

Appendix 4

Traffic Impact Assessment



Hong Kong Housing Authority

Agreement No. CB20180685

**Term Traffic and Environmental Consultancy
Services 2019-2021 for New Territories West Region**

Instruction No. W11

**Proposed Public Housing Development at Shek Li
Street, Kwai Chung**

Traffic Impact Assessment

Final Report (Issue 1)

TRAFFIC IMPACT ASSESSMENT (FINAL REPORT - ISSUE 1)

CONTENTS

	Page
1. INTRODUCTION	1
1.1 Background	1
1.2 Objective	1
1.3 Structure of this Report	2
2. EXISTING TRAFFIC CONDITION	3
2.1 Existing Road Network	3
2.2 Appraisal of Existing Traffic condition	3
2.3 Junction and Link Capacity Assessments	4
2.4 Appraisal of Existing Pedestrian Condition	5
2.5 Existing Public Transport Facilities	6
2.6 Appraisal of Existing Public Transport Utilisation	8
3. THE PLANNED DEVELOPMENT	10
3.1 The Development	10
3.2 Traffic Generations	10
3.3 Access Arrangement and Traffic Routing	10
3.4 Parking Provision Review	11
4. TRAFFIC FORECAST AND ASSESSMENT	13
4.1 Traffic Forecast Methodology	13
4.2 Forecasting Scenarios and Specific Development Assumptions	14
4.3 Design Year Junction Performance	15
4.4 Design Year Link Performance	16
5. PEDESTRIAN AND PUBLIC TRANSPORT ASSESSMENT	18
5.1 Future Pedestrian Connectivity	18
5.2 Pedestrian Flow Forecast	18
5.3 Design Year Pedestrian Facilities Assessment	19
5.4 Public Transport Demand	19
6. SUMMARY AND CONCLUSION	21

LIST OF DRAWINGS

Drawing No.	Title
W11/TIA/201	Proposed Site Location
W11/TIA/202	Identified Critical Junctions and Road Links
W11/TIA/203	Year 2021 Observed Traffic Flow
W11/TIA/204	Identified Critical Walkways
W11/TIA/206	Identified Critical Public Transport Services
W11/TIA/301	Proposed Vehicular Access Arrangement
W11/TIA/302	Major Vehicular Access Route
W11/TIA/401	Year 2031 Reference 1 Traffic Flow (Without Shek Pai Street Development)
W11/TIA/402	Year 2031 Reference 2 Traffic Flow (With Shek Pai Street Development)
W11/TIA/403	Year 2031 Design 1 Traffic Flow (Without Shek Pai Street Development)
W11/TIA/404	Year 2031 Design 2 Traffic Flow (With Shek Pai Street Development)

LIST OF ABBREVIATIONS

<u>Abbreviation</u>	<u>Full title</u>
ATC	Annual Traffic Census
AGR	Annual Growth Rate
DC	District Council
DFC	Design Flow to Capacity Ratio
EVA	Emergency Vehicular Access
GFA	Gross Floor Area
GMB	Green Minibus
HD	Housing Department
HKHA	Hong Kong Housing Authority
HKPSG	Hong Kong Planning Standard and Guidelines
LOS	Level-of-Service
pcu	Passenger Car Unit
PRH	Public Rental Housing
PTI	Public Transport Interchange
RC	Reserve Capacity
RMB	Red Minibus
TD	Transport Department
TPDM	Transport Planning and Design Manual
V/C	Volume to Capacity Ratio
WSP	WSP (Asia) Limited

1. INTRODUCTION

1.1 Background

1.1.1 WSP (Asia) Ltd (WSP) had been commissioned by HKHA, under Term Engineering Consultancy Services for New Territories West Region (2019-2021), to carry out the civil engineering consultancy services in respect of TIA for the proposed public housing development at Shek Li Street (hereafter referred to as “the Site” or “the Proposed Development”).

1.1.2 The study area of 2.23 hectare is located in Shek Lei area of Kwai Tsing District. It contains the proposed public housing development after demolition of 2 blocks of Shek Lei Interim Housing, namely Block 10 and Block 11 and ex-Shek Lei Catholic Primary School premises, with an area of around 1.15 hectare. The existing portion of Shek Wai House and Shek Yi House which also lies within the study area will be retained. The Site is bounded by Shek Li Street to the north-west, Wai Kek Street to the south-west, Shek Pai Street to south-east and Shek Lei Catholic Primary School to north-east. The location of the Site is shown in **Drawing No. W11/TIA/201**. The proposed development is a PRH which comprises 1,700 flats with design population of about 4,308. The completion year and population intake year for the proposed development is 2028 tentatively.

1.2 Objective

1.2.1 The objectives of this assessment are:

- (a) Review the existing traffic conditions and collect necessary planning data/parameter in the vicinity of the site, based on information available in Public Domain and those provided by HKHA.
- (b) As and when appropriate, conduct traffic and/or pedestrian counts at critical road links and footpaths in the vicinity of the proposed sites during morning and afternoon peak hours on one typical weekday to obtain the existing traffic and/or pedestrian flow for necessary assessment.
- (c) Produce traffic forecasts for design years by the results of traffic surveys, traffic generated by future developments, interfacing projects, future highway infrastructures / road network within Shek Lei areas.
- (d) Identify the traffic generations of the development
- (e) Carry out preliminary traffic impact assessments, including junction capacity assessment and link capacity assessments, taking into account of critical road link and footpath capacities covering both forecasted background traffic and development traffic.
- (f) Recommend traffic improvement measures to alleviate the traffic impacts if the results of impact assessments reveal necessary.
- (g) Review/advise, in general terms, pedestrian facilities / public transport services to cope with the anticipated demands and provision of parking space in accordance to the relevant guideline.

- (h) It also serve as a supporting assessment to substantiate the s.16 planning application for minor relaxation of plot ratio and building height of the Proposed Development lodged by HKHA

1.3 Structure of this Report

1.3.1 This TIA report contains the following sections in addition to this introduction:-

- Section 2 Describes the Existing Traffic Condition including the road network, transport facility, junctions and road links in the vicinity of the proposed site.
- Section 3 Describes the general traffic context of the development including vehicular /pedestrian accessibility, development traffic generations, parking provision and alike.
- Section 4 Presents the traffic forecast methodology, the assessment scenarios and the assessment results for design years.
- Section 5 Present the pedestrian and public transport aspect of the investigation and assessment for the design years.
- Section 6 Summarizes the results, conclusions and recommendation of the TIA.

2. EXISTING TRAFFIC CONDITION

2.1 Existing Road Network

- 2.1.1 The Site is currently served by the existing road network consisting of Shek Li Street, Shek Pai Street, and Wai Kek Street. Some other major corridors in the areas include Wo Yi Hop Road and Castle Peak Road – Kwai Chung.
- 2.1.2 Shek Pai Street is a local distributor, and the road section which the Site abuts, is a single 2-lane carriageway. Shek Pai Street is linking from east to west through On Chit Street, On Chuk Street, Lei Pui Street, Wai Kek Street and Castle Peak Road – Kwai Chung.
- 2.1.3 Shek Li Street is a single carriageway 2-lane one-way local distributor running in the west direction. Shek Li Street is linking from east to west through On Chuk Street and Wai Kek Street.
- 2.1.4 Wai Kek Street is a single 2-lane carriageway local distributor running in north south direction. Wai Kek Street linking from north to south through Tai Loong Street, Shek Li Street and Shek Pai Street.
- 2.1.5 Tai Loong Street is a single 2-lane one-way carriageway local distributor running in the west direction. Tai Loong Street is linking from east to west through Wo Yi Hop Road in the eastern side near Kwai Chung Fa Yuen, Tai Pak Tin Street, Shek Pui Street and to Wo Yi Hop Road is the western end near Po Kai Mansion.
- 2.1.6 Wo Yi Hop Road is a single 2-lane carriageway District Distributor at the section between Castle Peak Road – Kwai Chung and Lei Muk Road. The section is linking from north to south through Lei Muk Road, Lam Tin Street, Ta Chuen Ping Street, Shek Yam Road, Tai Loong Street (East), Tai Loong Street (West) and Castle Peak Road – Kwai Chung.
- 2.1.7 Castle Peak Road – Kwai Chung is a primary distributor running in the north south direction. Castle Peak Road – Kwai Chung is linking from north to south through Lei Muk Road, Kwai Chung Road, Wo Yi Hop Road and Shek Pai Street. The section between the flyover of Castle Peak Road – Kwai Chung and Wo Yi Hop Road is a dual 3-lane carriageway while the section to the south of Wo Yi Hop Road is a dual 2-lane carriageway.
- 2.1.8 The existing road network in the vicinity of the proposed development is shown in **Drawing W11/TIA/201**.

2.2 Appraisal of Existing Traffic condition

- 2.2.1 To appraise the existing traffic conditions, a comprehensive traffic survey had been carried out in June 2021 in the vicinity.
- 2.2.2 The identified critical junctions and road links are listed in **Table 2.2.1** and shown in **Drawing. W11/TIA/202**.

Table 2.2.1: Location of Surveyed Junctions and Links

Index	Junction	Junction Type / Link Direction
<i>Junction</i>		
J1	Shek Pai Street / Wai Kek Street	Signalized
J2	Castle Peak Road – Kwai Chung / Shek Pai Street	Signalized
J3	Castle Peak Road – Kwai Chung / Wo Yi Hop Road	Signalized
J4	Shek Li Street / Wai Kek Street	Signalized
J5	Shek Pai Street / Lei Pui Street	Priority
J6	Shek Pai Street / On Chuk Street	Signalized
J7	Shek Pai Street / On Chit Street / Tai Pak Tin Street	Signalized
J8	Tai Pak Tin Street / Tung Chi Street	Signalized
J9	Lei Muk Road / Tung Chi Street	Signalized
J10	Wo Yi Hop Road / Lei Muk Road	Signalized
J11	Cheung Wing Road / Wo Yi Hop Road	Signalized
<i>Road Link</i>		
L1	Shek Pai Street	EB
L2	(between Wai Kek Street and Castle Peak Road – Kwai Chung)	WB
L3	Castle Peak Road – Kwai Chung	NB
L4	(between Shek Pai Street and Tai Wo Interchange)	SB
L5	Castle Peak Road – Kwai Chung	NB
L6	(between Wo Yi Hop Road and Shek Pai Street)	SB

2.2.3 Manual traffic count survey was carried out on typical weekday during AM (07:30 – 09:30) and PM (17:30 – 19:30) peak hours in 15 June 2021 to appraise the existing traffic condition. The observed traffic flow is shown in **Drawing W11/TIA/203**.

2.3 Junction and Link Capacity Assessments

2.3.1 To appraise the existing traffic conditions in the vicinity, the capacity of junctions had been assessed based on guidelines on Transport Planning and Design Manual (TPDM). **Table 2.3.1** tabulates the results for major junctions.

2.3.2 Similarly, **Table 2.3.2** tabulates the results for major road links.

Table 2.3.1 – Observed 2021 Junction Performance

Index ⁽¹⁾	Junction	Junction Type	Observed Year 2021 RC/DFC ⁽²⁾	
			AM Peak	PM Peak
J1	Shek Pai Street / Wai Kek Street	Signalized	15%	12%
J2	Castle Peak Road – Kwai Chung / Shek Pai Street	Signalized	24%	37%
J3	Castle Peak Road – Kwai Chung / Wo Yi Hop Road	Signalized	40%	45%
J4	Shek Li Street / Wai Kek Street	Signalized	111%	116%
J5	Shek Pai Street / Lei Pui Street	Priority	0.42	0.41
J6	Shek Pai Street / On Chuk Street	Signalized	223%	227%
J7	Shek Pai Street / On Chit Street / Tai Pak Tin Street	Signalized	78%	48%
J8	Tai Pak Tin Street / Tung Chi Street	Signalized	122%	117%
J9	Lei Muk Road / Tung Chi Street	Signalized	80%	115%
J10	Wo Yi Hop Road / Lei Muk Road	Signalized	18%	11%
J11	Cheung Wing Road / Wo Yi Hop Road	Signalized	61%	96%

⁽¹⁾ Location of critical junction are shown in Drawing W11/TIA/202.

⁽²⁾ Drawings shown represent Reserve Capacity (RC) for the signal controlled junctions and Design Flow to Capacity (DFC) ratio for the roundabouts or priority junctions. RC < 0% and DFC > 1.00 indicates overload conditions.

Table 2.3.2 – Observed 2021 Link Performance

Index ⁽¹⁾	Road Link	Direction	Capacity ⁽³⁾ (pcu/hr)	Traffic Demand (pcu/hr)		V/C Ratio ⁽²⁾	
				AM	PM	AM	PM
L1	Shek Pai Street (between Wai Kek Street and Castle Peak Road – Kwai Chung)	EB	1040	270	380	0.26	0.36
L2		WB	1040	490	440	0.47	0.42
L3	Castle Peak Road – Kwai Chung (between Shek Pai Street and Tai Wo Interchange)	NB	3410	1480	1310	0.43	0.38
L4		SB	3410	1435	1255	0.42	0.37
L5	Castle Peak Road – Kwai Chung (between Wo Yi Hop Road nad Shek Pai Street)	NB	3410	1575	1410	0.46	0.41
L6		SB	3410	1310	1295	0.38	0.38

⁽¹⁾ Location of road link are shown in Drawing W11/TIA/202.
⁽²⁾ V/C ratio within 1.0 indicates the road link is operating with spare capacity; V/C ratio exceeding 1.0 but within 1.2 indicates manageable degree of congestion; while V/C ratio exceeding 1.2 indicates on-set of more serious congestion.
⁽³⁾ Capacity of road sections had been assessed in terms of road configuration, road type and frontages

2.3.3 It could be seen that the existing junctions and road links assessed in the vicinity of the Site are operating within their capacities. However, J1 – Shek Pai Street / Wai Kek Street and J10 – Castle Peak Road – Kwai Chung / Shek Pai Street are operating with near the capacities. It is noted that positive RC indicates the junction is operating with spare capacity while negative RC figure indicates the junction is overloaded resulting in traffic queues.

2.4 Appraisal of Existing Pedestrian Condition

2.4.1 To appraise the pedestrian walkway condition in the vicinity of the subject site, pedestrian count survey has been carried out at the identified critical walkways at Shek Li Street. The identified critical walkways are shown in **Drawing W11/TIA/204**.

2.4.2 Pedestrian count survey was carried out on a typical weekday during AM and PM peak hours in 17 June 2021. The identified AM and PM peak 15-minutes are 07:30 – 07:45 and 18:15 – 18:30 respectively.

2.4.3 To assess the pedestrian condition, the Level-of-Service (LOS) assessment outlined in TPDM is adopted and the description for different LOS are extracted below in **Table 2.4.1**. According to TPDM, LOS C is desirable for most design at streets with dominant ‘living’ pedestrian activities.

Table 2.4.1 – Description of Level-of-Service

LOS	Flow Rate (ped/min/m)	Description
A	≤ 16	Pedestrians basically move in desired paths without altering their movements in response to other pedestrians. Walking speeds are freely selected, and conflicts between pedestrians are unlikely.
B	16 – 23	Sufficient space is provided for pedestrians to freely select their walking speeds, to bypass other pedestrians and to avoid crossing conflicts with others. At this level, pedestrians begin to be aware of other pedestrians and to respond to their presence in the selection of walking paths.
C	23 – 33	Sufficient space is available to select normal walking speeds and to bypass other pedestrians primarily in unidirectional stream. Where reverse direction or crossing movement exist, minor conflicts will occur, and speed and volume will be

LOS	Flow Rate (ped/min/m)	Description
		somewhat lower.
D	33 – 49	Freedom to select individual walking speeds and bypass other pedestrians is restricted. Where crossing or reverse-flow movements exist, the probability of conflicts is high and its avoidance requires changes of speeds and position. The LOS provides reasonable fluid flow; however considerable friction and interactions between pedestrians are likely to occur.
E	49 – 75	Virtually, all pedestrians would have their normal walking speeds restricted. At the lower range of this LOS, forward movement is possible only by shuffling. Space is insufficient to pass over slower pedestrians. Cross- and reverse-movement are possible only with extreme difficulties. Design volumes approach the limit of walking capacity with resulting stoppages and interruptions to flow.
F	> 75	Walking speeds are severely restricted. Forward progress is made only by shuffling. There are frequent and unavoidable conflicts with other pedestrians. Cross- and reverse-movements are virtually impossible. Flow is sporadic and unstable. Space is more characteristics of queued pedestrians than of moving pedestrian streams.

2.4.4 The pedestrian flow and LOS/Capacity assessment result for the critical walkways are presented in **Table 2.4.2**.

Table 2.4.2 – Existing Pedestrian Facilities Assessment

Index	Clear Width (m)	Effective Width (m)	Pedestrian Flow (ped/15-min)		Flow Rate (ped/min/m)		LOS / VC	
			AM	PM	AM	PM	AM	PM
P1	3.4	2.4	50	30	1.4	0.8	A	A
P2 ⁽¹⁾	5.3	/	70	20	/	/	0.09	0.03
P3	2.3	1.3	80	60	4.1	3.1	A	A
P4	7.5	6.5	100	80	1.0	0.8	A	A
P5	1.7	0.7	90	80	8.6	7.6	A	A

⁽¹⁾P2 is a zebra crossing. The capacity of the crossing has been made reference to TPDM Volume 2 Chapter 3.7 and assumed to be 3000 pedestrians per hour both directions.

2.4.5 As shown in **Table 2.4.2**, all the assessed walkways are currently operating within capacity or with LOS C or above, which is acceptable for normal walking manoeuvres.

2.5 Existing Public Transport Facilities

2.5.1 The public transport services in the vicinity of proposed development at Shek Li Street are summarized in **Table 2.5.1**, **Table 2.5.2** and **Table 2.5.3**. The coverage area of the franchised bus services includes Tsuen Wan, Kwun Tong, Sha Tin, Hong Kong Island, etc. The green minibus (GMB) services provide short-haul feeder services to Kwai Fong MTR Station and Tsuen Wan as well as long-haul routes to Sha Tin. There is also an RMB route for cross-district trips to Mong Kok. The existing public transport servicing points in the vicinity of the proposed development are shown in **Drawing. W11/TIA/206**.

Table 2.5.1: Existing Franchised Bus Services

Route	Terminating		
31	Tsuen Wan West Station Public Transport Interchange	↻	Shek Lei (Circular)
31B	Shek Lei (Tai Loong Street)	↔	Olympic Station
31M	Kwai Fong Station	↔	Shek Lei (Lei Pui Street)
31P ⁽¹⁾⁽⁴⁾	Shek Lei (Wai Kek Street)	→	Kwai Fong Station
32	Tsuen Wan (Shek Wai Kok)	↔	Olympic Station

Route	Terminating		
35A	Tsim Sha Tsui East	↔	On Yam
35X ⁽¹⁾⁽²⁾⁽⁵⁾	Tsim Sha Tsui East	↔	On Yam
36B	Lei Muk Shue	↔	Jordan (West Kowloon Station)
36X ⁽¹⁾⁽⁴⁾	Lei Muk Shue	↔	Tsim Sha Tsui East (Mody Road)
40P	Kwun Tong Station	↔	Tsuen Wan (Nina Tower)
43A	Cheung Wang	↔	Shek Lei (Tai Loong Street)
43S ⁽¹⁾⁽⁴⁾	Shek Yam	→	Hong Kong Science Park
935 ⁽¹⁾⁽²⁾⁽⁵⁾	Shek Lei (Tai Loong Street)	↔	Wan Chai
936 ⁽¹⁾⁽²⁾	Tsuen Wan (Shek Wai Kok)	↔	Causeway Bay (Cotton Path)
936A ⁽¹⁾⁽⁵⁾	Lei Muk Shue	→	Causeway Bay (Cotton Path)
936A ⁽¹⁾⁽⁵⁾	Tsuen Wan (Shek Wai Kok)	→	Causeway Bay (Cotton Path)
936A ⁽²⁾⁽⁴⁾	Causeway Bay (Cotton Path)	→	Lei Muk Shue
N237 ⁽³⁾	Mei Foo	⤿	Kwai Shing(Circular)

⁽¹⁾ Limited service during AM peak hours. ⁽⁴⁾ Limited service from Monday to Friday only
⁽²⁾ Limited service during PM peak hours. ⁽⁵⁾ Limited service from Monday to Saturday only
⁽³⁾ Limited service during night only.

Table 2.5.2: Existing GMB Services

Route	Terminating		
403	Lei Pui Street Bus Terminus	⤿	Sha Tin Wai (Circular)
403P	Shek Lei Lei Pui Street	⤿	Sha Tin Tam Kon Po Street (Circular)
403P	Shek Lei Lei Pui Street	→	Sha Tin Tam Kon Po Street (Special Departure (Via Wai Kek Street))
403P	Shek Lei Lei Pui Street	→	Sha Tin Tam Kon Po Street (Special Departures (Via the Apex))
403X	Northeast Kwai Chung (Circular)	⤿	Tai Wai Station Public Transport Interchange
403X	Tai Wai Station Public Interchange	→	The Apex (Special Departure (Terminate at Wo Yi Hop Road))
403X	Shek Yam Lei Muk Road	→	Tai Wai (Special Service from Lei Muk Road)
406 ⁽⁴⁾	Kwai Shing (Circular)	⤿	Shek Lei
410	Princess Margaret Hospital	↔	Northeast Kwai Chung
86	Shek Lei (Lei Pui Street)	↔	Tsuen Wan (Hoi Kwai Road)
86A ⁽³⁾	Shek Lei (Lei Pui Street)	↔	Tsuen Wan (Chuen Lung Street)
86M	Shek Lei (Lei Pui Street)	↔	Tsuen Wan (Chuen Lung Street)

⁽¹⁾ Limited service during AM peak hours. ⁽⁴⁾ Limited service from Monday to Friday only
⁽²⁾ Limited service during PM peak hours. ⁽⁵⁾ Limited service from Monday to Saturday only
⁽³⁾ Limited service during night only.

Table 2.5.3: Existing RMB Services

Terminating		
Shek Lei Pui	↔	Tsuen Wan (Chuen Lung St)
Shek Lei Pui	⤿	Kwai Fong
Shek Lei Pui ⁽¹⁾	⤿	Kwai Hing
Shek Lei Pui	→	Mong Kok
Mong Kok ⁽²⁾⁽³⁾	→	Shek Lei Pui

⁽¹⁾ Limited service during AM peak hours. ⁽³⁾ Limited service during night only.
⁽²⁾ Limited service during PM hours.

2.5.2 The closest Railway Station is Kwai Hing MTR Station, which is approx. 1 km walking distance away from the subject Site. However, some of the residents would go the Kwai Fong MTR station by bus. Those stations are served by Tsuen Wan Line. Passengers could

be directly accessing to Tsuen Wan in the North and Yau Tsim Mong, Central and Western District in the South.

- 2.5.3 Shek Lei (Tai Loong Street) Bus Terminus is located in the north-west to the development site across the Shek Li Street. The Bus Terminus is within 200m of walking distance of the development site. It is served by various franchised bus routes covering the local districts (Tsuen Wan and Kwai Tsing) as well as major commercial districts (Yau Tsim Mong, Kwun Tong and Hong Kong Island).
- 2.5.4 There is also a red minibus stand located at Shek Li Street near the Tai Loong Street Bus Terminus. The red minibus services available in the bus stop cover destinations including Tsuen Wan, Kwai Chung and Mong Kok. A PM peak hour only 1-way service departing from Quarry Bay is also terminating at the red minibus station.

2.6 Appraisal of Existing Public Transport Utilisation

- 2.6.1 Public transport utilization survey has been carried out at the bus stops in the vicinity and on a typical weekday during AM and PM peak hours in June 2021 to observe the average occupancy of the identified critical public transport services. The Surveyed public transport service points are shown in **Drawing W11/TIA/206**.
- 2.6.2 The observed public transport service average occupancy of the respective Bus/GMB routes are summarised in **Table 2.6.1**.

Table 2.6.1 – Existing Public Transport Utilisation

Route	Terminal A	Terminal B	Average Occupancy	
			AM	PM
<i>Bus</i>				
31	Tsuen Wan West Station Public Transport Interchange	Shek Lei	50%	55%
31B	Shek Lei (Tai Loong Street)	Olympic Station	65%	25%
31M	Kwai Fong Station	Shek Lei (Lei Pui Street)	40%	50%
32	Tsuen Wan (Shek Wai Kok)	Olympic Station	40%	40%
35A	Tsim Sha Tsui East	On Yam	60%	55%
35X	Tsim Sha Tsui East	On Yam	65%	65%
36B	Lei Muk Shue	Jordan (West Kowloon Station)	75%	70%
36X	Lei Muk Shue	Tsim Sha Tsui East (Mody Road)	65%	/
43A	Cheung Wang	Shek Lei (Tai Loong Street)	20%	10%
935	Shek Lei (Tai Loong Street)	Wan Chai	35%	50%
936	Tsuen Wan (Shek Wai Kok)	Causeway Bay (Cotton Path)	50%	40%
936A	Lei Muk Shue	Causeway Bay (Cotton Path)	75%	/
40P	Kwun Tong Station	Shek Wai Kok	70%	70%
31P	Shek Lei (Wai Kek Street)	Kwai Fong Station	35%	/
43S	Shek Yam	Hong Kong Science Park	40%	/
<i>GMB</i>				
86	Shek Lei (Lei Pui Street)	Tsuen Wan (Hoi Kwai Road)	80%	25%
86M	Shek Lei (Lei Pui Street)	Tsuen Wan (Chuen Lung Road)	75%	50%
403P	Shek Lei Lei Pui Street	Sha Tin Tam Kon Po Street (Supplementary Service) (Circular)	65%	30%
403X	Northeast Kwai Chung (Circular)	Tai Wai Station Public Interchange	75%	30%
412	Kwai Chung Estate	Shek Lei Estate (Circular)	25%	20%
410	Princess Margaret Hospital	Northeast Kwai Chung	60%	30%
<i>RMB</i>				

Route	Terminal A	Terminal B	Average Occupancy	
			AM	PM
RMB	Shek Lei Pui	Tsuen Wan	85%	85%
RMB	Shek Lei Pui	Mong Kok (Langham Place)	90%	85%

2.6.3 The average occupancy reveals most of public transport services have adequate capacity to attend the existing passenger demand near the proposed development. Further identification of public transport demand brought by the proposed development will be discussed in chapter 5.

3. THE PLANNED DEVELOPMENT

3.1 The Development

3.1.1 The proposed development is a PRH which comprises 1,700 nos. of flats (Public Housing), 5,360 sqm of community and social welfare facilities. A kindergarten of 770 sqm is also provided. The tentative population intake will be targeted at year 2028.

3.1.2 Car park will be provided at the site to fulfil the parking requirements of the Site. A total 12,470 sqm of car park will be provided with 2 floors reserved for parking use.

3.2 Traffic Generations

3.2.1 Based on the traffic generation rates from TPDM and other independent in-house trip rates as summarized in **Table 3.2.1**, **Table 3.2.2** tabulates the projected development traffic generations during AM and PM Peak Hours.

Table 3.2.1: Adopted Traffic Generation Rates

Landuse	AM Peak Hour		PM Peak Hour	
	Generation (pcu/hr/unit)	Attraction (pcu/hr/unit)	Generation (pcu/hr/unit)	Attraction (pcu/hr/unit)
Residential (per flat) ⁽¹⁾	0.0622	0.0426	0.0297	0.0401
Welfare Facilities (per 100 sqm GFA)	0.1180	0.1180	0.1180	0.1180
Kindergarten (per classroom)	2.3750	2.7084	1.3477	0.4032

⁽¹⁾ For conservative approach, the trips rate of development type Subsidised Housing: HOS/PSPS is adopted for the assessment.

Table 3.2.2: Projected Traffic Generation of the Site

Landuse	AM Peak Hour		PM Peak Hour	
	Generation (pcu/hr)	Attraction (pcu/hr)	Generation (pcu/hr)	Attraction (pcu/hr)
Residential (1,700 nos. of flats with +10% flats allowance)	116	80	56	75
Social Welfare Facilities (5,360 sqm GFA)	6	6	6	6
Kindergarten (6-classroom)	15	17	9	3
Total Generation	137	103	71	84

3.2.2 In total, the development is estimated to generate a two-way traffic of 240 pcu/hr (155 pcu/hr) during AM (PM) peak hours.

3.3 Access Arrangement and Traffic Routing

Access Arrangement to/from the Site

3.3.1 In term of vehicular access, a proposed junction will be abut to the Shek Pai Street, similar to the existing EVA opening for Shek Wai House and Shek Yi House, to provide access for vehicles to the internal parking facilities and loading/unloading area for housing flats. Another proposed run-in/out at Shek Pai Street will be used to access the social welfare

block and the kindergarten. An entrance for EVA facing Shek Li Street will also be proposed. The proposed vehicular access arrangement is shown in **Drawing W11/TIA/301**.

- 3.3.2 In terms of traffic engineering considerations, a 60m visibility splay from both sides of the mainline carriageway (i.e. Shek Pai Street) should be available to motorists when they are 4.5m ahead of the vehicular entrance in accordance to TPDM's requirements.

Traffic Routing

- 3.3.3 Based on the existing road network, for traffic to/from areas in the Kowloon and Hong Kong Island, the major traffic routings to/from the Site would be:

- *Ingress*: Castle Peak Road – Kwai Chung N/B → Shek Pai Street E/B → the Subject Site
- *Egress*: The Subject Site → Shek Pai Street W/B → Castle Peak Road – Kwai Chung S/B

- 3.3.4 For traffic to/from any other district, the major traffic routings to/from the Site would be:

- *Ingress*: Castle Peak Road – Kwai Chung S/B → Shek Pai Street E/B → the Subject Site
- *Egress*: The Subject Site → Shek Pai Street W/B → Castle Peak Road – Kwai Chung N/B

- 3.3.5 In terms of the Welfare Facilities and the kindergarten, they will be mainly serving the local residents and students within Kwai Tsing District. The related trips will be accessing/exiting the facilities via Shek Pai Street in the eastern side of the subject site, and further distributed into Tai Pak Tin Street, Lei Muk Road, Wo Yi Hop Road and Cheung Wing Road.

- 3.3.6 Basically, traffic from different areas in the Territory could directly access the subject Site via the strategic road network and major distributors. No detouring is required.

- 3.3.7 The Traffic Routing of the proposed development vehicles is shown in **Drawing W11/TIA/302**. The corresponding junctions and road links likely being affected by the development traffic would be assessed accordingly in **Section 4.3**.

3.4 Parking Provision Review

- 3.4.1 The required Parking provisions for the residential development had been calculated and tabulated in **Table 3.4.1** below and adopted the new parking standards under HKPSG promulgated in August 2021.

- 3.4.2 The required Parking provisions for kindergarten is calculated based on HKPSG and it is noted that from HKPSG Chapter 8 Section 2 Note 1: For schools and kindergartens within public housing estates, the carparking provisions, taxi and private car lay-bys and loading/unloading provisions should be subject to the requirements of Housing Authority. In addition, the Parking requirements of Social Welfare Facilities will mainly be determined based on operational requirements from SWD or other relevant Authority. The

required parking provision for the kindergarten and proposed welfare facilities is presented in **Table 3.4.2**.

Table 3.4.1: Parking Provision Review for the Planned Developments

Parking Facilities	New parking standards under HKPSG	Provision based on the new parking standards	Current Provision (per latest Site Layout Plan)
<i>Parking Facilities for Residential Development (1700 flats with 340 1P/2P flats)</i>			
1. Private Car Parking (Domestic)	1 space per 4 – 7 flats (GPS with 1) Demand Adjustment Ratio (R1) = 0.52 2) Accessibility Adjustment Ratio (R2) = 1 (outside 500m radius of rail station) (excl. 1/2p-flats)	25 (existing provision in Shek Wai House (SWH) and Shek Yi House (SYH)) 97-170 (based on 1 per 8 – 14 flats for proposed development)	195 (including 3 disable parking) (170 nos for the proposed development)
2. Private Car Parking (Visitor)	Up to 5 spaces per block	10 nos. (5 per residential block)	
3. “Shared-use” Light Goods Vehicles and Private Light Bus	1 per 260 flats excl. 1P/2P flats	11 (existing provision in SWH and SYH) 6 (for proposed development)	17 (6 nos. for the proposed development)
4. Loading/ Unloading (Domestic)	2 per residential block	4 nos. (2 per residential block)	4 nos. (2 per residential block)
5. Motorcycle Parking	1 per 110-250 flats excl. 1P/2P flats	13 (existing provision in SWH and SYH) 6-13 (for proposed development)	26 (13 nos. for the proposed development)

Table 3.4.2: Parking Provision Review for the Social Welfare Facilities

Parking Facilities	Current Provision (per latest Site Layout Plan)
<i>Parking Facilities for Kindergarten</i>	
Private Car Parking Space (HKPSG Requirement: 0 - 1 car parking space per 4 to 6 classrooms)	Use the private car parking space in residential side
Lay-by (HKPSG Requirement: 1 lay-by for taxis and private cars for every 5 - 8 classrooms and a minimum of 2 lay-bys or school buses)	2 nos. of lay-bys
<i>Parking Facilities for Welfare Facilities</i>	
Private Light Bus	1 no.
Loading/ Unloading Bay	1 no. (Shared loading/unloading area for private light buses and ambulance or other vehicle of the development)

4. TRAFFIC FORECAST AND ASSESSMENT

4.1 Traffic Forecast Methodology

4.1.1 To obtain the required traffic forecasts for assessment, the traffic flows of this project has been taking reference to the existing surveyed traffic data as summarized in **Section 2.3**.

4.1.2 Suitable extrapolations based on a holistic consideration on historical traffic growth & population growth of the district had been applied to obtain the traffic forecasts for design year 2031 base on the observed 2021 traffic flow. The growth factor obtained from 2016-based TPEDM data has been outlined in **Table 4.1.1**. As **Table 4.1.1** suggests, the future population and employment of the Planning Data Zone in Shek Lei District are forecasted to be declining. In view of this, the historical traffic data from Annual Traffic Census of the counting station in the vicinity is also analyzed in **Table 4.1.2** to obtain a traffic growth rate. As a more conservative approach, the annual growth rate from ATC of 1.1% is adopted for forecasting of the future background traffic flows.

Table 4.1.1: TPEDM data of Population (Pop.) and Employment (Emp.) for Zones near Shek Lei from Planning Department

Year 2021			Year 2026			Year 2031			Average Annual Growth Rate
Pop.	Emp.	Total	Pop.	Emp.	Total	Pop.	Emp.	Total	
374,950	186,150	561,100	368,700	181,850	550,550	368,850	176,900	545,750	-0.2%

Table 4.1.2: ATC data from Transport Department

Station No.	Road Link	Average Annual Daily Traffic (AADT)						Average Annual Growth Rate
		2014	2015	2016	2017	2018	2019	
5004	Castle Peak Road - Kwai Chung	25490	26240	26410	26530	27420	26930	1.1%
5221	Cheung Wing Road	39780	40530*	41650*	42420*	40980	43680	
5408	Castle Peak Road - Kwai Chung	51390	52990	52930*	53160*	54630*	56150	
5431	Wo Yi Hop Road	27720	21630	22230*	22640*	22970*	28020	
5608	Kwai Chung Road	30440*	30090	30350	30480*	31330*	30360*	
5630	Wo Yi Hop Road	20870*	20490	21160	21020*	21360*	21210*	

*The AADT is estimated from growth factor and is exempted from the growth rate estimation.

4.1.3 In addition, based on the information provided by CEDD and the public domain, the traffic generations of committed or planned housing developments in the vicinity had been considered in the traffic forecasts, including the following:

Table 4.1.3: Planned or Committed Development in the Vicinity

Project Name	Flat No./ Parameter	Flat Type / Development Type	Status
Development at Kwok Shui Road	about 1,700	Public Housing	Potential full occupation at 2030
Development at Shek Pai Street, Kwai Chung	about 5,400	Public Housing	Potential full occupation at 2035
Other Planning Application			
Proposed Minor Relaxation of Plot Ratio Restriction for Permitted Non-Polluting Industrial Use (A/KC/476)	about 16,945 m ²	Industrial	N/A
Proposed Hotel Use and Proposed Minor Relaxation of Plot Ratio Restriction (A/KC/469)	1,196 Rooms	Hotel	N/A
Proposed Minor Relaxation of Plot Ratio and Building Height Restrictions (A/KC/466)	about 22,931 m ²	Data Centre	N/A
Proposed Minor Relaxation of lot Ratio Restriction for permitted Industrial Development (A/KC/465)	about 6,066 m ²	Industrial	N/A

4.2 Forecasting Scenarios and Specific Development Assumptions

4.2.1 As the tentative population intake will be targeted at year 2028, the year 2031 (3 years after the completion of development) will be taken as design years for traffic forecasting and assessment.

4.2.2 In addition, specific assumptions on adjacent development / highway infrastructures are outlined below.

Development at Shek Pai Street, Kwai Chung

4.2.3 It is noticed that the Development at Shek Pai Street, Kwai Chung is currently under feasibility study stage. The full potential development size and programme is still yet to be finalize. In view of the uncertainty of the Shek Pai Street Development context and considering its close proximity to the subject site under this study, addition scenarios is derived to investigate the impact of with and without the intake of Shek Pai Street Development in the design year.

4.2.4 Besides the assumption of incorporating the development trips into the traffic forecast for the Design Years Assessment, the road works and infrastructure modification of the junctions and road links proposed by the development are also included in the junctions and road links assessment for scenarios with the development. The following junction improvements are identified and adopted in the assessment:

Development at Shek Pai Street, Kwai Chung

- J1 – Shek Pai Street / Wai Kek Street (to be implemented before 2024)
- J2 – Castle Peak Road – Kwai Chung / Shek Pai Street (to be implemented before 2024)
- J6 – Shek Pai Street / On Chuk Street (to be implemented before 2029)

- J7 – Shek Pai Street / On Chit Lane / Tai Pak Tin Street (to be implemented before 2032)
- J10 – Wo Yi Hop Road / Lei Muk Road (to be implemented before 2024)

4.2.5 The schemes of the proposed improvement works are presented in **Appendix B**.

4.2.6 **Table 4.2.1** tabulates the assessment scenarios and corresponding traffic forecast assumptions.

Table 4.2.1: Design Years and Assessment Scenarios

Design Year	Development Assumption	Reference Scenario [Ref 1] (without Shek Pai Street Development)	Reference Scenario [Ref 2] (with Shek Pai Street Development)	Design Scenario [Des 1] (without Shek Pai Street Development)	Design Scenario [Des 2] (with Shek Pai Street Development)
2031 (i.e. 3 years after completion)	<i>Vehicular Trips Assumptions</i>				
	Background traffic forecast at 2031 based on annual growth	✓	✓	✓	✓
	Shek Pai Street Development		✓		✓
	Other developments in vicinity	✓	✓	✓	✓
	Shek Li Street Public Housing Development			✓	✓
	<i>Road and Highway Infrastructure Assumption</i>				
	Shek Pai Street Development ⁽¹⁾		✓		✓
(1) Improvement Scheme proposed by Shek Pai Street Development are shown in Appendix B					

4.3 Design Year Junction Performance

4.3.1 The forecasted traffic flow of the Reference and Design scenarios are presented in **Drawing W11/TIA/401-404**. Based on the traffic forecasts delivered, **Table 4.3.1** tabulates the assessment results of major junctions for the design years 2031.

Table 4.3.1 – Year 2031 Reference and Design Scenario Junction Performance

Index ⁽¹⁾	Junction	Junction Type	RC / DFC ⁽²⁾							
			Year 2031 Ref 1 ⁽³⁾		Year 2031 Ref 2 ⁽³⁾		Year 2031 Des 1 ⁽³⁾		Year 2031 Des 2 ⁽³⁾	
			AM	PM	AM	PM	AM	PM	AM	PM
J1	Shek Pai Street / Wai Kek Street	Signalized	6%	3%	29%	29%	-9%	-7%	19%	19%
J2	Castle Peak Road – Kwai Chung / Shek Pai Street	Signalized	11%	23%	29%	38%	1%	16%	17%	29%
J3	Castle Peak Road – Kwai Chung / Wo Yi Hop Road	Signalized	17%	24%	17%	24%	17%	24%	17%	23%
J4	Shek Li Street / Wai Kek Street	Signalized	97%	102%	97%	102%	97%	102%	97%	102%
J5	Shek Pai Street / Lei Pui Street	Priority	0.48	0.45	0.48	0.45	0.53	0.47	0.53	0.47

Index (1)	Junction	Junction Type	RC / DFC ⁽²⁾							
			Year 2031 Ref 1 ⁽³⁾		Year 2031 Ref 2 ⁽³⁾		Year 2031 Des 1 ⁽³⁾		Year 2031 Des 2 ⁽³⁾	
			AM	PM	AM	PM	AM	PM	AM	PM
J6	Shek Pai Street / On Chuk Street	Signalized	201%	205%	25%	42%	188%	194%	22%	39%
J7	Shek Pai Street / On Chit Street / Tai Pak Tin Street	Signalized	68%	38%	78%	69%	59%	35%	73%	65%
J8	Tai Pak Tin Street / Tung Chi Street	Signalized	108%	103%	24%	45%	94%	96%	21%	43%
J9	Lei Muk Road / Tung Chi Street	Signalized	67%	99%	21%	55%	67%	99%	21%	55%
J10	Wo Yi Hop Road / Lei Muk Road	Signalized	6%	3%	28%	35%	6%	3%	28%	35%
J11	Cheung Wing Road / Wo Yi Hop Road	Signalized	47%	77%	35%	60%	47%	77%	35%	60%

(1) Location of critical junction are shown in Drawing W11/TIA/202.
(2) Drawings shown represent Reserve Capacity (RC) for the signal-controlled junctions and Design Flow to Capacity (DFC) ratio for the roundabouts or priority junctions. RC < 0% and DFC > 1.00 indicates overload conditions.
(3) Refer to Table 4.2.1 for design scenario alias explanations and assumptions.

4.4

4.4 Design Year Link Performance

4.4.1 Similarly, **Table 4.4.1** tabulates the assessment results of major road links for design years 2031.

Table 4.5.1 – Year 2031 Reference and Design Scenario Link Performance

Index (1)	Road Link	Direction	Capacity (pcu/hr)	V/C Ratio ⁽²⁾							
				Ref 1		Ref 2		Des 1		Des 2	
				AM	PM	AM	PM	AM	PM	AM	PM
L1	Shek Pai Street (between Wai Kek Street and Castle Peak Road – Kwai Chung)	EB	1040	0.28	0.40	0.46	0.55	0.36	0.48	0.54	0.63
L2		WB	1040	0.51	0.46	0.70	0.55	0.63	0.52	0.80	0.62
L3	Castle Peak Road – Kwai Chung (between Shek Pai Street and Tai Wo Interchange)	NB	3410	0.48	0.42	0.5	0.44	0.49	0.43	0.51	0.45
L4		SB	3410	0.46	0.4	0.49	0.42	0.48	0.41	0.51	0.43
L5	Castle Peak Road – Kwai Chung (between Wo Yi Hop Road and Shek Pai Street)	NB	3410	0.51	0.45	0.53	0.47	0.53	0.46	0.55	0.48
L6		SB	3410	0.42	0.42	0.46	0.45	0.44	0.43	0.47	0.46

(1) Location of road link are shown in Drawing W11/TIA/202.
(2) V/C ratio within 1.0 represent a satisfactory level of traffic flow condition; V/C ratio exceeding 1.0 but within 1.2 indicates manageable degree of congestion; while V/C ratio exceeding 1.2 indicates on-set of more serious congestion.

4.4.2 As shown in above tables, all the assessed road links will be operating within capacity during years 2031 reference and design scenarios.

4.5 Discussion on Findings

- 4.5.1 As shown in the junction assessment result, J1 will be operating with overload conditions and J2 will be operating near its capacity in both reference and design scenarios in the cases which the Shek Pai Street Development is delayed or incomplete. It is acknowledged that the road network in Shek Lei indeed is limited in traffic flow capacity to handle with the forecasted traffic demand based on the simple growth of the existing traffic volume. Shek Pai Street serves as major ingress and egress route for various housing and premises in Shek Lei to access both district internal and external. The junction improvements located on the critical chokepoints of Shek Pai Street is deemed essential not only as to ameliorate the impact bring forward by the future developments, but also as mitigation to the foreseeable traffic issues based on the existing traffic growth trend.
- 4.5.2 Even J6 and J7 has been proposed to upgrade the junction layout and control to step-up its capacity by Shek Pai Street Development, as identified in the assessment result, without Shek Pai Street Development, the junctions would be capable of handling the site traffic from the proposed site in this study. The junction improvements implementation schedule of J6 and J7 should be coupled with the Shek Pai Street Development programme, regardless of the proposed site in this study.
- 4.5.3 As this point it should be drawn to the attention that the assumptions as described in Section 4.2 which eventually lead to the formulation of the design scenarios. Without the junction improvement schemes of J1 and J2 being implemented, the traffic condition of Shek Lei area could not absorb any further traffic sources apart from the existing premises. It is clear that the proposed development under this study could not be realized without the Shek Pai Street development project improvement works are already in-place, in other words the assessed scenario Des 1 should be invalid for consideration since the development in this study should not be advanced without the junction improvements works of J1 and J2.
- 4.5.4 As for the implementation undertaking of the junction improvement works, at current stage the proposal of the improvement works was justified by the project proponent CEDD of Shek Pai Street Development. Under current HD-CEDD coordination, CEDD advised that the concerned junction improvement works will be implemented at early stage of Shek Pai Street site formation works. HD will closely liaise with CEDD to resolve the improvement issues and to ascertain the improvement works schedule could catch up with the proposed development intakes.
- 4.5.5 With the above conditions satisfied, it could be identified from the assessment results that all the junctions and road links will be operating with a satisfactory traffic condition subject to the implementation of junction improvement works. The proposed development would not impose adverse traffic impact to the road network and is acceptable from the traffic point of view as long as the junction improvement on J1, J2 has been undertaken in place.

5. PEDESTRIAN AND PUBLIC TRANSPORT ASSESSMENT

5.1 Future Pedestrian Connectivity

5.1.1 It is identified that there is a planned development near Shek Pai Street, with a proposed footbridge connecting to the podium level of the redevelopment of this project. Internal walkway is also proposed to connect this project development with the adjacent Shek Wai House and Shek Yi House, which can access the Shek Lei Shopping Centre (Phase 2) through the Elevated Walkway.

5.2 Pedestrian Flow Forecast

5.2.1 The pedestrian trip generation from the proposed development was estimated with reference to the survey similar development. The survey was conducted at Cheung Hang Estate on 16th December 2019. The peak 15-minutes pedestrian trip generation and attraction by the above residential developments was recorded and summarized in **Table 5.2.1**.

Table 5.2.1 – Pedestrian Trip Generation Rate

Unit	Pedestrian Trip (ped/15-min)				Adopted Pedestrian Trip Rate (ped/15-min/flat)			
	AM		PM		AM		PM	
	Generation	Attraction	Generation	Attraction	Generation	Attraction	Generation	Attraction
1,870 flats (1,700 flats with +10% flats allowance)	312	107	97	165	0.167	0.057	0.052	0.088

5.2.2 As suggested in Section 4.1, the population and employments of the Planning Data Zone in Shek Lei District is envisaged to be declining. As a conservative approach, a nominal 1% annual growth was adopted in the pedestrian flow forecast. In addition, the pedestrian trips from the planned developments in vicinity, mainly the Shek Pai Street Development, is also considered in the future pedestrian flows in addition to the forecasted background flow.

5.2.3 The pedestrian trip distribution by the proposed development will be distributed into the adjacent footpaths with reference to the transport modes of the Shek Lei Street Block Groups according to the result of 2016 Population Census. The assumed transport mode of the proposed development is presented in **Table 5.2.2**

Table 5.2.2 – Assumed Modal Split of Proposed Development

Transport Mode	Modal Split	Pedestrian Trip (ped/15-min) (2way)	
		AM	PM
Railway	19%	80	50
Bus	41%	171	108
Minibus	20%	84	52
Walk and Others ⁽¹⁾	20%	84	52
Total	100%	419	262

⁽¹⁾ Others Mode refers to the use of Private Car, Company bus/van, taxi or other transport

5.2.4 As the Kwai Hing Station is located outside a walkable distance (500 m) from the Site, it is anticipated that the trips from the proposed development taking Railway as their transport mode would be accessing the railway stations via the road-based feeder service. To reflect the potential impact of the multi-mode interchanged trips of the development trips, the modal split of Railway mode was reassigned to Bus mode as their interim transport to the railway stations.

5.3 Design Year Pedestrian Facilities Assessment

- 5.3.1 The assumed walking trips of the proposed development is assigned to the background pedestrian flow of the relevant walkways. The LOS assessment result for the critical walkways for the design scenarios are presented in **Table 5.3.1**.

Table 5.3.1 – Design Pedestrian Facilities Assessment

Index	Clear Width (m)	Effective Width (m)	Pedestrian Flow (ped/15-min)		Flow Rate (ped/min/m)		LOS / VC	
			AM	PM	AM	PM	AM	PM
P1	3.4	2.4	200	140	5.6	3.9	A	A
P2 ⁽¹⁾	5.3	/	200	120	3.1	1.9	0.06	0.04
P3	2.3	1.3	220	160	11.3	8.2	A	A
P4	7.5	6.5	220	160	2.3	1.6	A	A
P5	1.7	0.7	140	90	13.3	8.6	A	A

⁽¹⁾P2 is a zebra crossing. The capacity of the crossing has been made reference to TPDM Volume 2 Chapter 3.7 and assumed to be 3000 pedestrians per hour both directions.

- 5.3.2 Refer to **Table 2.4.1** and **Table 5.3.1**, all the assessed walkways will be operating within capacity with LOS C or above.

5.4 Public Transport Demand

- 5.4.1 The proposed development has the frontage covered by Shek Li Street, Wai Kek Street and Shek Pai Street, which has accommodated several on-street bus stops and GMB stops. On top of the on-street facilities, the Shek Lei (Tai Loong Street) Bus Terminus is also within a close walkable distance of around 100m. The public transport user from proposed development could readily accessible to the public transport services by the existing facilities, thus no additional dedicated bus and minibus facilities nor rerouting of the existing public transports are required.
- 5.4.2 It is identified that the development will generate a 2-way passenger demand of around 251 (80+171) pax/15-min for bus and 84 pax/15-min for minibus. As shown in **Drawing No. W11/TIA/206** and **Table 2.6.1.**, the development is well served by numerous bus and minibus services, with an observed occupancy of around 60% to 70% for most of the public transport services. It is expected the passenger trips generated by the proposed development is insignificant in comparison with the existing public transport demand. In view of the ample remaining capacity from the observed public transport services, it is anticipated that the proposed development would not impose significant adverse impact to the existing public transport services.
- 5.4.3 The passengers demand generated by the development is insignificant, even in the bottom line cases with the marginal public transport services performance, assuming the capacity a franchised bus to be 120, it is considered that an increase in headway of 2 – 3 trips per 15 mins in total of the various bus routes would be sufficient to cater the addition passenger demand due to the proposed site. In addition, the existing franchised bus services in the vicinity still have some capacity (as shown in Table 2.6.1) which could absorb the addition demand.
- 5.4.4 It is also proposed by the planned development at Shek Pai Street, Kwai Chung to provide a new Public Transport Interchange within their development with the operation of 2 new franchised bus and 1 GMB services to dissipate the passenger demand to/from MTR Kwai

Hing Station. With Shek Pai Street Development being taken into account, it was assessed that the provision of the new services will still have spare capacity in the feeder service to handle other extra demand.

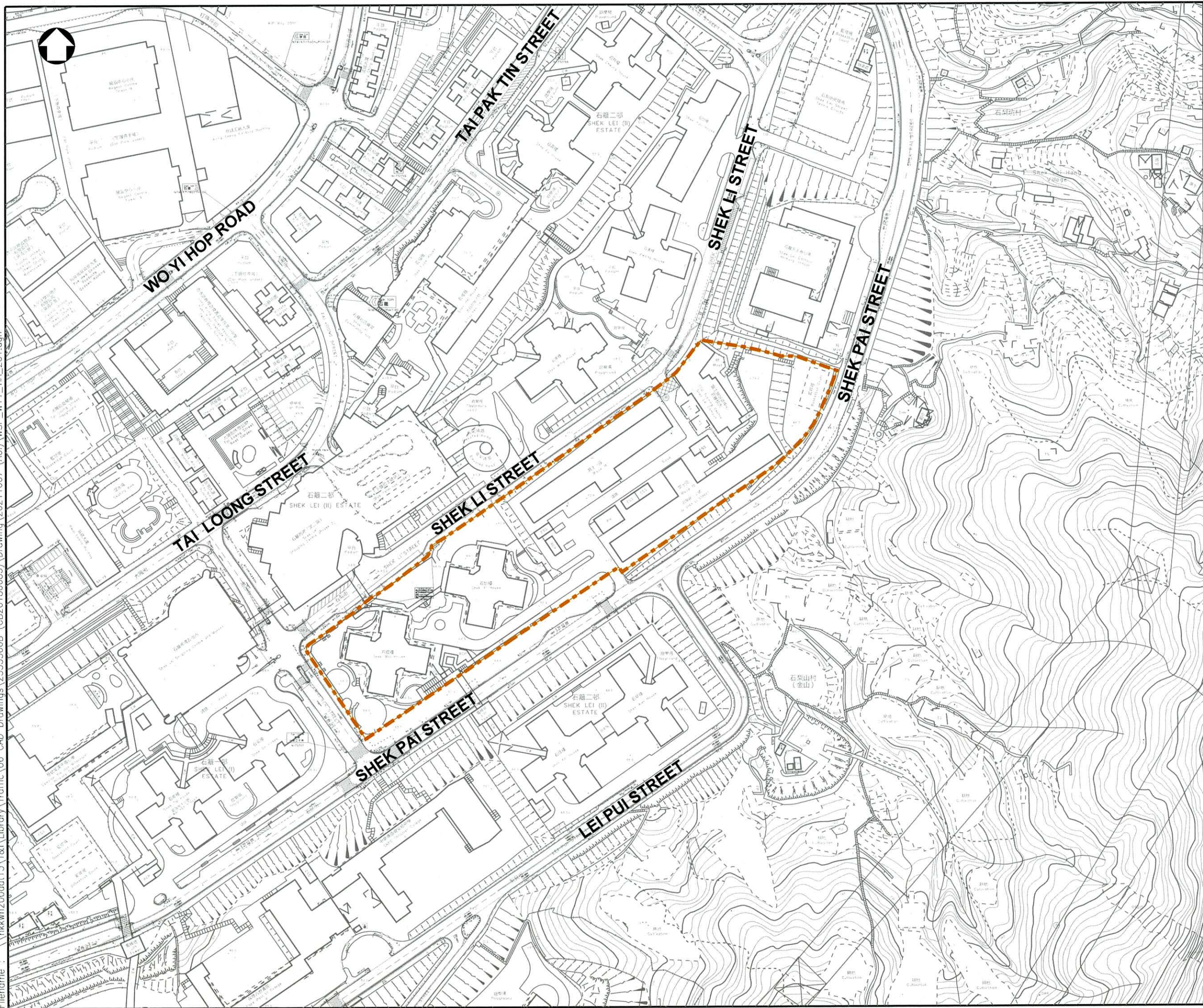
- 5.4.5 With abundant spare capacity in observed and planned public transport services, it is anticipated that the future public transport services will be capable of handling the passenger demand of the proposed development.


6. SUMMARY AND CONCLUSION

- 6.1.1 The proposed development will involve demolition of the existing Shek Lei Interim Housing Block 10 and Block 11, with 1,700 nos. of flats (Public Housing), 5,360 sqm of community and social welfare facilities. The tentative population intake will be targeted at year 2028.
- 6.1.2 The Site has good vehicular accessibility from different regions of the Territory. 2 major vehicular access (i.e. one in junction type, another one in run-in/out drop-kerb type) are proposed at Shek Pai Street. The Site shall also provide the required parking spaces in accordance with guidelines in HKPSG.
- 6.1.3 A number of public transport services are available to the commuters to/from the Site. This include comprehensive Bus/GMB services available at the Public Transport Interchange (Tai Loong Street PTI) just next to the Site, and a RMB terminal stand within walkable distance from the Site. It is anticipated that the majority of the intake population will be using road-based public transport as their major mode of transport and the road-based trips users will not contribute adverse to nearby facilities and walkways. Feeder services to railway stations enhancement nor key PTIs will not be required.
- 6.1.4 A comprehensive junction and link flow assessment had been carried out to cover the area bounded by Shek Li Street, Shek Pai Street and Castle Peak Road – Kwai Chung with all critical junctions and road links identified situating along Shek Pai Street and Castle Peak Road – Kwai Chung.
- 6.1.5 Existing Traffic condition had been surveyed and existing traffic condition has been assessed. It is revealed that J1 – Shek Pai Street / Wai Kek Street and J2 – Castle Peak Road – Kwai Chung / Shek Pai Street are operating near their capacities. It is also noted that positive RC indicates the junction is operating with spare capacity while negative RC figure indicates the junction is overloaded resulting in traffic queues.
- 6.1.6 Traffic forecast for design years 2031 (3 year after the targeted population intake year) had been developed primarily based on extrapolations on latest planning and traffic census data of the district as available in the public domain and from Planning Department.
- 6.1.7 Upon completion of junction improvements, especially J1 – Shek Pai Street / Wai Kek Street and J2 – Castle Peak Road – Kwai Chung / Shek Pai Street junction improvement under Shek Pai Street Development, results of junctions and link capacities assessments for both design years reveal that all of the assessed junctions and road links will be operating within their capacity.
- 6.1.8 Pedestrian and Public Transport has been assessed in the environ of the proposed development. It is concluded that the walkways near the proposed development will be operating with satisfactory Level-of-services in the design year and the future public transport services will be operating with sufficient capacity.
- 6.1.9 Thus, it is identified that the subject development will be acceptable from traffic and transport point of view.

DRAWINGS

Date : 7/10/2021
 Filename : \\hkwn200datt13\T&I\Library\Traffic\06 CAD Drawings\25355666B (CB20180685)\Drawing\20211007 (A01)\WSP_W11_TIA_201.dgn

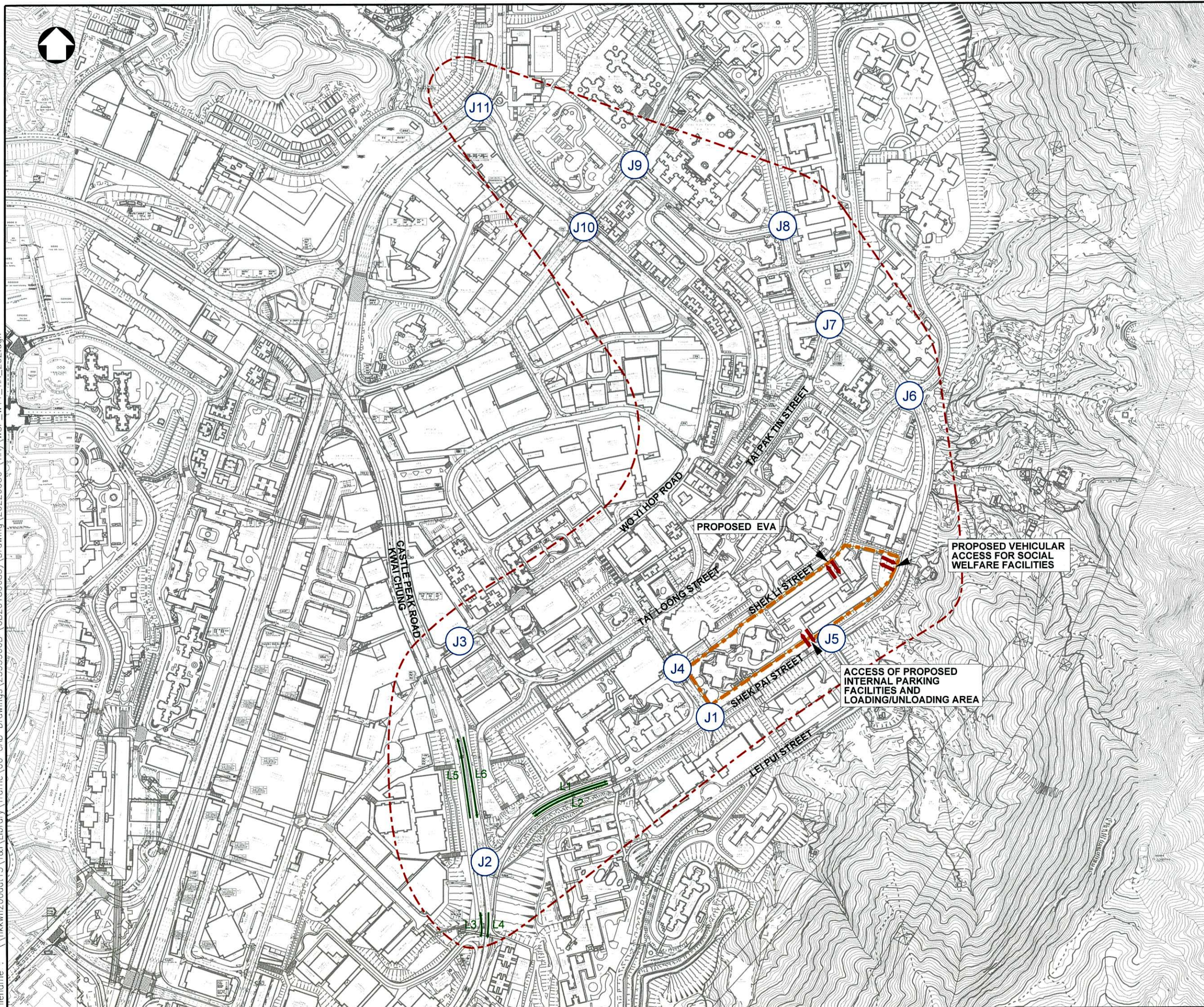


LEGEND :
 SUBJECT SITE

Rev	Description	By	Date
Consultant			
			
Project title			
AGREEMENT NO. CB20180685 TERM TRAFFIC AND ENVIRONMENTAL CONSULTANCY SERVICES 2019-2021 FOR NEW TERRITORIES WEST REGION - PROPOSED PUBLIC HOUSING DEVELOPMENT AT SHEK LI STREET IN KWAI CHUNG			
Drawing title			
PROPOSED SITE LOCATION			
Drawing no. W11/TIA/201			Rev. -
Drawn WTL	Date JULY 2021	Checked AN	Approved JF
Scale 1 : 2000 (A3)		Status -	
© COPYRIGHT RESERVED			



Date : 30/5/2022
 Filename : \\hkwr2000at13\Library\Traffic\06 CAD Drawings\2535566B (CB20180685)\Drawing\20220530 (TIA)\WSP_W11_TIA_202.dgn



LEGEND :

- SITE BOUNDARY FOR S16 SUBMISSION
- AREA OF INFLUENCE
- J1 CRITICAL JUNCTIONS
- CRITICAL ROAD LINKS
- VEHICULAR ACCESS

Rev	Description	By	Date



Project title
 AGREEMENT NO. CB20180685
 TERM TRAFFIC AND ENVIRONMENTAL CONSULTANCY
 SERVICES 2019-2021 FOR
 NEW TERRITORIES WEST REGION -
 PROPOSED PUBLIC HOUSING DEVELOPMENT
 AT SHEK LI STREET IN KWAI CHUNG

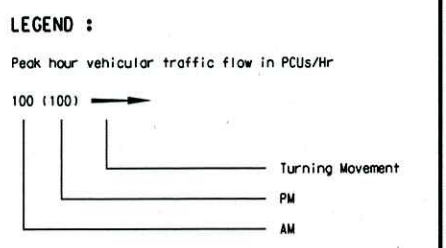
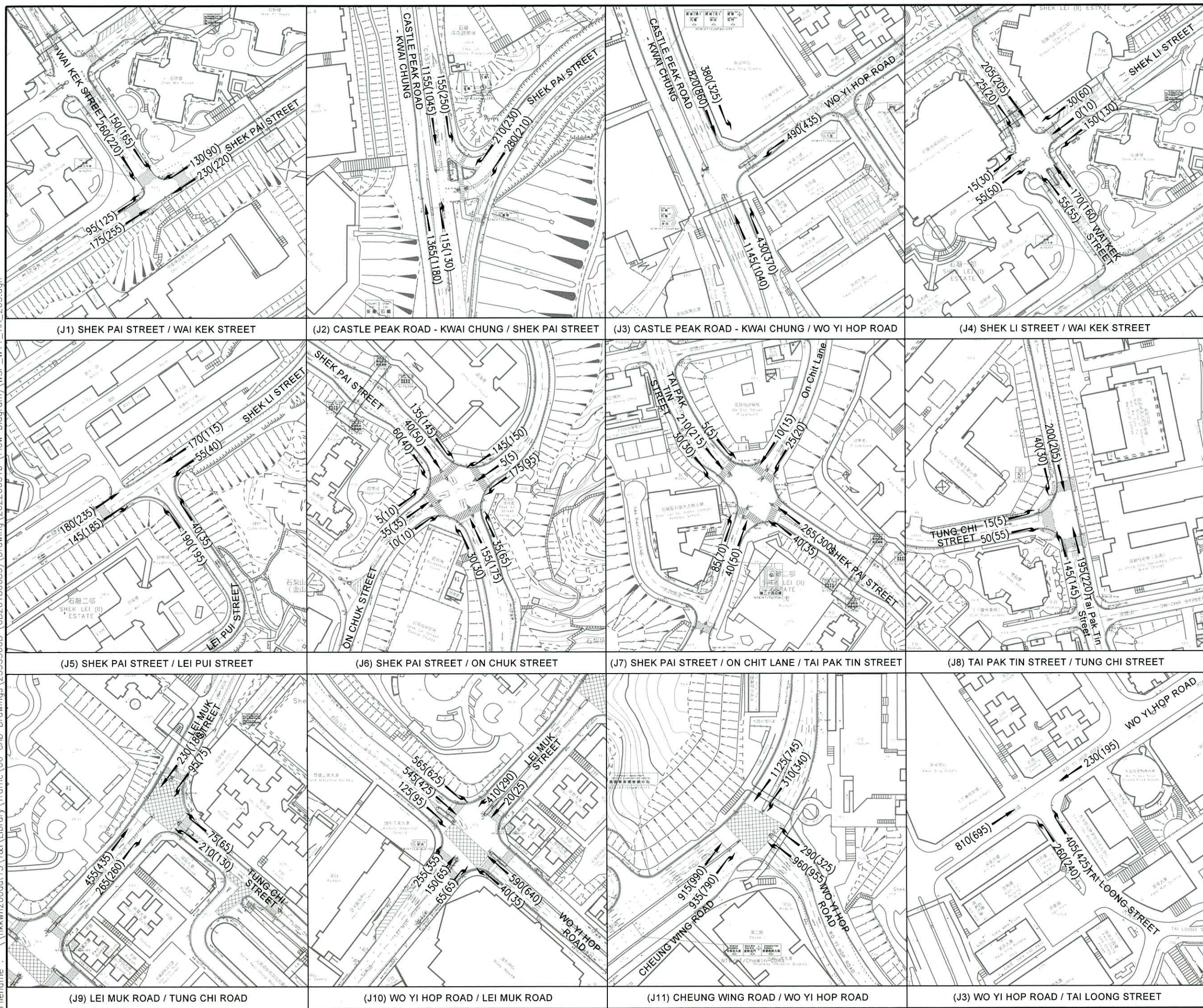
Drawing title
 IDENTIFIED CRITICAL JUNCTIONS
 AND ROAD LINKS

Drawing no.	W11/TIA/202	Rev.	-
Drawn	WTL	Date	JUL 2021
Checked	AN	Approved	JF
Scale	1 : 4000 (A3)	Status	

© COPYRIGHT RESERVED




Date : 2/6/2022
 Filename : \\hkwn200dat13\T&I\Library\Traffic\06 CAD Drawings\2535566B (CB20180685)\Drawing\20220601b (Flow Diagram)\WSP_W11_TIA_203.dgn



Rev	Description	By	Date

Consultant



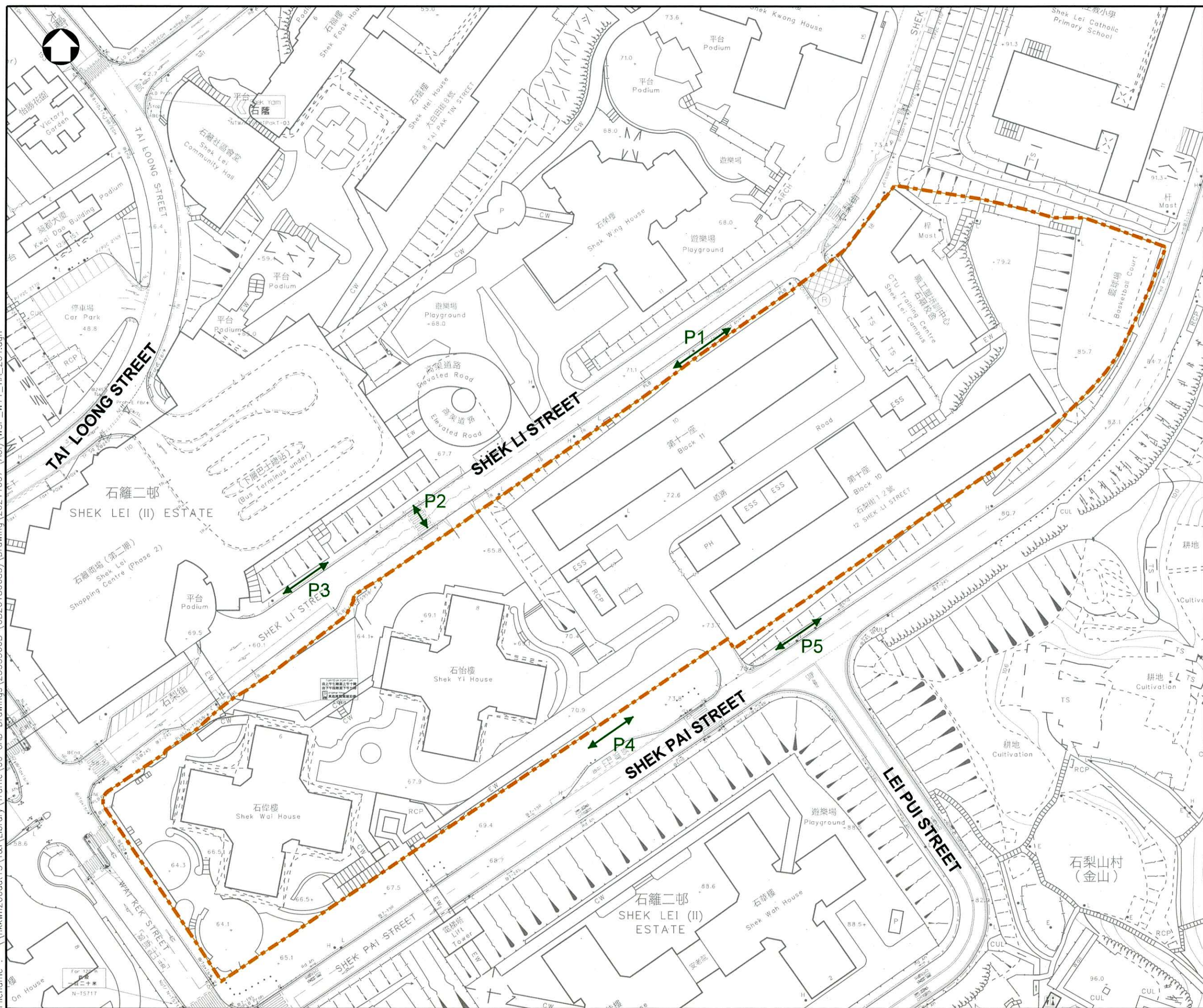
Project title
 AGREEMENT NO. CB20180685
 TERM TRAFFIC AND ENVIRONMENTAL CONSULTANCY SERVICES 2019-2021 FOR NEW TERRITORIES WEST REGION - PROPOSED PUBLIC HOUSING DEVELOPMENT AT SHEK LI STREET IN KWAI CHUNG

Drawing title
 YEAR 2021
 OBSERVED TRAFFIC FLOW

Drawing no. W11/TIA/203		Rev. -	
Drawn WTL	Date SEP 2021	Checked AN	Approved JF
Scale N.T.S.	Status -		



Date : 7/10/2021
 Filename : \\hkwn200dat13\T&I\Library\Traffic\06 CAD Drawings\2535566B (CB20180685)\Drawing\20211007 (AOI)\WSP_W11_TIA_204.dgn



LEGEND :

- - - SUBJECT SITE
- CRITICAL WALKWAYS

Rev	Description	By	Date

Consultant

wsp

Project title
 AGREEMENT NO. CB20180685
 TERM TRAFFIC AND ENVIRONMENTAL CONSULTANCY SERVICES 2019-2021 FOR
 NEW TERRITORIES WEST REGION -
 PROPOSED PUBLIC HOUSING DEVELOPMENT
 AT SHEK LI STREET IN KWAI CHUNG

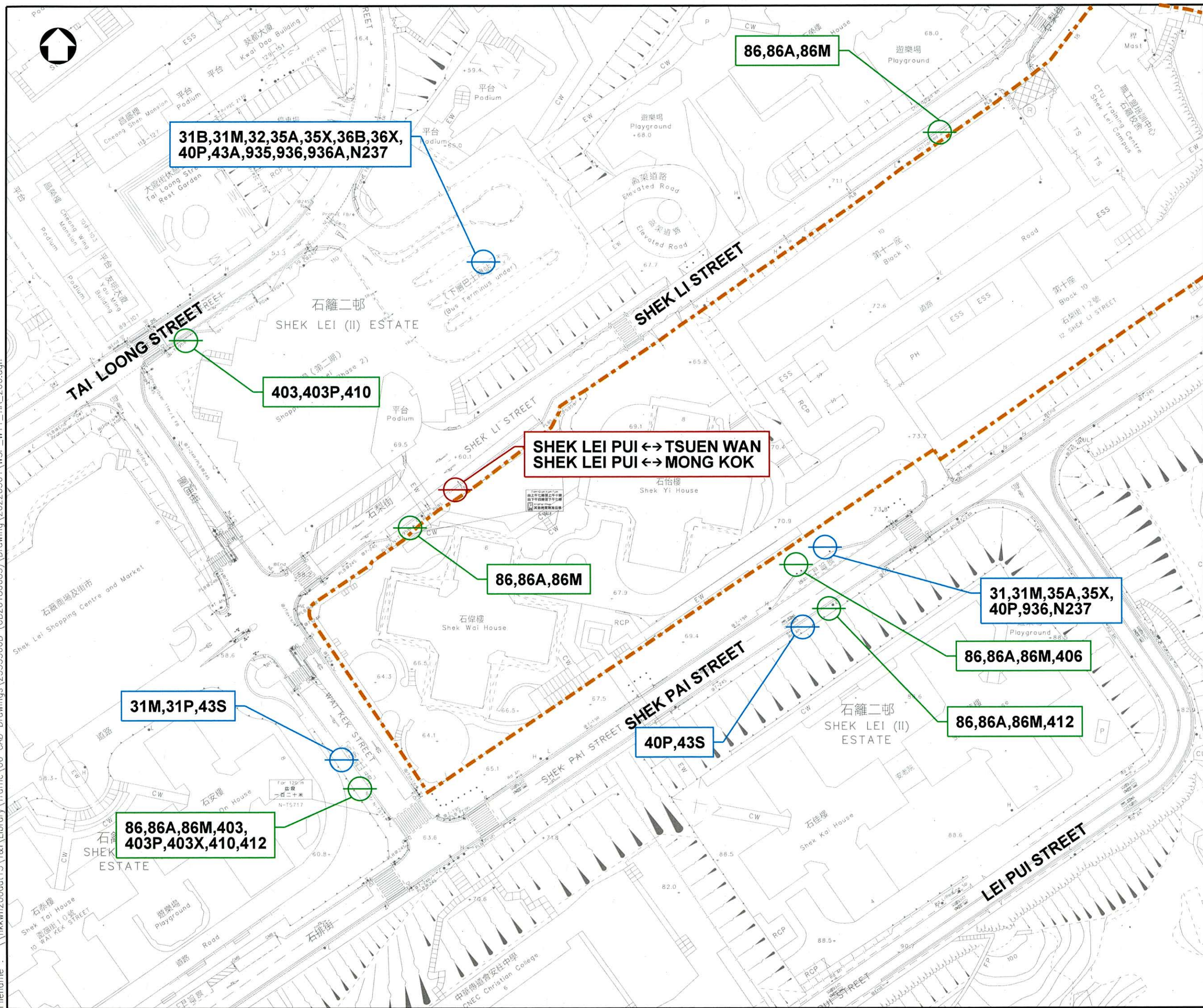
Drawing title
IDENTIFIED CRITICAL WALKWAYS

Drawing no.	W11/TIA/204	Rev.	-
Drawn	WTL	Date	JUL 2021
Checked	AN	Approved	JF
Scale	1 : 1000 (A3)	Status	-

© COPYRIGHT RESERVED

香港房屋委員會
HONG KONG HOUSING AUTHORITY

5/5/2022
 Filename: \\hkwn200dat13\T&I\Library\Traffic\06 CAD Drawings\2535566B (CB20180685)\Drawing\20220504\WSP_W11_TIA_206.dgn



- LEGEND :**
- - - SITE BOUNDARY FOR S16 SUBMISSION
 - SURVEYED BUS STOP
 - SURVEYED GMB STOP
 - SURVEYED RMB TERMINUS

**31B,31M,32,35A,35X,36B,36X,
40P,43A,935,936,936A,N237**

86,86A,86M

403,403P,410

**SHEK LEI PUI ↔ TSUEN WAN
SHEK LEI PUI ↔ MONG KOK**

86,86A,86M

**31,31M,35A,35X,
40P,936,N237**

86,86A,86M,406

31M,31P,43S

86,86A,86M,412

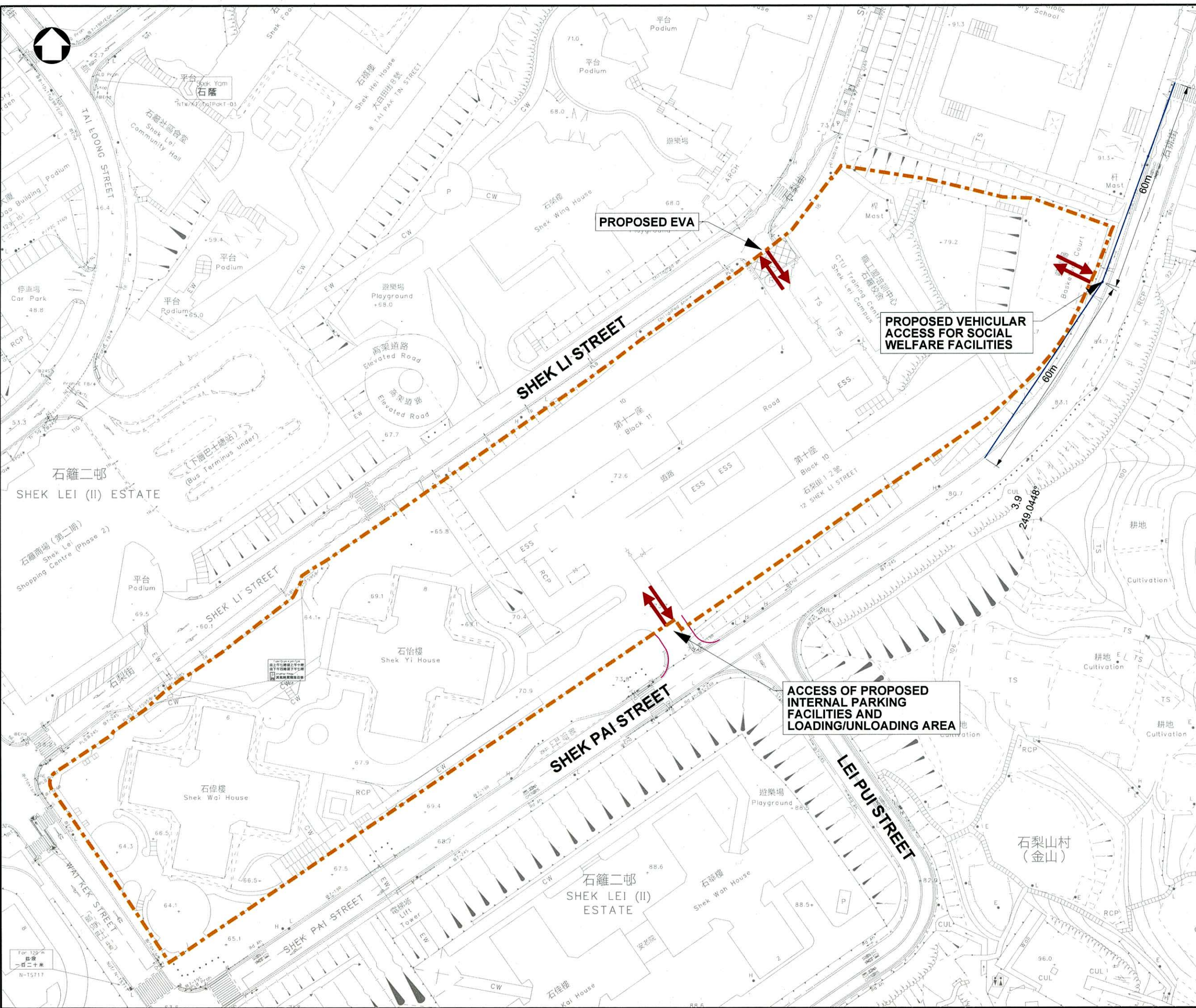
**86,86A,86M,403,
403P,403X,410,412**

40P,43S

Rev	Description	By	Date
Project title AGREEMENT NO. CB20180685 TERM TRAFFIC AND ENVIRONMENTAL CONSULTANCY SERVICES 2019-2021 FOR NEW TERRITORIES WEST REGION - PROPOSED PUBLIC HOUSING DEVELOPMENT AT SHEK LI STREET IN KWAI CHUNG			
Drawing title IDENTIFIED CRITICAL PUBLIC TRANSPORT SERVICES			
Drawing no.		Rev.	
W10/TIA/206		-	
Drawn	Date	Checked	Approved
WTL	JUL 2021	AN	JF
Scale		Status	
1 : 1000 (A3)		-	
© COPYRIGHT RESERVED			



Date : 5/5/2022
 Filename : \\hkw\2020dat\13\Library\Traffic\06 CAD Drawings\2535566B (CB20180685)\Drawing\20220504\WSP_W11_TIA_301.dgn



- LEGEND :**
- - - SITE BOUNDARY FOR S16 SUBMISSION
 - PROPOSED JUNCTION
 - ⇄ PROPOSED SITE ACCESS LOCATION
 - SIGHTLINE

Rev	Description	By	Date



Project title
 AGREEMENT NO. CB20180685
 TERM TRAFFIC AND ENVIRONMENTAL CONSULTANCY SERVICES 2019-2021 FOR
 NEW TERRITORIES WEST REGION -
 PROPOSED PUBLIC HOUSING DEVELOPMENT
 AT SHEK LI STREET IN KWAI CHUNG

PROPOSED VEHICULAR ACCESS ARRANGEMENT

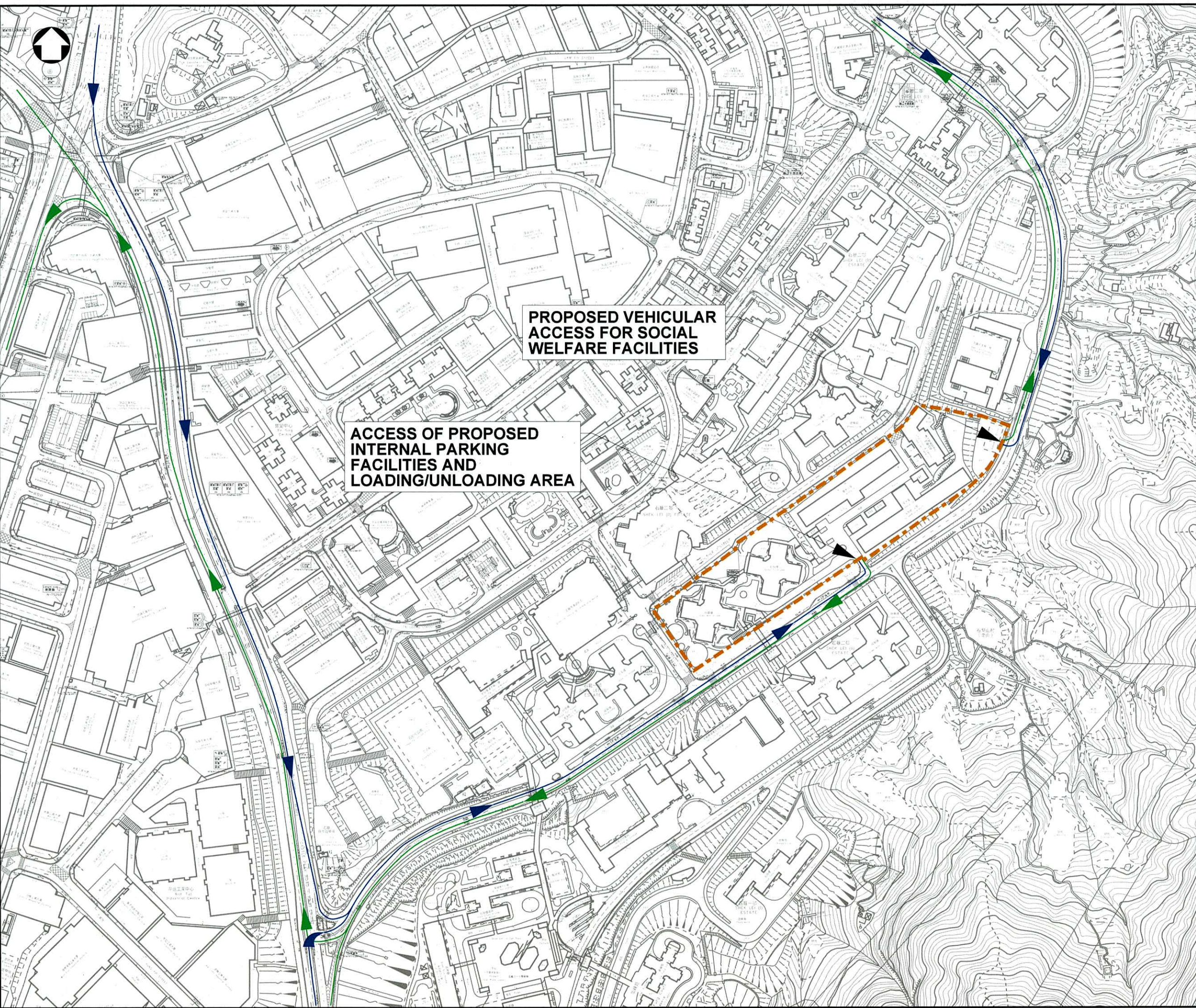
Drawing no.
W11/TIA/301

Drawn WTL	Date SEP 2021	Checked AN	Approved JF
Scale 1 : 1000 (A3)	Status -		

© COPYRIGHT RESERVED



Date : 5/5/2022
 Filename : \\hkw\200dat\13\Library\Traffic\06 CAD Drawings\2535566B (CB20180685)\Drawing\20220504\WSP_W11_TIA_302.dgn



- LEGEND :**
- - - SITE BOUNDARY FOR S16 SUBMISSION
 - TRAFFIC ROUTING FROM THE PROPOSED DEVELOPMENT
 - TRAFFIC ROUTING TO THE PROPOSED DEVELOPMENT

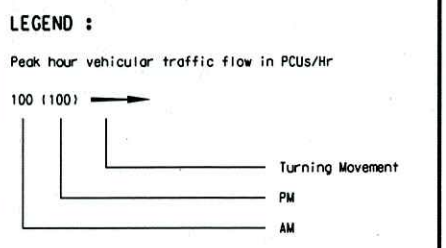
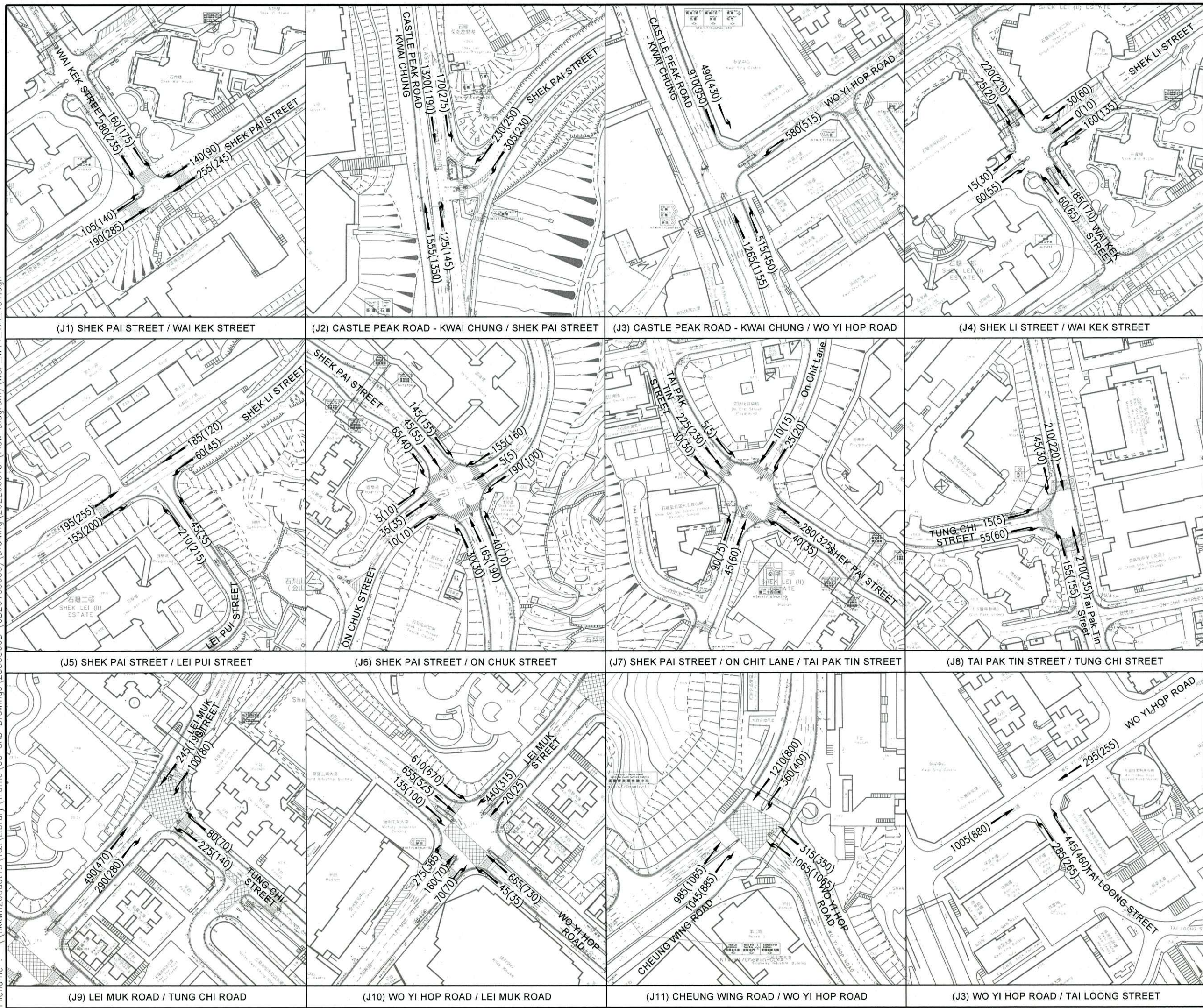
PROPOSED VEHICULAR ACCESS FOR SOCIAL WELFARE FACILITIES

ACCESS OF PROPOSED INTERNAL PARKING FACILITIES AND LOADING/UNLOADING AREA

Rev	Description	By	Date
Project title AGREEMENT NO. CB20180685 TERM TRAFFIC AND ENVIRONMENTAL CONSULTANCY SERVICES 2019-2021 FOR NEW TERRITORIES WEST REGION - PROPOSED PUBLIC HOUSING DEVELOPMENT AT SHEK LI STREET IN KWAI CHUNG			
Drawing title MAJOR VEHICULAR ACCESS ROUTE			
Drawing no. W11/TIA/302		Rev. -	
Drawn WTL	Date SEP 2021	Checked AN	Approved JF
Scale 1 : 3000 (A3)		Status -	
© COPYRIGHT RESERVED			



Date : 2/6/2022
 Filename : \\hkwn200dat\3\T&I\Library\Traffic\06 CAD Drawings\2535566B (CB20180685)\Drawing\20220601b (Flow Diagram)\WSP_W11_TIA_401.dgn



(J1) SHEK PAI STREET / WAI KEK STREET

(J2) CASTLE PEAK ROAD - KWAI CHUNG / SHEK PAI STREET

(J3) CASTLE PEAK ROAD - KWAI CHUNG / WO YI HOP ROAD

(J4) SHEK LI STREET / WAI KEK STREET

(J5) SHEK PAI STREET / LEI PUI STREET

(J6) SHEK PAI STREET / ON CHUK STREET

(J7) SHEK PAI STREET / ON CHIT LANE / TAI PAK TIN STREET

(J8) TAI PAK TIN STREET / TUNG CHI STREET

(J9) LEI MUK ROAD / TUNG CHI ROAD

(J10) WO YI HOP ROAD / LEI MUK ROAD

(J11) CHEUNG WING ROAD / WO YI HOP ROAD

(J3) WO YI HOP ROAD / TAI LOONG STREET

Rev	Description	By	Date



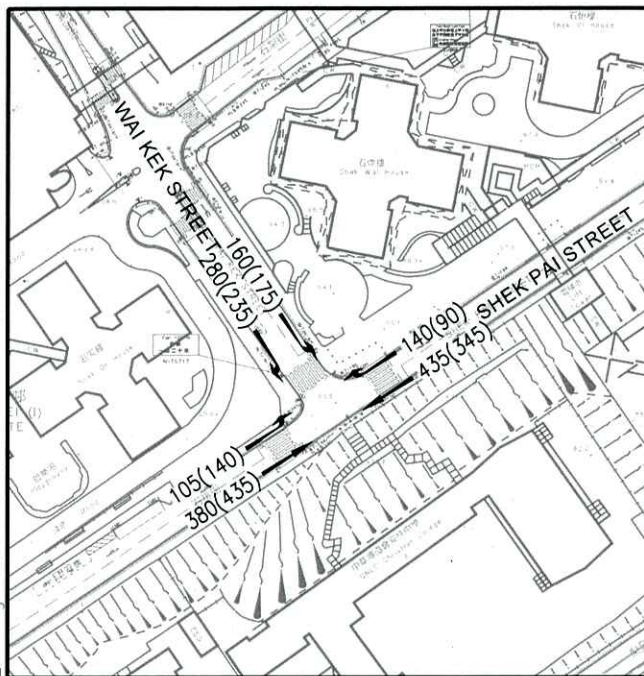
Project title
 AGREEMENT NO. CB20180685
 TERM TRAFFIC AND ENVIRONMENTAL CONSULTANCY
 SERVICES 2019-2021 FOR
 NEW TERRITORIES WEST REGION -
 PROPOSED PUBLIC HOUSING DEVELOPMENT
 AT SHEK LI STREET IN KWAI CHUNG

Drawing title
 YEAR 2031
 REFERENCE 1 TRAFFIC FLOW

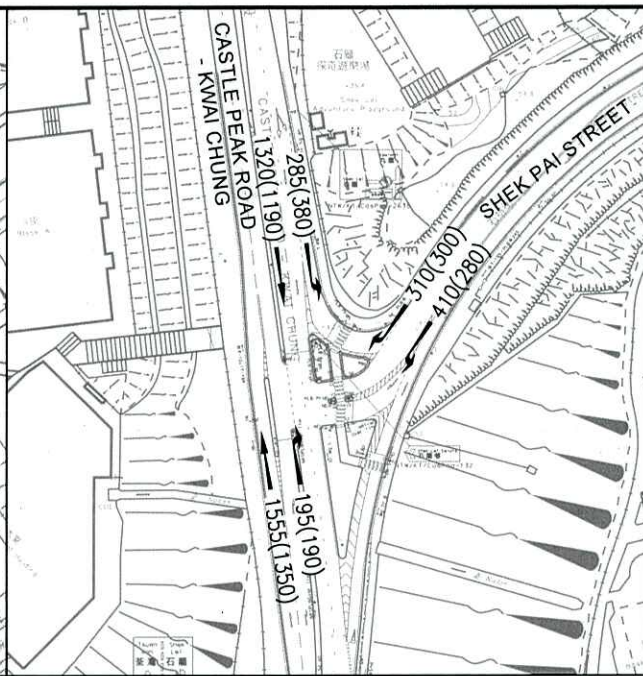
Drawing no. W11/TIA/401		Rev. -	
Drawn WTL	Date SEP 2021	Checked AN	Approved JF
Scale N.T.S.	Status -		



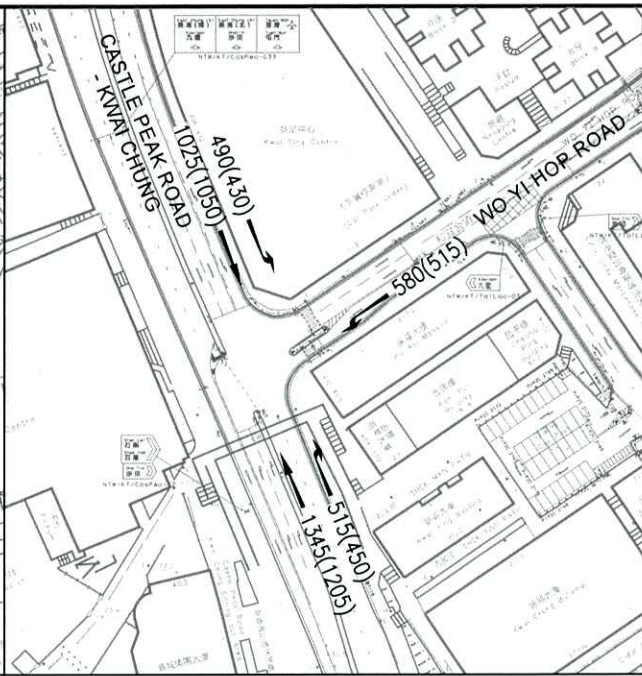
Date : 2/6/2022
 Filename : \\hkw\2000dat\13\T&I\Library\Traffic\06 CAD Drawings\2535566B (CB20180685)\Drawing\20220601b (Flow Diagram)\WSP_W11_TIA_402.dgn



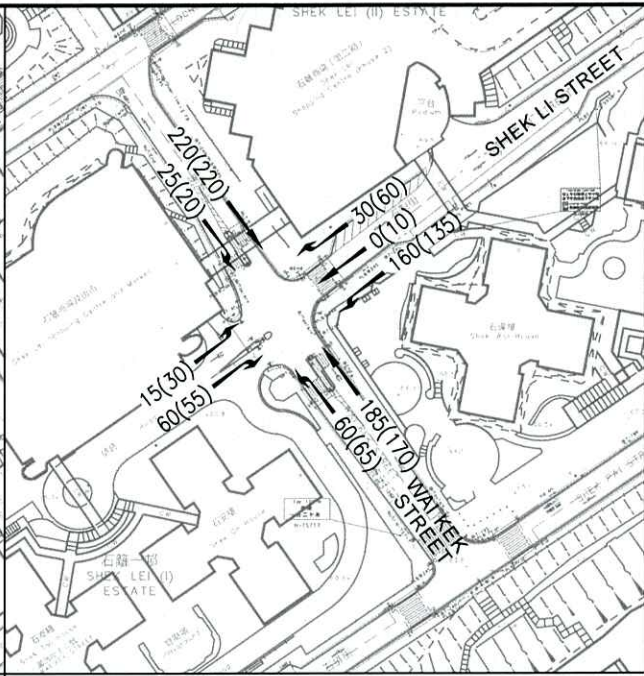
(J1) SHEK PAI STREET / WAI KEK STREET



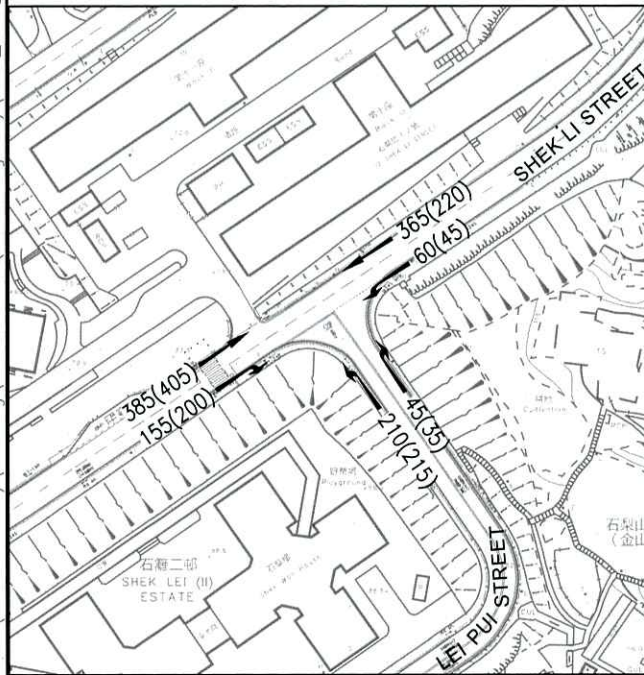
(J2) CASTLE PEAK ROAD - KWAI CHUNG / SHEK PAI STREET



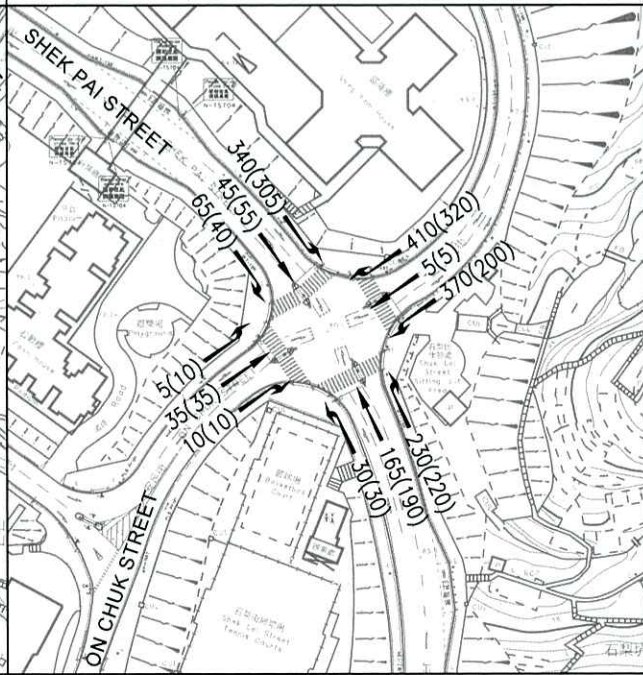
(J3) CASTLE PEAK ROAD - KWAI CHUNG / WO YI HOP ROAD



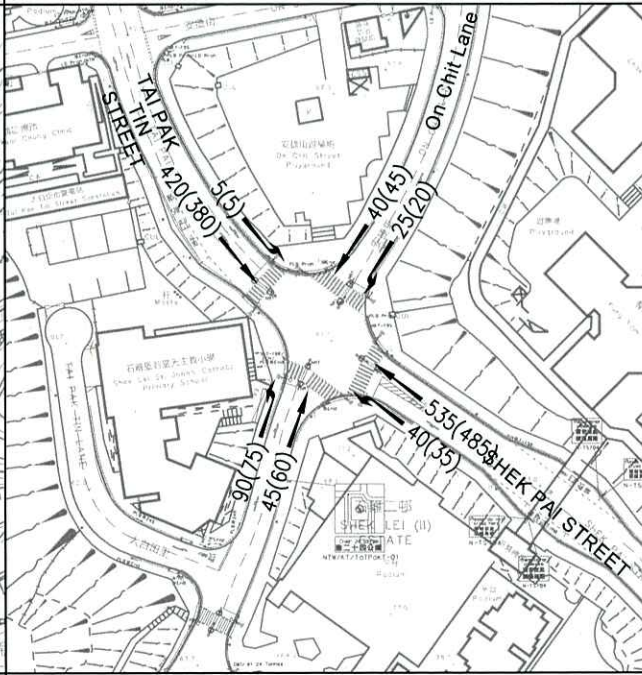
(J4) SHEK LI STREET / WAI KEK STREET



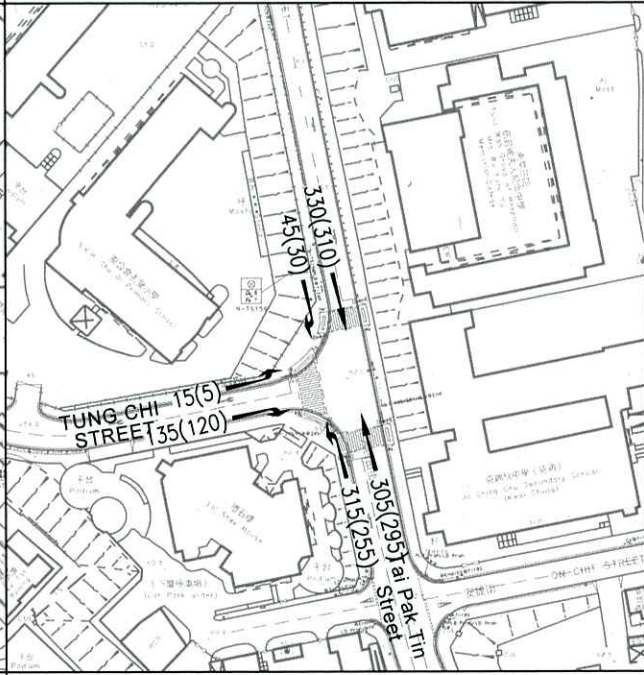
(J5) SHEK PAI STREET / LEI PUI STREET



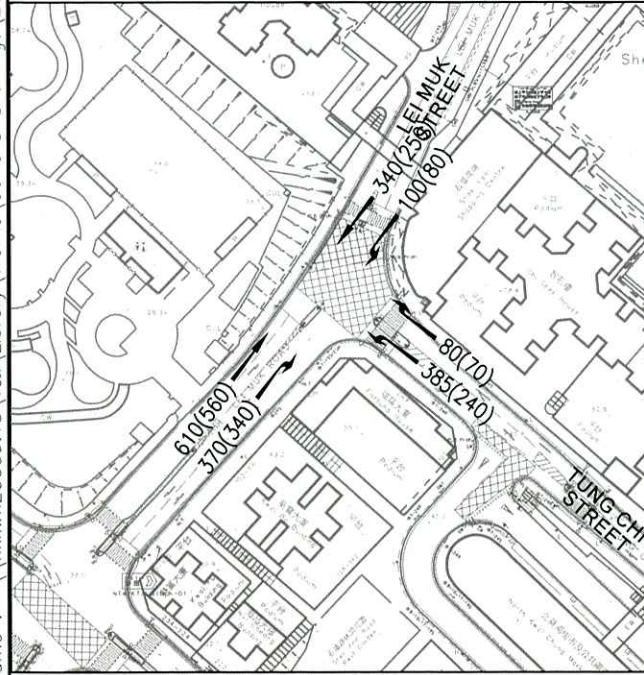
(J6) SHEK PAI STREET / ON CHUK STREET



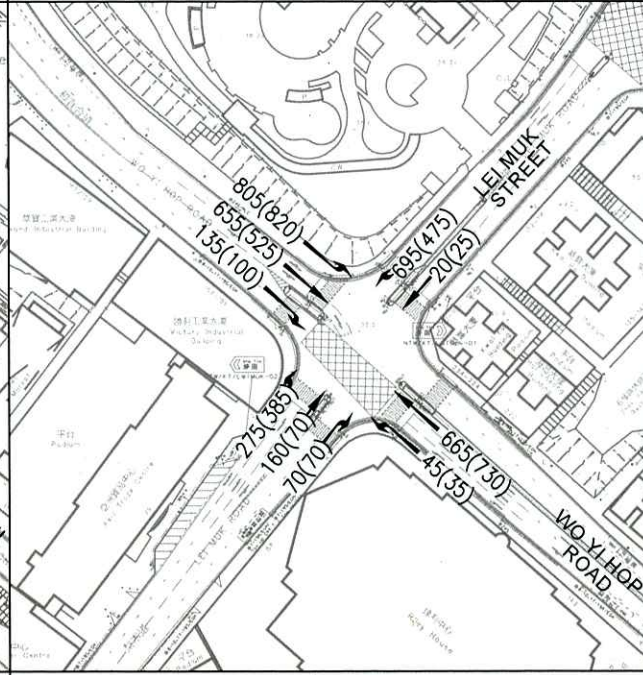
(J7) SHEK PAI STREET / ON CHIT LANE / TAI PAK TIN STREET



(J8) TAI PAK TIN STREET / TUNG CHI STREET



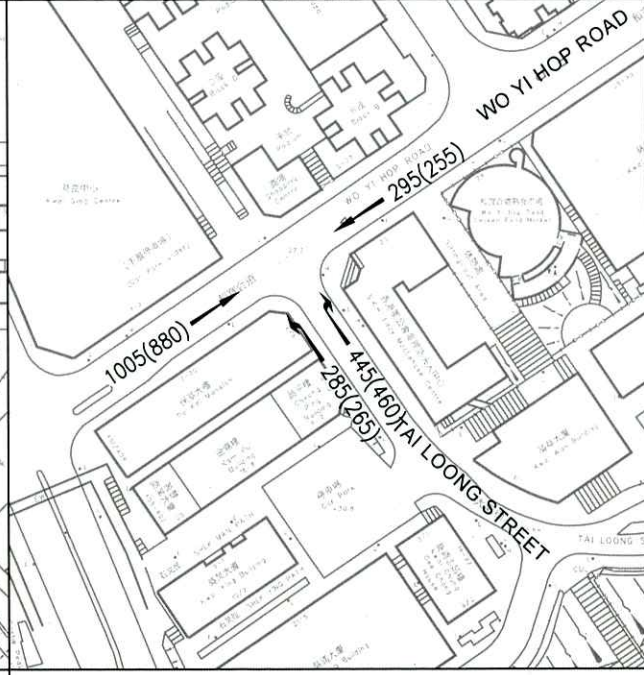
(J9) LEI MUK ROAD / TUNG CHI ROAD



(J10) WO YI HOP ROAD / LEI MUK ROAD



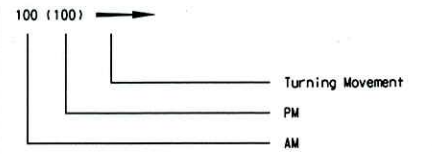
(J11) CHEUNG WING ROAD / WO YI HOP ROAD



(J12) WO YI HOP ROAD / TAI LOONG STREET

LEGEND :

Peak hour vehicular traffic flow in PCUs/Hr



Rev	Description	By	Date



Project title
 AGREEMENT NO. CB20180685
 TERM TRAFFIC AND ENVIRONMENTAL CONSULTANCY
 SERVICES 2019-2021 FOR
 NEW TERRITORIES WEST REGION -
 PROPOSED PUBLIC HOUSING DEVELOPMENT
 AT SHEK LI STREET IN KWAI CHUNG

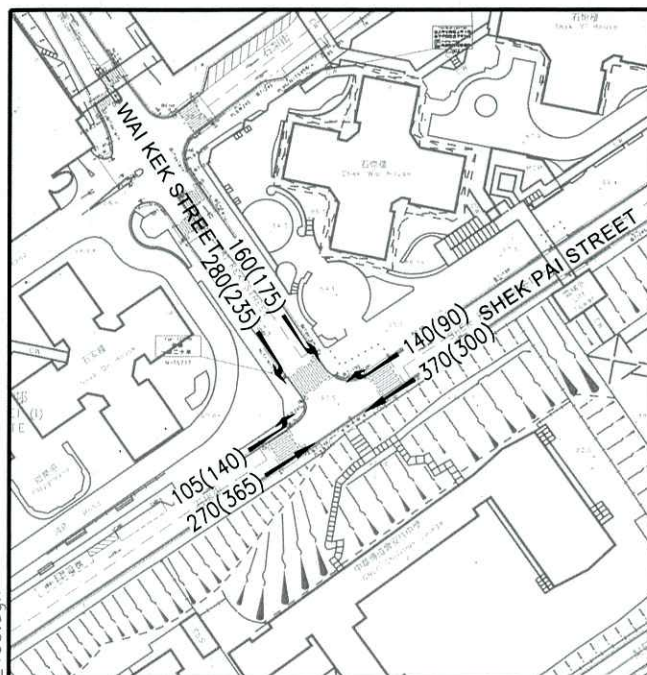
Drawing title
 YEAR 2031
 REFERENCE 2 TRAFFIC FLOW

Drawing no. W11/TIA/402		Rev. -	
Drawn WTL	Date SEP 2021	Checked AN	Approved JF
Scale N.T.S.	Status -		

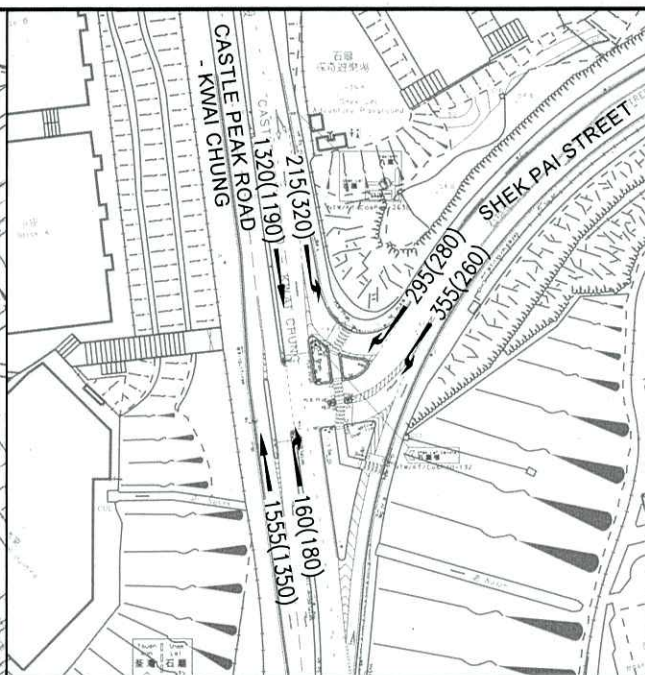
© COPYRIGHT RESERVED



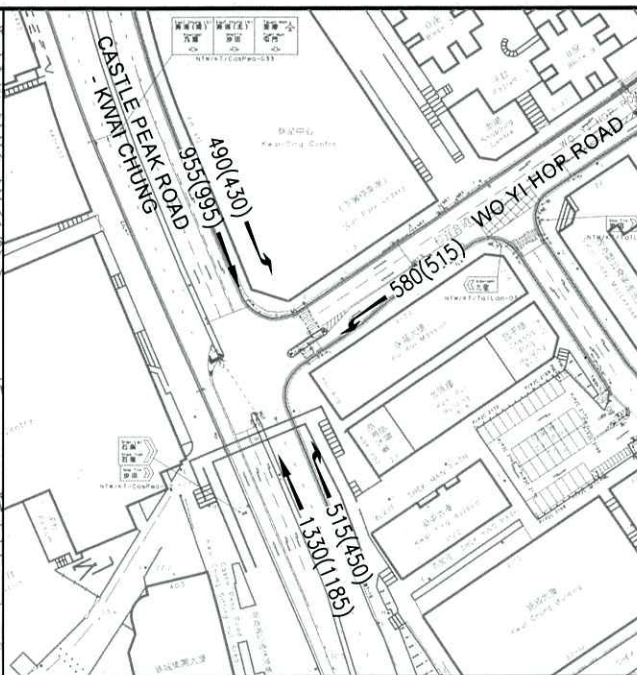
Date : 2/6/2022
 Filename : \\hkw\200dat\13\Library\Traffic\06 CAD Drawings\2535566B (CB20180685)\Drawing\20220601b (Flow Diagram)\WSP_W11_TIA_403.dgn



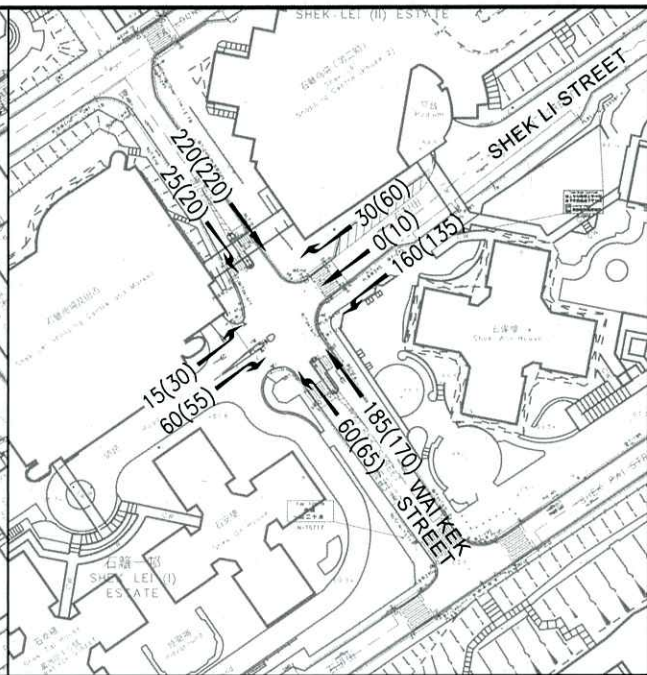
(J1) SHEK PAI STREET / WAI KEK STREET



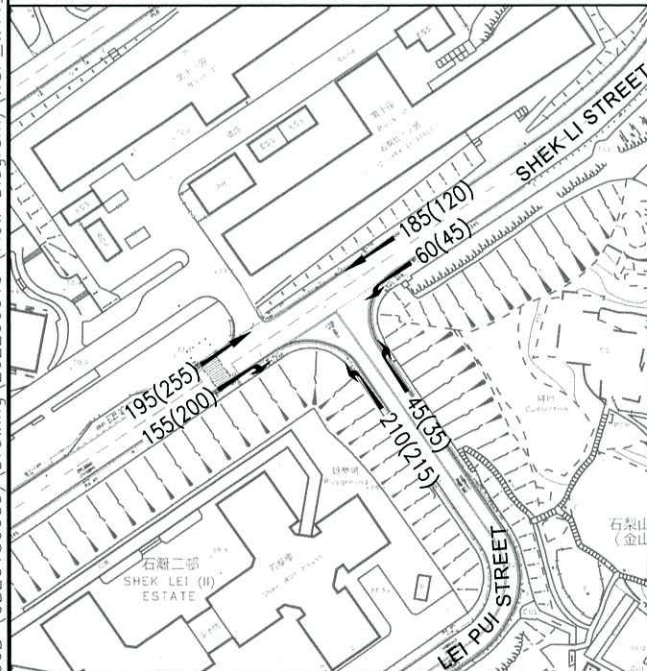
(J2) CASTLE PEAK ROAD - KWAI CHUNG / SHEK PAI STREET



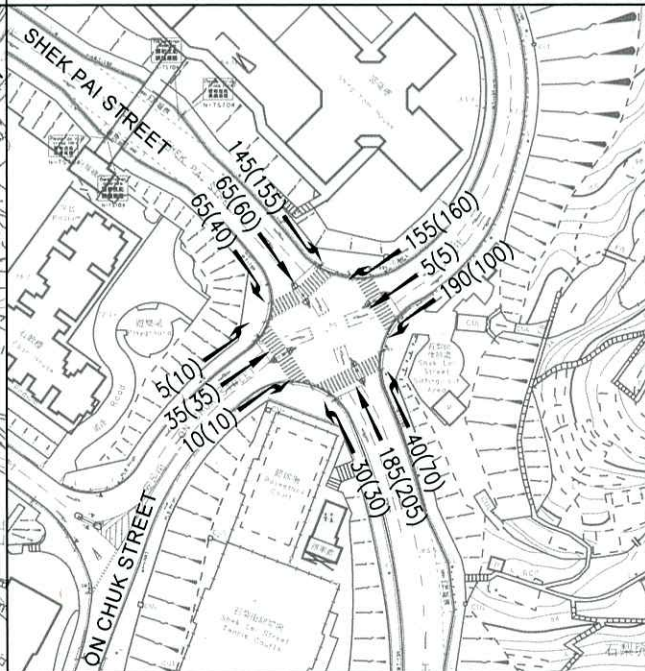
(J3) CASTLE PEAK ROAD - KWAI CHUNG / WO YI HOP ROAD



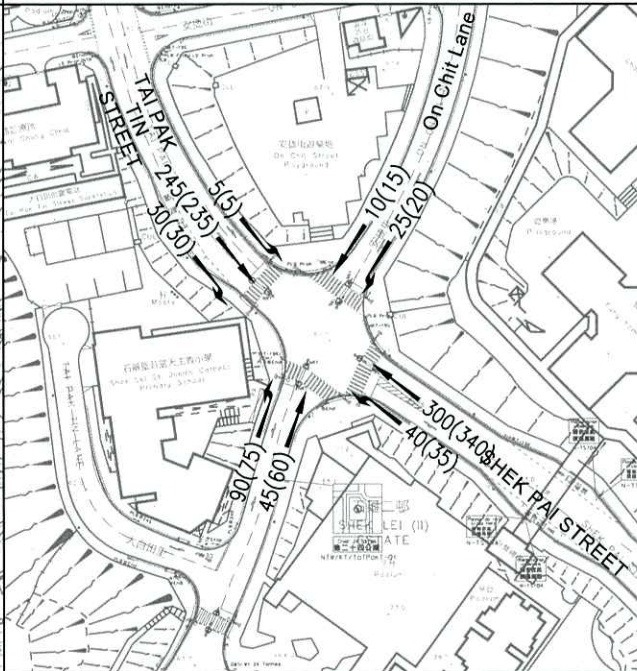
(J4) SHEK LI STREET / WAI KEK STREET



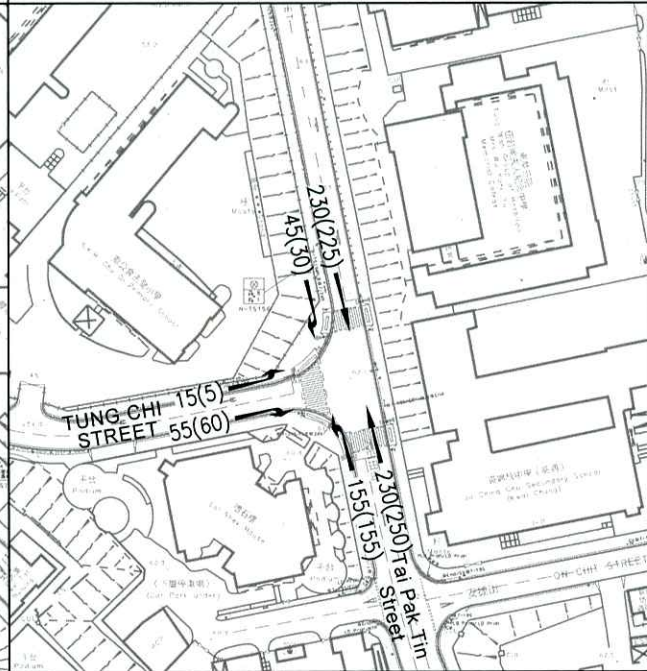
(J5) SHEK PAI STREET / LEI PUI STREET



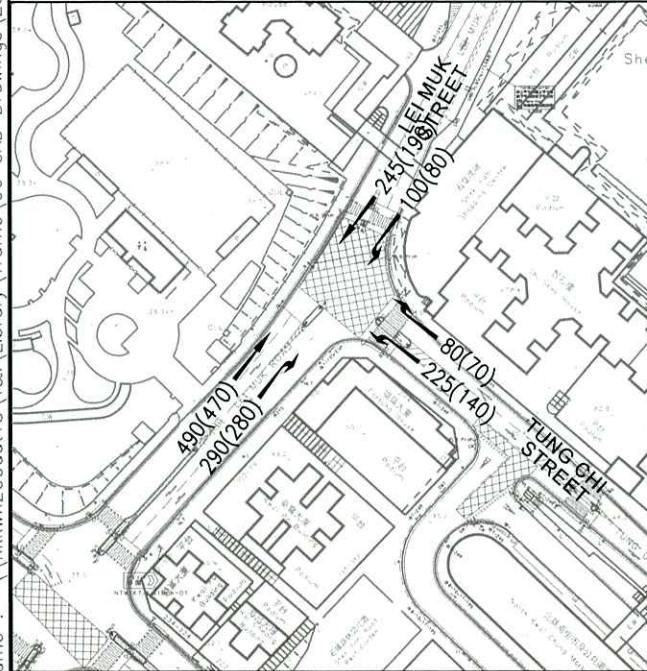
(J6) SHEK PAI STREET / ON CHUK STREET



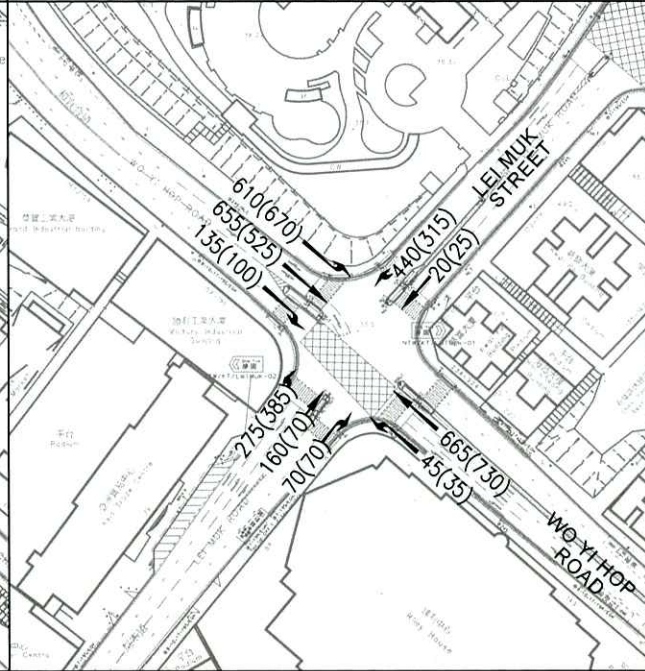
(J7) SHEK PAI STREET / ON CHIT LANE / TAI PAK TIN STREET



(J8) TAI PAK TIN STREET / TUNG CHI STREET



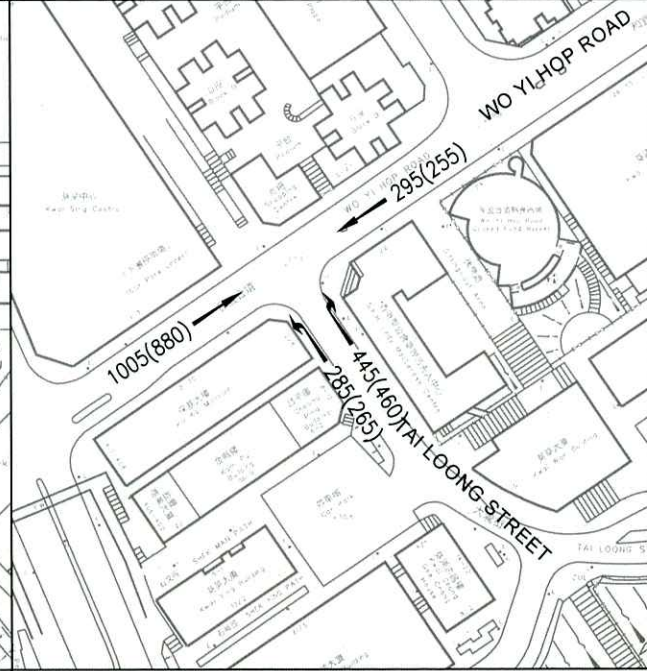
(J9) LEI MUK ROAD / TUNG CHI ROAD



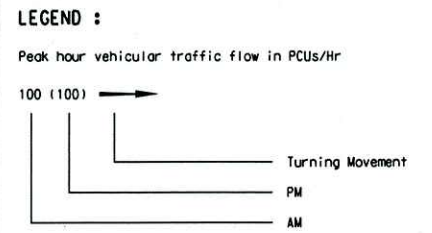
(J10) WO YI HOP ROAD / LEI MUK ROAD



(J11) CHEUNG WING ROAD / WO YI HOP ROAD



(J12) WO YI HOP ROAD / TAI LOONG STREET



Rev	Description	By	Date

Consultant

Project title

AGREEMENT NO. CB20180685
 TERM TRAFFIC AND ENVIRONMENTAL CONSULTANCY SERVICES 2019-2021 FOR
 NEW TERRITORIES WEST REGION -
 PROPOSED PUBLIC HOUSING DEVELOPMENT
 AT SHEK LI STREET IN KWAI CHUNG

Drawing title

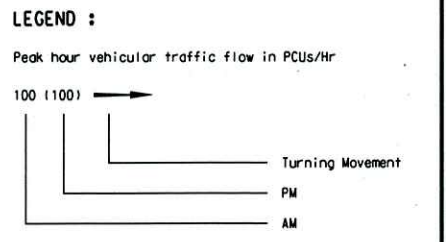
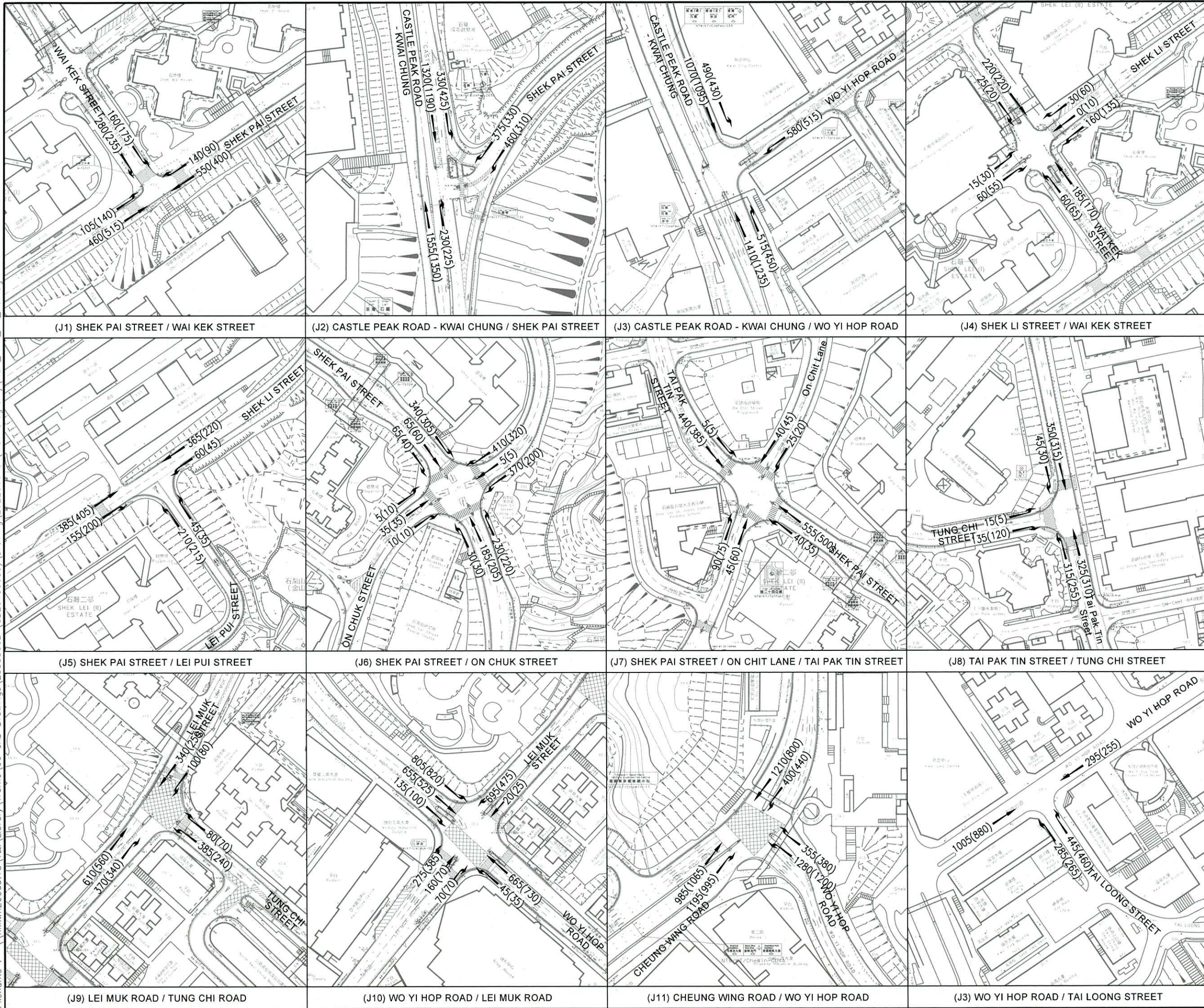
YEAR 2031
 DESIGN 1 TRAFFIC FLOW

Drawing no.	W11/TIA/403	Rev.	-
Drawn	WTL	Date	SEP 2021
Checked	AN	Approved	JF
Scale	N.T.S.	Status	-

© COPYRIGHT RESERVED



Date: 2/6/2022
 Filename: \\hkw2000\dat13\T&I\Library\Traffic\06 CAD Drawings\2535566B (CB20180685)\Drawing_20220601b (Flow Diagram)\WSP_W11_TIA_404.dgn



(J1) SHEK PAI STREET / WAI KEK STREET

(J2) CASTLE PEAK ROAD - KWAI CHUNG / SHEK PAI STREET

(J3) CASTLE PEAK ROAD - KWAI CHUNG / WO YI HOP ROAD

(J4) SHEK LI STREET / WAI KEK STREET

(J5) SHEK PAI STREET / LEI PUI STREET

(J6) SHEK PAI STREET / ON CHUK STREET

(J7) SHEK PAI STREET / ON CHIT LANE / TAI PAK TIN STREET



(J8) TAI PAK TIN STREET / TUNG CHI STREET

(J9) LEI MUK ROAD / TUNG CHI ROAD

(J10) WO YI HOP ROAD / LEI MUK ROAD

(J11) CHEUNG WING ROAD / WO YI HOP ROAD

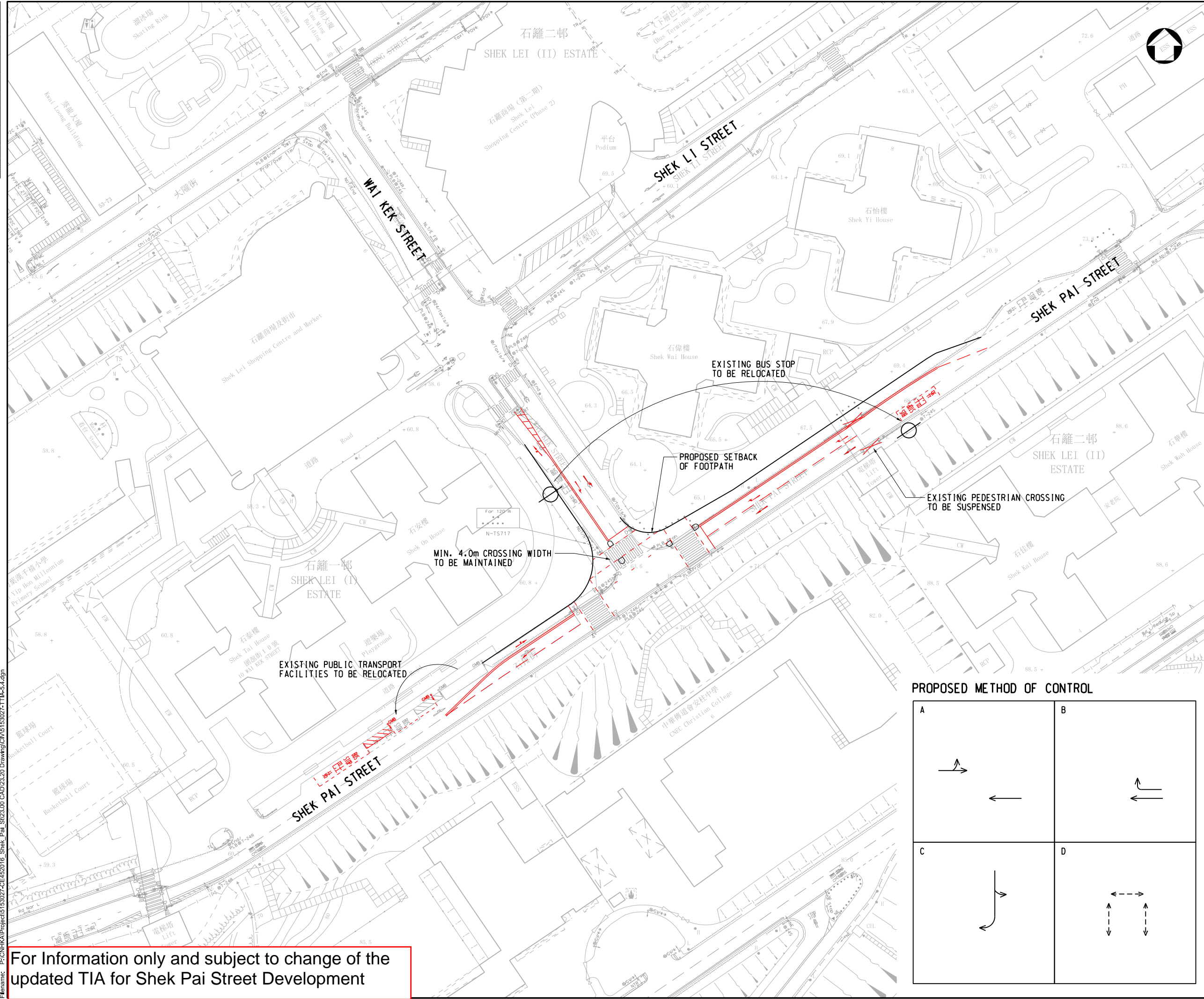
(J12) WO YI HOP ROAD / TAI LOONG STREET


Rev	Description	By	Date
			
Project title AGREEMENT NO. CB20180685 TERM TRAFFIC AND ENVIRONMENTAL CONSULTANCY SERVICES 2019-2021 FOR NEW TERRITORIES WEST REGION - PROPOSED PUBLIC HOUSING DEVELOPMENT AT SHEK LI STREET IN KWAI CHUNG			
Drawing title YEAR 2031 DESIGN 2 TRAFFIC FLOW			
Drawing no. W11/TIA/404		Rev. -	
Drawn WTL	Date SEP 2021	Checked AN	Approved JF
Scale N.T.S.	Status -		
© COPYRIGHT RESERVED			
			

APPENDIX B

Junctions Layout and Calculation
Sheets

0 10 100
Millimetres



LEGEND:
 AREA OF SETBACK OF FOOTPATH

CHECK PRINT
 Stamped date
04/05/2018
 Checked by: _____
 Checked date: _____

Rev.	Date	Description	By	Chk'd	App'd
-	08/17	FIRST ISSUE	RC	TS	DL

Drawing Status: **FEASIBILITY STUDY**

ATKINS

Client:  土木工程拓展署
 Civil Engineering and Development Department

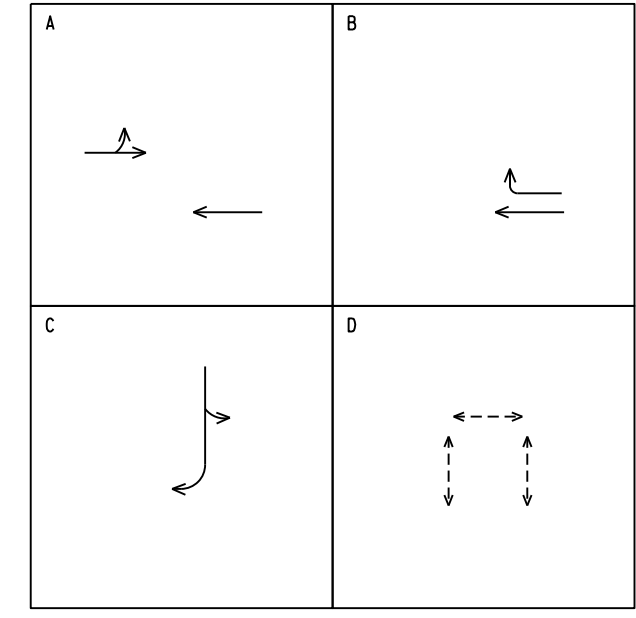
土木工程處
 專責事務(工程)部
Special Duties (Works) Division
 Civil Engineering Office

Project Title: CE 45/2016 (CE)
 SITE FORMATION AND INFRASTRUCTURE WORKS FOR THE DEVELOPMENT AT SHEK PAI STREET, KWAI CHUNG - FEASIBILITY STUDY

Drawing Title: **PROPOSED JUNCTION IMPROVEMENT - J/O SHEK PAI STREET / WAI KEK STREET (J8)**

Scale	Designed	Drawn	Checked	Authorised
1:500	RC	KLC	TS	DL
Original Size	Date	Date	Date	Date
A1	AUG 2017	AUG 2017	AUG 2017	AUG 2017
Drawing Number	5153027/TTIA/5.4			Revision
				-

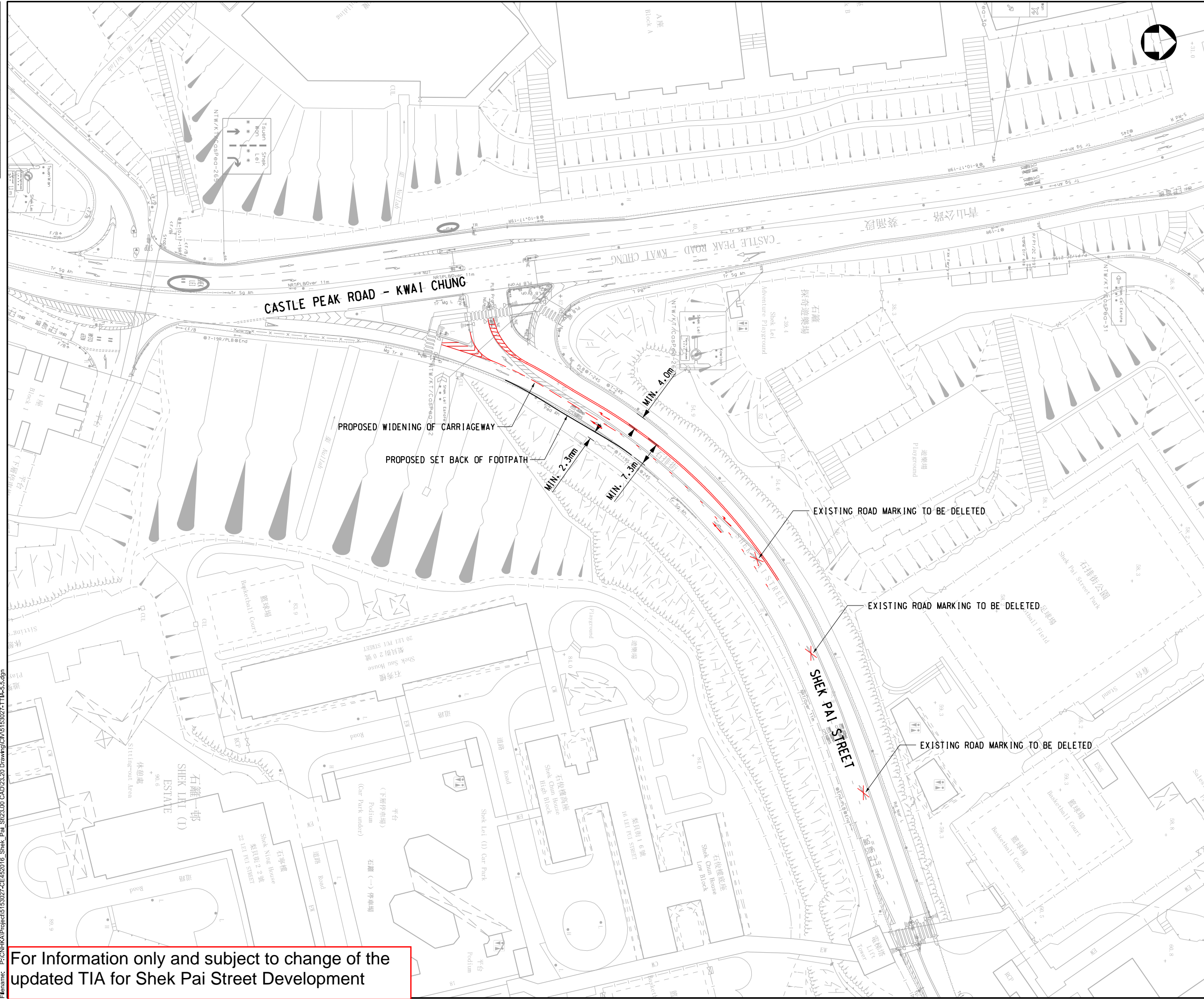
PROPOSED METHOD OF CONTROL



For Information only and subject to change of the updated TIA for Shek Pai Street Development

User name: YEUN8479 Date: 04/05/2018 Time: 08:57:40
 Filename: P:\CN\KAI\Project\5153027-CE\52016_Shek_Pai_Site\03.00_CAD\03.20_Drawing\CIV5153027-TTIA-5.4.dgn

100
0 10
Millimetres



CHECK PRINT
 Stamped date
03/05/2018
 Checked by: _____
 Checked date: _____

Rev.	Date	Description	By	Chk'd	App'd
-	08/17	FIRST ISSUE	RC	TS	DL

Drawing Status: **FEASIBILITY STUDY**

ATKINS

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

Special Duties (Works) Division
 Civil Engineering Office

Project Title: CE 45/2016 (CE)
 SITE FORMATION AND INFRASTRUCTURE WORKS FOR THE DEVELOPMENT AT SHEK PAI STREET, KWAI CHUNG - FEASIBILITY STUDY

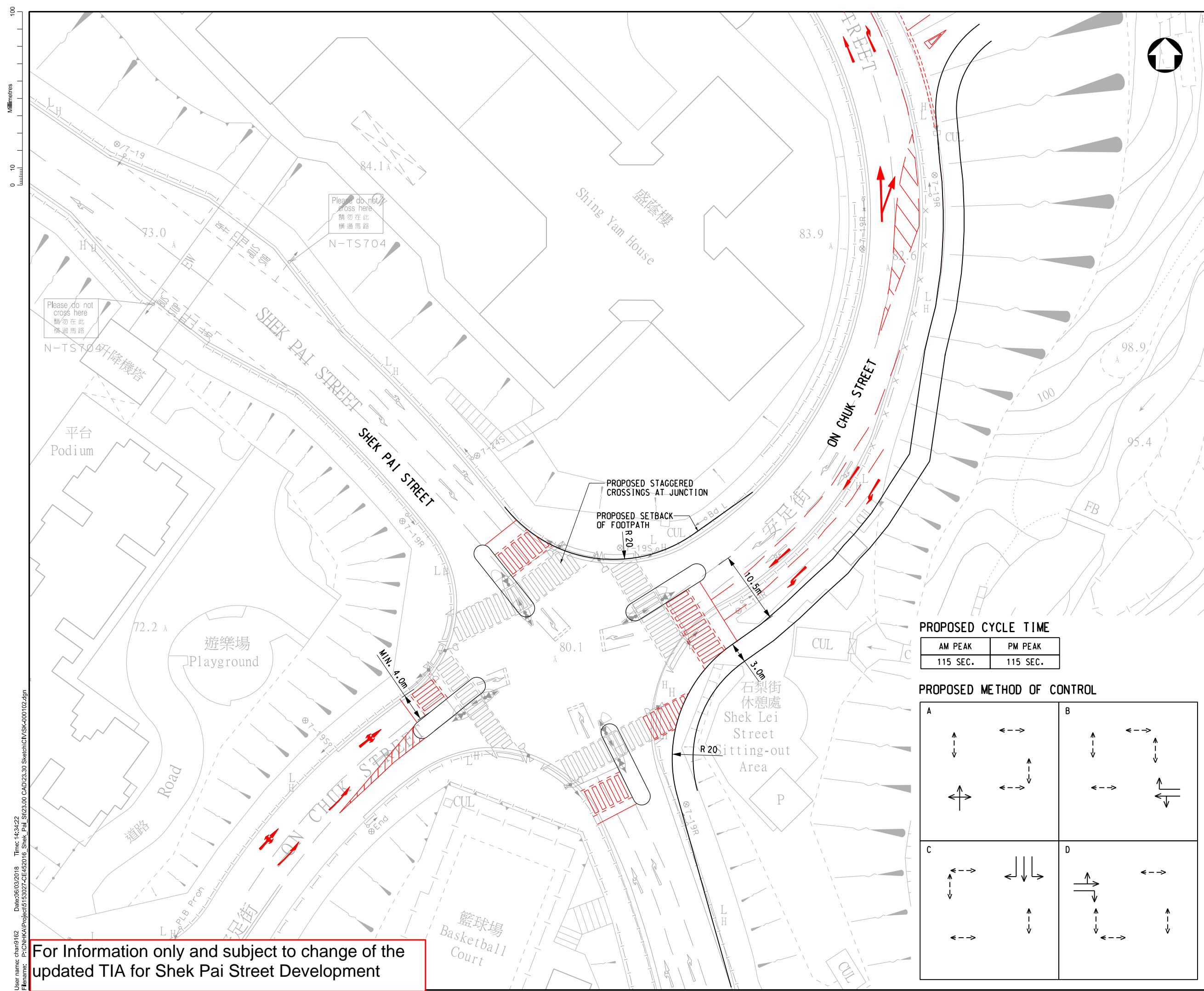
Drawing Title: **PROPOSED JUNCTION IMPROVEMENT - J/O CASTLE PEAK ROAD / SHEK PAI STREET (J9)**

Scale	Designed	Drawn	Checked	Authorised
1:500	RC	KLC	TS	DL
Original Size	Date	Date	Date	Date
A1	AUG 2017	AUG 2017	AUG 2017	AUG 2017

Drawing Number: 5153027/TTIA/5.5

User name: YEUN8479 Date: 03/05/2018 Time: 08:26:24
 Filename: P:\CN\KAI\Project\5153027-CE\452016_Shek_Pai_Site\3.00_CAD\3.20_Drawing\5153027-TTIA-5.5.dgn

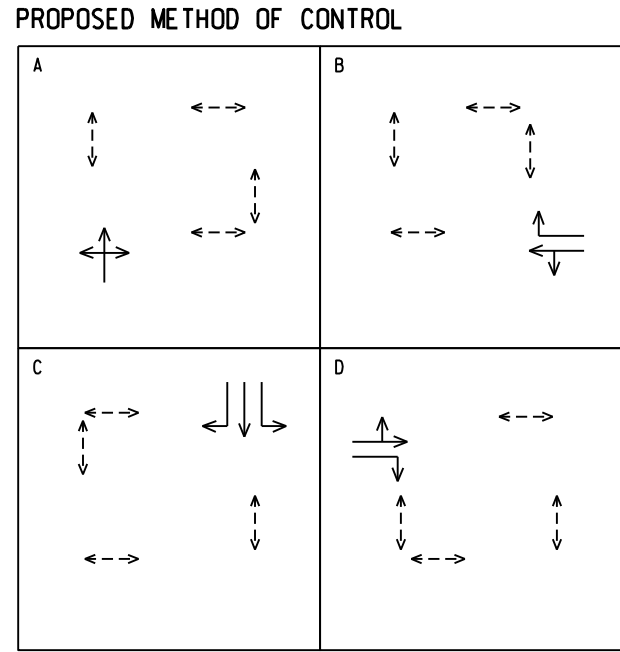
For Information only and subject to change of the updated TIA for Shek Pai Street Development



CHECK PRINT
 Stamped date
06/03/2018
 Checked by: _____
 Checked date: _____

PROPOSED CYCLE TIME

AM PEAK	PM PEAK
115 SEC.	115 SEC.



Rev.	Date	Description	By	Chk'd	App'd
-	08/17	FIRST ISSUE	RC	TS	DL

Drawing Status: **FEASIBILITY STUDY**

ATKINS

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

土木工務處
 專責事務(工程)部
Special Duties (Works) Division
 Civil Engineering Office

Project Title: CE 45/2016 (CE)
SITE FORMATION AND INFRASTRUCTURE WORKS FOR THE DEVELOPMENT AT SHEK PAI STREET, KWAI CHUNG - FEASIBILITY STUDY

Drawing Title: **PROPOSED JUNCTION IMPROVEMENT - J/O SHEK PAI STREET / ON CHUK STREET (J6)**

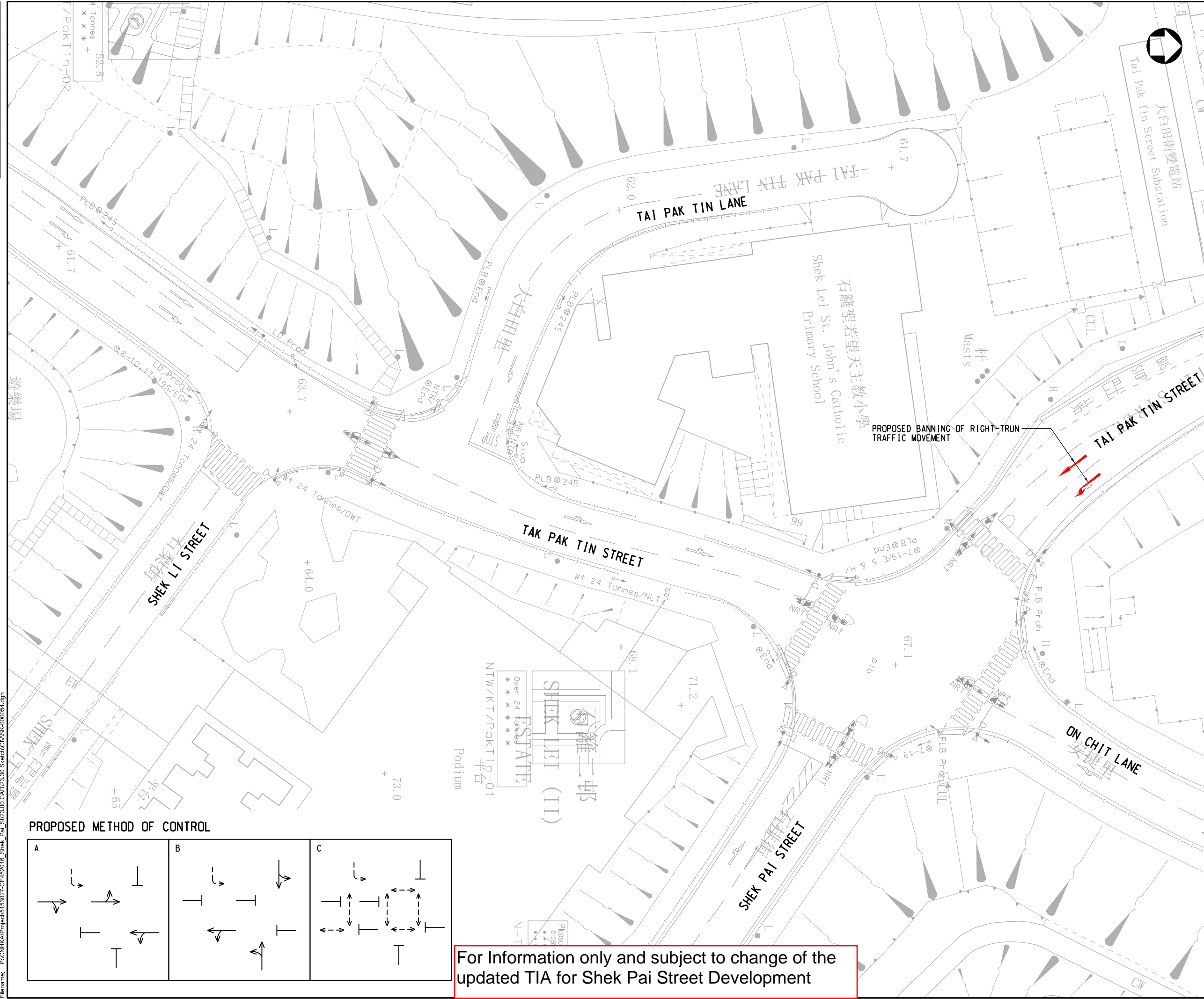
Scale	Designed	Drawn	Checked	Authorised
1:500	RC	KLC	TS	DL
Original Size	Date	Date	Date	Date
A1	DEC 2017	DEC 2017	DEC 2017	DEC 2017

Drawing Number: 5153027/TTIA/5.3

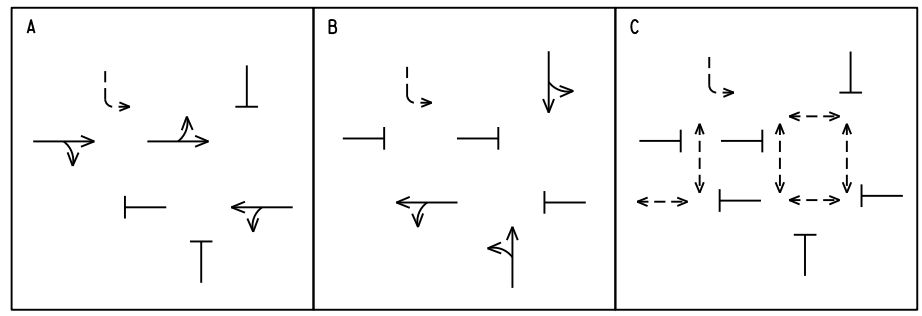
User name: chao9162 Date: 06/03/2018 Time: 14:34:22
 Filename: P:\CNHKA\Project\5153027-CE\452016_Shek_Pai_S1023.00 CAD\23.30 Sheet\CN\SK-000102.dgn

For Information only and subject to change of the updated TIA for Shek Pai Street Development

100
0 10
Millimetres



PROPOSED METHOD OF CONTROL



For Information only and subject to change of the updated TIA for Shek Pai Street Development

Rev.	Date	Description	By	Chkd	App'd
-	08/17	FIRST ISSUE	RC	TS	DL

Drawing Status: **FEASIBILITY STUDY**



Client: 土木工程拓展署
Civil Engineering and Development Department

土木工程處
專責事務(工程)部
Special Duties (Works) Division
Civil Engineering Office

Project Title: CE 45/2016 (CE)
SITE FORMATION AND INFRASTRUCTURE WORKS FOR THE DEVELOPMENT AT SHEK PAI STREET, KWAI CHUNG - FEASIBILITY STUDY

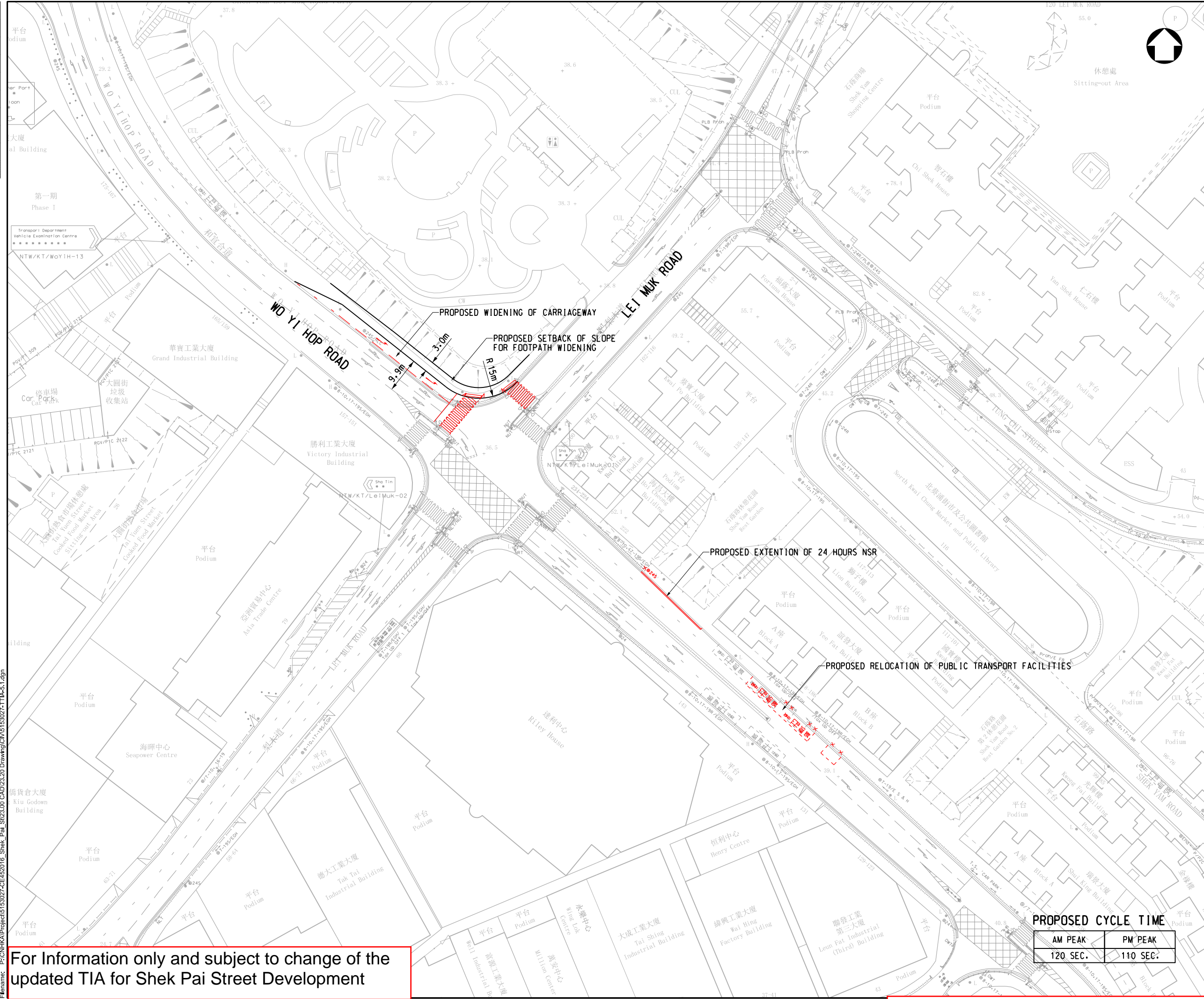
Drawing Title: PROPOSED JUNCTION IMPROVEMENT - J/O SHEK PAI STREET / ON CHIT LANE / TAI PAK TIN STREET / SHEK LI STREET (J5)

Scale	Designed	Drawn	Checked	Authorised
1:250	RC	KLC	TS	DL
Original Size	Date	Date	Date	Date
A1	AUG 2017	AUG 2017	AUG 2017	AUG 2017

Drawing Number: 5153027/TTIA/5.2

User name: tsf0909 Date: 07/09/2017 Time: 16:27:41
Filename: P:\CNHKA\Project\5153027-CE452016_Shek_Pai_Site\23.00 CAD\23.30 ShekChCN\SK-000054.dgn

100
0 10
Millimetres



CHECK PRINT
Stamped date
03/05/2018
Checked by: _____
Checked date: _____

Rev.	Date	Description	By	Chk'd	App'd
-	08/17	FIRST ISSUE		RC	TS DL

Drawing Status: **FEASIBILITY STUDY**

ATKINS

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

Special Duties (Works) Division
Civil Engineering Office

Project Title: CE 45/2016 (CE)
SITE FORMATION AND INFRASTRUCTURE WORKS FOR THE DEVELOPMENT AT SHEK PAI STREET, KWAI CHUNG - FEASIBILITY STUDY

Drawing Title: **PROPOSED JUNCTION IMPROVEMENT - J/O LEI MUK ROAD / WO YI HOP ROAD (J2)**

PROPOSED CYCLE TIME

AM PEAK	PM PEAK
120 SEC.	110 SEC.

Scale	Designed	Drawn	Checked	Authorised
1:500	RC	KLC	TS	DL
Original Size	Date	Date	Date	Date
A1	AUG 2017	AUG 2017	AUG 2017	AUG 2017
Drawing Number	Revision			
5153027/TTIA/5.1	-			

For Information only and subject to change of the updated TIA for Shek Pai Street Development

User name: YEUN8479 Date: 03/05/2018 Time: 08:26:20
Filename: P:\CN\KAP\Project\5153027-CE\452016_Shek_Pai_S1023.00_CAD\03.20_Drawing\CI\5153027-TTIA-5.1.dgn

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Shek Pai Street / Wai Kek Street

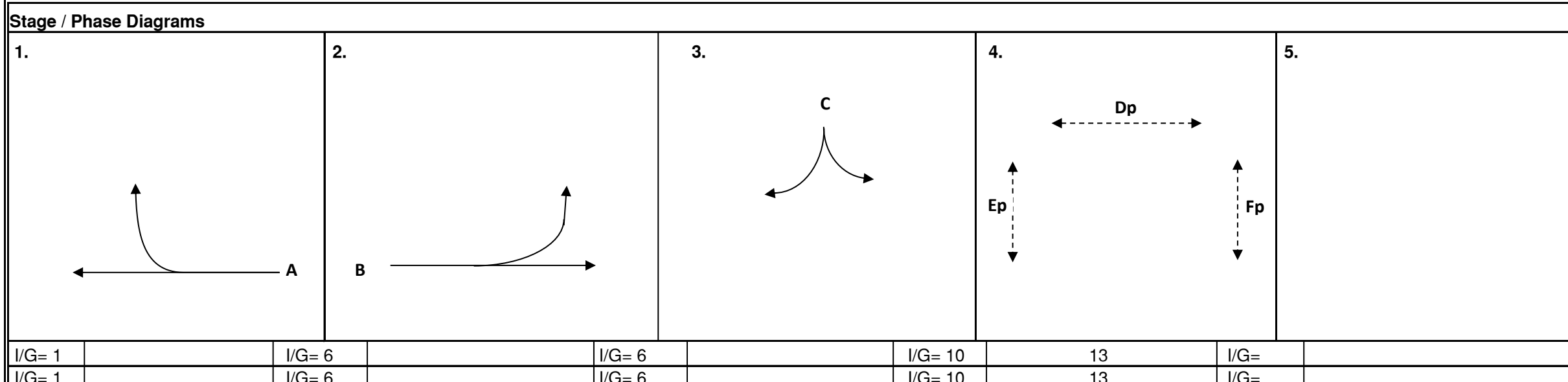
Junction No.: J01

Scenario: Observe

Design Year: 2021

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Shek Pai Street (WB) 	A	1	3.5		15		36%	29%	1895	1910	360	0.19	0.19	310	0.16	0.16
Wai Kek Street (SB) 	C	3	3.4	10	15		37% / 63%	43% / 57%	1750	1745	410	0.23	0.23	385	0.22	0.22
Shek Pai Street (EB) 	B	2	3.6	10			35%	33%	1875	1880	270	0.14	0.14	380	0.20	0.20
Pedestrian Crossing	Dp	4	MIN GREEN + FLASH =			5	+	10	=	15						
Pedestrian Crossing	Ep	4	MIN GREEN + FLASH =			5	+	8	=	13			*			*
Pedestrian Crossing	Fp	4	MIN GREEN + FLASH =			5	+	8	=	13						

NOTES:	<p>Flow: (pcu/hr)</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Group</th> <th>A,B,C,Ep</th> <th>Group</th> <th>A,B,C,Ep</th> </tr> </thead> <tbody> <tr> <td>Sum of Critical y Y</td> <td>0.57</td> <td>Sum of Critical y</td> <td>0.59</td> </tr> <tr> <td>Lost Time L (sec)</td> <td>33</td> <td>Lost Time L (sec)</td> <td>33</td> </tr> <tr> <td>Cycle Time c (sec)</td> <td>120</td> <td>Cycle Time c (sec)</td> <td>120</td> </tr> <tr> <td>Practical Y Ypr</td> <td>0.65</td> <td>Practical Y Ypr</td> <td>0.65</td> </tr> <tr> <td>Reserve Capacity RC</td> <td>15%</td> <td>Reserve Capacity RC</td> <td>12%</td> </tr> </tbody> </table>	Group	A,B,C,Ep	Group	A,B,C,Ep	Sum of Critical y Y	0.57	Sum of Critical y	0.59	Lost Time L (sec)	33	Lost Time L (sec)	33	Cycle Time c (sec)	120	Cycle Time c (sec)	120	Practical Y Ypr	0.65	Practical Y Ypr	0.65	Reserve Capacity RC	15%	Reserve Capacity RC	12%
Group	A,B,C,Ep	Group	A,B,C,Ep																							
Sum of Critical y Y	0.57	Sum of Critical y	0.59																							
Lost Time L (sec)	33	Lost Time L (sec)	33																							
Cycle Time c (sec)	120	Cycle Time c (sec)	120																							
Practical Y Ypr	0.65	Practical Y Ypr	0.65																							
Reserve Capacity RC	15%	Reserve Capacity RC	12%																							



TRAFFIC SIGNALS CALCULATION SHEET

Junction: Shek Pai Street / Wai Kek Street

Junction No.: J01

Scenario: Reference 1

Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Shek Pai Street (WB) →	A	1	3.5		15		35%	27%	1900	1915	395	0.21	0.21	335	0.17	0.17
Wai Kek Street (SB) ↑	C	3	3.4	10	15		36% / 64%	43% / 57%	1750	1745	440	0.25	0.25	410	0.23	0.23
Shek Pai Street (EB) ←	B	2	3.6	10			36%	33%	1875	1880	295	0.16	0.16	425	0.23	0.23
Pedestrian Crossing	Dp	4	MIN GREEN + FLASH =			5	+	10	=	15						
Pedestrian Crossing	Ep	4	MIN GREEN + FLASH =			5	+	8	=	13			*			*
Pedestrian Crossing	Fp	4	MIN GREEN + FLASH =			5	+	8	=	13						

NOTES:		Group	A,B,C,Ep	Group	A,B,C,Ep
		Sum of Critical y Y	0.62	Sum of Critical y	0.64
		Lost Time L (sec)	33	Lost Time L (sec)	33
		Cycle Time c (sec)	120	Cycle Time c (sec)	120
		Practical Y Ypr	0.65	Practical Y Ypr	0.65
		Reserve Capacity RC	6%	Reserve Capacity RC	3%

Stage / Phase Diagrams									
1.	2.	3.	4.	5.					
I/G= 1	I/G= 6	I/G= 6	I/G= 10	I/G=					
I/G= 1	I/G= 6	I/G= 6	I/G= 10	I/G=					



Junction: Shek Pai Street / Wai Kek Street

Junction No.: J01

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Shek Pai Street / Wai Kek Street

Junction No.: J01

Scenario: Design 1

Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Shek Pai Street (WB)	A	1	3.5		15		27%	23%	1915	1920	510	0.27	0.27	390	0.20	0.20
Wai Kek Street (SB)	C	3	3.4	10	15		36% / 64%	43% / 57%	1750	1745	440	0.25	0.25	410	0.23	0.23
Shek Pai Street (EB)	B	2	3.6	10			28%	28%	1895	1895	375	0.20	0.20	505	0.27	0.27
Pedestrian Crossing	Dp	4	MIN GREEN + FLASH =		5	+	10	=	15							
Pedestrian Crossing	Ep	4	MIN GREEN + FLASH =		5	+	8	=	13			*				*
Pedestrian Crossing	Fp	4	MIN GREEN + FLASH =		5	+	8	=	13							

NOTES:		Group	A,B,C,Ep	Group	A,B,C,Ep
		Sum of Critical y Y	0.72	Sum of Critical y	0.70
		Lost Time L (sec)	33	Lost Time L (sec)	33
		Cycle Time c (sec)	120	Cycle Time c (sec)	120
		Practical Y Ypr	0.65	Practical Y Ypr	0.65
		Reserve Capacity RC	-9%	Reserve Capacity RC	-7%

Stage / Phase Diagrams									
1.	2.	3.	4.	5.					
I/G= 1	I/G= 6	I/G= 6	I/G= 10	I/G=					
I/G= 1	I/G= 6	I/G= 6	I/G= 10	I/G=					



Junction: Shek Pai Street / Wai Kek Street

Junction No.: J01

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Shek Pai Street / Wai Kek Street (With CE45 Imp)

Junction No.: J01

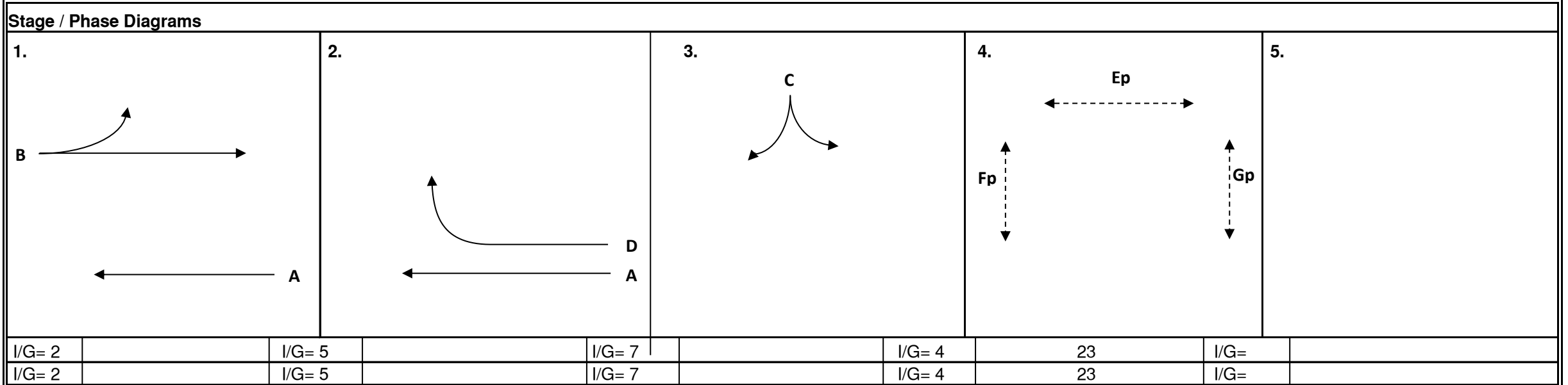
Scenario: Reference 2

Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Shek Pai Street (WB)																
	A	1,2	3.6						1975	1975						
	D	2	3.6		15				1925	1925	435	0.22		345	0.17	
											140	0.07	0.07	90	0.05	
Wai Kek Street (SB)																
	C	3	3.2	10					1685	1685						
	C	3	3.2		15				1885	1885	160	0.09		175	0.10	
											280	0.15	0.15	235	0.12	
Shek Pai Street (EB)																
	B	1	3.2	15			22%	24%	1895	1890	485	0.26	0.26	575	0.30	
Pedestrian Crossing																
Pedestrian Crossing	Ep	4	MIN GREEN + FLASH =			12	+	11	=	23					*	
Pedestrian Crossing	Fp	4	MIN GREEN + FLASH =			6	+	11	=	17					*	
	Gp	4	MIN GREEN + FLASH =			8	+	7	=	15					*	

NOTES:

Group	D,B,C,Ep	Group	D,B,C,Ep
Sum of Critical y Y	0.48	Sum of Critical y	0.48
Lost Time L (sec)	38	Lost Time L (sec)	38
Cycle Time c (sec)	120	Cycle Time c (sec)	120
Practical Y Ypr	0.62	Practical Y Ypr	0.62
Reserve Capacity RC	29%	Reserve Capacity RC	29%



TRAFFIC SIGNALS CALCULATION SHEET

Junction: Shek Pai Street / Wai Kek Street (With CE45 Imp)

Junction No.: J01

Scenario: Design 2

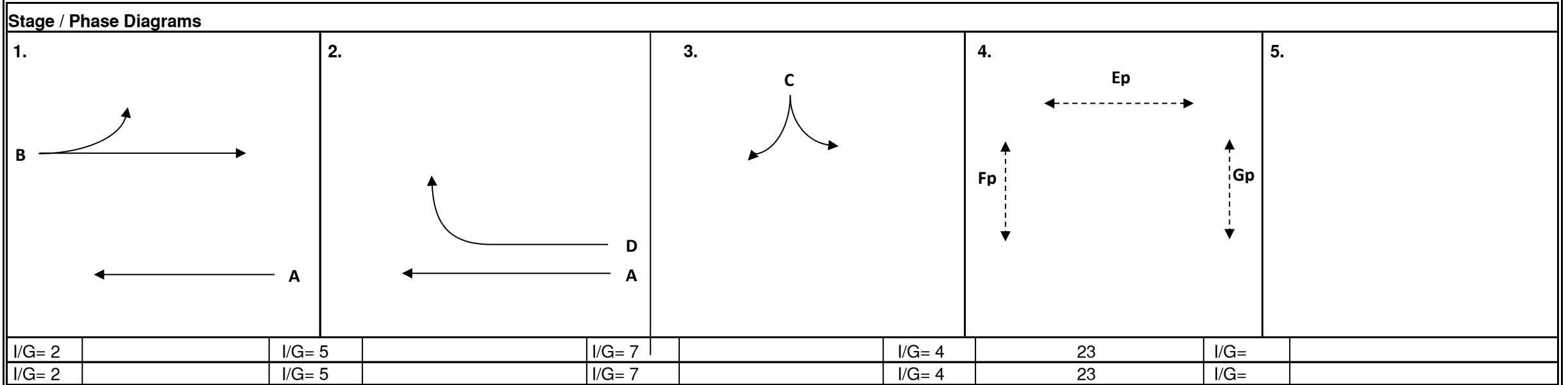
Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Shek Pai Street (WB)																
	A	1,2	3.6						1975	1975						
	D	2	3.6		15				1925	1925	550	0.28		400	0.20	
											140	0.07	0.07	90	0.05	
Wai Kek Street (SB)																
	C	3	3.2	10					1685	1685	160	0.09		175	0.10	
	C	3	3.2		15				1885	1885	280	0.15	0.15	235	0.12	
Shek Pai Street (EB)																
	B	1	3.2	15			19%	21%	1900	1895	565	0.30	0.30	655	0.35	
Pedestrian Crossing																
	Ep	4	MIN GREEN + FLASH =			12	+	11	=	23					*	
	Fp	4	MIN GREEN + FLASH =			6	+	11	=	17					*	
	Gp	4	MIN GREEN + FLASH =			8	+	7	=	15					*	

NOTES:

Flow: (pcu/hr)

Group	D,B,C,Ep	Group	D,B,C,Ep
Sum of Critical y Y	0.52	Sum of Critical y	0.52
Lost Time L (sec)	38	Lost Time L (sec)	38
Cycle Time c (sec)	120	Cycle Time c (sec)	120
Practical Y Ypr	0.62	Practical Y Ypr	0.62
Reserve Capacity RC	19%	Reserve Capacity RC	19%



TRAFFIC SIGNALS CALCULATION SHEET

Junction: Castle Peak Road / Shek Pai Street

Junction No.: J02

Scenario: Observe

Design Year: 2021

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Castle Peak Road (SB)																
↑	C	1,3	3.4	15					1775	1775	155	0.09		250	0.14	
	B	1	3.6						2115	2115	578	0.27	0.27	523	0.25	0.25
	B	1	3.6						2115	2115	577	0.27		522	0.25	
Shek Pai Street (WB)																
→	D	3	3.2	15			43%	52%	1855	1840	490	0.26	0.26	440	0.24	0.24
Castle Peak Road (NB)																
↑	A	2	4.4	15					1995	1995	115	0.06		130	0.07	
Pedestrian Crossing																
Fp	2	MIN GREEN + FLASH =		5	+	5	=	10								
Gp	1	MIN GREEN + FLASH =		6	+	5	=	11								
Hp	2	MIN GREEN + FLASH =		5	+	7	=	12								

NOTES:	<p>Flow: (pcu/hr)</p>	Group	B,Hp,D	Group	B,Hp,D
		Sum of Critical y Y	0.54	Sum of Critical y	0.49
Lost Time L (sec)	22	Lost Time L (sec)	22		
Cycle Time c (sec)	85	Cycle Time c (sec)	85		
Practical Y Ypr	0.67	Practical Y Ypr	0.67		
Reserve Capacity RC	24%	Reserve Capacity RC	37%		

Stage / Phase Diagrams					
1.	2.	3.	4.	5.	
I/G= 5	I/G= 5	I/G= 2	I/G=	I/G=	
I/G= 5	I/G= 5	I/G= 2	I/G=	I/G=	

	Junction: Castle Peak Road / Shek Pai Street
	Junction No.: J02

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Castle Peak Road / Shek Pai Street

Junction No.: J02

Scenario: Reference 1

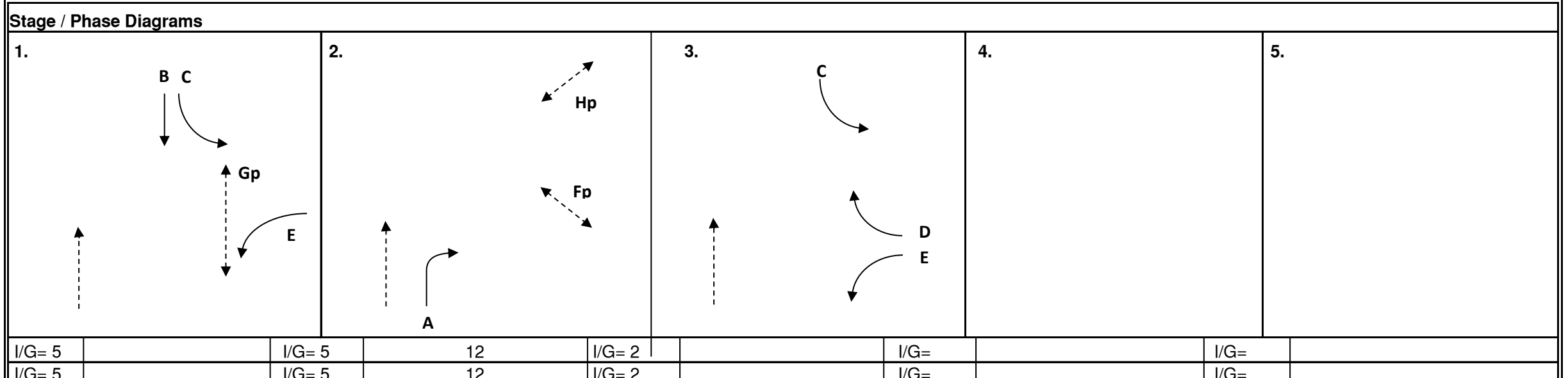
Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Castle Peak Road (SB)																
↑	C	1,3	3.4	15					1775	1775	170	0.10		275	0.15	
	B	1	3.6						2115	2115	660	0.31	0.31	595	0.28	0.28
	B	1	3.6						2115	2115	660	0.31		595	0.28	
Shek Pai Street (WB)																
→	D	3	3.2	15			43%	52%	1855	1840	535	0.29	0.29	480	0.26	0.26
Castle Peak Road (NB)																
↑	A	2	4.4	15					1995	1995	125	0.06		145	0.07	
Pedestrian Crossing																
	Fp	2	MIN GREEN + FLASH =			5	+	5	=	10						
	Gp	1	MIN GREEN + FLASH =			6	+	5	=	11						
	Hp	2	MIN GREEN + FLASH =			5	+	7	=	12		*			*	

NOTES:

Flow: (pcu/hr)

Group	B,Hp,D	Group	B,Hp,D
Sum of Critical y Y	0.60	Sum of Critical y	0.54
Lost Time L (sec)	22	Lost Time L (sec)	22
Cycle Time c (sec)	85	Cycle Time c (sec)	85
Practical Y Ypr	0.67	Practical Y Ypr	0.67
Reserve Capacity RC	11%	Reserve Capacity RC	23%



TRAFFIC SIGNALS CALCULATION SHEET

Junction: Castle Peak Road / Shek Pai Street

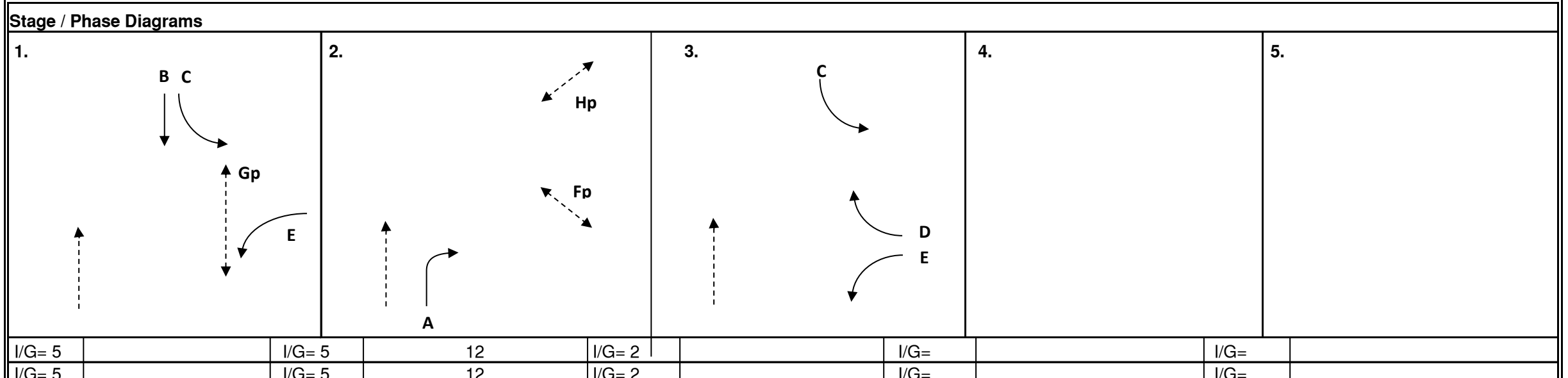
Junction No.: J02

Scenario: Design 1

Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Castle Peak Road (SB)																
↑	C	1,3	3.4	15					1775	1775						
	B	1	3.6						2115	2115	215	0.12		320	0.18	
	B	1	3.6						2115	2115	660	0.31	0.31	595	0.28	0.28
Shek Pai Street (WB)																
→	D	3	3.2	15			45%	52%	1850	1840	650	0.35	0.35	540	0.29	0.29
Castle Peak Road (NB)																
↑	A	2	4.4	15					1995	1995	160	0.08		180	0.09	
Pedestrian Crossing																
Pedestrian Crossing	Fp	2	MIN GREEN + FLASH =			5	+	5	=	10						
Pedestrian Crossing	Gp	1	MIN GREEN + FLASH =			6	+	5	=	11						
	Hp	2	MIN GREEN + FLASH =			5	+	7	=	12		*			*	

NOTES:	<p>Flow: (pcu/hr)</p>	Group	B,Hp,D	Group	B,Hp,D
		Sum of Critical y Y	0.66	Sum of Critical y	0.57
		Lost Time L (sec)	22	Lost Time L (sec)	22
		Cycle Time c (sec)	85	Cycle Time c (sec)	85
		Practical Y Ypr	0.67	Practical Y Ypr	0.67
		Reserve Capacity RC	1%	Reserve Capacity RC	16%



TRAFFIC SIGNALS CALCULATION SHEET

Junction: Castle Peak Road / Shek Pai Street (With CE45 Imp)

Junction No.: J02

Scenario: Reference 2

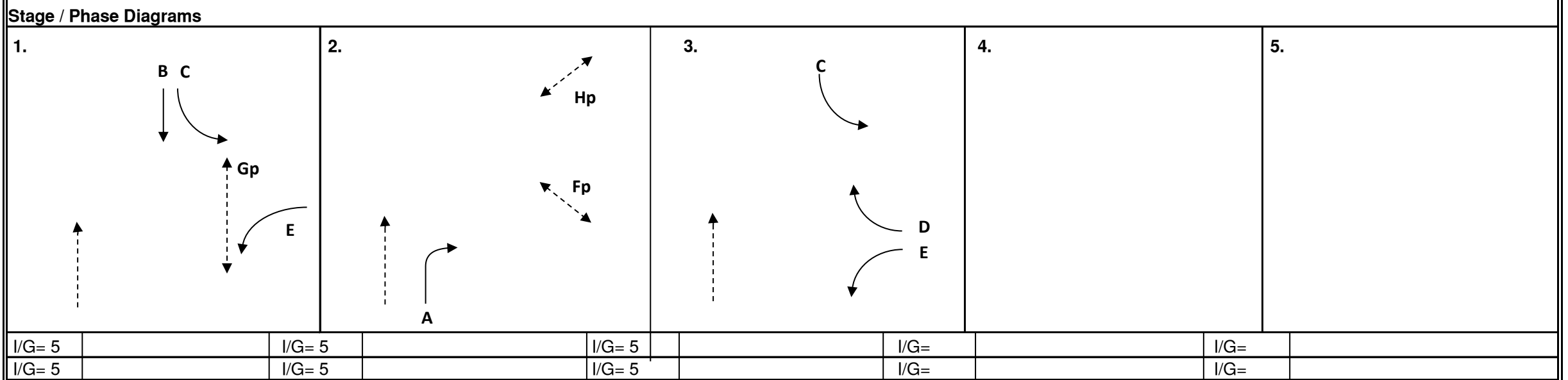
Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Castle Peak Road (SB)																
←	C	1,3	3.4	15					1775	1775	285	0.16		380	0.21	
↑	B	1	3.6						2115	2115	660	0.31	0.31	595	0.28	0.28
↑	B	1	3.6						2115	2115	660	0.31		595	0.28	
Shek Pai Street (WB)																
↑	E	1,3	3.2						1935	1935	410	0.21		280	0.14	
↗	D	3	4.7	15					1620	1620	310	0.19	0.19	300	0.19	0.19
Castle Peak Road (NB)																
↗	A	2	4.4	15					1995	1995	195	0.10	0.10	190	0.10	0.10
Pedestrian Crossing																
Pedestrian Crossing	Fp	2	MIN GREEN + FLASH =		5	+	5	=	10							
Pedestrian Crossing	Gp	1	MIN GREEN + FLASH =		6	+	5	=	11							
	Hp	2	MIN GREEN + FLASH =		5	+	7	=	12							

NOTES:

Flow: (pcu/hr)

Group	B,A,D	Group	B,A,D
Sum of Critical y Y	0.60	Sum of Critical y	0.56
Lost Time L (sec)	12	Lost Time L (sec)	12
Cycle Time c (sec)	85	Cycle Time c (sec)	85
Practical Y Ypr	0.77	Practical Y Ypr	0.77
Reserve Capacity RC	29%	Reserve Capacity RC	38%



TRAFFIC SIGNALS CALCULATION SHEET

Junction: Castle Peak Road / Shek Pai Street (With CE45 Imp)

Junction No.: J02

Scenario: Design 2

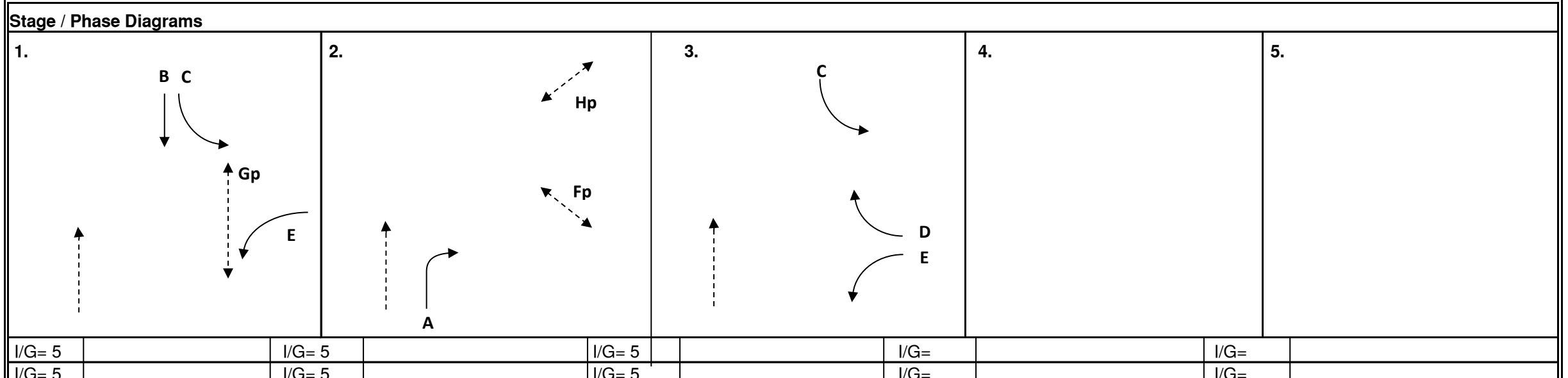
Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Castle Peak Road (SB)																
←	C	1,3	3.4	15					1775	1775	330	0.19		425	0.24	
↑	B	1	3.6						2115	2115	660	0.31	0.31	595	0.28	0.28
↑	B	1	3.6						2115	2115	660	0.31		595	0.28	
Shek Pai Street (WB)																
↑	E	1,3	3.2						1935	1935	460	0.24		310	0.16	
↗	D	3	4.7	15					1620	1620	375	0.23	0.23	330	0.20	0.20
Castle Peak Road (NB)																
↗	A	2	4.4	15					1995	1995	230	0.12	0.12	225	0.11	0.11
Pedestrian Crossing																
Pedestrian Crossing	Fp	2	MIN GREEN + FLASH =			5	+	5	=	10						
Pedestrian Crossing	Gp	1	MIN GREEN + FLASH =			6	+	5	=	11						
	Hp	2	MIN GREEN + FLASH =			5	+	7	=	12						

NOTES:

Flow: (pcu/hr)

Group	B,A,D	Group	B,A,D
Sum of Critical y Y	0.66	Sum of Critical y	0.60
Lost Time L (sec)	12	Lost Time L (sec)	12
Cycle Time c (sec)	85	Cycle Time c (sec)	85
Practical Y Ypr	0.77	Practical Y Ypr	0.77
Reserve Capacity RC	17%	Reserve Capacity RC	29%



TRAFFIC SIGNALS CALCULATION SHEET

Junction: Castle Peak Road / Wo Yi Hop Road / Tai Loong Street

Junction No.: J03

Scenario: Observe

Design Year: 2021

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Wo Yi Hop Road (EB)																
↑	F	1,2	3.5						1965	1965	391	0.20		336	0.17	
↑	F	1,2	3.5						2105	2105	419	0.20		359	0.17	
Castle Peak Road (SB)																
↑	A	1	3.6	10					1715	1715	380	0.22	0.22	325	0.19	
↑	A	1	3.6						2115	2115	410	0.19		430	0.20	0.20
↑	A	1	3.6						2115	2115	410	0.19		430	0.20	
Wo Yi Hop Road (WB)																
←	E	2,3	3.1	10					1675	1675	490	0.29		435	0.26	
↑	G	1,2	3.8						1995	1995	230	0.12		195	0.10	
Castle Peak Road (NB)																
↑	D	2	3.1		20				1920	1920	218	0.11	0.11	187	0.10	
↑	D	2	3.1		15				1875	1875	212	0.11		183	0.10	0.10
Tai Loong Street (NB)																
↑	C	3	3.8	10					1735	1735	260	0.15		240	0.14	
↑	C	3	3.8		15				1815	1815	405	0.22	0.22	425	0.23	0.23
Pedestrian Crossing																
	Gp	2,3	MIN GREEN + FLASH =			5	+	6	=	11						
	Hp	2,3	MIN GREEN + FLASH =			5	+	7	=	12						
	lp	1,3	MIN GREEN + FLASH =			5	+	8	=	13						

NOTES:

Flow: (pcu/hr)

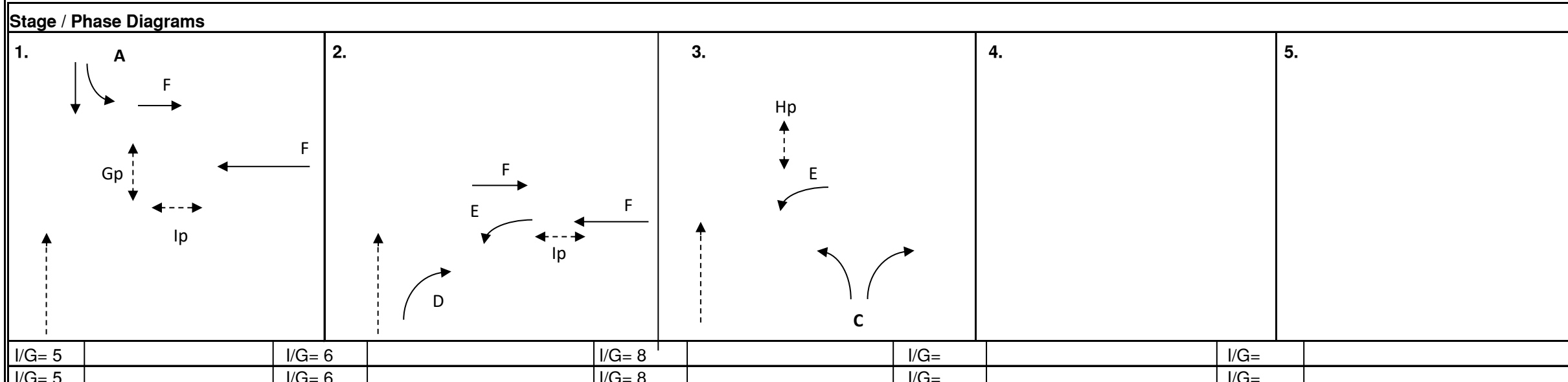
820(860) ↓ ↓ 380(325) →

810(695) → ← 230(195)

430(370) ↘ ↙ 490(435) ↑ ↑

260(240) ↑ ↓ 405(425)

Group	A,D,C	Group	A,D,C
Sum of Critical y Y	0.56	Sum of Critical y	0.54
Lost Time L (sec)	16	Lost Time L (sec)	16
Cycle Time c (sec)	120	Cycle Time c (sec)	114
Practical Y Ypr	0.78	Practical Y Ypr	0.77
Reserve Capacity RC	40%	Reserve Capacity RC	45%



TRAFFIC SIGNALS CALCULATION SHEET

Junction: Castle Peak Road / Wo Yi Hop Road / Tai Loong Street

Junction No.: J03

Scenario: Reference 1

Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Wo Yi Hop Road (EB)																
↑	F	1,2	3.5						1965	1965	485	0.25		425	0.22	
↑	F	1,2	3.5						2105	2105	520	0.25		455	0.22	
Castle Peak Road (SB)																
↑	A	1	3.6	10					1715	1715	490	0.29	0.29	430	0.25	0.25
↑	A	1	3.6						2115	2115	455	0.22		475	0.22	
↑	A	1	3.6						2115	2115	455	0.22		475	0.22	
Wo Yi Hop Road (WB)																
←	E	2,3	3.1	10					1675	1675	580	0.35		515	0.31	
↑	G	1,2	3.8						1995	1995	295	0.15		255	0.13	
Castle Peak Road (NB)																
↑	D	2	3.1		20				1920	1920	261	0.14	0.14	228	0.12	0.12
↑	D	2	3.1		15				1875	1875	254	0.14		222	0.12	
Tai Loong Street (NB)																
↑	C	3	3.8	10					1735	1735	285	0.16		265	0.15	
↑	C	3	3.8		15				1815	1815	445	0.25	0.25	460	0.25	0.25
Pedestrian Crossing																
	Gp	2,3	MIN GREEN + FLASH =			5	+	6	=	11						
	Hp	2,3	MIN GREEN + FLASH =			5	+	7	=	12						
	lp	1,3	MIN GREEN + FLASH =			5	+	8	=	13						

NOTES:	<p>Flow: (pcu/hr)</p>		Group	A,D,C	Group	A,D,C
			Sum of Critical y Y	0.67	Sum of Critical y	0.62
			Lost Time L (sec)	16	Lost Time L (sec)	16
			Cycle Time c (sec)	120	Cycle Time c (sec)	114
			Practical Y Ypr	0.78	Practical Y Ypr	0.77
			Reserve Capacity RC	17%	Reserve Capacity RC	24%

Stage / Phase Diagrams																			
1.				2.				3.				4.				5.			
I/G= 5		I/G= 6		I/G= 8		I/G=		I/G=		I/G=		I/G=		I/G=					
I/G= 5		I/G= 6		I/G= 8		I/G=		I/G=		I/G=		I/G=		I/G=					



Junction: Castle Peak Road / Wo Yi Hop Road / Tai Loong Street

Junction No.: J03

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Castle Peak Road / Wo Yi Hop Road / Tai Loong Street

Junction No.: J03

Scenario: Reference 2

Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Wo Yi Hop Road (EB)																
↑	F	1,2	3.5						1965	1965	485	0.25		425	0.22	
↑	F	1,2	3.5						2105	2105	520	0.25		455	0.22	
Castle Peak Road (SB)																
↑	A	1	3.6	10					1715	1715	490	0.29	0.29	430	0.25	0.25
↑	A	1	3.6						2115	2115	513	0.24		525	0.25	
↑	A	1	3.6						2115	2115	512	0.24		525	0.25	
Wo Yi Hop Road (WB)																
←	E	2,3	3.1	10					1675	1675	580	0.35		515	0.31	
↑	G	1,2	3.8						1995	1995	295	0.15		255	0.13	
Castle Peak Road (NB)																
↑	D	2	3.1		20				1920	1920	261	0.14	0.14	228	0.12	0.12
↑	D	2	3.1		15				1875	1875	254	0.14		222	0.12	
Tai Loong Street (NB)																
↑	C	3	3.8	10					1735	1735	285	0.16		265	0.15	
↑	C	3	3.8		15				1815	1815	445	0.25	0.25	460	0.25	0.25
Pedestrian Crossing																
	Gp	2,3	MIN GREEN + FLASH =			5	+	6	=	11						
	Hp	2,3	MIN GREEN + FLASH =			5	+	7	=	12						
	lp	1,3	MIN GREEN + FLASH =			5	+	8	=	13						

NOTES:	<p>Flow: (pcu/hr)</p>	Group	A,D,C	Group	A,D,C
		Sum of Critical y Y	0.67	Sum of Critical y	0.62
		Lost Time L (sec)	16	Lost Time L (sec)	16
		Cycle Time c (sec)	120	Cycle Time c (sec)	114
		Practical Y Ypr	0.78	Practical Y Ypr	0.77
		Reserve Capacity RC	17%	Reserve Capacity RC	24%

Stage / Phase Diagrams					
1.	2.	3.	4.	5.	
I/G= 5	I/G= 6	I/G= 8	I/G=	I/G=	
I/G= 5	I/G= 6	I/G= 8	I/G=	I/G=	



Junction: Castle Peak Road / Wo Yi Hop Road / Tai Loong Street

Junction No.: J03

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Castle Peak Road / Wo Yi Hop Road / Tai Loong Street

Junction No.: J03

Scenario: Design 1

Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak			
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y	
Wo Yi Hop Road (EB)																	
	↑	F	1,2	3.5						1965	1965						
	↑	F	1,2	3.5						2105	2105	485	0.25		425	0.22	
Castle Peak Road (SB)																	
	↑	A	1	3.6	10					1715	1715	490	0.29	0.29	430	0.25	0.25
	↑	A	1	3.6						2115	2115	478	0.23		498	0.24	
	↑	A	1	3.6						2115	2115	477	0.23		497	0.23	
Wo Yi Hop Road (WB)																	
	←	E	2,3	3.1	10					1675	1675	580	0.35		515	0.31	
	↑	G	1,2	3.8						1995	1995	295	0.15		255	0.13	
Castle Peak Road (NB)																	
	↑	D	2	3.1	20					1920	1920	261	0.14	0.14	228	0.12	0.12
	↑	D	2	3.1	15					1875	1875	254	0.14		222	0.12	
Tai Loong Street (NB)																	
	↑	C	3	3.8	10					1735	1735	285	0.16		265	0.15	
	↑	C	3	3.8	15					1815	1815	445	0.25	0.25	460	0.25	0.25
Pedestrian Crossing																	
	Gp	2,3	MIN GREEN + FLASH =			5	+	6	=	11							
	Hp	2,3	MIN GREEN + FLASH =			5	+	7	=	12							
	lp	1,3	MIN GREEN + FLASH =			5	+	8	=	13							

NOTES:	<p>Flow: (pcu/hr)</p>		Group	A,D,C	Group	A,D,C
			Sum of Critical y Y	0.67	Sum of Critical y	0.62
			Lost Time L (sec)	16	Lost Time L (sec)	16
			Cycle Time c (sec)	120	Cycle Time c (sec)	114
			Practical Y Ypr	0.78	Practical Y Ypr	0.77
			Reserve Capacity RC	17%	Reserve Capacity RC	24%

Stage / Phase Diagrams																			
1.				2.				3.				4.				5.			
I/G= 5		I/G= 6		I/G= 8		I/G=		I/G=		I/G=		I/G=		I/G=		I/G=			
I/G= 5		I/G= 6		I/G= 8		I/G=		I/G=		I/G=		I/G=		I/G=		I/G=			



Junction: Castle Peak Road / Wo Yi Hop Road / Tai Loong Street

Junction No.: J03

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Castle Peak Road / Wo Yi Hop Road / Tai Loong Street

Junction No.: J03

Scenario: Design 2

Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Wo Yi Hop Road (EB)																
↑	F	1,2	3.5						1965	1965	485	0.25		425	0.22	
↑	F	1,2	3.5						2105	2105	520	0.25		455	0.22	
Castle Peak Road (SB)																
↑	A	1	3.6	10					1715	1715	490	0.29	0.29	430	0.25	
↑	A	1	3.6						2115	2115	535	0.25		548	0.26	0.26
↑	A	1	3.6						2115	2115	535	0.25		547	0.26	
Wo Yi Hop Road (WB)																
←	E	2,3	3.1	10					1675	1675	580	0.35		515	0.31	
↑	G	1,2	3.8						1995	1995	295	0.15		255	0.13	
Castle Peak Road (NB)																
↑	D	2	3.1		20				1920	1920	261	0.14	0.14	228	0.12	0.12
↑	D	2	3.1		15				1875	1875	254	0.14		222	0.12	
Tai Loong Street (NB)																
↑	C	3	3.8	10					1735	1735	285	0.16		265	0.15	
↑	C	3	3.8		15				1815	1815	445	0.25	0.25	460	0.25	0.25
Pedestrian Crossing																
	Gp	2,3	MIN GREEN + FLASH =			5	+	6	=	11						
	Hp	2,3	MIN GREEN + FLASH =			5	+	7	=	12						
	lp	1,3	MIN GREEN + FLASH =			5	+	8	=	13						

NOTES:	<p>Flow: (pcu/hr)</p>	<table border="1"> <thead> <tr> <th>Group</th> <th>A,D,C</th> <th>Group</th> <th>A,D,C</th> </tr> </thead> <tbody> <tr> <td>Sum of Critical y Y</td> <td>0.67</td> <td>Sum of Critical y</td> <td>0.63</td> </tr> <tr> <td>Lost Time L (sec)</td> <td>16</td> <td>Lost Time L (sec)</td> <td>16</td> </tr> <tr> <td>Cycle Time c (sec)</td> <td>120</td> <td>Cycle Time c (sec)</td> <td>114</td> </tr> <tr> <td>Practical Y Ypr</td> <td>0.78</td> <td>Practical Y Ypr</td> <td>0.77</td> </tr> <tr> <td>Reserve Capacity RC</td> <td>17%</td> <td>Reserve Capacity RC</td> <td>23%</td> </tr> </tbody> </table>	Group	A,D,C	Group	A,D,C	Sum of Critical y Y	0.67	Sum of Critical y	0.63	Lost Time L (sec)	16	Lost Time L (sec)	16	Cycle Time c (sec)	120	Cycle Time c (sec)	114	Practical Y Ypr	0.78	Practical Y Ypr	0.77	Reserve Capacity RC	17%	Reserve Capacity RC	23%
			Group	A,D,C	Group	A,D,C																				
Sum of Critical y Y	0.67	Sum of Critical y	0.63																							
Lost Time L (sec)	16	Lost Time L (sec)	16																							
Cycle Time c (sec)	120	Cycle Time c (sec)	114																							
Practical Y Ypr	0.78	Practical Y Ypr	0.77																							
Reserve Capacity RC	17%	Reserve Capacity RC	23%																							

Stage / Phase Diagrams																			
1.				2.				3.				4.				5.			
I/G= 5		I/G= 6		I/G= 8		I/G=		I/G=		I/G=		I/G=		I/G=					
I/G= 5		I/G= 6		I/G= 8		I/G=		I/G=		I/G=		I/G=		I/G=					



Junction: Castle Peak Road / Wo Yi Hop Road / Tai Loong Street

Junction No.: J03

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Shek Li Street / Wai Kek Street

Junction No.: J04

Scenario: Observe

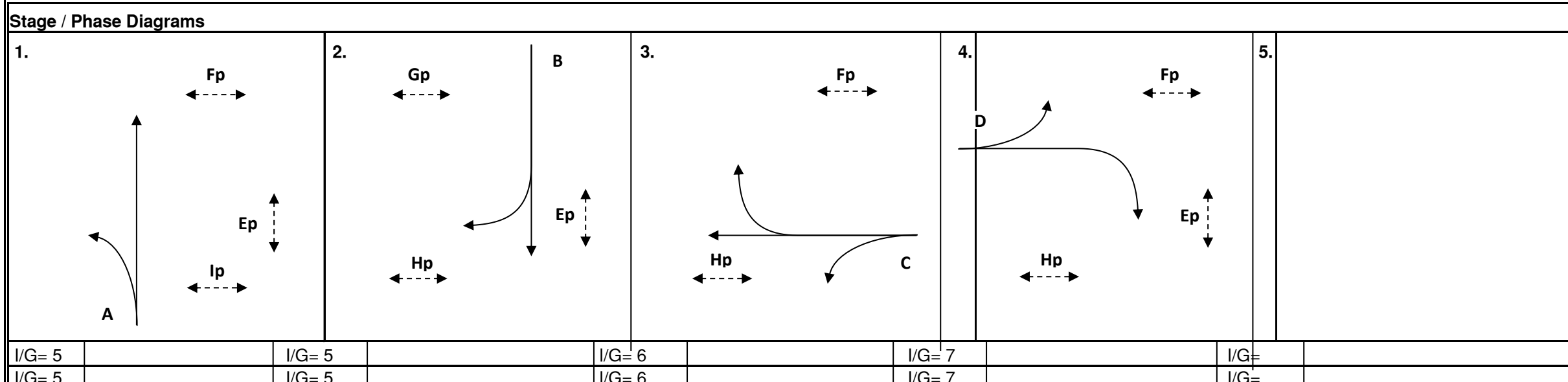
Design Year: 2021

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Wai Kek Street SB	→	B	2	4.0	20		11%	9%	2000	2000	230	0.12	0.12	225	0.11	0.11
Shek Li Street WB	←	C	3	4.0	15		100%	93%	1830	1845	150	0.08	0.08	140	0.08	0.08
	↗	C	3	4.0	20				2005	2005	30	0.01		60	0.03	
Wai Kek Street NB	←	A	1	2.7	15		24%	26%	1840	1840	225	0.12	0.12	215	0.12	0.12
Access Road to Shek Li Shopping Centre Phase 1 EB	→	D	4	3.1	15	20	21% / 79%	38% / 63%	1780	1775	70	0.04	0.04	80	0.05	0.05
Pedestrian Crossing																
Pedestrian Crossing	Ep	1,2,4	MIN GREEN + FLASH =		5	+	7	=	12							
Pedestrian Crossing	Fp	1,3,4	MIN GREEN + FLASH =		5	+	5	=	10							
	Gp	2	MIN GREEN + FLASH =		5	+	5	=	10							
	Hp	2,3,4	MIN GREEN + FLASH =		5	+	5	=	10							
	lp	1	MIN GREEN + FLASH =		5	+	5	=	10							

NOTES:

Flow: (pcu/hr)

Group	A,B,C,D	Group	A,B,C,D
Sum of Critical y Y	0.36	Sum of Critical y	0.35
Lost Time L (sec)	19	Lost Time L (sec)	19
Cycle Time c (sec)	120	Cycle Time c (sec)	120
Practical Y Ypr	0.76	Practical Y Ypr	0.76
Reserve Capacity RC	111%	Reserve Capacity RC	116%



Junction: Shek Li Street / Wai Kek Street

Junction No.: J04

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Shek Li Street / Wai Kek Street

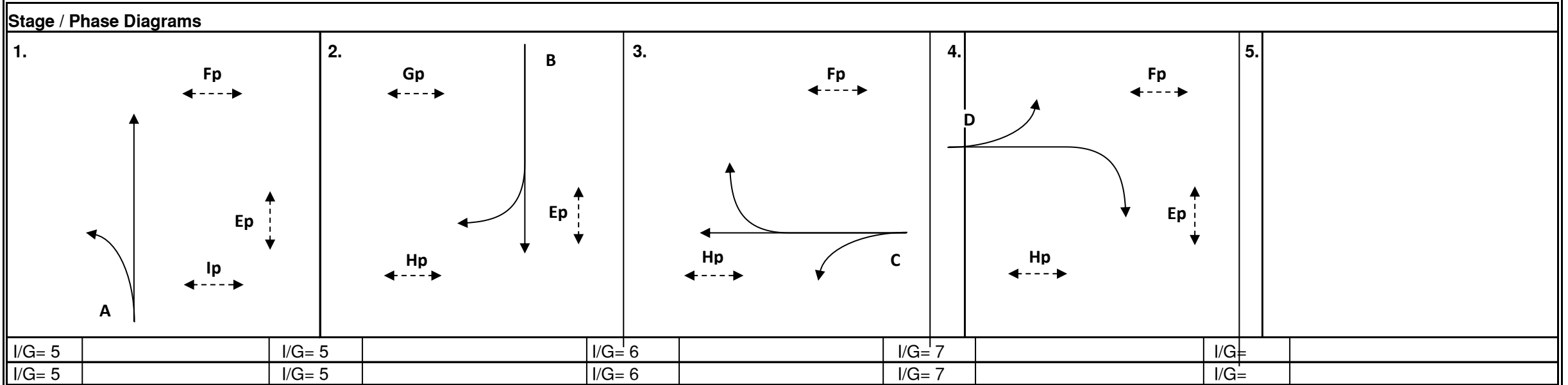
Junction No.: J04

Scenario: Reference 1

Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Wai Kek Street SB	→	B	2	4.0	20		10%	8%	2000	2000	245	0.12	0.12	240	0.12	0.12
Shek Li Street WB	←	C	3	4.0	15		100%	93%	1830	1845	160	0.09	0.09	145	0.08	0.08
	↗	C	3	4.0	20				2005	2005	30	0.01		60	0.03	
Wai Kek Street NB	←	A	1	2.7	15		24%	28%	1840	1835	245	0.13	0.13	235	0.13	0.13
Access Road to Shek Li Shopping Centre Phase 1 EB	→	D	4	3.1	15	20	20% / 80%	35% / 65%	1780	1775	75	0.04	0.04	85	0.05	0.05
Pedestrian Crossing																
Pedestrian Crossing	Ep	1,2,4	MIN GREEN + FLASH =		5	+	7	=	12							
Pedestrian Crossing	Fp	1,3,4	MIN GREEN + FLASH =		5	+	5	=	10							
	Gp	2	MIN GREEN + FLASH =		5	+	5	=	10							
	Hp	2,3,4	MIN GREEN + FLASH =		5	+	5	=	10							
	lp	1	MIN GREEN + FLASH =		5	+	5	=	10							

NOTES:		Group	A,B,C,D	Group	A,B,C,D
		Sum of Critical y Y	0.39	Sum of Critical y	0.37
		Lost Time L (sec)	19	Lost Time L (sec)	19
		Cycle Time c (sec)	120	Cycle Time c (sec)	120
		Practical Y Ypr	0.76	Practical Y Ypr	0.76
		Reserve Capacity RC	97%	Reserve Capacity RC	102%



Junction: Shek Li Street / Wai Kek Street

Junction No.: J04

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Shek Li Street / Wai Kek Street

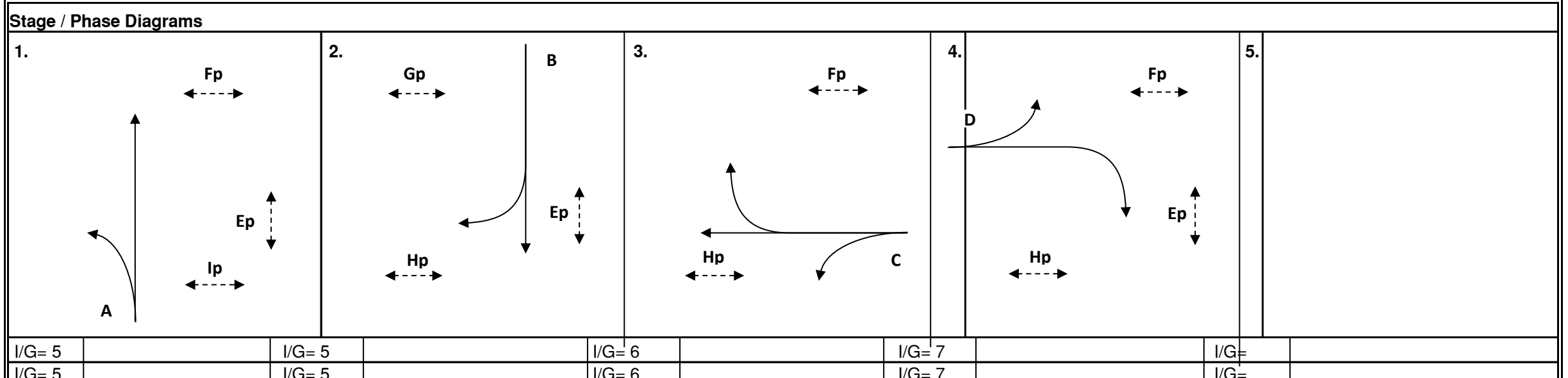
Junction No.: J04

Scenario: Reference 2

Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak			
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y	
Wai Kek Street SB	→	B	2	4.0		20		10%	8%	2000	2000	245	0.12	0.12	240	0.12	0.12
Shek Li Street WB	←	C	3	4.0	15			100%	93%	1830	1845	160	0.09	0.09	145	0.08	0.08
	↗	C	3	4.0		20				2005	2005	30	0.01		60	0.03	
Wai Kek Street NB	←	A	1	2.7	15			24%	28%	1840	1835	245	0.13	0.13	235	0.13	0.13
Access Road to Shek Li Shopping Centre Phase 1 EB	→	D	4	3.1	15	20		20% / 80%	35% / 65%	1780	1775	75	0.04	0.04	85	0.05	0.05
Pedestrian Crossing																	
Pedestrian Crossing	Ep	1,2,4	MIN GREEN + FLASH = 5 + 7 = 12														
Pedestrian Crossing	Fp	1,3,4	MIN GREEN + FLASH = 5 + 5 = 10														
	Gp	2	MIN GREEN + FLASH = 5 + 5 = 10														
	Hp	2,3,4	MIN GREEN + FLASH = 5 + 5 = 10														
	lp	1	MIN GREEN + FLASH = 5 + 5 = 10														

NOTES:		Group	A,B,C,D	Group	A,B,C,D
		Sum of Critical y Y	0.39	Sum of Critical y	0.37
		Lost Time L (sec)	19	Lost Time L (sec)	19
		Cycle Time c (sec)	120	Cycle Time c (sec)	120
		Practical Y Ypr	0.76	Practical Y Ypr	0.76
		Reserve Capacity RC	97%	Reserve Capacity RC	102%



Junction: Shek Li Street / Wai Kek Street
Junction No.: J04

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Shek Li Street / Wai Kek Street

Junction No.: J04

Scenario: Design 1

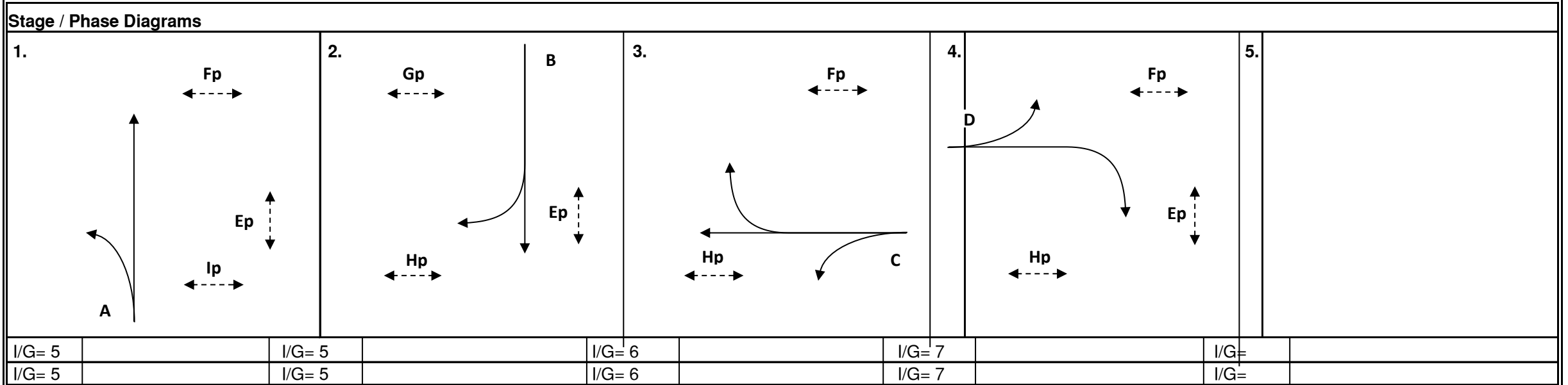
Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Wai Kek Street SB	→	B	2	4.0	20		10%	8%	2000	2000	245	0.12	0.12	240	0.12	0.12
Shek Li Street WB	←	C	3	4.0	15		100%	93%	1830	1845	160	0.09	0.09	145	0.08	0.08
	↗	C	3	4.0	20				2005	2005	30	0.01		60	0.03	
Wai Kek Street NB	←	A	1	2.7	15		24%	28%	1840	1835	245	0.13	0.13	235	0.13	0.13
Access Road to Shek Li Shopping Centre Phase 1 EB	→	D	4	3.1	15	20	20% / 80%	35% / 65%	1780	1775	75	0.04	0.04	85	0.05	0.05
Pedestrian Crossing																
Pedestrian Crossing	Ep	1,2,4	MIN GREEN + FLASH =		5	+	7	=	12							
Pedestrian Crossing	Fp	1,3,4	MIN GREEN + FLASH =		5	+	5	=	10							
	Gp	2	MIN GREEN + FLASH =		5	+	5	=	10							
	Hp	2,3,4	MIN GREEN + FLASH =		5	+	5	=	10							
	lp	1	MIN GREEN + FLASH =		5	+	5	=	10							

NOTES:

Flow: (pcu/hr)

Group	A,B,C,D	Group	A,B,C,D
Sum of Critical y Y	0.39	Sum of Critical y	0.37
Lost Time L (sec)	19	Lost Time L (sec)	19
Cycle Time c (sec)	120	Cycle Time c (sec)	120
Practical Y Ypr	0.76	Practical Y Ypr	0.76
Reserve Capacity RC	97%	Reserve Capacity RC	102%



Junction: Shek Li Street / Wai Kek Street

Junction No.: J04

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Shek Li Street / Wai Kek Street

Junction No.: J04

Scenario: Design 2

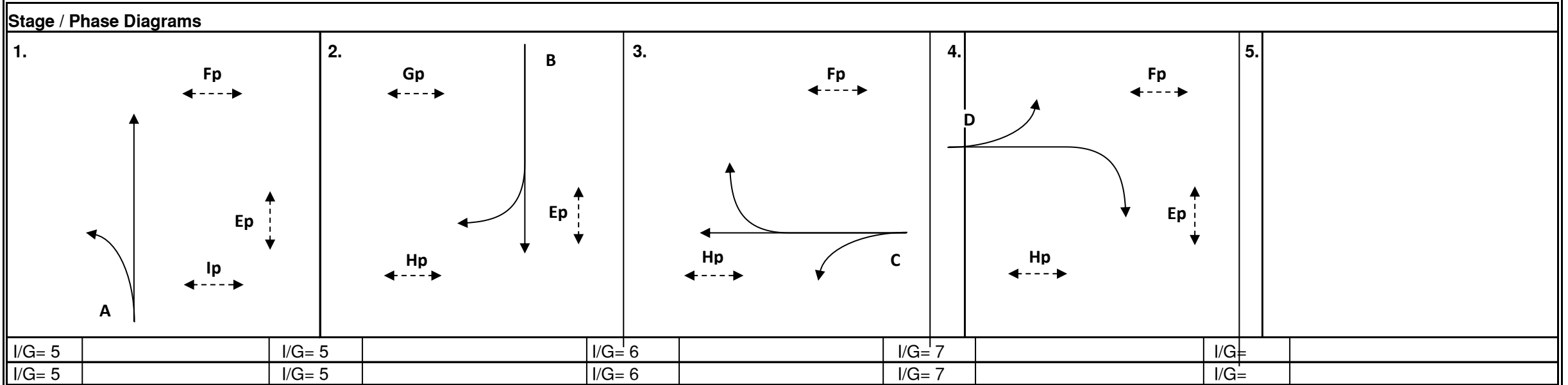
Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak			
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y	
Wai Kek Street SB	→	B	2	4.0		20		10%	8%	2000	2000	245	0.12	0.12	240	0.12	0.12
Shek Li Street WB	←	C	3	4.0	15			100%	93%	1830	1845	160	0.09	0.09	145	0.08	0.08
	↗	C	3	4.0		20				2005	2005	30	0.01		60	0.03	
Wai Kek Street NB	←	A	1	2.7	15			24%	28%	1840	1835	245	0.13	0.13	235	0.13	0.13
Access Road to Shek Li Shopping Centre Phase 1 EB	→	D	4	3.1	15	20		20% / 80%	35% / 65%	1780	1775	75	0.04	0.04	85	0.05	0.05
Pedestrian Crossing				Ep	1,2,4	MIN GREEN + FLASH =	5	+	7	=	12						
Pedestrian Crossing				Fp	1,3,4	MIN GREEN + FLASH =	5	+	5	=	10						
Pedestrian Crossing				Gp	2	MIN GREEN + FLASH =	5	+	5	=	10						
Pedestrian Crossing				Hp	2,3,4	MIN GREEN + FLASH =	5	+	5	=	10						
Pedestrian Crossing				lp	1	MIN GREEN + FLASH =	5	+	5	=	10						

NOTES:

Flow: (pcu/hr)

Group	A,B,C,D	Group	A,B,C,D
Sum of Critical y Y	0.39	Sum of Critical y	0.37
Lost Time L (sec)	19	Lost Time L (sec)	19
Cycle Time c (sec)	120	Cycle Time c (sec)	120
Practical Y Ypr	0.76	Practical Y Ypr	0.76
Reserve Capacity RC	97%	Reserve Capacity RC	102%



Junction: Shek Li Street / Wai Kek Street

Junction No.: J04

Priority Junction Capacity Calculation

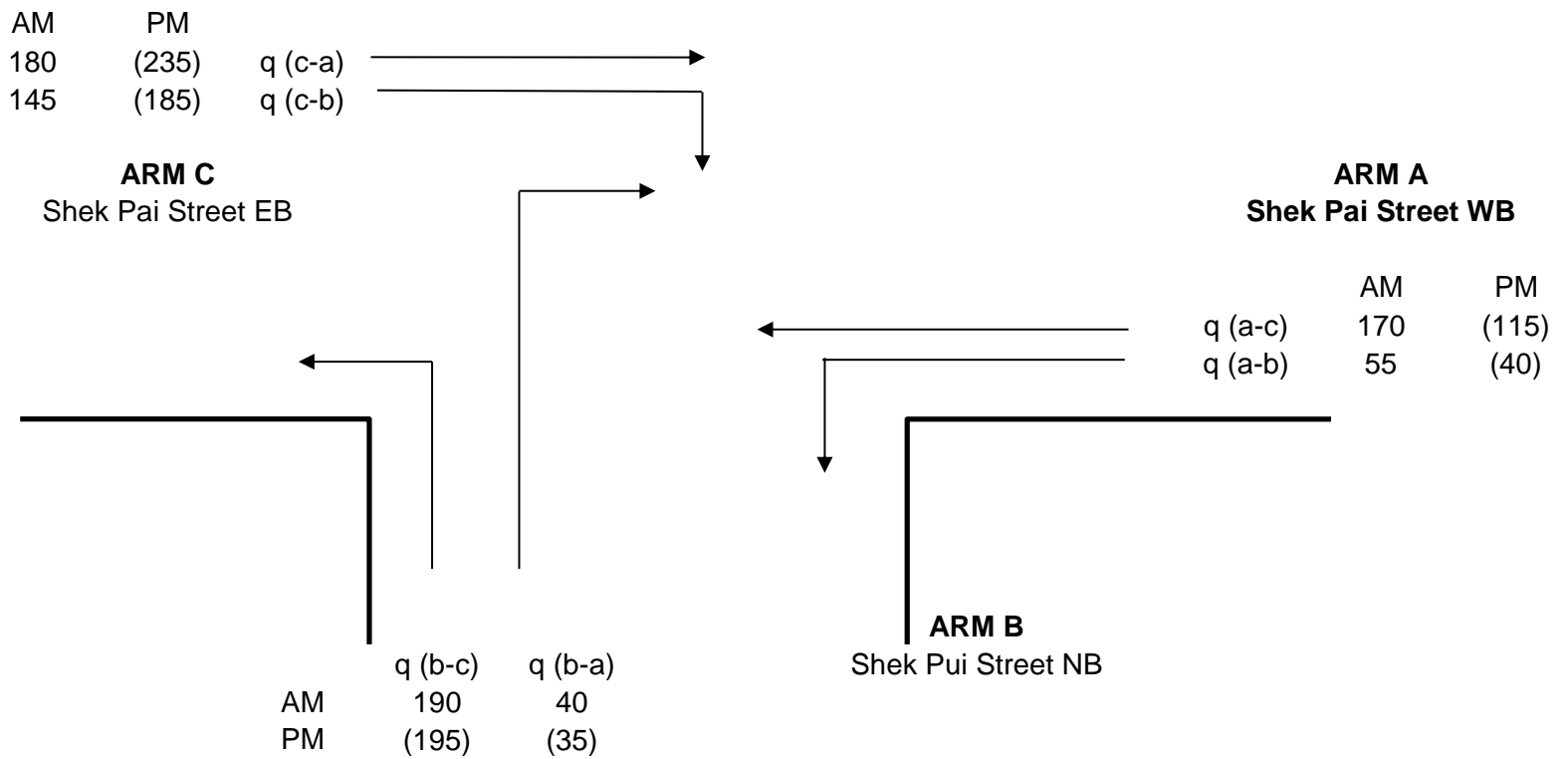
Junction : Shek Pai Street / Shek Pui Street


Junction No. : J05

Scenario : Observe

Design Year : 2021

ARM A	Shek Pai Street WB
ARM B	Shek Pui Street NB
ARM C	Shek Pai Street EB



Geometry			Analysis				
Major Road Width	W	7.7	Traffic flows		AM	PM	
Central Reserve Width	Wcr	0	q(c-a)	180	235		
			q(c-b)	145	185		
Lane Width	w(b-a)	2.9	q(a-b)	55	40		
	w(b-c)	2.9	q(a-c)	170	115		
	w(c-b)	3.5	q(b-a)	40	35		
Visibilities			q(b-c)	190	195		
	Vr(b-a)	30	f	0.83	0.85		
	VI(b-a)	30	Capacities				
	Vr(b-c)	30	Q(b-a)	389	382		
	Vr(c-b)	120	Q(b-c)	593	607		
Geometric Parameter			Q(c-b)	675	694		
	D	0.793	Q(b-ac)	543	557		
	E	0.854	DFC's				
	F	0.986	b-a	0.10	0.09		
	Y	0.734	b-ac	0.42	0.41		
			c-b	0.21	0.27		
			Critical DFC			0.42	0.41

Priority Junction Capacity Calculation

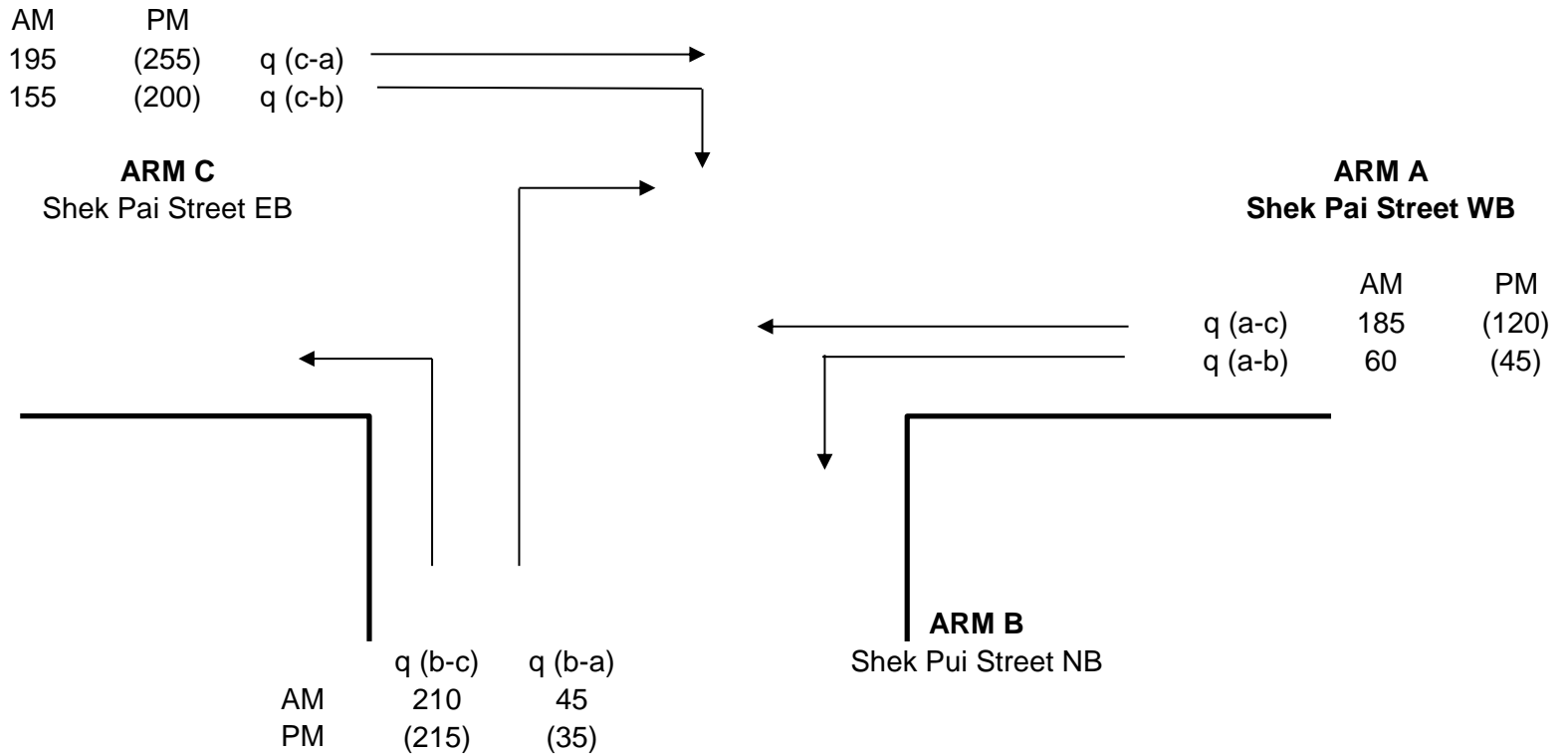
Junction : Shek Pai Street / Shek Pui Street


Junction No. : J05

Scenario : Reference 1

Design Year : 2031

ARM A	Shek Pai Street WB
ARM B	Shek Pui Street NB
ARM C	Shek Pai Street EB



Geometry			Analysis				
Major Road Width	W	7.7	Traffic flows		AM	PM	
Central Reserve Width	Wcr	0	q(c-a)	195	255		
			q(c-b)	155	200		
Lane Width	w(b-a)	2.9	q(a-b)	60	45		
	w(b-c)	2.9	q(a-c)	185	120		
	w(c-b)	3.5	q(b-a)	45	35		
Visibilities			q(b-c)	210	215		
	Vr(b-a)	30	f	0.82	0.86		
	VI(b-a)	30	Capacities				
	Vr(b-c)	30	Q(b-a)	380	373		
	Vr(c-b)	120	Q(b-c)	589	605		
Geometric Parameter			Q(c-b)	670	691		
	D	0.793	Q(b-ac)	537	557		
	E	0.854	DFC's				
	F	0.986	b-a	0.12	0.09		
	Y	0.734	b-ac	0.48	0.45		
			c-b	0.23	0.29		
			Critical DFC			0.48	0.45

Priority Junction Capacity Calculation

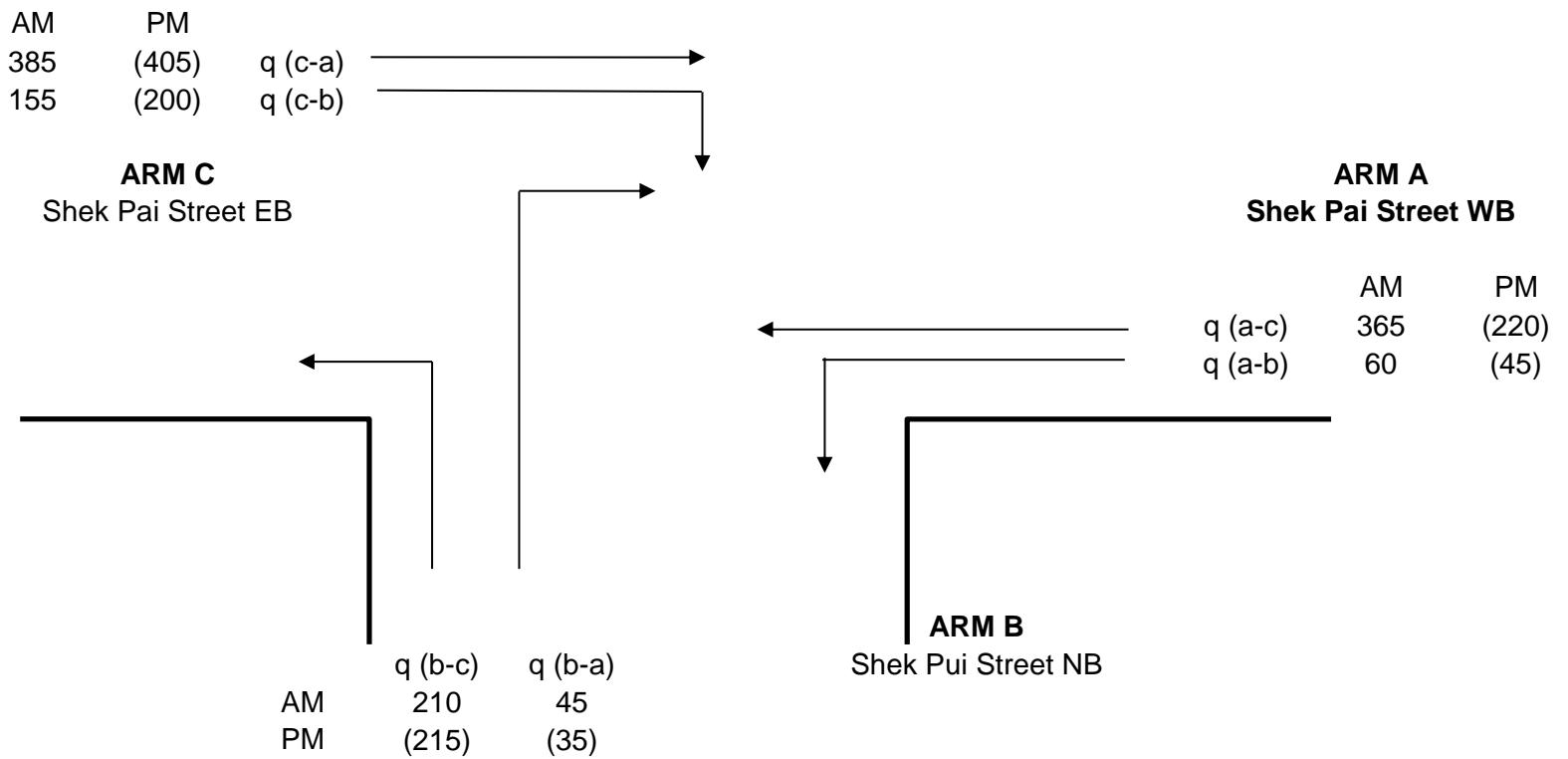
Junction : Shek Pai Street / Shek Pui Street


Junction No. : J05

Scenario : Reference 2

Design Year : 2031

ARM A	Shek Pai Street WB
ARM B	Shek Pui Street NB
ARM C	Shek Pai Street EB



Geometry			Analysis			
Major Road Width	W	7.7	Traffic flows		AM	PM
Central Reserve Width	Wcr	0	q(c-a)	385	405	
			q(c-b)	155	200	
Lane Width	w(b-a)	2.9	q(a-b)	60	45	
	w(b-c)	2.9	q(a-c)	365	220	
	w(c-b)	3.5	q(b-a)	45	35	
Visibilities			q(b-c)	210	215	
	Vr(b-a)	30	q(b-a)	45	35	
	VI(b-a)	30	q(b-c)	210	215	
	Vr(b-c)	30	f	0.82	0.86	
	Vr(c-b)	120	Capacities			
Geometric Parameter			Q(b-a)	316	332	
	D	0.793	Q(b-c)	548	582	
	E	0.854	Q(c-b)	622	665	
	F	0.986	Q(b-ac)	485	527	
	Y	0.734	DFC's			
			b-a	0.14	0.11	
			b-ac	0.53	0.47	
			c-b	0.25	0.30	
			Critical DFC	0.53	0.47	

Priority Junction Capacity Calculation

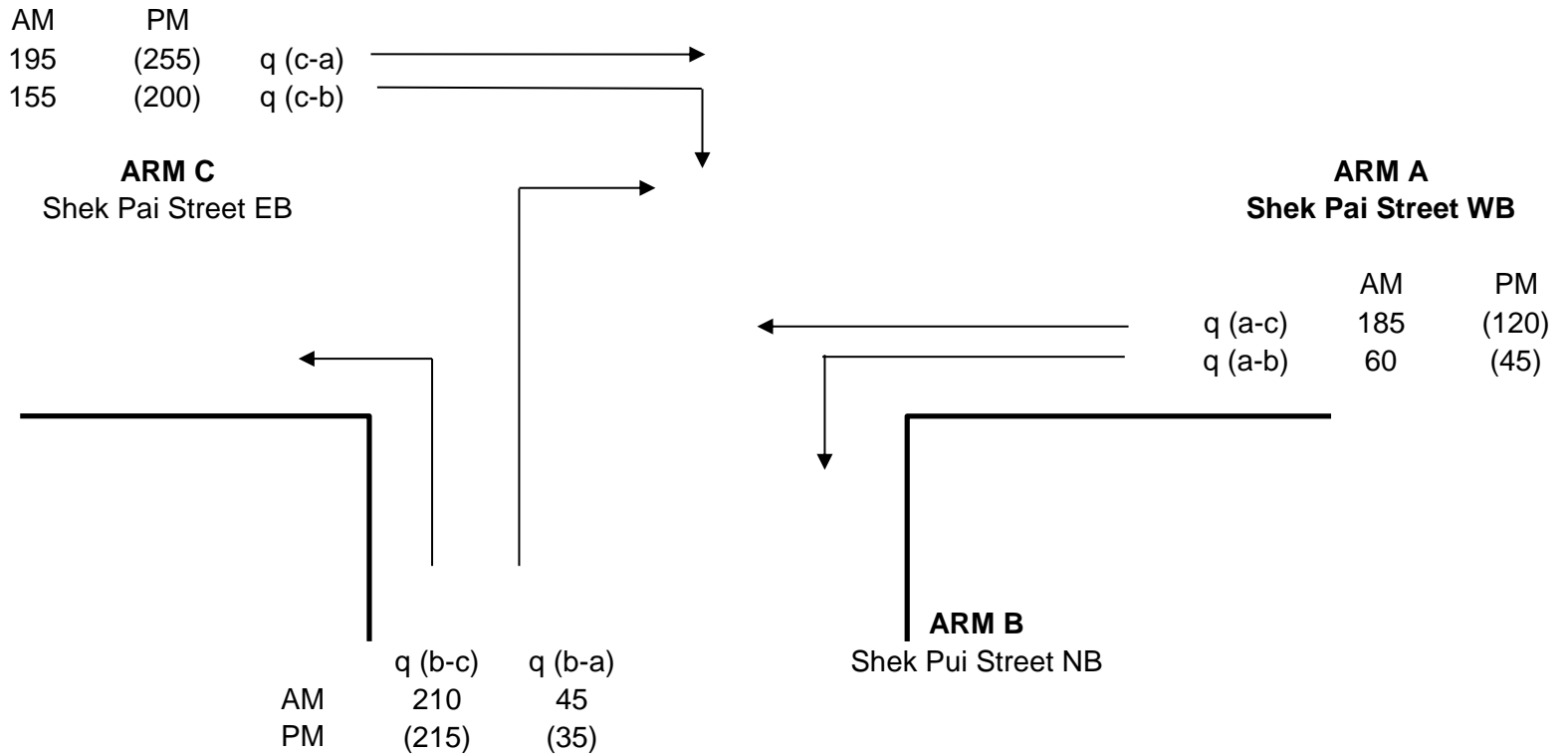
Junction : Shek Pai Street / Shek Pui Street


Junction No. : J05

Scenario : Design 1

Design Year : 2031

ARM A	Shek Pai Street WB
ARM B	Shek Pui Street NB
ARM C	Shek Pai Street EB



Geometry			Analysis				
Major Road Width	W	7.7	Traffic flows		AM	PM	
Central Reserve Width	Wcr	0	q(c-a)	195	255		
			q(c-b)	155	200		
Lane Width	w(b-a)	2.9	q(a-b)	60	45		
	w(b-c)	2.9	q(a-c)	185	120		
	w(c-b)	3.5	q(b-a)	45	35		
Visibilities			q(b-c)	210	215		
	Vr(b-a)	30	f	0.82	0.86		
	VI(b-a)	30	Capacities				
	Vr(b-c)	30	Q(b-a)	380	373		
	Vr(c-b)	120	Q(b-c)	589	605		
Geometric Parameter			Q(c-b)	670	691		
	D	0.793	Q(b-ac)	537	557		
	E	0.854	DFC's				
	F	0.986	b-a	0.12	0.09		
	Y	0.734	b-ac	0.48	0.45		
			c-b	0.23	0.29		
			Critical DFC			0.48	0.45

Priority Junction Capacity Calculation

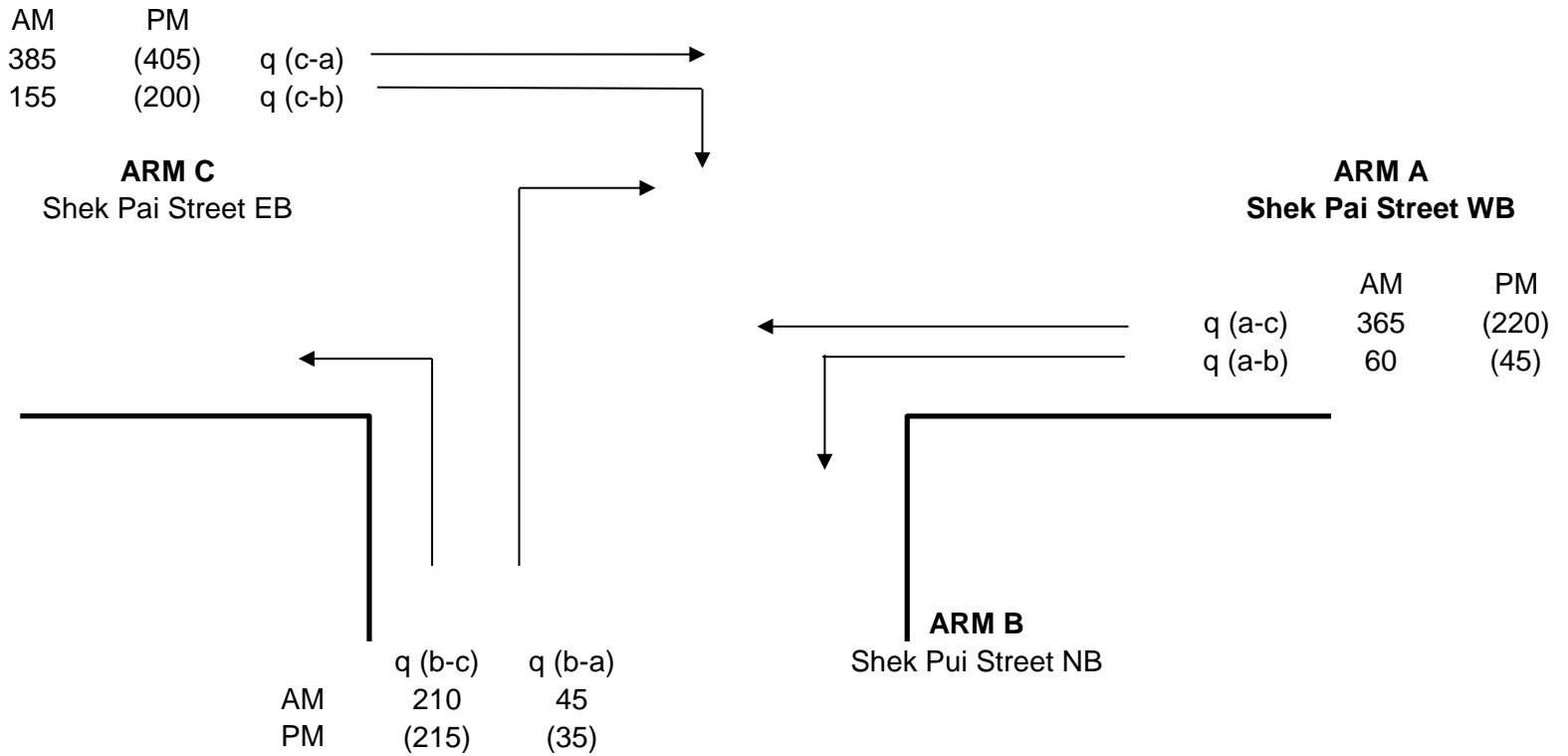
Junction : Shek Pai Street / Shek Pui Street


Junction No. : J05

Scenario : Design 2

Design Year : 2031

ARM A	Shek Pai Street WB
ARM B	Shek Pui Street NB
ARM C	Shek Pai Street EB



Geometry			Analysis				
Major Road Width	W	7.7	Traffic flows		AM	PM	
Central Reserve Width	Wcr	0	q(c-a)	385	405		
			q(c-b)	155	200		
Lane Width	w(b-a)	2.9	q(a-b)	60	45		
	w(b-c)	2.9	q(a-c)	365	220		
	w(c-b)	3.5	q(b-a)	45	35		
Visibilities			q(b-c)	210	215		
	Vr(b-a)	30	f	0.82	0.86		
	VI(b-a)	30	Capacities				
	Vr(b-c)	30	Q(b-a)	316	332		
	Vr(c-b)	120	Q(b-c)	548	582		
Geometric Parameter			Q(c-b)	622	665		
	D	0.793	Q(b-ac)	485	527		
	E	0.854	DFC's				
	F	0.986	b-a	0.14	0.11		
	Y	0.734	b-ac	0.53	0.47		
			c-b	0.25	0.30		
			Critical DFC			0.53	0.47

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Shek Pai Street / On Chuk Street

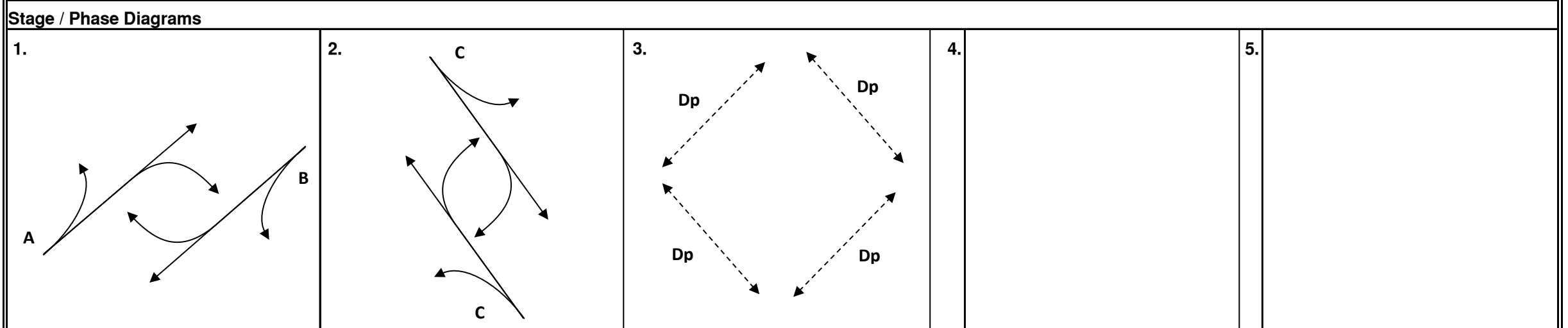
Junction No.: J06

Scenario: Observe

Design Year: 2021

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Shek Pai Street SB																
←	C	2	3.1	20			77%	74%	1820	1825	175	0.10		195	0.11	
↱	C	2	3.1		15				1670	1670	60	0.04		40	0.02	
On Chuk Street WB																
←	B	1	2.5	20			97%	95%	1740	1740	180	0.10	0.10	100	0.06	
↱	B	1	2.5		20				1650	1650	145	0.09		150	0.09	0.09
Shek Pai Street NB																
←	C	2	2.9	20			16%	15%	1880	1885	185	0.10	0.10	205	0.11	0.11
↱	C	2	2.9		20				1690	1690	35	0.02		65	0.04	
On Chuk Street EB																
←	A	1	3.3	20			13%	22%	1925	1915	40	0.02		45	0.02	
↱	A	1	3.3		15				1685	1685	10	0.01		10	0.01	
Pedestrian Crossing																
	Dp	3	MIN GREEN + FLASH = 6				+	11	=	17			*			*

NOTES:	Flow: (pcu/hr)		60(40)	↓ ↓ ↓ ↓	135(145)	↗ N	Group	B,C,Dp	Group	B,C,Dp
	5(10)	↔ ↔	40(50)	↓ ↓ ↓ ↓	145(150)	↔ ↔	Sum of Critical y Y	0.20	Sum of Critical y	0.20
	10(10)	↔ ↔	155(175)	↑ ↑ ↑ ↑	5(5)	↔ ↔	Lost Time L (sec)	33	Lost Time L (sec)	33
	35(35)	↔ ↔	35(65)	↑ ↑ ↑ ↑	175(95)		Cycle Time c (sec)	120	Cycle Time c (sec)	120
							Practical Y Ypr	0.65	Practical Y Ypr	0.65
							Reserve Capacity RC	223%	Reserve Capacity RC	227%



I/G= 3		I/G= 6		I/G= 9	17	I/G=		I/G=	
I/G= 3		I/G= 6		I/G= 9	17	I/G=		I/G=	



Junction: Shek Pai Street / On Chuk Street
 Junction No.: J06

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Shek Pai Street / On Chuk Street

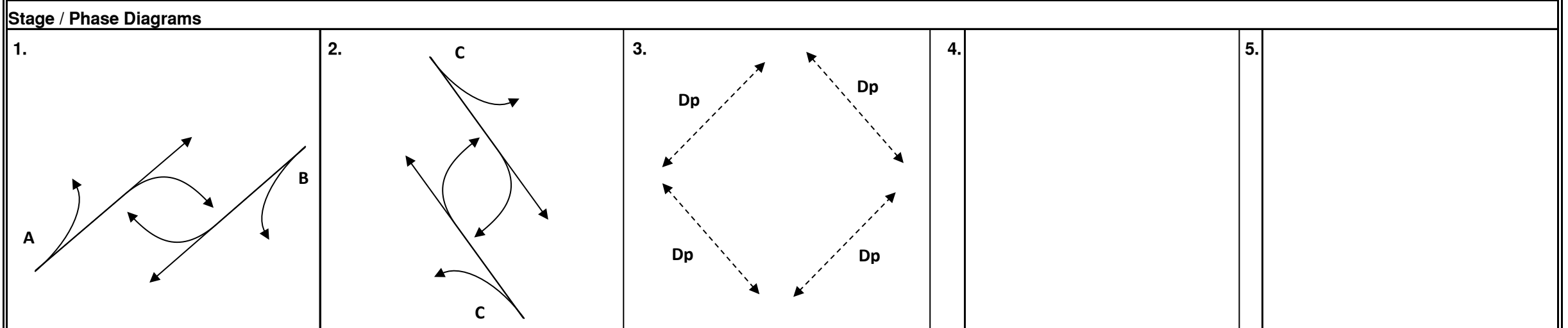
Junction No.: J06

Scenario: Reference 1

Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Shek Pai Street SB																
←	C	2	3.1	20			76%	74%	1820	1825	190	0.10	0.10	210	0.12	
↱	C	2	3.1		15				1670	1670	65	0.04		40	0.02	
On Chuk Street WB																
←	B	1	2.5	20			97%	95%	1740	1740	195	0.11	0.11	105	0.06	
↱	B	1	2.5		20				1650	1650	155	0.09		160	0.10	0.10
Shek Pai Street NB																
←	C	2	2.9	20			15%	14%	1885	1885	195	0.10		220	0.12	0.12
↱	C	2	2.9		20				1690	1690	40	0.02		70	0.04	
On Chuk Street EB																
←	A	1	3.3	20			13%	22%	1925	1915	40	0.02		45	0.02	
↱	A	1	3.3		15				1685	1685	10	0.01		10	0.01	
Pedestrian Crossing																
	Dp	3	MIN GREEN + FLASH = 6				+	11	=	17			*			*

NOTES:	Flow: (pcu/hr)		65(40)	↓ ↓ ↓	145(155)	↗ N	Group	B,C,Dp	Group	B,C,Dp
	5(10)	↔	45(55)	↓ ↓ ↓	155(160)	Sum of Critical y Y	0.22	Sum of Critical y	0.21	
	↔	35(35)	↔	5(5)	↔	Lost Time L (sec)	33	Lost Time L (sec)	33	
	10(10)	↔	165(190)	↑ ↑ ↑	190(100)	Cycle Time c (sec)	120	Cycle Time c (sec)	120	
			30(30)	↑ ↑ ↑	40(70)	Practical Y Ypr	0.65	Practical Y Ypr	0.65	
						Reserve Capacity RC	201%	Reserve Capacity RC	205%	



I/G= 3	I/G= 6	I/G= 9	17	I/G=	I/G=
I/G= 3	I/G= 6	I/G= 9	17	I/G=	I/G=



Junction: Shek Pai Street / On Chuk Street
 Junction No.: J06

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Shek Pai Street / On Chuk Street

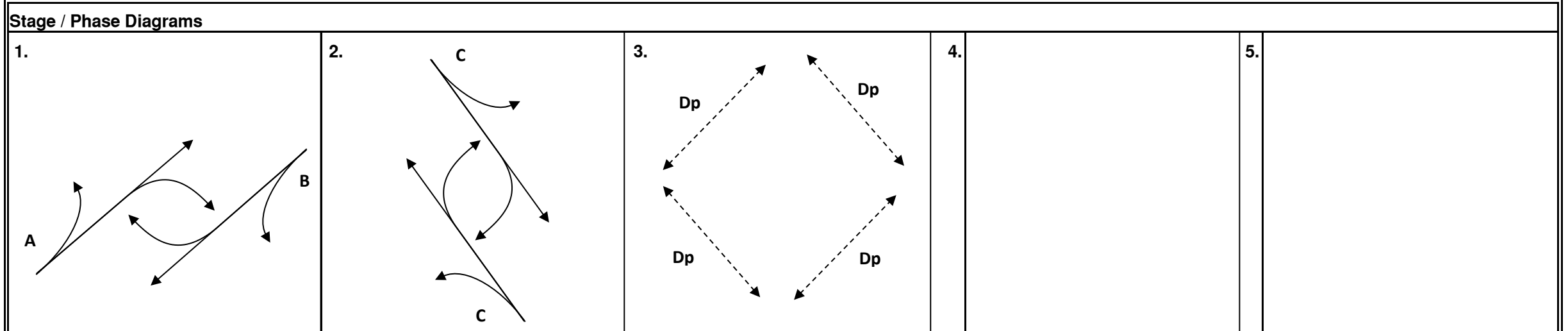
Junction No.: J06

Scenario: Design 1

Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Shek Pai Street SB																
←	C	2	3.1	20			69%	72%	1830	1825	210	0.11	0.11	215	0.12	
↱	C	2	3.1		15				1670	1670	65	0.04		40	0.02	
On Chuk Street WB																
←	B	1	2.5	20			97%	95%	1740	1740	195	0.11	0.11	105	0.06	
↱	B	1	2.5		20				1650	1650	155	0.09		160	0.10	0.10
Shek Pai Street NB																
←	C	2	2.9	20			14%	13%	1885	1885	215	0.11		235	0.12	0.12
↱	C	2	2.9		20				1690	1690	40	0.02		70	0.04	
On Chuk Street EB																
←	A	1	3.3	20			13%	22%	1925	1915	40	0.02		45	0.02	
↱	A	1	3.3		15				1685	1685	10	0.01		10	0.01	
Pedestrian Crossing																
	Dp	3	MIN GREEN + FLASH = 6				+	11	=	17				*		*

NOTES:	Flow: (pcu/hr)		65(40)	145(155)	5(10)	35(35)	10(10)	65(60)	185(205)	30(30)	155(160)	5(5)	190(100)	40(70)
	Group	B,C,Dp	Group		B,C,Dp		Sum of Critical y Y	0.23	Sum of Critical y	0.22	Lost Time L (sec)	33	Lost Time L (sec)	33
	Cycle Time c (sec)	120	Cycle Time c (sec)	120	Practical Y Ypr	0.65	Practical Y Ypr	0.65	Reserve Capacity RC	188%	Reserve Capacity RC	194%		



I/G= 3	I/G= 6	I/G= 9	17	I/G=	I/G=
I/G= 3	I/G= 6	I/G= 9	17	I/G=	I/G=



Junction: Shek Pai Street / On Chuk Street

Junction No.: J06

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Shek Pai Street / On Chuk Street (With CE45 Imp)

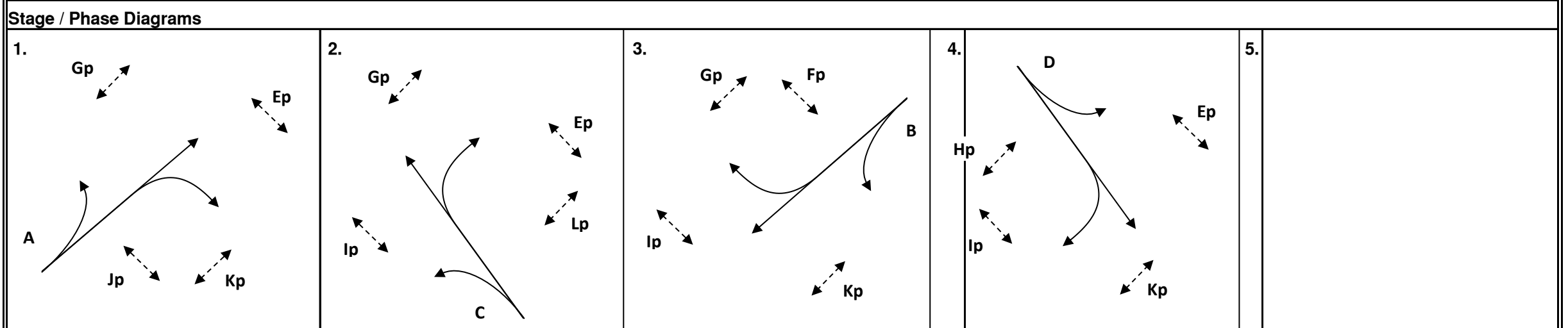
Junction No.: J06

Scenario: Reference 2

Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Shek Pai Street SB																
←	D	4	3.0	20			88%	85%	1795	1800	385	0.21	0.21	360	0.20	0.20
↱	D	4	3.0		15				1870	1870	65	0.03		40	0.02	
On Chuk Street WB																
↑	B	3	3.3	20					1810	1810	370	0.20		200	0.11	
↓	B	3	3.3						2085	2085	5	0.00		5	0.00	
↱	B	3	3.3		20				1940	1940	410	0.21	0.21	320	0.16	0.16
Shek Pai Street NB																
←	C	2	2.9	20			15%	14%	1885	1885	195	0.10		220	0.12	0.12
↱	C	2	2.9		20				1900	1900	230	0.12	0.12	220	0.12	
On Chuk Street EB																
↔	A	1	4.0	20	15		10% / 20%	18% / 18%	1960	1955	50	0.03		55	0.03	
Pedestrian Crossing																
Ep	1,2,4		MIN GREEN + FLASH =		6	+	10	=	16							
Fp	3		MIN GREEN + FLASH =		5	+	7	=	12							
Gp	1,2,3		MIN GREEN + FLASH =		5	+	7	=	12							
Hp	4		MIN GREEN + FLASH =		6	+	10	=	16							
Ip	2,3,4		MIN GREEN + FLASH =		5	+	5	=	10							
Jp	1		MIN GREEN + FLASH =		6	+	9	=	15			*				*
Kp	1,3,4		MIN GREEN + FLASH =		5	+	6	=	11							
Lp	2		MIN GREEN + FLASH =		6	+	10	=	16							

NOTES:	Flow: (pcu/hr) 	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Group</th> <th>Jp,C,B,D</th> <th>Group</th> <th>Jp,C,B,D</th> </tr> <tr> <td>Sum of Critical y Y</td> <td>0.55</td> <td>Sum of Critical y</td> <td>0.48</td> </tr> <tr> <td>Lost Time L (sec)</td> <td>29</td> <td>Lost Time L (sec)</td> <td>29</td> </tr> <tr> <td>Cycle Time c (sec)</td> <td>120</td> <td>Cycle Time c (sec)</td> <td>120</td> </tr> <tr> <td>Practical Y Ypr</td> <td>0.68</td> <td>Practical Y Ypr</td> <td>0.68</td> </tr> <tr> <td>Reserve Capacity RC</td> <td>25%</td> <td>Reserve Capacity RC</td> <td>42%</td> </tr> </table>	Group	Jp,C,B,D	Group	Jp,C,B,D	Sum of Critical y Y	0.55	Sum of Critical y	0.48	Lost Time L (sec)	29	Lost Time L (sec)	29	Cycle Time c (sec)	120	Cycle Time c (sec)	120	Practical Y Ypr	0.68	Practical Y Ypr	0.68	Reserve Capacity RC	25%	Reserve Capacity RC	42%
Group	Jp,C,B,D	Group	Jp,C,B,D																							
Sum of Critical y Y	0.55	Sum of Critical y	0.48																							
Lost Time L (sec)	29	Lost Time L (sec)	29																							
Cycle Time c (sec)	120	Cycle Time c (sec)	120																							
Practical Y Ypr	0.68	Practical Y Ypr	0.68																							
Reserve Capacity RC	25%	Reserve Capacity RC	42%																							



I/G= 5	15	I/G= 2		I/G= 5		I/G= 5		I/G=	
I/G= 5	15	I/G= 2		I/G= 5		I/G= 5		I/G=	

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Shek Pai Street / On Chuk Street (With CE45 Imp)

Junction No.: J06

Scenario: Design 2

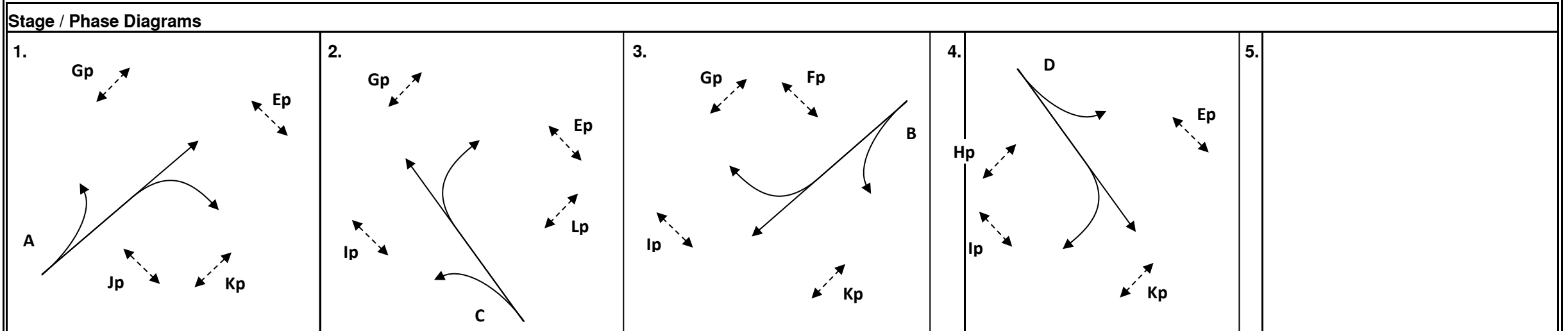
Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Shek Pai Street SB																
←	D	4	3.0	20			84%	84%	1800	1800	405	0.23	0.23	365	0.20	0.20
↱	D	4	3.0		15				1870	1870	65	0.03		40	0.02	
On Chuk Street WB																
↑	B	3	3.3	20					1810	1810	370	0.20		200	0.11	
↓	B	3	3.3						2085	2085	5	0.00		5	0.00	
↱	B	3	3.3		20				1940	1940	410	0.21	0.21	320	0.16	0.16
Shek Pai Street NB																
←	C	2	2.9	20			14%	13%	1885	1885	215	0.11		235	0.12	0.12
↱	C	2	2.9		20				1900	1900	230	0.12	0.12	220	0.12	
On Chuk Street EB																
↔	A	1	4.0	20	15		10% / 20%	18% / 18%	1960	1955	50	0.03		55	0.03	
Pedestrian Crossing																
Ep	1,2,4		MIN GREEN + FLASH =		6	+	10	=	16							
Fp	3		MIN GREEN + FLASH =		5	+	7	=	12							
Gp	1,2,3		MIN GREEN + FLASH =		5	+	7	=	12							
Hp	4		MIN GREEN + FLASH =		6	+	10	=	16							
Ip	2,3,4		MIN GREEN + FLASH =		5	+	5	=	10							
Jp	1		MIN GREEN + FLASH =		6	+	9	=	15			*				*
Kp	1,3,4		MIN GREEN + FLASH =		5	+	6	=	11							
Lp	2		MIN GREEN + FLASH =		6	+	10	=	16							

NOTES:

Flow: (pcu/hr)

Group	Jp,C,B,D	Group	Jp,C,B,D
Sum of Critical y Y	0.56	Sum of Critical y	0.49
Lost Time L (sec)	29	Lost Time L (sec)	29
Cycle Time c (sec)	120	Cycle Time c (sec)	120
Practical Y Ypr	0.68	Practical Y Ypr	0.68
Reserve Capacity RC	22%	Reserve Capacity RC	39%



I/G= 5	15	I/G= 2		I/G= 5		I/G= 5		I/G=	
I/G= 5	15	I/G= 2		I/G= 5		I/G= 5		I/G=	

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Shek Pai Street / On Chit Lane / Tai Pak Tin Street

Junction No.: J07

Scenario: Observe

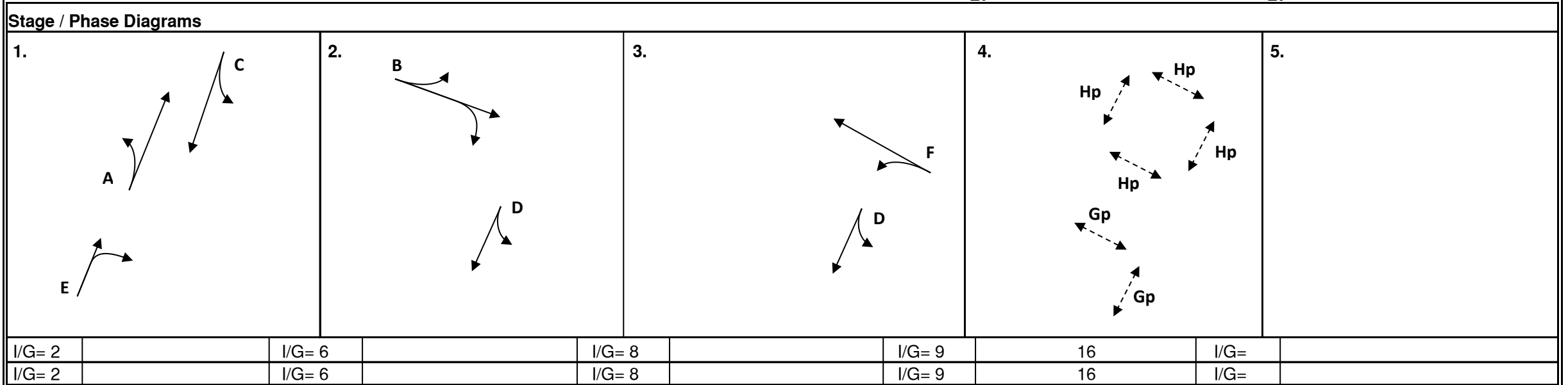
Design Year: 2021

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Tai Pak Tin Street NB ←	A	1	3.3	15			68%	58%	1820	1840	125	0.07		120	0.07	
Tai Pak Tin Street EB ← ↱	B B	2 2	3.1 3.1	15 20			2%	2%	1920 1920	1920 1920	215 30	0.11 0.02	0.11	220 30	0.11 0.02	0.11
On Chit Lane SB ←	C	1	3.0	20			71%	57%	1820	1835	35	0.02		35	0.02	
Shek Pai Street WB ←	F	3	3.7	15			13%	10%	1960	1965	305	0.16	0.16	335	0.17	0.17
Tai Pak Tin Street SB ←	D	2,3	3.5	15			50%	56%	1870	1860	90	0.05		80	0.04	
Tai Pak Tin Street NB ↑ ↱	E E	1 1	3.1 3.1		10				1925 1795	1925 1795	100 140	0.05 0.08	0.08	95 195	0.05 0.11	0.11
Pedestrian Crossing	Gp	4	MIN GREEN + FLASH =		5	+	10	=	15							
	Hp	4	MIN GREEN + FLASH =		7	+	9	=	16				*			*

NOTES:

Flow: (pcu/hr)

Group	E,B,F,Hp	Group	E,B,F,Hp
Critical y	0.35	Critical y	0.39
Lost Time L (sec)	38	Lost Time L (sec)	38
Cycle Time c (sec)	120	Cycle Time c (sec)	108
Practical Y _{pr} reserve	0.62	Practical Y _{pr} reserve	0.58
Capacity	78%	Capacity	48%



TRAFFIC SIGNALS CALCULATION SHEET

Junction: Shek Pai Street / On Chit Lane / Tai Pak Tin Street

Junction No.: J07

Scenario: Reference 1

Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Tai Pak Tin Street NB ←	A	1	3.3	15			67%	56%	1825	1845	135	0.07		135	0.07	
Tai Pak Tin Street EB ← ↱	B B	2 2	3.1 3.1	15 20			2%	2%	1920 1920	1920 1920	230 30	0.12 0.02	0.12	235 30	0.12 0.02	0.12
On Chit Lane SB ←	C	1	3.0	20			71%	57%	1820	1835	35	0.02		35	0.02	
Shek Pai Street WB ←	F	3	3.7	15			13%	10%	1965	1970	320	0.16	0.16	360	0.18	0.18
Tai Pak Tin Street SB ←	D	2,3	3.5	15			47%	53%	1875	1865	95	0.05		85	0.05	
Tai Pak Tin Street NB ↑ ↱	E E	1 1	3.1 3.1		10				1925 1795	1925 1795	110 150	0.06 0.08	0.08	105 210	0.05 0.12	0.12
Pedestrian Crossing	Gp	4	MIN GREEN + FLASH =		5	+	10	=	15							
	Hp	4	MIN GREEN + FLASH =		7	+	9	=	16				*			*

NOTES:	<p>Flow: (pcu/hr)</p>	Group	E,B,F,Hp	Group	E,B,F,Hp
		Critical y	0.37	Critical y	0.42
		Lost Time L (sec)	38	Lost Time L (sec)	38
		Cycle Time c (sec)	120	Cycle Time c (sec)	108
		Practical Y _{pr} Reserve	0.62	Practical Y _{pr} Reserve	0.58
		Capacity	68%	Capacity	38%

Stage / Phase Diagrams									
1.		2.		3.		4.		5.	
I/G= 2	I/G= 6	I/G= 8	I/G= 9	16	I/G=				
I/G= 2	I/G= 6	I/G= 8	I/G= 9	16	I/G=				

	Junction: <u>Shek Pai Street / On Chit Lane / Tai Pak Tin Street</u>
	Junction No.: <u>J07</u>

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Shek Pai Street / On Chit Lane / Tai Pak Tin Street

Junction No.: J07

Scenario: Design 1

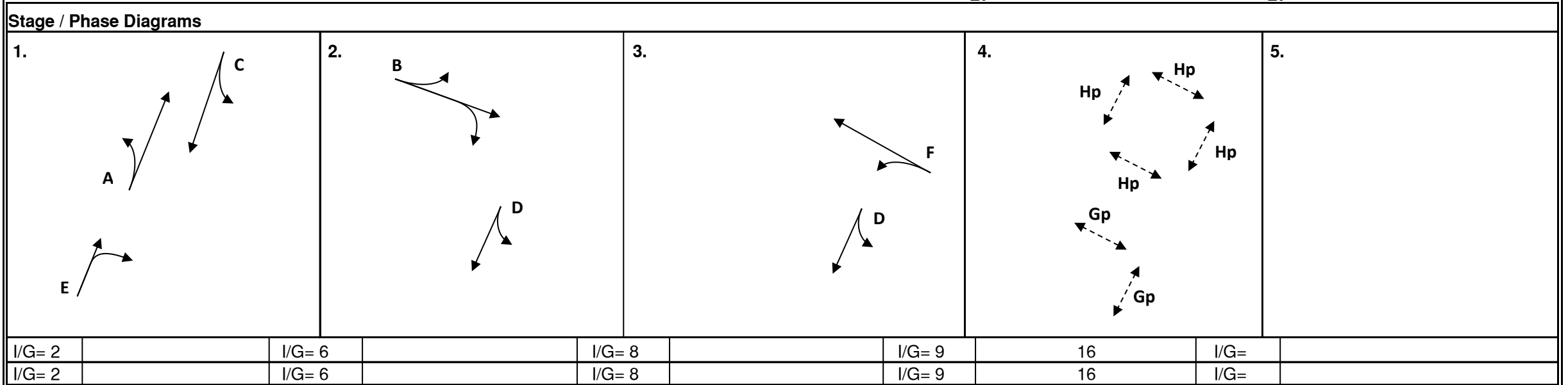
Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Tai Pak Tin Street NB ←	A	1	3.3	15			67%	56%	1825	1845	135	0.07		135	0.07	
Tai Pak Tin Street EB ← ↱	B B	2 2	3.1 3.1	15 20			2%	2%	1920 1920	1920 1920	250 30	0.13 0.02	0.13	240 30	0.13 0.02	0.13
On Chit Lane SB ←	C	1	3.0	20			71%	57%	1820	1835	35	0.02		35	0.02	
Shek Pai Street WB ←	F	3	3.7	15			12%	9%	1965	1970	340	0.17	0.17	375	0.19	0.19
Tai Pak Tin Street SB ←	D	2,3	3.5	15			47%	53%	1875	1865	95	0.05		85	0.05	
Tai Pak Tin Street NB ↑ ↱	E E	1 1	3.1 3.1		10				1925 1795	1925 1795	110 150	0.06 0.08	0.08	105 210	0.05 0.12	0.12
Pedestrian Crossing	Gp	4	MIN GREEN + FLASH =		5	+	10	=	15							
	Hp	4	MIN GREEN + FLASH =		7	+	9	=	16				*			*

NOTES:

Flow: (pcu/hr)

Group	E,B,F,Hp	Group	E,B,F,Hp
Critical y	0.39	Critical y	0.43
Lost Time L (sec)	38	Lost Time L (sec)	38
Cycle Time c (sec)	120	Cycle Time c (sec)	108
Practical Y _{pr} reserve	0.62	Practical Y _{pr} reserve	0.58
Capacity	59%	Capacity	35%



TRAFFIC SIGNALS CALCULATION SHEET

Junction: Shek Pai Street / On Chit Lane / Tai Pak Tin Street (With CE45 Imp)

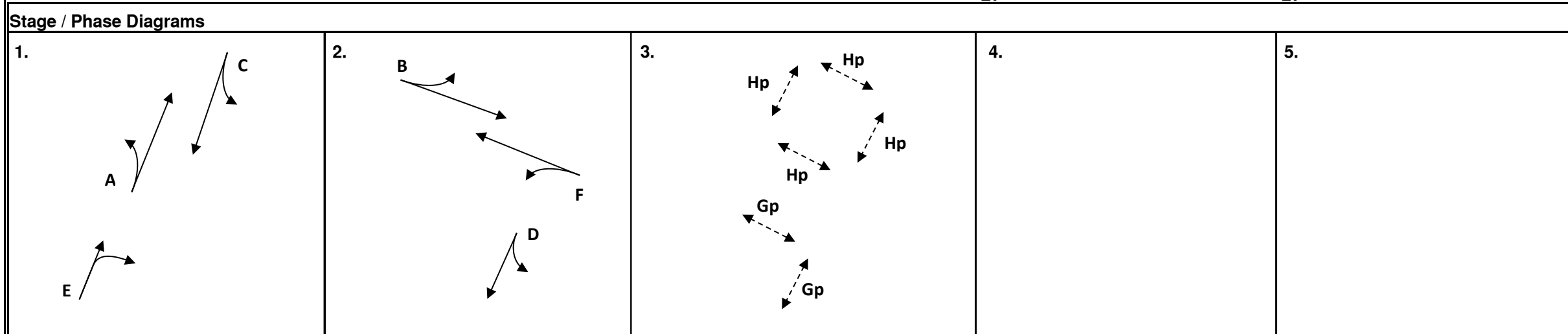
Junction No.: J07

Scenario: Reference 2

Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Tai Pak Tin Street NB ←	A	1	3.3	15			67%	56%	1825	1845	135	0.07		135	0.07	
Tai Pak Tin Street EB ↑	B	2	3.1	15					1750	1750	5	0.00		5	0.00	
	B	2	3.1						2065	2065	420	0.20		380	0.18	
On Chit Lane SB ←	C	1	3.0	20			38%	31%	1860	1870	65	0.03		65	0.03	
Shek Pai Street WB ←	F	2	3.7	15			7%	7%	1975	1975	575	0.29	0.29	520	0.26	0.26
Tai Pak Tin Street SB ←	D	2	3.5	15			47%	53%	1875	1865	95	0.05		85	0.05	
Tai Pak Tin Street NB ↑	E	1	3.1						1925	1925	110	0.06		105	0.05	
	E	1	3.1		10				1795	1795	150	0.08	0.08	210	0.12	0.12
Pedestrian Crossing	Gp	3	MIN GREEN + FLASH =		5	+	10	=	15							
	Hp	3	MIN GREEN + FLASH =		7	+	9	=	16				*			*

NOTES:	<p>Flow: (pcu/hr)</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Group</th> <th>E,F,Hp</th> <th>Group</th> <th>E,F,Hp</th> </tr> <tr> <td>Critical y</td> <td>0.37</td> <td>Critical y</td> <td>0.38</td> </tr> <tr> <td>Lost Time L (sec)</td> <td>31</td> <td>Lost Time L (sec)</td> <td>31</td> </tr> <tr> <td>Cycle Time c (sec)</td> <td>120</td> <td>Cycle Time c (sec)</td> <td>108</td> </tr> <tr> <td>Practical Y_{pr} Reserve</td> <td>0.67</td> <td>Practical Y_{pr} Reserve</td> <td>0.64</td> </tr> <tr> <td>Capacity</td> <td>78%</td> <td>Capacity</td> <td>69%</td> </tr> </table>	Group	E,F,Hp	Group	E,F,Hp	Critical y	0.37	Critical y	0.38	Lost Time L (sec)	31	Lost Time L (sec)	31	Cycle Time c (sec)	120	Cycle Time c (sec)	108	Practical Y _{pr} Reserve	0.67	Practical Y _{pr} Reserve	0.64	Capacity	78%	Capacity	69%
Group	E,F,Hp	Group	E,F,Hp																							
Critical y	0.37	Critical y	0.38																							
Lost Time L (sec)	31	Lost Time L (sec)	31																							
Cycle Time c (sec)	120	Cycle Time c (sec)	108																							
Practical Y _{pr} Reserve	0.67	Practical Y _{pr} Reserve	0.64																							
Capacity	78%	Capacity	69%																							



I/G= 2	I/G= 6	I/G= 9	16	I/G=	I/G=
I/G= 2	I/G= 6	I/G= 9	16	I/G=	I/G=

	<p>Junction: Shek Pai Street / On Chit Lane / Tai Pak Tin Street (With CE45 Imp)</p> <p>Junction No.: J07</p>
--	---

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Shek Pai Street / On Chit Lane / Tai Pak Tin Street (With CE45 Imp)

Junction No.: J07

Scenario: Design 2

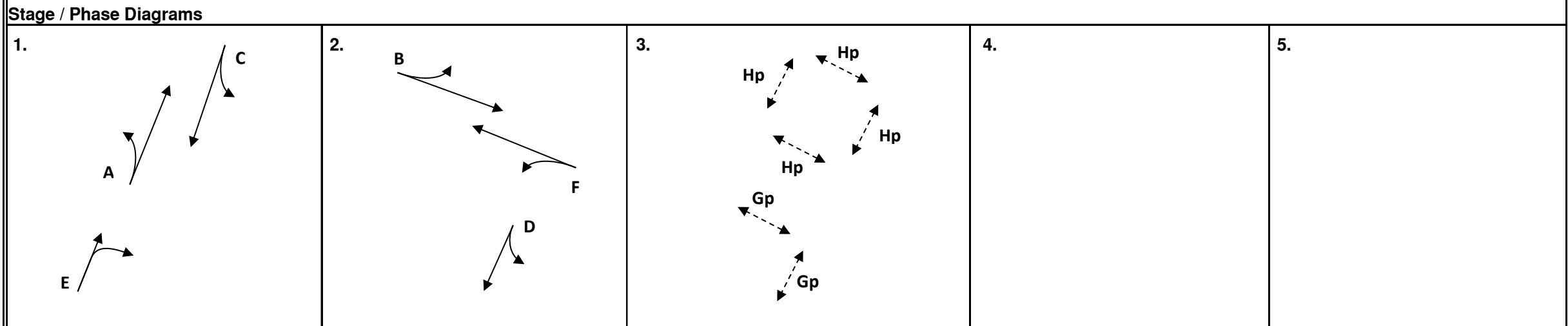
Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Tai Pak Tin Street NB ←	A	1	3.3	15			67%	56%	1825	1845	135	0.07		135	0.07	
Tai Pak Tin Street EB ↑	B	2	3.1	15					1750	1750	5	0.00		5	0.00	
	B	2	3.1						2065	2065	440	0.21		385	0.19	
On Chit Lane SB ←	C	1	3.0	20			38%	31%	1860	1870	65	0.03		65	0.03	
Shek Pai Street WB ←	F	2	3.7	15			7%	7%	1975	1975	595	0.30	0.30	535	0.27	0.27
Tai Pak Tin Street SB ←	D	2	3.5	15			47%	53%	1875	1865	95	0.05		85	0.05	
Tai Pak Tin Street NB ↑	E	1	3.1						1925	1925	110	0.06		105	0.05	
	E	1	3.1		10				1795	1795	150	0.08	0.08	210	0.12	0.12
Pedestrian Crossing	Gp	3	MIN GREEN + FLASH =		5	+	10	=	15							
	Hp	3	MIN GREEN + FLASH =		7	+	9	=	16				*			*

NOTES:

Flow: (pcu/hr)

Group	E,F,Hp	Group	E,F,Hp
Sum of Critical y	0.38	Sum of Critical y	0.39
Lost Time L (sec)	31	Lost Time L (sec)	31
Cycle Time c (sec)	120	Cycle Time c (sec)	108
Practical Y _{pr} reserve	0.67	Practical Y _{pr} reserve	0.64
Capacity	73%	Capacity	65%



I/G= 2	I/G= 6	I/G= 9	16	I/G=	I/G=
I/G= 2	I/G= 6	I/G= 9	16	I/G=	I/G=

Junction: Shek Pai Street / On Chit Lane / Tai Pak Tin Street (With CE45 Imp)

Junction No.: J07

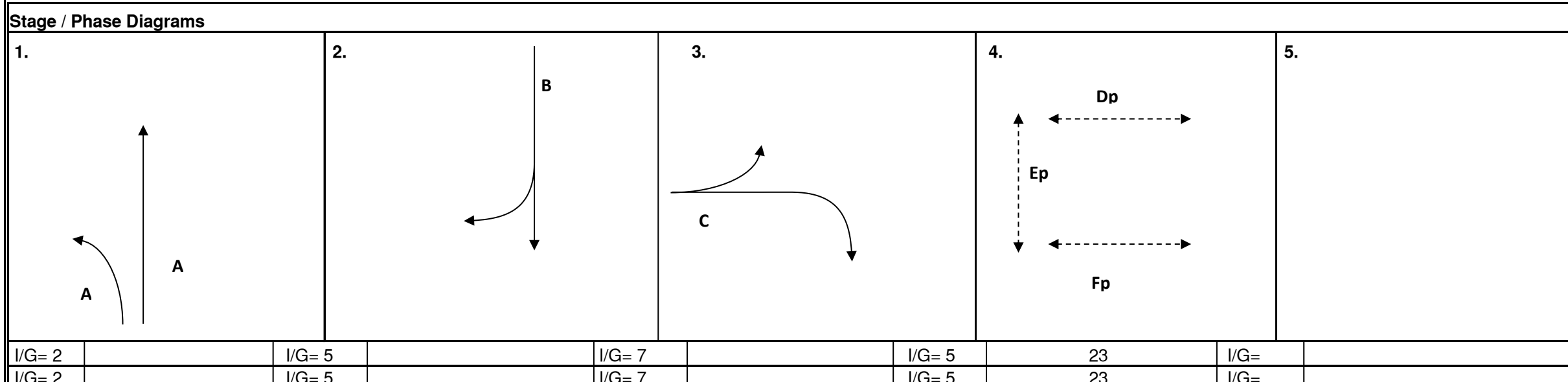
TRAFFIC SIGNALS CALCULATION SHEET

Junction: Tai Pak Tin St / Tung Chi St
 Scenario: Observe

Junction No.: J08
 Design Year: 2021

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Tai Pak Tin St SB →	B	2	3.8		18		17%	13%	1970	1975	240	0.12	0.12	235	0.12	0.12
Tung Chi Rd EB ↑	C	3	3.6	18	18		23% / 77%	8% / 92%	1825	1825	65	0.04	0.04	60	0.03	0.03
Tai Pak Tin St NB ↑	A	1	3.2	15					1760	1760	145	0.08		145	0.08	
	A	1	3.2						2075	2075	195	0.09	0.09	220	0.11	0.11
Pedestrian Crossing				Dp	4	MIN GREEN + FLASH =	9	+	9	=	18					
				Ep	4	MIN GREEN + FLASH =	8	+	15	=	23		*		*	
				Fp	4	MIN GREEN + FLASH =	5	+	10	=	15					

NOTES:	Flow: (pcu/hr) 		Group	A,B,C,Ep	Group	A,B,C,Ep
			Sum of Critical y Y	0.25	Sum of Critical y	0.26
			Lost Time L (sec)	39	Lost Time L (sec)	39
			Cycle Time c (sec)	103	Cycle Time c (sec)	103
			Practical Y Ypr	0.56	Practical Y Ypr	0.56
			Reserve Capacity RC	122%	Reserve Capacity RC	117%



TRAFFIC SIGNALS CALCULATION SHEET

Junction: Tai Pak Tin St / Tung Chi St

Junction No.: J08

Scenario: Reference 1

Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Tai Pak Tin St SB →	B	2	3.8		18		18%	12%	1965	1975	255	0.13	0.13	250	0.13	0.13
Tung Chi Rd EB ↑	C	3	3.6	18	18		21% / 79%	8% / 92%	1825	1825	70	0.04	0.04	65	0.04	0.04
Tai Pak Tin St NB ↑	A	1	3.2	15					1760	1760	155	0.09		155	0.09	
	A	1	3.2						2075	2075	210	0.10	0.10	235	0.11	0.11
Pedestrian Crossing				Dp	4	MIN GREEN + FLASH =	9	+	9	=	18					
				Ep	4	MIN GREEN + FLASH =	8	+	15	=	23		*		*	
				Fp	4	MIN GREEN + FLASH =	5	+	10	=	15					

NOTES:	<p>Flow: (pcu/hr)</p>		Group	A,B,C,Ep	Group	A,B,C,Ep
			Sum of Critical y Y	0.27	Sum of Critical y	0.28
			Lost Time L (sec)	39	Lost Time L (sec)	39
			Cycle Time c (sec)	103	Cycle Time c (sec)	103
			Practical Y Ypr	0.56	Practical Y Ypr	0.56
			Reserve Capacity RC	108%	Reserve Capacity RC	103%

Stage / Phase Diagrams					
1.	2.	3.	4.	5.	
I/G= 2	I/G= 5	I/G= 7	I/G= 5	I/G=	
I/G= 2	I/G= 5	I/G= 7	I/G= 5	I/G=	



Junction: Tai Pak Tin St / Tung Chi St
 Junction No.: J08

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Tai Pak Tin St / Tung Chi St

Junction No.: J08

Scenario: Reference 2

Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Tai Pak Tin St SB →	B	2	3.8		18		12%	9%	1975	1980	375	0.19	0.19	340	0.17	0.17
Tung Chi Rd EB ↑	C	3	3.6	18	18		10% / 90%	4% / 96%	1825	1825	150	0.08	0.08	125	0.07	0.07
Tai Pak Tin St NB ↑	A	1	3.2	15					1760	1760	315	0.18	0.18	255	0.14	0.14
	A	1	3.2						2075	2075	305	0.15		295	0.14	
Pedestrian Crossing				Dp	4	MIN GREEN + FLASH =	9	+	9	=	18					
				Ep	4	MIN GREEN + FLASH =	8	+	15	=	23		*		*	
				Fp	4	MIN GREEN + FLASH =	5	+	10	=	15					

NOTES:	<p>Flow: (pcu/hr)</p>		Group	A,B,C,Ep	Group	A,B,C,Ep
			Sum of Critical y Y	0.45	Sum of Critical y	0.39
			Lost Time L (sec)	39	Lost Time L (sec)	39
			Cycle Time c (sec)	103	Cycle Time c (sec)	103
			Practical Y Ypr	0.56	Practical Y Ypr	0.56
			Reserve Capacity RC	24%	Reserve Capacity RC	45%

Stage / Phase Diagrams									
1.	2.	3.	4.	5.					
I/G= 2	I/G= 5	I/G= 7	I/G= 5	I/G=					
I/G= 2	I/G= 5	I/G= 7	I/G= 5	I/G=	23				
					23				

	Junction: Tai Pak Tin St / Tung Chi St
	Junction No.: J08

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Tai Pak Tin St / Tung Chi St

Junction No.: J08

Scenario: Design 1

Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Tai Pak Tin St SB →	B	2	3.8		18		16%	12%	1970	1975	275	0.14	0.14	255	0.13	0.13
Tung Chi Rd EB ↑	C	3	3.6	18	18		21% / 79%	8% / 92%	1825	1825	70	0.04	0.04	65	0.04	0.04
Tai Pak Tin St NB ↑	A	1	3.2	15					1760	1760	155	0.09		155	0.09	
	A	1	3.2						2075	2075	230	0.11	0.11	250	0.12	0.12
Pedestrian Crossing				Dp	4	MIN GREEN + FLASH =	9	+	9	=	18					
				Ep	4	MIN GREEN + FLASH =	8	+	15	=	23		*		*	
				Fp	4	MIN GREEN + FLASH =	5	+	10	=	15					

NOTES:			Group	A,B,C,Ep	Group	A,B,C,Ep
			Sum of Critical y Y	0.29	Sum of Critical y	0.29
			Lost Time L (sec)	39	Lost Time L (sec)	39
			Cycle Time c (sec)	103	Cycle Time c (sec)	103
			Practical Y Ypr	0.56	Practical Y Ypr	0.56
			Reserve Capacity RC	94%	Reserve Capacity RC	96%

Stage / Phase Diagrams									
1.		2.		3.		4.		5.	
I/G= 2		I/G= 5		I/G= 7		I/G= 5	23	I/G=	
I/G= 2		I/G= 5		I/G= 7		I/G= 5	23	I/G=	



Junction: Tai Pak Tin St / Tung Chi St

Junction No.: J08

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Tai Pak Tin St / Tung Chi St

Junction No.: J08

Scenario: Design 2

Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Tai Pak Tin St SB →	B	2	3.8		18		11%	9%	1975	1980	395	0.20	0.20	345	0.17	0.17
Tung Chi Rd EB ↑	C	3	3.6	18	18		10% / 90%	4% / 96%	1825	1825	150	0.08	0.08	125	0.07	0.07
Tai Pak Tin St NB ↑	A	1	3.2	15					1760	1760	315	0.18	0.18	255	0.14	
	A	1	3.2						2075	2075	325	0.16		310	0.15	
Pedestrian Crossing				Dp	4	MIN GREEN + FLASH =	9	+	9	=	18					
				Ep	4	MIN GREEN + FLASH =	8	+	15	=	23		*		*	
				Fp	4	MIN GREEN + FLASH =	5	+	10	=	15					

NOTES:			Group	A,B,C,Ep	Group	A,B,C,Ep
			Sum of Critical y Y	0.46	Sum of Critical y	0.39
			Lost Time L (sec)	39	Lost Time L (sec)	39
			Cycle Time c (sec)	103	Cycle Time c (sec)	103
			Practical Y Ypr	0.56	Practical Y Ypr	0.56
			Reserve Capacity RC	21%	Reserve Capacity RC	43%

Stage / Phase Diagrams									
1.	2.	3.	4.	5.					
I/G= 2	I/G= 5	I/G= 7	I/G= 5	I/G=					
I/G= 2	I/G= 5	I/G= 7	I/G= 5	I/G=	23				
					23				

	Junction: Tai Pak Tin St / Tung Chi St
	Junction No.: J08

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Lei Muk Rd / Tung Chi St

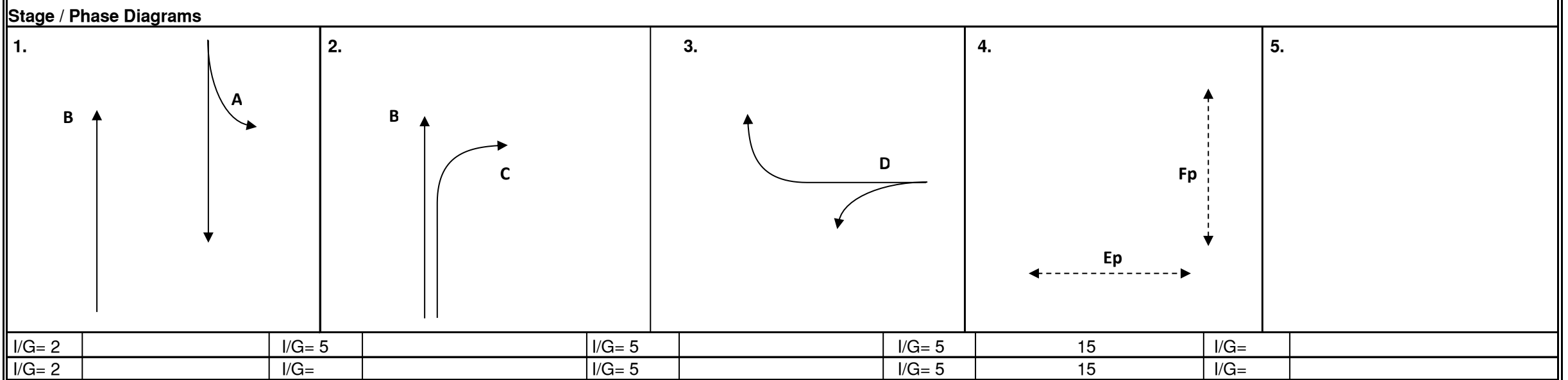
Junction No.: J09

Scenario: Observe

Design Year: 2021

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Lei Muk Rd SB																
←	A	1	3.5	30			62%	62%	1905	1905	154	0.08		121	0.06	
↑	A	1	3.5						2105	2105	171	0.08	0.08	134	0.06	
Tung Chi St WB																
↑	D	3	3.8	20	25		74% / 26%	67% / 33%	1865	1865	285	0.15	0.15	195	0.10	
Lei Muk Rd NB																
↑	B	1,2	3.7						1985	1985	455	0.23		435	0.22	
→	C	2	3.7		15				1930	1930	265	0.14	0.14	260	0.13	
Pedestrian Crossing																
	Ep	4	MIN GREEN + FLASH =		8	+	7	=	15				*		*	
	Fp	4	MIN GREEN + FLASH =		6	+	6	=	12							

NOTES:	<p>Flow: (pcu/hr)</p>	Group	A,C,D,Ep	Group	B,D,Ep
		Sum of Critical y Y	0.37	Sum of Critical y	0.32
		Lost Time L (sec)	29	Lost Time L (sec)	25
		Cycle Time c (sec)	112	Cycle Time c (sec)	110
		Practical Y Ypr	0.67	Practical Y Ypr	0.70
		Reserve Capacity RC	80%	Reserve Capacity RC	115%



Junction: Lei Muk Rd / Tung Chi St

Junction No.: J09

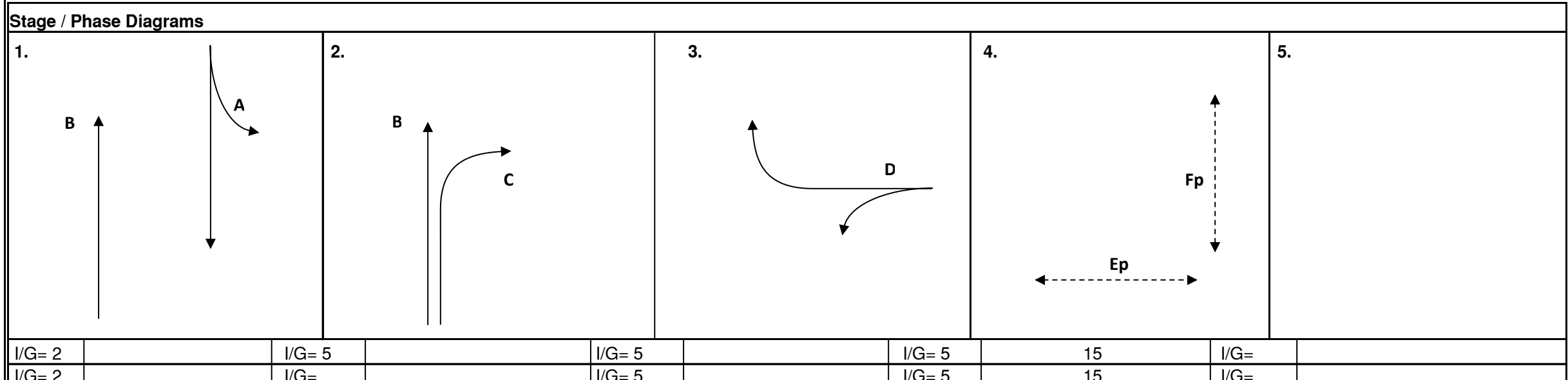
TRAFFIC SIGNALS CALCULATION SHEET

Junction: Lei Muk Rd / Tung Chi St
 Scenario: Reference 1

Junction No.: J09
 Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Lei Muk Rd SB																
↖	A	1	3.5	30			61%	63%	1905	1905	164	0.09	0.09	128	0.07	
↑	A	1	3.5						2105	2105	181	0.09		142	0.07	
Tung Chi St WB																
↖	D	3	3.8	20	25		74% / 26%	67% / 33%	1865	1865	305	0.16	0.16	210	0.11	
Lei Muk Rd NB																
↑	B	1,2	3.7						1985	1985	490	0.25		470	0.24	
↗	C	2	3.7		15				1930	1930	290	0.15	0.15	280	0.15	
Pedestrian Crossing																
	Ep	4	MIN GREEN + FLASH =		8	+	7	=	15				*		*	
	Fp	4	MIN GREEN + FLASH =		6	+	6	=	12							

NOTES:	Flow: (pcu/hr) 	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Group</th> <th>A,C,D,Ep</th> <th>Group</th> <th>B,D,Ep</th> </tr> <tr> <td>Sum of Critical y Y</td> <td>0.40</td> <td>Sum of Critical y</td> <td>0.35</td> </tr> <tr> <td>Lost Time L (sec)</td> <td>29</td> <td>Lost Time L (sec)</td> <td>25</td> </tr> <tr> <td>Cycle Time c (sec)</td> <td>112</td> <td>Cycle Time c (sec)</td> <td>110</td> </tr> <tr> <td>Practical Y Ypr</td> <td>0.67</td> <td>Practical Y Ypr</td> <td>0.70</td> </tr> <tr> <td>Reserve Capacity RC</td> <td>67%</td> <td>Reserve Capacity RC</td> <td>99%</td> </tr> </table>	Group	A,C,D,Ep	Group	B,D,Ep	Sum of Critical y Y	0.40	Sum of Critical y	0.35	Lost Time L (sec)	29	Lost Time L (sec)	25	Cycle Time c (sec)	112	Cycle Time c (sec)	110	Practical Y Ypr	0.67	Practical Y Ypr	0.70	Reserve Capacity RC	67%	Reserve Capacity RC	99%
Group	A,C,D,Ep	Group	B,D,Ep																							
Sum of Critical y Y	0.40	Sum of Critical y	0.35																							
Lost Time L (sec)	29	Lost Time L (sec)	25																							
Cycle Time c (sec)	112	Cycle Time c (sec)	110																							
Practical Y Ypr	0.67	Practical Y Ypr	0.70																							
Reserve Capacity RC	67%	Reserve Capacity RC	99%																							



TRAFFIC SIGNALS CALCULATION SHEET

Junction: Lei Muk Rd / Tung Chi St

Junction No.: J09

Scenario: Reference 2

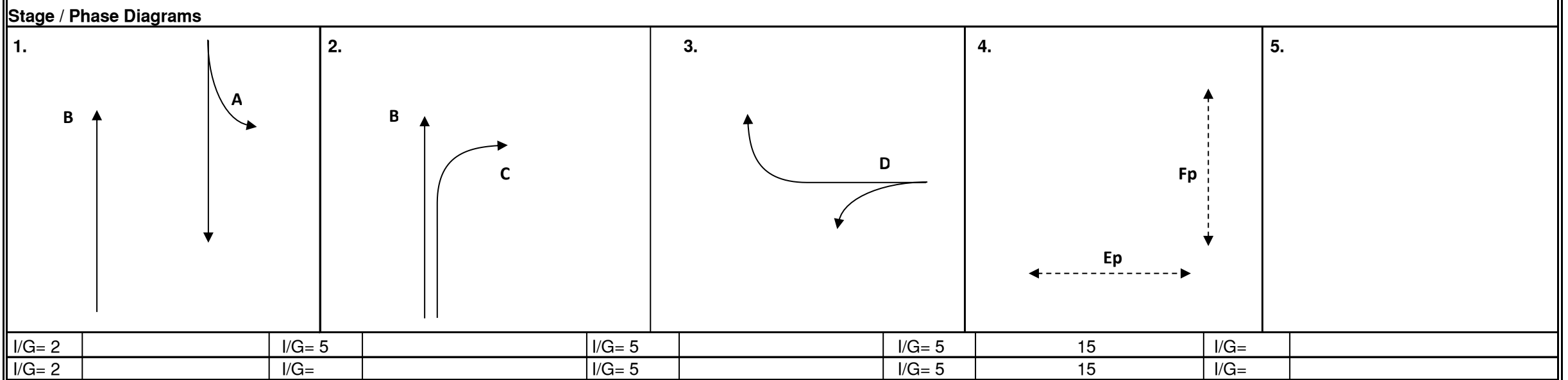
Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Lei Muk Rd SB																
←	A	1	3.5	30			48%	51%	1920	1915	210	0.11	0.11	157	0.08	
↑	A	1	3.5						2105	2105	230	0.11		173	0.08	
Tung Chi St WB																
↑	D	3	3.8	20	25		83% / 17%	77% / 23%	1860	1860	465	0.25	0.25	310	0.17	0.17
Lei Muk Rd NB																
↑	B	1,2	3.7						1985	1985	610	0.31		560	0.28	0.28
→	C	2	3.7		15				1930	1930	370	0.19	0.19	340	0.18	
Pedestrian Crossing																
	Ep	4	MIN GREEN + FLASH =		8	+	7	=	15				*			*
	Fp	4	MIN GREEN + FLASH =		6	+	6	=	12							

NOTES:

Flow: (pcu/hr)

Group	A,C,D,Ep	Group	B,D,Ep
Sum of Critical y Y	0.55	Sum of Critical y	0.45
Lost Time L (sec)	29	Lost Time L (sec)	25
Cycle Time c (sec)	112	Cycle Time c (sec)	110
Practical Y Ypr	0.67	Practical Y Ypr	0.70
Reserve Capacity RC	21%	Reserve Capacity RC	55%



TRAFFIC SIGNALS CALCULATION SHEET

Junction: Lei Muk Rd / Tung Chi St

Junction No.: J09

Scenario: Design 1

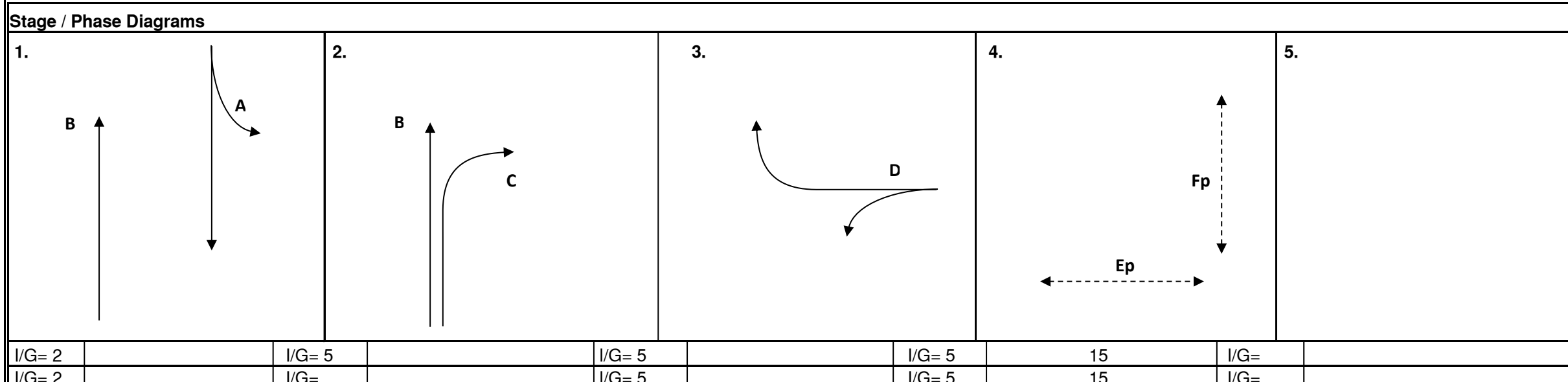
Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Lei Muk Rd SB																
←	A	1	3.5	30			61%	63%	1905	1905	164	0.09	0.09	128	0.07	
↑	A	1	3.5						2105	2105	181	0.09		142	0.07	
Tung Chi St WB																
↑	D	3	3.8	20	25		74% / 26%	67% / 33%	1865	1865	305	0.16	0.16	210	0.11	
Lei Muk Rd NB																
↑	B	1,2	3.7						1985	1985	490	0.25		470	0.24	
→	C	2	3.7		15				1930	1930	290	0.15	0.15	280	0.15	
Pedestrian Crossing																
	Ep	4	MIN GREEN + FLASH = 8			+	7	=	15				*		*	
	Fp	4	MIN GREEN + FLASH = 6			+	6	=	12							

NOTES:

Flow: (pcu/hr)

Group	A,C,D,Ep	Group	B,D,Ep
Sum of Critical y Y	0.40	Sum of Critical y	0.35
Lost Time L (sec)	29	Lost Time L (sec)	25
Cycle Time c (sec)	112	Cycle Time c (sec)	110
Practical Y Ypr	0.67	Practical Y Ypr	0.70
Reserve Capacity RC	67%	Reserve Capacity RC	99%



TRAFFIC SIGNALS CALCULATION SHEET

Junction: Lei Muk Rd / Tung Chi St

Junction No.: J09

Scenario: Design 2

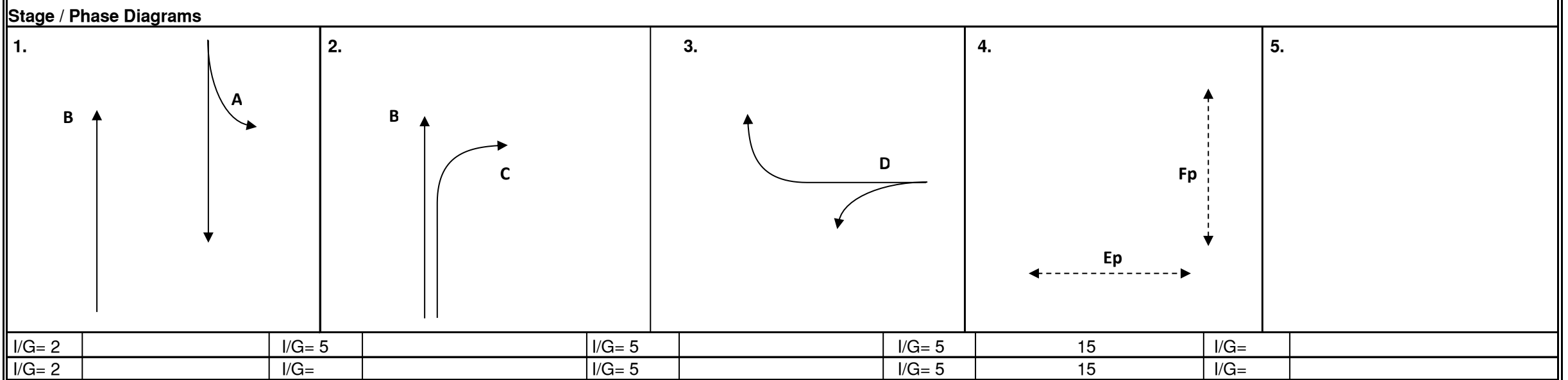
Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Lei Muk Rd SB																
←	A	1	3.5	30			48%	51%	1920	1915	210	0.11	0.11	157	0.08	
↑	A	1	3.5						2105	2105	230	0.11		173	0.08	
Tung Chi St WB																
↑	D	3	3.8	20	25		83% / 17%	77% / 23%	1860	1860	465	0.25	0.25	310	0.17	0.17
Lei Muk Rd NB																
↑	B	1,2	3.7						1985	1985	610	0.31		560	0.28	0.28
→	C	2	3.7		15				1930	1930	370	0.19	0.19	340	0.18	
Pedestrian Crossing																
	Ep	4	MIN GREEN + FLASH =		8	+	7	=	15				*			*
	Fp	4	MIN GREEN + FLASH =		6	+	6	=	12							

NOTES:

Flow: (pcu/hr)

Group	A,C,D,Ep	Group	B,D,Ep
Sum of Critical y Y	0.55	Sum of Critical y	0.45
Lost Time L (sec)	29	Lost Time L (sec)	25
Cycle Time c (sec)	112	Cycle Time c (sec)	110
Practical Y Ypr	0.67	Practical Y Ypr	0.70
Reserve Capacity RC	21%	Reserve Capacity RC	55%



TRAFFIC SIGNALS CALCULATION SHEET

Junction: Wo Yi Hop Rd / Lei Muk Rd
 Scenario: Observe

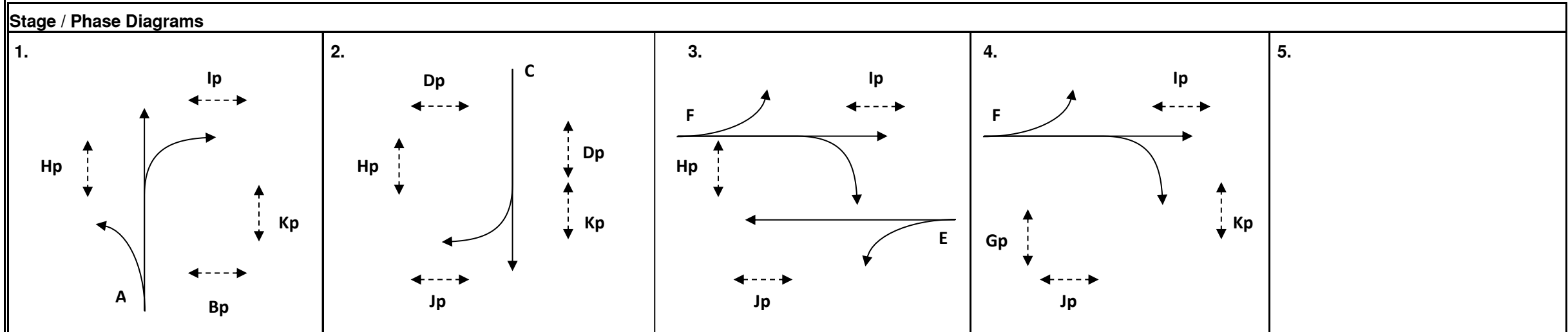
Junction No.: J10
 Design Year: 2021

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak			
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y	
Lei Muk Rd SB																	
	←	C	2	3.5		18		91%	85%	1825	1835						
	→	C	2	3.5		15				1705	1705	222	0.12		163	0.09	
Wo Yi Hop Rd EB																	
L,S	←	F	3,4	3.3	15			93%	100%	1600	1505	611	0.38	0.38	625	0.42	0.42
S,R	→	F	3,4	3.3		20		20%	18%	1645	1555	624	0.38		520	0.33	
Lei Muk Rd NB																	
	←	A	1	3.0	13					1715	1545	122	0.07		170	0.11	
	←	A	1	3.0	15					1870	1680	133	0.07		185	0.11	0.11
	→	A	1	3.0		18		30%	50%	2005	1775	215	0.11	0.11	130	0.07	
Wo Yi Hop Rd WB																	
	←	E	3	2.8	10					1650	1650	40	0.02		35	0.02	
	←	E	3	2.8						2035	2035	295	0.14		320	0.16	
	←	E	3	2.8						2035	2035	295	0.14		320	0.16	
Pedestrian Crossing																	
Bp		1	MIN GREEN + FLASH =		5	+	7	=	12								
Dp		2	MIN GREEN + FLASH =		5	+	9	=	14							*	
Gp		4	MIN GREEN + FLASH =		5	+	9	=	14								
Hp		1,2	MIN GREEN + FLASH =		6	+	11	=	17								
Ip		1,3,4	MIN GREEN + FLASH =		5	+	8	=	13								
Jp		2,3,4	MIN GREEN + FLASH =		5	+	9	=	14								
Kp		1,2,4	MIN GREEN + FLASH =		5	+	9	=	14								

NOTES:

Flow: (pcu/hr)

Group	A,C,F	Group	A,Dp,F
Sum of Critical y Y	0.61	Sum of Critical y	0.53
Lost Time L (sec)	22	Lost Time L (sec)	39
Cycle Time c (sec)	110	Cycle Time c (sec)	110
Practical Y_{pr}	0.72	Practical Y_{pr}	0.58
Reserve Capacity RC	18%	Reserve Capacity RC	11%



I/G= 12		I/G= 6		I/G= 7		I/G=		I/G=
I/G= 12		I/G= 12	14	I/G=		I/G= 3		I/G=

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Wo Yi Hop Rd / Lei Muk Rd

Junction No.: J10

Scenario: Reference 1

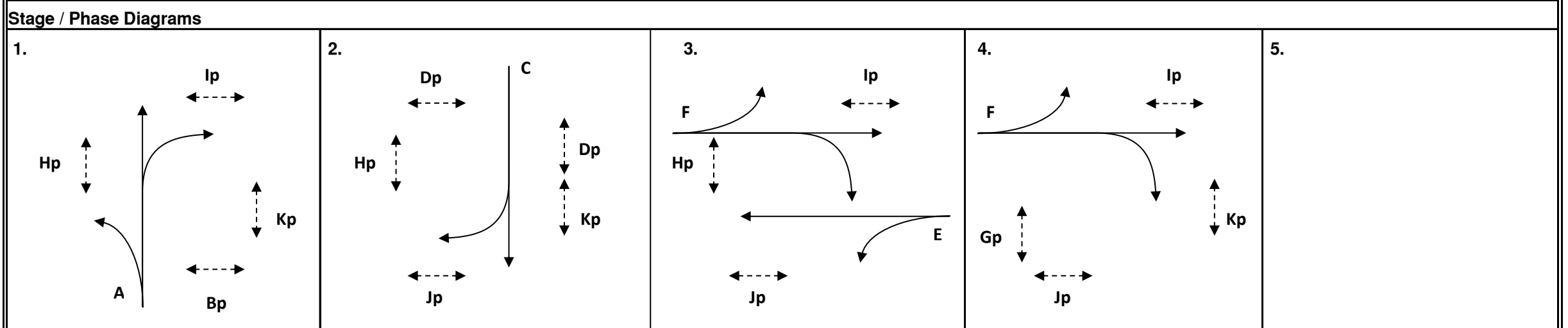
Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Lei Muk Rd SB																
	←	C	2	3.5		18		92%	86%	1825	1835	238	0.13		176	0.10
	→	C	2	3.5		15				1705	1705	222	0.13		164	0.10
Wo Yi Hop Rd EB																
L,S	←	F	3,4	3.3	15			88%	100%	1610	1505	694	0.43	0.43	670	0.45
S,R	→	F	3,4	3.3		20		19%	16%	1645	1560	706	0.43		625	0.40
Lei Muk Rd NB																
	←	A	1	3.0	13					1715	1545	132	0.08		184	0.12
	←	A	1	3.0	15					1870	1680	143	0.08		201	0.12
	→	A	1	3.0		18		30%	50%	2005	1775	230	0.11	0.11	140	0.08
Wo Yi Hop Rd WB																
	←	E	3	2.8	10					1650	1650	45	0.03		35	0.02
	←	E	3	2.8						2035	2035	333	0.16		365	0.18
	←	E	3	2.8						2035	2035	332	0.16		365	0.18
Pedestrian Crossing																
	Bp	1	MIN GREEN + FLASH =			5	+	7	=	12						
	Dp	2	MIN GREEN + FLASH =			5	+	9	=	14			*			*
	Gp	4	MIN GREEN + FLASH =			5	+	9	=	14						
	Hp	1,2	MIN GREEN + FLASH =			6	+	11	=	17						
	Ip	1,3,4	MIN GREEN + FLASH =			5	+	8	=	13						
	Jp	2,3,4	MIN GREEN + FLASH =			5	+	9	=	14						
	Kp	1,2,4	MIN GREEN + FLASH =			5	+	9	=	14						

NOTES:

Flow: (pcu/hr)

Group	A,Dp,F	Group	A,Dp,F
Sum of Critical y Y	0.55	Sum of Critical y	0.56
Lost Time L (sec)	39	Lost Time L (sec)	39
Cycle Time c (sec)	110	Cycle Time c (sec)	110
Practical Y Ypr	0.58	Practical Y Ypr	0.58
Reserve Capacity RC	6%	Reserve Capacity RC	3%



I/G= 12	I/G= 12	14	I/G=	I/G= 3	I/G=
I/G= 12	I/G= 12	14	I/G=	I/G= 3	I/G=

Junction: Wo Yi Hop Rd / Lei Muk Rd

Junction No.: J10

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Wo Yi Hop Rd / Lei Muk Rd

Junction No.: J10

Scenario: Design 1

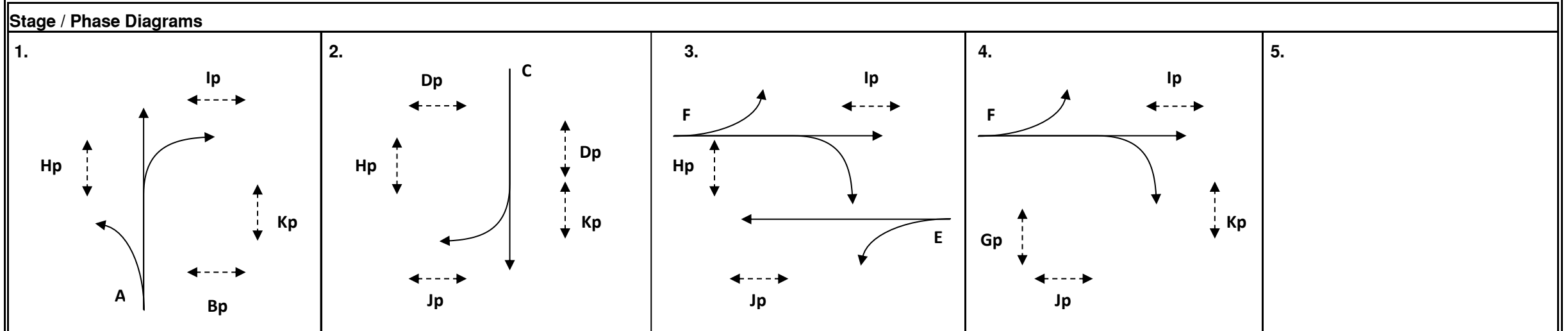
Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak			
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y	
Lei Muk Rd SB																	
	←	C	2	3.5		18		92%	86%	1825	1835	238	0.13		176	0.10	
	→	C	2	3.5		15				1705	1705	222	0.13		164	0.10	
Wo Yi Hop Rd EB																	
L,S	←	F	3,4	3.3	15			88%	100%	1610	1505	694	0.43	0.43	670	0.45	0.45
S,R	→	F	3,4	3.3		20		19%	16%	1645	1560	706	0.43		625	0.40	
Lei Muk Rd NB																	
	←	A	1	3.0	13					1715	1545	132	0.08		184	0.12	
	←	A	1	3.0	15					1870	1680	143	0.08		201	0.12	0.12
	→	A	1	3.0		18		30%	50%	2005	1775	230	0.11	0.11	140	0.08	
Wo Yi Hop Rd WB																	
	←	E	3	2.8	10					1650	1650	45	0.03		35	0.02	
	←	E	3	2.8						2035	2035	333	0.16		365	0.18	
	←	E	3	2.8						2035	2035	332	0.16		365	0.18	
Pedestrian Crossing																	
	Bp	1	MIN GREEN + FLASH =		5	+	7	=	12								
	Dp	2	MIN GREEN + FLASH =		5	+	9	=	14				*			*	
	Gp	4	MIN GREEN + FLASH =		5	+	9	=	14								
	Hp	1,2	MIN GREEN + FLASH =		6	+	11	=	17								
	Ip	1,3,4	MIN GREEN + FLASH =		5	+	8	=	13								
	Jp	2,3,4	MIN GREEN + FLASH =		5	+	9	=	14								
	Kp	1,2,4	MIN GREEN + FLASH =		5	+	9	=	14								

NOTES:

Flow: (pcu/hr)

Group	A,Dp,F	Group	A,Dp,F
Sum of Critical y Y	0.55	Sum of Critical y	0.56
Lost Time L (sec)	39	Lost Time L (sec)	39
Cycle Time c (sec)	110	Cycle Time c (sec)	110
Practical Y Ypr	0.58	Practical Y Ypr	0.58
Reserve Capacity RC	6%	Reserve Capacity RC	3%



I/G= 12	I/G= 12	14	I/G=	I/G= 3	I/G=
I/G= 12	I/G= 12	14	I/G=	I/G= 3	I/G=

Junction: Wo Yi Hop Rd / Lei Muk Rd

Junction No.: J10

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Wo Yi Hop Rd / Lei Muk Rd (With CE45 Imp)

Junction No.: J10

Scenario: Reference 2

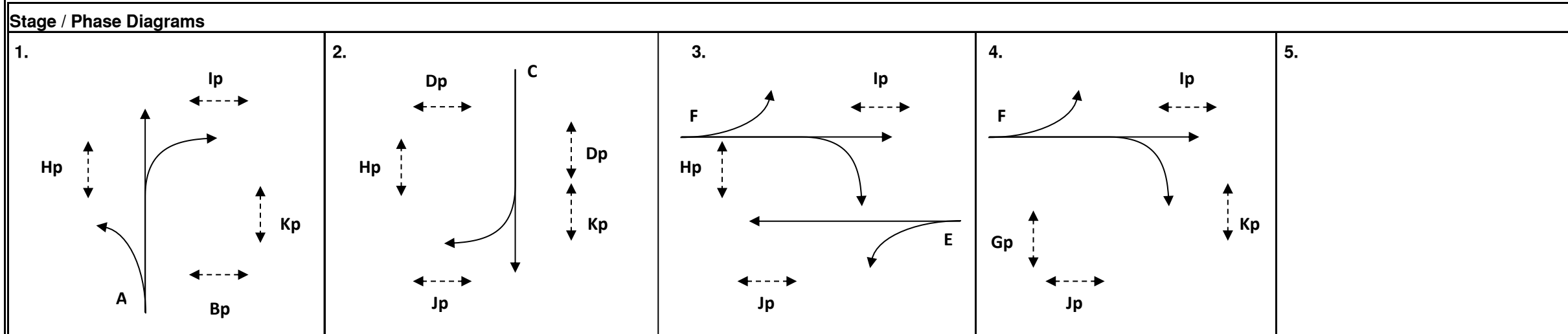
Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak			
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y	
Lei Muk Rd SB																	
	←	C	2	3.5		18		95%	90%	1820	1825	369	0.20		259	0.14	0.14
	→	C	2	3.5		15				1705	1705	346	0.20	0.20	241	0.14	
Wo Yi Hop Rd EB																	
L	←	F	3,4	3.1	10					1675	1505	430	0.26		412	0.27	
L,S	←	F	3,4	3.1	15			31%	55%	2005	1760	517	0.26	0.26	481	0.27	
S,R	→	F	3,4	3.1		20		36%	30%	1785	1615	460	0.26		442	0.27	0.27
Lei Muk Rd NB																	
	←	A	1	3.0	13					1715	1545	132	0.08		184	0.12	
	←	A	1	3.0	15					1870	1680	143	0.08		201	0.12	0.12
	→	A	1	3.0		18		30%	50%	2005	1775	230	0.11	0.11	140	0.08	
Wo Yi Hop Rd WB																	
	←	E	3	2.8	10					1650	1650	45	0.03		35	0.02	
	←	E	3	2.8						2035	2035	333	0.16		365	0.18	
	←	E	3	2.8						2035	2035	332	0.16		365	0.18	
Pedestrian Crossing																	
Bp		1	MIN GREEN + FLASH =			5	+	7	=	12							
Dp		2	MIN GREEN + FLASH =			5	+	9	=	14							
Gp		4	MIN GREEN + FLASH =			5	+	9	=	14							
Hp		1,2	MIN GREEN + FLASH =			7	+	12	=	19							
Ip		1,3,4	MIN GREEN + FLASH =			5	+	8	=	13							
Jp		2,3,4	MIN GREEN + FLASH =			5	+	9	=	14							
Kp		1,2,4	MIN GREEN + FLASH =			5	+	9	=	14							

NOTES:

Flow: (pcu/hr)

Group	A,C,F	Group	A,C,F
Sum of Critical y Y	0.58	Sum of Critical y	0.54
Lost Time L (sec)	22	Lost Time L (sec)	22
Cycle Time c (sec)	120	Cycle Time c (sec)	110
Practical Y Ypr	0.74	Practical Y Ypr	0.72
Reserve Capacity RC	28%	Reserve Capacity RC	35%



I/G= 12	I/G= 6	I/G= 7	I/G=	I/G=
I/G= 12	I/G= 6	I/G= 7	I/G=	I/G=

Junction: Wo Yi Hop Rd / Lei Muk Rd (With CE45 Imp)

Junction No.: J10

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Wo Yi Hop Rd / Lei Muk Rd (With CE45 Imp)

Junction No.: J10

Scenario: Design 2

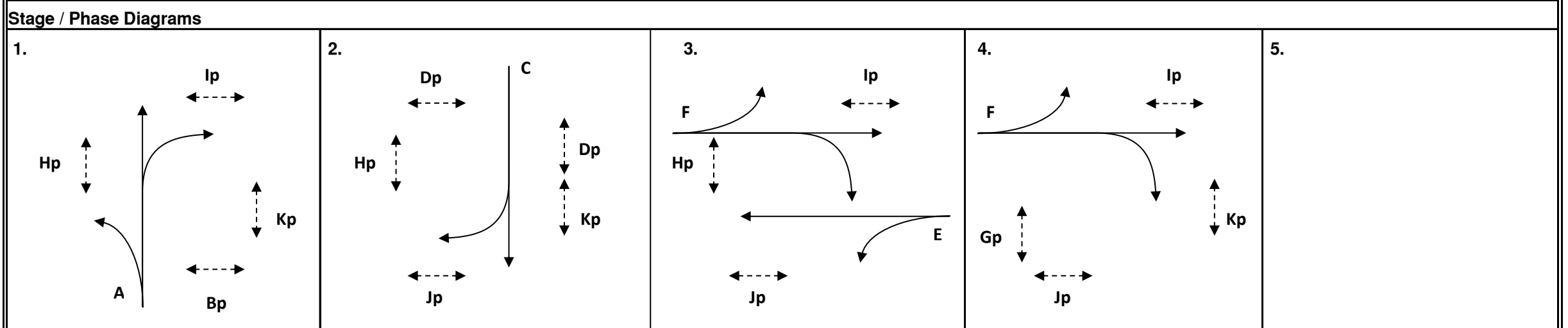
Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak			
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y	
Lei Muk Rd SB																	
	←	C	2	3.5		18		95%	90%	1820	1825	369	0.20		259	0.14	0.14
	→	C	2	3.5		15				1705	1705	346	0.20	0.20	241	0.14	
Wo Yi Hop Rd EB																	
L	←	F	3,4	3.1	10					1675	1505	430	0.26		412	0.27	
L,S	←	F	3,4	3.1	15			31%	55%	2005	1760	517	0.26	0.26	481	0.27	
S,R	→	F	3,4	3.1		20		36%	30%	1785	1615	460	0.26		442	0.27	0.27
Lei Muk Rd NB																	
	←	A	1	3.0	13					1715	1545	132	0.08		184	0.12	
	←	A	1	3.0	15					1870	1680	143	0.08		201	0.12	0.12
	→	A	1	3.0		18		30%	50%	2005	1775	230	0.11	0.11	140	0.08	
Wo Yi Hop Rd WB																	
	←	E	3	2.8	10					1650	1650	45	0.03		35	0.02	
	←	E	3	2.8						2035	2035	333	0.16		365	0.18	
	←	E	3	2.8						2035	2035	332	0.16		365	0.18	
Pedestrian Crossing																	
Bp		1	MIN GREEN + FLASH =		5	+	7	=	12								
Dp		2	MIN GREEN + FLASH =		5	+	9	=	14								
Gp		4	MIN GREEN + FLASH =		5	+	9	=	14								
Hp		1,2	MIN GREEN + FLASH =		7	+	12	=	19								
Ip		1,3,4	MIN GREEN + FLASH =		5	+	8	=	13								
Jp		2,3,4	MIN GREEN + FLASH =		5	+	9	=	14								
Kp		1,2,4	MIN GREEN + FLASH =		5	+	9	=	14								

NOTES:

Flow: (pcu/hr)

Group	A,C,F	Group	A,C,F
Sum of Critical y Y	0.58	Sum of Critical y	0.54
Lost Time L (sec)	22	Lost Time L (sec)	22
Cycle Time c (sec)	120	Cycle Time c (sec)	110
Practical Y Ypr	0.74	Practical Y Ypr	0.72
Reserve Capacity RC	28%	Reserve Capacity RC	35%



I/G= 12		I/G= 6		I/G= 7		I/G=		I/G=	
I/G= 12		I/G= 6		I/G= 7		I/G=		I/G=	

Junction: Wo Yi Hop Rd / Lei Muk Rd (With CE45 Imp)

Junction No.: J10

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Cheung Wing Rd / Wo Yi Hop Rd

Junction No.: J11

Scenario: Observe

Design Year: 2021

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Cheung Wing Rd SB																
↑	C	1,2	3.2	15					1760	1760	310	0.18		340	0.19	
↑	D	2	3.2						2075	2075	375	0.18	0.18	248	0.12	
↑	D	2	3.2						2075	2075	375	0.18		249	0.12	0.12
↑	D	2	3.2						2075	2075	375	0.18		248	0.12	
Cheung Wing Rd NB																
↑	A	2,3	3.1						1925	1925	441	0.23		478	0.25	
↑	A	2,3	3.1						2065	2065	474	0.23		512	0.25	
→	B	3	3.1		23				1940	1940	470	0.24	0.24	397	0.20	
→	B	3	3.1		20				1920	1920	465	0.24		393	0.20	0.20
Wo Yi Hop Rd WB																
↑	F	1,3	3.1	10					1675	1675	456	0.27		454	0.27	
↑	F	1,3	3.1	13					1850	1850	504	0.27		501	0.27	
→	E	1	3.1		20				1920	1920	146	0.08	0.08	163	0.08	
→	E	1	3.1		18				1905	1905	144	0.08		162	0.09	0.09
Pedestrian Crossing																

NOTES:	<p>Flow: (pcu/hr)</p>	Group	E,D,B	Group	E,D,B
		Sum of Critical y Y	0.50	Sum of Critical y	0.41
		Lost Time L (sec)	12	Lost Time L (sec)	12
		Cycle Time c (sec)	112	Cycle Time c (sec)	110
		Practical Y Ypr	0.80	Practical Y Ypr	0.80
		Reserve Capacity RC	61%	Reserve Capacity RC	96%

Stage / Phase Diagrams					
1.	2.	3.	4.	5.	
I/G= 5	I/G= 5	I/G= 5	I/G=	I/G=	
I/G= 5	I/G= 5	I/G= 5	I/G=	I/G=	

	Junction: <u>Cheung Wing Rd / Wo Yi Hop Rd</u>
	Junction No.: <u>J11</u>

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Cheung Wing Rd / Wo Yi Hop Rd

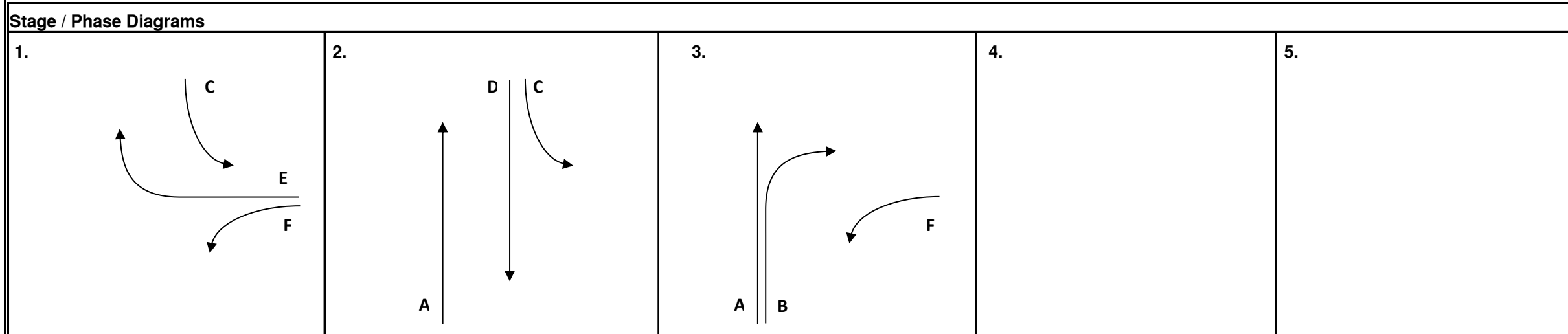
Junction No.: J11

Scenario: Reference 1

Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Cheung Wing Rd SB																
↑	C	1,2	3.2	15					1760	1760	360	0.20		400	0.23	0.23
↑	D	2	3.2						2075	2075	403	0.19		267	0.13	
↑	D	2	3.2						2075	2075	404	0.19	0.19	266	0.13	
↑	D	2	3.2						2075	2075	403	0.19		267	0.13	
Cheung Wing Rd NB																
↑	A	2,3	3.1						1925	1925	475	0.25		514	0.27	
↑	A	2,3	3.1						2065	2065	510	0.25		551	0.27	
→	B	3	3.1		23				1940	1940	525	0.27		445	0.23	0.23
→	B	3	3.1		20				1920	1920	520	0.27	0.27	440	0.23	
Wo Yi Hop Rd WB																
↑	F	1,3	3.1	10					1675	1675	506	0.30		506	0.30	
↑	F	1,3	3.1	13					1850	1850	559	0.30		559	0.30	
→	E	1	3.1		20				1920	1920	158	0.08		176	0.09	
→	E	1	3.1		18				1905	1905	157	0.08	0.08	174	0.09	
Pedestrian Crossing																

NOTES:	<p>Flow: (pcu/hr)</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Group</th> <th>E,D,B</th> <th>Group</th> <th>C,B</th> </tr> <tr> <td>Sum of Critical y Y</td> <td>0.55</td> <td>Sum of Critical y</td> <td>0.46</td> </tr> <tr> <td>Lost Time L (sec)</td> <td>12</td> <td>Lost Time L (sec)</td> <td>11</td> </tr> <tr> <td>Cycle Time c (sec)</td> <td>112</td> <td>Cycle Time c (sec)</td> <td>110</td> </tr> <tr> <td>Practical Y Y_{pr}</td> <td>0.80</td> <td>Practical Y Y_{pr}</td> <td>0.81</td> </tr> <tr> <td>Reserve Capacity RC</td> <td>47%</td> <td>Reserve Capacity RC</td> <td>77%</td> </tr> </table>	Group	E,D,B	Group	C,B	Sum of Critical y Y	0.55	Sum of Critical y	0.46	Lost Time L (sec)	12	Lost Time L (sec)	11	Cycle Time c (sec)	112	Cycle Time c (sec)	110	Practical Y Y_{pr}	0.80	Practical Y Y_{pr}	0.81	Reserve Capacity RC	47%	Reserve Capacity RC	77%	
Group	E,D,B	Group	C,B																								
Sum of Critical y Y	0.55	Sum of Critical y	0.46																								
Lost Time L (sec)	12	Lost Time L (sec)	11																								
Cycle Time c (sec)	112	Cycle Time c (sec)	110																								
Practical Y Y_{pr}	0.80	Practical Y Y_{pr}	0.81																								
Reserve Capacity RC	47%	Reserve Capacity RC	77%																								



I/G= 5	I/G= 5	I/G= 5	I/G=	I/G=	I/G=
I/G= 8	I/G=	I/G= 5	I/G=	I/G=	I/G=

	<p>Junction: Cheung Wing Rd / Wo Yi Hop Rd</p> <p>Junction No.: J11</p>
--	---

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Cheung Wing Rd / Wo Yi Hop Rd

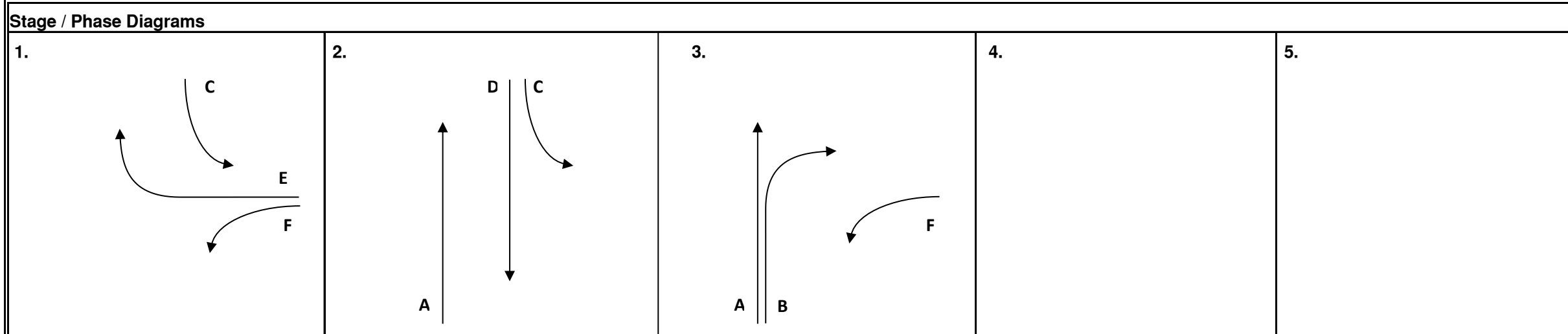
Junction No.: J11

Scenario: Reference 2

Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Cheung Wing Rd SB																
↑	C	1,2	3.2	15					1760	1760	400	0.23		440	0.25	0.25
↑	D	2	3.2						2075	2075	403	0.19		267	0.13	
↑	D	2	3.2						2075	2075	404	0.19	0.19	266	0.13	
↑	D	2	3.2						2075	2075	403	0.19		267	0.13	
Cheung Wing Rd NB																
↑	A	2,3	3.1						1925	1925	475	0.25		514	0.27	
↑	A	2,3	3.1						2065	2065	510	0.25		551	0.27	
→	B	3	3.1		23				1940	1940	601	0.31	0.31	500	0.26	
→	B	3	3.1		20				1920	1920	594	0.31		495	0.26	0.26
Wo Yi Hop Rd WB																
↑	F	1,3	3.1	10					1675	1675	608	0.36		570	0.34	
↑	F	1,3	3.1	13					1850	1850	672	0.36		630	0.34	
→	E	1	3.1		20				1920	1920	178	0.09		191	0.10	
→	E	1	3.1		18				1905	1905	177	0.09	0.09	189	0.10	
Pedestrian Crossing																

NOTES:	<p>Flow: (pcu/hr)</p>	<table border="1" style="width: 100%;"> <tr> <th>Group</th> <th>E,D,B</th> <th>Group</th> <th>C,B</th> </tr> <tr> <td>Sum of Critical y Y</td> <td>0.60</td> <td>Sum of Critical y</td> <td>0.51</td> </tr> <tr> <td>Lost Time L (sec)</td> <td>12</td> <td>Lost Time L (sec)</td> <td>11</td> </tr> <tr> <td>Cycle Time c (sec)</td> <td>112</td> <td>Cycle Time c (sec)</td> <td>110</td> </tr> <tr> <td>Practical Y</td> <td>0.80</td> <td>Practical Y</td> <td>0.81</td> </tr> <tr> <td>Reserve Capacity RC</td> <td>35%</td> <td>Reserve Capacity RC</td> <td>60%</td> </tr> </table>	Group	E,D,B	Group	C,B	Sum of Critical y Y	0.60	Sum of Critical y	0.51	Lost Time L (sec)	12	Lost Time L (sec)	11	Cycle Time c (sec)	112	Cycle Time c (sec)	110	Practical Y	0.80	Practical Y	0.81	Reserve Capacity RC	35%	Reserve Capacity RC	60%
Group	E,D,B	Group	C,B																							
Sum of Critical y Y	0.60	Sum of Critical y	0.51																							
Lost Time L (sec)	12	Lost Time L (sec)	11																							
Cycle Time c (sec)	112	Cycle Time c (sec)	110																							
Practical Y	0.80	Practical Y	0.81																							
Reserve Capacity RC	35%	Reserve Capacity RC	60%																							



I/G= 5	I/G= 5	I/G= 5	I/G=	I/G=	I/G=
I/G= 8	I/G=	I/G= 5	I/G=	I/G=	I/G=

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Cheung Wing Rd / Wo Yi Hop Rd

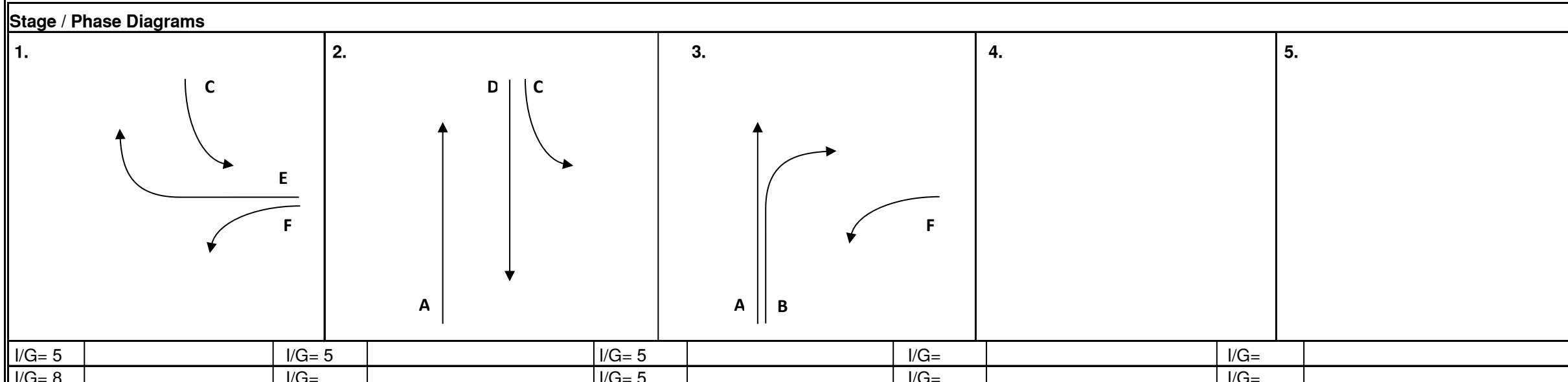
Junction No.: J11

Scenario: Design 1

Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Cheung Wing Rd SB																
↑	C	1,2	3.2	15					1760	1760	360	0.20		400	0.23	0.23
↑	D	2	3.2						2075	2075	403	0.19		267	0.13	
↑	D	2	3.2						2075	2075	404	0.19	0.19	266	0.13	
↑	D	2	3.2						2075	2075	403	0.19		267	0.13	
Cheung Wing Rd NB																
↑	A	2,3	3.1						1925	1925	475	0.25		514	0.27	
↑	A	2,3	3.1						2065	2065	510	0.25		551	0.27	
→	B	3	3.1		23				1940	1940	525	0.27		445	0.23	0.23
→	B	3	3.1		20				1920	1920	520	0.27	0.27	440	0.23	
Wo Yi Hop Rd WB																
↑	F	1,3	3.1	10					1675	1675	506	0.30		506	0.30	
↑	F	1,3	3.1	13					1850	1850	559	0.30		559	0.30	
→	E	1	3.1		20				1920	1920	158	0.08		176	0.09	
→	E	1	3.1		18				1905	1905	157	0.08	0.08	174	0.09	
Pedestrian Crossing																

NOTES:	<p>Flow: (pcu/hr)</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Group</th> <th>E,D,B</th> <th>Group</th> <th>C,B</th> </tr> <tr> <td>Sum of Critical y Y</td> <td>0.55</td> <td>Sum of Critical y</td> <td>0.46</td> </tr> <tr> <td>Lost Time L (sec)</td> <td>12</td> <td>Lost Time L (sec)</td> <td>11</td> </tr> <tr> <td>Cycle Time c (sec)</td> <td>112</td> <td>Cycle Time c (sec)</td> <td>110</td> </tr> <tr> <td>Practical Y Y_{pr}</td> <td>0.80</td> <td>Practical Y Y_{pr}</td> <td>0.81</td> </tr> <tr> <td>Reserve Capacity RC</td> <td>47%</td> <td>Reserve Capacity RC</td> <td>77%</td> </tr> </table>	Group	E,D,B	Group	C,B	Sum of Critical y Y	0.55	Sum of Critical y	0.46	Lost Time L (sec)	12	Lost Time L (sec)	11	Cycle Time c (sec)	112	Cycle Time c (sec)	110	Practical Y Y_{pr}	0.80	Practical Y Y_{pr}	0.81	Reserve Capacity RC	47%	Reserve Capacity RC	77%	
Group	E,D,B	Group	C,B																								
Sum of Critical y Y	0.55	Sum of Critical y	0.46																								
Lost Time L (sec)	12	Lost Time L (sec)	11																								
Cycle Time c (sec)	112	Cycle Time c (sec)	110																								
Practical Y Y_{pr}	0.80	Practical Y Y_{pr}	0.81																								
Reserve Capacity RC	47%	Reserve Capacity RC	77%																								



TRAFFIC SIGNALS CALCULATION SHEET

Junction: Cheung Wing Rd / Wo Yi Hop Rd

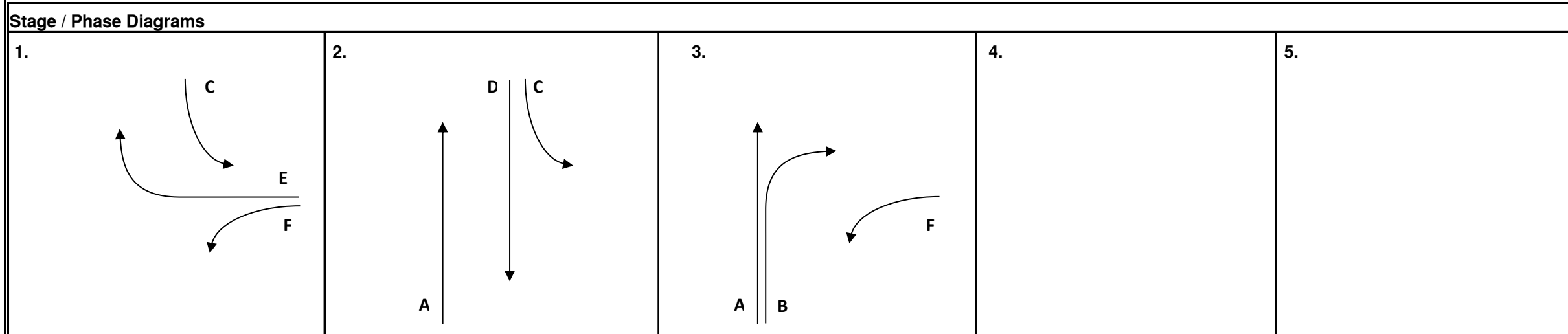
Junction No.: J11

Scenario: Design 2

Design Year: 2031

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
				Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Cheung Wing Rd SB																
↑	C	1,2	3.2	15					1760	1760	400	0.23		440	0.25	0.25
↑	D	2	3.2						2075	2075	403	0.19		267	0.13	
↑	D	2	3.2						2075	2075	404	0.19	0.19	266	0.13	
↑	D	2	3.2						2075	2075	403	0.19		267	0.13	
Cheung Wing Rd NB																
↑	A	2,3	3.1						1925	1925	475	0.25		514	0.27	
↑	A	2,3	3.1						2065	2065	510	0.25		551	0.27	
→	B	3	3.1		23				1940	1940	601	0.31	0.31	500	0.26	
→	B	3	3.1		20				1920	1920	594	0.31		495	0.26	0.26
Wo Yi Hop Rd WB																
↑	F	1,3	3.1	10					1675	1675	608	0.36		570	0.34	
↑	F	1,3	3.1	13					1850	1850	672	0.36		630	0.34	
→	E	1	3.1		20				1920	1920	178	0.09		191	0.10	
→	E	1	3.1		18				1905	1905	177	0.09	0.09	189	0.10	
Pedestrian Crossing																

NOTES:	Flow: (pcu/hr) 	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 30%;">Group</th> <th style="width: 30%;">E,D,B</th> <th style="width: 30%;">Group</th> <th style="width: 30%;">C,B</th> </tr> <tr> <td>Sum of Critical y Y</td> <td>0.60</td> <td>Sum of Critical y</td> <td>0.51</td> </tr> <tr> <td>Lost Time L (sec)</td> <td>12</td> <td>Lost Time L (sec)</td> <td>11</td> </tr> <tr> <td>Cycle Time c (sec)</td> <td>112</td> <td>Cycle Time c (sec)</td> <td>110</td> </tr> <tr> <td>Practical Y</td> <td></td> <td>Practical Y</td> <td></td> </tr> <tr> <td>Ypr</td> <td>0.80</td> <td>Ypr</td> <td>0.81</td> </tr> <tr> <td>Reserve Capacity RC</td> <td>35%</td> <td>Reserve Capacity RC</td> <td>60%</td> </tr> </table>	Group	E,D,B	Group	C,B	Sum of Critical y Y	0.60	Sum of Critical y	0.51	Lost Time L (sec)	12	Lost Time L (sec)	11	Cycle Time c (sec)	112	Cycle Time c (sec)	110	Practical Y		Practical Y		Ypr	0.80	Ypr	0.81	Reserve Capacity RC	35%	Reserve Capacity RC	60%
Group	E,D,B	Group	C,B																											
Sum of Critical y Y	0.60	Sum of Critical y	0.51																											
Lost Time L (sec)	12	Lost Time L (sec)	11																											
Cycle Time c (sec)	112	Cycle Time c (sec)	110																											
Practical Y		Practical Y																												
Ypr	0.80	Ypr	0.81																											
Reserve Capacity RC	35%	Reserve Capacity RC	60%																											



I/G= 5	I/G= 5	I/G= 5	I/G=	I/G=	I/G=
I/G= 8	I/G=	I/G= 5	I/G=	I/G=	I/G=

	<p>Junction: Cheung Wing Rd / Wo Yi Hop Rd</p> <p>Junction No.: J11</p>
--	---