Appendix V

Traffic Impact Assessmet

Planning Approval Renewal
Asphalt Plant at Sai Tso Wan Road A/TY/135, TYTL 108 RP

Traffic Impact Assessment

Final Report

April 2024

CTA Consultants Limited
志達顧問有限公司

LIST OF CONTENTS

Appendices

1. INTRODUCTION

1.1 Background

1.1.1 The asphalt plant of the captioned Planning Approval is located at Sai Tso Wan Road, Tsing Yi and shown in **Figure 1.1**.

1.1.2 The captioned Planning Approval was granted in 2019 and will expire on 2 Aug 2024. The Applicant would like to submit a renewal planning application for another 5 years.

1.1.3 We, CTA Consultants Limited (CTA), is commissioned as the traffic consultant to undertake a Traffic Impact Assessment (TIA) study for assessing the traffic impact, and to propose any measures if necessary.

1.2 Study Objectives

1.2.1 The main objective of this study are as follows:

- to carry out a traffic impact assessment to identify the acceptability of the proposed asphalt plant in traffic terms;
- to assess the existing traffic conditions in the vicinity of the proposed plant;
- to forecast traffic demands in the adjacent road network in the design year 2029;
- to assess the impacts of traffic generated by the adjacent new developments in the road network; and
- to propose any traffic improvement measures for alleviating any foreseeable traffic problems if necessary.

1.3 Structure of this Report

1.3.1 Following this introductory chapter, there are 5 further chapters.

- **Chapter 2 – The Proposed Activities**, which presents the site location and production information of the proposed plant.

- **Chapter 3 – Existing Traffic Condition,** which describes the existing local road

network in the vicinity of Study Area, presents a summary of the traffic count survey and assesses the existing traffic conditions.

- **Chapter 4 – Future Traffic Conditions,** which estimates the future traffic flows for the proposed plant on the surrounding road network.

- **Chapter 5 – Traffic Impact Assessment,** which study the operation performance of the critical junctions in design year.

- **Chapter 6 – Summary and Conclusion,** which presents the conclusions regarding the traffic issues associated with the proposed activities.

2. THE PROPOSED ACTIVITIES

2.1 Site Location

2.1.1 The proposed plant is situated at Sai Tso Wan Road, as shown in **Figure 1.1**. It is located at the Western seaside of Tsing Yi, which can only be accessed by single 2-way 2-lane Sai Tso Wan Road.

2.1.2 The layout of the proposed asphalt plant is shown in **Figure 2.1**.

2.2 Development Proposal

2.2.1 The proposed asphalt plant will be 24-hour standby for production orders, which is a government requirement of Specialist Contractors to supply of bituminous pavement materials and construction of special bituminous surfacing.

2.2.2 The design rated output of the proposed asphalt plant is 260 tonnes/hr. However, the production rate would be limited to not exceeding 80% of the output rate, i.e. 208 tonnes/hr. This rate could be limited under Specific Process (SP) License issued by Environmental Protection Department (EPD).

2.2.3 As advised by the operator, the operation process of the plant will be:

- There will be one loading/unloading area to be provided and operated by the proposed asphalt plant.
- The capacity of the dump truck varies from 11.5 tonnes to 15.5 tonnes, which gives an average of 13.5 tonnes per dump truck.
- Delivery of raw materials will be carried out during off-peak hours.
- Bitumen will be delivered to the plant form Shell terminal (less than 300 meters away) by truck. When the plant running in maximum capacity, two truck of bitumen per day is required.
- The waste disposal truck and fuel tanker will only be required once per 2-3 days.

- Aggregates will be delivered by barge

2.2.4 Occasional operation on Sundays and holidays and at night will be required. About 80% of raw materials will be transported by barge and the remaining 20% consists of Bitumen and fuel to be transported by land transport (trucks).

2.3 Traffic Arrangement

2.3.1 To facilitate the operation of the proposed plant, the following types of parking facilities are provided within the plant:

- 7 nos. of HGV Parking Spaces (11m × 3.5m);
- 4 nos. of Private Car Parking Spaces (5m × 2.5m);
- 1 no. of Accessible Car Parking Space (5m × 3.5m);
- 1 no. of Loading/Unloading Area for Asphalt; and
- 3 nos. of Loading/Unloading Bay for Other Material Trucks (11m × 3.5m)

2.3.2 A maximum of 8 trucks can stack within the Subject Site which could satisfy normal operation needs. Therefore, it is anticipated that the vehicles generated to/ from the proposed plant will not queue along Sai Tso Wan Road outside the proposed plant.

3. EXISTING TRAFFIC CONDITIONS

3.1 Existing Road Network

3.1.1 The proposed plant will be accessed through Tsing Yi Road West, Tsing Yi Road and Sai Tso Wan Road.

3.1.2 Sai Tso Wan Road is a 2-lane local road connecting Sai Tso Wan area and Tsing Yi Road West/Tsing Yi Road. It is a major road link providing access to/from various sites in Sai Tso Wan area.

3.2 Critical Junctions

3.2.1 In order to establish the existing traffic condition in the vicinity, traffic survey in form of manual classification counts was conducted at 20 critical junctions. The location of the surveyed junctions is indicated in **Figure 3.1** and their existing junction layout arrangements are given in **Figures 3.2** to **3.21** respectively.

Table 3.1 Identified Critical Junctions

Ref.	Junction	Type	Figure No.
J1	Cheung Tsing Highway / Tsing Yi Road West	Signalized	3.2
J2	Tsing Hung Road / Tsing Yi Road	Signalized	3.3
J3	Tsing Sheung Road / Tsing Yi Road Priority	Priory	3.4
J4	Sai Tso Wan Road / Tsing Yi Road / Tsing Yi Road West	Signalized	3.5
J5	Car Park Entrance / Sai Tso Wan Road	Signalized	3.6
J6	Tsing Tim Street / Sai Tso Wan Road	Priority	3.7
J7	Tsing Yi Road West / Tsing Chin Street*	Priority	3.8
J8	Tsing Yi Road West / Tsing Hong Road	Signalized	3.9
J9	Tsing Yi Road West / Liu To Road	Signalized	3.10
J10	Tsing Yi Road West / Fung Shue Wo Road	Signalized	3.11
RA1	Tsing Yi Interchange	Roundabout	3.12
RA2	Tsing Yi Road West / Tsing Yi Hong Wan Road / Tsing Sha Highway	Roundabout	3.13
RA3	Hong Wan Road	Roundabout	3.14
RA4	Hong Wan Road / Tsing Ko Road	Roundabout	3.15
RA5	Tam Kon Shan Interchange	Roundabout	3.16
RA6	Tsing Yi Heung Sze Wui Road / Fung Shue Wo Road / Tsing King Road	Roundabout	3.17
RA7	Tsing Sheung Road / Tsing Yi Hong Wan Road	Roundabout	3.18
RA8	Tsing Hong Road / Tsing Yi Road	Roundabout	3.19
RA9	Tam Kon Shan Road / Tsing Yi North Costal Road	Roundabout	3.20
RA10	Tsing Ko Road / Tsing Sheung Road	Roundabout	3.21

3.2.2 The survey was conducted during the morning, logistic peak and evening peak periods in 26 January 2024. The survey provides details of the traffic situation in the nearby area. Based on surveyed traffic flows, it was found that the AM, logistic and PM peak hour occurred from 08:00 to 09:00, 11:15 to 12:15 and 17:30 to 18:30 respectively. The results of the observed traffic flows are presented in **Figure 3.22**.

3.2.3 Based on the observed traffic flows in **Figure 3.22**, the junction capacity assessment is carried out for the critical junctions and the results of the assessment are summarized in **Table 3.2** below.

Table 3.2 Operational Performance of Identified Critical Junctions in 2024 Operational Performance of Critical Junctions in Observed Case in Year 2029 (Without Proposed Plant)

Ref.	Junction	Method of Control	Year 2024 Observed Case		
			RC/RFC[(1)]		
			AM Peak	Logistic Peak	PM Peak
J1	Cheung Tsing Highway / Tsing Yi Road West	Signalized	89%	75%	>100%
J2	Tsing Hung Road / Tsing Yi Road	Signalized	>100%	>100%	>100%
J3	Tsing Sheung Road / Tsing Yi Road Priority	Priority	0.49	0.41	0.41
J4	Sai Tso Wan Road / Tsing Yi Road / Tsing Yi Road West	Signalized	62%	41%	>100%
J5	Car Park Entrance / Sai Tso Wan Road	Signalized	86%	53%	>100%
J6	Tsing Tim Street / Sai Tso Wan Road	Priority	0.31	0.25	0.21
J7	Tsing Yi Road West / Tsing Chin Street*	Priority	N/A	N/A	N/A
J8	Tsing Yi Road West / Tsing Hong Road	Signalized	68%	93%	>100%
J9	Tsing Yi Road West / Liu To Road	Signalized	39%	65%	56%
J10	Tsing Yi Road West / Fung Shue Wo Road	Signalized	>100%	>100%	>100%
RA1	Tsing Yi Interchange (North)	Roundabout	0.71	0.59	0.41
	Tsing Yi Interchange (South)	Roundabout	0.58	0.44	0.66
RA2	Tsing Yi Road West / Tsing Yi Hong Wan Road / Tsing Sha Highway	Roundabout	0.71	0.60	0.48
RA3	Hong Wan Road	Roundabout	0.33	0.28	0.40
RA4	Hong Wan Road / Tsing Ko Road	Roundabout	0.25	0.24	0.26
RA5	Tam Kon Shan Interchange	Roundabout	0.65	0.59	0.67
RA6	Tsing Yi Heung Sze Wui Road / Fung Shue Wo Road / Tsing King Road	Roundabout	0.38	0.32	0.38
RA7	Tsing Sheung Road / Tsing Yi Hong Wan Road	Roundabout	0.07	0.08	0.10
RA8	Tsing Hong Road / Tsing Yi Road	Roundabout	0.44	0.37	0.36
RA9	Tam Kon Shan Road / Tsing Yi North Costal Road	Roundabout	0.06	0.08	0.08
RA10	Tsing Ko Road / Tsing Sheung Road	Roundabout	0.13	0.12	0.09

Note: (1) RC = Reserve Capacity RFC = Ratio of Flow to Capacity for Priority Junction

3.2.4 The results in **Table 3.2** show that the junctions are now operating with ample capacities in peak hours.

3.3 Public Transport Services in the Vicinity of Proposed Plant

3.3.1 Limited road-based public transport services are currently operating in the vicinity of the proposed plant. Only one GMB route is operating close to the proposed plant (within 500m radius from the proposed plant) and the details of the GMB route are presented in **Table 3.3** below.

Table 3.3 Existing Road-based Public Transport Services in the Vicinity

Service	Route	Origin - Destination	Frequency (min)
GMB	88M	Kwai Fong Station – Sai Tso Wan Road (Hong Kong Unit Dockyard)	5 – 15

4. FUTURE TRAFFIC CONDITIONS

4.1 Design year

4.1.1 The original planning approval will expire on 2 Aug 2024, as another 5 year of temporary use is applied, year 2029 is adopted as the design year for this study to assess the impact of the development related traffic on the local road network.

4.2 Reference Traffic Flows

4.2.1 To estimate the 2029 reference traffic flows (without proposed plant) in the local road network, an appropriate growth factor has to be identified for the area in the first instance based on historical trend and planning data.

Historical Trend

4.2.2 Transport Department has traffic count stations in the vicinity of the proposed development. The traffic counts reported in the Annual Traffic Census (ATC) over a period of 6 years, between 2017 and 2022 are summarized in **Table 4.1**.

Table 4.1 Historical Traffic Data from Annual Traffic Census

ATC Stn No.	Road Name	Annual Average Daily Traffic						Annual Growth Rate
		2017	2018	2019	2020	2021	2022	
5038	Nam Wan Tunnel (from East Tsing Yi Viaduct to Cheung Tsing Highway)	50,940	54,280	55,040	37,850	41,090	41,060	-4.22%
5849	Tsing Yi Rd W (Tsing Nam St – Ching Hong Road)	15,410	15,640*	15,580*	15,430*	13,690	15,820	0.53%
6044	Tsing Yi Rd W (Tsing Hong Road – Fung Shue Wo Road)	20,260	19,350	19,280*	19,100*	19,840*	21,050	0.77%
6643	Sai Tso Wan Rd (Tsing Yi Rd – Dockyard Front Gate)	5,020	10,030	8,390	8,960	9,410	11,200	17.41%
TOTAL		**91,630**	**99,300**	**98,290**	**81,340**	**84,030**	**89,130**	**-0.55%**

*AADT estimated by Growth Factor

4.2.3 As shown in **Table 4.1**, the average annual traffic growth pattern in the vicinity of the proposed development shows a growth trend of -0.55% per year.

2019-Based TPEDM planning data

4.2.4 Reference has also been made to the latest 2019-Based Territorial Population Employment Data Matrices (TPEDM) planning data published by the Planning Department for projection of population and employment within the study district. The average annual growth rates in terms of population and employment from 2019 to 2031 are tabulated in **Table 4.2**.

Table 4.2 2019-based Population and Employment Growth

Tsing Yi				
Data	**Year**			**Average Annual Growth Rate**
	2019	**2026**	**2031**	
Population	182,350	188,550	184,400	+0.09%
Employment	38,500	38,700	36,650	-0.41%
Total	**220,850**	**227,250**	**221,050**	**0.01%**

4.2.5 From **Table 4.2**, it is found that the average annual growth rates of population and employment in Tsing Yi are +0.01% per annum respectively.

Adopted Growth Rate

4.2.6 A.A.D.T. of ATC indicates that the traffic flow of the local road network has an average annual growth rate of -0.55%.

4.2.7 Whilst, the planning data indicates that the population and employment of the study area are expected to grow with an average annual growth rate of +0.01%.

4.2.8 As a conservative approach, annual growth rate **+1.0%** p.a. has been adopted for projecting traffic forecasts. It is deemed sufficient to allow for any unexpected future growth as a result of some changes in land use or development in the study area.

4.3 Planned / Committed Future developments

4.3.1 There are numbers of planned/committed future developments in vicinity. The updated planning parameters are shown in **Table 4.3**. The locations of these future developments are shown in **Figure 4.1**.

4.3.2 The traffic trips generated from these planned/committed developments are estimated and shown in **Table 4.4**.

4.3.3 These traffic trips were assigned to the road network to obtain the reference traffic in the design year.

Table 4.3 Development Schedule of Proposed Residential Development at Vicinity

Ref.	Development Site / Planning Application No.	Use	Development Parameters	Completion Year
A	A/TY/131	Animal Welfare Centre	About 8,720m^2	2024
B	Ching Hong Road North Public Housing Development	Public Housing	Phase 1: 851 units Phase 2: 612 units Phase 3: 1680 units	2024 2024 2029
			Retail: 2000m^2 Social Welfare Facilities	2024 - 2029
C	Agreement No. WQ/216/22	No details in public domain		
D	Proposed Advanced Construction Industry Building (ACIB) development in Tsing Yi	The project is under preliminary study stage and project details is not observed in public domain		
E	Housing Development at Tsing Yi Road West	Public Housing	3,400 units	2034/35
F	Y/TY/2- Tsing Yi Town Lot 80 and 108RP (Phase 1)	Private Housing	5,048 units	2028
	Y/TY/2- Tsing Yi Town Lot 80 and 108RP (Phase 2)	Public Housing	4,704 units	2036
		Private Housing	5,323 units	2036
G	Government Dangerous Goods Warehouse and a government Owned Rental Dangerous Goods Warehouse to FSD	Warehouse	No details in public domain	
H	Multi-Storey Complex at Tsing Hung Road (CE 14/2016)	Container Storage and Cargo Handling	Site area: About 6 a	No target completion year
I	Land Exchange at Tsing Yi Hong Wan Road	No details in public domain		

4.3.4 Some of the planned developments in **Table 4.3** could not found in public domain, or no target completion year. Y/TY/2- Tsing Yi Town Lot 80 and 108RP is still under planning application and not approved yet. Thus, they would not be included in this assessment. The anticipated commissioning date of Route 11 (section between Yuen Long and North Lantau) is 2033, but no programme on TYLL section yet. The construction scale, methodology and works programme, etc., of Route 11 are unknown by the public, it is unlikely for us to estimate their construction traffic and it is the duty of the project proponents to conduct CTIAs to access the traffic condition and provide mitigation measures, such as TTA, road widening, junction improvement, peak hour banning, etc., to ensure their trips will not affect the traffic network.

Table 4.4 Estimated Traffic Generations of Planned Vicinity Development

Development Type	Average Flat Size m^2	Unit	Trip Rate			
			AM Peak		PM Peak	
			Gen.	Att.	Gen.	Att.
Public Rental	40	Pcu/hr/flat	0.0432	0.0326	0.0237	0.0301
Retail	-	pcu/hr/100 sqm GFA	0.2296	0.2434	0.3100	0.3563
Developments			**Trips (Pcu/hr)**			
A[(1)]	A/TY/131		64	172	115	72
B	Ching Hong Road North Public Housing Development	Phase 1	37	28	20	26
		Phase 2	26	20	15	18
		Phase 3	73	55	40	51
		Retail	5	5	6	7
		Kindergarten[(2)]	30	30	30	30
		Social Welfare Facilities [(3)]	10	10	10	10

Note: (1) Development trips according to its TIA report

(2) Reference from other public housing TIA reports (Sheung Shui Area 4 and 30)

(3) Nominal Trips

4.3.5 The 2029 reference flows are then derived by applying the annual growth rate plus the additional traffic generations of the developments in Tsing Yi

2029 Reference Flows (without Proposed Plant) = **2024 Observed Flows** x **Adopted Growth Factor (i.e. +1% p.a. for 5 years)** + **Traffic Flows of Planned Adjacent Developments**

4.3.6 The 2029 reference traffic flows at surrounding critical junctions are shown in **Figure 4.2**.

4.4 Traffic Generation Calculation and Assumptions from The Proposed Activities

4.4.1 The design rated output of the proposed asphalt plant is 260 tonnes/hr. However, the production rate would be limited to not exceeding 80% of the output rate, i.e 208 tonnes/hr. This rate could be limited under Specific Process (SP) License issued by Environmental Protection Department (EPD)

4.4.2 The capacity of the dump truck varies from 11.5 tonnes to 15.5 tonnes, which gives an average of 13.5 tonnes per dump truck, thus hourly trip rate of dump trucks will be 16 trucks/hr.

4.4.3 About 80% of raw materials will be transported by barge and the remaining 20% consists of Bitumen and fuel to be transported by land transport (trucks).

4.4.4 For conservative approach, various types of vehicles are assumed accessing the existing asphalt plant during the peak hour simultaneously and the estimated hourly traffic generation is summarized in **Table 4.5**.

Table 4.5 Estimated Hourly Traffic Generation of the Proposed Asphalt Plant (Production Capacity 208 tonnes/hr)

Types of Vehicles	Traffic Generation (in veh/hr)	Traffic Generation (in pcu/hr) (1)
Dump Truck	16	40
Bitumen Tanker/ Waste Disposal Truck/ Fuel Tanker(2)	2	5
Total	**18**	**45**

Notes: (1) PCU factor of 2.5 has been adopted for trucks.
(2) Delivery of raw materials will be carried out during off-peak hours.
The Bitumen tanker will only be required twice a day.
The waste disposal truck and fuel tanker will only be required once per 2-3 days during off-peak hours.
Aggregates will be delivered by barge.

4.4.5 The estimated peak hour traffic generation of the proposed asphalt plant under 80% of full operation (Production Capacity 208 tonnes/hr) will be about **45 pcus in / 45pcus out**.

4.5 Development Traffic Flows

4.5.1 The net traffic trips of the proposed development is superimposed onto the year 2029 reference traffic flow (without the proposed development) as:

2029 Design Flows (with Proposed Plant)	=	**2029 Reference Traffic Flows (without Proposed Plant)**	+	**Traffic Flows of Proposed Developments at Tsing Yi**

4.5.2 The 2029 design traffic flows at surrounding critical junctions are shown in **Figure 4.3**.

5. TRAFFIC IMPACT ASSESSMENT

5.1 Operational Assessment

5.1.1 Based on the design traffic flows in **Figure 4.3**, a junction capacity assessment is carried out for the key junctions and the results of the assessment are summarized in **Tables 5.1** and **5.2** below.

Table 5.1 Operational Performance of Critical Junctions in Reference Case in Year 2029 (Without Proposed Plant)

Ref.	Junction	Method of Control	Year 2029 Reference Case (Without Proposed Plant)		
			RC/RFC[(1)]		
			AM Peak	Logistic Peak	PM Peak
J1	Cheung Tsing Highway / Tsing Yi Road West	Signalized	79%	66%	129%
J2	Tsing Hung Road / Tsing Yi Road	Signalized	91%	98%	108%
J3	Tsing Sheung Road / Tsing Yi Road Priority	Priority	0.53	0.44	0.44
J4	Sai Tso Wan Road / Tsing Yi Road / Tsing Yi Road West	Signalized	54%	34%	135%
J5	Car Park Entrance / Sai Tso Wan Road	Signalized	77%	46%	154%
J6	Tsing Tim Street / Sai Tso Wan Road	Priority	0.33	0.27	0.23
J7	Tsing Yi Road West / Tsing Chin Street*	Priority	N/A	N/A	N/A
J8	Tsing Yi Road West / Tsing Hong Road	Signalized	45%	64%	88%
J9	Tsing Yi Road West / Liu To Road	Signalized	33%	57%	48%
J10	Tsing Yi Road West / Fung Shue Wo Road	Signalized	84%	115%	132%
RA1	Tsing Yi Interchange (North)	Roundabout	0.76	0.63	0.44
	Tsing Yi Interchange (South)	Roundabout	0.63	0.48	0.73
RA2	Tsing Yi Road West / Tsing Yi Hong Wan Road / Tsing Sha Highway	Roundabout	0.75	0.63	0.51
RA3	Hong Wan Road	Roundabout	0.35	0.29	0.42
RA4	Hong Wan Road / Tsing Ko Road	Roundabout	0.26	0.25	0.27
RA5	Tam Kon Shan Interchange	Roundabout	0.74	0.66	0.77
RA6	Tsing Yi Heung Sze Wui Road / Fung Shue Wo Road / Tsing King Road	Roundabout	0.48	0.41	0.46
RA7	Tsing Sheung Road / Tsing Yi Hong Wan Road	Roundabout	0.07	0.08	0.10

RA8	Tsing Hong Road / Tsing Yi Road	Roundabout	0.47	0.40	0.39
RA9	Tam Kon Shan Road / Tsing Yi North Costal Road	Roundabout	0.07	0.08	0.08
RA10	Tsing Ko Road / Tsing Sheung Road	Roundabout	0.13	0.13	0.10

Note: (1) RC = Reserve Capacity RFC = Ratio of Flow to Capacity for Priority Junction

Table 5.2 Operational Performance of Critical Junctions in Design Case in Year 2029 (With Proposed Plant)

Ref.	Junction	Method of Control	Year 2029 Design Case (With Proposed Plant)		
			RC/RFC[(1)]		
			AM Peak	Logistic Peak	PM Peak
J1	Cheung Tsing Highway / Tsing Yi Road West	Signalized	72%	60%	120%
J2	Tsing Hung Road / Tsing Yi Road	Signalized	91%	98%	108%
J3	Tsing Sheung Road / Tsing Yi Road Priority	Priority	0.53	0.44	0.44
J4	Sai Tso Wan Road / Tsing Yi Road / Tsing Yi Road West	Signalized	46%	27%	116%
J5	Car Park Entrance / Sai Tso Wan Road	Signalized	67%	39%	134%
J6	Tsing Tim Street / Sai Tso Wan Road	Priority	0.35	0.28	0.24
J7	Tsing Yi Road West / Tsing Chin Street*	Priority	N/A	N/A	N/A
J8	Tsing Yi Road West / Tsing Hong Road	Signalized	42%	60%	82%
J9	Tsing Yi Road West / Liu To Road	Signalized	31%	56%	47%
J10	Tsing Yi Road West / Fung Shue Wo Road	Signalized	84%	113%	132%
RA1	Tsing Yi Interchange (North)	Roundabout	0.77	0.64	0.45
	Tsing Yi Interchange (South)	Roundabout	0.64	0.48	0.74
RA2	Tsing Yi Road West / Tsing Yi Hong Wan Road / Tsing Sha Highway	Roundabout	0.75	0.64	0.52
RA3	Hong Wan Road	Roundabout	0.35	0.29	0.42
RA4	Hong Wan Road / Tsing Ko Road	Roundabout	0.26	0.25	0.27
RA5	Tam Kon Shan Interchange	Roundabout	0.74	0.67	0.78
RA6	Tsing Yi Heung Sze Wui Road / Fung Shue Wo Road / Tsing King Road	Roundabout	0.48	0.41	0.46
RA7	Tsing Sheung Road / Tsing Yi Hong Wan Road	Roundabout	0.07	0.08	0.10
RA8	Tsing Hong Road / Tsing Yi Road	Roundabout	0.48	0.41	0.40
RA9	Tam Kon Shan Road / Tsing Yi North Costal Road	Roundabout	0.07	0.08	0.08
RA10	Tsing Ko Road / Tsing Sheung Road	Roundabout	0.13	0.13	0.10

Note: (1) RC = Reserve Capacity RFC = Ratio of Flow to Capacity for Priority Junction

5.1.2 Based on the assessment presented in **Tables 5.1** and **5.2**, all junctions will be operating with ample capacities during design year.

5.2 Traffic Management Plan

5.2.1 In previous application, in order to avoid traffic impact induced by the proposed plant to Tsing Yi Town Centre, restrictions were given to the asphalt trucks of the plant. They are not allowed to pass through critical junctions during the peak hour periods (Except emergency and exceptional cases which would be considered by various Government Departments) and are summarized in **Table 5.3**.

Table 5.3 Restriction at Other Critical Junctions

Ref.	**No trucks should be allowed to pass through the following junctions**	**Restricted Hours**		
		AM Peak 07:45 – 9:15	**Logistic Peak 11:45 – 12:45**	**PM Peak 16:30 – 17:30**
J8	Tsing Yi Road West / Ching Hong Road	X	X	X
RA1	Tsing Yi Interchange	X	O	X
RA2	Tsing Yi Road West / Tsing Yi Hong Wan Road / Tsing Sha Highway	X	X	O
RA5	Tam Kon Shan Interchange	X	O	O
RA6	Tsing Yi Heung Sze Wui Road / Fung Shue Wo Road / Tsing King Road (Together with Junction Cheung Wan Street / Tsing Yi Heung Sze Wui Road)	X	X	X

X: Not allowed to pass through

○: Allow to pass through

5.2.2 Detailed Traffic Management Plan will be formulated and submitted to Transport Department separately.

6. SUMMARY AND CONCLUSION

6.1 Summary

6.1.1 The captioned Planning Approval was granted in 2019 and will expire on 2 Aug 2024. The Applicant would like to submit a renewal planning application for another 5 years.

6.1.2 We, CTA Consultants Limited (CTA), is commissioned as the traffic consultant to undertake a Traffic Impact Assessment (TIA) study for assessing the traffic impact, and to propose any measures if necessary.

6.1.3 To appraise the existing traffic conditions, a traffic count survey was conducted in the surrounding road network of the proposed plant. Moreover, current operational performance of the critical junctions was assessed with the observed traffic flows. The operational assessment results revealed that all critical junctions are at present operating with reasonable capacity in peak hours.

6.1.4 In order to assess the impact of the development related traffic on the local road network, the 5th year after the approval of planning application of the proposed plant (i.e. year 2029) has been adopted as the design year for this study.

6.1.5 To reveal the traffic impact of various proposed developments in the vicinity, traffic generations by the developments in the vicinity have also been taken into consideration.

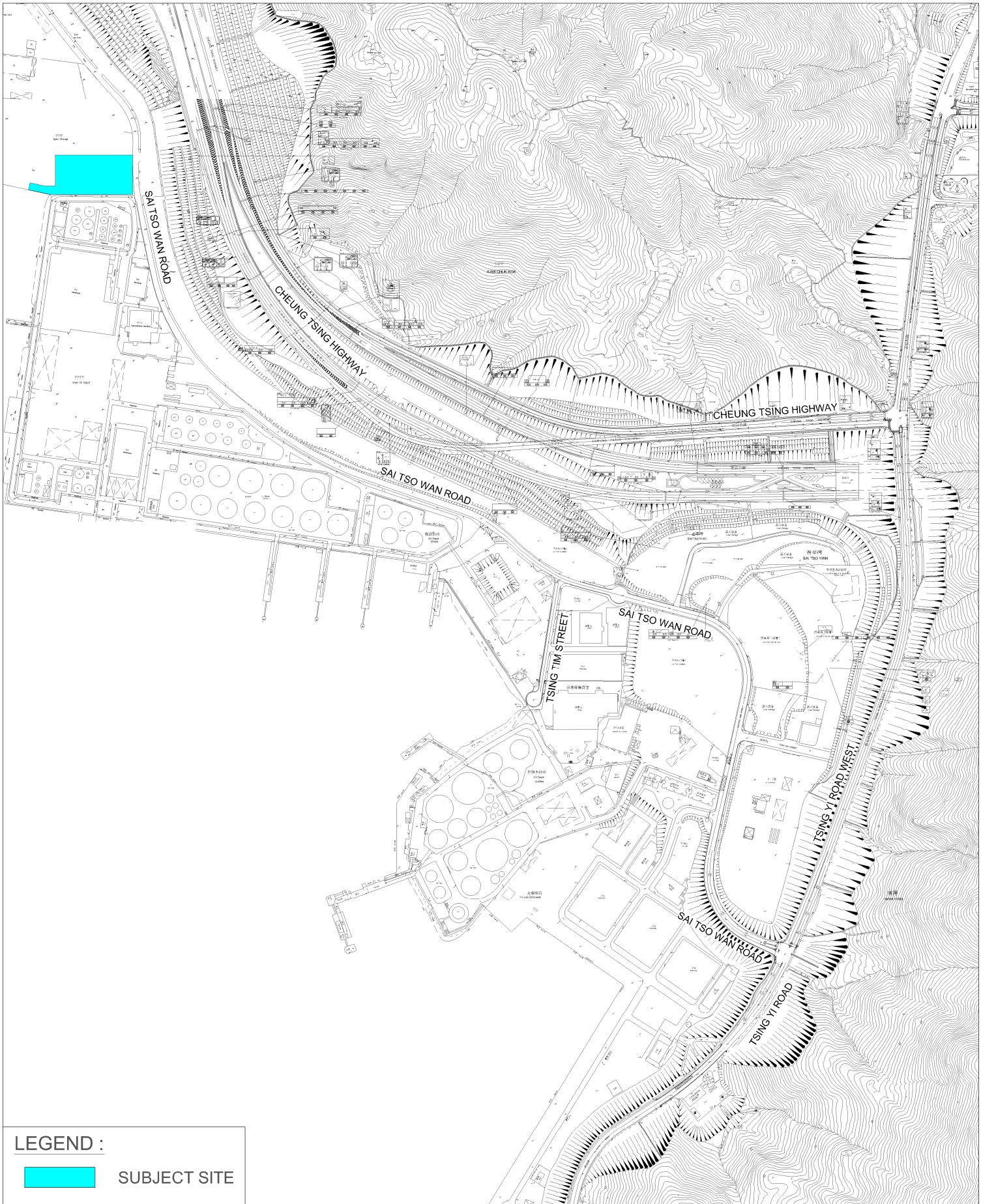
6.1.6 All the assessed junctions will be operating with ample spare capacity in design year.

6.1.7 As the traffic trips of both committed planning and proposed development do not produce significant impact on the surrounding road network. Therefore, the application is supported from the traffic points of view.

6.2 Conclusion

6.2.1 In conclusion, this traffic impact assessment (TIA) has demonstrated that the traffic generated by the proposed plant on the surrounding road network can be absorbed by the road network.

6.2.2 Hence, it is concluded that the proposed plant at the Application Site is acceptable from traffic engineering view point.



LEGEND :

SUBJECT SITE

FIGURE NO.: 1.1		PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/135, TYTL108 RP	
PROJECT NO.: 23125HK		DRAWING TITLE: LOCATION PLAN	CTA Consultants Limited 志達顧問有限公司
SCALE: 1 : 7000 (IN A4 SIZE)	DATE: 22 MAR 2024		

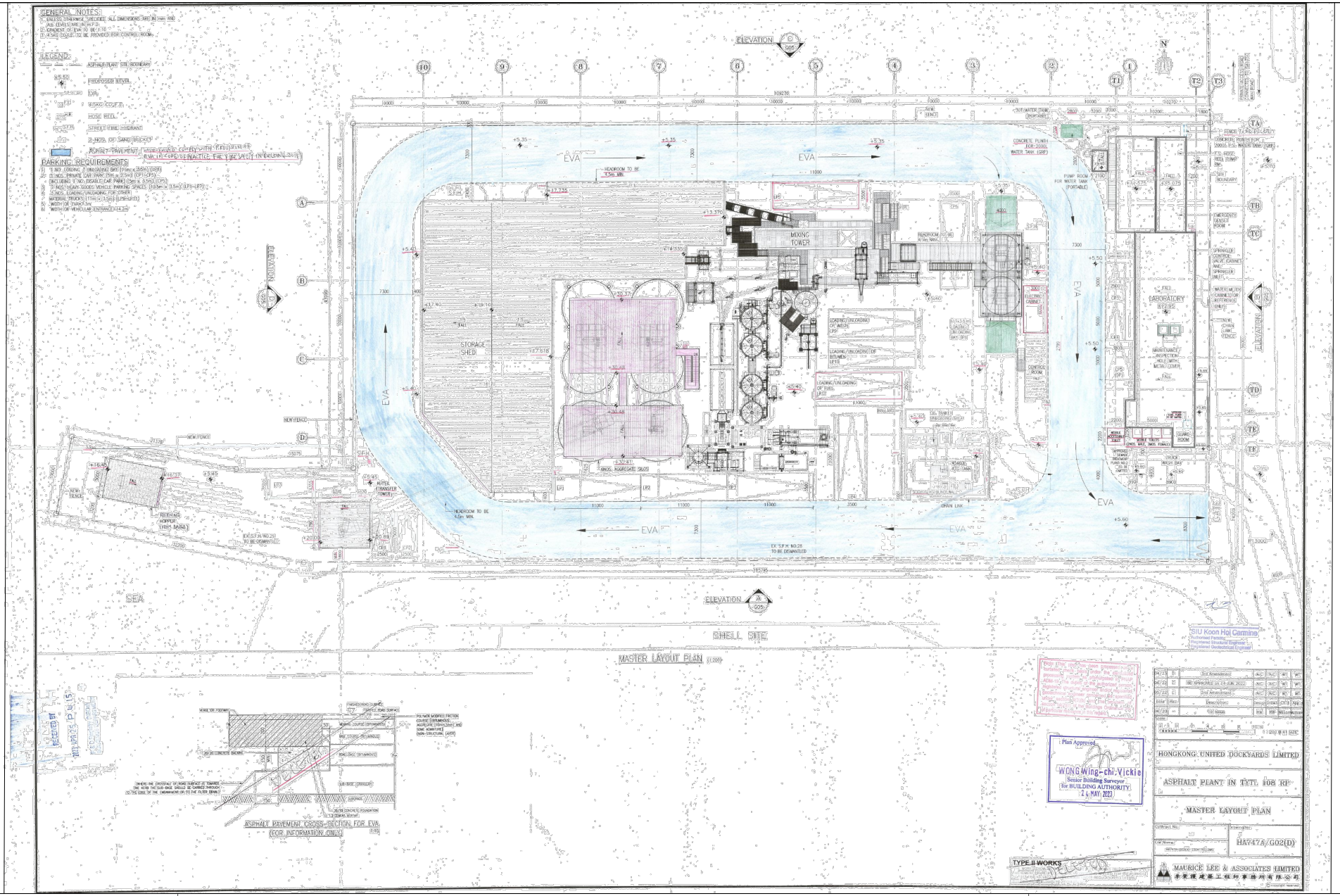
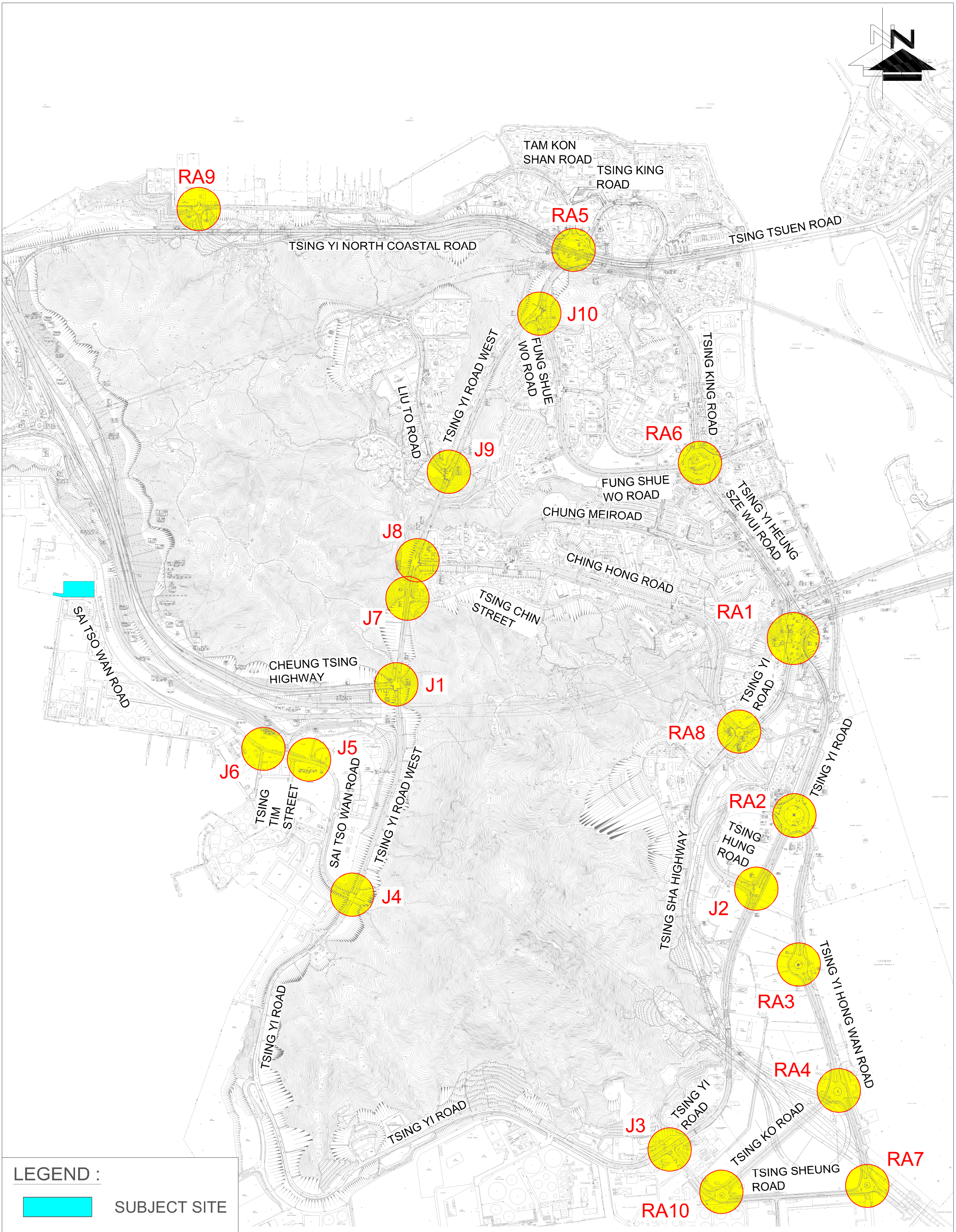


FIGURE NO.: 2.1	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/135, TYTL108 RP
PROJECT NO.: 23125HK	DRAWING TITLE: APPROVED MASTER LAYOUT PLAN
SCALE: N.T.S. @A4	DATE: 24 APR 2024

CTA Consultants Limited
志達顧問有限公司



LEGEND :

SUBJECT SITE

FIGURE NO.: 3.1	PROJECT TITLE: Planning Approval Renewal Asphalt Plant at Sai Tso Wan Road A/TY/135, TYTL108 RP
PROJECT NO.: 23125HK	DRAWING TITLE: CRITICAL JUNCTION
SCALE: 1 : 12000 @A3	DATE: 22 MAR 2024

CTA Consultants Limited
志達顧問有限公司

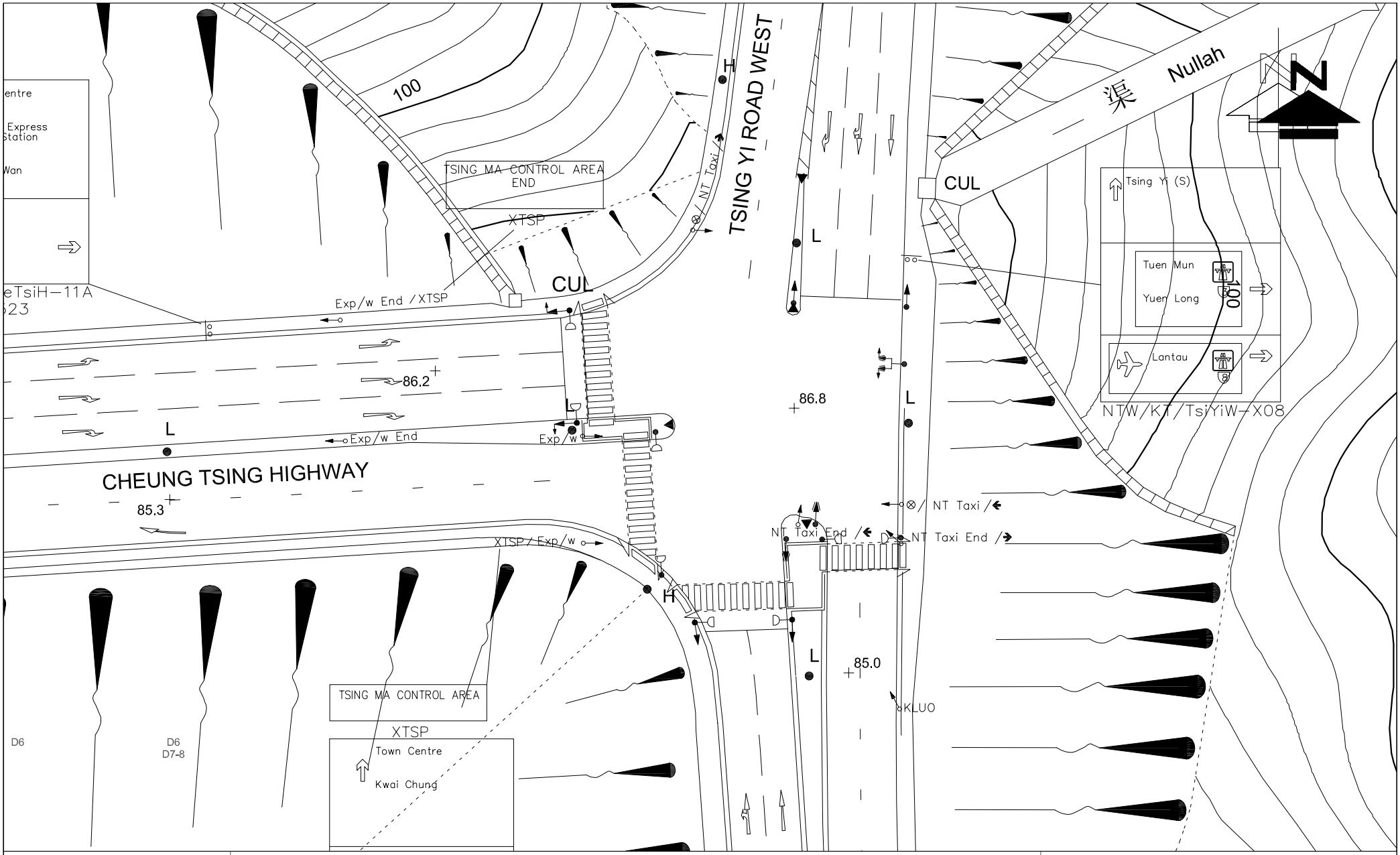


FIGURE NO.: 3.2	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/ 135, TYTL108 RP
PROJECT NO.: 23125HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING YI ROAD WEST / CHEUNG TSING HIGHWAY (J1)
SCALE: 1 : 500 @A4	DATE: 25 MAR 2024

CTA Consultants Limited
志達顧問有限公司

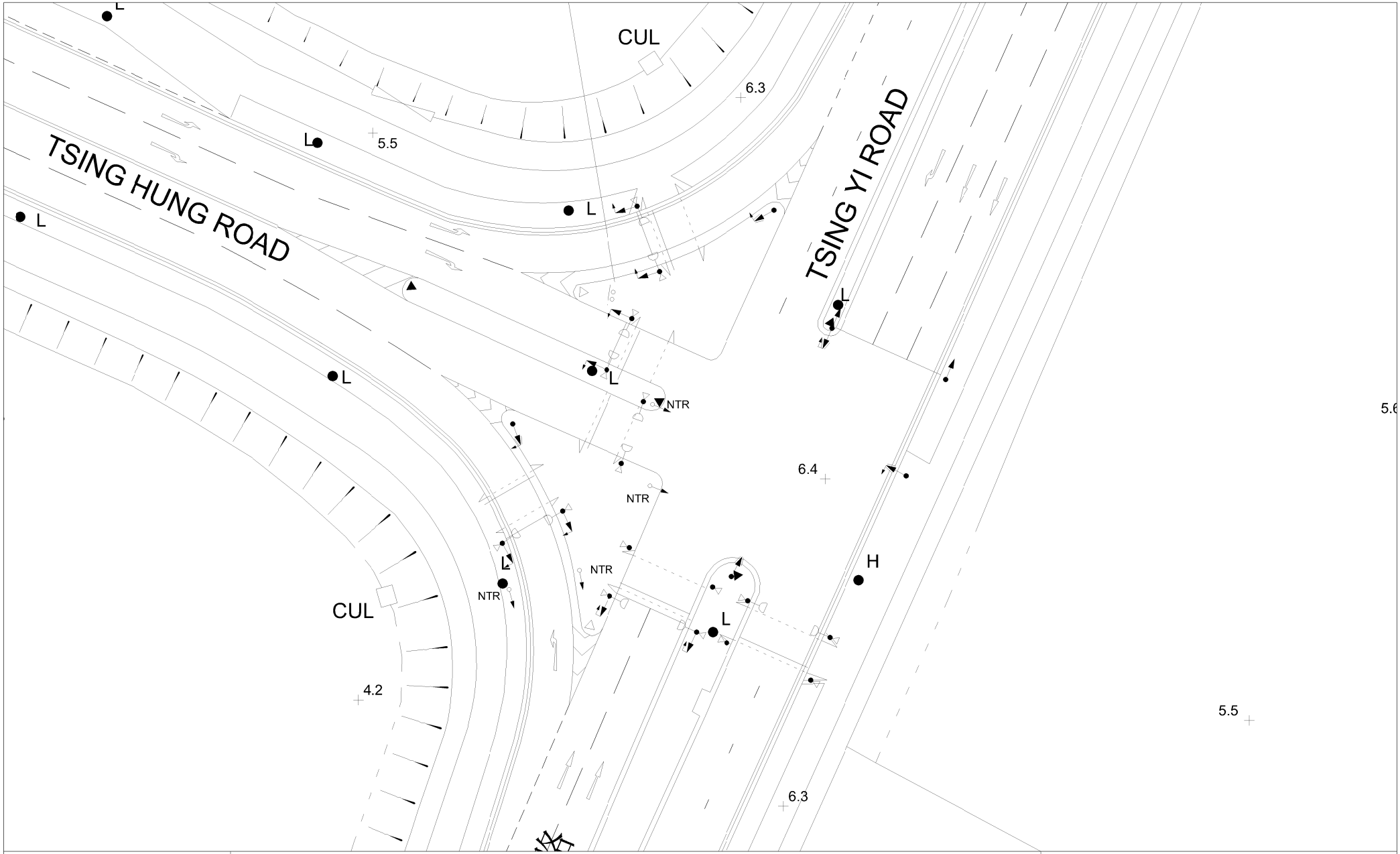


FIGURE NO.: 3.3	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/135, TYTL108 RP	
PROJECT NO.: 23125HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING HUNG ROAD / TSING YI ROAD (J2)	
SCALE: 1 : 500 (IN A4 SIZE) / DATE: 25 MAR 2024		

CTA Consultants Limited
志達顧問有限公司

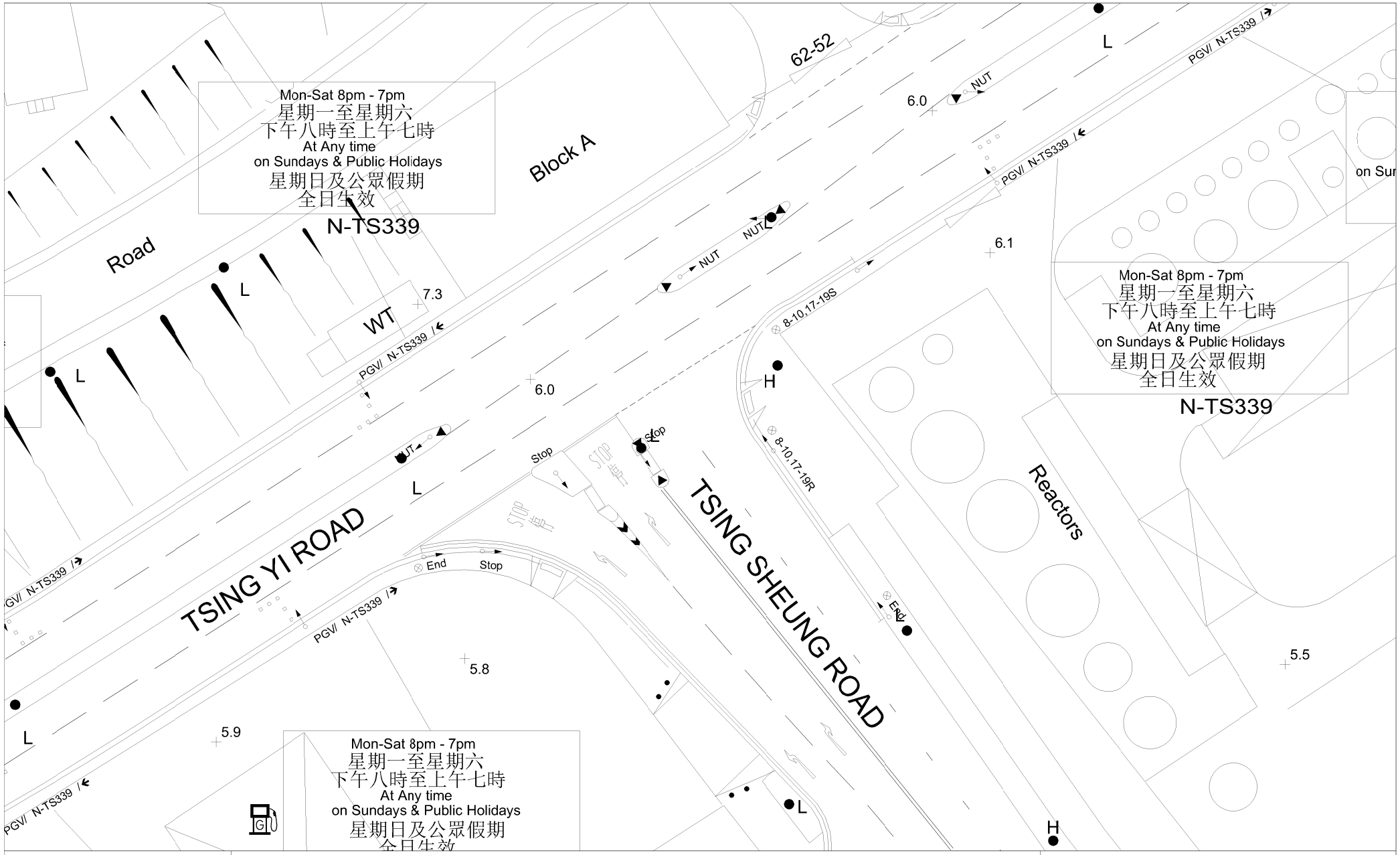


FIGURE NO.: 3.4	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/135, TYTL108 RP
PROJECT NO.: 23125HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING SHEUNG ROAD / TSING YI ROAD (J3)
SCALE: 1 : 500 (IN A4 SIZE)	DATE: 22 MAR 2024

CTA Consultants Limited
志達顧問有限公司

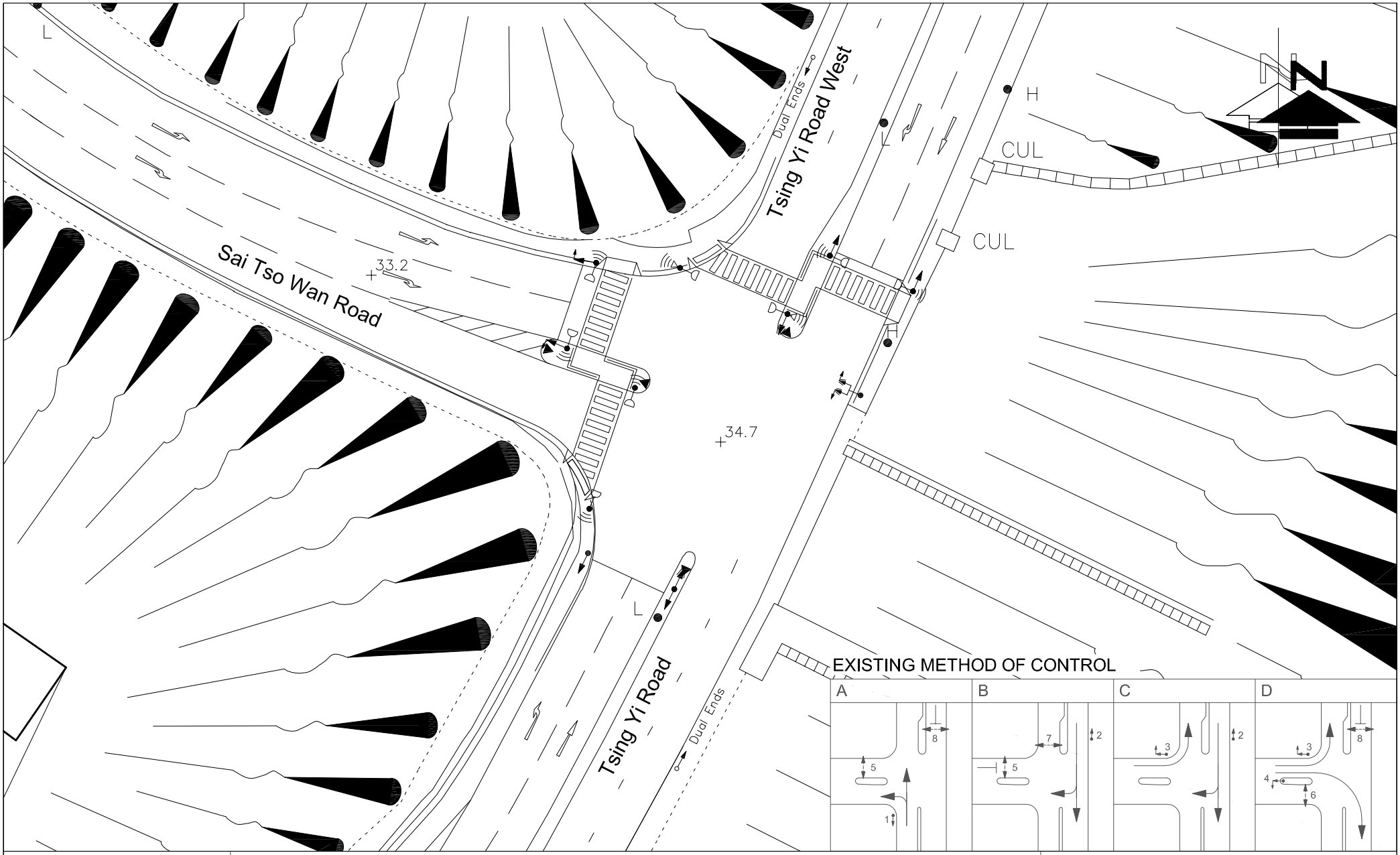


FIGURE NO.: 3.5	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/ 135, TYTL108 RP
PROJECT NO.: 23125HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF SAI TSO WAN ROAD / TSING YI ROAD WEST / TSING YI ROAD (J4)
SCALE: 1 : 500 @A4 / DATE: 25 MAR 2024	

CTA Consultants Limited
志達顧問有限公司

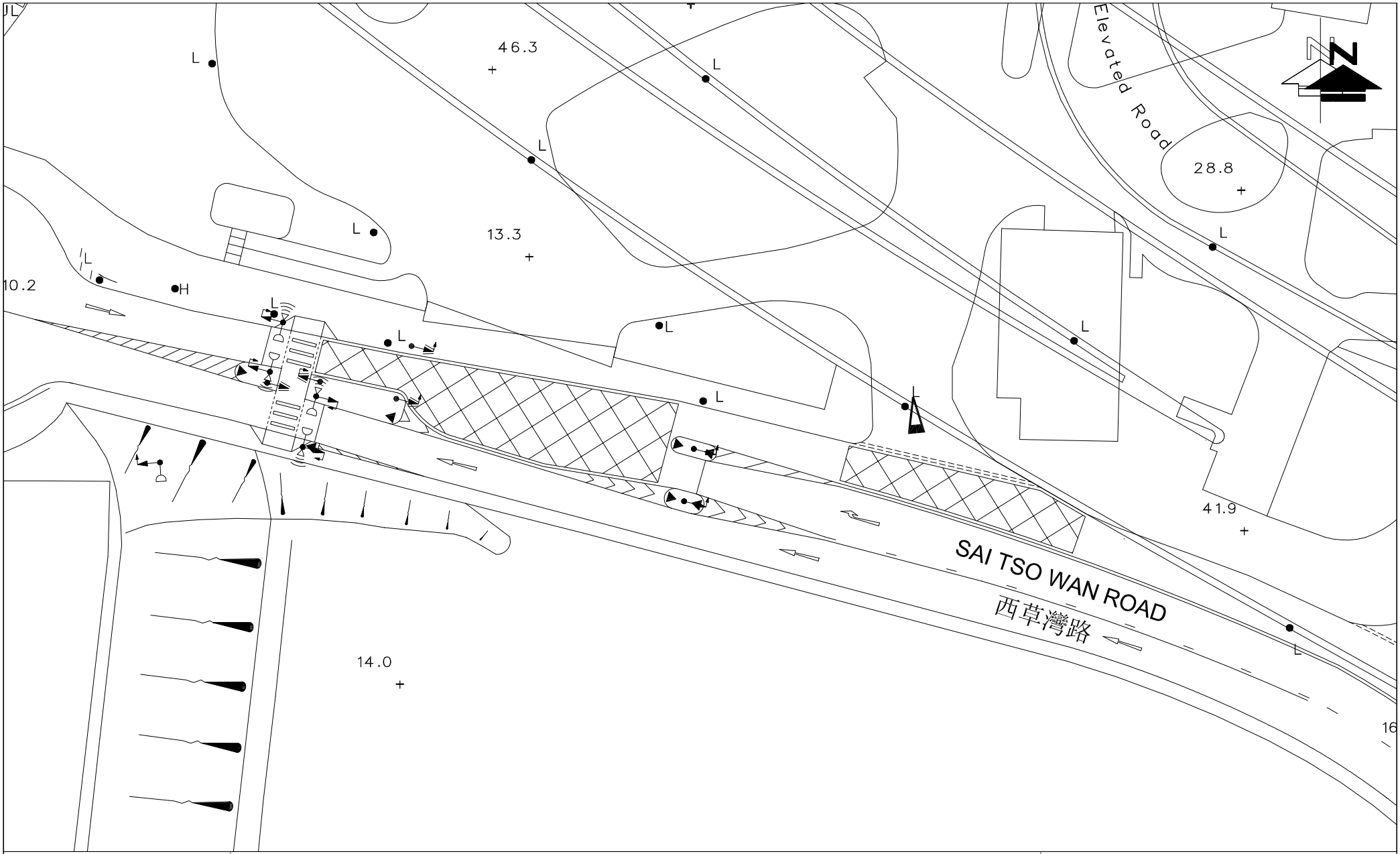


FIGURE NO.: 3.6	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/ 135, TYTL108 RP	
PROJECT NO.: 23125HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF ENTRANCE OF VEC / SAI TSO ROAD (J5)	CTA Consultants Limited 志達顧問有限公司
SCALE: 1 : 500 @A4 / DATE: 25 MAR 2024		

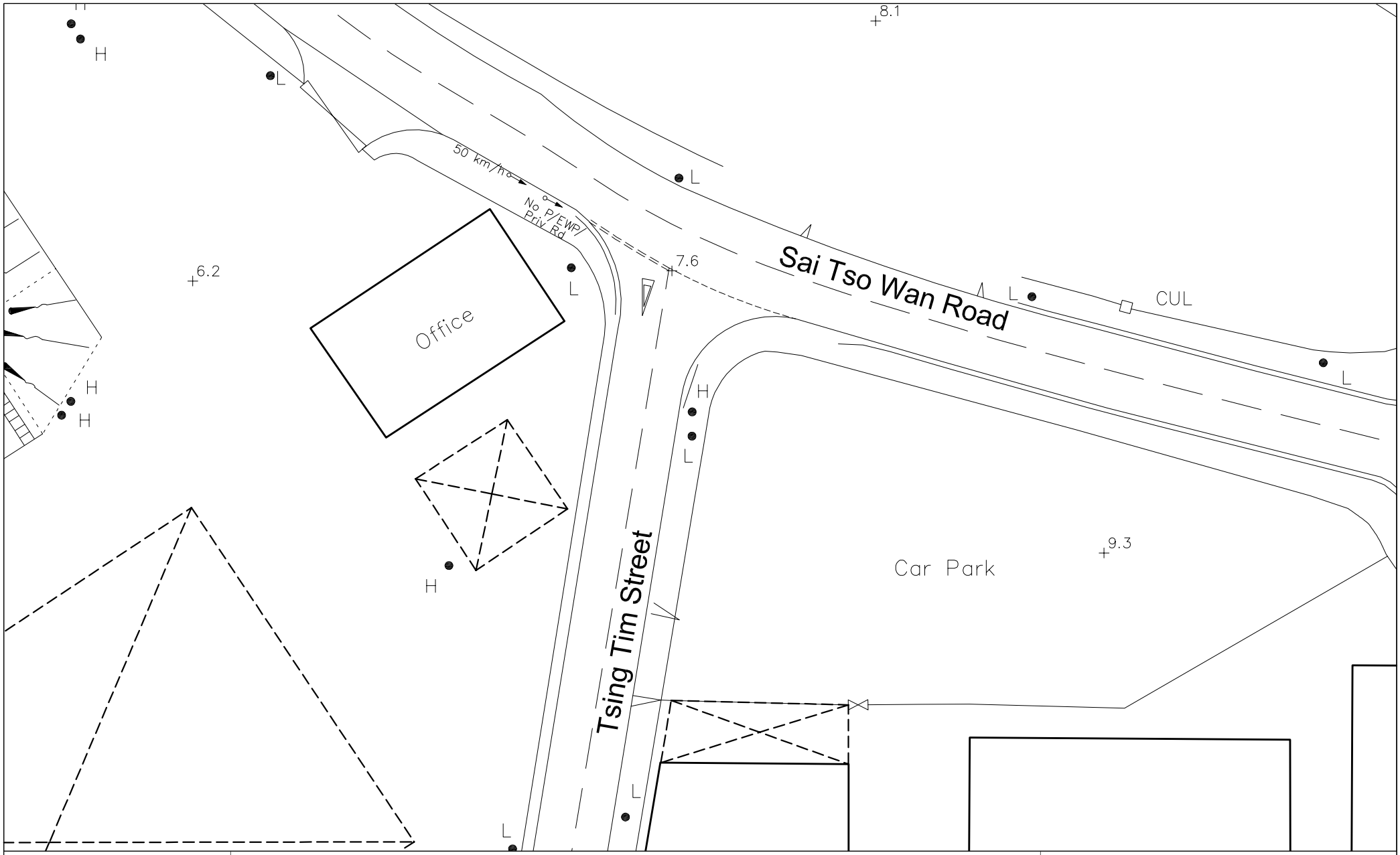


FIGURE NO.: 3.7	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/ 135, TYTL108 RP	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 23125HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING TIM STREET / SAI TSO WAN ROAD (J6)	
SCALE: 1 : 500 (IN A4 SIZE) / DATE: 22 MAR 2024		

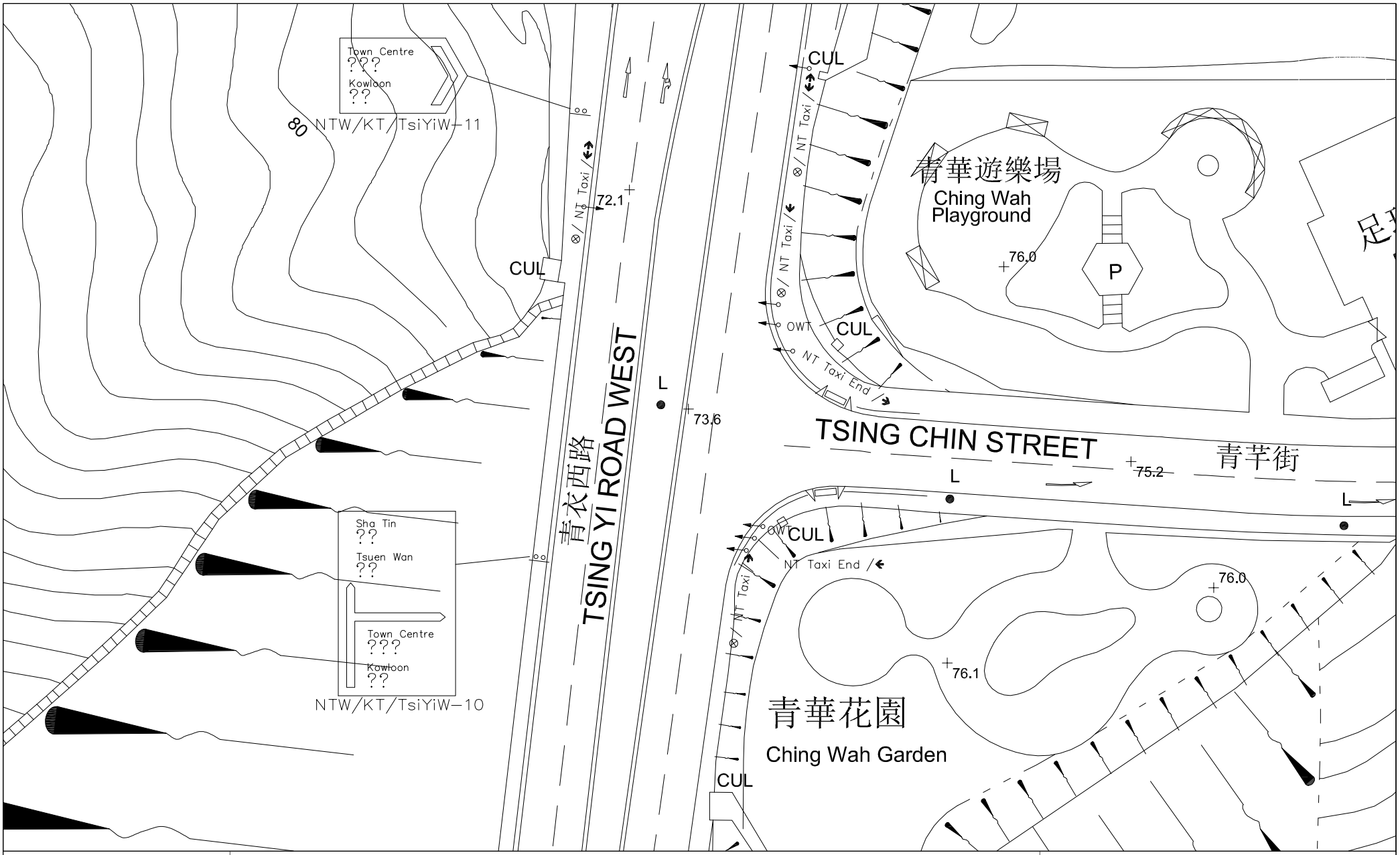


FIGURE NO.: 3.8	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/ 135, TYTL108 RP
PROJECT NO.: 231251HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING YI ROAD WEST / TSING CHIN STREET (J7)
SCALE: 1 : 500 (IN A4 SIZE)	DATE: 22 MAR 2024

CTA Consultants Limited
志達顧問有限公司

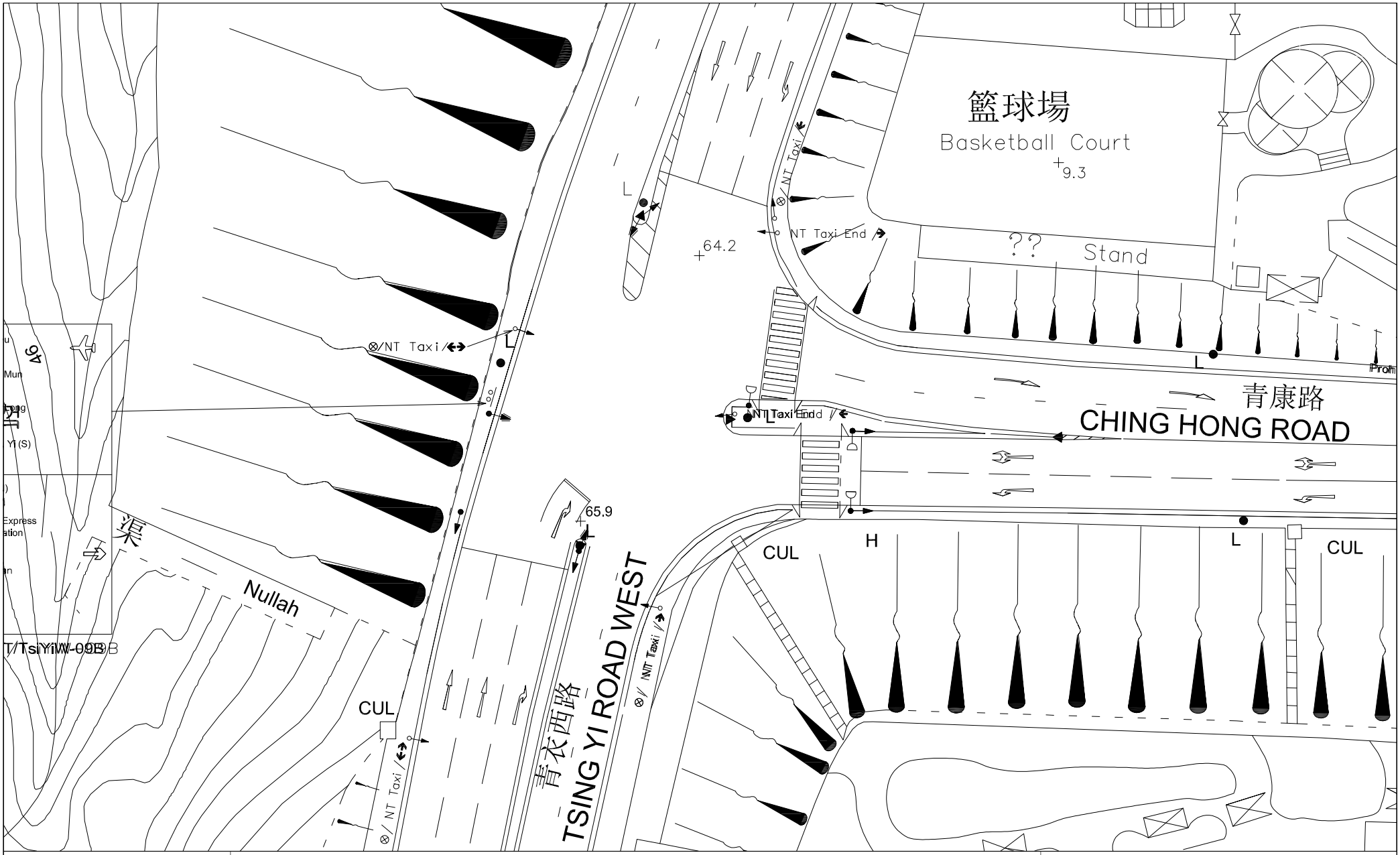


FIGURE NO.: 3.9	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/ 135, TYTL108 RP	
PROJECT NO.: 23125HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING YI ROAD WEST / TSING HONG ROAD (J8)	CTA Consultants Limited 志達顧問有限公司
SCALE: 1 : 500 (IN A4 SIZE)	DATE: 25 MAR 2024	

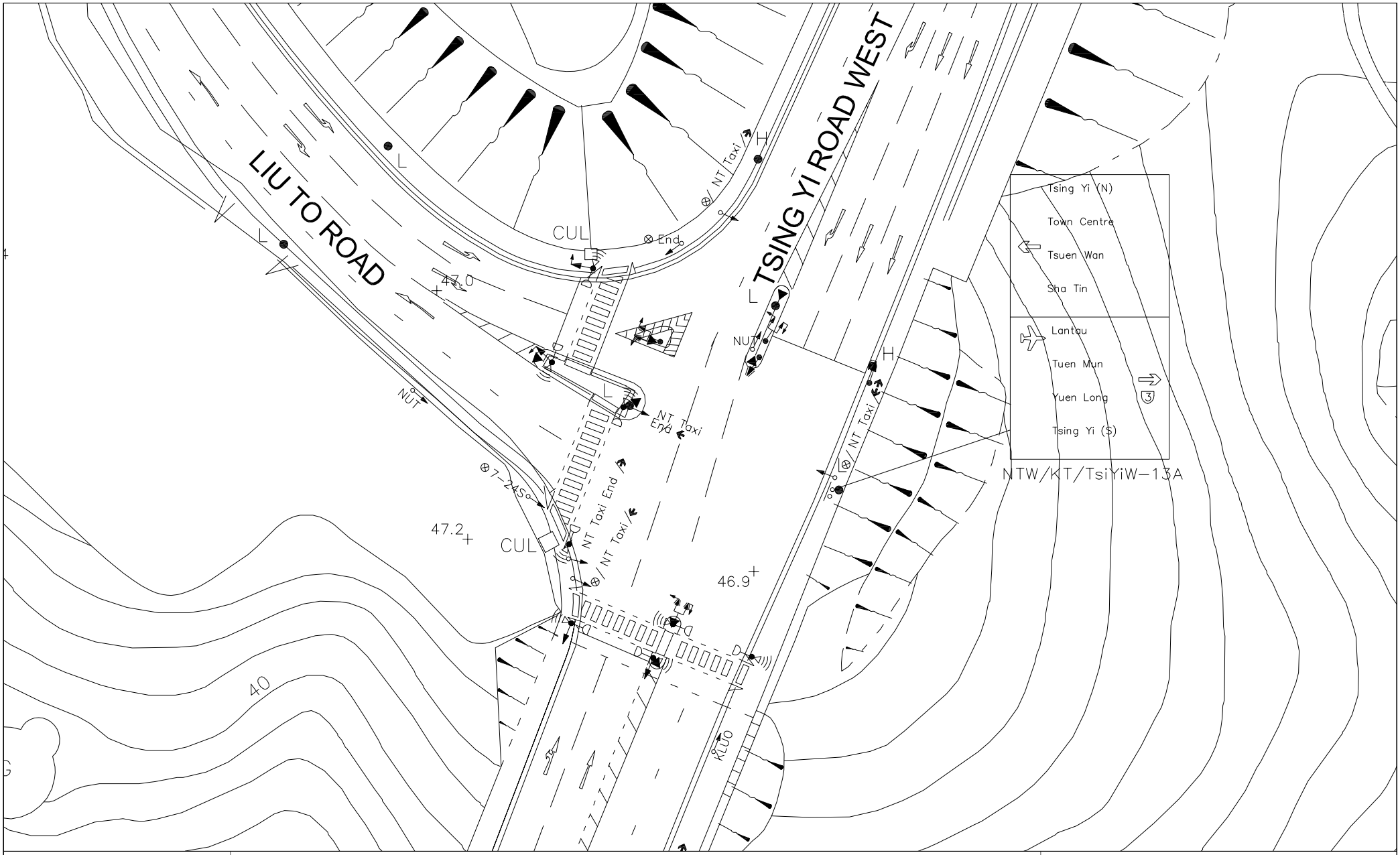


FIGURE NO.: 3.10	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/ 135, TYTL108 RP	
PROJECT NO.: 23125HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING YI ROAD WEST / LIU TO ROAD (J9)	CTA Consultants Limited 志達顧問有限公司
SCALE: 1 : 500 (IN A4 SIZE) / DATE: 25 MAR 2024		

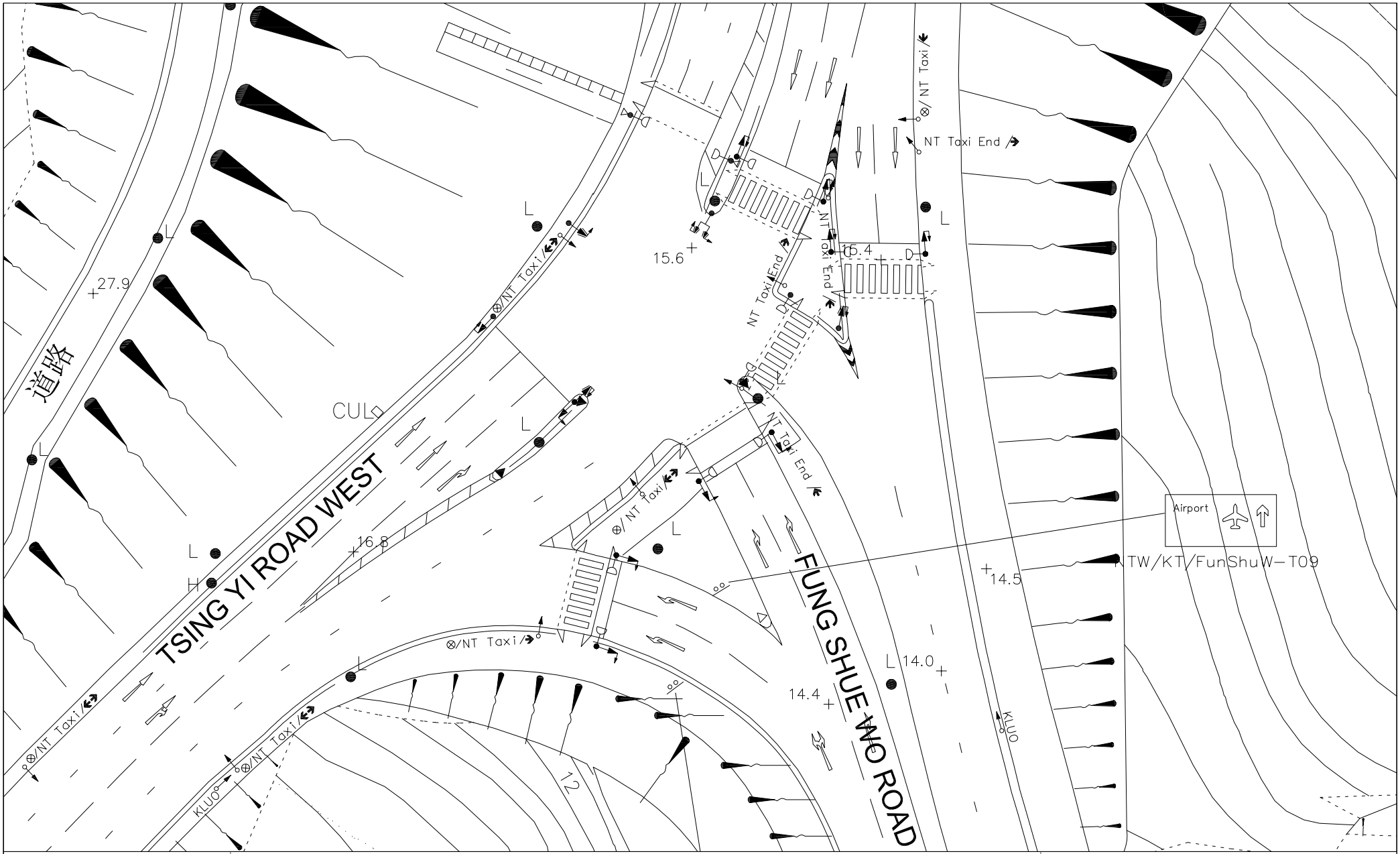


FIGURE NO.: 3.11	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/ 135, TYTL108 RP	
PROJECT NO.: 23125HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING YI ROAD WEST / FUNG SHUE WO ROAD (J10)	CTA Consultants Limited 志達顧問有限公司
SCALE: 1 : 500 (IN A4 SIZE)	DATE: 25 MAR 2024	

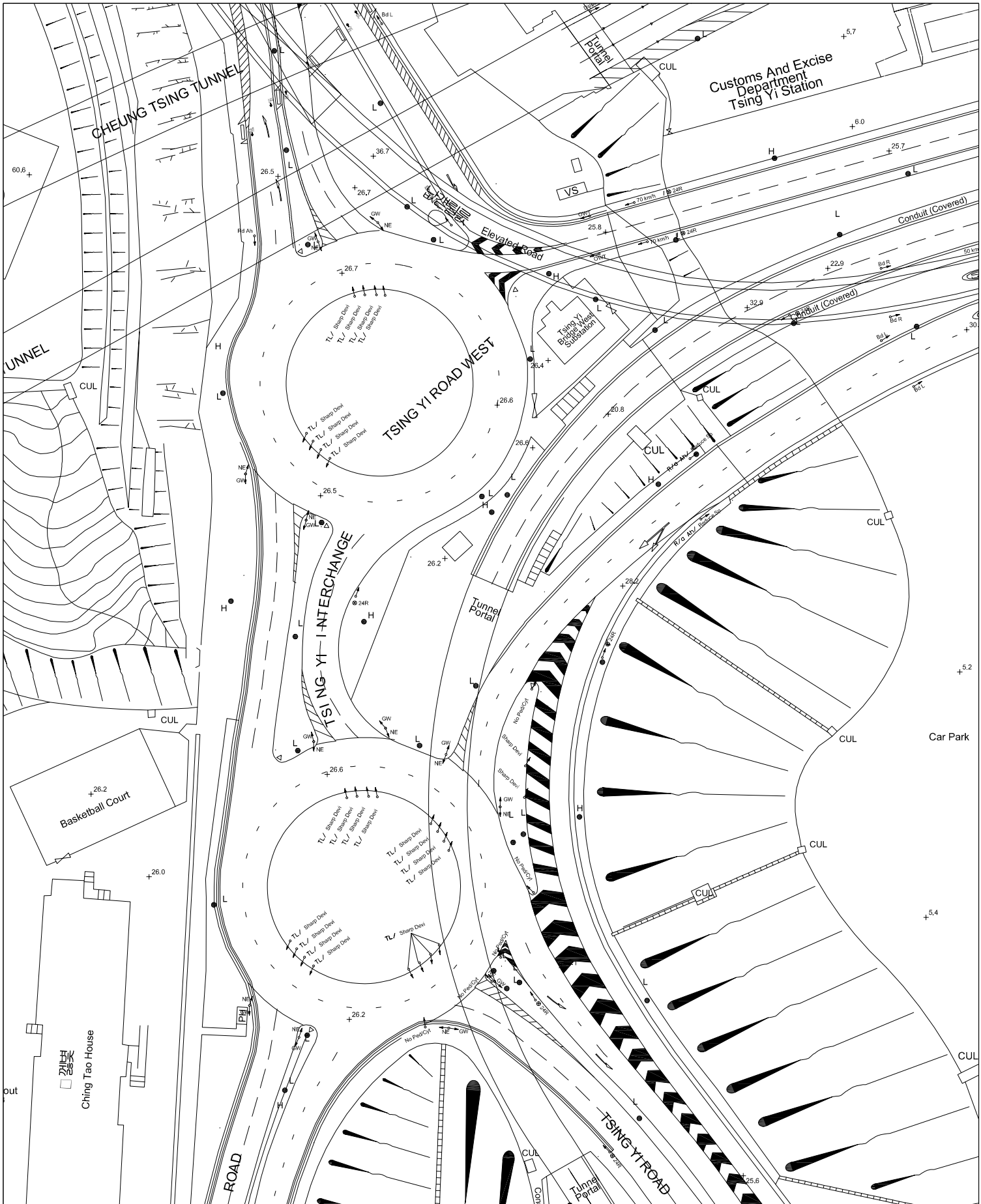


FIGURE NO.: 3.12	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/ 135, TYTL108 RP
PROJECT NO.: 23125HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING YI INTERCHANGE (RA1)
SCALE: 1 : 1000 (IN A4 SIZE) / DATE: 22 MAR 2024	CTA Consultants Limited 志達顧問有限公司

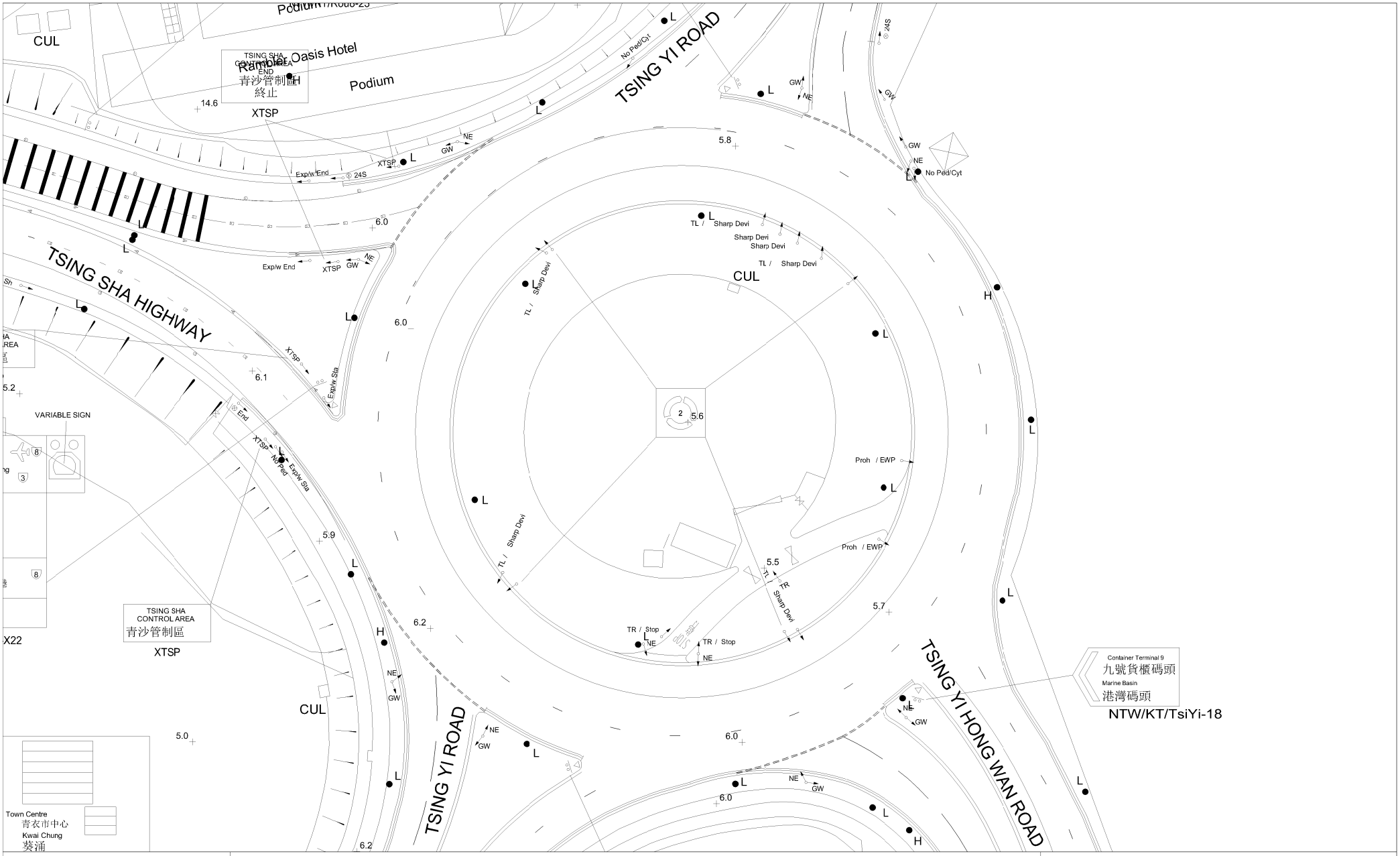


FIGURE NO.: 3.13	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/135, TYTL108 RP
PROJECT NO.: 23125HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING YI ROAD WEST / TSING YI HONG WAN ROAD / TSING SHA HIGHWAY (RA2)
SCALE: 1 : 500 (IN A4 SIZE)	DATE: 22 MAR 2024

CTA Consultants Limited
志達顧問有限公司

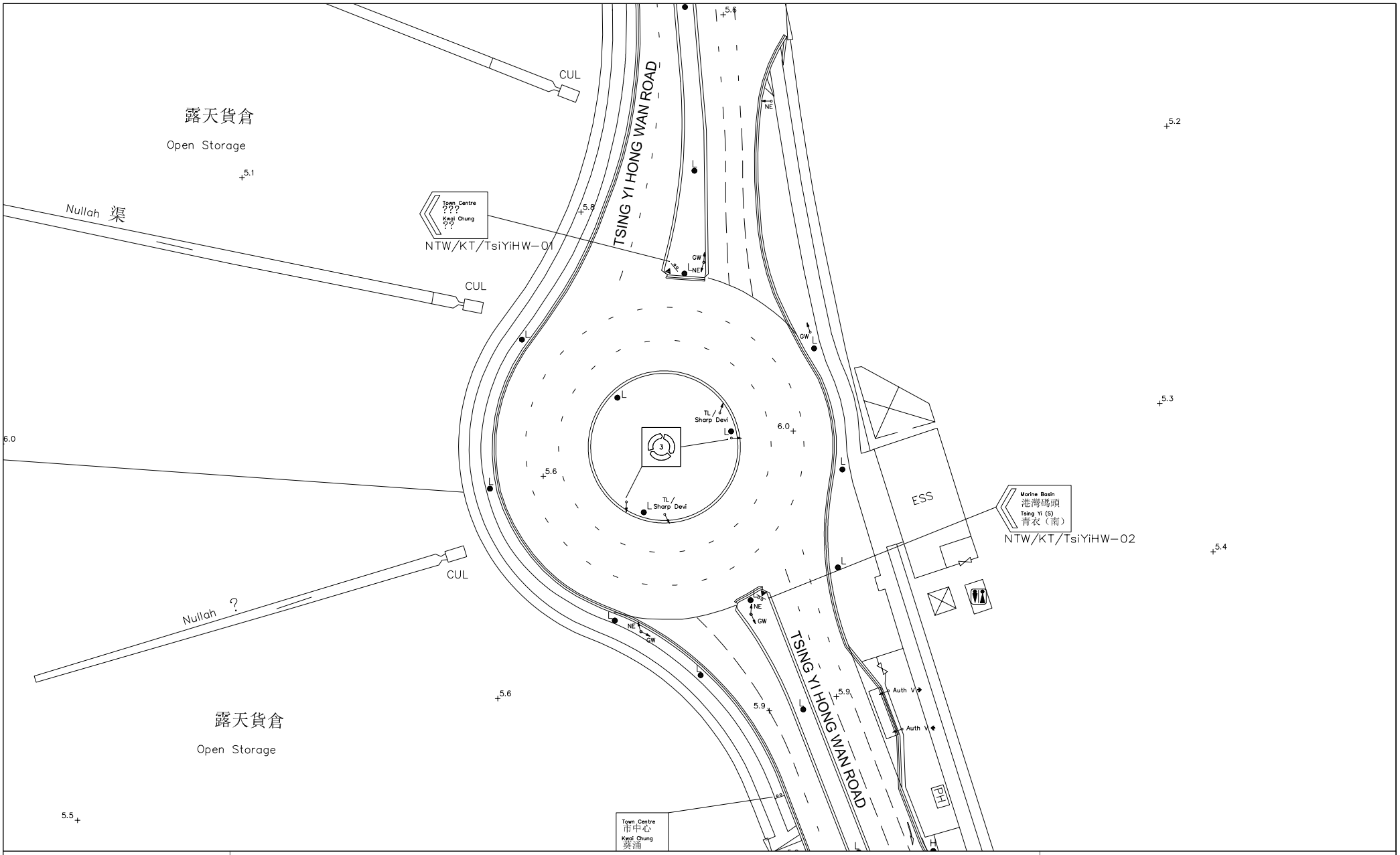


FIGURE NO.: 3.14	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/ 135, TYTL108 RP	
PROJECT NO.: 23125HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING YI ROAD WEST / FUNG SHUE WO ROAD (RA3)	CTA Consultants Limited 志達顧問有限公司
SCALE: 1 : 1000 (IN A4 SIZE) / DATE: 22 MAR 2024		

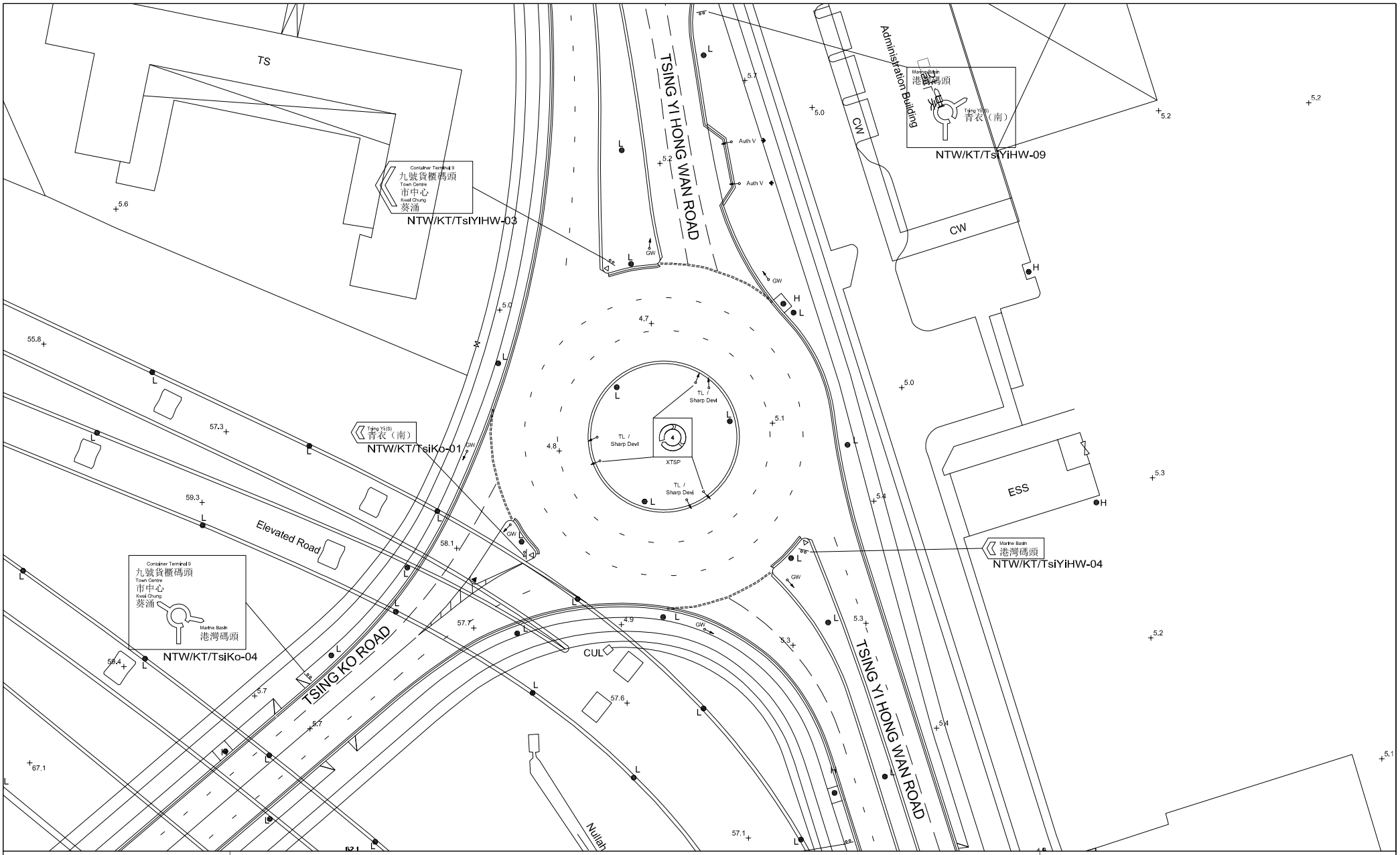


FIGURE NO.: 3.15	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/ 135, TYTL108 RP	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 23125HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING YI HONG WAN ROAD / TSING KO ROAD (RA4)	
SCALE: 1 : 1000 (IN A4 SIZE)	DATE: 22 MAR 2024	

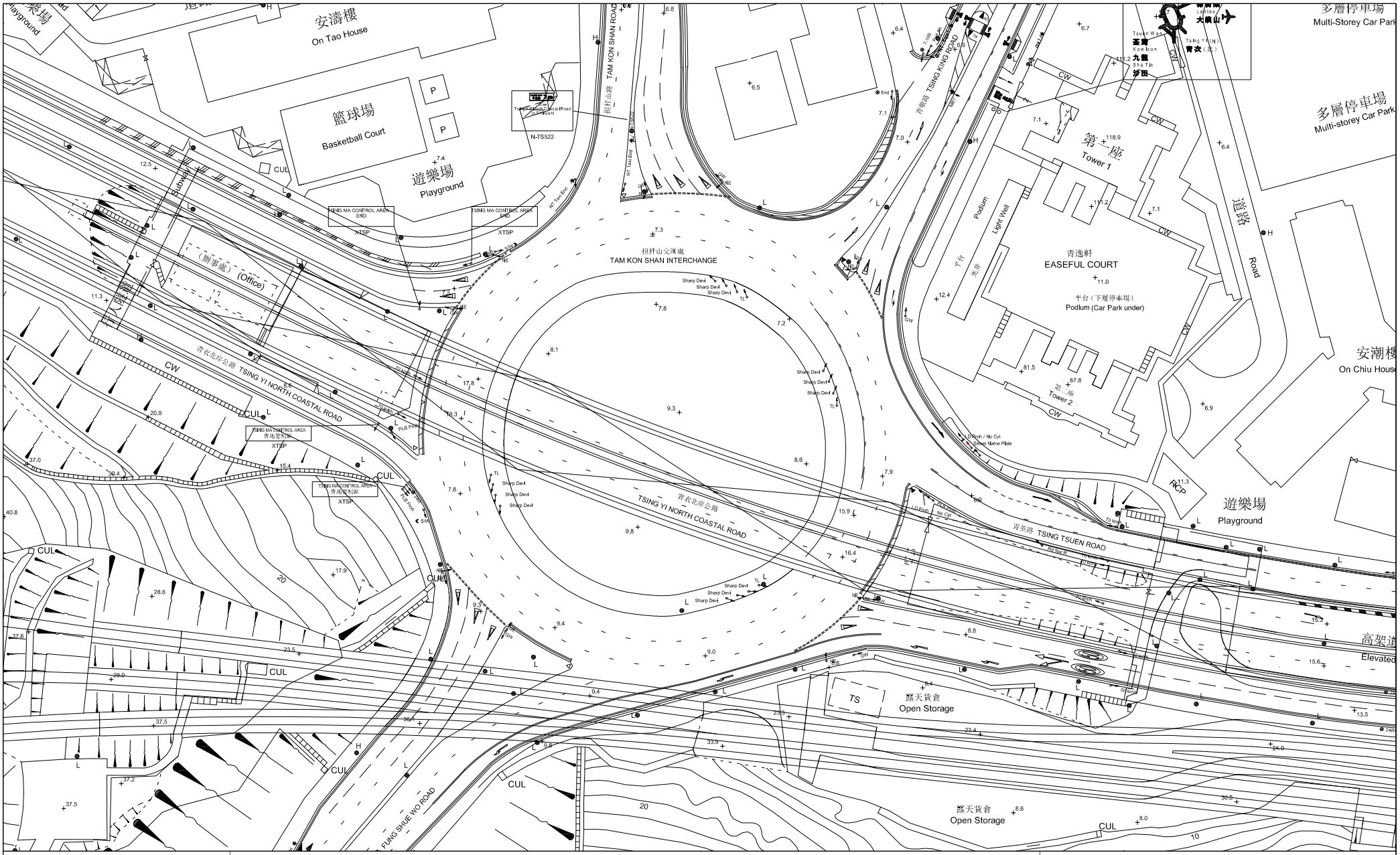


FIGURE NO.: 3.16	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/ 135, TYTL108 RP	
PROJECT NO.: 23125HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TAM KON SHAN INTERCHANGE (RA5)	CTA Consultants Limited 志達顧問有限公司
SCALE: 1 : 1200 (IN A4 SIZE)	DATE: 22 MAR 2024	

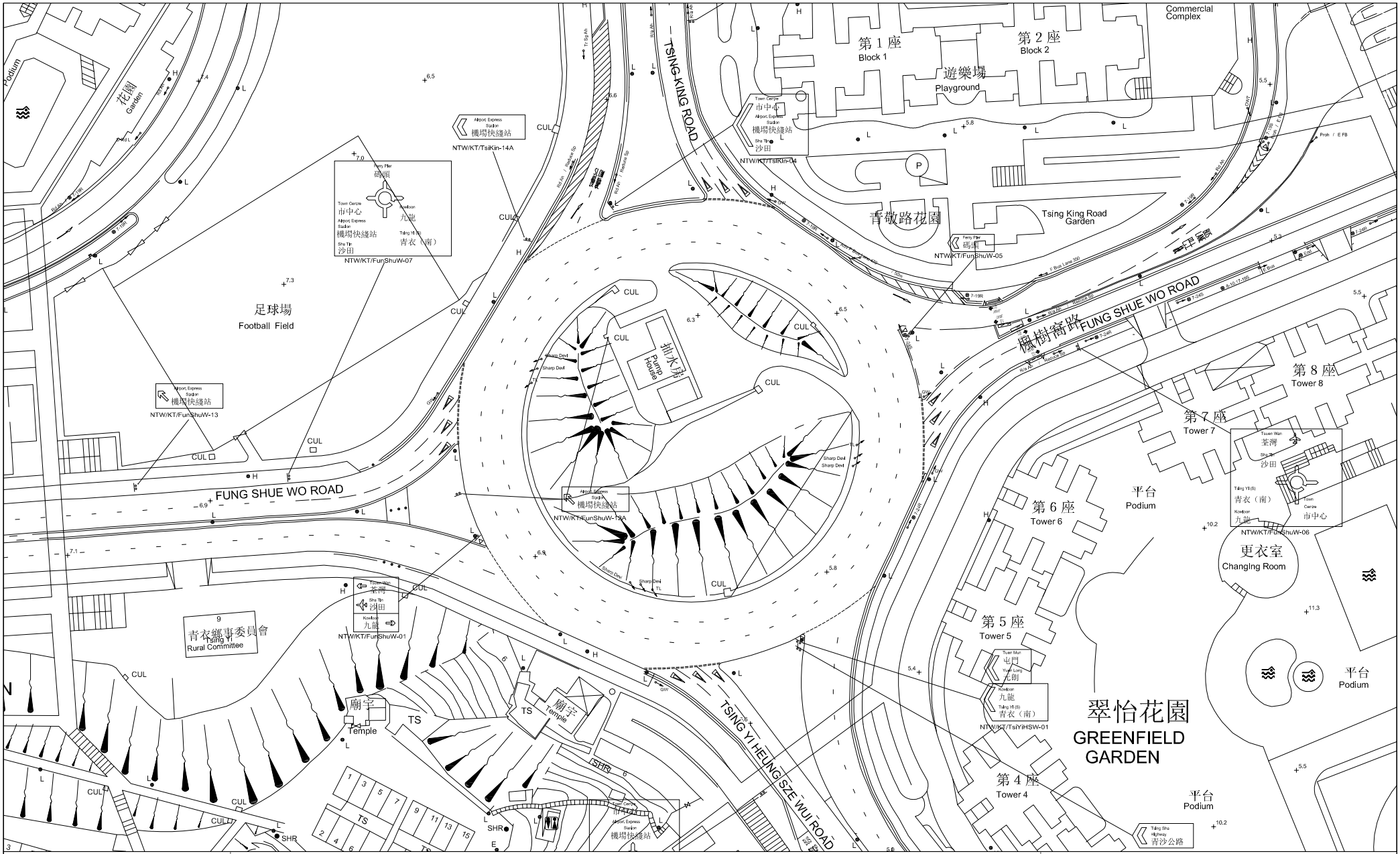


FIGURE NO.: 3.17	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/ 135, TYTL108 RP	
PROJECT NO.: 23125HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING YI HEUNG SZE WUI ROAD / FUNG SHUE WO ROAD / TSING KING ROAD (RA6)	CTA Consultants Limited 志達顧問有限公司
SCALE: 1 : 1200 (IN A4 SIZE)	DATE: 25 MAR 2024	

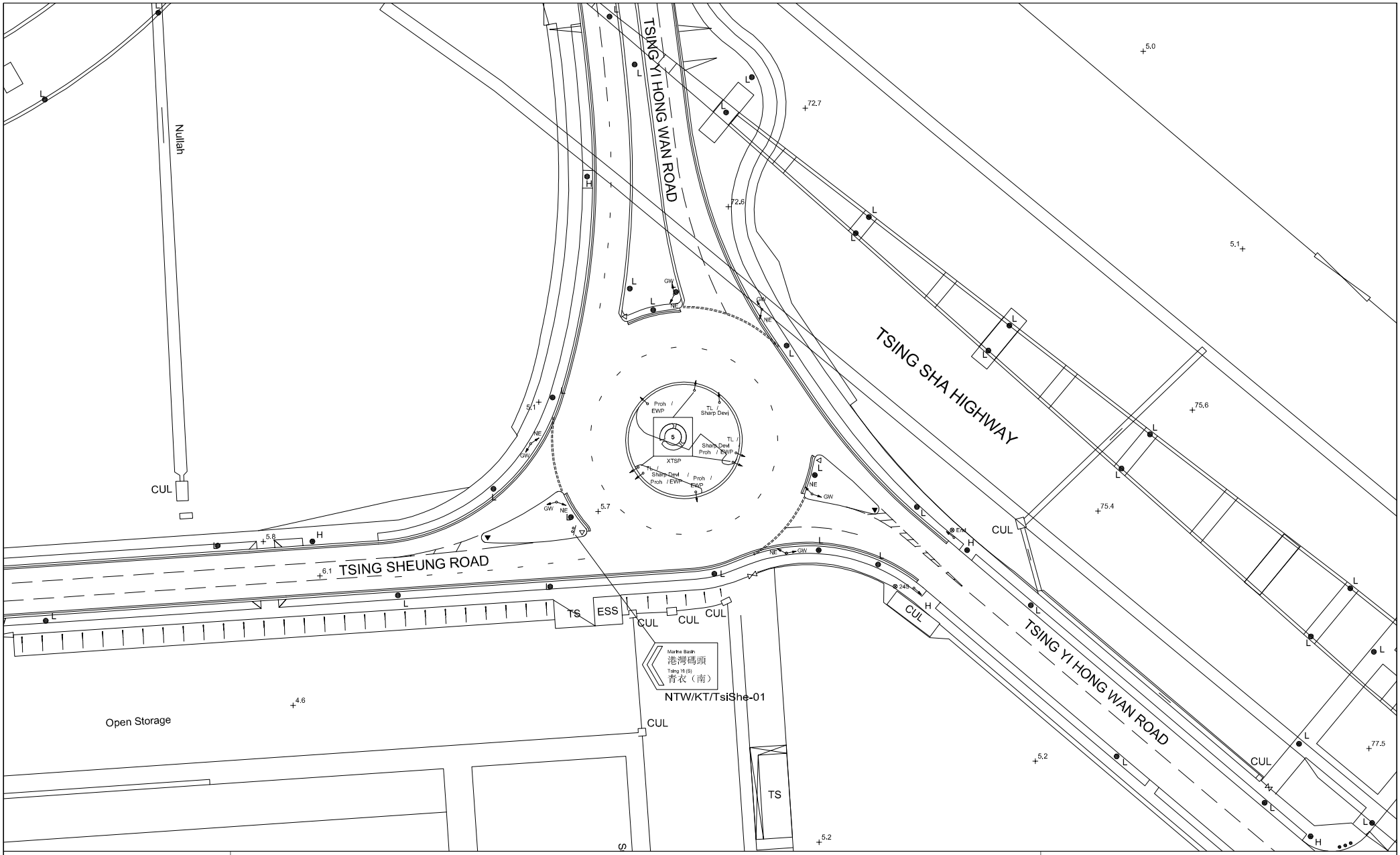


FIGURE NO.: 3.18	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/ 135, TYTL108 RP	
PROJECT NO.: 23125HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING SHEUNG ROAD / TSING YI HONG WAN ROAD (RA7)	CTA Consultants Limited 志達顧問有限公司
SCALE: 1 : 1000 (IN A4 SIZE) / DATE: 25 MAR 2024		

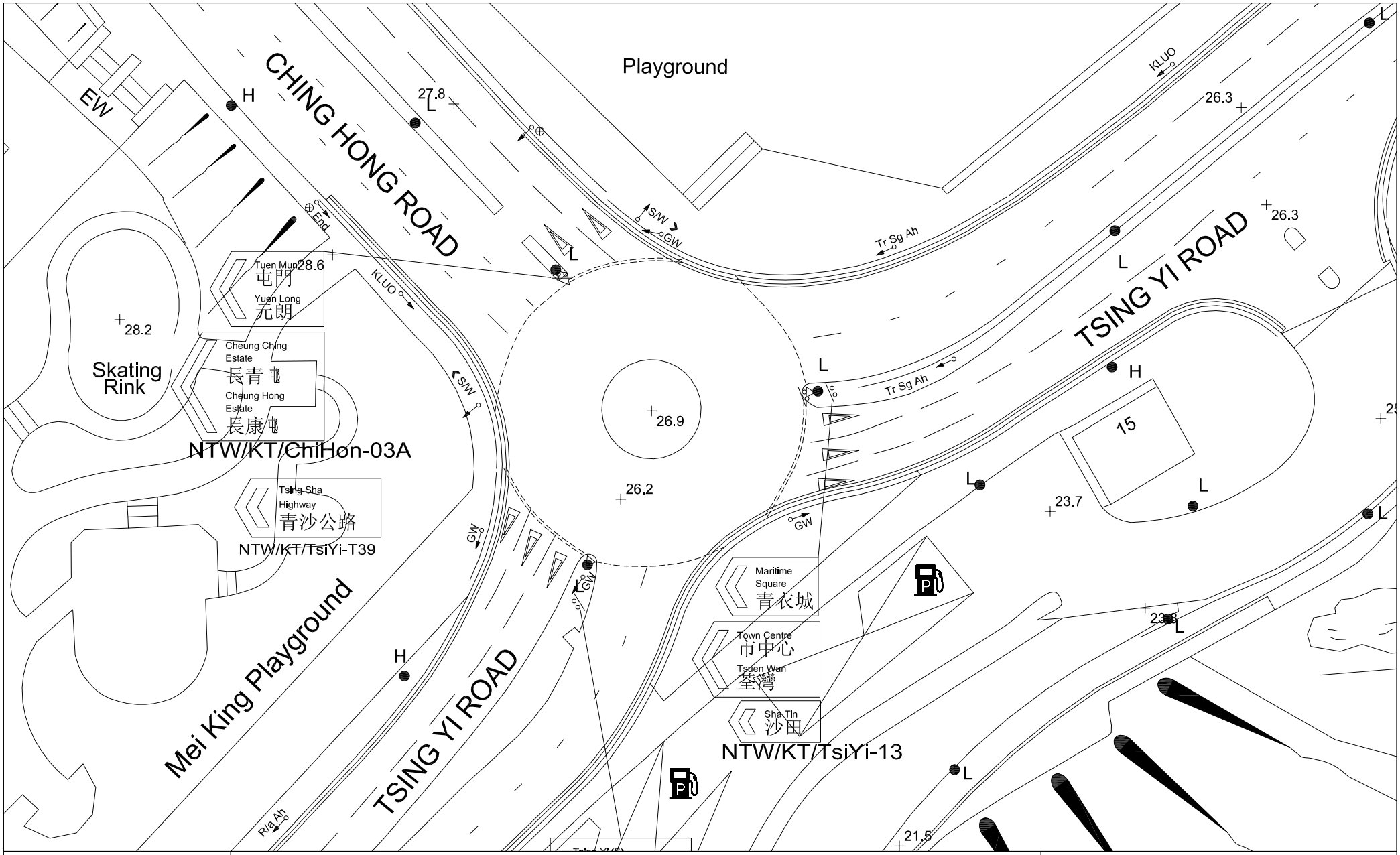


FIGURE NO.: 3.19	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/ 135, TYTL108 RP		
PROJECT NO.: 23125HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING HONG ROAD / TSING YI ROAD (RA8)		
SCALE: 1 : 500 (IN A4 SIZE)	DATE: 25 MAR 2024		

CTA Consultants Limited
志達顧問有限公司

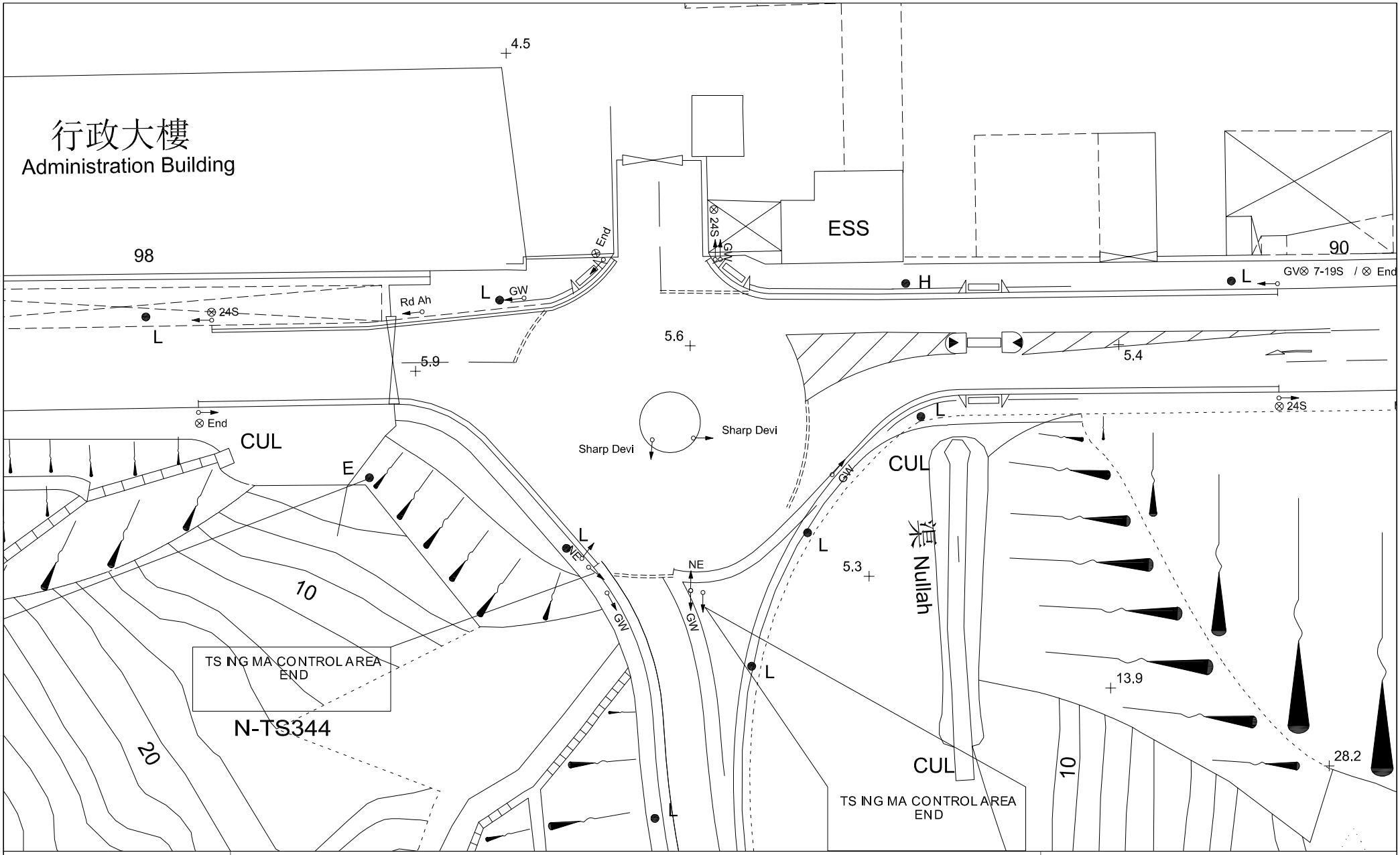


FIGURE NO.: 3.20	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/ 135, TYTL108 RP
PROJECT NO.: 23125HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TAM KON SHAN ROAD / TSING YI NORTH COSTAL ROAD (RA9)
SCALE: 1 : 500 (IN A4 SIZE) / DATE: 25 MAR 2024	CTA Consultants Limited 志達顧問有限公司

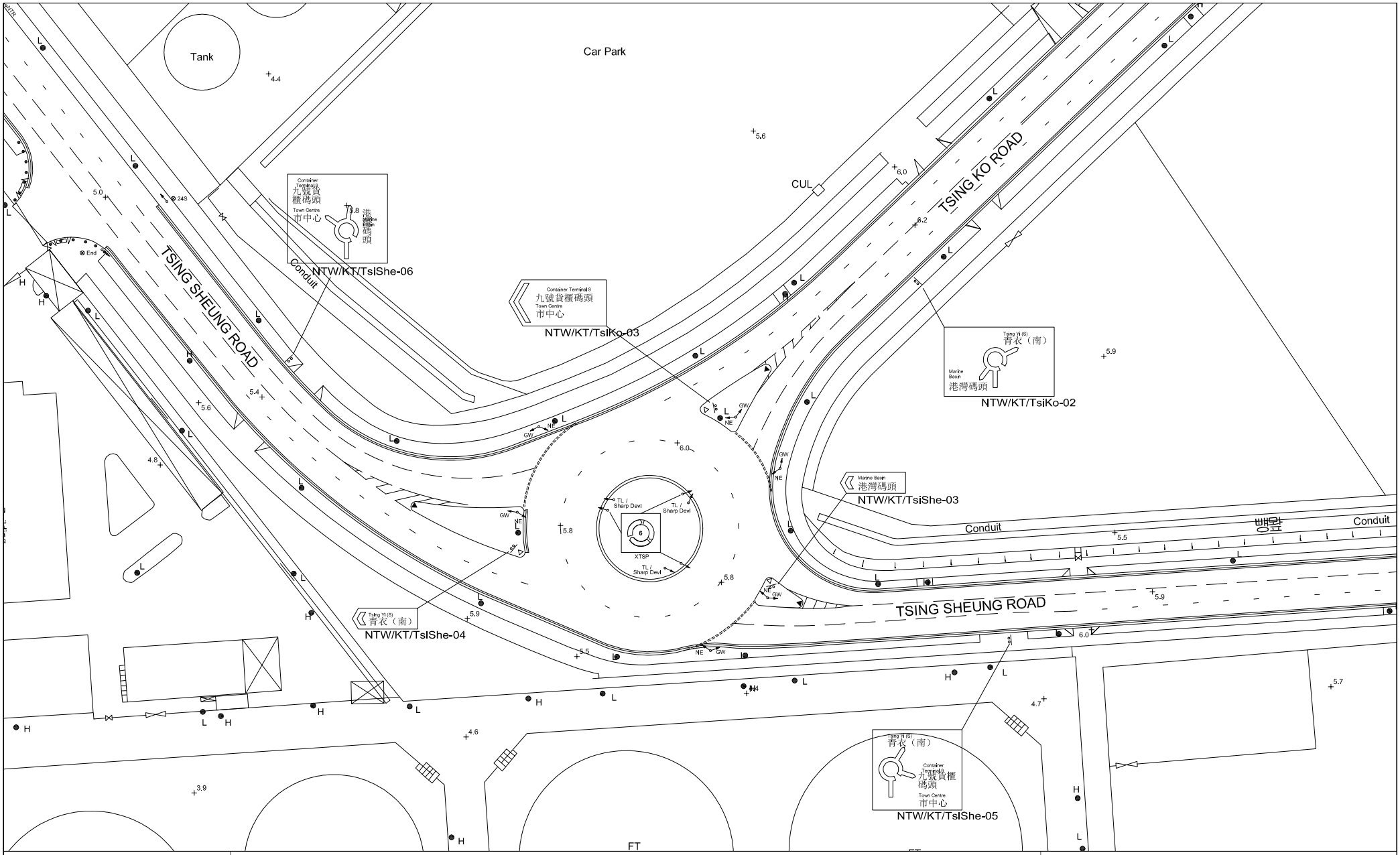
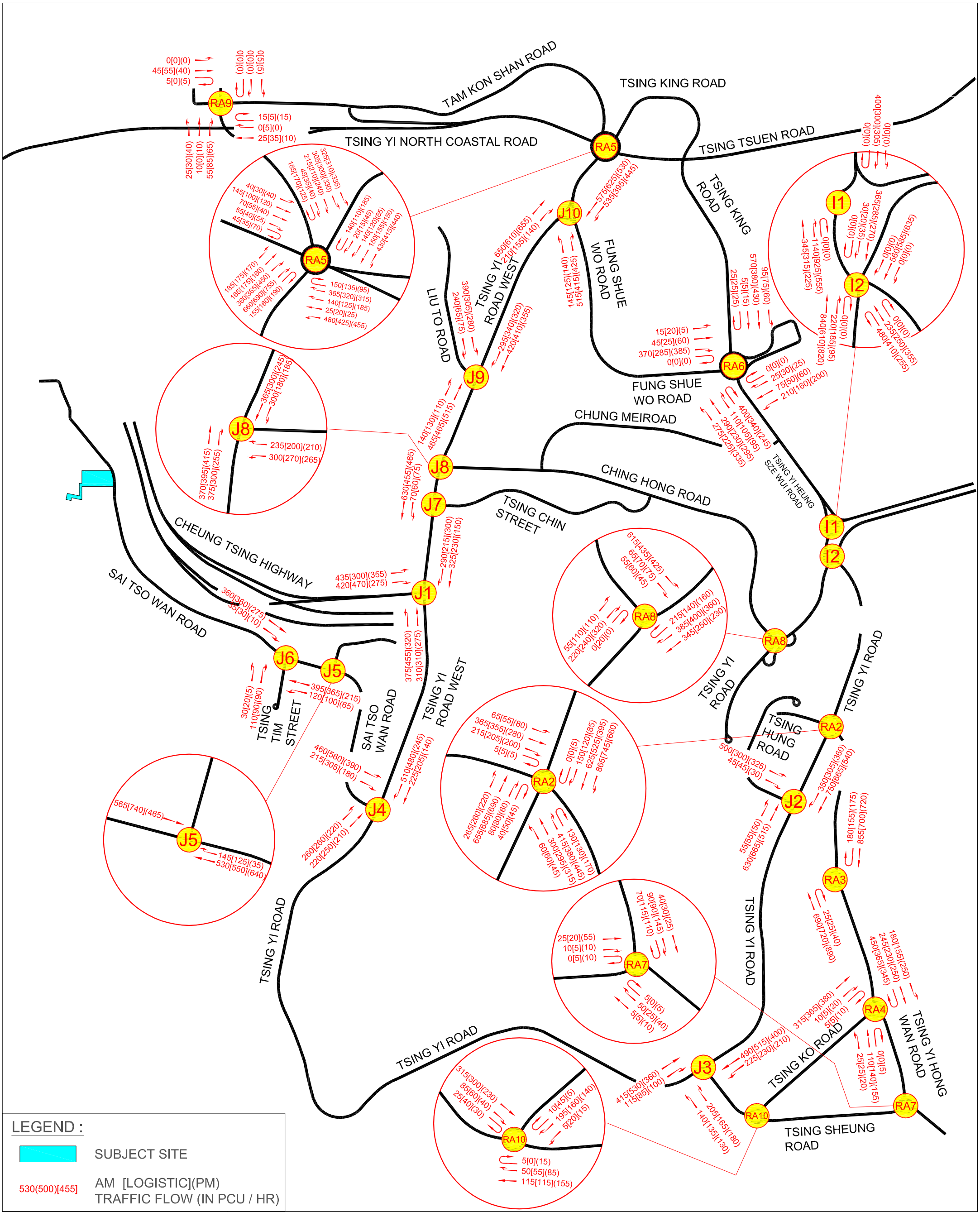


FIGURE NO.: 3.21	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/ 135, TYTL108 RP	
PROJECT NO.: 23125HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING KO ROAD / TSING SHEUNG ROAD (RA10)	CTA Consultants Limited 志達顧問有限公司
SCALE: 1 : 1000 (IN A4 SIZE)	DATE: 25 MAR 2024	



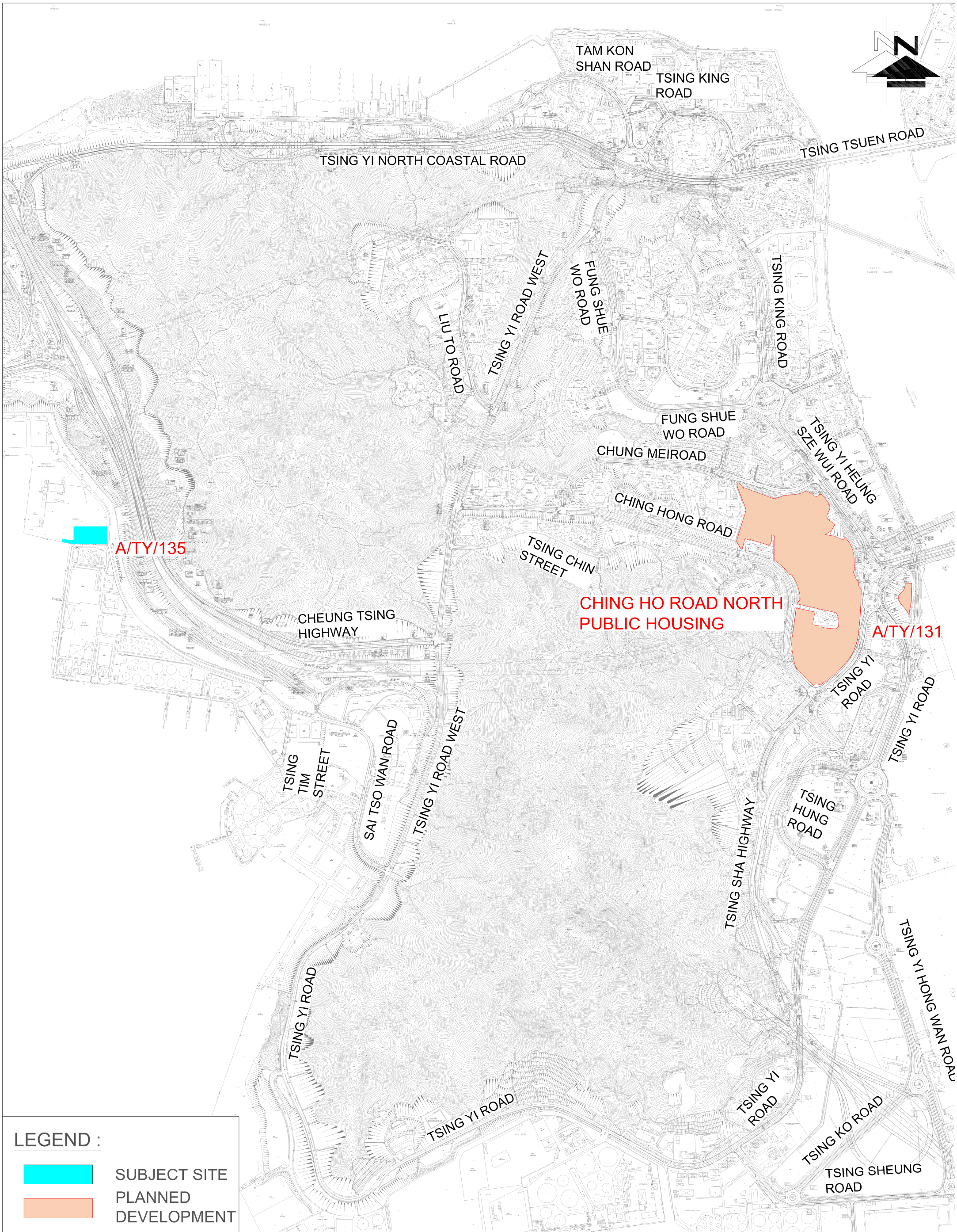
LEGEND :

SUBJECT SITE

530(500)[455] AM [LOGISTIC](PM) TRAFFIC FLOW (IN PCU / HR)

FIGURE NO.: 3.22	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/ 135, TYTL108 RP
PROJECT NO.: 23125HK	DRAWING TITLE: 2024 OBSERVED TRAFFIC FLOW
SCALE: 1 : 12000 @ A3	DATE: 25 MAR 2024

CTA Consultants Limited 志達顧問有限公司



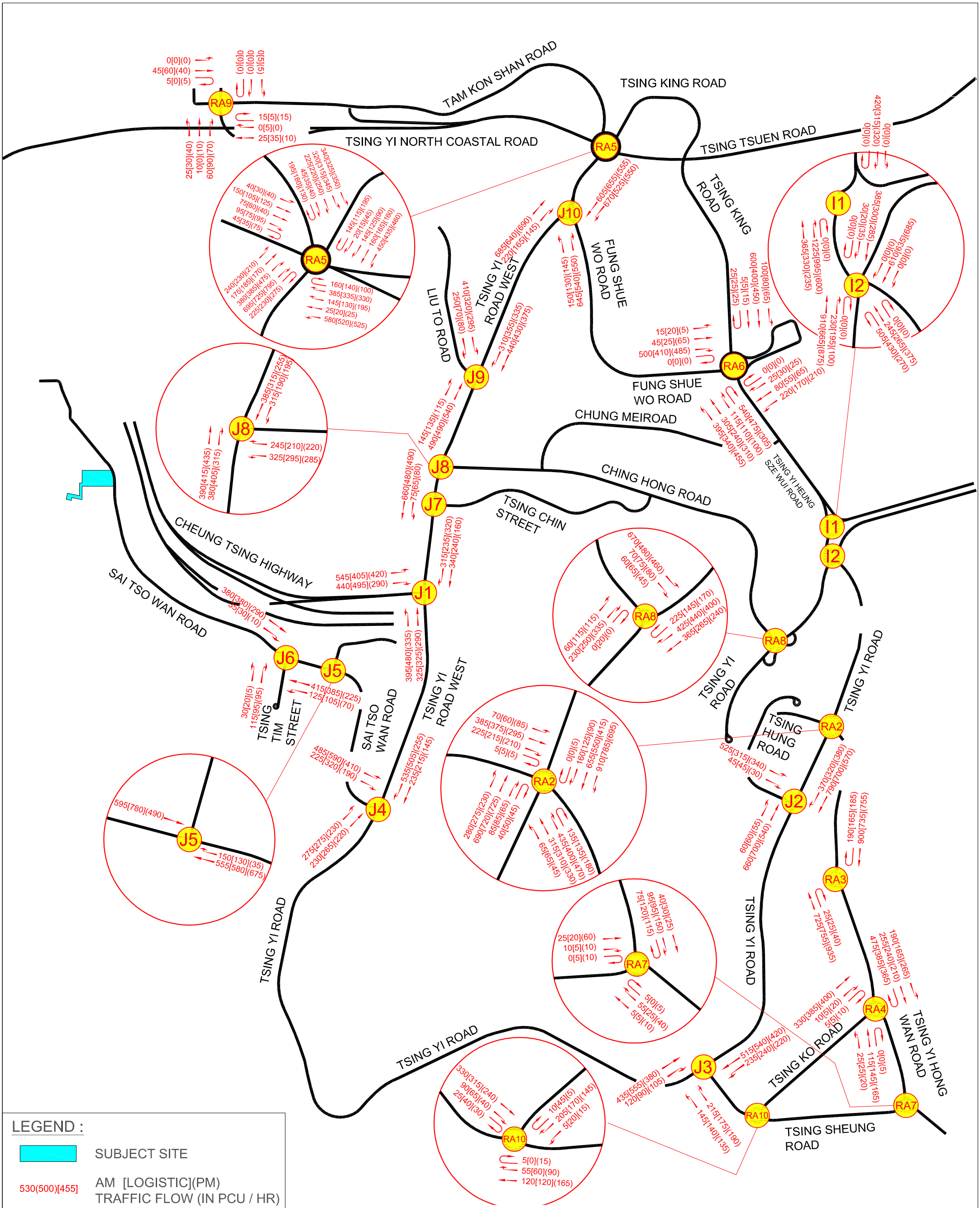
LEGEND :

SUBJECT SITE

PLANNED DEVELOPMENT

FIGURE NO.: 4.1	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/135, TYTL108 RP
PROJECT NO.: 23125HK	DRAWING TITLE: PLANNED DEVELOPMENT IN VICINITY
SCALE: 1 : 11000 @A3	DATE: 22 MAR 2024

CTA Consultants Limited
志達顧問有限公司



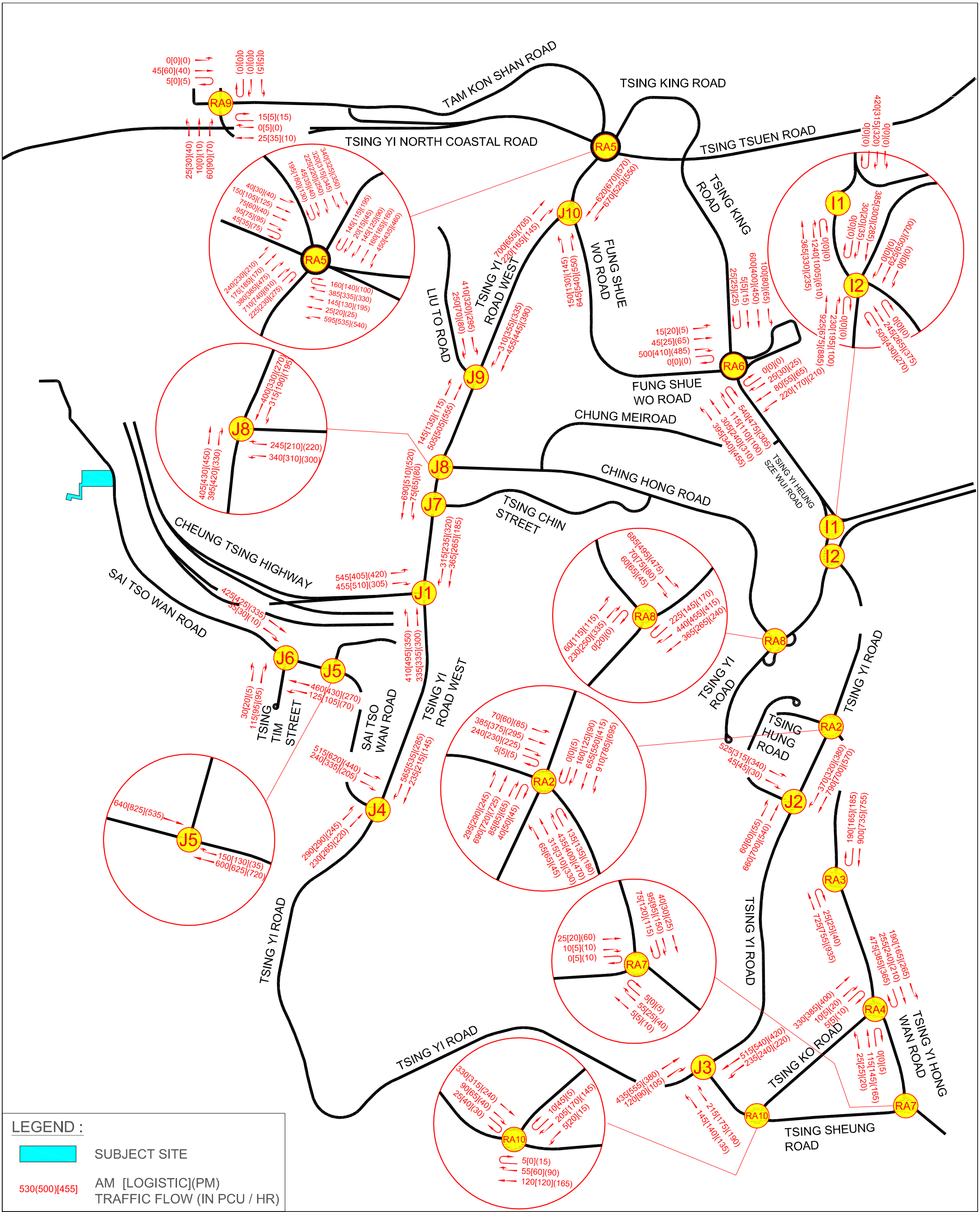
LEGEND :

SUBJECT SITE

530(500)[455] AM [LOGISTIC](PM) TRAFFIC FLOW (IN PCU / HR)

FIGURE NO.: 4.2	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/ 135, TYTL108 RP
PROJECT NO.: 23125HK	DRAWING TITLE: 2029 REFERENCE TRAFFIC FLOW
SCALE: 1 : 12000 @ A3	DATE: 25 MAR 2024

CTA Consultants Limited 志達顧問有限公司


TAM KON SHAN ROAD
TSING KING ROAD
TSING YI NORTH COASTAL ROAD
TSING TSUEN ROAD
TSING KING ROAD
FUNG SHUE WO ROAD
LIU TO ROAD
TSING YI ROAD WEST
CHUNG MEIROAD
CHING HONG ROAD
TSING CHIN STREET
TSING YI HEUNG SZE WUI ROAD
CHEUNG TSING HIGHWAY
SAI TSO WAN ROAD
TSING TIM STREET
TSING YI ROAD
TSING HUNG ROAD
TSING KO ROAD
TSING YI HONG WAN ROAD
TSING SHEUNG ROAD
RA9
RA5
J10
J9
J8
J7
J1
J6
J5
J4
J3
J2
RA6
RA8
RA2
RA7
RA10
RA3
RA4
I1
I2
LEGEND :
SUBJECT SITE
530(500)[455]
AM [LOGISTIC](PM)
TRAFFIC FLOW (IN PCU / HR)
FIGURE NO.: 4.3
PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/ 135, TYTL108 RP
PROJECT NO.: 23125HK
DRAWING TITLE: 2029 DESIGN TRAFFIC FLOW
SCALE: 1 : 12000 @ A3
DATE: 25 MAR 2024
CTA Consultants Limited
志達顧問有限公司

Appendix 1

Junction Calculation Sheets

TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

Junction: **(J1) Tsing Yi Road West / Cheung Tsing Highway**

Description: **2024 Observed Traffic Flow**

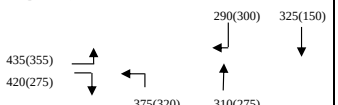
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak		
						Left	Right		A.M.	P.M.			A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road West	S		2	A	3.5	0	0	0	0%	0%	2105	6135	2105	2105	5905	5835	219	0.104	0.104	150	0.071	0.080
	S		2	A	3.3	0	20	0	49%	100%	2085	0	2010	1940	0	0	209	0.104		156	0.080	
	S		3	A	3.3	0	17.5	1	100%	100%	1945	0	1790	1790	0	0	186	0.104		144	0.080	
Cheung Tsing Highway	E		3	A,B	3.4	20	0	1	100%	100%	1955	1955	1820	1820	1820	1820	435	0.239		355	0.195	
	E		4	B	3.5	0	30	0	100%	100%	2105	4210	2005	2005	3990	3990	211	0.105		138	0.069	
			5	B	3.5	0	25	0	100%	100%	2105	0	1985	1985	0	0	209	0.105	0.105	137	0.069	0.069
Tsing Yi Road West	N		1	C	3.6	20	0	1	100%	100%	1975	4090	1835	1835	3950	3950	375	0.204	0.204	320	0.174	0.174
	N		1	C	3.6	0	0	0	0%	0%	2115	0	2115	2115	0	0	310	0.147		275	0.130	
																			*			*

Pedestrian crossing

5P	C	green time = 11s
6P	C	green time = 18s
7P	A	green time = 14s
8P	B	green time = 15s

Notes:

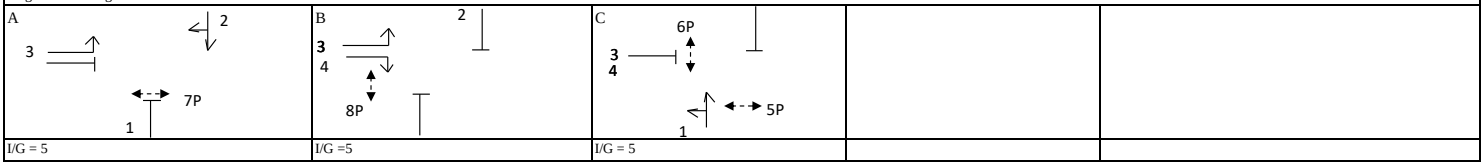
Traffic Flow (pcu / hr)



A.M. Check Phase	
εy	0.414
L (sec)	12
C (sec)	90
y pract.	0.780
R.C. (%)	**89%**

P.M. Check Phase	
εy	0.324
L (sec)	12
C (sec)	90
y pract.	0.780
R.C. (%)	**141%**

Stage / Phase Diagrams



I/G = 5 | I/G =5 | I/G = 5

TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

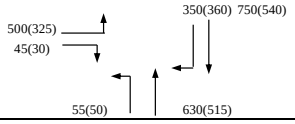
Junction: **(J2) Tsing Hung Road / Tsing Yi Road**

Description: **2024 Observed Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		AM Peak			PM Peak		
						Left	Right		AM	PM			AM	PM	AM	PM	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road	S		2	A	3.0	0.0	0	1	0%	0%	1915	4030	1915	1915	4030	4030	356	0.186	0.186	257	0.134	0.185
	S		3	A	3.6	0.0	0	0	0%	0%	2115	0	2115	2115	0	0	394	0.186		283	0.134	
	S		2	A	3.6	0.0	18	0	100%	100%	2115	2115	1950	1950	1950	1950	350	0.179		360	0.185	
Tsing Yi Road	N		5	C	4.0	30.0	0	1	100%	100%	2015	2015	1920	1920	1920	1920	55	0.029		50	0.026	
	N		4	C	3.7	0.0	0	0	0%	0%	2125	4240	2125	2125	4240	4240	316	0.149	0.149	258	0.121	0.121
	N		5	C	3.6	0.0	0	0	0%	0%	2115	0	2115	2115	0	0	314	0.149		257	0.121	
Tsing Hung Road	E		1	A,B	3.3	25.0	0	1	100%	100%	1945	1945	1835	1835	1835	1835	500	0.272		325	0.177	
	E		3	B	4.0	0.0	22	0	100%	100%	2155	2155	2015	2015	2015	2015	45	0.022		30	0.015	
Pedestrian Crossing			6P	A,B																		
			7P	C																		
			8P	C																		

Notes:

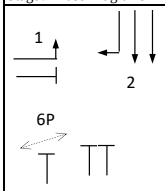
Traffic Flow (pcu / hr) Weekday AM Peak



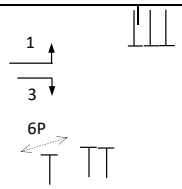
AM Peak Check Phase	
εy	0.335
L (sec)	18
C (sec)	71
y pract.	0.672
R.C. (%)	101%

PM Peak Check Phase	
εy	0.306
L (sec)	18
C (sec)	71
y pract.	0.672
R.C. (%)	119%

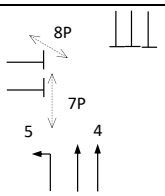
Stage / Phase Diagrams



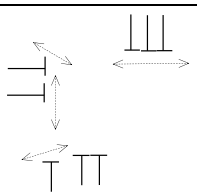
I/G = 5



I/G = 5



I/G = 5



TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

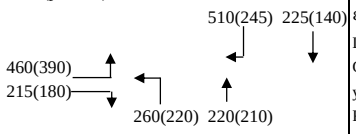
Junction: **(J4) Sai Tso Wan Road / Tsing Yi Road West / Tsing Yi Road**

Description: **2024 Observed Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak		
						Left	Right		A.M.	P.M.			A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road	NE		1	A	4.5	15	0	1	100%	100%	2065	2065	1875	1875	260	0.139	0.139	220	0.117	0.117
	NE		1	A	3.4	0	0	0	0%	0%	2095	2095	2095	2095	220	0.105		210	0.100	
Sai Tso Wan Road	NW		3	C,D	3.8	15	0	1	100%	100%	1995	1995	1815	1815	460	0.253		390	0.215	
	NW		4	D	3.8	0	25	0	100%	100%	2135	2135	2015	2015	215	0.107	0.107	180	0.089	0.089
Tsing Yi Road West	SE		2	B,C	3.4	0	0	1	0%	0%	1955	1955	1955	1955	225	0.115		140	0.072	
	SE		2	B,C	3.7	0	25	0	100%	100%	2125	2125	2005	2005	510	0.254	0.254	245	0.122	0.122
Pedestrian crossing			5p	A,B		Green time = 5GM + 7FG = 12s														
			6p	D		Green time = 5GM + 9FG = 14s														
			7p	B,C		Green time = 5GM + 7FG = 12s														
			8p	A,D		Green time = 5GM + 7FG = 12s														

Notes:

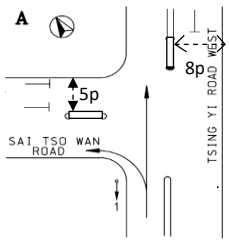
Traffic Flow (pcu / hr)

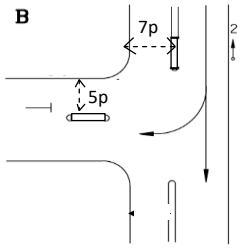


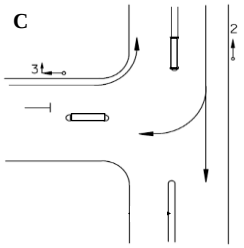
A.M. Check Phase	
εy	0.500
L (sec)	12
C (sec)	120
y pract.	0.810
R.C. (%)	**62%**

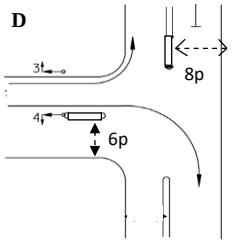
P.M. Check Phase	
εy	0.329
L (sec)	12
C (sec)	120
y pract.	0.810
R.C. (%)	**146%**

Stage / Phase Diagrams









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

TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

Junction: **(J5) VEC Access / Sai Tso Wan Road**

Description: **2024 Observed Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) AM	Pro. Turning (%) PM	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	Total Revised Saturation Flow (pcu/hr) AM	Total Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Sai Tso Wan Road	EB	→	1	A	4.0	0.0	0	1	0%	0%	2015	2015	2015	2015	2015	2015	565	0.280	0.280	465	0.231	0.231
Sai Tso Wan Road	WB	↖	3	B	4.0	0.0	10	0	100%	100%	2155	2155	1875	1875	1875	1875	145	0.077	0.077	35	0.019	0.019
	WB	←	2	A,B	4.0	0.0	0	1	0%	0%	2015	2015	2015	2015	2015	2015	530	0.263		640	0.318	
Pedestrian Crossing		↕	4P	C		Min. green time = 7FGm + 5 FGm = 12s																

Notes:
(None)

Traffic Flow (pcu / hr) AM (PM) Peak

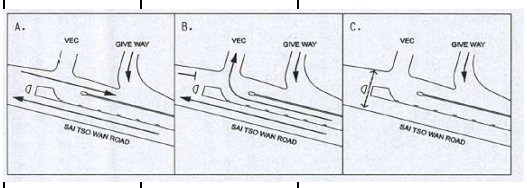
565(465) →

↖ 145(35)

← 530(640)

AM Peak Check Phase		PM Peak Check Phase	
εy	0.358	εy	0.249
L (sec)	26	L (sec)	26
C (sec)	100	C (sec)	100
y pract.	0.666	y pract.	0.666
R.C. (%)	86%	R.C. (%)	167%

Stage / Phase Diagrams



I/G = 3 I/G = 8 I/G = 5+12

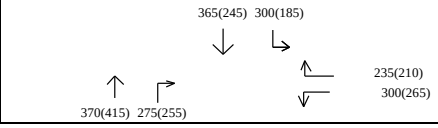
TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

Junction: **(J8) Tsing Yi Road / Tsing Hung Road**
Description: **2024 Observed Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) AM	Pro. Turning (%) PM	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	Total Revised Saturation Flow (pcu/hr) AM	Total Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tsing Yi Road West	S	↓	1	A	3.0	0.0	0	0	0%	0%	2055	4160	2055	2055	4160	4160	180	0.088	0.174	121	0.059	0.107
	S	↓	1	A	3.5	0.0	0	0	0%	0%	2105	0	2105	2105	0	0	185	0.088		124	0.059	
	S	↳	1	A	3.7	10.0	0	1	100%	100%	1985	1985	1725	1725	1725	1725	300	0.174		185	0.107	
Tsing Yi Road West	N	↑	2	A,B	3.5	0.0	0	1	0%	0%	1965	4070	1965	1965	4070	4070	179	0.091		200	0.102	
	N	↑	2	A,B	3.5	0.0	0	0	0%	0%	2105	0	2105	2105	0	0	191	0.091		215	0.102	
	N	↱	3	B	3.3	0.0	18	0	100%	100%	2085	2085	1925	1925	1925	1925	275	0.143	0.143	255	0.132	0.132
Ching Hong Road	W	⇅	4	C	3.4	18.0	20	0	16% / 84%	15% / 85%	2095	0	1945	1945	0	0	280	0.144	0.144	248	0.128	0.128
	W	↓	4	C	3.4	15.0	0	1	100%	100%	1955	4050	1775	1775	3720	3720	255	0.144		227	0.128	
Pedestrian crossing		↕	5P	A,B		Min. Green time = 11s (G) + 8s (FS) = 19s																
		↕	5P	C		Min. Green time = 5s (G) + 12s (FS) = 17s																
Pedestrian Crossing																						

Notes:

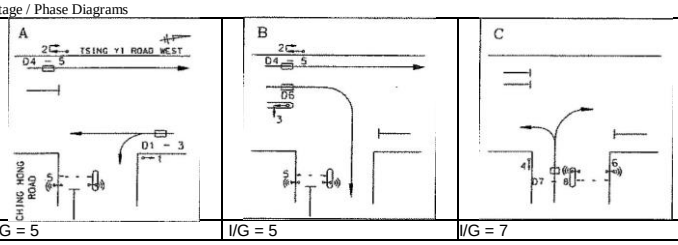
Traffic Flow (pcu / hr) Weekday AM Peak



AM Peak Check Phase	
εy	0.461
L (sec)	14
C (sec)	100
y pract.	0.774
R.C. (%)	68%

PM Peak Check Phase	
εy	0.367
L (sec)	14
C (sec)	100
y pract.	0.774
R.C. (%)	111%

Stage / Phase Diagrams



I/G = 5 I/G = 5 I/G = 7

TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

Junction: **(J9) Tsing Yi Road West / Liu To Road**

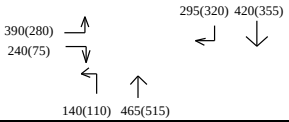
Description: **2024 Observed Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		AM Peak			PM Peak		
						Left	Right		AM	PM			AM	PM	AM	PM	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road West	S		2	A,B	3.3	0.0	0	1	0%	0%	1945	4030	1945	1945	4030	4030	203	0.104		171	0.088	
	S		2	A,B	3.3	0.0	0	0	0%	0%	2085	0	2085	2085	0	0	217	0.104		184	0.088	
	S		3	B	3.3	0.0	22	0	100%	100%	2085	2085	1950	1950	1950	1950	295	0.151	0.151	320	0.164	0.164
Tsing Yi Road West	N		1	A	3.2	10.0	0	1	51%	38%	1935	4100	1795	1830	3960	3995	274	0.153	0.153	286	0.156	0.156
	N		1	A	4.1	0.0	0	0	0%	0%	2165	0	2165	2165	0	0	331	0.153		339	0.156	
Liu To Road	E		5	B,C	3.2	10.0	0	1	100%	100%	1935	1935	1685	1685	1685	1685	390	0.231		280	0.166	
	E		4	C	4.1	0.0	18	0	100%	100%	2165	2165	2000	2000	2000	2000	240	0.120	0.120	75	0.038	0.038
Pedestrian crossing			6P	A,D		Min. Green time = 5s (G) + 9s (FS) = 14s																
			7P	C,D		Min. Green time = 5s (G) + 13s (FS) = 18s																
			8P	D		Min. Green time = 5s (G) + 8s (FS) = 13s																

Pedestrian Crossing

Notes:

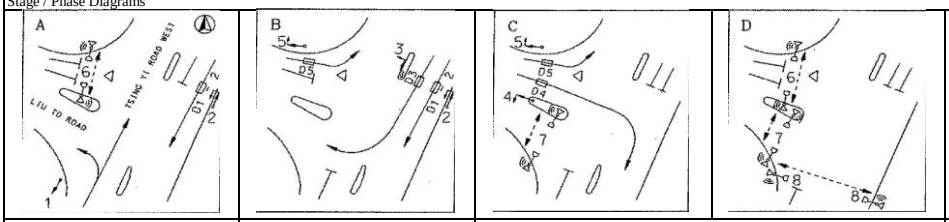
Traffic Flow (pcu / hr) Weekday AM Peak



AM Peak Check Phase	
εy	0.424
L (sec)	38
C (sec)	110
y pract.	0.589
R.C. (%)	39%

PM Peak Check Phase	
εy	0.358
L (sec)	38
C (sec)	100
y pract.	0.558
R.C. (%)	56%

Stage / Phase Diagrams



I/G = 5	I/G = 7	I/G = 11+13	

TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

Junction: **(J10) Tsing Yi Road West / Fung Shue Wo Road**

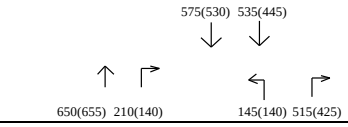
Description: **2024 Observed Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		AM Peak			PM Peak		
						Left	Right		AM	PM			AM	PM	AM	PM	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Fung Shue Wo Road	S	↓	1	A,D	4.1	0.0	0	0	0%	0%	2165	4310	2165	2165	4310	4310	289	0.133	0.133	266	0.123	0.123
(To Tsing Yi Road West)	S	↓	1	A,D	3.9	0.0	0	0	0%	0%	2145	0	2145	2145	0	0	286	0.133		264	0.123	
Fung Shue Wo Road	S	↓	1	A,D	4.0	0.0	0	1	0%	0%	2015	4170	2015	2015	4170	4170	259	0.128		215	0.107	
(To Fung Shue Wo Road)	S	↓	1	A,D	4.0	0.0	0	0	0%	0%	2155	0	2155	2155	0	0	276	0.128		230	0.107	
Tsing Yi Road West	N	↑	2	A,B	3.5	0.0	0	1	0%	0%	1965	4070	1965	1965	4070	4070	314	0.160		316	0.161	
	N	↑	2	A,B	3.5	0.0	0	0	0%	0%	2105	0	2105	2105	0	0	336	0.160		339	0.161	
	N	↱	3	B	3.6	0.0	18	0	100%	100%	2115	2115	1950	1950	1950	1950	210	0.108	0.108	140	0.072	0.072
Fung Shue Wo Road	N	↰	4	C	3.8	35.0	0	1	100%	100%	1995	4150	1915	1915	3990	3990	70	0.036		67	0.035	
	N	↰	4	C	4.0	38.0	0	0	100%	100%	2155	0	2075	2075	0	0	75	0.036		73	0.035	
Fung Shue Wo Road	N	↱	4	C	3.6	0.0	43	0	100%	100%	2115	4230	2045	2045	4085	4085	258	0.126	0.126	213	0.104	0.104
	N	↱	4	C	3.6	0.0	40	0	100%	100%	2115	0	2040	2040	0	0	257	0.126		212	0.104	

Pedestrian crossing	5p	D	Min. Green time = 5s (G) + 8s (FS) = 13s
	6P	B,C	Min. Green time = 5s (G) + 8s (FS) = 13s
	7P	A,C,D	Min. Green time = 5s (G) + 8s (FS) = 13s
	8P	A,B,D	Min. Green time = 5s (G) + 7s (FS) = 12s

Notes:

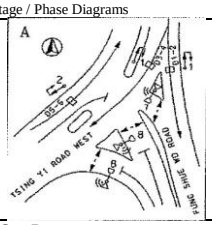
Traffic Flow (pcu / hr) Weekday AM Peak



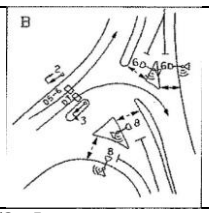
AM Peak Check Phase	
εy	0.367
L (sec)	12
C (sec)	100
y pract.	0.792
R.C. (%)	116%

PM Peak Check Phase	
εy	0.299
L (sec)	12
C (sec)	100
y pract.	0.792
R.C. (%)	165%

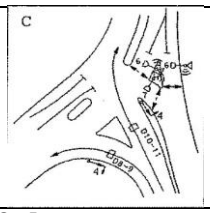
Stage / Phase Diagrams



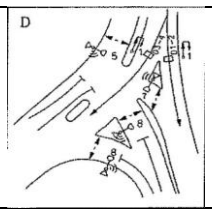
I/G = 5



I/G = 5



I/G = 5



TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

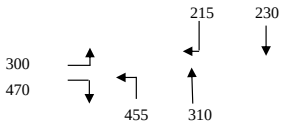
Junction: **(J1) Cheung Tsing Highway / Tsing Yi Road West**

Description: **2024 Observed Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road West	S		2	A	3.5	0	0	0	0%		2105	6135	2105		5900		159	0.075	0.075			
	S		2	A	3.3	0	20	0	53%		2085	0	2005		0		151	0.075				
	S		2	A	3.3	0	17.5	1	100%		1945	0	1790		0		135	0.075				
Cheung Tsing Highway	E		3	A,B	3.4	20	0	1	100%		1955	1955	1820		1820		300	0.165				
	E		4	B	3.5	0	30	0	100%		2105	4070	2005		3860		244	0.122				
	E		4	B	3.5	0	25	1	100%		1965	0	1855		0		226	0.122	0.122			
Tsing Yi Road West	N		1	C	3.6	20	0	1	100%		1975	4090	1835		3950		455	0.248	0.248			
	N		1	C	3.6	0	0	0	0%		2115	0	2115		0		310	0.147				
Pedestrian crossing			5P	C		Green time = 5s (G) + 6s (FS) = 11s																
			6P	C		Green time = 8s (G) + 10s (FS) = 18s																
			7P	A		Green time = 5s (G) + 9s (FS) = 14s																
			8P	B		Green time = 5s (G) + 10s (FS) = 15s																

Notes:

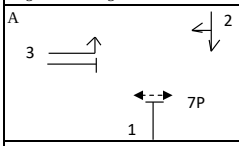
Traffic Flow (pcu / hr)



Logistic Check Phase	
εy	0.445
L (sec)	12
C (sec)	90
y pract.	0.780
R.C. (%)	75%

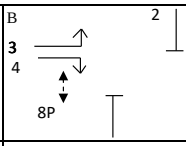
Stage / Phase Diagrams

A



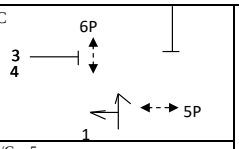
I/G = 5

B



I/G =5

C



I/G = 5

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

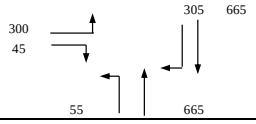
TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

Junction: **J2 - Tsing Hung Road / Tsing Yi Road**
Description: **2024 Observed Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road	S		2	A	3.0	0.0	0	1	0%		1915	4030	1915		4030		316	0.165	0.165			
	S		3	A	3.6	0.0	0	0	0%		2115	0	2115		0		349	0.165				
	S		2	A	3.6	0.0	18	0	100%		2115	2115	1950		1950		305	0.156				
Tsing Yi Road	N		5	C	4.0	30.0	0	1	100%		2015	2015	1920		1920		55	0.029				
	N		4	C	3.7	0.0	0	0	0%		2125	4240	2125		4240		333	0.157	0.157			
	N		5	C	3.6	0.0	0	0	0%		2115	0	2115		0		332	0.157				
Tsing Hung Road	E		1	A,B	3.3	25.0	0	1	100%		1945	1945	1835		1835		300	0.163				
	E		3	B	4.0	0.0	22	0	100%		2155	2155	2015		2015		45	0.022				
Pedestrian Crossing			6P	A,B																		
			7P	C																		
			8P	C																		

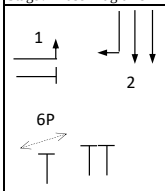
Notes:

Traffic Flow (pcu / hr) Weekday AM Peak

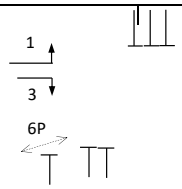


Logistic Peak Check Phase	
εy	0.322
L (sec)	18
C (sec)	71
y pract.	0.672
R.C. (%)	109%

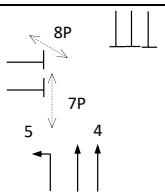
Stage / Phase Diagrams



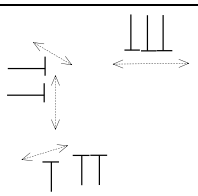
I/G = 5



I/G = 5



I/G = 5



TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

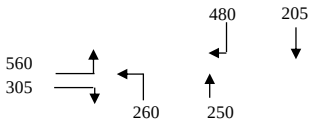
Junction: **(J4) Sai Tso Wan Road / Tsing Yi Road West / Tsing Yi Road**

Description: **2024 Observed Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road	NE		1	A	4.5	15	0	1	100%		2065	2065	1875		260	0.139	0.139			
	NE		1	A	3.4	0	0	0	0%		2095	2095	2095		250	0.119				
Sai Tso Wan Road	NW		3	C,D	3.8	15	0	1	100%		1995	1995	1815		560	0.309				
	NW		4	D	3.8	0	25	0	100%		2135	2135	2015		305	0.151	0.151			
Tsing Yi Road West	SE		2	B,C	3.4	0	0	1	0%		1955	1955	1955		205	0.105				
	SE		2	B,C	3.7	0	25	0	100%		2125	2125	2005		480	0.239	0.239			
Pedestrian crossing			5p	A,B		Green time = 5GM + 7FG = 12s														
			6p	D		Green time = 5GM + 9FG = 14s														
			7p	B,C		Green time = 5GM + 7FG = 12s														
			8p	A,D		Green time = 5GM + 7FG = 12s														

Notes:

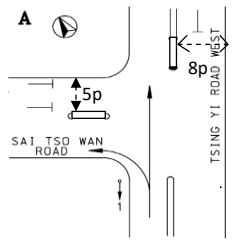
Traffic Flow (pcu / hr)

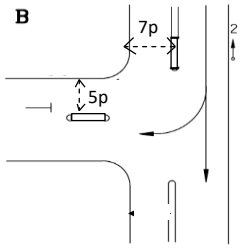


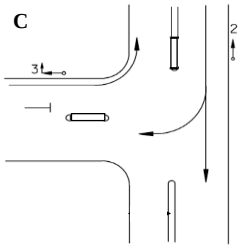
Logistic Peak Check Phase

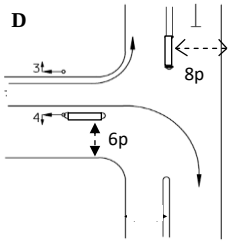
εy	0.529
L (sec)	12
C (sec)	71
y pract.	0.748
R.C. (%)	41%

Stage / Phase Diagrams









I/G = 5	I/G =5		I/G = 5	
I/G = 5	I/G =8+12	I/G = 2		

TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

Junction: **(J5) VEC Access / Sai Tso Wan Road**

Description: **2024 Observed Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Sai Tso Wan Road	EB	→	1	A	4.0	0.0	0	1	0%		2015	2015	2015		2015		740	0.367	0.367			
Sai Tso Wan Road	WB	↖	3	B	4.0	0.0	10	0	100%		2155	2155	1875		1875		125	0.067	0.067			
	WB	←	2	A,B	4.0	0.0	0	1	0%		2015	2015	2015		2015		550	0.273				
Pedestrian Crossing		↕	4P	C		Min. green time = 7FGm + 5 FGm = 12s																

Notes:
(None)

Traffic Flow (pcu / hr) AM (PM) Peak

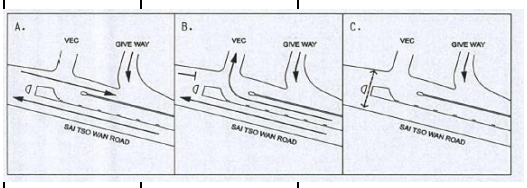
740 →

↖ 125

← 550

Logistic Peak Check Phase	
εy	0.434
L (sec)	26
C (sec)	100
y pract.	0.666
R.C. (%)	53%

Stage / Phase Diagrams



I/G = 3 I/G = 8 I/G = 5+12

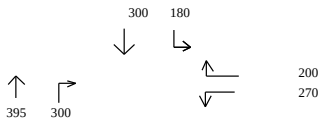
TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

Junction: **J8 - Tsing Yi Road / Tsing Hung Road**
Description: **2024 Observed Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road West	S	↓	1	A	3.0	0.0	0	0	0%		2055	4160	2055		4160		148	0.072	0.104			
	S	↓	1	A	3.5	0.0	0	0	0%		2105	0	2105		0		152	0.072				
	S	↳	1	A	3.7	10.0	0	1	100%		1985	1985	1725		1725		180	0.104				
Tsing Yi Road West	N	↑	2	A,B	3.5	0.0	0	1	0%		1965	4070	1965		4070		191	0.097				
	N	↑	2	A,B	3.5	0.0	0	0	0%		2105	0	2105		0		204	0.097				
	N	↱	3	B	3.3	0.0	18	0	100%		2085	2085	1925		1925		300	0.156	0.156			
Ching Hong Road	W	↕	4	C	3.4	18.0	20	0	19% / 81%		2095	0	1945		0		246	0.126	0.126			
	W	↓	4	C	3.4	15.0	0	1	100%		1955	4050	1775		3720		224	0.126				
Pedestrian crossing		↕	5P	A,B		Min. Green time = 11s (G) + 8s (FS) = 19s																
			5P	C		Min. Green time = 5s (G) + 12s (FS) = 17s																
Pedestrian Crossing																						

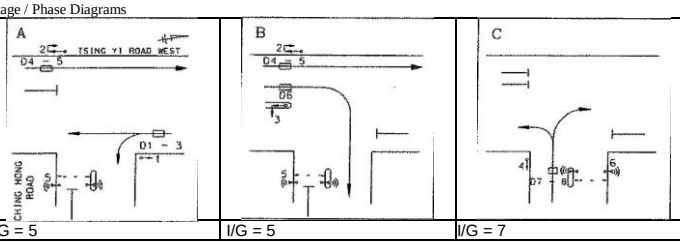
Notes:

Traffic Flow (pcu / hr) Weekday AM Peak



Logistic Peak Check Phase	
εy	0.387
L (sec)	12
C (sec)	71
y pract.	0.748
R.C. (%)	93%

Stage / Phase Diagrams



I/G = 5 I/G = 5 I/G = 7

TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

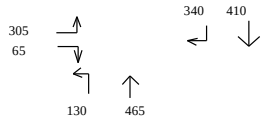
Junction: **J9 - Tsing Yi Road West / Liu To Road**

Description: **2024 Observed Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road West	S		2	A,B	3.3	0.0	0	1	0%		1945	4030	1945		4030		198	0.102				
	S		2	A,B	3.3	0.0	0	0	0%		2085	0	2085		0		212	0.102				
	S		3	B	3.3	0.0	22	0	100%		2085	2085	1950		1950		340	0.174	0.174			
Tsing Yi Road West	N		1	A	3.2	10.0	0	1	48%		1935	4100	1805		3970		271	0.150	0.150			
	N		1	A	4.1	0.0	0	0	0%		2165	0	2165		0		324	0.150				
Liu To Road	E		5	B,C	3.2	10.0	0	1	100%		1935	1935	1685		1685		305	0.181				
	E		4	C	4.1	0.0	18	0	100%		2165	2165	2000		2000		65	0.033	0.033			
Pedestrian crossing			6P	A,D		Min. Green time = 5s (G) + 9s (FS) = 14s																
			7P	C,D		Min. Green time = 5s (G) + 13s (FS) = 18s																
			8P	D		Min. Green time = 5s (G) + 8s (FS) = 13s																
Pedestrian Crossing																						

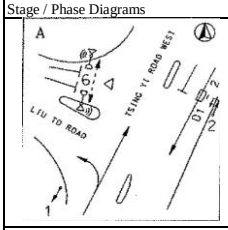
Notes:

Traffic Flow (pcu / hr) Weekday AM Peak

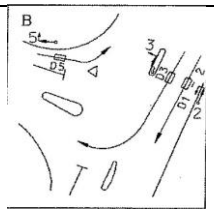


Logistic Peak Check Phase	
εy	0.357
L (sec)	38
C (sec)	110
y pract.	0.589
R.C. (%)	65%

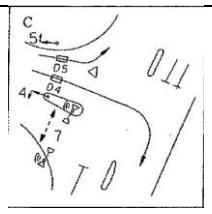
Stage / Phase Diagrams



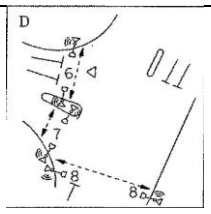
I/G = 5



I/G = 5



I/G = 5



TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

Junction: **J10 - Tsing Yi Road West / Fung Shue Wo Road**

Description: **2024 Observed Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Fung Shue Wo Road	S	↓	1	A,D	4.1	0.0	0	0	0%		2165	4310	2165		4310		314	0.145	0.145			
(To Tsing Yi Road West)	S	↓	1	A,D	3.9	0.0	0	0	0%		2145	0	2145		0		311	0.145				
Fung Shue Wo Road	S	↓	1	A,D	4.0	0.0	0	1	0%		2015	4170	2015		4170		191	0.095				
(To Fung Shue Wo Road)	S	↓	1	A,D	4.0	0.0	0	0	0%		2155	0	2155		0		204	0.095				
Tsing Yi Road West	N	↑	2	A,B	3.5	0.0	0	1	0%		1965	4070	1965		4070		295	0.150				
	N	↑	2	A,B	3.5	0.0	0	0	0%		2105	0	2105		0		315	0.150				
	N	↱	3	B	3.6	0.0	18	0	100%		2115	2115	1950		1950		155	0.079	0.079			
Fung Shue Wo Road	N	↰	4	C	3.8	35.0	0	1	100%		1995	4150	1915		3990		60	0.031				
	N	↰	4	C	4.0	38.0	0	0	100%		2155	0	2075		0		65	0.031				
Fung Shue Wo Road	N	↱	4	C	3.6	0.0	43	0	100%		2115	4230	2045		4085		208	0.102	0.102			
	N	↱	4	C	3.6	0.0	40	0	100%		2115	0	2040		0		207	0.102				

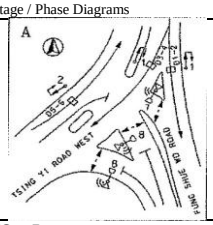
Pedestrian crossing	5p	D	Min. Green time = 5s (G) + 8s (FS) = 13s
	6P	B,C	Min. Green time = 5s (G) + 8s (FS) = 13s
	7P	A,C,D	Min. Green time = 5s (G) + 8s (FS) = 13s
	8P	A,B,D	Min. Green time = 5s (G) + 7s (FS) = 12s

Notes:

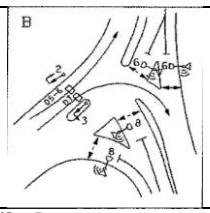
Traffic Flow (pcu / hr) Weekday AM Peak

Logistic Peak Check Phase	
εy	0.326
L (sec)	12
C (sec)	100
y pract.	0.792
R.C. (%)	143%

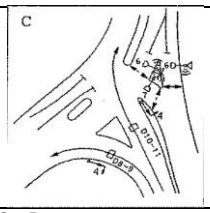
Stage / Phase Diagrams



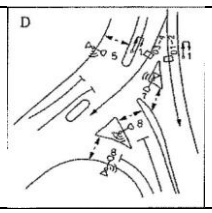
I/G = 5



I/G = 5



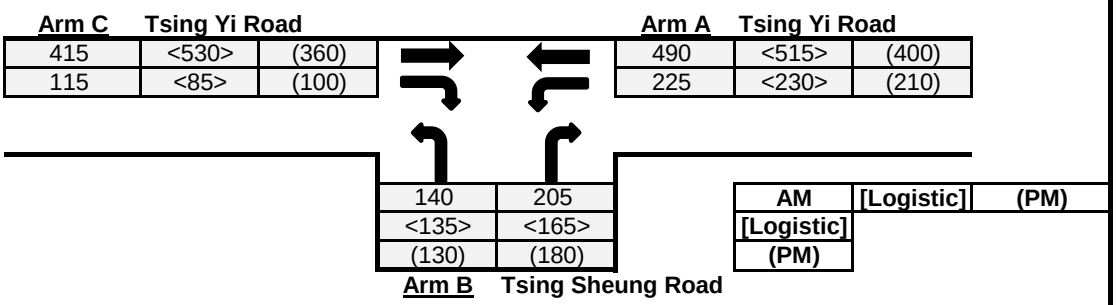
I/G = 5



Priority Junction Calculation

Junction : (J3) Tsing Yi Road / Tsing Sheung Road Job No.: 23125HK

Scenario : 2024 Observed Traffic Flow



The predictive equations of capacity of movement are:

Q-BA = D(627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB))

Q-BC = E(745 - Y(0.364q-AC + 0.144q-AB))

Q-CB = F(745 - 0.364Y(q-AC + q-AB))

The geometric parameters represented by D, E, F are:

D = (1 + 0.094(w-BA - 3.65))(1 + 0.0009(V-rBA - 120))(1 + 0.0006(V-IBA - 150))

E = (1 + 0.094(w-BC - 3.65))(1 + 0.0009(V-rBC - 120))

F = (1 + 0.094(w-CB - 3.65))(1 + 0.0009(V-rCB - 120))

where

Y = 1 - 0.0345W

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	**Input**					**Calculated**	
W	14	V-rBA	50	w-BA	4.5	D	0.951
W-CR	0	V-IBA	50	w-BC	4.5	E	1.012
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	0	V-rBC	50	w-CB	0	F	0.616
Minor Road Share LT&RT? (Yes: 1, No: 0)	0	V-rCB	50			Y	0.517

Analysis :	**Traffic Flow pcu/hr**	**AM**	**Logistic**	**PM**	**Capacity pcu/hr**	**AM**	**Logistic**	**PM**	
	q-CA	415	530	360	Q-BA	417	406	444	
	q-CB	115	85	100	Q-BC	644	638	662	
	q-AB	225	230	210	Q-CB	376	372	388	
	q-AC	490	515	400	Q-CA	N/A	N/A	N/A	(If C-B blocked C-
	q-BA	205	165	180	Q-BAC	N/A	N/A	N/A	(If Minor Road Share LT&RT)
	q-BC	140	135	130					
	f	0.406	0.450	0.419					

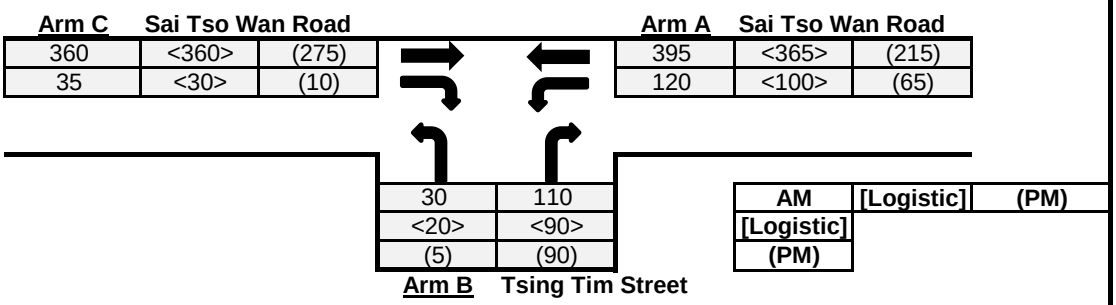
Results :	**Ratio of Flow-to-Capacity**	**AM**	**Logistic**	**PM**
	B-A	0.49	0.41	0.41
	B-C	0.22	0.21	0.20
	C-B	0.31	0.23	0.26
	C-A	N/A	N/A	N/A
	B-AC	N/A	N/A	N/A
	Critical DFC	**0.49**	**0.41**	**0.41**

CTA Consultants Ltd.

Priority Junction Calculation

Junction : (J6) Sai Tso Wan Road / Tsing Tim Street Job No.: 24001HK

Scenario : 2024 Observed Traffic Flow



The predictive equations of capacity of movement are:

Q-BA = D(627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB))

Q-BC = E(745 - Y(0.364q-AC + 0.144q-AB))

Q-CB = F(745 - 0.364Y(q-AC + q-AB))

The geometric parameters represented by D, E, F are:

D = (1 + 0.094(w-BA - 3.65))(1 + 0.0009(V-rBA - 120))(1 + 0.0006(V-IBA - 150))

E = (1 + 0.094(w-BC - 3.65))(1 + 0.0009(V-rBC - 120))

F = (1 + 0.094(w-CB - 3.65))(1 + 0.0009(V-rCB - 120))

where

Y = 1 - 0.0345W

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	**Input**						**Calculated**	
W	7	V-rBA	50	w-BA	3	D	0.827
W-CR	0	V-IBA	50	w-BC	3	E	0.880
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	0	V-rBC	50	w-CB	0	F	0.616
Minor Road Share LT&RT? (Yes: 1, No: 0)	0	V-rCB	50			Y	0.759

Analysis :	**Traffic Flow pcu/hr**	**AM**	**Logistic**	**PM**	**Capacity pcu/hr**	**AM**	**Logistic**	**PM**	
	q-CA	360	360	275	Q-BA	354	365	421	
	q-CB	35	30	10	Q-BC	548	557	597	
	q-AB	120	100	65	Q-CB	371	380	411	
	q-AC	395	365	215	Q-CA	N/A	N/A	N/A	(If C-B blocked C-
	q-BA	110	90	90	Q-BAC	N/A	N/A	N/A	(If Minor Road Share LT&RT)
	q-BC	30	20	5					
	f	0.214	0.182	0.053					

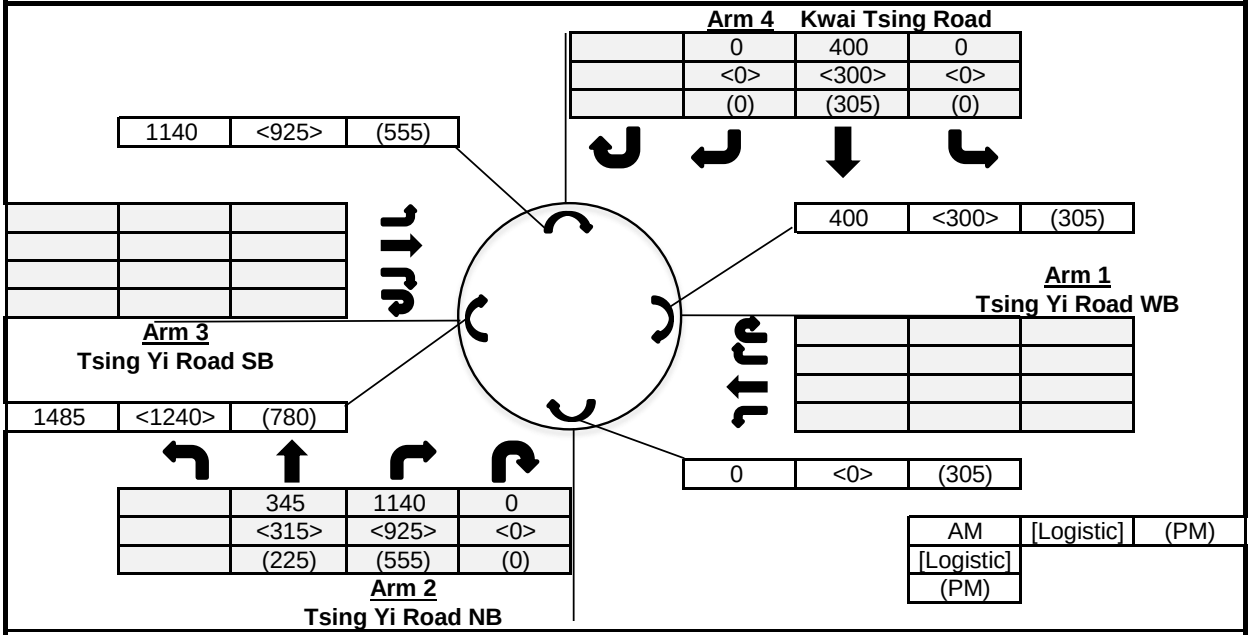
Results :	**Ratio of Flow-to-Capacity**	**AM**	**Logistic**	**PM**
	B-A	0.31	0.25	0.21
	B-C	0.05	0.04	0.01
	C-B	0.09	0.08	0.02
	C-A	N/A	N/A	N/A
	B-AC	N/A	N/A	N/A
	Critical DFC	**0.31**	**0.25**	**0.21**

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA1) Tsing Yi Interchange (North) Job No.: 23125HK

Scenario : 2024 Observed Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)			6		6
E	=	Entry width (m)			7		7
L	=	Effective length of flare (m)			5		5
R	=	Entry radius			62		41
D	=	Inscribed circle diameter (m)			60		60
A	=	Entry angle (degree)			27		39
Q	=	Entry flow (pcu/hr)	AM		1485		400
			Logistic		1240		300
			PM		780		305
Qc	=	Circulating flow	AM		0		1140
		across entry (pcu/hr)	Logistic		0		925
			PM		305		555

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L			0.32		0.32
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)			1.04		0.99
X_2	=	V+((E-V)/(1+2*S))			6.61		6.61
M	=	Exp((D-60)/10)			1.00		1.00
F	=	303*X_2			2003		2003
Td	=	1+(0.5/(1+M))			1.25		1.25
Fc	=	0.21*Td*(1+0.2*X_2)			0.61		0.61
Qe	=	Capacity = K*(F-Fc*Qc)	AM		2090		1300
			Logistic		2090		1430
			PM		1896		1654
DFC	=	Entry Flow/Capacity = Q/Qe	AM		0.71		0.31
			Logistic		0.59		0.21
			PM		0.41		0.18

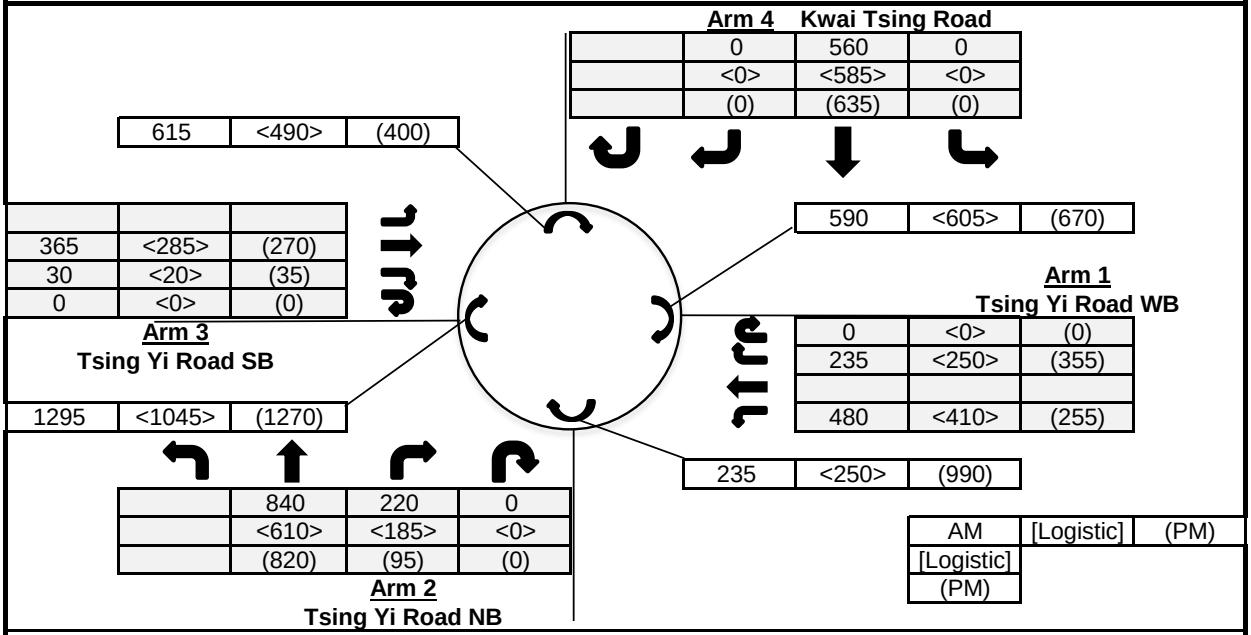
DFC of Critical Approach = AM 0.71
Logistic 0.59
PM 0.41

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA1) Tsing Yi Interchange (South) Job No.: 23125HK

Scenario : 2024 Observed Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		7	6.8	7	6
E	=	Entry width (m)		7.2	7	7.3	6.3
L	=	Effective length of flare (m)		5	5	5	5
R	=	Entry radius		23	25	24	44
D	=	Inscribed circle diameter (m)		60	60	60	60
A	=	Entry angle (degree)		43	54	27	23
Q	=	Entry flow (pcu/hr)	AM	715	1060	395	560
			Logistic	660	795	305	585
			PM	610	915	305	635
Qc	=	Circulating flow	AM	590	235	1295	615
		across entry (pcu/hr)	Logistic	605	250	1045	490
			PM	670	990	1270	400

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.06	0.06	0.10	0.10
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		0.96	0.93	1.02	1.05
X_2	=	V+((E-V)/(1+2*S))		7.18	6.98	7.25	6.25
M	=	Exp((D-60)/10)		1.00	1.00	1.00	1.00
F	=	303*X_2		2175	2114	2197	1894
Td	=	1+(0.5/(1+M))		1.25	1.25	1.25	1.25
Fc	=	0.21*Td*(1+0.2*X_2)		0.64	0.63	0.64	0.59
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1728	1822	1390	1609
			Logistic	1719	1813	1553	1687
			PM	1679	1382	1406	1742
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.41	0.58	0.28	0.35
			Logistic	0.38	0.44	0.20	0.35
			PM	0.36	0.66	0.22	0.36

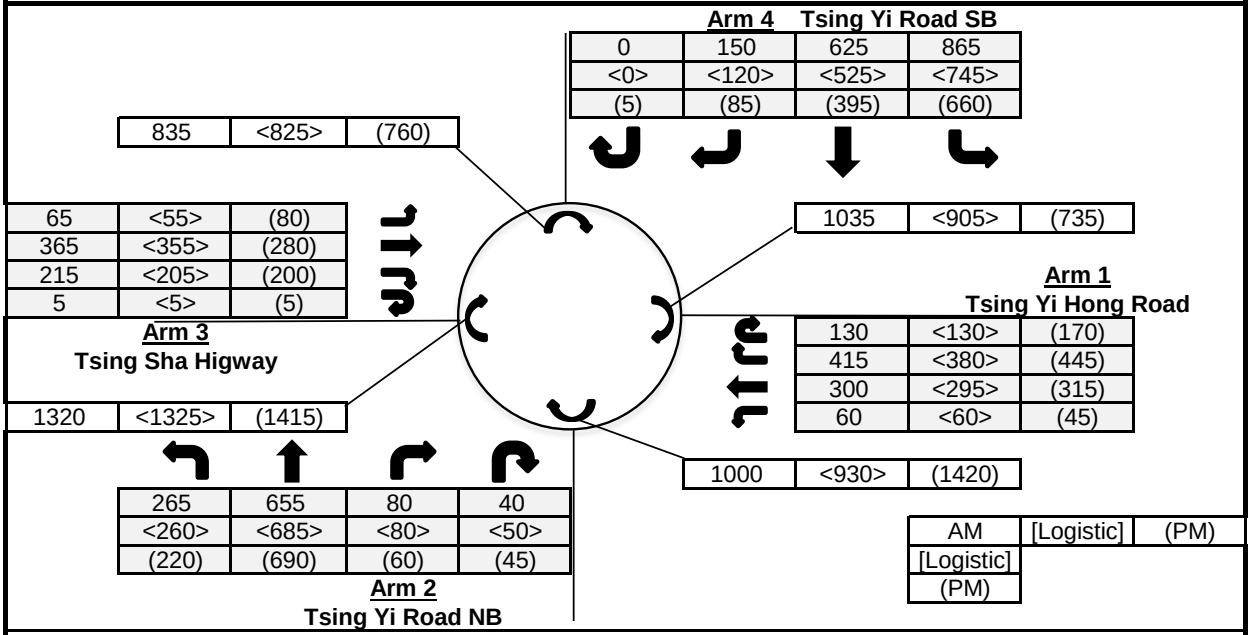
DFC of Critical Approach = AM 0.58
Logistic 0.44
PM 0.66

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA2) Tsing Yi Road / Tsing Hung Road Job No.: 23125HK

Scenario : 2024 Observed Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		9.5	9	7.3	7.5
E	=	Entry width (m)		13.5	12	11.5	11.5
L	=	Effective length of flare (m)		30	15	30	15
R	=	Entry radius		45	97	52	34
D	=	Inscribed circle diameter (m)		110	110	110	110
A	=	Entry angle (degree)		61	32	31	46
Q	=	Entry flow (pcu/hr)	AM	905	1040	650	1640
			Logistic	865	1075	620	1390
			PM	975	1015	565	1145
Qc	=	Circulating flow	AM	1035	1000	1320	835
		across entry (pcu/hr)	Logistic	905	930	1325	825
			PM	735	1420	1415	760

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.21	0.32	0.22	0.43
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		0.92	1.03	1.03	0.96
X_2	=	V+((E-V)/(1+2*S))		12.30	10.83	10.20	9.66
M	=	Exp((D-60)/10)		148.41	148.41	148.41	148.41
F	=	303*X_2		3728	3281	3091	2926
Td	=	1+(0.5/(1+M))		1.00	1.00	1.00	1.00
Fc	=	0.21*Td*(1+0.2*X_2)		0.73	0.67	0.64	0.62
Qe	=	Capacity = K*(F-Fc*Qc)	AM	2734	2698	2305	2325
			Logistic	2821	2746	2302	2331
			PM	2935	2408	2243	2370
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.33	0.39	0.28	0.71
			Logistic	0.31	0.39	0.27	0.60
			PM	0.33	0.42	0.25	0.48

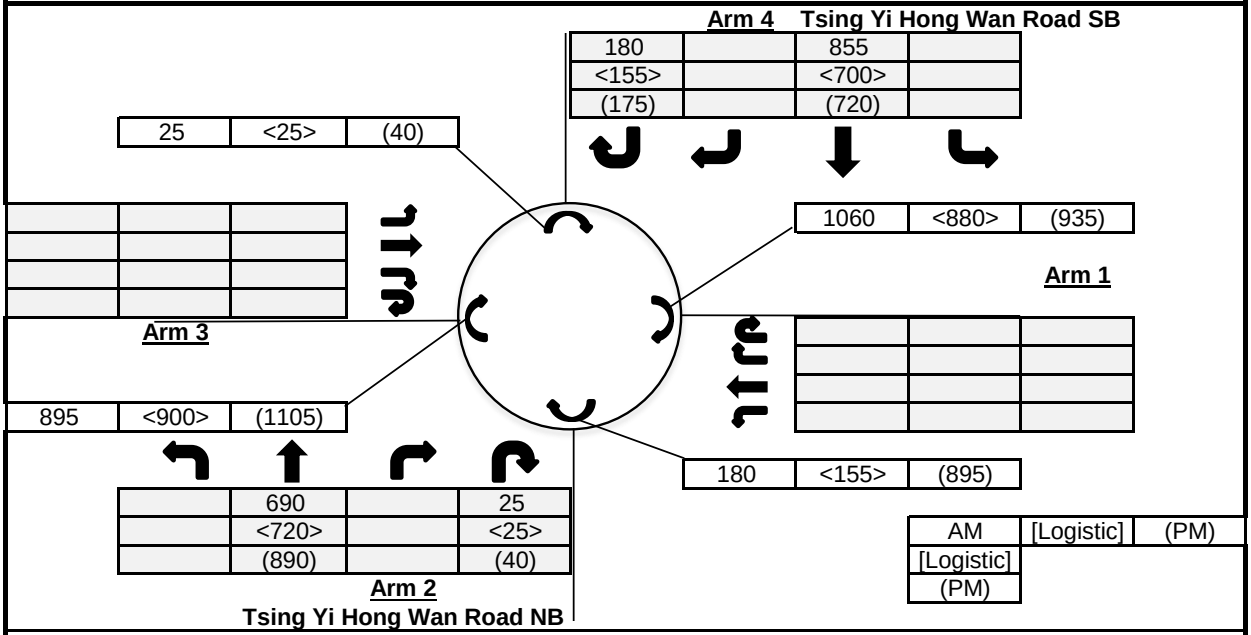
DFC of Critical Approach = AM 0.71
Logistic 0.60
PM 0.48

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA3) Tsing Yi Hong Wan Road Job No.: 23125HK

Scenario : 2024 Observed Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)			7		10
E	=	Entry width (m)			14		12
L	=	Effective length of flare (m)			20		2
R	=	Entry radius			65		75
D	=	Inscribed circle diameter (m)			68		68
A	=	Entry angle (degree)			53		46
Q	=	Entry flow (pcu/hr)	AM		715		1035
			Logistic		745		855
			PM		930		895
Qc	=	Circulating flow	AM		180		25
		across entry (pcu/hr)	Logistic		155		25
			PM		895		40

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L			0.56		1.60
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)			0.95		0.98
X_2	=	V+((E-V)/(1+2*S))			10.30		10.48
M	=	Exp((D-60)/10)			2.23		2.23
F	=	303*X_2			3121		3174
Td	=	1+(0.5/(1+M))			1.16		1.16
Fc	=	0.21*Td*(1+0.2*X_2)			0.74		0.75
Qe	=	Capacity = K*(F-Fc*Qc)	AM		2851		3093
			Logistic		2868		3093
			PM		2344		3082
DFC	=	Entry Flow/Capacity = Q/Qe	AM		0.25		0.33
			Logistic		0.26		0.28
			PM		0.40		0.29

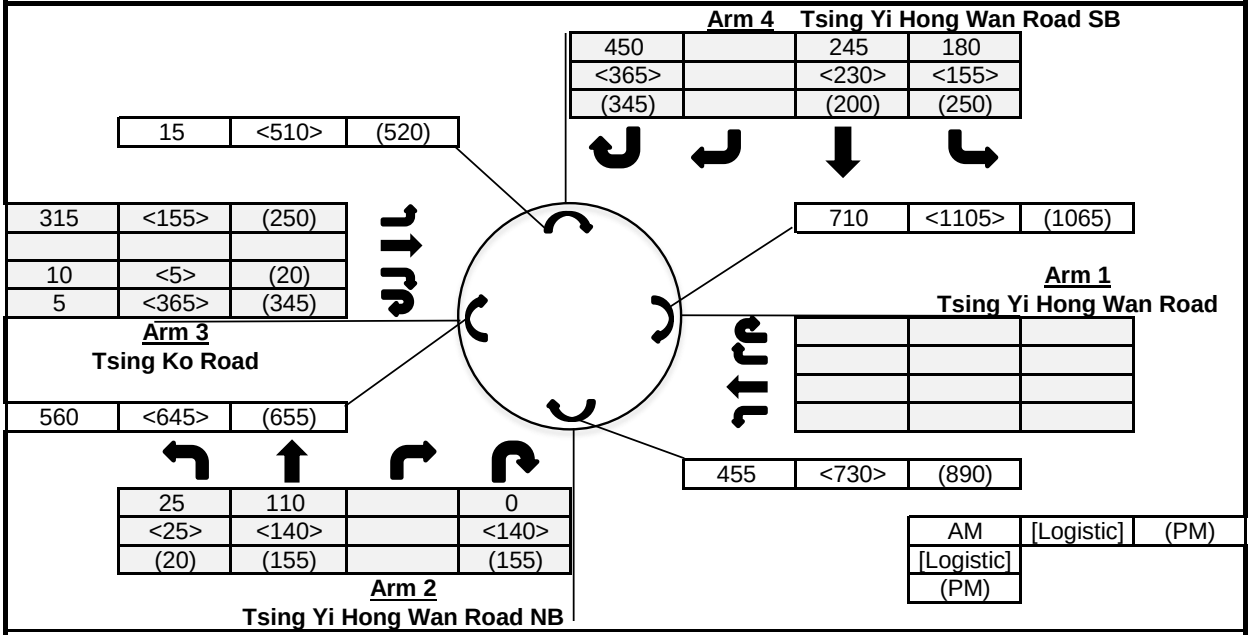
DFC of Critical Approach = AM 0.33
Logistic 0.28
PM 0.40

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA4) Tsing Yi Hong Wan Road / Tsing Ko Road Job No.: 23125HK

Scenario : 2024 Observed Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)			6.7	6.3	7.6
E	=	Entry width (m)			13.5	12.5	15.5
L	=	Effective length of flare (m)			18	30	30
R	=	Entry radius			47	180	75
D	=	Inscribed circle diameter (m)			68	68	68
A	=	Entry angle (degree)			41	22	46
Q	=	Entry flow (pcu/hr)	AM		135	330	875
			Logistic		305	525	750
			PM		330	615	795
Qc	=	Circulating flow	AM		455	560	15
		across entry (pcu/hr)	Logistic		730	645	510
			PM		890	655	520

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L			0.60	0.33	0.42
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)			0.99	1.07	0.98
X_2	=	V+((E-V)/(1+2*S))			9.78	10.03	11.89
M	=	Exp((D-60)/10)			2.23	2.23	2.23
F	=	303*X_2			2963	3040	3602
Td	=	1+(0.5/(1+M))			1.16	1.16	1.16
Fc	=	0.21*Td*(1+0.2*X_2)			0.72	0.73	0.82
Qe	=	Capacity = K*(F-Fc*Qc)	AM		2610	2819	3519
			Logistic		2415	2752	3121
			PM		2301	2745	3113
DFC	=	Entry Flow/Capacity = Q/Qe	AM		0.05	0.12	0.25
			Logistic		0.13	0.19	0.24
			PM		0.14	0.22	0.26

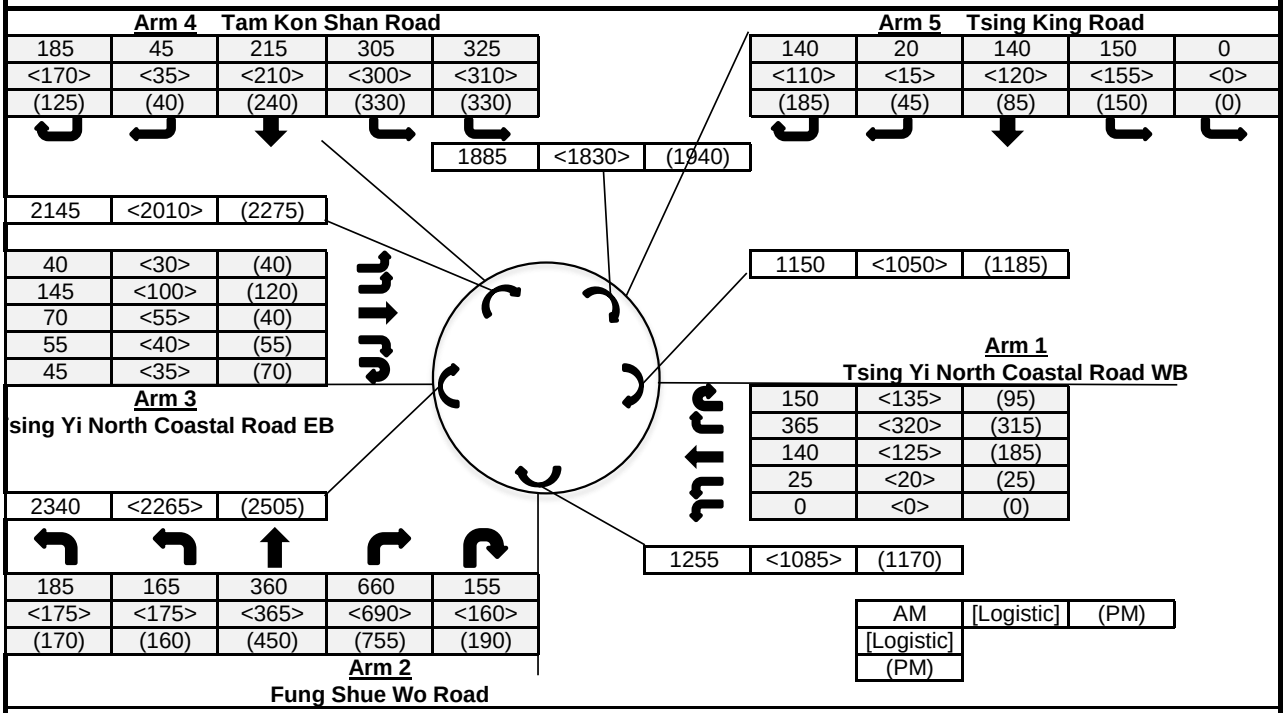
DFC of Critical Approach = AM 0.25 | Logistic 0.24 | PM 0.26

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA5) Tam Kon Shan Interchange Job No.: 23125HK

Scenario : 2024 Observed Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4	Arm 5
V	=	Approach half width (m)		7	10	5.5	8	7.5
E	=	Entry width (m)		9	13.5	7.5	13.5	11
L	=	Effective length of flare (m)		9	9	11	9	10
R	=	Entry radius		100	45	45	25	45
D	=	Inscribed circle diameter (m)		115	115	115	115	115
A	=	Entry angle (degree)		30	25	25	30	45
Q	=	Entry flow (pcu/hr)	AM	680	1525	355	1075	450
			Logistic	600	1565	260	1025	400
			PM	620	1725	325	1065	465
Qc	=	Circulating flow	AM	1150	1255	2340	2145	1885
		across entry (pcu/hr)	Logistic	1050	1085	2265	2010	1830
			PM	1185	1170	2505	2275	1940

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4	Arm 5
S	=	Sharpness of flare = 1.6*(E-V)/L		0.36	0.62	0.29	0.98	0.56
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		1.04	1.04	1.04	1.01	0.98
X_2	=	V+((E-V)/(1+2*S))		8.17	11.56	6.76	9.86	9.15
M	=	Exp((D-60)/10)		244.69	244.69	244.69	244.69	244.69
F	=	303*X_2		2475	3503	2050	2988	2773
Td	=	1+(0.5/(1+M))		1.00	1.00	1.00	1.00	1.00
Fc	=	0.21*Td*(1+0.2*X_2)		0.55	0.70	0.50	0.63	0.60
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1910	2745	931	1662	1609
			Logistic	1967	2869	970	1748	1641
			PM	1890	2807	845	1580	1577
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.36	0.56	0.38	0.65	0.28
			Logistic	0.30	0.55	0.27	0.59	0.24
			PM	0.33	0.61	0.38	0.67	0.29

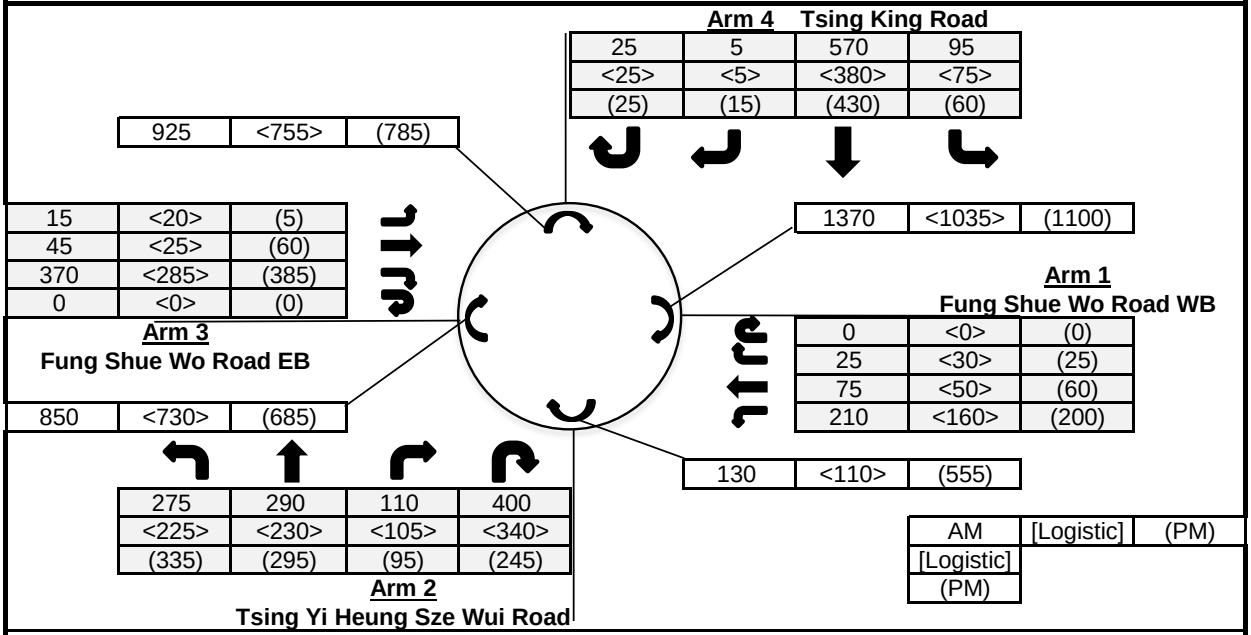
DFC of Critical Approach = AM 0.65
Logistic 0.59
PM 0.67

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA6) Tsing King Road / Fung Shue Wo Road Job No.: 23125HK

Scenario : 2024 Observed Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		6.7	7.3	7.3	6.9
E	=	Entry width (m)		9.7	10	9.2	8.9
L	=	Effective length of flare (m)		16	20	14	16
R	=	Entry radius		55	71	60	62
D	=	Inscribed circle diameter (m)		112	112	112	112
A	=	Entry angle (degree)		36	30	18	25
Q	=	Entry flow (pcu/hr)	AM	310	1075	430	695
			Logistic	240	900	330	485
			PM	285	970	450	530
Qc	=	Circulating flow	AM	1370	130	850	925
		across entry (pcu/hr)	Logistic	1035	110	730	755
			PM	1100	555	685	785

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.30	0.22	0.22	0.20
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		1.01	1.04	1.07	1.05
X_2	=	V+((E-V)/(1+2*S))		8.58	9.19	8.62	8.33
M	=	Exp((D-60)/10)		181.27	181.27	181.27	181.27
F	=	303*X_2		2598	2783	2613	2524
Td	=	1+(0.5/(1+M))		1.00	1.00	1.00	1.00
Fc	=	0.21*Td*(1+0.2*X_2)		0.57	0.60	0.57	0.56
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1834	2801	2283	2105
			Logistic	2027	2813	2357	2206
			PM	1990	2538	2385	2188
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.17	0.38	0.19	0.33
			Logistic	0.12	0.32	0.14	0.22
			PM	0.14	0.38	0.19	0.24

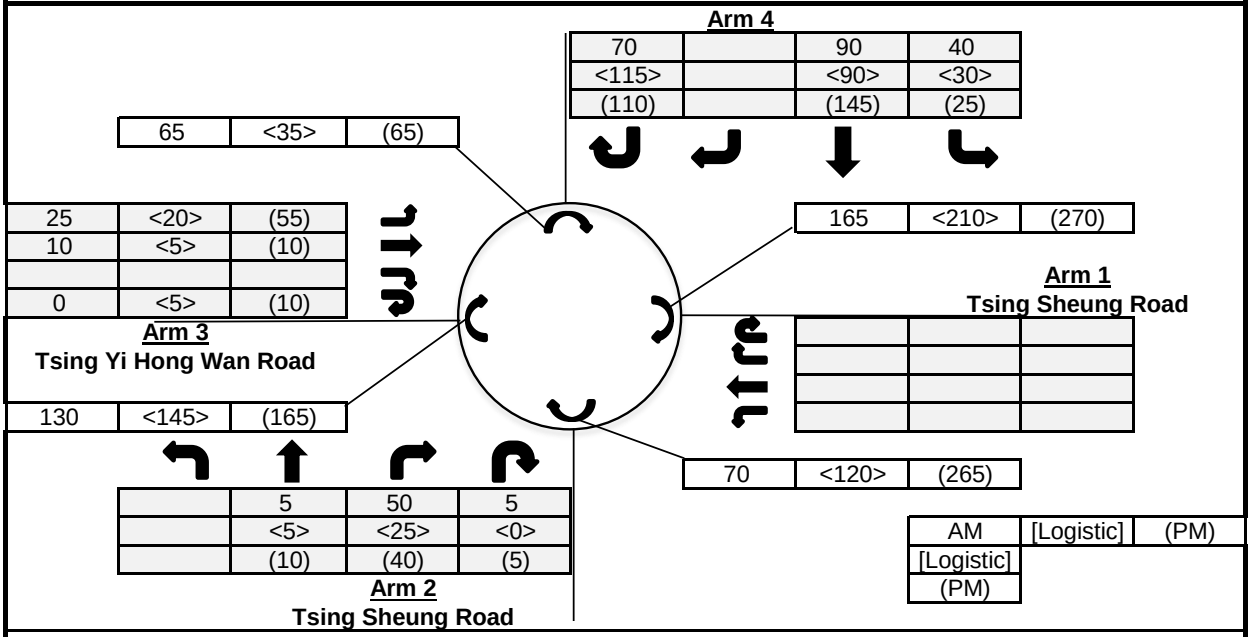
DFC of Critical Approach = AM 0.38
Logistic 0.32
PM 0.38

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA7) Tsing Yi Hong Wan Road / Tsing Sheung Road Job No.: 23125HK

Scenario : 2024 Observed Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)			5.2	3	6.7
E	=	Entry width (m)			9	8.4	12
L	=	Effective length of flare (m)			25	15	23
R	=	Entry radius			63	55	145
D	=	Inscribed circle diameter (m)			53	53	53
A	=	Entry angle (degree)			33	48	38
Q	=	Entry flow (pcu/hr)	AM		60	35	200
			Logistic		30	30	235
			PM		55	75	280
Qc	=	Circulating flow	AM		70	130	65
		across entry (pcu/hr)	Logistic		120	145	35
			PM		265	165	65

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L			0.24	0.58	0.37
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)			1.02	0.97	1.01
X_2	=	V+((E-V)/(1+2*S))			7.76	5.51	9.75
M	=	Exp((D-60)/10)			0.50	0.50	0.50
F	=	303*X_2			2350	1669	2954
Td	=	1+(0.5/(1+M))			1.33	1.33	1.33
Fc	=	0.21*Td*(1+0.2*X_2)			0.71	0.59	0.83
Qe	=	Capacity = K*(F-Fc*Qc)	AM		2353	1543	2942
			Logistic		2316	1534	2968
			PM		2210	1523	2942
DFC	=	Entry Flow/Capacity = Q/Qe	AM		0.03	0.02	0.07
			Logistic		0.01	0.02	0.08
			PM		0.02	0.05	0.10

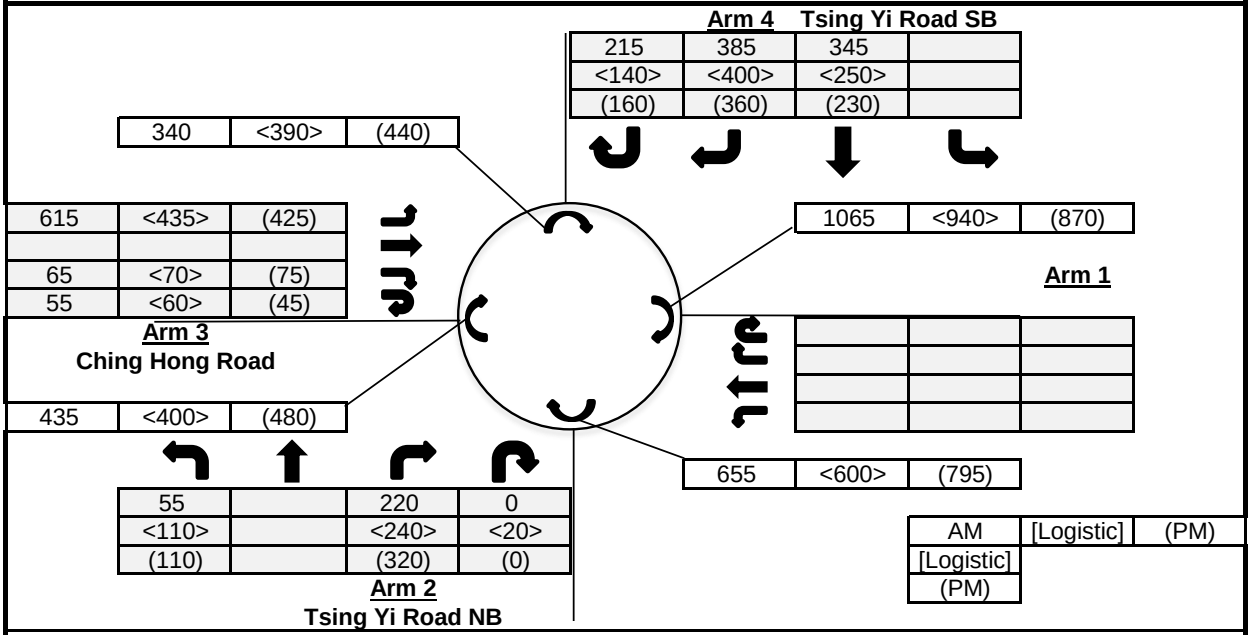
DFC of Critical Approach = AM 0.07 / Logistic 0.08 / PM 0.10

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA8) Tsing Yi Road / Ching Hong Road Job No.: 23125HK

Scenario : 2024 Observed Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)			6.5	7.5	8
E	=	Entry width (m)			8.6	8.5	9
L	=	Effective length of flare (m)			12	4	16
R	=	Entry radius			24.5	30	28
D	=	Inscribed circle diameter (m)			30	30	30
A	=	Entry angle (degree)			44	40	62
Q	=	Entry flow (pcu/hr)	AM		275	735	945
			Logistic		370	565	790
			PM		430	545	750
Qc	=	Circulating flow	AM		655	435	340
		across entry (pcu/hr)	Logistic		600	400	390
			PM		795	480	440

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L			0.28	0.40	0.10
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)			0.96	0.98	0.90
X_2	=	V+((E-V)/(1+2*S))			7.85	8.06	8.83
M	=	Exp((D-60)/10)			0.05	0.05	0.05
F	=	303*X_2			2377	2441	2677
Td	=	1+(0.5/(1+M))			1.48	1.48	1.48
Fc	=	0.21*Td*(1+0.2*X_2)			0.80	0.81	0.86
Qe	=	Capacity = K*(F-Fc*Qc)	AM		1782	2050	2153
			Logistic		1824	2078	2115
			PM		1675	2015	2076
DFC	=	Entry Flow/Capacity = Q/Qe	AM		0.15	0.36	0.44
			Logistic		0.20	0.27	0.37
			PM		0.26	0.27	0.36

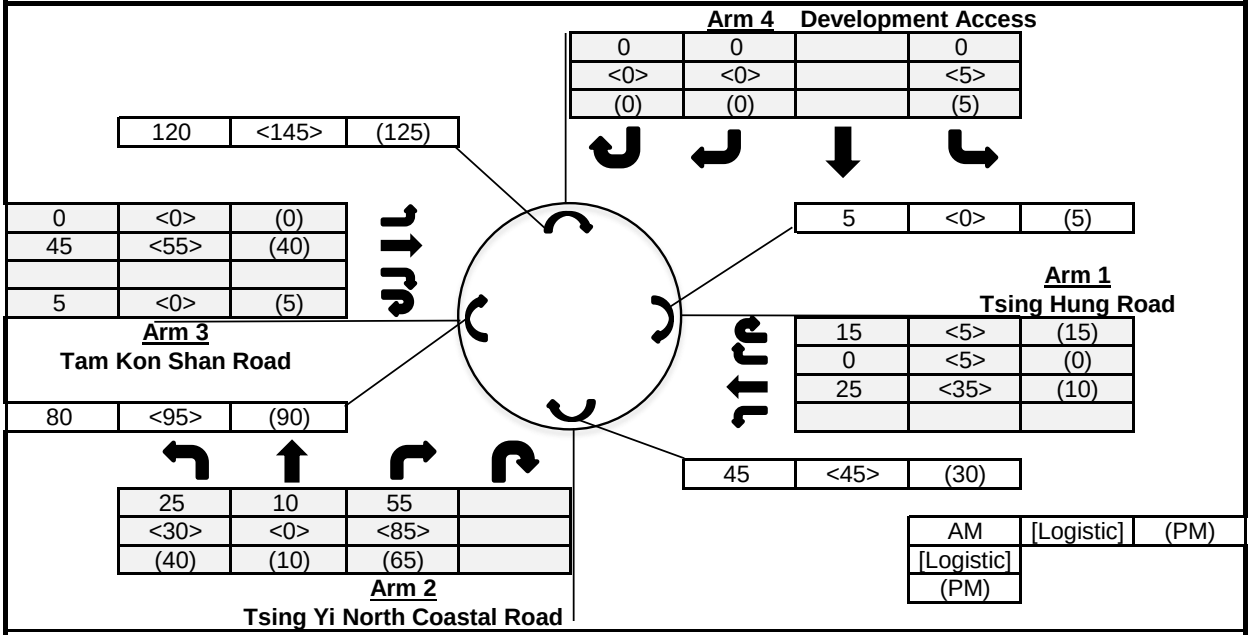
DFC of Critical Approach = AM 0.44
Logistic 0.37
PM 0.36

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA9) Tam Kon Shan Road Job No.: 23125HK

Scenario : 2024 Observed Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		3.3	4	3.4	8.5
E	=	Entry width (m)		3.9	4.9	5.8	15.1
L	=	Effective length of flare (m)		10	10	10	10
R	=	Entry radius		32	97	52	34
D	=	Inscribed circle diameter (m)		108	108	108	108
A	=	Entry angle (degree)		61	32	31	46
Q	=	Entry flow (pcu/hr)	AM	40	90	50	0
			Logistic	45	115	55	5
			PM	25	115	45	5
Qc	=	Circulating flow	AM	5	45	80	120
		across entry (pcu/hr)	Logistic	0	45	95	145
			PM	5	30	90	125

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.10	0.14	0.38	1.06
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		0.91	1.03	1.03	0.96
X_2	=	V+((E-V)/(1+2*S))		3.80	4.70	4.76	10.62
M	=	Exp((D-60)/10)		121.51	121.51	121.51	121.51
F	=	303*X_2		1152	1424	1442	3218
Td	=	1+(0.5/(1+M))		1.00	1.00	1.00	1.00
Fc	=	0.21*Td*(1+0.2*X_2)		0.37	0.41	0.41	0.66
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1048	1450	1446	3028
			Logistic	1050	1450	1440	3012
			PM	1048	1456	1442	3025
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.04	0.06	0.03	0.00
			Logistic	0.04	0.08	0.04	0.00
			PM	0.02	0.08	0.03	0.00

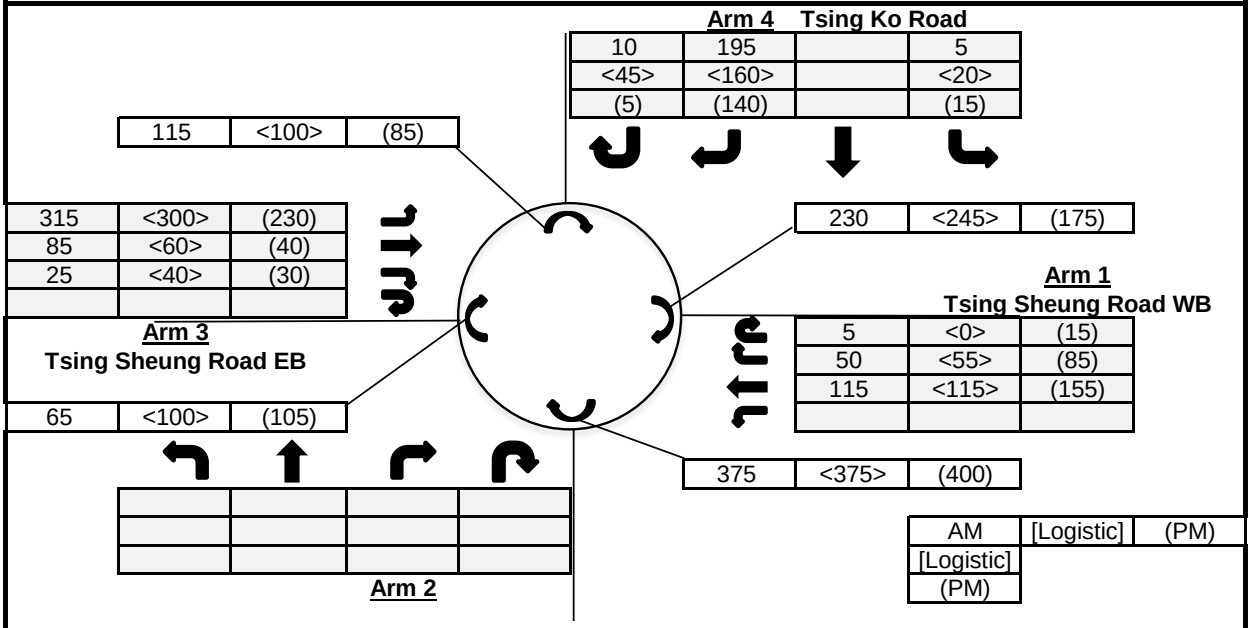
DFC of Critical Approach = AM 0.06
Logistic 0.08
PM 0.08

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA10) Tsing Sheung Road / Tsing Ko Road Job No.: 23125HK

Scenario : 2024 Observed Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		6.6		5.6	6.4
E	=	Entry width (m)		12.9		16	11.6
L	=	Effective length of flare (m)		18		30	30
R	=	Entry radius		47		180	75
D	=	Inscribed circle diameter (m)		68		68	68
A	=	Entry angle (degree)		41		22	46
Q	=	Entry flow (pcu/hr)	AM	170		425	210
			Logistic	170		400	225
			PM	255		300	160
Qc	=	Circulating flow	AM	230		65	115
		across entry (pcu/hr)	Logistic	245		100	100
			PM	175		105	85

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.56		0.55	0.28
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		0.99		1.07	0.98
X_2	=	V+((E-V)/(1+2*S))		9.57		10.53	9.74
M	=	Exp((D-60)/10)		2.23		2.23	2.23
F	=	303*X_2		2900		3191	2953
Td	=	1+(0.5/(1+M))		1.16		1.16	1.16
Fc	=	0.21*Td*(1+0.2*X_2)		0.71		0.75	0.72
Qe	=	Capacity = K*(F-Fc*Qc)	AM	2710		3366	2814
			Logistic	2700		3337	2824
			PM	2749		3333	2835
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.06		0.13	0.07
			Logistic	0.06		0.12	0.08
			PM	0.09		0.09	0.06

DFC of Critical Approach = AM 0.13
Logistic 0.12
PM 0.09

CTA Consultants Ltd.

TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

Junction: **(J1) Tsing Yi Road West / Cheung Tsing Highway**

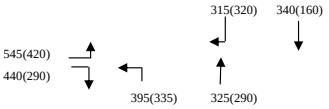
Description: **2029 Reference Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) A.M.	Pro. Turning (%) P.M.	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) A.M.	Revised Saturation Flow (pcu/hr) P.M.	Total Revised Saturation Flow (pcu/hr) A.M.	Total Revised Saturation Flow (pcu/hr) P.M.	A.M. Peak Flow (pcu/hr)	A.M. Peak y Value	A.M. Peak Critical y	P.M. Peak Flow (pcu/hr)	P.M. Peak y Value	P.M. Peak Critical y
Tsing Yi Road West	S		2	A	3.5	0	0	0	0%	0%	2105	6135	2105	2105	5900	5835	234	0.111	0.111	160	0.076	0.086
	S		2	A	3.3	0	20	0	52%	100%	2085	0	2005	1940	0	0	223	0.111		166	0.086	
	S		3	A	3.3	0	17.5	1	100%	100%	1945	0	1790	1790	0	0	199	0.111		154	0.086	
Cheung Tsing Highway	E		3	A,B	3.4	20	0	1	100%	100%	1955	1955	1820	1820	1820	1820	545	0.299		420	0.231	
	E		4	B	3.5	0	30	0	100%	100%	2105	4210	2005	2005	3990	3990	221	0.110		146	0.073	
			5	B	3.5	0	25	0	100%	100%	2105	0	1985	1985	0	0	219	0.110	0.110	144	0.073	0.073
Tsing Yi Road West	N		1	C	3.6	20	0	1	100%	100%	1975	4090	1835	1835	3950	3950	395	0.215	0.215	335	0.183	0.183
	N		1	C	3.6	0	0	0	0%	0%	2115	0	2115	2115	0	0	325	0.154		290	0.137	
																			*			*

Pedestrian crossing			
	5P	C	green time = 11s
	6P	C	green time = 18s
	7P	A	green time = 14s
	8P	B	green time = 15s

Notes:

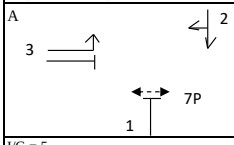
Traffic Flow (pcu / hr)



A.M. Check Phase		P.M. Check Phase	
εy	0.437	εy	0.341
L (sec)	12	L (sec)	12
C (sec)	90	C (sec)	90
y pract.	0.780	y pract.	0.780
R.C. (%)	**79%**	R.C. (%)	**129%**

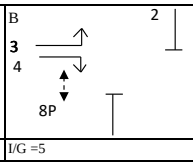
Stage / Phase Diagrams

A



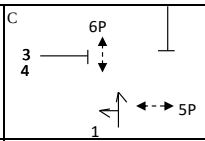
I/G = 5

B



I/G =5

C



I/G = 5

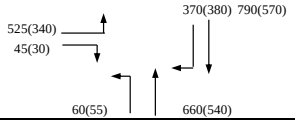
TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

Junction: **(J2) Tsing Hung Road / Tsing Yi Road**
Description: **2029 Reference Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) AM	Pro. Turning (%) PM	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	Total Revised Saturation Flow (pcu/hr) AM	Total Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tsing Yi Road	S		2	A	3.0	0.0	0	1	0%	0%	1915	4030	1915	1915	4030	4030	375	0.196	0.196	271	0.141	0.195
	S		3	A	3.6	0.0	0	0	0%	0%	2115	0	2115	2115	0	0	415	0.196		299	0.141	
	S		2	A	3.6	0.0	18	0	100%	100%	2115	2115	1950	1950	1950	1950	370	0.190		380	0.195	
Tsing Yi Road	N		5	C	4.0	30.0	0	1	100%	100%	2015	2015	1920	1920	1920	1920	60	0.031		55	0.029	
	N		4	C	3.7	0.0	0	0	0%	0%	2125	4240	2125	2125	4240	4240	331	0.156	0.156	271	0.127	0.127
	N		5	C	3.6	0.0	0	0	0%	0%	2115	0	2115	2115	0	0	329	0.156		269	0.127	
Tsing Hung Road	E		1	A,B	3.3	25.0	0	1	100%	100%	1945	1945	1835	1835	1835	1835	525	0.286		340	0.185	
	E		3	B	4.0	0.0	22	0	100%	100%	2155	2155	2015	2015	2015	2015	45	0.022		30	0.015	
Pedestrian Crossing			6P	A,B																		
			7P	C																		
			8P	C																		

Notes:

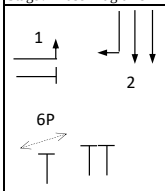
Traffic Flow (pcu / hr) Weekday AM Peak



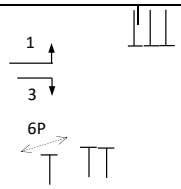
AM Peak Check Phase	
εy	0.352
L (sec)	18
C (sec)	71
y pract.	0.672
R.C. (%)	91%

PM Peak Check Phase	
εy	0.322
L (sec)	18
C (sec)	71
y pract.	0.672
R.C. (%)	108%

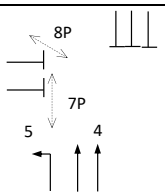
Stage / Phase Diagrams



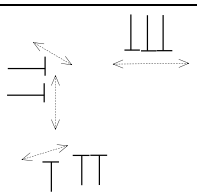
I/G = 5



I/G = 5



I/G = 5



TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

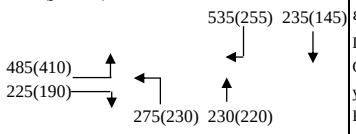
Junction: **(J4) Sai Tso Wan Road / Tsing Yi Road West / Tsing Yi Road**

Description: **2029 Reference Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) A.M.	Pro. Turning (%) P.M.	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) A.M.	Revised Saturation Flow (pcu/hr) P.M.	A.M. Peak Flow (pcu/hr)	A.M. Peak y Value	A.M. Peak Critical y	P.M. Peak Flow (pcu/hr)	P.M. Peak y Value	P.M. Peak Critical y
Tsing Yi Road	NE		1	A	4.5	15	0	1	100%	100%	2065	2065	1875	1875	275	0.147	0.147	230	0.123	0.123
	NE		1	A	3.4	0	0	0	0%	0%	2095	2095	2095	2095	230	0.110		220	0.105	
Sai Tso Wan Road	NW		3	C,D	3.8	15	0	1	100%	100%	1995	1995	1815	1815	485	0.267		410	0.226	
	NW		4	D	3.8	0	25	0	100%	100%	2135	2135	2015	2015	225	0.112	0.112	190	0.094	0.094
Tsing Yi Road West	SE		2	B,C	3.4	0	0	1	0%	0%	1955	1955	1955	1955	235	0.120		145	0.074	
	SE		2	B,C	3.7	0	25	0	100%	100%	2125	2125	2005	2005	535	0.267	0.267	255	0.127	0.127
Pedestrian crossing			5p	A,B		Green time = 5GM + 7FG = 12s														
			6p	D		Green time = 5GM + 9FG = 14s														
			7p	B,C		Green time = 5GM + 7FG = 12s														
			8p	A,D		Green time = 5GM + 7FG = 12s														

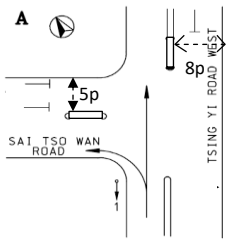
Notes:

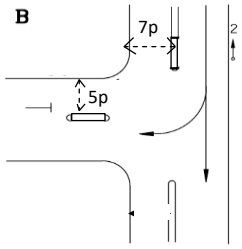
Traffic Flow (pcu / hr)

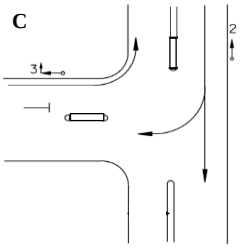


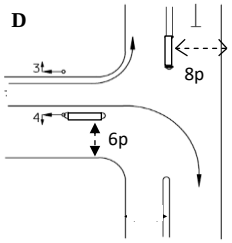
A.M. Check Phase		P.M. Check Phase	
εy	0.525	εy	0.344
L (sec)	12	L (sec)	12
C (sec)	120	C (sec)	120
y pract.	0.810	y pract.	0.810
R.C. (%)	**54%**	R.C. (%)	**135%**

Stage / Phase Diagrams









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

TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

Junction: **(J5) VEC Access / Sai Tso Wan Road**

Description: **2029 Reference Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) AM	Pro. Turning (%) PM	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	Total Revised Saturation Flow (pcu/hr) AM	Total Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Sai Tso Wan Road	EB	→	1	A	4.0	0.0	0	1	0%	0%	2015	2015	2015	2015	2015	2015	595	0.295	0.295	490	0.243	0.243
Sai Tso Wan Road	WB	↖	3	B	4.0	0.0	10	0	100%	100%	2155	2155	1875	1875	1875	1875	150	0.080	0.080	35	0.019	0.019
	WB	←	2	A,B	4.0	0.0	0	1	0%	0%	2015	2015	2015	2015	2015	2015	555	0.275		675	0.335	
Pedestrian Crossing		↕	4P	C		Min. green time = 7FGm + 5 FGm = 12s																

Notes:
(None)

Traffic Flow (pcu / hr) AM (PM) Peak

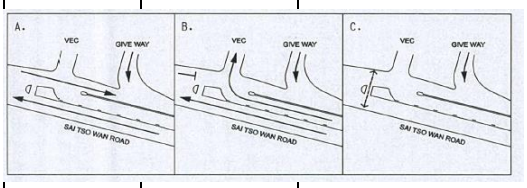
595(490) →

150(35) ↖

555(675) ←

AM Peak Check Phase		PM Peak Check Phase	
εy	0.375	εy	0.262
L (sec)	26	L (sec)	26
C (sec)	100	C (sec)	100
y pract.	0.666	y pract.	0.666
R.C. (%)	77%	R.C. (%)	154%

Stage / Phase Diagrams



I/G = 3 I/G = 8 I/G = 5+12

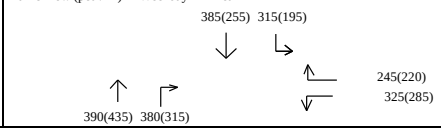
TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

Junction: **(J8) Tsing Yi Road / Tsing Hung Road**
Description: **2029 Reference Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) AM	Pro. Turning (%) PM	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	Total Revised Saturation Flow (pcu/hr) AM	Total Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tsing Yi Road West	S	↓	1	A	3.0	0.0	0	0	0%	0%	2055	4160	2055	2055	4160	4160	190	0.093	0.183	126	0.061	0.113
	S	↓	1	A	3.5	0.0	0	0	0%	0%	2105	0	2105	2105	0	0	195	0.093		129	0.061	
	S	↳	1	A	3.7	10.0	0	1	100%	100%	1985	1985	1725	1725	1725	1725	315	0.183		195	0.113	
Tsing Yi Road West	N	↑	2	A,B	3.5	0.0	0	1	0%	0%	1965	4070	1965	1965	4070	4070	188	0.096		210	0.107	
	N	↑	2	A,B	3.5	0.0	0	0	0%	0%	2105	0	2105	2105	0	0	202	0.096		225	0.107	
	N	↱	3	B	3.3	0.0	18	0	100%	100%	2085	2085	1925	1925	1925	1925	380	0.197	0.197	315	0.164	0.164
Ching Hong Road	W	⇅	4	C	3.4	18.0	20	0	18% / 82%	17% / 83%	2095	0	1945	1945	0	0	298	0.153	0.153	264	0.136	0.136
	W	↓	4	C	3.4	15.0	0	1	100%	100%	1955	4050	1775	1775	3720	3720	272	0.153		241	0.136	
Pedestrian crossing		↕	5P	A,B		Min. Green time = 11s (G) + 8s (FS) = 19s																
		↕	5P	C		Min. Green time = 5s (G) + 12s (FS) = 17s																
Pedestrian Crossing																						

Notes:

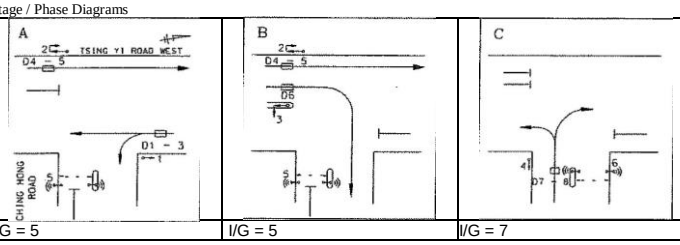
Traffic Flow (pcu / hr) Weekday AM Peak



AM Peak Check Phase	
εy	0.533
L (sec)	14
C (sec)	100
y pract.	0.774
R.C. (%)	45%

PM Peak Check Phase	
εy	0.412
L (sec)	14
C (sec)	100
y pract.	0.774
R.C. (%)	88%

Stage / Phase Diagrams



I/G = 5 I/G = 5 I/G = 7

TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

Junction: **(J9) Tsing Yi Road West / Liu To Road**

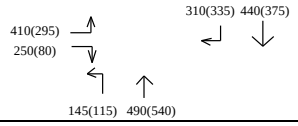
Description: **2029 Reference Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) AM	Pro. Turning (%) PM	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	Total Revised Saturation Flow (pcu/hr) AM	Total Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tsing Yi Road West	S		2	A,B	3.3	0.0	0	1	0%	0%	1945	4030	1945	1945	4030	4030	212	0.109		181	0.093	
	S		2	A,B	3.3	0.0	0	0	0%	0%	2085	0	2085	2085	0	0	228	0.109		194	0.093	
	S		3	B	3.3	0.0	22	0	100%	100%	2085	2085	1950	1950	1950	1950	310	0.159	0.159	335	0.172	0.172
Tsing Yi Road West	N		1	A	3.2	10.0	0	1	50%	38%	1935	4100	1800	1830	3965	3995	288	0.160	0.160	300	0.164	0.164
	N		1	A	4.1	0.0	0	0	0%	0%	2165	0	2165	2165	0	0	347	0.160		355	0.164	
Liu To Road	E		5	B,C	3.2	10.0	0	1	100%	100%	1935	1935	1685	1685	1685	1685	410	0.243		295	0.175	
	E		4	C	4.1	0.0	18	0	100%	100%	2165	2165	2000	2000	2000	2000	250	0.125	0.125	80	0.040	0.040
Pedestrian crossing			6P	A,D		Min. Green time = 5s (G) + 9s (FS) = 14s																
			7P	C,D		Min. Green time = 5s (G) + 13s (FS) = 18s																
			8P	D		Min. Green time = 5s (G) + 8s (FS) = 13s																

Pedestrian Crossing

Notes:

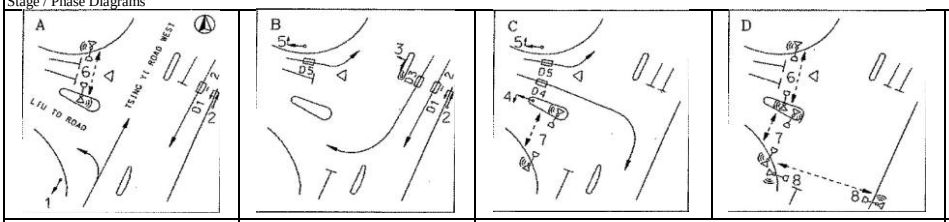
Traffic Flow (pcu / hr) Weekday AM Peak



AM Peak Check Phase	
εy	0.444
L (sec)	38
C (sec)	110
y pract.	0.589
R.C. (%)	33%

PM Peak Check Phase	
εy	0.376
L (sec)	38
C (sec)	100
y pract.	0.558
R.C. (%)	48%

Stage / Phase Diagrams



I/G = 5 | I/G = 7 | I/G = 11+13

TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

Junction: **(J10) Tsing Yi Road West / Fung Shue Wo Road**

Description: **2029 Reference Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		AM Peak			PM Peak		
						Left	Right		AM	PM			AM	PM	AM	PM	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Fung Shue Wo Road	S	↓	1	A,D	4.1	0.0	0	0	0%	0%	2165	4310	2165	2165	4310	4310	304	0.140	0.161	279	0.129	0.132
(To Tsing Yi Road West)	S	↓	1	A,D	3.9	0.0	0	0	0%	0%	2145	0	2145	2145	0	0	301	0.140		276	0.129	
Fung Shue Wo Road	S	↓	1	A,D	4.0	0.0	0	1	0%	0%	2015	4170	2015	2015	4170	4170	324	0.161		266	0.132	
(To Fung Shue Wo Road)	S	↓	1	A,D	4.0	0.0	0	0	0%	0%	2155	0	2155	2155	0	0	346	0.161		284	0.132	
Tsing Yi Road West	N	↑	2	A,B	3.5	0.0	0	1	0%	0%	1965	4070	1965	1965	4070	4070	331	0.168		333	0.170	
	N	↑	2	A,B	3.5	0.0	0	0	0%	0%	2105	0	2105	2105	0	0	354	0.168		357	0.170	
	N	↱	3	B	3.6	0.0	18	0	100%	100%	2115	2115	1950	1950	1950	1950	220	0.113	0.113	145	0.074	0.074
Fung Shue Wo Road	N	↰	4	C	3.8	35.0	0	1	100%	100%	1995	4150	1915	1915	3990	3990	72	0.038		70	0.036	
	N	↰	4	C	4.0	38.0	0	0	100%	100%	2155	0	2075	2075	0	0	78	0.038		75	0.036	
Fung Shue Wo Road	N	↱	4	C	3.6	0.0	43	0	100%	100%	2115	4230	2045	2045	4085	4085	323	0.158	0.158	275	0.135	0.135
	N	↱	4	C	3.6	0.0	40	0	100%	100%	2115	0	2040	2040	0	0	322	0.158		275	0.135	

Pedestrian crossing	5p	D	Min. Green time = 5s (G) + 8s (FS) = 13s
	6P	B,C	Min. Green time = 5s (G) + 8s (FS) = 13s
	7P	A,C,D	Min. Green time = 5s (G) + 8s (FS) = 13s
	8P	A,B,D	Min. Green time = 5s (G) + 7s (FS) = 12s

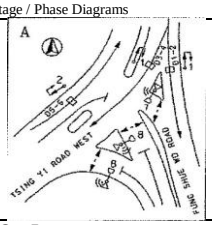
Notes:

Traffic Flow (pcu / hr) Weekday AM Peak

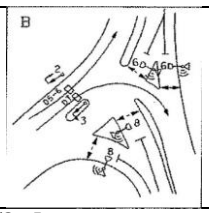
AM Peak Check Phase	
εy	0.431
L (sec)	12
C (sec)	100
y pract.	0.792
R.C. (%)	84%

PM Peak Check Phase	
εy	0.341
L (sec)	12
C (sec)	100
y pract.	0.792
R.C. (%)	132%

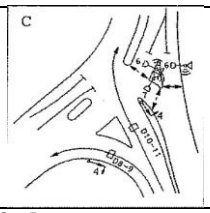
Stage / Phase Diagrams



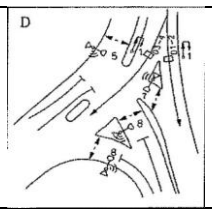
I/G = 5



I/G = 5



I/G = 5



TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

Junction: **(J1) Cheung Tsing Highway / Tsing Yi Road West**

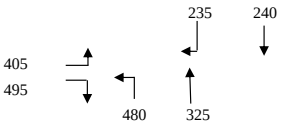
Description: **2029 Reference Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road West	S		2	A	3.5	0	0	0	0%		2105	6135	2105		5895		170	0.081	0.081			
	S		2	A	3.3	0	20	0	56%		2085	0	2000		0		161	0.081				
	S		2	A	3.3	0	17.5	1	100%		1945	0	1790		0		144	0.081				
Cheung Tsing Highway	E		3	A,B	3.4	20	0	1	100%		1955	1955	1820		1820		405	0.223				
	E		4	B	3.5	0	30	0	100%		2105	4070	2005		3860		257	0.128				
	E		4	B	3.5	0	25	1	100%		1965	0	1855		0		238	0.128	0.128			
Tsing Yi Road West	N		1	C	3.6	20	0	1	100%		1975	4090	1835		3950		480	0.262	0.262			
	N		1	C	3.6	0	0	0	0%		2115	0	2115		0		325	0.154				

Pedestrian crossing	5P	C	Green time = 5s (G) + 6s (FS) = 11s
	6P	C	Green time = 8s (G) + 10s (FS) = 18s
	7P	A	Green time = 5s (G) + 9s (FS) = 14s
	8P	B	Green time = 5s (G) + 10s (FS) = 15s

Notes:

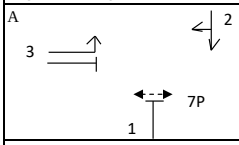
Traffic Flow (pcu / hr)



Logistic Check Phase	
εy	0.470
L (sec)	12
C (sec)	90
y pract.	0.780
R.C. (%)	66%

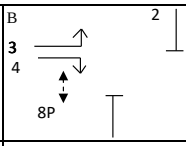
Stage / Phase Diagrams

A



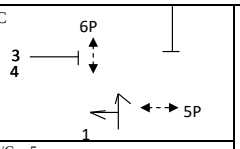
I/G = 5

B



I/G =5

C



I/G = 5

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

TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

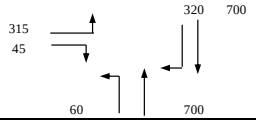
Junction: **J2 - Tsing Hung Road / Tsing Yi Road**

Description: **2029 Reference Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road	S		2	A	3.0	0.0	0	1	0%		1915	4030	1915		4030		333	0.174	0.174			
	S		3	A	3.6	0.0	0	0	0%		2115	0	2115		0		367	0.174				
	S		2	A	3.6	0.0	18	0	100%		2115	2115	1950		1950		320	0.164				
Tsing Yi Road	N		5	C	4.0	30.0	0	1	100%		2015	2015	1920		1920		60	0.031				
	N		4	C	3.7	0.0	0	0	0%		2125	4240	2125		4240		351	0.165	0.165			
	N		5	C	3.6	0.0	0	0	0%		2115	0	2115		0		349	0.165				
Tsing Hung Road	E		1	A,B	3.3	25.0	0	1	100%		1945	1945	1835		1835		315	0.172				
	E		3	B	4.0	0.0	22	0	100%		2155	2155	2015		2015		45	0.022				
Pedestrian Crossing			6P	A,B																		
			7P	C																		
			8P	C																		

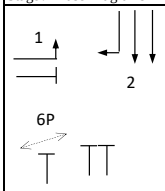
Notes:

Traffic Flow (pcu / hr) Weekday AM Peak

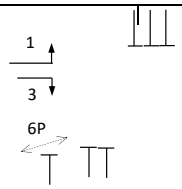


Logistic Peak Check Phase	
εy	0.339
L (sec)	18
C (sec)	71
y pract.	0.672
R.C. (%)	98%

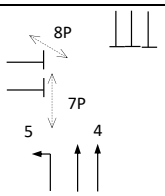
Stage / Phase Diagrams



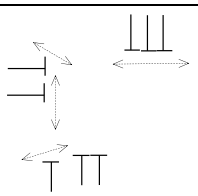
I/G = 5



I/G = 5



I/G = 5



TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

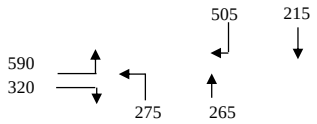
Junction: **(J4) Sai Tso Wan Road / Tsing Yi Road West / Tsing Yi Road**

Description: **2029 Reference Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road	NE		1	A	4.5	15	0	1	100%		2065	2065	1875		275	0.147	0.147			
	NE		1	A	3.4	0	0	0	0%		2095	2095	2095		265	0.126				
Sai Tso Wan Road	NW		3	C,D	3.8	15	0	1	100%		1995	1995	1815		590	0.325				
	NW		4	D	3.8	0	25	0	100%		2135	2135	2015		320	0.159	0.159			
Tsing Yi Road West	SE		2	B,C	3.4	0	0	1	0%		1955	1955	1955		215	0.110				
	SE		2	B,C	3.7	0	25	0	100%		2125	2125	2005		505	0.252	0.252			
Pedestrian crossing			5p	A,B		Green time = 5GM + 7FG = 12s														
			6p	D		Green time = 5GM + 9FG = 14s														
			7p	B,C		Green time = 5GM + 7FG = 12s														
			8p	A,D		Green time = 5GM + 7FG = 12s														

Notes:

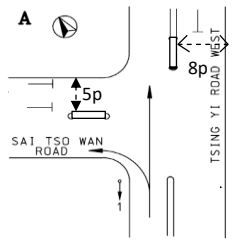
Traffic Flow (pcu / hr)

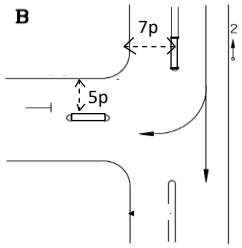


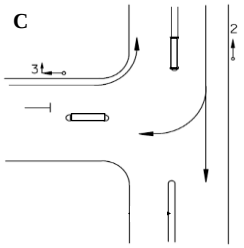
Logistic Peak Check Phase

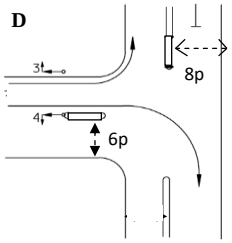
εy	0.557
L (sec)	12
C (sec)	71
y pract.	0.748
R.C. (%)	34%

Stage / Phase Diagrams









I/G = 5	I/G =5		I/G = 5	
I/G = 5	I/G =8+12	I/G = 2		

TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

Junction: **(J5) VEC Access / Sai Tso Wan Road**

Description: **2029 Reference Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Sai Tso Wan Road	EB	→	1	A	4.0	0.0	0	1	0%		2015	2015	2015		2015		780	0.387	0.387			
Sai Tso Wan Road	WB	↖	3	B	4.0	0.0	10	0	100%		2155	2155	1875		1875		130	0.069	0.069			
	WB	←	2	A,B	4.0	0.0	0	1	0%		2015	2015	2015		2015		580	0.288				
Pedestrian Crossing		↕	4P	C		Min. green time = 7FGm + 5 FGm = 12s																

Notes:
(None)

Traffic Flow (pcu / hr) AM (PM) Peak

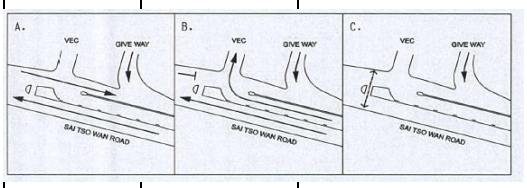
780 →

↖ 130

← 580

Logistic Peak Check Phase	
εy	0.456
L (sec)	26
C (sec)	100
y pract.	0.666
R.C. (%)	46%

Stage / Phase Diagrams



I/G = 3 I/G = 8 I/G = 5+12

TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

Junction: **J8 - Tsing Yi Road / Tsing Hung Road**
Description: **2029 Reference Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road West	S	↓	1	A	3.0	0.0	0	0	0%		2055	4160	2055		4160		156	0.076	0.110			
	S	↓	1	A	3.5	0.0	0	0	0%		2105	0	2105		0		159	0.076				
	S	↳	1	A	3.7	10.0	0	1	100%		1985	1985	1725		1725		190	0.110				
Tsing Yi Road West	N	↑	2	A,B	3.5	0.0	0	1	0%		1965	4070	1965		4070		200	0.102				
	N	↑	2	A,B	3.5	0.0	0	0	0%		2105	0	2105		0		215	0.102				
	N	↱	3	B	3.3	0.0	18	0	100%		2085	2085	1925		1925		405	0.210	0.210			
Ching Hong Road	W	⇅	4	C	3.4	18.0	20	0	20% / 80%		2095	0	1945		0		264	0.136	0.136			
	W	↓	4	C	3.4	15.0	0	1	100%		1955	4050	1775		3720		241	0.136				
Pedestrian crossing		↕	5P	A,B		Min. Green time = 11s (G) + 8s (FS) = 19s																
			5P	C		Min. Green time = 5s (G) + 12s (FS) = 17s																
Pedestrian Crossing																						

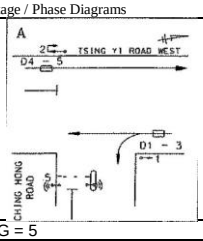
Notes:

Traffic Flow (pcu / hr) Weekday AM Peak

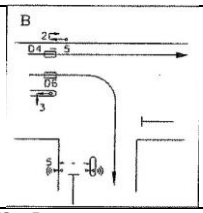
Logistic Peak Check Phase

εy	0.456
L (sec)	12
C (sec)	71
y pract.	0.748
R.C. (%)	64%

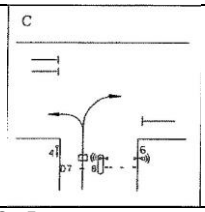
Stage / Phase Diagrams



I/G = 5



I/G = 5



I/G = 7

TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

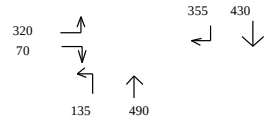
Junction: **J9 - Tsing Yi Road West / Liu To Road**

Description: **2029 Reference Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road West	S		2	A,B	3.3	0.0	0	1	0%		1945	4030	1945		4030		208	0.107				
	S		2	A,B	3.3	0.0	0	0	0%		2085	0	2085		0		222	0.107				
	S		3	B	3.3	0.0	22	0	100%		2085	2085	1950		1950		355	0.182	0.182			
Tsing Yi Road West	N		1	A	3.2	10.0	0	1	47%		1935	4100	1805		3970		284	0.157	0.157			
	N		1	A	4.1	0.0	0	0	0%		2165	0	2165		0		341	0.157				
Liu To Road	E		5	B,C	3.2	10.0	0	1	100%		1935	1935	1685		1685		320	0.190				
	E		4	C	4.1	0.0	18	0	100%		2165	2165	2000		2000		70	0.035	0.035			
Pedestrian crossing			6P	A,D		Min. Green time = 5s (G) + 9s (FS) = 14s																
			7P	C,D		Min. Green time = 5s (G) + 13s (FS) = 18s																
			8P	D		Min. Green time = 5s (G) + 8s (FS) = 13s																
Pedestrian Crossing																						

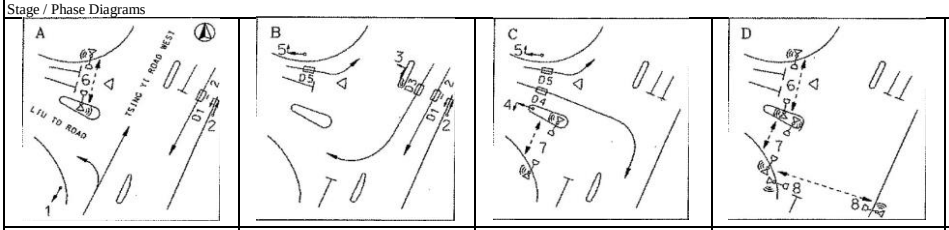
Notes:

Traffic Flow (pcu / hr) Weekday AM Peak



Logistic Peak Check Phase	
εy	0.375
L (sec)	38
C (sec)	110
y pract.	0.589
R.C. (%)	57%

Stage / Phase Diagrams



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

TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

Junction: **J10 - Tsing Yi Road West / Fung Shue Wo Road**

Description: **2029 Reference Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Fung Shue Wo Road	S	↓	1	A,D	4.1	0.0	0	0	0%		2165	4310	2165		4310		329	0.152	0.152			
(To Tsing Yi Road West)	S	↓	1	A,D	3.9	0.0	0	0	0%		2145	0	2145		0		326	0.152				
Fung Shue Wo Road	S	↓	1	A,D	4.0	0.0	0	1	0%		2015	4170	2015		4170		254	0.126				
(To Fung Shue Wo Road)	S	↓	1	A,D	4.0	0.0	0	0	0%		2155	0	2155		0		271	0.126				
Tsing Yi Road West	N	↑	2	A,B	3.5	0.0	0	1	0%		1965	4070	1965		4070		309	0.157				
	N	↑	2	A,B	3.5	0.0	0	0	0%		2105	0	2105		0		331	0.157				
	N	↱	3	B	3.6	0.0	18	0	100%		2115	2115	1950		1950		165	0.085	0.085			
Fung Shue Wo Road	N	↰	4	C	3.8	35.0	0	1	100%		1995	4150	1915		3990		62	0.033				
	N	↰	4	C	4.0	38.0	0	0	100%		2155	0	2075		0		68	0.033				
Fung Shue Wo Road	N	↱	4	C	3.6	0.0	43	0	100%		2115	4230	2045		4085		270	0.132	0.132			
	N	↱	4	C	3.6	0.0	40	0	100%		2115	0	2040		0		270	0.132				

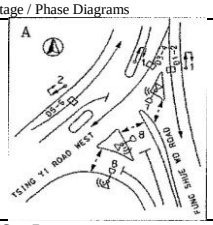
Pedestrian crossing	5p	D	Min. Green time = 5s (G) + 8s (FS) = 13s
	6P	B,C	Min. Green time = 5s (G) + 8s (FS) = 13s
	7P	A,C,D	Min. Green time = 5s (G) + 8s (FS) = 13s
	8P	A,B,D	Min. Green time = 5s (G) + 7s (FS) = 12s

Notes:

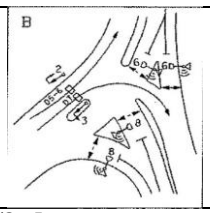
Traffic Flow (pcu / hr) Weekday AM Peak

Logistic Peak Check Phase	
εy	0.369
L (sec)	12
C (sec)	100
y pract.	0.792
R.C. (%)	115%

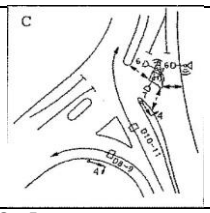
Stage / Phase Diagrams



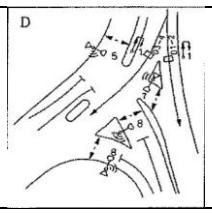
I/G = 5



I/G = 5

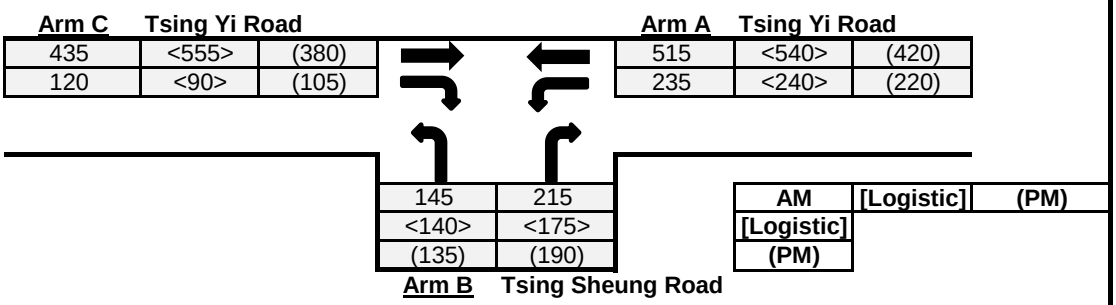


I/G = 5



Priority Junction Calculation

Junction :	(J3) Tsing Yi Road / Tsing Sheung Road	Job No.:	23125HK
Scenario :	2029 Reference Traffic Flow		



The predictive equations of capacity of movement are:

Q-BA = D(627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB))
Q-BC = E(745 - Y(0.364q-AC + 0.144q-AB))
Q-CB = F(745 - 0.364Y(q-AC + q-AB))

The geometric parameters represented by D, E, F are:

D = (1 + 0.094(w-BA - 3.65))(1 + 0.0009(V-rBA - 120))(1 + 0.0006(V-IBA - 150))
E = (1 + 0.094(w-BC - 3.65))(1 + 0.0009(V-rBC - 120))
F = (1 + 0.094(w-CB - 3.65))(1 + 0.0009(V-rCB - 120))

where

Y = 1 - 0.0345W
q-AB, etc = the design flow of movement AB, etc
W = major road width
W-CR = central reserve width
w-BA, etc = lane width to vehicle
v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc
v-IBA = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	**Input**						**Calculated**	
W	14	V-rBA	50	w-BA	4.5	D	0.951
W-CR	0	V-IBA	50	w-BC	4.5	E	1.012
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	0	V-rBC	50	w-CB	0	F	0.616
Minor Road Share LT&RT? (Yes: 1, No: 0)	0	V-rCB	50			Y	0.517

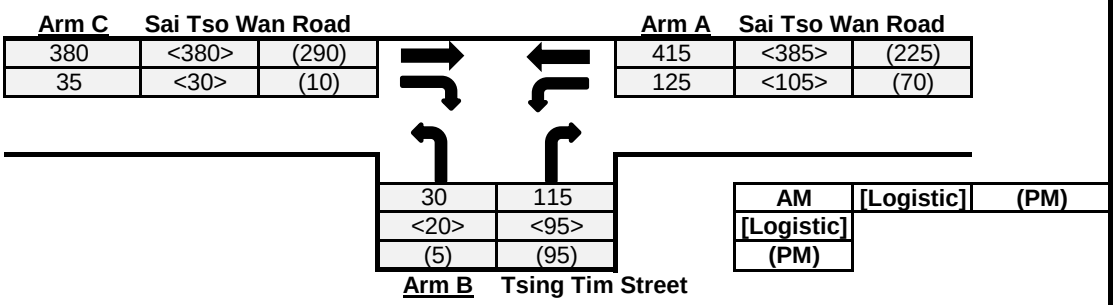
Analysis :	**Traffic Flow pcu/hr**	**AM**	**Logistic**	**PM**	**Capacity pcu/hr**	**AM**	**Logistic**	**PM**	
	q-CA	435	555	380	Q-BA	408	397	436	
	q-CB	120	90	105	Q-BC	638	633	657	
	q-AB	235	240	220	Q-CB	372	368	384	
	q-AC	515	540	420	Q-CA	N/A	N/A	N/A	(If C-B blocked C-
	q-BA	215	175	190	Q-BAC	N/A	N/A	N/A	(If Minor Road Share LT&RT)
	q-BC	145	140	135					
	f	0.403	0.444	0.415					

Results :	**Ratio of Flow-to-Capacity**	**AM**	**Logistic**	**PM**
	B-A	0.53	0.44	0.44
	B-C	0.23	0.22	0.21
	C-B	0.32	0.24	0.27
	C-A	N/A	N/A	N/A
	B-AC	N/A	N/A	N/A
	Critical DFC	**0.53**	**0.44**	**0.44**

CTA Consultants Ltd.

Priority Junction Calculation

Junction :	(J6) Sai Tso Wan Road / Tsing Tim Street	Job No.:	24001HK
Scenario :	2029 Reference Traffic Flow		



The predictive equations of capacity of movement are:

Q-BA = D(627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB))
Q-BC = E(745 - Y(0.364q-AC + 0.144q-AB))
Q-CB = F(745 - 0.364Y(q-AC + q-AB))

The geometric parameters represented by D, E, F are:

D = (1 + 0.094(w-BA - 3.65))(1 + 0.0009(V-rBA - 120))(1 + 0.0006(V-IBA - 150))
E = (1 + 0.094(w-BC - 3.65))(1 + 0.0009(V-rBC - 120))
F = (1 + 0.094(w-CB - 3.65))(1 + 0.0009(V-rCB - 120))

where

Y = 1 - 0.0345W
q-AB, etc = the design flow of movement AB, etc
W = major road width
W-CR = central reserve width
w-BA, etc = lane width to vehicle
v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc
v-IBA = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	**Input**						**Calculated**	
W	7	V-rBA	50	w-BA	3	D	0.827
W-CR	0	V-IBA	50	w-BC	3	E	0.880
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	0	V-rBC	50	w-CB	0	F	0.616
Minor Road Share LT&RT? (Yes: 1, No: 0)	0	V-rCB	50			Y	0.759

Analysis :	**Traffic Flow pcu/hr**	**AM**	**Logistic**	**PM**	**Capacity pcu/hr**	**AM**	**Logistic**	**PM**	
	q-CA	380	380	290	Q-BA	346	357	416	
	q-CB	35	30	10	Q-BC	543	552	594	
	q-AB	125	105	70	Q-CB	367	375	408	
	q-AC	415	385	225	Q-CA	N/A	N/A	N/A	(If C-B blocked C-
	q-BA	115	95	95	Q-BAC	N/A	N/A	N/A	(If Minor Road Share LT&RT)
	q-BC	30	20	5					
	f	0.207	0.174	0.050					

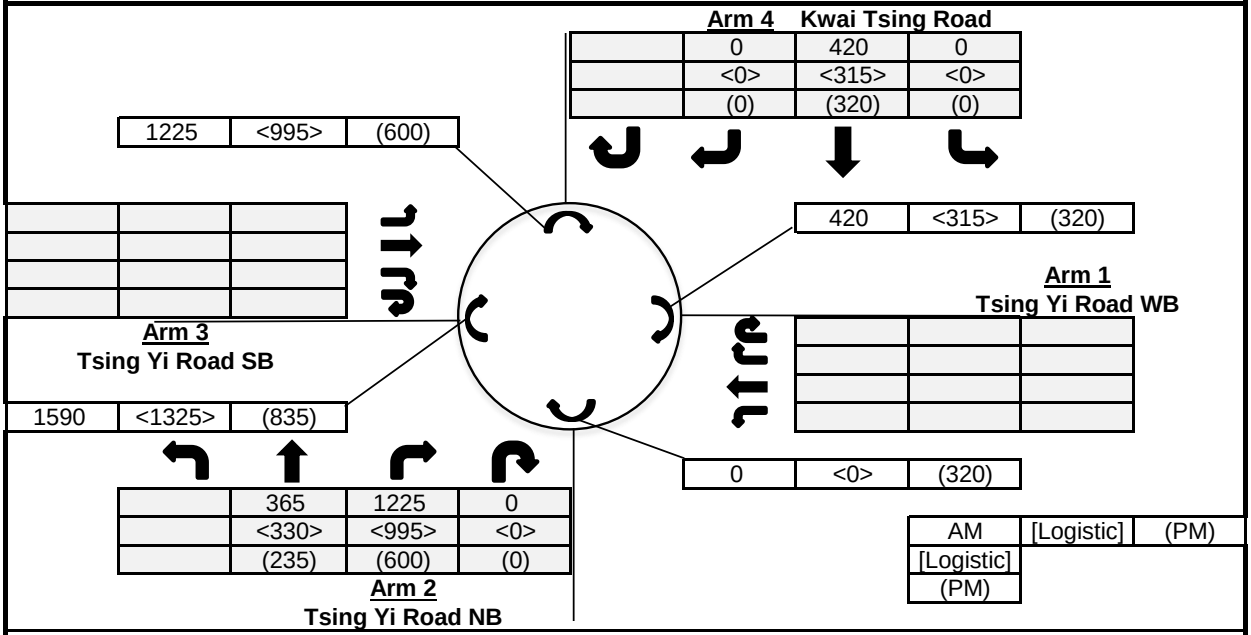
Results :	**Ratio of Flow-to-Capacity**	**AM**	**Logistic**	**PM**
	B-A	0.33	0.27	0.23
	B-C	0.06	0.04	0.01
	C-B	0.10	0.08	0.02
	C-A	N/A	N/A	N/A
	B-AC	N/A	N/A	N/A
Critical DFC		**0.33**	**0.27**	**0.23**

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA1) Tsing Yi Interchange (North) Job No.: 23125HK

Scenario : 2029 Reference Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)			6		6
E	=	Entry width (m)			7		7
L	=	Effective length of flare (m)			5		5
R	=	Entry radius			62		41
D	=	Inscribed circle diameter (m)			60		60
A	=	Entry angle (degree)			27		39
Q	=	Entry flow (pcu/hr)	AM		1590		420
			Logistic		1325		315
			PM		835		320
Qc	=	Circulating flow	AM		0		1225
		across entry (pcu/hr)	Logistic		0		995
			PM		320		600

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L			0.32		0.32
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)			1.04		0.99
X_2	=	V+((E-V)/(1+2*S))			6.61		6.61
M	=	Exp((D-60)/10)			1.00		1.00
F	=	303*X_2			2003		2003
Td	=	1+(0.5/(1+M))			1.25		1.25
Fc	=	0.21*Td*(1+0.2*X_2)			0.61		0.61
Qe	=	Capacity = K*(F-Fc*Qc)	AM		2090		1248
			Logistic		2090		1388
			PM		1886		1627
DFC	=	Entry Flow/Capacity = Q/Qe	AM		0.76		0.34
			Logistic		0.63		0.23
			PM		0.44		0.20

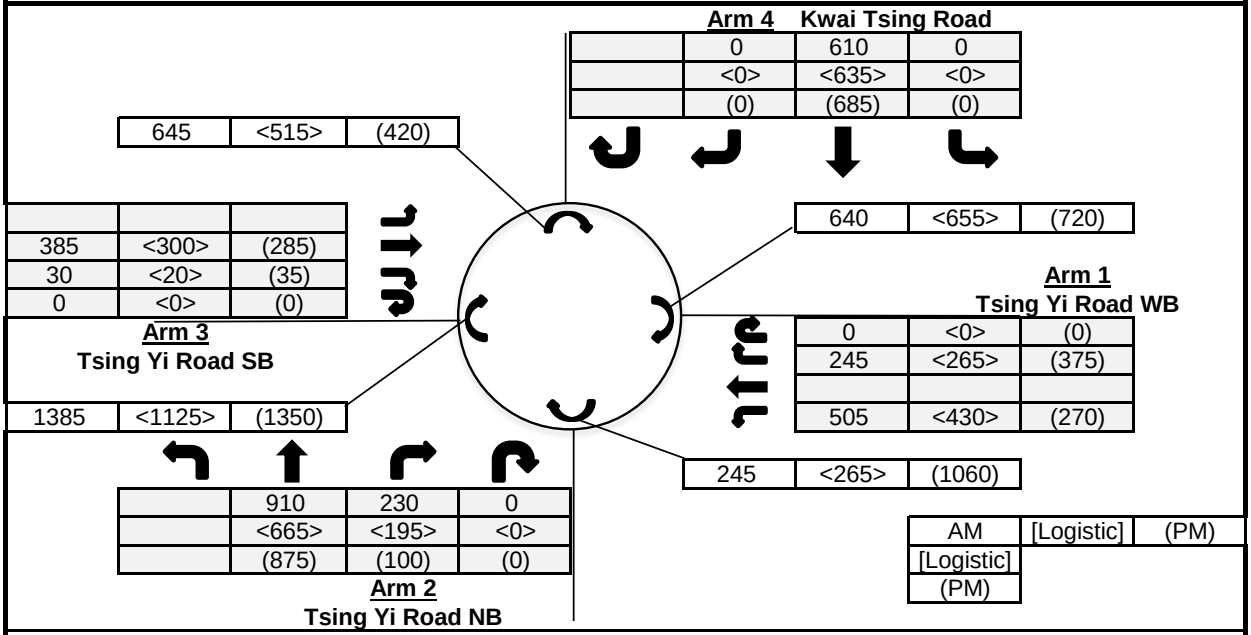
DFC of Critical Approach = AM 0.76
Logistic 0.63
PM 0.44

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA1) Tsing Yi Interchange (South) Job No.: 23125HK

Scenario : 2029 Reference Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		7	6.8	7	6
E	=	Entry width (m)		7.2	7	7.3	6.3
L	=	Effective length of flare (m)		5	5	5	5
R	=	Entry radius		23	25	24	44
D	=	Inscribed circle diameter (m)		60	60	60	60
A	=	Entry angle (degree)		43	54	27	23
Q	=	Entry flow (pcu/hr)	AM	750	1140	415	610
			Logistic	695	860	320	635
			PM	645	975	320	685
Qc	=	Circulating flow	AM	640	245	1385	645
		across entry (pcu/hr)	Logistic	655	265	1125	515
			PM	720	1060	1350	420

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.06	0.06	0.10	0.10
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		0.96	0.93	1.02	1.05
X_2	=	V+((E-V)/(1+2*S))		7.18	6.98	7.25	6.25
M	=	Exp((D-60)/10)		1.00	1.00	1.00	1.00
F	=	303*X_2		2175	2114	2197	1894
Td	=	1+(0.5/(1+M))		1.25	1.25	1.25	1.25
Fc	=	0.21*Td*(1+0.2*X_2)		0.64	0.63	0.64	0.59
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1697	1816	1331	1590
			Logistic	1688	1804	1501	1671
			PM	1648	1341	1354	1730
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.44	0.63	0.31	0.38
			Logistic	0.41	0.48	0.21	0.38
			PM	0.39	0.73	0.24	0.40

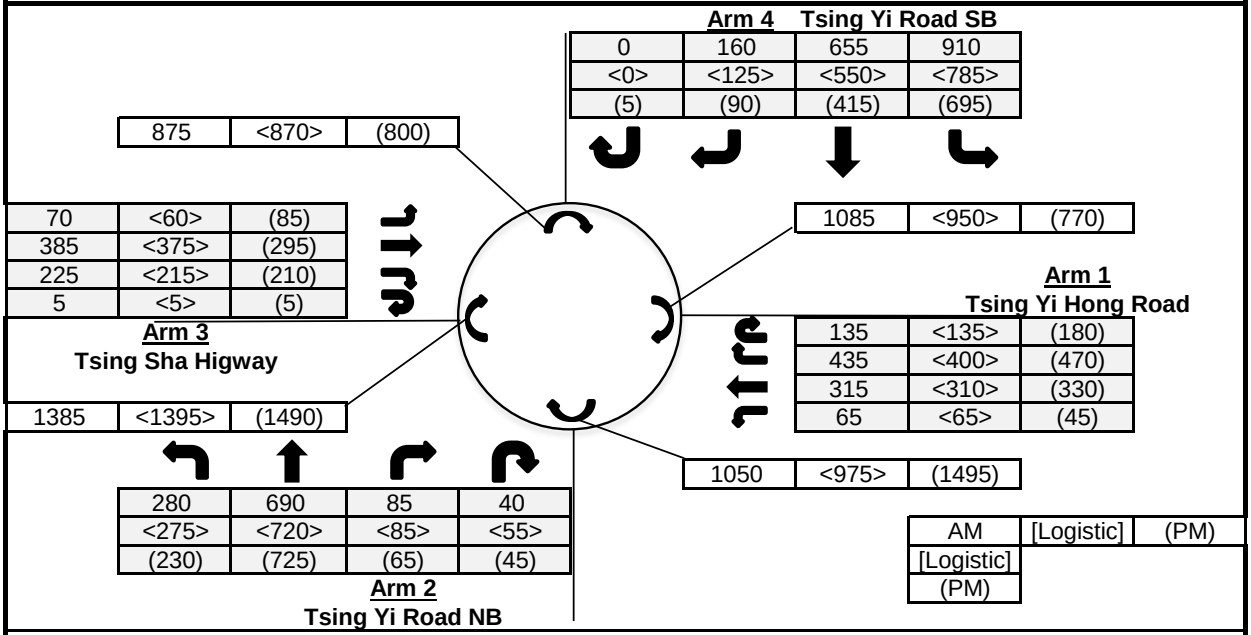
DFC of Critical Approach = AM 0.63
Logistic 0.48
PM 0.73

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA2) Tsing Yi Road / Tsing Hung Road Job No.: 23125HK

Scenario : 2029 Reference Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		9.5	9	7.3	7.5
E	=	Entry width (m)		13.5	12	11.5	11.5
L	=	Effective length of flare (m)		30	15	30	15
R	=	Entry radius		45	97	52	34
D	=	Inscribed circle diameter (m)		110	110	110	110
A	=	Entry angle (degree)		61	32	31	46
Q	=	Entry flow (pcu/hr)	AM	950	1095	685	1725
			Logistic	910	1135	655	1460
			PM	1025	1065	595	1205
Qc	=	Circulating flow	AM	1085	1050	1385	875
		across entry (pcu/hr)	Logistic	950	975	1395	870
			PM	770	1495	1490	800

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.21	0.32	0.22	0.43
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		0.92	1.03	1.03	0.96
X_2	=	V+((E-V)/(1+2*S))		12.30	10.83	10.20	9.66
M	=	Exp((D-60)/10)		148.41	148.41	148.41	148.41
F	=	303*X_2		3728	3281	3091	2926
Td	=	1+(0.5/(1+M))		1.00	1.00	1.00	1.00
Fc	=	0.21*Td*(1+0.2*X_2)		0.73	0.67	0.64	0.62
Qe	=	Capacity = K*(F-Fc*Qc)	AM	2701	2663	2262	2302
			Logistic	2791	2715	2256	2305
			PM	2912	2357	2193	2346
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.35	0.41	0.30	0.75
			Logistic	0.33	0.42	0.29	0.63
			PM	0.35	0.45	0.27	0.51

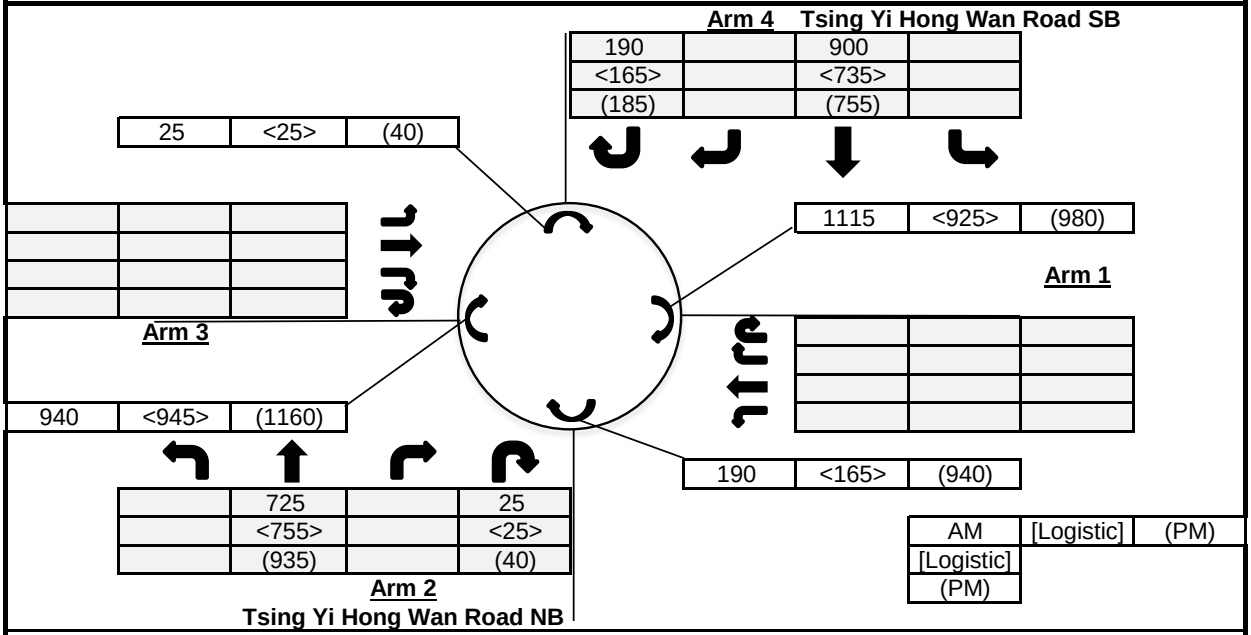
DFC of Critical Approach = AM 0.75
Logistic 0.63
PM 0.51

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA3) Tsing Yi Hong Wan Road Job No.: 23125HK

Scenario : 2029 Reference Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)			7		10
E	=	Entry width (m)			14		12
L	=	Effective length of flare (m)			20		2
R	=	Entry radius			65		75
D	=	Inscribed circle diameter (m)			68		68
A	=	Entry angle (degree)			53		46
Q	=	Entry flow (pcu/hr)	AM		750		1090
			Logistic		780		900
			PM		975		940
Qc	=	Circulating flow	AM		190		25
		across entry (pcu/hr)	Logistic		165		25
			PM		940		40

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L			0.56		1.60
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)			0.95		0.98
X_2	=	V+((E-V)/(1+2*S))			10.30		10.48
M	=	Exp((D-60)/10)			2.23		2.23
F	=	303*X_2			3121		3174
Td	=	1+(0.5/(1+M))			1.16		1.16
Fc	=	0.21*Td*(1+0.2*X_2)			0.74		0.75
Qe	=	Capacity = K*(F-Fc*Qc)	AM		2843		3093
			Logistic		2861		3093
			PM		2312		3082
DFC	=	Entry Flow/Capacity = Q/Qe	AM		0.26		0.35
			Logistic		0.27		0.29
			PM		0.42		0.30

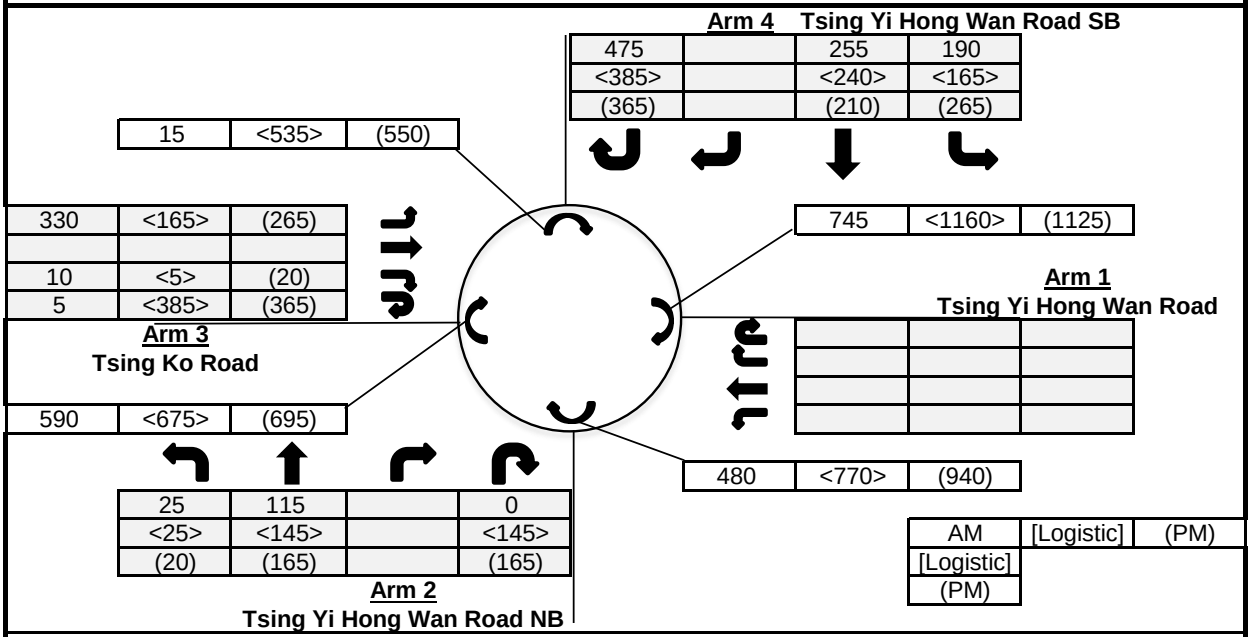
DFC of Critical Approach = AM 0.35 | Logistic 0.29 | PM 0.42

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA4) Tsing Yi Hong Wan Road / Tsing Ko Road Job No.: 23125HK

Scenario : 2029 Reference Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)			6.7	6.3	7.6
E	=	Entry width (m)			13.5	12.5	15.5
L	=	Effective length of flare (m)			18	30	30
R	=	Entry radius			47	180	75
D	=	Inscribed circle diameter (m)			68	68	68
A	=	Entry angle (degree)			41	22	46
Q	=	Entry flow (pcu/hr)	AM		140	345	920
			Logistic		315	555	790
			PM		350	650	840
Qc	=	Circulating flow	AM		480	590	15
		across entry (pcu/hr)	Logistic		770	675	535
			PM		940	695	550

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L			0.60	0.33	0.42
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)			0.99	1.07	0.98
X_2	=	V+((E-V)/(1+2*S))			9.78	10.03	11.89
M	=	Exp((D-60)/10)			2.23	2.23	2.23
F	=	303*X_2			2963	3040	3602
Td	=	1+(0.5/(1+M))			1.16	1.16	1.16
Fc	=	0.21*Td*(1+0.2*X_2)			0.72	0.73	0.82
Qe	=	Capacity = K*(F-Fc*Qc)	AM		2592	2795	3519
			Logistic		2387	2729	3101
			PM		2266	2713	3089
DFC	=	Entry Flow/Capacity = Q/Qe	AM		0.05	0.12	0.26
			Logistic		0.13	0.20	0.25
			PM		0.15	0.24	0.27

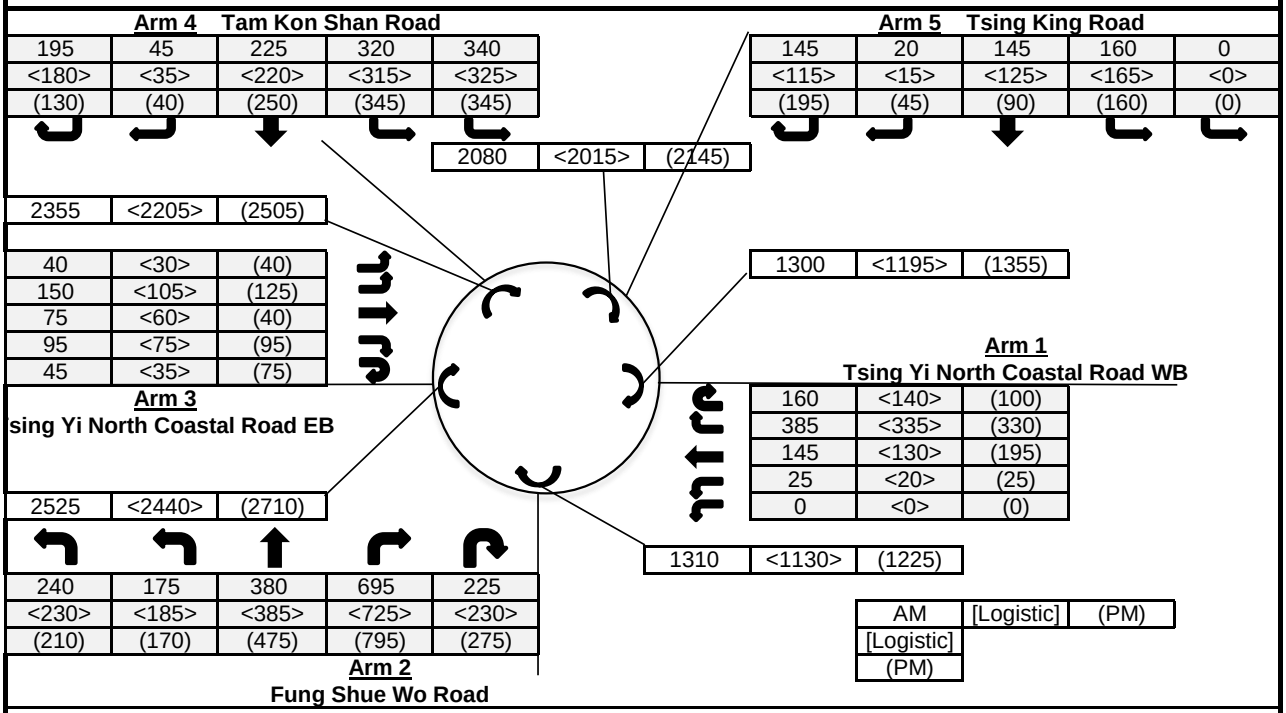
DFC of Critical Approach = AM 0.26 | Logistic 0.25 | PM 0.27

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA5) Tam Kon Shan Interchange Job No.: 23125HK

Scenario : 2029 Reference Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4	Arm 5
V	=	Approach half width (m)		7	10	5.5	8	7.5
E	=	Entry width (m)		9	13.5	7.5	13.5	11
L	=	Effective length of flare (m)		9	9	11	9	10
R	=	Entry radius		100	45	45	25	45
D	=	Inscribed circle diameter (m)		115	115	115	115	115
A	=	Entry angle (degree)		30	25	25	30	45
Q	=	Entry flow (pcu/hr)	AM	715	1715	405	1125	470
			Logistic	625	1755	305	1075	420
			PM	650	1925	375	1110	490
Qc	=	Circulating flow	AM	1300	1310	2525	2355	2080
		across entry (pcu/hr)	Logistic	1195	1130	2440	2205	2015
			PM	1355	1225	2710	2505	2145

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4	Arm 5
S	=	Sharpness of flare = 1.6*(E-V)/L		0.36	0.62	0.29	0.98	0.56
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		1.04	1.04	1.04	1.01	0.98
X_2	=	V+((E-V)/(1+2*S))		8.17	11.56	6.76	9.86	9.15
M	=	Exp((D-60)/10)		244.69	244.69	244.69	244.69	244.69
F	=	303*X_2		2475	3503	2050	2988	2773
Td	=	1+(0.5/(1+M))		1.00	1.00	1.00	1.00	1.00
Fc	=	0.21*Td*(1+0.2*X_2)		0.55	0.70	0.50	0.63	0.60
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1823	2705	835	1530	1496
			Logistic	1884	2836	879	1625	1534
			PM	1792	2767	739	1435	1458
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.39	0.63	0.49	0.74	0.31
			Logistic	0.33	0.62	0.35	0.66	0.27
			PM	0.36	0.70	0.51	0.77	0.34

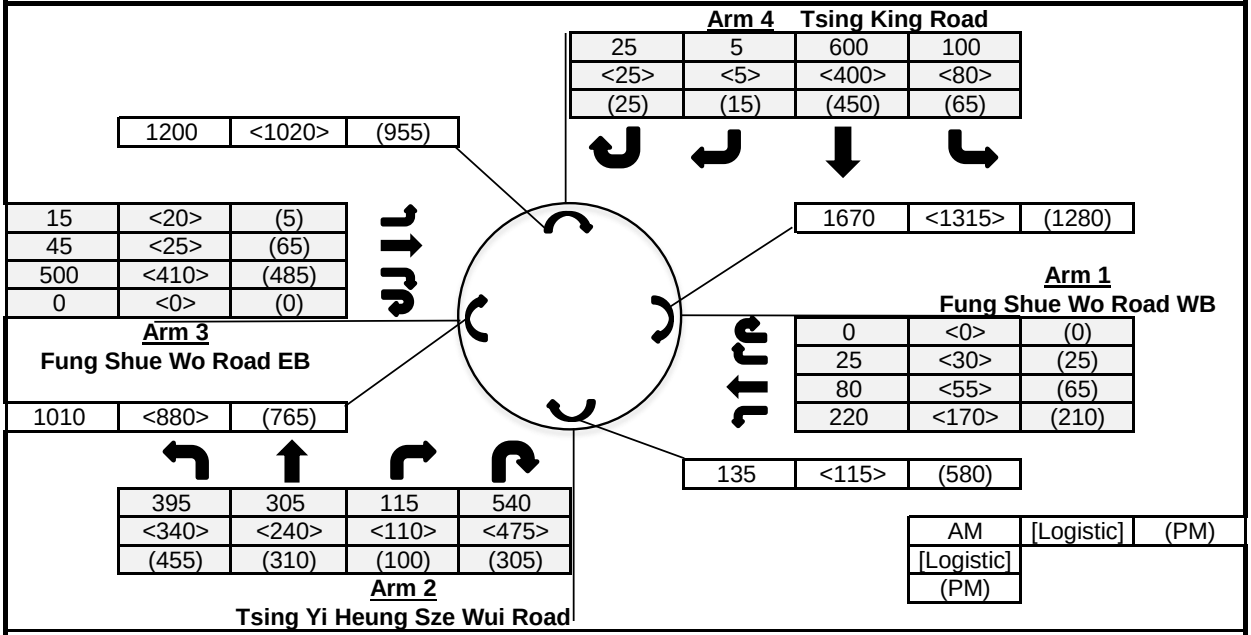
DFC of Critical Approach = AM 0.74
Logistic 0.66
PM 0.77

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA6) Tsing King Road / Fung Shue Wo Road Job No.: 23125HK

Scenario : 2029 Reference Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		6.7	7.3	7.3	6.9
E	=	Entry width (m)		9.7	10	9.2	8.9
L	=	Effective length of flare (m)		16	20	14	16
R	=	Entry radius		55	71	60	62
D	=	Inscribed circle diameter (m)		112	112	112	112
A	=	Entry angle (degree)		36	30	18	25
Q	=	Entry flow (pcu/hr)	AM	325	1355	560	730
			Logistic	255	1165	455	510
			PM	300	1170	555	555
Qc	=	Circulating flow	AM	1670	135	1010	1200
		across entry (pcu/hr)	Logistic	1315	115	880	1020
			PM	1280	580	765	955

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.30	0.22	0.22	0.20
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		1.01	1.04	1.07	1.05
X_2	=	V+((E-V)/(1+2*S))		8.58	9.19	8.62	8.33
M	=	Exp((D-60)/10)		181.27	181.27	181.27	181.27
F	=	303*X_2		2598	2783	2613	2524
Td	=	1+(0.5/(1+M))		1.00	1.00	1.00	1.00
Fc	=	0.21*Td*(1+0.2*X_2)		0.57	0.60	0.57	0.56
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1660	2797	2185	1943
			Logistic	1865	2810	2265	2049
			PM	1886	2522	2336	2088
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.20	0.48	0.26	0.38
			Logistic	0.14	0.41	0.20	0.25
			PM	0.16	0.46	0.24	0.27

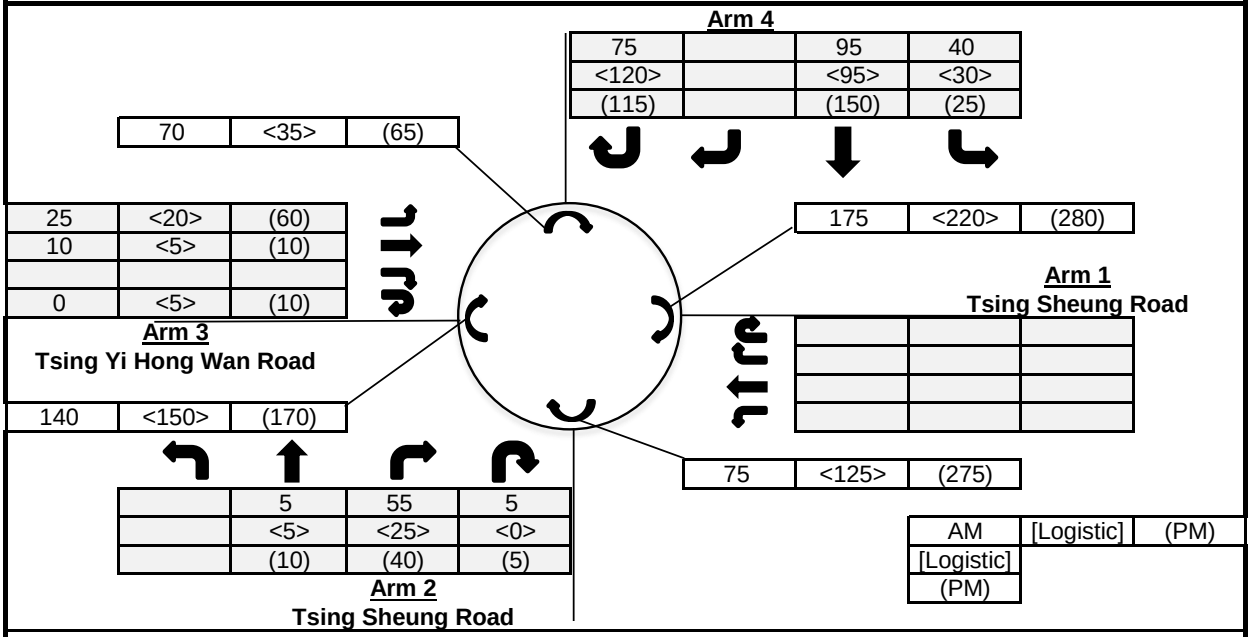
DFC of Critical Approach = AM 0.48
Logistic 0.41
PM 0.46

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA7) Tsing Yi Hong Wan Road / Tsing Sheung Road Job No.: 23125HK

Scenario : 2029 Reference Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)			5.2	3	6.7
E	=	Entry width (m)			9	8.4	12
L	=	Effective length of flare (m)			25	15	23
R	=	Entry radius			63	55	145
D	=	Inscribed circle diameter (m)			53	53	53
A	=	Entry angle (degree)			33	48	38
Q	=	Entry flow (pcu/hr)	AM		65	35	210
			Logistic		30	30	245
			PM		55	80	290
Qc	=	Circulating flow	AM		75	140	70
		across entry (pcu/hr)	Logistic		125	150	35
			PM		275	170	65

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L			0.24	0.58	0.37
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)			1.02	0.97	1.01
X_2	=	V+((E-V)/(1+2*S))			7.76	5.51	9.75
M	=	Exp((D-60)/10)			0.50	0.50	0.50
F	=	303*X_2			2350	1669	2954
Td	=	1+(0.5/(1+M))			1.33	1.33	1.33
Fc	=	0.21*Td*(1+0.2*X_2)			0.71	0.59	0.83
Qe	=	Capacity = K*(F-Fc*Qc)	AM		2349	1537	2938
			Logistic		2313	1531	2968
			PM		2203	1520	2942
DFC	=	Entry Flow/Capacity = Q/Qe	AM		0.03	0.02	0.07
			Logistic		0.01	0.02	0.08
			PM		0.02	0.05	0.10

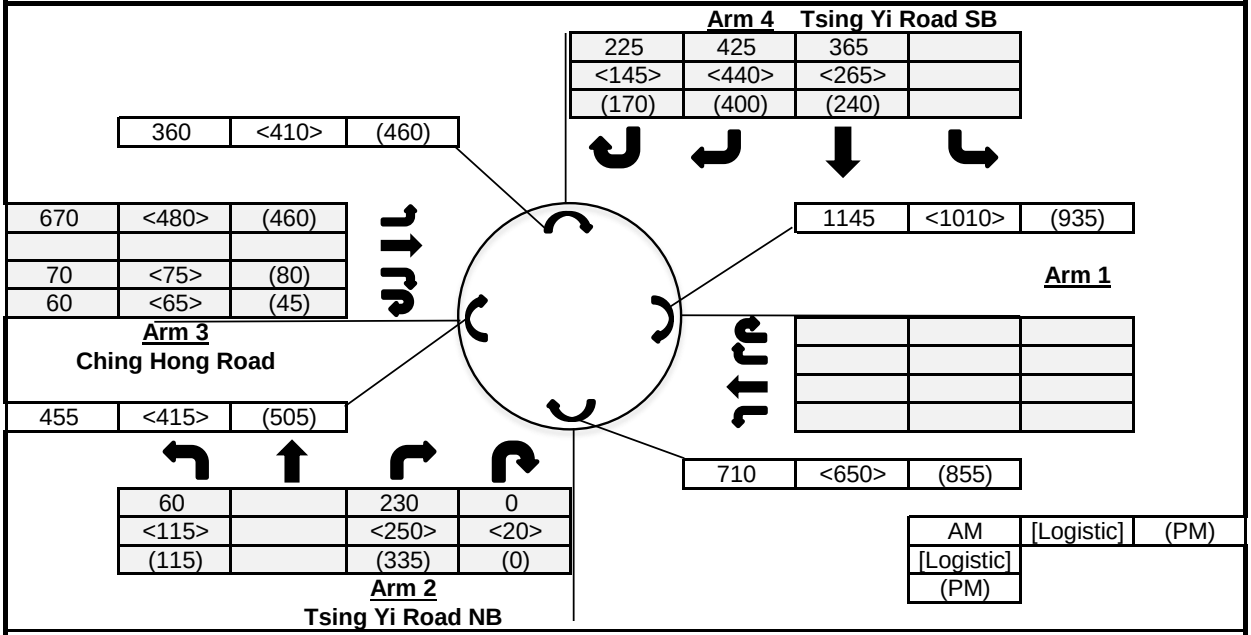
DFC of Critical Approach = AM 0.07 / Logistic 0.08 / PM 0.10

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA8) Tsing Yi Road / Ching Hong Road Job No.: 23125HK

Scenario : 2029 Reference Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)			6.5	7.5	8
E	=	Entry width (m)			8.6	8.5	9
L	=	Effective length of flare (m)			12	4	16
R	=	Entry radius			24.5	30	28
D	=	Inscribed circle diameter (m)			30	30	30
A	=	Entry angle (degree)			44	40	62
Q	=	Entry flow (pcu/hr)	AM		290	800	1015
			Logistic		385	620	850
			PM		450	585	810
Qc	=	Circulating flow	AM		710	455	360
		across entry (pcu/hr)	Logistic		650	415	410
			PM		855	505	460

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L			0.28	0.40	0.10
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)			0.96	0.98	0.90
X_2	=	V+((E-V)/(1+2*S))			7.85	8.06	8.83
M	=	Exp((D-60)/10)			0.05	0.05	0.05
F	=	303*X_2			2377	2441	2677
Td	=	1+(0.5/(1+M))			1.48	1.48	1.48
Fc	=	0.21*Td*(1+0.2*X_2)			0.80	0.81	0.86
Qe	=	Capacity = K*(F-Fc*Qc)	AM		1740	2034	2138
			Logistic		1786	2066	2099
			PM		1629	1995	2060
DFC	=	Entry Flow/Capacity = Q/Qe	AM		0.17	0.39	0.47
			Logistic		0.22	0.30	0.40
			PM		0.28	0.29	0.39

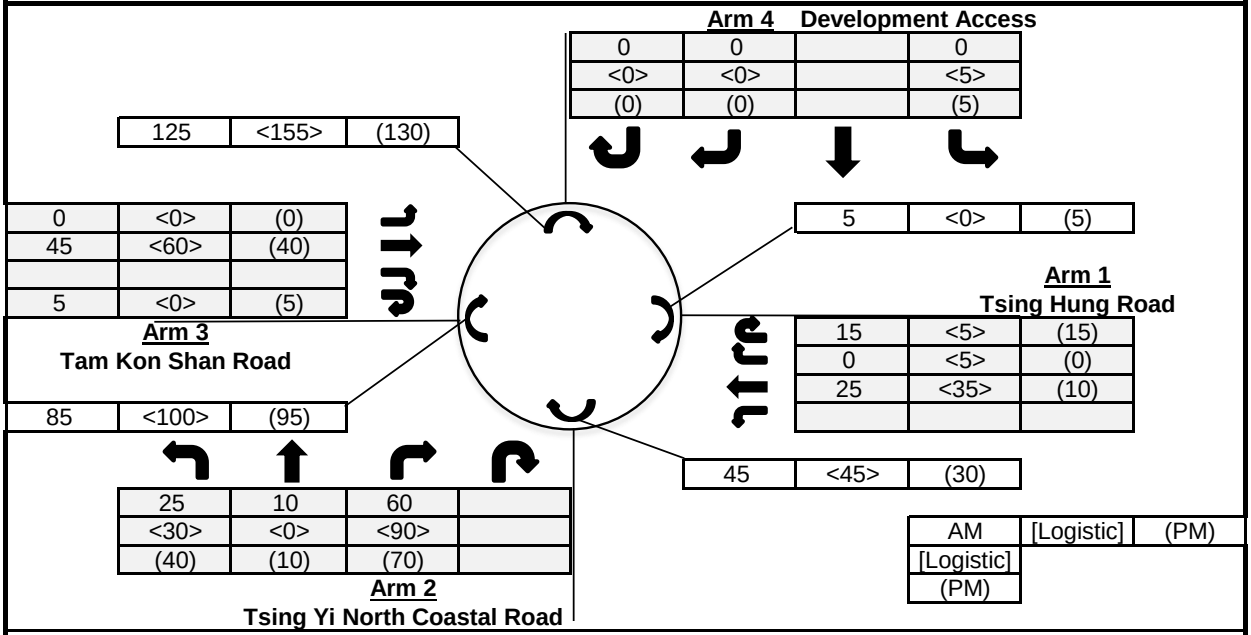
DFC of Critical Approach = AM 0.47
Logistic 0.40
PM 0.39

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA9) Tam Kon Shan Road Job No.: 23125HK

Scenario : 2029 Reference Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		3.3	4	3.4	8.5
E	=	Entry width (m)		3.9	4.9	5.8	15.1
L	=	Effective length of flare (m)		10	10	10	10
R	=	Entry radius		32	97	52	34
D	=	Inscribed circle diameter (m)		108	108	108	108
A	=	Entry angle (degree)		61	32	31	46
Q	=	Entry flow (pcu/hr)	AM	40	95	50	0
			Logistic	45	120	60	5
			PM	25	120	45	5
Qc	=	Circulating flow	AM	5	45	85	125
		across entry (pcu/hr)	Logistic	0	45	100	155
			PM	5	30	95	130

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.10	0.14	0.38	1.06
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		0.91	1.03	1.03	0.96
X_2	=	V+((E-V)/(1+2*S))		3.80	4.70	4.76	10.62
M	=	Exp((D-60)/10)		121.51	121.51	121.51	121.51
F	=	303*X_2		1152	1424	1442	3218
Td	=	1+(0.5/(1+M))		1.00	1.00	1.00	1.00
Fc	=	0.21*Td*(1+0.2*X_2)		0.37	0.41	0.41	0.66
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1048	1450	1444	3025
			Logistic	1050	1450	1438	3006
			PM	1048	1456	1440	3022
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.04	0.07	0.03	0.00
			Logistic	0.04	0.08	0.04	0.00
			PM	0.02	0.08	0.03	0.00

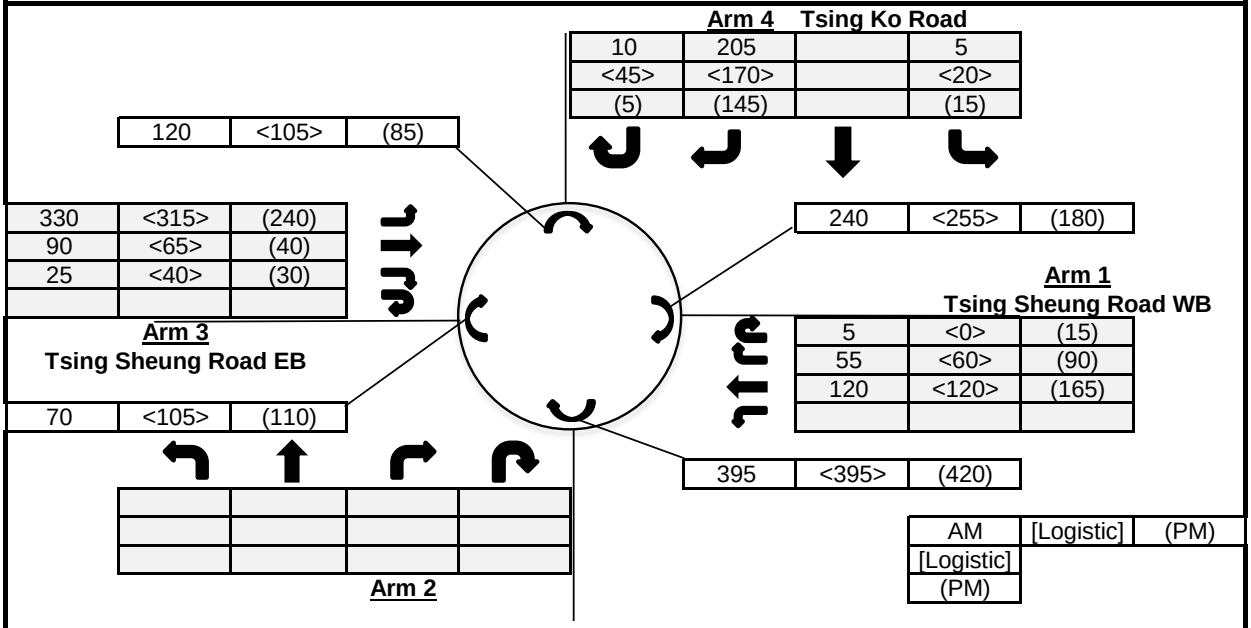
DFC of Critical Approach = AM 0.07
Logistic 0.08
PM 0.08

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA10) Tsing Sheung Road / Tsing Ko Road Job No.: 23125HK

Scenario : 2029 Reference Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		6.6		5.6	6.4
E	=	Entry width (m)		12.9		16	11.6
L	=	Effective length of flare (m)		18		30	30
R	=	Entry radius		47		180	75
D	=	Inscribed circle diameter (m)		68		68	68
A	=	Entry angle (degree)		41		22	46
Q	=	Entry flow (pcu/hr)	AM	180		445	220
			Logistic	180		420	235
			PM	270		310	165
Qc	=	Circulating flow	AM	240		70	120
		across entry (pcu/hr)	Logistic	255		105	105
			PM	180		110	85

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.56		0.55	0.28
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		0.99		1.07	0.98
X_2	=	V+((E-V)/(1+2*S))		9.57		10.53	9.74
M	=	Exp((D-60)/10)		2.23		2.23	2.23
F	=	303*X_2		2900		3191	2953
Td	=	1+(0.5/(1+M))		1.16		1.16	1.16
Fc	=	0.21*Td*(1+0.2*X_2)		0.71		0.75	0.72
Qe	=	Capacity = K*(F-Fc*Qc)	AM	2703		3362	2810
			Logistic	2693		3333	2821
			PM	2745		3329	2835
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.07		0.13	0.08
			Logistic	0.07		0.13	0.08
			PM	0.10		0.09	0.06

DFC of Critical Approach = AM 0.13
Logistic 0.13
PM 0.10

CTA Consultants Ltd.

TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

Junction: **(J1) Tsing Yi Road West / Cheung Tsing Highway**

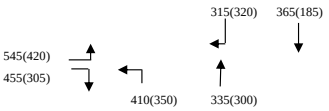
Description: **2029 Design Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak		
						Left	Right		A.M.	P.M.			A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road West	S		2	A	3.5	0	0	0	0%	0%	2105	6135	2105	2105	5910	5835	242	0.115	0.115	182	0.087	0.087
	S		2	A	3.3	0	20	0	47%	98%	2085	0	2015	1940	0	0	232	0.115		168	0.087	
	S		3	A	3.3	0	17.5	1	100%	100%	1945	0	1790	1790	0	0	206	0.115		155	0.087	
Cheung Tsing Highway	E		3	A,B	3.4	20	0	1	100%	100%	1955	1955	1820	1820	1820	1820	545	0.299		420	0.231	
	E		4	B	3.5	0	30	0	100%	100%	2105	4210	2005	2005	3990	3990	229	0.114		153	0.076	
			5	B	3.5	0	25	0	100%	100%	2105	0	1985	1985	0	0	226	0.114	0.114	152	0.076	0.076
Tsing Yi Road West	N		1	C	3.6	20	0	1	100%	100%	1975	4090	1835	1835	3950	3950	410	0.223	0.223	350	0.191	0.191
	N		1	C	3.6	0	0	0	0%	0%	2115	0	2115	2115	0	0	335	0.158		300	0.142	
																			*			*

Pedestrian crossing			
	5P	C	green time = 11s
	6P	C	green time = 18s
	7P	A	green time = 14s
	8P	B	green time = 15s

Notes:

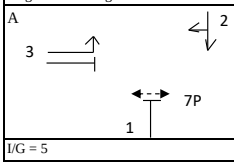
Traffic Flow (pcu / hr)



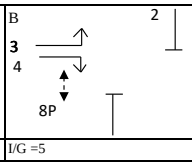
A.M. Check Phase	
εy	0.453
L (sec)	12
C (sec)	90
y pract.	0.780
R.C. (%)	**72%**

P.M. Check Phase	
εy	0.354
L (sec)	12
C (sec)	90
y pract.	0.780
R.C. (%)	**120%**

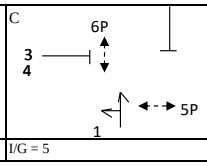
Stage / Phase Diagrams



I/G = 5



I/G =5



I/G = 5

TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

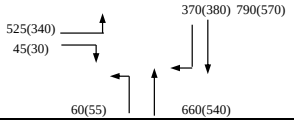
Junction: **(J2) Tsing Hung Road / Tsing Yi Road**

Description: **2029 Design Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		AM Peak			PM Peak		
						Left	Right		AM	PM			AM	PM	AM	PM	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road	S		2	A	3.0	0.0	0	1	0%	0%	1915	4030	1915	1915	4030	4030	375	0.196	0.196	271	0.141	0.195
	S		3	A	3.6	0.0	0	0	0%	0%	2115	0	2115	2115	0	0	415	0.196		299	0.141	
	S		2	A	3.6	0.0	18	0	100%	100%	2115	2115	1950	1950	1950	1950	370	0.190		380	0.195	
Tsing Yi Road	N		5	C	4.0	30.0	0	1	100%	100%	2015	2015	1920	1920	1920	1920	60	0.031		55	0.029	
	N		4	C	3.7	0.0	0	0	0%	0%	2125	4240	2125	2125	4240	4240	331	0.156	0.156	271	0.127	0.127
	N		5	C	3.6	0.0	0	0	0%	0%	2115	0	2115	2115	0	0	329	0.156		269	0.127	
Tsing Hung Road	E		1	A,B	3.3	25.0	0	1	100%	100%	1945	1945	1835	1835	1835	1835	525	0.286		340	0.185	
	E		3	B	4.0	0.0	22	0	100%	100%	2155	2155	2015	2015	2015	2015	45	0.022		30	0.015	
Pedestrian Crossing			6P	A,B																		
			7P	C																		
			8P	C																		

Notes:

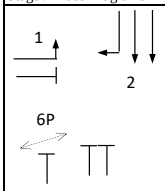
Traffic Flow (pcu / hr) Weekday AM Peak



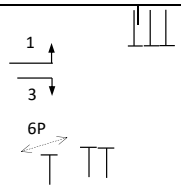
AM Peak Check Phase	
εy	0.352
L (sec)	18
C (sec)	71
y pract.	0.672
R.C. (%)	91%

PM Peak Check Phase	
εy	0.322
L (sec)	18
C (sec)	71
y pract.	0.672
R.C. (%)	108%

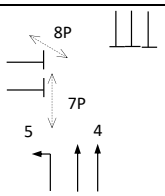
Stage / Phase Diagrams



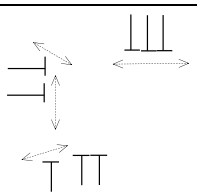
I/G = 5



I/G = 5



I/G = 5



TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

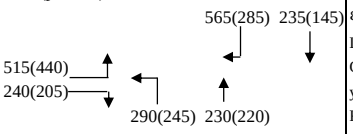
Junction: **(J4) Sai Tso Wan Road / Tsing Yi Road West / Tsing Yi Road**

Description: **2029 Design Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak		
						Left	Right		A.M.	P.M.			A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road	NE		1	A	4.5	15	0	1	100%	100%	2065	2065	1875	1875	290	0.155	0.155	245	0.131	0.131
	NE		1	A	3.4	0	0	0	0%	0%	2095	2095	2095	2095	230	0.110		220	0.105	
Sai Tso Wan Road	NW		3	C,D	3.8	15	0	1	100%	100%	1995	1995	1815	1815	515	0.284		440	0.242	
	NW		4	D	3.8	0	25	0	100%	100%	2135	2135	2015	2015	240	0.119	0.119	205	0.102	0.102
Tsing Yi Road West	SE		2	B,C	3.4	0	0	1	0%	0%	1955	1955	1955	1955	235	0.120		145	0.074	
	SE		2	B,C	3.7	0	25	0	100%	100%	2125	2125	2005	2005	565	0.282	0.282	285	0.142	0.142
Pedestrian crossing			5p	A,B		Green time = 5GM + 7FG = 12s														
			6p	D		Green time = 5GM + 9FG = 14s														
			7p	B,C		Green time = 5GM + 7FG = 12s														
			8p	A,D		Green time = 5GM + 7FG = 12s														

Notes:

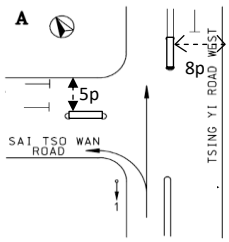
Traffic Flow (pcu / hr)

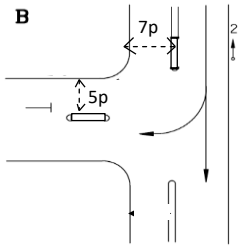


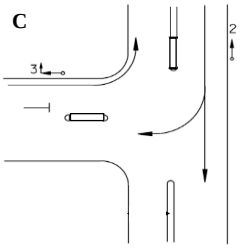
A.M. Check Phase	
εy	0.556
L (sec)	12
C (sec)	120
y pract.	0.810
R.C. (%)	**46%**

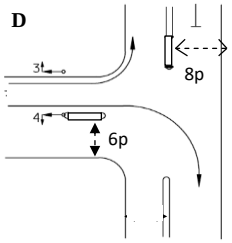
P.M. Check Phase	
εy	0.375
L (sec)	12
C (sec)	120
y pract.	0.810
R.C. (%)	**116%**

Stage / Phase Diagrams









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

TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

Junction: **(J5) VEC Access / Sai Tso Wan Road**

Description: **2029 Design Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		AM Peak			PM Peak		
						Left	Right		AM	PM			AM	PM	AM	PM	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Sai Tso Wan Road	EB	→	1	A	4.0	0.0	0	1	0%	0%	2015	2015	2015	2015	2015	2015	640	0.318	0.318	535	0.266	0.266
Sai Tso Wan Road	WB	↖	3	B	4.0	0.0	10	0	100%	100%	2155	2155	1875	1875	1875	1875	150	0.080	0.080	35	0.019	0.019
	WB	←	2	A,B	4.0	0.0	0	1	0%	0%	2015	2015	2015	2015	2015	2015	600	0.298		720	0.357	
Pedestrian Crossing		↕	4P	C		Min. green time = 7FGm + 5 FGm = 12s																

Notes:
(None)

Traffic Flow (pcu / hr) AM (PM) Peak

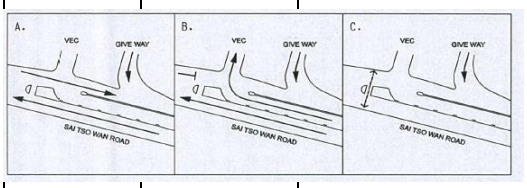
640(535) →

150(35) ↖

600(720) ←

AM Peak Check Phase		PM Peak Check Phase	
εy	0.398	εy	0.284
L (sec)	26	L (sec)	26
C (sec)	100	C (sec)	100
y pract.	0.666	y pract.	0.666
R.C. (%)	67%	R.C. (%)	134%

Stage / Phase Diagrams



I/G = 3 I/G = 8 I/G = 5+12

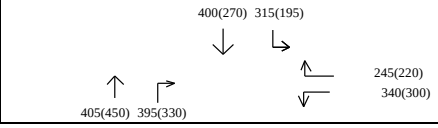
TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

Junction: **(J8) Tsing Yi Road / Tsing Hung Road**
Description: **2029 Design Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) AM	Pro. Turning (%) PM	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	Total Revised Saturation Flow (pcu/hr) AM	Total Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tsing Yi Road West	S	↓	1	A	3.0	0.0	0	0	0%	0%	2055	4160	2055	2055	4160	4160	198	0.096	0.183	133	0.065	0.113
	S	↓	1	A	3.5	0.0	0	0	0%	0%	2105	0	2105	2105	0	0	202	0.096		137	0.065	
	S	↳	1	A	3.7	10.0	0	1	100%	100%	1985	1985	1725	1725	1725	1725	315	0.183		195	0.113	
Tsing Yi Road West	N	↑	2	A,B	3.5	0.0	0	1	0%	0%	1965	4070	1965	1965	4070	4070	196	0.100		217	0.111	
	N	↑	2	A,B	3.5	0.0	0	0	0%	0%	2105	0	2105	2105	0	0	209	0.100		233	0.111	
	N	↱	3	B	3.3	0.0	18	0	100%	100%	2085	2085	1925	1925	1925	1925	395	0.205	0.205	330	0.171	0.171
Ching Hong Road	W	⇅	4	C	3.4	18.0	20	0	20% / 80%	19% / 81%	2095	0	1945	1945	0	0	306	0.157	0.157	272	0.140	0.140
	W	↓	4	C	3.4	15.0	0	1	100%	100%	1955	4050	1775	1775	3720	3720	279	0.157		248	0.140	
Pedestrian crossing		↕	5P	A,B		Min. Green time = 11s (G) + 8s (FS) = 19s																
		↕	5P	C		Min. Green time = 5s (G) + 12s (FS) = 17s																
Pedestrian Crossing																						

Notes:

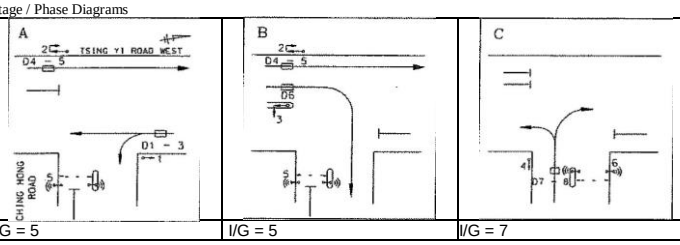
Traffic Flow (pcu / hr) Weekday AM Peak



AM Peak Check Phase	
εy	0.545
L (sec)	14
C (sec)	100
y pract.	0.774
R.C. (%)	42%

PM Peak Check Phase	
εy	0.424
L (sec)	14
C (sec)	100
y pract.	0.774
R.C. (%)	82%

Stage / Phase Diagrams



I/G = 5 I/G = 5 I/G = 7

TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

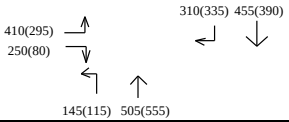
Junction: **(J9) Tsing Yi Road West / Liu To Road**
Description: **2029 Design Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		AM Peak			PM Peak		
						Left	Right		AM	PM			AM	PM	AM	PM	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road West	S		2	A,B	3.3	0.0	0	1	0%	0%	1945	4030	1945	1945	4030	4030	220	0.113		188	0.097	
	S		2	A,B	3.3	0.0	0	0	0%	0%	2085	0	2085	2085	0	0	235	0.113		202	0.097	
	S		3	B	3.3	0.0	22	0	100%	100%	2085	2085	1950	1950	1950	1950	310	0.159	0.159	335	0.172	0.172
Tsing Yi Road West	N		1	A	3.2	10.0	0	1	49%	37%	1935	4100	1800	1830	3965	3995	295	0.164	0.164	307	0.168	0.168
	N		1	A	4.1	0.0	0	0	0%	0%	2165	0	2165	2165	0	0	355	0.164		363	0.168	
Liu To Road	E		5	B,C	3.2	10.0	0	1	100%	100%	1935	1935	1685	1685	1685	1685	410	0.243		295	0.175	
	E		4	C	4.1	0.0	18	0	100%	100%	2165	2165	2000	2000	2000	2000	250	0.125	0.125	80	0.040	0.040
Pedestrian crossing			6P	A,D		Min. Green time = 5s (G) + 9s (FS) = 14s																
			7P	C,D		Min. Green time = 5s (G) + 13s (FS) = 18s																
			8P	D		Min. Green time = 5s (G) + 8s (FS) = 13s																

Pedestrian Crossing

Notes:

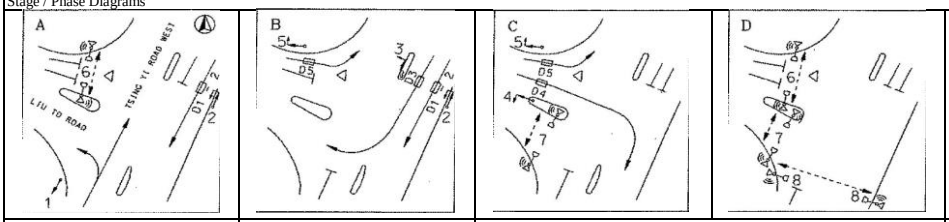
Traffic Flow (pcu / hr) Weekday AM Peak



AM Peak Check Phase	
εy	0.448
L (sec)	38
C (sec)	110
y pract.	0.589
R.C. (%)	31%

PM Peak Check Phase	
εy	0.380
L (sec)	38
C (sec)	100
y pract.	0.558
R.C. (%)	47%

Stage / Phase Diagrams



I/G = 5 | I/G = 7 | I/G = 11+13

TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

Junction: **(J10) Tsing Yi Road West / Fung Shue Wo Road**
Description: **2029 Design Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) AM	Pro. Turning (%) PM	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	Total Revised Saturation Flow (pcu/hr) AM	Total Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Fung Shue Wo Road	S	↓	1	A,D	4.1	0.0	0	0	0%	0%	2165	4310	2165	2165	4310	4310	311	0.144	0.161	286	0.132	0.132
(To Tsing Yi Road West)	S	↓	1	A,D	3.9	0.0	0	0	0%	0%	2145	0	2145	2145	0	0	309	0.144		284	0.132	
Fung Shue Wo Road	S	↓	1	A,D	4.0	0.0	0	1	0%	0%	2015	4170	2015	2015	4170	4170	324	0.161		266	0.132	
(To Fung Shue Wo Road)	S	↓	1	A,D	4.0	0.0	0	0	0%	0%	2155	0	2155	2155	0	0	346	0.161		284	0.132	
Tsing Yi Road West	N	↑	2	A,B	3.5	0.0	0	1	0%	0%	1965	4070	1965	1965	4070	4070	338	0.172		340	0.173	
	N	↑	2	A,B	3.5	0.0	0	0	0%	0%	2105	0	2105	2105	0	0	362	0.172		365	0.173	
	N	↱	3	B	3.6	0.0	18	0	100%	100%	2115	2115	1950	1950	1950	1950	220	0.113	0.113	145	0.074	0.074
Fung Shue Wo Road	N	↰	4	C	3.8	35.0	0	1	100%	100%	1995	4150	1915	1915	3990	3990	72	0.038		70	0.036	
	N	↰	4	C	4.0	38.0	0	0	100%	100%	2155	0	2075	2075	0	0	78	0.038		75	0.036	
Fung Shue Wo Road	N	↱	4	C	3.6	0.0	43	0	100%	100%	2115	4230	2045	2045	4085	4085	323	0.158	0.158	275	0.135	0.135
	N	↱	4	C	3.6	0.0	40	0	100%	100%	2115	0	2040	2040	0	0	322	0.158		275	0.135	

Pedestrian crossing	5p	D	Min. Green time = 5s (G) + 8s (FS) = 13s
	6P	B,C	Min. Green time = 5s (G) + 8s (FS) = 13s
	7P	A,C,D	Min. Green time = 5s (G) + 8s (FS) = 13s
	8P	A,B,D	Min. Green time = 5s (G) + 7s (FS) = 12s

Notes:

Traffic Flow (pcu / hr) Weekday AM Peak

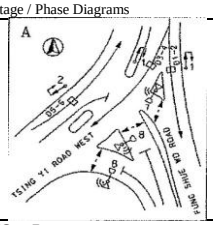
620(570) 670(550)

700(705) 220(145) 150(145) 645(550)

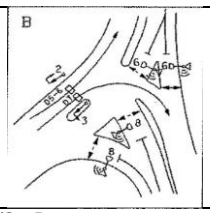
AM Peak Check Phase	
εy	0.431
L (sec)	12
C (sec)	100
y pract.	0.792
R.C. (%)	84%

PM Peak Check Phase	
εy	0.341
L (sec)	12
C (sec)	100
y pract.	0.792
R.C. (%)	132%

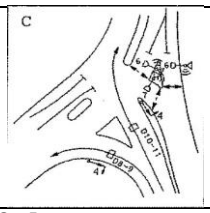
Stage / Phase Diagrams



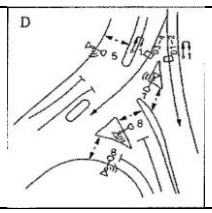
I/G = 5



I/G = 5



I/G = 5



TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

Junction: **(J1) Cheung Tsing Highway / Tsing Yi Road West**

Description: **2029 Design Traffic Flow**

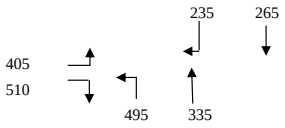
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road West	S		2	A	3.5	0	0	0	0%		2105	6135	2105		5905		178	0.085	0.085			
	S		2	A	3.3	0	20	0	49%		2085	0	2010		0		170	0.085				
	S		2	A	3.3	0	17.5	1	100%		1945	0	1790		0		152	0.085				
Cheung Tsing Highway	E		3	A,B	3.4	20	0	1	100%		1955	1955	1820		1820		405	0.223				
	E		4	B	3.5	0	30	0	100%		2105	4070	2005		3860		265	0.132				
	E		4	B	3.5	0	25	1	100%		1965	0	1855		0		245	0.132	0.132			
Tsing Yi Road West	N		1	C	3.6	20	0	1	100%		1975	4090	1835		3950		495	0.270	0.270			
	N		1	C	3.6	0	0	0	0%		2115	0	2115		0		335	0.158				

Pedestrian crossing

5P	C	Green time = 5s (G) + 6s (FS) = 11s
6P	C	Green time = 8s (G) + 10s (FS) = 18s
7P	A	Green time = 5s (G) + 9s (FS) = 14s
8P	B	Green time = 5s (G) + 10s (FS) = 15s

Notes:

Traffic Flow (pcu / hr)

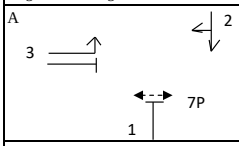


Logistic Check Phase

εy	0.487
L (sec)	12
C (sec)	90
y pract.	0.780
R.C. (%)	60%

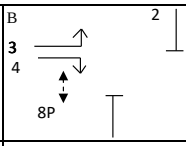
Stage / Phase Diagrams

A



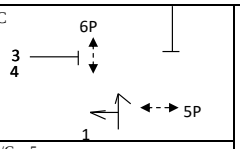
I/G = 5

B



I/G =5

C



I/G = 5

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

TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

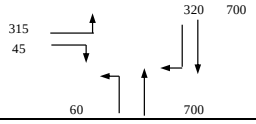
Junction: **J2 - Tsing Hung Road / Tsing Yi Road**

Description: **2029 Design Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road	S		2	A	3.0	0.0	0	1	0%		1915	4030	1915		4030		333	0.174	0.174			
	S		3	A	3.6	0.0	0	0	0%		2115	0	2115		0		367	0.174				
	S		2	A	3.6	0.0	18	0	100%		2115	2115	1950		1950		320	0.164				
Tsing Yi Road	N		5	C	4.0	30.0	0	1	100%		2015	2015	1920		1920		60	0.031				
	N		4	C	3.7	0.0	0	0	0%		2125	4240	2125		4240		351	0.165	0.165			
	N		5	C	3.6	0.0	0	0	0%		2115	0	2115		0		349	0.165				
Tsing Hung Road	E		1	A,B	3.3	25.0	0	1	100%		1945	1945	1835		1835		315	0.172				
	E		3	B	4.0	0.0	22	0	100%		2155	2155	2015		2015		45	0.022				
Pedestrian Crossing			6P	A,B																		
			7P	C																		
			8P	C																		

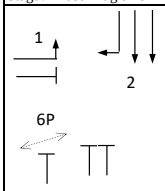
Notes:

Traffic Flow (pcu / hr) Weekday AM Peak

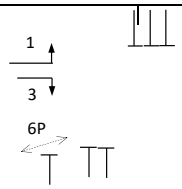


Logistic Peak Check Phase	
εy	0.339
L (sec)	18
C (sec)	71
y pract.	0.672
R.C. (%)	98%

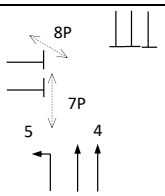
Stage / Phase Diagrams



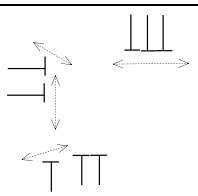
I/G = 5



I/G = 5



I/G = 5



TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

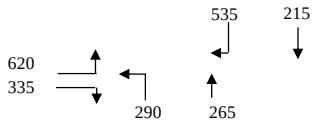
Junction: **(J4) Sai Tso Wan Road / Tsing Yi Road West / Tsing Yi Road**

Description: **2029 Design Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road	NE		1	A	4.5	15	0	1	100%		2065	2065	1875		290	0.155	0.155			
	NE		1	A	3.4	0	0	0	0%		2095	2095	2095		265	0.126				
Sai Tso Wan Road	NW		3	C,D	3.8	15	0	1	100%		1995	1995	1815		620	0.342				
	NW		4	D	3.8	0	25	0	100%		2135	2135	2015		335	0.166	0.166			
Tsing Yi Road West	SE		2	B,C	3.4	0	0	1	0%		1955	1955	1955		215	0.110				
	SE		2	B,C	3.7	0	25	0	100%		2125	2125	2005		535	0.267	0.267			
Pedestrian crossing			5p	A,B		Green time = 5GM + 7FG = 12s														
			6p	D		Green time = 5GM + 9FG = 14s														
			7p	B,C		Green time = 5GM + 7FG = 12s														
			8p	A,D		Green time = 5GM + 7FG = 12s														

Notes:

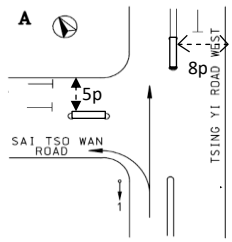
Traffic Flow (pcu / hr)

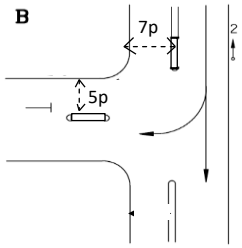


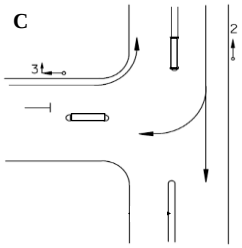
Logistic Peak Check Phase

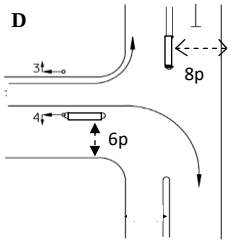
εy	0.588
L (sec)	12
C (sec)	71
y pract.	0.748
R.C. (%)	27%

Stage / Phase Diagrams









I/G = 5	I/G =5		I/G = 5	
I/G = 5	I/G =8+12	I/G = 2		

TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

Junction: **(J5) VEC Access / Sai Tso Wan Road**

Description: **2029 Design Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Sai Tso Wan Road	EB	→	1	A	4.0	0.0	0	1	0%		2015	2015	2015		2015		825	0.409	0.409			
Sai Tso Wan Road	WB	↖	3	B	4.0	0.0	10	0	100%		2155	2155	1875		1875		130	0.069	0.069			
	WB	←	2	A,B	4.0	0.0	0	1	0%		2015	2015	2015		2015		625	0.310				
Pedestrian Crossing		↕	4P	C		Min. green time = 7FGm + 5 FGm = 12s																

Notes:
(None)

Traffic Flow (pcu / hr) AM (PM) Peak

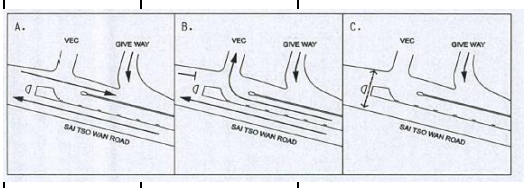
825 →

↖ 130

← 625

Logistic Peak Check Phase	
εy	0.479
L (sec)	26
C (sec)	100
y pract.	0.666
R.C. (%)	39%

Stage / Phase Diagrams



I/G = 3 I/G = 8 I/G = 5+12

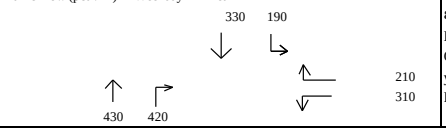
TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

Junction: **J8 - Tsing Yi Road / Tsing Hung Road**
Description: **2029 Design Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road West	S	↓	1	A	3.0	0.0	0	0	0%		2055	4160	2055		4160		163	0.079	0.110			
	S	↓	1	A	3.5	0.0	0	0	0%		2105	0	2105		0		167	0.079				
	S	↳	1	A	3.7	10.0	0	1	100%		1985	1985	1725		1725		190	0.110				
Tsing Yi Road West	N	↑	2	A,B	3.5	0.0	0	1	0%		1965	4070	1965		4070		208	0.106				
	N	↑	2	A,B	3.5	0.0	0	0	0%		2105	0	2105		0		222	0.106				
	N	↱	3	B	3.3	0.0	18	0	100%		2085	2085	1925		1925		420	0.218	0.218			
Ching Hong Road	W	⇅	4	C	3.4	18.0	20	0	23% / 77%		2095	0	1945		0		272	0.140	0.140			
	W	↓	4	C	3.4	15.0	0	1	100%		1955	4050	1775		3720		248	0.140				
Pedestrian crossing		↕	5P	A,B		Min. Green time = 11s (G) + 8s (FS) = 19s																
			5P	C		Min. Green time = 5s (G) + 12s (FS) = 17s																
Pedestrian Crossing																						

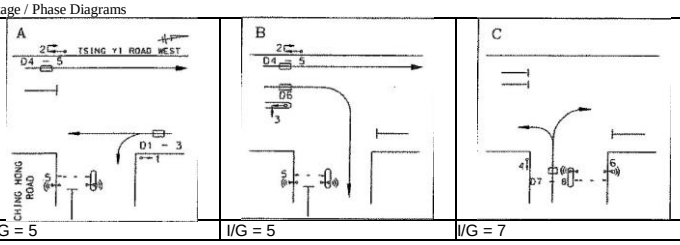
Notes:

Traffic Flow (pcu / hr) Weekday AM Peak



Logistic Peak Check Phase	
εy	0.468
L (sec)	12
C (sec)	71
y pract.	0.748
R.C. (%)	60%

Stage / Phase Diagrams



I/G = 5 I/G = 5 I/G = 7

TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

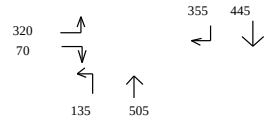
Junction: **J9 - Tsing Yi Road West / Liu To Road**

Description: **2029 Design Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road West	S		2	A,B	3.3	0.0	0	1	0%		1945	4030	1945		4030		215	0.110				
	S		2	A,B	3.3	0.0	0	0	0%		2085	0	2085		0		230	0.110				
	S		3	B	3.3	0.0	22	0	100%		2085	2085	1950		1950		355	0.182	0.182			
Tsing Yi Road West	N		1	A	3.2	10.0	0	1	46%		1935	4100	1810		3975		291	0.161	0.161			
	N		1	A	4.1	0.0	0	0	0%		2165	0	2165		0		349	0.161				
Liu To Road	E		5	B,C	3.2	10.0	0	1	100%		1935	1935	1685		1685		320	0.190				
	E		4	C	4.1	0.0	18	0	100%		2165	2165	2000		2000		70	0.035	0.035			
Pedestrian crossing			6P	A,D		Min. Green time = 5s (G) + 9s (FS) = 14s																
			7P	C,D		Min. Green time = 5s (G) + 13s (FS) = 18s																
			8P	D		Min. Green time = 5s (G) + 8s (FS) = 13s																
Pedestrian Crossing																						

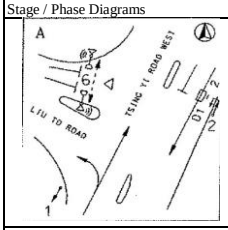
Notes:

Traffic Flow (pcu / hr) Weekday AM Peak

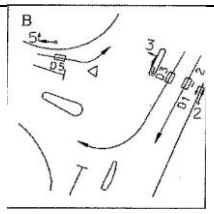


Logistic Peak Check Phase	
εy	0.378
L (sec)	38
C (sec)	110
y pract.	0.589
R.C. (%)	56%

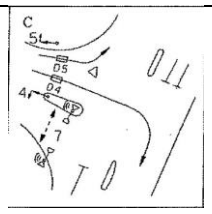
Stage / Phase Diagrams



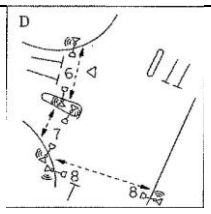
I/G = 5



I/G = 5



I/G = 5



TRAFFIC SIGNALS CALCULATION Job No: 23125HK **CTA Consultants Ltd.**

Junction: **J10 - Tsing Yi Road West / Fung Shue Wo Road**

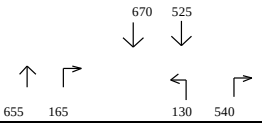
Description: **2029 Design Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Fung Shue Wo Road	S	↓	1	A,D	4.1	0.0	0	0	0%		2165	4310	2165		4310		337	0.155	0.155			
(To Tsing Yi Road West)	S	↓	1	A,D	3.9	0.0	0	0	0%		2145	0	2145		0		333	0.155				
Fung Shue Wo Road	S	↓	1	A,D	4.0	0.0	0	1	0%		2015	4170	2015		4170		254	0.126				
(To Fung Shue Wo Road)	S	↓	1	A,D	4.0	0.0	0	0	0%		2155	0	2155		0		271	0.126				
Tsing Yi Road West	N	↑	2	A,B	3.5	0.0	0	1	0%		1965	4070	1965		4070		316	0.161				
	N	↑	2	A,B	3.5	0.0	0	0	0%		2105	0	2105		0		339	0.161				
	N	↱	3	B	3.6	0.0	18	0	100%		2115	2115	1950		1950		165	0.085	0.085			
Fung Shue Wo Road	N	↰	4	C	3.8	35.0	0	1	100%		1995	4150	1915		3990		62	0.033				
	N	↰	4	C	4.0	38.0	0	0	100%		2155	0	2075		0		68	0.033				
Fung Shue Wo Road	N	↱	4	C	3.6	0.0	43	0	100%		2115	4230	2045		4085		270	0.132	0.132			
	N	↱	4	C	3.6	0.0	40	0	100%		2115	0	2040		0		270	0.132				

Pedestrian crossing	5p	D	Min. Green time = 5s (G) + 8s (FS) = 13s
	6P	B,C	Min. Green time = 5s (G) + 8s (FS) = 13s
	7P	A,C,D	Min. Green time = 5s (G) + 8s (FS) = 13s
	8P	A,B,D	Min. Green time = 5s (G) + 7s (FS) = 12s

Notes:

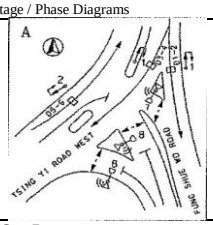
Traffic Flow (pcu / hr) Weekday AM Peak



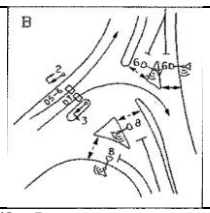
Logistic Peak Check Phase

εy	0.372
L (sec)	12
C (sec)	100
y pract.	0.792
R.C. (%)	113%

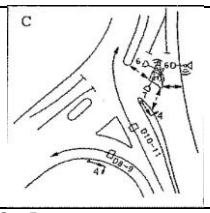
Stage / Phase Diagrams



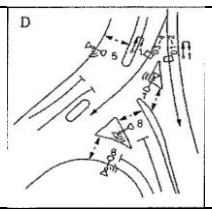
I/G = 5



I/G = 5



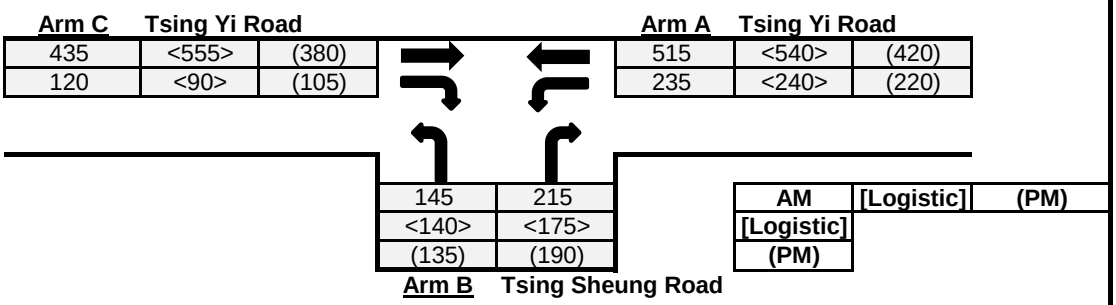
I/G = 5



Priority Junction Calculation

Junction : (J3) Tsing Yi Road / Tsing Sheung Road Job No.: 23125HK

Scenario : 2029 Design Traffic Flow



The predictive equations of capacity of movement are:

Q-BA = D(627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB))

Q-BC = E(745 - Y(0.364q-AC + 0.144q-AB))

Q-CB = F(745 - 0.364Y(q-AC + q-AB))

The geometric parameters represented by D, E, F are:

D = (1 + 0.094(w-BA - 3.65))(1 + 0.0009(V-rBA - 120))(1 + 0.0006(V-IBA - 150))

E = (1 + 0.094(w-BC - 3.65))(1 + 0.0009(V-rBC - 120))

F = (1 + 0.094(w-CB - 3.65))(1 + 0.0009(V-rCB - 120))

where

Y = 1 - 0.0345W

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	**Input**						**Calculated**	
W	14	V-rBA	50	w-BA	4.5	D	0.951
W-CR	0	V-IBA	50	w-BC	4.5	E	1.012
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	0	V-rBC	50	w-CB	0	F	0.616
Minor Road Share LT&RT? (Yes: 1, No: 0)	0	V-rCB	50			Y	0.517

Analysis :	**Traffic Flow pcu/hr**	**AM**	**Logistic**	**PM**	**Capacity pcu/hr**	**AM**	**Logistic**	**PM**	
	q-CA	435	555	380	Q-BA	408	397	436	
	q-CB	120	90	105	Q-BC	638	633	657	
	q-AB	235	240	220	Q-CB	372	368	384	
	q-AC	515	540	420	Q-CA	N/A	N/A	N/A	(If C-B blocked C-
	q-BA	215	175	190	Q-BAC	N/A	N/A	N/A	(If Minor Road Share LT&RT)
	q-BC	145	140	135					
	f	0.403	0.444	0.415					

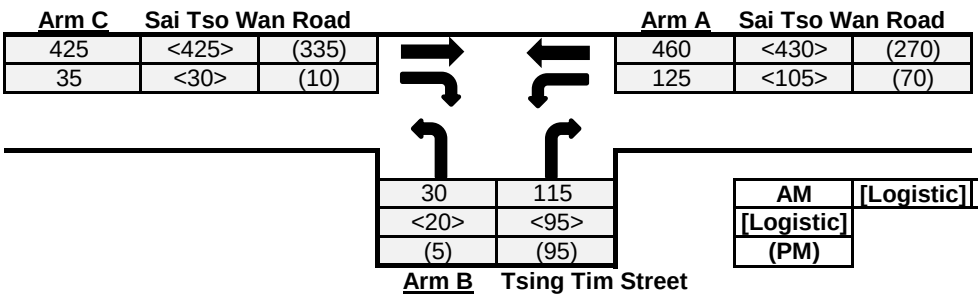
Results :	**Ratio of Flow-to-Capacity**	**AM**	**Logistic**	**PM**
	B-A	0.53	0.44	0.44
	B-C	0.23	0.22	0.21
	C-B	0.32	0.24	0.27
	C-A	N/A	N/A	N/A
	B-AC	N/A	N/A	N/A
	Critical DFC	**0.53**	**0.44**	**0.44**

CTA Consultants Ltd.

Priority Junction Calculation

Junction : (J6) Sai Tso Wan Road / Tsing Tim Street Job No.: 24001HK

Scenario : 2029 Design Traffic Flow



The predictive equations of capacity of movement are:

Q-BA = D(627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB))

Q-BC = E(745 - Y(0.364q-AC + 0.144q-AB))

Q-CB = F(745 - 0.364Y(q-AC + q-AB))

The geometric parameters represented by D, E, F are:

D = (1 + 0.094(w-BA - 3.65))(1 + 0.0009(V-rBA - 120))(1 + 0.0006(V-IBA - 150))

E = (1 + 0.094(w-BC - 3.65))(1 + 0.0009(V-rBC - 120))

F = (1 + 0.094(w-CB - 3.65))(1 + 0.0009(V-rCB - 120))

where

Y = 1 - 0.0345W

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	**Input**						**Calculated**	
W	7	V-rBA	50	w-BA	3	D	0.827
W-CR	0	V-IBA	50	w-BC	3	E	0.880
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	0	V-rBC	50	w-CB	0	F	0.616
Minor Road Share LT&RT? (Yes: 1, No: 0)	0	V-rCB	50			Y	0.759

Analysis :	**Traffic Flow pcu/hr**	**AM**	**Logistic**	**PM**	**Capacity pcu/hr**	**AM**	**Logistic**	**PM**	
	q-CA	425	425	335	Q-BA	330	340	399	
	q-CB	35	30	10	Q-BC	532	541	583	
	q-AB	125	105	70	Q-CB	359	368	401	
	q-AC	460	430	270	Q-CA	N/A	N/A	N/A	(If C-B blocked C-
	q-BA	115	95	95	Q-BAC	N/A	N/A	N/A	(If Minor Road Share LT&RT)
	q-BC	30	20	5					
	f	0.207	0.174	0.050					

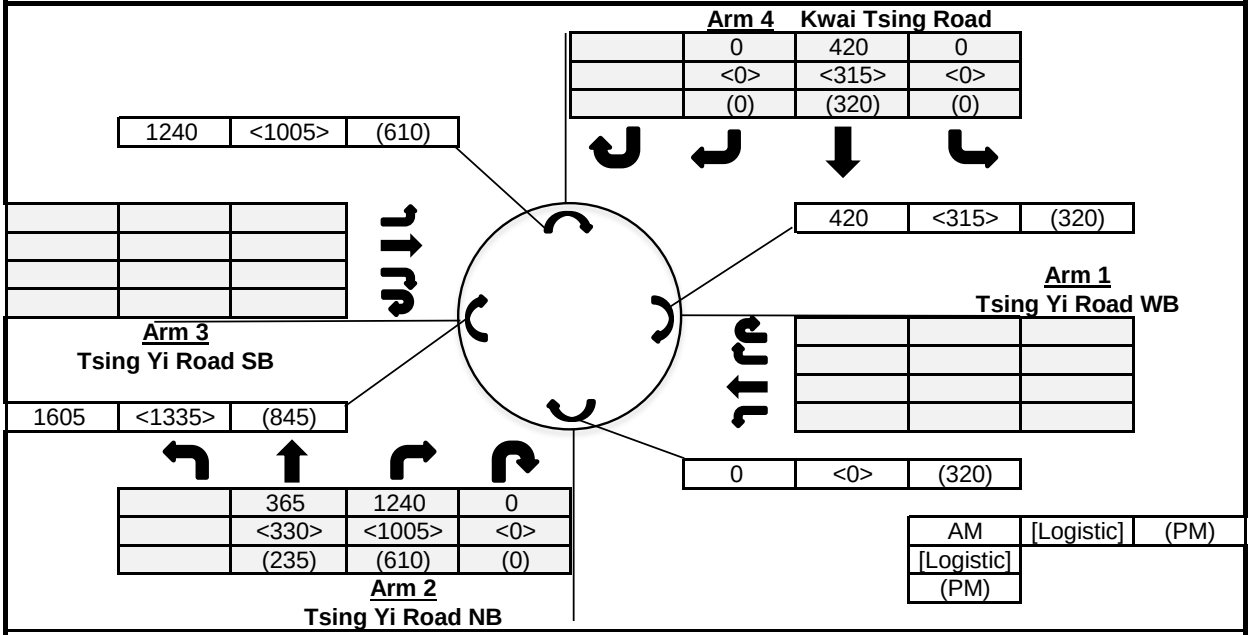
Results :	**Ratio of Flow-to-Capacity**	**AM**	**Logistic**	**PM**
	B-A	0.35	0.28	0.24
	B-C	0.06	0.04	0.01
	C-B	0.10	0.08	0.02
	C-A	N/A	N/A	N/A
	B-AC	N/A	N/A	N/A
Critical DFC		**0.35**	**0.28**	**0.24**

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA1) Tsing Yi Interchange (North) Job No.: 23125HK

Scenario : 2029 Design Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)			6		6
E	=	Entry width (m)			7		7
L	=	Effective length of flare (m)			5		5
R	=	Entry radius			62		41
D	=	Inscribed circle diameter (m)			60		60
A	=	Entry angle (degree)			27		39
Q	=	Entry flow (pcu/hr)	AM		1605		420
			Logistic		1335		315
			PM		845		320
Qc	=	Circulating flow	AM		0		1240
		across entry (pcu/hr)	Logistic		0		1005
			PM		320		610

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L			0.32		0.32
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)			1.04		0.99
X_2	=	V+((E-V)/(1+2*S))			6.61		6.61
M	=	Exp((D-60)/10)			1.00		1.00
F	=	303*X_2			2003		2003
Td	=	1+(0.5/(1+M))			1.25		1.25
Fc	=	0.21*Td*(1+0.2*X_2)			0.61		0.61
Qe	=	Capacity = K*(F-Fc*Qc)	AM		2090		1239
			Logistic		2090		1382
			PM		1886		1621
DFC	=	Entry Flow/Capacity = Q/Qe	AM		0.77		0.34
			Logistic		0.64		0.23
			PM		0.45		0.20

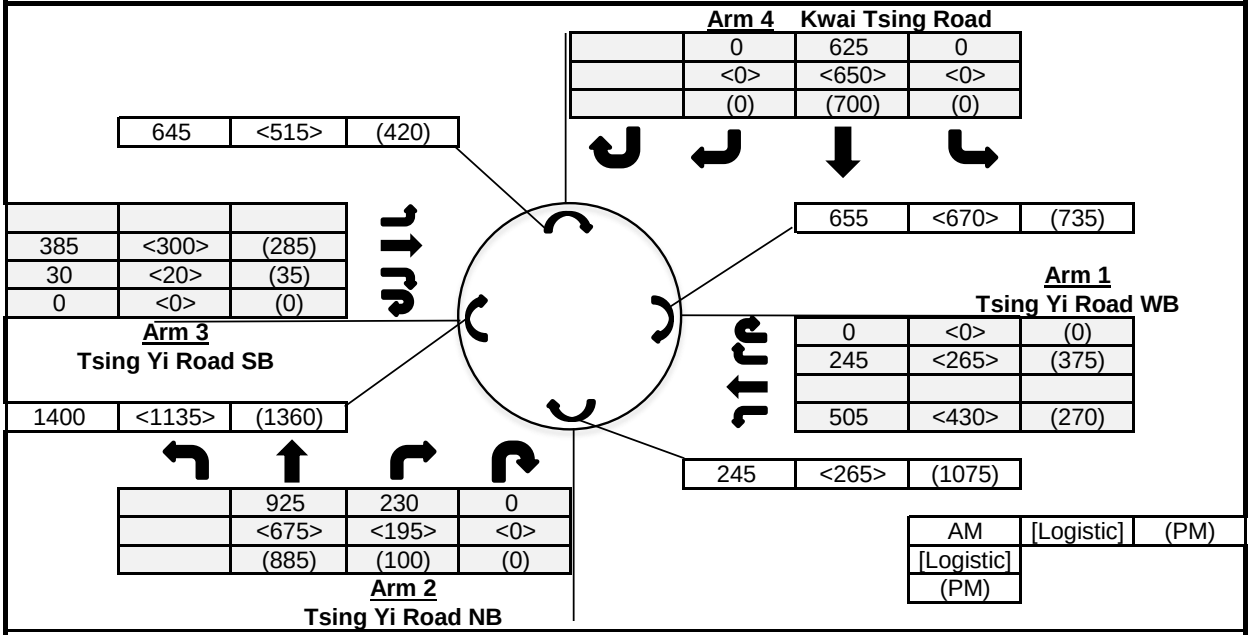
DFC of Critical Approach = AM 0.77
Logistic 0.64
PM 0.45

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA1) Tsing Yi Interchange (South) Job No.: 23125HK

Scenario : 2029 Design Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		7	6.8	7	6
E	=	Entry width (m)		7.2	7	7.3	6.3
L	=	Effective length of flare (m)		5	5	5	5
R	=	Entry radius		23	25	24	44
D	=	Inscribed circle diameter (m)		60	60	60	60
A	=	Entry angle (degree)		43	54	27	23
Q	=	Entry flow (pcu/hr)	AM	750	1155	415	625
			Logistic	695	870	320	650
			PM	645	985	320	700
Qc	=	Circulating flow	AM	655	245	1400	645
		across entry (pcu/hr)	Logistic	670	265	1135	515
			PM	735	1075	1360	420

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.06	0.06	0.10	0.10
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		0.96	0.93	1.02	1.05
X_2	=	V+((E-V)/(1+2*S))		7.18	6.98	7.25	6.25
M	=	Exp((D-60)/10)		1.00	1.00	1.00	1.00
F	=	303*X_2		2175	2114	2197	1894
Td	=	1+(0.5/(1+M))		1.25	1.25	1.25	1.25
Fc	=	0.21*Td*(1+0.2*X_2)		0.64	0.63	0.64	0.59
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1688	1816	1321	1590
			Logistic	1679	1804	1494	1671
			PM	1639	1332	1347	1730
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.44	0.64	0.31	0.39
			Logistic	0.41	0.48	0.21	0.39
			PM	0.39	0.74	0.24	0.40

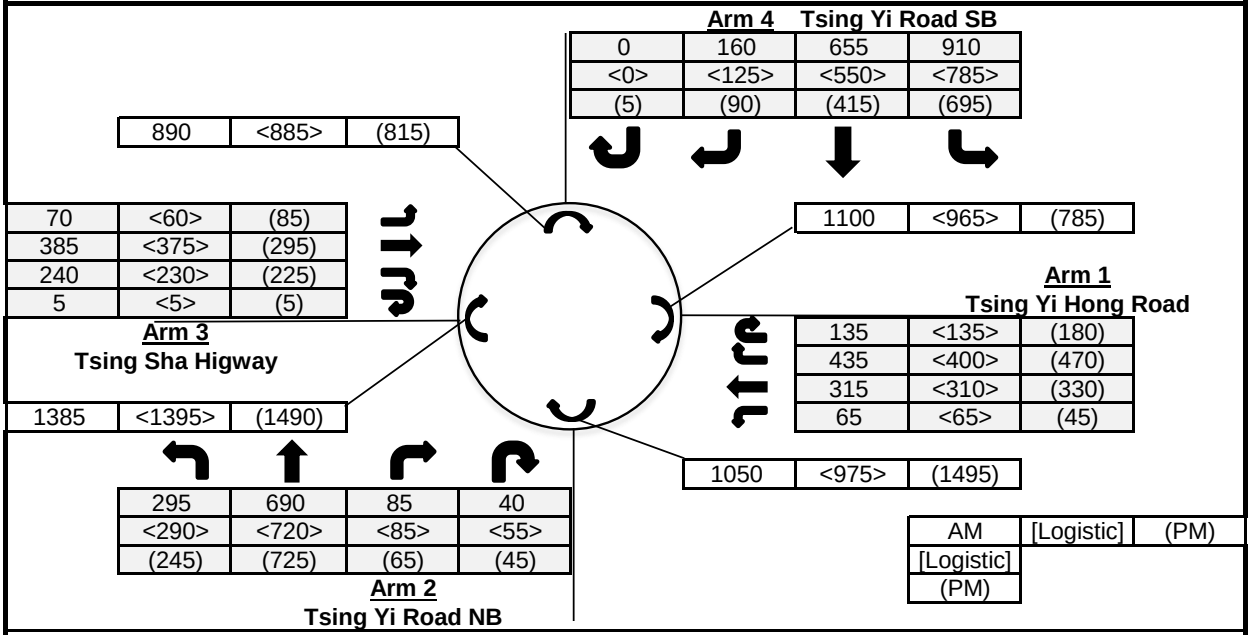
DFC of Critical Approach = AM 0.64
Logistic 0.48
PM 0.74

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA2) Tsing Yi Road / Tsing Hung Road Job No.: 23125HK

Scenario : 2029 Design Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		9.5	9	7.3	7.5
E	=	Entry width (m)		13.5	12	11.5	11.5
L	=	Effective length of flare (m)		30	15	30	15
R	=	Entry radius		45	97	52	34
D	=	Inscribed circle diameter (m)		110	110	110	110
A	=	Entry angle (degree)		61	32	31	46
Q	=	Entry flow (pcu/hr)	AM	950	1110	700	1725
			Logistic	910	1150	670	1460
			PM	1025	1080	610	1205
Qc	=	Circulating flow	AM	1100	1050	1385	890
		across entry (pcu/hr)	Logistic	965	975	1395	885
			PM	785	1495	1490	815

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.21	0.32	0.22	0.43
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		0.92	1.03	1.03	0.96
X_2	=	V+((E-V)/(1+2*S))		12.30	10.83	10.20	9.66
M	=	Exp((D-60)/10)		148.41	148.41	148.41	148.41
F	=	303*X_2		3728	3281	3091	2926
Td	=	1+(0.5/(1+M))		1.00	1.00	1.00	1.00
Fc	=	0.21*Td*(1+0.2*X_2)		0.73	0.67	0.64	0.62
Qe	=	Capacity = K*(F-Fc*Qc)	AM	2691	2663	2262	2293
			Logistic	2781	2715	2256	2296
			PM	2902	2357	2193	2337
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.35	0.42	0.31	0.75
			Logistic	0.33	0.42	0.30	0.64
			PM	0.35	0.46	0.28	0.52

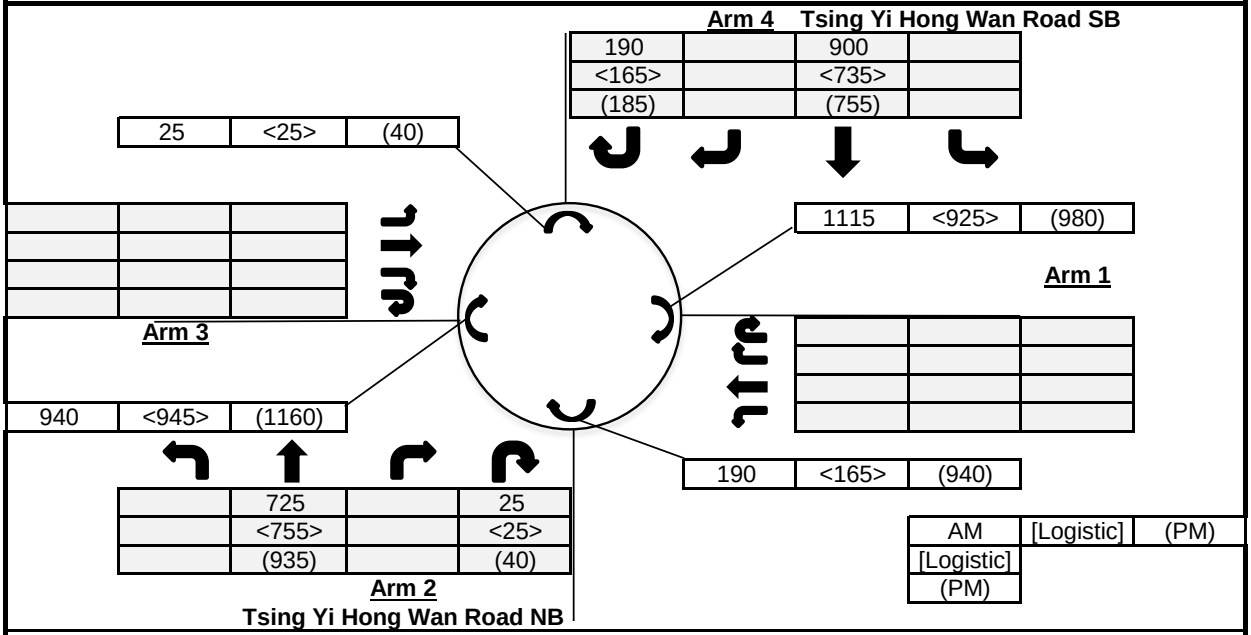
DFC of Critical Approach = AM 0.75
Logistic 0.64
PM 0.52

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA3) Tsing Yi Hong Wan Road Job No.: 23125HK

Scenario : 2029 Design Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)			7		10
E	=	Entry width (m)			14		12
L	=	Effective length of flare (m)			20		2
R	=	Entry radius			65		75
D	=	Inscribed circle diameter (m)			68		68
A	=	Entry angle (degree)			53		46
Q	=	Entry flow (pcu/hr)	AM		750		1090
			Logistic		780		900
			PM		975		940
Qc	=	Circulating flow	AM		190		25
		across entry (pcu/hr)	Logistic		165		25
			PM		940		40

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L			0.56		1.60
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)			0.95		0.98
X_2	=	V+((E-V)/(1+2*S))			10.30		10.48
M	=	Exp((D-60)/10)			2.23		2.23
F	=	303*X_2			3121		3174
Td	=	1+(0.5/(1+M))			1.16		1.16
Fc	=	0.21*Td*(1+0.2*X_2)			0.74		0.75
Qe	=	Capacity = K*(F-Fc*Qc)	AM		2843		3093
			Logistic		2861		3093
			PM		2312		3082
DFC	=	Entry Flow/Capacity = Q/Qe	AM		0.26		0.35
			Logistic		0.27		0.29
			PM		0.42		0.30

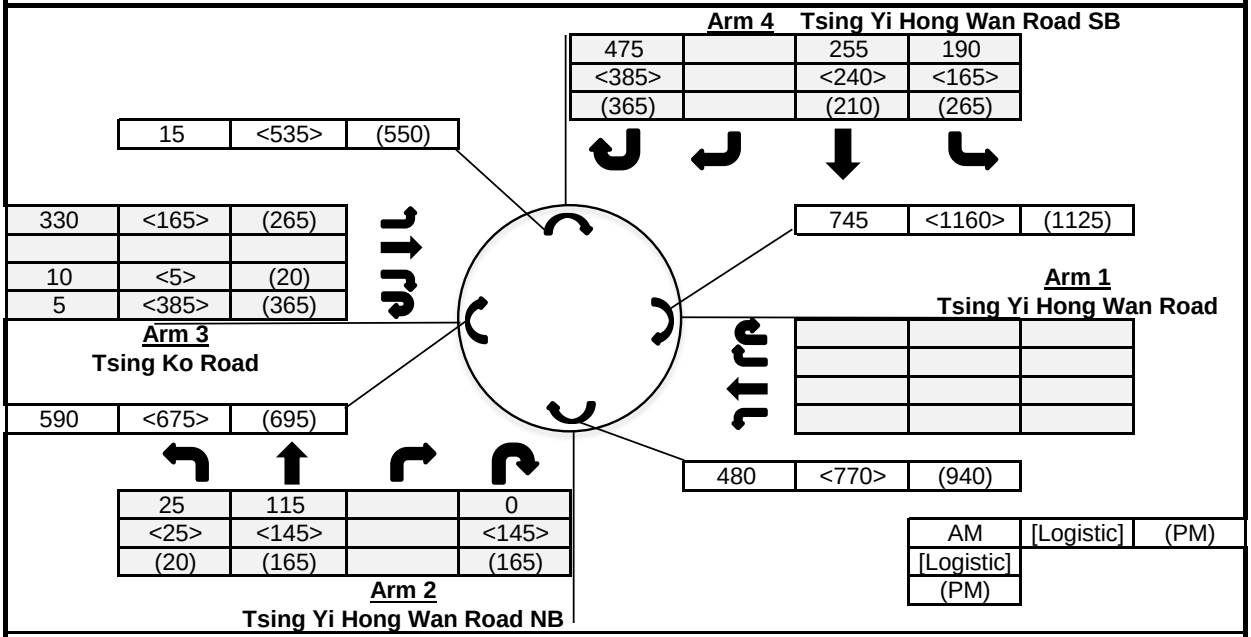
DFC of Critical Approach = AM 0.35 | Logistic 0.29 | PM 0.42

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA4) Tsing Yi Hong Wan Road / Tsing Ko Road Job No.: 23125HK

Scenario : 2029 Design Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)			6.7	6.3	7.6
E	=	Entry width (m)			13.5	12.5	15.5
L	=	Effective length of flare (m)			18	30	30
R	=	Entry radius			47	180	75
D	=	Inscribed circle diameter (m)			68	68	68
A	=	Entry angle (degree)			41	22	46
Q	=	Entry flow (pcu/hr)	AM		140	345	920
			Logistic		315	555	790
			PM		350	650	840
Qc	=	Circulating flow	AM		480	590	15
		across entry (pcu/hr)	Logistic		770	675	535
			PM		940	695	550

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L			0.60	0.33	0.42
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)			0.99	1.07	0.98
X_2	=	V+((E-V)/(1+2*S))			9.78	10.03	11.89
M	=	Exp((D-60)/10)			2.23	2.23	2.23
F	=	303*X_2			2963	3040	3602
Td	=	1+(0.5/(1+M))			1.16	1.16	1.16
Fc	=	0.21*Td*(1+0.2*X_2)			0.72	0.73	0.82
Qe	=	Capacity = K*(F-Fc*Qc)	AM		2592	2795	3519
			Logistic		2387	2729	3101
			PM		2266	2713	3089
DFC	=	Entry Flow/Capacity = Q/Qe	AM		0.05	0.12	0.26
			Logistic		0.13	0.20	0.25
			PM		0.15	0.24	0.27

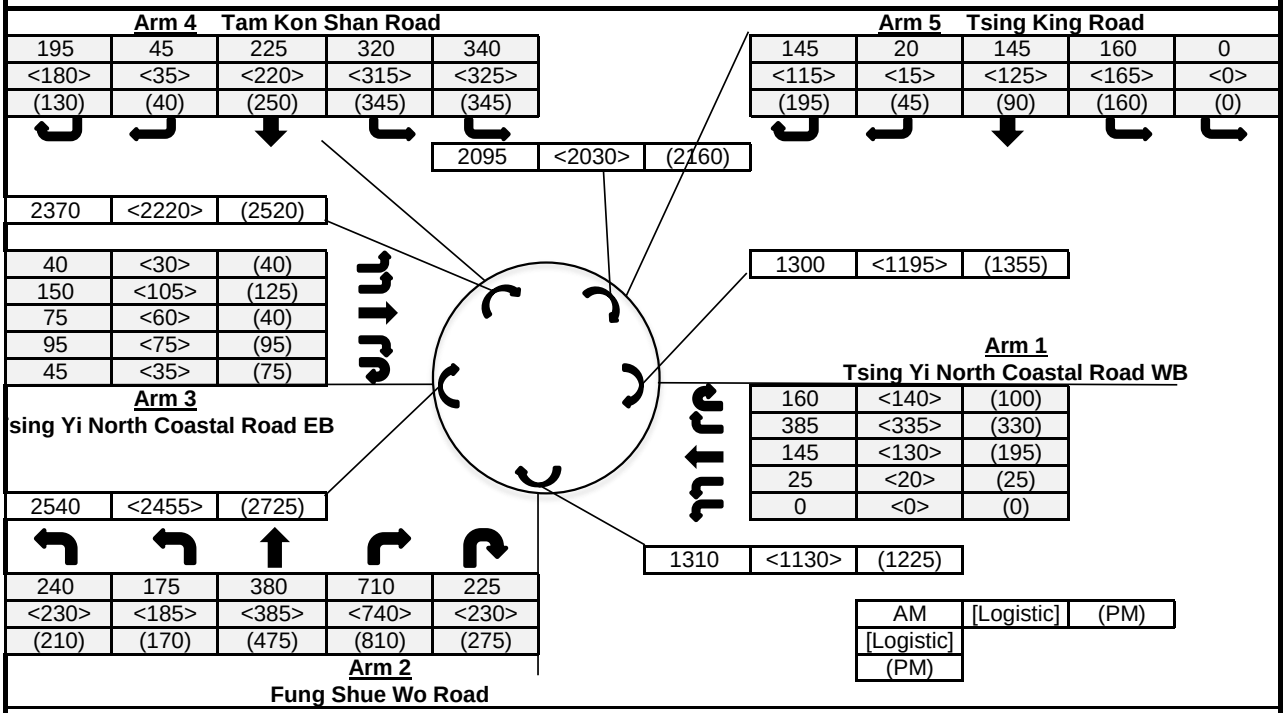
DFC of Critical Approach = AM 0.26 | Logistic 0.25 | PM 0.27

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA5) Tam Kon Shan Interchange Job No.: 23125HK

Scenario : 2029 Design Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4	Arm 5
V	=	Approach half width (m)		7	10	5.5	8	7.5
E	=	Entry width (m)		9	13.5	7.5	13.5	11
L	=	Effective length of flare (m)		9	9	11	9	10
R	=	Entry radius		100	45	45	25	45
D	=	Inscribed circle diameter (m)		115	115	115	115	115
A	=	Entry angle (degree)		30	25	25	30	45
Q	=	Entry flow (pcu/hr)	AM	715	1730	405	1125	470
			Logistic	625	1770	305	1075	420
			PM	650	1940	375	1110	490
Qc	=	Circulating flow	AM	1300	1310	2540	2370	2095
		across entry (pcu/hr)	Logistic	1195	1130	2455	2220	2030
			PM	1355	1225	2725	2520	2160

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4	Arm 5
S	=	Sharpness of flare = 1.6*(E-V)/L		0.36	0.62	0.29	0.98	0.56
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		1.04	1.04	1.04	1.01	0.98
X_2	=	V+((E-V)/(1+2*S))		8.17	11.56	6.76	9.86	9.15
M	=	Exp((D-60)/10)		244.69	244.69	244.69	244.69	244.69
F	=	303*X_2		2475	3503	2050	2988	2773
Td	=	1+(0.5/(1+M))		1.00	1.00	1.00	1.00	1.00
Fc	=	0.21*Td*(1+0.2*X_2)		0.55	0.70	0.50	0.63	0.60
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1823	2705	827	1520	1487
			Logistic	1884	2836	871	1615	1525
			PM	1792	2767	732	1426	1449
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.39	0.64	0.49	0.74	0.32
			Logistic	0.33	0.62	0.35	0.67	0.28
			PM	0.36	0.70	0.51	0.78	0.34

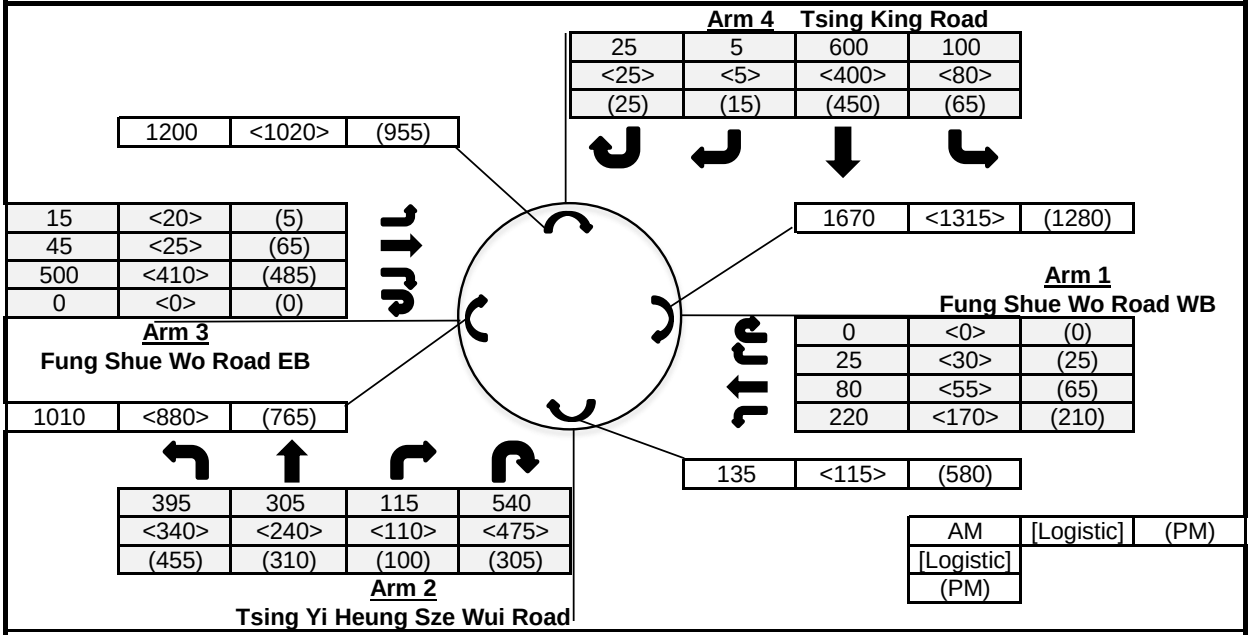
DFC of Critical Approach = AM 0.74
Logistic 0.67
PM 0.78

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA6) Tsing King Road / Fung Shue Wo Road Job No.: 23125HK

Scenario : 2029 Design Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		6.7	7.3	7.3	6.9
E	=	Entry width (m)		9.7	10	9.2	8.9
L	=	Effective length of flare (m)		16	20	14	16
R	=	Entry radius		55	71	60	62
D	=	Inscribed circle diameter (m)		112	112	112	112
A	=	Entry angle (degree)		36	30	18	25
Q	=	Entry flow (pcu/hr)	AM	325	1355	560	730
			Logistic	255	1165	455	510
			PM	300	1170	555	555
Qc	=	Circulating flow	AM	1670	135	1010	1200
		across entry (pcu/hr)	Logistic	1315	115	880	1020
			PM	1280	580	765	955

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.30	0.22	0.22	0.20
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		1.01	1.04	1.07	1.05
X_2	=	V+((E-V)/(1+2*S))		8.58	9.19	8.62	8.33
M	=	Exp((D-60)/10)		181.27	181.27	181.27	181.27
F	=	303*X_2		2598	2783	2613	2524
Td	=	1+(0.5/(1+M))		1.00	1.00	1.00	1.00
Fc	=	0.21*Td*(1+0.2*X_2)		0.57	0.60	0.57	0.56
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1660	2797	2185	1943
			Logistic	1865	2810	2265	2049
			PM	1886	2522	2336	2088
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.20	0.48	0.26	0.38
			Logistic	0.14	0.41	0.20	0.25
			PM	0.16	0.46	0.24	0.27

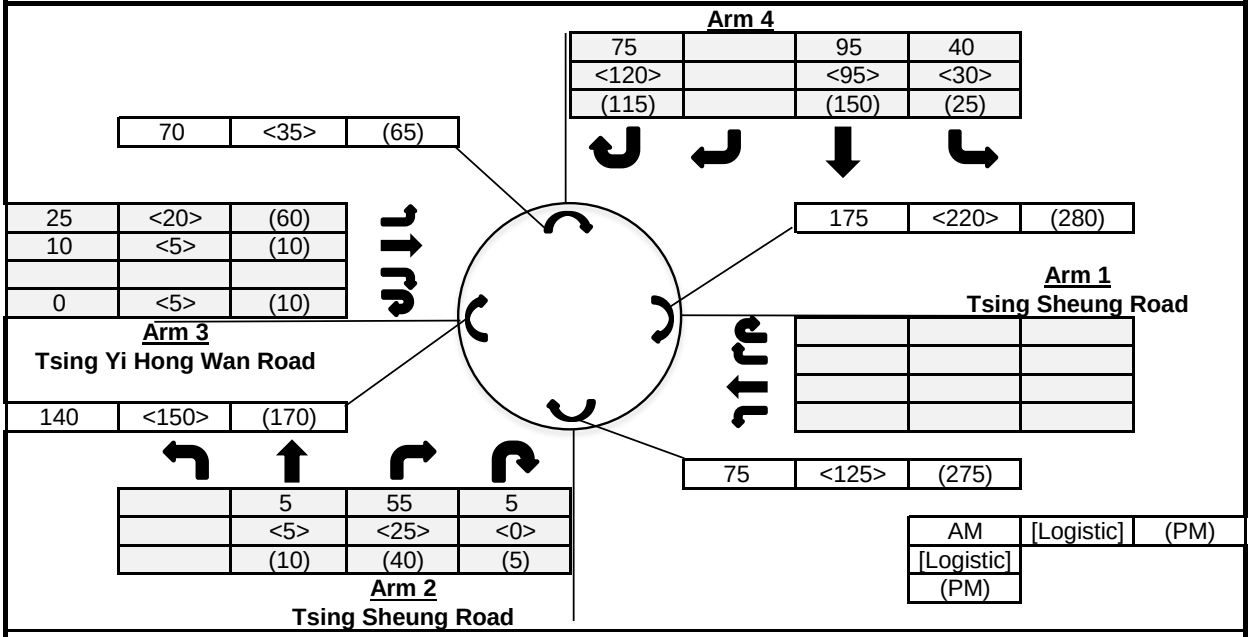
DFC of Critical Approach = AM 0.48
Logistic 0.41
PM 0.46

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA7) Tsing Yi Hong Wan Road / Tsing Sheung Road Job No.: 23125HK

Scenario : 2029 Design Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)			5.2	3	6.7
E	=	Entry width (m)			9	8.4	12
L	=	Effective length of flare (m)			25	15	23
R	=	Entry radius			63	55	145
D	=	Inscribed circle diameter (m)			53	53	53
A	=	Entry angle (degree)			33	48	38
Q	=	Entry flow (pcu/hr)	AM		65	35	210
			Logistic		30	30	245
			PM		55	80	290
Qc	=	Circulating flow	AM		75	140	70
		across entry (pcu/hr)	Logistic		125	150	35
			PM		275	170	65

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L			0.24	0.58	0.37
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)			1.02	0.97	1.01
X_2	=	V+((E-V)/(1+2*S))			7.76	5.51	9.75
M	=	Exp((D-60)/10)			0.50	0.50	0.50
F	=	303*X_2			2350	1669	2954
Td	=	1+(0.5/(1+M))			1.33	1.33	1.33
Fc	=	0.21*Td*(1+0.2*X_2)			0.71	0.59	0.83
Qe	=	Capacity = K*(F-Fc*Qc)	AM		2349	1537	2938
			Logistic		2313	1531	2968
			PM		2203	1520	2942
DFC	=	Entry Flow/Capacity = Q/Qe	AM		0.03	0.02	0.07
			Logistic		0.01	0.02	0.08
			PM		0.02	0.05	0.10

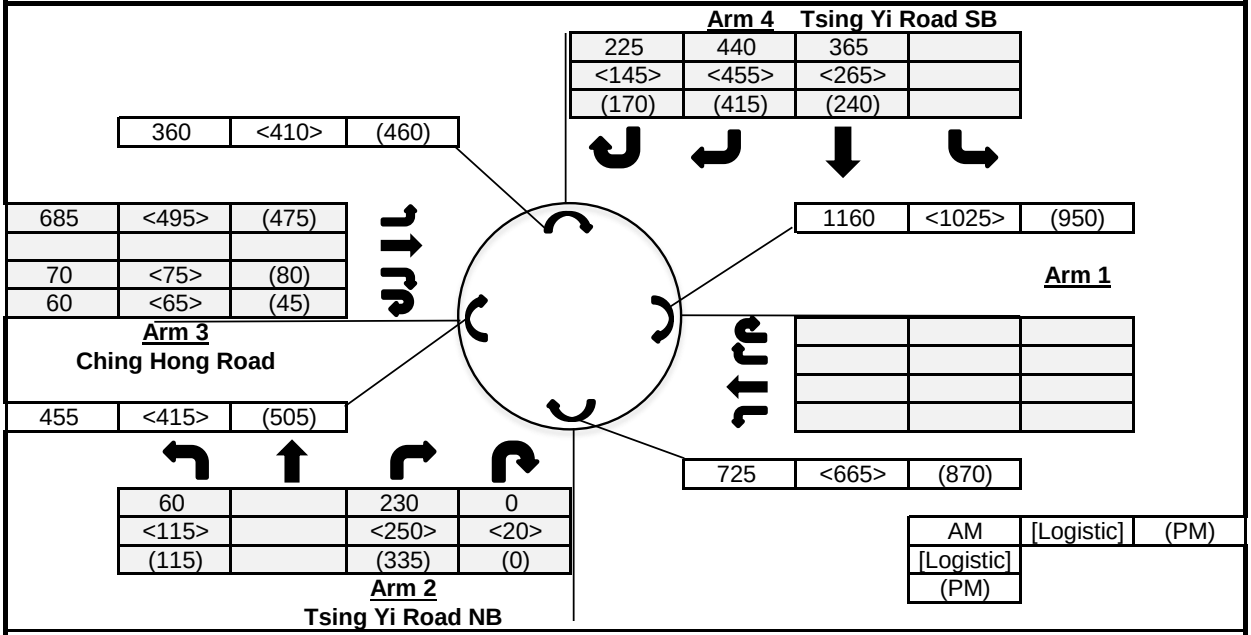
DFC of Critical Approach = AM 0.07 / Logistic 0.08 / PM 0.10

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA8) Tsing Yi Road / Ching Hong Road Job No.: 23125HK

Scenario : 2029 Design Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)			6.5	7.5	8
E	=	Entry width (m)			8.6	8.5	9
L	=	Effective length of flare (m)			12	4	16
R	=	Entry radius			24.5	30	28
D	=	Inscribed circle diameter (m)			30	30	30
A	=	Entry angle (degree)			44	40	62
Q	=	Entry flow (pcu/hr)	AM		290	815	1030
			Logistic		385	635	865
			PM		450	600	825
Qc	=	Circulating flow	AM		725	455	360
		across entry (pcu/hr)	Logistic		665	415	410
			PM		870	505	460

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L			0.28	0.40	0.10
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)			0.96	0.98	0.90
X_2	=	V+((E-V)/(1+2*S))			7.85	8.06	8.83
M	=	Exp((D-60)/10)			0.05	0.05	0.05
F	=	303*X_2			2377	2441	2677
Td	=	1+(0.5/(1+M))			1.48	1.48	1.48
Fc	=	0.21*Td*(1+0.2*X_2)			0.80	0.81	0.86
Qe	=	Capacity = K*(F-Fc*Qc)	AM		1729	2034	2138
			Logistic		1775	2066	2099
			PM		1618	1995	2060
DFC	=	Entry Flow/Capacity = Q/Qe	AM		0.17	0.40	0.48
			Logistic		0.22	0.31	0.41
			PM		0.28	0.30	0.40

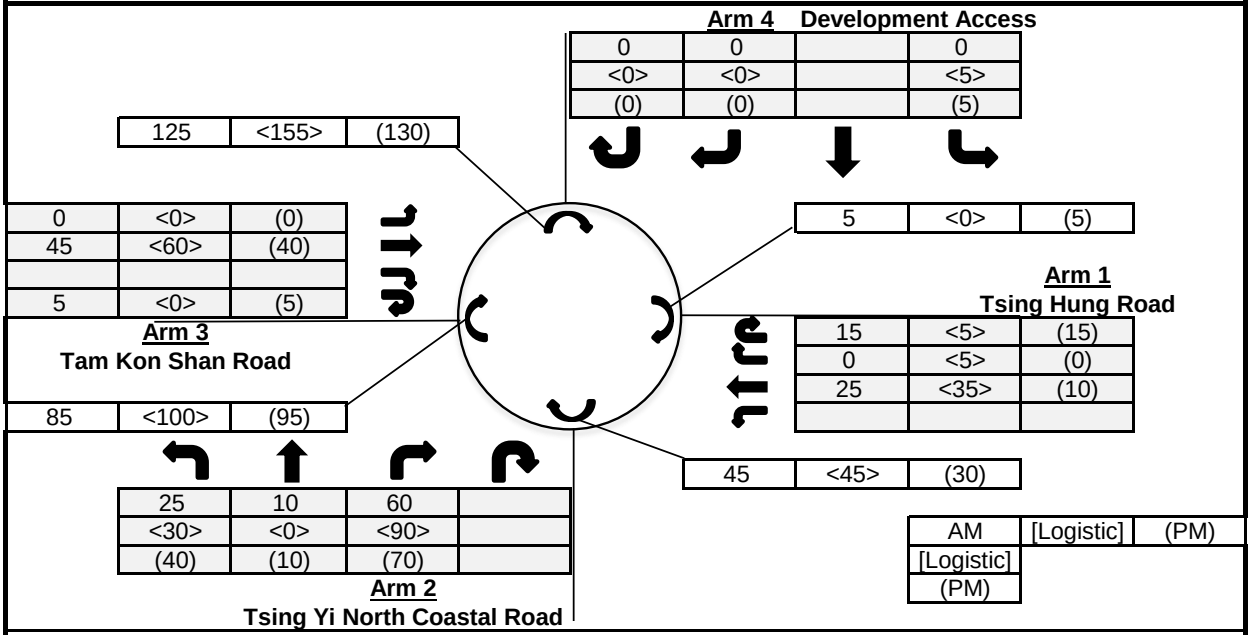
DFC of Critical Approach = AM 0.48
Logistic 0.41
PM 0.40

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA9) Tam Kon Shan Road Job No.: 23125HK

Scenario : 2029 Design Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		3.3	4	3.4	8.5
E	=	Entry width (m)		3.9	4.9	5.8	15.1
L	=	Effective length of flare (m)		10	10	10	10
R	=	Entry radius		32	97	52	34
D	=	Inscribed circle diameter (m)		108	108	108	108
A	=	Entry angle (degree)		61	32	31	46
Q	=	Entry flow (pcu/hr)	AM	40	95	50	0
			Logistic	45	120	60	5
			PM	25	120	45	5
Qc	=	Circulating flow	AM	5	45	85	125
		across entry (pcu/hr)	Logistic	0	45	100	155
			PM	5	30	95	130

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.10	0.14	0.38	1.06
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		0.91	1.03	1.03	0.96
X_2	=	V+((E-V)/(1+2*S))		3.80	4.70	4.76	10.62
M	=	Exp((D-60)/10)		121.51	121.51	121.51	121.51
F	=	303*X_2		1152	1424	1442	3218
Td	=	1+(0.5/(1+M))		1.00	1.00	1.00	1.00
Fc	=	0.21*Td*(1+0.2*X_2)		0.37	0.41	0.41	0.66
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1048	1450	1444	3025
			Logistic	1050	1450	1438	3006
			PM	1048	1456	1440	3022
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.04	0.07	0.03	0.00
			Logistic	0.04	0.08	0.04	0.00
			PM	0.02	0.08	0.03	0.00

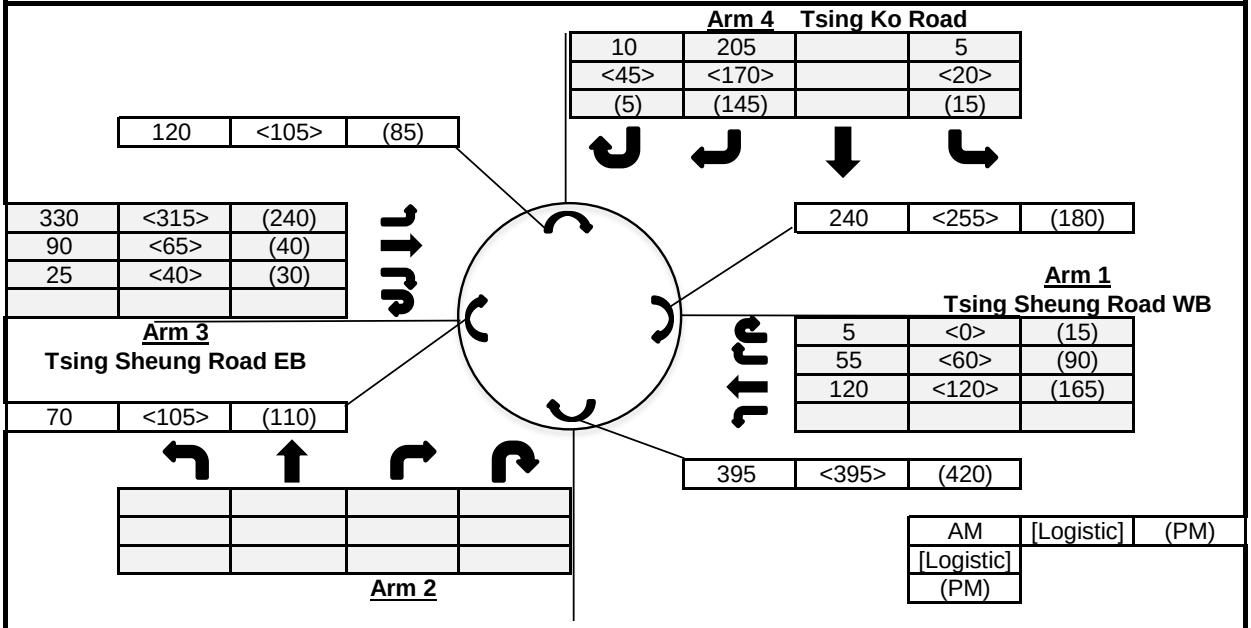
DFC of Critical Approach = AM 0.07
Logistic 0.08
PM 0.08

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA10) Tsing Sheung Road / Tsing Ko Road Job No.: 23125HK

Scenario : 2029 Design Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		6.6		5.6	6.4
E	=	Entry width (m)		12.9		16	11.6
L	=	Effective length of flare (m)		18		30	30
R	=	Entry radius		47		180	75
D	=	Inscribed circle diameter (m)		68		68	68
A	=	Entry angle (degree)		41		22	46
Q	=	Entry flow (pcu/hr)	AM	180		445	220
			Logistic	180		420	235
			PM	270		310	165
Qc	=	Circulating flow	AM	240		70	120
		across entry (pcu/hr)	Logistic	255		105	105
			PM	180		110	85

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.56		0.55	0.28
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		0.99		1.07	0.98
X_2	=	V+((E-V)/(1+2*S))		9.57		10.53	9.74
M	=	Exp((D-60)/10)		2.23		2.23	2.23
F	=	303*X_2		2900		3191	2953
Td	=	1+(0.5/(1+M))		1.16		1.16	1.16
Fc	=	0.21*Td*(1+0.2*X_2)		0.71		0.75	0.72
Qe	=	Capacity = K*(F-Fc*Qc)	AM	2703		3362	2810
			Logistic	2693		3333	2821
			PM	2745		3329	2835
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.07		0.13	0.08
			Logistic	0.07		0.13	0.08
			PM	0.10		0.09	0.06

DFC of Critical Approach = AM 0.13
Logistic 0.13
PM 0.10

CTA Consultants Ltd.