

Attachment II

Consolidated traffic impact assessment report

**Planning Approval Renewal
Asphalt Plant at Sai Tso Wan Road A/TY/135,
TYTL 108 RP
(New Planning Application No. A/TY/148)**

Traffic Impact Assessment

Revised Final Report

June 2024



CTA Consultants Limited

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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 (previous approved planning application no.: A/TY/135) 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 from 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 23 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 3.24** 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	Entrance of VEC / 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 / Ching 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
J11	Tsing Yi Heung Sze Wui Road / Cheung Wan Street	Signalized	3.12
J12	Tsing Yi Heung Sze Wui Road / Chung Mei Road	Signalized	3.13
J13	Tsing Yi Road / Tsing Keung Street	Priority	3.14
RA1	Tsing Yi Interchange	Roundabout	3.15
RA2	Tsing Yi Road West / Tsing Yi Hong Wan Road / Tsing Sha Highway	Roundabout	3.16
RA3	Hong Wan Road	Roundabout	3.17
RA4	Hong Wan Road / Tsing Ko Road	Roundabout	3.18
RA5	Tam Kon Shan Interchange	Roundabout	3.19
RA6	Tsing Yi Heung Sze Wui Road / Fung Shue Wo Road / Tsing King Road	Roundabout	3.20
RA7	Tsing Sheung Road / Tsing Yi Hong Wan Road	Roundabout	3.21
RA8	Ching Hong Road / Tsing Yi Road	Roundabout	3.22
RA9	Tam Kon Shan Road / Tsing Yi North Costal Road	Roundabout	3.23
RA10	Tsing Ko Road / Tsing Sheung Road	Roundabout	3.24

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 3.25**.



3.2.3 Based on the observed traffic flows in **Figure 3.25**, 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	72%	62%	107%
J2	Tsing Hung Road / Tsing Yi Road	Signalized	74%	88%	96%
J3	Tsing Sheung Road / Tsing Yi Road Priority	Priority	0.50	0.41	0.41
J4	Sai Tso Wan Road / Tsing Yi Road / Tsing Yi Road West	Signalized	46%	35%	115%
J5	Entrance of VEC / Sai Tso Wan Road	Signalized	121%	82%	106%
J6	Tsing Tim Street / Sai Tso Wan Road	Priority	0.34	0.27	0.21
J7	Tsing Yi Road West / Tsing Chin Street ⁽²⁾	Priority	N/A	N/A	N/A
J8	Tsing Yi Road West / Ching Hong Road	Signalized	60%	87%	103%
J9	Tsing Yi Road West / Liu To Road	Signalized	37%	60%	46%
J10	Tsing Yi Road West / Fung Shue Wo Road	Signalized	42%	82%	78%
J11	Tsing Yi Heung Sze Wui Road / Cheung Wan Street	Signalized	15%	16%	36%
J12	Tsing Yi Heung Sze Wui Road / Chung Mei Road	Signalized	45%	78%	70%
J13	Tsing Yi Road / Tsing Keung Street	Priority	0.17	0.25	0.13
RA1	Tsing Yi Interchange (North)	Roundabout	0.71	0.59	0.37
	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	0.45	0.45	0.49
RA3	Hong Wan Road	Roundabout	0.45	0.37	0.40
RA4	Hong Wan Road / Tsing Ko Road	Roundabout	0.26	0.25	0.26
RA5	Tam Kon Shan Interchange	Roundabout	0.63	0.62	0.69
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	0.09	0.10
RA8	Ching Hong Road / Tsing Yi Road	Roundabout	0.43	0.43	0.43
RA9	Tam Kon Shan Road / Tsing Yi North Coastal Road	Roundabout	0.06	0.08	0.08
RA10	Tsing Ko Road / Tsing Sheung Road	Roundabout	0.27	0.25	0.19

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 (Ching 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 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	2024
			Phase 2: 612 units	2024
			Phase 3: 1680 units	2029
			Phase 4: 770 units	2030-31
			Retail: 2000m ² Social Welfare Facilities	2024 - 2029
C	Housing Development at Tsing Yi Road West	Public Housing	3,400 units	2034/35
D	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
E	Tsing Yi – Lantau Link	Infrastructure	-	2033 (Construction traffic may occur at about 2027)
F	A/TY/147 (Renewal of A/TY/136)	Concrete Batching Plant	300m ³ /hr (240m ³ /hr as limited by SP License)	Under Operation
G	A/TY/149 (Renewal of A/TY/139)	Concrete Batching Plant	250 m ³ /hr	Under Operation

4.3.4 Housing Developments at Ching Hong Road North (Phase 4) and Tsing Yi Road West would be completed after our design 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. A/TY/147 and A/TY/149 are renewal applications which are already under operation and thus no new trips will be formed. The construction traffic of Tsing Yi – Lantau Link is reviewed and considered. It would not give significant impact to the road 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
E	Tsing Yi – Lantau Link Construction Vehicles ⁽⁴⁾		15	15	15	15

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) Assume 1 construction vehicle per 10 min per bound, i.e. 6 veh/hr, For 2.5 pcu factor, 15 pcu/hr

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.

$$\begin{array}{l}
 \text{2029} \\
 \text{Reference Flows} \\
 \text{(without} \\
 \text{Proposed Plant)}
 \end{array}
 =
 \begin{array}{l}
 \text{2024} \\
 \text{Observed} \\
 \text{Flows}
 \end{array}
 \times
 \begin{array}{l}
 \text{Adopted Growth} \\
 \text{Factor} \\
 \text{(i.e. +1\% p.a. for} \\
 \text{5 years)}
 \end{array}
 +
 \begin{array}{l}
 \text{Traffic Flows of} \\
 \text{Planned Adjacent} \\
 \text{Developments}
 \end{array}$$

4.3.6 The 2029 reference traffic flows at surrounding critical junctions are shown in **Figure 4.3**.

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:

$$\begin{array}{l} \text{2029 Design Flows} \\ \text{(with Proposed Plant)} \end{array} = \begin{array}{l} \text{2029 Reference} \\ \text{Traffic Flows (without} \\ \text{Proposed Plant)} \end{array} + \begin{array}{l} \text{Traffic Flows of} \\ \text{Proposed Developments} \\ \text{at Tsing Yi} \end{array}$$

- 4.5.2 The 2029 design traffic flows at surrounding critical junctions are shown in **Figure 5.1**.



5. TRAFFIC IMPACT ASSESSMENT

5.1 Operational Assessment

5.1.1 Based on the design traffic flows in **Figure 5.1**, 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	47%	49%	82%
J2	Tsing Hung Road / Tsing Yi Road	Signalized	66%	78%	87%
J3	Tsing Sheung Road / Tsing Yi Road Priority	Priority	0.54	0.45	0.44
J4	Sai Tso Wan Road / Tsing Yi Road / Tsing Yi Road West	Signalized	38%	29%	105%
J5	Entrance of VEC / Sai Tso Wan Road	Signalized	111%	73%	95%
J6	Tsing Tim Street / Sai Tso Wan Road	Priority	0.37	0.29	0.22
J7	Tsing Yi Road West / Tsing Chin Street*	Priority	N/A	N/A	N/A
J8	Tsing Yi Road West / Ching Hong Road	Signalized	39%	59%	81%
J9	Tsing Yi Road West / Liu To Road	Signalized	30%	53%	39%
J10	Tsing Yi Road West / Fung Shue Wo Road	Signalized	17%	44%	45%
J11	Tsing Yi Heung Sze Wui Road / Cheung Wan Street	Signalized	-3%	-4%	18%
J12	Tsing Yi Heung Sze Wui Road / Chung Mei Road	Signalized	26%	52%	51%
J13	Tsing Yi Road / Tsing Keung Street	Priority	0.18	0.26	0.14
J14	Tsing Yi Road / Planned New Road ⁽³⁾	Signalized	35%	38%	55%
RA1	Tsing Yi Interchange (North)	Roundabout	0.76	0.63	0.40
	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	0.48	0.48	0.53
RA3	Hong Wan Road / Planned New Road ⁽³⁾	Roundabout	0.50	0.42	0.45



RA4	Hong Wan Road / Tsing Ko Road	Roundabout	0.27	0.26	0.28
RA5	Tam Kon Shan Interchange	Roundabout	0.72	0.70	0.79
RA6	Tsing Yi Heung Sze Wui Road / Fung Shue Wo Road / Tsing King Road	Roundabout	0.47	0.40	0.46
RA7	Tsing Sheung Road / Tsing Yi Hong Wan Road	Roundabout	0.08	0.09	0.11
RA8	Ching Hong Road / Tsing Yi Road	Roundabout	0.46	0.46	0.46
RA9	Tam Kon Shan Road / Tsing Yi North Coastal Road	Roundabout	0.07	0.08	0.08
RA10	Tsing Ko Road / Tsing Sheung Road	Roundabout	0.28	0.27	0.20

- Note: (1) RC = Reserve Capacity RFC = Ratio of Flow to Capacity for Priority Junction
(2) Only ingress traffic is allowed on Tsing Chin Street. No traffic conflicts or delay is expected in this location. Therefore, no junction assessment is required.
(3) New Road between Tsing Yi Road / Hong Wan Road was considered



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	40%	39%	75%
J2	Tsing Hung Road / Tsing Yi Road	Signalized	66%	78%	85%
J3	Tsing Sheung Road / Tsing Yi Road Priority	Priority	0.54	0.45	0.45
J4	Sai Tso Wan Road / Tsing Yi Road / Tsing Yi Road West	Signalized	33%	24%	89%
J5	Entrance of VEC / Sai Tso Wan Road	Signalized	99%	65%	83%
J6	Tsing Tim Street / Sai Tso Wan Road	Priority	0.38	0.30	0.23
J7	Tsing Yi Road West / Tsing Chin Street*	Priority	N/A	N/A	N/A
J8	Tsing Yi Road West / Ching Hong Road	Signalized	39%	59%	81%
J9	Tsing Yi Road West / Liu To Road	Signalized	30%	53%	39%
J10	Tsing Yi Road West / Fung Shue Wo Road	Signalized	17%	44%	45%
J11	Tsing Yi Heung Sze Wui Road / Cheung Wan Street	Signalized	-3%	-4%	18%
J12	Tsing Yi Heung Sze Wui Road / Chung Mei Road	Signalized	26%	52%	51%
J13	Tsing Yi Road / Tsing Keung Street	Priority	0.18	0.26	0.14
J14	Tsing Yi Road / Planned New Road ⁽³⁾	Signalized	35%	38%	53%
RA1	Tsing Yi Interchange (North)	Roundabout	0.76	0.63	0.40
	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	0.48	0.48	0.53
RA3	Hong Wan Road / Planned New Road ⁽³⁾	Roundabout	0.50	0.42	0.45
RA4	Hong Wan Road / Tsing Ko Road	Roundabout	0.27	0.26	0.28
RA5	Tam Kon Shan Interchange	Roundabout	0.72	0.70	0.79
RA6	Tsing Yi Heung Sze Wui Road / Fung Shue Wo Road / Tsing King Road	Roundabout	0.47	0.40	0.46
RA7	Tsing Sheung Road / Tsing Yi Hong Wan Road	Roundabout	0.08	0.09	0.11
RA8	Ching Hong Road / Tsing Yi Road	Roundabout	0.46	0.46	0.46
RA9	Tam Kon Shan Road / Tsing Yi North Coastal Road	Roundabout	0.07	0.08	0.08
RA10	Tsing Ko Road / Tsing Sheung Road	Roundabout	0.28	0.27	0.20

Note: (1) RC = Reserve Capacity RFC = Ratio of Flow to Capacity for Priority Junction
(2) Only ingress traffic is allowed on Tsing Chin Street. No traffic conflicts or delay is expected in this location. Therefore, no junction assessment is required.
(3) New Road between Tsing Yi Road / Hong Wan Road was considered

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 except J11.

5.1.3 J11 will over its capacity due to the increase of left turn traffic by Animal Welfare Centre (A/TY/131) from Tsing Yi Heung Sze Wui Road southbound to Cheung Wan Street. However, due to the committed restriction listed in **Tables 5.3** and **5.4** below, our asphalt trucks cannot pass through RA6 in peak hour which is connected to J11 at the north. Thus will not asphalt trucks will move to the Tsing Yi Heung Sze Wui Road southbound of J11 and will not worsen the case.

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.	<u>No trucks</u> 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	○	X
RA2	Tsing Yi Road West / Tsing Yi Hong Wan Road / Tsing Sha Highway	X	X	○
RA5	Tam Kon Shan Interchange	X	○	○
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 The traffic arrangement will follow the Traffic Management Plan approved in A/TY/135.

6. SUMMARY AND CONCLUSION

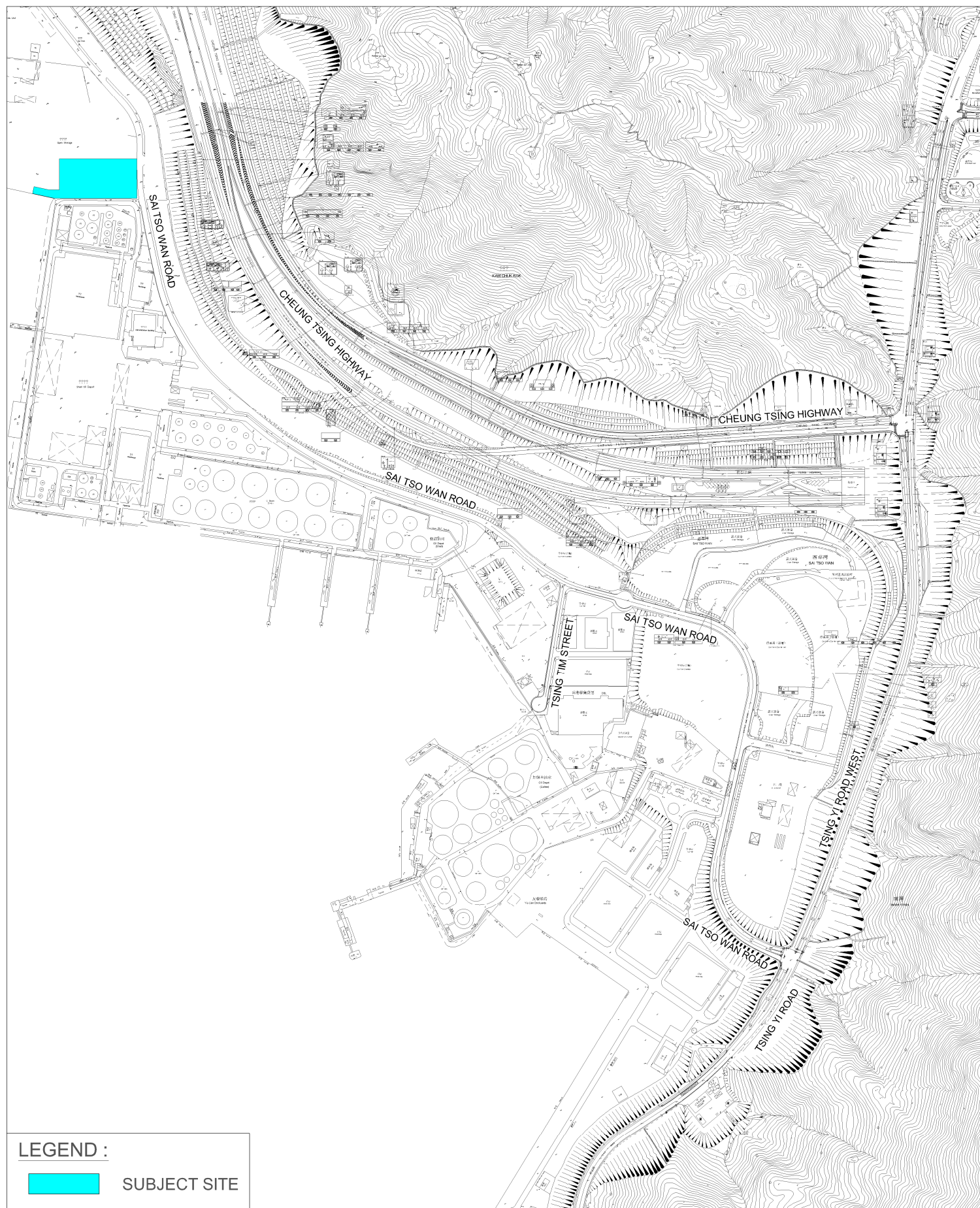
6.1 Summary

- 6.1.1 The captioned Planning Approval (Approved Planning Application no.: A/TY/135) 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 except J11, but our trucks will not pass through this junction in peak hour due to the committed restriction in previous planning application and therefore would not worsen the case.
- 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

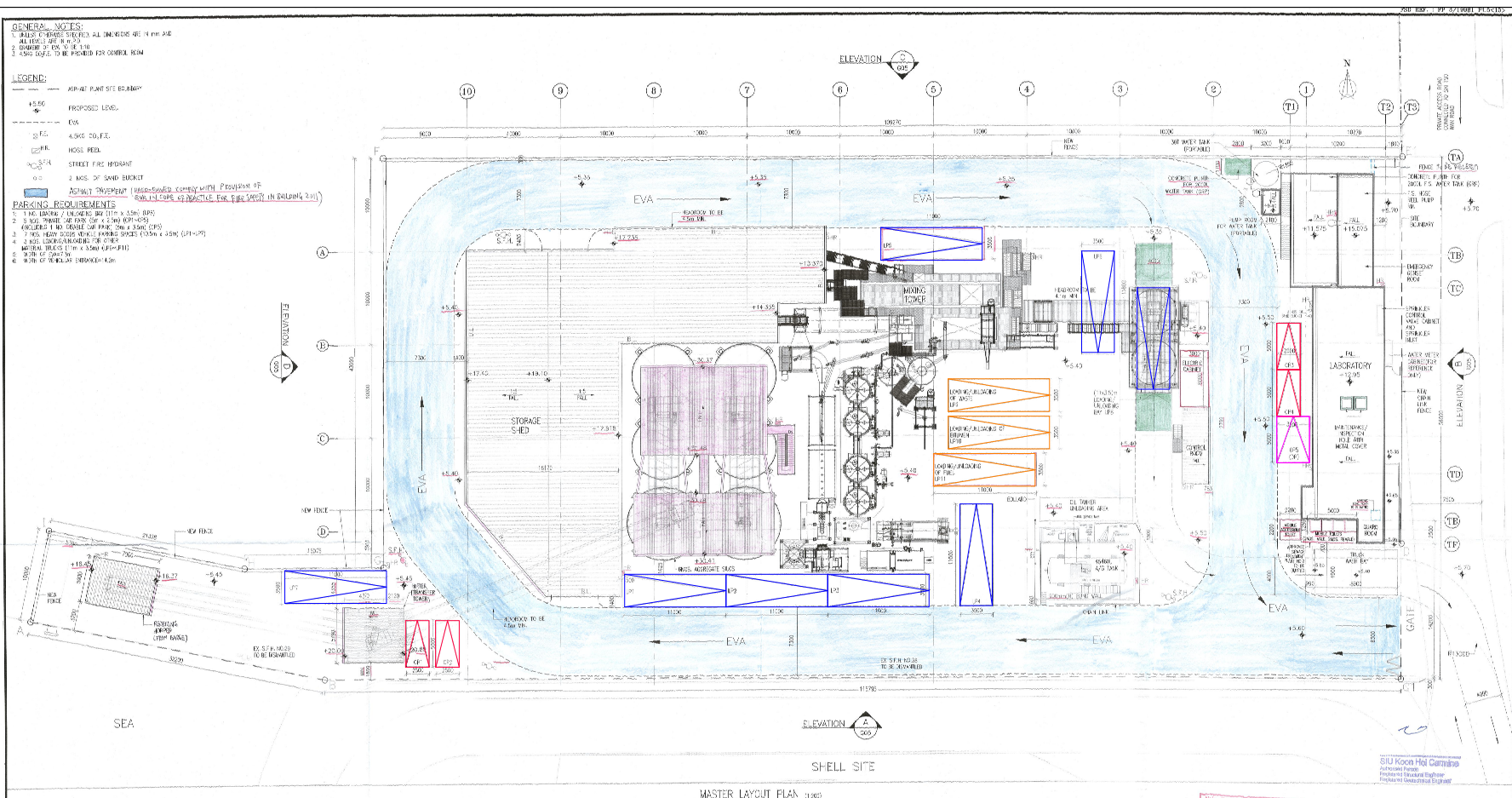
SCALE:
1 : 7000
(IN A4 SIZE)

DATE:
22 MAR 2024

GENERAL NOTES:
 1. ALL DIMENSIONS SHOWN ARE IN METERS AND 1:1000 SCALE.
 2. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
 3. ALL DIMENSIONS TO BE PROVIDED FOR CONCRETE WORK.

LEGEND:
 ASPHALT PLANT SITE BOUNDARY
 PROPOSED LEVEL
 EVA
 4.5% SLOPE
 HOSE REEL
 STREET FIRE HYDRANT
 2 NOS. OF SAND BUCKET
 ASPHALT TOWER
 ASPHALT TOWER (CONCRETE) WITH PROVISION OF
 ASPHALT TOWER (CONCRETE) WITH PROVISION OF
 ASPHALT TOWER (CONCRETE) WITH PROVISION OF

PARKING REQUIREMENTS
 1. THE PARKING REQUIREMENT IS 1:1000 (1:1000)
 2. 3 NOS. PARKING SPACE (1:1000) (1:1000)
 3. 7 NOS. PARKING SPACE (1:1000) (1:1000)
 4. 1 NOS. PARKING SPACE (1:1000) (1:1000)
 5. 1 NOS. PARKING SPACE (1:1000) (1:1000)
 6. 1 NOS. PARKING SPACE (1:1000) (1:1000)
 7. 1 NOS. PARKING SPACE (1:1000) (1:1000)
 8. 1 NOS. PARKING SPACE (1:1000) (1:1000)
 9. 1 NOS. PARKING SPACE (1:1000) (1:1000)
 10. 1 NOS. PARKING SPACE (1:1000) (1:1000)



LEGEND :

- L/UL FOR ASPHALT
- L/UL FOR OTHER MATERIALS
- PARKING SPACE FOR PRIVATE CAR
- PARKING SPACE FOR DISABLES

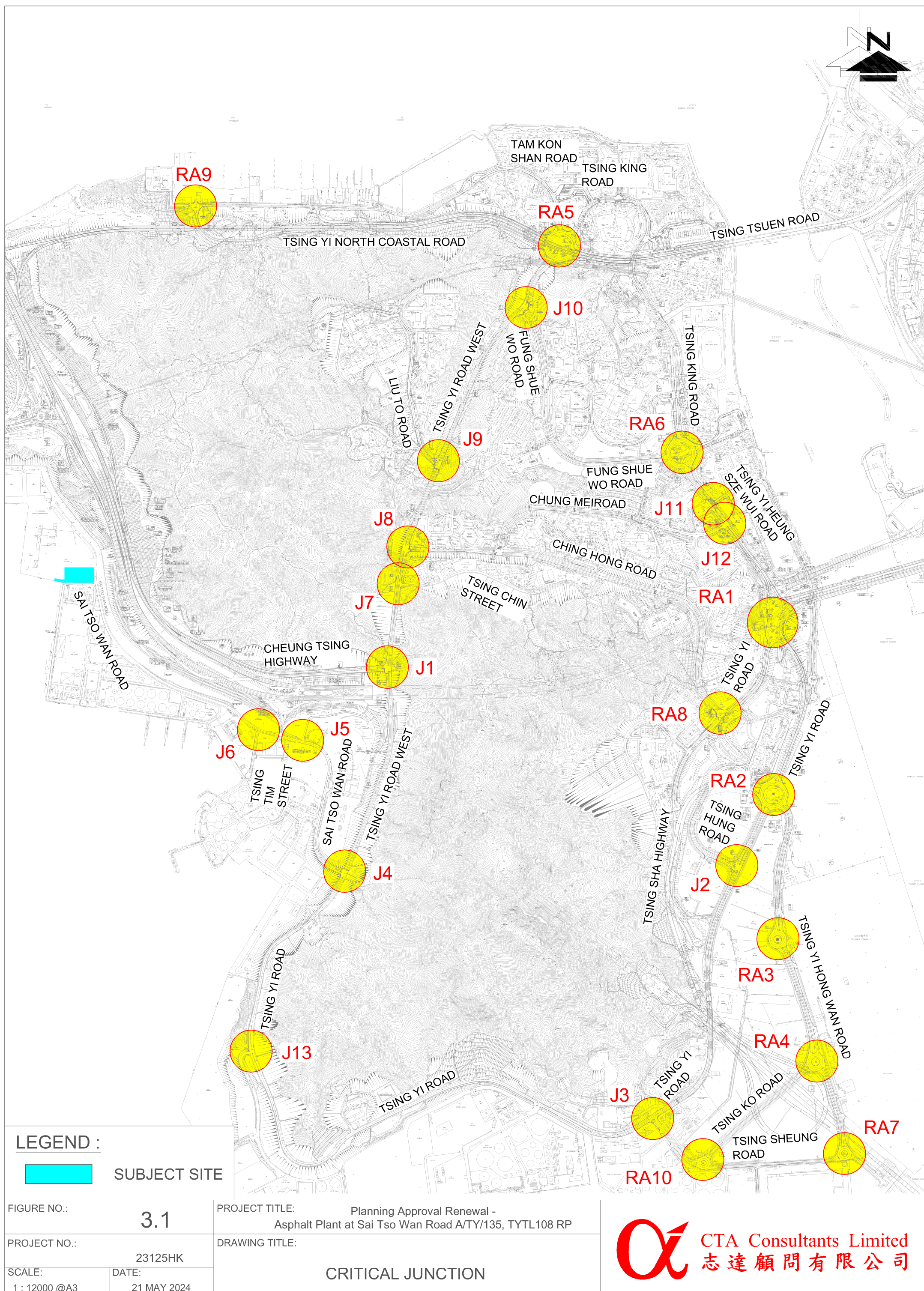
MADE THIS PLAN FOR THE PROPOSED ASPHALT PLANT AT SAI TSO WAN ROAD A/TY/135, TYTL108 RP. THE PLAN IS FOR THE PROPOSED ASPHALT PLANT AT SAI TSO WAN ROAD A/TY/135, TYTL108 RP. THE PLAN IS FOR THE PROPOSED ASPHALT PLANT AT SAI TSO WAN ROAD A/TY/135, TYTL108 RP.

Plan Approved
 WONG Wing-chi, Vickie
 Senior Building Surveyor
 for BUILDING AUTHORITY
 24 MAY 2024

DATE	14/05/2024	BY	WONG Wing-chi, Vickie	FOR	BUILDING AUTHORITY
DATE	14/05/2024	BY	WONG Wing-chi, Vickie	FOR	BUILDING AUTHORITY
DATE	14/05/2024	BY	WONG Wing-chi, Vickie	FOR	BUILDING AUTHORITY
DATE	14/05/2024	BY	WONG Wing-chi, Vickie	FOR	BUILDING AUTHORITY
DATE	14/05/2024	BY	WONG Wing-chi, Vickie	FOR	BUILDING AUTHORITY
DATE	14/05/2024	BY	WONG Wing-chi, Vickie	FOR	BUILDING AUTHORITY
DATE	14/05/2024	BY	WONG Wing-chi, Vickie	FOR	BUILDING AUTHORITY
DATE	14/05/2024	BY	WONG Wing-chi, Vickie	FOR	BUILDING AUTHORITY
DATE	14/05/2024	BY	WONG Wing-chi, Vickie	FOR	BUILDING AUTHORITY
DATE	14/05/2024	BY	WONG Wing-chi, Vickie	FOR	BUILDING AUTHORITY

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:	21 MAY 2024

CTA Consultants Limited
 志達顧問有限公司



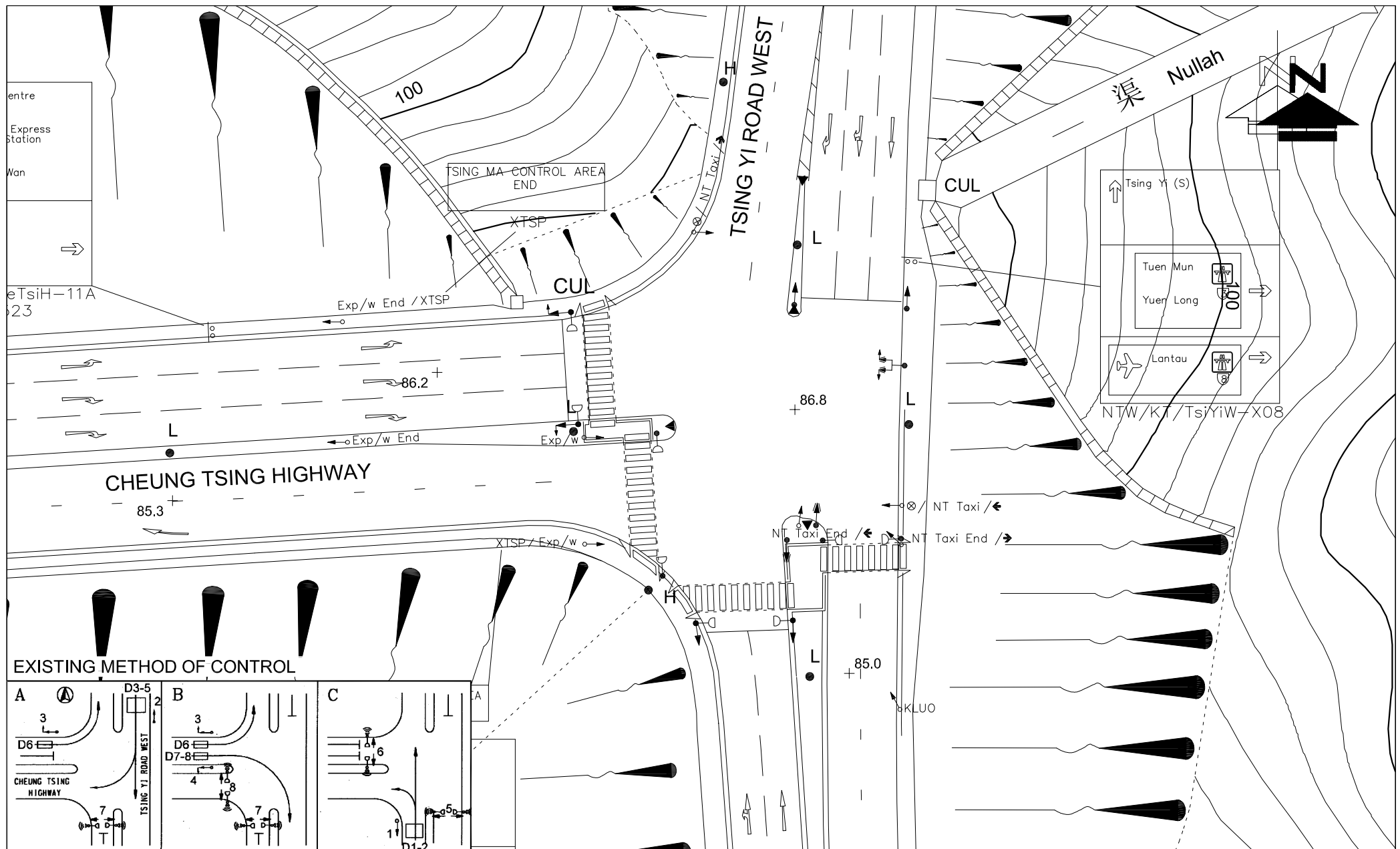


FIGURE NO.: 3.2		PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/135, TYTL108 RP	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 23125HK		DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING YI ROAD WEST / CHEUNG TSING HIGHWAY (J1)	
SCALE: 1 : 500 @A4	DATE: 21 MAY 2024		

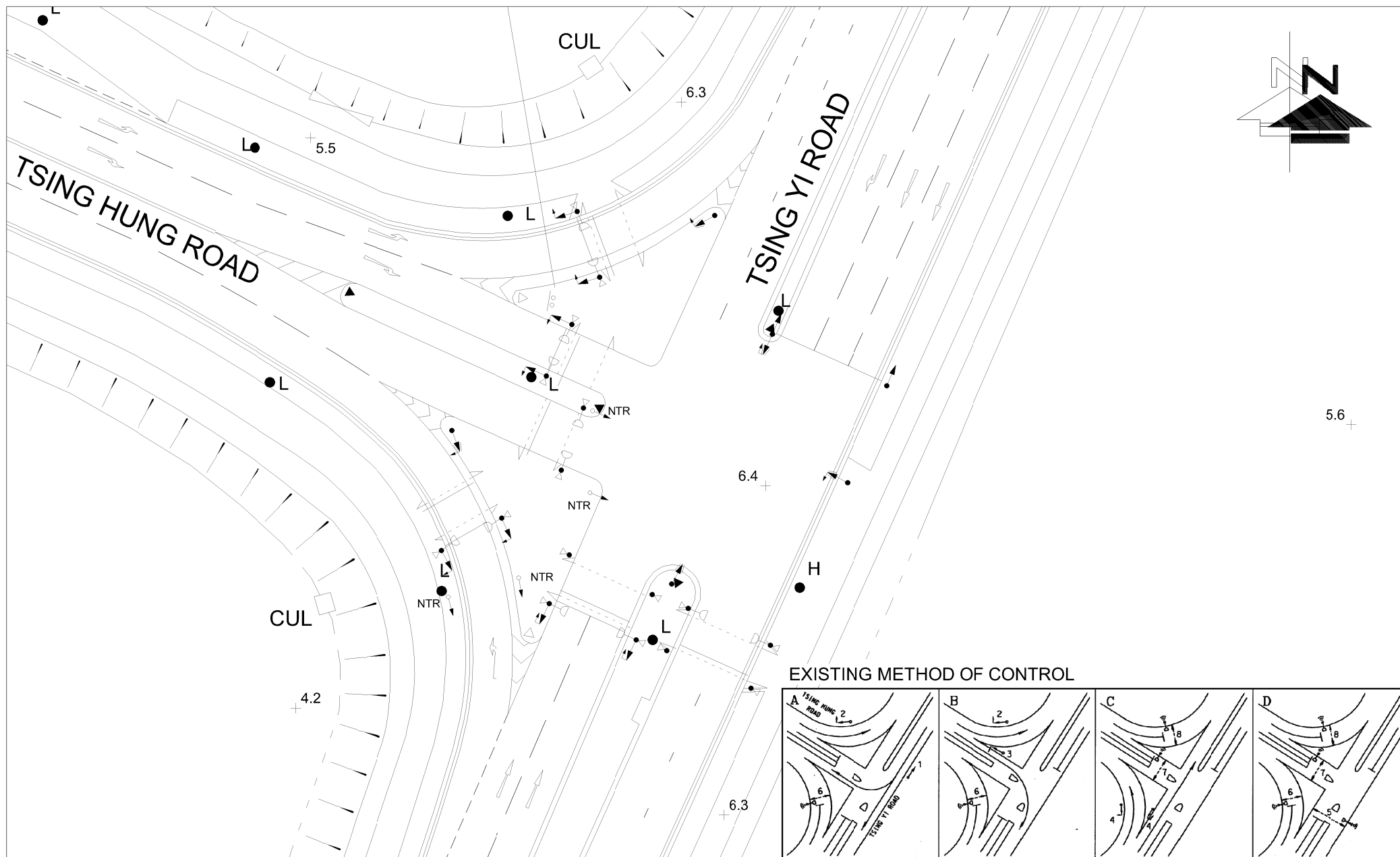


FIGURE NO.: 3.3	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/135, TYTL108 RP	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 23125HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING HUNG ROAD / TSING YI ROAD (J2)	
SCALE: 1 : 500 (IN A4 SIZE) DATE: 21 MAY 2024		

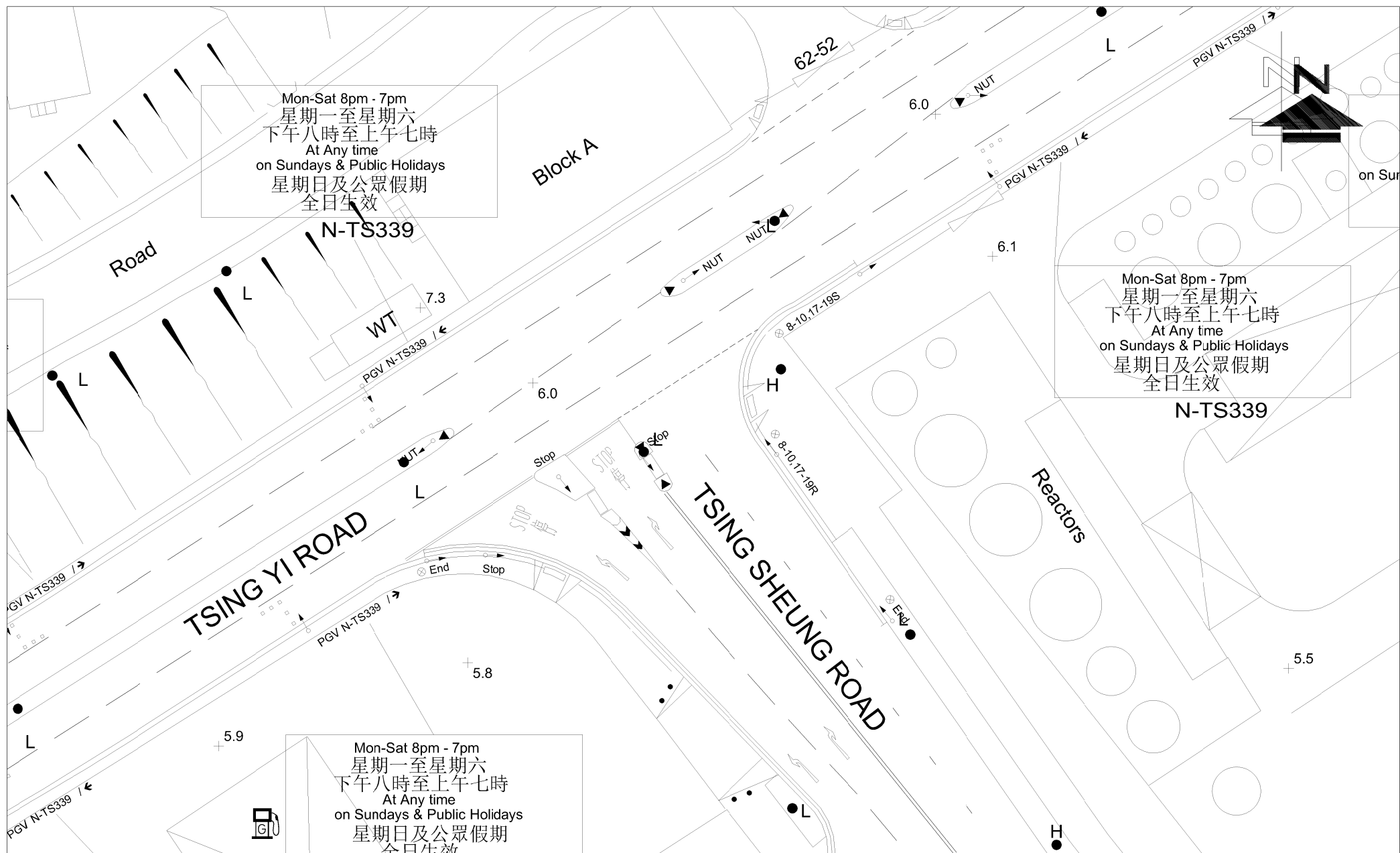


FIGURE NO.: 3.4	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/135, TYTL108 RP	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 23125HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING SHEUNG ROAD / TSING YI ROAD (J3)	
SCALE: 1 : 500 (IN A4 SIZE)	DATE: 21 MAY 2024	

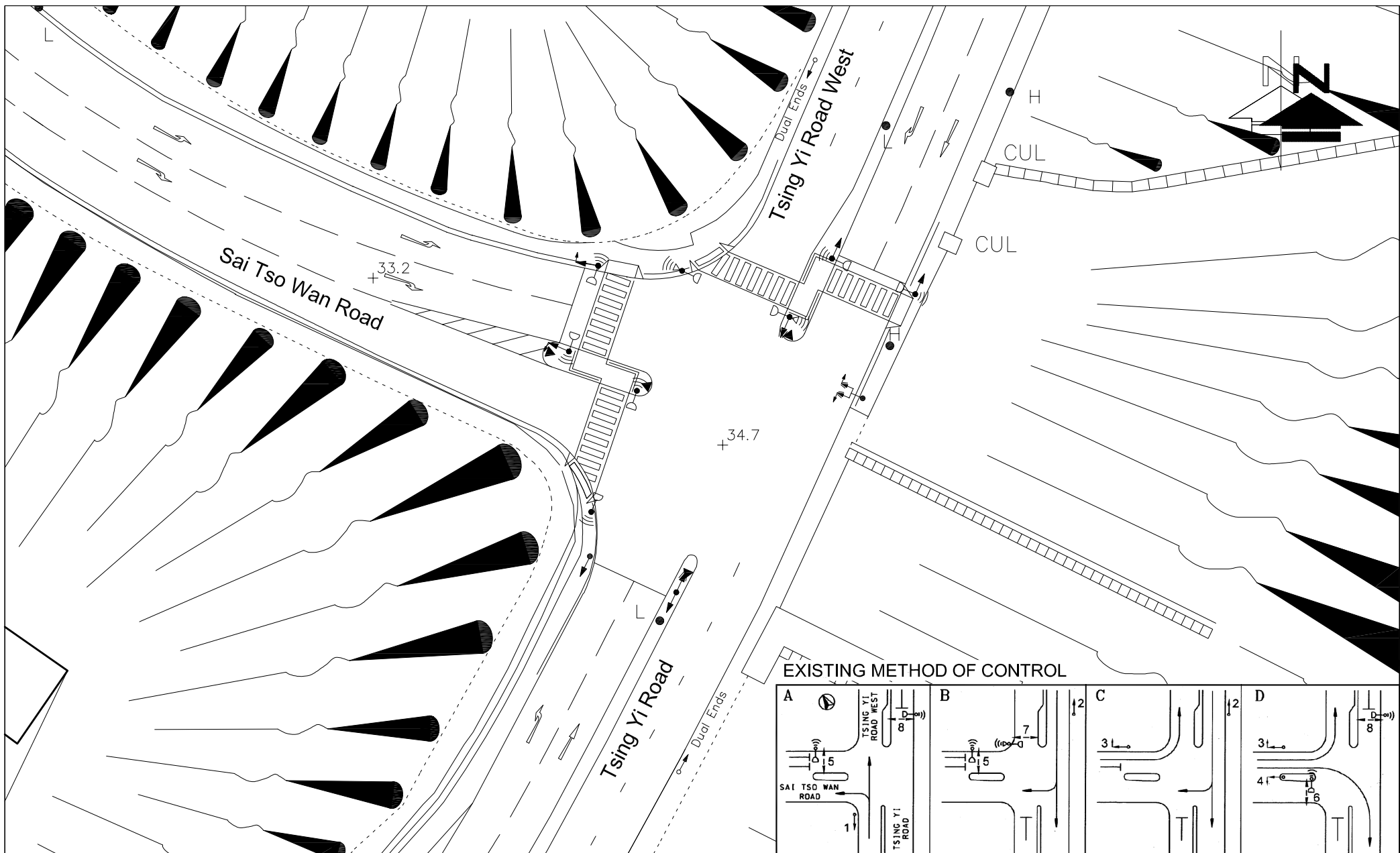


FIGURE NO.: 3.5	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/135, TYTL108 RP	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 23125HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF SAI TSO WAN ROAD / TSING YI ROAD WEST / TSING YI ROAD (J4)	
SCALE: 1 : 500 @A4	DATE: 21 MAY 2024	

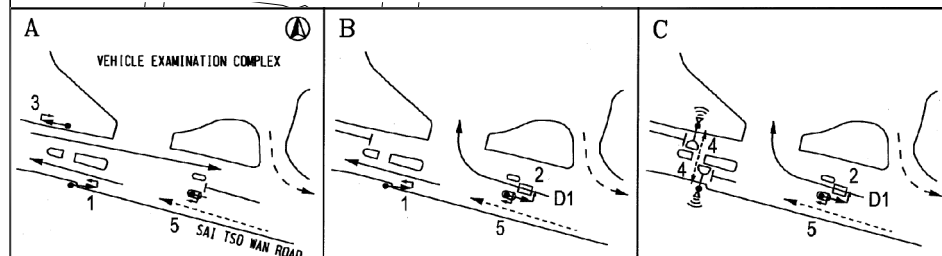
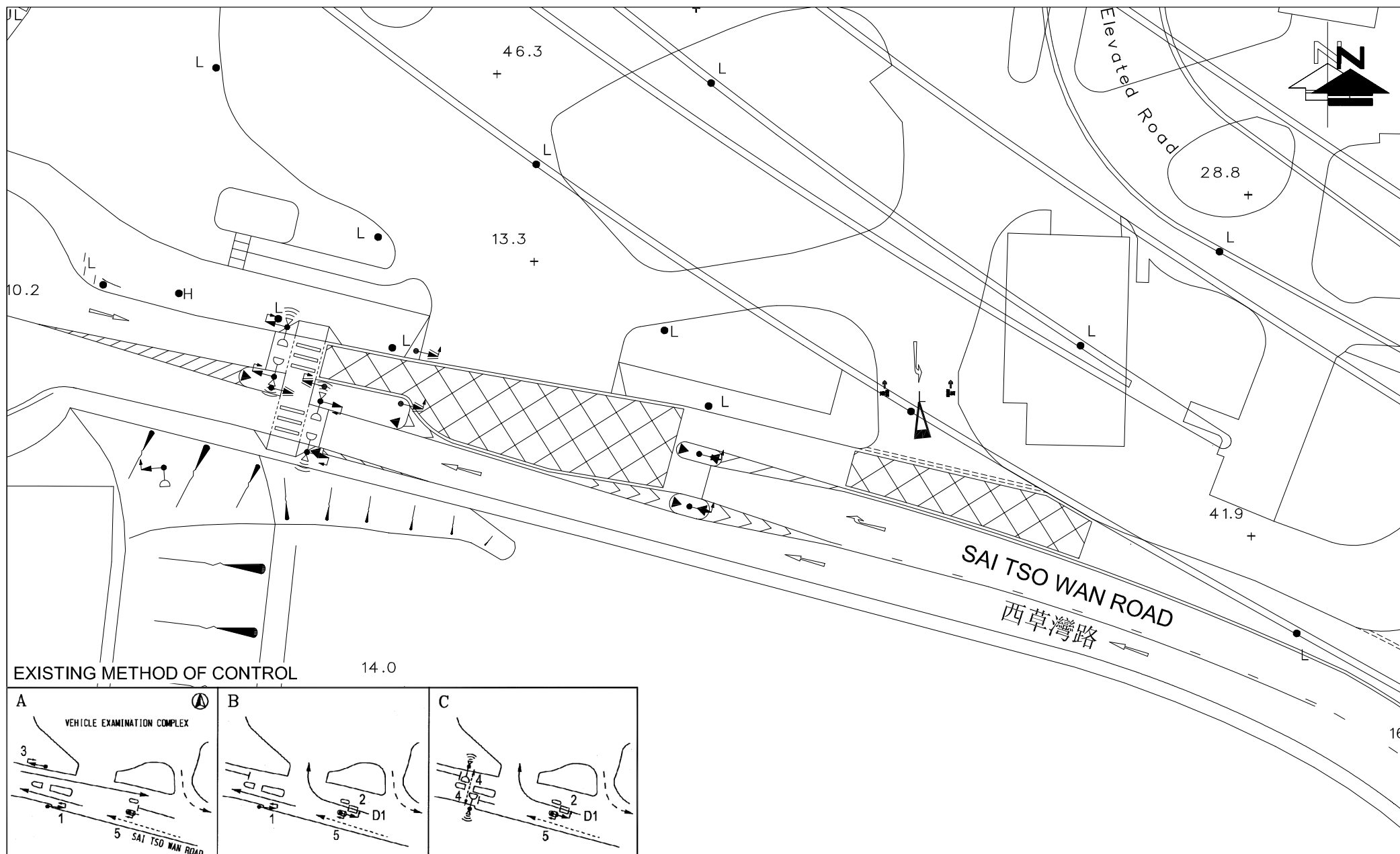


FIGURE NO.: 3.6		PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/135, TYTL108 RP	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 23125HK		DRAWING TITLE: EXISTING JUNCTION LAYOUT OF ENTRANCE OF VEC / SAI TSO ROAD (J5)	
SCALE: 1 : 500 @A4	DATE: 21 MAY 2024		

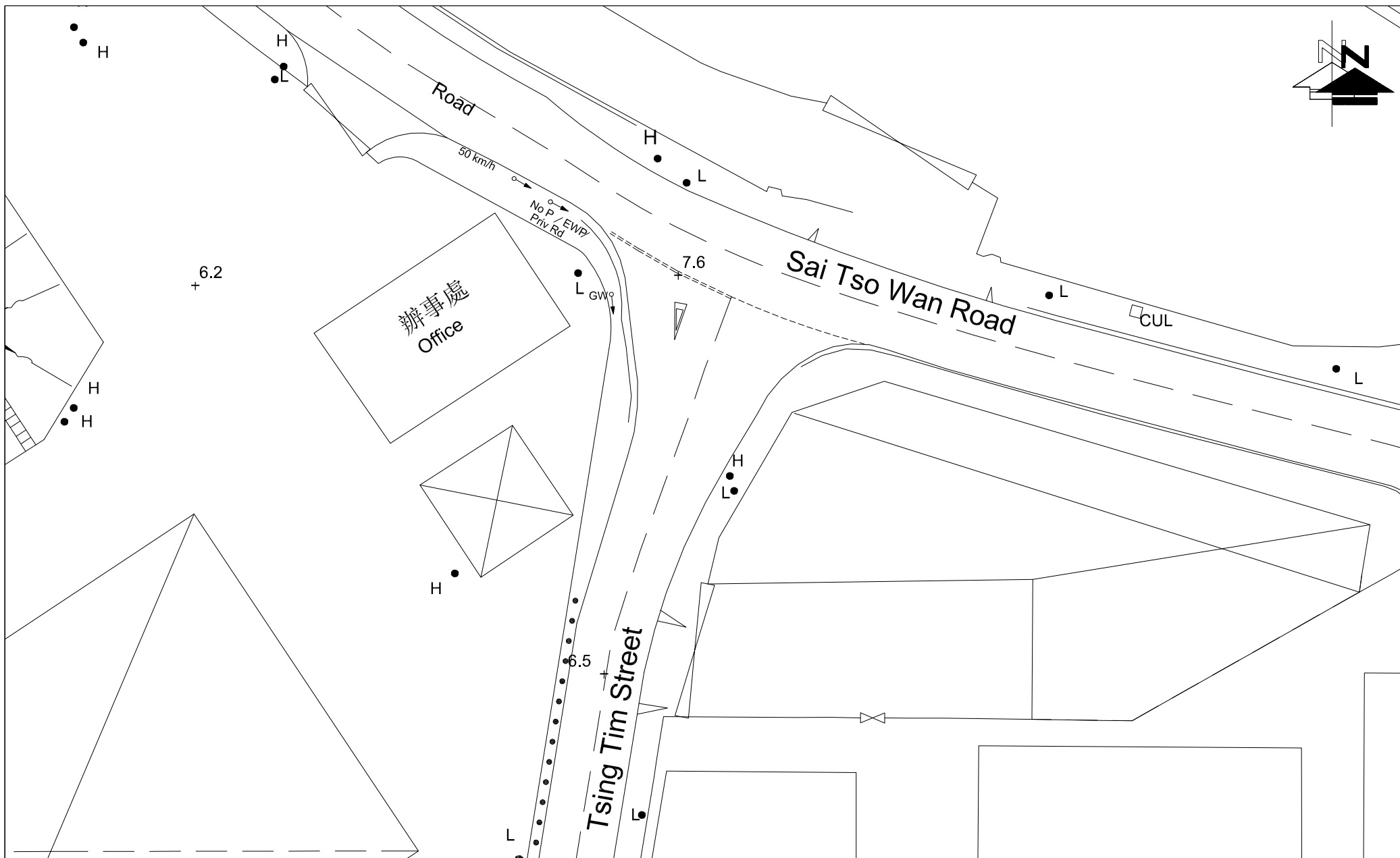


FIGURE NO.: 3.7		PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/135, TYTL108 RP	
PROJECT NO.: 23125HK		DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING TIM STREET / SAI TSO WAN ROAD (J6)	
SCALE: 1 : 500 (IN A4 SIZE)	DATE: 21 MAY 2024	 CTA Consultants Limited 志達顧問有限公司	

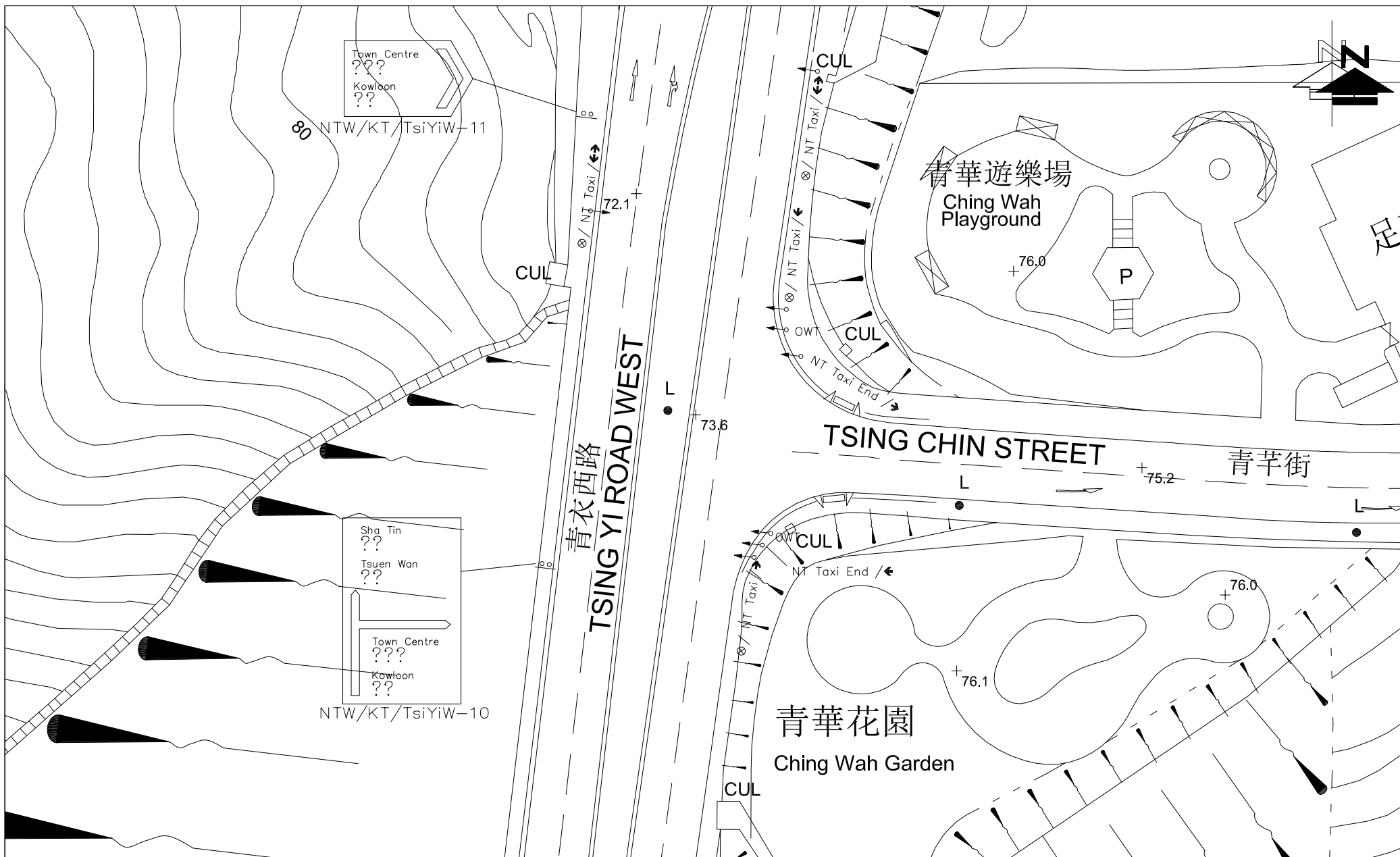


FIGURE NO.: 3.8	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/135, TYTL108 RP	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 23125HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF YI ROAD WEST / TSING CHIN STREET (J7)	
SCALE: 1 : 500 (IN A4 SIZE)	DATE: 21 MAY 2024	

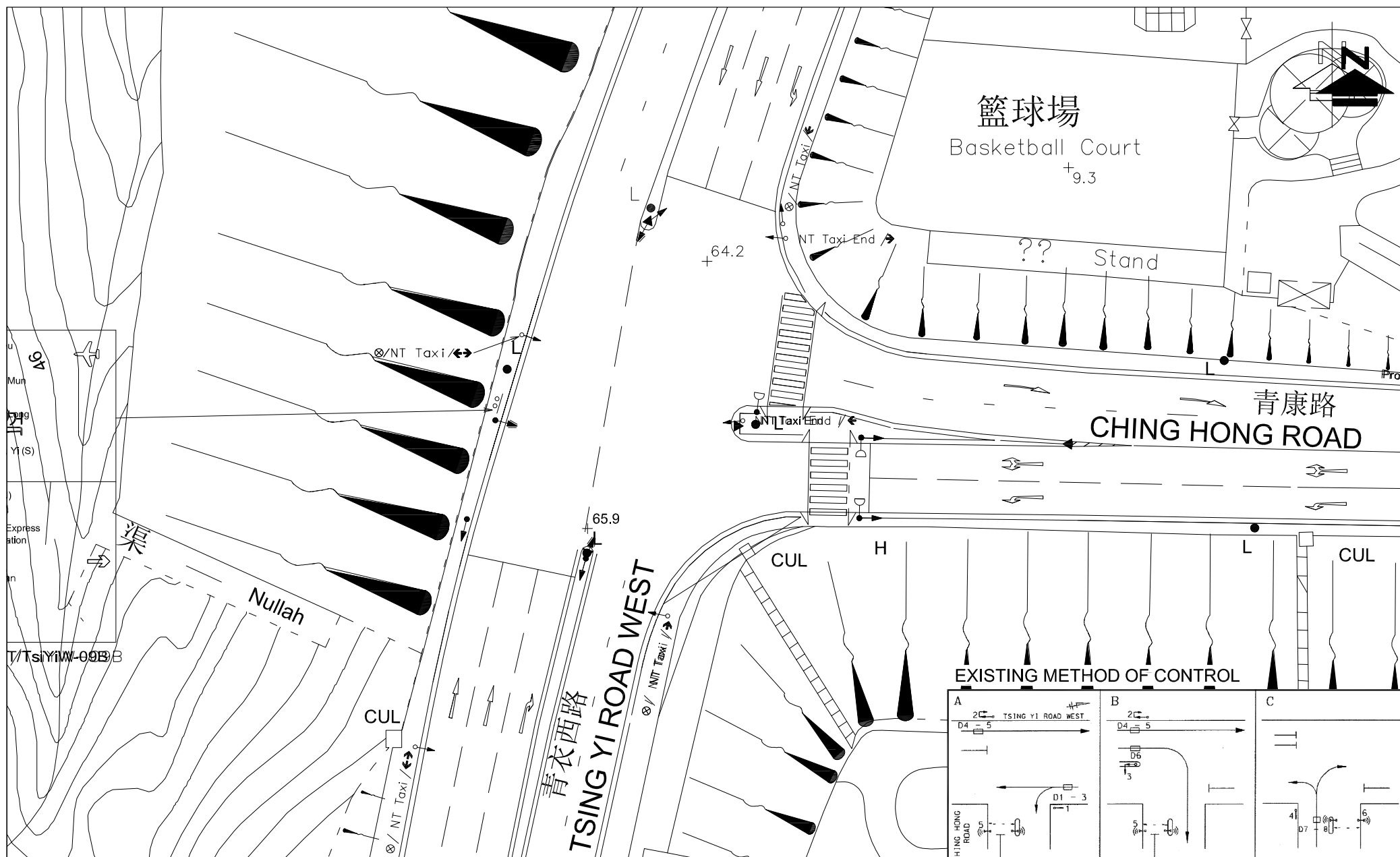


FIGURE NO.: 3.9	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/135, TYTL108 RP	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 23125HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING YI ROAD WEST / CHING HONG ROAD (J8)	
SCALE: 1 : 500 (IN A4 SIZE)	DATE: 18 JUN 2024	

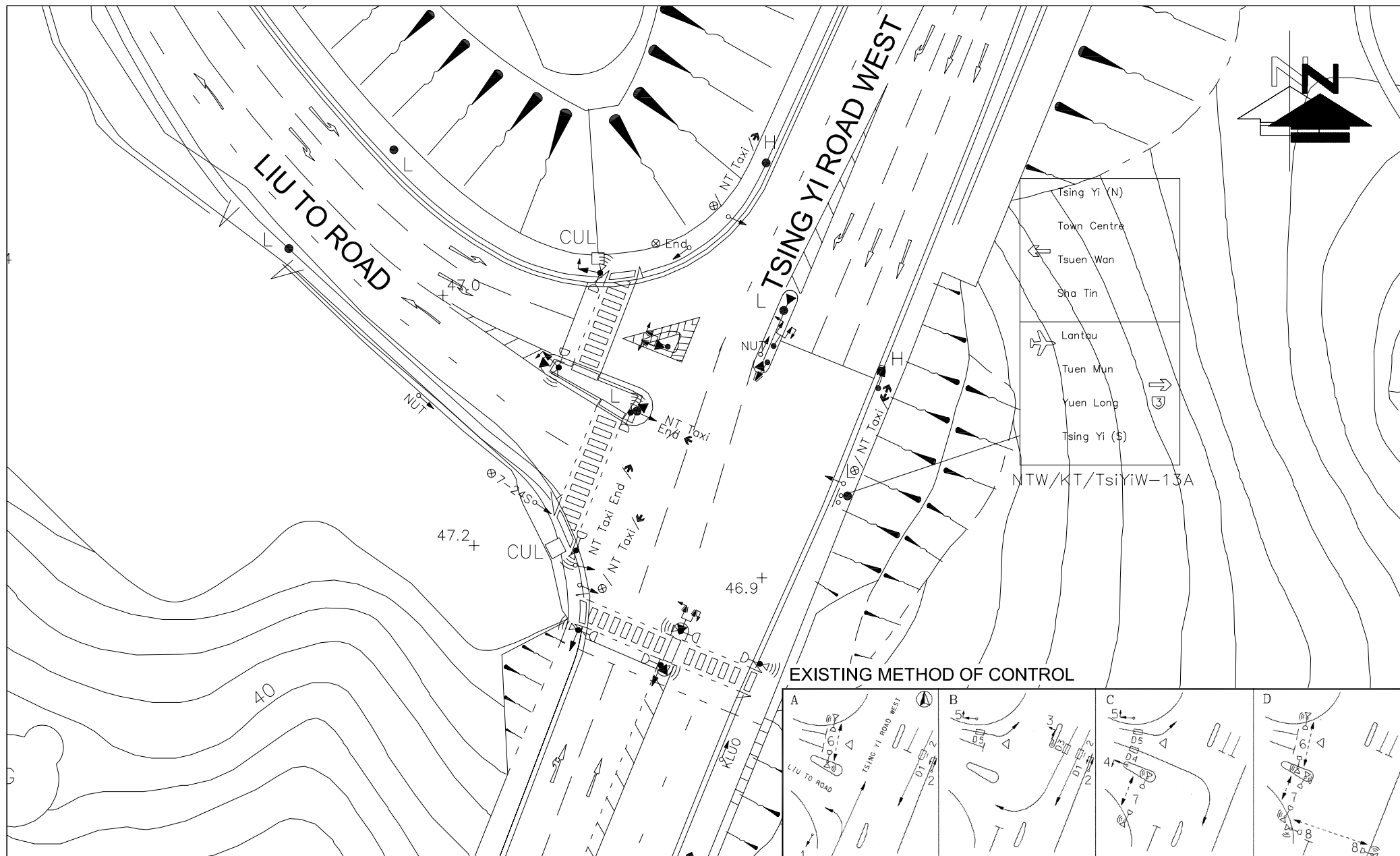


FIGURE NO.: 3.10	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/135, TYTL108 RP	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 23125HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING YI ROAD WEST / LIU TO ROAD (J9)	
SCALE: 1 : 500 (IN A4 SIZE)	DATE: 21 MAY 2024	

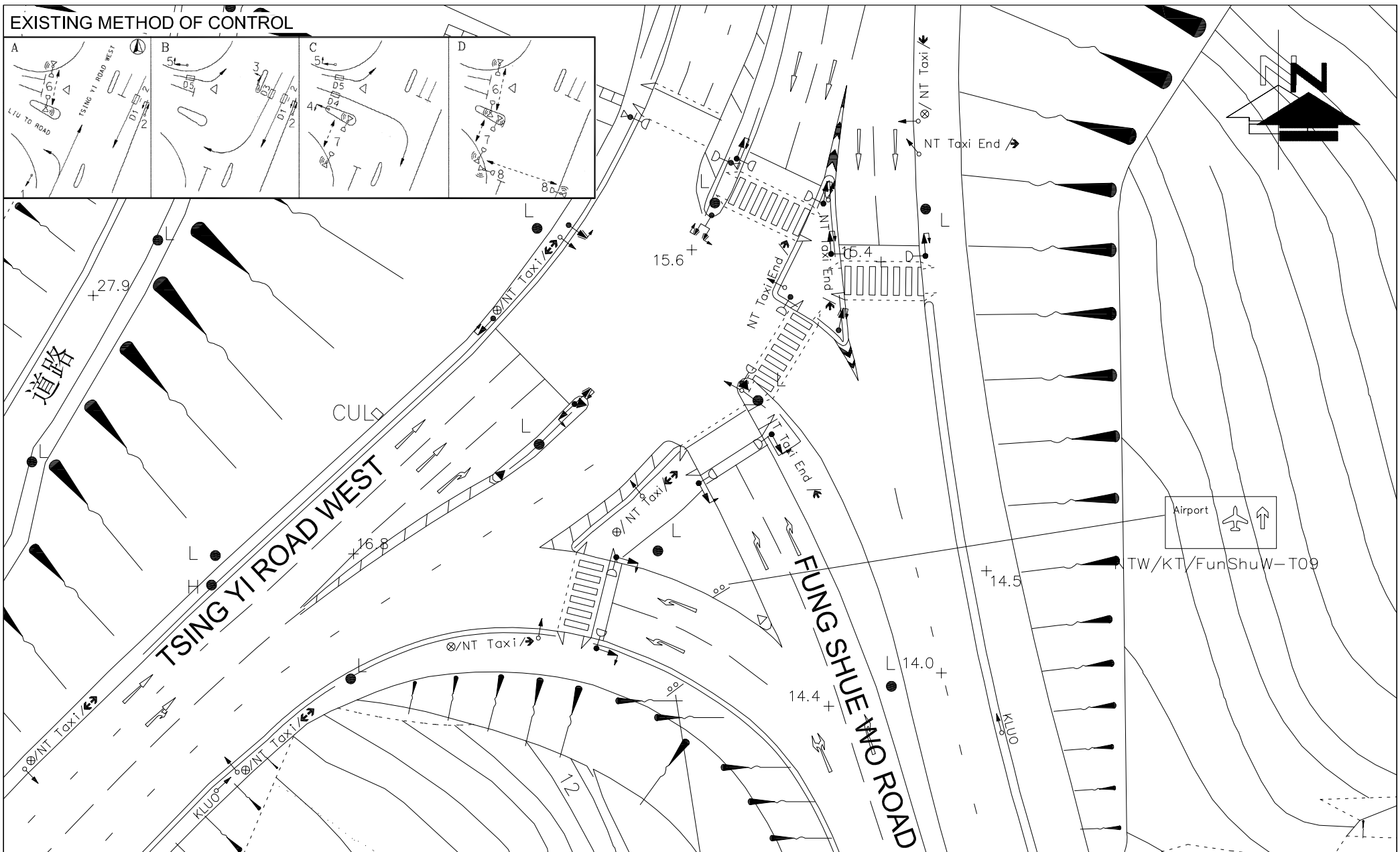


FIGURE NO.: 3.11	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/135, TYTL108 RP	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 23125HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING YI ROAD WEST / FUNG SHUE WO ROAD (J10)	
SCALE: 1 : 500 (IN A4 SIZE)	DATE: 21 MAY 2024	

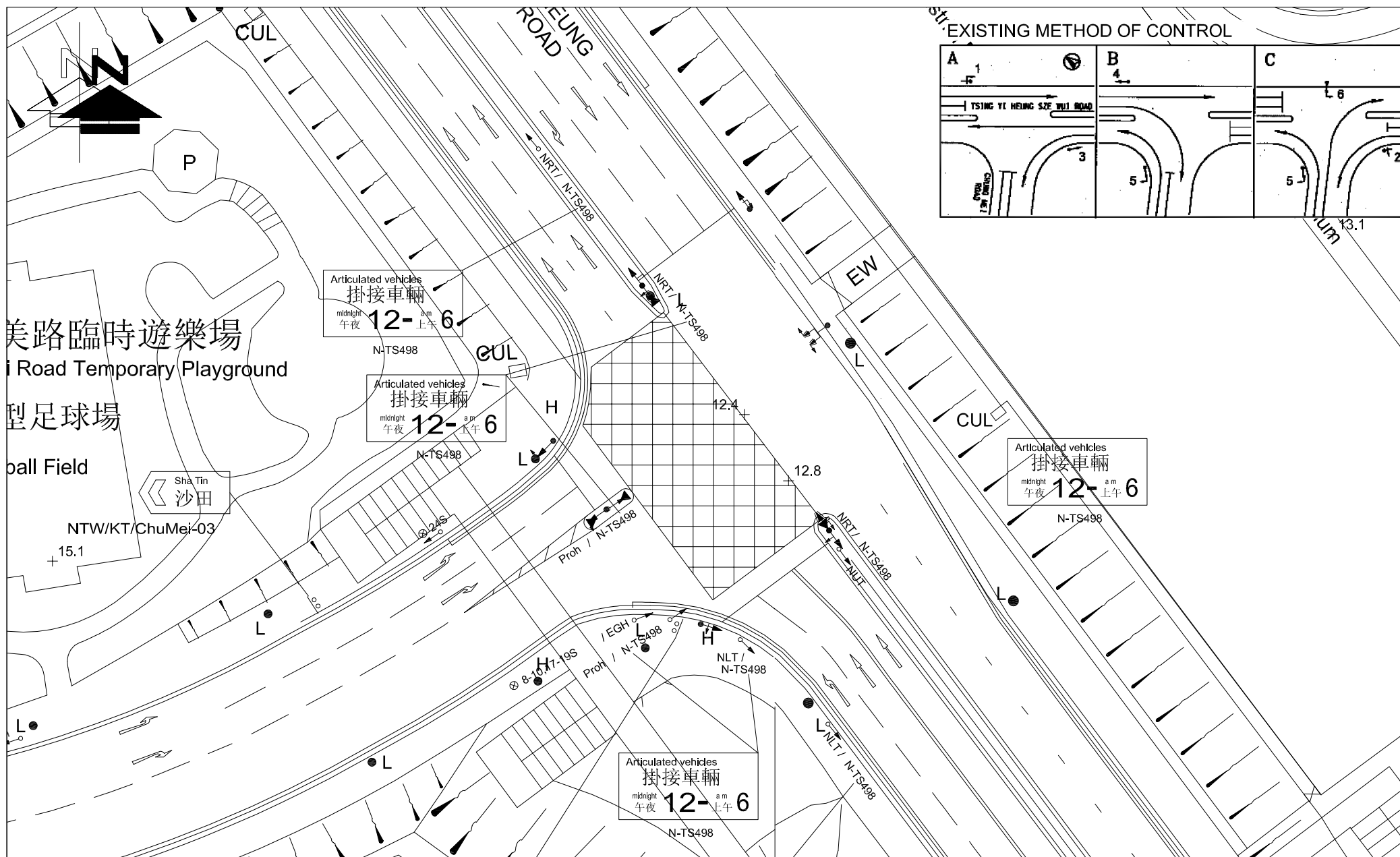


FIGURE NO.: 3.13	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/135, TYTL108 RP	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 23125HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING YI HEUNG SZE WUI ROAD / CHUNG MEI STREET (J12)	
SCALE: 1 : 500 @A4	DATE: 21 MAY 2024	

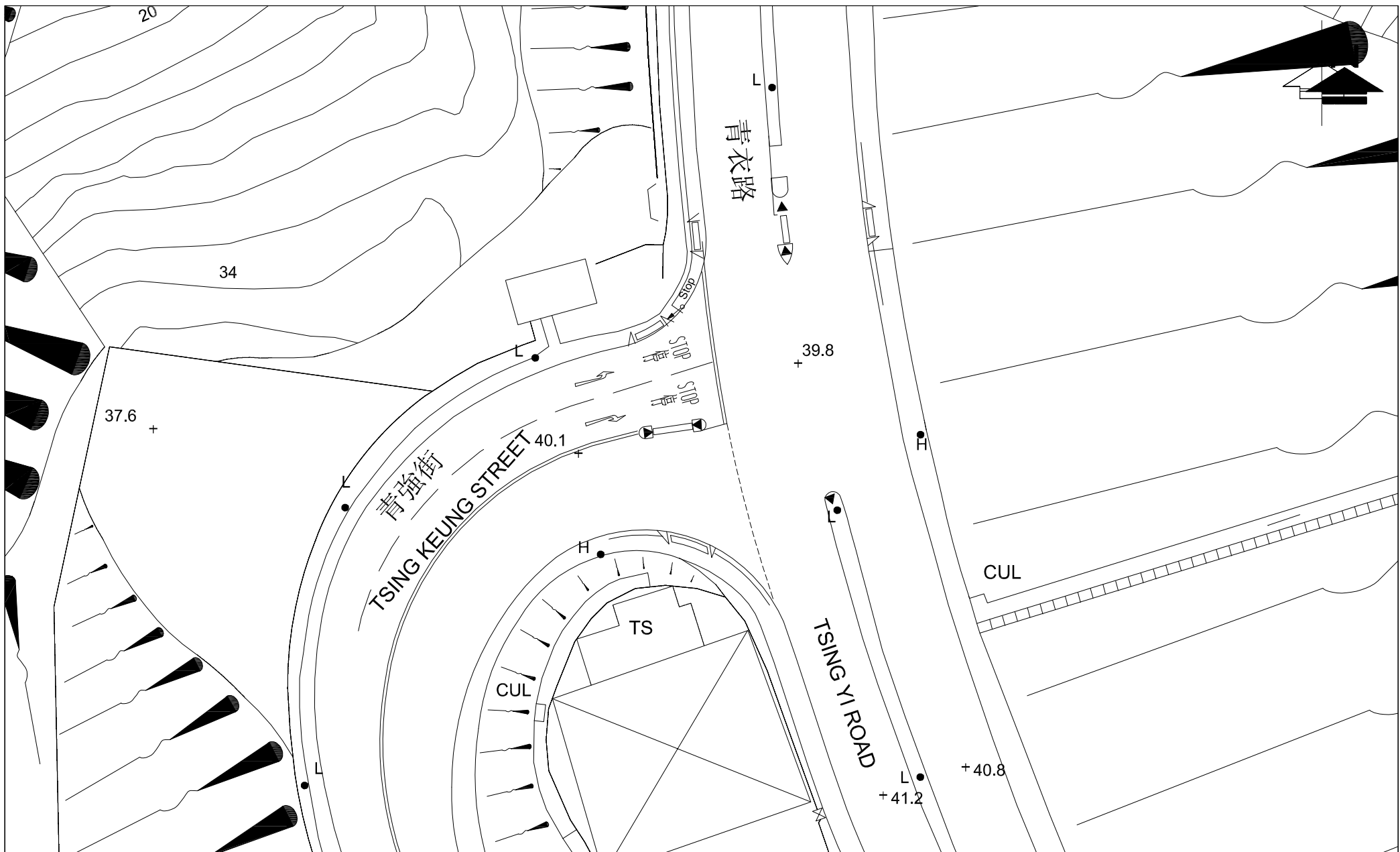


FIGURE NO.: 3.14		PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/135, TYTL108 RP
PROJECT NO.: 23125HK		DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING YIP ROAD / TSING KEUNG STREET (J13)
SCALE: 1 : 500 (IN A4 SIZE)	DATE: 21 MAY 2024	 CTA Consultants Limited 志達顧問有限公司

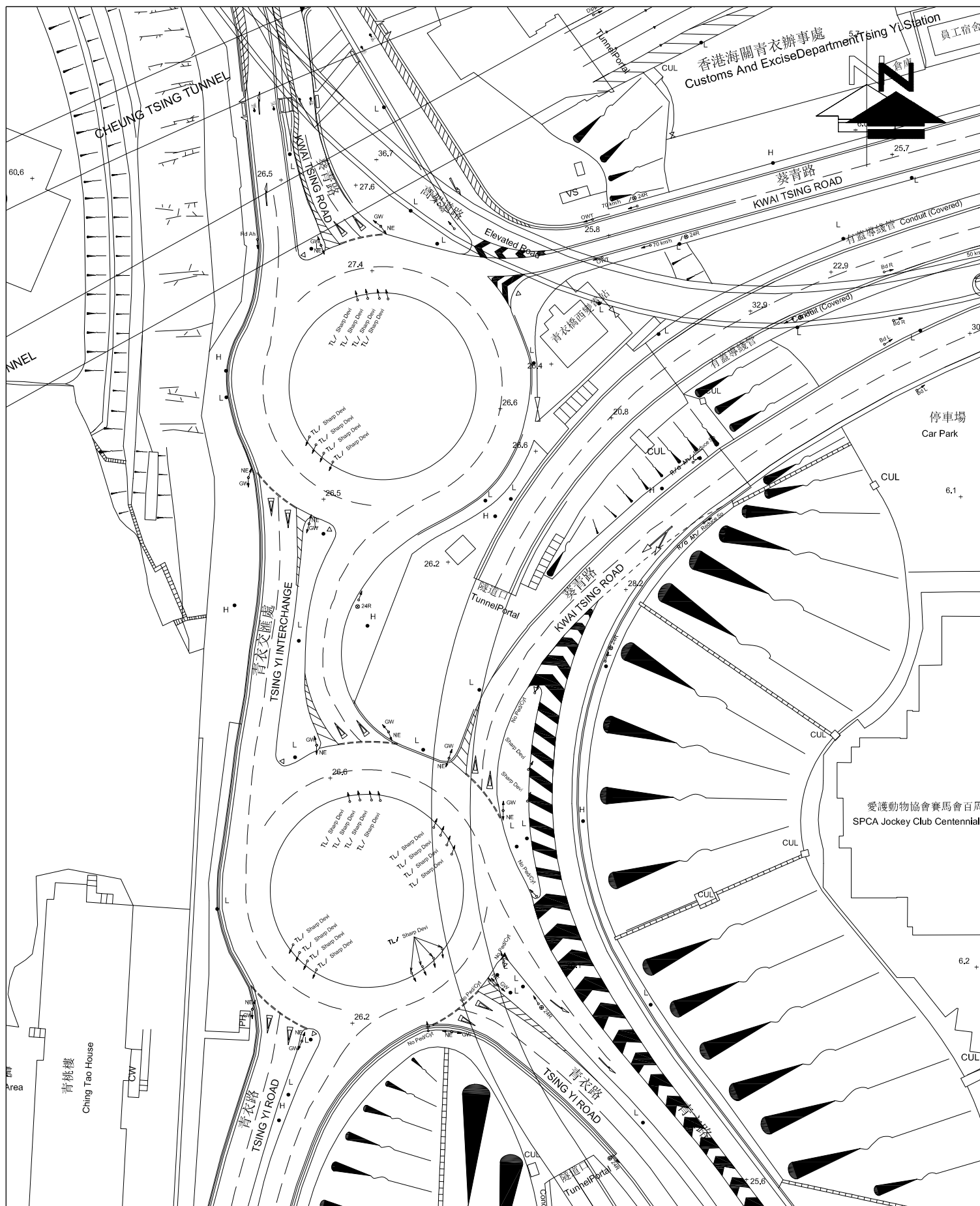


FIGURE NO.: 3.15		PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/135, TYTL108 RP	
PROJECT NO.: 23125HK		DRAWING TITLE: EXISTING JUNCTION LAYOUT OF SING YI INTERCHANGE (RA1)	
SCALE: 1 : 1000 (IN A4 SIZE)	DATE: 21 MAY 2024	 CTA Consultants Limited 志達顧問有限公司	

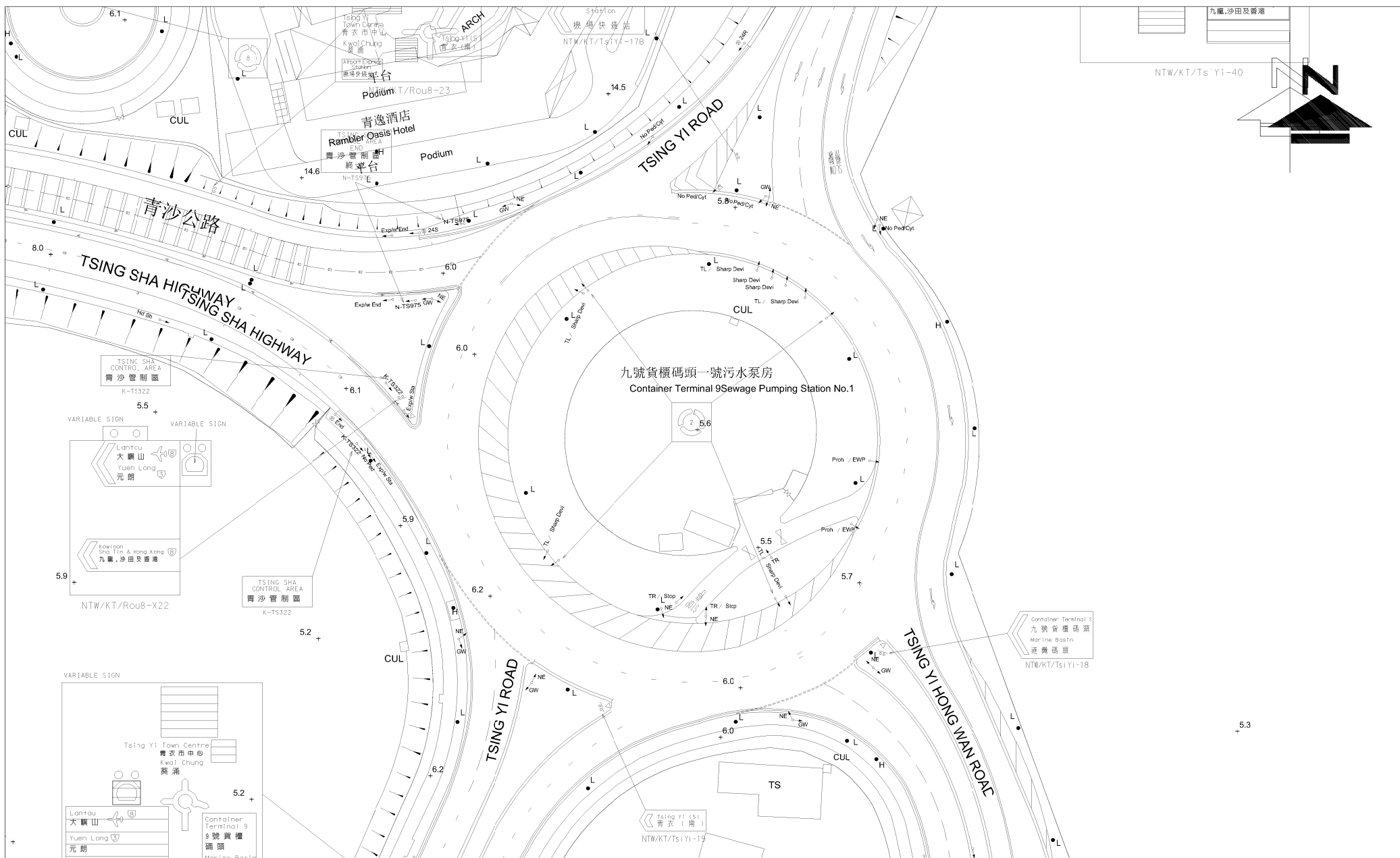


FIGURE NO.: 3.16	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/135, TYTL108 RP	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 23125HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING YI ROAD WEST / TSING YI HONG WAN ROAD / TSING SHA HIGHWAY (RA2)	
SCALE: 1 : 1000 (IN A4 SIZE)	DATE: 21 MAY 2024	

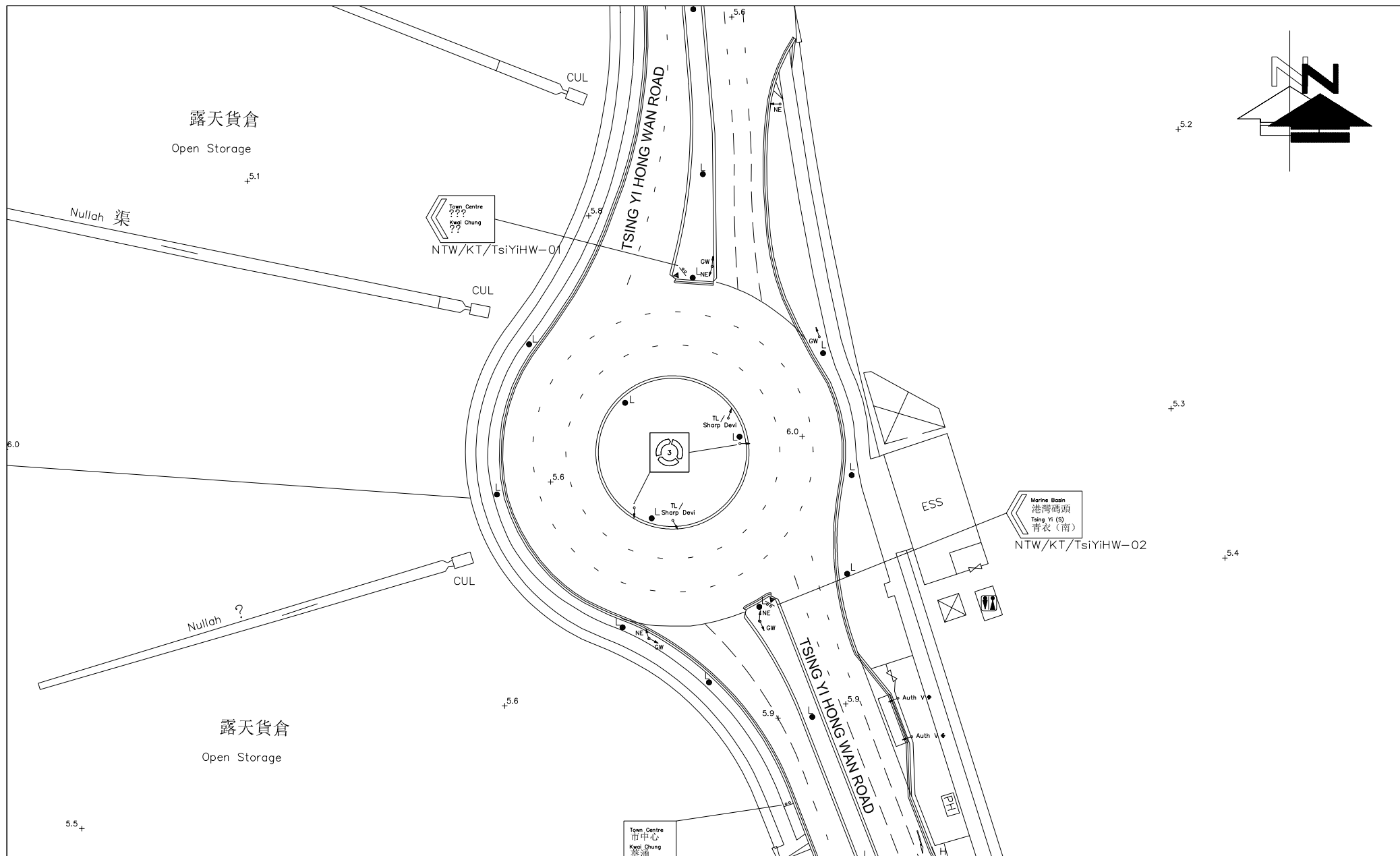


FIGURE NO.: 3.17	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/135, TYTL108 RP	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 23125HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING YI ROAD WEST / FUNG SHUE WO ROAD (RA3)	
SCALE: 1 : 1000 (IN A4 SIZE)	DATE: 21 MAY 2024	

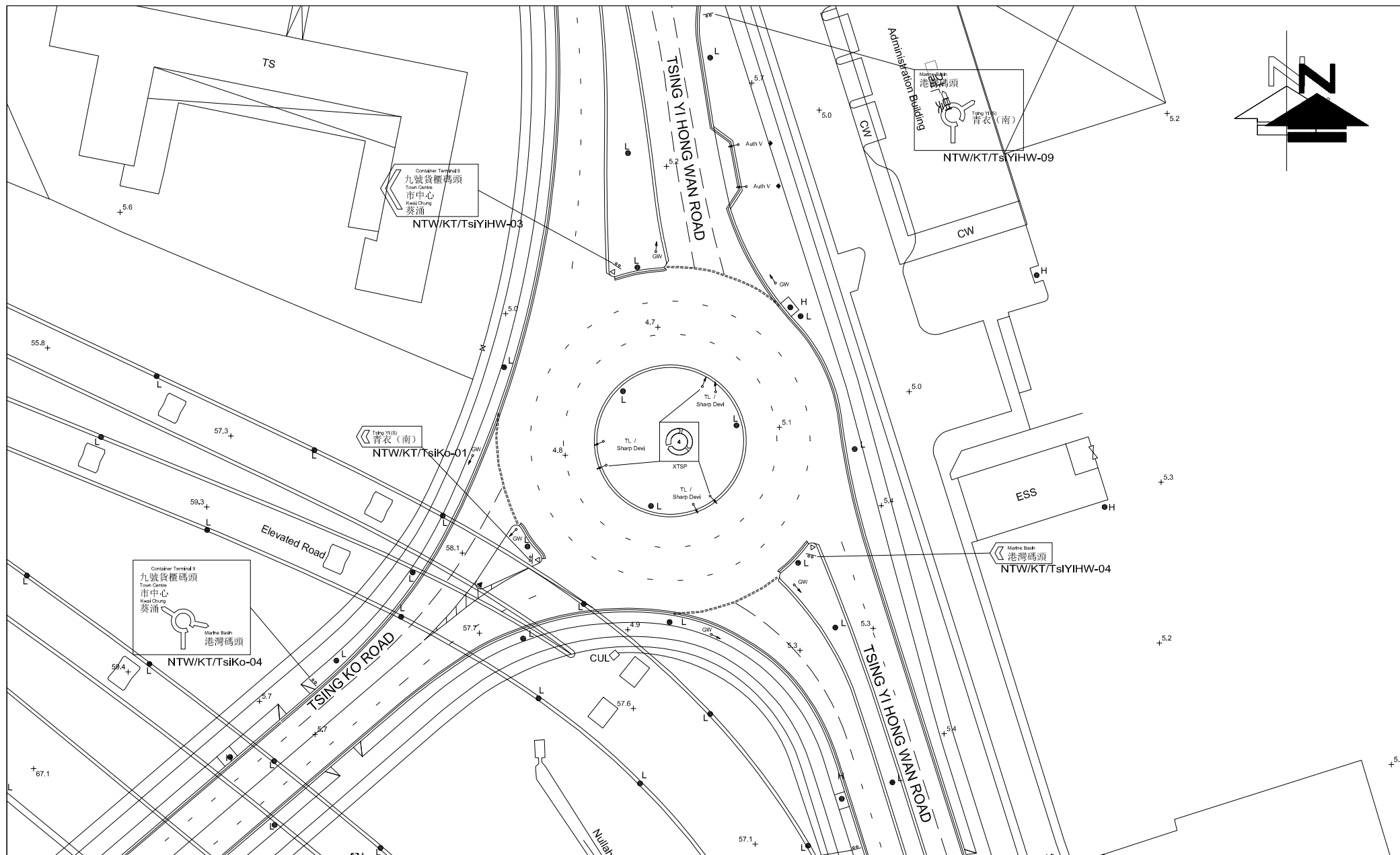


FIGURE NO.: 3.18		PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/135, TYTL108 RP
PROJECT NO.: 23125HK		DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING YI HONG WAN ROAD / TSING KO ROAD (RA4)
SCALE: 1 : 1000 (IN A4 SIZE)	DATE: 21 MAY 2024	



CTA Consultants Limited
志達顧問有限公司

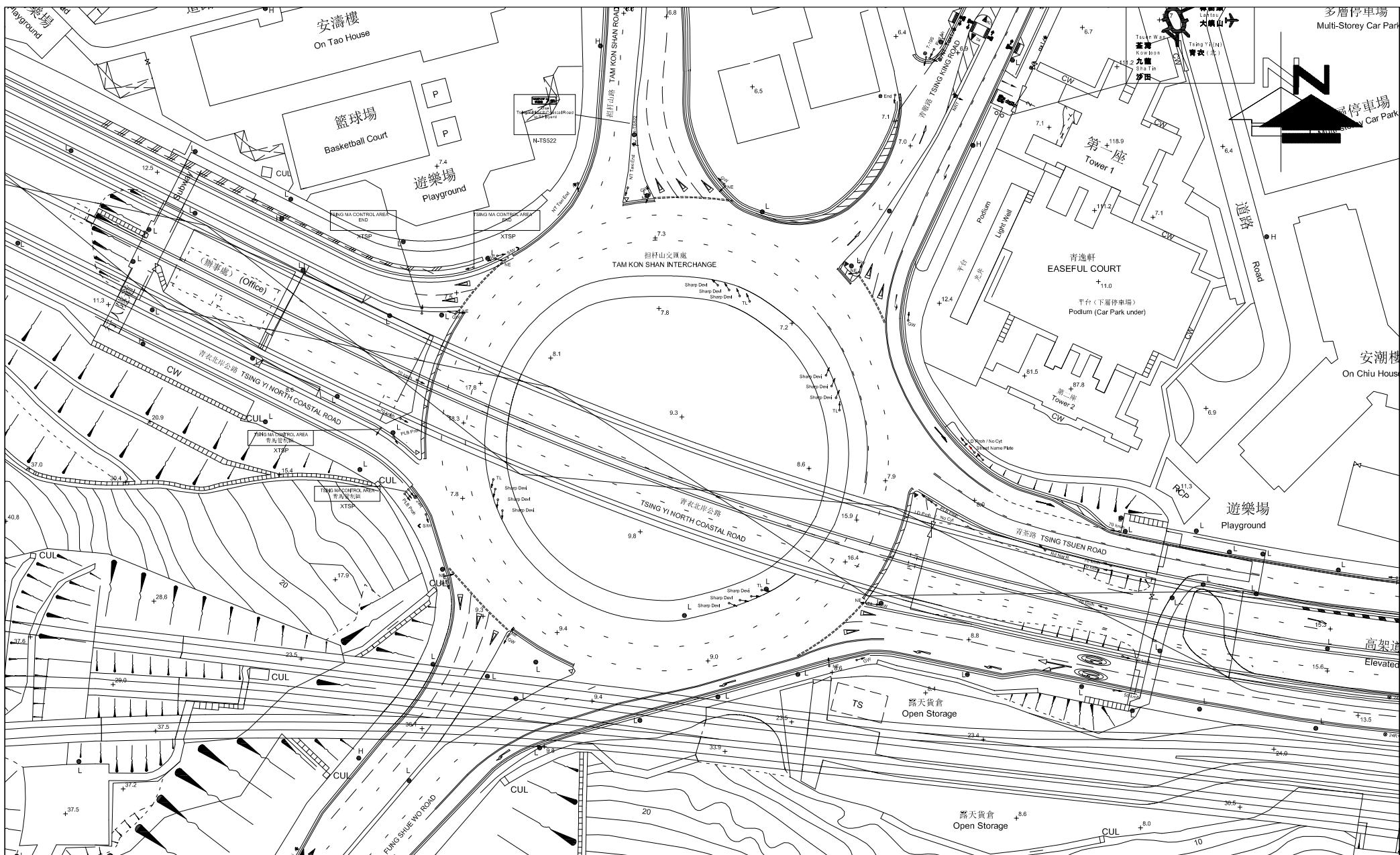


FIGURE NO.: 3.19	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/135, TYTL108 RP	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 23125HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TAM KON SHAN INTERCHANGE (RA5)	
SCALE: 1 : 1200 (IN A4 SIZE)	DATE: 21 MAY 2024	

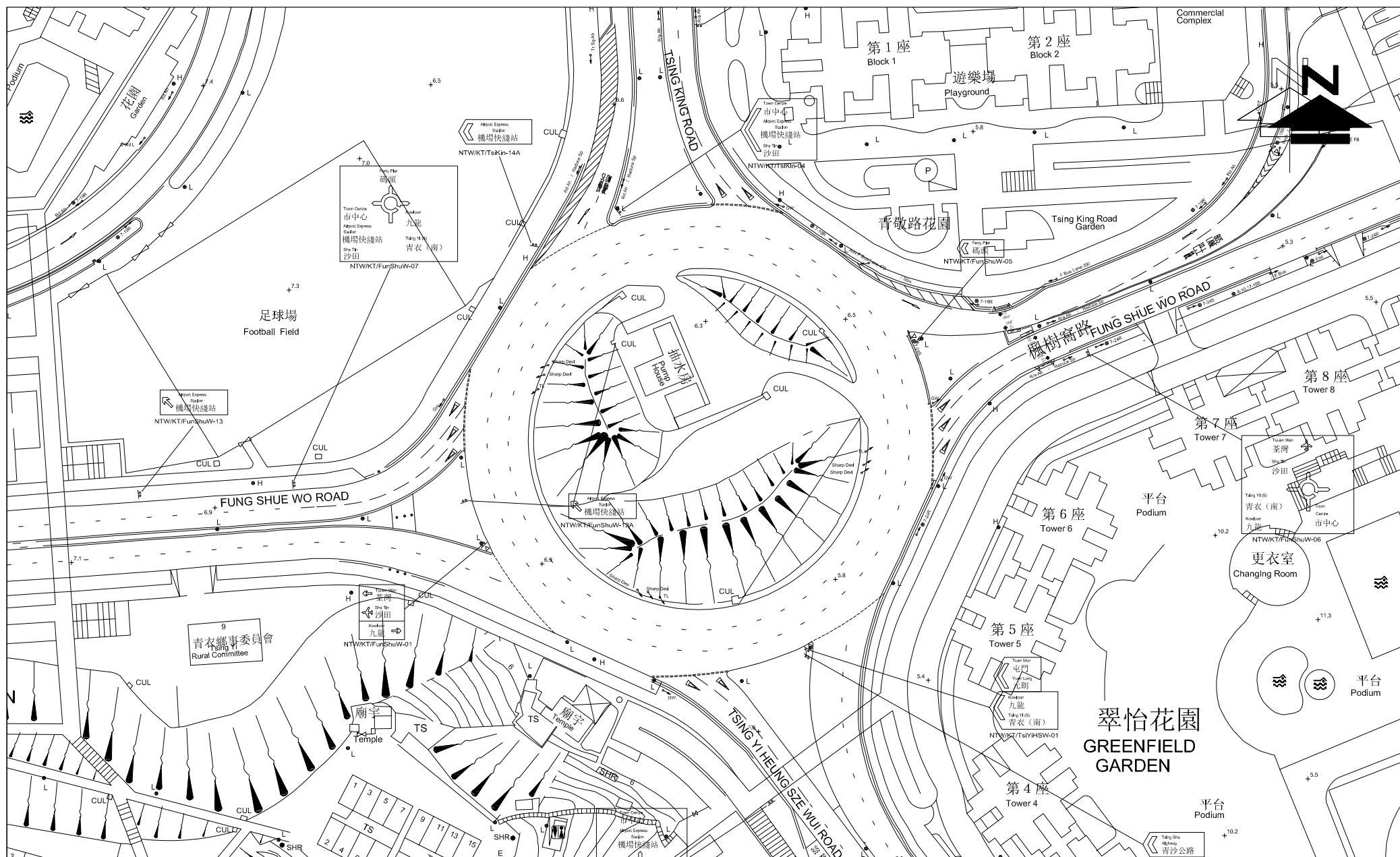


FIGURE NO.: 3.20	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/135, TYTL108 RP	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 23125HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING YI HEUNG SZE WUI ROAD / FUNG SHUE WO ROAD / TSING KING ROAD (RA6)	
SCALE: 1 : 1200 (IN A4 SIZE)	DATE: 21 MAY 2024	

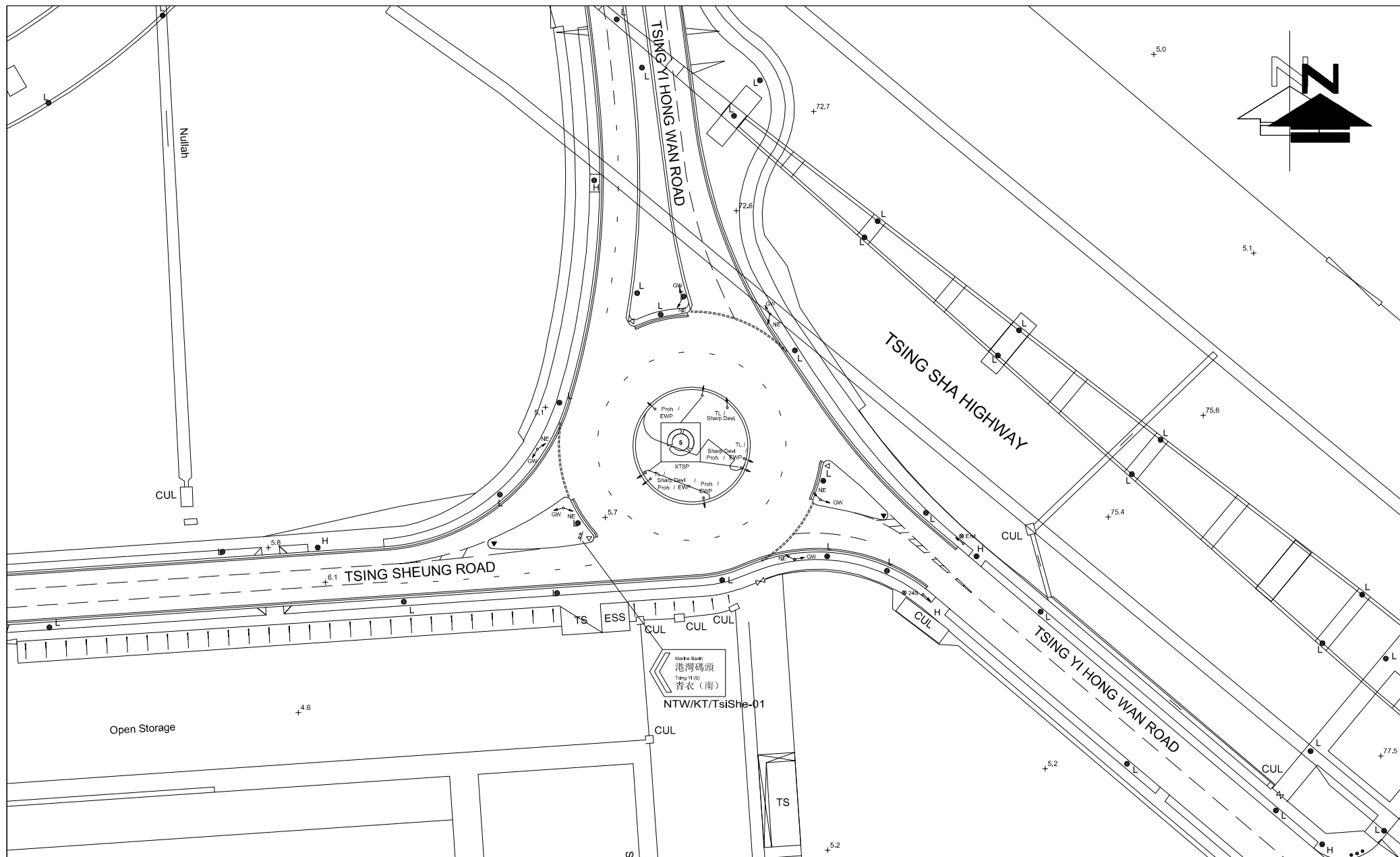


FIGURE NO.: 3.21		PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/135, TYTL108 RP	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 23125HK		DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING SHEUNG ROAD / TSING YI HONG WAN ROAD (RA7)	
SCALE: 1 : 1000 (IN A4 SIZE)	DATE: 21 MAY 2024		

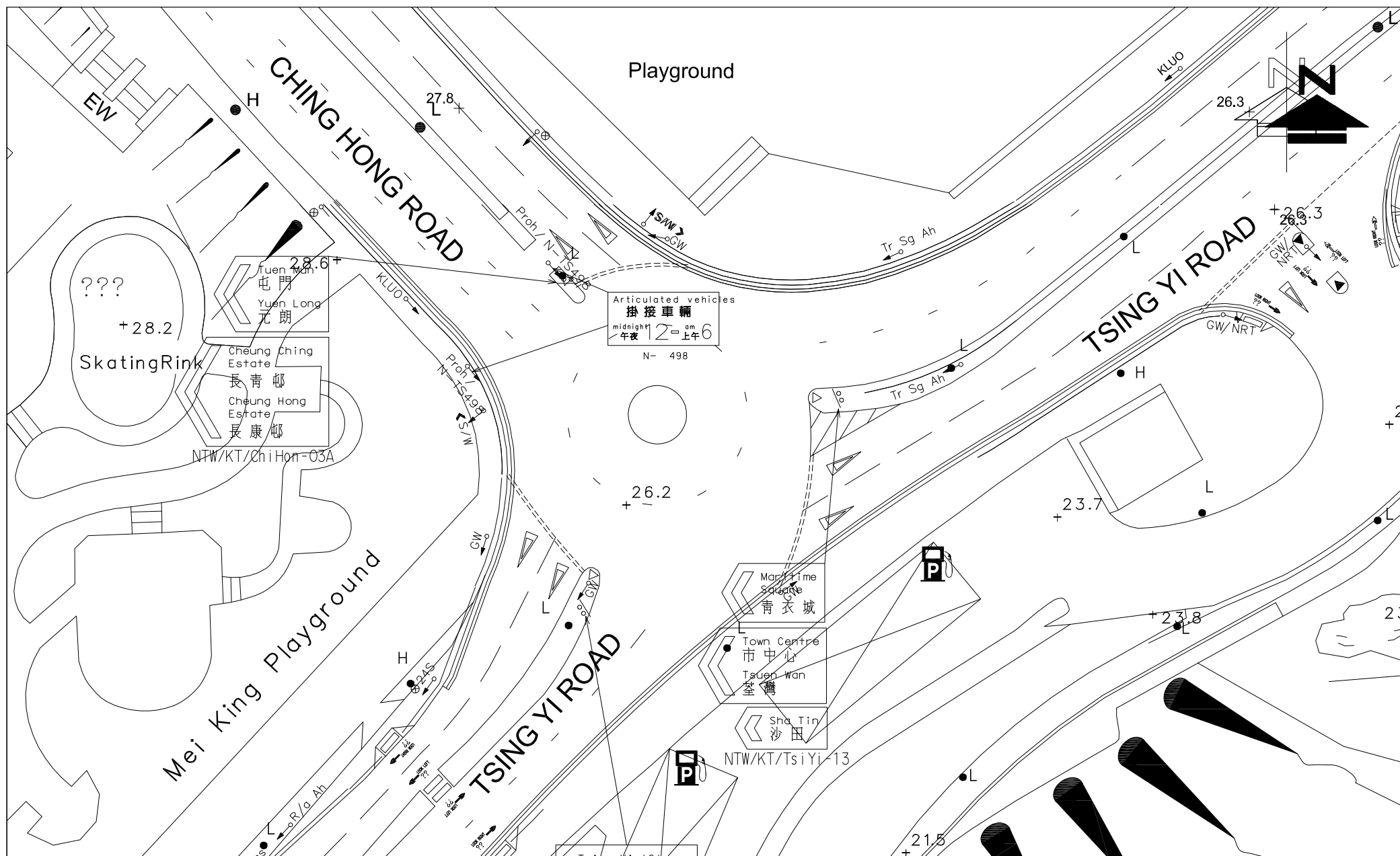


FIGURE NO.:

3.22

PROJECT TITLE:

Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/135, TYTL108 RP

EXISTING JUNCTION LAYOUT OF CHING HONG ROAD / TSING YI ROAD (RA8)



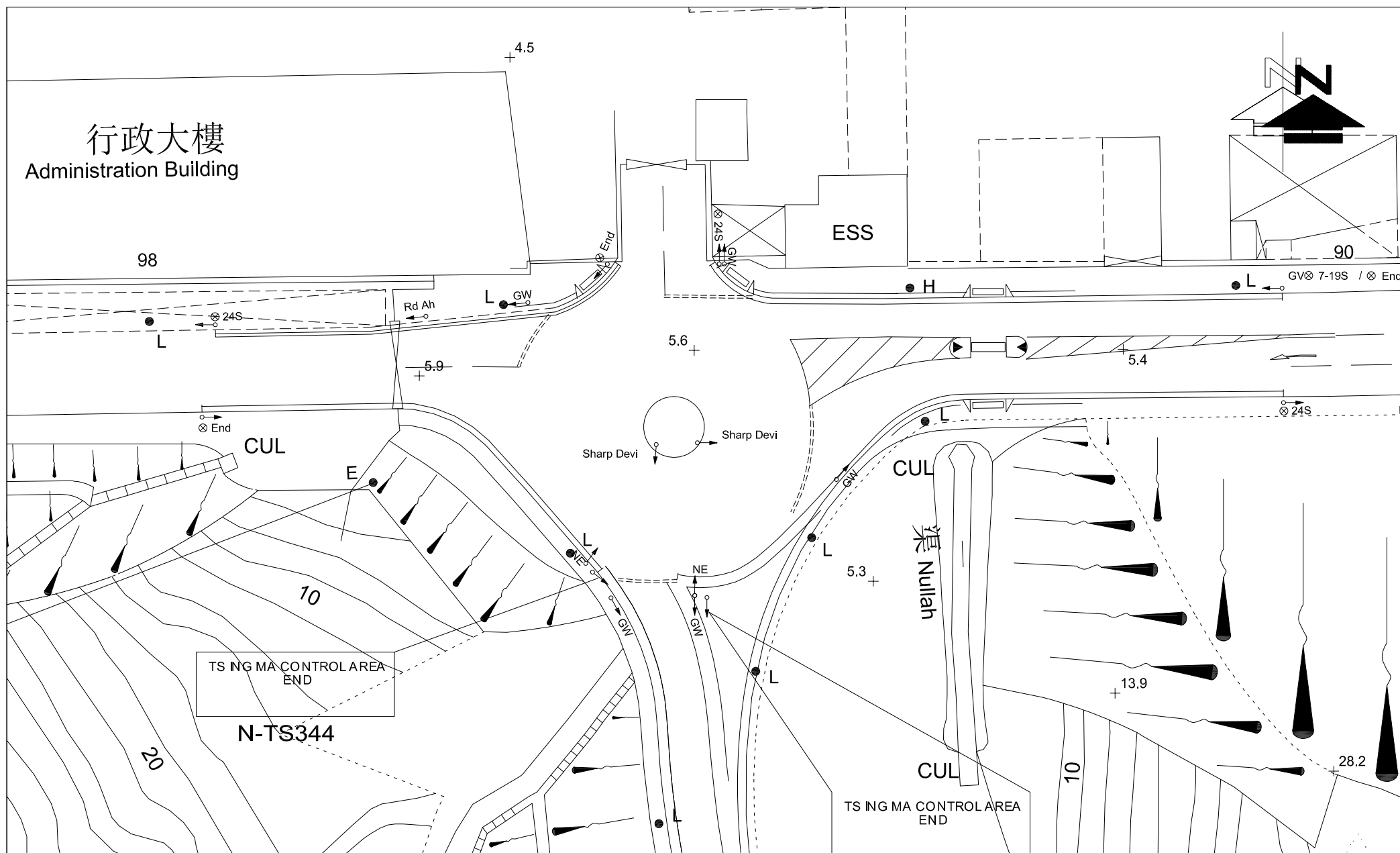


FIGURE NO.: 3.23		PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/135, TYTL108 RP	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 23125HK		DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TAM KON SHAN ROAD / TSING YI NORTH COSTAL ROAD (RA9)	
SCALE: 1 : 500 (IN A4 SIZE)	DATE: 21 MAY 2024		

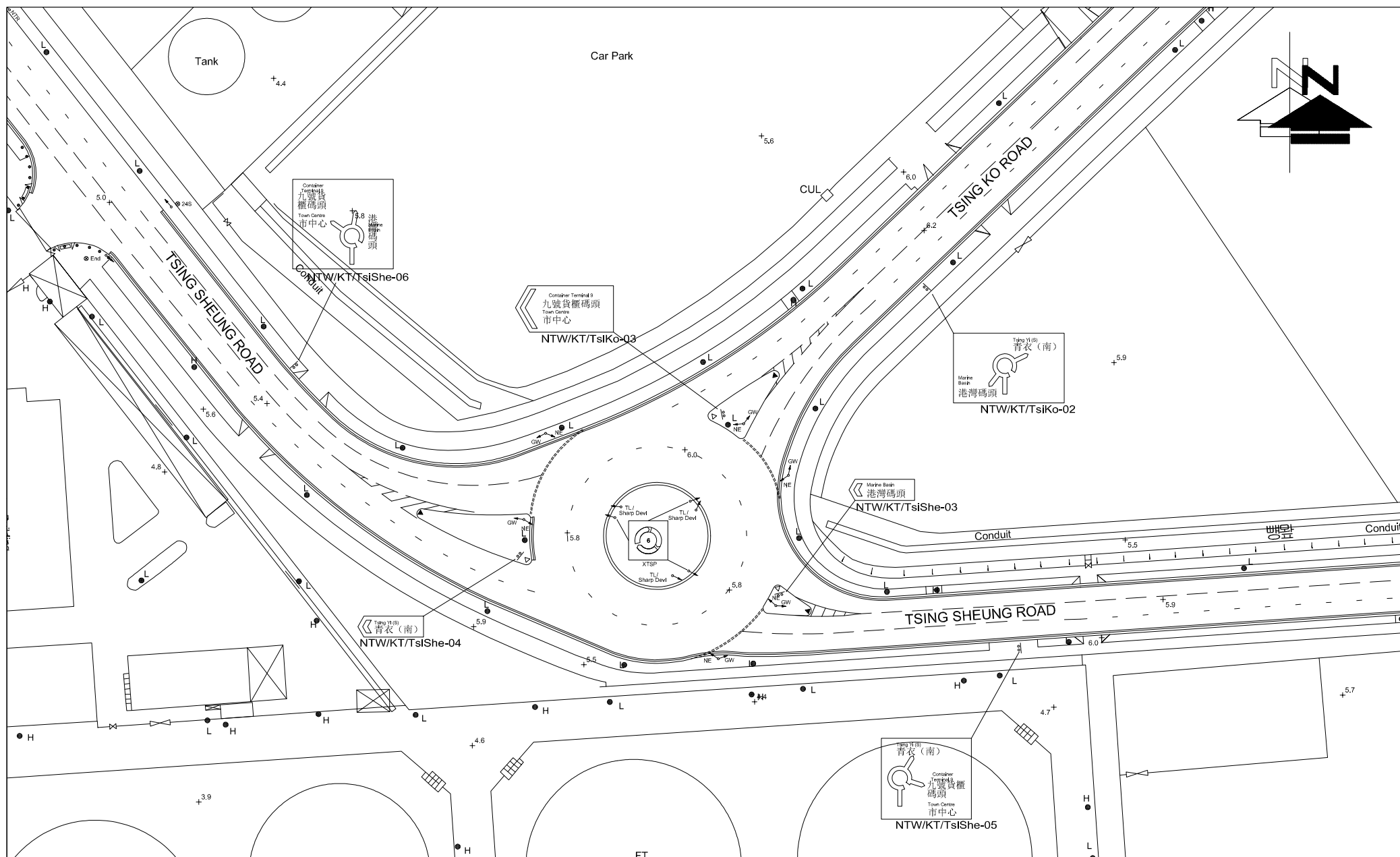
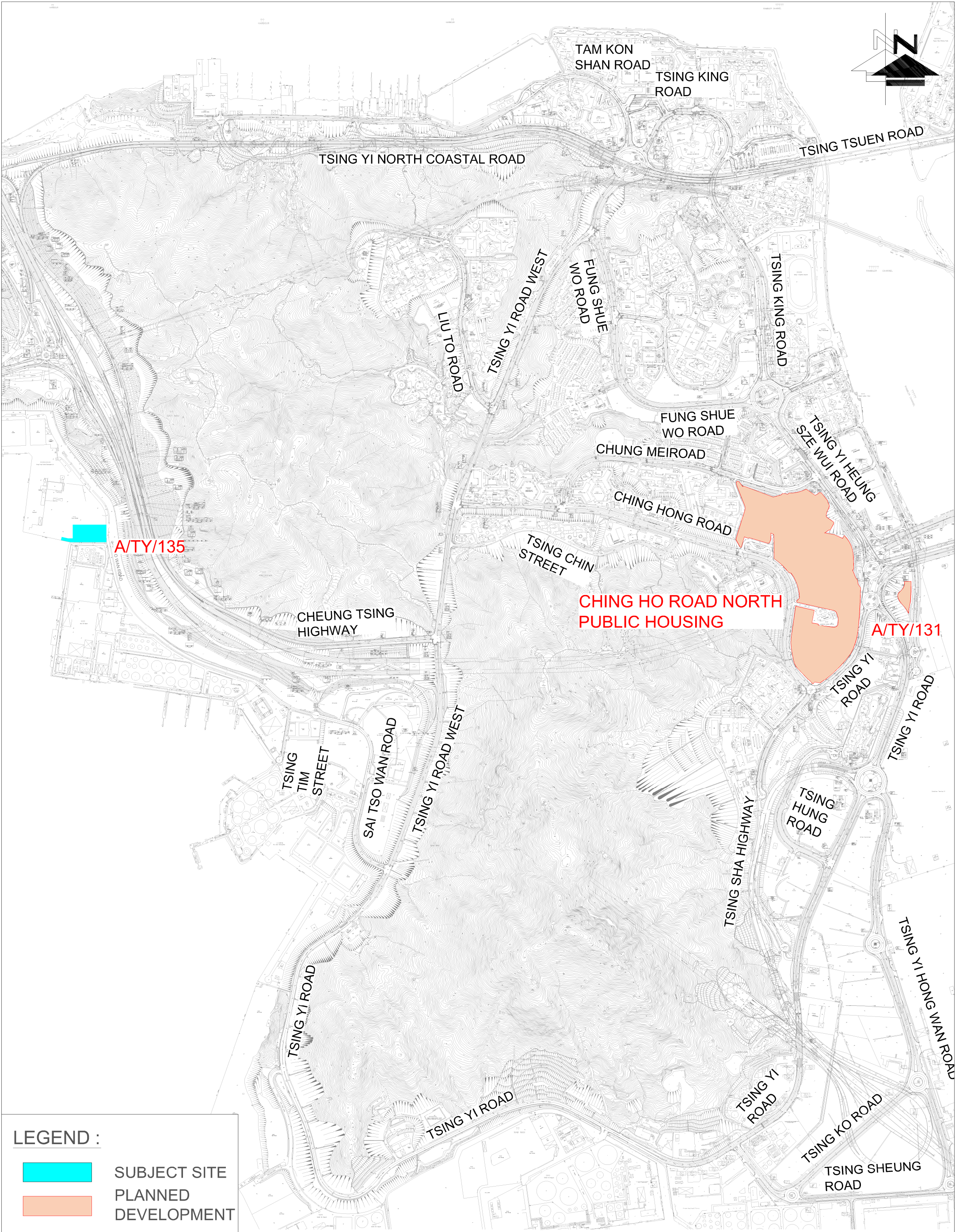
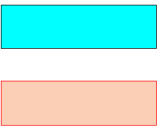


FIGURE NO.: 3.24	PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/135, TYTL108 RP	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 23125HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING KO ROAD / TSING SHEUNG ROAD (RA10)	
SCALE: 1 : 1000 (IN A4 SIZE)	DATE: 21 MAY 2024	



LEGEND :



SUBJECT SITE
PLANNED
DEVELOPMENT

FIGURE NO.:	4.1
PROJECT NO.:	23125HK
SCALE:	DATE:
1 : 11000 @A3	22 MAR 2024

PROJECT TITLE:
Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/135, TYTL108 RP
DRAWING TITLE:
PLANNED DEVELOPMENT IN VICINITY



CTA Consultants Limited
志達顧問有限公司

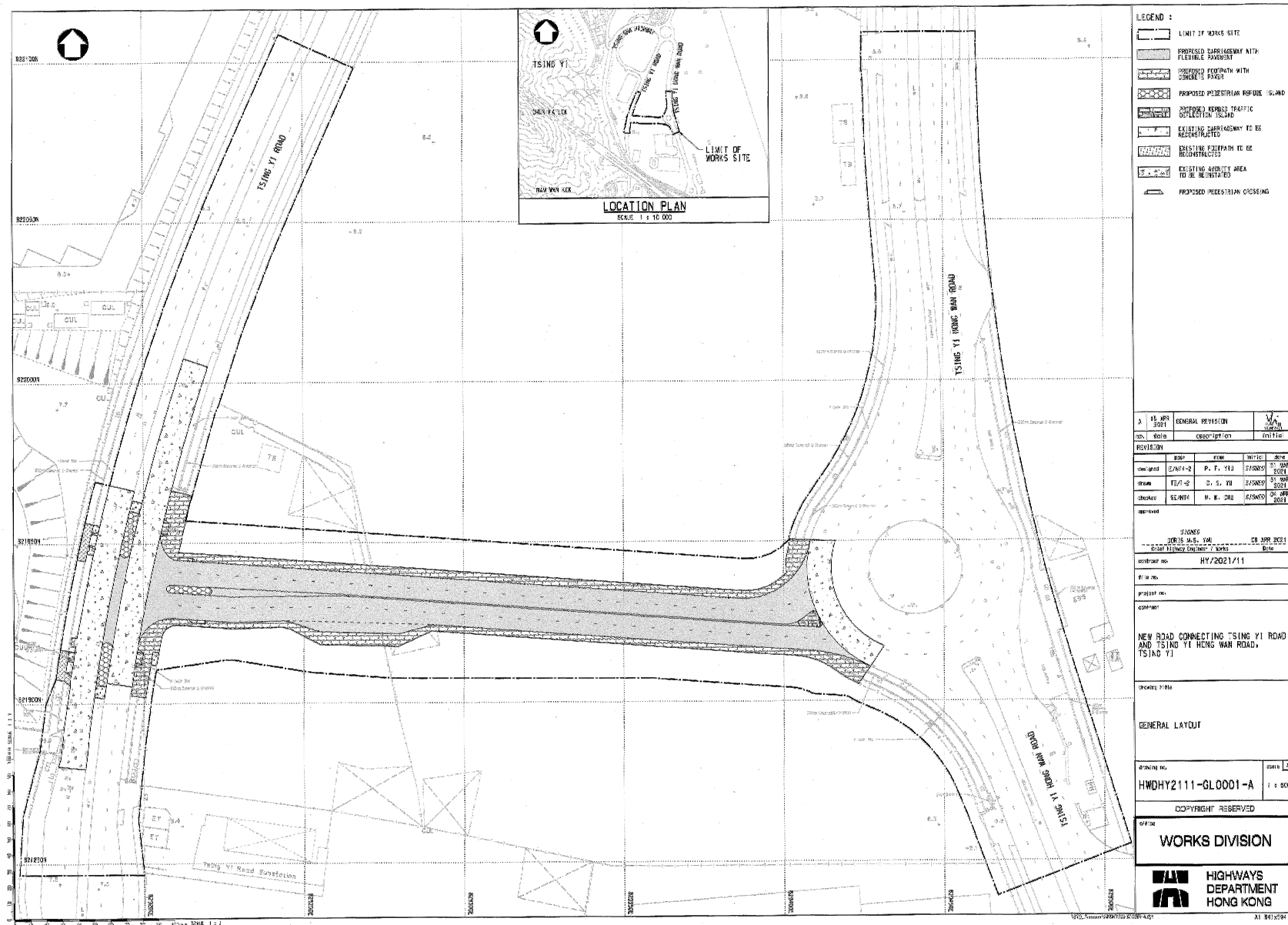
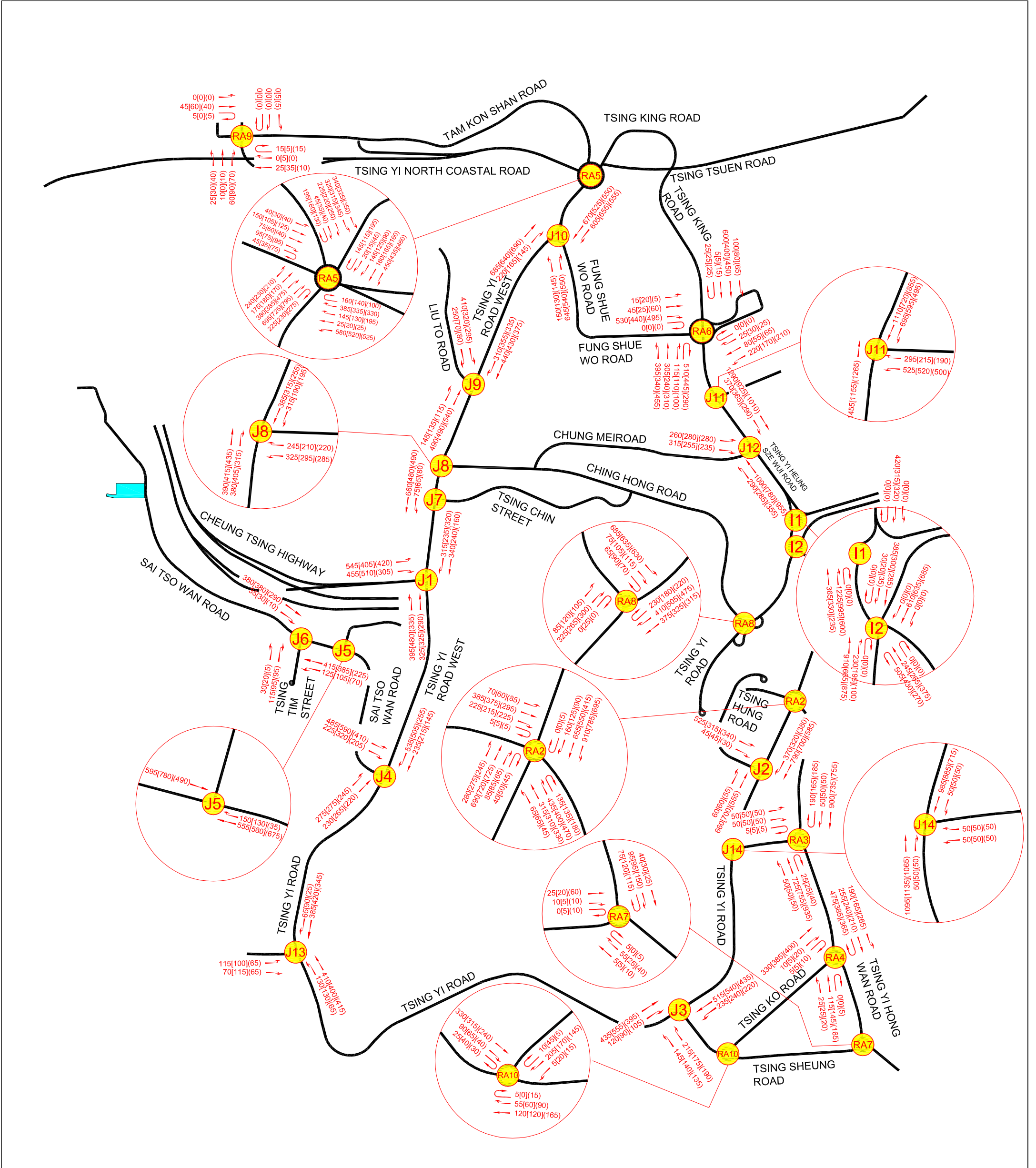
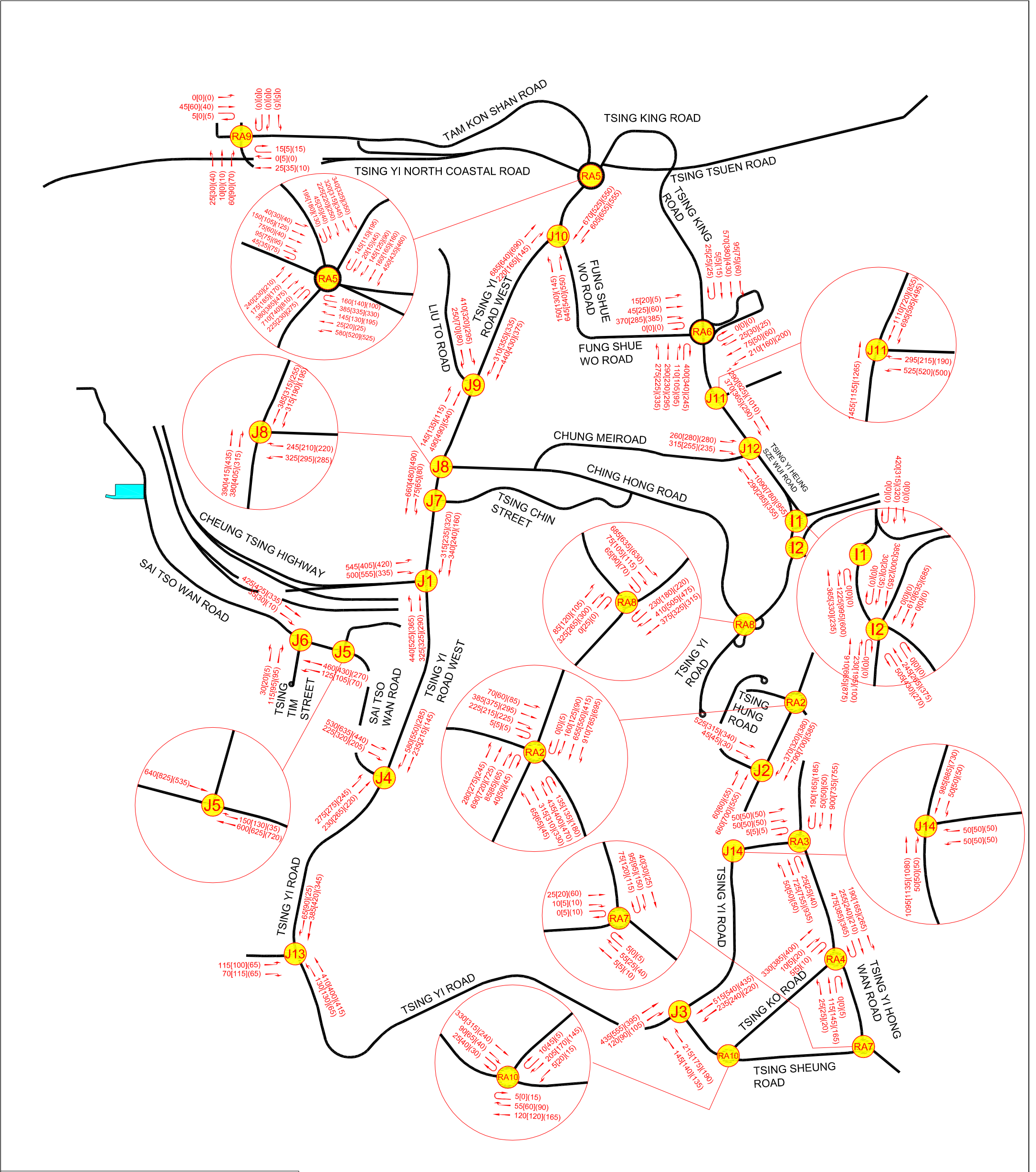


FIGURE NO.: 4.2		PROJECT TITLE: Planning Approval Renewal - Asphalt Plant at Sai Tso Wan Road A/TY/135, TYTL108 RP	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 23125HK		DRAWING TITLE: PLANNED JUNCTION LAYOUT OF NEW ROAD CONNECTING TSING YI HONG WAN ROAD AND TSING YI ROAD	
SCALE: N.T.S (IN A4 SIZE)	DATE: 21 MAY 2024		





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 REFERENCE TRAFFIC FLOW	CTA Consultants Limited 志達顧問有限公司
SCALE: 1 : 13750 @ A3	DATE: 20 JUN 2024		



LEGEND :			
SUBJECT SITE			
530(500)[455]		AM [LOGISTIC](PM) TRAFFIC FLOW (IN PCU / HR)	
FIGURE NO.: 5.1		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 : 13750 @ A3	DATE: 20 JUN 2024	CTA Consultants Limited 志達顧問有限公司	



Appendix 1

Junction Calculation Sheets

Junction: (J1) Tsing Yi Road West / Cheung Tsing Highway																										
Description: 2024 Observed Traffic Flow																										
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		(% uphill Gradient)	Nearside O/I	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	1	0%	0%	1965	6135	1965	1965	5905	5825	205	0.104	0.104	150	0.076	0.078			
	S	↔	2	A	3.3	0	20	0	0	43%	100%	2085	0	2020	1940	0	0	210	0.104		151	0.078				
	S	↵	2	A	3.3	0	17.5	0	0	100%	100%	2085	0	1920	1920	0	0	200	0.104		149	0.078				
Cheung Tsing Highway	E	↗	3	A,B	3.4	20	0	0	1	100%	100%	1955	1955	1820	1820	1820	1820	435	0.239		355	0.195				
	E	↔	4	B	3.5	0	30	0	0	100%	100%	2105	4210	2005	2005	3990	3990	211	0.105		138	0.069				
	E	↘	4	B	3.5	0	25	0	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	6.5	1	100%	100%	1702	3544	1585	1585	3425	3425	375	0.237	0.237	320	0.202	0.202			
	N	↑	1	C	3.6	0	0	6.5	0	0%	0%	1842	0	1840	1840	0	0	310	0.168		275	0.149				
Pedestrian crossing		↔	5P	C	Min. Green time = 5GM + 10FG = 15s																					
		↕	6P	C	Min. Green time = 5GM + 6FG = 11s																					
		↔	7P	A,B	Min. Green time = 5GM + 9FG = 14s																					
		↕	8P	B	Min. Green time = 5GM + 10FG = 15s																					
Notes:												Traffic Flow (pcu / hr)					A.M. Check Phase			P.M. Check Phase						
																	A,B,C			A,B,C						
																	ey 0.446 0.476			ey 0.349 0.397						
																	L (sec) 13 9			L (sec) 13 9						
																	C (sec) 100 100			C (sec) 105 105						
																	y pract. 0.783 0.819			y pract. 0.789 0.823						
																	R.C. (%) 76% 72%			R.C. (%) 126% 107%						
Stage / Phase Diagrams																										
I/G = 5						I/G = 5						I/G = 6														

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	↓	1	A	3.5	0.0	0	1	0%	0%	1965	4070	1965	1965	4070	4070	362	0.184		261	0.133					
	S	↓	1	A	3.5	0.0	0	0	0%	0%	2105	0	2105	2105	0	0	388	0.184		279	0.133					
	S	↙	1	A	3.6	0.0	18	0	100%	100%	2115	2115	1950	1950	1950	1950	350	0.179		360	0.185 0.185					
Tsing Yi Road	N	↑	4	C	4.0	30.0	0	1	100%	100%	2015	2015	1920	1920	1920	1920	55	0.029		50	0.026					
	N	↑	4	C	3.5	0.0	0	0	0%	0%	2105	4210	2105	2105	4210	4210	315	0.150 0.150		258	0.122					
	N	↑	4	C	3.5	0.0	0	0	0%	0%	2105	0	2105	2105	0	0	315	0.150		258	0.122 0.122					
Tsing Hung Road	E	→	2	A,B	3.3	25.0	0	1	100%	100%	1945	1945	1835	1835	1835	1835	500	0.272 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		↔	5P	D																						
		↔	6P	A,B,D																						
		↔	7P	C,D																						
		↔	8P	C,D																						
Notes:										Traffic Flow (pcu / hr) Weekday AM Peak										A,B,C,D AB,C,D		A,B,C,D AB,C,D				
																				AM Peak Check Phase		PM Peak Check Phase				
																				εy 0.356 0.422		εy 0.307 0.299				
																				L (sec) 33 22		L (sec) 33 22				
																				C (sec) 120 120		C (sec) 100 100				
																				y pract. 0.653 0.735		y pract. 0.603 0.702				
																				R.C. (%) 83% 74%		R.C. (%) 96% 134%				
Stage / Phase Diagrams																										
I/G = 2					I/G = 5					I/G = 5 + 12																
I/G = 2					I/G = 6 + Min. G 5					I/G = 5					I/G = 5 + 12											

TRAFFIC SIGNALS CALCULATION		Job No: 23125HK
Junction: (J4) Sai Tso Wan Road / Tsing Yi Road West / Tsing Yi Road		
Description: 2024 Observed Traffic Flow		

Job No: 23125HK

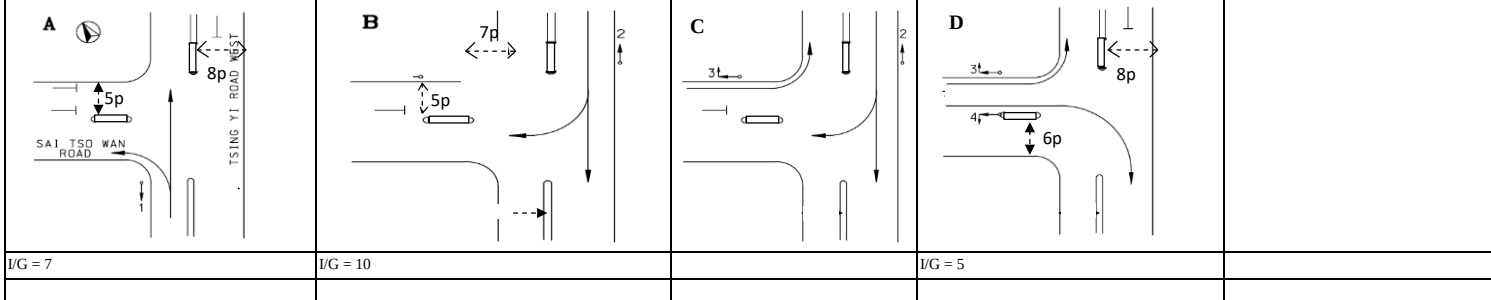
CTA Consultants Ltd.

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		(% uphill Gradient	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	6.5	1	100%	100%	1792	1792	1630	1630	260	0.160	0.160	220	0.135	0.135
	NE		1	A	3.4	0	0	6.5	0	0%	0%	1822	1822	1820	1820	220	0.121		210	0.115	
Sai Tso Wan Road	NW		3	C,D	3.8	15	0	0	1	100%	100%	1995	1995	1815	1815	460	0.253		390	0.215	
	NW		4	D	3.8	0	25	0	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	0	1	0%	0%	1955	1955	1955	1955	225	0.115		140	0.072	
	SE		2	B,C	3.7	0	25	0	0	100%	100%	2125	2125	2005	2005	510	0.254	0.254	245	0.122	0.122
Pedestrian crossing			5p	A,B	Min. Green time = 5GM + 8FG = 13s																
			6p	D	Min. Green time = 5GM + 10FG = 15s																
			7p	B,C	Min. Green time = 5GM + 9FG = 14s																
			8p	A,D	Min. Green time = 5GM + 7FG = 12s																

Notes:

Traffic Flow (pcu / hr)	A.M. Check Phase		P.M. Check Phase	
	Ey L (sec) C (sec) y pract. R.C. (%)	0.521 19 120 0.758 46%	Ey L (sec) C (sec) y pract. R.C. (%)	0.346 19 110 0.745 115%

Stage / Phase Diagrams



Junction: (J5) Sai Tso Wan Road Near VEC																												
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						
Sai Tso Wan Road	EB	→	3	A	4.0	0.0	0	1	0%	0%	2015	2015	2015	2015	2015	2015	565	0.280	0.280	465	0.231							
Sai Tso Wan Road	WB	←	1	A,B	4.0	0.0	0	1	0%	0%	2015	2015	2015	2015	2015	2015	530	0.263		640	0.318 0.318							
Sai Tso Wan Road	WB	↖	2	B,C	4.0	0.0	10	0	100%	100%	2155	2155	1875	1875	1875	1875	145	0.077	0.077	35	0.019							
Pedestrian Crossing																												
4P C Green time = 13Gm + 5 FGm = 18s																												
Notes: (None)									Traffic Flow (pcu / hr) AM (PM) Peak								A,BC AB,C		A,BC AB,C									
									565(465) →								AM Peak Check Phase		PM Peak Check Phase									
									↖ 145(35)								εy	0.358	0.263	εy	0.249	0.318						
									← 530(640)								L (sec)	11	25	L (sec)	11	25						
																	C (sec)	91	91	C (sec)	91	91						
																	y pract.	0.791	0.653	y pract.	0.791	0.653						
																	R.C. (%)	121%	148%	R.C. (%)	217%	106%						
Stage / Phase Diagrams																												
A VEHICLE EXAMINATION COMPLEX B C																												
I/G = 6					I/G = 7																							
I/G = 3					I/G = 7					I/G = 5 + Ped 18s																		

Junction: (J8) Tsing Yi Road West / Ching Hong Road																								
Description: 2024 Observed Traffic Flow																								
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		(% uphill Gradient	Nearside O/I	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	↓	1	A	3.0	0.0	0	5.5	0	0%	0%	1824	3698	1824	1824	3698	3698	180	0.099	0.197	121	0.066	0.121	
	S	↓	1	A	3.5	0.0	0	5.5	0	0%	0%	1874	0	1874	1874	0	0	185	0.099		124	0.066		
	S	↘	1	A	3.7	10.0	0	5.5	1	100%	100%	1754	1754	1525	1525	1525	1525	300	0.197		185	0.121		
Tsing Yi Road West	N	↑	2	A,B	3.5	0.0	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%	0%	2105	0	2105	2105	0	0	191	0.091		215	0.102		
	N	↗	3	B	3.3	0.0	18	0	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	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	0	1	100%	100%	1955	4050	1775	1775	3720	3720	255	0.144		227	0.128		
Pedestrian crossing		↕	5P	A,B	Min. Green time = 11GM + 8FG = 19s																			
			6P	C	Min. Green time = 5GM + 12FG = 17s																			
Notes:												Traffic Flow (pcu / hr) Weekday AM Peak						AM Peak Check Phase				PM Peak Check Phase		
												365(245) 300(185)						Eg 0.483				Eg 0.382		
												370(415) 275(255)						L (sec) 14				L (sec) 14		
																		C (sec) 100				C (sec) 100		
																		y pract. 0.774				y pract. 0.774		
																		R.C. (%) 60%				R.C. (%) 103%		
Stage / Phase Diagrams																								
I/G = 5					I/G = 5					I/G = 7														

Junction: (J9) Tsing Yi Road West / Liu To Road																									
Description: 2024 Observed Traffic Flow																									
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		uphill Gradient (%)	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	5	1	0%	0%	1735	3610	1735	1735	3610	3610	202	0.116		171	0.098			
	S	↓	2	A,B	3.3	0.0	0	5	0	0%	0%	1875	0	1875	1875	0	0	218	0.116		184	0.098			
	S	↙	3	B	3.3	0.0	22	5	0	100%	100%	1875	1875	1755	1755	1755	1755	295	0.168	0.168	320	0.182	0.182		
Tsing Yi Road West	N	↕	1	A	3.2	10.0	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%	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	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	0	100%	100%	2165	2165	2000	2000	2000	2000	240	0.120	0.120	75	0.038	0.038		
Pedestrian crossing		↕	6P	A,D						AM: Green time = 49GM + 9FG = 58s, PM: Green time = 46GM + 9FG = 55s															
		↕	7P	C,D						AM: Green time = 51GM + 13FG = 64s, PM: Green time = 28GM + 13FG = 41s															
		↔	8P	D						Green time = 10GM + 8FG = 18s															
Pedestrian Crossing																									
																A,BC,D		A,B,C,D		A,BC,D		A,B,C,D			
Notes:												Traffic Flow (pcu / hr) Weekday AM Peak						AM Peak Check Phase				PM Peak Check Phase			
																		6y	0.384	0.441	6y	0.323	0.376		
																		L (sec)	39	43	L (sec)	39	43		
																		C (sec)	130	130	C (sec)	110	110		
																		y pract.	0.630	0.602	y pract.	0.581	0.548		
																		R.C. (%)	64%	37%	R.C. (%)	80%	46%		
Stage / Phase Diagrams																									
I/G = 5			I/G = 7			I/G = 5			I/G = 11 + Ped 18																

TRAFFIC SIGNALS CALCULATION

Job No: 23125HK

CTA Consultants Ltd.

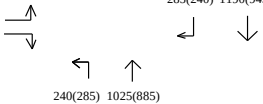
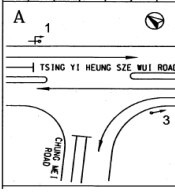
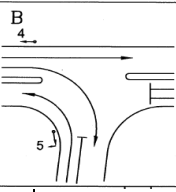
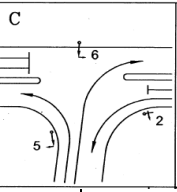
Junction: (J10) Tsing Yi Road West / Fung Shue Wo Road Description: 2024 Observed Traffic Flow																											
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		(% uphill Gradient)	Nearside 0/1	Pro. Turning (%)		Site Factor	Saturation Flow (pcu/hr)	Total Saturation Flow (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 (To Tsing Yi Road West)	S	↓	1	A,D	4.1	0.0	0	3	0	0%	0%	1	2039	4058	2039	2039	4058	4058	289	0.142	0.233	266	0.131	0.194			
	S	↓	1	A,D	3.9	0.0	0	3	0	0%	0%	1	2019	0	2019	2019	0	0	286	0.142		264	0.131				
Fung Shue Wo Road (To Fung Shue Wo Road)	S	↓	1	A,D	4.0	0.0	0	3	1	0%	0%	1	1889	2294.8	1889	1889	2294.8	2294.8	440	0.233		366	0.194				
	S	↓	1	A,D	4.0	0.0	0	3	0	0%	0%	0.2	405.8	0	405.8	405.8	0	0	95	0.233		79	0.194				
Tsing Yi Road West	N	↑	2	A,B	3.5	0.0	0	0	1	0%	0%	1	1965	2491.3	1965	1965	2491.25	2491.25	513	0.261		517	0.263				
	N	↑	2	A,B	3.5	0.0	0	0	0	0%	0%	0.25	526.25	0	526.25	526.25	0	0	137	0.261		138	0.263				
	N	↗	3	B	3.6	0.0	18	0	0	100%	100%	1	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	3	1	100%	100%	1	1869	2193.6	1790	1790	2100	2100	124	0.069		119	0.067				
	N	↖	4	C	4.0	38.0	0	3	0	100%	100%	0.16	324.64	0	310	310	0	0	21	0.069		21	0.067				
Fung Shue Wo Road	N	↗	4	C	3.6	0.0	43	3	0	100%	100%	0.23	457.47	2446.5	440	440	2355	2355	96	0.219	0.219	79	0.180	0.180			
	N	↗	4	C	3.6	0.0	40	3	0	100%	100%	1	1989	0	1915	1915	0	0	419	0.219		346	0.180				
Pedestrian crossing	↔↔↔↔	5p	D			Min. Green time = 5GM + 8FG = 13s																					
	↔↔↔↔	6P	B,C			Min. Green time = 5GM + 8FG = 13s																					
	↑↕↓	7P	A,C,D			Min. Green time = 5GM + 7FG = 12s																					
	↑↕↓	8P	A,B,D			Min. Green time = 5GM + 8FG = 13s																					
Notes:										Traffic Flow (pcu / hr) Weekday AM Peak 575(530) 535(445) ↑ ↗ ↓ ↖ ↗ 650(655) 210(140) 145(140) 515(425)										AM Peak Check Phase Ey 0.560 L (sec) 12 C (sec) 100 y pract. 0.792 R.C. (%) 42%				PM Peak Check Phase Ey 0.446 L (sec) 12 C (sec) 100 y pract. 0.792 R.C. (%) 78%			
Stage / Phase Diagrams																											
I/G = 5					I/G = 5					I/G = 5																	

Junction: (J11) Tsing Yi Heung Sze Wui Road / Cheung Wan Street																									
Description: 2024 Observed Traffic Flow																									
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		(% uphill Gradient)	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 Heung Sze Wui Road	N	↑	2	A,B	3.5	0.0	0	0	1	0%	0%	1965	4070	1965	1965	4070	4070	616	0.313		555	0.283	0.283		
	N	↑	2	A,B	3.5	0.0	0	0	0	0%	0%	2105	0	2105	2105	0	0	659	0.313		595	0.283			
Cheung Wan Street	W	↶	3	C	3.5	18.0	20	0	0	33% / 67%	55% / 45%	2105	0	1955	1950	0	0	374	0.191	0.191	287	0.147	0.147		
	W	↷	3	C	3.5	15.0	0	0	1	100%	100%	1965	4070	1785	1785	3740	3735	341	0.191		263	0.147			
Tsing Yi Heung Sze Wui Road	S	↘	1	A,D	3.5	10.0	0	0	1	100%	100%	1965	6175	1710	1710	5920	5920	575	0.336	0.336	440	0.257			
	S	↓	1	A,D	3.5	0.0	0	0	0	0%	0%	2105	0	2105	2105	0	0	518	0.246		398	0.189			
	S	↓	1	A,D	3.5	0.0	0	0	0	0%	0%	2105	0	2105	2105	0	0	518	0.246		398	0.189			
Pedestrian crossing		↔	4P	B						AM: Green time = 12GM + 11FG = 23s, PM: Green time = 12GM + 11FG = 23s															
		↑	5P	D						AM: Green time = 6GM + 8FG = 14s, PM: Green time = 10GM + 8FG = 18s															
		↓	6P	B,C						AM: Green time = 45GM + 10FG = 55s, PM: Green time = 41GM + 10FG = 51s															
Notes:												Traffic Flow (pcu / hr)				Weekday AM Peak				AB,C,D			AD,B,C		
																1035(795) 575(440)				AM Peak Check Phase			PM Peak Check Phase		
																↓ ↘ ↙				Ey			Ey		
																250(130) 465(420)				L (sec)			L (sec)		
																				C (sec)			C (sec)		
																				y pract.			y pract.		
																				R.C. (%)			R.C. (%)		
																				30% 15%			36% 40%		
Stage / Phase Diagrams																									
I/G = 2						I/G = 8 + Ped 23						I/G = 3						I/G = 5							
												I/G = 5						I/G = 12 + Ped 18							

TRAFFIC SIGNALS CALCULATION

Job No: 23125HK

CTA Consultants Ltd.

Junction: (J12) Tsing Yi Heung Sze Wui Road / Chung Mei Road																							
Description: 2024 Observed Traffic Flow																							
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		(% uphill Gradient	Nearside O/I	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
Chung Mei Road	E		5	B,C	3.3	10.0	0	0	1	100%	100%	1945	1945	1690	1690	1690	1690	225	0.133		250	0.148	
	E		6	C	3.3	0.0	18	0	0	100%	100%	2085	2085	1925	1925	1925	1925	275	0.143	0.143	210	0.109	0.109
Tsing Yi Heung Sze Wui Road	N		2	A,C	3.3	25.0	0	0	1	100%	100%	1945	1945	1835	1835	1835	1835	240	0.131		285	0.155	
	N		3	A	3.5	0.0	0	0	0	0%	0%	2105	4210	2105	2105	4210	4210	513	0.243	0.243	443	0.210	0.210
	N		3	A	3.5	0.0	0	0	0	0%	0%	2105	0	2105	2105	0	0	513	0.243		443	0.210	
Tsing Yi Heung Sze Wui Road	S		1	A,B	3.5	0.0	0	3	1	0%	0%	1839	3818	1839	1839	3818	3818	573	0.312		455	0.248	
	S		1	A,B	3.5	0.0	0	3	0	0%	0%	1979	0	1979	1979	0	0	617	0.312		490	0.248	
	S		4	B	3.5	0.0	22	3	0	100%	100%	1979	1979	1855	1855	1855	1855	285	0.154	0.154	240	0.129	0.129
Notes:												Traffic Flow (pcu / hr) Weekday AM Peak					AM Peak Check Phase			PM Peak Check Phase			
												225(250) 275(210) 					Eg 0.540 L (sec) 15 C (sec) 114 y pract. 0.782 R.C. (%) 45%			Eg 0.449 L (sec) 15 C (sec) 100 y pract. 0.765 R.C. (%) 70%			
Stage / Phase Diagrams																							
																							
I/G = 5						I/G = 5						I/G = 8											

Junction: (J1) Cheung Tsing Highway / Tsing Yi Road West																										
Description: 2024 Observed Traffic Flow																										
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		(% uphill Gradient	Nearside O/I	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		Logistic Peak								
						Left	Right			Logistic Peak				Logistic Peak		Logistic Peak		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	1	0%		1965	6135	1965		5900		148	0.075	0.075						
	S	↙	2	A	3.3	0	20	0	0	46%		2085	0	2015		0		152	0.075							
	S	↘	2	A	3.3	0	17.5	0	0	100%		2085	0	1920		0		145	0.075							
Cheung Tsing Highway	E	↗	3	A,B	3.4	20	0	0	1	100%		1955	1955	1820		1820		300	0.165							
	E	→	4	B	3.5	0	30	0	0	100%		2105	4070	2005		3860		244	0.122							
	E	↘	4	B	3.5	0	25	0	1	100%		1965	0	1855		0		226	0.122	0.122						
Tsing Yi Road West	N	↙	1	C	3.6	20	0	6.5	1	100%		1702	3544	1585		3425		455	0.287	0.287						
	N	↑	1	C	3.6	0	0	6.5	0	0%		1842	0	1840		0		310	0.168							
Pedestrian crossing		↕	5P	C		Min. Green time = 5GM + 10FG = 15s																				
		↕	6P	C		Min. Green time = 5GM + 6FG = 11s																				
		↕	7P	A,B		Min. Green time = 5GM + 9FG = 14s																				
		↕	8P	B		Min. Green time = 5GM + 10FG = 15s																				
Notes:												Traffic Flow (pcu / hr)						Logistic Peak Check Phase		A _B C		A _B C				
																		ey		0.484		0.452				
																		L (sec)		13		9				
																		C (sec)		100		100				
																		y pract.		0.783		0.819				
																		R.C. (%)		62%		81%				
Stage / Phase Diagrams																										
I/G = 5					I/G = 5					I/G = 6																

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)		Logistic Peak																		
						Left	Right		Logistic Peak				Logistic Peak		Logistic Peak		Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y													
Tsing Yi Road	S	↓	1	A	3.5	0.0	0	1	0%		1965	4070	1965		4070		321	0.163																	
	S	↓	1	A	3.5	0.0	0	0	0%		2105	0	2105		0		344	0.163																	
	S	↙	1	A	3.6	0.0	18	0	100%		2115	2115	1950		1950		305	0.156	0.163																
Tsing Yi Road	N	↑	4	C	4.0	30.0	0	1	100%		2015	2015	1920		1920		55	0.029																	
	N	↑	4	C	3.5	0.0	0	0	0%		2105	4210	2105		4210		333	0.158																	
	N	↑	4	C	3.5	0.0	0	0	0%		2105	0	2105		0		333	0.158	0.158																
Tsing Hung Road	E	→	2	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		↔	5P	D	Min. Green time = 5GM + 7FG = 12s																														
		↔	6P	A,B,D	Min. Green time = 5GM + 5FG = 10s																														
		↔	7P	C,D	Min. Green time = 5GM + 10FG = 15s																														
		↔	8P	C,D	Min. Green time = 5GM + 5FG = 10s																														
Notes:												Traffic Flow (pcu / hr) Weekday AM Peak				A,B,C,D AB,C,D																			
																<table><tr><td colspan="2">Logistic Peak Check Phase</td></tr><tr><td>Ey</td><td>0.321 0.321</td></tr><tr><td>L (sec)</td><td>33 22</td></tr><tr><td>C (sec)</td><td>100 100</td></tr><tr><td>y pract.</td><td>0.603 0.702</td></tr><tr><td>R.C. (%)</td><td>88% 118%</td></tr></table>				Logistic Peak Check Phase		Ey	0.321 0.321	L (sec)	33 22	C (sec)	100 100	y pract.	0.603 0.702	R.C. (%)	88% 118%				
Logistic Peak Check Phase																																			
Ey	0.321 0.321																																		
L (sec)	33 22																																		
C (sec)	100 100																																		
y pract.	0.603 0.702																																		
R.C. (%)	88% 118%																																		
Stage / Phase Diagrams																																			
I/G = 2					I/G = 6 + Min. G 5					I/G = 5					I/G = 5 + 12																				

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)		(%) uphill Gradient	Nearside O/I	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Logistic Peak			Critical y					
						Left	Right			Logistic Peak				Logistic Peak		Flow (pcu/hr)	y Value							
Tsing Yi Road	NE	↖	1	A	4.5	15	0	6.5	1	100%		1792	1792	1630		260	0.160	0.160						
	NE	↗	1	A	3.4	0	0	6.5	0	0%		1822	1822	1820		250	0.137							
Sai Tso Wan Road	NW	↖	3	C,D	3.8	15	0	0	1	100%		1995	1995	1815		560	0.309							
	NW	↗	4	D	3.8	0	25	0	0	100%		2135	2135	2015		305	0.151	0.151						
Tsing Yi Road West	SE	↘	2	B,C	3.4	0	0	0	1	0%		1955	1955	1955		205	0.105							
	SE	↙	2	B,C	3.7	0	25	0	0	100%		2125	2125	2005		480	0.239	0.239						
Pedestrian crossing		↕	5p	A,B	Min. Green time = 5GM + 8FG = 13s																			
		↕	6p	D	Min. Green time = 5GM + 10FG = 15s																			
		↔	7p	B,C	Min. Green time = 5GM + 9FG = 14s																			
		↔	8p	A,D	Min. Green time = 5GM + 7FG = 12s																			
Notes:												Traffic Flow (pcu / hr)					Logistic Peak Check Phase							
																	E _y 0.550 L (sec) 19 C (sec) 110 y pract. 0.745 R.C. (%) 35%							
Stage / Phase Diagrams																								
A					B					C					D									
I/G = 5					I/G =5					I/G = 2					I/G = 5									
I/G = 5					I/G =8+12																			

Junction: (J5) Sai Tso Wan Road Near VEC																																		
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)		Logistic Peak																	
						Left	Right		Logistic Peak				Logistic Peak		Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y														
Sai Tso Wan Road	EB	→	3	A	4.0	0.0	0	1	0%		2015	2015	2015		2015		740	0.367	0.367															
Sai Tso Wan Road	WB	←	1	A,B	4.0	0.0	0	1	0%		2015	2015	2015		2015		550	0.273																
Sai Tso Wan Road	WB	↖	2	B,C	4.0	0.0	10	0	100%		2155	2155	1875		1875		125	0.067	0.067															
Pedestrian Crossing		↕	4P	C	Green time = 13Gm + 5 FGm = 18s																													
Notes: (None)											Traffic Flow (pcu / hr) AM (PM) Peak						A,B,C AB,C																	
											740 →						Logistic Peak Check Phase																	
											↖ 125						εy 0.434 0.273																	
											← 550						L (sec) 11 25																	
																	C (sec) 91 91																	
																	y pract. 0.791 0.653																	
																	R.C. (%) 82% 139%																	
Stage / Phase Diagrams																																		
A VEHICLE EXAMINATION COMPLEX B C																																		
I/G = 6				I/G = 7																														
I/G = 3				I/G = 7				I/G = 5 + Ped 18s																										

Junction: (J8) Tsing Yi Road West / Ching Hong Road																								
Description: 2024 Observed Traffic Flow																								
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		(% uphill Gradient	Nearside O/I	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		Logistic Peak						
						Left	Right			Logistic Peak				Logistic Peak		Logistic Peak		Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y	
Tsing Yi Road West	S	↓	1	A	3.0	0.0	0	5.5	0	0%		1824	3698	1824		3698		148	0.081	0.118				
	S	↓	1	A	3.5	0.0	0	5.5	0	0%		1874	0	1874		0		152	0.081					
	S	↘	1	A	3.7	10.0	0	5.5	1	100%		1754	1754	1525		1525		180	0.118					
Tsing Yi Road West	N	↑	2	A,B	3.5	0.0	0	0	1	0%		1965	4070	1965		4070		191	0.097					
	N	↑	2	A,B	3.5	0.0	0	0	0	0%		2105	0	2105		0		204	0.097					
	N	↗	3	B	3.3	0.0	18	0	0	100%		2085	2085	1925		1925		300	0.156	0.156				
Ching Hong Road	W	↖	4	C	3.4	18.0	20	0	0	19% / 81%		2095	0	1945		0		246	0.126	0.126				
	W	↙	4	C	3.4	15.0	0	0	1	100%		1955	4050	1775		3720		224	0.126					
Pedestrian crossing		↕	5P	A,B		Min. Green time = 11GM + 8FG = 19s																		
		↕	6P	C		Min. Green time = 5GM + 12FG = 17s																		
Notes:												Traffic Flow (pcu / hr) Weekday AM Peak					Logistic Peak Check Phase							
												300180 395300					Eye0.400 L (sec)12 C (sec)71 y pract.0.748 R.C. (%)87%							
Stage / Phase Diagrams																								
A CHING HONG ROAD I/G = 5					B TSING YI ROAD WEST I/G = 5					C TSING YI ROAD WEST I/G = 7														

Junction: J9 - Tsing Yi Road West / Liu To Road																										
Description: 2024 Observed Traffic Flow																										
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Gradient (%) uphill	Nearside O/I	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		Logistic Peak								
						Left	Right			Logistic Peak				Logistic Peak		Logistic Peak		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	5	1	0%		1735	3610	1735		3610		197	0.114							
	S	↓	2	A,B	3.3	0.0	0	5	0	0%		1875	0	1875		0		213	0.114							
	S	↙	3	B	3.3	0.0	22	5	0	100%		1875	1875	1755		1755		340	0.194	0.194						
Tsing Yi Road West	N	↕	1	A	3.2	10.0	0	0	1	48%		1935	4100	1805		3970		271	0.150	0.150						
	N	↑	1	A	4.1	0.0	0	0	0	0%		2165	0	2165		0		324	0.150							
Liu To Road	E	↗	5	B,C	3.2	10.0	0	0	1	100%		1935	1935	1685		1685		305	0.181							
	E	↘	4	C	4.1	0.0	18	0	0	100%		2165	2165	2000		2000		65	0.033	0.033						
Pedestrian crossing		↕	6P	A,D		Green time = 46GM + 9FG = 55s																				
		↕	7P	C,D		Green time = 31GM + 13FG = 44s																				
		↔	8P	D		Green time = 10GM + 8FG = 18s																				
Pedestrian Crossing																										
																		A,BC,D			A,B,C,D					
Notes:												Traffic Flow (pcu / hr)				Weekday AM Peak				Logistic Peak Check Phase						
												305 65								ey 0.331 0.376 L (sec) 39 43 C (sec) 130 130 y pract. 0.630 0.602 R.C. (%) 90% 60%						
												130 465														
Stage / Phase Diagrams																										
I/G = 5						I/G = 7						I/G = 5						I/G = 11 + Ped 18								

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)		(% uphill Gradient)	Nearside O/I	Pro. Turning (%)		Site Factor	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		Logistic Peak						
						Left	Right			Logistic Peak					Logistic Peak		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	3	0	0%		1	2039	4058	2039		4058		314	0.154	0.172				
(To Tsing Yi Road West)	S	↓	1	A,D	3.9	0.0	0	3	0	0%		1	2019	0	2019		0		311	0.154					
Fung Shue Wo Road	S	↓	1	A,D	4.0	0.0	0	3	1	0%		1	1889	2294.8	1889		2294.8		325	0.172					
(To Fung Shue Wo Road)	S	↓	1	A,D	4.0	0.0	0	3	0	0%		0.2	405.8	0	405.8		0		70	0.172					
Tsing Yi Road West	N	↑	2	A,B	3.5	0.0	0	0	1	0%		1	1965	2491.3	1965		2491.25		481	0.245					
	N	↑	2	A,B	3.5	0.0	0	0	0	0%		0.25	526.25	0	526.25		0		129	0.245					
	N	↗	3	B	3.6	0.0	18	0	0	100%		1	2115	2115	1950		1950		155	0.079	0.079				
Fung Shue Wo Road	N	↖	4	C	3.8	35.0	0	3	1	100%		1	1869	2193.6	1790		2100		107	0.060					
	N	↖	4	C	4.0	38.0	0	3	0	100%		0.16	324.64	0	310		0		18	0.060					
Fung Shue Wo Road	N	↗	4	C	3.6	0.0	43	3	0	100%		0.23	457.47	2446.5	440		2355		78	0.176	0.176				
	N	↗	4	C	3.6	0.0	40	3	0	100%		1	1989	0	1915		0		337	0.176					
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			
																	625 395					Ey 0.428 L (sec) 12 C (sec) 90 y pract. 0.780 R.C. (%) 82%			
																	610 155 125 415								
Stage / Phase Diagrams																									
I/G = 5					I/G = 5					I/G = 5															

Junction: (J11) Tsing Yi Heung Sze Wui Road / Cheung Wan Street																							
Description: 2024 Observed Traffic Flow																							
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		uphill Gradient (%)	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)		Logistic Peak					
						Left	Right			Logistic Peak				Logistic Peak		Logistic Peak		Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Heung Sze Wui Road	N	↑	2	A,B	3.5	0.0	0	0	1	0%		1965	4070	1965		4070		478	0.243				
	N	↑	2	A,B	3.5	0.0	0	0	0	0%		2105	0	2105		0		512	0.243				
Cheung Wan Street	W	↙	3	C	3.5	18.0	20	0	0	47% / 53%		2105	0	1950		0		332	0.170	0.170			
	W	↘	3	C	3.5	15.0	0	0	1	100%		1965	4070	1785		3735		303	0.170				
Tsing Yi Heung Sze Wui Road	S	↘	1	A,D	3.0	10.0	0	0	1	100%		1915	6025	1665		5775		480	0.288	0.288			
	S	↓	1	A,D	3.0	0.0	0	0	0	0%		2055	0	2055		0		333	0.162				
	S	↓	1	A,D	3.0	0.0	0	0	0	0%		2055	0	2055		0		333	0.162				
Pedestrian crossing		↔	4P	B						Green time = 12GM + 11FG = 23s													
		↑	5P	D						Green time = 8GM + 8FG = 16s													
		↓	6P	B,C						Green time = 42GM + 10FG = 52s													
AB,C,D AD,B,C																							
Notes:												Traffic Flow (pcu / hr) Weekday AM Peak				Logistic Peak Check Phase							
												665 480				Ey 0.413 0.458							
												990				L (sec) 33 37							
												↑				C (sec) 90 90							
												↙ ↘				y pract. 0.570 0.530							
												175 460				R.C. (%) 38% 16%							
Stage / Phase Diagrams																							
I/G = 2						I/G = 5						I/G = 12 + Ped 16											

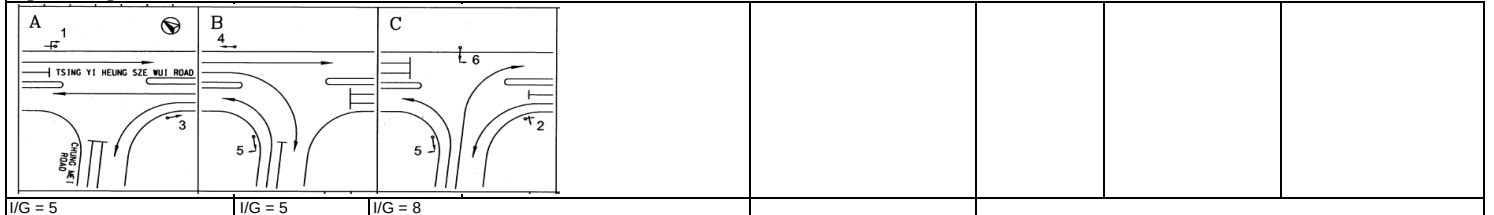
Junction: (J12) Tsing Yi Heung Sze Wui Road / Chung Mei Road
Description: 2024 Observed Traffic Flow

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		(% uphill Gradient	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)		Logistic Peak					
						Left	Right			Logistic Peak				Logistic Peak		Logistic Peak		Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Chung Mei Road	E		5	B,C	3.3	10.0	0	0	1	100%		1945	1945	1690		1690	245	0.145					
	E		6	C	3.3	0.0	18	0	0	100%		2085	2085	1925		1925	220	0.114	0.114				
Tsing Yi Heung Sze Wui Road	N		2	A,C	3.3	25.0	0	0	1	100%		1945	1945	1835		1835	235	0.128					
	N		3	A	3.5	0.0	0	0	0	0%		2105	4210	2105		4210	365	0.173	0.173				
	N		3	A	3.5	0.0	0	0	0	0%		2105	0	2105		0	365	0.173					
Tsing Yi Heung Sze Wui Road	S		1	A,B	3.5	0.0	0	3	1	0%		1839	3818	1839		3818	405	0.220					
	S		1	A,B	3.5	0.0	0	3	0	0%		1979	0	1979		0	435	0.220					
	S		4	B	3.5	0.0	22	3	0	100%		1979	1979	1855		1855	280	0.151	0.151				
Pedestrian crossing																							

Notes:

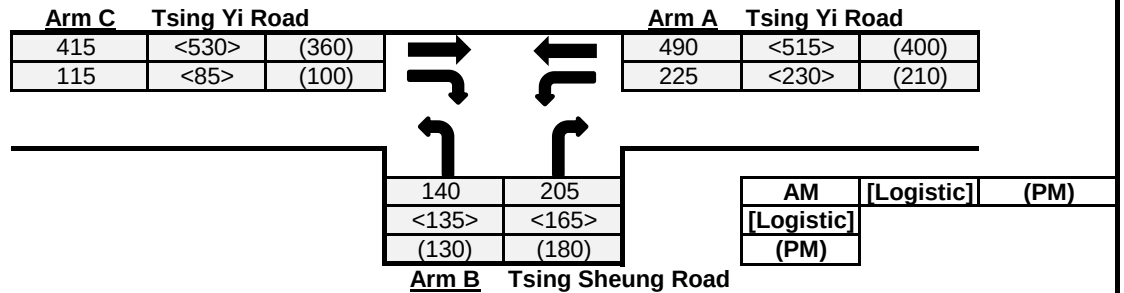
Traffic Flow (pcu / hr)	Weekday AM Peak		Logistic Peak Check Phase	
245		280 840.00	Ly 0.439	
220			L (sec) 15	
			C (sec) 114	
			y pract. 0.782	
			R.C. (%) 78%	

Stage / Phase Diagrams



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	D 0.933
W-CR	0	E 1.012
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	0	F 0.616
Minor Road Share LT&RT? (Yes: 1, No: 0)	0	Y 0.517

Analysis :	Traffic Flow	AM	Logistic	PM	Capacity	AM	Logistic	PM
	pcu/hr				pcu/hr			
	q-CA	415	530	360	Q-BA	409	399	435
	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
	q-BA	205	165	180	Q-BAC	N/A	N/A	N/A
	q-BC	140	135	130				
	f	0.406	0.450	0.419				

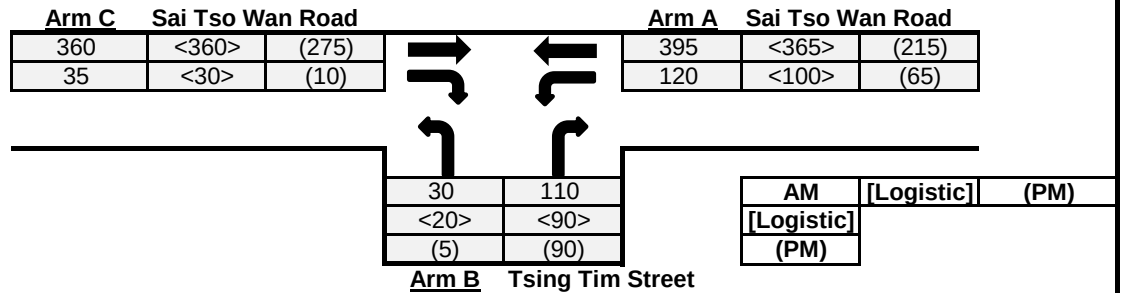
(If C-B blocked C-
(If Minor
Road Share
LT&RT)

Results :	Ratio of Flow-to-Capacity	AM	Logistic	PM
	B-A	0.50	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	0.50	0.41	0.41

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Priority Junction Calculation

Junction :	(J6) Sai Tso Wan Road / Tsing Tim Street	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	7	D 0.877
W-CR	0	E 0.933
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	0	F 0.616
Minor Road Share LT&RT? (Yes: 1, No: 0)	1	Y 0.759

Analysis :	Traffic Flow	AM	Logistic	PM	Capacity	AM	Logistic	PM
	pcu/hr				pcu/hr			
	q-CA	360	360	275	Q-BA	376	387	446
	q-CB	35	30	10	Q-BC	581	591	633
	q-AB	120	100	65	Q-CB	371	380	411
	q-AC	395	365	215	Q-CA	N/A	N/A	N/A
	q-BA	110	90	90	Q-BAC	406	412	453
	q-BC	30	20	5				
	f	0.214	0.182	0.053				

(If C-B blocked C-
(If Minor
Road Share
LT&RT)

Results :	Ratio of Flow-to-Capacity	AM	Logistic	PM
	B-A	N/A	N/A	N/A
	B-C	N/A	N/A	N/A
	C-B	0.09	0.08	0.02
	C-A	N/A	N/A	N/A
	B-AC	0.34	0.27	0.21
	Critical DFC	0.34	0.27	0.21

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Priority Junction Calculation

Junction :	(J13) Tsing Yi Road / Tsing Keung Street	Job No.:	23125HK
Scenario :	2024 Observed Traffic Flow		

Arm C Tsing Yi Road

365	<400>	(315)
60	<85>	(25)

Arm A Tsing Yi Road

390	<380>	(380)
125	<125>	(60)

Arm B Tsing Keung Street

110	65
<95>	<110>
(60)	(60)

AM	[Logistic]	(PM)
[Logistic]		
(PM)		

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	15	D 0.910
W-CR	0	E 0.968
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	0	F 0.616
Minor Road Share LT&RT? (Yes: 1, No: 0)	0	Y 0.483

Analysis :	Traffic Flow pcu/hr	AM	Logistic	PM	Capacity pcu/hr	AM	Logistic	PM	
q-CA	365	400	315	Q-BA	450	442	469		
q-CB	60	85	25	Q-BC	646	648	652		
q-AB	125	125	60	Q-CB	403	404	411		
q-AC	390	380	380	Q-CA	N/A	N/A	N/A	(If C-B blocked C- (If Minor Road Share LT&RT)	
q-BA	65	110	60	Q-BAC	N/A	N/A	N/A		
q-BC	110	95	60						
f	0.629	0.463	0.500						

Results :	Ratio of Flow-to-Capacity	AM	Logistic	PM
	B-A	0.14	0.25	0.13
	B-C	0.17	0.15	0.09
	C-B	0.15	0.21	0.06
	C-A	N/A	N/A	N/A
	B-AC	N/A	N/A	N/A
	Critical DFC	0.17	0.25	0.13

Roundabout Junction Calculation

Junction :	(RA1) Tsing Yi Interchange (North)	Job No.:	23125HK
Scenario :	2024 Observed Traffic Flow		

Arm 4 Tsing Yi Heung Sze Wui Road

	0	400	0
	<0>	<300>	<0>
	(0)	(305)	(0)

Arm 1 Tsing Yi Bridge

Arm 3

Arm 2 Tsing Yi Interchange Access Road

1485	<1240>	(780)	
	345	1140	0
	<315>	<925>	<0>
	(225)	(555)	(0)

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		60
Q	=	Entry flow (pcu/hr)	AM	1485		400
			Logistic	1240		300
			PM	780		305
Qc	=	Circulating flow across entry (pcu/hr)	AM	0		1140
			Logistic	0		925
			PM	0		555

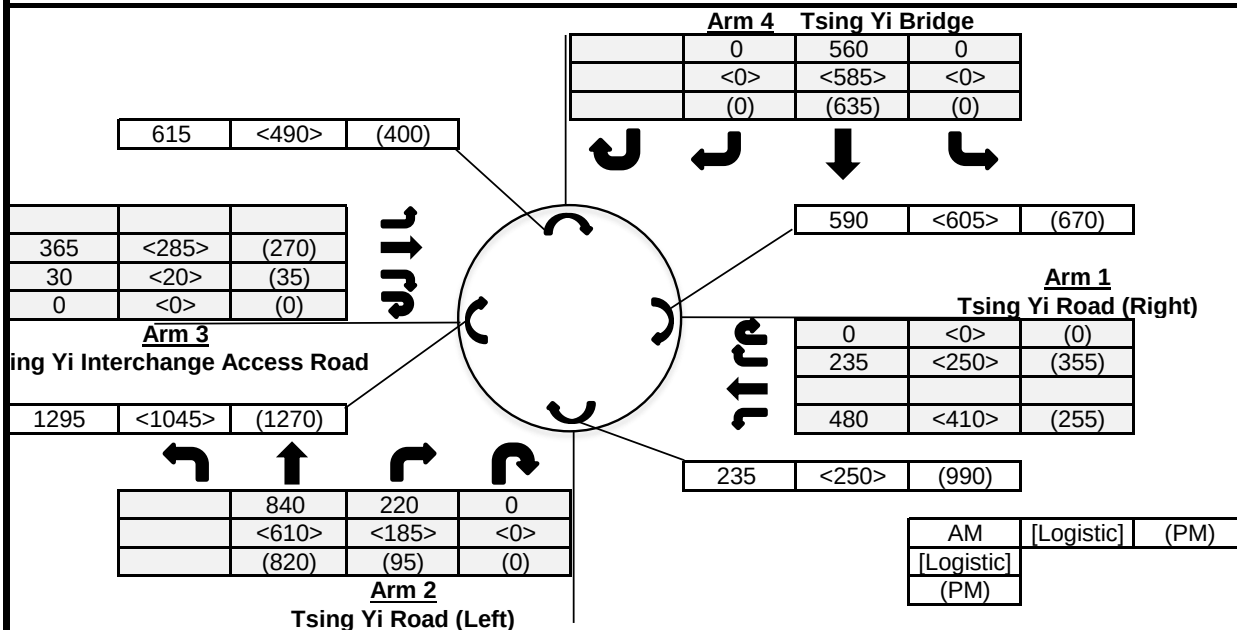
Output Parameters			Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = $1.6 \cdot (E - V) / L$		0.32		0.32
K	=	$1 - 0.00347 \cdot (A - 30) - 0.978 \cdot (1 / R - 0.05)$		1.04		0.92
X2	=	$V + ((E - V) / (1 + 2 \cdot S))$		6.61		6.61
M	=	$\text{Exp}((D - 60) / 10)$		1.00		1.00
F	=	$303 \cdot X2$		2003		2003
Td	=	$1 + (0.5 / (1 + M))$		1.25		1.25
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$		0.61		0.61
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$	AM	2090		1205
			Logistic	2090		1325
			PM	2090		1533
DFC	=	Entry Flow/Capacity = Q / Qe	AM	0.71		0.33
			Logistic	0.59		0.23
			PM	0.37		0.20

DFC of Critical Approach	=	AM	0.71		
		Logistic	0.59		
		PM	0.37		

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)	715	1060	395	560
		AM	715	1060	395	560
		Logistic	660	795	305	585
		PM	610	915	305	635
Qc	=	Circulating flow across entry (pcu/hr)	590	235	1295	615
		AM	590	235	1295	615
		Logistic	605	250	1045	490
		PM	670	990	1270	400

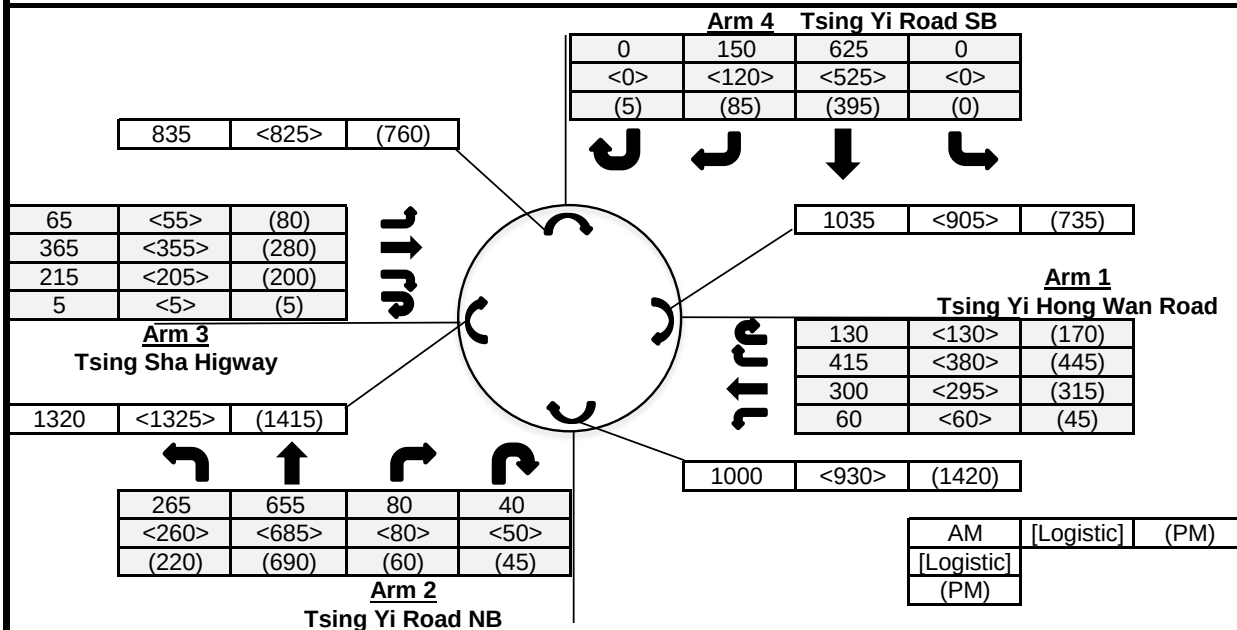
Output Parameters			Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = $1.6 \cdot (E - V) / L$	0.06	0.06	0.10	0.10
K	=	$1 - 0.00347 \cdot (A - 30) - 0.978 \cdot (1 / R - 0.05)$	0.96	0.93	1.02	1.05
X2	=	$V + ((E - V) / (1 + 2 \cdot S))$	7.18	6.98	7.25	6.25
M	=	$\exp((D - 60) / 10)$	1.00	1.00	1.00	1.00
F	=	$303 \cdot X2$	2175	2114	2197	1894
Td	=	$1 + (0.5 / (1 + M))$	1.25	1.25	1.25	1.25
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$	0.64	0.63	0.64	0.59
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$	1728	1822	1390	1609
		AM	1728	1822	1390	1609
		Logistic	1719	1813	1553	1687
		PM	1679	1382	1406	1742
DFC	=	Entry Flow/Capacity = Q / Qe	0.41	0.58	0.28	0.35
		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

Roundabout Junction Calculation

Junction : (RA2) Tsing Yi Road / Tsing Yi Hong Wan Road / Tsing Sha Hig Job No.: 23125HK

Scenario : 2024 Observed Traffic Flow



Input Parameters

			Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)	7.3	7.1	7.3	7.3
E	=	Entry width (m)	13.5	12	9.5	10
L	=	Effective length of flare (m)	30	15	30	15
R	=	Entry radius	45	97	52	34
D	=	Inscribed circle diameter (m)	100	100	100	100
A	=	Entry angle (degree)	29	32	31	46
Q	=	Entry flow (pcu/hr)	AM 905	1040	650	775
			Logistic 865	1075	620	645
			PM 975	1015	565	485
Qc	=	Circulating flow across entry (pcu/hr)	AM 1035	1000	1320	835
			Logistic 905	930	1325	825
			PM 735	1420	1415	760

Output Parameters

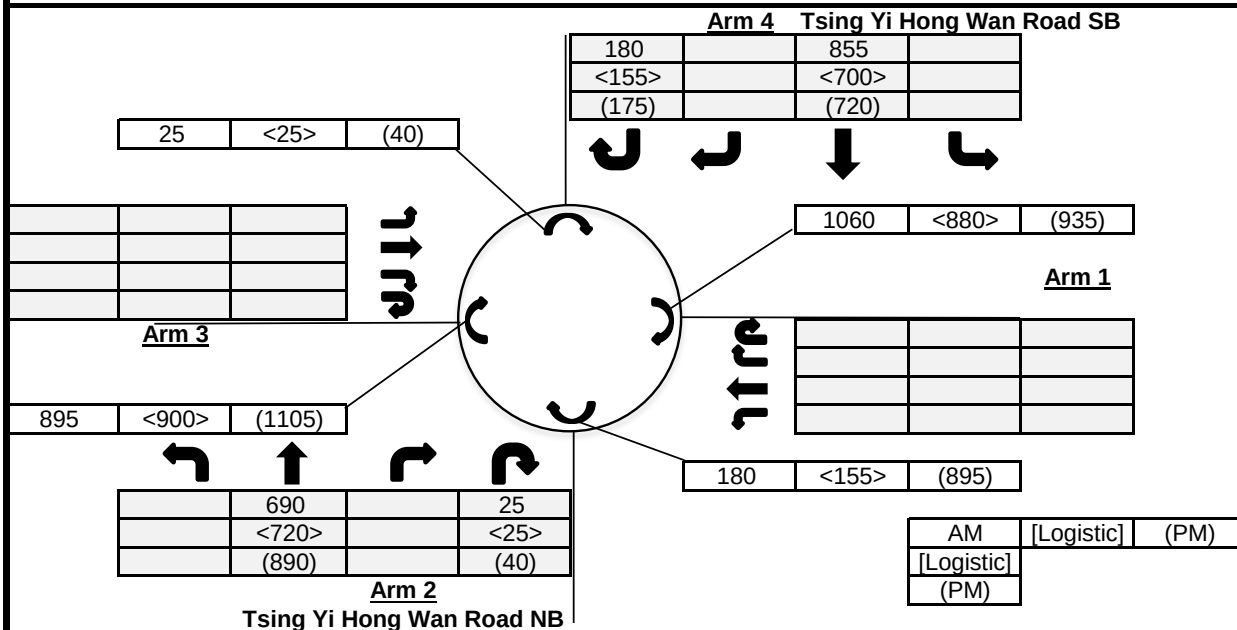
			Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = $1.6 \cdot (E - V) / L$	0.33	0.52	0.12	0.29
K	=	$1 - 0.00347 \cdot (A - 30) - 0.978 \cdot (1 / R - 0.05)$	1.03	1.03	1.03	0.96
X2	=	$V + ((E - V) / (1 + 2 \cdot S))$	11.03	9.50	9.08	9.01
M	=	$\exp((D - 60) / 10)$	54.60	54.60	54.60	54.60
F	=	$303 \cdot X2$	3343	2877	2752	2731
Td	=	$1 + (0.5 / (1 + M))$	1.01	1.01	1.01	1.01
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$	0.68	0.61	0.60	0.59
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$	AM 2720	2335	2016	2156
			Logistic 2811	2379	2013	2162
			PM 2930	2069	1958	2199
DFC	=	Entry Flow/Capacity = Q / Qe	AM 0.33	0.45	0.32	0.36
			Logistic 0.31	0.45	0.31	0.30
			PM 0.33	0.49	0.29	0.22

DFC of Critical Approach = AM 0.45
Logistic 0.45
PM 0.49

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		7.3
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)	715		1035
		AM	715		1035
		Logistic	745		855
		PM	930		895
Qc	=	Circulating flow across entry (pcu/hr)	180		25
		AM	180		25
		Logistic	155		25
		PM	895		40

Output Parameters

		Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = $1.6 \cdot (E - V) / L$	0.56		3.76
K	=	$1 - 0.00347 \cdot (A - 30) - 0.978 \cdot (1 / R - 0.05)$	0.95		0.98
X2	=	$V + ((E - V) / (1 + 2 \cdot S))$	10.30		7.85
M	=	$\text{Exp}((D - 60) / 10)$	2.23		2.23
F	=	$303 \cdot X2$	3121		2379
Td	=	$1 + (0.5 / (1 + M))$	1.16		1.16
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$	0.74		0.62
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$	2851		2317
		AM	2851		2317
		Logistic	2868		2317
		PM	2344		2308
DFC	=	Entry Flow/Capacity = Q / Qe	0.25		0.45
		AM	0.25		0.45
		Logistic	0.26		0.37
		PM	0.40		0.39

DFC of Critical Approach = AM 0.45
Logistic 0.37
PM 0.40

Roundabout Junction Calculation

Junction :	(RA4) Tsing Yi Hong Wan Road / Tsing Ko Road	Job No.:	23125HK
Scenario :	2024 Observed Traffic Flow		

Arm 4 Tsing Yi Hong Wan Road SB

450		245	180
<365>		<230>	<155>
(345)		(200)	(250)

Arm 1 Tsing Yi Hong Wan Road

710	<1105>	(1065)

Arm 3 Tsing Ko Road

315	<155>	(250)
10	<5>	(20)
5	<365>	(345)

Arm 2 Tsing Yi Hong Wan Road NB

560	<645>	(655)
25	110	0
<25>	<140>	<140>
(20)	(155)	(155)

Input Parameters		Arm 1	Arm 2	Arm 3	Arm 4
V	= Approach half width (m)		6.7	6.3	7.3
E	= Entry width (m)		13.5	12.5	15
L	= Effective length of flare (m)		18	30	30
R	= Entry radius		47	100	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 across entry (pcu/hr)	AM	455	560	15
		Logistic	730	645	510
		PM	890	655	520

Output Parameters		Arm 1	Arm 2	Arm 3	Arm 4
S	= Sharpness of flare = $1.6 \cdot (E - V) / L$		0.60	0.33	0.41
K	= $1 - 0.00347 \cdot (A - 30) - 0.978 \cdot (1 / R - 0.05)$		0.99	1.07	0.98
X2	= $V + ((E - V) / (1 + 2 \cdot S))$		9.78	10.03	11.53
M	= $\text{Exp}((D - 60) / 10)$		2.23	2.23	2.23
F	= $303 \cdot X2$		2963	3040	3493
Td	= $1 + (0.5 / (1 + M))$		1.16	1.16	1.16
Fc	= $0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$		0.72	0.73	0.80
Qe	= Capacity = $K \cdot (F - Fc \cdot Qc)$	AM	2610	2807	3412
		Logistic	2415	2741	3023
		PM	2301	2733	3015
DFC	= Entry Flow/Capacity = Q / Qe	AM	0.05	0.12	0.26
		Logistic	0.13	0.19	0.25
		PM	0.14	0.22	0.26

DFC of Critical Approach	=	AM	0.26	Logistic	0.25	PM	0.26
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Roundabout Junction Calculation

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

Scenario : 2024 Observed Traffic Flow

Arm 4 Tam Kon Shan Road

185	45	215	305	325
<170>	<35>	<210>	<300>	<310>
(125)	(40)	(240)	(330)	(330)

Arm 5 Tsing King Road

140	20	140	150	0
<110>	<15>	<120>	<155>	<0>
(185)	(45)	(85)	(150)	(0)

Arm 1 Tsing Yi North Coastal Road WB

150	<135>	(95)
365	<320>	(315)
140	<125>	(185)
25	<20>	(25)
0	<0>	(0)

Arm 2 Fung Shue Wo Road

185	165	360	660	155
<175>	<175>	<365>	<690>	<160>
(170)	(160)	(450)	(755)	(190)

Arm 3 Tsing Yi North Coastal Road EB

2340	<2265>	(2505)
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Central Circle

1885	<1830>	(1940)
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Logistic Data

AM	[Logistic]	(PM)
[Logistic]		
(PM)		

Input Parameters

		Arm 1	Arm 2	Arm 3	Arm 4	Arm 5
V	= Approach half width (m)	7	7.3	5.5	7.3	7
E	= Entry width (m)	9	13.5	7.5	13.5	11
L	= Effective length of flare (m)	9	20	11	50	10
R	= Entry radius	100	35	45	35	45
D	= Inscribed circle diameter (m)	100	100	100	100	100
A	= Entry angle (degree)	30	25	25	45	45
Q	= Entry flow (pcu/hr)	AM 680 Logistic 600 PM 620	1525 1565 1725	355 260 325	1075 1025 1065	450 400 465
Qc	= Circulating flow across entry (pcu/hr)	AM 1150 Logistic 1050 PM 1185	1255 1085 1170	2340 2265 2505	2145 2010 2275	1885 1830 1940

Output Parameters

		Arm 1	Arm 2	Arm 3	Arm 4	Arm 5
S	= Sharpness of flare = $1.6 \cdot (E - V) / L$	0.36	0.50	0.29	0.20	0.64
K	= $1 - 0.00347 \cdot (A - 30) - 0.978 \cdot (1/R - 0.05)$	1.04	1.04	1.04	0.97	0.98
X ₂	= $V + ((E - V) / (1 + 2 \cdot S))$	8.17	10.41	6.76	11.74	8.75
M	= $\text{Exp}((D - 60) / 10)$	54.60	54.60	54.60	54.60	54.60
F	= $303 \cdot X_2$	2475	3155	2050	3557	2653
Td	= $1 + (0.5 / (1 + M))$	1.01	1.01	1.01	1.01	1.01
Fc	= $0.21 \cdot Td \cdot (1 + 0.2 \cdot X_2)$	0.56	0.65	0.50	0.71	0.58
Qe	= Capacity = $K \cdot (F - F_c \cdot Q_c)$	AM 1905 Logistic 1963 PM 1885	2425 2540 2482	922 961 836	1972 2065 1883	1515 1546 1484
DFC	= Entry Flow/Capacity = Q/Q_e	AM 0.36 Logistic 0.31 PM 0.33	0.63 0.62 0.69	0.38 0.27 0.39	0.55 0.50 0.57	0.30 0.26 0.31

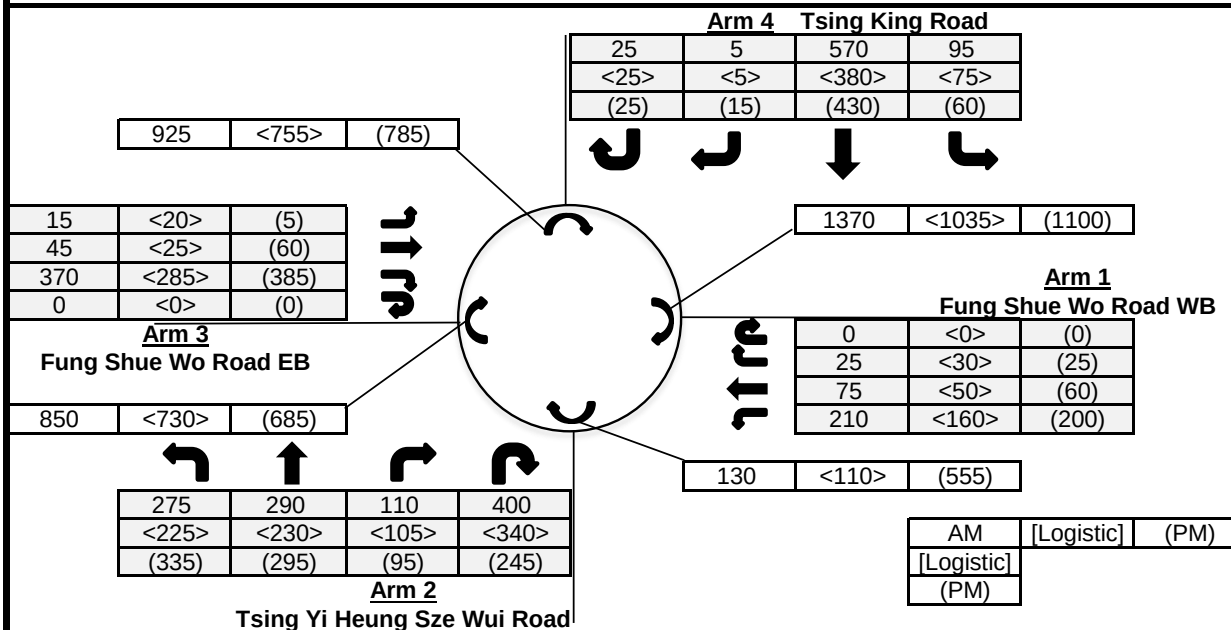
DFC of Critical Approach

AM	0.63
Logistic	0.62
PM	0.69

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)	100	100	100	100
A	=	Entry angle (degree)	36	30	18	25
Q	=	Entry flow (pcu/hr)	310	1075	430	695
		AM	310	1075	430	695
		Logistic	240	900	330	485
		PM	285	970	450	530
Qc	=	Circulating flow across entry (pcu/hr)	1370	130	850	925
		AM	1370	130	850	925
		Logistic	1035	110	730	755
		PM	1100	555	685	785

Output Parameters

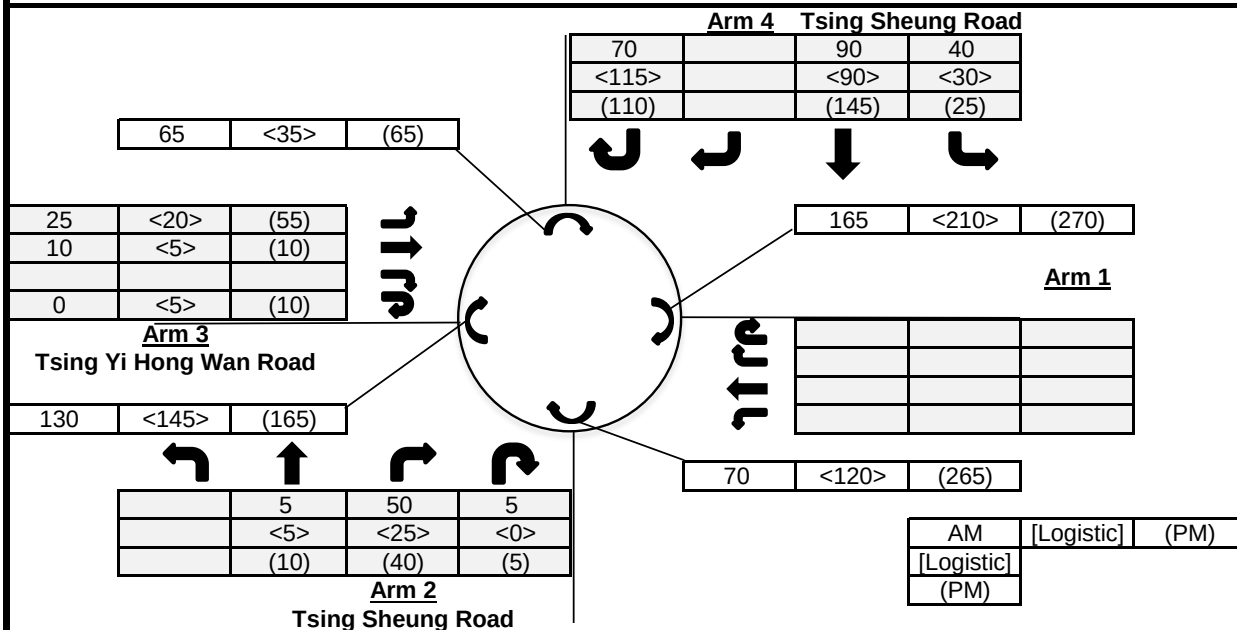
			Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = $1.6 \cdot (E - V) / L$	0.30	0.22	0.22	0.20
K	=	$1 - 0.00347 \cdot (A - 30) - 0.978 \cdot (1 / R - 0.05)$	1.01	1.04	1.07	1.05
X2	=	$V + ((E - V) / (1 + 2 \cdot S))$	8.58	9.19	8.62	8.33
M	=	$\exp((D - 60) / 10)$	54.60	54.60	54.60	54.60
F	=	$303 \cdot X2$	2598	2783	2613	2524
Td	=	$1 + (0.5 / (1 + M))$	1.01	1.01	1.01	1.01
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$	0.58	0.60	0.58	0.56
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$	1829	2800	2280	2102
		AM	1829	2800	2280	2102
		Logistic	2023	2813	2355	2203
		PM	1986	2536	2382	2185
DFC	=	Entry Flow/Capacity = Q / Qe	0.17	0.38	0.19	0.33
		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

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	11.6
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 across entry (pcu/hr)	AM	70	130	65
			Logistic	120	145	35
			PM	265	165	65

Output Parameters

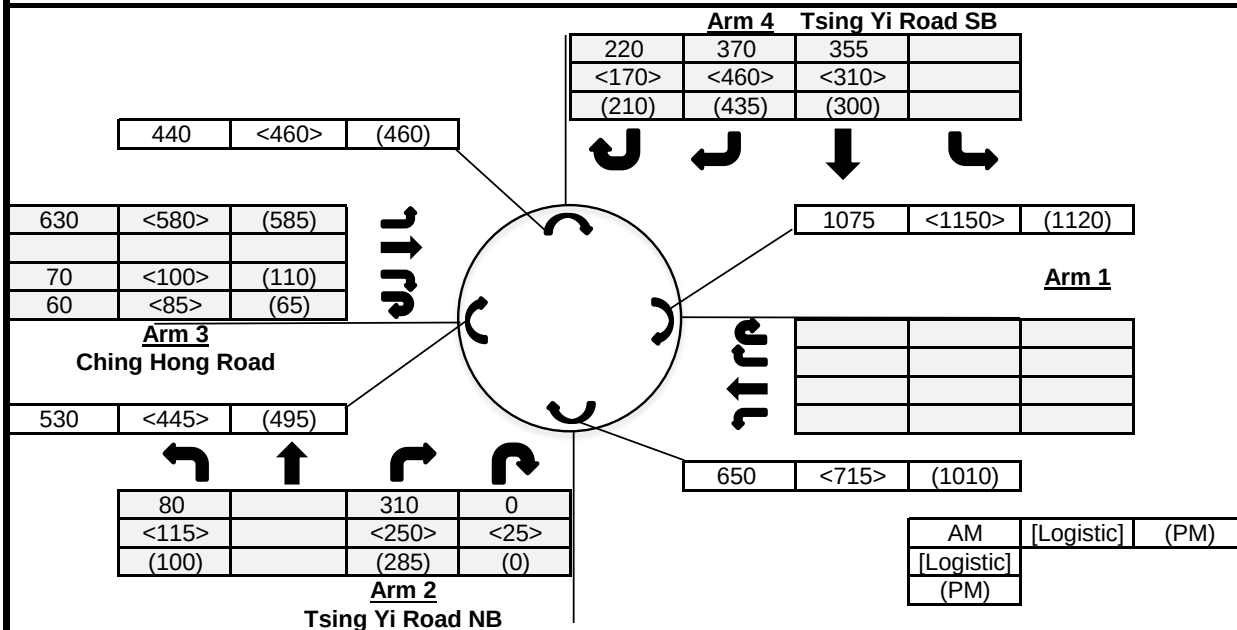
			Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = $1.6 \cdot (E - V) / L$		0.24	0.58	0.37
K	=	$1 - 0.00347 \cdot (A - 30) - 0.978 \cdot (1 / R - 0.05)$		1.02	0.97	0.94
X2	=	$V + ((E - V) / (1 + 2 \cdot S))$		7.76	5.51	9.75
M	=	$\text{Exp}((D - 60) / 10)$		0.50	0.50	0.50
F	=	$303 \cdot X2$		2350	1669	2954
Td	=	$1 + (0.5 / (1 + M))$		1.33	1.33	1.33
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$		0.71	0.59	0.83
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$	AM	2353	1543	2717
			Logistic	2316	1534	2741
			PM	2210	1523	2717
DFC	=	Entry Flow/Capacity = Q / Qe	AM	0.03	0.02	0.07
			Logistic	0.01	0.02	0.09
			PM	0.02	0.05	0.10

DFC of Critical Approach = AM 0.07
Logistic 0.09
PM 0.10

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)	4.5	7.3	7
E	=	Entry width (m)	9	8.5	8.5
L	=	Effective length of flare (m)	25	4	16
R	=	Entry radius	24.5	30	100
D	=	Inscribed circle diameter (m)	30	30	30
A	=	Entry angle (degree)	44	40	27
Q	=	Entry flow (pcu/hr)	390	760	945
		AM	390	765	940
		Logistic	385	760	945
		PM	650	530	440
Qc	=	Circulating flow across entry (pcu/hr)	715	445	460
		AM	1010	495	460
		Logistic			
		PM			

Output Parameters

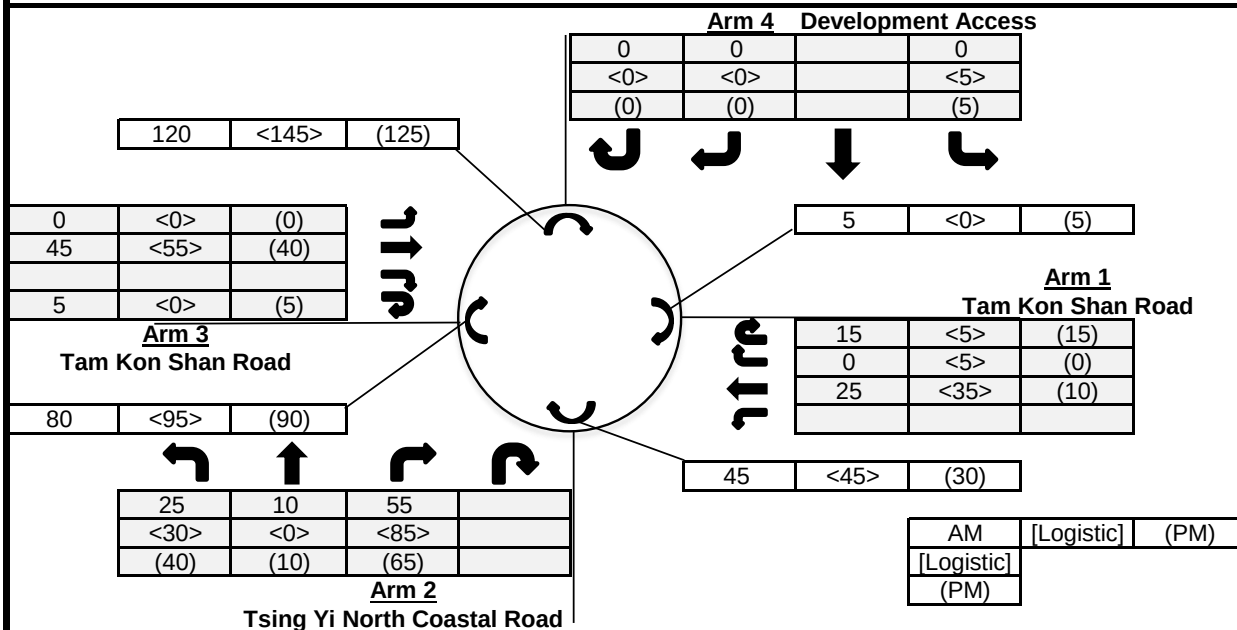
		Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = $1.6 \cdot (E - V) / L$	0.29	0.48	0.15
K	=	$1 - 0.00347 \cdot (A - 30) - 0.978 \cdot (1 / R - 0.05)$	0.96	0.98	1.05
X2	=	$V + ((E - V) / (1 + 2 \cdot S))$	7.36	7.91	8.15
M	=	$\text{Exp}((D - 60) / 10)$	0.05	0.05	0.05
F	=	$303 \cdot X2$	2229	2397	2471
Td	=	$1 + (0.5 / (1 + M))$	1.48	1.48	1.48
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$	0.77	0.80	0.82
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$	1662	1937	2216
		AM	1614	2004	2199
		Logistic	1397	1964	2199
		PM	0.23	0.39	0.43
DFC	=	Entry Flow/Capacity = Q / Qe	0.24	0.38	0.43
		AM	0.28	0.39	0.43
		Logistic			
		PM			

DFC of Critical Approach = AM 0.43
Logistic 0.43
PM 0.43

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	4.2
E	=	Entry width (m)	6.7	4.9	5.8	5.4
L	=	Effective length of flare (m)	10	10	10	10
R	=	Entry radius	32	97	52	34
D	=	Inscribed circle diameter (m)	30	30	30	30
A	=	Entry angle (degree)	34	32	31	46
Q	=	Entry flow (pcu/hr)	40	90	50	0
		AM	40	90	50	0
		Logistic	45	115	55	5
		PM	25	115	45	5
Qc	=	Circulating flow across entry (pcu/hr)	5	45	80	120
		AM	5	45	80	120
		Logistic	0	45	95	145
		PM	5	30	90	125

Output Parameters

			Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = $1.6 \cdot (E - V) / L$	0.54	0.14	0.38	0.19
K	=	$1 - 0.00347 \cdot (A - 30) - 0.978 \cdot (1/R - 0.05)$	1.00	1.03	1.03	0.96
X2	=	$V + ((E - V) / (1 + 2 \cdot S))$	4.93	4.70	4.76	5.07
M	=	$\exp((D - 60) / 10)$	0.05	0.05	0.05	0.05
F	=	$303 \cdot X2$	1493	1424	1442	1535
Td	=	$1 + (0.5 / (1 + M))$	1.48	1.48	1.48	1.48
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$	0.62	0.60	0.61	0.62
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$	1497	1441	1430	1409
		AM	1497	1441	1430	1409
		Logistic	1500	1441	1421	1394
		PM	1497	1450	1424	1406
DFC	=	Entry Flow/Capacity = Q/Qe	0.03	0.06	0.03	0.00
		AM	0.03	0.06	0.03	0.00
		Logistic	0.03	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

Roundabout Junction Calculation

Junction :	(RA10) Tsing Sheung Road / Tsing Ko Road	Job No.:	23125HK
Scenario :	2024 Observed Traffic Flow		

10	195	5
<45>	<160>	<20>
(5)	(140)	(15)

5	<0>	(15)
50	<55>	(85)
115	<115>	(155)

315	<300>	(230)
85	<60>	(40)
25	<40>	(30)

65	<100>	(105)
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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		5.1	11.6
L	= Effective length of flare (m)	18		30	30
R	= Entry radius	47		67.3	75
D	= Inscribed circle diameter (m)	50		50	50
A	= Entry angle (degree)	41		22	46
Q	= Entry flow (pcu/hr)	170		425	210
		Logistic		400	225
		PM		300	160
Qc	= Circulating flow across entry (pcu/hr)	230		65	115
		Logistic		100	100
		PM		105	85

Output Parameters		Arm 1	Arm 2	Arm 3	Arm 4
S	= Sharpness of flare = 1.6*(E-V)/L	0.56		-0.03	0.28
K	= 1-0.00347*(A-30)-0.978*(1/R-0.05)	0.99		1.06	0.98
X2	= V+((E-V)/(1+2*S))	9.57		5.07	9.74
M	= Exp((D-60)/10)	0.37		0.37	0.37
F	= 303*X2	2900		1537	2953
Td	= 1+(0.5/(1+M))	1.37		1.37	1.37
Fc	= 0.21*Td*(1+0.2*X2)	0.84		0.58	0.85
Qe	= Capacity = K*(F-Fc*Qc)	2681		1592	2799
		Logistic		1571	2812
		PM		1568	2824
DFC	= Entry Flow/Capacity = Q/Qe	0.06		0.27	0.08
		Logistic		0.25	0.08
		PM		0.19	0.06

DFC of Critical Approach	=	AM	0.27
		Logistic	0.25
		PM	0.19

Junction: (J1) Tsing Yi Road West / Cheung Tsing Highway																																		
Description: 2029 Reference Traffic Flow																																		
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		(% uphill Gradient)	Nearside O/I	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	1	0%	0%	1965	6135	1965	1965	5900	5825	218	0.111	0.111	160	0.081	0.083											
	S	↔	2	A	3.3	0	20	0	0	46%	100%	2085	0	2015	1940	0	0	224	0.111		161	0.083												
	S	↵	2	A	3.3	0	17.5	0	0	100%	100%	2085	0	1920	1920	0	0	213	0.111		159	0.083												
Cheung Tsing Highway	E	↗	3	A,B	3.4	20	0	0	1	100%	100%	1955	1955	1820	1820	1820	1820	545	0.299		420	0.231												
	E	↘	4	B	3.5	0	30	0	0	100%	100%	2105	4210	2005	2005	3990	3990	229	0.114		153	0.076												
		↘	4	B	3.5	0	25	0	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	6.5	1	100%	100%	1702	3544	1585	1585	3425	3425	410	0.259	0.259	350	0.221	0.221											
	N	↑	1	C	3.6	0	0	6.5	0	0%	0%	1842	0	1840	1840	0	0	325	0.177		290	0.158												
Pedestrian crossing		↔	5P	C	Min. Green time = 5GM + 10FG = 15s																													
		↕	6P	C	Min. Green time = 5GM + 6FG = 11s																													
		↔	7P	A,B	Min. Green time = 5GM + 9FG = 14s																													
		↕	8P	B	Min. Green time = 5GM + 10FG = 15s																													
Notes:												Traffic Flow (pcu / hr)					A.M. Check Phase			P.M. Check Phase														
																	A,B,C			A,B,C														
																	ey			ey														
																	L (sec)			L (sec)														
																	C (sec)			C (sec)														
																	y pract.			y pract.														
																	R.C. (%)			R.C. (%)														
																	62%			47%														
Stage / Phase Diagrams																																		
I/G = 5	I/G = 5				I/G = 6																													

Junction: (J2) Tsing Hung Road / Tsing Yi Road																																							
Description: 2029 Reference Traffic Flow																																							
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside O/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	↓	1	A	3.5	0.0	0	1	0%	0%	1965	4070	1965	1965	4070	4070	381	0.194		275	0.140																		
	S	↓	1	A	3.5	0.0	0	0	0%	0%	2105	0	2105	2105	0	0	409	0.194		295	0.140																		
	S	↙	1	A	3.6	0.0	18	0	100%	100%	2115	2115	1950	1950	1950	1950	370	0.190		380	0.195 0.195																		
Tsing Yi Road	N	↑	4	C	4.0	30.0	0	1	100%	100%	2015	2015	1920	1920	1920	1920	60	0.031		55	0.029																		
	N	↑	4	C	3.5	0.0	0	0	0%	0%	2105	4210	2105	2105	4210	4210	330	0.157 0.157		270	0.128																		
	N	↑	4	C	3.5	0.0	0	0	0%	0%	2105	0	2105	2105	0	0	330	0.157		270	0.128 0.128																		
Tsing Hung Road	E	→	2	A,B	3.3	25.0	0	1	100%	100%	1945	1945	1835	1835	1835	1835	525	0.286 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		↔	5P	D																																			
		↔	6P	A,B,D																																			
		↔	7P	C,D																																			
		↔	8P	C,D																																			
										A,B,C,D AB,C,D																													
Notes:										Traffic Flow (pcu / hr) Weekday AM Peak 525(340) → 45(30) → 60(55) → 370(380) ↓ 790(570) ↓ 660(540) ↓						A,B,C,D AB,C,D																							
																AM Peak Check Phase						PM Peak Check Phase																	
																εy			0.373 0.443			εy			0.323 0.314														
																L (sec)			33 22			L (sec)			33 22														
																C (sec)			120 120			C (sec)			100 100														
																y pract.			0.653 0.735			y pract.			0.603 0.702														
										R.C. (%) 75% 66%						R.C. (%) 87% 124%																							
Stage / Phase Diagrams																																							
I/G = 2					I/G = 2					I/G = 5					I/G = 5 + 12																								
I/G = 2					I/G = 6 + Min. G 5					I/G = 5					I/G = 5 + 12																								

Job No: 23125HK

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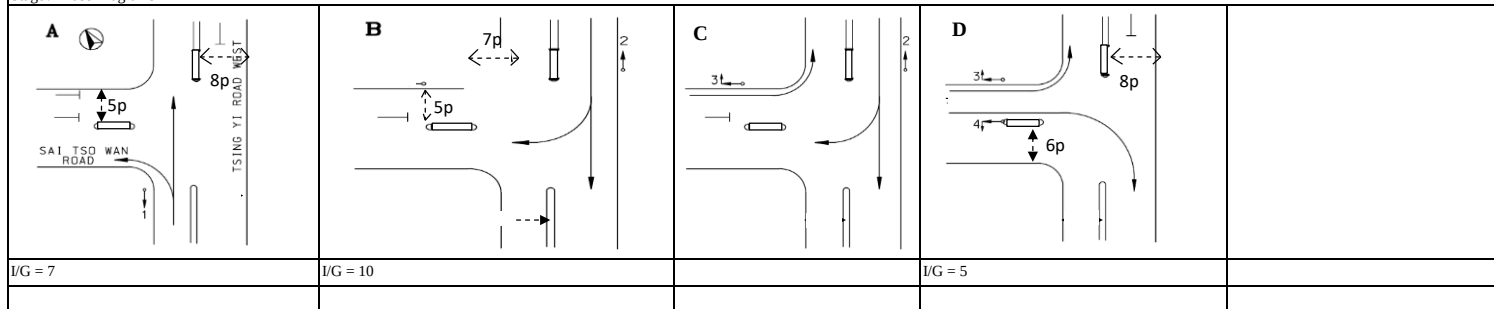
Junction: **(J4) Sai Tso Wan Road / Tsing Yi Road West / Tsing Yi Road**
Description: **2029 Reference Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		(% uphill Gradient	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	6.5	1	100%	100%	1792	1792	1630	1630	275	0.169	0.169	230	0.141	0.141
	NE		1	A	3.4	0	0	6.5	0	0%	0%	1822	1822	1820	1820	230	0.126		220	0.121	
Sai Tso Wan Road	NW		3	C,D	3.8	15	0	0	1	100%	100%	1995	1995	1815	1815	485	0.267		410	0.226	
	NW		4	D	3.8	0	25	0	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	0	1	0%	0%	1955	1955	1955	1955	235	0.120		145	0.074	
	SE		2	B,C	3.7	0	25	0	0	100%	100%	2125	2125	2005	2005	535	0.267	0.267	255	0.127	0.127
Pedestrian crossing			5p	A,B	Min. Green time = 5GM + 8FG = 13s																
			6p	D	Min. Green time = 5GM + 10FG = 15s																
			7p	B,C	Min. Green time = 5GM + 9FG = 14s																
			8p	A,D	Min. Green time = 5GM + 7FG = 12s																

Notes:

Traffic Flow (pcu / hr)	A.M. Check Phase		P.M. Check Phase	
	ϵy	0.547	ϵy	0.363
	L (sec)	19	L (sec)	19
	C (sec)	120	C (sec)	110
	y pract.	0.758	y pract.	0.745
	R.C. (%)	38%	R.C. (%)	105%

Stage / Phase Diagrams



Job No: 23125HK

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Junction: (J5) Sai Tso Wan Road Near VEC

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

Sai Tso Wan Road	EB		3	A	4.0	0.0	0	1	0%	0%	2015	2015	2015	2015	2015	2015	595	0.295	0.295	490	0.243	
Sai Tso Wan Road	WB		1	A,B	4.0	0.0	0	1	0%	0%	2015	2015	2015	2015	2015	2015	555	0.275		675	0.335	0.335
Sai Tso Wan Road	WB		2	B,C	4.0	0.0	10	0	100%	100%	2155	2155	1875	1875	1875	1875	150	0.080	0.080	35	0.019	

Pedestrian Crossing



4P

C

Green time = 13Gm + 5 FGm = 18s

Notes:
(None)

Traffic Flow (pcu / hr)	AM (PM) Peak
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595(490) $\rightarrow$



150(35)

← 555(675)

A,BC AB,C

AB,C

A,BC AB,C

AB,C

AM Peak Check Phase	
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PM Peak Check Phase	
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ε_V	0.375	0.275
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ϵ_V	0.262	0.335
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L (sec)	11	25
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L (sec)	11	25
---------	----	----

C (sec)	91	91
---------	----	----

C (sec)	91	91
---------	----	----

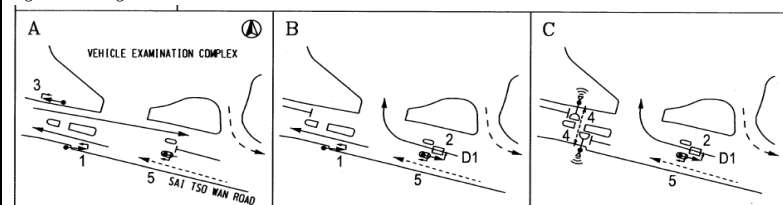
y pract.	0.791	0.65
----------	-------	------

y pract.	0.791	0.65
----------	-------	------

R.C. (%)	111%	137%
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R.C. (%)	202%	95%
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Stage / Phase Diagrams



I/G = 6

I/G = 7

$$I/G = 3$$

	I/G = 7
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I/G = 5 + Ped 18s

TRAFFIC SIGNALS CALCULATION

Job No: 23125HK

CTA Consultants Ltd.

Junction: (J8) Tsing Yi Road West / Ching Hong Road																								
Description: 2029 Reference Traffic Flow																								
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		(% uphill Gradient	Nearside O/I	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	↓	1	A	3.0	0.0	0	5.5	0	0%	0%	1824	3698	1824	1824	3698	3698	190	0.104	0.207	126	0.069	0.128	
	S	↓	1	A	3.5	0.0	0	5.5	0	0%	0%	1874	0	1874	1874	0	0	195	0.104		129	0.069		
	S	↘	1	A	3.7	10.0	0	5.5	1	100%	100%	1754	1754	1525	1525	1525	1525	315	0.207		195	0.128		
Tsing Yi Road West	N	↑	2	A,B	3.5	0.0	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%	0%	2105	0	2105	2105	0	0	202	0.096		225	0.107		
	N	↗	3	B	3.3	0.0	18	0	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	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	0	1	100%	100%	1955	4050	1775	1775	3720	3720	272	0.153		241	0.136		
Pedestrian crossing		↕	5P	A,B	Min. Green time = 11GM + 8FG = 19s																			
			6P	C	Min. Green time = 5GM + 12FG = 17s																			
Notes:												Traffic Flow (pcu / hr) Weekday AM Peak						AM Peak Check Phase			PM Peak Check Phase			
												385(255) 315(195)						g _y 0.557			g _y 0.427			
												390(435) 380(315)						L (sec) 14			L (sec) 14			
												245(220)						C (sec) 100			C (sec) 100			
												325(285)						y pract. 0.774			y pract. 0.774			
																		R.C. (%) 39%			R.C. (%) 81%			
Stage / Phase Diagrams																								
I/G = 5					I/G = 5					I/G = 7														

Junction: (J9) Tsing Yi Road West / Liu To Road																											
Description: 2029 Reference Traffic Flow																											
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		(% uphill Gradient	Nearside O/I	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	5	1	0%	0%	1735	3610	1735	1735	3610	3610	211	0.122		180	0.104					
	S	↘	2	A,B	3.3	0.0	0	5	0	0%	0%	1875	0	1875	1875	0	0	229	0.122		195	0.104					
	S	↙	3	B	3.3	0.0	22	5	0	100%	100%	1875	1875	1755	1755	1755	1755	310	0.177	0.177	335	0.191	0.191				
Tsing Yi Road West	N	↕	1	A	3.2	10.0	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%	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	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	0	100%	100%	2165	2165	2000	2000	2000	2000	250	0.125	0.125	80	0.040	0.040				
Pedestrian crossing		↕	6P	A,D																							
		↕	7P	C,D																							
		↔	8P	D																							
AM: Green time = 49GM + 9FG = 58s, PM: Green time = 46GM + 9FG = 55s AM: Green time = 51GM + 13FG = 64s, PM: Green time = 28GM + 13FG = 41s Green time = 10GM + 8FG = 18s																											
Pedestrian Crossing																											
												A,BC,D		A,B,C,D		A,BC,D		A,B,C,D									
Notes:										Traffic Flow (pcu / hr) Weekday AM Peak 410(295) 310(335) 440(375) 250(80) 145(115) 490(540)										AM Peak Check Phase ay 0.404 0.462 L (sec) 39 43 C (sec) 130 130 y pract. 0.630 0.602 R.C. (%) 56% 30%				PM Peak Check Phase ay 0.339 0.395 L (sec) 39 43 C (sec) 110 110 y pract. 0.581 0.548 R.C. (%) 71% 39%			
Stage / Phase Diagrams																											
I/G = 5					I/G = 7					I/G = 5					I/G = 11 + Ped 18												

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)		(% uphill Gradient)	Nearside 0/1	Pro. Turning (%)		Site Factor	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 (To Tsing Yi Road West)	S	↓	1	A,D	4.1	0.0	0	3	0	0%	0%	1	2039	4058	2039	2039	4058	4058	304	0.149	0.292	279	0.137	0.240													
	S	↓	1	A,D	3.9	0.0	0	3	0	0%	0%	1	2019	0	2019	2019	0	0	301	0.149		276	0.137														
Fung Shue Wo Road (To Fung Shue Wo Road)	S	↓	1	A,D	4.0	0.0	0	3	1	0%	0%	1	1889	2294.8	1889	1889	2294.8	2294.8	552	0.292		453	0.240														
	S	↓	1	A,D	4.0	0.0	0	3	0	0%	0%	0.2	405.8	0	405.8	405.8	0	0	118	0.292		97	0.240														
Tsing Yi Road West	N	↑	2	A,B	3.5	0.0	0	0	1	0%	0%	1	1965	2491.3	1965	1965	2491.25	2491.25	540	0.275		544	0.277														
	N	↑	2	A,B	3.5	0.0	0	0	0	0%	0%	0.25	526.25	0	526.25	526.25	0	0	145	0.275		146	0.277														
	N	↗	3	B	3.6	0.0	18	0	0	100%	100%	1	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	3	1	100%	100%	1	1869	2193.6	1790	1790	2100	2100	128	0.071		124	0.069														
	N	↖	4	C	4.0	38.0	0	3	0	100%	100%	0.16	324.64	0	310	310	0	0	22	0.071		21	0.069														
Fung Shue Wo Road	N	↗	4	C	3.6	0.0	43	3	0	100%	100%	0.23	457.47	2446.5	440	440	2355	2355	121	0.274	0.274	103	0.234	0.234													
	N	↗	4	C	3.6	0.0	40	3	0	100%	100%	1	1989	0	1915	1915	0	0	524	0.274		447	0.234														
Pedestrian crossing		↔	5p	D																																	
		↔	6P	B,C																																	
		↑	7P	A,C,D																																	
		↓	8P	A,B,D																																	
Notes:													Traffic Flow (pcu / hr)						Weekday AM Peak				AM Peak Check Phase		PM Peak Check Phase												
																			605(555) 670(550)				6y 0.679		6y 0.548												
																			↑ ↗ ↓ ↖				L (sec) 12		L (sec) 12												
													685(690) 220(145) 150(145) 645(550)										C (sec) 100		C (sec) 100												
																							y pract. 0.792		y pract. 0.792												
																							R.C. (%) 17%		R.C. (%) 45%												
Stage / Phase Diagrams																																					
A						B						C							D																		
V/G = 5						V/G = 5						V/G = 5																									

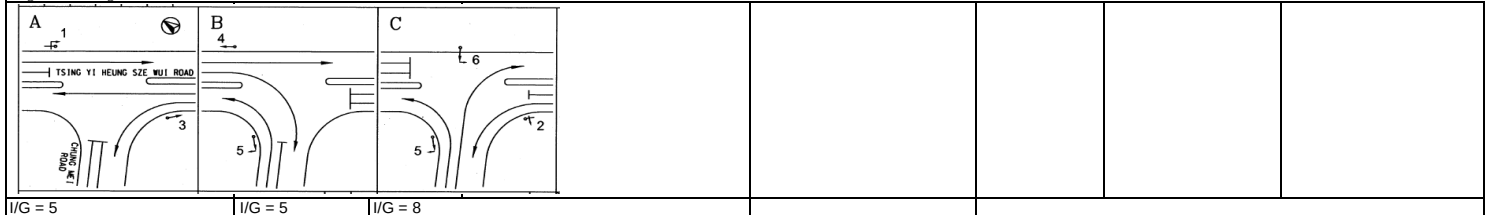
Junction: (J11) Tsing Yi Heung Sze Wui Road / Cheung Wan Street																									
Description: 2029 Reference Traffic Flow																									
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		(% uphill Gradient	Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	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 Heung Sze Wui Road	N	↑	2	A,B	3.5	0.0	0	0	1	0%	0%	1965	4070	1965	1965	4070	4070	702	0.357		611	0.311	0.311		
	N	↑	2	A,B	3.5	0.0	0	0	0	0%	0%	2105	0	2105	2105	0	0	753	0.357		654	0.311			
Cheung Wan Street	W	↵	3	C	3.5	18.0	20	0	0	31% / 69%	47% / 53%	2105	0	1955	1950	0	0	428	0.219	0.219	360	0.185	0.185		
	W	↘	3	C	3.5	15.0	0	0	1	100%	100%	1965	4070	1785	1785	3740	3735	392	0.219		330	0.185			
Tsing Yi Heung Sze Wui Road	S	↘↵	1	A,D	3.5	10.0	0	0	1	100%	100%	1965	6175	1710	1710	5920	5920	695	0.406	0.406	495	0.289			
	S	↓	1	A,D	3.5	0.0	0	0	0	0%	0%	2105	0	2105	2105	0	0	555	0.264		428	0.203			
	S	↓	1	A,D	3.5	0.0	0	0	0	0%	0%	2105	0	2105	2105	0	0	555	0.264		428	0.203			
Pedestrian crossing		↔	4P	B						AM: Green time = 12GM + 11FG = 23s, PM: Green time = 12GM + 11FG = 23s															
		↑	5P	D						AM: Green time = 6GM + 8FG = 14s, PM: Green time = 10GM + 8FG = 18s															
		↓	6P	B,C						AM: Green time = 45GM + 10FG = 55s, PM: Green time = 41GM + 10FG = 51s															
Notes:												Traffic Flow (pcu / hr)				Weekday AM Peak				AB,C,D			AD,B,C		
																1110(855) 695(495)				AM Peak Check Phase			PM Peak Check Phase		
																↓ ↘ ↙				Ey 0.577 0.626			Ey 0.496 0.474		
																295(190) 525(500)				L (sec) 31 37			L (sec) 35 37		
																↑				C (sec) 114 114			C (sec) 100 100		
																1455(1265)				y pract. 0.655 0.608			y pract. 0.585 0.567		
																				R.C. (%) 14% -3%			R.C. (%) 18% 20%		
Stage / Phase Diagrams																									
I/G = 2						I/G = 8 + Ped 23						I/G = 3						I/G = 5							

Junction: (J12) Tsing Yi Heung Sze Wui Road / Chung Mei Road
Description: 2029 Reference Traffic Flow

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		(% uphill Gradient	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
Chung Mei Road	E		5	B,C	3.3	10.0	0	0	1	100%	100%	1945	1945	1690	1690	1690	1690	260	0.154		280	0.166	
	E		6	C	3.3	0.0	18	0	0	100%	100%	2085	2085	1925	1925	1925	1925	315	0.164	0.164	235	0.122	0.122
Tsing Yi Heung Sze Wui Road	N		2	A,C	3.3	25.0	0	0	1	100%	100%	1945	1945	1835	1835	1835	1835	290	0.158		355	0.193	
	N		3	A	3.5	0.0	0	0	0	0%	0%	2105	4210	2105	2105	4210	4210	545	0.259	0.259	478	0.227	0.227
	N		3	A	3.5	0.0	0	0	0	0%	0%	2105	0	2105	2105	0	0	545	0.259		478	0.227	
Tsing Yi Heung Sze Wui Road	S		1	A,B	3.5	0.0	0	3	1	0%	0%	1839	3818	1839	1839	3818	3818	621	0.338		486	0.265	
	S		1	A,B	3.5	0.0	0	3	0	0%	0%	1979	0	1979	1979	0	0	669	0.338		524	0.265	
	S		4	B	3.5	0.0	22	3	0	100%	100%	1979	1979	1855	1855	1855	1855	370	0.199	0.199	290	0.156	0.156

Notes:	Traffic Flow (pcu / hr) Weekday AM Peak 260(280) 370(290) 1290(1010) 315(235) 290(355) 1090(955)	AM Peak Check Phase Σy 0.622 L (sec) 15 C (sec) 114 y pract. 0.782 R.C. (%) 26%	PM Peak Check Phase Σy 0.505 L (sec) 15 C (sec) 100 y pract. 0.765 R.C. (%) 51%
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Stage / Phase Diagrams



Junction: (J14) Tsing Yi Road / Planned New Road																												
Description: 2029 Reference Traffic Flow (With Planned New Road)																												
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		(% uphill Gradient)	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	N	↑	A	1	3.5	0.0	0	0	1	0%	0%	1965	4070	1965	1965	4065	4065	554	0.282	0.282	539	0.274	0.274					
	N	↗	A	1	3.5	0.0	40	0	0	8%	9%	2105	0	2100	2100	0	0	591	0.282		576	0.274						
Planned New Road	W	↖	C	3	3.5	0.0	18	0	0	100%	100%	2105	2105	1945	1945	1945	1945	50	0.026		50	0.026						
	W	↙	C	3	3.5	10.0	0	0	1	100%	100%	1965	1965	1710	1710	1710	1710	50	0.029	0.029	50	0.029	0.029					
Tsing Yi Road	S	↘	B	2	3.5	10.0	0	0	1	10%	14%	1965	4070	1935	1925	4040	4030	496	0.256	0.256	365	0.190	0.190					
	S	↓	B	2	3.5	0.0	0	0	0	0%	0%	2105	0	2105	2105	0	0	539	0.256		400	0.190						
Pedestrian crossing		↔	Dp	1		AM: Green time = 26GM + 7FG = 33s, PM: Green time = 32GM + 7FG = 39s																						
		↑	EP	1,2		AM: Green time = 76GM + 7FG = 83s, PM: Green time = 82GM + 7FG = 89s																						
		↔	Fp	2,3		AM: Green time = 70GM + 7FG = 77s, PM: Green time = 64GM + 7FG = 71s																						
		↑	Gp	3		AM: Green time = 22GM + 7FG = 29s, PM: Green time = 16GM + 7FG = 23s																						
		↔	Hp	1,3		AM: Green time = 66GM + 7FG = 73s, PM: Green time = 66GM + 7FG = 73s																						
		↔	Ip	2		AM: Green time = 32GM + 7FG = 39s, PM: Green time = 32GM + 7FG = 39s																						
Notes:												Traffic Flow (pcu / hr)				Weekday AM Peak				AM Peak Check Phase			PM Peak Check Phase					
																985(715) 50(50)				Ey 0.567			Ey 0.494					
												↑ ↗				↘ ↙				50(50) 50(50)			L (sec) 18			L (sec) 18		
												1095(1065) 50(50)								R.C. (%) 35%			C (sec) 120			C (sec) 120		
																				y pract. 0.765			y pract. 0.765			y pract. 0.765		
																				R.C. (%) 35%			R.C. (%) 55%			R.C. (%) 55%		
Stage / Phase Diagrams																												
I/G = 5						I/G = 10						I/G = 6																

Junction: (J1) Cheung Tsing Highway / Tsing Yi Road West																											
Description: 2029 Reference Traffic Flow																											
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		(% uphill Gradient	Nearside O/I	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		Logistic Peak			Critical y						
						Left	Right			Logistic Peak				Logistic Peak		Logistic Peak		Flow (pcu/hr)	y Value	Flow (pcu/hr)				y Value			
Tsing Yi Road West	S	↕	2	A	3.5	0	0	0	1	0%		1965	6135	1965		5895		158	0.081	0.081							
	S	↙↘	2	A	3.3	0	20	0	0	50%		2085	0	2010		0		162	0.081								
	S	↘	2	A	3.3	0	17.5	0	0	100%		2085	0	1920		0		155	0.081								
Cheung Tsing Highway	E	↗	3	A,B	3.4	20	0	0	1	100%		1955	1955	1820		1820		405	0.223								
	E	↘	4	B	3.5	0	30	0	0	100%		2105	4070	2005		3860		265	0.132								
	E	↘	4	B	3.5	0	25	0	1	100%		1965	0	1855		0		245	0.132	0.132							
Tsing Yi Road West	N	↙	1	C	3.6	20	0	6.5	1	100%		1702	3544	1585		3425		495	0.312	0.312							
	N	↕	1	C	3.6	0	0	6.5	0	0%		1842	0	1840		0		325	0.177								
Pedestrian crossing		↔↕↔	5P	C		Min. Green time = 5GM + 10FG = 15s																					
		↕	6P	C		Min. Green time = 5GM + 6FG = 11s																					
		↔↕↔	7P	A,B		Min. Green time = 5GM + 9FG = 14s																					
		↕	8P	B		Min. Green time = 5GM + 10FG = 15s																					
Notes:												Traffic Flow (pcu / hr)						A,B,C		A,B,C							
																		Logistic Peak Check Phase									
																		by		0.525		0.535					
																		L (sec)		13		9					
																		C (sec)		100		100					
																		y pract.		0.783		0.819					
																		R.C. (%)		49%		53%					
Stage / Phase Diagrams																											
I/G = 5					I/G = 5					I/G = 6																	

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)		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)		Logistic Peak																				
						Left	Right		Logistic Peak				Logistic Peak		Logistic Peak		Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y															
Tsing Yi Road	S	↓	1	A	3.5	0.0	0	1	0%		1965	4070	1965		4070		338	0.172																			
	S	↓	1	A	3.5	0.0	0	0	0%		2105	0	2105		0		362	0.172																			
	S	↙	1	A	3.6	0.0	18	0	100%		2115	2115	1950		1950		320	0.164	0.172																		
Tsing Yi Road	N	↑	4	C	4.0	30.0	0	1	100%		2015	2015	1920		1920		60	0.031																			
	N	↑	4	C	3.5	0.0	0	0	0%		2105	4210	2105		4210		350	0.166																			
	N	↑	4	C	3.5	0.0	0	0	0%		2105	0	2105		0		350	0.166	0.166																		
Tsing Hung Road	E	→	2	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		↔	5P	D	Min. Green time = 5GM + 7FG = 12s																																
		↔	6P	A,B,D	Min. Green time = 5GM + 5FG = 10s																																
		↔	7P	C,D	Min. Green time = 5GM + 10FG = 15s																																
		↔	8P	C,D	Min. Green time = 5GM + 5FG = 10s																																
Notes:												Traffic Flow (pcu / hr) Weekday AM Peak				A,B,C,D AB,C,D																					
																<table><tr><td>Logistic Peak Check Phase</td><td></td><td></td></tr><tr><td>Ey</td><td>0.338</td><td>0.338</td></tr><tr><td>L (sec)</td><td>33</td><td>22</td></tr><tr><td>C (sec)</td><td>100</td><td>100</td></tr><tr><td>y pract.</td><td>0.603</td><td>0.702</td></tr><tr><td>R.C. (%)</td><td>78%</td><td>108%</td></tr></table>				Logistic Peak Check Phase			Ey	0.338	0.338	L (sec)	33	22	C (sec)	100	100	y pract.	0.603	0.702	R.C. (%)	78%	108%
Logistic Peak Check Phase																																					
Ey	0.338	0.338																																			
L (sec)	33	22																																			
C (sec)	100	100																																			
y pract.	0.603	0.702																																			
R.C. (%)	78%	108%																																			
Stage / Phase Diagrams																																					
I/G = 2		I/G = 6 + Min. G 5				I/G = 5				I/G = 5 + 12																											

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)		(%) uphill Gradient	Nearside O/I	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Logistic Peak			Critical y					
						Left	Right			Logistic Peak				Logistic Peak		Flow (pcu/hr)	y Value							
Tsing Yi Road	NE	↖	1	A	4.5	15	0	6.5	1	100%		1792	1792	1630		275	0.169	0.169						
	NE	↗	1	A	3.4	0	0	6.5	0	0%		1822	1822	1820		265	0.146							
Sai Tso Wan Road	NW	↖	3	C,D	3.8	15	0	0	1	100%		1995	1995	1815		590	0.325							
	NW	↗	4	D	3.8	0	25	0	0	100%		2135	2135	2015		320	0.159	0.159						
Tsing Yi Road West	SE	↘	2	B,C	3.4	0	0	0	1	0%		1955	1955	1955		215	0.110							
	SE	↙	2	B,C	3.7	0	25	0	0	100%		2125	2125	2005		505	0.252	0.252						
Pedestrian crossing		↕	5p	A,B	Min. Green time = 5GM + 8FG = 13s																			
		↕	6p	D	Min. Green time = 5GM + 10FG = 15s																			
		↔	7p	B,C	Min. Green time = 5GM + 9FG = 14s																			
		↔	8p	A,D	Min. Green time = 5GM + 7FG = 12s																			
Notes:												Traffic Flow (pcu / hr)				Logistic Peak Check Phase								
																8y 0.579 L (sec) 19 C (sec) 110 y pract. 0.745 R.C. (%) 29%								
Stage / Phase Diagrams																								
I/G = 5					I/G =5										I/G = 5									
I/G = 5					I/G =8+12					I/G = 2														

Junction: (J5) Sai Tso Wan Road Near VEC																						
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)		Logistic Peak					
						Left	Right		Logistic Peak				Logistic Peak		Logistic Peak		Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Sai Tso Wan Road	EB	→	3	A	4.0	0.0	0	1	0%		2015	2015	2015		2015		780	0.387	0.387			
Sai Tso Wan Road	WB	←	1	A,B	4.0	0.0	0	1	0%		2015	2015	2015		2015		580	0.288				
Sai Tso Wan Road	WB	↖	2	B,C	4.0	0.0	10	0	100%		2155	2155	1875		1875		130	0.069	0.069			
Pedestrian Crossing		↕	4P	C	Green time = 13Gm + 5 FGm = 18s																	
Notes: (None)										Traffic Flow (pcu / hr) AM (PM) Peak						A,BC			AB,C			
										780 →						Logistic Peak Check Phase						
										↖ 130						εy			0.456			
										← 580						L (sec)			11			
																C (sec)			91			
																y pract.			0.791			
																R.C. (%)			73%			
																			127%			
Stage / Phase Diagrams																						
A VEHICLE EXAMINATION COMPLEX B C																						
I/G = 6				I/G = 7																		
I/G = 3				I/G = 7				I/G = 5 + Ped 18s														

Junction: (J8) Tsing Yi Road West / Ching Hong Road																								
Description: 2029 Reference Traffic Flow																								
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		(% uphill Gradient)	Nearside O/I	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		Logistic Peak			Critical y			
						Left	Right			Logistic Peak				Logistic Peak		Logistic Peak		Flow (pcu/hr)	y Value					
Tsing Yi Road West	S	↓	1	A	3.0	0.0	0	5.5	0	0%		1824	3698	1824		3698		155	0.085	0.125				
	S	↓	1	A	3.5	0.0	0	5.5	0	0%		1874	0	1874		0		160	0.085					
	S	↘	1	A	3.7	10.0	0	5.5	1	100%		1754	1754	1525		1525		190	0.125					
Tsing Yi Road West	N	↑	2	A,B	3.5	0.0	0	0	1	0%		1965	4070	1965		4070		200	0.102					
	N	↑	2	A,B	3.5	0.0	0	0	0	0%		2105	0	2105		0		215	0.102					
	N	↗	3	B	3.3	0.0	18	0	0	100%		2085	2085	1925		1925		405	0.210	0.210				
Ching Hong Road	W	←	4	C	3.4	18.0	20	0	0	20% / 80%		2095	0	1945		0		264	0.136	0.136				
	W	↙	4	C	3.4	15.0	0	0	1	100%		1955	4050	1775		3720		241	0.136					
Pedestrian crossing		↕	5P	A,B	Min. Green time = 11GM + 8FG = 19s																			
		↕	6P	C	Min. Green time = 5GM + 12FG = 17s																			
Notes:												Traffic Flow (pcu / hr) Weekday AM Peak					Logistic Peak Check Phase							
												315 190 415 405					Ey 0.471 L (sec) 12 C (sec) 71 y pract. 0.748 R.C. (%) 59%							
Stage / Phase Diagrams																								
A I/G = 5					B I/G = 5					C I/G = 7														

Junction: J9 - Tsing Yi Road West / Liu To Road																										
Description: 2029 Reference Traffic Flow																										
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Gradient (%) uphill	Nearside O/I	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		Logistic Peak								
						Left	Right			Logistic Peak				Logistic Peak		Logistic Peak		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	5	1	0%		1735	3610	1735		3610		207	0.119							
	S	↓	2	A,B	3.3	0.0	0	5	0	0%		1875	0	1875		0		223	0.119							
	S	↙	3	B	3.3	0.0	22	5	0	100%		1875	1875	1755		1755		355	0.202	0.202						
Tsing Yi Road West	N	↕	1	A	3.2	10.0	0	0	1	47%		1935	4100	1805		3970		284	0.157	0.157						
	N	↑	1	A	4.1	0.0	0	0	0	0%		2165	0	2165		0		341	0.157							
Liu To Road	E	↗	5	B,C	3.2	10.0	0	0	1	100%		1935	1935	1685		1685		320	0.190							
	E	↘	4	C	4.1	0.0	18	0	0	100%		2165	2165	2000		2000		70	0.035	0.035						
Pedestrian crossing		↕	6P	A,D		Green time = 46GM + 9FG = 55s																				
		↕	7P	C,D		Green time = 31GM + 13FG = 44s																				
		↔	8P	D		Green time = 10GM + 8FG = 18s																				
Pedestrian Crossing																										
																		A,BC,D			A,B,C,D					
Notes:												Traffic Flow (pcu / hr)				Weekday AM Peak				Logistic Peak Check Phase						
												320 70								by 0.347 0.395						
												135 490								L (sec) 39 43						
																				C (sec) 130 130						
																				y pract. 0.630 0.602						
																				R.C. (%) 81% 53%						
Stage / Phase Diagrams																										
I/G = 5						I/G = 7						I/G = 5						I/G = 11 + Ped 18								

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)		(% uphill Gradient)	Nearside 0/1	Pro. Turning (%)		Site Factor	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		Logistic Peak										
						Left	Right			Logistic Peak					Logistic Peak		Logistic Peak		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	3	0	0%	1	2039	4058	2039		4058		329	0.161	0.229									
(To Tsing Yi Road West)	S	↓	1	A,D	3.9	0.0	0	3	0	0%	1	2019	0	2019		0		326	0.161										
Fung Shue Wo Road	S	↓	1	A,D	4.0	0.0	0	3	1	0%	1	1889	2294.8	1889		2294.8		432	0.229										
(To Fung Shue Wo Road)	S	↓	1	A,D	4.0	0.0	0	3	0	0%	0.2	405.8	0	405.8		0		93	0.229										
Tsing Yi Road West	N	↑	2	A,B	3.5	0.0	0	0	1	0%	1	1965	2491.3	1965		2491.25		505	0.257										
	N	↑	2	A,B	3.5	0.0	0	0	0	0%	0.25	526.25	0	526.25		0		135	0.257										
	N	↗	3	B	3.6	0.0	18	0	0	100%	1	2115	2115	1950		1950		165	0.085	0.085									
Fung Shue Wo Road	N	↖	4	C	3.8	35.0	0	3	1	100%	1	1869	2193.6	1790		2100		111	0.062										
	N	↖	4	C	4.0	38.0	0	3	0	100%	0.16	324.64	0	310		0		19	0.062										
Fung Shue Wo Road	N	↗	4	C	3.6	0.0	43	3	0	100%	0.23	457.47	2446.5	440		2355		101	0.229	0.229									
	N	↗	4	C	3.6	0.0	40	3	0	100%	1	1989	0	1915		0		439	0.229										
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							
																	655 525 ↑ ↗ 640 165 ↖ ↗ 130 540					Ey 0.543 L (sec) 12 C (sec) 90 y pract. 0.780 R.C. (%) 44%							
Stage / Phase Diagrams																													
A					B					C					D														
I/G = 5					I/G = 5					I/G = 5																			

Description: 2029 Reference Traffic Flow

AB,C,D AD,B,C

Logistic Peak Check Phase		
Ey	0.481	0.554
L (sec)	33	37
C (sec)	90	90
y pract.	0.570	0.530
R.C. (%)	19%	-4%

Figure 1 shows four schematic diagrams (A, B, C, D) of the experimental setup. Each diagram consists of a vertical tube and a horizontal tube at the bottom. A piston is moved up and down to create a flow. The flow direction is indicated by arrows. The initial concentration of the monomer is indicated by the number of '1' symbols in the horizontal tube. The flow rate is indicated by the number '2'.

- A:** Initial concentration of monomer is 1. The flow rate is 2. The piston is moved up and down.
- B:** Initial concentration of monomer is 4. The flow rate is 2. The piston is moved up and down.
- C:** Initial concentration of monomer is 1. The flow rate is 2. The piston is moved up and down.
- D:** Initial concentration of monomer is 1. The flow rate is 2. The piston is moved up and down.

I/G = 2	I/G = 5	I/G = 12 + Ped 16
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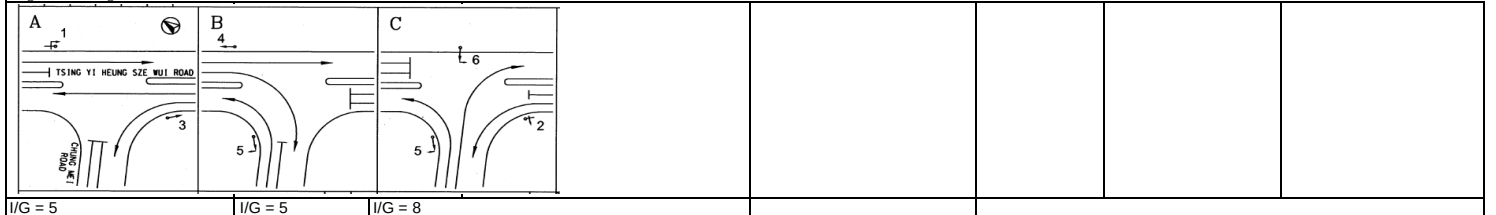
Junction: (J12) Tsing Yi Heung Sze Wui Road / Chung Mei Road
Description: 2029 Reference Traffic Flow

[illegible]

Notes:

Traffic Flow (pcu / hr) Weekday AM Peak 365 925.00 280 ↗ 255 ↘ 285 ↖ 780 ↗	Logistic Peak Check Phase Ey 0.515 L (sec) 15 C (sec) 114 y pract. 0.782 R.C. (%) 52%
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Stage / Phase Diagrams



TRAFFIC SIGNALS CALCULATION Job No: 23125HK

TRAFFIC SIGNALS CALCULATION Job No: 23125HK

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

Junction: (J14) Tsing Yi Road / Planned New Road

Description:	2029 Reference Traffic Flow	(With Planned New Road)
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Description:	2029 Reference Traffic Flow	(With Planned New Road)
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[illegible]

Notes:

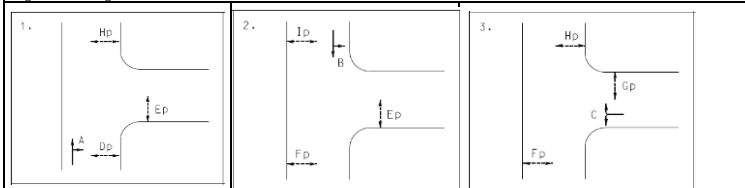
Notes:	Traffic Flow (pcu / hr) Weekday AM Peak
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Notes:	Traffic Flow (pcu / hr)	Weekday AM Peak	AM Peak Check Phase
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	985(715) 50(50)	Ey	0.552
	$\downarrow \quad\quad \searrow$	L (sec)	18
		C (sec)	120
	$\nearrow \quad\quad \swarrow$	y pract.	0.765
		R.C. (%)	38%

	↑	→	—	—(C)	y price	07-08
	√		50(50)	R.C. (%)	38%	

Stage / Phase Diagrams			
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I/G = 5

$I/G = 5$	$I/G = 10$
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$I/G = 5$	$I/G = 10$	$I/G = 6$
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Priority Junction Calculation

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

Arm C Tsing Yi Road

435	<555>	(380)
120	<90>	(105)

Arm A Tsing Yi Road

515	<540>	(420)
235	<240>	(220)

Arm B Tsing Sheung Road

145	215
<140>	<175>
(135)	(190)

AM	[Logistic]	(PM)
[Logistic]		
(PM)		

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	30	w-BA	4.5	D	0.933
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

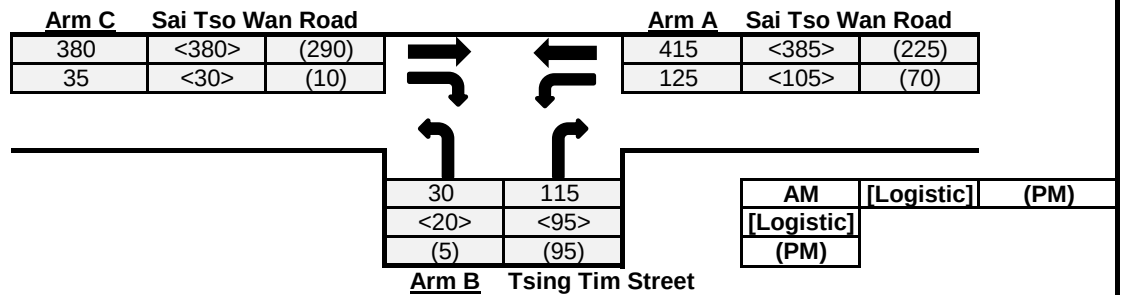
Analysis :	Traffic Flow	AM	Logistic	PM	Capacity	AM	Logistic	PM	
	pcu/hr				pcu/hr				
	q-CA	435	555	380	Q-BA	400	390	428	
	q-CB	120	90	105	Q-BC	638	633	657	
	q-AB	235	240	220	Q-CB	372	368	384	
	q-AC	515	540	420	Q-CA	N/A	N/A	N/A	(If C-B blocked C-
	q-BA	215	175	190	Q-BAC	N/A	N/A	N/A	(If Minor
	q-BC	145	140	135					Road Share
	f	0.403	0.444	0.415					LT&RT)

Results :	Ratio of Flow-to-Capacity	AM	Logistic	PM
	B-A	0.54	0.45	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	0.54	0.45	0.44

CTA Consultants Ltd.

Priority Junction Calculation

Junction :	(J6) Sai Tso Wan Road / Tsing Tim Street	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	7	D 0.877
W-CR	0	E 0.933
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	0	F 0.616
Minor Road Share LT&RT? (Yes: 1, No: 0)	1	Y 0.759

Analysis :	Traffic Flow	AM	Logistic	PM	Capacity	AM	Logistic	PM	
	pcu/hr				pcu/hr				
	q-CA	380	380	290	Q-BA	367	378	441	
	q-CB	35	30	10	Q-BC	575	585	630	
	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	397	403	448	(If Minor Road Share
	q-BC	30	20	5					LT&RT)
	f	0.207	0.174	0.050					

Results :	Ratio of Flow-to-Capacity	AM	Logistic	PM
	B-A	N/A	N/A	N/A
	B-C	N/A	N/A	N/A
	C-B	0.10	0.08	0.02
	C-A	N/A	N/A	N/A
	B-AC	0.37	0.29	0.22
	Critical DFC	0.37	0.29	0.22

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Priority Junction Calculation

Junction :	(J13) Tsing Yi Road / Tsing Keung Street	Job No.:	23125HK
Scenario :	2029 Reference Traffic Flow		

Arm C Tsing Yi Road

385	<420>	(330)
65	<90>	(25)

Arm A Tsing Yi Road

410	<400>	(400)
130	<130>	(65)

Arm B Tsing Keung Street

115	70
<100>	<115>
(65)	(65)

AM	[Logistic]	(PM)
[Logistic]		
(PM)		

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	15	D 0.910
W-CR	0	E 0.968
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	0	F 0.616
Minor Road Share LT&RT? (Yes: 1, No: 0)	0	Y 0.483

Analysis :	Traffic Flow pcu/hr	AM	Logistic	PM	Capacity pcu/hr	AM	Logistic	PM	
	q-CA	385	420	330	Q-BA	443	436	464	
	q-CB	65	90	25	Q-BC	643	644	649	
	q-AB	130	130	65	Q-CB	400	401	408	
	q-AC	410	400	400	Q-CA	N/A	N/A	N/A	(If C-B blocked C-
	q-BA	70	115	65	Q-BAC	N/A	N/A	N/A	(If Minor
	q-BC	115	100	65					Road Share
	f	0.622	0.465	0.500					LT&RT)

Results :	Ratio of Flow-to-Capacity	AM	Logistic	PM
	B-A	0.16	0.26	0.14
	B-C	0.18	0.16	0.10
	C-B	0.16	0.22	0.06
	C-A	N/A	N/A	N/A
	B-AC	N/A	N/A	N/A
	Critical DFC	0.18	0.26	0.14

Roundabout Junction Calculation

Junction :	(RA1) Tsing Yi Interchange (North)	Job No.:	23125HK
Scenario :	2029 Reference Traffic Flow		

Arm 4 Tsing Yi Heung Sze Wui Road

	0	420	0
	<0>	<315>	<0>
	(0)	(320)	(0)

Arm 1 Tsing Yi Bridge

Arm 3

Arm 2 Tsing Yi Interchange Access Road

1590	<1325>	(835)	
	365	1225	0
	<330>	<995>	<0>
	(235)	(600)	(0)

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		60
Q	= Entry flow (pcu/hr)		1590		420
		AM			
		Logistic	1325		315
		PM	835		320
Qc	= Circulating flow across entry (pcu/hr)		0		1225
		AM			
		Logistic	0		995
		PM	0		600

Output Parameters		Arm 1	Arm 2	Arm 3	Arm 4
S	= Sharpness of flare = $1.6 \cdot (E - V) / L$		0.32		0.32
K	= $1 - 0.00347 \cdot (A - 30) - 0.978 \cdot (1/R - 0.05)$		1.04		0.92
X2	= $V + ((E - V) / (1 + 2 \cdot S))$		6.61		6.61
M	= $\text{Exp}((D - 60) / 10)$		1.00		1.00
F	= $303 \cdot X2$		2003		2003
Td	= $1 + (0.5 / (1 + M))$		1.25		1.25
Fc	= $0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$		0.61		0.61
Qe	= Capacity = $K \cdot (F - Fc \cdot Qc)$		2090		1157
		AM			
		Logistic	2090		1286
		PM	2090		1508
DFC	= Entry Flow/Capacity = Q/Qe		0.76		0.36
		AM			
		Logistic	0.63		0.24
		PM	0.40		0.21

DFC of Critical Approach	=	AM	0.76		
		Logistic	0.63		
		PM	0.40		

Roundabout Junction Calculation

Junction :	(RA1) Tsing Yi Interchange (South)	Job No.:	23125HK
Scenario :	2029 Reference Traffic Flow		

Arm 4 Tsing Yi Bridge

	0	610	0
	<0>	<635>	<0>
	(0)	(685)	(0)

Arm 3 Tsing Yi Interchange Access Road

645	<515>	(420)
385	<300>	(285)
30	<20>	(35)
0	<0>	(0)

Arm 1 Tsing Yi Road (Right)

0	<0>	(0)
245	<265>	(375)
505	<430>	(270)

Arm 2 Tsing Yi Road (Left)

1385	<1125>	(1350)
	910	230
	<665>	<195>
	(875)	(100)

AM	[Logistic]	(PM)
[Logistic]		
(PM)		

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)	750	1140	415	610
		AM	750	1140	415	610
		Logistic	695	860	320	635
		PM	645	975	320	685
Qc	=	Circulating flow across entry (pcu/hr)	640	245	1385	645
		AM	640	245	1385	645
		Logistic	655	265	1125	515
		PM	720	1060	1350	420

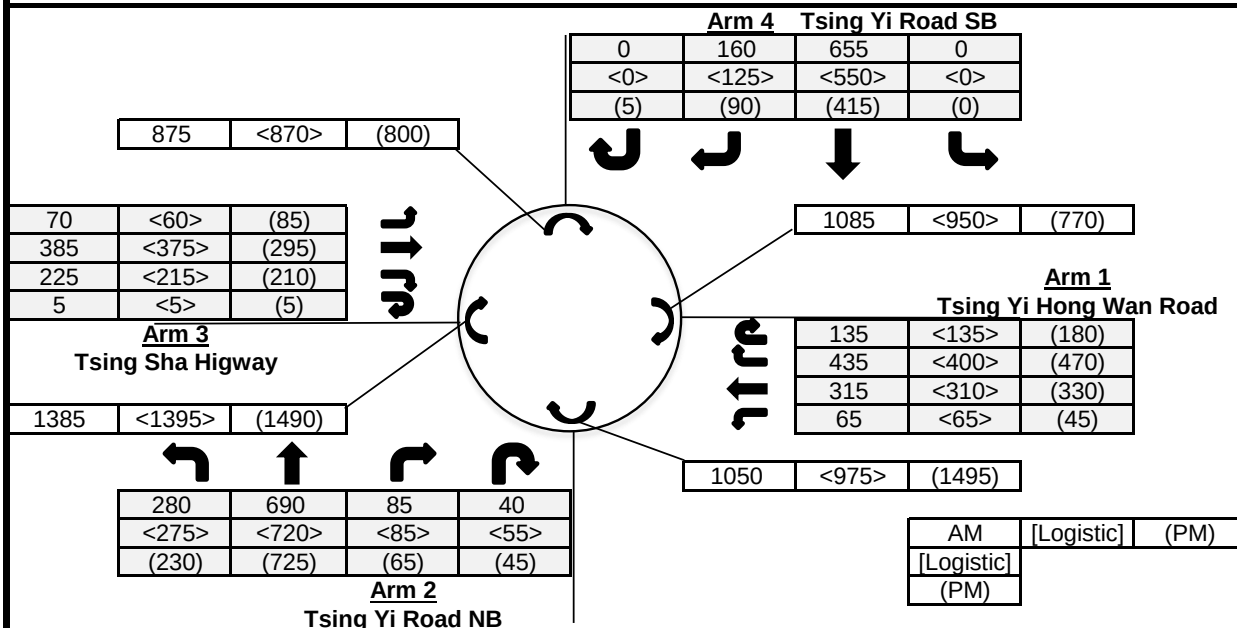
Output Parameters			Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = $1.6 \cdot (E - V) / L$	0.06	0.06	0.10	0.10
K	=	$1 - 0.00347 \cdot (A - 30) - 0.978 \cdot (1/R - 0.05)$	0.96	0.93	1.02	1.05
X2	=	$V + ((E - V) / (1 + 2 \cdot S))$	7.18	6.98	7.25	6.25
M	=	$\text{Exp}((D - 60) / 10)$	1.00	1.00	1.00	1.00
F	=	$303 \cdot X2$	2175	2114	2197	1894
Td	=	$1 + (0.5 / (1 + M))$	1.25	1.25	1.25	1.25
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$	0.64	0.63	0.64	0.59
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$	1697	1816	1331	1590
		AM	1697	1816	1331	1590
		Logistic	1688	1804	1501	1671
		PM	1648	1341	1354	1730
DFC	=	Entry Flow/Capacity = Q/Qe	0.44	0.63	0.31	0.38
		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	

Roundabout Junction Calculation

Junction : (RA2) Tsing Yi Road / Tsing Yi Hong Wan Road / Tsing Sha Hig Job No.: 23125HK

Scenario : 2029 Reference Traffic Flow



Input Parameters

			Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)	7.3	7.1	7.3	7.3
E	=	Entry width (m)	13.5	12	9.5	10
L	=	Effective length of flare (m)	30	15	30	15
R	=	Entry radius	45	97	52	34
D	=	Inscribed circle diameter (m)	100	100	100	100
A	=	Entry angle (degree)	29	32	31	46
Q	=	Entry flow (pcu/hr)	950	1095	685	815
		AM	950	1095	685	815
		Logistic	910	1135	655	675
		PM	1025	1065	595	510
Qc	=	Circulating flow across entry (pcu/hr)	1085	1050	1385	875
		AM	1085	1050	1385	875
		Logistic	950	975	1395	870
		PM	770	1495	1490	800

Output Parameters

			Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = $1.6 \cdot (E - V) / L$	0.33	0.52	0.12	0.29
K	=	$1 - 0.00347 \cdot (A - 30) - 0.978 \cdot (1 / R - 0.05)$	1.03	1.03	1.03	0.96
X2	=	$V + ((E - V) / (1 + 2 \cdot S))$	11.03	9.50	9.08	9.01
M	=	$\exp((D - 60) / 10)$	54.60	54.60	54.60	54.60
F	=	$303 \cdot X2$	3343	2877	2752	2731
Td	=	$1 + (0.5 / (1 + M))$	1.01	1.01	1.01	1.01
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$	0.68	0.61	0.60	0.59
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$	2685	2303	1977	2133
		AM	2685	2303	1977	2133
		Logistic	2780	2351	1970	2136
		PM	2906	2021	1912	2176
DFC	=	Entry Flow/Capacity = Q / Qe	0.35	0.48	0.35	0.38
		AM	0.35	0.48	0.35	0.38
		Logistic	0.33	0.48	0.33	0.32
		PM	0.35	0.53	0.31	0.23

DFC of Critical Approach = AM 0.48
Logistic 0.48
PM 0.53

Roundabout Junction Calculation

Junction :	(RA3) Tsing Yi Hong Wan Road	Job No.:	23125HK
Scenario :	2029 Reference Traffic Flow (With Planned New Road)		

Arm 4 Tsing Yi Hong Wan Road SB

190	50	900
<165>	<50>	<735>
(185)	(50)	(755)

Arm 1

1220	<1030>	(1085)

Arm 2 Tsing Yi Hong Wan Road NB

940	<945>	(1160)
50	725	25
<50>	<755>	<25>
(50)	(935)	(40)

Arm 3

80	<80>	(95)
50	<50>	(50)
50	<50>	(50)
5	<5>	(5)

Input Parameters		Arm 1	Arm 2	Arm 3	Arm 4
V	= Approach half width (m)		7	7.3	7.3
E	= Entry width (m)		14	13	12
L	= Effective length of flare (m)		20	10	2
R	= Entry radius		65	25	75
D	= Inscribed circle diameter (m)		68	68	68
A	= Entry angle (degree)		53	60	46
Q	= Entry flow (pcu/hr)	AM	800	105	1140
		Logistic	830	105	950
		PM	1025	105	990
Qc	= Circulating flow across entry (pcu/hr)	AM	245	940	80
		Logistic	220	945	80
		PM	995	1160	95

Output Parameters		Arm 1	Arm 2	Arm 3	Arm 4
S	= Sharpness of flare = $1.6 \cdot (E - V) / L$		0.56	0.91	3.76
K	= $1 - 0.00347 \cdot (A - 30) - 0.978 \cdot (1 / R - 0.05)$		0.95	0.91	0.98
X2	= $V + ((E - V) / (1 + 2 \cdot S))$		10.30	9.32	7.85
M	= $\text{Exp}((D - 60) / 10)$		2.23	2.23	2.23
F	= $303 \cdot X2$		3121	2823	2379
Td	= $1 + (0.5 / (1 + M))$		1.16	1.16	1.16
Fc	= $0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$		0.74	0.69	0.62
Qe	= Capacity = $K \cdot (F - Fc \cdot Qc)$	AM	2805	1966	2283
		Logistic	2822	1963	2283
		PM	2273	1827	2274
DFC	= Entry Flow/Capacity = Q / Qe	AM	0.29	0.05	0.50
		Logistic	0.29	0.05	0.42
		PM	0.45	0.06	0.44

DFC of Critical Approach	=	AM	0.50		
		Logistic	0.42		
		PM	0.45		

Roundabout Junction Calculation

Junction :	(RA4) Tsing Yi Hong Wan Road / Tsing Ko Road	Job No.:	23125HK
Scenario :	2029 Reference Traffic Flow		

AM	[Logistic]	(PM)
[Logistic]		
(PM)		

Input Parameters			Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		6.7	6.3	7.3
E	=	Entry width (m)		13.5	12.5	15
L	=	Effective length of flare (m)		18	30	30
R	=	Entry radius		47	100	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 across entry (pcu/hr)	AM	480	590	15
			Logistic	770	675	535
			PM	940	695	550

Output Parameters			Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = $1.6 \cdot (E - V) / L$		0.60	0.33	0.41
K	=	$1 - 0.00347 \cdot (A - 30) - 0.978 \cdot (1 / R - 0.05)$		0.99	1.07	0.98
X2	=	$V + ((E - V) / (1 + 2 \cdot S))$		9.78	10.03	11.53
M	=	$\text{Exp}((D - 60) / 10)$		2.23	2.23	2.23
F	=	$303 \cdot X2$		2963	3040	3493
Td	=	$1 + (0.5 / (1 + M))$		1.16	1.16	1.16
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$		0.72	0.73	0.80
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$	AM	2592	2784	3412
			Logistic	2387	2718	3004
			PM	2266	2702	2992
DFC	=	Entry Flow/Capacity = Q / Qe	AM	0.05	0.12	0.27
			Logistic	0.13	0.20	0.26
			PM	0.15	0.24	0.28

DFC of Critical Approach	=	AM	0.27		
		Logistic	0.26		
		PM	0.28		

Roundabout Junction Calculation

Junction :		(RA5) Tam Kon Shan Interchange		Job No.: 23125HK	
Scenario :		2029 Reference Traffic Flow			

Arm 4 Tam Kon Shan Road

195	45	225	320	340
<180>	<35>	<220>	<315>	<325>
(130)	(40)	(250)	(345)	(345)

2080 <2015> (2145)

2355 <2205> (2505)

40	<30>	(40)
150	<105>	(125)
75	<60>	(40)
95	<75>	(95)
45	<35>	(75)

Arm 3
Tsing Yi North Coastal Road EB

2525	<2440>	(2710)
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240	175	380	695	225
<230>	<185>	<385>	<725>	<230>
(210)	(170)	(475)	(795)	(275)

Arm 2
Fung Shue Wo Road

Arm 5 Tsing King Road

145	20	145	160	0
<115>	<15>	<125>	<165>	<0>
(195)	(45)	(90)	(160)	(0)

1300 <1195> (1355)

Arm 1
Tsing Yi North Coastal Road WB

160	<140>	(100)
385	<335>	(330)
145	<130>	(195)
25	<20>	(25)
0	<0>	(0)

1310 <1130> (1225)

AM	[Logistic]	(PM)
[Logistic]		
(PM)		

Input Parameters			Arm 1	Arm 2	Arm 3	Arm 4	Arm 5	
V	=	Approach half width (m)	7	7.3	5.5	7.3	7	
E	=	Entry width (m)	9	13.5	7.5	13.5	11	
L	=	Effective length of flare (m)	9	20	11	50	10	
R	=	Entry radius	100	35	45	35	45	
D	=	Inscribed circle diameter (m)	100	100	100	100	100	
A	=	Entry angle (degree)	30	25	25	45	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 across entry (pcu/hr)	AM	1300	1310	2525	2355	2080
			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 = $1.6 \cdot (E - V) / L$	0.36	0.50	0.29	0.20	0.64	
K	=	$1 - 0.00347 \cdot (A - 30) - 0.978 \cdot (1 / R - 0.05)$	1.04	1.04	1.04	0.97	0.98	
X2	=	$V + ((E - V) / (1 + 2 \cdot S))$	8.17	10.41	6.76	11.74	8.75	
M	=	$\text{Exp}((D - 60) / 10)$	54.60	54.60	54.60	54.60	54.60	
F	=	$303 \cdot X2$	2475	3155	2050	3557	2653	
Td	=	$1 + (0.5 / (1 + M))$	1.01	1.01	1.01	1.01	1.01	
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$	0.56	0.65	0.50	0.71	0.58	
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$	AM	1818	2387	826	1828	1404
			Logistic	1879	2510	870	1931	1441
			PM	1786	2445	730	1725	1367
DFC	=	Entry Flow/Capacity = Q / Qe	AM	0.39	0.72	0.49	0.62	0.33
			Logistic	0.33	0.70	0.35	0.56	0.29
			PM	0.36	0.79	0.51	0.64	0.36

DFC of Critical Approach	=	AM	0.72
		Logistic	0.70
		PM	0.79

Roundabout Junction Calculation

Junction :	(RA6) Tsing King Road / Fung Shue Wo Road	Job No.:	23125HK
Scenario :	2029 Reference Traffic Flow		

Arm 4 Tsing King Road

25	5	600	100
<25>	<5>	<400>	<80>
(25)	(15)	(450)	(65)

Arm 1 Fung Shue Wo Road WB

0	<0>	(0)
25	<30>	(25)
80	<55>	(65)
220	<170>	(210)

Arm 3 Fung Shue Wo Road EB

15	<20>	(5)
45	<25>	(65)
530	<440>	(495)
0	<0>	(0)

Arm 2 Tsing Yi Heung Sze Wui Road

395	305	115	510
<340>	<240>	<110>	<445>
(455)	(310)	(100)	(290)

		AM	[Logistic]	(PM)
		[Logistic]		
		(PM)		

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)	100	100	100	100
A	=	Entry angle (degree)	36	30	18	25
Q	=	Entry flow (pcu/hr)	325	1325	590	730
		AM	325	1325	590	730
		Logistic	255	1135	485	510
		PM	300	1155	565	555
Qc	=	Circulating flow across entry (pcu/hr)	1670	135	980	1200
		AM	1670	135	980	1200
		Logistic	1315	115	850	1020
		PM	1275	580	750	950

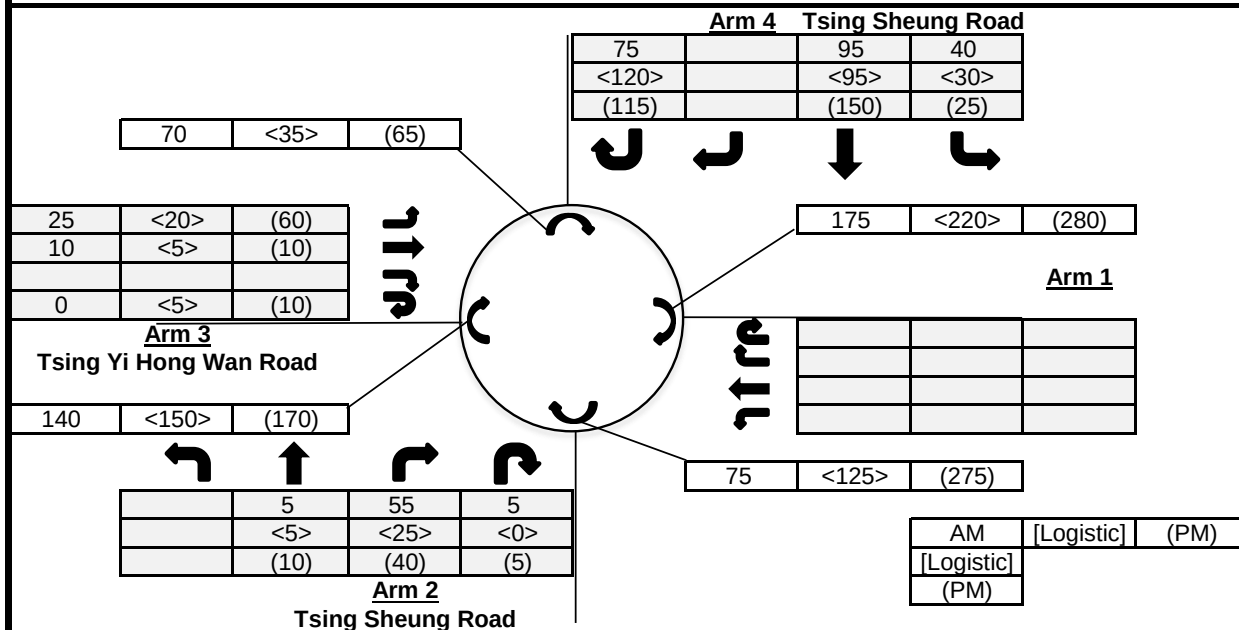
Output Parameters			Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L	0.30	0.22	0.22	0.20
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)	1.01	1.04	1.07	1.05
X2	=	V+((E-V)/(1+2*S))	8.58	9.19	8.62	8.33
M	=	Exp((D-60)/10)	54.60	54.60	54.60	54.60
F	=	303*X2	2598	2783	2613	2524
Td	=	1+(0.5/(1+M))	1.01	1.01	1.01	1.01
Fc	=	0.21*Td*(1+0.2*X2)	0.58	0.60	0.58	0.56
Qe	=	Capacity = K*(F-Fc*Qc)	1654	2797	2199	1939
		AM	1654	2797	2199	1939
		Logistic	1861	2809	2280	2046
		PM	1884	2520	2342	2087
DFC	=	Entry Flow/Capacity = Q/Qe	0.20	0.47	0.27	0.38
		AM	0.20	0.47	0.27	0.38
		Logistic	0.14	0.40	0.21	0.25
		PM	0.16	0.46	0.24	0.27

DFC of Critical Approach	=	AM	0.47	Logistic	0.40	PM	0.46
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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	11.6
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 across entry (pcu/hr)	AM	75	140	70
			Logistic	125	150	35
			PM	275	170	65

Output Parameters

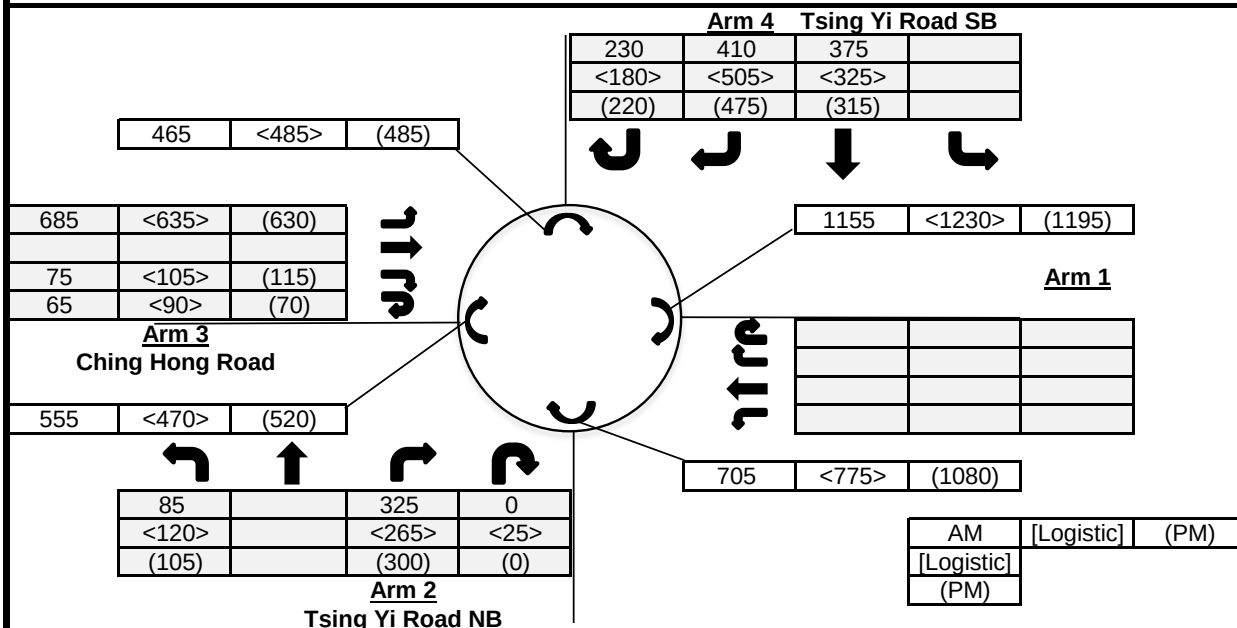
			Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = $1.6 \cdot (E - V) / L$		0.24	0.58	0.37
K	=	$1 - 0.00347 \cdot (A - 30) - 0.978 \cdot (1 / R - 0.05)$		1.02	0.97	0.94
X2	=	$V + ((E - V) / (1 + 2 \cdot S))$		7.76	5.51	9.75
M	=	$\exp((D - 60) / 10)$		0.50	0.50	0.50
F	=	$303 \cdot X2$		2350	1669	2954
Td	=	$1 + (0.5 / (1 + M))$		1.33	1.33	1.33
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$		0.71	0.59	0.83
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$	AM	2349	1537	2714
			Logistic	2313	1531	2741
			PM	2203	1520	2717
DFC	=	Entry Flow/Capacity = Q / Qe	AM	0.03	0.02	0.08
			Logistic	0.01	0.02	0.09
			PM	0.02	0.05	0.11

DFC of Critical Approach = AM 0.08
Logistic 0.09
PM 0.11

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)		4.5	7.3	7
E	=	Entry width (m)		9	8.5	8.5
L	=	Effective length of flare (m)		25	4	16
R	=	Entry radius		24.5	30	100
D	=	Inscribed circle diameter (m)		30	30	30
A	=	Entry angle (degree)		44	40	27
Q	=	Entry flow (pcu/hr)	AM	410	825	1015
			Logistic	410	830	1010
			PM	405	815	1010
Qc	=	Circulating flow across entry (pcu/hr)	AM	705	555	465
			Logistic	775	470	485
			PM	1080	520	485

Output Parameters

			Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = $1.6 \cdot (E - V) / L$		0.29	0.48	0.15
K	=	$1 - 0.00347 \cdot (A - 30) - 0.978 \cdot (1 / R - 0.05)$		0.96	0.98	1.05
X2	=	$V + ((E - V) / (1 + 2 \cdot S))$		7.36	7.91	8.15
M	=	$\text{Exp}((D - 60) / 10)$		0.05	0.05	0.05
F	=	$303 \cdot X2$		2229	2397	2471
Td	=	$1 + (0.5 / (1 + M))$		1.48	1.48	1.48
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$		0.77	0.80	0.82
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$	AM	1622	1917	2195
			Logistic	1570	1984	2178
			PM	1346	1945	2178
DFC	=	Entry Flow/Capacity = Q / Qe	AM	0.25	0.43	0.46
			Logistic	0.26	0.42	0.46
			PM	0.30	0.42	0.46

DFC of Critical Approach = AM 0.46
Logistic 0.46
PM 0.46

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	4.2
E	= Entry width (m)	6.7	4.9	5.8	5.4
L	= Effective length of flare (m)	10	10	10	10
R	= Entry radius	32	97	52	34
D	= Inscribed circle diameter (m)	30	30	30	30
A	= Entry angle (degree)	34	32	31	46
Q	= Entry flow (pcu/hr)	40	95	50	0
		Logistic	45	120	60
		PM	25	120	45
Qc	= Circulating flow across entry (pcu/hr)	5	45	85	125
		Logistic	0	45	100
		PM	5	30	95

Output Parameters		Arm 1	Arm 2	Arm 3	Arm 4
S	= Sharpness of flare = $1.6 \cdot (E - V) / L$	0.54	0.14	0.38	0.19
K	= $1 - 0.00347 \cdot (A - 30) - 0.978 \cdot (1/R - 0.05)$	1.00	1.03	1.03	0.96
X2	= $V + ((E - V) / (1 + 2 \cdot S))$	4.93	4.70	4.76	5.07
M	= $\text{Exp}((D - 60) / 10)$	0.05	0.05	0.05	0.05
F	= $303 \cdot X2$	1493	1424	1442	1535
Td	= $1 + (0.5 / (1 + M))$	1.48	1.48	1.48	1.48
Fc	= $0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$	0.62	0.60	0.61	0.62
Qe	= Capacity = $K \cdot (F - Fc \cdot Qc)$	1497	1441	1427	1406
		Logistic	1500	1441	1418
		PM	1497	1450	1421
DFC	= Entry Flow/Capacity = Q/Qe	0.03	0.07	0.04	0.00
		Logistic	0.03	0.08	0.04
		PM	0.02	0.08	0.03

DFC of Critical Approach	=	AM	0.07		
		Logistic	0.08		
		PM	0.08		

Roundabout Junction Calculation

Junction :	(RA10) Tsing Sheung Road / Tsing Ko Road	Job No.:	23125HK
Scenario :	2029 Reference Traffic Flow		

10	205	5
<45>	<170>	<20>
(5)	(145)	(15)

5	<0>	(15)
55	<60>	(90)
120	<120>	(165)

330	<315>	(240)
90	<65>	(40)
25	<40>	(30)

120	<105>	(85)
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	AM	[Logistic]	(PM)
	[Logistic]		
	(PM)		

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		5.1	11.6
L	= Effective length of flare (m)	18		30	30
R	= Entry radius	47		67.3	75
D	= Inscribed circle diameter (m)	50		50	50
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 across entry (pcu/hr)	AM 240		70	120
		Logistic 255		105	105
		PM 180		110	85

Output Parameters		Arm 1	Arm 2	Arm 3	Arm 4
S	= Sharpness of flare = $1.6 \cdot (E - V) / L$	0.56		-0.03	0.28
K	= $1 - 0.00347 \cdot (A - 30) - 0.978 \cdot (1/R - 0.05)$	0.99		1.06	0.98
X2	= $V + ((E - V) / (1 + 2 \cdot S))$	9.57		5.07	9.74
M	= $\text{Exp}((D - 60) / 10)$	0.37		0.37	0.37
F	= $303 \cdot X2$	2900		1537	2953
Td	= $1 + (0.5 / (1 + M))$	1.37		1.37	1.37
Fc	= $0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$	0.84		0.58	0.85
Qe	= Capacity = $K \cdot (F - Fc \cdot Qc)$	AM 2672		1589	2795
		Logistic 2660		1568	2808
		PM 2722		1565	2824
DFC	= Entry Flow/Capacity = Q/Qe	AM 0.07		0.28	0.08
		Logistic 0.07		0.27	0.08
		PM 0.10		0.20	0.06

DFC of Critical Approach	=	AM	0.28
		Logistic	0.27
		PM	0.20

Junction: (J1) Tsing Yi Road West / Cheung Tsing Highway																										
Description: 2029 Design Traffic Flow																										
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		(% uphill Gradient)	Nearside O/I	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	1	0%	0%	1965	6135	1965	1965	5900	5825	218	0.111	0.111	160	0.081	0.083			
	S	↔	2	A	3.3	0	20	0	0	46%	100%	2085	0	2015	1940	0	0	224	0.111		161	0.083				
	S	↖	2	A	3.3	0	17.5	0	0	100%	100%	2085	0	1920	1920	0	0	213	0.111		159	0.083				
Cheung Tsing Highway	E	↗	3	A,B	3.4	20	0	0	1	100%	100%	1955	1955	1820	1820	1820	1820	545	0.299		420	0.231				
	E	↔	4	B	3.5	0	30	0	0	100%	100%	2105	4210	2005	2005	3990	3990	251	0.125		168	0.084				
	E	↘	4	B	3.5	0	25	0	0	100%	100%	2105	0	1985	1985	0	0	249	0.125	0.125	167	0.084	0.084			
Tsing Yi Road West	N	↖	1	C	3.6	20	0	6.5	1	100%	100%	1702	3544	1585	1585	3425	3425	455	0.287	0.287	380	0.240	0.240			
	N	↑	1	C	3.6	0	0	6.5	0	0%	0%	1842	0	1840	1840	0	0	325	0.177		290	0.158				
Pedestrian crossing		↔	5P	C	Min. Green time = 5GM + 10FG = 15s																					
		↕	6P	C	Min. Green time = 5GM + 6FG = 11s																					
		↔	7P	A,B	Min. Green time = 5GM + 9FG = 14s																					
		↕	8P	B	Min. Green time = 5GM + 10FG = 15s																					
Notes:												Traffic Flow (pcu / hr)					A.M. Check Phase			P.M. Check Phase						
																	ey 0.523 0.587			ey 0.407 0.471						
																	L (sec) 13 9			L (sec) 13 9						
																	C (sec) 100 100			C (sec) 105 105						
																	y pract. 0.783 0.819			y pract. 0.789 0.823						
																	R.C. (%) 50% 40%			R.C. (%) 94% 75%						
Stage / Phase Diagrams																										
I/G = 5						I/G = 5						I/G = 6														

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	↓	1	A	3.5	0.0	0	1	0%	0%	1965	4070	1965	1965	4070	4070	381	0.194		282	0.144	
	S	↓	1	A	3.5	0.0	0	0	0%	0%	2105	0	2105	2105	0	0	409	0.194		303	0.144	
	S	↙	1	A	3.6	0.0	18	0	100%	100%	2115	2115	1950	1950	1950	1950	370	0.190		380	0.195	0.195
Tsing Yi Road	N	↑	4	C	4.0	30.0	0	1	100%	100%	2015	2015	1920	1920	1920	1920	60	0.031		55	0.029	
	N	↑	4	C	3.5	0.0	0	0	0%	0%	2105	4210	2105	2105	4210	4210	330	0.157	0.157	278	0.132	
	N	↑	4	C	3.5	0.0	0	0	0%	0%	2105	0	2105	2105	0	0	330	0.157		278	0.132	0.132
Tsing Hung Road	E	→	2	A,B	3.3	25.0	0	1	100%	100%	1945	1945	1835	1835	1835	1835	525	0.286	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		↔	5P	D	Min. Green time = 5GM + 7FG = 12s																	
		↔	6P	A,B,D	Min. Green time = 5GM + 5FG = 10s																	
		↔	7P	C,D	Min. Green time = 5GM + 10FG = 15s																	
		↔	8P	C,D	Min. Green time = 5GM + 5FG = 10s																	
Notes:									Traffic Flow (pcu / hr)		Weekday AM Peak		A,B,C,D		AB,C,D		A,B,C,D		AB,C,D			
											AM Peak Check Phase		PM Peak Check Phase		E _y		E _y		L (sec)		L (sec)	
											0.373		0.443		0.327		33		33			
											33		22		33		120		100			
											120		120		100		y pract.		0.603			
											0.653		0.735		y pract.		0.603		0.702			
											R.C. (%)		75%		66%		R.C. (%)		85%		121%	
Stage / Phase Diagrams																						
I/G = 2						I/G = 5			I/G = 5 + 12													
I/G = 2			I/G = 6 + Min. G 5			I/G = 5			I/G = 5 + 12													

Job No: 23125HK

CTA Consultants Ltd.

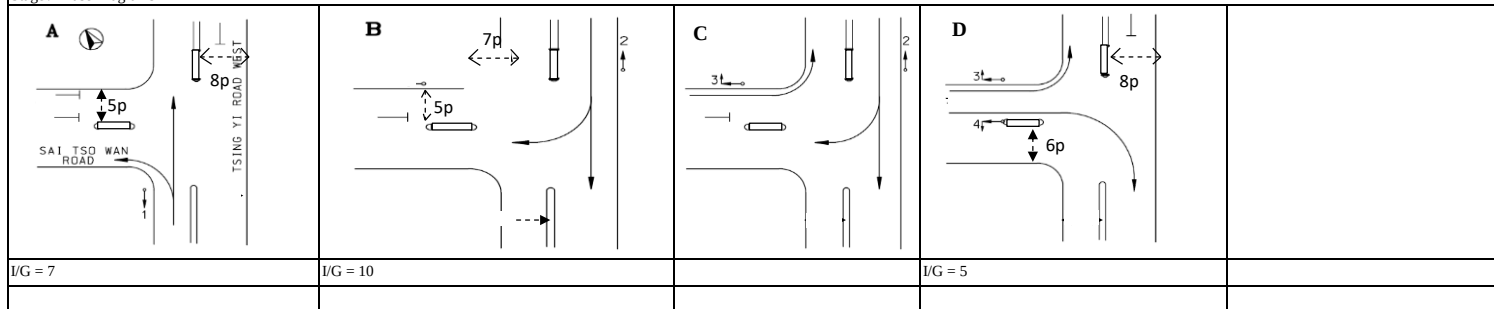
Junction: **(J4) Sai Tso Wan Road / Tsing Yi Road West / Tsing Yi Road**
Description: **2029 Design Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		(% uphill Gradient	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	6.5	1	100%	100%	1792	1792	1630	1630	275	0.169	0.169	245	0.150	0.150
	NE		1	A	3.4	0	0	6.5	0	0%	0%	1822	1822	1820	1820	230	0.126		220	0.121	
Sai Tso Wan Road	NW		3	C,D	3.8	15	0	0	1	100%	100%	1995	1995	1815	1815	530	0.292		440	0.242	
	NW		4	D	3.8	0	25	0	0	100%	100%	2135	2135	2015	2015	225	0.112	0.112	205	0.102	0.102
Tsing Yi Road West	SE		2	B,C	3.4	0	0	0	1	0%	0%	1955	1955	1955	1955	235	0.120		145	0.074	
	SE		2	B,C	3.7	0	25	0	0	100%	100%	2125	2125	2005	2005	580	0.289	0.289	285	0.142	0.142
Pedestrian crossing			5p	A,B		Min. Green time = 5GM + 8FG = 13s															
			6p	D		Min. Green time = 5GM + 10FG = 15s															
			7p	B,C		Min. Green time = 5GM + 9FG = 14s															
			8p	A,D		Min. Green time = 5GM + 7FG = 12s															

Notes:

Traffic Flow (pcu / hr)	A.M. Check Phase		P.M. Check Phase	
	580(285)	235(145)	5y L (sec) 19 C (sec) 120 y pract. 0.758 R.C. (%) 33%	5y L (sec) 19 C (sec) 110 y pract. 0.745 R.C. (%) 89%

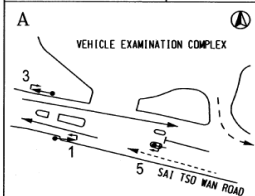
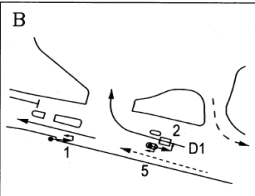
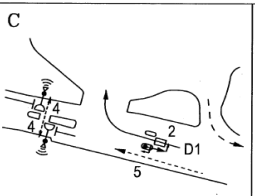
Stage / Phase Diagrams



TRAFFIC SIGNALS CALCULATION

Job No: 23125HK

CTA Consultants Ltd.

Junction: (J5) Sai Tso Wan Road Near VEC																										
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	→	3	A	4.0	0.0	0	1	0%	0%	2015	2015	2015	2015	2015	2015	640	0.318	0.318	535	0.266					
Sai Tso Wan Road	WB	←	1	A,B	4.0	0.0	0	1	0%	0%	2015	2015	2015	2015	2015	2015	600	0.298		720	0.357	0.357				
Sai Tso Wan Road	WB	↖	2	B,C	4.0	0.0	10	0	100%	100%	2155	2155	1875	1875	1875	1875	150	0.080	0.080	35	0.019					
Pedestrian Crossing																										
4P C Green time = 13Gm + 5 FGm = 18s																										
Notes: (None)											Traffic Flow (pcu / hr) AM (PM) Peak						A,BC AB,C		A,BC AB,C							
											640(535) →						AM Peak Check Phase		PM Peak Check Phase							
											↖ 150(35)						ey	0.398	0.298	ey	0.284	0.357				
											← 600(720)						L (sec)	11	25	L (sec)	11	25				
																	C (sec)	91	91	C (sec)	91	91				
																	y pract.	0.791	0.653	y pract.	0.791	0.653				
																	R.C. (%)	99%	119%	R.C. (%)	178%	83%				
Stage / Phase Diagrams																										
A VEHICLE EXAMINATION COMPLEX  B C																										
I/G = 6				I/G = 7																						
I/G = 3				I/G = 7				I/G = 5 + Ped 18s																		

Junction: (J8) Tsing Yi Road West / Ching Hong Road																									
Description: 2029 Design Traffic Flow																									
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		(% uphill Gradient	Nearside O/I	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	↓	1	A	3.0	0.0	0	5.5	0	0%	0%	1824	3698	1824	1824	3698	3698	190	0.104	0.207	126	0.069	0.128		
	S	↓	1	A	3.5	0.0	0	5.5	0	0%	0%	1874	0	1874	1874	0	0	195	0.104		129	0.069			
	S	↘	1	A	3.7	10.0	0	5.5	1	100%	100%	1754	1754	1525	1525	1525	1525	315	0.207		195	0.128			
Tsing Yi Road West	N	↑	2	A,B	3.5	0.0	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%	0%	2105	0	2105	2105	0	0	202	0.096		225	0.107			
	N	↗	3	B	3.3	0.0	18	0	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	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	0	1	100%	100%	1955	4050	1775	1775	3720	3720	272	0.153		241	0.136			
Pedestrian crossing		↕	5P	A,B	Min. Green time = 11GM + 8FG = 19s																				
		↕	6P	C	Min. Green time = 5GM + 12FG = 17s																				
Notes:												Traffic Flow (pcu / hr) Weekday AM Peak 385(255) 315(195) 390(435) 380(315)						AM Peak Check Phase g _y 0.557 L (sec) 14 C (sec) 100 y pract. 0.774 R.C. (%) 39%				PM Peak Check Phase g _y 0.427 L (sec) 14 C (sec) 100 y pract. 0.774 R.C. (%) 81%			
Stage / Phase Diagrams																									
I/G = 5					I/G = 5					I/G = 7															

Junction: (J9) Tsing Yi Road West / Liu To Road																											
Description: 2029 Design Traffic Flow																											
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		(% uphill Gradient	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	5	1	0%	0%	1735	3610	1735	1735	3610	3610	211	0.122		180	0.104					
	S	↓	2	A,B	3.3	0.0	0	5	0	0%	0%	1875	0	1875	1875	0	0	229	0.122		195	0.104					
	S	↙	3	B	3.3	0.0	22	5	0	100%	100%	1875	1875	1755	1755	1755	1755	310	0.177	0.177	335	0.191	0.191				
Tsing Yi Road West	N	↕	1	A	3.2	10.0	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%	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	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	0	100%	100%	2165	2165	2000	2000	2000	2000	250	0.125	0.125	80	0.040	0.040				
Pedestrian crossing		↕	6P	A,D	AM: Green time = 49GM + 9FG = 58s, PM: Green time = 46GM + 9FG = 55s																						
		↕	7P	C,D	AM: Green time = 51GM + 13FG = 64s, PM: Green time = 28GM + 13FG = 41s																						
		↔	8P	D	Green time = 10GM + 8FG = 18s																						
Pedestrian Crossing																											
														A,BC,D			A,B,C,D			A,BC,D			A,B,C,D				
Notes:												Traffic Flow (pcu / hr) Weekday AM Peak						AM Peak Check Phase			PM Peak Check Phase						
												410(295) 250(80) 310(335) 440(375) 145(115) 490(540)						6y	0.404	0.462	6y	0.339	0.395				
																		L (sec)	39	43	L (sec)	39	43				
																		C (sec)	130	130	C (sec)	110	110				
																		y pract.	0.630	0.602	y pract.	0.581	0.548				
																		R.C. (%)	56%	30%	R.C. (%)	71%	39%				
Stage / Phase Diagrams																											
A					B					C					D												
I/G = 5					I/G = 7					I/G = 5					I/G = 11 + Ped 18												

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)		(% uphill Gradient)	Nearside 0/1	Pro. Turning (%)		Site Factor	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 (To Tsing Yi Road West)	S	↓	1	A,D	4.1	0.0	0	3	0	0%	0%	1	2039	4058	2039	2039	4058	4058	304	0.149	0.292	279	0.137	0.240							
	S	↓	1	A,D	3.9	0.0	0	3	0	0%	0%	1	2019	0	2019	2019	0	0	301	0.149		276	0.137								
Fung Shue Wo Road (To Fung Shue Wo Road)	S	↓	1	A,D	4.0	0.0	0	3	1	0%	0%	1	1889	2294.8	1889	1889	2294.8	2294.8	552	0.292		453	0.240								
	S	↓	1	A,D	4.0	0.0	0	3	0	0%	0%	0.2	405.8	0	405.8	405.8	0	0	118	0.292		97	0.240								
Tsing Yi Road West	N	↑	2	A,B	3.5	0.0	0	0	1	0%	0%	1	1965	2491.3	1965	1965	2491.25	2491.25	540	0.275		544	0.277								
	N	↑	2	A,B	3.5	0.0	0	0	0	0%	0%	0.25	526.25	0	526.25	526.25	0	0	145	0.275		146	0.277								
	N	↗	3	B	3.6	0.0	18	0	0	100%	100%	1	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	3	1	100%	100%	1	1869	2193.6	1790	1790	2100	2100	128	0.071		124	0.069								
	N	↖	4	C	4.0	38.0	0	3	0	100%	100%	0.16	324.64	0	310	310	0	0	22	0.071		21	0.069								
Fung Shue Wo Road	N	↗	4	C	3.6	0.0	43	3	0	100%	100%	0.23	457.47	2446.5	440	440	2355	2355	121	0.274	0.274	103	0.234	0.234							
	N	↗	4	C	3.6	0.0	40	3	0	100%	100%	1	1989	0	1915	1915	0	0	524	0.274		447	0.234								
Pedestrian crossing		↔↔↔↔	5p	D	Min. Green time = 5GM + 8FG = 13s																										
		↔↔↔↔	6P	B,C	Min. Green time = 5GM + 8FG = 13s																										
		↑↕↓	7P	A,C,D	Min. Green time = 5GM + 7FG = 12s																										
		↑↕↓	8P	A,B,D	Min. Green time = 5GM + 8FG = 13s																										
Notes:												Traffic Flow (pcu / hr)								Weekday AM Peak				AM Peak Check Phase				PM Peak Check Phase			
																				605(555) 670(550)				6y 0.679				6y 0.548			
																				↑ ↗ ↓ ↖				L (sec) 12				L (sec) 12			
																				685(690) 220(145) 150(145) 645(550)				C (sec) 100				C (sec) 100			
																								y pract. 0.792				y pract. 0.792			
																								R.C. (%) 17%				R.C. (%) 45%			
Stage / Phase Diagrams																															
V/G = 5					V/G = 5					V/G = 5																					

Junction: (J11) Tsing Yi Heung Sze Wui Road / Cheung Wan Street																							
Description: 2029 Design Traffic Flow																							
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		(% uphill Gradient)	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 Heung Sze Wui Road	N	↑	2	A,B	3.5	0.0	0	0	1	0%	0%	1965	4070	1965	1965	4070	4070	702	0.357		611	0.311	0.311
	N	↑	2	A,B	3.5	0.0	0	0	0	0%	0%	2105	0	2105	2105	0	0	753	0.357		654	0.311	
Cheung Wan Street	W	↵	3	C	3.5	18.0	20	0	0	31% / 69%	47% / 53%	2105	0	1955	1950	0	0	428	0.219	0.219	360	0.185	0.185
	W	↵	3	C	3.5	15.0	0	0	1	100%	100%	1965	4070	1785	1785	3740	3735	392	0.219		330	0.185	
Tsing Yi Heung Sze Wui Road	S	↘	1	A,D	3.5	10.0	0	0	1	100%	100%	1965	6175	1710	1710	5920	5920	695	0.406	0.406	495	0.289	
	S	↓	1	A,D	3.5	0.0	0	0	0	0%	0%	2105	0	2105	2105	0	0	555	0.264		428	0.203	
	S	↓	1	A,D	3.5	0.0	0	0	0	0%	0%	2105	0	2105	2105	0	0	555	0.264		428	0.203	
Pedestrian crossing		↔	4P	B						AM: Green time = 12GM + 11FG = 23s, PM: Green time = 12GM + 11FG = 23s													
		↑	5P	D						AM: Green time = 6GM + 8FG = 14s, PM: Green time = 10GM + 8FG = 18s													
		↓	6P	B,C						AM: Green time = 45GM + 10FG = 55s, PM: Green time = 41GM + 10FG = 51s													
													AB,C,D		AD,B,C		AB,C,D		AD,B,C				
Notes:												Traffic Flow (pcu / hr)		Weekday AM Peak		AM Peak Check Phase		PM Peak Check Phase					
														1110(855) 695(495)		Ey 0.577 0.626		Ey 0.496 0.474					
														↓ ↘ ↗		L (sec) 31 37		L (sec) 35 37					
														↗ ↘ ↓		C (sec) 114 114		C (sec) 100 100					
														↑		y pract. 0.655 0.608		y pract. 0.585 0.567					
												1455(1265)				295(190) 525(500)		R.C. (%) 14% -3%		R.C. (%) 18% 20%			
Stage / Phase Diagrams																							
I/G = 8 + Ped 23						I/G = 3						I/G = 5											
I/G = 2						I/G = 5						I/G = 12 + Ped 18											

Junction: (J12) Tsing Yi Heung Sze Wui Road / Chung Mei Road																			
Description: 2029 Design Traffic Flow																			

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		(% uphill Gradient	Nearside O/I	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
Chung Mei Road	E	↗	5	B,C	3.3	10.0	0	0	1	100%	100%	1945	1945	1690	1690	1690	1690	260	0.154		280	0.166	
	E	↘	6	C	3.3	0.0	18	0	0	100%	100%	2085	2085	1925	1925	1925	1925	315	0.164	0.164	235	0.122	0.122
Tsing Yi Heung Sze Wui Road	N	↖	2	A,C	3.3	25.0	0	0	1	100%	100%	1945	1945	1835	1835	1835	1835	290	0.158		355	0.193	
	N	↑	3	A	3.5	0.0	0	0	0	0%	0%	2105	4210	2105	2105	4210	4210	545	0.259	0.259	478	0.227	0.227
	N	↑	3	A	3.5	0.0	0	0	0	0%	0%	2105	0	2105	2105	0	0	545	0.259		478	0.227	
Tsing Yi Heung Sze Wui Road	S	↘	1	A,B	3.5	0.0	0	3	1	0%	0%	1839	3818	1839	1839	3818	3818	621	0.338		486	0.265	
	S	↘	1	A,B	3.5	0.0	0	3	0	0%	0%	1979	0	1979	1979	0	0	669	0.338		524	0.265	
	S	↖	4	B	3.5	0.0	22	3	0	100%	100%	1979	1979	1855	1855	1855	1855	370	0.199	0.199	290	0.156	0.156

Notes:	Traffic Flow (pcu / hr)		Weekday AM Peak		AM Peak Check Phase		PM Peak Check Phase	
	260(280)	↗	370(290)	↖	g _y	0.622	g _y	0.505
	315(235)	↘	1290(1010)	↓	L (sec)	15	L (sec)	15
			↖	↑	C (sec)	114	C (sec)	100
			↖	↑	y pract.	0.782	y pract.	0.765
			290(355)	1090(955)	R.C. (%)	26%	R.C. (%)	51%

Stage / Phase Diagrams																			
I/G = 5					I/G = 5					I/G = 8									

Junction: (J1) Cheung Tsing Highway / Tsing Yi Road West																									
Description: 2029 Design Traffic Flow																									
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		(% uphill Gradient	Nearside O/I	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		Logistic Peak							
						Left	Right			Logistic Peak				Logistic Peak		Logistic Peak		Flow (pcu/hr)	y Value	Critical y					
Tsing Yi Road West	S	↓	2	A	3.5	0	0	0	1	0%		1965	6135	1965		5895		158	0.081	0.081					
	S	↙	2	A	3.3	0	20	0	0	50%		2085	0	2010		0		162	0.081						
	S	↘	2	A	3.3	0	17.5	0	0	100%		2085	0	1920		0		155	0.081						
Cheung Tsing Highway	E	↗	3	A,B	3.4	20	0	0	1	100%		1955	1955	1820		1820		405	0.223						
	E	→	4	B	3.5	0	30	0	0	100%		2105	4070	2005		3860		288	0.144						
	E	↘	4	B	3.5	0	25	0	1	100%		1965	0	1855		0		267	0.144	0.144					
Tsing Yi Road West	N	↙	1	C	3.6	20	0	6.5	1	100%		1702	3544	1585		3425		540	0.341	0.341					
	N	↑	1	C	3.6	0	0	6.5	0	0%		1842	0	1840		0		325	0.177						
Pedestrian crossing		↕	5P	C		Min. Green time = 5GM + 10FG = 15s																			
		↕	6P	C		Min. Green time = 5GM + 6FG = 11s																			
		↕	7P	A,B		Min. Green time = 5GM + 9FG = 14s																			
		↕	8P	B		Min. Green time = 5GM + 10FG = 15s																			
Notes:												Traffic Flow (pcu / hr)			Logistic Peak Check Phase										
															by 0.565 0.563										
															L (sec) 13 9										
															C (sec) 100 100										
															y pract. 0.783 0.819										
															R.C. (%) 39% 45%										
Stage / Phase Diagrams																									
I/G = 5					I/G = 5					I/G = 6															

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)		Logistic Peak																				
						Left	Right		Logistic Peak				Logistic Peak		Logistic Peak		Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y															
Tsing Yi Road	S	↓	1	A	3.5	0.0	0	1	0%		1965	4070	1965		4070		338	0.172																			
	S	↓	1	A	3.5	0.0	0	0	0%		2105	0	2105		0		362	0.172																			
	S	↙	1	A	3.6	0.0	18	0	100%		2115	2115	1950		1950		320	0.164	0.172																		
Tsing Yi Road	N	↑	4	C	4.0	30.0	0	1	100%		2015	2015	1920		1920		60	0.031																			
	N	↑	4	C	3.5	0.0	0	0	0%		2105	4210	2105		4210		350	0.166																			
	N	↑	4	C	3.5	0.0	0	0	0%		2105	0	2105		0		350	0.166	0.166																		
Tsing Hung Road	E	→	2	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		↔	5P	D	Min. Green time = 5GM + 7FG = 12s																																
		↔	6P	A,B,D	Min. Green time = 5GM + 5FG = 10s																																
		↔	7P	C,D	Min. Green time = 5GM + 10FG = 15s																																
		↔	8P	C,D	Min. Green time = 5GM + 5FG = 10s																																
Notes:												Traffic Flow (pcu / hr) Weekday AM Peak				A,B,C,D AB,C,D																					
																<table><tr><td>Logistic Peak</td><td>Check</td><td>Phase</td></tr><tr><td>Ey</td><td>0.338</td><td>0.338</td></tr><tr><td>L (sec)</td><td>33</td><td>22</td></tr><tr><td>C (sec)</td><td>100</td><td>100</td></tr><tr><td>y pract.</td><td>0.603</td><td>0.702</td></tr><tr><td>R.C. (%)</td><td>78%</td><td>108%</td></tr></table>				Logistic Peak	Check	Phase	Ey	0.338	0.338	L (sec)	33	22	C (sec)	100	100	y pract.	0.603	0.702	R.C. (%)	78%	108%
Logistic Peak	Check	Phase																																			
Ey	0.338	0.338																																			
L (sec)	33	22																																			
C (sec)	100	100																																			
y pract.	0.603	0.702																																			
R.C. (%)	78%	108%																																			
Stage / Phase Diagrams																																					
I/G = 2					I/G = 6 + Min. G 5					I/G = 5					I/G = 5 + 12																						

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)		(%) uphill Gradient	Nearside O/I	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Logistic Peak			Critical y					
						Left	Right			Logistic Peak				Logistic Peak		Flow (pcu/hr)	y Value							
Tsing Yi Road	NE	↖	1	A	4.5	15	0	6.5	1	100%		1792	1792	1630		275	0.169	0.169						
	NE	↗	1	A	3.4	0	0	6.5	0	0%		1822	1822	1820		265	0.146							
Sai Tso Wan Road	NW	↖	3	C,D	3.8	15	0	0	1	100%		1995	1995	1815		635	0.350							
	NW	↗	4	D	3.8	0	25	0	0	100%		2135	2135	2015		320	0.159	0.159						
Tsing Yi Road West	SE	↗	2	B,C	3.4	0	0	0	1	0%		1955	1955	1955		215	0.110							
	SE	↖	2	B,C	3.7	0	25	0	0	100%		2125	2125	2005		550	0.274	0.274						
Pedestrian crossing		↕	5p	A,B	Min. Green time = 5GM + 8FG = 13s																			
		↕	6p	D	Min. Green time = 5GM + 10FG = 15s																			
		↔	7p	B,C	Min. Green time = 5GM + 9FG = 14s																			
		↔	8p	A,D	Min. Green time = 5GM + 7FG = 12s																			
Notes:												Traffic Flow (pcu / hr)					Logistic Peak Check Phase							
																	8y 0.602 L (sec) 19 C (sec) 110 y pract. 0.745 R.C. (%) 24%							
Stage / Phase Diagrams																								
I/G = 5					I/G =5										I/G = 5									
I/G = 5					I/G =8+12					I/G = 2														

Junction: (J5) Sai Tso Wan Road Near VEC																										
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)		Logistic Peak									
						Left	Right		Logistic Peak				Logistic Peak		Logistic Peak		Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y				
Sai Tso Wan Road	EB	→	3	A	4.0	0.0	0	1	0%		2015	2015	2015		2015		825	0.409	0.409							
Sai Tso Wan Road	WB	←	1	A,B	4.0	0.0	0	1	0%		2015	2015	2015		2015		625	0.310								
Sai Tso Wan Road	WB	⬆	2	B,C	4.0	0.0	10	0	100%		2155	2155	1875		1875		130	0.069	0.069							
Pedestrian Crossing		↕	4P	C	Green time = 13Gm + 5 FGm = 18s																					
Notes: (None)											Traffic Flow (pcu / hr) AM (PM) Peak						A,BC AB,C									
											825 →						Logistic Peak Check Phase									
											⬆ 130						εy 0.479 0.310									
											← 625						L (sec) 11 25									
																	C (sec) 91 91									
																	y pract. 0.791 0.653									
																	R.C. (%) 65% 110%									
Stage / Phase Diagrams																										
A VEHICLE EXAMINATION COMPLEX B C																										
I/G = 6				I/G = 7																						
I/G = 3				I/G = 7				I/G = 5 + Ped 18s																		

Junction: (J8) Tsing Yi Road West / Ching Hong Road																								
Description: 2029 Design Traffic Flow																								
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		(% uphill Gradient	Nearside O/I	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		Logistic Peak			Critical y			
						Left	Right			Logistic Peak				Logistic Peak		Logistic Peak		Flow (pcu/hr)	y Value					
Tsing Yi Road West	S	↓	1	A	3.0	0.0	0	5.5	0	0%		1824	3698	1824		3698		155	0.085	0.125				
	S	↓	1	A	3.5	0.0	0	5.5	0	0%		1874	0	1874		0		160	0.085					
	S	↘	1	A	3.7	10.0	0	5.5	1	100%		1754	1754	1525		1525		190	0.125					
Tsing Yi Road West	N	↑	2	A,B	3.5	0.0	0	0	1	0%		1965	4070	1965		4070		200	0.102					
	N	↑	2	A,B	3.5	0.0	0	0	0	0%		2105	0	2105		0		215	0.102					
	N	↗	3	B	3.3	0.0	18	0	0	100%		2085	2085	1925		1925		405	0.210	0.210				
Ching Hong Road	W	←	4	C	3.4	18.0	20	0	0	20% / 80%		2095	0	1945		0		264	0.136	0.136				
	W	↙	4	C	3.4	15.0	0	0	1	100%		1955	4050	1775		3720		241	0.136					
Pedestrian crossing		↕	5P	A,B		Min. Green time = 11GM + 8FG = 19s																		
		↕	6P	C		Min. Green time = 5GM + 12FG = 17s																		
Notes:												Traffic Flow (pcu / hr) Weekday AM Peak					Logistic Peak Check Phase							
												315 190 415 405					210 295 0.471 12 71 0.748 59%							
Stage / Phase Diagrams																								
A Ching Hong Road I/G = 5					B Tsing Yi Road West I/G = 5					C Tsing Yi Road West I/G = 7														

Junction: J9 - Tsing Yi Road West / Liu To Road																								
Description: 2029 Design Traffic Flow																								
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Radius (m)	Gradient (%) uphill	Nearside O/I	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		Logistic Peak					
						Left	Right				Logistic Peak				Logistic Peak		Logistic Peak		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	5	1	0%			1735	3610	1735		3610		207	0.119				
	S	↓	2	A,B	3.3	0.0	0	5	0	0%			1875	0	1875		0		223	0.119				
	S	↙	3	B	3.3	0.0	22	5	0	100%			1875	1875	1755		1755		355	0.202	0.202			
Tsing Yi Road West	N	↕	1	A	3.2	10.0	0	0	1	47%			1935	4100	1805		3970		284	0.157	0.157			
	N	↑	1	A	4.1	0.0	0	0	0	0%			2165	0	2165		0		341	0.157				
Liu To Road	E	↗	5	B,C	3.2	10.0	0	0	1	100%			1935	1935	1685		1685		320	0.190				
	E	↘	4	C	4.1	0.0	18	0	0	100%			2165	2165	2000		2000		70	0.035	0.035			
Pedestrian crossing		↕	6P	A,D		Green time = 46GM + 9FG = 55s																		
		↕	7P	C,D		Green time = 31GM + 13FG = 44s																		
		↔	8P	D		Green time = 10GM + 8FG = 18s																		
Pedestrian Crossing																								
A,B,C,D A,B,C,D																								
Notes:												Traffic Flow (pcu / hr) Weekday AM Peak						Logistic Peak Check Phase						
												320 70 ↗ ↘ ↕ 135 490						355 430 ↙ ↓						
																		Logistic Peak Check Phase						
																		ey 0.347 0.395						
																		L (sec) 39 43						
																		C (sec) 130 130						
																		y pract. 0.630 0.602						
																		R.C. (%) 81% 53%						
Stage / Phase Diagrams																								
A						B						C						D						
I/G = 5						I/G = 7						I/G = 5						I/G = 11 + Ped 18						

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)		(% uphill Gradient	Nearside O/I	Pro. Turning (%)		Site Factor	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		Logistic Peak															
						Left	Right			Logistic Peak					Logistic Peak		Logistic Peak		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	3	0	0%		1	2039	4058	2039		4058		329	0.161	0.229													
(To Tsing Yi Road West)	S	↓	1	A,D	3.9	0.0	0	3	0	0%		1	2019	0	2019		0		326	0.161														
Fung Shue Wo Road	S	↓	1	A,D	4.0	0.0	0	3	1	0%		1	1889	2294.8	1889		2294.8		432	0.229														
(To Fung Shue Wo Road)	S	↓	1	A,D	4.0	0.0	0	3	0	0%		0.2	405.8	0	405.8		0		93	0.229														
Tsing Yi Road West	N	↑	2	A,B	3.5	0.0	0	0	1	0%		1	1965	2491.3	1965		2491.25		505	0.257														
	N	↑	2	A,B	3.5	0.0	0	0	0	0%		0.25	526.25	0	526.25		0		135	0.257														
	N	↗	3	B	3.6	0.0	18	0	0	100%		1	2115	2115	1950		1950		165	0.085	0.085													
Fung Shue Wo Road	N	↖	4	C	3.8	35.0	0	3	1	100%		1	1869	2193.6	1790		2100		111	0.062														
	N	↖	4	C	4.0	38.0	0	3	0	100%		0.16	324.64	0	310		0		19	0.062														
Fung Shue Wo Road	N	↗	4	C	3.6	0.0	43	3	0	100%		0.23	457.47	2446.5	440		2355		101	0.229	0.229													
	N	↗	4	C	3.6	0.0	40	3	0	100%		1	1989	0	1915		0		439	0.229														
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														
																	655 525			8y 0.543 L (sec) 12 C (sec) 90 y pract. 0.780 R.C. (%) 44%														
												640 165					130 540																	
Stage / Phase Diagrams																																		
I/G = 5				I/G = 5				I/G = 5																										

Junction: (J11) Tsing Yi Heung Sze Wui Road / Cheung Wan Street																							
Description: 2029 Design Traffic Flow																							
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		uphill Gradient (%)	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)		Logistic Peak					
						Left	Right			Logistic Peak				Logistic Peak		Logistic Peak		Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Heung Sze Wui Road	N	↑	2	A,B	3.5	0.0	0	0	1	0%		1965	4070	1965		4070		558	0.284				
	N	↑	2	A,B	3.5	0.0	0	0	0	0%		2105	0	2105		0		597	0.284				
Cheung Wan Street	W	↶	3	C	3.5	18.0	20	0	0	44% / 56%		2105	0	1950		0		384	0.197	0.197			
	W	↷	3	C	3.5	15.0	0	0	1	100%		1965	4070	1785		3735		351	0.197				
Tsing Yi Heung Sze Wui Road	S	↘	1	A,D	3.0	10.0	0	0	1	100%		1915	6025	1665		5775		595	0.357	0.357			
	S	↓	1	A,D	3.0	0.0	0	0	0	0%		2055	0	2055		0		360	0.175				
	S	↓	1	A,D	3.0	0.0	0	0	0	0%		2055	0	2055		0		360	0.175				
Pedestrian crossing		↔	4P	B						Green time = 12GM + 11FG = 23s													
		↑↓	5P	D						Green time = 8GM + 8FG = 16s													
		↕	6P	B,C						Green time = 42GM + 10FG = 52s													
AB,C,D AD,B,C																							
Notes:												Traffic Flow (pcu / hr) Weekday AM Peak				Logistic Peak Check Phase							
												720 595				Ey 0.481 0.554							
												↙ ↘ ↗ ↖				L (sec) 33 37							
												↑ 1155				C (sec) 90 90							
																y pract. 0.570 0.530							
																R.C. (%) 19% -4%							
Stage / Phase Diagrams																							
I/G = 2						I/G = 5						I/G = 12 + Ped 16											

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

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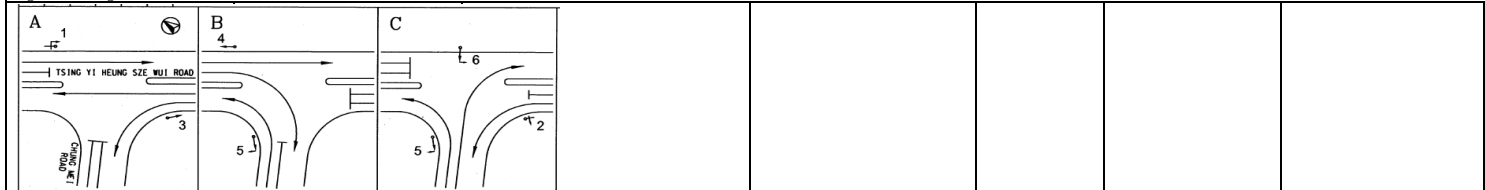
Junction: (J12) Tsing Yi Heung Sze Wui Road / Chung Mei Road
Description: 2029 Design Traffic Flow

Junction: (J12) Tsing Yi Heung Sze Wui Road / Chung Mei Road
Description: 2029 Design Traffic Flow

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		(% uphill Gradient	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)		Logistic Peak					
						Left	Right			Logistic Peak				Logistic Peak		Logistic Peak		Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Chung Mei Road	E		5	B,C	3.3	10.0	0	0	1	100%		1945	1945	1690		1690	280	0.166					
	E		6	C	3.3	0.0	18	0	0	100%		2085	2085	1925		1925	255	0.132	0.132				
Tsing Yi Heung Sze Wui Road	N		2	A,C	3.3	25.0	0	0	1	100%		1945	1945	1835		1835	285	0.155					
	N		3	A	3.5	0.0	0	0	0	0%		2105	4210	2105		4210	390	0.185	0.185				
	N		3	A	3.5	0.0	0	0	0	0%		2105	0	2105		0	390	0.185					
Tsing Yi Heung Sze Wui Road	S		1	A,B	3.5	0.0	0	3	1	0%		1839	3818	1839		3818	446	0.242					
	S		1	A,B	3.5	0.0	0	3	0	0%		1979	0	1979		0	479	0.242					
	S		4	B	3.5	0.0	22	3	0	100%		1979	1979	1855		1855	365	0.197	0.197				
Pedestrian crossing																							

Notes:	Traffic Flow (pcu / hr) Weekday AM Peak	Logistic Peak Check Phase	
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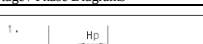
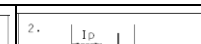
Notes:	Traffic Flow (pcu / hr)		Weekday AM Peak		Logistic Peak Check Phase	
					Ey 0.515 L (sec) 15 C (sec) 114 y pract. 0.782 R.C. (%) 52%	

[illegible]

$I/G = 5$	$I/G = 5$	$I/G = 8$			
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$I/G = 5$	$I/G = 5$	$I/G = 8$			
-----------	-----------	-----------	--	--	--

$I/G = 5$	$I/G = 5$	$I/G = 8$			
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1. 	2. 	3. 					
I/G = 5	I/G = 10	I/G = 6					

Priority Junction Calculation

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

Arm C Tsing Yi Road

435	<555>	(395)
120	<90>	(105)

Arm A Tsing Yi Road

515	<540>	(435)
235	<240>	(220)

Arm B Tsing Sheung Road

145	215
<140>	<175>
(135)	(190)

AM	[Logistic]	(PM)
[Logistic]		
(PM)		

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	30	D	0.933
	W-CR	0	V-IBA	50	E	1.012
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)		0	V-rBC	50	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	395	Q-BA	400	390	423
	q-CB	120	90	105	Q-BC	638	633	654
	q-AB	235	240	220	Q-CB	372	368	383
	q-AC	515	540	435	Q-CA	N/A	N/A	N/A
	q-BA	215	175	190	Q-BAC	N/A	N/A	N/A
	q-BC	145	140	135				
	f	0.403	0.444	0.415				

(If C-B blocked C-
(If Minor
Road Share
LT&RT)

Results :	Ratio of Flow-to-Capacity	AM	Logistic	PM
	B-A	0.54	0.45	0.45
	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	0.54	0.45	0.45
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Priority Junction Calculation

Junction :	(J6) Sai Tso Wan Road / Tsing Tim Street	Job No.:	23125HK
Scenario :	2029 Design Traffic Flow		

Arm C Sai Tso Wan Road		
425	<425>	(335)
35	<30>	(10)

Arm A Sai Tso Wan Road		
460	<430>	(270)
125	<105>	(70)

Arm B Tsing Tim Street		
30	115	
<20>	<95>	
(5)	(95)	

AM	[Logistic]	(PM)
[Logistic]		
(PM)		

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	D 0.877
W-CR	0	E 0.933
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	0	F 0.616
Minor Road Share LT&RT? (Yes: 1, No: 0)	1	Y 0.759

Analysis :	Traffic Flow	AM	Logistic	PM	Capacity	AM	Logistic	PM	
	pcu/hr				pcu/hr				
	q-CA	425	425	335	Q-BA	350	360	423	
	q-CB	35	30	10	Q-BC	564	573	618	
	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	379	385	430	(If Minor
	q-BC	30	20	5					Road Share
	f	0.207	0.174	0.050					LT&RT)

Results :	Ratio of Flow-to-Capacity	AM	Logistic	PM
	B-A	N/A	N/A	N/A
	B-C	N/A	N/A	N/A
	C-B	0.10	0.08	0.02
	C-A	N/A	N/A	N/A
	B-AC	0.38	0.30	0.23
	Critical DFC	0.38	0.30	0.23

Priority Junction Calculation

Junction :	(J13) Tsing Yi Road / Tsing Keung Street	Job No.:	23125HK
Scenario :	2029 Design Traffic Flow		

Arm C Tsing Yi Road

385	<420>	(345)
65	<90>	(25)

Arm A Tsing Yi Road

410	<400>	(415)
130	<130>	(65)

Arm B Tsing Keung Street

115	70
<100>	<115>
(65)	(65)

AM	[Logistic]	(PM)
[Logistic]		
(PM)		

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	15	D 0.910
W-CR	0	E 0.968
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	0	F 0.616
Minor Road Share LT&RT? (Yes: 1, No: 0)	0	Y 0.483

Analysis :	Traffic Flow pcu/hr	AM	Logistic	PM	Capacity pcu/hr	AM	Logistic	PM	
q-CA	385	420	345	Q-BA	443	436	460		
q-CB	65	90	25	Q-BC	643	644	646		
q-AB	130	130	65	Q-CB	400	401	407		
q-AC	410	400	415	Q-CA	N/A	N/A	N/A	(If C-B blocked C-	
q-BA	70	115	65	Q-BAC	N/A	N/A	N/A	(If Minor Road Share	
q-BC	115	100	65					LT&RT)	
f	0.622	0.465	0.500						

Results :	Ratio of Flow-to-Capacity	AM	Logistic	PM
	B-A	0.16	0.26	0.14
	B-C	0.18	0.16	0.10
	C-B	0.16	0.22	0.06
	C-A	N/A	N/A	N/A
	B-AC	N/A	N/A	N/A
	Critical DFC	0.18	0.26	0.14

Roundabout Junction Calculation

Junction :	(RA1) Tsing Yi Interchange (North)	Job No.:	23125HK
Scenario :	2029 Design Traffic Flow		

Arm 4 Tsing Yi Heung Sze Wui Road

	0	420	0
	<0>	<315>	<0>
	(0)	(320)	(0)

Arm 1 Tsing Yi Bridge

Arm 3

Arm 2 Tsing Yi Interchange Access Road

1590	<1325>	(835)	
	365	1225	0
	<330>	<995>	<0>
	(235)	(600)	(0)

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		60
Q	= Entry flow (pcu/hr)		1590		420
		AM			
		Logistic	1325		315
		PM	835		320
Qc	= Circulating flow across entry (pcu/hr)		0		1225
		AM			
		Logistic	0		995
		PM	0		600

Output Parameters		Arm 1	Arm 2	Arm 3	Arm 4
S	= Sharpness of flare = $1.6 \cdot (E - V) / L$		0.32		0.32
K	= $1 - 0.00347 \cdot (A - 30) - 0.978 \cdot (1 / R - 0.05)$		1.04		0.92
X2	= $V + ((E - V) / (1 + 2 \cdot S))$		6.61		6.61
M	= $\text{Exp}((D - 60) / 10)$		1.00		1.00
F	= $303 \cdot X2$		2003		2003
Td	= $1 + (0.5 / (1 + M))$		1.25		1.25
Fc	= $0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$		0.61		0.61
Qe	= Capacity = $K \cdot (F - Fc \cdot Qc)$		2090		1157
		AM			
		Logistic	2090		1286
		PM	2090		1508
DFC	= Entry Flow/Capacity = Q / Qe		0.76		0.36
		AM			
		Logistic	0.63		0.24
		PM	0.40		0.21

DFC of Critical Approach	=	AM	0.76	Logistic	0.63	PM	0.40
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Roundabout Junction Calculation

Junction :	(RA1) Tsing Yi Interchange (South)	Job No.: 23125HK
Scenario :	2029 Design Traffic Flow	

Arm 4 Tsing Yi Bridge

	0	610	0
	<0>	<635>	<0>
	(0)	(685)	(0)

Arm 1 Tsing Yi Road (Right)

0	<0>	(0)
245	<265>	(375)
505	<430>	(270)

Arm 3 Tsing Yi Interchange Access Road

1385	<1125>	(1350)
	910	230
	<665>	<195>
	(875)	(100)

Arm 2 Tsing Yi Road (Left)

645	<515>	(420)
385	<300>	(285)
30	<20>	(35)
0	<0>	(0)

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)	750	1140	415	610
		AM	750	1140	415	610
		Logistic	695	860	320	635
		PM	645	975	320	685
Qc	=	Circulating flow across entry (pcu/hr)	640	245	1385	645
		AM	640	245	1385	645
		Logistic	655	265	1125	515
		PM	720	1060	1350	420

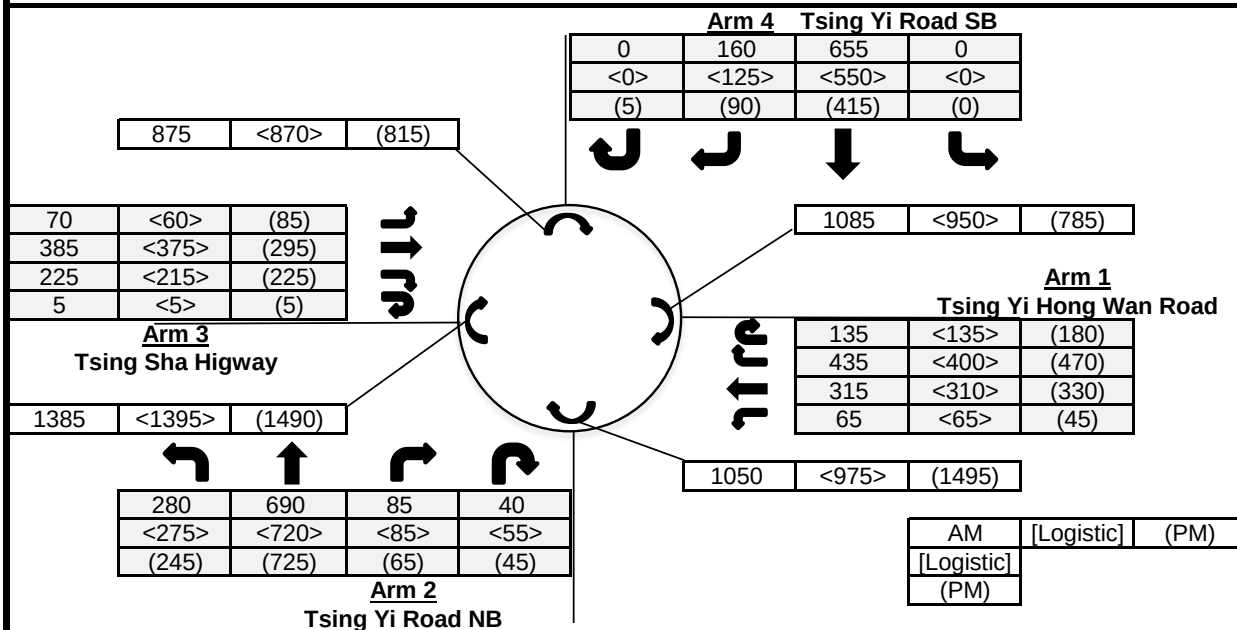
Output Parameters			Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = $1.6 \cdot (E - V) / L$	0.06	0.06	0.10	0.10
K	=	$1 - 0.00347 \cdot (A - 30) - 0.978 \cdot (1/R - 0.05)$	0.96	0.93	1.02	1.05
X2	=	$V + ((E - V) / (1 + 2 \cdot S))$	7.18	6.98	7.25	6.25
M	=	$\text{Exp}((D - 60) / 10)$	1.00	1.00	1.00	1.00
F	=	$303 \cdot X2$	2175	2114	2197	1894
Td	=	$1 + (0.5 / (1 + M))$	1.25	1.25	1.25	1.25
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$	0.64	0.63	0.64	0.59
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$	1697	1816	1331	1590
		AM	1697	1816	1331	1590
		Logistic	1688	1804	1501	1671
		PM	1648	1341	1354	1730
DFC	=	Entry Flow/Capacity = Q/Qe	0.44	0.63	0.31	0.38
		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

Roundabout Junction Calculation

Junction : (RA2) Tsing Yi Road / Tsing Yi Hong Wan Road / Tsing Sha Hig Job No.: 23125HK

Scenario : 2029 Design Traffic Flow



Input Parameters

			Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)	7.3	7.1	7.3	7.3
E	=	Entry width (m)	13.5	12	9.5	10
L	=	Effective length of flare (m)	30	15	30	15
R	=	Entry radius	45	97	52	34
D	=	Inscribed circle diameter (m)	100	100	100	100
A	=	Entry angle (degree)	29	32	31	46
Q	=	Entry flow (pcu/hr)	950	1095	685	815
		AM	950	1095	685	815
		Logistic	910	1135	655	675
		PM	1025	1080	610	510
Qc	=	Circulating flow across entry (pcu/hr)	1085	1050	1385	875
		AM	1085	1050	1385	875
		Logistic	950	975	1395	870
		PM	785	1495	1490	815

Output Parameters

			Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = $1.6 \cdot (E - V) / L$	0.33	0.52	0.12	0.29
K	=	$1 - 0.00347 \cdot (A - 30) - 0.978 \cdot (1 / R - 0.05)$	1.03	1.03	1.03	0.96
X2	=	$V + ((E - V) / (1 + 2 \cdot S))$	11.03	9.50	9.08	9.01
M	=	$\text{Exp}((D - 60) / 10)$	54.60	54.60	54.60	54.60
F	=	$303 \cdot X2$	3343	2877	2752	2731
Td	=	$1 + (0.5 / (1 + M))$	1.01	1.01	1.01	1.01
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$	0.68	0.61	0.60	0.59
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$	2685	2303	1977	2133
		AM	2685	2303	1977	2133
		Logistic	2780	2351	1970	2136
		PM	2895	2021	1912	2168
DFC	=	Entry Flow/Capacity = Q / Qe	0.35	0.48	0.35	0.38
		AM	0.35	0.48	0.35	0.38
		Logistic	0.33	0.48	0.33	0.32
		PM	0.35	0.53	0.32	0.24

DFC of Critical Approach = AM 0.48
Logistic 0.48
PM 0.53

Roundabout Junction Calculation

Junction :	(RA3) Tsing Yi Hong Wan Road	Job No.:	23125HK
Scenario :	2029 Design Traffic Flow (With Planned New Road)		

Arm 4 Tsing Yi Hong Wan Road SB

190	50	900
<165>	<50>	<735>
(185)	(50)	(755)

Arm 1

1220	<1030>	(1085)

Arm 2 Tsing Yi Hong Wan Road NB

50	725	25
<50>	<755>	<25>
(50)	(935)	(40)

Arm 3

50	<50>	(50)
50	<50>	(50)
5	<5>	(5)

Input Parameters		Arm 1	Arm 2	Arm 3	Arm 4
V	= Approach half width (m)		7	7.3	7.3
E	= Entry width (m)		14	13	12
L	= Effective length of flare (m)		20	10	2
R	= Entry radius		65	25	75
D	= Inscribed circle diameter (m)		68	68	68
A	= Entry angle (degree)		53	60	46
Q	= Entry flow (pcu/hr)	AM	800	105	1140
		Logistic	830	105	950
		PM	1025	105	990
Qc	= Circulating flow across entry (pcu/hr)	AM	245	940	80
		Logistic	220	945	80
		PM	995	1160	95

Output Parameters		Arm 1	Arm 2	Arm 3	Arm 4
S	= Sharpness of flare = 1.6*(E-V)/L		0.56	0.91	3.76
K	= 1-0.00347*(A-30)-0.978*(1/R-0.05)		0.95	0.91	0.98
X2	= V+((E-V)/(1+2*S))		10.30	9.32	7.85
M	= Exp((D-60)/10)		2.23	2.23	2.23
F	= 303*X2		3121	2823	2379
Td	= 1+(0.5/(1+M))		1.16	1.16	1.16
Fc	= 0.21*Td*(1+0.2*X2)		0.74	0.69	0.62
Qe	= Capacity = K*(F-Fc*Qc)	AM	2805	1966	2283
		Logistic	2822	1963	2283
		PM	2273	1827	2274
DFC	= Entry Flow/Capacity = Q/Qe	AM	0.29	0.05	0.50
		Logistic	0.29	0.05	0.42
		PM	0.45	0.06	0.44

DFC of Critical Approach	=	AM	0.50		
		Logistic	0.42		
		PM	0.45		

Roundabout Junction Calculation

Junction :	(RA4) Tsing Yi Hong Wan Road / Tsing Ko Road	Job No.:	23125HK
Scenario :	2029 Design Traffic Flow		

Arm 4 Tsing Yi Hong Wan Road SB

475		255	190
<385>		<240>	<165>
(365)		(210)	(265)

Arm 1 Tsing Yi Hong Wan Road

745	<1160>	(1125)

Arm 3 Tsing Ko Road

330	<165>	(265)
10	<5>	(20)
5	<385>	(365)

Arm 2 Tsing Yi Hong Wan Road NB

590	<675>	(695)
25	115	0
<25>	<145>	<145>
(20)	(165)	(165)

Input Parameters		Arm 1	Arm 2	Arm 3	Arm 4
V	= Approach half width (m)		6.7	6.3	7.3
E	= Entry width (m)		13.5	12.5	15
L	= Effective length of flare (m)		18	30	30
R	= Entry radius		47	100	75
D	= Inscribed circle diameter (m)		68	68	68
A	= Entry angle (degree)		41	22	46
Q	= Entry flow (pcu/hr)		140	345	920
		AM			
		Logistic	315	555	790
		PM	350	650	840
Qc	= Circulating flow across entry (pcu/hr)		480	590	15
		AM			
		Logistic	770	675	535
		PM	940	695	550

Output Parameters		Arm 1	Arm 2	Arm 3	Arm 4
S	= Sharpness of flare = $1.6 \cdot (E - V) / L$		0.60	0.33	0.41
K	= $1 - 0.00347 \cdot (A - 30) - 0.978 \cdot (1 / R - 0.05)$		0.99	1.07	0.98
X2	= $V + ((E - V) / (1 + 2 \cdot S))$		9.78	10.03	11.53
M	= $\text{Exp}((D - 60) / 10)$		2.23	2.23	2.23
F	= $303 \cdot X2$		2963	3040	3493
Td	= $1 + (0.5 / (1 + M))$		1.16	1.16	1.16
Fc	= $0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$		0.72	0.73	0.80
Qe	= Capacity = $K \cdot (F - Fc \cdot Qc)$		2592	2784	3412
		AM			
		Logistic	2387	2718	3004
		PM	2266	2702	2992
DFC	= Entry Flow/Capacity = Q / Qe		0.05	0.12	0.27
		AM			
		Logistic	0.13	0.20	0.26
		PM	0.15	0.24	0.28

DFC of Critical Approach	=	AM	0.27		
		Logistic	0.26		
		PM	0.28		

Roundabout Junction Calculation

Junction : (RA5) Tam Kon Shan Interchange	Job No.: 23125HK
Scenario : 2029 Design Traffic Flow	

Arm 4 Tam Kon Shan Road

195	45	225	320	340
<180>	<35>	<220>	<315>	<325>
(130)	(40)	(250)	(345)	(345)

2080 <2015> (2145)

2355 <2205> (2505)

40	<30>	(40)
150	<105>	(125)
75	<60>	(40)
95	<75>	(95)
45	<35>	(75)

Arm 3
Tsing Yi North Coastal Road EB

2525	<2440>	(2710)
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240	175	380	695	225
<230>	<185>	<385>	<725>	<230>
(210)	(170)	(475)	(795)	(275)

Arm 2
Fung Shue Wo Road

Arm 5 Tsing King Road

145	20	145	160	0
<115>	<15>	<125>	<165>	<0>
(195)	(45)	(90)	(160)	(0)

1300 <1195> (1355)

Arm 1
Tsing Yi North Coastal Road WB

160	<140>	(100)
385	<335>	(330)
145	<130>	(195)
25	<20>	(25)
0	<0>	(0)

1310 <1130> (1225)

AM	[Logistic]	(PM)
[Logistic]		
(PM)		

Input Parameters			Arm 1	Arm 2	Arm 3	Arm 4	Arm 5
V	=	Approach half width (m)	7	7.3	5.5	7.3	7
E	=	Entry width (m)	9	13.5	7.5	13.5	11
L	=	Effective length of flare (m)	9	20	11	50	10
R	=	Entry radius	100	35	45	35	45
D	=	Inscribed circle diameter (m)	100	100	100	100	100
A	=	Entry angle (degree)	30	25	25	45	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 across entry (pcu/hr)	AM 1300	1310	2525	2355	2080
			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	0.50	0.29	0.20	0.64
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)	1.04	1.04	1.04	0.97	0.98
X2	=	V+((E-V)/(1+2*S))	8.17	10.41	6.76	11.74	8.75
M	=	Exp((D-60)/10)	54.60	54.60	54.60	54.60	54.60
F	=	303*X2	2475	3155	2050	3557	2653
Td	=	1+(0.5/(1+M))	1.01	1.01	1.01	1.01	1.01
Fc	=	0.21*Td*(1+0.2*X2)	0.56	0.65	0.50	0.71	0.58
Qe	=	Capacity = K*(F-Fc*Qc)	AM 1818	2387	826	1828	1404
			Logistic 1879	2510	870	1931	1441
			PM 1786	2445	730	1725	1367
DFC	=	Entry Flow/Capacity = Q/Qe	AM 0.39	0.72	0.49	0.62	0.33
			Logistic 0.33	0.70	0.35	0.56	0.29
			PM 0.36	0.79	0.51	0.64	0.36

DFC of Critical Approach	=	AM	0.72
		Logistic	0.70
		PM	0.79

Roundabout Junction Calculation

Junction :	(RA6) Tsing King Road / Fung Shue Wo Road	Job No.:	23125HK
Scenario :	2029 Design Traffic Flow		

25	5	600	100
<25>	<5>	<400>	<80>
(25)	(15)	(450)	(65)

1200	<1020>	(950)
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15	<20>	(5)
45	<25>	(65)
530	<440>	(495)
0	<0>	(0)

980	<850>	(750)
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395	305	115	510
<340>	<240>	<110>	<445>
(455)	(310)	(100)	(290)

1670	<1315>	(1275)
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0	<0>	(0)
25	<30>	(25)
80	<55>	(65)
220	<170>	(210)

135	<115>	(580)
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AM	[Logistic]	(PM)
[Logistic]		
(PM)		

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)	100	100	100	100
A	=	Entry angle (degree)	36	30	18	25
Q	=	Entry flow (pcu/hr)	325	1325	590	730
		AM	325	1325	590	730
		Logistic	255	1135	485	510
		PM	300	1155	565	555
Qc	=	Circulating flow across entry (pcu/hr)	1670	135	980	1200
		AM	1670	135	980	1200
		Logistic	1315	115	850	1020
		PM	1275	580	750	950

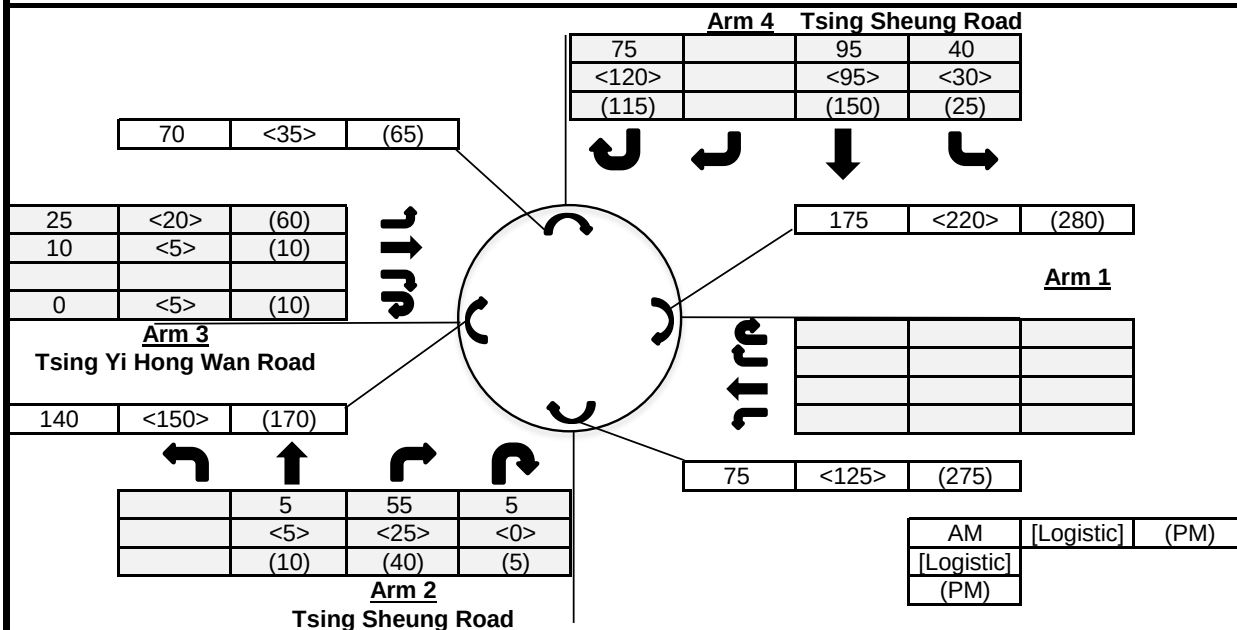
Output Parameters			Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L	0.30	0.22	0.22	0.20
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)	1.01	1.04	1.07	1.05
X2	=	V+((E-V)/(1+2*S))	8.58	9.19	8.62	8.33
M	=	Exp((D-60)/10)	54.60	54.60	54.60	54.60
F	=	303*X2	2598	2783	2613	2524
Td	=	1+(0.5/(1+M))	1.01	1.01	1.01	1.01
Fc	=	0.21*Td*(1+0.2*X2)	0.58	0.60	0.58	0.56
Qe	=	Capacity = K*(F-Fc*Qc)	1654	2797	2199	1939
		AM	1654	2797	2199	1939
		Logistic	1861	2809	2280	2046
		PM	1884	2520	2342	2087
DFC	=	Entry Flow/Capacity = Q/Qe	0.20	0.47	0.27	0.38
		AM	0.20	0.47	0.27	0.38
		Logistic	0.14	0.40	0.21	0.25
		PM	0.16	0.46	0.24	0.27

DFC of Critical Approach	=	AM	0.47
		Logistic	0.40
		PM	0.46

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	11.6
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 across entry (pcu/hr)	AM	75	140	70
			Logistic	125	150	35
			PM	275	170	65

Output Parameters

			Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = $1.6 \cdot (E-V)/L$		0.24	0.58	0.37
K	=	$1 - 0.00347 \cdot (A-30) - 0.978 \cdot (1/R - 0.05)$		1.02	0.97	0.94
X2	=	$V + ((E-V)/(1+2 \cdot S))$		7.76	5.51	9.75
M	=	$\text{Exp}((D-60)/10)$		0.50	0.50	0.50
F	=	$303 \cdot X2$		2350	1669	2954
Td	=	$1 + (0.5/(1+M))$		1.33	1.33	1.33
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$		0.71	0.59	0.83
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$	AM	2349	1537	2714
			Logistic	2313	1531	2741
			PM	2203	1520	2717
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.03	0.02	0.08
			Logistic	0.01	0.02	0.09
			PM	0.02	0.05	0.11

DFC of Critical Approach = AM 0.08
Logistic 0.09
PM 0.11

Roundabout Junction Calculation

Junction :	(RA8) Tsing Yi Road / Ching Hong Road	Job No.:	23125HK
Scenario :	2029 Design Traffic Flow		

Arm 4 Tsing Yi Road SB

230	410	375
<180>	<505>	<325>
(220)	(475)	(315)

Arm 1

1155	<1230>	(1195)

Arm 3 Ching Hong Road

685	<635>	(630)
75	<105>	(115)
65	<90>	(70)

Arm 2 Tsing Yi Road NB

555	<470>	(520)	
85		325	0
<120>		<265>	<25>
(105)		(300)	(0)

AM	[Logistic]	(PM)
[Logistic]		
(PM)		

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	4.2
E	= Entry width (m)	6.7	4.9	5.8	5.4
L	= Effective length of flare (m)	10	10	10	10
R	= Entry radius	32	97	52	34
D	= Inscribed circle diameter (m)	30	30	30	30
A	= Entry angle (degree)	34	32	31	46
Q	= Entry flow (pcu/hr)	40	95	50	0
		Logistic	45	120	60
		PM	25	120	45
Qc	= Circulating flow across entry (pcu/hr)	5	45	85	125
		Logistic	0	45	100
		PM	5	30	95

Output Parameters		Arm 1	Arm 2	Arm 3	Arm 4
S	= Sharpness of flare = $1.6 \cdot (E - V) / L$	0.54	0.14	0.38	0.19
K	= $1 - 0.00347 \cdot (A - 30) - 0.978 \cdot (1/R - 0.05)$	1.00	1.03	1.03	0.96
X2	= $V + ((E - V) / (1 + 2 \cdot S))$	4.93	4.70	4.76	5.07
M	= $\text{Exp}((D - 60) / 10)$	0.05	0.05	0.05	0.05
F	= $303 \cdot X2$	1493	1424	1442	1535
Td	= $1 + (0.5 / (1 + M))$	1.48	1.48	1.48	1.48
Fc	= $0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$	0.62	0.60	0.61	0.62
Qe	= Capacity = $K \cdot (F - Fc \cdot Qc)$	1497	1441	1427	1406
		Logistic	1500	1441	1418
		PM	1497	1450	1421
DFC	= Entry Flow/Capacity = Q/Qe	0.03	0.07	0.04	0.00
		Logistic	0.03	0.08	0.04
		PM	0.02	0.08	0.03

DFC of Critical Approach	=	AM	0.07		
		Logistic	0.08		
		PM	0.08		

Roundabout Junction Calculation

Junction :	(RA10) Tsing Sheung Road / Tsing Ko Road	Job No.:	23125HK
Scenario :	2029 Design Traffic Flow		

10	205	5
<45>	<170>	<20>
(5)	(145)	(15)

5	<0>	(15)
55	<60>	(90)
120	<120>	(165)

330	<315>	(240)
90	<65>	(40)
25	<40>	(30)

120	<105>	(85)
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	AM	[Logistic]	(PM)
	[Logistic]		
	(PM)		

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		5.1	11.6
L	= Effective length of flare (m)	18		30	30
R	= Entry radius	47		67.3	75
D	= Inscribed circle diameter (m)	50		50	50
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 across entry (pcu/hr)	AM 240		70	120
		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		-0.03	0.28
K	= $1-0.00347*(A-30)-0.978*(1/R-0.05)$	0.99		1.06	0.98
X2	= $V+((E-V)/(1+2*S))$	9.57		5.07	9.74
M	= $Exp((D-60)/10)$	0.37		0.37	0.37
F	= $303*X2$	2900		1537	2953
Td	= $1+(0.5/(1+M))$	1.37		1.37	1.37
Fc	= $0.21*Td*(1+0.2*X2)$	0.84		0.58	0.85
Qe	= Capacity = $K*(F-Fc*Qc)$	AM 2672		1589	2795
		Logistic 2660		1568	2808
		PM 2722		1565	2824
DFC	= Entry Flow/Capacity = Q/Qe	AM 0.07		0.28	0.08
		Logistic 0.07		0.27	0.08
		PM 0.10		0.20	0.06

DFC of Critical Approach	=	AM	0.28
		Logistic	0.27
		PM	0.20