ARUP

Appendix C Traffic Impact Assessment

ARUP

S16 Planning Application for Proposed Minor Relaxation of Plot Ratio (PR), Site Coverage (SC) and Building Height (BH) Restrictions for Permitted/Proposed Commercial Development, Public Transport Station and Underground Vehicle Tunnel at Kai Tak Area 4C Sites 4 and 5 and Adjoining Road Portion of Shing King Street; and Minor Relaxation of PR and BH Restrictions for Permitted Private Housing Development with Proposed Eating Place, Shop and Services and Social Welfare Facilities at Kai Tak Area 3E Sites 1 and 2

Traffic Impact Assessment Report

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Ove Arup & Partners HK Limited
Level 5 Festival Walk

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1 INTRODUCTION

1.1 Project Background

1.1.1 Ove Arup & Partners Hong Kong Ltd. has been commissioned by Civil Engineering and Development Department to undertake the technical assessment to support the S16 Planning Application for Proposed Minor Relaxation of Plot Ratio (PR), Site Coverage (SC) and Building Height (BH) Restrictions for Permitted/Proposed Commercial Development, Public Transport Station and Underground Vehicle Tunnel at Kai Tak Area 4C Sites 4 and 5 and Adjoining Road Portion of Shing King Street; and Minor Relaxation of PR and BH Restrictions for Permitted Private Housing Development with Proposed Eating Place, Shop and Services and Social Welfare Facilities at Kai Tak Area 3E Sites 1 and 2.

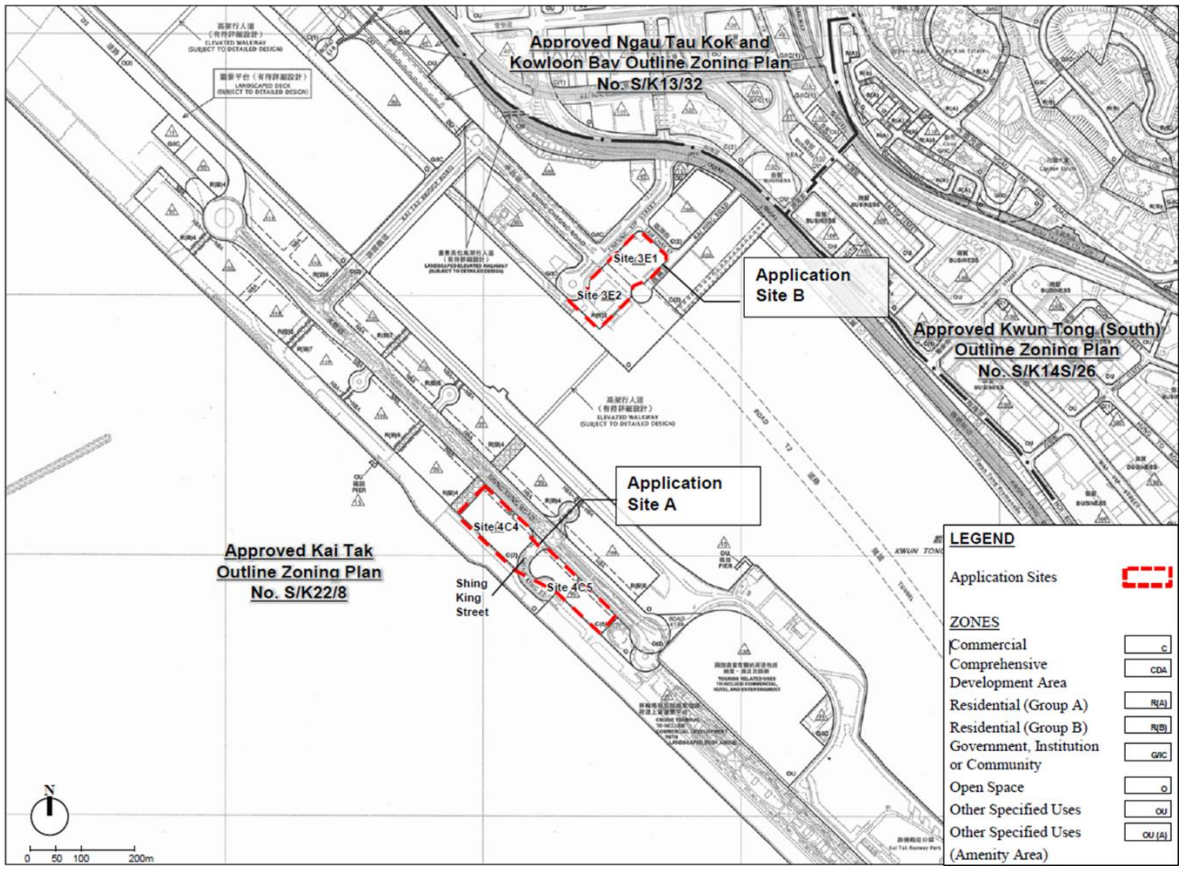


Diagram 1.1.1 Site Locations

1.1.2 This Traffic Impact Assessment (TIA) Report is organised with main focuses on the assessment of the traffic impact induced by the minor relaxation of plot ratio, site coverage and building height restrictions at the identified sites.

2 Development Proposal

2.1 Site Location

2.1.1 The Proposed Development is comprised of four development sites, including Site 3E1, 3E2, 4C4 and 4C5. The Site 3E1 and 3E2 are bounded by Cheung Yip Street at the north and Kai Hing Road at the south, located at the vicinity of existing Hong Kong Children's Hospital. The site 4C4 and 4C5 are located at the Kai Tak Runway Tip, adjacent to the existing Kai Tak Cruise Terminal and the planned Tourism Node. The Area of Influence (AOI) and locations of the Proposed Development is illustrated in **Diagram 1.1.1**.

2.1.2 The presence of KTGTS have also been taken into the consideration of in this study. According to the "Hong Kong Major Transport Infrastructure Development Blueprint" issued by the Transport and Logistics Bureau in December 2023, the Smart and Green Mass Transit System in Kai Tak (KTGTS) was proposed to provide connectivity between the Kai Tak Cruise Terminal (KTCT) and the MTR Tuen Ma Line (TML) Kai Tak Station (KAT). This system aims to enhance the connection among the residential and commercial developments at the Former Runway of Kai Tak. The proposed KTGTS alignment is approximately 3.5km long, as illustrated in **Diagram 2.1.1**.

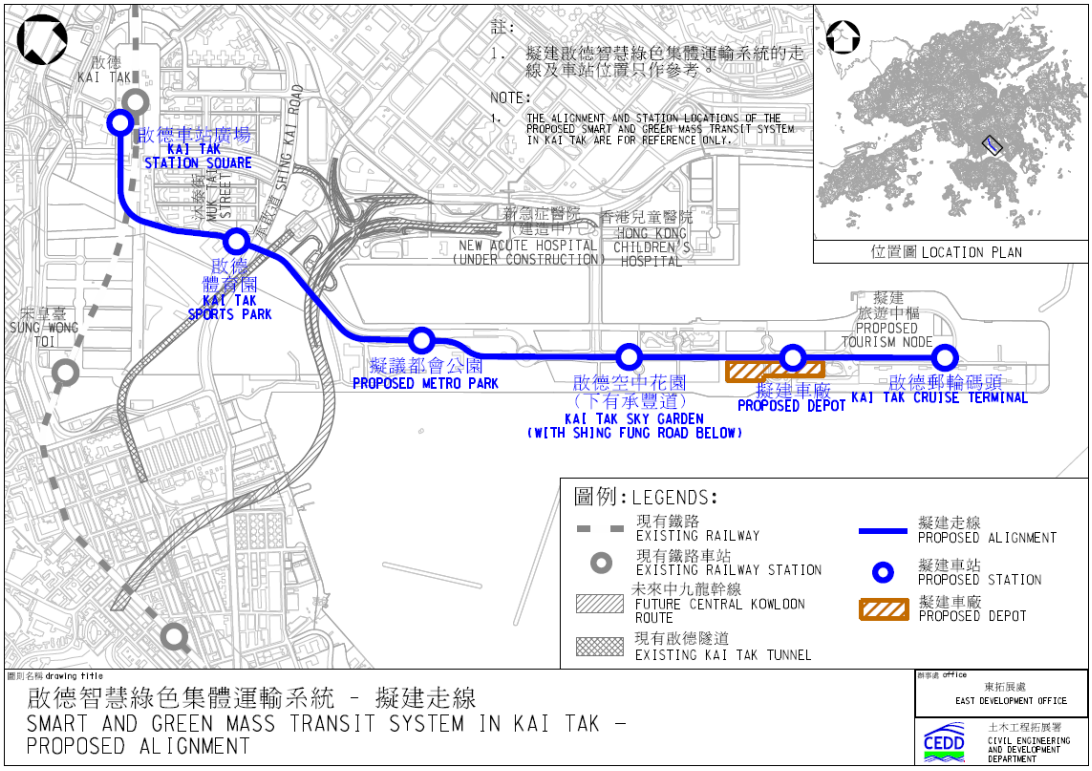


Diagram 2.1.1 Alignment of the KTGTS

2.2 Development Parameters

2.2.1 The development proposal is assessed against the planned development parameters under previous Kai Tak Development planning study, with the base scenario development parameters summarised in **Table 2.2.1**. The Proposed Development parameters under the S16 application are summarised in **Table 2.2.2.**

Table 2.2.1 Development Parameters – Base Scenario

Site	OZP Zoning	Site Area (sqm)	Plot Ratio	GFA (sqm)	
				Domestic	Non-domestic
Site 1 (3E1)	R(B)2	7,064	4.5	31,788	0
Site 2 (3E2)	R(B)2	7,686	4.5	34,587	0
Site 3 (4C4)	C(7)	10,694	7.5	0	80,205
Site 4 (4C5)	C(5)	9,480	6.0	0	56,880

Table 2.2.2 Development Parameters – Proposed Scheme

Site	OZP Zoning	Site Area (sqm)	Plot Ratio	GFA (sqm) [(1)]	
				Domestic	Non-domestic
Site 1 (3E1)	R(B)2	7,064	7.0	44,098	3,532
Site 2 (3E2)	R(B)2	7,686		51,777	3,843
Site 3 (4C4)	C(7)	10,694	8.16 (about)	0	102,232
Site 4 (4C5)	C(5)	9,480		0	79,334
Site as Road	--	2,376		--	2,376

Notes:

(1) Please refer to the supporting planning statement for detailed planning parameters.

2.2.2 With proposed minor relaxation of plot ratio, building height and site coverage restrictions, the estimated increase in domestic and non-domestic GFA is estimated to be about 29,500m^2 and 54,232m^2 respectively.

2.3 Vehicular Access Arrangement

2.3.1 Currently, the Site 3E1 and 3E2 can be accessed via Kai Hing Road. While the main run-in/out would be retained at the future Kai Hing Road cul-de-sac. For Site 4C4 and 4C5, the main run-in/out would be retained at Shing King Street. Vehicular access arrangements for the abovementioned sites are shown in **Figure 2.3.1**.

3 Existing Traffic Conditions

3.1 Existing Road Network

3.1.1 The AOI and development sites are served by the road network with major skeleton comprised by Lai Yip Street, Wai Yip Street, Hoi Bun Road, Wang Chiu Road, Shing Fung Road and Shing Kai Road.

3.1.2 Lai Yip Street is a district distributor, providing dual 2-lane connectivity between Kwun Tong Road and Hoi Bun Road, except for the westbound road section between Wai Yip Street and Hoi Bun Road. The road also connects with Wai Yip Street, which serves as a dual-3 primary distributor between Lai Yip Street and the Kai Fuk Road flyover.

3.1.3 Hoi Bun Road is a single carriageway local distributor located to the southwest of the Kwun Tong Business Area (KTBA). It connects Tsun Yip Street, How Ming Street, Shun Yip Street, and Kai Hing Street, and further connects with Wang Chiu Road in the Kowloon Bay area to the north.

3.1.4 Wang Chiu Road is a north-south direction local distributor between Sheung Yuet Road and Sheung Yee Road, serving the developments within Kowloon Bay Business Area (KBBA).

3.1.5 Kai Tak Bridge Road is a dual 2-lane carriageway connecting Shing Fung Road and Shing Cheong Road. It bridges the Kai Tak Runway Tip and the KTBA/KBBA. The road will also provide connectivity with the Central Kowloon Route (CKR) in the future.

3.1.6 Shing Fung Road is a dual 2-lane local distributor connecting Shing Kai Road and the Kai Tak Runway Tip. Shing Kai Road is a dual carriageway district distributor, with 3 lanes provided along most of the road span. Shing Kai Road will also be connected to the CKR via slip roads in the future. These two roads will be the key access routes serving the developments within Kai Tak and the former runway area.

3.2 Traffic Count Survey

3.2.1 To facilitate the comparison of observed and modelled volumes, road junctions observed count data for base year would be adopted based on on-site survey. The surveys have been conducted on 6 August and 7 August 2024 during morning (07:00 to 10:00) and evening (16:30 to 19:30) peak periods for selected as junctions marked in **Table 3.2.1**. It is anticipated the development flows induced by the intensification would not significantly worsen the junction performance, therefore the 2 junctions are not included in the assessment.

Table 3.2.1 Selected Junctions for Traffic Survey

No.	Location	Type
J1	Kwun Tong Road/ Elegance Road/ Lai Yip Street	Signalized Junction
J2	Lai Yip Street/ Wai Yip Street	Signalized Junction
J3	Lai Yip Street/ Hoi Bun Road	Signalized Junction

No.	Location	Type
J4	Kai Hing Road/ Hoi Bun Road	Signalized Junction
J5	Hoi Bun Road/ Wang Chiu Road/ Cheung Yip Street	Signalized Junction
J6	Cheung Yip Street/ Shing Cheong Road	Signalized Junction
J7	Wang Chiu Road/ Sheung Yuet Road	Signalized Junction
J8	Wang Chiu Road/ Lam Fung Street	Signalized Junction
J9	Wang Chiu Road/ Sheung Yee Road	Signalized Junction
J10	Shing Cheong Road/ Kai Tak Bridge Road	Roundabout
J11	Shing Fung Road / Shing King Road	Roundabout
J12	Shing Fung Road/ Kai Tak Bridge Road	Signalized Junction
J13[(1)]	Shing Kai Road (future slip road to CKR)	Signalized Junction
J14	Shing Kai Road/ Shing Fung Road/ Muk Tai Street	Signalized Junction
J15	Shing Kai Road/ Song Wong Toi Road/ To Kwa Wan Road	Signalized Junction

Notes:

(1) Survey not conducted at J13 which is a future junction.

3.2.2 Based on the survey results, the morning and evening peak periods were identified as 08:30-09:30 and 17:30-18:30 respectively. The 2024 observed traffic flows are shown in Figure 3.2.1.

3.3 Existing Operation Performance of Key Junctions

3.3.1 The base year 2024 key junctions within the AOI are assessed and the assessment results are presented in **Table 3.3.1**. Detailed junction calculation for base year 2024 is shown in **Appendix A**.

3.3.2 The performance of roundabouts is measured by a Design Flow to Capacity ratio (DFC). If the DFC falls within 0.85, the junction is considered to be operating within capacity. The junction is considered to be overloaded if the DFC exceeds 0.85.

3.3.3 The performance of signalised junctions is measured by Reserve Capacity (RC) in percentage. A signalised junction is considered within capacity if RC is greater than 15% or is overloaded if RC is less than 15%.

Table 3.3.1 Base Year 2024 Junction Performance

No.	Location	Reserve Capacity / Design Flow/ Capacity Ratio	
		AM	PM
J1	Kwun Tong Road/ Elegance Road/ Lai Yip Street	82.8%	38.7%
J2	Lai Yip Street/ Wai Yip Street	>100%	>100%
J3	Lai Yip Street/ Hoi Bun Road	>100%	81.7%
J4	Kai Hing Road/ Hoi Bun Road	>100%	>100%
J5	Hoi Bun Road/ Wang Chiu Road/ Cheung Yip Street	56.3%	74.2%
J6	Cheung Yip Street/ Shing Cheong Road	>100%	>100%
J7	Wang Chiu Road/ Sheung Yuet Road	68.8%	37.3%

No.	Location	Reserve Capacity / Design Flow/ Capacity Ratio	
		AM	PM
J8	Wang Chiu Road/ Lam Fung Street	>100%	91.5%
J9	Wang Chiu Road/ Sheung Yee Road	43.2%	31.2%
J10	Kai Tak Bridge Road/ Shing Cheong Road	0.21	0.12
J11	Shing Fung Road/ Shing King Road	0.23	0.11
J12	Shing Fung Road/ Kai Tak Bridge Road	>100%	>100%
J13	Shing Kai Road (1)	Nil	Nil
J14	Shing Kai Road/ Shing Fung Road/ Muk Tai Street	>100%	>100%
J15	Shing Kai Road/ Song Wong Toi Road/ To Kwa Wan Road	>100%	>100%

Notes:

(1) J13 is a future junction, performance will be presented for forecast years.

3.3.4 In general, the assessed junctions are operating with a R.C. of not less than 15% for signalized junctions or D.F.C. ratio of not more than 0.85 for priority junctions and roundabouts in the peak hours of Year 2024.

4 Methodology for Traffic Forecast

4.1 Overview

4.1.1 For the purpose of carrying out Traffic Impact Assessments (TIA) in this assignment, a Local Area Traffic Model (LATM) is developed making reference to the updated Strategic Transport Model (STM) in response to the latest planning (by adopting 2019-based TPEDM and the latest planning data including Kai Tak Development RODP, KTBA, KBBA, Cruise Terminal as well as Sports Park) and infrastructure assumptions as stipulated in Hong Kong Major Transport Infrastructure Development Blueprint published in December 2023.

4.1.2 The LATM is a junction-based traffic assignment model, developed on SATURN platform, which simulates the local area traffic demand within the Area of Influence (AOI). With more refined zones and network representation together with the incorporation of local area junction characteristics, the LATM takes more detailed account of queuing, junction control and delays in assigning the traffic demand within the AOI, making it more appropriate for the evaluation of localised traffic impacts. Development of the LATM generally follows similar approach as TD's Base District Traffic Models (BDTMs) i.e. by taking cordoned matrices from the STM as main inputs.

4.2 LATM Development

4.2.1 The AOI of this assignment has been defined in the Brief as shown in Figure 2.1.1. The LATM for this TIA was developed from TD's 2019-based Base District Traffic Models (BDTM) in Kowloon East (K2) covering the AOI including the junctions along the former Kai Tak runway.

4.2.2 Development of the LATM follows similar approach as the BDTMs i.e. by taking cordoned matrices from the STM and then disaggregated into a much finer zoning system. The zoning system of the LATM generally follows that of the BDTM and comprises a total of 548 zones for design year 2036 and 549 zones for design year 2041 in total, including 28 and 29 external zones for design year 2036 and 2041 respectively (i.e. cordon points of the model, Tseung Kwan O – Yau Tong Tunnel is assumed to be implemented in 2041 as discussed in Section) and 520 internal zones for both design years 2036 and 2041.

4.2.3 As mentioned earlier, the LATM is a road-based traffic assignment model for simulating the peak hour traffic conditions. It comprises two key components:

- the "trip matrix" which specifies the number of AM peak/ PM peak hour vehicular trips from zone i to zone j; and
- the "network" which specifies the physical structure of the road links and junctions etc. upon which trips take place.

4.2.4 Both the matrix and network are fed into a "route choice" model which allocates trips to "routes" through the network through the model assignment process. Link flows and junctions flows by turning movements are produced by the LATM assignments to facilitate subsequent traffic impact assessments

4.2.5 There are three types of vehicles represented in the LATM. They are Private Vehicles (PV), Goods Vehicles (GV) and road-based PT services. PV and GV are fed into the model in the form of trip matrices (converted into Passenger Car Units (PCUs)), while PT vehicles are fixed route services and pre-loaded to the network

4.2.6 The LATM is validated to replicate the traffic data in 2024 as the base year for this Study. On the other hand, the STM which will provide the cordon matrices in supporting the development of the base year LATM is validated to the 2019 traffic and transport conditions by incorporating the 2019-based TPEDM Base Year Estimate (BYE) land use data. In application, the 2019 BYE cordoned matrices as extracted from the STM has been projected to year 2024 based on the growth factor derived from historical Annual Traffic Census (ATC) data. The projected "2024" STM cordoned matrices were then taken as the starting point for developing the base year 2024 LATM matrices

4.2.7 The compatibility between the STM and the LATM is ensured by the control of the external trip ends, which are essentially the link flows of Cross Bay Link, Tseung Kwan O – Lam Tei Tunnel. In other words, the base LATM is consistent with the base STM in terms of the socio-economic, transport infrastructure, road network, planning data and all relevant transport policy assumptions

4.2.8 In disaggregating the projected "2024" STM cordoned matrices into the finer zoning system of the LATM, zone disaggregation factors were initially derived based on those exhibited in the 2019-based BDTM. The factors were then refined during the matrix estimation process in model validation. The LATM PV matrix represents the sum of private car, taxi and special-purpose bus PCU matrices of the STM. Similarly, the GV matrix is the total of GV PCU matrices by GV types of the STM

4.2.9 Upon satisfactory validation of the base year (2024) LATM, the respective design year cordoned matrices from the STM and the projected "2024" STM cordoned matrices are then taken as major inputs to project the validated LATM to the corresponding design years 2036 and 2041 for assessing the local area traffic impacts.

4.3 Base Year LATM Validation

4.3.1 The cordoned vehicular matrices from the STM provide reliable trip ends and traffic distribution to external linkages within the model area. It therefore accounts for the external-external, internal-external and external-internal traffic movements of the LATM coverage.

4.3.2 Since the cordoned matrices from the STM mainly simulate strategic and inter-district traffic demand, it may not fully reflect the internal-internal traffic movements of the LATM coverage. The cordoned matrices have therefore undergone a matrix estimation process based on the observed traffic count data, to supplement the internal-internal traffic movements. The resultant matrices have also been carefully checked to ensure that the estimation process has produced reasonable changes.

4.3.3 Two types of count data were referenced for the LATM validation: screenline/cordon data (formed by key road links) and junction counts with their locations also shown in Figure 4.2.1. Three cordons/screenlines are defined, including the External Cordon (which forms the boundary of the LATM), ATC Screenline K-K and Screenline C-

within the AOI. Observed traffic data at the concerned cordon/screenline points were assembled from a combination of ATC counts and traffic counts conducted for this Study. As for the junction counts, they were all collected as part of the survey work mentioned in **Section 3.1.1** above.

4.3.4 For model validation, the modelled traffic flows across the defined cordons/screenlines were compared to the observed counts by road link by direction, while the modelled junction flows were compared to the junction counts by in and out flows on each junction arm.

Validation Criteria

4.3.5 A combination of percentage difference and GEH statistics was used to assess the LATM validation. A generally accepted validation criteria is to achieve ± 10% for the screenlines and major links. However, recognising that percentage difference only assesses relative error, the GEH statistic has primarily been employed to assess the validation performance. GEH is a form of the Chi-squared statistic that incorporates both relative and absolute errors. GEH values can be calculated for individual links, screenlines or network wide.

4.3.6 The GEH statistic is a modified chi-square test of the form:

$$\boldsymbol{GEH} = \sqrt{\frac{(\boldsymbol{V_2} - \boldsymbol{V_1})^2}{\frac{\boldsymbol{1}}{\boldsymbol{2}}\left((\boldsymbol{V_1} + \boldsymbol{V_2})\right)}}$$

4.3.7 where V1 and V2 are the observed and modelled flows on a specific link. This is used in order to reflect importance of a difference based on the total volume on a link. If percentages alone are examined, there is a risk of very large percentage differences in small flow volumes appearing important when they are not. Use of the GEH statistic is intended to remove this risk by reducing the significance of relatively large percentage differences between two small numbers. For example, an absolute difference of 100 PCUs/hr would give a big percentage difference if the link flow is only in the order of 100 PCUs/hr but would be much less significant for a thousand PCUs/hr. In general, a GEH statistic of less than 6.0 or 7.0 is considered adequate and less than 3.0 is very good.

4.3.8 The LATM validation guidelines follow those adopted in the BDTMs as shown in Table 4.3.1. The validation guidelines are applied to both vehicle classes (PV and GV) for each direction of road link flows. For junction flows, validation of PVs and GVs are undertaken for entry flow and exit flow at each arm of the validation junctions.

Validation Results

4.3.9 The base year validation results of the LATM are summarised in **Table 4.3.1**. and compared with the validation criteria. Detailed validation results by individual screenlines and junction arm entry/exit flows are provided in **Appendix B**.

Table 4.3.1 Statisitics of Screenline and Road Links Validation Summary for LATM

Validation Criterion	Validation Target	AM Peak			PM Peak		
		PV	GV	Total*	PV	GV	Total*
1. Total Screenline Flows	100% within ±10%	100%	100%	100%	100%	100%	100%
2. Screenline Link Flows	85% within ± 10%	91%	96%	98%	96%	93%	100%
	100% within ± 20%	100%	100%	100%	100%	100%	100%
3. All Count Locations	GEH 5 or less on 85% of links	94%	96%	93%	93%	100%	94%
	GEH 10 or less on 100% of links	100%	100%	100%	100%	100%	100%

Note: * Total refers to PV+GV+Road-based PT. Road-based PT based on modelled flows coded according to the published frequency of services in the respective peak hours.

4.3.10 As indicated in the above table, the model satisfactorily replicates the observed traffic flows at the key road links across the defined screenlines and cordons, with 85% or more of the road links showing less than 10% discrepancy by vehicle class. Total cordon / screenline flows are all within 10% difference from the observed counts. These achieve the validation criteria 1 and 2 on total screenline flows and screenline link flows by vehicle class for both the AM and PM peak hours.

4.3.11 The results further show that over 90% of the entry/exit flows at each arm of the validation junctions are within GEH 5 while all (100%) of them are within GEH 10. The validation criterion 3 on junction flows is thus met by vehicle class in both the AM and PM peak hours.

4.3.12 In short, the model satisfactorily replicates the observed traffic flows at both screenline and individual road link levels, meeting all the validation criteria in terms of percentage differences or GEHs. It can therefore be concluded that the LATM is well validated to the base year (2024) traffic conditions, and can serve as a reliable basis for projecting future traffic conditions in the design years.

4.4 Development of Design Year LATMs

4.4.1 Following the validation of the base year (2024) LATM, the respective design year cordoned matrices from the STM and the projected "2024" STM cordoned matrices were taken as major inputs to project the validated LATM to the corresponding design years 2036 and 2041.

4.4.2 Primarily, design year LATMs were developed from the validated base year LATM by applying the differences in STM cordoned matrices between the base year and future design years onto the validated LATM traffic matrices. The implication due to the presence of KTGTS have also been considered in modal splits during the development of STM in respective design years. This "top-down" approach is to maintain consistency between the STM and LATM, which is also consistent with the BDTM approach.

4.4.3 The base year LATM network has been updated accordingly to reflect the future traffic arrangements.

4.4.4 Traffic assignments were undertaken using the design year LATMs based on the design year traffic matrices and design year road network developed above (i.e. including the two new signalised junctions on Shing Kai Road outside Kai Tak Sports Park). Predicted traffic flows output from the design year LATM are then used for assessing the local traffic condition within the AOI and any local improvement measures necessary for mitigating the traffic impact induced by the proposed Sites development. The traffic assessment results and possible local road improvements are discussed in **Section 5**.

4.5 Planned Junction Improvement and Junction Modification Schemes

4.5.1 The planned junction improvement and junction modification schemes by other development projects within the AOI and identified key junctions have been incorporated into the future design year for assessment. The schemes are summarised in **Table 4.5.1**, and details are illustrated in **Appendix C**.

Table 4.5.1 Planned Junction Improvement and Junction Modification Schemes

Junction ID	Location	Type	Source	Anticipated Implementation Year Following the Source of TIA Report
J1	Kwun Tong Road/ Elegance Road/ Lai Yip Street	Signalized Junction	CE26/2017(HY)	2026
J2	Lai Yip Street/ Wai Yip Street	Signalized Junction	CE85/2021(HY)	2026
J5	Hoi Bun Road/ Wang Chiu Road/ Cheung Yip Street	Signalized Junction	CE4/2014(TP)	2029
J7	Wang Chiu Road/ Sheung Yuet Road	Signalized Junction	CE4/2014(TP)	2028
J9	Wang Chiu Road/ Sheung Yee Road	Signalized Junction	CE4/2014(TP)	2029
J10	Shing Cheong Road/ Slip Road S5/ Road L10	Roundabout	CE38/2008(HY)	2026
J13	Shing Kai Road/ Slip Road to CKR	Signalized Junction	HY/2018/02	2031
J15	Shing Kai Road/ Song Wong Toi Road/ To Kwa Wan Road	Signalized Junction	Public Housing Development at Kai Tak Site 2B2- 2B6	2027

4.6 Traffic Forecasting Scenarios

4.6.1 To facilitate the Traffic Impact Assessment for the Proposed Development at the development sites, traffic forecasts have been developed for both reference and design scenarios, with corresponding assumptions as tabulated in **Table 4.6.1**.

Table 4.6.1 Traffic Forecasting Scenarios

Assumption	Design year 2036 Reference Case	Design year 2036 Design Case (1)	Design year 2041 Design Case (1)
Presence of KTGTS	×	✓	✓

Table 4.6.1 Traffic Forecasting Scenarios

Assumption	Design year 2036 Reference Case	Design year 2036 Design Case (1)	Design year 2041 Design Case (1)
Presence of KTGTS	×	✓	✓
Proposed Development	×	✓	✓

Note: (1) It should be noted that the Proposed Development is subject to the presence of KTGTS to provide infrastructural support for the anticipated traffic demand.

4.6.2 For the trip generation and attraction induced by the Proposed Development under reference and design scenarios, trip rates would be made reference to the Transport Department's Transport Planning and Design Manual (TPDM) Volume 1 Chapter 3 - Transport Considerations in Town Plans. The adopted trip rates are summarized in **Table 4.6.2**.

Table 4.6.2 Adopted Vehicular Trip Generation Rates

Development Type	Unit	AM Peak		PM Peak	
		Gen	Att	Gen	Att
Office	pcu/hr/100m^2 GFA	0.1703	0.2453	0.1573	0.1175
Retail	pcu/hr/100m^2 GFA	0.2296	0.2434	0.3100	0.3563
Hotel	pcu/hr/guest room	0.1329	0.1457	0.1290	0.1546
Residential (60sqm)(1)	pcu/hr/flat	0.1132	0.0565	0.0517	0.0728
Residential (50sqm)(1)	pcu/hr/flat	0.0944	0.0471	0.0431	0.0607
G/IC – Social Welfare(2)	pcu/hr/100m^2 GFA	0.1175	0.1175	0.0575	0.0575

Note:
(1) Trip rates are calculated on pro-rata basis based on the TPDM mean trip rates for Private Housing, Medium Density / R(B), with average flat size of 100sqm;
(2) Adopted previous assumption under Agreement No. CE35/2006(CE) – Kai Tak Development Engineering Study

Reference Scenario

4.6.3 With assessment against the base scenario development parameters summarised in **Table 2.2.1**, and with reference to the vehicular trip rates detailed in **Table 4.6.2**, the traffic generation/attraction related to the Proposed Development sites under the reference scenario is tabulated in **Table 4.6.3.**

Table 4.6.3 Traffic Generation/Attraction in Peak Hours under Reference Scenario

Proposed Development Site	AM Peak Traffic (PCU/hr)		PM Peak Traffic (PCU/hr)	
	Generation	Attraction	Generation	Attraction
3E1	60	30	28	39
3E2	65	33	30	42
4C4	146	178	139	145
4C5	130	156	125	134
Total	**401**	**397**	**322**	**360**

Design Scenarios

4.6.4 The trip generation/attraction related to the Proposed Development Sites under design scenario is estimated based on the development parameters under the proposed scheme as detailed in **Table 2.2.2**, as well as the vehicular trip rates in **Table 4.6.2**, The estimated traffic volume is tabulated in **Table 4.6.4**. The forecasted traffic flows under the design scenarios in year 2036 and 2041 are shown in **Figure 4.6.2** and **Figure 4.6.3**. The development traffic and its implication on the road network are illustrated in **Figure 4.6.4** and **Figure 4.6.5**.

Table 4.6.4 Traffic Generation/Attraction in Peak Hours under Design Scenario

Proposed Development Site	AM Peak Traffic (PCU/hr)		PM Peak Traffic (PCU/hr)	
	Generation	Attraction	Generation	Attraction
3E1	91	49	46	63
3E2	107	58	57	77
4C4	208	255	215	220
4C5	150	184	148	150
Total	**556**	**546**	**466**	**510**

4.6.5 Compared to the reference scenario, the overall traffic generation and attraction under the design scenario at the Proposed Development Sites have increased due to the relaxation of building height restrictions and additional GFA provisions for both residential and non-residential uses. The estimated additional traffic generation/attraction induced is shown in **Table 4.6.5**.

Table 4.6.5 Estimated Additional Traffic Generation/Attraction Induced by Proposed Development Sites in Peak Hours

Proposed Development Site	AM Peak Traffic (PCU/hr)		PM Peak Traffic (PCU/hr)	
	Generation	Attraction	Generation	Attraction
3E1	30	19	18	24
3E2	42	26	27	35
4C4	62	77	76	75
4C5	18	28	24	16
Total	**152**	**150**	**145**	**150**

5 Traffic Impact Assessment

5.1 Junction Capacity Analysis

5.1.1 The performance of key junctions within and in the vicinity of the Proposed Development have been assessed and the assessment results are presented in **Table 5.1.1**. Detailed junction calculations for design years 2036 and 2041 are shown in **Appendix A**. The junction queue lengths in design years were also assessed and the results are summarised in **Table 5.1.2**.

Table 5.1.1 Key Junction Performance at Peak Hours by Design Year

No.	Location	Reserve Capacity / Design Flow/ Capacity Ratio					
		2036 Reference		2036 Design		2041 Design	
		AM	PM	AM	PM	AM	PM
J1	Kwun Tong Road/ Elegance Road/ Lai Yip Street	33.4%	18.4%	32.7%	20.7%	26.2%	15.2%
J2	Lai Yip Street/ Wai Yip Street	18.7%	28.2%	19.3%	26.7%	16.5%	24.1%
J3	Lai Yip Street/ Hoi Bun Road	34.6%	22.9%	35.7%	20.5%	31.8%	18.8%
J4	Kai Hing Road/ Hoi Bun Road	32.2%	79.4%	29.8%	76.0%	25.2%	71.8%
J5	Hoi Bun Road/ Wang Chiu Road/ Cheung Yip Street	19.4%	29.3%	22.3%	25.6%	17.9%	22.9%
J6	Cheung Yip Street/ Shing Cheong Road	58.7%	43.9%	58.5%	44.4%	55.9%	43.4%
J7	Wang Chiu Road/ Sheung Yuet Road	27.3%	40.9%	25.1%	38.9%	18.7%	34.5%
J8	Wang Chiu Road/ Lam Fung Street	44.2%	30.1%	40.6%	28.3%	35.7%	26.8%
J9	Wang Chiu Road/ Sheung Yee Road	18.8%	15.1%	16.9%	15.7%	15.5%	15.2%
J10	Shing Cheong Road/ Slip Road S5/ Road L10	0.65	0.55	0.62	0.54	0.63	0.54
J11	Shing Fung Road / Shing King Road	0.76	0.84	0.78	0.84	0.78	0.84
J12	Shing Fung Road/ Shing Cheong Road	14.1%	15.1%	15.9%	16.0%	15.3%	16.0%
J13	Shing Kai Road/ Slip Road to CKR (1)	>100%	>100%	>100%	>100%	>100%	>100%
J14	Shing Kai Road/ Shing Fung Road/ Muk Tai Street	14.9%	45.4%	16.3%	48.0%	15.3%	47.3%
J15	Shing Kai Road/ Song Wong Toi Road/ To Kwa Wan Road	40.7%	43.3%	42.6%	49.6%	40.2%	45.2%

Table 5.1.2 Estimated Queue Length in Design Years

Junction (With Imp.)	Arm	Distance From Preceding Junctions (m)	Queue Length					
			2036 Reference		2036 Design		2041 Design	
			AM	PM	AM	PM	AM	PM
J1	Kwun Tong Road EB	100	36	28	36	28	38	28
	Lai Yip Street NB	120	47	56	46	56	50	61
	Kwun Tong Road WB	120	54	55	54	53	56	57
	Elegance Road SB	55	48	50	48	48	50	51
J2	Wai Yip Street EB	100	65	53	65	54	67	56
	Lai Yip Street NB	70	28	42	28	43	30	44
	Wai Yip Street WB	260	48	46	47	46	49	46
	Lai Yip Street SB	75	57	41	57	41	59	41
J3	Hoi Bun Road EB	245	34	49	34	48	36	51
	Hoi Bun Road WB	250	31	40	30	40	33	43
	Lai Yip Street SB	60	50	43	50	44	50	44
J4	Hoi Bun Road EB	110	63	46	63	47	66	48
	Kai Hing Road NB	160	39	28	44	30	46	30
	Hoi Bun Road WB	65	33	35	33	35	33	35
J5	Wang Chiu Road EB	360	63	55	60	57	64	59
	Cheung Yip Street NB	200	40	30	38	30	42	31
	Hoi Bun Road WB	140	46	50	49	50	46	49
J6	Shing Cheong Road EB	270	26	20	25	20	26	20
	Cheung Yip Street NB	25	5	15	5	15	4	15
	Cheung Yip Street SB	90	42	47	43	47	43	47
J7	Sheung Yuet Road EB	35	24	28	22	28	24	29
	Wang Chiu Road NB	110	45	21	46	23	51	23
	Sheung Yuet Road WB	55	45	53	46	53	51	53
	Wang Chiu Road SB	280	58	46	59	46	63	48
J8	Wang Chiu Road NB	100	42	53	43	54	45	54
	Wang Chiu Road SB	115	54	55	55	55	57	56
J9	Sheung Yee Road EB	215	42	60	44	60	45	60
	Wang Chiu Road NB	360	66	66	67	64	68	64
	Sheung Yee Road WB	180	45	46	48	46	48	47
	Wang Chiu Road SB	100	54	48	55	48	57	50
J12	Shing Fung Road EB	180	76	74	75	73	75	73
	Shing Fung Road WB	130	57	51	55	51	56	51
	Kai Tak Bridge Road SB	400	39	66	41	65	43	65
J13	Shing Kai Road EB	255	29	30	29	29	29	29
	Slip Road of CKR NB	--	9	13	8	12	9	13
	Shing Kai Road WB	200	22	27	22	26	22	26

Junction (With Imp.)	Arm	Distance From Preceding Junctions (m)	Queue Length					
			2036 Reference		2036 Design		2041 Design	
			AM	PM	AM	PM	AM	PM
J14	Shing Kai Road EB	550	68	52	68	51	68	51
	Shing Fung Road NB	500	59	40	57	40	58	40
	Shing Kai Road WB	240	38	34	36	34	38	35
	Muk Tai Street SB	145	59	38	58	37	58	37
J15	Sung Wong Toi Road EB	550	47	42	50	40	46	40
	To Kwa Wan Road NB	80	56	58	56	55	56	57
	Shing Kai Road SB	180	59	51	58	50	59	51

5.1.2 In general, the existing junctions will be operating with a R.C. of not less than 15% for signalized junctions or D.F.C. ratio of not more than 0.85 for roundabouts in the peak hours for all design years. It should also be noted that the Junction J1, J9, J12 and J14 will be operating marginally at near 15% in design years.

5.2 Estimation on PT Demand

5.2.1 The proposed Development Sites are well-served by various modes of public transport services in close vicinity, including comprehensive franchised bus services, and GMB services operating in the surrounding road network. The estimated additional PT demand induced by the Proposed Development Sites is calculated based on the proposed development parameters and illustrated in **Table 2.2.2**. Considering the proximity of 3E1 and 3E2, as well as 4C4 and 4C5, it is suggested to treat them as two separate zones in the estimation of PT demand.

Table 5.2.1 Estimated Additional Bus and GMB Demand at the Proposed Development Sites

Item		Values	Proposed Development Sites	
			3E1 & 3E2	4C4, 4C5 & Road as Site as Road
Increase in total population & employment (person)			2,514	3,609
Additional Average Weekday Mechanised Daily Trips (trips per person)		1.83(1)	4,601	6,604
Modal Share of Public Transport		80%	3,681	5,283
Morning peak hour trip rate to daily total		12%	265	380
Peak Directional Split		60%	2,208	3,170
Additional morning peak hour PT trips generated from the Proposed Development Sites (trips)	KTGTS	65%	172	247
	Bus/GMB/Rail	35%	93	133
Additional Bus Trip Required during Morning Peak (trips/hr)	Bus Capacity	120	1.03	1.48
	Bus Occupancy	0.75		

Notes:

(1) Average mechanised trip rate from TCS 2011 results.

5.2.2 The estimation indicated that the impact on PT demand induced by the relaxation of plot ratio, site coverage and building height restrictions at the identified sites can be minimal, with fewer than 2 additional long-haul bus trips required during the peak hours at each zone. Given the minimal impact on existing public transport facilities, no additional public transport facilities would be added to the Proposed Development Sites.

6 Parking and Loading/Unloading Provision

6.1 Proposed Provisions

6.1.1 Required provision of private car, motorcycle, visitors and loading/ unloading facilities for developments in the subject sites are estimated in accordance with the Hong Kong Planning Standards and Guidelines (HKPSG) and the requirements for G/IC facilities. The adopted parking ratio for domestic and non-domestic is summarized in **Table 6.1.1** and the parking provisions are summarised in **Table 6.1.2**.

6.1.2 The current estimation of the parking and loading/unloading facilities is based on high-end HKPSG requirement to for conservative planning propose. The exact parking provision of each site shall be reviewed by future developer.

Table 6.1.1 Adopted Parking Ratio

<table>
<tr><th>Type of Development</th><th>Facility</th><th>HKPSG Guideline</th></tr>
<tr><td rowspan="5">Private Housing</td><td>Private Car Parking</td><td>GPS x R1 x R2 x R3
Global Parking Standard (GPS) = 1 parking spaces per 4 - 7 flats
Demand Adjustment Ratio (R1) = 1.2 (40 <flat size ≤70m^2)
Accessibility Adjustment Ratio (R2):
Outside a 500m-radius of rail station = 1.00
Development Intensity Adjustment Ratio (R3) = 0.9 (5.00 <Domestic Plot Ratio ≤8.00)</td></tr>
<tr><td>Visitor Parking</td><td>5 visitor spaces per residential block for developments with more than 75 units per block</td></tr>
<tr><td>Motorcycle Parking</td><td>1 per 100-150 flats</td></tr>
<tr><td>Loading / Unloading</td><td>Minimum of 1 loading/unloading bay for goods vehicles within the site for every 800 flats or part thereof, subject to a minimum of 1 bay for each housing block or as determined by the Authority</td></tr>
<tr><td>Bicycle Parking</td><td>Bicycle parking spaces shall be provided in the residential developments where proper cycle tracks with direct connection to rail stations are accessible.
(a) within a 0.5-2km radius of a rail station, 1 bicycle parking space for every 15 flats with flat size smaller than 70m^2.
(b) outside a 2km radius of a rail station, 1 bicycle parking space for every 30 flats with flat size smaller than 70m^2.</td></tr>
<tr><td rowspan="3">Retail(1)</td><td>Private Car Parking</td><td>1 car space per 150 – 300m^2 GFA</td></tr>
<tr><td>Motorcycle Parking</td><td>5 to 10% of the total provision for private cars</td></tr>
<tr><td>Loading / Unloading</td><td>1 loading/ unloading bay for goods vehicles for every 800 to 1 200m^2, or part thereof, GFA</td></tr>
<tr><td rowspan="3">Office(1)</td><td>Private Car Parking</td><td>For the first 15,000m² GFA: 1 car space per 150 - 200m² GFA
Above 15,000m² GFA: 1 car space per 200 - 300m² GFA.</td></tr>
<tr><td>Loading / Unloading</td><td>1 loading/unloading bay for goods vehicles for every 2 000 to 3 000m² or part thereof, GFA.</td></tr>
<tr><td>Picking up/ Setting down lay-by</td><td>For sites of at least 5 000m² net site area, 1 picking up/ setting down lay-by for taxis and private cars for every 20 000m², or part thereof, GFA.</td></tr>
<tr><td rowspan="3">Hotels(1)</td><td>Private Car Parking</td><td>1 car space per 100 rooms
For hotels with conference and banquet facilities: 0.5-1 car space per 200m^2 GFA of conference and banquet facilities.</td></tr>
<tr><td>Loading / Unloading</td><td>0.5-1 goods vehicle bay per 100 rooms.</td></tr>
<tr><td>Picking up/ Setting down lay-by</td><td>For taxi and private cars:
<table>
<tr><th>Hotel Type</th><th>Min. No.</th></tr>
<tr><td>≤ 299 rooms</td><td>2</td></tr>
<tr><td>300-599 rooms</td><td>3</td></tr>
<tr><td>≥ 600 rooms</td><td>4</td></tr>
</table>
For single-deck tour buses:</td></tr>
</table>

Type of Development	Facility	HKPSG Guideline
		Hotel Type / **Min. No.** ≤ 299 rooms / 1 300-899 rooms / 2-3 ≥ 900 rooms / 3
Social Welfare Facilities(1)	Parking Space	No parking spaces is required.
	Loading/ Unloading	The proposed welfare facilities should be conveniently accessible to a shared loading/unloading area for the emergency use of ambulances.

Note: (1) In all non-residential developments, additional parking spaces for motorcycles at the rate of 5 to 10% of the total provision for private cars with respect to each type of development should be provided.

(2) The requirements for social welfare facilities are based on the agreed information from PlanD/SWD.

Table 6.1.2 Estimated Parking Provisions for Proposed Development

Proposed Development Site	Type of Development	Facility	Adopted Parking Ratio	Parking and Loading/Unloading Provision
3E1(1)	Private Housing	Private Car Parking	GPS = 4 R1 = 1.2 R2 = 1 R3 = 0.9	240
		Visitor Parking	5 visitor spaces per residential block	10
		Motorcycle Parking	1 per 100 flats	9
		Loading / Unloading	1 per 800 flats	2
		Bicycle Parking	1 for every 15 flats	60
	Retail	Private Car Parking	1 car space per 150m^2 GFA	16
		Loading / Unloading	1 L/UL bay for goods vehicles for every 800 m^2 GFA	4
	Additional Motorcycle Parking for Non-residential Development		5% of the total provision for private cars	1
3E2(1)	Private Housing	Private Car Parking	GPS = 4 R1 = 1.2 R2 = 1 R3 = 0.9	281
		Visitor Parking	5 visitor spaces per residential block	10
		Motorcycle Parking	1 per 100 flats	11
		Loading / Unloading	1 per 800 flats	2
		Bicycle Parking	1 for every 15 flats	70
	Retail	Private Car Parking	1 car space per 150m^2 GFA	26
		Loading / Unloading	1 L/UL bay for goods vehicles for every 800 m^2 GFA	5
	Additional Motorcycle Parking for Non-residential Development		5% of the total provision for private cars	2
4C4	Retail	Private Car Parking	1 car space per 150 m^2 GFA	134
		Loading / Unloading	1 L/UL bay for goods vehicles for every 800 m^2 GFA	26
	Office	Private Car Parking	For the first 15,000m² GFA: 1 car space per 150 - 200m² GFA Above 15,000m² GFA: 1 car space per 200 - 300m² GFA.	272
		Loading / Unloading	1 L/UL bay for goods vehicles for every 2 000m²	25
		Layby for Taxi and PV	1 picking up/ setting down lay-by for taxis and private cars for every 20 000m²	3
	Hotel	Private Car Parking	1 car space per 100 rooms	6

Proposed Development Site	Type of Development	Facility	Adopted Parking Ratio	Parking and Loading/Unloading Provision
		Loading / Unloading	0.5 goods vehicle bay per 100 rooms	12
		Layby for Taxi and PV	3 laybys for 300-599 rooms	3
		Layby for single deck bus	3 laybys for 300-899 rooms	3
	Additional Motorcycle Parking for Non-residential Development		5% of the total provision for private cars	21
4C5	Retail	Private Car Parking	1 car space per 150 m^2 GFA	56
		Loading / Unloading	1 L/UL bay for goods vehicles for every 800 m^2 GFA	11
	Office	Private Car Parking	For the first 15,000m² GFA: 1 car space per 150 - 200m² GFA Above 15,000m² GFA: 1 car space per 200 - 300m² GFA.	211
		Loading / Unloading	1 L/UL bay for goods vehicles for every 2 000m²	19
		Layby for Taxi and PV	1 picking up/ setting down lay-by for taxis and private cars for every 20 000m²	2
	Hotel	Private Car Parking	1 car space per 100 rooms	5
		Loading / Unloading	0.5 goods vehicle bay per 100 rooms	10
		Layby for Taxi and PV	3 laybys for 300-599 rooms	3
		Layby for single deck bus	3 laybys for 300-899 rooms	3
	Additional Motorcycle Parking for Non-residential Development		5% of the total provision for private cars	14

Note: (1) With reference to the list of proposed welfare facilities to be incorporated at Kai Tak site 3E1 and 3E2, no parking spaces is required for the proposed welfare facilities but the site should be conveniently accessible to a shared loading/unloading area for the emergency use of ambulances.

(2) To encourage the use of designated parking areas and discourage illegal parking, it is suggested that the proposed ancillary car parking and L/UL bays be enabled for public use.

(3) Parking and loading/unloading provision is rounded up to the next whole number.

7 Summary / Conclusion / Recommendations

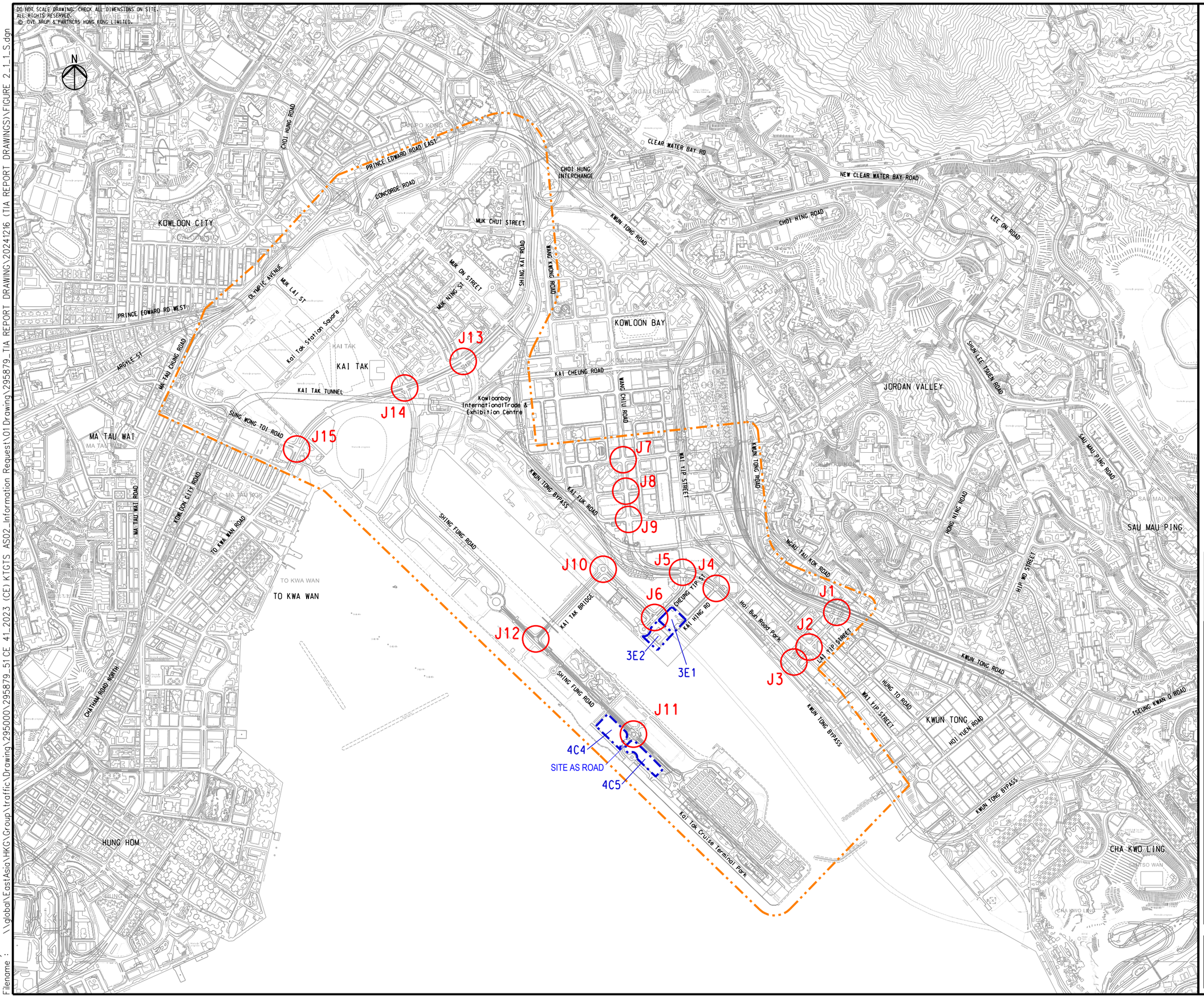
7.1.1 This Traffic Impact Assessment is to assess the traffic impact induced by the minor relaxation of plot ratio and building height restrictions at the identified sites, with considerations on the commencement of KTGTS site coverage.

7.1.2 With the proposed minor relaxation of plot ratio, site coverage and building height restrictions, the estimated increase in domestic and non-domestic GFA is estimated to be about 29,500m^2 and 54,232m^2 respectively.

7.1.3 The performance of key junctions within Area of Influence have been assessed for design years 2036 and 2041. The assessment results reveal that the overall traffic condition will be operated with sufficient capacity in all design years. It should be noted that the Proposed Development is subject to the presence of KTGTS to provide infrastructural support for the anticipated traffic demand.

7.1.4 Based on the assessment under this report, no insurmountable traffic and transport impact will be induced by the proposed minor relaxation of the development restrictions of the Proposed Development under this application.

Figures



LEGEND :

- PROPOSED SITE LOCATION
- PROPOSED AREA OF INFLUENCE
- J10 JUNCTIONS FOR SURVEY

Rev	Description	By	Date

Consultant

ARUP

Project Title

S16 Planning Application for Proposed Minor Relaxation of Plot Ratio and Building Height Restrictions in "Commercial (7)", "Commercial (5)", Residential (Group B) 2" and "Other Specified Uses"annotated "Railway Station with Commercial Facilities" zones and area shown as 'Road', at Sites 4C4, 4C5, 3E1, 3E2 and 1F3 in Kai Tak Development"

Drawing title

AREA OF INFLUENCE, LOCATION PLAN OF PROPOSED DEVELOPMENT & KEY JUNCTIONS

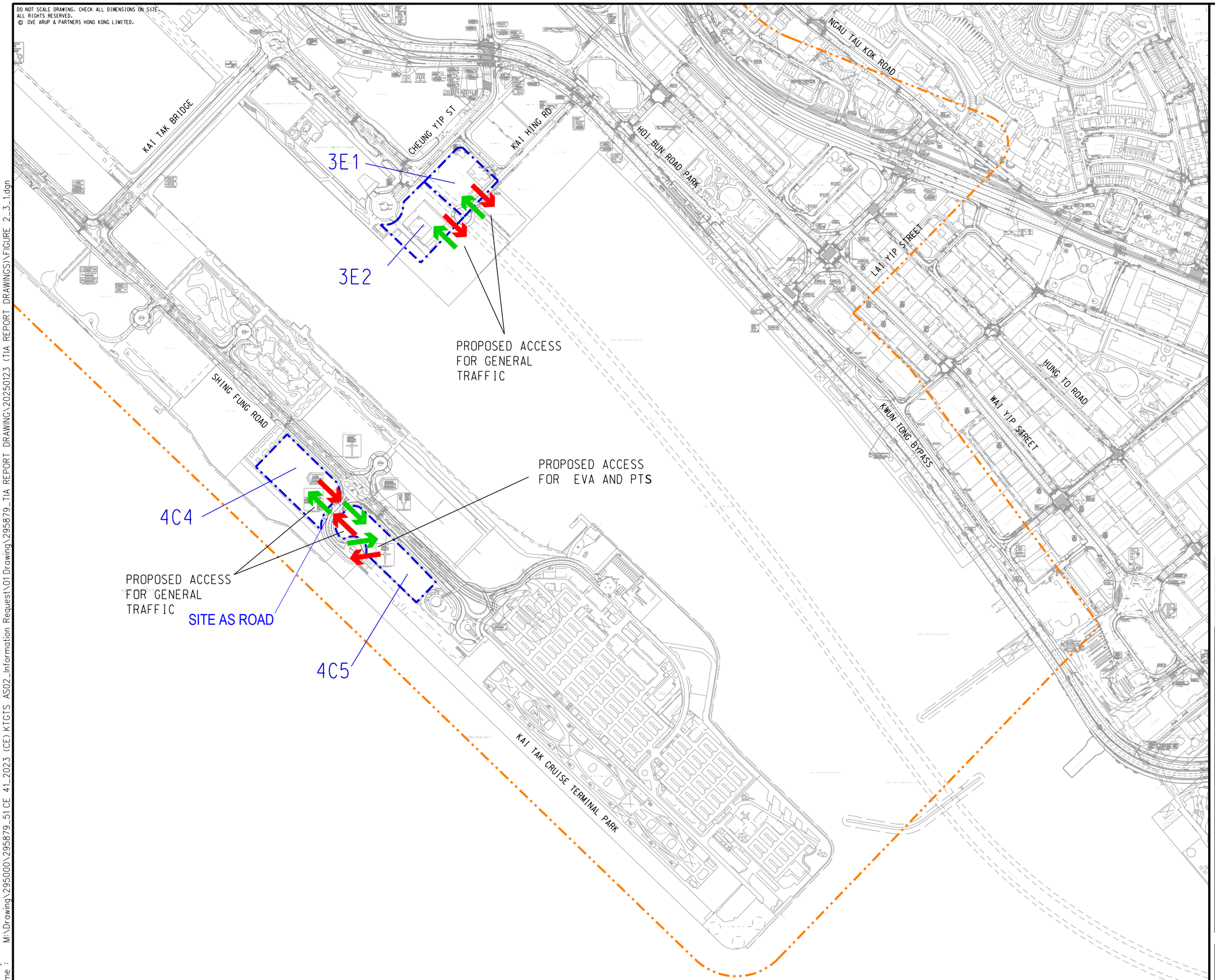
Drawing no.	Rev.
FIGURE 2.1.1	-

Drawn	Date	Checked	Approved
WKKL	12/24	KCTC	

Scale: 1:16000 @ A3 — Status: -

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

Printed by : william.lai Date : 20/12/2024
Filename : \\global\EastAsia\HKG\Group\traffic\Drawing\295000\295879_51CE 41_2023 (CE) KTGTS AS02_Information Request\01 Drawing\295879_TIA REPORT DRAWING\20241216 (TIA REPORT DRAWINGS)\FIGURE 2_1_1_S.dgn



LEGEND :

- PROPOSED SITE LOCATION
- PROPOSED AREA OF INFLUENCE
- PROPOSED INGRESS
- PROPOSED EGRESS

Rev	Description	By	Date

Consultant

ARUP

Project Title

S16 Planning Application for Proposed Minor Relaxation of Plot Ratio (PR), Site Coverage (SC) and Building Height (BH) Restrictions for Permitted/Proposed Commercial Development, Public Transport Station and Underground Vehicle Tunnel at Kai Tak Area 4C Sites 4 and 5 and Adjoining Road Portion of Shing King Street; and Minor Relaxation of PR and BH Restrictions for Permitted Private Housing Development with Proposed Eating Place, Shop and Services and Social Welfare Facilities at Kai Tak Area 3E Sites 1 and 2

Drawing title

PROPOSED ACCESS ARRANGEMENT

Drawing no.			Rev.
FIGURE 2.3.1			-
Drawn: WKKL	Date: 12/24	Checked: KCTC	Approved:
Scale: 1:6000 @ A3		Status: -	

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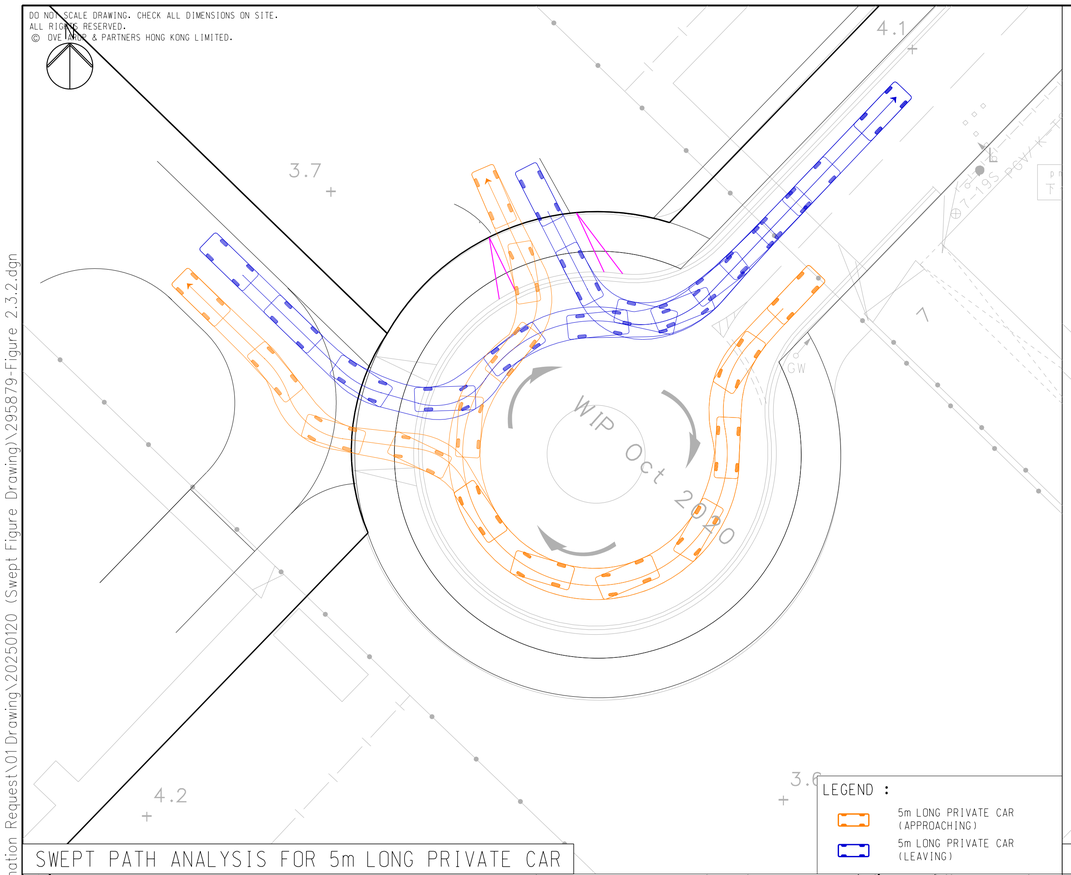
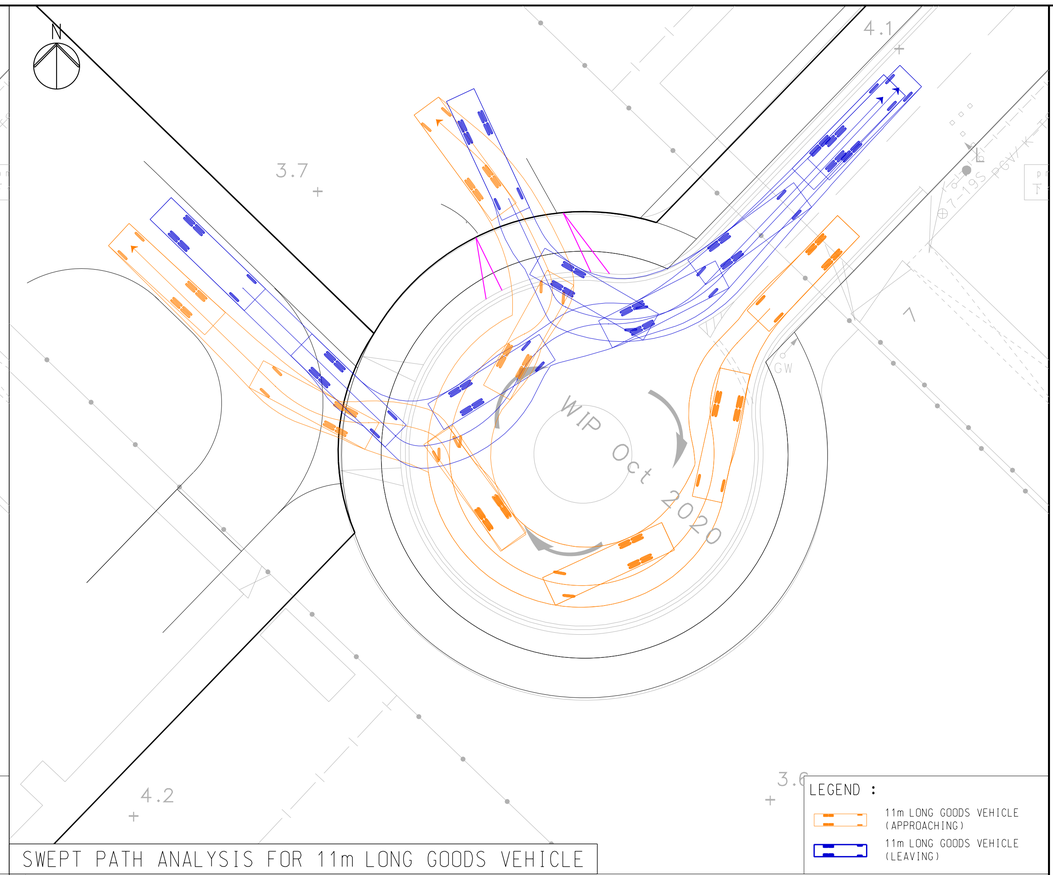
Filename : M:\Drawing\295000\295879_51CE 41_2023 (CE) KTGTS AS02_Information Request\01 Drawing\295879_TIA REPORT DRAWING\20250123 (TIA REPORT DRAWINGS)\FIGURE 2_3_1.dgn



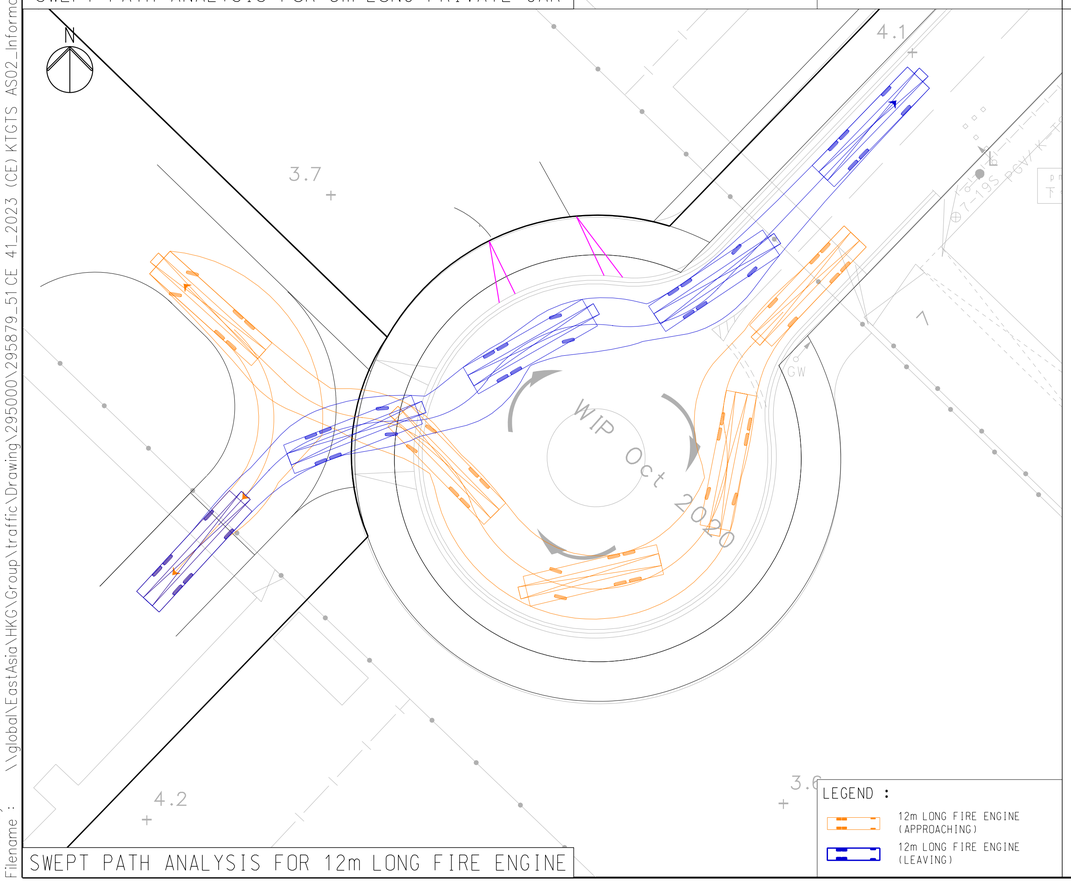
SWEPT PATH ANALYSIS FOR 5m LONG PRIVATE CAR

LEGEND :
- 5m LONG PRIVATE CAR (APPROACHING)
- 5m LONG PRIVATE CAR (LEAVING)



SWEPT PATH ANALYSIS FOR 11m LONG GOODS VEHICLE

LEGEND :
- 11m LONG GOODS VEHICLE (APPROACHING)
- 11m LONG GOODS VEHICLE (LEAVING)



SWEPT PATH ANALYSIS FOR 12m LONG FIRE ENGINE

LEGEND :
- 12m LONG FIRE ENGINE (APPROACHING)
- 12m LONG FIRE ENGINE (LEAVING)

Rev	Description	By	Date
-	FIRST ISSUE	KHJC	09/24

Consultant

ARUP

Project Title

S16 Planning Application for Proposed Minor Relaxation of Plot Ratio (PR), Site Coverage (SC) and Building Height (BH) Restrictions for Permitted / Proposed Commercial Development, Public Transport Station and Underground Vehicle Tunnel at Kai Tak Area 4C Sites 4 and 5 and Adjoining Road Portion of Shing King Street; and Minor Relaxation of PR and BH Restrictions for Permitted Private Housing Development with Proposed Eating Place, Shop and Services and Social Welfare Facilities at Kai Tak Area 3E Sites 1 and 2

Drawing title

SWEPT PATH ANALYSIS FOR SITE 3E1 & 3E2

Drawing no.	Rev.
295879/FIGURE 2.3.2	-

Drawn	Date	Checked	Approved
WLAC	01/25		

Scale	Status
1:250 @ A1	-

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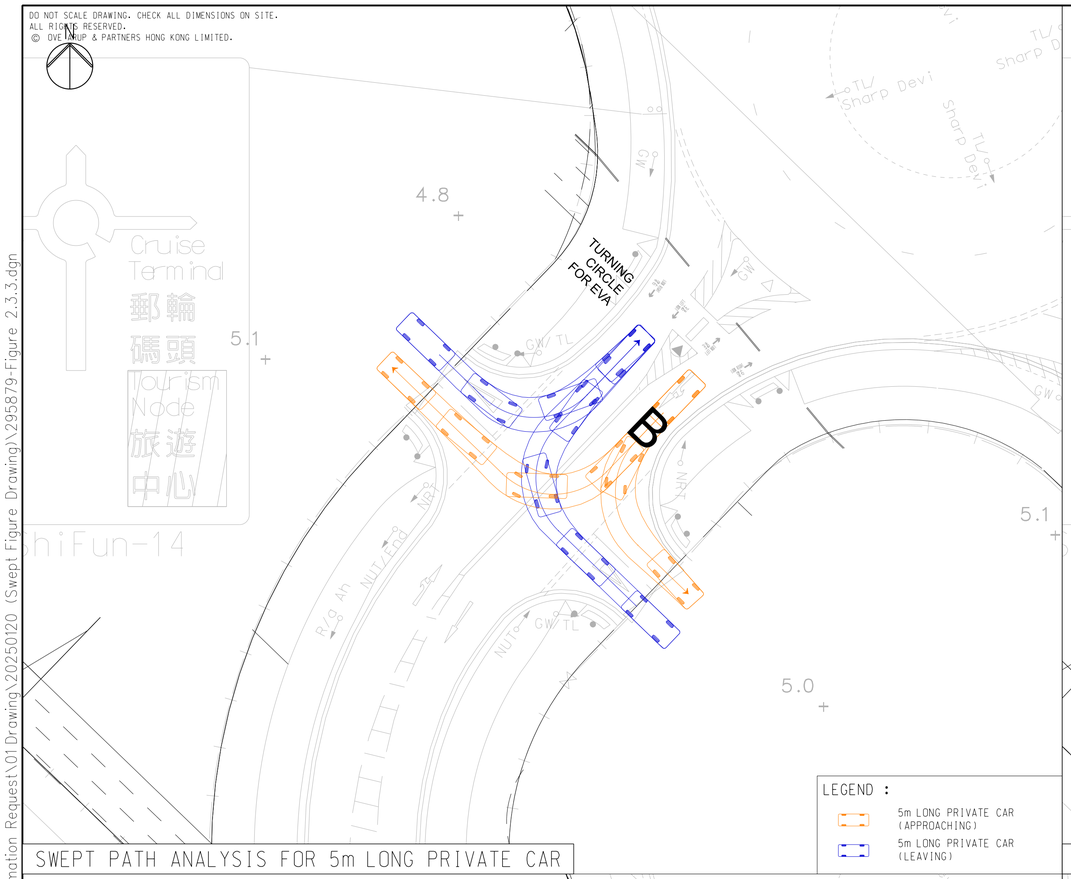
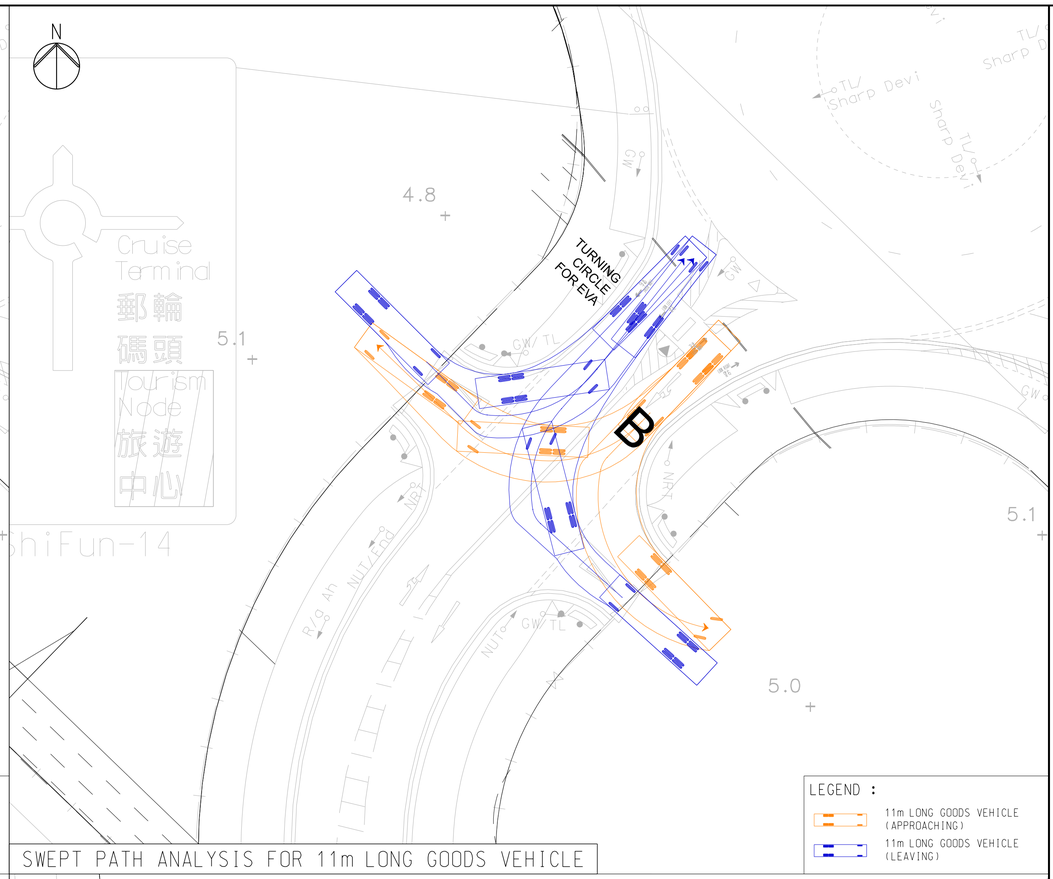
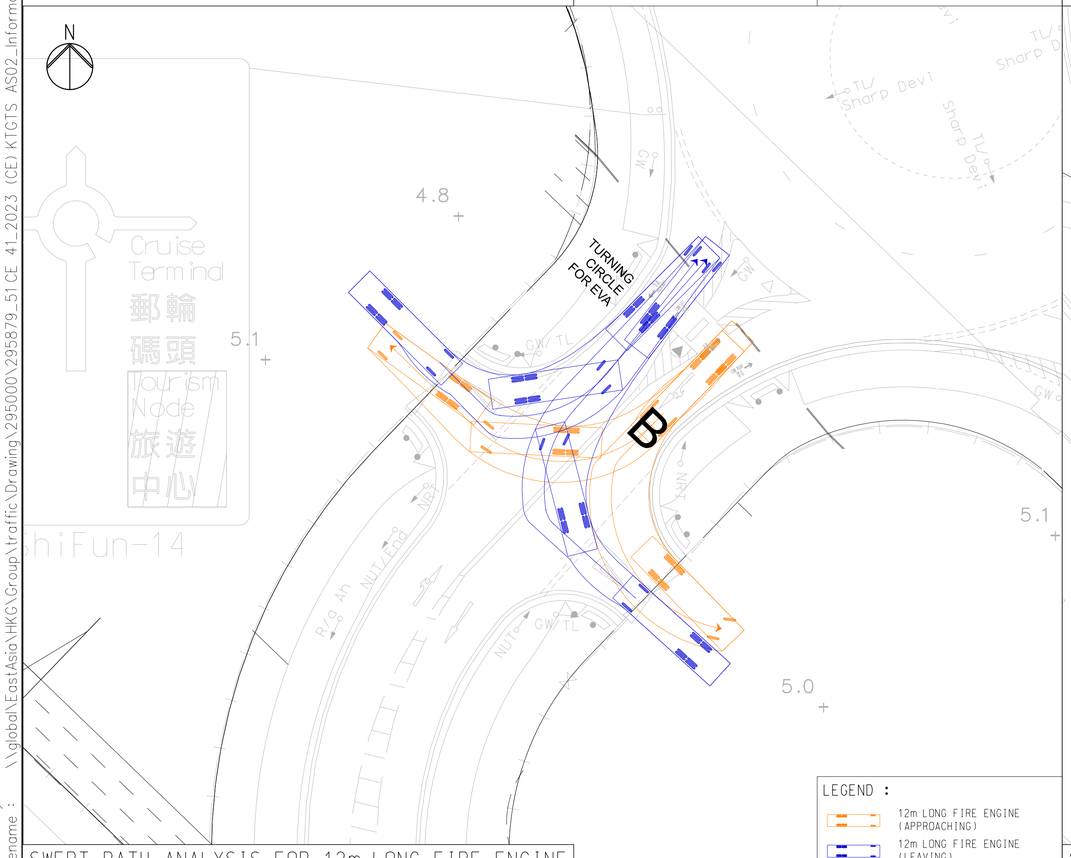
Printed by : KH Cheuk Date : 25/2/2025
Filename : \\global\EastAsia\HKG\Group\traffic\Drawing\295000\295879_51CE 41_2023 (CE) KTGTS AS02_Information Request\01 Drawing\20250120 (Swept Figure Drawing)\295879-Figure 2.3.2.dgn



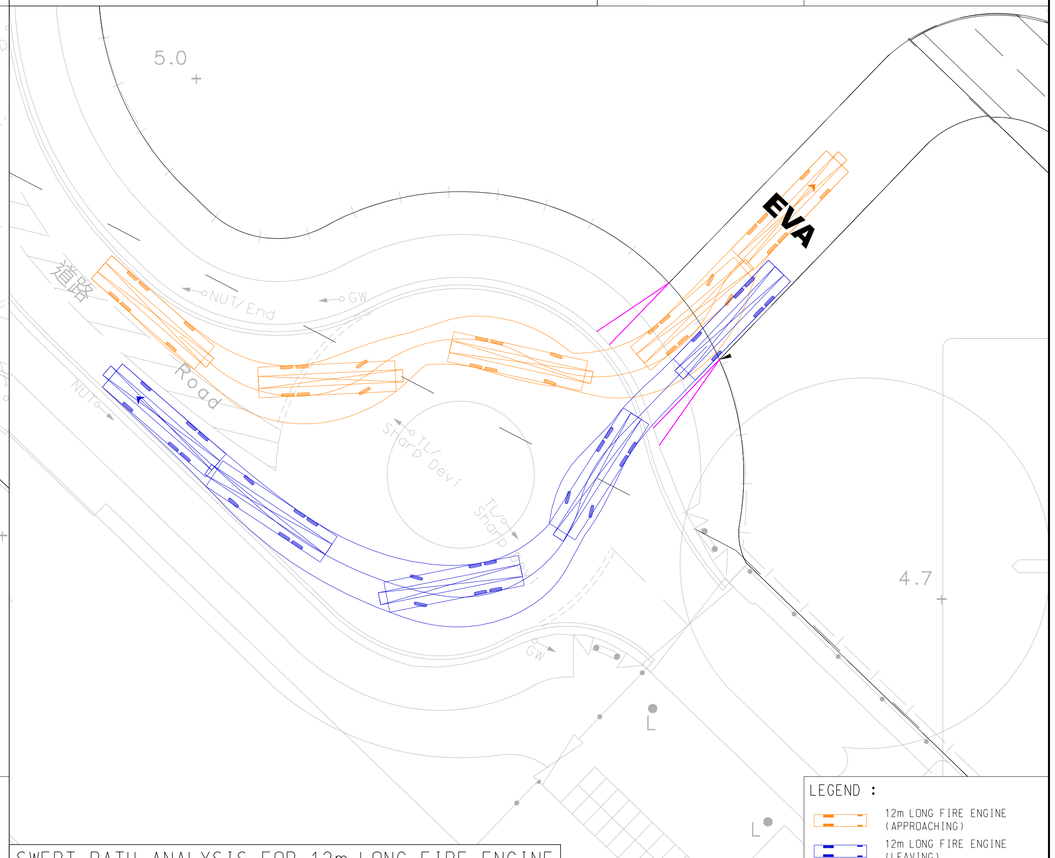
SWEPT PATH ANALYSIS FOR 5m LONG PRIVATE CAR



SWEPT PATH ANALYSIS FOR 11m LONG GOODS VEHICLE



SWEPT PATH ANALYSIS FOR 12m LONG FIRE ENGINE



SWEPT PATH ANALYSIS FOR 12m LONG FIRE ENGINE

Rev	Description	By	Date
-	FIRST ISSUE	KHJC	09/24

Consultant

ARUP

Project Title

S16 Planning Application for Proposed Minor Relaxation of Plot Ratio (PR), Site Coverage (SC) and Building Height (BH) Restrictions for Permitted / Proposed Commercial Development, Public Transport Station and Underground Vehicle Tunnel at Kai Tak Area 4C Sites 4 and 5 and Adjoining Road Portion of Shing King Street; and Minor Relaxation of PR and BH Restrictions for Permitted Private Housing Development with Proposed Eating Place, Shop and Services and Social Welfare Facilities at Kai Tak Area 3E Sites 1 and 2

Drawing title

SWEPT PATH ANALYSIS FOR SITE 4C4 & 4C5

Drawing no.			Rev.
295879/FIGURE 2.3.3			-
Drawn	Date	Checked	Approved
WLAC	01/25		
Scale		Status	
1:250 @ A1		-	

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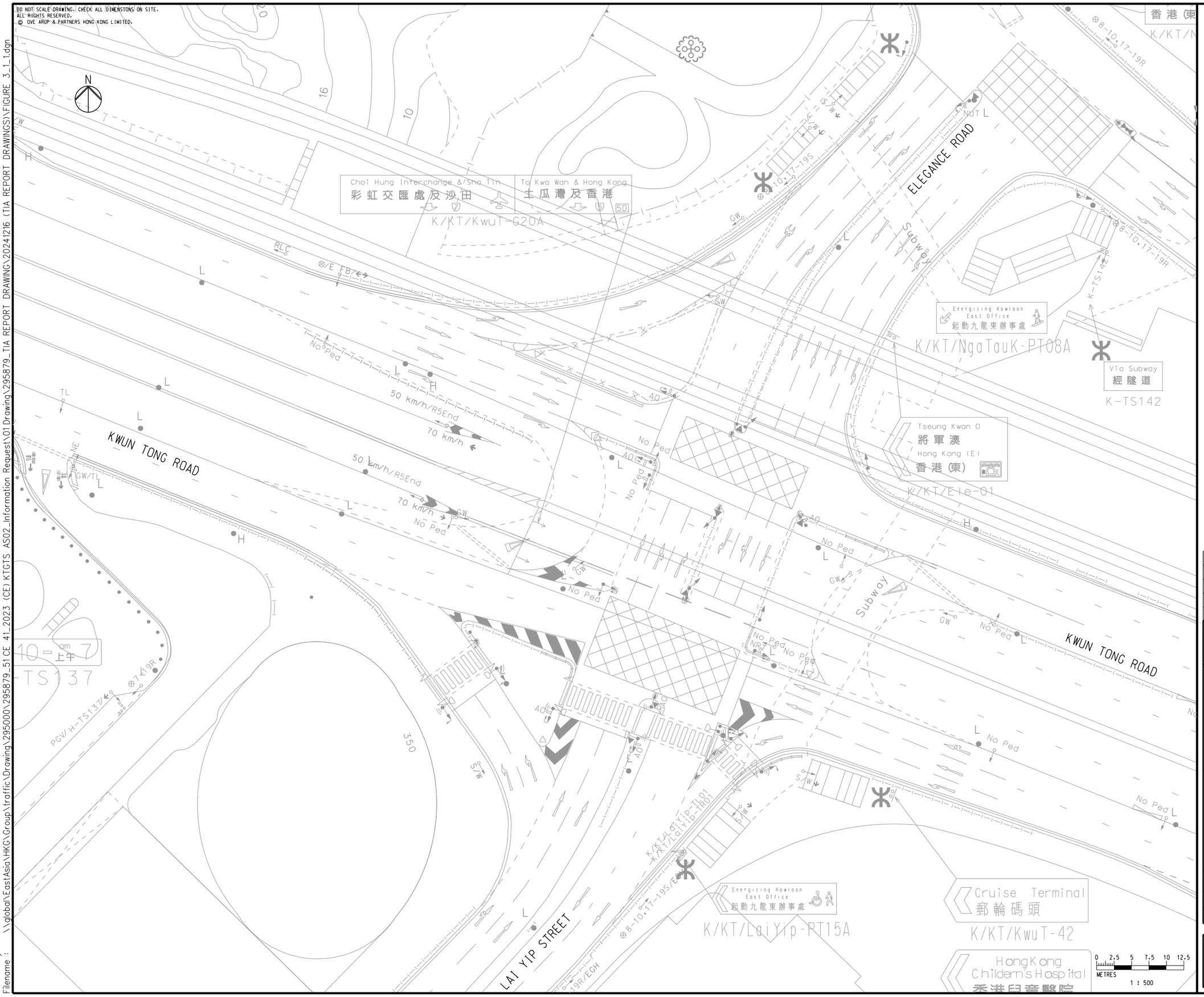
Filename : \\global\EastAsia\HKG\Group\traffic\Drawing\295000\295879_51CE 41.2023 (CE) KTGTS AS02_Information Request\01 Drawing\20250120 (Swept Figure Drawing)\295879-Figure 2.3.3.dgn



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Rev	Description	By	Date

Consultant

ARUP

Project Title

S16 Planning Application for Proposed Minor Relaxation of Plot Ratio (PR), Site Coverage (SC) and Building Height (BH) Restrictions for Permitted/Proposed Commercial Development, Public Transport Station and Underground Vehicle Tunnel at Kai Tak Area 4C Sites 4 and 5 and Adjoining Road Portion of Shing King Street; and Minor Relaxation of PR and BH Restrictions for Permitted Private Housing Development with Proposed Eating Place, Shop and Services and Social Welfare Facilities at Kai Tak Area 3E Sites 1 and 2

Drawing title

EXISTING JUNCTION LAYOUT OF KWUN TONG ROAD/ ELEGANCE ROAD/ LAI YIP STREET (J1)

Drawing no.			Rev.
FIGURE 3.1.1			-
Drawn	Date	Checked	Approved
WKKL	12/24	KCTC	
Scale		Status	
1:500 @ A3		-	

土木工程拓展署
Civil Engineering and Development Department

WIP May 2024

WIP May 202

WAI YIP STREET

LAI YIP STREET

LAI YIP STREET

WAI YIP STREET

Ngau Tau Kok 牛頭角
K/KT/WaiY-30

Tseung Kwan O 將軍澳
Hong Kong (E) 香港(東)
K/KT/WaiY-29

Ngau Tau Kok 牛頭角
K/KT/LaiY-03A

Energizing Kowloon East Office 起動九龍東辦事處
K/KT/LaiYip-PT13A

Energizing Kowloon East Office 起動九龍東辦事處
K/KT/LaiYip-PT12A

Energizing Kowloon East Office 起動九龍東辦事處
K/KT/LaiYip-PT10A

Energizing Kowloon East Office 起動九龍東辦事處
K/KT/LaiYip-PT11A

Cruise Terminal 郵輪碼頭
K/KT/WaiY-35

K/KT/LaiYip-TL-03
K/KT/LaiYip_TR-03

K-TS555
am 上午 8-10
pm 下午 4-8

K-TS556
am 上午 8-10
pm 下午 4-8

RCP

N

0 2.5 5 7.5 10 12.5
METRES
1 : 500

Rev	Description	By	Date

Consultant
ARUP

Project Title
S16 Planning Application for Proposed Minor Relaxation of Plot Ratio (PR), Site Coverage (SC) and Building Height (BH) Restrictions for Permitted/Proposed Commercial Development, Public Transport Station and Underground Vehicle Tunnel at Kai Tak Area 4C Sites 4 and 5 and Adjoining Road Portion of Shing King Street; and Minor Relaxation of PR and BH Restrictions for Permitted Private Housing Development with Proposed Eating Place, Shop and Services and Social Welfare Facilities at Kai Tak Area 3E Sites 1 and 2

Drawing title
EXISTING JUNCTION LAYOUT OF LAI YIP STREET/ WAI YIP STREET (J2)

Drawing no.		Rev.
FIGURE 3.1.2		-
Drawn: WKKL	Date: 12/24	Checked: KCTC	Approved:
Scale: 1:500 @ A3		Status: -	

土木工程拓展署
Civil Engineering and Development Department

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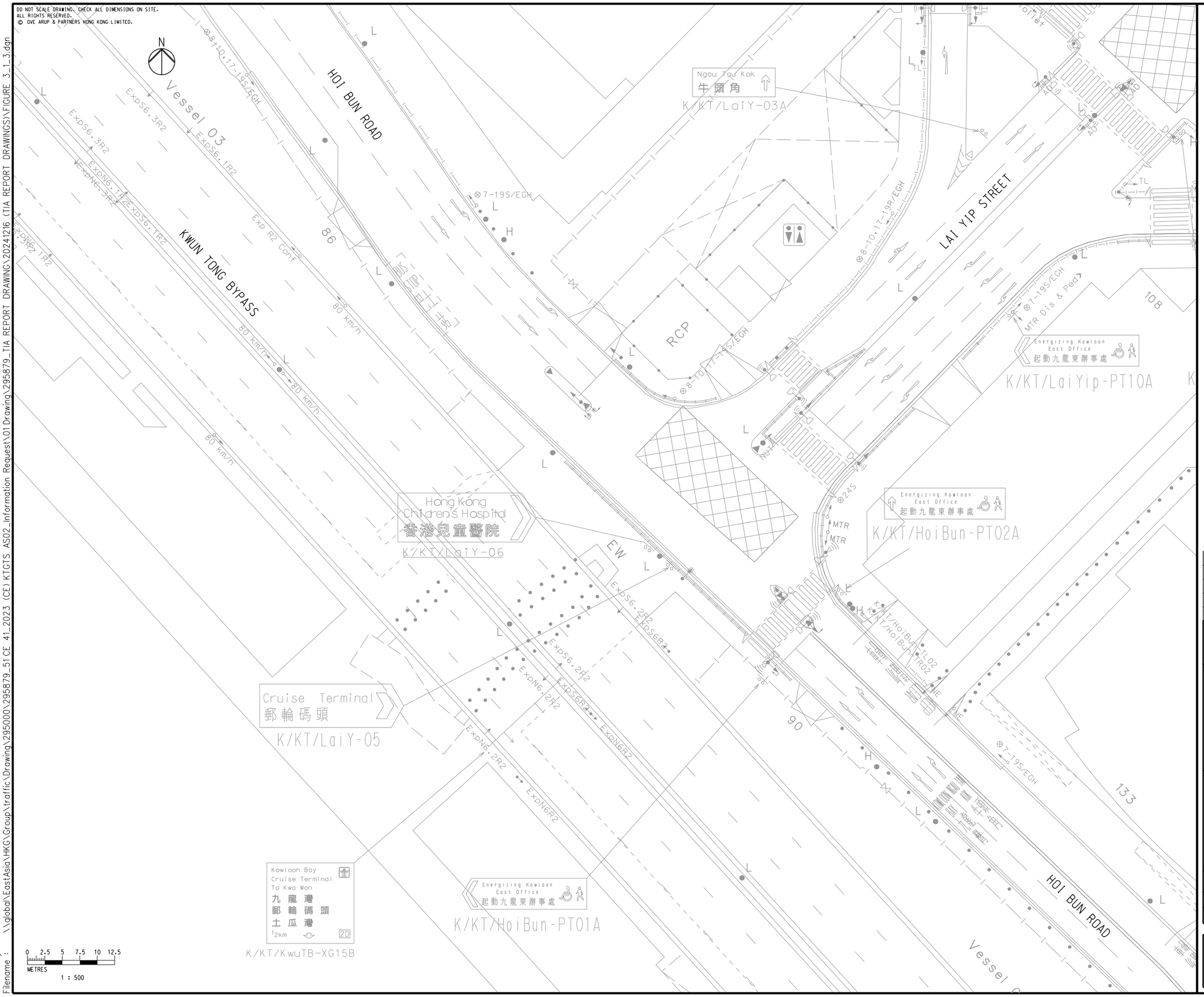

Rev	Description	By	Date

Consultant

ARUP

Project Title

S16 Planning Application for Proposed Minor Relaxation of Plot Ratio (PR), Site Coverage (SC) and Building Height (BH) Restrictions for Permitted/Proposed Commercial Development, Public Transport Station and Underground Vehicle Tunnel at Kai Tak Area 4C Sites 4 and 5 and Adjoining Road Portion of Shing King Street; and Minor Relaxation of PR and BH Restrictions for Permitted Private Housing Development with Proposed Eating Place, Shop and Services and Social Welfare Facilities at Kai Tak Area 3E Sites 1 and 2

Drawing title

EXISTING JUNCTION LAYOUT OF LAI YIP STREET/ HOI BUN ROAD (J3)

Drawing no.			Rev.
FIGURE 3.1.3			-
Drawn	Date	Checked	Approved
WKKL	12/24	KCTC	
Scale		Status	
1:500 @ A3		-	

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HOI BUN ROAD
HUNG YIP STREET
KWUN TONG BYPASS
KAI HING ROAD
77
80 km/h
Government Flying Service
政府飛行服務隊
K/KT/ShiFun-19
Hong Kong Children's Hospital
香港兒童醫院
K/KT/HoiBun-P01
Kowloon Bay
Cruise Terminal
To Kwa Wan
九龍灣
郵輪碼頭
土瓜灣
Mong Kok & Sha Tin
旺角及沙田
K/KT/KwuTB-XG14C
Kowloon Bay
九龍灣
Cruise Terminal
郵輪碼頭
Hong Kong Children's Hospital
香港兒童醫院
K/KT/HoiB-23
0 2.5 5 7.5 10 12.5
METRES
1 : 500

Rev	Description	By	Date

Consultant
ARUP

Project Title
S16 Planning Application for Proposed Minor Relaxation of Plot Ratio (PR), Site Coverage (SC) and Building Height (BH) Restrictions for Permitted/Proposed Commercial Development, Public Transport Station and Underground Vehicle Tunnel at Kai Tak Area 4C Sites 4 and 5 and Adjoining Road Portion of Shing King Street; and Minor Relaxation of PR and BH Restrictions for Permitted Private Housing Development with Proposed Eating Place, Shop and Services and Social Welfare Facilities at Kai Tak Area 3E Sites 1 and 2

Drawing title
EXISTING JUNCTION LAYOUT OF KAI HING ROAD/ HOI BUN ROAD (J4)

Drawing no.			Rev.
FIGURE 3.1.4			-
Drawn	Date	Checked	Approved
WKKL	12/24	KCTC	WSZW
Scale		Status	
1:500 @ A3		-	

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

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N

CHEUNG YIP STREET

Hong Kong Children's Hospital 香港兒童醫院
K/KT/WanChi-P13

Hong Kong Children's Hospital 香港兒童醫院
K/KT/WanChi-P12

Cruise Terminal 郵輪碼頭
K/KT/CheY-01

Hong Kong Children's Hospital 香港兒童醫院
K/KT/CheY-10

Cruise Terminal 郵輪碼頭
Hong Kong Children's Hospital 香港兒童醫院
K/KT/WanC-25

80 km/h

RLC ⊗7-24S

ExpS6.9R2 ExpS6.7R2 KLUO

NUT

HOI BUN ROAD

⊗7-24R

KWUN TONG BYPASS

ExpS6.9R2 ExpN6.7R2 ExpS6.7R2
ExpN6.9R2

Rd Nar R

ExpN6.9R2 KLUO ExpN6.7R2

⊗End Rd Nar R

ExpS6.8R2

ExpS6.8R2 ExpN6.6R2 ExpS6.6

AMV Pron AMV P

ExpN6.8R2 ExpN6.6R2 Reduce Sp

⊕245

Public Works Central Laboratory 工務中央試驗所
K/KT/WanC-10B

Cruise Terminal 郵輪碼頭
Hong Kong Children's Hospital 香港兒童醫院
K/KT/WanC-15A

Cheung Yip Street 祥業街

Runway Park 跑道公園
K/KT/WanC-T16

Government Flying Service 政府飛行服務隊
K/KT/HoiB-22

Kowloon Bay & Cruise Terminal
To Kwa Wan 土瓜灣 2D 5
九龍灣及郵輪碼頭 2D

Hong Kong Children's Hospital 香港兒童醫院
K/KT/CheYip-P01

Hong Kong Children's Hospital 香港兒童醫院
K/KT/CheYip-P02

Mong Kok & Sha Tin 旺角及沙田
H 2 2

CHEUNG YIP STREET

Cheung Yip Street 祥業街
Central Laboratory 中央試驗所
K/KT/HoiB-01

Kowloon Bay 九龍灣
Cruise Terminal 郵輪碼頭
Hong Kong Children's Hospital 香港兒童醫院
K/KT/HoiB-13A
Runway Park 跑道公園
K/KT/HoiB-T14

Government F 政府飛行服
K/KT/Sh

Rev	Description	By	Date

Consultant

ARUP

Project Title

S16 Planning Application for Proposed Minor Relaxation of Plot Ratio (PR), Site Coverage (SC) and Building Height (BH) Restrictions for Permitted/Proposed Commercial Development, Public Transport Station and Underground Vehicle Tunnel at Kai Tak Area 4C Sites 4 and 5 and Adjoining Road Portion of Shing King Street; and Minor Relaxation of PR and BH Restrictions for Permitted Private Housing Development with Proposed Eating Place, Shop and Services and Social Welfare Facilities at Kai Tak Area 3E Sites 1 and 2

Drawing title

EXISTING JUNCTION LAYOUT OF HOI BUN ROAD/WANG CHIU ROAD /CHEUNG YIP STREET (J5)

Drawing no.			Rev.
FIGURE 3.1.5			-
Drawn	Date	Checked	Approved
WKKL	12/24	KCTC	
Scale		Status	
1:500 @ A3		-	

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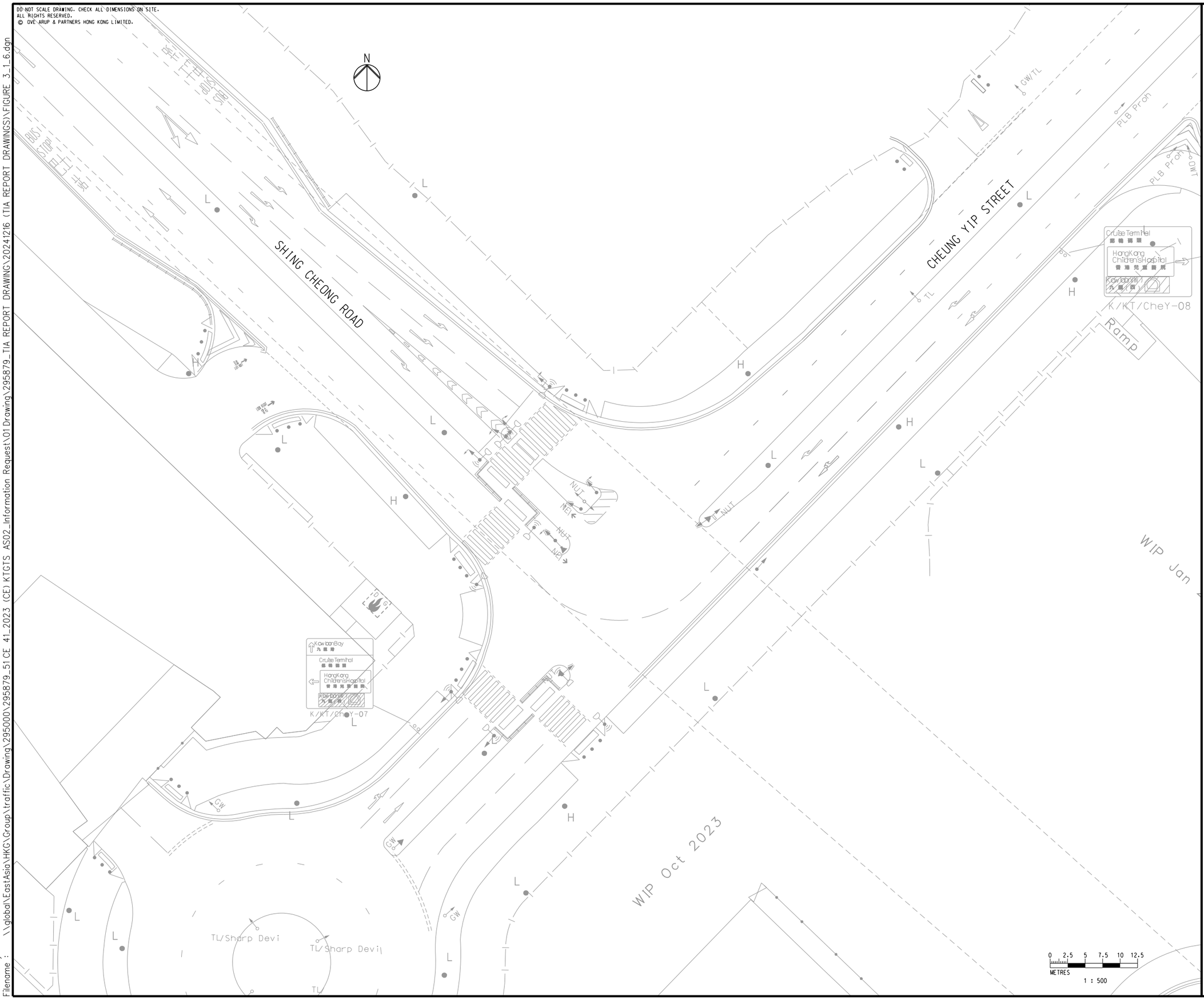

Rev	Description	By	Date

Consultant

ARUP

Project Title

S16 Planning Application for Proposed Minor Relaxation of Plot Ratio (PR), Site Coverage (SC) and Building Height (BH) Restrictions for Permitted/Proposed Commercial Development, Public Transport Station and Underground Vehicle Tunnel at Kai Tak Area 4C Sites 4 and 5 and Adjoining Road Portion of Shing King Street; and Minor Relaxation of PR and BH Restrictions for Permitted Private Housing Development with Proposed Eating Place, Shop and Services and Social Welfare Facilities at Kai Tak Area 3E Sites 1 and 2

Drawing title

EXISTING JUNCTION LAYOUT OF CHEUNG YIP STREET/ SHING CHEONG ROAD (J6)

Drawing no.			Rev.
FIGURE 3.1.6			-
Drawn	Date	Checked	Approved
WKKL	12/24	KCTC	
Scale		Status	
1:500 @ A3		-	

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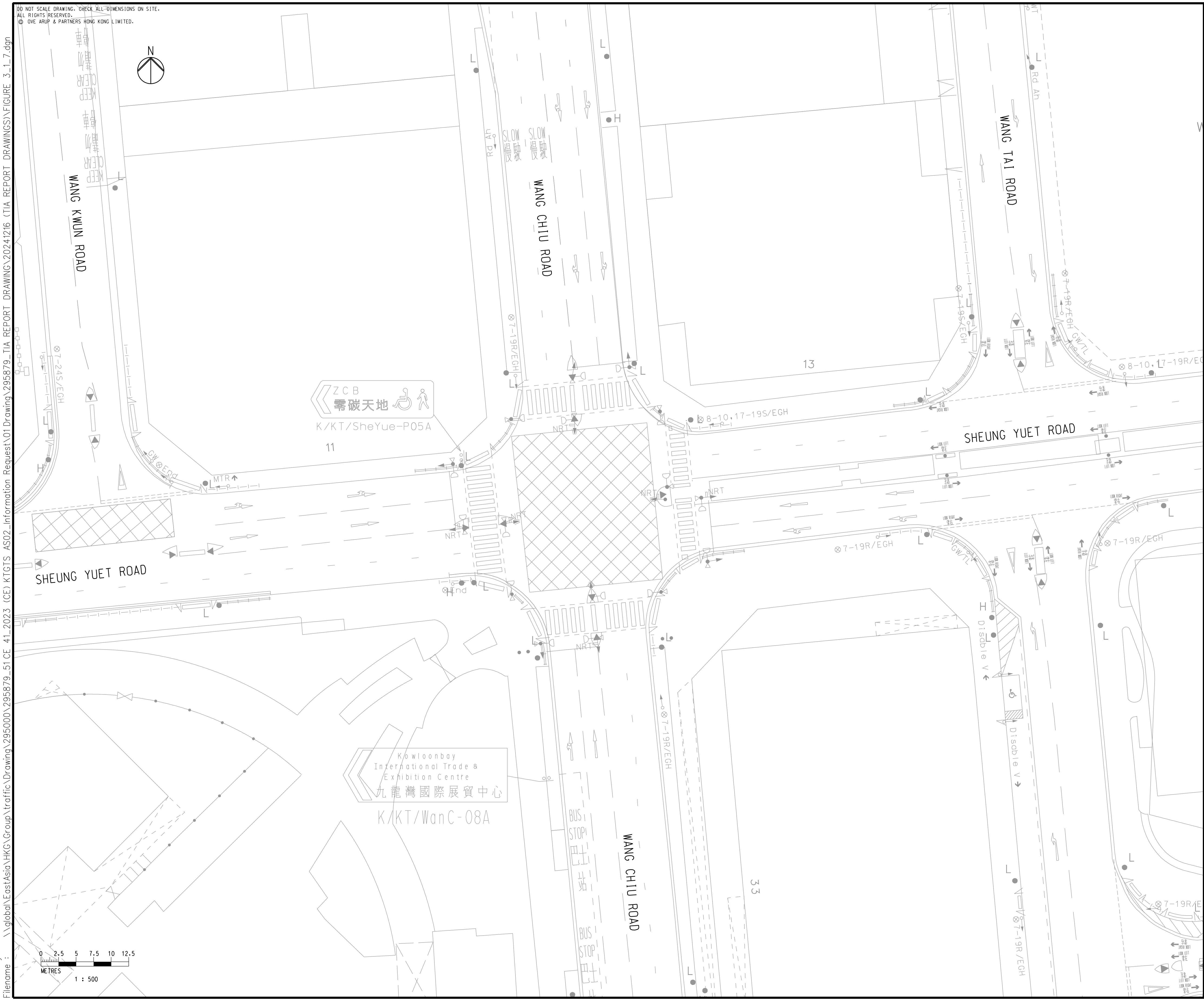

Rev	Description	By	Date

Consultant
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Project Title
S16 Planning Application for Proposed Minor Relaxation of Plot Ratio (PR), Site Coverage (SC) and Building Height (BH) Restrictions for Permitted/Proposed Commercial Development, Public Transport Station and Underground Vehicle Tunnel at Kai Tak Area 4C Sites 4 and 5 and Adjoining Road Portion of Shing King Street; and Minor Relaxation of PR and BH Restrictions for Permitted Private Housing Development with Proposed Eating Place, Shop and Services and Social Welfare Facilities at Kai Tak Area 3E Sites 1 and 2

Drawing title
EXISTING JUNCTION LAYOUT OF WANG CHIU ROAD/ SHEUNG YUET ROAD (J7)

Drawing no. FIGURE 3.1.7 — Rev. -

Drawn	Date	Checked	Approved
WKKL	12/24	KCTC	
Scale: 1:500 @ A3		Status: -	

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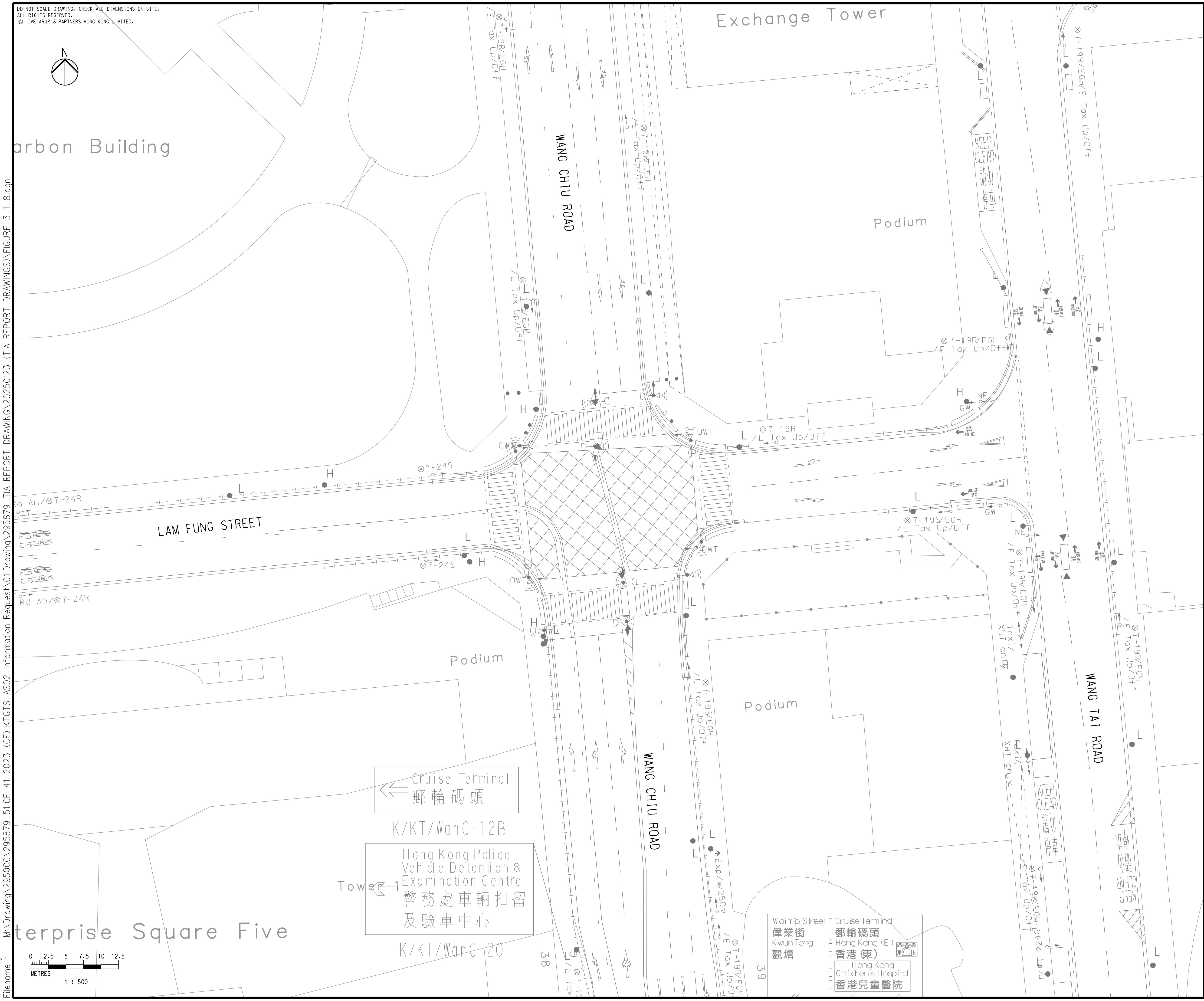
DO NOT SCALE DRAWING. CHECK ALL DIMENSIONS ON SITE.



Printed by : william.lai Date : 23/1/2025

Filename : M:\Drawing\295000\295879_51CE 41.2023 (CE) KTGTS AS02_Information Request\01 Drawing\295879_TIA REPORT DRAWING\20250123 (TIA REPORT DRAWINGS)\FIGURE 3_1_8.dgn

Rev	Description	By	Date

Consultant

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Project Title

S16 Planning Application for Proposed Minor Relaxation of Plot Ratio (PR), Site Coverage (SC) and Building Height (BH) Restrictions for Permitted/Proposed Commercial Development, Public Transport Station and Underground Vehicle Tunnel at Kai Tak Area 4C Sites 4 and 5 and Adjoining Road Portion of Shing King Street; and Minor Relaxation of PR and BH Restrictions for Permitted Private Housing Development with Proposed Eating Place, Shop and Services and Social Welfare Facilities at Kai Tak Area 3E Sites 1 and 2

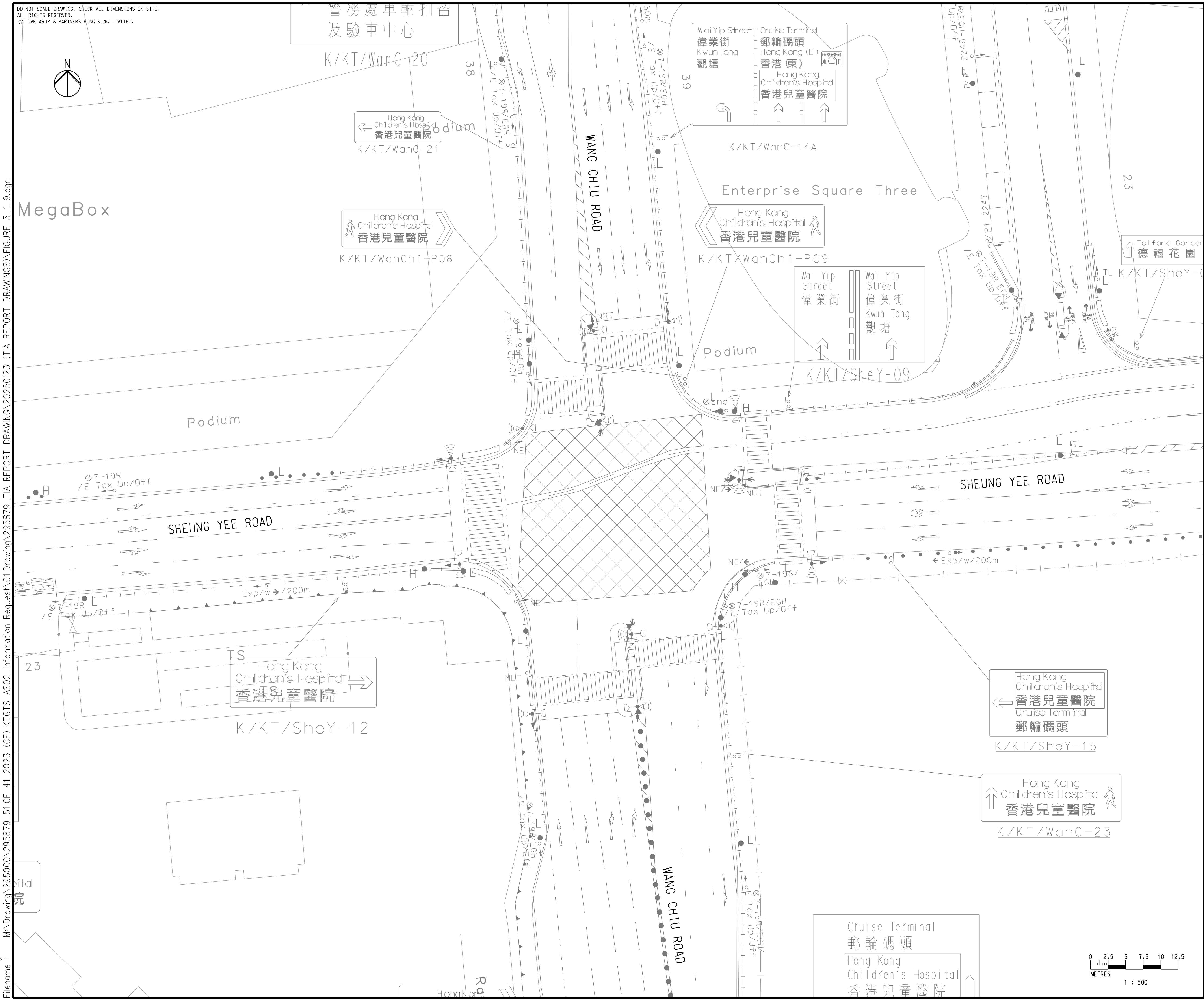
Drawing title

EXISTING JUNCTION LAYOUT OF WANG CHIU ROAD/ LAM FUNG STREET (J8)

Drawing no.	Rev.
FIGURE 3.1.8	-

Drawn	Date	Checked	Approved
WKKL	12/24	KCTC	
Scale: 1:500 @ A3		Status: -	

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



Rev	Description	By	Date

Consultant
ARUP

Project Title
S16 Planning Application for Proposed Minor Relaxation of Plot Ratio (PR), Site Coverage (SC) and Building Height (BH) Restrictions for Permitted/Proposed Commercial Development, Public Transport Station and Underground Vehicle Tunnel at Kai Tak Area 4C Sites 4 and 5 and Adjoining Road Portion of Shing King Street; and Minor Relaxation of PR and BH Restrictions for Permitted Private Housing Development with Proposed Eating Place, Shop and Services and Social Welfare Facilities at Kai Tak Area 3E Sites 1 and 2

Drawing title
EXISTING JUNCTION LAYOUT OF WANG CHIU ROAD/ SHEUNG YEE ROAD (J9)

Drawing no. FIGURE 3.1.9 | Rev. -

Drawn WKKL | Date 12/24 | Checked KCTC | Approved
Scale 1:500 @ A3 | Status -

土木工程拓展署
Civil Engineering and Development Department

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Filename : M:\Drawing\295000\295879_51CE 41.2023 (CE) KTGTS AS02_Information Request\01 Drawing\295879_TIA REPORT DRAWING\20250123 (TIA REPORT DRAWINGS)\FIGURE 3_1_9.dgn

N

PROPOSED ROAD

Proposed Tunnel

Elevated Road

EXPNT-2R2

EXPNT-2R2

EXPNT-2R2

Kowloon West
九龍(西)
K/KT/ShiC-02

Hong Kong Children's Hospital
香港兒童醫院
Kowloon Bay
九龍灣
K/KT/ShiC-03

TL/Sharp Devi

TL/Sharp Devi

TL/Sharp Devi

TL/Sharp Devi

Kowloon West
九龍(西)
Hong Kong Children's Hospital
香港兒童醫院
Kowloon Bay
九龍灣
K/KT/ShiC-05

Cruise Terminal
郵輪碼頭
K/KT/ShiC-01

KAI TAK BRIDGE ROAD

SHING CHEONG ROAD

Kowloon West
九龍(西)
Cruise Terminal
郵輪碼頭
K/KT/ShiC-04

Rd Ah

GW

NE

L

H

0 2.5 5 7.5 10 12.5
METRES
1 : 500

Rev	Description	By	Date

Consultant
ARUP

Project Title
S16 Planning Application for Proposed Minor Relaxation of Plot Ratio (PR), Site Coverage (SC) and Building Height (BH) Restrictions for Permitted/Proposed Commercial Development, Public Transport Station and Underground Vehicle Tunnel at Kai Tak Area 4C Sites 4 and 5 and Adjoining Road Portion of Shing King Street; and Minor Relaxation of PR and BH Restrictions for Permitted Private Housing Development with Proposed Eating Place, Shop and Services and Social Welfare Facilities at Kai Tak Area 3E Sites 1 and 2

Drawing title
EXISTING JUNCTION LAYOUT OF KAI TAK BRIDGE ROAD/ SHING CHEONG ROAD (J10)

Drawing no.		Rev.
FIGURE 3.1.10		-
Drawn: WKKL	Date: 12/24	Checked: KCTC	Approved:
Scale: 1:500 @ A3		Status: -	

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

N

SHING FUNG ROAD

SHING KING STREET

K/KT/ShiFun-12

Kowloon Bay 九龍灣 To Kwa Wan 土瓜灣

K/KT/ShiFun-13

Cruise Terminal 郵輪碼頭 Tourism Node 旅遊中心

K/KT/ShiFun-15

Kai Tak Sky Garden

Cruise Terminal 郵輪碼頭 Tourism Node 旅遊中心

ShiFun-14

Cruise Terminal 郵輪碼頭 Tourism Node 旅遊中心

K/KT/ShiFun-16

SHING KING STREET

SHING FUNG ROAD

WIP

0 2.5 5 7.5 10 12.5
METRES
1 : 500

Rev	Description	By	Date

Consultant

ARUP

Project Title

S16 Planning Application for Proposed Minor Relaxation of Plot Ratio (PR), Site Coverage (SC) and Building Height (BH) Restrictions for Permitted/Proposed Commercial Development, Public Transport Station and Underground Vehicle Tunnel at Kai Tak Area 4C Sites 4 and 5 and Adjoining Road Portion of Shing King Street; and Minor Relaxation of PR and BH Restrictions for Permitted Private Housing Development with Proposed Eating Place, Shop and Services and Social Welfare Facilities at Kai Tak Area 3E Sites 1 and 2

Drawing title

EXISTING JUNCTION LAYOUT OF SHING FUNG ROAD / SHING KING ROAD (J11)

Drawing no.			Rev.
FIGURE 3.1.11			-
Drawn	Date	Checked	Approved
WKKL	12/24	KCTC	
Scale		Status	
1:500 @ A3		-	

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K/KT/ShiFun-09

N

SHING FUNG ROAD

Kai Tak Bridge Road

SHING FUNG ROAD

To Kwa Wan
土瓜灣

Cruise Terminal

EW

NUT

L

H

0 2.5 5 7.5 10 12.5
METRES
1 : 500

Rev	Description	By	Date

Consultant

ARUP

Project Title

S16 Planning Application for Proposed Minor Relaxation of Plot Ratio (PR), Site Coverage (SC) and Building Height (BH) Restrictions for Permitted/Proposed Commercial Development, Public Transport Station and Underground Vehicle Tunnel at Kai Tak Area 4C Sites 4 and 5 and Adjoining Road Portion of Shing King Street; and Minor Relaxation of PR and BH Restrictions for Permitted Private Housing Development with Proposed Eating Place, Shop and Services and Social Welfare Facilities at Kai Tak Area 3E Sites 1 and 2

Drawing title

EXISTING JUNCTION LAYOUT OF SHING FUNG ROAD/ KAI TAK BRIDGE ROAD (J12)

Drawing no.	Rev.
FIGURE 3.1.12	-

Drawn	Date	Checked	Approved
WKKL	12/24	KCTC	

Scale: 1:500 @ A3
Status: -

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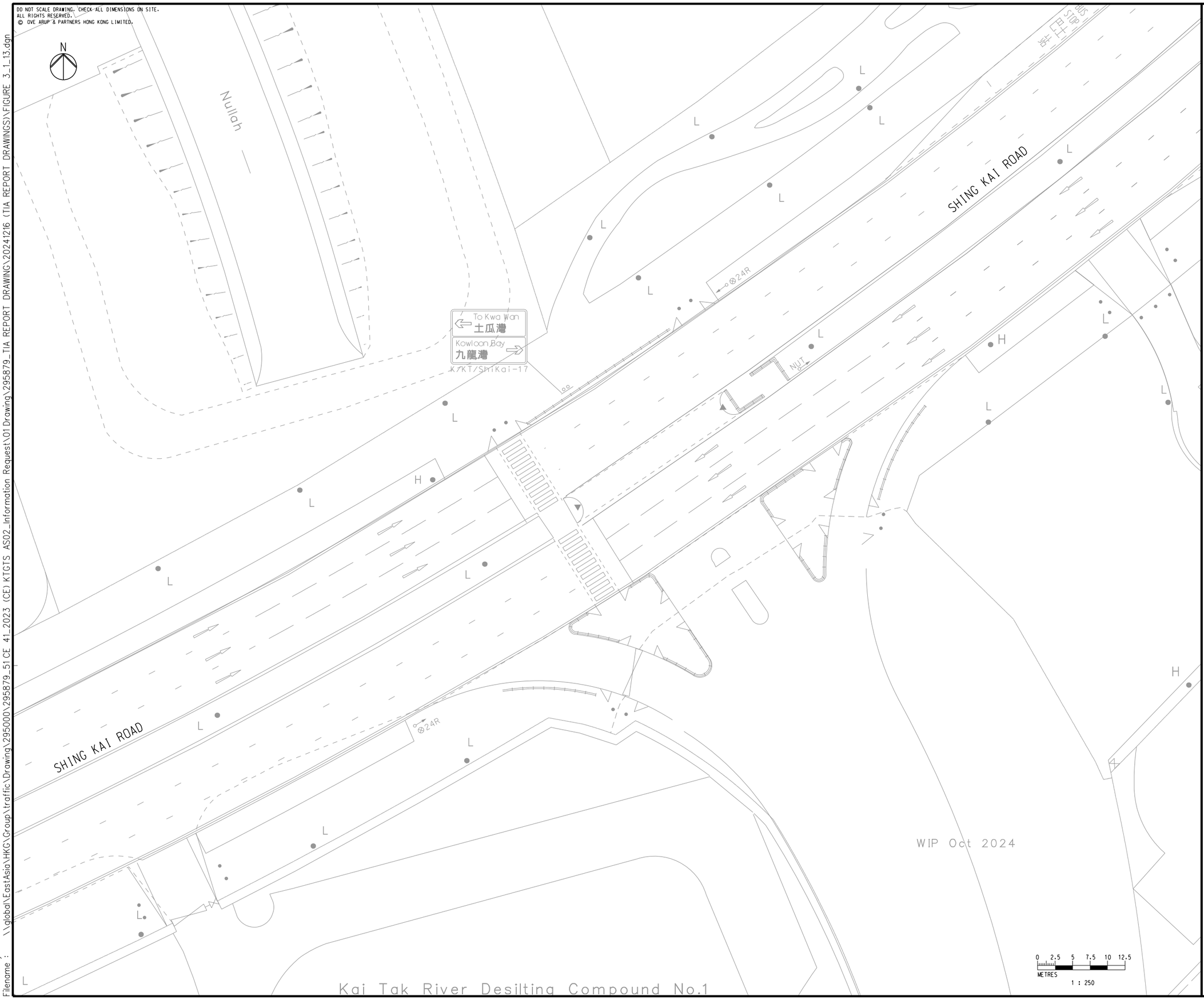

Rev	Description	By	Date

Consultant

ARUP

Project Title

S16 Planning Application for Proposed Minor Relaxation of Plot Ratio (PR), Site Coverage (SC) and Building Height (BH) Restrictions for Permitted/Proposed Commercial Development, Public Transport Station and Underground Vehicle Tunnel at Kai Tak Area 4C Sites 4 and 5 and Adjoining Road Portion of Shing King Street; and Minor Relaxation of PR and BH Restrictions for Permitted Private Housing Development with Proposed Eating Place, Shop and Services and Social Welfare Facilities at Kai Tak Area 3E Sites 1 and 2

Drawing title

EXISTING JUNCTION LAYOUT OF SHING KAI ROAD (J13)

Drawing no.			Rev.
FIGURE 3.1.13			-
Drawn: WKKL	Date: 12/24	Checked: KCTC	Approved:
Scale: 1:500 @ A3		Status: -	

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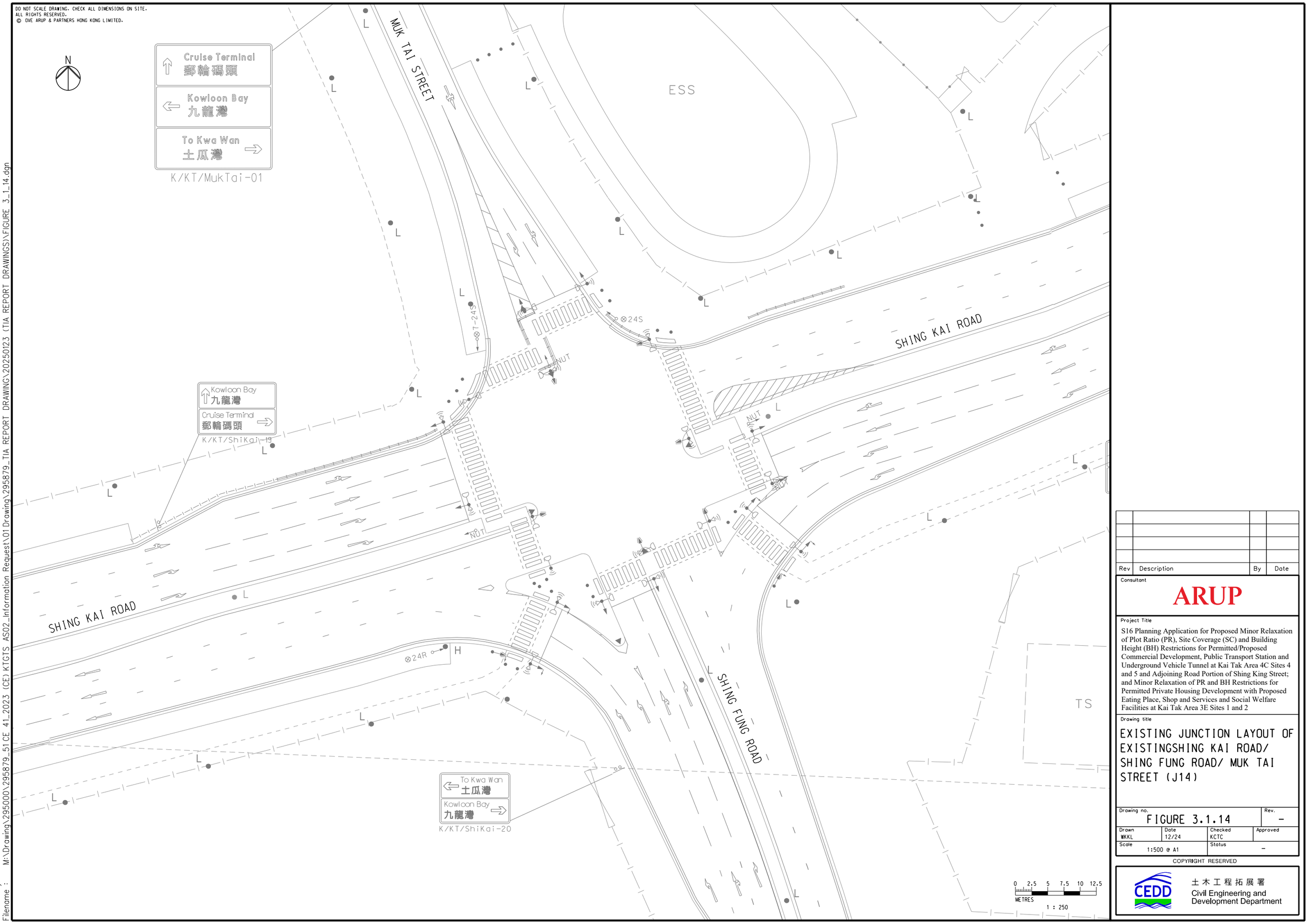

Rev	Description	By	Date

Consultant

ARUP

Project Title

S16 Planning Application for Proposed Minor Relaxation of Plot Ratio (PR), Site Coverage (SC) and Building Height (BH) Restrictions for Permitted/Proposed Commercial Development, Public Transport Station and Underground Vehicle Tunnel at Kai Tak Area 4C Sites 4 and 5 and Adjoining Road Portion of Shing King Street; and Minor Relaxation of PR and BH Restrictions for Permitted Private Housing Development with Proposed Eating Place, Shop and Services and Social Welfare Facilities at Kai Tak Area 3E Sites 1 and 2

Drawing title

EXISTING JUNCTION LAYOUT OF EXISTINGSHING KAI ROAD/ SHING FUNG ROAD/ MUK TAI STREET (J14)

Drawing no.			Rev.
FIGURE 3.1.14			-
Drawn	Date	Checked	Approved
WKKL	12/24	KCTC	
Scale		Status	
1:500 @ A1		-	

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Filename : M:\Drawing\295000\295879_51\CE 41_2023 (CE) KTGTS AS02_Information Request\01 Drawing\295879_TIA REPORT DRAWING\20250123 (TIA REPORT DRAWINGS)\FIGURE 3_1_14.dgn

N

Kowloon Bay
九龍灣
Cruise Terminal
郵輪碼頭
Hung Hom
紅磡
Hong Kong (C)
香港 (中)
K/KC/SunWT-08A

Hung Hom
紅磡
Mong Kok
旺角
K/KT/ShiKai-2

SUNG WONG TOI ROAD

SHING KAI ROAD

Kowloon Bay
九龍灣
Cruise Terminal
郵輪碼頭
Mong Kok
旺角
K/KT/ShiKai-22

TO KWA WAN ROAD

WIP May 2020

0 2.5 5 7.5 10 12.5
METRES
1 : 500

Rev	Description	By	Date

Consultant
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Project Title
S16 Planning Application for Proposed Minor Relaxation of Plot Ratio (PR), Site Coverage (SC) and Building Height (BH) Restrictions for Permitted/Proposed Commercial Development, Public Transport Station and Underground Vehicle Tunnel at Kai Tak Area 4C Sites 4 and 5 and Adjoining Road Portion of Shing King Street; and Minor Relaxation of PR and BH Restrictions for Permitted Private Housing Development with Proposed Eating Place, Shop and Services and Social Welfare Facilities at Kai Tak Area 3E Sites 1 and 2

Drawing title
EXISTING JUNCTION LAYOUT OF SHING KAI ROAD/ SONG WONG TOI ROAD/ TO KWA WAN ROAD (J15)

Drawing no.	Rev.
FIGURE 3.1.15	-

Drawn	Date	Checked	Approved
WKKL	12/24	KCTC	

Scale: 1:500 @ A3
Status: PRELIMINARY

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

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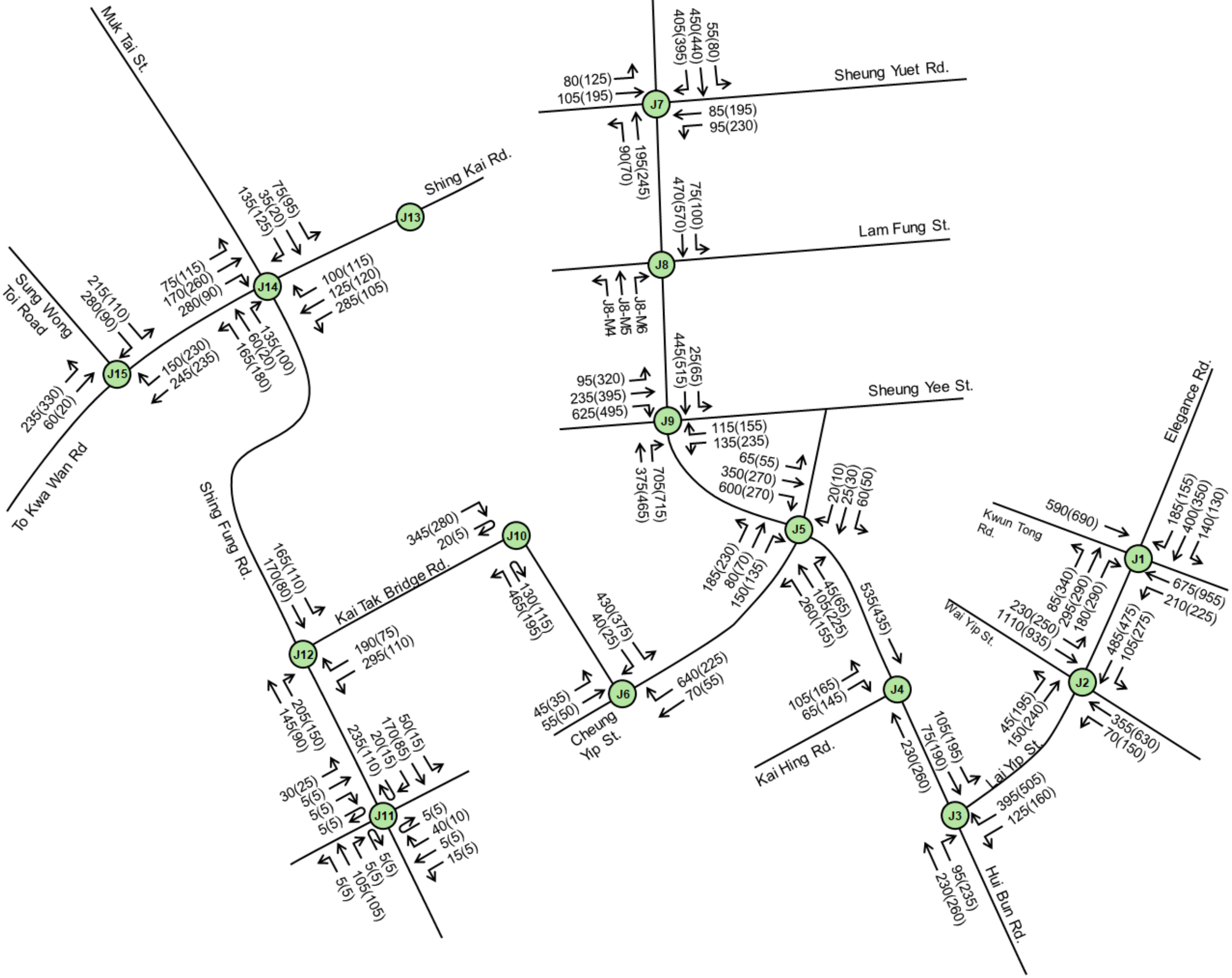
Filename : \\global\EastAsia\HKG\Group\traffic\Drawing\295000\295879_51 CE 41_2023 (CE) KTGTS AS02_Information Request\01 Drawing\295879_TIA REPORT DRAWING\20241216 (TIA REPORT DRAWINGS)\FIGURE 3_1_15.dgn



Legend:

123 (123)
AM Peak Hour Flows
PM Peak Hour Flows

Rev	Description	By	Date

Consultant

ARUP

Project Title

S16 Planning Application for Proposed Minor Relaxation of Plot Ratio (PR), Site Coverage (SC) and Building Height (BH) Restrictions for Permitted/Proposed Commercial Development, Public Transport Station and Underground Vehicle Tunnel at Kai Tak Area 4C Sites 4 and 5 and Adjoining Road Portion of Shing King Street; and Minor Relaxation of PR and BH Restrictions for Permitted Private Housing Development with Proposed Eating Place, Shop and Services and Social Welfare Facilities at Kai Tak Area 3E Sites 1 and 2

Drawing title

2024 OBSERVED WEEKDAYS PEAK HOUR FLOW

Drawing no.	Rev.
FIGURE 3.2.1	

Drawn	Date	Checked	Approved

Scale: N.T.S
Status:

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

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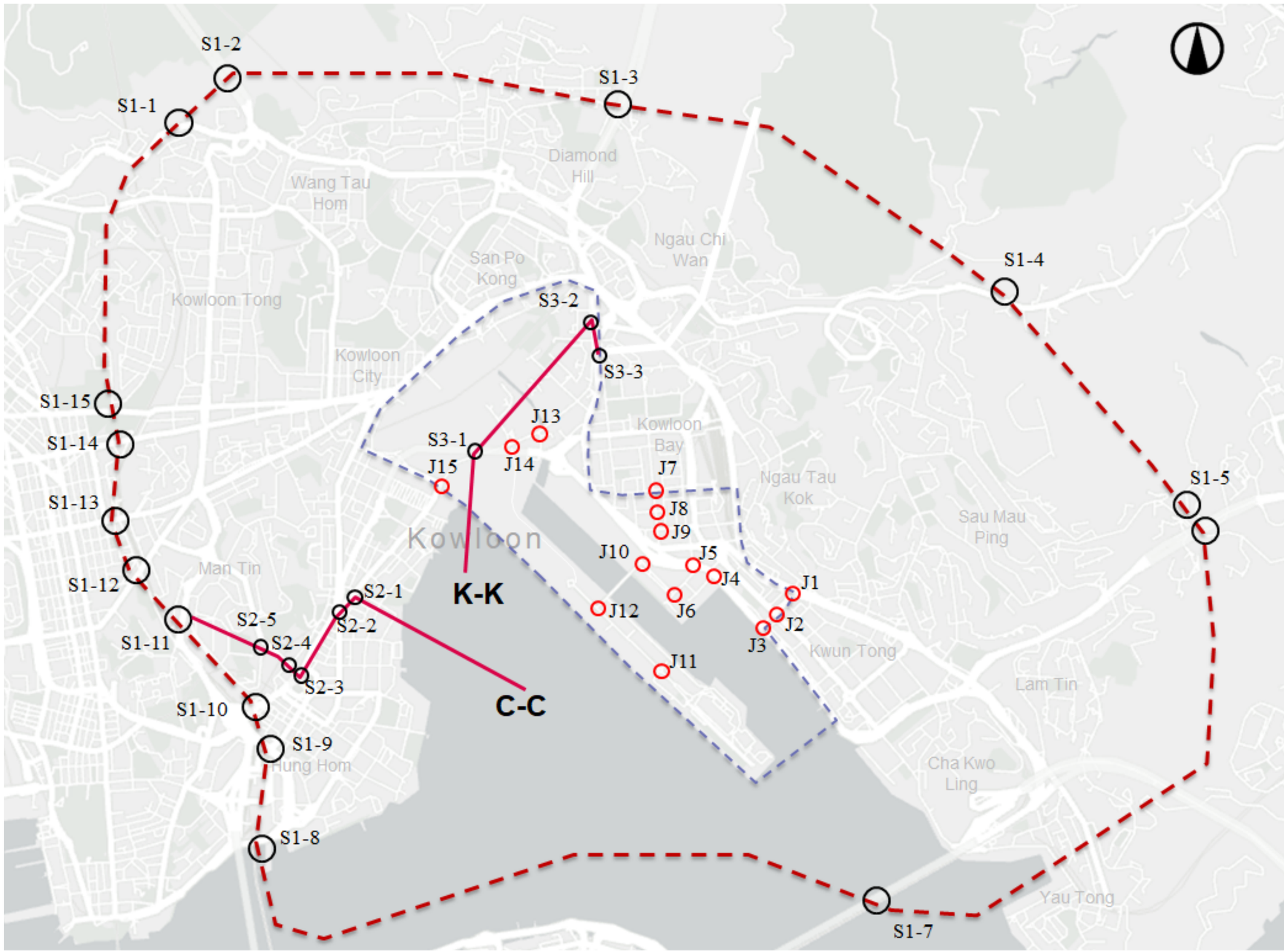
Filename : \\global\EastAsia\HKG\Group\traffic\Drawing\295000\295879_51CE 41_2023 (CE) KTGTS AS02_Information Request\01 Drawing\295879_TIA REPORT DRAWING\20241216 (TIA REPORT DRAWINGS)\OAP-295879-TBKA1.dgn



Rev	Description	By	Date

Consultant

ARUP

Project Title

S16 Planning Application for Proposed Minor Relaxation of Plot Ratio (PR), Site Coverage (SC) and Building Height (BH) Restrictions for Permitted/Proposed Commercial Development, Public Transport Station and Underground Vehicle Tunnel at Kai Tak Area 4C Sites 4 and 5 and Adjoining Road Portion of Shing King Street; and Minor Relaxation of PR and BH Restrictions for Permitted Private Housing Development with Proposed Eating Place, Shop and Services and Social Welfare Facilities at Kai Tak Area 3E Sites 1 and 2

Drawing title

THE LOCATIONS OF LATM SCREENLINES AND CORDONS

Drawing no.		Rev.
FIGURE 4.2.1		
Drawn	Date	Checked / Approved
Scale: N.T.S		Status

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

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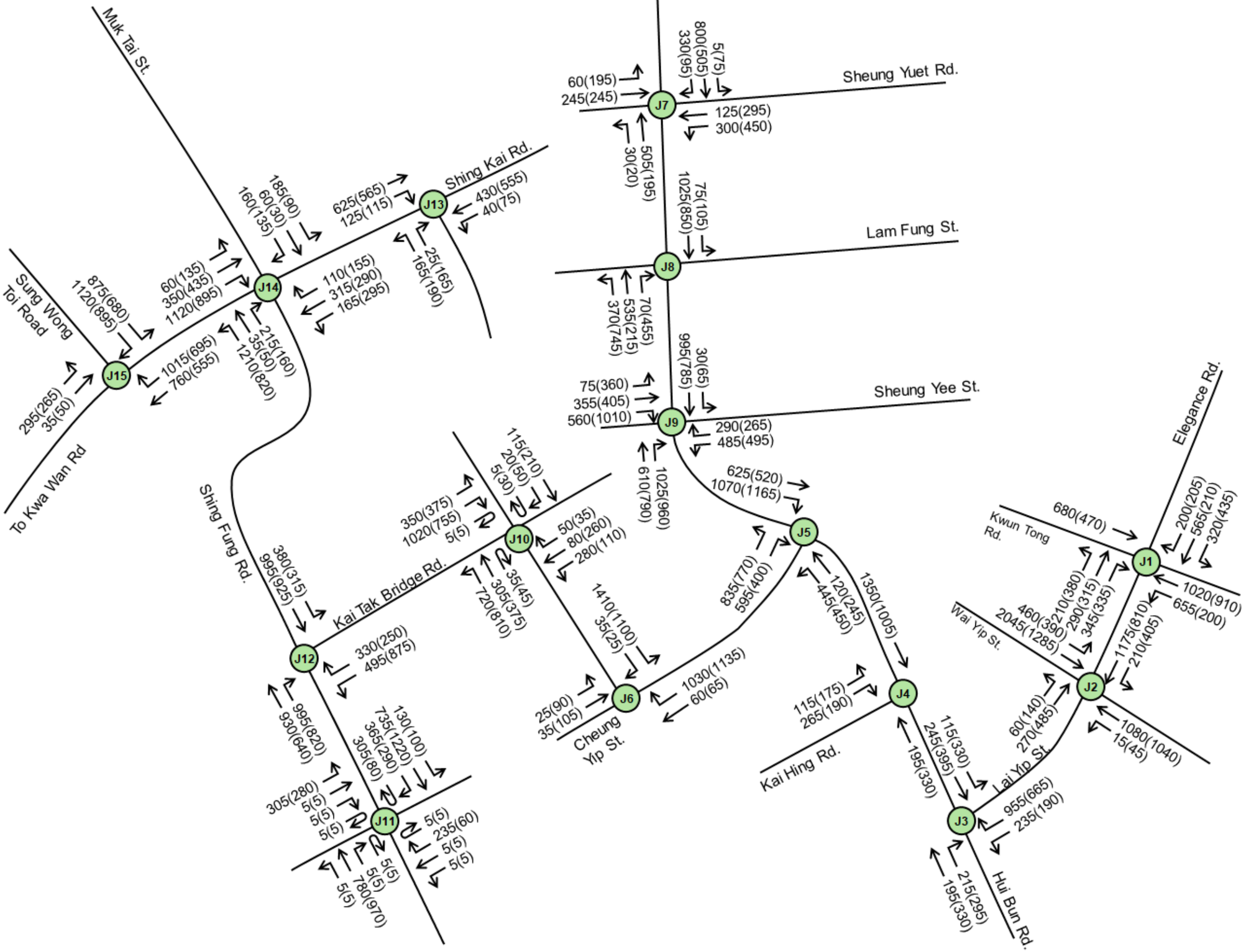

Legend:

123 (123)

AM Peak Hour Flows — PM Peak Hour Flows

Rev	Description	By	Date

Consultant

ARUP

Project Title

S16 Planning Application for Proposed Minor Relaxation of Plot Ratio (PR), Site Coverage (SC) and Building Height (BH) Restrictions for Permitted/Proposed Commercial Development, Public Transport Station and Underground Vehicle Tunnel at Kai Tak Area 4C Sites 4 and 5 and Adjoining Road Portion of Shing King Street; and Minor Relaxation of PR and BH Restrictions for Permitted Private Housing Development with Proposed Eating Place, Shop and Services and Social Welfare Facilities at Kai Tak Area 3E Sites 1 and 2

Drawing title

2036 REFERENCE WEEKDAYS PEAK HOUR TRAFFIC FLOW

Drawing no.		Rev.
FIGURE 4.6.1		
Drawn	Date	Checked / Approved
Scale: N.T.S	Status	

土木工程拓展署
Civil Engineering and Development Department

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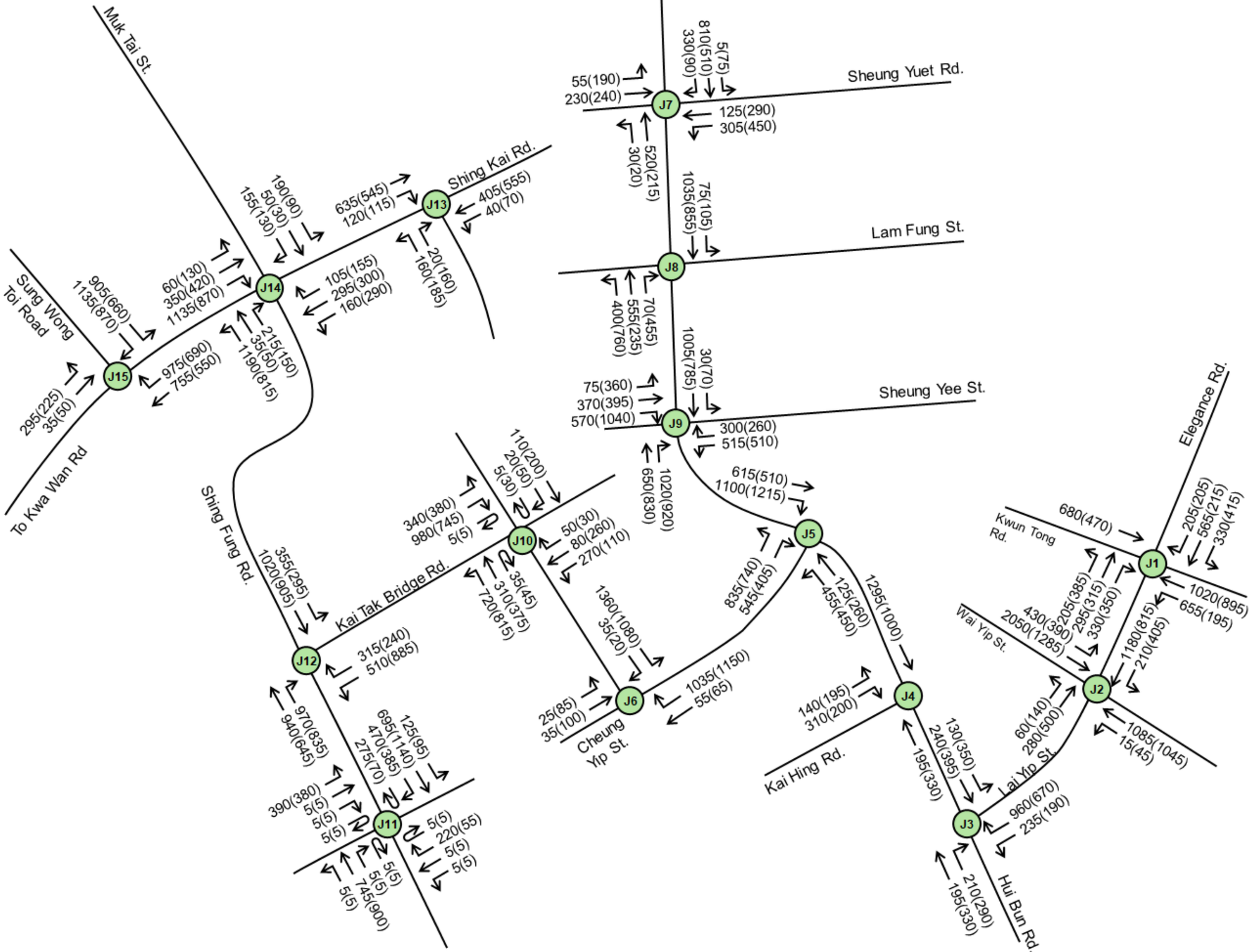
Filename : \\global\EastAsia\HKG\Group\traffic\Drawing\295000\295879_51CE 41_2023 (CE) KTGTS AS02_Information Request\01 Drawing\295879_TIA REPORT DRAWING\20241216 (TIA REPORT DRAWINGS)\OAP-295879-TBKA1.dgn



Legend:

123 (123)
AM Peak Hour Flows
PM Peak Hour Flows

Rev	Description	By	Date

Consultant

ARUP

Project Title

S16 Planning Application for Proposed Minor Relaxation of Plot Ratio (PR), Site Coverage (SC) and Building Height (BH) Restrictions for Permitted/Proposed Commercial Development, Public Transport Station and Underground Vehicle Tunnel at Kai Tak Area 4C Sites 4 and 5 and Adjoining Road Portion of Shing King Street; and Minor Relaxation of PR and BH Restrictions for Permitted Private Housing Development with Proposed Eating Place, Shop and Services and Social Welfare Facilities at Kai Tak Area 3E Sites 1 and 2

Drawing title

2036 DESIGN WEEKDAYS PEAK HOUR TRAFFIC FLOW

Drawing no.		Rev.
FIGURE 4.6.2		
Drawn	Date	Checked / Approved
Scale: N.T.S	Status	

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Civil Engineering and Development Department

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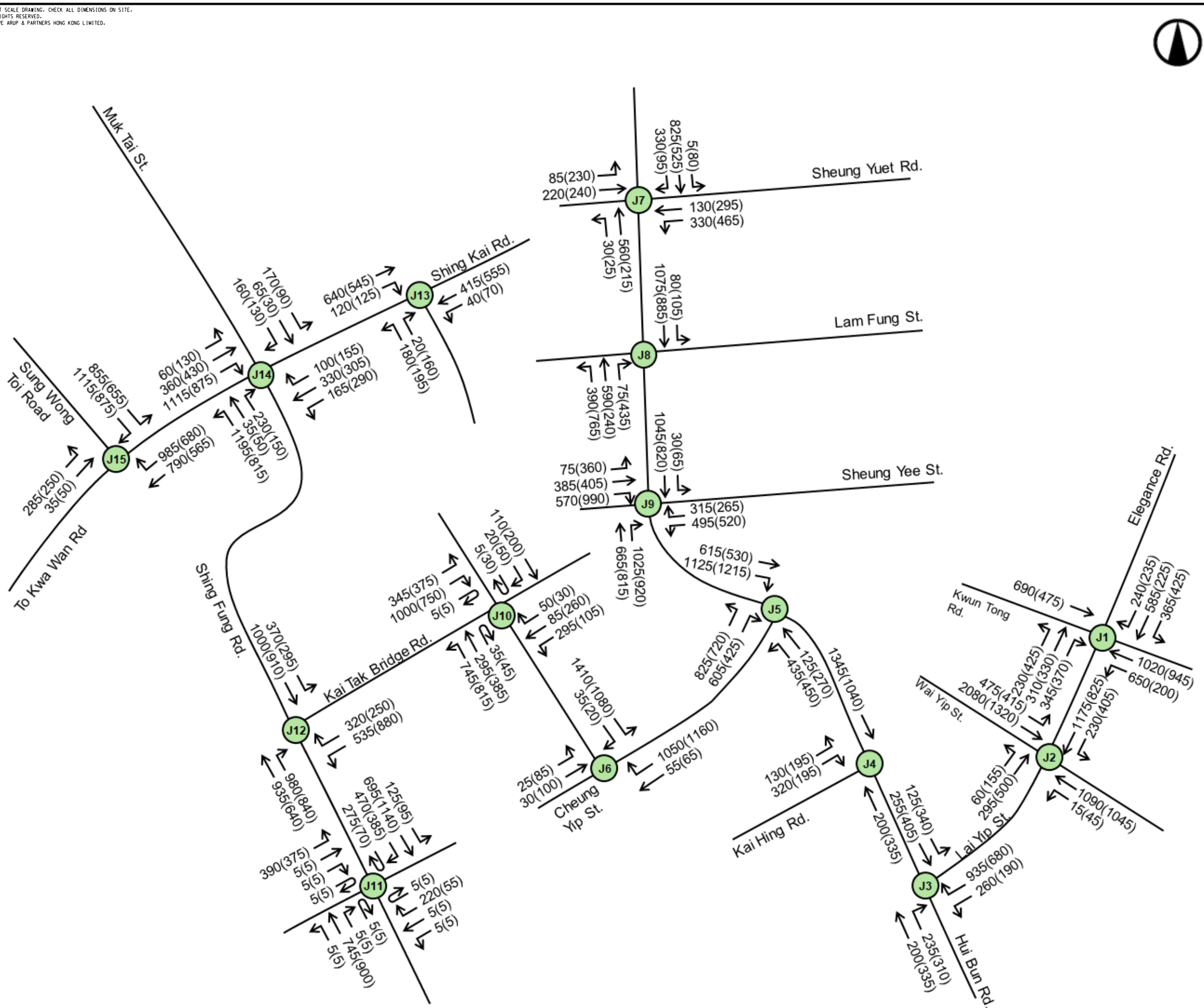

Legend:

123 (123)
AM Peak Hour Flows
PM Peak Hour Flows

Rev	Description	By	Date

Consultant

ARUP

Project Title

S16 Planning Application for Proposed Minor Relaxation of Plot Ratio (PR), Site Coverage (SC) and Building Height (BH) Restrictions for Permitted/Proposed Commercial Development, Public Transport Station and Underground Vehicle Tunnel at Kai Tak Area 4C Sites 4 and 5 and Adjoining Road Portion of Shing King Street; and Minor Relaxation of PR and BH Restrictions for Permitted Private Housing Development with Proposed Eating Place, Shop and Services and Social Welfare Facilities at Kai Tak Area 3E Sites 1 and 2

Drawing title

2041 DESIGN WEEKDAYS PEAK HOUR TRAFFIC FLOW

Drawing no.	Rev.
FIGURE 4.6.3	

Drawn	Date	Checked	Approved

Scale: N.T.S
Status:

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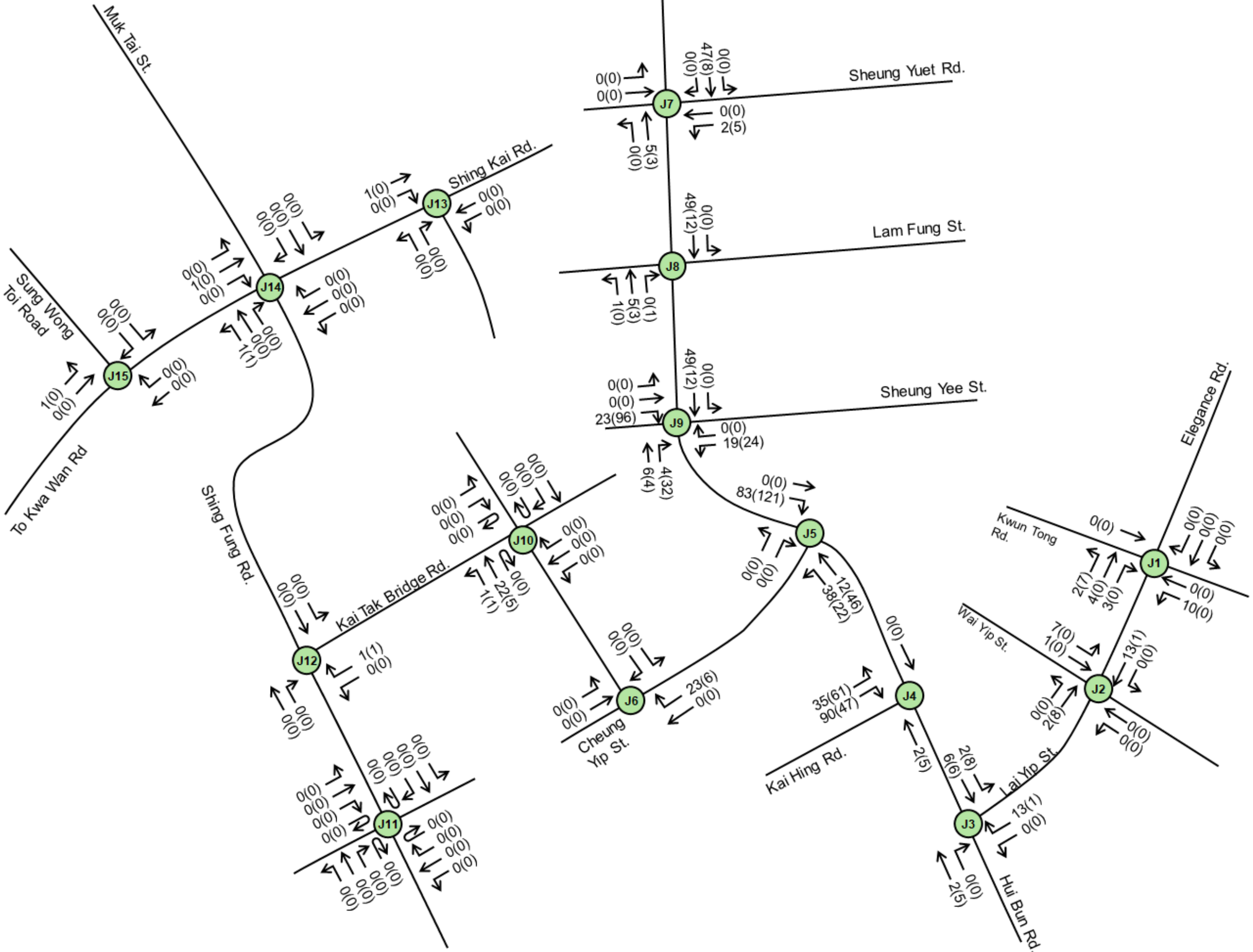
Civil Engineering and Development Department

Printed by : william.lai Date : 18/12/2024
Filename : \\global\EastAsia\HKG\Group\traffic\Drawing\295000\295879_51 CE 41_2023 (CE) KTGTS AS02_Information Request\01 Drawing\295879_TIA REPORT DRAWING\20241216 (TIA REPORT DRAWINGS)\OAP-295879-TBKA1.dgn



Legend:

123 (123)
AM Peak Hour Flows
PM Peak Hour Flows

Rev	Description	By	Date

Consultant

ARUP

Project Title

S16 Planning Application for Proposed Minor Relaxation of Plot Ratio (PR), Site Coverage (SC) and Building Height (BH) Restrictions for Permitted/Proposed Commercial Development, Public Transport Station and Underground Vehicle Tunnel at Kai Tak Area 4C Sites 4 and 5 and Adjoining Road Portion of Shing King Street; and Minor Relaxation of PR and BH Restrictions for Permitted Private Housing Development with Proposed Eating Place, Shop and Services and Social Welfare Facilities at Kai Tak Area 3E Sites 1 and 2

Drawing title

Traffic Distribution in Peak Hours under Design Scenario to/from Site 3E1 & 3E2

Drawing no.		Rev.
FIGURE 4.6.4		
Drawn	Date	Checked / Approved
Scale: N.T.S		Status

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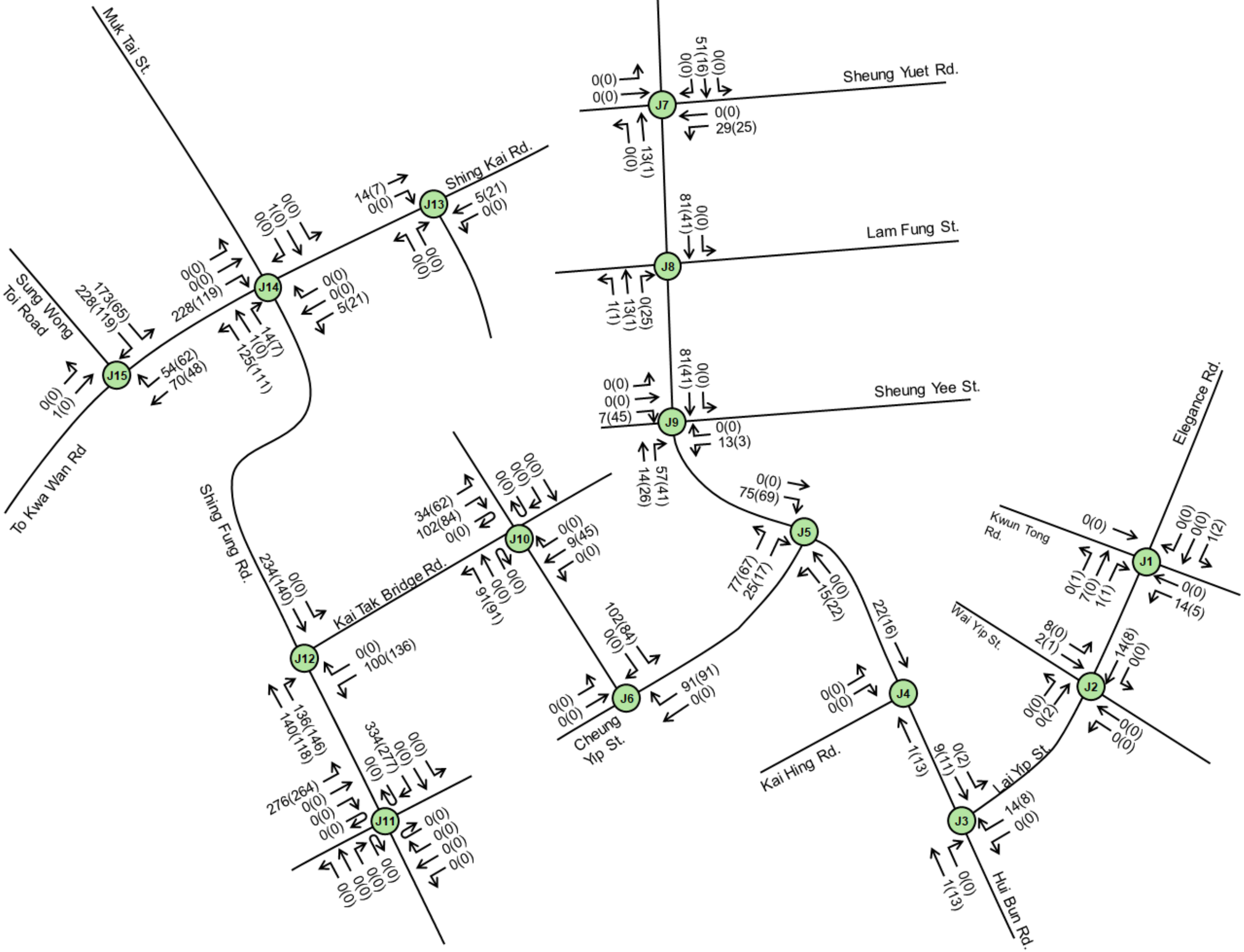
Filename : \\global\EastAsia\HKG\Group\traffic\Drawing\295000\295879_51CE 41_2023 (CE) KTGTS AS02_Information Request\01 Drawing\295879_TIA REPORT DRAWING\20241216 (TIA REPORT DRAWINGS)\OAP-295879-TBKA1.dgn



Legend:

123 (123)
AM Peak Hour Flows
PM Peak Hour Flows

Rev	Description	By	Date

Consultant

ARUP

Project Title

S16 Planning Application for Proposed Minor Relaxation of Plot Ratio (PR), Site Coverage (SC) and Building Height (BH) Restrictions for Permitted/Proposed Commercial Development, Public Transport Station and Underground Vehicle Tunnel at Kai Tak Area 4C Sites 4 and 5 and Adjoining Road Portion of Shing King Street; and Minor Relaxation of PR and BH Restrictions for Permitted Private Housing Development with Proposed Eating Place, Shop and Services and Social Welfare Facilities at Kai Tak Area 3E Sites 1 and 2

Drawing title

Traffic Distribution in Peak Hours under Design Scenario to/from Site 4C4 & 4C5

Drawing no.		Rev.
FIGURE 4.6.5		
Drawn	Date	Checked / Approved
Scale: N.T.S	Status	

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Civil Engineering and Development Department

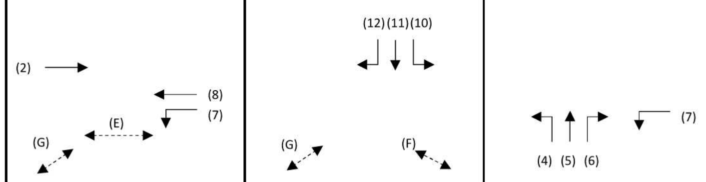
Printed by : william.lai Date : 18/12/2024
Filename : \\global\EastAsia\HKG\Group\traffic\Drawing\295000\295879_51CE 41_2023 (CE) KTGTS AS02_Information Request\01 Drawing\295879_TIA REPORT DRAWING\20241216 (TIA REPORT DRAWINGS)\OAP-295879-TBKA1.dgn

Appendix A

Junction Calculation Sheet

OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION		
Junction Assessment			SHEET: J1_AM	PROJECT NO: 297978
J1 - Kwun Tong Road/ Elegence Road/ Lai Yip Street		Year 2024 Existing Weekdays (AM Peak)	DATE: 28-Feb-25	FILENAME:

No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	3
Cycle Time		C=	120 sec
Sum(y)		Y=	0.414
Loss Time		L=	19 sec
Total Flow		=	2760 pcu
Co	=(1.5*L+5)/(1-Y)	=	57 sec
Cm	=L/(1-Y)	=	32 sec
Yult		=	0.758
R.C.ult	=(Yult-Y)/Y*100%	=	82.8 %
Cp	=0.9*L/(0.9-Y)	=	35.2 sec
Ymax	=1-L/C	=	0.842
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	82.8 %



Stage 1	Int = 7	Stage 2	Int = 6	Stage 3	Int = 9	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	E	22.00	12	2	10	33	2	10	OK
2	F	5.00	5	2	5	30	2	5	OK
1,2	G	8.00	5	2	7	74	2	7	OK
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				19				
																				0				
2	1	3.00	A	2				4110		590		590	0.00	4110		-	4110	0.144	0.162	0	35	39	0.437	33
8	1	3.30	A	2				4170		675		675	0.00	4170		-	4170	0.162			39	39	0.492	38
7	1,3	4.50	B	1	10		N	2065	210			210	1.00	1796		-	1796	0.117			29	79	0.179	12
10	2	3.00	C	1	10		N	1915	140			140	1.00	1665		-	1665	0.084	0.133	0	20	32	0.311	17
11	2	3.30	C	1				2085		277		277	0.00	2085		-	2085	0.133			32	32	0.491	34
11,12	2	3.30	C	1	25			2085		123	185	308	0.60	2012		300	2312	0.133			32	32	0.492	37
4,5	3	3.30	D	1	25		N	1945	85	205		290	0.29	1911		520	2431	0.119	0.119	0	29	29	0.492	37
5,6	3	3.30	D	1	15			2085		90	180	270	0.67	1955		310	2265	0.119			29	29	0.492	34
								-				-	-	-		-	-	-			-		-	-
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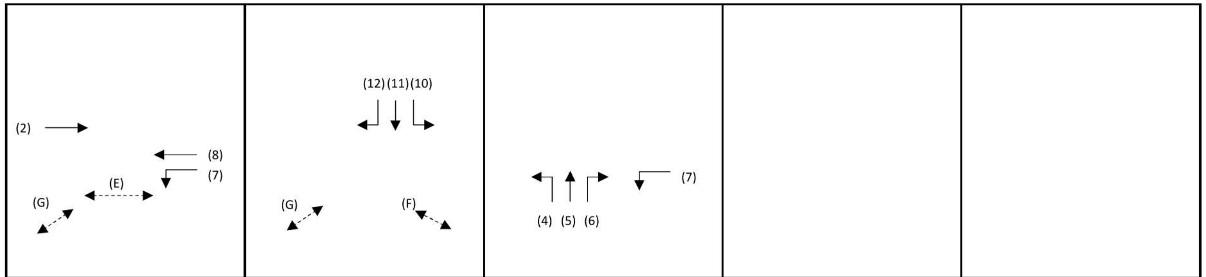
OVE ARUP & PARTNERS | **TRAFFIC SIGNAL CALCULATION**

Junction Assessment		SHEET: J1_PM	PROJECT NO: 297978
J1 - Kwun Tong Road/ Elegence Road/ Lai Yip Street	Year 2024 Existing Weekdays (PM Peak)	DATE: 28-Feb-25	FILENAME:

No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	3
Cycle Time		C=	120 sec
Sum(y)		Y=	0.546
Loss Time		L=	19 sec
Total Flow		=	3425 pcu
Co	=(1.5*L+5)/(1-Y)	=	74 sec
Cm	=L/(1-Y)	=	42 sec
Yult		=	0.758
R.C.ult	=(Yult-Y)/Y*100%	=	38.7 %
Cp	=0.9*L/(0.9-Y)	=	48.3 sec
Ymax	=1-L/C	=	0.842
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	38.7 %



Stage 1	Int = 7	Stage 2	Int = 6	Stage 3	Int = 9	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	E	14.00	12	2	10	36	2	10	OK
2	F	5.00	5	2	5	18	2	5	OK
1,2	G	8.00	5	2	7	65	2	7	OK
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				19				
																				0				
2	1	3.00	A	2				4110		690		690	0.00	4110		-	4110	0.168	0.229	0	31	42	0.476	37
8	1	3.30	A	2				4170		955		955	0.00	4170		-	4170	0.229			42	42	0.649	51
7	1,3	4.50	B	1	10		N	2065	225			225	1.00	1796		-	1796	0.125			23	91	0.166	9
10	2	3.00	C	1	10		N	1915	130			130	1.00	1665		-	1665	0.078	0.110	0	14	20	0.459	18
11	2	3.30	C	1				2085		230		230	0.00	2085		-	2085	0.110			20	20	0.649	32
11,12	2	3.30	C	1	25			2085		120	155	275	0.56	2017		480	2497	0.110			20	20	0.648	38
4,5	3	3.30	D	1	25		N	1945	340	125		465	0.73	1863		390	2253	0.206	0.207	0	38	38	0.647	53
5,6	3	3.30	D	1	15			2085		165	290	455	0.64	1960		240	2200	0.207			38	38	0.649	52
								-				-	-	-		-	-	-			-		-	-
								-				-	-	-		-	-	-			-		-	-
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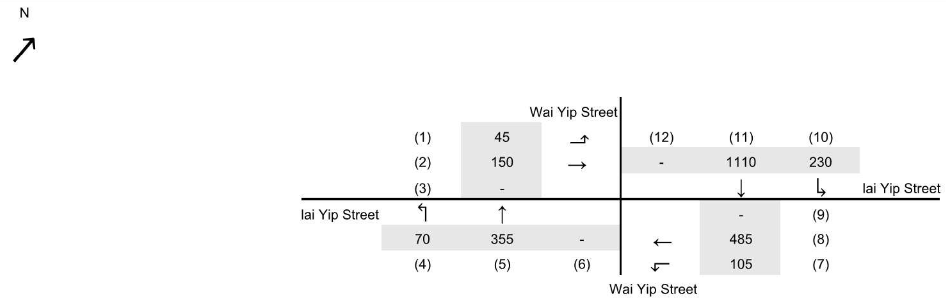
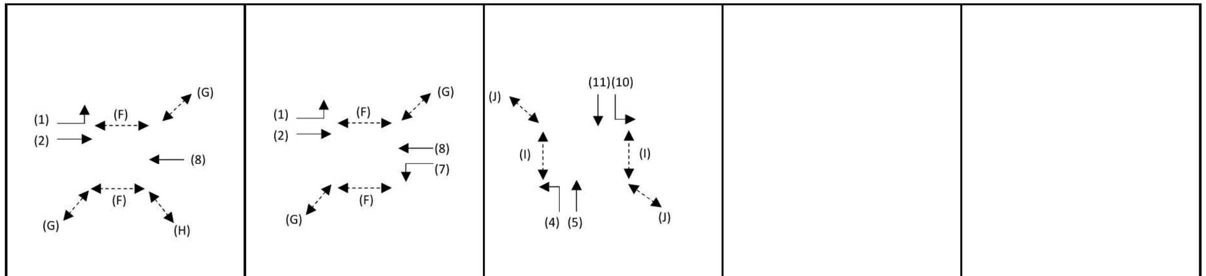
OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION	
Junction Assessment		SHEET: J2_AM	PROJECT NO: 297978
J2 - Lai Yip Street/ Wai Yip Street	Year 2024 Existing Weekdays (AM Peak)	DATE: 28-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3	
No. of Stage Using for Calculation		N=	2	
Cycle Time		C=	120	sec
Sum(y)		Y=	0.334	
Loss Time		L=	20	sec
Total Flow		=	2550	pcu
Co	=(1.5*L+5)/(1-Y)	=	53	sec
Cm	=L/(1-Y)	=	30	sec
Yult		=	0.750	
R.C.ult	=(Yult-Y)/Y*100%	=	124.4	%
Cp	=0.9*L/(0.9-Y)	=	31.8	sec
Ymax	=1-L/C	=	0.833	
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	124.4	%



Stage 1	Int =	Stage 2	Int = 13	Stage 3	Int = 9	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2	F	14.00	12	2	10	34	2	10	OK
1,2	G	5.00	5	2	5	39	2	5	OK
1,3	H	5.00	5	0	5	69	0	5	OK
3	I	12.00	10	1	9	64	1	9	OK
3	J	5.00	5	1	5	68	1	5	OK
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				20				
																				0				
1,2	1,2	3.50	A	1	15		N	1965	45	47		92	0.49	1873		-	1873	0.049	0.115	0	15	34	0.171	11
2	1,2	3.50	A	1				2105		103		103	0.00	2105		-	2105	0.049			15	34	0.170	12
7	2	3.50	B	1	20		N	1965	105			105	1.00	1828		-	1828	0.057			17	34	0.200	12
8	1,2	3.50	A	2				4210		485		485	0.00	4210		-	4210	0.115			34	34	0.401	29
4,5	3	3.50	C	1	30		N	1965	70	63		133	0.53	1915		-	1915	0.069	0.219	0	21	66	0.127	10
5	3	3.50	C	2				4210		292		292	0.00	4210		-	4210	0.069			21	66	0.127	11
10,11	3	3.50	C	1	30		N	1965	230	189		419	0.55	1913		-	1913	0.219			66	66	0.401	32
11	3	3.50	C	2				4210		921		921	0.00	4210		-	4210	0.219			65	66	0.401	35
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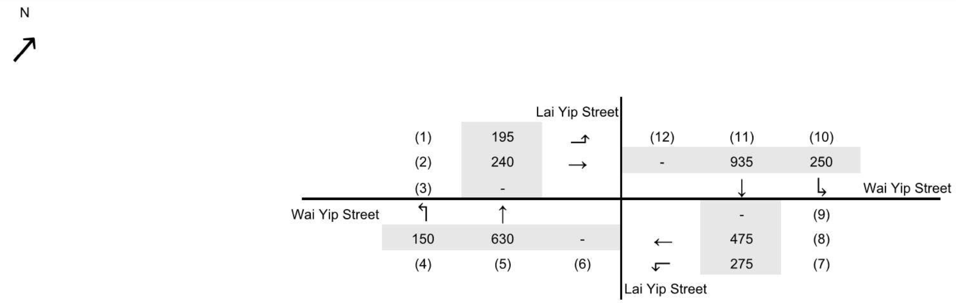
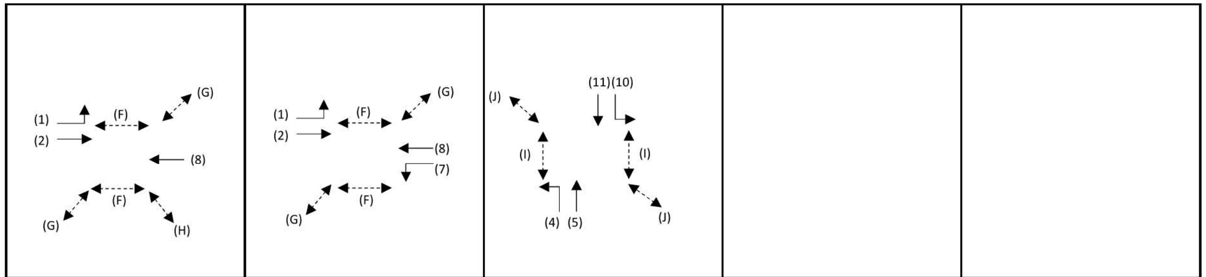
OVE ARUP & PARTNERS	**TRAFFIC SIGNAL CALCULATION**		
Junction Assessment		SHEET: J2_PM	PROJECT NO: 297978
J2 - Lai Yip Street/ Wai Yip Street	Year 2024 Existing Weekdays (PM Peak)	DATE: 28-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	2
Cycle Time		C=	118 sec
Sum(y)		Y=	0.345
Loss Time		L=	20 sec
Total Flow		=	3150 pcu
Co	=(1.5*L+5)/(1-Y)	=	53 sec
Cm	=L/(1-Y)	=	31 sec
Yult		=	0.750
R.C.ult	=(Yult-Y)/Y*100%	=	117.7 %
Cp	=0.9*L/(0.9-Y)	=	32.4 sec
Ymax	=1-L/C	=	0.831
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	117.0 %



Stage 1	Int =	Stage 2	Int = 13	Stage 3	Int = 9	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2	F	14.00	12	2	10	43	2	10	OK
1,2	G	5.00	5	2	5	48	2	5	OK
1,3	H	5.00	5	0	5	58	0	5	OK
3	I	12.00	10	1	9	53	1	9	OK
3	J	5.00	5	1	5	57	1	5	OK
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				20				
																			S1	0				
1,2	1,2	3.50	A	1	15		N	1965	195	5		200	0.98	1790		-	1790	0.112			32	43	0.308	21
2	1,2	3.50	A	1				2105		235		235	0.00	2105		-	2105	0.112			32	43	0.308	25
7	2	3.50	B	1	20		N	1965	275			275	1.00	1828		-	1828	0.150	0.150	0	43	43	0.415	29
8	1,2	3.50	A	2				4210		475		475	0.00	4210		-	4210	0.113			32	43	0.311	25
4,5	3	3.50	C	1	30		N	1965	150	93		243	0.62	1906		-	1906	0.127	0.194	0	36	55	0.272	21
5	3	3.50	C	2				4210		537		537	0.00	4210		-	4210	0.128			36	55	0.273	23
10,11	3	3.50	C	1	30		N	1965	250	118		368	0.68	1900		-	1900	0.194			55	55	0.414	32
11	3	3.50	C	2				4210		817		817	0.00	4210		-	4210	0.194			55	55	0.415	36
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OVE ARUP & PARTNERS | **TRAFFIC SIGNAL CALCULATION**

Junction Assessment		SHEET: J3_AM	PROJECT NO: 297978
J3 - Lai Yip Street/ Hoi Bun Road	Year 2024 Existing Weekdays (AM Peak)	DATE: 28-Feb-25	FILENAME:

No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	2
Cycle Time		C=	120 sec
Sum(y)		Y=	0.222
Loss Time		L=	28 sec
Total Flow		=	1025 pcu
Co	=(1.5*L+5)/(1-Y)	=	60 sec
Cm	=L/(1-Y)	=	36 sec
Yult		=	0.690
R.C.ult	=(Yult-Y)/Y*100%	=	210.9 %
Cp	=0.9*L/(0.9-Y)	=	37.2 sec
Ymax	=1-L/C	=	0.767
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	210.9 %

*Assume Always Called

Stage 1 Int = | Stage 2 Int = 5 | Stage 3 Int = 0 | Stage 4 Int = | Stage 5 Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2,4	E	10.00	12	0	9	70	0	9	OK
3,4	F	5.00	7	9	6	43	9	6	OK
4	G	8.00	7	3	7	7	3	7	OK
			-		-		-	-	-
			-		-		-	-	-
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				3				
																			S4	17				
1	1	3.25	A	1	10		N	1940	105			105	1.00	1687		-	1687	0.062			26	26	0.287	14
2	1	3.25	A	1				2080		75		75	0.00	2080		-	2080	0.036			15	26	0.166	10
8	1,2	3.00	B	1			N	1915		230		230	0.00	1915		-	1915	0.120	0.120	8	50	58	0.249	20
9	2	3.00	C	1	15			2055			95	95	1.00	1868		-	1868	0.051			21	22	0.280	13
10	3	3.30	D	1	15		N	1945	125			125	1.00	1768		-	1768	0.071	0.102	0	29	42	0.201	14
12	3	3.30	D	2	20			4170			395	395	1.00	3879		-	3879	0.102			42	42	0.289	21
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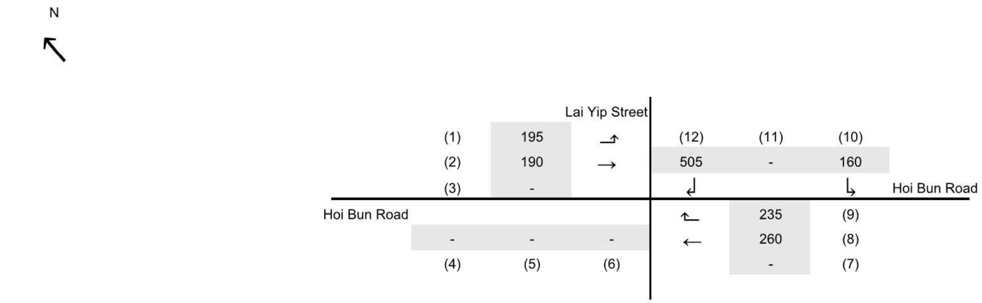
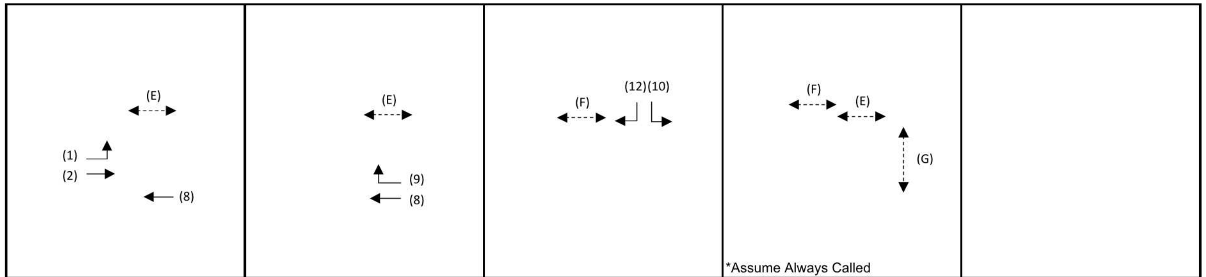
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J3_PM	PROJECT NO: 297978
J3 - Lai Yip Street/ Hoi Bun Road	Year 2024 Existing Weekdays (PM Peak)	DATE: 28-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	3
Cycle Time		C=	120 sec
Sum(y)		Y=	0.372
Loss Time		L=	30 sec
Total Flow		=	1545 pcu
Co	=(1.5*L+5)/(1-Y)	=	80 sec
Cm	=L/(1-Y)	=	48 sec
Yult		=	0.675
R.C.ult	=(Yult-Y)/Y*100%	=	81.7 %
Cp	=0.9*L/(0.9-Y)	=	51.1 sec
Ymax	=1-L/C	=	0.750
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	81.7 %



*Assume Always Called

Stage 1	Int = 8	Stage 2	Int = 8	Stage 3	Int = 0	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2,4	E	10.00	12	0	9	80	0	9	OK
3,4	F	5.00	7	9	6	33	9	6	OK
4	G	8.00	7	3	7	7	3	7	OK
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			-		-		-	-	-
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				13				
																			S4	17				
1	1	3.25	A	1	10		N	1940	195			195	1.00	1687		-	1687	0.116	0.116	0	28	28	0.495	25
2	1	3.25	A	1				2080		190		190	0.00	2080		-	2080	0.091			22	28	0.392	24
8	1,2	3.00	B	1			N	1915		260		260	0.00	1915		-	1915	0.136			33	68	0.238	19
9	2	3.00	C	1	15			2055			235	235	1.00	1868		-	1868	0.126	0.126	0	30	30	0.495	29
10	3	3.30	D	1	15		N	1945	160			160	1.00	1768		-	1768	0.090	0.130	0	22	32	0.344	20
12	3	3.30	D	2	20			4170			505	505	1.00	3879		-	3879	0.130			32	32	0.495	31
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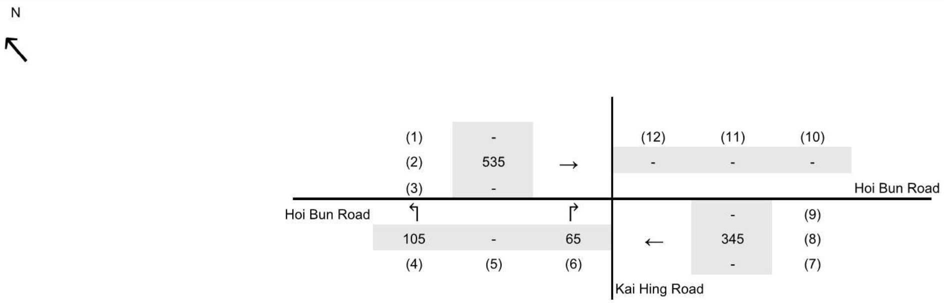
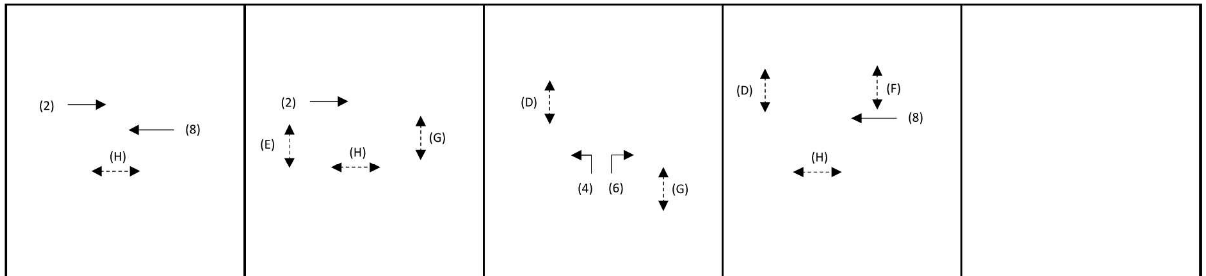
OVE ARUP & PARTNERS | **TRAFFIC SIGNAL CALCULATION**

Junction Assessment		SHEET: J4_AM	PROJECT NO: 297978
J4 - Kai Hing Road/ Hoi Bun Road	Year 2024 Existing Weekdays (AM Peak)	DATE: 28-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	2
Cycle Time		C=	120 sec
Sum(y)		Y=	0.175
Loss Time		L=	41 sec
Total Flow		=	1050 pcu
Co	=(1.5*L+5)/(1-Y)	=	81 sec
Cm	=L/(1-Y)	=	50 sec
Yult		=	0.593
R.C.ult	=(Yult-Y)/Y*100%	=	238.8 %
Cp	=0.9*L/(0.9-Y)	=	50.9 sec
Ymax	=1-L/C	=	0.658
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	238.8 %



Stage 1	Int =	Stage 2	Int = 12	Stage 3	Int = 11	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3,4	D	7.00	5	2	6	42	2	6	OK
2	E	6.75	5	6	6	28	6	6	OK
4	F	6.50	5	10	5	5	10	5	OK
2,3	G	6.75	5	2	6	62	2	6	OK
1,2,4	H	10.50	5	2	9	79	2	9	OK
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			-		-		-	-	-
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			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				21				
																			S4	20				
2	1,2	3.50	A	2			N	4070		535		535	0.00	4070		-	4070	0.131	0.131	0	59	59	0.266	23
8	1,4	3.30	B	2			N	4030		345		345	0.00	4030		-	4030	0.086			39	39	0.263	19
4	3	5.00	C	1	12.5		N	2115	82			82	1.00	1888		-	1888	0.043	0.043	0	20	20	0.266	11
4,6	3	5.00	C	1	15			2255	23		65	88	1.00	2050		-	2050	0.043			19	20	0.263	12
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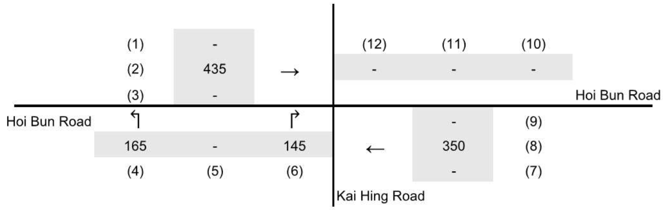
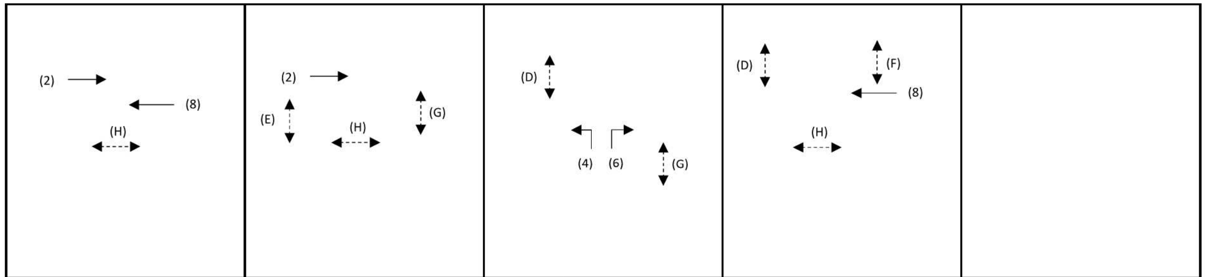
OVE ARUP & PARTNERS | **TRAFFIC SIGNAL CALCULATION**

Junction Assessment		SHEET: J4_PM	PROJECT NO: 297978
J4 - Kai Hing Road/ Hoi Bun Road	Year 2024 Existing Weekdays (PM Peak)	DATE: 28-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	2
Cycle Time		C=	120 sec
Sum(y)		Y=	0.186
Loss Time		L=	41 sec
Total Flow		=	1095 pcu
Co	=(1.5*L+5)/(1-Y)	=	82 sec
Cm	=L/(1-Y)	=	50 sec
Yult		=	0.593
R.C.ult	=(Yult-Y)/Y*100%	=	218.9 %
Cp	=0.9*L/(0.9-Y)	=	51.7 sec
Ymax	=1-L/C	=	0.658
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	218.9 %



Stage 1	Int =	Stage 2	Int = 12	Stage 3	Int = 11	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3,4	D	7.00	5	2	6	56	2	6	OK
2	E	6.75	5	6	6	16	6	6	OK
4	F	6.50	5	10	5	5	10	5	OK
2,3	G	6.75	5	2	6	64	2	6	OK
1,2,4	H	10.50	5	2	9	65	2	9	OK
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			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				21				
																			S4	20				
2	1,2	3.50	A	2			N	4070		435		435	0.00	4070		-	4070	0.107	0.107	0	45	45	0.282	23
8	1,4	3.30	B	2			N	4030		350		350	0.00	4030		-	4030	0.087			37	37	0.282	20
4	3	5.00	C	1	12.5		N	2115	149			149	1.00	1888		-	1888	0.079	0.079	0	34	34	0.282	18
4,6	3	5.00	C	1	15			2255	16		145	161	1.00	2050		-	2050	0.079			33	34	0.281	19
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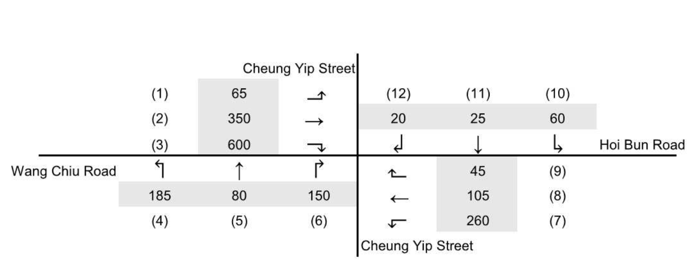
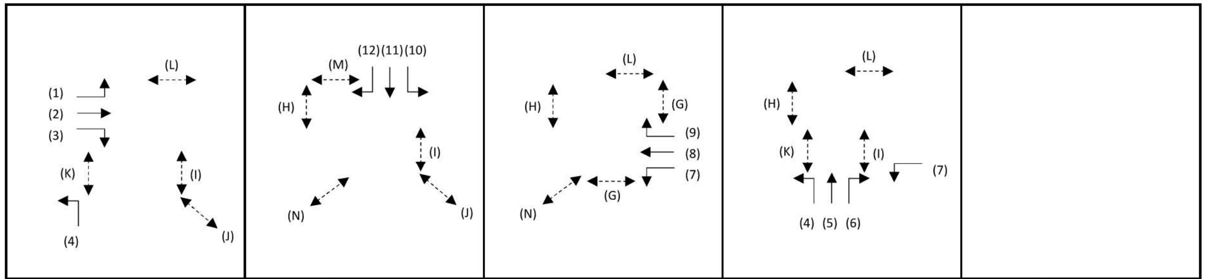
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J5_AM	PROJECT NO: 297978
J5 - Hoi Bun Road/ Wang Chiu Road/ Cheung Yip Street	Year 2024 Existing Weekdays (AM Peak)	DATE: 28-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4	
No. of Stage Using for Calculation		N=	3	
Cycle Time		C=	120	sec
Sum(y)		Y=	0.408	
Loss Time		L=	35	sec
Total Flow		=	1945	pcu
Co	=(1.5*L+5)/(1-Y)	=	97	sec
Cm	=L/(1-Y)	=	59	sec
Yult		=	0.638	
R.C.ult	=(Yult-Y)/Y*100%	=	56.3	%
Cp	=0.9*L/(0.9-Y)	=	64.0	sec
Ymax	=1-L/C	=	0.708	
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	56.3	%



Stage 1	Int = 9	Stage 2	Int = 12	Stage 3	Int =	Stage 4	Int = 8	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3	G	12.00	10	6	9	11	6	9	OK
2,3,4	H	7.00	5	2	6	50	2	6	OK
1,2,4	I	7.00	5	2	6	86	2	6	OK
1,2	J	5.00	5	2	5	72	2	5	OK
1,4	K	7.00	5	6	6	65	6	6	OK
1,3,4	L	5.00	5	0	5	98	0	5	OK
2	M	5.00	5	4	5	8	4	5	OK
2,3	N	7.00	5	2	6	35	2	6	OK
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				26				
																				0				
1,2,3	1	4.00	A	1	18		N	2015	65	350	84	499	0.30	1966		-	1966	0.254	0.254	1	53	54	0.565	46
3	1	4.00	A	1	25			2155			516	516	1.00	2033		-	2033	0.254			53	54	0.565	47
4	1,4	3.50	B	1	15		N	1965	185			185	1.00	1786		-	1786	0.104			22	70	0.179	13
5	4	3.30	C	1				2085		80		80	0.00	2085		-	2085	0.038			8	9	0.532	13
6	4	3.50	C	2	30			4210			150	150	1.00	4010		-	4010	0.037			8	9	0.519	12
7	3,4	3.30	D	1	30		N	1945	260			260	1.00	1852		260	2112	0.123	0.123	8	26	34	0.439	31
8,9	3	3.50	E	1	50			2105		105	45	150	0.30	2086		-	2086	0.072			15	15	0.575	22
10,11	2	4.00	F	1	40		N	2015	60	0		60	1.00	1942		-	1942	0.031	0.031	0	6	6	0.576	10
11,12	2	4.00	F	1	25			2155		25	20	45	0.44	2099		-	2099	0.021			4	6	0.400	7
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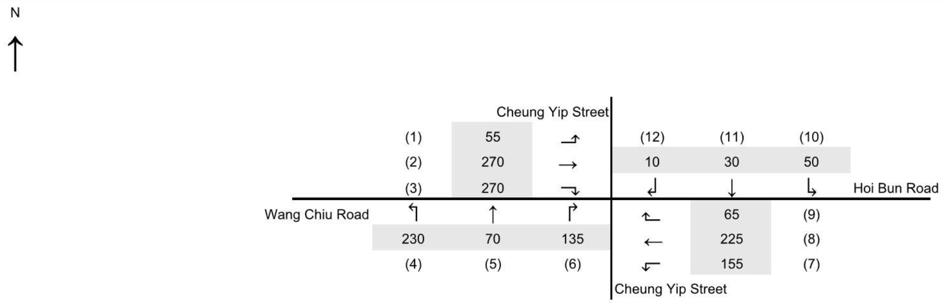
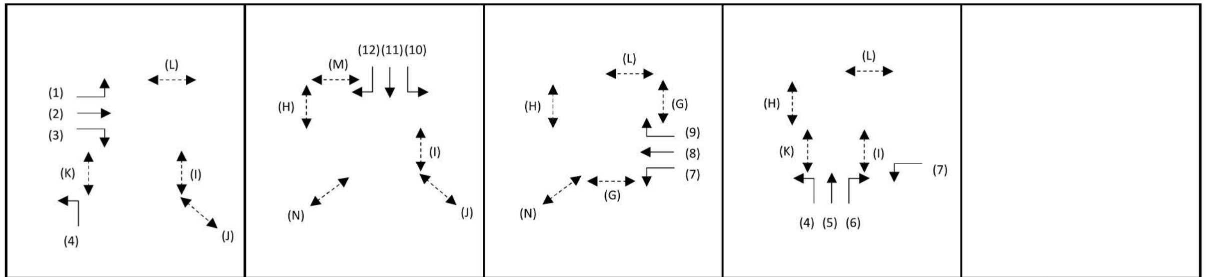
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J5_PM	PROJECT NO: 297978
J5 - Hoi Bun Road/ Wang Chiu Road/ Cheung Yip Street	Year 2024 Existing Weekdays (PM Peak)	DATE: 28-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	4
Cycle Time		C=	120 sec
Sum(y)		Y=	0.362
Loss Time		L=	36 sec
Total Flow		=	1565 pcu
Co	=(1.5*L+5)/(1-Y)	=	92 sec
Cm	=L/(1-Y)	=	56 sec
Yult		=	0.630
R.C.ult	=(Yult-Y)/Y*100%	=	74.2 %
Cp	=0.9*L/(0.9-Y)	=	60.2 sec
Ymax	=1-L/C	=	0.700
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	74.2 %



Stage 1	Int = 9	Stage 2	Int = 12	Stage 3	Int = 12	Stage 4	Int = 7	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3	G	12.00	10	6	9	28	6	9	OK
2,3,4	H	7.00	5	2	6	66	2	6	OK
1,2,4	I	7.00	5	2	6	69	2	6	OK
1,2	J	5.00	5	2	5	56	2	5	OK
1,4	K	7.00	5	6	6	48	6	6	OK
1,3,4	L	5.00	5	0	5	98	0	5	OK
2	M	5.00	5	4	5	8	4	5	OK
2,3	N	7.00	5	2	6	52	2	6	OK
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				36				
																				0				
1,2,3	1	4.00	A	1	18		N	2015	55	270	0	325	0.17	1987		-	1987	0.164	0.164	0	38	38	0.517	37
3	1	4.00	A	1	25			2155			270	270	1.00	2033		-	2033	0.133			31	38	0.420	31
4	1,4	3.50	B	1	15		N	1965	230			230	1.00	1786		-	1786	0.129			30	53	0.293	21
5	4	3.30	C	1				2085		70		70	0.00	2085		-	2085	0.034	0.034	0	8	8	0.515	11
6	4	3.50	C	2	30			4210			135	135	1.00	4010		-	4010	0.034			8	8	0.517	11
7	3,4	3.30	D	1	30		N	1945	155			155	1.00	1852		180	2032	0.076			18	50	0.183	15
8,9	3	3.50	E	1	50			2105		225	65	290	0.22	2091		-	2091	0.139	0.139	0	32	32	0.517	35
10,11	2	4.00	F	1	40		N	2015	50	0		50	1.00	1942		-	1942	0.026	0.026	0	6	6	0.517	8
11,12	2	4.00	F	1	25			2155		30	10	40	0.25	2123		-	2123	0.019			4	6	0.378	6
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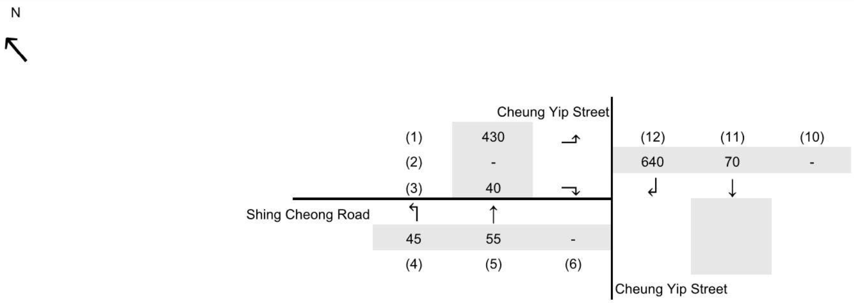
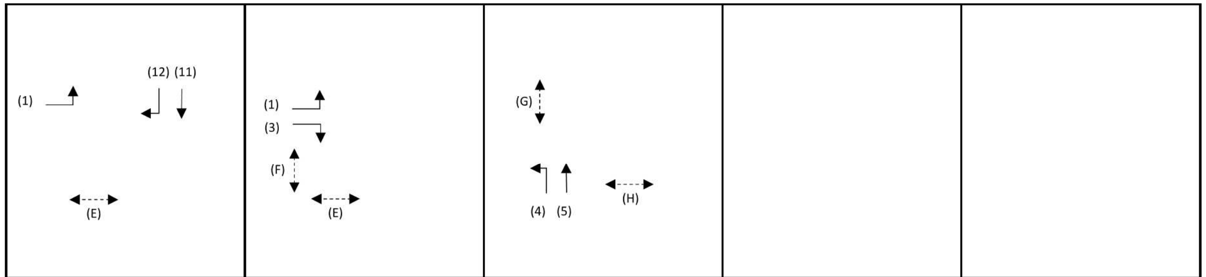
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J6_AM	PROJECT NO: 297978
J6 - Cheung Yip Street/ Shing Cheong Road	Year 2024 Existing Weekdays (AM Peak)	DATE: 28-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	3
Cycle Time		C=	120 sec
Sum(y)		Y=	0.244
Loss Time		L=	29 sec
Total Flow		=	1280 pcu
Co	=(1.5*L+5)/(1-Y)	=	64 sec
Cm	=L/(1-Y)	=	38 sec
Yult		=	0.683
R.C.ult	=(Yult-Y)/Y*100%	=	179.8 %
Cp	=0.9*L/(0.9-Y)	=	39.8 sec
Ymax	=1-L/C	=	0.758
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	179.8 %



Stage 1	Int = 6	Stage 2	Int = 7	Stage 3	Int = 5	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2	E	6.00	5	0	5	94	0	5	OK
2	F	8.00	5	9	7	5	9	7	OK
3	G	11.00	5	2	9	10	2	9	OK
3	H	6.00	5	10	5	6	10	5	OK
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				15				
																				0				
11,12	1	3.50	B	1	15		N	1965		70	286	356	0.80	1819		-	1819	0.196	0.196	0	73	73	0.322	23
12	1	3.30	B	1	10			2085			354	354	1.00	1813		-	1813	0.195			73	73	0.321	23
1	1,2	3.30	A	2	15		N	4030	430			430	1.00	3664		-	3664	0.117			44	94	0.150	8
3	2	3.50	D	1	10			2105			40	40	1.00	1830		-	1830	0.022	0.022	7	8	15	0.173	6
4	3	3.50	C	1	15		N	1965	45			45	1.00	1786		-	1786	0.025	0.026	7	9	17	0.180	6
5	3	3.30	C	1				2085		55		55	0.00	2085		-	2085	0.026			10	17	0.188	8
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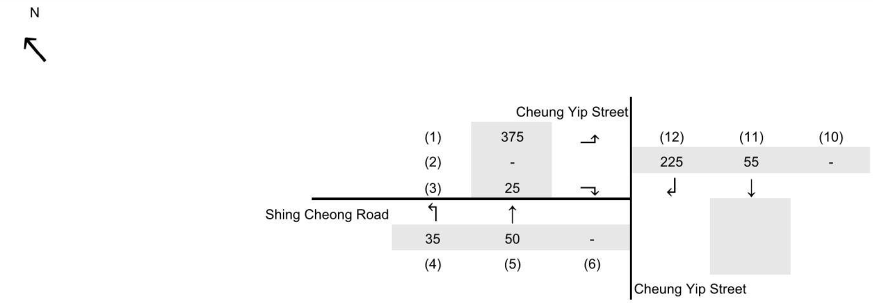
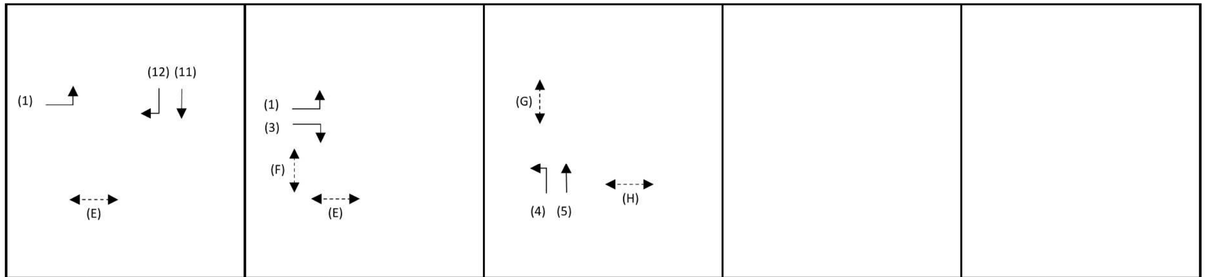
OVE ARUP & PARTNERS

TRAFFIC SIGNAL CALCULATION

Junction Assessment		SHEET: J6_PM	PROJECT NO: 297978
J6 - Cheung Yip Street/ Shing Cheong Road	Year 2024 Existing Weekdays (PM Peak)	DATE: 28-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3	
No. of Stage Using for Calculation		N=	2	
Cycle Time		C=	120	sec
Sum(y)		Y=	0.126	
Loss Time		L=	9	sec
Total Flow		=	765	pcu
Co	=(1.5*L+5)/(1-Y)	=	21	sec
Cm	=L/(1-Y)	=	10	sec
Yult		=	0.833	
R.C.ult	=(Yult-Y)/Y*100%	=	558.9	%
Cp	=0.9*L/(0.9-Y)	=	10.5	sec
Ymax	=1-L/C	=	0.925	
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	558.9	%



Stage 1	Int =	Stage 2	Int = 6	Stage 3	Int = 5	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2	E	6.00	5	0	5	90	0	5	OK
2	F	8.00	5	9	7	6	9	7	OK
3	G	11.00	5	2	9	14	2	9	OK
3	H	6.00	5	10	5	10	10	5	OK
					-		-	-	-
			-		-		-	-	-
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				9				
																				0				
11,12	1	3.50	B	1	15		N	1965		55	87	142	0.61	1852		-	1852	0.077			67	68	0.135	10
12	1	3.30	B	1	10			2085			138	138	1.00	1813		-	1813	0.076			67	68	0.134	10
1	1,2	3.30	A	2	15		N	4030	375			375	1.00	3664		-	3664	0.102	0.102	0	90	90	0.137	8
3	2	3.50	D	1	10			2105			25	25	1.00	1830		-	1830	0.014			12	16	0.103	4
4	3	3.50	C	1	15		N	1965	35			35	1.00	1786		-	1786	0.020	0.024	0	17	21	0.112	5
5	3	3.30	C	1				2085		50		50	0.00	2085		-	2085	0.024			21	21	0.137	7
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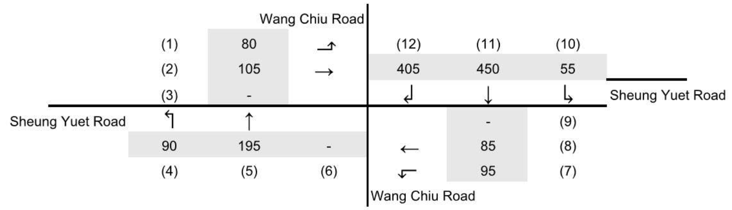
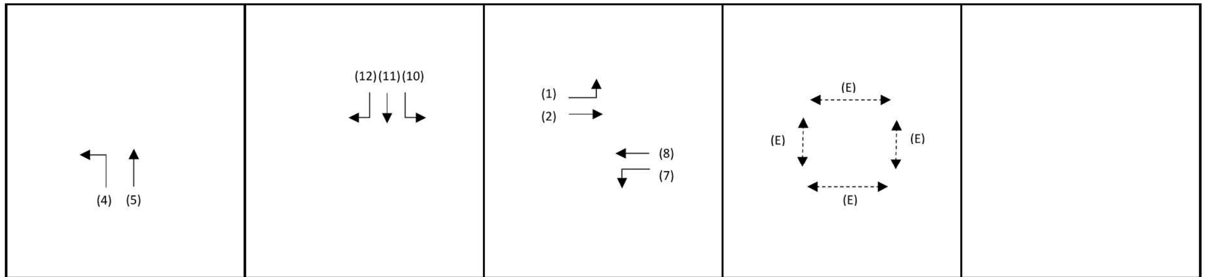
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J7_AM	PROJECT NO: 297978
J7 - Wang Chiu Road/ Sheung Yuet Road	Year 2024 Existing Weekdays (AM Peak)	DATE: 28-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	3
Cycle Time		C=	120 sec
Sum(y)		Y=	0.360
Loss Time		L=	39 sec
Total Flow		=	1560 pcu
Co	=(1.5*L+5)/(1-Y)	=	99 sec
Cm	=L/(1-Y)	=	61 sec
Yult		=	0.608
R.C.ult	=(Yult-Y)/Y*100%	=	68.8 %
Cp	=0.9*L/(0.9-Y)	=	65.0 sec
Ymax	=1-L/C	=	0.675
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	68.8 %



Stage 1	Int =	6	Stage 2	Int =	7	Stage 3	Int =	5	Stage 4	Int =		Stage 5	Int =	

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4	E	12.00	10	5	9	10	5	9	OK
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				15				
																			S4	24				
4,5	1	3.50	A	1	15		N	1965	90	43		133	0.68	1840		-	1840	0.072	0.072	0	16	16	0.533	19
5	1	3.50	A	1				2105		152		152	0.00	2105		-	2105	0.072			16	16	0.533	22
10,11	2	3.30	B	1	15		N	1945	55	398		453	0.12	1922		-	1922	0.236	0.236	0	53	53	0.533	42
11,12	2	3.30	B	1	18			2085		52	405	457	0.89	1942		-	1942	0.235			53	53	0.532	42
								-				-	-	-		-	-	-			-		-	-
7,8	3	3.50	C	1	20		N	1965	95	0		95	1.00	1828		-	1828	0.052	0.052	0	12	12	0.533	15
8	3	3.50	C	1				2105		85		85	0.00	2105		-	2105	0.040			9	12	0.414	13
1,2	3	3.50	C	1	15		N	1965	80	5		85	0.94	1796		-	1796	0.047			11	12	0.486	13
2	3	3.50	C	1				2105		100		100	0.00	2105		-	2105	0.048			11	12	0.487	15
								-				-	-	-		-	-	-			-		-	-
								-				-	-	-		-	-	-			-		-	-
								-				-	-	-		-	-	-			-		-	-
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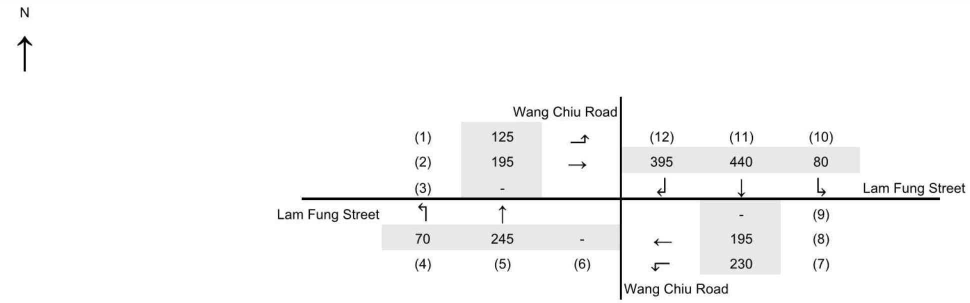
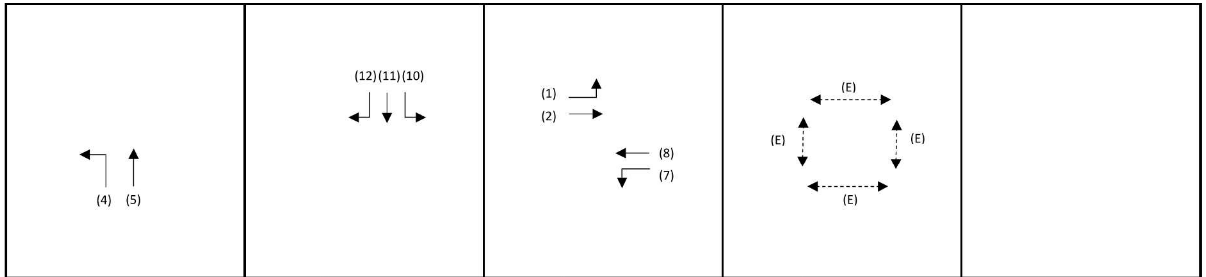
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J7_PM	PROJECT NO: 297978
J7 - Wang Chiu Road/ Sheung Yuet Road	Year 2024 Existing Weekdays (PM Peak)	DATE: 28-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	3
Cycle Time		C=	120 sec
Sum(y)		Y=	0.443
Loss Time		L=	39 sec
Total Flow		=	1975 pcu
Co	=(1.5*L+5)/(1-Y)	=	114 sec
Cm	=L/(1-Y)	=	70 sec
Yult		=	0.608
R.C.ult	=(Yult-Y)/Y*100%	=	37.3 %
Cp	=0.9*L/(0.9-Y)	=	76.7 sec
Ymax	=1-L/C	=	0.675
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	37.3 %



Stage 1	Int = 6	Stage 2	Int = 7	Stage 3	Int = 5	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4	E	12.00	10	5	9	10	5	9	OK
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				15				
																			S4	24				
4,5	1	3.50	A	1	15		N	1965	70	78		148	0.47	1876		-	1876	0.079	0.079	0	14	15	0.652	23
5	1	3.50	A	1				2105		167		167	0.00	2105		-	2105	0.079			15	15	0.656	25
10,11	2	3.30	B	1	15		N	1945	80	373		453	0.18	1911		-	1911	0.237	0.237	0	43	43	0.655	48
11,12	2	3.30	B	1	18			2085		67	395	462	0.85	1946		-	1946	0.237			43	43	0.656	49
								-				-	-	-		-	-	-			-		-	-
7,8	3	3.50	C	1	20		N	1965	230	0		230	1.00	1828		-	1828	0.126	0.126	0	23	23	0.656	31
8	3	3.50	C	1				2105		195		195	0.00	2105		-	2105	0.093			17	23	0.483	26
1,2	3	3.50	C	1	15		N	1965	125	23		148	0.84	1812		-	1812	0.082			15	23	0.426	20
2	3	3.50	C	1				2105		172		172	0.00	2105		-	2105	0.082			15	23	0.426	23
								-				-	-	-		-	-	-			-		-	-
								-				-	-	-		-	-	-			-		-	-
								-				-	-	-		-	-	-			-		-	-
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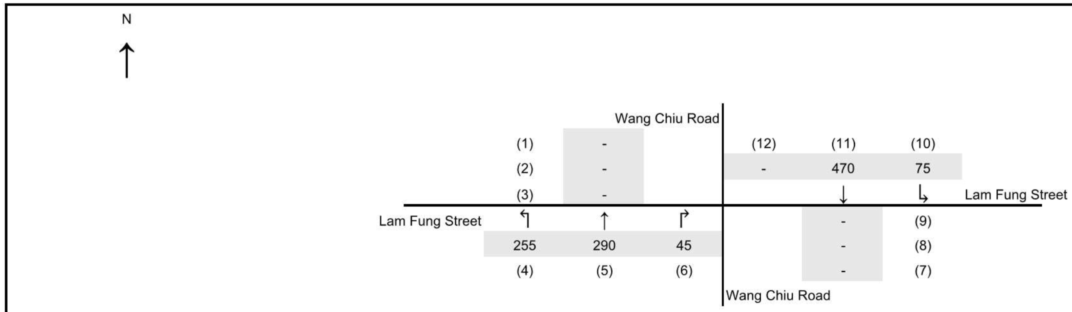
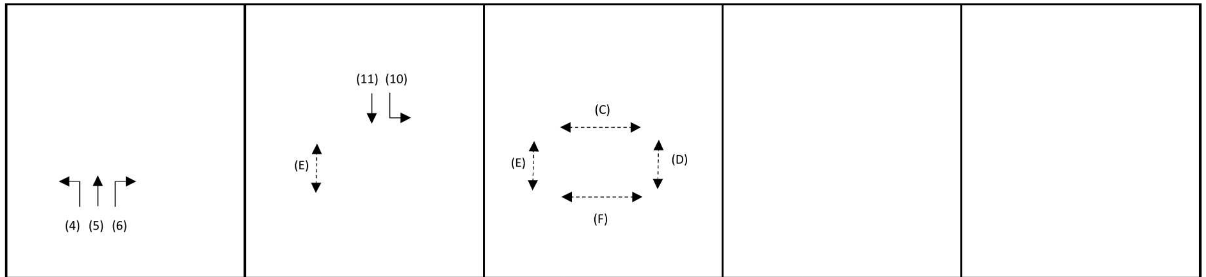
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J8_AM	PROJECT NO: 297978
J8 - Wang Chiu Road/ Lam Fung Street	Year 2024 Existing Weekdays (AM Peak)	DATE: 28-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	2
Cycle Time		C=	120 sec
Sum(y)		Y=	0.236
Loss Time		L=	36 sec
Total Flow		=	1135 pcu
Co	=(1.5*L+5)/(1-Y)	=	77 sec
Cm	=L/(1-Y)	=	47 sec
Yult		=	0.630
R.C.ult	=(Yult-Y)/Y*100%	=	166.9 %
Cp	=0.9*L/(0.9-Y)	=	48.8 sec
Ymax	=1-L/C	=	0.700
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	166.9 %



Stage 1	Int = 5	Stage 2	Int = 9	Stage 3	Int =	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3	C	11.00	10	0	9	15	0	9	OK
3	D	8.00	5	3	11	10	3	11	OK
2,3	E	9.00	5	6	14	60	6	14	OK
3	F	9.00	11	3	10	11	3	10	OK
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
																			S3	24				
4	1	3.50	A	1	15		N	1965	179			179	1.00	1786		-	1786	0.100	0.100	0	36	36	0.337	21
4,5	1	3.50	A	1	18			2105	76	128		204	0.37	2042		-	2042	0.100			36	36	0.336	24
5,6	1	3.50	A	1	18			2105		162	45	207	0.22	2068		-	2068	0.100			36	36	0.337	24
10,11	2	3.50	B	1	15		N	1965	75	184		259	0.29	1910		-	1910	0.136	0.136	0	48	48	0.337	26
11	2	3.50	B	1				2105		286		286	0.00	2105		-	2105	0.136			48	48	0.337	28
								-				-	-	-		-	-	-			-		-	-
								-				-	-	-		-	-	-			-		-	-
								-				-	-	-		-	-	-			-		-	-
								-				-	-	-		-	-	-			-		-	-
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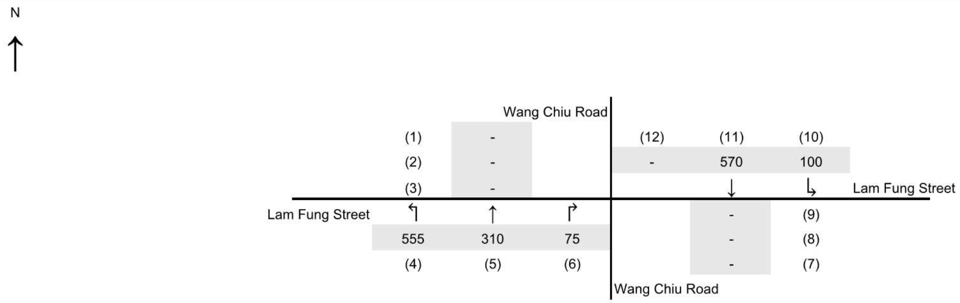
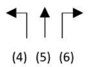
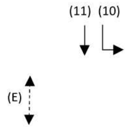
OVE ARUP & PARTNERS | **TRAFFIC SIGNAL CALCULATION**

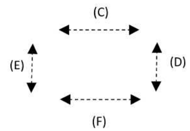
Junction Assessment		SHEET: J8_PM	PROJECT NO: 297978
J8 - Wang Chiu Road/ Lam Fung Street	Year 2024 Existing Weekdays (PM Peak)	DATE: 28-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	2
Cycle Time		C=	120 sec
Sum(y)		Y=	0.329
Loss Time		L=	36 sec
Total Flow		=	1610 pcu
Co	=(1.5*L+5)/(1-Y)	=	88 sec
Cm	=L/(1-Y)	=	54 sec
Yult		=	0.630
R.C.ult	=(Yult-Y)/Y*100%	=	91.5 %
Cp	=0.9*L/(0.9-Y)	=	56.7 sec
Ymax	=1-L/C	=	0.700
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	91.5 %







Stage 1	Int = 5	Stage 2	Int = 9	Stage 3	Int =	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3	C	11.00	10	0	9	15	0	9	OK
3	D	8.00	5	3	11	10	3	11	OK
2,3	E	9.00	5	6	14	55	6	14	OK
3	F	9.00	11	3	10	11	3	10	OK
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
																			S3	24				
4	1	3.50	A	1	15		N	1965	289			289	1.00	1786		-	1786	0.162	0.162	0	41	41	0.470	32
4,5	1	3.50	A	1	18			2105	266	52		318	0.84	1968		-	1968	0.162			41	41	0.469	35
5,6	1	3.50	A	1	18			2105		258	75	333	0.23	2066		-	2066	0.161			41	41	0.468	36
10,11	2	3.50	B	1	15		N	1965	100	218		318	0.31	1905		-	1905	0.167	0.167	0	43	43	0.469	34
11	2	3.50	B	1				2105		352		352	0.00	2105		-	2105	0.167			43	43	0.470	38
								-				-	-	-		-	-	-			-		-	-
								-				-	-	-		-	-	-			-		-	-
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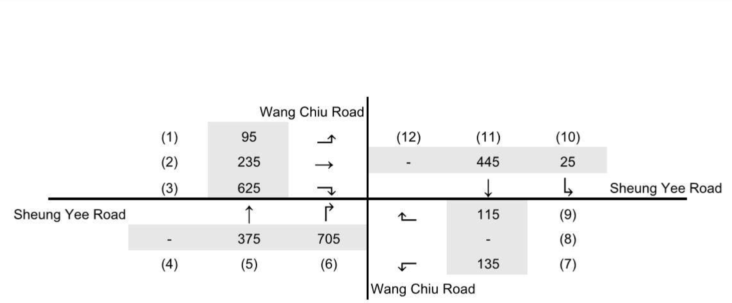
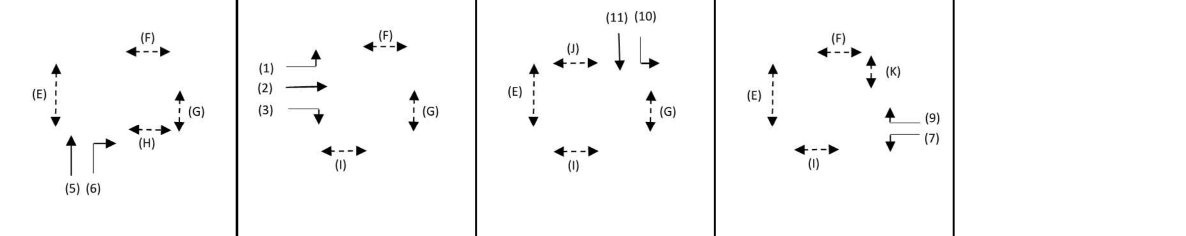
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J9_AM	PROJECT NO: 297978
J9 - Wang Chiu Road/ Sheung Yee Road	Year 2024 Existing Weekdays (AM Peak)	DATE: 28-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4	
No. of Stage Using for Calculation		N=	4	
Cycle Time		C=	120	sec
Sum(y)		Y=	0.492	
Loss Time		L=	26	sec
Total Flow		=	2755	pcu
Co	=(1.5*L+5)/(1-Y)	=	87	sec
Cm	=L/(1-Y)	=	51	sec
Yult		=	0.705	
R.C.ult	=(Yult-Y)/Y*100%	=	43.2	%
Cp	=0.9*L/(0.9-Y)	=	57.4	sec
Ymax	=1-L/C	=	0.783	
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	43.2	%



Stage 1	Int = 5	Stage 2	Int = 7	Stage 3	Int = 7	Stage 4	Int = 6	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,3,4	E	11.00	5	2	9	72	2	9	OK
3	F	8.00	5	2	7	17	2	7	OK
1,2,4	G	6.00	5	2	5	87	2	5	OK
1,2,3	H	6.00	5	8	5	89	8	5	OK
1	I	6.00	5	3	5	31	3	5	OK
2,3,4	J	6.00	5	6	5	70	6	5	OK
4	K	8.00	5	6	7	5	6	7	OK
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				21				
																				0				
5	1	3.50	A	1			N	1965		357		357	0.00	1965		-	1965	0.182	0.182	0	35	35	0.629	42
5,6	1	3.50	A	1	25			2105		18	343	361	0.95	1991		-	1991	0.181			35	35	0.627	43
6	1	3.50	A	1	28			2105			362	362	1.00	1998		-	1998	0.181			35	35	0.627	43
1	2	3.50	B	1	15		N	1965	95			95	1.00	1786		-	1786	0.053	0.161	0	10	31	0.208	12
1,2	2	3.50	B	1	18			2105	0	235		235	0.00	2105		-	2105	0.112			21	31	0.436	29
2,3	2	3.50	B	1	20			2105		0	314	314	1.00	1958		-	1958	0.160			31	31	0.627	39
3	2	3.50	B	1	17			2105			311	311	1.00	1934		-	1934	0.161			31	31	0.629	39
10	3	3.50	C	1	15		N	1965	25			25	1.00	1786		-	1786	0.014	0.106	0	3	20	0.083	3
11	3	3.50	C	2				4210		445		445	0.00	4210		-	4210	0.106			20	20	0.629	31
7	4	3.50	D	1	15		N	1965	79			79	1.00	1786		-	1786	0.044	0.044	5	8	13	0.395	12
7,9	4	3.50	D	1	15			2105	56		28	84	1.00	1914		-	1914	0.044			8	13	0.392	12
9	4	3.50	D	1	25			2105			87	87	1.00	1986		-	1986	0.044			8	13	0.391	13
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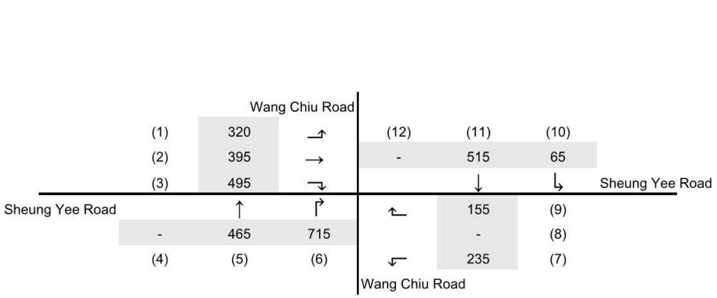
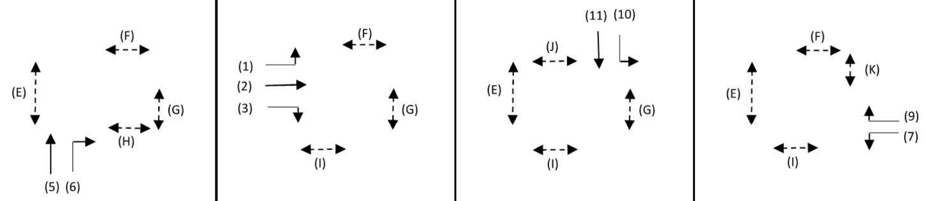
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J9_PM	PROJECT NO: 297978
J9 - Wang Chiu Road/ Sheung Yee Road	Year 2024 Existing Weekdays (PM Peak)	DATE: 28-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	4
Cycle Time		C=	120 sec
Sum(y)		Y=	0.554
Loss Time		L=	23 sec
Total Flow		=	3360 pcu
Co	=(1.5*L+5)/(1-Y)	=	89 sec
Cm	=L/(1-Y)	=	52 sec
Yult		=	0.728
R.C.ult	=(Yult-Y)/Y*100%	=	31.2 %
Cp	=0.9*L/(0.9-Y)	=	59.9 sec
Ymax	=1-L/C	=	0.808
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	31.2 %



Stage 1	Int = 5	Stage 2	Int = 7	Stage 3	Int = 7	Stage 4	Int = 6	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,3,4	E	11.00	5	2	9	75	2	9	OK
3	F	8.00	5	2	7	19	2	7	OK
1,2,4	G	6.00	5	2	5	85	2	5	OK
1,2,3	H	6.00	5	8	5	88	8	5	OK
1	I	6.00	5	3	5	31	3	5	OK
2,3,4	J	6.00	5	6	5	70	6	5	OK
4	K	8.00	5	6	7	6	6	7	OK
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				21				
																				0				
5	1	3.50	A	1			N	1965		398		398	0.00	1965		-	1965	0.203	0.203	0	35	35	0.686	47
5,6	1	3.50	A	1	25			2105		67	338	405	0.83	2005		-	2005	0.202			35	35	0.684	48
6	1	3.50	A	1	28		N	1965			377	377	1.00	1865		-	1865	0.202			35	35	0.684	44
1	2	3.50	B	1	15			2105	301			301	1.00	1914		-	1914	0.157	0.158	0	28	28	0.683	39
1,2	2	3.50	B	1	18			2105	19	311		330	0.06	2095		-	2095	0.158			28	28	0.684	42
2,3	2	3.50	B	1	20		N	1965		84	210	294	0.71	1865		-	1865	0.158			28	28	0.685	38
3	2	3.50	B	1	17		N	1965			285	285	1.00	1806		-	1806	0.158			28	28	0.686	37
10	3	3.50	C	1	15			2105	65			65	1.00	1914		-	1914	0.034	0.127	0	6	22	0.184	9
11	3	3.50	C	2			N	4070		515		515	0.00	4070		-	4070	0.127			22	22	0.686	35
7	4	3.50	D	1	15			2105	129			129	1.00	1914		-	1914	0.067	0.067	2	12	14	0.586	20
7,9	4	3.50	D	1	15			2105	106		22	128	1.00	1914		-	1914	0.067			12	14	0.582	19
9	4	3.50	D	1	25			2105			133	133	1.00	1986		-	1986	0.067			12	14	0.583	20
								-				-	-	-		-	-	-			-		-	-
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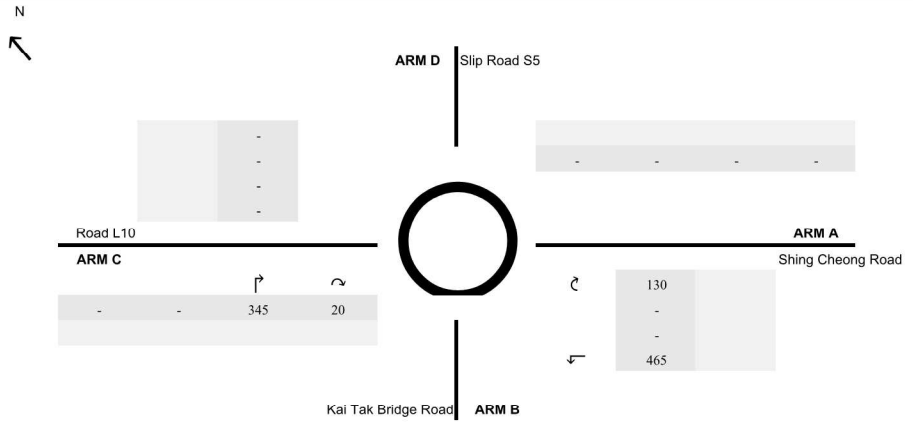
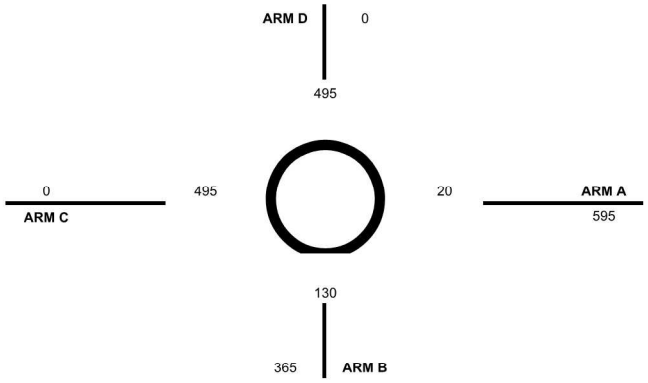
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
Junction Assessment		SHEET: J10_AM	PROJECT NO: 297978
J10 - Shing Cheong Road/ Slip Road S5/ Road L10	Year 2024 Existing Weekdays (AM Peak)	DATE: 28-Feb-25	FILENAME:



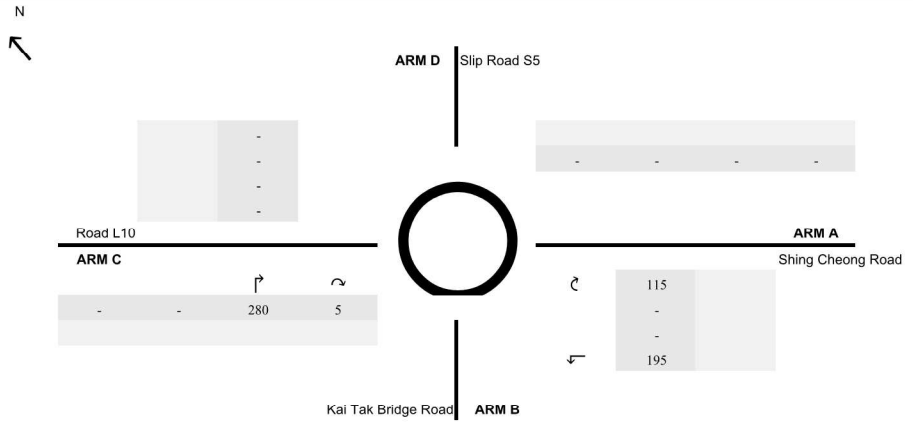


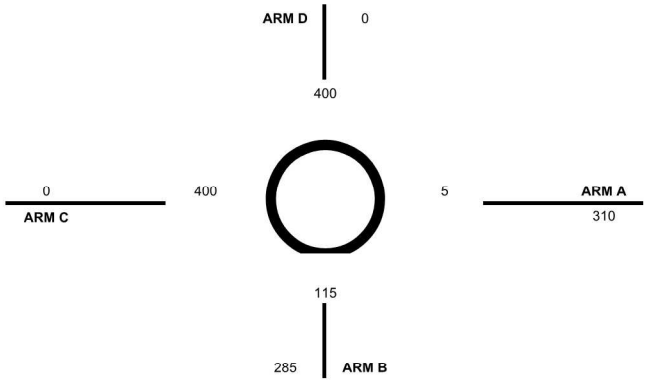
ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.50	7.60		
E	=	Entry width (m)	10.00	8.00		
L	=	Effective length of flare (m)	10	11.4		
R	=	Entry radius (m)	25	25		
D	=	Inscribed circle diameter (m)	46	46		
A	=	Entry angle (degree)	10	30		
Q	=	Entry flow (pcu/h)	595	365		
Qc	=	Circulating flow across entry (pcu/h)	20	130		
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.40	0.06		
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.08	1.01		
X2	=	V + ((E-V)/(1+2S))	8.89	7.96		
M	=	EXP((D-60)/10)	0.25	0.25		
F	=	303*X2	2693	2412		
Td	=	1+(0.5/(1+M))	1.40	1.40		
Fc	=	0.21*Td(1+0.2*X2)	0.82	0.76		
Qe	=	K(F-Fc*Qc)	2889	2335		
DFC	=	Design flow/Capacity = Q/Qe	0.21	0.16		

Total In Sum = 960 PCU

DFC of Critical Approach = 0.21

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
Junction Assessment		SHEET: J10_PM	PROJECT NO: 297978
J10 - Shing Cheong Road/ Slip Road S5/ Road L10	Year 2024 Existing Weekdays (PM Peak)	DATE: 28-Feb-25	FILENAME:



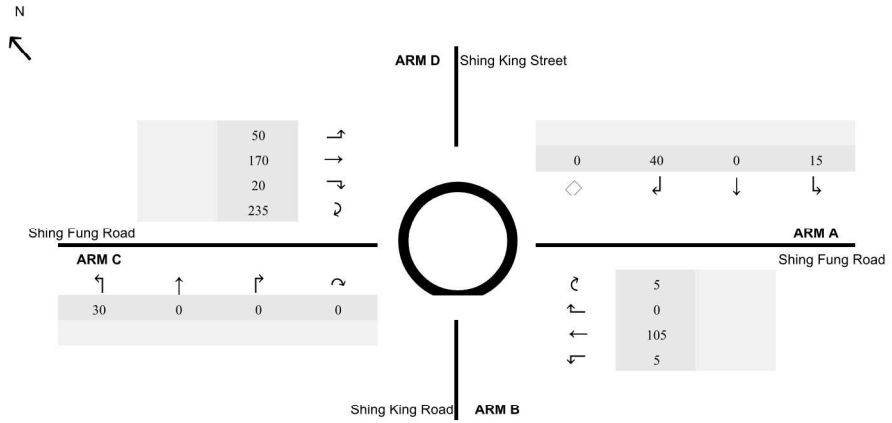


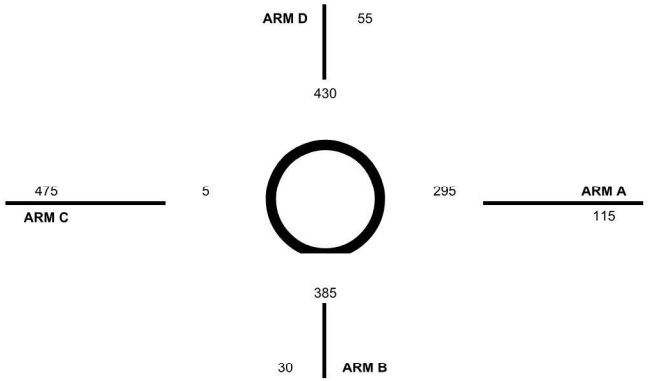
ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.50	7.60		
E	=	Entry width (m)	10.00	8.00		
L	=	Effective length of flare (m)	10	11.4		
R	=	Entry radius (m)	25	25		
D	=	Inscribed circle diameter (m)	46	46		
A	=	Entry angle (degree)	10	30		
Q	=	Entry flow (pcu/h)	310	285		
Qc	=	Circulating flow across entry (pcu/h)	5	115		
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.40	0.06		
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.08	1.01		
X2	=	V + ((E-V)/(1+2S))	8.89	7.96		
M	=	EXP((D-60)/10)	0.25	0.25		
F	=	303*X2	2693	2412		
Td	=	1+(0.5/(1+M))	1.40	1.40		
Fc	=	0.21*Td(1+0.2*X2)	0.82	0.76		
Qe	=	K(F-Fc*Qc)	2902	2347		
DFC	=	Design flow/Capacity = Q/Qe	0.11	0.12		

Total In Sum = 595 PCU

DFC of Critical Approach = 0.12

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
Junction Assessment		SHEET: J11_AM	PROJECT NO: 297978
J11 - Shing Fung Road	Year 2024 Existing Weekdays (AM Peak)	DATE: 28-Feb-25	FILENAME:



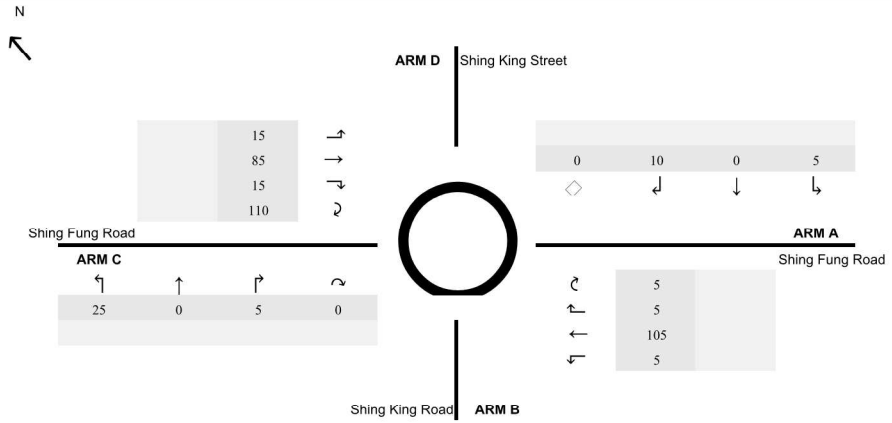


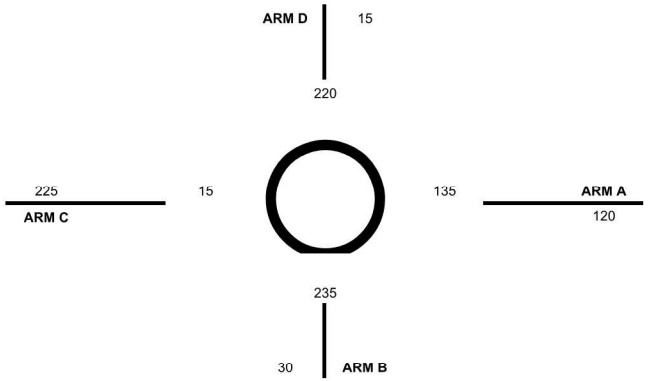
ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.30	5.60	7.30	3.70
E	=	Entry width (m)	8.20	6.00	7.40	6.00
L	=	Effective length of flare (m)	27.3	19.7	11.2	16.4
R	=	Entry radius (m)	25	25	25	25
D	=	Inscribed circle diameter (m)	46	46	46	46
A	=	Entry angle (degree)	30	30	60	10
Q	=	Entry flow (pcu/h)	115	30	475	55
Qc	=	Circulating flow across entry (pcu/h)	295	385	5	430
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.05	0.03	0.01	0.22
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.01	1.01	0.91	1.08
X2	=	V + ((E-V)/(1+2S))	8.11	5.98	7.40	5.29
M	=	EXP((D-60)/10)	0.25	0.25	0.25	0.25
F	=	303*X2	2459	1811	2241	1602
Td	=	1+(0.5/(1+M))	1.40	1.40	1.40	1.40
Fc	=	0.21*Td(1+0.2*X2)	0.77	0.65	0.73	0.61
Qe	=	K(F-Fc*Qc)	2253	1577	2027	1448
DFC	=	Design flow/Capacity = Q/Qe	0.05	0.02	0.23	0.04

Total In Sum = 675 PCU

DFC of Critical Approach = 0.23

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
Junction Assessment		SHEET: J11_PM	PROJECT NO: 297978
J11 - Shing Fung Road	Year 2024 Existing Weekdays (PM Peak)	DATE: 28-Feb-25	FILENAME:





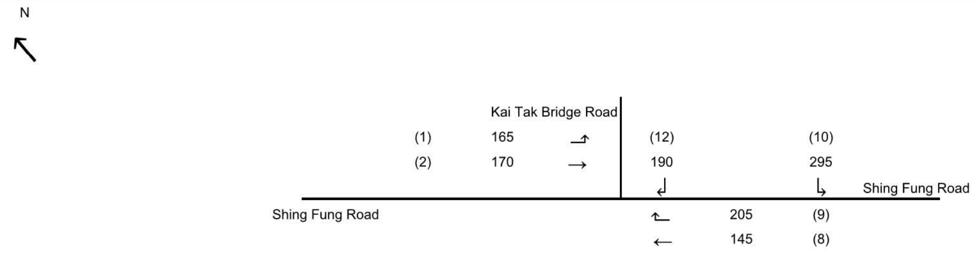
ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.30	5.60	7.30	3.70
E	=	Entry width (m)	8.20	6.00	7.40	6.00
L	=	Effective length of flare (m)	27.3	19.7	11.2	16.4
R	=	Entry radius (m)	25	25	25	25
D	=	Inscribed circle diameter (m)	46	46	46	46
A	=	Entry angle (degree)	30	30	60	10
Q	=	Entry flow (pcu/h)	120	30	225	15
Qc	=	Circulating flow across entry (pcu/h)	135	235	15	220
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.05	0.03	0.01	0.22
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.01	1.01	0.91	1.08
X2	=	V + ((E-V)/(1+2S))	8.11	5.98	7.40	5.29
M	=	EXP((D-60)/10)	0.25	0.25	0.25	0.25
F	=	303*X2	2459	1811	2241	1602
Td	=	1+(0.5/(1+M))	1.40	1.40	1.40	1.40
Fc	=	0.21*Td(1+0.2*X2)	0.77	0.65	0.73	0.61
Qe	=	K(F-Fc*Qc)	2377	1675	2020	1585
DFC	=	Design flow/Capacity = Q/Qe	0.05	0.02	0.11	0.01

Total In Sum = 390 PCU

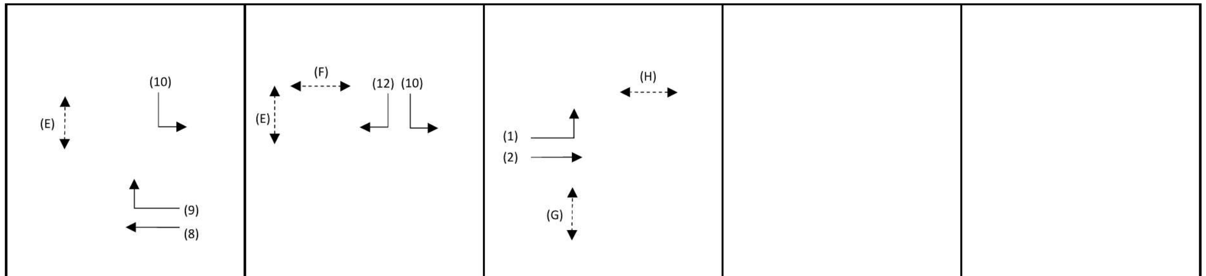
DFC of Critical Approach = 0.11

OVE ARUP & PARTNERS — TRAFFIC SIGNAL CALCULATION

Junction Assessment		SHEET: J12_AM	PROJECT NO: 297978
J12 - Shing Fung Road/ Shing Cheong Road	Year 2024 Existing Weekdays (AM Peak)	DATE: 28-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	2
Cycle Time		C=	120 sec
Sum(y)		Y=	0.340
Loss Time		L=	10 sec
Total Flow		=	1170 pcu
Co	=(1.5*L+5)/(1-Y)	=	30 sec
Cm	=L/(1-Y)	=	15 sec
Yult		=	0.825
R.C.ult	=(Yult-Y)/Y*100%	=	142.6 %
Cp	=0.9*L/(0.9-Y)	=	16.1 sec
Ymax	=1-L/C	=	0.917
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	142.6 %



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2	E	11.50	7	0	10	85	0	10	OK
2	F	10.00	7	0	11	62	0	11	OK
3	G	14.50	8	0	12	13	0	12	OK
3	H	15.00	8	0	7	18	0	7	OK
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
																				0				
8	1	3.30	A	2			N	4030		145		145	0.00	4030		-	4030	0.036			12	18	0.240	10
9	1	3.50	A	2	15			4210			205	205	1.00	3827		-	3827	0.054			17	18	0.357	15
10	1,2	3.50	B	1	12		N	1965	295			295	1.00	873		200	1073	0.275	0.275	0	89	89	0.371	13
12	2	3.50	C	2	15			4210			190	190	1.00	3827		-	3827	0.050			16	61	0.098	8
1,2	3	3.50	D	1	25			2105	165	33		198	0.83	2005		1030	3035	0.065	0.065	0	21	21	0.371	27
2	3	3.50	D	1				2105		137		137	0.00	2105		-	2105	0.065			21	21	0.370	19
								-				-	-	-		-	-	-			-		-	-
								-				-	-	-		-	-	-			-		-	-
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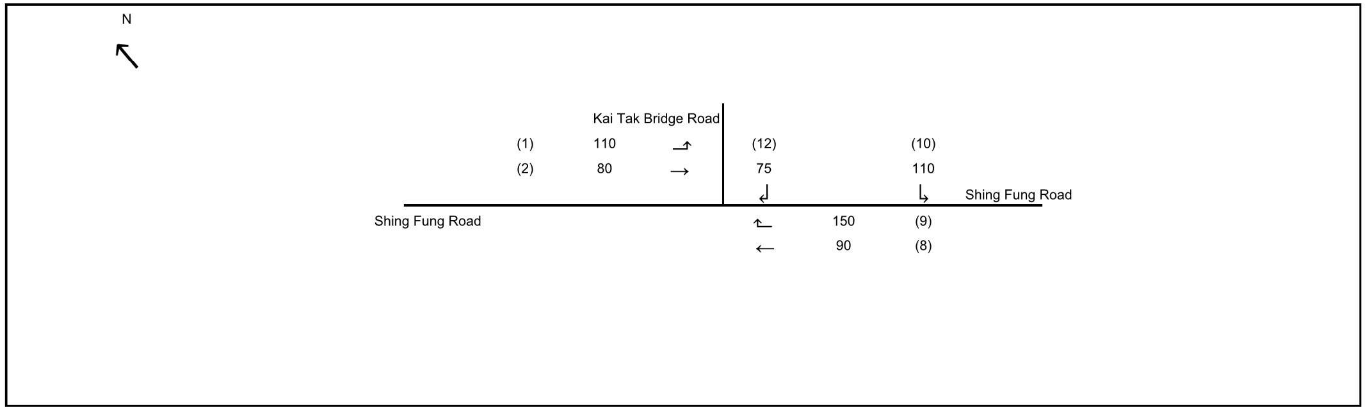
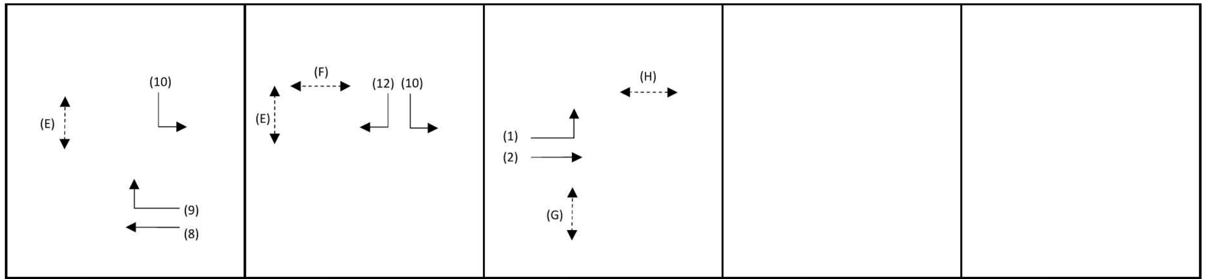
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J12_PM	PROJECT NO: 297978
J12 - Shing Fung Road/ Shing Cheong Road	Year 2024 Existing Weekdays (PM Peak)	DATE: 28-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	2
Cycle Time		C=	120 sec
Sum(y)		Y=	0.141
Loss Time		L=	10 sec
Total Flow		=	615 pcu
Co	=(1.5*L+5)/(1-Y)	=	23 sec
Cm	=L/(1-Y)	=	12 sec
Yult		=	0.825
R.C.ult	=(Yult-Y)/Y*100%	=	485.3 %
Cp	=0.9*L/(0.9-Y)	=	11.9 sec
Ymax	=1-L/C	=	0.917
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	485.3 %



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2	E	11.50	7	0	10	74	0	10	OK
2	F	10.00	7	0	11	38	0	11	OK
3	G	14.50	8	0	12	24	0	12	OK
3	H	15.00	8	0	7	29	0	7	OK
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
																				0				
8	1	3.30	A	2			N	4030		90		90	0.00	4030		-	4030	0.022			17	31	0.086	6
9	1	3.50	A	2	15			4210			150	150	1.00	3827		-	3827	0.039			31	31	0.152	9
10	1,2	3.50	B	1	12		N	1965	110			110	1.00	873		230	1103	0.100	0.100	0	78	78	0.154	6
12	2	3.50	C	2	15			4210			75	75	1.00	3827		-	3827	0.020			15	37	0.064	4
1,2	3	3.50	D	1	25			2105	110	0		110	1.00	1986		680	2666	0.041	0.041	0	32	32	0.154	13
2	3	3.50	D	1				2105		80		80	0.00	2105		-	2105	0.038			30	32	0.142	10
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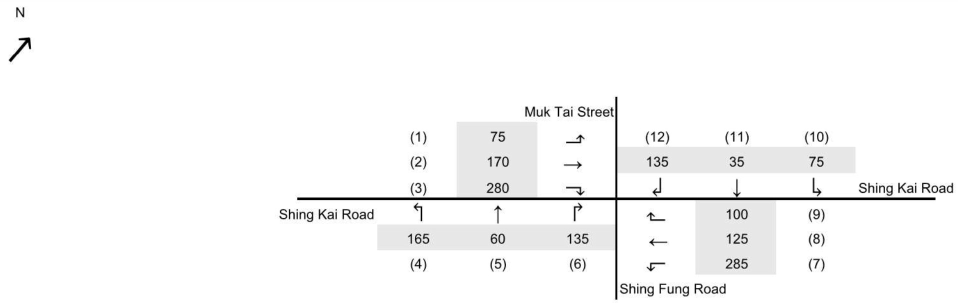
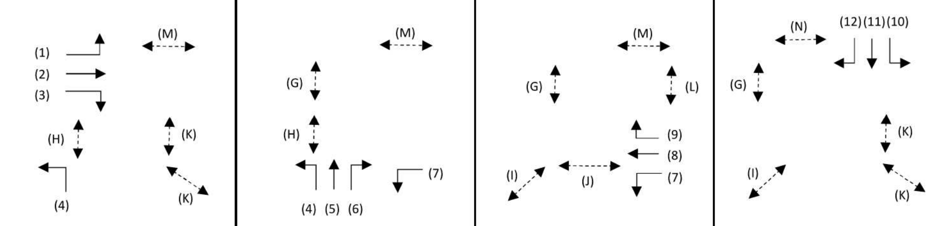
OVE ARUP & PARTNERS | **TRAFFIC SIGNAL CALCULATION**

Junction Assessment		SHEET: J14_AM	PROJECT NO: 297978
J14 - Shing Kai Road/ Shing Fung Road/ Muk Tai Street	Year 2024 Existing Weekdays (AM Peak)	DATE: 28-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	4
Cycle Time		C=	135 sec
Sum(y)		Y=	0.306
Loss Time		L=	35 sec
Total Flow		=	1640 pcu
Co	=(1.5*L+5)/(1-Y)	=	83 sec
Cm	=L/(1-Y)	=	50 sec
Yult		=	0.638
R.C.ult	=(Yult-Y)/Y*100%	=	108.2 %
Cp	=0.9*L/(0.9-Y)	=	53.0 sec
Ymax	=1-L/C	=	0.741
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	117.8 %



Stage 1	Int = 5	Stage 2	Int = 5	Stage 3	Int = 6	Stage 4	Int = 13	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
2,3,4	G	14.50	7	3	12	93	3	12	OK
1,2	H	7.50	5	8	6	33	8	6	OK
3,4	I	7.50	5	2	6	80	2	6	OK
3	J	19.00	16	2	15	16	2	15	OK
1,4	K	8.50	5	2	7	73	2	7	OK
3	L	12.50	6	10	10	13	10	10	OK
1,2,3	M	9.00	5	1	8	71	1	8	OK
4	N	9.00	5	10	8	37	10	8	OK
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			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				25				
																				0				
1,2	1	3.50	A	1	17.5		N	1965	75	40		115	0.65	1861		-	1861	0.062	0.071	0	20	23	0.360	18
2	1	3.50	A	1				2105		130		130	0.00	2105		-	2105	0.062			20	23	0.360	20
3	1	3.50	A	2	22.5			4210			280	280	1.00	3947		-	3947	0.071			23	23	0.413	22
4	1,2	3.65	B	1	20		N	1980	79			79	1.00	1842		-	1842	0.043			14	43	0.135	10
4	1,2	3.65	B	1	22			2120	86			86	1.00	1985		-	1985	0.043			14	43	0.136	11
5,6	2	3.65	C	1	23			2120		60	40	100	0.40	2066		-	2066	0.048	0.048	0	16	16	0.413	17
6	2	3.65	C	1	19			2120			95	95	1.00	1965		-	1965	0.048			16	16	0.413	16
7	2,3	3.50	D	2	25		N	4070	285			285	1.00	3840		-	3840	0.074			24	43	0.234	18
8	3	3.50	E	1				2105		116		116	0.00	2105		-	2105	0.055	0.055	10	18	28	0.266	17
8,9	3	3.50	E	1	23			2105		9	100	109	0.92	1986		-	1986	0.055			18	28	0.265	16
10,11,12	4	3.65	F	1	20		N	1980	75	35	135	245	0.86	1860		-	1860	0.132	0.132	0	43	43	0.413	31
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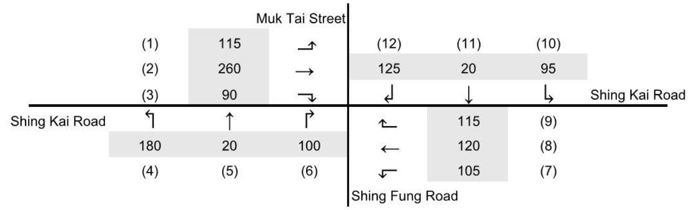
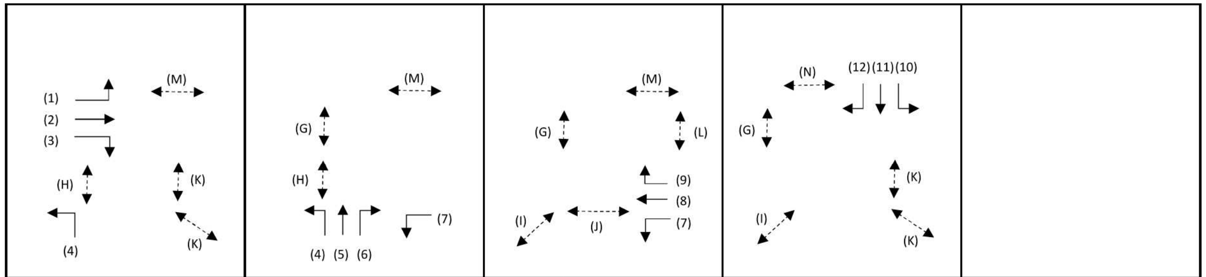


No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	4
Cycle Time		C=	135 sec
Sum(y)		Y=	0.312
Loss Time		L=	36 sec
Total Flow		=	1345 pcu
Co	=(1.5*L+5)/(1-Y)	=	86 sec
Cm	=L/(1-Y)	=	52 sec
Yult		=	0.630
R.C.ult	=(Yult-Y)/Y*100%	=	101.7 %
Cp	=0.9*L/(0.9-Y)	=	55.1 sec
Ymax	=1-L/C	=	0.733
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	111.3 %



Stage 1	Int = 5	Stage 2	Int = 5	Stage 3	Int = 6	Stage 4	Int = 13	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
2,3,4	G	14.50	7	3	12	86	3	12	OK
1.2	H	7.50	5	8	6	20	8	6	OK
3,4	I	7.50	5	2	6	79	2	6	OK
3	J	19.00	16	2	15	16	2	15	OK
1,4	K	8.50	5	2	7	78	2	7	OK
3	L	12.50	6	10	10	13	10	10	OK
1,2,3	M	9.00	5	1	8	73	1	8	OK
4	N	9.00	5	10	8	35	10	8	OK
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			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				25				
																				0				
1,2	1	3.50	A	1	17.5		N	1965	115	61		176	0.65	1861		-	1861	0.095	0.095	0	30	30	0.426	26
2	1	3.50	A	1				2105		199		199	0.00	2105		-	2105	0.095			30	30	0.426	29
3	1	3.50	A	2	22.5			4210			90	90	1.00	3947		-	3947	0.023			7	30	0.103	7
4	1,2	3.65	B	1	20		N	1980	87			87	1.00	1842		-	1842	0.047			15	44	0.143	11
4	1,2	3.65	B	1	22			2120	93			93	1.00	1985		-	1985	0.047			15	44	0.142	12
5,6	2	3.65	C	1	23			2120		20	41	61	0.67	2031		-	2031	0.030	0.030	1	10	11	0.386	11
6	2	3.65	C	1	19			2120			59	59	1.00	1965		-	1965	0.030			10	11	0.385	10
7	2,3	3.50	D	2	25		N	4070	105			105	1.00	3840		-	3840	0.027			9	38	0.097	7
8	3	3.50	E	1				2105		120		120	0.00	2105		-	2105	0.057	0.058	10	18	28	0.271	18
8,9	3	3.50	E	1	23			2105		0	115	115	1.00	1976		-	1976	0.058			18	28	0.276	17
10,11,12	4	3.65	F	1	20		N	1980	95	20	125	240	0.92	1853		-	1853	0.130	0.130	0	41	41	0.426	31
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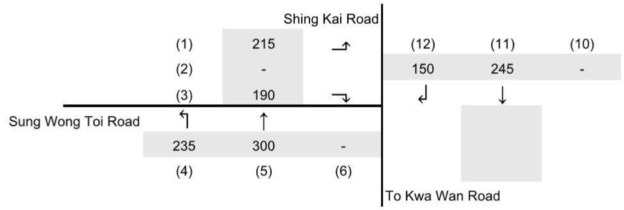
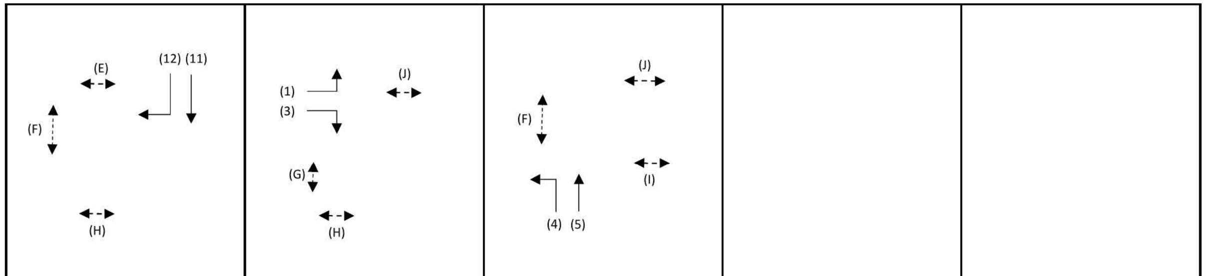
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J15_AM	PROJECT NO: 297978
J15 - Shing Kai Road/ Song Wong Toi Road/ To Kwa Wan Road	Year 2024 Existing Weekdays (AM Peak)	DATE: 28-Feb-25	FILENAME:

N



No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	3
Cycle Time		C=	130 sec
Sum(y)		Y=	0.310
Loss Time		L=	13 sec
Total Flow		=	1335 pcu
Co	=(1.5*L+5)/(1-Y)	=	36 sec
Cm	=L/(1-Y)	=	19 sec
Yult		=	0.803
R.C.ult	=(Yult-Y)/Y*100%	=	158.6 %
Cp	=0.9*L/(0.9-Y)	=	19.8 sec
Ymax	=1-L/C	=	0.900
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	161.1 %



Stage 1	Int = 6	Stage 2	Int = 5	Stage 3	Int = 5	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2	D	11.50	5	2	10	63	2	10	OK
3	E	8.50	5	10	7	38	10	7	OK
2,3	F	7.50	5	2	6	92	2	6	OK
1	G	7.30	5	11	6	13	11	6	OK
1,3	H	12.50	6	1	10	74	1	10	OK
2	I	10.50	5	7	9	29	7	9	OK
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				13				
																				0				
4,5	3	3.50	A	1	17.5		N	1965	235	13		248	0.95	1817		-	1817	0.136	0.136	0	51	51	0.345	27
5	3	3.50	A	1				2105		287		287	0.00	2105		-	2105	0.136			51	51	0.344	31
12	1	3.50	B	1	25			2105			130	130	1.00	1986		-	1986	0.065	0.066	0	25	25	0.344	19
11,12	1	3.50	B	1	30			2105		117	20	137	0.15	2090		-	2090	0.066			25	25	0.345	20
11	1	3.50	B	1			N	1965		128		128	0.00	1965		-	1965	0.065			25	25	0.343	19
1	2	3.50	C	1	15		N	1965	193			193	1.00	1786		-	1786	0.108	0.108	0	41	41	0.344	24
1,3	2	3.50	C	1	20			2105	22		190	212	1.00	1958		-	1958	0.108			41	41	0.345	26
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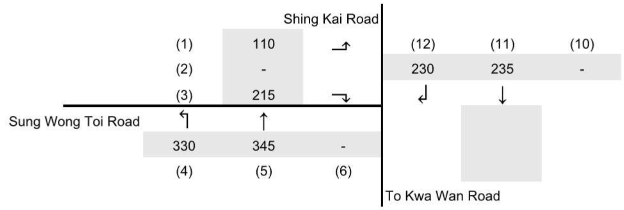
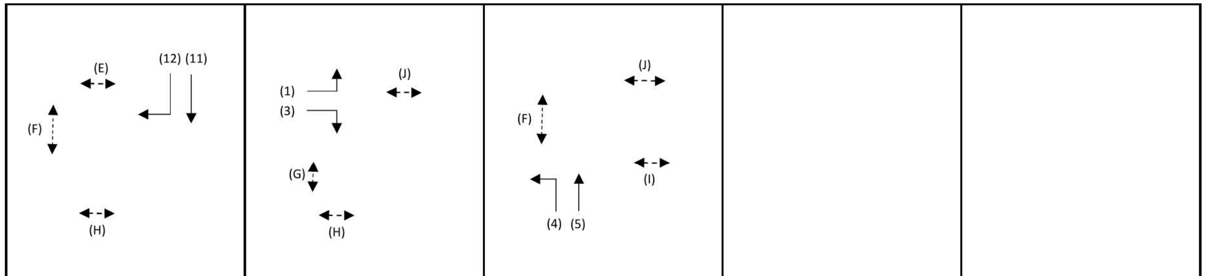
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J15_PM	PROJECT NO: 297978
J15 - Shing Kai Road/ Song Wong Toi Road/ To Kwa Wan Road	Year 2024 Existing Weekdays (PM Peak)	DATE: 28-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	3
Cycle Time		C=	120 sec
Sum(y)		Y=	0.324
Loss Time		L=	13 sec
Total Flow		=	1465 pcu
Co	=(1.5*L+5)/(1-Y)	=	36 sec
Cm	=L/(1-Y)	=	19 sec
Yult		=	0.803
R.C.ult	=(Yult-Y)/Y*100%	=	147.5 %
Cp	=0.9*L/(0.9-Y)	=	20.3 sec
Ymax	=1-L/C	=	0.892
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	147.5 %



Stage 1	Int = 6	Stage 2	Int = 5	Stage 3	Int = 5	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2	D	11.50	5	2	10	44	2	10	OK
3	E	8.50	5	10	7	47	10	7	OK
2,3	F	7.50	5	2	6	81	2	6	OK
1	G	7.30	5	11	6	14	11	6	OK
1,3	H	12.50	6	1	10	84	1	10	OK
2	I	10.50	5	7	9	9	7	9	OK
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			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				13				
																				0				
4,5	3	3.50	A	1	17.5		N	1965	330	0		330	1.00	1810		-	1810	0.182	0.182	0	60	60	0.364	27
5	3	3.50	A	1				2105		345		345	0.00	2105		-	2105	0.164			54	60	0.327	29
12	1	3.50	B	1	25			2105			154	154	1.00	1986		-	1986	0.078	0.078	0	26	26	0.364	20
11,12	1	3.50	B	1	30			2105		83	76	159	0.48	2056		-	2056	0.077			26	26	0.363	21
11	1	3.50	B	1			N	1965		152		152	0.00	1965		-	1965	0.077			26	26	0.363	20
1	2	3.50	C	1	10		N	1965	110			110	1.00	1709		-	1709	0.064	0.064	0	21	21	0.364	15
3	2	3.50	C	2	20			4210			215	215	1.00	3916		-	3916	0.055			18	21	0.310	15
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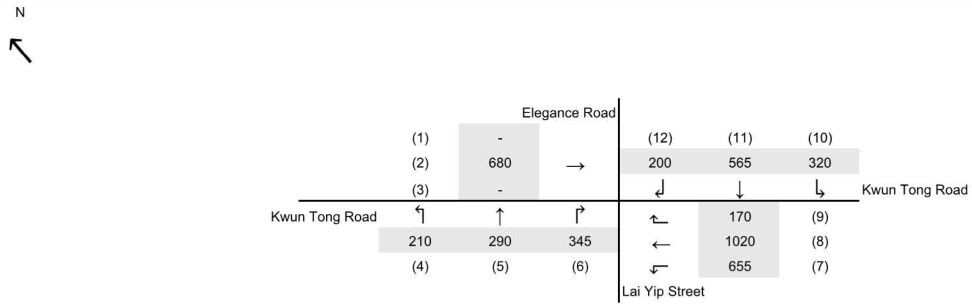
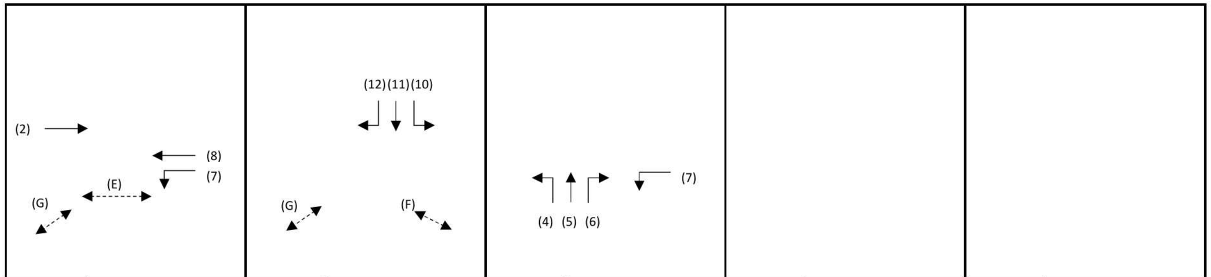
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J1_AM	PROJECT NO: 297978
J1 - Kwun Tong Road/ Elegence Road/ Lai Yip Street	2036 Reference Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	3
Cycle Time		C=	120 sec
Sum(y)		Y=	0.568
Loss Time		L=	19 sec
Total Flow		=	4285 pcu
Co	=(1.5*L+5)/(1-Y)	=	78 sec
Cm	=L/(1-Y)	=	44 sec
Yult		=	0.758
R.C.ult	=(Yult-Y)/Y*100%	=	33.4 %
Cp	=0.9*L/(0.9-Y)	=	51.5 sec
Ymax	=1-L/C	=	0.842
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	33.4 %



Stage 1	Int = 7	Stage 2	Int = 6	Stage 3	Int = 9	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	E	22.00	12	2	10	38	2	10	OK
2	F	5.00	5	2	5	32	2	5	OK
1,2	G	8.00	5	2	7	80	2	7	OK
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			-		-		-	-	-
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			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				19				
																				0				
2	1	3.00	A	2				4110		680		680	0.00	4110		-	4110	0.165	0.245	0	29	44	0.456	36
8	1	3.30	A	2				4170		1020		1020	0.00	4170		-	4170	0.245			44	44	0.675	54
7	1,3	4.50	B	1	10		N	2065	655			655	1.00	1796		-	1796	0.365			65	77	0.570	39
10	2	3.00	C	1	10		N	1915	320			320	1.00	1665		-	1665	0.192	0.192	0	34	34	0.675	38
11	2	3.30	C	1				2085		363		363	0.00	2085		-	2085	0.174			31	34	0.611	43
11,12	2	3.30	C	1	25			2085		202	200	402	0.50	2025		280	2305	0.174			31	34	0.612	48
4,5	3	3.30	D	1	25		N	1945	210	138		348	0.60	1877		780	2657	0.131	0.131	0	23	23	0.675	47
5,6	3	3.30	D	1	15			2085		152	109	261	0.42	2001		-	2001	0.130			23	23	0.672	36
6	3	3.30	D	1	10			2085			236	236	1.00	1813		-	1813	0.130			23	23	0.670	32
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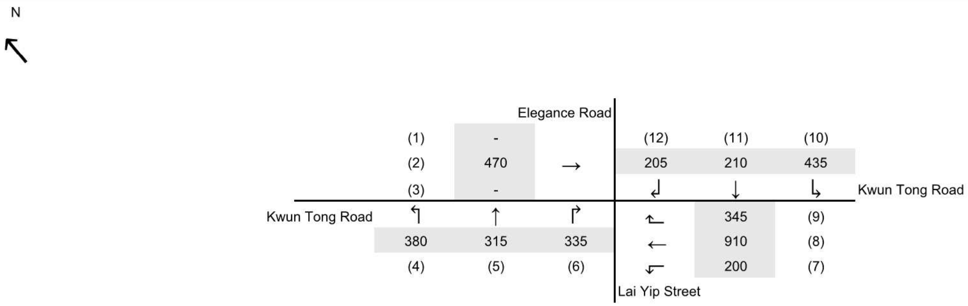
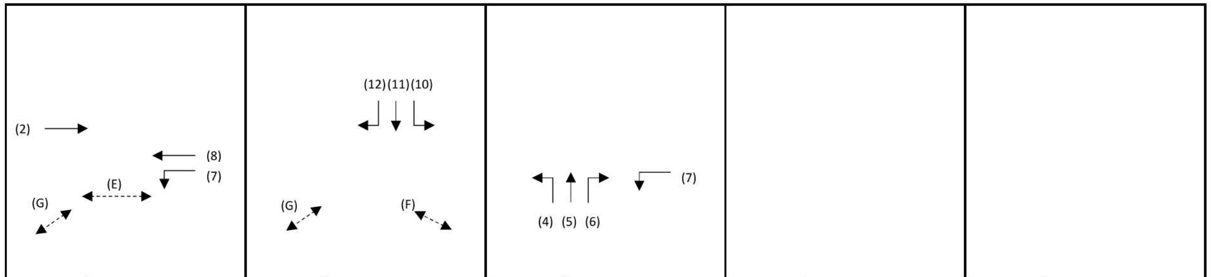
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J1_PM	PROJECT NO: 297978
J1 - Kwun Tong Road/ Elegence Road/ Lai Yip Street	2036 Reference Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3	
No. of Stage Using for Calculation		N=	3	
Cycle Time		C=	120	sec
Sum(y)		Y=	0.640	
Loss Time		L=	19	sec
Total Flow		=	3460	pcu
Co	=(1.5*L+5)/(1-Y)	=	93	sec
Cm	=L/(1-Y)	=	53	sec
Yult		=	0.758	
R.C.ult	=(Yult-Y)/Y*100%	=	18.4	%
Cp	=0.9*L/(0.9-Y)	=	65.7	sec
Ymax	=1-L/C	=	0.842	
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	18.4	%



Stage 1	Int = 7	Stage 2	Int = 6	Stage 3	Int = 9	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	E	22.00	12	2	10	28	2	10	OK
2	F	5.00	5	2	5	39	2	5	OK
1,2	G	8.00	5	2	7	78	2	7	OK
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				19				
																				0				
2	1	3.00	A	2				4110		470		470	0.00	4110		-	4110	0.114	0.218	0	18	34	0.398	28
8	1	3.30	A	2				4170		910		910	0.00	4170		-	4170	0.218			34	34	0.760	55
7	1,3	4.50	B	1	10		N	2065	200			200	1.00	1796		-	1796	0.111			18	70	0.192	14
10	2	3.00	C	1	10		N	1915	435			435	1.00	1665		-	1665	0.261	0.261	0	41	41	0.760	50
11	2	3.30	C	1				2085		202		202	0.00	2085		-	2085	0.097			15	41	0.282	22
11,12	2	3.30	C	1	25			2085		8	205	213	0.96	1971		230	2201	0.097			15	41	0.282	23
4,5	3	3.30	D	1	25		N	1945	380	31		411	0.92	1843		720	2563	0.160	0.160	0	25	25	0.760	56
5,6	3	3.30	D	1	15			2085		284	45	329	0.14	2057		-	2057	0.160			25	25	0.758	46
6	3	3.30	D	1	10			2085			290	290	1.00	1813		-	1813	0.160			25	25	0.758	41
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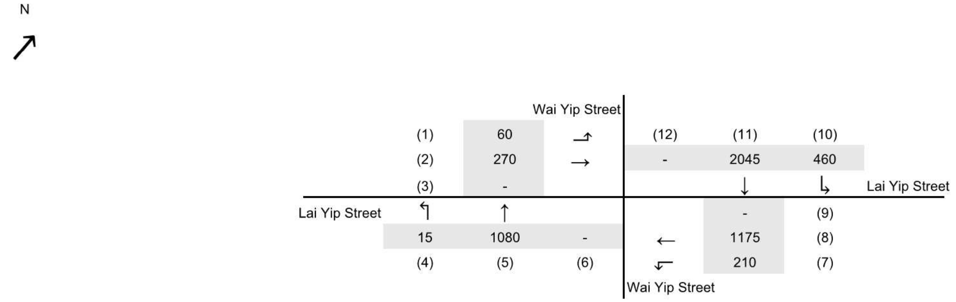
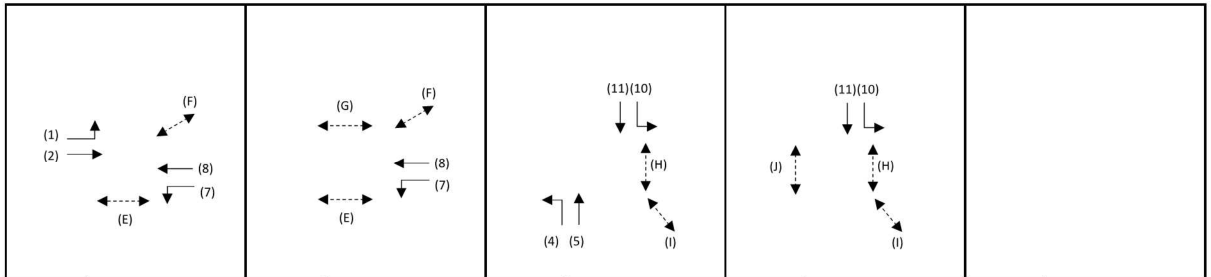
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J2_AM	PROJECT NO: 297978
J2 - Lai Yip Street/ Wai Yip Street	2036 Reference Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4	
No. of Stage Using for Calculation		N=	2	
Cycle Time		C=	120	sec
Sum(y)		Y=	0.632	
Loss Time		L=	20	sec
Total Flow		=	5315	pcu
Co	=(1.5*L+5)/(1-Y)	=	95	sec
Cm	=L/(1-Y)	=	54	sec
Yult		=	0.750	
R.C.ult	=(Yult-Y)/Y*100%	=	18.7	%
Cp	=0.9*L/(0.9-Y)	=	67.1	sec
Ymax	=1-L/C	=	0.833	
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	18.7	%



Stage 1	Int =	Stage 2	Int = 13	Stage 3	Int =	Stage 4	Int = 9	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2	E	18.00	10	9	6	32	9	6	OK
1,2	F	5.00	5	5	3	39	5	3	OK
2	G	18.00	12	10	6	14	10	6	OK
3,4	H	20.00	17	5	10	58	5	10	OK
3,4	I	6.00	5	5	1	67	5	1	OK
4	J	22.00	11	9	5	26	9	5	OK
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			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				20				
																				0				
1,2	1	3.30	A	1	10		N	1945	60	101		161	0.37	1992			1992	0.081			13	13	0.746	27
2	1	3.30	A	1				2085		169		169	0.00	2085		-	2085	0.081			13	13	0.748	28
7,8	1,2	3.00	B	1	20		N	1915	210	260		470	0.45	1853		260	2113	0.222	0.223	0	35	35	0.757	57
8	1,2	3.00	B	2				4110		915		915	0.00	4110		-	4110	0.223			35	35	0.758	54
4,5	3	3.00	C	1	15		N	1915	15	332		347	0.04	1907			1907	0.182			29	29	0.753	46
5	3	3.00	C	2				4110		748		748	0.00	4110		-	4110	0.182			29	29	0.753	48
10,11	3,4	3.30	D	1	30		N	1945	460	340		800	0.58	1891		65	1956	0.409	0.409	0	65	65	0.758	63
11	3,4	3.30	D	2				4170		1705		1705	0.00	4170		-	4170	0.409			65	65	0.758	65
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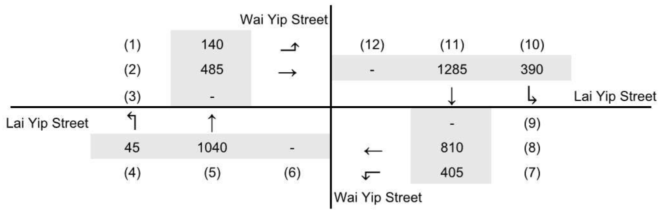
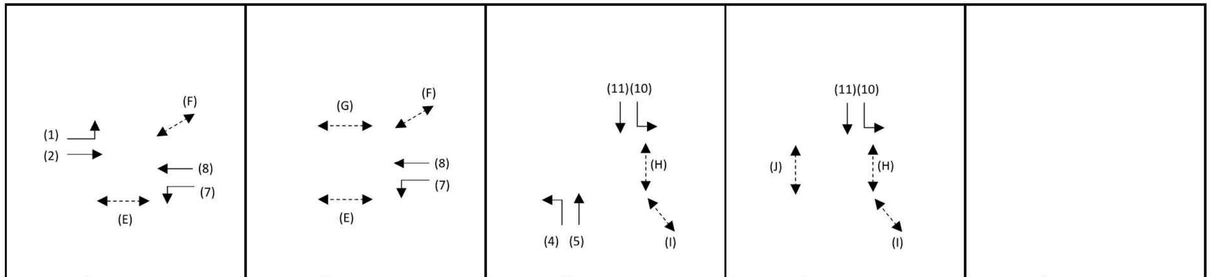
OVE ARUP & PARTNERS	**TRAFFIC SIGNAL CALCULATION**		
Junction Assessment		SHEET: J2_PM	PROJECT NO: 297978
J2 - Lai Yip Street/ Wai Yip Street	2036 Reference Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4	
No. of Stage Using for Calculation		N=	2	
Cycle Time		C=	120	sec
Sum(y)		Y=	0.480	
Loss Time		L=	38	sec
Total Flow		=	4600	pcu
Co	=(1.5*L+5)/(1-Y)	=	119	sec
Cm	=L/(1-Y)	=	73	sec
Yult		=	0.615	
R.C.ult	=(Yult-Y)/Y*100%	=	28.2	%
Cp	=0.9*L/(0.9-Y)	=	81.3	sec
Ymax	=1-L/C	=	0.683	
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	28.2	%



Stage 1	Int =	Stage 2	Int = 13	Stage 3	Int =	Stage 4	Int = 9	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2	E	18.00	10	9	6	44	9	6	OK
1,2	F	5.00	5	5	3	51	5	3	OK
2	G	18.00	12	10	6	12	10	6	OK
3,4	H	20.00	17	5	10	46	5	10	OK
3,4	I	6.00	5	5	1	55	5	1	OK
4	J	22.00	11	9	5	12	9	5	OK
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			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				20				
																				0				
1,2	1	3.30	A	1	10		N	1945	140	164		304	0.46	1969			1969	0.154			26	27	0.686	40
2	1	3.30	A	1				2085		321		321	0.00	2085		-	2085	0.154			26	27	0.684	42
7,8	1,2	3.00	B	1	20		N	1915	405	0		405	1.00	1781		190	1971	0.205	0.205	12	35	47	0.523	41
8	1,2	3.00	B	2				4110		810		810	0.00	4110		-	4110	0.197			34	47	0.502	41
4,5	3	3.00	C	1	15		N	1915	45	297		342	0.13	1890			1890	0.181			31	31	0.700	43
5	3	3.00	C	2				4110		743		743	0.00	4110		-	4110	0.181			31	31	0.700	46
10,11	3,4	3.30	D	1	30		N	1945	390	142		532	0.73	1876		65	1941	0.274	0.274	6	47	53	0.622	50
11	3,4	3.30	D	2				4170		1143		1143	0.00	4170		-	4170	0.274			47	53	0.622	53
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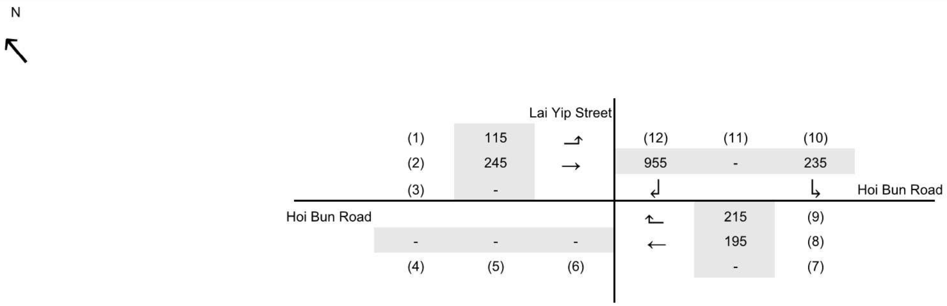
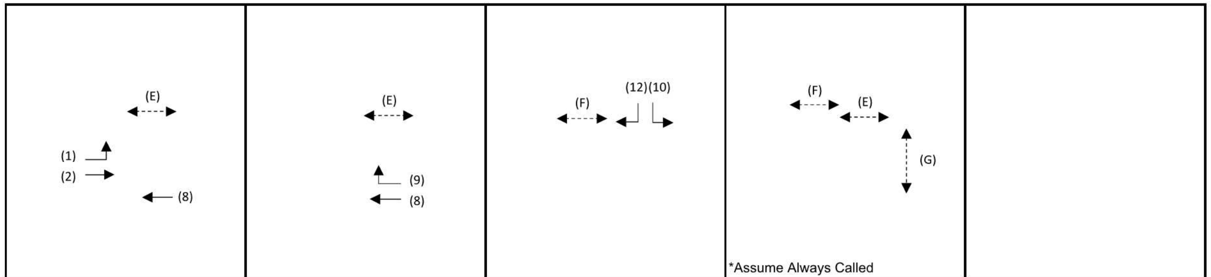
OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION	
Junction Assessment		SHEET: J3_AM	PROJECT NO: 297978
J3 - Lai Yip Street/ Hoi Bun Road	2036 Reference Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	3
Cycle Time		C=	120 sec
Sum(y)		Y=	0.479
Loss Time		L=	34 sec
Total Flow		=	1960 pcu
Co	=(1.5*L+5)/(1-Y)	=	107 sec
Cm	=L/(1-Y)	=	65 sec
Yult		=	0.645
R.C.ult	=(Yult-Y)/Y*100%	=	34.6 %
Cp	=0.9*L/(0.9-Y)	=	72.7 sec
Ymax	=1-L/C	=	0.717
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	34.6 %



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2,4	E	10.00	12	0	9	61	0	9	OK
3,4	F	5.00	7	9	6	52	9	6	OK
4	G	8.00	7	3	7	7	3	7	OK
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				17				
																			S4	17				
1	1	3.25	A	1	10		N	1940	115			115	1.00	1687		-	1687	0.068	0.118	0	12	21	0.387	16
2	1	3.25	A	1				2080		245		245	0.00	2080		-	2080	0.118			21	21	0.668	34
8	1,2	3.00	B	1			N	1915		195		195	0.00	1915		-	1915	0.102			18	44	0.279	21
9	2	3.00	C	1	15			2055			215	215	1.00	1868		-	1868	0.115	0.115	0	21	21	0.668	31
10	3	3.30	D	1	15		N	1945	235			235	1.00	1768		-	1768	0.133	0.246	0	24	44	0.361	25
12	3	3.30	D	2	20			4170			955	955	1.00	3879		-	3879	0.246			44	44	0.668	50
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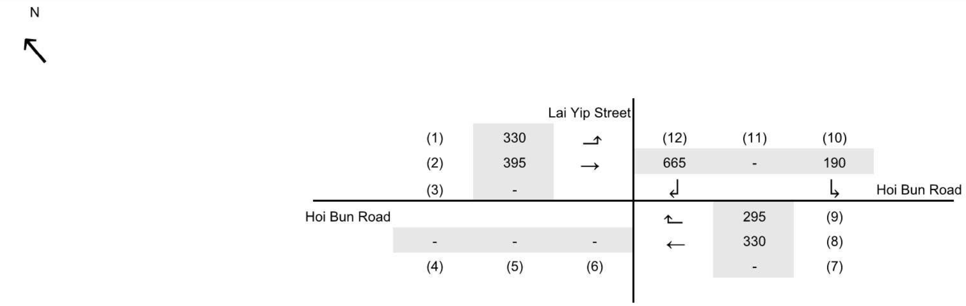
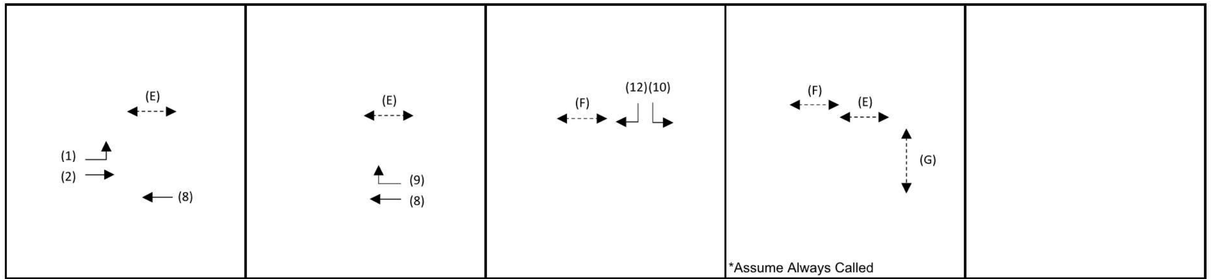
OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION	
Junction Assessment		SHEET: J3_PM	PROJECT NO: 297978
J3 - Lai Yip Street/ Hoi Bun Road	2036 Reference Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4	
No. of Stage Using for Calculation		N=	3	
Cycle Time		C=	120	sec
Sum(y)		Y=	0.525	
Loss Time		L=	34	sec
Total Flow		=	2205	pcu
Co	=(1.5*L+5)/(1-Y)	=	118	sec
Cm	=L/(1-Y)	=	72	sec
Yult		=	0.645	
R.C.ult	=(Yult-Y)/Y*100%	=	22.9	%
Cp	=0.9*L/(0.9-Y)	=	81.6	sec
Ymax	=1-L/C	=	0.717	
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	22.9	%



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2,4	E	10.00	12	0	9	77	0	9	OK
3,4	F	5.00	7	9	6	36	9	6	OK
4	G	8.00	7	3	7	7	3	7	OK
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				17				
																			S4	17				
1	1	3.25	A	1	10		N	1940	330			330	1.00	1687		-	1687	0.196	0.196	0	32	32	0.733	42
2	1	3.25	A	1				2080		395		395	0.00	2080		-	2080	0.190			31	32	0.711	49
8	1,2	3.00	B	1			N	1915		330		330	0.00	1915		-	1915	0.172			28	60	0.345	28
9	2	3.00	C	1	15			2055			295	295	1.00	1868		-	1868	0.158	0.158	0	26	26	0.733	40
10	3	3.30	D	1	15		N	1945	190			190	1.00	1768		-	1768	0.107	0.171	0	18	28	0.459	24
12	3	3.30	D	2	20			4170			665	665	1.00	3879		-	3879	0.171			28	28	0.733	43
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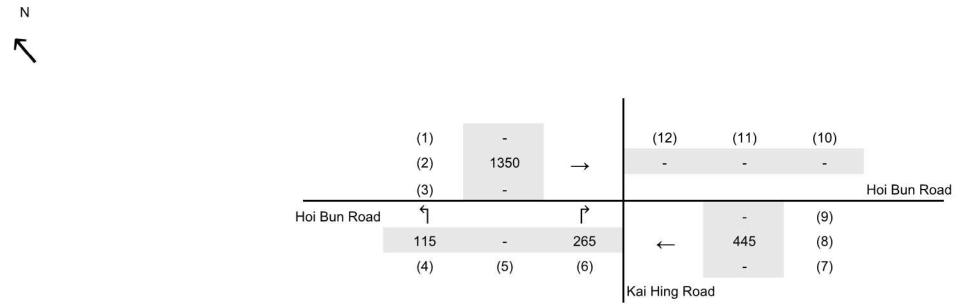
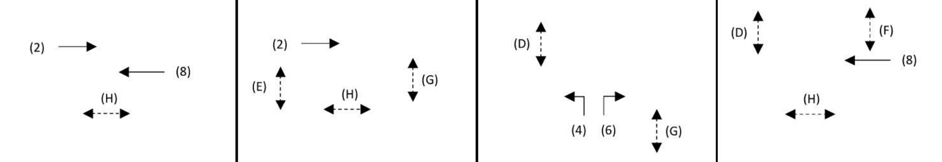
OVE ARUP & PARTNERS | **TRAFFIC SIGNAL CALCULATION**

Junction Assessment		SHEET: J4_AM	PROJECT NO: 297978
J4 - Kai Hing Road/ Hoi Bun Road	2036 Reference Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	2
Cycle Time		C=	130 sec
Sum(y)		Y=	0.461
Loss Time		L=	42 sec
Total Flow		=	2175 pcu
Co	=(1.5*L+5)/(1-Y)	=	126 sec
Cm	=L/(1-Y)	=	78 sec
Yult		=	0.585
R.C.ult	=(Yult-Y)/Y*100%	=	26.9 %
Cp	=0.9*L/(0.9-Y)	=	86.1 sec
Ymax	=1-L/C	=	0.677
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	32.2 %



Stage 1	Int =	Stage 2	Int = 12	Stage 3	Int = 11	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3,4	D	7.00	5	2	7	47	2	7	OK
2	E	6.75	5	6	10	46	6	10	OK
4	F	6.50	5	10	6	5	10	6	OK
2,3	G	6.75	5	2	9	86	2	9	OK
1,2,4	H	10.50	7	2	10	83	2	10	OK
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				21				
																			S4	21				
2	1,2	3.50	A	2			N	4070		1350		1350	0.00	4070		-	4070	0.332	0.332	0	63	63	0.681	63
8	1,4	3.30	B	2			N	4030		445		445	0.00	4030		-	4030	0.110			21	22	0.652	33
4	3	5.00	C	1	12.5		N	2115	115			115	1.00	1888		-	1888	0.061	0.129	0	12	25	0.321	17
4,6	3	5.00	C	1	15			2255	0		265	265	1.00	2050		-	2050	0.129			25	25	0.681	39
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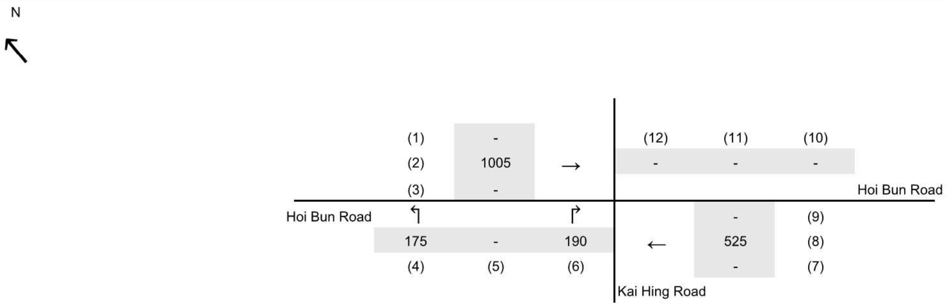
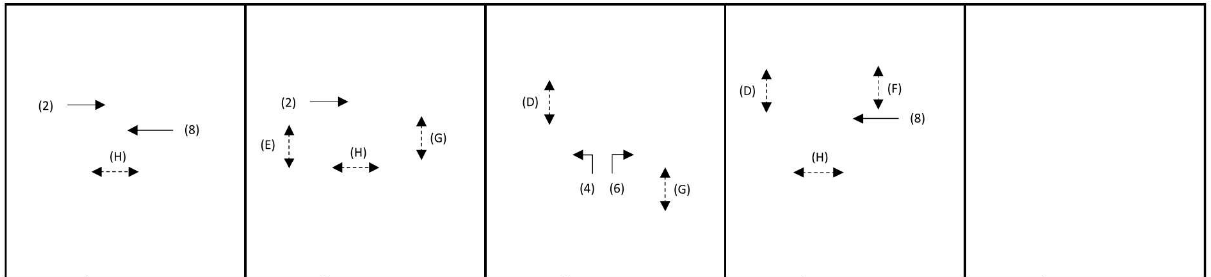
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J4_PM	PROJECT NO: 297978
J4 - Kai Hing Road/ Hoi Bun Road	2036 Reference Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	2
Cycle Time		C=	130 sec
Sum(y)		Y=	0.340
Loss Time		L=	42 sec
Total Flow		=	1895 pcu
Co	=(1.5*L+5)/(1-Y)	=	103 sec
Cm	=L/(1-Y)	=	64 sec
Yult		=	0.585
R.C.ult	=(Yult-Y)/Y*100%	=	72.3 %
Cp	=0.9*L/(0.9-Y)	=	67.5 sec
Ymax	=1-L/C	=	0.677
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	79.4 %



Stage 1	Int =	Stage 2	Int = 12	Stage 3	Int = 11	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3,4	D	7.00	5	2	7	46	2	7	OK
2	E	6.75	5	6	10	35	6	10	OK
4	F	6.50	5	10	6	5	10	6	OK
2,3	G	6.75	5	2	9	74	2	9	OK
1,2,4	H	10.50	7	2	10	84	2	10	OK
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				21				
																			S4	21				
2	1,2	3.50	A	2			N	4070		1005		1005	0.00	4070		-	4070	0.247	0.247	0	64	64	0.502	46
8	1,4	3.30	B	2			N	4030		525		525	0.00	4030		-	4030	0.130			34	34	0.498	35
4	3	5.00	C	1	12.5		N	2115	175			175	1.00	1888		-	1888	0.093	0.093	0	24	24	0.502	26
4,6	3	5.00	C	1	15			2255	0		190	190	1.00	2050		-	2050	0.093			24	24	0.502	28
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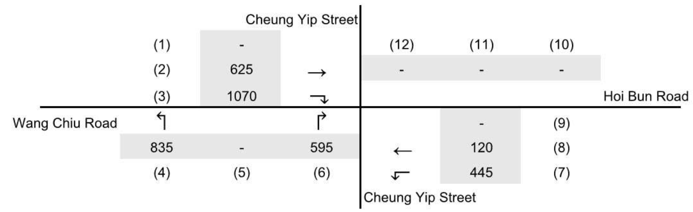
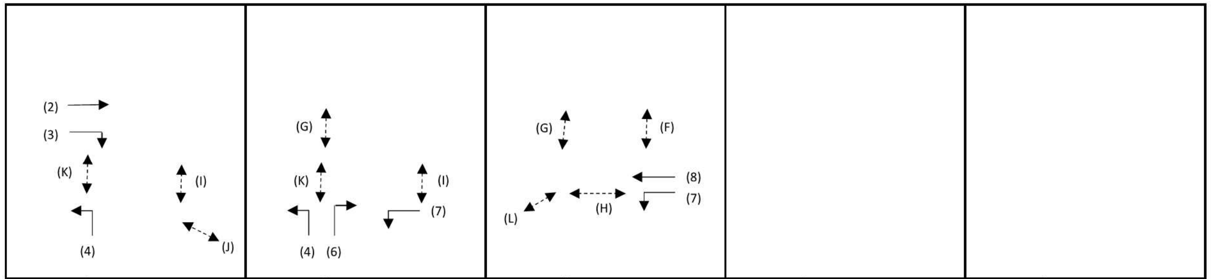
OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION		
Junction Assessment			SHEET: J5_AM	PROJECT NO: 297978
J5 - Hoi Bun Road/ Wang Chiu Road/ Cheung Yip Street		2036 Reference Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	2
Cycle Time		C=	120 sec
Sum(y)		Y=	0.634
Loss Time		L=	19 sec
Total Flow		=	3690 pcu
Co	=(1.5*L+5)/(1-Y)	=	92 sec
Cm	=L/(1-Y)	=	52 sec
Yult		=	0.758
R.C.ult	=(Yult-Y)/Y*100%	=	19.4 %
Cp	=0.9*L/(0.9-Y)	=	64.4 sec
Ymax	=1-L/C	=	0.842
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	19.4 %



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3	F	7.00	5	0	7	16	0	7	OK
2,3	G	11.00	5	0	9	41	0	9	OK
3	H	11.00	5	0	17	6	0	17	OK
1,2	I	5.00	5	0	4	93	0	4	OK
1	J	7.00	5	0	7	63	0	7	OK
1,2	K	5.00	5	0	5	92	0	5	OK
3	L	5.00	5	0	4	19	0	4	OK
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				6				
																				0				
2,3	1	3.50	A	1	35		N	1965		625	209	834	0.25	1944		-	1944	0.429	0.429	0	68	68	0.753	61
3	1	3.50	A	1	30			2105			861	861	1.00	2005		-	2005	0.429			68	68	0.754	63
4	1,2	3.50	B	1	15		N	1965	835			835	1.00	1786		-	1786	0.467			74	93	0.601	31
6	2	3.50	C	2	30			4210			595	595	1.00	4010		250	4260	0.140			22	23	0.729	40
7	2,3	3.50	D	1	30		N	1965	445			445	1.00	1871		300	2171	0.205	0.205	13	33	46	0.539	46
8	3	3.50	E	1				2105		120		120	0.00	2105		-	2105	0.057			9	19	0.367	17
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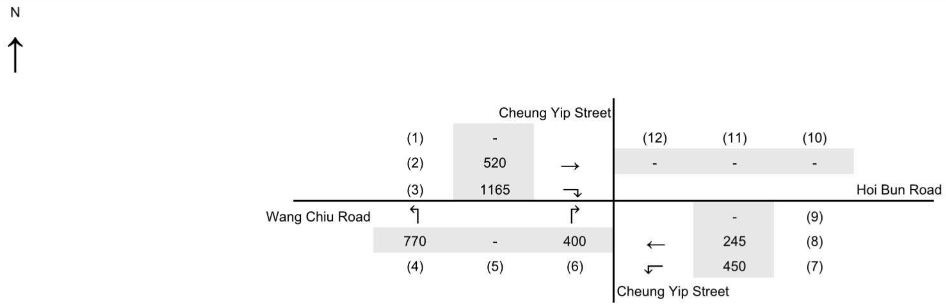
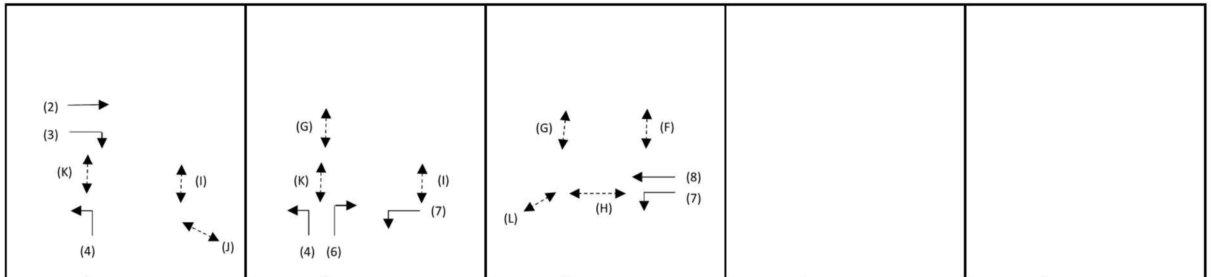
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J5_PM	PROJECT NO: 297978
J5 - Hoi Bun Road/ Wang Chiu Road/ Cheung Yip Street	2036 Reference Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	3
Cycle Time		C=	120 sec
Sum(y)		Y=	0.638
Loss Time		L=	10 sec
Total Flow		=	3550 pcu
Co	=(1.5*L+5)/(1-Y)	=	55 sec
Cm	=L/(1-Y)	=	28 sec
Yult		=	0.825
R.C.ult	=(Yult-Y)/Y*100%	=	29.3 %
Cp	=0.9*L/(0.9-Y)	=	34.4 sec
Ymax	=1-L/C	=	0.917
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	29.3 %



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3	F	7.00	5	0	7	17	0	7	OK
2,3	G	11.00	5	0	9	35	0	9	OK
3	H	11.00	5	0	17	7	0	17	OK
1,2	I	5.00	5	0	4	92	0	4	OK
1	J	7.00	5	0	7	69	0	7	OK
1,2	K	5.00	5	0	5	91	0	5	OK
3	L	5.00	5	0	4	20	0	4	OK
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
																				0				
2,3	1	3.50	A	1	35		N	1965		520	307	827	0.37	1934		-	1934	0.428	0.428	0	74	74	0.696	53
3	1	3.50	A	1	30			2105			858	858	1.00	2005		-	2005	0.428			74	74	0.696	55
4	1,2	3.50	B	1	15		N	1965	770			770	1.00	1786		-	1786	0.431			74	92	0.563	30
6	2	3.50	C	2	30			4210			400	400	1.00	4010		250	4260	0.094	0.094	0	16	16	0.696	29
7	2,3	3.50	D	1	30		N	1965	450			450	1.00	1871		300	2171	0.207			36	40	0.618	50
8	3	3.50	E	1				2105		245		245	0.00	2105		-	2105	0.116	0.116	0	20	20	0.696	35
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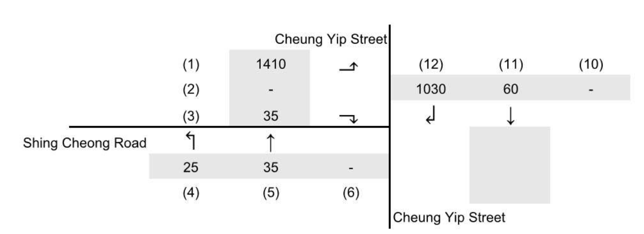
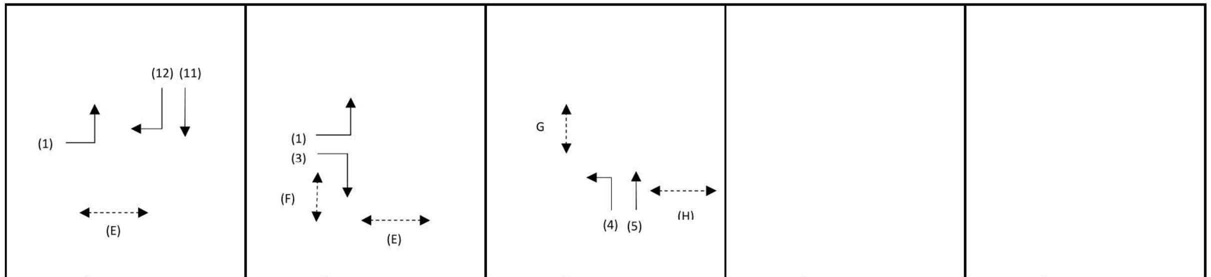
OVE ARUP & PARTNERS — TRAFFIC SIGNAL CALCULATION

Junction Assessment		SHEET: J6_AM	PROJECT NO: 297978
J6 - Cheung Yip Street/ Shing Cheong Road	2036 Reference Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	2
Cycle Time		C=	120 sec
Sum(y)		Y=	0.402
Loss Time		L=	35 sec
Total Flow		=	2595 pcu
Co	=(1.5*L+5)/(1-Y)	=	96 sec
Cm	=L/(1-Y)	=	58 sec
Yult		=	0.638
R.C.ult	=(Yult-Y)/Y*100%	=	58.7 %
Cp	=0.9*L/(0.9-Y)	=	63.2 sec
Ymax	=1-L/C	=	0.708
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	58.7 %



Stage 1	Int =	Stage 2	Int = 5	Stage 3	Int = 8	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2	E	6.00	5	0	8	89	0	8	OK
2	F	8.00	6	9	8	6	9	8	OK
3	G	11.00	10	2	8	13	2	8	OK
3	H	6.00	5	10	7	6	10	7	OK
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
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			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				11				
																				0				
11,12	1	3.50	B	1	15		N	1965		60	484	544	0.89	1804		-	1804	0.301			64	64	0.565	42
12	1	3.30	B	1	10			2085			546	546	1.00	1813		-	1813	0.301			64	64	0.565	42
1	1,2	3.30	A	2	15		N	4030	1410			1410	1.00	3664		-	3664	0.385	0.385	12	81	93	0.494	26
3	2	3.50	D	1	10			2105			35	35	1.00	1830		-	1830	0.019			4	19	0.118	5
4	3	3.50	C	1	15		N	1965	25			25	1.00	1786		-	1786	0.014	0.017	12	3	16	0.108	4
5	3	3.30	C	1				2085		35		35	0.00	2085		-	2085	0.017			4	16	0.130	5
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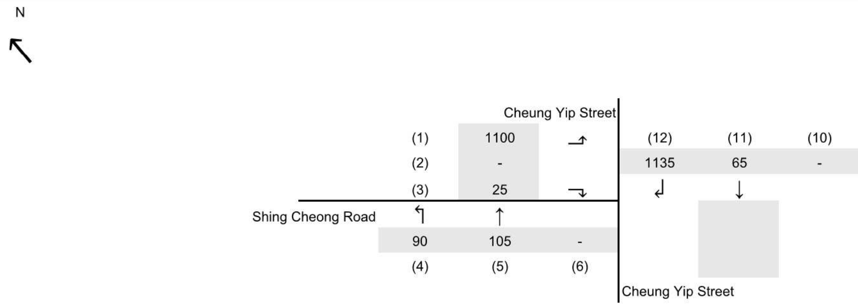
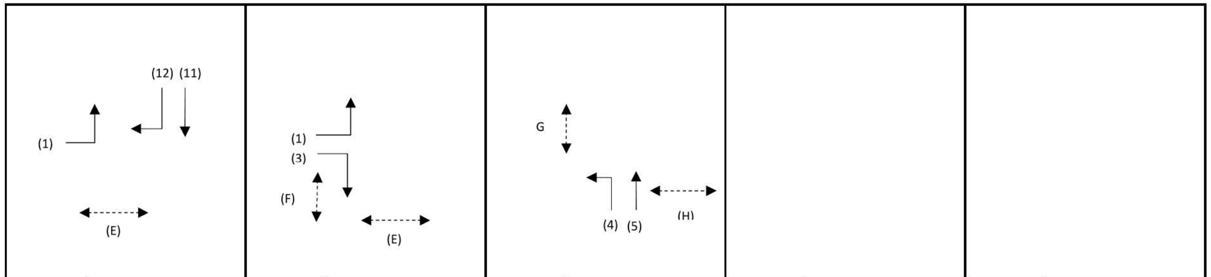
OVE ARUP & PARTNERS | **TRAFFIC SIGNAL CALCULATION**

Junction Assessment | SHEET: J6_PM | PROJECT NO: 297978

J6 - Cheung Yip Street/ Shing Cheong Road | 2036 Reference Case Weekdays (PM Peak) | DATE: 19-Feb-25 | FILENAME:



No. of Stages per Cycle		N=	3	
No. of Stage Using for Calculation		N=	3	
Cycle Time		C=	120	sec
Sum(y)		Y=	0.396	
Loss Time		L=	44	sec
Total Flow		=	2520	pcu
Co	=(1.5*L+5)/(1-Y)	=	118	sec
Cm	=L/(1-Y)	=	73	sec
Yult		=	0.570	
R.C.ult	=(Yult-Y)/Y*100%	=	43.9	%
Cp	=0.9*L/(0.9-Y)	=	78.6	sec
Ymax	=1-L/C	=	0.633	
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	43.9	%



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2	E	6.00	5	0	8	89	0	8	OK
2	F	8.00	6	9	8	7	9	8	OK
3	G	11.00	10	2	8	13	2	8	OK
3	H	6.00	5	10	7	6	10	7	OK
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				21				
																				0				
11,12	1	3.50	B	1	15		N	1965		65	533	598	0.89	1804		-	1804	0.331	0.332	0	64	64	0.624	47
12	1	3.30	B	1	10			2085			602	602	1.00	1813		-	1813	0.332			64	64	0.625	47
1	1,2	3.30	A	2	15		N	4030	1100			1100	1.00	3664		-	3664	0.300			58	93	0.386	20
3	2	3.50	D	1	10			2105			25	25	1.00	1830		-	1830	0.014	0.014	17	3	20	0.084	3
4	3	3.50	C	1	15		N	1965	90			90	1.00	1786		-	1786	0.050	0.050	6	10	16	0.386	13
5	3	3.30	C	1				2085		105		105	0.00	2085		-	2085	0.050			10	16	0.386	15
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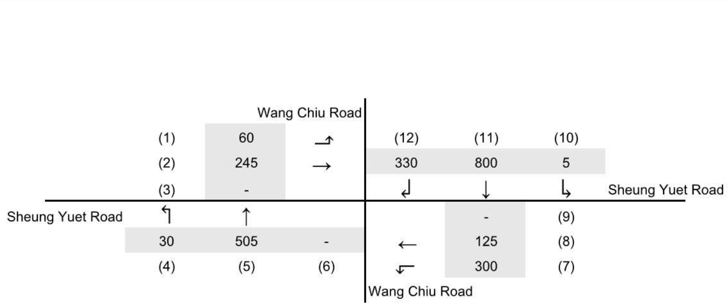
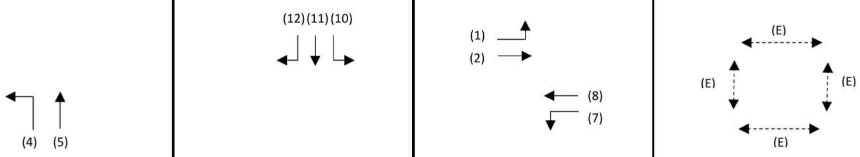
OVE ARUP & PARTNERS	**TRAFFIC SIGNAL CALCULATION**		
Junction Assessment		SHEET: J7_AM	PROJECT NO: 297978
J7 - Wang Chiu Road/ Sheung Yuet Road	2036 Reference Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4	
No. of Stage Using for Calculation		N=	3	
Cycle Time		C=	140	sec
Sum(y)		Y=	0.500	
Loss Time		L=	41	sec
Total Flow		=	2400	pcu
Co	=(1.5*L+5)/(1-Y)	=	133	sec
Cm	=L/(1-Y)	=	82	sec
Yult		=	0.593	
R.C.ult	=(Yult-Y)/Y*100%	=	18.6	%
Cp	=0.9*L/(0.9-Y)	=	92.2	sec
Ymax	=1-L/C	=	0.707	
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	27.3	%



Stage 1	Int = 6	Stage 2	Int = 7	Stage 3	Int = 8	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4	E	12.00	9	5	9	9	5	9	OK
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				18				
																			S4	23				
4,5	1	3.50	A	1	15		N	1965	30	227		257	0.12	1942		-	1942	0.132	0.132	0	26	26	0.707	42
5	1	3.50	A	1				2105		278		278	0.00	2105		-	2105	0.132			26	26	0.705	45
10,11	2	3.40	B	1	10		N	1955	5	384		389	0.01	1951		-	1951	0.199	0.200	0	39	40	0.706	54
11	2	3.30	B	1				2085		416		416	0.00	2085		-	2085	0.200			40	40	0.707	58
12	2	3.30	B	1	15			2085			330	330	1.00	1895		-	1895	0.174			34	40	0.617	46
7,8	3	3.50	C	1	15		N	1965	300	0		300	1.00	1786		-	1786	0.168	0.168	0	33	33	0.707	45
8	3	3.50	C	1				2105		125		125	0.00	2105		-	2105	0.059			12	33	0.250	19
1,2	3	3.50	C	1	15		N	1965	60	84		144	0.42	1886		-	1886	0.076			15	33	0.321	21
2	3	3.50	C	1				2105		161		161	0.00	2105		-	2105	0.076			15	33	0.322	24
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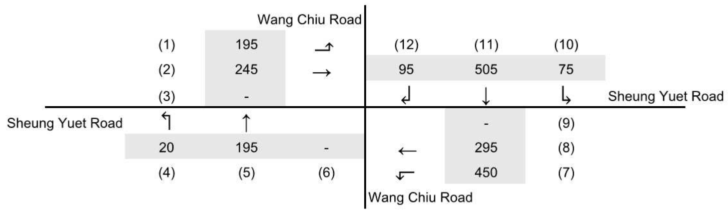
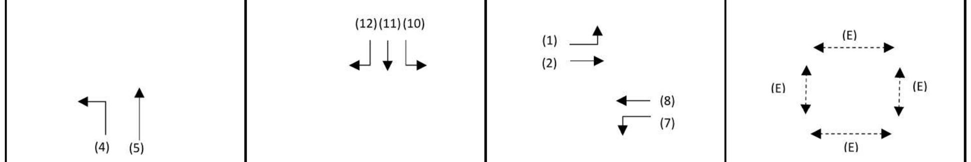
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J7_PM	PROJECT NO: 297978
J7 - Wang Chiu Road/ Sheung Yuet Road	2036 Reference Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4	
No. of Stage Using for Calculation		N=	3	
Cycle Time		C=	140	sec
Sum(y)		Y=	0.452	
Loss Time		L=	41	sec
Total Flow		=	2075	pcu
Co	=(1.5*L+5)/(1-Y)	=	121	sec
Cm	=L/(1-Y)	=	75	sec
Yult		=	0.593	
R.C.ult	=(Yult-Y)/Y*100%	=	31.2	%
Cp	=0.9*L/(0.9-Y)	=	82.3	sec
Ymax	=1-L/C	=	0.707	
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	40.9	%



Stage 1	Int = 6	Stage 2	Int = 7	Stage 3	Int = 8	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4	E	12.00	9	5	9	9	5	9	OK
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				18				
																			S4	23				
4,5	1	3.50	A	1	15		N	1965	20	83		103	0.19	1928		-	1928	0.053	0.053	0	12	12	0.639	19
5	1	3.50	A	1				2105		112		112	0.00	2105		-	2105	0.053			12	12	0.636	21
10,11	2	3.40	B	1	10		N	1955	75	200		275	0.27	1878		-	1878	0.146	0.146	0	32	32	0.639	41
11	2	3.30	B	1				2085		305		305	0.00	2085		-	2085	0.146			32	32	0.638	46
12	2	3.30	B	1	15			2085			95	95	1.00	1895		-	1895	0.050			11	32	0.219	14
7,8	3	3.50	C	1	15		N	1965	450	0		450	1.00	1786		-	1786	0.252	0.252	0	55	55	0.639	53
8	3	3.50	C	1				2105		295		295	0.00	2105		-	2105	0.140			31	55	0.355	35
1,2	3	3.50	C	1	15		N	1965	195	7		202	0.97	1792		-	1792	0.113			25	55	0.286	24
2	3	3.50	C	1				2105		238		238	0.00	2105		-	2105	0.113			25	55	0.287	28
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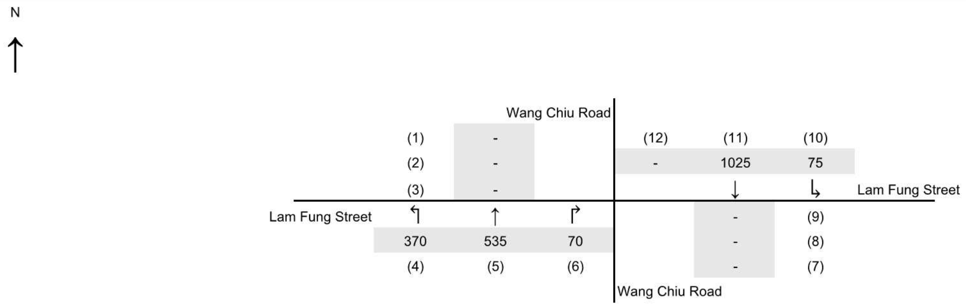
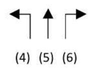
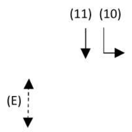
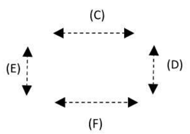
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J8_AM	PROJECT NO: 297978
J8 - Wang Chiu Road/ Lam Fung Street	2036 Reference Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3	
No. of Stage Using for Calculation		N=	2	
Cycle Time		C=	120	sec
Sum(y)		Y=	0.437	
Loss Time		L=	36	sec
Total Flow		=	2075	pcu
Co	=(1.5*L+5)/(1-Y)	=	105	sec
Cm	=L/(1-Y)	=	64	sec
Yult		=	0.630	
R.C.ult	=(Yult-Y)/Y*100%	=	44.2	%
Cp	=0.9*L/(0.9-Y)	=	70.0	sec
Ymax	=1-L/C	=	0.700	
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	44.2	%







Stage 1	Int = 5	Stage 2	Int = 9	Stage 3	Int =	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3	C	11.00	10	0	9	15	0	9	OK
3	D	8.00	5	3	11	10	3	11	OK
2,3	E	9.00	5	6	14	64	6	14	OK
3	F	9.00	11	3	10	11	3	10	OK
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
																			S3	24				
4	1	3.50	A	1	15		N	1965	294			294	1.00	1786		-	1786	0.165	0.165	0	32	32	0.624	36
4,5	1	3.50	A	1	18			2105	76	264		340	0.22	2067		-	2067	0.165			32	32	0.623	42
5,6	1	3.50	A	1	18			2105		271	70	341	0.21	2070		-	2070	0.165			32	32	0.624	42
10,11	2	3.50	B	1	15		N	1965	75	452		527	0.14	1937		-	1937	0.272	0.272	0	52	52	0.624	50
11	2	3.50	B	1				2105		573		573	0.00	2105		-	2105	0.272			52	52	0.624	54
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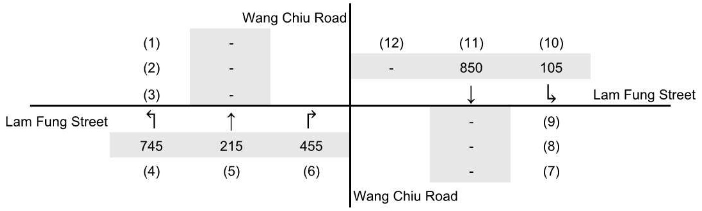
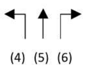
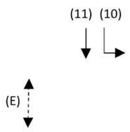
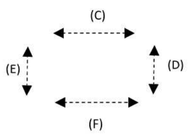
OVE ARUP & PARTNERS	**TRAFFIC SIGNAL CALCULATION**		
Junction Assessment		SHEET: J8_PM	PROJECT NO: 297978
J8 - Wang Chiu Road/ Lam Fung Street	2036 Reference Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3	
No. of Stage Using for Calculation		N=	2	
Cycle Time		C=	120	sec
Sum(y)		Y=	0.484	
Loss Time		L=	36	sec
Total Flow		=	2370	pcu
Co	=(1.5*L+5)/(1-Y)	=	114	sec
Cm	=L/(1-Y)	=	70	sec
Yult		=	0.630	
R.C.ult	=(Yult-Y)/Y*100%	=	30.1	%
Cp	=0.9*L/(0.9-Y)	=	77.9	sec
Ymax	=1-L/C	=	0.700	
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	30.1	%







Stage 1	Int = 5	Stage 2	Int = 9	Stage 3	Int =	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3	C	11.00	10	0	9	15	0	9	OK
3	D	8.00	5	3	11	10	3	11	OK
2,3	E	9.00	5	6	14	53	6	14	OK
3	F	9.00	11	3	10	11	3	10	OK
			-		-		-	-	-
			-		-		-	-	-
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
																			S3	24				
4	1	3.50	A	1	15		N	1965	440			440	1.00	1786		-	1786	0.246	0.247	0	43	43	0.690	47
4,5	1	3.50	A	1	18			2105	305	189		494	0.62	2002		-	2002	0.247			43	43	0.692	53
5,6	1	3.50	A	1	18			2105		26	455	481	0.95	1951		-	1951	0.247			43	43	0.691	52
10,11	2	3.50	B	1	15		N	1965	105	351		456	0.23	1921		-	1921	0.237	0.237	0	41	41	0.692	50
11	2	3.50	B	1				2105		499		499	0.00	2105		-	2105	0.237			41	41	0.691	55
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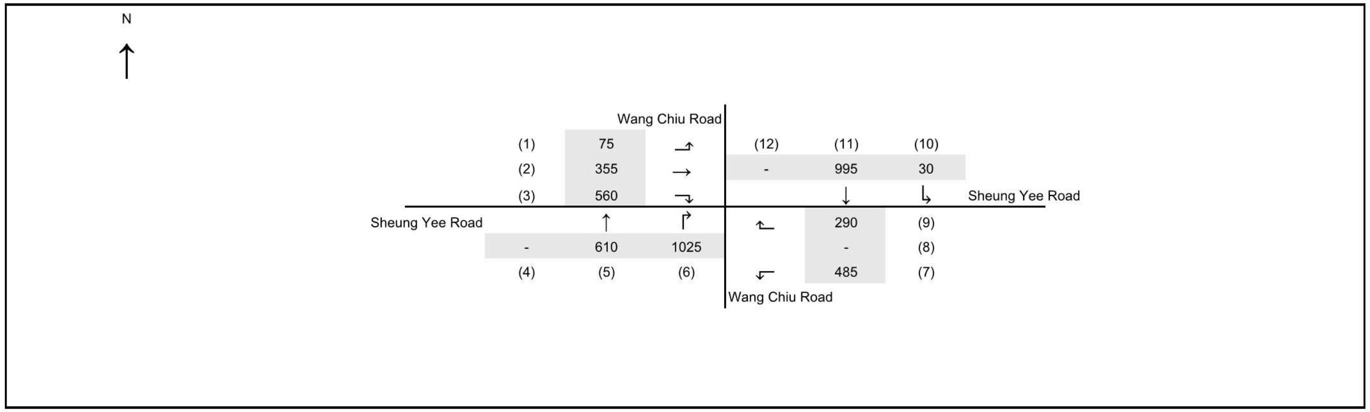
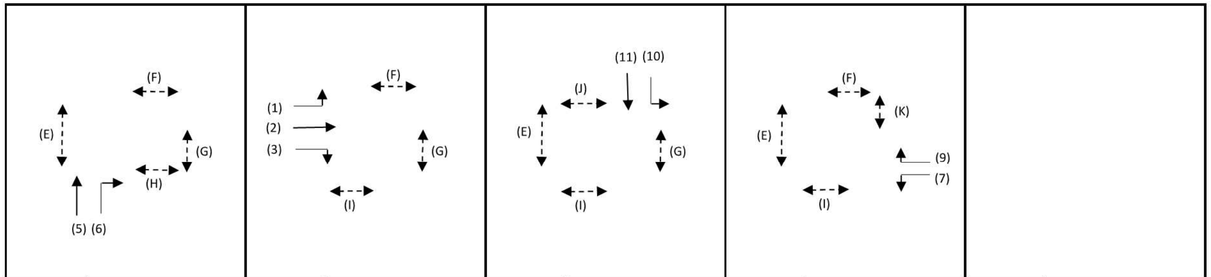
OVE ARUP & PARTNERS | **TRAFFIC SIGNAL CALCULATION**

Junction Assessment		SHEET: J9_AM	PROJECT NO: 297978
J9 - Wang Chiu Road/ Sheung Yee Road	2036 Reference Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	4
Cycle Time		C=	140 sec
Sum(y)		Y=	0.671
Loss Time		L=	16 sec
Total Flow		=	4425 pcu
Co	=(1.5*L+5)/(1-Y)	=	88 sec
Cm	=L/(1-Y)	=	49 sec
Yult		=	0.780
R.C.ult	=(Yult-Y)/Y*100%	=	16.2 %
Cp	=0.9*L/(0.9-Y)	=	62.9 sec
Ymax	=1-L/C	=	0.886
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	18.8 %



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,3,4	E	11.00	9	2	21	92	2	21	OK
1,2,4	F	6.00	5	2	11	92	2	11	OK
1,2,3	G	6.00	5	2	7	102	2	7	OK
1	H	6.00	5	8	7	36	8	7	OK
2,3,4	I	6.00	5	2	13	74	2	13	OK
3	J	8.00	5	6	10	19	6	10	OK
4	K	8.00	5	6	9	14	6	9	OK
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			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
																				0				
5	1	3.50	A	2			N	4070		610		610	0.00	4070		-	4070	0.150	0.256	0	28	47	0.444	39
6	1	3.50	A	2	30			4210			1025	1025	1.00	4010		-	4010	0.256			47	47	0.758	66
1	2	3.50	B	1	15		N	1965	75			75	1.00	1786		-	1786	0.042	0.114	0	8	21	0.280	12
1,2	2	3.50	B	1	20			2105	0	239		239	0.00	2105		-	2105	0.114			21	21	0.758	42
2,3	2	3.50	B	1	30			2105		116	117	233	0.50	2053		-	2053	0.113			21	21	0.757	41
3	2	3.50	B	2	20			4210			443	443	1.00	3916		-	3916	0.113			21	21	0.755	38
10,11	3	3.50	C	1	15		N	1965	30	294		324	0.09	1947		-	1947	0.166	0.167	0	31	31	0.757	52
11	3	3.50	C	2				4210		701		701	0.00	4210		-	4210	0.167			31	31	0.758	54
7	4	3.50	D	1	15		N	1965	242			242	1.00	1786		-	1786	0.135	0.135	0	25	25	0.758	41
7,9	4	3.50	D	1	20			2105	243		22	265	1.00	1958		-	1958	0.135			25	25	0.757	45
9	4	3.50	D	1	25			2105			268	268	1.00	1986		-	1986	0.135			25	25	0.755	45
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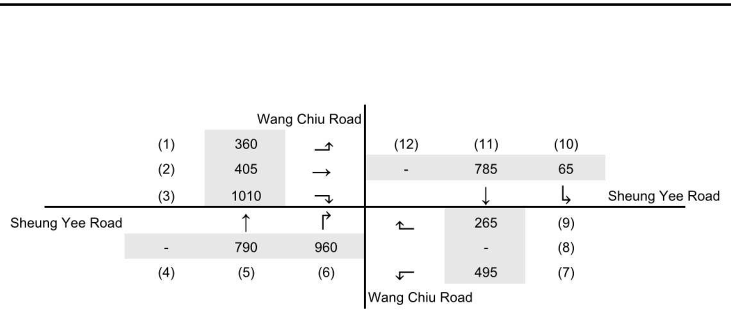
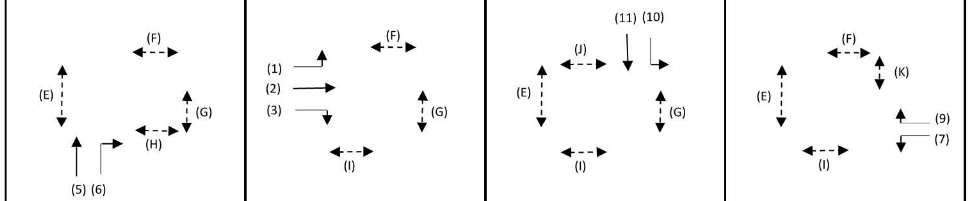
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J9_PM	PROJECT NO: 297978
J9 - Wang Chiu Road/ Sheung Yee Road	2036 Reference Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4	
No. of Stage Using for Calculation		N=	4	
Cycle Time		C=	140	sec
Sum(y)		Y=	0.692	
Loss Time		L=	16	sec
Total Flow		=	5135	pcu
Co	=(1.5*L+5)/(1-Y)	=	94	sec
Cm	=L/(1-Y)	=	52	sec
Yult		=	0.780	
R.C.ult	=(Yult-Y)/Y*100%	=	12.7	%
Cp	=0.9*L/(0.9-Y)	=	69.3	sec
Ymax	=1-L/C	=	0.886	
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	15.1	%



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,3,4	A	11.00	9	2	21	81	2	21	OK
1,2,4	B	6.00	5	2	11	98	2	11	OK
1,2,3	C	6.00	5	2	7	103	2	7	OK
1	D	6.00	5	8	7	32	8	7	OK
2,3,4	E	6.00	5	2	13	78	2	13	OK
3	F	8.00	5	6	10	13	6	10	OK
4	G	8.00	5	6	9	13	6	9	OK
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			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
																				0				
5	1	3.50	A	2			N	4070		790		790	0.00	4070		-	4070	0.194	0.239	0	35	43	0.634	53
6	1	3.50	A	2	30			4210			960	960	1.00	4010		-	4010	0.239			43	43	0.782	66
1	2	3.50	B	1	15		N	1965	324			324	1.00	1786		-	1786	0.181	0.181	0	32	32	0.782	52
1,2	2	3.50	B	1	20			2105	36	342		378	0.10	2090		-	2090	0.181			32	32	0.779	60
2,3	2	3.50	B	1	30			2105		63	303	366	0.83	2021		-	2021	0.181			32	32	0.780	58
3	2	3.50	B	2	20			4210			707	707	1.00	3916		-	3916	0.181			32	32	0.778	54
10,11	3	3.50	C	1	15		N	1965	65	201		266	0.24	1918		-	1918	0.139	0.139	0	25	25	0.781	46
11	3	3.50	C	2				4210		584		584	0.00	4210		-	4210	0.139			25	25	0.782	48
7	4	3.50	D	1	15		N	1965	237			237	1.00	1786		-	1786	0.133	0.133	0	24	24	0.781	42
7,9	4	3.50	D	1	20			2105	258		2	260	1.00	1958		-	1958	0.133			24	24	0.782	46
9	4	3.50	D	1	25			2105			263	263	1.00	1986		-	1986	0.132			24	24	0.780	46
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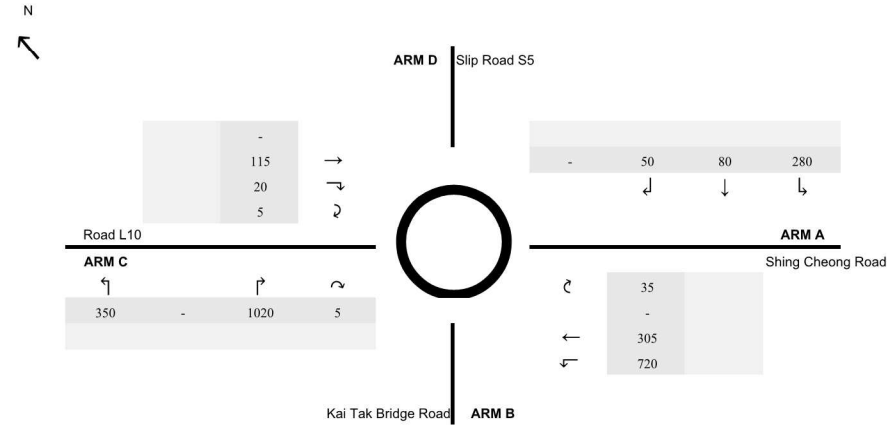
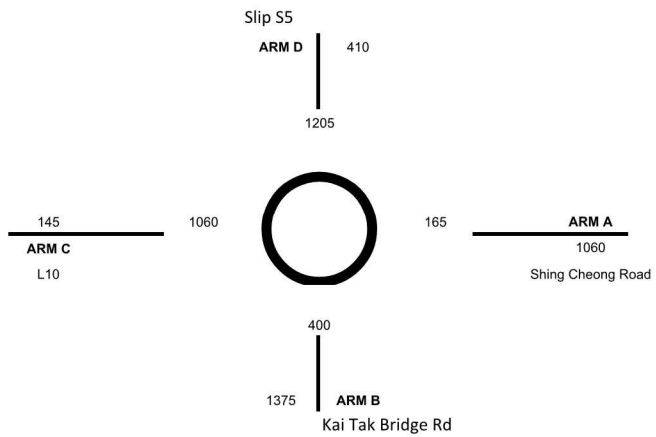
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
Junction Assessment		SHEET: J10_AM	PROJECT NO: 297978
J10 - Shing Cheong Road/ Slip Road S5/ Road L10	2036 Reference Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



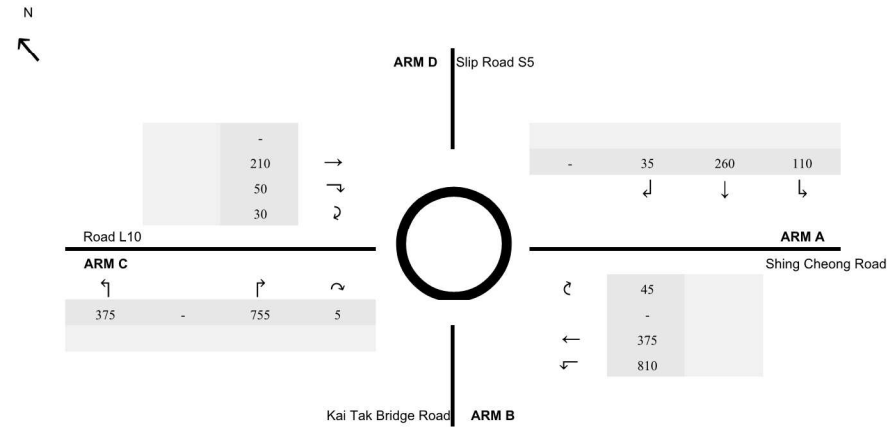


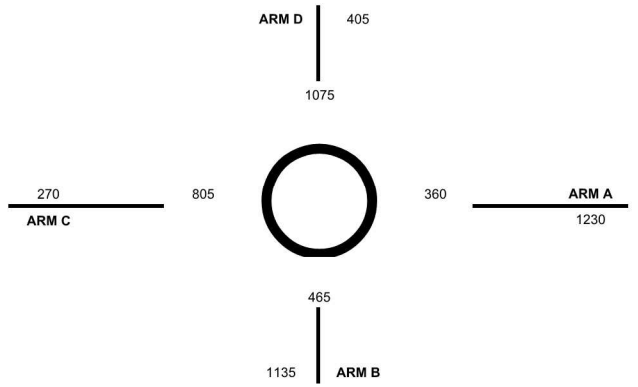
ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.50	7.60	6.00	3.70
E	=	Entry width (m)	10.00	8.00	10.00	8.30
L	=	Effective length of flare (m)	10	11.4	10.1	15
R	=	Entry radius (m)	25	25	25	25
D	=	Inscribed circle diameter (m)	46	46	46	46
A	=	Entry angle (degree)	10	30	40	30
Q	=	Entry flow (pcu/h)	1060	1375	145	410
Qc	=	Circulating flow across entry (pcu/h)	165	400	1060	1205
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.40	0.06	0.63	0.49
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.08	1.01	0.98	1.01
X2	=	V + ((E-V)/(1+2S))	8.89	7.96	7.76	6.02
M	=	EXP((D-60)/10)	0.25	0.25	0.25	0.25
F	=	303*X2	2693	2412	2353	1825
Td	=	1+(0.5/(1+M))	1.40	1.40	1.40	1.40
Fc	=	0.21*Td(1+0.2*X2)	0.82	0.76	0.75	0.65
Qe	=	K(F-Fc*Qc)	2761	2127	1518	1053
DFC	=	Design flow/Capacity = Q/Qe	0.38	0.65	0.10	0.39

Total In Sum = 2990 PCU

DFC of Critical Approach = 0.65

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
Junction Assessment		SHEET: J10_PM	PROJECT NO: 297978
J10 - Shing Cheong Road/ Slip Road S5/ Road L10	2036 Reference Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



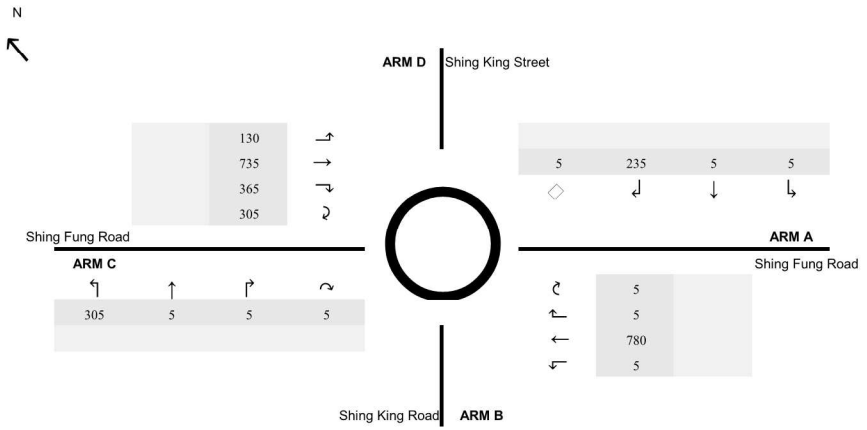


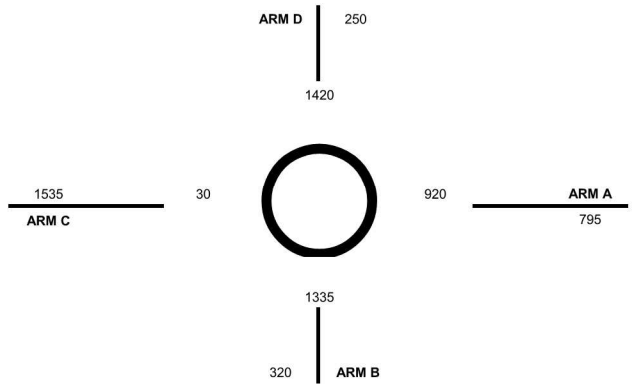
ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.50	7.60	6.00	3.70
E	=	Entry width (m)	10.00	8.00	10.00	8.30
L	=	Effective length of flare (m)	10	11.4	10.1	15
R	=	Entry radius (m)	25	25	25	25
D	=	Inscribed circle diameter (m)	46	46	46	46
A	=	Entry angle (degree)	10	30	40	30
Q	=	Entry flow (pcu/h)	1230	1135	270	405
Qc	=	Circulating flow across entry (pcu/h)	360	465	805	1075
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.40	0.06	0.63	0.49
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.08	1.01	0.98	1.01
X2	=	V + ((E-V)/(1+2S))	8.89	7.96	7.76	6.02
M	=	EXP((D-60)/10)	0.25	0.25	0.25	0.25
F	=	303*X2	2693	2412	2353	1825
Td	=	1+(0.5/(1+M))	1.40	1.40	1.40	1.40
Fc	=	0.21*Td(1+0.2*X2)	0.82	0.76	0.75	0.65
Qe	=	K(F-Fc*Qc)	2589	2077	1704	1138
DFC	=	Design flow/Capacity = Q/Qe	0.48	0.55	0.16	0.36

Total In Sum = 3040 PCU

DFC of Critical Approach = 0.55

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
Junction Assessment		SHEET: J11_AM	PROJECT NO: 297978
J11 - Shing Fung Road	2036 Reference Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



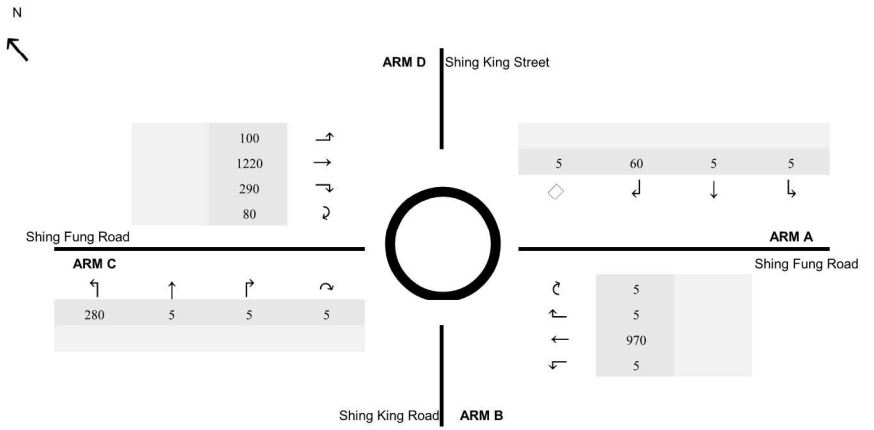


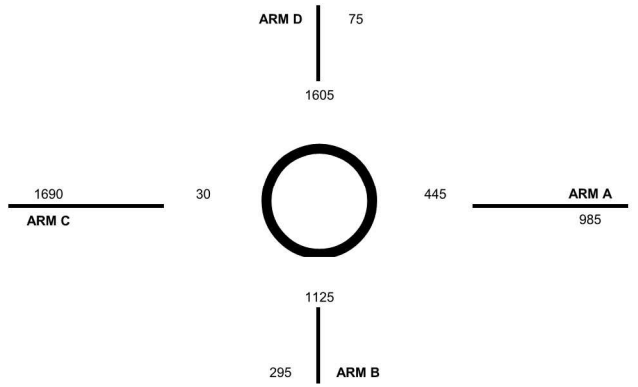
ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.30	5.60	7.30	3.70
E	=	Entry width (m)	8.20	6.00	7.40	6.00
L	=	Effective length of flare (m)	27.3	19.7	11.2	16.4
R	=	Entry radius (m)	25	25	25	25
D	=	Inscribed circle diameter (m)	46	46	46	46
A	=	Entry angle (degree)	30	30	60	10
Q	=	Entry flow (pcu/h)	795	320	1535	250
Qc	=	Circulating flow across entry (pcu/h)	920	1335	30	1420
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.05	0.03	0.01	0.22
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.01	1.01	0.91	1.08
X2	=	V + ((E-V)/(1+2S))	8.11	5.98	7.40	5.29
M	=	EXP((D-60)/10)	0.25	0.25	0.25	0.25
F	=	303*X2	2459	1811	2241	1602
Td	=	1+(0.5/(1+M))	1.40	1.40	1.40	1.40
Fc	=	0.21*Td(1+0.2*X2)	0.77	0.65	0.73	0.61
Qe	=	K(F-Fc*Qc)	1766	958	2010	801
DFC	=	Design flow/Capacity = Q/Qe	0.45	0.33	0.76	0.31

Total In Sum = 2900 PCU

DFC of Critical Approach = 0.76

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
Junction Assessment		SHEET: J11_PM	PROJECT NO: 297978
J11 - Shing Fung Road	2036 Reference Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



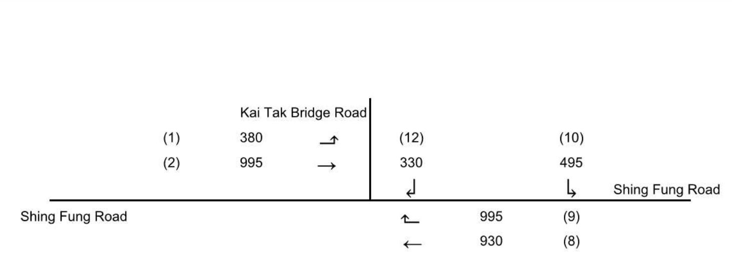


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.30	5.60	7.30	3.70
E	=	Entry width (m)	8.20	6.00	7.40	6.00
L	=	Effective length of flare (m)	27.3	19.7	11.2	16.4
R	=	Entry radius (m)	25	25	25	25
D	=	Inscribed circle diameter (m)	46	46	46	46
A	=	Entry angle (degree)	30	30	60	10
Q	=	Entry flow (pcu/h)	985	295	1690	75
Qc	=	Circulating flow across entry (pcu/h)	445	1125	30	1605
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.05	0.03	0.01	0.22
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.01	1.01	0.91	1.08
X2	=	V + ((E-V)/(1+2S))	8.11	5.98	7.40	5.29
M	=	EXP((D-60)/10)	0.25	0.25	0.25	0.25
F	=	303*X2	2459	1811	2241	1602
Td	=	1+(0.5/(1+M))	1.40	1.40	1.40	1.40
Fc	=	0.21*Td(1+0.2*X2)	0.77	0.65	0.73	0.61
Qe	=	K(F-Fc*Qc)	2136	1095	2010	680
DFC	=	Design flow/Capacity = Q/Qe	0.46	0.27	0.84	0.11

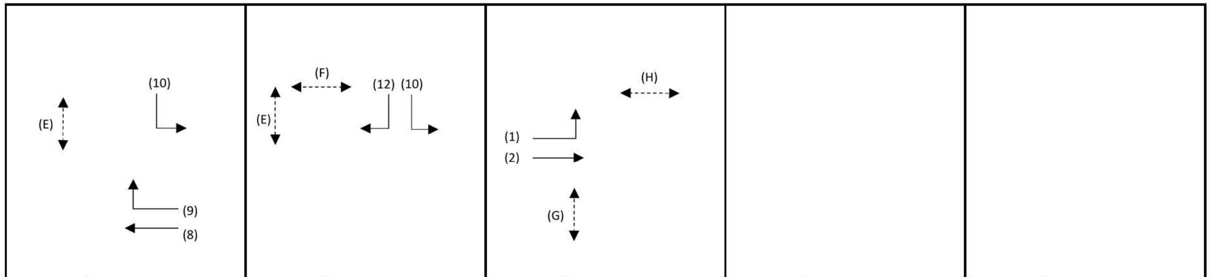
Total In Sum = 3045 PCU

DFC of Critical Approach = 0.84

Junction Assessment		SHEET: J12_AM	PROJECT NO: 297978
J12 - Shing Fung Road/ Shing Cheong Road	2036 Reference Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	3
Cycle Time		C=	120 sec
Sum(y)		Y=	0.657
Loss Time		L=	20 sec
Total Flow		=	1375 pcu
Co	=(1.5*L+5)/(1-Y)	=	102 sec
Cm	=L/(1-Y)	=	58 sec
Yult		=	0.750
R.C.ult	=(Yult-Y)/Y*100%	=	14.1 %
Cp	=0.9*L/(0.9-Y)	=	74.2 sec
Ymax	=1-L/C	=	0.833
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	14.1 %



Stage 1	Int = 5	Stage 2	Int = 13	Stage 3	Int = 5	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2	E	11.50	7	0	10	59	0	10	OK
2	F	10.00	7	0	11	14	0	11	OK
3	G	14.50	8	0	12	39	0	12	OK
3	H	15.00	8	0	7	44	0	7	OK
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			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				20				
																				0				
8	1	3.30	A	2			N	4030		930		930	0.00	4030		-	4030	0.231	0.260	0	35	40	0.700	52
9	1	3.50	A	2	15			4210			995	995	1.00	3827		-	3827	0.260			40	40	0.789	57
10	1,2	3.30	B	1	12		N	1945	495			495	1.00	1729		290	2019	0.245			37	63	0.469	39
12	2	3.40	C	2	15			4190			330	330	1.00	3809		-	3809	0.087	0.087	0	13	13	0.789	27
1,2	3	3.30	D	1	20		N	1945	380	344		724	0.52	1871		460	2331	0.311	0.311	0	47	47	0.788	76
2	3	3.40	D	1				2095		651		651	0.00	2095		-	2095	0.311			47	47	0.789	69
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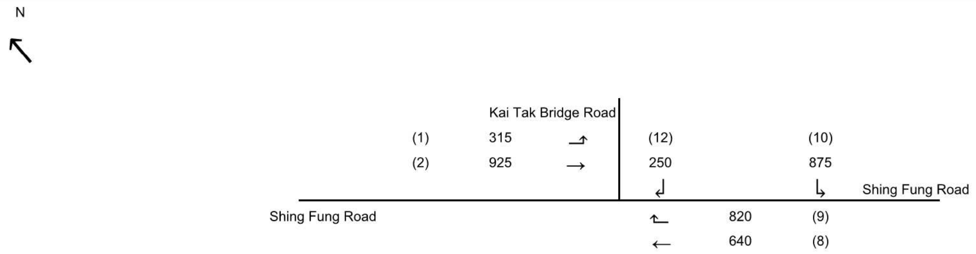
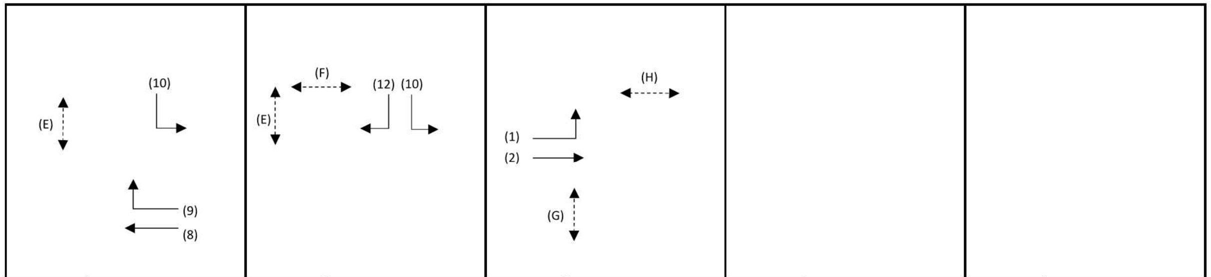
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J12_PM	PROJECT NO: 297978
J12 - Shing Fung Road/ Shing Cheong Road	2036 Reference Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3	
No. of Stage Using for Calculation		N=	2	
Cycle Time		C=	120	sec
Sum(y)		Y=	0.717	
Loss Time		L=	10	sec
Total Flow		=	1240	pcu
Co	=(1.5*L+5)/(1-Y)	=	71	sec
Cm	=L/(1-Y)	=	35	sec
Yult		=	0.825	
R.C.ult	=(Yult-Y)/Y*100%	=	15.1	%
Cp	=0.9*L/(0.9-Y)	=	49.1	sec
Ymax	=1-L/C	=	0.917	
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	15.1	%



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2	E	11.50	7	0	10	64	0	10	OK
2	F	10.00	7	0	11	26	0	11	OK
3	G	14.50	8	0	12	34	0	12	OK
3	H	15.00	8	0	7	39	0	7	OK
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			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
																				0				
8	1	3.30	A	2			N	4030		640		640	0.00	4030		-	4030	0.159			24	33	0.577	39
9	1	3.50	A	2	15			4210			820	820	1.00	3827		-	3827	0.214			33	33	0.779	51
10	1,2	3.30	B	1	12		N	1945	875			875	1.00	1729		260	1989	0.440	0.440	0	68	68	0.782	66
12	2	3.40	C	2	15			4190			250	250	1.00	3809		-	3809	0.066			10	25	0.321	17
1,2	3	3.30	D	1	20		N	1945	315	345		660	0.48	1878		510	2388	0.276	0.277	0	42	42	0.781	74
2	3	3.40	D	1				2095		580		580	0.00	2095		-	2095	0.277			42	42	0.782	66
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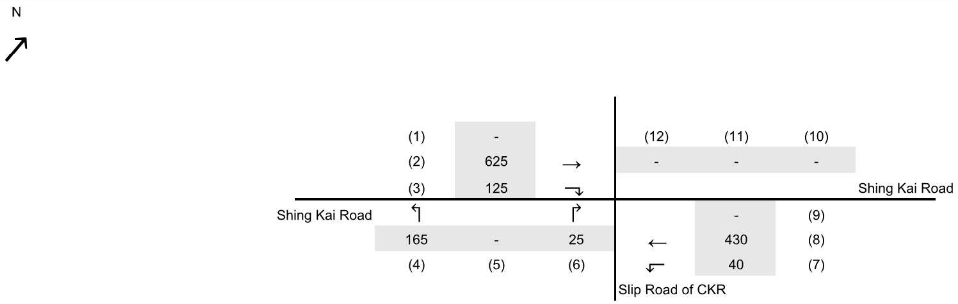
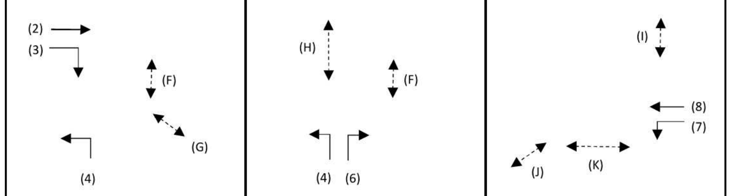
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J13_AM	PROJECT NO: 297978
J13 - Shing Kai Road/ Slip Road to CKR	2036 Reference Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	3
Cycle Time		C=	130 sec
Sum(y)		Y=	0.232
Loss Time		L=	32 sec
Total Flow		=	1410 pcu
Co	=(1.5*L+5)/(1-Y)	=	69 sec
Cm	=L/(1-Y)	=	42 sec
Yult		=	0.660
R.C.ult	=(Yult-Y)/Y*100%	=	184.1 %
Cp	=0.9*L/(0.9-Y)	=	43.1 sec
Ymax	=1-L/C	=	0.754
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	192.1 %



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2	F	10.00	5	6	10	79	6	10	OK
1	G	5.00	5	2	5	62	2	5	OK
2	H	25.00	14	2	10	15	2	10	OK
3	I	7.00	5	2	10	23	2	10	OK
3	J	5.00	5	2	5	28	2	5	OK
3	K	20.00	10	8	8	19	8	8	OK
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
																				0				
2	1	3.60	A	1			N	1975		302		302	0.00	1975		-	1975	0.153	0.153	0	65	65	0.308	27
2,3	1	3.60	A	1	26			2115		323	0	323	0.00	2115		-	2115	0.153			64	65	0.308	29
3	1	3.60	A	1	23			2115			125	125	1.00	1986		-	1986	0.063			27	65	0.127	11
4	1,2	5.00	D	1	35		N	2115	165			165	1.00	2028		-	2028	0.081			34	91	0.116	9
6	2	3.60	B	2	18			4230			25	25	1.00	3905		-	3905	0.006	0.006	20	3	23	0.037	2
7,8	3	4.50	C	1	35		N	2065	40	123		163	0.25	2044		190	2234	0.073	0.073	0	31	31	0.308	22
8	3	3.60	C	2				4230		307		307	0.00	4230		-	4230	0.073			31	31	0.306	21
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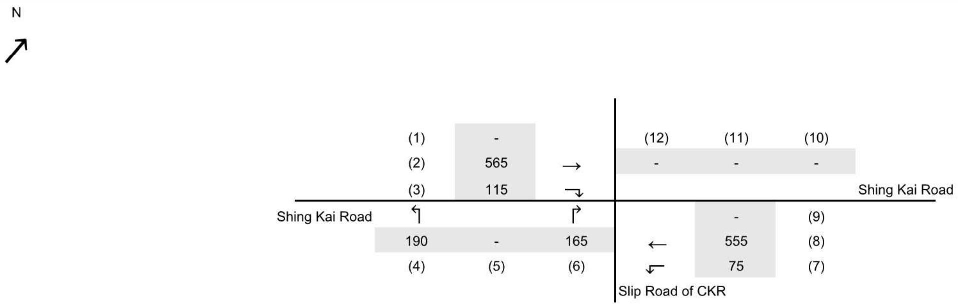
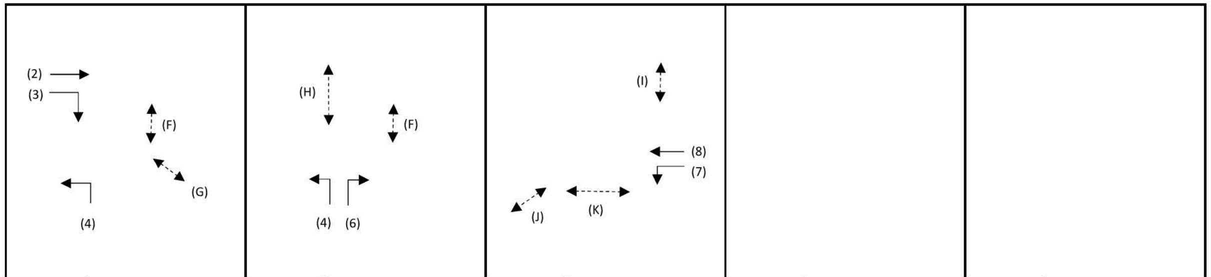
OVE ARUP & PARTNERS	**TRAFFIC SIGNAL CALCULATION**		
Junction Assessment		SHEET: J13_PM	PROJECT NO: 297978
J13 - Shing Kai Road/ Slip Road to CKR	2036 Reference Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	3
Cycle Time		C=	130 sec
Sum(y)		Y=	0.279
Loss Time		L=	17 sec
Total Flow		=	1665 pcu
Co	=(1.5*L+5)/(1-Y)	=	42 sec
Cm	=L/(1-Y)	=	24 sec
Yult		=	0.773
R.C.ult	=(Yult-Y)/Y*100%	=	177.0 %
Cp	=0.9*L/(0.9-Y)	=	24.6 sec
Ymax	=1-L/C	=	0.869
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	180.6 %



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2	F	10.00	5	6	10	70	6	10	OK
1	G	5.00	5	2	5	53	2	5	OK
2	H	25.00	14	2	10	14	2	10	OK
3	I	7.00	5	2	10	32	2	10	OK
3	J	5.00	5	2	5	37	2	5	OK
3	K	20.00	10	8	8	28	8	8	OK
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
																				0				
2	1	3.60	A	1			N	1975		273	0	273	0.00	1975		-	1975	0.138	0.138	0	56	56	0.321	28
2,3	1	3.60	A	1	26			2115		292	0	292	0.00	2115		-	2115	0.138			56	56	0.320	30
3	1	3.60	A	1	23			2115			115	115	1.00	1986		-	1986	0.058			23	56	0.134	12
4	1,2	5.00	D	1	35		N	2115	190			190	1.00	2028		-	2028	0.094			38	82	0.148	13
6	2	3.60	B	2	18			4230			165	165	1.00	3905		-	3905	0.042	0.042	5	17	22	0.248	12
7,8	3	4.50	C	1	35		N	2065	75	139		214	0.35	2034		150	2184	0.098	0.098	0	40	40	0.320	27
8	3	3.60	C	2				4230		416		416	0.00	4230		-	4230	0.098			40	40	0.321	26
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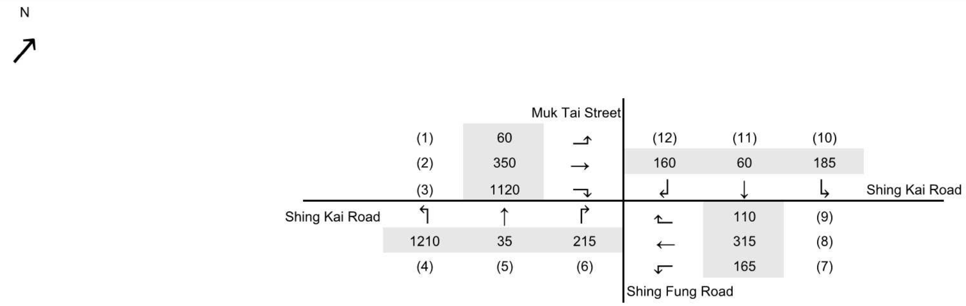
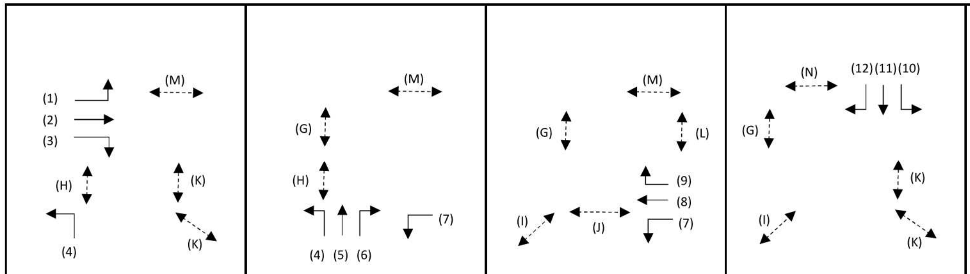
OVE ARUP & PARTNERS | **TRAFFIC SIGNAL CALCULATION**

Junction Assessment		SHEET: J14_AM	PROJECT NO: 297978
J14 - Shing Kai Road/ Shing Fung Road/ Muk Tai Street	2036 Reference Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	4
Cycle Time		C=	130 sec
Sum(y)		Y=	0.633
Loss Time		L=	25 sec
Total Flow		=	3985 pcu
Co	=(1.5*L+5)/(1-Y)	=	116 sec
Cm	=L/(1-Y)	=	68 sec
Yult		=	0.713
R.C.ult	=(Yult-Y)/Y*100%	=	12.6 %
Cp	=0.9*L/(0.9-Y)	=	84.1 sec
Ymax	=1-L/C	=	0.808
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	14.9 %



Stage 1	Int =	5	Stage 2	Int =	5	Stage 3	Int =	6	Stage 4	Int =	13	Stage 5	Int =	

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
2,3,4	G	14.50	8	2	15	62	2	15	OK
1,2	H	7.50	5	2	7	56	2	7	OK
3,4	I	7.50	5	2	8	55	2	8	OK
3	J	19.00	10	2	9	11	2	9	OK
1,4	K	8.50	5	2	7	85	2	7	OK
3	L	12.50	6	2	13	7	2	13	OK
1,2,3	M	9.00	5	2	9	76	2	9	OK
4	N	9.00	6	2	11	30	2	11	OK
			-		-		-	-	-

Movement	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				25				
																				0				
1,2	1	3.65	A	1	15		N	1980	60	135		195	0.31	1921		-	1921	0.102	0.282	0	17	47	0.282	23
2	1	3.65	A	1				2120		215		215	0.00	2120		-	2120	0.101			17	47	0.282	25
2,3	1	3.65	A	1	25			2120		0	564	564	1.00	2000		-	2000	0.282			47	47	0.783	68
3	1	3.65	A	1	20			2120			556	556	1.00	1972		-	1972	0.282			47	47	0.783	67
4	1,2	3.65	B	1	25		N	1980	589			589	1.00	1868		-	1868	0.315			52	61	0.670	56
4	1,2	3.65	B	1	20			2120	621			621	1.00	1972		-	1972	0.315			52	61	0.669	59
5,6	2	3.65	C	1	25			2120		35	91	126	0.72	2032		-	2032	0.062	0.062	0	10	10	0.779	26
6	2	3.65	C	1	23			2120			124	124	1.00	1990		-	1990	0.062			10	10	0.783	26
7	2,3	3.50	D	2	22		N	4070	165			165	1.00	3810		-	3810	0.043			7	26	0.213	12
8	3	3.50	E	1				2105		217		217	0.00	2105		-	2105	0.103	0.103	0	17	17	0.783	38
8,9	3	3.50	E	1	20			2105		98	110	208	0.53	2025		-	2025	0.103			17	17	0.780	37
10,11,12	4	3.70	F	1	20			2125	185	60	160	405	0.85	1997		190	2187	0.185	0.185	0	31	31	0.783	59
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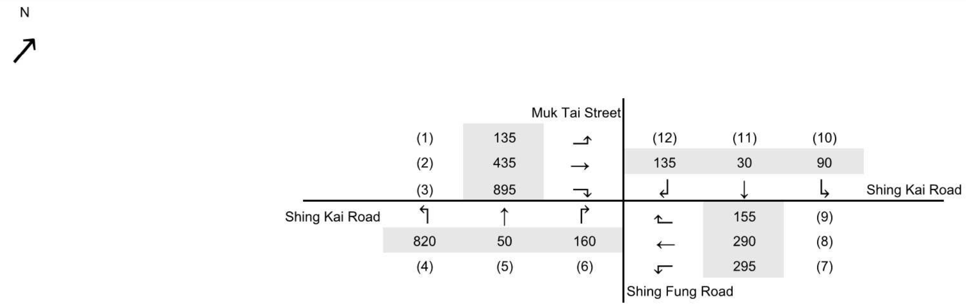
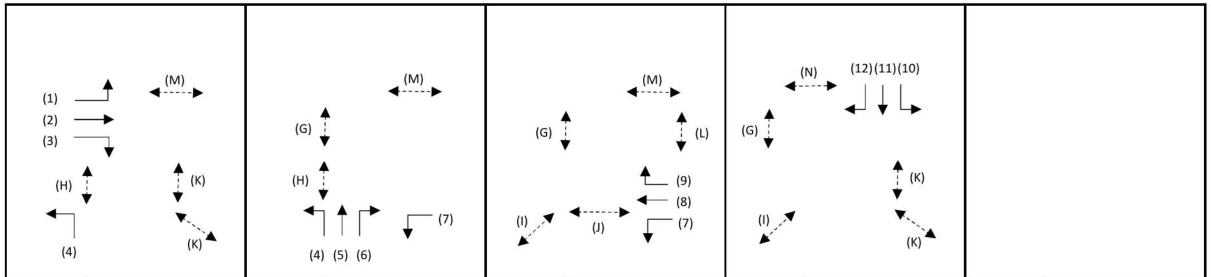
OVE ARUP & PARTNERS | **TRAFFIC SIGNAL CALCULATION**

Junction Assessment | SHEET: J14_PM | PROJECT NO: 297978

J14 - Shing Kai Road/ Shing Fung Road/ Muk Tai Street | 2036 Reference Case Weekdays (PM Peak) | DATE: 19-Feb-25 | FILENAME:



No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	4
Cycle Time		C=	130 sec
Sum(y)		Y=	0.500
Loss Time		L=	25 sec
Total Flow		=	3490 pcu
Co	=(1.5*L+5)/(1-Y)	=	85 sec
Cm	=L/(1-Y)	=	50 sec
Yult		=	0.713
R.C.ult	=(Yult-Y)/Y*100%	=	42.5 %
Cp	=0.9*L/(0.9-Y)	=	56.2 sec
Ymax	=1-L/C	=	0.808
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	45.4 %



Stage 1	Int = 5	Stage 2	Int = 5	Stage 3	Int = 6	Stage 4	Int = 13	Stage 5	Int =

	Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
F	2,3,4	G	14.50	8	2	15	62	2	15	OK
G	1,2	H	7.50	5	2	7	57	2	7	OK
H	3,4	I	7.50	5	2	8	54	2	8	OK
I	3	J	19.00	10	2	9	17	2	9	OK
K	1,4	K	8.50	5	2	7	78	2	7	OK
L	3	L	12.50	6	2	13	13	2	13	OK
M	1,2,3	M	9.00	5	2	9	83	2	9	OK
N	4	N	9.00	6	2	11	23	2	11	OK
J				-		-	-		-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				25				
																				0				
1,2	1	3.65	A	1	15		N	1980	135	133		268	0.50	1885		-	1885	0.142	0.226	0	30	47	0.390	31
2	1	3.65	A	1				2120		302		302	0.00	2120		-	2120	0.142			30	47	0.391	35
2,3	1	3.65	A	1	25			2120		0	451	451	1.00	2000		-	2000	0.226			47	47	0.619	52
3	1	3.65	A	1	20			2120			444	444	1.00	1972		-	1972	0.225			47	47	0.618	51
4	1,2	3.65	B	1	25		N	1980	399			399	1.00	1868		-	1868	0.214			45	62	0.446	38
4	1,2	3.65	B	1	20			2120	421			421	1.00	1972		-	1972	0.213			45	62	0.445	40
5,6	2	3.65	C	1	25			2120		50	57	107	0.53	2054		-	2054	0.052	0.052	0	11	11	0.619	19
6	2	3.65	C	1	23			2120			103	103	1.00	1990		-	1990	0.052			11	11	0.615	18
7	2,3	3.50	D	2	22		N	4070	295			295	1.00	3810		-	3810	0.077			16	33	0.307	20
8	3	3.50	E	1				2105		228		228	0.00	2105		-	2105	0.108	0.109	0	23	23	0.617	34
8,9	3	3.50	E	1	20			2105		62	155	217	0.71	1998		-	1998	0.109			23	23	0.619	32
10,11,12	4	3.70	F	1	20			2125	90	30	135	255	0.88	1993		250	2243	0.114	0.114	0	24	24	0.619	38
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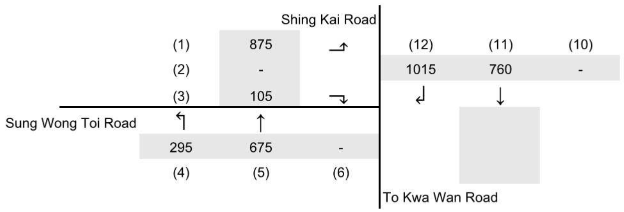
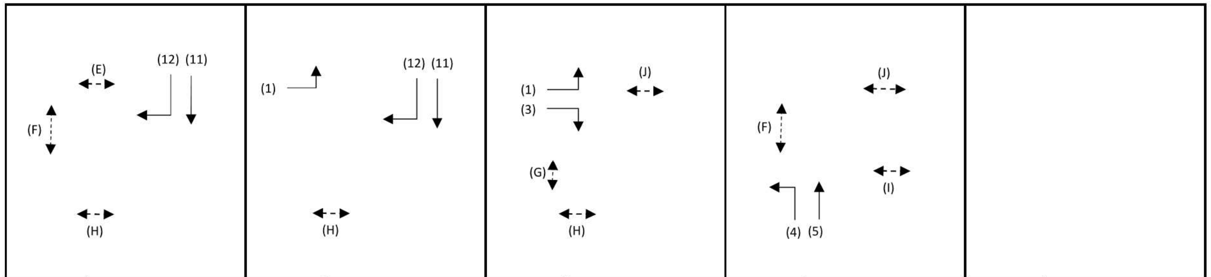
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J15_AM	PROJECT NO: 297978
J15 - Shing Kai Road/ Song Wong Toi Road/ To Kwa Wan Road	2036 Reference Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4	
No. of Stage Using for Calculation		N=	3	
Cycle Time		C=	130	sec
Sum(y)		Y=	0.566	
Loss Time		L=	15	sec
Total Flow		=	3725	pcu
Co	=(1.5*L+5)/(1-Y)	=	63	sec
Cm	=L/(1-Y)	=	35	sec
Yult		=	0.788	
R.C.ult	=(Yult-Y)/Y*100%	=	39.1	%
Cp	=0.9*L/(0.9-Y)	=	40.4	sec
Ymax	=1-L/C	=	0.885	
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	40.7	%



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	E	16.00	7	0	13	7	0	13	OK
1,4	F	16.00	8	0	15	59	0	15	OK
3	G	8.00	5	0	7	5	0	7	OK
1,2,3	H	7.30	5	0	6	70	0	6	OK
4	I	8.00	5	0	7	47	0	7	OK
3,4	J	13.50	5	0	10	57	0	10	OK
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			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
																				0				
12	1,2	4.00	A	1	30			2155			600	600	1.00	2052		-	2052	0.292	0.293	0	59	59	0.639	59
11,12	1,2	3.65	A	1	32			2120		186	415	601	0.69	2054		-	2054	0.293			59	59	0.640	59
11	1,2	3.50	A	1			N	1965		574		574	0.00	1965		-	1965	0.292			59	59	0.639	56
1	2,3	3.50	B	2	18		N	4070	875			875	1.00	3757		-	3757	0.233			47	52	0.584	47
3	3	3.50	C	2	25			4210			105	105	1.00	3972		-	3972	0.026	0.026	3	5	8	0.411	9
4,5	4	3.60	D	1	18		N	1975	295	168		463	0.64	1875		-	1875	0.247	0.247	0	50	50	0.640	51
5	4	3.00	D	1				2055		507		507	0.00	2055		-	2055	0.247			50	50	0.639	56
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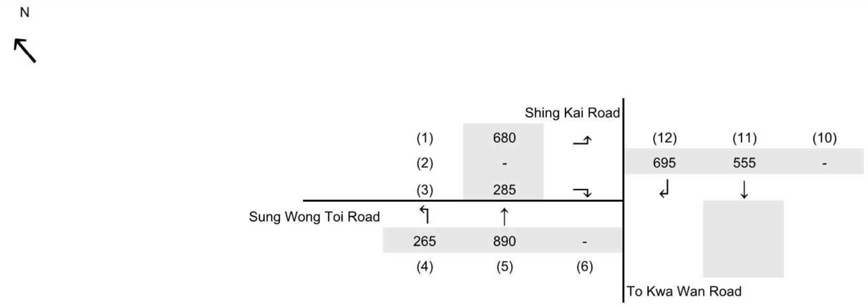
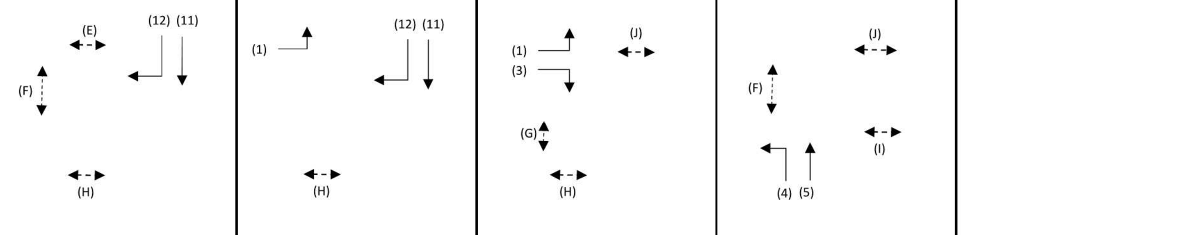
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J15_PM	PROJECT NO: 297978
J15 - Shing Kai Road/ Song Wong Toi Road/ To Kwa Wan Road	2036 Reference Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4	
No. of Stage Using for Calculation		N=	3	
Cycle Time		C=	130	sec
Sum(y)		Y=	0.570	
Loss Time		L=	12	sec
Total Flow		=	3370	pcu
Co	=(1.5*L+5)/(1-Y)	=	53	sec
Cm	=L/(1-Y)	=	28	sec
Yult		=	0.810	
R.C.ult	=(Yult-Y)/Y*100%	=	42.1	%
Cp	=0.9*L/(0.9-Y)	=	32.7	sec
Ymax	=1-L/C	=	0.908	
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	43.3	%



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	E	16.00	7	0	13	7	0	13	OK
1,4	F	16.00	8	0	15	69	0	15	OK
3	G	8.00	5	0	7	12	0	7	OK
1,2,3	H	7.30	5	0	6	60	0	6	OK
4	I	8.00	5	0	7	57	0	7	OK
3,4	J	13.50	5	0	10	73	0	10	OK
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
																				0				
12	1,2	4.00	A	1	30			2155			423	423	1.00	2052		-	2052	0.206	0.206	0	43	43	0.628	51
11,12	1,2	3.65	A	1	32			2120		151	272	423	0.64	2058		-	2058	0.206			43	43	0.626	51
11	1,2	3.50	A	1			N	1965		404		404	0.00	1965		-	1965	0.206			43	43	0.626	49
1	2,3	3.50	B	2	18		N	4070	680			680	1.00	3757		-	3757	0.181			37	42	0.567	42
3	3	3.50	C	2	25			4210			285	285	1.00	3972		-	3972	0.072	0.072	0	15	15	0.628	23
4,5	4	3.60	D	1	18		N	1975	265	290		555	0.48	1899		-	1899	0.292	0.292	0	60	60	0.628	54
5	4	3.00	D	1				2055		600		600	0.00	2055		-	2055	0.292			60	60	0.628	58
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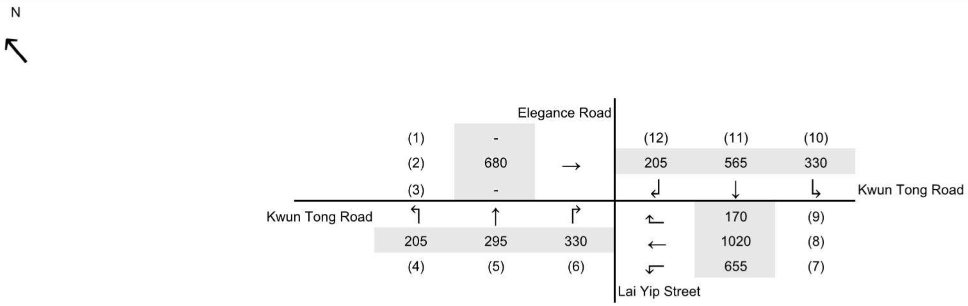
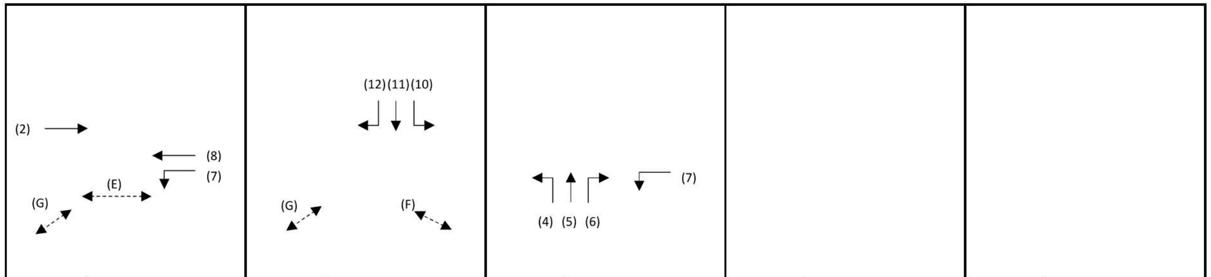
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J1_AM	PROJECT NO: 297978
J1 - Kwun Tong Road/ Elegence Road/ Lai Yip Street	2036 Design Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	3
Cycle Time		C=	120 sec
Sum(y)		Y=	0.571
Loss Time		L=	19 sec
Total Flow		=	4285 pcu
Co	=(1.5*L+5)/(1-Y)	=	78 sec
Cm	=L/(1-Y)	=	44 sec
Yult		=	0.758
R.C.ult	=(Yult-Y)/Y*100%	=	32.7 %
Cp	=0.9*L/(0.9-Y)	=	52.0 sec
Ymax	=1-L/C	=	0.842
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	32.7 %



Stage 1	Int = 7	Stage 2	Int = 6	Stage 3	Int = 9	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	E	22.00	12	2	10	37	2	10	OK
2	F	5.00	5	2	5	33	2	5	OK
1,2	G	8.00	5	2	7	80	2	7	OK
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				19				
																				0				
2	1	3.00	A	2				4110		680		680	0.00	4110		-	4110	0.165	0.245	0	29	43	0.459	36
8	1	3.30	A	2				4170		1020		1020	0.00	4170		-	4170	0.245			43	43	0.678	54
7	1,3	4.50	B	1	10		N	2065	655			655	1.00	1796		-	1796	0.365			65	76	0.576	40
10	2	3.00	C	1	10		N	1915	330			330	1.00	1665		-	1665	0.198	0.198	0	35	35	0.678	39
11	2	3.30	C	1				2085		367		367	0.00	2085		-	2085	0.176			31	35	0.602	43
11,12	2	3.30	C	1	25			2085		198	205	403	0.51	2023		270	2293	0.176			31	35	0.602	48
4,5	3	3.50	D	1	25		N	1965	205	138		343	0.60	1897		780	2677	0.128	0.128	0	23	23	0.678	46
5,6	3	3.30	D	1	15			2085		157	99	256	0.39	2007		-	2007	0.128			23	23	0.675	35
6	3	3.30	D	1	10			2085			231	231	1.00	1813		-	1813	0.127			23	23	0.674	32
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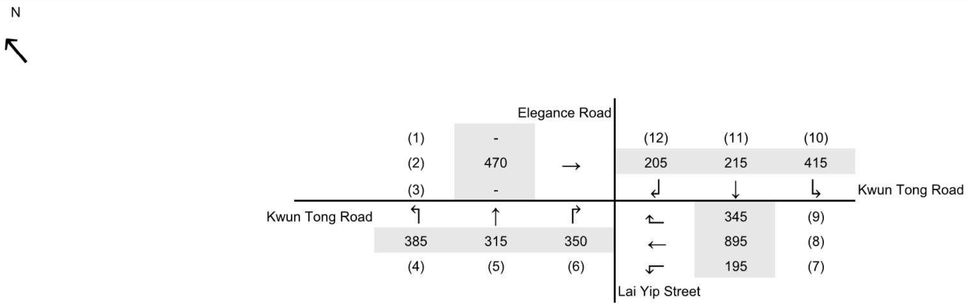
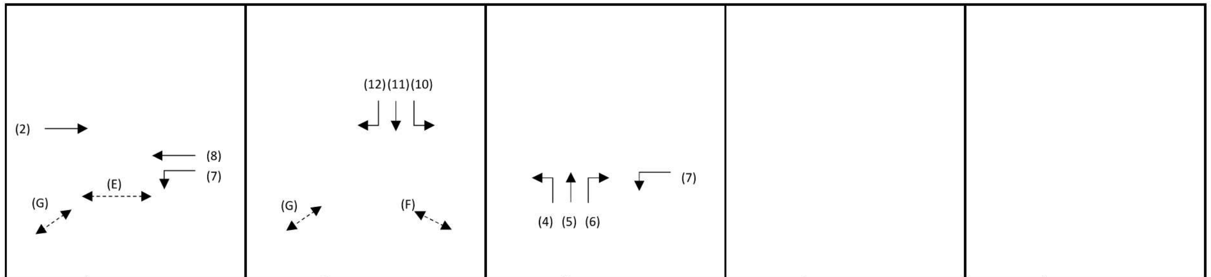
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J1_PM	PROJECT NO: 297978
J1 - Kwun Tong Road/ Elegence Road/ Lai Yip Street	2036 Design Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	3
Cycle Time		C=	120 sec
Sum(y)		Y=	0.628
Loss Time		L=	19 sec
Total Flow		=	3445 pcu
Co	=(1.5*L+5)/(1-Y)	=	90 sec
Cm	=L/(1-Y)	=	51 sec
Yult		=	0.758
R.C.ult	=(Yult-Y)/Y*100%	=	20.7 %
Cp	=0.9*L/(0.9-Y)	=	62.8 sec
Ymax	=1-L/C	=	0.842
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	20.7 %



Stage 1	Int = 7	Stage 2	Int = 6	Stage 3	Int = 9	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	E	14.00	12	2	10	29	2	10	OK
2	F	5.00	5	2	5	38	2	5	OK
1,2	G	8.00	5	2	7	77	2	7	OK
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				19				
																				0				
2	1	3.00	A	2				4110		470		470	0.00	4110		-	4110	0.114	0.215	0	18	35	0.397	28
8	1	3.30	A	2				4170		895		895	0.00	4170		-	4170	0.215			35	35	0.746	53
7	1,3	4.50	B	1	10		N	2065	195			195	1.00	1796		-	1796	0.109			17	71	0.184	13
10	2	3.00	C	1	10		N	1915	415			415	1.00	1665		-	1665	0.249	0.249	0	40	40	0.746	48
11	2	3.30	C	1				2085		204		204	0.00	2085		-	2085	0.098			16	40	0.293	23
11,12	2	3.30	C	1	25			2085		11	205	216	0.95	1973		240	2213	0.098			16	40	0.292	24
4,5	3	3.50	D	1	25		N	1965	385	33		418	0.92	1862		690	2552	0.164	0.164	0	26	26	0.746	56
5,6	3	3.30	D	1	15			2085		282	54	336	0.16	2052		-	2052	0.164			26	26	0.745	46
6	3	3.30	D	1	10			2085			296	296	1.00	1813		-	1813	0.163			26	26	0.743	41
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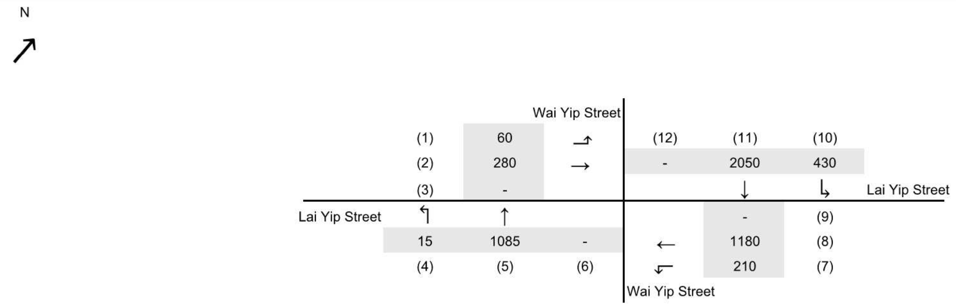
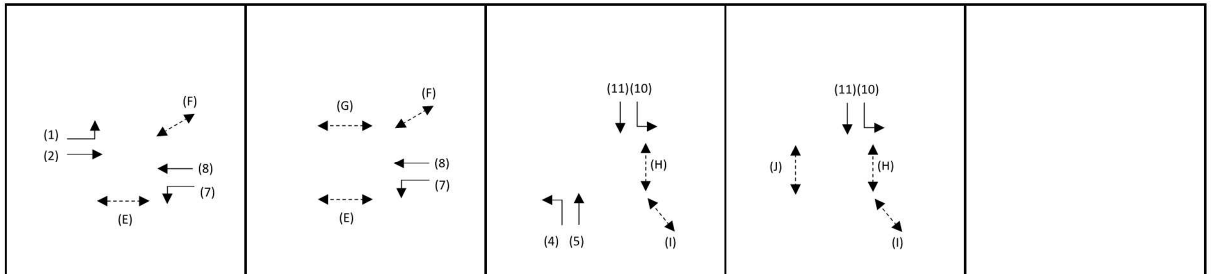
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J2_AM	PROJECT NO: 297978
J2 - Lai Yip Street/ Wai Yip Street	2036 Design Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	2
Cycle Time		C=	120 sec
Sum(y)		Y=	0.629
Loss Time		L=	20 sec
Total Flow		=	5310 pcu
Co	=(1.5*L+5)/(1-Y)	=	94 sec
Cm	=L/(1-Y)	=	54 sec
Yult		=	0.750
R.C.ult	=(Yult-Y)/Y*100%	=	19.3 %
Cp	=0.9*L/(0.9-Y)	=	66.4 sec
Ymax	=1-L/C	=	0.833
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	19.3 %



Stage 1	Int =	Stage 2	Int = 13	Stage 3	Int =	Stage 4	Int = 9	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2	E	18.00	10	9	6	33	9	6	OK
1,2	F	5.00	5	5	3	40	5	3	OK
2	G	18.00	12	10	6	14	10	6	OK
3,4	H	20.00	17	5	10	57	5	10	OK
3,4	I	6.00	5	5	1	66	5	1	OK
4	J	22.00	11	9	5	24	9	5	OK
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				20				
																				0				
1,2	1	3.30	A	1	10		N	1945	60	106		166	0.36	1995			1995	0.083			13	14	0.713	27
2	1	3.30	A	1				2085		174		174	0.00	2085		-	2085	0.083			13	14	0.715	28
7,8	1,2	3.00	B	1	20		N	1915	210	260		470	0.45	1853		250	2103	0.224	0.224	0	36	36	0.753	57
8	1,2	3.00	B	2				4110		920		920	0.00	4110		-	4110	0.224			36	36	0.754	54
4,5	3	3.00	C	1	15		N	1915	15	333		348	0.04	1907			1907	0.183			29	30	0.730	45
5	3	3.00	C	2				4110		752		752	0.00	4110		-	4110	0.183			29	30	0.732	47
10,11	3,4	3.30	D	1	30		N	1945	430	363		793	0.54	1894		65	1959	0.405	0.405	0	64	64	0.754	63
11	3,4	3.30	D	2				4170		1687		1687	0.00	4170		-	4170	0.405			64	64	0.754	65
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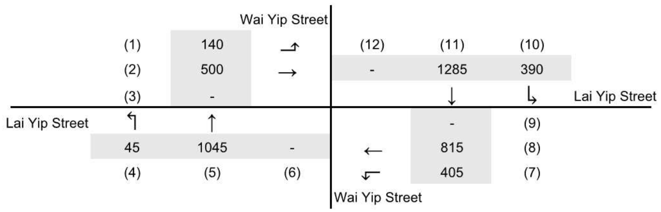
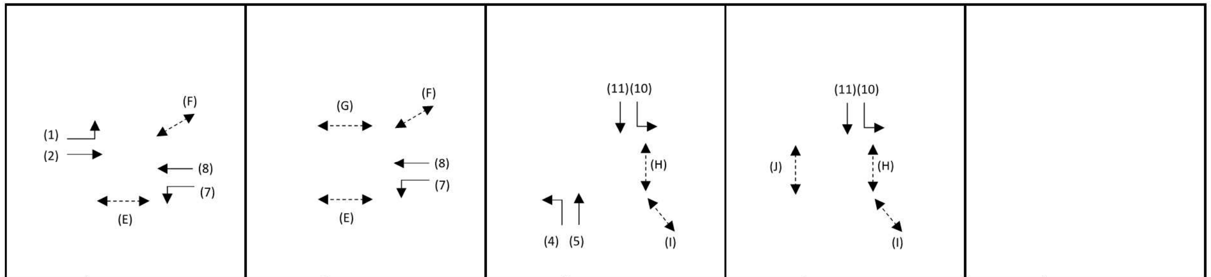
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J2_PM	PROJECT NO: 297978
J2 - Lai Yip Street/ Wai Yip Street	2036 Design Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	2
Cycle Time		C=	120 sec
Sum(y)		Y=	0.480
Loss Time		L=	39 sec
Total Flow		=	4625 pcu
Co	=(1.5*L+5)/(1-Y)	=	122 sec
Cm	=L/(1-Y)	=	75 sec
Yult		=	0.608
R.C.ult	=(Yult-Y)/Y*100%	=	26.7 %
Cp	=0.9*L/(0.9-Y)	=	83.5 sec
Ymax	=1-L/C	=	0.675
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	26.7 %



Stage 1	Int =	Stage 2	Int = 13	Stage 3	Int =	Stage 4	Int = 9	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2	E	18.00	10	9	6	45	9	6	OK
1,2	F	5.00	5	5	3	52	5	3	OK
2	G	18.00	12	10	6	13	10	6	OK
3,4	H	20.00	17	5	10	45	5	10	OK
3,4	I	6.00	5	5	1	54	5	1	OK
4	J	22.00	11	9	5	11	9	5	OK
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			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				20				
																				0				
1,2	1	3.30	A	1	10		N	1945	140	171		311	0.45	1972			1972	0.158			27	27	0.701	41
2	1	3.30	A	1				2085		329		329	0.00	2085		-	2085	0.158			27	27	0.701	43
7,8	1,2	3.00	B	1	20		N	1915	405	0		405	1.00	1781		190	1971	0.205	0.205	13	35	48	0.517	41
8	1,2	3.00	B	2				4110		815		815	0.00	4110		-	4110	0.198			33	48	0.499	41
4,5	3	3.00	C	1	15		N	1915	45	299		344	0.13	1890			1890	0.182			31	31	0.704	43
5	3	3.00	C	2				4110		746		746	0.00	4110		-	4110	0.182			31	31	0.703	46
10,11	3,4	3.30	D	1	30		N	1945	390	142		532	0.73	1876		65	1941	0.274	0.274	6	46	52	0.629	50
11	3,4	3.30	D	2				4170		1143		1143	0.00	4170		-	4170	0.274			46	52	0.629	54
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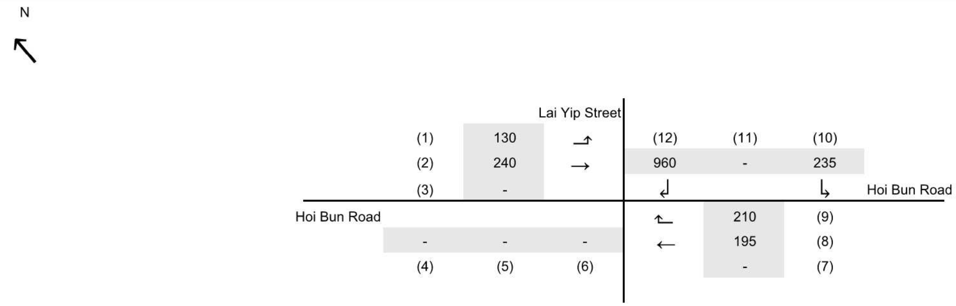
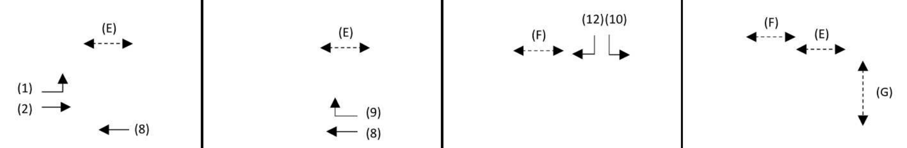
OVE ARUP & PARTNERS | **TRAFFIC SIGNAL CALCULATION**

Junction Assessment		SHEET: J3_AM	PROJECT NO: 297978
J3 - Lai Yip Street/ Hoi Bun Road	2036 Design Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4	
No. of Stage Using for Calculation		N=	3	
Cycle Time		C=	120	sec
Sum(y)		Y=	0.475	
Loss Time		L=	34	sec
Total Flow		=	1970	pcu
Co	=(1.5*L+5)/(1-Y)	=	107	sec
Cm	=L/(1-Y)	=	65	sec
Yult		=	0.645	
R.C.ult	=(Yult-Y)/Y*100%	=	35.7	%
Cp	=0.9*L/(0.9-Y)	=	72.0	sec
Ymax	=1-L/C	=	0.717	
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	35.7	%



*Assume Always Called

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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2,4	E	10.00	12	0	9	60	0	9	OK
3,4	F	5.00	7	9	6	53	9	6	OK
4	G	8.00	7	3	7	7	3	7	OK
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				17				
																			S4	17				
1	1	3.25	A	1	10		N	1940	130			130	1.00	1687		-	1687	0.077	0.115	0	14	21	0.443	18
2	1	3.25	A	1				2080		240		240	0.00	2080		-	2080	0.115			21	21	0.663	34
8	1,2	3.00	B	1			N	1915		195		195	0.00	1915		-	1915	0.102			18	43	0.283	21
9	2	3.00	C	1	15			2055			210	210	1.00	1868		-	1868	0.112	0.112	0	20	20	0.663	30
10	3	3.30	D	1	15		N	1945	235			235	1.00	1768		-	1768	0.133	0.247	0	24	45	0.356	25
12	3	3.30	D	2	20			4170			960	960	1.00	3879		-	3879	0.247			45	45	0.663	50
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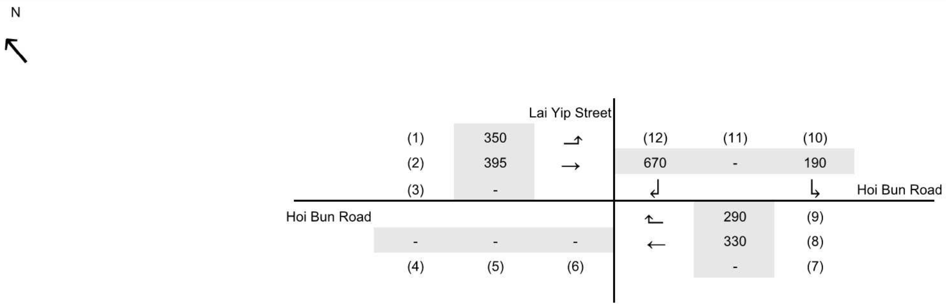
OVE ARUP & PARTNERS | **TRAFFIC SIGNAL CALCULATION**

Junction Assessment		SHEET: J3_PM	PROJECT NO: 297978
J3 - Lai Yip Street/ Hoi Bun Road	2036 Design Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4	
No. of Stage Using for Calculation		N=	3	
Cycle Time		C=	120	sec
Sum(y)		Y=	0.535	
Loss Time		L=	34	sec
Total Flow		=	2225	pcu
Co	=(1.5*L+5)/(1-Y)	=	121	sec
Cm	=L/(1-Y)	=	73	sec
Yult		=	0.645	
R.C.ult	=(Yult-Y)/Y*100%	=	20.5	%
Cp	=0.9*L/(0.9-Y)	=	83.9	sec
Ymax	=1-L/C	=	0.717	
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	20.5	%

*Assume Always Called

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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2,4	E	10.00	12	0	9	77	0	9	OK
3,4	F	5.00	7	9	6	36	9	6	OK
4	G	8.00	7	3	7	7	3	7	OK
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Movement	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				17				
																			S4	17				
1	1	3.25	A	1	10		N	1940	350			350	1.00	1687		-	1687	0.207	0.207	0	33	33	0.747	44
2	1	3.25	A	1				2080		395		395	0.00	2080		-	2080	0.190			31	33	0.684	48
8	1,2	3.00	B	1			N	1915		330		330	0.00	1915		-	1915	0.172			28	60	0.343	27
9	2	3.00	C	1	15			2055			290	290	1.00	1868		-	1868	0.155	0.155	0	25	25	0.747	40
10	3	3.30	D	1	15		N	1945	190			190	1.00	1768		-	1768	0.107	0.173	0	17	28	0.465	24
12	3	3.30	D	2	20			4170			670	670	1.00	3879		-	3879	0.173			28	28	0.747	44
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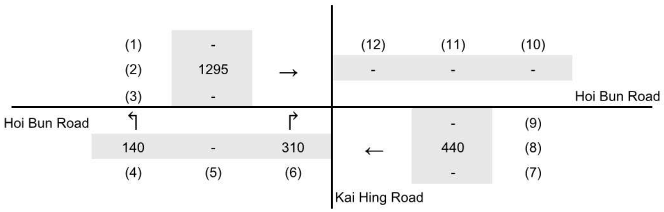
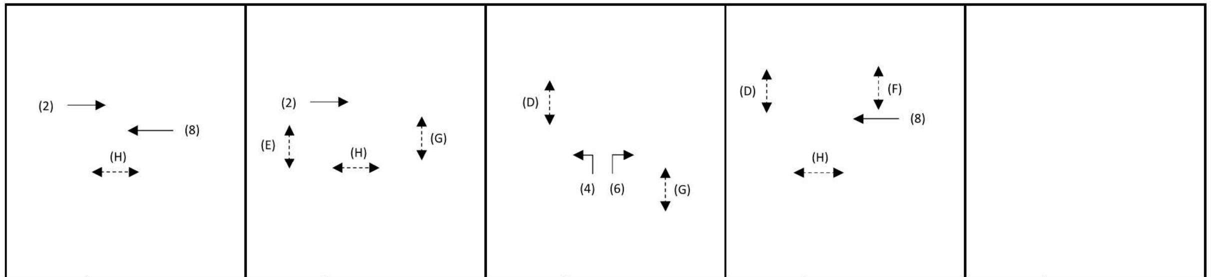
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J4_AM	PROJECT NO: 297978
J4 - Kai Hing Road/ Hoi Bun Road	2036 Design Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	2
Cycle Time		C=	130 sec
Sum(y)		Y=	0.469
Loss Time		L=	42 sec
Total Flow		=	2185 pcu
Co	=(1.5*L+5)/(1-Y)	=	128 sec
Cm	=L/(1-Y)	=	79 sec
Yult		=	0.585
R.C.ult	=(Yult-Y)/Y*100%	=	24.6 %
Cp	=0.9*L/(0.9-Y)	=	87.8 sec
Ymax	=1-L/C	=	0.677
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	29.8 %



Stage 1	Int =	Stage 2	Int = 12	Stage 3	Int = 11	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3,4	D	7.00	5	2	7	50	2	7	OK
2	E	6.75	5	6	10	44	6	10	OK
4	F	6.50	5	10	6	5	10	6	OK
2,3	G	6.75	5	2	9	87	2	9	OK
1,2,4	H	10.50	7	2	10	80	2	10	OK
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			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				21				
																			S4	21				
2	1,2	3.50	A	2			N	4070		1295		1295	0.00	4070		-	4070	0.318	0.318	0	60	60	0.693	63
8	1,4	3.30	B	2			N	4030		440		440	0.00	4030		-	4030	0.109			20	21	0.676	33
4	3	5.00	C	1	12.5		N	2115	140			140	1.00	1888		-	1888	0.074	0.151	0	14	28	0.340	20
4,6	3	5.00	C	1	15			2255	0		310	310	1.00	2050		-	2050	0.151			28	28	0.693	44
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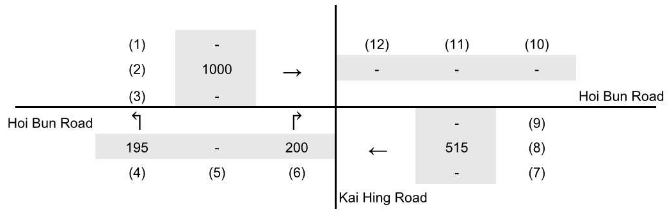
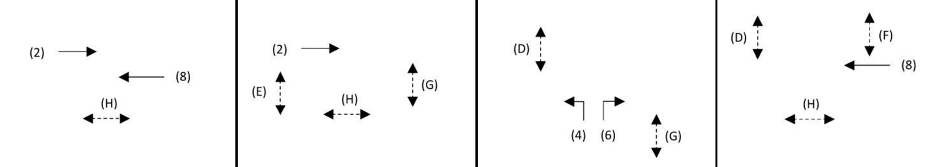
OVE ARUP & PARTNERS | **TRAFFIC SIGNAL CALCULATION**

Junction Assessment		SHEET: J4_PM	PROJECT NO: 297978
J4 - Kai Hing Road/ Hoi Bun Road	2036 Design Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:

N ↖



No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	2
Cycle Time		C=	130 sec
Sum(y)		Y=	0.346
Loss Time		L=	42 sec
Total Flow		=	1910 pcu
Co	=(1.5*L+5)/(1-Y)	=	104 sec
Cm	=L/(1-Y)	=	64 sec
Yult		=	0.585
R.C.ult	=(Yult-Y)/Y*100%	=	69.0 %
Cp	=0.9*L/(0.9-Y)	=	68.3 sec
Ymax	=1-L/C	=	0.677
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	76.0 %



Stage 1	Int =	Stage 2	Int = 12	Stage 3	Int = 11	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3,4	D	7.00	5	2	7	48	2	7	OK
2	E	6.75	5	6	10	34	6	10	OK
4	F	6.50	5	10	6	5	10	6	OK
2,3	G	6.75	5	2	9	75	2	9	OK
1,2,4	H	10.50	7	2	10	82	2	10	OK
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			-		-		-	-	-
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				21				
																			S4	21				
2	1,2	3.50	A	2			N	4070		1000		1000	0.00	4070		-	4070	0.246	0.246	0	62	62	0.511	47
8	1,4	3.30	B	2			N	4030		515		515	0.00	4030		-	4030	0.128			32	33	0.503	35
4	3	5.00	C	1	12.5		N	2115	189			189	1.00	1888		-	1888	0.100	0.100	0	25	26	0.509	27
4,6	3	5.00	C	1	15			2255	6		200	206	1.00	2050		-	2050	0.100			26	26	0.511	30
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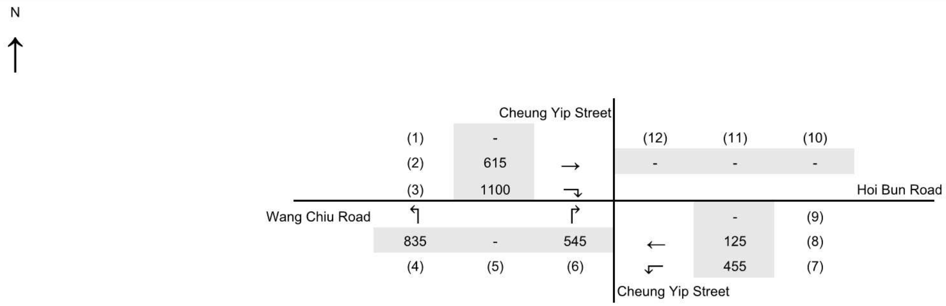
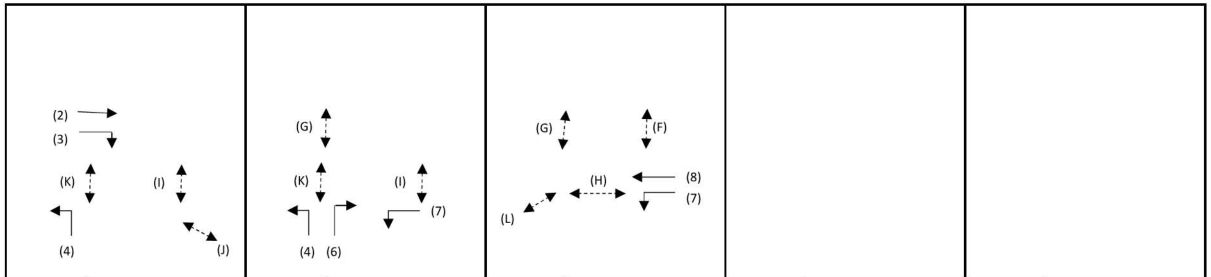
OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION		
Junction Assessment			SHEET: J5_AM	PROJECT NO: 297978
J5 - Hoi Bun Road/ Wang Chiu Road/ Cheung Yip Street	2036 Design Case Weekdays (AM Peak)		DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3	
No. of Stage Using for Calculation		N=	2	
Cycle Time		C=	120	sec
Sum(y)		Y=	0.644	
Loss Time		L=	15	sec
Total Flow		=	3675	pcu
Co	=(1.5*L+5)/(1-Y)	=	77	sec
Cm	=L/(1-Y)	=	42	sec
Yult		=	0.788	
R.C.ult	=(Yult-Y)/Y*100%	=	22.3	%
Cp	=0.9*L/(0.9-Y)	=	52.7	sec
Ymax	=1-L/C	=	0.875	
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	22.3	%



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3	F	7.00	5	0	7	15	0	7	OK
2,3	G	11.00	5	0	9	38	0	9	OK
3	H	11.00	5	0	17	5	0	17	OK
1,2	I	5.00	5	0	4	94	0	4	OK
1	J	7.00	5	0	7	66	0	7	OK
1,2	K	5.00	5	0	5	93	0	5	OK
3	L	5.00	5	0	4	18	0	4	OK
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			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				6				
																				0				
2,3	1	3.50	A	1	35		N	1965		615	229	844	0.27	1942		-	1942	0.435	0.435	0	71	71	0.736	58
3	1	3.50	A	1	30			2105			871	871	1.00	2005		-	2005	0.434			71	71	0.736	60
4	1,2	3.50	B	1	15		N	1965	835			835	1.00	1786		-	1786	0.467			76	94	0.598	30
6	2	3.50	C	2	30			4210			545	545	1.00	4010		250	4260	0.128			21	21	0.731	38
7	2,3	3.50	D	1	30		N	1965	455			455	1.00	1871		300	2171	0.210	0.210	9	34	43	0.583	49
8	3	3.50	E	1				2105		125		125	0.00	2105		-	2105	0.059			10	18	0.392	18
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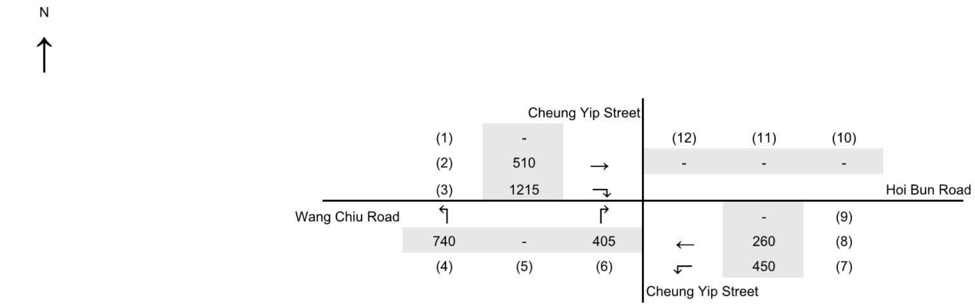
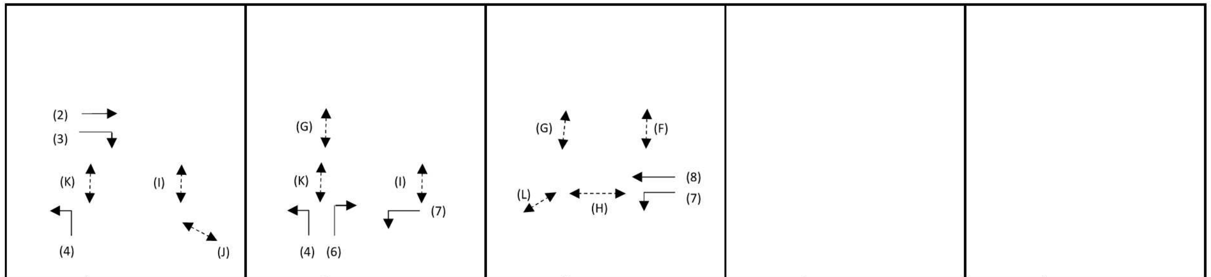
OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION	
Junction Assessment		SHEET: J5_PM	PROJECT NO: 297978
J5 - Hoi Bun Road/ Wang Chiu Road/ Cheung Yip Street	2036 Design Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	3
Cycle Time		C=	120 sec
Sum(y)		Y=	0.657
Loss Time		L=	10 sec
Total Flow		=	3580 pcu
Co	=(1.5*L+5)/(1-Y)	=	58 sec
Cm	=L/(1-Y)	=	29 sec
Yult		=	0.825
R.C.ult	=(Yult-Y)/Y*100%	=	25.6 %
Cp	=0.9*L/(0.9-Y)	=	37.0 sec
Ymax	=1-L/C	=	0.917
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	25.6 %



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3	F	7.00	5	0	7	18	0	7	OK
2,3	G	11.00	5	0	9	36	0	9	OK
3	H	11.00	5	0	17	8	0	17	OK
1,2	I	5.00	5	0	4	91	0	4	OK
1	J	7.00	5	0	7	68	0	7	OK
1,2	K	5.00	5	0	5	90	0	5	OK
3	L	5.00	5	0	4	21	0	4	OK
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			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
																				0				
2,3	1	3.50	A	1	35		N	1965		510	337	847	0.40	1932		-	1932	0.438	0.438	0	73	73	0.717	55
3	1	3.50	A	1	30			2105			878	878	1.00	2005		-	2005	0.438			73	73	0.716	57
4	1,2	3.50	B	1	15		N	1965	740			740	1.00	1786		-	1786	0.414			69	91	0.544	29
6	2	3.50	C	2	30			4210			405	405	1.00	4010		250	4260	0.095	0.095	0	16	16	0.717	30
7	2,3	3.50	D	1	30		N	1965	450			450	1.00	1871		300	2171	0.207			35	41	0.613	50
8	3	3.50	E	1				2105		260		260	0.00	2105		-	2105	0.124	0.124	0	21	21	0.717	37
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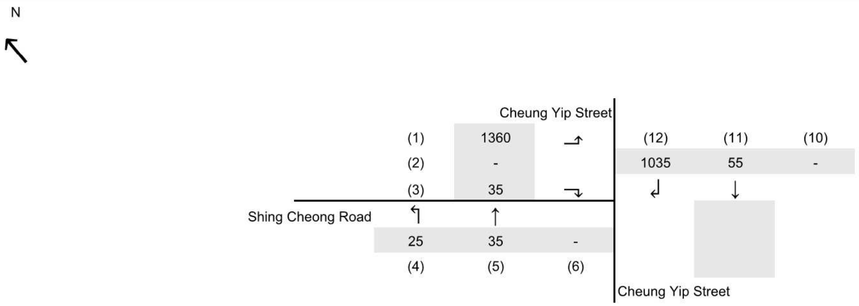
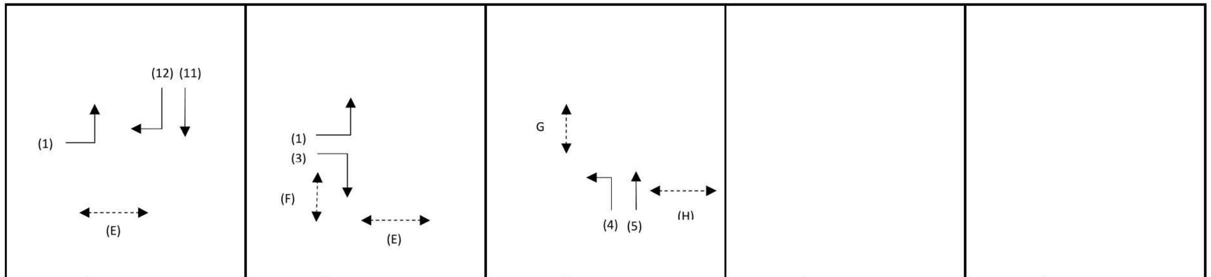
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J6_AM	PROJECT NO: 297978
J6 - Cheung Yip Street/ Shing Cheong Road	2036 Design Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3	
No. of Stage Using for Calculation		N=	2	
Cycle Time		C=	120	sec
Sum(y)		Y=	0.388	
Loss Time		L=	38	sec
Total Flow		=	2545	pcu
Co	=(1.5*L+5)/(1-Y)	=	101	sec
Cm	=L/(1-Y)	=	62	sec
Yult		=	0.615	
R.C.ult	=(Yult-Y)/Y*100%	=	58.5	%
Cp	=0.9*L/(0.9-Y)	=	66.8	sec
Ymax	=1-L/C	=	0.683	
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	58.5	%



Stage 1	Int =	Stage 2	Int = 5	Stage 3	Int = 8	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2	E	6.00	5	0	8	89	0	8	OK
2	F	8.00	6	9	8	6	9	8	OK
3	G	11.00	10	2	8	13	2	8	OK
3	H	6.00	5	10	7	6	10	7	OK
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			-		-		-	-	-
			-		-		-	-	-
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			-		-		-	-	-
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				11				
																				0				
11,12	1	3.50	B	1	15		N	1965		55	488	543	0.90	1803		-	1803	0.301			64	64	0.565	42
12	1	3.30	B	1	10			2085			547	547	1.00	1813		-	1813	0.302			64	64	0.566	43
1	1,2	3.30	A	2	15		N	4030	1360			1360	1.00	3664		-	3664	0.371	0.371	15	78	93	0.477	25
3	2	3.50	D	1	10			2105			35	35	1.00	1830		-	1830	0.019			4	19	0.118	5
4	3	3.50	C	1	15		N	1965	25			25	1.00	1786		-	1786	0.014	0.017	12	3	16	0.108	4
5	3	3.30	C	1				2085		35		35	0.00	2085		-	2085	0.017			4	16	0.130	5
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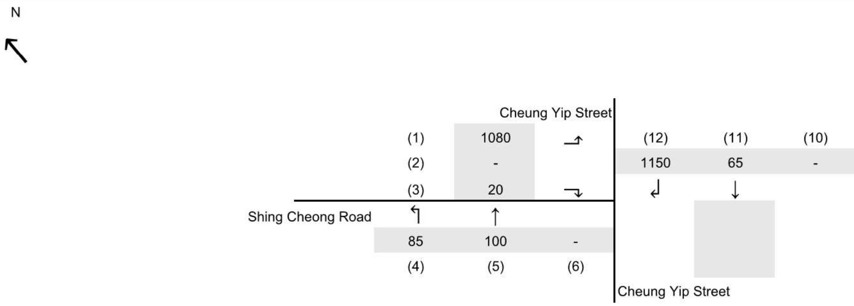
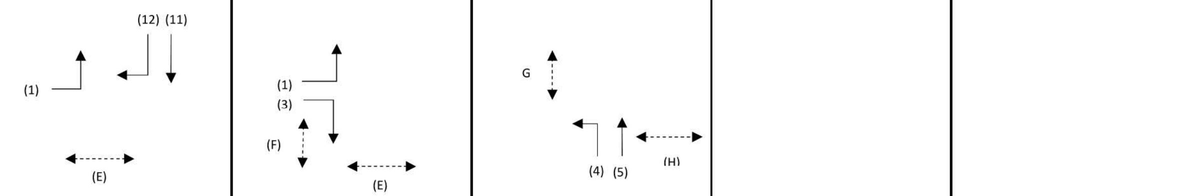
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J6_PM	PROJECT NO: 297978
J6 - Cheung Yip Street/ Shing Cheong Road	2036 Design Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3	
No. of Stage Using for Calculation		N=	3	
Cycle Time		C=	120	sec
Sum(y)		Y=	0.395	
Loss Time		L=	44	sec
Total Flow		=	2500	pcu
Co	=(1.5*L+5)/(1-Y)	=	117	sec
Cm	=L/(1-Y)	=	73	sec
Yult		=	0.570	
R.C.ult	=(Yult-Y)/Y*100%	=	44.4	%
Cp	=0.9*L/(0.9-Y)	=	78.4	sec
Ymax	=1-L/C	=	0.633	
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	44.4	%



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2	E	6.00	5	0	8	90	0	8	OK
2	F	8.00	6	9	8	6	9	8	OK
3	G	11.00	10	2	8	12	2	8	OK
3	H	6.00	5	10	7	5	10	7	OK
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				21				
																				0				
11,12	1	3.50	B	1	15		N	1965		65	541	606	0.89	1804		-	1804	0.336	0.336	0	65	65	0.623	47
12	1	3.30	B	1	10			2085			609	609	1.00	1813		-	1813	0.336			65	65	0.623	47
1	1,2	3.30	A	2	15		N	4030	1080			1080	1.00	3664		-	3664	0.295			57	94	0.377	20
3	2	3.50	D	1	10			2105			20	20	1.00	1830		-	1830	0.011	0.011	17	2	19	0.069	3
4	3	3.50	C	1	15		N	1965	85			85	1.00	1786		-	1786	0.048	0.048	6	9	15	0.375	12
5	3	3.30	C	1				2085		100		100	0.00	2085		-	2085	0.048			9	15	0.378	15
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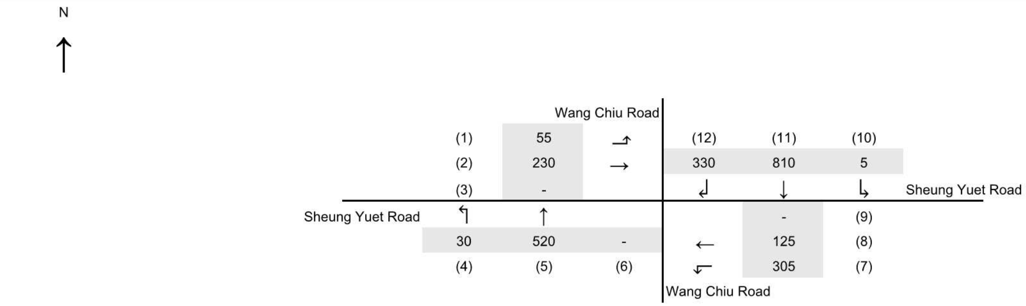
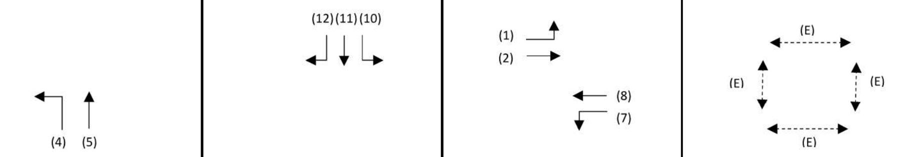
Junction Assessment		SHEET: J7_AM	PROJECT NO: 297978
J7 - Wang Chiu Road/ Sheung Yuet Road	2036 Design Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4	
No. of Stage Using for Calculation		N=	3	
Cycle Time		C=	140	sec
Sum(y)		Y=	0.509	
Loss Time		L=	41	sec
Total Flow		=	2410	pcu
Co	=(1.5*L+5)/(1-Y)	=	135	sec
Cm	=L/(1-Y)	=	83	sec
Yult		=	0.593	
R.C.ult	=(Yult-Y)/Y*100%	=	16.5	%
Cp	=0.9*L/(0.9-Y)	=	94.3	sec
Ymax	=1-L/C	=	0.707	
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	25.1	%



Stage 1	Int = 6	Stage 2	Int = 7	Stage 3	Int = 8	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4	E	12.00	9	5	9	9	5	9	OK
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Movement	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				18				
																			S4	23				
4,5	1	3.50	A	1	15		N	1965	30	234		264	0.11	1943		-	1943	0.136	0.136	0	26	26	0.719	43
5	1	3.50	A	1				2105		286		286	0.00	2105		-	2105	0.136			26	26	0.719	46
10,11	2	3.40	B	1	10		N	1955	5	389		394	0.01	1951		-	1951	0.202	0.202	0	39	39	0.719	56
11	2	3.30	B	1				2085		421		421	0.00	2085		-	2085	0.202			39	39	0.719	59
12	2	3.30	B	1	15			2085			330	330	1.00	1895		-	1895	0.174			34	39	0.620	46
7,8	3	3.50	C	1	15		N	1965	305	0		305	1.00	1786		-	1786	0.171	0.171	0	33	33	0.719	46
8	3	3.50	C	1				2105		125		125	0.00	2105		-	2105	0.059			12	33	0.250	19
1,2	3	3.50	C	1	15		N	1965	55	80		135	0.41	1888		-	1888	0.072			14	33	0.301	20
2	3	3.50	C	1				2105		150		150	0.00	2105		-	2105	0.071			14	33	0.300	22
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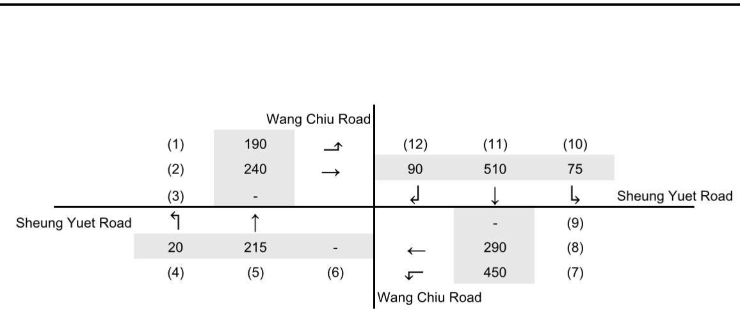
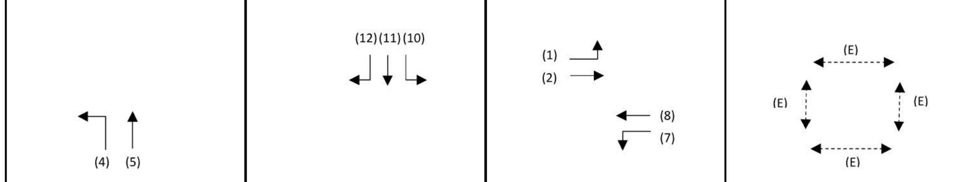
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J7_PM	PROJECT NO: 297978
J7 - Wang Chiu Road/ Sheung Yuet Road	2036 Design Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	3
Cycle Time		C=	140 sec
Sum(y)		Y=	0.458
Loss Time		L=	41 sec
Total Flow		=	2080 pcu
Co	=(1.5*L+5)/(1-Y)	=	123 sec
Cm	=L/(1-Y)	=	76 sec
Yult		=	0.593
R.C.ult	=(Yult-Y)/Y*100%	=	29.3 %
Cp	=0.9*L/(0.9-Y)	=	83.5 sec
Ymax	=1-L/C	=	0.707
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	38.9 %



Stage 1	Int = 6	Stage 2	Int = 7	Stage 3	Int = 8	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4	E	12.00	9	5	9	9	5	9	OK
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				18				
																			S4	23				
4,5	1	3.50	A	1	15		N	1965	20	92		112	0.18	1931		-	1931	0.058	0.058	0	13	13	0.643	21
5	1	3.50	A	1				2105		123		123	0.00	2105		-	2105	0.058			13	13	0.648	23
10,11	2	3.40	B	1	10		N	1955	75	202		277	0.27	1879		-	1879	0.147	0.148	0	32	32	0.647	42
11	2	3.30	B	1				2085		308		308	0.00	2085		-	2085	0.148			32	32	0.648	46
12	2	3.30	B	1	15			2085			90	90	1.00	1895		-	1895	0.047			10	32	0.208	14
7,8	3	3.50	C	1	15		N	1965	450	0		450	1.00	1786		-	1786	0.252	0.252	0	54	54	0.648	53
8	3	3.50	C	1				2105		290		290	0.00	2105		-	2105	0.138			30	54	0.354	34
1,2	3	3.50	C	1	15		N	1965	190	8		198	0.96	1793		-	1793	0.110			24	54	0.284	24
2	3	3.50	C	1				2105		232		232	0.00	2105		-	2105	0.110			24	54	0.283	28
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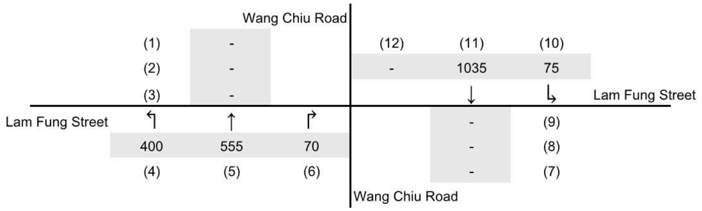
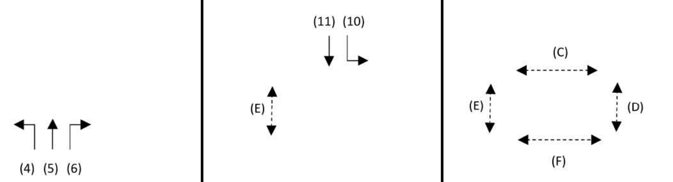
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J8_AM	PROJECT NO: 297978
J8 - Wang Chiu Road/ Lam Fung Street	2036 Design Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:

N



No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	2
Cycle Time		C=	120 sec
Sum(y)		Y=	0.448
Loss Time		L=	36 sec
Total Flow		=	2135 pcu
Co	=(1.5*L+5)/(1-Y)	=	107 sec
Cm	=L/(1-Y)	=	65 sec
Yult		=	0.630
R.C.ult	=(Yult-Y)/Y*100%	=	40.6 %
Cp	=0.9*L/(0.9-Y)	=	71.7 sec
Ymax	=1-L/C	=	0.700
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	40.6 %



Stage 1	Int = 5	Stage 2	Int = 9	Stage 3	Int =	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3	C	11.00	10	0	9	15	0	9	OK
3	D	8.00	5	3	11	10	3	11	OK
2,3	E	9.00	5	6	14	63	6	14	OK
3	F	9.00	11	3	10	11	3	10	OK
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			-		-		-	-	-
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
																			S3	24				
4	1	3.50	A	1	15		N	1965	310			310	1.00	1786		-	1786	0.174	0.174	0	33	33	0.640	38
4,5	1	3.50	A	1	18			2105	90	267		357	0.25	2062		-	2062	0.173			32	33	0.639	43
5,6	1	3.50	A	1	18			2105		288	70	358	0.20	2071		-	2071	0.173			32	33	0.638	43
10,11	2	3.50	B	1	15		N	1965	75	457		532	0.14	1938		-	1938	0.275	0.275	0	51	51	0.640	51
11	2	3.50	B	1				2105		578		578	0.00	2105		-	2105	0.275			51	51	0.640	55
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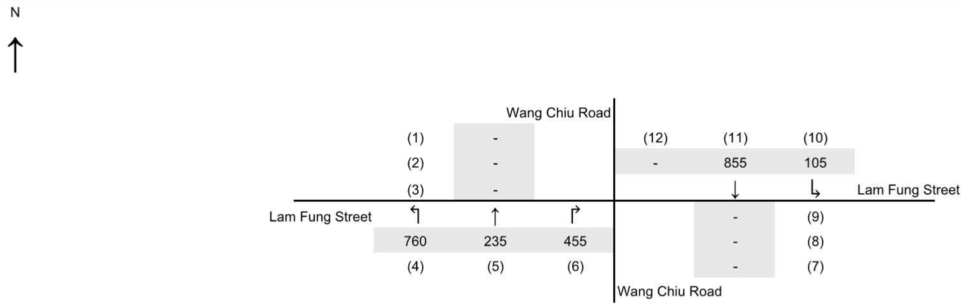
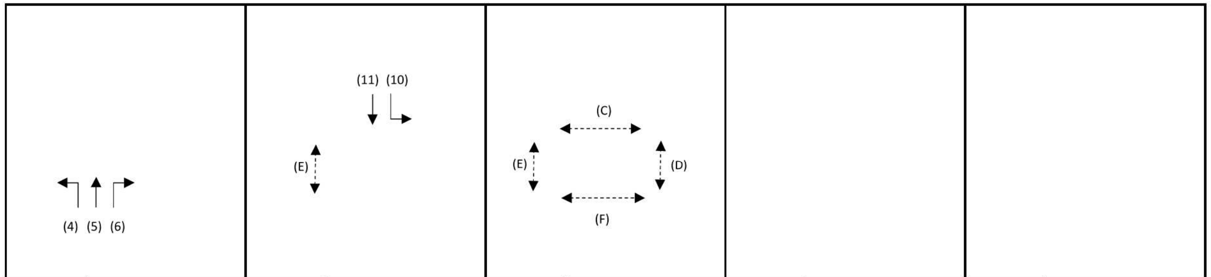
OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J8_PM	PROJECT NO:	297978
J8 - Wang Chiu Road/ Lam Fung Street	2036 Design Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:	



No. of Stages per Cycle		N=	3	
No. of Stage Using for Calculation		N=	2	
Cycle Time		C=	120	sec
Sum(y)		Y=	0.491	
Loss Time		L=	36	sec
Total Flow		=	2410	pcu
Co	=(1.5*L+5)/(1-Y)	=	116	sec
Cm	=L/(1-Y)	=	71	sec
Yult		=	0.630	
R.C.ult	=(Yult-Y)/Y*100%	=	28.3	%
Cp	=0.9*L/(0.9-Y)	=	79.3	sec
Ymax	=1-L/C	=	0.700	
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	28.3	%



Stage 1	Int = 5	Stage 2	Int = 9	Stage 3	Int =	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3	C	11.00	10	0	9	15	0	9	OK
3	D	8.00	5	3	11	10	3	11	OK
2,3	E	9.00	5	6	14	53	6	14	OK
3	F	9.00	11	3	10	11	3	10	OK
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
																			S3	24				
4	1	3.50	A	1	15		N	1965	451			451	1.00	1786		-	1786	0.252	0.253	0	43	43	0.701	48
4,5	1	3.50	A	1	18			2105	309	196		505	0.61	2003		-	2003	0.252			43	43	0.700	54
5,6	1	3.50	A	1	18			2105		39	455	494	0.92	1955		-	1955	0.253			43	43	0.702	53
10,11	2	3.50	B	1	15		N	1965	105	353		458	0.23	1921		-	1921	0.238	0.238	0	41	41	0.702	50
11	2	3.50	B	1				2105		502		502	0.00	2105		-	2105	0.238			41	41	0.702	55
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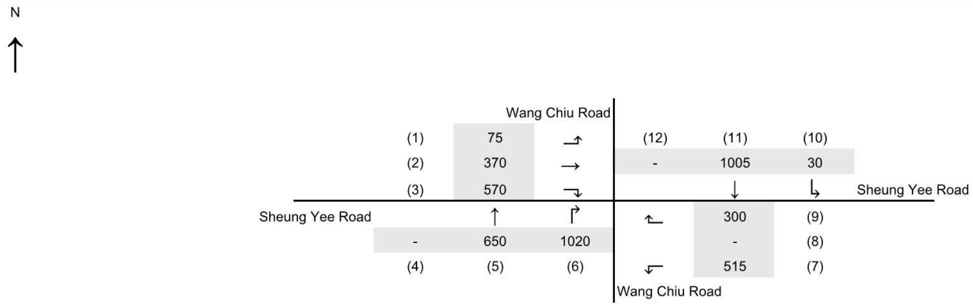
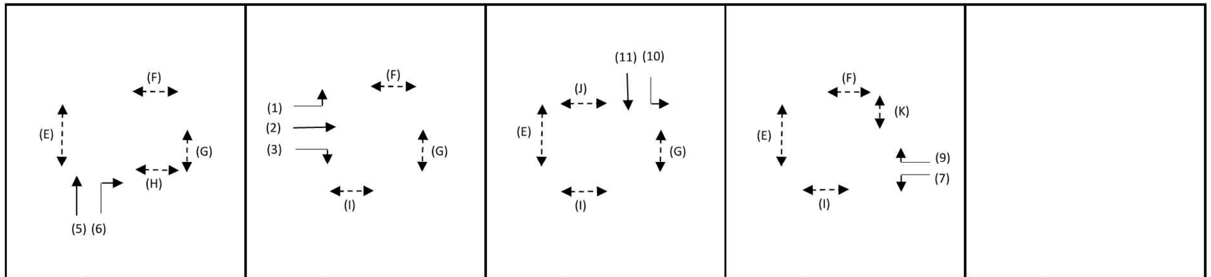
OVE ARUP & PARTNERS | **TRAFFIC SIGNAL CALCULATION**

Junction Assessment		SHEET: J9_AM	PROJECT NO: 297978
J9 - Wang Chiu Road/ Sheung Yee Road	2036 Design Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	4
Cycle Time		C=	140 sec
Sum(y)		Y=	0.682
Loss Time		L=	16 sec
Total Flow		=	4535 pcu
Co	=(1.5*L+5)/(1-Y)	=	91 sec
Cm	=L/(1-Y)	=	50 sec
Yult		=	0.780
R.C.ult	=(Yult-Y)/Y*100%	=	14.4 %
Cp	=0.9*L/(0.9-Y)	=	66.0 sec
Ymax	=1-L/C	=	0.886
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	16.9 %



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,3,4	A	11.00	9	2	21	92	2	21	OK
1,2,4	B	6.00	5	2	11	92	2	11	OK
1,2,3	C	6.00	5	2	7	101	2	7	OK
1	D	6.00	5	8	7	35	8	7	OK
2,3,4	E	6.00	5	2	13	75	2	13	OK
3	F	8.00	5	6	10	19	6	10	OK
4	G	8.00	5	6	9	15	6	9	OK
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
																				0				
5	1	3.50	A	2			N	4070		650		650	0.00	4070		-	4070	0.160	0.254	0	29	46	0.483	42
6	1	3.50	A	2	30			4210			1020	1020	1.00	4010		-	4010	0.254			46	46	0.770	67
1	2	3.50	B	1	15		N	1965	75			75	1.00	1786		-	1786	0.042	0.117	0	8	21	0.277	12
1,2	2	3.50	B	1	20			2105	0	246		246	0.00	2105		-	2105	0.117			21	21	0.770	44
2,3	2	3.50	B	1	30			2105		124	115	239	0.48	2056		-	2056	0.116			21	21	0.766	42
3	2	3.50	B	2	20			4210			455	455	1.00	3916		-	3916	0.116			21	21	0.765	39
10,11	3	3.50	C	1	15		N	1965	30	297		327	0.09	1947		-	1947	0.168	0.168	0	31	31	0.769	53
11	3	3.50	C	2				4210		708		708	0.00	4210		-	4210	0.168			31	31	0.770	55
7	4	3.50	D	1	15		N	1965	254			254	1.00	1786		-	1786	0.142	0.142	0	26	26	0.768	43
7,9	4	3.50	D	1	20			2105	261		18	279	1.00	1958		-	1958	0.142			26	26	0.770	47
9	4	3.50	D	1	25			2105			282	282	1.00	1986		-	1986	0.142			26	26	0.767	48
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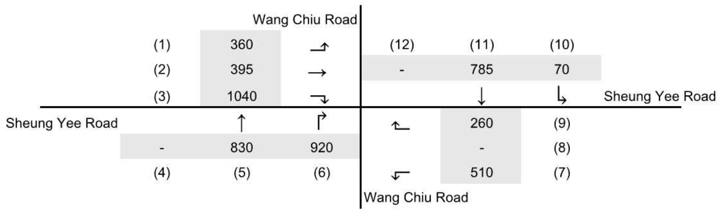
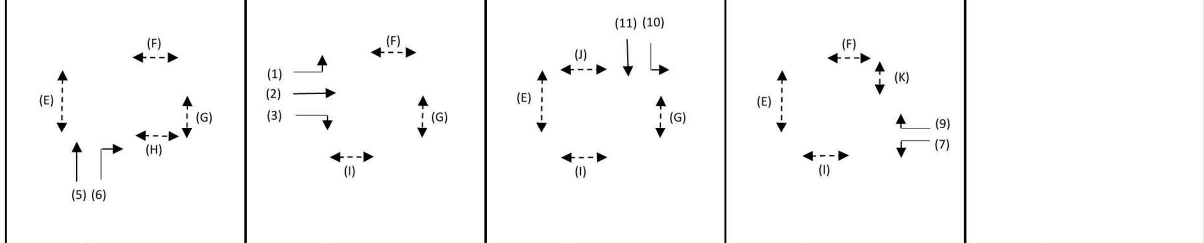
OVE ARUP & PARTNERS

TRAFFIC SIGNAL CALCULATION

Junction Assessment		SHEET: J9_PM	PROJECT NO: 297978
J9 - Wang Chiu Road/ Sheung Yee Road	2036 Design Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4	
No. of Stage Using for Calculation		N=	4	
Cycle Time		C=	140	sec
Sum(y)		Y=	0.689	
Loss Time		L=	16	sec
Total Flow		=	5170	pcu
Co	=(1.5*L+5)/(1-Y)	=	93	sec
Cm	=L/(1-Y)	=	51	sec
Yult		=	0.780	
R.C.ult	=(Yult-Y)/Y*100%	=	13.2	%
Cp	=0.9*L/(0.9-Y)	=	68.3	sec
Ymax	=1-L/C	=	0.886	
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	15.7	%



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,3,4	A	11.00	9	2	21	80	2	21	OK
1,2,4	B	6.00	5	2	11	98	2	11	OK
1,2,3	C	6.00	5	2	7	102	2	7	OK
1	D	6.00	5	8	7	30	8	7	OK
2,3,4	E	6.00	5	2	13	80	2	13	OK
3	F	8.00	5	6	10	13	6	10	OK
4	G	8.00	5	6	9	14	6	9	OK
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			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
																				0				
5	1	3.50	A	2			N	4070		830		830	0.00	4070		-	4070	0.204	0.229	0	37	41	0.691	57
6	1	3.50	A	2	30			4210			920	920	1.00	4010		-	4010	0.229			41	41	0.778	64
1	2	3.50	B	1	15		N	1965	328			328	1.00	1786		-	1786	0.184	0.184	0	33	33	0.778	52
1,2	2	3.50	B	1	20			2105	32	351		383	0.08	2092		-	2092	0.183			33	33	0.776	60
2,3	2	3.50	B	1	30			2105		44	325	369	0.88	2016		-	2016	0.183			33	33	0.775	58
3	2	3.50	B	2	20			4210			715	715	1.00	3916		-	3916	0.183			33	33	0.774	54
10,11	3	3.50	C	1	15		N	1965	70	197		267	0.26	1915		-	1915	0.139	0.140	0	25	25	0.777	46
11	3	3.50	C	2				4210		588		588	0.00	4210		-	4210	0.140			25	25	0.778	48
7	4	3.50	D	1	15		N	1965	243			243	1.00	1786		-	1786	0.136	0.136	0	24	25	0.776	42
7,9	4	3.50	D	1	20			2105	267		0	267	1.00	1958		-	1958	0.136			25	25	0.778	46
9	4	3.50	D	1	25			2105			260	260	1.00	1986		-	1986	0.131			24	25	0.747	44
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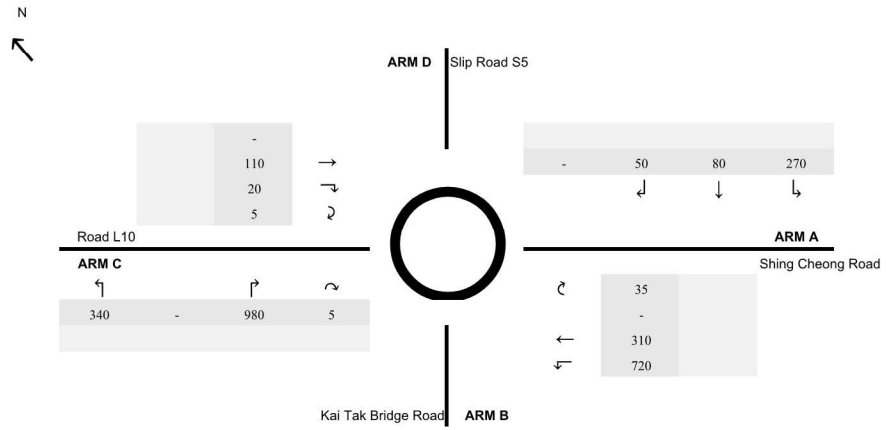
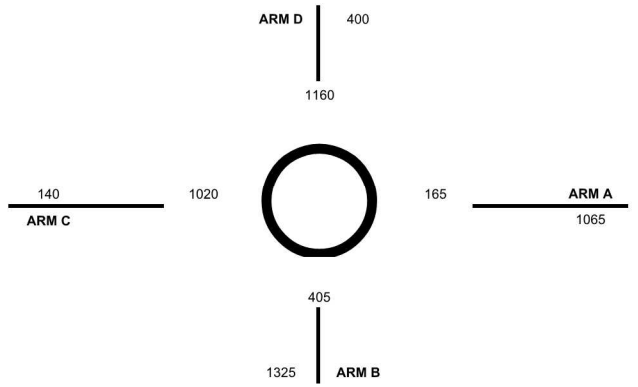
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
Junction Assessment		SHEET: J10_AM	PROJECT NO: 297978
J10 - Shing Cheong Road/ Slip Road S5/ Road L10	2036 Design Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



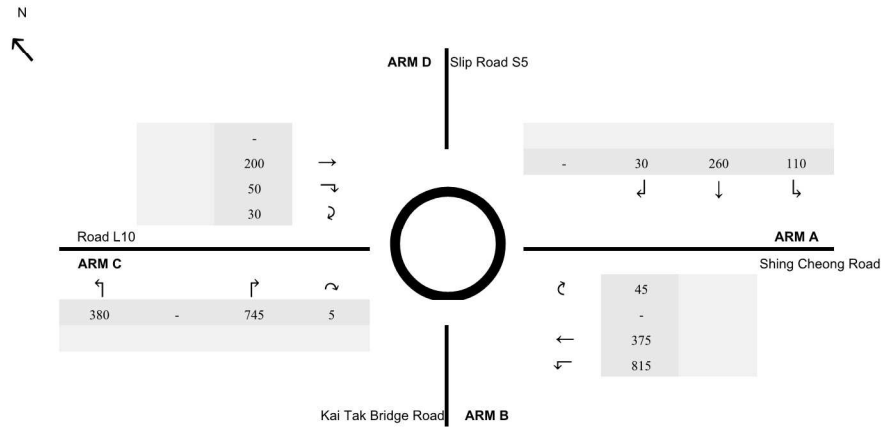


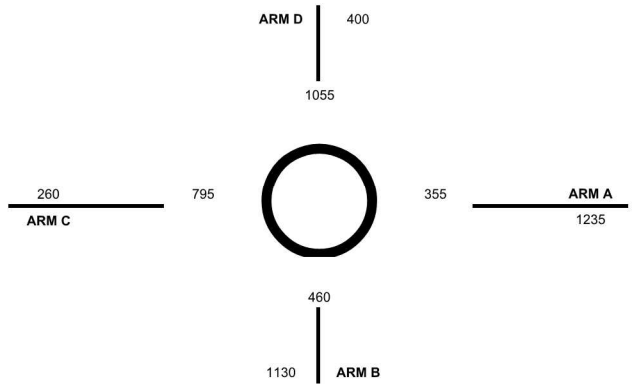
ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.50	7.60	6.00	3.70
E	=	Entry width (m)	10.00	8.00	10.00	8.30
L	=	Effective length of flare (m)	10	11.4	10.1	15
R	=	Entry radius (m)	25	25	25	25
D	=	Inscribed circle diameter (m)	46	46	46	46
A	=	Entry angle (degree)	10	30	40	30
Q	=	Entry flow (pcu/h)	1065	1325	140	400
Qc	=	Circulating flow across entry (pcu/h)	165	405	1020	1160
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.40	0.06	0.63	0.49
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.08	1.01	0.98	1.01
X2	=	V + ((E-V)/(1+2S))	8.89	7.96	7.76	6.02
M	=	EXP((D-60)/10)	0.25	0.25	0.25	0.25
F	=	303*X2	2693	2412	2353	1825
Td	=	1+(0.5/(1+M))	1.40	1.40	1.40	1.40
Fc	=	0.21*Td(1+0.2*X2)	0.82	0.76	0.75	0.65
Qe	=	K(F-Fc*Qc)	2761	2123	1547	1083
DFC	=	Design flow/Capacity = Q/Qe	0.39	0.62	0.09	0.37

Total In Sum = 2930 PCU

DFC of Critical Approach = 0.62

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
Junction Assessment		SHEET: J10_PM	PROJECT NO: 297978
J10 - Shing Cheong Road/ Slip Road S5/ Road L10	2036 Design Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



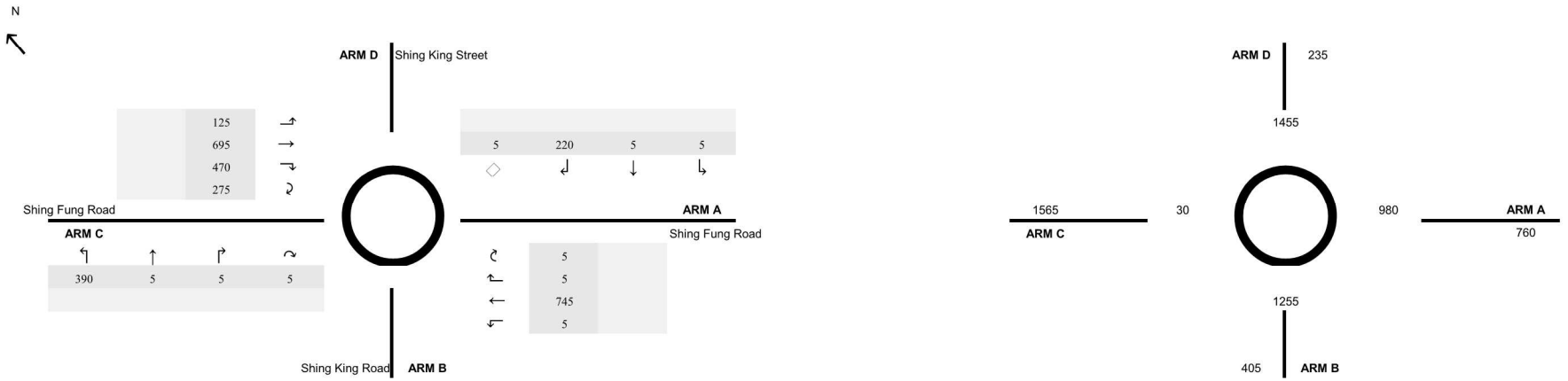


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.50	7.60	6.00	3.70
E	=	Entry width (m)	10.00	8.00	10.00	8.30
L	=	Effective length of flare (m)	10	11.4	10.1	15
R	=	Entry radius (m)	25	25	25	25
D	=	Inscribed circle diameter (m)	46	46	46	46
A	=	Entry angle (degree)	10	30	40	30
Q	=	Entry flow (pcu/h)	1235	1130	260	400
Qc	=	Circulating flow across entry (pcu/h)	355	460	795	1055
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.40	0.06	0.63	0.49
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.08	1.01	0.98	1.01
X2	=	V + ((E-V)/(1+2S))	8.89	7.96	7.76	6.02
M	=	EXP((D-60)/10)	0.25	0.25	0.25	0.25
F	=	303*X2	2693	2412	2353	1825
Td	=	1+(0.5/(1+M))	1.40	1.40	1.40	1.40
Fc	=	0.21*Td(1+0.2*X2)	0.82	0.76	0.75	0.65
Qe	=	K(F-Fc*Qc)	2593	2081	1712	1151
DFC	=	Design flow/Capacity = Q/Qe	0.48	0.54	0.15	0.35

Total In Sum = 3025 PCU

DFC of Critical Approach = 0.54

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
Junction Assessment		SHEET: J11_AM	PROJECT NO: 297978
J11 - Shing Fung Road	2036 Design Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:

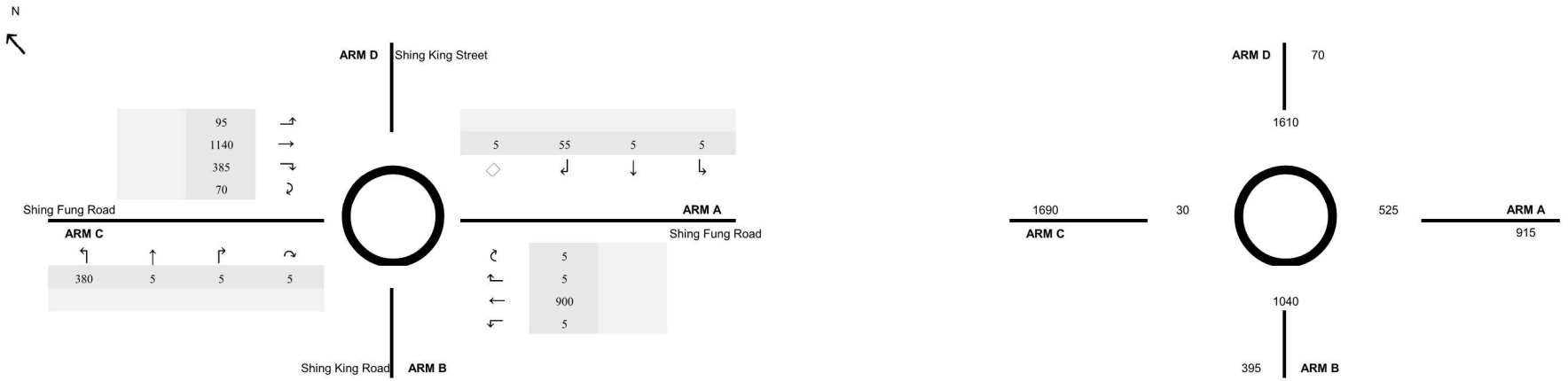


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.30	5.60	7.30	3.70
E	=	Entry width (m)	8.20	6.00	7.40	6.00
L	=	Effective length of flare (m)	27.3	19.7	11.2	16.4
R	=	Entry radius (m)	25	25	25	25
D	=	Inscribed circle diameter (m)	46	46	46	46
A	=	Entry angle (degree)	30	30	60	10
Q	=	Entry flow (pcu/h)	760	405	1565	235
Qc	=	Circulating flow across entry (pcu/h)	980	1255	30	1455
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.05	0.03	0.01	0.22
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.01	1.01	0.91	1.08
X2	=	V + ((E-V)/(1+2S))	8.11	5.98	7.40	5.29
M	=	EXP((D-60)/10)	0.25	0.25	0.25	0.25
F	=	303*X2	2459	1811	2241	1602
Td	=	1+(0.5/(1+M))	1.40	1.40	1.40	1.40
Fc	=	0.21*Td(1+0.2*X2)	0.77	0.65	0.73	0.61
Qe	=	K(F-Fc*Qc)	1719	1010	2010	778
DFC	=	Design flow/Capacity = Q/Qe	0.44	0.40	0.78	0.30

Total In Sum = 2965 PCU

DFC of Critical Approach = 0.78

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
Junction Assessment		SHEET: J11_PM	PROJECT NO: 297978
J11 - Shing Fung Road	2036 Design Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:

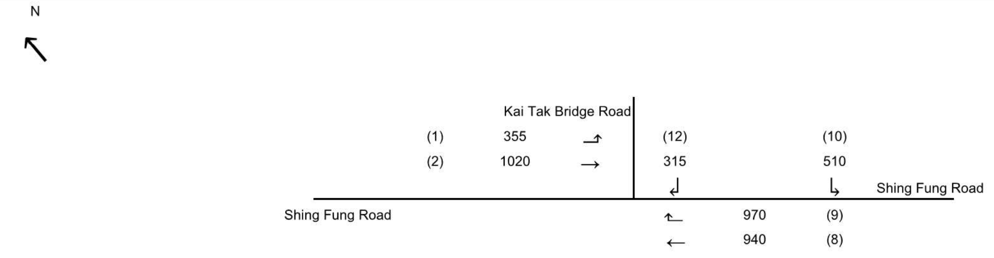


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.30	5.60	7.30	3.70
E	=	Entry width (m)	8.20	6.00	7.40	6.00
L	=	Effective length of flare (m)	27.3	19.7	11.2	16.4
R	=	Entry radius (m)	25	25	25	25
D	=	Inscribed circle diameter (m)	46	46	46	46
A	=	Entry angle (degree)	30	30	60	10
Q	=	Entry flow (pcu/h)	915	395	1690	70
Qc	=	Circulating flow across entry (pcu/h)	525	1040	30	1610
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.05	0.03	0.01	0.22
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.01	1.01	0.91	1.08
X2	=	V + ((E-V)/(1+2S))	8.11	5.98	7.40	5.29
M	=	EXP((D-60)/10)	0.25	0.25	0.25	0.25
F	=	303*X2	2459	1811	2241	1602
Td	=	1+(0.5/(1+M))	1.40	1.40	1.40	1.40
Fc	=	0.21*Td(1+0.2*X2)	0.77	0.65	0.73	0.61
Qe	=	K(F-Fc*Qc)	2074	1150	2010	677
DFC	=	Design flow/Capacity = Q/Qe	0.44	0.34	0.84	0.10

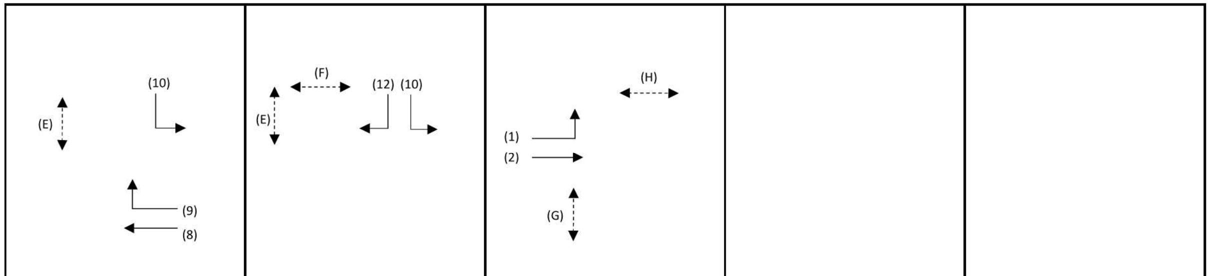
Total In Sum = 3070 PCU

DFC of Critical Approach = 0.84

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J12_AM	PROJECT NO: 297978
J12 - Shing Fung Road/ Shing Cheong Road	2036 Design Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	3
Cycle Time		C=	120 sec
Sum(y)		Y=	0.647
Loss Time		L=	20 sec
Total Flow		=	1375 pcu
Co	=(1.5*L+5)/(1-Y)	=	99 sec
Cm	=L/(1-Y)	=	57 sec
Yult		=	0.750
R.C.ult	=(Yult-Y)/Y*100%	=	15.9 %
Cp	=0.9*L/(0.9-Y)	=	71.2 sec
Ymax	=1-L/C	=	0.833
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	15.9 %



Stage 1	Int = 5	Stage 2	Int = 13	Stage 3	Int = 5	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2	E	11.50	7	0	10	58	0	10	OK
2	F	10.00	7	0	11	14	0	11	OK
3	G	14.50	8	0	12	40	0	12	OK
3	H	15.00	8	0	7	45	0	7	OK
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			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				20				
																				0				
8	1	3.30	A	2			N	4030		940		940	0.00	4030		-	4030	0.233	0.253	0	36	39	0.715	53
9	1	3.50	A	2	15			4210			970	970	1.00	3827		-	3827	0.253			39	39	0.777	55
10	1,2	3.30	B	1	12		N	1945	510			510	1.00	1729		290	2019	0.253			39	62	0.490	41
12	2	3.40	C	2	15			4190			315	315	1.00	3809		-	3809	0.083	0.083	0	13	13	0.777	25
1,2	3	3.30	D	1	20		N	1945	355	368		723	0.49	1876		450	2326	0.311	0.311	0	48	48	0.776	75
2	3	3.40	D	1				2095		652		652	0.00	2095		-	2095	0.311			48	48	0.777	68
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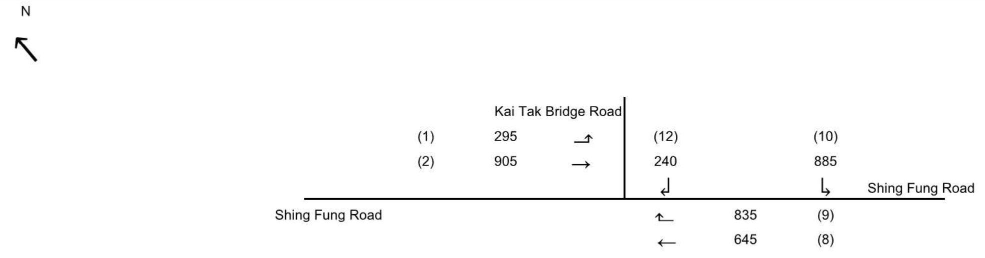
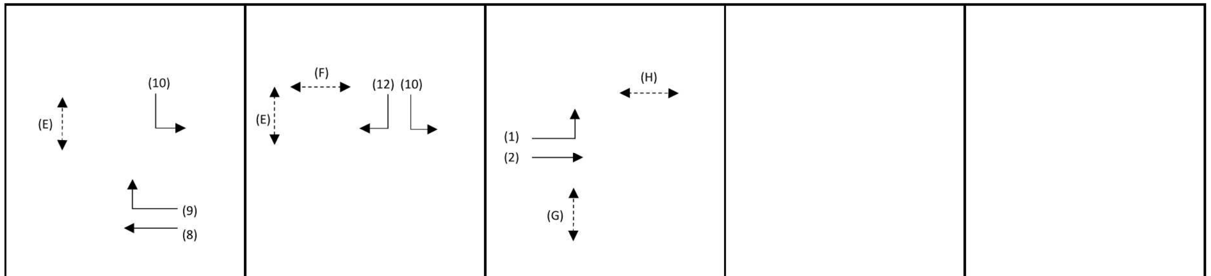
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J12_PM	PROJECT NO: 297978
J12 - Shing Fung Road/ Shing Cheong Road	2036 Design Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	2
Cycle Time		C=	120 sec
Sum(y)		Y=	0.711
Loss Time		L=	10 sec
Total Flow		=	1200 pcu
Co	=(1.5*L+5)/(1-Y)	=	69 sec
Cm	=L/(1-Y)	=	35 sec
Yult		=	0.825
R.C.ult	=(Yult-Y)/Y*100%	=	16.0 %
Cp	=0.9*L/(0.9-Y)	=	47.7 sec
Ymax	=1-L/C	=	0.917
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	16.0 %



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2	E	11.50	7	0	10	65	0	10	OK
2	F	10.00	7	0	11	26	0	11	OK
3	G	14.50	8	0	12	33	0	12	OK
3	H	15.00	8	0	7	38	0	7	OK
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
																				0				
8	1	3.30	A	2			N	4030		645		645	0.00	4030		-	4030	0.160			25	34	0.565	39
9	1	3.50	A	2	15			4210			835	835	1.00	3827		-	3827	0.218			34	34	0.770	51
10	1,2	3.30	B	1	12		N	1945	885			885	1.00	1729		260	1989	0.445	0.445	0	69	69	0.776	65
12	2	3.40	C	2	15			4190			240	240	1.00	3809		-	3809	0.063			10	25	0.305	16
1,2	3	3.30	D	1	20		N	1945	295	347		642	0.46	1880		530	2410	0.266	0.266	0	41	41	0.776	73
2	3	3.40	D	1				2095		558		558	0.00	2095		-	2095	0.266			41	41	0.776	64
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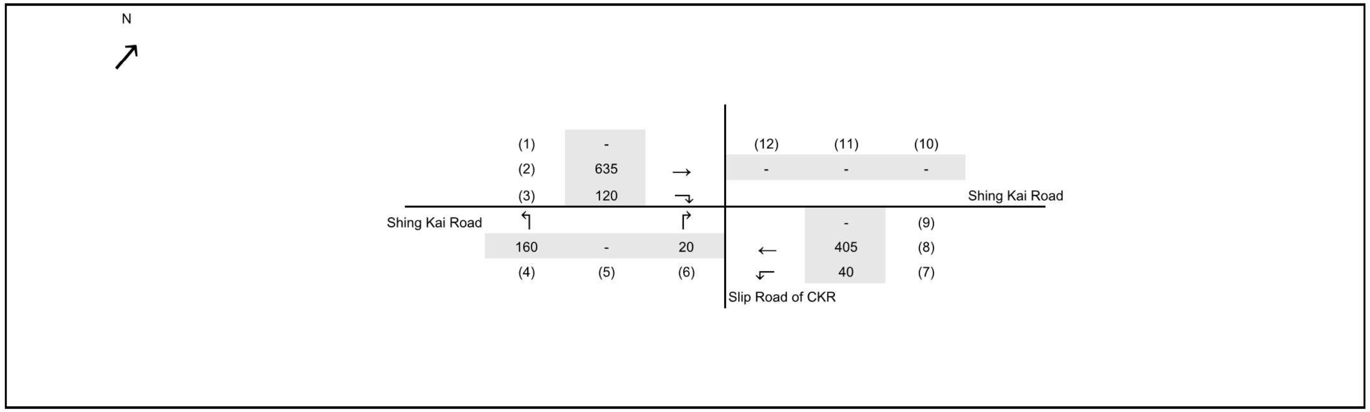
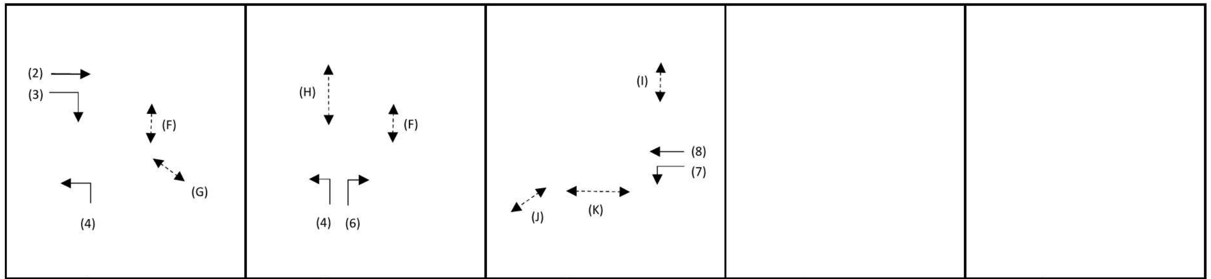
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J13_AM	PROJECT NO: 297978
J13 - Shing Kai Road/ Slip Road to CKR	2036 Design Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	3
Cycle Time		C=	130 sec
Sum(y)		Y=	0.229
Loss Time		L=	32 sec
Total Flow		=	1380 pcu
Co	=(1.5*L+5)/(1-Y)	=	69 sec
Cm	=L/(1-Y)	=	42 sec
Yult		=	0.660
R.C.ult	=(Yult-Y)/Y*100%	=	187.7 %
Cp	=0.9*L/(0.9-Y)	=	42.9 sec
Ymax	=1-L/C	=	0.754
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	195.8 %



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2	F	10.00	5	6	10	81	6	10	OK
1	G	5.00	5	2	5	63	2	5	OK
2	H	25.00	14	2	10	14	2	10	OK
3	I	7.00	5	2	10	21	2	10	OK
3	J	5.00	5	2	5	26	2	5	OK
3	K	20.00	10	8	8	17	8	8	OK
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			-		-		-	-	-
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
																				0				
2	1	3.60	A	1			N	1975		307		307	0.00	1975		-	1975	0.155	0.155	0	66	66	0.304	27
2,3	1	3.60	A	1	26			2115		328	0	328	0.00	2115		-	2115	0.155			66	66	0.304	29
3	1	3.60	A	1	23			2115			120	120	1.00	1986		-	1986	0.060			26	66	0.118	11
4	1,2	5.00	D	1	35		N	2115	160			160	1.00	2028		-	2028	0.079			34	93	0.111	8
6	2	3.60	B	2	18			4230			20	20	1.00	3905		-	3905	0.005	0.005	20	2	22	0.030	1
7,8	3	4.50	C	1	35		N	2065	40	115		155	0.26	2042		210	2252	0.069	0.069	0	29	29	0.304	22
8	3	3.60	C	2				4230		290		290	0.00	4230		-	4230	0.069			29	29	0.303	20
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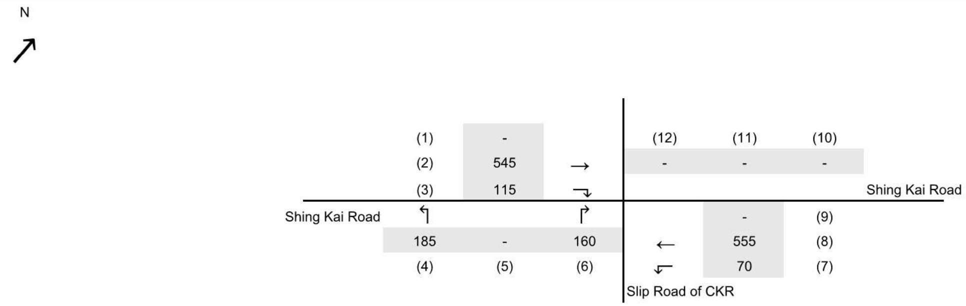
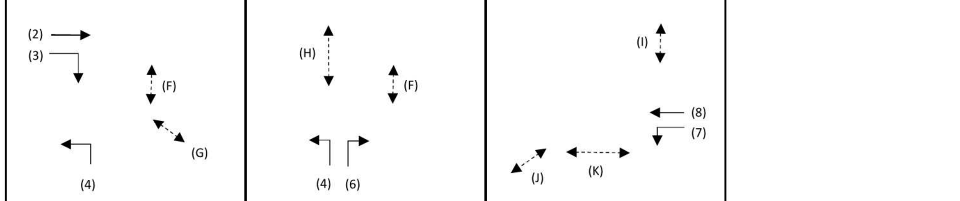
OVE ARUP & PARTNERS | **TRAFFIC SIGNAL CALCULATION**

Junction Assessment | SHEET: J13_PM | PROJECT NO: 297978

J13 - Shing Kai Road/ Slip Road to CKR | 2036 Design Case Weekdays (PM Peak) | DATE: 19-Feb-25 | FILENAME:



No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	3
Cycle Time		C=	130 sec
Sum(y)		Y=	0.272
Loss Time		L=	17 sec
Total Flow		=	1630 pcu
Co	=(1.5*L+5)/(1-Y)	=	42 sec
Cm	=L/(1-Y)	=	23 sec
Yult		=	0.773
R.C.ult	=(Yult-Y)/Y*100%	=	184.3 %
Cp	=0.9*L/(0.9-Y)	=	24.4 sec
Ymax	=1-L/C	=	0.869
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	187.9 %



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2	F	10.00	5	6	10	69	6	10	OK
1	G	5.00	5	2	5	52	2	5	OK
2	H	25.00	14	2	10	14	2	10	OK
3	I	7.00	5	2	10	33	2	10	OK
3	J	5.00	5	2	5	38	2	5	OK
3	K	20.00	10	8	8	29	8	8	OK
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
																				0				
2	1	3.60	A	1			N	1975		263		263	0.00	1975		-	1975	0.133	0.133	0	55	55	0.312	27
2,3	1	3.60	A	1	26			2115		282	0	282	0.00	2115		-	2115	0.133			55	55	0.313	29
3	1	3.60	A	1	23			2115			115	115	1.00	1986		-	1986	0.058			24	55	0.136	12
4	1,2	5.00	D	1	35		N	2115	185			185	1.00	2028		-	2028	0.091			38	81	0.146	12
6	2	3.60	B	2	18			4230			160	160	1.00	3905		-	3905	0.041	0.041	5	17	22	0.242	12
7,8	3	4.50	C	1	35		N	2065	70	143		213	0.33	2036		150	2186	0.097	0.097	0	41	41	0.313	26
8	3	3.60	C	2				4230		412		412	0.00	4230		-	4230	0.097			41	41	0.313	26
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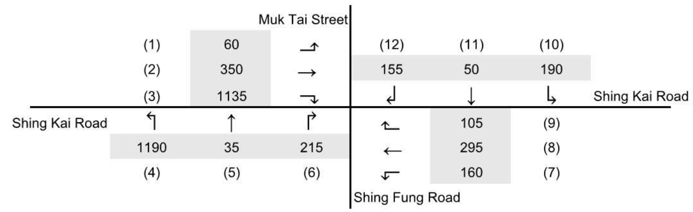
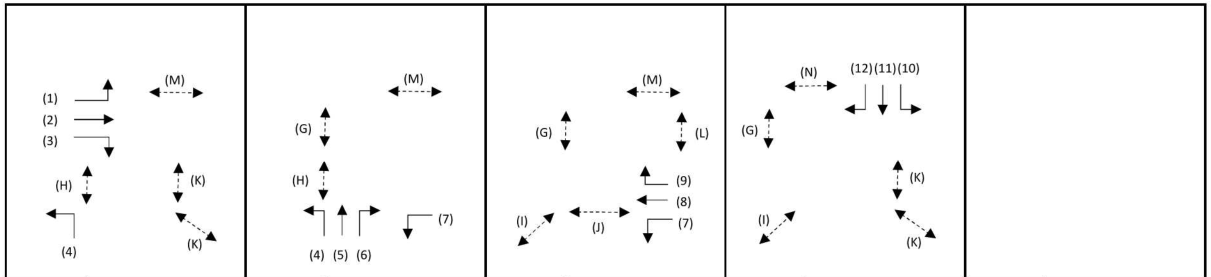
OVE ARUP & PARTNERS | **TRAFFIC SIGNAL CALCULATION**

Junction Assessment		SHEET: J14_AM	PROJECT NO: 297978
J14 - Shing Kai Road/ Shing Fung Road/ Muk Tai Street	2036 Design Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4	
No. of Stage Using for Calculation		N=	4	
Cycle Time		C=	130	sec
Sum(y)		Y=	0.625	
Loss Time		L=	25	sec
Total Flow		=	3940	pcu
Co	=(1.5*L+5)/(1-Y)	=	113	sec
Cm	=L/(1-Y)	=	67	sec
Yult		=	0.713	
R.C.ult	=(Yult-Y)/Y*100%	=	14.0	%
Cp	=0.9*L/(0.9-Y)	=	81.9	sec
Ymax	=1-L/C	=	0.808	
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	16.3	%



Stage 1	Int = 5	Stage 2	Int = 5	Stage 3	Int = 6	Stage 4	Int = 13	Stage 5	Int =

	Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
F	2,3,4	G	14.50	8	2	15	61	2	15	OK
G	1,2	H	7.50	5	2	7	57	2	7	OK
H	3,4	I	7.50	5	2	8	54	2	8	OK
I	3	J	19.00	10	2	9	10	2	9	OK
K	1,4	K	8.50	5	2	7	85	2	7	OK
L	3	L	12.50	6	2	13	6	2	13	OK
M	1,2,3	M	9.00	5	2	9	77	2	9	OK
N	4	N	9.00	6	2	11	29	2	11	OK
J				-		-	-		-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				25				
																				0				
1,2	1	3.65	A	1	15		N	1980	60	135		195	0.31	1921		-	1921	0.102	0.286	0	17	48	0.275	22
2	1	3.65	A	1				2120		215		215	0.00	2120		-	2120	0.101			17	48	0.274	24
2,3	1	3.65	A	1	25			2120		0	572	572	1.00	2000		-	2000	0.286			48	48	0.774	68
3	1	3.65	A	1	20			2120			563	563	1.00	1972		-	1972	0.285			48	48	0.773	67
4	1,2	3.65	B	1	25		N	1980	579			579	1.00	1868		-	1868	0.310			52	62	0.645	54
4	1,2	3.65	B	1	20			2120	611			611	1.00	1972		-	1972	0.310			52	62	0.644	57
5,6	2	3.65	C	1	25			2120		35	91	126	0.72	2032		-	2032	0.062	0.062	0	10	10	0.770	25
6	2	3.65	C	1	23			2120			124	124	1.00	1990		-	1990	0.062			10	10	0.774	25
7	2,3	3.50	D	2	22		N	4070	160			160	1.00	3810		-	3810	0.042			7	26	0.212	12
8	3	3.50	E	1				2105		204		204	0.00	2105		-	2105	0.097	0.097	0	16	16	0.774	36
8,9	3	3.50	E	1	20			2105		91	105	196	0.54	2024		-	2024	0.097			16	16	0.774	35
10,11,12	4	3.70	F	1	20			2125	190	50	155	395	0.87	1994		200	2194	0.180	0.180	0	30	30	0.774	58
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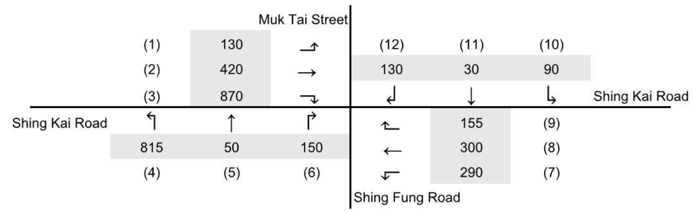
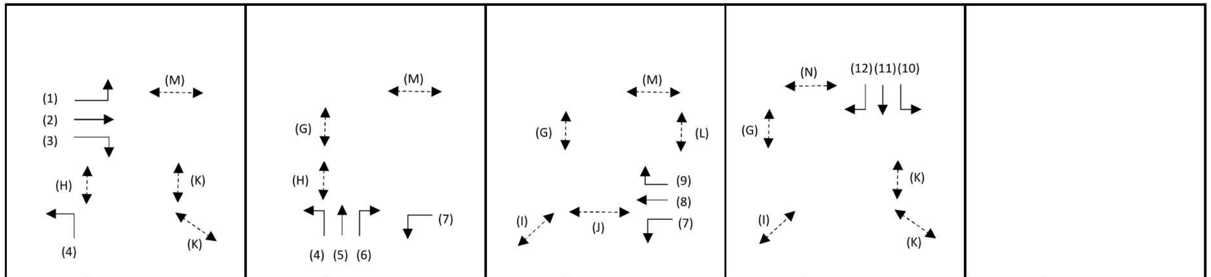
OVE ARUP & PARTNERS | **TRAFFIC SIGNAL CALCULATION**

Junction Assessment | SHEET: J14_PM | PROJECT NO: 297978

J14 - Shing Kai Road/ Shing Fung Road/ Muk Tai Street | 2036 Design Case Weekdays (PM Peak) | DATE: 19-Feb-25 | FILENAME:



No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	4
Cycle Time		C=	130 sec
Sum(y)		Y=	0.491
Loss Time		L=	25 sec
Total Flow		=	3430 pcu
Co	=(1.5*L+5)/(1-Y)	=	84 sec
Cm	=L/(1-Y)	=	49 sec
Yult		=	0.713
R.C.ult	=(Yult-Y)/Y*100%	=	45.1 %
Cp	=0.9*L/(0.9-Y)	=	55.0 sec
Ymax	=1-L/C	=	0.808
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	48.0 %



Stage 1	Int = 5	Stage 2	Int = 5	Stage 3	Int = 6	Stage 4	Int = 13	Stage 5	Int =

	Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
F	2,3,4	G	14.50	8	2	15	62	2	15	OK
G	1,2	H	7.50	5	2	7	56	2	7	OK
H	3,4	I	7.50	5	2	8	55	2	8	OK
I	3	J	19.00	10	2	9	18	2	9	OK
K	1,4	K	8.50	5	2	7	78	2	7	OK
L	3	L	12.50	6	2	13	14	2	13	OK
M	1,2,3	M	9.00	5	2	9	83	2	9	OK
N	4	N	9.00	6	2	11	23	2	11	OK
J										
				-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				25				
																				0				
1,2	1	3.65	A	1	15		N	1980	130	129		259	0.50	1885		-	1885	0.137	0.219	0	29	47	0.381	30
2	1	3.65	A	1				2120		291		291	0.00	2120		-	2120	0.137			29	47	0.381	34
2,3	1	3.65	A	1	25			2120		0	438	438	1.00	2000		-	2000	0.219			47	47	0.608	51
3	1	3.65	A	1	20			2120			432	432	1.00	1972		-	1972	0.219			47	47	0.608	50
4	1,2	3.65	B	1	25		N	1980	396			396	1.00	1868		-	1868	0.212			45	61	0.449	38
4	1,2	3.65	B	1	20			2120	419			419	1.00	1972		-	1972	0.212			45	61	0.450	40
5,6	2	3.65	C	1	25			2120		50	52	102	0.51	2057		-	2057	0.050	0.050	0	11	11	0.608	18
6	2	3.65	C	1	23			2120			98	98	1.00	1990		-	1990	0.049			11	11	0.604	17
7	2,3	3.50	D	2	22		N	4070	290			290	1.00	3810		-	3810	0.076			16	33	0.297	19
8	3	3.50	E	1				2105		233		233	0.00	2105		-	2105	0.111	0.111	0	24	24	0.606	34
8,9	3	3.50	E	1	20			2105		67	155	222	0.70	2000		-	2000	0.111			24	24	0.608	33
10,11,12	4	3.70	F	1	20			2125	90	30	130	250	0.88	1993		250	2243	0.111	0.111	0	24	24	0.608	37
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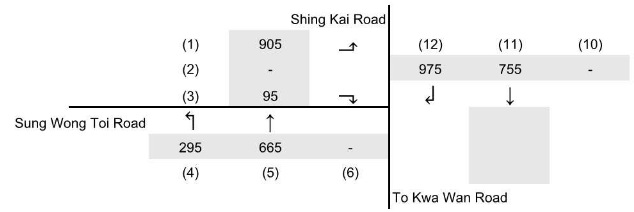
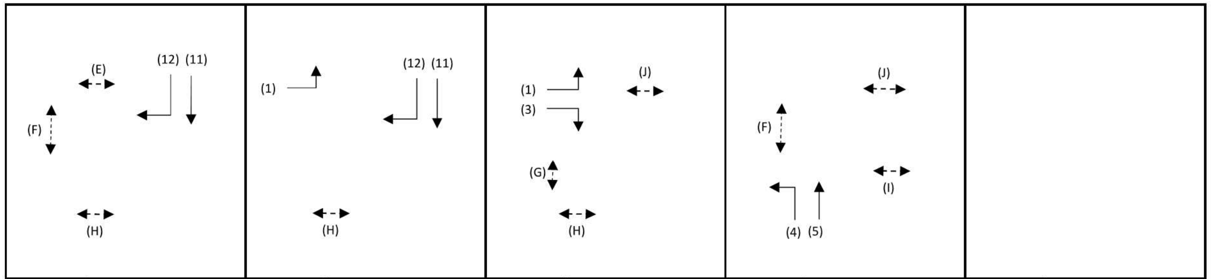
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J15_AM	PROJECT NO: 297978
J15 - Shing Kai Road/ Song Wong Toi Road/ To Kwa Wan Road	2036 Design Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4	
No. of Stage Using for Calculation		N=	3	
Cycle Time		C=	130	sec
Sum(y)		Y=	0.553	
Loss Time		L=	16	sec
Total Flow		=	3690	pcu
Co	=(1.5*L+5)/(1-Y)	=	65	sec
Cm	=L/(1-Y)	=	36	sec
Yult		=	0.780	
R.C.ult	=(Yult-Y)/Y*100%	=	41.0	%
Cp	=0.9*L/(0.9-Y)	=	41.5	sec
Ymax	=1-L/C	=	0.877	
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	42.6	%



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	E	16.00	7	0	13	9	0	13	OK
1,4	F	16.00	8	0	15	61	0	15	OK
3	G	8.00	5	0	7	6	0	7	OK
1,2,3	H	7.30	5	0	6	70	0	6	OK
4	I	8.00	5	0	7	47	0	7	OK
3,4	J	13.50	5	0	10	57	0	10	OK
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			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
																				0				
12	1,2	4.00	A	1	30			2155			585	585	1.00	2052		-	2052	0.285	0.285	0	59	59	0.631	58
11,12	1,2	3.65	A	1	32			2120		196	390	586	0.67	2056		-	2056	0.285			59	59	0.631	58
11	1,2	3.50	A	1			N	1965		559		559	0.00	1965		-	1965	0.284			59	59	0.630	55
1	2,3	3.50	B	2	18		N	4070	905			905	1.00	3757		-	3757	0.241			50	50	0.631	50
3	3	3.50	C	2	25			4210			95	95	1.00	3972		-	3972	0.024	0.024	4	5	9	0.348	8
4,5	4	3.60	D	1	18		N	1975	295	163		458	0.64	1874		-	1874	0.244	0.244	0	50	50	0.631	51
5	4	3.00	D	1				2055		502		502	0.00	2055		-	2055	0.244			50	50	0.631	56
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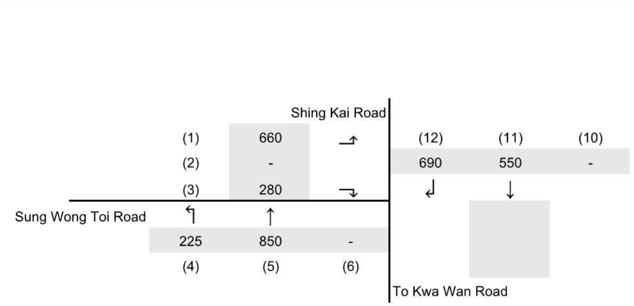
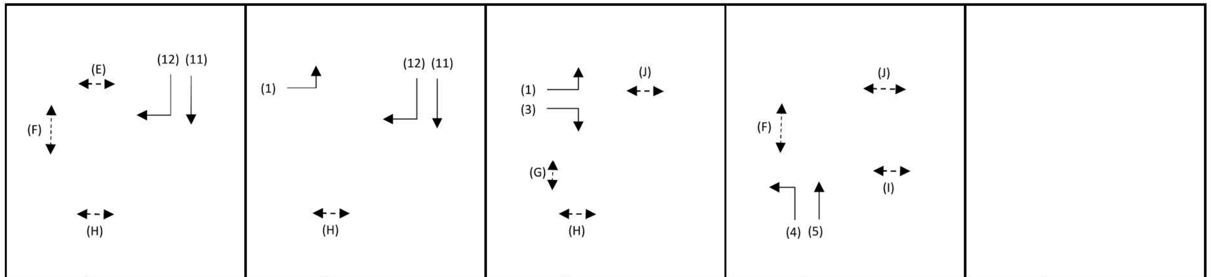
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J15_PM	PROJECT NO: 297978
J15 - Shing Kai Road/ Song Wong Toi Road/ To Kwa Wan Road	2036 Design Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	3
Cycle Time		C=	130 sec
Sum(y)		Y=	0.546
Loss Time		L=	12 sec
Total Flow		=	3255 pcu
Co	=(1.5*L+5)/(1-Y)	=	51 sec
Cm	=L/(1-Y)	=	26 sec
Yult		=	0.810
R.C.ult	=(Yult-Y)/Y*100%	=	48.3 %
Cp	=0.9*L/(0.9-Y)	=	30.5 sec
Ymax	=1-L/C	=	0.908
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	49.6 %



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	E	16.00	7	0	13	7	0	13	OK
1,4	F	16.00	8	0	15	68	0	15	OK
3	G	8.00	5	0	7	12	0	7	OK
1,2,3	H	7.30	5	0	6	61	0	6	OK
4	I	8.00	5	0	7	56	0	7	OK
3,4	J	13.50	5	0	10	72	0	10	OK
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			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
																				0				
12	1,2	4.00	A	1	30			2155			419	419	1.00	2052		-	2052	0.204	0.204	0	44	44	0.602	50
11,12	1,2	3.65	A	1	32			2120		149	271	420	0.65	2058		-	2058	0.204			44	44	0.602	50
11	1,2	3.50	A	1			N	1965		401		401	0.00	1965		-	1965	0.204			44	44	0.601	48
1	2,3	3.50	B	2	18		N	4070	660			660	1.00	3757		-	3757	0.176			38	43	0.527	40
3	3	3.50	C	2	25			4210			280	280	1.00	3972		-	3972	0.070	0.070	0	15	15	0.602	22
4,5	4	3.60	D	1	18		N	1975	225	292		517	0.44	1906		-	1906	0.271	0.272	0	59	59	0.601	51
5	4	3.00	D	1				2055		558		558	0.00	2055		-	2055	0.272			59	59	0.602	55
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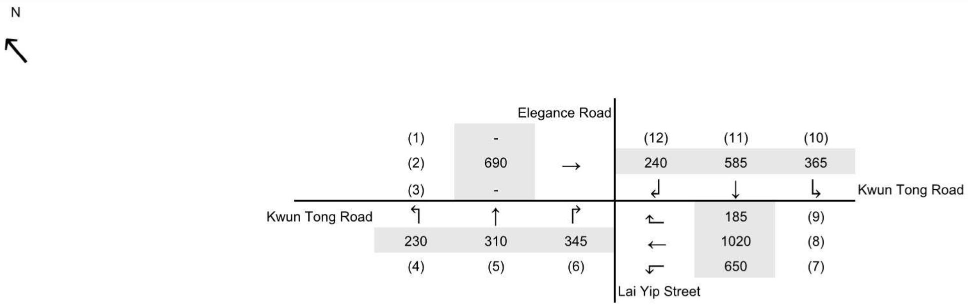
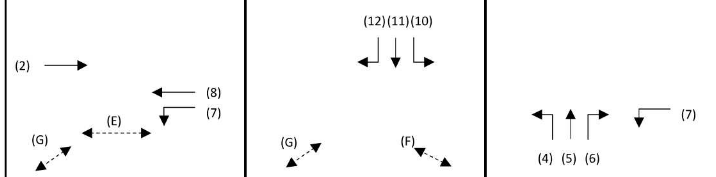
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J1_AM	PROJECT NO: 297978
J1 - Kwun Tong Road/ Elegence Road/ Lai Yip Street	2041 Design Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3	
No. of Stage Using for Calculation		N=	3	
Cycle Time		C=	120	sec
Sum(y)		Y=	0.600	
Loss Time		L=	19	sec
Total Flow		=	4435	pcu
Co	=(1.5*L+5)/(1-Y)	=	84	sec
Cm	=L/(1-Y)	=	48	sec
Yult		=	0.758	
R.C.ult	=(Yult-Y)/Y*100%	=	26.2	%
Cp	=0.9*L/(0.9-Y)	=	57.1	sec
Ymax	=1-L/C	=	0.842	
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	26.2	%



Stage 1	Int = 7	Stage 2	Int = 6	Stage 3	Int = 9	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	E	22.00	12	2	10	35	2	10	OK
2	F	5.00	5	2	5	35	2	5	OK
1,2	G	8.00	5	2	7	80	2	7	OK
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				19				
																				0				
2	1	3.00	A	2				4110		690		690	0.00	4110		-	4110	0.168	0.245	0	28	41	0.490	38
8	1	3.30	A	2				4170		1020		1020	0.00	4170		-	4170	0.245			41	41	0.713	56
7	1,3	4.50	B	1	10		N	2065	650			650	1.00	1796		-	1796	0.362			61	74	0.586	41
10	2	3.00	C	1	10		N	1915	365			365	1.00	1665		-	1665	0.219	0.219	0	37	37	0.713	43
11	2	3.30	C	1				2085		394		394	0.00	2085		-	2085	0.189			32	37	0.615	45
11,12	2	3.30	C	1	25			2085		191	240	431	0.56	2018		260	2278	0.189			32	37	0.616	50
4,5	3	3.50	D	1	25		N	1965	230	135		365	0.63	1893		780	2673	0.137	0.137	0	23	23	0.713	50
5,6	3	3.30	D	1	15			2085		175	99	274	0.36	2012		-	2012	0.136			23	23	0.711	38
6	3	3.30	D	1	10			2085			246	246	1.00	1813		-	1813	0.136			23	23	0.709	35
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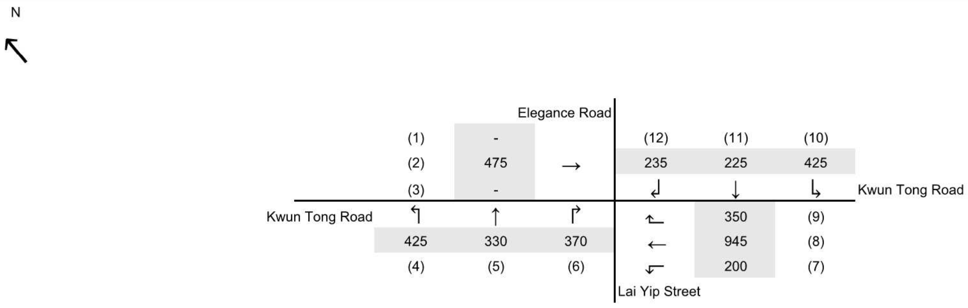
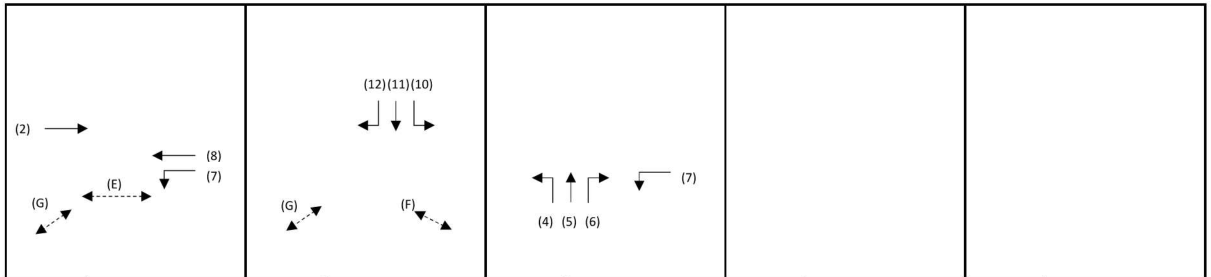
OVE ARUP & PARTNERS | **TRAFFIC SIGNAL CALCULATION**

Junction Assessment		SHEET: J1_PM	PROJECT NO: 297978
J1 - Kwun Tong Road/ Elegence Road/ Lai Yip Street	2041 Design Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	3
Cycle Time		C=	120 sec
Sum(y)		Y=	0.658
Loss Time		L=	19 sec
Total Flow		=	3630 pcu
Co	=(1.5*L+5)/(1-Y)	=	98 sec
Cm	=L/(1-Y)	=	56 sec
Yult		=	0.758
R.C.ult	=(Yult-Y)/Y*100%	=	15.2 %
Cp	=0.9*L/(0.9-Y)	=	70.6 sec
Ymax	=1-L/C	=	0.842
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	15.2 %



Stage 1 Int = 7	Stage 2 Int = 6	Stage 3 Int = 9	Stage 4 Int =	Stage 5 Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	E	22.00	12	2	10	29	2	10	OK
2	F	5.00	5	2	5	37	2	5	OK
1,2	G	8.00	5	2	7	76	2	7	OK
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				19				
																				0				
2	1	3.00	A	2				4110		475		475	0.00	4110		-	4110	0.116	0.227	0	18	35	0.399	28
8	1	3.30	A	2				4170		945		945	0.00	4170		-	4170	0.227			35	35	0.782	57
7	1,3	4.50	B	1	10		N	2065	200			200	1.00	1796		-	1796	0.111			17	72	0.186	13
10	2	3.00	C	1	10		N	1915	425			425	1.00	1665		-	1665	0.255	0.255	0	39	39	0.782	51
11	2	3.30	C	1				2085		223		223	0.00	2085		-	2085	0.107			16	39	0.328	25
11,12	2	3.30	C	1	25			2085		2	235	237	0.99	1968		250	2218	0.107			16	39	0.327	27
4,5	3	3.50	D	1	25		N	1965	425	20		445	0.96	1859		670	2529	0.176	0.176	0	27	27	0.782	61
5,6	3	3.30	D	1	15			2085		310	51	361	0.14	2056		-	2056	0.176			27	27	0.780	50
6	3	3.30	D	1	10			2085			319	319	1.00	1813		-	1813	0.176			27	27	0.781	45
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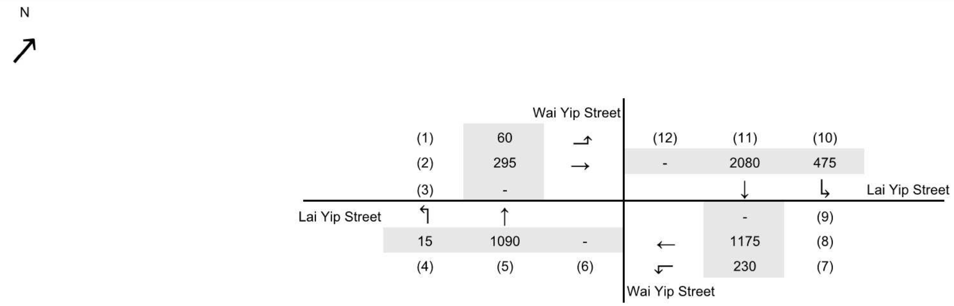
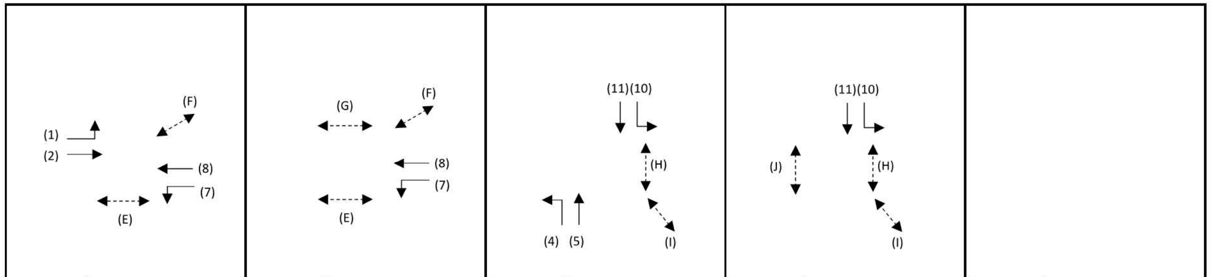
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J2_AM	PROJECT NO: 297978
J2 - Lai Yip Street/ Wai Yip Street	2041 Design Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	2
Cycle Time		C=	120 sec
Sum(y)		Y=	0.644
Loss Time		L=	20 sec
Total Flow		=	5420 pcu
Co	=(1.5*L+5)/(1-Y)	=	98 sec
Cm	=L/(1-Y)	=	56 sec
Yult		=	0.750
R.C.ult	=(Yult-Y)/Y*100%	=	16.5 %
Cp	=0.9*L/(0.9-Y)	=	70.2 sec
Ymax	=1-L/C	=	0.833
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	16.5 %



Stage 1	Int =	Stage 2	Int = 13	Stage 3	Int =	Stage 4	Int = 9	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2	E	18.00	10	9	6	32	9	6	OK
1,2	F	5.00	5	5	3	39	5	3	OK
2	G	18.00	12	10	6	13	10	6	OK
3,4	H	20.00	17	5	10	58	5	10	OK
3,4	I	6.00	5	5	1	67	5	1	OK
4	J	22.00	11	9	5	26	9	5	OK
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				20				
																				0				
1,2	1	3.30	A	1	10		N	1945	60	114		174	0.34	1999			1999	0.087			14	14	0.746	29
2	1	3.30	A	1				2085		181		181	0.00	2085		-	2085	0.087			13	14	0.744	30
7,8	1,2	3.00	B	1	20		N	1915	230	247		477	0.48	1848		260	2108	0.226	0.226	0	35	35	0.772	59
8	1,2	3.00	B	2				4110		928		928	0.00	4110		-	4110	0.226			35	35	0.771	56
4,5	3	3.00	C	1	15		N	1915	15	335		350	0.04	1907			1907	0.184			29	29	0.760	47
5	3	3.00	C	2				4110		755		755	0.00	4110		-	4110	0.184			29	29	0.760	49
10,11	3,4	3.30	D	1	30		N	1945	475	340		815	0.58	1890		65	1955	0.417	0.417	0	65	65	0.772	65
11	3,4	3.30	D	2				4170		1740		1740	0.00	4170		-	4170	0.417			65	65	0.772	67
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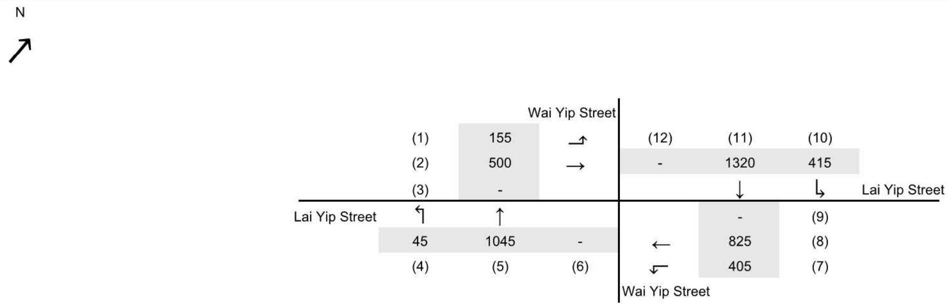
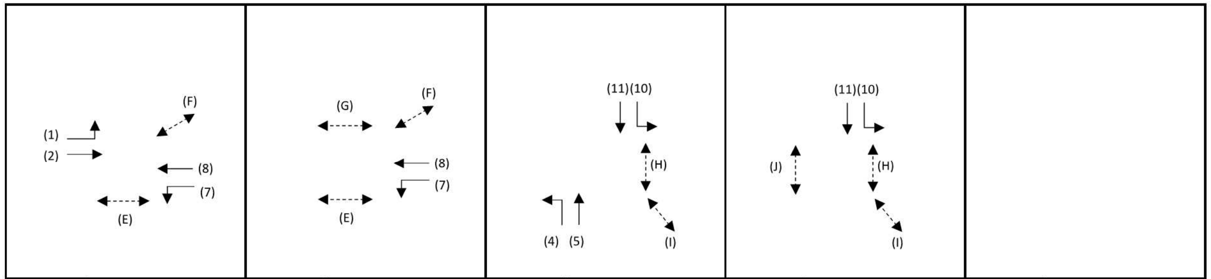
OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION	
Junction Assessment		SHEET: J2_PM	PROJECT NO: 297978
J2 - Lai Yip Street/ Wai Yip Street	2041 Design Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	2
Cycle Time		C=	120 sec
Sum(y)		Y=	0.490
Loss Time		L=	39 sec
Total Flow		=	4710 pcu
Co	=(1.5*L+5)/(1-Y)	=	124 sec
Cm	=L/(1-Y)	=	76 sec
Yult		=	0.608
R.C.ult	=(Yult-Y)/Y*100%	=	24.1 %
Cp	=0.9*L/(0.9-Y)	=	85.5 sec
Ymax	=1-L/C	=	0.675
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	24.1 %



Stage 1	Int =	Stage 2	Int = 13	Stage 3	Int =	Stage 4	Int = 9	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2	E	18.00	10	9	6	45	9	6	OK
1,2	F	5.00	5	5	3	52	5	3	OK
2	G	18.00	12	10	6	13	10	6	OK
3,4	H	20.00	17	5	10	45	5	10	OK
3,4	I	6.00	5	5	1	54	5	1	OK
4	J	22.00	11	9	5	11	9	5	OK
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			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				20				
																				0				
1,2	1	3.30	A	1	10		N	1945	155	163		318	0.49	1962			1962	0.162			27	27	0.720	42
2	1	3.30	A	1				2085		337		337	0.00	2085		-	2085	0.162			27	27	0.718	44
7,8	1,2	3.00	B	1	20		N	1915	405	0		405	1.00	1781		190	1971	0.205	0.205	14	34	48	0.514	41
8	1,2	3.00	B	2				4110		825		825	0.00	4110		-	4110	0.201			33	48	0.502	41
4,5	3	3.00	C	1	15		N	1915	45	299		344	0.13	1890			1890	0.182			30	31	0.704	43
5	3	3.00	C	2				4110		746		746	0.00	4110		-	4110	0.182			30	31	0.703	46
10,11	3,4	3.30	D	1	30		N	1945	415	136		551	0.75	1874		65	1939	0.284	0.284	5	47	52	0.656	52
11	3,4	3.30	D	2				4170		1184		1184	0.00	4170		-	4170	0.284			47	52	0.655	56
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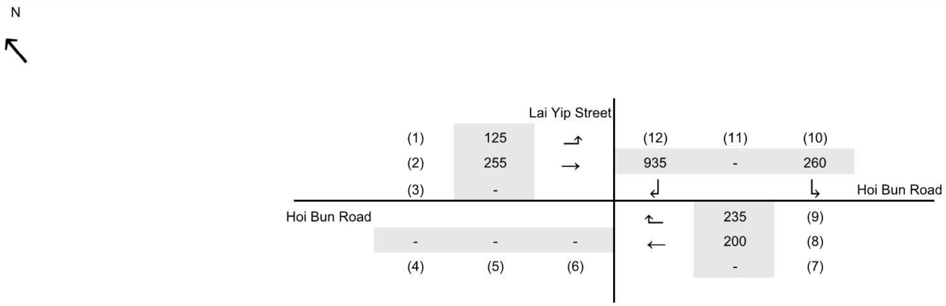
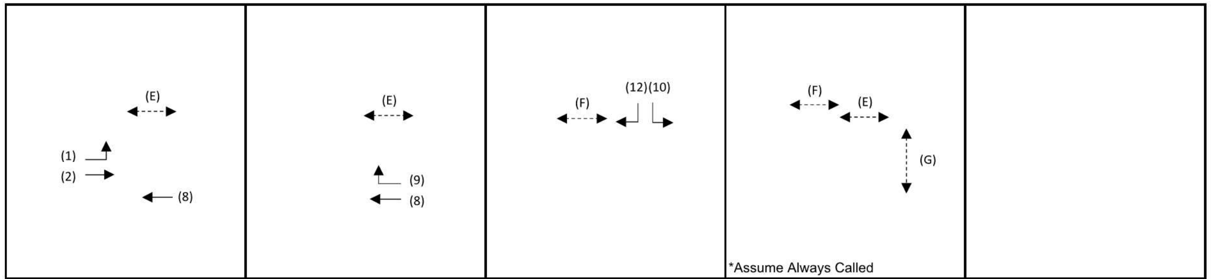
OVE ARUP & PARTNERS | **TRAFFIC SIGNAL CALCULATION**

Junction Assessment		SHEET: J3_AM	PROJECT NO: 297978
J3 - Lai Yip Street/ Hoi Bun Road	2041 Design Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	3
Cycle Time		C=	120 sec
Sum(y)		Y=	0.489
Loss Time		L=	34 sec
Total Flow		=	2010 pcu
Co	=(1.5*L+5)/(1-Y)	=	110 sec
Cm	=L/(1-Y)	=	67 sec
Yult		=	0.645
R.C.ult	=(Yult-Y)/Y*100%	=	31.8 %
Cp	=0.9*L/(0.9-Y)	=	74.5 sec
Ymax	=1-L/C	=	0.717
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	31.8 %



Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2,4	E	10.00	12	0	9	63	0	9	OK
3,4	F	5.00	7	9	6	50	9	6	OK
4	G	8.00	7	3	7	7	3	7	OK
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
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Movement	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				17				
																			S4	17				
1	1	3.25	A	1	10		N	1940	125			125	1.00	1687		-	1687	0.074	0.123	0	13	22	0.413	17
2	1	3.25	A	1				2080		255		255	0.00	2080		-	2080	0.123			22	22	0.683	36
8	1,2	3.00	B	1			N	1915		200		200	0.00	1915		-	1915	0.104			18	46	0.275	21
9	2	3.00	C	1	15			2055			235	235	1.00	1868		-	1868	0.126	0.126	0	22	22	0.683	33
10	3	3.30	D	1	15		N	1945	260			260	1.00	1768		-	1768	0.147	0.241	0	26	42	0.417	28
12	3	3.30	D	2	20			4170			935	935	1.00	3879		-	3879	0.241			42	42	0.683	50
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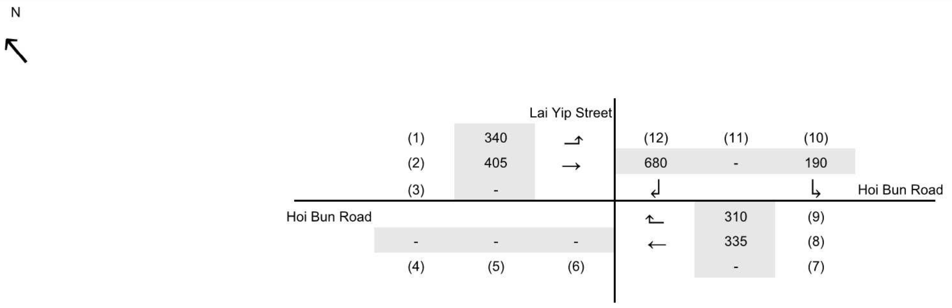
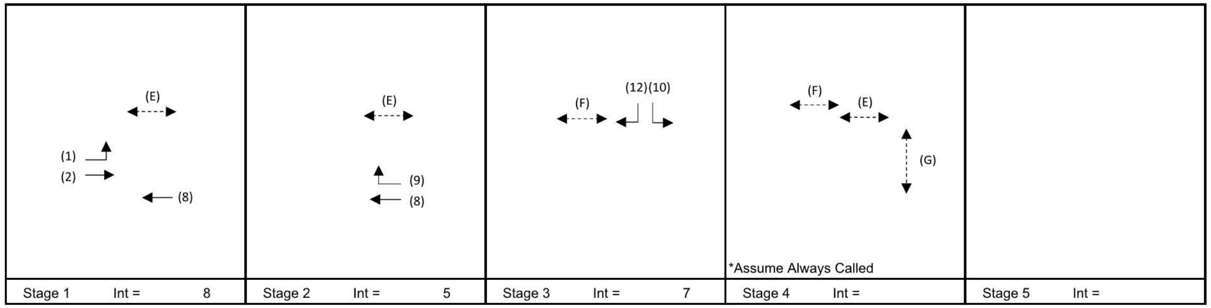
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J3_PM	PROJECT NO: 297978
J3 - Lai Yip Street/ Hoi Bun Road	2041 Design Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4	
No. of Stage Using for Calculation		N=	3	
Cycle Time		C=	120	sec
Sum(y)		Y=	0.543	
Loss Time		L=	34	sec
Total Flow		=	2260	pcu
Co	=(1.5*L+5)/(1-Y)	=	122	sec
Cm	=L/(1-Y)	=	74	sec
Yult		=	0.645	
R.C.ult	=(Yult-Y)/Y*100%	=	18.8	%
Cp	=0.9*L/(0.9-Y)	=	85.7	sec
Ymax	=1-L/C	=	0.717	
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	18.8	%



Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2,4	E	10.00	12	0	9	77	0	9	OK
3,4	F	5.00	7	9	6	36	9	6	OK
4	G	8.00	7	3	7	7	3	7	OK
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				17				
																			S4	17				
1	1	3.25	A	1	10		N	1940	340			340	1.00	1687		-	1687	0.202	0.202	0	32	32	0.757	44
2	1	3.25	A	1				2080		405		405	0.00	2080		-	2080	0.195			31	32	0.732	51
8	1,2	3.00	B	1			N	1915		335		335	0.00	1915		-	1915	0.175			28	60	0.349	28
9	2	3.00	C	1	15			2055			310	310	1.00	1868		-	1868	0.166	0.166	0	26	26	0.757	43
10	3	3.30	D	1	15		N	1945	190			190	1.00	1768		-	1768	0.107	0.175	0	17	28	0.464	24
12	3	3.30	D	2	20			4170			680	680	1.00	3879		-	3879	0.175			28	28	0.757	44
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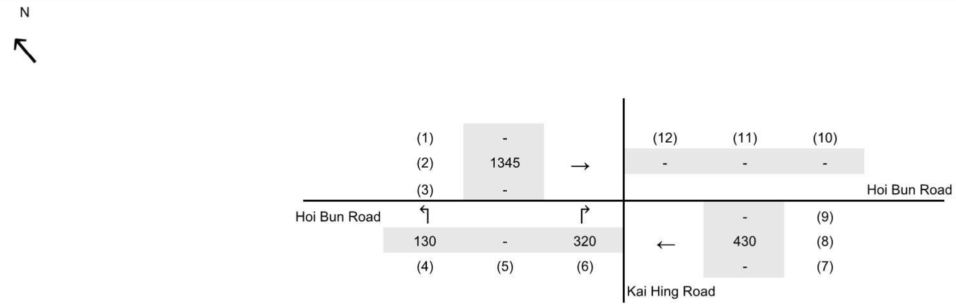
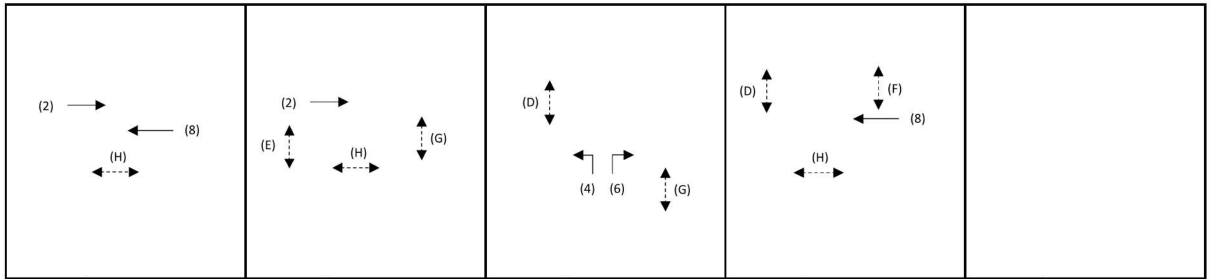
OVE ARUP & PARTNERS	**TRAFFIC SIGNAL CALCULATION**		
Junction Assessment		SHEET: J4_AM	PROJECT NO: 297978
J4 - Kai Hing Road/ Hoi Bun Road	2041 Design Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	2
Cycle Time		C=	130 sec
Sum(y)		Y=	0.487
Loss Time		L=	42 sec
Total Flow		=	2225 pcu
Co	=(1.5*L+5)/(1-Y)	=	132 sec
Cm	=L/(1-Y)	=	82 sec
Yult		=	0.585
R.C.ult	=(Yult-Y)/Y*100%	=	20.2 %
Cp	=0.9*L/(0.9-Y)	=	91.4 sec
Ymax	=1-L/C	=	0.677
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	25.2 %



Stage 1	Int =	Stage 2	Int = 12	Stage 3	Int = 11	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3,4	D	7.00	5	2	7	50	2	7	OK
2	E	6.75	5	6	10	45	6	10	OK
4	F	6.50	5	10	6	5	10	6	OK
2,3	G	6.75	5	2	9	88	2	9	OK
1,2,4	H	10.50	7	2	10	80	2	10	OK
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				21				
																			S4	21				
2	1,2	3.50	A	2			N	4070		1345		1345	0.00	4070		-	4070	0.330	0.330	0	60	60	0.719	66
8	1,4	3.30	B	2			N	4030		430		430	0.00	4030		-	4030	0.107			19	20	0.694	33
4	3	5.00	C	1	12.5		N	2115	130			130	1.00	1888		-	1888	0.069	0.156	0	12	28	0.317	18
4,6	3	5.00	C	1	15			2255	0		320	320	1.00	2050		-	2050	0.156			28	28	0.719	46
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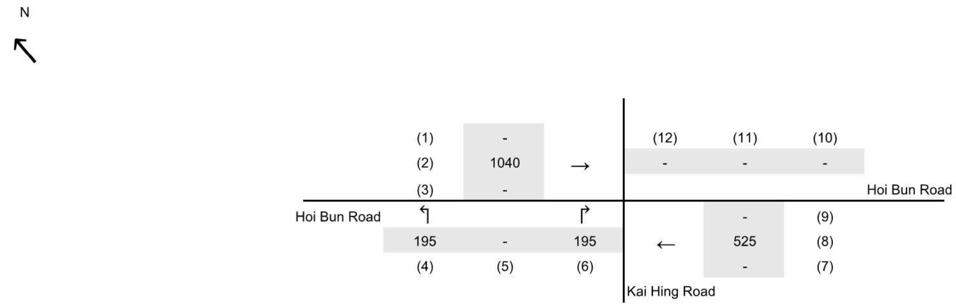
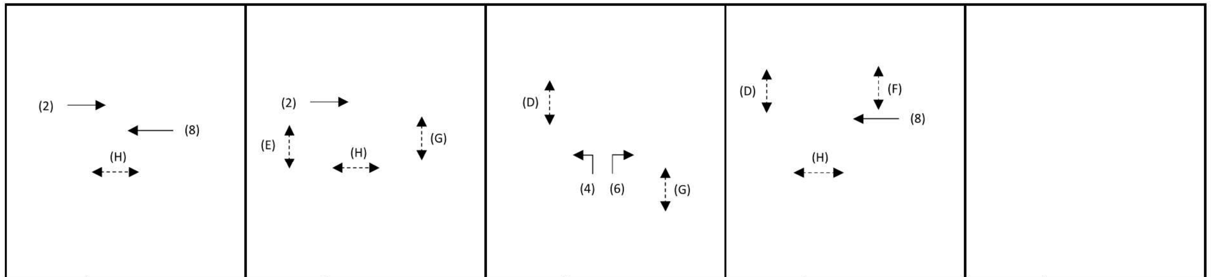
OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION	
Junction Assessment		SHEET: J4_PM	PROJECT NO: 297978
J4 - Kai Hing Road/ Hoi Bun Road	2041 Design Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	2
Cycle Time		C=	130 sec
Sum(y)		Y=	0.355
Loss Time		L=	42 sec
Total Flow		=	1955 pcu
Co	=(1.5*L+5)/(1-Y)	=	105 sec
Cm	=L/(1-Y)	=	65 sec
Yult		=	0.585
R.C.ult	=(Yult-Y)/Y*100%	=	65.0 %
Cp	=0.9*L/(0.9-Y)	=	69.3 sec
Ymax	=1-L/C	=	0.677
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	71.8 %



Stage 1	Int =	Stage 2	Int = 12	Stage 3	Int = 11	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3,4	D	7.00	5	2	7	47	2	7	OK
2	E	6.75	5	6	10	35	6	10	OK
4	F	6.50	5	10	6	5	10	6	OK
2,3	G	6.75	5	2	9	75	2	9	OK
1,2,4	H	10.50	7	2	10	83	2	10	OK
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				21				
																			S4	21				
2	1,2	3.50	A	2			N	4070		1040		1040	0.00	4070		-	4070	0.256	0.256	0	63	63	0.524	48
8	1,4	3.30	B	2			N	4030		525		525	0.00	4030		-	4030	0.130			32	33	0.513	35
4	3	5.00	C	1	12.5		N	2115	187			187	1.00	1888		-	1888	0.099	0.099	0	25	25	0.524	27
4,6	3	5.00	C	1	15			2255	8		195	203	1.00	2050		-	2050	0.099			25	25	0.524	30
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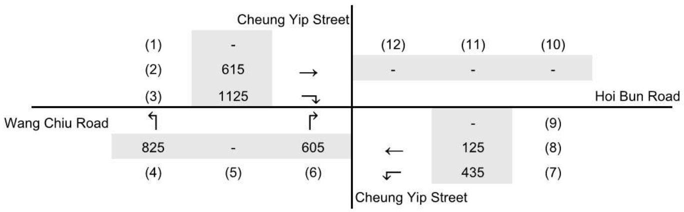
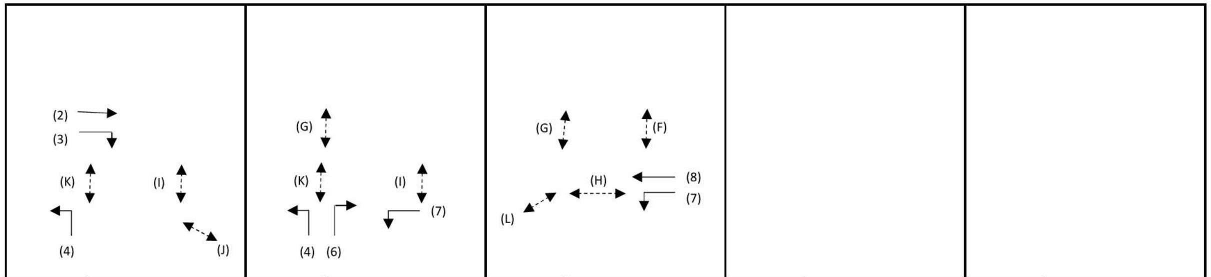
OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION	
Junction Assessment		SHEET: J5_AM	PROJECT NO: 297978
J5 - Hoi Bun Road/ Wang Chiu Road/ Cheung Yip Street	2041 Design Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	3
Cycle Time		C=	120 sec
Sum(y)		Y=	0.642
Loss Time		L=	19 sec
Total Flow		=	3730 pcu
Co	=(1.5*L+5)/(1-Y)	=	94 sec
Cm	=L/(1-Y)	=	53 sec
Yult		=	0.758
R.C.ult	=(Yult-Y)/Y*100%	=	17.9 %
Cp	=0.9*L/(0.9-Y)	=	66.4 sec
Ymax	=1-L/C	=	0.842
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	17.9 %



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3	F	7.00	5	0	7	15	0	7	OK
2,3	G	11.00	5	0	9	40	0	9	OK
3	H	11.00	5	0	17	5	0	17	OK
1,2	I	5.00	5	0	4	94	0	4	OK
1	J	7.00	5	0	7	64	0	7	OK
1,2	K	5.00	5	0	5	93	0	5	OK
3	L	5.00	5	0	4	18	0	4	OK
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			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
																				0				
2,3	1	3.50	A	1	35		N	1965		615	241	856	0.28	1942		-	1942	0.441	0.441	0	69	69	0.763	62
3	1	3.50	A	1	30			2105			884	884	1.00	2005		-	2005	0.441			69	69	0.763	64
4	1,2	3.50	B	1	15		N	1965	825			825	1.00	1786		-	1786	0.462			73	94	0.592	30
6	2	3.50	C	2	30			4210			605	605	1.00	4010		250	4260	0.142	0.142	0	22	22	0.763	42
7	2,3	3.50	D	1	30		N	1965	435			435	1.00	1871		300	2171	0.200			31	45	0.538	46
8	3	3.50	E	1				2105		125		125	0.00	2105		-	2105	0.059	0.059	9	9	18	0.389	18
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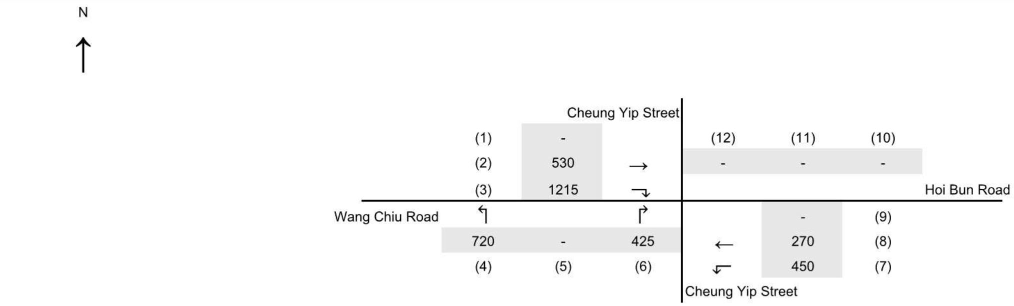
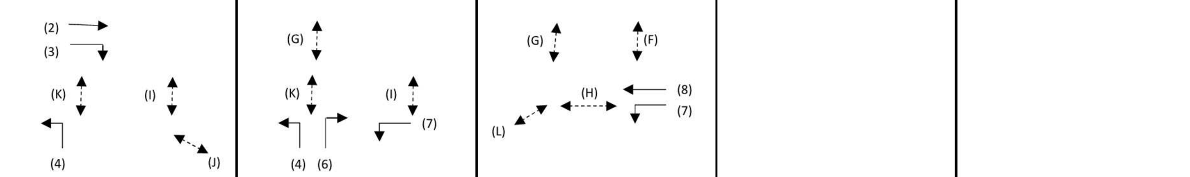
OVE ARUP & PARTNERS — TRAFFIC SIGNAL CALCULATION

Junction Assessment		SHEET: J5_PM	PROJECT NO: 297978
J5 - Hoi Bun Road/ Wang Chiu Road/ Cheung Yip Street	2041 Design Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	3
Cycle Time		C=	120 sec
Sum(y)		Y=	0.671
Loss Time		L=	10 sec
Total Flow		=	3610 pcu
Co	=(1.5*L+5)/(1-Y)	=	61 sec
Cm	=L/(1-Y)	=	30 sec
Yult		=	0.825
R.C.ult	=(Yult-Y)/Y*100%	=	22.9 %
Cp	=0.9*L/(0.9-Y)	=	39.4 sec
Ymax	=1-L/C	=	0.917
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	22.9 %



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3	F	7.00	5	0	7	18	0	7	OK
2,3	G	11.00	5	0	9	36	0	9	OK
3	H	11.00	5	0	17	8	0	17	OK
1,2	I	5.00	5	0	4	91	0	4	OK
1	J	7.00	5	0	7	68	0	7	OK
1,2	K	5.00	5	0	5	90	0	5	OK
3	L	5.00	5	0	4	21	0	4	OK
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
																				0				
2,3	1	3.50	A	1	35		N	1965		530	327	857	0.38	1933		-	1933	0.443	0.443	0	73	73	0.732	57
3	1	3.50	A	1	30			2105			888	888	1.00	2005		-	2005	0.443			73	73	0.732	59
4	1,2	3.50	B	1	15		N	1965	720			720	1.00	1786		-	1786	0.403			66	91	0.532	29
6	2	3.50	C	2	30			4210			425	425	1.00	4010		250	4260	0.100	0.100	0	16	16	0.732	31
7	2,3	3.50	D	1	30		N	1965	450			450	1.00	1871		300	2171	0.207			34	41	0.601	49
8	3	3.50	E	1				2105		270		270	0.00	2105		-	2105	0.128	0.128	0	21	21	0.732	39
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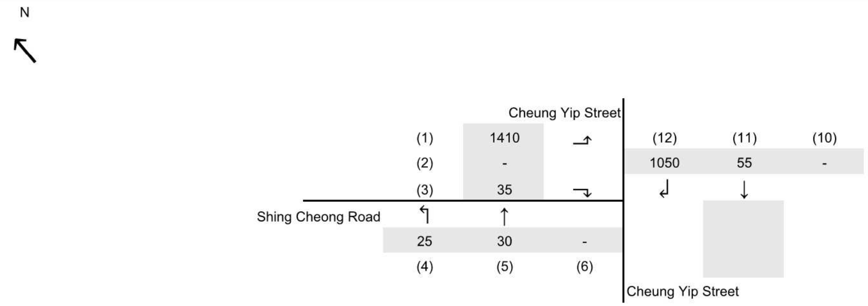
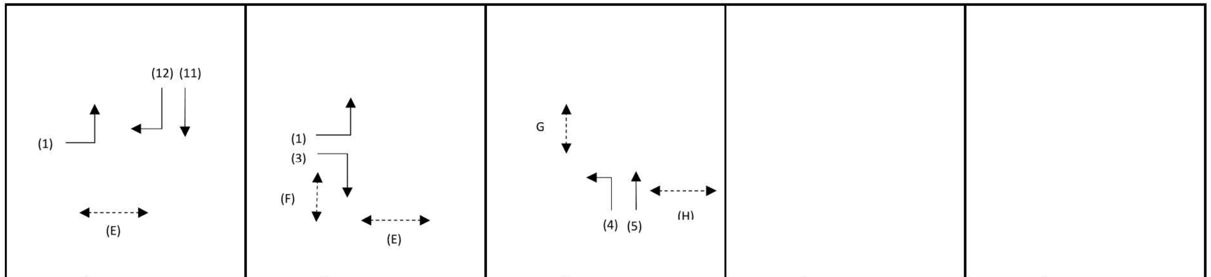
OVE ARUP & PARTNERS — TRAFFIC SIGNAL CALCULATION

Junction Assessment		SHEET: J6_AM	PROJECT NO: 297978
J6 - Cheung Yip Street/ Shing Cheong Road	2041 Design Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3	
No. of Stage Using for Calculation		N=	2	
Cycle Time		C=	120	sec
Sum(y)		Y=	0.399	
Loss Time		L=	37	sec
Total Flow		=	2605	pcu
Co	=(1.5*L+5)/(1-Y)	=	101	sec
Cm	=L/(1-Y)	=	62	sec
Yult		=	0.623	
R.C.ult	=(Yult-Y)/Y*100%	=	55.9	%
Cp	=0.9*L/(0.9-Y)	=	66.5	sec
Ymax	=1-L/C	=	0.692	
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	55.9	%



Stage 1	Int =	Stage 2	Int = 5	Stage 3	Int = 8	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2	E	6.00	5	0	8	89	0	8	OK
2	F	8.00	6	9	8	6	9	8	OK
3	G	11.00	10	2	8	13	2	8	OK
3	H	6.00	5	10	7	6	10	7	OK
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			-		-		-	-	-
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			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				11				
																				0				
11,12	1	3.50	B	1	15		N	1965		55	496	551	0.90	1803		-	1803	0.306			64	64	0.573	43
12	1	3.30	B	1	10			2085			554	554	1.00	1813		-	1813	0.306			64	64	0.573	43
1	1,2	3.30	A	2	15		N	4030	1410			1410	1.00	3664		-	3664	0.385	0.385	13	80	93	0.497	26
3	2	3.50	D	1	10			2105			35	35	1.00	1830		-	1830	0.019			4	19	0.121	5
4	3	3.50	C	1	15		N	1965	25			25	1.00	1786		-	1786	0.014	0.014	13	3	16	0.105	4
5	3	3.30	C	1				2085		30		30	0.00	2085		-	2085	0.014			3	16	0.108	4
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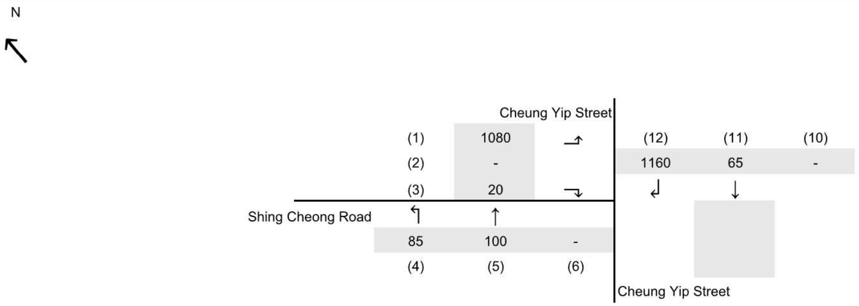
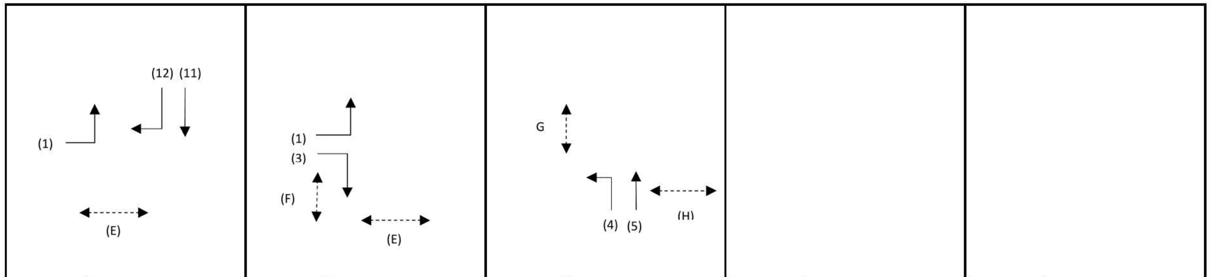
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J6_PM	PROJECT NO: 297978
J6 - Cheung Yip Street/ Shing Cheong Road	2041 Design Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	3
Cycle Time		C=	120 sec
Sum(y)		Y=	0.398
Loss Time		L=	44 sec
Total Flow		=	2510 pcu
Co	=(1.5*L+5)/(1-Y)	=	118 sec
Cm	=L/(1-Y)	=	73 sec
Yult		=	0.570
R.C.ult	=(Yult-Y)/Y*100%	=	43.4 %
Cp	=0.9*L/(0.9-Y)	=	78.8 sec
Ymax	=1-L/C	=	0.633
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	43.4 %



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2	E	6.00	5	0	8	90	0	8	OK
2	F	8.00	6	9	8	6	9	8	OK
3	G	11.00	10	2	8	12	2	8	OK
3	H	6.00	5	10	7	5	10	7	OK
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				21				
																				0				
11,12	1	3.50	B	1	15		N	1965		65	546	611	0.89	1804		-	1804	0.339	0.339	0	65	65	0.628	47
12	1	3.30	B	1	10			2085			614	614	1.00	1813		-	1813	0.339			65	65	0.628	47
1	1,2	3.30	A	2	15		N	4030	1080			1080	1.00	3664		-	3664	0.295			56	94	0.377	20
3	2	3.50	D	1	10			2105			20	20	1.00	1830		-	1830	0.011	0.011	17	2	19	0.069	3
4	3	3.50	C	1	15		N	1965	85			85	1.00	1786		-	1786	0.048	0.048	6	9	15	0.376	12
5	3	3.30	C	1				2085		100		100	0.00	2085		-	2085	0.048			9	15	0.379	15
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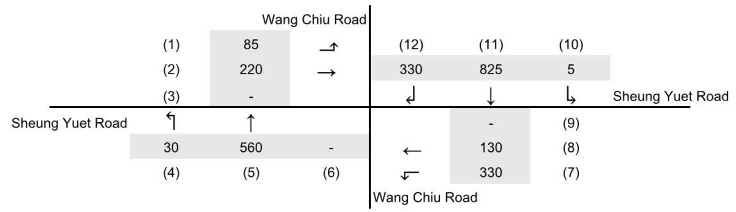
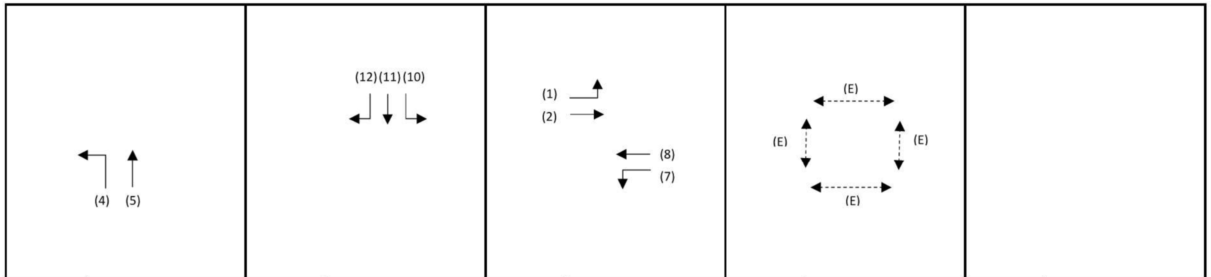
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J7_AM	PROJECT NO: 297978
J7 - Wang Chiu Road/ Sheung Yuet Road	2041 Design Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:

N ↑



No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	3
Cycle Time		C=	140 sec
Sum(y)		Y=	0.536
Loss Time		L=	41 sec
Total Flow		=	2515 pcu
Co	=(1.5*L+5)/(1-Y)	=	143 sec
Cm	=L/(1-Y)	=	88 sec
Yult		=	0.593
R.C.ult	=(Yult-Y)/Y*100%	=	10.5 %
Cp	=0.9*L/(0.9-Y)	=	101.5 sec
Ymax	=1-L/C	=	0.707
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	18.7 %



Stage 1	Int = 6	Stage 2	Int = 7	Stage 3	Int = 8	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4	E	12.00	9	5	9	9	5	9	OK
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
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			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				18				
																			S4	23				
4,5	1	3.50	A	1	15		N	1965	30	253		283	0.11	1944		-	1944	0.146	0.146	0	27	27	0.757	47
5	1	3.50	A	1				2105		307		307	0.00	2105		-	2105	0.146			27	27	0.758	51
10,11	2	3.40	B	1	10		N	1955	5	396		401	0.01	1951		-	1951	0.205	0.206	0	38	38	0.758	59
11	2	3.30	B	1				2085		429		429	0.00	2085		-	2085	0.206			38	38	0.758	63
12	2	3.30	B	1	15			2085			330	330	1.00	1895		-	1895	0.174			32	38	0.642	47
7,8	3	3.50	C	1	15		N	1965	330	0		330	1.00	1786		-	1786	0.185	0.185	0	34	34	0.758	51
8	3	3.50	C	1				2105		130		130	0.00	2105		-	2105	0.062			11	34	0.254	19
1,2	3	3.50	C	1	15		N	1965	85	58		143	0.59	1855		-	1855	0.077			14	34	0.317	21
2	3	3.50	C	1				2105		162		162	0.00	2105		-	2105	0.077			14	34	0.316	24
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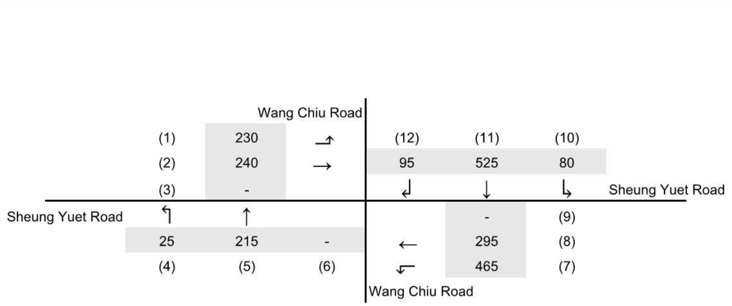
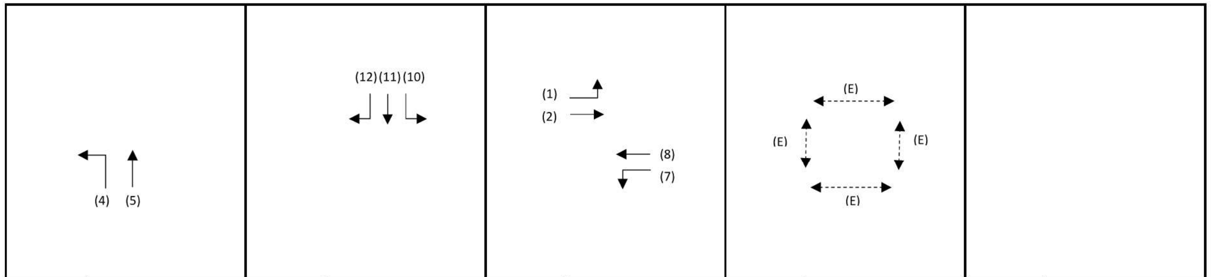
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J7_PM	PROJECT NO: 297978
J7 - Wang Chiu Road/ Sheung Yuet Road	2041 Design Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	3
Cycle Time		C=	140 sec
Sum(y)		Y=	0.473
Loss Time		L=	41 sec
Total Flow		=	2170 pcu
Co	=(1.5*L+5)/(1-Y)	=	126 sec
Cm	=L/(1-Y)	=	78 sec
Yult		=	0.593
R.C.ult	=(Yult-Y)/Y*100%	=	25.3 %
Cp	=0.9*L/(0.9-Y)	=	86.4 sec
Ymax	=1-L/C	=	0.707
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	34.5 %



Stage 1	Int = 6	Stage 2	Int = 7	Stage 3	Int = 8	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4	E	12.00	9	5	9	9	5	9	OK
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				18				
																			S4	23				
4,5	1	3.50	A	1	15		N	1965	25	90		115	0.22	1923		-	1923	0.060	0.060	0	13	13	0.669	22
5	1	3.50	A	1				2105		125		125	0.00	2105		-	2105	0.059			12	13	0.664	23
10,11	2	3.40	B	1	10		N	1955	80	207		287	0.28	1877		-	1877	0.153	0.153	0	32	32	0.669	43
11	2	3.30	B	1				2085		318		318	0.00	2085		-	2085	0.153			32	32	0.667	48
12	2	3.30	B	1	15			2085			95	95	1.00	1895		-	1895	0.050			10	32	0.219	14
7,8	3	3.50	C	1	15		N	1965	465	0		465	1.00	1786		-	1786	0.260	0.260	0	54	54	0.669	53
8	3	3.50	C	1				2105		295		295	0.00	2105		-	2105	0.140			29	54	0.360	35
1,2	3	3.50	C	1	15		N	1965	230	0		230	1.00	1786		-	1786	0.129			27	54	0.331	27
2	3	3.50	C	1				2105		240		240	0.00	2105		-	2105	0.114			24	54	0.293	29
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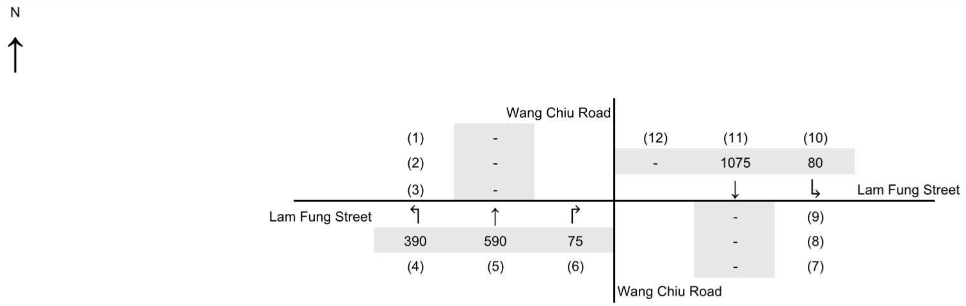
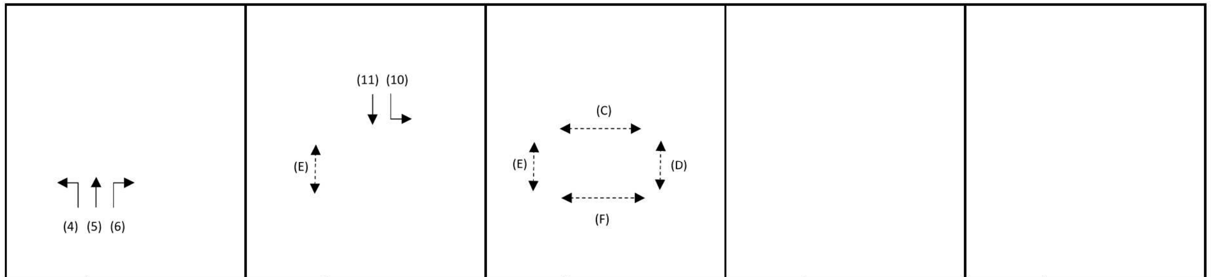
OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION	
Junction Assessment		SHEET: J8_AM	PROJECT NO: 297978
J8 - Wang Chiu Road/ Lam Fung Street	2041 Design Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3	
No. of Stage Using for Calculation		N=	2	
Cycle Time		C=	120	sec
Sum(y)		Y=	0.464	
Loss Time		L=	36	sec
Total Flow		=	2210	pcu
Co	=(1.5*L+5)/(1-Y)	=	110	sec
Cm	=L/(1-Y)	=	67	sec
Yult		=	0.630	
R.C.ult	=(Yult-Y)/Y*100%	=	35.7	%
Cp	=0.9*L/(0.9-Y)	=	74.4	sec
Ymax	=1-L/C	=	0.700	
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	35.7	%



Stage 1	Int = 5	Stage 2	Int = 9	Stage 3	Int =	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3	C	11.00	10	0	9	15	0	9	OK
3	D	8.00	5	3	11	10	3	11	OK
2,3	E	9.00	5	6	14	64	6	14	OK
3	F	9.00	11	3	10	11	3	10	OK
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			-		-		-	-	-
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			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
																			S3	24				
4	1	3.50	A	1	15		N	1965	318			318	1.00	1786		-	1786	0.178	0.178	0	32	32	0.662	39
4,5	1	3.50	A	1	18			2105	72	296		368	0.20	2071		-	2071	0.178			32	32	0.661	45
5,6	1	3.50	A	1	18			2105		294	75	369	0.20	2070		-	2070	0.178			32	32	0.663	45
10,11	2	3.50	B	1	15		N	1965	80	474		554	0.14	1937		-	1937	0.286	0.286	0	52	52	0.663	53
11	2	3.50	B	1				2105		601		601	0.00	2105		-	2105	0.286			52	52	0.662	57
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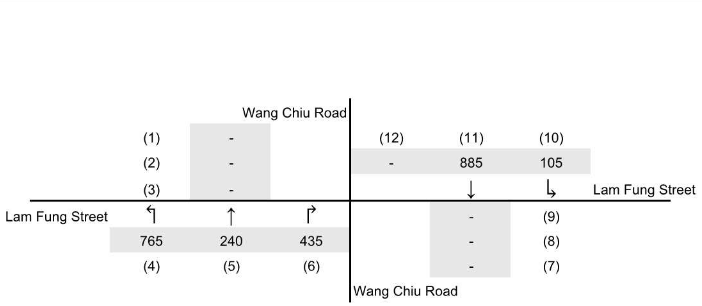
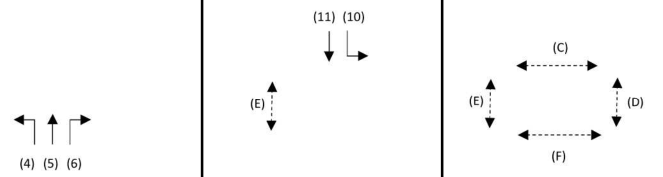
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J8_PM	PROJECT NO: 297978
J8 - Wang Chiu Road/ Lam Fung Street	2041 Design Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	2
Cycle Time		C=	120 sec
Sum(y)		Y=	0.497
Loss Time		L=	36 sec
Total Flow		=	2430 pcu
Co	=(1.5*L+5)/(1-Y)	=	117 sec
Cm	=L/(1-Y)	=	72 sec
Yult		=	0.630
R.C.ult	=(Yult-Y)/Y*100%	=	26.8 %
Cp	=0.9*L/(0.9-Y)	=	80.4 sec
Ymax	=1-L/C	=	0.700
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	26.8 %



Stage 1	Int = 5	Stage 2	Int = 9	Stage 3	Int =	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3	C	11.00	10	0	9	15	0	9	OK
3	D	8.00	5	3	11	10	3	11	OK
2,3	E	9.00	5	6	14	54	6	14	OK
3	F	9.00	11	3	10	11	3	10	OK
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
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			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
																			S3	24				
4	1	3.50	A	1	15		N	1965	447			447	1.00	1786		-	1786	0.250	0.251	0	42	42	0.708	48
4,5	1	3.50	A	1	18			2105	318	183		501	0.63	1999		-	1999	0.251			42	42	0.709	54
5,6	1	3.50	A	1	18			2105		57	435	492	0.88	1961		-	1961	0.251			42	42	0.710	53
10,11	2	3.50	B	1	15		N	1965	105	368		473	0.22	1922		-	1922	0.246	0.246	0	42	42	0.710	52
11	2	3.50	B	1				2105		517		517	0.00	2105		-	2105	0.246			42	42	0.709	56
								-				-	-	-		-	-	-			-		-	-
								-				-	-	-		-	-	-			-		-	-
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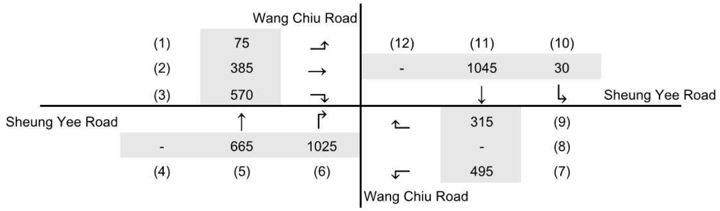
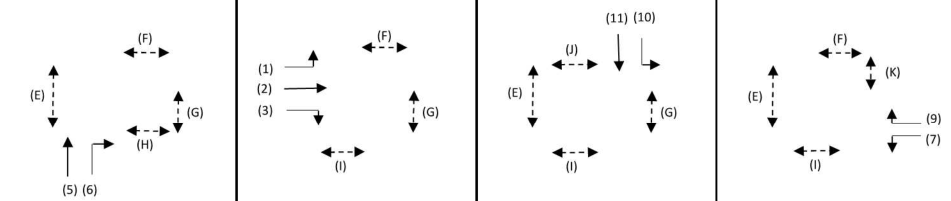
OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION	
Junction Assessment		SHEET: J9_AM	PROJECT NO: 297978
J9 - Wang Chiu Road/ Sheung Yee Road	2041 Design Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4	
No. of Stage Using for Calculation		N=	4	
Cycle Time		C=	140	sec
Sum(y)		Y=	0.690	
Loss Time		L=	16	sec
Total Flow		=	4605	pcu
Co	=(1.5*L+5)/(1-Y)	=	94	sec
Cm	=L/(1-Y)	=	52	sec
Yult		=	0.780	
R.C.ult	=(Yult-Y)/Y*100%	=	13.0	%
Cp	=0.9*L/(0.9-Y)	=	68.7	sec
Ymax	=1-L/C	=	0.886	
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	15.5	%



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,3,4	A	11.00	9	2	21	92	2	21	OK
1,2,4	B	6.00	5	2	11	92	2	11	OK
1,2,3	C	6.00	5	2	7	102	2	7	OK
1	D	6.00	5	8	7	35	8	7	OK
2,3,4	E	6.00	5	2	13	75	2	13	OK
3	F	8.00	5	6	10	19	6	10	OK
4	G	8.00	5	6	9	14	6	9	OK
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			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
																				0				
5	1	3.50	A	2			N	4070		665		665	0.00	4070		-	4070	0.163	0.256	0	29	46	0.498	43
6	1	3.50	A	2	30			4210			1025	1025	1.00	4010		-	4010	0.256			46	46	0.779	68
1	2	3.50	B	1	15		N	1965	75			75	1.00	1786		-	1786	0.042	0.118	0	8	21	0.276	12
1,2	2	3.50	B	1	20			2105	0	249		249	0.00	2105		-	2105	0.118			21	21	0.778	45
2,3	2	3.50	B	1	30			2105		136	108	244	0.44	2059		-	2059	0.118			21	21	0.779	44
3	2	3.50	B	2	20			4210			462	462	1.00	3916		-	3916	0.118			21	21	0.776	40
10,11	3	3.50	C	1	15		N	1965	30	310		340	0.09	1948		-	1948	0.175	0.175	0	31	31	0.779	55
11	3	3.50	C	2				4210		735		735	0.00	4210		-	4210	0.175			31	31	0.779	57
7	4	3.50	D	1	15		N	1965	253			253	1.00	1786		-	1786	0.142	0.142	0	25	25	0.779	44
7,9	4	3.50	D	1	20			2105	242		35	277	1.00	1958		-	1958	0.141			25	25	0.778	48
9	4	3.50	D	1	25			2105			280	280	1.00	1986		-	1986	0.141			25	25	0.776	48
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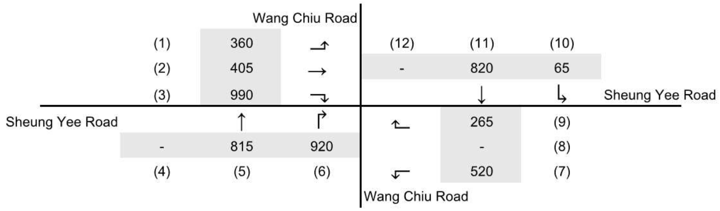
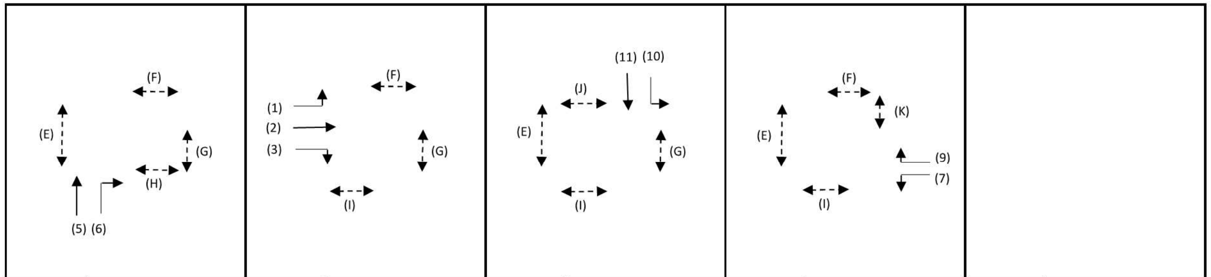
OVE ARUP & PARTNERS	**TRAFFIC SIGNAL CALCULATION**		
Junction Assessment		SHEET: J9_PM	PROJECT NO: 297978
J9 - Wang Chiu Road/ Sheung Yee Road	2041 Design Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	4
Cycle Time		C=	140 sec
Sum(y)		Y=	0.692
Loss Time		L=	16 sec
Total Flow		=	5160 pcu
Co	=(1.5*L+5)/(1-Y)	=	94 sec
Cm	=L/(1-Y)	=	52 sec
Yult		=	0.780
R.C.ult	=(Yult-Y)/Y*100%	=	12.7 %
Cp	=0.9*L/(0.9-Y)	=	69.2 sec
Ymax	=1-L/C	=	0.886
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	15.2 %



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,3,4	A	11.00	9	2	21	81	2	21	OK
1,2,4	B	6.00	5	2	11	97	2	11	OK
1,2,3	C	6.00	5	2	7	102	2	7	OK
1	D	6.00	5	8	7	30	8	7	OK
2,3,4	E	6.00	5	2	13	80	2	13	OK
3	F	8.00	5	6	10	14	6	10	OK
4	G	8.00	5	6	9	14	6	9	OK
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			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
																				0				
5	1	3.50	A	2			N	4070		815		815	0.00	4070		-	4070	0.200	0.229	0	36	41	0.682	56
6	1	3.50	A	2	30			4210			920	920	1.00	4010		-	4010	0.229			41	41	0.781	64
1	2	3.50	B	1	15		N	1965	320			320	1.00	1786		-	1786	0.179	0.179	0	32	32	0.781	52
1,2	2	3.50	B	1	20			2105	40	334		374	0.11	2088		-	2088	0.179			32	32	0.781	60
2,3	2	3.50	B	1	30			2105		71	291	362	0.80	2024		-	2024	0.179			32	32	0.780	58
3	2	3.50	B	2	20			4210			699	699	1.00	3916		-	3916	0.178			32	32	0.778	54
10,11	3	3.50	C	1	15		N	1965	65	212		277	0.23	1920		-	1920	0.144	0.144	0	26	26	0.780	48
11	3	3.50	C	2				4210		608		608	0.00	4210		-	4210	0.144			26	26	0.781	50
7	4	3.50	D	1	15		N	1965	248			248	1.00	1786		-	1786	0.139	0.139	0	25	25	0.781	43
7,9	4	3.50	D	1	20			2105	272		0	272	1.00	1958		-	1958	0.139			25	25	0.781	47
9	4	3.50	D	1	25			2105			265	265	1.00	1986		-	1986	0.133			24	25	0.750	45
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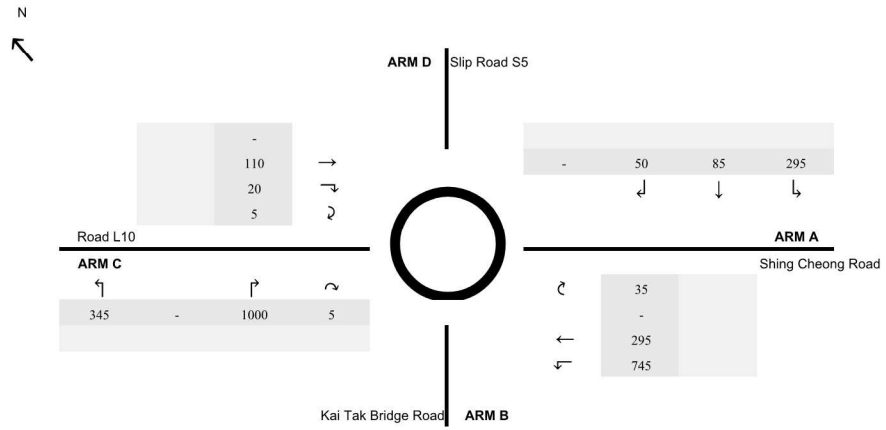
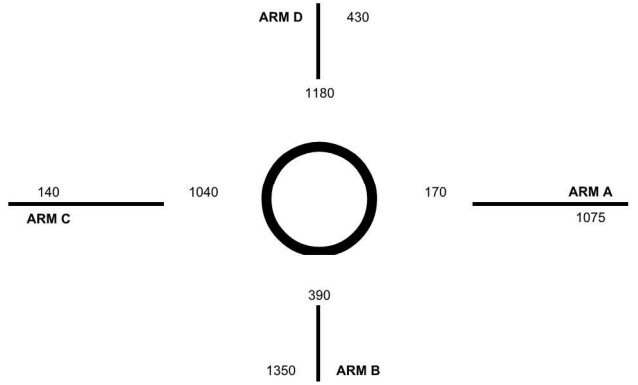
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
Junction Assessment		SHEET: J10_AM	PROJECT NO: 297978
J10 - Shing Cheong Road/ Slip Road S5/ Road L10	2041 Design Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



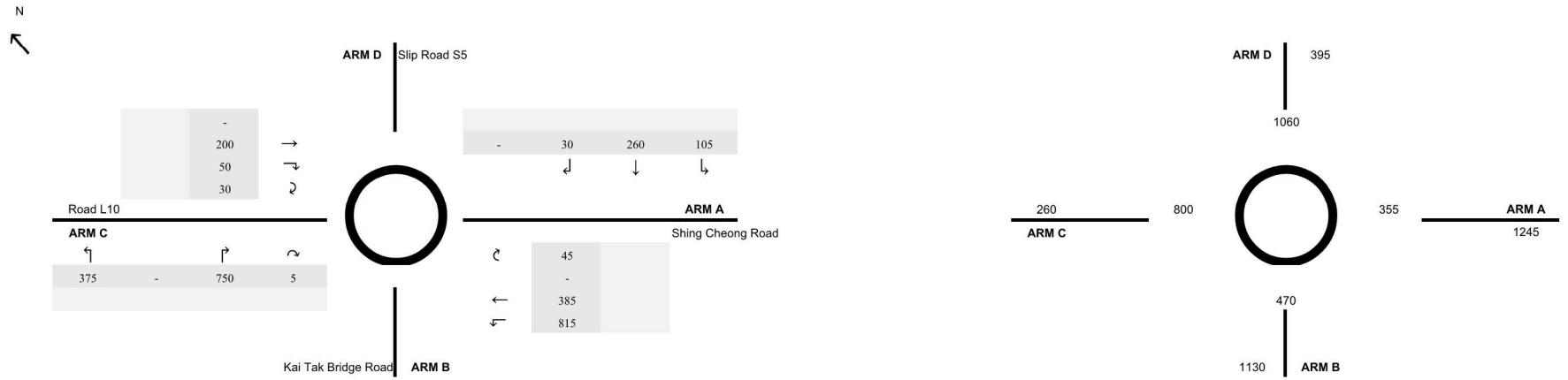


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.50	7.60	6.00	3.70
E	=	Entry width (m)	10.00	8.00	10.00	8.30
L	=	Effective length of flare (m)	10	11.4	10.1	15
R	=	Entry radius (m)	25	25	25	25
D	=	Inscribed circle diameter (m)	46	46	46	46
A	=	Entry angle (degree)	10	30	40	30
Q	=	Entry flow (pcu/h)	1075	1350	140	430
Qc	=	Circulating flow across entry (pcu/h)	170	390	1040	1180
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.40	0.06	0.63	0.49
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.08	1.01	0.98	1.01
X2	=	V + ((E-V)/(1+2S))	8.89	7.96	7.76	6.02
M	=	EXP((D-60)/10)	0.25	0.25	0.25	0.25
F	=	303*X2	2693	2412	2353	1825
Td	=	1+(0.5/(1+M))	1.40	1.40	1.40	1.40
Fc	=	0.21*Td(1+0.2*X2)	0.82	0.76	0.75	0.65
Qe	=	K(F-Fc*Qc)	2757	2135	1532	1070
DFC	=	Design flow/Capacity = Q/Qe	0.39	0.63	0.09	0.40

Total In Sum = 2995 PCU

DFC of Critical Approach = 0.63

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
Junction Assessment		SHEET: J10_PM	PROJECT NO: 297978
J10 - Shing Cheong Road/ Slip Road S5/ Road L10	2041 Design Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:

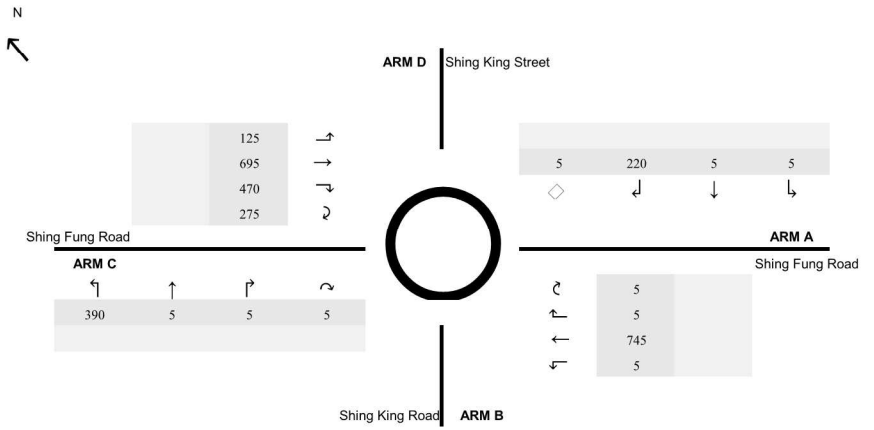


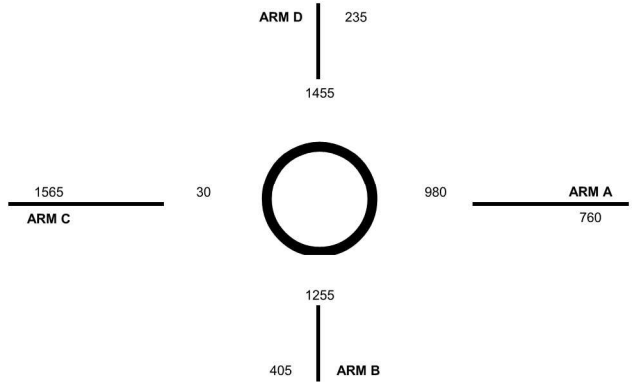
ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.50	7.60	6.00	3.70
E	=	Entry width (m)	10.00	8.00	10.00	8.30
L	=	Effective length of flare (m)	10	11.4	10.1	15
R	=	Entry radius (m)	25	25	25	25
D	=	Inscribed circle diameter (m)	46	46	46	46
A	=	Entry angle (degree)	10	30	40	30
Q	=	Entry flow (pcu/h)	1245	1130	260	395
Qc	=	Circulating flow across entry (pcu/h)	355	470	800	1060
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.40	0.06	0.63	0.49
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.08	1.01	0.98	1.01
X2	=	V + ((E-V)/(1+2S))	8.89	7.96	7.76	6.02
M	=	EXP((D-60)/10)	0.25	0.25	0.25	0.25
F	=	303*X2	2693	2412	2353	1825
Td	=	1+(0.5/(1+M))	1.40	1.40	1.40	1.40
Fc	=	0.21*Td(1+0.2*X2)	0.82	0.76	0.75	0.65
Qe	=	K(F-Fc*Qc)	2593	2073	1708	1148
DFC	=	Design flow/Capacity = Q/Qe	0.48	0.54	0.15	0.34

Total In Sum = 3030 PCU

DFC of Critical Approach = 0.54

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
Junction Assessment		SHEET: J11_AM	PROJECT NO: 297978
J11 - Shing Fung Road	2041 Design Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



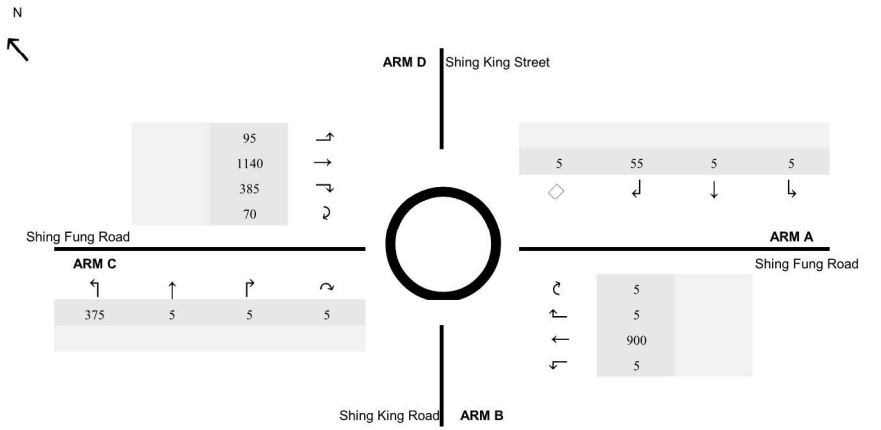


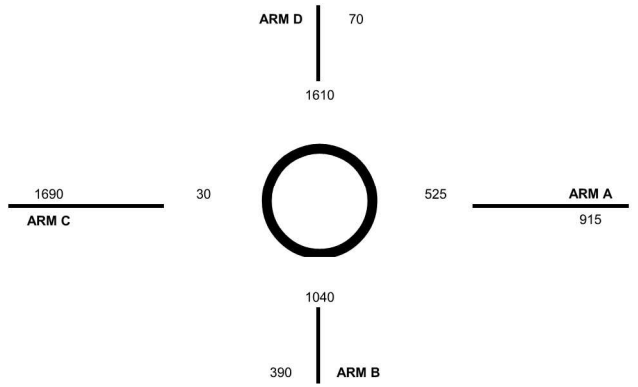
ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.30	5.60	7.30	3.70
E	=	Entry width (m)	8.20	6.00	7.40	6.00
L	=	Effective length of flare (m)	27.3	19.7	11.2	16.4
R	=	Entry radius (m)	25	25	25	25
D	=	Inscribed circle diameter (m)	46	46	46	46
A	=	Entry angle (degree)	30	30	60	10
Q	=	Entry flow (pcu/h)	760	405	1565	235
Qc	=	Circulating flow across entry (pcu/h)	980	1255	30	1455
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.05	0.03	0.01	0.22
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.01	1.01	0.91	1.08
X2	=	V + ((E-V)/(1+2S))	8.11	5.98	7.40	5.29
M	=	EXP((D-60)/10)	0.25	0.25	0.25	0.25
F	=	303*X2	2459	1811	2241	1602
Td	=	1+(0.5/(1+M))	1.40	1.40	1.40	1.40
Fc	=	0.21*Td(1+0.2*X2)	0.77	0.65	0.73	0.61
Qe	=	K(F-Fc*Qc)	1719	1010	2010	778
DFC	=	Design flow/Capacity = Q/Qe	0.44	0.40	0.78	0.30

Total In Sum = 2965 PCU

DFC of Critical Approach = 0.78

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
Junction Assessment		SHEET: J11_PM	PROJECT NO: 297978
J11 - Shing Fung Road	2041 Design Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



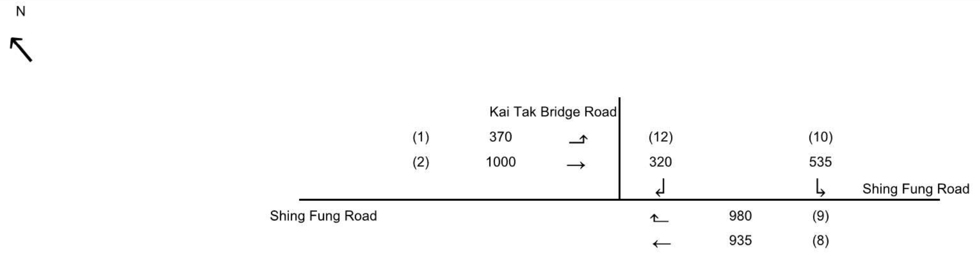


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.30	5.60	7.30	3.70
E	=	Entry width (m)	8.20	6.00	7.40	6.00
L	=	Effective length of flare (m)	27.3	19.7	11.2	16.4
R	=	Entry radius (m)	25	25	25	25
D	=	Inscribed circle diameter (m)	46	46	46	46
A	=	Entry angle (degree)	30	30	60	10
Q	=	Entry flow (pcu/h)	915	390	1690	70
Qc	=	Circulating flow across entry (pcu/h)	525	1040	30	1610
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.05	0.03	0.01	0.22
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.01	1.01	0.91	1.08
X2	=	V + ((E-V)/(1+2S))	8.11	5.98	7.40	5.29
M	=	EXP((D-60)/10)	0.25	0.25	0.25	0.25
F	=	303*X2	2459	1811	2241	1602
Td	=	1+(0.5/(1+M))	1.40	1.40	1.40	1.40
Fc	=	0.21*Td(1+0.2*X2)	0.77	0.65	0.73	0.61
Qe	=	K(F-Fc*Qc)	2074	1150	2010	677
DFC	=	Design flow/Capacity = Q/Qe	0.44	0.34	0.84	0.10

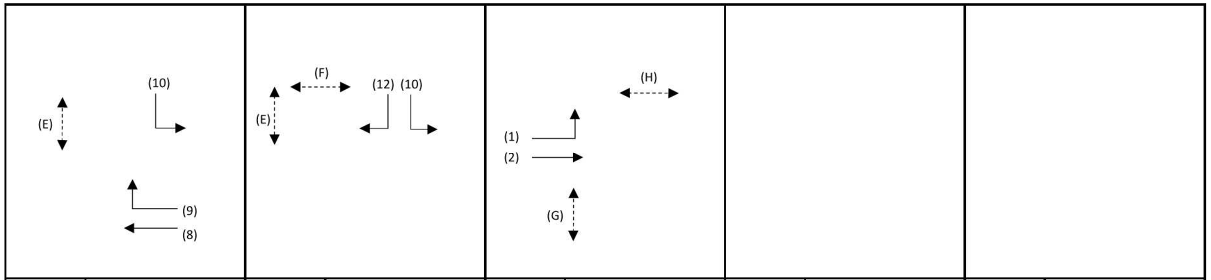
Total In Sum = 3065 PCU

DFC of Critical Approach = 0.84

OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION	
Junction Assessment		SHEET: J12_AM	PROJECT NO: 297978
J12 - Shing Fung Road/ Shing Cheong Road	2041 Design Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	3
Cycle Time		C=	120 sec
Sum(y)		Y=	0.650
Loss Time		L=	20 sec
Total Flow		=	1370 pcu
Co	=(1.5*L+5)/(1-Y)	=	100 sec
Cm	=L/(1-Y)	=	57 sec
Yult		=	0.750
R.C.ult	=(Yult-Y)/Y*100%	=	15.3 %
Cp	=0.9*L/(0.9-Y)	=	72.1 sec
Ymax	=1-L/C	=	0.833
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	15.3 %



Stage 1	Int = 5	Stage 2	Int = 13	Stage 3	Int = 5	Stage 4	Int =	Stage 5	Int =

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2	E	11.50	7	0	10	58	0	10	OK
2	F	10.00	7	0	11	14	0	11	OK
3	G	14.50	8	0	12	40	0	12	OK
3	H	15.00	8	0	7	45	0	7	OK
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			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				20				
																				0				
8	1	3.30	A	2			N	4030		935		935	0.00	4030		-	4030	0.232	0.256	0	36	39	0.707	52
9	1	3.50	A	2	15			4210			980	980	1.00	3827		-	3827	0.256			39	39	0.780	56
10	1,2	3.30	B	1	12		N	1945	535			535	1.00	1729		290	2019	0.265			41	62	0.510	43
12	2	3.40	C	2	15			4190			320	320	1.00	3809		-	3809	0.084	0.084	0	13	13	0.780	26
1,2	3	3.30	D	1	20		N	1945	370	350		720	0.51	1873		450	2323	0.310	0.310	0	48	48	0.780	75
2	3	3.40	D	1				2095		650		650	0.00	2095		-	2095	0.310			48	48	0.780	68
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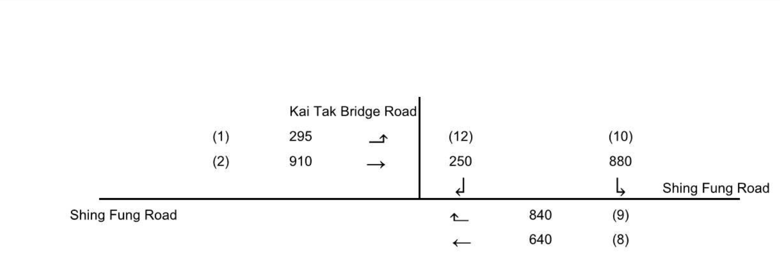
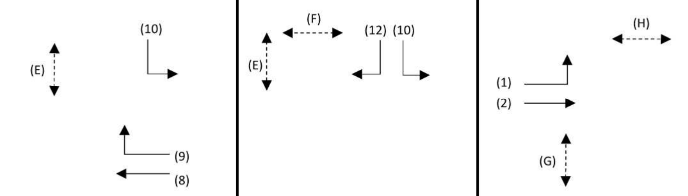
OVE ARUP & PARTNERS	**TRAFFIC SIGNAL CALCULATION**		
Junction Assessment		SHEET: J12_PM	PROJECT NO: 297978
J12 - Shing Fung Road/ Shing Cheong Road	2041 Design Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	2
Cycle Time		C=	120 sec
Sum(y)		Y=	0.711
Loss Time		L=	10 sec
Total Flow		=	1205 pcu
Co	=(1.5*L+5)/(1-Y)	=	69 sec
Cm	=L/(1-Y)	=	35 sec
Yult		=	0.825
R.C.ult	=(Yult-Y)/Y*100%	=	16.0 %
Cp	=0.9*L/(0.9-Y)	=	47.7 sec
Ymax	=1-L/C	=	0.917
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	16.0 %



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2	E	11.50	7	0	10	64	0	10	OK
2	F	10.00	7	0	11	25	0	11	OK
3	G	14.50	8	0	12	34	0	12	OK
3	H	15.00	8	0	7	39	0	7	OK
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			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
																				0				
8	1	3.30	A	2			N	4030		640		640	0.00	4030		-	4030	0.159			25	34	0.561	38
9	1	3.50	A	2	15			4210			840	840	1.00	3827		-	3827	0.219			34	34	0.775	51
10	1,2	3.30	B	1	12		N	1945	880			880	1.00	1729		260	1989	0.442	0.442	0	68	68	0.776	65
12	2	3.40	C	2	15			4190			250	250	1.00	3809		-	3809	0.066			10	24	0.322	17
1,2	3	3.30	D	1	20		N	1945	295	347		642	0.46	1880		510	2390	0.269	0.269	0	42	42	0.775	73
2	3	3.40	D	1				2095		563		563	0.00	2095		-	2095	0.269			42	42	0.776	64
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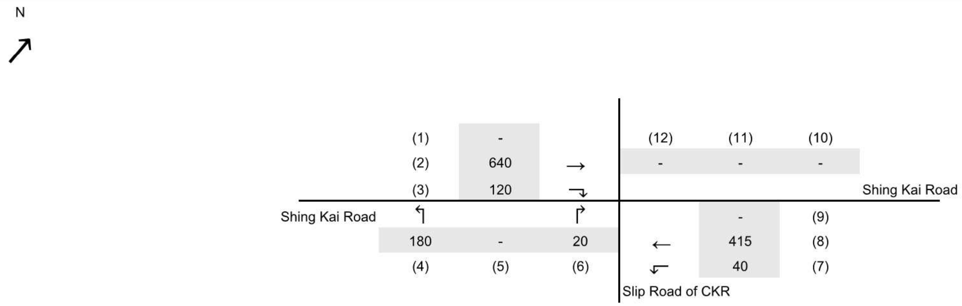
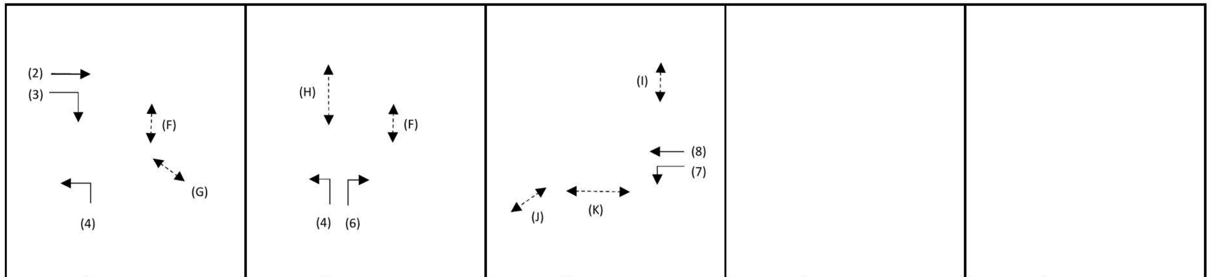
OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION	
Junction Assessment		SHEET: J13_AM	PROJECT NO: 297978
J13 - Shing Kai Road/ Slip Road to CKR	2041 Design Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	3
Cycle Time		C=	130 sec
Sum(y)		Y=	0.232
Loss Time		L=	32 sec
Total Flow		=	1415 pcu
Co	=(1.5*L+5)/(1-Y)	=	69 sec
Cm	=L/(1-Y)	=	42 sec
Yult		=	0.660
R.C.ult	=(Yult-Y)/Y*100%	=	184.4 %
Cp	=0.9*L/(0.9-Y)	=	43.1 sec
Ymax	=1-L/C	=	0.754
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	192.4 %



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2	F	10.00	5	6	10	80	6	10	OK
1	G	5.00	5	2	5	63	2	5	OK
2	H	25.00	14	2	10	14	2	10	OK
3	I	7.00	5	2	10	22	2	10	OK
3	J	5.00	5	2	5	27	2	5	OK
3	K	20.00	10	8	8	18	8	8	OK
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			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
																				0				
2	1	3.60	A	1			N	1975		309		309	0.00	1975		-	1975	0.156	0.157	0	66	66	0.308	27
2,3	1	3.60	A	1	26			2115		331	0	331	0.00	2115		-	2115	0.157			66	66	0.308	29
3	1	3.60	A	1	23			2115			120	120	1.00	1986		-	1986	0.060			26	66	0.119	11
4	1,2	5.00	D	1	35		N	2115	180			180	1.00	2028		-	2028	0.089			37	92	0.125	9
6	2	3.60	B	2	18			4230			20	20	1.00	3905		-	3905	0.005	0.005	20	2	22	0.030	1
7,8	3	4.50	C	1	35		N	2065	40	118		158	0.25	2043		200	2243	0.070	0.070	0	30	30	0.308	22
8	3	3.60	C	2				4230		297		297	0.00	4230		-	4230	0.070			30	30	0.307	21
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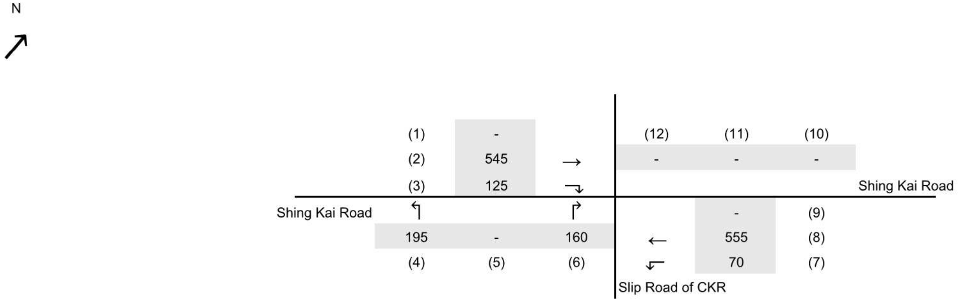
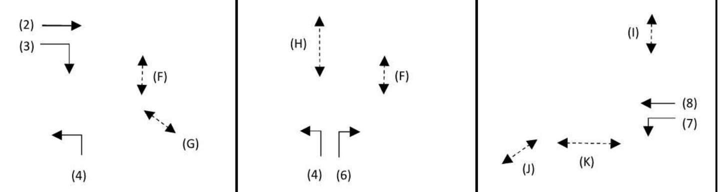
OVE ARUP & PARTNERS | **TRAFFIC SIGNAL CALCULATION**

Junction Assessment		SHEET: J13_PM	PROJECT NO: 297978
J13 - Shing Kai Road/ Slip Road to CKR	2041 Design Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	3
No. of Stage Using for Calculation		N=	3
Cycle Time		C=	130 sec
Sum(y)		Y=	0.272
Loss Time		L=	17 sec
Total Flow		=	1650 pcu
Co	=(1.5*L+5)/(1-Y)	=	42 sec
Cm	=L/(1-Y)	=	23 sec
Yult		=	0.773
R.C.ult	=(Yult-Y)/Y*100%	=	184.3 %
Cp	=0.9*L/(0.9-Y)	=	24.4 sec
Ymax	=1-L/C	=	0.869
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	187.9 %



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1,2	F	10.00	5	6	10	69	6	10	OK
1	G	5.00	5	2	5	52	2	5	OK
2	H	25.00	14	2	10	14	2	10	OK
3	I	7.00	5	2	10	33	2	10	OK
3	J	5.00	5	2	5	38	2	5	OK
3	K	20.00	10	8	8	29	8	8	OK
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			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Movement	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
																				0				
2	1	3.60	A	1			N	1975		263		263	0.00	1975		-	1975	0.133	0.133	0	55	55	0.312	27
2,3	1	3.60	A	1	26			2115		282	0	282	0.00	2115		-	2115	0.133			55	55	0.313	29
3	1	3.60	A	1	23			2115			125	125	1.00	1986		-	1986	0.063			26	55	0.148	13
4	1,2	5.00	D	1	35		N	2115	195			195	1.00	2028		-	2028	0.096			40	81	0.153	13
6	2	3.60	B	2	18			4230			160	160	1.00	3905		-	3905	0.041	0.041	5	17	22	0.242	12
7,8	3	4.50	C	1	35		N	2065	70	143		213	0.33	2036		150	2186	0.097	0.097	0	41	41	0.313	26
8	3	3.60	C	2				4230		412		412	0.00	4230		-	4230	0.097			41	41	0.313	26
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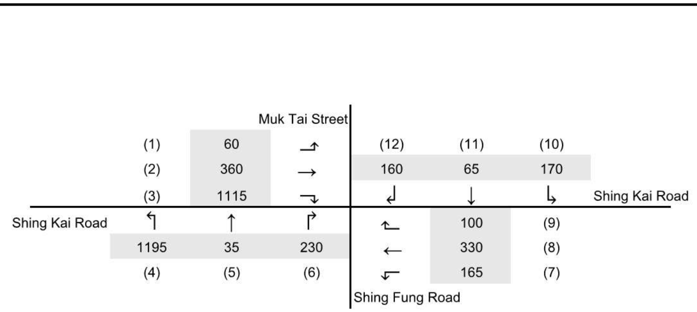
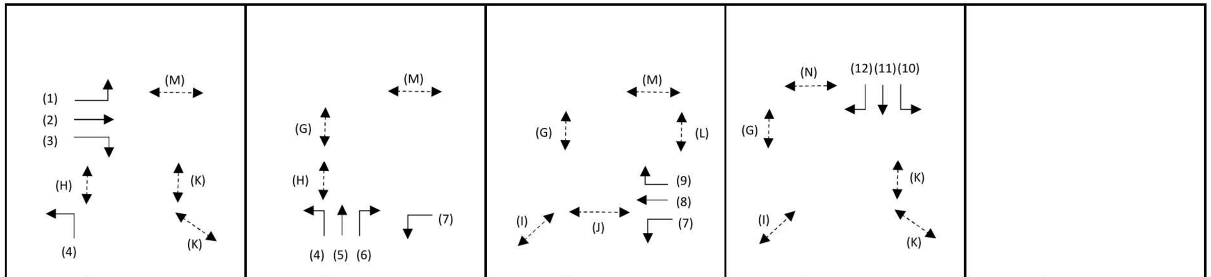
OVE ARUP & PARTNERS	**TRAFFIC SIGNAL CALCULATION**		
Junction Assessment		SHEET: J14_AM	PROJECT NO: 297978
J14 - Shing Kai Road/ Shing Fung Road/ Muk Tai Street	2041 Design Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	4
Cycle Time		C=	130 sec
Sum(y)		Y=	0.631
Loss Time		L=	25 sec
Total Flow		=	3985 pcu
Co	=(1.5*L+5)/(1-Y)	=	115 sec
Cm	=L/(1-Y)	=	68 sec
Yult		=	0.713
R.C.ult	=(Yult-Y)/Y*100%	=	13.0 %
Cp	=0.9*L/(0.9-Y)	=	83.5 sec
Ymax	=1-L/C	=	0.808
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	15.3 %



Stage 1	Int = 5	Stage 2	Int = 5	Stage 3	Int = 6	Stage 4	Int = 13	Stage 5	Int =

	Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
F	2,3,4	G	14.50	8	2	15	62	2	15	OK
G	1,2	H	7.50	5	2	7	57	2	7	OK
H	3,4	I	7.50	5	2	8	54	2	8	OK
I	3	J	19.00	10	2	9	11	2	9	OK
K	1,4	K	8.50	5	2	7	84	2	7	OK
L	3	L	12.50	6	2	13	7	2	13	OK
M	1,2,3	M	9.00	5	2	9	77	2	9	OK
N	4	N	9.00	6	2	11	29	2	11	OK
J										
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Movement	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				25				
																				0				
1,2	1	3.65	A	1	15		N	1980	60	140		200	0.30	1922		-	1922	0.104	0.281	0	17	47	0.289	23
2	1	3.65	A	1				2120		220		220	0.00	2120		-	2120	0.104			17	47	0.288	25
2,3	1	3.65	A	1	25			2120		0	562	562	1.00	2000		-	2000	0.281			47	47	0.781	68
3	1	3.65	A	1	20			2120			553	553	1.00	1972		-	1972	0.280			47	47	0.779	67
4	1,2	3.65	B	1	25		N	1980	581			581	1.00	1868		-	1868	0.311			52	62	0.655	55
4	1,2	3.65	B	1	20			2120	614			614	1.00	1972		-	1972	0.311			52	62	0.655	58
5,6	2	3.65	C	1	25			2120		35	99	134	0.74	2030		-	2030	0.066	0.066	0	11	11	0.781	27
6	2	3.65	C	1	23			2120			131	131	1.00	1990		-	1990	0.066			11	11	0.779	26
7	2,3	3.50	D	2	22		N	4070	165			165	1.00	3810		-	3810	0.043			7	27	0.206	12
8	3	3.50	E	1				2105		219		219	0.00	2105		-	2105	0.104	0.104	0	17	17	0.781	38
8,9	3	3.50	E	1	20			2105		111	100	211	0.47	2033		-	2033	0.104			17	17	0.779	37
10,11,12	4	3.70	F	1	20			2125	170	65	160	395	0.84	2000		200	2200	0.180	0.180	0	30	30	0.781	58
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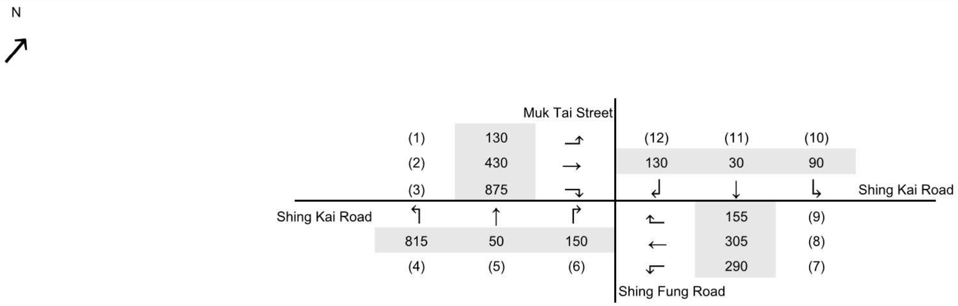
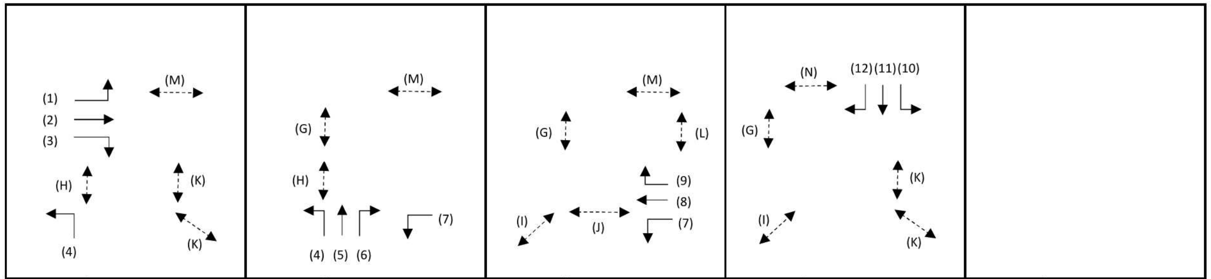
OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION	
Junction Assessment		SHEET: J14_PM	PROJECT NO: 297978
J14 - Shing Kai Road/ Shing Fung Road/ Muk Tai Street	2041 Design Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	4
Cycle Time		C=	130 sec
Sum(y)		Y=	0.494
Loss Time		L=	25 sec
Total Flow		=	3450 pcu
Co	=(1.5*L+5)/(1-Y)	=	84 sec
Cm	=L/(1-Y)	=	49 sec
Yult		=	0.713
R.C.ult	=(Yult-Y)/Y*100%	=	44.3 %
Cp	=0.9*L/(0.9-Y)	=	55.4 sec
Ymax	=1-L/C	=	0.808
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	47.3 %



Stage 1	Int = 5	Stage 2	Int = 5	Stage 3	Int = 6	Stage 4	Int = 13	Stage 5	Int =

	Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
F	2,3,4	G	14.50	8	2	15	62	2	15	OK
G	1,2	H	7.50	5	2	7	56	2	7	OK
H	3,4	I	7.50	5	2	8	55	2	8	OK
I	3	J	19.00	10	2	9	18	2	9	OK
K	1,4	K	8.50	5	2	7	78	2	7	OK
L	3	L	12.50	6	2	13	14	2	13	OK
M	1,2,3	M	9.00	5	2	9	83	2	9	OK
N	4	N	9.00	6	2	11	23	2	11	OK
J										
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				25				
																				0				
1,2	1	3.65	A	1	15		N	1980	130	134		264	0.49	1887		-	1887	0.140	0.221	0	30	47	0.388	30
2	1	3.65	A	1				2120		296		296	0.00	2120		-	2120	0.140			30	47	0.387	34
2,3	1	3.65	A	1	25			2120		0	441	441	1.00	2000		-	2000	0.221			47	47	0.611	51
3	1	3.65	A	1	20			2120			434	434	1.00	1972		-	1972	0.220			47	47	0.610	50
4	1,2	3.65	B	1	25		N	1980	396			396	1.00	1868		-	1868	0.212			45	61	0.449	38
4	1,2	3.65	B	1	20			2120	419			419	1.00	1972		-	1972	0.212			45	61	0.449	40
5,6	2	3.65	C	1	25			2120		50	52	102	0.51	2057		-	2057	0.050	0.050	0	11	11	0.611	18
6	2	3.65	C	1	23			2120			98	98	1.00	1990		-	1990	0.049			10	11	0.607	17
7	2,3	3.50	D	2	22		N	4070	290			290	1.00	3810		-	3810	0.076			16	33	0.296	19
8	3	3.50	E	1				2105		236		236	0.00	2105		-	2105	0.112	0.112	0	24	24	0.611	35
8,9	3	3.50	E	1	20			2105		69	155	224	0.69	2001		-	2001	0.112			24	24	0.610	33
10,11,12	4	3.70	F	1	20			2125	90	30	130	250	0.88	1993		250	2243	0.111	0.111	0	24	24	0.611	37
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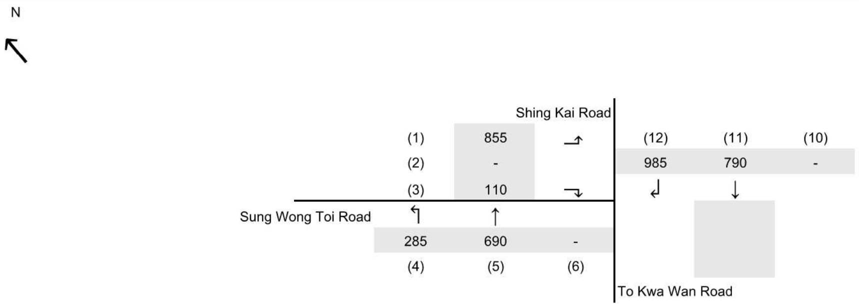
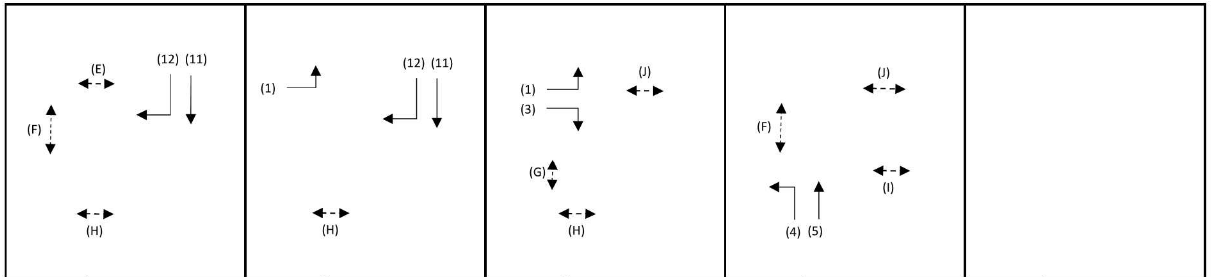
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Junction Assessment		SHEET: J15_AM	PROJECT NO: 297978
J15 - Shing Kai Road/ Song Wong Toi Road/ To Kwa Wan Road	2041 Design Case Weekdays (AM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4	
No. of Stage Using for Calculation		N=	3	
Cycle Time		C=	130	sec
Sum(y)		Y=	0.568	
Loss Time		L=	15	sec
Total Flow		=	3715	pcu
Co	=(1.5*L+5)/(1-Y)	=	64	sec
Cm	=L/(1-Y)	=	35	sec
Yult		=	0.788	
R.C.ult	=(Yult-Y)/Y*100%	=	38.6	%
Cp	=0.9*L/(0.9-Y)	=	40.7	sec
Ymax	=1-L/C	=	0.885	
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	40.2	%



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	E	16.00	7	0	13	7	0	13	OK
1,4	F	16.00	8	0	15	59	0	15	OK
3	G	8.00	5	0	7	6	0	7	OK
1,2,3	H	7.30	5	0	6	70	0	6	OK
4	I	8.00	5	0	7	47	0	7	OK
3,4	J	13.50	5	0	10	57	0	10	OK
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Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
																				0				
12	1,2	4.00	A	1	30			2155			600	600	1.00	2052		-	2052	0.292	0.292	0	59	59	0.642	59
11,12	1,2	3.65	A	1	32			2120		216	385	601	0.64	2058		-	2058	0.292			59	59	0.641	59
11	1,2	3.50	A	1			N	1965		574		574	0.00	1965		-	1965	0.292			59	59	0.642	56
1	2,3	3.50	B	2	18		N	4070	855			855	1.00	3757		-	3757	0.228			46	52	0.571	46
3	3	3.50	C	2	25			4210			110	110	1.00	3972		-	3972	0.028	0.028	3	6	9	0.418	9
4,5	4	3.60	D	1	18		N	1975	285	181		466	0.61	1879		-	1879	0.248	0.248	0	50	50	0.642	52
5	4	3.00	D	1				2055		509		509	0.00	2055		-	2055	0.248			50	50	0.641	56
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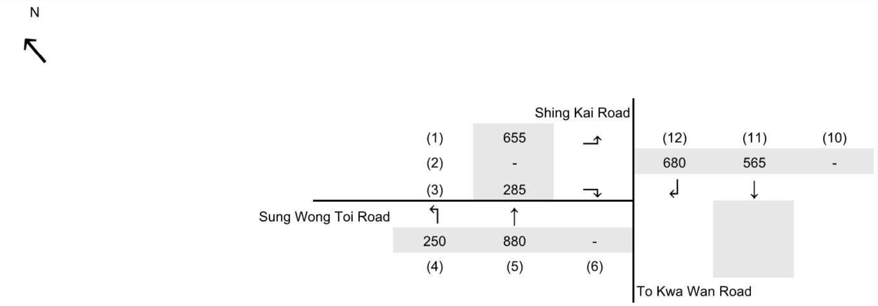
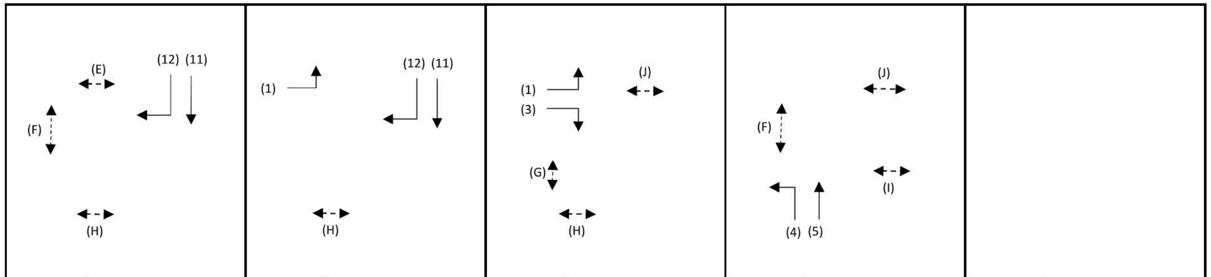
OVE ARUP & PARTNERS — TRAFFIC SIGNAL CALCULATION

Junction Assessment		SHEET: J15_PM	PROJECT NO: 297978
J15 - Shing Kai Road/ Song Wong Toi Road/ To Kwa Wan Road	2041 Design Case Weekdays (PM Peak)	DATE: 19-Feb-25	FILENAME:



No. of Stages per Cycle		N=	4
No. of Stage Using for Calculation		N=	3
Cycle Time		C=	130 sec
Sum(y)		Y=	0.563
Loss Time		L=	12 sec
Total Flow		=	3315 pcu
Co	=(1.5*L+5)/(1-Y)	=	53 sec
Cm	=L/(1-Y)	=	27 sec
Yult		=	0.810
R.C.ult	=(Yult-Y)/Y*100%	=	44.0 %
Cp	=0.9*L/(0.9-Y)	=	32.0 sec
Ymax	=1-L/C	=	0.908
R.C.(C)	=(0.9*Ymax-Y)/Y*100%	=	45.2 %



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

Pedestrian Stage	Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	E	16.00	7	0	13	7	0	13	OK
1,4	F	16.00	8	0	15	69	0	15	OK
3	G	8.00	5	0	7	12	0	7	OK
1,2,3	H	7.30	5	0	6	60	0	6	OK
4	I	8.00	5	0	7	57	0	7	OK
3,4	J	13.50	5	0	10	73	0	10	OK
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			-		-		-	-	-
			-		-		-	-	-
			-		-		-	-	-

Move-ment	Stage	Lane Width m.	Phase	No. of Lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short Lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
																				0				
12	1,2	4.00	A	1	30			2155			421	421	1.00	2052		-	2052	0.205	0.205	0	43	43	0.620	51
11,12	1,2	3.65	A	1	32			2120		163	259	422	0.61	2061		-	2061	0.205			43	43	0.619	51
11	1,2	3.50	A	1			N	1965		402		402	0.00	1965		-	1965	0.205			43	43	0.618	49
1	2,3	3.50	B	2	18		N	4070	655			655	1.00	3757		-	3757	0.174			37	42	0.539	40
3	3	3.50	C	2	25			4210			285	285	1.00	3972		-	3972	0.072	0.072	0	15	15	0.620	23
4,5	4	3.60	D	1	18		N	1975	250	293		543	0.46	1902		-	1902	0.285	0.286	0	60	60	0.619	53
5	4	3.00	D	1				2055		587		587	0.00	2055		-	2055	0.286			60	60	0.620	57
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Appendix B
LATM Validation Results

Table 1 LATM Screenline Cordon / Screenline Road Links Validation Results - AM Peak

ID	Road Link	Direction	2024 AM Peak (pcus/hour)											
			Observed (Obs)			Modelled (Mod)			Mod / Obs (%)			GEH		
			PV	GV	Total	PV	GV	Total	PV	GV	Total	PV	GV	Total
	External Cordon - Inbound													
S1-1	Lung Cheung Rd	IB	2,400	1,700	4,550	2,400	1,700	4,550	1.00	1.00	1.00	0	0	0
S1-2	Lion Rock Tunnel	IB	2,300	950	3,650	2,300	1,000	3,650	1.00	1.00	1.00	0	0	0
S1-3	Tate's Cairn Tunnel	IB	1,950	700	3,400	1,950	700	3,400	1.00	1.01	1.00	0	0	0
S1-4	Clear Water Bay Rd	IB	1,050	200	1,400	1,050	200	1,400	1.00	1.01	1.00	0	0	0
S1-5	Po Lam Rd	IB	400	100	750	400	100	750	1.00	1.00	1.00	0	0	0
S1-6	Tseung Kwan O Tunnel	IB	2,200	600	3,250	2,200	600	3,250	1.00	1.00	1.00	0	0	0
S1-7	Eastern Harbour Crossing	IB	2,050	450	2,700	2,050	450	2,700	1.00	1.00	1.00	0	0	0
S1-8	Hung Hom Bypass	IB	500	250	750	500	200	750	0.97	0.97	0.97	1	0	1
S1-9	Cheong Wan Rd & Gillies Ave S	IB	350	50	550	350	50	600	1.05	1.06	1.04	1	0	1
S1-10	Chatham Rd N	IB	1,800	750	3,150	1,800	750	3,200	1.01	1.00	1.01	1	0	0
S1-11	Princess Margaret Rd	IB	1,600	250	1,850	1,600	250	1,900	1.02	1.08	1.03	1	1	1
S1-12	Waterloo Rd	IB	900	200	1,250	900	200	1,250	0.99	1.01	0.99	0	0	0
S1-13	Argyle St & FO	IB	900	350	1,650	900	350	1,650	1.00	1.02	1.00	0	0	0
S1-14	Prince Edward Rd W	IB	40	30	80	40	40	80	1.00	1.05	1.03	0	0	0
S1-15	Boundary St	IB	2,100	600	2,950	2,050	600	2,950	0.99	1.01	1.00	0	0	0
	Total		**20,500**	**7,150**	**31,950**	**20,550**	**7,200**	**32,050**	**1.00**	**1.01**	**1.00**	**0**	**1**	**0**
	External Cordon - Outbound													
S1-1	Lung Cheung Rd	OB	2,850	1,500	4,650	2,750	1,450	4,550	0.98	0.97	0.98	1	1	2
S1-2	Lion Rock Tunnel	OB	1,800	800	2,800	1,750	750	2,750	0.98	0.95	0.97	1	1	1
S1-3	Tate's Cairn Tunnel	OB	1,450	600	2,300	1,400	600	2,250	0.98	0.97	0.98	1	1	1
S1-4	Clear Water Bay Rd	OB	550	200	900	550	200	900	0.97	0.97	0.98	1	0	1
S1-5	Po Lam Rd	OB	200	100	500	200	100	500	0.99	0.99	0.99	0	0	0
S1-6	Tseung Kwan O Tunnel	OB	1,850	850	3,000	1,800	850	2,950	0.97	0.97	0.97	1	1	1
S1-7	Eastern Harbour Crossing	OB	2,500	600	3,700	2,450	600	3,650	0.98	0.98	0.98	1	1	1
S1-8	Hung Hom Bypass	OB	350	200	600	350	200	600	0.99	1.00	1.00	0	0	0
S1-9	Cheong Wan Rd & Gillies Ave S	OB	200	80	500	200	80	450	0.83	0.97	0.92	3	0	2
S1-10	Chatham Rd N	OB	2,600	1,250	4,700	2,650	1,250	4,750	1.02	0.99	1.01	1	0	1
S1-11	Princess Margaret Rd	OB	1,800	400	2,250	1,750	400	2,200	0.98	0.98	0.98	1	0	1
S1-12	Waterloo Rd	OB	950	150	1,200	950	150	1,250	1.03	1.04	1.03	1	0	1
S1-13	Argyle St & FO	OB	1,100	300	1,800	1,050	300	1,800	0.99	0.96	0.98	0	1	1
S1-14	Prince Edward Rd W	OB	1,950	750	3,050	1,850	700	2,950	0.95	0.95	0.96	2	1	2
S1-15	Boundary St	OB	500	80	600	450	80	600	0.96	0.95	0.96	1	0	1
	Total		**20,600**	**7,900**	**32,650**	**20,200**	**7,700**	**32,050**	**0.98**	**0.97**	**0.98**	**3**	**2**	**3**
	Screenline C-C - Southbound													
S2-1	Ma Tau Wai Rd	SB	650	400	1,550	650	400	1,550	1.00	1.01	1.00	0	0	0
S2-2	Chatham Rd N & Ma Tau Wai Rd	SB	350	150	900	400	200	950	1.06	1.04	1.03	1	0	1
S2-3	East Kowloon Corridor <FO>	SB	900	350	1,400	1,000	350	1,550	1.14	1.09	1.11	4	2	4
S2-4	Ko Shan Rd	SB	60	30	100	60	30	100	0.99	0.95	0.98	0	0	0
S2-5	Fat Kwong St	SB	800	200	1,100	750	200	1,050	0.95	0.97	0.96	1	0	1
	Total		**2,750**	**1,150**	**5,050**	**2,850**	**1,150**	**5,200**	**1.04**	**1.03**	**1.03**	**2**	**1**	**2**
	Screenline C-C - Northbound													
S2-1	Ma Tau Wai Rd	NB	150	100	500	150	100	500	1.01	1.06	1.01	0	1	0
S2-2	Chatham Rd N & Ma Tau Wai Rd	NB	550	300	1,300	500	300	1,200	0.89	0.90	0.93	3	2	3
S2-3	East Kowloon Corridor <FO>	NB	2,200	1,000	3,300	2,100	950	3,150	0.95	0.98	0.96	2	1	2
S2-4	Ko Shan Rd	NB	90	20	150	100	20	150	1.11	1.17	1.09	1	1	1
S2-5	Fat Kwong St	NB	750	150	1,000	800	150	1,050	1.07	1.10	1.07	2	1	2
	Total		**3,750**	**1,550**	**6,200**	**3,600**	**1,550**	**6,050**	**0.97**	**0.98**	**0.98**	**2**	**1**	**2**
	Screenline K-K - Eastbound													
S3-1	Kai Tak Tunnel	EB	1,200	500	1,800	1,200	500	1,850	1.02	1.00	1.01	1	0	1
S3-2	Shing Kai Rd	EB	250	100	350	250	100	350	0.98	0.97	0.98	0	0	0
S3-3	Kwun Tong Bypass	EB	2,000	800	3,250	1,950	850	3,250	0.99	1.05	1.01	0	1	0
	Total		**3,450**	**1,400**	**5,400**	**3,450**	**1,450**	**5,450**	**1.00**	**1.02**	**1.01**	**0**	**1**	**0**
	Screenline K-K - Westbound													
S3-1	Kai Tak Tunnel	WB	1,600	500	2,300	1,650	550	2,400	1.05	1.06	1.05	2	1	2
S3-2	Shing Kai Rd	WB	300	70	450	250	70	400	0.93	1.06	0.97	1	0	1
S3-3	Kwun Tong Bypass	WB	1,750	700	2,550	1,750	700	2,600	1.00	1.03	1.01	0	1	0
	Total		**3,650**	**1,250**	**5,300**	**3,700**	**1,300**	**5,400**	**1.02**	**1.04**	**1.02**	**1**	**1**	**2**

Table 2 LATM Screenline Cordon / Screenline Road Links Validation Results - PM Peak

ID	Road Link	Direction	2024 PM Peak (pcus/hour)											
			Observed (Obs)			Modelled (Mod)			Mod / Obs (%)			GEH		
			PV	GV	Total	PV	GV	Total	PV	GV	Total	PV	GV	Total
	External Cordon - Inbound													
S1-1	Lung Cheung Rd	IB	2,600	1,100	4,000	2,600	1,100	4,000	1.00	1.00	1.00	0	0	0
S1-2	Lion Rock Tunnel	IB	2,200	450	2,900	2,200	450	2,900	1.00	1.00	1.00	0	0	0
S1-3	Tate's Cairn Tunnel	IB	1,450	250	2,050	1,450	250	2,050	1.00	1.00	1.00	0	0	0
S1-4	Clear Water Bay Rd	IB	700	100	950	700	100	950	1.00	1.00	1.00	0	0	0
S1-5	Po Lam Rd	IB	250	80	600	250	80	600	1.00	1.00	1.00	0	0	0
S1-6	Tseung Kwan O Tunnel	IB	1,850	400	2,550	1,850	400	2,550	1.00	1.00	1.00	0	0	0
S1-7	Eastern Harbour Crossing	IB	2,450	450	3,200	2,450	450	3,250	1.00	1.00	1.00	0	0	0
S1-8	Hung Hom Bypass	IB	450	70	550	450	70	550	0.97	0.96	0.97	1	0	1
S1-9	Cheong Wan Rd & Gillies Ave S	IB	350	40	550	300	40	500	0.95	0.97	0.97	1	0	1
S1-10	Chatham Rd N	IB	1,550	250	2,500	1,550	250	2,500	1.00	1.01	1.00	0	0	0
S1-11	Princess Margaret Rd	IB	2,050	300	2,500	2,100	300	2,550	1.02	1.03	1.02	1	1	1
S1-12	Waterloo Rd	IB	950	100	1,250	950	100	1,250	1.00	0.99	1.00	0	0	0
S1-13	Argyle St & FO	IB	950	200	1,600	950	200	1,600	1.00	1.00	1.00	0	0	0
S1-14	Prince Edward Rd W	IB	100	10	100	100	10	100	0.99	1.03	0.99	0	0	0
S1-15	Boundary St	IB	2,050	400	2,700	2,050	400	2,650	0.99	1.00	1.00	0	0	0
	Total		**20,000**	**4,200**	**27,900**	**20,000**	**4,200**	**27,950**	**1.00**	**1.00**	**1.00**	**0**	**0**	**0**
	External Cordon - Outbound													
S1-1	Lung Cheung Rd	OB	2,700	1,050	4,100	2,550	1,000	3,950	0.95	0.95	0.96	3	2	3
S1-2	Lion Rock Tunnel	OB	2,350	600	3,250	2,250	550	3,150	0.96	0.96	0.97	2	1	2
S1-3	Tate's Cairn Tunnel	OB	1,850	600	2,950	1,800	550	2,850	0.96	0.96	0.97	2	1	2
S1-4	Clear Water Bay Rd	OB	950	150	1,250	900	150	1,200	0.96	0.99	0.97	1	0	1
S1-5	Po Lam Rd	OB	250	80	550	250	70	550	0.96	0.97	0.98	1	0	1
S1-6	Tseung Kwan O Tunnel	OB	2,450	650	3,450	2,400	600	3,400	0.99	0.95	0.98	1	1	1
S1-7	Eastern Harbour Crossing	OB	2,350	300	2,850	2,350	250	2,800	0.99	0.95	0.99	0	1	1
S1-8	Hung Hom Bypass	OB	550	60	650	550	60	600	0.98	0.97	0.98	0	0	0
S1-9	Cheong Wan Rd & Gillies Ave S	OB	350	50	600	350	60	600	1.02	1.14	1.03	0	1	1
S1-10	Chatham Rd N	OB	3,300	800	4,700	3,150	750	4,550	0.96	0.96	0.96	2	1	2
S1-11	Princess Margaret Rd	OB	2,250	200	2,500	2,200	200	2,450	0.98	0.96	0.98	1	1	1
S1-12	Waterloo Rd	OB	1,000	150	1,200	950	150	1,200	0.99	1.00	0.99	0	0	0
S1-13	Argyle St & FO	OB	1,050	150	1,600	1,050	150	1,600	1.00	1.07	1.01	0	1	0
S1-14	Prince Edward Rd W	OB	2,400	400	3,150	2,400	400	3,150	1.00	0.99	1.00	0	0	0
S1-15	Boundary St	OB	450	90	600	450	90	600	0.99	1.00	0.99	0	0	0
	Total		**24,250**	**5,250**	**33,450**	**23,700**	**5,100**	**32,650**	**0.98**	**0.97**	**0.98**	**4**	**3**	**4**
	Screenline C-C - Southbound													
S2-1	Ma Tau Wai Rd	SB	750	250	1,400	750	250	1,450	1.05	1.02	1.03	1	0	1
S2-2	Chatham Rd N & Ma Tau Wai Rd	SB	450	80	800	500	90	900	1.14	1.14	1.09	3	1	3
S2-3	East Kowloon Corridor <FO>	SB	1,150	200	1,450	1,050	200	1,350	0.93	0.95	0.94	2	1	2
S2-4	Ko Shan Rd	SB	90	10	100	90	10	100	0.93	0.87	0.93	1	0	1
S2-5	Fat Kwong St	SB	850	100	1,050	800	90	1,050	0.98	0.91	0.97	1	1	1
	Total		**3,250**	**600**	**4,800**	**3,250**	**600**	**4,800**	**1.00**	**0.99**	**1.00**	**0**	**0**	**0**
	Screenline C-C - Northbound													
S2-1	Ma Tau Wai Rd	NB	250	60	550	200	60	500	0.87	0.93	0.94	2	1	2
S2-2	Chatham Rd N & Ma Tau Wai Rd	NB	750	200	1,400	800	200	1,450	1.09	0.96	1.04	2	1	2
S2-3	East Kowloon Corridor <FO>	NB	2,400	500	3,050	2,300	500	2,900	0.96	0.96	0.96	2	1	2
S2-4	Ko Shan Rd	NB	100	20	200	100	20	200	0.92	0.95	0.95	1	0	1
S2-5	Fat Kwong St	NB	600	150	850	600	150	850	0.98	0.98	0.98	0	0	0
	Total		**4,100**	**900**	**6,050**	**4,000**	**900**	**5,900**	**0.98**	**0.96**	**0.98**	**1**	**1**	**2**
	Screenline K-K - Eastbound													
S3-1	Kai Tak Tunnel	EB	1,400	350	1,850	1,300	350	1,750	0.95	0.96	0.95	2	1	2
S3-2	Shing Kai Rd	EB	150	40	200	150	40	200	0.98	1.00	0.98	0	0	0
S3-3	Kwun Tong Bypass	EB	2,000	300	2,600	1,950	300	2,550	0.98	0.98	0.98	1	0	1
	Total		**3,550**	**700**	**4,650**	**3,450**	**700**	**4,500**	**0.97**	**0.97**	**0.97**	**2**	**1**	**2**
	Screenline K-K - Westbound													
S3-1	Kai Tak Tunnel	WB	1,650	300	2,050	1,600	300	2,050	0.99	1.00	0.99	0	0	0
S3-2	Shing Kai Rd	WB	300	60	450	300	60	450	0.95	0.99	0.97	1	0	1
S3-3	Kwun Tong Bypass	WB	1,950	600	2,750	1,950	600	2,750	1.00	1.01	1.00	0	0	0
	Total		**3,900**	**950**	**5,250**	**3,850**	**950**	**5,250**	**0.99**	**1.01**	**0.99**	**1**	**0**	**0**

Table 3 LATM Junctions Validation Results - AM Peak

ID	Road Link	Direction	2024 AM Peak (pcus/hour)								
			Observed			Modelled			GEH		
			PV	GV	Total	PV	GV	Total	PV	GV	Total
	Junction 1 - Kwun Tong Road/ Elegence Road/ Lai Yip Street										
	ENTRY ARM										
J1-1	Kwun Tong Road	EB	200	100	950	350	200	1,200	8	7	7
J1-2	Lai Yip Street	NB	350	100	550	350	150	550	2	2	1
J1-3	Kwun Tong Road	WB	400	150	1,100	300	200	1,000	5	2	2
J1-4	Elegance Road	SB	300	100	700	350	100	750	3	0	2
	Sub-Total		***1,300***	***500***	***3,350***	***1,350***	***600***	***3,500***	***1***	***5***	***3***
	EXIT ARM										
J1-1	Kwun Tong Road	WB	400	200	1,150	400	300	1,200	1	4	2
J1-2	Lai Yip Street	SB	300	70	400	350	100	500	3	3	4
J1-3	Kwun Tong Road	EB	300	100	1,350	300	100	1,400	0	2	1
J1-4	Elegance Road	NB	300	100	450	300	100	450	1	1	0
	Sub-Total		***1,300***	***500***	***3,350***	***1,350***	***600***	***3,500***	***1***	***5***	***3***
	Junction 2 - Lai Yip Street/ Wai Yip Street										
	ENTRY ARM										
J2-1	Wai Yip Street	EB	900	300	1,350	900	350	1,400	0	1	0
J2-2	Lai Yip Street	NB	100	50	200	100	60	200	0	2	1
J2-3	Wai Yip Street	WB	200	100	350	200	100	350	1	0	1
J2-4	Lai Yip Street	SB	400	150	550	400	150	600	1	0	1
	Sub-Total		***1,600***	***650***	***2,450***	***1,600***	***650***	***2,500***	***0***	***1***	***1***
	EXIT ARM										
J2-1	Wai Yip Street	WB	200	100	300	200	100	350	1	0	1
J2-2	Lai Yip Street	SB	350	150	550	350	150	550	1	0	0
J2-3	Wai Yip Street	EB	850	300	1,250	800	350	1,250	0	1	0
J2-4	Lai Yip Street	NB	250	60	350	250	80	400	0	2	1
	Sub-Total		***1,600***	***650***	***2,450***	***1,600***	***650***	***2,500***	***0***	***1***	***1***
	Junction 3 - Lai Yip Street/ Hoi Bun Road										
	ENTRY ARM										
J3-1	Hoi Bun Road	EB	100	40	150	100	30	150	0	1	0
J3-2	Hoi Bun Road	WB	200	100	300	90	100	200	8	1	7
J3-3	Lai Yip Street	SB	350	150	500	350	150	550	2	0	2
	Sub-Total		***650***	***250***	***950***	***550***	***250***	***900***	***3***	***1***	***2***
	EXIT ARM										
J3-1	Hoi Bun Road	WB	400	150	600	300	100	450	5	2	5
J3-2	Hoi Bun Road	EB	100	90	200	150	90	250	3	0	2
J3-3	Lai Yip Street	NB	100	50	200	100	60	200	0	2	0
	Sub-Total		***650***	***250***	***950***	***550***	***250***	***900***	***3***	***1***	***2***
	Junction 4 - Kai Hing Road/ Hoi Bun Road										
	ENTRY ARM										
J4-1	Hoi Bun Road	EB	350	100	550	400	100	550	3	2	1
J4-2	Kai Hing Road	NB	100	60	150	80	60	150	3	0	2
J4-3	Hoi Bun Road	WB	200	70	300	200	70	300	1	0	1
	Sub-Total		***650***	***250***	***1,000***	***700***	***200***	***1,050***	***1***	***1***	***1***
	EXIT ARM										
J4-1	Hoi Bun Road	WB	250	100	400	250	100	400	2	0	1
J4-3	Hoi Bun Road	SB	400	150	600	450	100	650	3	1	2
	Sub-Total		***650***	***250***	***1,000***	***700***	***200***	***1,050***	***1***	***1***	***1***
	Junction 5 - Hoi Bun Road/ Wang Chiu Road/ Cheung Yip Street										
	ENTRY ARM										
J5-1	Wang Chiu Road	EB	650	200	950	550	200	800	5	1	4
J5-2	Cheung Yip Street	NB	200	90	350	150	70	200	7	3	7
J5-3	Hoi Bun Road	WB	250	100	350	250	100	400	1	0	1
J5-4	Cheung Yip Street	SB	40	70	100	40	60	100	0	0	0
	Sub-Total		***1,150***	***450***	***1,750***	***950***	***400***	***1,500***	***6***	***2***	***5***
	EXIT ARM										
J5-1	Wang Chiu Road	WB	150	70	250	150	70	250	0	1	0
J5-2	Cheung Yip Street	SB	550	200	750	500	150	700	3	1	3
J5-3	Hoi Bun Road	EB	350	150	550	200	80	400	7	4	8
J5-4	Cheung Yip Street	NB	90	90	200	90	100	200	0	1	1
	Sub-Total		***1,150***	***450***	***1,750***	***950***	***400***	***1,500***	***6***	***2***	***5***
	Junction 6 - Cheung Yip Street/ Shing Cheong Road										
	ENTRY ARM										
J6-1	Shing Cheong Road	EB	250	90	400	200	100	300	5	1	3
J6-2	Cheung Yip Street	NB	60	20	90	30	0	50	3	5	5
J6-3	Cheung Yip Street	SB	450	150	600	350	100	450	5	4	6
	Sub-Total		***750***	***250***	***1,050***	***550***	***200***	***800***	***7***	***4***	***8***
	EXIT ARM										
J6-1	Shing Cheong Road	WB	400	150	600	300	90	450	6	3	7
J6-2	Cheung Yip Street	SB	70	20	100	40	0	60	3	5	4
J6-3	Cheung Yip Street	NB	250	100	400	200	100	350	3	0	3
	Sub-Total		***750***	***250***	***1,050***	***550***	***200***	***800***	***7***	***4***	***8***
	Junction 7 - Wang Chiu Road/ Sheung Yuet Road										
	ENTRY ARM										
J7-1	Sheung Yuet Road	EB	100	50	200	100	40	200	2	0	2
J7-2	Wang Chiu Road	NB	100	30	250	100	30	300	0	0	0
J7-3	Sheung Yuet Road	WB	150	50	200	150	50	200	0	0	0
J7-4	Wang Chiu Road	SB	550	150	800	550	200	900	1	4	3
	Sub-Total		***850***	***250***	***1,450***	***900***	***300***	***1,600***	***2***	***3***	***3***
	EXIT ARM										
J7-1	Sheung Yuet Road	WB	250	60	450	200	80	450	2	2	0
J7-2	Wang Chiu Road	SB	400	100	550	400	100	550	0	0	0
J7-3	Sheung Yuet Road	EB	100	60	150	150	90	250	5	4	6
J7-4	Wang Chiu Road	NB	100	30	300	150	30	350	3	0	2

Table 3 LATM Junctions Validation Results - AM Peak

ID	Road Link	Direction	2024 AM Peak (pcus/hour)								
			Observed			Modelled			GEH		
			PV	GV	Total	PV	GV	Total	PV	GV	Total
	Sub-Total		***850***	***250***	***1,450***	***900***	***300***	***1,600***	***2***	***3***	***3***
	Junction 8 - Wang Chiu Road/ Lam Fung Street										
	ENTRY ARM										
J8-2	Wang Chiu Road	NB	300	100	600	300	100	600	0	0	0
J8-4	Wang Chiu Road	SB	400	100	550	400	100	550	0	0	0
	Sub-Total		***700***	***250***	***1,100***	***700***	***250***	***1,100***	***0***	***0***	***0***
	EXIT ARM										
J8-1	Wang Chiu Road	NB	200	70	250	200	70	300	1	1	1
J8-2	Wang Chiu Road	SB	350	100	450	350	100	450	0	0	0
J8-3	Wang Chiu Road	NB	90	40	100	70	30	100	1	1	2
J8-4	Wang Chiu Road	NB	100	30	250	100	30	300	0	0	0
	Sub-Total		***700***	***250***	***1,100***	***700***	***250***	***1,100***	***0***	***0***	***0***
	Junction 9 - Wang Chiu Road/ Sheung Yee Road										
	ENTRY ARM										
J9-1	Sheung Yee Road	EB	500	200	850	550	200	900	1	1	1
J9-2	Wang Chiu Road	NB	650	250	1,000	600	250	950	0	1	1
J9-3	Sheung Yee Road	WB	100	90	250	80	80	200	2	1	2
J9-4	Wang Chiu Road	SB	350	100	450	350	100	450	0	0	0
	Sub-Total		***1,600***	***650***	***2,550***	***1,600***	***650***	***2,550***	***0***	***1***	***0***
	EXIT ARM										
J9-2	Wang Chiu Road	SB	700	300	1,100	700	300	1,100	0	0	0
J9-3	Sheung Yee Road	EB	600	250	850	550	200	850	1	1	1
J9-4	Wang Chiu Road	NB	300	100	600	300	100	600	0	0	0
	Sub-Total		***1,600***	***650***	***2,550***	***1,600***	***650***	***2,550***	***0***	***1***	***0***
	Junction 10 - Shing Cheong Road/ Slip Road S5/ Road L10										
	ENTRY ARM										
J10-1	Kai Tak Bridge Road	NB	150	70	250	200	100	300	2	4	3
J10-2	Shing Cheong Road	WB	250	90	350	250	90	350	1	1	1
	Sub-Total		***400***	***150***	***650***	***400***	***200***	***650***	***0***	***3***	***1***
	EXIT ARM										
J10-1	Kai Tak Bridge Road	SB	250	90	350	250	90	350	1	1	1
J10-2	Shing Cheong Road	EB	150	70	250	200	100	300	2	4	3
	Sub-Total		***400***	***150***	***650***	***400***	***200***	***650***	***0***	***3***	***1***
	Junction 11 - Shing Fung Road / Rd L12c / Rd L13a										
	ENTRY ARM										
J11-1	Shing Fung Road	EB	100	60	200	150	90	300	4	4	5
J11-2	Shing King Street	NB	10	30	30	20	20	40	3	0	2
J11-3	Shing Fung Road	WB	30	10	80	20	20	80	2	3	0
J11-4	Shing King Street	SB	40	20	60	30	10	40	2	1	2
	Sub-Total		***200***	***100***	***350***	***200***	***150***	***450***	***2***	***4***	***4***
	EXIT ARM										
J11-1	Shing Fung Road	WB	60	50	150	60	60	150	1	2	1
J11-2	Shing King Street	SB	10	20	30	30	20	50	4	2	5
J11-3	Shing Fung Road	EB	80	30	150	80	50	150	0	3	1
J11-4	Shing King Street	NB	40	20	50	40	20	70	1	2	2
	Sub-Total		***200***	***100***	***350***	***200***	***150***	***450***	***2***	***4***	***4***
	Junction 12 - Shing Fung Road/ Shing Cheong Road										
	ENTRY ARM										
J12-1	Shing Fung Road	EB	200	90	300	250	150	400	1	6	4
J12-2	Shing Fung Road	WB	150	80	250	150	70	250	0	1	0
J12-3	Kai Tak Bridge Road	SB	250	100	400	250	100	400	1	0	1
	Sub-Total		***600***	***250***	***950***	***600***	***300***	***1,050***	***0***	***4***	***2***
	EXIT ARM										
J12-1	Shing Fung Road	WB	200	90	300	200	90	300	1	0	1
J12-2	Shing Fung Road	EB	250	100	350	250	150	400	0	3	2
J12-3	Kai Tak Bridge Road	NB	200	80	300	200	100	350	1	3	3
	Sub-Total		***600***	***250***	***950***	***600***	***300***	***1,050***	***0***	***4***	***2***
	Junction 14 - Shing Kai Road/ Shing Fung Road/ Muk Tai Street										
	ENTRY ARM										
J14-1	Shing Kai Road	EB	350	150	550	300	200	550	3	3	0
J14-2	Shing Fung Road	NB	200	100	350	200	90	300	3	3	4
J14-3	Shing Kai Road	WB	300	150	500	200	80	350	6	7	8
J14-4	Muk Tai Street	SB	200	60	250	200	20	200	0	5	2
	Sub-Total		***1,050***	***500***	***1,650***	***900***	***400***	***1,350***	***6***	***5***	***7***
	EXIT ARM										
J14-1	Shing Kai Road	WB	300	100	450	250	100	400	1	2	0
J14-2	Shing Fung Road	SB	350	250	600	200	150	400	8	4	9
J14-3	Shing Kai Road	EB	250	80	400	250	60	350	1	2	2
J14-4	Muk Tai Street	NB	150	70	250	150	30	200	0	6	3
	Sub-Total		***1,050***	***500***	***1,650***	***900***	***400***	***1,350***	***6***	***5***	***7***
	Junction 15 - Shing Kai Road/ Song Wong Toi Road/ To Kwa Wan Road										
	ENTRY ARM										
J15-1	Sung Wong Toi Road	EB	250	150	400	300	150	500	3	3	4
J15-2	To Kwa Wan Road	NB	350	200	550	300	200	550	2	2	0
J15-3	Shing Kai Road	SB	250	100	400	250	150	400	0	1	1
	Sub-Total		***850***	***450***	***1,350***	***850***	***500***	***1,450***	***1***	***3***	***2***
	EXIT ARM										
J15-1	Sung Wong Toi Road	WB	250	150	400	200	150	350	3	1	2
J15-2	To Kwa Wan Road	SB	250	150	450	250	150	450	0	0	0
J15-3	Shing Kai Road	NB	350	150	500	400	200	650	3	5	5
	Sub-Total		***850***	***450***	***1,350***	***850***	***500***	***1,450***	***1***	***3***	***2***

Table 4 LATM Junctions Validation Results - PM Peak

ID	Road Link	Direction	2024 PM Peak (pcus/hour)								
			Observed			Modelled			GEH		
			PV	GV	Total	PV	GV	Total	PV	GV	Total
	Junction 1 - Kwun Tong Road/ Elegence Road/ Lai Yip Street										
	ENTRY ARM										
J1-1	Kwun Tong Road	EB	450	100	1,000	300	80	850	8	2	6
J1-2	Lai Yip Street	NB	750	100	900	650	100	800	4	1	4
J1-3	Kwun Tong Road	WB	850	100	1,500	850	100	1,500	0	0	0
J1-4	Elegance Road	SB	300	60	600	400	60	700	6	0	4
	Sub-Total		***2,350***	***400***	***4,050***	***2,200***	***350***	***3,850***	***3***	***2***	***3***
	EXIT ARM										
J1-1	Kwun Tong Road	WB	900	150	1,550	850	150	1,500	2	0	1
J1-2	Lai Yip Street	SB	300	60	400	300	50	400	0	0	0
J1-3	Kwun Tong Road	EB	750	100	1,550	650	80	1,450	4	3	3
J1-4	Elegance Road	NB	400	90	500	350	90	450	1	0	1
	Sub-Total		***2,350***	***400***	***4,050***	***2,200***	***350***	***3,850***	***3***	***2***	***3***
	Junction 2 - Lai Yip Street/ Wai Yip Street										
	ENTRY ARM										
J2-1	Wai Yip Street	EB	850	300	1,150	1,000	300	1,400	6	2	6
J2-2	Lai Yip Street	NB	350	50	450	350	30	400	2	3	2
J2-3	Wai Yip Street	WB	600	150	800	600	150	800	0	0	0
J2-4	Lai Yip Street	SB	550	150	750	600	150	750	1	0	1
	Sub-Total		***2,350***	***600***	***3,150***	***2,550***	***600***	***3,350***	***4***	***1***	***3***
	EXIT ARM										
J2-1	Wai Yip Street	WB	700	150	850	550	100	700	5	1	5
J2-2	Lai Yip Street	SB	450	100	650	500	100	650	1	1	1
J2-3	Wai Yip Street	EB	850	300	1,200	900	300	1,250	1	1	1
J2-4	Lai Yip Street	NB	400	60	500	550	70	700	8	2	8
	Sub-Total		***2,350***	***600***	***3,150***	***2,500***	***600***	***3,300***	***3***	***1***	***3***
	Junction 3 - Lai Yip Street/ Hoi Bun Road										
	ENTRY ARM										
J3-1	Hoi Bun Road	EB	300	60	350	300	50	350	1	0	1
J3-2	Hoi Bun Road	WB	400	90	450	250	90	350	8	0	7
J3-3	Lai Yip Street	SB	500	100	700	500	100	650	0	0	0
	Sub-Total		***1,200***	***250***	***1,500***	***1,000***	***250***	***1,350***	***5***	***0***	***4***
	EXIT ARM										
J3-1	Hoi Bun Road	WB	550	150	750	400	150	650	6	0	5
J3-2	Hoi Bun Road	EB	250	80	350	250	80	350	0	0	0
J3-3	Lai Yip Street	NB	350	40	450	350	30	400	2	1	2
	Sub-Total		***1,200***	***250***	***1,500***	***1,000***	***250***	***1,350***	***5***	***0***	***4***
	Junction 4 - Kai Hing Road/ Hoi Bun Road										
	ENTRY ARM										
J4-1	Hoi Bun Road	EB	350	50	450	350	50	450	0	0	0
J4-2	Kai Hing Road	NB	250	60	300	200	60	250	3	0	3
J4-3	Hoi Bun Road	WB	200	70	350	200	70	350	0	0	0
	Sub-Total		***800***	***200***	***1,050***	***750***	***200***	***1,000***	***2***	***0***	***1***
	EXIT ARM										
J4-1	Hoi Bun Road	WB	300	100	500	250	100	450	3	0	2
J4-3	Hoi Bun Road	SB	450	80	600	450	80	600	0	0	0
	Sub-Total		***800***	***200***	***1,050***	***750***	***200***	***1,000***	***2***	***0***	***1***
	Junction 5 - Hoi Bun Road/ Wang Chiu Road/ Cheung Yip Street										
	ENTRY ARM										
J5-1	Wang Chiu Road	EB	400	100	550	400	100	550	1	1	1
J5-2	Cheung Yip Street	NB	300	60	400	200	40	250	7	2	7
J5-3	Hoi Bun Road	WB	250	100	450	250	100	450	0	0	0
J5-4	Cheung Yip Street	SB	70	20	90	60	20	80	0	0	0
	Sub-Total		***1,000***	***300***	***1,450***	***900***	***250***	***1,300***	***4***	***2***	***4***
	EXIT ARM										
J5-1	Wang Chiu Road	WB	250	60	400	250	60	400	0	0	0
J5-2	Cheung Yip Street	SB	250	100	400	250	100	400	1	0	1
J5-3	Hoi Bun Road	EB	350	60	450	250	40	350	6	2	6
J5-4	Cheung Yip Street	NB	100	70	200	100	60	150	0	2	1
	Sub-Total		***1,000***	***300***	***1,450***	***900***	***250***	***1,300***	***4***	***2***	***4***
	Junction 6 - Cheung Yip Street/ Shing Cheong Road										
	ENTRY ARM										
J6-1	Shing Cheong Road	EB	250	60	350	250	50	350	1	2	1
J6-2	Cheung Yip Street	NB	60	10	70	50	10	70	0	0	0
J6-3	Cheung Yip Street	SB	150	40	200	150	40	200	0	0	0
	Sub-Total		***450***	***100***	***650***	***450***	***90***	***600***	***1***	***2***	***1***
	EXIT ARM										
J6-1	Shing Cheong Road	WB	150	40	200	150	30	200	0	0	0
J6-2	Cheung Yip Street	SB	50	10	70	40	10	50	1	2	2
J6-3	Cheung Yip Street	NB	300	60	400	300	50	350	0	1	0
	Sub-Total		***450***	***100***	***650***	***450***	***90***	***600***	***1***	***2***	***1***
	Junction 7 - Wang Chiu Road/ Sheung Yuet Road										
	ENTRY ARM										
J7-1	Sheung Yuet Road	EB	250	40	350	200	30	350	1	2	2
J7-2	Wang Chiu Road	NB	150	20	300	150	10	300	0	0	0
J7-3	Sheung Yuet Road	WB	400	40	400	400	30	450	1	0	1
J7-4	Wang Chiu Road	SB	600	90	800	600	90	800	0	0	0
	Sub-Total		***1,350***	***200***	***1,850***	***1,350***	***150***	***1,850***	***0***	***1***	***0***
	EXIT ARM										
J7-1	Sheung Yuet Road	WB	450	40	600	400	30	550	1	1	1
J7-2	Wang Chiu Road	SB	550	80	600	550	80	600	0	0	0
J7-3	Sheung Yuet Road	EB	250	50	300	250	40	250	0	0	0
J7-4	Wang Chiu Road	NB	150	20	400	200	10	400	2	1	1

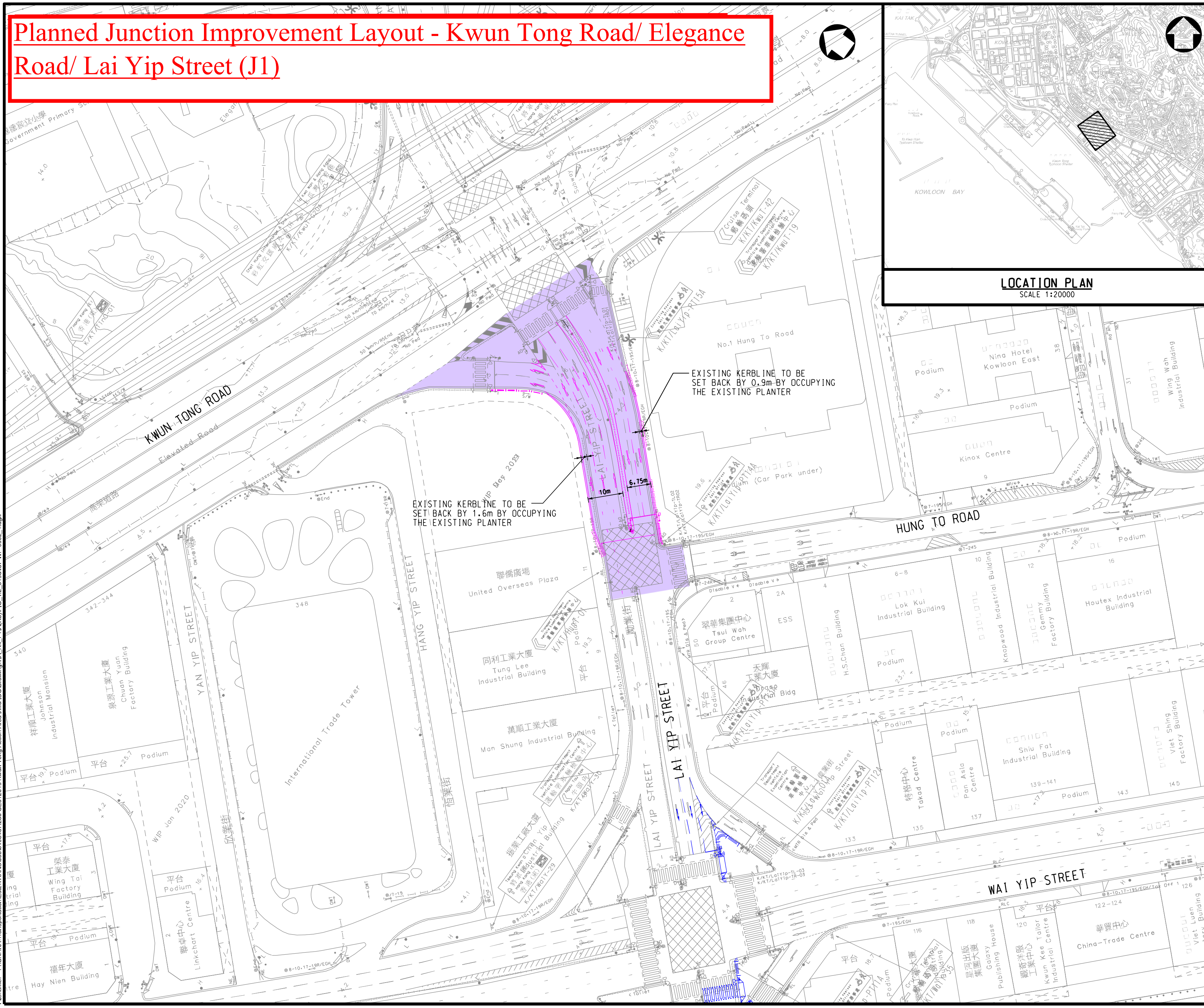
Table 4 LATM Junctions Validation Results - PM Peak

ID	Road Link	Direction	2024 PM Peak (pcus/hour)								
			Observed			Modelled			GEH		
			PV	GV	Total	PV	GV	Total	PV	GV	Total
	Sub-Total		***1,350***	***200***	***1,850***	***1,350***	***150***	***1,850***	***0***	***1***	***0***
	Junction 8 - Wang Chiu Road/ Lam Fung Street										
	ENTRY ARM										
J8-2	Wang Chiu Road	NB	650	90	900	650	90	900	0	0	0
J8-4	Wang Chiu Road	SB	550	80	600	550	80	600	0	0	0
	Sub-Total		***1,150***	***150***	***1,500***	***1,150***	***150***	***1,500***	***0***	***0***	***0***
	EXIT ARM										
J8-1	Wang Chiu Road	NB	500	70	550	500	70	550	0	0	0
J8-2	Wang Chiu Road	SB	450	70	500	450	70	500	0	0	0
J8-3	Wang Chiu Road	NB	100	20	150	100	20	150	0	0	0
J8-4	Wang Chiu Road	NB	150	20	300	150	10	300	0	0	0
	Sub-Total		***1,150***	***150***	***1,500***	***1,150***	***150***	***1,500***	***0***	***0***	***0***
	Junction 9 - Wang Chiu Road/ Sheung Yee Road										
	ENTRY ARM										
J9-1	Sheung Yee Road	EB	900	150	1,150	900	150	1,100	1	0	1
J9-2	Wang Chiu Road	NB	800	250	1,150	800	250	1,150	0	0	0
J9-3	Sheung Yee Road	WB	300	40	350	250	40	350	1	0	1
J9-4	Wang Chiu Road	SB	450	70	500	450	70	500	0	0	0
	Sub-Total		***2,450***	***500***	***3,200***	***2,400***	***450***	***3,150***	***1***	***0***	***1***
	EXIT ARM										
J9-2	Wang Chiu Road	SB	950	150	1,150	900	150	1,150	0	0	0
J9-3	Sheung Yee Road	EB	850	250	1,150	850	250	1,100	1	0	1
J9-4	Wang Chiu Road	NB	650	90	900	650	90	900	0	0	0
	Sub-Total		***2,450***	***500***	***3,200***	***2,400***	***450***	***3,150***	***1***	***0***	***1***
	Junction 10 - Shing Cheong Road/ Slip Road S5/ Road L10										
	ENTRY ARM										
J10-1	Kai Tak Bridge Road	NB	150	50	250	250	50	350	6	0	5
J10-2	Shing Cheong Road	WB	100	30	150	100	30	150	0	0	0
	Sub-Total		***250***	***80***	***400***	***350***	***70***	***500***	***5***	***0***	***4***
	EXIT ARM										
J10-1	Kai Tak Bridge Road	SB	100	30	150	100	30	150	0	0	0
J10-2	Shing Cheong Road	EB	150	50	250	250	50	350	6	0	5
	Sub-Total		***250***	***80***	***400***	***350***	***70***	***500***	***5***	***0***	***4***
	Junction 11 - Shing Fung Road / Rd L12c / Rd L13a										
	ENTRY ARM										
J11-1	Shing Fung Road	EB	50	30	100	50	20	100	0	0	0
J11-2	Shing King Street	NB	30	10	30	20	0	20	1	0	1
J11-3	Shing Fung Road	WB	70	10	100	60	10	100	1	0	1
J11-4	Shing King Street	SB	10	10	20	0	0	10	2	0	2
	Sub-Total		***150***	***50***	***300***	***150***	***40***	***250***	***2***	***0***	***1***
	EXIT ARM										
J11-1	Shing Fung Road	WB	90	20	150	80	20	150	0	0	0
J11-2	Shing King Street	SB	20	10	20	10	0	10	1	0	1
J11-3	Shing Fung Road	EB	50	10	100	30	10	90	2	0	1
J11-4	Shing King Street	NB	10	10	20	0	10	10	2	0	1
	Sub-Total		***150***	***50***	***300***	***150***	***40***	***250***	***2***	***0***	***1***
	Junction 12 - Shing Fung Road/ Shing Cheong Road										
	ENTRY ARM										
J12-1	Shing Fung Road	EB	150	40	200	150	40	200	0	0	0
J12-2	Shing Fung Road	WB	150	30	250	150	30	250	0	0	0
J12-3	Kai Tak Bridge Road	SB	100	30	150	100	30	150	0	0	0
	Sub-Total		***400***	***100***	***600***	***400***	***90***	***600***	***0***	***0***	***0***
	EXIT ARM										
J12-1	Shing Fung Road	WB	150	20	150	150	20	150	0	0	0
J12-2	Shing Fung Road	EB	100	30	200	100	30	200	0	0	0
J12-3	Kai Tak Bridge Road	NB	150	50	250	150	50	250	0	0	0
	Sub-Total		***400***	***100***	***600***	***400***	***90***	***600***	***0***	***0***	***0***
	Junction 14 - Shing Kai Road/ Shing Fung Road/ Muk Tai Street										
	ENTRY ARM										
J14-1	Shing Kai Road	EB	350	70	450	350	70	450	0	0	0
J14-2	Shing Fung Road	NB	250	60	300	200	40	300	1	2	2
J14-3	Shing Kai Road	WB	250	60	350	250	40	300	0	3	1
J14-4	Muk Tai Street	SB	200	40	250	200	20	200	0	4	2
	Sub-Total		***1,050***	***200***	***1,350***	***1,050***	***150***	***1,300***	***1***	***4***	***2***
	EXIT ARM										
J14-1	Shing Kai Road	WB	350	60	400	350	60	400	1	0	1
J14-2	Shing Fung Road	SB	150	70	200	150	50	200	0	2	1
J14-3	Shing Kai Road	EB	350	70	450	350	40	400	0	4	2
J14-4	Muk Tai Street	NB	200	30	250	200	20	250	0	1	1
	Sub-Total		***1,050***	***200***	***1,350***	***1,050***	***150***	***1,300***	***1***	***4***	***2***
	Junction 15 - Shing Kai Road/ Song Wong Toi Road/ To Kwa Wan Road										
	ENTRY ARM										
J15-1	Sung Wong Toi Road	EB	250	80	300	250	80	300	1	1	1
J15-2	To Kwa Wan Road	NB	500	150	650	500	150	700	2	1	2
J15-3	Shing Kai Road	SB	350	90	450	350	90	450	0	0	0
	Sub-Total		***1,100***	***350***	***1,450***	***1,100***	***350***	***1,450***	***1***	***0***	***1***
	EXIT ARM										
J15-1	Sung Wong Toi Road	WB	450	100	550	450	100	600	1	1	1
J15-2	To Kwa Wan Road	SB	300	100	450	300	100	450	0	0	0
J15-3	Shing Kai Road	NB	350	100	450	350	90	450	0	0	0
	Sub-Total		***1,100***	***350***	***1,450***	***1,100***	***350***	***1,450***	***1***	***0***	***1***

Appendix C

Planned Junction Improvement and Junction Modification Schemes by Others

Planned Junction Improvement Layout - Kwun Tong Road/ Elegance Road/ Lai Yip Street (J1)



LEGEND:

- IMPROVEMENT SCHEME OF KWUN TONG ROAD / LAI YIP STREET (J1)
- PROPOSED ROAD LAYOUT
- PROPOSED JUNCTION IMPROVEMENT SCHEME TO BE CONSTRUCTED BY OTHERS

Rev.	Date	Description	By	Chk'd	App'd
E	AUG 2022	MINOR AMENDMENT	KL	PK	SC
D	MAR 2022	MINOR AMENDMENT	KL	PK	SC
C	JAN 2021	RECEIVED COMMENTS INCORPORATED	KL	PK	JY
B	DEC 2020	RECEIVED COMMENTS INCORPORATED	KL	PK	JY
A	MAY 2020	FIRST ISSUE	KL	PK	JY

Drawing Status: INVESTIGATION

Suitability: -

SNC·LAVALIN

ATKINS Member of the SNC-Lavalin Group

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

東拓展處
EAST DEVELOPMENT OFFICE

Project Title: AGREEMENT NO. CE 61/2019 (CE) INFRASTRUCTURE WORKS FOR DEVELOPMENTS AT KWUN TONG ACTION AREA - INVESTIGATION, DESIGN AND CONSTRUCTION

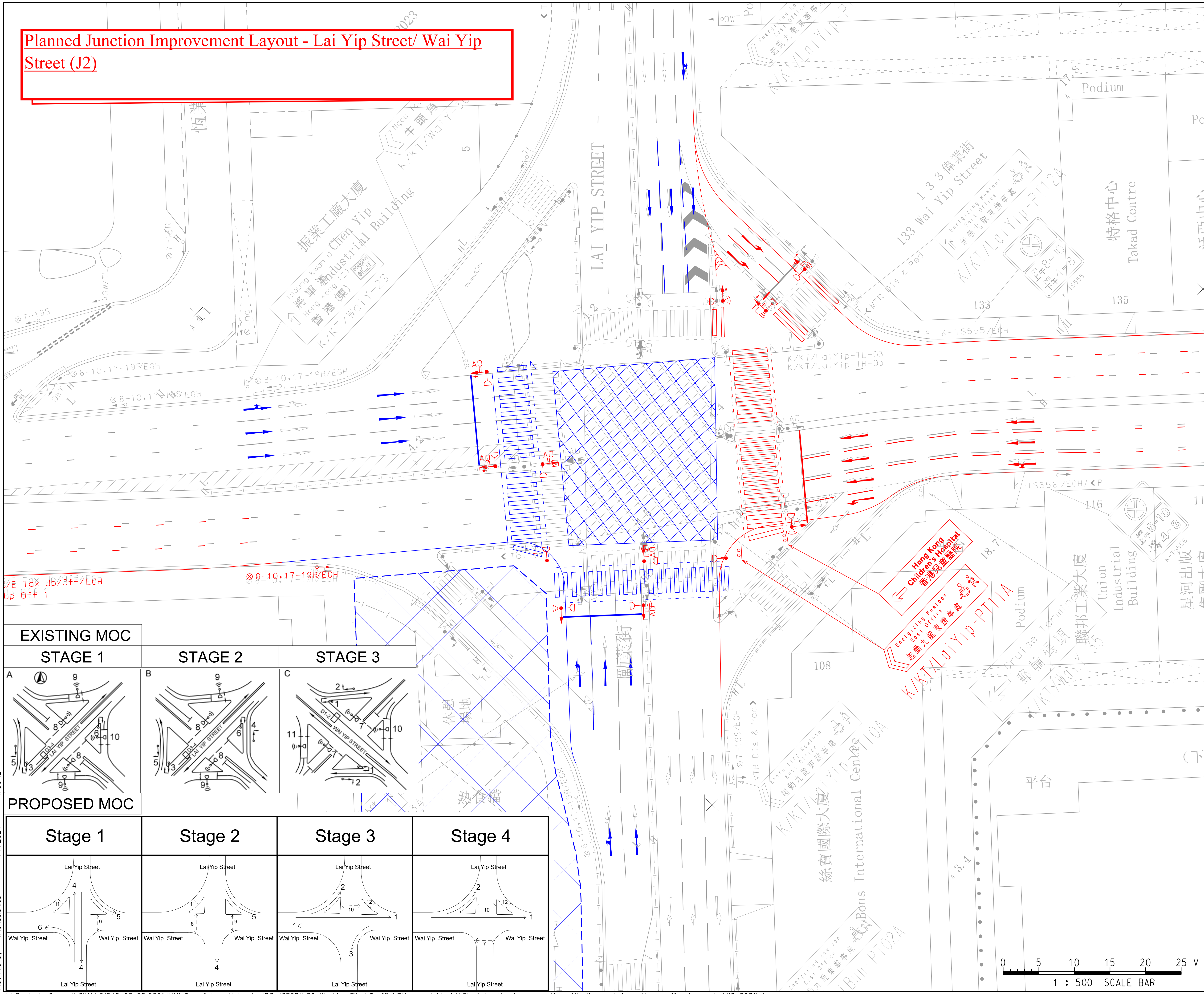
Drawing Title: GENERAL LAYOUT PLAN OF INFRASTRUCTURE WORKS FOR DEVELOPMENTS AT KWUN TONG ACTION AREA (SHEET 2)

Scale	Designed	Drawn	Checked	Authorised
1:1000	KL	KL	PK	JY
Original Size A3	Date AUG 2022	Date AUG 2022	Date AUG 2022	Date AUG 2022

Drawing Number: FIGURE 1.2 | Revision: E

User name: $USERNAME$ Date:30/8/2022 Time:12:20:58
Filename: P:\CN\HKA\Transportation\Est2\TRANS\Job\5193437.250 CE61\2019 Kwun Tong Action Area Infra IDC\Drawing\TIA_R4_FTIA(R3)\FIG_1.2_5193437-WP-0002_1.dgn

Planned Junction Improvement Layout - Lai Yip Street/ Wai Yip Street (J2)



LEGEND

IMPROVEMENT WORKS BY OTHERS

PROPOSED IMPROVEMENT WORKS

Rev	Amendment	By	Chk.	App.	Date

Client

土木工程拓展署 Civil Engineering and Development Department

MEINHARDT

Meinhardt Infrastructure and Environment Limited 邁進基建環保工程顧問有限公司

Project

AGREEMENT NO. CE 85/2021 (HY) TRAVELLATORS NETWORK LINKING UP THE FORMER RUNWAY OF KAI TAK, KOWLOON BAY ACTION AREA AND KWUN TONG ACTION AREA - INVESTIGATION, DESIGN AND CONSTRUCTION

Title

PROPOSED JUNCTION MODIFICATION AT J10 - WAI YIP STREET / LAI YIP STREET

Drawn	Checked	Approved
CML	AL	SWL

Scale	CAD File No.	First Issued
1:250 (A1) 1:500 (A3)	Junction modification works(J10 2031).dgn	Apr 2024

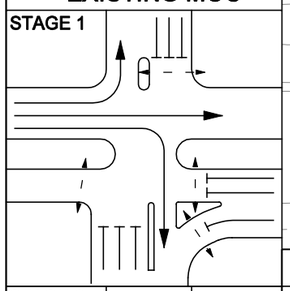
Drawing No. 91846/P1/D/T/M/0001 Rev. -

Pen Table : K:_STANDARD\MICROSTATION\PLOT\MIEL.TBL
Plot Driver : K:\From SZO Project\91846\Traffic\Model\A3_colour (TTM only).plt
Plot File by : michaelshou 4/7/2024 11:30:12
A:\Projects Current\CIVIL\91846 CE 85.2021 (HY) Travellators Networks IDC (CEDD)\06_Working Files\Traffic\TIA report (draft)\Final\Junction improvemnt&modification works\Junction modification works(J10 2031).dgn

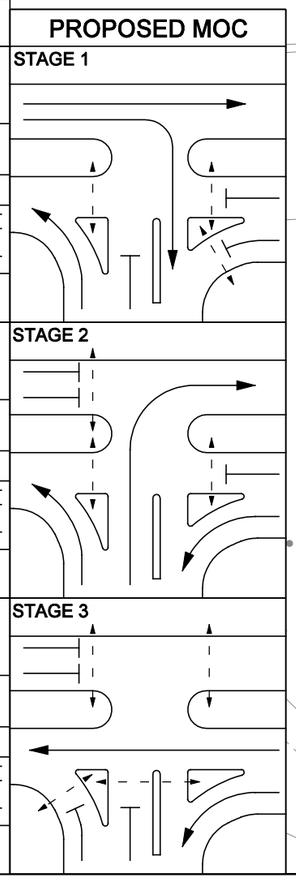
DETAIL ARRANGEMENT ON PEDESTRIANISATION OF CHEUNG YIP STREET SHALL BE FURTHER INVESTIGATED IN LATER STAGE

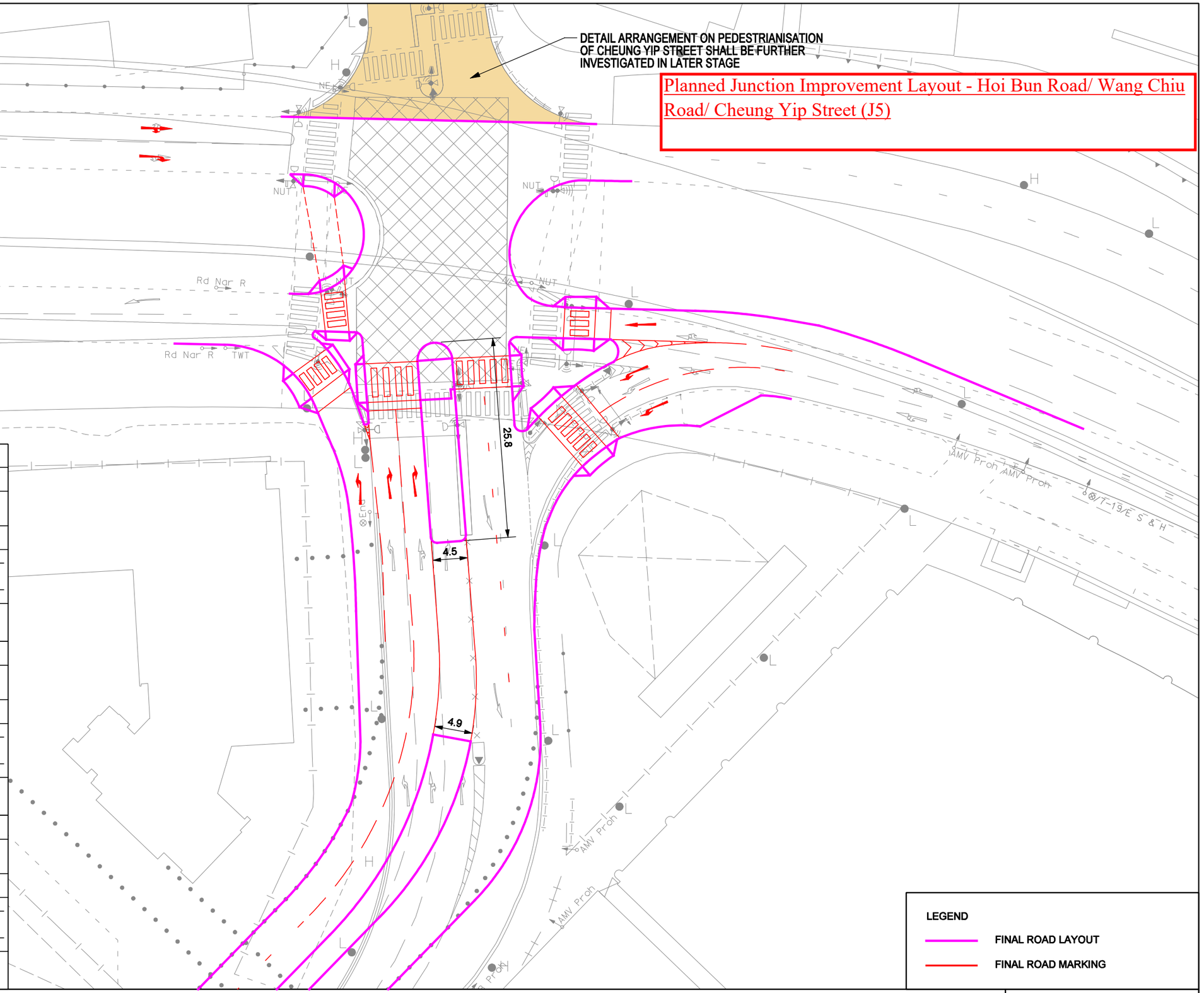
Planned Junction Improvement Layout - Hoi Bun Road/ Wang Chiu Road/ Cheung Yip Street (J5)

EXISTING MOC



PROPOSED MOC





LEGEND

- FINAL ROAD LAYOUT
- FINAL ROAD MARKING

Job Title

AGREEMENT NO. CE 4/2014 (TP) PLANNING AND ENGINEERING STUDY FOR THE DEVELOPMENT AT KOWLOON BAY ACTION AREA OF KOWLOON EAST - FEASIBILITY STUDY

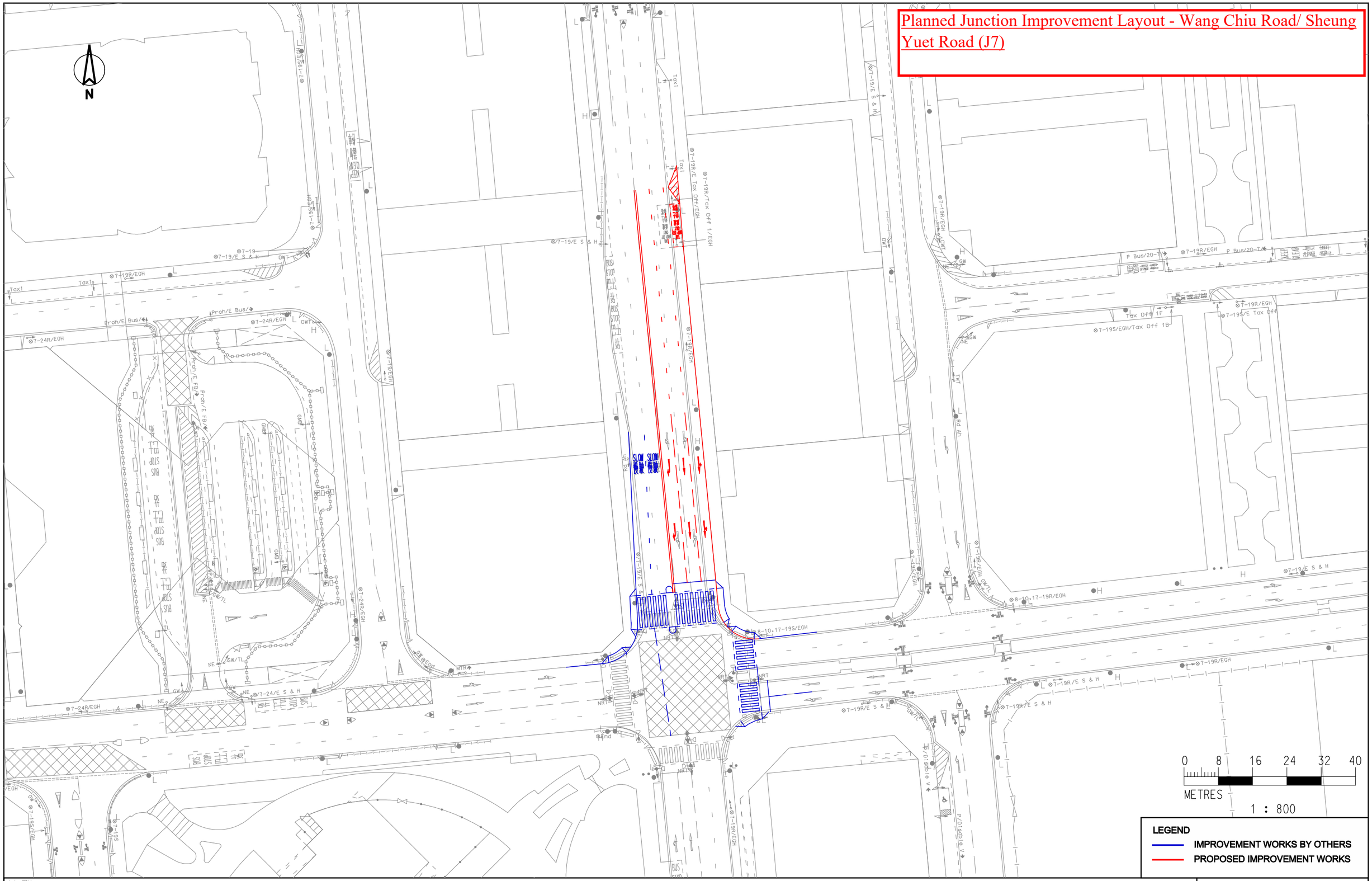
FIGURE 4.2.6

Date	Scale	Drawing Title
MAY 18	1:500@A3	PROPOSED JUNCTION LAYOUT - HOI BUN ROAD / CHEUNG YIP STREET (J5)
Drawn: WTL	Job No.: 237938	

ARUP

PRINTED BY: wai-shing.wong 18/05/2020 10:25:06
FILENAME: \\hkgnts69\Traffic\Drawing\237000\237938-02 (KBAA)\Drawing\20200723 (Annex B)\J5 - Final.dgn

Planned Junction Improvement Layout - Wang Chiu Road/ Sheung Yuet Road (J7)



Job Title

AGREEMENT NO. CE 4/2014 (TP) PLANNING AND ENGINEERING STUDY FOR THE DEVELOPMENT AT KOWLOON BAY ACTION AREA OF KOWLOON EAST - FEASIBILITY STUDY

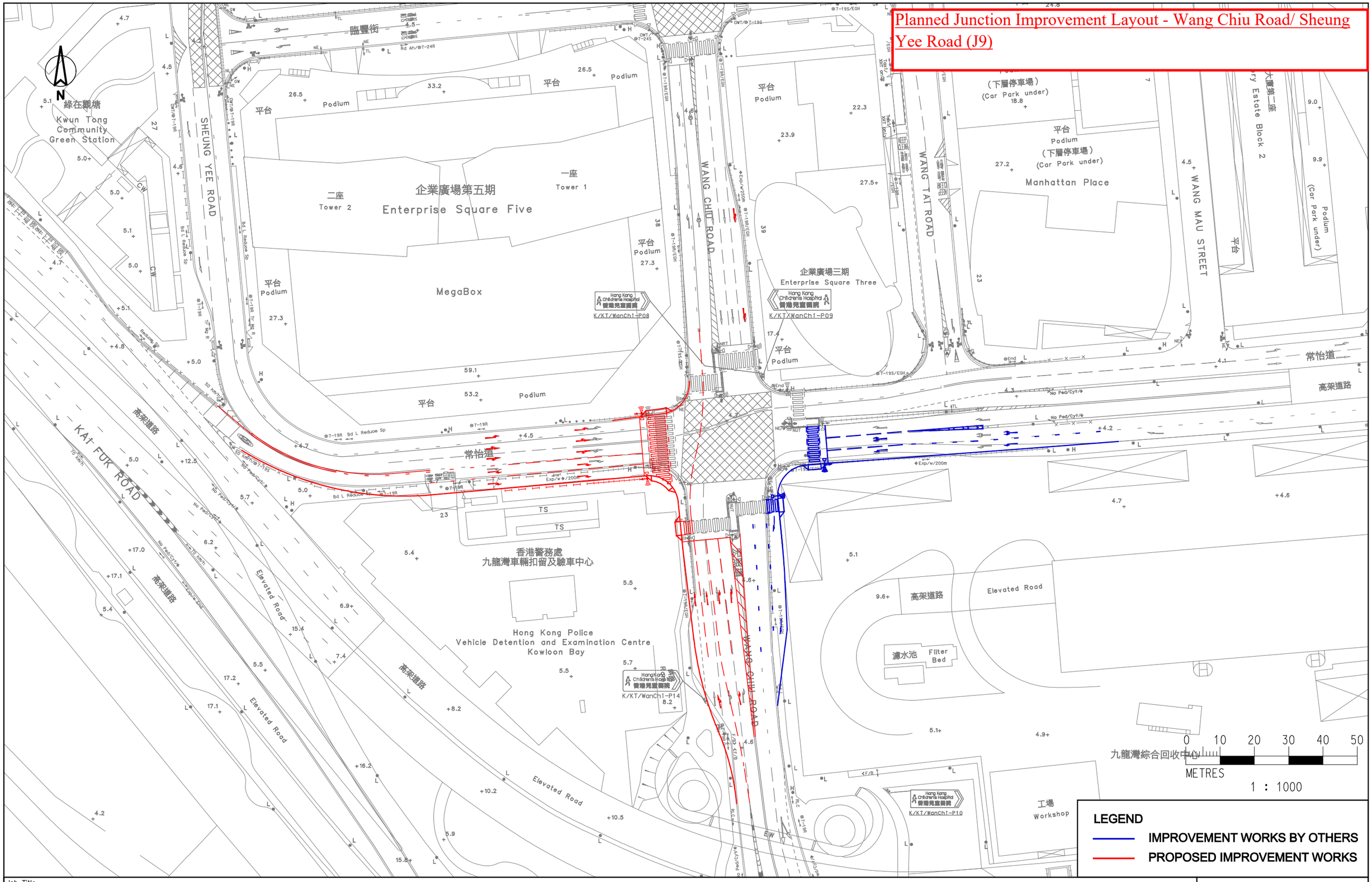
FIGURE 6.4.4

Date	Scale	Drawing Title
23JUL20	1:800@A3	PROPOSED JUNCTION IMPROVEMENT AT J9 - SHEUNG YUET ROAD / WANG CHIU ROAD
Drawn	Job No.	
WSTW	237938	

ARUP

PRINTED BY: $USER$ $TIME$
FILENAME: $FILE$ $DATE$

Planned Junction Improvement Layout - Wang Chiu Road/ Sheung Yee Road (J9)



LEGEND

- IMPROVEMENT WORKS BY OTHERS
- PROPOSED IMPROVEMENT WORKS

Job Title

AGREEMENT NO. CE 4/2014 (TP) PLANNING AND ENGINEERING STUDY FOR THE DEVELOPMENT AT KOWLOON BAY ACTION AREA OF KOWLOON EAST - FEASIBILITY STUDY

FIGURE 6.4.3

Date	Scale	Drawing Title
26MAY20	1:1000@A3	PROPOSED JUNCTION IMPROVEMENT AT J6 - WANG CHIU ROAD / SHEUNG YEE ROAD
Drawn	Job No.	
KPHW	237938	

ARUP

PRINTED BY: $USER$ $DATE$ $TIME$
FILENAME: $FILE$

Planned Junction Modification Layout - Kai Tak Bridge Road/ Shing Cheong Road (J10)

Kowloon Bay, Kowloon (W), Hong Kong (W), Kwai Chung
九龍灣, 九龍(西), 香港(西), 葵涌

FADS T4(A)
'X' HEIGHT = 200mm

Cruise Terminal
郵輪碼頭
Hong Kong Children's Hospital
香港兒童醫院
Kowloon Bay
九龍灣

GDS 7
'X' HEIGHT = 100mm

KAI FUK ROAD
KWUN TONG BYPASS
Elevated Road
EXISTING DSD DESILTING COMPOUND
TRUNK ROAD T2 VENTILATION BUILDING (BY OTHERS)
FUTURE NEW ACUTE HOSPITAL (BY OTHERS)
AT-GRADE SLIP ROAD S5
RM1009+RM1112
RM1109+RM1114
RM1134+RM1109+RM1114
RM1104
RM1115
TS460(7)
TS102(7)
TS115(7)
TS1013
FUTURE TRUNK ROAD T2 (BY OTHERS)
FUTURE SHING CHEONG ROAD (ROAD L10) (BY OTHERS)
FUTURE ROAD D4 (BY OTHERS)
FOR CONTINUATION SEE DRG CKR/KTE/04/0014
MATCH LINE
839400 E
839500 E
839600 E
819900 N
819800 N
820000 N
819700 N

0 5 10 15 20 25 m
1 : 500 SCALE BAR

N
KAI TAK DEVELOPMENT
KOWLOON BAY
MA TAU KOK

KEY PLAN

NOTES

1. FOR NOTES AND LEGEND, REFER TO DRAWING NO. CKR/KTE/04/0011.

Rev. 修訂	Description 內容摘要	By 設計	Date 日期
00	ISSUE FOR TENDER	BF	09/18

ARUP M MOTT MACDONALD
Arup-Mott MacDonald Joint Venture

Project title 工程名稱
Contract No. HY/2018/02
Central Kowloon Route - Kai Tak East

Drawing title 圖紙名稱
TRAFFIC SIGNS AND ROAD MARKING LAYOUT PLAN - SHEET 4

Drawing no. 圖紙編號	Rev. 修訂
CKR/KTE/04/0015	00

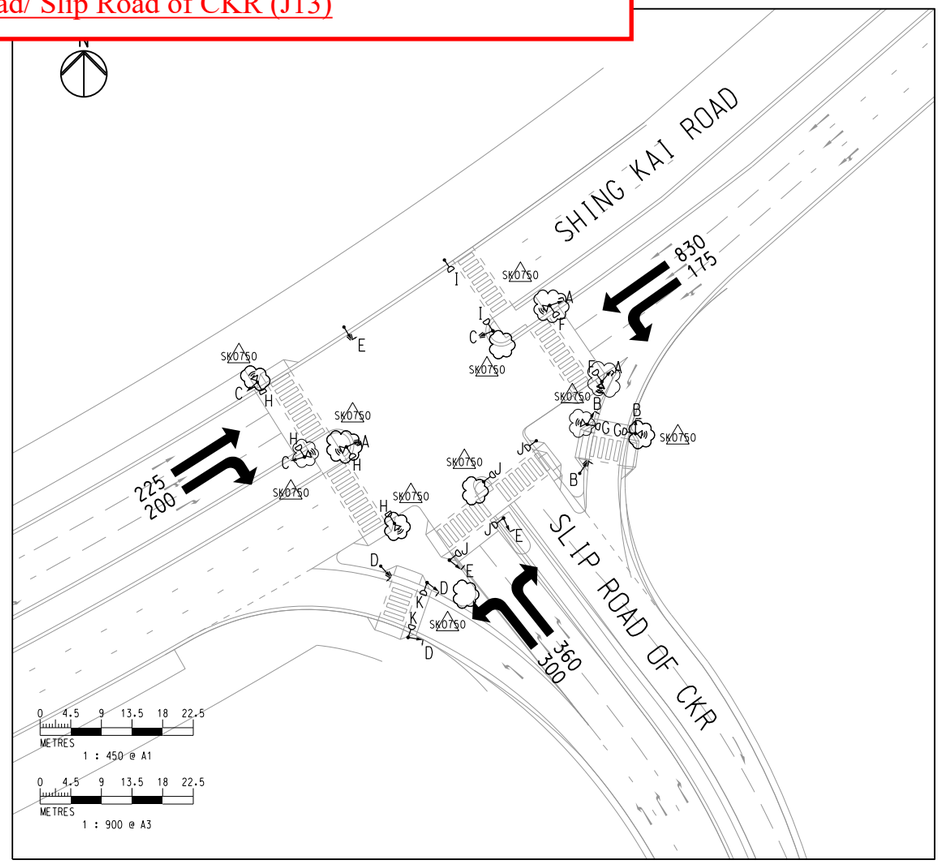
Drawn By 繪圖	Checked By 覆核	Approved By 批准人
WKKL	BF	EC

Scale 比例	Status 階段
1:500 @ A1	TENDER

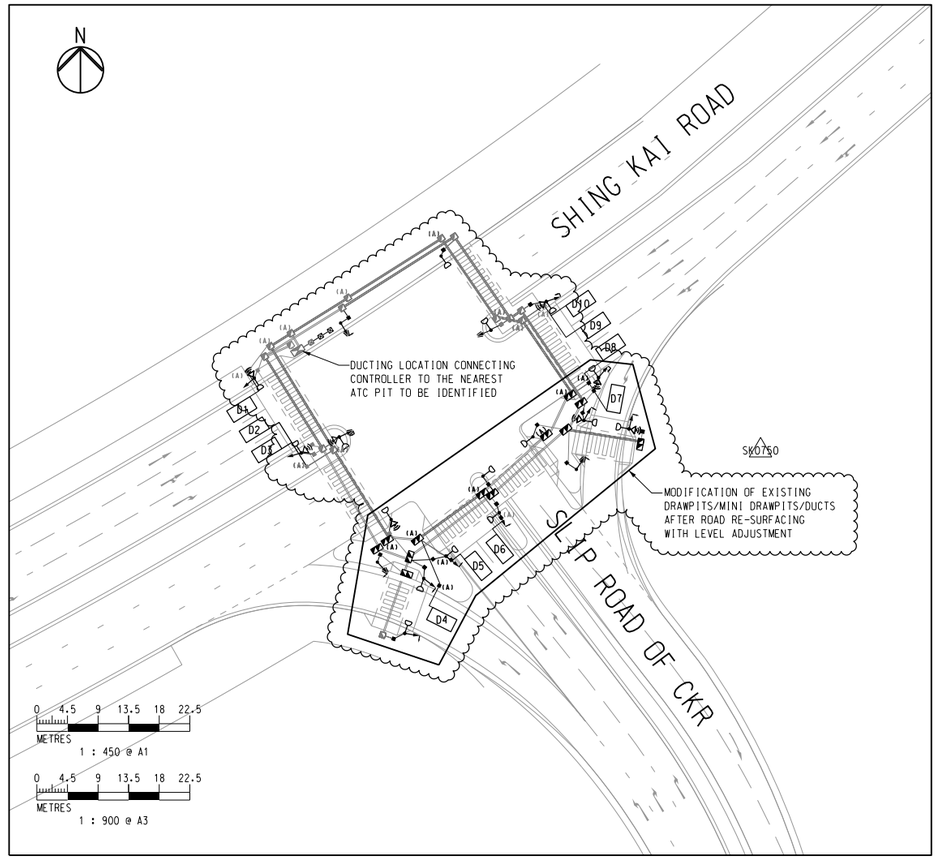
路政署 HIGHWAYS DEPARTMENT
主要工程管理處 MAJOR WORKS PROJECT MANAGEMENT OFFICE

Printed by : 9/19/2018
Filename : M:\Drawing\217000\217722-25 CKR - D&C\Drawing\20180919 (CKR-KTE-Tender drawings)\DGN\CKR_KTE_04_0015_00.dgn

Planned Junction Modification Layout - Shing Kai Road/ Slip Road of CKR (J13)

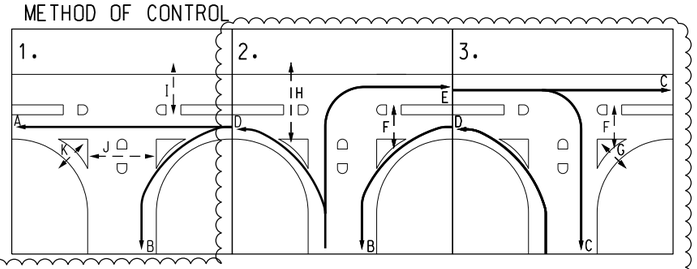


JUNCTION LAYOUT

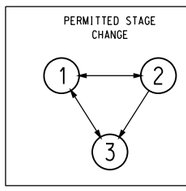


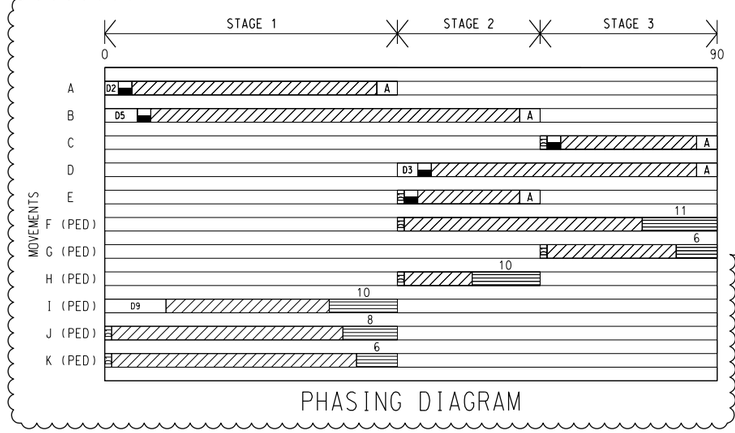
DUCTING LAYOUT

METHOD OF CONTROL



PERMITTED STAGE CHANGE





PHASING DIAGRAM

SK0750

CYCLE TIME (SEC)	
STAGE	CRITICAL PEAK
1	43
2	26
3	21
TOTAL	90

PHASING ALLOCATION

LEGEND

- RED
- RED-AMBER, 2 SEC.
- GREEN (VEHICULAR & PEDESTRIAN SIGNALS)
- A AMBER, 3 SEC.
- FLASHING GREEN (PEDESTRIAN SIGNALS)
- DX DELAY WITH x SECOND

SUPPLIED BY	DESCRIPTION		QUANTITY REUSED	QUANTITY REQUIRED	TOTAL
TRANSPORT DEPARTMENT	CONTROLLER	FIXED TIME 3 STAGES 11 PHASES	0	1	1
	ASPECTS	RED & AMBER LENSES	5	10	15
		GREEN LENS SK0750	0	3	3
		GREEN ARROW LENS	3	9	12
		GREEN MAN LENS	4	12	16
		RED MAN LENS	4	12	16
	SIGNAL POLE ASSEMBLIES	SK0750	0	2	2
			0	2	2
			0	4	4
			0	2	2
		SK0750	0	1	1
			0	1	1
			0	2	2
		SK0750	1	0	1
			0	8	8
			4	4	8
E.M.S.D.	MISCELLANEOUS	SIGNAL POST	5	14	19
		CABLING	AS REQUIRED	AS REQUIRED	AS REQUIRED

SCHEDULE OF TRAFFIC SIGNAL EQUIPMENTS

EXISTING 1 NO. OF DUCT UNDER FOOTPATH/CARRIAGEWAY

EXISTING 2 NOS. OF DUCT UNDER FOOTPATH/CARRIAGEWAY

SK0750

LEGEND :

- PRIMARY 3-LIGHT SIGNAL HEAD
- SECONDARY 3-LIGHT SIGNAL HEAD
- 2-LIGHT AUDIBLE PEDESTRIAN SIGNAL HEAD WITH PUSH BUTTON CONTROL (PEDESTRIAN DEMAND FUNCTION)
- PRIORITY 3-LIGHT SIGNAL HEAD WITH STRAIGHT AHEAD ARROW
- PRIMARY 3-LIGHT SIGNAL HEAD WITH RIGHT TURN ARROW IN PLACE OF GREEN ROUNDEL
- PRIMARY 3-LIGHT SIGNAL HEAD WITH LEFT TURN ARROW IN PLACE OF GREEN ROUNDEL
- SECONDARY 3-LIGHT SIGNAL HEAD WITH STRAIGHT AHEAD ARROW
- SECONDARY 3-LIGHT SIGNAL HEAD WITH RIGHT TURN ARROW IN PLACE OF GREEN ROUNDEL
- SECONDARY 3-LIGHT SIGNAL HEAD WITH LEFT TURN ARROW IN PLACE OF GREEN ROUNDEL
- 2-LIGHT AUDIBLE PEDESTRIAN SIGNAL HEAD SK0750
- ~~PLAIN BOLLARD IS518~~
- ~~BOLLARD WITH KEEP LEFT SIGN~~
- TRAFFIC SIGNAL DRAW PIT
- TWIN DRAWPIT FOR TRAFFIC SIGNAL
- PROPOSED CONTROLLER (DETAILS REFER TO HYD. STANDARD DRAWING NO. H2151 TO H2171 SERIES
- PROPOSED MINI-DRAWPITS (REFER TO THE HyD STANDARD DRAWING H2182)
- PROPOSED EARTHING PIT
- SK0750 100mm ID UPVC DUCTS TO BE USED AT 450mm DEPTH UNDER FOOTPATH/ 100mm ID G.I. DUCT TO BE USED AT 900mm DEPTH UNDER CARRIAGEWAY (1 NO. FROM DRAWPITS TO SIGNAL POLES)
- 100mm ID UPVC DUCTS TO BE USED AT 450mm DEPTH UNDER FOOTPATH/ 100mm ID G.I. DUCT TO BE USED AT 900mm DEPTH UNDER CARRIAGEWAY (2 NOS. BETWEEN DRAWPITS AND FROM DRAWPITS TO SIGNAL CONTROLLER)
- (A) TRAFFIC SIGNAL DRAW PIT OWNED AND MANAGED BY ATC
- (A) TWIN DRAWPIT FOR TRAFFIC SIGNAL OWNED AND MANAGED BY ATC
- (A) PROPOSED ATC MINI-DRAWPITS (REFER TO THE HyD STANDARD DRAWING H2182)

GENERAL DUCTING REQUIREMENTS FOR TRAFFIC SIGNAL :

1. i) 100mm ID UPVC DUCTS TO BE USED AT 450mm DEPTH UNDER FOOTPATH (2 NOS. BETWEEN DRAWPITS AND FROM DRAWPITS TO SIGNAL CONTROLLER AND 1 NO. FROM DRAWPITS TO SIGNAL POLES).
   ii) 2 NOS. 100mm ID GI DUCTS TO BE USED AT NOT LESS THAN 900mm UNDER CARRIAGEWAY.
   iii) ALL CABLE DUCTS SHOULD BE PROVIDED WITH DRAW-WIRES OF NO LESS THAN 5mm DIA.
   iv) EXISTING E&M CABLE DUCTS AND DRAWPITS TO BE CLEARED TO ENSURE THEY ARE SERVICEABLE. NEW CABLE DUCTS, DRAWPITS AND DRAW-WIRE TO BE PROVIDE TO CONNECT TO THE NEW CONTROLLER.
2. i) E&M DRAWPIT TO HyD STANDARD DRAWING H2168 & H2169.
   ii) ALL SUBSTANDARD E&M DRAWPITS TO BE CONVERTED TO STANDARD ONES.
3. i) FOUNDATION FOR TRAFFIC SIGNAL POLE TO HyD STANDARD DRAWING H2146.
   ii) MINI-DRAWPIT TO HyD STANDARD DRAWING H2146 TO BE ADDED TO EACH SIGNAL POLE FOUNDATION TO INTERCEPT WITH CABLE ENTRY AND INCOMING DUCT.
   iii) EXISTING SIGNAL POLE FOUNDATIONS MAY BE REQUIRED TO BE EXPOSED FOR CABLE LAYING.
4. i) EARTH PITS TO HyD STANDARD DRAWING H2165 & H2166 (a. EXACT LOCATIONS AND NOS. OF EARTHPIT DEPEND ON SITE CONDITION AS WELL AS EARTH LOOP IMPEDANCE RESULT TO EMSD'S SATISFACTORY. b. EARTHPIT TO BE CONSTRUCTED ONLY WHEN EARTH RODS HAD BEEN DRIVEN. TRYHOLES SHOULD BE EXCAVATED BEFOREHAND.)
   ii) TRYHOLES FOR EARTHING SHOULD BE 2.5m DEEP OR 1.5m DEEP WITH A WOODEN ROD OF 20mm DIA. DRIVEN INTO THE SOIL IN SUCH THAT THE TIP OF THE ROD SHALL BE 2.5m BELOW THE EXISTING FOOTPATH LEVEL.
   iii) THREE NOS. OF EARTHPIT ARE REQUIRED INITIALLY WITH ABOUT 3m APART FOR EACH PIT
5. DETAILS OF TRAFFIC CONTROLLER PLINTH TO BE PROVIDED BY TCD, TD. NEW ePROMS ARE REQUIRED FOR ALL PROPOSED / MODIFIED SIGNAL JUNCTION.
6. PLINTH OF TRAFFIC BOLLARD TO HyD STANDARD DRAWING H2140 & H2141.
7. eATS FACILITIES ARE REQUIRED AT ALL SIGNAL-CONTROLLED PEDESTRIAN CROSSING.
8. ALL EXISTING LOOP DETECTORS AT THE JUNCTIONS HAVE TO BE RELOCATED TO THE SATISFACTORY OF TCD, TD.
9. DETAILED ARRANGEMENT OF LOOP DETECTORS REFERS TO HyD STANDARD DRAWING H2181.
10. FOR DETAIL OF TWIN DRAWPIT, REFER TO DRAWING NO. CKR/KTE/19/1400.

SK0750

A	ISSUE FOR CONSTRUCTION	WTL	05/19

ARUP MOTT MACDONALD
Arup-Mott MacDonald Joint Venture

Project title 工程名稱
Contract No. HY/2018/02
Central Kowloon Route - Kai Tak East

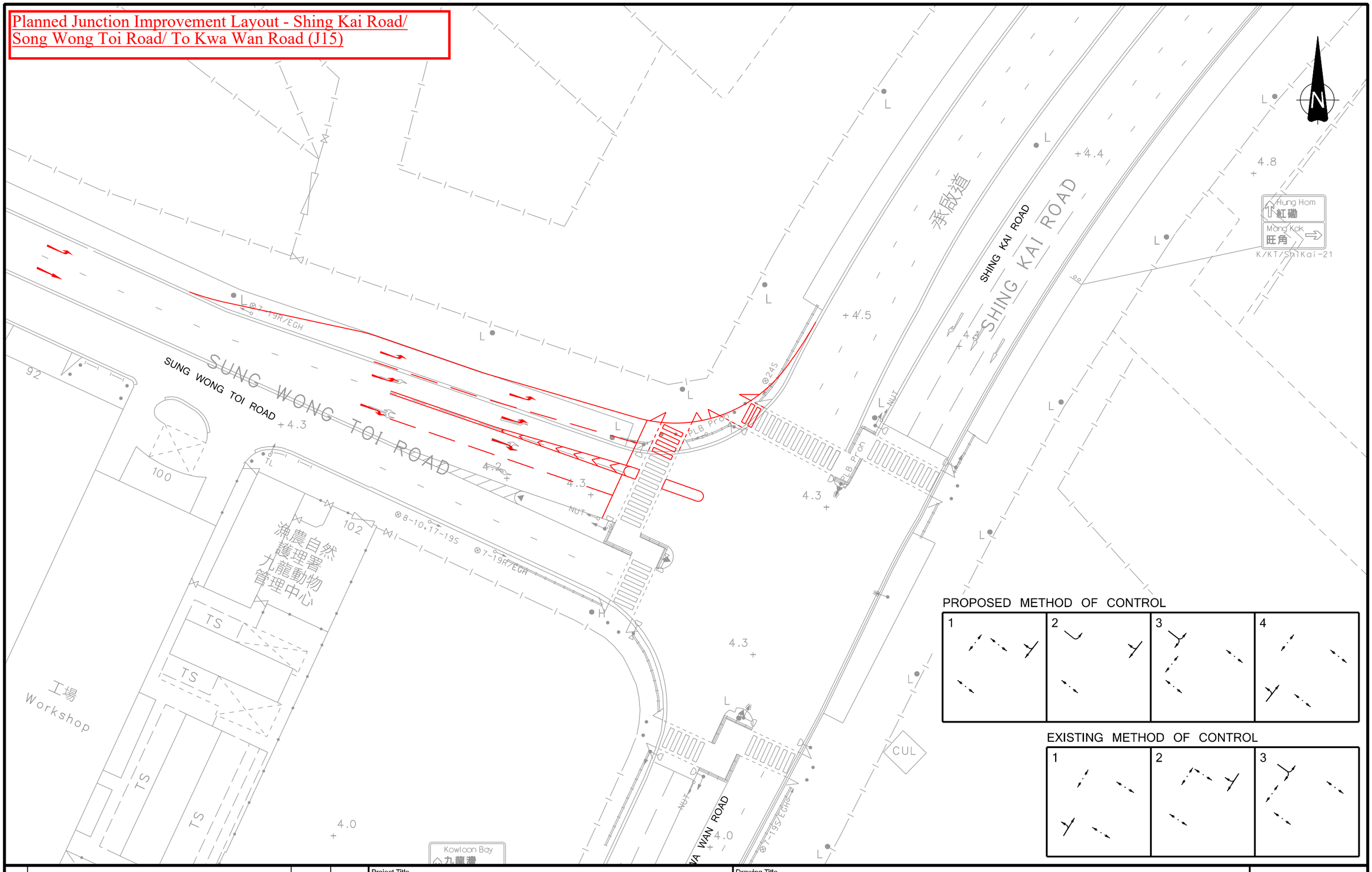
Sketch title 圖紙名稱
SIGNAL J/O
SHING KAI ROAD AND
SLIP ROAD OF CKR

Sketch no. 圖紙編號	CKR/KTE/SK/0750	Rev. 修訂	–
Drawn By 繪圖	RE THT	Checked By 覆核	SRE DKH
Approved By 批准人	CRE LKC		
Scale 比例	1:450 @ A1	Date 日期	02/01/2025
Other Related Reference			
Construction Drawing No.	CKR/KTE/04/0003 (A)	DAN No.	DAN/0411
Others	PMI NO. 0891		

路政署 HIGHWAYS DEPARTMENT
主要工程管理處 MAJOR WORKS PROJECT MANAGEMENT OFFICE

Printed by : 2/1/2025 4:20:14 pm by kerwin.ho MODEL:Default
Filename : Z:\07) Draughting Team\Revised DGN\CKR_KTE_04_0003A_SK0750.dgn

Planned Junction Improvement Layout - Shing Kai Road/ Song Wong Toi Road/ To Kwa Wan Road (J15)



PROPOSED METHOD OF CONTROL

EXISTING METHOD OF CONTROL

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

Project Title

PROPOSED PUBLIC HOUSING DEVELOPMENTS
AT KAI TAK SITES 2B2, 2B3, 2B4, 2B5 AND 2B6
- TRAFFIC IMPACT ASSESSMENT STUDY

Drawing Title

PROPOSED JUNCTION IMPROVEMENT AT TO KWA WAN ROAD / SUNG WONG TOI ROAD (G)

Designed	Checked	Scale	Date	Drawing No.	Rev.
CHS	GPH	1:500(A3)	APR 2022	**5.2**	-

SYSTRA MVA

CHK50196327/TIA(FR)/F52.DGN/KCM/12APR22