Appendix 5

Review of Traffic and Transport Impact Assessment

HKHA Term Engineering Consultancy Services 2021-2023 for New Territories West Region (Agreement No. CB20210450)

Review of Traffic and Transport Impact Assessment for Public Housing Development at Long Bin

Hong Kong Housing Authority

Review Report (Revision 1)

July 2024

Contents

Tables

Figures

1. Introduction

1.1. Background

1.1.1. Civil Engineering and Development Department (CEDD) conducted a traffic and transport impact assessment under Agreement No. CE 75/2017 (CE) Site Formation and Infrastructure Works for Public Housing Developments at Long Bin, Yuen Long – Investigation, Design and Construction (hereafter "CEDD Project"). The Final Traffic and Transport Impact Assessment (TTIA) Report (May 2022) (hereafter "Approved TTIA Report") was approved by relevant government departments. The Approved TTIA Report can be found in **Appendix A**.

1.1.2. Further to the above approval, the Hong Kong Housing Authority (HKHA) changes the parameters of commercial development and social welfare facilities (hereafter "New Scheme") of the public housing development (PHD) at Long Bin.

1.1.3. Atkins China Limited (AtkinsRéalis) was commissioned by Project Team of HKHA to conduct a Review Report to review the Approved TTIA Report to account for the changes of the non-domestic portions of PHD.

1.1.4. This Review Report is to present the results of the study.

1.2. Scope

1.2.1. The scope of this Review Report is outlined as follow:

- estimate the difference of traffic and pedestrian demand generated by the New Scheme;
- review the assessments provided in the Approved TTIA Report by taking into account the New Scheme; and
- verify whether the conclusions reached in the Approved TTIA Report remain valid with the New Scheme.

1.3. Report Structure

1.3.1. Following this introductory chapter, there are 3 further chapters.

- **Chapter 2** – The Subject Site, presents the comparison of development parameters adopted in the Approved TTIA Report and the New Scheme;
- **Chapter 3** – Review on Assessments, review the Approved TTIA Report to account for the changes by the New Scheme further to the approval of the Approved TTIA in accordance with the approved methodology and assumptions adopted in the Approved TTIA Report for the assessments;
- **Chapter 4** – Summary and Conclusion, summarizes the findings of the study and presents the conclusion accordingly.

2. The Subject Site

2.1. Site Location

2.1.1. The Subject Site is located at Long Bin, Yuen Long. It is bounded by Castle Peak Road (Ping Shan) to the north, Long Tin Road to the east, Yuen Long Highway to the South and Tong Yan San Tsuen (TYST) Interchange to the south east.

2.2. Major Development Parameters

2.2.1. The Subject Site were previously open storage yards, warehouses, workshops, temporary structures and a farm. Phase 1 of the Subject Site is currently under construction for PHD by HKHA, whilst Phases 2 & 3 of the Subject Site are currently under site formation and infrastructure works by CEDD. The Subject Site will be developed into PHD with commercial developments and social welfare facilities.

2.2.2. The comparisons between the major development parameters adopted in the Approved TTIA Report and the New Scheme as advised by HKHA are presented in **Table 2.1**.

Table 2.1 Comparison of Major Development Parameters

Phase	No. of Flats (nos.)	Commercial Development (sqm GFA)	Social Welfare Facilities (sqm GFA)
Major Development Parameters adopted in Approved TTIA Report [a]			
Phase 1	3,080	1,362	1,191
Phase 2 & 3 *	8,860	9,018	9,316
Total	**11,940**	**10,380**	**10,507**
Major Development Parameters for New Scheme [b]			
Phase 1	3,080	1,360	1,329
Phase 2 & 3 *	8,860	7,353	17,256
Total	**11,940**	**8,713**	**18,585**
Net Difference [b] – [a]			
Phase 1	0	-2	+138
Phase 2 & 3 *	0	-1,665	+7,940
Total	**0**	**-1,667**	**+8,078**

Remark: * formerly known as Phase 2 in the Approved TTIA Report

2.2.3. As advised by HKHA, over 70% of the social welfare facilities GFA in the New Scheme are for the hostel purpose. The summary of the GFA for each type of social welfare service in the New Scheme is presented in **Table 2.2**.

Table 2.2 Summary of Social Welfare Facilities (for Phase 2 & 3)

Type of Service	GFA (sqm)	
	Approved TTIA Report	New Scheme
Office Base of On-site Pre-school Rehabilitation Services (OPRS)	9,316	355
60-p Special Child Care Centre (SCCC)		868
100-p Aided Standalone Child Care Centre (CCC)		1,134
50-p Hostel for Moderately Mentally Handicapped Persons (HMMH) *		1,320
50-p Hostel for Severely Physically Handicapped Persons (HSPH) *		1,487
120-p Integrated Vocational Rehabilitation on Services Centre (IVRSC)		1,397
40-p Supported Hostel for Mentally Handicapped Persons (SHOS(MH)) *		945
200-p Residential Care Home for the Elderly cum 30-p Day Care Unit (RCHE cum DCU) *		5,489
School Social Work Unit (SSWU)	–	203
Centre for Home Care Services for Frail Elderly Persons (1-team size non-kitchen based) (HCS for Frail Elderly Persons)	–	184
Multi-disciplinary Outreaching Support Team for the Elderly (MOSTE)	–	695
100-p Long Stay Care Home (LSCH)*	–	3,179
Total	**9,316**	**17,256**

Remark: * Hostel purpose

2.2.4. As the types of social welfare facilities have increase from 8 to 12 in the new scheme, the parking provision for social welfare facilities has been revised. **Table 2.3** below shows the parking and loading/unloading requested by Social Welfare Department (SWD). This revised parking provision can be fully accommodated and incorporated into the latest architectural layout plans. The written record of revised parking provision is shown in **Appendix B**.

Table 2.3 Parking and Loading/unloading Requested by SWD (for Phase 2 & 3)

Type of Service	Parking (1)	Loading/Unloading (L/ UL) (1)
Office Base of On-site Pre-school Rehabilitation Services (OPRS)	A designated parking space of 8m x 3m x minimum 3.3m headroom for a private light bus is required.	Not required
60-p Special Child Care Centre (SCCC)	Parking space for a 48-seater coach (12m x 3.5 m with min headroom of 3.8 m)	A safe and convenient L/ UL Bay in proximity to the entrance of SCCC. (2)

Type of Service	Parking [1]	Loading/Unloading (L/ UL) [1]
100-p Aided Standalone Child Care Centre (CCC)	Not required	A shared L/ UL bay or lay-by should be accessible conveniently and close to CCC for the emergency use of ambulances. [2]
50-p Hostel for Moderately Mentally Handicapped Persons (HMMH)	-	-
50-p Hostel for Severely Physically Handicapped Persons (HSPH)	Designated parking space for a 24-seater van with tail-lift	L/ UL area for passengers is required. [2]
120-p Integrated Vocational Rehabilitation on Services Centre (IVRSC)	Designated parking space for a 5.5-ton goods vehicle	With easily accessible L/ UL bay for goods delivery is required. [2]
40-p Supported Hostel for Mentally Handicapped Persons (SHOS(MH))	-	-
200-p Residential Care Home for the Elderly cum 30-p Day Care Unit (RCHE cum DCU)	Two parking spaces for two private light buses with tail-lifts (measurement: 8m x 3m with minimum headroom of 3.3m.) for the exclusive use of the RCHE cum DCU should be provided.	A shared L/ UL area for use of the two private light buses, and ambulance in the close proximity of the RCHE cum DCU entrance. The dimension of the shared L/ UL area is at 11m x 3.5m x 4.7m (minimum headroom). [2]
School Social Work Unit (SSWU)	-	-
Centre for Home Care Services for Frail Elderly Persons (1-team size non-kitchen based) (HCS for Frail Elderly Persons)	One designated parking space for one private light bus with tail-lift measuring 8m x 3m with minimum headroom of 3.3m is required.	A shared L/ UL area for the private light bus of the Home Care Services (HCS) team for Frail Elderly Persons and other welfare facilities in close proximity to the entrance of the HCS team for Frail Elderly Persons is required. [2]
Multi-disciplinary Outreaching Support Team for the Elderly (MOSTE)	Not required	With easily accessible L/ UL bay for goods delivery is required. [2]
100-p Long Stay Care Home (LSCH)	One parking space (size: 8m x 3m with minimum headroom of 3.3m) for a private light bus with tail-lift.	Share public L/ UL bay or lay-by for ambulance are required (size: 8m x 3m with minimum headroom of 3.3m). [2]

Remark: [1] Information is provided by Social Welfare Department (SWD).
[2] L/ UL area can be share-used.

3. Review on Assessments

3.1. Methodology

3.1.1. This Review Report has followed the methodology and assumptions adopted in the Approved TTIA Report. This includes consistency in the assessment year, the territorial planning assumptions, planning assumptions on other major developments in North West New Territories (NWNT) and major transport infrastructure assumptions.

3.2. Assessment Scenarios

3.2.1. The ultimate assessment year adopted in the Approved TTIA Report was 2034. Hence, year 2034 will be the assessment year of this Review Report.

3.2.2. The assessment scenarios of the Review Report are summarised below. AM peak hour scenario and PM peak hour scenario will be set accordingly, with the AM and PM peak hours to be identified from the Approved TTIA Report, i.e. 0745-0845 and 1615-1715 hours respectively.

2034 Reference Scenario – 2034 Design Scenario in the Approved TTIA Report

2034 Design Scenario – **2034 Reference Scenario** + Net Change of the traffic / pedestrian demand from the New Scheme

3.3. Area of Influence

3.3.1. The area of influence (AOI) and the assessed road network have followed the Approved TTIA Report. The location of the assessed junctions and the section of the road links are summarised in **Table 3.1** and **Table 3.2** respectively.

Table 3.1 Location of Critical Junctions

Index	Junctions	Junction Type
J1	Castle Peak Road-Ping Shan/ Ma Wang Road	Signal
J2	Castle Peak Road - Ping Shan/ Tong Yan San Tsuen	Signal
J3	Castle Peak Road-Ping Shan/ Ping Kwai Road/ San Hi Tsuen Street	Signal
J4	Town Park Road South/ Lam Hau Tsuen Road	Signal
J5	Town Park Road North/ Ma Tin Road	Priority
J6	Yuen Long Tai Yuk Road/ Ma Tin Road	Signal
J7	Shui Pin Wai Interchange/ Long Ping Road	Signal
J8 *	Ma Miu Road/ Castle Peak Road - Ping Shan	Signal
J9 *	Slip Road to Long Tin Road (SB)/ U-turn from slip road of Long Tin Road (WB)	Merging Lane
J10	Tong Yan San Tsuen Road/ San Hi Tsuen Street	Priority
J11	Ma Fung Ling Road / Road L1	Priority

Remark: * Planned improvement scheme by CEDD in the Approved TTIA Report has been considered.

Table 3.2 Location of Critical Road Links

Index	Road Links
L1	Castle Peak Road - Ping Shan (Left of Long Tin Road)
L2	Castle Peak Road - Ping Shan (Right of Long Tin Road)
L3	Yuen Long Highway (Left of Tong Yan San Tsuen Interchange)
L4	Yuen Long Highway (Right of Tong Yan San Tsuen Interchange)
L5	Long Tin Road
L6	Tong Yan San Tsuen Road (Between Castle Peak Road – Ping Shan and Ping Hong Lane)
L7	Ma Fung Ling Road
L8	Ma Wang Road
L9	Tong Yan San Tsuen Interchange (From Long Tin Road - SB To Yuen Long Highway - EB)
L10	Tong Yan San Tsuen Interchange (To Long Tin Road - NB)
L11	Wang Tat Road
L12	Slip Road from Long Tin Road - SB to Yuen Long Highway - WB
L13	Slip Road from Yuen Long Highway - EB to Long Tin Road - NB
L14	San Hi Tsuen Street

3.4. Junction / Link Capacity Assessment

3.4.1. To estimate the net change of traffic generation by the New Scheme, appropriate trip rates should be adopted as there is no trip rates for commercial development and social welfare facilities mentioned and adopted in Approved TTIA Report. Reference has been made to the Transport Planning and Design Manual (TPDM) published by Transport Department (TD) and advice from HKHA.

3.4.2. Based on the development parameter shown in **Table 2.1**, the net change of the traffic generation and attraction by the New Scheme are estimated and presented in **Table 3.3**.

Table 3.3 Net Change of Traffic Generation of the New Scheme

Land Use	Net Change of Parameters (sqm GFA)	Trip Rates (pcu/hr/100 sqm)				Traffic Demand (pcu/hr)			
		AM		PM		AM		PM	
		Gen	Att	Gen	Att	Gen	Att	Gen	Att
Commercial Development	-1,667	0.2296	0.2434	0.3100	0.3563	-4	-4	-5	-6
Social Welfare Facilities *	8,078	–	–	–	–	9	9	9	9
Total						**5**	**5**	**4**	**3**

Remark: * The traffic demand of social welfare facilities are advised by HKHA.

3.4.3. The vehicular traffic distribution, including the traffic between the Subject Site and Yuen Long, Tin Shui Wai/Tuen Mun, urban/other New Territories, would be consisted with the Approved TTIA Report as presented in **Table 3.4**.

Table 3.4 Assumed Trip Distribution in Approved TTIA Report

Yuen Long *	Tin Shui Wai / Hung Shui Kiu	Tuen Mun	Urban and Other N.T.
30%	5%	10%	55%

Remark: * cover all areas in Yuen Long District other that Tin Shui Wai and Hung Shui Kiu

3.4.4. Based on the traffic flows of 2034 Reference Scenario (2034 Design Scenario in the Approved TTIA Report) shown in **Figure 3.1**, traffic generation presented in **Table 3.3** and the trip distribution shown in **Table 3.4**, the traffic flows of 2034 Design Scenario is estimated and presented in **Figure 3.2**.

Junction Capacity Assessments

3.4.5. Junction capacity assessments were carried out for the junctions listed in **Table 3.1** within the AOI in accordance with the procedures outlined in TPDM. The performances of priority junctions or roundabouts are represented in terms of design flow/capacity (DFC) ratio while that of signalized junctions are represented in terms of reserve capacity (RC).

3.4.6. According to TD's Departmental Circular No. 3/2020 – Supplementary Notes to Guideline and Requirements for Traffic Impact Assessment, any traffic improvement schemes should aim to restore the v/c ratio, DFC ratio and RC of the affected roads or junctions to ≤ 0.85, ≤ 0.85 and ≥ 15% respectively where practicable.

3.4.7. The result of junction capacity assessments are summarised in **Table 3.5**. The calculation sheets are attached in **Appendix C**.

Table 3.5 Summary of Results of Junction Capacity Assessments

Index *	Junctions	Reserve Capacity (RC) or Design Flow / Capacity (DFC)			
		2034 Reference Scenario		2034 Design Scenario	
		AM	PM	AM	PM
J1	Castle Peak Road-Ping Shan/ Ma Wang Road	45%	44%	45%	44%
J2	Castle Peak Road - Ping Shan/ Tong Yan San Tsuen	46%	37%	46%	37%
J3	Castle Peak Road-Ping Shan/ Ping Kwai Road/ San Hi Tsuen Street	20%	54%	20%	54%
J4	Town Park Road South/ Lam Hau Tsuen Road	21%	29%	21%	29%
J5	Town Park Road North/ Ma Tin Road	0.60	0.33	0.60	0.33
J6	Yuen Long Tai Yuk Road/ Ma Tin Road	16%	20%	16%	20%
J7	Shui Pin Wai Interchange/ Long Ping Road	4%	31%	4%	31%
J8	Ma Miu Road/ Castle Peak Road - Ping Shan	11%	10%	11%	10%

Index *	Junctions	Reserve Capacity (RC) or Design Flow / Capacity (DFC)			
		2034 Reference Scenario		2034 Design Scenario	
		AM	PM	AM	PM
J9	Slip Road to Long Tin Road (SB)/ U-turn from slip road of Long Tin Road (WB)	N/A			
J10	Tong Yan San Tsuen Road/ San Hi Tsuen Street	0.41	0.24	0.41	0.24
J11	Ma Fung Ling Road / Road L1	0.60	0.33	0.60	0.33

Remark: * Refer to **Table 3.1**.

3.4.8. As shown in **Table 3.5**, most of the junctions would operate within acceptable performance with RC greater than 15% or DFC below 0.85 under all scenarios, except for junctions J7 and J8.

3.4.9. However, it should be noted that all assessed junctions will operate in similar capacity in both AM and PM peak for both 2034 Reference and 2034 Design scenarios. The net change of the traffic flows by the New Scheme would only account for less than 1% in RC or 0.01 in DFC in both AM and PM peak. The net impact on junction performance is insignificant, including the problematic junctions J7 and J8.

3.4.10. Nevertheless, for Junction J8, a planned improvement scheme would be constructed by CEDD. The improvement scheme proposes to increase one entering traffic lane by shifting the traffic islands at both northbound and southbound.

3.4.11. For Junction J9, due to the planned improvement scheme by CEDD presented in Approved TTIA Report, the original priority junction will be modified into a merging lane. Link capacity assessment instead of junction capacity assessment will be used to assess the performance of J9. The result of the link capacity of J9 are summarised in **Table 3.6**.

Table 3.6 Volume / Capacity (V/C) Ratio for the improved U-turn approach at J9

		Capacity	2034 Reference Scenario		2034 Design Scenario	
			AM	PM	AM	PM
Slip Road to Long Tin Road (SB)/ U-turn from slip road of Long Tin Road (WB)	Peak Hour Flow (pcu/hr) *	1,340	560	360	565	365
	V/C Ratio		0.42	0.27	0.42	0.27

Remark: *Rounded to nearest 5.

3.4.12. As shown in **Table 3.6**, the improved J9 will operate acceptable and similar performance in both AM and PM peak for both 2034 Reference and 2034 Design scenarios. The net change of the traffic flows by the New Scheme would only account for less than 0.01 in V/C in both AM and PM peak. The net impact on the V/C performance is insignificant.

Link Capacity Assessments

3.4.13. The link capacity assessments were conducted to determine the link performance of the assessed section of road link within the AOI presented in **Table 3.2**. The result of the link performance are summarised and presented in **Table 3.7**.

Table 3.7 Link Capacity Assessment

Index	Link		Capacity (pcu/hr)	2034 Reference Scenario				2034 Design Scenario			
				Peak Hour Traffic Flow (pcu/hr)		V/C Ratio		Peak Hour Traffic Flow (pcu/hr) (1)		V/C Ratio	
				AM	PM	AM	PM	AM	PM	AM	PM
L1	Castle Peak Road - Ping Shan (Left of Long Tin Road)	EB	3,980	1,850	1,800	0.46	0.45	1,850	1,800	0.46	0.45
		WB	3,040	1,900	2,000	0.63	0.66	1,900	2,000	0.63	0.66
L2	Castle Peak Road - Ping Shan (Right of Long Tin Road)	EB	2,800	1,100	1,000	0.39	0.36	1,100	1,000	0.39	0.36
		WB	2,800	1,550	1,550	0.55	0.55	1,550	1,550	0.55	0.55
L3	Yuen Long Highway (Left of Tong Yan San Tsuen Interchange)	EB	6,100	6,000	5,650	0.98	0.93	6,000	5,650	0.98	0.93
		WB	6,100	6,250	6,250	1.02	1.02	6,250	6,250	1.02	1.02
L4	Yuen Long Highway (Right of Tong Yan San Tsuen Interchange)	EB	6,100	6,300	5,650	1.03	0.93	6,305	5,650	1.03	0.93
		WB	6,100	5,200	5,500	0.85	0.90	5,205	5,500	0.85	0.90
L5	Long Tin Road	NB	5,600	3,200	3,300	0.57	0.59	3,205	3,305	0.57	0.59
		SB	5,600	4,050	3,500	0.72	0.63	4,055	3,505	0.73	0.63
L6	Tong Yan San Tsuen Road (Between Castle Peak Road – Ping Shan and Ping Hong Lane)	NB	1,090	150	250	0.14	0.23	150	250	0.14	0.23
		SB	1,090	300	250	0.28	0.23	300	250	0.28	0.23
L7	Ma Fung Ling Road	NB	820	100	100	0.12	0.12	100	100	0.12	0.12
		SB	820	100	100	0.12	0.12	100	100	0.12	0.12
L8	Ma Wang Road	WB	2,530	500	500	0.20	0.20	500	500	0.20	0.20
L9	Tong Yan San Tsuen Interchange (From Long Tin Road - SB To Yuen Long Highway - EB)	SB	1,800	1,700	1,400	0.94	0.78	1,705	1,400	0.95	0.78

Index	Link		Capacity (pcu/hr)	2034 Reference Scenario				2034 Design Scenario			
				Peak Hour Traffic Flow (pcu/hr)		V/C Ratio		Peak Hour Traffic Flow (pcu/hr) (1)		V/C Ratio	
				AM	PM	AM	PM	AM	PM	AM	PM
L10	Tong Yan San Tsuen Interchange (To Long Tin Road - NB)	NB	1,800	1,650	1,800	0.92	1.00	1,655	1,805	0.92	1.00
L11	Wang Tat Road	EB	2,530	1,350	1,300	0.53	0.51	1,350	1,300	0.53	0.51
L12	Slip Road from Long Tin Road - SB to Yuen Long Highway - WB	WB	3,600	2,150	1,950	0.60	0.54	2,150	1,950	0.60	0.54
L13	Slip Road from Yuen Long Highway - EB to Long Tin Road - NB	NB	3,600	1,100	1,100	0.31	0.31	1,100	1,100	0.31	0.31
L14	San Hi Tsuen Street	EB	820	300	200	0.37	0.24	300	200	0.37	0.24
		WB	820	300	200	0.37	0.24	300	200	0.37	0.24

Remark: (1) Rounded to nearest 5.

3.4.14. As shown in **Table 3.7**, most of the assessed section of road link would operate within acceptable performance with V/C ratio below 0.85 under all scenarios, except for link sections L3, L4, L9 and L10.

3.4.15. It is important to note that all the assessed road links will operate at a similar performance during both the AM and PM peak periods for both the 2034 Reference and 2034 Design scenarios. The net change in traffic flows resulting from the New Scheme will only cause a negligible increase of less than 0.01 in the V/C ratio during both peak periods. This minimal change will not have significant impact on the performance of the link capacity, including the problematic link sections L3, L4, L9, and L10.

3.4.16. Moreover, as stated in the Approved TTIA Report, further investigation of improvement measures for the problematic link sections will be carried out in upcoming studies, including Route 11 study and Yuen Long Highway widening study.

Queue Length Analysis

3.4.17. The queue length analysis was conducted on the critical arms of the assessed junctions listed in **Table 3.5**. For priority junctions, only minor road streams were assessed. The results of the queen length analysis was summarised in **Table 3.8**.

Table 3.8 Queue Length Analysis

Junction Arm		Existing Queuing Space	Queue Length (m)			
			2034 Reference		2034 Design	
			AM	PM	AM	PM
J1	Castle Peak Road - Ping Shan EB	150	65	65	65	65
	Ma Wang Road SB	200	30	35	30	35
	Castle Peak Road - Ping Shan WB	480	50	55	50	55
J2	Castle Peak Road - Ping Shan EB	300	60	65	60	65
	Ping Ha Road SB	100	30	25	30	25
	Castle Peak Road - Ping Shan WB	500	45	55	45	55
	Tong Yan San Tsuen Road NB	70	20	20	20	20
J3	Castle Peak Road - Ping Shan EB	550	60	45	60	45
	Ping Kwai Road SB	40	20	30	20	30
	Castle Peak Road - Ping Shan WB	300	60	55	60	55
	San Hi Tsuen Street NB	70	45	30	45	30
J4	Town Park Road South EB	60	50	45	50	45
	Town Park Road South WB	70	40	40	40	40
	Lam Hau Tsuen Road NB	110	15	15	15	15
J5	Town Park Road North SB	200	25	10	25	10
J6	Ma Tin Road EB	140	65	50	65	50
	Yuen Long Tai Yuk Road SB	150	50	50	50	50

	Junction Arm	Existing Queuing Space	Queue Length (m)			
			2034 Reference		2034 Design	
			AM	PM	AM	PM
	Ma Tin Road WB	120	30	35	30	35
	Yuen Long Tai Yuk Road NB	200	50	50	50	50
J7	Shui Pin Wai Interchange SB	160	50	40	50	40
J7	Long Ping Road WB	550	80	65	80	65
J7	Long Tin Road NB	200	45	45	45	45
J8	Castle Peak Road - Ping Shan EB	280	75	70	75	70
J8	Ma Miu Road SB	100	55	55	55	55
J8	Castle Peak Road - Ping Shan WB	100	75	75	75	75
J8	Yuen Long Tai Yuk Road NB	110	85	85	85	85
J10	San Hi Tsuen Street EB	70	10	5	10	5

3.4.18. As shown in **Table 3.8**, all the critical arm of the assessed junctions will have sufficient queuing space for the estimated queue length in both AM and PM peak for both 2034 Reference and 2034 Design scenarios. The net change of the traffic flows by the New Scheme would only account for less than 5m in length for each arm in both AM and PM peak. The net impact of New Scheme on queue length is insignificant.

3.5. Pedestrian Linkages Assessment

3.5.1. The Approved TTIA Report does not include specific trip rates for pedestrians related to commercial development and social welfare facilities. Therefore, advice from HKHA has been referenced to the net change in pedestrian generation and attraction resulting from the New Scheme. The net change are based on the development parameters provided in **Table 2.1**, are presented in **Table 3.9**.

Table 3.9 Net Change of Pedestrian Generation of the New Scheme

Land Use	Net Change of Parameters (sqm GFA)	Pedestrian Demand (pph)			
		AM		PM	
		Gen	Att	Gen	Att
Commercial Development *	-1,667	-40	-40	-40	-40
Social Welfare Facilities *	8,078	125	125	125	125
	Total	**85**	**85**	**85**	**85**

Remark: * The pedestrian demands are advised by HKHA.

3.5.2. Based on the net change in pedestrian generation and attraction presented in **Table 3.9**, the summary of the pedestrian generation and attraction of the Approved TTIA Report and the New Scheme are presented in **Table 3.10**.

Table 3.10 Summary of Pedestrian Generation

Assessment Scenarios	Pedestrian Demand (pcu/hr)					
	AM			PM		
	Gen	Att	2-way	Gen	Att	2-way
Approved TTIA Report	5,633	2,030	7,663	2,205	4,816	7,021
New Scheme	5,718	2,115	7,833	2,290	4,901	7,191

3.5.3. Similar to the Approved TTIA Report, the two-way pedestrian flows at AM peak, i.e. 7,833 ped/hr for New Scheme will be the critical trip generation adopted for assessment.

3.5.4. The modal split during the peak hour, as presented in the Approved TTIA Report, is also adopted for the assessment for the New Scheme. The details of this modal split are summarised in **Table 3.11**.

Table 3.11 Modal Split Assumption

Walk Mode	Mechanised Mode		
	Private Mode	Rail-based Public Transport	Road-based Public Transport
23%	15%	40%	22%

Remark: all % round to nearest integer

3.5.5. Based on the pedestrian demand presented in **Table 3.10** and the modal split assumption shown in **Table 3.11**, the pedestrian flow breakdown in peak hour was calculated and presented in **Table 3.12**.

Table 3.12 Peak Hour Pedestrian Flow Breakdown

Mode	Peak hour pedestrian flow (ped/hr)	
	Approved TTIA Report	New Scheme
By Rail/LRT Mode	3,076	3,144
By Bus/GMB Mode	1,716	1,754
By Walk Mode	1,722	1,760
By Private Mode	1,149	1,175
Total	**7,663**	**7,833**

Remark: LRT – Light Rail Transit; GMB – Green Minibus.

3.5.6. According to Approved TTIA Report, three footbridges are proposed for the housing site. Footbridge A will span Castle Peak Road – Ping Shan to the north and mainly serve pedestrians heading to the West Rail Long Ping Station. Footbridge B&C will span Long Tin Road to the east and mainly serve pedestrians heading to Yuen Long Park, including recreational facilities like Yuen Long Stadium, Yuen Long Swimming Pool, and several primary/secondary schools along Ma Tin Road and Shap Pat Heung Road.

3.5.7. Based on the estimation of Approved TTIA Report, it is estimated that 83% of rail users for the Long Bin Development will be directed towards the urban section of the West Rail Line. To align with the conservative design purpose of Approved TTIA Report, it is anticipated that all these urban-bound rail users will utilize Footbridge A to reach West Rail Long Ping Station, resulting in an estimated pedestrian flow of approximately 2,609 pedestrians per hour for New Scheme. The remaining rail users heading towards Tuen Mun and Tin Shui Wai directions will access the Light Rail at Ping Shan Station via the southern footpath of Castle Peak Road – Ping Shan and the existing footbridge near Light Rail Ping Shan Station. The summary of the pedestrian flow at each proposed footbridge at peak hour is presented in **Table 3.13**.

Table 3.13 Peak Hour Pedestrian Flow at Each Proposed Footbridge

Pedestrian Generation by Mode	Pedestrian Route and Split		Peak hour pedestrian flow (pph)	
			Approved TTIA Report	New Scheme
by Rail/LRT Mode	Footbridge A	83%	2,533	2,609
	Southern Footpath at Castle Peak Road (Ping Shan)	17%	523	535
by Walk Mode	Footbridge B&C	100%	1,722	1,760

Remark: LRT – Light Rail Transit.

3.5.8. With the peak hour pedestrian flows in **Table 3.13**, the necessary footbridge widths for a Level of Service (LOS) of C, which is a common measure of pedestrian congestion level specified by TPDM during peak hours, were calculated and summarised in **Table 3.14**.

Table 3.14 Footbridge width recommendation

	Approved TTIA Report		New Scheme	
	Footbridge A	Footbridge B&C	Footbridge A	Footbridge B&C
Peak hour pedestrian flow (ped/hr) [a]	2,553	1,722	2,609	1,760
Lower limit of flow rate (23 ped/m/min)				
Required Effective Width (m) [b1] = [a] / 60 min/hr / 23 ped/m/min	1.85	1.25	1.89	1.28
Clear Width Required (m) [c1] = [b1] + 1	2.85	2.25	2.89	2.28
Upper limit of flow rate (33 ped/m/min)				
Required Effective Width (m) [b2] = [a] / 60 min/hr / 33 ped/m/min	1.29	0.87	1.32	0.89
Clear Width Required (m) [c2] = [b2] + 1	2.29	1.87	2.32	1.89

3.5.9. According to the development assumption presented in Approved TTIA Report, the clear width of 3m is proposed for both Footbridge A and Footbridge B&C. **Table 3.14** shows the proposed 3m-wide are sufficient to guarantee LOS C during peak hours by considering the estimated pedestrian flow for the New Scheme.

3.6. Public Transport Demand Assessment

3.6.1. Following a similar analysis as conducted in Approved TTIA Report, the critical peak hour Public Transport demand had been calculated based on the AM peak trip generation (one-way), as the critical time period, shown in **Table 3.10** and modal split shown in **Table 3.11**. The summary of the critical public transport demand by New Scheme are presented in **Table 3.15**.

Table 3.15 Estimated Critical Public Transport Demand Induced

Scheme	Critical Public Transport Demand (pph)		
	Rail Based	Road Based	Total
Approved TTIA Report [a]	2,261	1,261	3,522
Net Change by the New Scheme [b]	34	19	53
New Scheme [a] + [b]	2,295	1,280	3,575

3.6.2. The PHD at Long Bin is not within a walkable distance to the nearest rail station, i.e. Long Ping Station, so most trips to the railway station(s) will require feeder services. To accommodate the public transport demand, both rail-based and road-based options are considered, with considering on franchised bus routes to maximize carrying capacity.

3.6.3. The Approved TTIA Report proposed three bus routes with a 12-minute headway and two bus routes with a 6-minute headway in long term. The estimated service capacity in AM peak is 4,725 ped/hr. **Table 3.16** provides the details of its proposal and shows that the service capacity in AM peak proposed by the Approved TTIA Report are able to accommodate the critical public transport demand induced by New Scheme shown in **Table 3.15**.

Table 3.16 Estimates on Franchised Bus Service Capacity

	Franchised Bus
Number of routes provided	5
Proposed AM peak headway (minutes)	12 mins (i.e. 5 trips in one hour) for three routes; 6 mins (i.e. 10 trips in one hour) for two routes
Capacity (persons)	135
Estimated service capacity in AM peak (ped/hr)	4,725
Maximum Fleet Requirement under proposed headway (vehicles)	70

3.7. Railway Impact Assessment

3.7.1. According to the Approved TTIA Report, the PHD at Long Bin is expected to generate approximately 2,490 rail/ light rail passengers. Around 83% of these passengers during the morning peak hour in 2034 are estimated to travel to the urban area via the critical section of the West Rail (WR) Line from Kam Sheung Road to Tseun Wan West. The remaining passengers will either take the West Rail Line and Northern Link (NOL) to NENT or use the West Rail Line or LRT to reach NWNT. By adopting the same assumption, the estimated rail/ light rail passengers by New Scheme are presented in **Table 3.17**.

Table 3.17 Addition of Long Bin Patronage Demand on the Critical Section of WR

	Factor	Approved TTIA Report	New Scheme
Peak hour Rail Passengers	-	2,490	2,524
Distribution to the critical section of WR	83%	2,070*	2,090*

Remark: * round to nearest 10

3.7.2. Based on the estimated rail/ light rail passengers presented in **Table 3.17**, the total patronage of the MTR West Rail Line at the critical section, from Kam Sheung Road to Tsuen Wan West, during the morning peak hour in 2034 by considering New Scheme has been calculated and summarised in **Table 3.18**.

Table 3.18 MTR Patronage Demand on the Critical Section of WR

Items	Approved TTIA Report	New Scheme
WR Line Patronage at Critical Section from Kam Sheung Road to Tsuen Wan West in year 2019 (pphpd) [a]	39,600	
WR Line Patronage at Critical Section from Kam Sheung Road to Tsuen Wan West (Without Addition of NOL Patronage Demand) in year 2034 [b] = [a] x 1.341	53,100	
Additional NOL Patronage Demand to the Critical Section of WR [c]	7,100	
Additional YLS Patronage Demand to the Critical Section of WR [d]	740	
Estimated patronage without Long Bin Development [e] = [b] + [c] +[d]	60,940	
Additional Long Bin Patronage Demand to the Critical Section of WR [f]	2,070	2,090
Estimated patronage with Long Bin Development [e] + [f]	63,010	63,030

3.7.3. Based on the estimated MTR patronages presented in **Table 3.18**, it is anticipated that the AM peak hour patronage on the critical section of the West Rail (WR) Line in the year 2034 will be approximately 63,030 passengers with New Scheme, which is 20 passengers more compared with the Approved TTIA. The V/C ration are calculated and summarised in **Table 3.19**.

Table 3.19 MTR Patronage Assessment with the Proposed Long Bin Development

Critical Section of WR (Kam Sheung Road to Tsuen Wan West)	Approved TTIA Report	New Scheme
MTR Patronage (pphpd)	62,820	62,840
Maximum Capacity (6ppsm) *	75,000	
Maximum Capacity (4ppsm)	53,400	
V/C Ratio (6ppsm)	0.84	0.84
Maximum Capacity (4ppsm)	1.18	1.18

Remark: * Adopted the same capacity as the background WR Line patronage

3.7.4. **Table 3.19** shows a V/C ratio of 0.84 under a population density of 6 ppsm for both Approved TTIA Report and the New Scheme. It indicates that New Scheme will not have an unacceptable impact on the WR Line under a density of 6 ppsm, as the V/C ratio remains within an acceptable range, as same as the conclusion in Approved TTIA Report.

3.8. Light Rail Impact Assessment

3.8.1. As mentioned in the Approved TTIA Report, the nearest LRT stations to the PHD at Long Bin are Ping Shan station and Shui Pin Wai station. Currently, these two LRT stations serve four LRT routes. The number of light rail vehicle (LRV) for these four LRT routes in 2018 are presented in **Table 3.20**. It is assumed that during operation, one couple-set LRV is equivalent to two single-set-equivalent LRVs.

Table 3.20 Number of LRV for Four LRT Routes in the Vicinity

Route	Number of Light Rail vehicle		Single-set-equivalent LRV
	Single-set	Couple-set	
610	11	2	15
614	7	0	7
615	7	0	7
761P	0	13	26
Total	**25**	**15**	**55**

3.8.2. According to the discussion in **Section 3.7.1**, it is anticipated that during the AM peak, there will be around 83% of rail/ light rail passengers will travel to urban area via the critical section of WR Line, while the remaining passengers will take LRT originating from the PHD at Long Bin and traveling in one direction, heading towards either NENT or NWNT. The distribution of these passengers among the following destinations: Tuen Mun, Hung Shui Kiu, Tin Shui Wai, Yuen Long, and Fanling/Sheung Shui, is summarised in **Table 3.21** and aligning with the distributions of the Approved TTIA Report.

Table 3.21 Distribution of Long Bin Rail/LR Passengers to NENT and NWNT

Items		Destination: Tuen Mun (NWNT)	Destination: Hung Shui Kiu (NWNT)	Destination: Tin Shui Wai (NWNT)	Destination: Yuen Long (NWNT)	Destination: Fanling/ Sheung Shui (NENT)	Total
Distribution Factor		39%	14%	19%	9%	19%	100%
Number of Passengers	Approved TTIA Report	165	60	80	35	80	420
	New Scheme	170	60	80	40	80	430
Split to LRT		50%	50%	50%	100%	-	-
Split to WR		50%	50%	50%	-	100%	-
Number of LRT Passengers	Approved TTIA Report	85	30	40	35	-	190
	New Scheme	85	30	40	40	-	195

3.8.3. **Table 3.21** shows the estimated number of LRT passengers from the PHD at Long Bin who would travel to various destinations. According to both the Approved TTIA Report and the New Scheme, the number of passengers heading to Tuen Mun, Hung Shui Kiu, and Tin Shui Wai remains consistent with 85, 30, and 40 passengers respectively. There is a slight difference in the estimated number of passengers traveling to Yuen Long, with the Approved TTIA Report estimating 35 passengers and the New Scheme estimating 40 passengers. The average number of passengers per single-set-equivalent LRV for each destination is summarised in **Table 3.22**, and **Table 3.23** presents the average number of passengers per single-set-equivalent LRV for each LRT route.

Table 3.22 Average Number of Passenger per Single-Set-Equivalent LRV by Destination

Destination	Morning Peak Hour Passengers: Approved TTIA Report	Morning Peak Hour Passengers: New Scheme	LRT Route	Number of single-set-equivalent LRV	Average number of passenger per single-set-equivalent LRV: Approved TTIA Report	Average number of passenger per single-set-equivalent LRV: New Scheme
Tuen Mun	85	85	610, 614, 615	29	2.9	2.9
Hung Shui Kiu	30	30	610, 614, 615, 761P	55	0.5	0.5
Tin Shui Wai	40	40	761P	26	1.5	1.5
Yuen Long	35	40	610, 614, 615, 761P	55	0.6	0.7

Table 3.23 Average Number of Passenger per Single-Set-Equivalent LRV by LRT Route

Route	Approved TTIA Report		New Scheme	
	Towards Tuen Mun, Tin Shui Wai, Hung Shui Kiu	Towards Yuen Long	Towards Tuen Mun, Tin Shui Wai, Hung Shui Kiu	Towards Yuen Long
610	3.1	0.6	3.3	0.7
614	3.1	0.6	3.3	0.7
615	3.1	0.6	3.3	0.7
761P	1.8	0.6	2.0	0.7

3.8.4. **Table 3.23** indicates that the PHD at Long Bin is expected to generate less than 4 additional passengers per LRV for the routes 610, 614, 615, and 761P for both Approved TTIA Report and New Scheme. Considering the relatively small number of additional passengers compared with Approved TTIA Report and New Scheme, the increase in patronage demand for the LRT service is considered insignificant.

4. Summary and Conclusion

4.1. Summary

4.1.1. Atkins China Limited has been commissioned by Hong Kong Housing Authority to conduct a Review Report to review the Approved TTIA Report prepared by Civil Engineering and Development Department to account for the New Scheme, which invloves the changes made to the commercial development and social welfare facilities of the public housing development at Long Bin.

4.1.2. The Review Report has followed the methodology and assumptions adopted in the Approved TTIA Report except for the development parameters of the public housing development at Long Bin.

4.1.3. The net change of traffic generation of New Scheme would be about 10 pcu/hr (two-way) during AM peak hour and 7 pcu/hr (two-way) during PM peak hour in the assessment year 2034.

4.1.4. Junction capacity assessments were conducted for the assessed junctions with respect to the net change of traffic generation of the New Scheme. It was found that all the junctions, except J7 and J8, would operate with acceptable performance. However, the impact of the New Scheme on junction performance was insignificant, accounting for less than 1% in RC or 0.01 in DFC during both the AM and PM peak hours at all assessed junctions.

4.1.5. Link capacity assessments were undertaken for the assessed sections of road link with respect to the net change of traffic generation of the New Scheme. It was found that all the link sections would operate with acceptable performance, except link sections L3, L4, L9, and L10. However, the impact of the New Scheme on link section performance was insignificant, with the New Scheme accounting for less than 0.01 in V/C ratio during both the AM and PM peak hours at all assessed link sections.

4.1.6. Queue length analysis were undertaken for the on the critical arms of the assessed junctions with respect to the net change of traffic generation of the New Scheme. It was found that all the critical arm of the assessed junctions will have sufficient queuing space to accommodate the estimated queue length. Moreover, the net impact of New Scheme on queue length is insignificant.

4.1.7. The net change of pedestrian generation of New Scheme would be about 170 pph (two-way) during both AM and PM peak hour periods in the assessment year 2034.

4.1.8. Pedestrian flow assessment was conducted. It is found that the clear width of the three proposed footbridge by others in the vicinity were able to accommodate the net change of the pedestrian flow by the New Scheme by guaranteeing a Level of Service of C during the peak hours.

4.1.9. Public transport demand assessment was conducted. It is found that the estimated service capacity of the three proposed bus routes by Approved TTIA Report were able to cater the net change of the public transport demand induced by New Scheme during the peak hours.

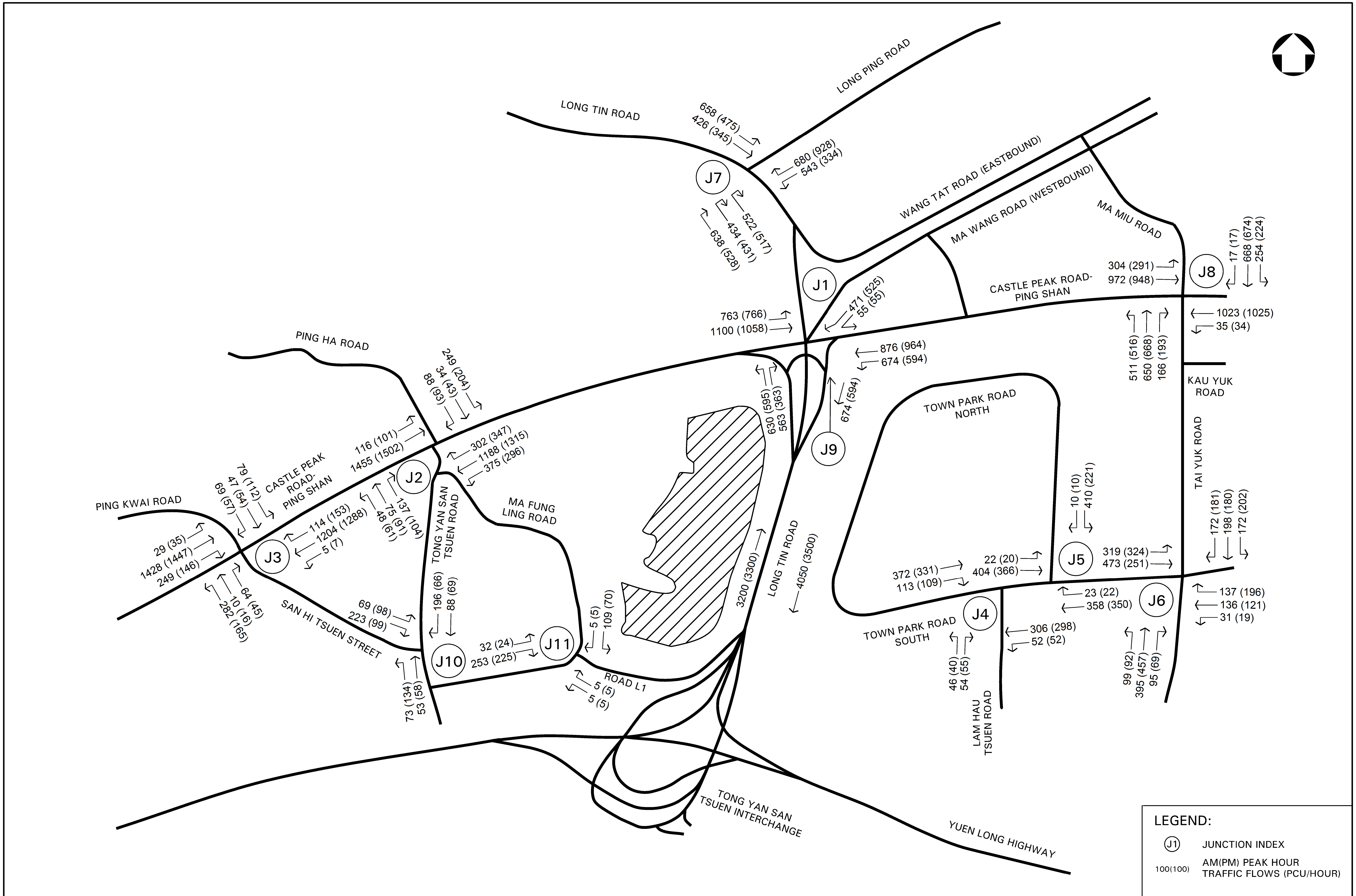
4.1.10. Railway impact assessment was conducted. It is found that the New Scheme will have insignificant impact on the West Rail Line under a density of 6 ppsm, while the V/C ratio remains within an acceptable range.

4.1.11. Light rail impact assessment was conducted. It is found that the increase in patronage demand for the Light Rail Transit service by the New Scheme is considered insignificant.

4.2. Conclusion

4.2.1. Based on the above discussion, it is concluded that the New Scheme would not induce significant adverse impact on the surrounding road junctions, link sections, footbridge, public transport service, railway, and light rail during peak hours. Therefore, the New Scheme is considered acceptable in traffic point of view.

Figures



香港房屋委員會
Hong Kong Housing Authority

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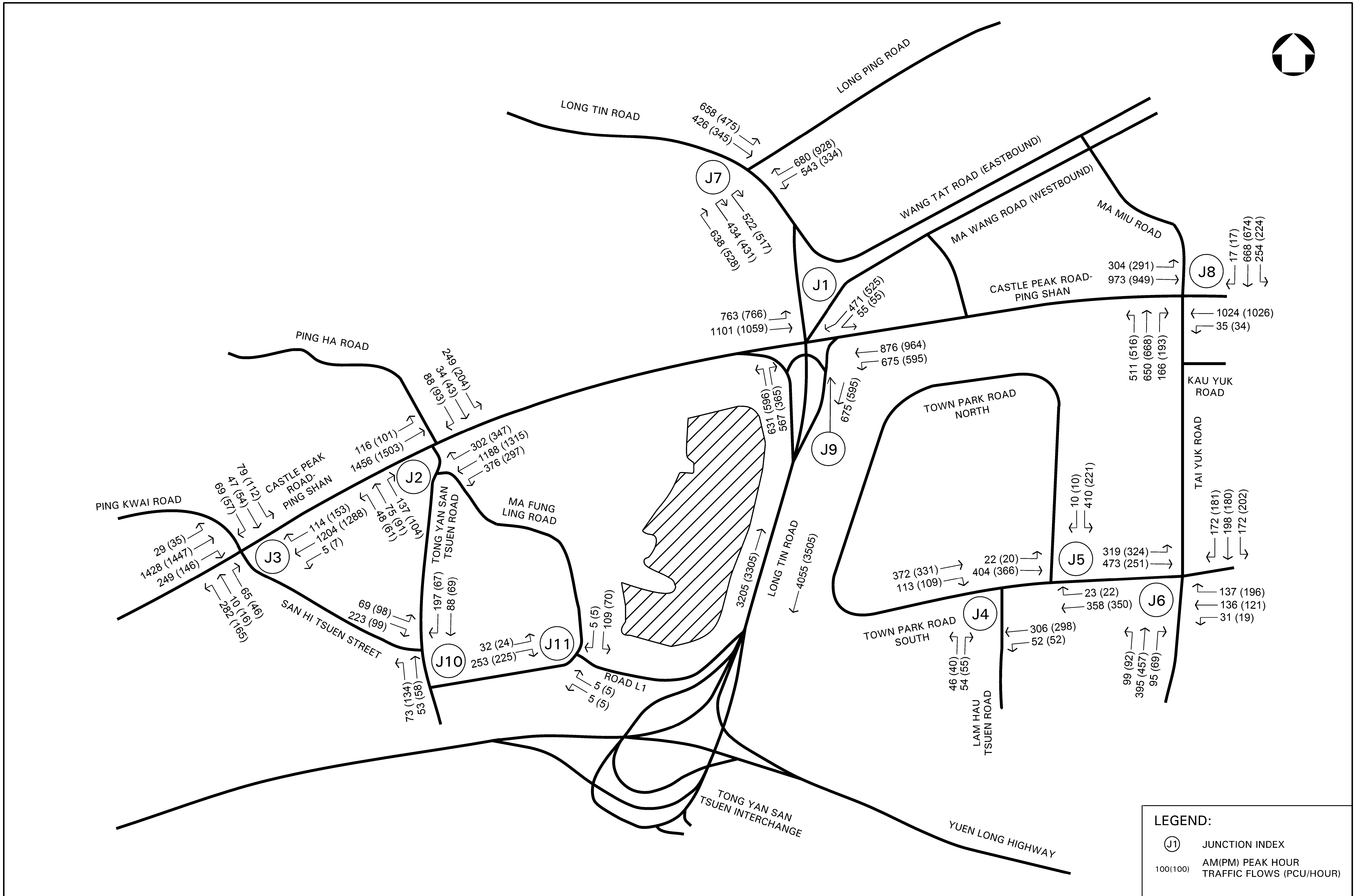
AGREEMENT NO. : CB 20210450 - TERM ENGINEERING CONSULTANCY SERVICES 2021 - 2023 FOR NEW TERRITORIES WEST REGION
REVIEW OF TRAFFIC AND TRANSPORT IMPACT ASSESSMENT FOR PUBLIC HOUSING DEVELOPMENT AT LONG BIN

Title			
YEAR 2034 REFERENCE TRAFFIC FLOWS			
Scale at A3: N.T.S	Date: MAY 2024	Figure No.: 3.1	



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Hong Kong Housing Authority

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AGREEMENT NO. : CB 20210450 - TERM ENGINEERING CONSULTANCY SERVICES 2021 - 2023 FOR NEW TERRITORIES WEST REGION REVIEW OF TRAFFIC AND TRANSPORT IMPACT ASSESSMENT FOR PUBLIC HOUSING DEVELOPMENT AT LONG BIN

Title: YEAR 2034 DESIGN TRAFFIC FLOWS

Scale at A3	Date	Figure No.
N.T.S	MAY 2024	3.2

Appendix A

Approved TTIA Report prepared by Civil Engineering and Development Department

Civil Engineering and Development Department

Agreement No. CE 75/2017 (CE) Site Formation and Infrastructure Works for Public Housing Developments at Long Bin, Yuen Long – Investigation, Design and Construction

Final Traffic and Transport Impact Assessment (TTIA) Report

261044-REP-018-03

Revised Final | May 2022

Job number 261044

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Contents

Appendices

Drawings

261044/F/03/0024	Proposed Accessibility Arrangement (Both Phases Scenario) (4 of 4)
261044/F/03/0031	Proposed Accessibility Arrangement (Primary School Scenario) (1 of 3)
261044/F/03/0032	Proposed Accessibility Arrangement (Primary School Scenario) (2 of 3)
261044/F/03/0033	Proposed Accessibility Arrangement (Primary School Scenario) (3 of 3)
261044/F/03/0041A	Proposed Road Layout of the Development (with Both Phases) (Interim Layout)
261044/F/03/0041B	Proposed Road Layout of the Development (with Both Phases) (Ultimate Layout)
261044/F/03/0042	Proposed Speed Limit Reduction alongside Long Tin Road (Northbound)
261044/F/03/0043	Proposed Public Transport Interchange
261044/F/03/0044	Proposed New Slip Road to / from Long Tin Road
261044/F/03/0045	Proposed Weaving and Merging of Long Tin Road Northbound
261044/F/03/0046	Proposed U-Turn Facilities at Long Tin Road
261044/F/03/0047	Swept Path Analysis for Public Transport Interchange - with 12.8m Long Bus
261044/F/03/0048	Swept Path Analysis for Public Transport Interchange - with 11m Long Goods Vehicle
261044/F/03/0049	Swept Path Analysis for Public Transport Interchange - with 12m Long Fire Engine
261044/F/03/0050	Swept Path Analysis for Public Transport Interchange - with 10m Long Refuse Collection Vehicle
261044/F/03/0051	Swept Path Analysis for Public Transport Interchange – with 12m Long Coach
261044/F/03/0053	Proposed Road Marking at Castle Peak Road - Ping Shan
261044/F/03/0054	Night Time Parking For Public Transport Interchange With 12.8m Long Bus
261044/F/03/0055	Improvement Scheme of Junction J8 - Ma Miu Road/ Castle Peak Road - Ping Shan

1 INTRODUCTION

1.1 Background

1.1.1 The Government has identified the site at Long Bin, Yuen Long, for the development of public housing, school, public transport interchange, and associated infrastructures (the Development site). The Development site is located at the west of Long Tin Road and north of Tong Yan San Tsuen Interchange in Yuen Long. It is planned to provide about 3,080 Subsidised Sale Flats (SSF) and 8,860 Public Rental Housing (PRH) flats in two phases, i.e. Phase 1 and Phase 2, respectively.

1.1.2 Civil Engineering and Development Department (CEDD) is tasked to undertake the Project for completion of the site formation works required at the Development site and provision of essential infrastructures including, but not limited to, improvements to existing road networks; construction of footbridges and noise barriers, provision of PTI, provision of necessary utilities such as watermains, sewers and drains leading to/ from the Development site, to support the Development at Long Bin.

1.1.3 CEDD commissioned Ove Arup and Partners Hong Kong Limited (Arup) on 11 September 2015 under Agreement No. CE 26/2015 (CE) "Site Formation and Infrastructural Works for the Development at Long Bin, Yuen Long – Feasibility Study" to determine the scope of Infrastructure Works; to ascertain the technical feasibility for the Development; and to assess various impacts due to the site formation works and provision of infrastructures.

1.1.4 CEDD commissioned Arup on 19 March 2018 under Agreement No. CE 75/2017(CE) "Site Formation and Infrastructure Works for Public Housing Developments at Long Bin, Yuen Long - Investigation, Design and Construction"

1.2 Scopes of the TIA

1.2.1 The primary objective from a traffic and transport perspective is to assess the potential impacts that the Development may generate on existing infrastructure and investigate different suitable feasible road improvement schemes and develop connectivity appropriate schemes for connecting the site to the existing road network. A Traffic and Transport Impact Assessment (TTIA) will be conducted to identify traffic impacts from the new development. Specific objectives of the study include:

- to introduce a structured and systematic approach to identify, assess and mitigate potential traffic impacts which might arise from the Development and the Project during the construction and operation stages;
- to identify, assess and specify methods, measures and standards to be included in the design and construction of the Project which are necessary to mitigate these impacts to acceptable levels;
- to enable an agreement in principle to be reached amongst the relevant Government B/Ds on the proposed permanent and temporary traffic management/ mitigation/ improvement works, etc. for the construction and operation of the Project;

- conduct a comprehensive review of the traffic data presently available, and to collect data to supplement the existing information;
- to identify all those roads and junctions that will have capacity problems in the road network within the Area of Influence (AOI) which are affected by the Development and the construction and operation of the Project, and recommend necessary improvement works to the satisfaction of the TD and DR beforehand. The Consultants shall make reference to the AOI proposed in the EFS under Agreement No. CE 26/2015 (CE), and agree the AOI for this TTIA study with TD where appropriate;
- to investigate different road schemes and the future pedestrian flows and develop the recommended scheme for (i) connecting the Sites to the existing road networks and (ii) pedestrian connectivity between the Sites and the nearby public transport facilities, including but not limited to the Ping Shan Light Rail Station or the proposed PTI at Long Tin Road, taking into account the transport need for residents entering/ leaving the Development;
- to assess the traffic implications of carrying out the works at the various stages/ phases throughout the construction period, taking into account other related roadworks projects and developments in the AOI;
- to determine appropriate temporary traffic management/ measures to ameliorate the traffic impact on the road network;
- to forecast traffic and pedestrian flow pattern generated and attracted by the Project;
- to examine the adequacy/ inadequacy of the capacity of the existing/ planned road, pedestrian networks, cycle track networks and major interchanges/ junctions within the AOI, and recommend additional transport infrastructure with implementation programme, if any, to handle the additional traffic generated as a result of the implementation of the Development;
- to review the public transport demand (including franchised buses, non-franchised buses, public light buses, urban taxis and New Territories taxis) arising from the Development at and in the vicinities of the Sites, and recommend the required public transport services and the associated public transport facilities for the Development based on interim (i.e. during construction) and long-term (i.e. post completion) arrangements, all to be conducted in close liaison with the TD;
- to qualitatively assess the traffic impact arising from the Development onto West Rail and Light Rail;
- to assess the requirements for the provision of ingress/ egress point, parking spaces and loading/ unloading bays and to devise suitable vehicular and pedestrian access arrangements for the Site taking into account the planning and land matters, traffic and transport considerations, technical constraints, etc.;
- to agree with TD on the approaches, assumptions, parameters, methodologies, model area boundaries, area traffic models, sub-regional transport models,

design years, etc. with the consideration of possible phased population intakes as stated in Clause 6.2.3 of the Study Brief prior to carrying out the TTIA;

- to take note of the prohibition of daytime road openings on major roads and the list of Traffic Sensitive Routes including Pink Route and Red Route as delineated by HyD in formulating the temporary traffic diversion schemes, temporary traffic arrangement schemes, etc.;
- to carry out all traffic forecasts and traffic modelling for proposed permanent and temporary traffic management scheme and mitigation/ improvement measures, e.g. redistribution of traffic due to lane/ road closure, during the construction and operation stages of the Project;
- to identify constraints associated with the proposed traffic management scheme and mitigation / improvement measures, and other measures recommended in the other reports for the Project;
- to perform capacity calculations of all critical road junctions within the AOI for all stages of the recommended options, and prepare full detailed traffic assignment calculations for all stages of the recommended schemes and temporary traffic management measures for all problematic locations; and
- to devise appropriate temporary traffic management measures, in the light of the forecast situations at the various critical stages and phasing of traffic diversion / lane closure proposals, to reduce the traffic impacts during the construction of the works, taking into consideration the possible concurrent construction activities in connection with other projects and utilities works.

1.3 Structure of this Report

1.3.1 This report forms the TTIA Report for the Project, and has been prepared in accordance with Clause 6.2.79 of the Project Brief. The report contains the following secitons in addition to this introduction:

Chapter 2	Reviews and appraise the existing traffic conditions and public transport provision;
Chapter 3	Presents the development schedule, vehicular accessibility arrangement, and estimate the generated / attached development traffic
Chapter 4	Outlines the methodology of traffic modelling to establish traffic forecasts for future years;
Chapter 5	Carries out Traffic Impact Assessment to evaluate the future traffic situation with the present of the project development;
Chapter 6	Presents the preliminary design of the internal roads/pedestrian facilities serving the estate itself, and carry out capacity assessments on the planned internal roads/pedestrian facilities;
Chapter 8	Summarises and concludes the findings of the TTIA.

1.4 Site Area

1.4.1 The Site Area of the Long Bin Development comprises of a public housing site (Phase 1 and Phase 2), a proposed school and a proposed public transport interchange (PTI), covering an area of about 10 hectares.

1.5 Nomenclature and Abbreviations

1.5.1 The following **Table 1.1** lists out the meaning of abbreviation for expressions adopted in this report:

Table 1.1: List of Abbreviations

Abbreviations	Term
AOI	Area of Influence
B/Ds	Government Bureaux/ Departments
CEDD	Civil Engineering and Development Department
DC	District Council
DFC	Design Flow to Capacity Ratio
EFS	Engineering Feasibility Study
HA	Housing Authority
HD	Housing Department
HKPSG	Hong Kong Planning Standards and Guidelines
HSK	Hung Shui Kiu
HOS	Home Ownership Scheme
HyD	Highways Department
IH	Interim Housing
LATM	Local Area Traffic Model
LandsD	Lands Department
LOS	Level of Service
LRT	Light-Rail Transit
NB (SB,EB,WB)	Northbound (Southbound, Eastbound, Westbound)
NDAs	New Development Areas
PlanD	Planning Department
PRH	Public Rental Housing
PTI	Public Transport Interchange
RC	Reserved Capacity
TD	Transport Department
TPDM	Transport Planning and Design Manual

Abbreviations	Term
TPEDM	Territorial Population and Employment Data Matrix
TTIA	Traffic and Transport Impact Assessment
TYST	Tong Yan San Tsuen
V/C	Volume/Capacity Ratio
WRYLS	West Rail Yuen Long Station
WRLPS	West Rail Long Ping Station
WRTSWS	West Rail Tin Shui Wai Station
YLS	Yuen Long South

2 EXISTING TRAFFIC CONDITIONS

2.1 Existing Road Network

2.1.1 As shown in **Drawing No. 261044/F/03/0001**, the project site, with an area of about 10 hectares, is bounded by Long Tin Road to the East, Tong Yan San Tsuen Interchange to the South, Ma Fung Ling Road to the West and Castle Peak Road – Ping Shan to the North. It is currently zoned as "Residential (Group A)1" on the draft Tong Yan San Tsuen Outline Zoning Plan No. S/YL-TYST/13.

2.1.2 Long Tin Road is basically a dual-3 carriageway running in a North-South alignment, with critical section of Long Tin Road northbound in 2-lane configuration. It is a Primary Distributor serving an AADT of around 44,380 (two-way) as revealed by Annual Traffic Census 2017.

2.1.3 It connects Yuen Long Highway and Castle Peak Road – Ping Shan through slip roads and free flow lanes, and mainly functions as a vehicular connection between Western areas of Yuen Long and Tin Shui Wai.

2.1.4 Yuen Long Highway is an Expressway with dual-3 configuration. It basically runs in an East-West alignment along the rural areas Southern to the Yuen Long Town Centre. An AADT of around 80,660 (two-way) is recorded in Annual Traffic Census 2017. It is an important road link to provide long-haul vehicular access from the Urban Area, Southern areas of New Territories, as well as Tin Shui Wai and Tuen Mun, to the vicinity of the subject site.

2.1.5 Ma Fung Ling Road is a two-way local distributor with single 2-lane configuration running between Tong Yan San Tsuen Road and Castle Peak Road – Ping Shan.

2.1.6 Castle Peak Road - Ping Shan is a dual carriageway running in an East-West alignment. It is a Rural Trunk Road, with the section between Yuen Long Tai Yuk Road and Ma Wang Road serving an AADT of around 19,250 (two-way) as revealed by Annual Traffic Census 2017, and AADT 24,910 for the section between Ping Ha Road and Ma Wang Road. Castle Peak Road is the major at-grade carriageway linking together the centres of population in the North-West of New Territories, including Yuen Long, Ping Shan, Hung Shui Kiu, Tuen Mun and so on. It also serves as the main access to/from the Site.

2.2 Existing Traffic Condition

2.2.1 Based on the appraisal of the existing road network condition, the Area of Influence (AOI) is proposed as shown in **Drawing No. 261044/F/03/0002**. In order to appreciate the existing traffic conditions, comprehensive classified traffic counts were conducted at the following junctions and links within the AOI. **Drawing No. 261044/F/03/0002** indicates the locations of the key junctions, links and screenlines.

J1	Castle Peak Road - Ping Shan/ Long Tin Road	(Signal)
J2	Castle Peak Road - Ping Shan/ Tong Yan San Tsuen Road	(Signal)
J3	Castle Peak Road - Ping Shan/ San Hi Tsuen Street	(Signal)
J4	Town Park Road South/ Lam Hau Tsuen Road	(Signal)

J5	Town Park Road North/ Ma Tin Road	(Priority)
J6	Yuen Long Tai Yuk Road/ Ma Tin Road	(Signal)
J7	Shui Pin Wai Interchange	(Signal)
J8	Castle Peak Road - Ping Shan/ Yuen Long Tai Yuk Road	(Signal)
J9	Slip road to Long Tin Road (NB)/ U-turn from slip road of Long Tin Road (WB)	(Priority)
J10	Tong Yan San Tsuen Road/ San Hi Tsuen Street	(Priority)
J11	Ma Fung Ling Road/ Road A	(Priority)
L1	Castle Peak Road - Ping Shan (Left of Long Tin Road)	(Link)
L2	Castle Peak Road - Ping Shan (Right of Long Tin Road)	(Link)
L3	Yuen Long Highway (Left of Tong Yan San Tsuen Interchange)	(Link)
L4	Yuen Long Highway (Right of Tong Yan San Tsuen Interchange)	(Link)
L5	Long Tin Road	(Link)
L6	Tong Yan San Tsuen Road (Between Castle Peak Road – Ping Shan and Ping Hong Lane)	(Link)
L7	Ma Fung Ling Road	(Link)
L8	Ma Wang Road	(Link)
L9	Tong Yan San Tsuen Interchange (From Long Tin Road - SB to Yuen Long Highway - EB)	(Link)
L10	Tong Yan San Tsuen Interchange (To Long Tin Road - NB)	(Link)
L11	Wang Tat Road	(Link)
L12	Slip Road from Long Tin Road - SB to Yuen Long Highway - WB	(Link)
L13	Slip Road from Yuen Long Highway - EB to Long Tin Road - NB	(Link)
L14	San Hi Tsuen Street	(Link)

2.2.2 The surveys were conducted on a normal weekday (23 May 2018) during the periods 0700-1000 and 1600-1900. The morning peak and evening peak hours were found to be 0745-0845 and 1615-1715 respectively.

2.2.3 A series of capacity analysis based on the Transport Planning and Design Manual (TPDM) were carried out at junctions and links within the AOI during the identified peak hours.

2.2.4 During the liaison with relevant departments on the TTIA report, it was noted that the order of the original base year traffic flow was not consistent with the traffic survey data of other studies in the vicinity. It is considered that even if another round of traffic survey would be carried out at this stage, the results would not be reliable due to the effect of Covid-19 epidemic. Reference was made to TTIAs of other studies and projected a revised set of base year traffic flow. The results of the junction capacity and link flow assessment are shown in **Table 2.1** and **Table 2.2** respectively.

Table 2.1 Existing Junction Performance (2018)

Junction		Junction Type	Performance (#)	
			AM	PM
J1	Castle Peak Road - Ping Shan/ Long Tin Road	Signalized	>50%	>50%
J2	Castle Peak Road - Ping Shan/ Tong Yan San Tsuen Road	Signalized	>50%	>50%
J3	Castle Peak Road - Ping Shan/ San Hi Tsuen Street	Signalized	>50%	>50%
J4	Town Park Road South/ Lam Hau Tsuen Road	Signalized	>50%	>50%
J5	Town Park Road North/ Ma Tin Road	Priority	0.12	0.12
J6	Yuen Long Tai Yuk Road/ Ma Tin Road	Signalized	>50%	>50%
J7	Shui Pin Wai Interchange	Signalized	31%	>50%
J8	Castle Peak Road - Ping Shan/ Yuen Long Tai Yuk Road	Signalized	43%	>50%
J9	Slip road to Long Tin Road (SB)/ U-turn from slip road of Long Tin Road (WB)	Priority	1.19	1.10
J10	Tong Yan San Tsuen Road/ San Hi Tsuen Street	Priority	0.15	0.14

(#) Figures shown represent "Reserve Capacity" (RC) for the signal controlled junctions and "Design Flow to Capacity" (DFC) ratio for the priority junctions. A signal-controlled junction with a reserve capacity (RC) of more than 15% is considered as satisfactory performance; 0% implies that it is operating at capacity while a negative RC% suggests that it is overloaded. For priority junction, the performance indicators is the DFC (Design Flow to Capacity). DFC of less than 0.85 is considered as satisfactory performance; 1.00 indicate that capacity has been reached while DFC over 1.00 indicate overloaded conditions.

Table 2.2 Existing Link Performance (2018)

Link			Capacity (pcu/hr) (***)	Peak Hour Traffic Flow (pcu/hr)		V/C Ratio (*)	
				AM	PM	AM	PM
L1	Castle Peak Road - Ping Shan (Left of Long Tin Road)	EB	3,980	1,000	900	0.25	0.23
		WB	3,040	1,050	1,300	0.35	0.43
L2	Castle Peak Road - Ping Shan (Right of Long Tin Road)	EB	2,800	650	550	0.23	0.20
		WB	2,800	850	850	0.30	0.30
L3	Yuen Long Highway (Left of Tong Yan San Tsuen Interchange)	EB	6,100	4,350	4,100	0.71	0.67
		WB	6,100	3,350	3,250	0.55	0.53
L4	Yuen Long Highway (Right of Tong Yan San Tsuen Interchange)	EB	6,100	4,850	4,200	0.80	0.69
		WB	6,100	4,450	4,250	0.73	0.70
L5	Long Tin Road(**)	NB	3,700	2,750	2,800	0.74	0.76
		SB	5,600	3,350	3,050	0.60	0.54
L6	Tong Yan San Tsuen Road (Between Castle Peak Road – Ping Shan and Ping Hong Lane)	NB	1,090	250	300	0.23	0.28
		SB	1,090	250	250	0.23	0.23
L7	Ma Fung Ling Road	NB	820	50	50	0.06	0.06
		SB	820	50	50	0.06	0.06
L8	Ma Wang Road	WB	2,530	400	450	0.16	0.18
L9	Tong Yan San Tsuen Interchange (From Long Tin Road - SB To Yuen Long Highway - EB)	SB	1,800	1,500	1,100	0.83	0.61
L10	Tong Yan San Tsuen Interchange (To Long Tin Road - NB)	NB	1,800	1,700	1,750	0.94	0.97
L11	Wang Tat Road	EB	2,530	1,000	850	0.40	0.34
L12	Slip Road from Long Tin Road - SB to Yuen Long Highway - WB	WB	1,800	1,200	1,200	0.67	0.67

Link			Capacity (pcu/hr) (***)	Peak Hour Traffic Flow (pcu/hr)		V/C Ratio (*)	
				AM	PM	AM	PM
L13	Slip Road from Yuen Long Highway - EB to Long Tin Road - NB	NB	1,800	1,000	1,000	0.56	0.56
L14	San Hi Tsuen Street	EB	820	100	100	0.12	0.12
		WB	820	150	150	0.18	0.18

(*) For links, the performance indicators is V/C (Volume to Capacity) ratios. A V/C ratio above 1.0 indicates the onset of congestion.

(**) The critical section of Long Tin Road (NB) runs in a 2-lane configuration while Long Tin Road (SB) runs in a 3 lane configuration.

(***) The road link capacity for traffic assessment is consistent with the capacity adopted in TIA of Agreement No. CE 26/2015 (CE).

2.2.5 Results of the analysis indicate that **J9** has already operated over-capacity in both AM and PM peaks in existing condition. This is mainly due to the heavy U-turn traffic from north bound of Long Tin Road slip road and the one-lane configuration for the U-turn movement. Improvement scheme would be proposed and discussed in **Section 5.3**.

2.2.6 Other junctions and links within AOI are currently operating satisfactorily with spare capacity.

2.3 Existing Pedestrian/Cycle Track Network

Pedestrian Condition

2.3.1 Before demolition of Long Bin Interim Housing Block, there is only one entrance/exit located in the Westbound of Castle Peak Road – Ping Shan for pedestrian access to/from the site. Roadside footpaths are provided along the carriageways along Long Tin Road and Castle Peak Road – Ping Shan in the vicinity of the site. Basic crossing facilities are also available. Pedestrians can make use of the footpath and two crossings along Castle Peak Road (near the vehicular U-turn at Long Bin Road) in order to access Yuen Long town centre.

2.3.2 Pedestrian flows along existing pedestrian facilities are minimal due to the fact that the site area is not intensively developed at this stage. In view of significant increase in pedestrian demand induced by the proposed housing sites, the need of enhancing the pedestrian connection between the subject site with other public transport nodes or recreational facilities would be assessed in **Section 5.4** and **Section 6.2**. In particular, elevated pedestrian connection across Castle Peak Road – Ping Shan, as well as that connecting the site with the existing Yuen Long Park would be proposed.

Cycle Track Network

2.3.3 As shown in **Drawing No. 261044/F/03/0003**, the existing cycle track in the vicinity of the site mainly runs along Castle Peak Road – Ping Shan at the North and Long Tin Road at the East. There are also segments of cycle track along the North side of Yuen Long Highway and near Tong Yan San Tsuen Interchange.

2.3.4 However, the section along Westbound of Castle Peak Road near the vehicle run in/out of existing Long Bin Interim Housing Site is discontinuous and the existing cycle track network does not allow movement crossing Castle Peak Road. A portion of the existing cycle track is also not segregated with the pedestrian footpaths, and therefore will raise safety concern when the pedestrian footpaths become more utilized due to the proposed development. Possible improvement of cycle track network would be discussed in **Section 6.2**.

2.4 Public Transport Facilities

2.4.1 The following public transport routes are within located in the Study Area. They are also shown in **Drawing No. 261044/F/03/0004.**

Table 2.3 Existing Public Transport Services

Transport Mode	Route Name	From	To
Bus	53	MTR Yuen Long Station	MTR Tsuen Wan West Station
	68A	Long Ping Estate	MTR Tsing Yi Station
	68E	Yuen Long Park	MTR Tsing Yi Station
	68X	Hung Shui Kiu (Hung Fuk Estate)	Mong Kok (Park Avenue)
	268B	MTR Long Ping Station B/T	Hung Hom Ferry B/T
	268C (including Special Despatch during Peak Hours)	MTR Long Ping Station B/T	Kwun Tong Ferry
	268X	Hung Shui Kiu (Hung Fuk Estate)	Jordan (To Wah Road)
	269D	Tin Fu B/T	Lek Yuen B/T
	276	Tin Tsz B/T	Sheung Shui B/T
	276P	MTR Tin Shui Wai Station	Sheung Shui B/T
	A36	MTR Long Ping Station B/T	Airport (Ground Transportation Centre)
	B1	Tin Tsz B/T	Lok Ma Chau Station
	B2	MTR Yuen Long Station	Shenzhen Bay Port
	E34B	Yuen Long (Ma Wang Road)	Airport (Ground Transportation Centre)
	E34P	Tin Shui Wan Town Centre	Tung Chung (Yat Tung Estate)
	K65	Yuen Long East	Lau Fau Shan
	K68 (Circular)	Yuen Long Industrial Estate	Yuen Long Park
	N30	MTR Yuen Long Station	MTR Tung Chung Station (via airport)
	N30S	MTR Yuen Long Station	MTR Tung Chung Station
	N269	Tin Tsz B/T	Mei Foo B/T

Transport Mode	Route Name	From	To
	N969	Tin Shui Wai Town Centre	Causeway Bay (Moreton Terrace)
	NA34	Airport (Ground Transportation Centre)	Tin Shui Wai Town Centre
GMB(*)	31 (Circular)	Yuen Long (Hong King Street)	Tong Yan San Tsuen
	31A (Circular)	Tong Yan San Tsuen	Yuen Long Plaza
	32	MTR Yuen Long Station	Tan Kwai Tsuen
	33	Ha Pak Nai	Yuen Long Tai Fung Street
	34	Lau Fau Shan	Yuen Long Tai Fung Street
	35	Sha Kiu (Tsim Bei Tsui)	Yuen Long Tai Fung Street
	604	MTR Yuen Long Station	Shan Ha Tsuen
	604 (Short-working)	Yuen Long (Fau Tsoi Street)	Shan Ha Tsuen
Light Rail	610/614/615/761P	Various (via Ping Shan Stop)	

2.4.2 It is observed that the nearest Rail Station (West Rail Long Ping Station) is not in close proximity to the subject site in terms of walking distance (1,300m). However, a number of bus services are available as feeder to the Long Ping Station. Several GMB services can also serve as feeder to Long Ping Station but their availability depends on the demand at upstream stops and may only be available at non-peak period. Although the Light Rail stops in closer proximity to the subject site also perform similar functions, the walking distances to nearby Light Rail Ping Shan stop (550m) and Shui Pin Wai stop (700m) are also inconvenient.

2.4.3 For road-based public transport, the subject site is in close proximity to the bus stops alongside Castle Peak Road – Ping Shan (Westbound) (100m). However, the bus stops at eastbound direction of the same road are located relatively far away (500m), due to the site constraint posed by the LRT. Pedestrian facilities have been proposed to improve connectivity and walkability. A footbridge across Castle Peak Road (Ping Shan) would be provided to facilitate pedestrians to access the bus stops at eastbound direction of the same road. Pedestrian safety can be improved as it is segregated from at-grade vehicular traffic. It can also serve as alternative route for the pedestrian to cross the road and junctions. Details of the pedestrian facilities would be provided in **Section 3.4.**

2.4.4 The public transport demand arising from the subject development after its completion would be assessed by trip rates and modal split assumptions in **Section 5.5**. The adequacy of public transport provision would be assessed accordingly and additional public transport service would be proposed whenever necessary.

3 THE PROPOSED DEVELOPMENT

3.1 Development Schedule

3.1.1 The Site is proposed to be developed in two phases. Phase 1 involves development is planned to provide not more than 3,080 Subsidized Sale Flats. Phase 2 involves development in the remaining area of the Site and is planned to provide not more than 8,860 flats for Public Rental Housing. There will be one 30-classroom primary school to be completed with Phase 2 development.

3.1.2 It is targeted to complete the housing flats of the Development for population intake by 2025 for Phase 1 and by 2029 the earliest for Phase 2 respectively. The detail of development schedule is summarised and tabulated in below **Table 3.1**.

Table 3.1 Summary of development schedule

<table>
<tr><th>Phase</th><th>Intake Year</th><th>No of Flats (ceiling)</th><th>Population (ceiling)</th><th>Housing Type</th></tr>
<tr><td>Phase 1</td><td>2025</td><td>3,080</td><td>8,624</td><td>SSF (Subsidized Sale Flats)</td></tr>
<tr><td>Phase 2</td><td>2029 the earliest</td><td>8,860</td><td>24,808</td><td>PRH (Public Rental Housing)</td></tr>
<tr><th colspan="3">No of Schools</th><th colspan="2">School Type</th></tr>
<tr><td colspan="3">1</td><td colspan="2">30-Classroom Primary School</td></tr>
<tr><th colspan="3">Commercial Development</th><th colspan="2">GFA</th></tr>
<tr><td colspan="3">Phase 1</td><td colspan="2">1,362 m^2</td></tr>
<tr><td colspan="3">Phase 2</td><td colspan="2">9,018 m^2</td></tr>
</table>

3.2 General Road Layout

3.2.1 The recommended general road layout is presented in the **Drawing No. 261044/F/03/0041A (Interim Layout)** and **261044/F/03/0041B (Ultimate Layout)** for Phase 1 & Phase 2.

3.3 Vehicular Access Arrangement

3.3.1 For Phase 1 development, vehicle access will be in left in/ left out arrangement at the westbound of Castle Peak Road – Ping Shan and one additional egress point at the northbound of Long Tin Road. Details of access arrangement are shown in **Figure 3.3.1** below, the final arrangement is subject to HD's design. There is also an additional egress point at Long Tin Road (to be shared with Phase 2), subjected to the design in compliance with TPDM requirements and the agreement with HD on the interfacing issues of Phase 2 development construction. The accessibility arrangement for the Phase 1 development (scenario with Phase 1 only) for various origins/destinations is shown in the **Drawing No. 261044/F/03/0011**, **Drawing No. 261044/F/03/0012, Drawing No. 261044/F/03/0013** and **Drawing No. 261044/F/03/0014**.

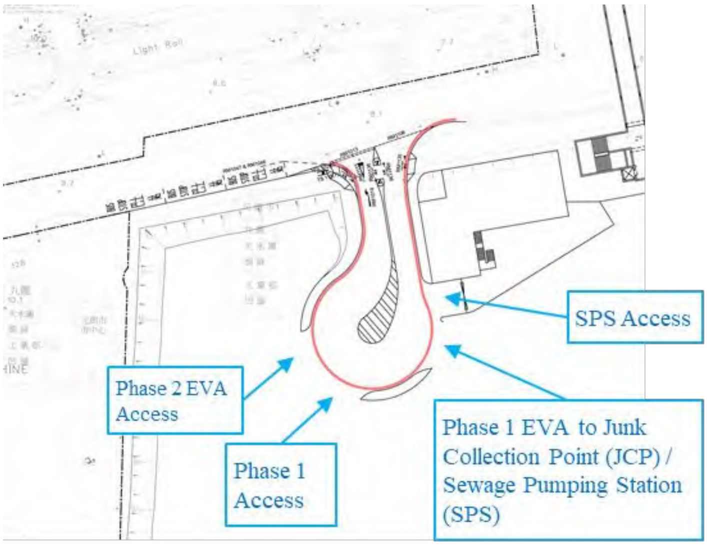


Figure 3.3.1 Details of Phase 1 Access

3.3.2 It is concerned that there may have traffic management issues on the cul-de-sac. Activities such as illegal parking and loading/unloading activities will block the vehicular access of housing development, as well as possible traffic queues tailing back to Castle Peak Road – Ping Shan. Therefore, double yellow line has been implemented along the cul-de-sac to enforce no stopping at any time (24 hours) as shown in **Drawing 261044/F/03/0053**.

3.3.3 For Phase 2 development, a car park (design and constructed by HD) and PTI is proposed at the East of the development alongside Long Tin Road (Northbound). Majority of traffic induced by the Phase 2 development is anticipated to approach/leave (egress point share with Phase 1) the housing site via this access point. The accessibility arrangement for the Phase 2 development (scenario with both Phase 1 and Phase 2) for traffic of various origins/destinations is shown in the **Drawing No. 261044/F/03/0021**, **Drawing No. 261044/F/03/0022, Drawing No. 261044/F/03/0023** and **Drawing No. 261044/F/03/0024**. And accessibility arrangement for the primary school development for traffic of various origins/destinations is shown in the **Drawing No. 261044/F/03/0031**, **Drawing No. 261044/F/03/0032** and **Drawing No. 261044/F/03/0033**.

3.3.4 On the other hand, Emergency Vehicular Access (EVA) to/from the site will be provided at Ma Fung Ling Road near Green Lodge, and at Ma Fung Ling Road near Jasper Court. There will be new slip road connecting Ma Fung Ling Road to Long Tin Road (Northbound), to improve the accessibility of emergency vehicles as well as traffic from/to other residential developments nearby. The new slip road is shown in the **Drawing No.261044/F/03/0044**.

3.3.5 The existing nearside traffic lane of Long Tin Road (Northbound) at the 3-lane section will be used for access to/from the car park cum PTI of Phase 2. The detailed arrangement on proposed PTI and its interface issue with Long Tin Road will be discussed in **Chapter 6** of this text.

3.4 Pedestrian/Cycling Facilities

3.4.1 Based on the locations of major attraction nodes in the vicinity to the proposed development, the major pedestrian trips are likely to be northwards of the development site, i.e. via Castle Peak Road – Ping Shan to/from the Ping Shan LRT station and West Rail Long Ping Station.

3.4.2 Three new footbridges are proposed to enhance pedestrian connectivity (**Drawing No. 261044/F/03/0041A**). One (**Footbridge A**) will be located near to the Phase 1 vehicular access and it crosses Castle Peak Road – Ping Shan. This footbridge improves the connectivity of Long Bin development to nearby facilities such as the bus stop on Castle Peak Road – Ping Shan (Eastbound). This footbridge has provided a grade separated walkway for the pedestrian which has highly improved the pedestrian safety comparing with the existing at-grade crossing. The footbridge can also provide alternative for the pedestrian to reach the bus stop. Another set of footbridges (**Footbridge B&C**) will be located at the North of commercial centre/ car park and it crosses Long Tin Road and Yuen Long West Nullah respectively. Details of the footbridge design and corresponding pedestrian assessment would be presented in **Section 5.4** and **Section 6.2**. It is recommended that two sets of footbridges to be constructed as part of the Phase 1 development.

3.4.3 Cycle track surrounding the site is also planned and could be referred in **Drawing No. 261044/F/03/0041A.**

3.5 Car Parking Provision

3.5.1 Referring to the development information as stated in Table 3.1, the provision of parking facilities for Phase 1 development is based on the "Departmental Circular No. 2/2012 – Interim Parking Standard for the New Home Ownership Scheme (HOS) Projects" issued by TD and HKPSG, as agreed with TD under the Planning Brief approved by DipCon on 31 January 2019.

3.5.2 The provision of parking facilities for Phase 2 development is based on the parking standards agreed by TD and "Hong Kong Planning Standard and Guidelines (HKPSG).

3.5.3 The parking requirement for Phase 1 and Phase 2 is tabulated in **Table 3.2** and **3.3**. The parking facilities provision of the proposed welfare facilities and primary school is tabulated in **Table 3.4** and **3.5** respectively.

Table 3.2 Required Parking and Loading/Unloading Facilities for Proposed Phase 1 Development (refer to Interim Parking Standard for the New HOS and HKPSG)

Development	Facility	Standard	Requirement	Proposed Provision
SSF in Phase 1 (3,080 flats)	Private Car Parking	1 car space per 13 to 19 flats	163 – 237 nos. (including 3 nos. for the disabled)	237 nos.
	Visitor Parking	2-3 per housing block	6 – 9 nos.	15 nos.
	Loading/ Unloading	1 per housing block	3 nos.	3 nos.
	Motor Cycle Parking	1 car space per 110 flats	28 nos.	28 nos.
	Bicycle Parking	1 space per 7.5 flats	411 nos.	411 nos.
Retail (1,362 m^2)	Private Car Parking	1 per 200m^2 commercial GFA	7 nos.	15 nos.

Development	Facility	Standard	Requirement	Proposed Provision
	Loading/ Unloading	1 per 800 – 1200m^2 commercial GFA	2 nos.	2 nos.

Table 3.3 Required Parking and Loading/Unloading Facilities for Proposed Phase 2 Development

Development	Facility	Standard	Requirement	Proposed Provision
PRH in Phase 2 (1,998 nos. of 1-person and 2-person flats + 6,862 nos. other flats)	Private Car Parking*	Parking requirement = GPS x R1 x R2	510 – 893 nos.*** (including 6 nos. for the disabled)	647 nos.
	Visitor Parking	Up to 5 spaces per block	35 nos. [7 blocks x 5]	35 nos.
	Light Goods Vehicle Parking*	1 LGV space per 260 flats	27 nos. [6,862 flats / 260]	27 nos.
	Motorcycle Parking*	1 car space per 110 – 250 flats	28 – 63 nos. [6,862 flats / (110 to 250)]	63 nos.
	Loading/ Unloading	2 per housing block	14 nos. [7 block x 2 parking]	14 nos.**
	Bicycle Parking	1 per 15 flats	591 nos. [(6,862 flats + 1,998 flats)/15]	591 nos.
Retail (8,871 m^2)	Private Car Parking	1 per 200 – 300m^2 GFA	30 – 45 nos. [8871 m^2/ (200 to 300 m^2)]	60 nos.
	Loading/ Unloading	1 per 800 – 1200m^2 commercial GFA	8 – 12 nos. [8871 m^2/ (800 to 1200 m^2)]	12 nos.

*1,998 nos. of 1-person and 2-person flats are excluded in the calculation of parking requirements for private cars/ LGV/ motorcycles.

**2 nos. of Loading/Unloading bays per housing block are shared with overnight parking of Medium/Heavy Goods Vehicles and Coach.

*** R1 = 0.52, R2 = 1, GPS = 1 space per 4-7 flats, Flat nos. = 6,862; Parking requirement = GPS x R1 x R2; Requirement = (Flat nos. / GPS) x R1 x R2 = Required nos. (510 to 893);

Table 3.4 Required Parking Facilities for the Proposed Welfare Facilities

Welfare Facility	Parking Facility	Proposed Provision^
Special Child Care Centre (SCCC) (60-place)	48-seater Van Parking (3.5m (W) x 12m (L) x min. 3.8m (H))	1 no.
	Loading/ Unloading lay-by	1 no.
Residential Care Home for the Elderly (RCHE) (200-place) cum Day Care Unit (DCU) (30-place)	Private Light Bus Parking (3m (W) x 8m (L) x min. 3.3m (H))	2 nos.
	Loading/ Unloading lay-by	1 no.*
Hostel for Severely Physically Handicapped Persons (HSPH) (50-place)	Private Light Bus Parking (3m (W) x 8m (L) x min. 3.3m (H))	1 no.
	Loading/ Unloading lay-by	1 no.*
Integrated Vocational Rehabilitation Services Centre (IVRSC) (120-place)	Light Goods Vehicle Parking	1 no.
	Loading/ Unloading lay-by	1 no.*

*One lay-by will be provided for the shared use by ambulance and private light bus of the RCHU cum DCU, HSPH and IVRSC. It will be located in close proximity of the entrance of these facilities.

^ Proposed Provision is reference to Car Park Provision received from Housing Department on 29 October 2020.

Table 3.5 Required Parking Facilities for the Proposed Primary School

Development	Facility*	Standard	Requirement
Primary school (30-classroom)	Private Car Parking	1 car parking space for every 4 to 6 classrooms	5 – 8 nos. (with one accessible parking space)
	Taxi lay-by	2 to 3 class-rooms in primary schools	10 – 15 nos.
	School buses lay-by	3 lay-bys	3 nos.

*The parking facilities would be located within the school site.

3.6 Proposed Improvement Measures

3.6.1 There would be a recommended improvement scheme at the U-turn at Long Tin Road, which involves widening of the U-turn approach and removal of the give-way line to avoid the traffic queue queuing back to the Long Tin Road (Northbound). The U-turn approach will be converted to a merging lane joining back to Long Tin Road (Southbound). Details would be discussed in **Section 5.3**.

3.7 Summary

3.7.1 **Table 3.6** serves a summary on the schedule of permanent facilities provision planned for the proposed housing site, all these provisions will be considered in the traffic analysis for "design" scenarios. The justification/elaboration on the proposed provisions are discussed in **Chapter 6** of this text.

Table 3.6 Summary on Transport Facilities Provision

Year	Car Park at Phase 1	Car Park at Phase 2	PTI	New Slip Road to Long Tin Road	Pedestrian Provision		
					Footbridge A	Footbridge B	Footbridge C
2025 onwards	✓				✓	✓	✓
2029 onwards	✓	✓	✓	✓	✓	✓	✓

4 TRANSPORT/TRAFFIC ASSESSMENT METHODOLOGY

4.1 Overview

4.1.1 The detailed methodology for transport/traffic assessment in this report had been discussed in a separate deliverable: *Traffic and Transport Impact Assessment Inception Report.* This Chapter will outline the key points on assessment scenarios, base year traffic model validation, and future year traffic model development.

4.2 Assessment Scenarios

4.2.1 Year 2018 will be adopted as base year. Comprehensive traffic survey had been conducted for the major junctions and road links in the vicinity of the site as mentioned in **Section 2.2**.

4.2.2 The population intake for the subject development is expected to complete in Year 2025 for Phase 1 and in between 2029 and 2031 in Phase 2 of the development. Thus, ultimate Year 2034 would be assessed as 3 years after full population intake in 2031 for the development.

4.2.3 **Table 4.1** summarizes the assessment scenarios. AM peak hour scenario and PM peak hour scenario will be set accordingly, with peak hours to be identified from the results of traffic surveys described in **Section 2**.

Table 4.1 Summary of Design Scenario Setting

2018 Existing	=	Observed 2018 traffic demand on the existing road network
2025 Reference	=	**2018 Existing** x Background growth rate + Traffic demand arising from committed/planned development in close proximity to the subject site between 2018 and 2025
2025 Design	=	**2025 Reference +** Traffic demand arising from the subject site (Phase 1)
2029 Reference	=	**2018 Existing** x Background growth rate + Traffic demand arising from committed/planned development in close proximity to the subject site between 2018 and 2029
2029 Design	=	**2029 Reference +** Traffic demand arising from the subject site (Phase 1 + Phase 2)
2034 Reference	=	**2018 Existing** x Background growth rate + Traffic demand arising from committed/planned development in close proximity to the subject site between 2018 and 2034
2034 Design	=	**2034 Reference +** Traffic demand arising from the subject site (Phase 1 + Phase 2)

4.3 Base Year Model Development and Model Validation

4.3.1 A Local Area Traffic Model (LATM) is developed based on 2008-based Base District Traffic Model (BDTM). To replicate the existing traffic condition, the Base Year LATM for weekday AM and PM peak hours would be validated to Year 2018 observed traffic data (including those obtained from traffic survey as discussed in earlier section).

4.3.2 For the LATM model, there are two broad classes of count data used for model validation: the screenline data (including cordon points) and the key junction data. The screenline (and cordon) data is compared with the observed counts by link and direction, while the key junction data is compared by in and out flows on each key junction arm.

4.3.3 The validation of this LATM follows the same approach as TD's BDTM and the base year LATM model has been well-validated to Year 2018 traffic condition.

4.4 Design Year Model Input Assumptions

Territorial Planning Assumptions

4.4.1 The population and employment data in areas of NWNT for design years 2021-2041 provided in 2014-based Territorial Population and Employment Data Matrix (TPEDM) will be adopted in the formulation of LATM matrices. A suitable set of background growth factors would be derived for different O-D pairs in design years LATM models.

Planning Assumptions on Other Major Developments

4.4.2 In addition to the TPEDM dataset, other major developments in NWNT have been reviewed and taken into consideration in the development of background traffic flows and patterns. For example:

- Yuen Long South (YLS) Development – It will serve as an extension of Yuen Long New Town, accommodating about 28,500 flats and 570,000 square meters of industrial and commercial floor area.
- Hung Shui Kiu (HSK) New Development Area (NDA)[1] – It will be the next generation of new town, accommodating about 61,000 additional flats and over 6 million square meters of industrial and commercial floor area.
- Public Housing Development at Tan Kwai Tsuen (TKT)[2] - It will provide about 7,400 flats, accommodating a total population of about 20,600 persons. Its target completion date is 2028/29.

Development Assumptions on Public Housing Development at Long Bin

4.4.3 As mentioned in **Section 3.1**, the proposed public housing development at Long Bin will be developed in two phases. Their development parameters will be adopted in the "Design" scenarios as discussed in **Section 4.2**.

[1] The planning parameters of Hung Shui Kiu New Development Area is sourced from the Town Planning Broad' paper, which is available from <http://www.info.gov.hk/tpb/en/papers/TPB/1140-tpb_10276.pdf >.

[2] The planning parameters of public housing development at Tan Kwai Tsuen is sourced from Town Planning Broad's paper, which is available from <http://www.info.gov.hk/tpb/en/papers/RNTPC/587-rntpc_7-17.pdf >.

4.4.4 TPDM trip rates (in unit of pcu/hr/flat) will be adopted to estimate the trip generation by the proposed housing site.

Major Transport Infrastructure Assumptions

4.4.5 In terms of future strategic road network in NWNT, Route 11 and Tuen Mun Western Bypass (TMWB) were assumed as additional external transport linkages in support of HSK NDA development[3]. Based on the information provided by TD under this study, TMWB and Route 11 would be in place in 2031 and 2036 respectively.

4.4.6 On the other hand, road improvement proposals particularly including news roads for better connectivity between the YLS and the Yuen Long New Town, the improvement of existing roads by widening Kung Um Road and upgrading road junctions and interchanges, etc. have been made under YLS development[4].

4.4.7 The transport infrastructure assumptions for YLS and HSK NDA development are summarised in **Appendix F**.

4.4.8 In terms of local road network, the proposed road works for public housing development at Long Bin mainly include the following:

- left-in/left-out access at Castle Peak Road under Phase 1 development (as discussed in **Section 3.2**)
- public transport interchange and development access (as discussed in **Section 3.2**)
- local widening works for the U-turn lane at Long Tin Road (as discussed in **Section 5.3**)
- slips road connecting Ma Fung Ling Road to Long Tin Road(discussed in **Section 3.2**)
- Long Tin Road near the Tong Yan San Tsuen Interchange under Phase 2 development (discussed in **Section 3.2**)

[3] LegCo Paper of HSK NDA Development is available from < http://www.legco.gov.hk/yr16-17/english/panels/dev/papers/dev20161108cb1-51-5-e.pdf >.
[4] LegCo Paper of YLS Development is available from < http://www.legco.gov.hk/yr15-16/english/panels/dev/papers/dev20160126cb1-452-6-e.pdf >.

5 TRANSPORT/TRAFFIC IMPACT ASSESSMENT

5.1 Trip Generation and Attraction

5.1.1 Based on the development parameter shown in **Table 3.1**, the trip generation and attraction by the proposed housing development in different phases had been estimated by trip rates provided in TPDM.

5.1.2 The adopted trip rates are shown in **Table 5.1** below, The planned primary school as part of the Phase 2 development had also been included in the trip generation assessment:

Table 5.1 Trip rates adopted for development

Component	AM Peak		PM peak	
	Generation	Attraction	Generation	Attraction
SSF(1)(2) (pcu/hr/flat)	0.0622	0.0426	0.0297	0.0401
PRH(1) (pcu/hr/flat)	0.0242	0.0226	0.0177	0.0201
Primary School(3) (pcu/hr/30 classroom)	7	30	1	1
Commercial (pcu/hr/100sqm)	0.2296	0.2434	0.3100	0.3563

Note:
(1) Extracted from TPDM Volume 1: Appendix (Table 1)
(2) SSF are referred as "HOS / PSPS" in TPDM
(3) Extracted from Trip Generation Survey 2006

5.1.3 Based on the development parameters outline in **Table 3.1**, the calculated trip generation/attraction induced by the proposed housing site is shown in **Table 5.2** below:

Table 5.2 Calculated Trip Generation/Attraction by Proposed Development (pcu/hr)

	AM Peak		PM Peak	
	Generation	Attraction	Generation	Attraction
Short Term Scenario (With Phase 1 only)				
Phase 1 housing site (1)	192	131	91	124
Phase 1 commercial (1)	5	5	5	6
Long Term Scenario (With Both Phases 1 and 2)				
Phase 1 & Phase 2 housing site (1)	406	331	248	302
Phase 2 Primary school (1) (2)	7	30	5	5
Phase 1 & Phase 2 commercial	25	26	33	38

Note:
(1) For primary school, the calculated traffic generation is subjected to a minimum amount of 5 pcu/hr (one-way) to allow design flexibility/conservative assessment

5.1.4 The vehicular traffic distribution (from/to urban/other NT, Yuen Long, Tin Shui Wai/ Tuen Mun) would be the same as that adopted in FS, which in general follows the traffic characteristics of other housing sites located in close proximity to our subject site.

5.1.5 The approximate distribution of the trips generated/attracted by the proposed developments is as below:

Table 5.3 Trip Distribution (Rounded to nearest 5%)

	AM Peak / PM Peak			
	Yuen Long (*)	**Tin Shui Wai / Hung Shui Kiu**	**Tuen Mun**	**Urban and Other NT**
Long Term Scenario (With Both Phase 1 and Phase 2)				
Phase 1 & Phase 2 housing site (commercial included)	30%	5%	10%	55%
Phase 2 Primary school(**)	50%	25%	25%	0%

(*) This covers all areas in Yuen Long District other than Tin Shui Wai and Hung Shui Kiu

(**) Trip distribution of school trips induced by primary school is taken by intuitive assumption that half of the trips being inter-district trips (i.e. within Yuen Long), while remaining being equally shared by Tin Shui Wai & Hung Shui Kiu / Tuen Mun

5.2 Junction / Link Capacity Assessment

5.2.1 The Junction and link capacity assessment were carried out to examine the performance for all concerned junctions and link section(*) within AOI in different design years reference and design cases and the results are presented in **Tables 5.4 to 5.9** accordingly.

(*) The base network adopted for design scenarios include all the provisions discussed in **Table 2.2** of the text

Table 5.4 Junction Capacity Assessment Results for Year 2025

Junction		Junction Type	Reference Case (#)		Design Case (#)	
			AM	**PM**	**AM**	**PM**
J1	Castle Peak Road - Ping Shan/ Long Tin Road	Signalized	>50%	>50%	>50%	>50%
J2	Castle Peak Road - Ping Shan/ Tong Yan San Tsuen Road	Signalized	>50%	>50%	>50%	>50%
J3	Castle Peak Road - Ping Shan/ San Hi Tsuen Street	Signalized	>50%	>50%	>50%	>50%
J4	Town Park Road South/ Lam Hau Tsuen Road	Signalized	21%	27%	21%	27%
J5	Town Park Road North/ Ma Tin Road	Priority	0.32	0.22	0.32	0.22
J6	Yuen Long Tai Yuk Road/ Ma Tin Road	Signalized	33%	24%	33%	24%
J7	Shui Pin Wai Interchange	Signalized	14%	41%	13%	40%
J8	Castle Peak Road - Ping Shan/ Yuen Long Tai Yuk Road	Signalized	4%	9%	4%	9%
J9	Slip road to Long Tin Road (SB)/ U-turn from slip road of Long Tin Road (WB)	Priority	1.02	0.80	1.23	0.89
J10	Tong Yan San Tsuen Road/ San Hi Tsuen Street	Priority	0.19	0.17	0.23	0.18

(#) Figures shown represent "Reserve Capacity" (RC) for the signal controlled junctions and "Design Flow to Capacity" (DFC) ratio for the priority junctions. A signal-controlled junction with a reserve capacity (RC) of more than 15% is considered as satisfactory performance; 0% implies that it is operating at capacity while a negative RC% suggests that it is overloaded. For priority junction, the performance indicators is the DFC (Design Flow to Capacity). DFC of less than 0.85 is considered as satisfactory performance; 1.00 indicate that capacity has been reached while DFC over 1.00 indicate overloaded conditions.

Table 5.5 Link Capacity Assessment Results for Year 2025

Link			Capacity (pcu/hr)	Reference Case				Design Case			
				Peak Hour Traffic Flow (pcu/hr)		V/C Ratio (*)		Peak Hour Traffic Flow (pcu/hr)		V/C Ratio (*)	
				AM	PM	AM	PM	AM	PM	AM	PM
L1	Castle Peak Road - Ping Shan (Left of Long Tin Road)	EB	3,980	1,650	1,550	0.41	0.39	1,700	1,550	0.43	0.39
		WB	3,040	1,600	1,650	0.53	0.54	1,650	1,700	0.54	0.56
L2	Castle Peak Road - Ping Shan (Right of Long Tin Road)	EB	2,800	1,000	800	0.36	0.29	1,000	850	0.36	0.30
		WB	2,800	1,200	1,150	0.43	0.41	1,250	1,200	0.45	0.43
L3	Yuen Long Highway (Left of Tong Yan San Tsuen Interchange)	EB	6,100	5,000	4,600	0.82	0.75	5,050	4,650	0.83	0.76
		WB	6,100	4,600	4,600	0.75	0.75	4,650	4,650	0.76	0.76
L4	Yuen Long Highway (Right of Tong Yan San Tsuen Interchange)	EB	6,100	5,300	4,700	0.87	0.77	5,400	4,750	0.89	0.78
		WB	6,100	4,350	4,750	0.71	0.78	4,450	4,800	0.73	0.79
L5	Long Tin Road(**)	NB	3,700	2,850	3,000	0.77	0.81	3,100	3,150	0.84	0.85
		SB	5,600	3,550	3,100	0.63	0.55	3,700	3,150	0.66	0.56
L6	Tong Yan San Tsuen Road (Between Castle Peak Road – Ping Shan and Ping Hong Lane)	NB	1,090	200	250	0.18	0.23	250	300	0.23	0.28
		SB	1,090	300	300	0.28	0.28	300	350	0.28	0.32
L7	Ma Fung Ling Road	NB	820	50	50	0.06	0.06	100	100	0.12	0.12
		SB	820	50	50	0.06	0.06	100	100	0.12	0.12
L8	Ma Wang Road	WB	2,530	500	550	0.20	0.22	550	600	0.22	0.24
L9	Tong Yan San Tsuen Interchange (From Long Tin Road - SB To Yuen Long Highway - EB)	SB	1,800	1,500	1,350	0.83	0.75	1,600	1,400	0.89	0.78
L10	Tong Yan San Tsuen Interchange (To Long Tin Road - NB)	NB	1,800	1,650	1,750	0.92	0.97	1,750	1,800	0.97	1.00
L11	Wang Tat Road	EB	2,530	1,200	1,200	0.47	0.47	1,250	1,250	0.49	0.49
L12	Slip Road from Long Tin Road - SB to Yuen Long Highway - WB	WB	1,800	1,300	1,150	0.72	0.64	1,350	1,200	0.75	0.67
L13	Slip Road from Yuen Long Highway - EB to Long Tin Road - NB	NB	1,800	1,200	1,250	0.67	0.69	1,250	1,300	0.69	0.72
L14	San Hi Tsuen Street	EB	820	100	100	0.12	0.12	150	150	0.18	0.18
		WB	820	200	200	0.24	0.24	250	250	0.30	0.30

(*) For links, the performance indicators is V/C (Volume to Capacity) ratios. A V/C ratio above 1.0 indicates the onset of congestion.

(**) The critical section of Long Tin Road (NB) runs in a 2 lane configuration while Long Tin Road (SB) runs in a 3 lane configuration.

Table 5.6 Junction Capacity Assessment Results for Year 2029

Junction		Junction Type	Reference Case (#)		Design Case (#)	
			AM	PM	AM	PM
J1	Castle Peak Road - Ping Shan/ Long Tin Road	Signalized	>50%	>50%	48%	>50%
J2	Castle Peak Road - Ping Shan/ Tong Yan San Tsuen Road	Signalized	>50%	46%	37%	41%
J3	Castle Peak Road - Ping Shan/ San Hi Tsuen Street	Signalized	>50%	>50%	27%	>50%
J4	Town Park Road South/ Lam Hau Tsuen Road	Signalized	20%	23%	20%	23%
J5	Town Park Road North/ Ma Tin Road	Priority	0.35	0.22	0.41	0.22
J6	Yuen Long Tai Yuk Road/ Ma Tin Road	Signalized	30%	24%	27%	21%
J7	Shui Pin Wai Interchange	Signalized	13%	47%	10%	38%
J8	Castle Peak Road - Ping Shan/ Yuen Long Tai Yuk Road	Signalized	-2%	3%	0%	0%
J9	Slip road to Long Tin Road (SB)/ U-turn from slip road of Long Tin Road (WB)	Priority	1.09	0.87	2.02	1.45
J10	Tong Yan San Tsuen Road/ San Hi Tsuen Street	Priority	0.19	0.17	0.33	0.24
J11	Ma Fung Ling Road/ Road A	Priority	/	/	0.31	0.22

(#) Figures shown represent "Reserve Capacity" (RC) for the signal controlled junctions and "Design Flow to Capacity" (DFC) ratio for the priority junctions. A signal-controlled junction with a reserve capacity (RC) of more than 15% is considered as satisfactory performance; 0% implies that it is operating at capacity while a negative RC% suggests that it is overloaded. For priority junction, the performance indicators is the DFC (Design Flow to Capacity). DFC of less than 0.85 is considered as satisfactory performance; 1.00 indicate that capacity has been reached while DFC over 1.00 indicate overloaded conditions.

Table 5.7 Link Capacity Assessment Results for Year 2029

Link			Capacity (pcu/hr)	Reference Case				Design Case			
				Peak Hour Traffic Flow (pcu/hr)		V/C Ratio (*)		Peak Hour Traffic Flow (pcu/hr)		V/C Ratio (*)	
				AM	PM	AM	PM	AM	PM	AM	PM
L1	Castle Peak Road - Ping Shan (Left of Long Tin Road)	EB	3,980	1,800	1,700	0.45	0.43	1,700	1,650	0.43	0.41
		WB	3,040	1,650	1,750	0.54	0.58	1,800	1,850	0.59	0.61
L2	Castle Peak Road - Ping Shan (Right of Long Tin Road)	EB	2,800	1,150	950	0.41	0.34	1,100	900	0.39	0.32
		WB	2,800	1,300	1,250	0.46	0.45	1,500	1,400	0.54	0.50
L3	Yuen Long Highway (Left of Tong Yan San Tsuen Interchange)	EB	6,100	5,400	5,200	0.89	0.85	5,450	5,250	0.89	0.86
		WB	6,100	5,500	5,550	0.90	0.91	5,600	5,600	0.92	0.92
L4	Yuen Long Highway (Right of Tong Yan San Tsuen Interchange)	EB	6,100	5,600	5,100	0.92	0.84	5,900	5,500	0.97	0.90
		WB	6,100	4,650	5,000	0.76	0.82	4,800	5,150	0.79	0.84
L5	Long Tin Road (**)	NB	3,700	2,900	3,150	0.78	0.85	3,650	3,650	0.99	0.99

Link			Capacity (pcu/hr)	Reference Case				Design Case			
				Peak Hour Traffic Flow (pcu/hr)		V/C Ratio (*)		Peak Hour Traffic Flow (pcu/hr)		V/C Ratio (*)	
				AM	PM	AM	PM	AM	PM	AM	PM
		SB	5,600	4,050	3,350	0.72	0.60	4,600	3,850	0.82	0.69
L6	Tong Yan San Tsuen Road (Between Castle Peak Road – Ping Shan and Ping Hong Lane)	NB	1,090	200	300	0.18	0.28	150	250	0.14	0.23
		SB	1,090	250	300	0.23	0.28	250	250	0.23	0.23
L7	Ma Fung Ling Road	NB	820	50	50	0.06	0.06	100	100	0.12	0.12
		SB	820	50	50	0.06	0.06	150	100	0.18	0.12
L8	Ma Wang Road	WB	2,530	500	550	0.20	0.22	500	500	0.20	0.20
L9	Tong Yan San Tsuen Interchange (From Long Tin Road - SB To Yuen Long Highway - EB) (***)	SB	1,800	1,500	1,350	0.83	0.75	1,850	1,700	1.03	0.94
L10	Tong Yan San Tsuen Interchange (To Long Tin Road - NB)	NB	1,800	1,600	1,750	0.89	0.97	2,100	2,150	1.17	1.19
L11	Wang Tat Road	EB	2,530	1,250	1,200	0.49	0.47	1,300	1,300	0.51	0.51
L12	Slip Road from Long Tin Road - SB to Yuen Long Highway – WB	WB	1,800	1,700	1,450	0.94	0.81	1,800	1,500	1.00	0.83
L13	Slip Road from Yuen Long Highway - EB to Long Tin Road - NB	NB	1,800	1,300	1,400	0.72	0.78	1,350	1,500	0.75	0.83
L14	San Hi Tsuen Street	EB	820	100	150	0.12	0.18	250	200	0.30	0.24
		WB	820	200	200	0.24	0.24	300	250	0.37	0.30

(*) For links, the performance indicators is V/C (Volume to Capacity) ratios. A V/C ratio above 1.0 indicates the onset of congestion.

(**) The critical section of Long Tin Road (NB) runs in a 2 lane configuration while Long Tin Road (SB) runs in a 3 lane configuration.

(***) Possible improvement / upgrading works on the road link performance of L9 will be assessed under the investigation and design stage of a future CEDD site formation and infrastructure project in Tin Shui Wai. The implementation arrangement and agent of any necessary improvement works / upgrading works will be explored and identified with liaison amongst relevant Offices of CEDD. Subject to timely resolution of the interface issues with other government projects, CEDD will target to complete the improvement/ upgrading works, if any, before population intake of the public housing developments in the vicinity.

Table 5.8 Junction Capacity Assessment Results for Year 2034

Junction		Junction Type	Reference Case (#)		Design Case (#)	
			AM	PM	AM	PM
J1	Castle Peak Road - Ping Shan/ Long Tin Road	Signalized	>50%	>50%	45%	44%
J2	Castle Peak Road - Ping Shan/ Tong Yan San Tsuen Road	Signalized	42%	35%	45%	37%

Junction		Junction Type	Reference Case (#)		Design Case (#)	
			AM	PM	AM	PM
J3	Castle Peak Road - Ping Shan/ San Hi Tsuen Street	Signalized	46%	>50%	20%	>50%
J4	Town Park Road South/ Lam Hau Tsuen Road	Signalized	21%	30%	21%	29%
J5	Town Park Road North/ Ma Tin Road	Priority	0.59	0.33	0.60	0.33
J6	Yuen Long Tai Yuk Road/ Ma Tin Road	Signalized	13%	22%	13%	22%
J7	Shui Pin Wai Interchange	Signalized	8%	34%	4%	31%
J8	Castle Peak Road - Ping Shan/ Yuen Long Tai Yuk Road	Signalized	2%	1%	1%	0%
J9	Slip road to Long Tin Road (SB)/ U-turn from slip road of Long Tin Road (WB)	Priority	0.01	0.01	1.07	0.67
J10	Tong Yan San Tsuen Road/ San Hi Tsuen Street	Priority	0.18	0.09	0.41	0.24
J11	Ma Fung Ling Road/ Road A	Priority	/	/	0.35	0.30

(#) Figures shown represent "Reserve Capacity" (RC) for the signal controlled junctions and "Design Flow to Capacity" (DFC) ratio for the priority junctions. A signal-controlled junction with a reserve capacity (RC) of more than 15% is considered as satisfactory performance; 0% implies that it is operating at capacity while a negative RC% suggests that it is overloaded. For priority junction, the performance indicators is the DFC (Design Flow to Capacity). DFC of less than 0.85 is considered as satisfactory performance; 1.00 indicate that capacity has been reached while DFC over 1.00 indicate overloaded conditions.

* As the main user of the U-turn at Long Tin Road is the residents in Yuen Long South area, they are allowed to turn into Yuen Long Highway via TYST Interchange directly upon the completion of TYST Interchange improvement works. Therefore, the traffic flow at J9 in Year 2034 reference scenario is low.

Table 5.9 Link Capacity Assessment Results for Year 2034

Link			Capacity (pcu/hr)	Reference Case				Design Case			
				Peak Hour Traffic Flow (pcu/hr)		V/C Ratio (*)		Peak Hour Traffic Flow (pcu/hr)		V/C Ratio (*)	
				AM	PM	AM	PM	AM	PM	AM	PM
L1	Castle Peak Road - Ping Shan (Left of Long Tin Road)	EB	3,980	1,900	1,900	0.48	0.48	1,850	1,800	0.46	0.45
		WB	3,040	1,750	1,850	0.58	0.61	1,900	2,000	0.63	0.66
L2	Castle Peak Road - Ping Shan (Right of Long Tin Road)	EB	2,800	1,150	1,050	0.41	0.38	1,100	1,000	0.39	0.36
		WB	2,800	1,400	1,400	0.50	0.50	1,550	1,550	0.55	0.55
L3	Yuen Long Highway (Left of Tong Yan San Tsuen Interchange)	EB	6,100	5,950	5,650	0.98	0.93	6,000	5,650	0.98	0.93
		WB	6,100	6,200	6,200	1.02	1.02	6,250	6,250	1.02	1.02
L4	Yuen Long Highway (Right of Tong Yan San Tsuen Interchange)	EB	6,100	5,850	5,350	0.96	0.88	6,300	5,650	1.03	0.93
		WB	6,100	5,000	5,300	0.82	0.87	5,200	5,500	0.85	0.90
L5	Long Tin Road (**)	NB	5,600	2,350	2,650	0.42	0.47	3,200	3,300	0.57	0.59
		SB	5,600	3,450	3,050	0.62	0.54	4,050	3,500	0.72	0.63
L6	Tong Yan San Tsuen Road (Between Castle Peak Road – Ping Shan and Ping Hong Lane)	NB	1,090	200	300	0.18	0.28	150	250	0.14	0.23
		SB	1,090	250	200	0.23	0.18	300	250	0.28	0.23

Link			Capacity (pcu/hr)	Reference Case				Design Case			
				Peak Hour Traffic Flow (pcu/hr)		V/C Ratio (*)		Peak Hour Traffic Flow (pcu/hr)		V/C Ratio (*)	
				AM	PM	AM	PM	AM	PM	AM	PM
L7	Ma Fung Ling Road	NB	820	50	50	0.06	0.06	100	100	0.12	0.12
		SB	820	50	50	0.06	0.06	100	100	0.12	0.12
L8	Ma Wang Road	WB	2,530	450	550	0.18	0.22	500	500	0.20	0.20
L9	Tong Yan San Tsuen Interchange (From Long Tin Road - SB To Yuen Long Highway - EB) (***)	SB	1,800	1,250	1,050	0.69	0.58	1,700	1,400	0.94	0.78
L10	Tong Yan San Tsuen Interchange (To Long Tin Road - NB)	NB	1,800	1,350	1,500	0.75	0.83	1,650	1,800	0.92	1.00
L11	Wang Tat Road	EB	2,530	1,300	1,200	0.51	0.47	1,350	1,300	0.53	0.51
L12	Slip Road from Long Tin Road - SB to Yuen Long Highway - WB	WB	3,600	2,100	1,900	0.58	0.53	2,150	1,950	0.60	0.54
L13	Slip Road from Yuen Long Highway - EB to Long Tin Road - NB	NB	3,600	1,000	1,000	0.28	0.28	1,100	1,100	0.31	0.31
L14	San Hi Tsuen Street	EB	820	100	100	0.12	0.12	300	200	0.37	0.24
		WB	820	200	200	0.24	0.24	300	200	0.37	0.24

(*) For links, the performance indicators is V/C (Volume to Capacity) ratios. A V/C ratio above 1.0 indicates the onset of congestion.

(**) The critical section of Long Tin Road (NB) runs in a 2 lane configuration while Long Tin Road (SB) runs in a 3 lane configuration.

(***) Possible improvement / upgrading works on the road link performance of L9 will be assessed under the investigation and design stage of a future CEDD site formation and infrastructure project in Tin Shui Wai. The implementation arrangement and agent of any necessary improvement works / upgrading works will be explored and identified with liaison amongst relevant Offices of CEDD. Subject to timely resolution of the interface issues with other government projects, CEDD will target to complete the improvement/ upgrading works, if any, before population intake of the public housing developments in the vicinity.

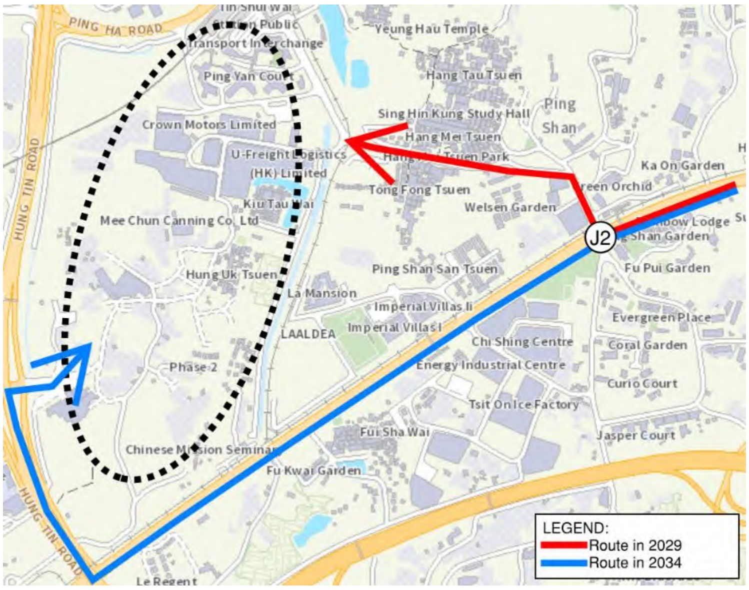
(#) The Road Link Capacity of L5, L12 and L13 have been adjusted due to the improvement works of Tong Yan San Tsuen Interchange under Yuen Long South Study.

5.2.2 The performance of the following junctions is discussed below:

J2: Castle Peak Road - Ping Shan/ Tong Yan San Tsuen Road

5.2.3 For AM peak in design case, it is noticed that the junction performance in 2034 is better than 2029 though the traffic volume has been increasing. It was due to the diversion induced by the HSK NDA. The concerned flow pattern changes at Castle Peak Road westbound in year 2029 (red line) and 2034 (blue line) is provided as below.

Flow Patten Changes of J2 in Year 2029 and Year 2034



J6: Yuen Long Tai Yuk Road/ Ma Tin Road

5.2.4 Under the existing cycle time, the above results reveal that the Junction **J6** will operate in same capacity at AM peak in 2034 for both reference and design scenarios. The proposed housing development would not deteriorate the junction performance.

J7: Shui Pin Wai Interchange

5.2.5 Under the existing cycle time, the above results reveal that the Junction J7 will operate in similar capacity at AM peak in 2034 for both reference and design scenarios. The proposed housing development would only account for 4% and 3% in AM and PM peak respectively. It would not significantly deteriorate the junction performance.

J8: Castle Peak Road - Ping Shan/ Yuen Long Tai Yuk Road

5.2.6 The above results reveal that the Junction J8 will operate in similar capacity at AM peak and PM peak in 2034 for both reference and design scenarios. The proposed housing development would only account for 1% in both AM and PM peak, in comparison with 2034 Reference Case. It would not significantly deteriorate the junction performance. Nevertheless, an improvement scheme is recommended and illustrated in **Drawing No. 261044/F/03/0055**. The junction performance with the improvement scheme is summarized in **Table 5.10**.

Table 5.10 Junction Performance at J8

No.	With/ Without Improvement Scheme	Junction Performance (*)					
		2025 Design Case		2029 Design Case		2034 Design Case	
		AM	PM	AM	PM	AM	PM
J8	Without Improvement	4%	9%	0%	0%	1%	0%
J8	With Improvement	26%	36%	17%	22%	11%	10%

Note:

(*) Performance is assessed with "Design Flow to Capacity" (D.F.C.) ratio for priority junctions and roundabout and "Reserve Capacity" (R.C.) for signalized junctions

As the recommended improvement scheme of Junction J8, which falls within MTR protection zone, will involve modifications of existing traffic islands and pedestrian crossings adjacent to the MTR LRT, relevant parties including MTRC and Utilities Undertakers shall be consulted upon the detailed design. Further investigation will be required to determine whether the aforesaid improvement scheme is feasible to be carried out within the context of "Minor Works" under s.4 of Cap. 370 by relevant works projects.

J9: Slip road to Long Tin Road (SB)/ U-turn from slip road of Long Tin Road (WB)

5.2.7 The priority junction **J9** will operate over capacity in future years for design scenario. Possible improvement scheme is discussed in **Section 5.3**.

5.2.8 As for link capacity analysis, L3, L4 and L10 would operate with V/C ratio exceeding 1.0. Improvement measures would be further investigated in upcoming studies including Route 11 study and Yuen Long Highway widening study.

5.2.9 The capacity analysis on the assessed junctions and links are summarised in **Table 5.11** and **5.12.**

Table 5.11 Summary of Results of Junction Capacity Assessments

Junction	2025 Reference (#)		2025 Design (#)		2029 Reference (#)		2029 Design (#)		2034 Reference (#)		2034 Design (#)	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
J1	>50%	>50%	>50%	>50%	>50%	>50%	48%	>50%	>50%	>50%	45%	44%
J2	25%	20%	23%	19%	21%	15%	13%	13%	18%	11%	17%	11%
J3	>50%	>50%	>50%	>50%	>50%	>50%	27%	>50%	46%	>50%	20%	>50%
J4	21%	27%	21%	27%	20%	23%	20%	23%	21%	30%	21%	29%
J5	0.32	0.22	0.32	0.22	0.35	0.22	0.41	0.22	0.59	0.33	0.60	0.33
J6	33%	24%	33%	24%	30%	24%	27%	21%	13%	22%	13%	22%
J7	14%	41%	13%	40%	13%	47%	10%	38%	8%	34%	4%	31%
J8	4%	9%	4%	9%	-2%	3%	0%	0%	2%	1%	1%	0%
J9	1.02	0.80	1.23	0.89	1.09	0.87	2.02	1.45	0.01	0.01	1.07	0.67
J10	0.19	0.17	0.23	0.18	0.19	0.17	0.33	0.24	0.18	0.09	0.41	0.24

(#) Figures shown represent "Reserve Capacity" (RC) for the signal controlled junctions and "Design Flow to Capacity" (DFC) ratio for the priority junctions. A signal-controlled junction with a reserve capacity (RC) of more than 15% is considered as satisfactory performance; 0% implies that it is operating at capacity while a negative RC% suggests that it is overloaded. For priority junction, the performance indicators is the DFC (Design Flow to Capacity). DFC of less than 0.85 is considered as satisfactory performance; 1.00 indicate that capacity has been reached while DFC over 1.00 indicate overloaded conditions.

Table 5.12 Summary of Results of Link Capacity Assessments

Link		2025 Reference (*)		2025 Design (*)		2029 Reference (*)		2029 Design (*)		2034 Reference (*)		2034 Design (*)	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
L1	EB	0.41	0.39	0.43	0.39	0.45	0.43	0.43	0.41	0.48	0.48	0.46	0.45
	WB	0.53	0.54	0.54	0.56	0.54	0.58	0.59	0.61	0.58	0.61	0.63	0.66
L2	EB	0.36	0.29	0.36	0.30	0.41	0.34	0.39	0.32	0.41	0.38	0.39	0.36
	WB	0.43	0.41	0.45	0.43	0.46	0.45	0.54	0.50	0.50	0.50	0.55	0.55
L3	EB	0.82	0.75	0.83	0.76	0.89	0.85	0.89	0.86	0.98	0.93	0.98	0.93
	WB	0.75	0.75	0.76	0.76	0.90	0.91	0.92	0.92	1.02	1.02	1.02	1.02
L4	EB	0.87	0.77	0.89	0.78	0.92	0.84	0.97	0.90	0.96	0.88	1.03	0.93
	WB	0.71	0.78	0.73	0.79	0.76	0.82	0.79	0.84	0.82	0.87	0.85	0.90
L5	NB	0.77	0.81	0.84	0.85	0.78	0.85	0.99	0.99	0.42	0.47	0.57	0.59
	SB	0.63	0.55	0.66	0.56	0.72	0.60	0.82	0.69	0.62	0.54	0.72	0.63
L6	NB	0.18	0.23	0.23	0.28	0.18	0.28	0.14	0.23	0.18	0.28	0.14	0.23
	SB	0.28	0.28	0.28	0.32	0.23	0.28	0.23	0.23	0.23	0.18	0.28	0.23
L7	NB	0.06	0.06	0.12	0.12	0.06	0.06	0.12	0.12	0.06	0.06	0.12	0.12
	SB	0.06	0.06	0.12	0.12	0.06	0.06	0.18	0.12	0.06	0.06	0.12	0.12
L8	WB	0.20	0.22	0.22	0.24	0.20	0.22	0.20	0.20	0.18	0.22	0.20	0.20
L9	SB	0.83	0.75	0.89	0.78	0.83	0.75	1.03	0.94	0.69	0.58	0.94	0.78
L10	NB	0.92	0.97	0.97	1.00	0.89	0.97	1.17	1.19	0.75	0.83	0.92	1.00
L11	EB	0.47	0.47	0.49	0.49	0.49	0.47	0.51	0.51	0.51	0.47	0.53	0.51
L12	WB	0.72	0.64	0.75	0.67	0.94	0.81	1.00	0.83	0.58	0.53	0.60	0.54
L13	NB	0.67	0.69	0.69	0.72	0.72	0.78	0.75	0.83	0.28	0.28	0.31	0.31
L14	EB	0.12	0.12	0.18	0.18	0.12	0.18	0.30	0.24	0.12	0.12	0.37	0.24
	WB	0.24	0.24	0.30	0.30	0.24	0.24	0.37	0.30	0.24	0.24	0.37	0.24

(*) For links, the performance indicators is V/C (Volume to Capacity) ratios. A V/C ratio above 1.0 indicates the onset of congestion.

5.2.10 Queue length analysis has been conducted on the arms of the assessed junctions. The results are summarised in **Table 5.13**. For priority junctions, only minor road streams are assessed. Results have shown that the expected queuing in the assessed junctions under all design scenarios are within capcity.

Table 5.13 Summary of Queue Length Analysis (in metre)

Junction Arm		Existing Queuing Space (m)	2025 Reference		2025 Design		2029 Reference		2029 Design		2034 Reference		2034 Design	
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
J1	Castle Peak Road - Ping Shan EB	150	50	45	55	55	55	50	65	60	60	60	65	65
	Ma Wang Road SB	200	30	30	30	30	30	30	30	35	25	30	30	35
	Castle Peak Road - Ping Shan WB	480	45	45	45	45	45	45	50	55	45	50	50	55

Junction	Arm	Existing Queuing Space (m)	2025 Reference AM	2025 Reference PM	2025 Design AM	2025 Design PM	2029 Reference AM	2029 Reference PM	2029 Design AM	2029 Design PM	2034 Reference AM	2034 Reference PM	2034 Design AM	2034 Design PM
	Shui Pin Wai Interchange NB	150	5	0	10	10	10	5	30	20	15	25	45	50
J2	Castle Peak Road - Ping Shan EB	300	65	60	65	60	70	65	70	70	75	70	70	70
	Ping Ha Road SB	100	40	40	40	45	35	35	40	40	40	35	40	35
	Castle Peak Road - Ping Shan WB	500	50	55	55	55	55	55	55	60	55	55	60	65
	Tong Yan San Tsuen Road NB	70	40	40	40	40	40	45	30	40	40	40	35	35
J3	Castle Peak Road - Ping Shan EB	550	45	35	50	35	55	40	55	45	60	45	60	45
	Ping Kwai Road SB	40	20	30	20	30	20	25	20	30	20	25	20	30
	Castle Peak Road - Ping Shan WB	300	45	40	50	45	50	45	55	50	55	55	60	55
	San Hi Tsuen Street NB	70	40	25	40	30	45	25	45	25	45	30	45	30
J4	Town Park Road South EB	60	50	45	50	45	50	50	50	50	50	45	50	45
	Town Park Road South WB	70	40	40	40	40	40	40	40	40	40	40	40	40
	Lam Hau Tsuen Road NB	110	10	10	10	10	10	10	10	10	15	15	15	15
J5	Town Park Road South EB	70	N/A											
	Town Park Road North SB	200	10	5	10	5	10	5	10	5	25	10	25	10
	Ma Tin Road WB	60	N/A											

Junction Arm		Existing Queuing Space (m)	2025 Reference		2025 Design		2029 Reference		2029 Design		2034 Reference		2034 Design	
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
J6	Ma Tin Road EB	140	55	50	55	50	55	50	55	50	65	50	65	50
	Yuen Long Tai Yuk Road SB	150	45	50	45	50	45	50	45	50	50	50	50	50
	Ma Tin Road WB	120	30	35	30	35	30	35	30	35	30	30	30	35
	Yuen Long Tai Yuk Road NB	200	45	45	45	45	45	45	45	50	50	50	50	50
J7	Shui Pin Wai Interchange SB	160	45	40	45	40	50	40	50	40	50	40	50	40
	Long Ping Road WB	550	70	60	70	60	75	60	75	65	80	60	80	65
	Long Tin Road NB	200	40	35	40	40	40	35	45	40	40	40	45	45
	Shui Pin Wai Interchange NB	260	60	50	60	50	55	50	55	50	60	50	60	50
J8	Castle Peak Road - Ping Shan EB	280	70	60	70	60	75	65	75	65	75	70	75	70
	Ma Miu Road SB	100	60	55	60	60	60	60	55	60	60	55	55	55
	Castle Peak Road - Ping Shan WB	100	60	55	60	60	65	60	75	70	65	65	75	75
	Yuen Long Tai Yuk Road NB	110	85	85	85	85	90	85	85	90	85	85	85	85
J9(*)	N/A													
J10	Tong Yan San Tsuen NB	50	N/A											
	San Hi Tsuen Street EB	70	5	5	5	5	5	5	10	5	5	5	10	5
	Tong Yan San Tsuen SB	110	N/A											

(*) Queue length analysis is not applicable on J9 because of overcapacity.

5.3 Traffic Improvement Schemes

U-turn from slip road of Long Tin Road

5.3.1 The U-turn at Long Tin Road (near J/O Long Tin Road/Castle Peak Road) is currently controlled by a give-way arrangement. As shown from junction capacity assessment results of J9, the junction operates over capacity under both existing traffic condition and future traffic condition.

5.3.2 Vehicles leaving the Long Bin Housing Site leading to Yuen Long Highway rely heavily on this U-turn provision. The junction performance will therefore deteriorate in the design scenarios. An improvement scheme is therefore considered necessary. As shown in **Drawing No. 261044/F/03/0046**, the recommended improvement scheme involves widening of the U-turn approach and removal of the give-way line to avoid the traffic queue queuing back to the Long Tin Road (Northbound) will be implemented under Phase 1 development (Year 2025). The U-turn approach will be converted to a merging lane joining back to Long Tin Road (Southbound). The improvement scheme would follow the approach developed in FS stage while more details are being developed and the schematic design will be provided in later stage of the study.

5.3.3 As the original priority junction is changed to a merging lane, link capacity assessment will be adopted to assess the traffic performance under this improvement scheme. **Table 5.14** shows the corresponding V/C ratio at design scenarios.

Table 5.14 Link capacity assessment (V/C) ratio for the improved U-turn approach at Long Tin Road

Road Link	Capacity (pcu/hr)	V/C ratio (Peak hour flow in pcu/hr))					
		Year 2025 - Des		Year 2029 - Des		Year 2034 - Des	
		AM	PM	AM	PM	AM	PM
U-turn link at Long Tin Road	1,340	0.50 (670)	0.37 (490)	0.78 (1050)	0.59 (790)	0.42 (560)	0.27 (360)

5.4 Pedestrian Linkages Assessment

Pedestrian Trip Rates

5.4.1 The following pedestrian trip rates will be adopted for pedestrian trip generation assessment:

Table 5.15 Pedestrian trip rates to be adopted

Development Type	Unit	AM Peak		PM Peak	
		Generation Rate	Attraction Rate	Generation Rate	Attraction Rate
SSF	persons/hr/flat	0.494	0.081	0.158	0.298
PRH	persons/hr/flat	0.464	0.201	0.194	0.440

Note: The pedestrian trip rates for traffic assessment is consistent with those adopted in TIA of Agreement No. CE 26/2015 (CE).

5.4.2 On the other hand, existing public transport services and facilities within reasonable walking distance to the site had already been identified as discussed in **Section 3.2**.

Pedestrian Demand by Transport Modes

5.4.3 The following tabulates the calculated pedestrian trip generation (in ped/hr) based on in-house pedestrian trip rates.

Table 5.16 Peak hour Pedestrian Trip Generation in ped/hr by each stage of development (*)

Scenario	AM Peak			PM Peak		
	Generation	Attraction	Two-way total	Generation	Attraction	Two-way total
Phase 1 only	1,522	249	1,771	487	918	1,404
Phases 1 and 2	5,633	2,030	7,663	2,205	4,816	7,022

(*) A safety factor of 1.1 has been applied to the size of population to allow design flexibility

5.4.4 As shown above, a total of 7,663 ped/hr two-way (at AM peak) will be the critical trip generation adopted for assessment.

5.4.5 Based on the modal split identified in Feasibility Study stage, the estimated peak hour pedestrian flows by mode are summarised in **Table 5.17**.

Table 5.17 Modal Split Assumption (With walk mode considered)

Walk Mode	Mechanised Mode (% round to nearest integer)		
	Private Mode	Rail-based Public Transport	Road-based Public Transport
23%	15%	40%	22%

Note: The modal split for traffic assessment is consistent with that adopted in TIA of Agreement No. CE 26/2015 (CE).

Table 5.18 Peak hour pedestrian flow breakdown

Mode	Peak hour pedestrian flow
By Rail/LRT Mode	3,076 ped/hr
By Bus/GMB Mode	1,716 ped/hr
By Walk Mode	1,722 ped/hr
By Private Mode	1,149 ped/hr
Total	7,663 ped/hr

Estimated Utilization of Proposed Footbridges

5.4.6 In this stage, three footbridges surrounding the proposed housing site had been proposed: One of which (to be abbreviated Footbridge A) will span across the Castle Peak Road – Ping Shan at the North of the proposed housing site, while another (to be abbreviated Footbridge B&C) will span across the Long Tin Road at the East of the proposed housing site.

5.4.7 Footbridge A will mainly serve the pedestrian leading to West Rail Long Ping Station while Footbridge B&C will mainly serve the pedestrian leading to Yuen Long Park and other recreational facilities (Yuen Long Stadium, Yuen Long Swimming Pool, 7 nos. of primary/secondary schools along Ma Tin Road/Shap Pat Heung Road, and so on).

5.4.8 As estimated in **Table 5.27**, 83% of the rail users of Long Bin Development will be distributed to the critical section of West Rail Line (i.e. urban direction). It is assumed, for conservative design purpose, that all the urban direction rail users would take Footbridge A to reach West Rail Long Ping Station, which is approximately 3,076 * 83% = 2,553 ped/hr.

5.4.9 The remaining rail users towards Tuen Mun and Tin Shui Wai Direction would take Light Rail at nearby Ping Shan Station through southern footpath of Castle Peak Road – Ping Shan and the existing footbridge near Light Rail Ping Shan Station. As such, the estimated pedestrian flow will be distributed to these footbridges as follows.

Table 5.19 Peak hour pedestrian flow at each proposed footbridge

Pedestrian Generation by Mode	Pedestrian Route and Split*		Peak hour pedestrian flow
By Rail/LRT Mode (3,076 ped/hr)	Footbridge A	83%	2,553 ped/hr
	Southern Footpath at Castle Peak Road (Ping Shan)	17%	523 ped/hr
By Walk Mode (1,722 ped/hr)	Footbridge B&C	100%	1,722 ped/hr

*Passengers taking bus/GMB trips will make use of PTI inside the estate directly.

5.4.10 The footbridge width is normally designed in a way that a LOS (Level of Service, which is a usual way to measure pedestrian congestion level specified by TPDM) level of C is guaranteed during peak hours. The required flow rate is 23 ped/m/min to 33 ped/m/min. **Table 5.20** summarizes the required footbridge width calculated based on the pedestrian demand estimated:

Table 5.20 Footbridge width recommendation based on pedestrian demand estimate

	Footbridge A	Footbridge B&C
Peak hour pedestrian flow, **(a)**	2,553 ped/hr	1,722 ped/hr
Lower limit of flow rate (23 ped/m/min)		
Required Effective Width, **(b1)** = **(a)** / 60 min/hr /23 ped/m/min	1.8 m	1.2 m
Clear Width Required, **(c1) = (b1) + 1**	**2.8 m**	**2.2 m**
Upper Limit of flow rate (33 ped/m/min)		
Required Effective Width, **(b2)** = **(a)** / 60 min/hr /33 ped/m/min	1.3 m	0.9 m
Clear Width Required, **(c2) = (b2) + 1**	**2.3 m**	**1.9 m**

5.4.11 To conclude, based on the latest development assumption, a clear width of 3m is proposed for both Footbridge A and Footbridge B&C to guarantee LOS C during peak hours (rounded to the nearest meter based on the calculation results above).

5.5 Public Transport Demand Assessment

Public Transport Demand

5.5.1 Based on similar analysis as discussed in **Section 5.4**, the following critical peak hour Public Transport demand had been established. AM peak trip generation (one-way), as the critical time period, had been adopted for assessment:

Table 5.21 Estimates on Critical Public Transport Demand induced by housing development (ped/hr)

Scenario	Rail Based	Road Based	Total
Phase 1	611	341	951
Phase 2	1,650	920	2,571

5.5.2 Since the site is not located within a normal walkable distance to the nearest rail station, it is expected that most of the trips heading to the railway station(s) will need to use feeder service. It is therefore considered necessary to include both rail-based and road-based public transport demand in the recommendation of new public transport routes, which also implies a more conservative side of the assessment.

5.5.3 In view of the tight land-use budget on provision of public transport facilities within both phases of sites, it is proposed that franchised bus routes (instead of GMB or others) would be proposed as major feeder public transport mode to/from the site to maximize the carrying capacity. An estimate of the road-based public transport requirements to meet the demand as described above is shown in **Table 5.22** and **Table 5.23**.

5.5.4 For short term scenario (with Phase 1 only), 2 bus routes with headway of 12 minutes are initially recommended.

5.5.5 For long term scenario (with Phase 1 and Phase 2), the public transport demand will increase significantly. It would require a total of 3 nos. of franchised bus route (12-min headway) and 2 nos. of franchised bus route (6-min headway) to accommodate the estimated public transport demand arising from Phase 2 development.

5.5.6 It could be seen that the provisions at both phases of housing site would allow a certain amount of spare capacity during peak hours, so as to cater for peak-of-the-peak travel patterns or flexibility in further population increase of the site.

Table 5.22 Estimates on PT Service Capacity (For Phase 1 development only)

	Franchised Bus
Number of routes provided	2
Proposed AM peak headway (minutes)	12 (i.e. 5 trips in one hour)
Capacity (persons)	135
Estimated service capacity in AM peak (ped/hr)	1350 > 951(**) → OK!
Maximum Fleet Requirement under proposed headway (vehicles)(*)	20

(*) Estimated Based on ***number of fleet required in peak hour per route per bound * number of routes proposed *2.*** The actual fleet requirement under the proposed headway could be less than this estimate due to the possibility that two or more round-trips could be completed by one single vehicle within an hour. This is subject to detailed planning of each route.

(**) Estimation on critical public transport demand induced by housing development (ped/hr) (From **Table 5.21**).

Table 5.23 Estimates on PT Service Capacity (For Phase 1+Phase 2 developments)

	Franchised Bus
Number of routes provided	5
Proposed AM peak headway (minutes)	12 mins (i.e. 5 trips in one hour) for three routes; 6 mins (i.e. 10 trips in one hour) for two routes
Capacity (persons)	135
Estimated service capacity in AM peak (ped/hr)	4725 > 3522(**) → OK!
Maximum Fleet Requirement under proposed headway (vehicles)(*)	70

(*) Based on ***number of fleet required in peak hour per route per bound * number of routes proposed *2.*** The actual fleet requirement under the proposed headway could be less than this estimate due to the possibility that two or more round-trips could be completed by one single vehicle within an hour. This is subject to detailed planning of each route.

(**) Estimation on critical public transport demand induced by housing development (ped/hr) (From **Table 5.20**).

Conceptual Plan of Public Transport Routes based on Travel Characteristics

5.5.7 In view of the majority of public transport demand being rail trips (as shown in **Table 5.17**), it is considered that at least half of the planned public transport routes shall base on/route via the railway stations from transport demand viewpoint. Also considering that bus stops at Castle Peak Road (Ping Shan) eastbound could not be provided in close proximity to the proposed housing site due to site constraint, it is suggested that a circular feeder route plying between WRLPS and the proposed housing site could be considered. By this proposal, passengers could make use of the existing westbound bus stop at Castle Peak Road (Ping Shan) for feeder trips to the WRLPS, and hence walking distance of majority of passengers could be reduced.

5.5.8 Based on the identified transport demands, and the OD patterns identified in the assessment, below table and **Appendix E** outlines the public transport routing *(Within Yuen Long District)* recommendation. The routes are *designated solely to meet the transport demand from proposed housing site*, and had *not* incorporated transport demand induced from housing sites nearby for consideration. Due to the study area coverage and the scope of this study, the routing of the proposed public transport service outside Yuen Long District is also yet to be determined by more detailed studies or other relevant parties such as transport operators.

5.5.9 It should be noted that the final operation plan of the public transport would be subject to future demand, and would need to be revisited by the respective operators. In lieu of provision of new bus/minibus route, re-routing of existing public transport services along Castle Peak Road (Ping Shan) or Long Tin Road to the development site could also supplement these proposed public transport services.

Table 5.24 Public Transport Routing (within Yuen Long District) Recommendation

Route	Suggested Routing / Origin - Destination	Justification / Remarks
Route A Franchised Bus Route for Phase 1 (Circular)	***Yuen Long Station Public Transport Interchange**** → Yuen Long On Lok Road→Ma Wang Road→Castle Peak Road-Ping Shan → ***Phase 1 housing Site***→Tong Yan San Tsuen Road→San Hi Tsuen Street → Castle Peak Road-Ping Shan → Long Tin Road →Shui Pin Wai Interchange→ Wang Tat Road→Long Yip Street→Long Yat Road→ ***Yuen Long Station Public Transport Interchange**** *(*Stop for passengers to / from Yuen Long West Rail Station, will not terminate at the PTI)*	- To serve as feeder for passenger trips to railway station (WRYLS and WRLPS) - Avoid routing via Castle Peak Road-Yuen Long due to busy traffic at peak hours - The extended layby outside Phase 1 can serve as terminal point. When Phase 2 becomes available, the routing could be slightly modified to terminate at Phase 2 PTI and the proposed headways should be increased to double
Route B Franchised Bus Route for Phase 1 (Circular)	***(PTI In Tuen Mun Town Centre)*** → Castle Peak Road –Ping Shan → ***Phase 1 housing Site*** →Shui Pin Wan Road →Ma Wang Road→ Castle Peak Road –Ping Shan →***(PTI In Tuen Mun Town Centre)***	- To handle the remaining transport demand of Phase 1 to the western/southern direction - Terminus proposed in Tuen Mun District, its actual location and detailed routing outside Yuen Long District is yet to be determined in later studies. - When Phase 2 becomes available, the routing could be slightly modified to route through the Phase 2 PTI and the proposed headways should be increased to double
Route C Franchised Bus Route for Phase 2	**Urban Area Bound**: ***Phase 2 PTI*** → Long Tin Road → (U-turn at existing slip road) →Long Tin Road → Tong Yan San Tsuen Interchange → (Bus Interchange at Tai Lam Tunnel) → ***(Urban Area)*** **Long Bin Bound:** ***(Urban Area)***→ (Bus Interchange at Tai Lam Tunnel) → Yuen Long Highway → Tong Yan San Tsuen Interchange → Long Tin Road→ ***Phase 2 PTI***	- Provides direct access to urban area - Bus Interchange at Tai Lam Tunnel could provide interchange options to passengers - Detailed routing outside the Yuen Long District should be studied in detail by bus operator and/or other relevant parties
Route D Franchised Bus Route for Phase 2 (Circular)	***Phase 2 PTI*** → Long Tin Road→Castle Peak Road – Ping Shan → Hung Tin Road →Ping Ha Road→ ***(Internal Road Network Proposed by HSK NDA Study)*** → Ping Ha Road → Ma Fung Ling Road→ Proposed	- The HSK NDA will provide a large number of employment places and school places and it will induce certain transport demand to the proposed housing site

Route	Suggested Routing / Origin - Destination	Justification / Remarks
	Slip Road to Long Tin Road → Long Tin Road → ***Phase 2 PTI***	- The route could also feed the passengers to the WRTSWS
<u>Route E</u> Franchised Bus Route for Phase 2 (Circular)	***Phase 2 PTI*** → Long Tin Road→ Shui Pin Wai Interchange → Wang Tat Road→ ***(Yuen Long Industrial Area)*** → Long Yip Street → ***Yuen Long Station Public Transport Interchange*** → Long Lok Road→ Castle Peak Road (Yuen Long) → Long Tin Road→ Tong Yan San Tsuen Interchange → Long Tin Road→ ***Phase 2 PTI***	- Serve as short-haul public transport service for intra-district trips - Supplement route A as function of feeder to railway stations with additional function to serve the Yuen Long Industrial Area

Impacts on Existing Public Transport System

5.5.10 Under the above proposal, all projected road-based public transport demand will be well-accommodated by the proposed road-based public transport service. With the comprehensive coverage of the proposed routes in terms of common origins/destinations of the road-based public transport trips, significant impact on existing road-based public transport services is therefore not expected.

5.6 Railway Impact Assessment

Overview

5.6.1 The MTR West Rail (WR) Line is the key mass transit link providing access between Northwest New Territory and the main urban areas of Hong Kong. A preliminary assessment on the potential impact of the proposed Long Bin development to the WR Line has been conducted and the findings are presented below.

5.6.2 The preliminary assessment has made reference to the assessment for preparing "TR16H – Traffic and Transport Impact Assessment" of Agreement No. CE 35/2012 (CE) Planning and Engineering Study for Housing Sites in Yuen Long South – Investigation, which is provided and agreed with CEDD.

MTR WR Line Capacity and Existing Patronage

5.6.3 Reference was made to the questions raised by Finance Committee Members in examining the Estimates of Expenditure 2020-21 (https://www.legco.gov.hk/yr19-20/english/fc/fc/w_q/thb-t-e.pdf), THB(T)099. The existing carrying capacity of WR Line is 56,200 persons per hour per direction, based on a passenger density loading of 6 persons per square metre (ppsm). The 2019 patronage (for the first half of 2019) on the critical link of the WR Line (section from Kam Sheung Road to Tsuen Wan West) is 39,600 pphpd during the morning peak. It corresponds to a Volume to Capacity Ratio (v/c ratio) of 0.70 under 6 ppsm and 0.99 under 4ppsm.

Approach in Reviewing the Impact of Long Bin Development to the Rail Service

5.6.4 A preliminary analysis was carried out to make a broad estimation on the patronage of WR without Long Bin Development. The background WR Line patronage is derived by projecting the existing patronage to the design year by the respective population growth. The approach in estimating the background patronage of WR Line is outlined below:

- The 2019 patronage at the critical section of WR Line is projected to design year 2034, based on a factor derived from the population data in Tuen Mun, Yuen Long, Tin Shui Wai and Hung Shui Kiu area between 2019 and 2034. The factor is calculated as shown in **Table 5.25**. By applying the projection factor, it is estimated that the background patronage of WR Line at critical section from Kam Sheung Road Station to Tsuen Wan West Station would be 53,100 in design year 2034 morning peak hour
- The population data for 2019 is derived based on the interpolation of 2014 BYE and design year 2021 of 2014-based TPEDM. Similary, the population data for 2034 is derived by interpolation between design years 2031 and 2036 of the TPEDM dataset.

Table 5.25 Calculation of Projection Factor

	Year	Population in Tuen Mun, Yuen Long, Tin Shui Wai and Hung Shui Kiu Areas	Projection Factor
Population data for 2031 background WR Line patronage	2019[A]	862,000	1.341
Population Data adopted in this Study	2034[B]	1,155,000	

Noted:
The presented number is rounded to nearest 1,000. The presented factor is rounded to 3 decimal places
A: Year 2019 planning data is interpolated between Year 2014 and 2021 planning data, Yuen Long South area has been excluded.
B: Year 2034 planning data is interpolated between Year 2031 and 2036 planning data, Yuen Long South area has been excluded.

- According to the Railway Development Strategy 2014, the Northern Link (NOL) would be one of the proposed 7 railway developments and it would have considerable impact to the patronage of WR. A "bottom-up" approach is applied to estimate the potential increase of patronage on the critical section of WR brought by NOL. The calculation is presented in **Table 5.26**. With reference to the employment places in Sham Shui Po, Tsuen Wan, Kwai Tsing, North Lantau and North Lantau areas, which is likely to travel along the critical section of WR Line by the NOL passengers, it is estimated that about 22% of the NOL passengers, which is correspondingly about 7,100 passengers, will be loaded on the critical section of WR Line in 2034 morning peak hour

Table 5.26 Addition of NOL Patronage Demand on the Critical Section of WR

Items	Factor	Value
Year 2034 NOL Catchment Population[A]		528,100
Average weekday mechanised daily trips	1.83 trips per person[B]	966,350
Directional Split for daily trips	50%	483,200
Morning peak hour trip rate to daily total	14% [C]	67,600
Rail Mode Split	48% [D]	32,500
Distribution to the critical section of WR	22% [E]	7,100

Note:
The presented number is rounded to nearest 100
A: It presents the population in Kwu Tung area, Fanling and Sheung Shui area and the Rural NENT area in the vicinity. Kwu Tung North and Fanling North NDA are included in the calculation. It is interpolated between the planning data of 2031 and 2036 as adopted in this Study
B: Reference from Travel Characteristics Survey 2011 – Final Report
C: Arup's in-house survey database for the NWNT rail stations
D: Arup's in-house public transport data, assume 80% of the trips are PT trips, with 60% of the PT trips as rail trips
E: The distribution is estimated by the Employment Place in Sham Shui Po, Tsuen Wan, Kwai Tsing and North Lantau areas over the territory-wide employment places based on Year 2034 planning data adopted in this Study. It accounts for the attractiveness to NOL catchment population which is likely to travel along the critical section of WR

- The above estimation does not include the patroange of WR Line generated from the Yuen Long South development. With reference to "TR16H – Traffic and Transport Impact Assessment" of Agreement No. CE 35/2012 (CE) Planning and Engineering Study for Housing Sites in Yuen Long South – Investigation, it is estimated that this development would generate about 740 passengers in 2034 morning peak hour to the crtical section of WR Line.

- According to **Table 5.21**, the Long Bin Development would generate about 2,490 rail/ light rail passengers. By comparing the distribution of employment places in urban area against NWNT and NENT, it is estimated that 83% of the rail/ light rail passengers would travel to urban area via the critical section of WR Line from Kam Sheung Road to Tseun Wan West. It corresponds to about 2,070 passengers in the morning peak hour in year 2034. The estimation is summarised in **Table 5.27**

- The remaining rail/ light rail passengers, corresponding to 2,490 – 2,070 = 420 passengers, would take WR Line and NOL to NENT, or take WR Line or Light Rail Trainsit (LRT) to NWNT. The assessment on LRT will be discussed in the next section.

Table 5.27 Addition of Long Bin Patronage Demand on the Critical Section of WR

Items	Factor	Value
Peak hour Rail Passengers	-	2,490
Distribution to the critical section of WR	83%[A]	2,070

Note:
A: The distribution is estimated by the Employment Place in Kowloon, Hong Kong Island, Tsuen Wan, Kwai Tsing, Tseung Kwan O and North Lantau over the territory-wide employment places based on Year 2034 planning data derived from 2031 and 2036 dataset. It accounts for the distribution of Long Bin residents to the urban area travelling along the critical section of WR

- The total patronage of MTR WR Line at critical section from Kam Sheung Road to Tsuen Wan West in 2034 morning peak hour is calculated and summarised in **Table 5.28**

Table 5.28 MTR Patronage Demand on the Critical Section of WR

No.	Items	Factor	Value
1	WR Line Patronage at Critical Section from Kam Sheung Road to Tsuen Wan West in year 2019 (pphpd)	-	39,600
2	WR Line Patronage at Critical Section from Kam Sheung Road to Tsuen Wan West (Without Addition of NOL Patronage Demand) in year 2034	1.341	53,100[A]
3	Additional NOL Patronage Demand to the Critical Section of WR	-	7,100[B]
4	Additional YLS Patronage Demand to the Critical Section of WR	-	740[C]
5	Additional Long Bin Patronage Demand to the Critical Section of WR	-	2,070[D]
	Estimated patronage without Long Bin Development (item 2+3+4)	-	60,940
	Estimated patronage with Long Bin Development (item 2+3+4+5)	-	63,010

Note:
A. The projection factor is derived in **Table 5.25**.
B. The additional NOL patronage demand to the critical section of WR is derived in **Table 5.26**

C. The additional patronage demand from YLS is derived from the 2038 peak hour patronage based on a pro-rata of population intake between 2034 and 2038
D. The Long Bin rail patronage is derived in **Table 5.27**

5.6.5 The anticipated resultant patronage on the critical section of WR in the morning peak hour of year 2034 will be about 63,010, corresponding to a V/C ratio of 0.84 under 6 ppsm and 1.18 under 4ppsm.The broad-brush estimated rail patronage at the critical section of WR is summarized in **Table 5.29**.

Table 5.29 MTR Patronage Assessment with the Proposed Long Bin Development

Year	Critical Section of WR (Kam Sheung Road to Tsuen Wan West)	Background Patronage	Backgound Patronage + Proposed Long Bing Development
2034	MTR Patronage (pphpd)	60,940	63,010
	Maximum Capacity (6ppsm)[A]	75,000	75,000
	Maximum Capacity (4ppsm)	53,400	53,400
	V/C Ratio (6ppsm)	0.81	0.84
	Maximum Capacity (4ppsm)	1.14	1.18

Note:
A. Adopted the same capacity as the background WR Line patronage

5.6.6 It is revealed that the V/C ratio of the critical link of the WR will be around 0.84 under 6 ppsm with the proposed development in 2034 and it would operate under the capacity. In this regard, the proposed development will not induce unacceptable impact to West Rail Line under 6ppsm.

5.7 Light Rail Impact Assessment

5.7.1 The Light Rail Transit (LRT) network provides an alternative pubic transport connection for Long Bin development to access Tuen Mun, Tin Shui Wai area to the west and Yuen Long area to the east. The nearest LRT stations to Long Bin development are the Ping Shan station and Shui Pin Wai station. These two LRT stations are currently serving four LRT routes, as presented in **Table 5.30**.

Table 5.30 LRT Routes at Ping Shan Station and Shui Pin Wai Station

Route	Destinations	Stations
610	Tuen Mun Ferry Pier to Yuen Long	Tuen Mun Ferry Pier, Melody Garden, Butterfly, Light Rail Depot, Lung Mun, Tsing Shan Tsuen, Tsing Wun, Ming Kum, Shek Pai, Tai Hing (North), Tai Hing (South), Ngan Wai, Affluence, Tuen Mun Hospital, Siu Hong, Lam Tei, Nai Wai, Chung Uk Tsuen, Hung Shui Kiu, Tong Fong Tsuen, Ping Shan, Shui Pin Wai, Fung Nin Road, Hong Lok Road, Tai Tong Road, Yuen Long
614	Tuen Mun Ferry Pier to Yuen Long	Tuen Mun Ferry Pier, Siu Hei, Tuen Mun Swimming Pool, Goodview Garden, Siu Lun, On Ting, Town Centre, Pui To, Hoh Fuk Tong, San Hui, Prime View, Fung Tei, Siu Hong, Lam Tei, Nai Wai, Chung Uk Tsuen, Hung Shui Kiu, Tong Fong Tsuen, Ping Shan, Shui Pin Wai, Fung Nin Road, Hong Lok Road, Tai Tong Road, Yuen Long
615	Tuen Mun Ferry Pier to Yuen Long	Tuen Mun Ferry Pier, Melody Garden, Butterfly, Light Rail Depot, Lung Mun, Tsing Shan Tsuen, Tsing Wun, Ming Kum, Shek Pai, San Wai, Leung King, Tin King, Kin Sang, Ching Chung, Lam Tei, Nai Wai, Chung Uk Tsuen, Hung Shui Kiu, Tong Fong Tsuen, Ping Shan, Shui Pin Wai, Fung Nin Road, Hong Lok Road, Tai Tong Road, Yuen Long

Route	Destinations	Stations
761P	Tin Yat to Yuen Long	Tin Yat, tin Fu, Chung Fu, Tin Shui, Locwood, Tin Yiu, Hang Mei Tsuen, Tong Fong Tsuen, Ping Shan, Shui Pin Wai, Fung Nin Road, Hong Lok Road, Tai Tong Road, Yuen Long

5.7.2 Reference was made to the questions raised by Finance Committee Members in examining the Estimates of Expenditure 2019-20, THB(T)096. The number of light rail vehicle (LRV) of these four LRT routes in 2018 is presented in **Table 5.31**.

Table 5.31 Number of LRV for Route 610, 614, 615 and 761P in 2018 in the morning peak hours

Route	Number of Light Rail vehicle		Single-set-equivalent LRV
	Single-set	Couple-set	
610	11	2	15
614	7	0	7
615	7	0	7
761P	0	13	26
Total	25	15	55

Source: questions raised by Finance Committee Members in examining the Estimates of Expenditure 2019-20, THB(T)096, <https://www.thb.gov.hk/eng/legislative/transport/special/land/index.htm>

5.7.3 In operation, one couple-set LRV is equivalent to two single-set LRV. At Ping Shan station and Shui Pin Wai station, the LRT route 610, 614, 615 and 761P would provide 15, 7, 7 and 26 single-set-equivalent LRV respectively in each direction.

5.7.4 As discussed in **Section 5.6**, there would be 420 rail/ LR passengers from Long Bin development (one direciton) travelling either to NENT or NWNT in morning peak. The split of the passenger to (1) Tuen Mun, (2) Hung Shui Kiu, (3) Tin Shui Wai, (4) Yuen Long, and (5) Fanling/ Sheung Shui is estimated based on the distribution of employment places as presented in **Table 5.32**.

Table 5.32 Distribution of Long Bin Rail/ LR Passengers to NENT and NWNT

Items	Factor	Passengers	Split to LRT	Split to WR	LRT Passengers
Distribution to Tuen Mun (NWNT)	39%	165	50%	50%	85
Distribution to Hung Shui Kiu (NWNT)	14%	60	50%	50%	30
Distribution to Tin Shui Wai (NWNT)	19%	80	50%	50%	40
Distribution to Yuen Long (NWNT)	9%	35	100%	-	35
Distribution to Fanling/ Sheung Shui (NENT)	19%	80	-	100%	-
Total	100%	420	-	-	190

Note:
The passenger data is rounded to nearest 5.
The split of LRT and WR is based on the annual passenger data of MTR and LRT of 2014, as published in Monthly Traffic and Transport Digest from TD's webpage. The annual MTR and LRT passengers were 1,665,000 and 174,000 respectively in 2014. While the MTR passengers cover the

whole territory, the NWNT MTR passengers is estimated by pro-rata of NWNT (Tuen Mun, Yuen Long, Tin Shui Wai, Hung Shui Kiu) population against the whole territory population in 2014, based on the base year 2014 planning data as adopted in this Study. The population split in NWNT is about 13% and the NWNT MTR passengers are estimated to be about 216,000 (1,665,000 x 13%). The NWNT MTR and LRT split is therefore 216,000: 174:000, or 55%:45%. For more conservative assessment of LRT, it is assumed the split to LRT is 50%.
From the Monthly Traffic and Transport Digest, the ratio of LRT/ MTR passenger is about 10% from 2014 to 2018. Although the above split is estimated based on 2014 patronage and population data, it is anticipated that the trend would remain similar up to 2018. Nonetheless, it is considered that any discrepancies would be covered by the more conservative assumption of 50% split to LRT.

5.7.5 From **Table 5.32**, about 85, 30 and 40 Long Bin passengers would take LRT to Tuen Mun, Hung Shui Kiu and Tin Shui Wai respectively to the west. About 35 passengers would take LRT to Yuen Long to the east. The average number of passenger per single-set-equivalent LRV to each destination is presented in **Table 5.33**. To sum up, the average number of passenger per single-set-equivalent LRV by LRT route is shown in **Table 5.34**.

Table 5.33 Average Number of Passenger per Single-Set-Equivalent LRV by Destination

Destination	Morning Peak Hour Passengers	LRT Route	Number of single-set-equivalent LRV	Average number of passenger per single-set-equivalent LRV
Tuen Mun	85	610, 614, 615	29	2.8
Hung Shui Kiu	30	610, 614, 615, 761P	55	0.5
Tin Shui Wai	40	761P	26	1.5
Yuen Long	35	610, 614, 615, 761P	55	0.6

Table 5.34 Average Number of Passenger per Single-Set-Equivalent LRV by LRT Route

Route	Towards Tuen Mun, Tin Shui Wai, Hung Shui Kiu	Towards Yuen Long
610	3.3	0.6
614	3.3	0.6
615	3.3	0.6
761P	2.0	0.6

5.7.6 From the assessment, it is anticipated that with Long Bin development in place, it would generate less than 4 additional passenges to each LRV for the routes 610, 614, 615 and 761P. Such additional patornage demand to LRT service is considered insiginificant.

6 PERMANENT PROVISION ON TRANSPORT/TRAFFIC/PEDESTRIAN FACILITIES

6.1 Permanent New Road Design

Conceptual Design of Internal Roads

6.1.1 Brand new roads (hereinafter refer as "Road A" and "Road B" as shown in **Drawing No. 261044/F/03/0041A**) will be constructed as access roads at Phase 1 and Phase 2 development respectively. Road A links up Phase 1 to the West bound of Castle Peak Road – Ping Shan. Road B links up Phase 2 to the South bound of Ma Fung Ling Road. However, more detailed design of the internal roads are subject to HD's confirmation and is out of the scope of this assignment.

6.1.2 Nearside traffic lane at Long Tin Road (Northbound) will be used by vehicles entering/leaving the car park of the proposed PTI. The ingress traffic to both car park and PTI will make use of near-side lane for Long Tin Road (NB), and then the two traffic streams would be diverged just before the entrance of PTI. The speed limit of the concerned section of Long Tin Road (Northbound) will be reduced to 50 km/h. Details of the speed reduction would be discussed in **Section 6.3.**

6.1.3 Internal roads within Phase 1 development are open to resident use (with parking spaces provided), while the planned internal roads within the Phase 2 housing site are, in principle, Emergency Vehicular Accesses (EVAs) that do not permit normal access of private vehicles/public transport. Major ingress and egress are confined to the access road servicing the car-park and PTI in the Phase 2 housing site. Therefore, junction capacity assessments are not required to the ingress/egress at Road B.

Interface with Tong Yan San Tsuen Interchange

6.1.4 New slip road linking the existing Ma Fung Ling Road with Tong Yan San Tsuen Interchange had been proposed in this project. However, notice that there will be improvement to Tong Yan San Tsuen Interchange[5] to cater for all traffic movements to/from Yuen Long Highway. Therefore, an ultimate scheme (**Drawing No, 261044/F/03/0041B** refers) is established to compromise the new slip road and improvement works at Tong Yan San Tsuen Interchange.

6.2 Pedestrian Connectivity

6.2.1 As discussed in **Section 5.4**, three footbridges serving the proposed housing site, namely, **Footbridge A**, **Footbridge B & Footbridge C**, had been planned to enhance its pedestrian connectivity with existing facilities.

6.2.2 Both sets of footbridges will require a clear width of 3 meters to cater for the estimated pedestrian demand arising from the proposed development.

6.2.3 **Footbridge A** will mainly serve as pedestrian corridor to West Rail Long Ping Station, as well as other existing bus stops, while **Footbridge B (& Footbridge C)** will mainly serve walk trips from/to recreational facilities (such as Yuen Long

[5] The layout of Tong Yan San Tsuen Interchange improvement works under Yuen Long South Study is provided by CEDD on 26 April 2018.

Park) and community facilities (such as primary and secondary schools). Both sets of footbridges are considered necessary to cater for the Phase 1 development and therefore would be recommended to be constructed with the Phase 1 development.

Cycling Connectivity

6.2.4 Cycle track network surrounding the housing site (Mainly alongside Long Tin Road Northbound) had been proposed and shown in **Drawing No. 261044/F/03/0041A**.

6.3 Public Transport Facilities Provision

Scenario with Phase 1 only

6.3.1 The proposed housing site is served by bus stops located alongside Castle Peak Road-Ping Shan. The existing bus stop for Westbound direction is located in very close proximity to the proposed housing site (within 100m walking distance as measured from the entrance of Phase 1 development) while for Eastbound direction is located relatively far away (about 400-600 m away, as measured from the entrance of Phase 1 development).

6.3.2 For the proposed bus routes (Route A and B) in Phase 1 development, boarding/alighting of passengers near Long Bin Development will be done at the existing bus lay-by on Castle Peak Road – Ping Shan (Westbound). To accommodate the additional demand for road-based transport induced Phase 1 housing development, it is proposed to extend the existing bus lay-by to 39m, which is expected to serve boarding/alighting activities of 3 buses simultaneously.

6.3.3 Referring to **Section 5.5**, critical public transport demand induced by Phase 1 housing development for road-based transport is 1,019 ped/hr, assuming an average headway of 12 mins, the peak demand of passenger queuing would be 204 ped/12 mins. Referring to TPDM Volume 4 Ch. 3.2.6.2, minimum average pedestrian occupancy area is 0.2 m^2/person, the area required for pedestrian queuing is 41m^2. As the allowable queuing area is 39m (length of bus stops) x 2m = 78m^2, it is anticipated that there is enough space for pedestrian queuing.

6.3.4 Internal roads within Phase 1 are open to the use of residents with allocated car parks, but not for public use. Public transport pick up/drop off activities would be done at the entrance of the Phase 1 housing site via extended layby with total length of 39m. With the extension of bus layby, it can accommodate 2 more buses simultaneously to cater the 2 additional bus routes for phase 1 development. The 39m lay-by would be sufficient to serve multiple purposes.

Scenario with both Phase 1 and Phase 2

6.3.5 A PTI will be provided in the Phase 2 development. It is located at the East of the subject site, as shown in the general road layout. The detailed layout of the PTI could be referred in **Drawing No. 261044/F/03/0043.**

6.3.6 A set of bus bays and a set of taxi bays, will be provided according to **Table 6.1**. As of the recommended transport provision in this report, GMB provision is ***not*** recommended at this stage (See **Section 5.5** for details). Should they are considered necessary, the bus bay at the outer side could also be utilized as pick up/drop off facilities of GMB or other transport modes. Both bus bays are able to allow smooth maneuvering of the critical 12.8m bus during the pick up/drop off process as revealed by a swept path analysis. The swept path analysis for PTI are shown in

Drawing No. 261044/F/03/0047 to **Drawing No. 261044/F/03/0051**. The length of each single-width bay is able to accommodate 3 buses and each double width bay is able to accommodate 6 buses for night time parking propose in **Drawing No. 261044/F/03/0054**.

Table 6.1 Public Transport Facilities Provision at Phase 2 Housing Site

Location	Facility Type	Provision
PTI in Phase 2 development	Bus Bays (Single Lane)	26 x 3 =78m (double bay)
	Bus Bays with Bypass Lane	26 x 2 =52m (double bay)
	Taxi Bays (N.T. and Urban)	60m

6.3.7 The design of PTI at this stage is based on the criterion to accommodate all public transport services recommended in this Study (i.e. those discussed in **Section 5.5**). The actual sizing/scale of PTI is however subject to further review of TD, HD, and Transport Operators.

Interface between the proposed PTI and car park with Long Tin Road (Northbound): Speed Limit Reduction

6.3.8 The proposed PTI under Long Bin Housing Development would be located alongside Long Tin Road. It would be completed with Phase 2 development (between 2029 and 2031 in phases). Vehicular ingress/egress along Long Tin Road and the weaving movement from the proposed PTI to the U-turn lane at the North of Long Tin Road near Castle Peak Road (Ping Shan Section) will raise a safety concern if current speed limit of 70 km/h at Long Tin Road northbound is to be kept.

6.3.9 It is also anticipated that the traffic flow at Long Tin Road will increase in future years. As stipulated in the TTIA report, traffic flow at Long Tin Road will increase from 2,750 pcu/h to 3,300 pcu/h in AM Peak and 2,900 pcu/h to 3,300 pcu/h in PM Peak.

6.3.10 To enhance vehicular safety, it is proposed to reduce the speed limit of the concern section of Long Tin Road northbound to 50km/h as shown in the **Drawing No. 261044/F/03/0042**. The affected section of Long Tin Road northbound, from Tong Yan San Tsuen Interchange to the U-turn to Long Tin Road southbound, is around 400 meters long. The implementation of speed limit reduction will tally with the completion of Phase 2 development and PTI (i.e. between 2029 and 2031 in phases).

6.3.11 The PTI provision will not affect the effective number of lanes of Long Tin Road northbound. With the speed reduction to be in place in a relatively short road section, it is therefore reasonable to assume there is no difference in traffic capacity in the reduced speed limit scenario. i.e. the proposed PTI will not deteriorate the V/C ratios of Long Tin Road in peak hours. Therefore, the proposed speed limit reduction is expected to induce little traffic impact in terms of traffic capacity and traffic speed.

6.3.12 In view of the reasons above, Speed Limit Review is carried out on 10 June 2019 (pm) and 11 June 2019 (am) to examine the condition, including road characteristics, traffic speed, accident statistics, etc. Technical Note of Review of Speed Limit on Long Tin Road Northbound between Tong Yan San Tsuen Interchange and U-turn to Long Tin Road Southbound has been submitted to TD and "support in-principle" has been received from group members in Speed Limit Review Working Group Meeting held on 26 June 2019. The speed reduction proposal accompanied with finalized road layout should be consulted with group members prior to the road comissioning around Year 2025.

Interface between the proposed PTI and car park with Long Tin Road (Northbound): Weaving Section Requirement

Under Interim Layout

6.3.13 Under interim layout (from Year 2029 onwards), vehicles from the new slip road would make use of the nearside traffic lane to make a left turn heading to the proposed PTI and car park, or make use of the middle lane/offside lane heading to Long Tin Road. This also applies to the vehicles from TYST Interchange. This weaving section measured from the merging point of new slip road and TYST Interchange to the proposed PTI ingress will comprise of 3 traffic lanes with a total length of around 140m. The corresponding weaving section is shown in **Drawing No. 261044/F/03/0045**.

6.3.14 Vehicles leaving the proposed PTI and car park (routing through Long Tin Road (Northbound)) would either make use of the nearside traffic lane to make a left turn heading to Castle Peak Road (Ping Shan), or make use of the middle lane/offside lane heading to Tin Shui Wai/Yuen Long North. This also applies to the mainstream traffic on Long Tin Road (Northbound). This weaving section, measured from the proposed PTI egress to the diverging point to Long Tin Road Flyover, will comprise of 3 traffic lanes with a total length of around 110 meters long.

6.3.15 As for the *weaving distance* issue, the provision of 140 meters and 110 meters fulfils the absolute minimum of 100 meters specified by TPDM (Volume 2 Chapter 4.6.10) under the design speed of 50 km/h. That is, the weaving requirement will be satisfied after implementation of the above discussed speed limit reduction. Details of weaving section calculation is shown in **Appendix D**. The result revealed that the number of lanes provided fulfilled the TPDM requirements.

Under Ultimate Layout

6.3.16 Under ultimate layout (from Year 2034 onwards), weaving movement retains at the southern part of Long Tin Road (Northbound), measured from the merging point of new slip road and TYST Interchange to the proposed PTI ingress will comprise of 4 traffic lanes with a total length of around 110m.

6.3.17 As for the *weaving distance* issue, the provision of 110 meters fulfils the absolute minimum of 100 meters specified by TPDM (Volume 2 Chapter 4.6.10) under the design speed of 50 km/h. That is, the weaving requirement will be satisfied after implementation of the above discussed speed limit reduction. Details of weaving section calculation is shown in **Appendix D**. The result revealed that the number of lanes provided fulfilled the TPDM requirements.

6.4 Facilities Provision for Planned Primary School under Phase 2 Development

6.4.1 The accessibility of the planned primary school will mainly rely on Ma Fung Ling Road, Tong Yan San Tsuen Road, as well as the proposed slip roads to/from Long Tin Road. Vehicles can enter/leave the school through a normal access road provided at Ma Fung Ling Road near Jasper Court and gain direct accessibility to Long Tin Road through the new slip road.

6.4.2 For the school site, two pick-up/drop-off bays, with a total length of approximately 74m have been proposed, as shown in **Drawing No. 261044/F/03/0041A**. Reference had been made on the proposed provision for primary school of similar scales. The run-in/run-out of primary school would be located adjacent to the proposed access to the site. A minimum sight distance of 50m could be allowed, subject to the detailed building plan of the primary school.

7 SUMMARY

7.1 Summary

7.1.1 This report summarized the analysis, findings, and recommendations for the Traffic and Transport Impact Assessment for the proposed housing site at Long Bin.

7.1.2 A series of capacity analysis based on the Transport Planning and Design Manual (TPDM) were carried out at 11 key junctions and 14 road links within the AOI to evaluate the existing and future traffic condition.

7.1.3 A well validated Local Area Transport Model (LATM) was developed to provide quantitative input to the road capacity analysis of the major road corridors and junctions in the design year. Necessary road improvement measures have been identified to improve vehicular accessibility and mitigate the potential traffic impact due to the proposed Development.

7.1.4 Parking provision for Subsidized Sales Flats (Phase 1) and Public Rental Housing (Phase 2) were estimated based on the "Hong Kong Planning Standard and Guidelines (HKPSG).

7.1.5 Public Transport Interchange (PTI) with franchised bus bays and taxi bays were proposed to cater for the transport need. Bus routes plan had also been proposed based on the identified transport demand and travel characteristics.

7.1.6 The ingress/egress of the PTI will be located on Long Tin Road Northbound, to improve safety and fulfil weaving requirement stated in TPDM, it is proposed to reduce the speed limit from 70km/hr to 50km/hr for the section of Long Tin Road Northbound between Tong Yan San Tsuen Interchange and the U-turn merging lane to Long Tin Road (Eastbound). The proposal has received "support in-principle" from group members in the Speed Limit Review Working Group Meeting held on 26 June 2019. The speed reduction proposal accompanied with finalized road layout should be consulted with group members prior to the road commissioning around 2025.

7.1.7 Three sets of pedestrian footbridges and cycle tracks surrounding the housing site are proposed to enhance the Development's connectivity to the existing pedestrian and cycle track network.

7.1.8 The layout of Tong Yan San Tsuen Interchange improvement works under Yuen Long South Study provided by CEDD on 15 Nov 2018 has been incorporated in our ultimate year (year 2034) scenario.

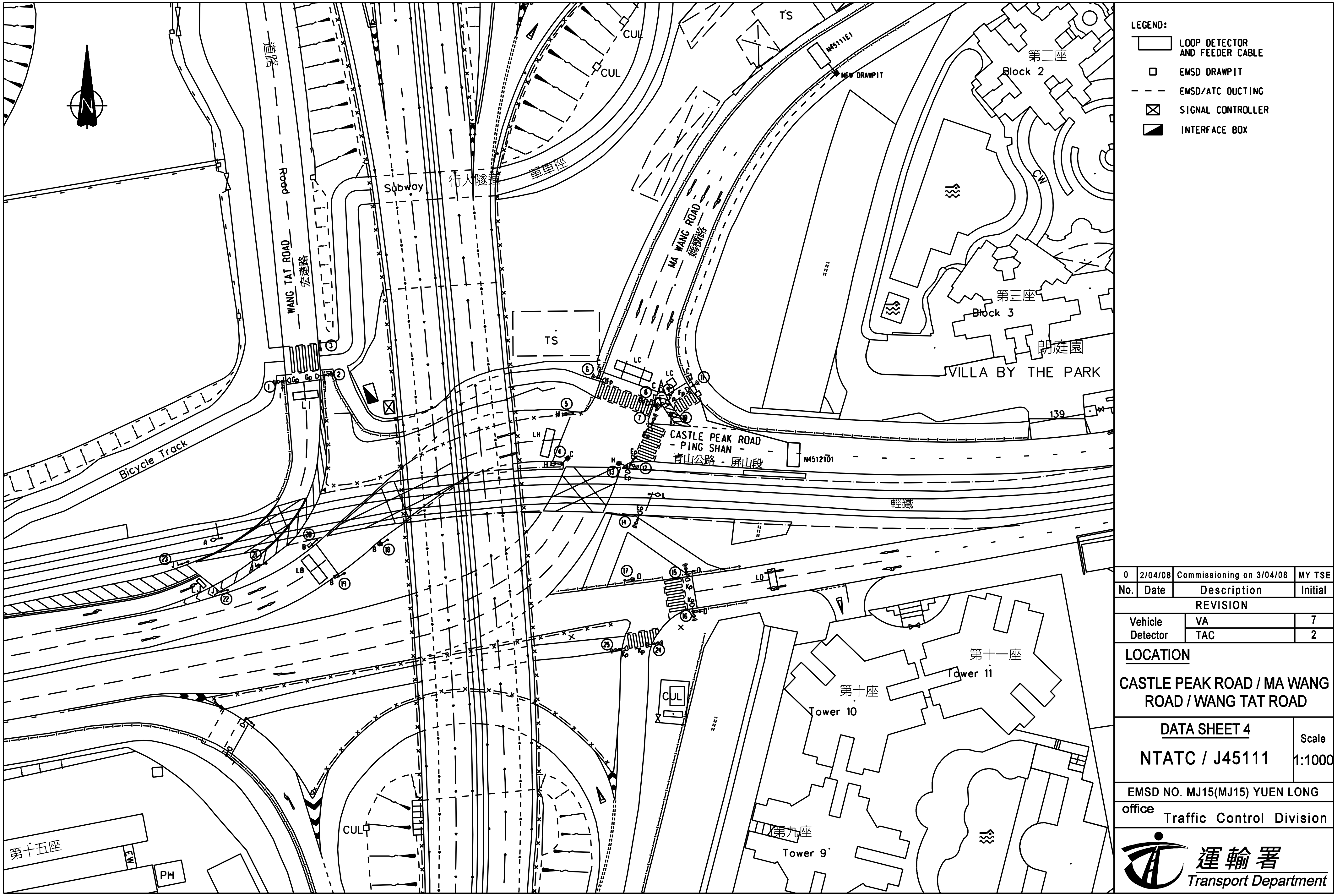
7.2 Conclusion

7.2.1 The proposed Long Bin Development will have manageable traffic impact on the nearby road links, junctions and transport facilities. Mitigation measures had been studied and proposed in section 6 whenever necessary. Therefore, the proposed development is considered acceptable form the traffic point of view.

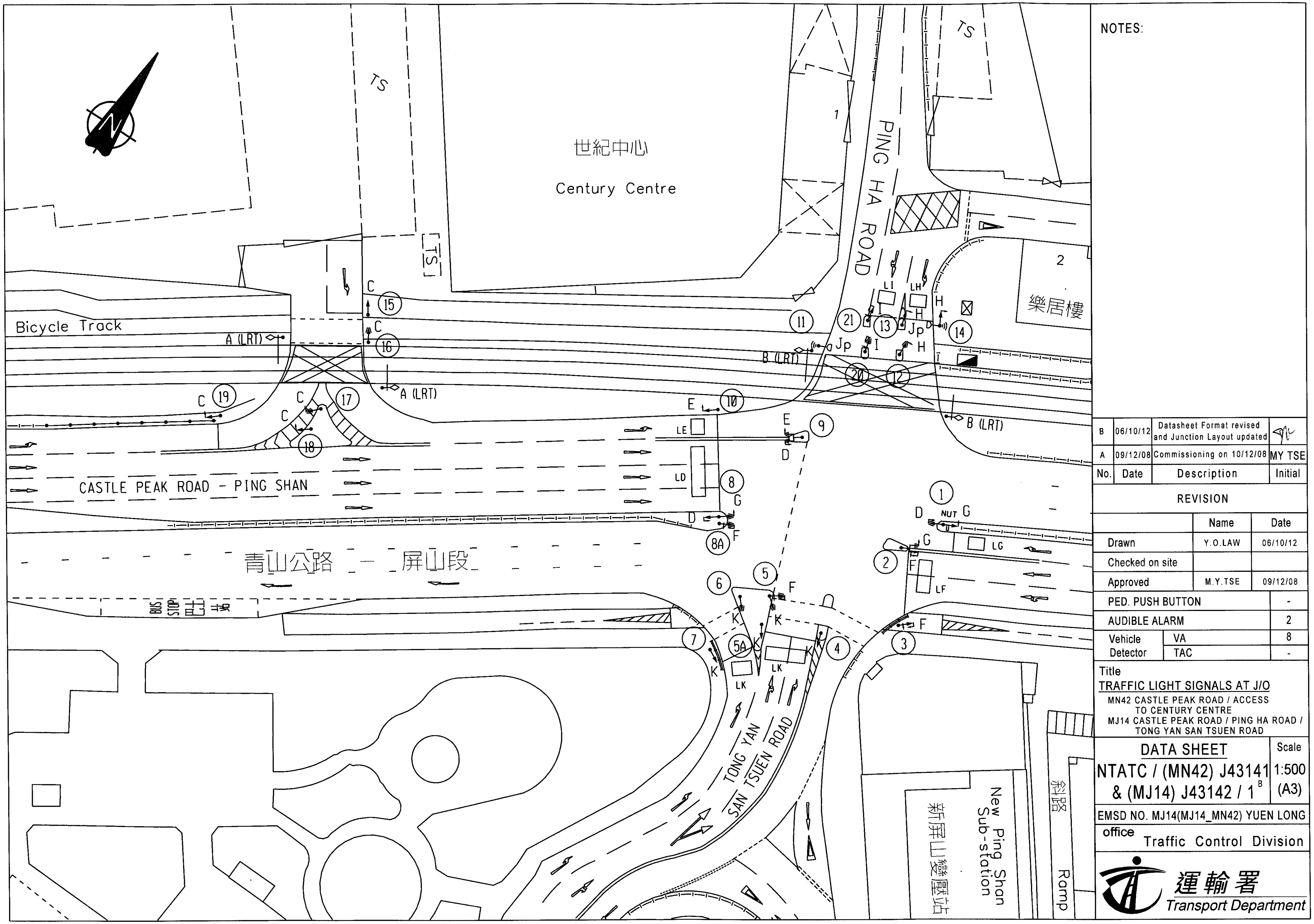
Appendix A

Existing Junction Layout Under Assessment

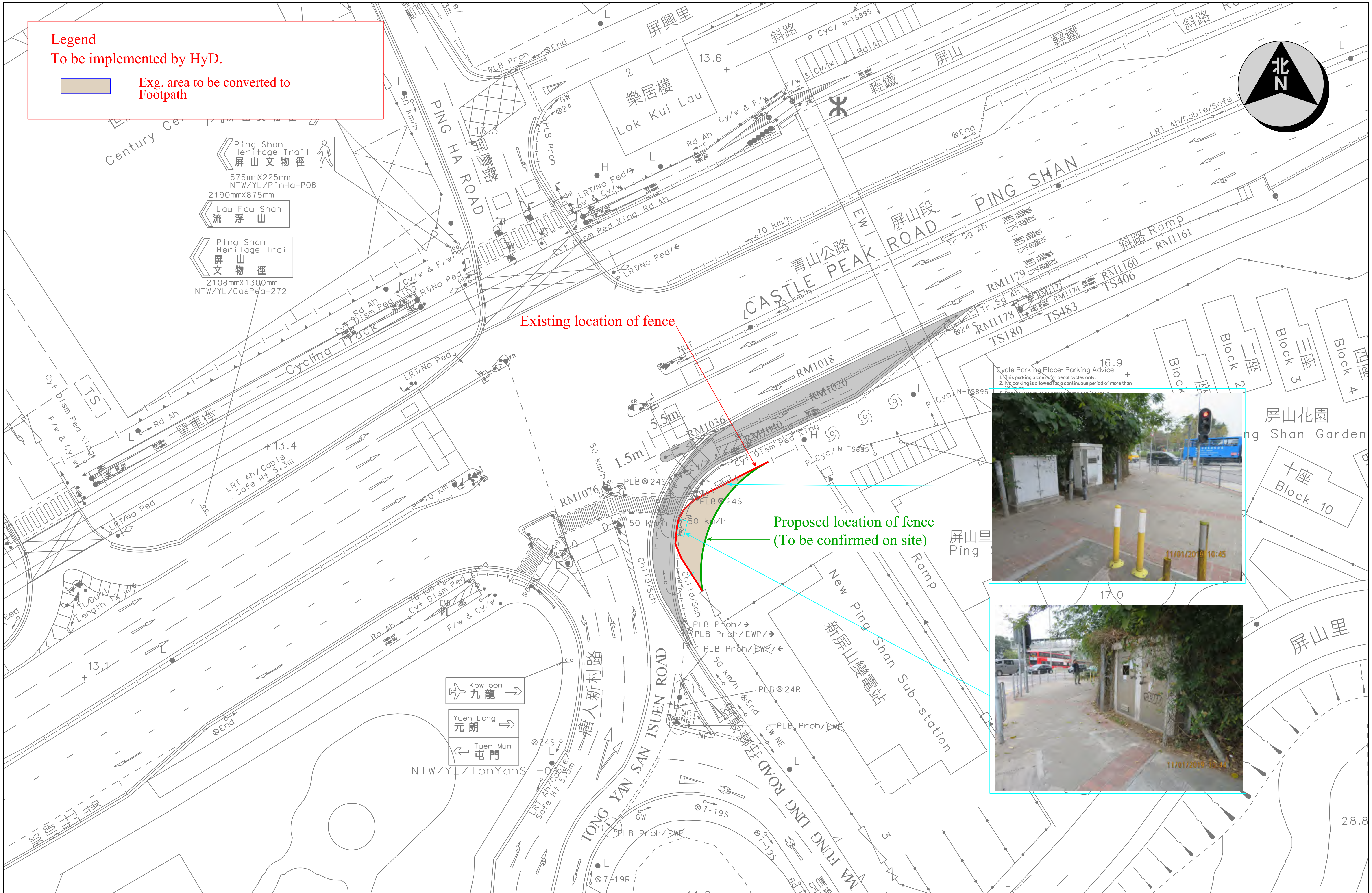
Junction Layout of J1 (Received from TD)



Junction Layout of J2 (Received from TD)



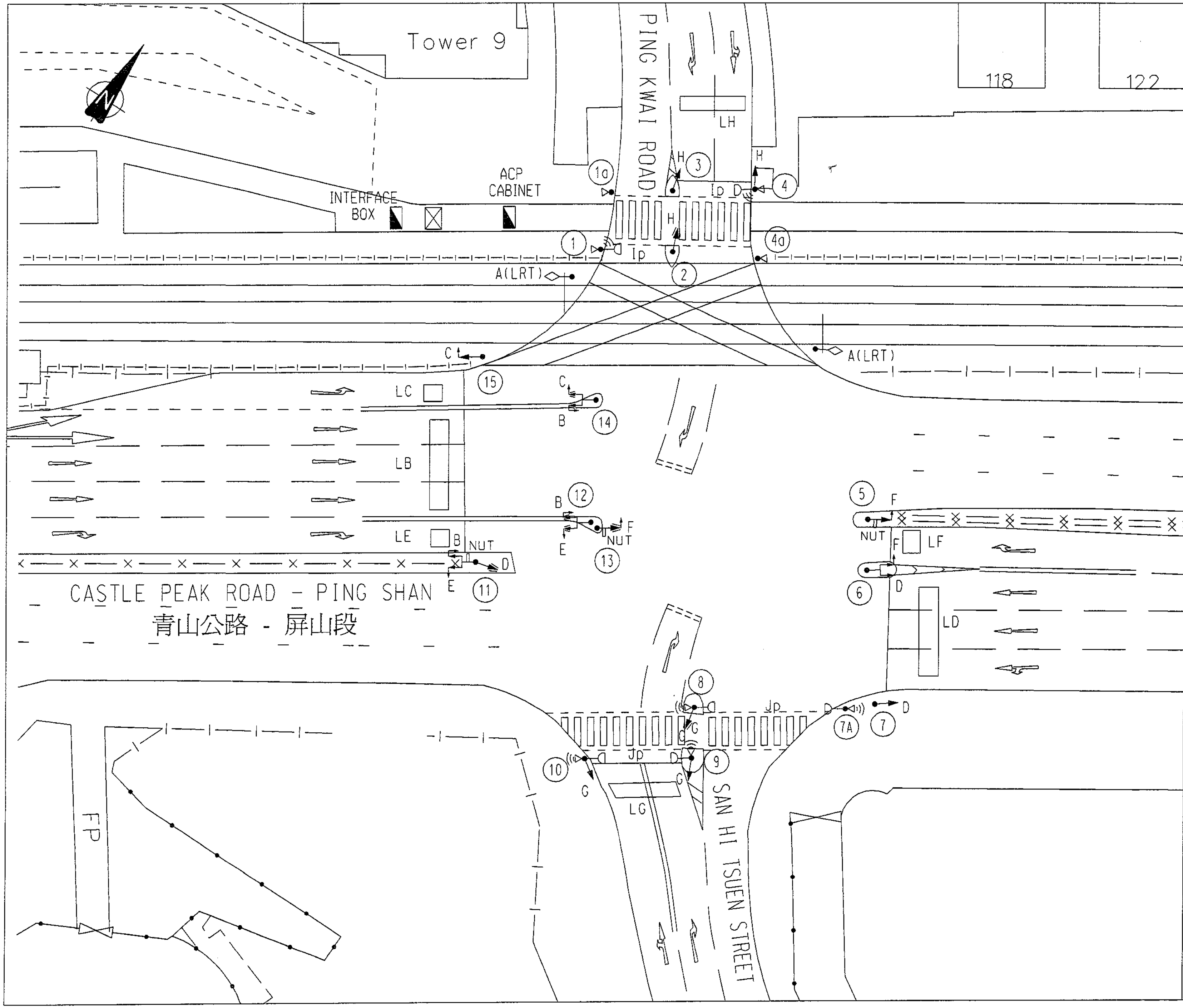
Junction Layout of J2 (Received from TD) - implement in Design Year 2025



運輸署 Transport Department	TRAFFIC ENGINEERING (NTW) DIV.	Location: Castle Peak Rd_Ping Shan JO Tong Yan San Tsuen Rd, Tin Shui Wai	WRF No.: WR/HY/TE/NW/20/00091
		Survey Sheet No.: W06P8D & 13B / Scale: 1:500 (A3) / Drawing No.: W190026.01C	Date: 14/10/2019

D:\dgn\W190026.01C\W190026.01C_Castle Peak Rd_Ping Shan JO Tong Yan San Tsuen Rd, Tin Shui Wai.dgn 14/1/2020 10:50:51 AM

Junction Layout of ~~J3~~ (Received from TD)



NOTES :

1. THIS DRG. SUPERSEDES NTATC / J43131 / 1B

no.	date	description	initial
C	08/07/18	Add ped crossing aspects Jp	
B	11/03/16	Add 2 nos. of push buttons and DataSheet Fomat revised	TD
A	09/04/08	Commissioning on 10/04/08	M.Y.TSE

REVISION

	name	date
drawn	H.K.CHAN	-
checked on site	M.K.CHEUNG	08/07/18
approved	M.Y.TSE	09/04/08

PED. PUSH BUTTON	8	
AUDIBLE ALARM	6	
VEHICLE DETECTOR	VA	7
	TAC	-

title

TRAFFIC LIGHT SIGNALS AT J/O
CASTLE PEAK ROAD /
PING KWAI ROAD /
SAN HI TSUEN STREET

DATA SHEET

NTATC / J43131 / 1 C

Scale 1:500

EMSD NO.T23 (T23) YUEN LONG

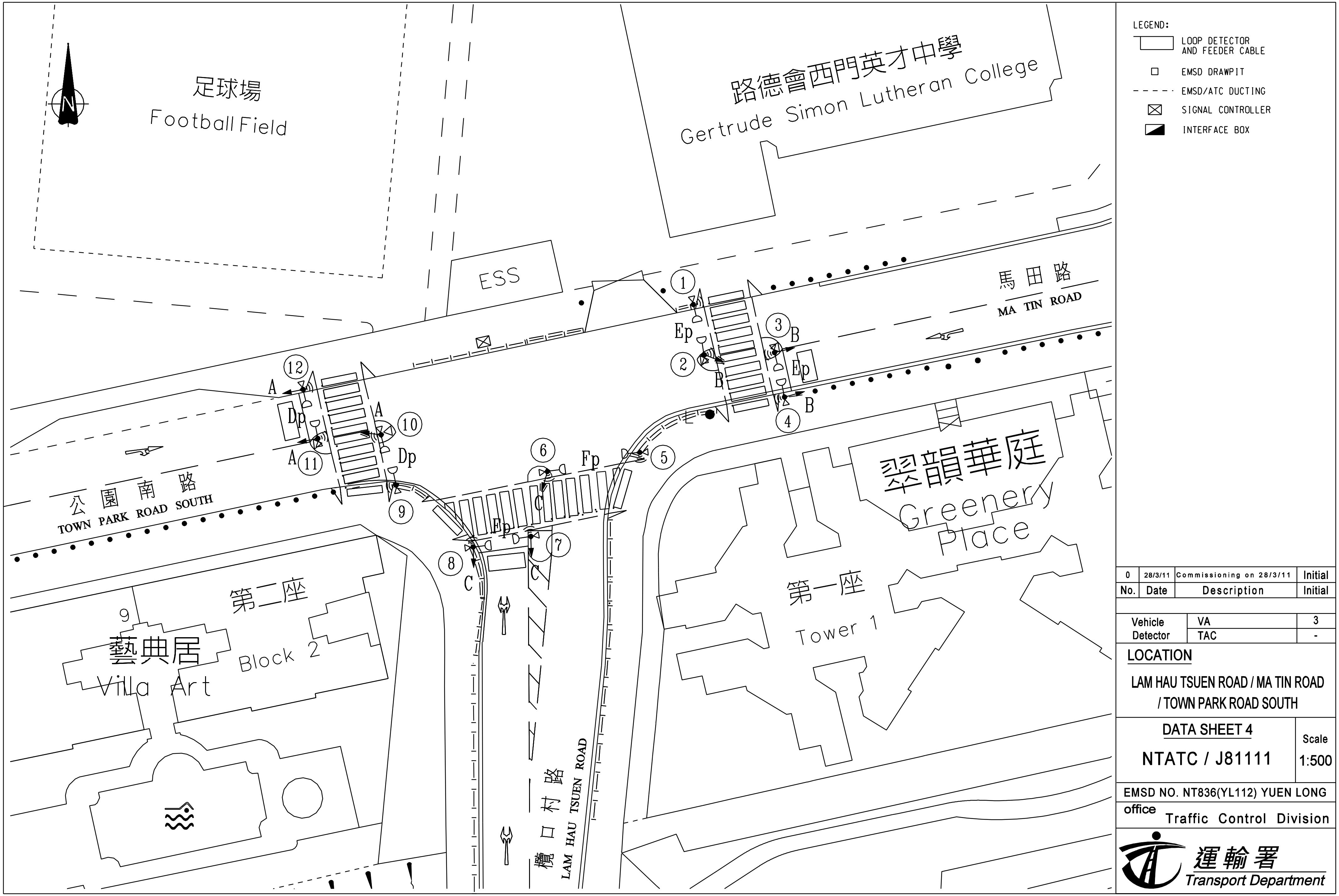
office

Traffic Control Division

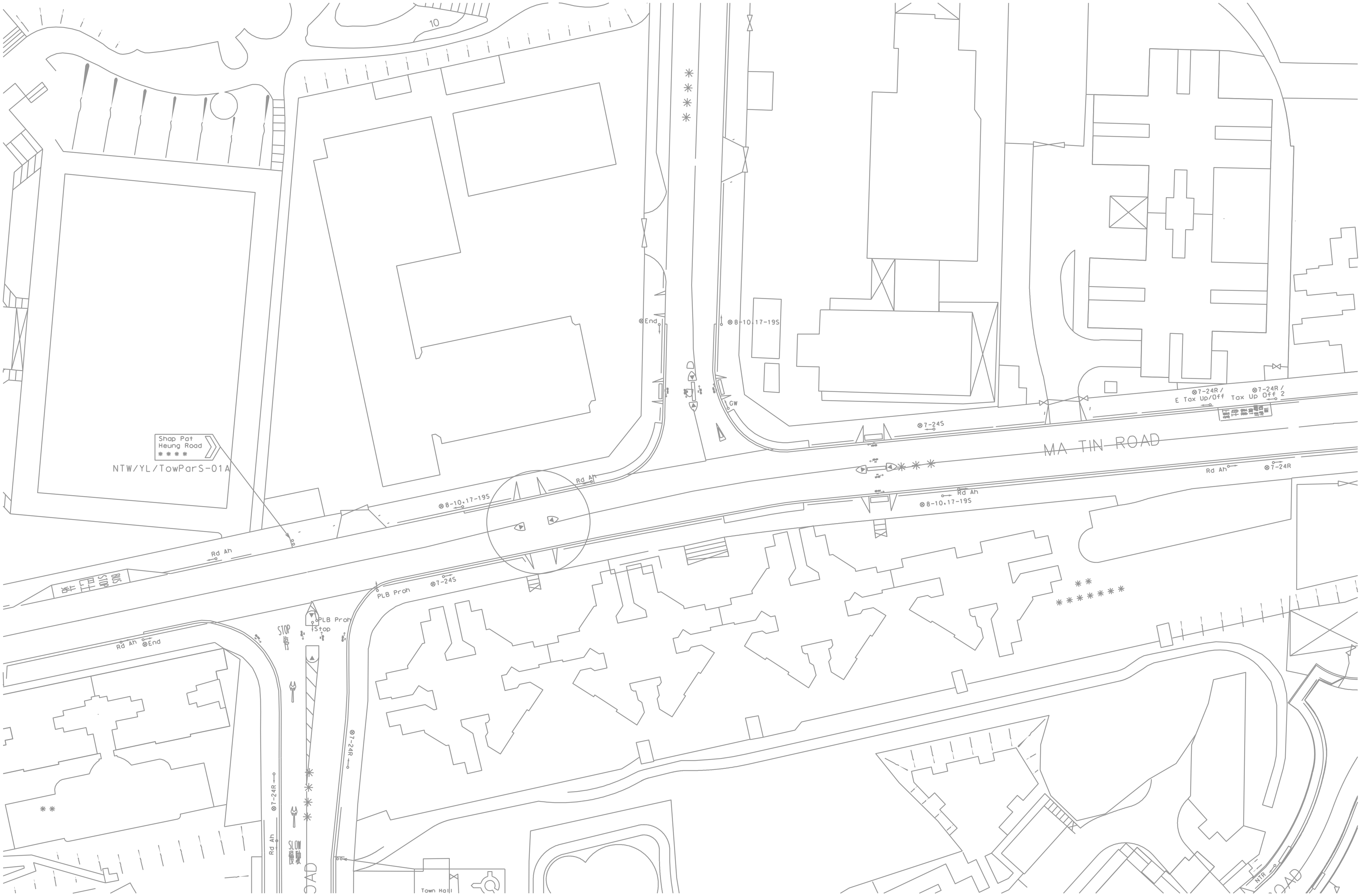
運輸署

Transport Department

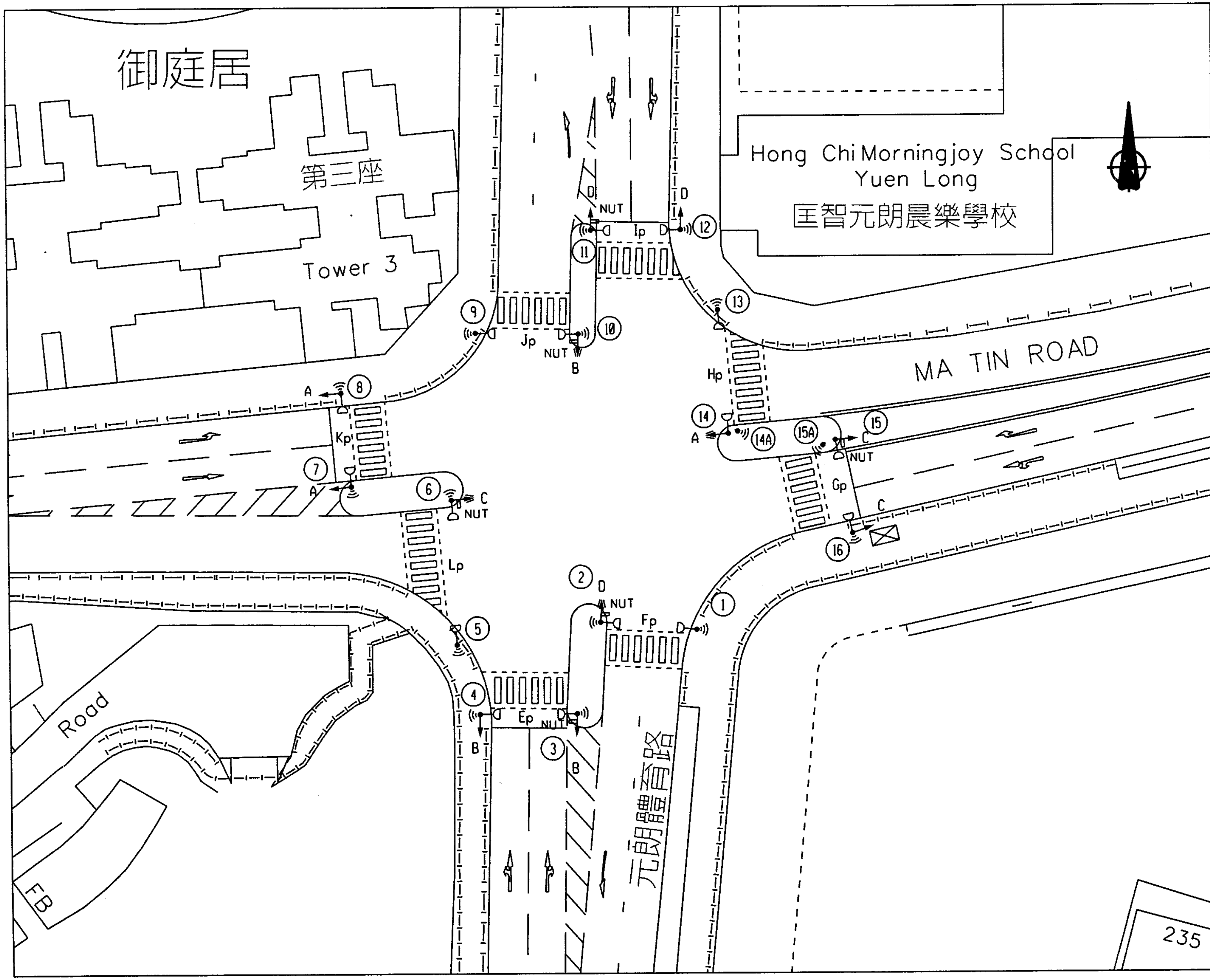
Junction Layout oF J4 (Received from TD)



Junction Layout for J5 (Priority)
(1:1000 in A4)



Junction Layout of J6 (Received from TD)



NOTES:

No.	Date	Description	Initial
A	29/11/13	Commissioning on 29/11/13	

REVISION

	Name	Date
Drawn	Y.O.LAW	29/11/13
Checked on site	Y.O.LAW	29/11/13
Approved		29/11/13

PED. PUSH BUTTON		-
AUDIBLE ALARM		16
Vehicle Detector	VA	-
	TAC	-

Title
TRAFFIC LIGHT SIGNALS AT J/O
MA TIN ROAD /
YUEN LONG TAI YUK ROAD

DATA SHEET
NTATC / J81121 / 1 A

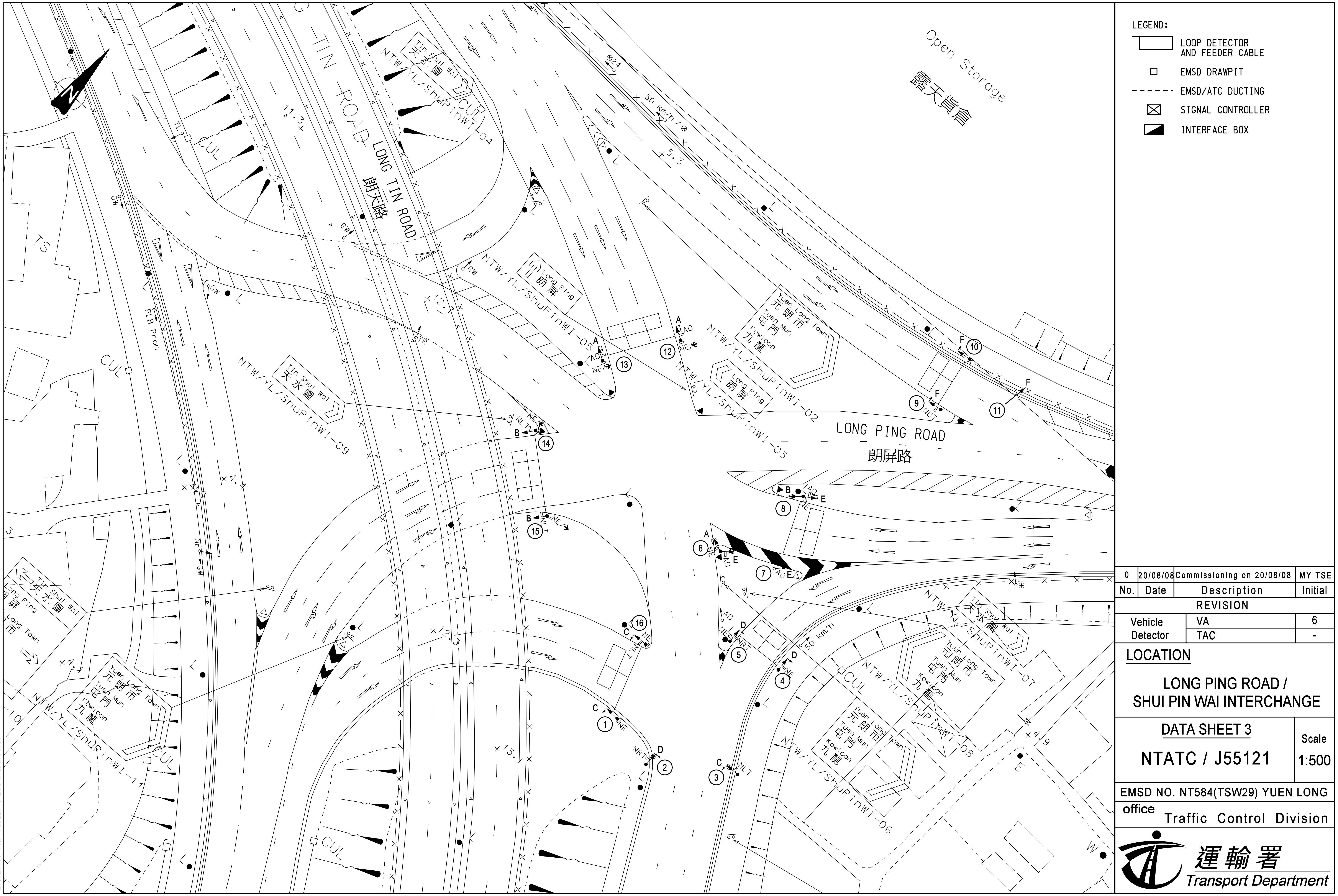
Scale 1:500

EMSD NO. NT781(YL101) YUEN LONG

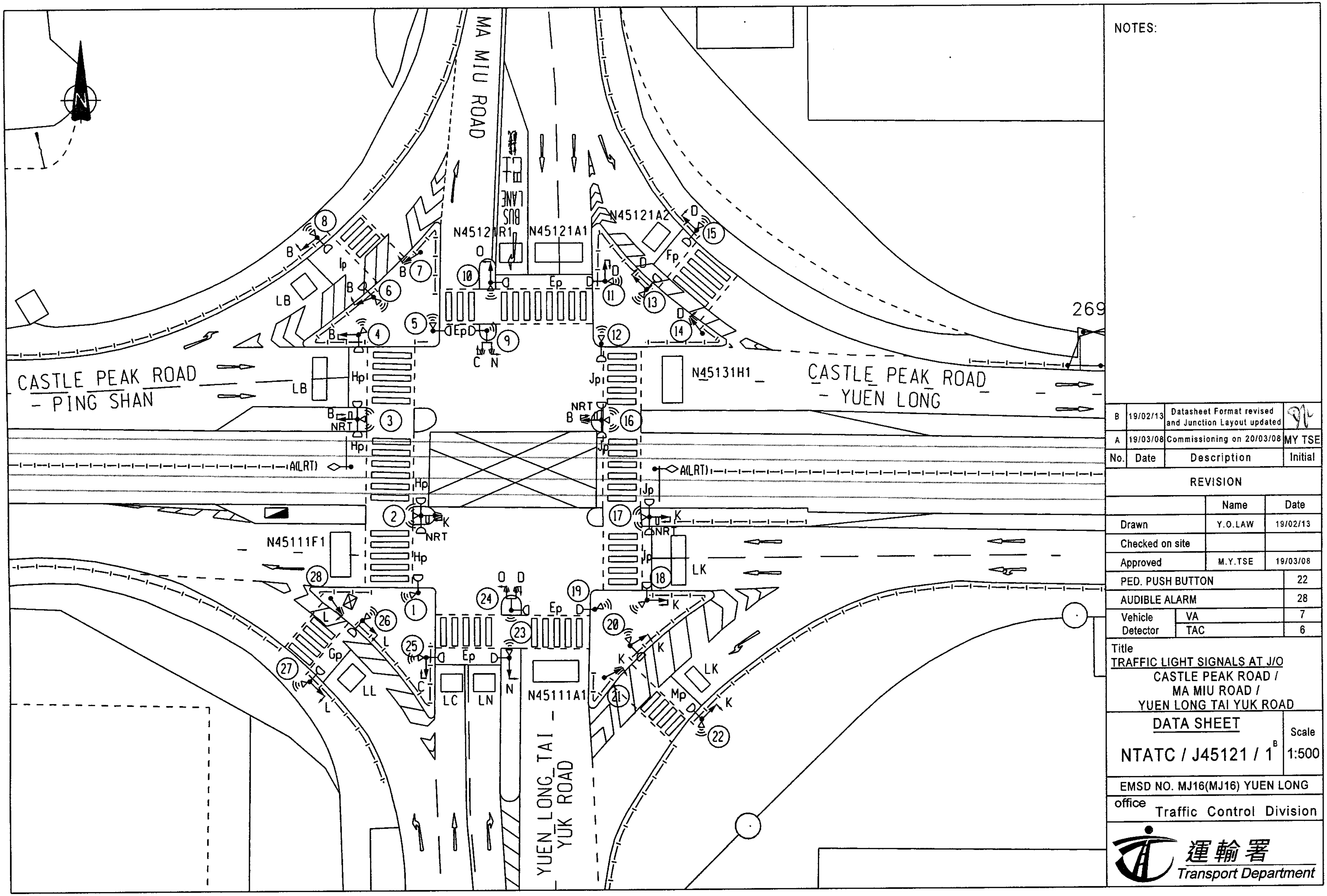
office Traffic Control Division

運輸署 Transport Department

Junction Layout of J7 (Received from TD)

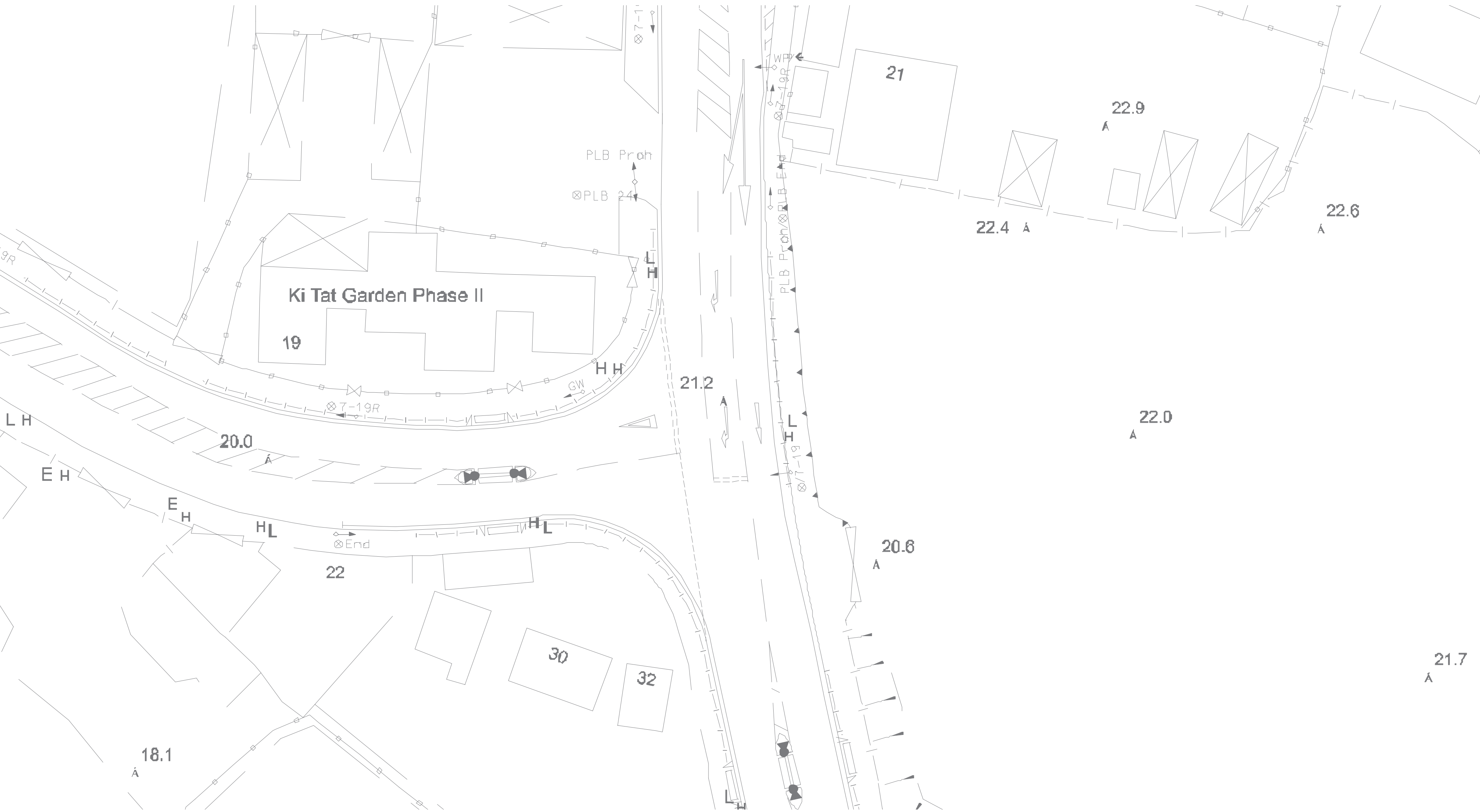


Junction Layout of J8 (Received from TD)

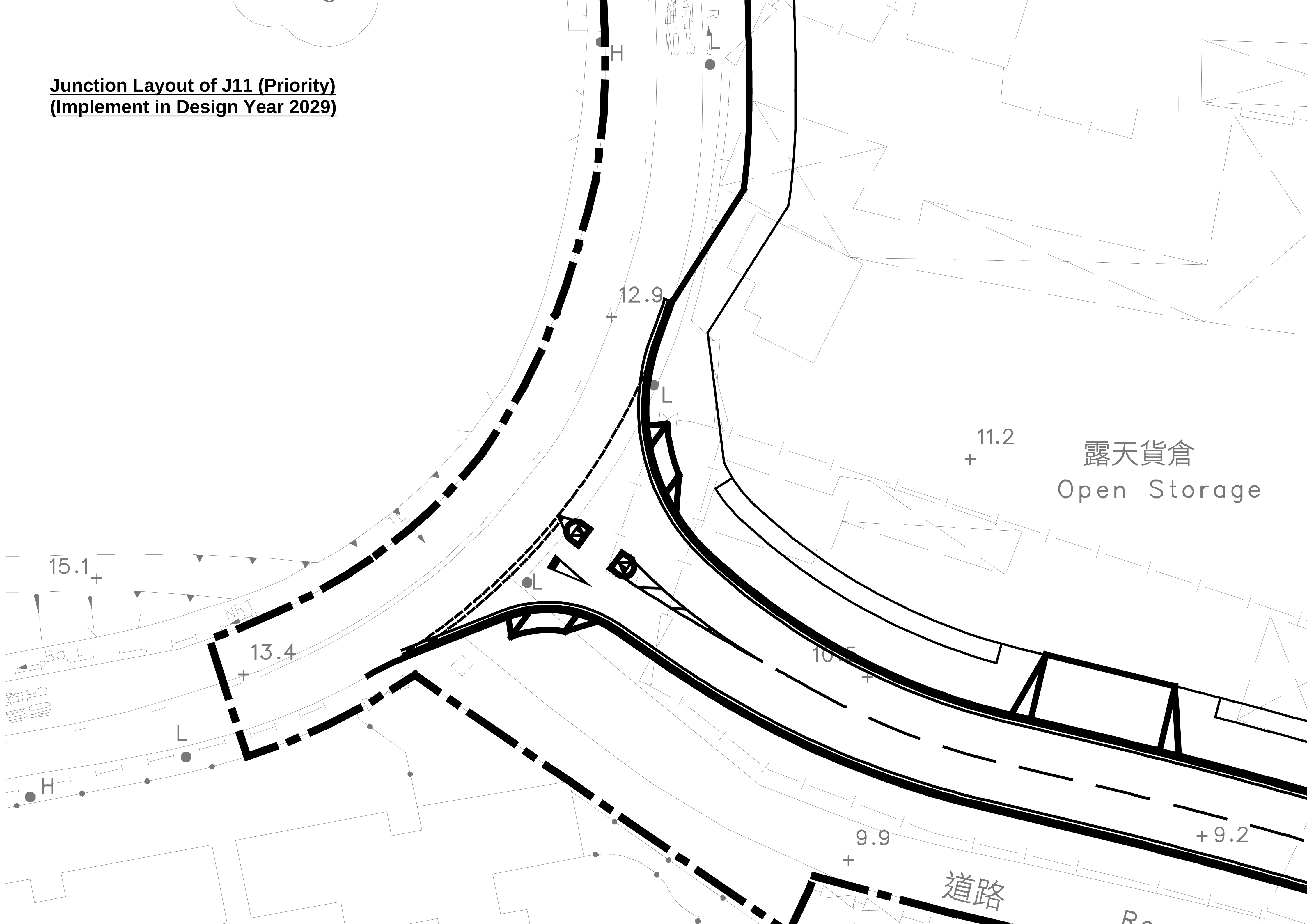


Junction Layout of J9 (Priority)
(1:1000 in A4)

Junction Layout of J10 (Priority)

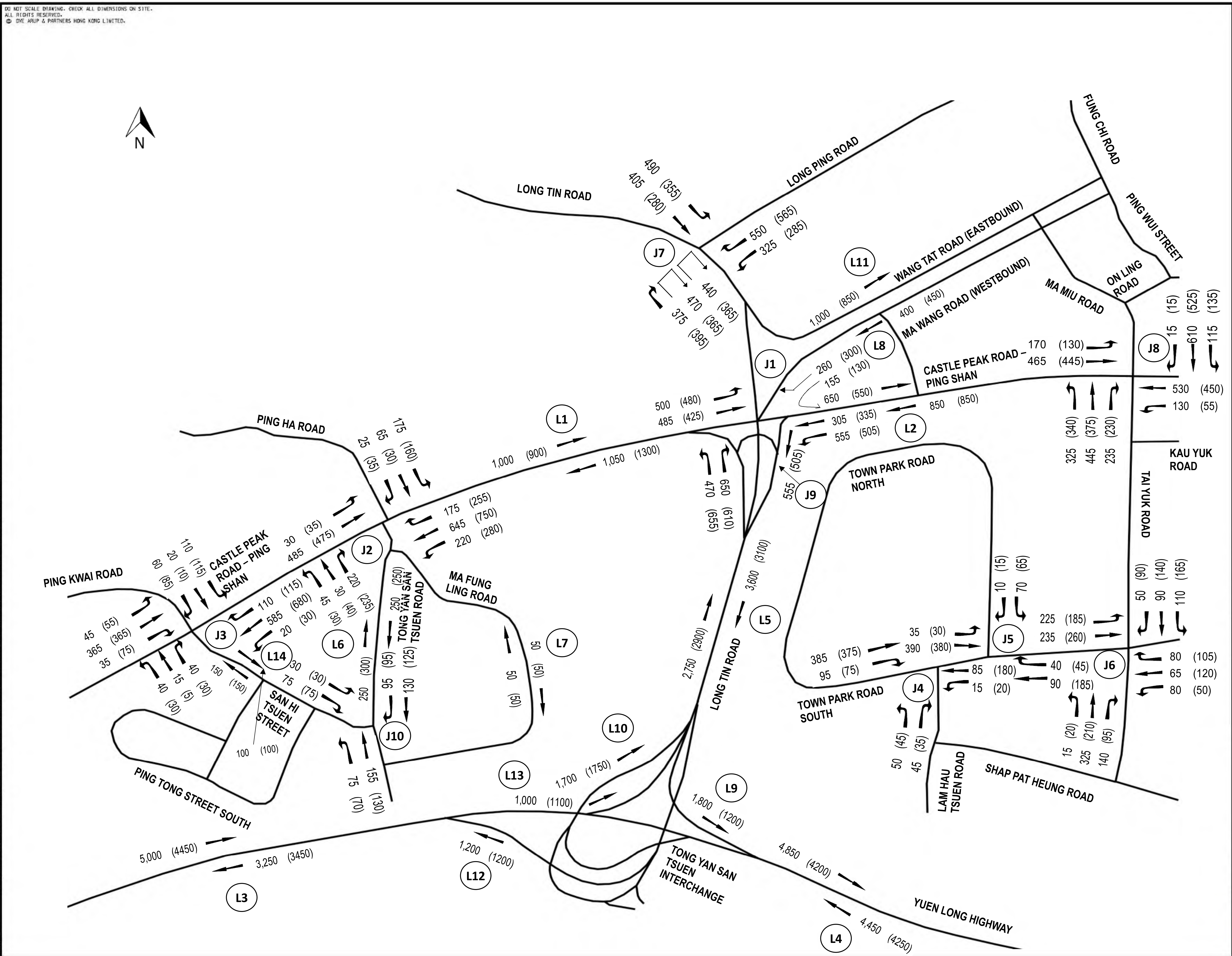


Junction Layout of J11 (Priority)
(Implement in Design Year 2029)



Appendix B

Flow Diagram



LEGEND

100 AM PEAK HOUR FLOW (PCU/HR)
(100) PM PEAK HOUR FLOW (PCU/HR)

Rev	Description	By	Date

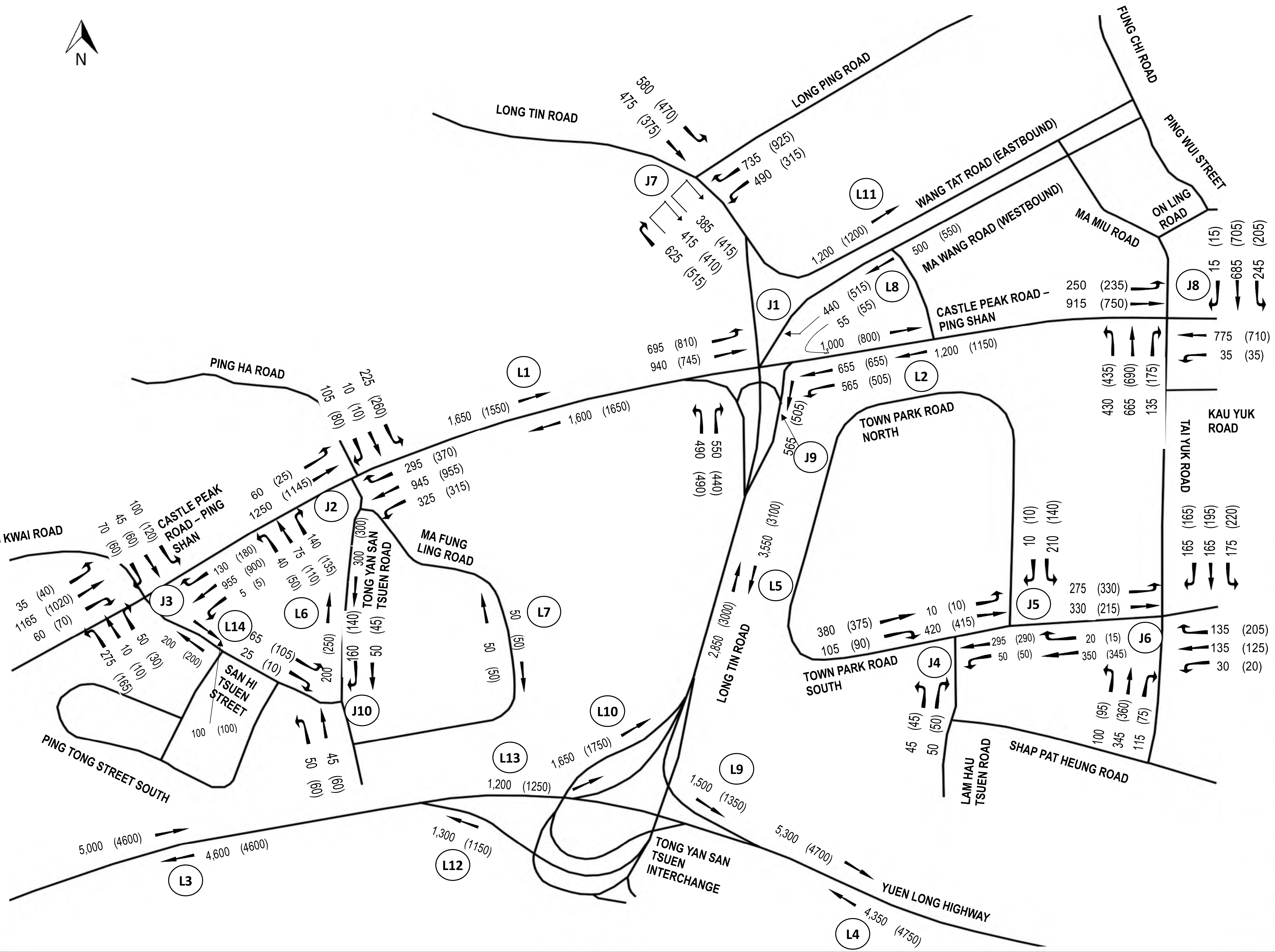
Consultant
ARUP

Project title
Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title
2018 PEAK HOUR TRAFFIC FLOW DIAGRAM

Drawing no. | Rev.
Drawn | Date | Checked | Approved
Scale | Status

土木工程拓展署
Civil Engineering and Development Department



LEGEND

100 AM PEAK HOUR FLOW (PCU/HR)
(100) PM PEAK HOUR FLOW (PCU/HR)

Rev	Description	By	Date

Consultant

ARUP

Project title

Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title

2025 REFERENCE CASE TRAFFIC FLOW DIAGRAM

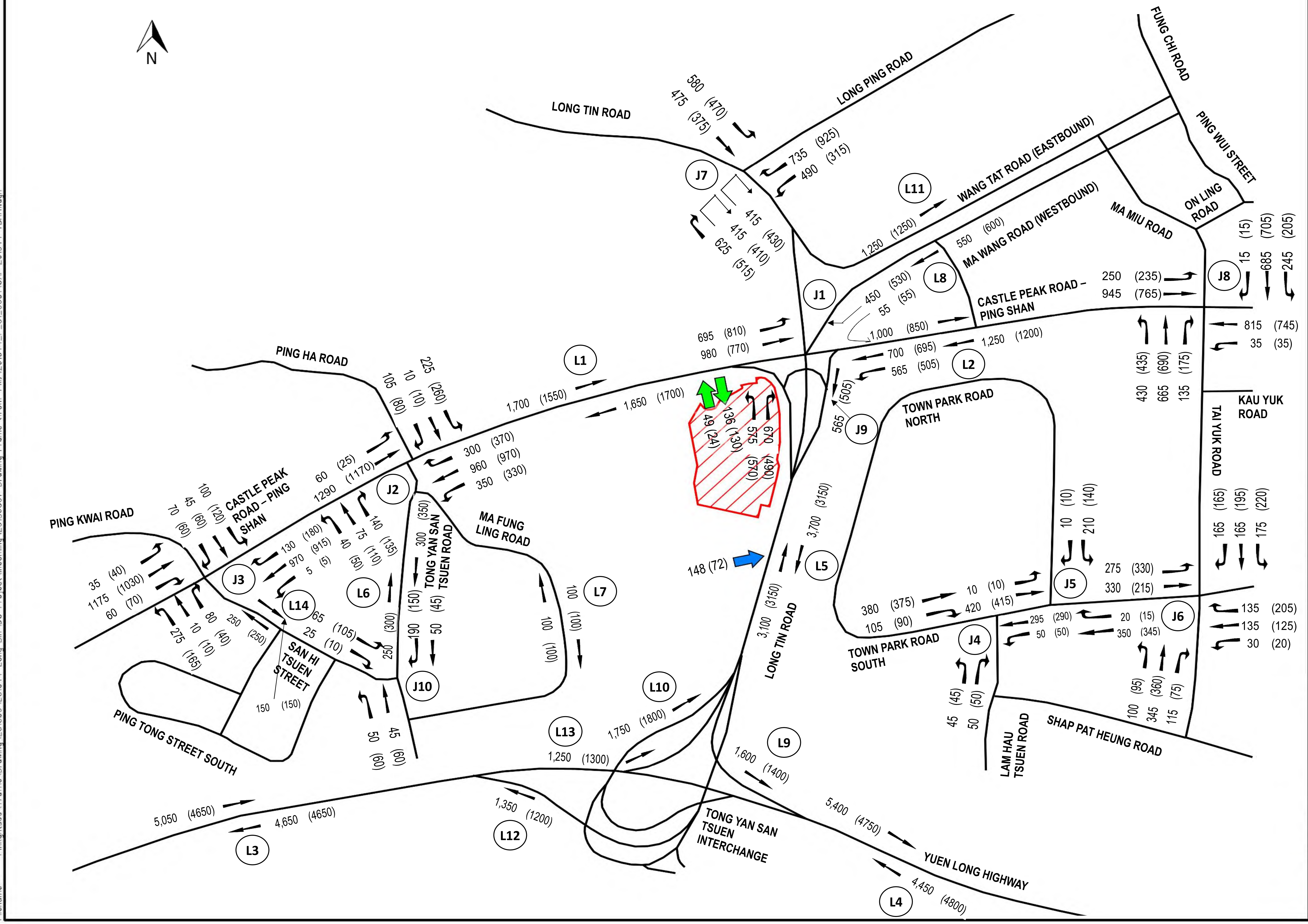
Drawing no. | Rev.

Drawn | Date | Checked | Approved
Scale | Status

土木工程拓展署
Civil Engineering and Development Department

LEGEND

100 AM PEAK HOUR FLOW (PCU/HR)
(100) PM PEAK HOUR FLOW (PCU/HR)



Consultant
ARUP

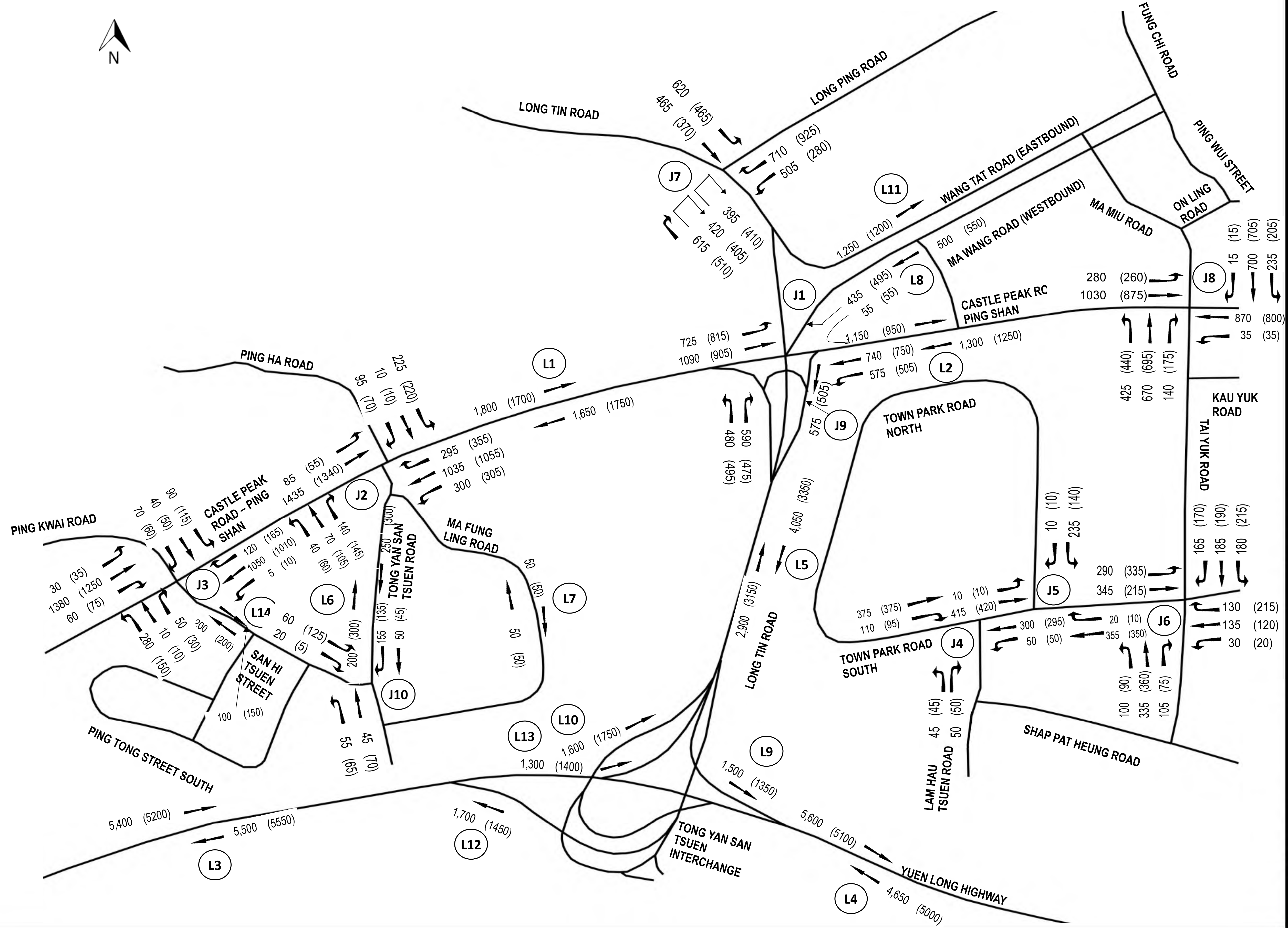
Project title
Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title
2025 DESIGN CASE
TRAFFIC FLOW DIAGRAM

Rev	Description	By	Date

Drawing no. Rev.
Drawn Date Checked Approved
Scale Status

CEDD 土木工程拓展署 Civil Engineering and Development Department



LEGEND

100 AM PEAK HOUR FLOW (PCU/HR)
(100) PM PEAK HOUR FLOW (PCU/HR)

Rev	Description	By	Date

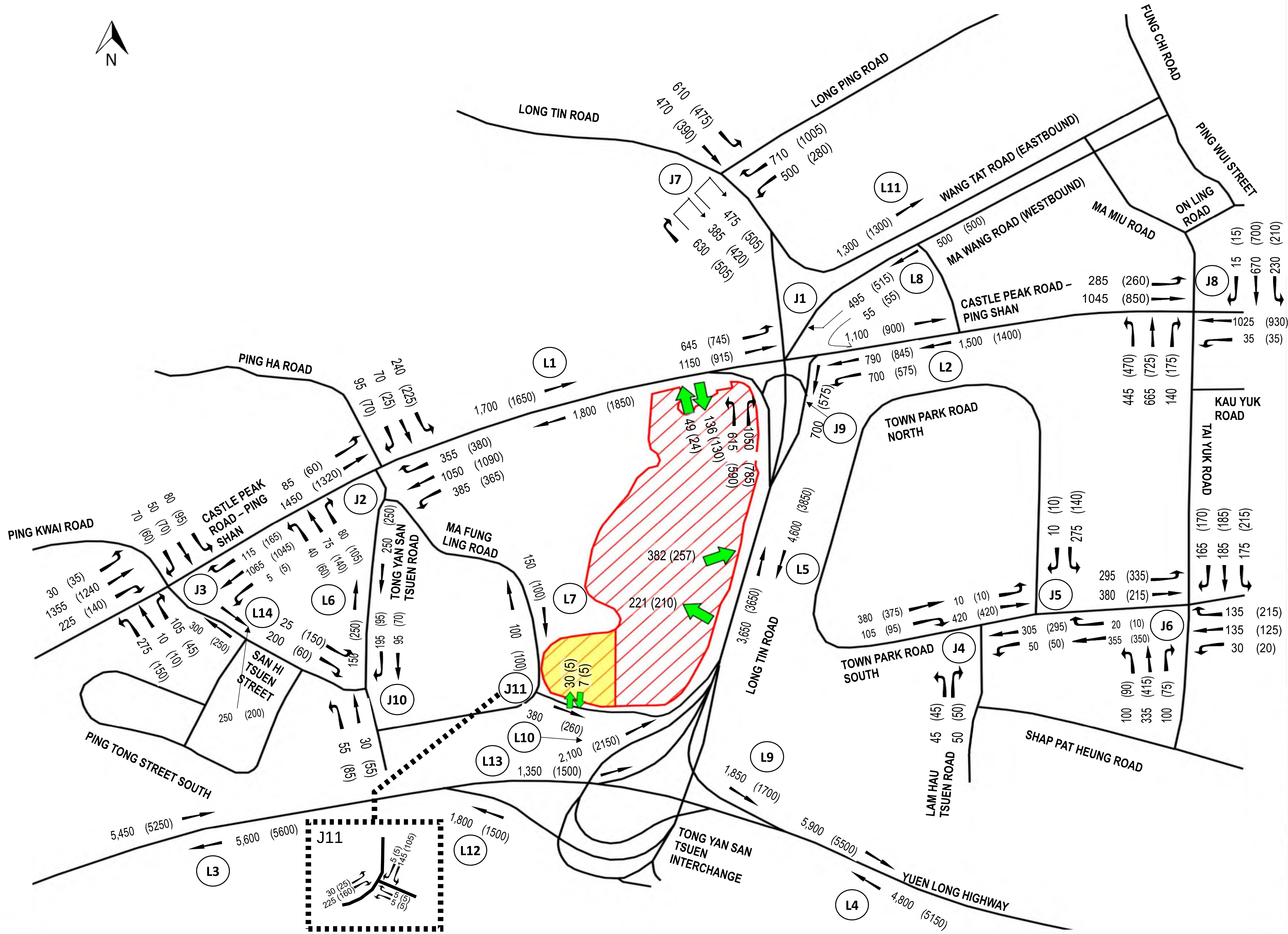
Consultant
ARUP

Project title
Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title
2029 REFERENCE CASE TRAFFIC FLOW DIAGRAM

Drawing no. | Rev.
Drawn | Date | Checked | Approved
Scale | Status

CEDD 土木工程拓展署 Civil Engineering and Development Department



LEGEND

100 AM PEAK HOUR FLOW (PCU/HR)
(100) PM PEAK HOUR FLOW (PCU/HR)

Rev	Description	By	Date

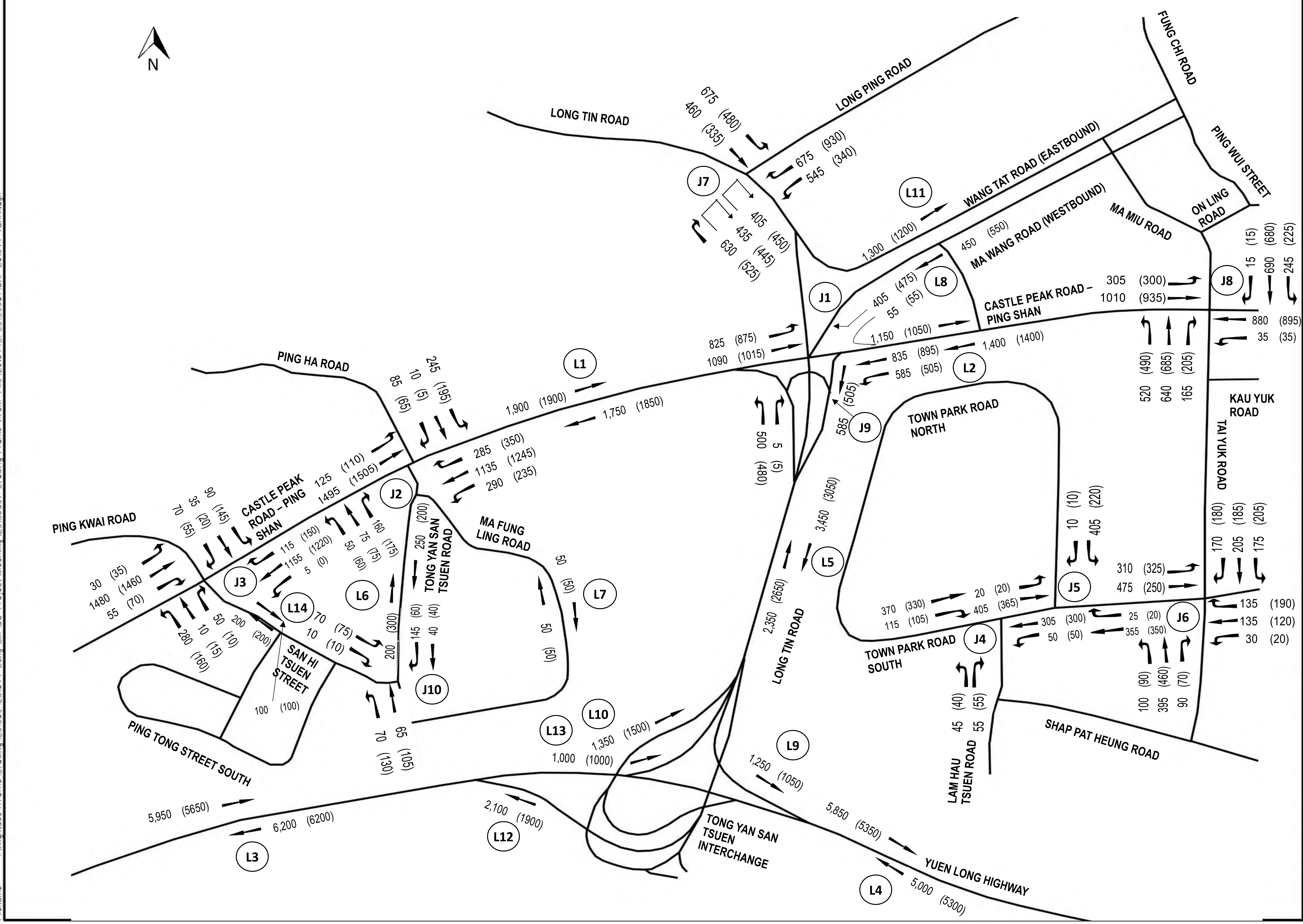
Consultant: ARUP

Project title: Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title: 2029 DESIGN CASE TRAFFIC FLOW DIAGRAM

Drawing no. | Rev.
Drawn | Date | Checked | Approved
Scale | Status

土木工程拓展署
CEDD Civil Engineering and Development Department



LEGEND

100 AM PEAK HOUR FLOW (PCU/HR)
(100) PM PEAK HOUR FLOW (PCU/HR)

Rev	Description	By	Date

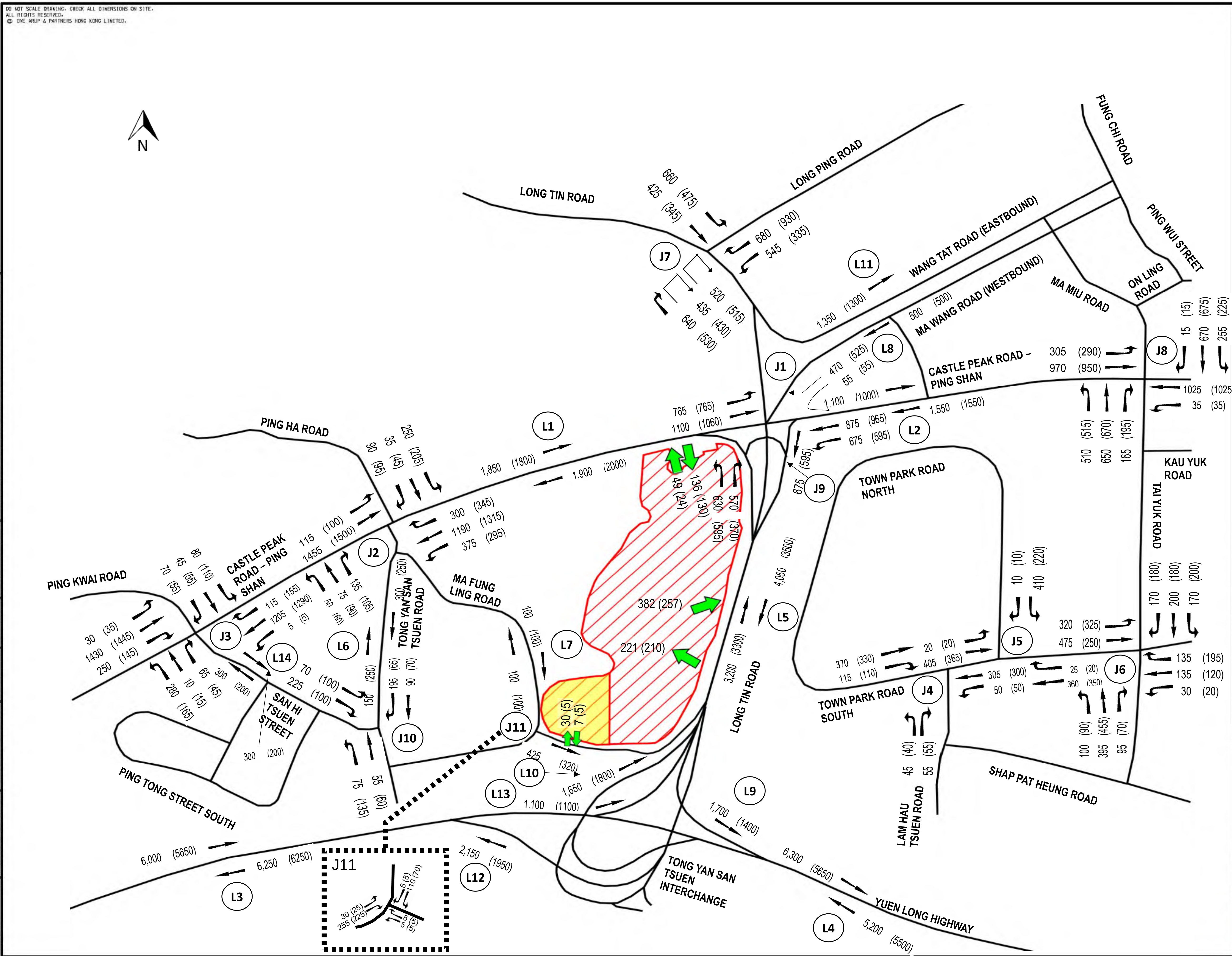
Consultant
ARUP

Project title
Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title
2034 REFERENCE CASE
TRAFFIC FLOW DIAGRAM

Drawing no. | Rev.
Drawn | Date | Checked | Approved
Scale | Status

土木工程拓展署
Civil Engineering and Development Department



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Rev	Description	By	Date

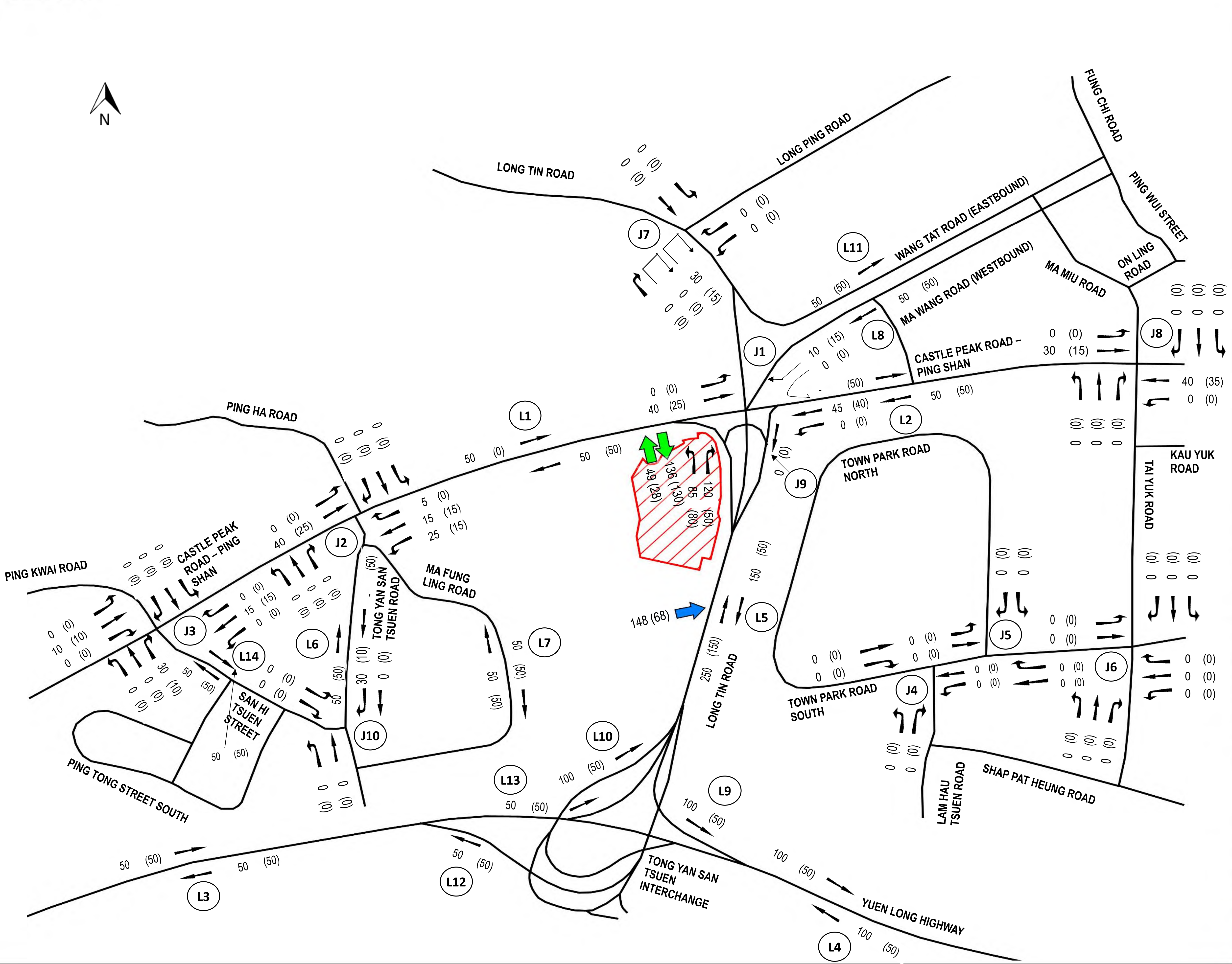
Consultant
ARUP

Project title
Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title
2034 DESIGN CASE
TRAFFIC FLOW DIAGRAM

Drawing no. | Rev.
Drawn | Date | Checked | Approved
Scale | Status

土木工程拓展署
Civil Engineering and Development Department



LEGEND

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Rev	Description	By	Date

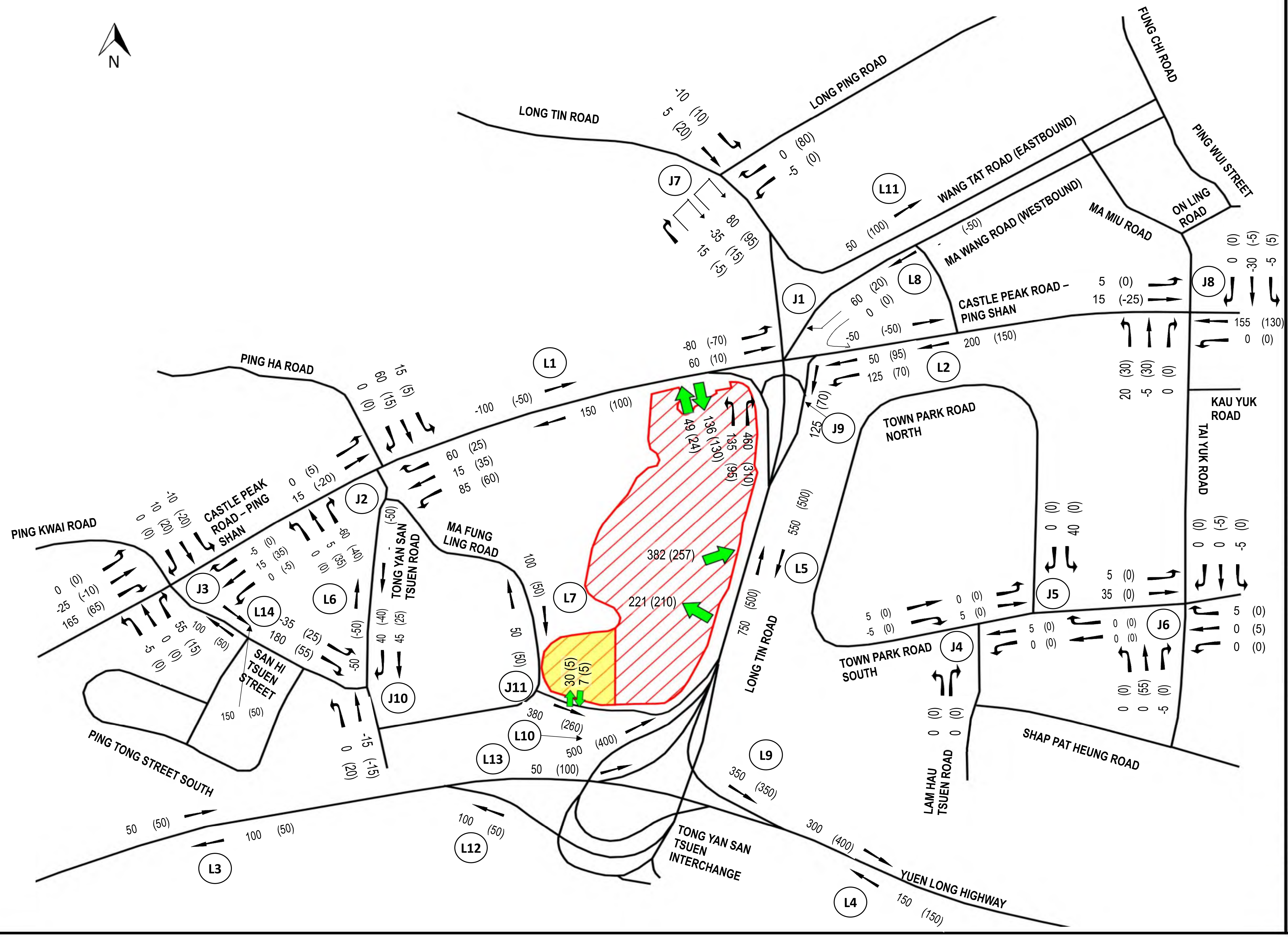
Consultant
ARUP

Project title
Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title
2025 TRAFFIC FLOW DIAGRAM
(Design case - Reference Case)

Drawing no.			Rev.
Drawn	Date	Checked	Approved
Scale		Status	

CEDD 土木工程拓展署 Civil Engineering and Development Department



LEGEND

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Rev	Description	By	Date

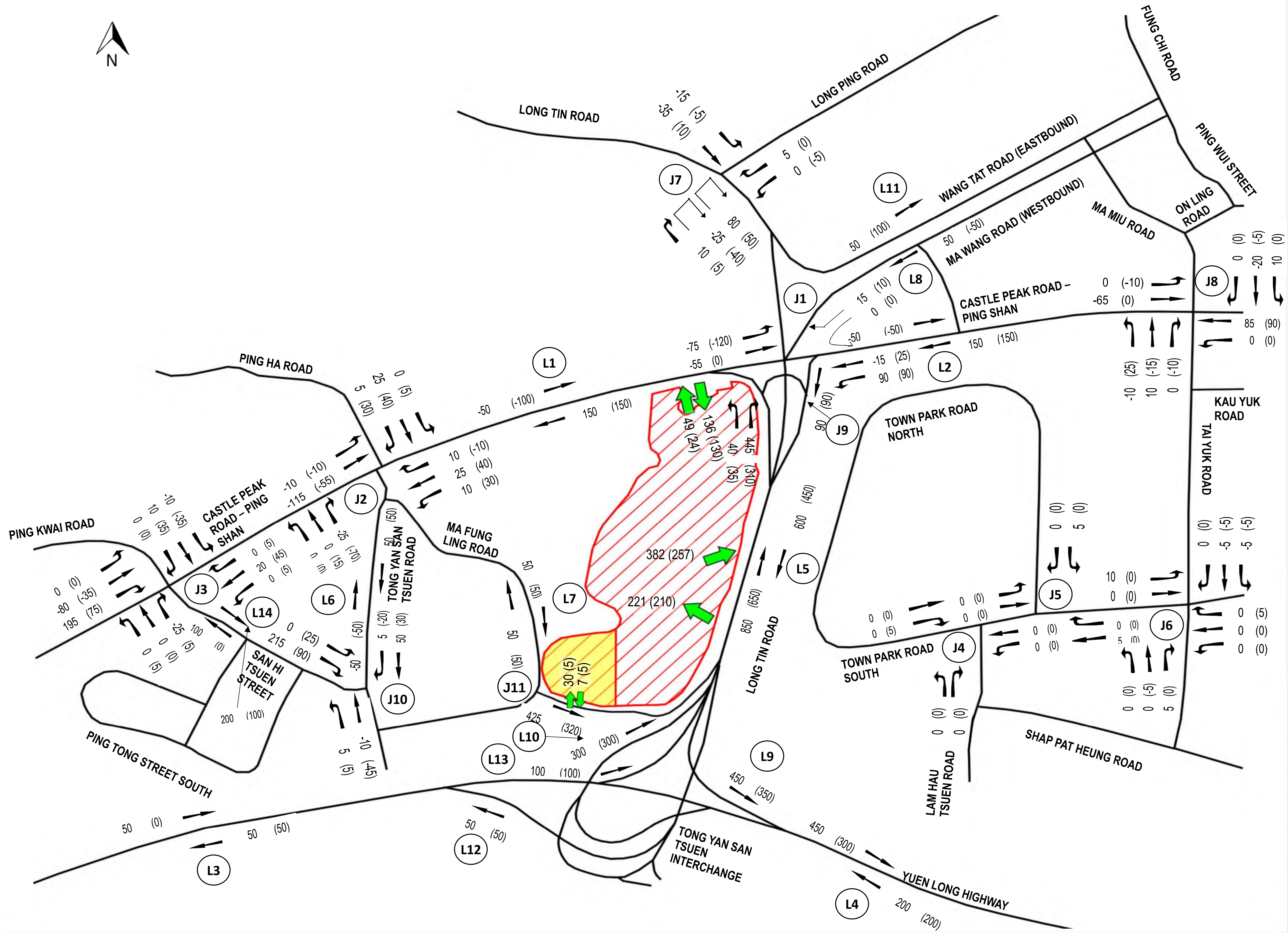
Consultant: **ARUP**

Project title:
Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title:
2029 TRAFFIC FLOW DIAGRAM
(Design case - Reference Case)

Drawing no.		Rev.	
Drawn	Date	Checked	Approved
Scale		Status	

土木工程拓展署
Civil Engineering and Development Department



LEGEND

100 AM PEAK HOUR FLOW (PCU/HR)
(100) PM PEAK HOUR FLOW (PCU/HR)

Rev	Description	By	Date

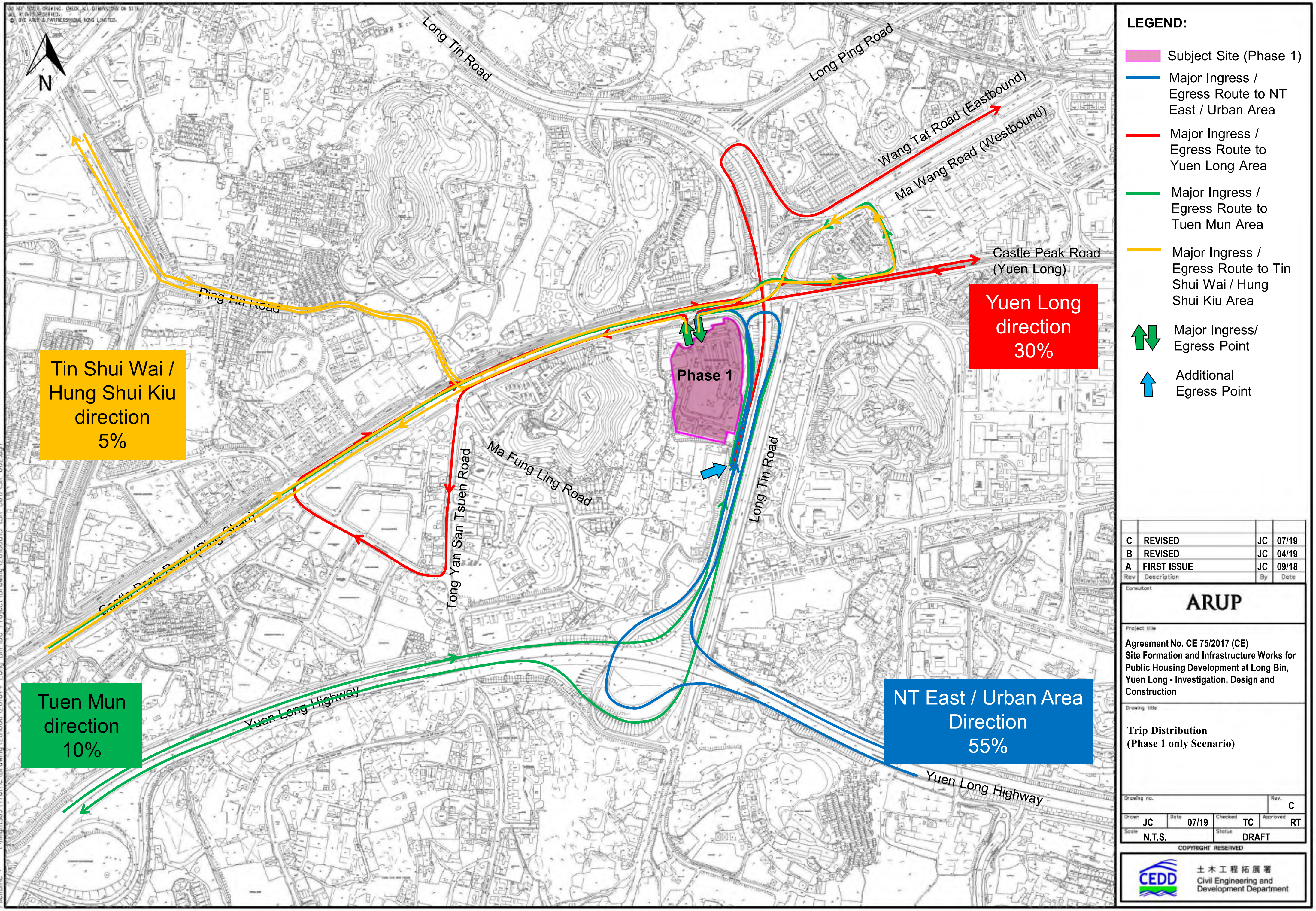
Consultant
ARUP

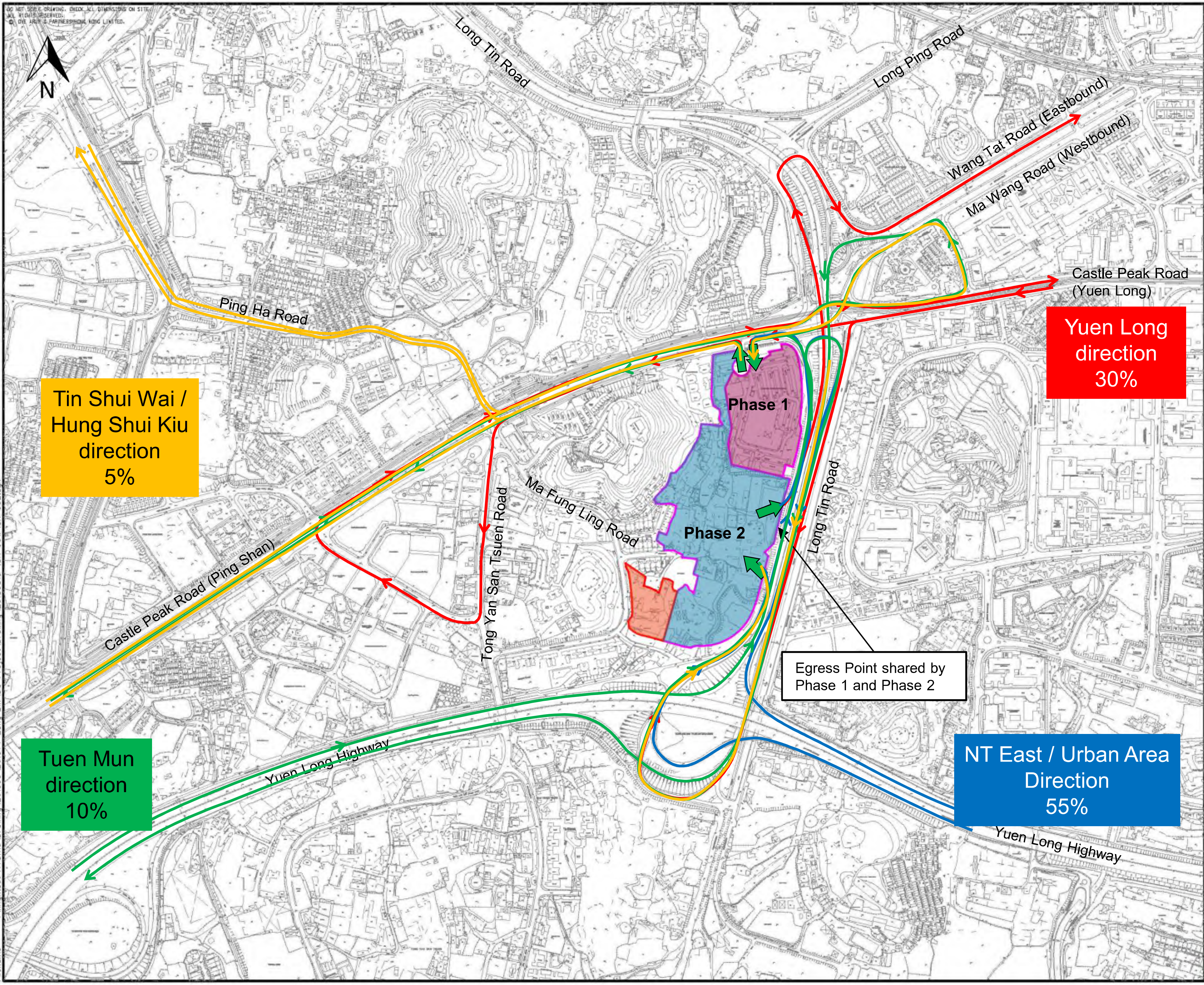
Project title
Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title
2034 TRAFFIC FLOW DIAGRAM
(Design case - Reference Case)

Drawing no.			Rev.
Drawn	Date	Checked	Approved
Scale		Status	

CEDD 土木工程拓展署 Civil Engineering and Development Department


N
Long Tin Road
Long Ping Road
Wang Tat Road (Eastbound)
Ma Wang Road (Westbound)
Castle Peak Road (Yuen Long)
Ping Ha Road
Castle Peak Road (Ping Shan)
Tong Yan San Tsuen Road
Ma Fung Ling Road
Long Tin Road
Yuen Long Highway
Yuen Long Highway
Phase 1
Tin Shui Wai / Hung Shui Kiu direction 5%
Yuen Long direction 30%
Tuen Mun direction 10%
NT East / Urban Area Direction 55%
LEGEND:
Subject Site (Phase 1)
Major Ingress / Egress Route to NT East / Urban Area
Major Ingress / Egress Route to Yuen Long Area
Major Ingress / Egress Route to Tuen Mun Area
Major Ingress / Egress Route to Tin Shui Wai / Hung Shui Kiu Area
Major Ingress/ Egress Point
Additional Egress Point
C REVISED JC 07/19
B REVISED JC 04/19
A FIRST ISSUE JC 09/18
Rev Description By Date
Consultant
ARUP
Project title
Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction
Drawing title
Trip Distribution
(Phase 1 only Scenario)
Drawing no. Rev. C
Drawn JC Date 07/19 Checked TC Approved RT
Scale N.T.S. Status DRAFT
COPYRIGHT RESERVED
CEDD
土木工程拓展署
Civil Engineering and Development Department



LEGEND:

- Subject Site (Phase 1)
- Subject Site (Phase 2)
- Subject Site (School)
- Major Ingress / Egress Route to NT East / Urban Area
- Major Ingress / Egress Route to Yuen Long Area
- Major Ingress / Egress Route to Tuen Mun Area
- Major Ingress / Egress Route to Tin Shui Wai / Hung Shui Kiu Area
- Major Ingress/ Egress Point

Rev	Description	By	Date
C	REVISED	JC	07/19
B	REVISED	JC	04/19
A	FIRST ISSUE	JC	09/18

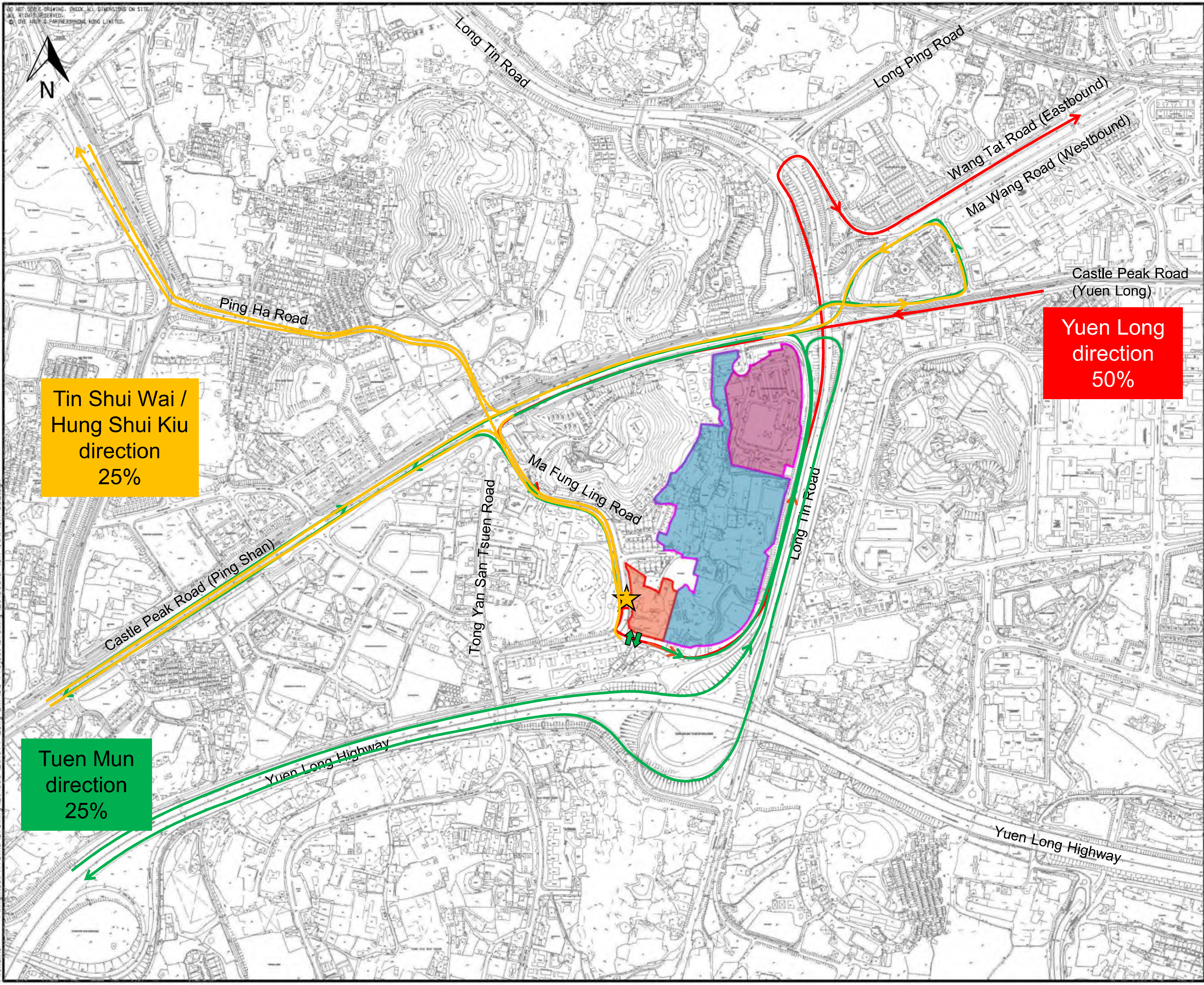
Consultant
ARUP

Project title
**Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction**

Drawing title
**Trip Distribution
(Both Phases Scenario)**

Drawing no.		Rev. C	
Drawn JC	Date 07/19	Checked TC	Approved RT
Scale N.T.S.		Status DRAFT	

CEDD 土木工程拓展署 Civil Engineering and Development Department



LEGEND:

- Subject Site (Phase 1)
- Subject Site (Phase 2)
- Subject Site (School)
- Major Ingress / Egress Route to Yuen Long Area
- Major Ingress / Egress Route to Tuen Mun Area
- Major Ingress / Egress Route to Tin Shui Wai / Hung Shui Kiu Area
- Major Ingress/ Egress Point
- Pick-up/ Drop-off Bay for School Bus

Rev	Description	By	Date
C	REVISED	JC	07/19
B	REVISED	JC	04/19
A	FIRST ISSUE	JC	09/18

Consultant
ARUP

Project title
Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title
Trip Distribution
(Primary School Scenario)

Drawing no.			Rev. C
Drawn JC	Date 07/19	Checked TC	Approved RT
Scale N.T.S.		Status DRAFT	

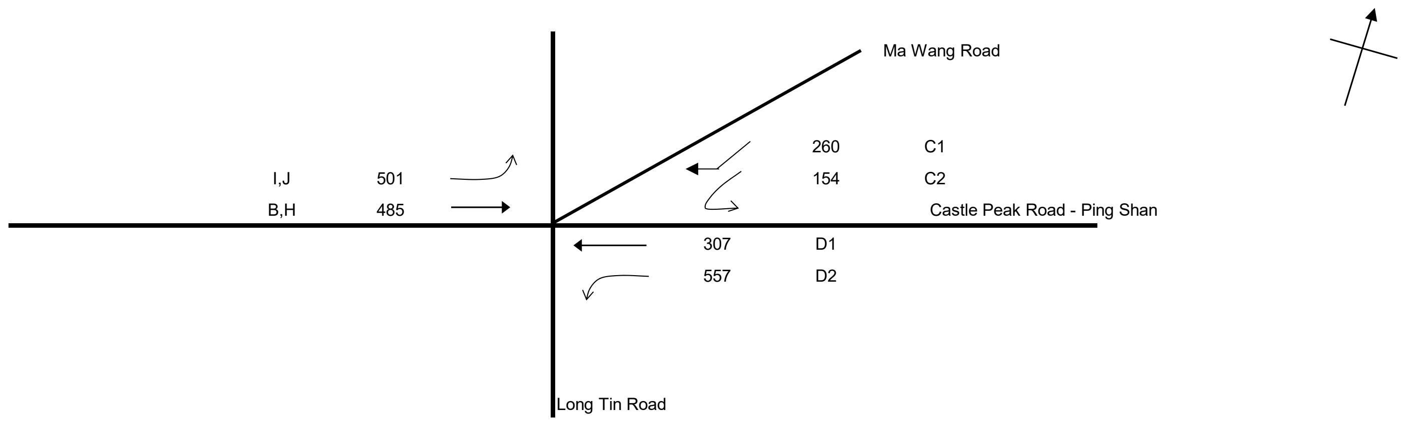
CEDD 土木工程拓展署 Civil Engineering and Development Department

Printed by : wing-tung.lam 8/15/2018
Filename : \\hkgnts69\Traffic\Drawing\261000\261044 Long Bin IDC Project\Drawing\20180815 (SK 001)\SK 002.dgn

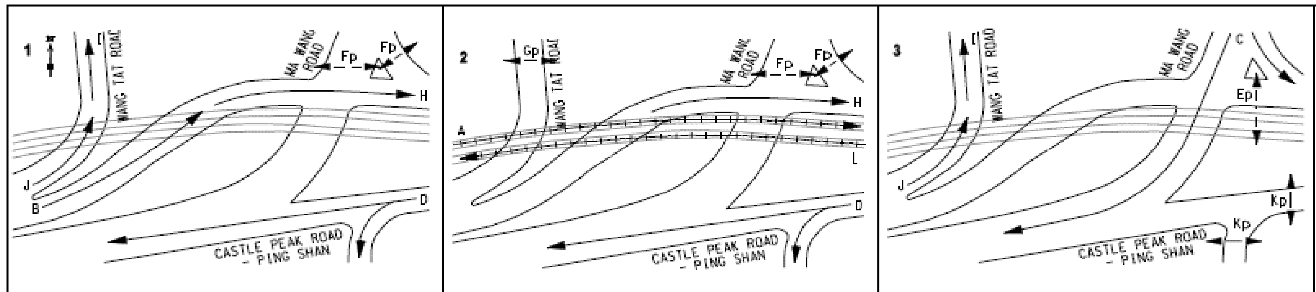
Appendix C

Junction Performance Calculation

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J1 Castle Peak Road - Ping Shan/ Ma Wang Road	Year 2018 Observed Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	3	
No. of stage using for calculation		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.421	
Loss time		L =	18	sec
Total Flow		=	2247	pcu
Co	= (1.5*L+5)/(1-Y)	=	55.2	sec
Cm	= L/(1-Y)	=	31.1	sec
Yult		=	0.765	
R.C.ult	= (Yult-Y)/Y*100%	=	81.8	%
Cp	= 0.9*L/(0.9-Y)	=	33.8	sec
Ymax	= 1-L/C	=	0.850	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	81.8	% (Optimized)



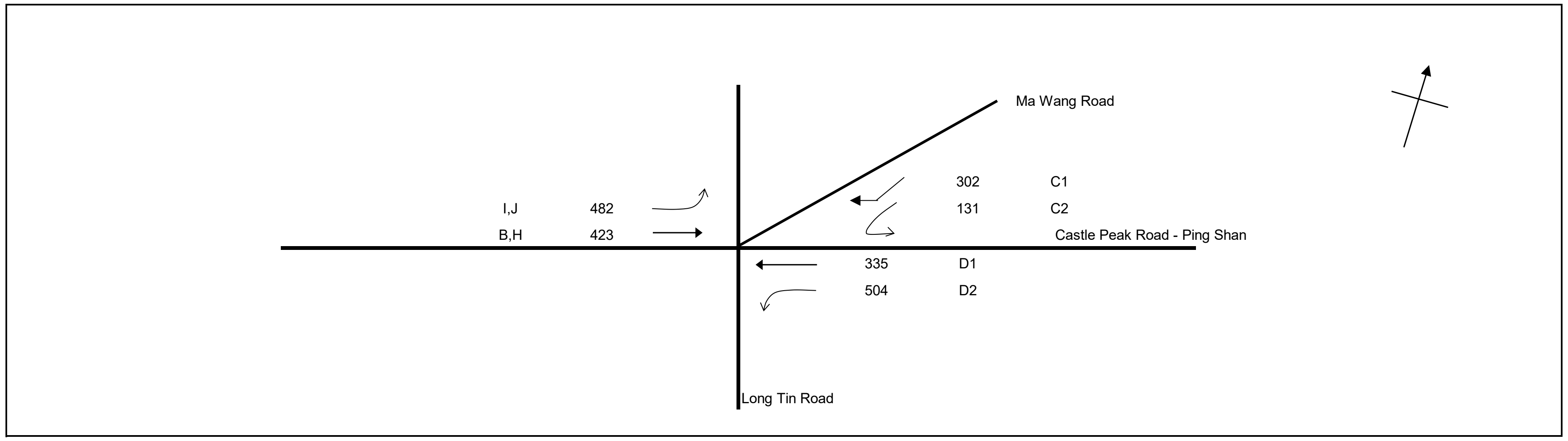
STAGE 1	INT=	STAGE 2	INT= 14	STAGE 3	INT= 6	STAGE 4	INT=

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3	E	8	5	4	7	15	4	7	OK
1,2	F	12	10	4	9	80	4	9	OK
2	G	7.5	5	4	6	56	4	6	OK
3	K	7	6	4	5	17	4	5	OK
2	A (LRT)	N/A	14	6	7	54	6	7	OK
2	L (LRT)	N/A	14	4	7	56	4	7	OK

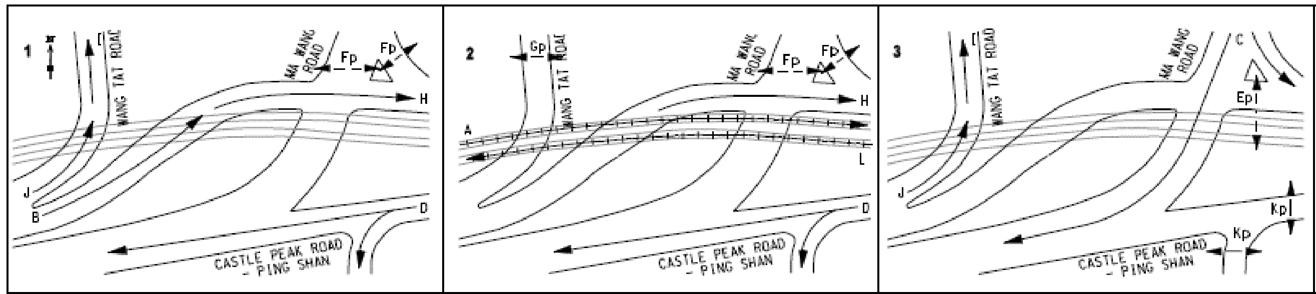
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				18				
I	1,3	3.00		2			N	3970		501		501	0.00	3970			3970	0.126			31	67	0.225	22
J	1,3	3.00		1	25		N	1915	501			501	1.00	1807			1807	0.277			67	67	0.495	44
B	1	3.50		2				4210		485		485	0.00	4210			4210	0.115			28	28	0.495	37
H	1,2	3.50		2				4210		485		485	0.00	4210			4210	0.115	0.336		28	81	0.170	16
D1,D2	1,2	3.20		1	9		N	1935	557	0		557	1.00	1659			1659	0.336			81	81	0.495	36
D1	1,2	3.20		1				2075		307		307	0.00	2075			2075	0.148			36	81	0.218	20
C1,C2	3	3.50		1	18		N	1965	154		0	154	1.00	1814			1814	0.085	0.085		21	21	0.495	26
C1	3	3.50		2	30			4210			260	260	1.00	4010			4010	0.065			16	21	0.377	22

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J1 Castle Peak Road - Ping Shan/ Ma Wang Road	Year 2018 Observed Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.378
Loss time		L =	18 sec
Total Flow		=	2119 pcu
Co	= (1.5*L+5)/(1-Y)	=	51.5 sec
Cm	= L/(1-Y)	=	29.0 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	102.2 %
Cp	= 0.9*L/(0.9-Y)	=	31.1 sec
Ymax	= 1-L/C	=	0.850
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	102.2 % (Optimized)



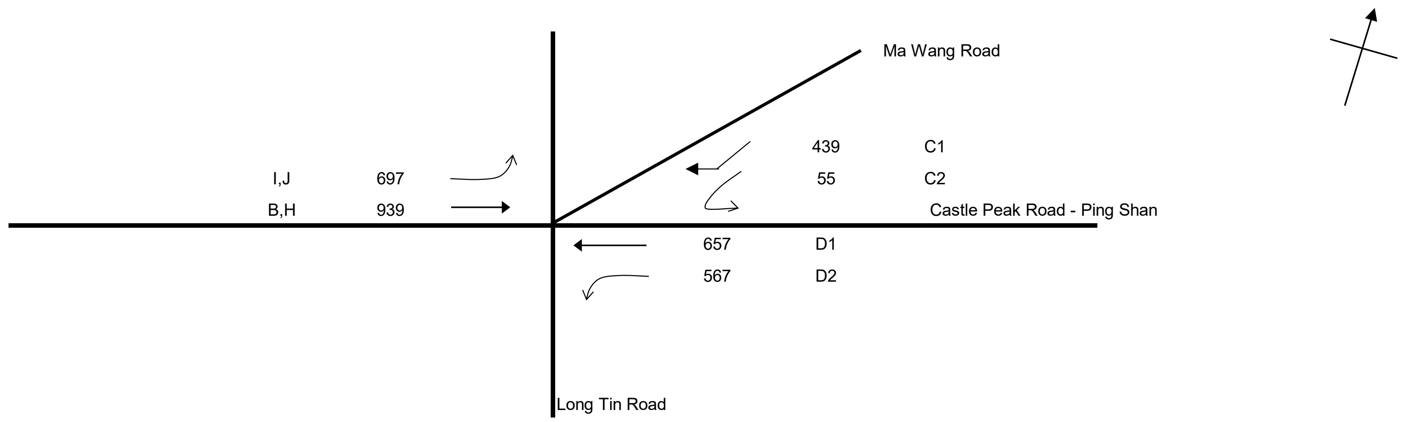
STAGE 1	INT=	STAGE 2	INT= 14	STAGE 3	INT= 6	STAGE 4	INT=

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3	E	8	5	4	7	14	4	7	OK
1,2	F	12	10	4	9	81	4	9	OK
2	G	7.5	5	4	6	58	4	6	OK
3	K	7	6	4	5	16	4	5	OK
2	A (LRT)	N/A	14	6	7	56	6	7	OK
2	L (LRT)	N/A	14	4	7	58	4	7	OK

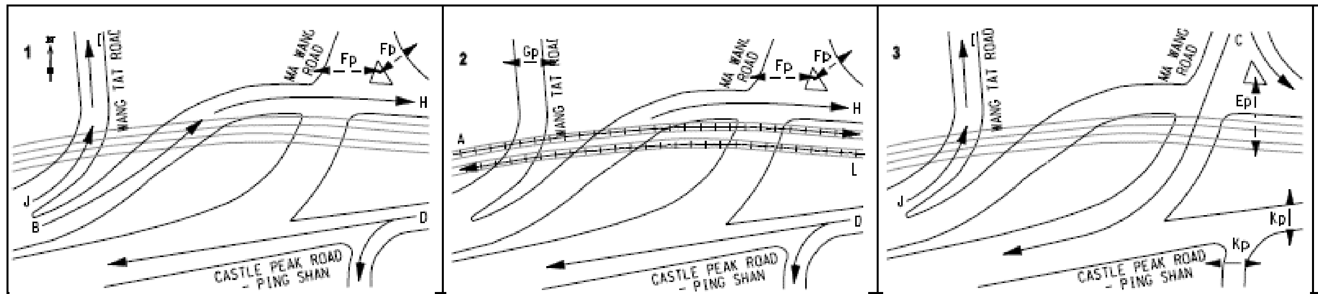
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				18				
I	1,3	3.00		2			N	3970		482		482	0.00	3970			3970	0.122			33	72	0.203	19
J	1,3	3.00		1	25		N	1915	482			482	1.00	1807			1807	0.267			72	72	0.445	39
B	1	3.50		2				4210		423		423	0.00	4210			4210	0.101			27	27	0.445	33
H	1,2	3.50		2				4210		423		423	0.00	4210			4210	0.101	0.304		27	82	0.147	13
D1,D2	1,2	3.20		1	9		N	1935	504	0		504	1.00	1659			1659	0.304			82	82	0.445	32
D1	1,2	3.20		1				2075	0	335		335	0.00	2075			2075	0.161			44	82	0.236	21
C1,C2	3	3.50		1	18		N	1965	131		4	135	1.00	1814			1814	0.074	0.074		20	20	0.445	22
C1	3	3.50		2	30			4210			298	298	1.00	4010			4010	0.074			20	20	0.444	25

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J1 Castle Peak Road - Ping Shan/ Ma Wang Road	Year 2025 Reference Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.425
Loss time		L =	18 sec
Total Flow		=	3596 pcu
Co	= (1.5*L+5)/(1-Y)	=	55.6 sec
Cm	= L/(1-Y)	=	31.3 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	80.1 %
Cp	= 0.9*L/(0.9-Y)	=	34.1 sec
Ymax	= 1-L/C	=	0.850
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	80.1 % (Optimized)



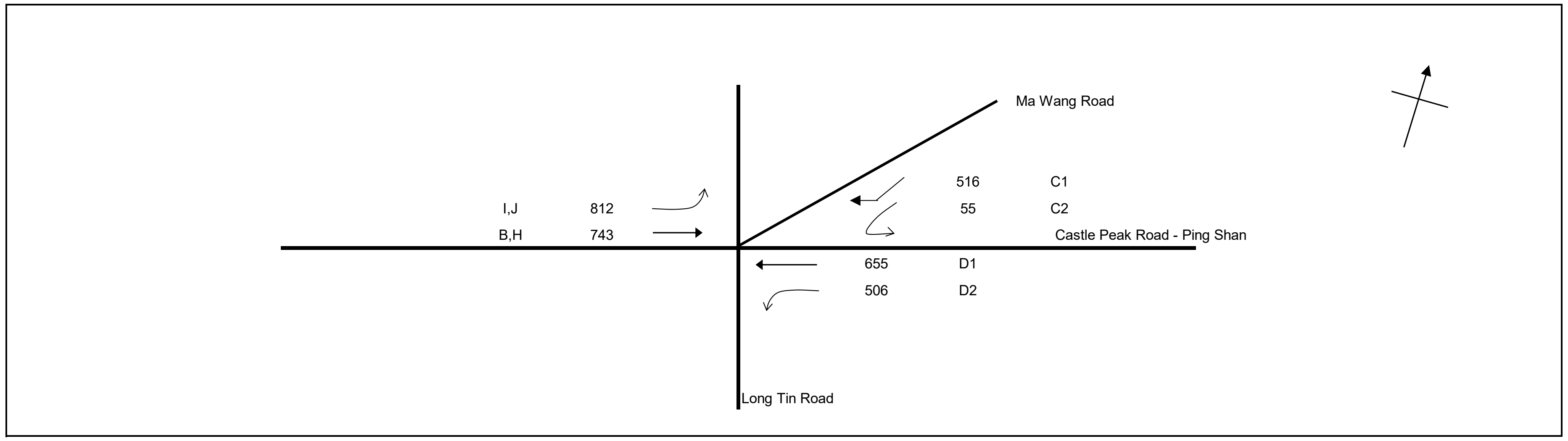
STAGE 1	INT=	STAGE 2	INT= 14	STAGE 3	INT= 6	STAGE 4	INT=

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3	E	8	5	4	7	14	4	7	OK
1,2	F	12	10	4	9	81	4	9	OK
2	G	7.5	5	4	6	31	4	6	OK
3	K	7	6	4	5	16	4	5	OK
2	A (LRT)	N/A	14	6	7	29	6	7	OK
2	L (LRT)	N/A	14	4	7	31	4	7	OK

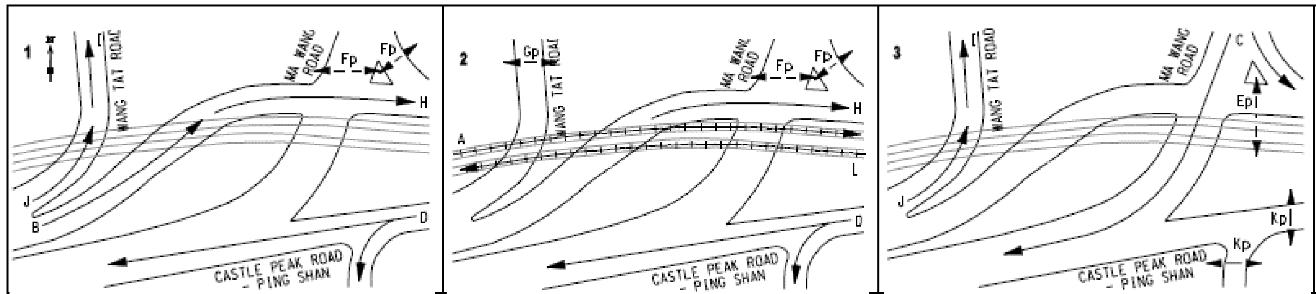
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				18				
I	1,3	3.00		2			N	3970		697		697	0.00	3970			3970	0.176			42	93	0.227	16
J	1,3	3.00		1	25		N	1915	697			697	1.00	1807			1807	0.386			93	93	0.500	32
B	1	3.50		2				4210		939		939	0.00	4210			4210	0.223			54	54	0.500	52
H	1,2	3.50		2				4210		939		939	0.00	4210			4210	0.223	0.340		54	82	0.328	30
D1,D2	1,2	3.20		1	9		N	1935	567	-3		563	1.01	1657			1657	0.340			82	82	0.500	36
D1	1,2	3.20		1				2075		660		660	0.00	2075			2075	0.318			76	82	0.468	42
C1,C2	3	3.50		1	18		N	1965	55		99	154	1.00	1814			1814	0.085	0.085		20	20	0.499	26
C1	3	3.50		2	30			4210			340	340	1.00	4010			4010	0.085			20	20	0.500	28

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J1 Castle Peak Road - Ping Shan/ Ma Wang Road	Year 2025 Reference Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	3	
No. of stage using for calculation		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.409	
Loss time		L =	18	sec
Total Flow		=	3219	pcu
Co	= (1.5*L+5)/(1-Y)	=	54.1	sec
Cm	= L/(1-Y)	=	30.5	sec
Yult		=	0.765	
R.C.ult	= (Yult-Y)/Y*100%	=	87.1	%
Cp	= 0.9*L/(0.9-Y)	=	33.0	sec
Ymax	= 1-L/C	=	0.850	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	87.1	% (Optimized)



STAGE 1	INT=	STAGE 2	INT= 14	STAGE 3	INT= 6	STAGE 4	INT=

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3	E	8	5	4	7	19	4	7	OK
1,2	F	12	10	4	9	76	4	9	OK
2	G	7.5	5	4	6	36	4	6	OK
3	K	7	6	4	5	21	4	5	OK
2	A (LRT)	N/A	14	6	7	34	6	7	OK
2	L (LRT)	N/A	14	4	7	36	4	7	OK

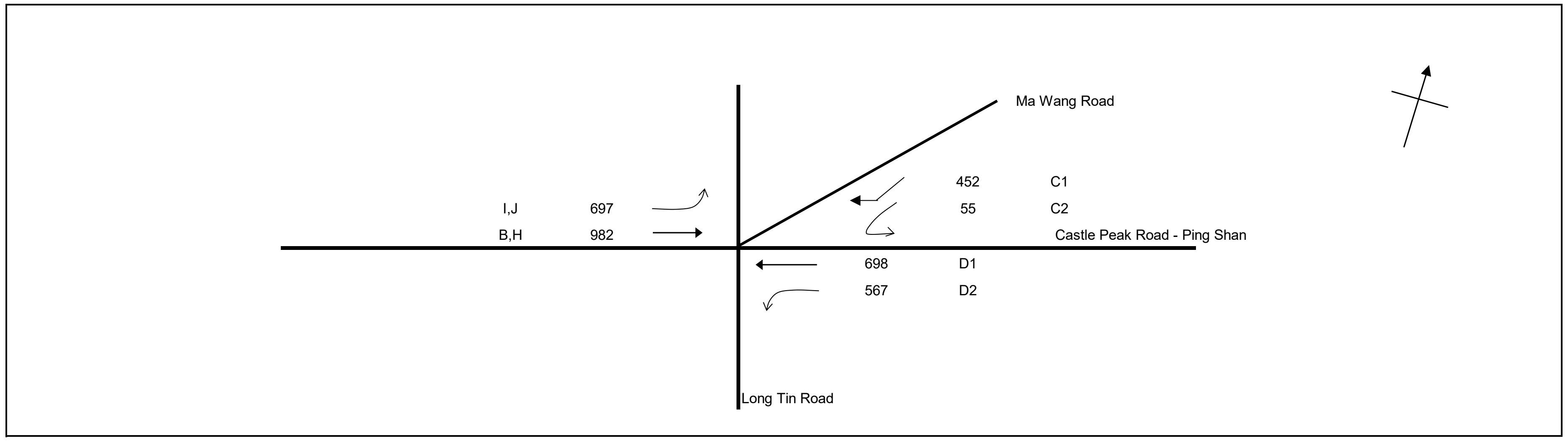
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				18				
I	1,3	3.00		2			N	3970		812		812	0.00	3970			3970	0.205			51	112	0.219	5
J	1,3	3.00		1	25		N	1915	812			812	1.00	1807			1807	0.449			112	112	0.481	11
B	1	3.50		2				4210		743		743	0.00	4210			4210	0.177			44	44	0.481	47
H	1,2	3.50		2				4210		743		743	0.00	4210			4210	0.177	0.311		44	77	0.273	26
D1,D2	1,2	3.20		1	9		N	1935	506	11		517	0.98	1664			1664	0.311			77	77	0.481	37
D1	1,2	3.20		1				2075		644		644	0.00	2075			2075	0.310			77	77	0.481	46
C1,C2	3	3.50		1	18		N	1965	55		122	177	1.00	1814			1814	0.098	0.098		24	25	0.479	28
C1	3	3.50		2	30			4210			394	394	1.00	4010			4010	0.098			25	25	0.481	31

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

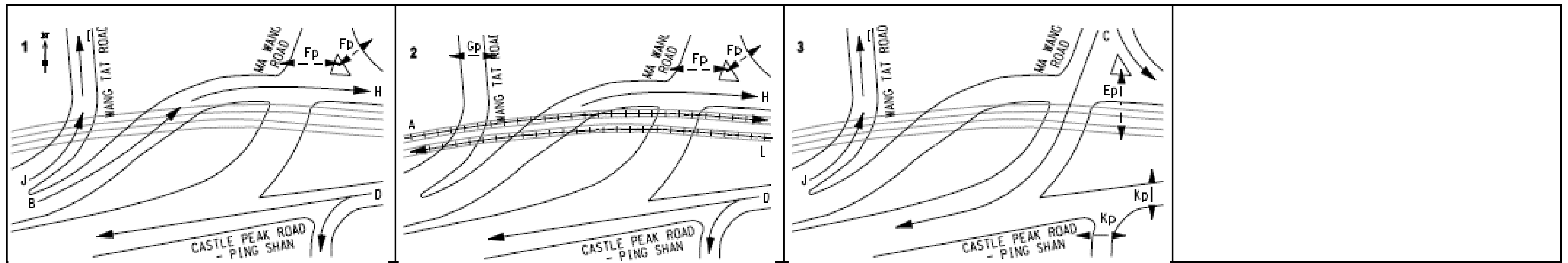
OVE ARUP & PARTNERS | TRAFFIC SIGNAL CALCULATION

Site Formation in Long Bin, Yuen Long | PROJECT NO:

J1 Castle Peak Road - Ping Shan/ Ma Wang Road | Year 2025 Design Traffic Flows (AM Peak) | DATE : 30-Jun-21 | FILENAME :



No. of stages per cycle		N =	3	
No. of stage using for calculation		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.427	
Loss time		L =	18	sec
Total Flow		=	3736	pcu
Co	= (1.5*L+5)/(1-Y)	=	55.9	sec
Cm	= L/(1-Y)	=	31.4	sec
Yult		=	0.765	
R.C.ult	= (Yult-Y)/Y*100%	=	79.1	%
Cp	= 0.9*L/(0.9-Y)	=	34.3	sec
Ymax	= 1-L/C	=	0.850	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	79.1	% (Optimized)



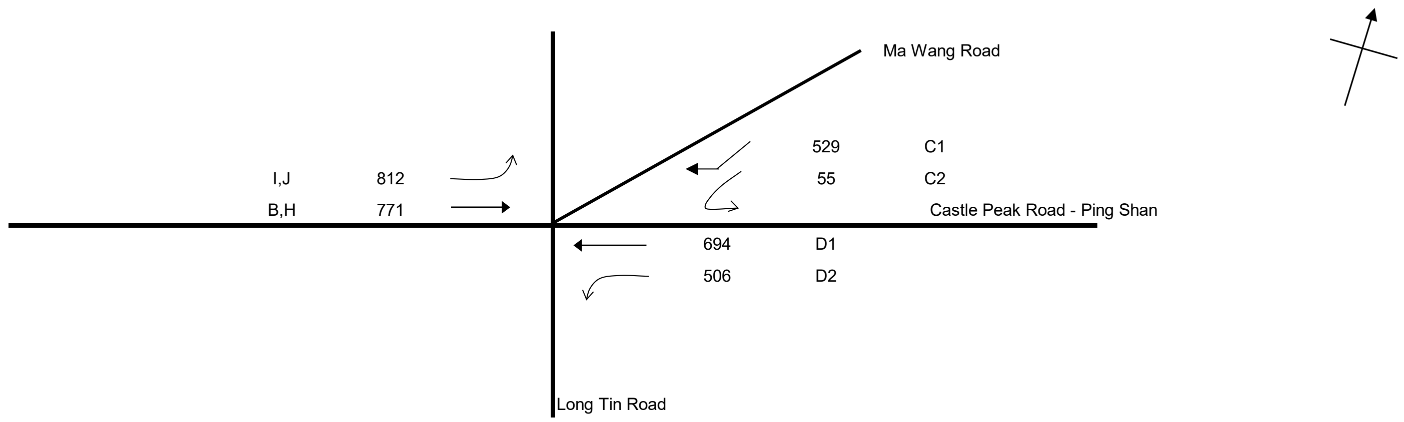
STAGE 1	INT=	STAGE 2	INT= 14	STAGE 3	INT= 6	STAGE 4	INT=

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3	E	8	5	4	7	15	4	7	OK
1,2	F	12	10	4	9	80	4	9	OK
2	G	7.5	5	4	6	28	4	6	OK
3	K	7	6	4	5	17	4	5	OK
2	A (LRT)	N/A	14	6	7	26	6	7	OK
2	L (LRT)	N/A	14	4	7	28	4	7	OK

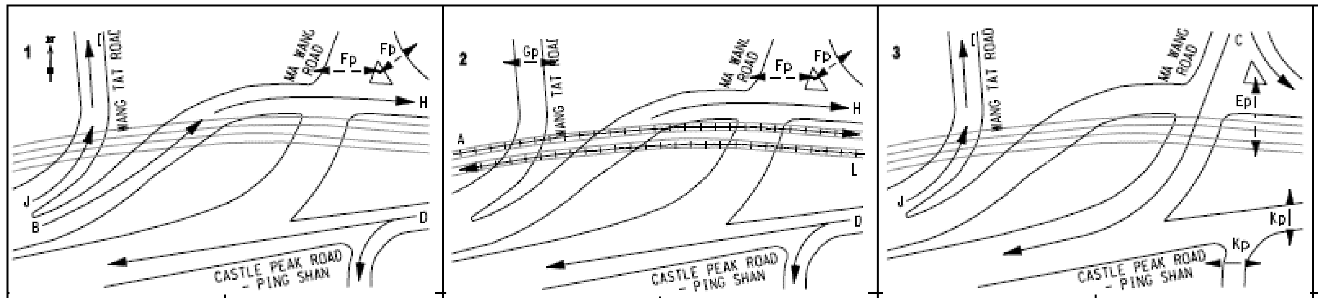
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				18				
I	1,3	3.00		2			N	3970		697		697	0.00	3970			3970	0.176			42	92	0.229	16
J	1,3	3.00		1	25		N	1915	697			697	1.00	1807			1807	0.386			92	92	0.503	32
B	1	3.50		2				4210		982		982	0.00	4210			4210	0.233			56	56	0.503	53
H	1,2	3.50		2				4210		982		982	0.00	4210			4210	0.233	0.340		56	81	0.345	32
D1,D2	1,2	3.20		1	9		N	1935	567	-3		563	1.01	1657			1657	0.340			81	81	0.503	36
D1	1,2	3.20		1				2075		701		701	0.00	2075			2075	0.338			81	81	0.500	45
C1,C2	3	3.50		1	18		N	1965	55		103	158	1.00	1814			1814	0.087	0.087		21	21	0.503	26
C1	3	3.50		2	30			4210			349	349	1.00	4010			4010	0.087			21	21	0.501	29

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J1 Castle Peak Road - Ping Shan/ Ma Wang Road	Year 2025 Design Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.421
Loss time		L =	18 sec
Total Flow		=	3325 pcu
Co	= (1.5*L+5)/(1-Y)	=	55.2 sec
Cm	= L/(1-Y)	=	31.1 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	81.9 %
Cp	= 0.9*L/(0.9-Y)	=	33.8 sec
Ymax	= 1-L/C	=	0.850
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	81.9 % (Optimized)



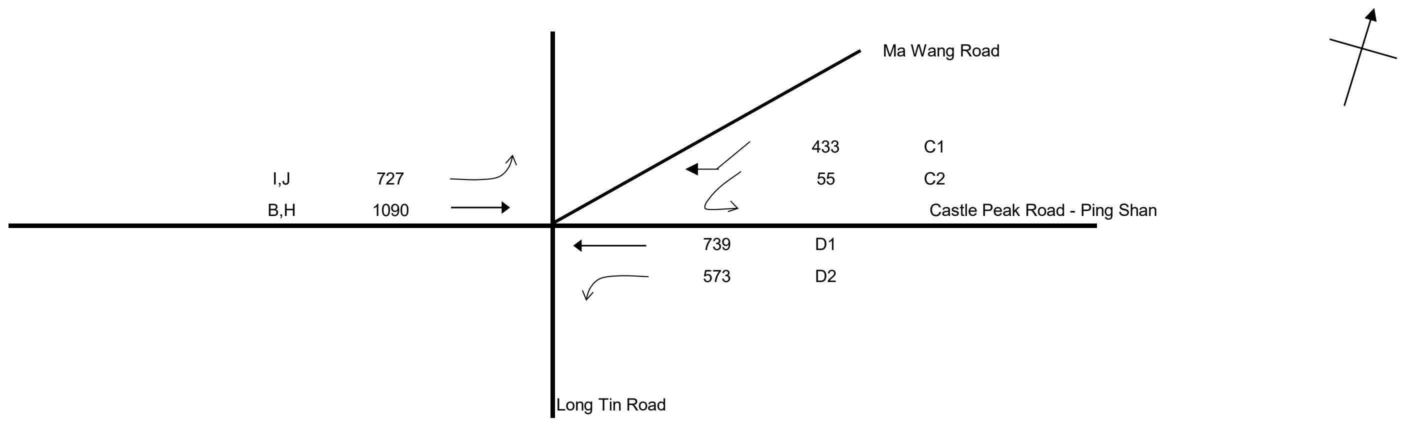
STAGE 1	INT=	STAGE 2	INT= 14	STAGE 3	INT= 6	STAGE 4	INT=

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3	E	8	5	4	7	18	4	7	OK
1,2	F	12	10	4	9	77	4	9	OK
2	G	7.5	5	4	6	36	4	6	OK
3	K	7	6	4	5	20	4	5	OK
2	A (LRT)	N/A	14	6	7	34	6	7	OK
2	L (LRT)	N/A	14	4	7	36	4	7	OK

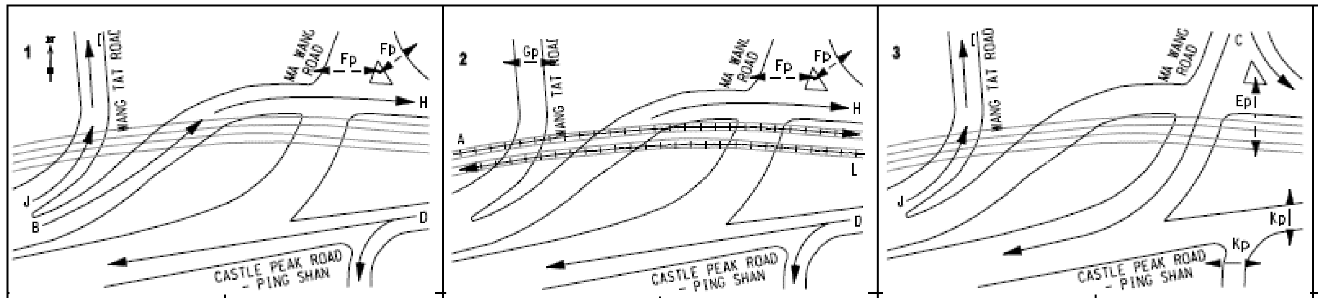
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				18				
I	1,3	3.00		2			N	3970		812		812	0.00	3970			3970	0.205			50	109	0.225	7
J	1,3	3.00		1	25		N	1915	812			812	1.00	1807			1807	0.449			109	109	0.495	15
B	1	3.50		2				4210		771		771	0.00	4210			4210	0.183			44	44	0.495	49
H	1,2	3.50		2				4210		771		771	0.00	4210			4210	0.183	0.320		44	78	0.283	27
D1,D2	1,2	3.20		1	9		N	1935	506	30		535	0.94	1672			1672	0.320			78	78	0.495	38
D1	1,2	3.20		1				2075		664		664	0.00	2075			2075	0.320			78	78	0.495	47
C1,C2	3	3.50		1	18		N	1965	55		127	182	1.00	1814			1814	0.100	0.100		24	24	0.495	29
C1	3	3.50		2	30			4210			402	402	1.00	4010			4010	0.100			24	24	0.494	32

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J1 Castle Peak Road - Ping Shan/ Ma Wang Road	Year 2029 Reference Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.435
Loss time		L =	18 sec
Total Flow		=	3980 pcu
Co	= (1.5*L+5)/(1-Y)	=	56.6 sec
Cm	= L/(1-Y)	=	31.9 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	75.9 %
Cp	= 0.9*L/(0.9-Y)	=	34.8 sec
Ymax	= 1-L/C	=	0.850
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	75.9 % (Optimized)



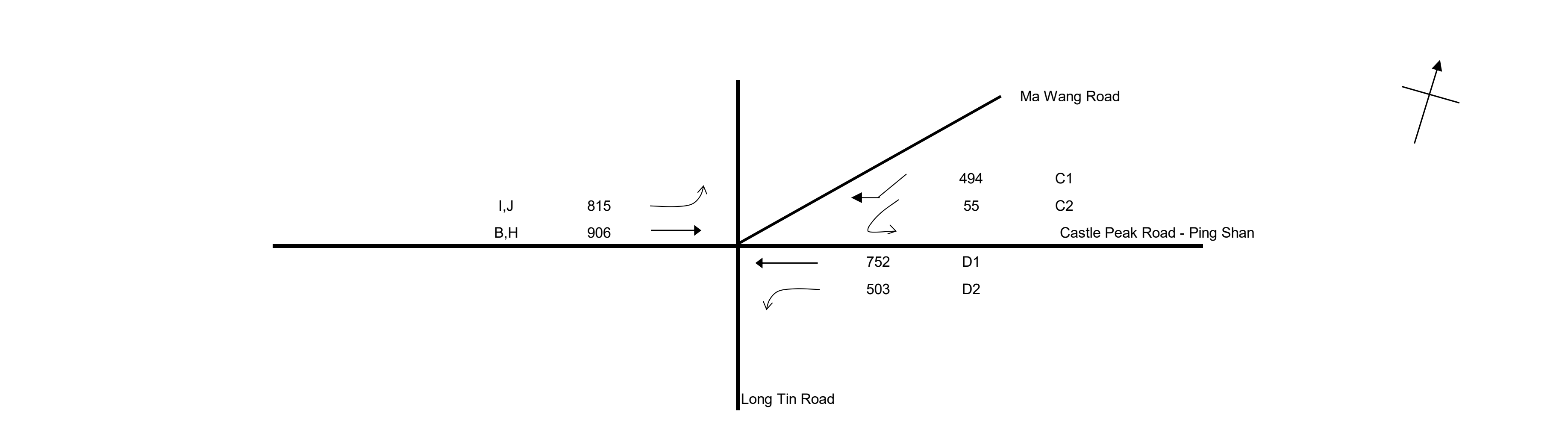
STAGE 1	INT=	STAGE 2	INT= 14	STAGE 3	INT= 6	STAGE 4	INT=

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3	E	8	5	4	7	14	4	7	OK
1,2	F	12	10	4	9	81	4	9	OK
2	G	7.5	5	4	6	25	4	6	OK
3	K	7	6	4	5	16	4	5	OK
2	A (LRT)	N/A	14	6	7	23	6	7	OK
2	L (LRT)	N/A	14	4	7	25	4	7	OK

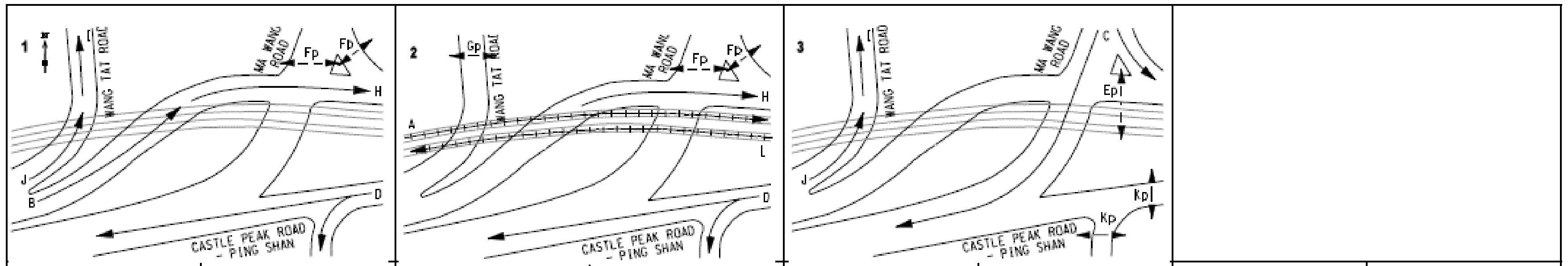
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				18				
I	1,3	3.00		2			N	3970		727		727	0.00	3970			3970	0.183			43	94	0.233	16
J	1,3	3.00		1	25		N	1915	727			727	1.00	1807			1807	0.403			94	94	0.512	31
B	1	3.50		2				4210		1090		1090	0.00	4210			4210	0.259			61	61	0.512	54
H	1,2	3.50		2				4210		1090		1090	0.00	4210			4210	0.259	0.351		61	82	0.377	34
D1,D2	1,2	3.20		1	9		N	1935	573	11		584	0.98	1663			1663	0.351			82	82	0.512	37
D1	1,2	3.20		1				2075		728		728	0.00	2075			2075	0.351			82	82	0.511	46
C1,C2	3	3.50		1	18		N	1965	55		97	152	1.00	1814			1814	0.084	0.084		20	20	0.510	25
C1	3	3.50		2	30			4210			336	336	1.00	4010			4010	0.084			20	20	0.512	28

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J1 Castle Peak Road - Ping Shan/ Ma Wang Road	Year 2029 Reference Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	3	
No. of stage using for calculation		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.428	
Loss time		L =	18	sec
Total Flow		=	3617	pcu
Co	= (1.5*L+5)/(1-Y)	=	56.0	sec
Cm	= L/(1-Y)	=	31.5	sec
Yult		=	0.765	
R.C.ult	= (Yult-Y)/Y*100%	=	78.6	%
Cp	= 0.9*L/(0.9-Y)	=	34.3	sec
Ymax	= 1-L/C	=	0.850	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	78.6	% (Optimized)



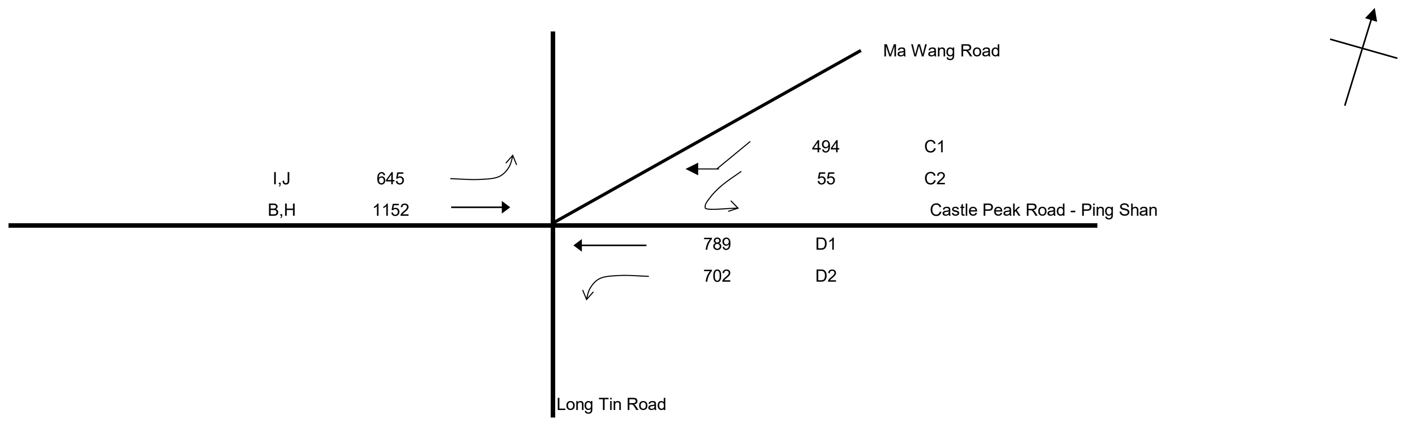
STAGE 1	INT=	STAGE 2	INT= 14	STAGE 3	INT= 6	STAGE 4	INT=

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3	E	8	5	4	7	16	4	7	OK
1,2	F	12	10	4	9	79	4	9	OK
2	G	7.5	5	4	6	31	4	6	OK
3	K	7	6	4	5	18	4	5	OK
2	A (LRT)	N/A	14	6	7	29	6	7	OK
2	L (LRT)	N/A	14	4	7	31	4	7	OK

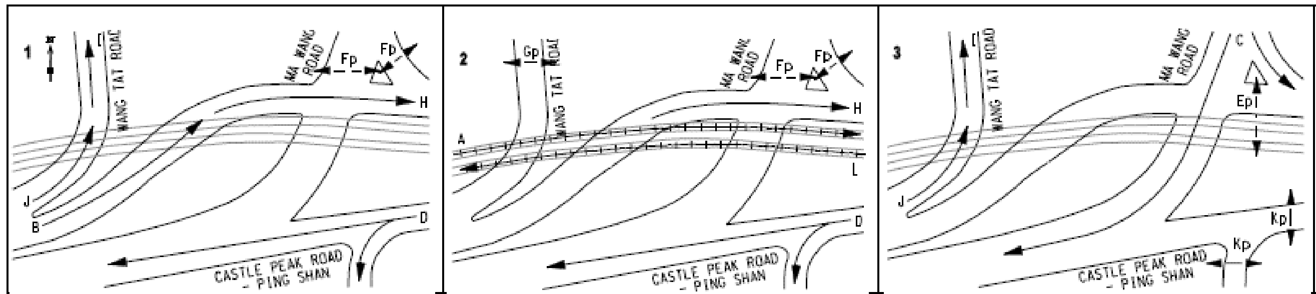
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				18				
I	1,3	3.00		2			N	3970		815		815	0.00	3970			3970	0.205			49	107	0.229	9
J	1,3	3.00		1	25		N	1915	815			815	1.00	1807			1807	0.451			107	107	0.504	17
B	1	3.50		2				4210		906		906	0.00	4210			4210	0.215			51	51	0.504	52
H	1,2	3.50		2				4210		906		906	0.00	4210			4210	0.215	0.334		51	80	0.325	31
D1,D2	1,2	3.20		1	9		N	1935	503	59		562	0.89	1684			1684	0.334			80	80	0.504	38
D1	1,2	3.20		1				2075		693		693	0.00	2075			2075	0.334			80	80	0.504	47
C1,C2	3	3.50		1	18		N	1965	55		116	171	1.00	1814			1814	0.094	0.094		22	22	0.503	28
C1	3	3.50		2	30			4210			378	378	1.00	4010			4010	0.094			22	22	0.504	31

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J1 Castle Peak Road - Ping Shan/ Ma Wang Road	Year 2029 Design Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.518
Loss time		L =	18 sec
Total Flow		=	4345 pcu
Co	= (1.5*L+5)/(1-Y)	=	66.4 sec
Cm	= L/(1-Y)	=	37.3 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	47.7 %
Cp	= 0.9*L/(0.9-Y)	=	42.4 sec
Ymax	= 1-L/C	=	0.850
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	47.7 % (Optimized)



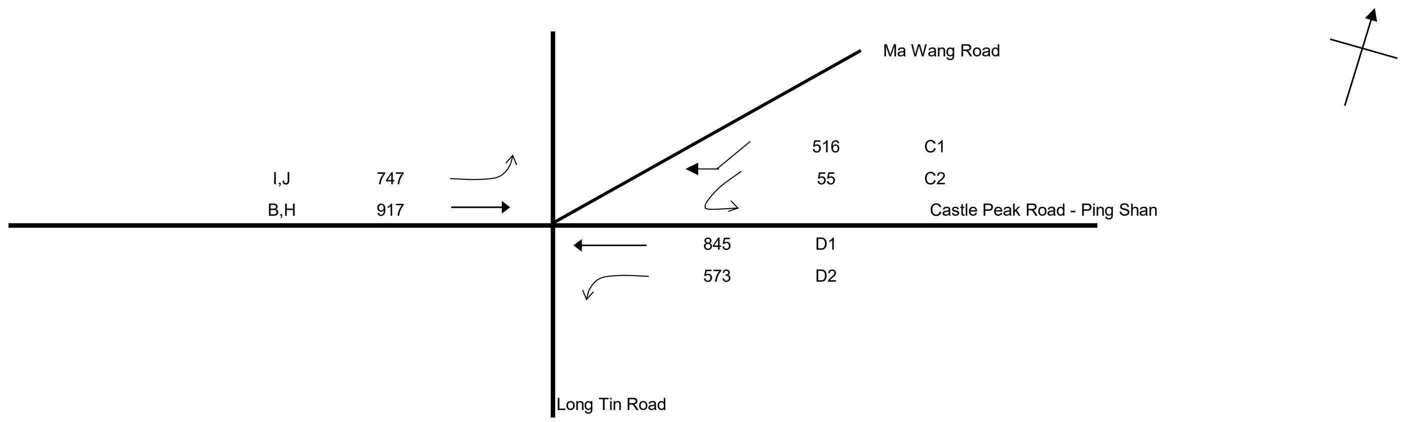
STAGE 1	INT=	STAGE 2	INT= 14	STAGE 3	INT= 6	STAGE 4	INT=

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3	E	8	5	4	7	13	4	7	OK
1,2	F	12	10	4	9	82	4	9	OK
2	G	7.5	5	4	6	33	4	6	OK
3	K	7	6	4	5	15	4	5	OK
2	A (LRT)	N/A	14	6	7	31	6	7	OK
2	L (LRT)	N/A	14	4	7	33	4	7	OK

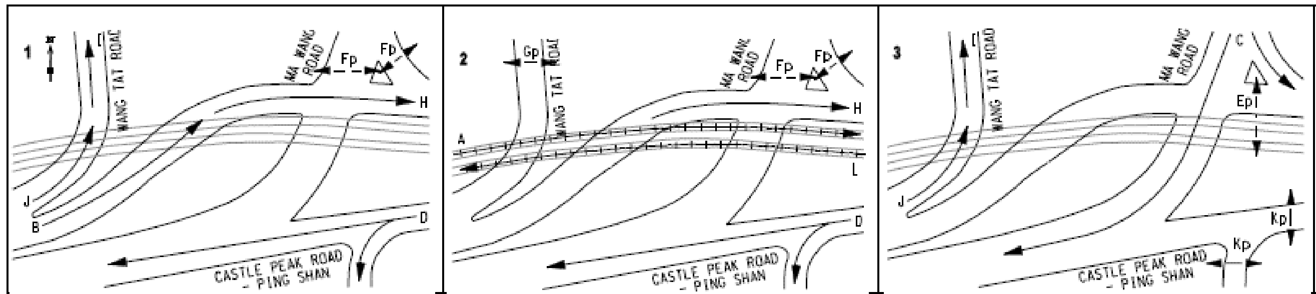
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				18				
I	1,3	3.00		2			N	3970		645		645	0.00	3970			3970	0.162			32	70	0.277	27
J	1,3	3.00		1	25		N	1915	645			645	1.00	1807			1807	0.357			70	70	0.609	53
B	1	3.50		2				4210		1152		1152	0.00	4210			4210	0.274			54	54	0.609	63
H	1,2	3.50		2				4210		1152		1152	0.00	4210			4210	0.274	0.424		54	83	0.394	35
D1,D2	1,2	3.20		1	9		N	1935	702	1		703	1.00	1659			1659	0.424			83	83	0.609	43
D1	1,2	3.20		1				2075		788		788	0.00	2075			2075	0.380			75	83	0.546	48
C1,C2	3	3.50		1	18		N	1965	55		116	171	1.00	1814			1814	0.094	0.094		19	19	0.609	29
C1	3	3.50		2	30			4210			378	378	1.00	4010			4010	0.094			19	19	0.609	32

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J1 Castle Peak Road - Ping Shan/ Ma Wang Road	Year 2029 Design Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.476
Loss time		L =	18 sec
Total Flow		=	3823 pcu
Co	= (1.5*L+5)/(1-Y)	=	61.0 sec
Cm	= L/(1-Y)	=	34.3 sec
Yult		=	0.765
R.C.ult	= (Yult-Y)/Y*100%	=	60.8 %
Cp	= 0.9*L/(0.9-Y)	=	38.2 sec
Ymax	= 1-L/C	=	0.850
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	60.8 % (Optimized)



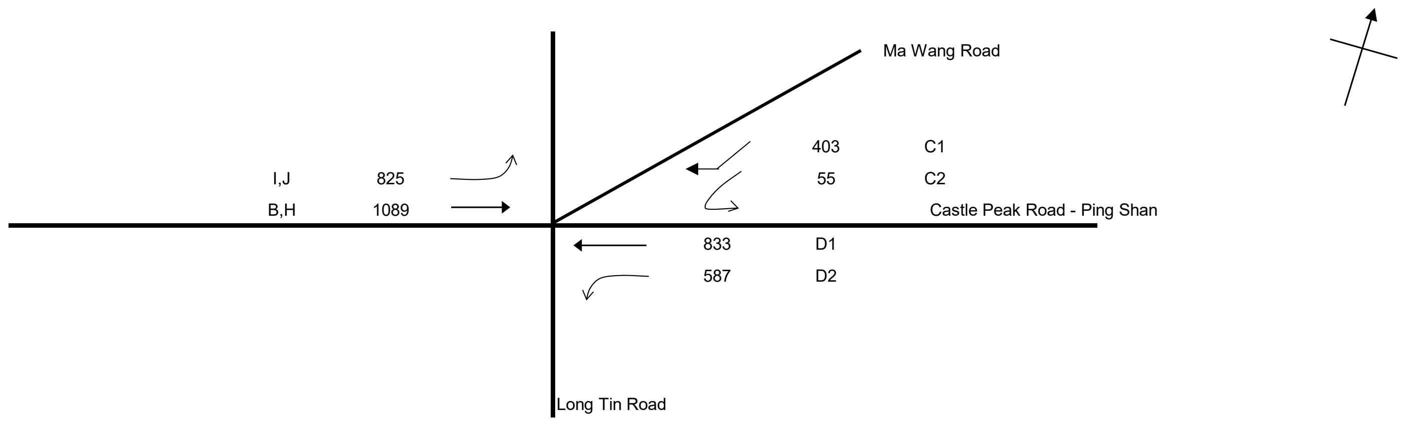
STAGE 1	INT=		STAGE 2	INT=	14	STAGE 3	INT=	6	STAGE 4	INT=	

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3	E	8	5	4	7	15	4	7	OK
1,2	F	12	10	4	9	80	4	9	OK
2	G	7.5	5	4	6	37	4	6	OK
3	K	7	6	4	5	17	4	5	OK
2	A (LRT)	N/A	14	6	7	35	6	7	OK
2	L (LRT)	N/A	14	4	7	37	4	7	OK

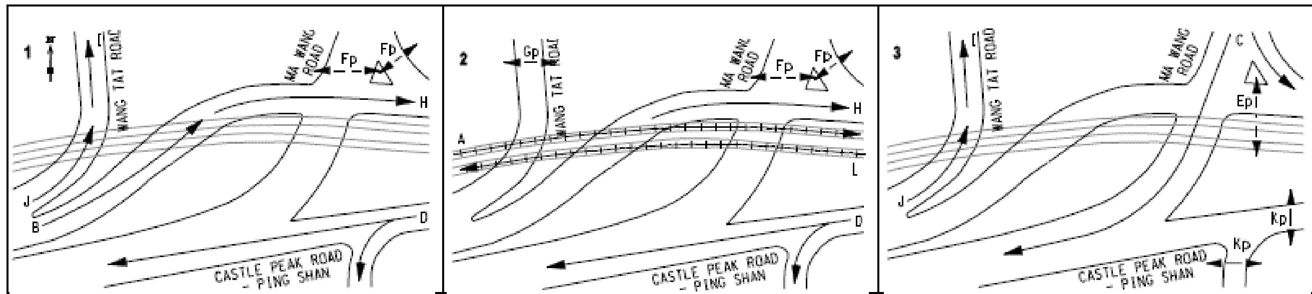
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				18				
I	1,3	3.00		2			N	3970		747		747	0.00	3970			3970	0.188			40	89	0.255	20
J	1,3	3.00		1	25		N	1915	747			747	1.00	1807			1807	0.413			89	89	0.560	39
B	1	3.50		2				4210		917		917	0.00	4210			4210	0.218			47	47	0.560	56
H	1,2	3.50		2				4210		917		917	0.00	4210			4210	0.218	0.377		47	81	0.323	30
D1,D2	1,2	3.20		1	9		N	1935	573	62		635	0.90	1682			1682	0.377			81	81	0.560	41
D1	1,2	3.20		1				2075		783		783	0.00	2075			2075	0.377			81	81	0.560	51
C1,C2	3	3.50		1	18		N	1965	55		123	178	1.00	1814			1814	0.098	0.098		21	21	0.560	29
C1	3	3.50		2	30			4210			393	393	1.00	4010			4010	0.098			21	21	0.558	32

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J1 Castle Peak Road - Ping Shan/ Ma Wang Road	Year 2034 Reference Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.458
Loss time		L =	21 sec
Total Flow		=	4057 pcu
Co	= (1.5*L+5)/(1-Y)	=	67.3 sec
Cm	= L/(1-Y)	=	38.7 sec
Yult		=	0.743
R.C.ult	= (Yult-Y)/Y*100%	=	62.2 %
Cp	= 0.9*L/(0.9-Y)	=	42.7 sec
Ymax	= 1-L/C	=	0.825
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	62.2 % (Optimized)



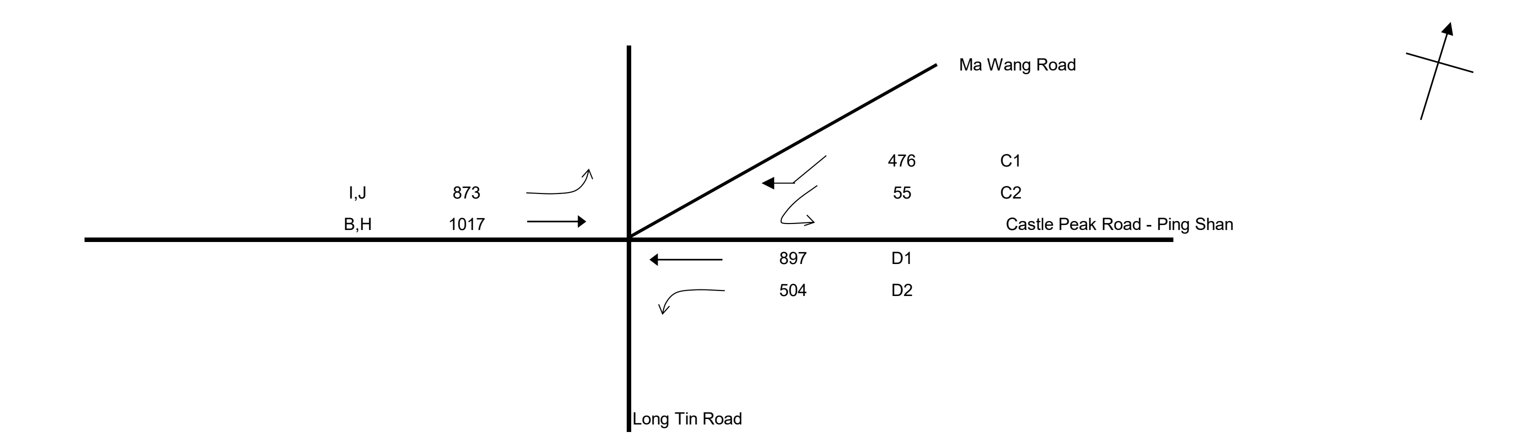
STAGE 1	INT=	STAGE 2	INT= 14	STAGE 3	INT= 6	STAGE 4	INT=

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3	E	8	5	4	7	11	4	7	OK
1,2	F	12	10	4	9	84	4	9	OK
2	G	7.5	5	4	6	32	4	6	OK
3	K	7	6	4	5	13	4	5	OK
2	A (LRT)	N/A	14	6	7	30	6	7	OK
2	L (LRT)	N/A	14	4	7	32	4	7	OK

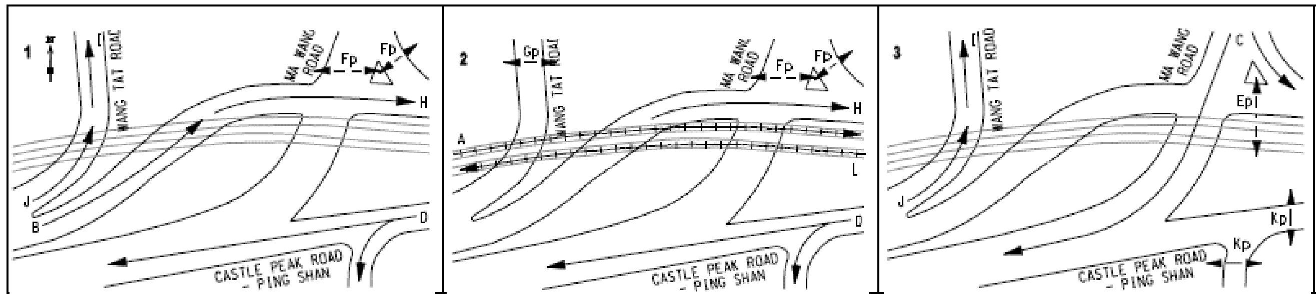
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				18				
I	1,3	3.00		2			N	3970		825		825	0.00	3970			3970	0.208			45	99	0.253	15
J	1,3	3.00		1	25		N	1915	825			825	1.00	1807			1807	0.457			99	99	0.555	29
B	1	3.50		2				4210		1089		1089	0.00	4210			4210	0.259			56	56	0.555	58
H	1,2	3.50		2				4210		1089		1089	0.00	4210			4210	0.259	0.379	3	56	85	0.366	32
D1,D2	1,2	3.20		1	9		N	1935	587	47		634	0.93	1676			1676	0.378			82	85	0.535	37
D1	1,2	3.20		1				2075		786		786	0.00	2075			2075	0.379			82	85	0.535	46
C1,C2	3	3.50		1	18		N	1965	55		88	143	1.00	1814			1814	0.079	0.079		17	17	0.555	25
C1	3	3.50		2	30			4210			315	315	1.00	4010			4010	0.079			17	17	0.552	27

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J1 Castle Peak Road - Ping Shan/ Ma Wang Road	Year 2034 Reference Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.462
Loss time		L =	21 sec
Total Flow		=	3966 pcu
Co	= (1.5*L+5)/(1-Y)	=	67.8 sec
Cm	= L/(1-Y)	=	39.0 sec
Yult		=	0.743
R.C.ult	= (Yult-Y)/Y*100%	=	60.8 %
Cp	= 0.9*L/(0.9-Y)	=	43.1 sec
Ymax	= 1-L/C	=	0.825
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	60.8 % (Optimized)



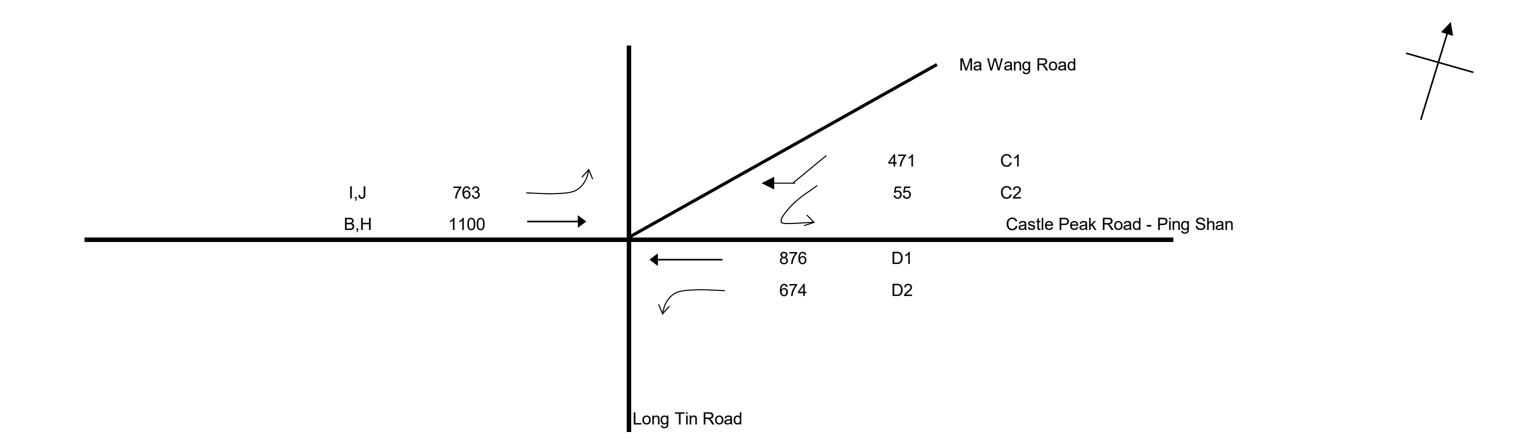
STAGE 1	INT=	STAGE 2	INT= 14	STAGE 3	INT= 6	STAGE 4	INT=

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3	E	8	5	4	7	14	4	7	OK
1,2	F	12	10	4	9	81	4	9	OK
2	G	7.5	5	4	6	34	4	6	OK
3	K	7	6	4	5	16	4	5	OK
2	A (LRT)	N/A	14	6	7	32	6	7	OK
2	L (LRT)	N/A	14	4	7	34	4	7	OK

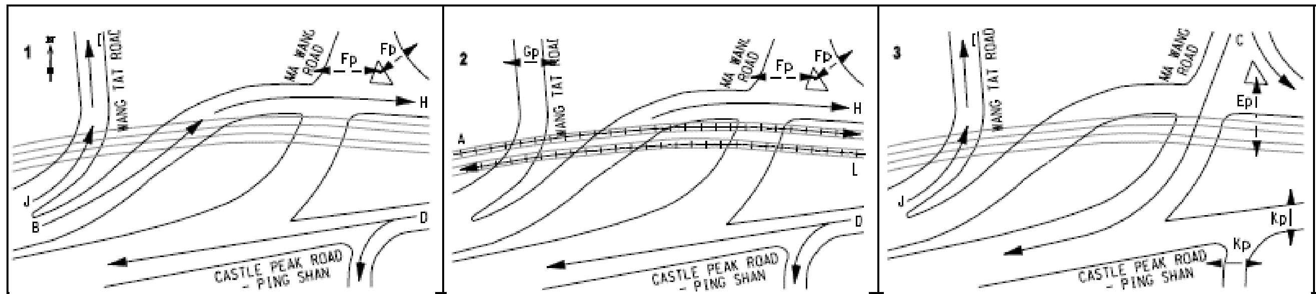
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				18				
I	1,3	3.00		2			N	3970		873		873	0.00	3970			3970	0.220			47	104	0.255	12
J	1,3	3.00		1	25		N	1915	873			873	1.00	1807			1807	0.483			104	104	0.560	24
B	1	3.50		2				4210		1017		1017	0.00	4210			4210	0.241			52	52	0.560	58
H	1,2	3.50		2				4210		1017		1017	0.00	4210			4210	0.241	0.371	3	52	82	0.352	32
D1,D2	1,2	3.20		1	9		N	1935	504	129		633	0.80	1708			1708	0.371			79	82	0.539	40
D1	1,2	3.20		1				2075		768		768	0.00	2075			2075	0.370			79	82	0.539	48
C1,C2	3	3.50		1	18		N	1965	55		110	165	1.00	1814			1814	0.091	0.091		20	20	0.559	28
C1	3	3.50		2	30			4210			366	366	1.00	4010			4010	0.091			20	20	0.560	31

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

OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION	
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J1 Castle Peak Road - Ping Shan/ Ma Wang Road	Year 2034 Design Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	3	
No. of stage using for calculation		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.510	
Loss time		L =	21	sec
Total Flow		=	4285	pcu
Co	= (1.5*L+5)/(1-Y)	=	74.5	sec
Cm	= L/(1-Y)	=	42.9	sec
Yult		=	0.743	
R.C.ult	= (Yult-Y)/Y*100%	=	45.5	%
Cp	= 0.9*L/(0.9-Y)	=	48.5	sec
Ymax	= 1-L/C	=	0.825	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	45.5	% (Optimized)



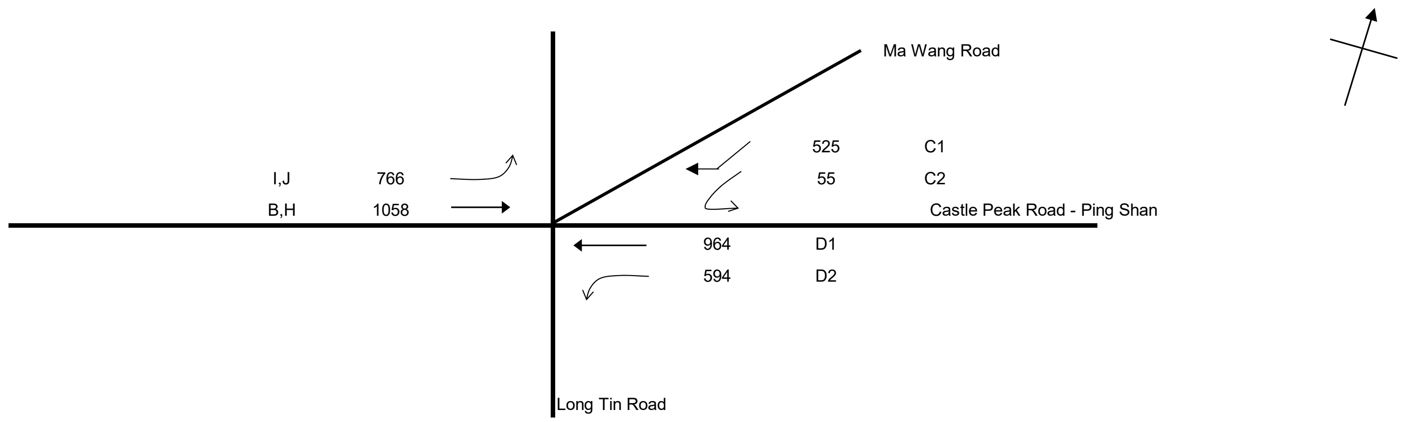
STAGE 1	INT=	STAGE 2	INT= 14	STAGE 3	INT= 6	STAGE 4	INT=

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3	E	8	5	4	7	13	4	7	OK
1,2	F	12	10	4	9	82	4	9	OK
2	G	7.5	5	4	6	36	4	6	OK
3	K	7	6	4	5	15	4	5	OK
2	A (LRT)	N/A	14	6	7	34	6	7	OK
2	L (LRT)	N/A	14	4	7	36	4	7	OK

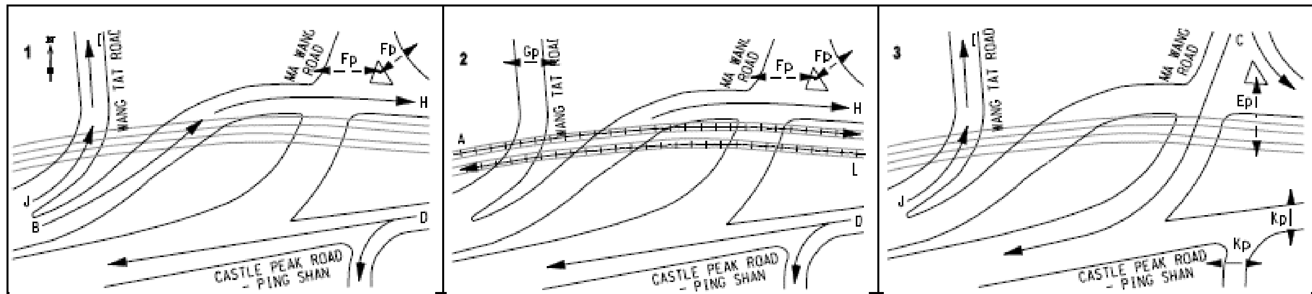
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				18				
I	1,3	3.00		2			N	3970		763		763	0.00	3970			3970	0.192			37	82	0.282	24
J	1,3	3.00		1	25		N	1915	763			763	1.00	1807			1807	0.422			82	82	0.619	48
B	1	3.50		2				4210		1100		1100	0.00	4210			4210	0.261			51	51	0.619	64
H	1,2	3.50		2				4210		1100		1100	0.00	4210			4210	0.261	0.414	3	51	83	0.376	34
D1,D2	1,2	3.20		1	9		N	1935	674	15		689	0.98	1664			1664	0.414			80	83	0.596	42
D1	1,2	3.20		1				2075		860		860	0.00	2075			2075	0.414			80	83	0.596	52
C1,C2	3	3.50		1	18		N	1965	55		119	174	1.00	1814			1814	0.096	0.096		19	19	0.619	29
C1	3	3.50		2	30			4210			362	362	1.00	4010			4010	0.090			18	19	0.582	31

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J1 Castle Peak Road - Ping Shan/ Ma Wang Road	Year 2034 Design Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.517
Loss time		L =	21 sec
Total Flow		=	4254 pcu
Co	= (1.5*L+5)/(1-Y)	=	75.5 sec
Cm	= L/(1-Y)	=	43.5 sec
Yult		=	0.743
R.C.ult	= (Yult-Y)/Y*100%	=	43.7 %
Cp	= 0.9*L/(0.9-Y)	=	49.3 sec
Ymax	= 1-L/C	=	0.825
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	43.7 % (Optimized)



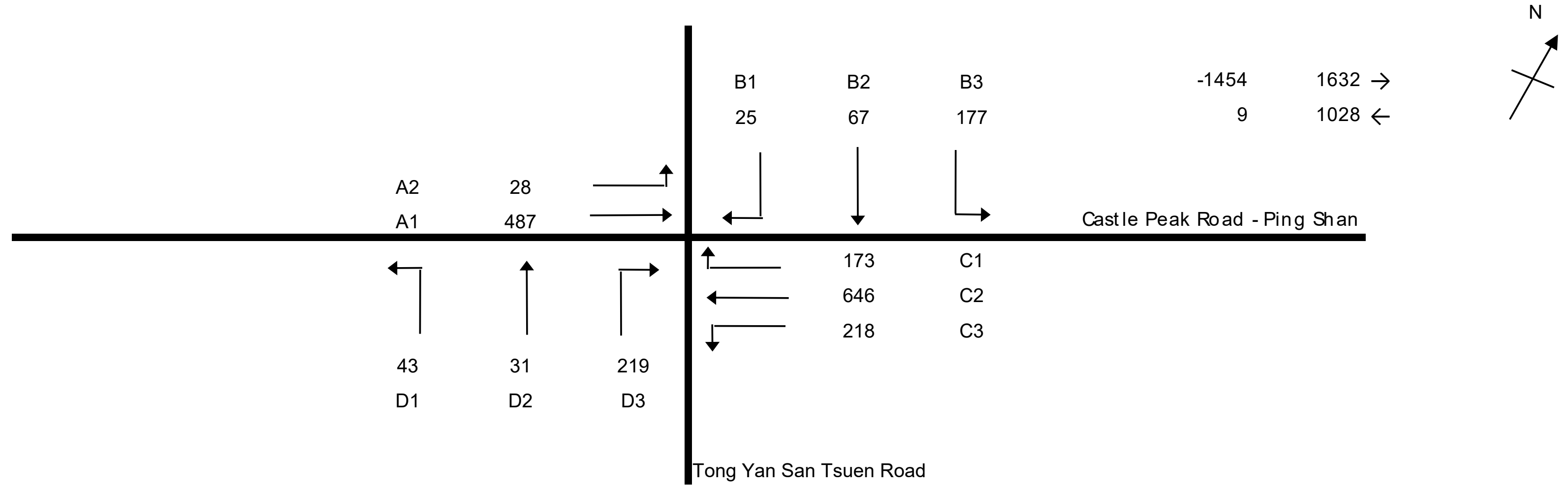
STAGE 1	INT=	STAGE 2	INT= 14	STAGE 3	INT= 6	STAGE 4	INT=

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3	E	8	5	4	7	14	4	7	OK
1,2	F	12	10	4	9	81	4	9	OK
2	G	7.5	5	4	6	37	4	6	OK
3	K	7	6	4	5	16	4	5	OK
2	A (LRT)	N/A	14	6	7	35	6	7	OK
2	L (LRT)	N/A	14	4	7	37	4	7	OK

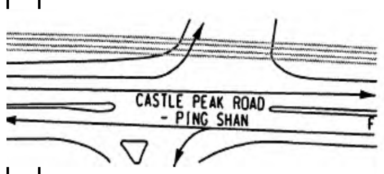
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				18				
I	1,3	3.00		2			N	3970		766		766	0.00	3970			3970	0.193			37	81	0.285	25
J	1,3	3.00		1	25		N	1915	766			766	1.00	1807			1807	0.424			81	81	0.626	49
B	1	3.50		2				4210		1058		1058	0.00	4210			4210	0.251			48	48	0.626	63
H	1,2	3.50		2				4210		1058		1058	0.00	4210			4210	0.251	0.413	3	48	82	0.367	33
D1,D2	1,2	3.20		1	9		N	1935	594	106		700	0.85	1695			1695	0.413			79	82	0.603	44
D1	1,2	3.20		1				2075		858		858	0.00	2075			2075	0.413			79	82	0.604	54
C1,C2	3	3.50		1	18		N	1965	55		111	166	1.00	1814			1814	0.091	0.103		17	20	0.554	28
C1	3	3.50		2	30			4210			414	414	1.00	4010			4010	0.103			20	20	0.626	35

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

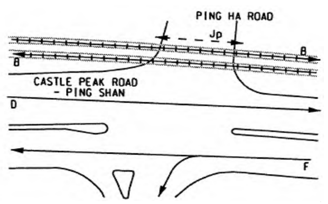
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION	
Site Formation in Long Bin, Yuen Long	PROJECT NO: 245467	
J2 Castle Peak Road - Ping Shan/ Tong Yan San Tsuen	Year 2018 Observed Traffic Flows (AM Peak)	DATE : 18-Jan-22	FILENAME:



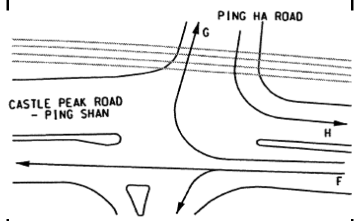
No. of stages per cycle		N =	5	
No. of stage using for calculation		N =	3	
Cycle time		C =	120	sec
Sum(y)		Y =	0.386	
Loss time		L =	20	sec
Total Flow		=	2113.3	pcu
Co	= (1.5*L+5)/(1-Y)	=	57.0	sec
Cm	= L/(1-Y)	=	32.6	sec
Yult		=	0.750	
R.C.ult	= (Yult-Y)/Y*100%	=	94.3	%
Cp	= 0.9*L/(0.9-Y)	=	35.0	sec
Ymax	= 1-L/C	=	0.833	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	94.3	%



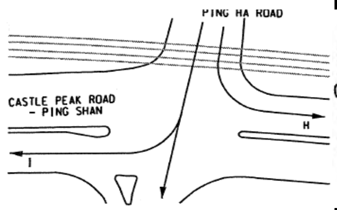
Stage 1 Int = 8



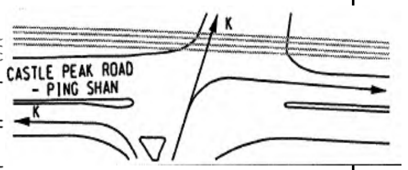
Stage 2 Int = 15



Stage 3 Int = 11



Stage 4 Int = 5

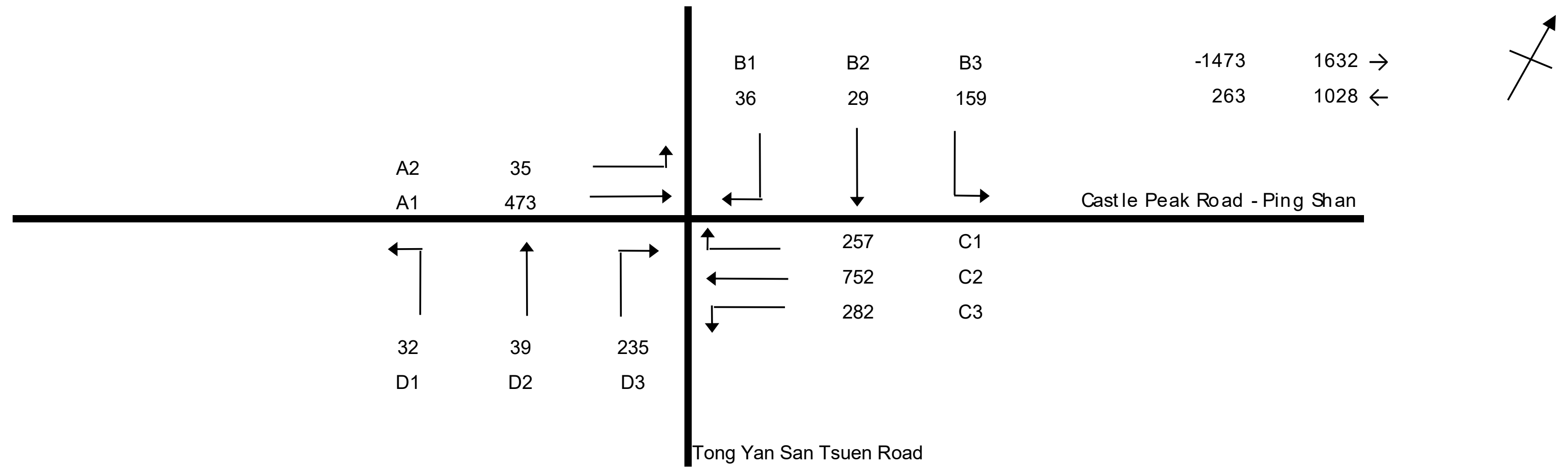


Stage 5 Int = 7

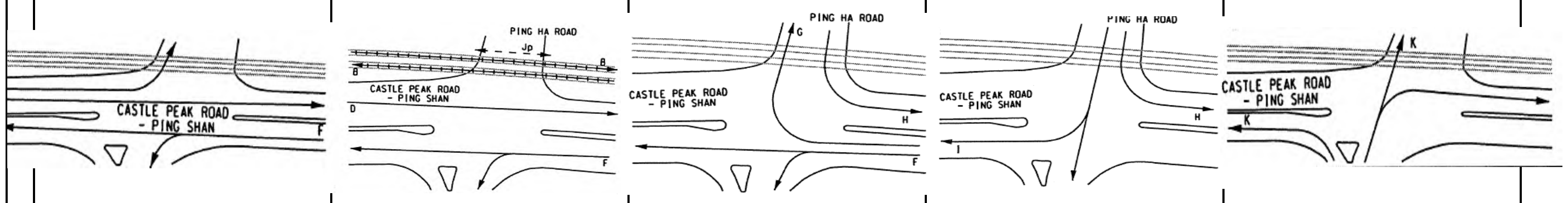
	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
(2)	J	4.5	5	5	5	31	5	5	OK
(2)	B(LRT)	N/A	9	6	10	14	6	10	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	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.
																				20				
A2	1	3.30		1	15		N	1945	28			28	1.00	1768			1768	0.016			4	4	0.463	5
A1	1,2	3.60		3				6345		487		487	0.00	6345			6345	0.077			20	20	0.463	27
C1	3	3.20		1	20			2075			173	173	1.00	1930			1930	0.090			23	23	0.463	28
C2,C3	1,2,3	3.60		1	15		N	1975	218	188		406	0.54	1874			1874	0.216			56	56	0.463	43
C2	1,2,3	3.60		1				2115		458		458	0.00	2115			2115	0.217	0.217		56	56	0.463	49
B1,B2	4	4.00		1	25			2155		67	25	92	0.27	2121			2121	0.043	0.043		11	11	0.463	17
B3	3,4	4.00		1	15		N	2015	177			177	1.00	1832			1832	0.097			25	25	0.463	28
D1	5	4.00		1	15		N	2015	43			43	1.00	1832			1832	0.023			6	33	0.085	6
D2,D3	5	3.60		1	20			2115		31	219	250	0.88	1985			1985	0.126	0.126		33	33	0.463	36

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO: 245467	
J2 Castle Peak Road - Ping Shan/ Tong Yan San Tsuen	Year 2018 Observed Traffic Flows (PM Peak)	DATE : 18-Jan-22	FILENAME:



No. of stages per cycle		N =	5	
No. of stage using for calculation		N =	3	
Cycle time		C =	120	sec
Sum(y)		Y =	0.429	
Loss time		L =	20	sec
Total Flow		=	2329.05	pcu
Co	= (1.5*L+5)/(1-Y)	=	61.3	sec
Cm	= L/(1-Y)	=	35.0	sec
Yult		=	0.750	
R.C.ult	= (Yult-Y)/Y*100%	=	74.9	%
Cp	= 0.9*L/(0.9-Y)	=	38.2	sec
Ymax	= 1-L/C	=	0.833	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	74.9	%



Stage 1	Int =	8	Stage 2	Int =	15	Stage 3	Int =	11	Stage 4	Int =	5	Stage 5	Int =	7

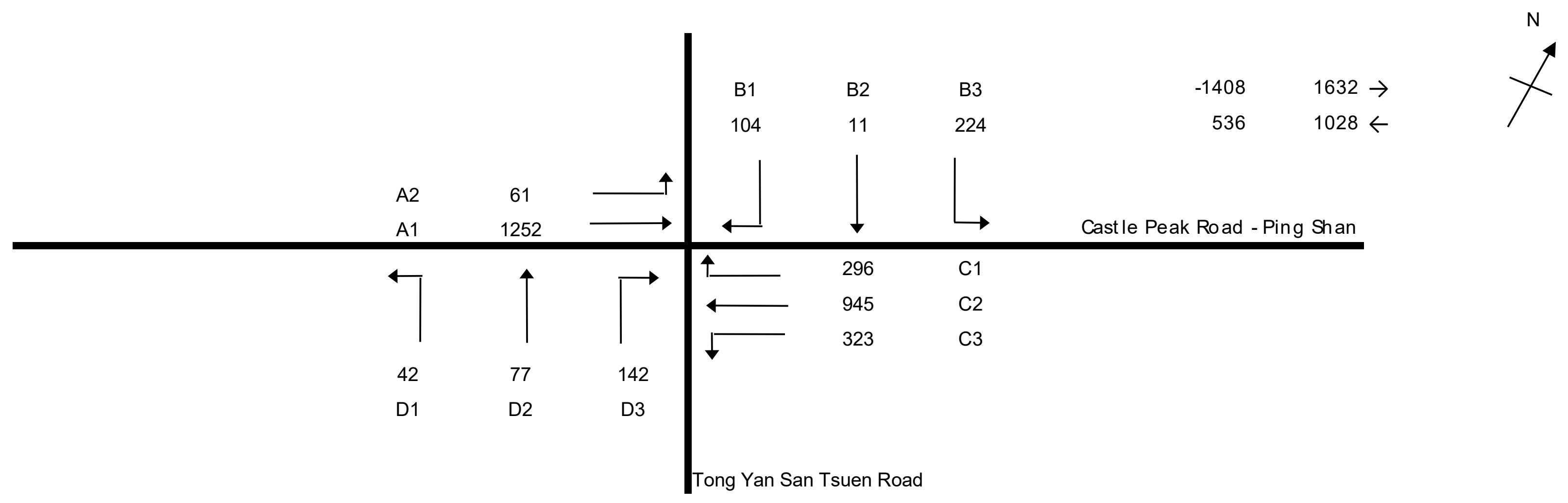
	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
(2)	J	4.5	5	5	5	27	5	5	OK
(2)	B(LRT)	N/A	9	6	10	10	6	10	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	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.
																				20				
A2	1	3.30		1	15		N	1945	35			35	1.00	1768			1768	0.020			5	5	0.515	7
A1	1,2	3.60		3				6345		473		473	0.00	6345			6345	0.075			17	17	0.515	27
C1	3	3.20		1	20			2075			257	257	1.00	1930			1930	0.133			31	31	0.515	38
C2,C3	1,2,3	3.60		1	15		N	1975	282	203		485	0.58	1867			1867	0.260			61	61	0.514	48
C2	1,2,3	3.60		1				2115		549		549	0.00	2115			2115	0.260	0.260		61	61	0.515	54
B1,B2	4	4.00		1	25			2155		29	36	65	0.55	2086			2086	0.031	0.031		7	7	0.515	12
B3	3,4	4.00		1	15		N	2015	159			159	1.00	1832			1832	0.087			20	20	0.515	26
D1	5	4.00		1	15		N	2015	32			32	1.00	1832			1832	0.017			4	32	0.065	5
D2,D3	5	3.60		1	20			2115		39	235	274	0.86	1987			1987	0.138	0.138		32	32	0.515	40

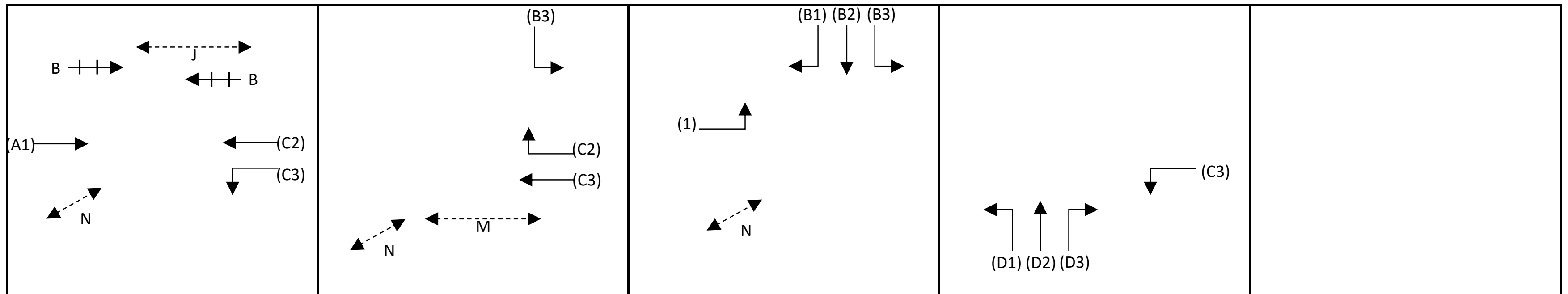
OVE ARUP & PARTNERS | TRAFFIC SIGNAL CALCULATION

Site Formation in Long Bin, Yuen Long | PROJECT NO: 245467

J2 Castle Peak Road - Ping Shan/ Tong Yan San Tsuen | Year 2025 Reference Traffic Flows (AM Peak) | DATE : 18-Jan-22 | FILENAME:



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.463
Loss time		L =	23 sec
Total Flow		=	3478.3 pcu
Co	= (1.5*L+5)/(1-Y)	=	73.6 sec
Cm	= L/(1-Y)	=	42.8 sec
Yult		=	0.728
R.C.ult	= (Yult-Y)/Y*100%	=	57.1 %
Cp	= 0.9*L/(0.9-Y)	=	47.4 sec
Ymax	= 1-L/C	=	0.808
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	57.1 %

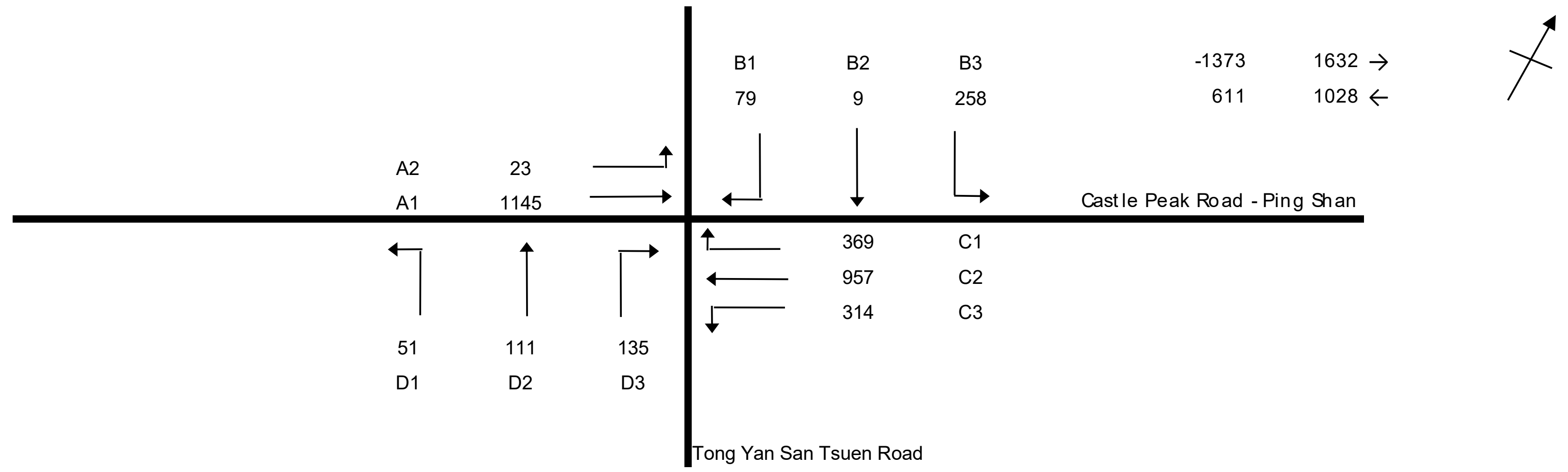


Stage 1	Int = 10	Stage 2	Int = 5	Stage 3	Int = 5	Stage 4	Int = 7	Stage 5	Int =

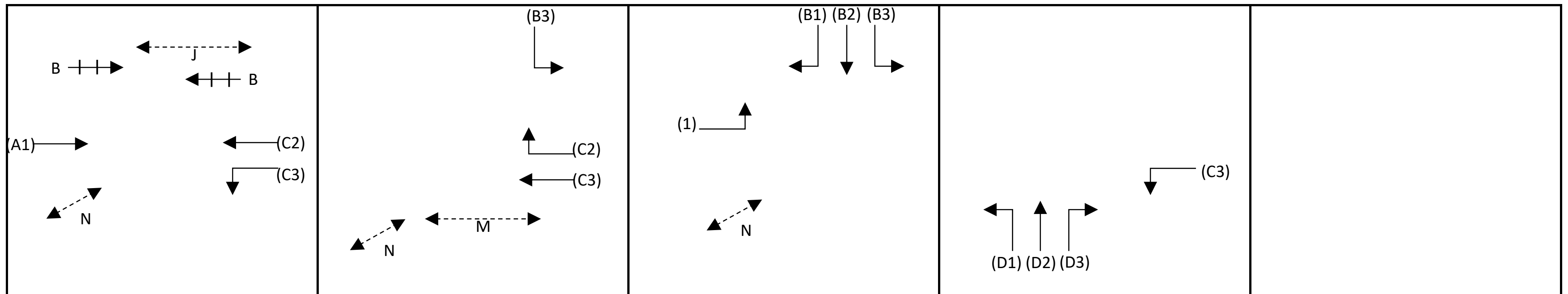
	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
(1)	J	4.5	7	5	8	39	5	8	OK
(1)	B(LRT)	N/A	10	5	10	37	5	10	OK
1,2	N	5.5	5	5	5	76	5	5	OK
(2)	M	12	5	5	10	20	5	10	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	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.
																				23				
A1	1	3.00	D	3				6165		1252		1252	0.00	6165			6165	0.203	0.203		43	43	0.573	54
C3	1,4	3.50	L	1	14		N	1965	323			323	1.00	1775			1775	0.182			38	60	0.364	32
C2	1,2	3.50	F	2				4210		945		945	0.00	4210			4210	0.224			47	82	0.327	30
C1	2	3.50	G	1	30			2105			296	296	1.00	2005			2005	0.148	0.148		31	31	0.573	44
B3	2,3	3.70	H	1	16		N	1985	224			224	1.00	1815			1815	0.123			26	47	0.315	27
B1,B2	3	3.40	I	1	30			2095		11	104	116	0.90	2005			2005	0.058	0.058		12	12	0.573	21
D1	4	3.50	K	1	25		N	1965	42			42	1.00	1854			1854	0.023	0.055		5	11	0.236	8
D2,D3	4	3.30	K	1	33			2085		77	35	112	0.31	2056			2056	0.055			11	11	0.573	20
D3	4	3.30	K	1	27			2085			107	107	1.00	1975			1975	0.054			11	11	0.571	19
A2	3	3.50	E	1	18		N	1965	61			61	1.00	1814			1814	0.034			7	12	0.335	11

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO: 245467	
J2 Castle Peak Road - Ping Shan/ Tong Yan San Tsuen	Year 2025 Reference Traffic Flows (PM Peak)	DATE : 18-Jan-22	FILENAME:



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.474
Loss time		L =	23 sec
Total Flow		=	3449.68 pcu
Co	= (1.5*L+5)/(1-Y)	=	75.1 sec
Cm	= L/(1-Y)	=	43.8 sec
Yult		=	0.728
R.C.ult	= (Yult-Y)/Y*100%	=	53.4 %
Cp	= 0.9*L/(0.9-Y)	=	48.6 sec
Ymax	= 1-L/C	=	0.808
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	53.4 %

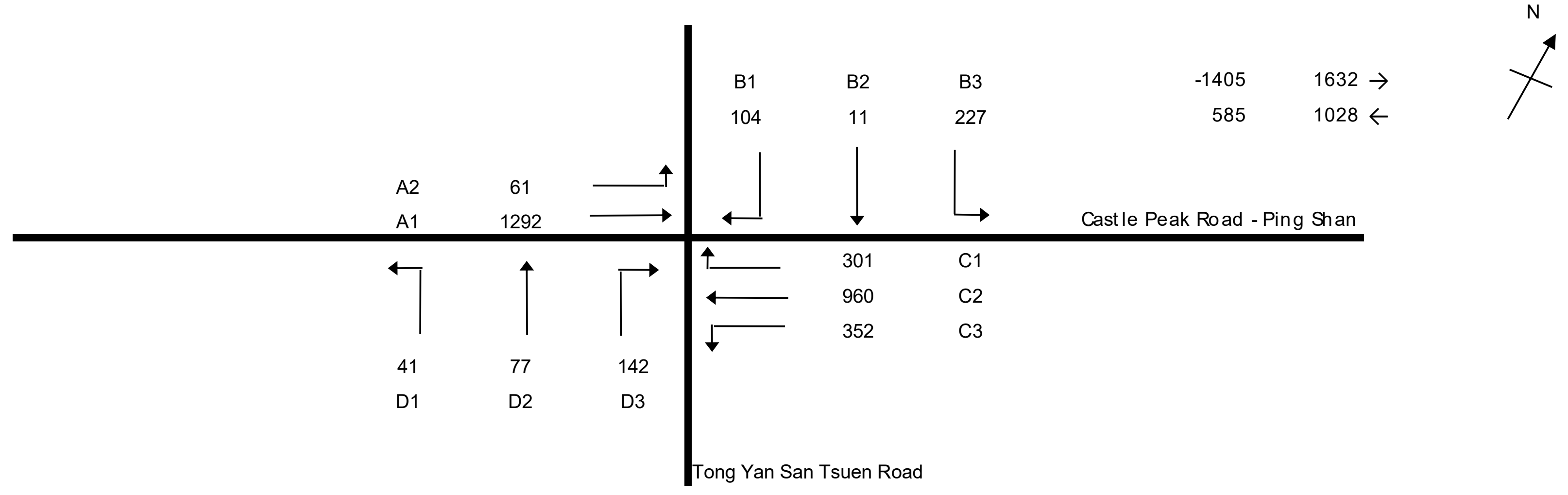


Stage 1	Int = 10	Stage 2	Int = 5	Stage 3	Int = 5	Stage 4	Int = 7	Stage 5	Int =

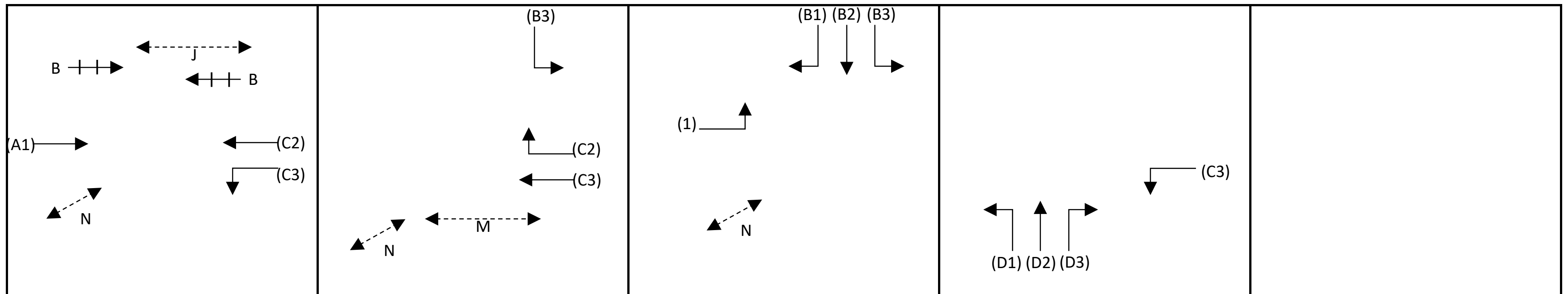
	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
(1)	J	4.5	7	5	8	34	5	8	OK
(1)	B(LRT)	N/A	10	5	10	32	5	10	OK
1,2	N	5.5	5	5	5	79	5	5	OK
(2)	M	12	5	5	10	27	5	10	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	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.
																				23				
A1	1	3.00	D	3				6165		1145		1145	0.00	6165			6165	0.186	0.186		38	38	0.587	52
C3	1,4	3.50	L	1	14		N	1965	314			314	1.00	1775			1775	0.177			36	56	0.376	33
C2	1,2	3.50	F	2				4210		957		957	0.00	4210			4210	0.227			46	85	0.322	28
C1	2	3.50	G	1	30			2105			369	369	1.00	2005			2005	0.184	0.184		38	38	0.587	51
B3	2,3	3.70	H	1	16		N	1985	258			258	1.00	1815			1815	0.142			29	51	0.338	30
B1,B2	3	3.40	I	1	30			2095		9	79	88	0.90	2005			2005	0.044	0.044		9	9	0.587	16
D1	4	3.50	K	1	25		N	1965	51			51	1.00	1854			1854	0.028	0.061		6	12	0.265	9
D2,D3	4	3.30	K	1	33			2085		111	15	126	0.12	2074			2074	0.061			12	12	0.587	23
D3	4	3.30	K	1	27			2085			120	120	1.00	1975			1975	0.061			12	12	0.585	21
A2	3	3.50	E	1	18		N	1965	23			23	1.00	1814			1814	0.012			3	9	0.167	4

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO: 245467	
J2 Castle Peak Road - Ping Shan/ Tong Yan San Tsuen	Year 2025 Design Traffic Flows (AM Peak)	DATE : 18-Jan-22	FILENAME:



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.472
Loss time		L =	23 sec
Total Flow		=	3569.5512 pcu
Co	= (1.5*L+5)/(1-Y)	=	74.8 sec
Cm	= L/(1-Y)	=	43.6 sec
Yult		=	0.728
R.C.ult	= (Yult-Y)/Y*100%	=	54.1 %
Cp	= 0.9*L/(0.9-Y)	=	48.4 sec
Ymax	= 1-L/C	=	0.808
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	54.1 %

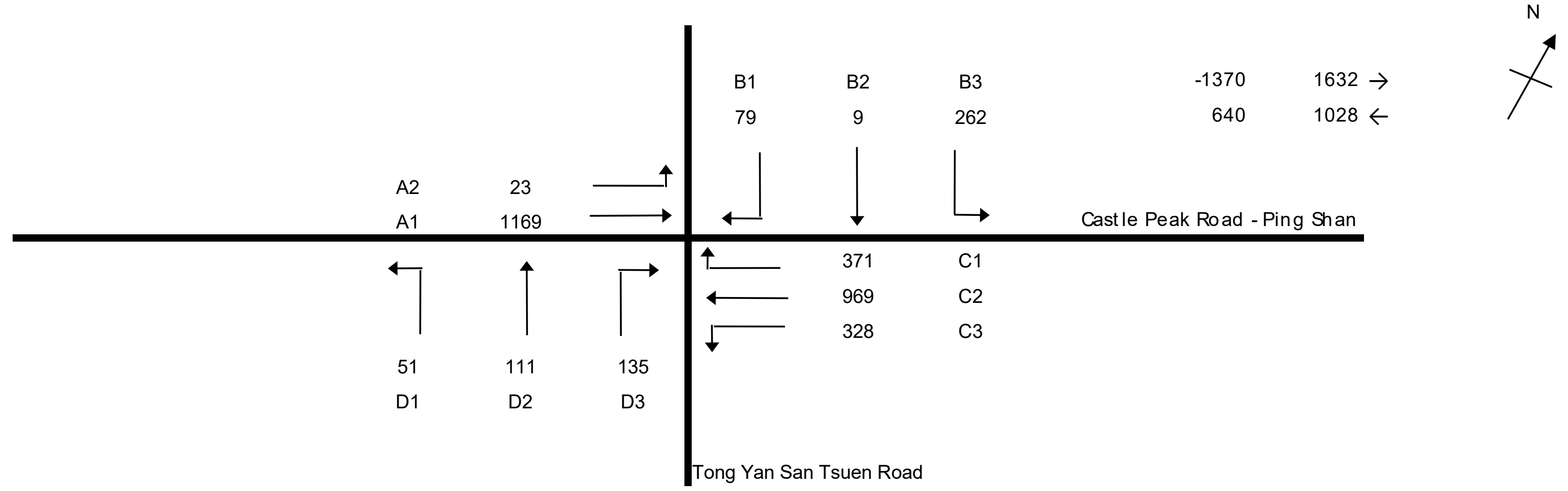


Stage 1	Int = 10	Stage 2	Int = 5	Stage 3	Int = 5	Stage 4	Int = 7	Stage 5	Int =

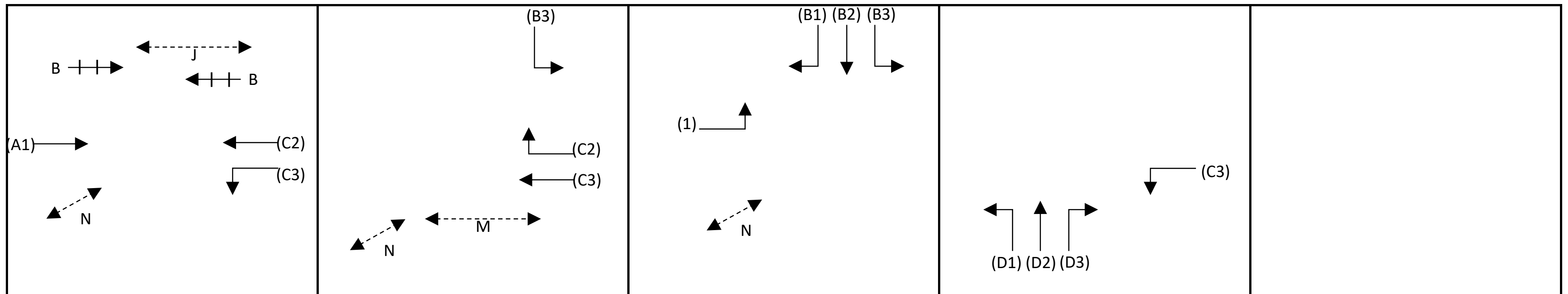
	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
(1)	J	4.5	7	5	8	39	5	8	OK
(1)	B(LRT)	N/A	10	5	10	37	5	10	OK
1,2	N	5.5	5	5	5	77	5	5	OK
(2)	M	12	5	5	10	20	5	10	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	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.
																				23				
A1	1	3.00	D	3				6165		1292		1292	0.00	6165			6165	0.210	0.210		43	43	0.584	55
C3	1,4	3.50	L	1	14		N	1965	352			352	1.00	1775			1775	0.198			41	60	0.395	35
C2	1,2	3.50	F	2				4210		960		960	0.00	4210			4210	0.228			47	83	0.330	30
C1	2	3.50	G	1	30			2105			301	301	1.00	2005			2005	0.150	0.150		31	31	0.584	45
B3	2,3	3.70	H	1	16		N	1985	227			227	1.00	1815			1815	0.125			26	47	0.321	28
B1,B2	3	3.40	I	1	30			2095		11	104	116	0.90	2005			2005	0.058	0.058		12	12	0.584	21
D1	4	3.50	K	1	25		N	1965	41			41	1.00	1854			1854	0.022	0.055		5	11	0.235	7
D2,D3	4	3.30	K	1	33			2085		77	35	112	0.31	2056			2056	0.055			11	11	0.584	20
D3	4	3.30	K	1	27			2085			107	107	1.00	1975			1975	0.054			11	11	0.582	19
A2	3	3.50	E	1	18		N	1965	61			61	1.00	1814			1814	0.034			7	12	0.341	11

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO: 245467	
J2 Castle Peak Road - Ping Shan/ Tong Yan San Tsuen	Year 2025 Design Traffic Flows (PM Peak)	DATE : 18-Jan-22	FILENAME:



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.479
Loss time		L =	23 sec
Total Flow		=	3505.9303 pcu
Co	= (1.5*L+5)/(1-Y)	=	75.9 sec
Cm	= L/(1-Y)	=	44.2 sec
Yult		=	0.728
R.C.ult	= (Yult-Y)/Y*100%	=	51.7 %
Cp	= 0.9*L/(0.9-Y)	=	49.2 sec
Ymax	= 1-L/C	=	0.808
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	51.7 %

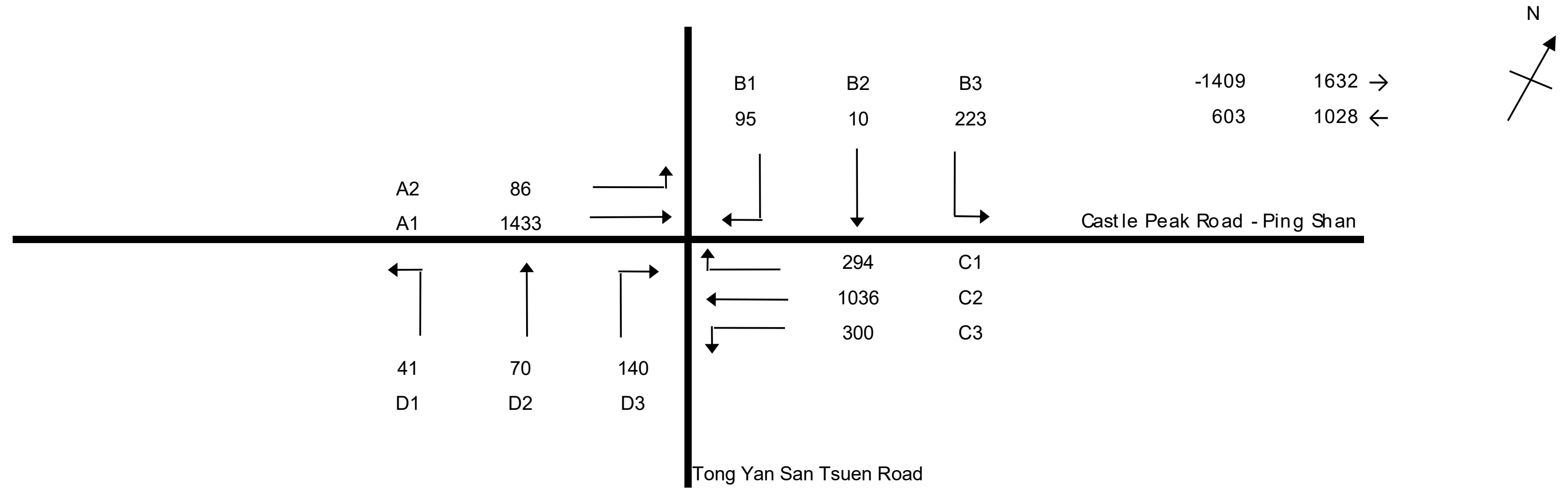


Stage 1	Int = 10	Stage 2	Int = 5	Stage 3	Int = 5	Stage 4	Int = 7	Stage 5	Int =

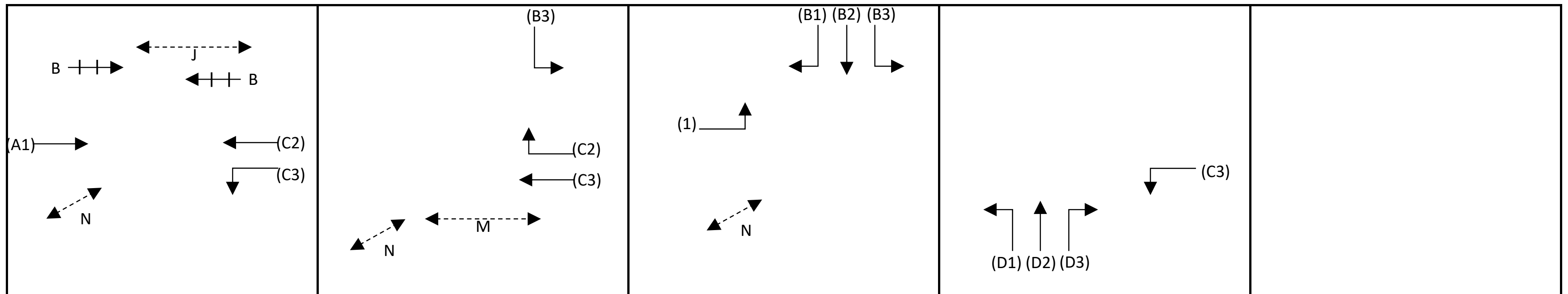
	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
(1)	J	4.5	7	5	8	34	5	8	OK
(1)	B(LRT)	N/A	10	5	10	32	5	10	OK
1,2	N	5.5	5	5	5	79	5	5	OK
(2)	M	12	5	5	10	26	5	10	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	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.
																				23				
A1	1	3.00	D	3				6165		1169		1169	0.00	6165			6165	0.190	0.190		38	38	0.593	53
C3	1,4	3.50	L	1	14		N	1965	328			328	1.00	1775			1775	0.185			37	57	0.391	35
C2	1,2	3.50	F	2				4210		969		969	0.00	4210			4210	0.230			47	85	0.325	28
C1	2	3.50	G	1	30			2105			371	371	1.00	2005			2005	0.185	0.185		37	37	0.593	51
B3	2,3	3.70	H	1	16		N	1985	262			262	1.00	1815			1815	0.144			29	50	0.344	30
B1,B2	3	3.40	I	1	30			2095		9	79	88	0.90	2005			2005	0.044	0.044		9	9	0.593	16
D1	4	3.50	K	1	25		N	1965	51			51	1.00	1854			1854	0.028	0.061		6	12	0.268	9
D2,D3	4	3.30	K	1	33			2085		111	15	126	0.12	2074			2074	0.061			12	12	0.593	23
D3	4	3.30	K	1	27			2085			120	120	1.00	1975			1975	0.061			12	12	0.591	22
A2	3	3.50	E	1	18		N	1965	23			23	1.00	1814			1814	0.012			3	9	0.168	4

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO: 245467	
J2 Castle Peak Road - Ping Shan/ Tong Yan San Tsuen	Year 2029 Reference Traffic Flows (AM Peak)	DATE : 18-Jan-22	FILENAME:



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.484
Loss time		L =	23 sec
Total Flow		=	3729.33 pcu
Co	= (1.5*L+5)/(1-Y)	=	76.5 sec
Cm	= L/(1-Y)	=	44.5 sec
Yult		=	0.728
R.C.ult	= (Yult-Y)/Y*100%	=	50.4 %
Cp	= 0.9*L/(0.9-Y)	=	49.7 sec
Ymax	= 1-L/C	=	0.808
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	50.4 %

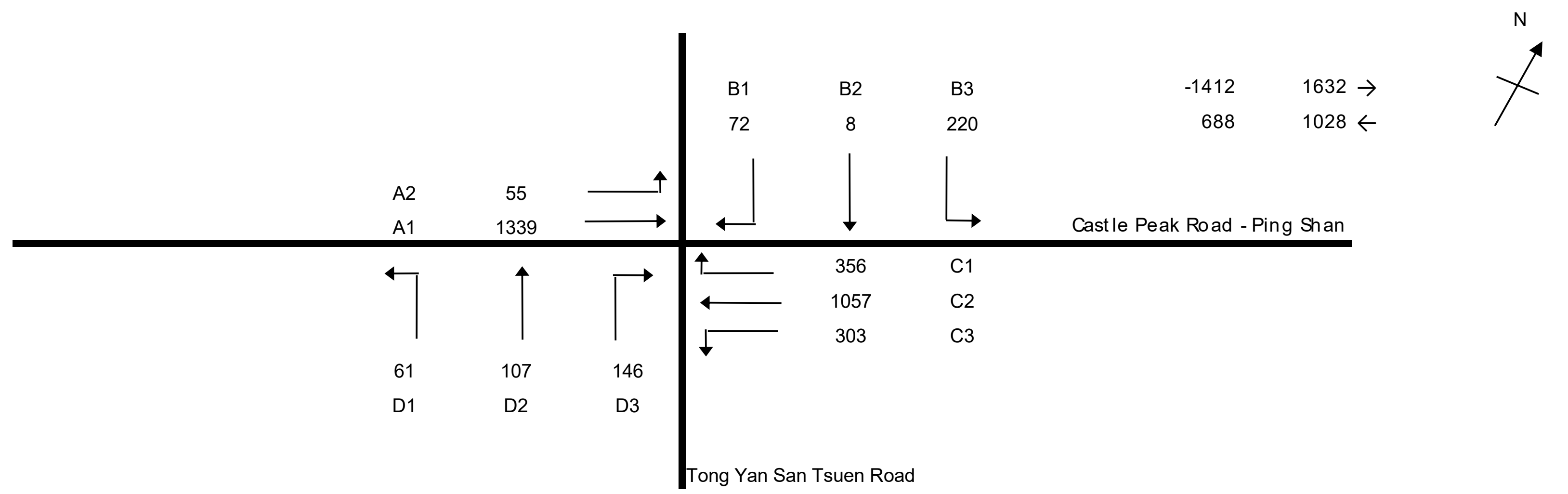


Stage 1	Int = 10	Stage 2	Int = 5	Stage 3	Int = 5	Stage 4	Int = 7	Stage 5	Int =

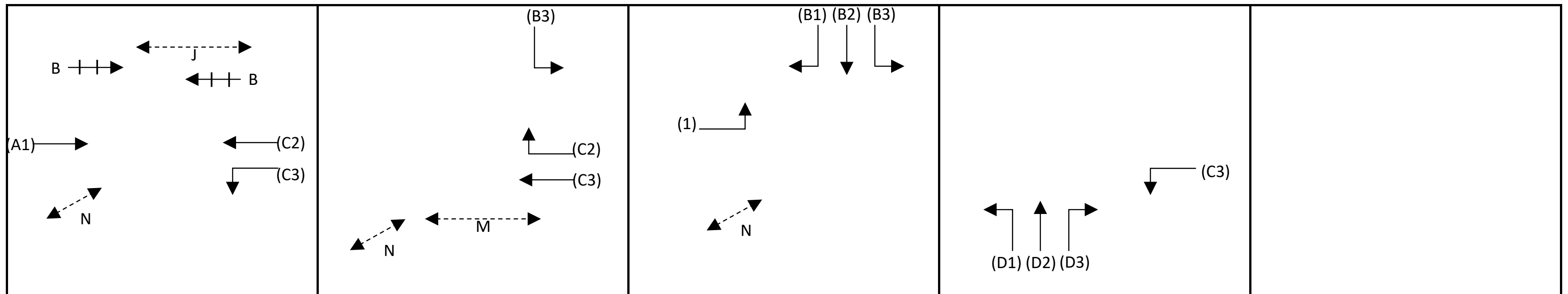
	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
(1)	J	4.5	7	5	8	43	5	8	OK
(1)	B(LRT)	N/A	10	5	10	41	5	10	OK
1,2	N	5.5	5	5	5	79	5	5	OK
(2)	M	12	5	5	10	18	5	10	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	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.
																				23				
A1	1	3.00	D	3				6165		1433		1433	0.00	6165			6165	0.233	0.233		47	47	0.598	58
C3	1,4	3.50	L	1	14		N	1965	300			300	1.00	1775			1775	0.169			34	63	0.321	28
C2	1,2	3.50	F	2				4210		1036		1036	0.00	4210			4210	0.246			49	85	0.347	30
C1	2	3.50	G	1	30			2105			294	294	1.00	2005			2005	0.147	0.147		29	29	0.598	44
B3	2,3	3.70	H	1	16		N	1985	223			223	1.00	1815			1815	0.123			25	44	0.336	28
B1,B2	3	3.40	I	1	30			2095		10	95	105	0.90	2004			2004	0.052	0.052		10	10	0.598	19
D1	4	3.50	K	1	25		N	1965	41			41	1.00	1854			1854	0.022	0.052		4	10	0.254	8
D2,D3	4	3.30	K	1	33			2085		70	37	107	0.34	2053			2053	0.052			10	10	0.598	20
D3	4	3.30	K	1	27			2085			103	103	1.00	1975			1975	0.052			10	10	0.598	19
A2	3	3.50	E	1	18		N	1965	86			86	1.00	1814			1814	0.048			10	10	0.546	16

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO: 245467	
J2 Castle Peak Road - Ping Shan/ Tong Yan San Tsuen	Year 2029 Reference Traffic Flows (PM Peak)	DATE : 18-Jan-22	FILENAME:



No. of stages per cycle		N =	4	
No. of stage using for calculation		N =	4	
Cycle time		C =	120	sec
Sum(y)		Y =	0.497	
Loss time		L =	23	sec
Total Flow		=	3722.23	pcu
Co	= (1.5*L+5)/(1-Y)	=	78.5	sec
Cm	= L/(1-Y)	=	45.7	sec
Yult		=	0.728	
R.C.ult	= (Yult-Y)/Y*100%	=	46.4	%
Cp	= 0.9*L/(0.9-Y)	=	51.4	sec
Ymax	= 1-L/C	=	0.808	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	46.4	%

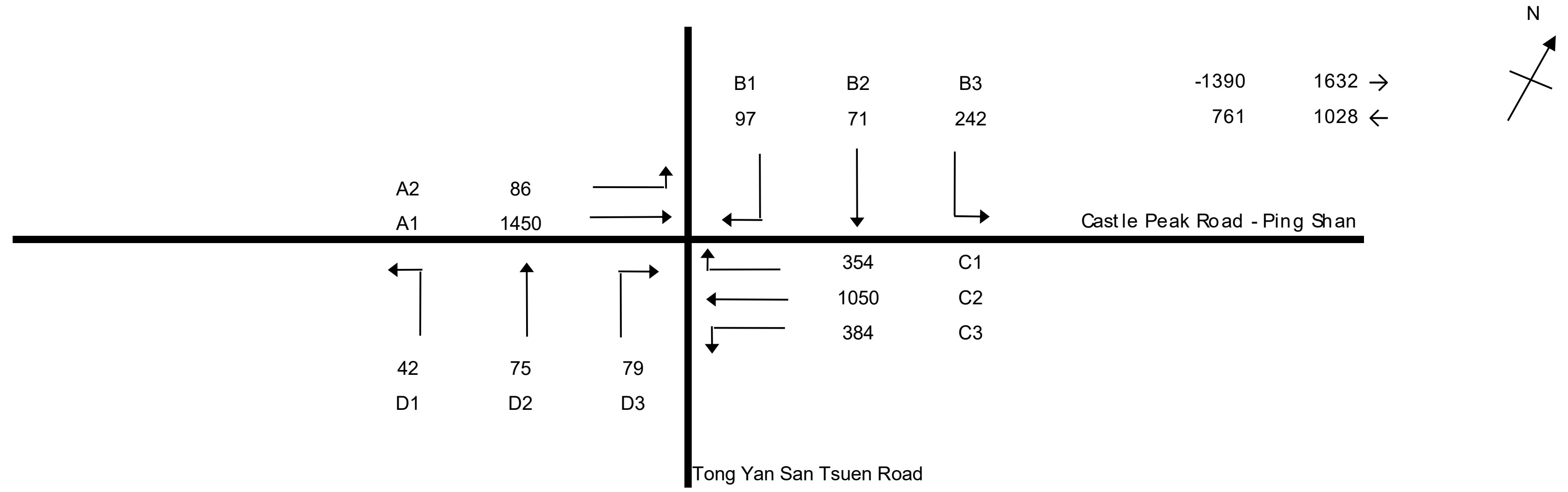


Stage 1	Int = 10	Stage 2	Int = 5	Stage 3	Int = 5	Stage 4	Int = 7	Stage 5	Int =

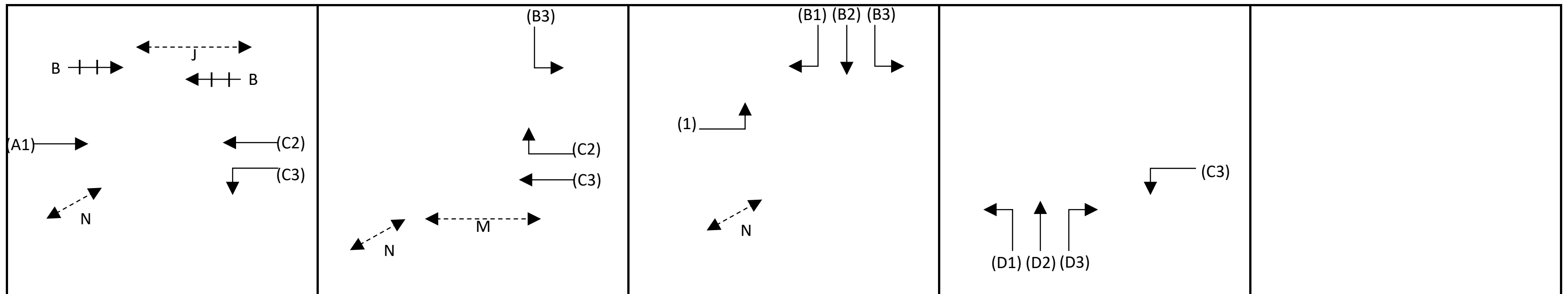
	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
(1)	J	4.5	7	5	8	38	5	8	OK
(1)	B(LRT)	N/A	10	5	10	36	5	10	OK
1,2	N	5.5	5	5	5	80	5	5	OK
(2)	M	12	5	5	10	24	5	10	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	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.
																				23				
A1	1	3.00	D	3				6165		1339		1339	0.00	6165			6165	0.217	0.217		42	42	0.615	58
C3	1,4	3.50	L	1	14		N	1965	303			303	1.00	1775			1775	0.171			33	61	0.338	30
C2	1,2	3.50	F	2				4210		1057		1057	0.00	4210			4210	0.251			49	86	0.350	30
C1	2	3.50	G	1	30			2105			356	356	1.00	2005			2005	0.177	0.177		35	35	0.615	51
B3	2,3	3.70	H	1	16		N	1985	220			220	1.00	1815			1815	0.121			24	46	0.313	27
B1,B2	3	3.40	I	1	30			2095		8	72	79	0.90	2004			2004	0.040	0.040		8	8	0.615	15
D1	4	3.50	K	1	25		N	1965	61			61	1.00	1854			1854	0.033	0.063		6	12	0.322	11
D2,D3	4	3.30	K	1	33			2085		107	23	130	0.18	2068			2068	0.063			12	12	0.615	23
D3	4	3.30	K	1	27			2085			123	123	1.00	1975			1975	0.062			12	12	0.610	22
A2	3	3.50	E	1	18		N	1965	55			55	1.00	1814			1814	0.030			6	8	0.470	10

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO: 245467	
J2 Castle Peak Road - Ping Shan/ Tong Yan San Tsuen	Year 2029 Design Traffic Flows (AM Peak)	DATE : 18-Jan-22	FILENAME:



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.533
Loss time		L =	23 sec
Total Flow		=	3930.6265 pcu
Co	= (1.5*L+5)/(1-Y)	=	84.6 sec
Cm	= L/(1-Y)	=	49.3 sec
Yult		=	0.728
R.C.ult	= (Yult-Y)/Y*100%	=	36.5 %
Cp	= 0.9*L/(0.9-Y)	=	56.4 sec
Ymax	= 1-L/C	=	0.808
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	36.5 %



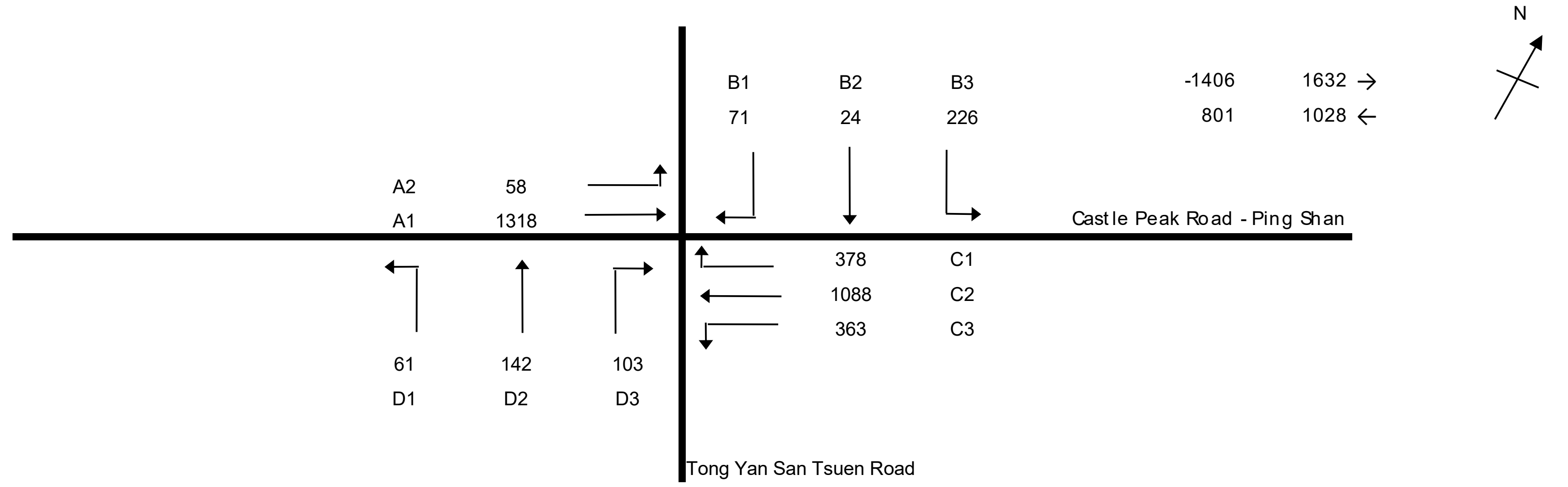
Stage 1	Int = 10	Stage 2	Int = 5	Stage 3	Int = 5	Stage 4	Int = 7	Stage 5	Int =

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
(1)	J	4.5	7	5	8	39	5	8	OK
(1)	B(LRT)	N/A	10	5	10	37	5	10	OK
1,2	N	5.5	5	5	5	78	5	5	OK
(2)	M	12	5	5	10	21	5	10	OK

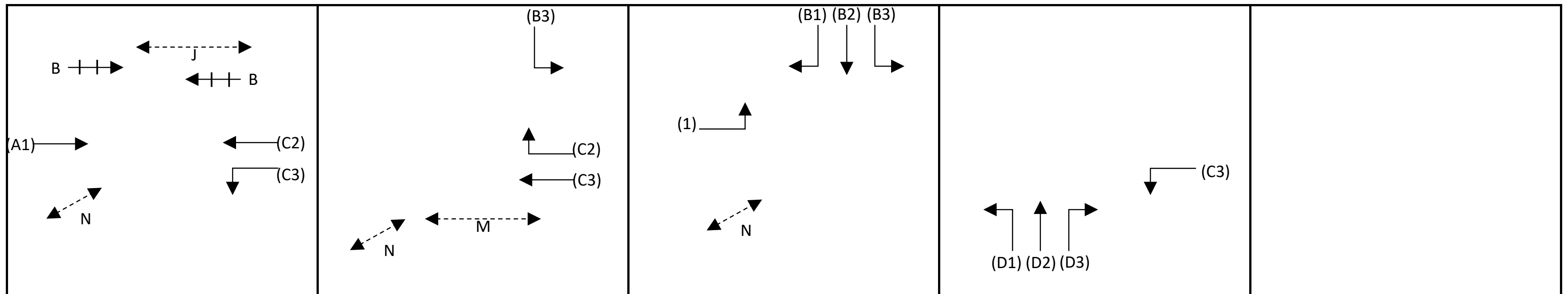
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				23				
A1	1	3.00	D	3				6165		1450		1450	0.00	6165			6165	0.235	0.235		43	43	0.659	62
C3	1,4	3.50	L	1	14		N	1965	384			384	1.00	1775			1775	0.216			39	56	0.465	41
C2	1,2	3.50	F	2				4210		1050		1050	0.00	4210			4210	0.249			45	84	0.356	32
C1	2	3.50	G	1	30			2105			354	354	1.00	2005			2005	0.177	0.177		32	32	0.659	52
B3	2,3	3.70	H	1	16		N	1985	242			242	1.00	1815			1815	0.133			24	51	0.312	28
B1,B2	3	3.40	I	1	30			2095		71	97	169	0.58	2036			2036	0.083	0.083		15	15	0.659	30
D1	4	3.50	K	1	25		N	1965	42			42	1.00	1854			1854	0.022	0.038		4	7	0.387	8
D2,D3	4	3.30	K	1	33			2085		75	4	79	0.05	2080			2080	0.038			7	7	0.659	15
D3	4	3.30	K	1	27			2085			75	75	1.00	1975			1975	0.038			7	7	0.655	14
A2	3	3.50	E	1	18		N	1965	86			86	1.00	1814			1814	0.047			9	15	0.376	15

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION

Site Formation in Long Bin, Yuen Long		PROJECT NO: 245467	
J2 Castle Peak Road - Ping Shan/ Tong Yan San Tsuen	Year 2029 Design Traffic Flows (PM Peak)	DATE : 18-Jan-22	FILENAME:



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.517
Loss time		L =	23 sec
Total Flow		=	3831.9798 pcu
Co	= (1.5*L+5)/(1-Y)	=	81.9 sec
Cm	= L/(1-Y)	=	47.7 sec
Yult		=	0.728
R.C.ult	= (Yult-Y)/Y*100%	=	40.6 %
Cp	= 0.9*L/(0.9-Y)	=	54.1 sec
Ymax	= 1-L/C	=	0.808
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	40.6 %

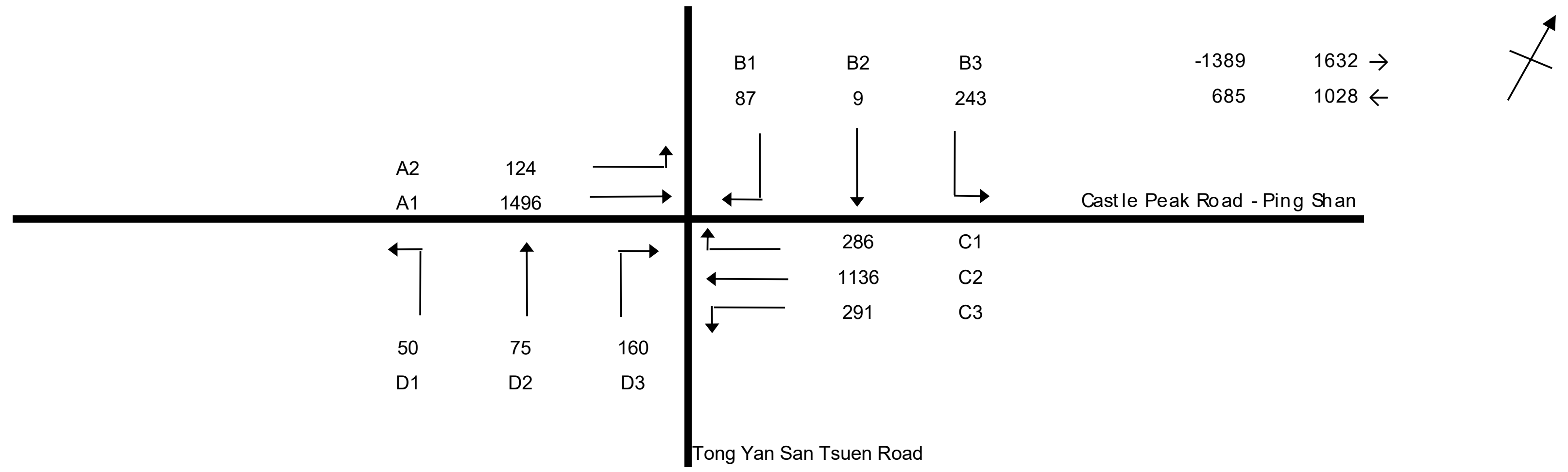


Stage 1	Int = 10	Stage 2	Int = 5	Stage 3	Int = 5	Stage 4	Int = 7	Stage 5	Int =

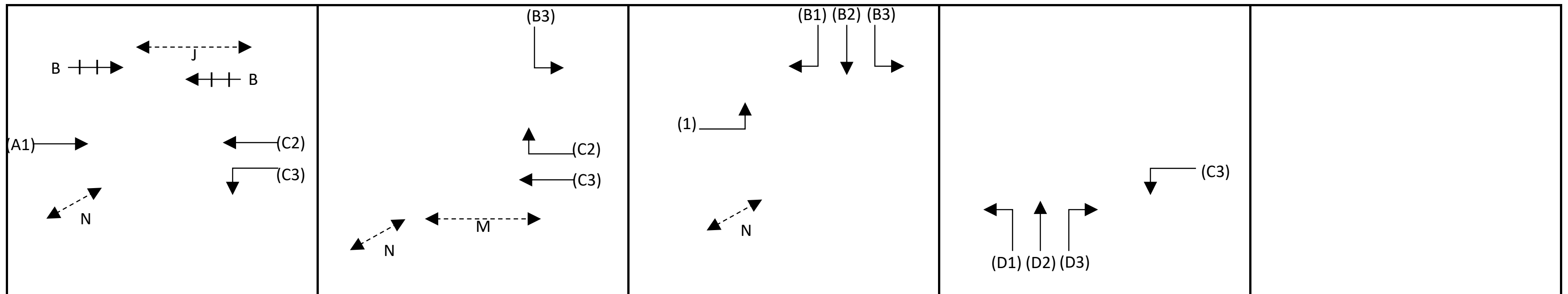
	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
(1)	J	4.5	7	5	8	36	5	8	OK
(1)	B(LRT)	N/A	10	5	10	34	5	10	OK
1,2	N	5.5	5	5	5	78	5	5	OK
(2)	M	12	5	5	10	24	5	10	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	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.
																				23				
A1	1	3.00	D	3				6165		1318		1318	0.00	6165			6165	0.214	0.214		40	40	0.640	59
C3	1,4	3.50	L	1	14		N	1965	363			363	1.00	1775			1775	0.204			38	59	0.417	37
C2	1,2	3.50	F	2				4210		1088		1088	0.00	4210			4210	0.258			48	84	0.367	32
C1	2	3.50	G	1	30			2105			378	378	1.00	2005			2005	0.189	0.189		35	35	0.640	53
B3	2,3	3.70	H	1	16		N	1985	226			226	1.00	1815			1815	0.125			23	48	0.310	27
B1,B2	3	3.40	I	1	30			2095		24	71	95	0.75	2019			2019	0.047	0.047		9	9	0.640	18
D1	4	3.50	K	1	25		N	1965	61			61	1.00	1854			1854	0.033	0.068		6	13	0.310	11
D2,D3	4	3.30	K	1	33			2085		142	0	142	0.00	2085			2085	0.068			13	13	0.640	25
D3	4	3.30	K	1	27			2085			103	103	1.00	1975			1975	0.052			10	13	0.492	18
A2	3	3.50	E	1	18		N	1965	58			58	1.00	1814			1814	0.032			6	9	0.436	11

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO: 245467	
J2 Castle Peak Road - Ping Shan/ Tong Yan San Tsuen	Year 2034 Reference Traffic Flows (AM Peak)	DATE : 18-Jan-22	FILENAME:



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.512
Loss time		L =	23 sec
Total Flow		=	3957.4 pcu
Co	= (1.5*L+5)/(1-Y)	=	81.0 sec
Cm	= L/(1-Y)	=	47.2 sec
Yult		=	0.728
R.C.ult	= (Yult-Y)/Y*100%	=	42.0 %
Cp	= 0.9*L/(0.9-Y)	=	53.4 sec
Ymax	= 1-L/C	=	0.808
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	42.0 %

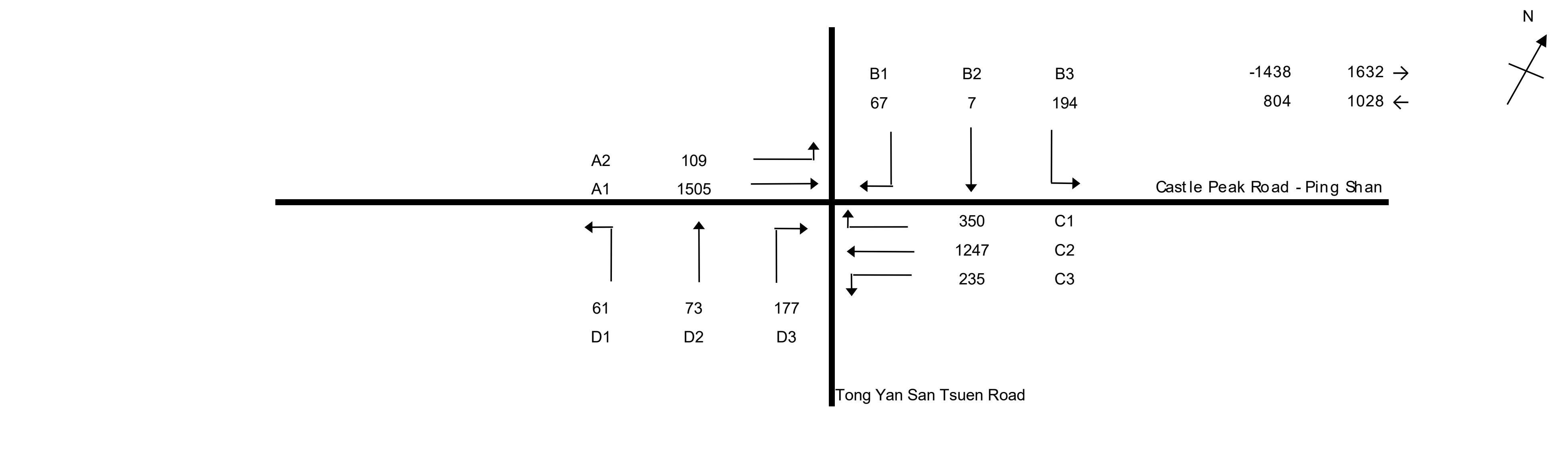


Stage 1	Int = 10	Stage 2	Int = 5	Stage 3	Int = 5	Stage 4	Int = 7	Stage 5	Int =

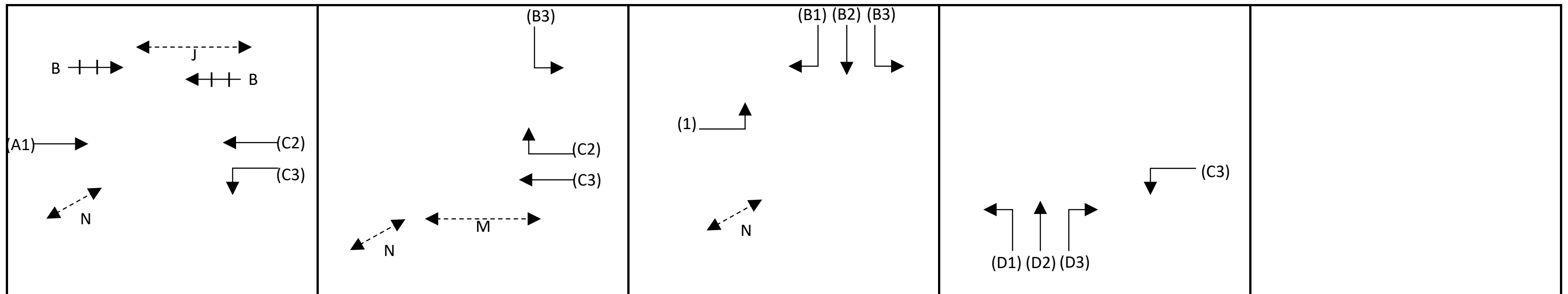
	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
(1)	J	4.5	7	5	8	42	5	8	OK
(1)	B(LRT)	N/A	10	5	10	40	5	10	OK
1,2	N	5.5	5	5	5	76	5	5	OK
(2)	M	12	5	5	10	16	5	10	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	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.
																				23				
A1	1	3.00	D	3				6165		1496		1496	0.00	6165			6165	0.243	0.243		46	46	0.634	62
C3	1,4	3.50	L	1	14		N	1965	291			291	1.00	1775			1775	0.164			31	63	0.312	28
C2	1,2	3.50	F	2				4210		1136		1136	0.00	4210			4210	0.270			51	82	0.395	36
C1	2	3.50	G	1	30			2105			286	286	1.00	2005			2005	0.143	0.143		27	27	0.634	44
B3	2,3	3.70	H	1	16		N	1985	243			243	1.00	1815			1815	0.134			25	40	0.400	32
B1,B2	3	3.40	I	1	30			2095		9	87	96	0.91	2004			2004	0.048	0.068		9	9	0.634	18
D1	4	3.50	K	1	25		N	1965	50			50	1.00	1854			1854	0.027	0.059		5	11	0.292	9
D2,D3	4	3.30	K	1	33			2085		75	45	120	0.37	2050			2050	0.059			11	11	0.634	22
D3	4	3.30	K	1	27			2085			115	115	1.00	1975			1975	0.058			11	11	0.631	21
A2	3	3.50	E	1	18		N	1965	124			124	1.00	1814			1814	0.068			13	9	0.903	33

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO: 245467	
J2 Castle Peak Road - Ping Shan/ Tong Yan San Tsuen	Year 2034 Reference Traffic Flows (PM Peak)	DATE : 18-Jan-22	FILENAME:



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.541
Loss time		L =	23 sec
Total Flow		=	4023.3 pcu
Co	= (1.5*L+5)/(1-Y)	=	86.0 sec
Cm	= L/(1-Y)	=	50.1 sec
Yult		=	0.728
R.C.ult	= (Yult-Y)/Y*100%	=	34.5 %
Cp	= 0.9*L/(0.9-Y)	=	57.6 sec
Ymax	= 1-L/C	=	0.808
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	34.5 %

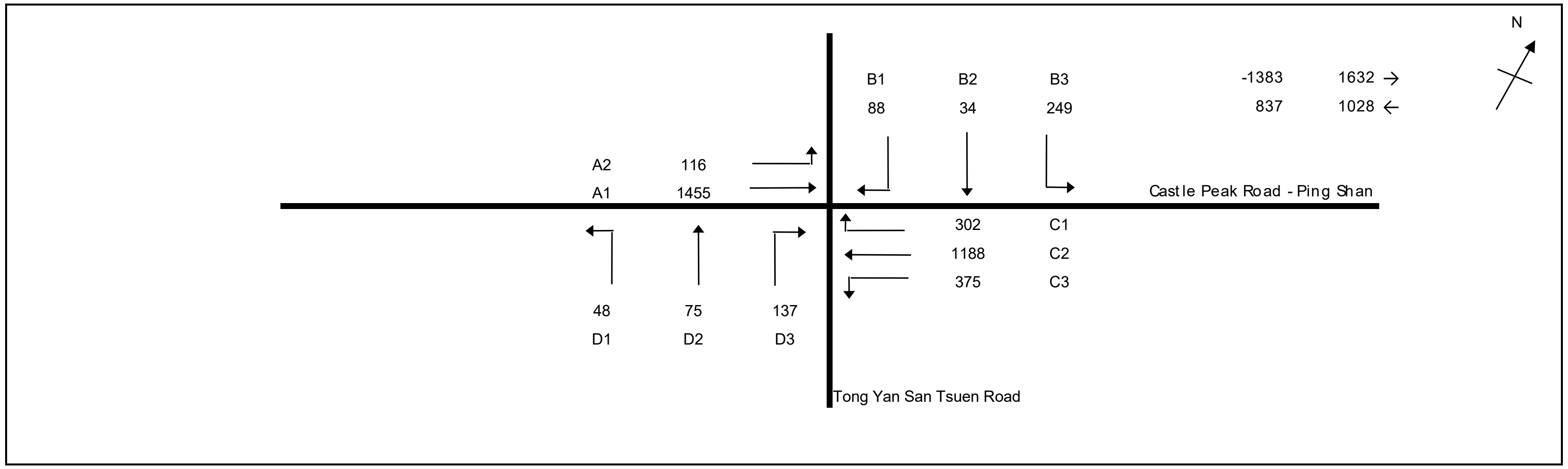


Stage 1	Int =	10	Stage 2	Int =	5	Stage 3	Int =	5	Stage 4	Int =	7	Stage 5	Int =	

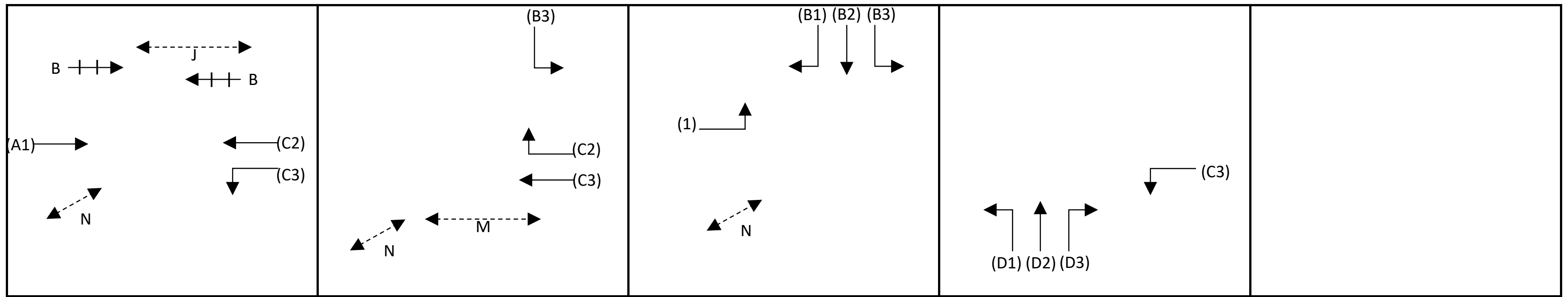
	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
(1)	J	4.5	7	5	8	40	5	8	OK
(1)	B(LRT)	N/A	10	5	10	38	5	10	OK
1,2	N	5.5	5	5	5	78	5	5	OK
(2)	M	12	5	5	10	20	5	10	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	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.
																				23				
A1	1	3.00	D	3				6165		1505		1505	0.00	6165			6165	0.244	0.244		44	44	0.669	64
C3	1,4	3.50	L	1	14		N	1965	235			235	1.00	1775			1775	0.132			24	61	0.260	23
C2	1,2	3.50	F	2				4210		1247		1247	0.00	4210			4210	0.296			53	84	0.423	37
C1	2	3.50	G	1	30			2105			350	350	1.00	2005			2005	0.175	0.175		31	31	0.669	52
B3	2,3	3.70	H	1	16		N	1985	194			194	1.00	1815			1815	0.107			19	42	0.305	25
B1,B2	3	3.40	I	1	30			2095		7	67	74	0.90	2004			2004	0.037	0.060		7	7	0.669	14
D1	4	3.50	K	1	25		N	1965	61			61	1.00	1854			1854	0.033	0.062		6	11	0.354	11
D2,D3	4	3.30	K	1	33			2085		73	54	127	0.43	2045			2045	0.062			11	11	0.665	23
D3	4	3.30	K	1	27			2085			123	123	1.00	1975			1975	0.062			11	11	0.669	22
A2	3	3.50	E	1	18		N	1965	109			109	1.00	1814			1814	0.060			11	7	1.082	21

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO: 245467	
J2 Castle Peak Road - Ping Shan/ Tong Yan San Tsuen	Year 2034 Design Traffic Flows (AM Peak)	DATE : 18-Jan-22	FILENAME:



No. of stages per cycle		N =	4	
No. of stage using for calculation		N =	4	
Cycle time		C =	120	sec
Sum(y)		Y =	0.503	
Loss time		L =	23	sec
Total Flow		=	4065.4565	pcu
Co	= (1.5*L+5)/(1-Y)	=	79.5	sec
Cm	= L/(1-Y)	=	46.3	sec
Yult		=	0.728	
R.C.ult	= (Yult-Y)/Y*100%	=	44.6	%
Cp	= 0.9*L/(0.9-Y)	=	52.1	sec
Ymax	= 1-L/C	=	0.808	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	44.6	%

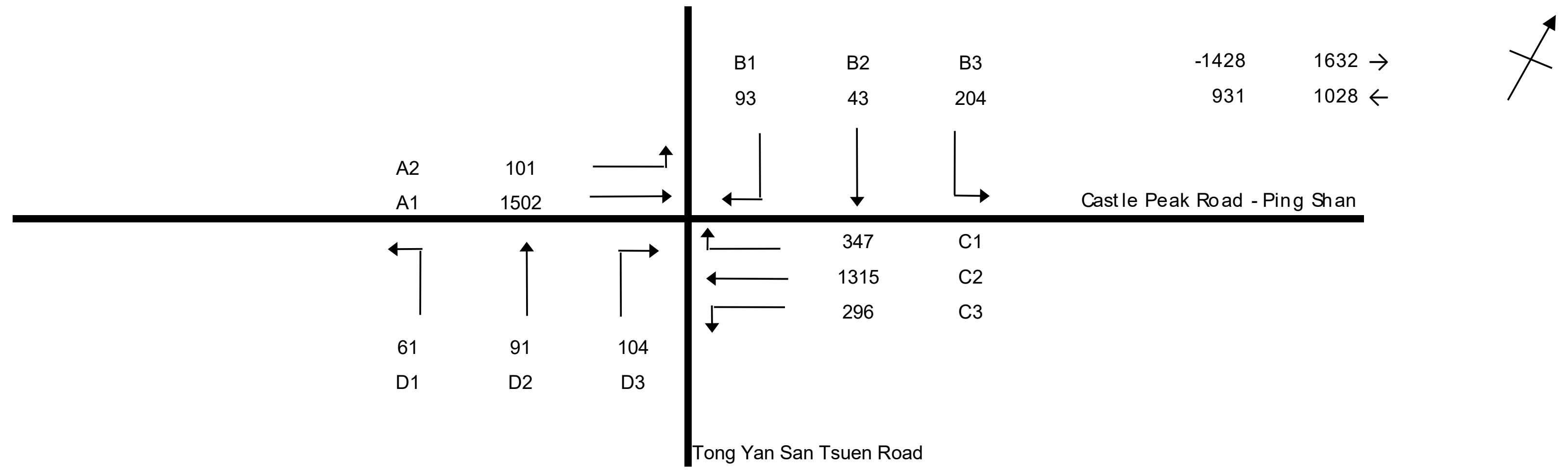


Stage 1	Int = 10	Stage 2	Int = 5	Stage 3	Int = 5	Stage 4	Int = 7	Stage 5	Int =

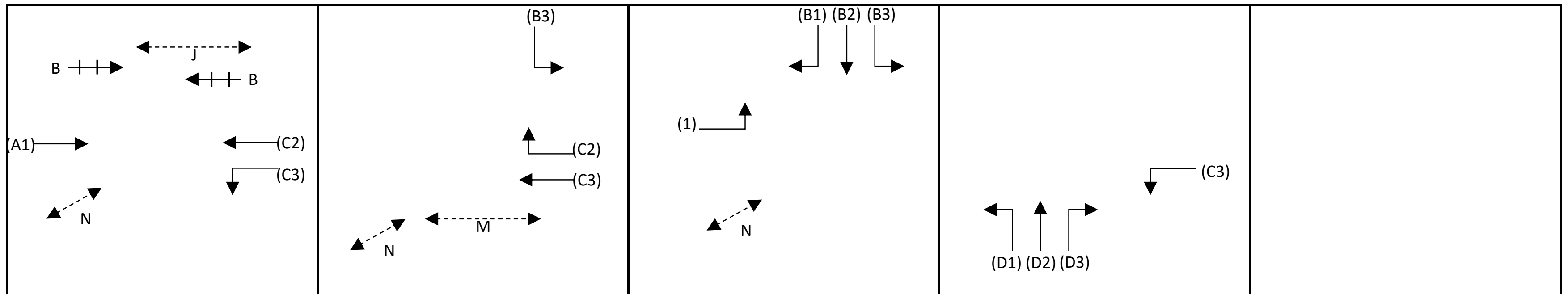
	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
(1)	J	4.5	7	5	8	41	5	8	OK
(1)	B(LRT)	N/A	10	5	10	39	5	10	OK
1,2	N	5.5	5	5	5	78	5	5	OK
(2)	M	12	5	5	10	18	5	10	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	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.
																				23				
A1	1	3.00	D	3				6165		1455		1455	0.00	6165			6165	0.236	0.236		45	45	0.622	60
C3	1,4	3.50	L	1	14		N	1965	375			375	1.00	1775			1775	0.211			41	62	0.412	37
C2	1,2	3.50	F	2				4210		1188		1188	0.00	4210			4210	0.282			54	84	0.405	36
C1	2	3.50	G	1	30			2105			302	302	1.00	2005			2005	0.151	0.151		29	29	0.622	46
B3	2,3	3.70	H	1	16		N	1985	249			249	1.00	1815			1815	0.137			26	45	0.368	31
B1,B2	3	3.40	I	1	30			2095		34	88	122	0.72	2022			2022	0.060	0.064		12	12	0.622	22
D1	4	3.50	K	1	25		N	1965	48			48	1.00	1854			1854	0.026	0.052		5	10	0.307	9
D2,D3	4	3.30	K	1	33			2085		75	33	108	0.31	2056			2056	0.052			10	10	0.621	20
D3	4	3.30	K	1	27			2085			104	104	1.00	1975			1975	0.052			10	10	0.622	19
A2	3	3.50	E	1	18		N	1965	116			116	1.00	1814			1814	0.064			12	12	0.662	21

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO: 245467	
J2 Castle Peak Road - Ping Shan/ Tong Yan San Tsuen	Year 2034 Design Traffic Flows (PM Peak)	DATE : 18-Jan-22	FILENAME:



No. of stages per cycle		N =	4	
No. of stage using for calculation		N =	4	
Cycle time		C =	120	sec
Sum(y)		Y =	0.533	
Loss time		L =	23	sec
Total Flow		=	4157.8298	pcu
Co	= (1.5*L+5)/(1-Y)	=	84.5	sec
Cm	= L/(1-Y)	=	49.2	sec
Yult		=	0.728	
R.C.ult	= (Yult-Y)/Y*100%	=	36.6	%
Cp	= 0.9*L/(0.9-Y)	=	56.3	sec
Ymax	= 1-L/C	=	0.808	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	36.6	%

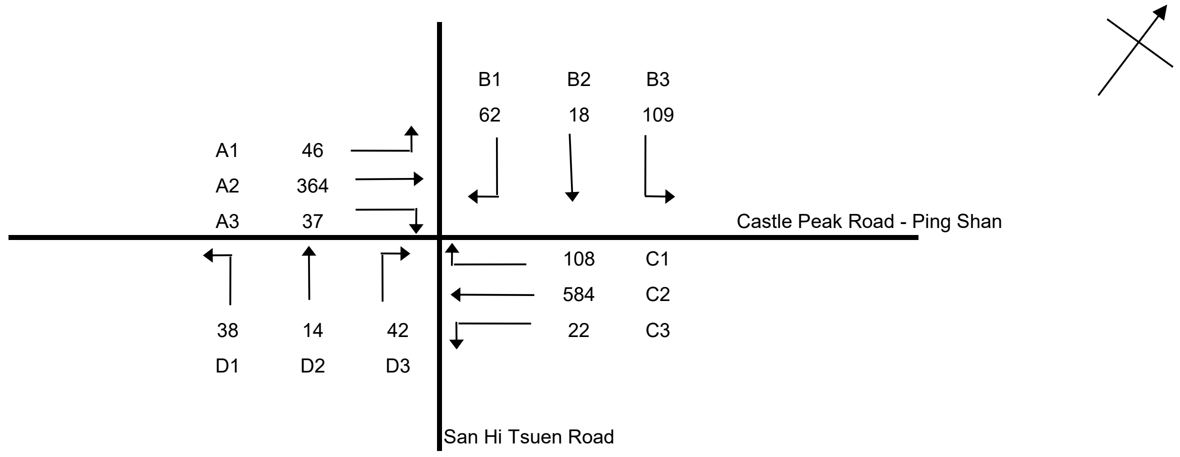


Stage 1	Int = 10	Stage 2	Int = 5	Stage 3	Int = 5	Stage 4	Int = 7	Stage 5	Int =

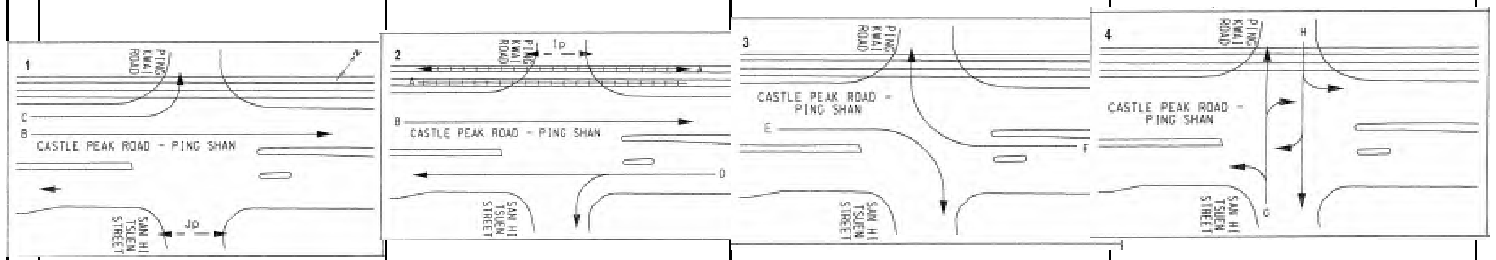
	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
(1)	J	4.5	7	5	8	40	5	8	OK
(1)	B(LRT)	N/A	10	5	10	38	5	10	OK
1,2	N	5.5	5	5	5	79	5	5	OK
(2)	M	12	5	5	10	21	5	10	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	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.
																				23				
A1	1	3.00	D	3				6165		1502		1502	0.00	6165			6165	0.244	0.244		44	44	0.659	63
C3	1,4	3.50	L	1	14		N	1965	296			296	1.00	1775			1775	0.167			30	59	0.338	30
C2	1,2	3.50	F	2				4210		1315		1315	0.00	4210			4210	0.312			57	85	0.441	38
C1	2	3.50	G	1	30			2105			347	347	1.00	2005			2005	0.173	0.173		32	32	0.659	51
B3	2,3	3.70	H	1	16		N	1985	204			204	1.00	1815			1815	0.112			20	48	0.282	25
B1,B2	3	3.40	I	1	30			2095		43	93	136	0.68	2026			2026	0.067	0.067		12	12	0.659	24
D1	4	3.50	K	1	25		N	1965	61			61	1.00	1854			1854	0.033	0.048		6	9	0.448	11
D2,D3	4	3.30	K	1	33			2085		91	9	100	0.09	2077			2077	0.048			9	9	0.659	19
D3	4	3.30	K	1	27			2085			95	95	1.00	1975			1975	0.048			9	9	0.655	18
A2	3	3.50	E	1	18		N	1965	101			101	1.00	1814			1814	0.055			10	12	0.543	18

OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION	
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J3 Castle Peak Road - Ping Shan/ San Hi Tsuen Road	Year 2018 Observed Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.249
Loss time		L =	23 sec
Total Flow		=	1442 pcu
Co	= (1.5*L+5)/(1-Y)	=	52.6 sec
Cm	= L/(1-Y)	=	30.6 sec
Yult		=	0.728
R.C.ult	= (Yult-Y)/Y*100%	=	191.9 %
Cp	= 0.9*L/(0.9-Y)	=	31.8 sec
Ymax	= 1-L/C	=	0.808
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	191.9 % (Optimized)



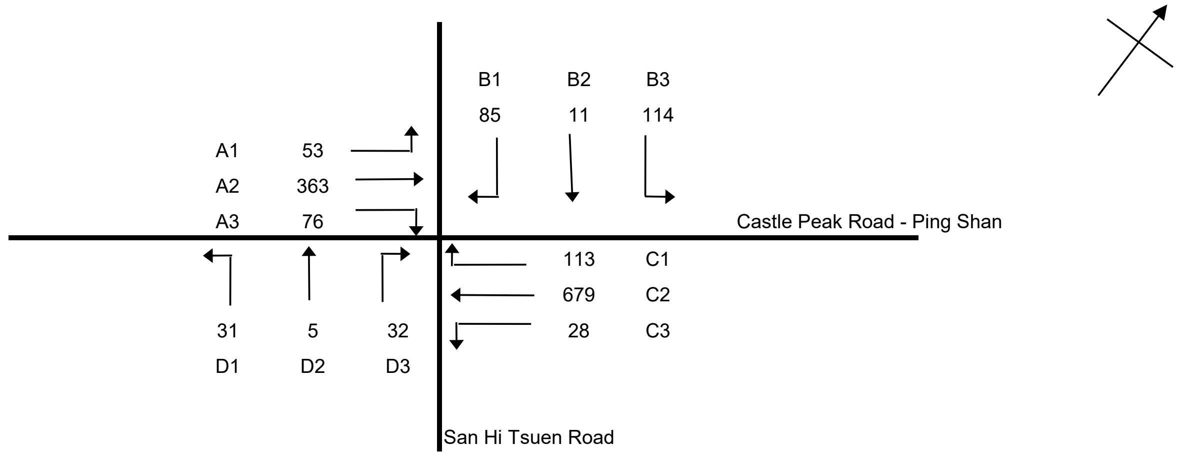
STAGE 1	INT= 6	STAGE 2	INT= 7	STAGE 3	INT= 6	STAGE 4	INT= 9

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
2	I	7.2	6	4	5	21	4	5	OK
2	A (LRT)		7	5	6	40	5	6	OK
	J	10.3	9	4	7	9	4	7	OK

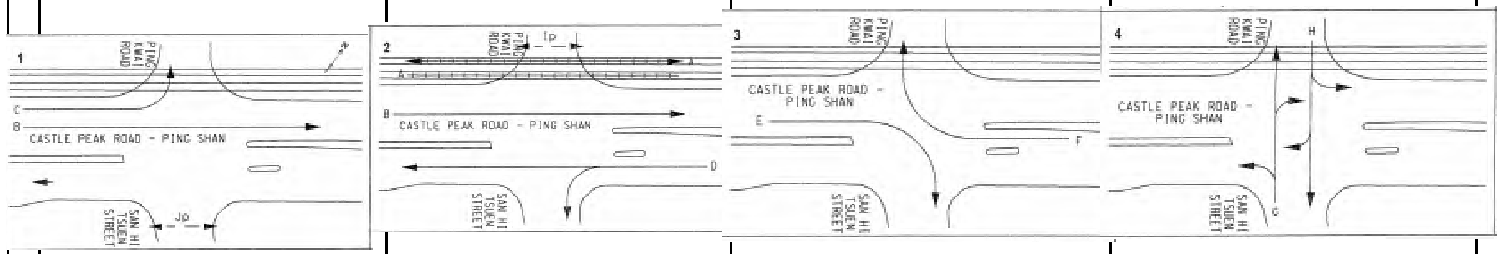
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				18				
A1	1	3.40	I	1	20		N	1955	46			46	1.00	1819			1819	0.025	0.025	5	10	15	0.204	8
A2	1,2	3.40	II	3				6285		364		364	0.00	6285			6285	0.058			23	58	0.119	12
C2,C3	2	3.30	III	1	20		N	1945	22	170		192	0.11	1929			1929	0.099			39	39	0.308	26
C2	2	3.30	III	2				4170		414		414	0.00	4170			4170	0.099	0.099		39	39	0.308	28
A3	3	3.40	IV	1	30			2095			37	37	1.00	1995			1995	0.018			7	21	0.103	6
C1	3	3.15	IV	1	30			2070			108	108	1.00	1971			1971	0.055	0.055		21	21	0.308	18
D1,D2	4	3.40	V	1	20		N	1955	38	14		52	0.73	1854			1854	0.028			11	27	0.124	8
D3	4	3.40	V	1	25	O		2095			42	42	1.00	1759			1759	0.024			9	27	0.105	6
B2,B3	4	3.10	V	1	20		N	1925	109	18		126	0.86	1808			1808	0.070			27	27	0.308	20
B1	4	3.10	V	1	45	O		2065			62	62	1.00	1776			1776	0.035	0.070		14	27	0.154	10

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J3 Castle Peak Road - Ping Shan/ San Hi Tsuen Road	Year 2018 Observed Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.272
Loss time		L =	23 sec
Total Flow		=	1589 pcu
Co	= (1.5*L+5)/(1-Y)	=	54.2 sec
Cm	= L/(1-Y)	=	31.6 sec
Yult		=	0.728
R.C.ult	= (Yult-Y)/Y*100%	=	167.6 %
Cp	= 0.9*L/(0.9-Y)	=	33.0 sec
Ymax	= 1-L/C	=	0.808
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	167.6 % (Optimized)



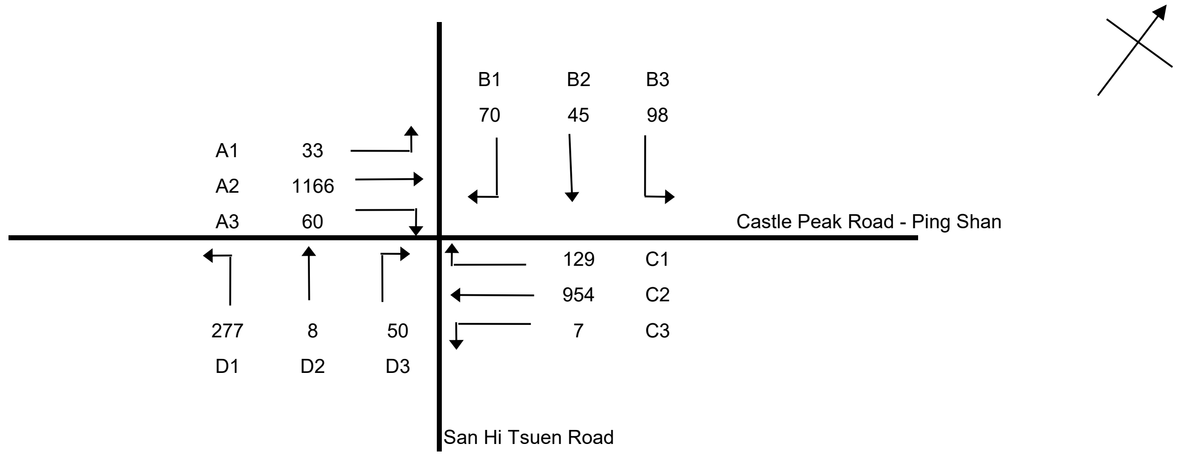
STAGE 1	INT= 6	STAGE 2	INT= 7	STAGE 3	INT= 6	STAGE 4	INT= 9

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
2	I	7.2	6	4	5	23	4	5	OK
2	A (LRT)		7	5	6	42	5	6	OK
	J	10.3	9	4	7	9	4	7	OK

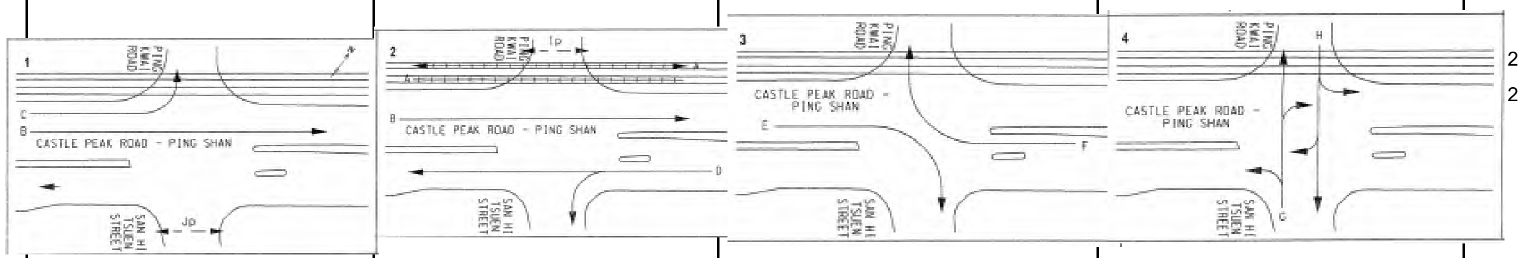
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				18				
A1	1	3.40	I	1	20		N	1955	53			53	1.00	1819			1819	0.029	0.029	5	10	15	0.227	9
A2	1,2	3.40	II	3				6285		363		363	0.00	6285			6285	0.058			21	62	0.112	12
C2,C3	2	3.30	III	1	20		N	1945	28	196		224	0.12	1927			1927	0.116			41	41	0.336	29
C2	2	3.30	III	2				4170		483		483	0.00	4170			4170	0.116	0.116		41	41	0.336	32
A3	3	3.40	IV	1	30			2095			76	76	1.00	1995			1995	0.038			14	21	0.223	13
C1	3	3.15	IV	1	30			2070			113	113	1.00	1971			1971	0.058	0.058		21	21	0.336	19
D1,D2	4	3.40	V	1	20		N	1955	31	5		36	0.86	1837			1837	0.019			7	25	0.094	6
D3	4	3.40	V	1	25	O		2095			32	32	1.00	1759			1759	0.018			7	25	0.089	5
B2,B3	4	3.10	V	1	20		N	1925	114	11		125	0.91	1802			1802	0.069			25	25	0.336	20
B1	4	3.10	V	1	45	O		2065			85	85	1.00	1776			1776	0.048	0.069		17	25	0.232	14

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

OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION	
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J3 Castle Peak Road - Ping Shan/ San Hi Tsuen Road	Year 2025 Reference Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4	
No. of stage using for calculation		N =	3	
Cycle time		C =	120	sec
Sum(y)		Y =	0.407	
Loss time		L =	31	sec
Total Flow		=	2897	pcu
Co	= (1.5*L+5)/(1-Y)	=	86.9	sec
Cm	= L/(1-Y)	=	52.3	sec
Yult		=	0.668	
R.C.ult	= (Yult-Y)/Y*100%	=	63.9	%
Cp	= 0.9*L/(0.9-Y)	=	56.6	sec
Ymax	= 1-L/C	=	0.742	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	63.9	% (Optimized)



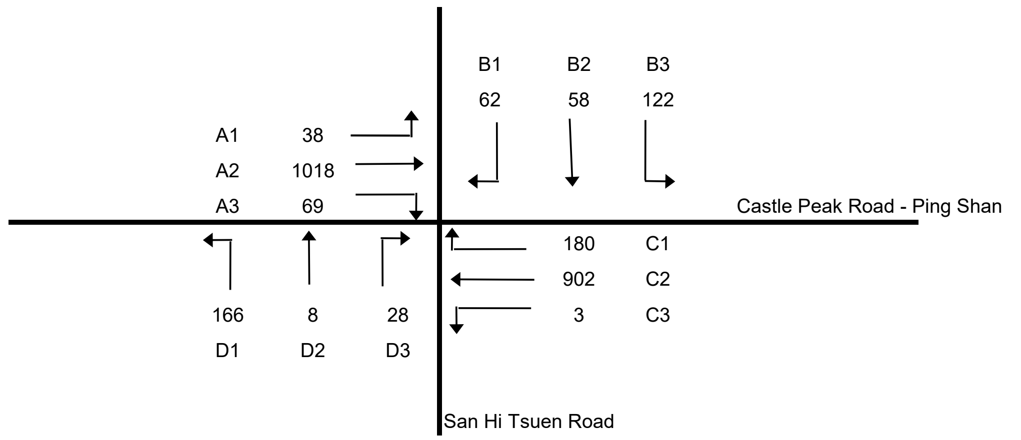
STAGE 1	INT= 6	STAGE 2	INT= 7	STAGE 3	INT= 6	STAGE 4	INT= 9

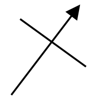
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
I	7.2	6	4	5	16	4	5	OK
A (LRT)		7	5	6	35	5	6	OK
J	10.3	9	4	7	10	4	7	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	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.
																				19				
A1	1	3.40	I	1	20		N	1955	33			33	1.00	1819			1819	0.018		12	4	16	0.135	6
A2	1,2	3.40	II	3				6285		1166		1166	0.00	6285			6285	0.185	0.185		41	55	0.402	42
C2,C3	2	3.30	III	1	20		N	1945	7	299		306	0.02	1942			1942	0.158			34	34	0.549	44
C2	2	3.30	III	2				4170		655		655	0.00	4170			4170	0.157			34	34	0.547	47
A3	3	3.40	IV	1	30			2095			60	60	1.00	1995			1995	0.030			7	14	0.253	11
C1	3	3.15	IV	1	30			2070			129	129	1.00	1971			1971	0.066	0.066		14	14	0.549	23
D1,D2	4	3.40	V	1	20		N	1955	277	8		285	0.97	1822			1822	0.156			34	34	0.549	41
D3	4	3.40	V	1	25	O		2095			50	50	1.00	1759			1759	0.028			6	34	0.100	7
B2,B3	4	3.10	V	1	20		N	1925	98	45		143	0.68	1831			1831	0.078			17	34	0.274	20
B1	4	3.10	V	1	45	O		2065			70	70	1.00	1776			1776	0.040	0.156		9	34	0.139	10

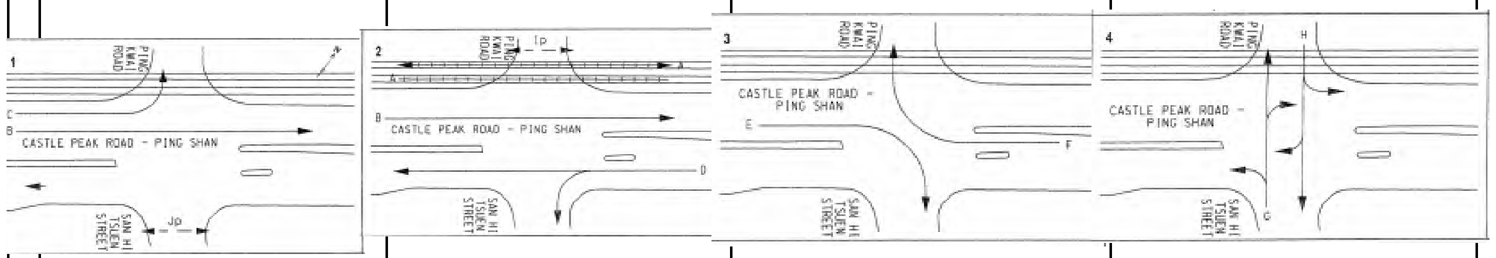
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J3 Castle Peak Road - Ping Shan/ San Hi Tsuen Road	Year 2025 Reference Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :





No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.358
Loss time		L =	28 sec
Total Flow		=	2654 pcu
Co	= (1.5*L+5)/(1-Y)	=	73.2 sec
Cm	= L/(1-Y)	=	43.6 sec
Yult		=	0.690
R.C.ult	= (Yult-Y)/Y*100%	=	92.7 %
Cp	= 0.9*L/(0.9-Y)	=	46.5 sec
Ymax	= 1-L/C	=	0.767
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	92.7 % (Optimized)



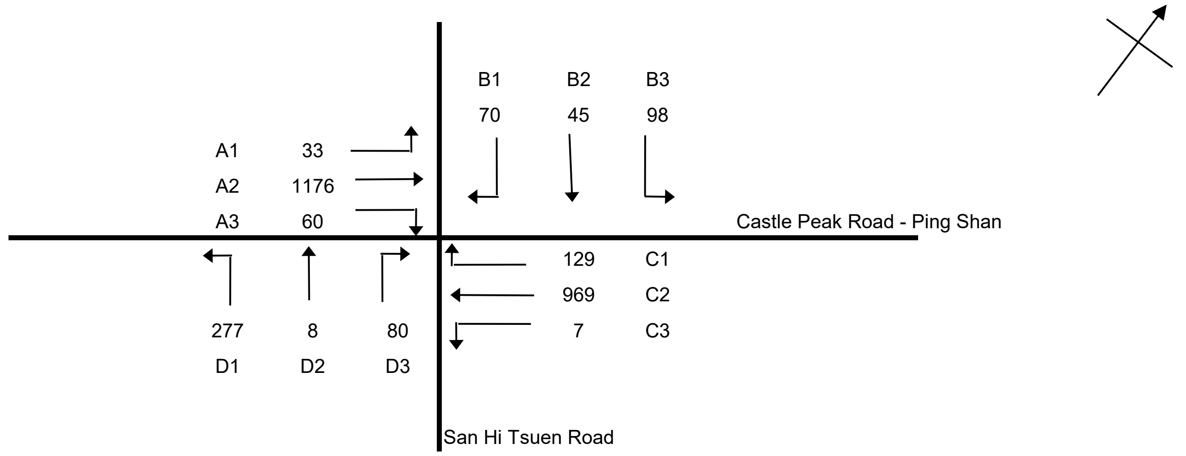
STAGE 1	INT= 6	STAGE 2	INT= 7	STAGE 3	INT= 6	STAGE 4	INT= 9

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
2	I	7.2	6	4	5	20	4	5	OK
2	A (LRT)		7	5	6	39	5	6	OK
	J	10.3	9	4	7	9	4	7	OK

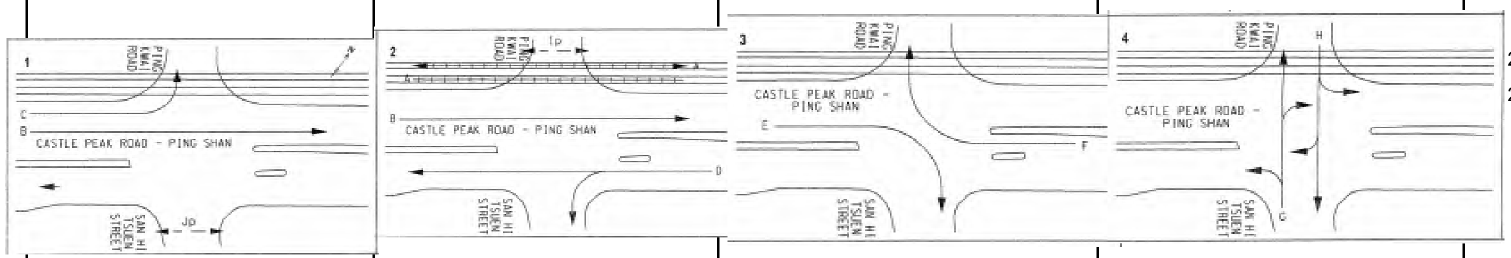
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				18				
A1	1	3.40	I	1	20		N	1955	38			38	1.00	1819			1819	0.021	0.021	10	5	15	0.163	7
A2	1,2	3.40	II	3				6285		1018		1018	0.00	6285			6285	0.162			42	58	0.333	35
C2,C3	2	3.30	III	1	20		N	1945	3	284		287	0.01	1943			1943	0.148	0.148		38	38	0.466	39
C2	2	3.30	III	2				4170		618		618	0.00	4170			4170	0.148			38	38	0.467	42
A3	3	3.40	IV	1	30			2095			69	69	1.00	1995			1995	0.035			9	23	0.177	11
C1	3	3.15	IV	1	30			2070			180	180	1.00	1971			1971	0.091	0.091		23	23	0.467	29
D1,D2	4	3.40	V	1	20		N	1955	166	8		174	0.96	1824			1824	0.095			24	25	0.454	27
D3	4	3.40	V	1	25	O		2095			28	28	1.00	1759			1759	0.016			4	25	0.075	4
B2,B3	4	3.10	V	1	20		N	1925	122	58		180	0.68	1832			1832	0.098			25	25	0.467	28
B1	4	3.10	V	1	45	O		2065			62	62	1.00	1776			1776	0.035	0.098		9	25	0.165	10

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J3 Castle Peak Road - Ping Shan/ San Hi Tsuen Road	Year 2025 Design Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4	
No. of stage using for calculation		N =	3	
Cycle time		C =	120	sec
Sum(y)		Y =	0.409	
Loss time		L =	37	sec
Total Flow		=	2951	pcu
Co	= (1.5*L+5)/(1-Y)	=	102.4	sec
Cm	= L/(1-Y)	=	62.6	sec
Yult		=	0.623	
R.C.ult	= (Yult-Y)/Y*100%	=	52.2	%
Cp	= 0.9*L/(0.9-Y)	=	67.8	sec
Ymax	= 1-L/C	=	0.692	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	52.2	% (Optimized)



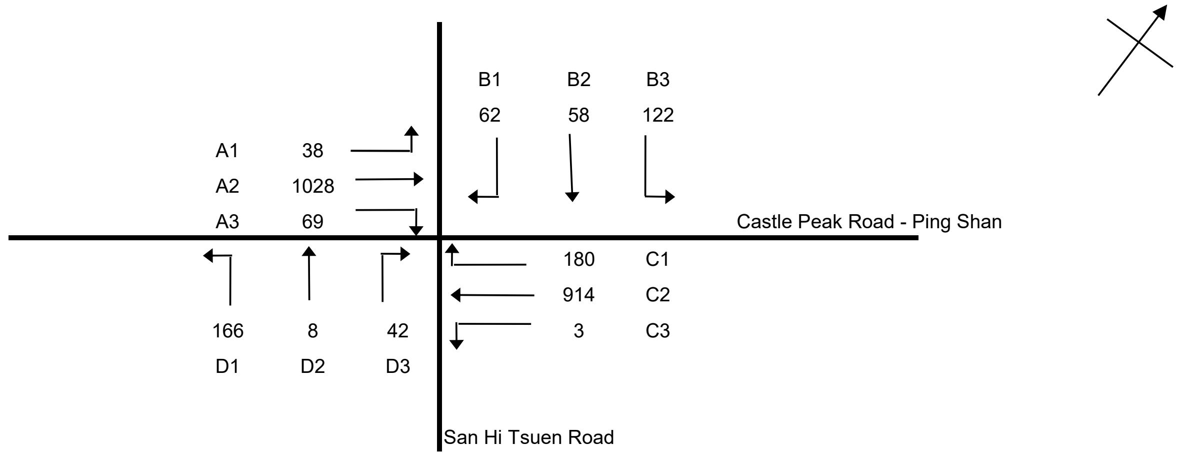
STAGE 1	INT= 6	STAGE 2	INT= 7	STAGE 3	INT= 6	STAGE 4	INT= 9

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
I	7.2	6	4	5	14	4	5	OK
A (LRT)		7	5	6	34	5	6	OK
J	10.3	9	4	7	10	4	7	OK

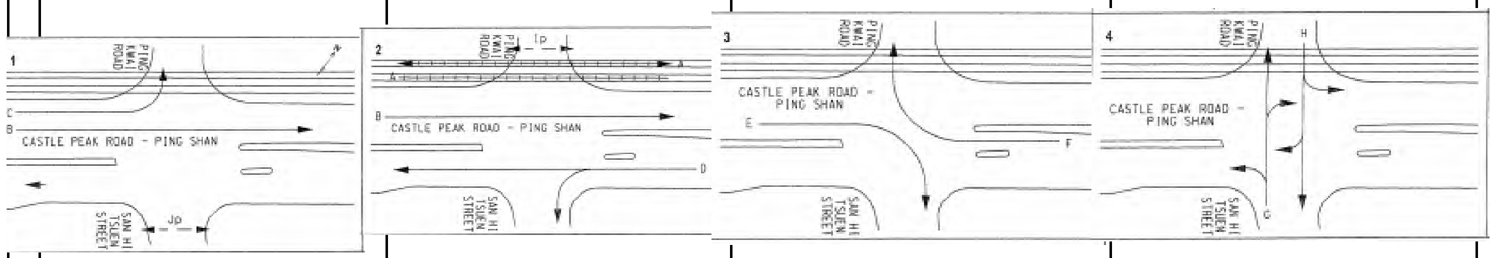
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				25				
A1	1	3.40	I	1	20		N	1955	33			33	1.00	1819			1819	0.018		12	4	16	0.137	6
A2	1,2	3.40	II	3				6285		1176		1176	0.00	6285			6285	0.187	0.187		38	53	0.422	44
C2,C3	2	3.30	III	1	20		N	1945	7	304		311	0.02	1942			1942	0.160			33	33	0.591	45
C2	2	3.30	III	2				4170		665		665	0.00	4170			4170	0.159			32	33	0.588	48
A3	3	3.40	IV	1	30			2095			60	60	1.00	1995			1995	0.030			6	13	0.273	11
C1	3	3.15	IV	1	30			2070			129	129	1.00	1971			1971	0.066	0.066		13	13	0.591	23
D1,D2	4	3.40	V	1	20		N	1955	277	8		285	0.97	1822			1822	0.156			32	32	0.591	42
D3	4	3.40	V	1	25	O		2095			80	80	1.00	1759			1759	0.045			9	32	0.171	12
B2,B3	4	3.10	V	1	20		N	1925	98	45		143	0.68	1831			1831	0.078			16	32	0.295	21
B1	4	3.10	V	1	45	O		2065			70	70	1.00	1776			1776	0.040	0.156		8	32	0.149	10

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J3 Castle Peak Road - Ping Shan/ San Hi Tsuen Road	Year 2025 Design Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.361
Loss time		L =	35 sec
Total Flow		=	2690 pcu
Co	= (1.5*L+5)/(1-Y)	=	89.9 sec
Cm	= L/(1-Y)	=	54.7 sec
Yult		=	0.638
R.C.ult	= (Yult-Y)/Y*100%	=	76.8 %
Cp	= 0.9*L/(0.9-Y)	=	58.4 sec
Ymax	= 1-L/C	=	0.708
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	76.8 % (Optimized)



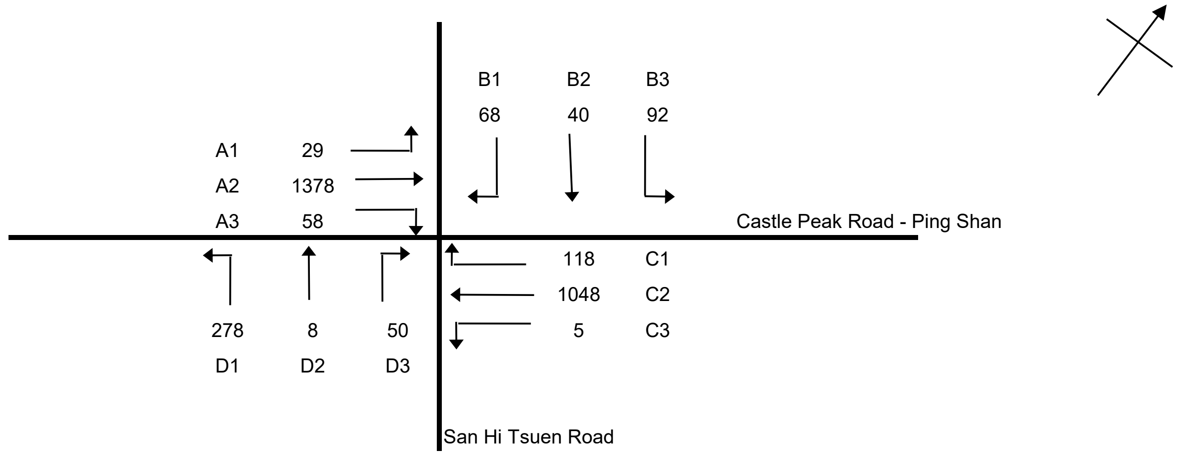
STAGE 1	INT= 6	STAGE 2	INT= 7	STAGE 3	INT= 6	STAGE 4	INT= 9

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
2	I	7.2	6	4	5	17	4	5	OK
2	A (LRT)		7	5	6	36	5	6	OK
	J	10.3	9	4	7	10	4	7	OK

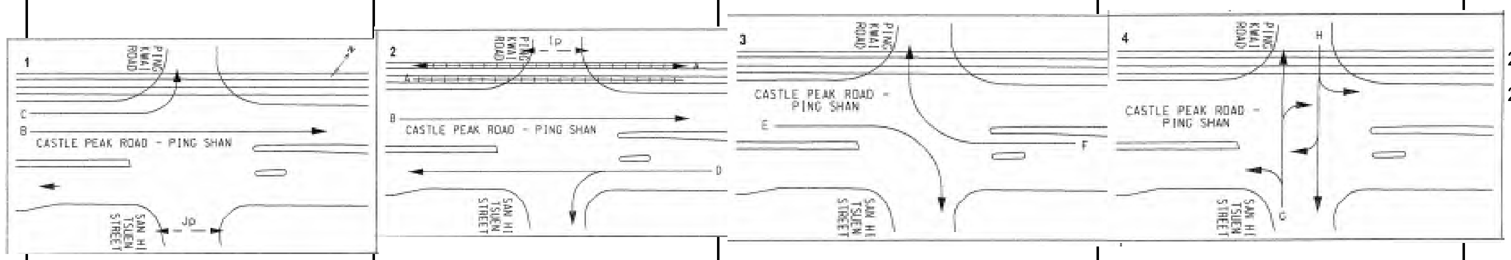
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				24				
A1	1	3.40	I	1	20		N	1955	38			38	1.00	1819			1819	0.021	0.021	11	5	16	0.157	7
A2	1,2	3.40	II	3				6285		1028		1028	0.00	6285			6285	0.164			39	56	0.348	36
C2,C3	2	3.30	III	1	20		N	1945	3	289		292	0.01	1943			1943	0.150	0.150		35	35	0.509	41
C2	2	3.30	III	2				4170		625		625	0.00	4170			4170	0.150			35	35	0.508	44
A3	3	3.40	IV	1	30			2095			69	69	1.00	1995			1995	0.035			8	22	0.193	11
C1	3	3.15	IV	1	30			2070			180	180	1.00	1971			1971	0.091	0.091		22	22	0.509	30
D1,D2	4	3.40	V	1	20		N	1955	166	8		174	0.96	1824			1824	0.095			22	23	0.495	28
D3	4	3.40	V	1	25	O		2095			42	42	1.00	1759			1759	0.024			6	23	0.124	7
B2,B3	4	3.10	V	1	20		N	1925	122	58		180	0.68	1832			1832	0.098			23	23	0.509	29
B1	4	3.10	V	1	45	O		2065			62	62	1.00	1776			1776	0.035	0.098		8	23	0.180	10

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J3 Castle Peak Road - Ping Shan/ San Hi Tsuen Road	Year 2029 Reference Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.436
Loss time		L =	32 sec
Total Flow		=	3172 pcu
Co	= (1.5*L+5)/(1-Y)	=	93.9 sec
Cm	= L/(1-Y)	=	56.7 sec
Yult		=	0.660
R.C.ult	= (Yult-Y)/Y*100%	=	51.4 %
Cp	= 0.9*L/(0.9-Y)	=	62.0 sec
Ymax	= 1-L/C	=	0.733
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	51.4 % (Optimized)



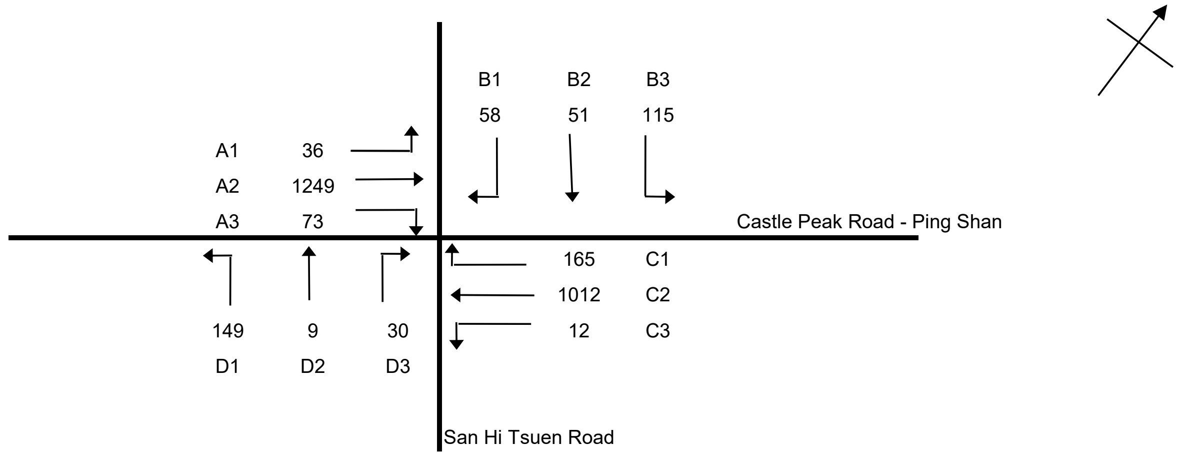
STAGE 1	INT= 6	STAGE 2	INT= 7	STAGE 3	INT= 6	STAGE 4	INT= 9

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
I	7.2	6	4	5	16	4	5	OK
A (LRT)		7	5	6	36	5	6	OK
J	10.3	9	4	7	10	4	7	OK

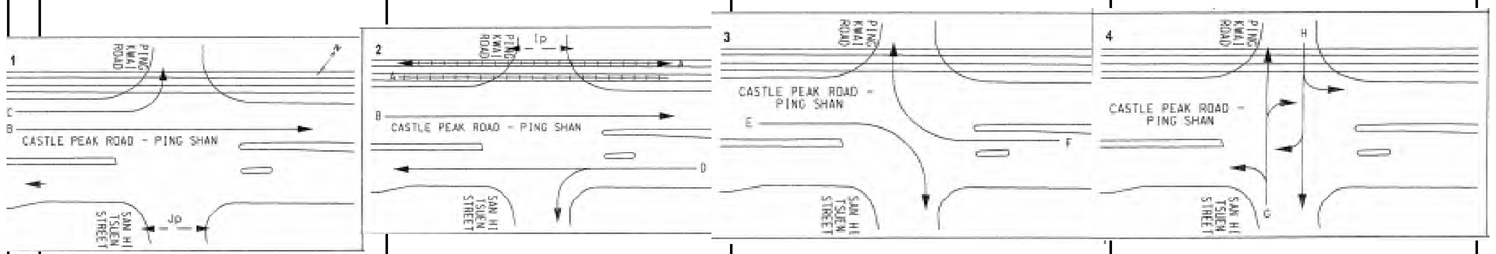
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				19				
A1	1	3.40	I	1	20		N	1955	29			29	1.00	1819			1819	0.016		13	3	16	0.119	5
A2	1,2	3.40	II	3				6285		1378		1378	0.00	6285			6285	0.219	0.219		44	56	0.469	49
C2,C3	2	3.30	III	1	20		N	1945	5	329		334	0.02	1943			1943	0.172			35	35	0.593	47
C2	2	3.30	III	2				4170		719		719	0.00	4170			4170	0.172			35	35	0.594	51
A3	3	3.40	IV	1	30			2095			58	58	1.00	1995			1995	0.029			6	12	0.287	10
C1	3	3.15	IV	1	30			2070			118	118	1.00	1971			1971	0.060	0.060		12	12	0.594	21
D1,D2	4	3.40	V	1	20		N	1955	278	8		286	0.97	1822			1822	0.157			32	32	0.594	42
D3	4	3.40	V	1	25	O		2095			50	50	1.00	1759			1759	0.029			6	32	0.108	7
B2,B3	4	3.10	V	1	20		N	1925	92	40		132	0.70	1829			1829	0.072			15	32	0.272	19
B1	4	3.10	V	1	45	O		2065			68	68	1.00	1776			1776	0.038	0.157		8	32	0.146	10

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J3 Castle Peak Road - Ping Shan/ San Hi Tsuen Road	Year 2029 Reference Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.373
Loss time		L =	30 sec
Total Flow		=	2958 pcu
Co	= (1.5*L+5)/(1-Y)	=	79.8 sec
Cm	= L/(1-Y)	=	47.9 sec
Yult		=	0.675
R.C.ult	= (Yult-Y)/Y*100%	=	80.9 %
Cp	= 0.9*L/(0.9-Y)	=	51.2 sec
Ymax	= 1-L/C	=	0.750
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	80.9 % (Optimized)



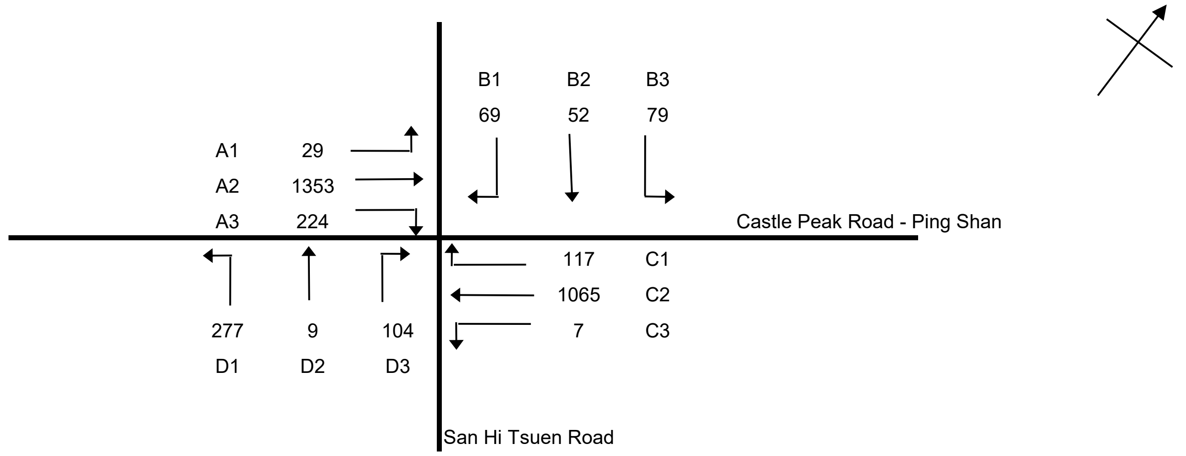
STAGE 1	INT= 6	STAGE 2	INT= 7	STAGE 3	INT= 6	STAGE 4	INT= 9

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
2	I	7.2	6	4	5	22	4	5	OK
2	A (LRT)		7	5	6	41	5	6	OK
	J	10.3	9	4	7	10	4	7	OK

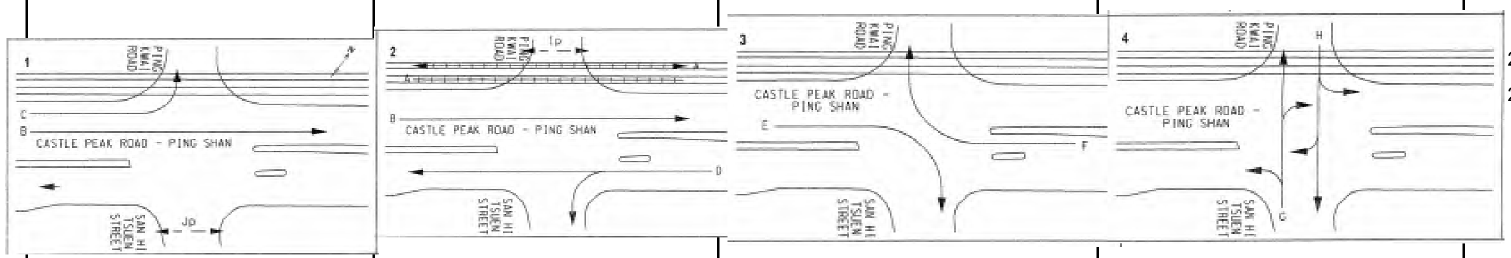
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				19				
A1	1	3.40	I	1	20		N	1955	36			36	1.00	1819			1819	0.020		11	5	16	0.149	6
A2	1,2	3.40	II	3				6285		1249		1249	0.00	6285			6285	0.199	0.199		48	61	0.390	41
C2,C3	2	3.30	III	1	20		N	1945	12	313		325	0.04	1940			1940	0.168			40	40	0.498	43
C2	2	3.30	III	2				4170		699		699	0.00	4170			4170	0.168			40	40	0.498	46
A3	3	3.40	IV	1	30			2095			73	73	1.00	1995			1995	0.037			9	20	0.218	12
C1	3	3.15	IV	1	30			2070			165	165	1.00	1971			1971	0.084	0.084		20	20	0.498	27
D1,D2	4	3.40	V	1	20		N	1955	149	9		158	0.94	1826			1826	0.086			21	22	0.474	26
D3	4	3.40	V	1	25	O		2095			30	30	1.00	1759			1759	0.017			4	22	0.093	5
B2,B3	4	3.10	V	1	20		N	1925	115	51		166	0.69	1830			1830	0.091			22	22	0.498	27
B1	4	3.10	V	1	45	O		2065			58	58	1.00	1776			1776	0.033	0.091		8	22	0.178	9

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J3 Castle Peak Road - Ping Shan/ San Hi Tsuen Road	Year 2029 Design Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4	
No. of stage using for calculation		N =	3	
Cycle time		C =	120	sec
Sum(y)		Y =	0.484	
Loss time		L =	38	sec
Total Flow		=	3385	pcu
Co	= (1.5*L+5)/(1-Y)	=	120.2	sec
Cm	= L/(1-Y)	=	73.7	sec
Yult		=	0.615	
R.C.ult	= (Yult-Y)/Y*100%	=	27.0	%
Cp	= 0.9*L/(0.9-Y)	=	82.2	sec
Ymax	= 1-L/C	=	0.683	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	27.0	% (Optimized)



STAGE 1	INT= 6	STAGE 2	INT= 7	STAGE 3	INT= 6	STAGE 4	INT= 9

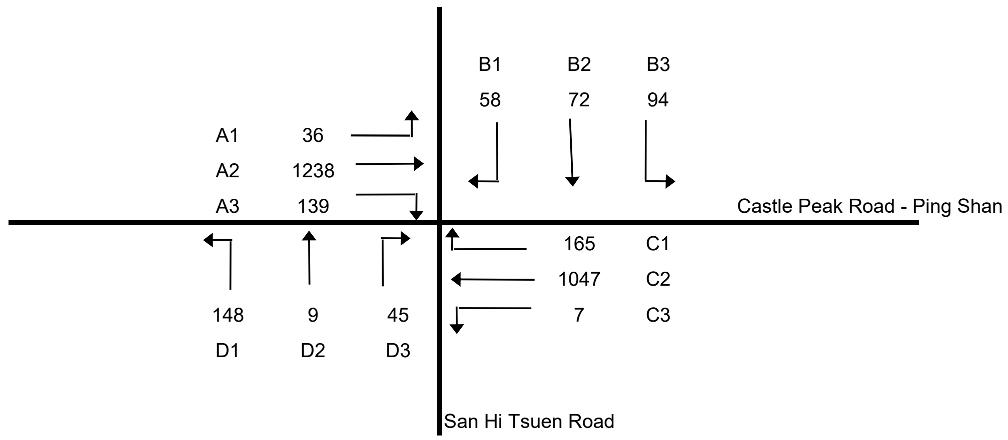
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
I	7.2	6	4	5	11	4	5	OK
A (LRT)		7	5	6	31	5	6	OK
J	10.3	9	4	7	10	4	7	OK

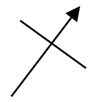
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				25				
A1	1	3.40	I	1	20		N	1955	29			29	1.00	1819			1819	0.016		13	3	16	0.123	5
A2	1,2	3.40	II	3				6285		1353		1353	0.00	6285			6285	0.215	0.215		36	50	0.512	52
C2,C3	2	3.30	III	1	20		N	1945	7	334		341	0.02	1942			1942	0.175			30	30	0.709	51
C2	2	3.30	III	2				4170		731		731	0.00	4170			4170	0.175			30	30	0.709	55
A3	3	3.40	IV	1	30			2095			224	224	1.00	1995			1995	0.112			19	19	0.709	38
C1	3	3.15	IV	1	30			2070			117	117	1.00	1971			1971	0.060	0.112		10	19	0.376	20
D1,D2	4	3.40	V	1	20		N	1955	277	9		286	0.97	1822			1822	0.157			27	27	0.709	44
D3	4	3.40	V	1	25	O		2095			104	104	1.00	1759			1759	0.059			10	27	0.268	16
B2,B3	4	3.10	V	1	20		N	1925	79	52		131	0.60	1842			1842	0.071			12	27	0.322	20
B1	4	3.10	V	1	45	O		2065			69	69	1.00	1776			1776	0.039	0.157		7	27	0.175	11

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

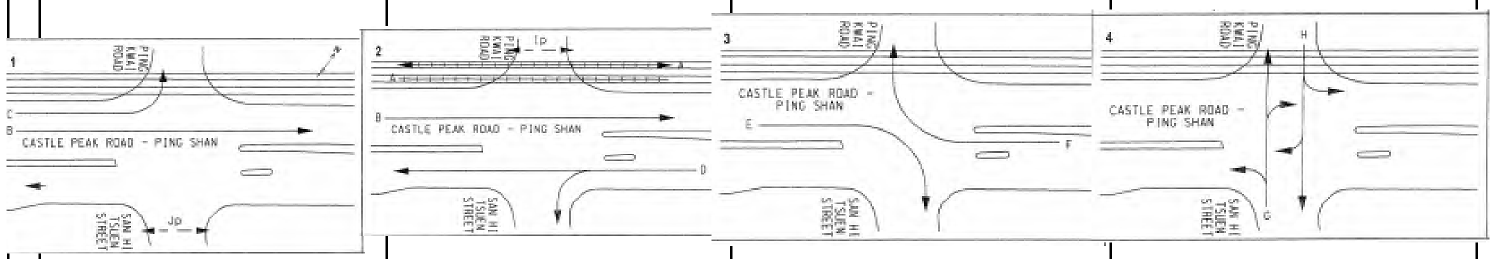
OVE ARUP & PARTNERS — TRAFFIC SIGNAL CALCULATION

Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J3 Castle Peak Road - Ping Shan/ San Hi Tsuen Road	Year 2029 Design Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :





No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.371
Loss time		L =	38 sec
Total Flow		=	3057 pcu
Co	= (1.5*L+5)/(1-Y)	=	98.5 sec
Cm	= L/(1-Y)	=	60.4 sec
Yult		=	0.615
R.C.ult	= (Yult-Y)/Y*100%	=	66.0 %
Cp	= 0.9*L/(0.9-Y)	=	64.6 sec
Ymax	= 1-L/C	=	0.683
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	66.0 % (Optimized)



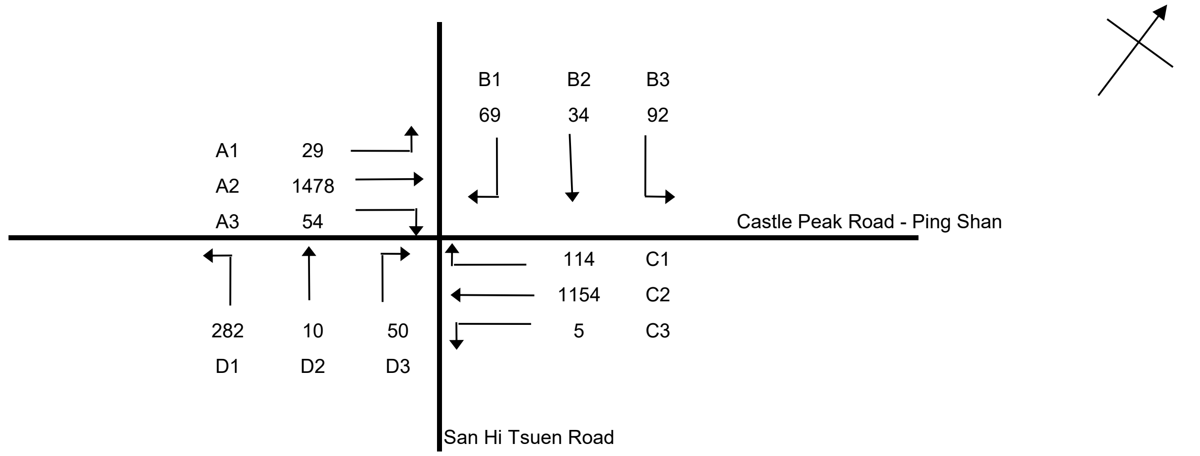
STAGE 1	INT= 6	STAGE 2	INT= 7	STAGE 3	INT= 6	STAGE 4	INT= 9

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
2	I	7.2	6	4	5	18	4	5	OK
2	A (LRT)		7	5	6	39	5	6	OK
	J	10.3	9	4	7	11	4	7	OK

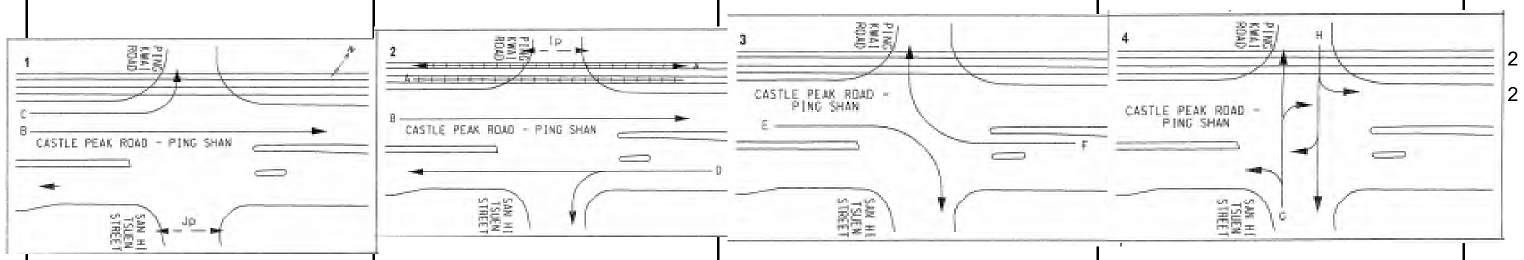
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				25				
A1	1	3.40	I	1	20		N	1955	36			36	1.00	1819			1819	0.020		13	4	17	0.135	6
A2	1,2	3.40	II	3				6285		1238		1238	0.00	6285			6285	0.197	0.197		44	60	0.391	41
C2,C3	2	3.30	III	1	20		N	1945	7	328		335	0.02	1942			1942	0.172			38	38	0.542	46
C2	2	3.30	III	2				4170		719		719	0.00	4170			4170	0.172			38	38	0.542	49
A3	3	3.40	IV	1	30			2095			139	139	1.00	1995			1995	0.070			15	19	0.452	24
C1	3	3.15	IV	1	30			2070			165	165	1.00	1971			1971	0.084	0.084		19	19	0.542	28
D1,D2	4	3.40	V	1	20		N	1955	148	9		157	0.94	1826			1826	0.086			19	20	0.520	26
D3	4	3.40	V	1	25	O		2095			45	45	1.00	1759			1759	0.025			6	20	0.153	7
B2,B3	4	3.10	V	1	20		N	1925	94	72		166	0.57	1846			1846	0.090			20	20	0.542	28
B1	4	3.10	V	1	45	O		2065			58	58	1.00	1776			1776	0.033	0.090		7	20	0.197	10

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J3 Castle Peak Road - Ping Shan/ San Hi Tsuen Road	Year 2034 Reference Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.453
Loss time		L =	32 sec
Total Flow		=	3370 pcu
Co	= (1.5*L+5)/(1-Y)	=	96.9 sec
Cm	= L/(1-Y)	=	58.5 sec
Yult		=	0.660
R.C.ult	= (Yult-Y)/Y*100%	=	45.6 %
Cp	= 0.9*L/(0.9-Y)	=	64.5 sec
Ymax	= 1-L/C	=	0.733
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	45.6 % (Optimized)



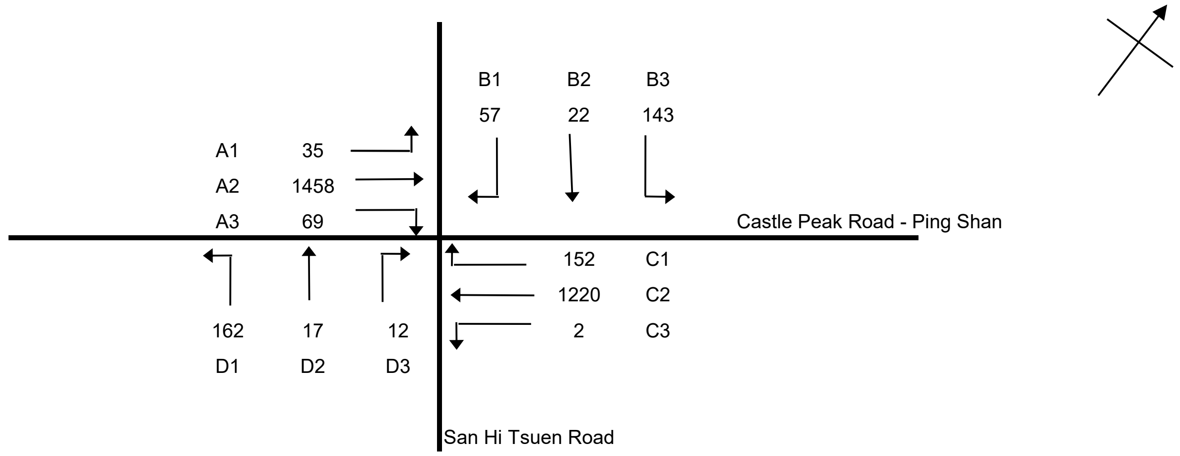
STAGE 1	INT= 6	STAGE 2	INT= 7	STAGE 3	INT= 6	STAGE 4	INT= 9

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
I	7.2	6	4	5	18	4	5	OK
A (LRT)		7	5	6	38	5	6	OK
J	10.3	9	4	7	10	4	7	OK

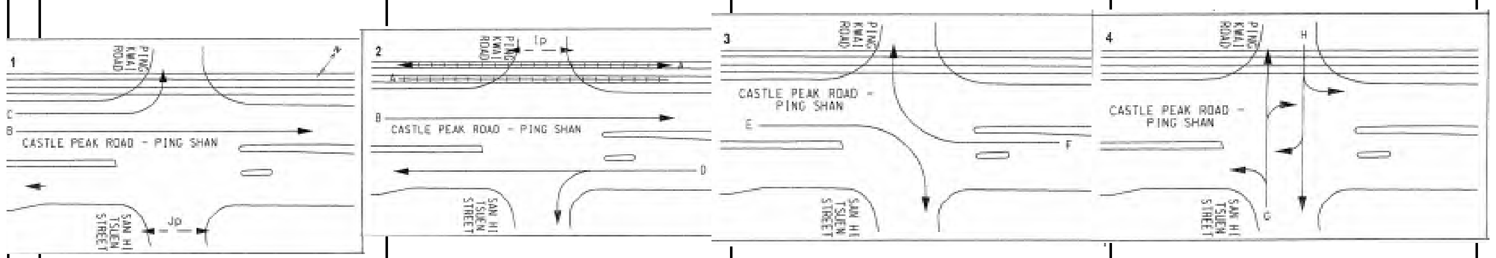
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				19				
A1	1	3.40	I	1	20		N	1955	29			29	1.00	1819			1819	0.016		13	3	16	0.118	5
A2	1,2	3.40	II	3				6285		1478		1478	0.00	6285			6285	0.235	0.235		46	58	0.487	51
C2,C3	2	3.30	III	1	20		N	1945	5	364		369	0.01	1943			1943	0.190			37	37	0.618	51
C2	2	3.30	III	2				4170		790		790	0.00	4170			4170	0.189			37	37	0.617	55
A3	3	3.40	IV	1	30			2095			54	54	1.00	1995			1995	0.027			5	11	0.288	10
C1	3	3.15	IV	1	30			2070			114	114	1.00	1971			1971	0.058	0.058		11	11	0.618	21
D1,D2	4	3.40	V	1	20		N	1955	282	10		292	0.97	1823			1823	0.160			31	31	0.618	43
D3	4	3.40	V	1	25	O		2095			50	50	1.00	1759			1759	0.028			6	31	0.110	7
B2,B3	4	3.10	V	1	20		N	1925	92	34		126	0.73	1825			1825	0.069			13	31	0.267	19
B1	4	3.10	V	1	45	O		2065			69	69	1.00	1776			1776	0.039	0.160		8	31	0.150	10

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J3 Castle Peak Road - Ping Shan/ San Hi Tsuen Road	Year 2034 Reference Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.407
Loss time		L =	31 sec
Total Flow		=	3350 pcu
Co	= (1.5*L+5)/(1-Y)	=	86.9 sec
Cm	= L/(1-Y)	=	52.3 sec
Yult		=	0.668
R.C.ult	= (Yult-Y)/Y*100%	=	63.9 %
Cp	= 0.9*L/(0.9-Y)	=	56.6 sec
Ymax	= 1-L/C	=	0.742
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	63.9 % (Optimized)



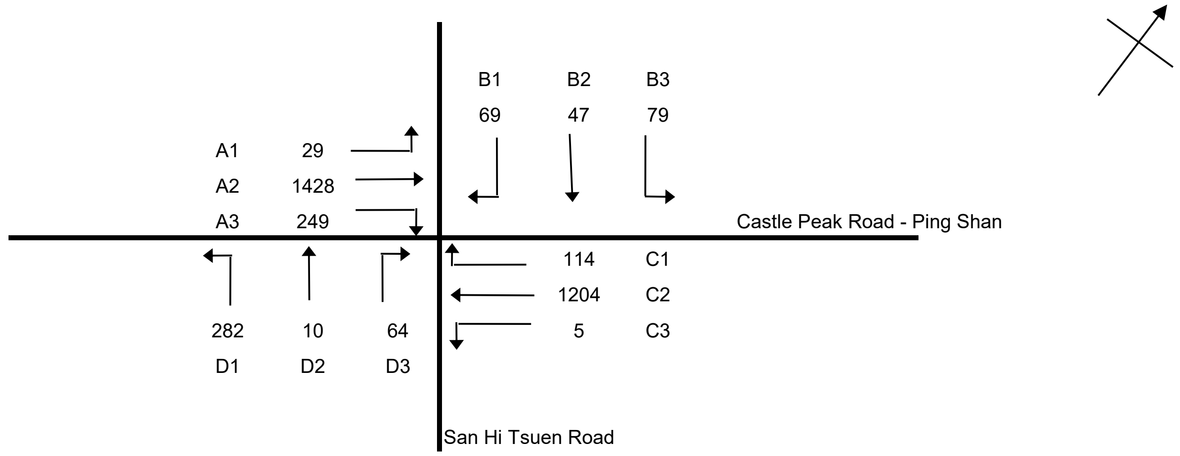
STAGE 1	INT= 6	STAGE 2	INT= 7	STAGE 3	INT= 6	STAGE 4	INT= 9

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
2	I	7.2	6	4	5	24	4	5	OK
2	A (LRT)		7	5	6	45	5	6	OK
	J	10.3	9	4	7	10	4	7	OK

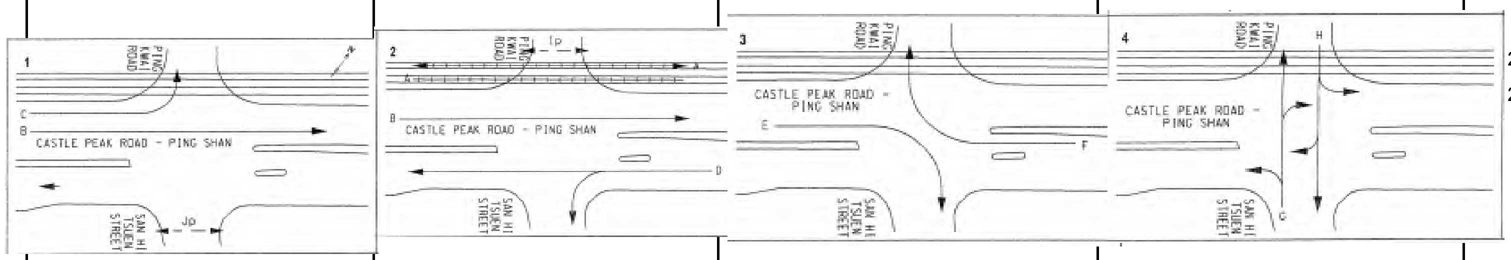
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				19				
A1	1	3.40	I	1	20		N	1955	35			35	1.00	1819			1819	0.019		12	4	16	0.143	6
A2	1,2	3.40	II	3				6285		1458		1458	0.00	6285			6285	0.232	0.232		51	65	0.429	45
C2,C3	2	3.30	III	1	20		N	1945	2	387		389	0.00	1944			1944	0.200			44	44	0.549	49
C2	2	3.30	III	2				4170		833		833	0.00	4170			4170	0.200			44	44	0.549	53
A3	3	3.40	IV	1	30			2095			69	69	1.00	1995			1995	0.034			8	17	0.244	12
C1	3	3.15	IV	1	30			2070			152	152	1.00	1971			1971	0.077	0.077		17	17	0.549	26
D1,D2	4	3.40	V	1	20		N	1955	162	17		179	0.91	1831			1831	0.098			21	21	0.549	29
D3	4	3.40	V	1	25	O		2095			12	12	1.00	1759			1759	0.007			2	21	0.040	2
B2,B3	4	3.10	V	1	20		N	1925	143	22		165	0.87	1808			1808	0.091			20	21	0.513	27
B1	4	3.10	V	1	45	O		2065			57	57	1.00	1776			1776	0.032	0.098		7	21	0.182	9

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J3 Castle Peak Road - Ping Shan/ San Hi Tsuen Road	Year 2034 Design Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.512
Loss time		L =	38 sec
Total Flow		=	3580 pcu
Co	= (1.5*L+5)/(1-Y)	=	127.0 sec
Cm	= L/(1-Y)	=	77.8 sec
Yult		=	0.615
R.C.ult	= (Yult-Y)/Y*100%	=	20.2 %
Cp	= 0.9*L/(0.9-Y)	=	88.1 sec
Ymax	= 1-L/C	=	0.683
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	20.2 % (Optimized)



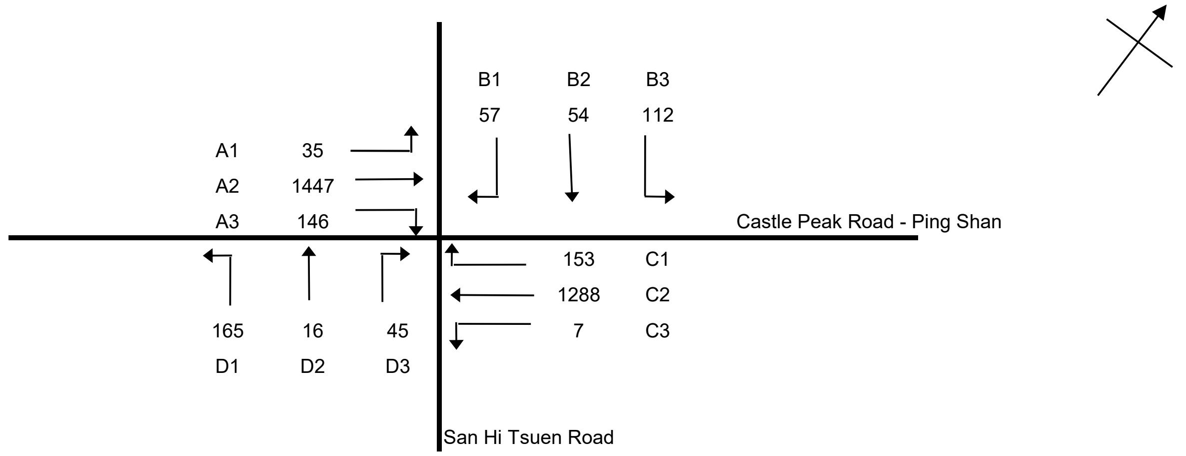
STAGE 1	INT= 6	STAGE 2	INT= 7	STAGE 3	INT= 6	STAGE 4	INT= 9

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
I	7.2	6	4	5	13	4	5	OK
A (LRT)		7	5	6	33	5	6	OK
J	10.3	9	4	7	10	4	7	OK

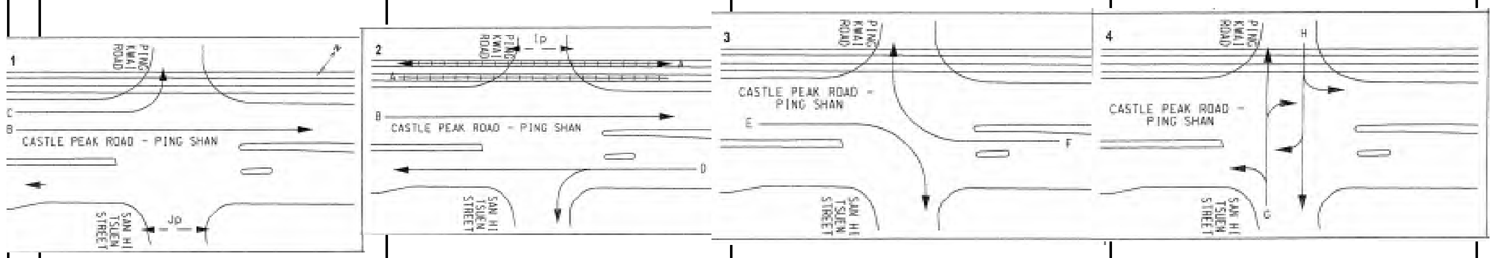
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				25				
A1	1	3.40	I	1	20		N	1955	29			29	1.00	1819			1819	0.016		13	3	16	0.122	5
A2	1,2	3.40	II	3				6285		1428		1428	0.00	6285			6285	0.227	0.227		36	52	0.522	54
C2,C3	2	3.30	III	1	20		N	1945	5	380		385	0.01	1943			1943	0.198			32	32	0.749	57
C2	2	3.30	III	2				4170		824		824	0.00	4170			4170	0.198			32	32	0.748	61
A3	3	3.40	IV	1	30			2095			249	249	1.00	1995			1995	0.125			20	20	0.749	41
C1	3	3.15	IV	1	30			2070			114	114	1.00	1971			1971	0.058	0.125		9	20	0.348	19
D1,D2	4	3.40	V	1	20		N	1955	282	10		292	0.97	1823			1823	0.160			26	26	0.749	46
D3	4	3.40	V	1	25	O		2095			64	64	1.00	1759			1759	0.037			6	26	0.172	10
B2,B3	4	3.10	V	1	20		N	1925	79	47		126	0.63	1838			1838	0.068			11	26	0.320	20
B1	4	3.10	V	1	45	O		2065			69	69	1.00	1776			1776	0.039	0.160		6	26	0.183	11

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J3 Castle Peak Road - Ping Shan/ San Hi Tsuen Road	Year 2034 Design Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.408
Loss time		L =	36 sec
Total Flow		=	3525 pcu
Co	= (1.5*L+5)/(1-Y)	=	99.7 sec
Cm	= L/(1-Y)	=	60.8 sec
Yult		=	0.630
R.C.ult	= (Yult-Y)/Y*100%	=	54.4 %
Cp	= 0.9*L/(0.9-Y)	=	65.9 sec
Ymax	= 1-L/C	=	0.700
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	54.4 % (Optimized)



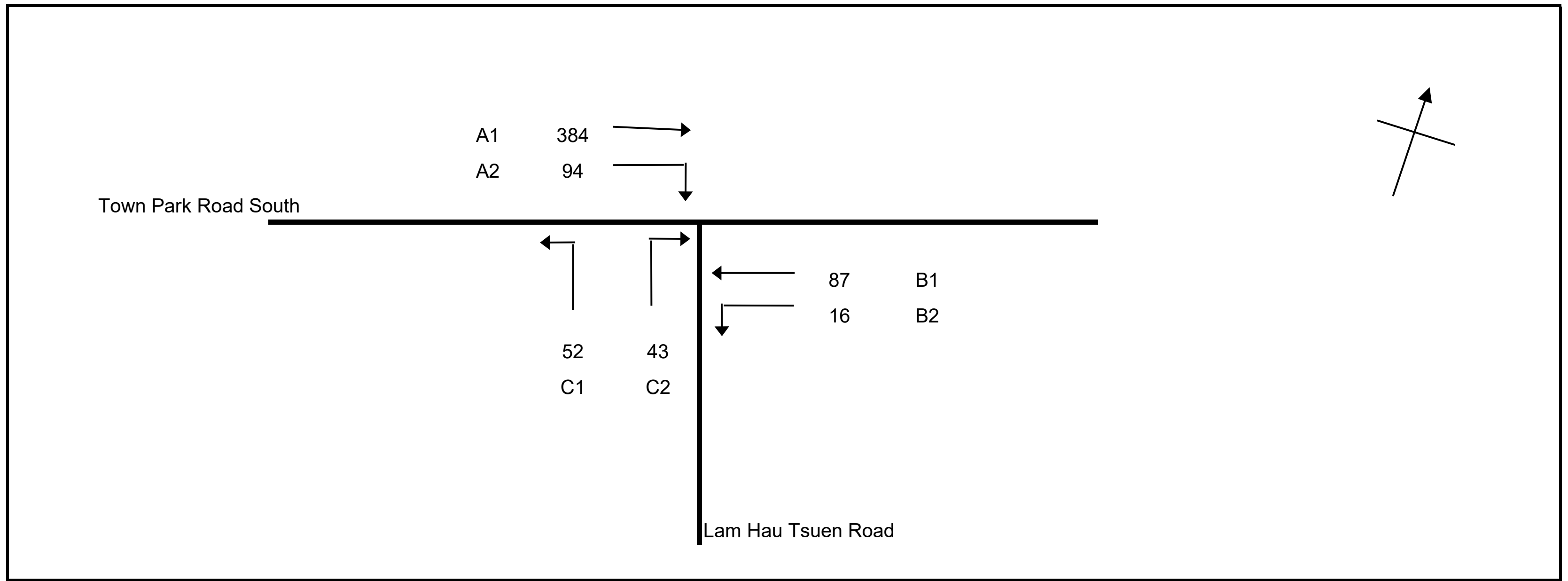
STAGE 1	INT= 6	STAGE 2	INT= 7	STAGE 3	INT= 6	STAGE 4	INT= 9

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
2	I	7.2	6	4	5	25	4	5	OK
2	A (LRT)		7	5	6	45	5	6	OK
	J	10.3	9	4	7	10	4	7	OK

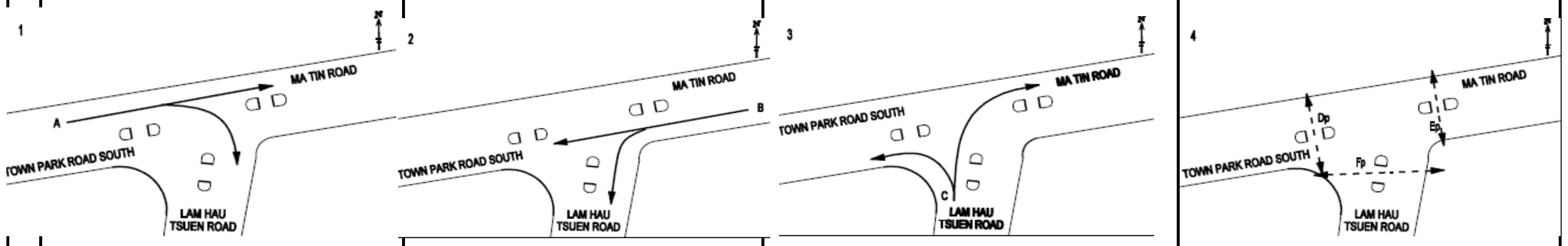
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				24				
A1	1	3.40	I	1	20		N	1955	35			35	1.00	1819			1819	0.019	0.019	12	4	16	0.146	6
A2	1,2	3.40	II	3				6285		1447		1447	0.00	6285			6285	0.230			47	65	0.427	45
C2,C3	2	3.30	III	1	20		N	1945	7	405		412	0.02	1943			1943	0.212	0.212		44	44	0.583	52
C2	2	3.30	III	2				4170		883		883	0.00	4170			4170	0.212			44	44	0.583	56
A3	3	3.40	IV	1	30			2095			146	146	1.00	1995			1995	0.073			15	16	0.549	25
C1	3	3.15	IV	1	30			2070			153	153	1.00	1971			1971	0.078	0.078		16	16	0.583	27
D1,D2	4	3.40	V	1	20		N	1955	165	16		181	0.91	1830			1830	0.099			20	20	0.583	30
D3	4	3.40	V	1	25	O		2095			45	45	1.00	1759			1759	0.025			5	20	0.150	7
B2,B3	4	3.10	V	1	20		N	1925	112	54		165	0.68	1832			1832	0.090			19	20	0.530	27
B1	4	3.10	V	1	45	O		2065			57	57	1.00	1776			1776	0.032	0.099		7	20	0.190	10

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J4 Town Park Road South/ Lam Hau Tsuen Road	Year 2018 Observed Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	90 sec
Sum(y)		Y =	0.327
Loss time		L =	34 sec
Total Flow		=	95 pcu
Co	= (1.5*L+5)/(1-Y)	=	83.3 sec
Cm	= L/(1-Y)	=	50.5 sec
Yult		=	0.645
R.C.ult	= (Yult-Y)/Y*100%	=	97.0 %
Cp	= 0.9*L/(0.9-Y)	=	53.4 sec
Ymax	= 1-L/C	=	0.622
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	71.1 % (Optimized)



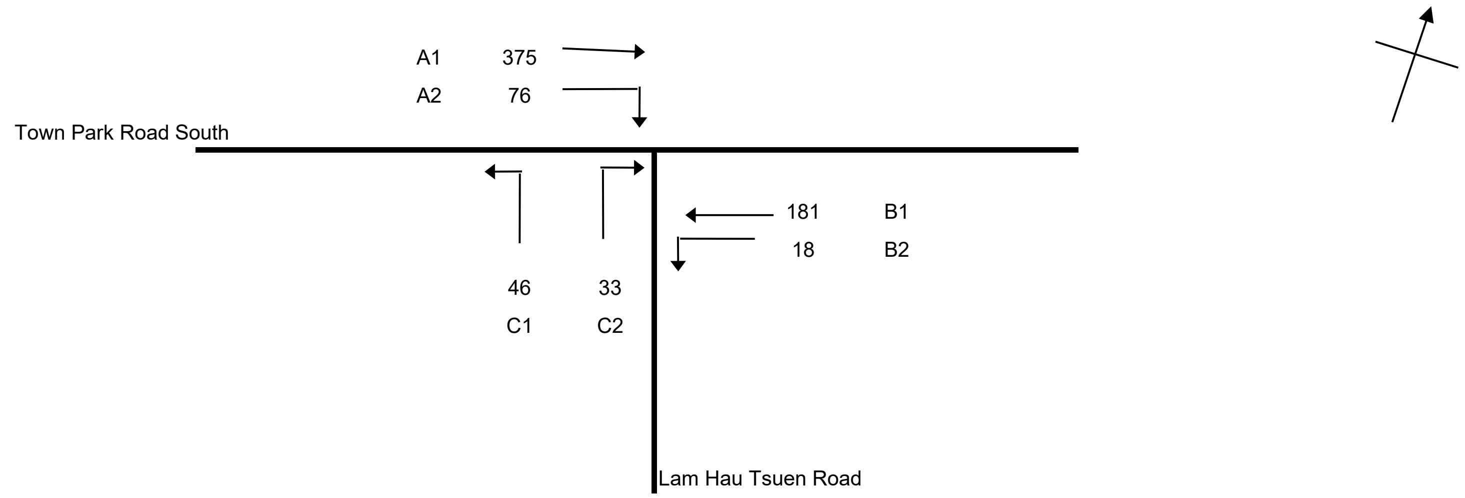
STAGE 1	INT= 5	STAGE 2	INT= 8	STAGE 3	INT= 5	STAGE 4	INT=

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4	D	6.5	5	5	5	9	5	5	OK
4	E	6.2	5	8	5	6	8	5	OK
4	F	11.5	10	1	8	10	1	8	OK

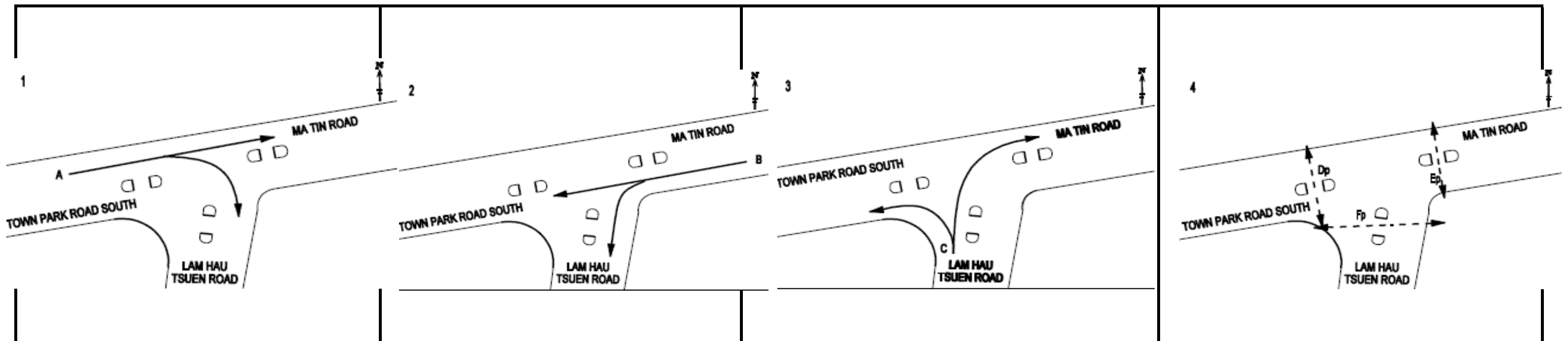
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				15				
A1,A2	1	5.00		1	15		N	2115		384	94	478	0.20	2074			2074	0.230	0.230		39	39	0.526	40
B1,B2	2	5.50		1	13		N	2165	16	87		103	0.16	2126			2126	0.049	0.049		8	8	0.526	14
C1,C2	3	5.40		1	15		N	2155	52		43	95	1.00	1959			1959	0.048	0.048		8	8	0.526	13
PED	4																			19				

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J4 Town Park Road South/ Lam Hau Tsuen Road	Year 2018 Observed Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	90 sec
Sum(y)		Y =	0.349
Loss time		L =	35 sec
Total Flow		=	78 pcu
Co	= (1.5*L+5)/(1-Y)	=	88.4 sec
Cm	= L/(1-Y)	=	53.8 sec
Yult		=	0.638
R.C.ult	= (Yult-Y)/Y*100%	=	82.5 %
Cp	= 0.9*L/(0.9-Y)	=	57.2 sec
Ymax	= 1-L/C	=	0.611
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	57.5 % (Optimized)



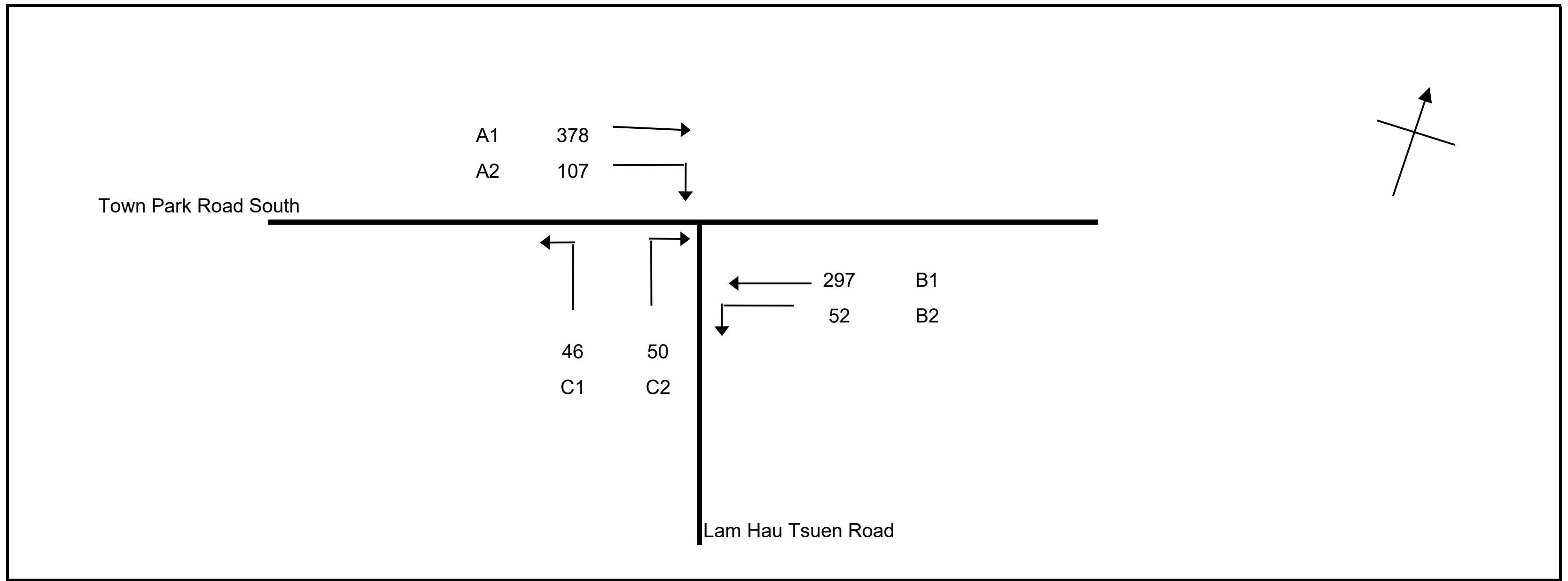
STAGE 1	INT= 5	STAGE 2	INT= 8	STAGE 3	INT= 6	STAGE 4	INT=

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4	D	6.5	5	5	5	9	5	5	OK
4	E	6.2	5	8	5	6	8	5	OK
4	F	11.5	10	1	8	10	1	8	OK

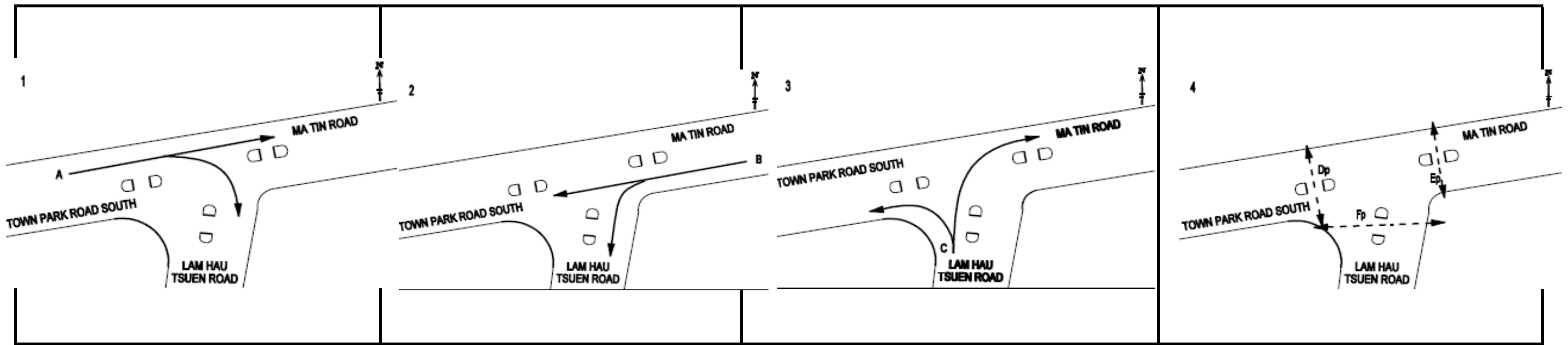
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1,A2	1	5.00		1	15		N	2115		375	76	451	0.17	2080			2080	0.217	0.217		34	34	0.572	42
B1,B2	2	5.50		1	13		N	2165	18	181		199	0.09	2143			2143	0.093	0.093		15	15	0.572	25
C1,C2	3	5.40		1	15		N	2155	46		33	78	1.00	1959			1959	0.040	0.040		6	6	0.572	11
PED	4																			19				

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J4 Town Park Road South/ Lam Hau Tsuen Road	Year 2025 Reference Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	90 sec
Sum(y)		Y =	0.447
Loss time		L =	36 sec
Total Flow		=	95 pcu
Co	= (1.5*L+5)/(1-Y)	=	106.7 sec
Cm	= L/(1-Y)	=	65.1 sec
Yult		=	0.630
R.C.ult	= (Yult-Y)/Y*100%	=	40.9 %
Cp	= 0.9*L/(0.9-Y)	=	71.6 sec
Ymax	= 1-L/C	=	0.600
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	20.7 % (Optimized)



STAGE 1	INT= 5	STAGE 2	INT= 8	STAGE 3	INT= 6	STAGE 4	INT=

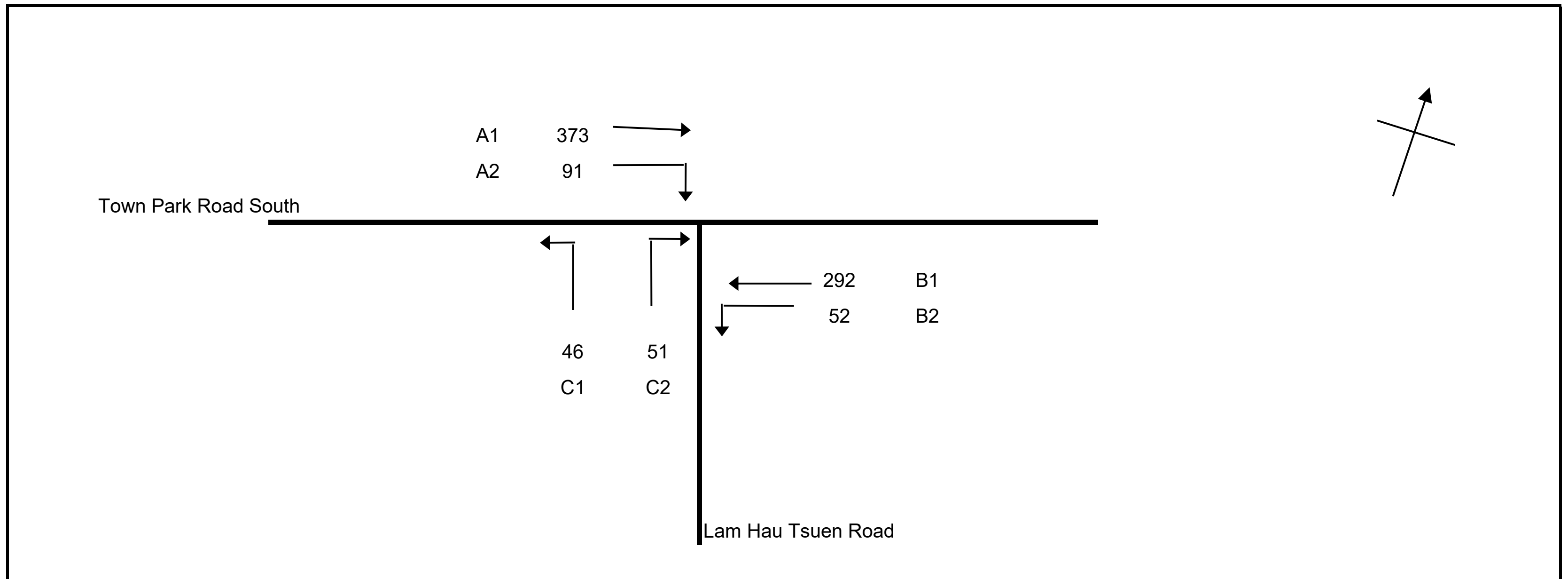
	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4	D	6.5	5	5	5	9	5	5	OK
4	E	6.2	5	8	5	6	8	5	OK
4	F	11.5	10	1	8	10	1	8	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	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.
																				16				
A1,A2	1	5.00		1	15		N	2115		378	107	485	0.22	2069			2069	0.234	0.234		28	28	0.745	50
B1,B2	2	5.50		1	13		N	2165	52	297		350	0.15	2128			2128	0.164	0.164		20	20	0.745	41
C1,C2	3	5.40		1	15		N	2155	46		50	95	1.00	1959			1959	0.049	0.049	1	6	7	0.637	13
PED	4																			19				

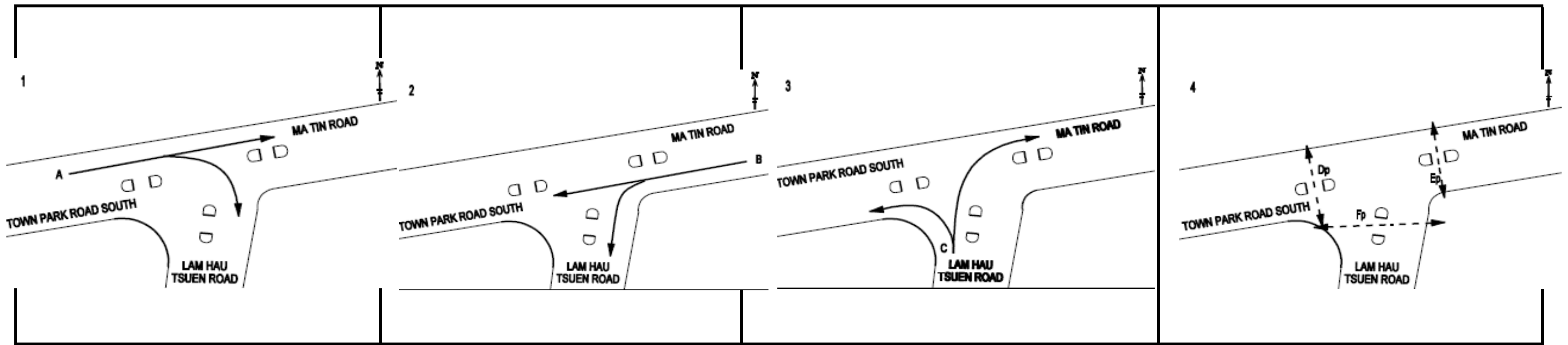
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS | TRAFFIC SIGNAL CALCULATION

Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J4 Town Park Road South/ Lam Hau Tsuen Road	Year 2025 Reference Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4	
No. of stage using for calculation		N =	3	
Cycle time		C =	90	sec
Sum(y)		Y =	0.434	
Loss time		L =	35	sec
Total Flow		=	96	pcu
Co	= (1.5*L+5)/(1-Y)	=	101.6	sec
Cm	= L/(1-Y)	=	61.9	sec
Yult		=	0.638	
R.C.ult	= (Yult-Y)/Y*100%	=	46.8	%
Cp	= 0.9*L/(0.9-Y)	=	67.6	sec
Ymax	= 1-L/C	=	0.611	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	26.6	% (Optimized)



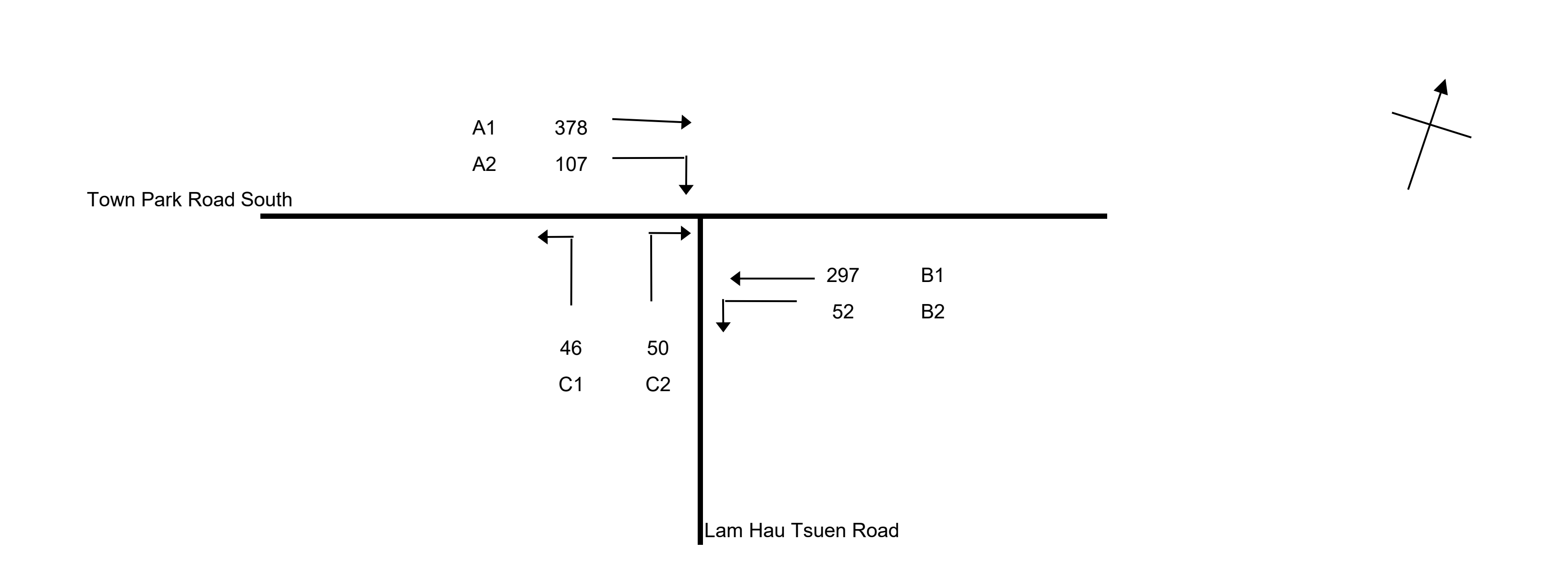
STAGE 1	INT= 5	STAGE 2	INT= 8	STAGE 3	INT= 6	STAGE 4	INT=

Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4	D	6.5	5	5	5	9	5	5	OK
4	E	6.2	5	8	5	6	8	5	OK
4	F	11.5	10	1	8	10	1	8	OK

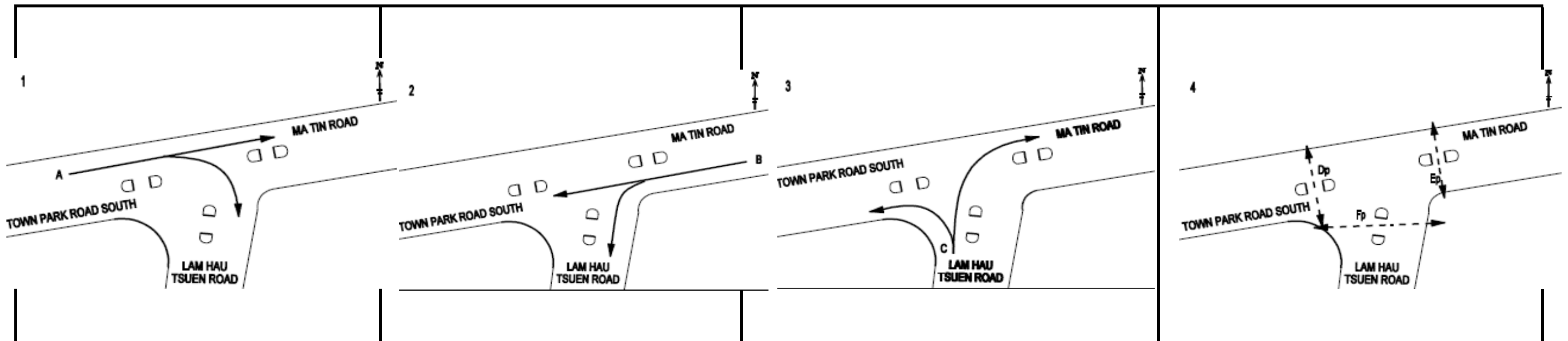
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1,A2	1	5.00		1	15		N	2115		373	91	464	0.20	2074			2074	0.224	0.224		28	28	0.711	48
B1,B2	2	5.50		1	13		N	2165	52	292		344	0.15	2128			2128	0.162	0.162		20	20	0.711	40
C1,C2	3	5.40		1	15		N	2155	46		51	96	1.00	1959			1959	0.049	0.049		6	6	0.711	13
PED	4																			19				

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J4 Town Park Road South/ Lam Hau Tsuen Road	Year 2025 Design Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4	
No. of stage using for calculation		N =	3	
Cycle time		C =	90	sec
Sum(y)		Y =	0.447	
Loss time		L =	36	sec
Total Flow		=	95	pcu
Co	= (1.5*L+5)/(1-Y)	=	106.7	sec
Cm	= L/(1-Y)	=	65.1	sec
Yult		=	0.630	
R.C.ult	= (Yult-Y)/Y*100%	=	40.9	%
Cp	= 0.9*L/(0.9-Y)	=	71.6	sec
Ymax	= 1-L/C	=	0.600	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	20.7	% (Optimized)



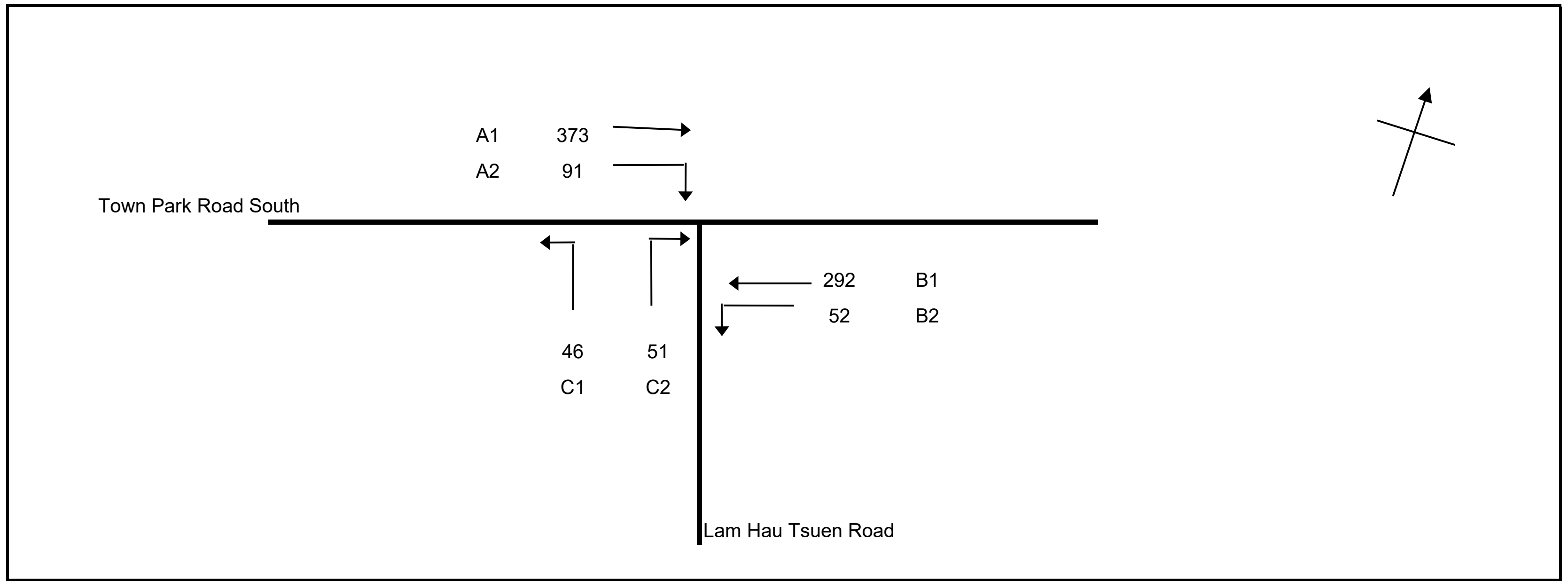
STAGE 1	INT= 5	STAGE 2	INT= 8	STAGE 3	INT= 6	STAGE 4	INT=

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4	D	6.5	5	5	5	9	5	5	OK
4	E	6.2	5	8	5	6	8	5	OK
4	F	11.5	10	1	8	10	1	8	OK

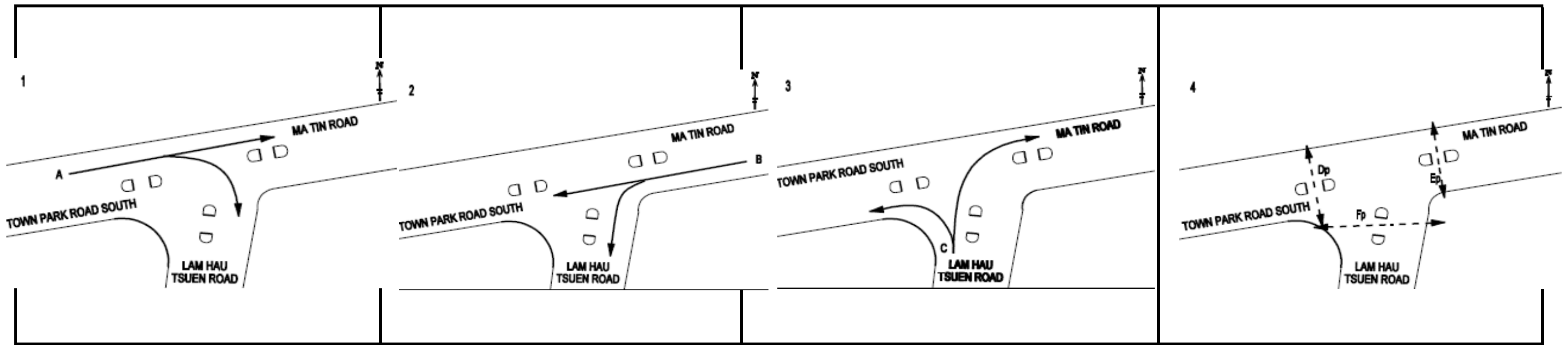
Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1,A2	1	5.00		1	15		N	2115		378	107	485	0.22	2069			2069	0.234	0.234		28	28	0.745	50
B1,B2	2	5.50		1	13		N	2165	52	297		350	0.15	2128			2128	0.164	0.164		20	20	0.745	41
C1,C2	3	5.40		1	15		N	2155	46		50	95	1.00	1959			1959	0.049	0.049	1	6	7	0.637	13
PED	4																			19				

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

OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION	
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J4 Town Park Road South/ Lam Hau Tsuen Road	Year 2025 Design Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	90 sec
Sum(y)		Y =	0.434
Loss time		L =	35 sec
Total Flow		=	96 pcu
Co	= (1.5*L+5)/(1-Y)	=	101.6 sec
Cm	= L/(1-Y)	=	61.9 sec
Yult		=	0.638
R.C.ult	= (Yult-Y)/Y*100%	=	46.8 %
Cp	= 0.9*L/(0.9-Y)	=	67.6 sec
Ymax	= 1-L/C	=	0.611
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	26.6 % (Optimized)



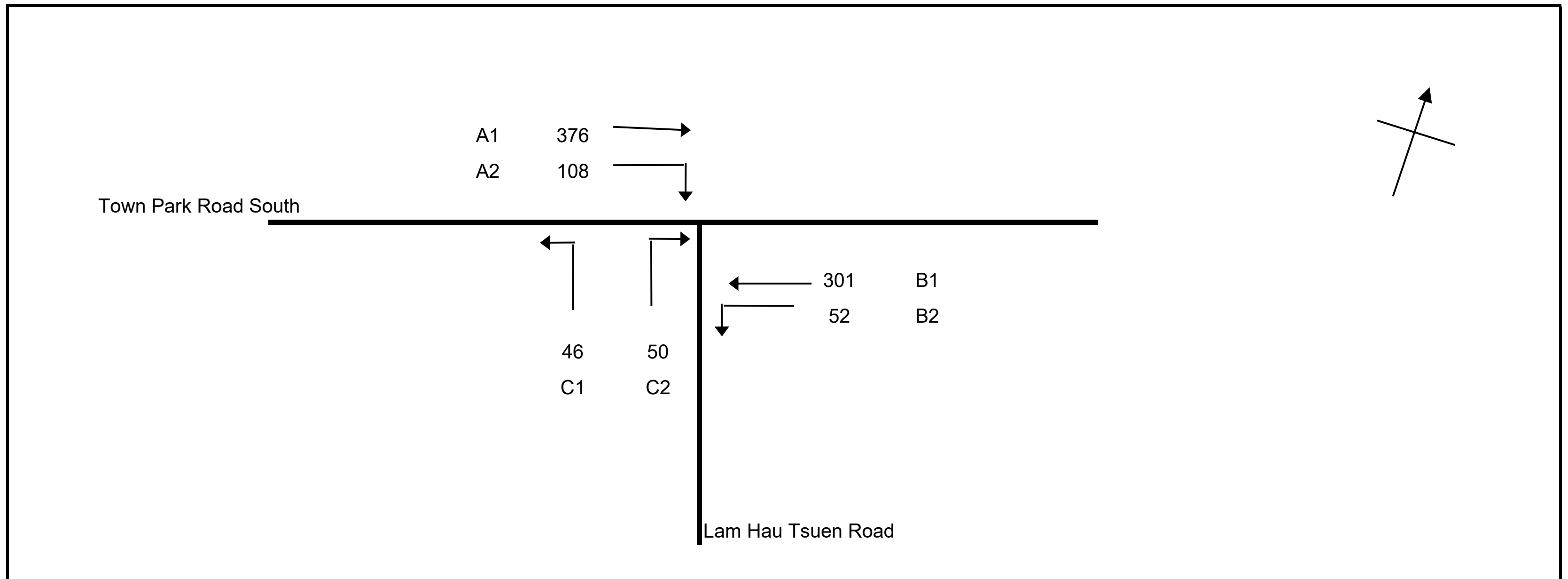
STAGE 1	INT= 5	STAGE 2	INT= 8	STAGE 3	INT= 6	STAGE 4	INT=

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4	D	6.5	5	5	5	9	5	5	OK
4	E	6.2	5	8	5	6	8	5	OK
4	F	11.5	10	1	8	10	1	8	OK

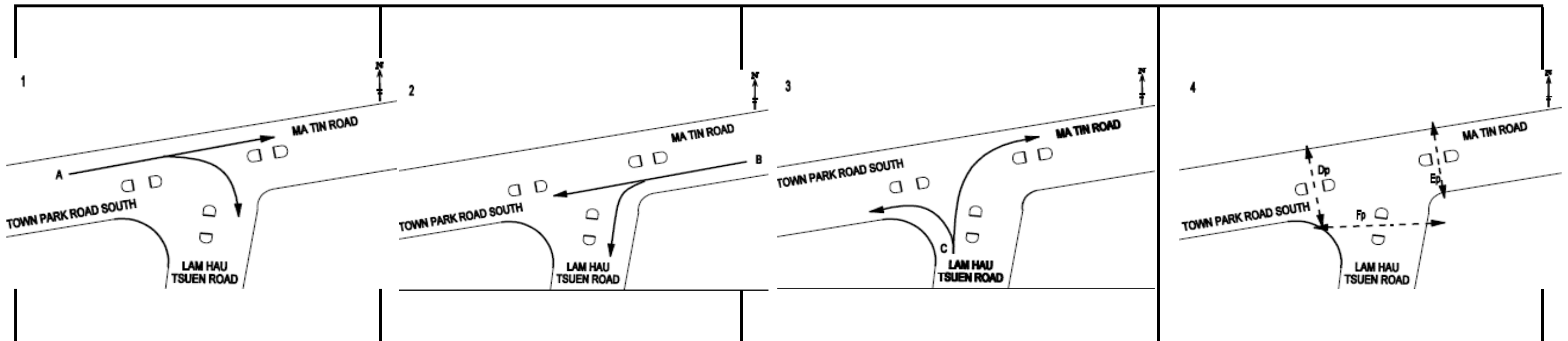
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1,A2	1	5.00		1	15		N	2115		373	91	464	0.20	2074			2074	0.224	0.224		28	28	0.711	48
B1,B2	2	5.50		1	13		N	2165	52	292		344	0.15	2128			2128	0.162	0.162		20	20	0.711	40
C1,C2	3	5.40		1	15		N	2155	46		51	96	1.00	1959			1959	0.049	0.049		6	6	0.711	13
PED	4																			19				

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J4 Town Park Road South/ Lam Hau Tsuen Road	Year 2029 Reference Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	90 sec
Sum(y)		Y =	0.448
Loss time		L =	36 sec
Total Flow		=	96 pcu
Co	= (1.5*L+5)/(1-Y)	=	106.9 sec
Cm	= L/(1-Y)	=	65.3 sec
Yult		=	0.630
R.C.ult	= (Yult-Y)/Y*100%	=	40.5 %
Cp	= 0.9*L/(0.9-Y)	=	71.7 sec
Ymax	= 1-L/C	=	0.600
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	20.4 % (Optimized)



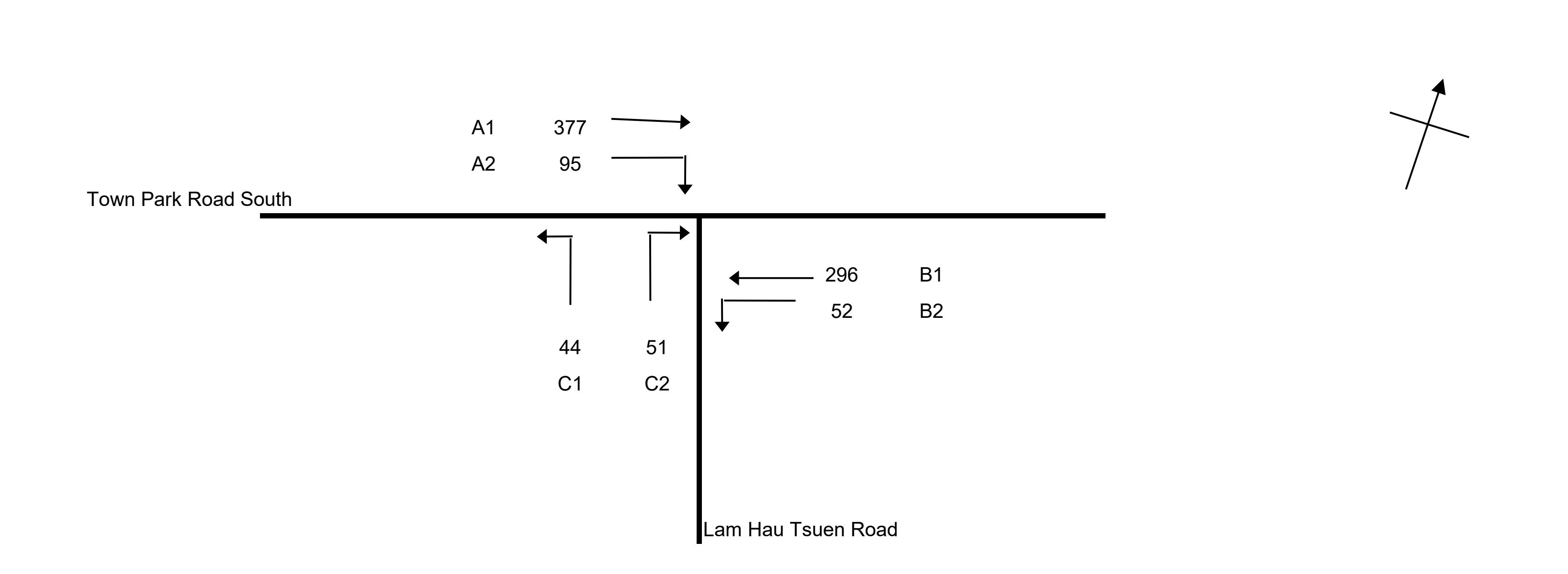
STAGE 1	INT= 5	STAGE 2	INT= 8	STAGE 3	INT= 6	STAGE 4	INT=

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4	D	6.5	5	5	5	9	5	5	OK
4	E	6.2	5	8	5	6	8	5	OK
4	F	11.5	10	1	8	10	1	8	OK

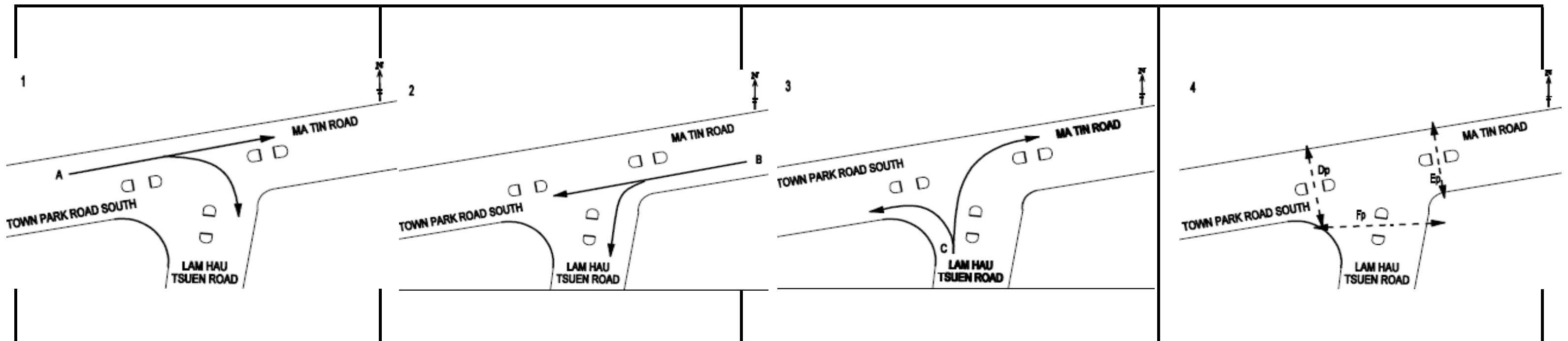
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1,A2	1	5.00		1	15		N	2115		376	108	483	0.22	2069			2069	0.234	0.234		28	28	0.747	50
B1,B2	2	5.50		1	13		N	2165	52	301		353	0.15	2129			2129	0.166	0.166		20	20	0.747	41
C1,C2	3	5.40		1	15		N	2155	46		50	96	1.00	1959			1959	0.049	0.049	1	6	7	0.639	13
PED	4																			19				

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION	
Site Formation in Long Bin, Yuen Long	PROJECT NO:	
J4 Town Park Road South/ Lam Hau Tsuen Road — Year 2029 Reference Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4	
No. of stage using for calculation		N =	3	
Cycle time		C =	90	sec
Sum(y)		Y =	0.439	
Loss time		L =	36	sec
Total Flow		=	95	pcu
Co	= (1.5*L+5)/(1-Y)	=	105.3	sec
Cm	= L/(1-Y)	=	64.2	sec
Yult		=	0.630	
R.C.ult	= (Yult-Y)/Y*100%	=	43.4	%
Cp	= 0.9*L/(0.9-Y)	=	70.4	sec
Ymax	= 1-L/C	=	0.600	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	22.9	% (Optimized)



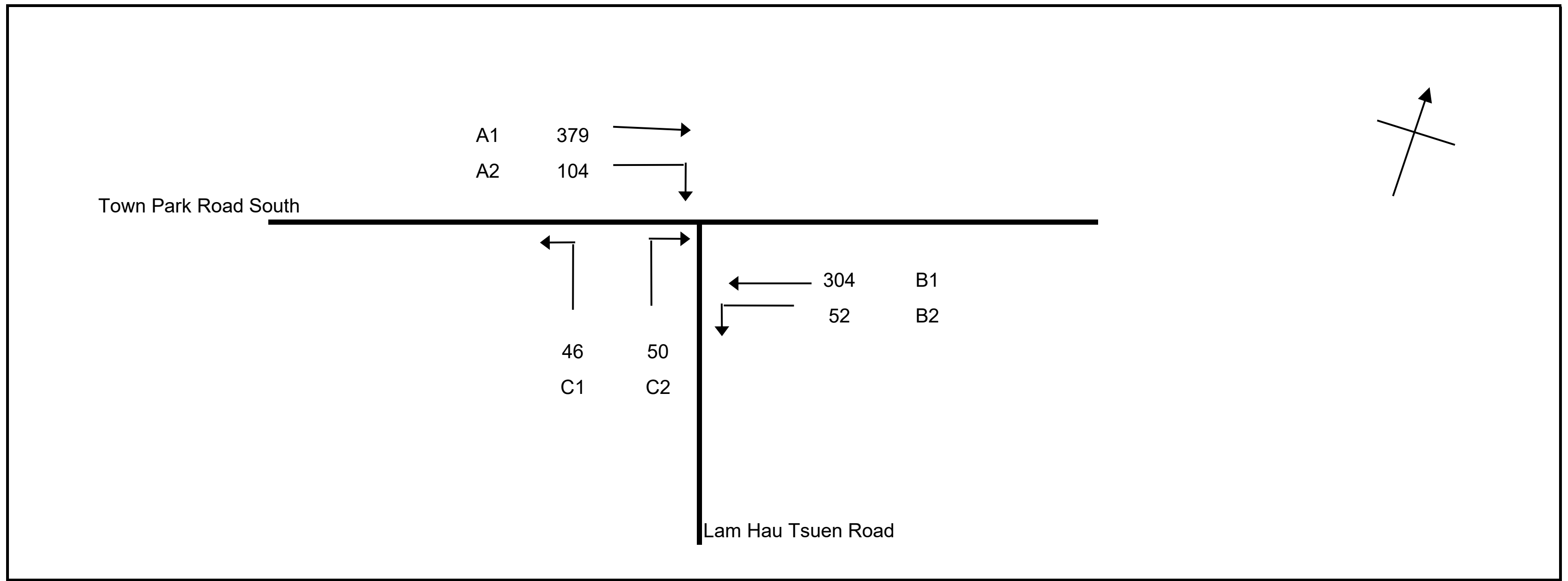
STAGE 1	INT= 5	STAGE 2	INT= 8	STAGE 3	INT= 6	STAGE 4	INT=

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4	D	6.5	5	5	5	9	5	5	OK
4	E	6.2	5	8	5	6	8	5	OK
4	F	11.5	10	1	8	10	1	8	OK

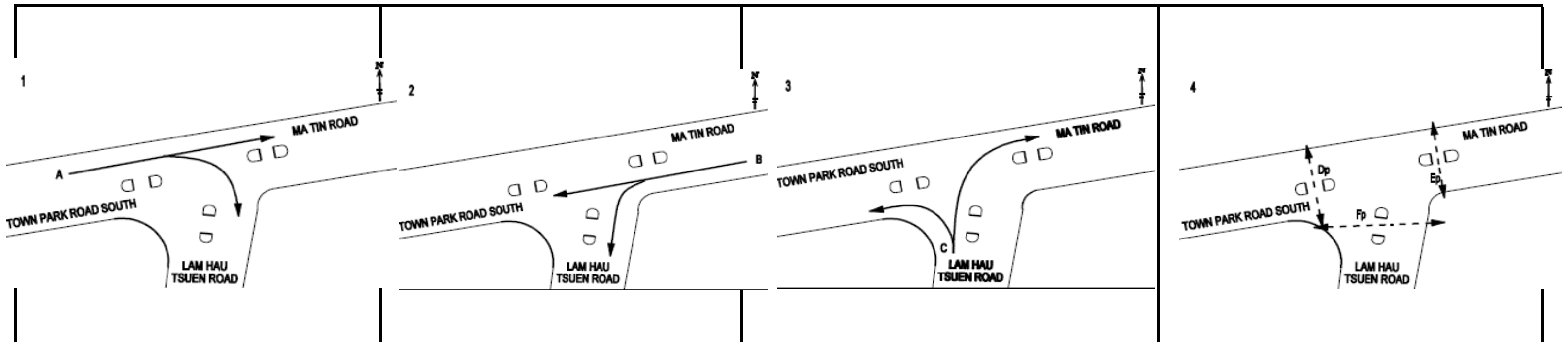
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1,A2	1	5.00		1	15		N	2115		377	95	472	0.20	2073			2073	0.228	0.228		28	28	0.732	49
B1,B2	2	5.50		1	13		N	2165	52	296		348	0.15	2129			2129	0.163	0.163		20	20	0.732	41
C1,C2	3	5.40		1	15		N	2155	44		51	95	1.00	1959			1959	0.048	0.048	1	6	7	0.627	13
PED	4																			19				

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J4 Town Park Road South/ Lam Hau Tsuen Road	Year 2029 Design Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	90 sec
Sum(y)		Y =	0.449
Loss time		L =	36 sec
Total Flow		=	96 pcu
Co	= (1.5*L+5)/(1-Y)	=	107.1 sec
Cm	= L/(1-Y)	=	65.4 sec
Yult		=	0.630
R.C.ult	= (Yult-Y)/Y*100%	=	40.2 %
Cp	= 0.9*L/(0.9-Y)	=	71.9 sec
Ymax	= 1-L/C	=	0.600
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	20.2 % (Optimized)



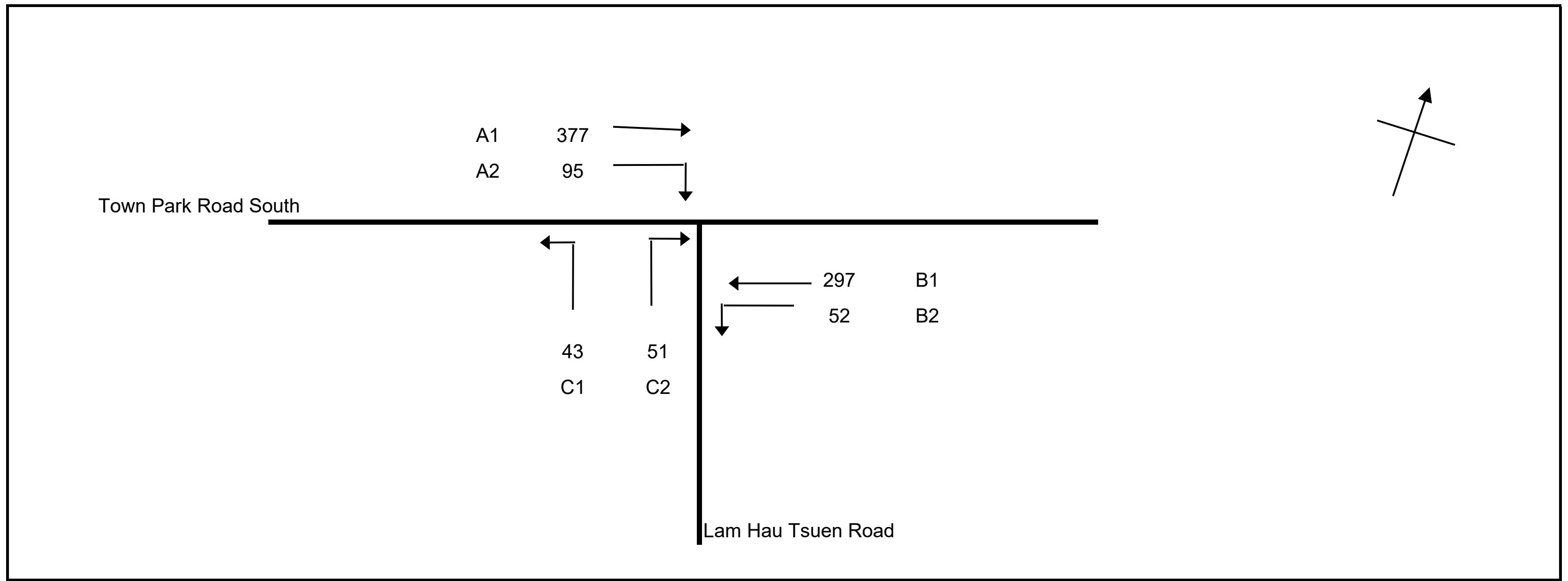
STAGE 1	INT= 5	STAGE 2	INT= 8	STAGE 3	INT= 6	STAGE 4	INT=

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4	D	6.5	5	5	5	9	5	5	OK
4	E	6.2	5	8	5	6	8	5	OK
4	F	11.5	10	1	8	10	1	8	OK

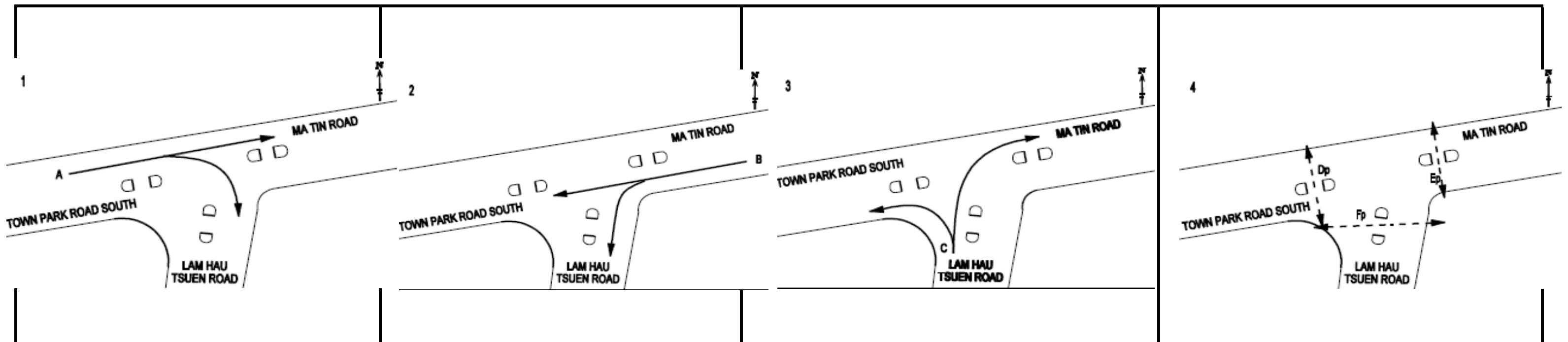
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1,A2	1	5.00		1	15		N	2115		379	104	483	0.22	2070			2070	0.233	0.233		28	28	0.749	50
B1,B2	2	5.50		1	13		N	2165	52	304		355	0.15	2129			2129	0.167	0.167		20	20	0.749	41
C1,C2	3	5.40		1	15		N	2155	46		50	96	1.00	1959			1959	0.049	0.049	1	6	7	0.640	13
PED	4																			19				

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J4 Town Park Road South/ Lam Hau Tsuen Road	Year 2029 Design Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4	
No. of stage using for calculation		N =	3	
Cycle time		C =	90	sec
Sum(y)		Y =	0.440	
Loss time		L =	36	sec
Total Flow		=	94	pcu
Co	= (1.5*L+5)/(1-Y)	=	105.3	sec
Cm	= L/(1-Y)	=	64.3	sec
Yult		=	0.630	
R.C.ult	= (Yult-Y)/Y*100%	=	43.3	%
Cp	= 0.9*L/(0.9-Y)	=	70.4	sec
Ymax	= 1-L/C	=	0.600	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	22.8	% (Optimized)



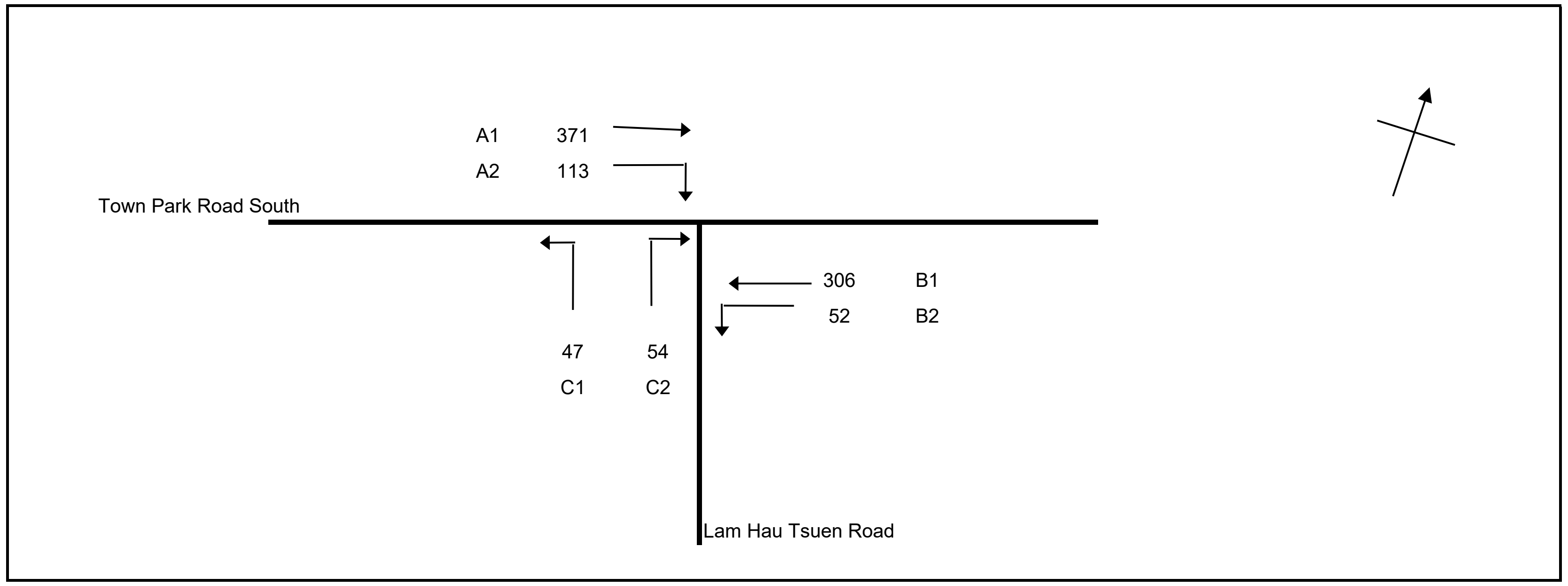
STAGE 1	INT= 5	STAGE 2	INT= 8	STAGE 3	INT= 6	STAGE 4	INT=

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4	D	6.5	5	5	5	9	5	5	OK
4	E	6.2	5	8	5	6	8	5	OK
4	F	11.5	10	1	8	10	1	8	OK

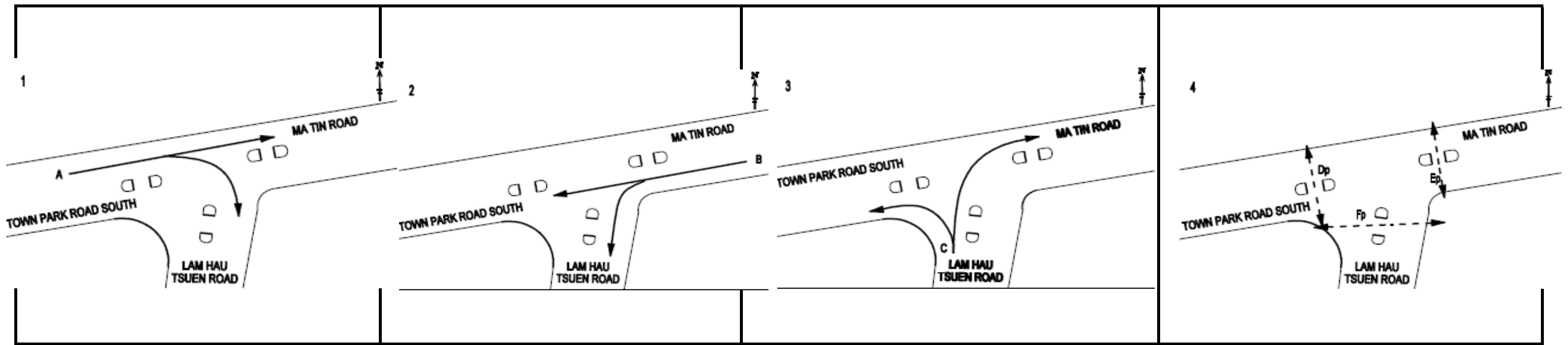
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1,A2	1	5.00		1	15		N	2115		377	95	473	0.20	2073			2073	0.228	0.228		28	28	0.733	49
B1,B2	2	5.50		1	13		N	2165	52	297		348	0.15	2129			2129	0.164	0.164		20	20	0.733	41
C1,C2	3	5.40		1	15		N	2155	43		51	94	1.00	1959			1959	0.048	0.048	1	6	7	0.627	13
PED	4																			19				

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J4 Town Park Road South/ Lam Hau Tsuen Road	Year 2034 Reference Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	90 sec
Sum(y)		Y =	0.454
Loss time		L =	35 sec
Total Flow		=	101 pcu
Co	= (1.5*L+5)/(1-Y)	=	105.2 sec
Cm	= L/(1-Y)	=	64.1 sec
Yult		=	0.638
R.C.ult	= (Yult-Y)/Y*100%	=	40.5 %
Cp	= 0.9*L/(0.9-Y)	=	70.6 sec
Ymax	= 1-L/C	=	0.611
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	21.2 % (Optimized)



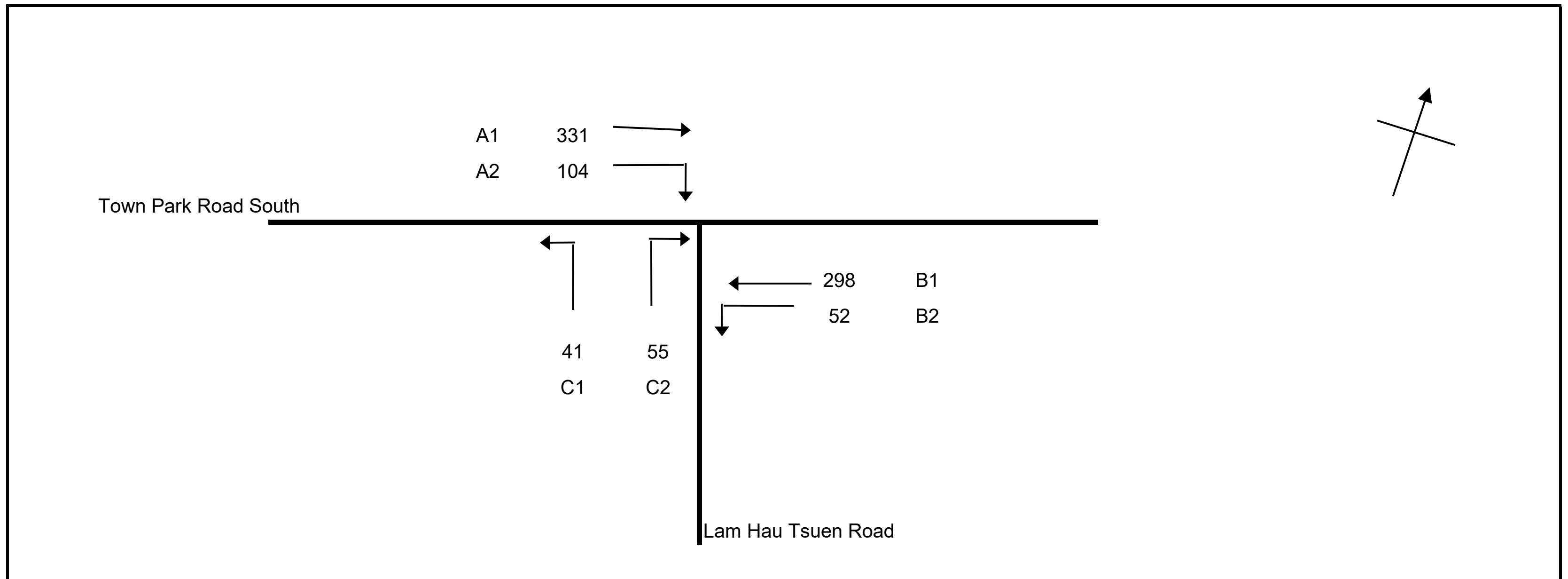
STAGE 1	INT= 5	STAGE 2	INT= 8	STAGE 3	INT= 6	STAGE 4	INT=

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4	D	6.5	5	5	5	9	5	5	OK
4	E	6.2	5	8	5	6	8	5	OK
4	F	11.5	10	1	8	10	1	8	OK

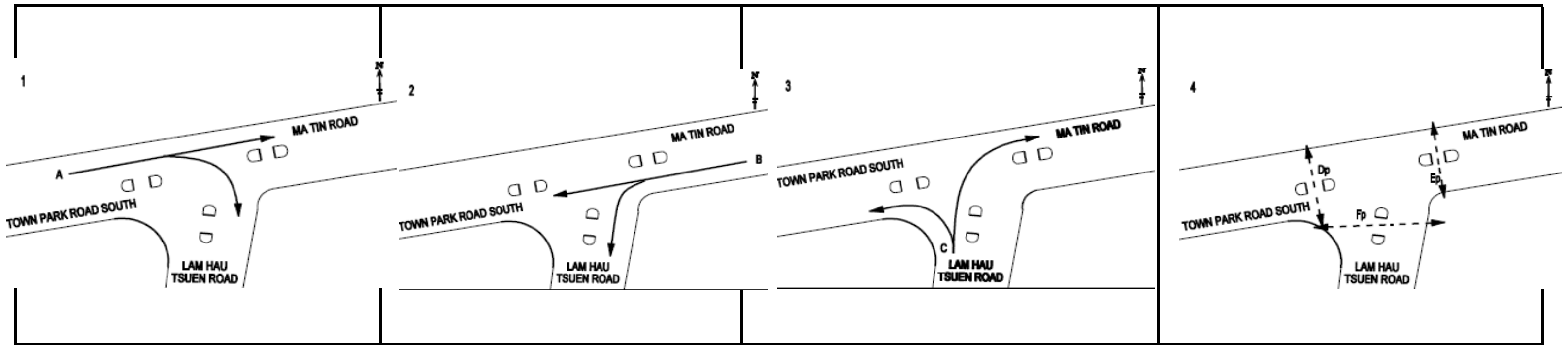
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1,A2	1	5.00		1	15		N	2115		371	113	484	0.23	2067			2067	0.234	0.234		28	28	0.742	50
B1,B2	2	5.50		1	13		N	2165	52	306		357	0.14	2130			2130	0.168	0.168		20	20	0.742	41
C1,C2	3	5.40		1	15		N	2155	47		54	101	1.00	1959			1959	0.052	0.052		6	6	0.742	14
PED	4																			19				

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J4 Town Park Road South/ Lam Hau Tsuen Road	Year 2034 Reference Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	90 sec
Sum(y)		Y =	0.424
Loss time		L =	35 sec
Total Flow		=	96 pcu
Co	= (1.5*L+5)/(1-Y)	=	99.9 sec
Cm	= L/(1-Y)	=	60.8 sec
Yult		=	0.638
R.C.ult	= (Yult-Y)/Y*100%	=	50.2 %
Cp	= 0.9*L/(0.9-Y)	=	66.2 sec
Ymax	= 1-L/C	=	0.611
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	29.6 % (Optimized)



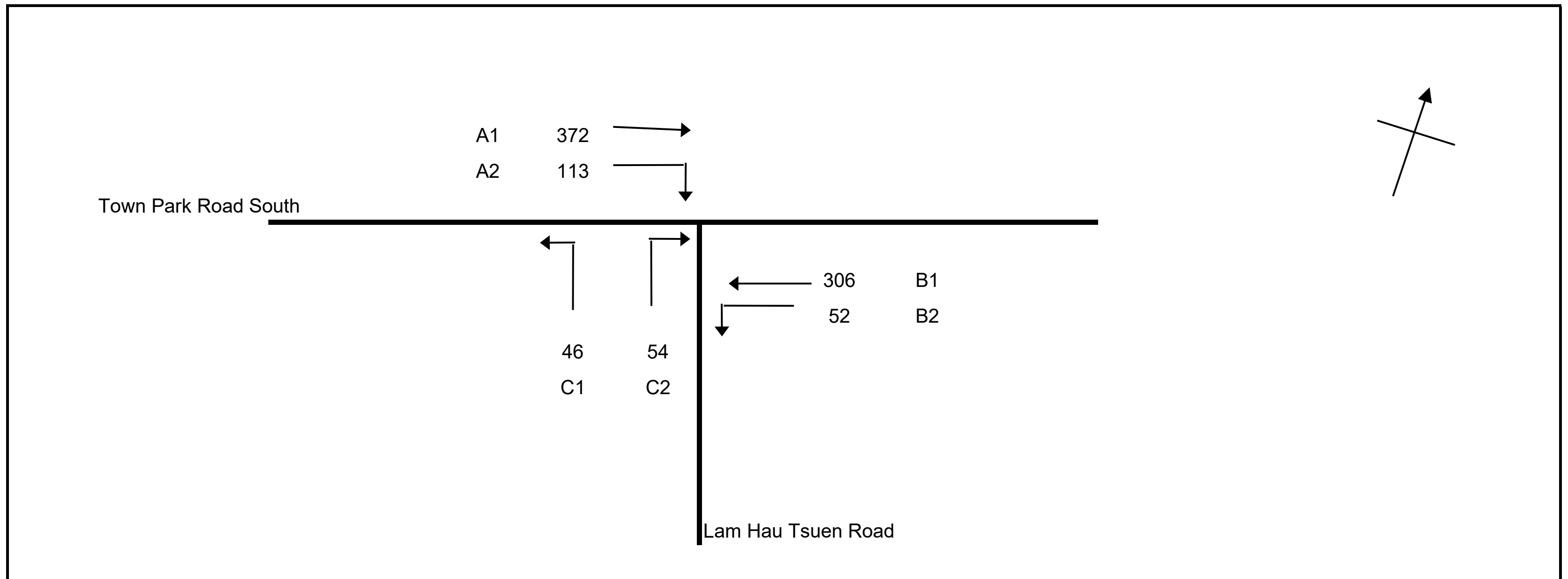
STAGE 1	INT= 5	STAGE 2	INT= 8	STAGE 3	INT= 6	STAGE 4	INT=

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4	D	6.5	5	5	5	9	5	5	OK
4	E	6.2	5	8	5	6	8	5	OK
4	F	11.5	10	1	8	10	1	8	OK

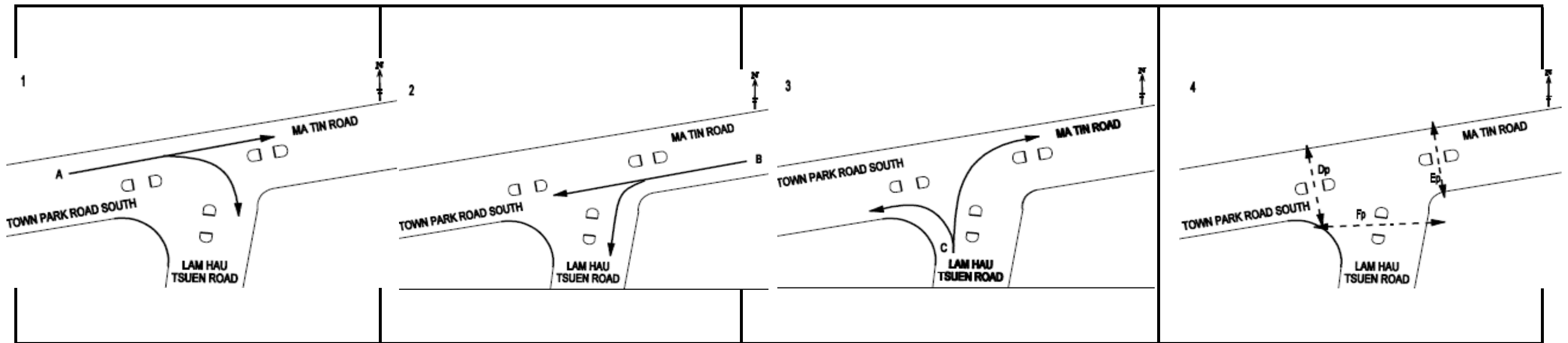
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1,A2	1	5.00		1	15		N	2115		331	104	436	0.24	2065			2065	0.211	0.211		27	27	0.694	46
B1,B2	2	5.50		1	13		N	2165	52	298		350	0.15	2129			2129	0.164	0.164		21	21	0.694	40
C1,C2	3	5.40		1	15		N	2155	41		55	96	1.00	1959			1959	0.049	0.049		6	6	0.694	13
PED	4																			19				

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J4 Town Park Road South/ Lam Hau Tsuen Road	Year 2034 Design Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4	
No. of stage using for calculation		N =	3	
Cycle time		C =	90	sec
Sum(y)		Y =	0.454	
Loss time		L =	35	sec
Total Flow		=	101	pcu
Co	= (1.5*L+5)/(1-Y)	=	105.2	sec
Cm	= L/(1-Y)	=	64.1	sec
Yult		=	0.638	
R.C.ult	= (Yult-Y)/Y*100%	=	40.5	%
Cp	= 0.9*L/(0.9-Y)	=	70.6	sec
Ymax	= 1-L/C	=	0.611	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	21.2	% (Optimized)



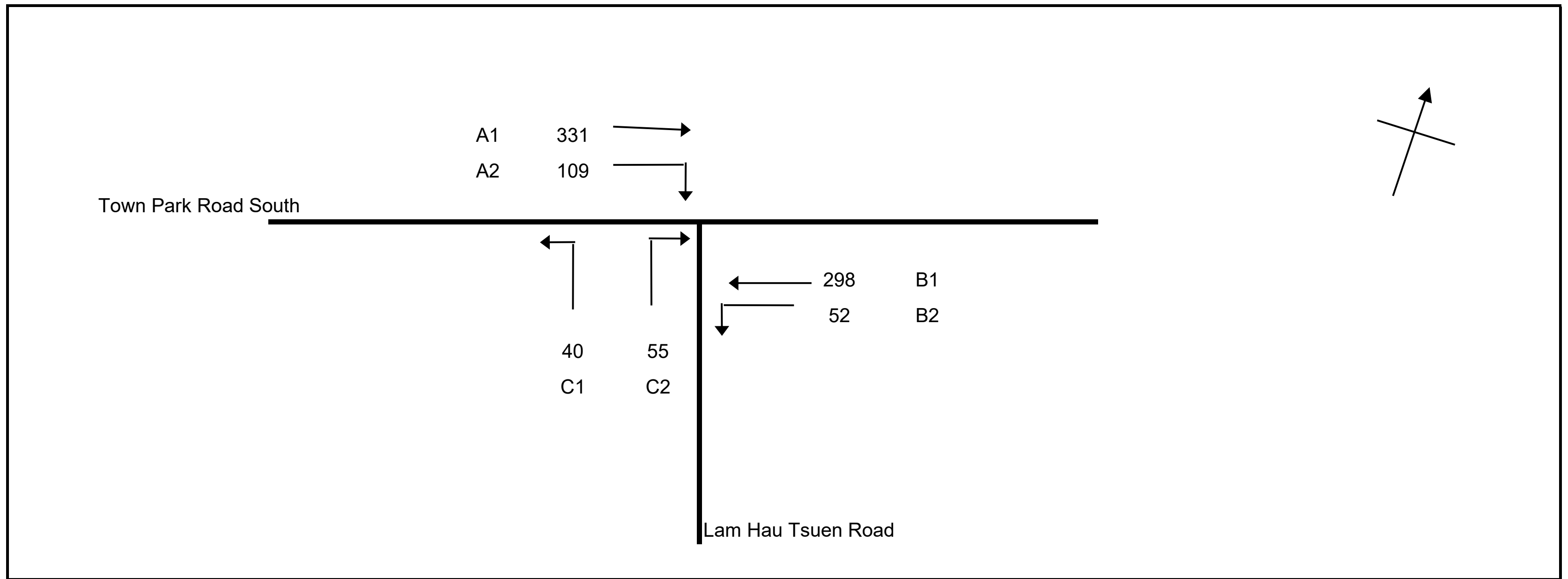
STAGE 1	INT= 5	STAGE 2	INT= 8	STAGE 3	INT= 6	STAGE 4	INT=

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4	D	6.5	5	5	5	9	5	5	OK
4	E	6.2	5	8	5	6	8	5	OK
4	F	11.5	10	1	8	10	1	8	OK

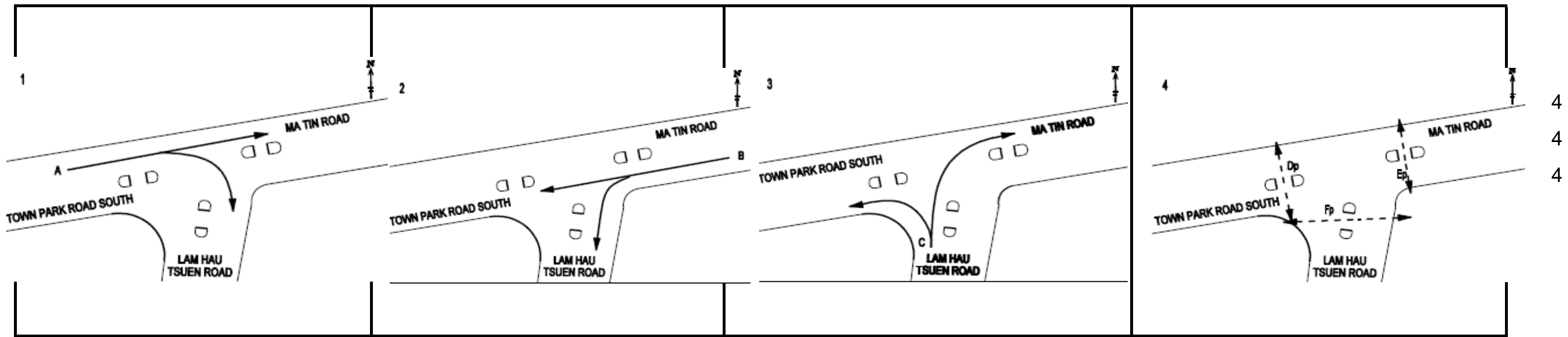
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1,A2	1	5.00		1	15		N	2115		372	113	484	0.23	2067			2067	0.234	0.234		28	28	0.742	50
B1,B2	2	5.50		1	13		N	2165	52	306		358	0.14	2130			2130	0.168	0.168		20	20	0.742	42
C1,C2	3	5.40		1	15		N	2155	46		54	101	1.00	1959			1959	0.051	0.051		6	6	0.742	14
PED	4																			19				

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J4 Town Park Road South/ Lam Hau Tsuen Road	Year 2034 Design Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	90 sec
Sum(y)		Y =	0.427
Loss time		L =	35 sec
Total Flow		=	95 pcu
Co	= (1.5*L+5)/(1-Y)	=	100.3 sec
Cm	= L/(1-Y)	=	61.0 sec
Yult		=	0.638
R.C.ult	= (Yult-Y)/Y*100%	=	49.4 %
Cp	= 0.9*L/(0.9-Y)	=	66.6 sec
Ymax	= 1-L/C	=	0.611
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	28.9 % (Optimized)



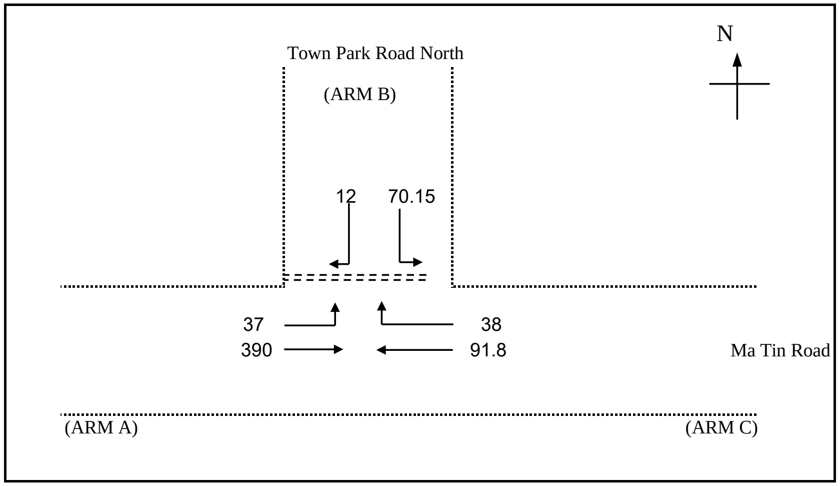
STAGE 1	INT= 5	STAGE 2	INT= 8	STAGE 3	INT= 6	STAGE 4	INT=

Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4	D	6.5	5	5	5	9	5	5	OK
4	E	6.2	5	8	5	6	8	5	OK
4	F	11.5	10	1	8	10	1	8	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	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.
																				16				
A1,A2	1	5.00		1	15		N	2115		331	109	441	0.25	2064			2064	0.214	0.214		28	28	0.698	46
B1,B2	2	5.50		1	13		N	2165	52	298		350	0.15	2129			2129	0.164	0.164		21	21	0.698	40
C1,C2	3	5.40		1	15		N	2155	40		55	95	1.00	1959			1959	0.049	0.049		6	6	0.698	13
PED	4																			19				

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

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO:	DESIGNED BY:
J5 Town Park Road North/ Ma Tin Road	Year 2018 Observed Traffic Flows (AM Peak)	DATE : 30/06/21	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)
Vl 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	=	10.50	(metres)
W cr	=	0	(metres)
q a-b	=	37	(pcu/hr)
q a-c	=	390	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.50	(metres)
Vr c-b	=	30	(metres)
q c-a	=	92	(pcu/hr)
q c-b	=	38	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	6.00	(metres)
W b-c	=	6.00	(metres)
Vl b-a	=	20	(metres)
Vr b-a	=	30	(metres)
Vr b-c	=	0	(metres)
q b-a	=	12	(pcu/hr)
q b-c	=	70	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.034491
E	=	1.089043
F	=	1.078814
Y	=	0.63775

THE CAPACITY OF MOVEMENT :

Q b-a	=	524
Q b-c	=	709
Q c-b	=	697
Q b-ac	=	675

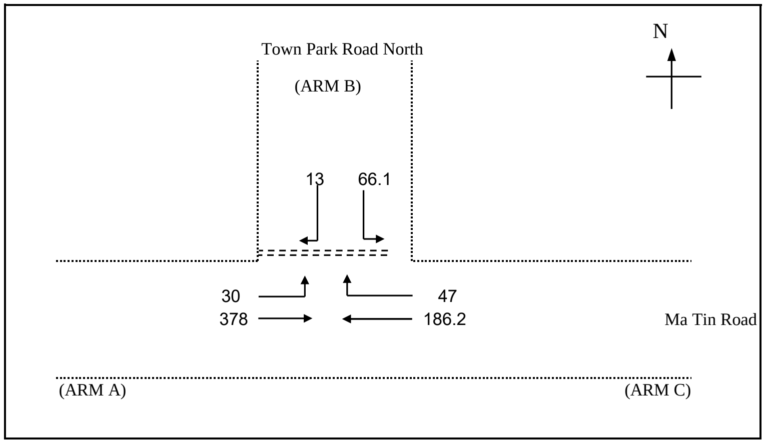
TOTAL FLOW = 0 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0221
DFC b-c	=	0.0989
DFC c-b	=	0.0549
DFC b-ac	=	0.1211

CRITICAL DFC = 0.121

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO:	DESIGNED BY:
J5 Town Park Road North/ Ma Tin Road	Year 2018 Observed Traffic Flows (PM Peak)	DATE : 30/06/21	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)
Vl 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	=	10.50	(metres)
W cr	=	0	(metres)
q a-b	=	30	(pcu/hr)
q a-c	=	378	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.50	(metres)
Vr c-b	=	30	(metres)
q c-a	=	186	(pcu/hr)
q c-b	=	46.55	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	6.00	(metres)
W b-c	=	6.00	(metres)
Vl b-a	=	20	(metres)
Vr b-a	=	30	(metres)
Vr b-c	=	0	(metres)
q b-a	=	13	(pcu/hr)
q b-c	=	66	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.034491
E	=	1.089043
F	=	1.078814
Y	=	0.63775

THE CAPACITY OF MOVEMENT :

Q b-a	=	511
Q b-c	=	713
Q c-b	=	701
Q b-ac	=	670.83

TOTAL FLOW = 0 (PCU/HR)

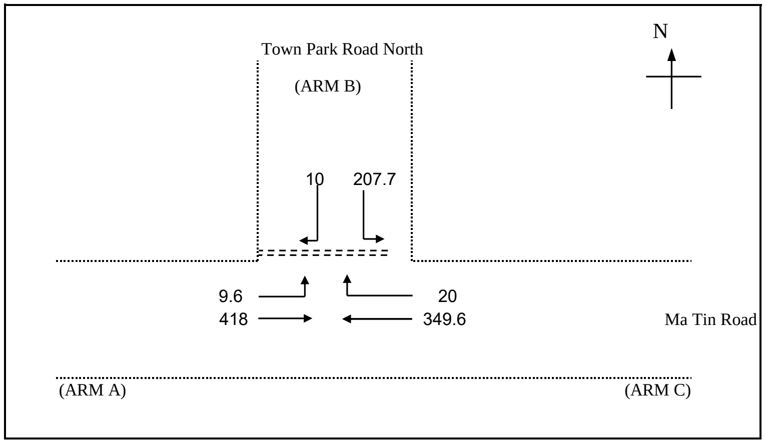
COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0245
DFC b-c	=	0.0927
DFC c-b	=	0.0664
DFC b-ac	=	0.1172

CRITICAL DFC = 0.117

OVE ARUP & PARTNERS | PRIORITY JUNCTION CALCULATION

		PROJECT NO:	DESIGNED BY:
J5 Town Park Road North/ Ma Tin Road	Year 2025 Reference Traffic Flows (AM Peak)	DATE : 30/06/21	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)
Vl 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	=	10.50	(metres)
W cr	=	0	(metres)
q a-b	=	10	(pcu/hr)
q a-c	=	418	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.50	(metres)
Vr c-b	=	30	(metres)
q c-a	=	350	(pcu/hr)
q c-b	=	20.49	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	6.00	(metres)
W b-c	=	6.00	(metres)
Vl b-a	=	20	(metres)
Vr b-a	=	30	(metres)
Vr b-c	=	0	(metres)
q b-a	=	10	(pcu/hr)
q b-c	=	208	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.034491
E	=	1.089043
F	=	1.078814
Y	=	0.63775

THE CAPACITY OF MOVEMENT :

Q b-a	=	488
Q b-c	=	705
Q c-b	=	697
Q b-ac	=	690.88

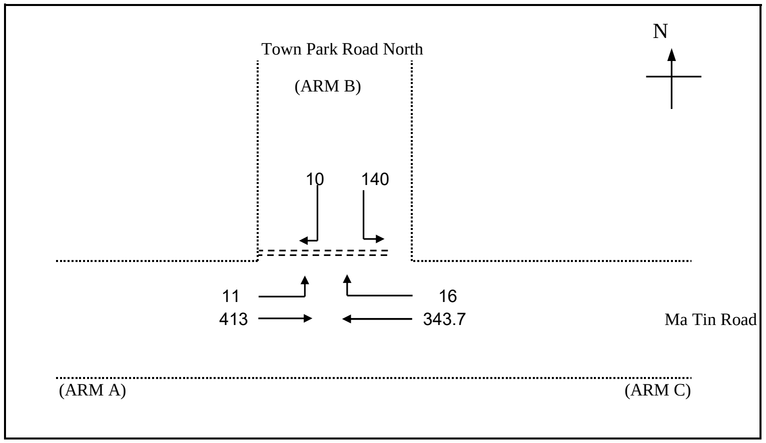
TOTAL FLOW = 0 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0205
DFC b-c	=	0.2945
DFC c-b	=	0.0294
DFC b-ac	=	0.3150

CRITICAL DFC = 0.315

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO:	DESIGNED BY:
J5 Town Park Road North/ Ma Tin Road	Year 2025 Reference Traffic Flows (PM Peak)	DATE : 30/06/21	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)
Vl 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	=	10.50	(metres)
W cr	=	0	(metres)
q a-b	=	11	(pcu/hr)
q a-c	=	413	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.50	(metres)
Vr c-b	=	30	(metres)
q c-a	=	344	(pcu/hr)
q c-b	=	16.28	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	6.00	(metres)
W b-c	=	6.00	(metres)
Vl b-a	=	20	(metres)
Vr b-a	=	30	(metres)
Vr b-c	=	0	(metres)
q b-a	=	10	(pcu/hr)
q b-c	=	140	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.034491
E	=	1.089043
F	=	1.078814
Y	=	0.63775

THE CAPACITY OF MOVEMENT :

Q b-a	=	491
Q b-c	=	706
Q c-b	=	698
Q b-ac	=	685.97

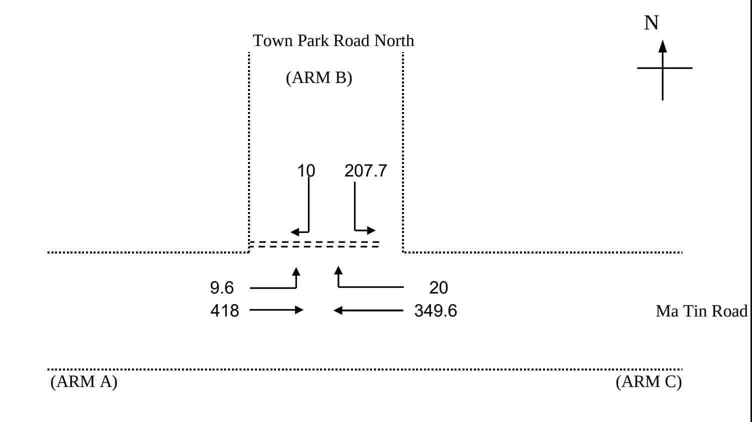
TOTAL FLOW = 0 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0204
DFC b-c	=	0.1983
DFC c-b	=	0.0233
DFC b-ac	=	0.2186

CRITICAL DFC = 0.219

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO:	DESIGNED BY:
J5 Town Park Road North/ Ma Tin Road	Year 2025 Design Traffic Flows (AM Peak)	DATE : 30/06/21	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)
Vl 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	=	10.50	(metres)
W cr	=	0	(metres)
q a-b	=	10	(pcu/hr)
q a-c	=	418	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.50	(metres)
Vr c-b	=	30	(metres)
q c-a	=	350	(pcu/hr)
q c-b	=	20.49	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	6.00	(metres)
W b-c	=	6.00	(metres)
Vl b-a	=	20	(metres)
Vr b-a	=	30	(metres)
Vr b-c	=	0	(metres)
q b-a	=	10	(pcu/hr)
q b-c	=	208	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.034491
E	=	1.089043
F	=	1.078814
Y	=	0.63775

THE CAPACITY OF MOVEMENT :

Q b-a	=	488
Q b-c	=	705
Q c-b	=	697
Q b-ac	=	690.88

TOTAL FLOW = 0 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0205
DFC b-c	=	0.2945
DFC c-b	=	0.0294
DFC b-ac	=	0.3150

CRITICAL DFC = 0.315

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
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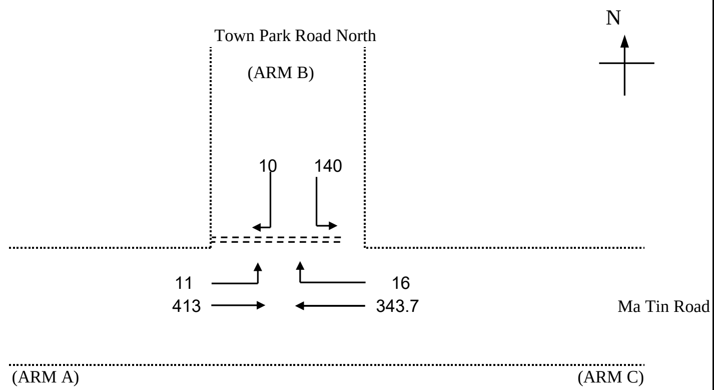
J5 Town Park Road North/ Ma Tin Road	Year 2025 Design Traffic Flows (PM Peak)	DATE : 30/06/21	FILENAME :



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)
Vl 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	=	10.50	(metres)
W cr	=	0	(metres)
q a-b	=	11	(pcu/hr)
q a-c	=	413	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.50	(metres)
Vr c-b	=	30	(metres)
q c-a	=	344	(pcu/hr)
q c-b	=	16.28	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	6.00	(metres)
W b-c	=	6.00	(metres)
Vl b-a	=	20	(metres)
Vr b-a	=	30	(metres)
Vr b-c	=	0	(metres)
q b-a	=	10	(pcu/hr)
q b-c	=	140	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.034491
E	=	1.089043
F	=	1.078814
Y	=	0.63775

THE CAPACITY OF MOVEMENT :

Q b-a	=	491
Q b-c	=	706
Q c-b	=	698
Q b-ac	=	685.97

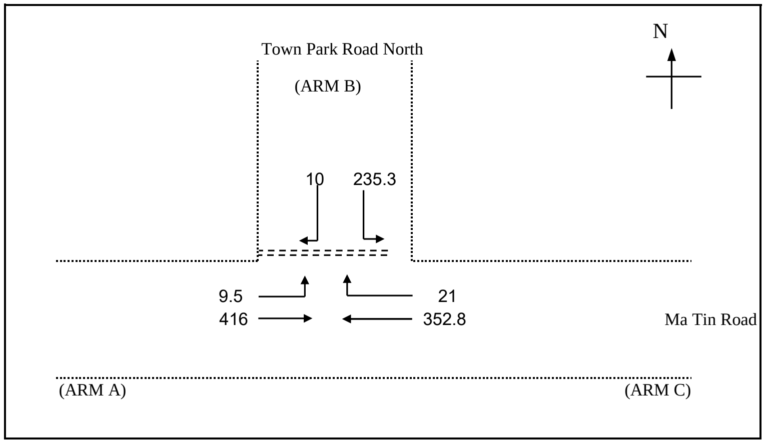
TOTAL FLOW = 0 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0204
DFC b-c	=	0.1983
DFC c-b	=	0.0233
DFC b-ac	=	0.2186

CRITICAL DFC = 0.219

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO:	DESIGNED BY:
J5 Town Park Road North/ Ma Tin Road	Year 2029 Reference Traffic Flows (AM Peak)	DATE : 30/06/21	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)
Vl 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	=	10.50	(metres)
W cr	=	0	(metres)
q a-b	=	10	(pcu/hr)
q a-c	=	416	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.50	(metres)
Vr c-b	=	30	(metres)
q c-a	=	353	(pcu/hr)
q c-b	=	21.44	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	6.00	(metres)
W b-c	=	6.00	(metres)
Vl b-a	=	20	(metres)
Vr b-a	=	30	(metres)
Vr b-c	=	0	(metres)
q b-a	=	10	(pcu/hr)
q b-c	=	235	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.034491
E	=	1.089043
F	=	1.078814
Y	=	0.63775

THE CAPACITY OF MOVEMENT :

Q b-a	=	487
Q b-c	=	705
Q c-b	=	697
Q b-ac	=	692.37

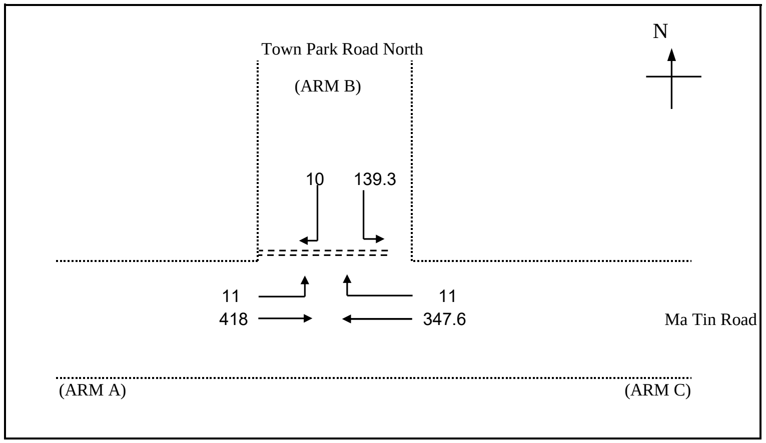
TOTAL FLOW = 0 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0205
DFC b-c	=	0.3338
DFC c-b	=	0.0308
DFC b-ac	=	0.3543

CRITICAL DFC = 0.354

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO:	DESIGNED BY:
J5 Town Park Road North/ Ma Tin Road	Year 2029 Reference Traffic Flows (PM Peak)	DATE : 30/06/21	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)
Vl 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	=	10.50	(metres)
W cr	=	0	(metres)
q a-b	=	11	(pcu/hr)
q a-c	=	418	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.50	(metres)
Vr c-b	=	30	(metres)
q c-a	=	348	(pcu/hr)
q c-b	=	10.6	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	6.00	(metres)
W b-c	=	6.00	(metres)
Vl b-a	=	20	(metres)
Vr b-a	=	30	(metres)
Vr b-c	=	0	(metres)
q b-a	=	10	(pcu/hr)
q b-c	=	139	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.034491
E	=	1.089043
F	=	1.078814
Y	=	0.63775

THE CAPACITY OF MOVEMENT :

Q b-a	=	491
Q b-c	=	705
Q c-b	=	697
Q b-ac	=	685

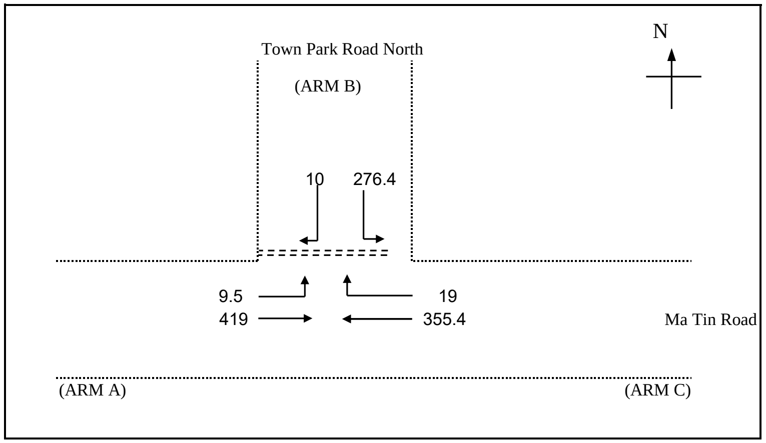
TOTAL FLOW = 0 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0204
DFC b-c	=	0.1976
DFC c-b	=	0.0152
DFC b-ac	=	0.2179

CRITICAL DFC = 0.218

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO:	DESIGNED BY:
J5 Town Park Road North/ Ma Tin Road	Year 2029 Design Traffic Flows (AM Peak)	DATE : 30/06/21	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)
Vl 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	=	10.50	(metres)
W cr	=	0	(metres)
q a-b	=	9	(pcu/hr)
q a-c	=	419	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.50	(metres)
Vr c-b	=	30	(metres)
q c-a	=	355	(pcu/hr)
q c-b	=	18.7	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	6.00	(metres)
W b-c	=	6.00	(metres)
Vl b-a	=	20	(metres)
Vr b-a	=	30	(metres)
Vr b-c	=	0	(metres)
q b-a	=	10	(pcu/hr)
q b-c	=	276	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.034491
E	=	1.089043
F	=	1.078814
Y	=	0.63775

THE CAPACITY OF MOVEMENT :

Q b-a	=	487
Q b-c	=	704
Q c-b	=	696
Q b-ac	=	693.21

TOTAL FLOW = 0 (PCU/HR)

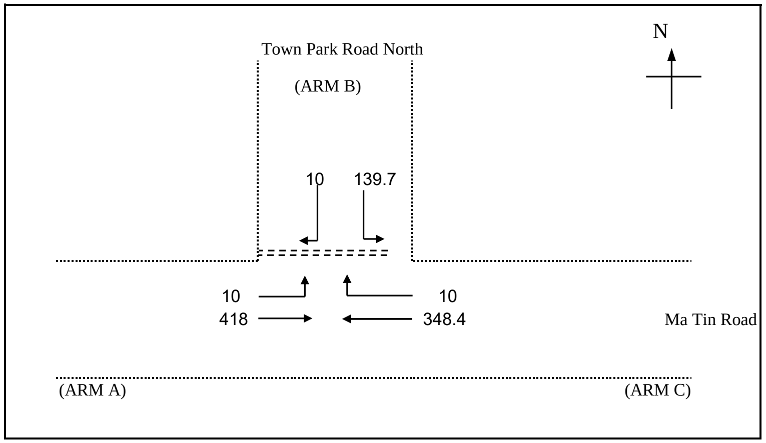
COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0205
DFC b-c	=	0.3926
DFC c-b	=	0.0269
DFC b-ac	=	0.4131

CRITICAL DFC = 0.413

s

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO:	DESIGNED BY:
J5 Town Park Road North/ Ma Tin Road	Year 2029 Design Traffic Flows (PM Peak)	DATE : 30/06/21	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)
Vl 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	=	10.50	(metres)
W cr	=	0	(metres)
q a-b	=	10	(pcu/hr)
q a-c	=	418	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.50	(metres)
Vr c-b	=	30	(metres)
q c-a	=	348	(pcu/hr)
q c-b	=	10.45	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	6.00	(metres)
W b-c	=	6.00	(metres)
Vl b-a	=	20	(metres)
Vr b-a	=	30	(metres)
Vr b-c	=	0	(metres)
q b-a	=	10	(pcu/hr)
q b-c	=	140	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.034491
E	=	1.089043
F	=	1.078814
Y	=	0.63775

THE CAPACITY OF MOVEMENT :

Q b-a	=	491
Q b-c	=	705
Q c-b	=	696
Q b-ac	=	685.05

TOTAL FLOW = 0 (PCU/HR)

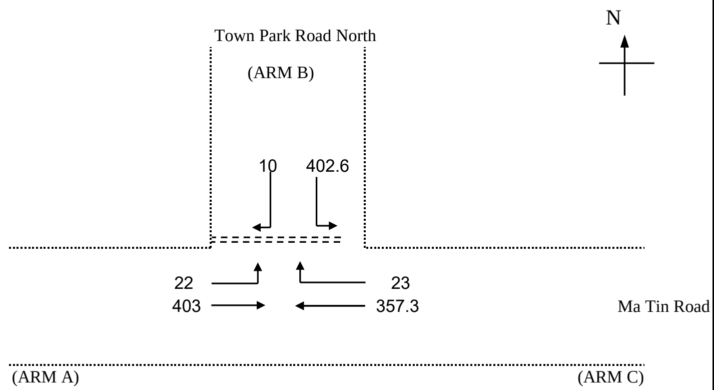
COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0204
DFC b-c	=	0.1982
DFC c-b	=	0.0150
DFC b-ac	=	0.2185

CRITICAL DFC = 0.219

s

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO:	DESIGNED BY:
J5 Town Park Road North/ Ma Tin Road	Year 2034 Reference Traffic Flows (AM Peak)	DATE : 30/06/21	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)
Vl 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	=	10.50	(metres)
W cr	=	0	(metres)
q a-b	=	22	(pcu/hr)
q a-c	=	403	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.50	(metres)
Vr c-b	=	30	(metres)
q c-a	=	357	(pcu/hr)
q c-b	=	22.89	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	6.00	(metres)
W b-c	=	6.00	(metres)
Vl b-a	=	20	(metres)
Vr b-a	=	30	(metres)
Vr b-c	=	0	(metres)
q b-a	=	10	(pcu/hr)
q b-c	=	403	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.034491
E	=	1.089043
F	=	1.078814
Y	=	0.63775

THE CAPACITY OF MOVEMENT :

Q b-a	=	488
Q b-c	=	707
Q c-b	=	697
Q b-ac	=	699.38

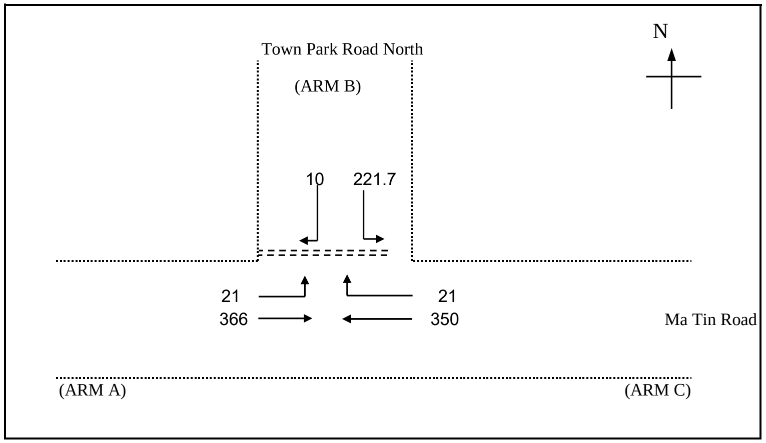
TOTAL FLOW = 0 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0205
DFC b-c	=	0.5694
DFC c-b	=	0.0328
DFC b-ac	=	0.5899

CRITICAL DFC = 0.590

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO:	DESIGNED BY:
J5 Town Park Road North/ Ma Tin Road	Year 2034 Reference Traffic Flows (PM Peak)	DATE : 30/06/21	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)
Vl 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	=	10.50	(metres)
W cr	=	0	(metres)
q a-b	=	21	(pcu/hr)
q a-c	=	366	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.50	(metres)
Vr c-b	=	30	(metres)
q c-a	=	350	(pcu/hr)
q c-b	=	21.1	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	6.00	(metres)
W b-c	=	6.00	(metres)
Vl b-a	=	20	(metres)
Vr b-a	=	30	(metres)
Vr b-c	=	0	(metres)
q b-a	=	10	(pcu/hr)
q b-c	=	222	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.034491
E	=	1.089043
F	=	1.078814
Y	=	0.63775

THE CAPACITY OF MOVEMENT :

Q b-a	=	499
Q b-c	=	717
Q c-b	=	707
Q b-ac	=	703.73

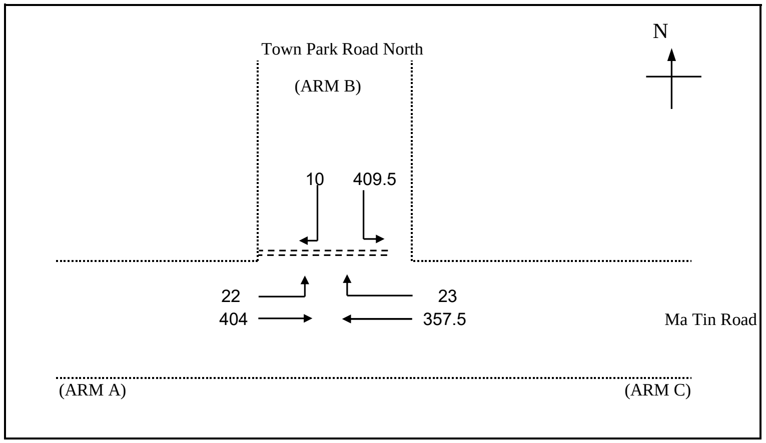
TOTAL FLOW = 0 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0200
DFC b-c	=	0.3091
DFC c-b	=	0.0298
DFC b-ac	=	0.3292

CRITICAL DFC = 0.329

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO:	DESIGNED BY:
J5 Town Park Road North/ Ma Tin Road	Year 2034 Design Traffic Flows (AM Peak)	DATE : 30/06/21	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)
Vl 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	=	10.50	(metres)
W cr	=	0	(metres)
q a-b	=	22	(pcu/hr)
q a-c	=	404	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.50	(metres)
Vr c-b	=	30	(metres)
q c-a	=	358	(pcu/hr)
q c-b	=	22.68	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	6.00	(metres)
W b-c	=	6.00	(metres)
Vl b-a	=	20	(metres)
Vr b-a	=	30	(metres)
Vr b-c	=	0	(metres)
q b-a	=	10	(pcu/hr)
q b-c	=	409	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.034491
E	=	1.089043
F	=	1.078814
Y	=	0.63775

THE CAPACITY OF MOVEMENT :

Q b-a	=	488
Q b-c	=	707
Q c-b	=	697
Q b-ac	=	699.51

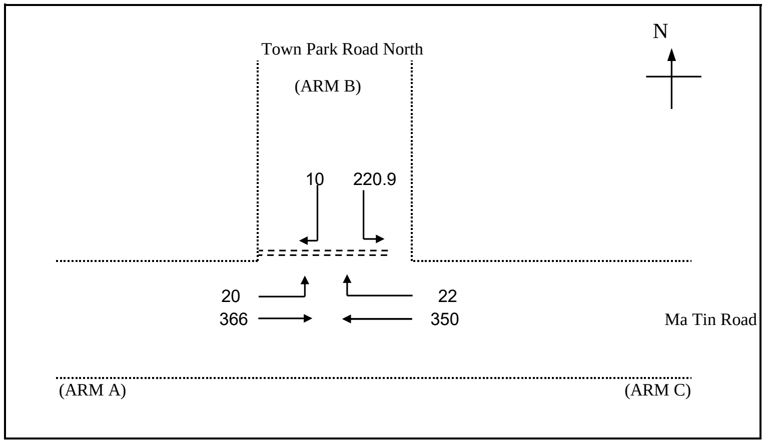
TOTAL FLOW = 0 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0205
DFC b-c	=	0.5792
DFC c-b	=	0.0325
DFC b-ac	=	0.5997

CRITICAL DFC = 0.600

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO:	DESIGNED BY:
J5 Town Park Road North/ Ma Tin Road	Year 2034 Design Traffic Flows (PM Peak)	DATE : 30/06/21	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)
Vl 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	=	10.50	(metres)
W cr	=	0	(metres)
q a-b	=	20	(pcu/hr)
q a-c	=	366	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.50	(metres)
Vr c-b	=	30	(metres)
q c-a	=	350	(pcu/hr)
q c-b	=	21.6	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	6.00	(metres)
W b-c	=	6.00	(metres)
Vl b-a	=	20	(metres)
Vr b-a	=	30	(metres)
Vr b-c	=	0	(metres)
q b-a	=	10	(pcu/hr)
q b-c	=	221	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.034491
E	=	1.089043
F	=	1.078814
Y	=	0.63775

THE CAPACITY OF MOVEMENT :

Q b-a	=	498
Q b-c	=	717
Q c-b	=	707
Q b-ac	=	703.6

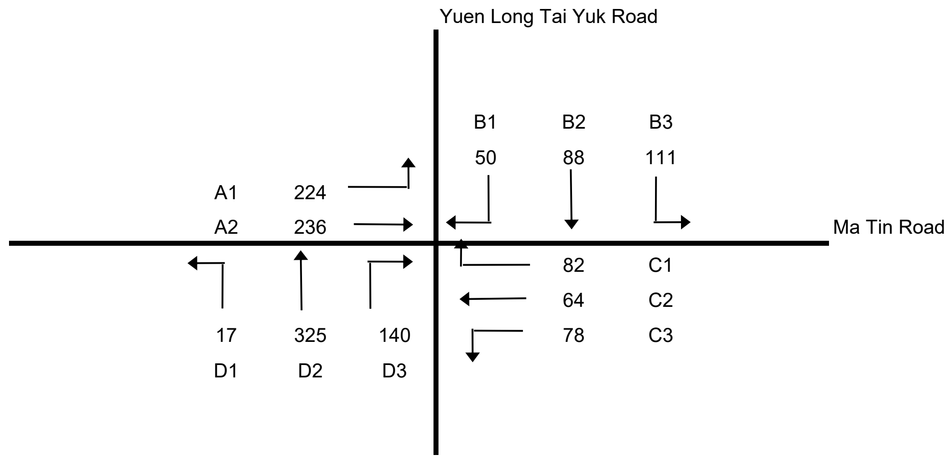
TOTAL FLOW = 0 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

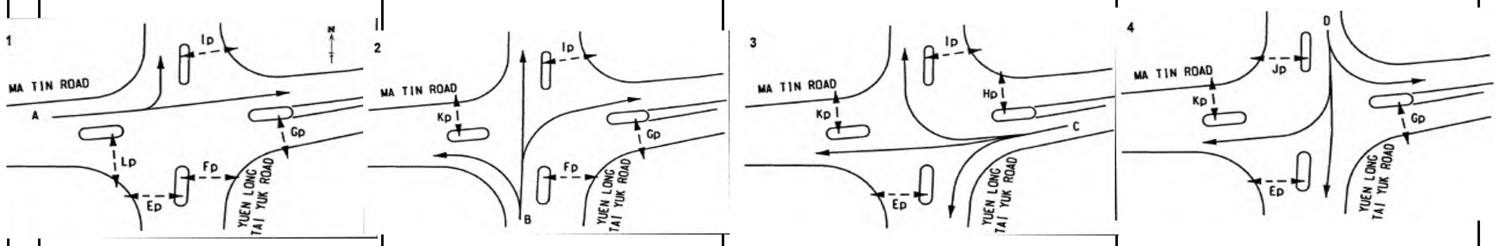
DFC b-a	=	0.0201
DFC b-c	=	0.3080
DFC c-b	=	0.0306
DFC b-ac	=	0.3281

CRITICAL DFC = 0.328

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J6 Yuen Long Tai Yuk Road/ Ma Tin Road	Year 2018 Observed Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.382
Loss time		L =	27 sec
Total Flow		=	703 pcu
Co	= (1.5*L+5)/(1-Y)	=	73.6 sec
Cm	= L/(1-Y)	=	43.7 sec
Yult		=	0.698
R.C.ult	= (Yult-Y)/Y*100%	=	82.7 %
Cp	= 0.9*L/(0.9-Y)	=	46.9 sec
Ymax	= 1-L/C	=	0.775
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	82.7 % (Optimized)



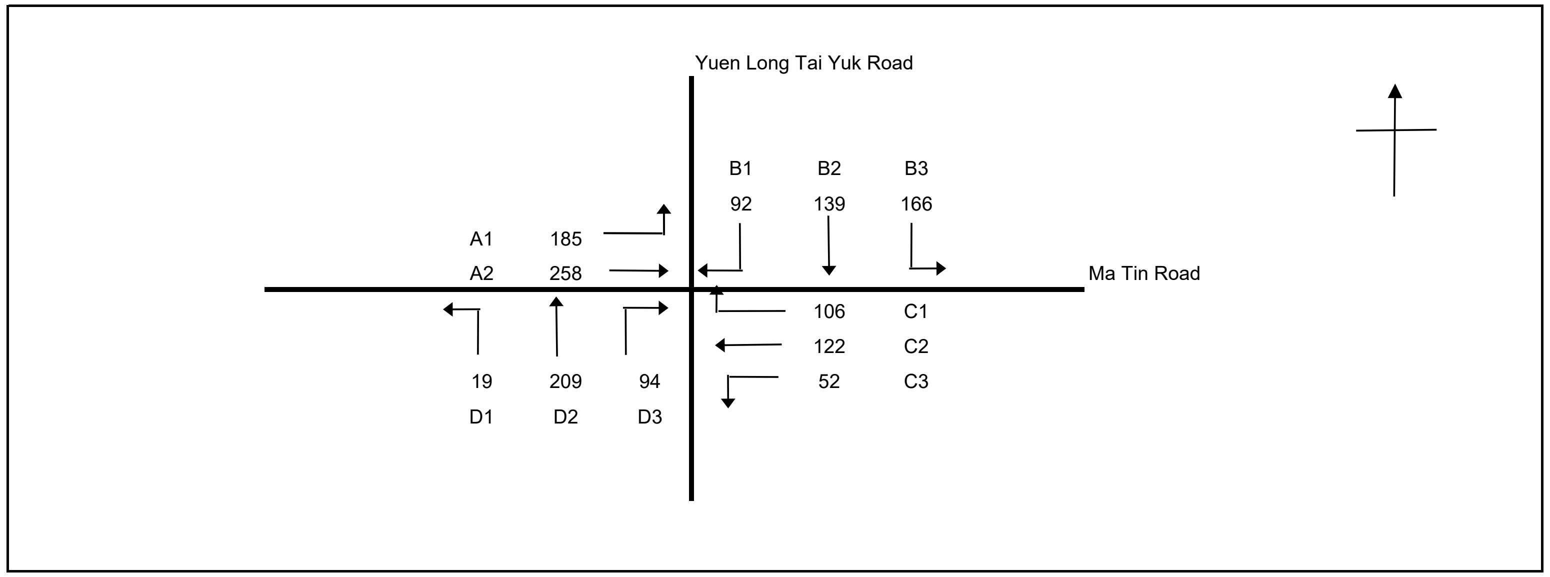
STAGE 1	INT= 5	STAGE 2	INT= 10	STAGE 3	INT= 11	STAGE 4	INT= 5

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,3,4	E	7.8	5	2	7	73	2	7	OK
1,2	F	7.6	5	2	6	63	2	6	OK
1,2,4	G	7.2	5	2	6	83	2	6	OK
3	H	8.0	5	2	7	20	2	7	OK
1,2,3	I	7.5	5	2	6	92	2	6	OK
4	J	7.3	5	2	6	12	2	6	OK
2,3,4	K	7.3	5	2	6	79	2	6	OK
1	L	10.0	5	2	8	23	2	8	OK

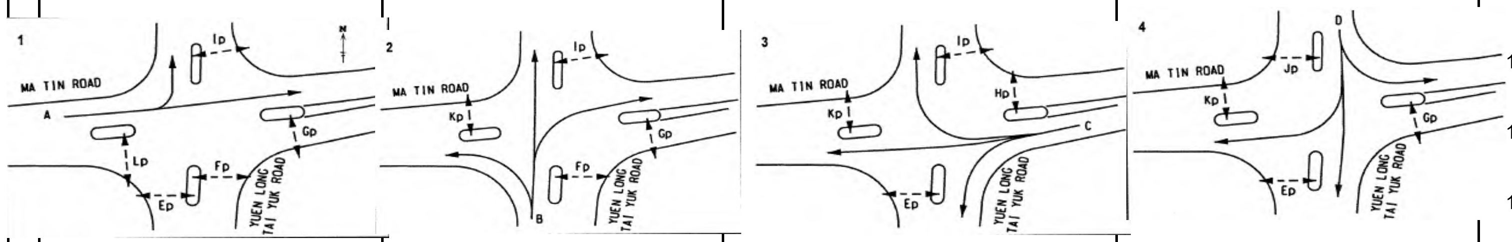
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				27				
A1	1	3.50		1	15		N	2105	224			224	1.00	1914			1914	0.117	0.120		29	29	0.481	34
A2	1	3.50		1				1965		236		236	0.00	1965			1965	0.120			29	29	0.493	36
D1,D2	2	3.80		1	15		N	2135	17	235		252	0.07	2121			2121	0.119	0.119		29	29	0.492	38
D2,D3	2	3.80		1	30			1995		90	140	230	0.61	1936			1936	0.119			29	29	0.493	35
C1	3	3.00		1	20		N	2055			82	82	1.00	1912			1912	0.043	0.078		10	19	0.270	14
C2,C3	3	3.00		1	15			1915	78	64		142	0.55	1815			1815	0.078			19	19	0.493	24
B1,B2	4	3.50		1	25		N	2105		83	50	133	0.37	2059			2059	0.064	0.065		16	16	0.490	23
B2,B3	4	3.50		1	15			1965	111	5		116	0.95	1794			1794	0.065			16	16	0.493	20

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J6 Yuen Long Tai Yuk Road/ Ma Tin Road	Year 2018 Observed Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.407
Loss time		L =	27 sec
Total Flow		=	999 pcu
Co	= (1.5*L+5)/(1-Y)	=	76.8 sec
Cm	= L/(1-Y)	=	45.5 sec
Yult		=	0.698
R.C.ult	= (Yult-Y)/Y*100%	=	71.3 %
Cp	= 0.9*L/(0.9-Y)	=	49.3 sec
Ymax	= 1-L/C	=	0.775
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	71.3 % (Optimized)



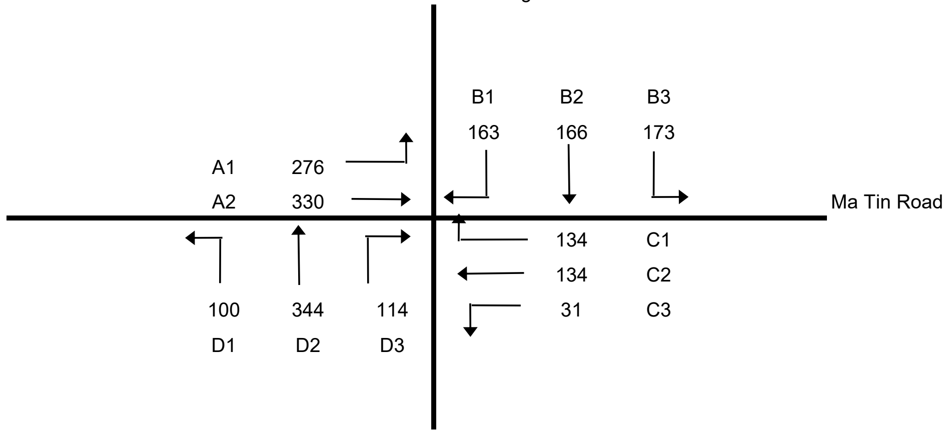
STAGE 1	INT=	5	STAGE 2	INT=	10	STAGE 3	INT=	11	STAGE 4	INT=	5

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,3,4	E	7.8	5	2	7	84	2	7	OK
1,2	F	7.6	5	2	6	53	2	6	OK
1,2,4	G	7.2	5	2	6	81	2	6	OK
3	H	8.0	5	2	7	22	2	7	OK
1,2,3	I	7.5	5	2	6	85	2	6	OK
4	J	7.3	5	2	6	19	2	6	OK
2,3,4	K	7.3	5	2	6	78	2	6	OK
1	L	10.0	5	2	8	24	2	8	OK

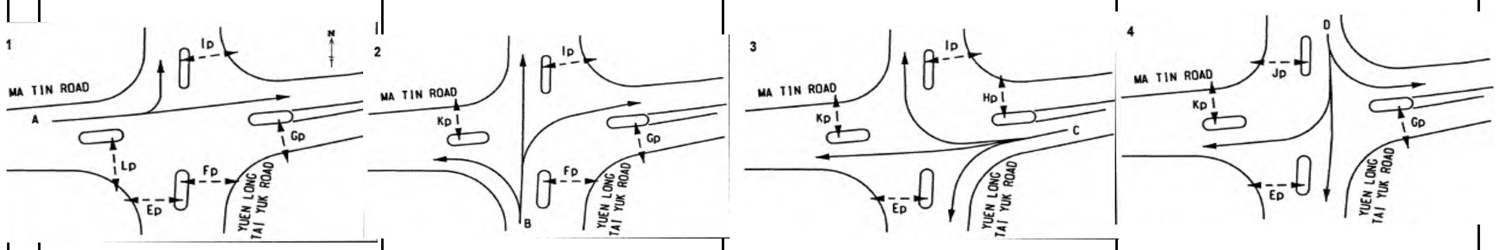
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				27				
A1	1	3.50		1	15		N	2105	185			185	1.00	1914			1914	0.097	0.131		22	30	0.387	28
A2	1	3.50		1				1965		258		258	0.00	1965			1965	0.131			30	30	0.525	39
D1,D2	2	3.80		1	15		N	2135	19	149		168	0.11	2111			2111	0.079	0.080		18	18	0.524	28
D2,D3	2	3.80		1	30			1995		60	94	154	0.61	1936			1936	0.080			18	18	0.525	26
C1	3	3.00		1	20		N	2055			106	106	1.00	1912			1912	0.056	0.093		13	21	0.313	18
C2,C3	3	3.00		1	15			1915	52	122		174	0.30	1860			1860	0.093			21	21	0.525	29
B1,B2	4	3.50		1	25		N	2105		119	92	211	0.44	2051			2051	0.103	0.103		23	23	0.525	34
B2,B3	4	3.50		1	15			1965	166	20		186	0.89	1804			1804	0.103			23	23	0.525	30

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J6 Yuen Long Tai Yuk Road/ Ma Tin Road	Year 2025 Reference Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.525
Loss time		L =	27 sec
Total Flow		=	1072 pcu
Co	= (1.5*L+5)/(1-Y)	=	95.7 sec
Cm	= L/(1-Y)	=	56.8 sec
Yult		=	0.698
R.C.ult	= (Yult-Y)/Y*100%	=	32.9 %
Cp	= 0.9*L/(0.9-Y)	=	64.7 sec
Ymax	= 1-L/C	=	0.775
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	32.9 % (Optimized)



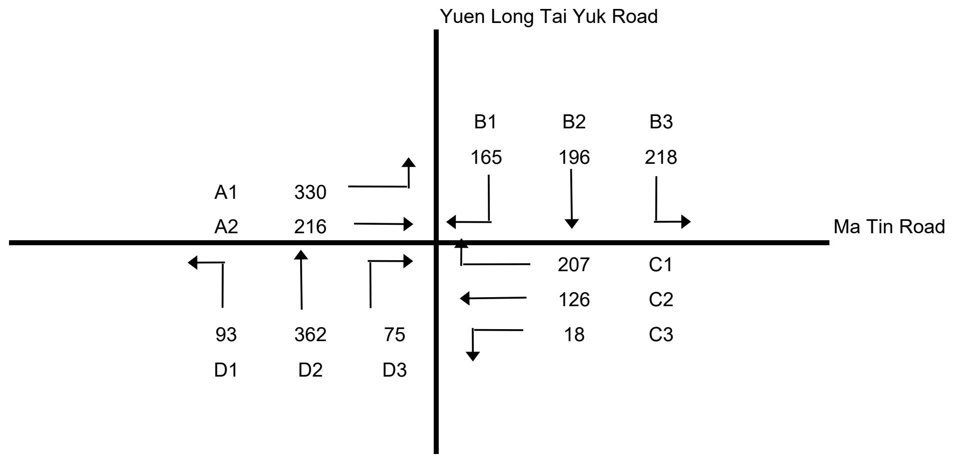
STAGE 1	INT= 5	STAGE 2	INT= 10	STAGE 3	INT= 11	STAGE 4	INT= 5

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,3,4	E	7.8	5	2	7	77	2	7	OK
1,2	F	7.6	5	2	6	59	2	6	OK
1,2,4	G	7.2	5	2	6	87	2	6	OK
3	H	8.0	5	2	7	16	2	7	OK
1,2,3	I	7.5	5	2	6	85	2	6	OK
4	J	7.3	5	2	6	19	2	6	OK
2,3,4	K	7.3	5	2	6	78	2	6	OK
1	L	10.0	5	2	8	24	2	8	OK

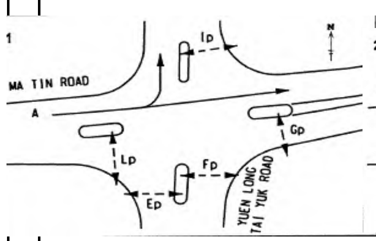
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				27				
A1	1	3.50		1	15		N	2105	276			276	1.00	1914			1914	0.144	0.168		26	30	0.580	41
A2	1	3.50		1				1965		330		330	0.00	1965			1965	0.168			30	30	0.677	50
D1,D2	2	3.80		1	15		N	2135	100	186		286	0.35	2063			2063	0.139	0.139		25	25	0.677	46
D2,D3	2	3.80		1	30			1995		158	114	271	0.42	1954			1954	0.139			25	25	0.677	43
C1	3	3.00		1	20		N	2055			134	134	1.00	1912			1912	0.070	0.087		12	15	0.542	23
C2,C3	3	3.00		1	15			1915	31	134		164	0.19	1880			1880	0.087			15	15	0.677	29
B1,B2	4	3.50		1	25		N	2105		101	163	264	0.62	2030			2030	0.130	0.130		23	23	0.677	43
B2,B3	4	3.50		1	15			1965	173	65		238	0.73	1832			1832	0.130			23	23	0.675	38

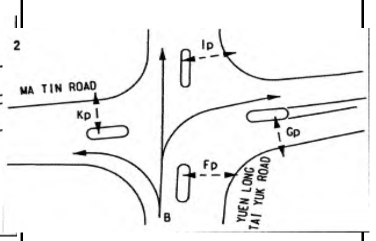
NOTE : 'O - OPPOSING TRAFFIC   N - NEAR SIDE LANE   SG - STEADY GREEN   FG - FLASHING GREEN   PEDESTRIAN WALKING SPEED = 1.2m/s   QUEUING LENGTH = AVERAGE QUEUE * 6m

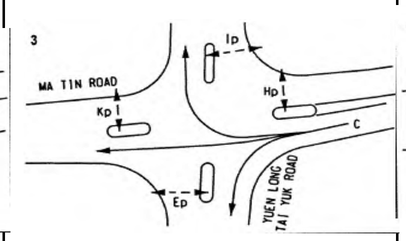
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J6 Yuen Long Tai Yuk Road/ Ma Tin Road	Year 2025 Reference Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :

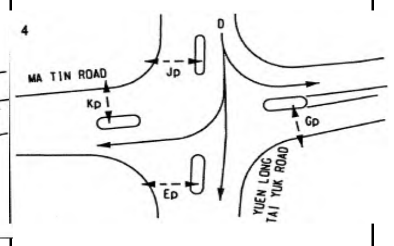


No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.562
Loss time		L =	27 sec
Total Flow		=	1190 pcu
Co	= (1.5*L+5)/(1-Y)	=	103.9 sec
Cm	= L/(1-Y)	=	61.7 sec
Yult		=	0.698
R.C.ult	= (Yult-Y)/Y*100%	=	24.1 %
Cp	= 0.9*L/(0.9-Y)	=	71.9 sec
Ymax	= 1-L/C	=	0.775
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	24.1 % (Optimized)









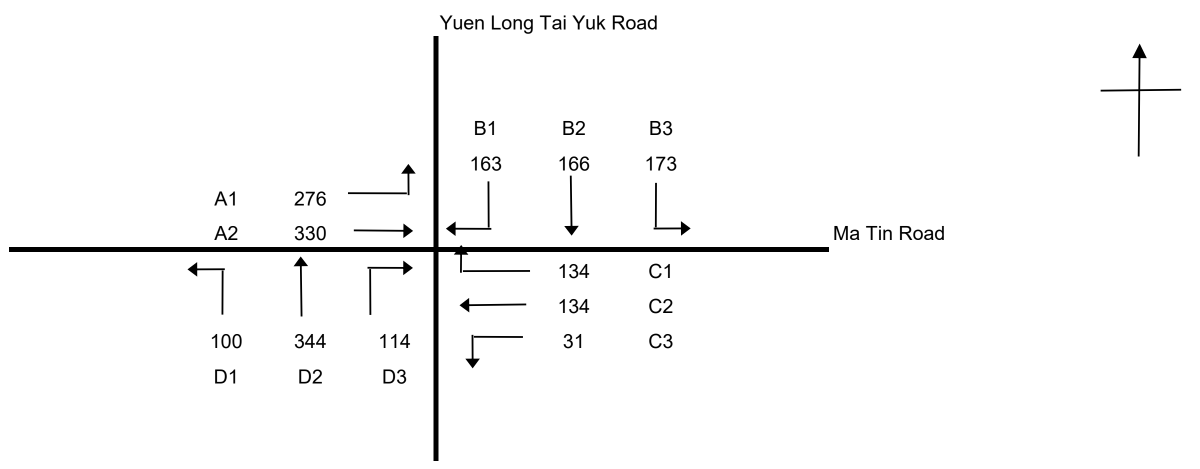
STAGE 1	INT= 5	STAGE 2	INT= 10	STAGE 3	INT= 11	STAGE 4	INT= 5

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,3,4	E	7.8	5	2	7	80	2	7	OK
1,2	F	7.6	5	2	6	55	2	6	OK
1,2,4	G	7.2	5	2	6	84	2	6	OK
3	H	8.0	5	2	7	19	2	7	OK
1,2,3	I	7.5	5	2	6	83	2	6	OK
4	J	7.3	5	2	6	21	2	6	OK
2,3,4	K	7.3	5	2	6	80	2	6	OK
1	L	10.0	5	2	8	22	2	8	OK

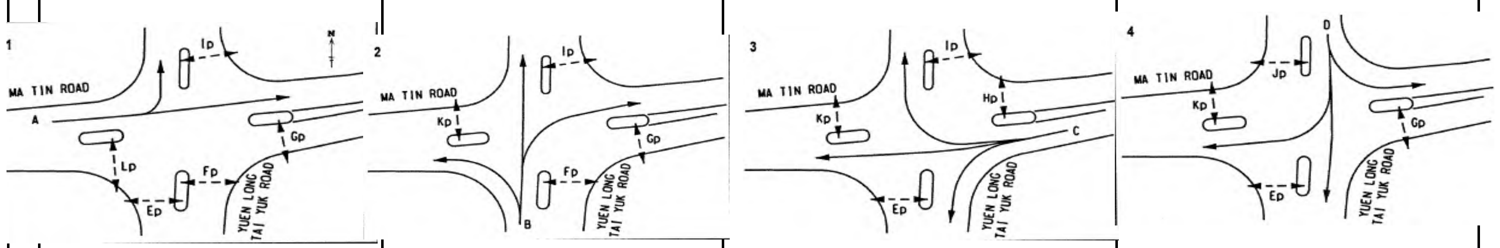
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				27				
A1	1	3.50		1	15		N	2105	330			330	1.00	1914			1914	0.172	0.172		28	28	0.725	50
A2	1	3.50		1				1965		216		216	0.00	1965			1965	0.110			18	28	0.464	33
D1,D2	2	3.80		1	15		N	2135	93	179		272	0.34	2065			2065	0.131	0.132		22	22	0.725	44
D2,D3	2	3.80		1	30			1995		183	75	259	0.29	1966			1966	0.132			22	22	0.725	42
C1	3	3.00		1	20		N	2055			207	207	1.00	1912			1912	0.108	0.108		18	18	0.725	35
C2,C3	3	3.00		1	15			1915	18	126		145	0.13	1891			1891	0.077			13	18	0.513	25
B1,B2	4	3.50		1	25		N	2105		141	165	306	0.54	2039			2039	0.150	0.150		25	25	0.725	49
B2,B3	4	3.50		1	15			1965	218	55		273	0.80	1820			1820	0.150			25	25	0.725	43

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J6 Yuen Long Tai Yuk Road/ Ma Tin Road	Year 2025 Design Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.525
Loss time		L =	27 sec
Total Flow		=	1072 pcu
Co	= (1.5*L+5)/(1-Y)	=	95.7 sec
Cm	= L/(1-Y)	=	56.8 sec
Yult		=	0.698
R.C.ult	= (Yult-Y)/Y*100%	=	32.9 %
Cp	= 0.9*L/(0.9-Y)	=	64.7 sec
Ymax	= 1-L/C	=	0.775
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	32.9 % (Optimized)



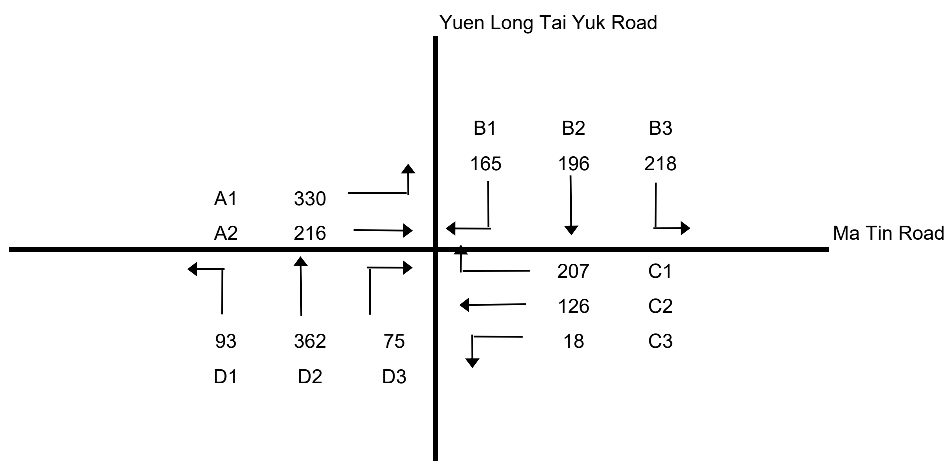
STAGE 1	INT= 5	STAGE 2	INT= 10	STAGE 3	INT= 11	STAGE 4	INT= 5

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,3,4	E	7.8	5	2	7	77	2	7	OK
1,2	F	7.6	5	2	6	59	2	6	OK
1,2,4	G	7.2	5	2	6	87	2	6	OK
3	H	8.0	5	2	7	16	2	7	OK
1,2,3	I	7.5	5	2	6	85	2	6	OK
4	J	7.3	5	2	6	19	2	6	OK
2,3,4	K	7.3	5	2	6	78	2	6	OK
1	L	10.0	5	2	8	24	2	8	OK

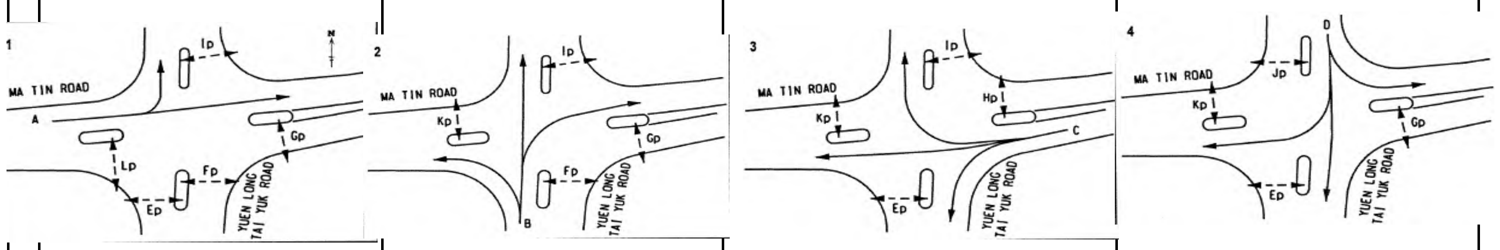
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				27				
A1	1	3.50		1	15		N	2105	276			276	1.00	1914			1914	0.144	0.168		26	30	0.580	41
A2	1	3.50		1				1965		330		330	0.00	1965			1965	0.168			30	30	0.677	50
D1,D2	2	3.80		1	15		N	2135	100	186		286	0.35	2063			2063	0.139	0.139		25	25	0.677	46
D2,D3	2	3.80		1	30			1995		158	114	271	0.42	1954			1954	0.139			25	25	0.677	43
C1	3	3.00		1	20		N	2055			134	134	1.00	1912			1912	0.070	0.087		12	15	0.542	23
C2,C3	3	3.00		1	15			1915	31	134		164	0.19	1880			1880	0.087			15	15	0.677	29
B1,B2	4	3.50		1	25		N	2105		101	163	264	0.62	2030			2030	0.130	0.130		23	23	0.677	43
B2,B3	4	3.50		1	15			1965	173	65		238	0.73	1832			1832	0.130			23	23	0.675	38

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J6 Yuen Long Tai Yuk Road/ Ma Tin Road	Year 2025 Design Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4	
No. of stage using for calculation		N =	4	
Cycle time		C =	120	sec
Sum(y)		Y =	0.562	
Loss time		L =	27	sec
Total Flow		=	1190	pcu
Co	= (1.5*L+5)/(1-Y)	=	103.9	sec
Cm	= L/(1-Y)	=	61.7	sec
Yult		=	0.698	
R.C.ult	= (Yult-Y)/Y*100%	=	24.1	%
Cp	= 0.9*L/(0.9-Y)	=	71.9	sec
Ymax	= 1-L/C	=	0.775	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	24.1	% (Optimized)



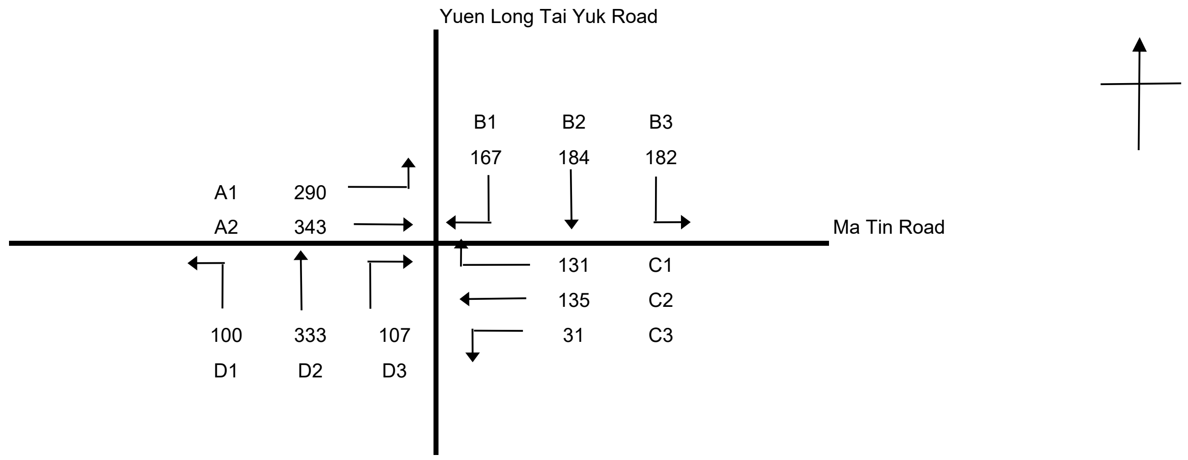
STAGE 1	INT= 5	STAGE 2	INT= 10	STAGE 3	INT= 11	STAGE 4	INT= 5

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,3,4	E	7.8	5	2	7	80	2	7	OK
1,2	F	7.6	5	2	6	55	2	6	OK
1,2,4	G	7.2	5	2	6	84	2	6	OK
3	H	8.0	5	2	7	19	2	7	OK
1,2,3	I	7.5	5	2	6	83	2	6	OK
4	J	7.3	5	2	6	21	2	6	OK
2,3,4	K	7.3	5	2	6	80	2	6	OK
1	L	10.0	5	2	8	22	2	8	OK

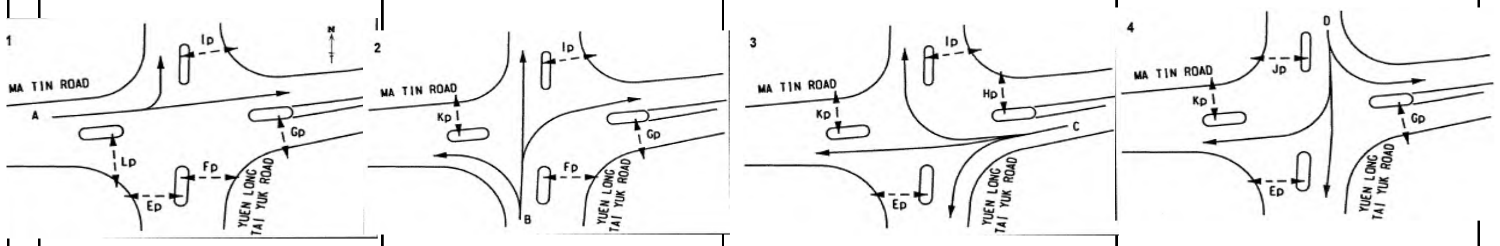
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				27				
A1	1	3.50		1	15		N	2105	330			330	1.00	1914			1914	0.172	0.172		28	28	0.725	50
A2	1	3.50		1				1965		216		216	0.00	1965			1965	0.110			18	28	0.464	33
D1,D2	2	3.80		1	15		N	2135	93	179		272	0.34	2065			2065	0.131	0.132		22	22	0.725	44
D2,D3	2	3.80		1	30			1995		183	75	259	0.29	1966			1966	0.132			22	22	0.725	42
C1	3	3.00		1	20		N	2055			207	207	1.00	1912			1912	0.108	0.108		18	18	0.725	35
C2,C3	3	3.00		1	15			1915	18	126		145	0.13	1891			1891	0.077			13	18	0.513	25
B1,B2	4	3.50		1	25		N	2105		141	165	306	0.54	2039			2039	0.150	0.150		25	25	0.725	49
B2,B3	4	3.50		1	15			1965	218	55		273	0.80	1820			1820	0.150			25	25	0.725	43

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J6 Yuen Long Tai Yuk Road/ Ma Tin Road	Year 2029 Reference Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.535
Loss time		L =	27 sec
Total Flow		=	1092 pcu
Co	= (1.5*L+5)/(1-Y)	=	97.9 sec
Cm	= L/(1-Y)	=	58.1 sec
Yult		=	0.698
R.C.ult	= (Yult-Y)/Y*100%	=	30.3 %
Cp	= 0.9*L/(0.9-Y)	=	66.6 sec
Ymax	= 1-L/C	=	0.775
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	30.3 % (Optimized)



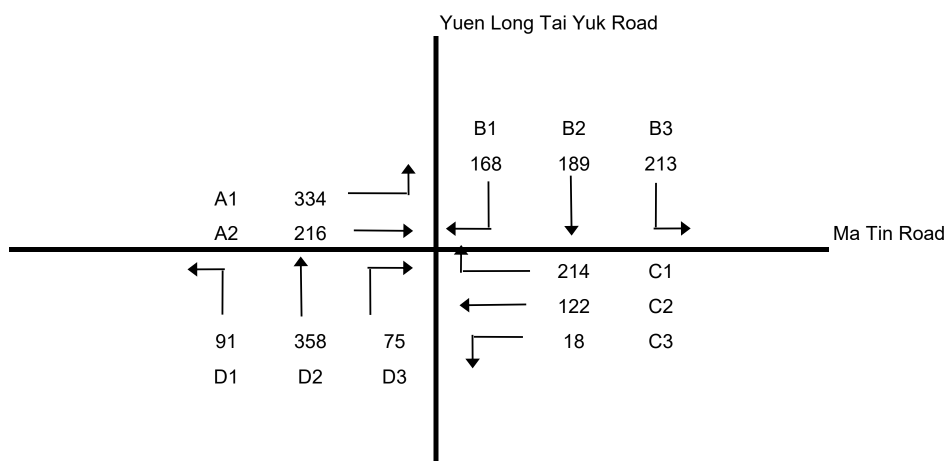
STAGE 1	INT= 5	STAGE 2	INT= 10	STAGE 3	INT= 11	STAGE 4	INT= 5

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,3,4	E	7.8	5	2	7	79	2	7	OK
1,2	F	7.6	5	2	6	59	2	6	OK
1,2,4	G	7.2	5	2	6	87	2	6	OK
3	H	8.0	5	2	7	16	2	7	OK
1,2,3	I	7.5	5	2	6	84	2	6	OK
4	J	7.3	5	2	6	20	2	6	OK
2,3,4	K	7.3	5	2	6	78	2	6	OK
1	L	10.0	5	2	8	24	2	8	OK

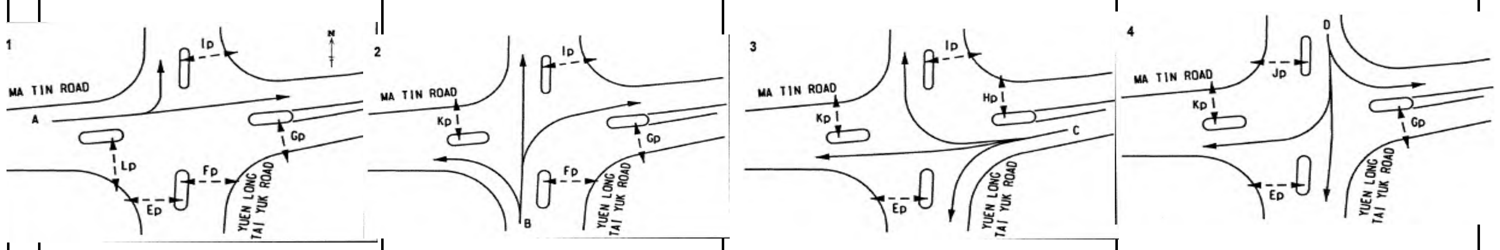
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				27				
A1	1	3.50		1	15		N	2105	290			290	1.00	1914			1914	0.151	0.175		26	30	0.598	43
A2	1	3.50		1				1965		343		343	0.00	1965			1965	0.175			30	30	0.690	51
D1,D2	2	3.80		1	15		N	2135	100	177		277	0.36	2061			2061	0.135	0.135		23	23	0.690	45
D2,D3	2	3.80		1	30			1995		156	107	263	0.41	1955			1955	0.135			23	23	0.690	42
C1	3	3.00		1	20		N	2055			131	131	1.00	1912			1912	0.069	0.088		12	15	0.539	23
C2,C3	3	3.00		1	15			1915	31	135		165	0.19	1880			1880	0.088			15	15	0.690	29
B1,B2	4	3.50		1	25		N	2105		113	167	280	0.60	2032			2032	0.138	0.138		24	24	0.688	45
B2,B3	4	3.50		1	15			1965	182	71		253	0.72	1833			1833	0.138			24	24	0.690	40

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J6 Yuen Long Tai Yuk Road/ Ma Tin Road	Year 2029 Reference Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.564
Loss time		L =	27 sec
Total Flow		=	1181 pcu
Co	= (1.5*L+5)/(1-Y)	=	104.4 sec
Cm	= L/(1-Y)	=	61.9 sec
Yult		=	0.698
R.C.ult	= (Yult-Y)/Y*100%	=	23.6 %
Cp	= 0.9*L/(0.9-Y)	=	72.4 sec
Ymax	= 1-L/C	=	0.775
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	23.6 % (Optimized)



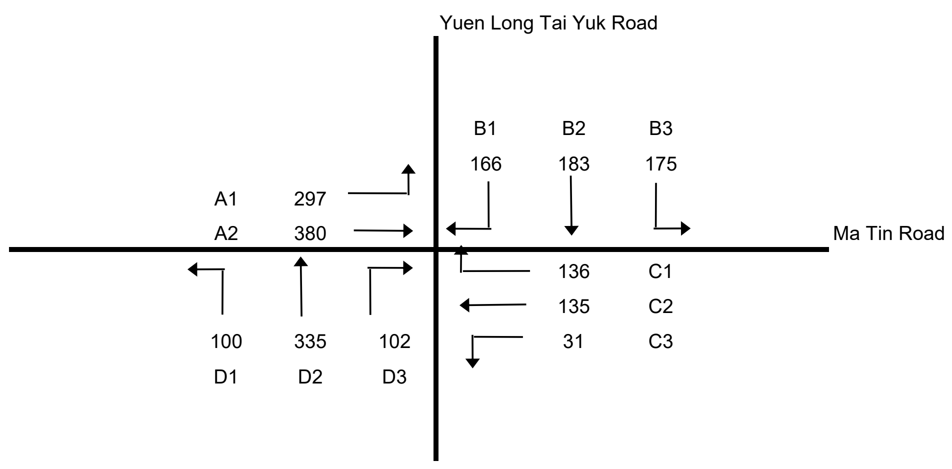
STAGE 1	INT= 5	STAGE 2	INT= 10	STAGE 3	INT= 11	STAGE 4	INT= 5

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,3,4	E	7.8	5	2	7	81	2	7	OK
1,2	F	7.6	5	2	6	55	2	6	OK
1,2,4	G	7.2	5	2	6	84	2	6	OK
3	H	8.0	5	2	7	19	2	7	OK
1,2,3	I	7.5	5	2	6	84	2	6	OK
4	J	7.3	5	2	6	20	2	6	OK
2,3,4	K	7.3	5	2	6	79	2	6	OK
1	L	10.0	5	2	8	23	2	8	OK

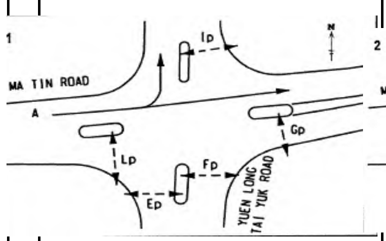
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				27				
A1	1	3.50		1	15		N	2105	334			334	1.00	1914			1914	0.174	0.174		29	29	0.728	51
A2	1	3.50		1				1965		216		216	0.00	1965			1965	0.110			18	29	0.459	33
D1,D2	2	3.80		1	15		N	2135	91	177		268	0.34	2065			2065	0.130	0.130		21	21	0.727	44
D2,D3	2	3.80		1	30			1995		181	75	256	0.29	1966			1966	0.130			21	21	0.728	42
C1	3	3.00		1	20		N	2055			214	214	1.00	1912			1912	0.112	0.112		18	18	0.728	36
C2,C3	3	3.00		1	15			1915	18	122		141	0.13	1890			1890	0.075			12	18	0.485	24
B1,B2	4	3.50		1	25		N	2105		133	168	301	0.56	2037			2037	0.148	0.148		24	24	0.728	48
B2,B3	4	3.50		1	15			1965	213	56		269	0.79	1821			1821	0.148			24	24	0.727	43

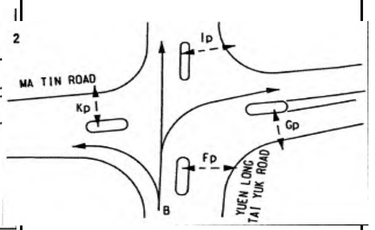
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

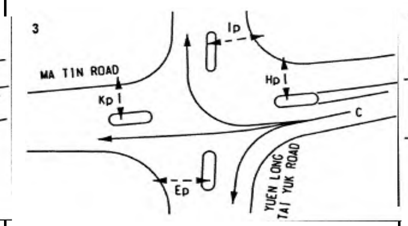
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J6 Yuen Long Tai Yuk Road/ Ma Tin Road	Year 2029 Design Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :

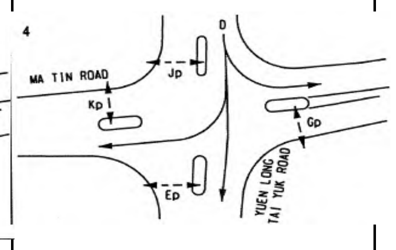


No. of stages per cycle		N =	4	
No. of stage using for calculation		N =	4	
Cycle time		C =	120	sec
Sum(y)		Y =	0.551	
Loss time		L =	27	sec
Total Flow		=	1088	pcu
Co	= (1.5*L+5)/(1-Y)	=	101.3	sec
Cm	= L/(1-Y)	=	60.1	sec
Yult		=	0.698	
R.C.ult	= (Yult-Y)/Y*100%	=	26.6	%
Cp	= 0.9*L/(0.9-Y)	=	69.6	sec
Ymax	= 1-L/C	=	0.775	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	26.6	% (Optimized)









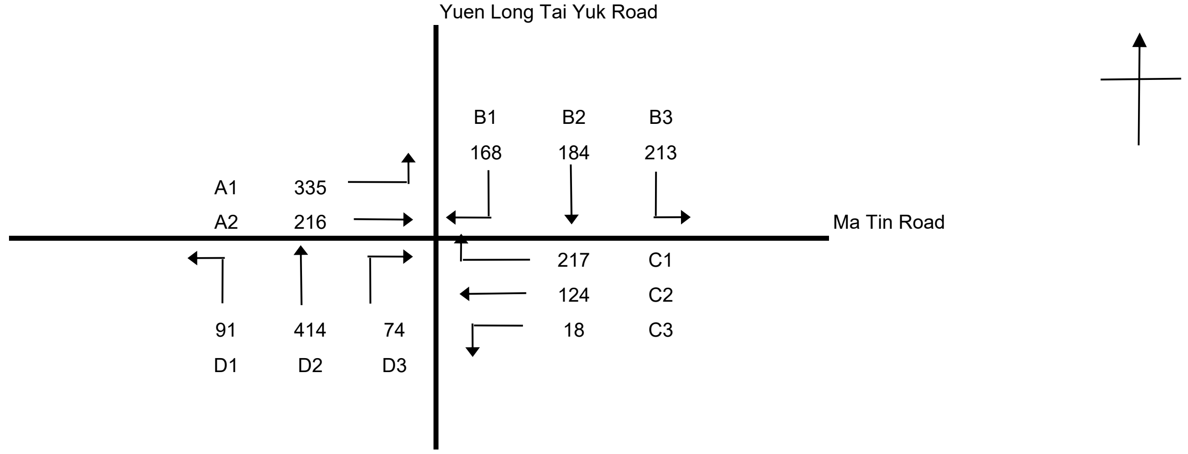
STAGE 1	INT= 5	STAGE 2	INT= 10	STAGE 3	INT= 11	STAGE 4	INT= 5

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,3,4	E	7.8	5	2	7	79	2	7	OK
1,2	F	7.6	5	2	6	60	2	6	OK
1,2,4	G	7.2	5	2	6	87	2	6	OK
3	H	8.0	5	2	7	16	2	7	OK
1,2,3	I	7.5	5	2	6	85	2	6	OK
4	J	7.3	5	2	6	19	2	6	OK
2,3,4	K	7.3	5	2	6	75	2	6	OK
1	L	10.0	5	2	8	27	2	8	OK

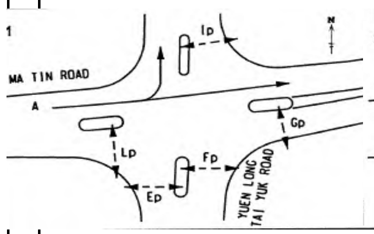
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				27				
A1	1	3.50		1	15		N	2105	297			297	1.00	1914			1914	0.155	0.193		26	33	0.570	43
A2	1	3.50		1				1965		380		380	0.00	1965			1965	0.193			33	33	0.711	55
D1,D2	2	3.80		1	15		N	2135	100	175		275	0.36	2060			2060	0.134	0.134		23	23	0.709	45
D2,D3	2	3.80		1	30			1995		160	102	262	0.39	1957			1957	0.134			23	23	0.711	43
C1	3	3.00		1	20		N	2055			136	136	1.00	1912			1912	0.071	0.088		12	15	0.575	24
C2,C3	3	3.00		1	15			1915	31	135		166	0.18	1880			1880	0.088			15	15	0.711	29
B1,B2	4	3.50		1	25		N	2105		109	166	275	0.60	2031			2031	0.136	0.136		23	23	0.711	45
B2,B3	4	3.50		1	15			1965	175	74		249	0.70	1836			1836	0.136			23	23	0.711	40

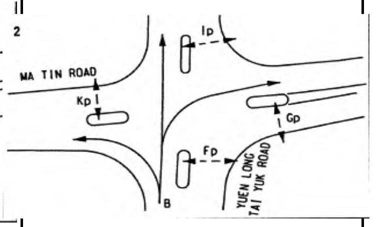
NOTE : 'O - OPPOSING TRAFFIC   N - NEAR SIDE LANE   SG - STEADY GREEN   FG - FLASHING GREEN   PEDESTRIAN WALKING SPEED = 1.2m/s   QUEUING LENGTH = AVERAGE QUEUE * 6m

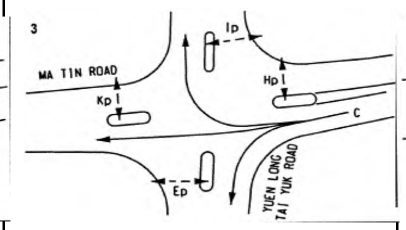
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J6 Yuen Long Tai Yuk Road/ Ma Tin Road	Year 2029 Design Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :

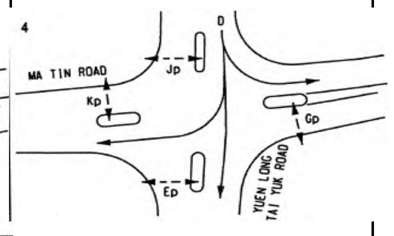


No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.578
Loss time		L =	27 sec
Total Flow		=	1205 pcu
Co	= (1.5*L+5)/(1-Y)	=	107.8 sec
Cm	= L/(1-Y)	=	64.0 sec
Yult		=	0.698
R.C.ult	= (Yult-Y)/Y*100%	=	20.7 %
Cp	= 0.9*L/(0.9-Y)	=	75.4 sec
Ymax	= 1-L/C	=	0.775
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	20.7 % (Optimized)









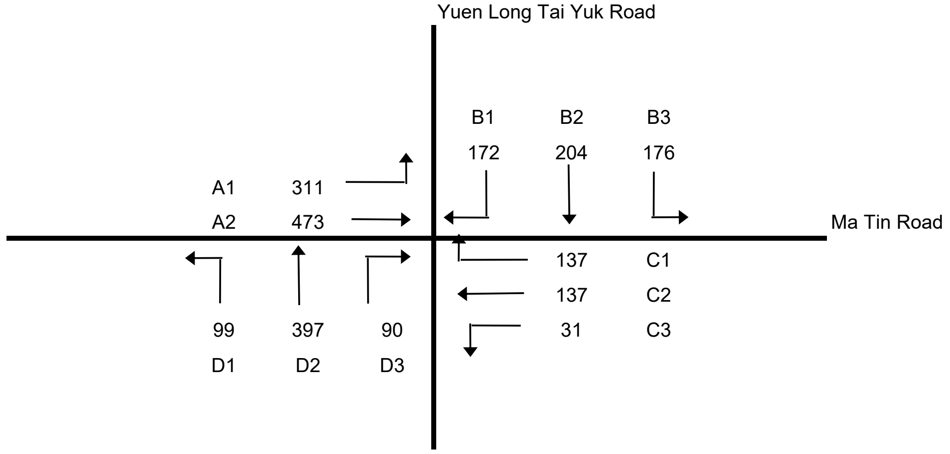
STAGE 1	INT= 5	STAGE 2	INT= 10	STAGE 3	INT= 11	STAGE 4	INT= 5

Stages	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,3,4	E	7.8	5	2	7	79	2	7	OK
1,2	F	7.6	5	2	6	56	2	6	OK
1,2,4	G	7.2	5	2	6	84	2	6	OK
3	H	8.0	5	2	7	19	2	7	OK
1,2,3	I	7.5	5	2	6	84	2	6	OK
4	J	7.3	5	2	6	20	2	6	OK
2,3,4	K	7.3	5	2	6	80	2	6	OK
1	L	10.0	5	2	8	22	2	8	OK

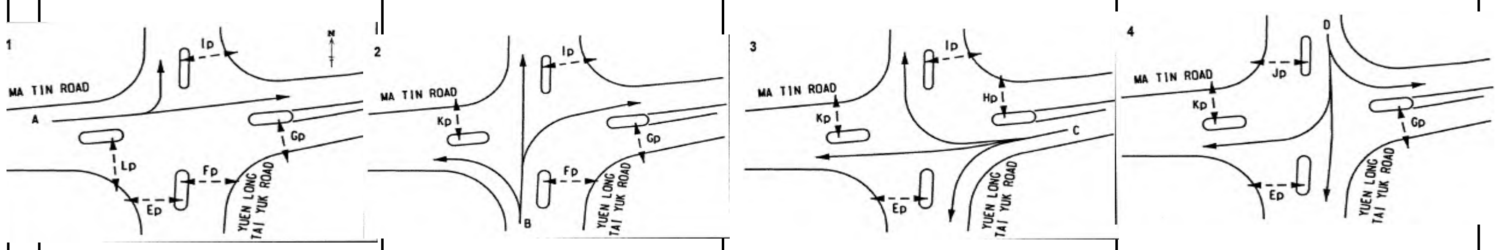
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				27				
A1	1	3.50		1	15		N	2105	335			335	1.00	1914			1914	0.175	0.175		28	28	0.746	51
A2	1	3.50		1				1965		216		216	0.00	1965			1965	0.110			18	28	0.468	33
D1,D2	2	3.80		1	15		N	2135	91	206		297	0.31	2072			2072	0.143	0.143		23	23	0.746	48
D2,D3	2	3.80		1	30			1995		208	74	282	0.26	1969			1969	0.143			23	23	0.745	46
C1	3	3.00		1	20		N	2055			217	217	1.00	1912			1912	0.113	0.113		18	18	0.746	37
C2,C3	3	3.00		1	15			1915	18	124		142	0.13	1890			1890	0.075			12	18	0.494	24
B1,B2	4	3.50		1	25		N	2105		130	168	298	0.56	2036			2036	0.146	0.146		24	24	0.746	48
B2,B3	4	3.50		1	15			1965	213	54		266	0.80	1820			1820	0.146			24	24	0.745	43

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J6 Yuen Long Tai Yuk Road/ Ma Tin Road	Year 2034 Reference Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.618
Loss time		L =	27 sec
Total Flow		=	1142 pcu
Co	= (1.5*L+5)/(1-Y)	=	119.1 sec
Cm	= L/(1-Y)	=	70.7 sec
Yult		=	0.698
R.C.ult	= (Yult-Y)/Y*100%	=	12.9 %
Cp	= 0.9*L/(0.9-Y)	=	86.2 sec
Ymax	= 1-L/C	=	0.775
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	12.9 % (Optimized)



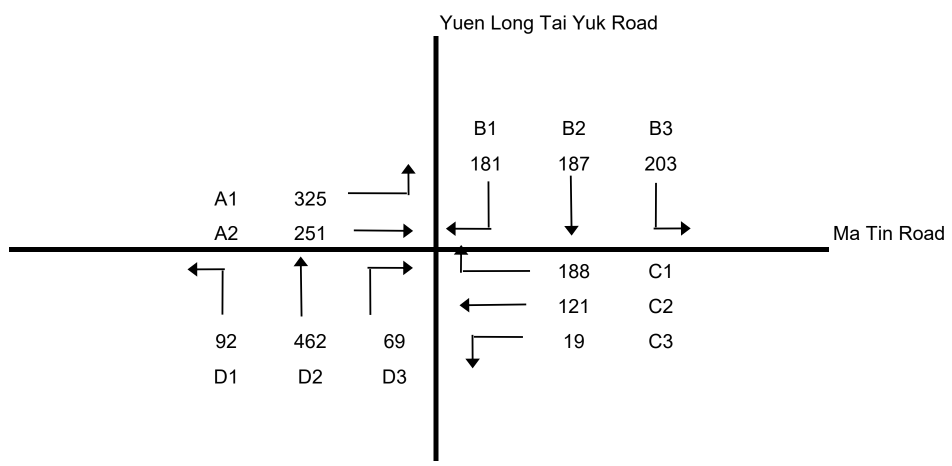
STAGE 1	INT= 5	STAGE 2	INT= 10	STAGE 3	INT= 11	STAGE 4	INT= 5

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,3,4	E	7.8	5	2	7	80	2	7	OK
1,2	F	7.6	5	2	6	63	2	6	OK
1,2,4	G	7.2	5	2	6	89	2	6	OK
3	H	8.0	5	2	7	14	2	7	OK
1,2,3	I	7.5	5	2	6	87	2	6	OK
4	J	7.3	5	2	6	17	2	6	OK
2,3,4	K	7.3	5	2	6	72	2	6	OK
1	L	10.0	5	2	8	30	2	8	OK

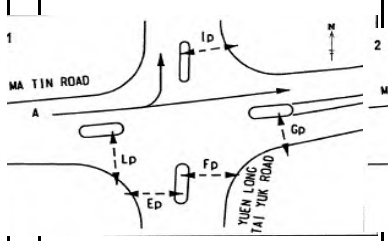
Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				27				
A1	1	3.50		1	15		N	2105	311			311	1.00	1914			1914	0.163	0.241		24	36	0.539	43
A2	1	3.50		1				1965		473		473	0.00	1965			1965	0.241			36	36	0.797	66
D1,D2	2	3.80		1	15		N	2135	99	202		301	0.33	2067			2067	0.146	0.146		22	22	0.797	49
D2,D3	2	3.80		1	30			1995		195	90	285	0.32	1964			1964	0.145			22	22	0.795	47
C1	3	3.00		1	20		N	2055			137	137	1.00	1912			1912	0.072	0.089		11	13	0.642	24
C2,C3	3	3.00		1	15			1915	31	137		168	0.18	1880			1880	0.089			13	13	0.797	30
B1,B2	4	3.50		1	25		N	2105		118	172	290	0.59	2033			2033	0.143	0.143		21	21	0.797	48
B2,B3	4	3.50		1	15			1965	176	86		262	0.67	1841			1841	0.142			21	21	0.797	43

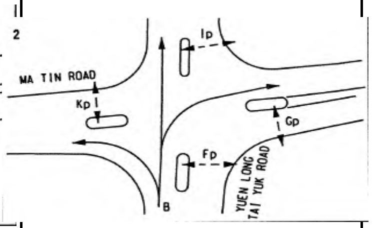
NOTE : 'O - OPPOSING TRAFFIC   N - NEAR SIDE LANE   SG - STEADY GREEN   FG - FLASHING GREEN   PEDESTRIAN WALKING SPEED = 1.2m/s   QUEUING LENGTH = AVERAGE QUEUE * 6m

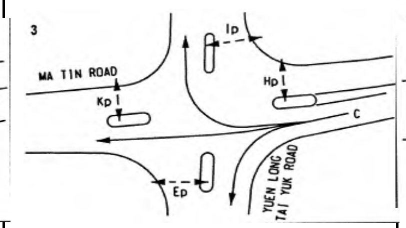
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J6 Yuen Long Tai Yuk Road/ Ma Tin Road	Year 2034 Reference Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :

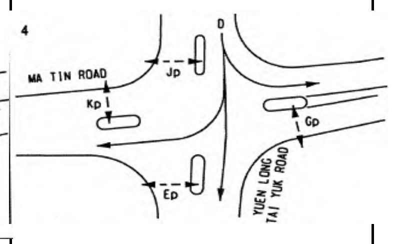


No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.570
Loss time		L =	27 sec
Total Flow		=	1200 pcu
Co	= (1.5*L+5)/(1-Y)	=	105.7 sec
Cm	= L/(1-Y)	=	62.7 sec
Yult		=	0.698
R.C.ult	= (Yult-Y)/Y*100%	=	22.4 %
Cp	= 0.9*L/(0.9-Y)	=	73.6 sec
Ymax	= 1-L/C	=	0.775
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	22.4 % (Optimized)









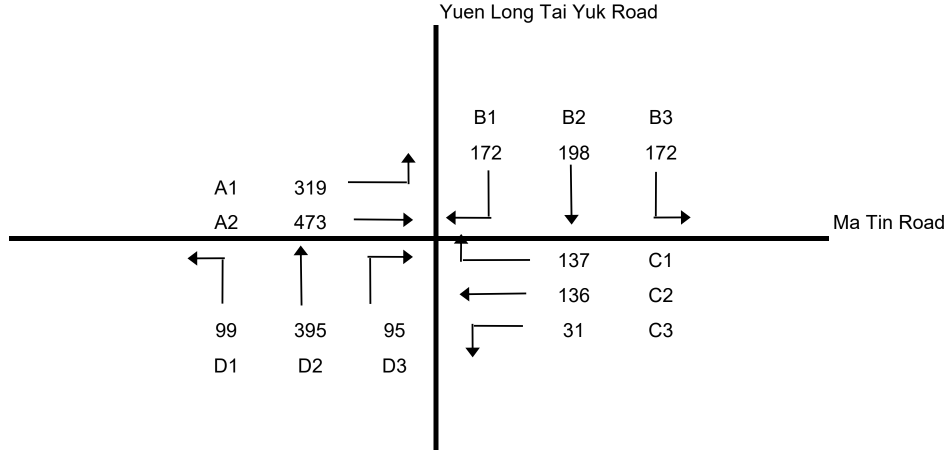
STAGE 1	INT= 5	STAGE 2	INT= 10	STAGE 3	INT= 11	STAGE 4	INT= 5

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,3,4	E	7.8	5	2	7	77	2	7	OK
1,2	F	7.6	5	2	6	58	2	6	OK
1,2,4	G	7.2	5	2	6	86	2	6	OK
3	H	8.0	5	2	7	17	2	7	OK
1,2,3	I	7.5	5	2	6	84	2	6	OK
4	J	7.3	5	2	6	20	2	6	OK
2,3,4	K	7.3	5	2	6	80	2	6	OK
1	L	10.0	5	2	8	22	2	8	OK

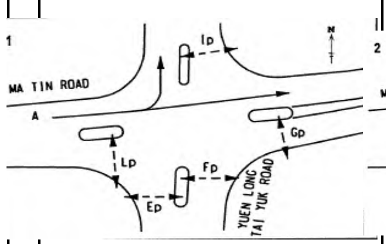
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				27				
A1	1	3.50		1	15		N	2105	325			325	1.00	1914			1914	0.170	0.170		28	28	0.735	50
A2	1	3.50		1				1965		251		251	0.00	1965			1965	0.128			21	28	0.553	39
D1,D2	2	3.80		1	15		N	2135	92	227		319	0.29	2075			2075	0.154	0.154		25	25	0.735	50
D2,D3	2	3.80		1	30			1995		235	69	303	0.23	1973			1973	0.154			25	25	0.735	48
C1	3	3.00		1	20		N	2055			188	188	1.00	1912			1912	0.098	0.098		16	16	0.735	33
C2,C3	3	3.00		1	15			1915	19	121		139	0.13	1890			1890	0.074			12	16	0.550	24
B1,B2	4	3.50		1	25		N	2105		119	181	300	0.60	2032			2032	0.148	0.148		24	24	0.733	48
B2,B3	4	3.50		1	15			1965	203	68		270	0.75	1828			1828	0.148			24	24	0.735	43

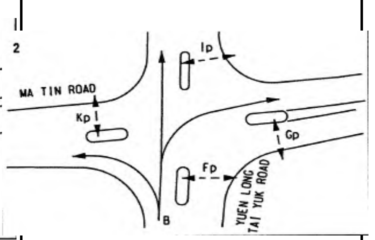
NOTE : 'O - OPPOSING TRAFFIC   N - NEAR SIDE LANE   SG - STEADY GREEN   FG - FLASHING GREEN   PEDESTRIAN WALKING SPEED = 1.2m/s   QUEUING LENGTH = AVERAGE QUEUE * 6m

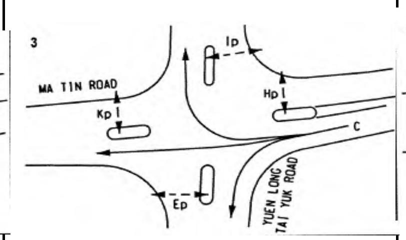
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J6 Yuen Long Tai Yuk Road/ Ma Tin Road	Year 2034 Design Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :

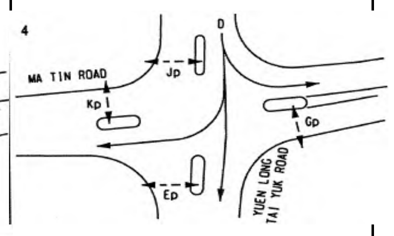


No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.616
Loss time		L =	27 sec
Total Flow		=	1133 pcu
Co	= (1.5*L+5)/(1-Y)	=	118.4 sec
Cm	= L/(1-Y)	=	70.3 sec
Yult		=	0.698
R.C.ult	= (Yult-Y)/Y*100%	=	13.3 %
Cp	= 0.9*L/(0.9-Y)	=	85.5 sec
Ymax	= 1-L/C	=	0.775
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	13.3 % (Optimized)









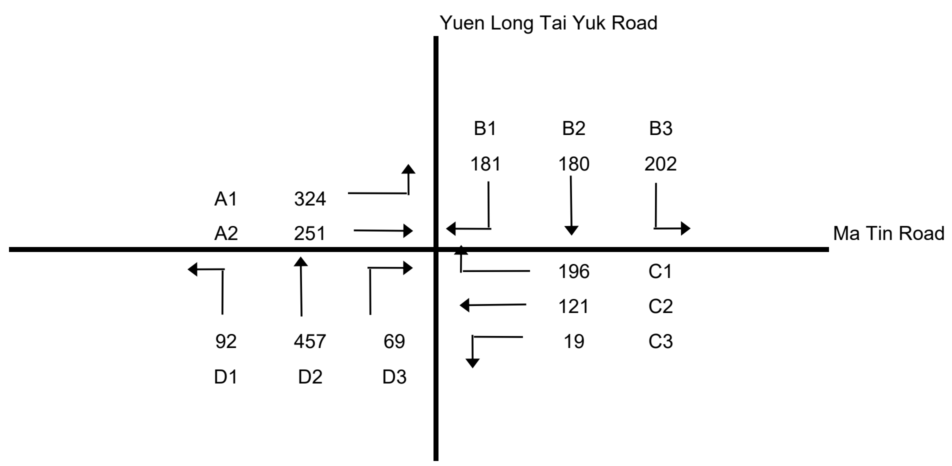
STAGE 1	INT= 5	STAGE 2	INT= 10	STAGE 3	INT= 11	STAGE 4	INT= 5

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,3,4	E	7.8	5	2	7	80	2	7	OK
1,2	F	7.6	5	2	6	63	2	6	OK
1,2,4	G	7.2	5	2	6	89	2	6	OK
3	H	8.0	5	2	7	14	2	7	OK
1,2,3	I	7.5	5	2	6	87	2	6	OK
4	J	7.3	5	2	6	17	2	6	OK
2,3,4	K	7.3	5	2	6	72	2	6	OK
1	L	10.0	5	2	8	30	2	8	OK

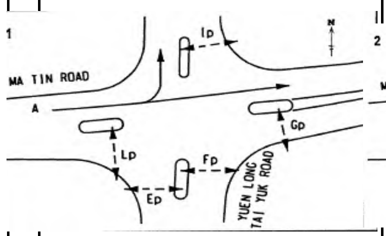
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				27				
A1	1	3.50		1	15		N	2105	319			319	1.00	1914			1914	0.166	0.241		25	36	0.550	44
A2	1	3.50		1				1965		473		473	0.00	1965			1965	0.241			36	36	0.794	66
D1,D2	2	3.80		1	15		N	2135	99	203		302	0.33	2067			2067	0.146	0.146		22	22	0.794	49
D2,D3	2	3.80		1	30			1995		192	95	287	0.33	1963			1963	0.146			22	22	0.794	47
C1	3	3.00		1	20		N	2055			137	137	1.00	1912			1912	0.072	0.089		11	13	0.639	24
C2,C3	3	3.00		1	15			1915	31	136		167	0.18	1880			1880	0.089			13	13	0.794	30
B1,B2	4	3.50		1	25		N	2105		112	172	284	0.61	2031			2031	0.140	0.140		21	21	0.792	47
B2,B3	4	3.50		1	15			1965	172	86		258	0.67	1842			1842	0.140			21	21	0.794	43

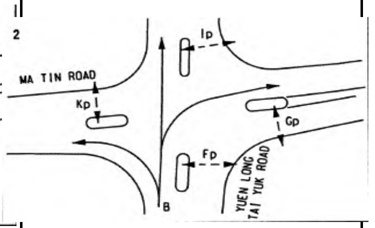
NOTE : 'O - OPPOSING TRAFFIC   N - NEAR SIDE LANE   SG - STEADY GREEN   FG - FLASHING GREEN   PEDESTRIAN WALKING SPEED = 1.2m/s   QUEUING LENGTH = AVERAGE QUEUE * 6m

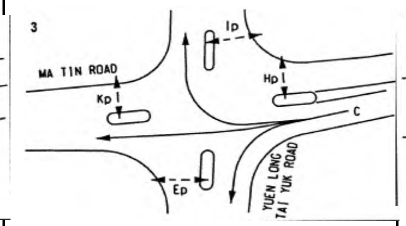
OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION	
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J6 Yuen Long Tai Yuk Road/ Ma Tin Road	Year 2034 Design Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :

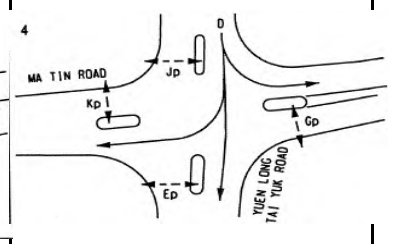


No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.571
Loss time		L =	27 sec
Total Flow		=	1199 pcu
Co	= (1.5*L+5)/(1-Y)	=	106.0 sec
Cm	= L/(1-Y)	=	62.9 sec
Yult		=	0.698
R.C.ult	= (Yult-Y)/Y*100%	=	22.2 %
Cp	= 0.9*L/(0.9-Y)	=	73.8 sec
Ymax	= 1-L/C	=	0.775
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	22.2 % (Optimized)









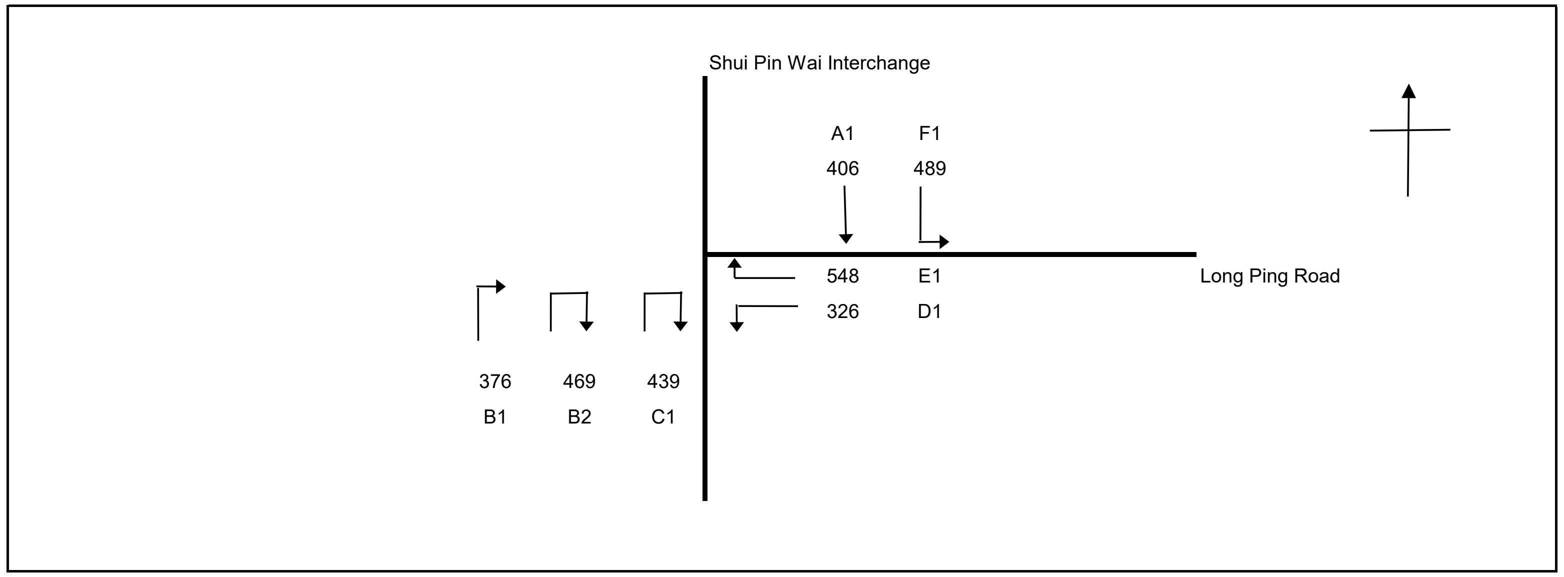
STAGE 1	INT= 5	STAGE 2	INT= 10	STAGE 3	INT= 11	STAGE 4	INT= 5

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,3,4	E	7.8	5	2	7	77	2	7	OK
1,2	F	7.6	5	2	6	58	2	6	OK
1,2,4	G	7.2	5	2	6	85	2	6	OK
3	H	8.0	5	2	7	18	2	7	OK
1,2,3	I	7.5	5	2	6	84	2	6	OK
4	J	7.3	5	2	6	20	2	6	OK
2,3,4	K	7.3	5	2	6	80	2	6	OK
1	L	10.0	5	2	8	22	2	8	OK

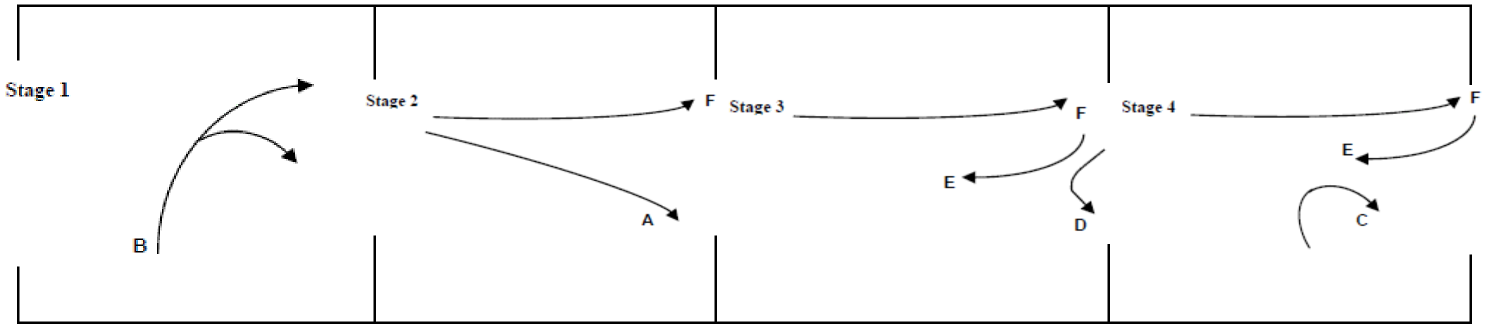
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				27				
A1	1	3.50		1	15		N	2105	324			324	1.00	1914			1914	0.169	0.169		28	28	0.736	50
A2	1	3.50		1				1965		251		251	0.00	1965			1965	0.128			21	28	0.555	39
D1,D2	2	3.80		1	15		N	2135	92	225		317	0.29	2075			2075	0.153	0.153		25	25	0.736	50
D2,D3	2	3.80		1	30			1995		232	69	301	0.23	1972			1972	0.153			25	25	0.736	48
C1	3	3.00		1	20		N	2055			196	196	1.00	1912			1912	0.102	0.102		17	17	0.736	34
C2,C3	3	3.00		1	15			1915	19	121		140	0.13	1890			1890	0.074			12	17	0.531	24
B1,B2	4	3.50		1	25		N	2105		115	181	296	0.61	2031			2031	0.146	0.146		24	24	0.736	47
B2,B3	4	3.50		1	15			1965	202	65		266	0.76	1827			1827	0.146			24	24	0.736	43

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION	
Site Formation in Long Bin, Yuen Long		PROJECT NO:
J7 Shui Pin Wai Interchange/ Long Ping Road	Year 2018 Observed Traffic Flows (AM Peak)	DATE : 30-Jun-21 / FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.498
Loss time		L =	33 sec
Total Flow		=	2482 pcu
Co	= (1.5*L+5)/(1-Y)	=	108.5 sec
Cm	= L/(1-Y)	=	65.7 sec
Yult		=	0.653
R.C.ult	= (Yult-Y)/Y*100%	=	31.1 %
Cp	= 0.9*L/(0.9-Y)	=	73.8 sec
Ymax	= 1-L/C	=	0.725
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	31.1 % (Optimized)



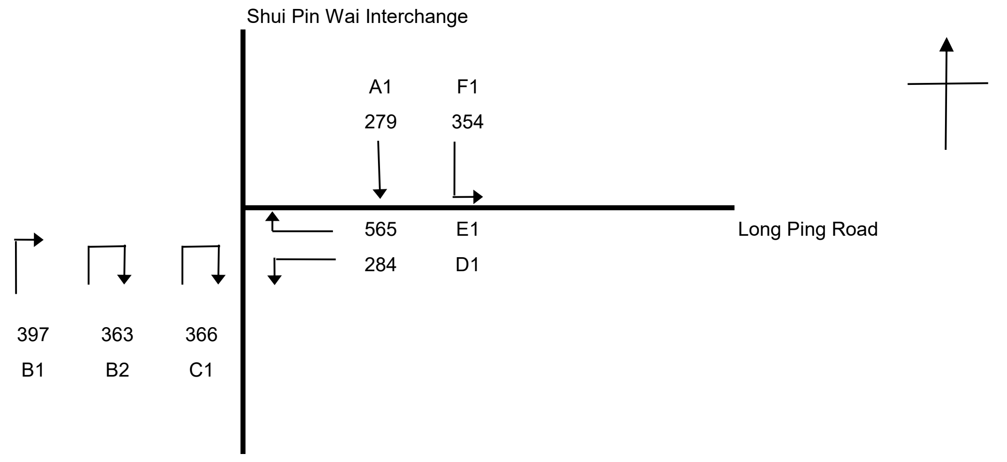
STAGE 1	INT= 7	STAGE 2	INT= 12	STAGE 3	INT= 12	STAGE 4	INT= 6

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

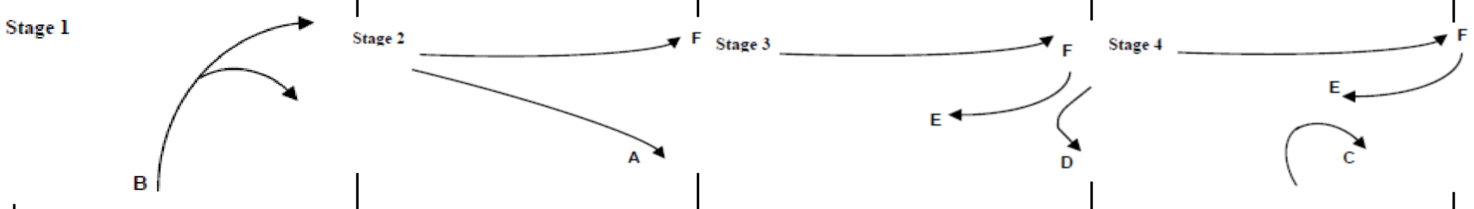
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				33				
B1	1	3.80		1	60		N	1995		290		290	0.00	1995			1995	0.145	0.145		25	25	0.686	46
B1,B2	1	3.80		1	30		N	1995		86	194	280	0.69	1928			1928	0.145			25	25	0.685	44
B2	1	3.80		1	30		N	1995			275	275	1.00	1900			1900	0.145			25	25	0.684	43
F1	2,3,4	3.50		2			N	4070		489		489	0.00	4070			4070	0.120			21	21	0.686	40
A1	2	3.50		3			N	6175		406		406	0.00	6175			6175	0.066	0.066		11	11	0.686	24
E1	3,4	3.50		2	70		N	4070			548	548	1.00	3985			3985	0.137			24	24	0.686	44
D1	3	3.20		1	25		N	1935	326			326	1.00	1825			1825	0.179	0.179		31	31	0.686	48
C1	4	4.50		2	30		N	4270			439	439	1.00	4067			4067	0.108	0.108		19	19	0.686	37

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION	
Site Formation in Long Bin, Yuen Long	PROJECT NO:	
J7 Shui Pin Wai Interchange/ Long Ping Road — Year 2018 Observed Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.421
Loss time		L =	33 sec
Total Flow		=	2095 pcu
Co	= (1.5*L+5)/(1-Y)	=	94.1 sec
Cm	= L/(1-Y)	=	57.0 sec
Yult		=	0.653
R.C.ult	= (Yult-Y)/Y*100%	=	55.0 %
Cp	= 0.9*L/(0.9-Y)	=	62.0 sec
Ymax	= 1-L/C	=	0.725
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	55.0 % (Optimized)



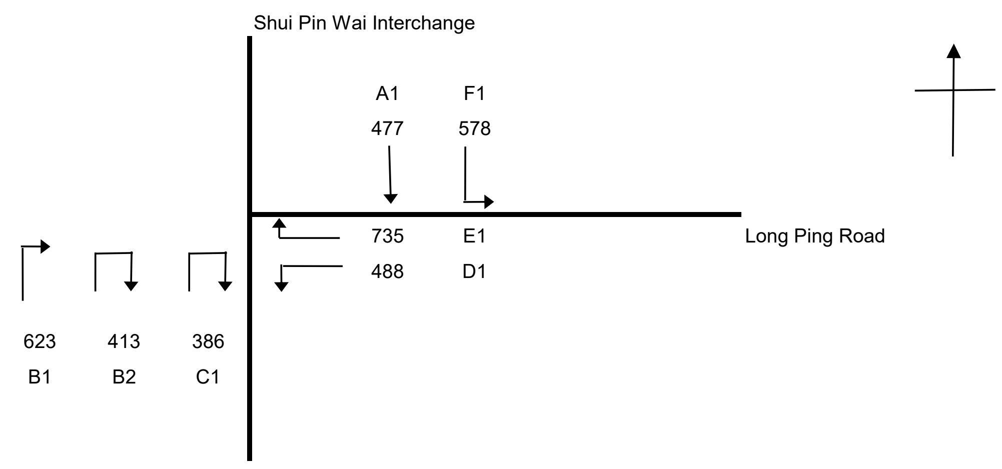
STAGE 1	INT= 7	STAGE 2	INT= 12	STAGE 3	INT= 12	STAGE 4	INT= 6

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

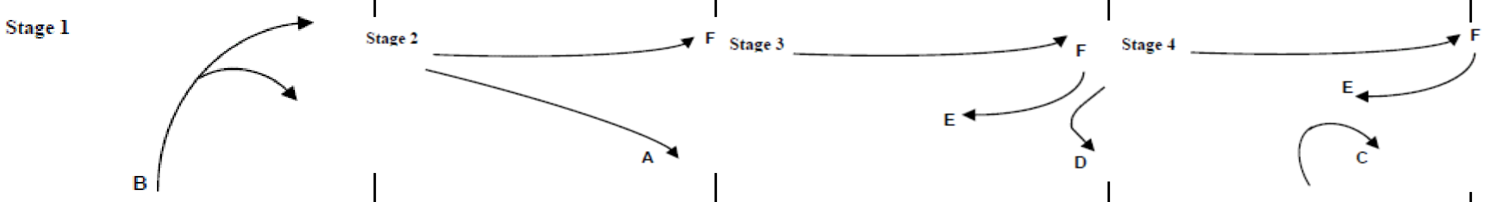
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				33				
B1	1	3.80		1	60		N	1995		260		260	0.00	1995			1995	0.130	0.130		27	27	0.581	40
B1,B2	1	3.80		1	30		N	1995		137	116	253	0.46	1950			1950	0.130			27	27	0.579	39
B2	1	3.80		1	30		N	1995			247	247	1.00	1900			1900	0.130			27	27	0.579	38
F1	2,3,4	3.50		2			N	4070		354		354	0.00	4070			4070	0.087			18	18	0.581	30
A1	2	3.50		3			N	6175		279		279	0.00	6175			6175	0.045	0.045		9	9	0.581	17
E1	3,4	3.50		2	70		N	4070			565	565	1.00	3985			3985	0.142			29	29	0.581	43
D1	3	3.20		1	25		N	1935	284			284	1.00	1825			1825	0.156	0.156		32	32	0.581	42
C1	4	4.50		2	30		N	4270			366	366	1.00	4067			4067	0.090	0.090		19	19	0.581	31

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J7 Shui Pin Wai Interchange/ Long Ping Road	Year 2025 Reference Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.571
Loss time		L =	33 sec
Total Flow		=	3001 pcu
Co	= (1.5*L+5)/(1-Y)	=	127.0 sec
Cm	= L/(1-Y)	=	76.9 sec
Yult		=	0.653
R.C.ult	= (Yult-Y)/Y*100%	=	14.3 %
Cp	= 0.9*L/(0.9-Y)	=	90.2 sec
Ymax	= 1-L/C	=	0.725
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	14.3 % (Optimized)



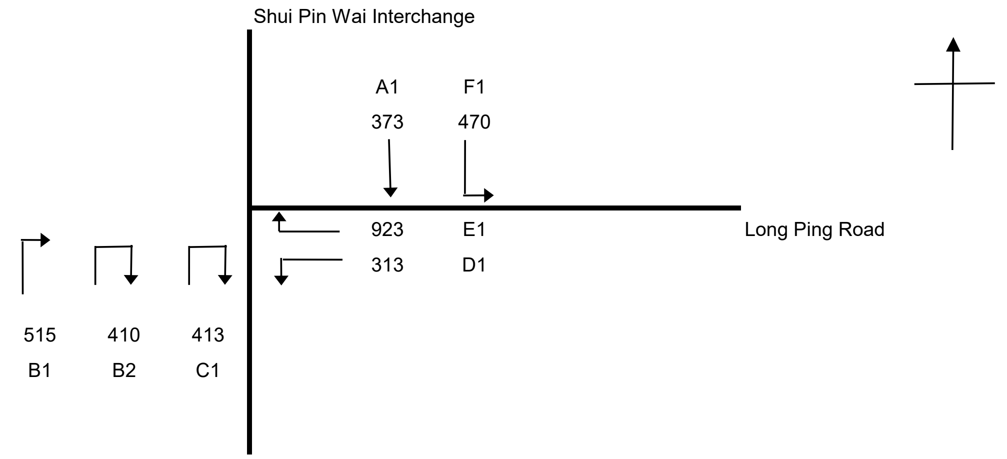
STAGE 1	INT= 7	STAGE 2	INT= 12	STAGE 3	INT= 12	STAGE 4	INT= 6

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

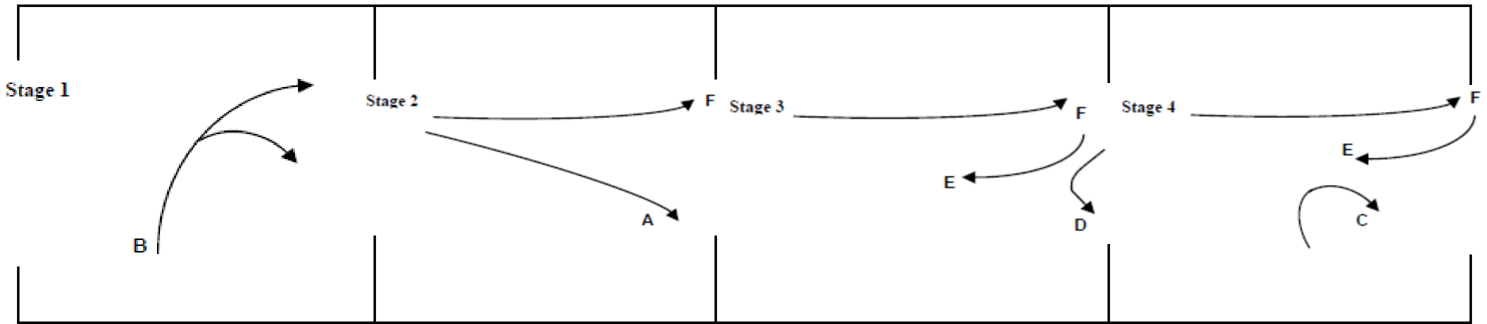
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				33				
B1	1	3.80		1	60		N	1995		352		352	0.00	1995			1995	0.176	0.177		27	27	0.785	55
B1,B2	1	3.80		1	30		N	1995		271	77	348	0.22	1973			1973	0.176			27	27	0.785	54
B2	1	3.80		1	30		N	1995			336	336	1.00	1900			1900	0.177			27	27	0.787	52
F1	2,3,4	3.50		2			N	4070		578		578	0.00	4070			4070	0.142			22	22	0.787	47
A1	2	3.50		3			N	6175		477		477	0.00	6175			6175	0.077	0.077		12	12	0.787	29
E1	3,4	3.50		2	70		N	4070			735	735	1.00	3985			3985	0.184			28	28	0.787	56
D1	3	3.20		1	25		N	1935	488			488	1.00	1825		375	2200	0.222	0.222		34	34	0.787	70
C1	4	4.50		2	30		N	4270			386	386	1.00	4067			4067	0.095	0.095		14	14	0.787	34

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J7 Shui Pin Wai Interchange/ Long Ping Road	Year 2025 Reference Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4	
No. of stage using for calculation		N =	4	
Cycle time		C =	120	sec
Sum(y)		Y =	0.462	
Loss time		L =	33	sec
Total Flow		=	2793	pcu
Co	= (1.5*L+5)/(1-Y)	=	101.4	sec
Cm	= L/(1-Y)	=	61.4	sec
Yult		=	0.653	
R.C.ult	= (Yult-Y)/Y*100%	=	41.1	%
Cp	= 0.9*L/(0.9-Y)	=	67.9	sec
Ymax	= 1-L/C	=	0.725	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	41.1	% (Optimized)



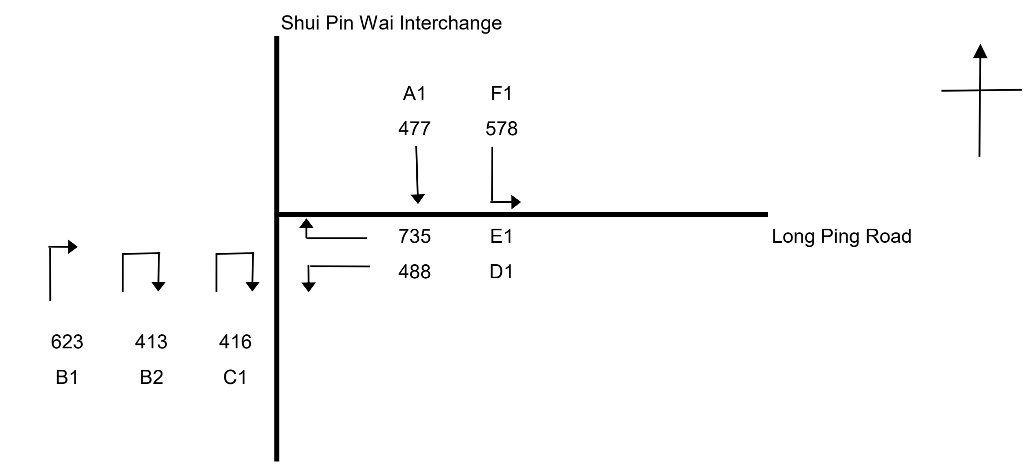
STAGE 1	INT= 7	STAGE 2	INT= 12	STAGE 3	INT= 12	STAGE 4	INT= 6

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

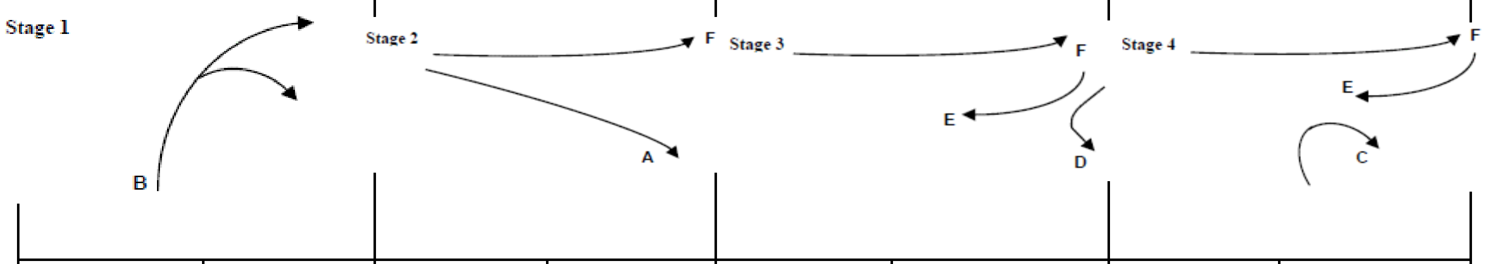
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				33				
B1	1	3.80		1	60		N	1995		315		315	0.00	1995			1995	0.158	0.158		30	30	0.637	47
B1,B2	1	3.80		1	30		N	1995		200	110	310	0.35	1960			1960	0.158			30	30	0.638	47
B2	1	3.80		1	30		N	1995			300	300	1.00	1900			1900	0.158			30	30	0.638	45
F1	2,3,4	3.50		2			N	4070		470		470	0.00	4070			4070	0.116			22	22	0.638	39
A1	2	3.50		3			N	6175		373		373	0.00	6175			6175	0.060	0.060		11	11	0.638	23
E1	3,4	3.50		2	70		N	4070			923	923	1.00	3985			3985	0.232			44	44	0.638	59
D1	3	3.20		1	25		N	1935	313			313	1.00	1825		375	2200	0.142	0.142		27	27	0.638	49
C1	4	4.50		2	30		N	4270			413	413	1.00	4067			4067	0.102	0.102		19	19	0.638	35

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J7 Shui Pin Wai Interchange/ Long Ping Road	Year 2025 Design Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.578
Loss time		L =	33 sec
Total Flow		=	3029 pcu
Co	= (1.5*L+5)/(1-Y)	=	129.2 sec
Cm	= L/(1-Y)	=	78.2 sec
Yult		=	0.653
R.C.ult	= (Yult-Y)/Y*100%	=	12.9 %
Cp	= 0.9*L/(0.9-Y)	=	92.2 sec
Ymax	= 1-L/C	=	0.725
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	12.9 % (Optimized)



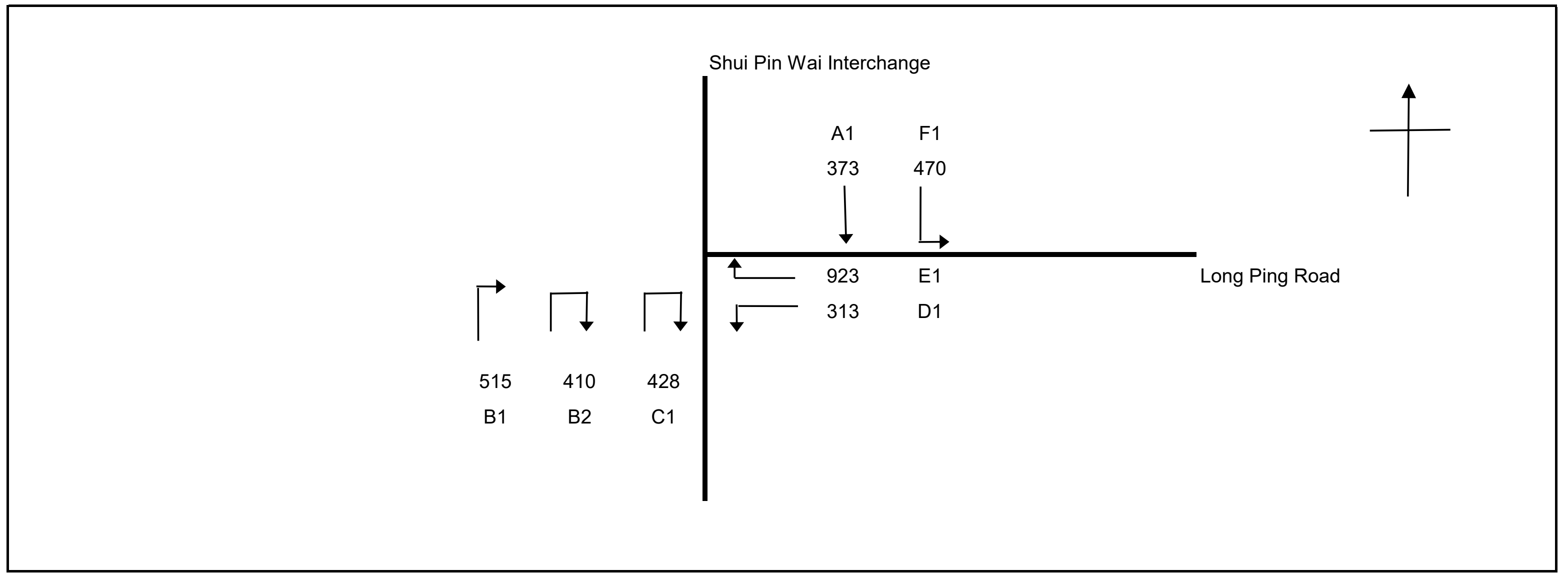
STAGE 1	INT= 7	STAGE 2	INT= 12	STAGE 3	INT= 12	STAGE 4	INT= 6

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

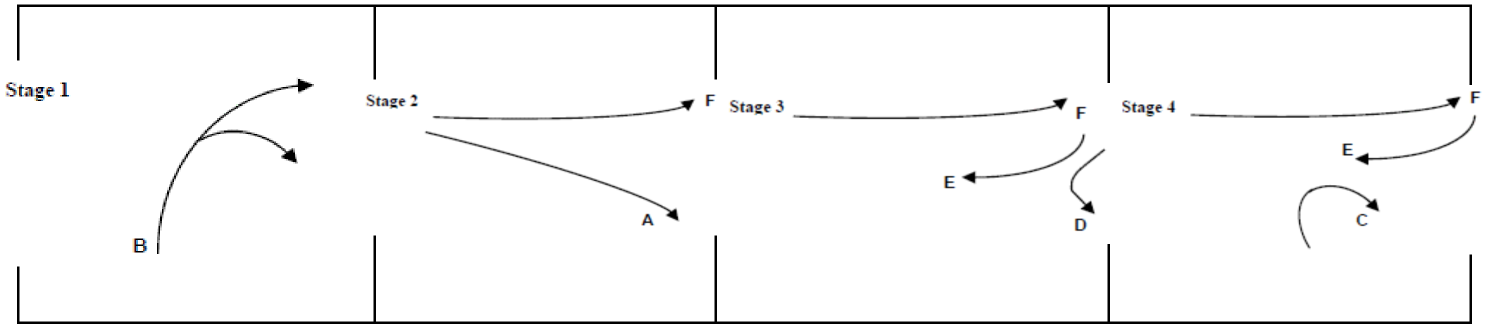
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				33				
B1	1	3.80		1	60		N	1995		353		353	0.00	1995			1995	0.177	0.177		27	27	0.797	55
B1,B2	1	3.80		1	30		N	1995		270	78	348	0.22	1973			1973	0.176			27	27	0.795	54
B2	1	3.80		1	30		N	1995			335	335	1.00	1900			1900	0.176			27	27	0.795	52
F1	2,3,4	3.50		2			N	4070		578		578	0.00	4070			4070	0.142			21	21	0.797	48
A1	2	3.50		3			N	6175		477		477	0.00	6175			6175	0.077	0.077		12	12	0.797	29
E1	3,4	3.50		2	70		N	4070			735	735	1.00	3985			3985	0.184			28	28	0.797	56
D1	3	3.20		1	25		N	1935	488			488	1.00	1825		375	2200	0.222	0.222		33	33	0.797	70
C1	4	4.50		2	30		N	4270			416	416	1.00	4067			4067	0.102	0.102		15	15	0.797	36

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J7 Shui Pin Wai Interchange/ Long Ping Road	Year 2025 Design Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4	
No. of stage using for calculation		N =	4	
Cycle time		C =	120	sec
Sum(y)		Y =	0.466	
Loss time		L =	33	sec
Total Flow		=	2808	pcu
Co	= (1.5*L+5)/(1-Y)	=	102.1	sec
Cm	= L/(1-Y)	=	61.8	sec
Yult		=	0.653	
R.C.ult	= (Yult-Y)/Y*100%	=	40.0	%
Cp	= 0.9*L/(0.9-Y)	=	68.4	sec
Ymax	= 1-L/C	=	0.725	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	40.0	% (Optimized)



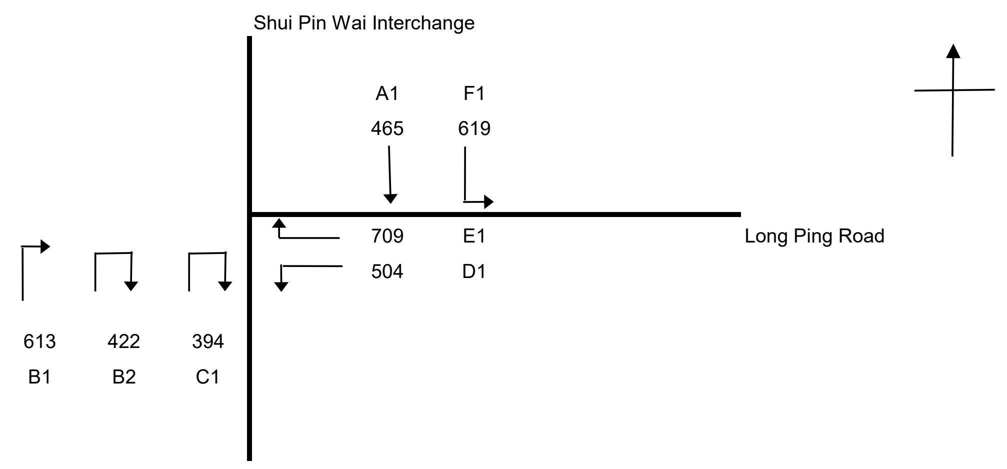
STAGE 1	INT= 7	STAGE 2	INT= 12	STAGE 3	INT= 12	STAGE 4	INT= 6

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

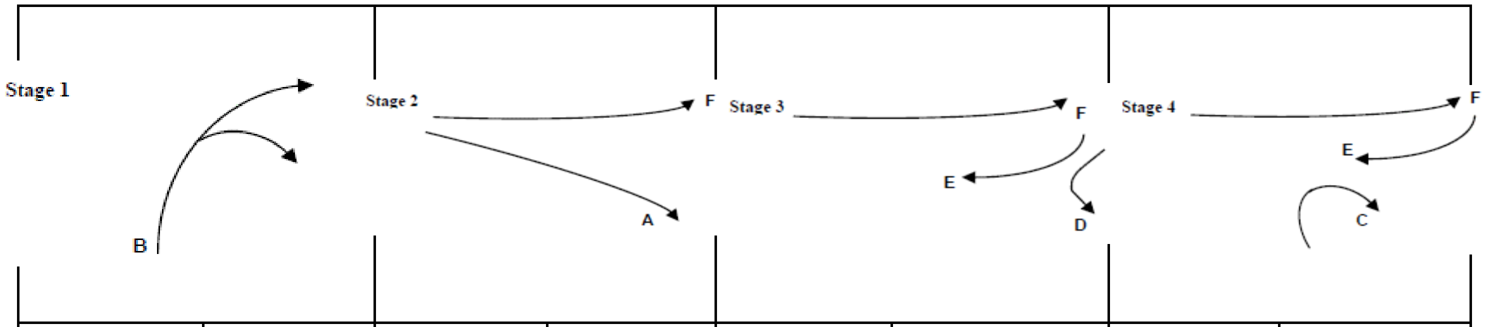
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				33				
B1	1	3.80		1	60		N	1995		315		315	0.00	1995			1995	0.158	0.158		29	30	0.642	48
B1,B2	1	3.80		1	30		N	1995		200	110	310	0.35	1960			1960	0.158			30	30	0.643	47
B2	1	3.80		1	30		N	1995			300	300	1.00	1900			1900	0.158			30	30	0.642	45
F1	2,3,4	3.50		2			N	4070		470		470	0.00	4070			4070	0.116			22	22	0.643	39
A1	2	3.50		3			N	6175		373		373	0.00	6175			6175	0.060	0.060		11	11	0.643	23
E1	3,4	3.50		2	70		N	4070			923	923	1.00	3985			3985	0.232			43	43	0.643	59
D1	3	3.20		1	25		N	1935	313			313	1.00	1825		375	2200	0.142	0.142		27	27	0.643	49
C1	4	4.50		2	30		N	4270			428	428	1.00	4067			4067	0.105	0.105		20	20	0.643	36

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J7 Shui Pin Wai Interchange/ Long Ping Road	Year 2029 Reference Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.578
Loss time		L =	33 sec
Total Flow		=	3027 pcu
Co	= (1.5*L+5)/(1-Y)	=	129.1 sec
Cm	= L/(1-Y)	=	78.2 sec
Yult		=	0.653
R.C.ult	= (Yult-Y)/Y*100%	=	12.9 %
Cp	= 0.9*L/(0.9-Y)	=	92.2 sec
Ymax	= 1-L/C	=	0.725
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	12.9 % (Optimized)



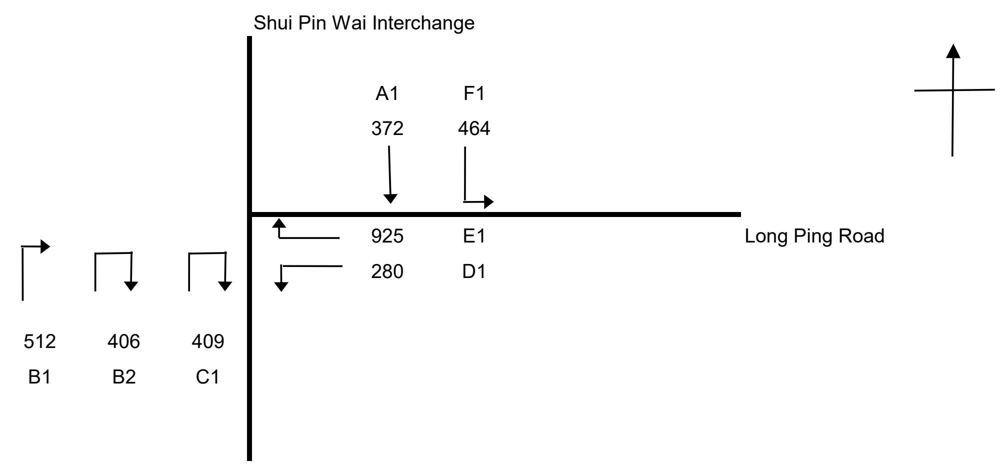
STAGE 1	INT= 7	STAGE 2	INT= 12	STAGE 3	INT= 12	STAGE 4	INT= 6

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

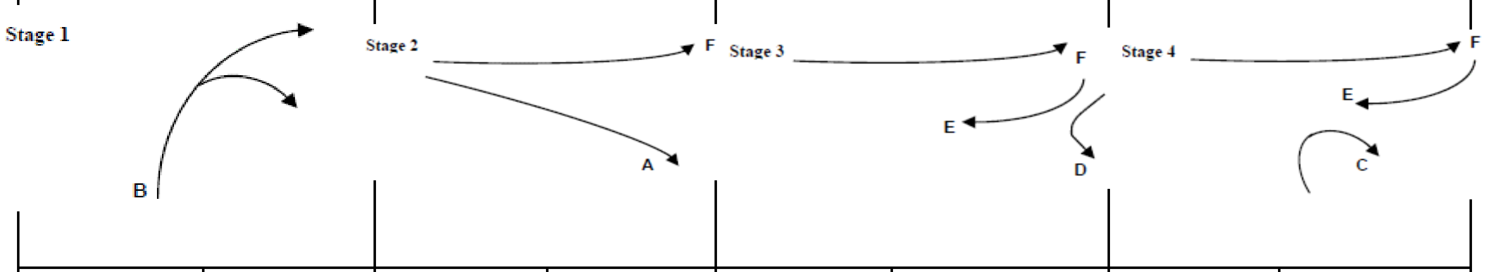
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				33				
B1	1	3.80		1	60		N	1995		352		352	0.00	1995			1995	0.176	0.177		27	27	0.797	55
B1,B2	1	3.80		1	30		N	1995		261	87	348	0.25	1970			1970	0.177			27	27	0.797	54
B2	1	3.80		1	30		N	1995			335	335	1.00	1900			1900	0.176			27	27	0.795	52
F1	2,3,4	3.50		2			N	4070		619		619	0.00	4070			4070	0.152			23	23	0.797	50
A1	2	3.50		3			N	6175		465		465	0.00	6175			6175	0.075	0.075		11	11	0.797	28
E1	3,4	3.50		2	70		N	4070			709	709	1.00	3985			3985	0.178			27	27	0.797	55
D1	3	3.20		1	25		N	1935	504			504	1.00	1825		375	2200	0.229	0.229		34	34	0.797	72
C1	4	4.50		2	30		N	4270			394	394	1.00	4067			4067	0.097	0.097		15	15	0.797	35

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J7 Shui Pin Wai Interchange/ Long Ping Road	Year 2029 Reference Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4	
No. of stage using for calculation		N =	4	
Cycle time		C =	120	sec
Sum(y)		Y =	0.445	
Loss time		L =	33	sec
Total Flow		=	2747	pcu
Co	= (1.5*L+5)/(1-Y)	=	98.2	sec
Cm	= L/(1-Y)	=	59.5	sec
Yult		=	0.653	
R.C.ult	= (Yult-Y)/Y*100%	=	46.6	%
Cp	= 0.9*L/(0.9-Y)	=	65.3	sec
Ymax	= 1-L/C	=	0.725	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	46.6	% (Optimized)



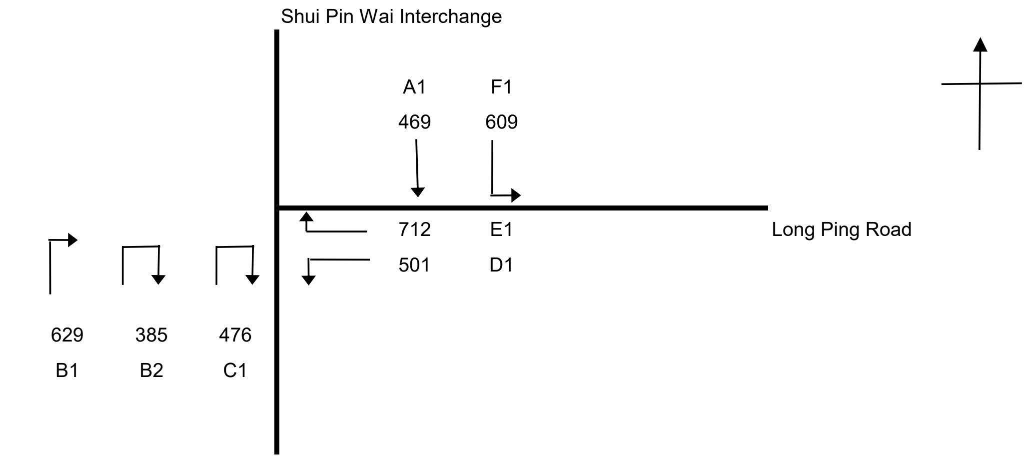
STAGE 1	INT= 7	STAGE 2	INT= 12	STAGE 3	INT= 12	STAGE 4	INT= 6

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

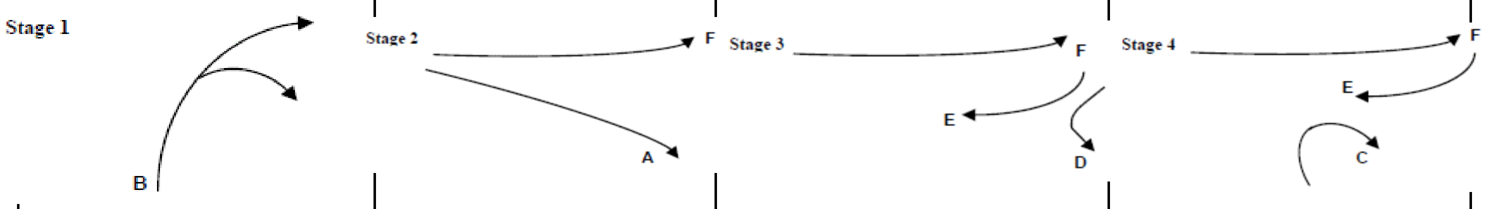
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				33				
B1	1	3.80		1	60		N	1995		313		313	0.00	1995			1995	0.157	0.157		31	31	0.614	47
B1,B2	1	3.80		1	30		N	1995		199	108	307	0.35	1961			1961	0.157			31	31	0.613	46
B2	1	3.80		1	30		N	1995			298	298	1.00	1900			1900	0.157			31	31	0.613	44
F1	2,3,4	3.50		2			N	4070		464		464	0.00	4070			4070	0.114			22	22	0.614	38
A1	2	3.50		3			N	6175		372		372	0.00	6175			6175	0.060	0.060		12	12	0.614	22
E1	3,4	3.50		2	70		N	4070			925	925	1.00	3985			3985	0.232			45	45	0.614	58
D1	3	3.20		1	25		N	1935	280			280	1.00	1825		375	2200	0.127	0.127		25	25	0.614	44
C1	4	4.50		2	30		N	4270			409	409	1.00	4067			4067	0.101	0.101		20	20	0.614	34

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J7 Shui Pin Wai Interchange/ Long Ping Road	Year 2029 Design Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.593
Loss time		L =	33 sec
Total Flow		=	3093 pcu
Co	= (1.5*L+5)/(1-Y)	=	134.0 sec
Cm	= L/(1-Y)	=	81.1 sec
Yult		=	0.653
R.C.ult	= (Yult-Y)/Y*100%	=	10.0 %
Cp	= 0.9*L/(0.9-Y)	=	96.8 sec
Ymax	= 1-L/C	=	0.725
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	10.0 % (Optimized)



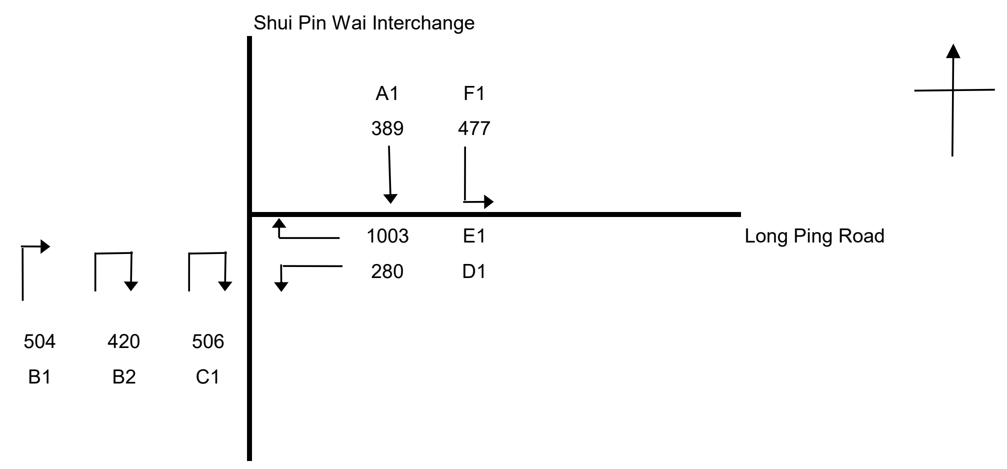
STAGE 1	INT= 7	STAGE 2	INT= 12	STAGE 3	INT= 12	STAGE 4	INT= 6

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

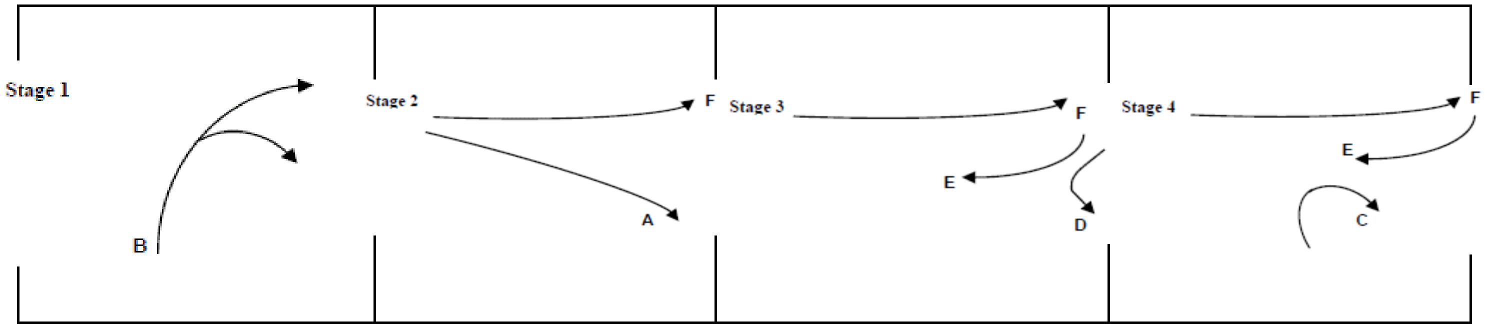
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				33				
B1	1	3.80		1	60		N	1995		344		344	0.00	1995			1995	0.172	0.173		25	25	0.817	54
B1,B2	1	3.80		1	30		N	1995		285	57	342	0.17	1978			1978	0.173			25	25	0.818	54
B2	1	3.80		1	30		N	1995			328	328	1.00	1900			1900	0.172			25	25	0.817	52
F1	2,3,4	3.50		2			N	4070		609		609	0.00	4070			4070	0.150			22	22	0.818	50
A1	2	3.50		3			N	6175		469		469	0.00	6175			6175	0.076	0.076		11	11	0.818	28
E1	3,4	3.50		2	70		N	4070			712	712	1.00	3985			3985	0.179			26	26	0.818	56
D1	3	3.20		1	25		N	1935	501			501	1.00	1825		375	2200	0.228	0.228		33	33	0.818	72
C1	4	4.50		2	30		N	4270			476	476	1.00	4067			4067	0.117	0.117		17	17	0.818	41

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J7 Shui Pin Wai Interchange/ Long Ping Road	Year 2029 Design Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.473
Loss time		L =	33 sec
Total Flow		=	2955 pcu
Co	= (1.5*L+5)/(1-Y)	=	103.4 sec
Cm	= L/(1-Y)	=	62.6 sec
Yult		=	0.653
R.C.ult	= (Yult-Y)/Y*100%	=	38.0 %
Cp	= 0.9*L/(0.9-Y)	=	69.5 sec
Ymax	= 1-L/C	=	0.725
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	38.0 % (Optimized)



STAGE 1	INT= 7	STAGE 2	INT= 12	STAGE 3	INT= 12	STAGE 4	INT= 6

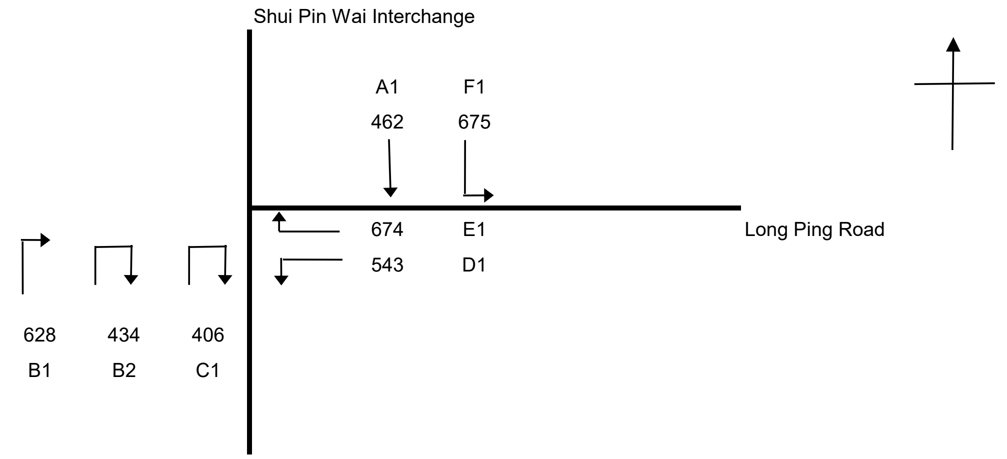
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	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.
																				33				
B1	1	3.80		1	60		N	1995		314		314	0.00	1995			1995	0.157	0.158		29	29	0.649	48
B1,B2	1	3.80		1	30		N	1995		190	119	309	0.39	1957			1957	0.158			29	29	0.651	47
B2	1	3.80		1	30		N	1995			301	301	1.00	1900			1900	0.158			29	29	0.652	46
F1	2,3,4	3.50		2			N	4070		477		477	0.00	4070			4070	0.117			22	22	0.652	39
A1	2	3.50		3			N	6175		389		389	0.00	6175			6175	0.063	0.063		12	12	0.652	23
E1	3,4	3.50		2	70		N	4070			1003	1003	1.00	3985			3985	0.252			46	46	0.652	62
D1	3	3.20		1	25		N	1935	280			280	1.00	1825		375	2200	0.127	0.127		23	23	0.652	45
C1	4	4.50		2	30		N	4270			506	506	1.00	4067			4067	0.124	0.124		23	23	0.652	41

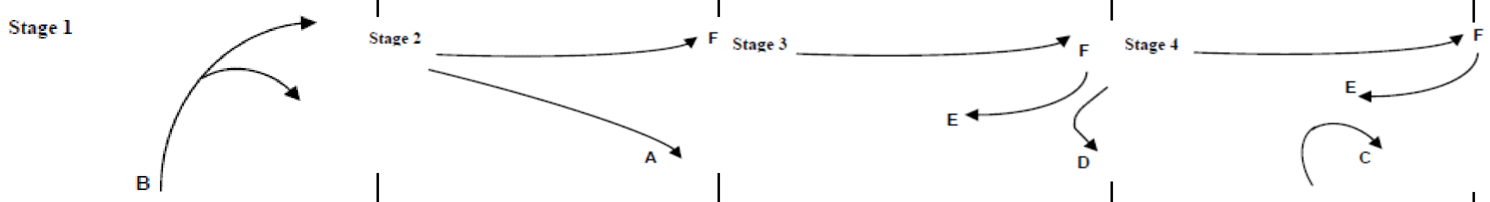
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS — TRAFFIC SIGNAL CALCULATION

Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J7 Shui Pin Wai Interchange/ Long Ping Road	Year 2034 Reference Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4	
No. of stage using for calculation		N =	4	
Cycle time		C =	120	sec
Sum(y)		Y =	0.603	
Loss time		L =	33	sec
Total Flow		=	3103	pcu
Co	= (1.5*L+5)/(1-Y)	=	137.1	sec
Cm	= L/(1-Y)	=	83.0	sec
Yult		=	0.653	
R.C.ult	= (Yult-Y)/Y*100%	=	8.3	%
Cp	= 0.9*L/(0.9-Y)	=	99.9	sec
Ymax	= 1-L/C	=	0.725	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	8.3	% (Optimized)



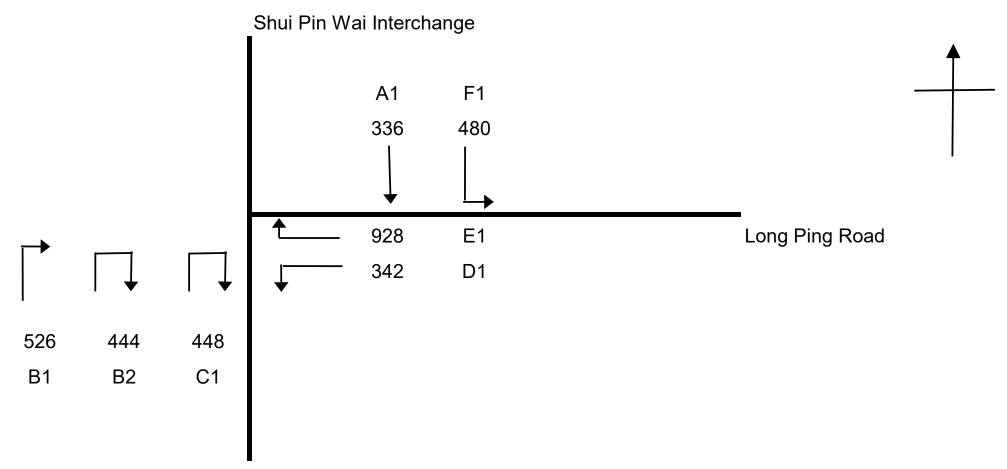
STAGE 1	INT= 7	STAGE 2	INT= 12	STAGE 3	INT= 12	STAGE 4	INT= 6

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

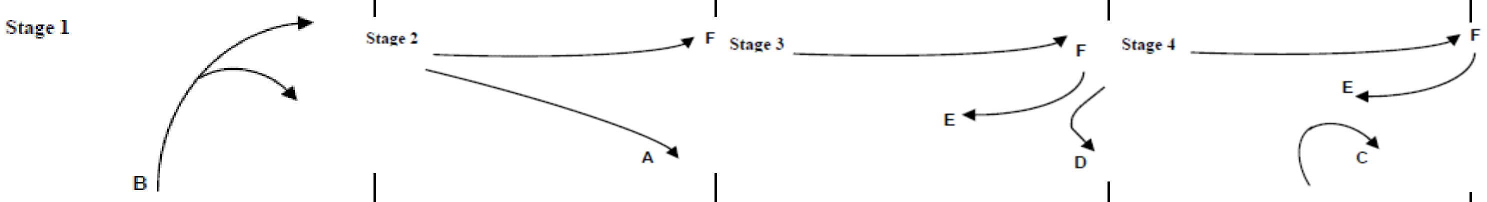
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				33				
B1	1	3.80		1	60		N	1995		361		361	0.00	1995			1995	0.181	0.181		26	26	0.830	56
B1,B2	1	3.80		1	30		N	1995		267	90	357	0.25	1970			1970	0.181			26	26	0.831	56
B2	1	3.80		1	30		N	1995			344	344	1.00	1900			1900	0.181			26	26	0.831	54
F1	2,3,4	3.50		2			N	4070		675		675	0.00	4070			4070	0.166			24	24	0.831	54
A1	2	3.50		3			N	6175		462		462	0.00	6175			6175	0.075	0.075		11	11	0.831	28
E1	3,4	3.50		2	70		N	4070			674	674	1.00	3985			3985	0.169			24	24	0.831	54
D1	3	3.20		1	25		N	1935	543			543	1.00	1825		375	2200	0.247	0.247		36	36	0.831	76
C1	4	4.50		2	30		N	4270			406	406	1.00	4067			4067	0.100	0.100		14	14	0.831	36

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J7 Shui Pin Wai Interchange/ Long Ping Road	Year 2034 Reference Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.486
Loss time		L =	33 sec
Total Flow		=	2848 pcu
Co	= (1.5*L+5)/(1-Y)	=	106.0 sec
Cm	= L/(1-Y)	=	64.2 sec
Yult		=	0.653
R.C.ult	= (Yult-Y)/Y*100%	=	34.4 %
Cp	= 0.9*L/(0.9-Y)	=	71.7 sec
Ymax	= 1-L/C	=	0.725
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	34.4 % (Optimized)



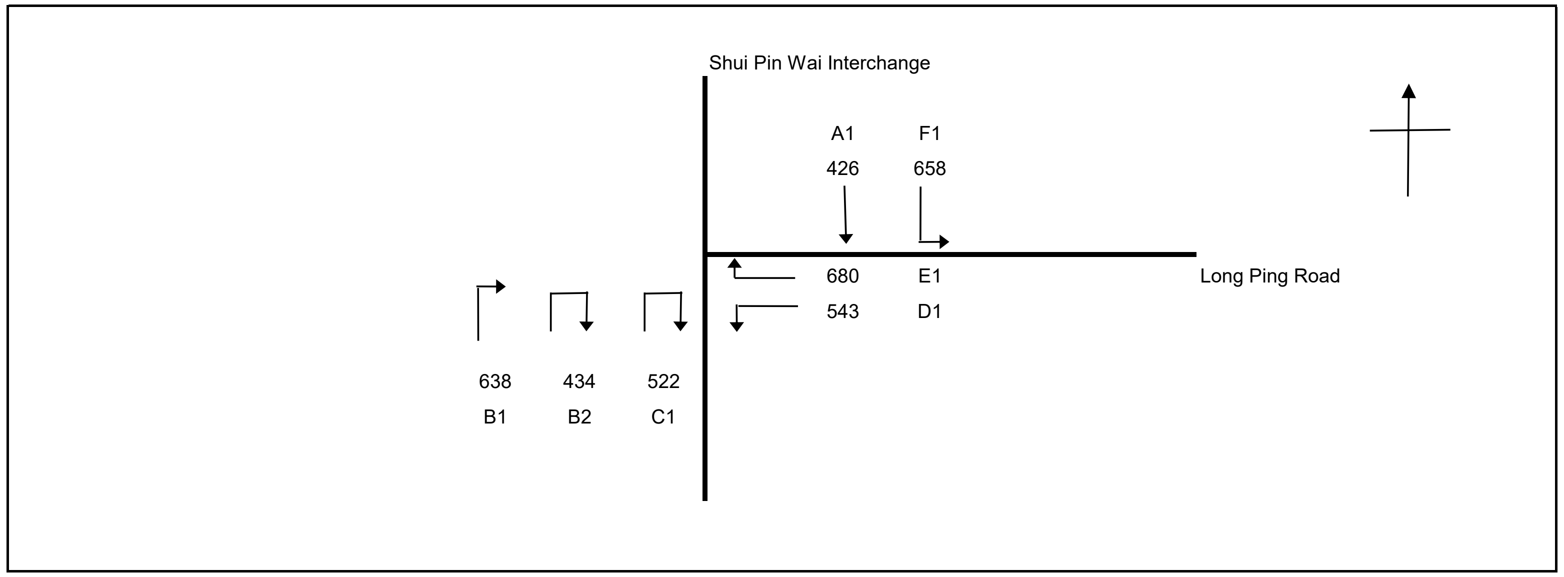
STAGE 1	INT= 7	STAGE 2	INT= 12	STAGE 3	INT= 12	STAGE 4	INT= 6

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

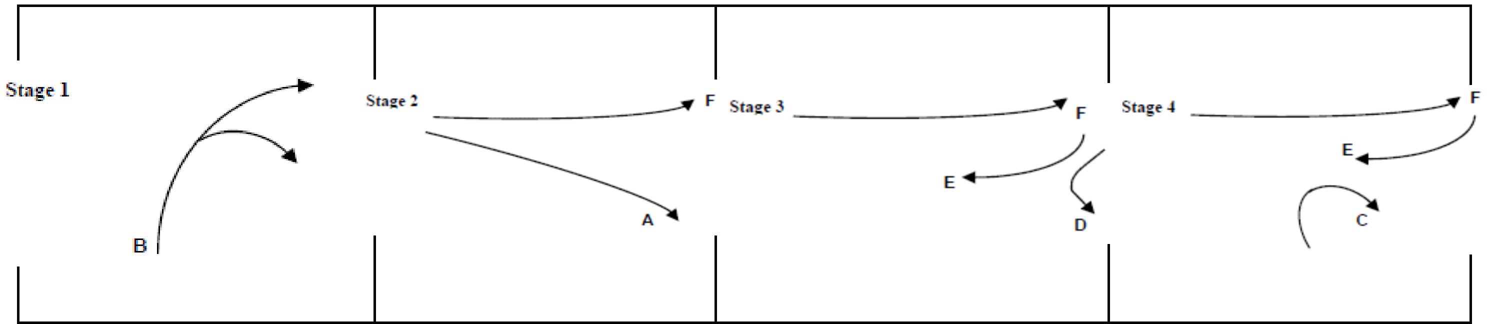
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				33				
B1	1	3.80		1	60		N	1995		331		331	0.00	1995			1995	0.166	0.166		30	30	0.670	50
B1,B2	1	3.80		1	30		N	1995		195	129	324	0.40	1956			1956	0.165			30	30	0.668	49
B2	1	3.80		1	30		N	1995			315	315	1.00	1900			1900	0.166			30	30	0.669	47
F1	2,3,4	3.50		2			N	4070		480		480	0.00	4070			4070	0.118			21	21	0.670	40
A1	2	3.50		3			N	6175		336		336	0.00	6175			6175	0.054	0.054		10	10	0.670	21
E1	3,4	3.50		2	70		N	4070			928	928	1.00	3985			3985	0.233			42	42	0.670	61
D1	3	3.20		1	25		N	1935	342			342	1.00	1825		375	2200	0.155	0.155		28	28	0.670	52
C1	4	4.50		2	30		N	4270			448	448	1.00	4067			4067	0.110	0.110		20	20	0.670	37

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J7 Shui Pin Wai Interchange/ Long Ping Road	Year 2034 Design Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4	
No. of stage using for calculation		N =	4	
Cycle time		C =	120	sec
Sum(y)		Y =	0.627	
Loss time		L =	33	sec
Total Flow		=	3177	pcu
Co	= (1.5*L+5)/(1-Y)	=	146.2	sec
Cm	= L/(1-Y)	=	88.5	sec
Yult		=	0.653	
R.C.ult	= (Yult-Y)/Y*100%	=	4.0	%
Cp	= 0.9*L/(0.9-Y)	=	108.9	sec
Ymax	= 1-L/C	=	0.725	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	4.0	% (Optimized)



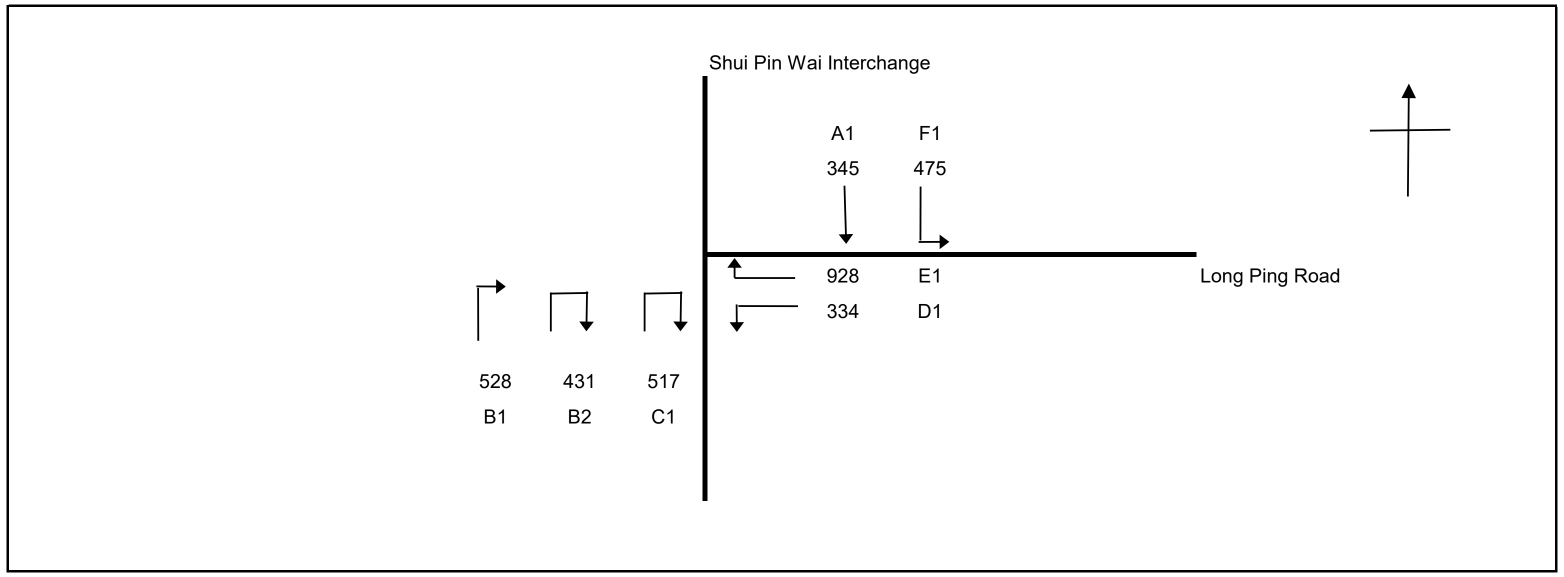
STAGE 1	INT=	7	STAGE 2	INT=	12	STAGE 3	INT=	12	STAGE 4	INT=	6

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

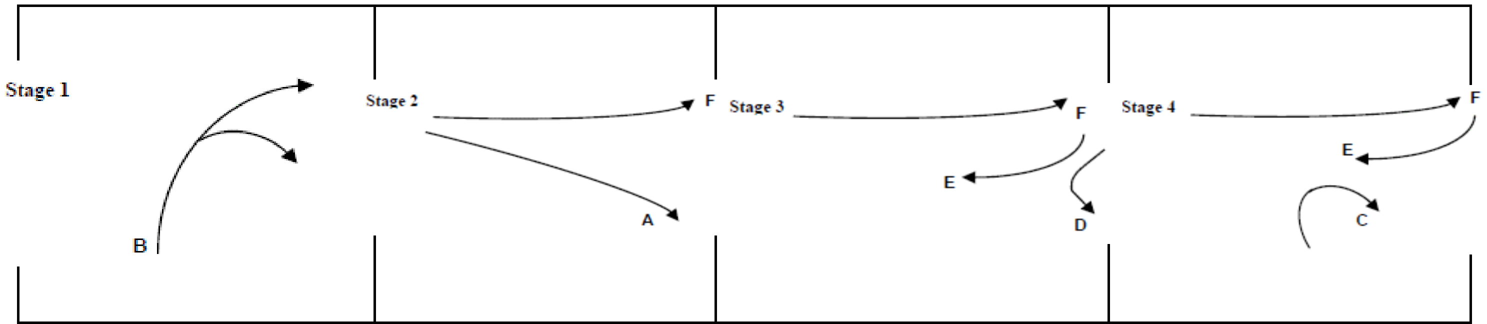
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				33				
B1	1	3.80		1	60		N	1995		365		365	0.00	1995			1995	0.183	0.183		25	25	0.865	58
B1,B2	1	3.80		1	30		N	1995		273	87	360	0.24	1971			1971	0.182			25	25	0.863	57
B2	1	3.80		1	30		N	1995			347	347	1.00	1900			1900	0.183			25	25	0.864	55
F1	2,3,4	3.50		2			N	4070		658		658	0.00	4070			4070	0.162			22	22	0.865	54
A1	2	3.50		3			N	6175		426		426	0.00	6175			6175	0.069	0.069		10	10	0.865	26
E1	3,4	3.50		2	70		N	4070			680	680	1.00	3985			3985	0.171			24	24	0.865	55
D1	3	3.20		1	25		N	1935	543			543	1.00	1825		375	2200	0.247	0.247		34	34	0.865	78
C1	4	4.50		2	30		N	4270			522	522	1.00	4067			4067	0.128	0.128		18	18	0.865	44

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J7 Shui Pin Wai Interchange/ Long Ping Road	Year 2034 Design Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.499
Loss time		L =	33 sec
Total Flow		=	2910 pcu
Co	= (1.5*L+5)/(1-Y)	=	108.7 sec
Cm	= L/(1-Y)	=	65.8 sec
Yult		=	0.653
R.C.ult	= (Yult-Y)/Y*100%	=	30.8 %
Cp	= 0.9*L/(0.9-Y)	=	74.0 sec
Ymax	= 1-L/C	=	0.725
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	30.8 % (Optimized)



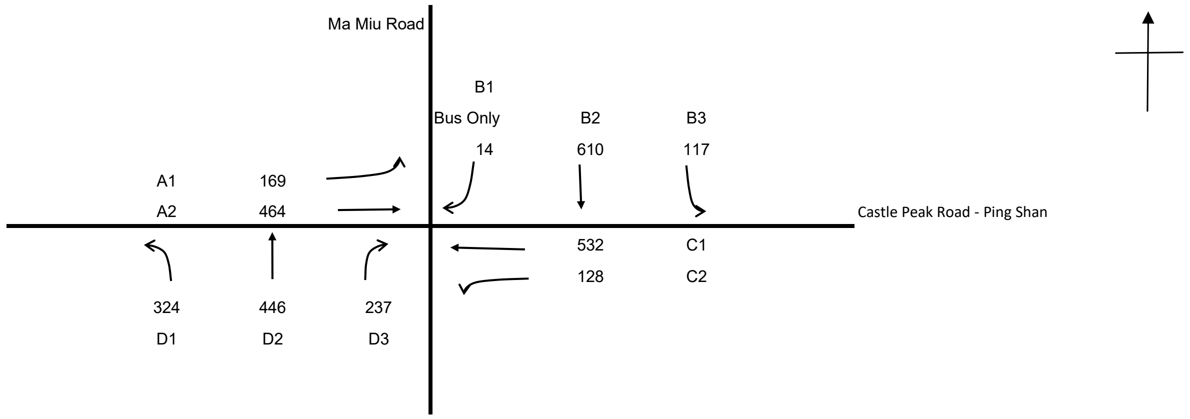
STAGE 1	INT= 7	STAGE 2	INT= 12	STAGE 3	INT= 12	STAGE 4	INT= 6

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

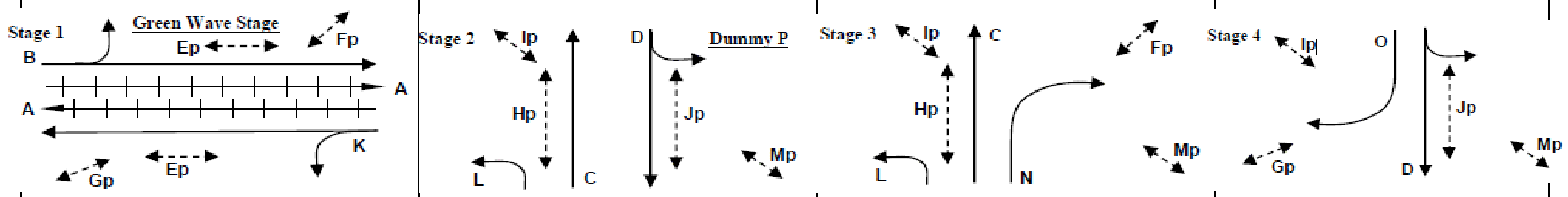
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				33				
B1	1	3.80		1	60		N	1995		327		327	0.00	1995			1995	0.164	0.164		29	29	0.688	50
B1,B2	1	3.80		1	30		N	1995		201	119	320	0.37	1959			1959	0.163			29	29	0.686	49
B2	1	3.80		1	30		N	1995			312	312	1.00	1900			1900	0.164			29	29	0.688	47
F1	2,3,4	3.50		2			N	4070		475		475	0.00	4070			4070	0.117			20	20	0.688	39
A1	2	3.50		3			N	6175		345		345	0.00	6175			6175	0.056	0.056		10	10	0.688	21
E1	3,4	3.50		2	70		N	4070			928	928	1.00	3985			3985	0.233			41	41	0.688	61
D1	3	3.20		1	25		N	1935	334			334	1.00	1825		375	2200	0.152	0.152		27	27	0.688	52
C1	4	4.50		2	30		N	4270			517	517	1.00	4067			4067	0.127	0.127		22	22	0.688	42

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

OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION	
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J8 Ma Miu Road/ Castle Peak Road - Ping Shan	Year 2018 Observed Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.398
Loss time		L =	44 sec
Total Flow		=	2408 pcu
Co	= (1.5*L+5)/(1-Y)	=	117.9 sec
Cm	= L/(1-Y)	=	73.1 sec
Yult		=	0.570
R.C.ult	= (Yult-Y)/Y*100%	=	43.3 %
Cp	= 0.9*L/(0.9-Y)	=	78.8 sec
Ymax	= 1-L/C	=	0.633
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	43.3 % (Optimized)



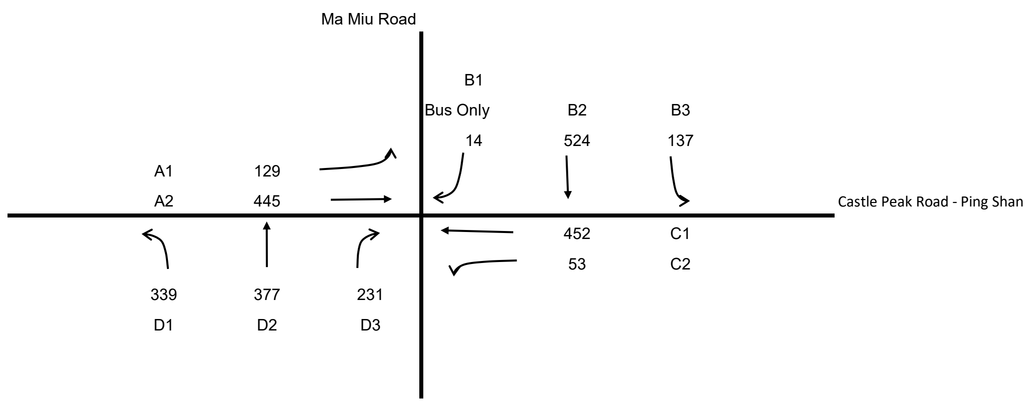
STAGE 1	INT= 17	STAGE 2	INT= 5	STAGE 3	INT= 11	STAGE 4	INT= 9

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	E	12	10	3	9	28	3	9	OK
1,3	F	5.5	5	3	5	66	3	5	OK
1,4	G	6.1	5	3	5	47	3	5	OK
2,3	H	10	8	3	7	45	3	7	OK
2,3,4	I	6.8	5	3	6	65	3	6	OK
2,4	J	10	8	3	7	30	3	7	OK
2,3,4	M	8.5	5	3	7	64	3	7	OK
1	A(LRT)	N/A	10	3	6	32	3	6	OK

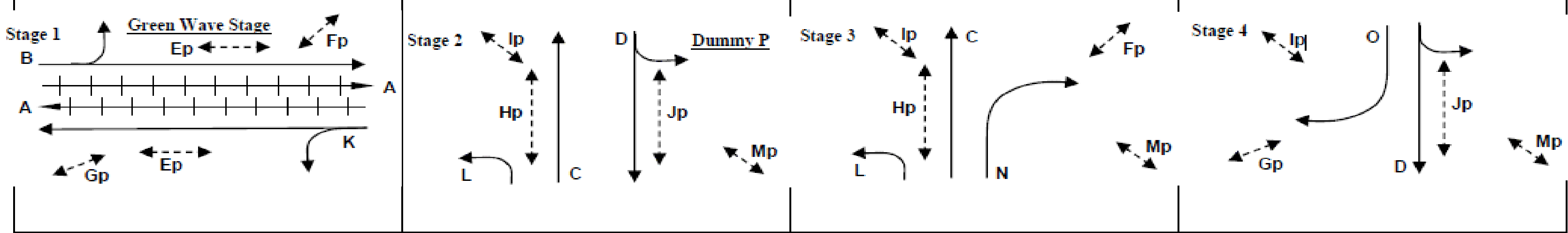
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				39				
A1	1	3.50		1	50		N	1965	169			169	1.00	1908			1908	0.088	0.128		17	24	0.435	27
A2	1	2.90		2				4090		464		464	0.00	4090			4090	0.113			22	24	0.558	37
C1	1	3.30		2				4170		532		532	0.00	4170			4170	0.128			24	24	0.628	42
C2	1	4.30		1	50			2185	128			128	1.00	2121			2121	0.060			11	24	0.296	20
D1	2,3	4.00		1	50		N	2015	324			324	1.00	1956			1956	0.165			32	41	0.490	43
D2	2,3	3.50		1				2105		446		446	0.00	2105			2105	0.212			41	41	0.628	59
B2	2,4	3.30		2				4170		610		610	0.00	4170			4170	0.146	0.146		28	28	0.628	47
B3	2,4	5.00		1	45			2255	117			117	1.00	2182			2182	0.054			10	28	0.231	18
D3	3	3.50		1	15			2105			237	237	1.00	1914			1914	0.124	0.124		24	24	0.628	38
B1	4	3.30		1	30		N	1945			14	14	1.00	1852			1852	0.008		5	1	6	0.141	3

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J8 Ma Miu Road/ Castle Peak Road - Ping Shan	Year 2018 Observed Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.355
Loss time		L =	43 sec
Total Flow		=	2127 pcu
Co	= (1.5*L+5)/(1-Y)	=	107.8 sec
Cm	= L/(1-Y)	=	66.7 sec
Yult		=	0.578
R.C.ult	= (Yult-Y)/Y*100%	=	62.6 %
Cp	= 0.9*L/(0.9-Y)	=	71.0 sec
Ymax	= 1-L/C	=	0.642
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	62.6 % (Optimized)



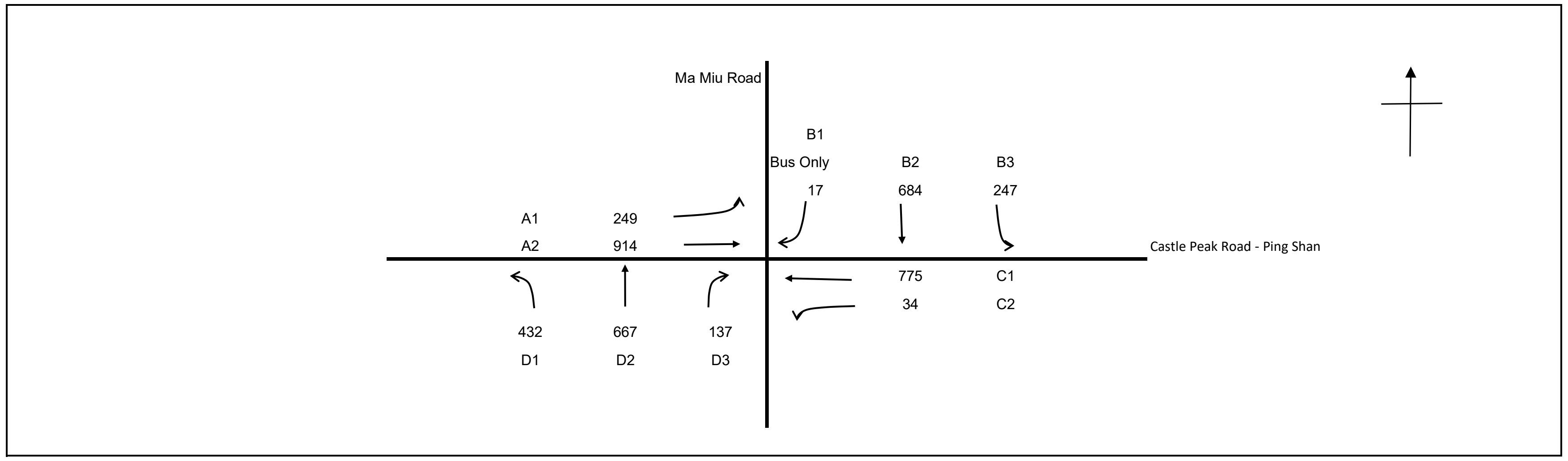
STAGE 1	INT= 17	STAGE 2	INT= 5	STAGE 3	INT= 11	STAGE 4	INT= 9

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	E	12	10	3	9	28	3	9	OK
1,3	F	5.5	5	3	5	68	3	5	OK
1,4	G	6.1	5	3	5	45	3	5	OK
2,3	H	10	8	3	7	43	3	7	OK
2,3,4	I	6.8	5	3	6	66	3	6	OK
2,4	J	10	8	3	7	29	3	7	OK
2,3,4	M	8.5	5	3	7	65	3	7	OK
1	A(LRT)	N/A	10	3	6	32	3	6	OK

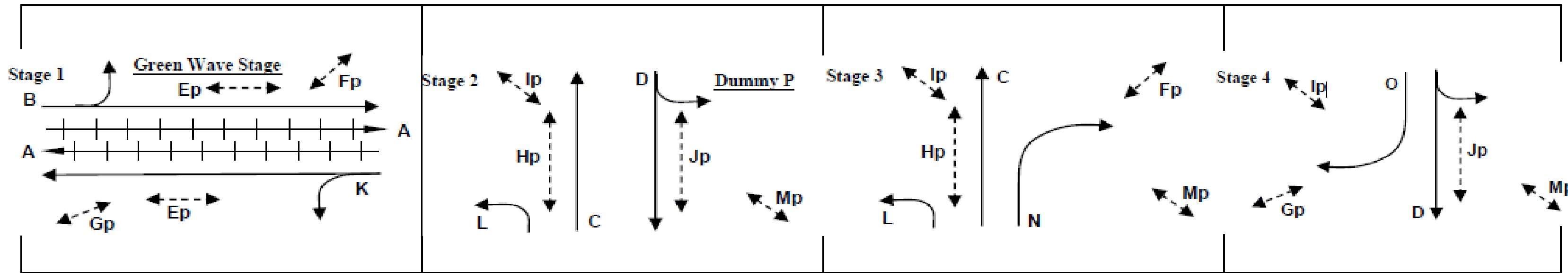
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				39				
A1	1	4.00		1	50		N	2015	129			129	1.00	1956			1956	0.066	0.109		14	24	0.335	21
A2	1	2.90		2				4090		445		445	0.00	4090			4090	0.109			24	24	0.553	36
C1	1	3.30		2				4170		452		452	0.00	4170			4170	0.108			23	24	0.551	36
C2	1	4.30		1	50			2185	53			53	1.00	2121			2121	0.025			5	24	0.127	9
D1	2,3	4.50		1	50		N	2065	339			339	1.00	2005			2005	0.169			37	39	0.522	46
D2	2,3	3.50		1				2105		377		377	0.00	2105			2105	0.179			39	39	0.553	51
B2	2,4	3.30		2				4170		524		524	0.00	4170			4170	0.126	0.126		27	27	0.553	41
B3	2,4	5.00		1	45			2255	137			137	1.00	2182			2182	0.063			14	27	0.277	21
D3	3	3.50		1	15			2105			231	231	1.00	1914			1914	0.121	0.121		26	26	0.553	36
B1	4	3.30		1	30		N	1945			14	14	1.00	1852			1852	0.008		4	2	6	0.161	3

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J8 Ma Miu Road/ Castle Peak Road - Ping Shan	Year 2025 Reference Traffic Flows (AM Peak)	DATE : 30-Jun-21	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 =	44 sec
Total Flow		=	2992 pcu
Co	= (1.5*L+5)/(1-Y)	=	157.5 sec
Cm	= L/(1-Y)	=	97.6 sec
Yult		=	0.570
R.C.ult	= (Yult-Y)/Y*100%	=	3.8 %
Cp	= 0.9*L/(0.9-Y)	=	112.9 sec
Ymax	= 1-L/C	=	0.633
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	3.8 % (Optimized)



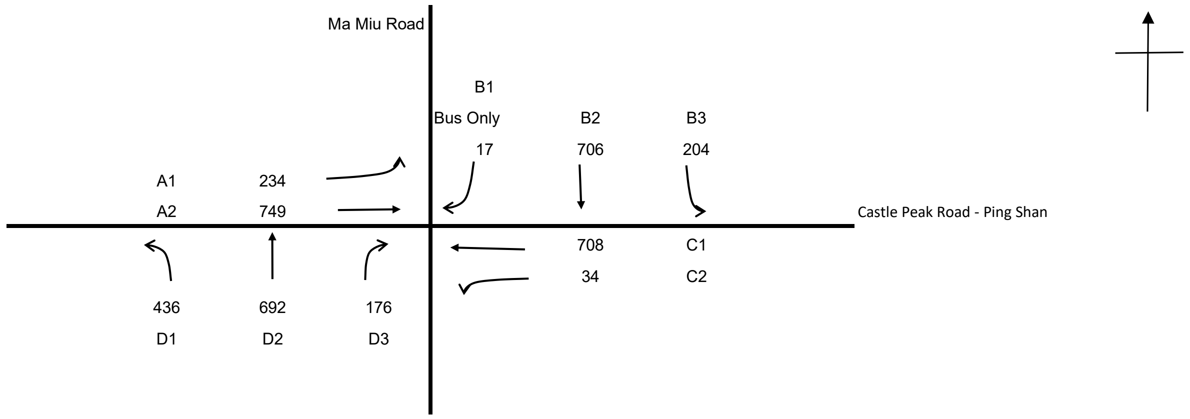
STAGE 1	INT= 17	STAGE 2	INT= 5	STAGE 3	INT= 11	STAGE 4	INT= 9

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	E	12	10	3	9	35	3	9	OK
1,3	F	5.5	5	3	5	59	3	5	OK
1,4	G	6.1	5	3	5	53	3	5	OK
2,3	H	10	8	3	7	48	3	7	OK
2,3,4	I	6.8	5	3	6	46	3	6	OK
2,4	J	10	8	3	7	25	3	7	OK
2,3,4	M	8.5	5	3	7	45	3	7	OK
1	A(LRT)	N/A	10	3	6	39	3	6	OK

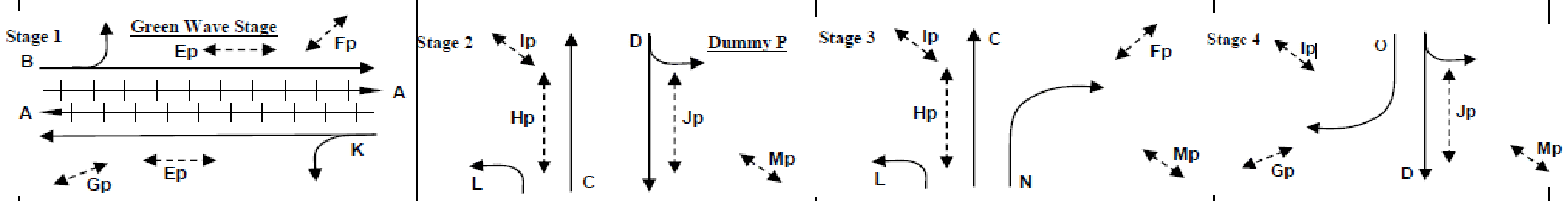
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				39				
A1	1	3.50		1	50		N	1965	249			249	1.00	1908			1908	0.130	0.223		18	31	0.506	37
A2	1	2.90		2				4090		914		914	0.00	4090			4090	0.223			31	31	0.867	68
C1	1	3.30		2				4170		775		775	0.00	4170			4170	0.186			26	31	0.721	58
C2	1	4.30		1	50			2185	34			34	1.00	2121			2121	0.016			2	31	0.063	5
D1	2,3	4.00		1	50		N	2015	432			432	1.00	1956			1956	0.221			31	44	0.605	55
D2	2,3	3.50		1				2105		667		667	0.00	2105			2105	0.317	0.317		44	44	0.867	85
B2	2,4	3.30		2				4170		684		684	0.00	4170			4170	0.164			23	23	0.867	55
B3	2,4	5.00		1	45			2255	247			247	1.00	2182			2182	0.113			16	23	0.598	40
D3	3	3.50		1	15			2105			137	137	1.00	1914			1914	0.072			10	10	0.867	26
B1	4	3.30		1	30		N	1945			17	17	1.00	1852			1852	0.009	0.009	5	1	6	0.172	3

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J8 Ma Miu Road/ Castle Peak Road - Ping Shan	Year 2025 Reference Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.521
Loss time		L =	44 sec
Total Flow		=	2972 pcu
Co	= (1.5*L+5)/(1-Y)	=	148.1 sec
Cm	= L/(1-Y)	=	91.8 sec
Yult		=	0.570
R.C.ult	= (Yult-Y)/Y*100%	=	9.5 %
Cp	= 0.9*L/(0.9-Y)	=	104.4 sec
Ymax	= 1-L/C	=	0.633
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	9.5 % (Optimized)



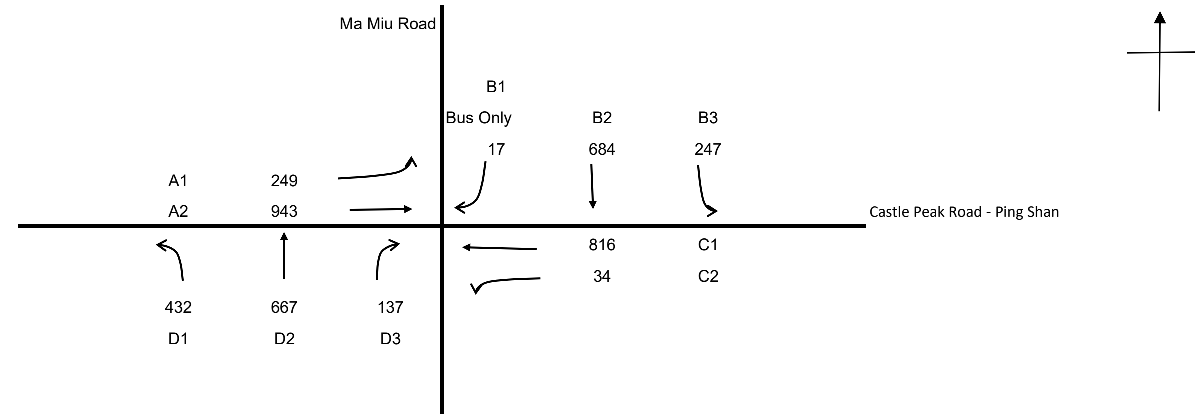
STAGE 1	INT= 17	STAGE 2	INT= 5	STAGE 3	INT= 11	STAGE 4	INT= 9

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	E	12	10	3	9	31	3	9	OK
1,3	F	5.5	5	3	5	58	3	5	OK
1,4	G	6.1	5	3	5	49	3	5	OK
2,3	H	10	8	3	7	52	3	7	OK
2,3,4	I	6.8	5	3	6	51	3	6	OK
2,4	J	10	8	3	7	27	3	7	OK
2,3,4	M	8.5	5	3	7	50	3	7	OK
1	A(LRT)	N/A	10	3	6	35	3	6	OK

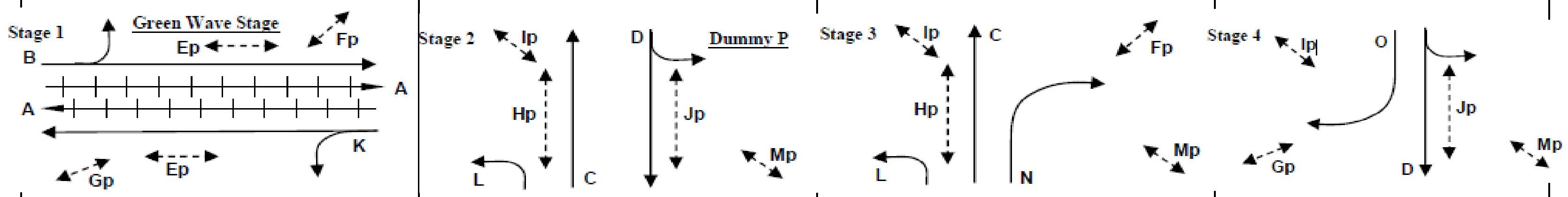
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				39				
A1	1	3.50		1	50		N	1965	234			234	1.00	1908			1908	0.122	0.183		18	27	0.550	36
A2	1	2.90		2				4090		749		749	0.00	4090			4090	0.183			27	27	0.822	58
C1	1	3.30		2				4170		708		708	0.00	4170			4170	0.170			25	27	0.763	55
C2	1	4.30		1	50			2185	34			34	1.00	2121			2121	0.016			2	27	0.072	5
D1	2,3	4.00		1	50		N	2015	436			436	1.00	1956			1956	0.223			33	48	0.557	52
D2	2,3	3.50		1				2105		692		692	0.00	2105			2105	0.329	0.329		48	48	0.822	83
B2	2,4	3.30		2				4170		706		706	0.00	4170			4170	0.169			25	25	0.822	56
B3	2,4	5.00		1	45			2255	204			204	1.00	2182			2182	0.093			14	25	0.454	32
D3	3	3.50		1	15			2105			176	176	1.00	1914			1914	0.092			13	13	0.822	31
B1	4	3.30		1	30		N	1945			17	17	1.00	1852			1852	0.009	0.009	5	1	6	0.170	3

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J8 Ma Miu Road/ Castle Peak Road - Ping Shan	Year 2025 Design Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.550
Loss time		L =	44 sec
Total Flow		=	3033 pcu
Co	= (1.5*L+5)/(1-Y)	=	157.8 sec
Cm	= L/(1-Y)	=	97.8 sec
Yult		=	0.570
R.C.ult	= (Yult-Y)/Y*100%	=	3.6 %
Cp	= 0.9*L/(0.9-Y)	=	113.1 sec
Ymax	= 1-L/C	=	0.633
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	3.6 % (Optimized)



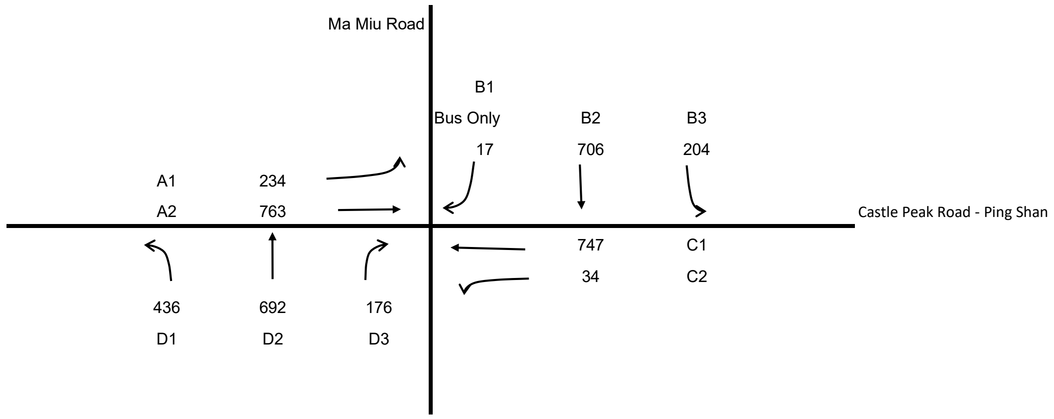
STAGE 1	INT= 17	STAGE 2	INT= 5	STAGE 3	INT= 11	STAGE 4	INT= 9

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	E	12	10	3	9	35	3	9	OK
1,3	F	5.5	5	3	5	59	3	5	OK
1,4	G	6.1	5	3	5	53	3	5	OK
2,3	H	10	8	3	7	48	3	7	OK
2,3,4	I	6.8	5	3	6	46	3	6	OK
2,4	J	10	8	3	7	25	3	7	OK
2,3,4	M	8.5	5	3	7	45	3	7	OK
1	A(LRT)	N/A	10	3	6	39	3	6	OK

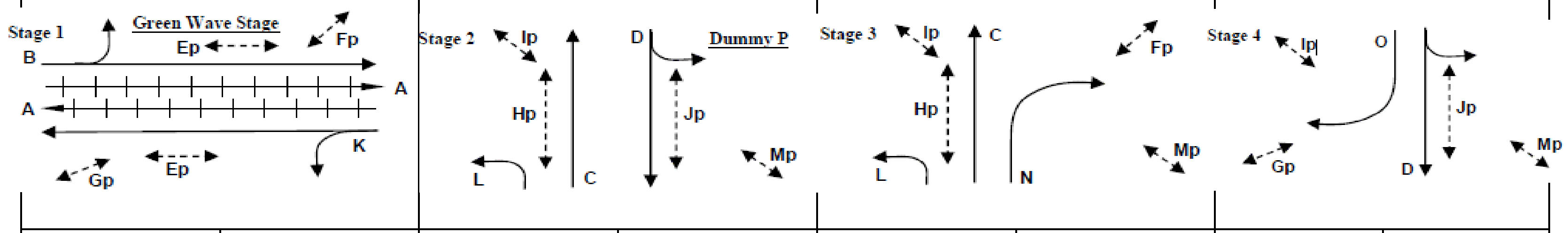
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				39				
A1	1	3.50		1	50		N	1965	249			249	1.00	1908			1908	0.130	0.224		18	31	0.505	37
A2	1	3.50		2				4210		943		943	0.00	4210			4210	0.224			31	31	0.868	70
C1	1	3.30		2				4170		816		816	0.00	4170			4170	0.196			27	31	0.758	61
C2	1	4.30		1	50			2185	34			34	1.00	2121			2121	0.016			2	31	0.063	5
D1	2,3	4.00		1	50		N	2015	432			432	1.00	1956			1956	0.221			31	44	0.605	55
D2	2,3	3.50		1				2105		667		667	0.00	2105			2105	0.317	0.317		44	44	0.868	85
B2	2,4	3.30		2				4170		684		684	0.00	4170			4170	0.164			23	23	0.868	55
B3	2,4	5.00		1	45			2255	247			247	1.00	2182			2182	0.113			16	23	0.599	40
D3	3	3.50		1	15			2105			137	137	1.00	1914			1914	0.072			10	10	0.868	27
B1	4	3.30		1	30		N	1945			17	17	1.00	1852			1852	0.009	0.009	5	1	6	0.172	3

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION	
Site Formation in Long Bin, Yuen Long	PROJECT NO:	
J8 Ma Miu Road/ Castle Peak Road - Ping Shan / Year 2025 Design Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.524
Loss time		L =	44 sec
Total Flow		=	3011 pcu
Co	= (1.5*L+5)/(1-Y)	=	149.2 sec
Cm	= L/(1-Y)	=	92.5 sec
Yult		=	0.570
R.C.ult	= (Yult-Y)/Y*100%	=	8.8 %
Cp	= 0.9*L/(0.9-Y)	=	105.4 sec
Ymax	= 1-L/C	=	0.633
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	8.8 % (Optimized)



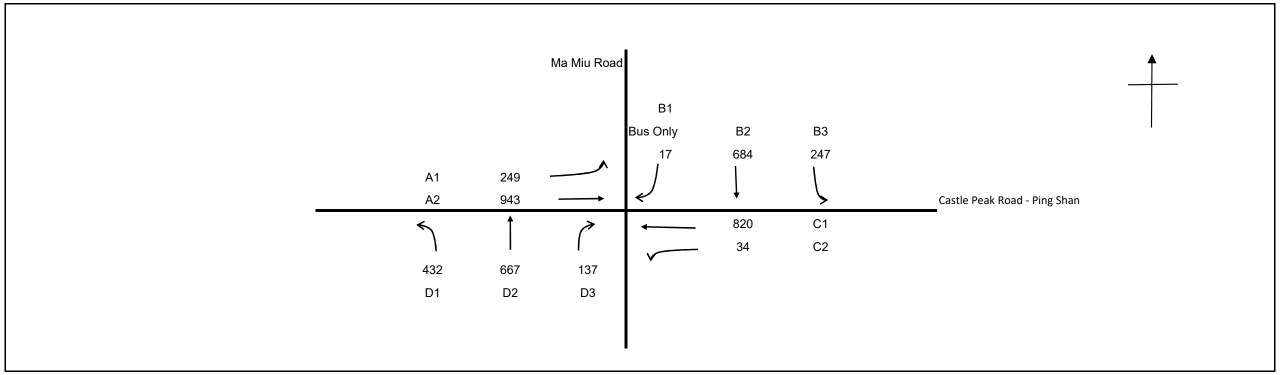
STAGE 1	INT= 17	STAGE 2	INT= 5	STAGE 3	INT= 11	STAGE 4	INT= 9

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	E	12	10	3	9	31	3	9	OK
1,3	F	5.5	5	3	5	58	3	5	OK
1,4	G	6.1	5	3	5	49	3	5	OK
2,3	H	10	8	3	7	52	3	7	OK
2,3,4	I	6.8	5	3	6	51	3	6	OK
2,4	J	10	8	3	7	27	3	7	OK
2,3,4	M	8.5	5	3	7	50	3	7	OK
1	A(LRT)	N/A	10	3	6	35	3	6	OK

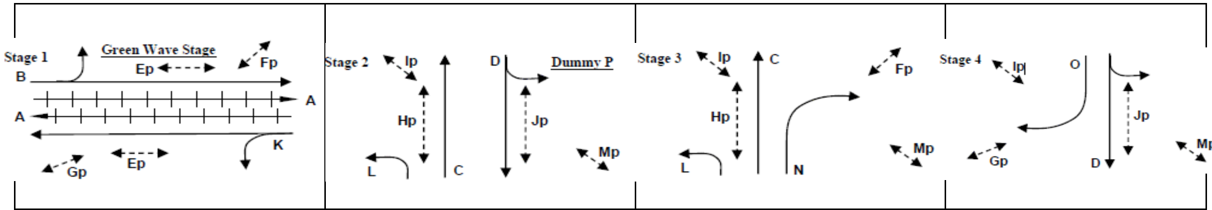
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				39				
A1	1	3.50		1	50		N	1965	234			234	1.00	1908			1908	0.122	0.187		18	27	0.543	36
A2	1	2.90		2				4090		763		763	0.00	4090			4090	0.187			27	27	0.828	59
C1	1	3.30		2				4170		747		747	0.00	4170			4170	0.179			26	27	0.794	58
C2	1	4.30		1	50			2185	34			34	1.00	2121			2121	0.016			2	27	0.071	5
D1	2,3	4.00		1	50		N	2015	436			436	1.00	1956			1956	0.223			32	48	0.561	53
D2	2,3	3.50		1				2105		692		692	0.00	2105			2105	0.329	0.329		48	48	0.828	83
B2	2,4	3.30		2				4170		706		706	0.00	4170			4170	0.169			25	25	0.828	56
B3	2,4	5.00		1	45			2255	204			204	1.00	2182			2182	0.093			14	25	0.457	32
D3	3	3.50		1	15			2105			176	176	1.00	1914			1914	0.092			13	13	0.828	31
B1	4	3.30		1	30		N	1945			17	17	1.00	1852			1852	0.009	0.009	5	1	6	0.170	3

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J8 Ma Miu Road/ Castle Peak Road - Ping Shan	Year 2025 Design Traffic Flows (AM Peak) With Improvements	DATE : 19-May-22	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.454
Loss time		L =	44 sec
Total Flow		=	3037 pcu
Co	= (1.5*L+5)/(1-Y)	=	130.0 sec
Cm	= L/(1-Y)	=	80.6 sec
Yult		=	0.570
R.C.ult	= (Yult-Y)/Y*100%	=	25.6 %
Cp	= 0.9*L/(0.9-Y)	=	88.8 sec
Ymax	= 1-L/C	=	0.633
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	25.6 % (Optimized)



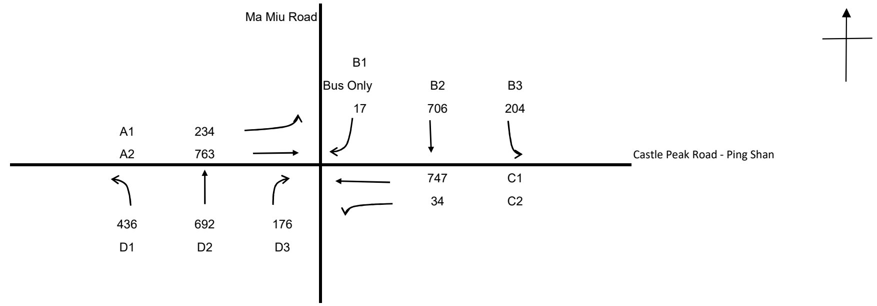
STAGE 1	INT=	17	STAGE 2	INT=	5	STAGE 3	INT=	11	STAGE 4	INT=	9

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
E	12	10	3	9	42	3	9	OK
F	5.5	5	3	5	67	3	5	OK
G	6.1	5	3	5	60	3	5	OK
H	10	8	3	7	41	3	7	OK
I	6.8	5	3	6	52	3	6	OK
J	10	8	3	7	29	3	7	OK
M	8.5	5	3	7	51	3	7	OK
A(LRT)	N/A	10	3	6	46	3	6	OK

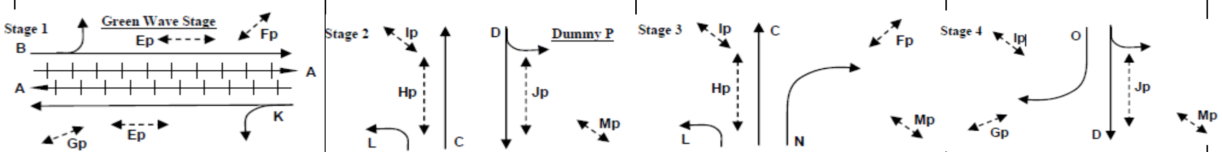
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				39				
A1	1	3.50		1	50		N	1965	249			249	1.00	1908			1908	0.130	0.224		22	38	0.417	34
A2	1	3.50		2				4210		943		943	0.00	4210			4210	0.224			38	38	0.717	65
C1	1	3.30		2				4170		820		820	0.00	4170			4170	0.197			33	38	0.629	56
C2	1	4.30		1	50			2185	34			34	1.00	2121			2121	0.016			3	38	0.052	5
D1	2,3	4.00		1	50		N	2015	432			432	1.00	1956			1956	0.221	0.221		37	37	0.717	60
D2	2,3	3.50		2				4210		667		667	0.00	4210			4210	0.158			27	37	0.514	46
B2	2,4	3.30		2				4170		684		684	0.00	4170			4170	0.164			27	27	0.717	53
B3	2,4	5.00		1	45			2255	247			247	1.00	2182			2182	0.113			19	27	0.494	38
D3	3	3.50		1	15			2105			137	137	1.00	1914			1914	0.072			12	12	0.717	25
B1	4	3.30		1	30		N	1945			17	17	1.00	1852			1852	0.009	0.009	5	1	6	0.165	3

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

OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION	
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J8 Ma Miu Road/ Castle Peak Road - Ping Shan	Year 2025 Design Traffic Flows (PM Peak) With Improvements	DATE : 19-May-22	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.418
Loss time		L =	44 sec
Total Flow		=	3011 pcu
Co	= (1.5*L+5)/(1-Y)	=	122.1 sec
Cm	= L/(1-Y)	=	75.7 sec
Yult		=	0.570
R.C.ult	= (Yult-Y)/Y*100%	=	36.2 %
Cp	= 0.9*L/(0.9-Y)	=	82.2 sec
Ymax	= 1-L/C	=	0.633
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	36.2 % (Optimized)



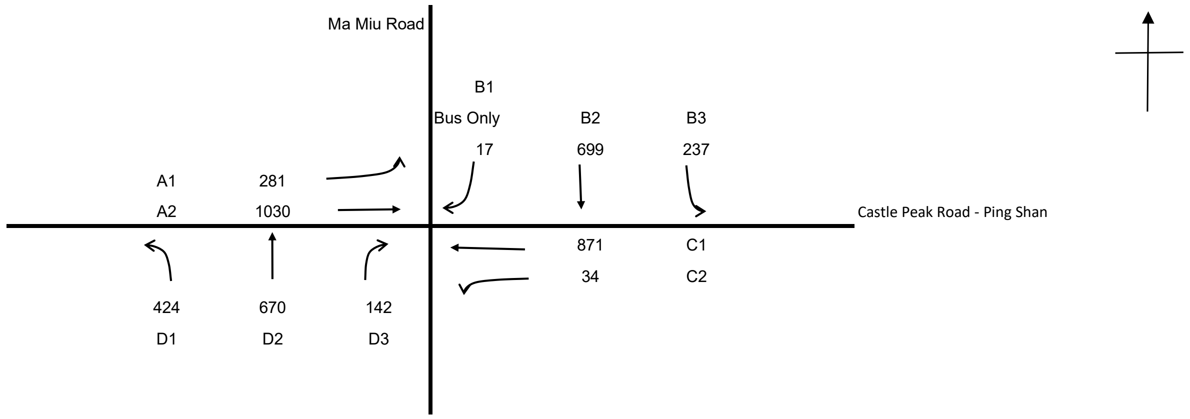
STAGE 1	INT=	17	STAGE 2	INT=	5	STAGE 3	INT=	11	STAGE 4	INT=	9

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
E	12	10	3	9	38	3	9	OK
F	5.5	5	3	5	69	3	5	OK
G	6.1	5	3	5	57	3	5	OK
H	10	8	3	7	44	3	7	OK
I	6.8	5	3	6	60	3	6	OK
J	10	8	3	7	33	3	7	OK
M	8.5	5	3	7	59	3	7	OK
A(LRT)	N/A	10	3	6	42	3	6	OK

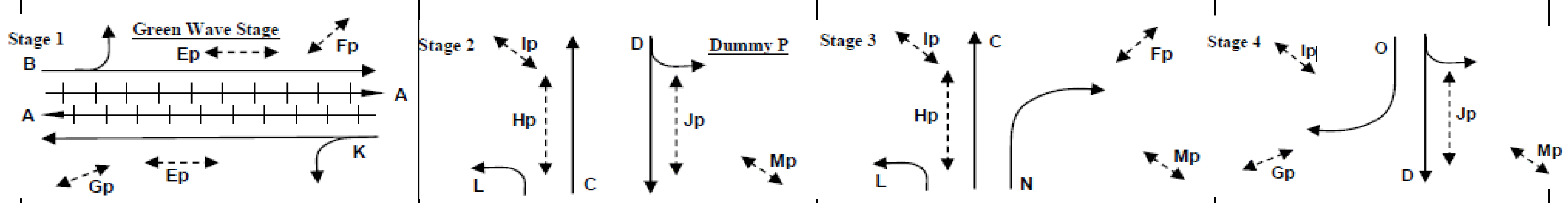
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				39				
A1	1	3.50		1	50		N	1965	234			234	1.00	1908			1908	0.122	0.187		22	34	0.434	34
A2	1	2.90		2				4090		763		763	0.00	4090			4090	0.187			34	34	0.661	55
C1	1	3.30		2				4170		747		747	0.00	4170			4170	0.179			33	34	0.634	54
C2	1	4.30		1	50			2185	34			34	1.00	2121			2121	0.016			3	34	0.057	5
D1	2,3	4.00		1	50		N	2015	436			436	1.00	1956			1956	0.223	0.223		40	40	0.661	58
D2	2,3	3.50		2				4210		692		692	0.00	4210			4210	0.164			30	40	0.487	46
B2	2,4	3.30		2				4170		706		706	0.00	4170			4170	0.169			31	31	0.661	53
B3	2,4	5.00		1	45			2255	204			204	1.00	2182			2182	0.093			17	31	0.365	30
D3	3	3.50		1	15			2105			176	176	1.00	1914			1914	0.092			17	17	0.661	30
B1	4	3.30		1	30		N	1945			17	17	1.00	1852			1852	0.009	0.009	5	2	7	0.162	3

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J8 Ma Miu Road/ Castle Peak Road - Ping Shan	Year 2029 Reference Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.579
Loss time		L =	44 sec
Total Flow		=	3095 pcu
Co	= (1.5*L+5)/(1-Y)	=	168.7 sec
Cm	= L/(1-Y)	=	104.6 sec
Yult		=	0.570
R.C.ult	= (Yult-Y)/Y*100%	=	-1.6 %
Cp	= 0.9*L/(0.9-Y)	=	123.4 sec
Ymax	= 1-L/C	=	0.633
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-1.6 % (Optimized)



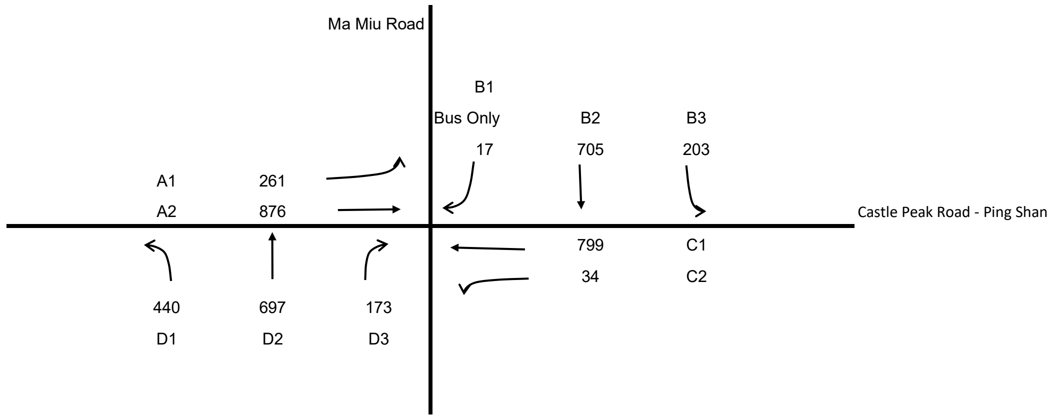
STAGE 1	INT=	17	STAGE 2	INT=	5	STAGE 3	INT=	11	STAGE 4	INT=	9

Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	E	12	10	3	9	37	3	9	OK
1,3	F	5.5	5	3	5	61	3	5	OK
1,4	G	6.1	5	3	5	55	3	5	OK
2,3	H	10	8	3	7	46	3	7	OK
2,3,4	I	6.8	5	3	6	45	3	6	OK
2,4	J	10	8	3	7	24	3	7	OK
2,3,4	M	8.5	5	3	7	44	3	7	OK
1	A(LRT)	N/A	10	3	6	41	3	6	OK

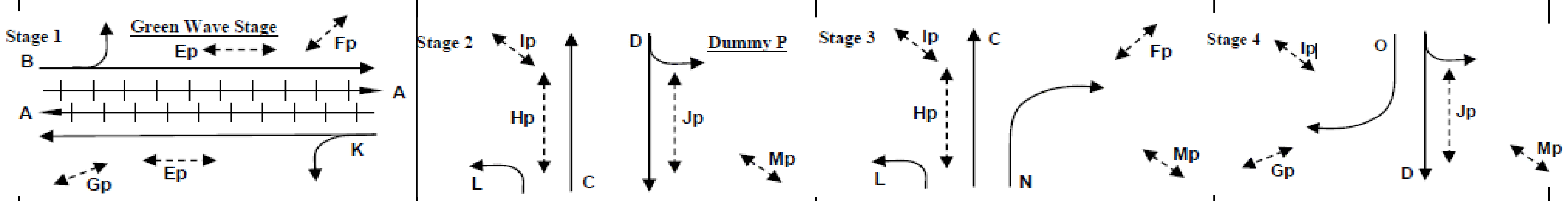
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				39				
A1	1	3.50		1	50		N	1965	281			281	1.00	1908			1908	0.147	0.252		19	33	0.535	41
A2	1	2.90		2				4090		1030		1030	0.00	4090			4090	0.252			33	33	0.914	75
C1	1	3.30		2				4170		871		871	0.00	4170			4170	0.209			27	33	0.759	63
C2	1	4.30		1	50			2185	34			34	1.00	2121			2121	0.016			2	33	0.059	5
D1	2,3	4.00		1	50		N	2015	424			424	1.00	1956			1956	0.217			28	42	0.623	55
D2	2,3	3.50		1				2105		670		670	0.00	2105			2105	0.318	0.318		42	42	0.914	87
B2	2,4	3.30		2				4170		699		699	0.00	4170			4170	0.168			22	22	0.914	57
B3	2,4	5.00		1	45			2255	237			237	1.00	2182			2182	0.108			14	22	0.591	39
D3	3	3.50		1	15			2105			142	142	1.00	1914			1914	0.074			10	10	0.914	40
B1	4	3.30		1	30		N	1945			17	17	1.00	1852			1852	0.009	0.009	5	1	6	0.173	3

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

OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION	
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J8 Ma Miu Road/ Castle Peak Road - Ping Shan	Year 2029 Reference Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4	
No. of stage using for calculation		N =	3	
Cycle time		C =	120	sec
Sum(y)		Y =	0.554	
Loss time		L =	44	sec
Total Flow		=	3066	pcu
Co	= (1.5*L+5)/(1-Y)	=	159.2	sec
Cm	= L/(1-Y)	=	98.7	sec
Yult		=	0.570	
R.C.ult	= (Yult-Y)/Y*100%	=	2.9	%
Cp	= 0.9*L/(0.9-Y)	=	114.5	sec
Ymax	= 1-L/C	=	0.633	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	2.9	% (Optimized)



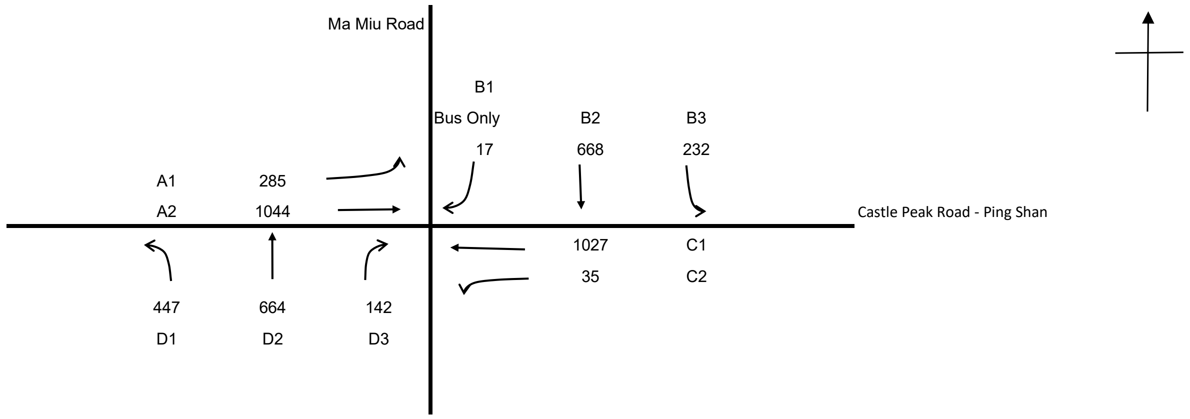
STAGE 1	INT=	17	STAGE 2	INT=	5	STAGE 3	INT=	11	STAGE 4	INT=	9

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	E	12	10	3	9	33	3	9	OK
1,3	F	5.5	5	3	5	60	3	5	OK
1,4	G	6.1	5	3	5	52	3	5	OK
2,3	H	10	8	3	7	49	3	7	OK
2,3,4	I	6.8	5	3	6	49	3	6	OK
2,4	J	10	8	3	7	25	3	7	OK
2,3,4	M	8.5	5	3	7	48	3	7	OK
1	A(LRT)	N/A	10	3	6	37	3	6	OK

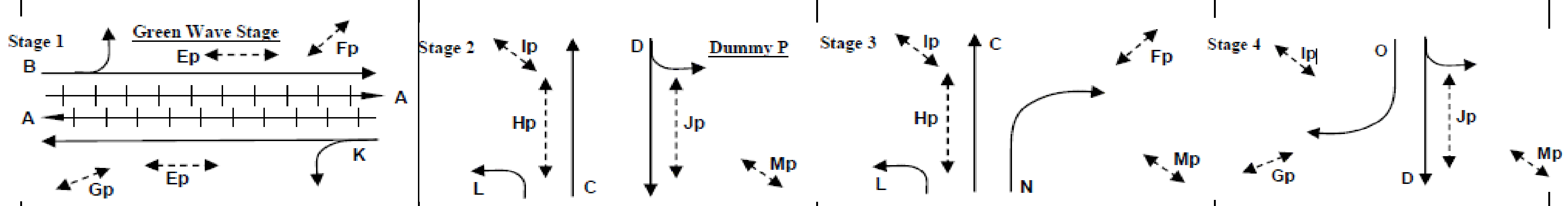
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				39				
A1	1	3.50		1	50		N	1965	261			261	1.00	1908			1908	0.137	0.214		19	29	0.559	39
A2	1	2.90		2				4090		876		876	0.00	4090			4090	0.214			29	29	0.875	66
C1	1	3.30		2				4170		799		799	0.00	4170			4170	0.192			26	29	0.782	60
C2	1	4.30		1	50			2185	34			34	1.00	2121			2121	0.016			2	29	0.065	5
D1	2,3	4.00		1	50		N	2015	440			440	1.00	1956			1956	0.225			31	45	0.595	55
D2	2,3	3.50		1				2105		697		697	0.00	2105			2105	0.331	0.331		45	45	0.875	87
B2	2,4	3.30		2				4170		705		705	0.00	4170			4170	0.169			23	23	0.875	57
B3	2,4	5.00		1	45			2255	203			203	1.00	2182			2182	0.093			13	23	0.480	33
D3	3	3.50		1	15			2105			173	173	1.00	1914			1914	0.090			12	12	0.875	32
B1	4	3.30		1	30		N	1945			17	17	1.00	1852			1852	0.009	0.009	5	1	6	0.172	3

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J8 Ma Miu Road/ Castle Peak Road - Ping Shan	Year 2029 Design Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.573
Loss time		L =	44 sec
Total Flow		=	3232 pcu
Co	= (1.5*L+5)/(1-Y)	=	166.1 sec
Cm	= L/(1-Y)	=	102.9 sec
Yult		=	0.570
R.C.ult	= (Yult-Y)/Y*100%	=	-0.4 %
Cp	= 0.9*L/(0.9-Y)	=	120.9 sec
Ymax	= 1-L/C	=	0.633
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-0.4 % (Optimized)



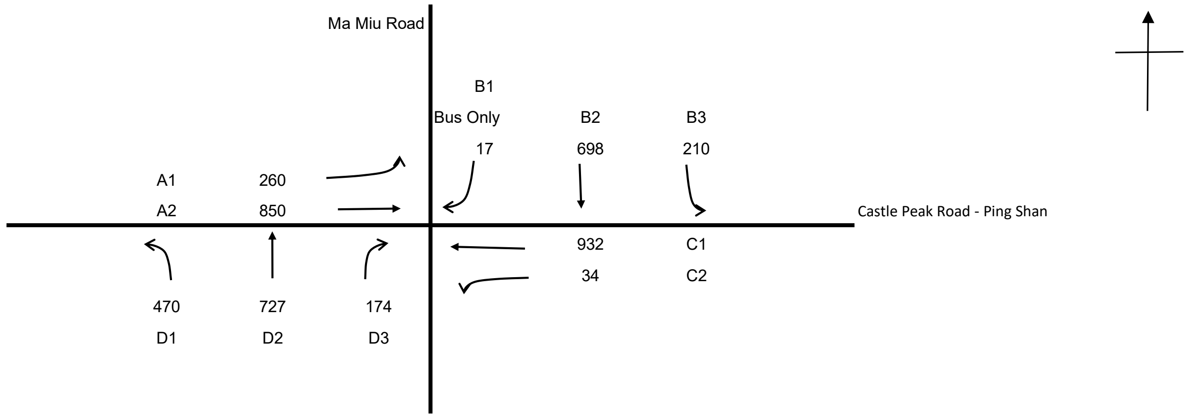
STAGE 1	INT=	17	STAGE 2	INT=	5	STAGE 3	INT=	11	STAGE 4	INT=	9

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	E	12	10	3	9	37	3	9	OK
1,3	F	5.5	5	3	5	61	3	5	OK
1,4	G	6.1	5	3	5	55	3	5	OK
2,3	H	10	8	3	7	46	3	7	OK
2,3,4	I	6.8	5	3	6	44	3	6	OK
2,4	J	10	8	3	7	23	3	7	OK
2,3,4	M	8.5	5	3	7	43	3	7	OK
1	A(LRT)	N/A	10	3	6	41	3	6	OK

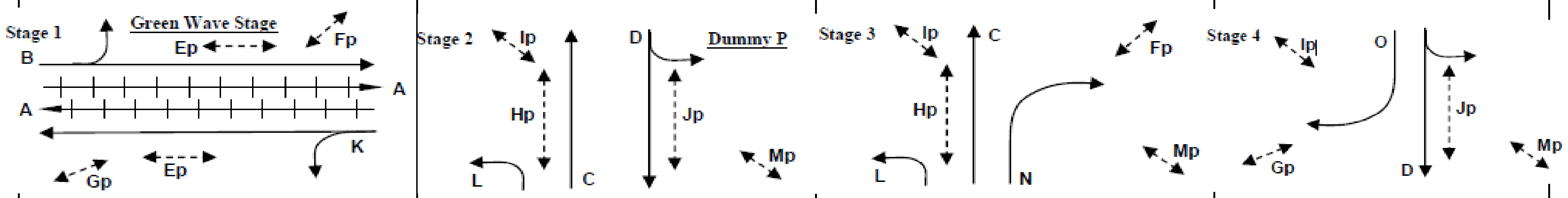
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				39				
A1	1	3.50		1	50		N	1965	285			285	1.00	1908			1908	0.149	0.248		20	33	0.544	41
A2	1	3.50		2				4210		1044		1044	0.00	4210			4210	0.248			33	33	0.904	76
C1	1	3.30		2				4170		1027		1027	0.00	4170			4170	0.246			33	33	0.898	75
C2	1	4.30		1	50			2185	35			35	1.00	2121			2121	0.016			2	33	0.059	5
D1	2,3	4.00		1	50		N	2015	447			447	1.00	1956			1956	0.228			30	42	0.654	58
D2	2,3	3.50		1				2105		664		664	0.00	2105			2105	0.316	0.316		42	42	0.904	86
B2	2,4	3.30		2				4170		668		668	0.00	4170			4170	0.160			21	21	0.904	55
B3	2,4	5.00		1	45			2255	232			232	1.00	2182			2182	0.106			14	21	0.599	38
D3	3	3.50		1	15			2105			142	142	1.00	1914			1914	0.074			10	10	0.904	36
B1	4	3.30		1	30		N	1945			17	17	1.00	1852			1852	0.009	0.009	5	1	6	0.173	3

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J8 Ma Miu Road/ Castle Peak Road - Ping Shan	Year 2029 Design Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.578
Loss time		L =	43 sec
Total Flow		=	3260 pcu
Co	= (1.5*L+5)/(1-Y)	=	164.5 sec
Cm	= L/(1-Y)	=	101.8 sec
Yult		=	0.578
R.C.ult	= (Yult-Y)/Y*100%	=	0.0 %
Cp	= 0.9*L/(0.9-Y)	=	120.0 sec
Ymax	= 1-L/C	=	0.642
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	0.0 % (Optimized)



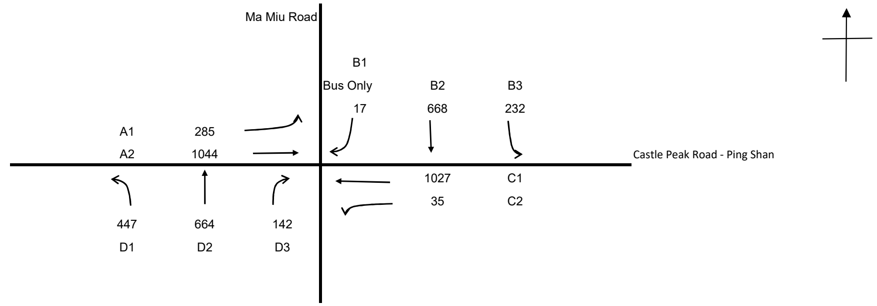
STAGE 1	INT= 17	STAGE 2	INT= 5	STAGE 3	INT= 11	STAGE 4	INT= 9

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	E	12	10	3	9	34	3	9	OK
1,3	F	5.5	5	3	5	60	3	5	OK
1,4	G	6.1	5	3	5	51	3	5	OK
2,3	H	10	8	3	7	50	3	7	OK
2,3,4	I	6.8	5	3	6	47	3	6	OK
2,4	J	10	8	3	7	24	3	7	OK
2,3,4	M	8.5	5	3	7	46	3	7	OK
1	A(LRT)	N/A	10	3	6	38	3	6	OK

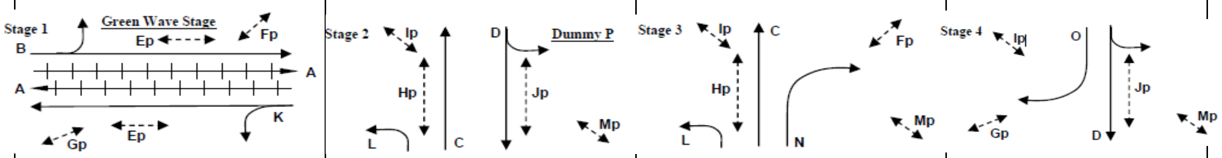
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				39				
A1	1	3.50		1	50		N	1965	260			260	1.00	1908			1908	0.136	0.223		18	30	0.549	39
A2	1	2.90		2				4090		850		850	0.00	4090			4090	0.208			28	30	0.837	64
C1	1	3.30		2				4170		932		932	0.00	4170			4170	0.223			30	30	0.900	70
C2	1	4.30		1	50			2185	34			34	1.00	2121			2121	0.016			2	30	0.065	5
D1	2,3	4.00		1	50		N	2015	470			470	1.00	1956			1956	0.240			32	46	0.626	58
D2	2,3	3.50		1				2105		727		727	0.00	2105			2105	0.345	0.345		46	46	0.900	90
B2	2,4	3.30		2				4170		698		698	0.00	4170			4170	0.167			22	22	0.900	57
B3	2,4	5.00		1	45			2255	210			210	1.00	2182			2182	0.096			13	22	0.516	34
D3	3	3.50		1	15			2105			174	174	1.00	1914			1914	0.091			12	12	0.900	38
B1	4	3.30		1	30		N	1945			17	17	1.00	1852			1852	0.009	0.009	5	1	6	0.188	3

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

OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION	
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J8 Ma Miu Road/ Castle Peak Road - Ping Shan	Year 2029 Design Traffic Flows (AM Peak) With Improvements	DATE : 19-May-22	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.485
Loss time		L =	44 sec
Total Flow		=	3232 pcu
Co	= (1.5*L+5)/(1-Y)	=	138.0 sec
Cm	= L/(1-Y)	=	85.5 sec
Yult		=	0.570
R.C.ult	= (Yult-Y)/Y*100%	=	17.4 %
Cp	= 0.9*L/(0.9-Y)	=	95.5 sec
Ymax	= 1-L/C	=	0.633
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	17.4 % (Optimized)



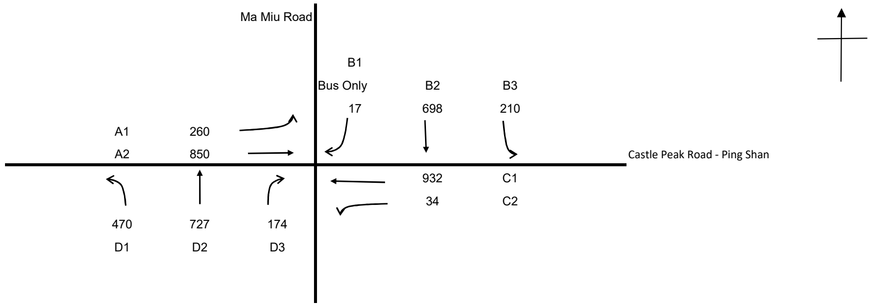
STAGE 1	INT= 17	STAGE 2	INT= 5	STAGE 3	INT= 11	STAGE 4	INT= 9

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
E	12	10	3	9	43	3	9	OK
F	5.5	5	3	5	68	3	5	OK
G	6.1	5	3	5	61	3	5	OK
H	10	8	3	7	40	3	7	OK
I	6.8	5	3	6	50	3	6	OK
J	10	8	3	7	27	3	7	OK
M	8.5	5	3	7	49	3	7	OK
A(LRT)	N/A	10	3	6	47	3	6	OK

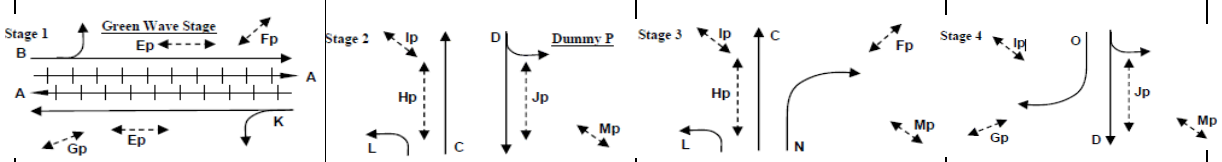
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				39				
A1	1	3.50		1	50		N	1965	285			285	1.00	1908			1908	0.149	0.248		23	39	0.461	38
A2	1	3.50		2				4210		1044		1044	0.00	4210			4210	0.248			39	39	0.766	71
C1	1	3.30		2				4170		1027		1027	0.00	4170			4170	0.246			39	39	0.761	69
C2	1	4.30		1	50			2185	35			35	1.00	2121			2121	0.016			3	39	0.050	5
D1	2,3	4.00		1	50		N	2015	447			447	1.00	1956			1956	0.228	0.228		36	36	0.766	63
D2	2,3	3.50		2				4210		664		664	0.00	4210			4210	0.158			25	36	0.529	47
B2	2,4	3.30		2				4170		668		668	0.00	4170			4170	0.160			25	25	0.766	53
B3	2,4	5.00		1	45			2255	232			232	1.00	2182			2182	0.106			17	25	0.508	37
D3	3	3.50		1	15			2105			142	142	1.00	1914			1914	0.074			12	12	0.766	26
B1	4	3.30		1	30		N	1945			17	17	1.00	1852			1852	0.009	0.009	5	1	6	0.167	3

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J8 Ma Miu Road/ Castle Peak Road - Ping Shan	Year 2029 Design Traffic Flows (PM Peak) With Improvements	DATE : 19-May-22	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		=	3260 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)/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)/Y*100%	=	22.3 % (Optimized)



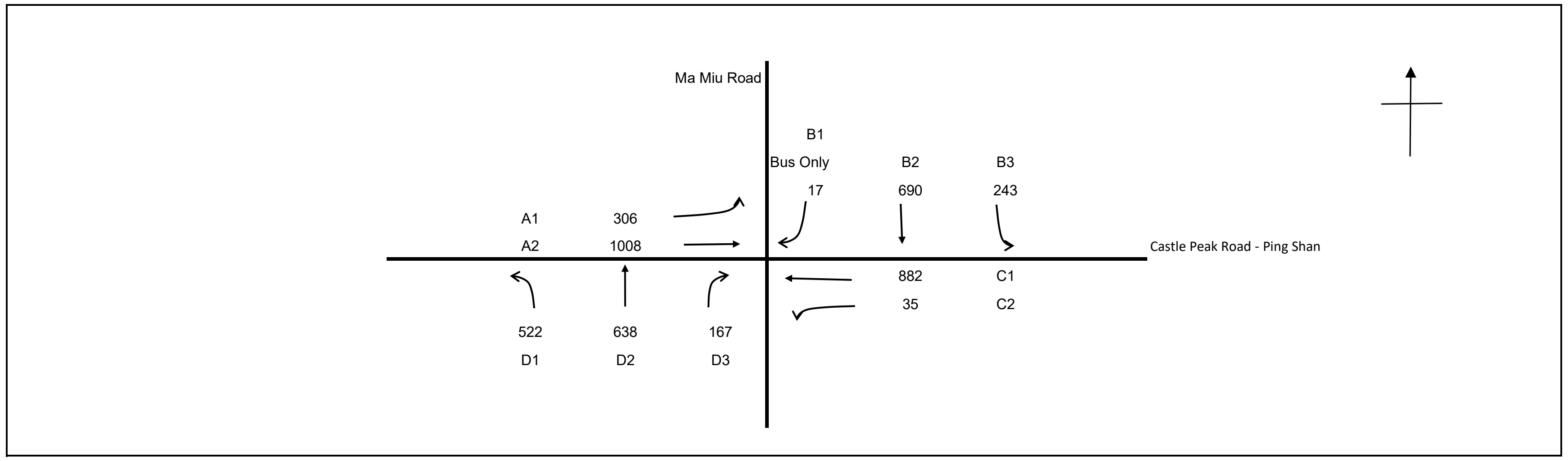
STAGE 1	INT=	17	STAGE 2	INT=	5	STAGE 3	INT=	11	STAGE 4	INT=	9

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
E	12	10	3	9	40	3	9	OK
F	5.5	5	3	5	69	3	5	OK
G	6.1	5	3	5	58	3	5	OK
H	10	8	3	7	43	3	7	OK
I	6.8	5	3	6	55	3	6	OK
J	10	8	3	7	29	3	7	OK
M	8.5	5	3	7	54	3	7	OK
A(LRT)	N/A	10	3	6	44	3	6	OK

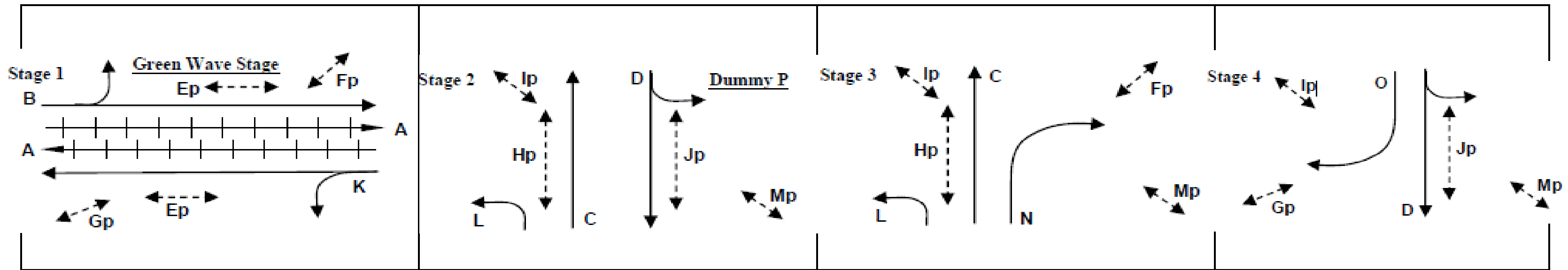
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				39				
A1	1	3.50		1	50		N	1965	260			260	1.00	1908			1908	0.136	0.223		22	36	0.449	36
A2	1	2.90		2				4090		850		850	0.00	4090			4090	0.208			34	36	0.685	59
C1	1	3.30		2				4170		932		932	0.00	4170			4170	0.223			36	36	0.736	65
C2	1	4.30		1	50			2185	34			34	1.00	2121			2121	0.016			3	36	0.053	5
D1	2,3	4.00		1	50		N	2015	470			470	1.00	1956			1956	0.240	0.240		39	39	0.736	63
D2	2,3	3.50		2				4210		727		727	0.00	4210			4210	0.173			28	39	0.529	49
B2	2,4	3.30		2				4170		698		698	0.00	4170			4170	0.167			27	27	0.736	54
B3	2,4	5.00		1	45			2255	210			210	1.00	2182			2182	0.096			16	27	0.422	32
D3	3	3.50		1	15			2105			174	174	1.00	1914			1914	0.091			15	15	0.736	31
B1	4	3.30		1	30		N	1945			17	17	1.00	1852			1852	0.009	0.009	5	1	6	0.180	3

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

OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION	
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J8 Ma Miu Road/ Castle Peak Road - Ping Shan	Year 2034 Reference Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.559
Loss time		L =	44 sec
Total Flow		=	3195 pcu
Co	= (1.5*L+5)/(1-Y)	=	160.9 sec
Cm	= L/(1-Y)	=	99.7 sec
Yult		=	0.570
R.C.ult	= (Yult-Y)/Y*100%	=	2.0 %
Cp	= 0.9*L/(0.9-Y)	=	116.0 sec
Ymax	= 1-L/C	=	0.633
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	2.0 % (Optimized)



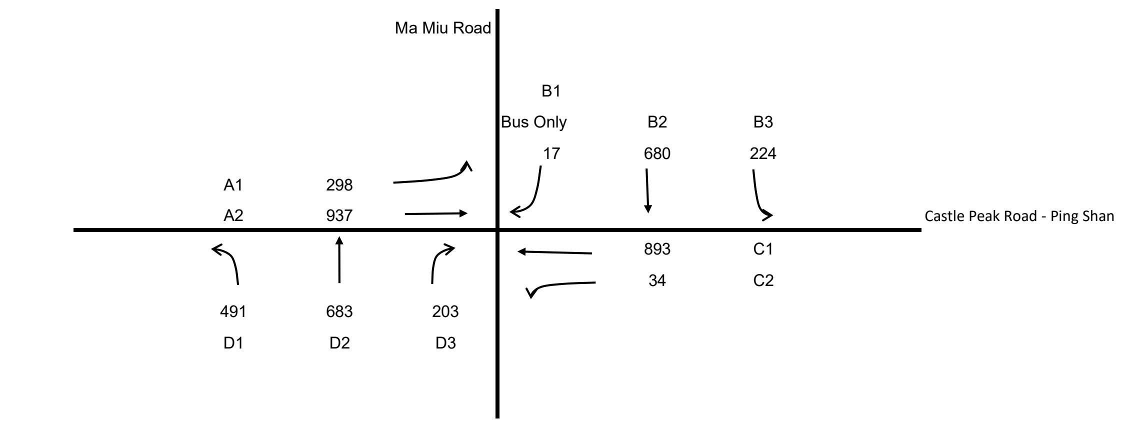
STAGE 1	INT= 17	STAGE 2	INT= 5	STAGE 3	INT= 11	STAGE 4	INT= 9

Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	E	12	10	3	9	38	3	9	OK
1,3	F	5.5	5	3	5	63	3	5	OK
1,4	G	6.1	5	3	5	56	3	5	OK
2,3	H	10	8	3	7	45	3	7	OK
2,3,4	I	6.8	5	3	6	47	3	6	OK
2,4	J	10	8	3	7	25	3	7	OK
2,3,4	M	8.5	5	3	7	46	3	7	OK
1	A(LRT)	N/A	10	3	6	42	3	6	OK

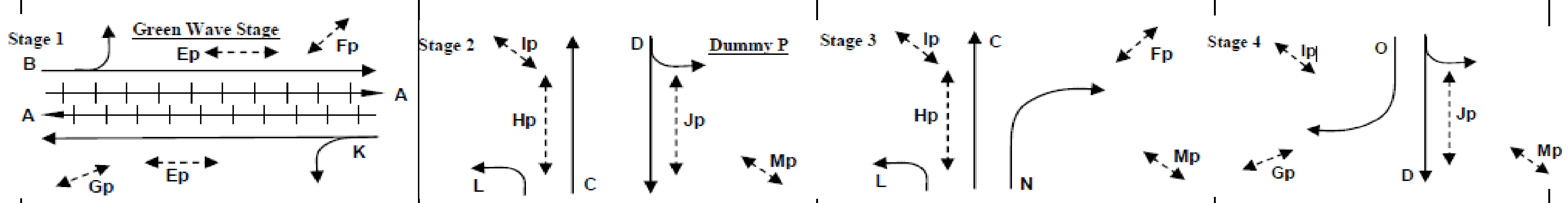
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				39				
A1	1	3.50		1	50		N	1965	306			306	1.00	1908			1908	0.160	0.246		22	34	0.574	44
A2	1	2.90		2				4090		1008		1008	0.00	4090			4090	0.246			34	34	0.882	73
C1	1	3.30		2				4170		882		882	0.00	4170			4170	0.211			29	34	0.757	64
C2	1	4.30		1	50			2185	35			35	1.00	2121			2121	0.017			2	34	0.059	5
D1	2,3	4.00		1	50		N	2015	522			522	1.00	1956			1956	0.267			36	41	0.776	69
D2	2,3	3.50		1				2105		638		638	0.00	2105			2105	0.303	0.303		41	41	0.882	84
B2	2,4	3.30		2				4170		690		690	0.00	4170			4170	0.166			23	23	0.882	56
B3	2,4	5.00		1	45			2255	243			243	1.00	2182			2182	0.112			15	23	0.594	40
D3	3	3.50		1	15			2105			167	167	1.00	1914			1914	0.087			12	12	0.882	32
B1	4	3.30		1	30		N	1945			17	17	1.00	1852			1852	0.009	0.009	5	1	6	0.172	3

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J8 Ma Miu Road/ Castle Peak Road - Ping Shan	Year 2034 Reference Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4	
No. of stage using for calculation		N =	3	
Cycle time		C =	120	sec
Sum(y)		Y =	0.562	
Loss time		L =	44	sec
Total Flow		=	3225	pcu
Co	= (1.5*L+5)/(1-Y)	=	162.3	sec
Cm	= L/(1-Y)	=	100.6	sec
Yult		=	0.570	
R.C.ult	= (Yult-Y)/Y*100%	=	1.3	%
Cp	= 0.9*L/(0.9-Y)	=	117.3	sec
Ymax	= 1-L/C	=	0.633	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	1.3	% (Optimized)



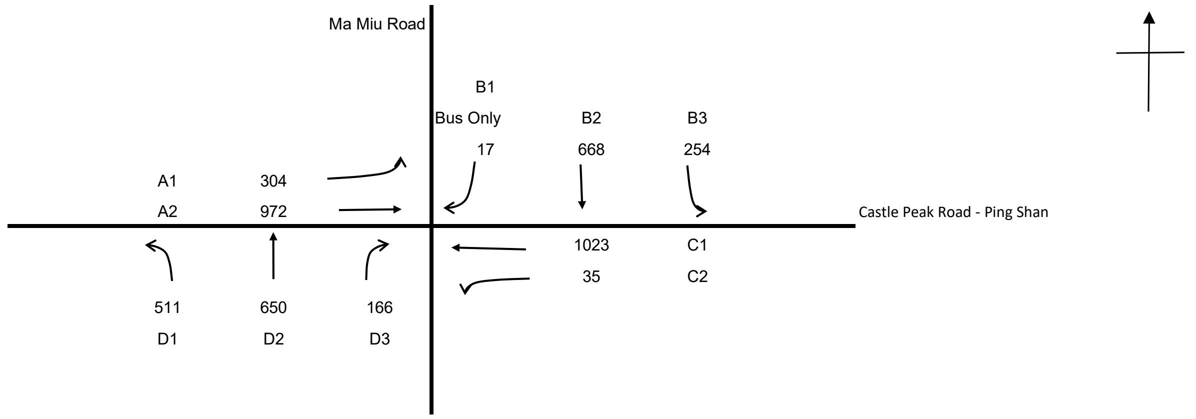
STAGE 1	INT=	17	STAGE 2	INT=	5	STAGE 3	INT=	11	STAGE 4	INT=	9

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	E	12	10	3	9	35	3	9	OK
1,3	F	5.5	5	3	5	63	3	5	OK
1,4	G	6.1	5	3	5	53	3	5	OK
2,3	H	10	8	3	7	48	3	7	OK
2,3,4	I	6.8	5	3	6	49	3	6	OK
2,4	J	10	8	3	7	24	3	7	OK
2,3,4	M	8.5	5	3	7	48	3	7	OK
1	A(LRT)	N/A	10	3	6	39	3	6	OK

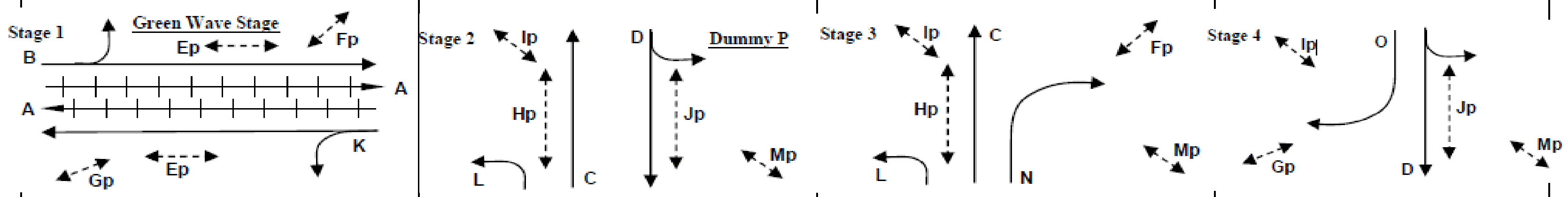
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				39				
A1	1	3.50		1	50		N	1965	298			298	1.00	1908			1908	0.156	0.229		21	31	0.605	44
A2	1	2.90		2				4090		937		937	0.00	4090			4090	0.229			31	31	0.888	70
C1	1	3.30		2				4170		893		893	0.00	4170			4170	0.214			29	31	0.830	66
C2	1	4.30		1	50			2185	34			34	1.00	2121			2121	0.016			2	31	0.062	5
D1	2,3	4.00		1	50		N	2015	491			491	1.00	1956			1956	0.251			34	44	0.688	62
D2	2,3	3.50		1				2105		683		683	0.00	2105			2105	0.324	0.324		44	44	0.888	87
B2	2,4	3.30		2				4170		680		680	0.00	4170			4170	0.163			22	22	0.888	56
B3	2,4	5.00		1	45			2255	224			224	1.00	2182			2182	0.103			14	22	0.559	37
D3	3	3.50		1	15			2105			203	203	1.00	1914			1914	0.106			14	14	0.888	37
B1	4	3.30		1	30		N	1945			17	17	1.00	1852			1852	0.009	0.009	5	1	6	0.172	3

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION	
Site Formation in Long Bin, Yuen Long	PROJECT NO:	
J8 Ma Miu Road/ Castle Peak Road - Ping Shan / Year 2034 Design Traffic Flows (AM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.563
Loss time		L =	44 sec
Total Flow		=	3323 pcu
Co	= (1.5*L+5)/(1-Y)	=	162.5 sec
Cm	= L/(1-Y)	=	100.7 sec
Yult		=	0.570
R.C.ult	= (Yult-Y)/Y*100%	=	1.2 %
Cp	= 0.9*L/(0.9-Y)	=	117.5 sec
Ymax	= 1-L/C	=	0.633
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	1.2 % (Optimized)



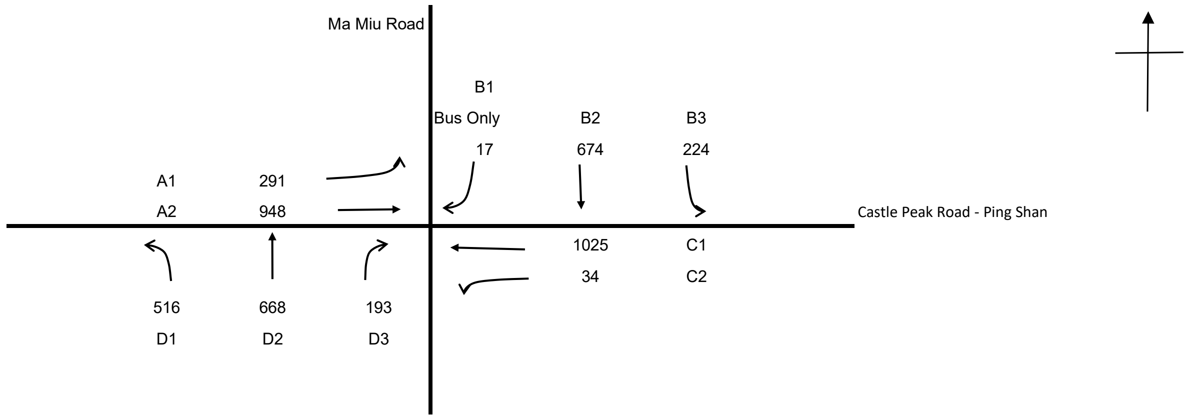
STAGE 1	INT= 17	STAGE 2	INT= 5	STAGE 3	INT= 11	STAGE 4	INT= 9

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	E	12	10	3	9	37	3	9	OK
1,3	F	5.5	5	3	5	63	3	5	OK
1,4	G	6.1	5	3	5	55	3	5	OK
2,3	H	10	8	3	7	46	3	7	OK
2,3,4	I	6.8	5	3	6	46	3	6	OK
2,4	J	10	8	3	7	24	3	7	OK
2,3,4	M	8.5	5	3	7	45	3	7	OK
1	A(LRT)	N/A	10	3	6	41	3	6	OK

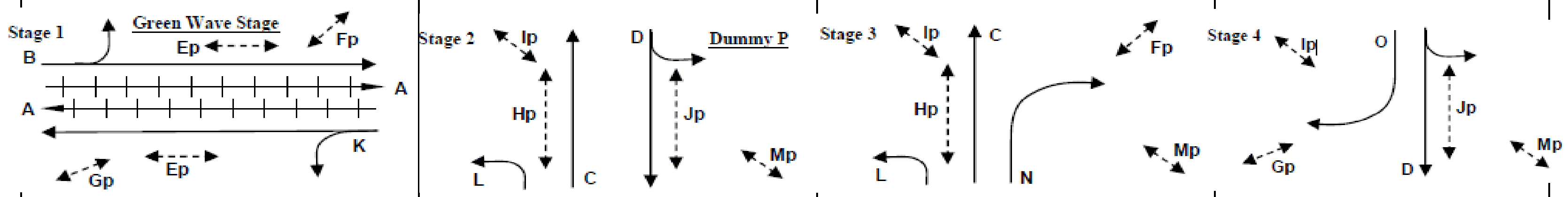
Movement	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				39				
A1	1	3.50		1	50		N	1965	304			304	1.00	1908			1908	0.159	0.245		22	33	0.578	44
A2	1	3.50		2				4210		972		972	0.00	4210			4210	0.231			31	33	0.837	70
C1	1	3.30		2				4170		1023		1023	0.00	4170			4170	0.245			33	33	0.889	74
C2	1	4.30		1	50			2185	35			35	1.00	2121			2121	0.017			2	33	0.060	5
D1	2,3	4.00		1	50		N	2015	511			511	1.00	1956			1956	0.261			35	42	0.751	67
D2	2,3	3.50		1				2105		650		650	0.00	2105			2105	0.309	0.309		42	42	0.889	85
B2	2,4	3.30		2				4170		668		668	0.00	4170			4170	0.160			22	22	0.889	55
B3	2,4	5.00		1	45			2255	254			254	1.00	2182			2182	0.116			16	22	0.647	42
D3	3	3.50		1	15			2105			166	166	1.00	1914			1914	0.087			12	12	0.889	34
B1	4	3.30		1	30		N	1945			17	17	1.00	1852			1852	0.009	0.009	5	1	6	0.172	3

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

OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION	
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J8 Ma Miu Road/ Castle Peak Road - Ping Shan	Year 2034 Design Traffic Flows (PM Peak)	DATE : 30-Jun-21	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.572
Loss time		L =	44 sec
Total Flow		=	3351 pcu
Co	= (1.5*L+5)/(1-Y)	=	165.9 sec
Cm	= L/(1-Y)	=	102.8 sec
Yult		=	0.570
R.C.ult	= (Yult-Y)/Y*100%	=	-0.3 %
Cp	= 0.9*L/(0.9-Y)	=	120.7 sec
Ymax	= 1-L/C	=	0.633
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	-0.3 % (Optimized)



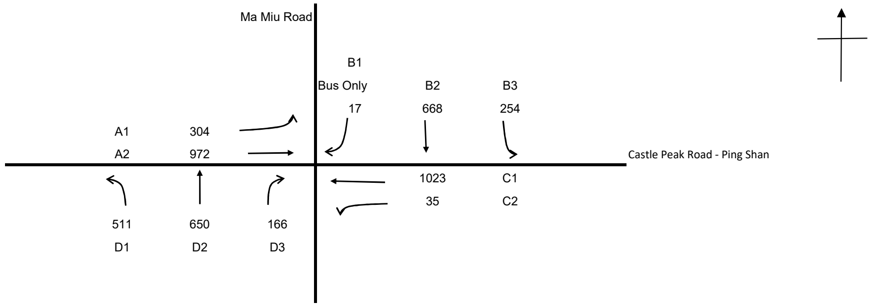
STAGE 1	INT=	17	STAGE 2	INT=	5	STAGE 3	INT=	11	STAGE 4	INT=	9

	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	E	12	10	3	9	37	3	9	OK
1,3	F	5.5	5	3	5	64	3	5	OK
1,4	G	6.1	5	3	5	55	3	5	OK
2,3	H	10	8	3	7	46	3	7	OK
2,3,4	I	6.8	5	3	6	48	3	6	OK
2,4	J	10	8	3	7	23	3	7	OK
2,3,4	M	8.5	5	3	7	47	3	7	OK
1	A(LRT)	N/A	10	3	6	41	3	6	OK

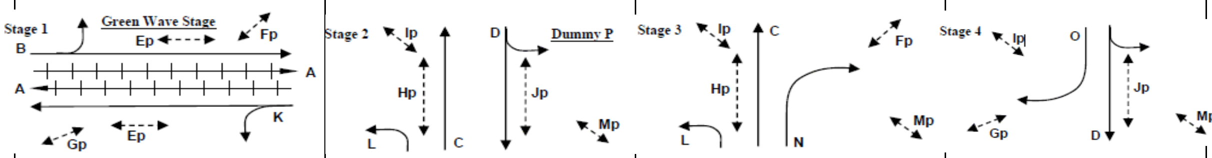
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				39				
A1	1	3.50		1	50		N	1965	291			291	1.00	1908			1908	0.152	0.246		20	33	0.559	42
A2	1	2.90		2				4090		948		948	0.00	4090			4090	0.232			31	33	0.852	69
C1	1	3.30		2				4170		1025		1025	0.00	4170			4170	0.246			33	33	0.903	75
C2	1	4.30		1	50			2185	34			34	1.00	2121			2121	0.016			2	33	0.059	5
D1	2,3	4.00		1	50		N	2015	516			516	1.00	1956			1956	0.264			35	42	0.752	67
D2	2,3	3.50		1				2105		668		668	0.00	2105			2105	0.317	0.317		42	42	0.903	87
B2	2,4	3.30		2				4170		674		674	0.00	4170			4170	0.162			21	21	0.903	55
B3	2,4	5.00		1	45			2255	224			224	1.00	2182			2182	0.103			14	21	0.573	37
D3	3	3.50		1	15			2105			193	193	1.00	1914			1914	0.101			13	13	0.903	41
B1	4	3.30		1	30		N	1945			17	17	1.00	1852			1852	0.009	0.009	5	1	6	0.173	3

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J8 Ma Miu Road/ Castle Peak Road - Ping Shan	Year 2034 Design Traffic Flows (AM Peak) With Improvements	DATE : 19-May-22	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.515
Loss time		L =	44 sec
Total Flow		=	3323 pcu
Co	= (1.5*L+5)/(1-Y)	=	146.5 sec
Cm	= L/(1-Y)	=	90.8 sec
Yult		=	0.570
R.C.ult	= (Yult-Y)/Y*100%	=	10.6 %
Cp	= 0.9*L/(0.9-Y)	=	102.9 sec
Ymax	= 1-L/C	=	0.633
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	10.6 % (Optimized)



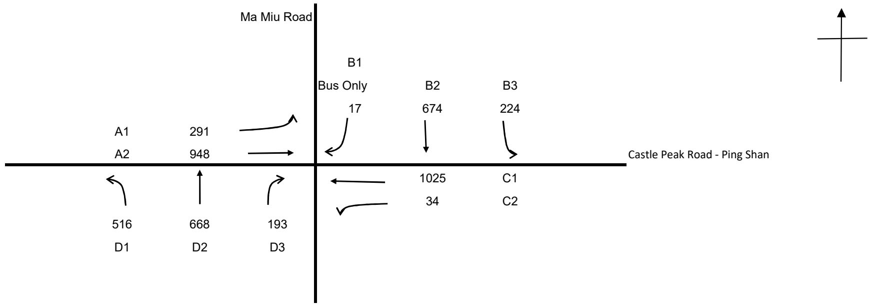
STAGE 1	INT=	17	STAGE 2	INT=	5	STAGE 3	INT=	11	STAGE 4	INT=	9

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
E	12	10	3	9	40	3	9	OK
F	5.5	5	3	5	67	3	5	OK
G	6.1	5	3	5	59	3	5	OK
H	10	8	3	7	42	3	7	OK
I	6.8	5	3	6	49	3	6	OK
J	10	8	3	7	26	3	7	OK
M	8.5	5	3	7	48	3	7	OK
A(LRT)	N/A	10	3	6	44	3	6	OK

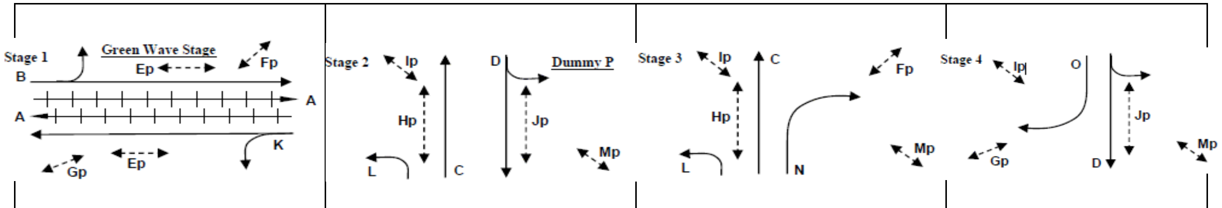
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				39				
A1	1	3.50		1	50		N	1965	304			304	1.00	1908			1908	0.159	0.245		24	36	0.529	42
A2	1	3.50		2				4210		972		972	0.00	4210			4210	0.231			34	36	0.766	68
C1	1	3.30		2				4170		1023		1023	0.00	4170			4170	0.245			36	36	0.814	71
C2	1	4.30		1	50			2185	35			35	1.00	2121			2121	0.017			2	36	0.055	5
D1	2,3	4.00		1	50		N	2015	511			511	1.00	1956			1956	0.261	0.261		38	38	0.814	69
D2	2,3	3.50		2				4210		650		650	0.00	4210			4210	0.154			23	38	0.481	44
B2	2,4	3.30		2				4170		668		668	0.00	4170			4170	0.160			24	24	0.814	54
B3	2,4	5.00		1	45			2255	254			254	1.00	2182			2182	0.116			17	24	0.592	41
D3	3	3.50		1	15			2105			166	166	1.00	1914			1914	0.087			13	13	0.814	30
B1	4	3.30		1	30		N	1945			17	17	1.00	1852			1852	0.009	0.009	5	1	6	0.169	3

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

OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION	
Site Formation in Long Bin, Yuen Long		PROJECT NO:	
J8 Ma Miu Road/ Castle Peak Road - Ping Shan	Year 2034 Design Traffic Flows (PM Peak) With Improvements	DATE : 19-May-22	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.519
Loss time		L =	44 sec
Total Flow		=	3351 pcu
Co	= (1.5*L+5)/(1-Y)	=	147.5 sec
Cm	= L/(1-Y)	=	91.4 sec
Yult		=	0.570
R.C.ult	= (Yult-Y)/Y*100%	=	9.9 %
Cp	= 0.9*L/(0.9-Y)	=	103.9 sec
Ymax	= 1-L/C	=	0.633
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	9.9 % (Optimized)



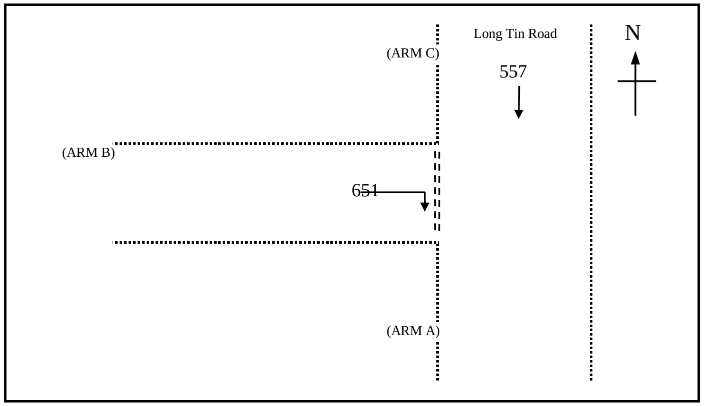
STAGE 1	INT=	17	STAGE 2	INT=	5	STAGE 3	INT=	11	STAGE 4	INT=	9

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
E	12	10	3	9	40	3	9	OK
F	5.5	5	3	5	69	3	5	OK
G	6.1	5	3	5	58	3	5	OK
H	10	8	3	7	43	3	7	OK
I	6.8	5	3	6	51	3	6	OK
J	10	8	3	7	26	3	7	OK
M	8.5	5	3	7	50	3	7	OK
A(LRT)	N/A	10	3	6	44	3	6	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	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.
																				39				
A1	1	3.50		1	50		N	1965	291			291	1.00	1908			1908	0.152	0.246		22	36	0.507	41
A2	1	2.90		2				4090		948		948	0.00	4090			4090	0.232			34	36	0.772	66
C1	1	3.30		2				4170		1025		1025	0.00	4170			4170	0.246			36	36	0.819	72
C2	1	4.30		1	50			2185	34			34	1.00	2121			2121	0.016			2	36	0.053	5
D1	2,3	4.00		1	50		N	2015	516			516	1.00	1956			1956	0.264	0.264		39	39	0.819	70
D2	2,3	3.50		2				4210		668		668	0.00	4210			4210	0.159			23	39	0.492	45
B2	2,4	3.30		2				4170		674		674	0.00	4170			4170	0.162			24	24	0.819	54
B3	2,4	5.00		1	45			2255	224			224	1.00	2182			2182	0.103			15	24	0.520	36
D3	3	3.50		1	15			2105			193	193	1.00	1914			1914	0.101			15	15	0.819	34
B1	4	3.30		1	30		N	1945			17	17	1.00	1852			1852	0.009	0.009	5	1	6	0.170	3

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

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
Year 2018 Observed Traffic Flows (AM Peak)		PROJECT NO: 247100	DESIGNED BY:
J9 Slip Road to Long Tin Road (SB)/ U-turn from slip road of Long Tin Road (WB)		DATE : 30/06/21	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)
Vl 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	=	6.50	(metres)
W cr	=	0	(metres)
q a-b	=	0	(pcu/hr)
q a-c	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.50	(metres)
Vr c-b	=	0	(metres)
q c-a	=	557	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	6.00	(metres)
W b-c	=	0.00	(metres)
Vl b-a	=	20	(metres)
Vr b-a	=	30	(metres)
Vr b-c	=	47	(metres)
q b-a	=	651	(pcu/hr)
q b-c	=	0	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.034
E	=	0.614
F	=	1.047
Y	=	0.776

THE CAPACITY OF MOVEMENT :

Q b-a	=	546
Q b-c	=	457
Q c-b	=	780
Q b-ac	=	546

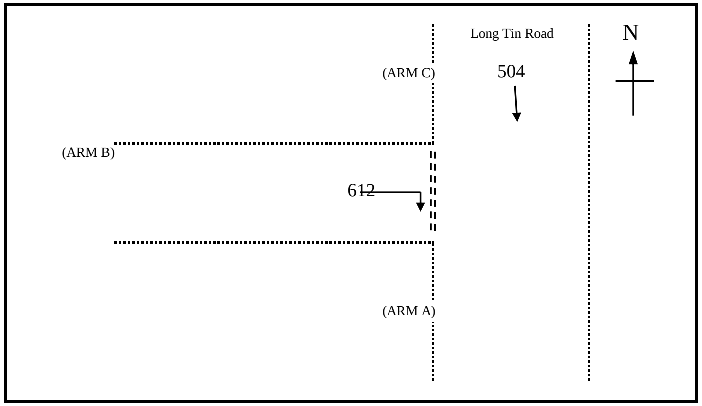
TOTAL FLOW = 1207.4 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	1.1919
DFC b-c	=	0.0000
DFC c-b	=	0.0000
DFC b-ac	=	1.1919

CRITICAL DFC = 1.192

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
Year 2018 Observed Traffic Flows (PM Peak)		PROJECT NO: 247100	DESIGNED BY:
J9 Slip Road to Long Tin Road (SB)/ U-turn from slip road of Long Tin Road (WB)		DATE : 30/06/21	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)
Vl 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	=	6.50	(metres)
W cr	=	0	(metres)
q a-b	=	0	(pcu/hr)
q a-c	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.50	(metres)
Vr c-b	=	0	(metres)
q c-a	=	504	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	6.00	(metres)
W b-c	=	0.00	(metres)
Vl b-a	=	20	(metres)
Vr b-a	=	30	(metres)
Vr b-c	=	47	(metres)
q b-a	=	612	(pcu/hr)
q b-c	=	0	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.034
E	=	0.614
F	=	1.047
Y	=	0.776

THE CAPACITY OF MOVEMENT :

Q b-a	=	556
Q b-c	=	457
Q c-b	=	780
Q b-ac	=	556

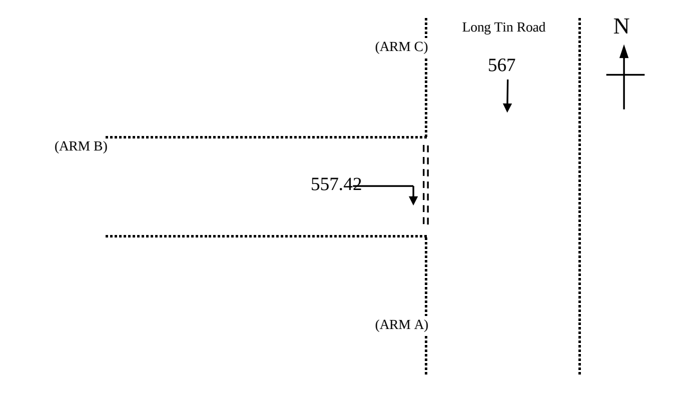
TOTAL FLOW = 1116.1 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	1.1013
DFC b-c	=	0.0000
DFC c-b	=	0.0000
DFC b-ac	=	1.1013

CRITICAL DFC = 1.101

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
Year 2025 Reference Traffic Flows (AM Peak)	PROJECT NO: 247100	DESIGNED BY:	
J9 Slip Road to Long Tin Road (SB)/ U-turn from slip road of Long Tin Road (WB)	DATE : 30/06/21	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)
Vl 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	=	6.50	(metres)
W cr	=	0	(metres)
q a-b	=	0	(pcu/hr)
q a-c	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.50	(metres)
Vr c-b	=	0	(metres)
q c-a	=	567	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	6.00	(metres)
W b-c	=	0.00	(metres)
Vl b-a	=	20	(metres)
Vr b-a	=	30	(metres)
Vr b-c	=	47	(metres)
q b-a	=	557	(pcu/hr)
q b-c	=	0	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.034
E	=	0.614
F	=	1.047
Y	=	0.776

THE CAPACITY OF MOVEMENT :

Q b-a	=	544
Q b-c	=	457
Q c-b	=	780
Q b-ac	=	544

TOTAL FLOW = 1124.24 (PCU/HR)

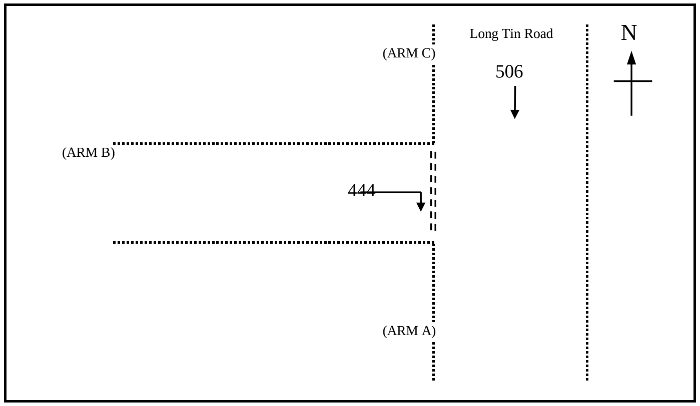
COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	1.0247
DFC b-c	=	0.0000
DFC c-b	=	0.0000
DFC b-ac	=	1.0247

CRITICAL DFC = 1.025

OVE ARUP & PARTNERS | PRIORITY JUNCTION CALCULATION

Year 2025 Reference Traffic Flows (PM Peak)	PROJECT NO: 247100	DESIGNED BY:	
J9 Slip Road to Long Tin Road (SB)/ U-turn from slip road of Long Tin Road (WB)	DATE : 30/06/21	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)
Vl 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	=	6.50	(metres)
W cr	=	0	(metres)
q a-b	=	0	(pcu/hr)
q a-c	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.50	(metres)
Vr c-b	=	0	(metres)
q c-a	=	506	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	6.00	(metres)
W b-c	=	0.00	(metres)
Vl b-a	=	20	(metres)
Vr b-a	=	30	(metres)
Vr b-c	=	47	(metres)
q b-a	=	444	(pcu/hr)
q b-c	=	0	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.034
E	=	0.614
F	=	1.047
Y	=	0.776

THE CAPACITY OF MOVEMENT :

Q b-a	=	556
Q b-c	=	457
Q c-b	=	780
Q b-ac	=	556

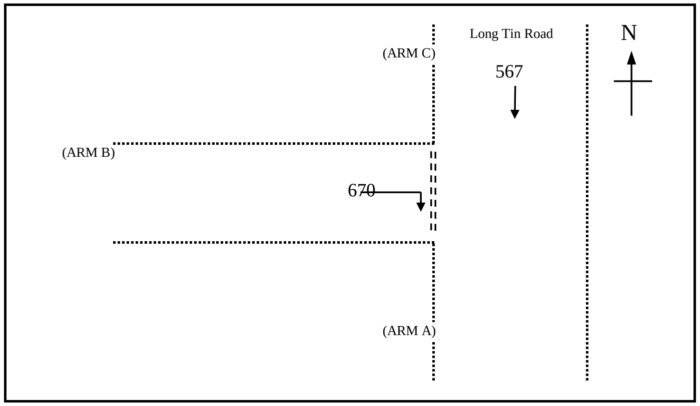
TOTAL FLOW = 949.88 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.7989
DFC b-c	=	0.0000
DFC c-b	=	0.0000
DFC b-ac	=	0.7989

CRITICAL DFC = 0.799

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
Year 2025 Design Traffic Flows (AM Peak)	PROJECT NO: 247100	DESIGNED BY:	
J9 Slip Road to Long Tin Road (SB)/ U-turn from slip road of Long Tin Road (WB)	DATE : 30/06/21	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)
Vl 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	=	6.50	(metres)
W cr	=	0	(metres)
q a-b	=	0	(pcu/hr)
q a-c	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.50	(metres)
Vr c-b	=	0	(metres)
q c-a	=	567	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	6.00	(metres)
W b-c	=	0.00	(metres)
Vl b-a	=	20	(metres)
Vr b-a	=	30	(metres)
Vr b-c	=	47	(metres)
q b-a	=	670	(pcu/hr)
q b-c	=	0	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.034
E	=	0.614
F	=	1.047
Y	=	0.776

THE CAPACITY OF MOVEMENT :

Q b-a	=	544
Q b-c	=	457
Q c-b	=	780
Q b-ac	=	544

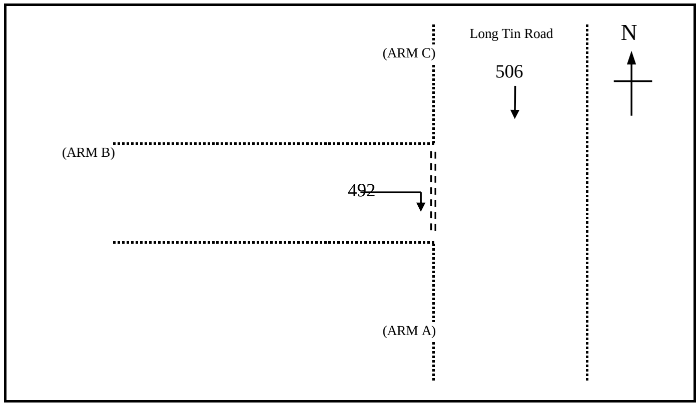
TOTAL FLOW = 1237.1856 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	1.2323
DFC b-c	=	0.0000
DFC c-b	=	0.0000
DFC b-ac	=	1.2323

CRITICAL DFC = 1.232

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
Year 2025 Design Traffic Flows (PM Peak)	PROJECT NO: 247100	DESIGNED BY:	
J9 Slip Road to Long Tin Road (SB)/ U-turn from slip road of Long Tin Road (WB)	DATE : 30/06/21	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)
Vl 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	=	6.50	(metres)
W cr	=	0	(metres)
q a-b	=	0	(pcu/hr)
q a-c	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.50	(metres)
Vr c-b	=	0	(metres)
q c-a	=	506	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	6.00	(metres)
W b-c	=	0.00	(metres)
Vl b-a	=	20	(metres)
Vr b-a	=	30	(metres)
Vr b-c	=	47	(metres)
q b-a	=	492	(pcu/hr)
q b-c	=	0	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.034
E	=	0.614
F	=	1.047
Y	=	0.776

THE CAPACITY OF MOVEMENT :

Q b-a	=	556
Q b-c	=	457
Q c-b	=	780
Q b-ac	=	556

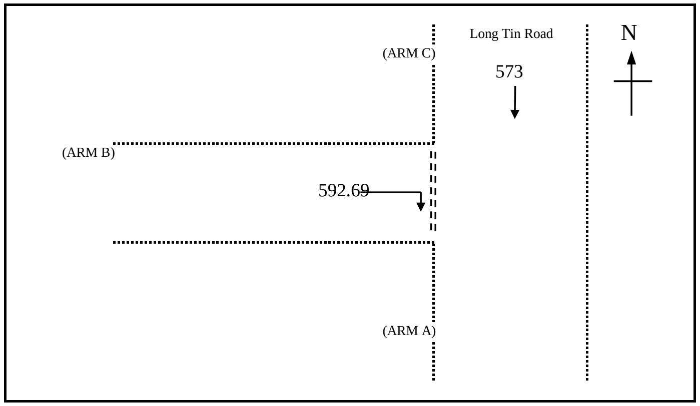
TOTAL FLOW = 997.9418 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.8853
DFC b-c	=	0.0000
DFC c-b	=	0.0000
DFC b-ac	=	0.8853

CRITICAL DFC = 0.885

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
Year 2029 Reference Traffic Flows (AM Peak)		PROJECT NO: 247100	DESIGNED BY:
J9 Slip Road to Long Tin Road (SB)/ U-turn from slip road of Long Tin Road (WB)		DATE : 30/06/21	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)
Vl 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	=	6.50	(metres)
W cr	=	0	(metres)
q a-b	=	0	(pcu/hr)
q a-c	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.50	(metres)
Vr c-b	=	0	(metres)
q c-a	=	573	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	6.00	(metres)
W b-c	=	0.00	(metres)
Vl b-a	=	20	(metres)
Vr b-a	=	30	(metres)
Vr b-c	=	47	(metres)
q b-a	=	593	(pcu/hr)
q b-c	=	0	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.034
E	=	0.614
F	=	1.047
Y	=	0.776

THE CAPACITY OF MOVEMENT :

Q b-a	=	543
Q b-c	=	457
Q c-b	=	780
Q b-ac	=	543

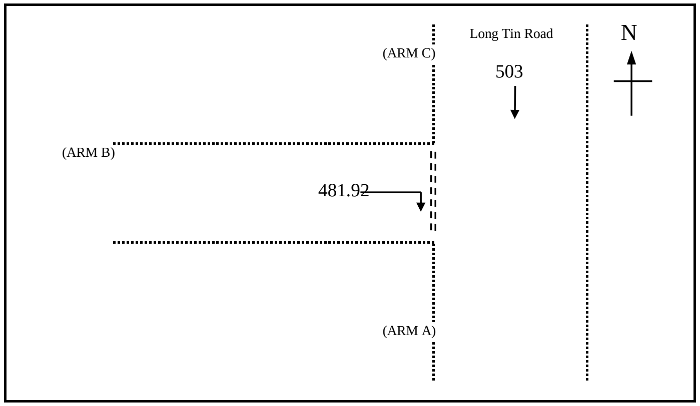
TOTAL FLOW = 1165.21 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	1.0915
DFC b-c	=	0.0000
DFC c-b	=	0.0000
DFC b-ac	=	1.0915

CRITICAL DFC = 1.092

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
Year 2029 Reference Traffic Flows (PM Peak)	PROJECT NO: 247100	DESIGNED BY:	
J9 Slip Road to Long Tin Road (SB)/ U-turn from slip road of Long Tin Road (WB)	DATE : 30/06/21	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)
Vl 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	=	6.50	(metres)
W cr	=	0	(metres)
q a-b	=	0	(pcu/hr)
q a-c	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.50	(metres)
Vr c-b	=	0	(metres)
q c-a	=	503	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	6.00	(metres)
W b-c	=	0.00	(metres)
Vl b-a	=	20	(metres)
Vr b-a	=	30	(metres)
Vr b-c	=	47	(metres)
q b-a	=	482	(pcu/hr)
q b-c	=	0	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.034
E	=	0.614
F	=	1.047
Y	=	0.776

THE CAPACITY OF MOVEMENT :

Q b-a	=	556
Q b-c	=	457
Q c-b	=	780
Q b-ac	=	556

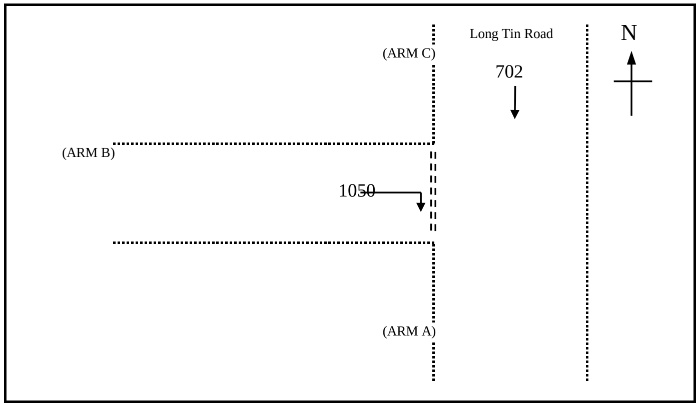
TOTAL FLOW = 984.93 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.8668
DFC b-c	=	0.0000
DFC c-b	=	0.0000
DFC b-ac	=	0.8668

CRITICAL DFC = 0.867

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
Year 2029 Design Traffic Flows (AM Peak)	PROJECT NO: 247100	DESIGNED BY:	
J9 Slip Road to Long Tin Road (SB)/ U-turn from slip road of Long Tin Road (WB)	DATE : 30/06/21	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)
Vl 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	=	6.50	(metres)
W cr	=	0	(metres)
q a-b	=	0	(pcu/hr)
q a-c	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.50	(metres)
Vr c-b	=	0	(metres)
q c-a	=	702	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	6.00	(metres)
W b-c	=	0.00	(metres)
Vl b-a	=	20	(metres)
Vr b-a	=	30	(metres)
Vr b-c	=	47	(metres)
q b-a	=	1050	(pcu/hr)
q b-c	=	0	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.034
E	=	0.614
F	=	1.047
Y	=	0.776

THE CAPACITY OF MOVEMENT :

Q b-a	=	520
Q b-c	=	457
Q c-b	=	780
Q b-ac	=	520

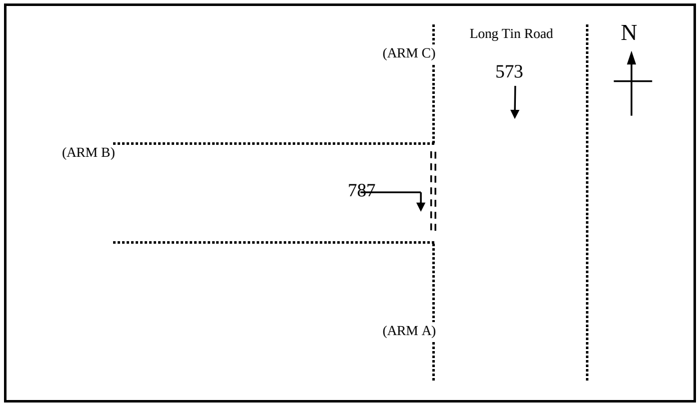
TOTAL FLOW = 1751.65674 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	2.0188
DFC b-c	=	0.0000
DFC c-b	=	0.0000
DFC b-ac	=	2.0188

CRITICAL DFC = 2.019

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
Year 2029 Design Traffic Flows (PM Peak)	PROJECT NO: 247100	DESIGNED BY:	
J9 Slip Road to Long Tin Road (SB)/ U-turn from slip road of Long Tin Road (WB)	DATE : 30/06/21	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)
Vl 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	=	6.50	(metres)
W cr	=	0	(metres)
q a-b	=	0	(pcu/hr)
q a-c	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.50	(metres)
Vr c-b	=	0	(metres)
q c-a	=	573	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	6.00	(metres)
W b-c	=	0.00	(metres)
Vl b-a	=	20	(metres)
Vr b-a	=	30	(metres)
Vr b-c	=	47	(metres)
q b-a	=	787	(pcu/hr)
q b-c	=	0	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.034
E	=	0.614
F	=	1.047
Y	=	0.776

THE CAPACITY OF MOVEMENT :

Q b-a	=	543
Q b-c	=	457
Q c-b	=	780
Q b-ac	=	543

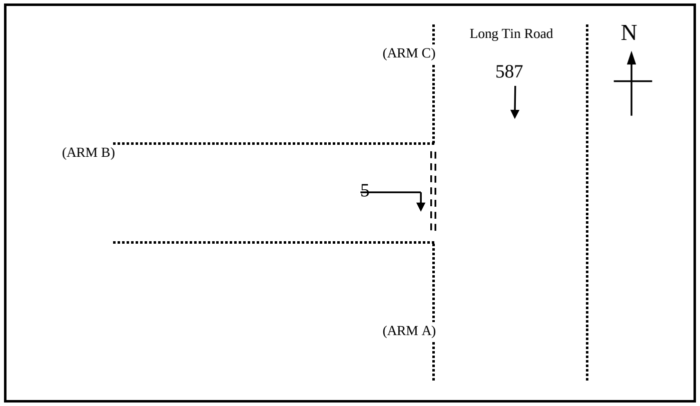
TOTAL FLOW = 1360.09242 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	1.4493
DFC b-c	=	0.0000
DFC c-b	=	0.0000
DFC b-ac	=	1.4493

CRITICAL DFC = 1.449

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
Year 2034 Reference Traffic Flows (AM Peak)		PROJECT NO: 247100	DESIGNED BY:
J9 Slip Road to Long Tin Road (SB)/ U-turn from slip road of Long Tin Road (WB)		DATE : 30/06/21	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)
Vl 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	=	6.50	(metres)
W cr	=	0	(metres)
q a-b	=	0	(pcu/hr)
q a-c	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.50	(metres)
Vr c-b	=	0	(metres)
q c-a	=	587	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	6.00	(metres)
W b-c	=	0.00	(metres)
Vl b-a	=	20	(metres)
Vr b-a	=	30	(metres)
Vr b-c	=	47	(metres)
q b-a	=	5	(pcu/hr)
q b-c	=	0	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.034
E	=	0.614
F	=	1.047
Y	=	0.776

THE CAPACITY OF MOVEMENT :

Q b-a	=	541
Q b-c	=	457
Q c-b	=	780
Q b-ac	=	541

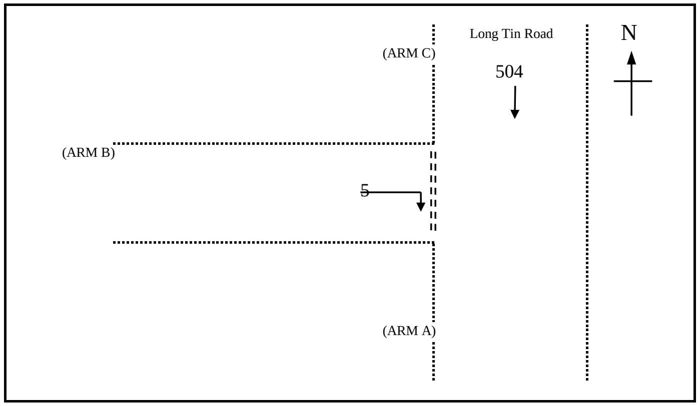
TOTAL FLOW = 592.05 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0092
DFC b-c	=	0.0000
DFC c-b	=	0.0000
DFC b-ac	=	0.0092

CRITICAL DFC = 0.009

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
Year 2034 Reference Traffic Flows (PM Peak)	PROJECT NO: 247100	DESIGNED BY:	
J9 Slip Road to Long Tin Road (SB)/ U-turn from slip road of Long Tin Road (WB)	DATE : 30/06/21	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)
Vl 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	=	6.50	(metres)
W cr	=	0	(metres)
q a-b	=	0	(pcu/hr)
q a-c	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.50	(metres)
Vr c-b	=	0	(metres)
q c-a	=	504	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	6.00	(metres)
W b-c	=	0.00	(metres)
Vl b-a	=	20	(metres)
Vr b-a	=	30	(metres)
Vr b-c	=	47	(metres)
q b-a	=	5	(pcu/hr)
q b-c	=	0	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.034
E	=	0.614
F	=	1.047
Y	=	0.776

THE CAPACITY OF MOVEMENT :

Q b-a	=	556
Q b-c	=	457
Q c-b	=	780
Q b-ac	=	556

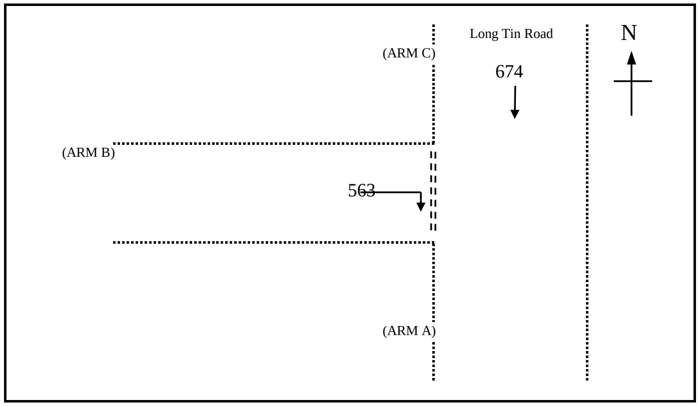
TOTAL FLOW = 509.28 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0090
DFC b-c	=	0.0000
DFC c-b	=	0.0000
DFC b-ac	=	0.0090

CRITICAL DFC = 0.009

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
Year 2034 Design Traffic Flows (AM Peak)		PROJECT NO: 247100	DESIGNED BY:
J9 Slip Road to Long Tin Road (SB)/ U-turn from slip road of Long Tin Road (WB)		DATE : 30/06/21	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)
Vl 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	=	6.50	(metres)
W cr	=	0	(metres)
q a-b	=	0	(pcu/hr)
q a-c	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.50	(metres)
Vr c-b	=	0	(metres)
q c-a	=	674	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	6.00	(metres)
W b-c	=	0.00	(metres)
Vl b-a	=	20	(metres)
Vr b-a	=	30	(metres)
Vr b-c	=	47	(metres)
q b-a	=	563	(pcu/hr)
q b-c	=	0	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.034
E	=	0.614
F	=	1.047
Y	=	0.776

THE CAPACITY OF MOVEMENT :

Q b-a	=	525
Q b-c	=	457
Q c-b	=	780
Q b-ac	=	525

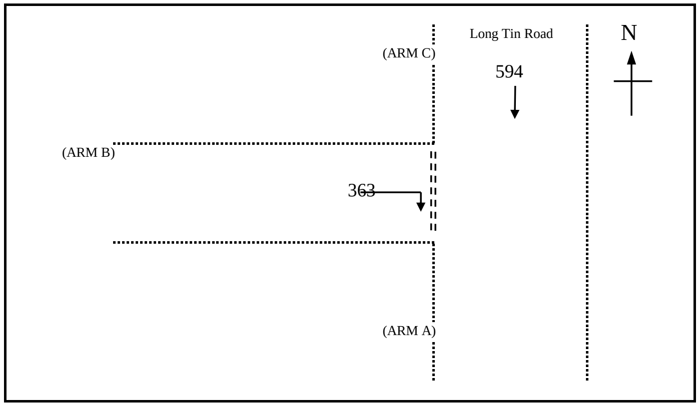
TOTAL FLOW = 1237.24674 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	1.0729
DFC b-c	=	0.0000
DFC c-b	=	0.0000
DFC b-ac	=	1.0729

CRITICAL DFC = 1.073

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
Year 2034 Design Traffic Flows (PM Peak)	PROJECT NO: 247100	DESIGNED BY:	
J9 Slip Road to Long Tin Road (SB)/ U-turn from slip road of Long Tin Road (WB)	DATE : 30/06/21	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)
Vl 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	=	6.50	(metres)
W cr	=	0	(metres)
q a-b	=	0	(pcu/hr)
q a-c	=	0	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.50	(metres)
Vr c-b	=	0	(metres)
q c-a	=	594	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	6.00	(metres)
W b-c	=	0.00	(metres)
Vl b-a	=	20	(metres)
Vr b-a	=	30	(metres)
Vr b-c	=	47	(metres)
q b-a	=	363	(pcu/hr)
q b-c	=	0	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.034
E	=	0.614
F	=	1.047
Y	=	0.776

THE CAPACITY OF MOVEMENT :

Q b-a	=	539
Q b-c	=	457
Q c-b	=	780
Q b-ac	=	539

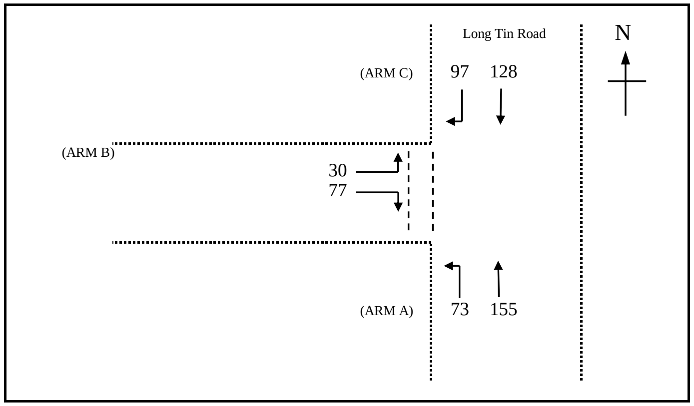
TOTAL FLOW = 957.6324202 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.6738
DFC b-c	=	0.0000
DFC c-b	=	0.0000
DFC b-ac	=	0.6738

CRITICAL DFC = 0.674

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
Year 2018 Observed Traffic Flows (AM Peak)		PROJECT NO:	DESIGNED BY:
J10 Tong Yan San Tsuen Road/ San Hi Tsuen Street		DATE : 30/06/21	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)
Vl 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	=	10.20	(metres)
W cr	=	0	(metres)
q a-b	=	73	(pcu/hr)
q a-c	=	155	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	6.12	(metres)
Vr c-b	=	45	(metres)
q c-a	=	128	(pcu/hr)
q c-b	=	97.4	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	8.90	(metres)
W b-c	=	8.90	(metres)
Vl b-a	=	16.9	(metres)
Vr b-a	=	23.4	(metres)
Vr b-c	=	16.9	(metres)
q b-a	=	77	(pcu/hr)
q b-c	=	30	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.255
E	=	1.355
F	=	1.149
Y	=	0.648

THE CAPACITY OF MOVEMENT :

Q b-a	=	667
Q b-c	=	950
Q c-b	=	794
Q b-ac	=	728.58

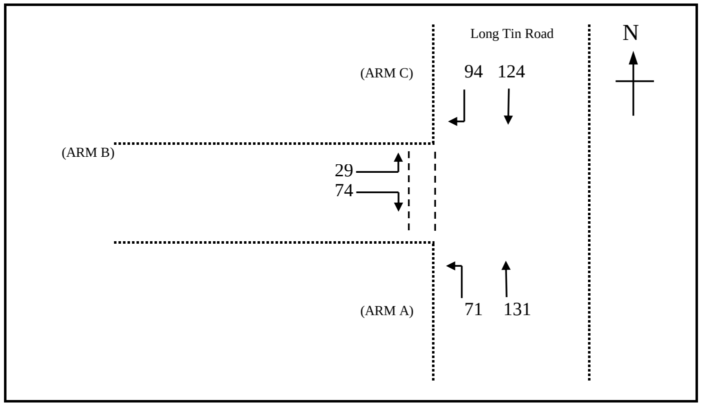
TOTAL FLOW = 204.6 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.1147
DFC b-c	=	0.0319
DFC c-b	=	0.1227
DFC b-ac	=	0.1466

CRITICAL DFC = 0.147

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
Year 2018 Observed Traffic Flows (PM Peak)		PROJECT NO:	DESIGNED BY:
J10 Tong Yan San Tsuen Road/ San Hi Tsuen Street		DATE : 30/06/21	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)
Vl 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	=	10.20	(metres)
W cr	=	0	(metres)
q a-b	=	71	(pcu/hr)
q a-c	=	131	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	6.12	(metres)
Vr c-b	=	45	(metres)
q c-a	=	124	(pcu/hr)
q c-b	=	94.45	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	8.90	(metres)
W b-c	=	8.90	(metres)
Vl b-a	=	16.9	(metres)
Vr b-a	=	23.4	(metres)
Vr b-c	=	16.9	(metres)
q b-a	=	74	(pcu/hr)
q b-c	=	29	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.255
E	=	1.355
F	=	1.149
Y	=	0.648

THE CAPACITY OF MOVEMENT :

Q b-a	=	677
Q b-c	=	959
Q c-b	=	801
Q b-ac	=	738.62

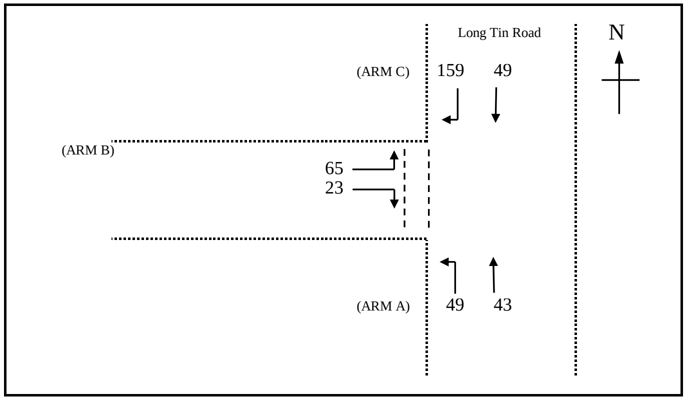
TOTAL FLOW = 198.4104191 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.1096
DFC b-c	=	0.0306
DFC c-b	=	0.1179
DFC b-ac	=	0.1402

CRITICAL DFC = 0.140

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
Year 2025 Reference Traffic Flows (AM Peak)		PROJECT NO:	DESIGNED BY:
J10 Tong Yan San Tsuen Road/ San Hi Tsuen Street		DATE : 30/06/21	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)
Vl 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	=	10.20	(metres)
W cr	=	0	(metres)
q a-b	=	49	(pcu/hr)
q a-c	=	43	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	6.12	(metres)
Vr c-b	=	45	(metres)
q c-a	=	49	(pcu/hr)
q c-b	=	159	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	8.90	(metres)
W b-c	=	8.90	(metres)
Vl b-a	=	16.9	(metres)
Vr b-a	=	23.4	(metres)
Vr b-c	=	16.9	(metres)
q b-a	=	23	(pcu/hr)
q b-c	=	65	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.255
E	=	1.355
F	=	1.149
Y	=	0.648

THE CAPACITY OF MOVEMENT :

Q b-a	=	692
Q b-c	=	989
Q c-b	=	831
Q b-ac	=	889.25

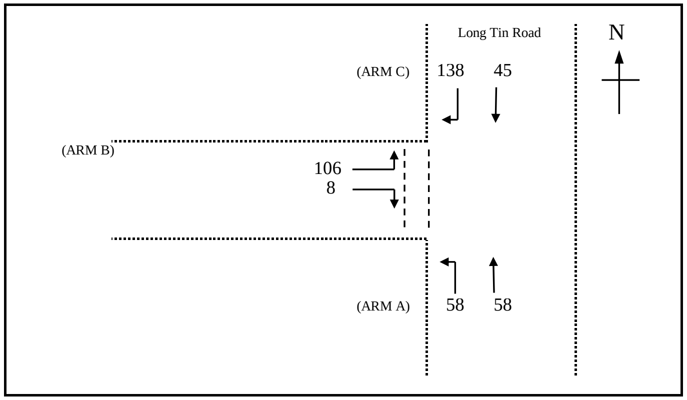
TOTAL FLOW = 72.51 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0335
DFC b-c	=	0.0662
DFC c-b	=	0.1913
DFC b-ac	=	0.0996

CRITICAL DFC = 0.191

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
Year 2025 Reference Traffic Flows (PM Peak)		PROJECT NO:	DESIGNED BY:
J10 Tong Yan San Tsuen Road/ San Hi Tsuen Street		DATE : 30/06/21	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)
Vl 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	=	10.20	(metres)
W cr	=	0	(metres)
q a-b	=	58	(pcu/hr)
q a-c	=	58	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	6.12	(metres)
Vr c-b	=	45	(metres)
q c-a	=	45	(pcu/hr)
q c-b	=	137.5	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	8.90	(metres)
W b-c	=	8.90	(metres)
Vl b-a	=	16.9	(metres)
Vr b-a	=	23.4	(metres)
Vr b-c	=	16.9	(metres)
q b-a	=	8	(pcu/hr)
q b-c	=	106	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.255
E	=	1.355
F	=	1.149
Y	=	0.648

THE CAPACITY OF MOVEMENT :

Q b-a	=	696
Q b-c	=	984
Q c-b	=	824
Q b-ac	=	955.1

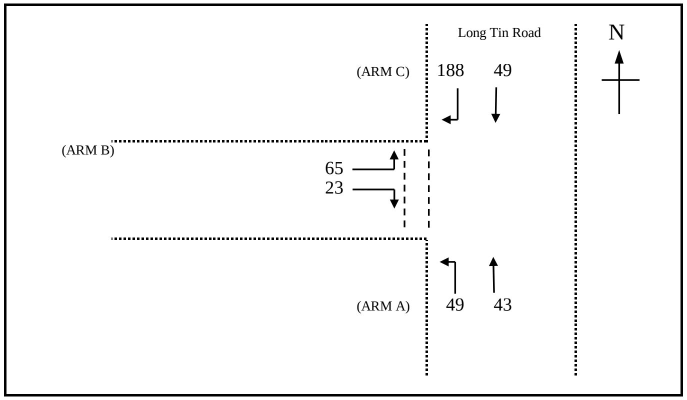
TOTAL FLOW = 53.68 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0120
DFC b-c	=	0.1076
DFC c-b	=	0.1669
DFC b-ac	=	0.1195

CRITICAL DFC = 0.167

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
Year 2025 Design Traffic Flows (AM Peak)		PROJECT NO:	DESIGNED BY:
J10 Tong Yan San Tsuen Road/ San Hi Tsuen Street		DATE : 30/06/21	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)
Vl 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	=	10.20	(metres)
W cr	=	0	(metres)
q a-b	=	49	(pcu/hr)
q a-c	=	43	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	6.12	(metres)
Vr c-b	=	45	(metres)
q c-a	=	49	(pcu/hr)
q c-b	=	188.4	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	8.90	(metres)
W b-c	=	8.90	(metres)
Vl b-a	=	16.9	(metres)
Vr b-a	=	23.4	(metres)
Vr b-c	=	16.9	(metres)
q b-a	=	23	(pcu/hr)
q b-c	=	65	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.255
E	=	1.355
F	=	1.149
Y	=	0.648

THE CAPACITY OF MOVEMENT :

Q b-a	=	679
Q b-c	=	989
Q c-b	=	831
Q b-ac	=	883.56

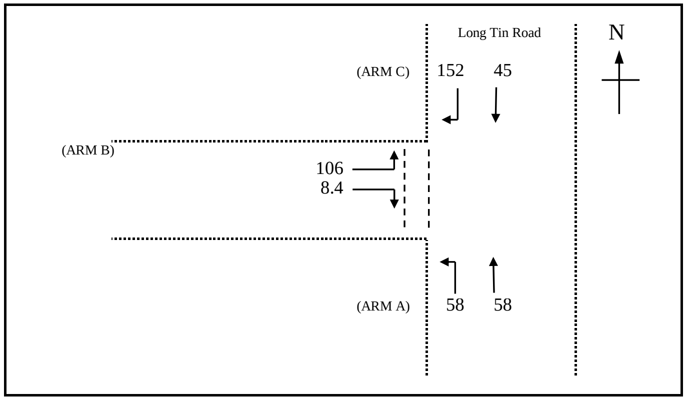
TOTAL FLOW = 72.51 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0341
DFC b-c	=	0.0662
DFC c-b	=	0.2268
DFC b-ac	=	0.1003

CRITICAL DFC = 0.227

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
Year 2025 Design Traffic Flows (PM Peak)		PROJECT NO:	DESIGNED BY:
J10 Tong Yan San Tsuen Road/ San Hi Tsuen Street		DATE : 30/06/21	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)
Vl 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	=	10.20	(metres)
W cr	=	0	(metres)
q a-b	=	58	(pcu/hr)
q a-c	=	58	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	6.12	(metres)
Vr c-b	=	45	(metres)
q c-a	=	45	(pcu/hr)
q c-b	=	152	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	8.90	(metres)
W b-c	=	8.90	(metres)
Vl b-a	=	16.9	(metres)
Vr b-a	=	23.4	(metres)
Vr b-c	=	16.9	(metres)
q b-a	=	8	(pcu/hr)
q b-c	=	106	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.255
E	=	1.355
F	=	1.149
Y	=	0.648

THE CAPACITY OF MOVEMENT :

Q b-a	=	690
Q b-c	=	984
Q c-b	=	824
Q b-ac	=	954.27

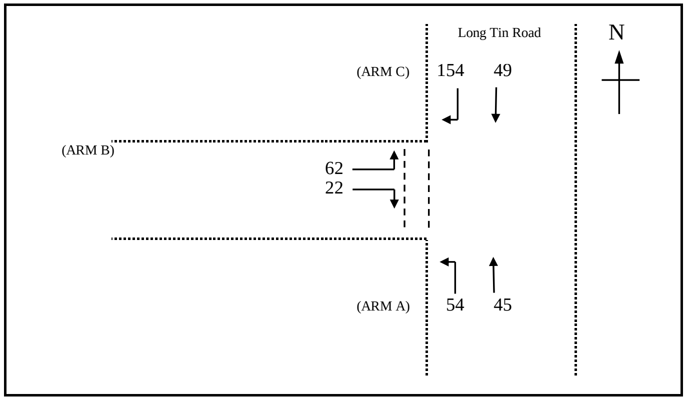
TOTAL FLOW = 53.68 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0121
DFC b-c	=	0.1076
DFC c-b	=	0.1845
DFC b-ac	=	0.1197

CRITICAL DFC = 0.184

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
Year 2029 Reference Traffic Flows (AM Peak)		PROJECT NO:	DESIGNED BY:
J10 Tong Yan San Tsuen Road/ San Hi Tsuen Street		DATE : 30/06/21	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)
Vl 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	=	10.20	(metres)
W cr	=	0	(metres)
q a-b	=	54	(pcu/hr)
q a-c	=	45	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	6.12	(metres)
Vr c-b	=	45	(metres)
q c-a	=	49	(pcu/hr)
q c-b	=	153.8	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	8.90	(metres)
W b-c	=	8.90	(metres)
Vl b-a	=	16.9	(metres)
Vr b-a	=	23.4	(metres)
Vr b-c	=	16.9	(metres)
q b-a	=	22	(pcu/hr)
q b-c	=	62	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.255
E	=	1.355
F	=	1.149
Y	=	0.648

THE CAPACITY OF MOVEMENT :

Q b-a	=	693
Q b-c	=	988
Q c-b	=	829
Q b-ac	=	888.05

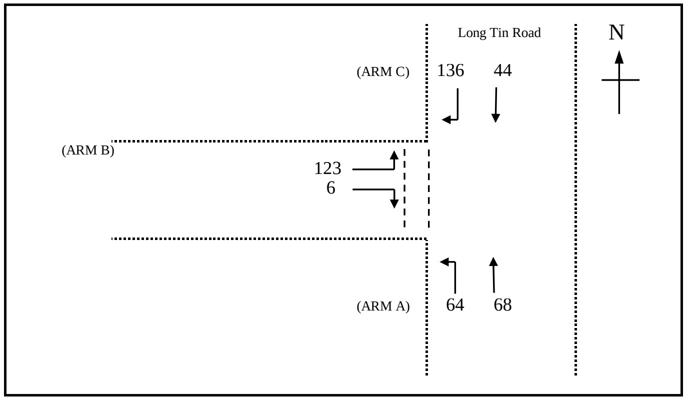
TOTAL FLOW = 71.28 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0322
DFC b-c	=	0.0627
DFC c-b	=	0.1856
DFC b-ac	=	0.0949

CRITICAL DFC = 0.186

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
Year 2029 Reference Traffic Flows (PM Peak)		PROJECT NO:	DESIGNED BY:
J10 Tong Yan San Tsuen Road/ San Hi Tsuen Street		DATE : 30/06/21	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)
Vl 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	=	10.20	(metres)
W cr	=	0	(metres)
q a-b	=	64	(pcu/hr)
q a-c	=	68	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	6.12	(metres)
Vr c-b	=	45	(metres)
q c-a	=	44	(pcu/hr)
q c-b	=	135.8	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	8.90	(metres)
W b-c	=	8.90	(metres)
Vl b-a	=	16.9	(metres)
Vr b-a	=	23.4	(metres)
Vr b-c	=	16.9	(metres)
q b-a	=	6	(pcu/hr)
q b-c	=	123	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.255
E	=	1.355
F	=	1.149
Y	=	0.648

THE CAPACITY OF MOVEMENT :

Q b-a	=	693
Q b-c	=	980
Q c-b	=	820
Q b-ac	=	960.07

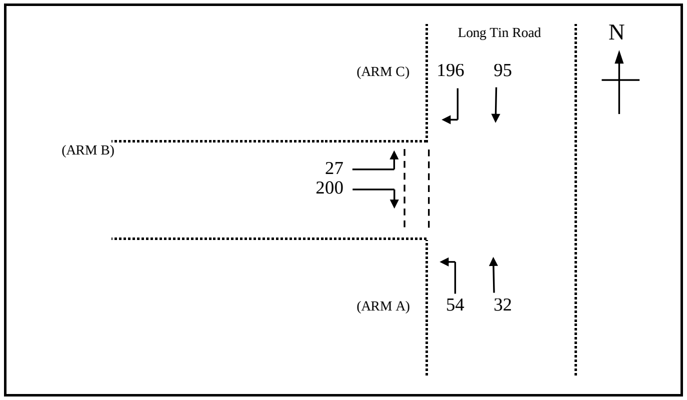
TOTAL FLOW = 50.87 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0093
DFC b-c	=	0.1251
DFC c-b	=	0.1656
DFC b-ac	=	0.1344

CRITICAL DFC = 0.166

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
Year 2029 Design Traffic Flows (AM Peak)		PROJECT NO:	DESIGNED BY:
J10 Tong Yan San Tsuen Road/ San Hi Tsuen Street		DATE : 30/06/21	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)
Vl 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	=	10.20	(metres)
W cr	=	0	(metres)
q a-b	=	54	(pcu/hr)
q a-c	=	32	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	6.12	(metres)
Vr c-b	=	45	(metres)
q c-a	=	95	(pcu/hr)
q c-b	=	196.2	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	8.90	(metres)
W b-c	=	8.90	(metres)
Vl b-a	=	16.9	(metres)
Vr b-a	=	23.4	(metres)
Vr b-c	=	16.9	(metres)
q b-a	=	200	(pcu/hr)
q b-c	=	27	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.255
E	=	1.355
F	=	1.149
Y	=	0.648

THE CAPACITY OF MOVEMENT :

Q b-a	=	670
Q b-c	=	992
Q c-b	=	833
Q b-ac	=	697.04

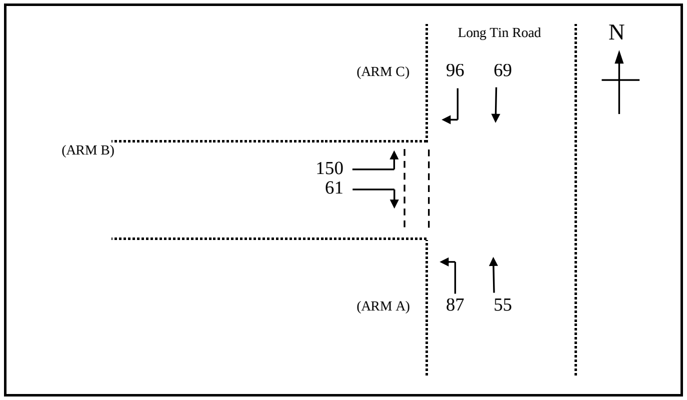
TOTAL FLOW = 294.98 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.2982
DFC b-c	=	0.0273
DFC c-b	=	0.2356
DFC b-ac	=	0.3255

CRITICAL DFC = 0.326

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
Year 2029 Design Traffic Flows (PM Peak)		PROJECT NO:	DESIGNED BY:
J10 Tong Yan San Tsuen Road/ San Hi Tsuen Street		DATE : 30/06/21	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)
Vl 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	=	10.20	(metres)
W cr	=	0	(metres)
q a-b	=	87	(pcu/hr)
q a-c	=	55	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	6.12	(metres)
Vr c-b	=	45	(metres)
q c-a	=	69	(pcu/hr)
q c-b	=	95.99	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	8.90	(metres)
W b-c	=	8.90	(metres)
Vl b-a	=	16.9	(metres)
Vr b-a	=	23.4	(metres)
Vr b-c	=	16.9	(metres)
q b-a	=	61	(pcu/hr)
q b-c	=	150	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.255
E	=	1.355
F	=	1.149
Y	=	0.648

THE CAPACITY OF MOVEMENT :

Q b-a	=	707
Q b-c	=	981
Q c-b	=	817
Q b-ac	=	882.35

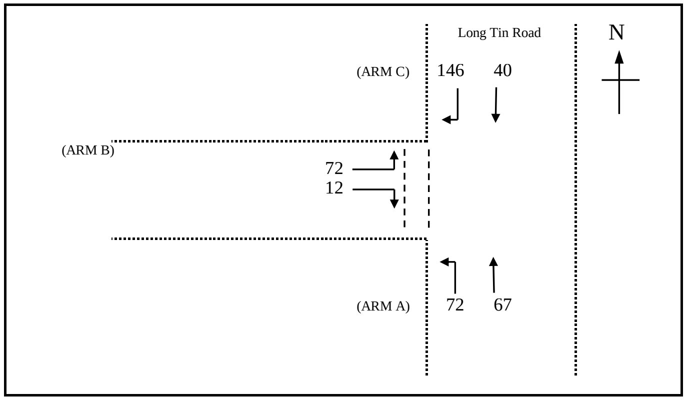
TOTAL FLOW = 129.83 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0858
DFC b-c	=	0.1525
DFC c-b	=	0.1175
DFC b-ac	=	0.2382

CRITICAL DFC = 0.238

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
Year 2034 Reference Traffic Flows (AM Peak)		PROJECT NO:	DESIGNED BY:
J10 Tong Yan San Tsuen Road/ San Hi Tsuen Street		DATE : 30/06/21	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)
Vl 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	=	10.20	(metres)
W cr	=	0	(metres)
q a-b	=	72	(pcu/hr)
q a-c	=	67	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	6.12	(metres)
Vr c-b	=	45	(metres)
q c-a	=	40	(pcu/hr)
q c-b	=	146.2	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	8.90	(metres)
W b-c	=	8.90	(metres)
Vl b-a	=	16.9	(metres)
Vr b-a	=	23.4	(metres)
Vr b-c	=	16.9	(metres)
q b-a	=	12	(pcu/hr)
q b-c	=	72	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.255
E	=	1.355
F	=	1.149
Y	=	0.648

THE CAPACITY OF MOVEMENT :

Q b-a	=	689
Q b-c	=	979
Q c-b	=	818
Q b-ac	=	923.55

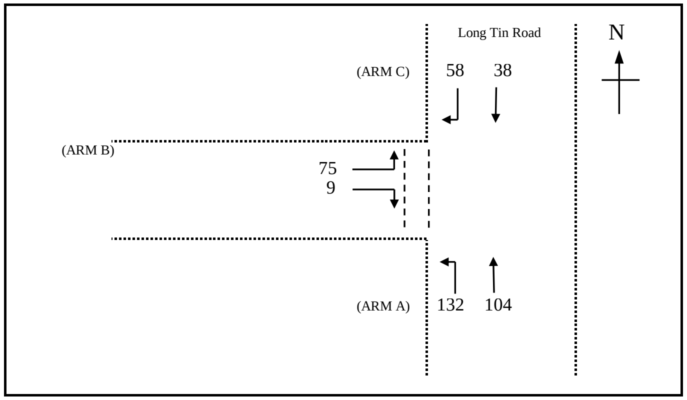
TOTAL FLOW = 52.05 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0174
DFC b-c	=	0.0734
DFC c-b	=	0.1787
DFC b-ac	=	0.0908

CRITICAL DFC = 0.179

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
Year 2034 Reference Traffic Flows (PM Peak)		PROJECT NO:	DESIGNED BY:
J10 Tong Yan San Tsuen Road/ San Hi Tsuen Street		DATE : 30/06/21	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)
Vl 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	=	10.20	(metres)
W cr	=	0	(metres)
q a-b	=	132	(pcu/hr)
q a-c	=	104	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	6.12	(metres)
Vr c-b	=	45	(metres)
q c-a	=	38	(pcu/hr)
q c-b	=	58.41	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	8.90	(metres)
W b-c	=	8.90	(metres)
Vl b-a	=	16.9	(metres)
Vr b-a	=	23.4	(metres)
Vr b-c	=	16.9	(metres)
q b-a	=	9	(pcu/hr)
q b-c	=	75	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.255
E	=	1.355
F	=	1.149
Y	=	0.648

THE CAPACITY OF MOVEMENT :

Q b-a	=	709
Q b-c	=	959
Q c-b	=	792
Q b-ac	=	923.16

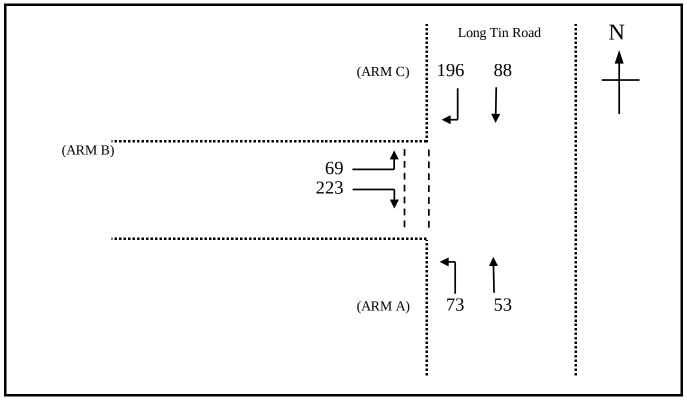
TOTAL FLOW = 46.86 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0131
DFC b-c	=	0.0781
DFC c-b	=	0.0738
DFC b-ac	=	0.0911

CRITICAL DFC = 0.091

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
Year 2034 Design Traffic Flows (AM Peak)		PROJECT NO:	DESIGNED BY:
J10 Tong Yan San Tsuen Road/ San Hi Tsuen Street		DATE : 30/06/21	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)
Vl 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	=	10.20	(metres)
W cr	=	0	(metres)
q a-b	=	73	(pcu/hr)
q a-c	=	53	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	6.12	(metres)
Vr c-b	=	45	(metres)
q c-a	=	88	(pcu/hr)
q c-b	=	195.6	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	8.90	(metres)
W b-c	=	8.90	(metres)
Vl b-a	=	16.9	(metres)
Vr b-a	=	23.4	(metres)
Vr b-c	=	16.9	(metres)
q b-a	=	223	(pcu/hr)
q b-c	=	69	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.255
E	=	1.355
F	=	1.149
Y	=	0.648

THE CAPACITY OF MOVEMENT :

Q b-a	=	663
Q b-c	=	983
Q c-b	=	822
Q b-ac	=	718.25

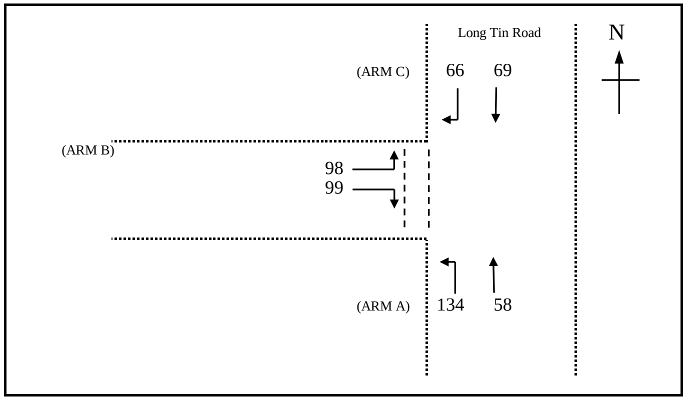
TOTAL FLOW = 311.74 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.3368
DFC b-c	=	0.0703
DFC c-b	=	0.2380
DFC b-ac	=	0.4071

CRITICAL DFC = 0.407

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
Year 2034 Design Traffic Flows (PM Peak)		PROJECT NO:	DESIGNED BY:
J10 Tong Yan San Tsuen Road/ San Hi Tsuen Street		DATE : 30/06/21	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)
Vl 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	=	10.20	(metres)
W cr	=	0	(metres)
q a-b	=	134	(pcu/hr)
q a-c	=	58	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	6.12	(metres)
Vr c-b	=	45	(metres)
q c-a	=	69	(pcu/hr)
q c-b	=	65.63	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	8.90	(metres)
W b-c	=	8.90	(metres)
Vl b-a	=	16.9	(metres)
Vr b-a	=	23.4	(metres)
Vr b-c	=	16.9	(metres)
q b-a	=	99	(pcu/hr)
q b-c	=	98	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.255
E	=	1.355
F	=	1.149
Y	=	0.648

THE CAPACITY OF MOVEMENT :

Q b-a	=	713
Q b-c	=	974
Q c-b	=	804
Q b-ac	=	822.24

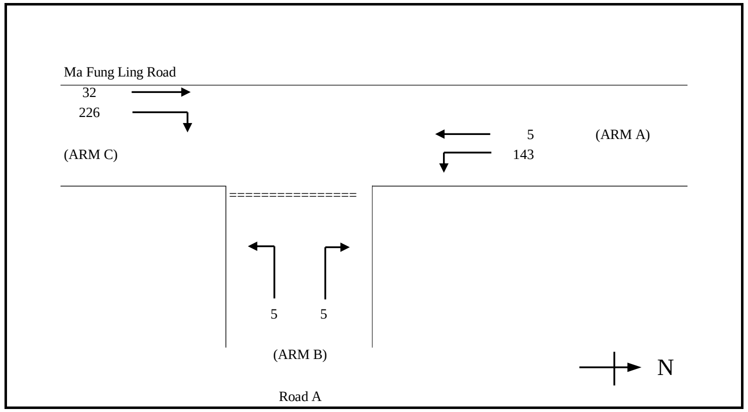
TOTAL FLOW = 168.17 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.1393
DFC b-c	=	0.1003
DFC c-b	=	0.0816
DFC b-ac	=	0.2396

CRITICAL DFC = 0.240

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO:	DESIGNED BY:
J11 - Ma Fung Ling Road / Road A	Year 2029 Design Traffic Flows (AM Peak)	DATE : 18/01/22	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)
Vl 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	=	7.50	(metres)
W cr	=	0	(metres)
q a-b	=	143	(pcu/hr)
q a-c	=	5	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.65	(metres)
Vr c-b	=	150	(metres)
q c-a	=	32	(pcu/hr)
q c-b	=	226	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.65	(metres)
W b-c	=	3.65	(metres)
Vl b-a	=	150	(metres)
Vr b-a	=	150	(metres)
Vr b-c	=	150	(metres)
q b-a	=	5	(pcu/hr)
q b-c	=	5	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.027
E	=	1.027
F	=	1.027
Y	=	0.74125

THE CAPACITY OF MOVEMENT :

Q b-a	=	532
Q b-c	=	748
Q c-b	=	724
Q b-ac	=	621.78

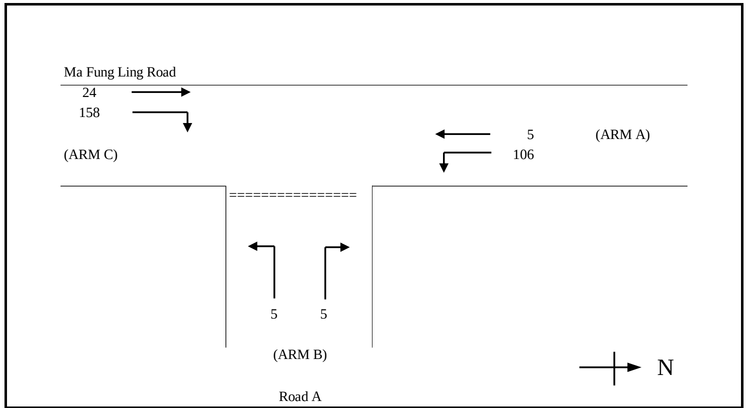
TOTAL FLOW = 416.44 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0094
DFC b-c	=	0.0067
DFC c-b	=	0.3122
DFC b-ac	=	0.0161

CRITICAL DFC = 0.312

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO:	DESIGNED BY:
J11 - Ma Fung Ling Road / Road A	Year 2029 Design Traffic Flows (PM Peak)	DATE : 18/01/22	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)
Vl 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	=	7.50	(metres)
W cr	=	0	(metres)
q a-b	=	106	(pcu/hr)
q a-c	=	5	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.65	(metres)
Vr c-b	=	150	(metres)
q c-a	=	24	(pcu/hr)
q c-b	=	157.9	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.65	(metres)
W b-c	=	3.65	(metres)
Vl b-a	=	150	(metres)
Vr b-a	=	150	(metres)
Vr b-c	=	150	(metres)
q b-a	=	5	(pcu/hr)
q b-c	=	5	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.027
E	=	1.027
F	=	1.027
Y	=	0.74125

THE CAPACITY OF MOVEMENT :

Q b-a	=	564
Q b-c	=	752
Q c-b	=	734
Q b-ac	=	644.57

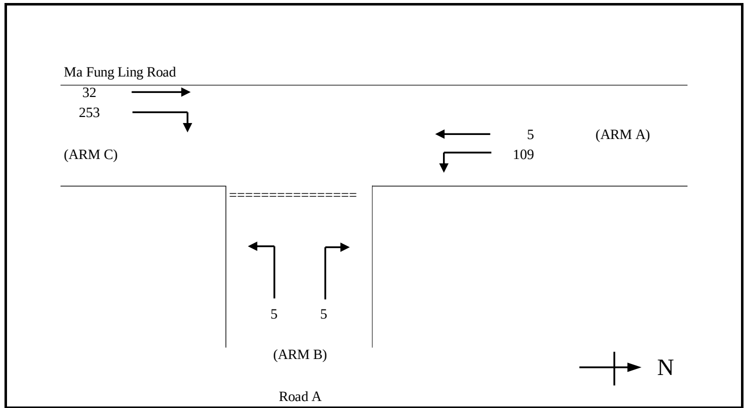
TOTAL FLOW = 302.52 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0089
DFC b-c	=	0.0066
DFC c-b	=	0.2151
DFC b-ac	=	0.0155

CRITICAL DFC = 0.215

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO:	DESIGNED BY:
J11 - Ma Fung Ling Road / Road A	Year 2034 Design Traffic Flows (AM Peak)	DATE : 18/01/22	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)
Vl 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	=	7.50	(metres)
W cr	=	0	(metres)
q a-b	=	109	(pcu/hr)
q a-c	=	5	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.65	(metres)
Vr c-b	=	150	(metres)
q c-a	=	32	(pcu/hr)
q c-b	=	253.1	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.65	(metres)
W b-c	=	3.65	(metres)
Vl b-a	=	150	(metres)
Vr b-a	=	150	(metres)
Vr b-c	=	150	(metres)
q b-a	=	5	(pcu/hr)
q b-c	=	5	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.027
E	=	1.027
F	=	1.027
Y	=	0.74125

THE CAPACITY OF MOVEMENT :

Q b-a	=	525
Q b-c	=	752
Q c-b	=	733
Q b-ac	=	618.32

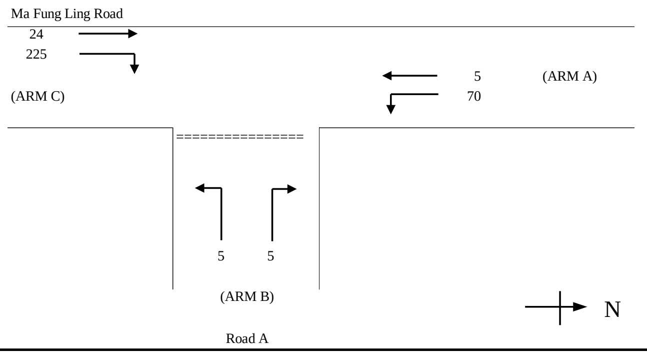
TOTAL FLOW = 409.2 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0095
DFC b-c	=	0.0066
DFC c-b	=	0.3453
DFC b-ac	=	0.0162

CRITICAL DFC = 0.345

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO:	DESIGNED BY:
J11 - Ma Fung Ling Road / Road A	Year 2034 Design Traffic Flows (PM Peak)	DATE : 18/01/22	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)
Vl 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	=	7.50	(metres)
W cr	=	0	(metres)
q a-b	=	70	(pcu/hr)
q a-c	=	5	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.65	(metres)
Vr c-b	=	150	(metres)
q c-a	=	24	(pcu/hr)
q c-b	=	224.7	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.65	(metres)
W b-c	=	3.65	(metres)
Vl b-a	=	150	(metres)
Vr b-a	=	150	(metres)
Vr b-c	=	150	(metres)
q b-a	=	5	(pcu/hr)
q b-c	=	5	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.027
E	=	1.027
F	=	1.027
Y	=	0.74125

THE CAPACITY OF MOVEMENT :

Q b-a	=	542
Q b-c	=	756
Q c-b	=	744
Q b-ac	=	631.36

TOTAL FLOW = 333.3 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0092
DFC b-c	=	0.0066
DFC c-b	=	0.3021
DFC b-ac	=	0.0158

CRITICAL DFC = 0.302

Appendix D

Weaving Section Calculation

Weaving Section Calculation (TPDM Volume 2 Section 4.6.10) **Location** Southern Section **Design case** 2029AM

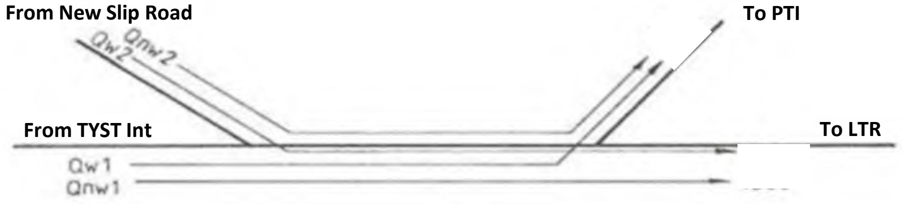
Table 4.6.8.1
Percentage Corrections to Predicted Flow for
Non-standard Composition and Gradient

Gradient on Main Line	Percentage of Heavy Vehicles on Link or Main Line - Being Considered							
	5	10	15	20	25	30	35	40
Downhill, Level or 1% Up	-8	-4	0	+4	+8	+12	+16	+20
1% - 2% Uphill	+2	+6	+10	+14	+18	+22	+26	+30
2% - 3% Uphill	+12	+16	+20	+24	+28	+32	+36	+40

$$N = \frac{Qnw + Qw1}{D} + (2 \times \frac{Lmin}{Lact} + 1)\frac{Qw2}{D}$$

Where
Qnw = total non weaving flow (adjusted) v.p.h.
Qw1 = major weaving flow (adjusted) v.p.h.
Qw2 = minor weaving flow (adjusted) v.p.h.
D = design flow per lane in v.p.h. as described in para. 4.6.10.4
Lmin = minimum weaving length (m)
Lact = actual weaving length (m)

From New Slip Road | To PTI
From TYST Int | To LTR



Flow Distribution			Remarks
To PTI	=	398 pcu	(Total Trip Attraction of Housing + Commerical) + Bus attraction
From New Slip Road	=	20%	
From TYST Int	=	80%	

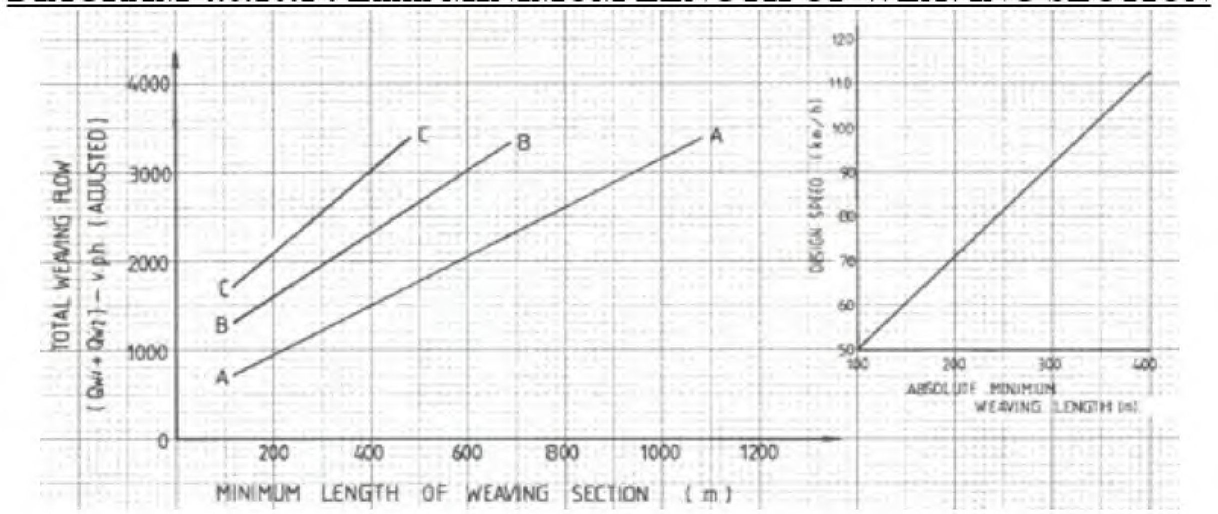
Weaving and Design Flow			
Qw1	=	318.6749 pcu	To PTI flow * split
Qnw1	=	2925 pcu	Baseflow on L10 + L13 (from traffic model)
Qw2	=	364 pcu	Baseflow on proposed slip road (from traffic model) + Trip Attraction of proposed school development
Qnw2	=	79.66872 pcu	To PTI flow * split
D	=	1867 pcu	

Percentage Correction according to TPDM v2 Table 4.6.8.1			
Percentage of HV	=	20 %	From survey
Gradient		Downhill	
Correction factor		1.04	
pcu factor	=	**1.2**	
Qw1	=	276 vph	
Qnw1	=	2535 vph	
Qw2	=	316 vph	
Qnw2	=	69 vph	
D	=	1556 vph	

Min. Length of Weaving Section			
Qw1 + Qw2	=	592 vph	(Total Weaving Flow)
From Diagram 4.6.10.1,			
Lmin (Line C)	=	m	(N/A)
Lmin (Abs.)	=	100 m	

Calculations			
Lmin	=	100 m	
Lact	=	140 m	
(Qnw1 + Qnw2 + Qw1)/D	=	1.85	
(2 x Lmin/Lact + 1) x (Qw2/D)	=	0.49	
N	=	2.34	**OK!**
No. of lanes provided	=	3	

DIAGRAM 4.6.10.1 : Lmin MINIMUM LENGTH OF WEAVING SECTION



Line A should be used for very high standard rural roads with high design speeds around 100 km/h and consequently low design flows around 1200 v.p.h. per lane.
Line B should be adopted for the more normal standard of high capacity road in Hong Kong with a design speed around 80 km/h and a design flow of 1400 v.p.h. per lane.
Line C represents the urban condition with low design speed around 50 km/h and consequently higher design flow of 1600 v.p.h. per lane.

Weaving Section Calculation (TPDM Volume 2 Section 4.6.10) **Location** Southern Section **Design case** 2029PM

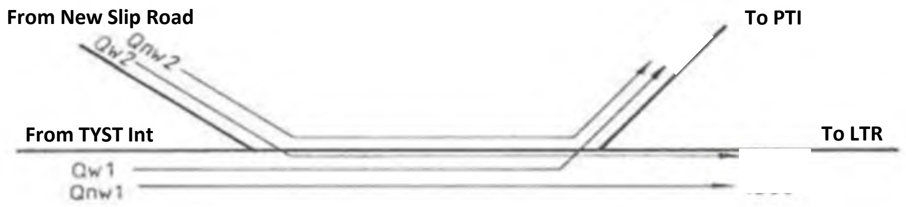
Table 4.6.8.1
Percentage Corrections to Predicted Flow for
Non-standard Composition and Gradient

Gradient on Main Line	Percentage of Heavy Vehicles on Link or Main Line - Being Considered							
	5	10	15	20	25	30	35	40
Downhill, Level or 1% Up	-8	-4	0	+4	+8	+12	+16	+20
1% - 2% Uphill	+2	+6	+10	+14	+18	+22	+26	+30
2% - 3% Uphill	+12	+16	+20	+24	+28	+32	+36	+40

$$N = \frac{Qnw + Qw1}{D} + (2 \times \frac{Lmin}{Lact} + 1)\frac{Qw2}{D}$$

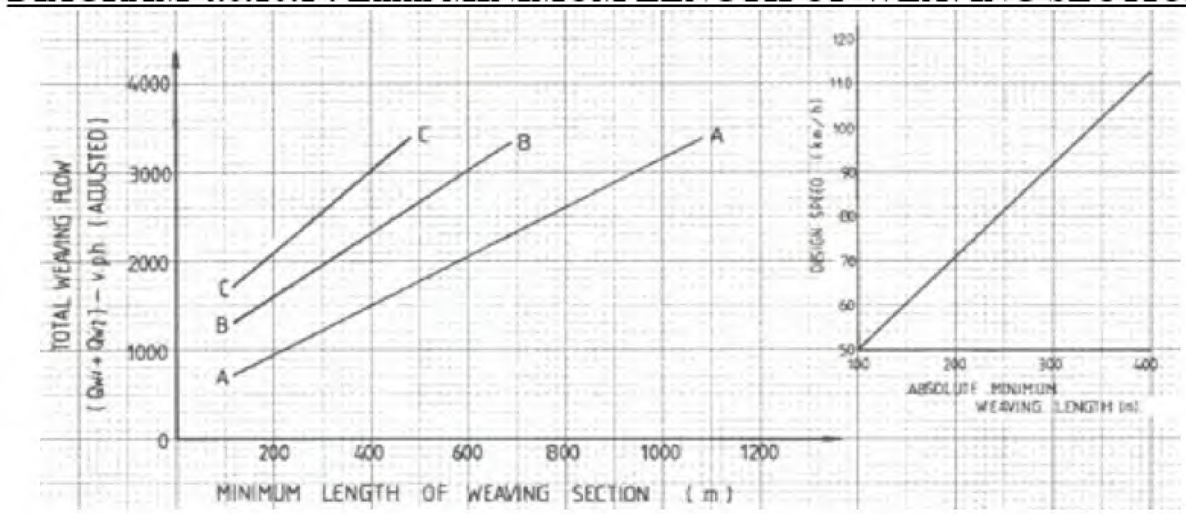
Where
- Qnw = total non weaving flow (adjusted) v.p.h.
- Qw1 = major weaving flow (adjusted) v.p.h.
- Qw2 = minor weaving flow (adjusted) v.p.h.
- D = design flow per lane in v.p.h. as described in para. 4.6.10.4
- Lmin = minimum weaving length (m)
- Lact = actual weaving length (m)

				Remarks
Flow Distribution				
To PTI	=	352	pcu	(Total Trip Attraction of Housing + Commerical) + Bus attraction
From New Slip Road	=	20%		
From TYST Int	=	80%		
Weaving and Design Flow				
Qw1	=	281.2624	pcu	To PTI flow * split
Qnw1	=	3172	pcu	Baseflow on L10 + L13 (from traffic model)
Qw2	=	259	pcu	Baseflow on proposed slip road (from traffic model) + Trip Attraction of proposed school development
Qnw2	=	70.31559	pcu	To PTI flow * split
D	=	1867	pcu	



Percentage Correction according to TPDM v2 Table 4.6.8.1				
Percentage of HV	=	20	%	From survey
Gradient		Downhill		
Correction factor		1.04		
pcu factor	=	**1.2**		
Qw1	=	244	vph	
Qnw1	=	2749	vph	
Qw2	=	224	vph	
Qnw2	=	61	vph	
D	=	1556	vph	
Min. Length of Weaving Section				
Qw1 + Qw2	=	468	vph	(Total Weaving Flow)
From Diagram 4.6.10.1,				
Lmin (Line C)	=		m	(N/A)
Lmin (Abs.)	=	100	m	
Calculations				
Lmin	=	100	m	
Lact	=	140	m	
(Qnw1 + Qnw2 + Qw1)/D	=	1.96		
(2 x Lmin/Lact + 1) x (Qw2/D)	=	0.35		
N	=	2.31		**OK!**
No. of lanes provided	=	3		

DIAGRAM 4.6.10.1 : Lmin MINIMUM LENGTH OF WEAVING SECTION



Line A should be used for very high standard rural roads with high design speeds around 100 km/h and consequently low design flows around 1200 v.p.h. per lane.
Line B should be adopted for the more normal standard of high capacity road in Hong Kong with a design speed around 80 km/h and a design flow of 1400 v.p.h. per lane.
Line C represents the urban condition with low design speed around 50 km/h and consequently higher design flow of 1600 v.p.h. per lane.

Weaving Section Calculation (TPDM Volume 2 Section 4.6.10) **Location** **Northern Section** **Design case** **2029AM**

Table 4.6.8.1
Percentage Corrections to Predicted Flow for
Non-standard Composition and Gradient

Gradient on Main Line	Percentage of Heavy Vehicles on Link or Main Line - Being Considered							
	5	10	15	20	25	30	35	40
Downhill, Level or 1% Up	-8	-4	0	+4	+8	+12	+16	+20
1% - 2% Uphill	+2	+6	+10	+14	+18	+22	+26	+30
2% - 3% Uphill	+12	+16	+20	+24	+28	+32	+36	+40

$$N = \frac{Qnw + Qw1}{D} + (2 \times \frac{Lmin}{Lact} + 1)\frac{Qw2}{D}$$

Where
Qnw = total non weaving flow (adjusted) v.p.h.
Qw1 = major weaving flow (adjusted) v.p.h.
Qw2 = minor weaving flow (adjusted) v.p.h.
D = design flow per lane in v.p.h. as described in para. 4.6.10.4
Lmin = minimum weaving length (m)
Lact = actual weaving length (m)

				Remarks
Flow Distribution				
From PTI	=	457	pcu	(Total Trip Generation of Housing + Commerical) + Bus attraction
To CPR / U-Turn	=	90%		
To LTR Flyover	=	10%		(To Tin Shui Wai)
From LTR	=	2932	pcu	L5 flow + Trip Generation from proposed school development
To CPR / U-Turn	=	30%		
To LTR Flyover	=	70%		(To Tin Shui Wai)
Weaving and Design Flow				
Qw1	=	880	pcu	From LTR flow * split
Qnw1	=	2052	pcu	From LTR flow * split
Qw2	=	46	pcu	From PTI flow * split
Qnw2	=	411	pcu	From PTI flow * split
D	=	1867	pcu	
Percentage Correction according to TPDM v2 Table 4.6.8.1				
Percentage of HV	=	20		From survey
Gradient		Downhill		
Correction factor		1.04		
pcu factor	=	**1.2**		
Qw1	=	762	vph	
Qnw1	=	1779	vph	
Qw2	=	40	vph	
Qnw2	=	356	vph	
D	=	1556	vph	
Min. Length of Weaving Section				
Qw1 + Qw2	=	802	vph	(Total Weaving Flow)
From Diagram 4.6.10.1,				
Lmin (Line C)	=		m	(N/A)
Lmin (Abs.)	=	100	m	
Calculations				
Lmin	=	100	m	
Lact	=	110	m	
(Qnw1 + Qnw2 + Qw1)/D	=	1.86		
(2 x Lmin/Lact + 1) x (Qw2/D)	=	0.07		
N	=	1.93		**OK!**
No. of lanes provided	=	3		

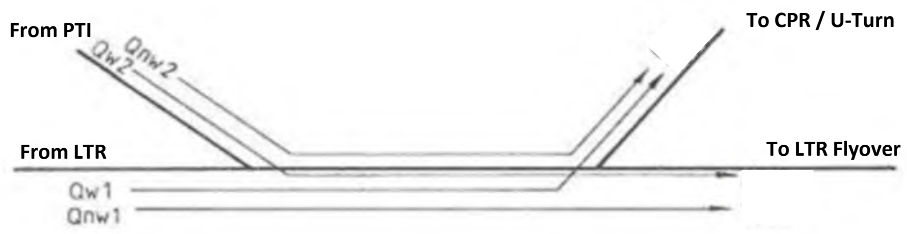
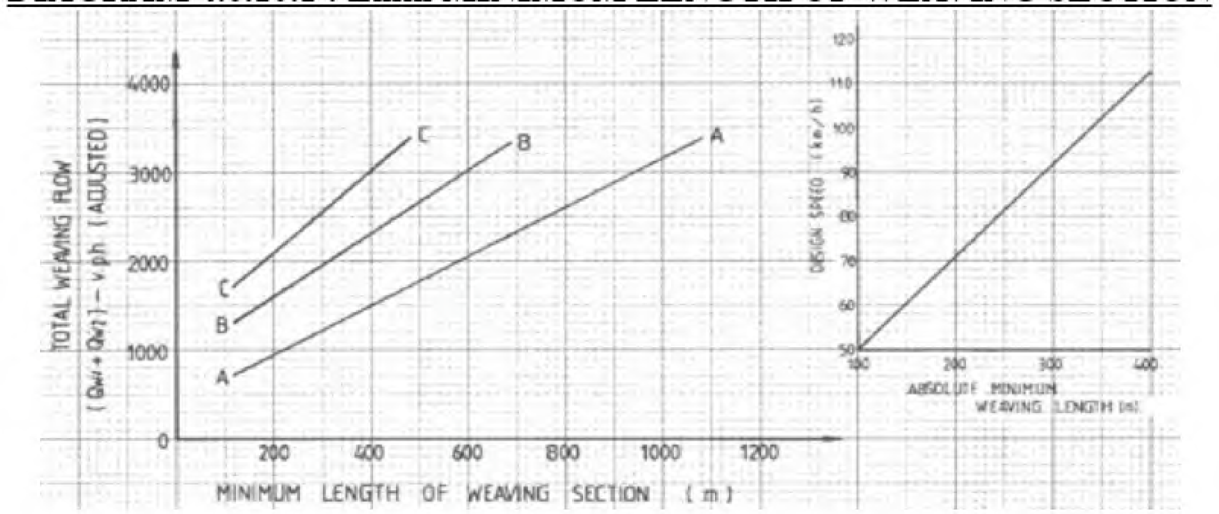


DIAGRAM 4.6.10.1 : Lmin MINIMUM LENGTH OF WEAVING SECTION



Line A should be used for very high standard rural roads with high design speeds around 100 km/h and consequently low design flows around 1200 v.p.h. per lane.
Line B should be adopted for the more normal standard of high capacity road in Hong Kong with a design speed around 80 km/h and a design flow of 1400 v.p.h. per lane.
Line C represents the urban condition with low design speed around 50 km/h and consequently higher design flow of 1600 v.p.h. per lane.

Weaving Section Calculation (TPDM Volume 2 Section 4.6.10) **Location** **Northern Section** **Design case** **2029PM**

Table 4.6.8.1
Percentage Corrections to Predicted Flow for
Non-standard Composition and Gradient

Gradient on Main Line	Percentage of Heavy Vehicles on Link or Main Line - Being Considered							
	5	10	15	20	25	30	35	40
Downhill, Level or 1% Up	-8	-4	0	+4	+8	+12	+16	+20
1% - 2% Uphill	+2	+6	+10	+14	+18	+22	+26	+30
2% - 3% Uphill	+12	+16	+20	+24	+28	+32	+36	+40

$$N = \frac{Qnw + Qw1}{D} + (2 \times \frac{Lmin}{Lact} + 1)\frac{Qw2}{D}$$

Where
Qnw = total non weaving flow (adjusted) v.p.h.
Qw1 = major weaving flow (adjusted) v.p.h.
Qw2 = minor weaving flow (adjusted) v.p.h.
D = design flow per lane in v.p.h. as described in para. 4.6.10.4
Lmin = minimum weaving length (m)
Lact = actual weaving length (m)

				Remarks
Flow Distribution				
From PTI	=	306	pcu	(Total Trip Generation of Housing + Commerical) + Bus attraction
To CPR / U-Turn	=	90%		
To LTR Flyover	=	10%		(To Tin Shui Wai)
From LTR	=	3177	pcu	L5 flow + Trip Generation from proposed school development
To CPR / U-Turn	=	30%		
To LTR Flyover	=	70%		(To Tin Shui Wai)
Weaving and Design Flow				
Qw1	=	953	pcu	From LTR flow * split
Qnw1	=	2224	pcu	From LTR flow * split
Qw2	=	31	pcu	From PTI flow * split
Qnw2	=	276	pcu	From PTI flow * split
D	=	1867	pcu	
Percentage Correction according to TPDM v2 Table 4.6.8.1				
Percentage of HV	=	20		From survey
Gradient		Downhill		
Correction factor		1.04		
pcu factor	=	**1.2**		
Qw1	=	826	vph	
Qnw1	=	1928	vph	
Qw2	=	27	vph	
Qnw2	=	239	vph	
D	=	1556	vph	
Min. Length of Weaving Section				
Qw1 + Qw2	=	853	vph	(Total Weaving Flow)
From Diagram 4.6.10.1,				
Lmin (Line C)	=		m	(N/A)
Lmin (Abs.)	=	100	m	
Calculations				
Lmin	=	100	m	
Lact	=	110	m	
(Qnw1 + Qnw2 + Qw1)/D	=	1.92		
(2 x Lmin/Lact + 1) x (Qw2/D)	=	0.05		
N	=	1.97		OK!
No. of lanes provided	=	3		

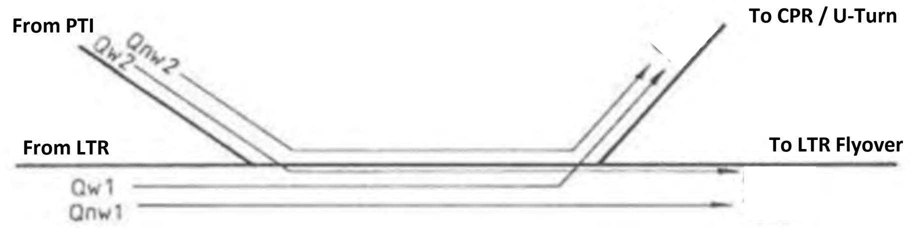
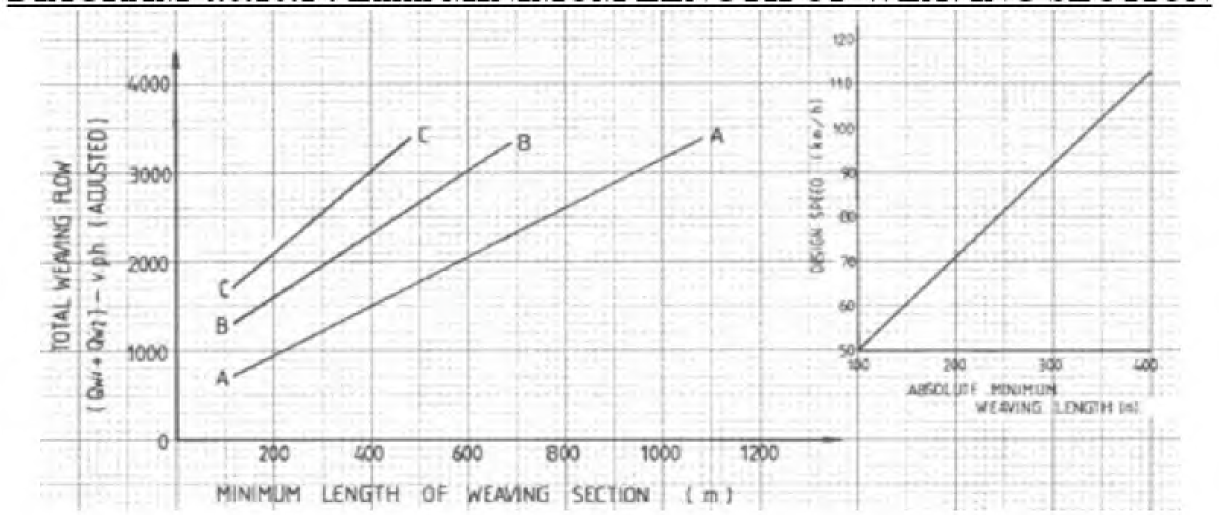


DIAGRAM 4.6.10.1 : Lmin MINIMUM LENGTH OF WEAVING SECTION



Line A should be used for very high standard rural roads with high design speeds around 100 km/h and consequently low design flows around 1200 v.p.h. per lane.
Line B should be adopted for the more normal standard of high capacity road in Hong Kong with a design speed around 80 km/h and a design flow of 1400 v.p.h. per lane.
Line C represents the urban condition with low design speed around 50 km/h and consequently higher design flow of 1600 v.p.h. per lane.

Weaving Section Calculation (TPDM Volume 2 Section 4.6.10) **Location** **Southern Section** **Design case** **2034AM**

Table 4.6.8.1
Percentage Corrections to Predicted Flow for
Non-standard Composition and Gradient

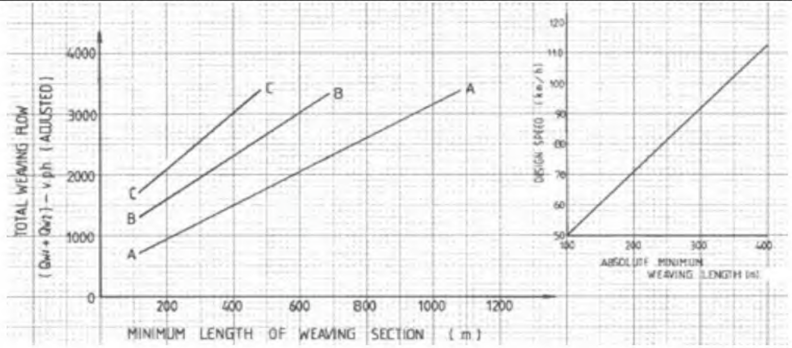
Gradient on Main Line	Percentage of Heavy Vehicles on Link or Main Line - Being Considered							
	5	10	15	20	25	30	35	40
Downhill, Level or 1% Up	-8	-4	0	+4	+8	+12	+16	+20
1% - 2% Uphill	+2	+6	+10	+14	+18	+22	+26	+30
2% - 3% Uphill	+12	+16	+20	+24	+28	+32	+36	+40

$$N = \frac{Qnw + Qw1}{D} + (2 \times \frac{Lmin}{Lact} + 1)\frac{Qw2}{D}$$

Where Qnw = total non weaving flow (adjusted) v.p.h.
Qw1 = major weaving flow (adjusted) v.p.h.
Qw2 = minor weaving flow (adjusted) v.p.h.
D = design flow per lane in v.p.h. as described in para. 4.6.10.4
Lmin = minimum weaving length (m)
Lact = actual weaving length (m)

Flow Distribution				Remarks
To PTI	=	398	pcu	(Total Trip Attraction of Housing + Commerical) + Bus attraction
From New Slip Road	=	20%		
From TYST Int	=	80%		
Weaving and Design Flow				
Qw1	=	318.6749	pcu	To PTI flow * split
Qnw1	=	2395	pcu	Baseflow on L10 + L13 (from traffic model)
Qw2	=	338	pcu	Baseflow on proposed slip road (from traffic model) + Trip Attraction of proposed school development
Qnw2	=	79.66872	pcu	To PTI flow * split
D	=	1867	pcu	
Percentage Correction according to TPDM v2 Table 4.6.8.1				
Percentage of HV	=	20	%	From survey
Gradient		Downhill		
Correction factor		1.04		
pcu factor	=	**1.2**		
Qw1	=	276	vph	
Qnw1	=	2076	vph	
Qw2	=	293	vph	
Qnw2	=	69	vph	
D	=	1556	vph	
Min. Length of Weaving Section				
Qw1 + Qw2	=	569	vph	(Total Weaving Flow)
From Diagram 4.6.10.1,				
Lmin (Line C)	=		m	(N/A)
Lmin (Abs.)	=	100	m	
Calculations				
Lmin	=	100	m	
Lact	=	110	m	
(Qnw1 + Qnw2 + Qw1)/D	=	1.56		
(2 x Lmin/Lact + 1) x (Qw2/D)	=	0.53		
N	=	2.09		**OK!**
No. of lanes provided	=	4		

DIAGRAM 4.6.10.1 : Lmin MINIMUM LENGTH OF WEAVING SECTION



Line A should be used for very high standard rural roads with high design speeds around 100 km/h and consequently low design flows around 1200 v.p.h. per lane.
Line B should be adopted for the more normal standard of high capacity road in Hong Kong with a design speed around 80 km/h and a design flow of 1400 v.p.h. per lane.
Line C represents the urban condition with low design speed around 50 km/h and consequently higher design flow of 1600 v.p.h. per lane.

Weaving Section Calculation (TPDM Volume 2 Section 4.6.10) **Location** **Southern Section** **Design case** **2034PM**

Table 4.6.8.1
Percentage Corrections to Predicted Flow for
Non-standard Composition and Gradient

Gradient on Main Line	Percentage of Heavy Vehicles on Link or Main Line - Being Considered							
	5	10	15	20	25	30	35	40
Downhill, Level or 1% Up	-8	-4	0	+4	+8	+12	+16	+20
1% - 2% Uphill	+2	+6	+10	+14	+18	+22	+26	+30
2% - 3% Uphill	+12	+16	+20	+24	+28	+32	+36	+40

$$N = \frac{Qnw + Qw1}{D} + (2 \times \frac{Lmin}{Lact} + 1)\frac{Qw2}{D}$$

Where Qnw = total non weaving flow (adjusted) v.p.h.

Qw1 = major weaving flow (adjusted) v.p.h.

Qw2 = minor weaving flow (adjusted) v.p.h.

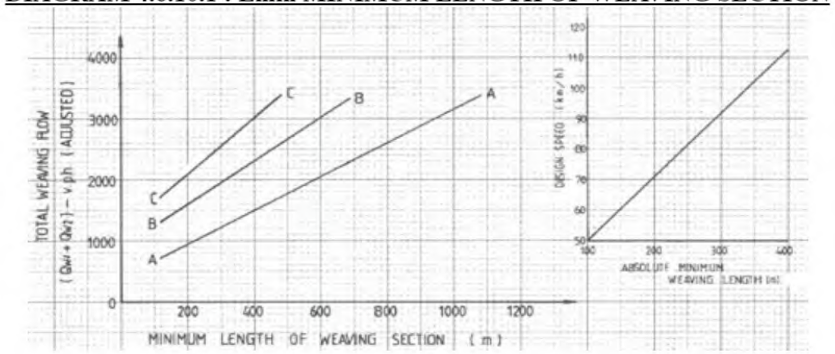
D = design flow per lane in v.p.h. as described in para. 4.6.10.4

Lmin = minimum weaving length (m)

Lact = actual weaving length (m)

Flow Distribution				Remarks
To PTI	=	352	pcu	(Total Trip Attraction of Housing + Commerical) + Bus attraction
From New Slip Road	=	20%		
From TYST Int	=	80%		
Weaving and Design Flow				
Qw1	=	281.2624	pcu	To PTI flow * split
Qnw1	=	2667	pcu	Baseflow on L10 + L13 (from traffic model)
Qw2	=	272	pcu	Baseflow on proposed slip road (from traffic model) + Trip Attraction of proposed school development
Qnw2	=	70.31559	pcu	To PTI flow * split
D	=	1867	pcu	
Percentage Correction according to TPDM v2 Table 4.6.8.1				
Percentage of HV	=	20	%	From survey
Gradient		Downhill		
Correction factor		1.04		
pcu factor	=	**1.2**		
Qw1	=	244	vph	
Qnw1	=	2312	vph	
Qw2	=	236	vph	
Qnw2	=	61	vph	
D	=	1556	vph	
Min. Length of Weaving Section				
Qw1 + Qw2	=	479	vph	(Total Weaving Flow)
From Diagram 4.6.10.1,				
Lmin (Line C)	=		m	(N/A)
Lmin (Abs.)	=	100	m	
Calculations				
Lmin	=	100	m	
Lact	=	110	m	
(Qnw1 + Qnw2 + Qw1)/D	=	1.68		
(2 x Lmin/Lact + 1) x (Qw2/D)	=	0.43		
N	=	2.11		**OK!**
No. of lanes provided	=	4		

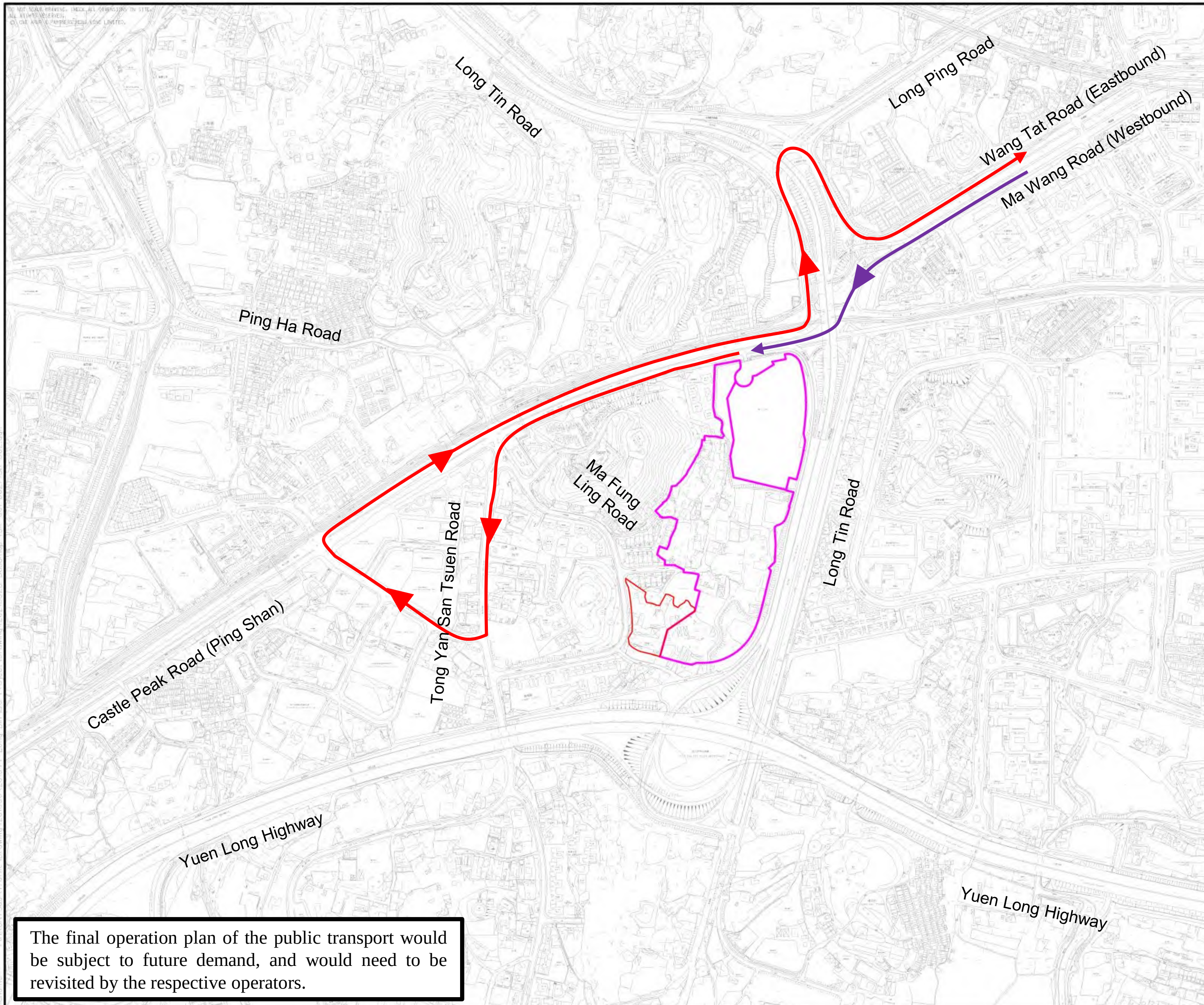
DIAGRAM 4.6.10.1 : Lmin MINIMUM LENGTH OF WEAVING SECTION



Line A should be used for very high standard rural roads with high design speeds around 100 km/h and consequently low design flows around 1200 v.p.h. per lane.
Line B should be adopted for the more normal standard of high capacity road in Hong Kong with a design speed around 80 km/h and a design flow of 1400 v.p.h. per lane.
Line C represents the urban condition with low design speed around 50 km/h and consequently higher design flow of 1600 v.p.h. per lane.

Appendix E

Proposed Bus Route



The final operation plan of the public transport would be subject to future demand, and would need to be revisited by the respective operators.

LEGEND:

- Arrival Route to Bus Stop
- Departure Route from Bus Stop

Rev	Description	By	Date

Consultant: ARUP

Project title: Agreement No. CE 75/2017 (CE) Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

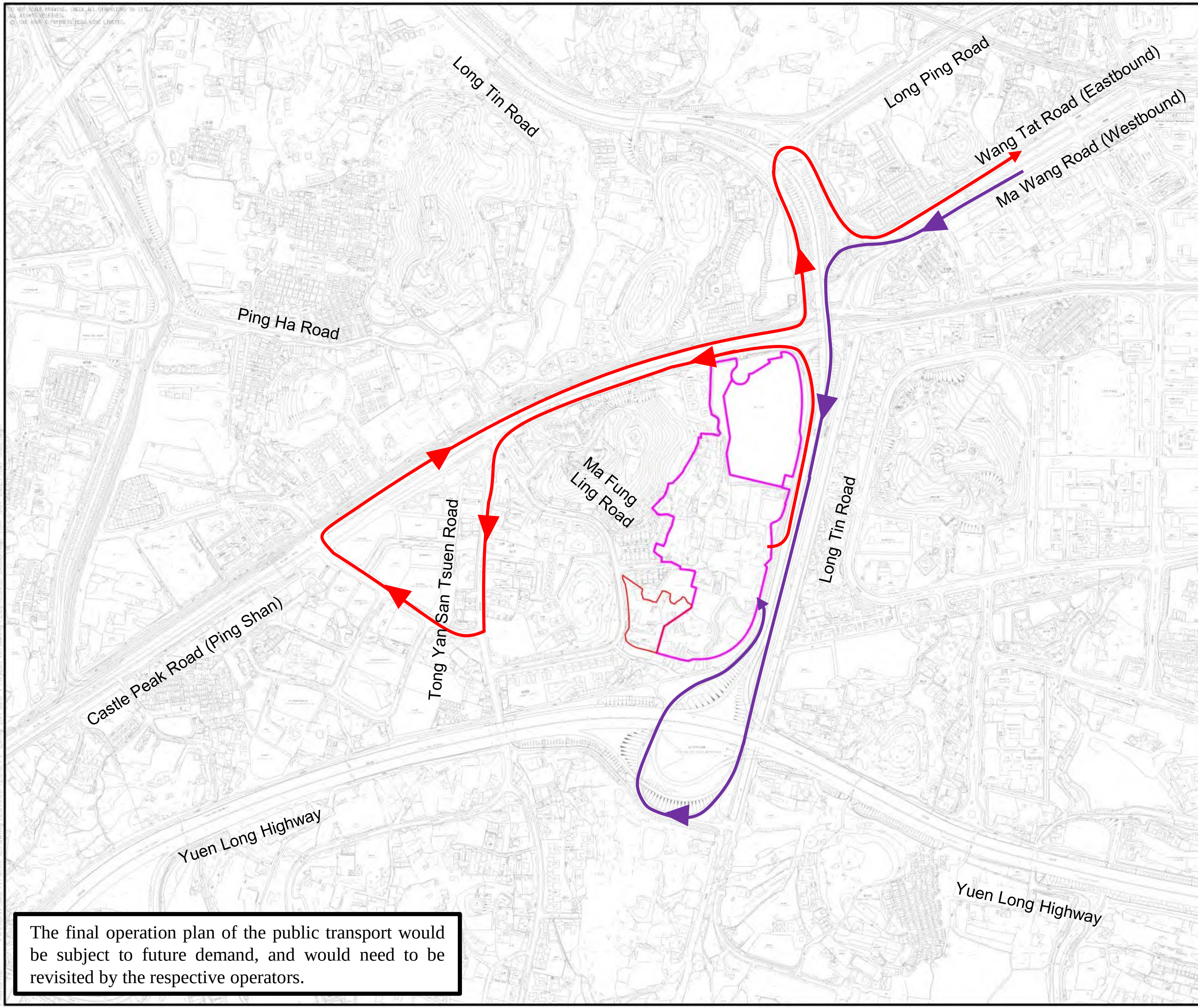
Drawing title: Proposed Bus Route A for Phase 1 (From/to Yuen Long Station PTI)

Drawing no. | Rev.

Drawn | Date | Checked | Approved

Scale | Status

土木工程拓展署 Civil Engineering and Development Department



The final operation plan of the public transport would be subject to future demand, and would need to be revisited by the respective operators.

LEGEND:

- Arrival Route to PTI
- Departure Route from PTI

Rev	Description	By	Date

Consultant

ARUP

Project title

Agreement No. CE 75/2017 (CE)

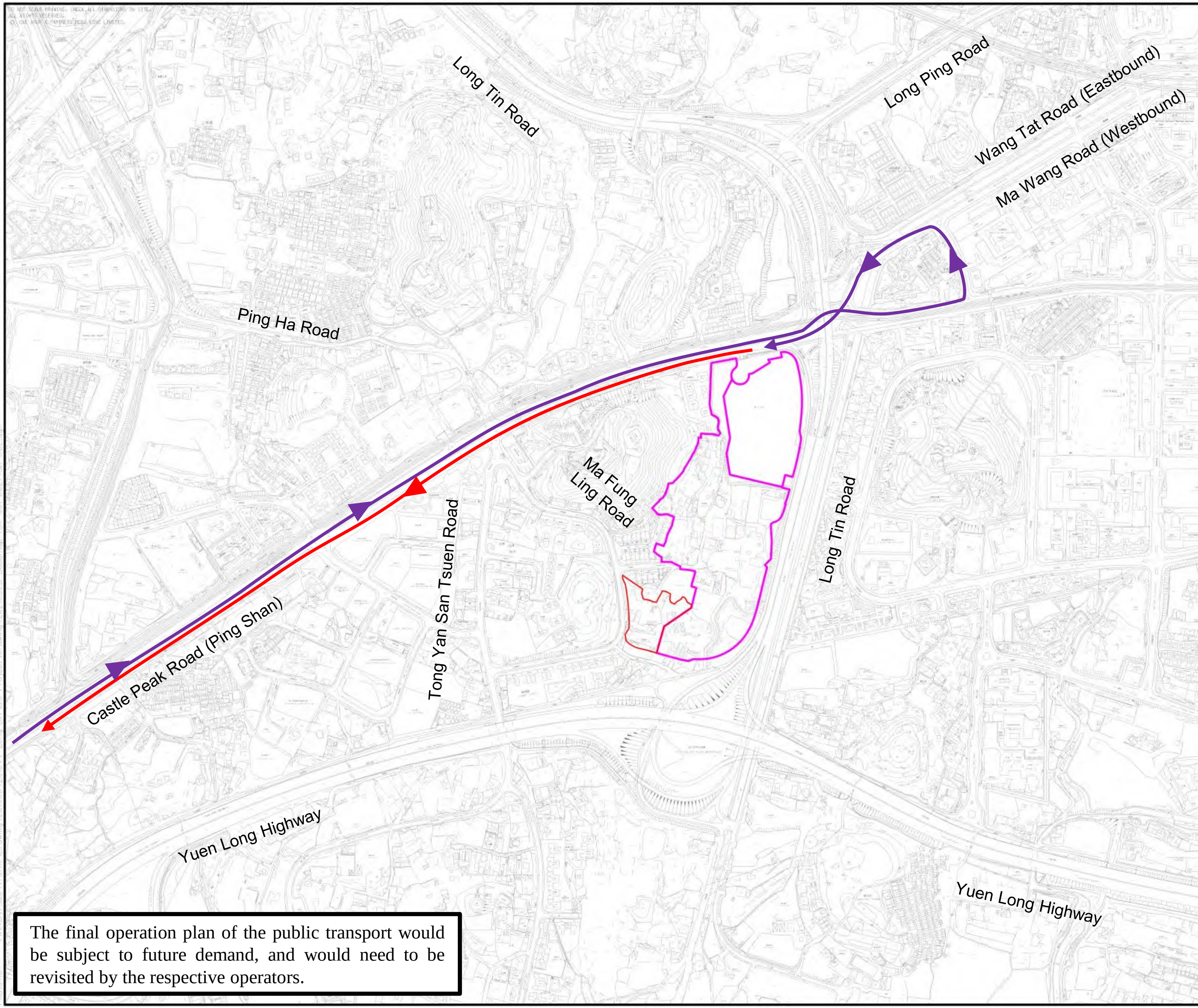
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title

Proposed Bus Route A for Phase 2 (From/to Yuen Long Station PTI)

Drawing no.			Rev.
Drawn	Date	Checked	Approved
Scale		Status	

土木工程拓展署
Civil Engineering and Development Department



LEGEND:

- Arrival Route to Bus Stop
- Departure Route from Bus Stop

Rev	Description	By	Date

Consultant

ARUP

Project title

Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title

Proposed Bus Route B for Phase 1 (From/to Tuen Mun Town Centre PTI)

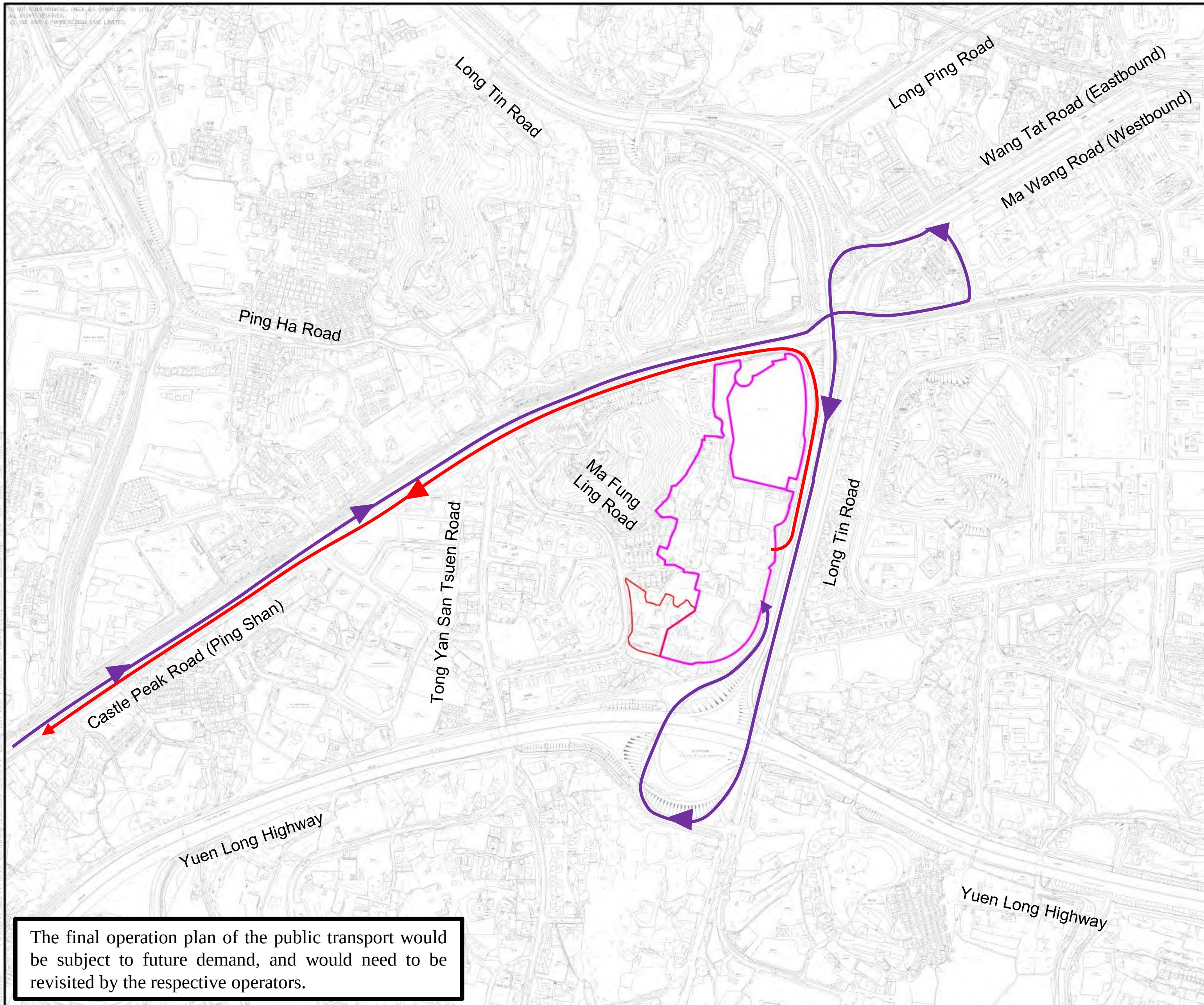
Drawing no. | Rev.

Drawn | Date | Checked | Approved

Scale | Status

CEDD 土木工程拓展署 Civil Engineering and Development Department

The final operation plan of the public transport would be subject to future demand, and would need to be revisited by the respective operators.



LEGEND:
Arrival Route to PTI
Departure Route from PTI

Rev	Description	By	Date

Consultant
ARUP

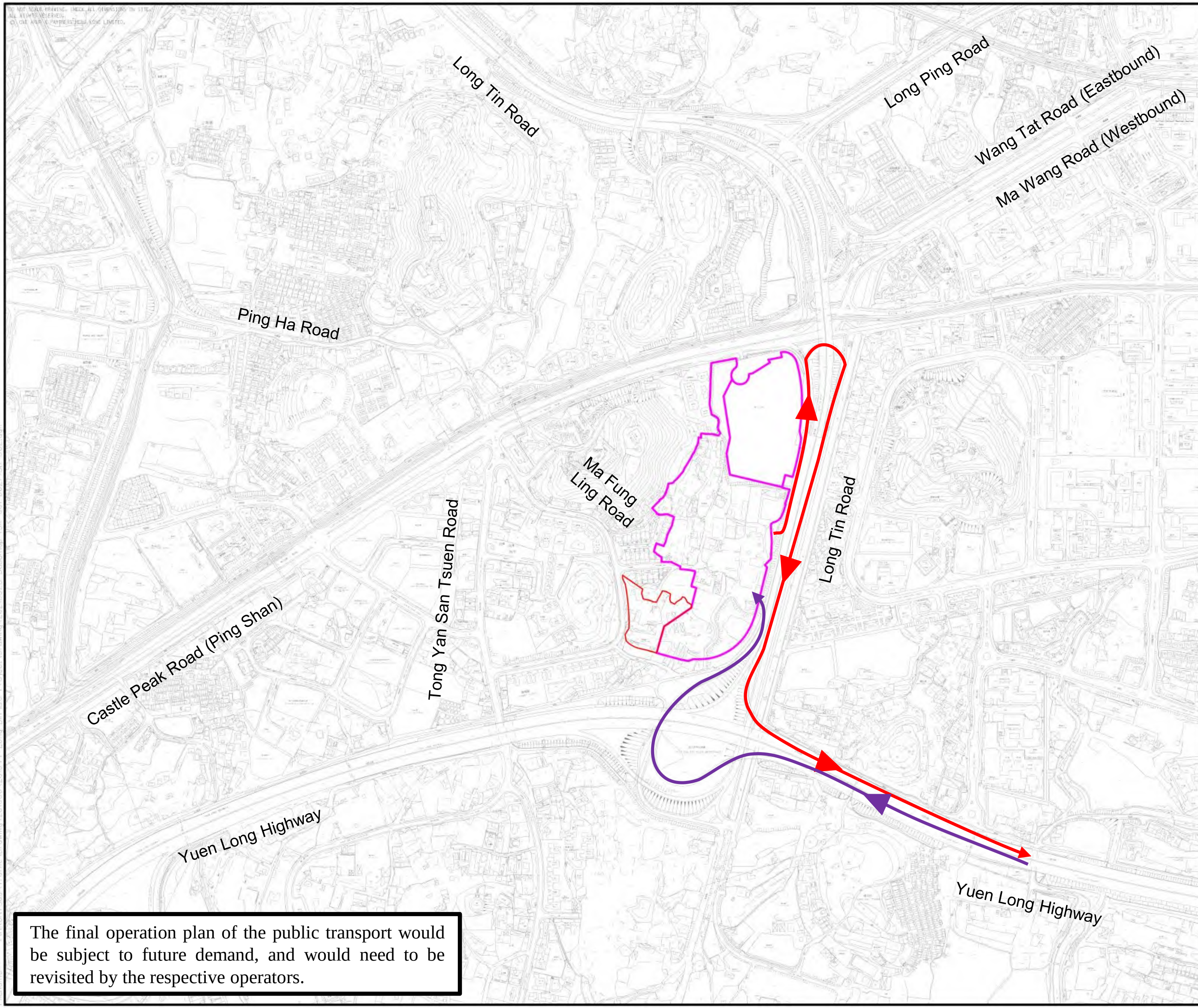
Project title
Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title
Proposed Bus Route B for Phase 2 (From/to Tuen Mun Town Centre PTI)

Drawing no. Rev.
Drawn Date Checked Approved
Scale Status

土木工程拓展署
Civil Engineering and Development Department

The final operation plan of the public transport would be subject to future demand, and would need to be revisited by the respective operators.



LEGEND:

- Arrival Route to PTI
- Departure Route from PTI

Rev	Description	By	Date

Consultant

ARUP

Project title

Agreement No. CE 75/2017 (CE)

Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

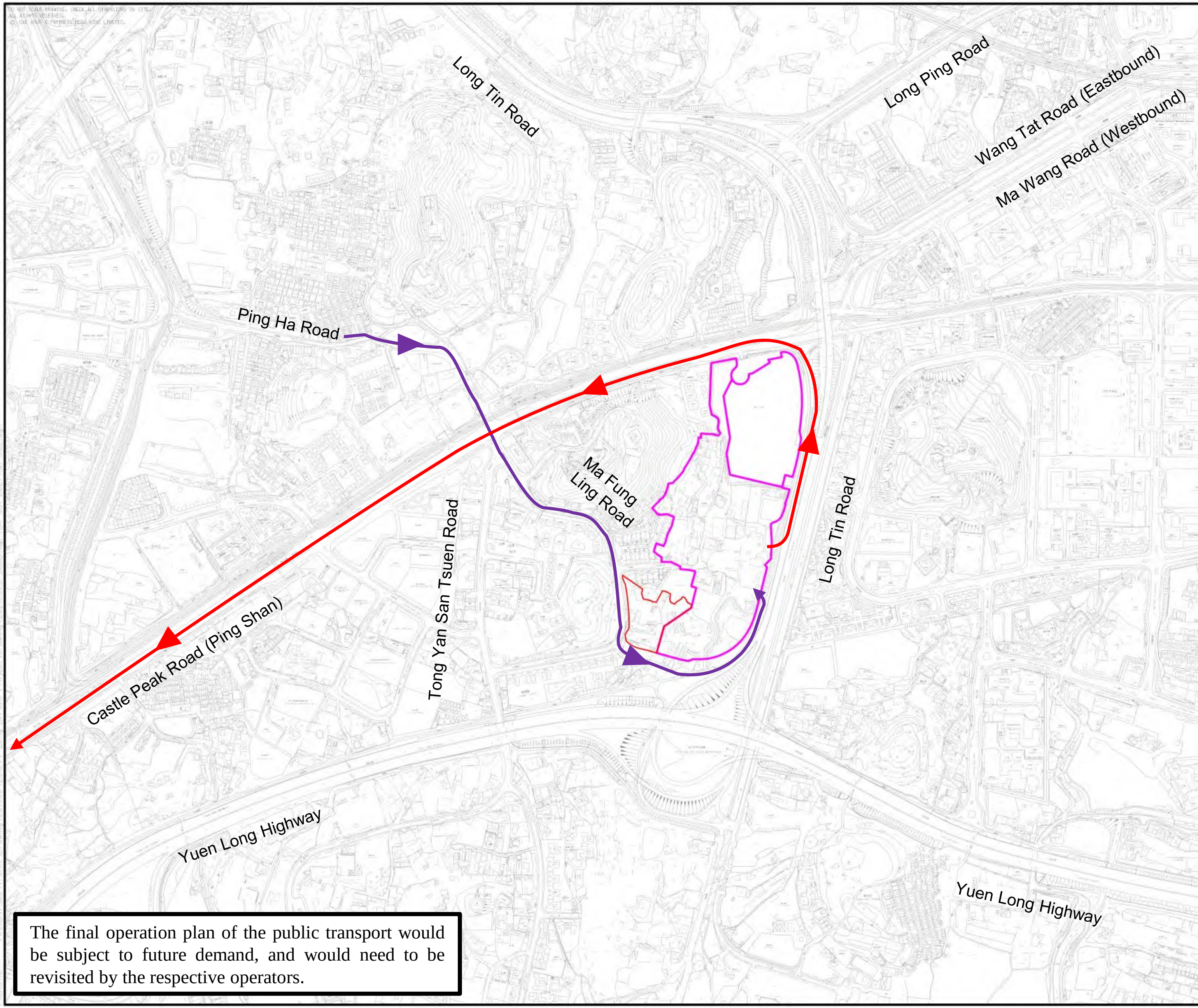
Drawing title

Proposed Bus Route C for Phase 1,2 (From/to Urban Area)

Drawing no.			Rev.
Drawn	Date	Checked	Approved
Scale		Status	

土木工程拓展署
Civil Engineering and Development Department

The final operation plan of the public transport would be subject to future demand, and would need to be revisited by the respective operators.



The final operation plan of the public transport would be subject to future demand, and would need to be revisited by the respective operators.

LEGEND:

- Arrival Route to PTI
- Departure Route from PTI

Rev	Description	By	Date

Consultant: ARUP

Project title: Agreement No. CE 75/2017 (CE) Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

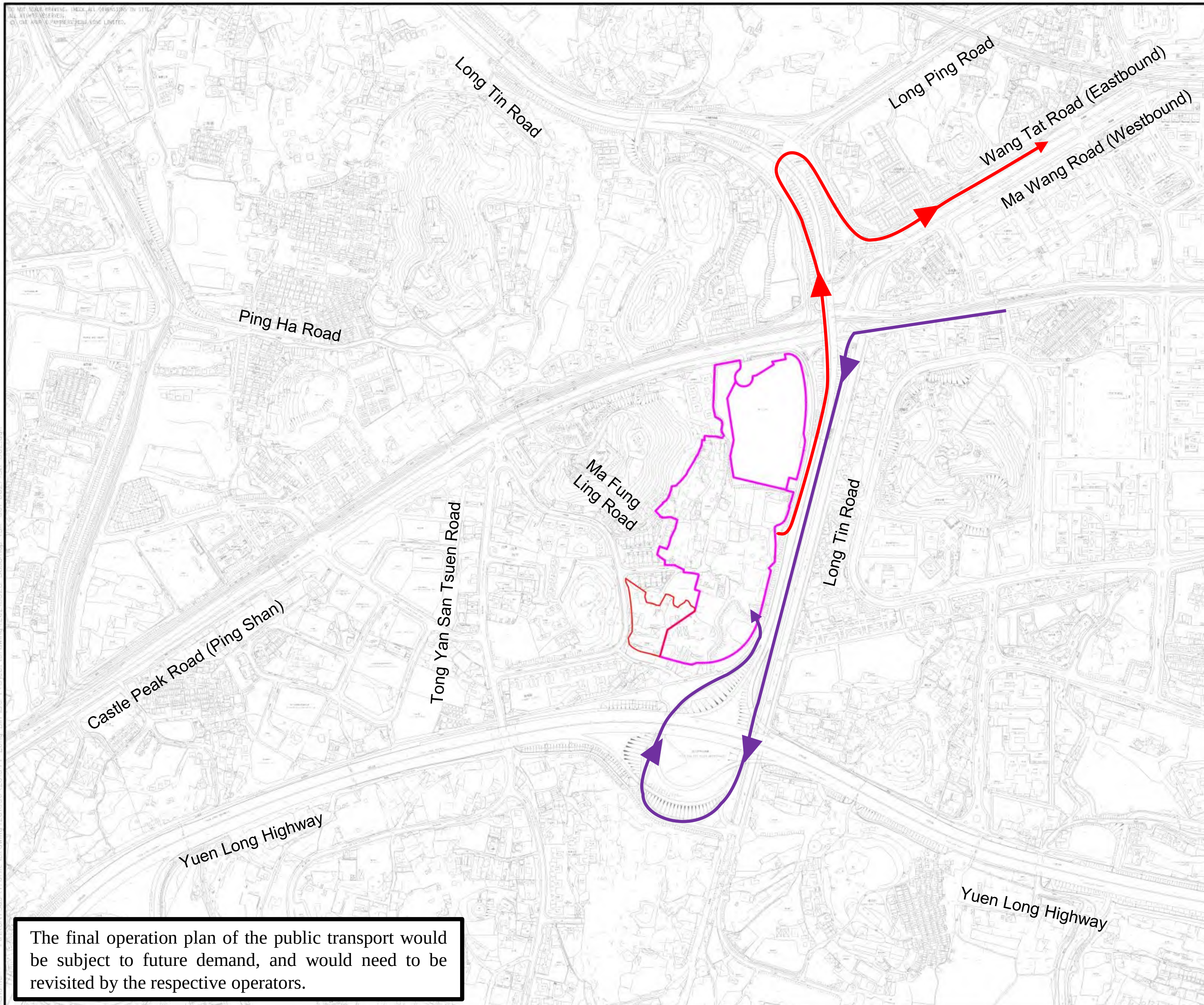
Drawing title: Proposed Bus Route D for Phase 1,2 (From/to HSK NDA)

Drawing no. | Rev.

Drawn | Date | Checked | Approved

Scale | Status

CEDD 土木工程拓展署 Civil Engineering and Development Department



The final operation plan of the public transport would be subject to future demand, and would need to be revisited by the respective operators.

Rev	Description	By	Date

Consultant
ARUP

Project title
Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title
Proposed Bus Route E for Phase 1,2 (From/to Yuen Long Station PTI via Yuen Long Industrial Area)

Drawing no.			Rev.
Drawn	Date	Checked	Approved
Scale		Status	

土木工程拓展署
Civil Engineering and Development Department

Appendix F

Extract of Agreement No. CE26/2015 (CE)

Extract of LegCo Paper No. CB(1)51/16-17(05)

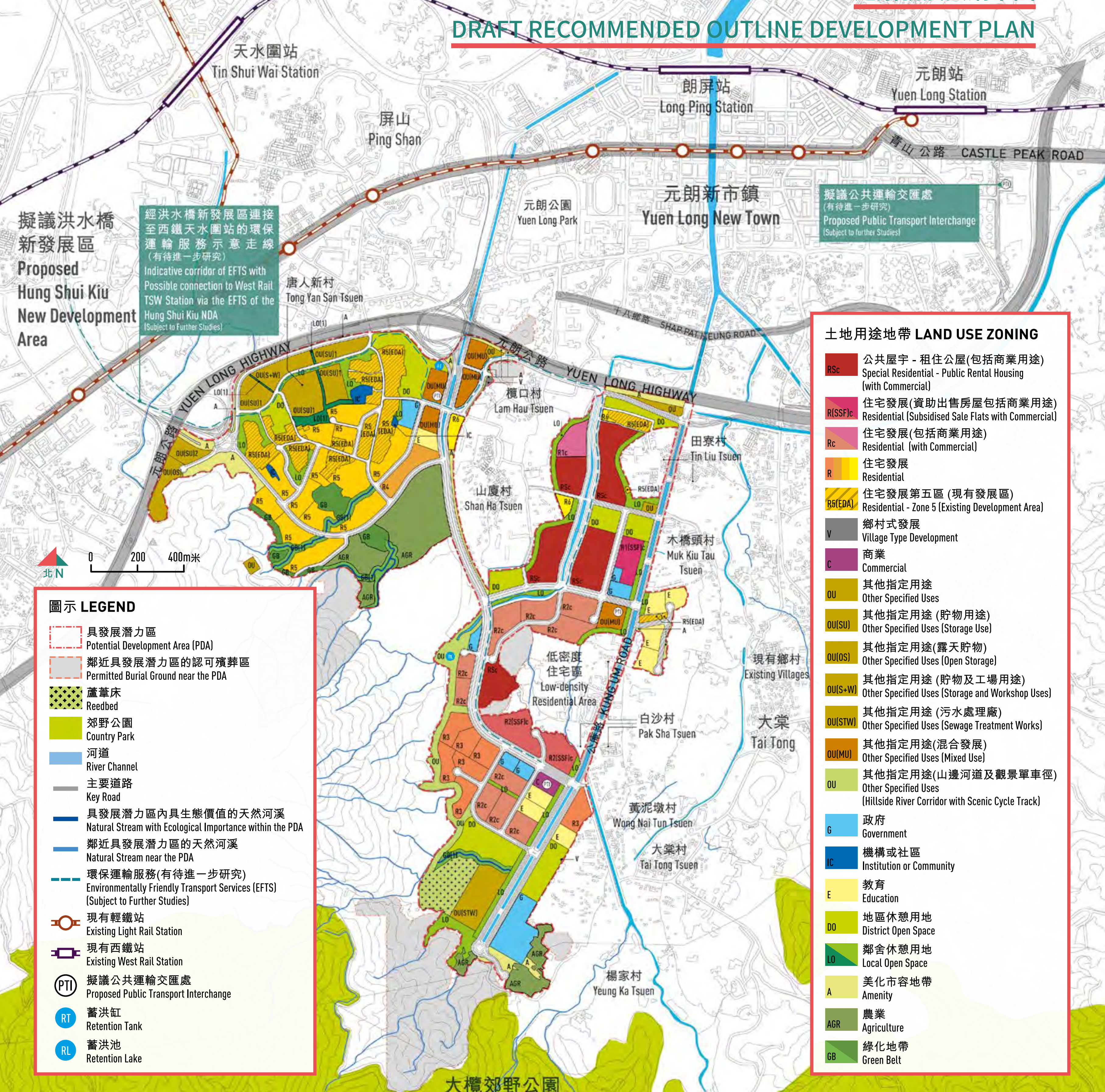
洪水橋新發展區經修訂的建議發展大綱圖
Hung Shui Kiu New Development Area Revised Recommended Outline Development Plan

West Rail Line
道路、路口及其他 Roads, Junctions etc.
擬建洪水橋站 Proposed Hung Shui Kiu Station
現有天水圍站 Existing Tin Shui Wai Station
環保運輸走廊 Green Transit Corridor
規劃中的道路項目 Road Projects under Planning
擬議文物徑 Proposed Heritage Trail
擬議生態徑 Proposed Eco Trail
非建築用地 Non-Building Area (NBA)
公共運輸交匯處 Public Transport Interchange (PTI)
醫院和專科及分科診療所 Hospital, Specialist Clinic / Polyclinic
區消防局暨救護站及職員宿舍 Divisional Fire Station cum Ambulance Depot cum Staff Quarters
警區警署及已婚警察宿舍 District Police Station and Married Quarters
擬議街市 Proposed Market
（三個擬議街市包括在一個方便易達的「政府」用地內設立大型街市以服務有關區域。就這些街市的確實位置將作進一步研究。）
(Three proposed markets including one of reasonably large size to be provided on a "Government" site to serve the community in the region. Specific locations of these markets will be subject to further assessment.)

Flood Retention Lake
蓄洪設施 Flood Retention Facilities
商店街 Shopping Street
步行街 Pedestrian Street
現有架空輸電纜 Existing Overhead Transmission Lines
WRL EAP 西鐵綫緊急通道 West Rail Line Emergency Access Point
ESS 電力支站 Electricity Substation
LPG 石油氣加氣站 Liquefied Petroleum Gas Filling Station
PFS 加油站 Petrol Filling Station
RCP 垃圾收集站 Refuse Collection Point
RTS 廢物轉運站 Refuse Transfer Station
SPS 污水抽水站 Sewage Pumping Station
STW 污水處理廠 Sewage Treatment Works
TE 電話機樓 Telephone Exchange

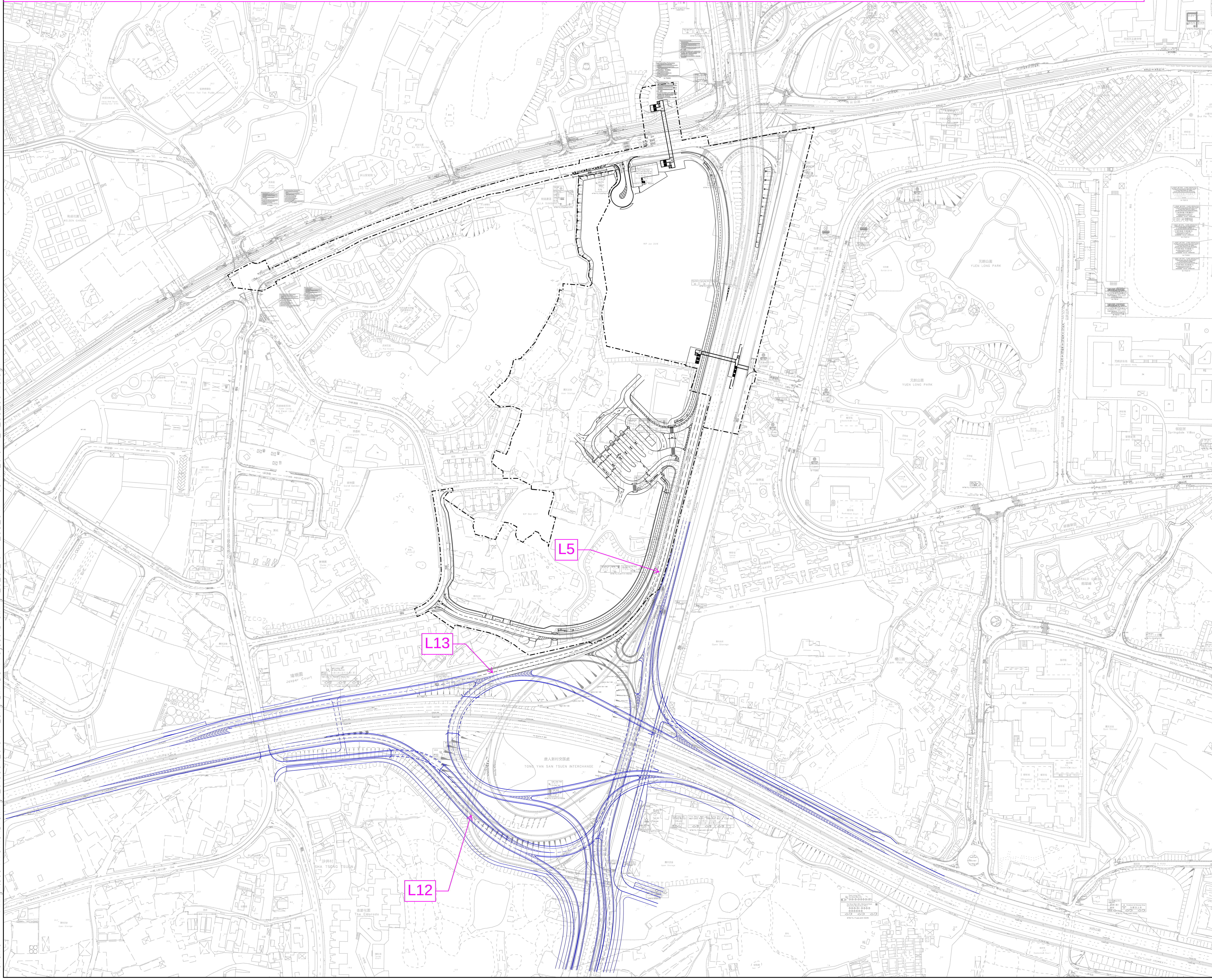
各種土地用途 Schedule of Uses		地積比率 Plot Ratio
C	商業 Commercial	1.5 / 5 / 8 / 9.5
R1	住宅發展密度第一區（原區安置） Residential - Zone 1 (Local Rehousing)	5.5
R1c	住宅發展密度第一區（原區安置）（包括商業用途） Residential - Zone 1 (Local Rehousing) (with commercial)	6
R1c	住宅發展密度第一區（包括商業用途） Residential - Zone 1 (with commercial)	6 / 6.5
R2	住宅發展密度第二區 Residential - Zone 2	5
R2c	住宅發展密度第二區（包括商業用途） Residential - Zone 2 (with commercial)	5.5
R3	住宅發展密度第三區 Residential - Zone 3	2.5
R3c	住宅發展密度第三區（包括商業用途） Residential - Zone 3 (with commercial)	3.5
R4	住宅發展密度第四區 Residential - Zone 4	--
RR4	鄉郊住宅發展密度第四區 Rural Residential - Zone 4	--
RSc	公共屋宇 - 租住公屋（包括商業用途） Special Residential - Public Rental Housing (with commercial)	6
R2(SSF)c	住宅發展密度第二區（資助出售房屋）（包括商業用途） Residential - Zone 2 (Subsidised Sales Flat) (with commercial)	5.5
I	工業 Industry	3
OU	其他指定用途 - 商業及住宅發展 Other Specified Uses - Commercial & Residential Development	7
OU	其他指定用途 - 商業及住宅發展（包括輕鐵設施） Other Specified Uses - Commercial & Residential Development (with Light Rail Facilities)	5
OU(LF)	其他指定用途（物流設施） Other Specified Uses (Logistics Facility)	5
OU(E+TP)	其他指定用途（企業和科技園） Other Specified Uses (Enterprise and Technology Park)	5
OU(PBU+SWU)	其他指定用途（港口後勤、貯物及工場用途） Other Specified Uses (Port Back-up, Storage and Workshop Uses)	
OU	其他指定用途 Other Specified Uses	
OU	其他指定用途 - 區域廣場 Other Specified Uses - Regional Plaza	
V	鄉村式發展 Village Type Development	
G	政府 Government	
IC	機構或社區 Institution or Community	
E	教育 Education	
GB	綠化地帶 Green Belt	
RO	區域休憩用地 Regional Open Space	
DO	地區休憩用地 District Open Space	
LO	鄰舍休憩用地 Local Open Space	
A	美化市容地帶 Amenity Area	

* 土地用途及發展密度按照現時分區計劃大綱圖的規定
Land use and development intensity based on the provisions in current Outline Zoning Plans



建議發展大綱草圖在第33頁 Draft RODP at Page 33

Tong Yan San Tsuen Interchange Improvement Scheme received in November 2018



LEGEND

BOUNDARIES OF THE SITE

Consultant

ARUP

Project title

Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title

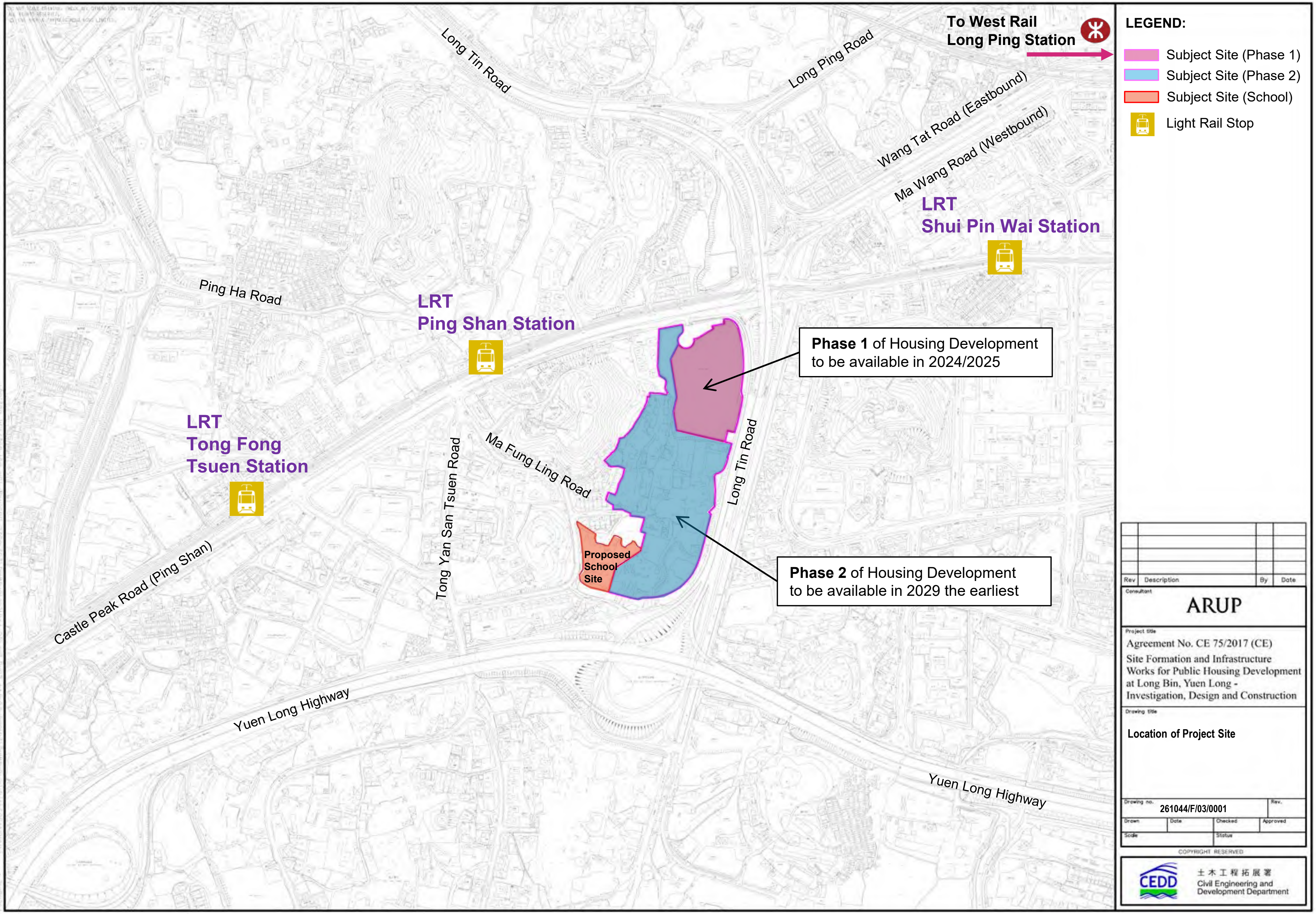
PROPOSED ROAD LAYOUT OF THE DEVELOPMENT (WITH BOTH PHASES) (ULTIMATE LAYOUT)

Drawing no.			Rev.
Drawn YKMM	Date 04/19	Checked TC	Approved RT
Scale 1:2000 @ A1		Status DRAFT	

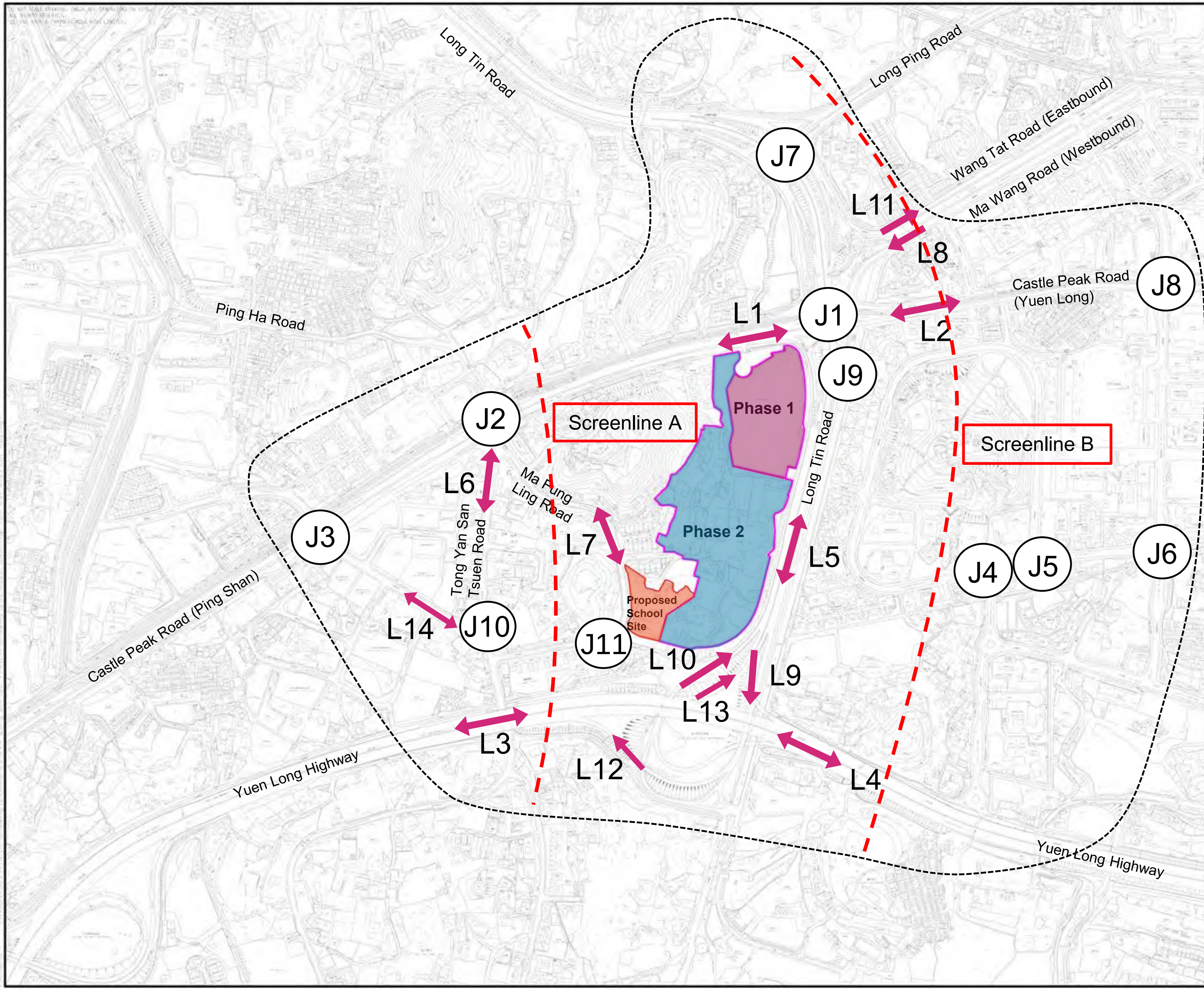
土木工程拓展署
Civil Engineering and Development Department

Printed by : KH Cheuk 7/1/2021
Filename : \\hkgnts69\Traffic\Drawing\261000\261044 Long Bin IDC Project\Drawing\20201216 (F_03_041 - 054)\261044_F_03_0041C.dgn

Drawings



To West Rail
Long Ping Station
LEGEND:
Subject Site (Phase 1)
Subject Site (Phase 2)
Subject Site (School)
Light Rail Stop
Long Tin Road
Long Ping Road
Wang Tat Road (Eastbound)
Ma Wang Road (Westbound)
LRT
Shui Pin Wai Station
Ping Ha Road
LRT
Ping Shan Station
Phase 1 of Housing Development
to be available in 2024/2025
LRT
Tong Fong
Tsuen Station
Tong Yan San Tsuen Road
Ma Fung Ling Road
Long Tin Road
Proposed
School
Site
Phase 2 of Housing Development
to be available in 2029 the earliest
Castle Peak Road (Ping Shan)
Yuen Long Highway
Yuen Long Highway
Rev
Description
By
Date
Consultant
ARUP
Project title
Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure
Works for Public Housing Development
at Long Bin, Yuen Long -
Investigation, Design and Construction
Drawing title
Location of Project Site
Drawing no.
261044/F/03/0001
Rev.
Drawn
Date
Checked
Approved
Scale
Status
COPYRIGHT RESERVED
CEDD
土木工程拓展署
Civil Engineering and
Development Department



LEGEND:

- Subject Site (Phase 1)
- Subject Site (Phase 2)
- Subject Site (School)
- Area of Influence (AOI)
- J1 Junction for Assessment
- Road Link for Assessment
- Screenlines

Rev	Description	By	Date

Consultant: ARUP

Project title: Agreement No. CE 75/2017 (CE) Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title: Area of Influence and Location of Assessed Junctions and Road Links

Drawing no. 261044/F/03/0002

土木工程拓展署 Civil Engineering and Development Department

LEGEND:

- 100 No. of Parking Spaces for Public Use
- Cycle Track
- Cycle Ramp/ Subway/ Bridge

Rev	Description	By	Date

Consultant: ARUP

Project title: Agreement No. CE 75/2017 (CE) Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

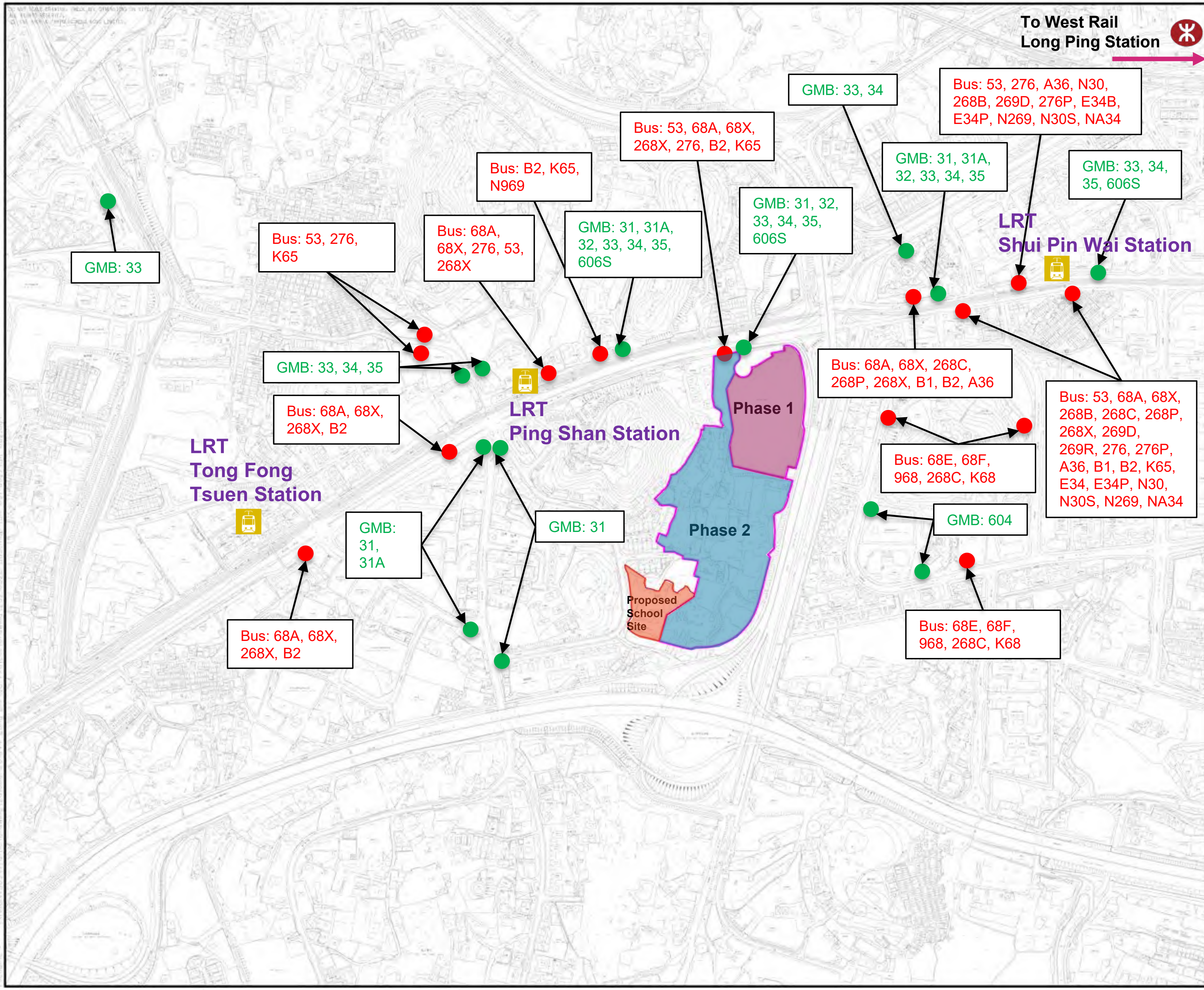
Drawing title: **Existing Cycle Track Network in the vicinity of the Project Site**

Drawing no. 261044/F/03/0003

Drawn	Date	Checked	Approved
Scale		Status	

土木工程拓展署
CEDD Civil Engineering and Development Department

Source: https://www.td.gov.hk/mini_site/cic/en/cycling-infrastructure/cycle-tracks-and-parkings/index.html



LEGEND:

- Subject Site (Phase 1)
- Subject Site (Phase 2)
- Subject Site (School)
- Light Rail Stop
- Bus Stop
- Minibus Stop

Rev	Description	By	Date

Consultant: ARUP

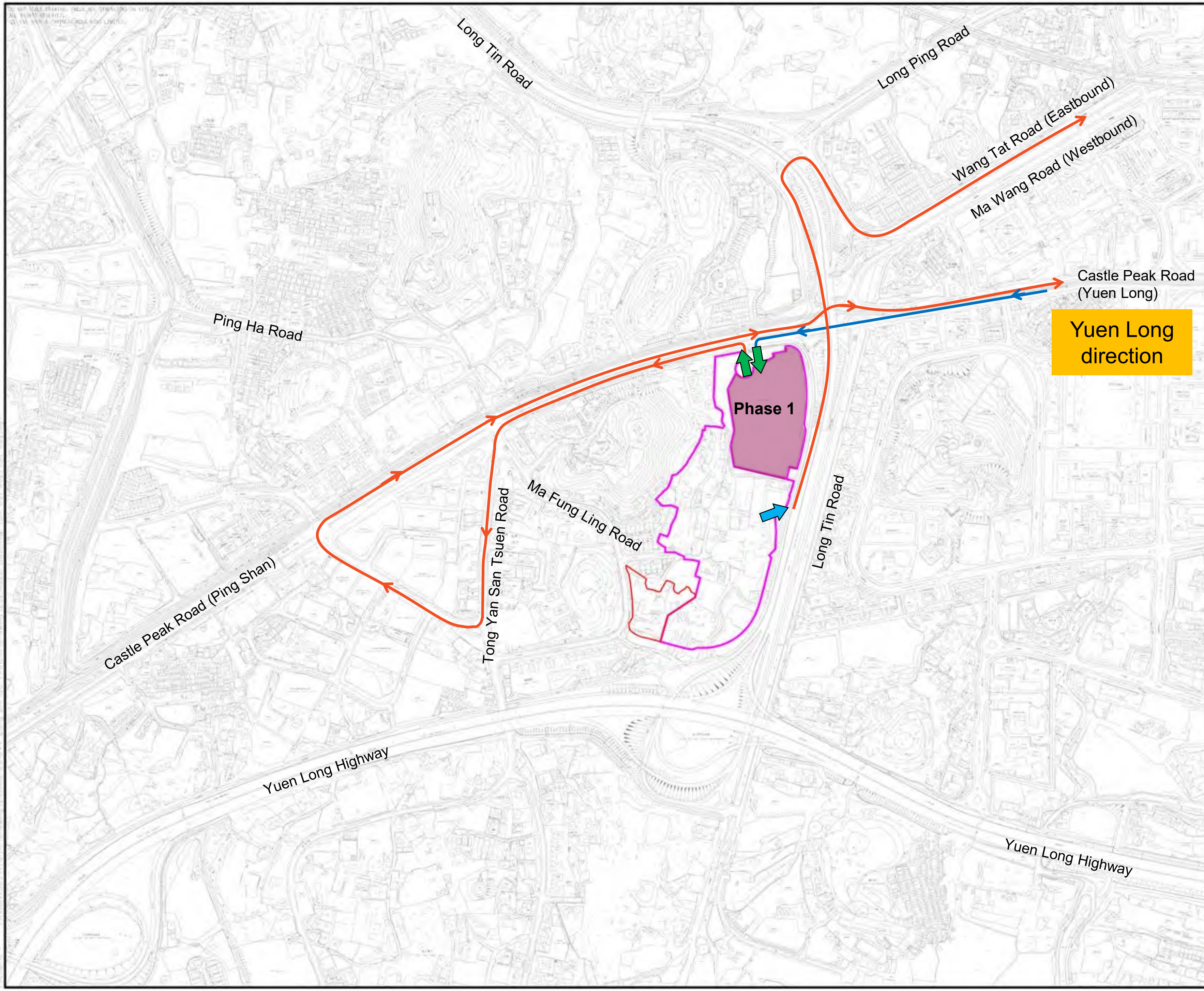
Project title: Agreement No. CE 75/2017 (CE) Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title: **Existing Public Transport Services within the Study Area**

Drawing no. 261044/F/03/0004

Drawn	Date	Checked	Approved
Scale		Status	

土木工程拓展署
Civil Engineering and Development Department



LEGEND:

- Subject Site (Phase 1)
- Major Ingress Route
- Major Egress Route
- Major Ingress/ Egress Point
- Additional Egress Point

Rev	Description	By	Date

Consultant

ARUP

Project title

Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title

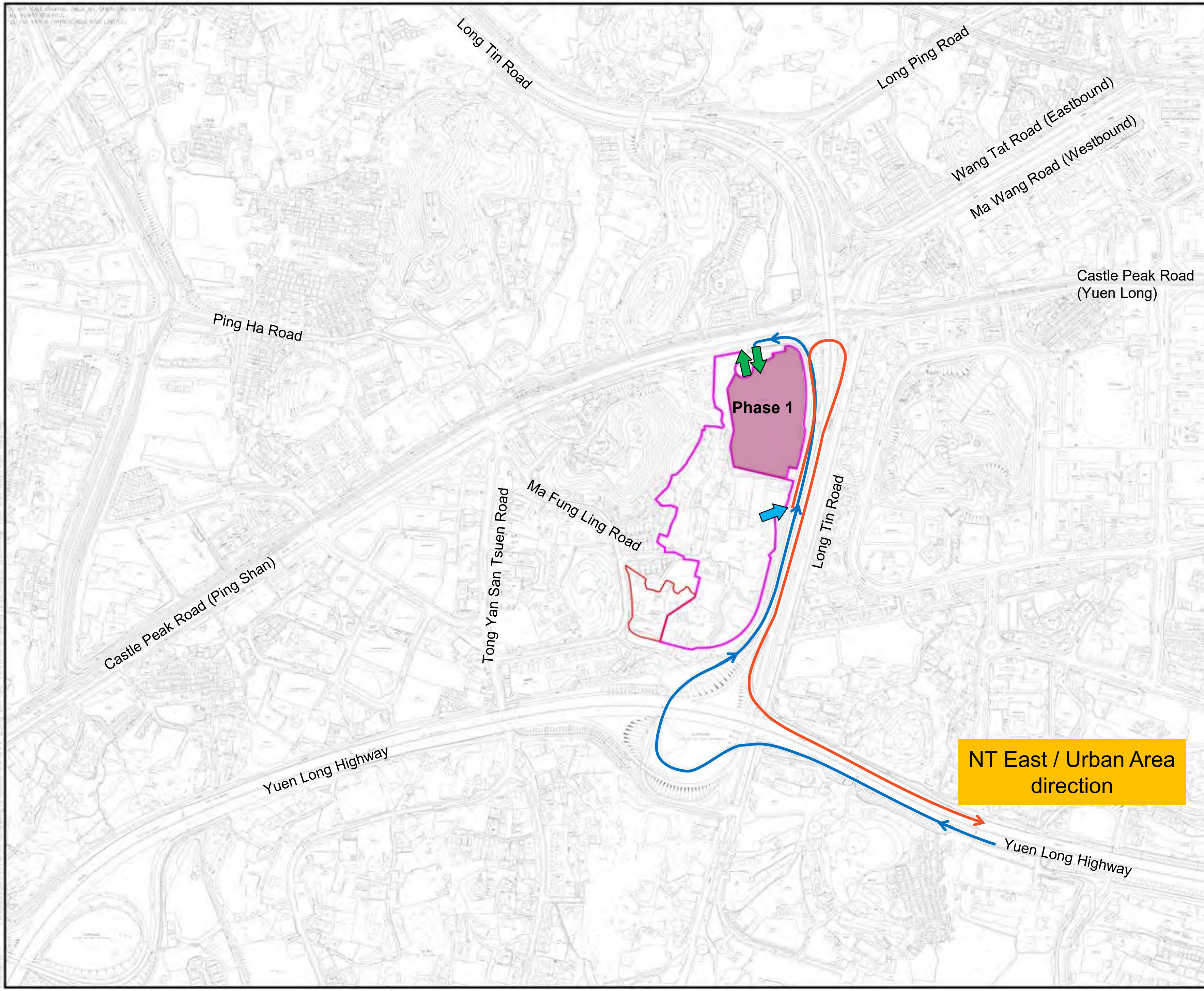
Proposed Accessibility Arrangement (Phase 1 only Scenario) (1 of 4)

Drawing no.	Rev.
261044/F/03/0011	

Drawn	Date	Checked	Approved

Scale	Status

CEDD 土木工程拓展署 Civil Engineering and Development Department



LEGEND:

- Subject Site (Phase 1)
- Major Ingress Route
- Major Egress Route
- Major Ingress/ Egress Point
- Additional Egress Point

Rev	Description	By	Date

Consultant: ARUP

Project title: Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

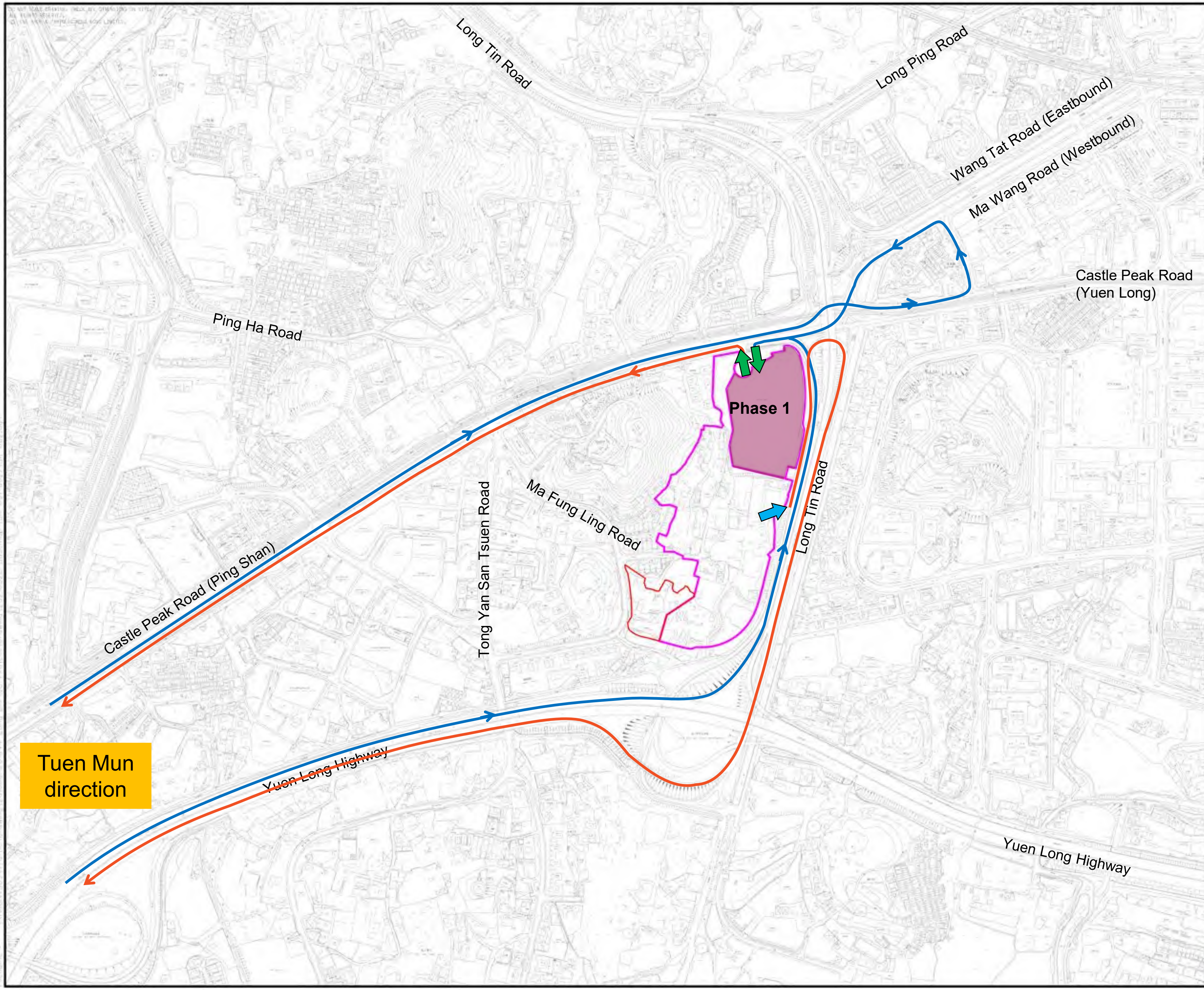
Drawing title: **Proposed Accessibility Arrangement (Phase 1 only Scenario) (2 of 4)**

Drawing no. 261044/F/03/0012 | Rev.

Drawn | Date | Checked | Approved

Scale | Status

土木工程拓展署
Civil Engineering and Development Department



LEGEND:

- Subject Site (Phase 1)
- Major Ingress Route
- Major Egress Route
- Major Ingress/ Egress Point
- Additional Egress Point

Rev	Description	By	Date

Consultant

ARUP

Project title

Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title

Proposed Accessibility Arrangement (Phase 1 only Scenario) (3 of 4)

Drawing no.	261044/F/03/0013	Rev.	
Drawn	Date	Checked	Approved
Scale		Status	

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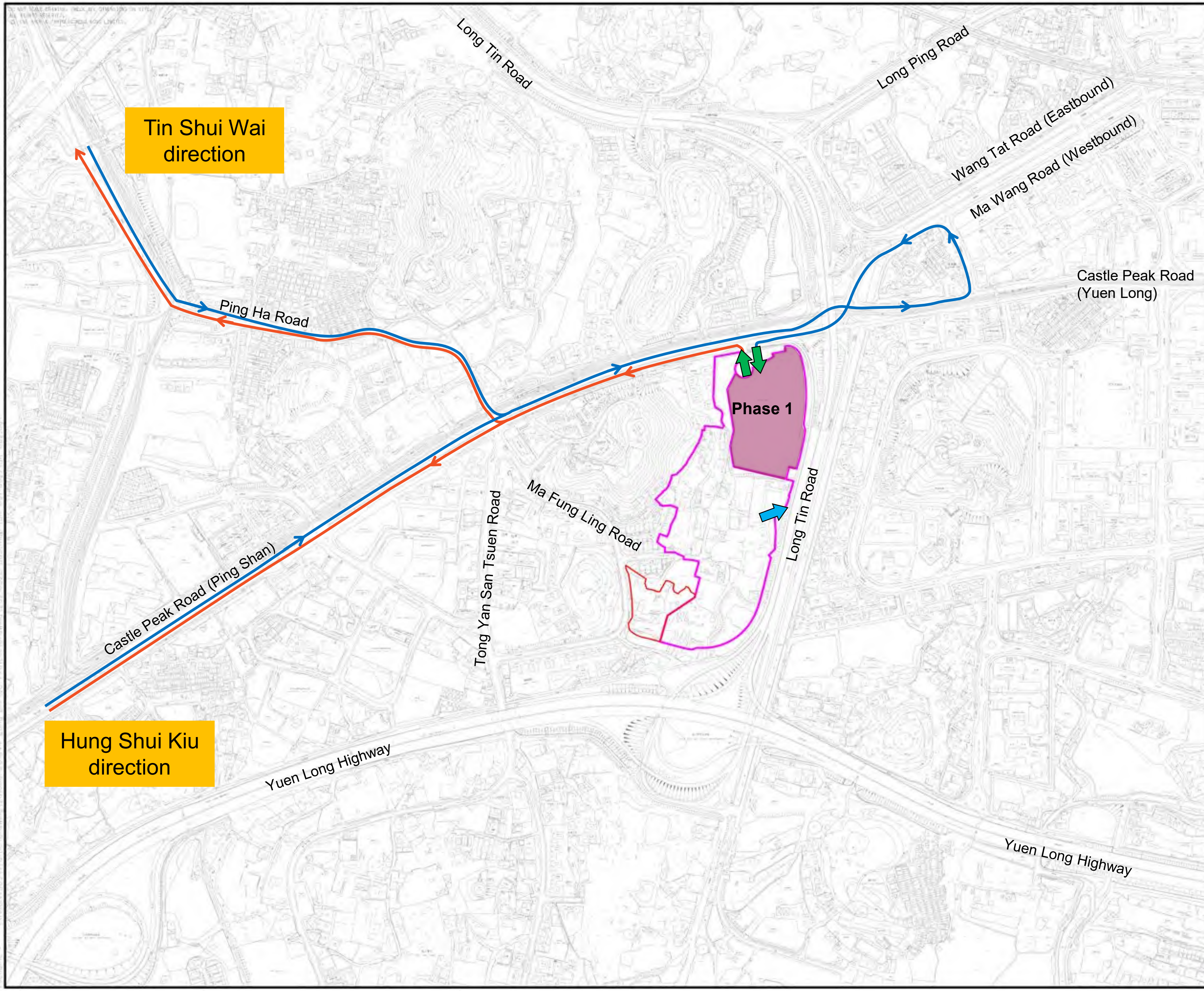
CEDD 土木工程拓展署
Civil Engineering and Development Department



LEGEND:

- Subject Site (Phase 1)
- Major Ingress Route
- Major Egress Route
- Major Ingress/ Egress Point
- Additional Egress Point

Rev	Description	By	Date

Consultant: ARUP

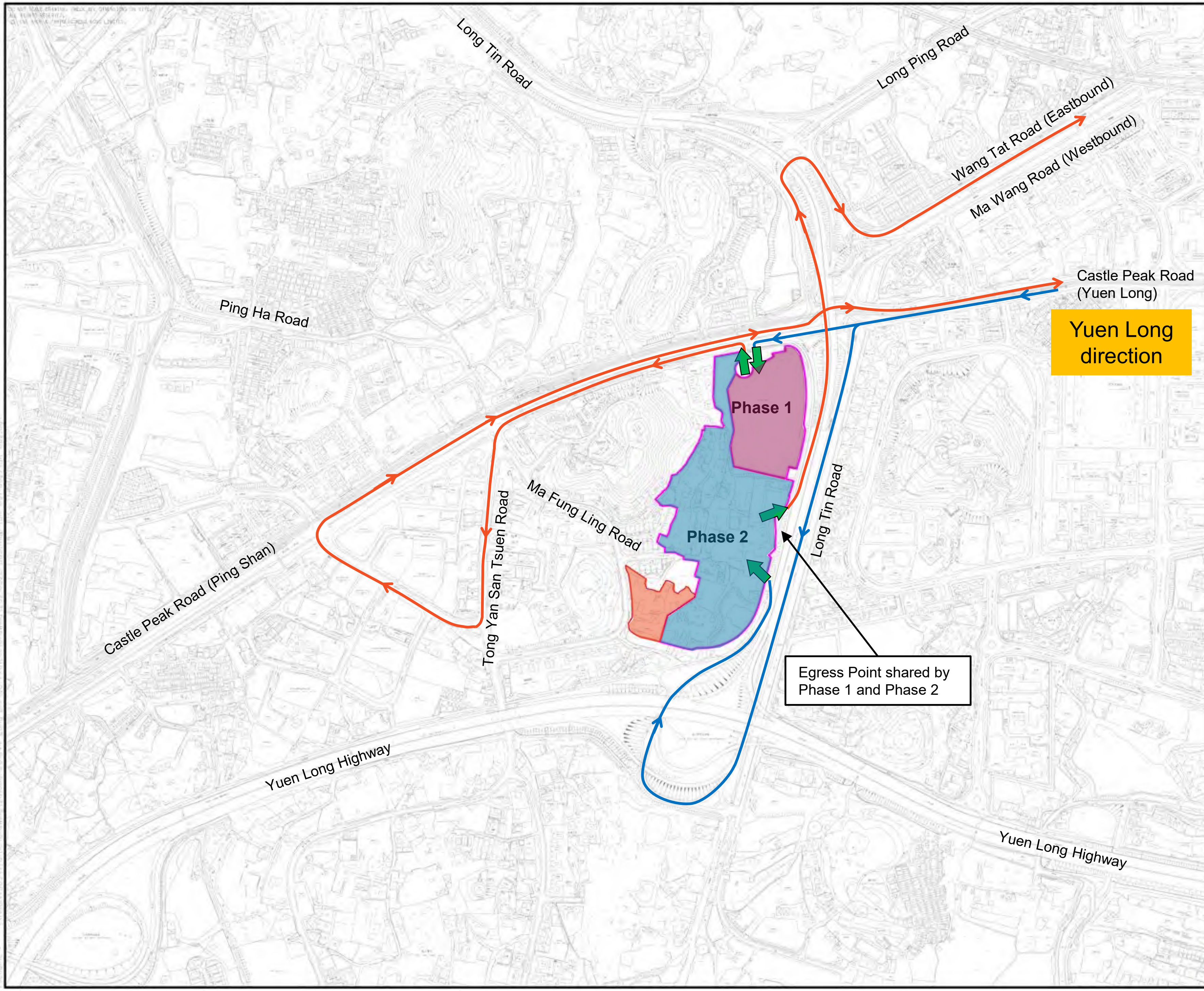
Project title
Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title
Proposed Accessibility Arrangement (Phase 1 only Scenario) (4 of 4)

Drawing no. 261044/F/03/0014 Rev.

Drawn | Date | Checked | Approved
Scale | Status

CEDD 土木工程拓展署 Civil Engineering and Development Department



LEGEND:

- Subject Site (Phase 1)
- Subject Site (Phase 2)
- Subject Site (School)
- Major Ingress Route
- Major Egress Route
- Major Ingress/ Egress Point

Rev	Description	By	Date

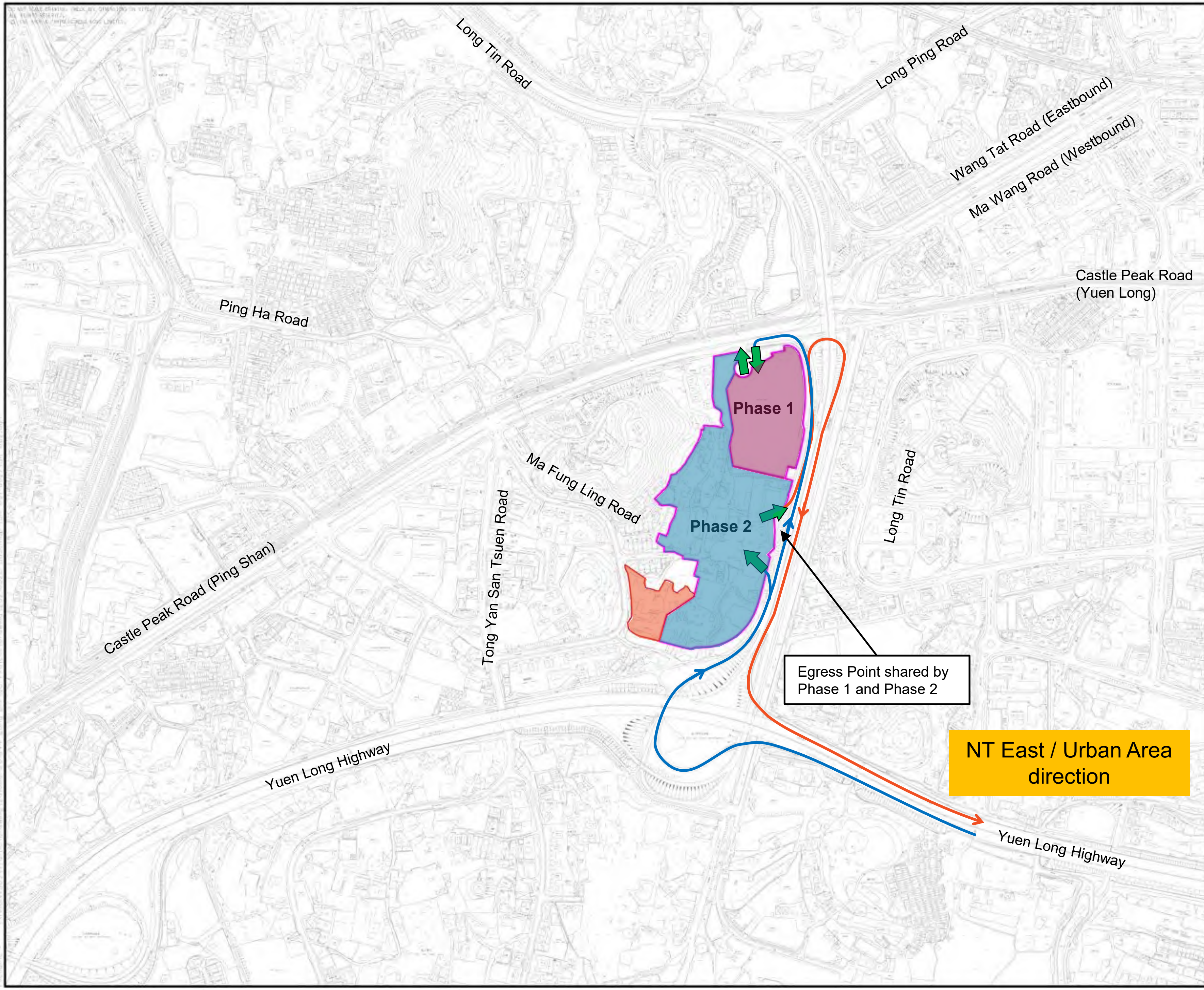
Consultant: ARUP

Project title: Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title: **Proposed Accessibility Arrangement (Both Phases Scenario) (1 of 4)**

Drawing no. 261044/F/03/0021

CEDD 土木工程拓展署 Civil Engineering and Development Department



LEGEND:

- Subject Site (Phase 1)
- Subject Site (Phase 2)
- Subject Site (School)
- Major Ingress Route
- Major Egress Route
- Major Ingress/ Egress Point

Rev	Description	By	Date

Consultant: ARUP

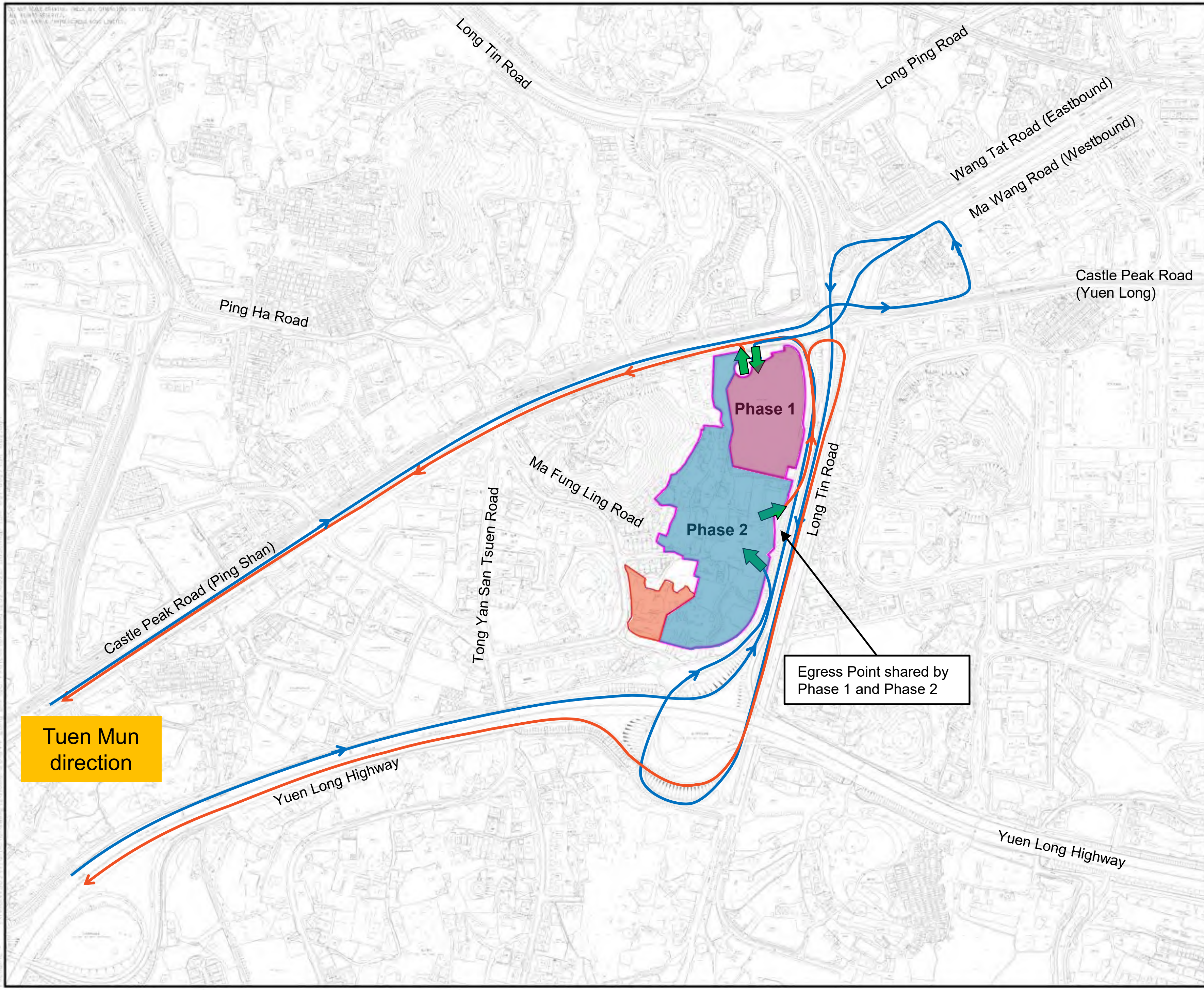
Project title: Agreement No. CE 75/2017 (CE) Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title: **Proposed Accessibility Arrangement (Both Phases Scenario) (2 of 4)**

Drawing no. 261044/F/03/0022

Drawn	Date	Checked	Approved
Scale		Status	

CEDD 土木工程拓展署 Civil Engineering and Development Department



LEGEND:

- Subject Site (Phase 1)
- Subject Site (Phase 2)
- Subject Site (School)
- Major Ingress Route
- Major Egress Route
- Major Ingress/ Egress Point

Rev	Description	By	Date

Consultant

ARUP

Project title

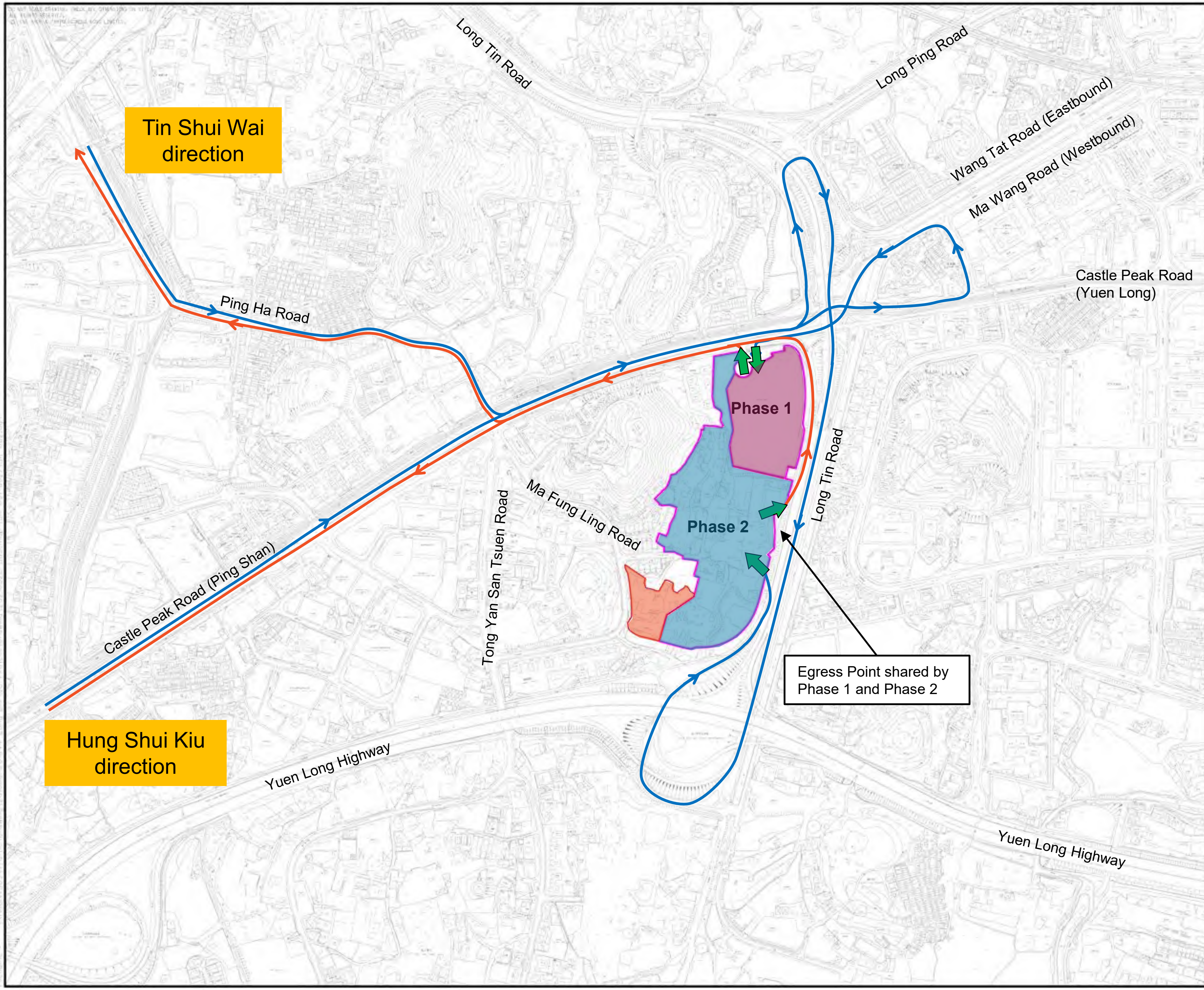
Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title

Proposed Accessibility Arrangement (Both Phases Scenario) (3 of 4)

Drawing no.			Rev.
261044/F/03/0023			
Drawn	Date	Checked	Approved
Scale		Status	

土木工程拓展署
Civil Engineering and Development Department



LEGEND:

- Subject Site (Phase 1)
- Subject Site (Phase 2)
- Subject Site (School)
- Major Ingress Route
- Major Egress Route
- Major Ingress/ Egress Point

Rev	Description	By	Date

Consultant: ARUP

Project title: Agreement No. CE 75/2017 (CE) Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

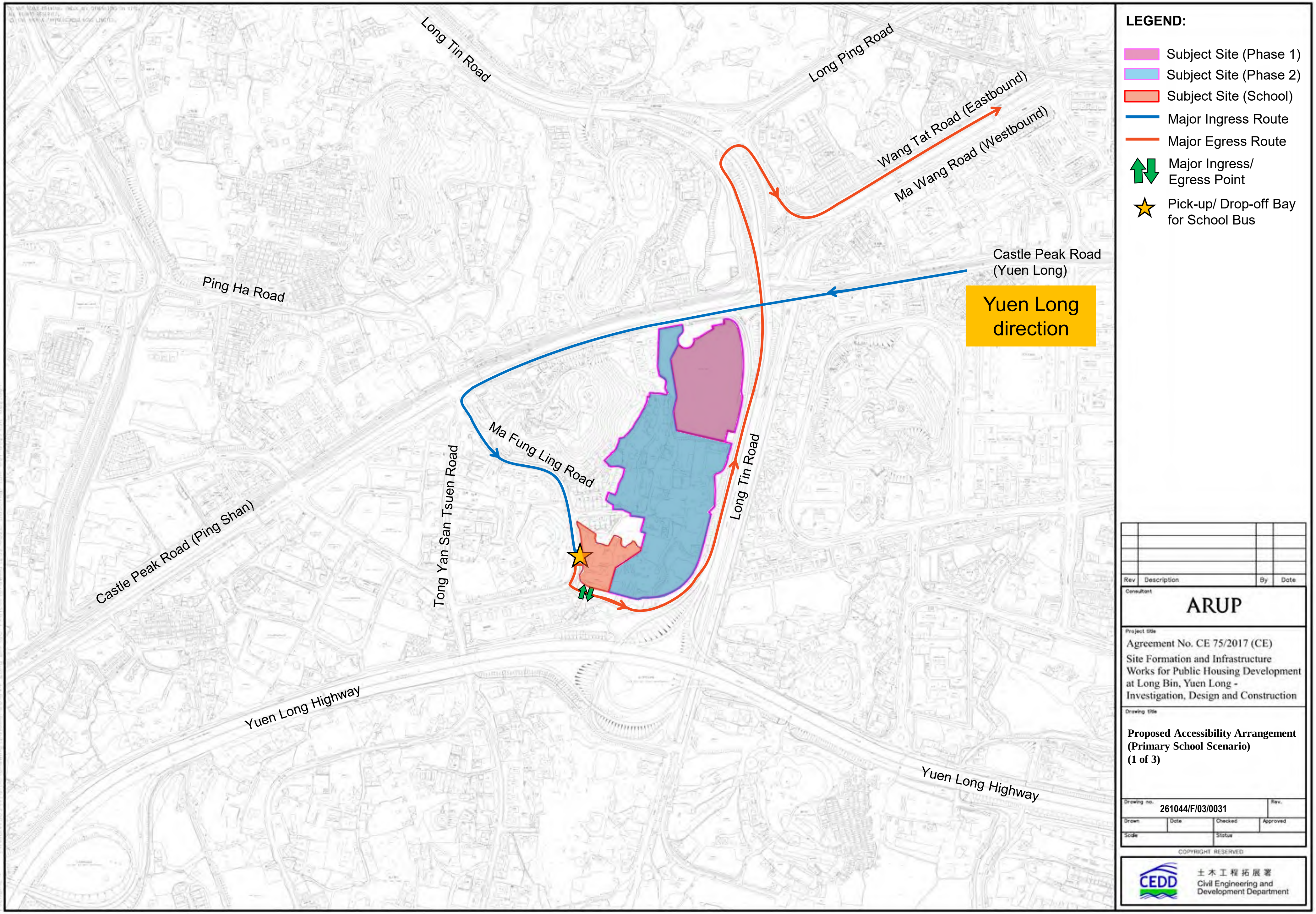
Drawing title: **Proposed Accessibility Arrangement (Both Phases Scenario) (4 of 4)**

Drawing no. 261044/F/03/0024 | Rev.

Drawn | Date | Checked | Approved

Scale | Status

CEDD 土木工程拓展署 Civil Engineering and Development Department



Long Tin Road
Long Ping Road
Wang Tat Road (Eastbound)
Ma Wang Road (Westbound)
Castle Peak Road
(Yuen Long)
Yuen Long
direction
Ping Ha Road
Ma Fung Ling Road
Tong Yan San Tsuen Road
Long Tin Road
Castle Peak Road (Ping Shan)
Yuen Long Highway
Yuen Long Highway
LEGEND:
Subject Site (Phase 1)
Subject Site (Phase 2)
Subject Site (School)
Major Ingress Route
Major Egress Route
Major Ingress/
Egress Point
Pick-up/ Drop-off Bay
for School Bus
Rev
Description
By
Date
Consultant
ARUP
Project title
Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure
Works for Public Housing Development
at Long Bin, Yuen Long -
Investigation, Design and Construction
Drawing title
Proposed Accessibility Arrangement
(Primary School Scenario)
(1 of 3)
Drawing no.
261044/F/03/0031
Rev.
Drawn
Date
Checked
Approved
Scale
Status
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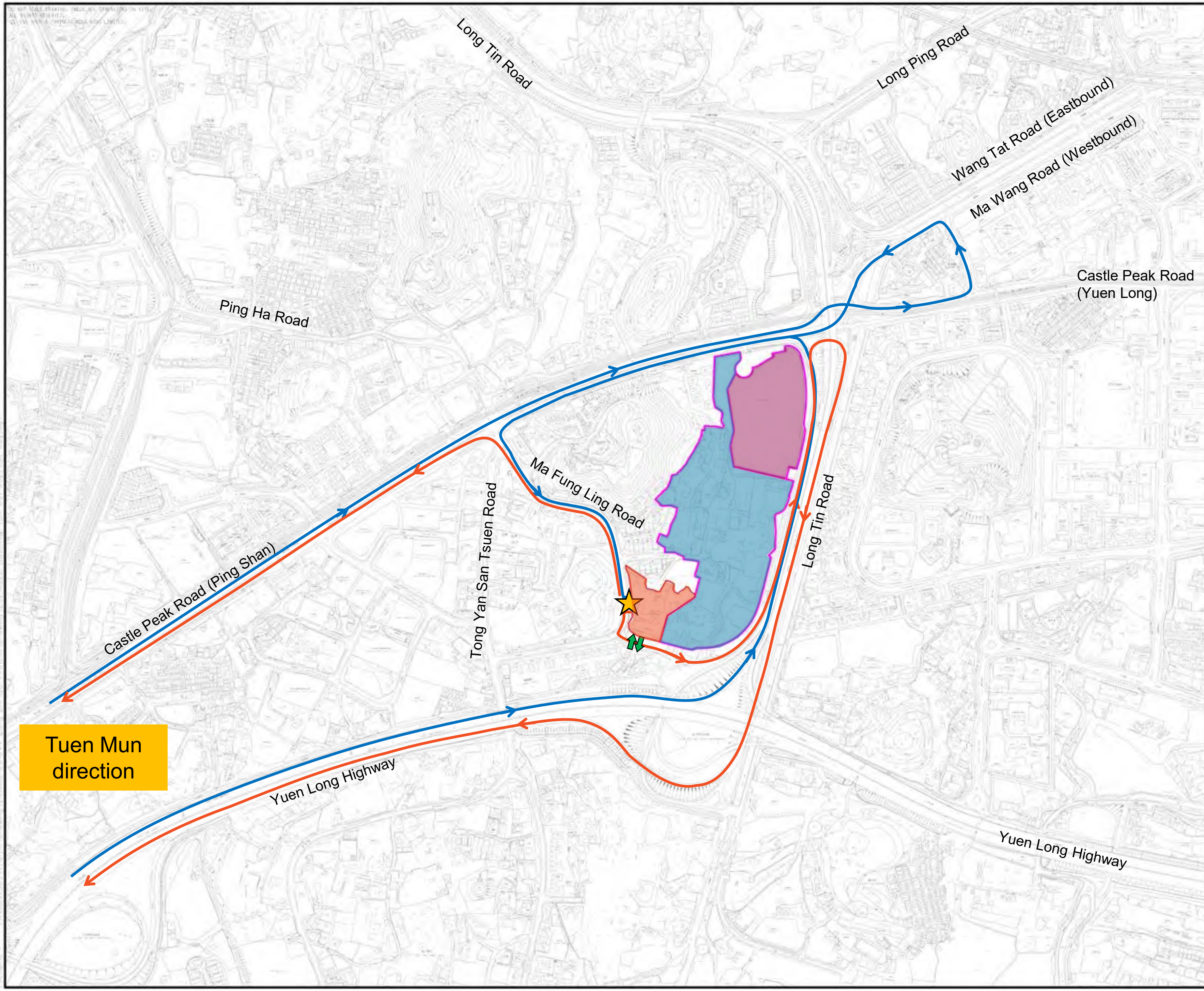
土木工程拓展署
Civil Engineering and
Development Department



LEGEND:

- Subject Site (Phase 1)
- Subject Site (Phase 2)
- Subject Site (School)
- Major Ingress Route
- Major Egress Route
- Major Ingress/ Egress Point
- Pick-up/ Drop-off Bay for School Bus

Rev	Description	By	Date

Consultant

ARUP

Project title

Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

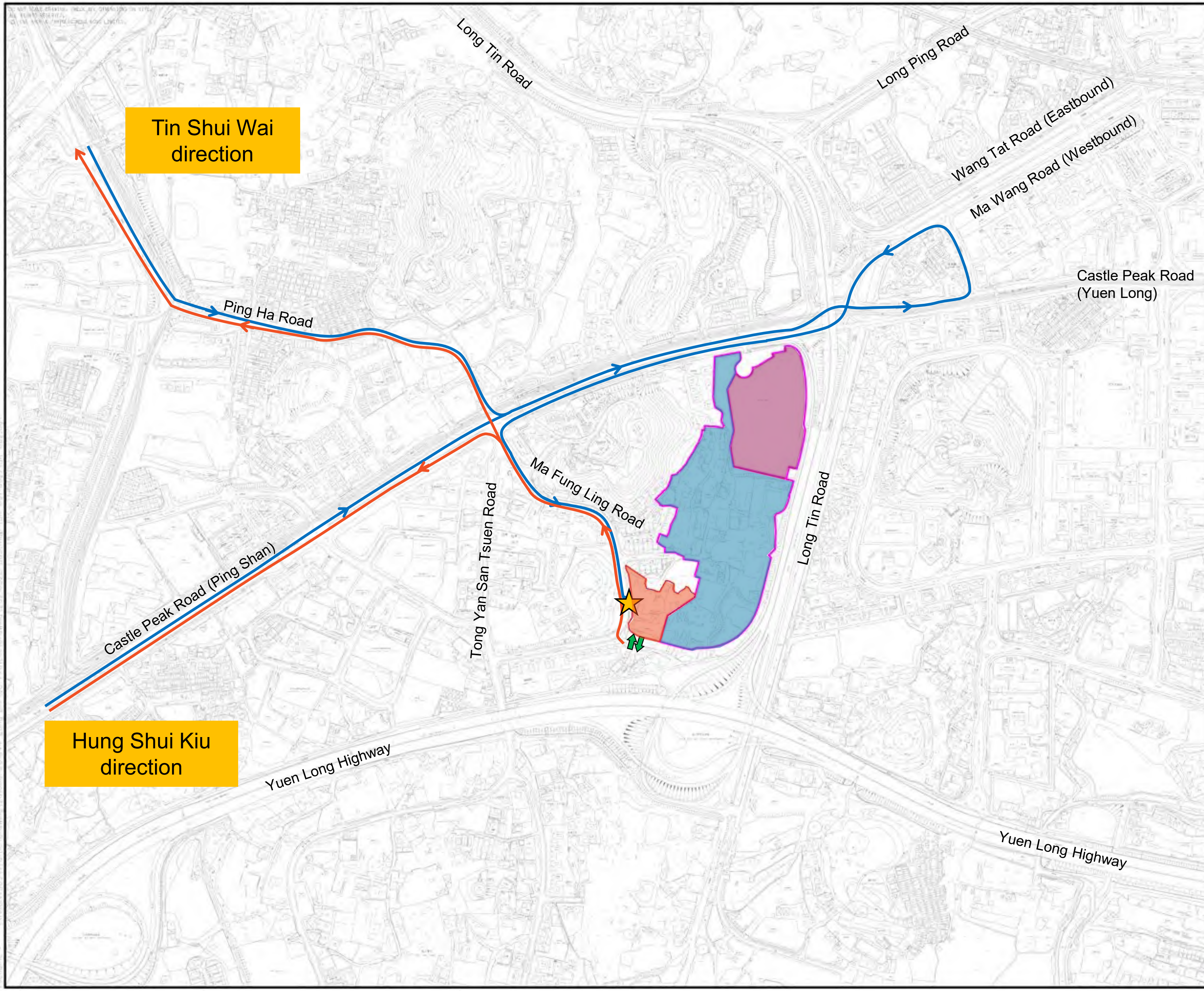
Drawing title

Proposed Accessibility Arrangement (Primary School Scenario) (2 of 3)

Drawing no.	Rev.
261044/F/03/0032	

Drawn	Date	Checked	Approved
Scale		Status	

CEDD 土木工程拓展署 Civil Engineering and Development Department



LEGEND:

- Subject Site (Phase 1)
- Subject Site (Phase 2)
- Subject Site (School)
- Major Ingress Route
- Major Egress Route
- Major Ingress/ Egress Point
- Pick-up/ Drop-off Bay for School Bus

Rev	Description	By	Date
A	FIRST ISSUE	JC	09/18

Consultant: ARUP

Project title: Agreement No. CE 75/2017 (CE) Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

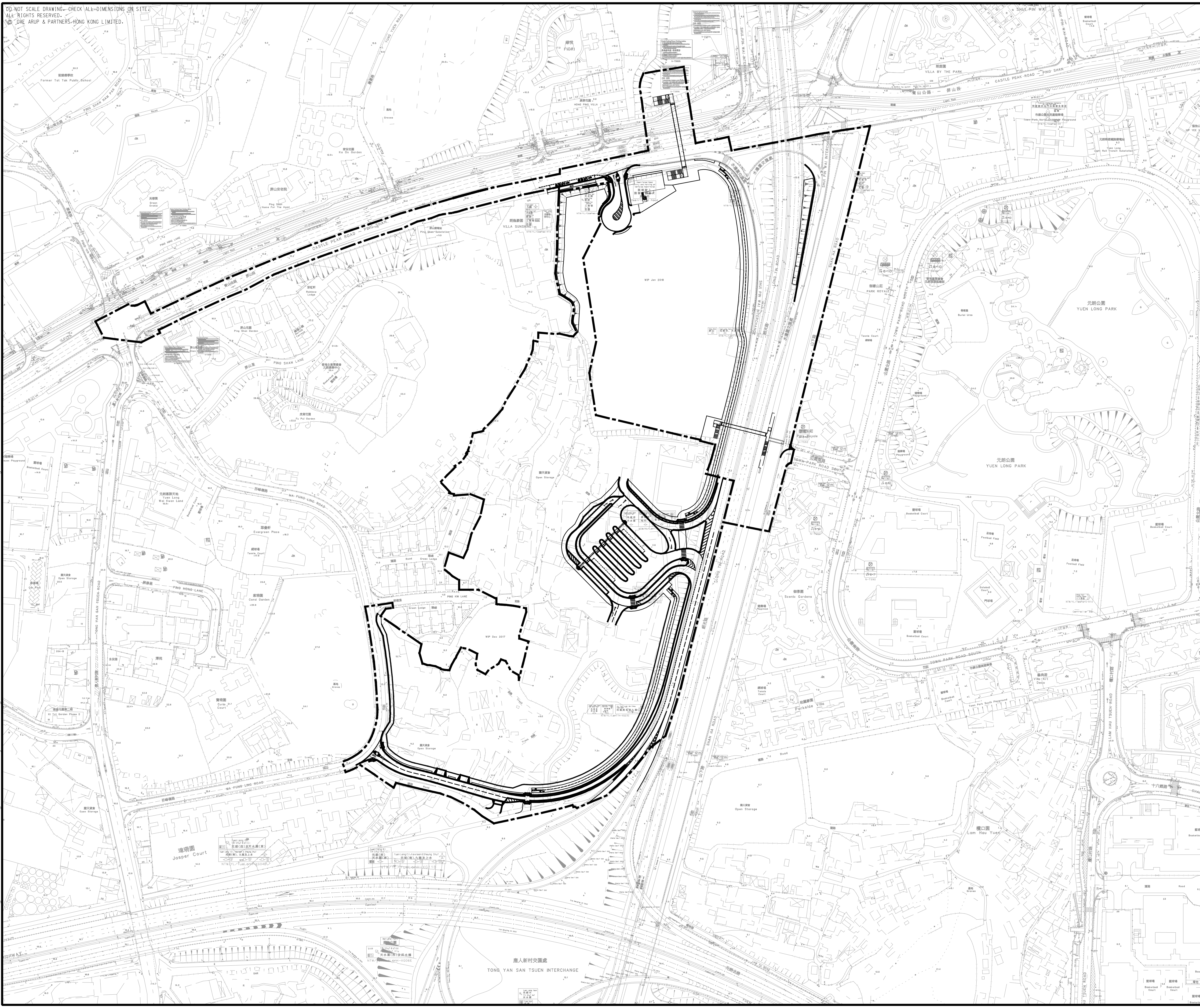
Drawing title: **Proposed Accessibility Arrangement (Primary School Scenario) (3 of 3)**

Drawing no. 261044/F/03/0033 | Rev.

Drawn | Date | Checked | Approved

Scale | Status

CEDD 土木工程拓展署 Civil Engineering and Development Department



LEGEND

BOUNDARIES OF THE SITE

Rev	Description	By	Date
E	REVISED	YKMM	05/21
D	REVISED	YKMM	11/20
C	REVISED	JC	08/19
B	REVISED	JC	04/19
A	FIRST ISSUE	JC	09/18

Consultant

ARUP

Project title

Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

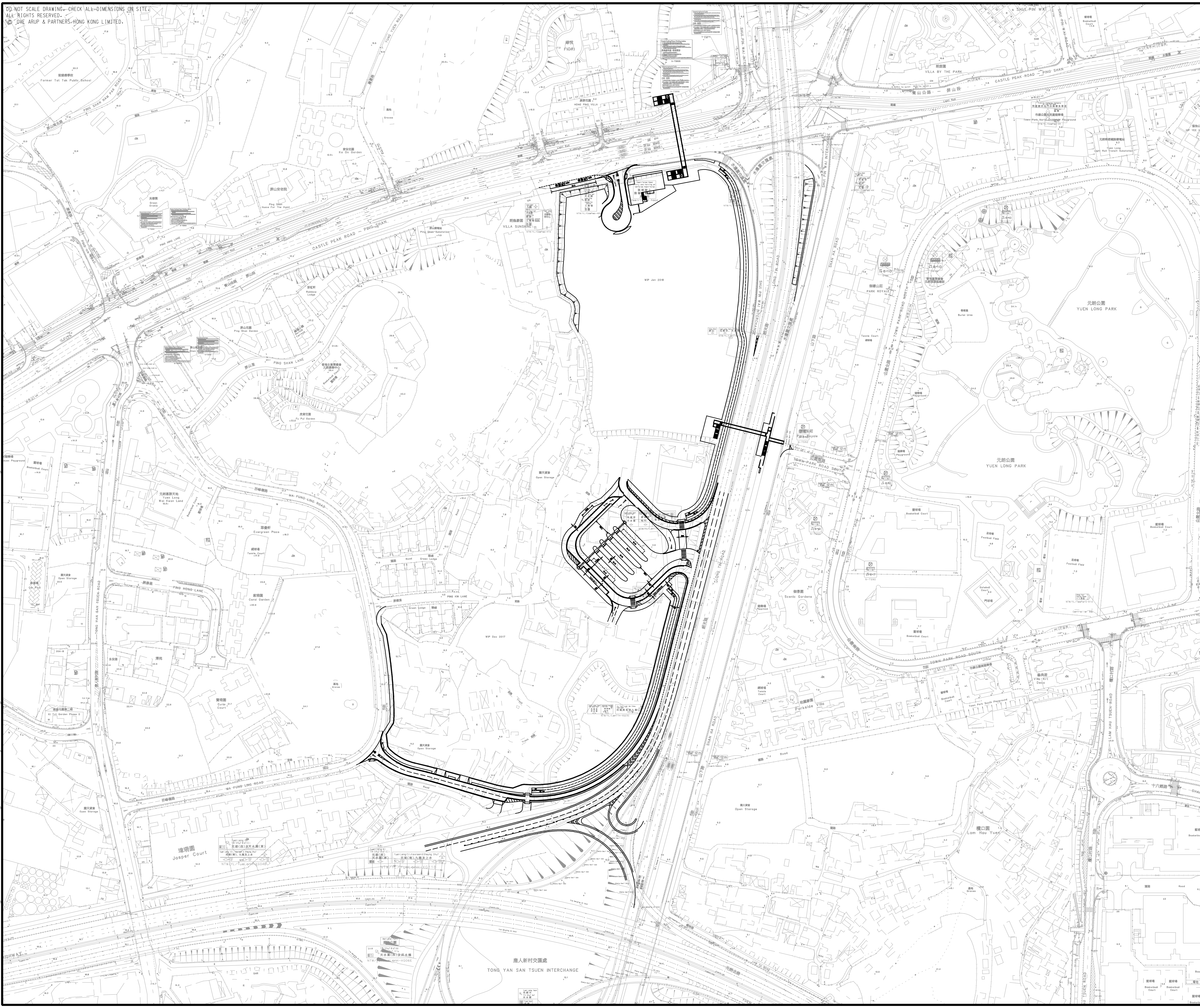
Drawing title

PROPOSED ROAD LAYOUT OF THE DEVELOPMENT (WITH BOTH PHASES) (INTERIM LAYOUT)

Drawing no.		Rev.	
261044/F/03/0041A		E	
Drawn: YKMM	Date: 04/19	Checked: TC	Approved: RT
Scale: 1:1500 @ A1		Status: DRAFT	

土木工程拓展署
Civil Engineering and Development Department

DO NOT SCALE DRAWING. CHECK ALL DIMENSIONS ON SITE.



LEGEND

HOUSING SITE BOUNDARY

Rev	Description	By	Date
E	REVISED	YKMM	05/21
D	REVISED	YKMM	11/20
C	REVISED	JC	08/19
B	REVISED	JC	04/19
A	FIRST ISSUE	JC	09/18

Consultant

ARUP

Project title

Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

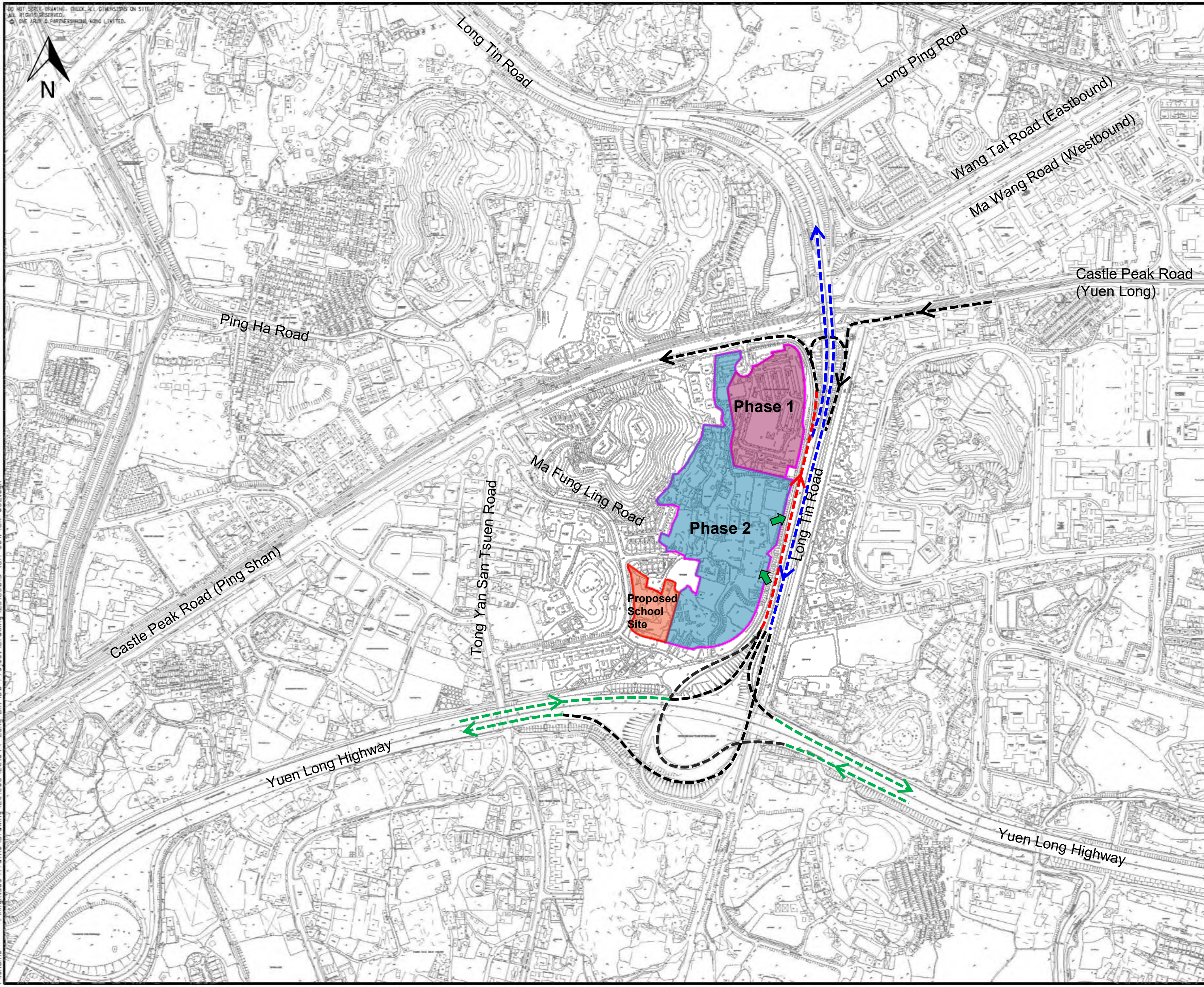
Drawing title

PROPOSED ROAD LAYOUT OF THE DEVELOPMENT (WITH BOTH PHASES) (ULTIMATE LAYOUT)

Drawing no.		Rev.	
261044/F/03/0041B		E	
Drawn: YKMM	Date: 04/19	Checked: TC	Approved: RT
Scale: 1:1500 @ A1		Status: DRAFT	

土木工程拓展署
Civil Engineering and Development Department

Printed by : wai-shing.wong 18/5/2021
Filename : M:\Drawing\261000\261044 Long Bin IDC Project\Drawing\20210507 (F_03_041 - 054)\261044_F_03_0041B.dgn



LEGEND:

- Subject Site (Phase 1)
- Subject Site (Phase 2)
- Subject Site (School)
- PTI Access
- Speed limit of 50 km/h to be **maintained**
- Speed limit to be **reduced** from 70 km/h to 50km/h
- Speed limit of 70 km/h
- Speed limit of 80 km/h

* Note : Only speed limits for Long Tin Road (Northbound) and the associated slip roads are shown

Rev	Description	By	Date
C	REVISED	JC	07/19
B	REVISED	JC	04/19
A	FIRST ISSUE	JC	09/18

Consultant
ARUP

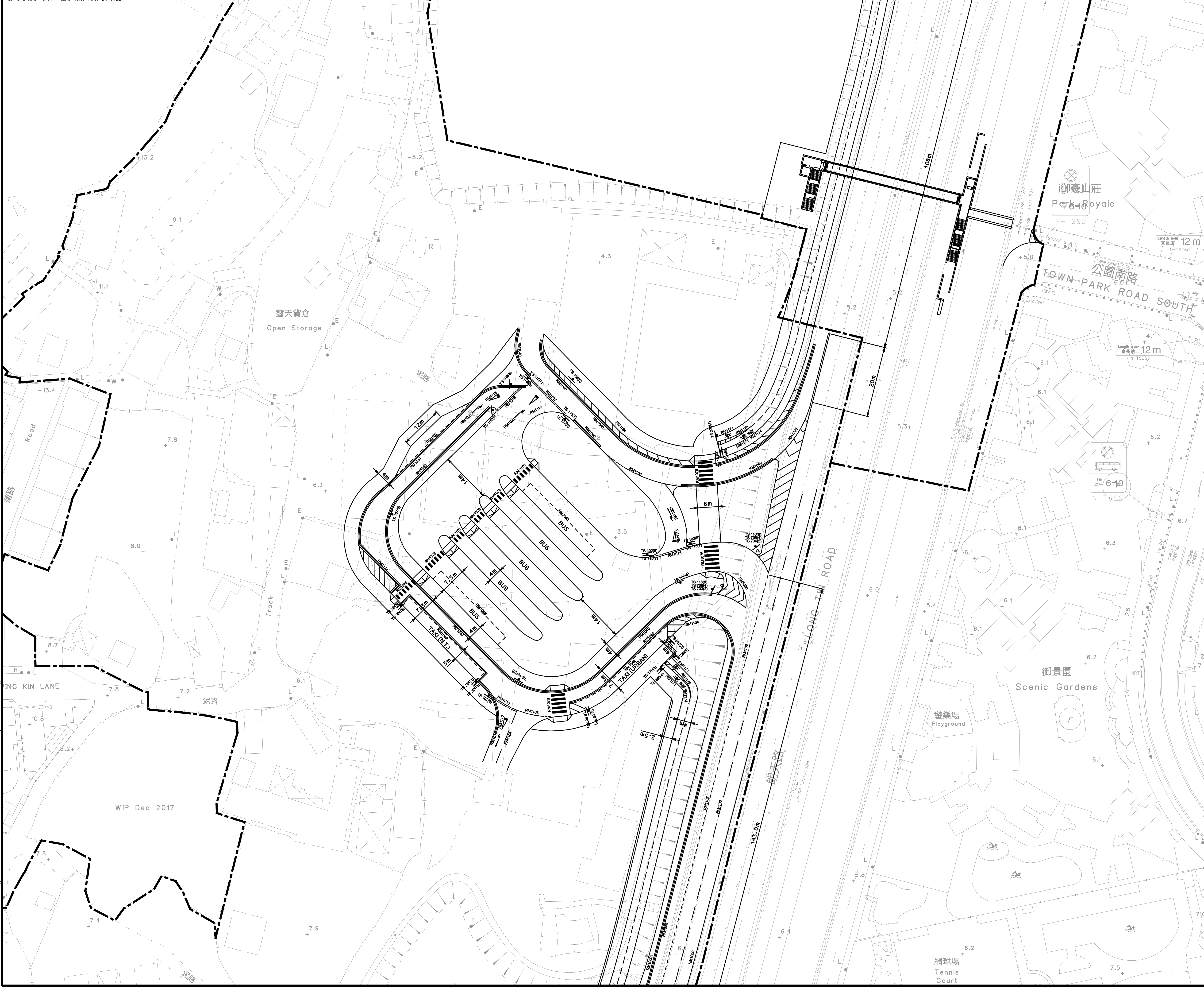
Project title
Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title
Proposed Speed Limit Reduction alongside Long Tin Road (Northbound)

Drawing no.			Rev.
261044/F/03/0042			C
Drawn JC	Date 07/19	Checked TC	Approved RT
Scale N.T.S.		Status DRAFT	

CEDD 土木工程拓展署 Civil Engineering and Development Department

Printed by : wing-tung.lam 8/15/2018
Filename : \\hkgnts69\Traffic\Drawing\261000\261044 Long Bin IDC Project\Drawing\20180815 (SK 001)\SK 002.dgn



LEGEND

BOUNDARIES OF THE SITE

Rev	Description	By	Date
D	REVISED	YKMM	05/21
C	REVISED	YKMM	11/20
B	REVISED	JC	08/19
A	FIRST ISSUE	JC	04/19

Consultant

ARUP

Project title

Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title

PROPOSED PUBLIC TRANSPORT INTERCHANGE

Drawing no.		Rev.	
261044/F/03/0043		D	
Drawn: YKMM	Date: 04/19	Checked: TC	Approved: RT
Scale: 1:500 @ A1		Status: DRAFT	

土木工程拓展署
Civil Engineering and Development Department

Printed by : wai-shing.wong 18/5/2021
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LEGEND

BOUNDARIES OF THE SITE

Rev	Description	By	Date
D	REVISED	YKMM	05/21
C	REVISED	YKMM	11/20
B	REVISED	JC	08/19
A	FIRST ISSUE	JC	04/19

Consultant

ARUP

Project title

Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title

PROPOSED NEW SLIP ROAD TO LONG TIN ROAD

Drawing no.			Rev.
261044/F/03/0044			D
Drawn: YKMM	Date: 04/19	Checked: TC	Approved: RT
Scale: 1:500 @ A1		Status: DRAFT	

土木工程拓展署
Civil Engineering and Development Department

Printed by : wai-shing.wong 18/5/2021
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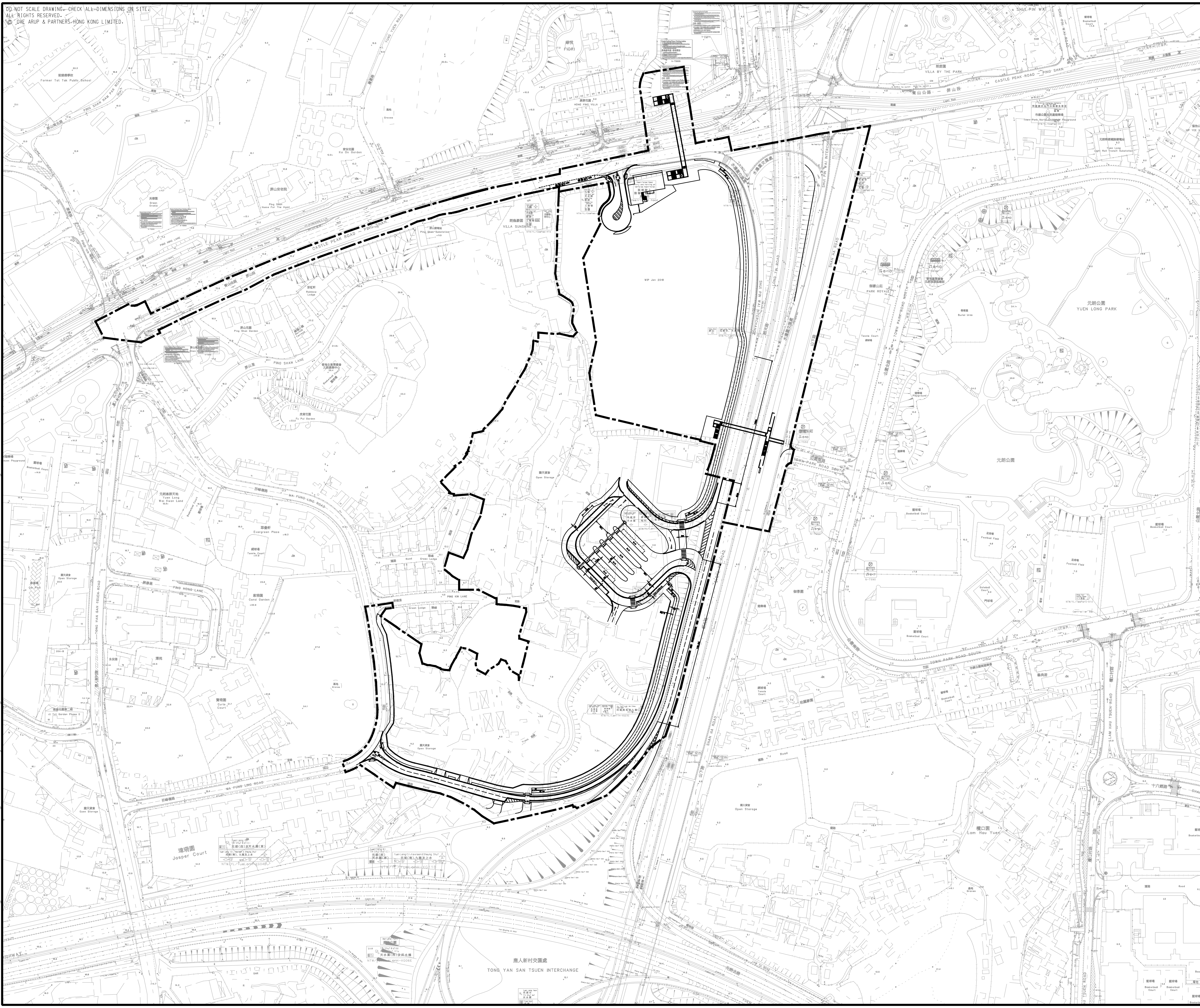

LEGEND

BOUNDARIES OF THE SITE

Rev	Description	By	Date
D	REVISED	YKMM	05/21
C	REVISED	YKMM	01/21
B	REVISED	JC	08/19
A	FIRST ISSUE	JC	04/19

Consultant

ARUP

Project title

Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title

PROPOSED WEAVING AND MERGING OF LONG TIN ROAD NORTHBOUND

Drawing no.		Rev.	
261044/F/03/0045		D	
Drawn: YKMM	Date: 04/19	Checked: TC	Approved: RT
Scale: 1:1500 @ A1		Status: DRAFT	

土木工程拓展署
CEDD Civil Engineering and Development Department

Printed by : wai-shing.wong 18/5/2021
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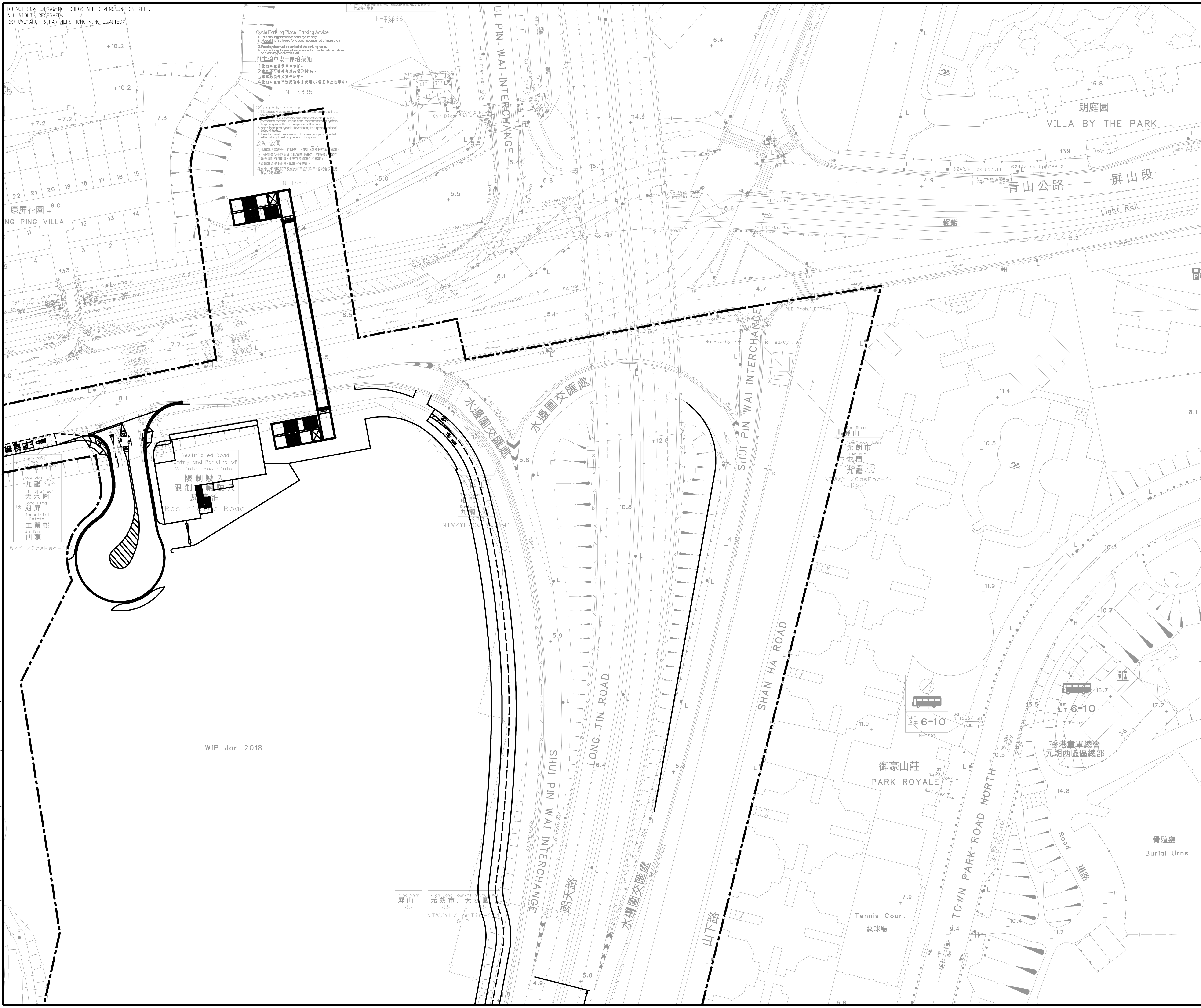


LEGEND

BOUNDARIES OF THE SITE

Rev	Description	By	Date
D	REVISED	YKMM	05/21
C	REVISED	YKMM	11/20
B	REVISED	JC	08/19
A	FIRST ISSUE	JC	04/19

Consultant

ARUP

Project title

Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title

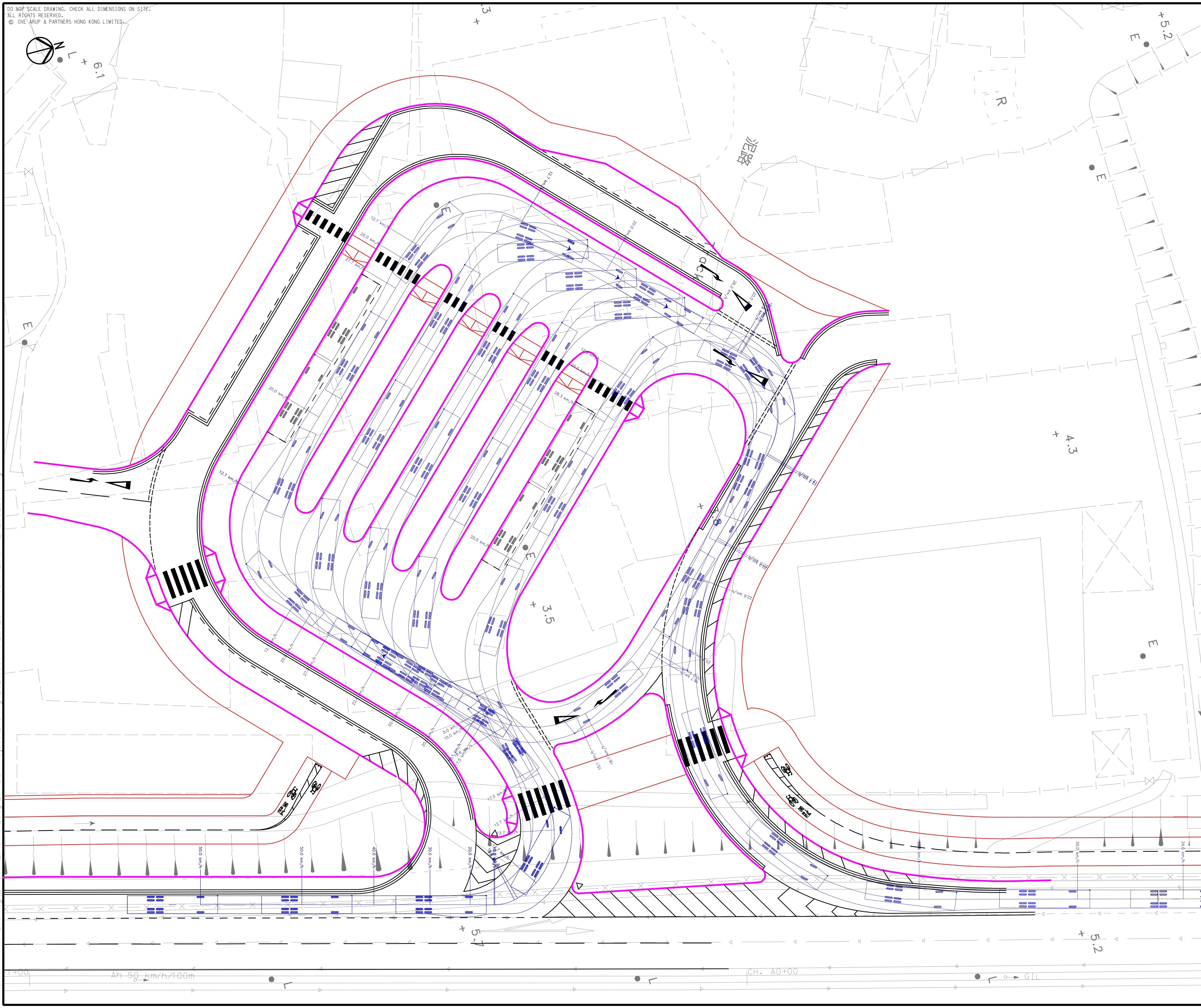
PROPOSED U-TURN FACILITIES AT LONG TIN ROAD

Drawing no.	Rev.
261044/F/03/0046	D

Drawn	Date	Checked	Approved
YKMM	04/19	TC	RT

Scale: 1:500 @ A1
Status: DRAFT

土木工程拓展署
Civil Engineering and Development Department



LEGEND

12.8m LONG BUS (APPROACHING / LEAVING)

Rev	Description	By	Date
E	REVISE	YKMM	05/21
D	REVISE	YKMM	11/20
C	REVISE	KC	07/19
B	REVISE	JC	04/19
A	FIRST ISSUE	JC	09/18

Consultant

ARUP

Project title

Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title

SWEPT PATH ANALYSIS FOR PUBLIC TRANSPORT INTERCHANGE - WITH 12.8m LONG BUS

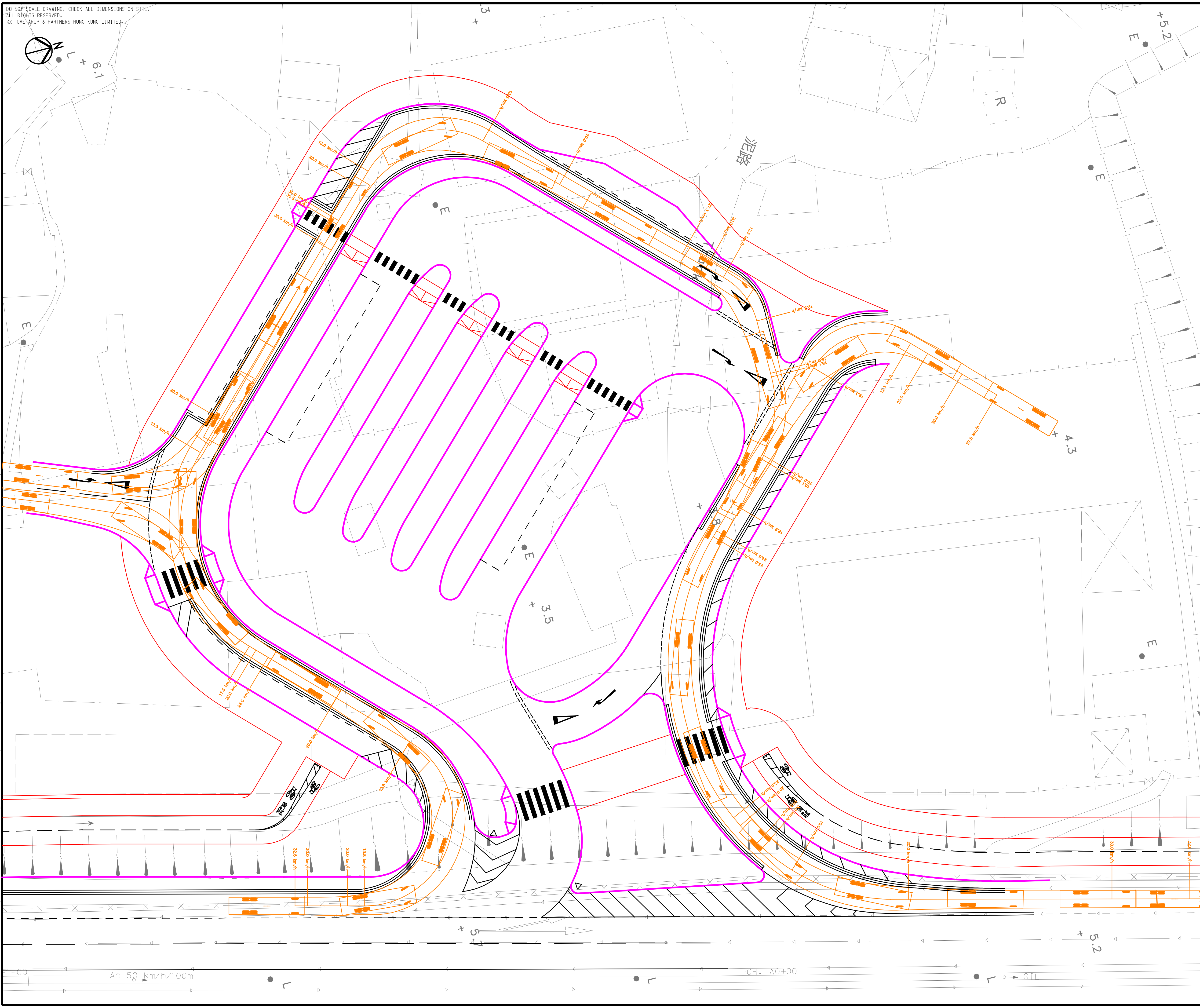
Drawing no. 261044/F/03/0047 Rev. E

Drawn	Date	Checked	Approved
JC	12/2020	TC	RT

Scale 1:250@A1 1:500@A3
Status DRAFT

CEDD 土木工程拓展署 Civil Engineering and Development Department

Printed by : wai-shing.wong 18/5/2021
Filename : M:\Drawing\261000\261044 Long Bin IDC Project\Drawing\20210507 (F_03_041 - 054)\261044_F_03_0047.dgn



LEGEND

11m LONG GOODS VEHICLE (APPROACHING / LEAVING)

Rev	Description	By	Date
E	REVISE	YKMM	05/21
D	REVISE	YKMM	11/20
C	REVISE	KC	07/19
B	REVISE	JC	04/19
A	FIRST ISSUE	JC	09/18

Consultant

ARUP

Project title

Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title

SWEPT PATH ANALYSIS FOR PUBLIC TRANSPORT INTERCHANGE - WITH 11m LONG GOODS VEHICLE

Drawing no.	Rev.
261044/F/03/0048	E

Drawn	Date	Checked	Approved
JC	12/2020	TC	RT

Scale: 1:250@A1 1:500@A3
Status: DRAFT

CEDD
土木工程拓展署
Civil Engineering and Development Department

Printed by : wai-shing.wong 18/5/2021
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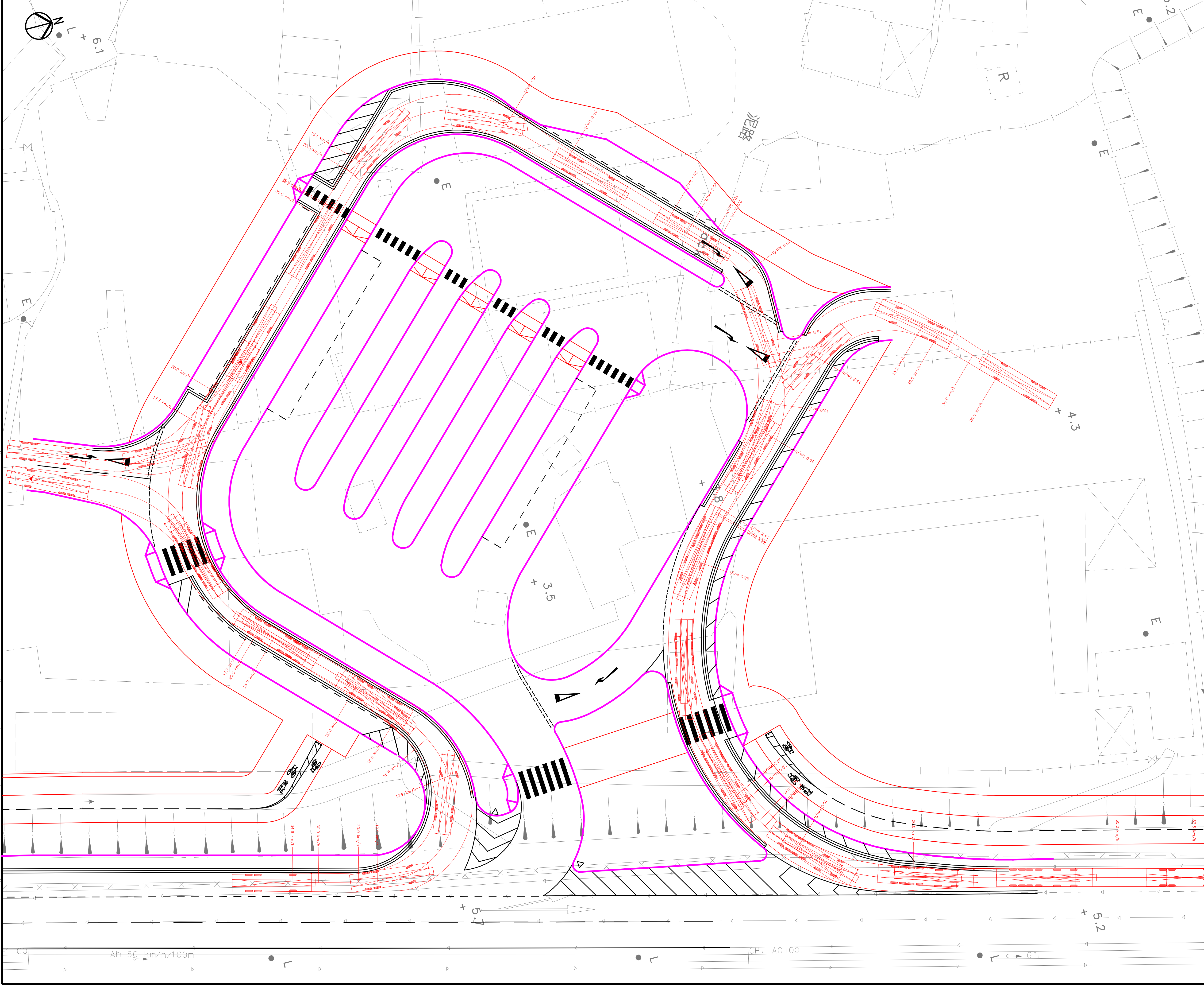


LEGEND

12m LONG FIRE ENGINE (APPROACHING / LEAVING)

Rev	Description	By	Date
E	REVISE	YKMM	05/21
D	REVISE	YKMM	11/20
C	REVISE	KC	07/19
B	REVISE	JC	04/19
A	FIRST ISSUE	JC	09/18

Consultant

ARUP

Project title

Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

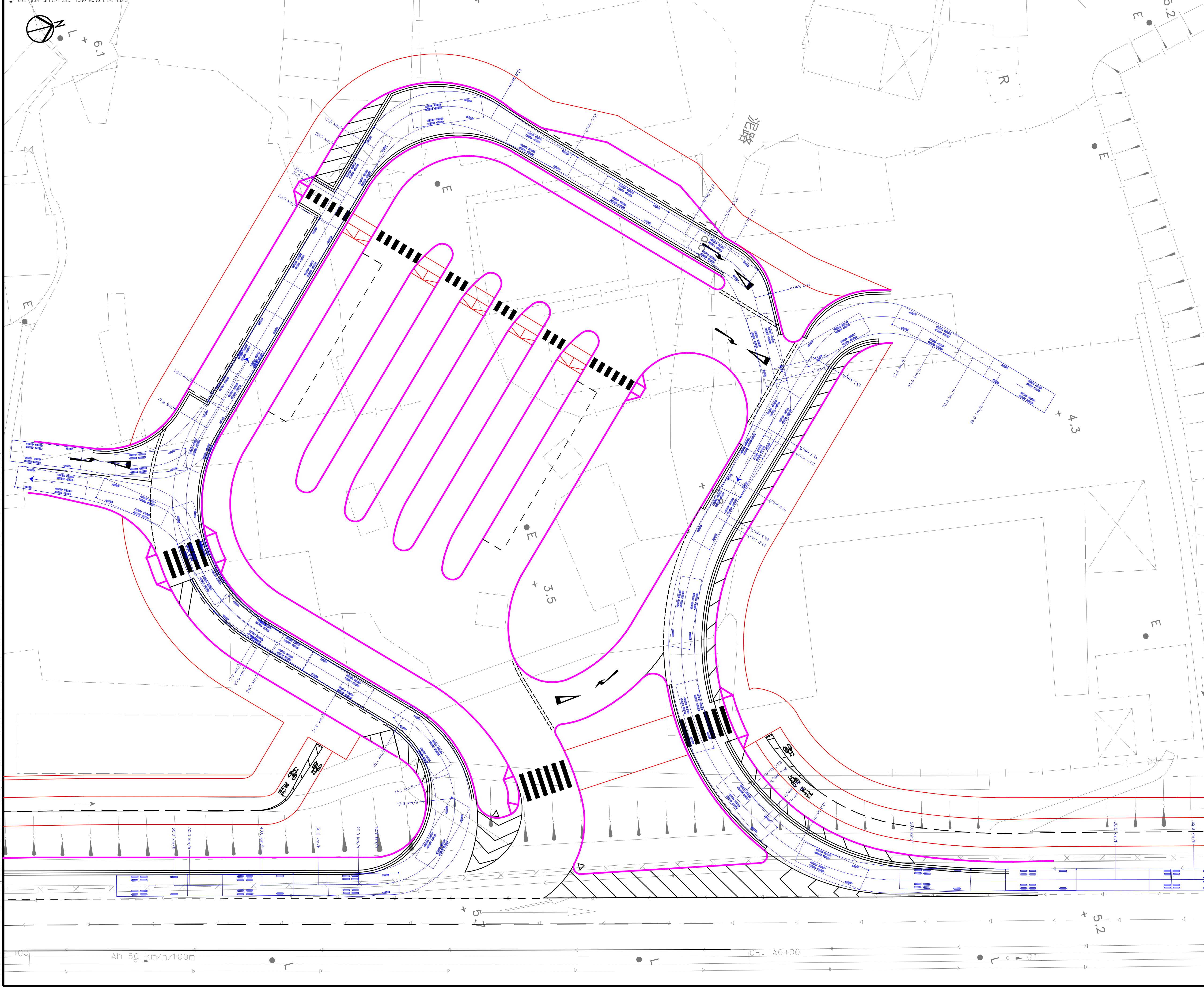
Drawing title

SWEPT PATH ANALYSIS FOR PUBLIC TRANSPORT INTERCHANGE – WITH 12m LONG FIRE ENGINE

Drawing no.			Rev.
261044/F/03/0049			E
Drawn: JC	Date: 12/2020	Checked: TC	Approved: RT
Scale: 1:250@A1 1:500@A3		Status: DRAFT	

土木工程拓展署
Civil Engineering and Development Department

Printed by : wai-shing.wong 18/5/2021
Filename : M:\Drawing\261000\261044 Long Bin IDC Project\Drawing\20210507 (F_03_041 - 054)\261044_F_03_0049.dgn



LEGEND

10m LONG REFUSE COLLECTION (APPROACHING / LEAVING)

Rev	Description	By	Date
E	REVISE	YKMM	05/21
D	REVISE	YKMM	11/20
C	REVISE	KC	07/19
B	REVISE	JC	04/19
A	FIRST ISSUE	JC	09/2020

Consultant

ARUP

Project title

Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title

SWEPT PATH ANALYSIS FOR PUBLIC TRANSPORT INTERCHANGE - WITH 10m LONG REFUSE COLLECTION

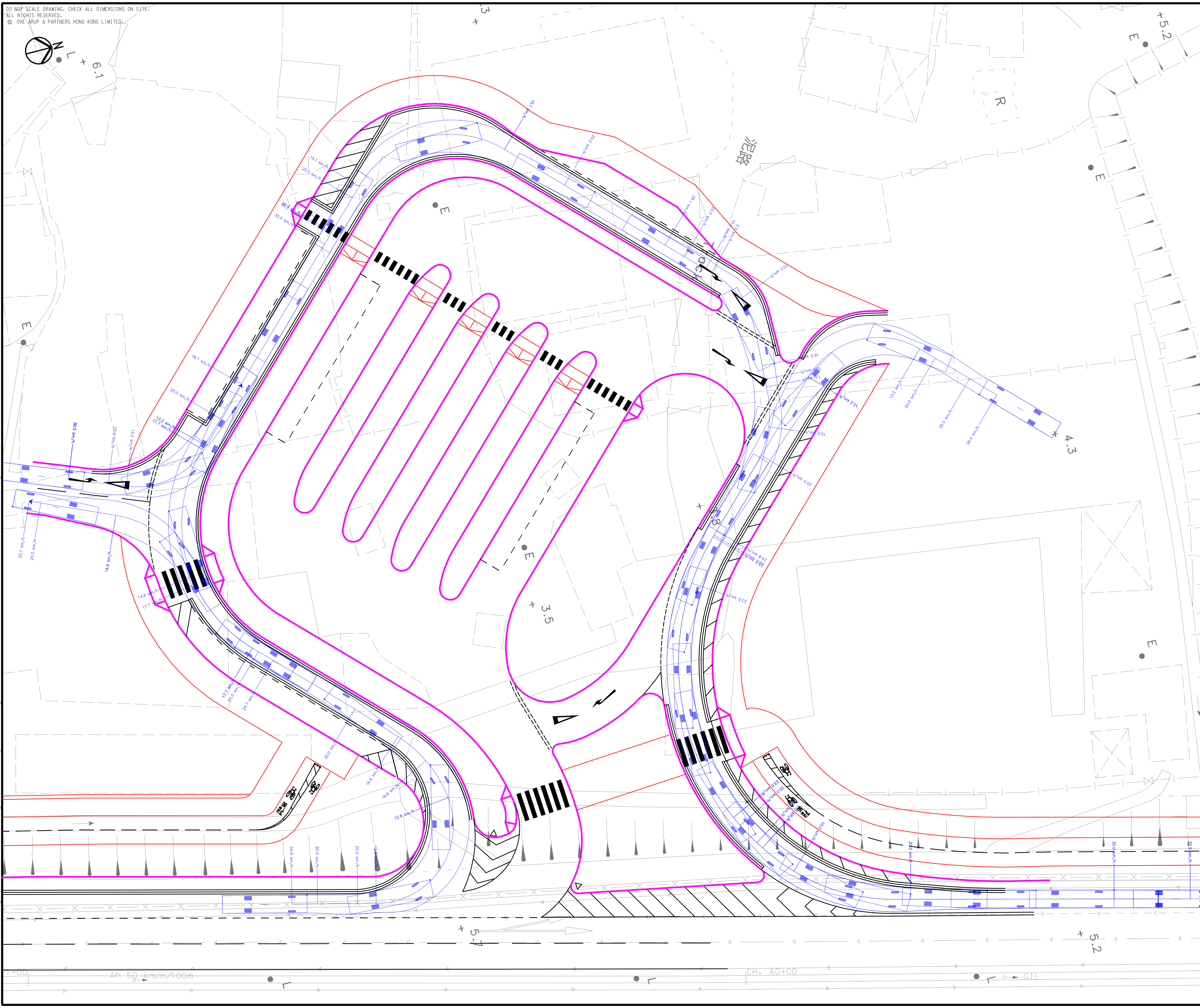
Drawing no. 261044/F/03/0050 Rev. E

Drawn	Date	Checked	Approved
JC	10/2020	TC	RT

Scale 1:250@A1 1:500@A3
Status DRAFT

CEDD 土木工程拓展署 Civil Engineering and Development Department

Printed by : wai-shing.wong 18/5/2021
Filename : M:\Drawing\261000\261044 Long Bin IDC Project\Drawing\20210507 (F_03_041 - 054)\261044_F_03_0050.dgn



LEGEND

12m LONG COACH (APPROACHING / LEAVING)

Rev	Description	By	Date
E	REVISE	YKMM	05/21
D	REVISE	YKMM	11/20
C	REVISE	KC	07/19
B	REVISE	JC	04/19
A	FIRST ISSUE	JC	09/18

Consultant

ARUP

Project title

Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title

SWEPT PATH ANALYSIS FOR PUBLIC TRANSPORT INTERCHANGE - WITH 12m LONG COACH

Drawing no.			Rev.
261044/F/03/0051			E
Drawn: JC	Date: 12/2020	Checked: TC	Approved: RT
Scale: 1:250@A1 1:500@A3		Status: DRAFT	

土木工程拓展署
CEDD
Civil Engineering and Development Department

Printed by : wai-shing.wong 18/5/2021
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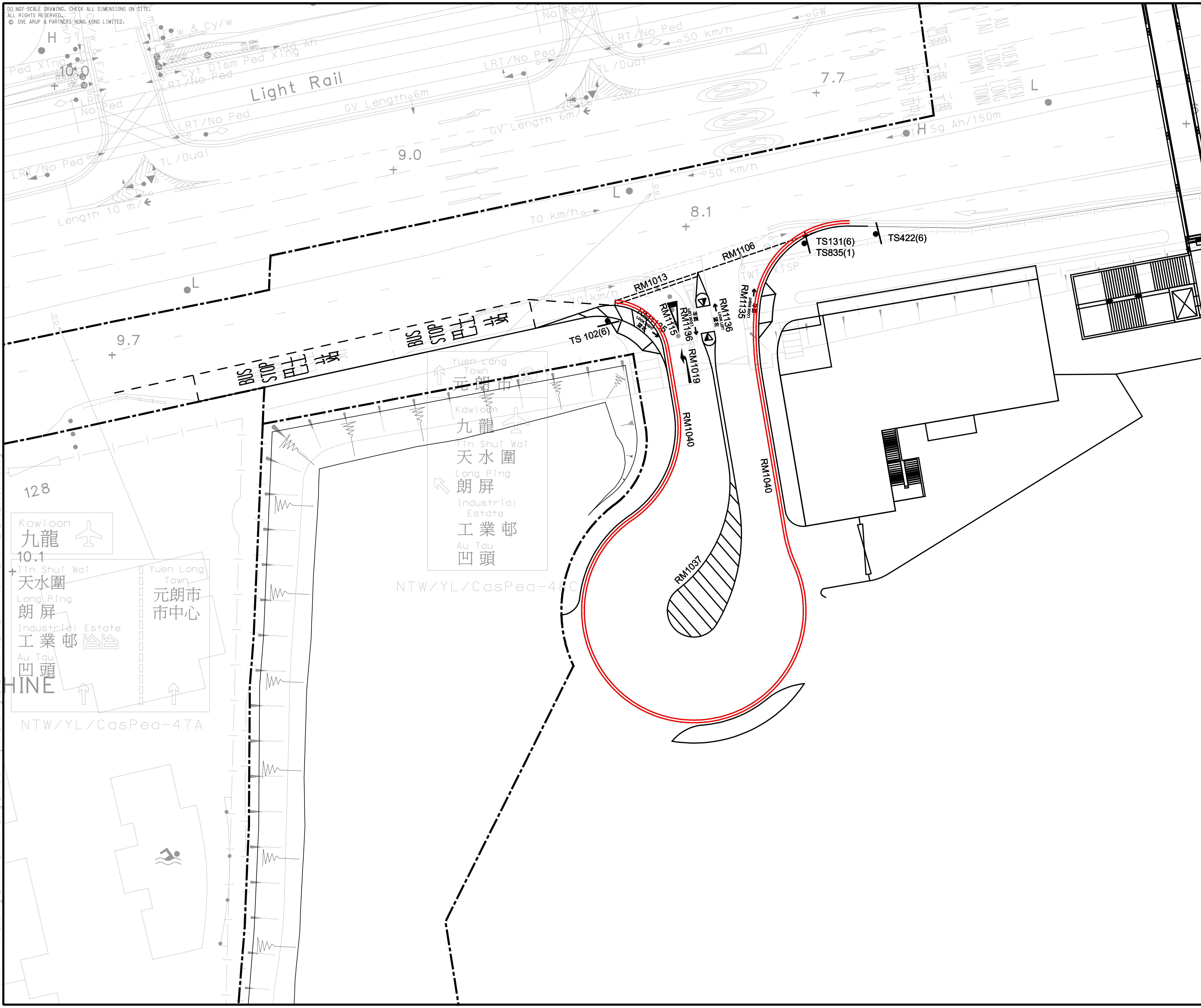

LEGEND

BOUNDARIES OF THE SITE

RM1040 PROPOSED NEW DOUBLE YELLOW LINE MARKING

Rev	Description	By	Date
A	REVISED	YKMM	05/21

Consultant
ARUP

Project title
Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title
PROPOSED ROAD MARKING AT CASTLE PEAK ROAD - PING SHAN

Drawing no.	Rev.
261044/F/03/0053	A

Drawn	Date	Checked	Approved
WSTW	12/20	TC	RT

Scale: 1:200 @ A1
Status: DRAFT

CEDD 土木工程拓展署 Civil Engineering and Development Department

Printed by : wai-shing.wong 18/5/2021
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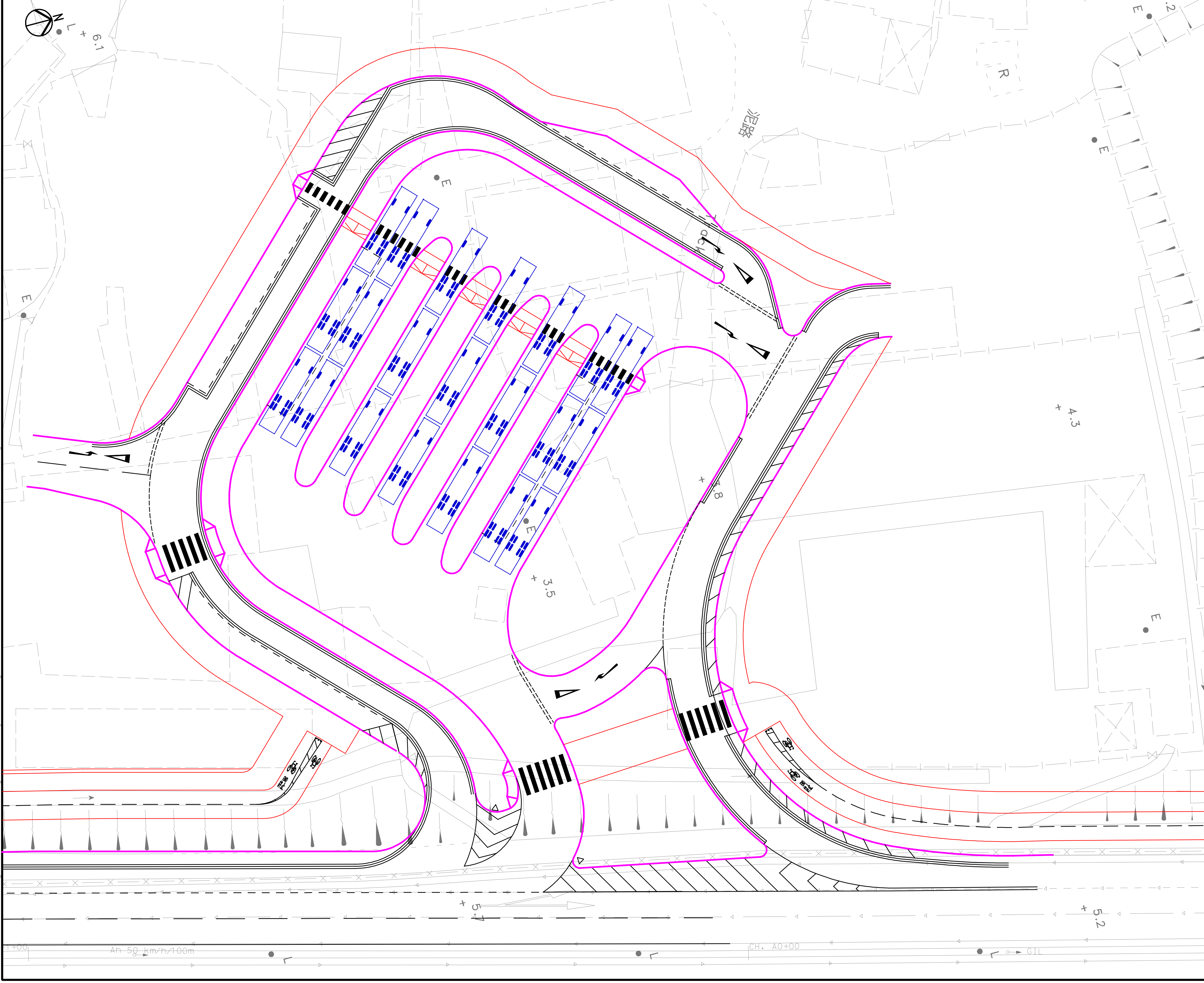


LEGEND

12.8m LONG BUS (APPROACHING / LEAVING)

Rev	Description	By	Date
A	REVISED	YKMM	05/21

Consultant

ARUP

Project title

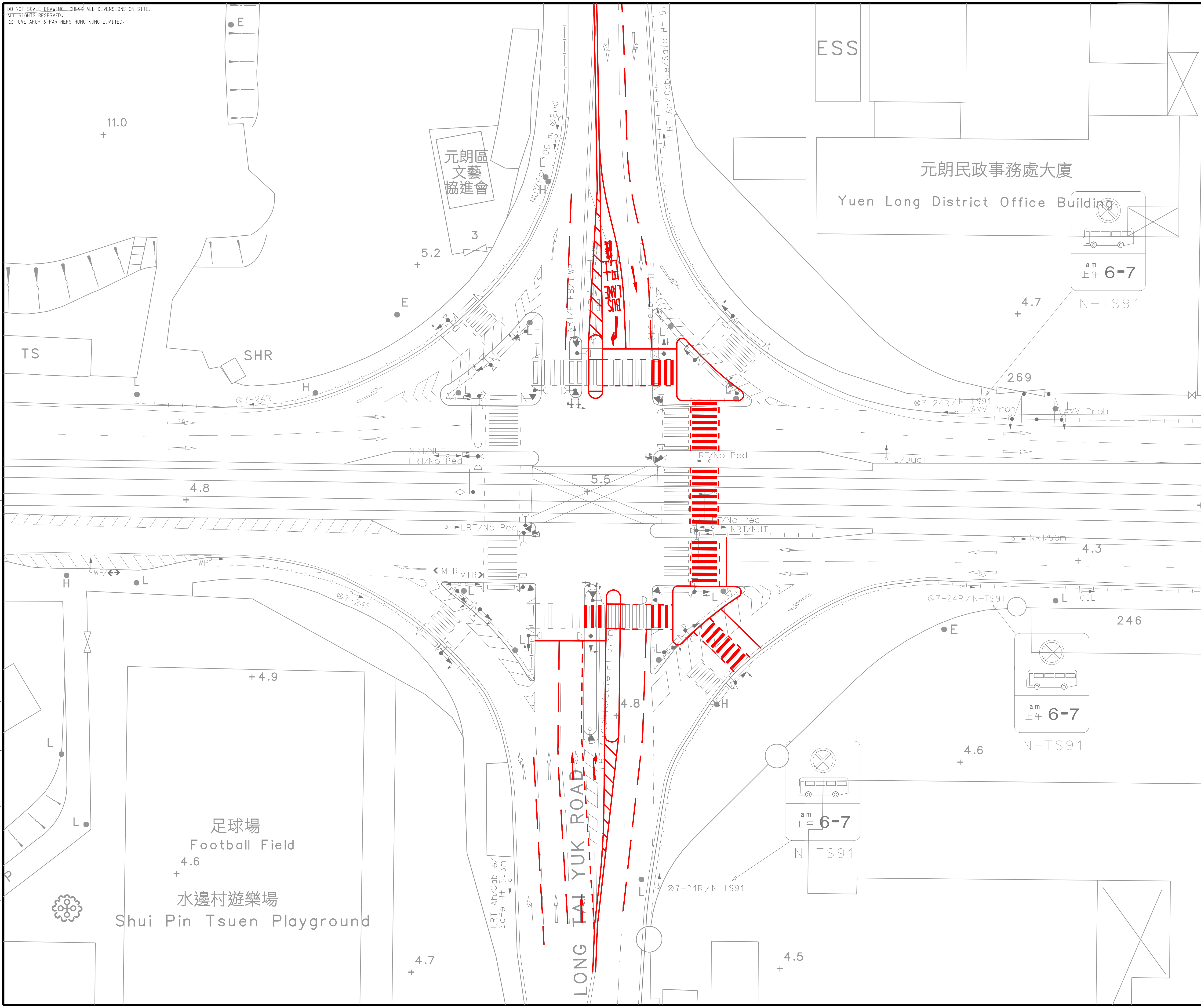
Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title

NIGHT TIME PARKING FOR PUBLIC TRANSPORT INTERCHANGE WITH 12.8M LONG BUS

Drawing no.			Rev.
261044/F/03/0054			A
Drawn: WSTW	Date: 12/2020	Checked: TC	Approved: RT
Scale: 1:250@A1 1:500@A3		Status: DRAFT	

土木工程拓展署
Civil Engineering and Development Department



LEGEND
IMPROVEMENT SCHEME

Rev	Description	By	Date

Consultant
ARUP

Project title
Agreement No. CE 75/2017 (CE)
Site Formation and Infrastructure Works for Public Housing Development at Long Bin, Yuen Long - Investigation, Design and Construction

Drawing title
IMPROVEMENT SCHEME OF JUNCTION 18 – MA MIU ROAD CASTLE PEAK ROAD – PING SHAN

Drawing no.	Rev.
261044/F/03/0055	–

Drawn	Date	Checked	Approved
WSTW	05/22	TC	RT
Scale 1:250 @ A1		Status DRAFT	

土木工程拓展署
Civil Engineering and Development Department

Appendix B

Written Record of Parking Provision

☐ Urgent ☐ Return Receipt Requested ☐ Sign ☐ Mark Subject Restricted and Encrypt ☐ Expand groups

From: Doris SY LEUNG/SWDNET/SWD/HKSARG@SWD - 24/11/2022 10:37 AM
To: Karen KL WONG/HD/HKSARG@HD
Cc: Chloe SP CHEN/HD/HKSARG@HD, David CH SIU/HD/HKSARG@HD, Ronnie HY LAW/HD/HKSARG@HD, Ming Kin LIT/HD/HKSARG@HD, King Yin CHOW/HD/HKSARG@HD, Man Him CHAN/HD/HKSARG@HD, Sunny Ho Yin CHAN/HD/HKSARG@HD, Cindy SY LEE/HD/HKSARG@HD, Desmond GC SHE/HD/HKSARG@HD, Kenny MK HO/HD/HKSARG@HD, Chung Him LEUNG/HD/HKSARG@HD, S[RM]3@SWD, S[RM]1@SWD, S[CCC]5@SWD, S[RM]4@SWD, S[E]5@SWD, S[E]14@SWD, S[Y]4@SWD, S[E]2@SWD, S[E]15@SWD, S[RM]18@SWD, SS[PS]2@SWD, SS[PS]1@SWD, SS[CCC]3@SWD, SS[RM]2@SWD, SS[Y]3@SWD, SS[E]4@SWD, SS[E]8@SWD, SS[RM]4@SWD, EA[P]NT@SWD, EO[P]NT@SWD, SEO[P]NT@SWD
Subject: Long Bin Phase 2 Public Housing Development - Wish List of Welfare Facilities (SoA / Packing and L/UL Requirement)

History: This message has been replied to and forwarded.

Dear Karen,

I refer to the preceding mail.

Please find the latest SoA as attached for your reference please.

Items	Type of Services	SoA
1	Office Base of On-site Pre-school Rehabilitation Services (OPRS) ~~Office Base~~ 到校學前康復服務辦事處 **(Please revise the office name of OPRS)**	SOA_OPRS_100_(20190918).pdf
2	60-p Special Child Care Centre (SCCC) 特殊幼兒中心	SCCC_60(06112017).pdf
3	100-p Aided Standalone Child Care Centre (CCC) 獨立幼兒中心	SoA for 100-P CCC_GPA_NewSoA.xls
4	50-p Hostel for Moderately Mentally Handicapped Persons (HMMH) 中度弱智人士宿舍	HMMH_40-50(06112017).pdf
5	50-p Hostel for Severely Physically Handicapped Persons (HSPH) 嚴重肢體傷殘人士宿舍	HSPH(50_places)(20181019).pdf
6	120-p Integrated Vocational Rehabilitation on Services Centre (IVRSC) 綜合職業康復服務中心	IVRSC(80-160_places)(20141003).pdf
7	40-p Supported Hostel for Mentally Handicapped Persons (SHOS(MH)) 弱智人士輔助宿舍	SoA - SHOS(40)(MH)(10_18 Approved).pdf Specific for 40-p SHOS(MH)
8	200-p Residential Care Home for the Elderly (RCHE) cum 30-p Day Care Unit (DCU) 安老院 / 長者日間護理單位	SoA_DCU_in_RCHE(20&30p)(2020.2.20).pdf SoA for a 30-p DCU SoA for 200-p RCHE_Approval on 13.9.2017.pdf SoA for a 200-p RCHE
9	School Social Work Unit	SoA_ISSWO.pdf
10	Home Care Services (HCS) for Frail Elderly Persons (1-team size non-kitchen based) 體弱長者家居照顧服務隊	SoA for Home-based CCS (1-team size non-kitchen based).pdf
11	Multi-disciplinary Outreaching Support Team for the Elderly (MOSTE) 安老院舍外展專業服務隊 **(Please revise the name of MOSTE)**	SoA_SWD_MOSTE_New Territories West (2) Cluster.pdf
12	100-p Long Stay Care Home (LSCH) 長期護理院	SoA_LSCH(100_place).pdf

<u>NOFA of 40-p SHOS(MH)</u>
Please note that NOFA of 40-p SHOS(MH) is 443 sq.m. instead of 487 sq.m.. The IFA is 576 sq.m.

To address HD's initial comments expressing its difficulty in providing window frontage for <u>Hostels-type Facilities</u> due to site constraints, SWD's comments on the concern of provision of natural lighting and ventilation for RCHE are provided below.
<u>Comments on Natural lighting and ventilation for RCHE</u>

- For the concern on provision of natural lighting and ventilation for RCHE, please be advised that ***"Every Room used for habitation or for the purposes of an offence of kitchen in RCHEs shall be provided with adequate natural lighting and ventilation in compliance with sections 29, 30, 31, 32 and 33 of the Building (Planning) Regulations, (Cap. 123 sub. leg. F)...."*** as set out in para. 4.9.2 of Code of Practice for Residential Care Homes (Elderly Persons) January 2020 (Revised).
- In view of above, would HD please ensure all rooms for habitation (including Dormitories, Isolation Room, End-of-Life Care Room) and other essential functional rooms shall be equipped with openable and prescribed windows for meeting all relevant statutory and licensing requirements. We stand ready to tender our comments upon receipt of the layout design submitted by HD.

<u>Co-location of CCC</u>
For the advance planning of HD, we would like to draw HD's attention on the co-location concern of CCC service. As the parents/carers of the service users of CCC who are at aged below 3, will tend to explore the surrounding environment before they consider placing their children at this fee-charging service for full day care, it is desirable for the co-location of CCC, if required, with the proposed elderly services, OPRS and School Social Work Unit. Otherwise, provision of a separate entrance/access to CCC is

required from service point of view.

<u>Parking and Loading/Unloading Requirement</u>
SWD's comment on whether the parking and loading/unloading can be shared amongst the proposed 12 facilities is remarked under <u>column O</u>.
Please note SWD's comment as attached also (the changes are highlighted in red).

2022-11-17 LB2 Welfare_pps 24112022.xlsx

Thank you.

Regards,
Doris Leung
EA(P)M
Tel: 3691 8500
Fax: 2575 7518

寄件者: Karen KL WONG/HD/HKSARG@HD
收件者: Neo YH NG/SWDNET/SWD/HKSARG@SWD, Natalie CY LIU/SWDNET/SWD/HKSARG@SWD, Doris SY LEUNG/SWDNET/SWD/HKSARG@SWD
副本抄送: EA[P]M@SWD, EA[P]NT@SWD, Kevin LY CHU/SWDNET/SWD/HKSARG@SWD, Chloe SP CHEN/HD/HKSARG@HD, David CH SIU/HD/HKSARG@HD, Ronnie HY LAW/HD/HKSARG@HD, Ming Kin LIT/HD/HKSARG@HD, King Yin CHOW/HD/HKSARG@HD, Man Him CHAN/HD/HKSARG@HD, Sunny Ho Yin CHAN/HD/HKSARG@HD, Cindy SY LEE/HD/HKSARG@HD, Desmond GC SHE/HD/HKSARG@HD, Kenny MK HO/HD/HKSARG@HD, Chung Him LEUNG/HD/HKSARG@HD
日期: 17/11/2022 18:45
主旨: Long Bin Phase 2 Public Housing Development - Wish List of Welfare Facilities

Dear SWD Team,

Long Bin Phase 2 Public Housing Development
<u>Wish List of Welfare Facilities</u>

Thank you for your information on the proposed welfare facilities.

We have prepared a table consolidating previous input from SWD regarding the welfare wish list as below. If you have any comments on the excel table, please feel free to let us know.

2022-11-17 LB2 Welfare.xlsx

<u>1. Latest SOA</u>
Our scheme design consultant for this project has been on board and starts preparing the design for the development.
To facilitate the preparation of the scheme design, grateful if SWD could further the latest SOA of the 12 facilities for our design study.

<u>2. Parking and Loading/Unloading Requirement</u>
Previously, each of the 12 proposed welfare facilities provided their own parking and loading/unloading requirements. Considering the limited space available and efficient use of space, appreciate if SWD could review whether the parking and loading/unloading can be shared amongst the proposed 12 facilities, and advise the revised shared requirement for our onward study.

<u>3. Hostels-type Facilities</u>
We noticed there are quite a number of hostel-type facilities in the welfare wish list:
- 3.1 50-p Hostel for Moderately Mentally Handicapped Persons (HMMH)
- 3.2 50-p Hostel for Severely Physically Handicapped Persons (HSPH)
- 3.3 40-p Supported Hostel for Mentally Handicapped Persons (SHOS(MH))
- 3.4 200-p Residential Care Home for the Elderly (RCHE) cum 30-p Day Care Unit (DCU)
- 3.5 100-p Long Stay Care Home (LSCH)

We would like to draw your attention that habitable rooms (e.g. dormitories, sick rooms, etc.) for hostels require natural lighting and ventilation, which would in turn require frontage for windows. With Long Bin’s surrounding noise level, we may not be able to provide sufficient window frontage with desirable acoustic level. Our consultant will try to incorporate the proposed welfare facilities as much as possible. However, we may not be able to include all the proposed welfare facilities due to site constraints. We will let you know if there are updates on the feasibility study.

<u>4. Other Observations</u>
We have some minor observations as marked in YELLOW in the attachment. Grateful if you could review and advise.

Grateful if you could reply on **<u>Item 1, 2 and 4</u>** above by **<u>23/11/2022</u>**. Thank you in advance and apology for the rush.

Thanks & regards,
Karen Wong
Architect T222
Housing Department
Tel. 2129 3297

Neo YH NG	Dear Miss WONG, Your preceding email refers.	28/09/2022 03:11:26 PM
Doris SY LEUNG	Dear Karen, I refer to the preceding e-mail to review the proposed Social Welfare Faciliti...	18/07/2022 02:06:49 PM

Long Bin Phases 2 & 3 - Proposed Welfare Facilities (2022-11-17)

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Items	**Type of Services**	**Target Group**	**Hostel?**	**NOFA (m^2)**	**IFA (m^2)**	**SOA Version**	**Remarks**	**Ancillary Facilities (if any)**	**Parking**	**Loading/Unloading**	**Height from Ground**	**Headroom**	**Lift Provision**	**whether the parking and loading/unloading can be shared amongst the proposed 12 facilities, and advise the revised shared requirement**
1	Office Base of On-site Pre-school Rehabilitation Services (OPRS) ~~Office Base~~ 到校學前康復服務辦事處	Children with mild disabilities aged below 6	No	166	216	2019-09-18	SOA updated per SWD's email 1/9/2022		A designated parking space of 8m L x 3m W x minimum 3.3m headroom for a private light bus as mobile training centre of OPRS is required.	Loading/Unloading is not required for OPRS.	Should be situated at a height not more than 24m from the ground			The parking space should be designated for the exclusive use of OPRS while we have no comment on the Loading/Unloading Bay as the Loading/Unloading Bay is not required for OPRS.
2	60-p Special Child Care Centre (SCCC) 特殊幼兒中心	Children aged from 2 to under 6 assessed to have moderate to severe disabilities ~~Children aged 2 to under 6 and are either: moderately or severely mentally handicapped; moderately or severely physically handicapped; deaf or with severe to profound hearing impairment; blind or with severe visual impairment; or autistic.~~	No	409	532	2017-09-13			Parking space for a 48-seater coach~~bus~~ (12m x 3.5 m with min headroom of 3.8 m)	A safe and convenient Loading/Unloading Bay in proximity to the entrance of SCCC ~~With easily accessible loading/ unloading bay~~	No part of any centre premises shall be situated at a height of more than 24 metre above ground level.	As required by Cap 243A Child Care Services Regulations, the ceiling of every room in the centre shall be NOT less than 3 m above the floor level of the room (measured from finished floor level to finished ceiling level). Enough headroom buffer must be provided in the design stage so that the 3m clear headroom requirement can be achieved at the end stage especially when false ceiling is to be installed. ~~The ceiling of every room in the centre shall be not less than 3 m above the floor level of the room~~		The parking space should be designated for the exclusive use of SCCC while the Loading/Unloading Bay (12m x 3.5 m with min headroom of 3.8 m) for the shared use of SCCC and other welfare facilities is considered feasible.
3	100-p Aided Standalone Child Care Centre (CCC) 獨立幼兒中心	Children (78 places for aged 0 to below 2 and 22 places for aged 2 to below 3)	No	530	689	2019-10-21	SOA updated per SWD's email 18/7/2022	The location of CCC should comply with the licensing and operation requirements as laid down in PNAP APP-43 as well as relevant building regulation, FS requirement and ongoing regulatory control under the Child Care Services Ordinance (CCSO), Child Care Services Regulations (CCSR) and Operation Manual for Pre-primary Institutions, i.e. not situating in any part of an industrial building, over any godown, store, shop, cinema, department store, or any premises carrying on trades or facilities which may constitute a danger or may be detrimental to the health or well-being of children such as creating excessive noise, fumes and smells as well as not locating in any premises located vertically above/below a restaurant/club, etc.; Straddling across two floors is not accepted for CCC because of the operational considerations and service concern on the fulfillment of enhanced manning ratio of designated staff to service users; Should co-location of CCC with other welfare facilities is required, elderly service is found suitable.	No parking space is required by CCC	A shared loading/unloading bay or lay-by should be accessible conveniently and close to CCC for the emergency use of ambulances	The location of CCC should be situated at a height of not more than 12 m above ground level. In accordance with para 1.1.1 of the Operation Manual for Pre-primary Institutions (September 2021) (Version 2.2), CCC should, ideally, be located on ground floor or the podium floor for ensuring that children gain easy access.			- A **shared** loading/unloading bay or lay-by is required for CCC. - It should be accessible conveniently and close to CCC for the emergency use of ambulances.
4	50-p Hostel for Moderately Mentally Handicapped Persons (HMMH) 中度弱智人士宿舍	Mentally handicapped	Yes	617	864	2017-09-13		Should be paired up with IVRSC.			Should be situated at a height not more than 24m from the ~~ground~~ street level.			
5	50-p Hostel for Severely Physically Handicapped Persons (HSPH) 嚴重肢體傷殘人士宿舍	Physically handicapped	Yes	695	1,043	2018-10-19		Should be paired up with IVRSC.	Designated parking space for a 24-seater van with tail-lift	Loading/ unloading area for passengers is required. Shared use of loading/unloading area with other welfare facilities is ageeable.	Should be situated at a height not more than 24m from the ~~ground~~ street level.			Designated parking space measuring 8m(L)x3m(W)x3.3m(H) is required for 24-seater van for HPSH. Shared use of loading/unloading area among other welfare facilities is agreeable.
6	120-p Integrated Vocational Rehabilitation on Services Centre (IVRSC) 綜合職業康復服務中心	Persons with disabilities in need of vocational training or support to take up open employment	No	653	849	2014-10-03		Should be paired up with HMMH and HSPH.	Designated parking space for a 5.5 ton goods vehicle	With easily accessible loading/ unloading bay for goods delivery is required. Shared use of loading/unloading area with other welfare facilities is ageeable.	Should be situated at a height not more than 24m from the ~~ground~~ street level.		To be located on G/F, otherwise a goods lift to be shared with other welfare facilities is required.	Designated parking space measuring 7m(L)x3.5m(W)x3.6m(H) is required for 5.5 ton goods vehicle for IVRSC. Shared use of loading/unloading area among other welfare facilities is agreeable.

Long Bin Phases 2 & 3 - Proposed Welfare Facilities **(2022-11-17)**

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Items	Type of Services	Target Group	Hostel?	NOFA (m²)	IFA (m²)	SOA Version	Remarks	Ancillary Facilities (if any)	Parking	Loading/Unloading	Height from Ground	Headroom	Lift Provision	whether the parking and loading/unloading can be shared amongst the proposed 12 facilities, and advise the revised shared requirement
7	40-p Supported Hostel for Mentally Handicapped Persons (SHOS(MH)) 弱智人士輔助宿舍	Mentally handicapped	Yes	443 (SWD please clarify the NOFA & IFA. Per SOA , NOFA should be 487.) SWD : NOFA for 40-p SHOS(MH) is 443 sq.m.	576 (SWD please clarify the NOFA & IFA. Per SOA , NOFA should be 487.) SWD : IFA for 40-p SHOS(MH) at 576 sq.m. is confirmed, please.	2018-10-19					Should be situated at a height not more than 24m from the ~~ground~~ street level.			
8	200-p Residential Care Home for the Elderly (RCHE) cum 30-p Day Care Unit (DCU) 安老院 / 長者日間護理單位	Elderly	Yes	2,565	4,095	RCHE (2017-09-13) DCU (2020-02-20)		i) In accordance with Section 20 of Residential Care Homes (Elderly Persons) Regulation (Cap. 459 sub. Leg. A), no part of a RCHE shall be situated at a height more than 24m above the ground floor, measuring vertically from the ground of the building to the floor of the premises in which the RCHE to be situated. That say, the proposed RCHE should be situated at a level not higher than 24m from ground level under statutory requirement. ii) For the part of DCU, while it will be placed not more than 24m above ground level, location at ground floor or a vehicular accessible floor is most preferred as the users are frail elders and most of them are on wheelchair. iii) 2 parking spaces for private light buses with tail-lift measuring 8m x 3m with minimum headroom of 3.3m for the exclusive use of the RCHE cum DCU. iv) A shared loading / unloading area for the RCHE cum DCU private light buses and ambulance / other vehicles of the development in the close proximity to the entrance of the building where the RCHE cum DCU is located. v) A designated lift for the exclusive use of the RCHE cum DCU which can accommodate a stretcher bed measuring 2050mm x 560mm minimum. vi) If the facility has to be spread across two floors, internal staircases should be considered.	Two parking spaces for two private light buses with tail-lifts (measurement: 8m x 3m with minimum headroom of 3.3m.) for the exclusive use of the RCHE cum DCU should be provided. [The requirement for two no. of designated parking spaces for private light buses for exclusive use of RCHE cum DCU remain valid.]	A shared loading/ unloading area for use of the two private light buses, and ambulance in the close proximity of the RCHE cum DCU entrance. The dimension of the shared L/UL area is at 11m x 3.5m x 4.7m (minimum headroom).	The RCHE cum DCU should be situated at a level not higher than 24 m from ground level.			For RCHE cum DCU, please be advised that the two no. of designated parking spaces for private light buses of RCHE cum DCU are the standard site requirements for planned RCHE projects as these required parking provisions are essential to ensure the smooth operation of RCHE cum DCU. Hence, the two designated parking spaces for RCHE cum DCU could not be shared among 12 welfare facilities. Whereas, we (RCHE cum DCU) accept the required 1 no. L/UL bay to be used amongst the 12 welfare facilities, ambulance and other vehicles of the development.
9	School Social Work Unit	Students with academic, social or emotional problems	No	36	41	SWD please provide SOA (attached SoA version 2022-04-22)	New bid from SWD's email 2022-07-18	Nil	Nil	Nil				Yes, it can be shared.
10	Home Care Services (HCS) for Frail Elderly Persons (1-team size non-kitchen based) 體弱長者家居照顧服務隊	Elderly	No	86	115	SWD please provide SOA SWD : Please refer to the SoA attached in the e-mail	New bid from SWD's email 2022-07-18		One designated parking space for one private light bus with tail-lift measuring 8m x 3m with minimum headroom of 3.3m is required.	A shared loading/unloading area for the private light bus of the Home Care Services (HCS) team for Frail Elderly Persons and other welfare facilities in close proximity to the entrance of the HCS team for Frail Elderly Persons is required.	Nil			The designated parking space is required as it plays a very significant role to ensure effective service provision. A shared loading/ unloading area with other welfare facilities in close proximity to the entrance of the HCS team for Frail Elderly Persons is required.
11	Multi-disciplinary Outreaching Support Team for the Elderly (MOSTE) 安老院舍外展專業服務隊	Elderly	No	324.36	486.54	2022-05-14	New bid from SWD's email 2022-07-18	Nil	No parking space is required by MOSTE	With easily accessible loading/ unloading bay for goods delivery is required.	Nil			Shared use of loading/unloading area among other welfare facilities is agreeable.
12	100-p Long Stay Care Home (LSCH) 長期護理院	Persons in mental recovery in need of long term residential care and active maintenance services	Yes	1,433	2,150	SWD please provide SOA SWD : Please refer to the SoA attached in the e-mail	New bid from SWD's email 2022-07-18	If the facility has to be spread across two floors, there should be internal staircases.	One parking space (size: 8m x 3m with minimum headroom of 3.3m) for a private light bus with tail-lift.	Share public loading/unloading bay or lay-by for ambulance are required (size: 8m x 3m with minimum headroom of 3.3m).	LSCH should be located on the ground floor or lower floors (not higher than 24 metres above the street level), and should preferably be accessible by its own lifts.			The parking space should be designated for the exclusive use of LSCH while the Loading/Unloading Bay (12m x 3.5 m with min headroom of 3.8 m) for the shared use of LSCH and other welfare facilities is considered feasible.
			Total	7,957	11,656									

Appendix C

Junction Calculation

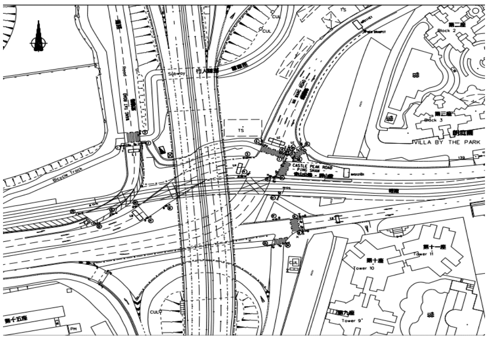
TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

Job No. : 5209833

Junction : J1 - Castle Peak Road-Ping Shan/ Ma Wang Road　　Design Year: 2034

Scheme : Reference　　Designed by: VAR　　Checked by: DH



N

Traffic Flo (pcu hr)
AM(PM)

N

471(525)　55(55)

763(766)
1100(1058)

876(964)
674(594)

STAGE PHASE DIAGRAM

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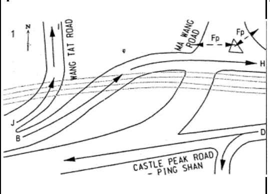
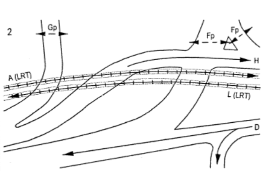
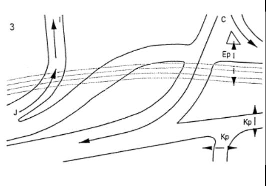
				

D+C	G=	IG=	G=3	IG=14	G=	IG=6	G=	IG=	G=	IG=
D+C	G=	IG=	G=3	IG=14	G=	IG=6	G=	IG=	G=	IG=

CAPACITY CALCULATIONS

							AM Peak				PM Peak			
Phase	Stage	Lane Width (m) *w*	Nearside lane (Y/N)	Opposed turn (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	Design Flow ***q*** (pcu/hr)	Proportion turning (%) ***f***	Saturation flow ***S*** (pcu/hr)	Flow factor ***y***	Design Flow ***q*** (pcu/hr)	Proportion turning (%) ***f***	Saturation flow ***S*** (pcu/hr)	Flow factor ***y***
Castle Peak Road-Ping Shan (E)														
1	1,3	3.00	Y	N	25		763	100%	1805	0.423	766	100%	1805	0.424
I1	1,3	3.00	Y	N			368		1915	0.192	369		1915	0.193
I2	1,3	3.00	N	N			395		2055	0.192	397		2055	0.193
1	1	3.50	N	N			550		2105	0.261	529		2105	0.251
2	1	3.50	N	N			550		2105	0.261	529		2105	0.251
H1	1,2	3.50	N	N			550		2105	0.261	529		2105	0.251
H2	1,2	3.50	N	N			550		2105	0.261	529		2105	0.251
Castle Peak Road-Ping Shan (W)														
D1	1,2	3.20	Y	N	9		690	98%	1665	0.414	701	85%	1695	**0.414**
D2	1,2	3.20	N	N			860		2075	**0.414**	857		2075	0.413
Ma Wang Road (S)														
C1	3	3.50	Y	N	18/18		174	32% / 68%	1815	0.096	166	33% / 67%	1815	0.091
C2	3	3.50	N	N	30		176	100%	2005	0.088	207	100%	2005	0.103
C3	3	3.50	N	N	30		176	100%	2005	0.088	207	100%	2005	0.103
Ep	3		10GM +	9FG =	19	sec								
Fp	1,2		5GM +	10FG =	15	sec								
Gp	2		5GM +	6FG =	11	sec								
p	3		5GM +	9FG =	14	sec								
A (LRT)	2		7GM +	7FG =	14	sec								
L (LRT)	2		7GM +	7FG =	14	sec								

Notes:

AM Peak	D C	PM Peak	D C
Sum of Critical *y* ***Y***	**0.510**	Sum of Critical *y* ***Y***	**0.517**
Lost Time ***L*** (sec)	21	Lost Time ***L*** (sec)	21
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.743	Practical *Y* ***Ypr***	0.743
Reserve Capacity ***RC***	**45**	Reserve Capacity ***RC***	**44**

Date : 17/5/2024　　Junction : J1 - Castle Peak Road-Ping Shan/ Ma Wang Road

TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

Job No. : 5209833

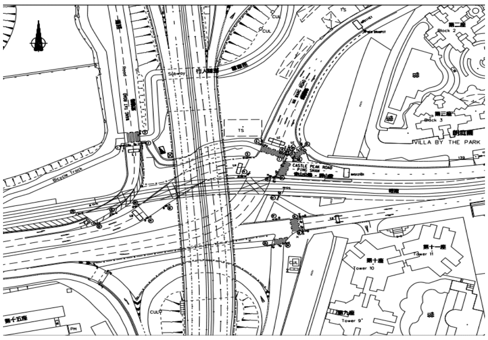
Junction : J1 - Castle Peak Road-Ping Shan/ Ma Wang Road

Design Year: 2034

Scheme : Design

Designed by: VAR

Checked by: DH



N

Traffic Flo (pcu hr)
AM(PM)

N

471(525)

55(55)

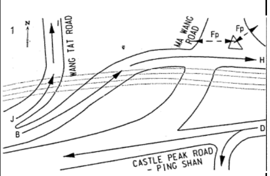
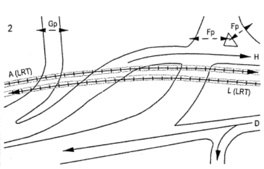
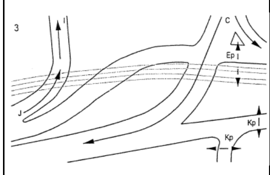
763(766)

1101(1059)

876(964)

675(595)

STAGE PHASE DIAGRAM

1	2	3	4	5
				

D+C	G=	IG=	G=3	IG=14	G=	IG=6	G=	IG=	G=	IG=
D+C	G=	IG=	G=3	IG=14	G=	IG=6	G=	IG=	G=	IG=

CAPACITY CALCULATIONS

							AM Peak				PM Peak			
Phase	Stage	Lane Width (m) *w*	Nearside lane (Y/N)	Opposed turn (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	Design Flow *q* (pcu/hr)	Proportion turning (%) *f*	Saturation flow *S* (pcu/hr)	Flow factor *y*	Design Flow *q* (pcu/hr)	Proportion turning (%) *f*	Saturation flow *S* (pcu/hr)	Flow factor *y*
Castle Peak Road-Ping Shan (E)														
1	1,3	3.00	Y	N	25		763	100%	1805	0.423	766	100%	1805	0.424
I1	1,3	3.00	Y	N			368		1915	0.192	369		1915	0.193
I2	1,3	3.00	N	N			395		2055	0.192	397		2055	0.193
1	1	3.50	N	N			551		2105	0.262	530		2105	0.252
2	1	3.50	N	N			550		2105	0.261	529		2105	0.251
H1	1,2	3.50	N	N			551		2105	0.262	530		2105	0.252
H2	1,2	3.50	N	N			550		2105	0.261	529		2105	0.251
Castle Peak Road-Ping Shan (W)														
D1	1,2	3.20	Y	N	9		690	98%	1665	0.414	701	85%	1695	**0.414**
D2	1,2	3.20	N	N			861		2075	**0.415**	858		2075	0.413
Ma Wang Road (S)														
C1	3	3.50	Y	N	18/18		174	32% / 68%	1815	0.096	166	33% / 67%	1815	0.091
C2	3	3.50	N	N	30		176	100%	2005	0.088	207	100%	2005	0.103
C3	3	3.50	N	N	30		176	100%	2005	0.088	207	100%	2005	0.103
Ep	3		10GM +	9FG =	19	sec								
Fp	1,2		5GM +	10FG =	15	sec								
Gp	2		5GM +	6FG =	11	sec								
p	3		5GM +	9FG =	14	sec								
A (LRT)	2		7GM +	7FG =	14	sec								
L (LRT)	2		7GM +	7FG =	14	sec								

Notes:

AM Peak	D C	PM Peak	D C
Sum of Critical *y* ***Y***	**0.511**	Sum of Critical *y* ***Y***	**0.517**
Lost Time ***L*** (sec)	21	Lost Time ***L*** (sec)	21
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.743	Practical *Y* ***Ypr***	0.743
Reserve Capacity ***RC***	**45**	Reserve Capacity ***RC***	**44**

Date : 17/5/2024 Junction : J1 - Castle Peak Road-Ping Shan/ Ma Wang Road

TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

Job No. : 5209833

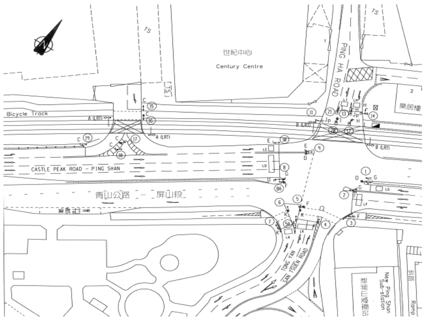
Junction : J2 - Castle Peak Road - Ping Shan/ Tong Yan San Tsuen

Design Year: 2034

Scheme : Reference

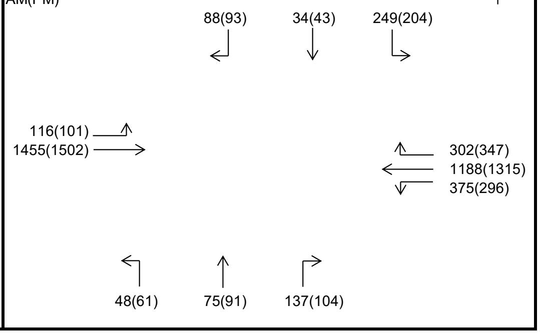
Designed by: VAR

Checked by: DH

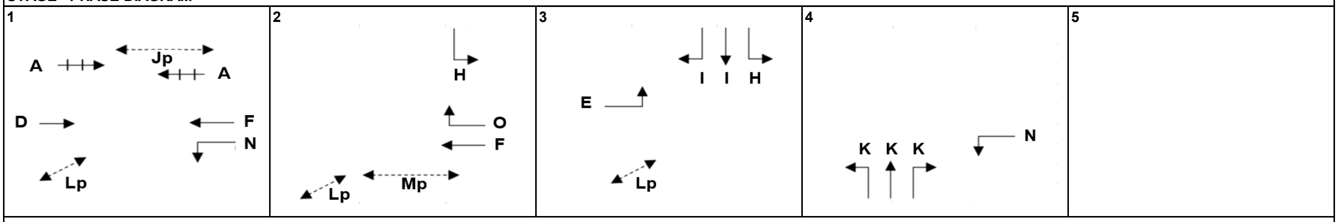


Traffic Flo (pcu hr)

AM(PM)



STAGE PHASE DIAGRAM



D+O+I+K	G=	IG=10	G=	IG=5	G=	IG=5	G=	IG=7	G= IG=
D+O+I+K	G=	IG=10	G=	IG=5	G=	IG=5	G=	IG=7	G= IG=

CAPACITY CALCULATIONS

Phase	Stage	Lane Width (m) *w*	Nearside lane (Y/N)	Opposed turn (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Castle Peak Road-Ping Shan (E)														
E1	3	3.50	Y	N	18		116	100%	1815	0.064	101	100%	1815	0.056
D1	1	3.00	N	N			485		2055	**0.236**	501		2055	**0.244**
D2	1	3.00	N	N			485		2055	0.236	500		2055	0.243
D3	1	3.00	N	N			485		2055	0.236	501		2055	0.244
Castle Peak Road - Ping Shan (W)														
N1	1,4	3.50	Y	N	14		375	100%	1775	0.211	296	100%	1775	0.167
F1	1,2	3.50	N	N			594		2105	0.282	658		2105	0.313
F2	1,2	3.50	N	N			594		2105	0.282	657		2105	0.312
O2	2	3.50	N	N	30		302	100%	2005	**0.151**	347	100%	2005	**0.173**
Ping Ha Road (S)														
H1	2,3	3.70	Y	N	16		249	100%	1815	0.137	204	100%	1815	0.112
I1	3	3.40	N	N	30		122	72%	2020	**0.060**	136	68%	2025	**0.067**
Tong Yan San Tsuen Road (N)														
1	4	3.50	Y	N	25		48	100%	1855	0.026	61	100%	1855	0.033
2	4	3.30	N	N	33		108	31%	2055	0.053	100	9%	2075	**0.048**
3	4	3.30	N	N	27		104	100%	1975	**0.053**	95	100%	1975	0.048
(LRT)	1		10GM +	10FG =	20	sec								
p	1		7GM +	8FG =	15	sec								
Lp	1		5GM +	5FG =	10	sec								
Mp	1		5GM +	10FG =	15	sec								

Notes:

AM Peak	D O I	PM Peak	D O I
Sum of Critical *y* ***Y***	**0.500**	Sum of Critical *y* ***Y***	**0.532**
Lost Time ***L*** (sec)	23	Lost Time ***L*** (sec)	23
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.728	Practical *Y* ***Ypr***	0.728
Reserve Capacity ***RC***	**46**	Reserve Capacity ***RC***	**37**

Date : 17/5/2024 Junction : J2 - Castle Peak Road - Ping Shan/ Tong Yan San Tsuen

TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

Job No. : 5209833

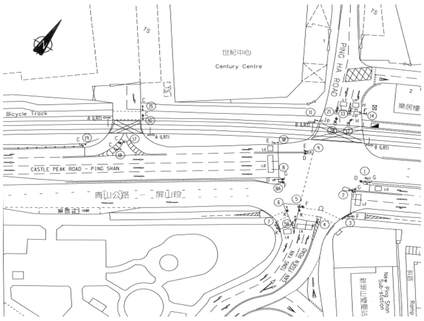
Junction : J2 - Castle Peak Road - Ping Shan/ Tong Yan San Tsuen

Design Year: 2034

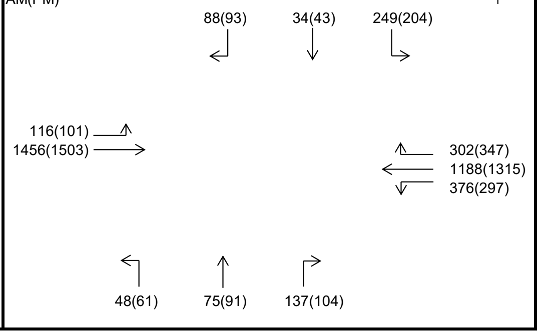
Scheme : Design

Designed by: VAR

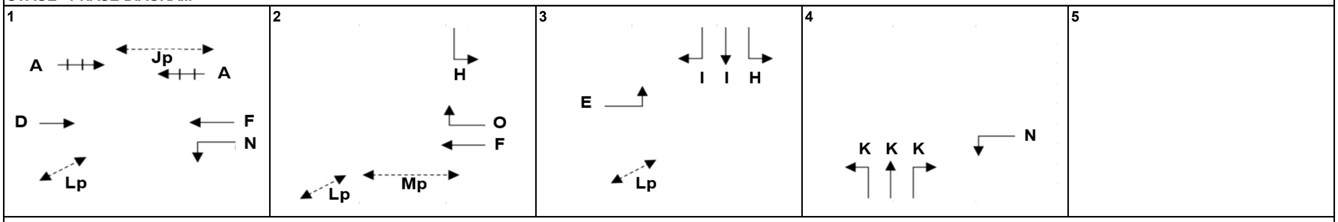
Checked by: DH



Traffic Flo (pcu hr)
AM(PM)



STAGE PHASE DIAGRAM



D+O+I+K G=	IG=10	G=	IG=5	G=	IG=5	G=	IG=7	G=	IG=
D+O+I+K G=	IG=10	G=	IG=5	G=	IG=5	G=	IG=7	G=	IG=

CAPACITY CALCULATIONS

Phase	Stage	Lane Width (m) *w*	Nearside lane (Y/N)	Opposed turn (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
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D1	1	3.00	N	N			485		2055	0.236	501		2055	**0.244**
D2	1	3.00	N	N			486		2055	**0.236**	501		2055	0.244
D3	1	3.00	N	N			485		2055	0.236	501		2055	0.244
Castle Peak Road - Ping Shan (W)														
N1	1,4	3.50	Y	N	14		376	100%	1775	0.212	297	100%	1775	0.167
F1	1,2	3.50	N	N			594		2105	0.282	658		2105	0.313
F2	1,2	3.50	N	N			594		2105	0.282	657		2105	0.312
O2	2	3.50	N	N	30		302	100%	2005	**0.151**	347	100%	2005	**0.173**
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3	4	3.30	N	N	27		104	100%	1975	**0.053**	95	100%	1975	0.048
(LRT)	1		10GM +	10FG =	20	sec								
p	1		7GM +	8FG =	15	sec								
Lp	1		5GM +	5FG =	10	sec								
Mp	1		5GM +	10FG =	15	sec								

Notes:

AM Peak	D O I	PM Peak	D O I
Sum of Critical *y* ***Y***	**0.500**	Sum of Critical *y* ***Y***	**0.532**
Lost Time ***L*** (sec)	23	Lost Time ***L*** (sec)	23
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.728	Practical *Y* ***Ypr***	0.728
Reserve Capacity ***RC***	**46**	Reserve Capacity ***RC***	**37**

Date : 17/5/2024 Junction : J2 - Castle Peak Road - Ping Shan/ Tong Yan San Tsuen

TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

Job No. : 5209833

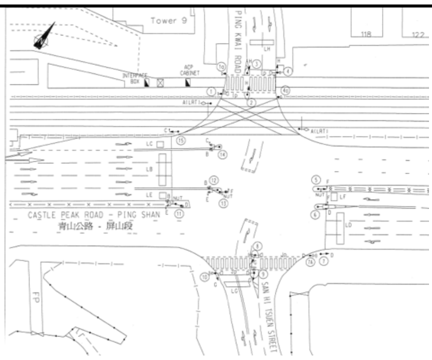
Junction : J3 - Castle Peak Road-Ping Shan/ Ping Kwai Road/ San Hi Tsuen Street

Design Year: 2034

Scheme : Reference

Designed by: VAR

Checked by: DH



Traffic Flo (pcu hr)
AM(PM)

69(57) 47(54) 79(112)

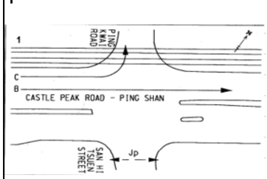
29(35)
1428(1447)
249(146)

114(153)
1204(1288)
5(7)

282(165) 10(16) 64(45)

STAGE PHASE DIAGRAM

1



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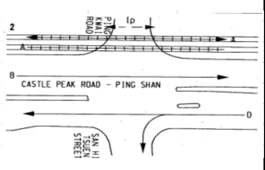

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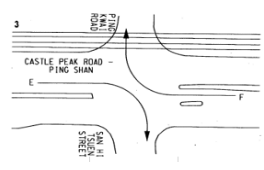

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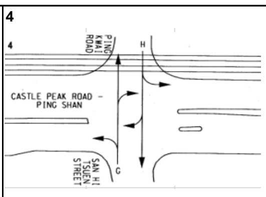

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B+E+G	G=13	IG=6	G=	IG=7	G=	IG=6	G=	IG=9	G=	IG=
C+D+F+G	G=12	IG=6	G=	IG=7	G=	IG=6	G=	IG=9	G=	IG=

CAPACITY CALCULATIONS

Phase	Stage	Lane Width (m) *w*	Nearside lane (Y/N)	Opposed turn (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Castle Peak Road-Ping Shan (E)														
C1	1	3.40	Y	N	20		29	100%	1820	0.016	35	100%	1820	**0.019**
1	1,2	3.40	N	N			476		2095	**0.227**	482		2095	0.230
2	1,2	3.40	N	N			476		2095	0.227	483		2095	0.231
3	1,2	3.40	N	N			476		2095	0.227	482		2095	0.230
E1	3	3.40	N	N	30		249	100%	1995	**0.125**	146	100%	1995	0.073
Castle Peak Road-Ping Shan (W)														
D1	2	3.30	Y	N	20		384	1%	1945	0.197	412	2%	1945	0.212
D2	2	3.30	N	N			413		2085	0.198	442		2085	**0.212**
D3	2	3.30	N	N			412		2085	0.198	441		2085	0.212
F1	3	3.15	N	N	30		114	100%	1970	0.058	153	100%	1970	**0.078**
Ping ai road (S)														
H1	4	3.10	Y	N	20		126	63%	1840	0.068	166	67%	1830	0.091
H2	4	3.10	N	Y	45		69	100%	1775	0.039	57	100%	1775	0.032
San Hi Tsuen Street (N)														
G1	4	3.40	Y	N	20		292	97%	1825	**0.160**	181	91%	1830	**0.099**
G2	4	3.40	N	Y	25		64	100%	1760	0.036	45	100%	1760	0.026
Ip	2		7GM +	6FG =	13	sec								
A (LRT)	2		7GM +	6FG =	13	sec								
p	1		12GM +	11FG =	23	sec								

Notes:

AM Peak	E G	PM Peak	C D F G
Sum of Critical *y* ***Y***	**0.512**	Sum of Critical *y* ***Y***	**0.408**
Lost Time ***L*** (sec)	38	Lost Time ***L*** (sec)	36
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.615	Practical *Y* ***Ypr***	0.630
Reserve Capacity ***RC***	**20**	Reserve Capacity ***RC***	**54**

Date : 17/5/2024 Junction : J3 - Castle Peak Road-Ping Shan/ Ping Kwai Road/ San Hi Tsuen Street

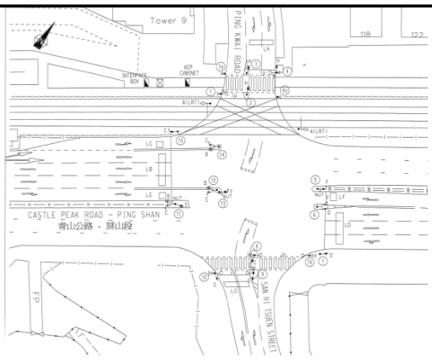
TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

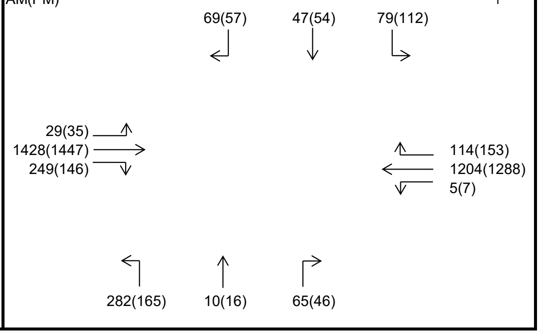
Job No. : 5209833

Junction : J3 - Castle Peak Road-Ping Shan/ Ping Kwai Road/ San Hi Tsuen Street   Design Year: 2034

Scheme : Design   Designed by: VAR   Checked by: DH

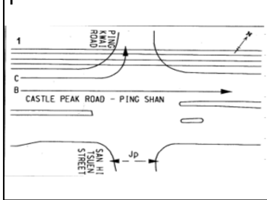


Traffic Flo (pcu hr)
AM(PM)



STAGE PHASE DIAGRAM

1



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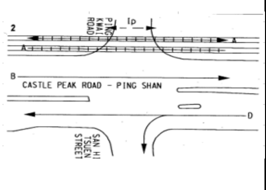

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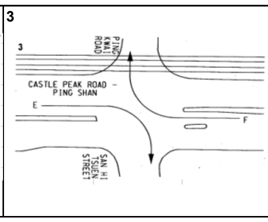

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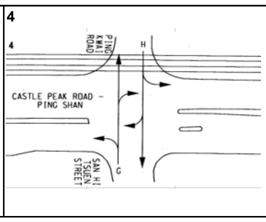

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B+E+G	G=13	IG=6	G=	IG=7	G=	IG=6	G=	IG=9	G=	IG=
C+D+F+G	G=12	IG=6	G=	IG=7	G=	IG=6	G=	IG=9	G=	IG=

CAPACITY CALCULATIONS

Phase	Stage	Lane Width (m) *w*	Nearside lane (Y/N)	Opposed turn (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Castle Peak Road-Ping Shan (E)														
C1	1	3.40	Y	N	20		29	100%	1820	0.016	35	100%	1820	**0.019**
1	1,2	3.40	N	N			476		2095	**0.227**	482		2095	0.230
2	1,2	3.40	N	N			476		2095	0.227	483		2095	0.231
3	1,2	3.40	N	N			476		2095	0.227	482		2095	0.230
E1	3	3.40	N	N	30		249	100%	1995	**0.125**	146	100%	1995	0.073
Castle Peak Road-Ping Shan (W)														
D1	2	3.30	Y	N	20		384	1%	1945	0.197	412	2%	1945	0.212
D2	2	3.30	N	N			413		2085	0.198	442		2085	**0.212**
D3	2	3.30	N	N			412		2085	0.198	441		2085	0.212
F1	3	3.15	N	N	30		114	100%	1970	0.058	153	100%	1970	**0.078**
Ping ai road (S)														
H1	4	3.10	Y	N	20		126	63%	1840	0.068	166	67%	1830	0.091
H2	4	3.10	N	Y	45		69	100%	1775	0.039	57	100%	1775	0.032
San Hi Tsuen Street (N)														
G1	4	3.40	Y	N	20		292	97%	1825	**0.160**	181	91%	1830	**0.099**
G2	4	3.40	N	Y	25		65	100%	1760	0.037	46	100%	1760	0.026
Ip	2		7GM +	6FG =	13	sec								
A (LRT)	2		7GM +	6FG =	13	sec								
p	1		12GM +	11FG =	23	sec								

Notes:

AM Peak	E G	PM Peak	C D F G
Sum of Critical *y* ***Y***	**0.512**	Sum of Critical *y* ***Y***	**0.408**
Lost Time ***L*** (sec)	38	Lost Time ***L*** (sec)	36
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.615	Practical *Y* ***Ypr***	0.630
Reserve Capacity ***RC***	**20**	Reserve Capacity ***RC***	**54**

Date : 17/5/2024   Junction : J3 - Castle Peak Road-Ping Shan/ Ping Kwai Road/ San Hi Tsuen Street

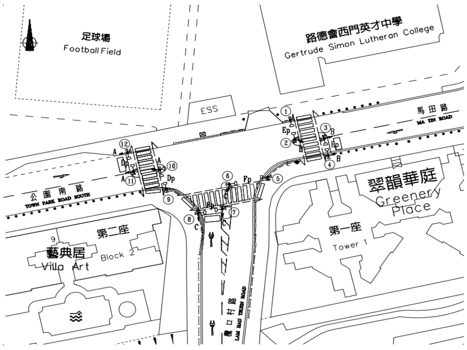
TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

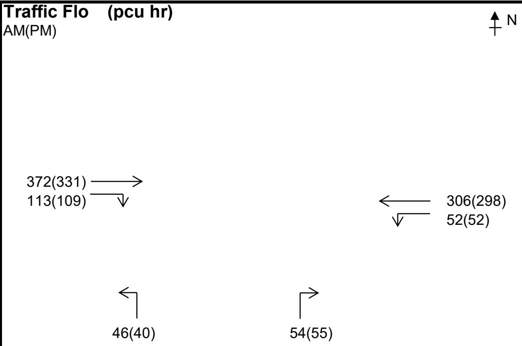
Job No. : 5209833

Junction : J4 - Town Park Road South/ Lam Hau Tsuen Road | Design Year: 2034

Scheme : Reference | Designed by: RW | Checked by: DH

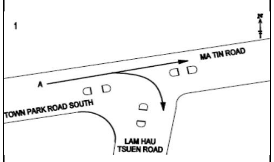


Traffic Flo (pcu hr)
AM(PM)



STAGE PHASE DIAGRAM

1



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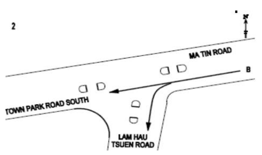

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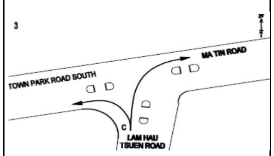

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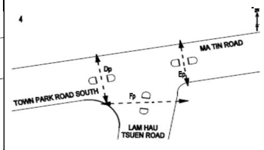


5

A+B+C+D	G=	IG=5	G=	IG=8	G=	IG=8	G=14	IG=3	G=	IG=
A+B+C+D	G=	IG=5	G=	IG=8	G=	IG=8	G=14	IG=3	G=	IG=

CAPACITY CALCULATIONS

Phase	Stage	Lane Width (m) *w*	Nearside lane (Y/N)	Opposed turn (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
To n Park Road South (E)														
A1	1	5.00	Y	N	15		485	23%	2065	**0.235**	440	25%	2065	**0.213**
Ma Tin Road (W)														
1	2	5.50	Y	N	13		358	15%	2130	**0.168**	350	15%	2130	**0.164**
Lam Hau Tsuen Road (N)														
C1	3	5.40	Y	N	15/15		100	46% / 54%	1960	**0.051**	95	42% / 58%	1960	**0.048**
Dp	4		5GM +	4FG =	9	sec								
Ep	4		5GM +	4FG =	9	sec								
Fp	4		5GM +	8FG =	13	sec								

Notes:

AM Peak	A C D	PM Peak	A C D
Sum of Critical *y* ***Y***	**0.454**	Sum of Critical *y* ***Y***	**0.426**
Lost Time ***L*** (sec)	35	Lost Time ***L*** (sec)	35
Cycle Time ***c*** (sec)	90	Cycle Time ***c*** (sec)	90
Practical *Y* ***Ypr***	0.550	Practical *Y* ***Ypr***	0.550
Reserve Capacity ***RC***	**21**	Reserve Capacity ***RC***	**29**

Date : 17/5/2024 Junction : J4 - Town Park Road South/ Lam Hau Tsuen Road

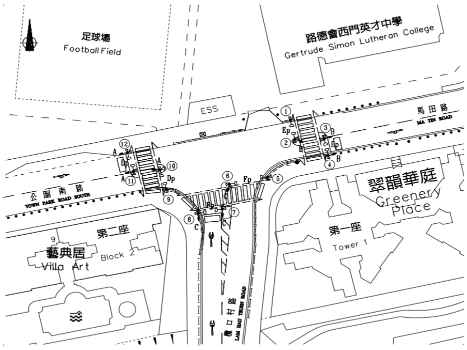
TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

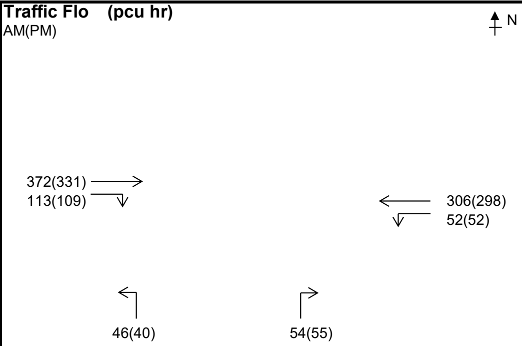
Job No. : 5209833

Junction : J4 - Town Park Road South/ Lam Hau Tsuen Road | Design Year: 2034

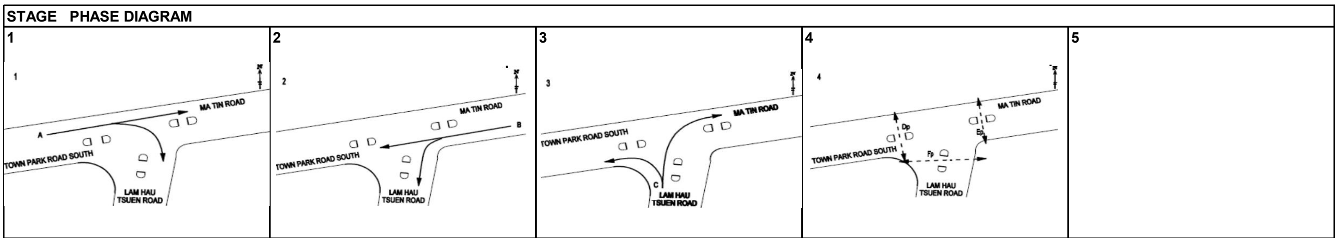
Scheme : Design | Designed by: RW | Checked by: DH



Traffic Flo (pcu hr)
AM(PM)



STAGE PHASE DIAGRAM



A+B+C+D	G=	IG=5	G=	IG=8	G=	IG=8	G=14	IG=3	G=	IG=
A+B+C+D	G=	IG=5	G=	IG=8	G=	IG=8	G=14	IG=3	G=	IG=

CAPACITY CALCULATIONS

Phase	Stage	Lane Width (m) *w*	Nearside lane (Y/N)	Opposed turn (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
To n Park Road South (E)														
A1	1	5.00	Y	N	15		485	23%	2065	**0.235**	440	25%	2065	**0.213**
Ma Tin Road (W)														
1	2	5.50	Y	N	13		358	15%	2130	**0.168**	350	15%	2130	**0.164**
Lam Hau Tsuen Road (N)														
C1	3	5.40	Y	N	15/15		100	46% / 54%	1960	**0.051**	95	42% / 58%	1960	**0.048**
Dp	4		5GM +	4FG =	9	sec								
Ep	4		5GM +	4FG =	9	sec								
Fp	4		5GM +	8FG =	13	sec								

Notes:

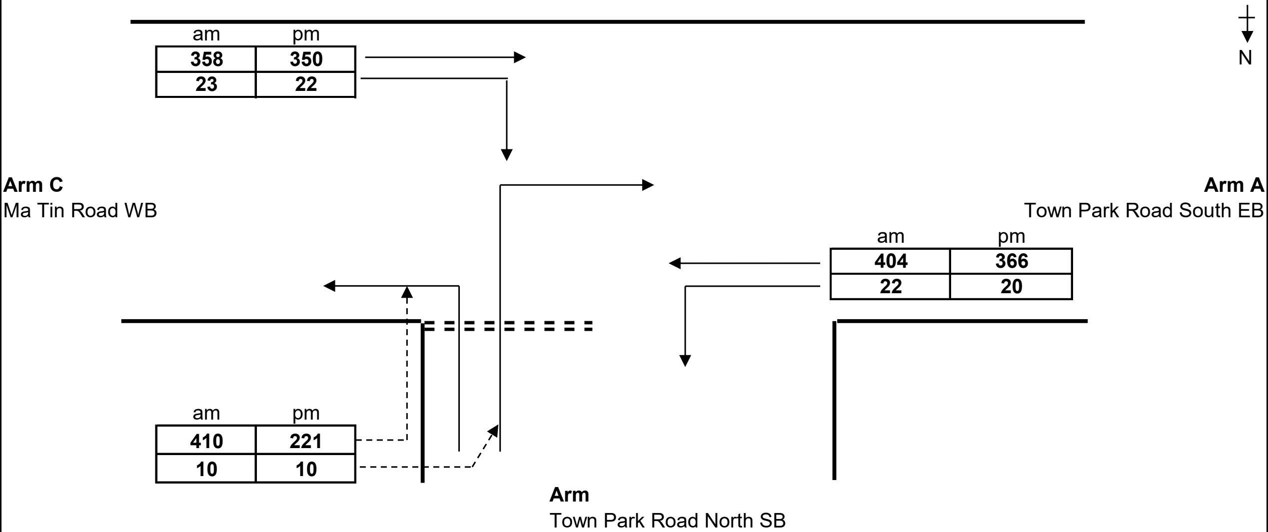
AM Peak	A C D	PM Peak	A C D
Sum of Critical *y* ***Y***	**0.454**	Sum of Critical *y* ***Y***	**0.426**
Lost Time ***L*** (sec)	35	Lost Time ***L*** (sec)	35
Cycle Time ***c*** (sec)	90	Cycle Time ***c*** (sec)	90
Practical *Y* ***Ypr***	0.550	Practical *Y* ***Ypr***	0.550
Reserve Capacity ***RC***	**21**	Reserve Capacity ***RC***	**29**

Date : 17/5/2024 Junction : J4 - Town Park Road South/ Lam Hau Tsuen Road

SIMPLIFIED PRIORITY   UNCTION CAPACITY CALCULATION

(Priority T-Junction - Minor Arm B)

Job Title:	Review of Long Bin TTIA	Job No.:	5209833
Junction:	J5 - Town Park Road North/ Ma Tin Road	Designed by:	RW
Scheme:	Reference	Checked by:	DH
Design Year:	2034		
Arm A:	Town Park Road South EB		
Arm B:	Town Park Road North SB		
Arm C:	Ma Tin Road WB		



GEOMETRY					
Major road width (m)	W	**10.50**	Lane widths (m)	w(b-a)	**6.00**
Central Reserve width (m)	Wcr	**0.00**		w(b-c)	**6.00**
Residual width (m)	Wr(c-a)	**2.50**		w(c-b)	**5.50**
Visibilities (m) (*1)	Vr(b-a)	**30**	Calculated Parameters (*2)	D	1.03
	Vl(b-a)	**20**		E	1.09
	Vr(b-c)	**0**		F	1.08
	Vr(c-b)	**30**		Y	0.64

CALCULATION			**AM PEA**	**PM PEA**
TRAFFIC FLOWS	q(c-a)		358	350
(pcu/hr)	q(c-b)		23	22
	q(a-b)		22	20
	q(a-c)		404	366
	q(b-a)		10	10
	q(b-c)		410	221
	f	=q(b-c) / (q(b-c)+q(b-a))	0.98	0.96
CAPACITIES	Q(b-a)		488	498
(pcu/hr)	Q(b-c)		707	717
	Q(c-b)		697	707
	Q(b-ac) (*3)		700	703
DFC's	b-a	=q(b-a)/Q(b-a)	0.02	0.02
	b-c	=q(b-c)/Q(b-c)	0.58	0.31
	c-b	=q(c-b)/Q(c-b)	0.03	0.03
	b-ac	=q(b-ac)/Q(b-ac)	0.60	0.33
Critical DFC			**0.60**	**0.33**

(*1) Where Vl and Vr are visibility distances to the left or right of the respective streams

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

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

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

Y = 1-0.0345W

f = proportion of minor traffic turning left

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

	<u>Queue Length (m) (*4)</u>	
queue b-a	0	0
queue b-c	23	8
queue c-b	1	1

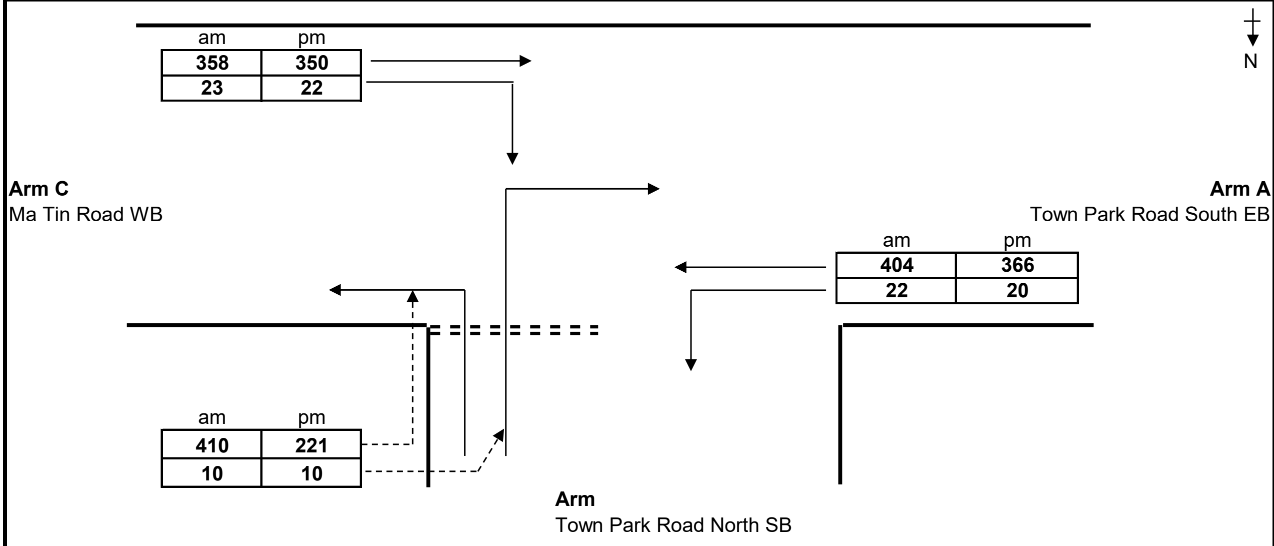
- In accordance with TPDM V2.4 Appendix 1

SIMPLIFIED PRIORITY UNCTION CAPACITY CALCULATION

(Priority T-Junction - Minor Arm B)

AtkinsRéalis

Job Title:	Review of Long Bin TTIA	Job No.:	5209833
Junction:	J5 - Town Park Road North/ Ma Tin Road	Designed by:	RW
Scheme:	Design	Checked by:	DH
Design Year:	2034		
Arm A:	Town Park Road South EB		
Arm B:	Town Park Road North SB		
Arm C:	Ma Tin Road WB		



GEOMETRY					
Major road width (m)	W	**10.50**	Lane widths (m)	w(b-a)	**6.00**
Central Reserve width (m)	Wcr	**0.00**		w(b-c)	**6.00**
Residual width (m)	Wr(c-a)	**2.50**		w(c-b)	**5.50**
Visibilities (m) (*1)	Vr(b-a)	**30**	Calculated Parameters (*2)	D	1.03
	Vl(b-a)	**20**		E	1.09
	Vr(b-c)	**0**		F	1.08
	Vr(c-b)	**30**		Y	0.64

CALCULATION			AM PEA	PM PEA
TRAFFIC FLOWS	q(c-a)		358	350
(pcu/hr)	q(c-b)		23	22
	q(a-b)		22	20
	q(a-c)		404	366
	q(b-a)		10	10
	q(b-c)		410	221
	f	=q(b-c) / (q(b-c)+q(b-a))	0.98	0.96
CAPACITIES	Q(b-a)		488	498
(pcu/hr)	Q(b-c)		707	717
	Q(c-b)		697	707
	Q(b-ac) (*3)		700	703
DFC's	b-a	=q(b-a)/Q(b-a)	0.02	0.02
	b-c	=q(b-c)/Q(b-c)	0.58	0.31
	c-b	=q(c-b)/Q(c-b)	0.03	0.03
	b-ac	=q(b-ac)/Q(b-ac)	0.60	0.33
Critical DFC			**0.60**	**0.33**

(*1) Where Vl and Vr are visibility distances to the left or right of the respective streams

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

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

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

Y = 1-0.0345W

f = proportion of minor traffic turning left

	Queue Length (m) (*4)	
queue b-a	0	0
queue b-c	23	8
queue c-b	1	1

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

- In accordance with TPDM V2.4 Appendix 1

TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

Job No. : 5209833

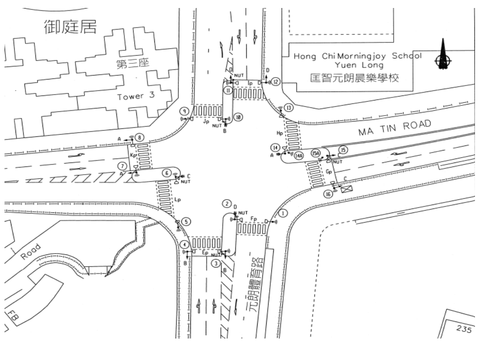
Junction : J6 - Yuen Long Tai Yuk Road/ Ma Tin Road

Design Year: 2034

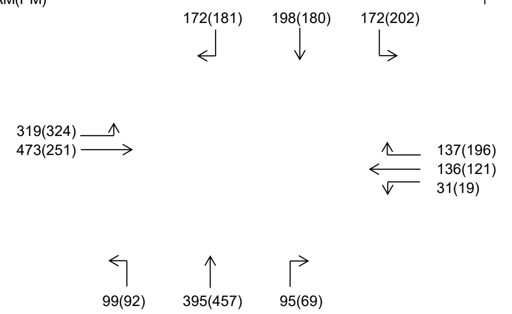
Scheme : Reference

Designed by: RW

Checked by: DH

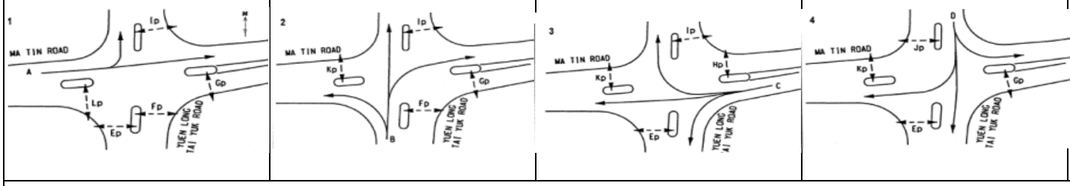


Traffic Flo (pcu hr)
AM(PM)



STAGE PHASE DIAGRAM

1	2	3	4	5



A+B+C+D	G=	IG=5	G=	IG=10	G=	IG=11	G=	IG=5	G=	IG=
A+B+C+D	G=	IG=5	G=	IG=10	G=	IG=11	G=	IG=5	G=	IG=

CAPACITY CALCULATIONS

Phase	Stage	Lane Width (m) *w*	Nearside lane (Y/N)	Opposed turn (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Ma Tin Road (E)														
A1	1	3.50	Y	N	15		319	100%	1785	0.179	324	100%	1785	**0.182**
A2	1	3.50	N	N			473		2105	**0.225**	251		2105	0.119
Ma Tin Road (W)														
C1	3	3.00	Y	N	15		167	19%	1880	**0.089**	140	14%	1890	0.074
C2	3	3.00	N	N	20		137	100%	1910	0.072	196	100%	1910	**0.103**
Yuen Long Tai Yuk Road (S)														
D1	4	3.50	Y	N	15		258	67%	1840	**0.140**	267	76%	1825	**0.146**
D2	4	3.50	N	N	25		284	61%	2030	0.140	296	61%	2030	0.146
Yuen Long Tai Yuk Road (N)														
1	2	3.80	Y	N	15		282	35%	1925	**0.146**	295	31%	1935	0.152
2	2	3.80	N	N	30		307	31%	2100	0.146	323	21%	2110	**0.153**
Ep	1,3,4		5GM +	8FG =	13	sec								
Fp	1,2		5GM +	7FG =	12	sec								
Gp	1,2,4		5GM +	7FG =	12	sec								
Hp	3		5GM +	8FG =	13	sec								
Ip	1,2,3		5GM +	8FG =	13	sec								
p	4		5GM +	7FG =	12	sec								
p	2,3,4		5GM +	7FG =	12	sec								
Lp	1		5GM +	11FG =	16	sec								

Notes:

AM Peak	A C D	PM Peak	A C D
Sum of Critical *y* ***Y***	**0.600**	Sum of Critical *y* ***Y***	**0.584**
Lost Time ***L*** (sec)	27	Lost Time ***L*** (sec)	27
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.698	Practical *Y* ***Ypr***	0.698
Reserve Capacity ***RC***	**16**	Reserve Capacity ***RC***	**20**

Date : 17/5/2024 Junction : J6 - Yuen Long Tai Yuk Road/ Ma Tin Road

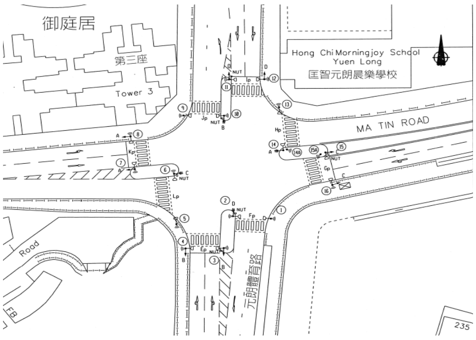
TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

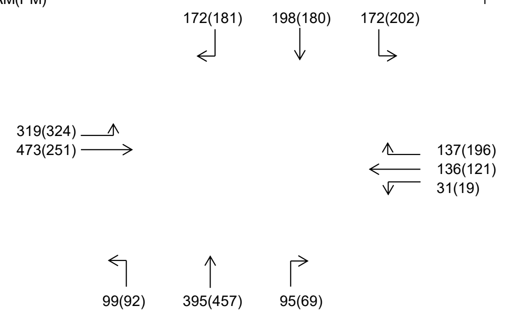
Job No. : 5209833

Junction : J6 - Yuen Long Tai Yuk Road/ Ma Tin Road | Design Year: 2034

Scheme : Design | Designed by: RW | Checked by: DH

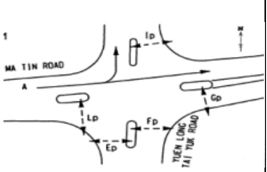


Traffic Flo (pcu hr)
AM(PM)



STAGE PHASE DIAGRAM

1



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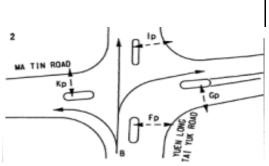

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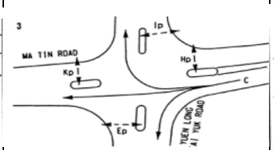

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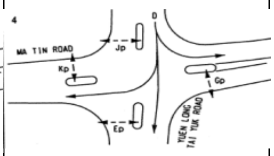

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A+B+C+D	G=	IG=5	G=	IG=10	G=	IG=11	G=	IG=5	G=	IG=
A+B+C+D	G=	IG=5	G=	IG=10	G=	IG=11	G=	IG=5	G=	IG=

CAPACITY CALCULATIONS

Phase	Stage	Lane Width (m) *w*	Nearside lane (Y/N)	Opposed turn (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Ma Tin Road (E)														
A1	1	3.50	Y	N	15		319	100%	1785	0.179	324	100%	1785	**0.182**
A2	1	3.50	N	N			473		2105	**0.225**	251		2105	0.119
Ma Tin Road (W)														
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D2	4	3.50	N	N	25		284	61%	2030	0.140	296	61%	2030	0.146
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2	2	3.80	N	N	30		307	31%	2100	0.146	323	21%	2110	**0.153**
Ep	1,3,4		5GM +	8FG =	13	sec								
Fp	1,2		5GM +	7FG =	12	sec								
Gp	1,2,4		5GM +	7FG =	12	sec								
Hp	3		5GM +	8FG =	13	sec								
Ip	1,2,3		5GM +	8FG =	13	sec								
p	4		5GM +	7FG =	12	sec								
p	2,3,4		5GM +	7FG =	12	sec								
Lp	1		5GM +	11FG =	16	sec								

Notes:

AM Peak	A C D	PM Peak	A C D
Sum of Critical *y* ***Y***	**0.600**	Sum of Critical *y* ***Y***	**0.584**
Lost Time ***L*** (sec)	27	Lost Time ***L*** (sec)	27
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.698	Practical *Y* ***Ypr***	0.698
Reserve Capacity ***RC***	**16**	Reserve Capacity ***RC***	**20**

Date : 17/5/2024 | Junction : J6 - Yuen Long Tai Yuk Road/ Ma Tin Road

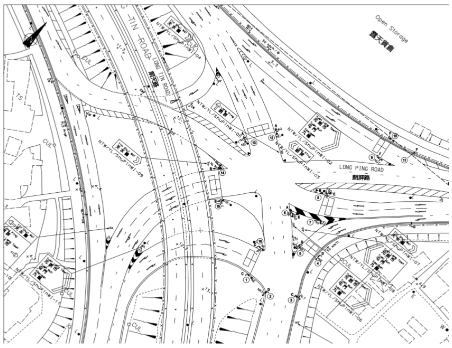
TRAFFIC SIGNAL CALCULATION SHEET

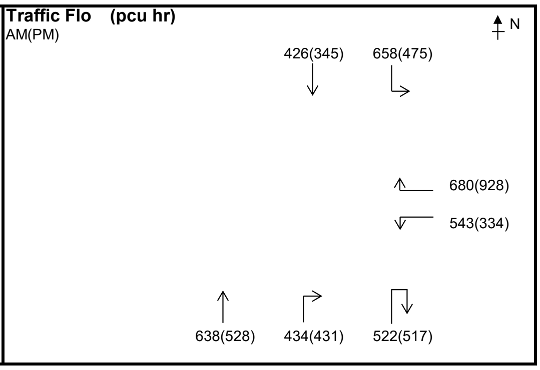
AtkinsRéalis

Job No. : 5209833

Junction : J7 - Shui Pin Wai Interchange/ Long Ping Road | Design Year: 2034

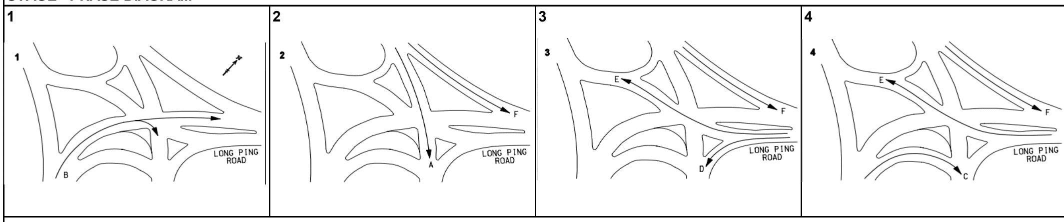
Scheme : Reference | Designed by: RW | Checked by: DH





STAGE PHASE DIAGRAM

1	2	3	4	5



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B+A+D+C	G=	IG=7	G=	IG=12	G=	IG=12	G=	IG=6	G=	IG=

CAPACITY CALCULATIONS

Phase	Stage	Lane Width (m) *w*	Nearside lane (Y/N)	Opposed turn (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Long Ping Road (W)														
D1	3	3.20	Y	N	25		543	100%	2190	**0.248**	334	100%	2190	**0.153**
E1	3,4	3.50	Y	N	70		328	100%	1925	0.170	448	100%	1925	0.233
E2	3,5	3.50	N	N	70		352	100%	2060	0.171	480	100%	2060	0.233
Long Tin Road (S)														
F1	2,3,4	3.50	Y	N			318		1965	0.162	229		1965	0.117
F2	2,3,4	3.50	N	N			340		2105	0.162	246		2105	0.117
A1	2	3.50	Y	N			136		1965	**0.069**	110		1965	0.056
A2	2	3.50	N	N			145		2105	0.069	117		2105	0.056
A3	2	3.50	N	N			145		2105	0.069	118		2105	**0.056**
Long Tin Road (N)														
1	1	3.80	Y	N			365		1995	**0.183**	327		1995	**0.164**
2	1	3.80	Y	N	30		360	24%	1970	0.183	321	37%	1960	0.164
3	1	3.80	Y	N	30		347	100%	1900	0.183	311	100%	1900	0.164
C1	4	4.50	Y	N	30		252	100%	1965	0.128	250	100%	1965	**0.127**
C2	4	4.50	N	N	30		270	100%	2100	**0.129**	267	100%	2100	0.127

Notes:

AM Peak	A D C	PM Peak	A D C
Sum of Critical *y* ***Y***	**0.629**	Sum of Critical *y* ***Y***	**0.500**
Lost Time ***L*** (sec)	33	Lost Time ***L*** (sec)	33
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.653	Practical *Y* ***Ypr***	0.653
Reserve Capacity ***RC***	**4**	Reserve Capacity ***RC***	**31**

Date : 17/5/2024 Junction : J7 - Shui Pin Wai Interchange/ Long Ping Road

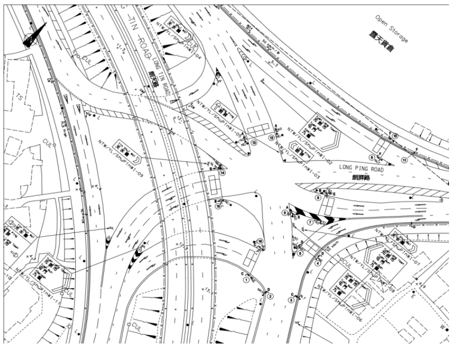
TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

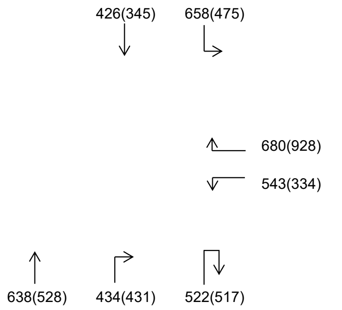
Job No. : 5209833

Junction : J7 - Shui Pin Wai Interchange/ Long Ping Road   Design Year: 2034

Scheme : Design   Designed by: RW   Checked by: DH

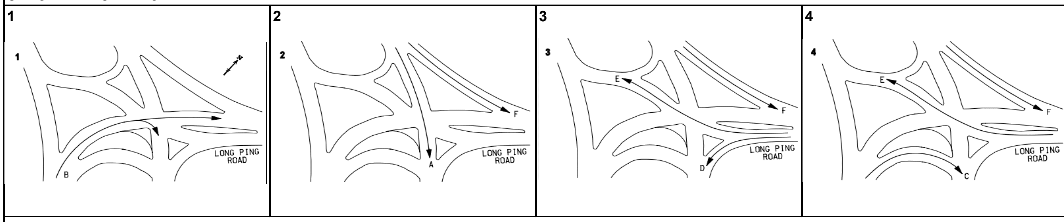


Traffic Flo (pcu hr)
AM(PM)



STAGE PHASE DIAGRAM

1	2	3	4	5



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B+A+D+C	G=	IG=7	G=	IG=12	G=	IG=12	G=	IG=6	G=	IG=

CAPACITY CALCULATIONS

Phase	Stage	Lane Width (m) *w*	Nearside lane (Y/N)	Opposed turn (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak: Design Flow *q* (pcu/hr)	AM Peak: Proportion turning (%) *f*	AM Peak: Saturation flow *S* (pcu/hr)	AM Peak: Flow factor *y*	PM Peak: Design Flow *q* (pcu/hr)	PM Peak: Proportion turning (%) *f*	PM Peak: Saturation flow *S* (pcu/hr)	PM Peak: Flow factor *y*
Long Ping Road (W)														
D1	3	3.20	Y	N	25		543	100%	2190	**0.248**	334	100%	2190	**0.153**
E1	3,4	3.50	Y	N	70		328	100%	1925	0.170	448	100%	1925	0.233
E2	3,5	3.50	N	N	70		352	100%	2060	0.171	480	100%	2060	0.233
Long Tin Road (S)														
F1	2,3,4	3.50	Y	N			318		1965	0.162	229		1965	0.117
F2	2,3,4	3.50	N	N			340		2105	0.162	246		2105	0.117
A1	2	3.50	Y	N			136		1965	**0.069**	110		1965	0.056
A2	2	3.50	N	N			145		2105	0.069	117		2105	0.056
A3	2	3.50	N	N			145		2105	0.069	118		2105	**0.056**
Long Tin Road (N)														
1	1	3.80	Y	N			365		1995	**0.183**	327		1995	**0.164**
2	1	3.80	Y	N	30		360	24%	1970	0.183	321	37%	1960	0.164
3	1	3.80	Y	N	30		347	100%	1900	0.183	311	100%	1900	0.164
C1	4	4.50	Y	N	30		252	100%	1965	0.128	250	100%	1965	**0.127**
C2	4	4.50	N	N	30		270	100%	2100	**0.129**	267	100%	2100	0.127

Notes:

AM Peak	**A D C**	**PM Peak**	**A D C**
Sum of Critical *y* ***Y***	**0.629**	Sum of Critical *y* ***Y***	**0.500**
Lost Time ***L*** (sec)	33	Lost Time ***L*** (sec)	33
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.653	Practical *Y* ***Ypr***	0.653
Reserve Capacity ***RC***	**4**	Reserve Capacity ***RC***	**31**

Date : 17/5/2024   Junction : J7 - Shui Pin Wai Interchange/ Long Ping Road

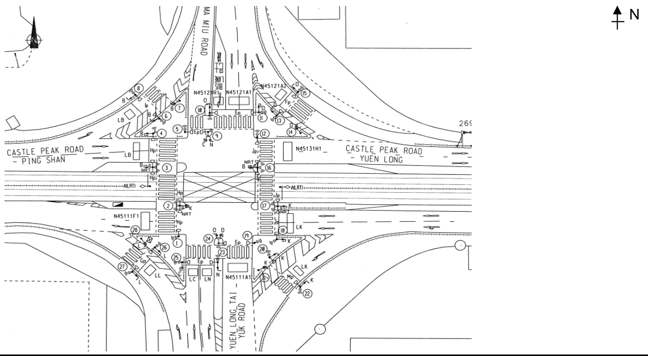
TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

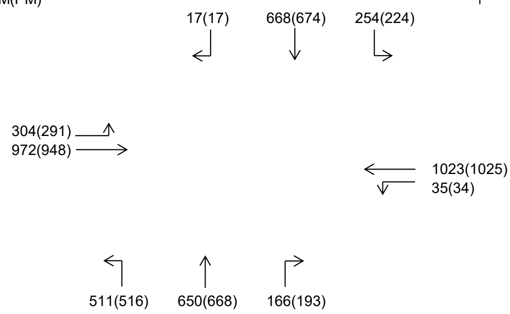
Job No. : 5209833

Junction : J8 - Ma Miu Road/ Castle Peak Road - Ping Shan   Design Year: 2034

Scheme : Reference With Improvements   Designed by: VAR   Checked by: DH

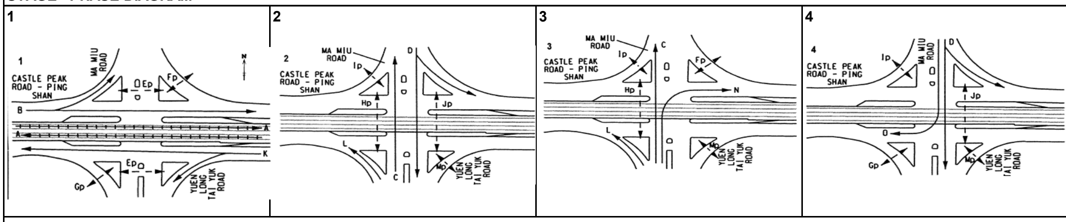


Traffic Flo (pcu hr)
AM(PM)



STAGE PHASE DIAGRAM

1 2 3 4 5



K+L+O	G=	IG=17	G=	IG=5	G=	IG=11	G=5	IG=9	G=	IG=
K+L+O	G=	IG=17	G=	IG=5	G=	IG=11	G=5	IG=9	G=	IG=

CAPACITY CALCULATIONS

Phase	Stage	Lane Width (m) *w*	Nearside lane (Y/N)	Opposed turn (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Castle Peak Road-Ping Shan (E)														
1	1	3.50	Y	N	50		304	100%	1910	0.159	291	100%	1910	0.152
2	1	3.50	N	N			486		2105	0.231	474		2105	0.225
3	1	3.50	N	N			486		2105	0.231	474		2105	0.225
Castle Peak Road-Yuen Long (W)														
1	1	4.30	N	N	50		35	100%	2120	0.017	34	100%	2120	0.016
2	1	3.30	N	N			512		2085	**0.245**	513		2085	**0.246**
3	1	3.30	N	N			511		2085	0.245	512		2085	0.245
Ma Miu Road (S)														
D1	2,4	5.00	N	N	45		254	100%	2180	0.117	224	100%	2180	0.103
D2	2,4	3.30	N	N			334		2085	0.160	337		2085	0.162
D3	2,4	3.30	N	N			334		2085	0.160	337		2085	0.162
O4	4	3.30	Y	N	30		17	100%	1850	**0.009**	17	100%	1850	**0.009**
Yuen Long Tai Yuk Road (N)														
L1	2,3	4.00	Y	N	50		511	100%	1955	**0.261**	516	100%	1955	**0.264**
C1	2,3	3.50	N	N			325		2105	0.154	334		2105	0.159
C2	2,3	3.50	N	N			325		2105	0.154	334		2105	0.159
N1	3	3.50	N	N	15		166	100%	1915	0.087	193	100%	1915	0.101

Notes:

AM Peak	**L O**	**PM Peak**	**L O**
Sum of Critical *y* ***Y***	**0.516**	Sum of Critical *y* ***Y***	**0.519**
Lost Time ***L*** (sec)	44	Lost Time ***L*** (sec)	44
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.570	Practical *Y* ***Ypr***	0.570
Reserve Capacity ***RC***	**11**	Reserve Capacity ***RC***	**10**

Date : 17/5/2024   Junction : J8 - Ma Miu Road/ Castle Peak Road - Ping Shan

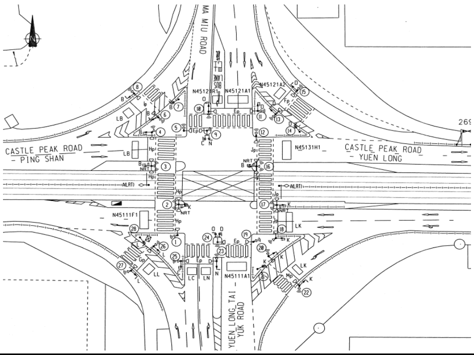
TRAFFIC SIGNAL CALCULATION SHEET

AtkinsRéalis

Job No. : 5209833

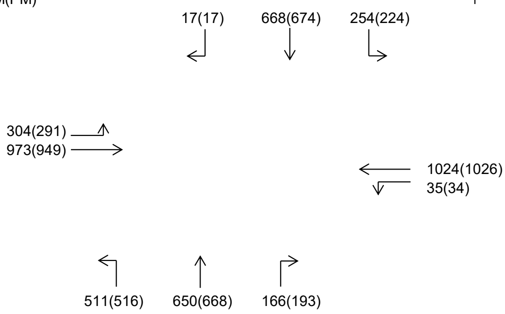
Junction : J8 - Ma Miu Road/ Castle Peak Road - Ping Shan | Design Year: 2034

Scheme : Design With Improvements | Designed by: VAR | Checked by: DH



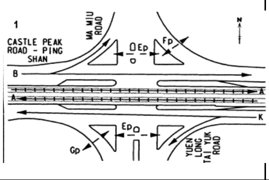
N

Traffic Flo (pcu hr)
AM(PM)



STAGE PHASE DIAGRAM

1



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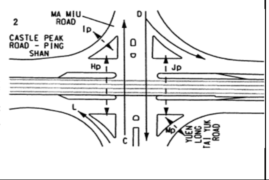

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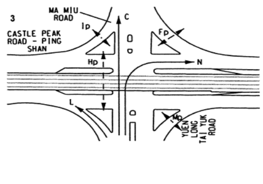

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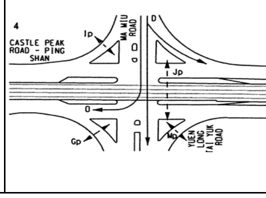


5

K+L+O	G=	IG=17	G=	IG=5	G=	IG=11	G=5	IG=9	G=	IG=
K+L+O	G=	IG=17	G=	IG=5	G=	IG=11	G=5	IG=9	G=	IG=

CAPACITY CALCULATIONS

							AM Peak				PM Peak			
Phase	Stage	Lane Width (m) *w*	Nearside lane (Y/N)	Opposed turn (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	Design Flow *q* (pcu/hr)	Proportion turning (%) *f*	Saturation flow *S* (pcu/hr)	Flow factor *y*	Design Flow *q* (pcu/hr)	Proportion turning (%) *f*	Saturation flow *S* (pcu/hr)	Flow factor *y*
Castle Peak Road-Ping Shan (E)														
1	1	3.50	Y	N	50		304	100%	1910	0.159	291	100%	1910	0.152
2	1	3.50	N	N			487		2105	0.231	475		2105	0.226
3	1	3.50	N	N			486		2105	0.231	474		2105	0.225
Castle Peak Road-Yuen Long (W)														
1	1	4.30	N	N	50		35	100%	2120	0.017	34	100%	2120	0.016
2	1	3.30	N	N			512		2085	**0.245**	513		2085	**0.246**
3	1	3.30	N	N			512		2085	0.245	513		2085	0.246
Ma Miu Road (S)														
D1	2,4	5.00	N	N	45		254	100%	2180	0.117	224	100%	2180	0.103
D2	2,4	3.30	N	N			334		2085	0.160	337		2085	0.162
D3	2,4	3.30	N	N			334		2085	0.160	337		2085	0.162
O4	4	3.30	Y	N	30		17	100%	1850	**0.009**	17	100%	1850	**0.009**
Yuen Long Tai Yuk Road (N)														
L1	2,3	4.00	Y	N	50		511	100%	1955	**0.261**	516	100%	1955	**0.264**
C1	2,3	3.50	N	N			325		2105	0.154	334		2105	0.159
C2	2,3	3.50	N	N			325		2105	0.154	334		2105	0.159
N1	3	3.50	N	N	15		166	100%	1915	0.087	193	100%	1915	0.101

Notes:

AM Peak	L O	PM Peak	L O
Sum of Critical *y* ***Y***	**0.516**	Sum of Critical *y* ***Y***	**0.519**
Lost Time ***L*** (sec)	44	Lost Time ***L*** (sec)	44
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.570	Practical *Y* ***Ypr***	0.570
Reserve Capacity ***RC***	**11**	Reserve Capacity ***RC***	**10**

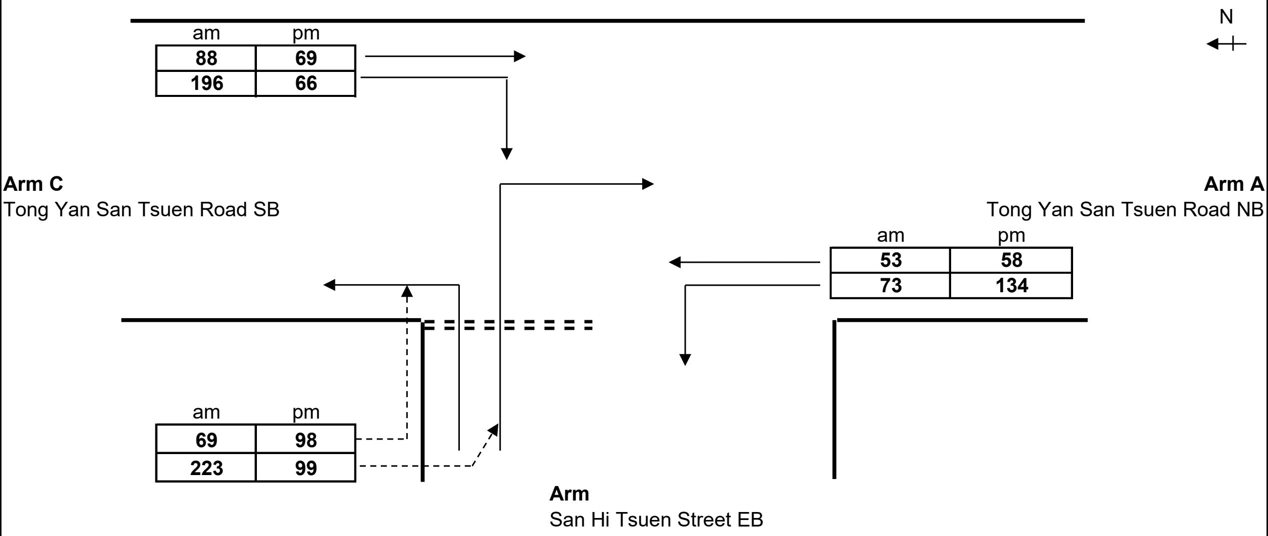
Date : 17/5/2024 Junction : J8 - Ma Miu Road/ Castle Peak Road - Ping Shan

SIMPLIFIED PRIORITY UNCTION CAPACITY CALCULATION

(Priority T-Junction - Minor Arm B)

AtkinsRéalis

Job Title:	Review of Long Bin TTIA	Job No.:	5209833
Junction:	J10 - Tong Yan San Tsuen Road/ San Hi Tsuen Street	Designed by:	RW
Scheme:	Reference	Checked by:	DH
Design Year:	2034		
Arm A:	Tong Yan San Tsuen Road NB		
Arm B:	San Hi Tsuen Street EB		
Arm C:	Tong Yan San Tsuen Road SB		



GEOMETRY					
Major road width (m)	W	**10.20**	Lane widths (m)	w(b-a)	**8.90**
Central Reserve width (m)	Wcr	**0.00**		w(b-c)	**8.90**
Residual width (m)	Wr(c-a)	**0.00**		w(c-b)	**6.12**
Visibilities (m) (*1)	Vr(b-a)	**23.4**	Calculated Parameters (*2)	D	1.25
	Vl(b-a)	**16.9**		E	1.35
	Vr(b-c)	**16.9**		F	1.15
	Vr(c-b)	**45**		Y	0.65

CALCULATION			**AM PEA**	**PM PEA**
TRAFFIC FLOWS	q(c-a)		88	69
(pcu/hr)	q(c-b)		196	66
	q(a-b)		73	134
	q(a-c)		53	58
	q(b-a)		223	99
	q(b-c)		69	98
	f	=q(b-c) / (q(b-c)+q(b-a))	0.24	0.50
CAPACITIES	Q(b-a)		663	713
(pcu/hr)	Q(b-c)		983	974
	Q(c-b)		822	804
	Q(b-ac)	(*3)	718	823
	Q(c-a)	=1800(1-q(c-b)/Q(c-b))	1371	1652
DFC's	b-a	=q(b-a)/Q(b-a)	0.34	0.14
	b-c	=q(b-c)/Q(b-c)	0.07	0.10
	c-b	=q(c-b)/Q(c-b)	0.24	0.08
	b-ac	=q(b-ac)/Q(b-ac)	0.41	0.24
	c-a		0.06	0.04
Critical DFC			**0.41**	**0.24**

(*1) Where Vl and Vr are visibility distances to the left or right of the respective streams

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

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

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

Y = 1-0.0345W

f = proportion of minor traffic turning left

	<u>Queue Length (m) (*4)</u>	
queue b-a	9	3
queue b-c	1	2
queue c-b	6	2

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

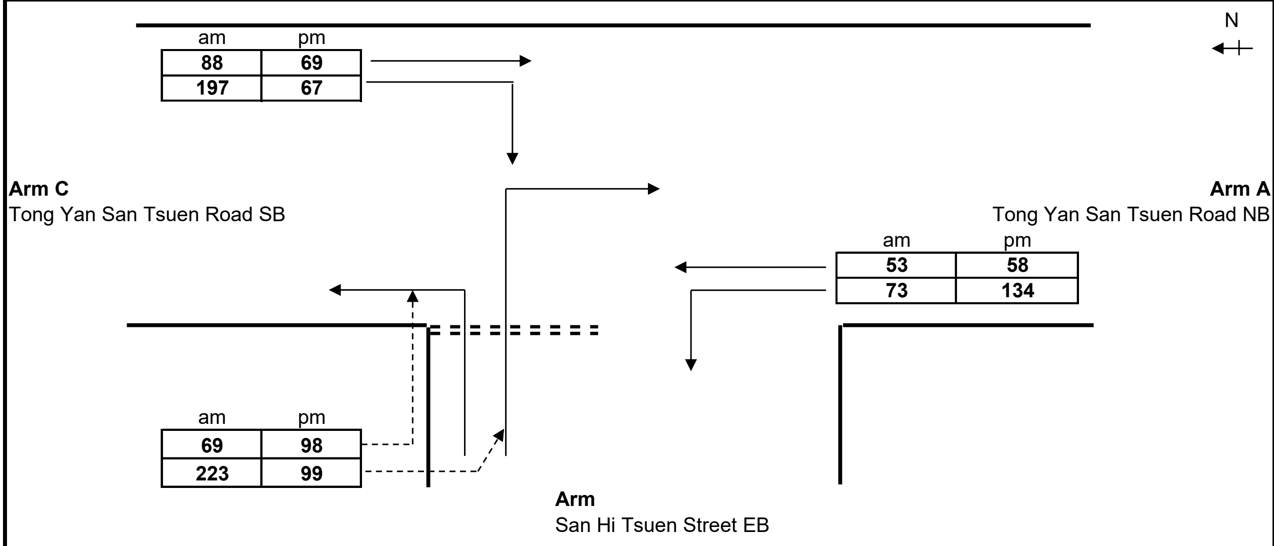
- In accordance with TPDM V2.4 Appendix 1

SIMPLIFIED PRIORITY UNCTION CAPACITY CALCULATION

(Priority T-Junction - Minor Arm B)

AtkinsRéalis

Job Title:	Review of Long Bin TTIA	Job No.:	5209833
Junction:	J10 - Tong Yan San Tsuen Road/ San Hi Tsuen Street	Designed by:	RW
Scheme:	Design	Checked by:	DH
Design Year:	2034		
Arm A:	Tong Yan San Tsuen Road NB		
Arm B:	San Hi Tsuen Street EB		
Arm C:	Tong Yan San Tsuen Road SB		



GEOMETRY					
Major road width (m)	W	**10.20**	Lane widths (m)	w(b-a)	**8.90**
Central Reserve width (m)	Wcr	**0.00**		w(b-c)	**8.90**
Residual width (m)	Wr(c-a)	**0.00**		w(c-b)	**6.12**
Visibilities (m) (*1)	Vr(b-a)	**23.4**	Calculated Parameters (*2)	D	1.25
	Vl(b-a)	**16.9**		E	1.35
	Vr(b-c)	**16.9**		F	1.15
	Vr(c-b)	**45**		Y	0.65

CALCULATION			**AM PEA**	**PM PEA**
TRAFFIC FLOWS	q(c-a)		88	69
(pcu/hr)	q(c-b)		197	67
	q(a-b)		73	134
	q(a-c)		53	58
	q(b-a)		223	99
	q(b-c)		69	98
	f	=q(b-c) / (q(b-c)+q(b-a))	0.24	0.50
CAPACITIES	Q(b-a)		663	713
(pcu/hr)	Q(b-c)		983	974
	Q(c-b)		822	804
	Q(b-ac)	(*3)	718	822
	Q(c-a)	=1800(1-q(c-b)/Q(c-b))	1369	1650
DFC's	b-a	=q(b-a)/Q(b-a)	0.34	0.14
	b-c	=q(b-c)/Q(b-c)	0.07	0.10
	c-b	=q(c-b)/Q(c-b)	0.24	0.08
	b-ac	=q(b-ac)/Q(b-ac)	0.41	0.24
	c-a		0.06	0.04
Critical DFC			**0.41**	**0.24**

(*1) Where Vl and Vr are visibility distances to the left or right of the respective streams

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

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

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

Y = 1-0.0345W

f = proportion of minor traffic turning left

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

	Queue Length (m) (*4)	
queue b-a	9	3
queue b-c	1	2
queue c-b	6	2

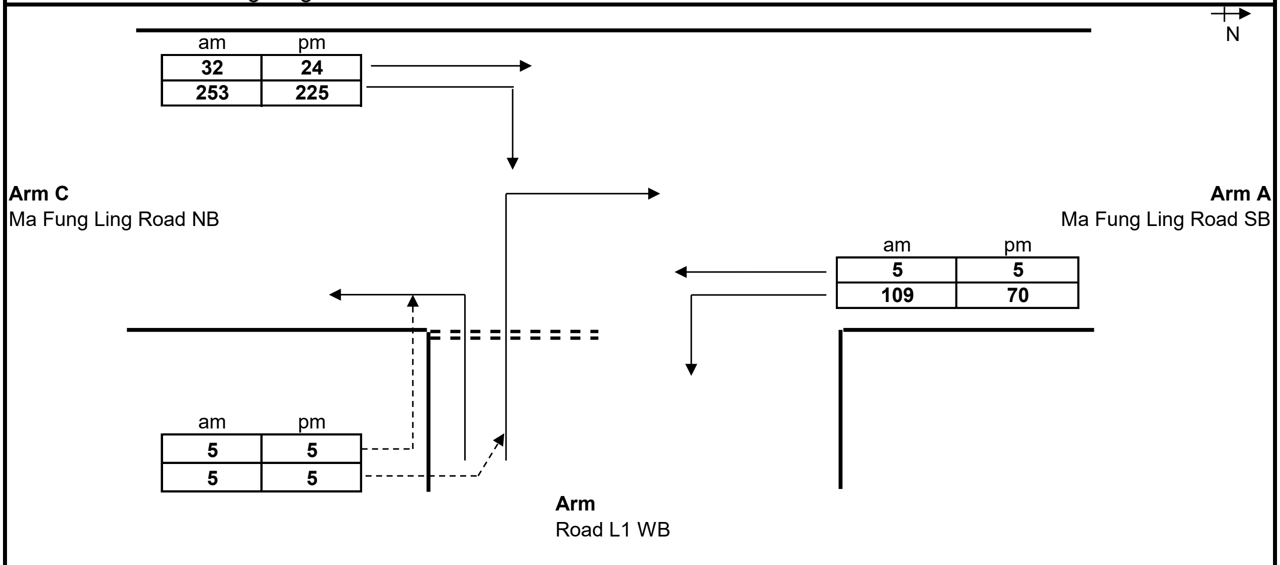
- In accordance with TPDM V2.4 Appendix 1

SIMPLIFIED PRIORITY UNCTION CAPACITY CALCULATION

AtkinsRéalis

(Priority T-Junction - Minor Arm B)

Job Title:	Review of Long Bin TTIA	Job No.:	5209833
Junction:	J11 - Ma Fung Ling Road / Road L1	Designed by:	RW
Scheme:	Reference	Checked by:	DH
Design Year:	2034		
Arm A:	Ma Fung Ling Road SB		
Arm B:	Road L1 WB		
Arm C:	Ma Fung Ling Road NB		



GEOMETRY					
Major road width (m)	W	**7.50**	Lane widths (m)	w(b-a)	**3.65**
Central Reserve width (m)	Wcr	**0.00**		w(b-c)	**3.65**
Residual width (m)	Wr(c-a)	**0.00**		w(c-b)	**3.65**
Visibilities (m) (*1)	Vr(b-a)	**150**	Calculated Parameters (*2)	D	1.03
	Vl(b-a)	**150**		E	1.03
	Vr(b-c)	**150**		F	1.03
	Vr(c-b)	**150**		Y	0.74

CALCULATION			AM PEA	PM PEA
TRAFFIC FLOWS	q(c-a)		32	24
(pcu/hr)	q(c-b)		253	225
	q(a-b)		109	70
	q(a-c)		5	5
	q(b-a)		5	5
	q(b-c)		5	5
	f	=q(b-c) / (q(b-c)+q(b-a))	0.50	0.50
CAPACITIES	Q(b-a)		525	542
(pcu/hr)	Q(b-c)		752	756
	Q(c-b)		734	744
	Q(b-ac)	(*3)	618	631
	Q(c-a)	=1800(1-q(c-b)/Q(c-b))	1179	1256
DFC's	b-a	=q(b-a)/Q(b-a)	0.01	0.01
	b-c	=q(b-c)/Q(b-c)	0.01	0.01
	c-b	=q(c-b)/Q(c-b)	0.34	0.30
	b-ac	=q(b-ac)/Q(b-ac)	0.02	0.02
	c-a		0.03	0.02
Critical DFC			**0.34**	**0.30**

(*1) Where Vl and Vr are visibility distances to the left or right of the respective streams

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

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

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

Y = 1-0.0345W

f = proportion of minor traffic turning left

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

	Queue Length (m) (*4)	
queue b-a	0	0
queue b-c	0	0
queue c-b	9	8

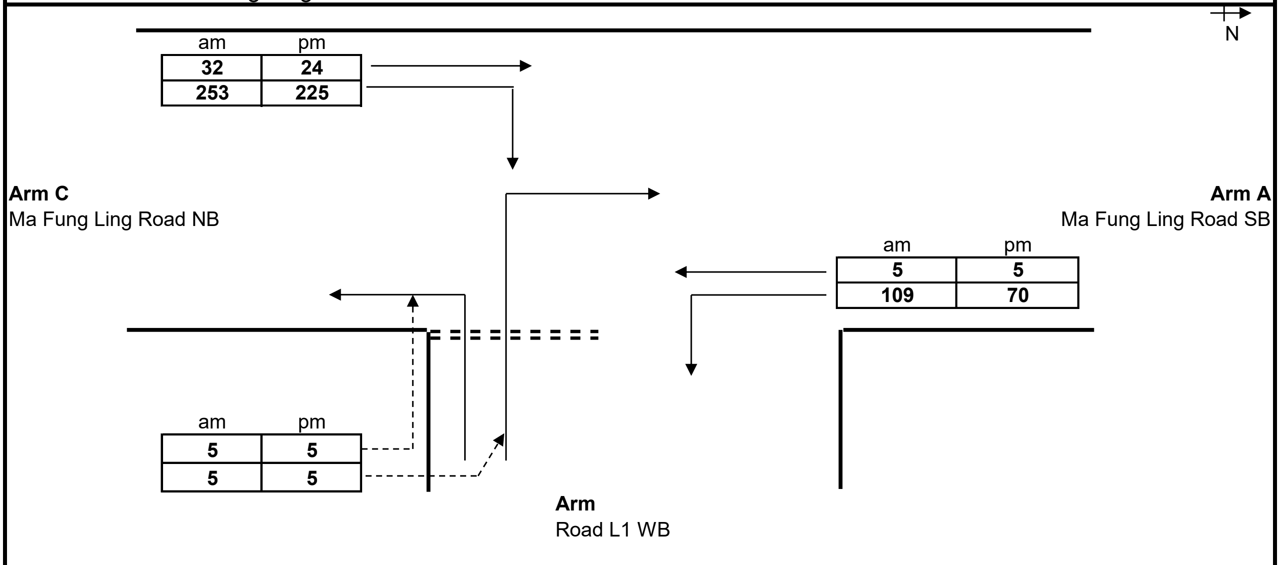
- In accordance with TPDM V2.4 Appendix 1

SIMPLIFIED PRIORITY UNCTION CAPACITY CALCULATION

AtkinsRéalis

(Priority T-Junction - Minor Arm B)

Job Title:	Review of Long Bin TTIA	Job No.:	5209833
Junction:	J11 - Ma Fung Ling Road / Road L1	Designed by:	RW
Scheme:	Design	Checked by:	DH
Design Year:	2034		
Arm A:	Ma Fung Ling Road SB		
Arm B:	Road L1 WB		
Arm C:	Ma Fung Ling Road NB		



GEOMETRY					
Major road width (m)	W	**7.50**	Lane widths (m)	w(b-a)	**3.65**
Central Reserve width (m)	Wcr	**0.00**		w(b-c)	**3.65**
Residual width (m)	Wr(c-a)	**0.00**		w(c-b)	**3.65**
Visibilities (m) (*1)	Vr(b-a)	**150**	Calculated Parameters (*2)	D	1.03
	Vl(b-a)	**150**		E	1.03
	Vr(b-c)	**150**		F	1.03
	Vr(c-b)	**150**		Y	0.74

CALCULATION			AM PEA	PM PEA
TRAFFIC FLOWS	q(c-a)		32	24
(pcu/hr)	q(c-b)		253	225
	q(a-b)		109	70
	q(a-c)		5	5
	q(b-a)		5	5
	q(b-c)		5	5
	f	=q(b-c) / (q(b-c)+q(b-a))	0.50	0.50
CAPACITIES	Q(b-a)		525	542
(pcu/hr)	Q(b-c)		752	756
	Q(c-b)		734	744
	Q(b-ac)	(*3)	618	631
	Q(c-a)	=1800(1-q(c-b)/Q(c-b))	1179	1256
DFC's	b-a	=q(b-a)/Q(b-a)	0.01	0.01
	b-c	=q(b-c)/Q(b-c)	0.01	0.01
	c-b	=q(c-b)/Q(c-b)	0.34	0.30
	b-ac	=q(b-ac)/Q(b-ac)	0.02	0.02
	c-a		0.03	0.02
Critical DFC			**0.34**	**0.30**

(*1) Where Vl and Vr are visibility distances to the left or right of the respective streams

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

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

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

Y = 1-0.0345W

f = proportion of minor traffic turning left

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

Queue Length (m) (*4)		
queue b-a	0	0
queue b-c	0	0
queue c-b	9	8

- In accordance with TPDM V2.4 Appendix 1

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