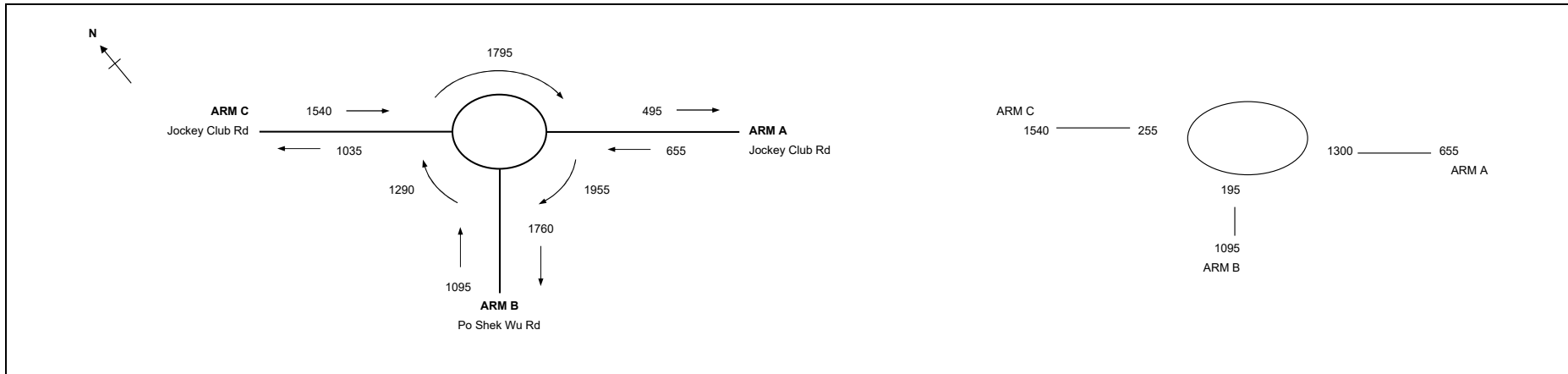
ARM	A	B	C		
INPUT PARAMETERS:					
V =	Approach half width (m)	7.50	7.00	7.50	
E =	Entry width (m)	10.50	10.50	10.00	
L =	Effective length of flare (m)	10	10	10	
R =	Entry radius (m)	10	90	100	
D =	Inscribed circle diameter (m)	40	40	40	
A =	Entry angle (degree)	30	20	10	
Q =	Entry flow (pcu/h)	500	795	1240	
Qc =	Circulating flow across entry (pcu/h)	970	495	210	
OUTPUT PARAMETERS:					
S =	Sharpness of flare = $1.6(E-V)/L$	0.48	0.56	0.40	
K =	$1-0.00347(A-30)-0.978(1/R-0.05)$	0.95	1.07	1.11	
X2 =	$V + ((E-V)/(1+2S))$	9.03	8.65	8.89	
M =	$EXP((D-60)/10)$	0.14	0.14	0.14	
F =	$303 \times X2$	2736	2621	2693	
Td =	$1+(0.5/(1+M))$	1.44	1.44	1.44	
Fc =	$0.21 \times Td(1+0.2 \times X2)$	0.85	0.83	0.84	
Qe =	$K(F-Fc \times Qc)$	1819	2373	2790	
DFC =	Design flow/Capacity = Q/Qe	0.27	0.33	0.44	
				Total In Sum =	2535 PCU
				DFC of Critical Approach =	0.44



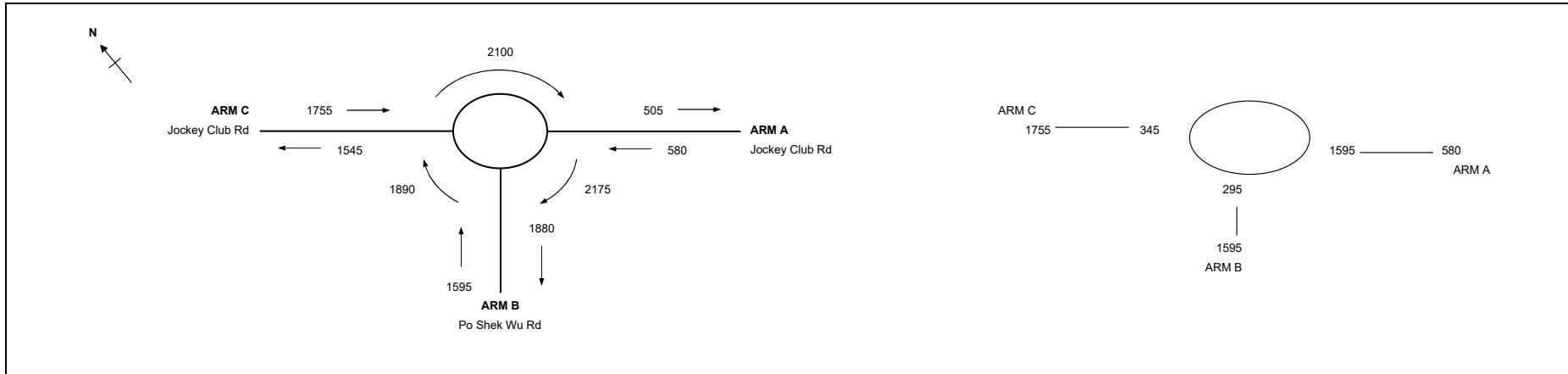
ARM	A	B	C		
INPUT PARAMETERS:					
V = Approach half width (m)	7.50	7.00	7.50		
E = Entry width (m)	10.50	10.50	10.00		
L = Effective length of flare (m)	10	10	10		
R = Entry radius (m)	10	90	100		
D = Inscribed circle diameter (m)	40	40	40		
A = Entry angle (degree)	30	20	10		
Q = Entry flow (pcu/h)	565	805	1190		
Qc = Circulating flow across entry (pcu/h)	975	400	245		
OUTPUT PARAMETERS:					
S = Sharpness of flare = $1.6(E-V)/L$	0.48	0.56	0.40		
K = $1-0.00347(A-30)-0.978(1/R-0.05)$	0.95	1.07	1.11		
X2 = $V + ((E-V)/(1+2S))$	9.03	8.65	8.89		
M = $EXP((D-60)/10)$	0.14	0.14	0.14		
F = $303 \times X2$	2736	2621	2693		
Td = $1+(0.5/(1+M))$	1.44	1.44	1.44		
Fc = $0.21 \times Td(1+0.2 \times X2)$	0.85	0.83	0.84		
Qe = $K(F-Fc \times Qc)$	1815	2458	2757		
DFC = Design flow/Capacity = Q/Qe	0.31	0.33	0.43		
				Total In Sum =	2560 PCU
				DFC of Critical Approach =	0.43



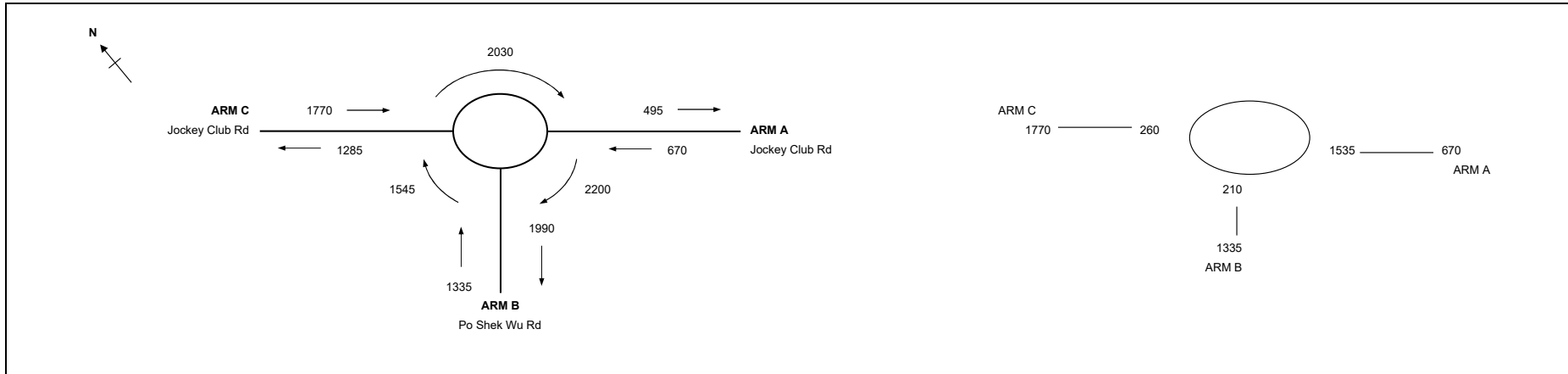
ARM	A	B	C		
INPUT PARAMETERS:					
V =	Approach half width (m)	7.50	7.00	7.50	
E =	Entry width (m)	10.50	10.50	10.00	
L =	Effective length of flare (m)	10	10	10	
R =	Entry radius (m)	10	90	100	
D =	Inscribed circle diameter (m)	40	40	40	
A =	Entry angle (degree)	30	20	10	
Q =	Entry flow (pcu/h)	570	1275	1435	
Qc =	Circulating flow across entry (pcu/h)	1280	285	345	
OUTPUT PARAMETERS:					
S =	Sharpness of flare = $1.6(E-V)/L$	0.48	0.56	0.40	
K =	$1-0.00347(A-30)-0.978(1/R-0.05)$	0.95	1.07	1.11	
X2 =	$V + ((E-V)/(1+2S))$	9.03	8.65	8.89	
M =	$EXP((D-60)/10)$	0.14	0.14	0.14	
F =	$303 \times X2$	2736	2621	2693	
Td =	$1+(0.5/(1+M))$	1.44	1.44	1.44	
Fc =	$0.21 \times Td(1+0.2 \times X2)$	0.85	0.83	0.84	
Qe =	$K(F-Fc \times Qc)$	1569	2559	2664	
DFC =	Design flow/Capacity = Q/Qe	0.36	0.50	0.54	
				Total In Sum =	3280 PCU
				DFC of Critical Approach =	0.54



ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	7.50	7.00	7.50
E = Entry width (m)	10.50	10.50	10.00
L = Effective length of flare (m)	10	10	10
R = Entry radius (m)	10	90	100
D = Inscribed circle diameter (m)	40	40	40
A = Entry angle (degree)	30	20	10
Q = Entry flow (pcu/h)	655	1095	1540
Qc = Circulating flow across entry (pcu/h)	1300	195	255
OUTPUT PARAMETERS:			
S = Sharpness of flare = $1.6(E-V)/L$	0.48	0.56	0.40
K = $1-0.00347(A-30)-0.978(1/R-0.05)$	0.95	1.07	1.11
X2 = $V + ((E-V)/(1+2S))$	9.03	8.65	8.89
M = $EXP((D-60)/10)$	0.14	0.14	0.14
F = $303 \times X2$	2736	2621	2693
Td = $1+(0.5/(1+M))$	1.44	1.44	1.44
Fc = $0.21 \times Td(1+0.2 \times X2)$	0.85	0.83	0.84
Qe = $K(F-Fc \times Qc)$	1553	2639	2748
DFC = Design flow/Capacity = Q/Qe	0.42	0.41	0.56
Total In Sum =			3290 PCU
DFC of Critical Approach =			0.56



ARM	A	B	C		
INPUT PARAMETERS:					
V = Approach half width (m)	7.50	7.00	7.50		
E = Entry width (m)	10.50	10.50	10.00		
L = Effective length of flare (m)	10	10	10		
R = Entry radius (m)	10	90	100		
D = Inscribed circle diameter (m)	40	40	40		
A = Entry angle (degree)	30	20	10		
Q = Entry flow (pcu/h)	580	1595	1755		
Qc = Circulating flow across entry (pcu/h)	1595	295	345		
OUTPUT PARAMETERS:					
S = Sharpness of flare = 1.6(E-V)/L	0.48	0.56	0.40		
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.95	1.07	1.11		
X2 = V + ((E-V)/(1+2S))	9.03	8.65	8.89		
M = EXP((D-60)/10)	0.14	0.14	0.14		
F = 303*X2	2736	2621	2693		
Td = 1+(0.5/(1+M))	1.44	1.44	1.44		
Fc = 0.21*Td(1+0.2*X2)	0.85	0.83	0.84		
Qe = K(F-Fc*Qc)	1315	2551	2664		
DFC = Design flow/Capacity = Q/Qe	0.44	0.63	0.66		
				Total In Sum =	3930 PCU
				DFC of Critical Approach =	0.66



ARM	A	B	C		
INPUT PARAMETERS:					
V =	Approach half width (m)	7.50	7.00	7.50	
E =	Entry width (m)	10.50	10.50	10.00	
L =	Effective length of flare (m)	10	10	10	
R =	Entry radius (m)	10	90	100	
D =	Inscribed circle diameter (m)	40	40	40	
A =	Entry angle (degree)	30	20	10	
Q =	Entry flow (pcu/h)	670	1335	1770	
Qc =	Circulating flow across entry (pcu/h)	1535	210	260	
OUTPUT PARAMETERS:					
S =	Sharpness of flare = $1.6(E-V)/L$	0.48	0.56	0.40	
K =	$1-0.00347(A-30)-0.978(1/R-0.05)$	0.95	1.07	1.11	
X2 =	$V + ((E-V)/(1+2S))$	9.03	8.65	8.89	
M =	$EXP((D-60)/10)$	0.14	0.14	0.14	
F =	$303 \times X2$	2736	2621	2693	
Td =	$1+(0.5/(1+M))$	1.44	1.44	1.44	
Fc =	$0.21 \times Td(1+0.2 \times X2)$	0.85	0.83	0.84	
Qe =	$K(F-Fc \times Qc)$	1363	2626	2743	
DFC =	Design flow/Capacity = Q/Qe	0.49	0.51	0.65	
				Total In Sum =	3775 PCU
				DFC of Critical Approach =	0.65

J13 - Po Shek Wu Road / Po Wan Road

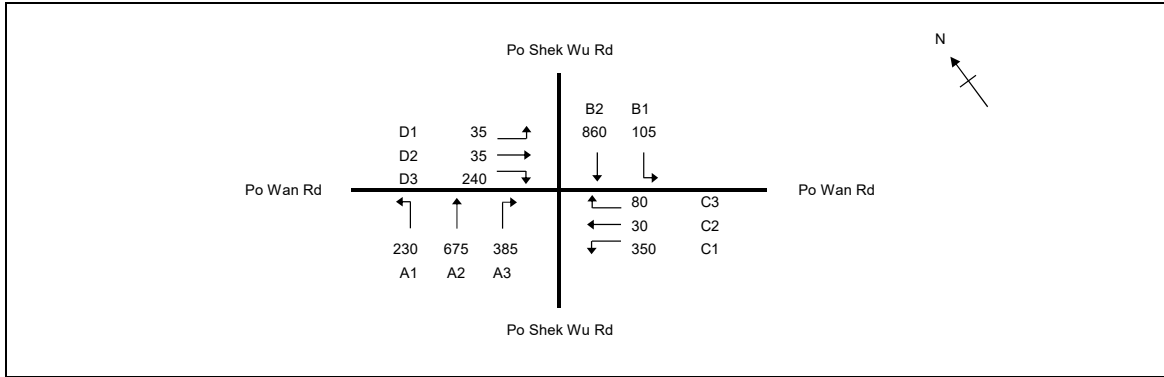
J13_2023_EXT_AM

PROJECT NO:

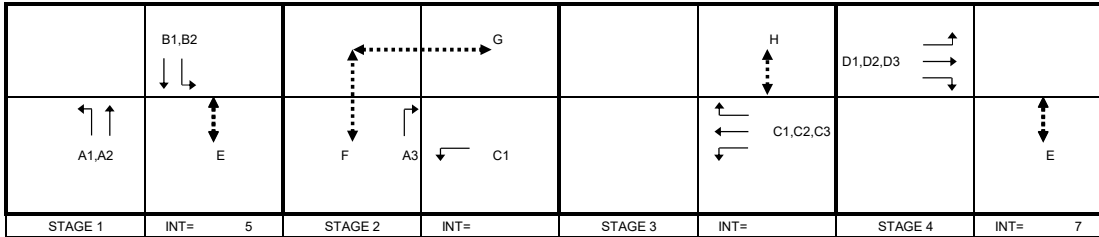
Junction No. J13

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N = 4
No. of stage using for calculation	N = 2
Cycle time	C = 128 sec
Sum(y)	Y = 0.324
Loss time	L = 62 sec
Total Flow	= 3025 pcu
Co	= (1.5*L+5)/(1-Y) = 145.0 sec
Cm	= L/(1-Y) = 91.8 sec
Yult	= 0.435
R.C.ult	= (Yult-Y)/Y*100% = 34.1 %
Cp	= 0.9*L/(0.9-Y) = 96.9 sec
Ymax	= 1-L/C = 0.516
R.C.(C)	= (0.9*Ymax-Y)/Y*100% = 43 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
E	8	6	2	9	64	2	9	OK
F	8	7	6	7	15	6	7	OK
G	12	10	6	12	10	6	12	OK
H	7	6	10	8	6	10	8	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1	1	3.30	A	1	15		N	1945	230			230	1.00	1768			1768	0.130	0.202	10	26	41	0.406	33
A2	1	3.30	A	2				4170		675		675	0.00	4170			4170	0.162			33	41	0.505	49
B1	1	3.70	B	1	15			2125	105			105	1.00	1932			1932	0.054			11	41	0.170	15
B2	1	3.70	A	2				4250		860		860	0.00	4250			4250	0.202			41	41	0.632	62
A3	2	3.30	A	2	15			4170		385		385	1.00	3791			3791	0.102			21	23	0.565	34
C1	2,3	3.50	B	1	15		N	1965	350			350	1.00	1786			1786	0.196			40	44	0.570	49
C2,C3	3	3.30	C,D	1	20			2085		30	80	110	0.73	1977			1977	0.056			11	18	0.396	20
D1,D2	4	3.30	D	1	15		N	1945	35	35		70	0.50	1852			1852	0.038	0.122		8	25	0.193	12
D3	4	3.30	E	1	25			2085			240	240	1.00	1967			1967	0.122			25	25	0.625	41
PED	2		G																	28				
PED	3		H																	24				

NOTE : 'O' - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J13 - Po Shek Wu Road / Po Wan Road

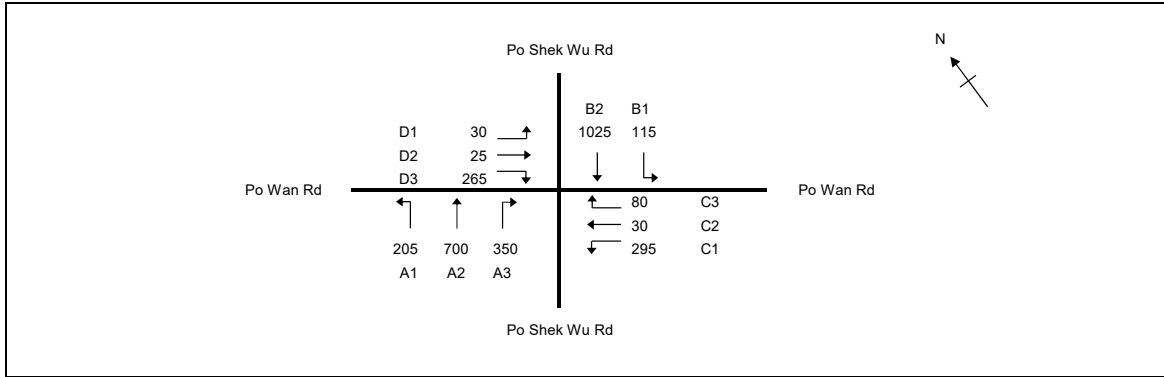
J13_2023_EXT_PM

PROJECT NO:

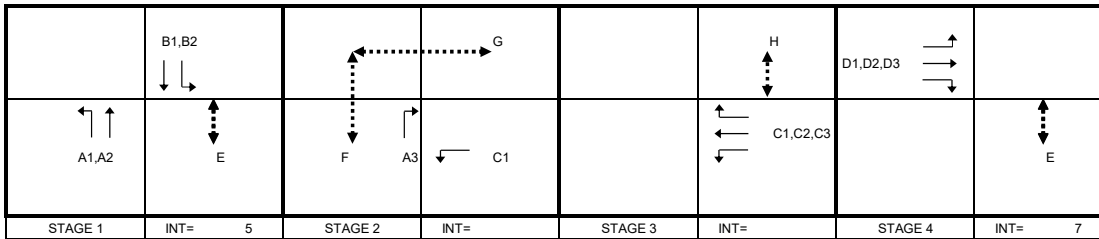
Junction No. J13

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N = 4
No. of stage using for calculation	N = 2
Cycle time	C = 128 sec
Sum(y)	Y = 0.376
Loss time	L = 62 sec
Total Flow	= 3120 pcu
Co = (1.5*L+5)/(1-Y)	= 157.0 sec
Cm = L/(1-Y)	= 99.3 sec
Yult = (Cm - Co) / C	= 0.435
R.C.ult = (Yult - Y) / Y * 100%	= 15.7 %
Cp = 0.9 * L / (0.9 - Y)	= 106.5 sec
Ymax = 1 - L / C	= 0.516
R.C.(C) = (0.9 * Ymax - Y) / Y * 100%	= 23 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
E	8	6	2	9	64	2	9	OK
F	8	7	6	7	15	6	7	OK
G	12	10	6	12	10	6	12	OK
H	7	6	10	8	6	10	8	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1	1	3.30	A	1	15		N	1945	205			205	1.00	1768		1768	0.116	0.241	10	20	42	0.353	29	
A2	1	3.30	A	2				4170		700		700	0.00	4170		4170	0.168			29	42	0.512	50	
B1	1	3.70	B	1	15			2125	115			115	1.00	1932		1932	0.060			10	42	0.181	16	
B2	1	3.70	A	2				4250		1025		1025	0.00	4250		4250	0.241			42	42	0.735	73	
A3	2	3.30	A	2	15			4170			350	350	1.00	3791		3791	0.092			16	23	0.514	31	
C1	2,3	3.50	B	1	15		N	1965	295			295	1.00	1786		1786	0.165			29	44	0.480	41	
C2,C3	3	3.30	C,D	1	20			2085		30	80	110	0.73	1977		1977	0.056			10	18	0.396	20	
D1,D2	4	3.30	D	1	15		N	1945	30	25		55	0.55	1844		1844	0.030	0.135		5	24	0.159	10	
D3	4	3.30	E	1	25			2085			265	265	1.00	1967		1967	0.135			24	24	0.719	46	
PED	2		G																28					
PED	3		H																24					

NOTE : 'O' - OPPOSING TRAFFIC

N - NEAR SIDE LANE

SG - STEADY GREEN

FG - FLASHING GREEN

PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s

QUEUING LENGTH = AVERAGE QUEUE * 6m

J13 - Po Shek Wu Road / Po Wan Road

J13_2031_REF_AM

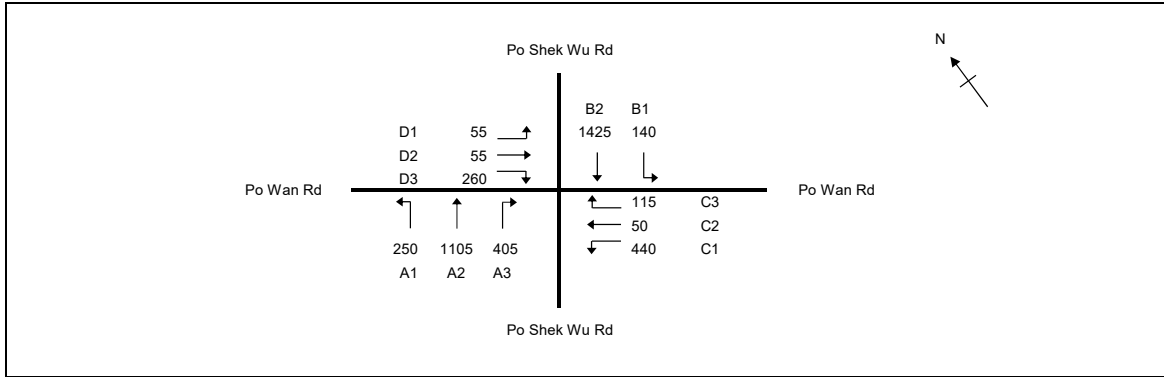
PROJECT NO:

Junction No.

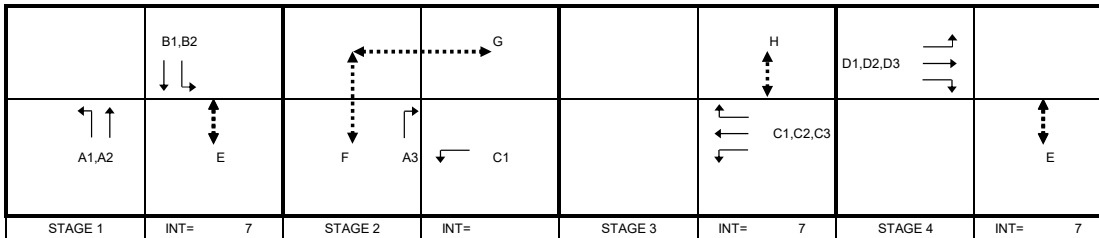
J13

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N = 4
No. of stage using for calculation	N = 3
Cycle time	C = 128 sec
Sum(y)	Y = 0.612
Loss time	L = 18 sec
Total Flow	= 4300 pcu
Co = (1.5*L+5)/(1-Y)	= 82.5 sec
Cm = L/(1-Y)	= 46.4 sec
Yult = 0.765	
R.C.ult = (Yult-Y)/Y*100%	= 25.0 %
Cp = 0.9*L/(0.9-Y)	= 56.2 sec
Ymax = 1-L/C	= 0.859
R.C.(C) = (0.9*Ymax-Y)/Y*100%	= 26 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
E	8	6	2	9	64	2	9	OK
F	8	7	6	7	40	6	7	OK
G	12	10	6	12	10	6	12	OK
H	7	6	10	8	7	10	8	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1	1	3.30	A	1	15		N	1945	250			250	1.00	1768		1768	0.141	0.265	18	25	48	0.380	33	
A1,A2	1	3.30	A	1	20			2085	0	552		552	0.00	2085		2085	0.265			48	48	0.711	74	
A2	1	3.30	A	1				2085		553		553	0.00	2085		2085	0.265			48	48	0.712	74	
B1,B2	1	3.70	A	1	15			2125	140	372		512	0.27	2068		2068	0.248			44	48	0.665	69	
B2	1	3.70	A	2				4250		1053		1053	0.00	4250		4250	0.248			45	48	0.665	70	
A3	2	3.30	B	2	20			4170			405	405	1.00	3879		3879	0.104			19	23	0.581	35	
C1	2,3	3.30	C,D	1	15		N	1945	440			440	1.00	1768		1768	0.249	0.249		45	45	0.712	61	
C2,C3	3	3.30	D	1	20			2085		50	115	165	0.70	1981		1981	0.083			15	19	0.569	30	
D1,D2,D3	4	3.30	E	1	15		N	1945	55	55	68	178	0.69	1819		1819	0.098	0.098		18	18	0.712	33	
D3	4	3.30	E	1	25			2085			192	192	1.00	1967		1967	0.098			18	18	0.710	35	

NOTE : 'O' - OPPOSING TRAFFIC

N - NEAR SIDE LANE

SG - STEADY GREEN

FG - FLASHING GREEN

PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s

QUEUING LENGTH = AVERAGE QUEUE * 6m

J13 - Po Shek Wu Road / Po Wan Road

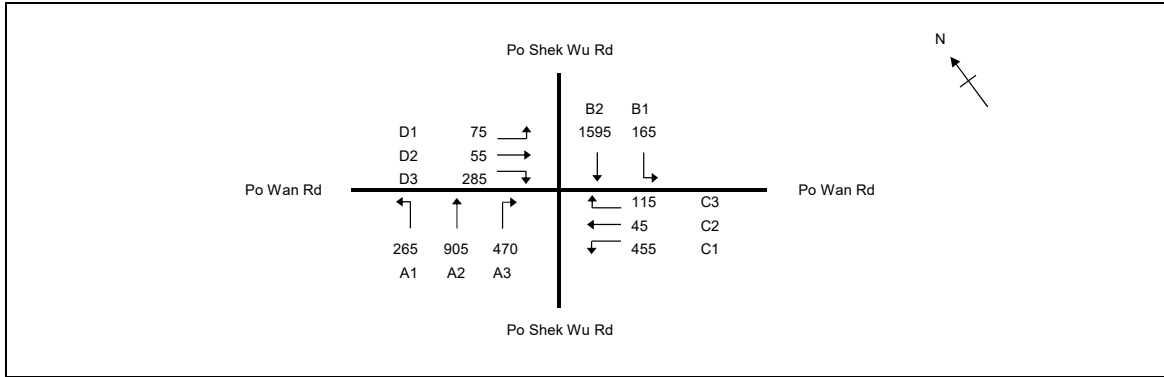
J13_2031_REF_PM

PROJECT NO:

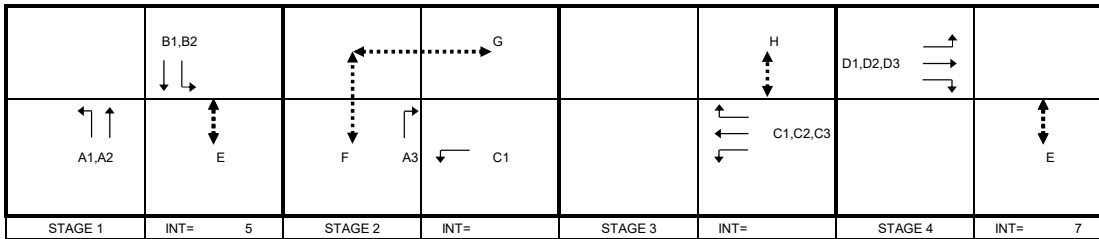
Junction No. J13

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N = 4
No. of stage using for calculation	N = 2
Cycle time	C = 128 sec
Sum(y)	Y = 0.389
Loss time	L = 62 sec
Total Flow	= 4430 pcu
Co	= (1.5*L+5)/(1-Y) = 160.3 sec
Cm	= L/(1-Y) = 101.4 sec
Yult	= 0.435
R.C.ult	= (Yult-Y)/Y*100% = 11.9 %
Cp	= 0.9*L/(0.9-Y) = 109.1 sec
Ymax	= 1-L/C = 0.516
R.C.(C)	= (0.9*Ymax-Y)/Y*100% = 19 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
E	8	6	2	9	65	2	9	OK
F	8	7	6	7	15	6	7	OK
G	12	10	6	12	10	6	12	OK
H	7	6	10	8	6	10	8	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1	1	3.30	A	1	15		N	1945	265			265	1.00	1768		1768	0.150	0.279	10	25	47	0.405	36	
A1,A2	1	3.30	A	1	20			2085	0	452		452	0.00	2085		2085	0.217			37	47	0.586	61	
A2	1	3.30	A	1				2085		453		453	0.00	2085		2085	0.217			37	47	0.587	61	
B1,B2	1	3.70	A	1	15			2125	165	411		576	0.29	2066		2066	0.279			47	47	0.754	77	
B2	1	3.70	A	2				4250		1184		1184	0.00	4250		4250	0.279			47	47	0.753	80	
A3	2	3.30	B	2	20			4170			470	470	1.00	3879		3879	0.121			21	23	0.674	41	
C1	2,3	3.30	C,D	1	15		N	1945	455			455	1.00	1768		1768	0.257			44	44	0.749	64	
C2,C3	3	3.30	D	1	20			2085		45	115	160	0.72	1978		1978	0.081			14	18	0.575	29	
D1,D2,D3	4	3.30	E	1	15		N	1945	75	55	69	199	0.72	1814		1814	0.110	0.110		19	19	0.753	36	
D3	4	3.30	E	1	25			2085			216	216	1.00	1967		1967	0.110			19	19	0.754	39	
PED	2		G																28					
PED	3		H																24					

NOTE : 'O' - OPPOSING TRAFFIC

N - NEAR SIDE LANE

SG - STEADY GREEN

FG - FLASHING GREEN

PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s

QUEUING LENGTH = AVERAGE QUEUE * 6m

J13 - Po Shek Wu Road / Po Wan Road

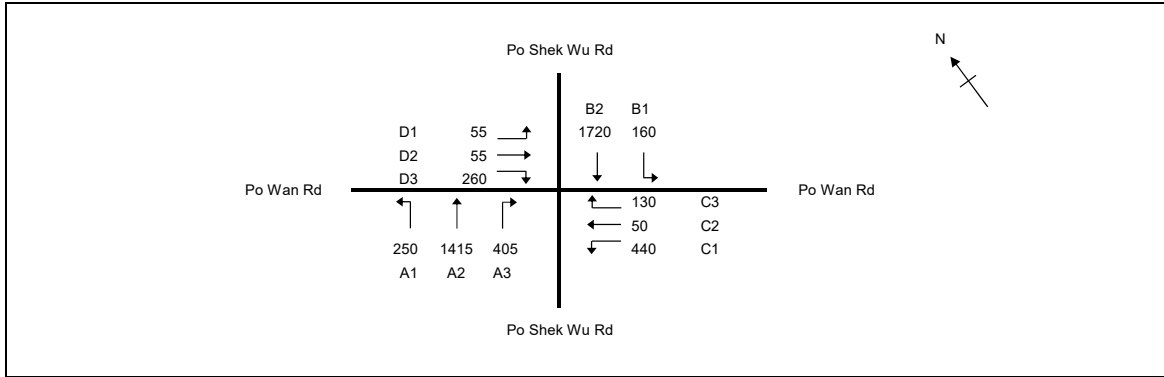
J13_2031_DES_AM

PROJECT NO:

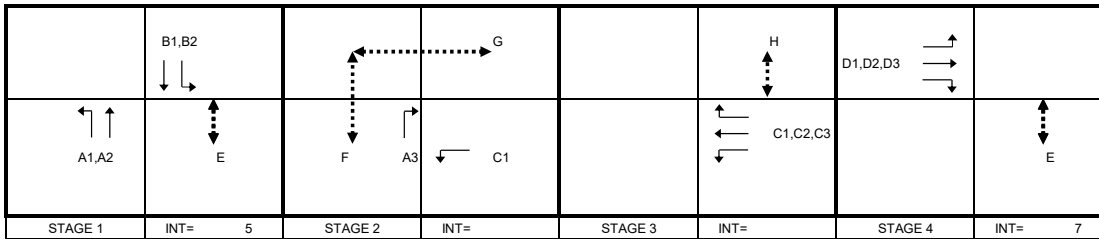
Junction No. J13

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N = 4
No. of stage using for calculation	N = 2
Cycle time	C = 128 sec
Sum(y)	Y = 0.437
Loss time	L = 62 sec
Total Flow	= 4940 pcu
Co	= (1.5*L+5)/(1-Y) = 174.2 sec
Cm	= L/(1-Y) = 110.2 sec
Yult	= 0.435
R.C.ult	= (Yult-Y)/Y*100% = -0.6 %
Cp	= 0.9*L/(0.9-Y) = 120.6 sec
Ymax	= 1-L/C = 0.516
R.C.(C)	= (0.9*Ymax-Y)/Y*100% = 6 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
E	8	6	2	9	65	2	9	OK
F	8	7	6	7	15	6	7	OK
G	12	10	6	12	10	6	12	OK
H	7	6	10	8	6	10	8	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1	1	3.30	A	1	15		N	1945	250			250	1.00	1768		1768	0.141	0.340	10	21	51	0.353	32	
A1,A2	1	3.30	A	1	20			2085	0	707		707	0.00	2085		2085	0.339			51	51	0.847	90	
A2	1	3.30	A	1				2085		708		708	0.00	2085		2085	0.340			51	51	0.848	91	
B1,B2	1	3.70	A	1	15			2125	160	456		616	0.26	2071		2071	0.297			45	51	0.743	79	
B2	1	3.70	A	2				4250		1264		1264	0.00	4250		4250	0.297			45	51	0.743	81	
A3	2	3.30	B	2	20			4170			405	405	1.00	3879		3879	0.104			16	23	0.581	35	
C1	2,3	3.30	C,D	1	15		N	1945	440			440	1.00	1768		1768	0.249			38	44	0.724	62	
C2,C3	3	3.30	D	1	20			2085		50	130	180	0.72	1978		1978	0.091			14	18	0.647	33	
D1,D2,D3	4	3.30	E	1	15		N	1945	55	55	68	178	0.69	1819		1819	0.098	0.098		15	15	0.848	34	
D3	4	3.30	E	1	25			2085			192	192	1.00	1967		1967	0.098			15	15	0.846	36	
PED	2		G																28					
PED	3		H																24					

NOTE : 'O' - OPPOSING TRAFFIC

N - NEAR SIDE LANE

SG - STEADY GREEN

FG - FLASHING GREEN

PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s

QUEUING LENGTH = AVERAGE QUEUE * 6m

J13 - Po Shek Wu Road / Po Wan Road

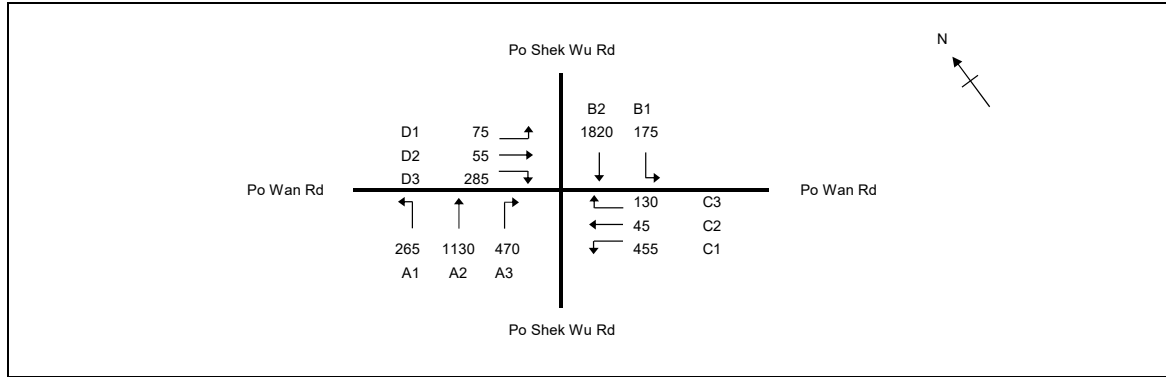
J13_2031_DES_PM

PROJECT NO:

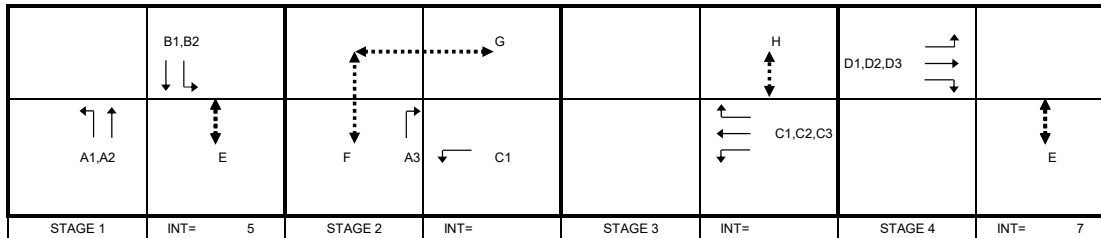
Junction No. J13

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N = 4
No. of stage using for calculation	N = 2
Cycle time	C = 128 sec
Sum(y)	Y = 0.426
Loss time	L = 62 sec
Total Flow	= 4905 pcu
Co = (1.5*L+5)/(1-Y)	= 170.6 sec
Cm = L/(1-Y)	= 107.9 sec
Yult = (Yult-Y)/Y*100%	= 0.435
R.C.ult = (Yult-Y)/Y*100%	= 2.2 %
Cp = 0.9*L/(0.9-Y)	= 117.6 sec
Ymax = 1-L/C	= 0.516
R.C.(C) = (0.9*Ymax-Y)/Y*100%	= 9 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
E	8	6	2	9	65	2	9	OK
F	8	7	6	7	15	6	7	OK
G	12	10	6	12	10	6	12	OK
H	7	6	10	8	6	10	8	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1	1	3.30	A	1	15		N	1945	265			265	1.00	1768		1768	0.150	0.316	10	23	49	0.392	35	
A1,A2	1	3.30	A	1	20			2085	0	565		565	0.00	2085		2085	0.271			42	49	0.708	74	
A2	1	3.30	A	1				2085		565		565	0.00	2085		2085	0.271			42	49	0.708	74	
B1,B2	1	3.70	A	1	15			2125	175	478		653	0.27	2070		2070	0.316			49	49	0.825	86	
B2	1	3.70	A	2				4250		1342		1342	0.00	4250		4250	0.316			49	49	0.825	88	
A3	2	3.30	B	2	20			4170			470	470	1.00	3879		3879	0.121			19	23	0.674	41	
C1	2,3	3.30	C,D	1	15		N	1945	455			455	1.00	1768		1768	0.257			40	44	0.749	64	
C2,C3	3	3.30	D	1	20			2085	45	130		175	0.74	1975		1975	0.089			14	18	0.630	32	
D1,D2,D3	4	3.30	E	1	15		N	1945	75	55	69	199	0.72	1814		1814	0.110	0.110		17	17	0.825	37	
D3	4	3.30	E	1	25			2085			216	216	1.00	1967		1967	0.110			17	17	0.825	40	
PED	2		G																28					
PED	3		H																24					

NOTE : 'O' - OPPOSING TRAFFIC

N - NEAR SIDE LANE

SG - STEADY GREEN

FG - FLASHING GREEN

PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s

QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS

TRAFFIC SIGNAL CALCULATION

J14 - Po Shek Wu Road / Choi Yuen Road

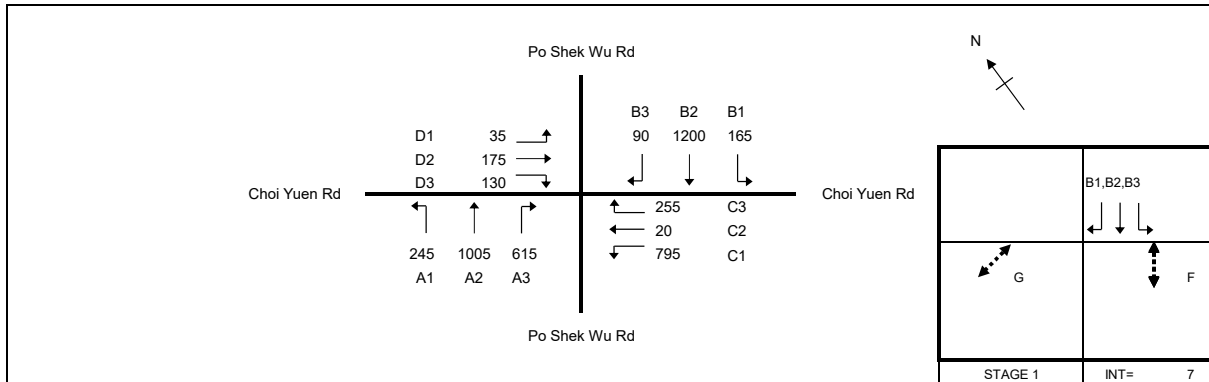
J14_2023_EXT_AM

PROJECT NO: 287082

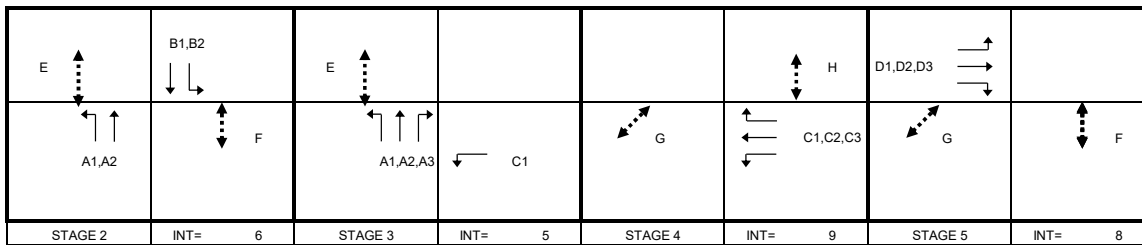
Junction No. J14

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N = 5
No. of stage using for calculation	N = 4
Cycle time	C = 135 sec
Sum(y)	Y = 0.546
Loss time	L = 24 sec
Total Flow	= 4730 pcu
Co	= (1.5*L+5)/(1-Y) = 90.3 sec
Cm	= L/(1-Y) = 52.9 sec
Yult	= 0.720
R.C.ult	= (Yult-Y)*100% = 31.9 %
Cp	= 0.9*L/(0.9-Y) = 61.0 sec
Ymax	= 1-L/C = 0.822
R.C.(C)	= (0.9*Ymax-Y)*100% = 36 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
E	15	13	8	15	41	8	15	OK
F	14	6	1	16	45	1	16	OK
G	5.5	6	1	6	64	1	6	OK
H	11	6	10	12	16	10	12	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1,A2	2,3	3.50	D	1	15		N	1965	245	417		662	0.37	1895		474	2369	0.279		24	57	60	0.627	83
A2	2,3	3.50	D	1				2105		588		588	0.00	2105			2105	0.279			57	60	0.626	73
A3	3	3.50	D	2	20			4210			615	615	1.00	3916			3916	0.157	0.157		32	32	0.664	53
C1	3,4	3.30	F,G	2	15		N	4030	795			795	1.00	3664			3664	0.217			44	65	0.453	47
C2,C3	4	3.30	G	1	20			2085		20	255	275	0.93	1949			1949	0.141	0.141		29	29	0.664	49
D1,D2	5	3.30	H	1	15		N	1945	35	74		109	0.32	1884			1884	0.058	0.058		12	12	0.664	22
D2,D3	5	3.30	H	1	25			2085		101	18	119	0.15	2066			2066	0.058			12	12	0.661	24
D3	5	3.30	H	1	20			2085			112	112	1.00	1940			1940	0.058			12	12	0.663	23
B1	1,2	3.50	B	1	15		N	1965	165			165	1.00	1786			1786	0.092			19	39	0.323	27
B2	1,2	3.50	B	3				6315		1200		1200	0.00	6315			6315	0.190	0.190		39	39	0.664	64
B3	1	3.50	A	1	20			2105		90		90	1.00	1958			1958	0.046			9	9	0.664	19

NOTE : 'O' - OPPOSING TRAFFIC

N - NEAR SIDE LANE

SG - STEADY GREEN

FG - FLASHING GREEN

PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s

QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS

TRAFFIC SIGNAL CALCULATION

J14 - Po Shek Wu Road / Choi Yuen Road

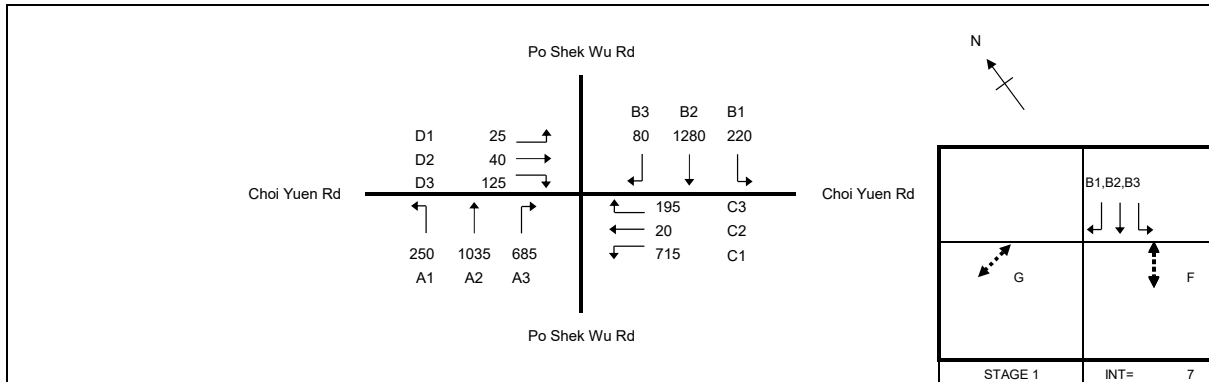
J14_2023_EXT_PM

PROJECT NO: 287082

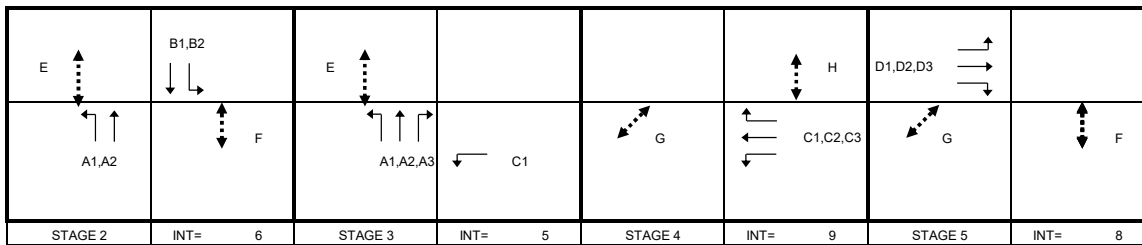
Junction No. J14

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N = 5
No. of stage using for calculation	N = 4
Cycle time	C = 135 sec
Sum(y)	Y = 0.521
Loss time	L = 24 sec
Total Flow	= 4670 pcu
Co	= (1.5*L+5)/(1-Y) = 85.5 sec
Cm	= L/(1-Y) = 50.1 sec
Yult	= 0.720
R.C.ult	= (Yult-Y)*100% = 38.3 %
Cp	= 0.9*L/(0.9-Y) = 57.0 sec
Ymax	= 1-L/C = 0.822
R.C.(C)	= (0.9*Ymax-Y)*100% = 42 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
E	15	13	8	15	52	8	15	OK
F	14	6	1	16	45	1	16	OK
G	5.5	6	1	6	53	1	6	OK
H	11	6	10	12	10	10	12	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1,A2	2,3	3.50	D	1	15		N	1965	250	430	680	0.37	1895		474	2369	0.287		24	61	71	0.547	73	
A2	2,3	3.50	D	1				2105		605	605	0.00	2105			2105	0.287			61	71	0.548	65	
A3	3	3.50	D	2	20			4210		685	685	1.00	3916			3916	0.175	0.175		37	37	0.633	56	
C1	3,4	3.30	F,G	2	15		N	4030	715		715	1.00	3664			3664	0.195			42	65	0.407	42	
C2,C3	4	3.30	G	1	20			2085		20	215	0.91	1952			1952	0.110	0.110		23	23	0.633	40	
D1,D2	5	3.30	H	1	15		N	1945	25	36	61	0.41	1868			1868	0.033	0.033		7	7	0.627	13	
D2,D3	5	3.30	H	1	25			2085		4	65	0.94	1974			1974	0.033			7	7	0.632	14	
D3	5	3.30	H	1	20			2085		64	64	1.00	1940			1940	0.033			7	7	0.633	14	
B1	1,2	3.50	B	1	15		N	1965	220		220	1.00	1786			1786	0.123			26	43	0.385	34	
B2	1,2	3.50	B	3				6315		1280	1280	0.00	6315			6315	0.203	0.203		43	43	0.633	65	
B3	1	3.50	A	1	20			2105		80	80	1.00	1958			1958	0.041			9	9	0.633	17	

NOTE : 'O' - OPPOSING TRAFFIC

N - NEAR SIDE LANE

SG - STEADY GREEN

FG - FLASHING GREEN

PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s

QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS

TRAFFIC SIGNAL CALCULATION

J14 - Po Shek Wu Road / Choi Yuen Road

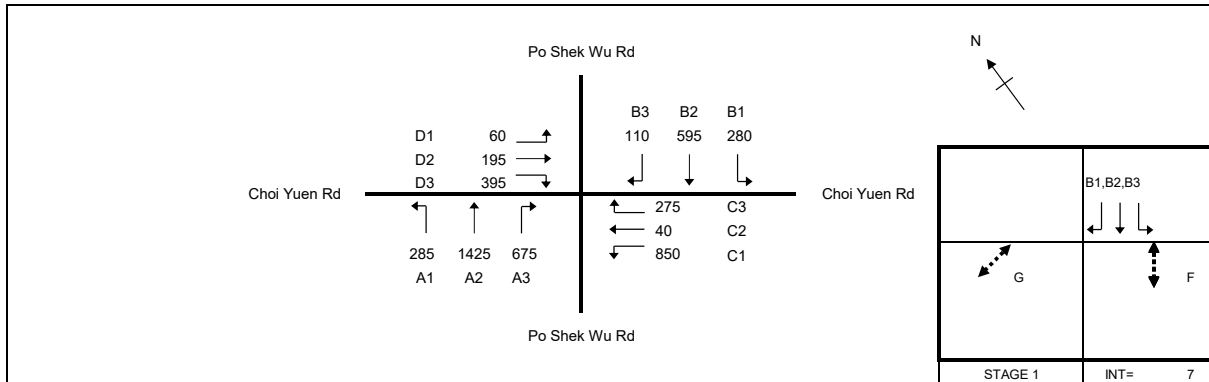
J14_2031_REF_AM

PROJECT NO: 287082

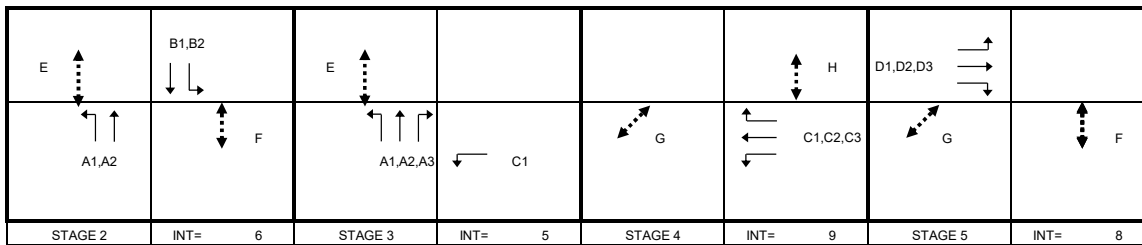
Junction No. J14

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N = 5
No. of stage using for calculation	N = 4
Cycle time	C = 135 sec
Sum(y)	Y = 0.594
Loss time	L = 24 sec
Total Flow	= 5185 pcu
Co	= (1.5*L+5)/(1-Y) = 100.9 sec
Cm	= L/(1-Y) = 59.1 sec
Yult	= 0.720
R.C.ult	= (Yult-Y)*100% = 21.3 %
Cp	= 0.9*L/(0.9-Y) = 70.5 sec
Ymax	= 1-L/C = 0.822
R.C.(C)	= (0.9*Ymax-Y)*100% = 25 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
E	15	13	8	15	29	8	15	OK
F	14	6	1	16	44	1	16	OK
G	5.5	6	1	6	76	1	6	OK
H	11	6	10	12	17	10	12	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1,A2	2,3	3.60	D	1	15		N	1975	285	374		659	0.43	1893		757	2650	0.249		24	46	48	0.693	95
A2	2,3	3.60	D	2				4230		1051		1051	0.00	4230			4230	0.248			46	48	0.692	76
A3	3	3.60	D	2	20			4230			675	675	1.00	3935			3935	0.172	0.172		32	32	0.722	58
C1	3,4	3.30	F,G	2	15		N	4030	850			850	1.00	3664			3664	0.232			43	66	0.473	49
C2,C3	4	3.30	G	1	20			2085		40	275	315	0.87	1957			1957	0.161	0.161		30	30	0.722	55
D1,D2	5	3.30	H	1	15		N	1945	60	151		211	0.28	1891			1891	0.112	0.112		21	21	0.720	40
D2,D3	5	3.30	H	1	25			2085		44	178	222	0.80	1989			1989	0.112			21	21	0.720	42
D3	5	3.30	H	1	20			2085			217	217	1.00	1940			1940	0.112			21	21	0.722	41
B1	1,2	3.40	B	1	10		N	1955	254			254	1.00	1700			1700	0.149	0.149		28	28	0.722	45
B1,B2	1,2	3.40	B	1	10			2095	26	283		309	0.08	2069			2069	0.149			28	28	0.722	55
B2	1,2	3.40	B	1				2095		312		312	0.00	2095			2095	0.149			28	28	0.720	56
B3	1	3.40	A	1	20			2095			110	110	1.00	1949			1949	0.056			11	11	0.722	23

NOTE : 'O' - OPPOSING TRAFFIC

N - NEAR SIDE LANE

SG - STEADY GREEN

FG - FLASHING GREEN

PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s

QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS

TRAFFIC SIGNAL CALCULATION

J14 - Po Shek Wu Road / Choi Yuen Road

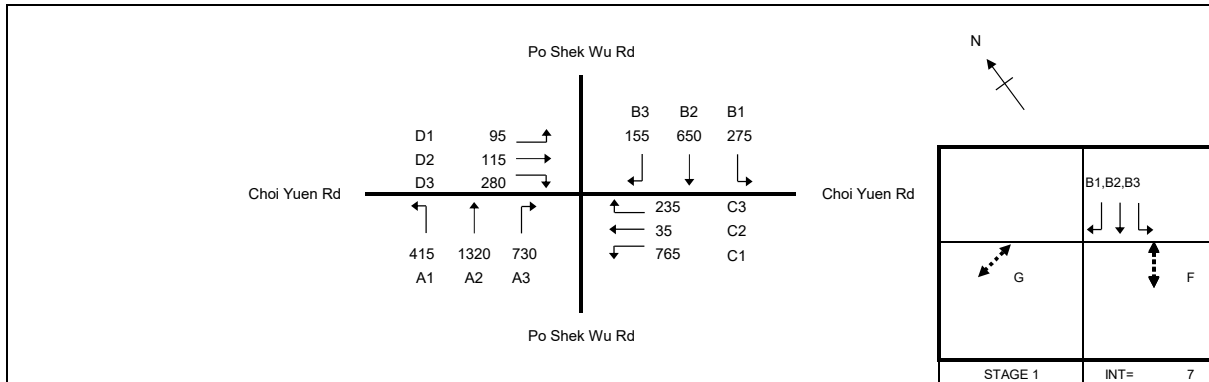
J14_2031_REF_PM

PROJECT NO: 287082

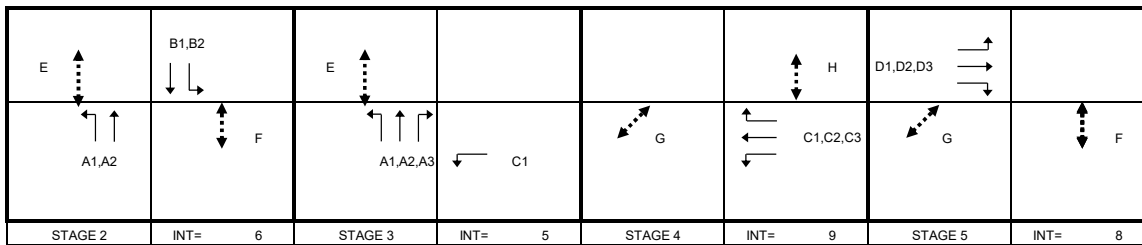
Junction No. J14

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N = 5
No. of stage using for calculation	N = 4
Cycle time	C = 135 sec
Sum(y)	Y = 0.566
Loss time	L = 24 sec
Total Flow	= 5070 pcu
Co	= (1.5*L+5)/(1-Y) = 94.5 sec
Cm	= L/(1-Y) = 55.3 sec
Yult	= 0.720
R.C.ult	= (Yult-Y)*100% = 27.2 %
Cp	= 0.9*L/(0.9-Y) = 64.7 sec
Ymax	= 1-L/C = 0.822
R.C.(C)	= (0.9*Ymax-Y)*100% = 31 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
E	15	13	8	15	32	8	15	OK
F	14	6	1	16	43	1	16	OK
G	5.5	6	1	6	73	1	6	OK
H	11	6	10	12	14	10	12	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1,A2	2,3	3.60	D	1	15		N	1975	415	245		660	0.63	1858		743	2601	0.254		24	50	51	0.676	93
A2	2,3	3.60	D	2				4230		1075		1075	0.00	4230			4230	0.254			50	51	0.677	76
A3	3	3.60	D	2	20			4230			730	730	1.00	3935			3935	0.186	0.186		36	36	0.688	60
C1	3,4	3.30	F,G	2	15		N	4030	765			765	1.00	3664			3664	0.209			41	67	0.418	43
C2,C3	4	3.30	G	1	20			2085		35	235	270	0.87	1957			1957	0.138	0.138		27	27	0.688	49
D1,D2	5	3.30	H	1	15		N	1945	95	60		155	0.61	1833			1833	0.085	0.085		17	17	0.684	31
D2,D3	5	3.30	H	1	25			2085		55	115	170	0.68	2004			2004	0.085			17	17	0.687	34
D3	5	3.30	H	1	20			2085			165	165	1.00	1940			1940	0.085			17	17	0.688	33
B1	1,2	3.40	B	1	10		N	1955	267			267	1.00	1700			1700	0.157	0.158		31	31	0.686	46
B1,B2	1,2	3.40	B	1	10			2095	8	320		328	0.02	2087			2087	0.157			31	31	0.687	57
B2	1,2	3.40	B	1				2095		330		330	0.00	2095			2095	0.158			31	31	0.688	57
B3	1	3.40	A	1	20			2095			155	155	1.00	1949			1949	0.080			16	16	0.688	31

NOTE : 'O' - OPPOSING TRAFFIC

N - NEAR SIDE LANE

SG - STEADY GREEN

FG - FLASHING GREEN

PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s

QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS

TRAFFIC SIGNAL CALCULATION

J14 - Po Shek Wu Road / Choi Yuen Road

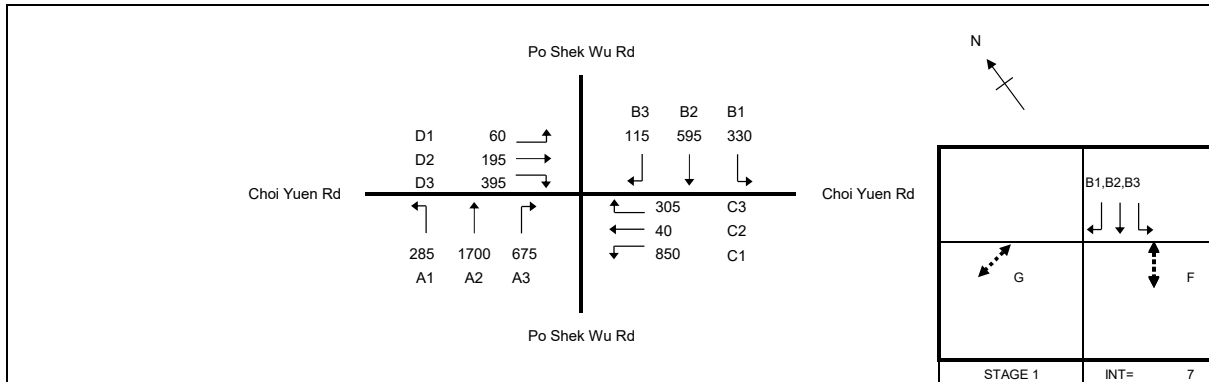
J14_2031_DES_AM

PROJECT NO: 287082

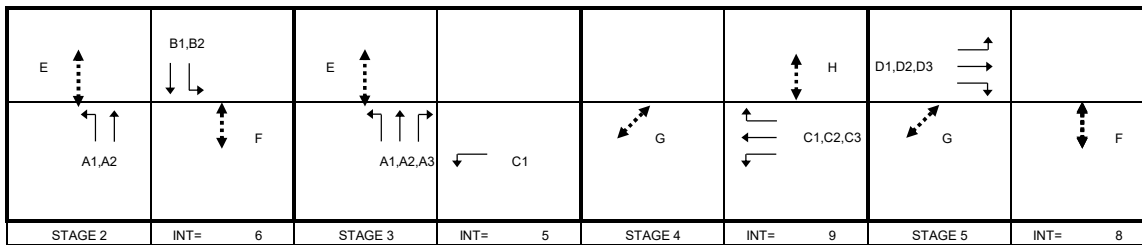
Junction No. J14

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N = 5
No. of stage using for calculation	N = 4
Cycle time	C = 135 sec
Sum(y)	Y = 0.636
Loss time	L = 25 sec
Total Flow	= 5545 pcu
Co	= (1.5*L+5)/(1-Y) = 116.7 sec
Cm	= L/(1-Y) = 68.6 sec
Yult	= 0.713
R.C.ult	= (Yult-Y)*100% = 12.1 %
Cp	= 0.9*L/(0.9-Y) = 85.1 sec
Ymax	= 1-L/C = 0.815
R.C.(C)	= (0.9*Ymax-Y)*100% = 15 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
E	15	13	8	15	33	8	15	OK
F	14	6	1	16	49	1	16	OK
G	5.5	6	1	6	72	1	6	OK
H	11	6	10	12	14	10	12	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1,A2	2,3	3.60	D	1	15		N	1975	285	484		769	0.37	1904		762	2666	0.288	0.288	25	50	50	0.780	109
A2	2,3	3.60	D	2				4230		1216		1216	0.00	4230			4230	0.287			50	50	0.778	86
A3	3	3.60	D	2	20			4230			675	675	1.00	3935			3935	0.172			30	30	0.780	59
C1	3,4	3.30	F,G	2	15		N	4030	850			850	1.00	3664			3664	0.232			40	62	0.503	52
C2,C3	4	3.30	G	1	20			2085		40	305	345	0.88	1955			1955	0.176	0.176		31	31	0.780	60
D1,D2	5	3.30	H	1	15		N	1945	60	151		211	0.28	1891			1891	0.112	0.112		19	19	0.778	41
D2,D3	5	3.30	H	1	25			2085		44	178	222	0.80	1989			1989	0.112			19	19	0.778	43
D3	5	3.30	H	1	20			2085			217	217	1.00	1940			1940	0.112			19	19	0.780	42
B1	1,2	3.40	B	1	10		N	1955	270			270	1.00	1700			1700	0.159			27	31	0.682	47
B1,B2	1,2	3.40	B	1	10			2095	60	263		323	0.19	2038			2038	0.158			27	31	0.681	56
B2	1,2	3.40	B	1				2095		332		332	0.00	2095			2095	0.158			27	31	0.681	57
B3	1	3.40	A	1	20			2095			115	115	1.00	1949			1949	0.059	0.059		10	10	0.780	24

NOTE : 'O' - OPPOSING TRAFFIC

N - NEAR SIDE LANE

SG - STEADY GREEN

FG - FLASHING GREEN

PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s

QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS

TRAFFIC SIGNAL CALCULATION

J14 - Po Shek Wu Road / Choi Yuen Road

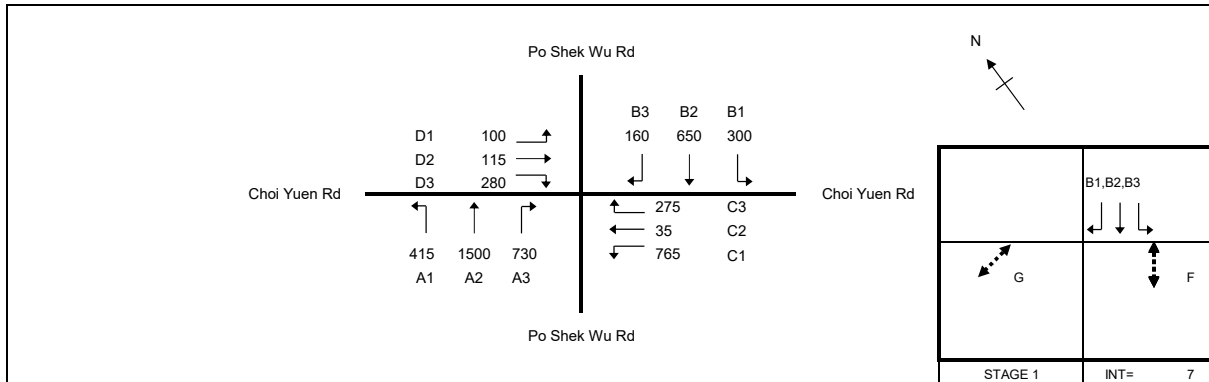
J14_2031_DES_PM

PROJECT NO: 287082

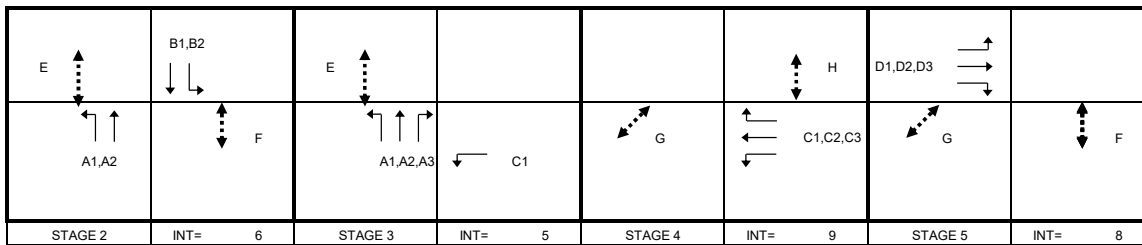
Junction No. J14

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N = 5
No. of stage using for calculation	N = 4
Cycle time	C = 135 sec
Sum(y)	Y = 0.606
Loss time	L = 25 sec
Total Flow	= 5325 pcu
Co	= (1.5*L+5)/(1-Y) = 107.9 sec
Cm	= L/(1-Y) = 63.5 sec
Yult	= 0.713
R.C.ult	= (Yult-Y)*100% = 17.5 %
Cp	= 0.9*L/(0.9-Y) = 76.6 sec
Ymax	= 1-L/C = 0.815
R.C.(C)	= (0.9*Ymax-Y)*100% = 21 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
E	15	13	8	15	34	8	15	OK
F	14	6	1	16	47	1	16	OK
G	5.5	6	1	6	71	1	6	OK
H	11	6	10	12	12	10	12	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1,A2	2,3	3.60	D	1	15		N	1975	415	317		732	0.57	1869		748	2617	0.280	0.280	25	51	51	0.744	103
A2	2,3	3.60	D	2				4230		1183		1183	0.00	4230			4230	0.280			51	51	0.744	83
A3	3	3.60	D	2	20			4230			730	730	1.00	3935			3935	0.186			34	34	0.744	62
C1	3,4	3.30	F,G	2	15		N	4030	765			765	1.00	3664			3664	0.209			38	64	0.438	45
C2,C3	4	3.30	G	1	20			2085		35	275	310	0.89	1955			1955	0.159	0.159		29	29	0.744	55
D1,D2	5	3.30	H	1	15		N	1945	100	57		157	0.64	1829			1829	0.086	0.086		16	16	0.744	31
D2,D3	5	3.30	H	1	25			2085		58	114	172	0.66	2005			2005	0.086			16	16	0.743	34
D3	5	3.30	H	1	20			2085			166	166	1.00	1940			1940	0.086			16	16	0.742	33
B1	1,2	3.40	B	1	10		N	1955	275			275	1.00	1700			1700	0.162			29	33	0.662	47
B1,B2	1,2	3.40	B	1	10			2095	25	310		335	0.07	2072			2072	0.162			29	33	0.662	57
B2	1,2	3.40	B	1				2095			340	340	0.00	2095			2095	0.162			29	33	0.664	58
B3	1	3.40	A	1	20			2095			160	160	1.00	1949			1949	0.082	0.082		15	15	0.744	32

NOTE : 'O' - OPPOSING TRAFFIC

N - NEAR SIDE LANE

SG - STEADY GREEN

FG - FLASHING GREEN

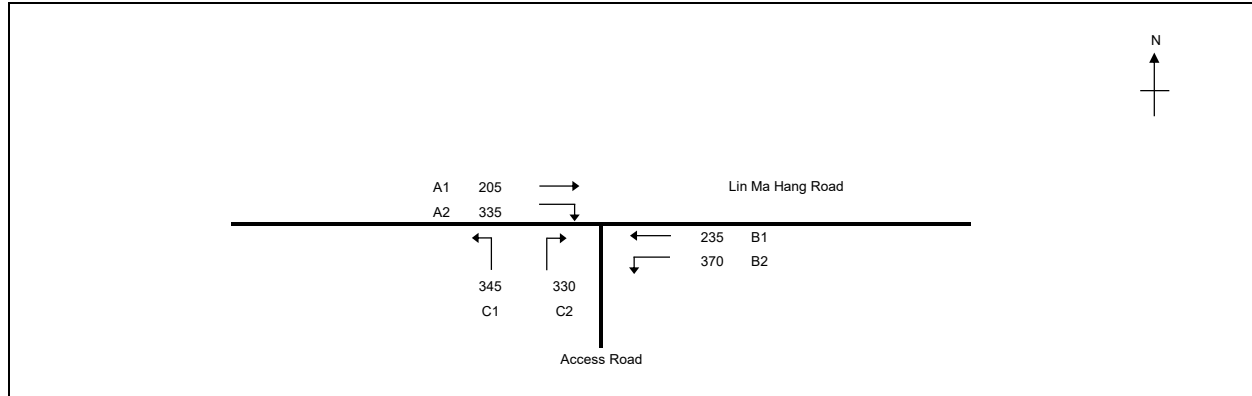
PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s

QUEUING LENGTH = AVERAGE QUEUE * 6m

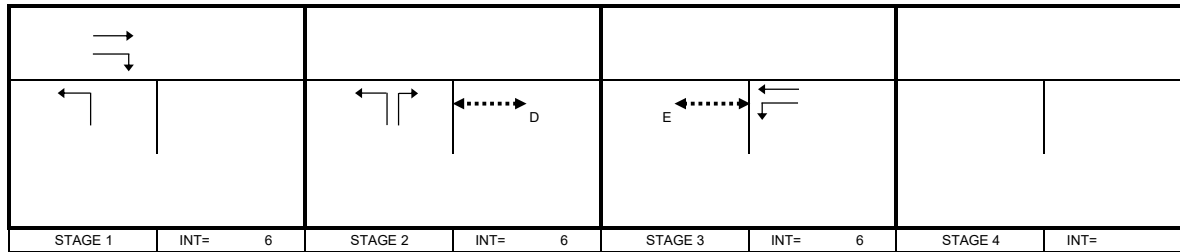
PROJECT NO: Junction No. J15
 DATE: 25-Sep-24 FILENAME:

J15 - Ling Ma Hang Rd / Access Rd

J15_2031_DES_AM



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	3
Cycle time	C =	90 sec
Sum(y)	Y =	0.598
Loss time	L =	15 sec
Total Flow	=	1820 pcu
Co	= (1.5*L+5)/(1-Y)	= 68.4 sec
Cm	= L/(1-Y)	= 37.3 sec
Yult	=	0.788
R.C.ult	= (Yult-Y)/Y*100%	= 31.7 %
Cp	= 0.9*L/(0.9-Y)	= 44.7 sec
Ymax	= 1-L/C	= 0.833
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	= 25 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
D	8.5	6	6	9	12	6	9	OK
E	7.5	6	2	8	24	2	8	OK

STAGE 1 INT= 6 STAGE 2 INT= 6 STAGE 3 INT= 6 STAGE 4 INT=

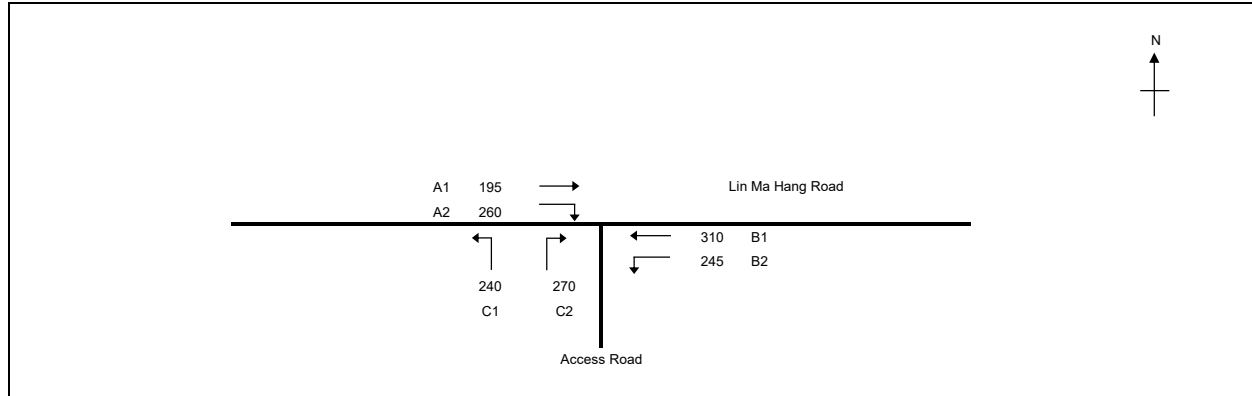
Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1,A2	1	3.50	A	1	15			2105	205	335	540	0.62	1982		809	2791	0.193	0.193	15	24	24	0.718	59	
C1	1.2	3.50	C	1	10		N	1965	345		345	1.00	1709			1709	0.202			25	51	0.357	22	
C2	2	3.50	C	1	15			2105		330	330	1.00	1914			1914	0.172	0.172		22	22	0.718	38	
B1,B2	3	3.50	B	1	15		N	1965	370	235	605	0.61	1852		756	2608	0.232	0.232		29	29	0.718	61	

NOTE: 'O' - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

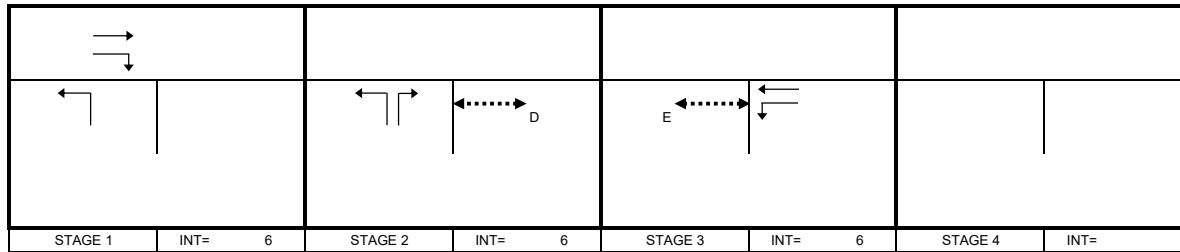
PROJECT NO: Junction No. J15
 DATE: 25-Sep-24 FILENAME:

J15 - Ling Ma Hang Rd / Access Rd

J15_2031_DES_PM



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	3
Cycle time	C =	90 sec
Sum(y)	Y =	0.513
Loss time	L =	15 sec
Total Flow	=	1520 pcu
Co	= (1.5*L+5)/(1-Y)	= 56.4 sec
Cm	= L/(1-Y)	= 30.8 sec
Yult	=	0.788
R.C.ult	= (Yult-Y)/Y*100%	= 53.6 %
Cp	= 0.9*L/(0.9-Y)	= 34.9 sec
Ymax	= 1-L/C	= 0.833
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	= 46 %

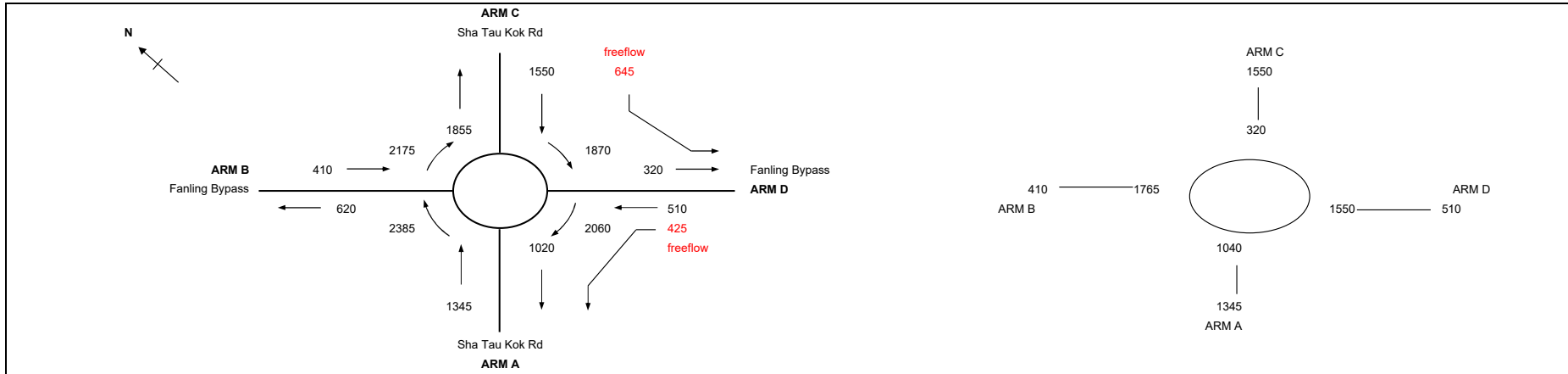


Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
D	8.5	6	6	9	11	6	9	OK
E	7.5	6	2	8	26	2	8	OK

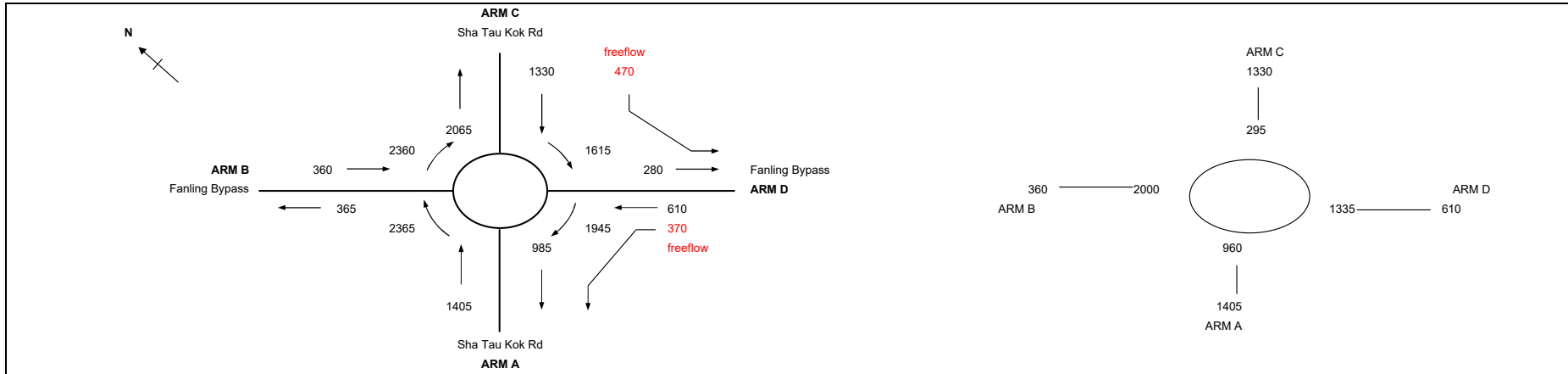
STAGE 1 INT= 6 STAGE 2 INT= 6 STAGE 3 INT= 6 STAGE 4 INT=

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1,A2	1	3.50	A	1	15			2105	195	260	455	0.57	1991		813	2804	0.162	0.162	15	24	24	0.615	50	
C1	1,2	3.50	C	1	10		N	1965	240		240	1.00	1709			1709	0.140			21	49	0.256	16	
C2	2	3.50	C	1	15			2105		270	270	1.00	1914			1914	0.141	0.141		21	21	0.615	31	
B1,B2	3	3.50	B	1	15		N	1965	245	310	555	0.44	1882		768	2650	0.209	0.209		31	31	0.615	55	

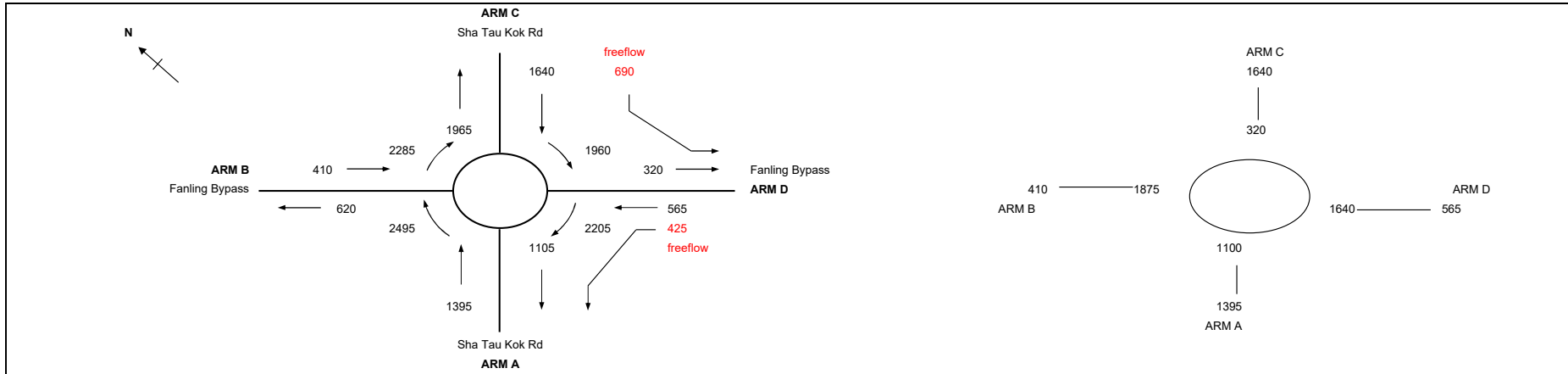
NOTE: 'O' - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m



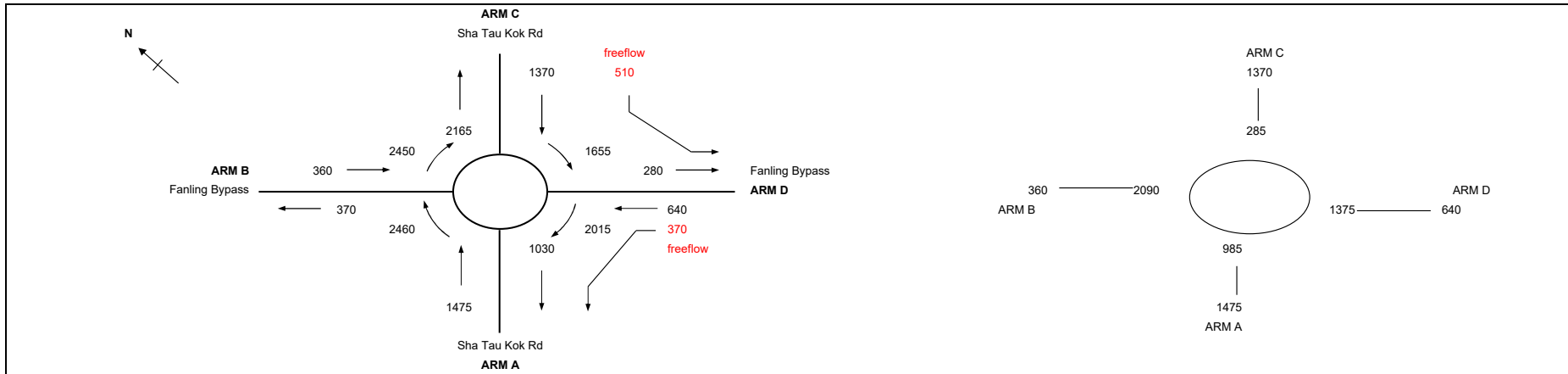
ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	4.50	7.30	4.50
E = Entry width (m)	10.00	7.00	10.00	7.00
L = Effective length of flare (m)	30	10	15	25
R = Entry radius (m)	50	20	20	10
D = Inscribed circle diameter (m)	75	75	75	75
A = Entry angle (degree)	10	25	20	25
Q = Entry flow (pcu/h)	1345	410	1550	510
Qc = Circulating flow across entry (pcu/h)	1040	1765	320	1550
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.14	0.40	0.29	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.10	1.02	1.03	0.97
X2 = V + ((E-V)/(1+2S))	9.40	5.89	9.01	6.39
M = EXP((D-60)/10)	4.48	4.48	4.48	4.48
F = 303*X2	2847	1784	2731	1937
Td = 1+(0.5/(1+M))	1.09	1.09	1.09	1.09
Fc = 0.21*Td(1+0.2*X2)	0.66	0.50	0.64	0.52
Qe = K(F-Fc*Qc)	2374	919	2613	1092
DFC = Design flow/Capacity = Q/Qe	0.57	0.45	0.59	0.47
Total In Sum = 3815 PCU				
DFC of Critical Approach = 0.59				



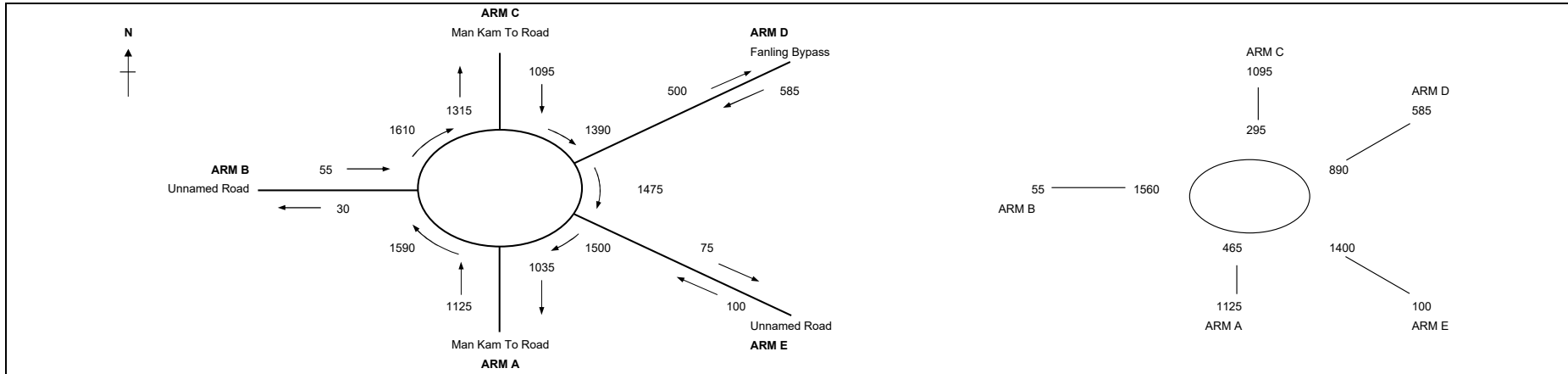
ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	4.50	7.30	4.50
E = Entry width (m)	10.00	7.00	10.00	7.00
L = Effective length of flare (m)	30	10	15	25
R = Entry radius (m)	50	20	20	10
D = Inscribed circle diameter (m)	75	75	75	75
A = Entry angle (degree)	10	25	20	25
Q = Entry flow (pcu/h)	1405	360	1330	610
Qc = Circulating flow across entry (pcu/h)	960	2000	295	1335
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.14	0.40	0.29	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.10	1.02	1.03	0.97
X2 = V + ((E-V)/(1+2S))	9.40	5.89	9.01	6.39
M = EXP((D-60)/10)	4.48	4.48	4.48	4.48
F = 303*X2	2847	1784	2731	1937
Td = 1+(0.5/(1+M))	1.09	1.09	1.09	1.09
Fc = 0.21*Td(1+0.2*X2)	0.66	0.50	0.64	0.52
Qe = K(F-Fc*Qc)	2432	800	2630	1201
DFC = Design flow/Capacity = Q/Qe	0.58	0.45	0.51	0.51
Total In Sum = 3705 PCU				
DFC of Critical Approach = 0.58				



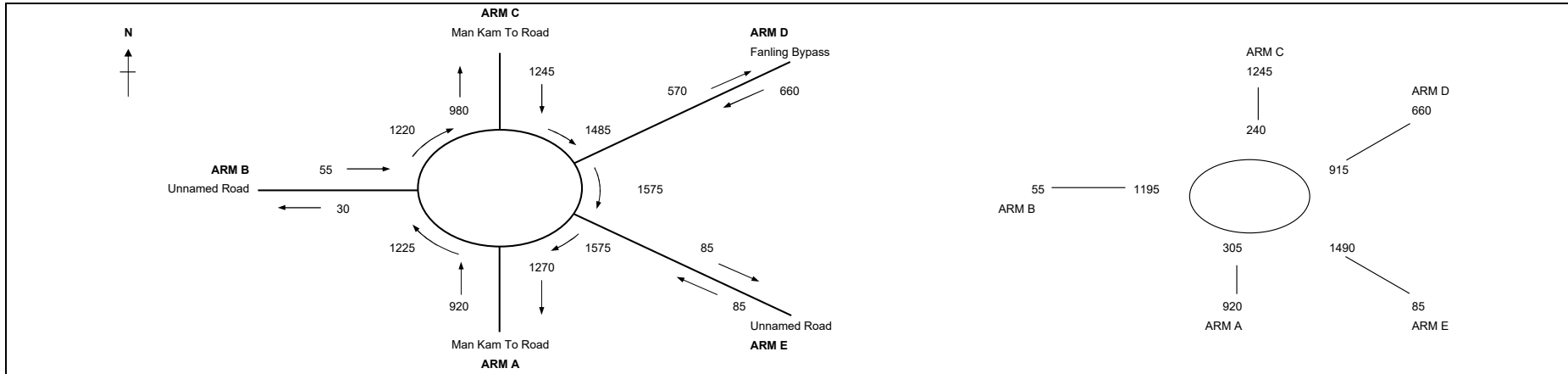
ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	4.50	7.30	4.50
E = Entry width (m)	10.00	7.00	10.00	7.00
L = Effective length of flare (m)	30	10	15	25
R = Entry radius (m)	50	20	20	10
D = Inscribed circle diameter (m)	75	75	75	75
A = Entry angle (degree)	10	25	20	25
Q = Entry flow (pcu/h)	1395	410	1640	565
Qc = Circulating flow across entry (pcu/h)	1100	1875	320	1640
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.14	0.40	0.29	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.10	1.02	1.03	0.97
X2 = V + ((E-V)/(1+2S))	9.40	5.89	9.01	6.39
M = EXP((D-60)/10)	4.48	4.48	4.48	4.48
F = 303*X2	2847	1784	2731	1937
Td = 1+(0.5/(1+M))	1.09	1.09	1.09	1.09
Fc = 0.21*Td(1+0.2*X2)	0.66	0.50	0.64	0.52
Qe = K(F-Fc*Qc)	2331	863	2613	1047
DFC = Design flow/Capacity = Q/Qe	0.60	0.47	0.63	0.54
Total In Sum = 4010 PCU				
DFC of Critical Approach = 0.63				



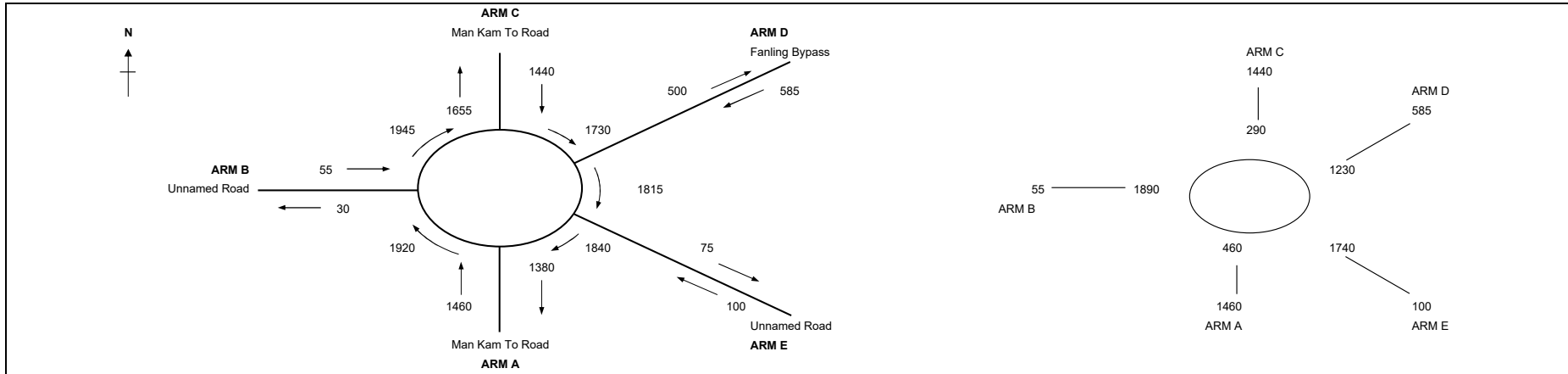
ARM	A	B	C	D		
INPUT PARAMETERS:						
V = Approach half width (m)	7.30	4.50	7.30	4.50		
E = Entry width (m)	10.00	7.00	10.00	7.00		
L = Effective length of flare (m)	30	10	15	25		
R = Entry radius (m)	50	20	20	10		
D = Inscribed circle diameter (m)	75	75	75	75		
A = Entry angle (degree)	10	25	20	25		
Q = Entry flow (pcu/h)	1475	360	1370	640		
Qc = Circulating flow across entry (pcu/h)	985	2090	285	1375		
OUTPUT PARAMETERS:						
S = Sharpness of flare = $1.6(E-V)/L$	0.14	0.40	0.29	0.16		
K = $1-0.00347(A-30)-0.978(1/R-0.05)$	1.10	1.02	1.03	0.97		
X2 = $V + ((E-V)/(1+2S))$	9.40	5.89	9.01	6.39		
M = $EXP((D-60)/10)$	4.48	4.48	4.48	4.48		
F = $303 \times X2$	2847	1784	2731	1937		
Td = $1+(0.5/(1+M))$	1.09	1.09	1.09	1.09		
Fc = $0.21 \times Td(1+0.2 \times X2)$	0.66	0.50	0.64	0.52		
Qe = $K(F-Fc \times Qc)$	2414	754	2636	1181	Total In Sum =	3845 PCU
DFC = Design flow/Capacity = Q/Qe	0.61	0.48	0.52	0.54	DFC of Critical Approach =	0.61



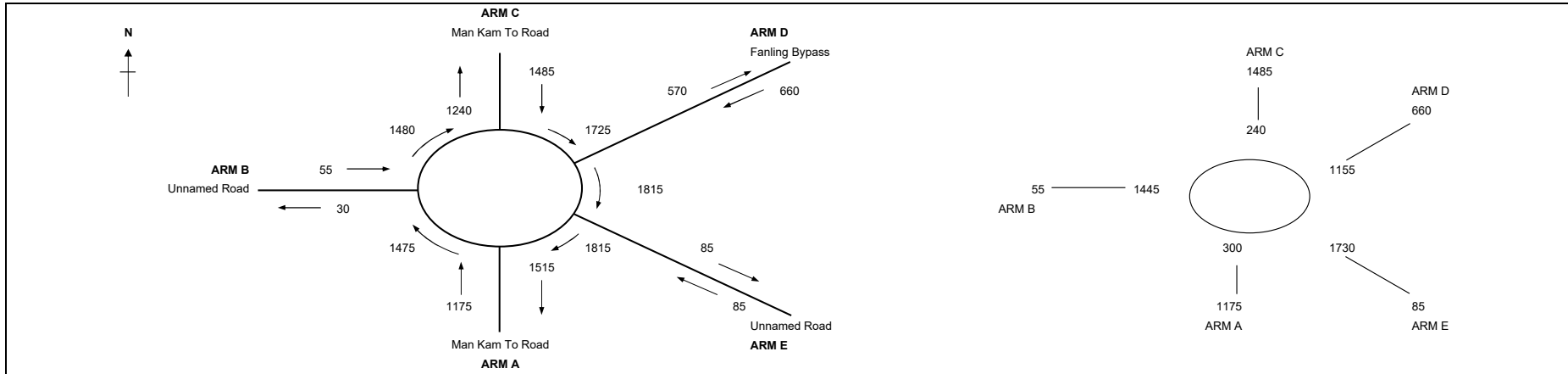
ARM	A	B	C	D	E		
INPUT PARAMETERS:							
V = Approach half width (m)	7.00	3.30	5.00	4.50	3.00		
E = Entry width (m)	10.00	5.00	8.00	8.00	5.00		
L = Effective length of flare (m)	5	20	10	10	20		
R = Entry radius (m)	20	20	50	40	15		
D = Inscribed circle diameter (m)	80	80	80	80	80		
A = Entry angle (degree)	35	20	15	25	35		
Q = Entry flow (pcu/h)	1125	55	1095	585	100		
Qc = Circulating flow across entry (pcu/h)	465	1560	295	890	1400		
OUTPUT PARAMETERS:							
S = Sharpness of flare = 1.6(E-V)/L	0.96	0.14	0.48	0.56	0.16		
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.98	1.03	1.08	1.04	0.97		
X2 = V + ((E-V)/(1+2S))	8.03	4.64	6.53	6.15	4.52		
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39	7.39		
F = 303*X2	2432	1405	1979	1864	1368		
Td = 1+(0.5/(1+M))	1.06	1.06	1.06	1.06	1.06		
Fc = 0.21*Td(1+0.2*X2)	0.58	0.43	0.51	0.50	0.42		
Qe = K(F-Fc*Qc)	2125	761	1976	1482	749	Total In Sum =	2275 PCU
DFC = Design flow/Capacity = Q/Qe	0.53	0.07	0.55	0.39	0.13	DFC of Critical Approach =	0.55



ARM	A	B	C	D	E		
INPUT PARAMETERS:							
V = Approach half width (m)	7.00	3.30	5.00	4.50	3.00		
E = Entry width (m)	10.00	5.00	8.00	8.00	5.00		
L = Effective length of flare (m)	5	20	10	10	20		
R = Entry radius (m)	20	20	50	40	15		
D = Inscribed circle diameter (m)	80	80	80	80	80		
A = Entry angle (degree)	35	20	15	25	35		
Q = Entry flow (pcu/h)	920	55	1245	660	85		
Qc = Circulating flow across entry (pcu/h)	305	1195	240	915	1490		
OUTPUT PARAMETERS:							
S = Sharpness of flare = 1.6(E-V)/L	0.96	0.14	0.48	0.56	0.16		
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.98	1.03	1.08	1.04	0.97		
X2 = V + ((E-V)/(1+2S))	8.03	4.64	6.53	6.15	4.52		
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39	7.39		
F = 303*X2	2432	1405	1979	1864	1368		
Td = 1+(0.5/(1+M))	1.06	1.06	1.06	1.06	1.06		
Fc = 0.21*Td(1+0.2*X2)	0.58	0.43	0.51	0.50	0.42		
Qe = K(F-Fc*Qc)	2216	923	2007	1469	712	Total In Sum =	2220 PCU
DFC = Design flow/Capacity = Q/Qe	0.42	0.06	0.62	0.45	0.12	DFC of Critical Approach =	0.62



ARM	A	B	C	D	E		
INPUT PARAMETERS:							
V =	Approach half width (m)	7.00	3.30	5.00	4.50	3.00	
E =	Entry width (m)	10.00	5.00	8.00	8.00	5.00	
L =	Effective length of flare (m)	5	20	10	10	20	
R =	Entry radius (m)	20	20	50	40	15	
D =	Inscribed circle diameter (m)	80	80	80	80	80	
A =	Entry angle (degree)	35	20	15	25	35	
Q =	Entry flow (pcu/h)	1460	55	1440	585	100	
Qc =	Circulating flow across entry (pcu/h)	460	1890	290	1230	1740	
OUTPUT PARAMETERS:							
S =	Sharpness of flare = 1.6(E-V)/L	0.96	0.14	0.48	0.56	0.16	
K =	1-0.00347(A-30)-0.978(1/R-0.05)	0.98	1.03	1.08	1.04	0.97	
X2 =	V + ((E-V)/(1+2S))	8.03	4.64	6.53	6.15	4.52	
M =	EXP((D-60)/10)	7.39	7.39	7.39	7.39	7.39	
F =	303*X2	2432	1405	1979	1864	1368	
Td =	1+(0.5/(1+M))	1.06	1.06	1.06	1.06	1.06	
Fc =	0.21*Td(1+0.2*X2)	0.58	0.43	0.51	0.50	0.42	
Qe =	K(F-Fc*Qc)	2128	615	1979	1306	610	
DFC =	Design flow/Capacity = Q/Qe	0.69	0.09	0.73	0.45	0.16	
							Total In Sum = 2955 PCU
							DFC of Critical Approach = 0.73



ARM	A	B	C	D	E		
INPUT PARAMETERS:							
V = Approach half width (m)	7.00	3.30	5.00	4.50	3.00		
E = Entry width (m)	10.00	5.00	8.00	8.00	5.00		
L = Effective length of flare (m)	5	20	10	10	20		
R = Entry radius (m)	20	20	50	40	15		
D = Inscribed circle diameter (m)	80	80	80	80	80		
A = Entry angle (degree)	35	20	15	25	35		
Q = Entry flow (pcu/h)	1175	55	1485	660	85		
Qc = Circulating flow across entry (pcu/h)	300	1445	240	1155	1730		
OUTPUT PARAMETERS:							
S = Sharpness of flare = 1.6(E-V)/L	0.96	0.14	0.48	0.56	0.16		
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.98	1.03	1.08	1.04	0.97		
X2 = V + ((E-V)/(1+2S))	8.03	4.64	6.53	6.15	4.52		
M = EXP((D-60)/10)	7.39	7.39	7.39	7.39	7.39		
F = 303*X2	2432	1405	1979	1864	1368		
Td = 1+(0.5/(1+M))	1.06	1.06	1.06	1.06	1.06		
Fc = 0.21*Td(1+0.2*X2)	0.58	0.43	0.51	0.50	0.42		
Qe = K(F-Fc*Qc)	2219	812	2007	1345	614	Total In Sum =	2715 PCU
DFC = Design flow/Capacity = Q/Qe	0.53	0.07	0.74	0.49	0.14	DFC of Critical Approach =	0.74

J18 - Jockey Club Road / Road L4

J18_2031_REF_AM

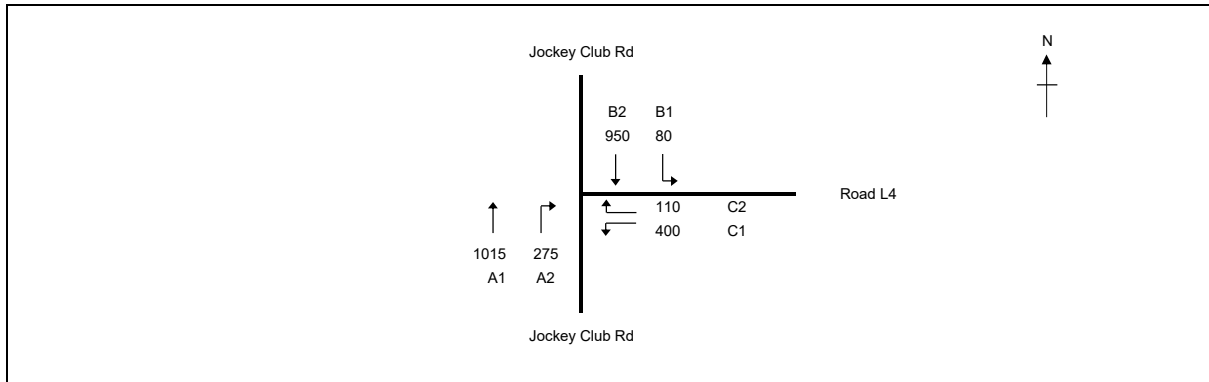
PROJECT NO:

Junction No.

J18

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N = 4
No. of stage using for calculation	N = 2
Cycle time	C = 120 sec
Sum(y)	Y = 0.478
Loss time	L = 28 sec
Total Flow	= 2830 pcu
Co	= (1.5*L+5)/(1-Y) = 90.0 sec
Cm	= L/(1-Y) = 53.6 sec
Yult	= 0.690
R.C.ult	= (Yult-Y)/Y*100% = 44.4 %
Cp	= 0.9*L/(0.9-Y) = 59.7 sec
Ymax	= 1-L/C = 0.767
R.C.(C)	= (0.9*Ymax-Y)/Y*100% = 44 %

	B1,B2 ↓ ↓						
A1,A2 ↑ ↑		A1,A2 ↑ ↑			C1,C2 ← →		D ↑ ↓
STAGE 1	INT=	STAGE 2	INT= 6	STAGE 3	INT= 6	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
D	9	8	2	8	8	2	8	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1	1,2	3.50	C	1			N	1965		671		671	0.00	1965			1965	0.341	0.341	10	66	66	0.623	61
A1,A2	1,2	3.50	C	1	20	O	N	2105		344	275	619	0.44	1815			1815	0.341		10	66	66	0.623	56
B1,B2	1	3.50	B	1	20		N	1965	80	415		495	0.16	1941			1941	0.255		10	49	49	0.623	59
B2	1	3.50	B	1			N	2105		535		535	0.00	2105			2105	0.254		10	49	49	0.621	63
C1	3	3.50	D	1	15		N	1965	243			243	1.00	1786			1786	0.136	0.136	10	26	26	0.622	38
C1,C2	3	3.50	D	1	20		N	2105	157		110	267	1.00	1958			1958	0.136		10	26	26	0.623	42
	4		PED																	18				

NOTE : 'O' - OPPOSING TRAFFIC 'N' - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J18 - Jockey Club Road / Road L4

J18_2031_REF_PM

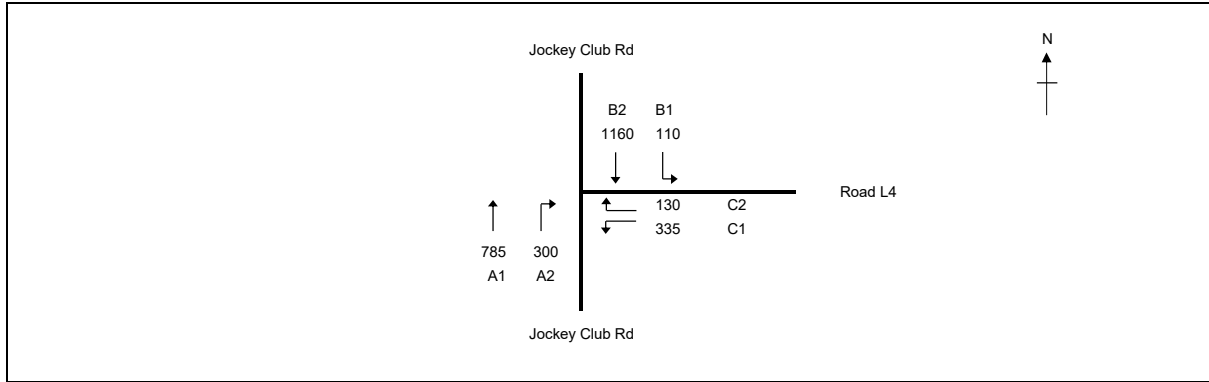
PROJECT NO:

Junction No.

J18

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N =	4
No. of stage using for calculation	N =	2
Cycle time	C =	120 sec
Sum(y)	Y =	0.438
Loss time	L =	33 sec
Total Flow	=	2820 pcu
Co	= (1.5*L+5)/(1-Y)	= 97.0 sec
Cm	= L/(1-Y)	= 58.8 sec
Yult	=	0.653
R.C.ult	= (Yult-Y)*100%	= 48.8 %
Cp	= 0.9*L/(0.9-Y)	= 64.3 sec
Ymax	= 1-L/C	= 0.725
R.C.(C)	= (0.9*Ymax-Y)*100%	= 49 %

	B1,B2						
	↓ ↓						↑ ↓
	↑ ↑		↑ ↑			← →	D
	A1,A2		A1,A2			C1,C2	
STAGE 1	INT= 5	STAGE 2	INT= 6	STAGE 3	INT= 6	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
D	9	8	2	8	8	2	8	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1	1,2	3.50	C	1			N	1965		567		567	0.00	1965					15	57	68	0.507	49	
A1,A2	1,2	3.50	C	1	20	O	N	2105		218	300	518	0.58	1797			1797	0.288		57	68	0.506	45	
B1,B2	1	3.50	B	1	20		N	1965	110	499		609	0.18	1939			1939	0.314	0.314	62	62	0.605	59	
B2	1	3.50	B	1			N	2105		661		661	0.00	2105			2105	0.314		62	62	0.604	64	
C1	3	3.50	D	1	15		N	1965	222			222	1.00	1786			1786	0.124	0.124	25	25	0.605	35	
C1,C2	3	3.50	D	1	20		N	2105	113		130	243	1.00	1958			1958	0.124		25	25	0.604	39	
	4		PED																18					

NOTE : 'O' - OPPOSING TRAFFIC

N - NEAR SIDE LANE

SG - STEADY GREEN

FG - FLASHING GREEN

PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s

QUEUING LENGTH = AVERAGE QUEUE * 6m

PROJECT NO:

Junction No.

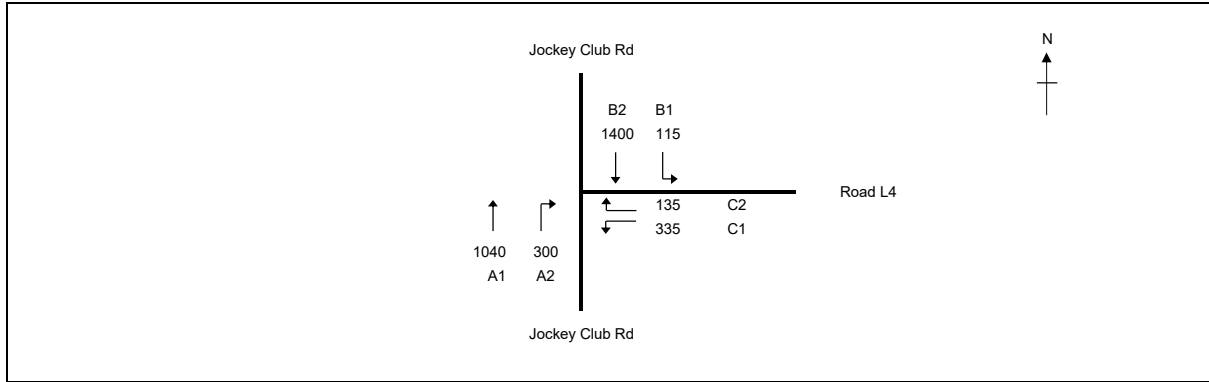
J18

J18 - Jockey Club Road / Road L4

J18_2031_DES_PM

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N =	4
No. of stage using for calculation	N =	2
Cycle time	C =	120 sec
Sum(y)	Y =	0.500
Loss time	L =	33 sec
Total Flow	=	3325 pcu
Co	= (1.5*L+5)/(1-Y)	= 109.0 sec
Cm	= L/(1-Y)	= 66.0 sec
Yult	=	0.653
R.C.ult	= (Yult-Y)/Y*100%	= 30.5 %
Cp	= 0.9*L/(0.9-Y)	= 74.2 sec
Ymax	= 1-L/C	= 0.725
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	= 31 %

	B1,B2 ↓ ↓						
A1,A2 ↑ ↑		A1,A2 ↑ ↑			C1,C2 ← →		D ↑ ↓
STAGE 1	INT= 5	STAGE 2	INT= 6	STAGE 3	INT= 6	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
D	9	8	2	8	8	2	8	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1	1,2	3.50	C	1			N	1965		697		697	0.00	1965					15	62	71	0.598	57	
A1,A2	1,2	3.50	C	1	20	O	N	2105		343	300	643	0.47	1812						62	71	0.599	52	
B1,B2	1	3.50	B	1	20		N	1965	115	612		727	0.16	1942			0.374			65	65	0.690	66	
B2	1	3.50	B	1			N	2105		788		788	0.00	2105						65	65	0.690	72	
C1	3	3.50	D	1	15		N	1965	224			224	1.00	1786			0.126	0.126		22	22	0.688	37	
C1,C2	3	3.50	D	1	20		N	2105	111		135	246	1.00	1958			0.126			22	22	0.690	40	
	4		PED																18					

NOTE : 'O' - OPPOSING TRAFFIC

N - NEAR SIDE LANE

SG - STEADY GREEN

FG - FLASHING GREEN

PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s

QUEUING LENGTH = AVERAGE QUEUE * 6m

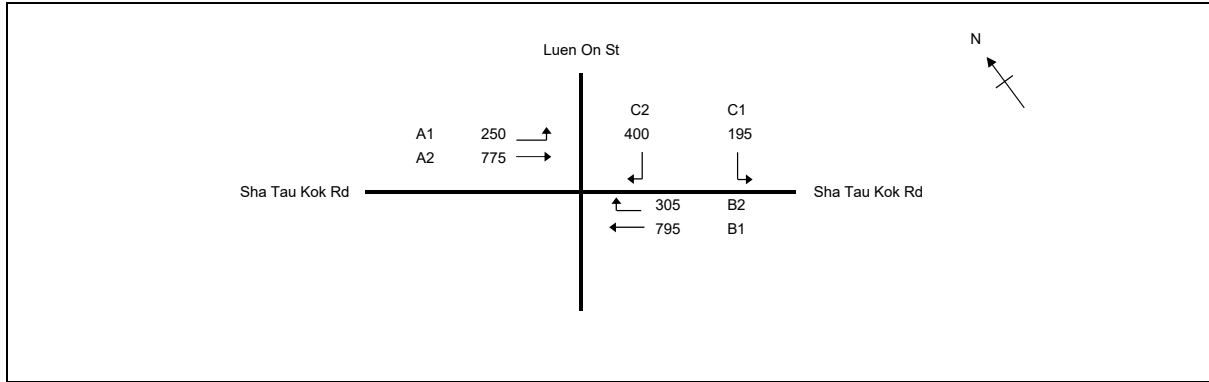
OVE ARUP & PARTNERS

TRAFFIC SIGNAL CALCULATION

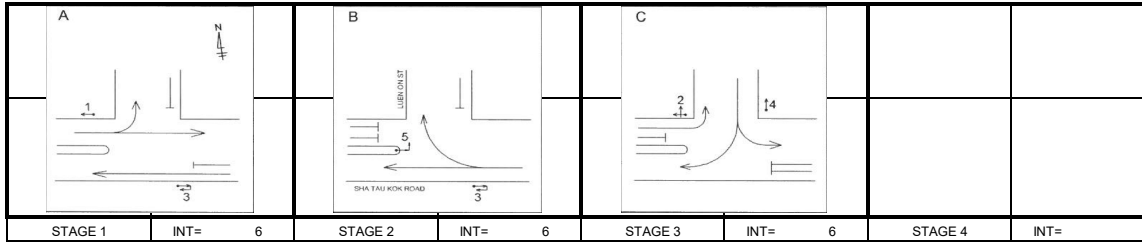
PROJECT NO: 287082 Junction No. J19
 DATE : 25/9/2024 FILENAME :

J19 - Sha Tau Kok Road / Luen On Street

J19_2023_EXT_AM



No. of stages per cycle	N = 3
No. of stage using for calculation	N = 3
Cycle time	C = 90 sec
Sum(y)	Y = 0.453
Loss time	L = 15 sec
Total Flow	= 2720 pcu
Co	= (1.5*L+5)/(1-Y) = 50.3 sec
Cm	= L/(1-Y) = 27.4 sec
Yult	= 0.788
R.C.ult	= (Yult-Y)*100% = 73.7 %
Cp	= 0.9*L/(0.9-Y) = 30.2 sec
Ymax	= 1-L/C = 0.833
R.C.(C)	= (0.9*Ymax-Y)*100% = 65 %



Pedestrian Phase	Width (m)	Green Time Required (s)		Green Time Provided (s)		Check
		SG	Delay FG	SG	Delay FG	

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1	1,3	3.50	2	1	15		N	1965	250		250	1.00	1786				1786	0.140		15	23	55	0.230	15
A2	1	3.50	1	2				4210		775	775	0.00	4210				4210	0.184	0.184		30	30	0.544	38
B1	1,2	3.10	3	1			N	1925		384	384	0.00	1925				1925	0.199			33	62	0.291	18
B1	1,2	3.10	3	1				2065		411	411	0.00	2065				2065	0.199			33	62	0.290	19
B2	2	3.10	5	1	20			2065			305	1.00	1921				1921	0.159	0.159		26	26	0.544	32
C1	3	3.40	4	1	10		N	1955	188		188	1.00	1700				1700	0.111	0.111		18	18	0.544	22
C1,C2	3	3.40	4	1	12.5			2095	7		206	1.00	1871				1871	0.110			18	18	0.542	25
C2	3	3.40	4	1	10			2095			201	1.00	1822				1822	0.110			18	18	0.543	24

NOTE : 'O' - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS

TRAFFIC SIGNAL CALCULATION

J19 - Sha Tau Kok Road / Luen On Street

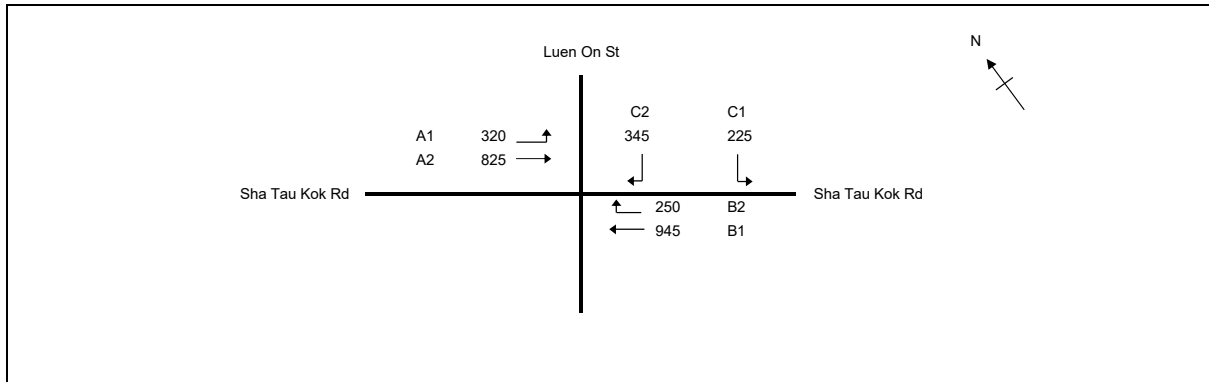
J19_2023_EXT_PM

PROJECT NO: 287082

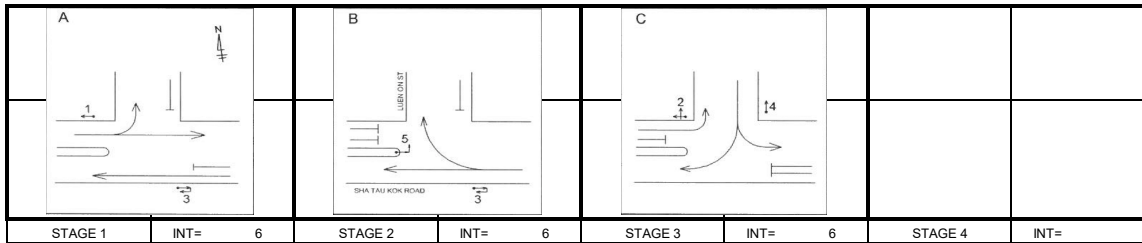
Junction No. J19

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N = 3
No. of stage using for calculation	N = 3
Cycle time	C = 90 sec
Sum(y)	Y = 0.432
Loss time	L = 15 sec
Total Flow	= 2910 pcu
Co	= (1.5*L+5)/(1-Y) = 48.4 sec
Cm	= L/(1-Y) = 26.4 sec
Yult	= 0.788
R.C.ult	= (Yult-Y)*100% = 82.3 %
Cp	= 0.9*L/(0.9-Y) = 28.8 sec
Ymax	= 1-L/C = 0.833
R.C.(C)	= (0.9*Ymax-Y)*100% = 74 %



Pedestrian Phase	Width (m)	Green Time Required (s)		Green Time Provided (s)		Check
		SG	Delay FG	SG	Delay FG	

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1	1,3	3.50	2	1	15		N	1965	320			320	1.00	1786						15	31	58	0.276	17
A2	1	3.50	1	2				4210	825			825	0.00	4210							34	34	0.518	38
B1	1,2	3.10	3	1			N	1925		456		456	0.00	1925							41	62	0.346	22
B1	1,2	3.10	3	1				2065		489		489	0.00	2065							41	62	0.346	23
B2	2	3.10	5	1	20			2065			250	250	1.00	1921							23	23	0.518	28
C1	3	3.40	4	1	10		N	1955	180			180	1.00	1700							18	18	0.518	21
C1,C2	3	3.40	4	1	12.5			2095	45			198	1.00	1871							18	18	0.518	24
C2	3	3.40	4	1	10			2095			192	192	1.00	1822							18	18	0.516	23

NOTE : 'O' - OPPOSING TRAFFIC

N - NEAR SIDE LANE

SG - STEADY GREEN

FG - FLASHING GREEN

PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s

QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS

TRAFFIC SIGNAL CALCULATION

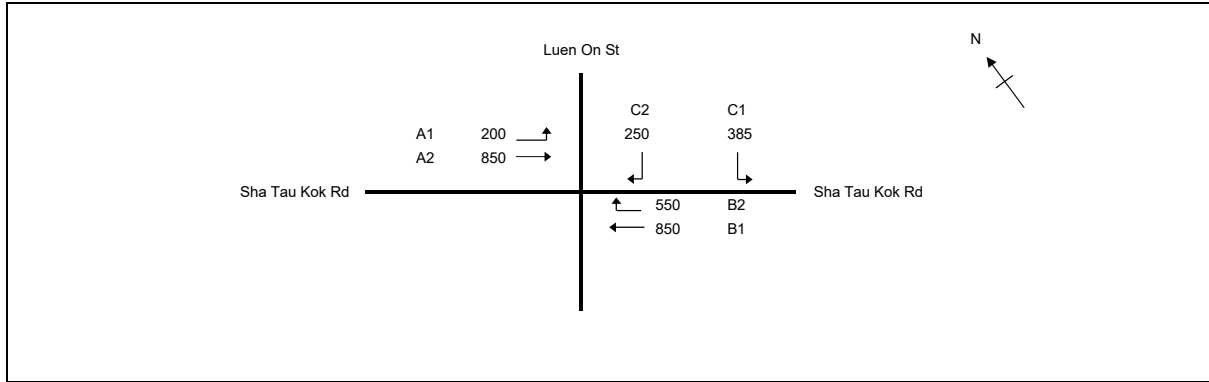
PROJECT NO: 287082 Junction No. J19

J19 - Sha Tau Kok Road / Luen On Street

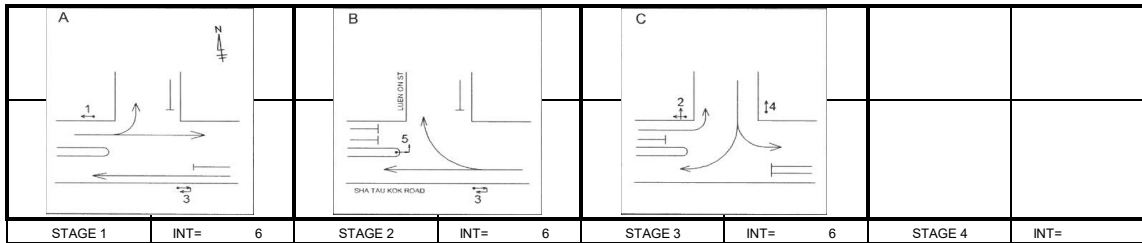
J19_2031_REF_AM

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	3
Cycle time	C =	90 sec
Sum(y)	Y =	0.606
Loss time	L =	15 sec
Total Flow	=	3085 pcu
Co	= (1.5*L+5)/(1-Y)	= 69.8 sec
Cm	= L/(1-Y)	= 38.1 sec
Yult	=	0.788
R.C.ult	= (Yult-Y)*100%	= 29.9 %
Cp	= 0.9*L/(0.9-Y)	= 46.0 sec
Ymax	= 1-L/C	= 0.833
R.C.(C)	= (0.9*Ymax-Y)*100%	= 24 %



Pedestrian Phase	Width (m)	Green Time Required (s)		Green Time Provided (s)		Check
		SG	Delay FG	SG	Delay FG	

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1	1,3	3.50	2	1	15		N	1965	200		200	1.00	1786						15	14	46	0.221	15	
A2	1	3.50	1	2				4210		850	850	0.00	4210						25	25	65	0.293	17	
B1	1,2	3.10	3	1			N	1925		410	410	0.00	1925						26	65	65	0.293	18	
B2	2	3.10	5	1	20			2065		550	550	1.00	1921						35	35	65	0.293	18	
C1	3	3.40	4	1	10		N	1955	200		200	1.00	1700						15	15	65	0.293	17	
C1,C2	3	3.40	4	1	12.5			2095	185		220	1.00	1871						15	15	65	0.293	17	
C2	3	3.40	4	1	10			2095		215	215	1.00	1822						15	15	65	0.293	17	

NOTE : 'O' - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

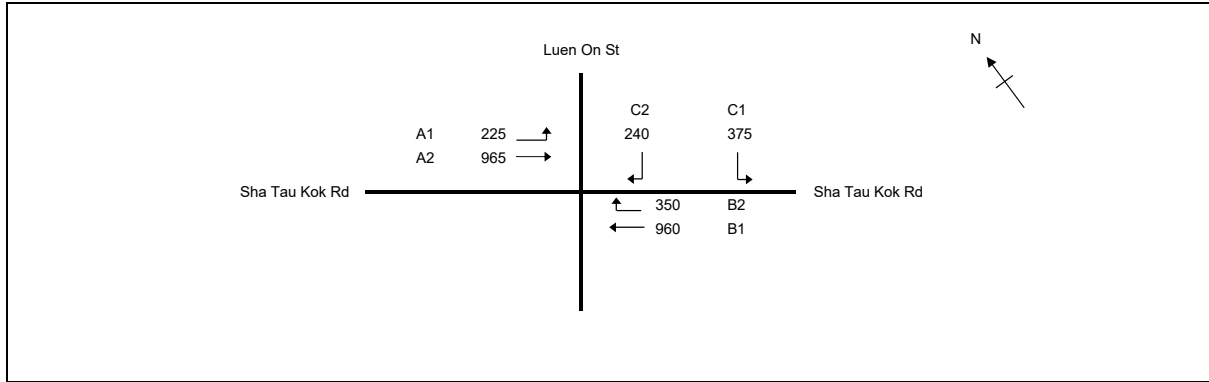
OVE ARUP & PARTNERS

TRAFFIC SIGNAL CALCULATION

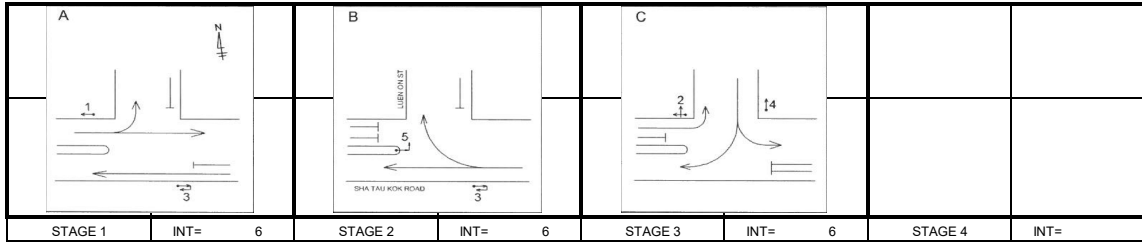
PROJECT NO: 287082 Junction No. J19
 DATE : 25/9/2024 FILENAME :

J19 - Sha Tau Kok Road / Luen On Street

J19_2031_REF_PM



No. of stages per cycle	N = 3
No. of stage using for calculation	N = 3
Cycle time	C = 90 sec
Sum(y)	Y = 0.526
Loss time	L = 15 sec
Total Flow	= 3115 pcu
Co	= (1.5*L+5)/(1-Y) = 58.0 sec
Cm	= L/(1-Y) = 31.6 sec
Yult	= 0.788
R.C.ult	= (Yult-Y)*100% = 49.8 %
Cp	= 0.9*L/(0.9-Y) = 36.1 sec
Ymax	= 1-L/C = 0.833
R.C.(C)	= (0.9*Ymax-Y)*100% = 43 %



Pedestrian Phase	Width (m)	Green Time Required (s)		Green Time Provided (s)		Check
		SG	Delay FG	SG	Delay FG	

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1	1,3	3.50	2	1	15		N	1965	225			225	1.00	1786					15	18	55	0.206	13	
A2	1	3.50	1	2				4210		965		965	0.00	4210			0.229	0.229	33	33	0.631	46		
B1	1,2	3.10	3	1			N	1925		463		463	0.00	1925			0.241		34	64	0.340	20		
B1	1,2	3.10	3	1				2065		497		497	0.00	2065			0.241		34	64	0.340	22		
B2	2	3.10	5	1	20			2065			350	350	1.00	1921			0.182	0.182	26	26	0.631	37		
C1	3	3.40	4	1	10		N	1955	194			194	1.00	1700			0.114	0.114	16	16	0.630	24		
C1,C2	3	3.40	4	1	12.5			2095	181		32	213	1.00	1871			0.114		16	16	0.629	26		
C2	3	3.40	4	1	10			2095			208	208	1.00	1822			0.114		16	16	0.631	26		

NOTE : 'O' - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

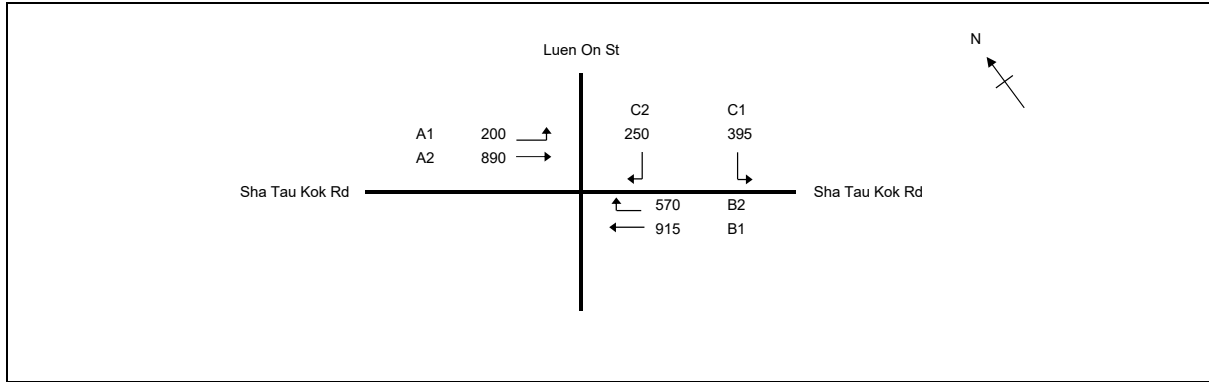
OVE ARUP & PARTNERS

TRAFFIC SIGNAL CALCULATION

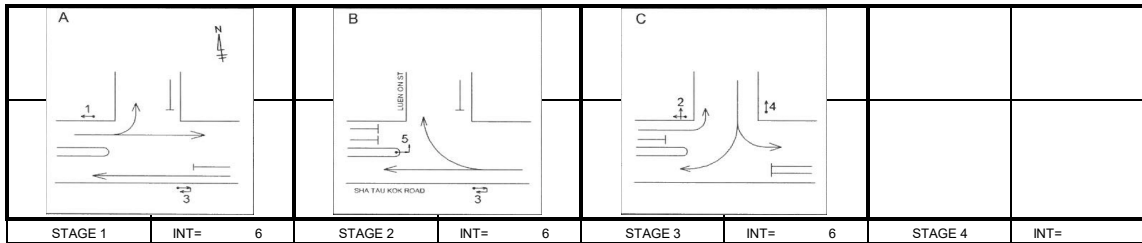
PROJECT NO: 287082 Junction No. J19
 DATE : 25/9/2024 FILENAME :

J19 - Sha Tau Kok Road / Luen On Street

J19_2031_DES_AM



No. of stages per cycle	N = 3
No. of stage using for calculation	N = 3
Cycle time	C = 90 sec
Sum(y)	Y = 0.628
Loss time	L = 15 sec
Total Flow	= 3220 pcu
Co	= (1.5*L+5)/(1-Y) = 73.9 sec
Cm	= L/(1-Y) = 40.3 sec
Yult	= 0.788
R.C.ult	= (Yult-Y)*100% = 25.4 %
Cp	= 0.9*L/(0.9-Y) = 49.6 sec
Ymax	= 1-L/C = 0.833
R.C.(C)	= (0.9*Ymax-Y)*100% = 19 %



Pedestrian Phase	Width (m)	Green Time Required (s)		Green Time Provided (s)		Check
		SG	Delay FG	SG	Delay FG	

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1	1,3	3.50	2	1	15		N	1965	200		200	1.00	1786						15	13	46	0.221	15	
A2	1	3.50	1	2				4210		890	890	0.00	4210							25	25	0.753	48	
B1	1,2	3.10	3	1			N	1925		441	441	0.00	1925							27	66	0.314	18	
B1	1,2	3.10	3	1				2065		474	474	0.00	2065							27	66	0.314	19	
B2	2	3.10	5	1	20			2065		570	570	1.00	1921							35	35	0.753	52	
C1	3	3.40	4	1	10		N	1955	203		203	1.00	1700							14	14	0.751	26	
C1,C2	3	3.40	4	1	12.5			2095	192		224	1.00	1871							14	14	0.753	28	
C2	3	3.40	4	1	10			2095		218	218	1.00	1822							14	14	0.753	28	

NOTE : 'O' - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS

TRAFFIC SIGNAL CALCULATION

J19 - Sha Tau Kok Road / Luen On Street

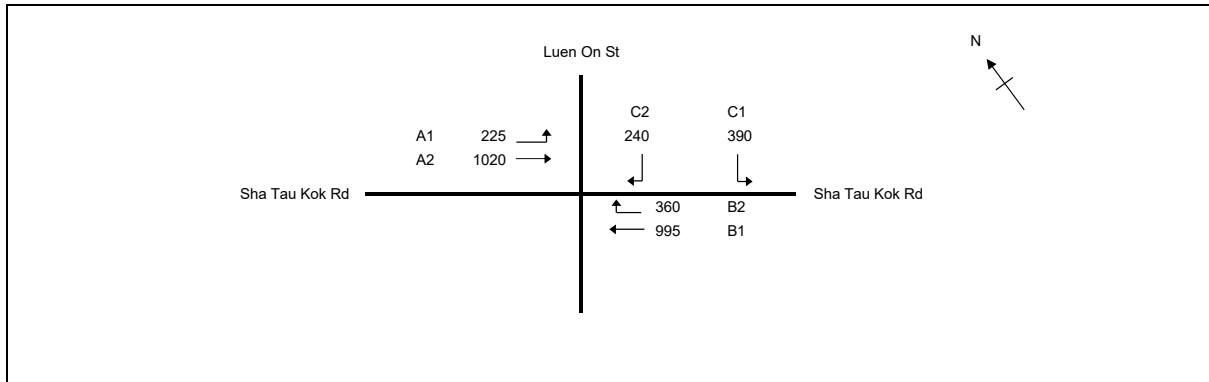
J19_2031_DES_PM

PROJECT NO: 287082

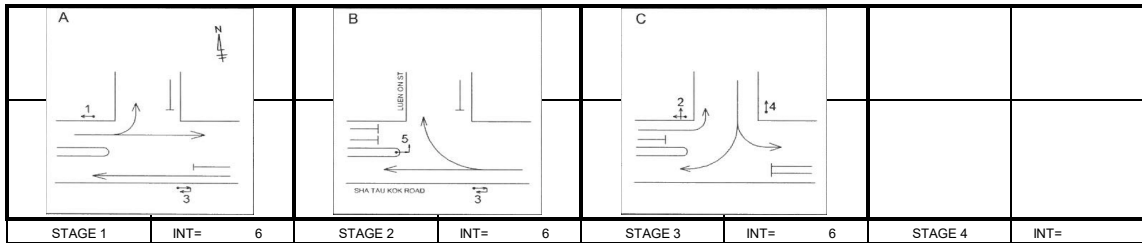
Junction No. J19

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N = 3
No. of stage using for calculation	N = 3
Cycle time	C = 90 sec
Sum(y)	Y = 0.547
Loss time	L = 15 sec
Total Flow	= 3230 pcu
Co	= (1.5*L+5)/(1-Y) = 60.7 sec
Cm	= L/(1-Y) = 33.1 sec
Yult	= 0.788
R.C.ult	= (Yult-Y)*100% = 44.0 %
Cp	= 0.9*L/(0.9-Y) = 38.2 sec
Ymax	= 1-L/C = 0.833
R.C.(C)	= (0.9*Ymax-Y)*100% = 37 %



Pedestrian Phase	Width (m)	Green Time Required (s)		Green Time Provided (s)		Check
		SG	Delay FG	SG	Delay FG	

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1	1,3	3.50	2	1	15		N	1965	225			225	1.00	1786			1786	0.126		15	17	55	0.205	13
A2	1	3.50	1	2				4210		1020		1020	0.00	4210			4210	0.242	0.242		33	33	0.656	48
B1	1,2	3.10	3	1			N	1925		480		480	0.00	1925			1925	0.249			34	64	0.351	21
B1	1,2	3.10	3	1				2065		515		515	0.00	2065			2065	0.249			34	64	0.351	22
B2	2	3.10	5	1	20			2065		360		360	1.00	1921			1921	0.187	0.187		26	26	0.656	39
C1	3	3.40	4	1	10		N	1955	199			199	1.00	1700			1700	0.117	0.117		16	16	0.656	25
C1,C2	3	3.40	4	1	12.5			2095	191			218	1.00	1871			1871	0.117			16	16	0.653	27
C2	3	3.40	4	1	10			2095		213		213	1.00	1822			1822	0.117			16	16	0.655	26

NOTE : 'O' - OPPOSING TRAFFIC

N - NEAR SIDE LANE

SG - STEADY GREEN

FG - FLASHING GREEN

PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s

QUEUING LENGTH = AVERAGE QUEUE * 6m

J20 - Sha Tau Kok Road / Fan Leng Lau Road / Lok Yip Road

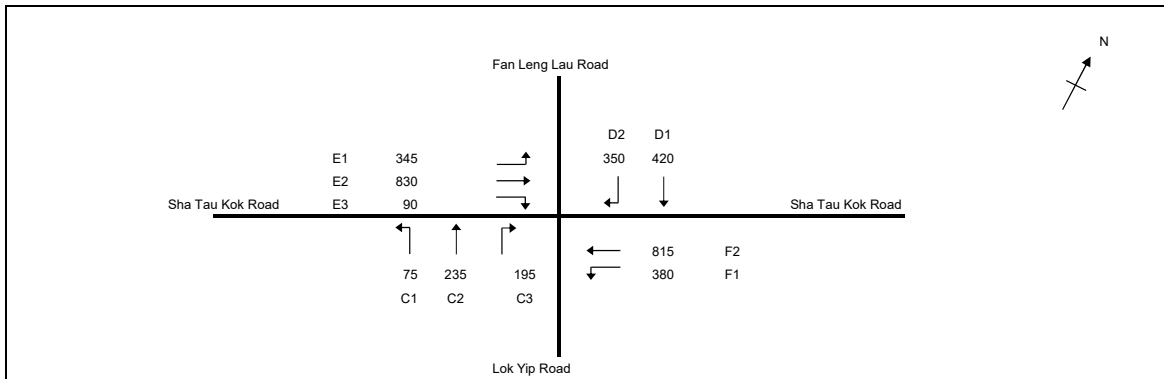
J20_2023_EXT_AM

PROJECT NO: 287082

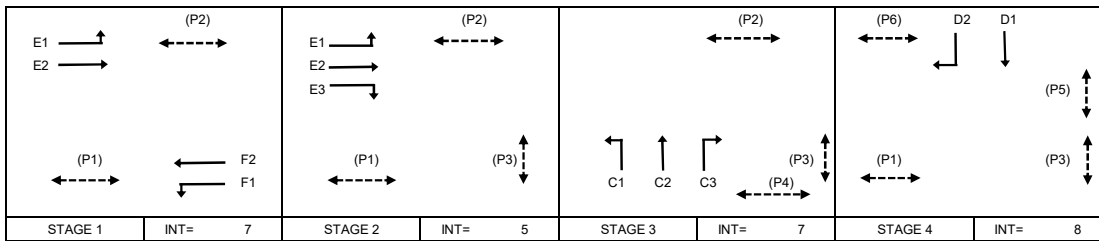
Junction No. J20

DATE: 25-Sep-24

FILENAME:



No. of stages per cycle	N = 4
No. of stage using for calculation	N = 4
Cycle time	C = 120 sec
Sum(y)	Y = 0.549
Loss time	L = 23 sec
Total Flow	= 3735 pcu
Co	= (1.5*L+5)/(1-Y) = 87.6 sec
Cm	= L/(1-Y) = 51.0 sec
Yult	= 0.728
R.C.ult	= (Yult-Y)*100% = 32.5 %
Cp	= 0.9*L/(0.9-Y) = 59.0 sec
Ymax	= 1-L/C = 0.808
R.C.(C)	= (0.9*Ymax-Y)*100% = 33 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
P1	10	6	3	11	77	3	11	OK
P2	7	6	2	8	67	2	8	OK
P3	13.5	6	2	15	69	2	15	OK
P4	7.5	6	8	8	13	8	8	OK
P5	8.5	6	9	9	25	9	9	OK
P6	9	6	6	10	27	6	10	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
F1	1	3.10	F	1	10		N	1925	261		261	1.00	1674			1674	0.156	0.156	23	28	28	0.677	40	
F1,F2	1	3.10	F	1	10		N	2065	119	186	305	0.39	1951			1951	0.156			28	28	0.679	47	
F2	1	3.10	F	1			N	2065		306	306	0.00	2065			1962	0.156			28	28	0.677	47	
F2	1	3.10	F	1			N	2065		323	323	0.00	2065			2065	0.156			28	28	0.679	50	
E1	1,2	3.00	E	1	10		N	1915	339		339	1.00	1665			1665	0.204			36	44	0.556	43	
E1,E2	1,2	3.00	E	1	10		N	2055	6	412	418	0.01	2051			2051	0.204			36	44	0.556	53	
E2	1,2	3.00	E	1			N	2055		418	418	0.00	2055			2055	0.203			36	44	0.555	53	
E3	2	3.00	E	1	20		N	2055		90	90	1.00	1912			1912	0.047	0.047		8	8	0.679	17	
C1,C2	3	3.50	C	1	15		N	1965	75	172	247	0.30	1907			1907	0.130	0.130		23	23	0.679	40	
C2,C3	3	3.50	C	1	20		N	2105		63	195	0.76	1992			1992	0.130			23	23	0.679	42	
D1,D2	4	3.30	D	1	20		N	1945		420	420	0.00	1945			1945	0.216	0.216		38	38	0.679	57	
D2	4	3.30	D	1	20		N	2085		350	350	1.00	1940			1940	0.180			32	38	0.568	48	

NOTE : 'O' - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J20 - Sha Tau Kok Road / Fan Leng Lau Road / Lok Yip Road

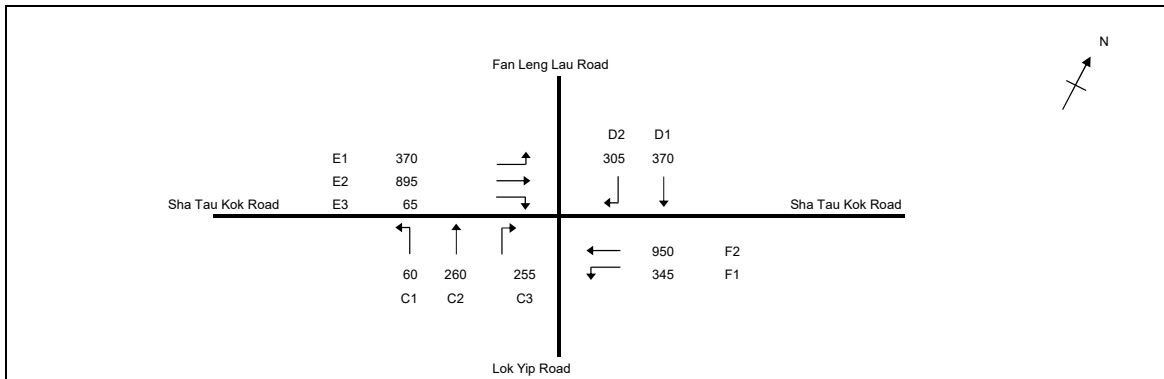
J20_2023_EXT_PM

PROJECT NO: 287082

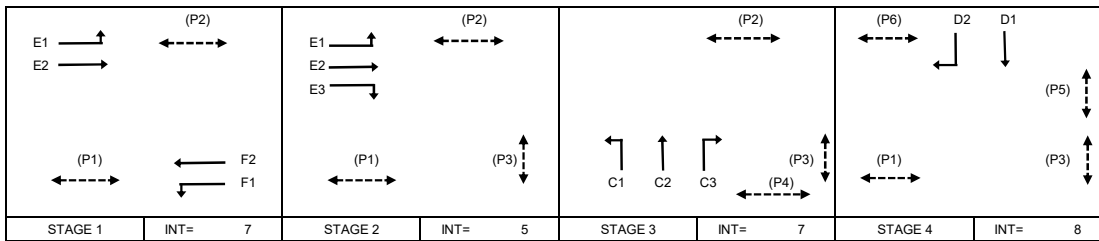
Junction No. J20

DATE: 25-Sep-24

FILENAME:



No. of stages per cycle	N = 4
No. of stage using for calculation	N = 4
Cycle time	C = 120 sec
Sum(y)	Y = 0.542
Loss time	L = 23 sec
Total Flow	= 3875 pcu
Co	= (1.5*L+5)/(1-Y) = 86.3 sec
Cm	= L/(1-Y) = 50.2 sec
Yult	= 0.728
R.C.ult	= (Yult-Y)*100% = 34.2 %
Cp	= 0.9*L/(0.9-Y) = 57.9 sec
Ymax	= 1-L/C = 0.808
R.C.(C)	= (0.9*Ymax-Y)*100% = 34 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
P1	10	6	3	11	74	3	11	OK
P2	7	6	2	8	71	2	8	OK
P3	13.5	6	2	15	67	2	15	OK
P4	7.5	6	8	8	16	8	8	OK
P5	8.5	6	9	9	21	9	9	OK
P6	9	6	6	10	23	6	10	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
F1	1	3.10	F	1	10		N	1925	285		285	1.00	1674			1674	0.170	0.170	23	30	30	0.670	43	
F1,F2	1	3.10	F	1	10		N	2065	60	282	342	0.18	2012			2012	0.170			30	30	0.669	51	
F2	1	3.10	F	1	10		N	2065		316	316	0.00	2065			1859	0.170			30	30	0.669	47	
F2	1	3.10	F	1	10		N	2065		352	352	0.00	2065			2065	0.170			30	30	0.671	53	
E1	1,2	3.00	E	1	10		N	1915	365		365	1.00	1665			1665	0.219			39	45	0.590	46	
E1,E2	1,2	3.00	E	1	10		N	2055	5	445	450	0.01	2052			2052	0.219			39	45	0.591	57	
E2	1,2	3.00	E	1	10		N	2055		450	450	0.00	2055			2055	0.219			39	45	0.590	57	
E3	2	3.00	E	1	20		N	2055		65	65	1.00	1912			1912	0.034	0.034	6	6	0.671	12		
C1,C2	3	3.50	C	1	15		N	1965	60	224	284	0.21	1924			1924	0.148	0.148	26	26	0.671	44		
C2,C3	3	3.50	C	1	20		N	2105		255	291	0.88	1975			1975	0.147			26	26	0.670	45	
D1,D2	4	3.30	D	1	20		N	1945		370	370	0.00	1945			1945	0.190	0.190	34	34	0.671	53		
D2	4	3.30	D	1	20		N	2085		305	305	1.00	1940			1940	0.157			28	34	0.555	44	

NOTE: 'O' - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J20 - Sha Tau Kok Road / Fan Leng Lau Road / Lok Yip Road

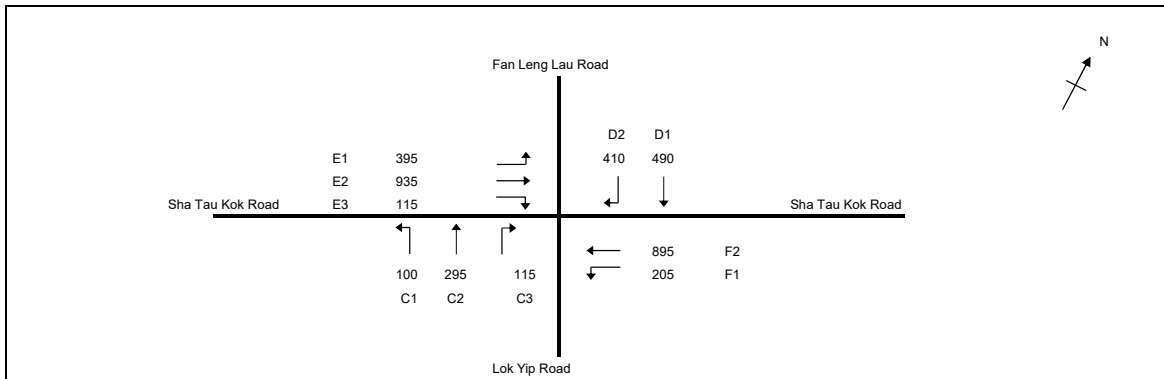
J20_2031_REF_AM

PROJECT NO: 287082

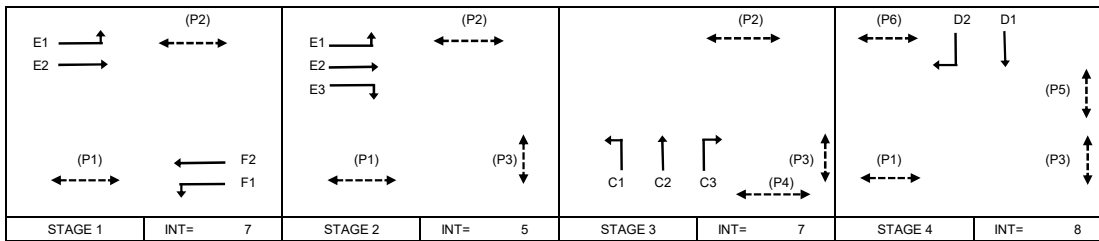
Junction No. J20

DATE: 25-Sep-24

FILENAME:



No. of stages per cycle	N = 4
No. of stage using for calculation	N = 4
Cycle time	C = 120 sec
Sum(y)	Y = 0.587
Loss time	L = 23 sec
Total Flow	= 3955 pcu
Co	= (1.5*L+5)/(1-Y) = 95.6 sec
Cm	= L/(1-Y) = 55.7 sec
Yult	= 0.728
R.C.ult	= (Yult-Y)*100% = 24.0 %
Cp	= 0.9*L/(0.9-Y) = 66.1 sec
Ymax	= 1-L/C = 0.808
R.C.(C)	= (0.9*Ymax-Y)*100% = 24 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
P1	10	6	3	11	79	3	11	OK
P2	7	6	2	8	63	2	8	OK
P3	13.5	6	2	15	73	2	15	OK
P4	7.5	6	8	8	11	8	8	OK
P5	8.5	6	9	9	29	9	9	OK
P6	9	6	6	10	31	6	10	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
F1	1	3.10	F	1	10		N	1925	205		205	1.00	1674			1674	0.122	0.145	23	20	24	0.614	33	
F1,F2	1	3.10	F	1	10		N	2065	0	299	299	0.00	2065			2065	0.145			24	24	0.726	48	
F2	1	3.10	F	1	10		N	2065		298	298	0.00	2065			2065	0.144			24	24	0.724	48	
F2	1	3.10	F	1	10		N	2065		298	298	0.00	2065			2065	0.144			24	24	0.724	48	
E1	1,2	3.00	E	1	10		N	1915	384		384	1.00	1665			1665	0.231			38	42	0.661	50	
E1,E2	1,2	3.00	E	1	10		N	2055	11	461	472	0.02	2048			2048	0.230			38	42	0.660	61	
E2	1,2	3.00	E	1	10		N	2055		474	474	0.00	2055			2055	0.231			38	42	0.661	62	
E3	2	3.00	E	1	20		N	2055		115	115	1.00	1912			1912	0.060	0.060		10	10	0.726	21	
C1,C2	3	3.50	C	1	15		N	1965	100	145	245	0.41	1888			1888	0.130	0.130		21	21	0.725	40	
C2,C3	3	3.50	C	1	20		N	2105		115	265	0.43	2039			2039	0.130			21	21	0.726	44	
D1,D2	4	3.30	D	1	20		N	1945		490	490	0.00	1945			1945	0.252	0.252		42	42	0.726	64	
D2	4	3.30	D	1	20		N	2085		410	410	1.00	1940			1940	0.211			35	42	0.609	54	

NOTE: 'O' - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

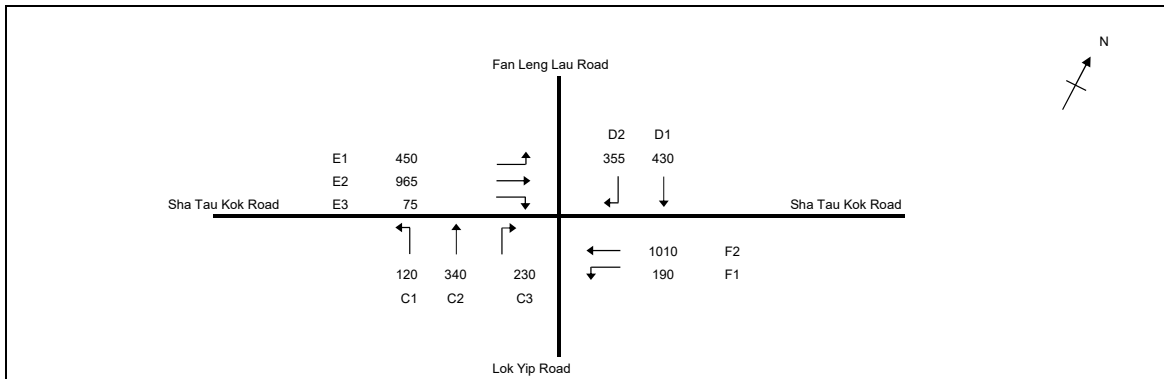
PROJECT NO: 287082 Junction No. J20

J20 - Sha Tau Kok Road / Fan Leng Lau Road / Lok Yip Road

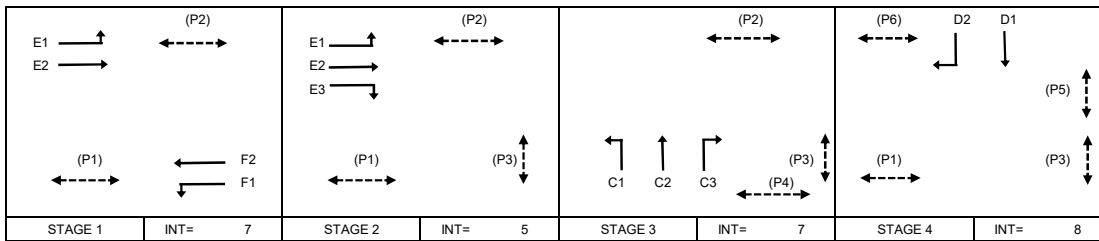
J20_2031_REF_PM

DATE: 25-Sep-24

FILENAME:



No. of stages per cycle	N = 4
No. of stage using for calculation	N = 4
Cycle time	C = 120 sec
Sum(y)	Y = 0.606
Loss time	L = 23 sec
Total Flow	= 4165 pcu
Co	= (1.5*L+5)/(1-Y) = 100.3 sec
Cm	= L/(1-Y) = 58.4 sec
Yult	= 0.728
R.C.ult	= (Yult-Y)*100% = 20.0 %
Cp	= 0.9*L/(0.9-Y) = 70.4 sec
Ymax	= 1-L/C = 0.808
R.C.(C)	= (0.9*Ymax-Y)*100% = 20 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
P1	10	6	3	11	72	3	11	OK
P2	7	6	2	8	70	2	8	OK
P3	13.5	6	2	15	70	2	15	OK
P4	7.5	6	8	8	18	8	8	OK
P5	8.5	6	9	9	22	9	9	OK
P6	9	6	6	10	24	6	10	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
F1	1	3.10	F	1	10		N	1925	190			190	1.00	1674			1674	0.114	0.169	23	18	27	0.504	29
F1,F2	1	3.10	F	1	10		N	2065	0	349		349	0.00	2065			2065	0.169			27	27	0.750	54
F2	1	3.10	F	1	10		N	2065		312		312	0.00	2065			1859	0.168			27	27	0.745	48
F2	1	3.10	F	1	10		N	2065		349		349	0.00	2065			2065	0.169			27	27	0.750	54
E1	1,2	3.00	E	1	10		N	1915	417			417	1.00	1665			1665	0.250			40	41	0.727	55
E1,E2	1,2	3.00	E	1	10		N	2055	33	476		509	0.06	2035			2035	0.250			40	41	0.726	67
E2	1,2	3.00	E	1	10		N	2055		489		489	0.00	2055			1952	0.250			40	41	0.727	64
E3	2	3.00	E	1	20		N	2055		75		75	1.00	1912			1912	0.039	0.039		6	6	0.750	14
C1,C2	3	3.50	C	1	15		N	1965	120	215		335	0.36	1897			1897	0.177	0.177		28	28	0.749	51
C2,C3	3	3.50	C	1	20		N	2105		125	230	355	0.65	2007			2007	0.177			28	28	0.750	54
D1,D2	4	3.30	D	1	20		N	1945		430	0	430	0.00	1945			1945	0.221	0.221		35	35	0.750	61
D2	4	3.30	D	1	20		N	2085		355		355	1.00	1940			1940	0.183			29	35	0.621	50

NOTE: 'O' - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J20 - Sha Tau Kok Road / Fan Leng Lau Road / Lok Yip Road

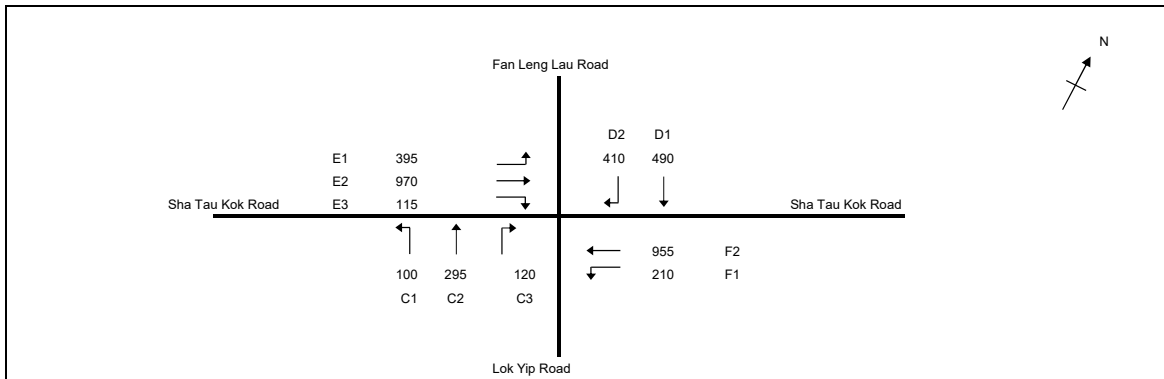
J20_2031_DES_AM

PROJECT NO: 287082

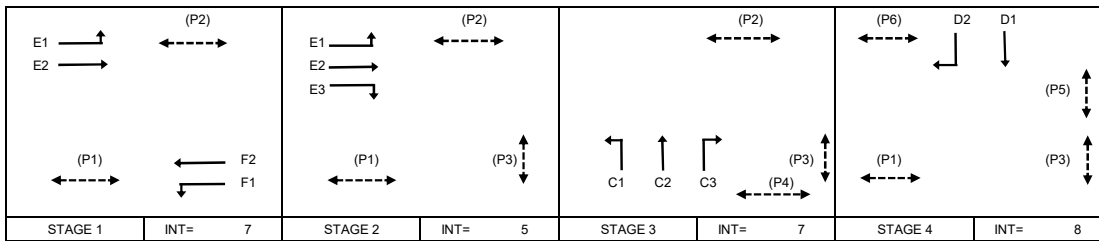
Junction No. J20

DATE: 25-Sep-24

FILENAME:



No. of stages per cycle	N = 4
No. of stage using for calculation	N = 4
Cycle time	C = 120 sec
Sum(y)	Y = 0.600
Loss time	L = 23 sec
Total Flow	= 4060 pcu
Co	= (1.5*L+5)/(1-Y) = 98.8 sec
Cm	= L/(1-Y) = 57.5 sec
Yult	= 0.728
R.C.ult	= (Yult-Y)*100% = 21.2 %
Cp	= 0.9*L/(0.9-Y) = 69.1 sec
Ymax	= 1-L/C = 0.808
R.C.(C)	= (0.9*Ymax-Y)*100% = 21 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
P1	10	6	3	11	79	3	11	OK
P2	7	6	2	8	64	2	8	OK
P3	13.5	6	2	15	72	2	15	OK
P4	7.5	6	8	8	11	8	8	OK
P5	8.5	6	9	9	28	9	9	OK
P6	9	6	6	10	30	6	10	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
F1	1	3.10	F	1	10		N	1925	210			210	1.00	1674			1674	0.125	0.157	23	20	25	0.594	33
F1,F2	1	3.10	F	1	10		N	2065	0	324		324	0.00	2065			2065	0.157			25	25	0.743	51
F2	1	3.10	F	1	10		N	2065		307		307	0.00	2065			1962	0.156			25	25	0.741	48
F2	1	3.10	F	1	10		N	2065		324		324	0.00	2065			2065	0.157			25	25	0.743	51
E1	1,2	3.00	E	1	10		N	1915	394			394	1.00	1665			1665	0.237			38	43	0.659	51
E1,E2	1,2	3.00	E	1	10		N	2055	1	484		485	0.00	2054			2054	0.236			38	43	0.658	62
E2	1,2	3.00	E	1	10		N	2055		486		486	0.00	2055			2055	0.236			38	43	0.659	62
E3	2	3.00	E	1	20		N	2055			115	115	1.00	1912			1912	0.060	0.060		10	10	0.743	21
C1,C2	3	3.50	C	1	15		N	1965	100	148		248	0.40	1889			1889	0.131	0.131		21	21	0.743	41
C2,C3	3	3.50	C	1	20		N	2105		147	120	267	0.45	2036			2036	0.131			21	21	0.742	44
D1,D2	4	3.30	D	1	20		N	1945		490	0	490	0.00	1945			1945	0.252	0.252		41	41	0.743	65
D2	4	3.30	D	1	20		N	2085			410	410	1.00	1940			1940	0.211			34	41	0.623	54

NOTE: 'O' - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

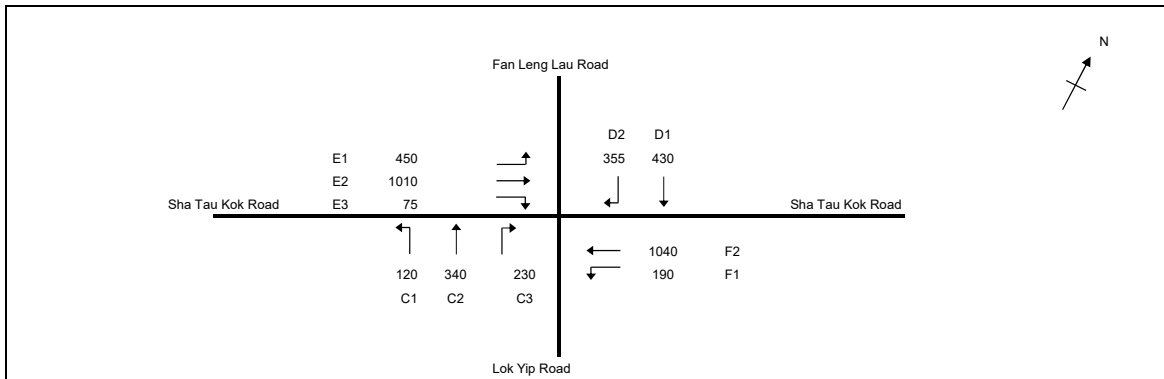
PROJECT NO: 287082 Junction No. J20

J20 - Sha Tau Kok Road / Fan Leng Lau Road / Lok Yip Road

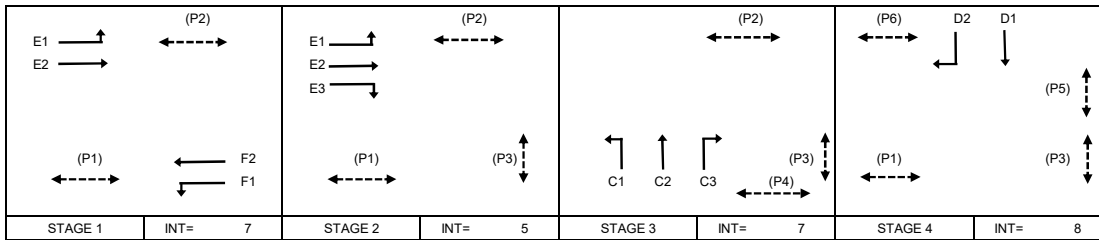
J20_2031_DES_PM

DATE: 25-Sep-24

FILENAME:



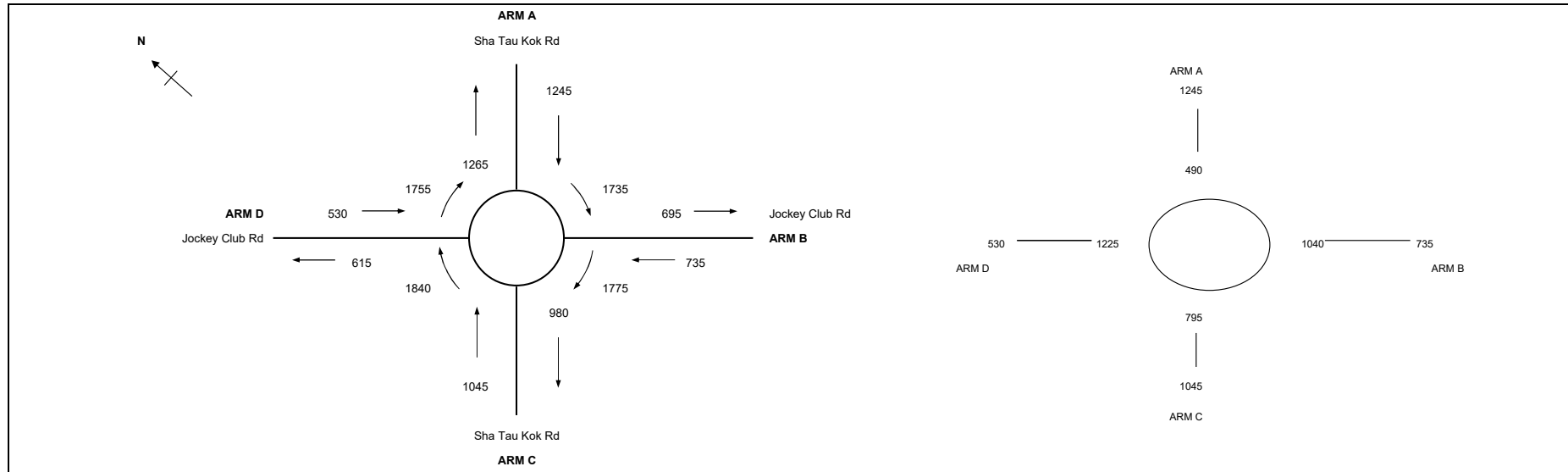
No. of stages per cycle	N = 4
No. of stage using for calculation	N = 4
Cycle time	C = 120 sec
Sum(y)	Y = 0.614
Loss time	L = 23 sec
Total Flow	= 4240 pcu
Co	= (1.5*L+5)/(1-Y) = 102.3 sec
Cm	= L/(1-Y) = 59.6 sec
Yult	= 0.728
R.C.ult	= (Yult-Y)/Y*100% = 18.5 %
Cp	= 0.9*L/(0.9-Y) = 72.4 sec
Ymax	= 1-L/C = 0.808
R.C.(C)	= (0.9*Ymax-Y)/Y*100% = 19 %



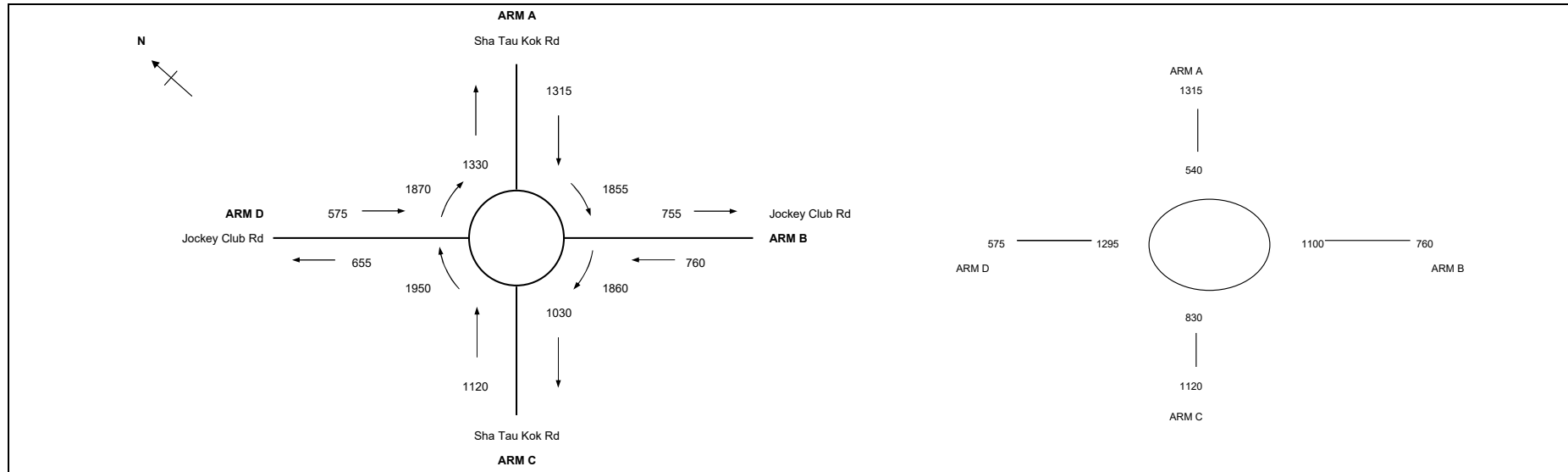
Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
P1	10	6	3	11	72	3	11	OK
P2	7	6	2	8	70	2	8	OK
P3	13.5	6	2	15	69	2	15	OK
P4	7.5	6	8	8	18	8	8	OK
P5	8.5	6	9	9	22	9	9	OK
P6	9	6	6	10	24	6	10	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
F1	1	3.10	F	1	10		N	1925	190			190	1.00	1674			1674	0.114	0.177	23	18	28	0.488	29
F1,F2	1	3.10	F	1	10			2065	0	365		365	0.00	2065			2065	0.177			28	28	0.759	56
F2	1	3.10	F	1				2065		310		310	0.00	2065			1755	0.177			28	28	0.759	48
F2	1	3.10	F	1				2065		365		365	0.00	2065			2065	0.177			28	28	0.759	56
E1	1,2	3.00	E	1	10		N	1915	437			437	1.00	1665			1665	0.262			41	42	0.748	57
E1,E2	1,2	3.00	E	1	10			2055	13	524		537	0.02	2048			2048	0.262			41	42	0.747	70
E2	1,2	3.00	E	1				2055		486		486	0.00	2055			1850	0.263			42	42	0.749	63
E3	2	3.00	E	1	20			2055		75		75	1.00	1912			1912	0.039	0.039		6	6	0.759	14
C1,C2	3	3.50	C	1	15		N	1965	120	215		335	0.36	1897			1897	0.177	0.177		28	28	0.758	51
C2,C3	3	3.50	C	1	20			2105		125	230	355	0.65	2007			2007	0.177			28	28	0.759	54
D1,D2	4	3.30	D	1	20		N	1945		430	0	430	0.00	1945			1945	0.221	0.221		35	35	0.759	61
D2	4	3.30	D	1	20			2085			355	355	1.00	1940			1940	0.183			29	35	0.629	50

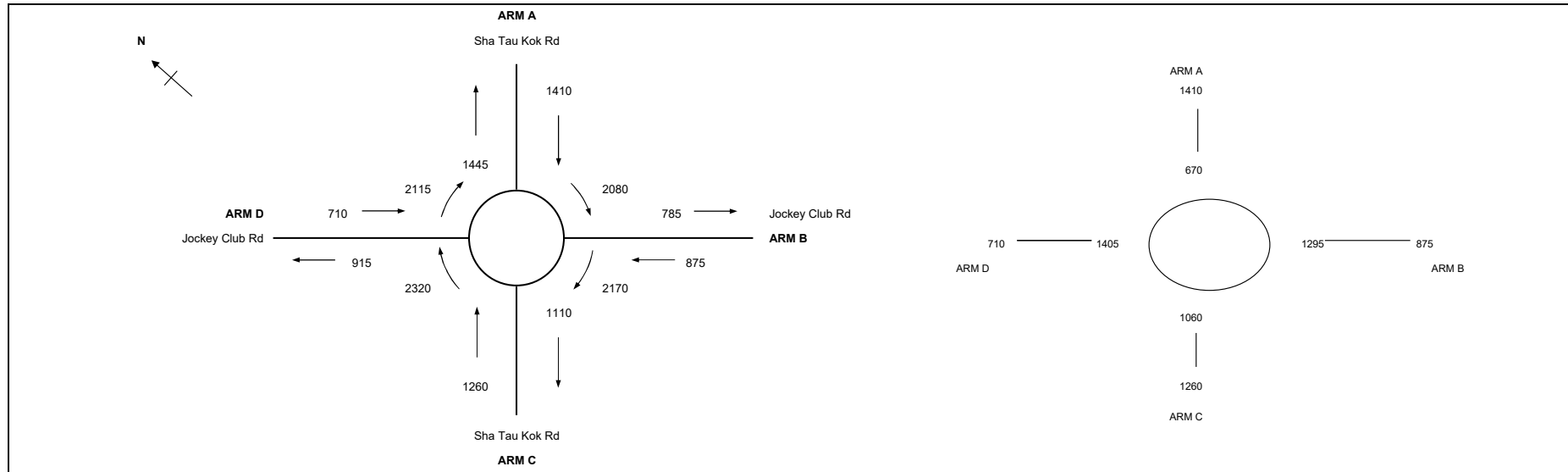
NOTE: 'O' - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m



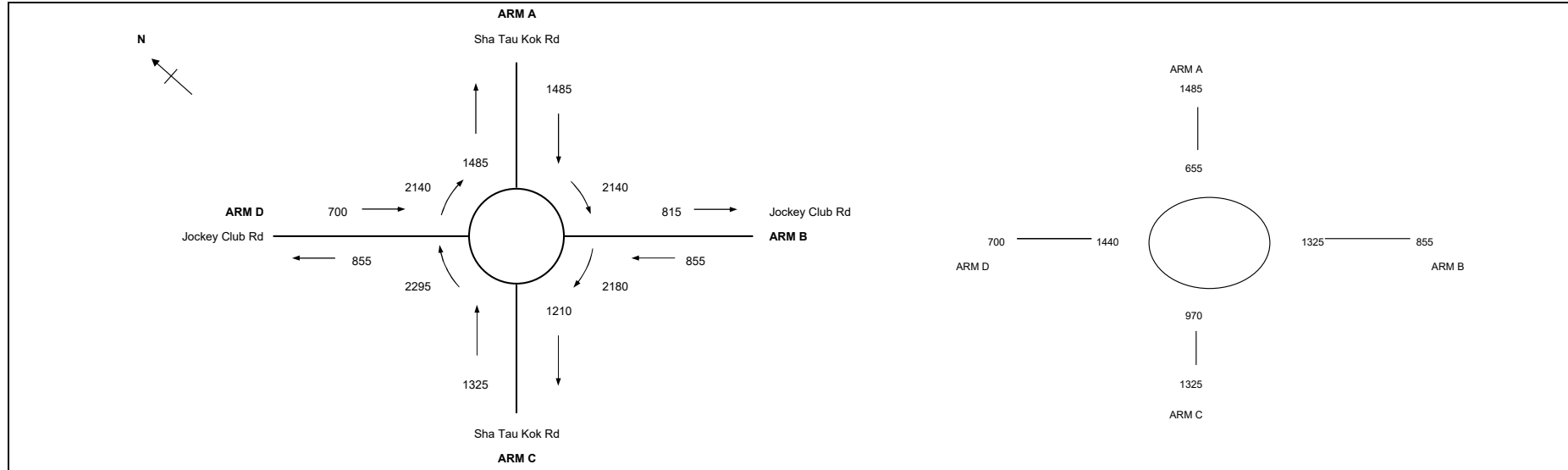
ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	7.30	7.30	7.30
E = Entry width (m)	9.00	8.00	9.00	8.00
L = Effective length of flare (m)	10	10	15	10
R = Entry radius (m)	30	35	50	30
D = Inscribed circle diameter (m)	65	65	65	65
A = Entry angle (degree)	20	10	15	25
Q = Entry flow (pcu/h)	1245	735	1045	530
Qc = Circulating flow across entry (pcu/h)	490	1040	795	1225
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.27	0.11	0.18	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.09	1.08	1.03
X2 = $V + ((E-V)/(1+2S))$	8.40	7.87	8.55	7.87
M = $EXP((D-60)/10)$	1.65	1.65	1.65	1.65
F = 303*X2	2546	2385	2590	2385
Td = 1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc = 0.21*Td(1+0.2*X2)	0.67	0.64	0.68	0.64
Qe = K(F-Fc*Qc)	2331	1872	2219	1652
DFC = Design flow/Capacity = Q/Qe	0.53	0.39	0.47	0.32
Total In Sum =				3555 PCU
DFC of Critical Approach =				0.53



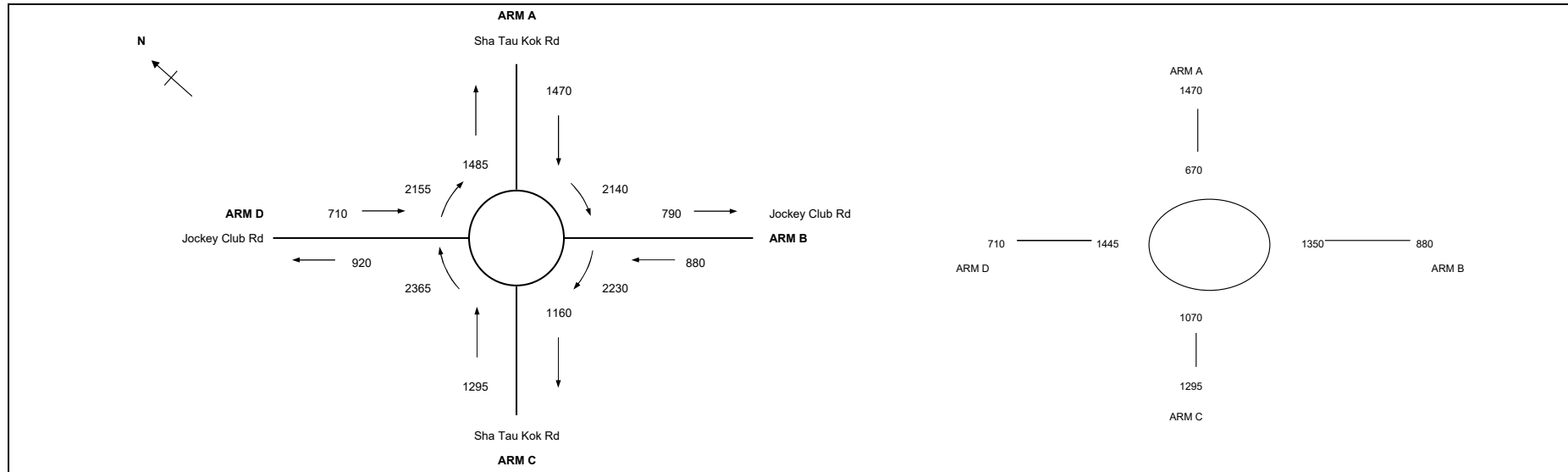
ARM	A	B	C	D	
INPUT PARAMETERS:					
V =	Approach half width (m)	7.30	7.30	7.30	7.30
E =	Entry width (m)	9.00	8.00	9.00	8.00
L =	Effective length of flare (m)	10	10	15	10
R =	Entry radius (m)	30	35	50	30
D =	Inscribed circle diameter (m)	65	65	65	65
A =	Entry angle (degree)	20	10	15	25
Q =	Entry flow (pcu/h)	1315	760	1120	575
Qc =	Circulating flow across entry (pcu/h)	540	1100	830	1295
OUTPUT PARAMETERS:					
S =	Sharpness of flare = $1.6(E-V)/L$	0.27	0.11	0.18	0.11
K =	$1-0.00347(A-30)-0.978(1/R-0.05)$	1.05	1.09	1.08	1.03
X2 =	$V + ((E-V)/(1+2S))$	8.40	7.87	8.55	7.87
M =	$EXP((D-60)/10)$	1.65	1.65	1.65	1.65
F =	$303 \times X2$	2546	2385	2590	2385
Td =	$1+(0.5(1+M))$	1.19	1.19	1.19	1.19
Fc =	$0.21 \times Td(1+0.2 \times X2)$	0.67	0.64	0.68	0.64
Qe =	$K(F \times Fc \times Qc)$	2296	1830	2194	1605
DFC =	Design flow/Capacity = Q/Qe	0.57	0.42	0.51	0.36
Total In Sum =					3770 PCU
DFC of Critical Approach =					0.57



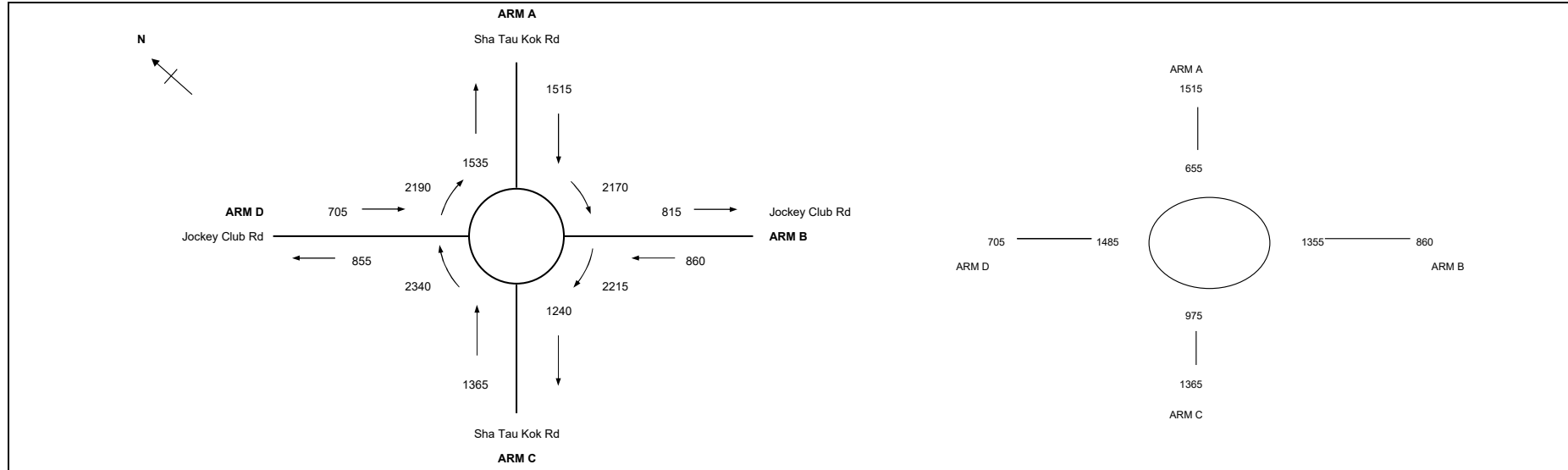
ARM	A	B	C	D			
INPUT PARAMETERS:							
V =	Approach half width (m)	7.30	7.30	7.30	7.30		
E =	Entry width (m)	9.00	8.00	9.00	8.00		
L =	Effective length of flare (m)	10	10	15	10		
R =	Entry radius (m)	30	35	50	30		
D =	Inscribed circle diameter (m)	65	65	65	65		
A =	Entry angle (degree)	20	10	15	25		
Q =	Entry flow (pcu/h)	1410	875	1260	710		
Qc =	Circulating flow across entry (pcu/h)	670	1295	1060	1405		
OUTPUT PARAMETERS:							
S =	Sharpness of flare = 1.6(E-V)/L	0.27	0.11	0.18	0.11		
K =	$1 - 0.00347(A - 30) - 0.978(1/R - 0.05)$	1.05	1.09	1.08	1.03		
X2 =	$V + ((E - V)/(1 + 2S))$	8.40	7.87	8.55	7.87		
M =	$EXP((D - 60)/10)$	1.65	1.65	1.65	1.65		
F =	$303 * X2$	2546	2385	2590	2385		
Td =	$1 + (0.5(1 + M))$	1.19	1.19	1.19	1.19		
Fc =	$0.21 * Td(1 + 0.2 * X2)$	0.67	0.64	0.68	0.64		
Qe =	$K(F - Fc * Qc)$	2204	1693	2025	1532		
DFC =	Design flow/Capacity = Q/Qe	0.64	0.52	0.62	0.46		
Total In Sum =						4255	PCU
DFC of Critical Approach =						0.64	



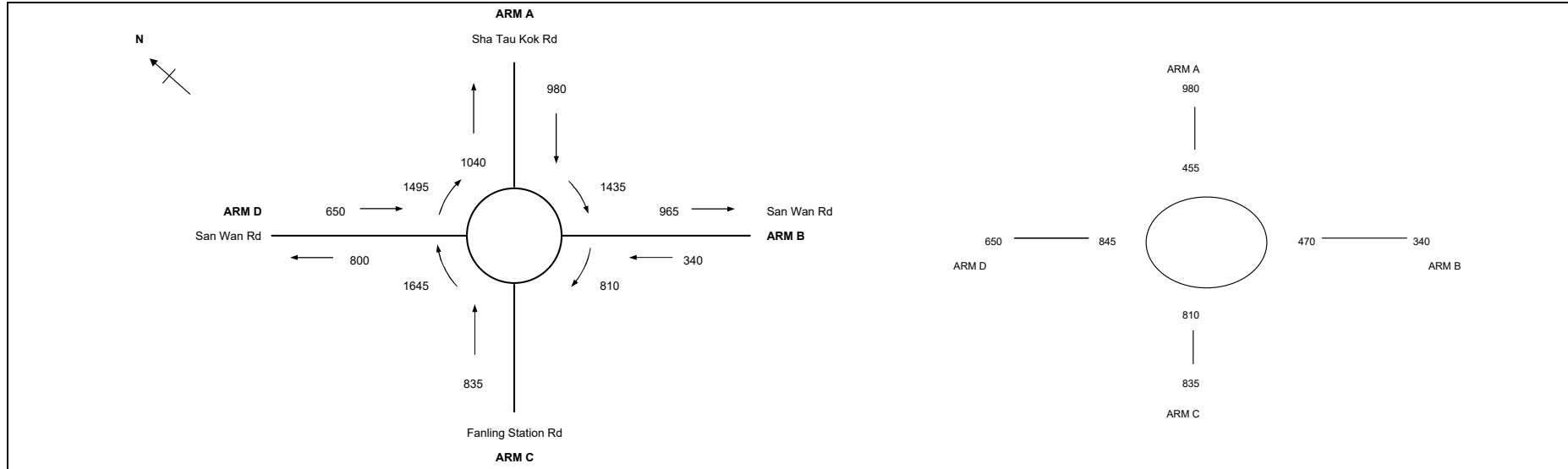
ARM	A	B	C	D			
INPUT PARAMETERS:							
V	=	Approach half width (m)	7.30	7.30	7.30	7.30	
E	=	Entry width (m)	9.00	8.00	9.00	8.00	
L	=	Effective length of flare (m)	10	10	15	10	
R	=	Entry radius (m)	30	35	50	30	
D	=	Inscribed circle diameter (m)	65	65	65	65	
A	=	Entry angle (degree)	20	10	15	25	
Q	=	Entry flow (pcu/h)	1485	855	1325	700	
Qc	=	Circulating flow across entry (pcu/h)	655	1325	970	1440	
OUTPUT PARAMETERS:							
S	=	Sharpness of flare = 1.6(E-V)/L	0.27	0.11	0.18	0.11	
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.09	1.08	1.03	
X2	=	$V + ((E-V)/(1+2S))$	8.40	7.87	8.55	7.87	
M	=	$EXP((D-60)/10)$	1.65	1.65	1.65	1.65	
F	=	$303 \times X2$	2546	2385	2590	2385	
Td	=	$1+(0.5/(1+M))$	1.19	1.19	1.19	1.19	
Fc	=	$0.21 \times Td(1+0.2 \times X2)$	0.67	0.64	0.68	0.64	
Qe	=	$K(F \times Fc \times Qc)$	2215	1672	2091	1509	
DFC	=	Design flow/Capacity = Q/Qe	0.67	0.51	0.63	0.46	
Total In Sum =						4365	PCU
DFC of Critical Approach =						0.67	



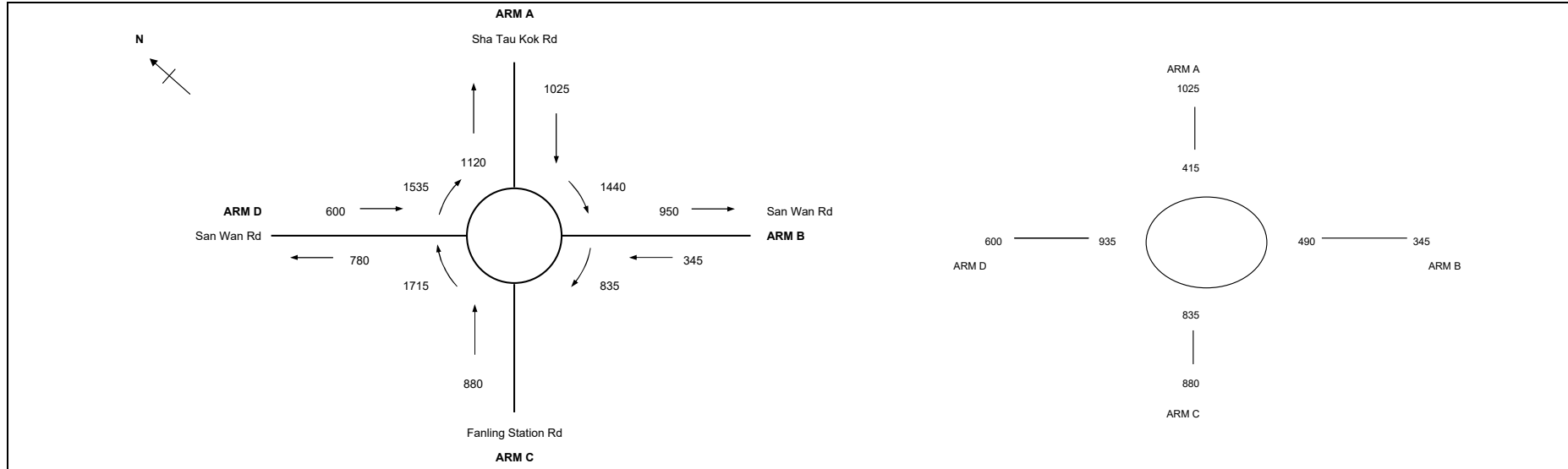
ARM	A	B	C	D	
INPUT PARAMETERS:					
V = Approach half width (m)	7.30	7.30	7.30	7.30	
E = Entry width (m)	9.00	8.00	9.00	8.00	
L = Effective length of flare (m)	10	10	15	10	
R = Entry radius (m)	30	35	50	30	
D = Inscribed circle diameter (m)	65	65	65	65	
A = Entry angle (degree)	20	10	15	25	
Q = Entry flow (pcu/h)	1470	880	1295	710	
Qc = Circulating flow across entry (pcu/h)	670	1350	1070	1445	
OUTPUT PARAMETERS:					
S = Sharpness of flare = 1.6(E-V)/L	0.27	0.11	0.18	0.11	
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.09	1.08	1.03	
X2 = $V + ((E-V)/(1+2S))$	8.40	7.87	8.55	7.87	
M = $EXP((D-60)/10)$	1.65	1.65	1.65	1.65	
F = 303*X2	2546	2385	2590	2385	
Td = 1+(0.5(1+M))	1.19	1.19	1.19	1.19	
Fc = 0.21*Td(1+0.2*X2)	0.67	0.64	0.68	0.64	
Qe = K(F-Fc*Qc)	2204	1655	2018	1506	
DFC = Design flow/Capacity = Q/Qe	0.67	0.53	0.64	0.47	
Total In Sum =				4355	PCU
DFC of Critical Approach =				0.67	



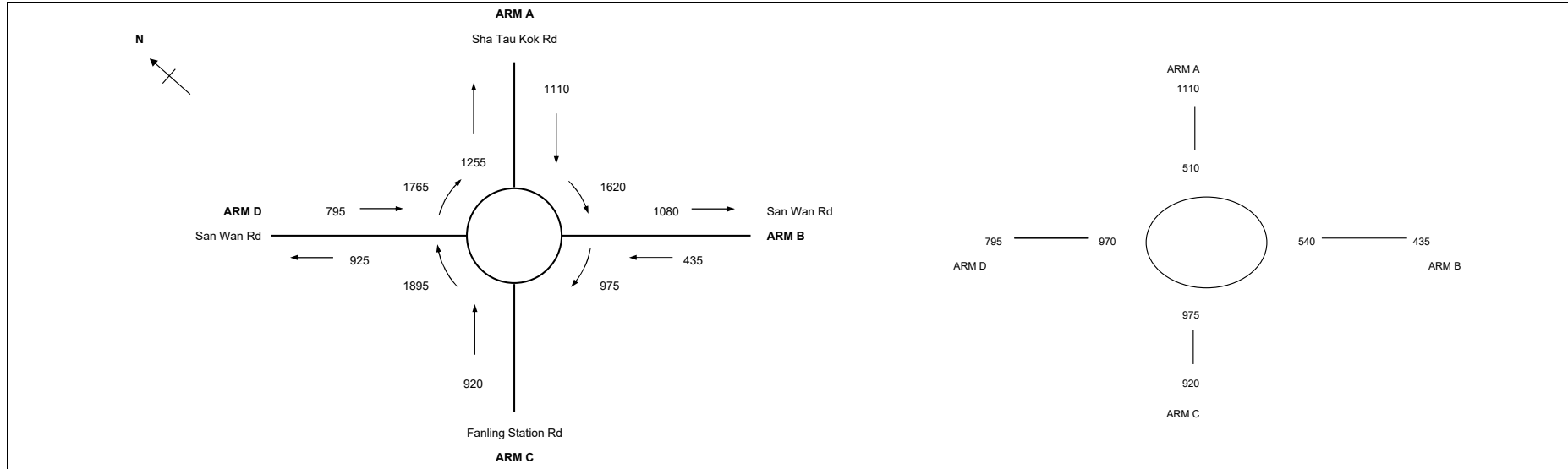
ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	7.30	7.30	7.30
E = Entry width (m)	9.00	8.00	9.00	8.00
L = Effective length of flare (m)	10	10	15	10
R = Entry radius (m)	30	35	50	30
D = Inscribed circle diameter (m)	65	65	65	65
A = Entry angle (degree)	20	10	15	25
Q = Entry flow (pcu/h)	1515	860	1365	705
Qc = Circulating flow across entry (pcu/h)	655	1355	975	1485
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.27	0.11	0.18	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.09	1.08	1.03
X2 = $V + ((E-V)/(1+2S))$	8.40	7.87	8.55	7.87
M = $EXP((D-60)/10)$	1.65	1.65	1.65	1.65
F = 303*X2	2546	2385	2590	2385
Td = 1+(0.5*(1+M))	1.19	1.19	1.19	1.19
Fc = 0.21*Td(1+0.2*X2)	0.67	0.64	0.68	0.64
Qe = K(F-Fc*Qc)	2215	1651	2088	1479
DFC = Design flow/Capacity = Q/Qe	0.68	0.52	0.65	0.48
Total In Sum =				4445 PCU
DFC of Critical Approach =				0.68



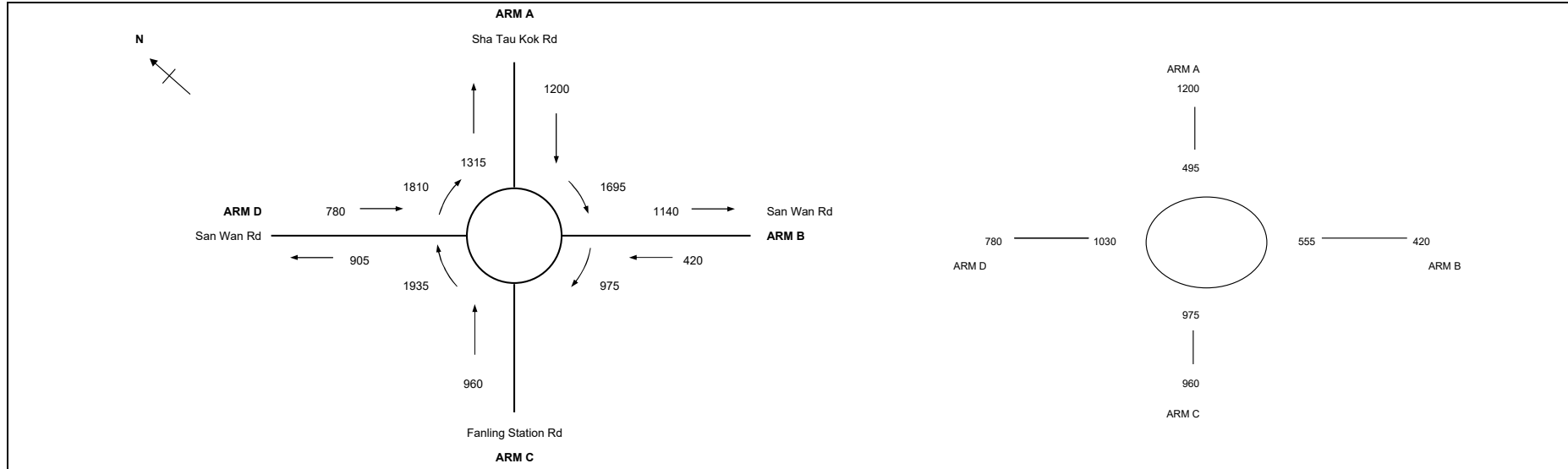
ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	5.50	7.30	7.30	6.00
E = Entry width (m)	10.00	10.50	10.00	7.50
L = Effective length of flare (m)	30	50	15	50
R = Entry radius (m)	100	100	25	50
D = Inscribed circle diameter (m)	55	55	55	55
A = Entry angle (degree)	10	30	30	15
Q = Entry flow (pcu/h)	980	340	835	650
Qc = Circulating flow across entry (pcu/h)	455	470	810	845
OUTPUT PARAMETERS:				
S = Sharpness of flare = $1.6(E-V)/L$	0.24	0.10	0.29	0.05
K = $1-0.00347(A-30)-0.978(1/R-0.05)$	1.11	1.04	1.01	1.08
X2 = $V + ((E-V)/(1+2S))$	8.54	9.96	9.01	7.37
M = $EXP((D-60)/10)$	0.61	0.61	0.61	0.61
F = $303 \times X2$	2588	3017	2731	2233
Td = $1+(0.5(1+M))$	1.31	1.31	1.31	1.31
Fc = $0.21 \times Td(1+0.2 \times X2)$	0.75	0.82	0.77	0.68
Qe = $K(F-Fc \times Qc)$	2492	2732	2126	1792
DFC = Design flow/Capacity = Q/Qe	0.39	0.12	0.39	0.36
Total In Sum =				2805 PCU
DFC of Critical Approach =				0.39



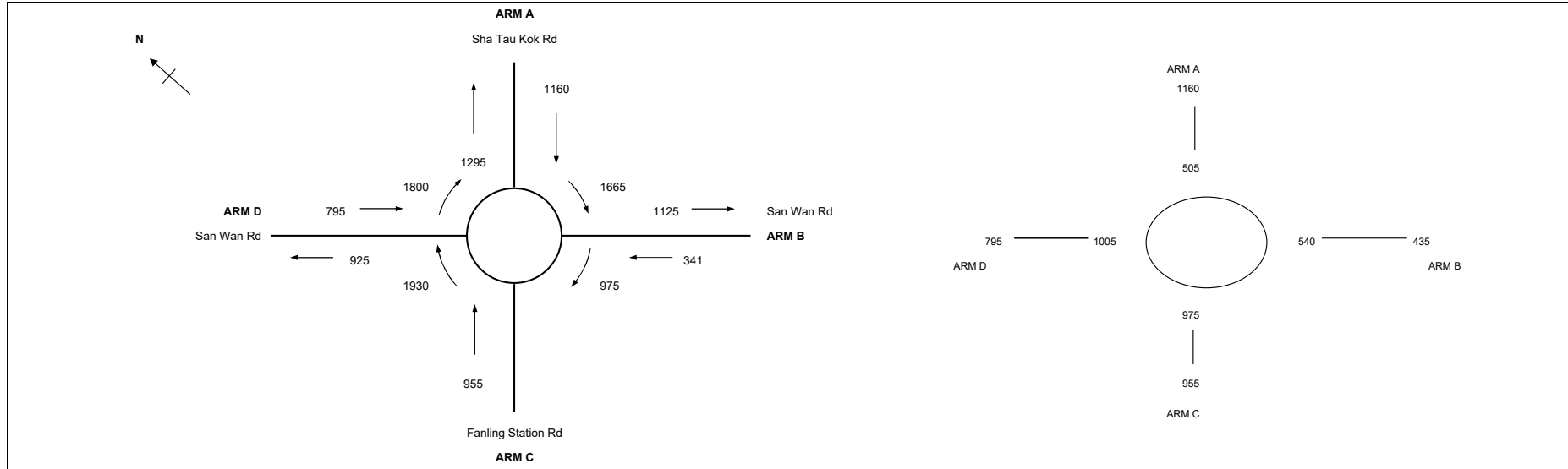
ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	5.50	7.30	7.30	6.00
E = Entry width (m)	10.00	10.50	10.00	7.50
L = Effective length of flare (m)	30	50	15	50
R = Entry radius (m)	100	100	25	50
D = Inscribed circle diameter (m)	55	55	55	55
A = Entry angle (degree)	10	30	30	15
Q = Entry flow (pcu/h)	1025	345	880	600
Qc = Circulating flow across entry (pcu/h)	415	490	835	935
OUTPUT PARAMETERS:				
S = Sharpness of flare = $1.6(E-V)/L$	0.24	0.10	0.29	0.05
K = $1-0.00347(A-30)-0.978(1/R-0.05)$	1.11	1.04	1.01	1.08
X2 = $V + ((E-V)/(1+2S))$	8.54	9.96	9.01	7.37
M = $EXP((D-60)/10)$	0.61	0.61	0.61	0.61
F = $303 \times X2$	2588	3017	2731	2233
Td = $1+(0.5(1+M))$	1.31	1.31	1.31	1.31
Fc = $0.21 \times Td(1+0.2 \times X2)$	0.75	0.82	0.77	0.68
Qe = $K(F-Fc \times Qc)$	2526	2715	2107	1726
DFC = Design flow/Capacity = Q/Qe	0.41	0.13	0.42	0.35
Total In Sum =				2850 PCU
DFC of Critical Approach =				0.42



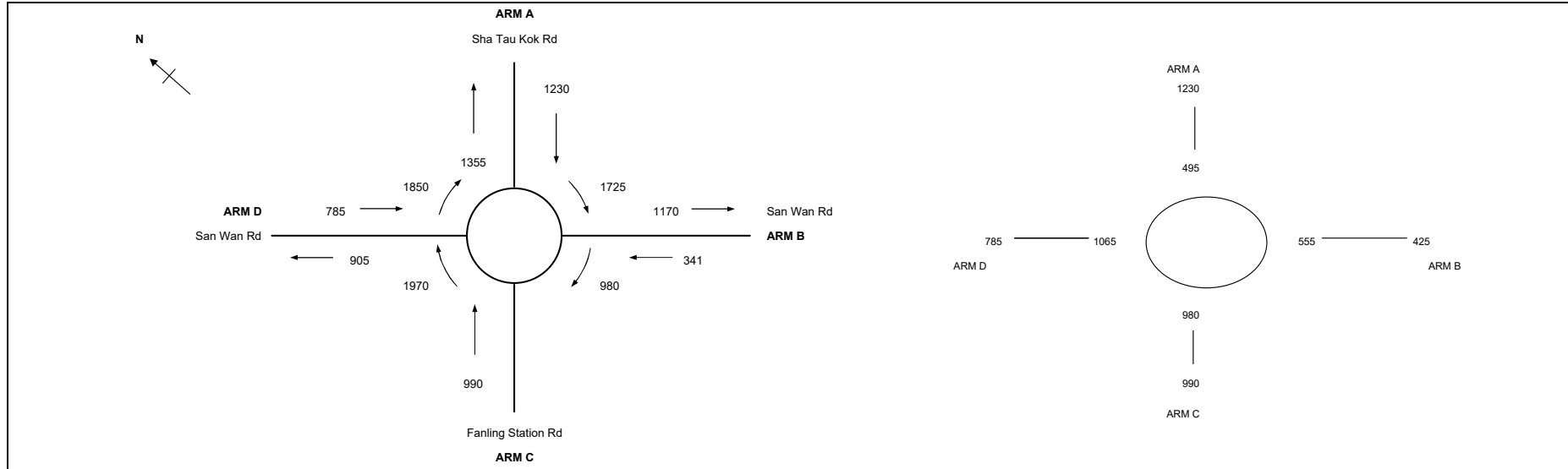
ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	5.50	7.30	7.30	6.00
E = Entry width (m)	10.00	10.50	10.00	7.50
L = Effective length of flare (m)	30	50	15	50
R = Entry radius (m)	100	100	25	50
D = Inscribed circle diameter (m)	55	55	55	55
A = Entry angle (degree)	10	30	30	15
Q = Entry flow (pcu/h)	1110	435	920	795
Qc = Circulating flow across entry (pcu/h)	510	540	975	970
OUTPUT PARAMETERS:				
S = Sharpness of flare = $1.6(E-V)/L$	0.24	0.10	0.29	0.05
K = $1-0.00347(A-30)-0.978(1/R-0.05)$	1.11	1.04	1.01	1.08
X2 = $V + ((E-V)/(1+2S))$	8.54	9.96	9.01	7.37
M = $EXP((D-60)/10)$	0.61	0.61	0.61	0.61
F = $303 \times X2$	2588	3017	2731	2233
Td = $1+(0.5/(1+M))$	1.31	1.31	1.31	1.31
Fc = $0.21 \times Td(1+0.2 \times X2)$	0.75	0.82	0.77	0.68
Qe = $K(F-Fc \times Qc)$	2447	2673	1998	1700
DFC = Design flow/Capacity = Q/Qe	0.45	0.16	0.46	0.47
Total In Sum =				3260 PCU
DFC of Critical Approach =				0.47



ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	5.50	7.30	7.30	6.00
E = Entry width (m)	10.00	10.50	10.00	7.50
L = Effective length of flare (m)	30	50	15	50
R = Entry radius (m)	100	100	25	50
D = Inscribed circle diameter (m)	55	55	55	55
A = Entry angle (degree)	10	30	30	15
Q = Entry flow (pcu/h)	1200	420	960	780
Qc = Circulating flow across entry (pcu/h)	495	555	975	1030
OUTPUT PARAMETERS:				
S = Sharpness of flare = $1.6(E-V)/L$	0.24	0.10	0.29	0.05
K = $1-0.00347(A-30)-0.978(1/R-0.05)$	1.11	1.04	1.01	1.08
X2 = $V + ((E-V)/(1+2S))$	8.54	9.96	9.01	7.37
M = $EXP((D-60)/10)$	0.61	0.61	0.61	0.61
F = $303 \times X2$	2588	3017	2731	2233
Td = $1+(0.5(1+M))$	1.31	1.31	1.31	1.31
Fc = $0.21 \times Td(1+0.2 \times X2)$	0.75	0.82	0.77	0.68
Qe = $K(F-Fc \times Qc)$	2459	2660	1998	1656
DFC = Design flow/Capacity = Q/Qe	0.49	0.16	0.48	0.47
Total In Sum =				3360 PCU
DFC of Critical Approach =				0.49



ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	5.50	7.30	7.30	6.00
E = Entry width (m)	10.00	10.50	10.00	7.50
L = Effective length of flare (m)	30	50	15	50
R = Entry radius (m)	100	100	25	50
D = Inscribed circle diameter (m)	55	55	55	55
A = Entry angle (degree)	10	30	30	15
Q = Entry flow (pcu/h)	1160	435	955	795
Qc = Circulating flow across entry (pcu/h)	505	540	975	1005
OUTPUT PARAMETERS:				
S = Sharpness of flare = $1.6(E-V)/L$	0.24	0.10	0.29	0.05
K = $1-0.00347(A-30)-0.978(1/R-0.05)$	1.11	1.04	1.01	1.08
X2 = $V + ((E-V)/(1+2S))$	8.54	9.96	9.01	7.37
M = $EXP((D-60)/10)$	0.61	0.61	0.61	0.61
F = $303 \times X2$	2588	3017	2731	2233
Td = $1+(0.5(1+M))$	1.31	1.31	1.31	1.31
Fc = $0.21 \times Td(1+0.2 \times X2)$	0.75	0.82	0.77	0.68
Qe = $K(F-Fc \times Qc)$	2451	2673	1998	1674
DFC = Design flow/Capacity = Q/Qe	0.47	0.16	0.48	0.47
Total In Sum =				3345 PCU
DFC of Critical Approach =				0.48



ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	5.50	7.30	7.30	6.00
E = Entry width (m)	10.00	10.50	10.00	7.50
L = Effective length of flare (m)	30	50	15	50
R = Entry radius (m)	100	100	25	50
D = Inscribed circle diameter (m)	55	55	55	55
A = Entry angle (degree)	10	30	30	15
Q = Entry flow (pcu/h)	1230	425	990	785
Qc = Circulating flow across entry (pcu/h)	495	555	980	1065
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.24	0.10	0.29	0.05
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.11	1.04	1.01	1.08
X2 = V + ((E-V)/(1+2S))	8.54	9.96	9.01	7.37
M = EXP((D-60)/10)	0.61	0.61	0.61	0.61
F = 303*X2	2588	3017	2731	2233
Td = 1+(0.5/(1+M))	1.31	1.31	1.31	1.31
Fc = 0.21*Td(1+0.2*X2)	0.75	0.82	0.77	0.68
Qe = K(F-Fc*Qc)	2459	2660	1994	1630
DFC = Design flow/Capacity = Q/Qe	0.50	0.16	0.50	0.48
Total In Sum =				3430 PCU
DFC of Critical Approach =				0.50

OVE ARUP & PARTNERS

TRAFFIC SIGNAL CALCULATION

J23 - San Wan Road / Fanling Station Road

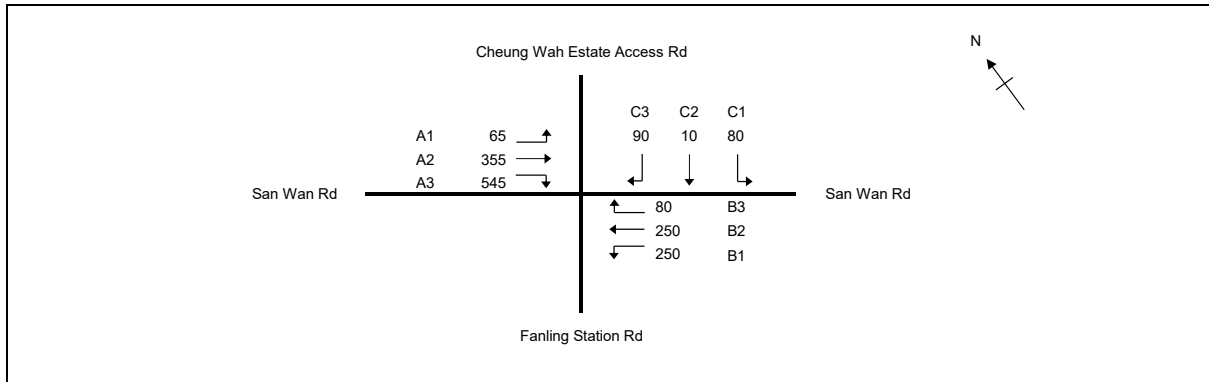
J23_2023_EXT_AM

PROJECT NO: 287082

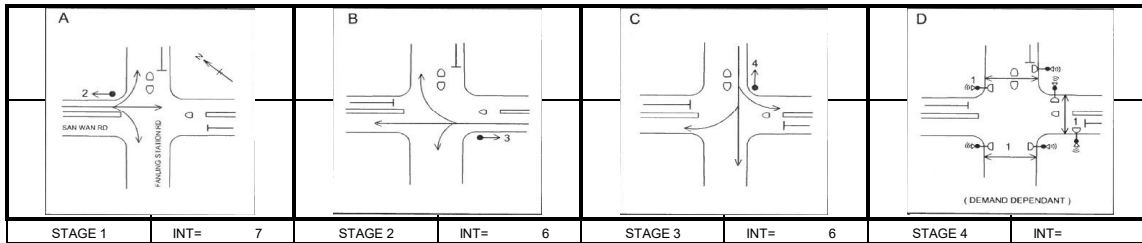
Junction No. J23

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N = 4
No. of stage using for calculation	N = 3
Cycle time	C = 120 sec
Sum(y)	Y = 0.472
Loss time	L = 43 sec
Total Flow	= 1725 pcu
Co	= (1.5*L+5)/(1-Y) = 131.5 sec
Cm	= L/(1-Y) = 81.4 sec
Yult	= 0.578
R.C.ult	= (Yult-Y)*100% = 22.5 %
Cp	= 0.9*L/(0.9-Y) = 90.3 sec
Ymax	= 1-L/C = 0.642
R.C.(C)	= (0.9*Ymax-Y)*100% = 22 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
1	13.5	6	6	15	6	6	15	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1	1	3.30	2	1	10		N	1945	65			65	1.00	1691		1691	0.038	0.231	16	6	38	0.122	9	
A2,A3	1	3.30	2	1	15			2085		355		470	0.24	2035		2035	0.231			38	38	0.735	64	
A3	1	3.30	2	1	12.5			2085			430	430	1.00	1862		1862	0.231			38	38	0.735	59	
B1,B2	2	3.60	3	1	17.5		N	1975	250	24		274	0.91	1832		1832	0.150	0.150		24	24	0.735	44	
B2,B3	2	3.60	3	1	12.5			2115		226	80	306	0.26	2051		2051	0.149			24	24	0.733	49	
C1,C2,C3	5	5.50	4	1	15		N	2165	80	10	90	180	0.94	1978		1978	0.091	0.091		15	15	0.735	32	
PED	4		1																27					

NOTE : 'O' - OPPOSING TRAFFIC

N - NEAR SIDE LANE

SG - STEADY GREEN

FG - FLASHING GREEN

PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s

QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS

TRAFFIC SIGNAL CALCULATION

J23 - San Wan Road / Fanling Station Road

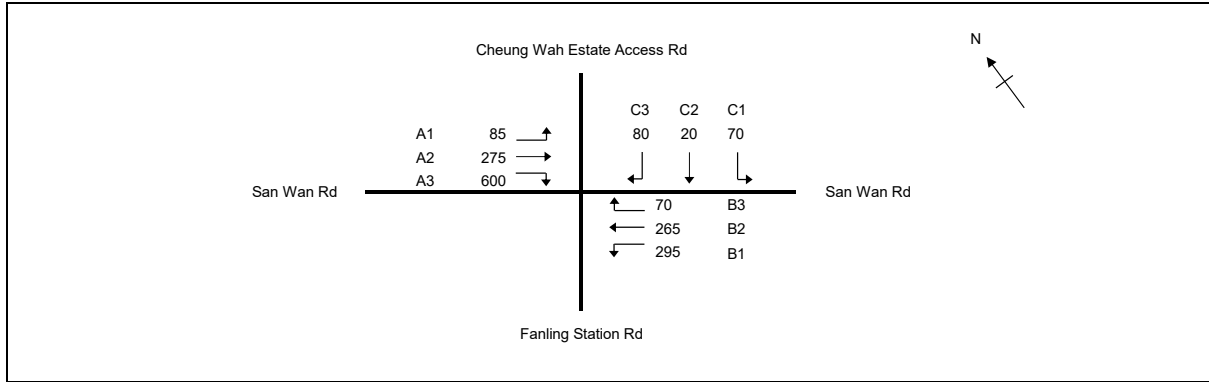
J23_2023_EXT_PM

PROJECT NO: 287082

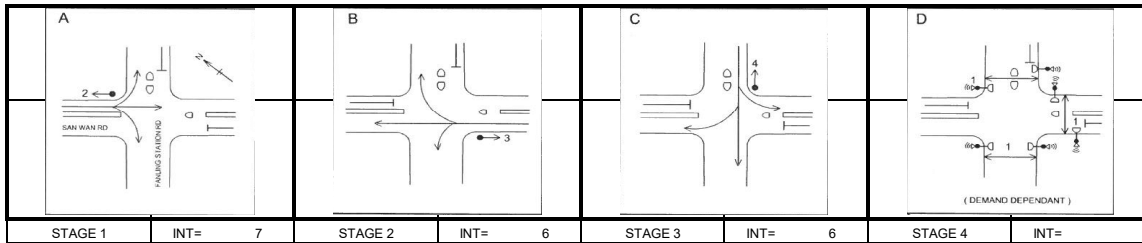
Junction No. J23

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N = 4
No. of stage using for calculation	N = 3
Cycle time	C = 120 sec
Sum(y)	Y = 0.474
Loss time	L = 43 sec
Total Flow	= 1760 pcu
Co	= (1.5*L+5)/(1-Y) = 132.2 sec
Cm	= L/(1-Y) = 81.8 sec
Yult	= 0.578
R.C.ult	= (Yult-Y)*100% = 21.8 %
Cp	= 0.9*L/(0.9-Y) = 90.9 sec
Ymax	= 1-L/C = 0.642
R.C.(C)	= (0.9*Ymax-Y)*100% = 22 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
1	13.5	6	6	15	6	6	15	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1	1	3.30	2	1	10		N	1945	85		85	1.00	1691			1691	0.050	0.226	16	8	37	0.164	12	
A2,A3	1	3.30	2	1	15			2085		275	454	0.39	2006			2006	0.226			37	37	0.739	63	
A3	1	3.30	2	1	12.5			2085		421	421	1.00	1862			1862	0.226			37	37	0.738	58	
B1,B2	2	3.60	3	1	17.5		N	1975	295	0	295	1.00	1819			1819	0.162	0.162		26	26	0.738	46	
B2,B3	2	3.60	3	1	12.5			2115		265	335	0.21	2063			2063	0.162			26	26	0.739	52	
C1,C2,C3	5	5.50	4	1	15		N	2165	70	20	170	0.88	1989			1989	0.085	0.085		14	14	0.739	30	
PED	4		1																27					

NOTE : 'O' - OPPOSING TRAFFIC

N - NEAR SIDE LANE

SG - STEADY GREEN

FG - FLASHING GREEN

PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s

QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS

TRAFFIC SIGNAL CALCULATION

J23 - San Wan Road / Fanling Station Road

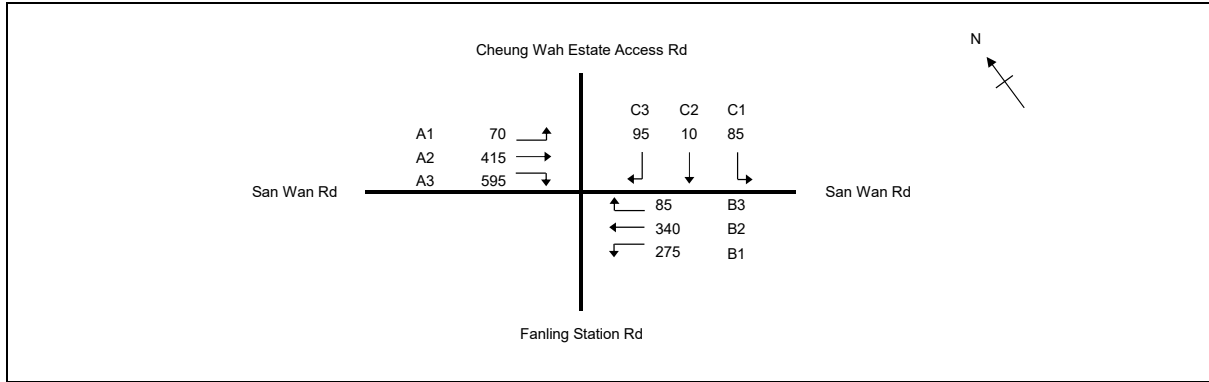
J23_2031_REF_AM

PROJECT NO: 287082

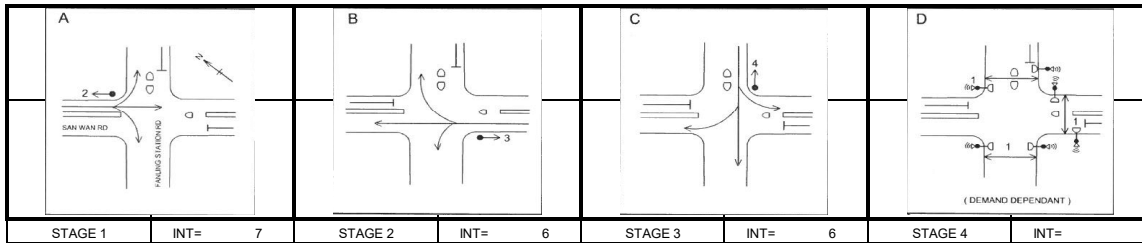
Junction No. J23

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N = 4
No. of stage using for calculation	N = 3
Cycle time	C = 120 sec
Sum(y)	Y = 0.535
Loss time	L = 43 sec
Total Flow	= 1970 pcu
Co	= (1.5*L+5)/(1-Y) = 149.3 sec
Cm	= L/(1-Y) = 92.4 sec
Yult	= 0.578
R.C.ult	= (Yult-Y)*100% = 8.0 %
Cp	= 0.9*L/(0.9-Y) = 105.9 sec
Ymax	= 1-L/C = 0.642
R.C.(C)	= (0.9*Ymax-Y)*100% = 8 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
1	13.5	6	6	15	6	6	15	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1	1	3.30	2	1	10		N	1945	70			70	1.00	1691			1691	0.041	0.259	16	6	37	0.133	10
A2,A3	1	3.30	2	1	15			2085		415		528	0.21	2041			2041	0.259			37	37	0.832	73
A3	1	3.30	2	1	12.5			2085			482	482	1.00	1862			1862	0.259			37	37	0.833	66
B1,B2	2	3.60	3	1	17.5		N	1975	275	56		331	0.83	1844			1844	0.180	0.180		26	26	0.833	52
B2,B3	2	3.60	3	1	12.5			2115		284		369	0.23	2058			2058	0.179			26	26	0.832	58
C1,C2,C3	5	5.50	4	1	15		N	2165	85	10	95	190	0.95	1978			1978	0.096	0.096		14	14	0.833	34
PED	4		1																	27				

NOTE : 'O' - OPPOSING TRAFFIC

N - NEAR SIDE LANE

SG - STEADY GREEN

FG - FLASHING GREEN

PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s

QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS

TRAFFIC SIGNAL CALCULATION

J23 - San Wan Road / Fanling Station Road

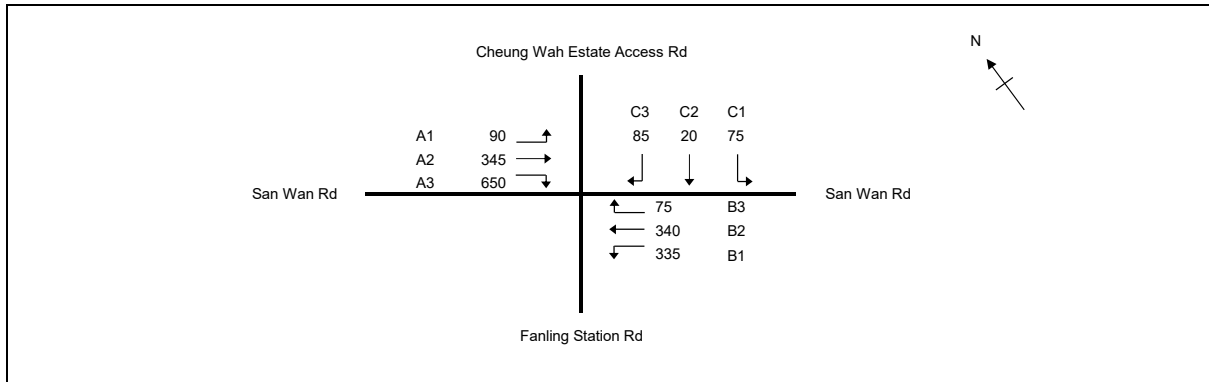
J23_2031_REF_PM

PROJECT NO: 287082

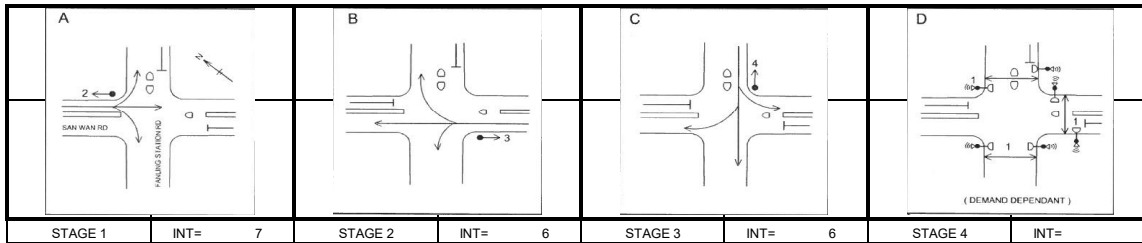
Junction No. J23

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N = 4
No. of stage using for calculation	N = 3
Cycle time	C = 120 sec
Sum(y)	Y = 0.540
Loss time	L = 43 sec
Total Flow	= 2015 pcu
Co	= (1.5*L+5)/(1-Y) = 151.1 sec
Cm	= L/(1-Y) = 93.5 sec
Yult	= 0.578
R.C.ult	= (Yult-Y)*100% = 6.9 %
Cp	= 0.9*L/(0.9-Y) = 107.5 sec
Ymax	= 1-L/C = 0.642
R.C.(C)	= (0.9*Ymax-Y)*100% = 7 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
1	13.5	6	6	15	6	6	15	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1	1	3.30	2	1	10		N	1945	90			90	1.00	1691		1691	0.053	0.257	16	8	37	0.174	13	
A2,A3	1	3.30	2	1	15			2085	345			518	0.33	2018		2018	0.257			37	37	0.842	72	
A3	1	3.30	2	1	12.5			2085		477		477	1.00	1862		1862	0.256			37	37	0.840	66	
B1,B2	2	3.60	3	1	17.5		N	1975	335	17		352	0.95	1826		1826	0.193	0.193		27	27	0.842	54	
B2,B3	2	3.60	3	1	12.5			2115		323		398	0.19	2068		2068	0.192			27	27	0.840	61	
C1,C2,C3	5	5.50	4	1	15		N	2165	75	20	85	180	0.89	1988		1988	0.091	0.091		13	13	0.842	32	
PED	4		1																27					

NOTE : 'O' - OPPOSING TRAFFIC

N - NEAR SIDE LANE

SG - STEADY GREEN

FG - FLASHING GREEN

PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s

QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS

TRAFFIC SIGNAL CALCULATION

J23 - San Wan Road / Fanling Station Road

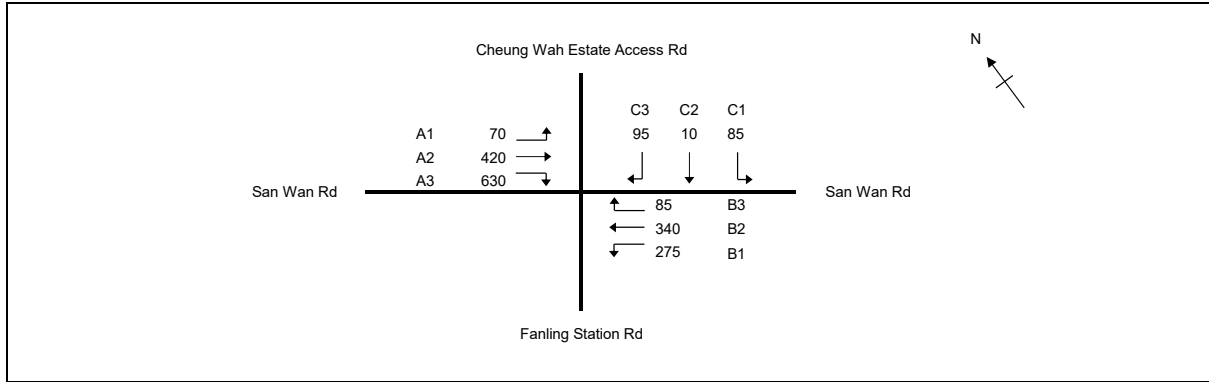
J23_2031_DES_AM

PROJECT NO: 287082

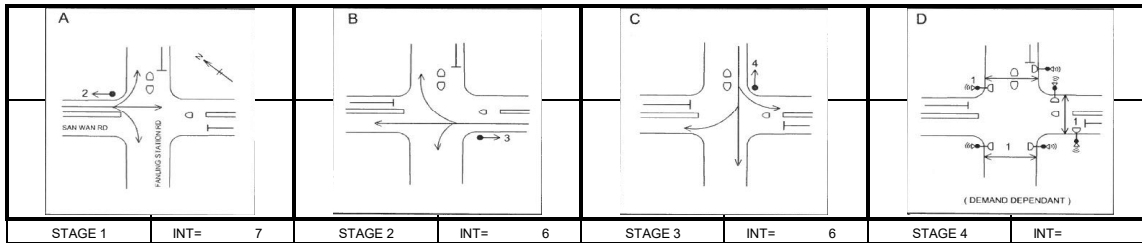
Junction No. J23

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N = 4
No. of stage using for calculation	N = 3
Cycle time	C = 120 sec
Sum(y)	Y = 0.545
Loss time	L = 43 sec
Total Flow	= 2010 pcu
Co	= (1.5*L+5)/(1-Y) = 152.8 sec
Cm	= L/(1-Y) = 94.5 sec
Yult	= 0.578
R.C.ult	= (Yult-Y)*100% = 5.9 %
Cp	= 0.9*L/(0.9-Y) = 109.0 sec
Ymax	= 1-L/C = 0.642
R.C.(C)	= (0.9*Ymax-Y)*100% = 6 %



STAGE 1	INT= 7	STAGE 2	INT= 6	STAGE 3	INT= 6	STAGE 4	INT=
---------	--------	---------	--------	---------	--------	---------	------

Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
1	13.5	6	6	15	6	6	15	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1	1	3.30	2	1	10		N	1945	70		70	1.00	1691			1691	0.041	0.269	16	6	38	0.130	10	
A2,A3	1	3.30	2	1	15			2085	420	129	549	0.23	2037			2037	0.269			38	38	0.850	75	
A3	1	3.30	2	1	12.5			2085		501	501	1.00	1862			1862	0.269			38	38	0.848	68	
B1,B2	2	3.60	3	1	17.5		N	1975	275	56	331	0.83	1844			1844	0.180	0.180		25	25	0.850	52	
B2,B3	2	3.60	3	1	12.5			2115		284	369	0.23	2058			2058	0.179			25	25	0.848	58	
C1,C2,C3	5	5.50	4	1	15		N	2165	85	10	190	0.95	1978			1978	0.096	0.096		14	14	0.850	34	
PED	4		1																27					

NOTE : 'O' - OPPOSING TRAFFIC

N - NEAR SIDE LANE

SG - STEADY GREEN

FG - FLASHING GREEN

PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s

QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS

TRAFFIC SIGNAL CALCULATION

J23 - San Wan Road / Fanling Station Road

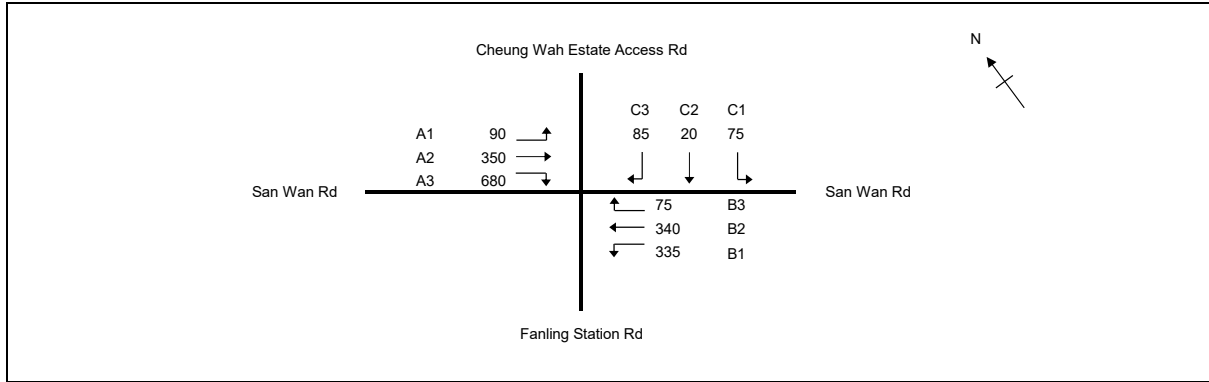
J23_2031_DES_PM

PROJECT NO: 287082

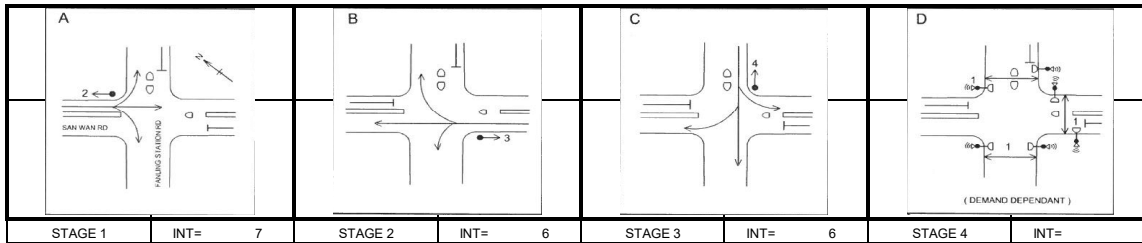
Junction No. J23

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N = 4
No. of stage using for calculation	N = 3
Cycle time	C = 120 sec
Sum(y)	Y = 0.549
Loss time	L = 43 sec
Total Flow	= 2050 pcu
Co	= (1.5*L+5)/(1-Y) = 154.2 sec
Cm	= L/(1-Y) = 95.4 sec
Yult	= 0.578
R.C.ult	= (Yult-Y)*100% = 5.2 %
Cp	= 0.9*L/(0.9-Y) = 110.3 sec
Ymax	= 1-L/C = 0.642
R.C.(C)	= (0.9*Ymax-Y)*100% = 5 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
1	13.5	6	6	15	6	6	15	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1	1	3.30	2	1	10		N	1945	90			90	1.00	1691			1691	0.053	0.266	16	7	37	0.171	12
A2,A3	1	3.30	2	1	15			2085		350		535	0.35	2015			2015	0.265			37	37	0.855	74
A3	1	3.30	2	1	12.5			2085			495	495	1.00	1862			1862	0.266			37	37	0.856	68
B1,B2	2	3.60	3	1	17.5		N	1975	335	17		352	0.95	1826			1826	0.193	0.193		27	27	0.856	55
B2,B3	2	3.60	3	1	12.5			2115		323	75	398	0.19	2068			2068	0.192			27	27	0.854	62
C1,C2,C3	5	5.50	4	1	15		N	2165	75	20	85	180	0.89	1988			1988	0.091	0.091		13	13	0.856	32
PED	4		1																	27				

NOTE : 'O' - OPPOSING TRAFFIC

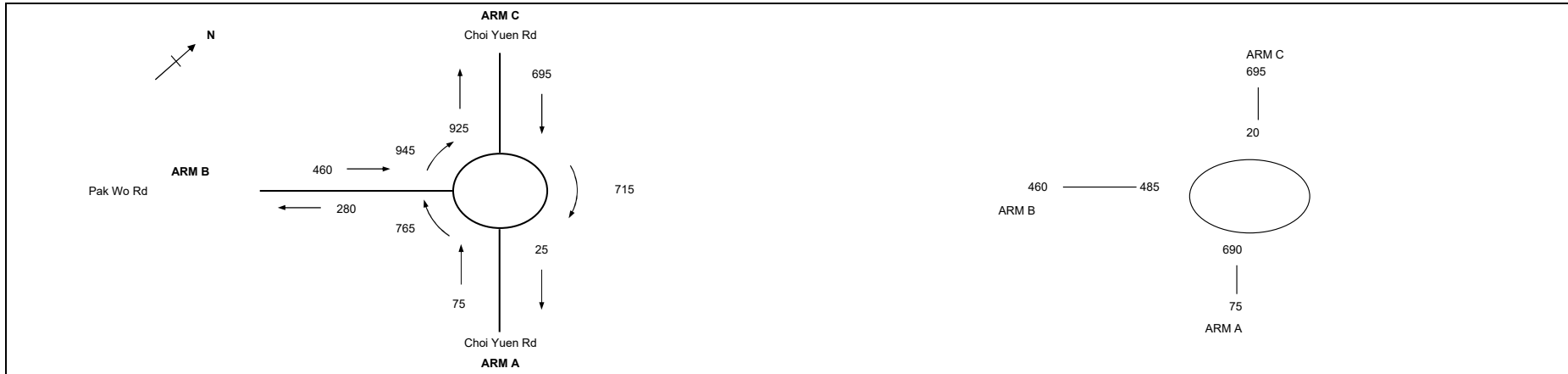
N - NEAR SIDE LANE

SG - STEADY GREEN

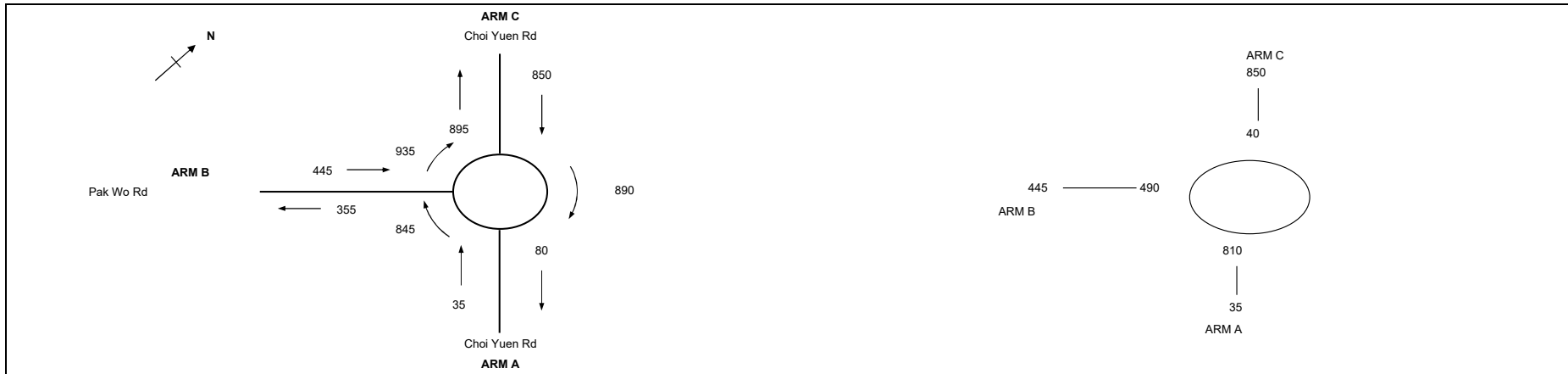
FG - FLASHING GREEN

PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s

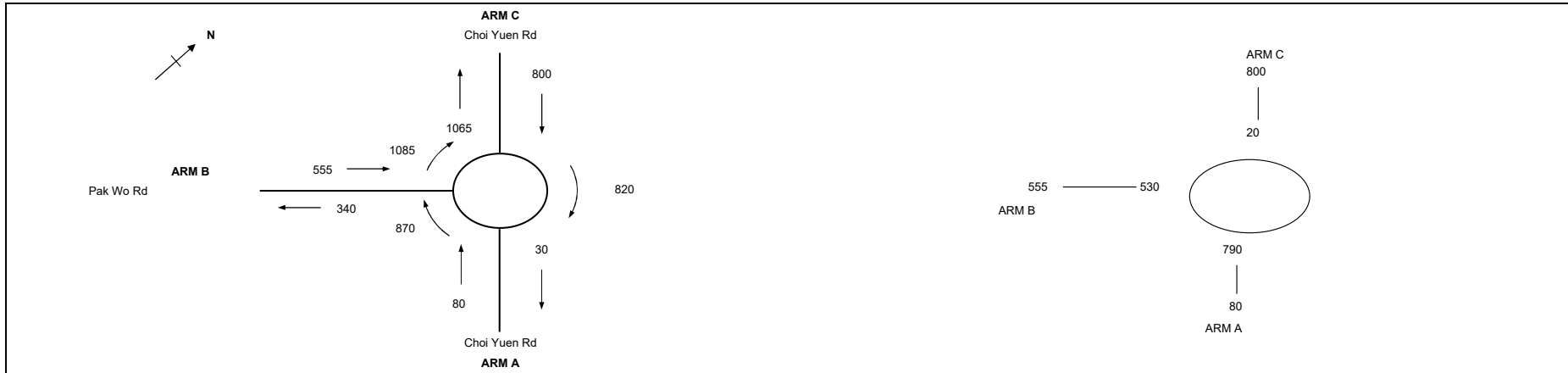
QUEUING LENGTH = AVERAGE QUEUE * 6m



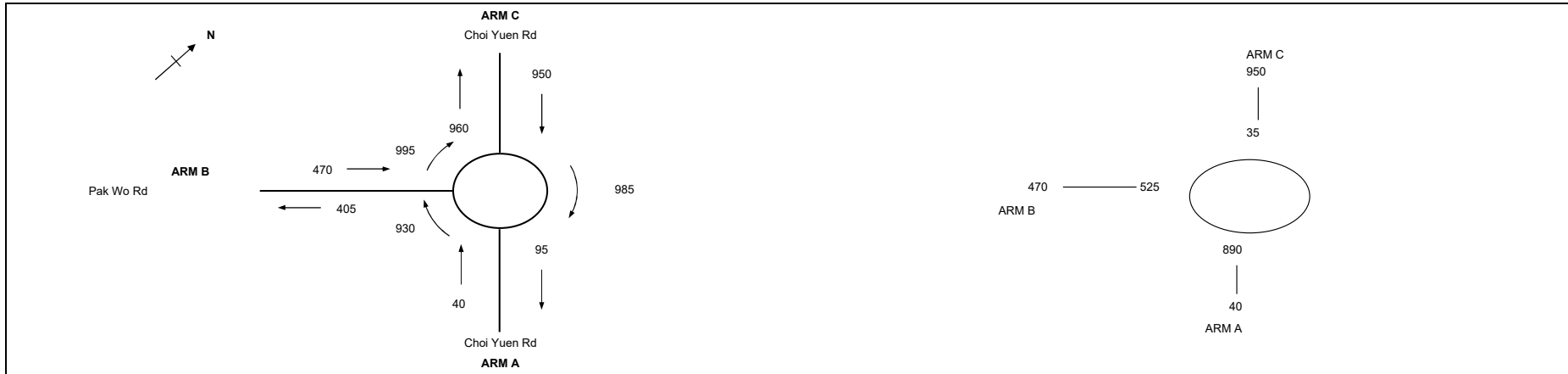
ARM	A	B	C		
INPUT PARAMETERS:					
V = Approach half width (m)	4.00	5.00	6.00		
E = Entry width (m)	6.50	6.50	7.50		
L = Effective length of flare (m)	5	5	2.5		
R = Entry radius (m)	10	10	80		
D = Inscribed circle diameter (m)	30	30	30		
A = Entry angle (degree)	30	30	15		
Q = Entry flow (pcu/h)	75	460	695		
Qc = Circulating flow across entry (pcu/h)	690	485	20		
OUTPUT PARAMETERS:					
S = Sharpness of flare = $1.6(E-V)/L$	0.80	0.48	0.96		
K = $1-0.00347(A-30)-0.978(1/R-0.05)$	0.95	0.95	1.09		
X2 = $V + ((E-V)/(1+2S))$	4.96	5.77	6.51		
M = $EXP((D-60)/10)$	0.05	0.05	0.05		
F = $303 \times X2$	1503	1747	1974		
Td = $1+(0.5/(1+M))$	1.48	1.48	1.48		
Fc = $0.21 \times Td(1+0.2 \times X2)$	0.62	0.67	0.71		
Qe = $K(F-Fc \times Qc)$	1024	1354	2133		
DFC = Design flow/Capacity = Q/Qe	0.07	0.34	0.33		
				Total In Sum =	1230 PCU
				DFC of Critical Approach =	0.34



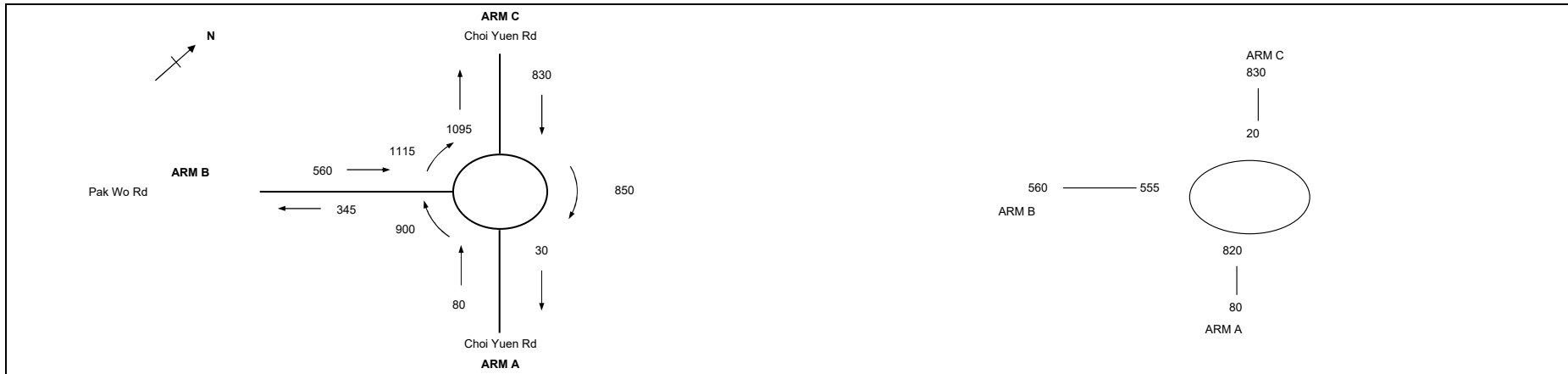
ARM	A	B	C		
INPUT PARAMETERS:					
V = Approach half width (m)	4.00	5.00	6.00		
E = Entry width (m)	6.50	6.50	7.50		
L = Effective length of flare (m)	5	5	2.5		
R = Entry radius (m)	10	10	80		
D = Inscribed circle diameter (m)	30	30	30		
A = Entry angle (degree)	30	30	15		
Q = Entry flow (pcu/h)	35	445	850		
Qc = Circulating flow across entry (pcu/h)	810	490	40		
OUTPUT PARAMETERS:					
S = Sharpness of flare = $1.6(E-V)/L$	0.80	0.48	0.96		
K = $1-0.00347(A-30)-0.978(1/R-0.05)$	0.95	0.95	1.09		
X2 = $V + ((E-V)/(1+2S))$	4.96	5.77	6.51		
M = $EXP((D-60)/10)$	0.05	0.05	0.05		
F = $303 \times X2$	1503	1747	1974		
Td = $1+(0.5/(1+M))$	1.48	1.48	1.48		
Fc = $0.21 \times Td(1+0.2 \times X2)$	0.62	0.67	0.71		
Qe = $K(F-Fc \times Qc)$	954	1350	2118		
DFC = Design flow/Capacity = Q/Qe	0.04	0.33	0.40		
				Total In Sum =	1330 PCU
				DFC of Critical Approach =	0.40



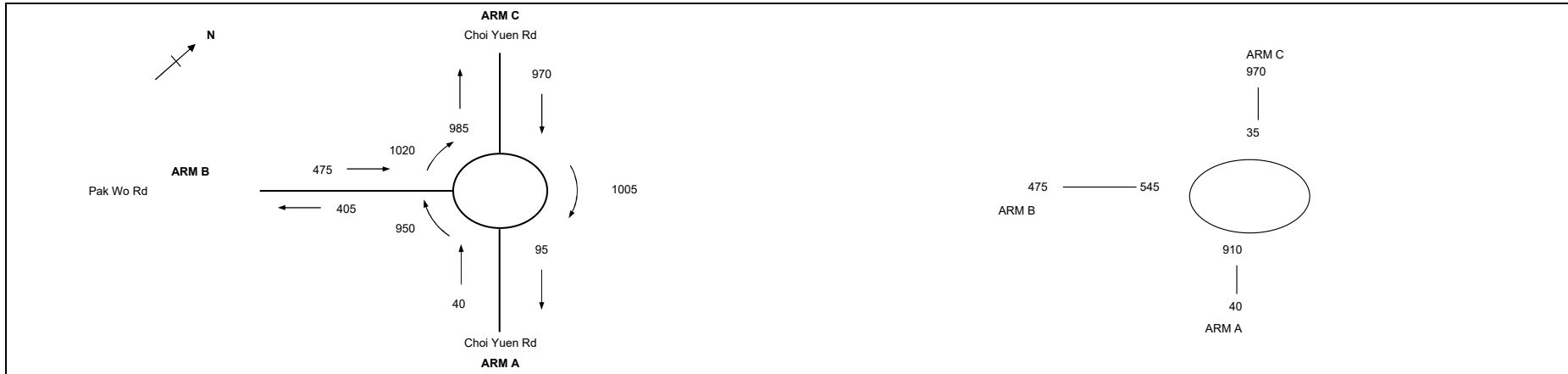
ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	4.00	5.00	6.00
E = Entry width (m)	6.50	6.50	7.50
L = Effective length of flare (m)	5	5	2.5
R = Entry radius (m)	10	10	80
D = Inscribed circle diameter (m)	30	30	30
A = Entry angle (degree)	30	30	15
Q = Entry flow (pcu/h)	80	555	800
Qc = Circulating flow across entry (pcu/h)	790	530	20
OUTPUT PARAMETERS:			
S = Sharpness of flare = $1.6(E-V)/L$	0.80	0.48	0.96
K = $1-0.00347(A-30)-0.978(1/R-0.05)$	0.95	0.95	1.09
X2 = $V + ((E-V)/(1+2S))$	4.96	5.77	6.51
M = $EXP((D-60)/10)$	0.05	0.05	0.05
F = $303 \times X2$	1503	1747	1974
Td = $1+(0.5/(1+M))$	1.48	1.48	1.48
Fc = $0.21 \times Td(1+0.2 \times X2)$	0.62	0.67	0.71
Qe = $K(F-Fc \times Qc)$	966	1325	2133
DFC = Design flow/Capacity = Q/Qe	0.08	0.42	0.38
Total In Sum =			1435 PCU
DFC of Critical Approach =			0.42



ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	4.00	5.00	6.00
E = Entry width (m)	6.50	6.50	7.50
L = Effective length of flare (m)	5	5	2.5
R = Entry radius (m)	10	10	80
D = Inscribed circle diameter (m)	30	30	30
A = Entry angle (degree)	30	30	15
Q = Entry flow (pcu/h)	40	470	950
Qc = Circulating flow across entry (pcu/h)	890	525	35
OUTPUT PARAMETERS:			
S = Sharpness of flare = $1.6(E-V)/L$	0.80	0.48	0.96
K = $1-0.00347(A-30)-0.978(1/R-0.05)$	0.95	0.95	1.09
X2 = $V + ((E-V)/(1+2S))$	4.96	5.77	6.51
M = $EXP((D-60)/10)$	0.05	0.05	0.05
F = $303 \times X2$	1503	1747	1974
Td = $1+(0.5/(1+M))$	1.48	1.48	1.48
Fc = $0.21 \times Td(1+0.2 \times X2)$	0.62	0.67	0.71
Qe = $K(F-Fc \times Qc)$	907	1328	2122
DFC = Design flow/Capacity = Q/Qe	0.04	0.35	0.45
Total In Sum =			1460 PCU
DFC of Critical Approach =			0.45



ARM	A	B	C	
INPUT PARAMETERS:				
V = Approach half width (m)	4.00	5.00	6.00	
E = Entry width (m)	6.50	6.50	7.50	
L = Effective length of flare (m)	5	5	2.5	
R = Entry radius (m)	10	10	80	
D = Inscribed circle diameter (m)	30	30	30	
A = Entry angle (degree)	30	30	15	
Q = Entry flow (pcu/h)	80	560	830	
Qc = Circulating flow across entry (pcu/h)	820	555	20	
OUTPUT PARAMETERS:				
S = Sharpness of flare = $1.6(E-V)/L$	0.80	0.48	0.96	
K = $1-0.00347(A-30)-0.978(1/R-0.05)$	0.95	0.95	1.09	
X2 = $V + ((E-V)/(1+2S))$	4.96	5.77	6.51	
M = $EXP((D-60)/10)$	0.05	0.05	0.05	
F = $303 \times X2$	1503	1747	1974	
Td = $1+(0.5/(1+M))$	1.48	1.48	1.48	
Fc = $0.21 \times Td(1+0.2 \times X2)$	0.62	0.67	0.71	
Qe = $K(F-Fc \times Qc)$	948	1309	2133	
DFC = Design flow/Capacity = Q/Qe	0.08	0.43	0.39	
				Total In Sum = 1470 PCU
				DFC of Critical Approach = 0.43



ARM	A	B	C		
INPUT PARAMETERS:					
V =	Approach half width (m)	4.00	5.00	6.00	
E =	Entry width (m)	6.50	6.50	7.50	
L =	Effective length of flare (m)	5	5	2.5	
R =	Entry radius (m)	10	10	80	
D =	Inscribed circle diameter (m)	30	30	30	
A =	Entry angle (degree)	30	30	15	
Q =	Entry flow (pcu/h)	40	475	970	
Qc =	Circulating flow across entry (pcu/h)	910	545	35	
OUTPUT PARAMETERS:					
S =	Sharpness of flare = $1.6(E-V)/L$	0.80	0.48	0.96	
K =	$1-0.00347(A-30)-0.978(1/R-0.05)$	0.95	0.95	1.09	
X2 =	$V + ((E-V)/(1+2S))$	4.96	5.77	6.51	
M =	$EXP((D-60)/10)$	0.05	0.05	0.05	
F =	$303 \times X2$	1503	1747	1974	
Td =	$1+(0.5/(1+M))$	1.48	1.48	1.48	
Fc =	$0.21 \times Td(1+0.2 \times X2)$	0.62	0.67	0.71	
Qe =	$K(F-Fc \times Qc)$	895	1315	2122	
DFC =	Design flow/Capacity = Q/Qe	0.04	0.36	0.46	
Total In Sum =				1485	PCU
DFC of Critical Approach =				0.46	

Appendix D

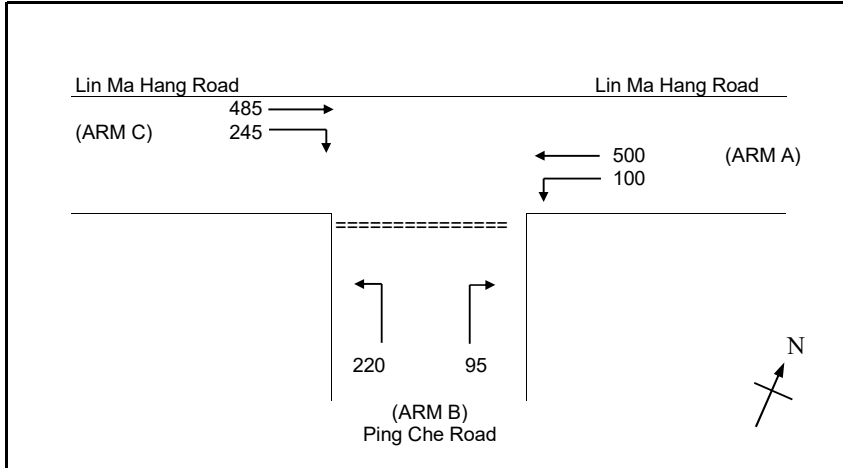
Junction Calculation Sheets for Proposed Junction Improvement

PROJECT NO: 287082 DESIGNED BY:

J2 - Lin Ma Hang Road / Ping Che Road

J2_2031_DES_AM_IMP

DATE : 25/9/2024 FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

- W = MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
- W cr = CENTRAL RESERVE WIDTH (0m, 1.2-9m)
- W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
- W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
- W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
- Vi b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
- Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
- Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
- Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
- D = STREAM-SPECIFIC B-A
- E = STREAM-SPECIFIC B-C
- F = STREAM-SPECIFIC C-B
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W = 7.30 (metres)
 W cr = 0.00 (metres)
 q a-b = 100 (pcu/hr)
 q a-c = 500 (pcu/hr)

MAJOR ROAD (ARM C)

W c-b = 4.00 (metres)
 Vr c-b = 100 (metres)
 q c-a = 485 (pcu/hr)
 q c-b = 245 (pcu/hr)

MINOR ROAD (ARM B)

W b-a = 3.00 (metres)
 W b-c = 3.00 (metres)
 Vi b-a = 100 (metres)
 Vr b-a = 100 (metres)
 Vr b-c = 100 (metres)
 q b-a = 95 (pcu/hr)
 q b-c = 220 (pcu/hr)

GEOMETRIC FACTORS :

D = 0.89
 E = 0.92
 F = 1.01
 Y = 0.75

THE CAPACITY OF MOVEMENT :

Q b-a = 270
 Q b-c = 551
 Q c-b = 590
 Q b-ac = 419.4

TOTAL FLOW = 1645 (PCU/HR)

COMPARISON OF DESIGN FLOW TO CAPACITY:

DFC b-a = 0.35
 DFC b-c = 0.40
 DFC c-b = 0.42
 DFC b-ac = 0.75

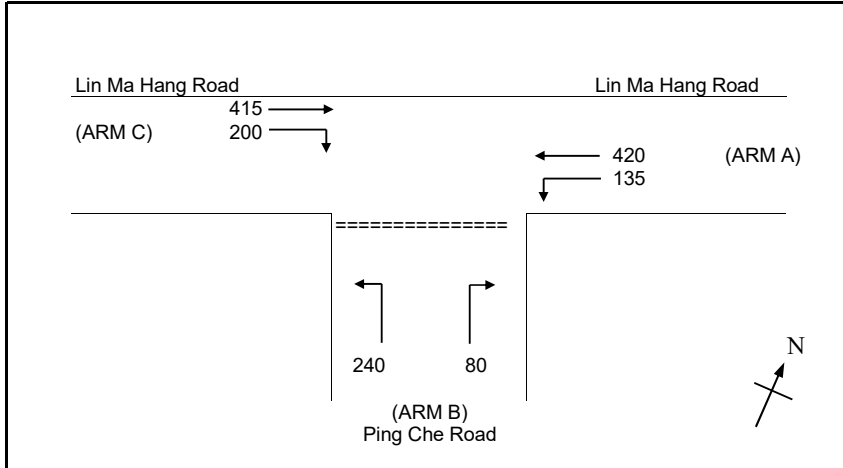
CRITICAL DFC = 0.75

PROJECT NO: 287082 DESIGNED BY:

J2 - Lin Ma Hang Road / Ping Che Road

J2_2031_DES_PM_IMP

DATE : 25/9/2024 FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

- W = MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
- W cr = CENTRAL RESERVE WIDTH (0m, 1.2-9m)
- W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
- W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
- W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
- VI b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
- Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
- Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
- Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
- D = STREAM-SPECIFIC B-A
- E = STREAM-SPECIFIC B-C
- F = STREAM-SPECIFIC C-B
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)
 W = 7.30 (metres)
 W cr = 0.00 (metres)
 q a-b = 135 (pcu/hr)
 q a-c = 420 (pcu/hr)

MAJOR ROAD (ARM C)
 W c-b = 4.00 (metres)
 Vr c-b = 100 (metres)
 q c-a = 415 (pcu/hr)
 q c-b = 200 (pcu/hr)

MINOR ROAD (ARM B)
 W b-a = 3.00 (metres)
 W b-c = 3.00 (metres)
 VI b-a = 100 (metres)
 Vr b-a = 100 (metres)
 Vr b-c = 100 (metres)
 q b-a = 80 (pcu/hr)
 q b-c = 240 (pcu/hr)

GEOMETRIC FACTORS :

D = 0.89
 E = 0.92
 F = 1.01
 Y = 0.75

THE CAPACITY OF MOVEMENT :

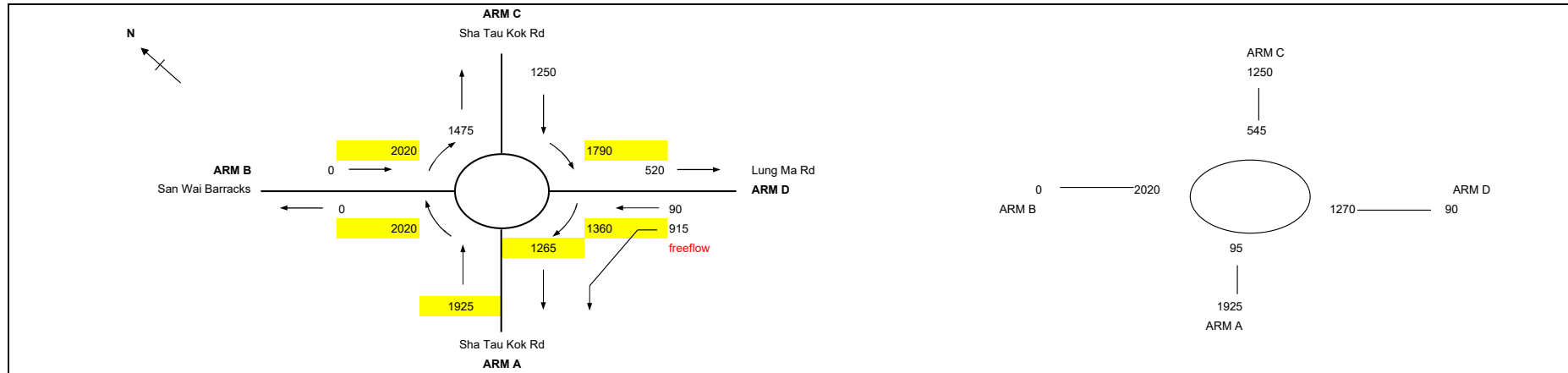
Q b-a = 312
 Q b-c = 568
 Q c-b = 602
 Q b-ac = 471.3

TOTAL FLOW = 1490 (PCU/HR)

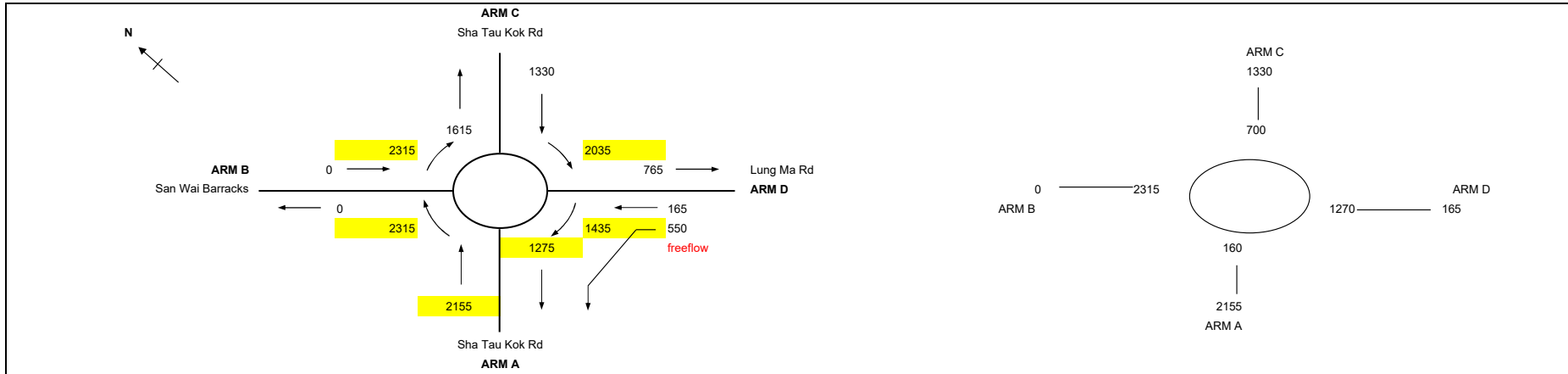
COMPARISON OF DESIGN FLOW TO CAPACITY:

DFC b-a = 0.26
 DFC b-c = 0.42
 DFC c-b = 0.33
 DFC b-ac = 0.68

CRITICAL DFC = 0.68



ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	3.30	7.30	3.50
E = Entry width (m)	10.00	5.00	10.00	5.00
L = Effective length of flare (m)	20	5	10	5
R = Entry radius (m)	30	60	30	70
D = Inscribed circle diameter (m)	50	50	50	50
A = Entry angle (degree)	15	15	25	15
Q = Entry flow (pcu/h)	1925	0	1250	90
Qc = Circulating flow across entry (pcu/h)	95	2020	545	1270
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.22	0.54	0.43	0.48
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.08	1.03	1.09
X2 = V + ((E-V)/(1+2S))	9.19	4.11	8.75	4.27
M = EXP((D-60)/10)	0.37	0.37	0.37	0.37
F = 303*X2	2783	1247	2651	1292
Td = 1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc = 0.21*Td(1+0.2*X2)	0.81	0.52	0.79	0.53
Qe = K(F-Fc*Qc)	2891	207	2296	671
DFC = Design flow/Capacity = Q/Qe	0.67	0.00	0.54	0.13
Total In Sum =				3175 PCU
DFC of Critical Approach =				0.67

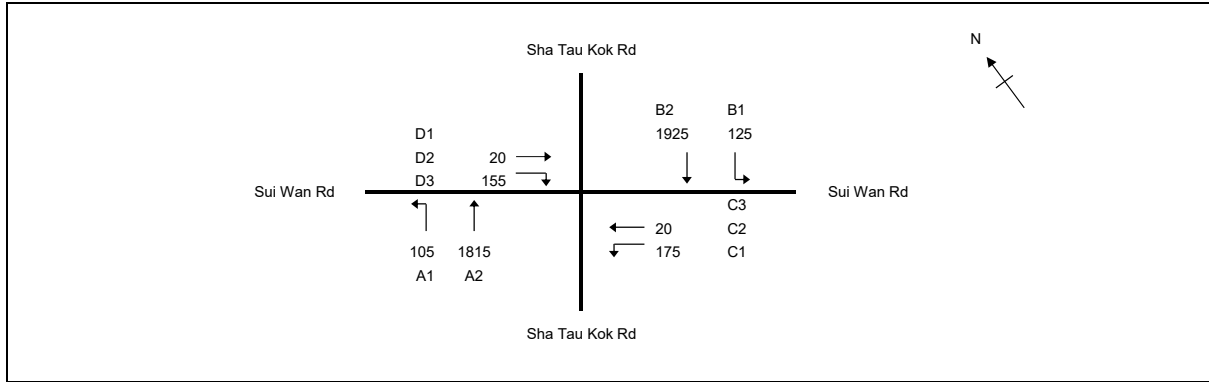


ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	3.30	7.30	3.50
E = Entry width (m)	10.00	5.00	10.00	5.00
L = Effective length of flare (m)	20	5	10	5
R = Entry radius (m)	30	60	30	70
D = Inscribed circle diameter (m)	50	50	50	50
A = Entry angle (degree)	15	15	25	15
Q = Entry flow (pcu/h)	2155	0	1330	165
Qc = Circulating flow across entry (pcu/h)	160	2315	700	1270
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.22	0.54	0.43	0.48
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.08	1.03	1.09
X2 = V + ((E-V)/(1+2S))	9.19	4.11	8.75	4.27
M = EXP((D-60)/10)	0.37	0.37	0.37	0.37
F = 303*X2	2783	1247	2651	1292
Td = 1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc = 0.21*Td(1+0.2*X2)	0.81	0.52	0.79	0.53
Qe = K(F-Fc*Qc)	2834	40	2169	671
DFC = Design flow/Capacity = Q/Qe	0.76	0.00	0.61	0.25
Total In Sum = 3485 PCU				
DFC of Critical Approach = 0.76				

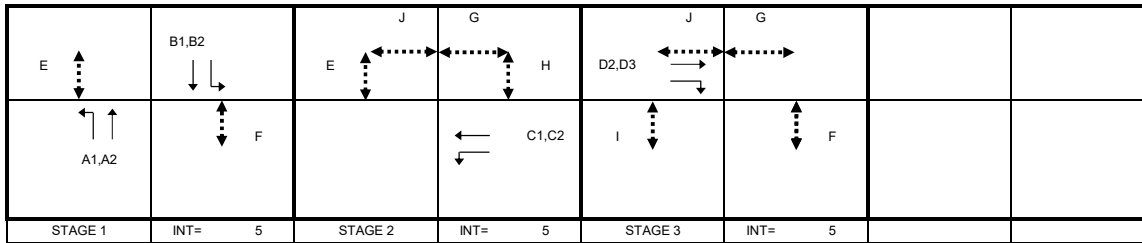
PROJECT NO: 287082 Junction No. J8
 DATE : 25/9/2024 FILENAME :

J8 - Sha Tau Kok Road / Sui Wan Road

J8_2031_REF_AM_IMP



No. of stages per cycle	N = 3
No. of stage using for calculation	N = 3
Cycle time	C = 135 sec
Sum(y)	Y = 0.668
Loss time	L = 12 sec
Total Flow	= 4340 pcu
Co	= (1.5*L+5)/(1-Y) = 69.3 sec
Cm	= L/(1-Y) = 36.1 sec
Yult	= 0.810
R.C.ult	= (Yult-Y)/Y*100% = 21.2 %
Cp	= 0.9*L/(0.9-Y) = 46.6 sec
Ymax	= 1-L/C = 0.911
R.C.(C)	= (0.9*Ymax-Y)/Y*100% = 23 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
E	5	6	2	6	105	2	6	OK
F	5	6	2	6	103	2	6	OK
G	10.5	6	5	12	29	5	12	OK
H	5	6	2	6	16	2	6	OK
I	5	6	2	6	14	2	6	OK
J	8	6	5	9	32	5	9	OK

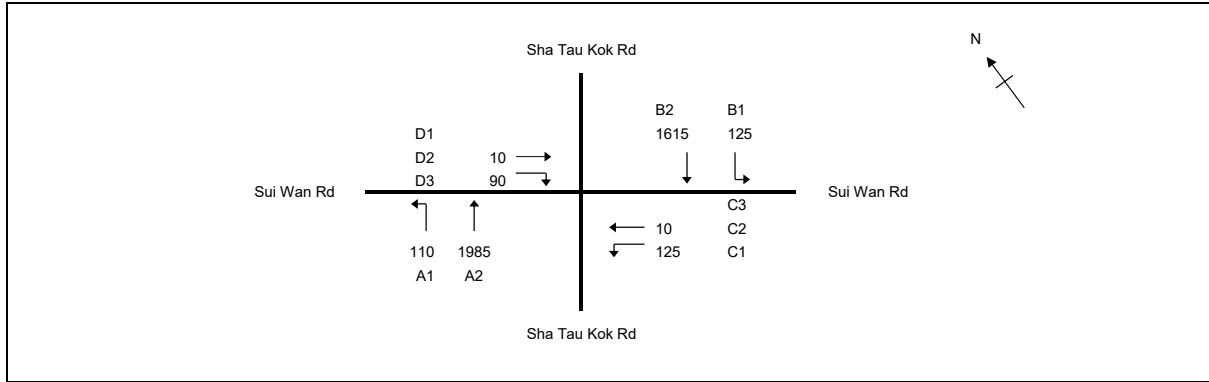
Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
B1,B2	1	3.50	B	1	10		N	1965	125	514	639	0.20	1909			1909	0.335	0.460	12	62	85	0.534	54	
B2	1	3.50	B	2				4210		1411	1411	0.00	4210			4210	0.335			62	85	0.534	59	
A1,A2	1	3.50	A	1	10			2105	105	847	952	0.11	2071			2071	0.460			85	85	0.733	80	
A2	1	3.50	A	1				2105		968	968	0.00	2105			2105	0.460			85	85	0.733	81	
C1,C2,C3	2	4.00	C	1	10		N	2015	175	20	195	0.90	1776			1776	0.110	0.110		20	20	0.733	37	
D1,D2,D3	3	4.00	D	1	10		N	2015	0	20	175	0.89	1779			1779	0.098	0.098		18	18	0.733	34	

NOTE : 'O' - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

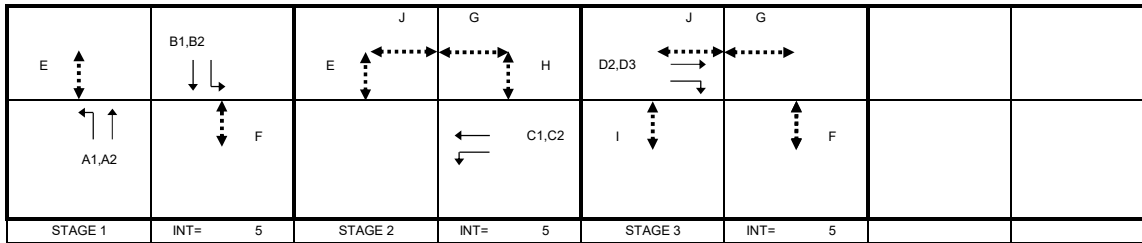
PROJECT NO: 287082 Junction No. J8
 DATE : 25/9/2024 FILENAME :

J8 - Sha Tau Kok Road / Sui Wan Road

J8_2031_REF_PM_IMP



No. of stages per cycle	N = 3
No. of stage using for calculation	N = 3
Cycle time	C = 135 sec
Sum(y)	Y = 0.634
Loss time	L = 12 sec
Total Flow	= 4070 pcu
Co	= (1.5*L+5)/(1-Y) = 62.9 sec
Cm	= L/(1-Y) = 32.8 sec
Yult	= 0.810
R.C.ult	= (Yult-Y)/Y*100% = 27.7 %
Cp	= 0.9*L/(0.9-Y) = 40.6 sec
Ymax	= 1-L/C = 0.911
R.C.(C)	= (0.9*Ymax-Y)/Y*100% = 29 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
E	5	6	2	6	112	2	6	OK
F	5	6	2	6	108	2	6	OK
G	10.5	6	5	12	17	5	12	OK
H	5	6	2	6	11	2	6	OK
I	5	6	2	6	7	2	6	OK
J	8	6	5	9	20	5	9	OK

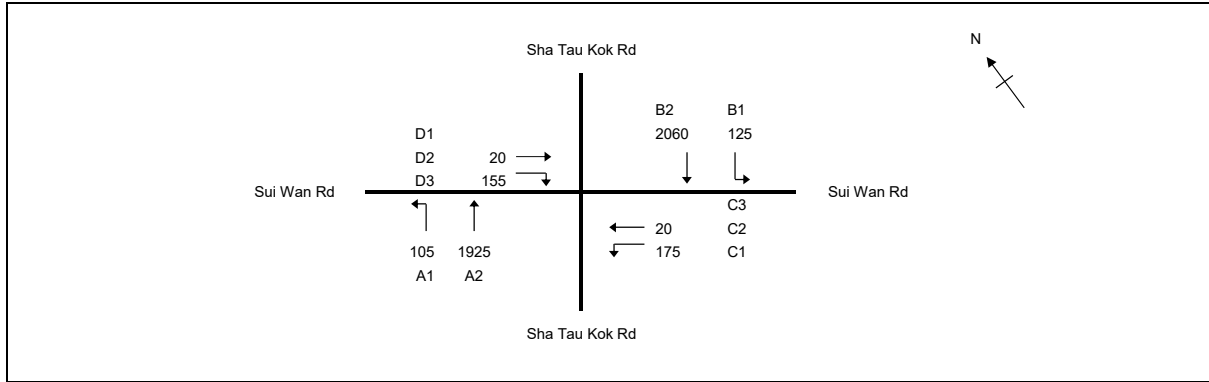
Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
B1,B2	1	3.50	B	1	10		N	1965	125	416	541	0.23	1899			1899	0.285	0.502	12	55	97	0.395	34	
B2	1	3.50	B	2				4210		1199	1199	0.00	4210			4210	0.285			55	97	0.395	38	
A1,A2	1	3.50	A	1	10			2105	110	929	1039	0.11	2072			2072	0.501			97	97	0.696	65	
A2	1	3.50	A	1				2105		1056	1056	0.00	2105			2105	0.502			97	97	0.696	66	
C1,C2,C3	2	4.00	C	1	10		N	2015	125	10	135	0.93	1769			1769	0.076	0.076		15	15	0.696	27	
D1,D2,D3	3	4.00	D	1	10		N	2015	0	10	100	0.90	1775			1775	0.056	0.056		11	11	0.696	21	

NOTE : 'O' - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

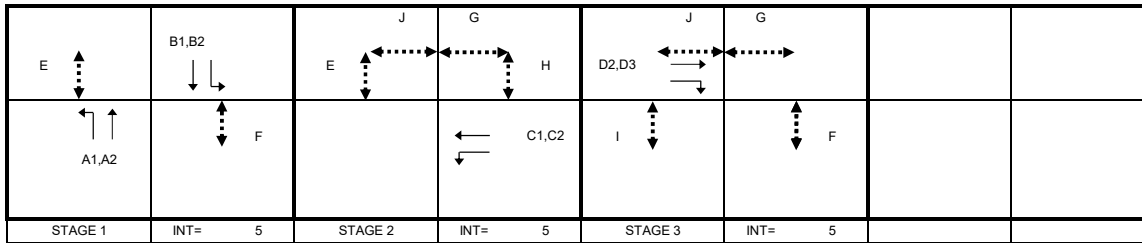
PROJECT NO: 287082 Junction No. J8
 DATE : 25/9/2024 FILENAME :

J8 - Sha Tau Kok Road / Sui Wan Road

J8_2031_DES_AM_IMP



No. of stages per cycle	N = 3
No. of stage using for calculation	N = 3
Cycle time	C = 135 sec
Sum(y)	Y = 0.694
Loss time	L = 12 sec
Total Flow	= 4585 pcu
Co	= (1.5*L+5)/(1-Y) = 75.2 sec
Cm	= L/(1-Y) = 39.2 sec
Yult	= 0.810
R.C.ult	= (Yult-Y)/Y*100% = 16.7 %
Cp	= 0.9*L/(0.9-Y) = 52.5 sec
Ymax	= 1-L/C = 0.911
R.C.(C)	= (0.9*Ymax-Y)/Y*100% = 18 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
E	5	6	2	6	106	2	6	OK
F	5	6	2	6	104	2	6	OK
G	10.5	6	5	12	28	5	12	OK
H	5	6	2	6	15	2	6	OK
I	5	6	2	6	13	2	6	OK
J	8	6	5	9	31	5	9	OK

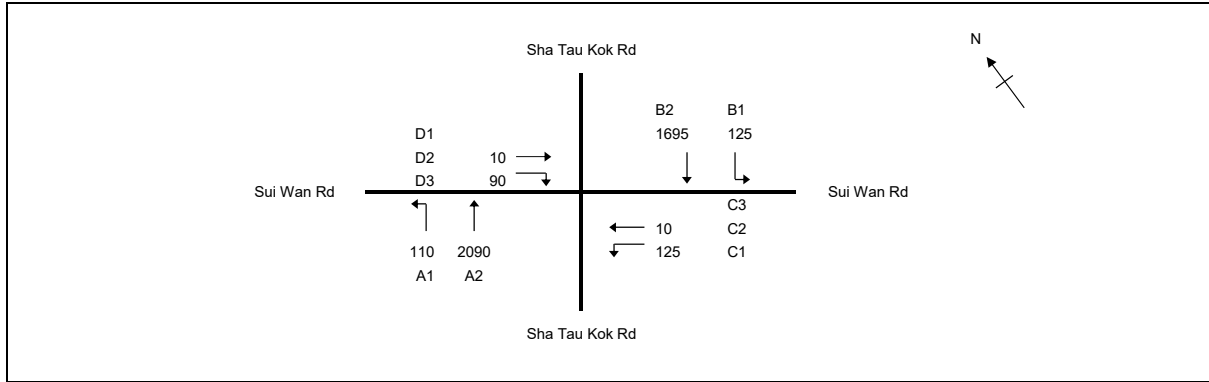
Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
B1,B2	1	3.50	B	1	10		N	1965	125	558	683	0.18	1912			1912	0.357	0.486	12	63	86	0.560	56	
B2	1	3.50	B	2				4210		1502	1502	0.00	4210			4210	0.357			63	86	0.559	61	
A1,A2	1	3.50	A	1	10			2105	105	902	1007	0.10	2073			2073	0.486			86	86	0.762	82	
A2	1	3.50	A	1				2105		1023	1023	0.00	2105			2105	0.486			86	86	0.762	83	
C1,C2,C3	2	4.00	C	1	10		N	2015	175	20	195	0.90	1776			1776	0.110	0.110		19	19	0.762	38	
D1,D2,D3	3	4.00	D	1	10		N	2015	0	20	175	0.89	1779			1779	0.098	0.098		17	17	0.762	34	

NOTE : 'O' - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

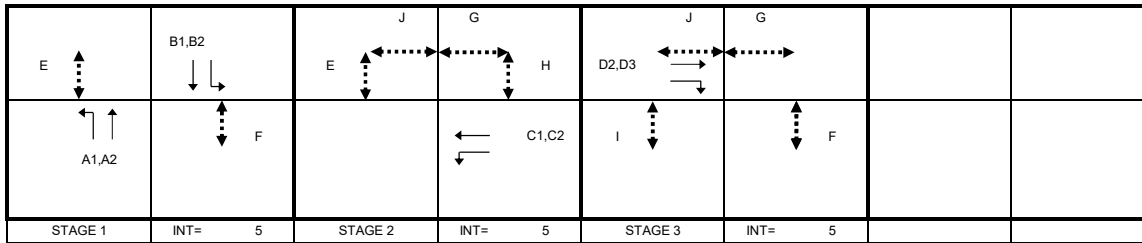
PROJECT NO: 287082 Junction No. J8
 DATE : 25/9/2024 FILENAME :

J8 - Sha Tau Kok Road / Sui Wan Road

J8_2031_DES_PM_IMP



No. of stages per cycle	N = 3
No. of stage using for calculation	N = 3
Cycle time	C = 135 sec
Sum(y)	Y = 0.659
Loss time	L = 12 sec
Total Flow	= 4255 pcu
Co	= (1.5*L+5)/(1-Y) = 67.5 sec
Cm	= L/(1-Y) = 35.2 sec
Yult	= 0.810
R.C.ult	= (Yult-Y)/Y*100% = 22.9 %
Cp	= 0.9*L/(0.9-Y) = 44.9 sec
Ymax	= 1-L/C = 0.911
R.C.(C)	= (0.9*Ymax-Y)/Y*100% = 24 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
E	5	6	2	6	112	2	6	OK
F	5	6	2	6	109	2	6	OK
G	10.5	6	5	12	16	5	12	OK
H	5	6	2	6	10	2	6	OK
I	5	6	2	6	7	2	6	OK
J	8	6	5	9	19	5	9	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
B1,B2	1	3.50	B	1	10		N	1965	125	441	566	0.22	1902			1902	0.298	0.527	12	56	98	0.409	35	
B2	1	3.50	B	2				4210		1254	1254	0.00	4210			4210	0.298			56	98	0.409	38	
A1,A2	1	3.50	A	1	10			2105	110	982	1092	0.10	2074			2074	0.527			98	98	0.724	67	
A2	1	3.50	A	1				2105		1108	1108	0.00	2105			2105	0.526			98	98	0.723	68	
C1,C2,C3	2	4.00	C	1	10		N	2015	125	10	135	0.93	1769			1769	0.076	0.076		14	14	0.724	27	
D1,D2,D3	3	4.00	D	1	10		N	2015	0	10	100	0.90	1775			1775	0.056	0.056		11	11	0.724	21	

NOTE : 'O' - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

J13 - Po Shek Wu Road / Po Wan Road

J13_2031_DES_AM_IMP_OPT2

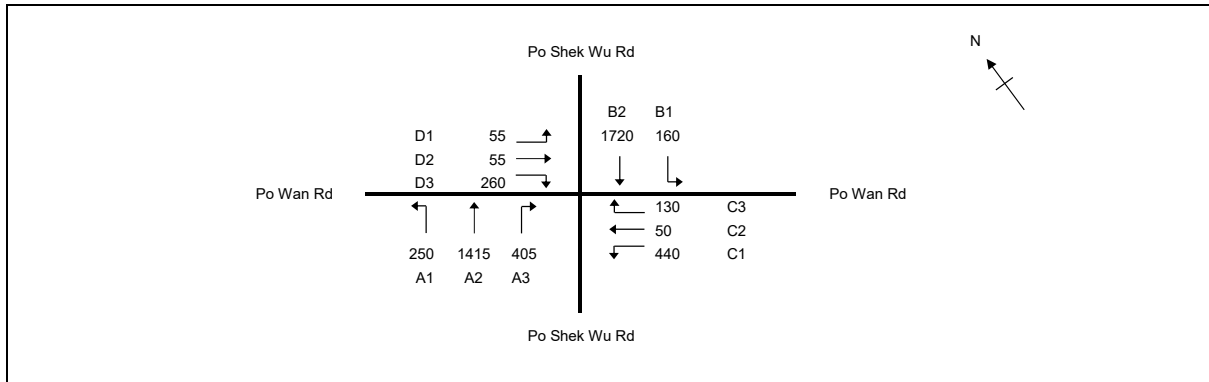
PROJECT NO:

Junction No.

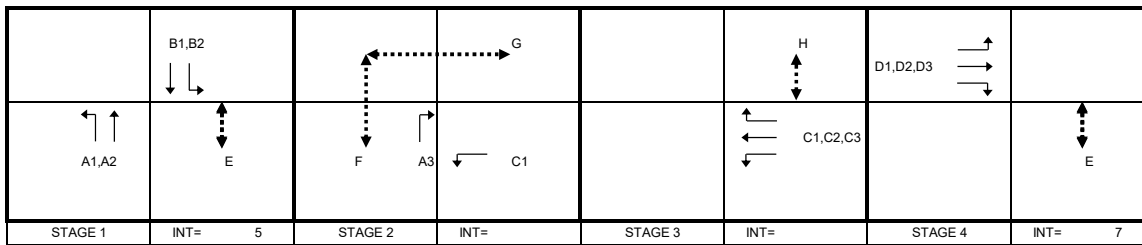
J13

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N =	4
No. of stage using for calculation	N =	2
Cycle time	C =	128 sec
Sum(y)	Y =	0.374
Loss time	L =	62 sec
Total Flow	=	4940 pcu
Co	= (1.5*L+5)/(1-Y)	= 156.6 sec
Cm	= L/(1-Y)	= 99.1 sec
Yult	=	0.435
R.C.ult	= (Yult-Y)/Y*100%	= 16.2 %
Cp	= 0.9*L/(0.9-Y)	= 106.2 sec
Ymax	= 1-L/C	= 0.516
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	= 24 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
E	8	6	2	9	65	2	9	OK
F	8	7	6	7	15	6	7	OK
G	12	10	6	12	10	6	12	OK
H	7	6	10	8	6	10	8	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1,A2	1	3.30	A	1	15		N	1945	250	262		512	0.49	1854			1854	0.276	0.276	10	49	49	0.725	68
A2	1	3.30	A	2				4170		1153		1153	0.00	4170			4170	0.276			49	49	0.726	76
B1	1	3.30	A	1	15			2085	160		160	1.00	1895			1895	0.084			15	49	0.222	21	
B2	1	3.30	A	3				6255		1720	1720	1.00	6255			6255	0.275			48	49	0.722	76	
A3	2	3.30	B	2	20			4170			405	405	1.00	3879			3879	0.104			18	23	0.581	35
C1	2,3	3.30	C,D	1	15		N	1945	440		440	1.00	1768			1768	0.249			44	44	0.724	62	
C2,C3	3	3.30	D	1	20			2085		50	130	180	0.72	1978			1978	0.091			16	18	0.647	33
D1,D2,D3	4	3.30	E	1	15		N	1945	55	55	68	178	0.69	1819			1819	0.098	0.098		17	17	0.726	33
D3	4	3.30	E	1	25			2085			192	192	1.00	1967			1967	0.098			17	17	0.724	35
PED	2		G																	28				
PED	3		H																	24				

NOTE : 'O' - OPPOSING TRAFFIC

N - NEAR SIDE LANE

SG - STEADY GREEN

FG - FLASHING GREEN

PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s

QUEUING LENGTH = AVERAGE QUEUE * 6m

J13 - Po Shek Wu Road / Po Wan Road

J13_2031_DES_PM_IMP_OPT2

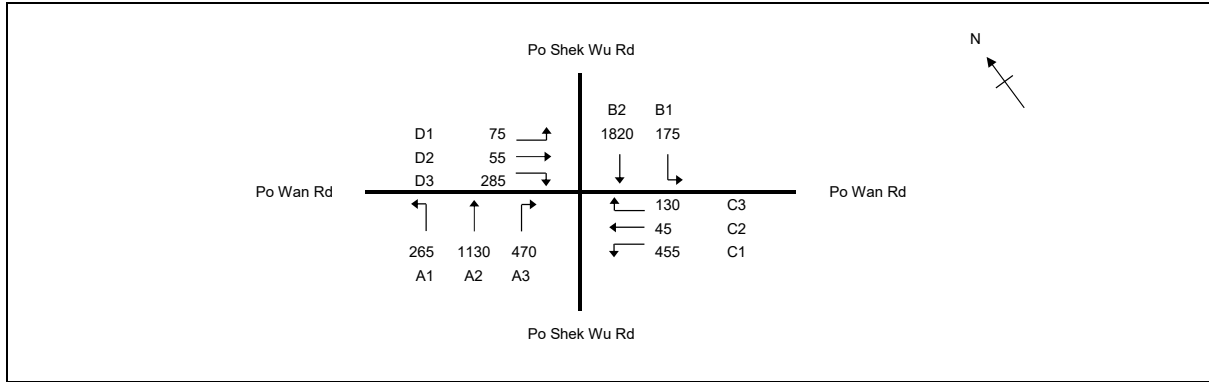
PROJECT NO:

Junction No.

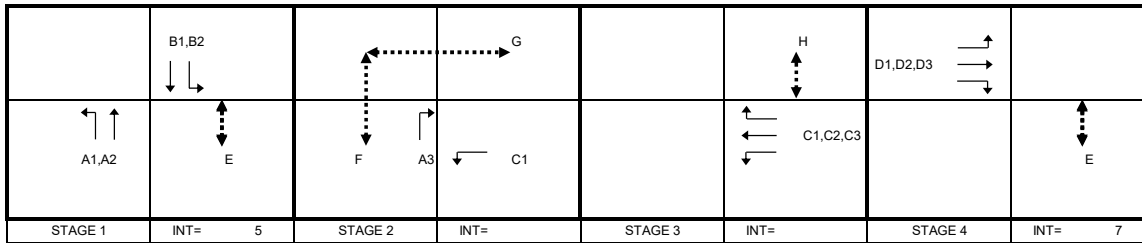
J13

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N = 4
No. of stage using for calculation	N = 2
Cycle time	C = 128 sec
Sum(y)	Y = 0.401
Loss time	L = 62 sec
Total Flow	= 4905 pcu
Co	= (1.5*L+5)/(1-Y) = 163.5 sec
Cm	= L/(1-Y) = 103.5 sec
Yult	= 0.435
R.C.ult	= (Yult-Y)/Y*100% = 8.5 %
Cp	= 0.9*L/(0.9-Y) = 111.8 sec
Ymax	= 1-L/C = 0.516
R.C.(C)	= (0.9*Ymax-Y)/Y*100% = 16 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
E	8	6	2	9	65	2	9	OK
F	8	7	6	7	15	6	7	OK
G	12	10	6	12	10	6	12	OK
H	7	6	10	8	6	10	8	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1,A2	1	3.30	A	1	15		N	1945	265	161		426	0.62	1831		1831	0.233	0.291	10	38	48	0.621	57	
A2	1	3.30	A	2				4170		969		969	0.00	4170		4170	0.232			38	48	0.621	65	
B1	1	3.30	A	1	15			2085	175			175	1.00	1895		1895	0.092			15	48	0.247	23	
B2	1	3.30	A	3				6255		1820		1820	0.00	6255		6255	0.291			48	48	0.777	81	
A3	2	3.30	B	2	20			4170			470	470	1.00	3879		3879	0.121			20	23	0.674	41	
C1	2,3	3.30	C,D	1	15		N	1945	455			455	1.00	1768		1768	0.257			42	44	0.749	64	
C2,C3	3	3.30	D	1	20			2085		45	130	175	0.74	1975		1975	0.089			15	18	0.630	32	
D1,D2,D3	4	3.30	E	1	15		N	1945	75	55	69	199	0.72	1814		1814	0.110	0.110		18	18	0.777	36	
D3	4	3.30	E	1	25			2085			216	216	1.00	1967		1967	0.110			18	18	0.777	40	
PED	2		G																28					
PED	3		H																24					

NOTE : 'O' - OPPOSING TRAFFIC

N - NEAR SIDE LANE

SG - STEADY GREEN

FG - FLASHING GREEN

PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s

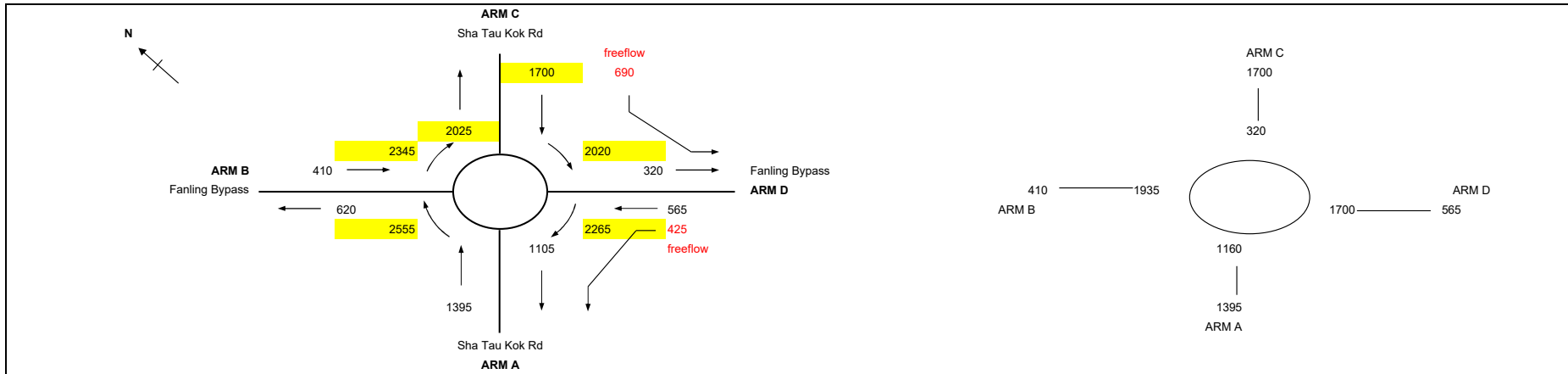
QUEUING LENGTH = AVERAGE QUEUE * 6m

J16 - Sha Tau Kok Road / Fanling Bypass

J16_2031_DES_AM_WITHJ8IMP

DATE 25/9/2024

PROJECT NO. 287082



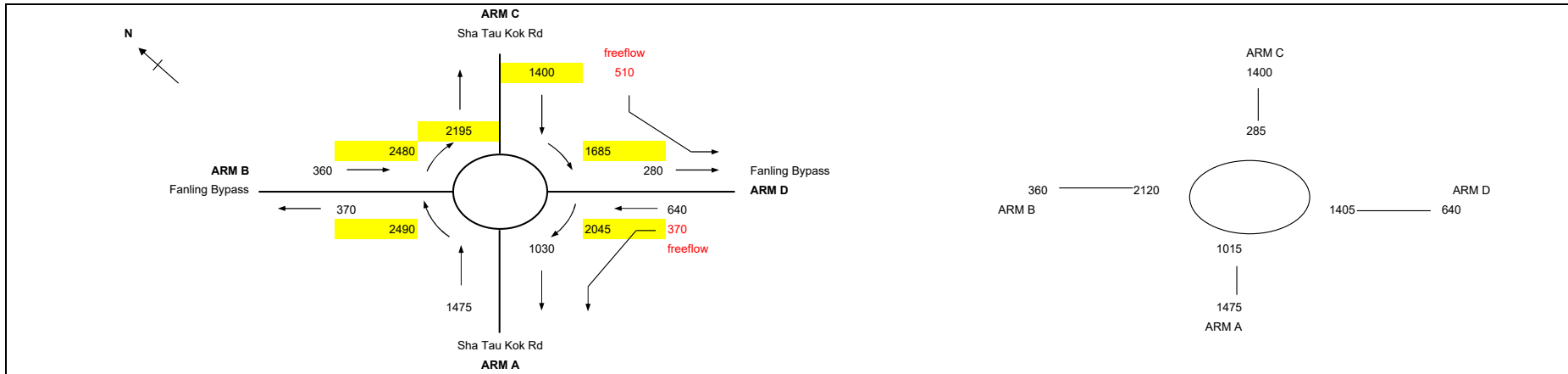
ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	7.30	4.50	7.30	4.50
E = Entry width (m)	10.00	7.00	10.00	7.00
L = Effective length of flare (m)	30	10	15	25
R = Entry radius (m)	50	20	20	10
D = Inscribed circle diameter (m)	75	75	75	75
A = Entry angle (degree)	10	25	20	25
Q = Entry flow (pcu/h)	1395	410	1700	565
Qc = Circulating flow across entry (pcu/h)	1160	1935	320	1700
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.14	0.40	0.29	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.10	1.02	1.03	0.97
X2 = V + ((E-V)/(1+2S))	9.40	5.89	9.01	6.39
M = EXP((D-60)/10)	4.48	4.48	4.48	4.48
F = 303*X2	2847	1784	2731	1937
Td = 1+(0.5/(1+M))	1.09	1.09	1.09	1.09
Fc = 0.21*Td(1+0.2*X2)	0.66	0.50	0.64	0.52
Qe = K(F-Fc*Qc)	2287	833	2613	1017
DFC = Design flow/Capacity = Q/Qe	0.61	0.49	0.65	0.56
Total In Sum = 4070 PCU				
DFC of Critical Approach = 0.65				

J16 - Sha Tau Kok Road / Fanling Bypass

J16_2031_DES_PM_WITHJ8IMP

DATE 25/9/2024

PROJECT NO. 287082



ARM	A	B	C	D		
INPUT PARAMETERS:						
V = Approach half width (m)	7.30	4.50	7.30	4.50		
E = Entry width (m)	10.00	7.00	10.00	7.00		
L = Effective length of flare (m)	30	10	15	25		
R = Entry radius (m)	50	20	20	10		
D = Inscribed circle diameter (m)	75	75	75	75		
A = Entry angle (degree)	10	25	20	25		
Q = Entry flow (pcu/h)	1475	360	1400	640		
Qc = Circulating flow across entry (pcu/h)	1015	2120	285	1405		
OUTPUT PARAMETERS:						
S = Sharpness of flare = 1.6(E-V)/L	0.14	0.40	0.29	0.16		
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.10	1.02	1.03	0.97		
X2 = V + ((E-V)/(1+2S))	9.40	5.89	9.01	6.39		
M = EXP((D-60)/10)	4.48	4.48	4.48	4.48		
F = 303*X2	2847	1784	2731	1937		
Td = 1+(0.5/(1+M))	1.09	1.09	1.09	1.09		
Fc = 0.21*Td(1+0.2*X2)	0.66	0.50	0.64	0.52		
Qe = K(F-Fc*Qc)	2392	739	2636	1166		
DFC = Design flow/Capacity = Q/Qe	0.62	0.49	0.53	0.55		
					Total In Sum =	3875 PCU
					DFC of Critical Approach =	0.62

OVE ARUP & PARTNERS

TRAFFIC SIGNAL CALCULATION

J23 - San Wan Road / Fanling Station Road

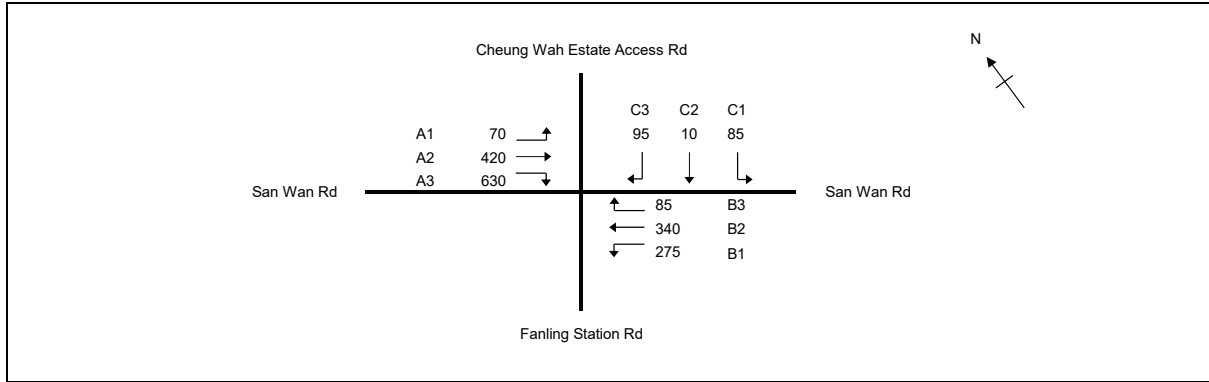
J23_2031_DES_AM_IMP

PROJECT NO: 287082

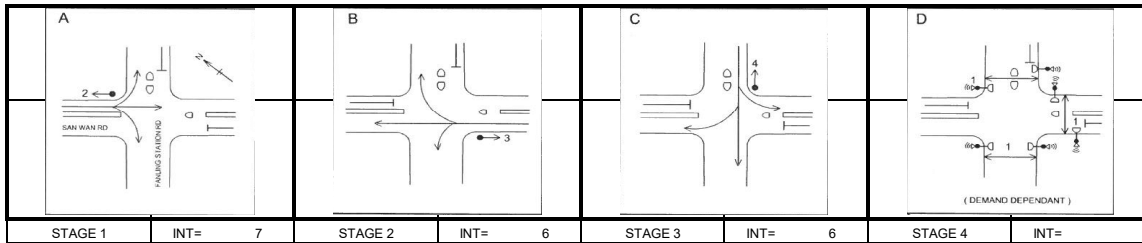
Junction No. J23

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N = 4
No. of stage using for calculation	N = 3
Cycle time	C = 120 sec
Sum(y)	Y = 0.472
Loss time	L = 43 sec
Total Flow	= 2010 pcu
Co	= (1.5*L+5)/(1-Y) = 131.7 sec
Cm	= L/(1-Y) = 81.5 sec
Yult	= 0.578
R.C.ult	= (Yult-Y)*100% = 22.3 %
Cp	= 0.9*L/(0.9-Y) = 90.5 sec
Ymax	= 1-L/C = 0.642
R.C.(C)	= (0.9*Ymax-Y)*100% = 22 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
1	13.5	6	6	15	6	6	15	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1,A2	1	3.30	2	1	10		N	1945	70	301		371	0.19	1891		1891	0.196	0.197	16	32	32	0.734	54	
A2,A3	1	3.30	2	1	15			2085		119	264	383	0.69	1951		1951	0.196			32	32	0.735	56	
A3	1	3.30	2	1	12.5			2085			366	366	1.00	1862		1862	0.197			32	32	0.736	54	
B1,B2	2	3.60	3	1	17.5		N	1975	275	56		331	0.83	1844		1844	0.180	0.180		29	29	0.736	50	
B2,B3	2	3.60	3	1	12.5			2115		284	85	369	0.23	2058		2058	0.179			29	29	0.735	56	
C1,C2,C3	5	5.50	4	1	15		N	2165	85	10	95	190	0.95	1978		1978	0.096	0.096		16	16	0.736	33	
PED	4		1																27					

NOTE : 'O' - OPPOSING TRAFFIC

N - NEAR SIDE LANE

SG - STEADY GREEN

FG - FLASHING GREEN

PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s

QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS

TRAFFIC SIGNAL CALCULATION

J23 - San Wan Road / Fanling Station Road

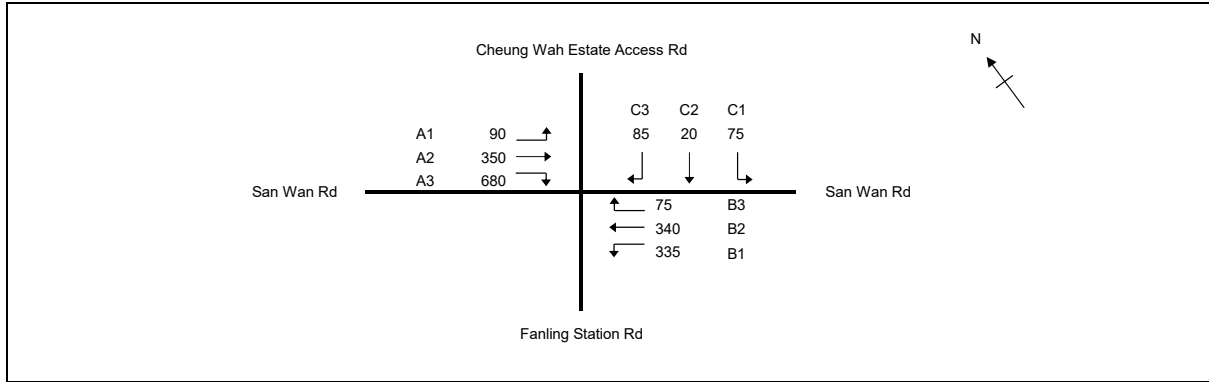
J23_2031_DES_PM_IMP

PROJECT NO: 287082

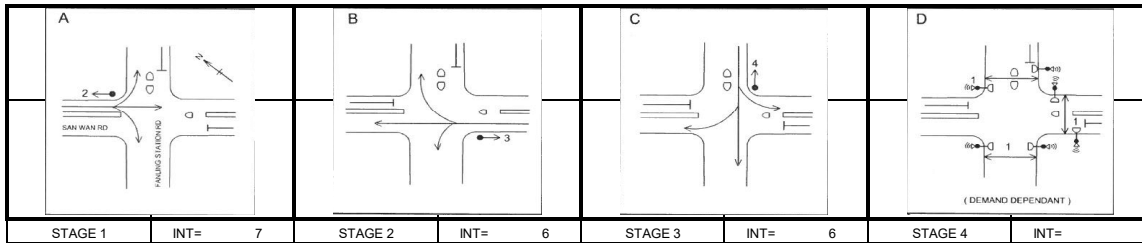
Junction No. J23

DATE : 25/9/2024

FILENAME :



No. of stages per cycle	N = 4
No. of stage using for calculation	N = 3
Cycle time	C = 120 sec
Sum(y)	Y = 0.481
Loss time	L = 43 sec
Total Flow	= 2050 pcu
Co	= (1.5*L+5)/(1-Y) = 133.9 sec
Cm	= L/(1-Y) = 82.9 sec
Yult	= 0.578
R.C.ult	= (Yult-Y)*100% = 20.1 %
Cp	= 0.9*L/(0.9-Y) = 92.4 sec
Ymax	= 1-L/C = 0.642
R.C.(C)	= (0.9*Ymax-Y)*100% = 20 %



Pedestrian Phase	Width (m)	Green Time Required (s)			Green Time Provided (s)			Check
		SG	Delay	FG	SG	Delay	FG	
1	13.5	6	6	15	6	6	15	OK

Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow			Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
									Left pcu/h	Straight pcu/h	Right pcu/h													
A1,A2	1	3.30	2	1	10		N	1945	90	281		371	0.24	1877		1877	0.198	0.198	16	32	32	0.750	55	
A2,A3	1	3.30	2	1	15			2085		69	312	381	0.82	1927		1927	0.198			32	32	0.750	56	
A3	1	3.30	2	1	12.5			2085			368	368	1.00	1862		1862	0.198			32	32	0.750	54	
B1,B2	2	3.60	3	1	17.5		N	1975	335	17		352	0.95	1826		1826	0.193	0.193		31	31	0.750	52	
B2,B3	2	3.60	3	1	12.5			2115		323	75	398	0.19	2068		2068	0.192			31	31	0.748	59	
C1,C2,C3	5	5.50	4	1	15		N	2165	75	20	85	180	0.89	1988		1988	0.091	0.091		14	14	0.750	32	
PED	4		1																27					

NOTE : 'O' - OPPOSING TRAFFIC

N - NEAR SIDE LANE

SG - STEADY GREEN

FG - FLASHING GREEN

PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s

QUEUING LENGTH = AVERAGE QUEUE * 6m