Appendix B - Technical assessments conducted in the previously approved planning application No. A/YL-ST/658

Traffic Impact Assessment

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

AGREEMENT NO. CE47/2020 (CE) - TERM CONSULTANCY FOR SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED HOUSING DEVELOPMENTS IN ZONE 2 (2021-2024) – FEASIBILITY STUDY

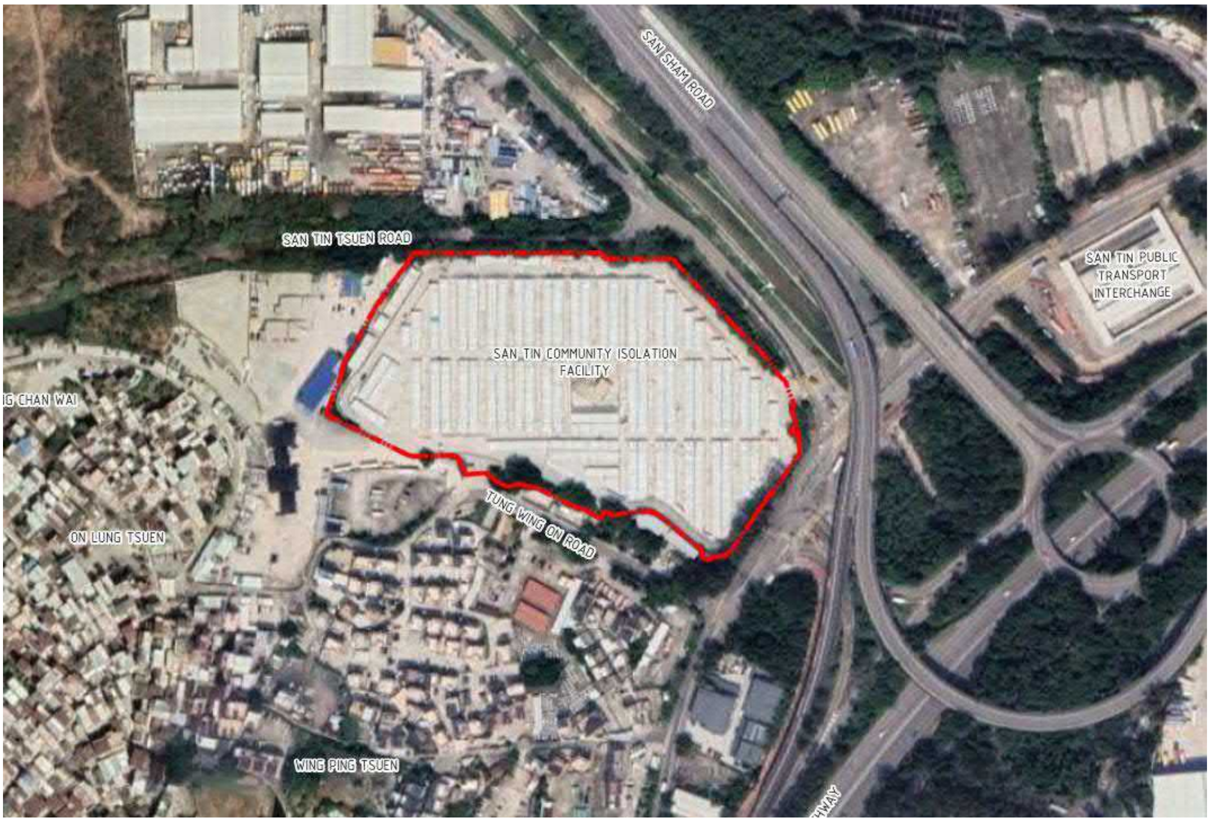
TASK ORDER NO. 9 – SAN TIN

SECTION 16 PLANNING APPLICATION

Traffic Impact Assessment

(Issue 1)

AUGUST 2023


SAN SHAM ROAD
SAN TIN TSUEN ROAD
SAN TIN PUBLIC TRANSPORT INTERCHANGE
SAN TIN COMMUNITY ISOLATION FACILITY
G CHAN WAI
ON LUNG TSUEN
TUNG WING ON ROAD
WING PING TSUEN
HWAY

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

AGREEMENT NO. CE 47/2020 (CE) – TERM CONSULTANCY FOR SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED HOUSING DEVELOPMENTS IN ZONE 2 (2021 – 2024) – FEASIBILITY STUDY

TASK ORDER NO. 9 – SAN TIN

SECTION 16 PLANNING APPLICATION

Traffic Impact Assessment

(Issue 1)

PROJECT NO.: 2512219A

DATE: AUGUST 2023

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TABLE OF CONTENT

1 INTRODUCTION 1

1.1 Background 1

1.2 Structure of this Report 1

2 THE PROPOSED DEVELOPMENT................2

2.1 Site Location.. 2

2.2 Development Schedule.. 2

2.3 Vehicular and Pedestrian Access Arrangement........... 2

2.4 Parking and Servicing Facilities.................................. 3

3 EXISTING TRAFFIC CONDITION 4

3.1 Existing Road Network in the Vicinity of Proposed Development.. 4

3.2 Traffic Survey.. 4

3.3 Traffic Assessment Principle....................................... 5

3.4 Existing Traffic Condition.. 5

3.5 Existing Public Transport Services 6

4 FUTURE PUBLIC TRANSPORT DEMAND ..8

4.1 Future Public Transport Demand............................... 8

4.2 Assessment of Existing Public Transport Capacity 8

5 TRAFFIC IMPACT ASSESSMENT 11

5.1 Design Year 11

5.2 Trip Generation of the Proposed Development 11

5.3 Other Planned Major Developments 11

5.4 Traffic Forecast 11

5.5 Junction and Road Link Capacity Assessment.......... 13

6 SUMMARY AND CONCLUSION 15

6.1 Summary 15

6.2 Conclusion 16

LIST OF DRAWINGS

Drawing Nos.	Drawing Title
CE47/TO9/TIA/101	Site Location Plan
CE47/TO9/TIA/201	Indicative Master Layout Plan
CE47/TO9/TIA/202	Ingress and Egress Routings for Development Traffic
CE47/TO9/TIA/301	Critical Junctions and Road Link
CE47/TO9/TIA/302	Existing Junction Layout of San Tin Interchange (J1)
CE47/TO9/TIA/303	Existing Junction Layout of Castle Peak Road – Chau Tau / Lok Ma Chau Road (J2)
CE47/TO9/TIA/304	Existing Junction Layout of Castle Peak Road – San Tin / San Tin Tsuen Road (J3)
CE47/TO9/TIA/305	Existing Junction Layout of Castle Peak Road – San Tin / Slip Road from San Tin Interchange (J4)
CE47/TO9/TIA/306	Existing Junction Layout of Castle Peak Road – San Tin / Tung Wing On Road (J5)
CE47/TO9/TIA/307	2023 Observed Traffic Flows
CE47/TO9/TIA/308	Existing Public Transport Services
CE47/TO9/TIA/501	2026 Reference Traffic Flows
CE47/TO9/TIA/502	2026 Design Traffic Flows

APPENDICES

Appendix A	Junction Calculation Sheet

ABBREVIATIONS

AADT	Annual Average Daily Traffic
APPROX.	Approximate
ATC	Annual Traffic Census
CAP.	Capacity
CEDD	Civil Engineering and Development Department
CIF	Community Isolation Facility
DFC	Design Flow / Capacity
EB	Eastbound
GMB	Green Minibus
HGV	Heavy Goods Vehicle
HKPSG	Hong Kong Planning and Standard Guidelines
L/UL	Loading/Unloading

MLP	Master Layout Plan
NB	Northbound
OCC.	Occupancy
OU	Other Specified Uses
OZP	Outline Zoning Plan
PCU	Passenger Car Unit
PlanD	Planning Department
PT	Public Transport
PTI	Public Transport Interchange
RC	Reserve Capacity
RCV	Refuse Collection Vehicle
SB	Southbound
TIA	Traffic Impact Assessment
TPB	Town Planning Board
TPDM	Transport Planning and Design Manual
TPEDM	Territorial Population and Employment Data Matrix
V/C	Volume to Capacity
WB	Westbound
WSP	WSP (Asia) Ltd.

1 INTRODUCTION

1.1 BACKGROUND

1.1.1 WSP (Asia) Ltd. (WSP) is commissioned by the Civil Engineering and Development Department (CEDD) to submit the Section 16 Planning Application to seek permission from the Town Planning Board (TPB/ the Board) for the proposed temporary training facilities (the proposed development) at the San Tin Community Isolation Facility (CIF) (Application Site/Site), on a temporary basis up to 31 October 2024.

1.1.2 The Applicant, CEDD, proposes a development at San Tin CIF, on a temporary basis up to 31 October 2024. The Application Site falls within an area zoned for "Other Specified Uses (Services Stations)" under the Approved San Tin Outline Zoning Plan No. S/YL-ST/8 (OZP). In accordance with Clause No. (11) (b) of the covering Notes of the approved OZP, "*……temporary use or development of any land or building not exceeding a period of three years requires permission from the Town Planning Board……*". Therefore, this planning application is submitted to the TPB under Section 16 of the Town Planning Ordinance for the proposed temporary development.

1.1.3 The Application Site is currently occupied by San Tin CIF. With the epidemic in Hong Kong having been brought under control gradually, the CIF have been put into standby mode. To fully utilize the existing resources and facilities, the Applicant intends to convert the existing San Tin CIF as the proposed temporary development up to 31 October 2024. The location plan of the Site is shown in **Drawing No. CE47/TO9/TIA/101**.

1.2 STRUCTURE OF THIS REPORT

1.2.1 This report is organized into 6 sections. Apart from this introductory section, there will be other sections as follows:

- Section 2 – Proposed Development, describes the proposed development, development parameters and the internal transport facilities, access arrangement etc.;
- Section 3 – Existing Traffic Condition, reviews the current traffic conditions in the vicinity of the proposed development;
- Section 4 – Future Public Transport (PT) Demand, elaborates the anticipated PT demand and assesses the existing PT capacity;
- Section 5 – Traffic Impact Assessment (TIA), presents the traffic forecasting methodology and presents the forecasted traffic flows in design year, assesses the traffic impact induced on the surrounding road network;
- Section 6 – Summary and Conclusion, summarizes the findings of the study and presents the conclusion of this TIA.

2 THE PROPOSED DEVELOPMENT

2.1 SITE LOCATION

2.1.1 The proposed development is located at the existing San Tin CIF which is bounded by Castle Peak Road – San Tin to the east, Tung Wing On Road to the south and San Tin Tsuen Road to the west and north. The site location is shown in **Drawing No. CE47/TO9/TIA/101**.

2.2 DEVELOPMENT SCHEDULE

2.2.1 The proposed development is targeted to commission in October 2023 and operate up to 31 October 2024.

2.2.2 Regular training classes would be provided at the Site, accommodating around 100 staff and students within the Site. The training classes are anticipated to be held at the Site from 08:00 to 22:00 tentatively.

2.2.3 The indicative Master Layout Plan (MLP) of the Site is shown in **Drawing No. CE47/TO9/TIA/201**.

2.3 VEHICULAR AND PEDESTRIAN ACCESS ARRANGEMENT

2.3.1 Under the existing traffic arrangement, there is vehicular and pedestrian access available at San Tin Tsuen Road and Tung Wing On Road. For the operational need of the proposed development, the access at Tung Wing On Road would be maintained for both vehicles and pedestrians while that at San Tin Tsuen Road would be open to pedestrians only to facilitate staff/students to/from the nearby bus stops/public transport interchange (PTI).

2.3.2 Although the existing internal road within the Site is a single-2 carriageway (i.e. two-way), it is proposed to convert it into a one-way gyratory system in clockwise direction in order to minimise vehicular conflicting movements.

2.3.3 For the traffic routings outside the Site as demonstrated in **Drawing No. CE47/TO9/TIA/202**, the vehicle would enter / leave the Site via:

Ingress Route

From the South

- San Tin Highway Northbound (NB) → San Tin Highway Slip Road → Castle Peak Road – San Tin Southbound (SB) → Tung Wing On Road Westbound (WB)

From the North

- Fanling Highway SB → San Tin Interchange → San Tin Highway Slip Road → Castle Peak Road – Chau Tau SB → Castle Peak Road – San Tin SB → Tung Wing On Road WB

Egress Route

To the South

- Tung Wing On Road Eastbound (EB) → Castle Peak Road – San Tin NB → San Tin Interchange → San Tin Highway SB

To the North

- Tung Wing On Road EB → Castle Peak Road – San Tin NB → San Tin Interchange → Fanling Highway NB

2.4 PARKING AND SERVICING FACILITIES

Car Park Provision

2.4.1 Currently, there is no standard parking/servicing facilities requirement for training facilities. To serve the operational need, a total of 8 nos. of car park spaces (i.e. 5m x 2.5m) would be provided for staff within the proposed development.

2.4.2 As refuse storage and collection is required for the operation of the proposed development, 3 nos. of the existing loading/unloading (L/UL) bays of 11m heavy goods vehicle (HGV) would be reserved for the use of Refuse Collection Vehicle (RCV) and refuse collection.

2.4.3 The car park spaces for staff and the L/UL bays for RCV and refuse collection are indicated in **Drawing No. CE47/TO9/TIA/201**.

3 EXISTING TRAFFIC CONDITION

3.1 EXISTING ROAD NETWORK IN THE VICINITY OF PROPOSED DEVELOPMENT

3.1.1 The proposed development is located at the existing San Tin CIF which is bounded by is bounded by Castle Peak Road – San Tin to the east, Tung Wing On Road to the south and San Tin Tsuen Road to the west and north.

3.1.2 San Tin Tsuen Road is a single track access road with passing bays except the section between Tun Yu Road and Castle Peak Road – San Tin which is a two-way road with 1 to 2 traffic lanes in each direction. It connects with Castle Peak Road – San Tin at its southern end and loops around the villages. It then joins back Castle Peak Road – San Tin at its northern end.

3.1.3 Tung Wing On Road is a single-2 lane carriageway running in east-west direction. It serves the local traffic demand and provides connection to Castle Peak Road – San Tin at its eastern end.

3.1.4 Castle Peak Road – San Tin is a single-2 lane carriageway which further links up with San Tin Highway via the slip roads to/from San Tin Interchange.

3.1.5 San Tin Highway is a dual-3 lane carriageway which is a part of New Territories Circular Road (Route 9) and serves as the main road corridor for local traffic in Tam Mei / San Tin / Ngau Tam Mei area to access other urban areas in Hong Kong.

3.2 TRAFFIC SURVEY

3.2.1 A total of 5 critical junctions and 1 road link were identified for assessment in this TIA. They are listed in **Table 3.1** and shown in **Drawing No. CE47/TO9/TIA/301**. Layouts of the existing junctions are presented in **Drawing No. CE47/TO9/TIA/302** to **Drawing No. CE47/TO9/TIA/306**.

Table 3.1 Critical Junctions and Road Link

Index	Name of Junction / Road Link	Type
Junction		
J1	San Tin Interchange	Roundabout
J2	Castle Peak Road – Chau Tau / Lok Ma Chau Road	Signalised
J3	Castle Peak Road – San Tin / San Tin Tsuen Road	Priority
J4	Castle Peak Road – San Tin / Slip Road from San Tin Interchange	Signalised
J5	Castle Peak Road – San Tin / Tung Wing On Road	Priority
Road Link		
L1	Tung Wing On Road	-

3.2.2 Manual classified traffic counts surveys were carried out during AM and PM peak periods on a typical weekday in early July 2023 to establish the current traffic condition in the vicinity. The identified AM and PM peak hours are 07:45 – 08:45 and 17:00 – 18:00 respectively.

3.2.3 The 2023 observed AM and PM peak hour traffic flows are shown in **Drawing No. CE47/TO9/TIA/307**.

3.3 TRAFFIC ASSESSMENT PRINCIPLE

3.3.1 Junction capacity analysis will be carried out based on the guideline as stated in the TPDM during AM and PM peak hours. The performances of signalised junctions and roundabout / priority junction are indicated by reserve capacity (RC) and Design Flow / Capacity (DFC) ratio respectively. A positive RC figure indicates that the junction is operating with spare capacity; and a negative RC figure indicates that the junction is overloaded, hence resulting in traffic queues and longer travelling time. DFC of 1.00 indicates that capacity has been reached; DFC over 1.00 indicates the overloaded condition.

3.3.2 For road links, the performance indicator is V/C (Volume to Capacity) ratio. A V/C ratio equal to or less than 1.0 means that the road has sufficient capacity to cope with the volume of vehicular traffic under consideration. A V/C ratio above 1.0 indicates the onset of mild congestion and a V/C ratio between 1.0 and 1.2 would indicate a manageable degree of congestion. A V/C ratio above 1.2 indicates more serious congestion with traffic speeds progressively deteriorating with further traffic increases.

3.4 EXISTING TRAFFIC CONDITION

3.4.1 Junction capacity analysis was carried out for the aforesaid junctions and road link based on the Transport Planning and Design Manual (TPDM) (e.g. Volume 2 Chapter 2.4.2 and Volume 4 Chapter 2.4). The results of the junction and road link capacity assessment are shown in **Table 3.2** and **Table 3.3** respectively. The detailed junction calculation sheets are shown in **Appendix A**.

Table 3.2 Existing Junction Performance

Index	**Junction**	**Type**	**Year 2023 Observed RC / DFC**	
			AM Peak	**PM Peak**
J1	San Tin Interchange	Roundabout	0.45	0.43
J2	Castle Peak Road – Chau Tau / Lok Ma Chau Road	Signalised	37%	35%

Index	Junction	Type	Year 2023 Observed RC / DFC	
			AM Peak	PM Peak
J3	Castle Peak Road – San Tin / San Tin Tsuen Road	Priority	0.19	0.25
J4	Castle Peak Road – San Tin / Slip Road from San Tin Interchange	Signalised	>100%	>100%
J5	Castle Peak Road – San Tin / Tung Wing On Road	Priority	0.28	0.20

Table 3.3 Existing Road Link Performance

Index	Road Link	Dir. (1)	Capacity (pcu/hr)	Year 2023 Observed			
				AM Peak		PM Peak	
				Flow (pcu/hr)	V/C Ratio	Flow (pcu/hr)	V/C Ratio
L1	Tung Wing On Road	EB	415 (2)	140	0.34	90	0.22
		WB	415 (2)	95	0.23	125	0.30

Notes:

(1) EB – northbound; WB - southbound

(2) The capacity is made reference to TPDM Volume 2, Chapter 2.4, Table 2.4.1.1. For local road, the design flow of a 2-lane single carriageway is 800 veh/hr. With consideration of high heavy vehicle content as observed from survey, 10% reduction in design flow per carriageway is adopted. A pcu factor of 1.15 based on survey is used to convert veh/hr to pcu/hr, therefore the design flow is calculated as 800 veh/hr x (1-10%) x 1.15 = approx. 830 pcu/hr for 2-way traffic, and thus 415 pcu/hr for each bound).

3.4.2 At present, all the assessed junctions and road link are operating within capacity.

3.5 EXISTING PUBLIC TRANSPORT SERVICES

3.5.1 There are 8 franchised bus (including 3 regular bus) and 5 green minibus (GMB) routes serving the vicinity of the proposed development at Castle Peak Road – Chau Tau and Lok Ma Chau (San Tin) Public Transport Interchange (PTI) as summarized in **Table 3.4** and shown in **Drawing No. CE47/TO9/TIA/308**.

Table 3.4 Existing Public Transport Services

Route No.	Origin / Destination			Frequency (min.)
Franchised Bus				
B1	Lok Ma Chau Station	←→	Tin Tsz Estate	5 – 15
	Lok Ma Chau Station	←→	Ma Wang Road (San Shui House)	15 – 60

Route No.	**Origin / Destination**			**Frequency (min.)**
	Lok Ma Chau Station	←→	Tin Yan	15 – 30 (1)
76K	Sheung Shui (Ching Ho)	←→	Long Ping Estate	20 – 30
276B	Sheung Shui (Choi Yuen)	←→	Tin Fu	15 – 25
976	Lok Ma Chau (San Tin)	←→	Sai Wan Ho	06:30, 07:20, 07:50, 18:10, 18:40, 19:10 (2)
976A	Lok Ma Chau (San Tin)	←→	Siu Sai Wan (Island Resort)	07:00, 17:30 (2)
A43P	Fanling (Luen Wo Hui)	→	Airport (Ground Transportation Centre)	05:30, 06:15, 06:35, 07:00, 07:40, 08:40, 09:40, 10:40, 11:40, 12:40, 13:40
NA43	Hong Kong Zhuhai Macau Bridge (HKZMB) Hong Kong Port	←→	Fanling	00:15, 01:10, 04:05, 04:25, 04:45
N73	Lok Ma Chau	←→	Shatin Central	30
GMB				
44B	Lok Ma Chau (San Tin) PTI	←→	Tuen Mun MTR Station	15 – 20
44B1	Lok Ma Chau (San Tin) PTI	←→	Tuen Mun Ferry Pier	15 – 20
75	Yuen Long (Fook Hong Street)	←→	Ha Wan Tsuen	15 – 20
	Yuen Long (Fook Hong Street)	←→	Lok Ma Chau Spur Line Control Point	15 – 30
76	Yuen Long (Fook Hong Street)	←→	Siu Hom Tsuen	15 – 20
78	Lok Ma Chau (San Tin) PTI	←→	Pat Heung Road (near Tai Lam Bus-Bus Interchange)	20 – 25

Notes:

(1) Temporarily suspended

(2) Monday to Friday (except public holidays).

4 FUTURE PUBLIC TRANSPORT DEMAND

4.1 FUTURE PUBLIC TRANSPORT DEMAND

4.1.1 With limited parking spaces provided within the Site and no coach service would be provided to serve the staff and students to/from the proposed development, the majority of the staff and students is anticipated to take PT to/from the proposed development. The closest bus stops and PTI to the proposed development are located at Castle Peak Road – Chau Tau and Lok Ma Chau (San Tin) PTI, which would be around 230m away from the proposed development and is considered within acceptable walking distance.

4.1.2 There would be around 100 staff and students having regular training classes at the Site at the same time. As a conservative approach, it is assumed that all staff and students would rely on the PT.

4.1.3 Taking into account the early class would start at 08:00 and the last class would end at 22:00 tentatively, it is expected that the arrival of staff/students would not overlap with the dismissal of staff/student during AM peak period while it would happen during PM peak period. As a worst-case scenario, the following PT demand is assumed for assessment purpose:

- AM Peak – 100 pax/hr (Inbound) and nil pax/hr (Outbound)
- PM Peak – 100 pax/hr (Inbound) and 100 pax/hr (Outbound)

4.2 ASSESSMENT OF EXISTING PUBLIC TRANSPORT CAPACITY

4.2.1 There are 7 regular franchised bus and GMB services (i.e. franchised bus route no. B1, 76K, 276B and GMB route no. 44B, 44B1, 75, 78) at the nearest bus stop/PTI to the Site, which would be the major PT serving the staff/students to/from the proposed development. The destination areas/points of the above PT services are Lok Ma Chau / San Tin, Yuen Long Area (including Long Ping and Tin Shui Wai), Sheung Shui, Tuen Mun and Tai Lam BBI.

4.2.2 Based on site observation, the existing franchised bus service of route nos. B1 and 276B are heavily utilized, the occupancy rate of some buses could reach 80% to 100% during peak hours. Therefore, the above bus routes are excluded for estimating the spare capacity of the existing PT services to/from the proposed development. The observed occupancy and estimated spare capacity of the other existing PT services during peak periods are presented in **Table 4.1**.

Table 4.1 Existing Occupancy and Spare Capacity of the Public Transport Services (Excluding Bus Route Nos. B1 and 276B)

Route No.	Origin / Destination	AM Peak $^{(1)}$		PM Peak			
		Inbound (To the Site)		Inbound (To the Site)		Outbound (From the Site)	
		Average Occ. (%)	Spare Cap. $^{(2)}$ (pax/hr)	Average Occ. (%)	Spare Cap. $^{(2)}$ (pax/hr)	Average Occ. (%)	Spare Cap. $^{(2)}$ (pax/hr)
Franchised Bus							
76K	Sheung Shui (Ching Ho) ←→ Long Ping Estate	30%	403	45%	316	45%	316
GMB							
44B	Lok Ma Chau (San Tin) PTI ←→ Tuen Mun MTR Station	35%	42	45%	35	70%	19
44B1	Lok Ma Chau (San Tin) PTI ←→ Tuen Mun Ferry Pier	85%	9	25%	48	100%	0
75	Lok Ma Chau / San Tin ←→ Yuen Long	45%	55	60%	40	60%	40
78	Lok Ma Chau (San Tin) PTI ←→ Tai Lam BBI	20%	40	10%	45	15%	43
Total		-	**549**	-	**484**	-	**418**

Notes:

(1) No PT demand for outbound as discussed in **Section 4.1.3**.

(2) Assuming the capacity for bus and GMB is 120 pax/bus and 19 pax/bus respectively, the remaining capacity is calculated by:

For Bus 76K	(1 – Existing Occupancy) x 120 pax/bus x 60 min / average frequency x 2 bounds
For GMB 75	(1 – Existing Occupancy) x 19 pax/bus x 60 min / average frequency x 2 bounds
For GMB 44B, 44B1, 78	(1 – Existing Occupancy) x 19 pax/bus x 60 min / average frequency

4.2.3 As shown in **Table 4.1**, the remaining capacity of the existing regular PT services (excluding the busy bus route nos. B1 and 276B) would be much greater than (around 5 times) the estimated PT demand (i.e. >> 100 pax/hr) for inbound during both AM and PM peak periods. Furthermore, the total spare capacity for outbound during PM peak period is around 4 times the anticipated PT demand (i.e. 100 pax/hr). It implies that the remaining capacity of the existing PT would be able to accommodate the additional PT demand generated by the proposed development.

4.2.4 Nonetheless, in case of coach service is required to be provided within the Site, the 3 nos. of L/UL bays (as mentioned in **Section 2.4.2**) could be used to accommodate two 60-seater coaches (i.e. 120 seats in total) which shall be sufficient to serve 100 staff and students. Under this scenario, it is anticipated that the majority of staff and students would take coach instead of PT. Hence, the additional PT demand generated by the proposed development would be minimal and the utilization of PT would be very similar to the existing situation.

5 TRAFFIC IMPACT ASSESSMENT

5.1 DESIGN YEAR

5.1.1 Taking into consideration (1) the proposed development is tentatively scheduled for commission in October 2023 and would operate up to 31 October 2024; and (2) the permission from TPB would be granted for a maximum period of three years, as a conservative approach, year 2026 is adopted as the design year in this TIA for assessment purpose.

5.2 TRIP GENERATION OF THE PROPOSED DEVELOPMENT

5.2.1 As mentioned in **Section 2.4**, there is only 8 nos. of car parking spaces provided for staff within the Site. As a conservative approach, a nominal traffic generation/attraction of 10 pcu/hr is assumed for the proposed development as tabulated in **Table 5.1**.

Table 5.1 Estimated Development Traffic

Type	**Trip Ends (pcu/hr)** (1)			
	AM Peak		**PM Peak**	
	Gen.	**Att.**	**Gen.**	**Att.**
Car Park	0	10	10	10

Note:

(1) A nominal traffic generation of 10 pcu/hr is assumed for both traffic generation and attraction. Since the earliest class shall start at 8am tentatively and classes are likely to be finished after the AM peak, nil traffic generation is thus assumed for AM peak.

5.3 OTHER PLANNED MAJOR DEVELOPMENTS

5.3.1 Nil planned major development of which to be completed on or before 2026, is identified in close vicinity of the proposed development.

5.4 TRAFFIC FORECAST

5.4.1 In order to carry out traffic forecasts and examine traffic impact due to the proposed development in year 2026, Annual Growth Rate method is adopted to estimate the background traffic flows based on the existing traffic flows. An appropriate growth factor has been identified for the area, which would be determined from (i) the historical traffic growth and (ii) planning data in Yuen Long Area. In addition, traffic generated by the other key future developments within the vicinity and the proposed development have been added to the background traffic flows to produce year 2026 reference traffic flows (i.e. without the proposed development) and year 2026 design traffic flows (i.e. with the proposed development).

Historical Trend

5.4.2 Annual Traffic Census (ATC) published by Transport Department was referred to determine the historical traffic growth in Yuen Long area. Taking into account San Tin area is close to the mainland boundary and the cross boundary traffic had been significantly affected by the pandemic situation, thus the Annual Average Daily Traffic (AADT) data in year 2020 and 2021 is excluded and only AADT for counting stations in the vicinity of the proposed development from year 2015 to 2019 is considered as summarized in **Table 5.2**.

Table 5.2 Average Annual Daily Traffic (AADT) Date from ATC

Station No.	**Road**	**Traffic Generation (pcu/hr)**				
		2015	**2016**	**2017**	**2018**	**2019**
5257	Castle Peak Road – Tam Mi, Mai Po & San Tin	10,510	10,940	10,770	11,980	11,910
5496	San Sham Road	27,750	28,900	28,450	29,150	26,970
5656	Fanling Highway	54,860	65,300	64,830	66,900	69,560
5861	Lok Ma Chau Road	12,050	12,920	9,820	10,060	9,990
	Total	**105,170**	**118,060**	**113,870**	**118,090**	**118,430**
Annual Growth Rate from 2015 to 2019 = +3.0%						

5.4.3 Studying the AADT flows as shown in **Table 5.2**, the average traffic growth in the vicinity of the proposed development was about +3.0% per annum.

Planning Data

5.4.4 The traffic growth rate was also made reference to 2019-based Territorial Population and Employment Data Matrix (TPEDM) data which is available on Planning Department (PlanD)’s website. **Table 5.3** shows year 2019 to year 2026 population and employment planning data in Northeast New Territories (Other Area), Northwest New Territories (Other Area) and Fanling/Sheung Shui area.

Table 5.3 Planning Data of 2019-based TPEDM

Planning Data District	**Year 2019**		**Year 2026**	
	Population	**Employment**	**Population**	**Employment**
Northeast New Territories (Other Area)	105,400	36,050	143,050	38,300
Northwest New Territories (Other Area)	222,800	58,400	239,250	76,850
Fanling/Sheung Shui	258,300	64,100	274,100	66,650
Total	**745,050**		**838,200**	
	Annual Growth Rate = +1.7% per annum			

Adopted Annual Growth Rate

5.4.5 Taking into consideration of ATC and planning data, it is assumed to adopt an annual growth rate of +3.0% per annum for projecting the peak hour traffic flows from year 2023 to produce year 2026 reference traffic flows as presented in **Drawing No. CE47/TO9/TIA/501**.

5.4.6 In addition, the additional traffic generated to/from the proposed development have been superimposed to produce year 2026 design traffic flows as presented in **Drawing No. CE47/TO9/TIA/502**.

5.5 JUNCTION AND ROAD LINK CAPACITY ASSESSMENT

5.5.1 The operational performance of the critical junctions and road link based on year 2026 traffic forecast (both "Reference Case" and "Design Case") have been assessed. The results of the junction and road link capacity assessment are presented in **Table 5.4** and **Table 5.5** respectively. The detailed junction calculation sheets are shown in **Appendix A**.

Table 5.4 Junction Performance in Year 2026

Index	**Junction**	**Type**	**Year 2026 RC / DFC**			
			Reference Case		**Design Case**	
			AM Peak	**PM Peak**	**AM Peak**	**PM Peak**
J1	San Tin Interchange	Roundabout	0.50	0.47	0.50	0.47
J2	Castle Peak Road – Chau Tau / Lok Ma Chau Road	Signalised	25%	24%	25%	24%
J3	Castle Peak Road – San Tin / San Tin Tsuen Road	Priority	0.21	0.28	0.21	0.28
J4	Castle Peak Road – San Tin / Slip Road from San Tin Interchange	Signalised	>100%	>100%	>100%	>100%
J5	Castle Peak Road – San Tin / Tung Wing On Road	Priority	0.32	0.21	0.32	0.23

Table 5.5 Road Link Performance in Year 2026

Index	Road Link	Dir. (1)	Capacity (pcu/hr)	Year 2026 Reference Case				Year 2026 Design Case			
				AM Peak		PM Peak		AM Peak		PM Peak	
				Flow (pcu/ hr)	V/C Ratio	Flow (pcu/ hr)	V/C Ratio	Flow (pcu/ hr)	V/C Ratio	Flow (pcu/ hr)	V/C Ratio
L1	Tung Wing On Road	EB	415 (2)	155	0.37	100	0.24	155	0.37	110	0.27
		WB	415 (2)	105	0.25	135	0.33	115	0.28	145	0.35

Notes:

(1) EB – northbound; WB - southbound

(2) The capacity is made reference to TPDM Volume 2, Chapter 2.4, Table 2.4.1.1. For local road, the design flow of a 2-lane single carriageway is 800 veh/hr. With consideration of high heavy vehicle content as observed from survey, 10% reduction in design flow per carriageway is adopted. A pcu factor of 1.15 based on survey is used to convert veh/hr to pcu/hr, therefore the design flow is calculated as 800 veh/hr x (1-10%) x 1.15 = approx. 830 pcu/hr for 2-way traffic, and thus 415 pcu/hr for each bound).

5.5.2 As shown in **Table 5.4** and **5.5**, all the critical junctions and road link would operate within capacity under both reference and design cases in year 2026. Therefore, the traffic impact caused by the proposed development to the above junctions and road link is considered acceptable from traffic point of view.

6 SUMMARY AND CONCLUSION

6.1 SUMMARY

6.1.1 This TIA Report is to ascertain the potential traffic impact by the proposed development on the transport infrastructure and facilities provision.

6.1.2 The proposed development is located at the existing San Tin CIF which is bounded by Castle Peak Road – San Tin to the east, Tung Wing On Road to the south and San Tin Tsuen Road to the west and north. The anticipated commencement date is envisaged to be October 2023 tentatively and the Site is intended to operate up to 31 October 2024.

6.1.3 Under the existing traffic arrangement, there is vehicular and pedestrian access available at San Tin Tsuen Road and Tung Wing On Road. For the operational need of the proposed development, the access at Tung Wing On Road would be maintained for both vehicles and pedestrians while that at San Tin Tsuen Road would be open to pedestrians only to facilitate staff/students to/from the nearby bus stops/ PTI.

6.1.4 It is proposed to convert the existing internal road from two-way into one-way gyratory system in clockwise direction in order to minimise vehicular conflicting movements.

6.1.5 Currently, there is no standard parking/servicing facilities requirement for training facilities. To serve the operational need, a total of 8 nos. of car park spaces (i.e. 5m x 2.5m) would be provided for staff within the proposed development. As refuse storage and collection is required for the operation of the proposed development, 3 nos. of the existing L/UL bays of 11m HGV would be reserved for the use of RCV and refuse collection.

6.1.6 5 critical junctions and 1 road link were identified in the vicinity of the proposed development for assessment in this TIA. Junction and road link capacity analysis were carried out for the critical junctions and road link to appraise the existing traffic condition based on 2023 observed peak hour traffic flows. At present, all critical junctions and road link are operating within capacity.

6.1.7 There would be around 100 staff and students having regular training classes at the Site at the same time. With limited parking spaces provided within the Site and no coach service would be provided to serve the staff and students to/from the proposed development, it is assumed that all staff and students would rely on the PT as a conservative approach. Taking into account the early class would start at 08:00 and the last class would end at 22:00 tentatively, the arrival of staff/students would not overlap with the dismissal of staff/student during AM peak period while it would happen during PM peak period. As a worst-case scenario, the following PT demand is assumed for assessment purpose:

- AM Peak – 100 pax/hr (Inbound) and nil pax/hr (Outbound)
- PM Peak – 100 pax/hr (Inbound) and 100 pax/hr (Outbound)

6.1.8 Based on site observation, the existing franchised bus service of route nos. B1 and 276B are heavily utilized, the occupancy rate of some buses could reach 80% to 100% during peak hours. Excluding the above bus routes, the spare capacity of the existing regular PT services (including franchised bus route no. 76K and GMB route no. 44B, 44B1, 75, 78) which is close to the Site, would be able to accommodate the additional PT demand generated by the proposed development. Nonetheless, in case of coach service is required to be provided within the Site to serve the staff and students to/from the proposed development, the 3 nos. of L/UL bays (as mentioned in **Section 2.4.2**) could be used to accommodate 2 nos. of 60-seater coaches (i.e. 120 seats in total) which shall be sufficient to serve 100 staff and students. Under this scenario, it is anticipated that the majority of staff and students would take coach instead of PT. Hence, the additional PT demand generated by the proposed development would be minimal and the utilization of PT would be very similar to the existing situation.

6.1.9 Taking into consideration (1) the proposed development is tentatively scheduled for commission in October 2023 and would operate up to 31 October 2024; and (2) the permission from TPB would be granted for a maximum period of three years, as a conservative approach, year 2026 is adopted as the design year in this TIA for assessment purpose.

6.1.10 In order to carry out traffic forecasts and examine traffic impact due to the proposed development in year 2026, Annual Growth Rate method is applied to estimate year 2026 traffic forecast from year 2023 observed traffic flows. Taking into consideration of both ATC and planning data, it is assumed to adopt an annual growth rate of +3.0% per annum for projecting the peak hour traffic flows from year 2023 to year 2026.

6.1.11 Year 2026 reference traffic flows were derived based on the observed traffic demands and circulation pattern by adopting an appropriate growth rate.

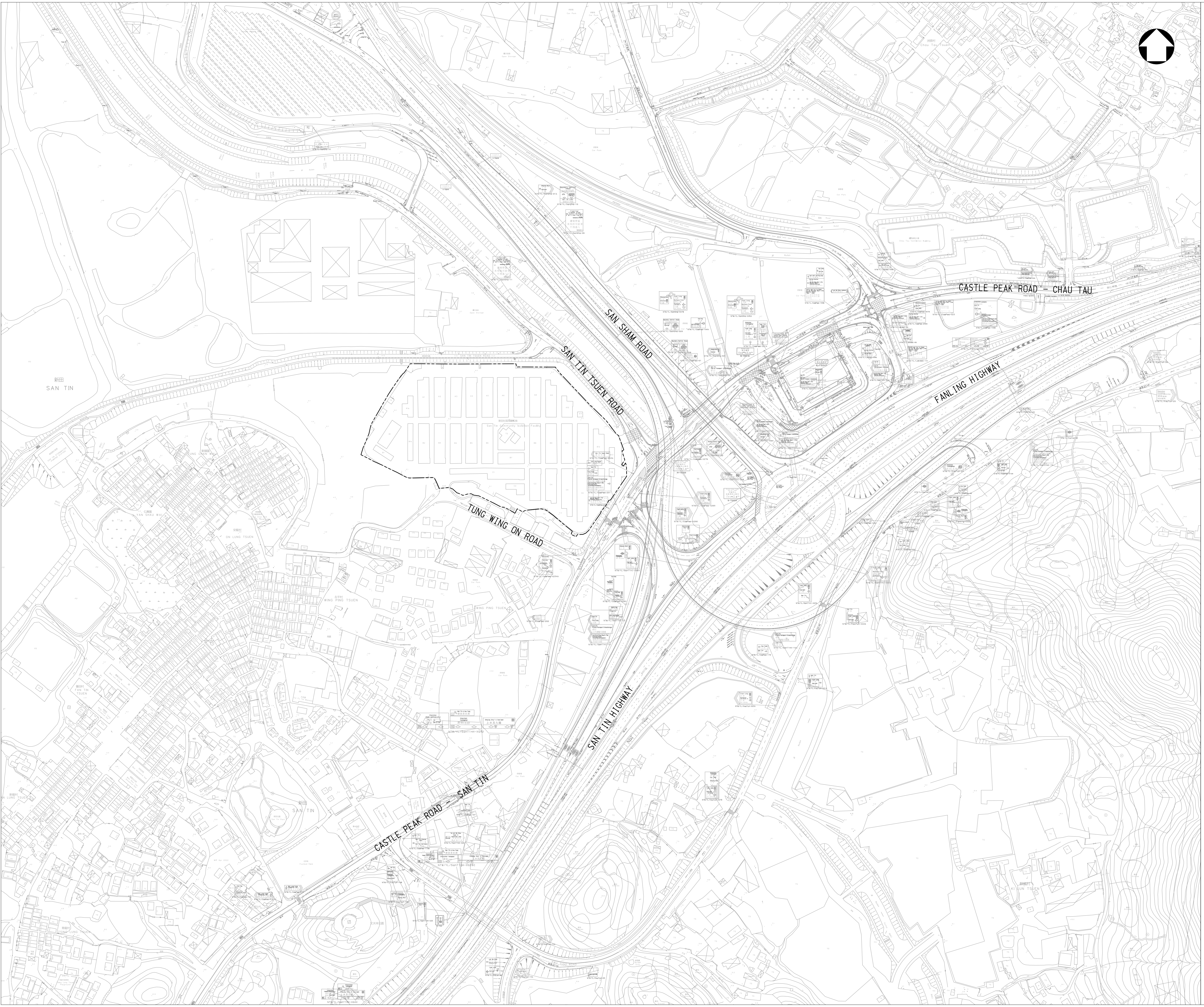
6.1.12 The estimated development traffic trips have been superimposed onto the anticipated year 2026 reference traffic flows to produce the anticipated year 2026 peak hour traffic flows for design case.

6.1.13 Junction and road link capacity assessment was conducted for both year 2026 reference and design cases. The results indicated that the critical junctions and road link would operate within capacity in year 2026 with the proposed development.

6.2 CONCLUSION

6.2.1 All the identified critical junctions and road link would operate within capacity under 2026 design case (i.e. with the proposed development) during AM and PM peak periods, the proposed development would not induce adverse traffic impacts on the surrounding road network. Therefore, it can be concluded that the proposed development is acceptable from the traffic engineering point of view.

Drawings


新田
SAN TIN
SAN SHAM ROAD
SAN TIN TSUEN ROAD
CASTLE PEAK ROAD - CHAU TAU
FANLING HIGHWAY
TUNG WING ON ROAD
SAN TIN HIGHWAY
CASTLE PEAK ROAD - SAN TIN

LEGEND :

[ ]	SITE BOUNDARY

Rev	Description	By	Date

Consultant

wsp

Project title

AGREEMENT NO.CE47/2020 (CE)
TERM CONSULTANCY FOR SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED HOUSING DEVELOPMENTS IN ZONE 2 (2021 - 2024) - FEASIBILITY STUDY

Drawing title

TASK ORDER NO. 9 - SAN TIN
SITE LOCATION PLAN

Drawing no.			Rev.
CE47/T09/TIA/101			-
Drawn CAD	Date MAY 2023	Checked VS	Approved YWY
Scale 1:2000 (A1)		Status -	

土木工程拓展署
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
西拓展處
WEST DEVELOPMENT OFFICE

Date : 8/14/2023
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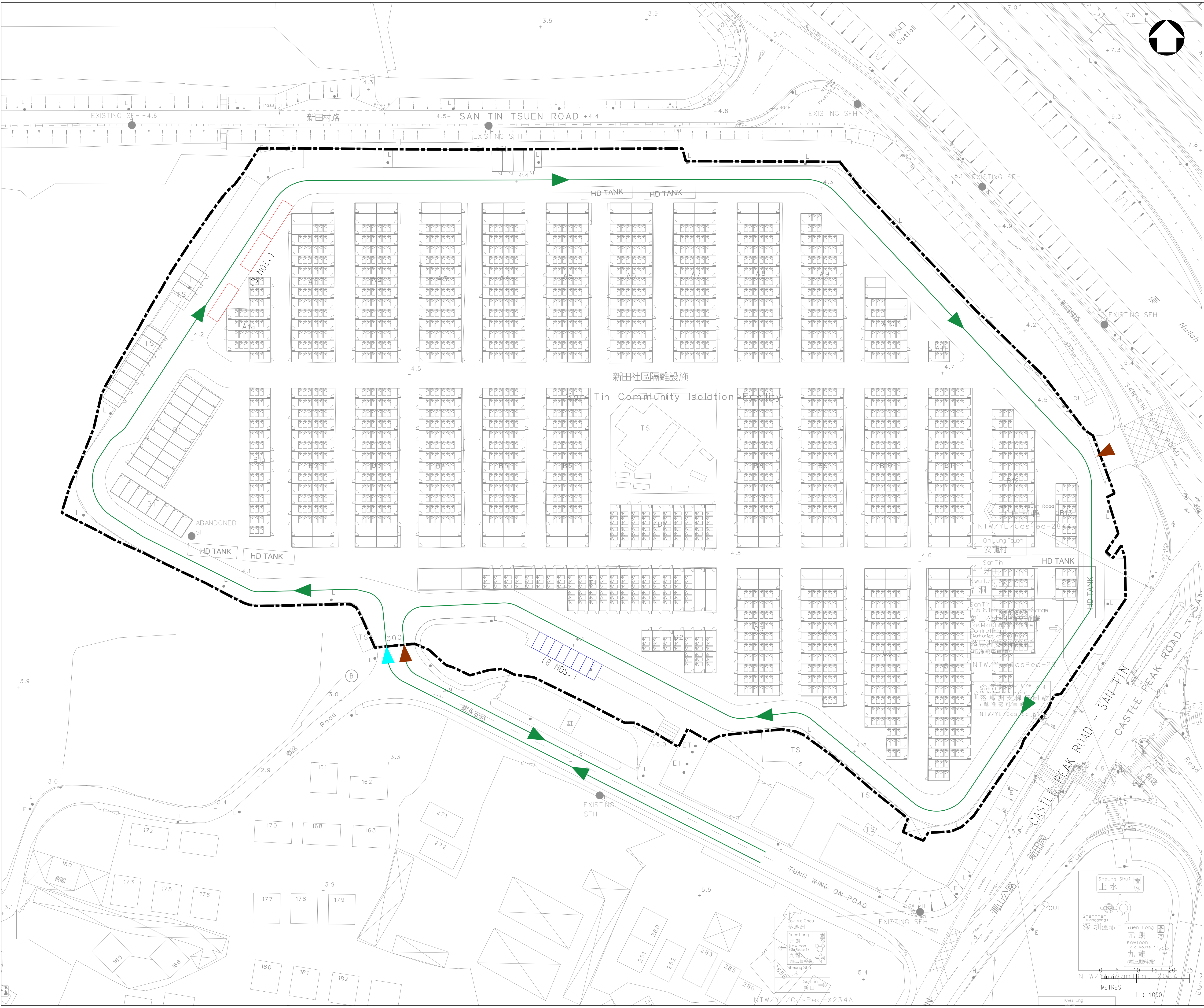
SAN TIN TSUEN ROAD
新田村路
EXISTING SFH
HD TANK
新田社區隔離設施
San Tin Community Isolation Facility
TS
(3 NOS.)
(8 NOS.)
ABANDONED SFH
300
TUNG WING ON ROAD
Road
CASTLE PEAK ROAD - SAN TIN
青山公路
新田段
SAN TIN TSUEN ROAD
Nullah
排水口
Outfall
CUL
ET
A1a
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
B1
B1a
B2
B3
B4
B5
B6
B7
B8
B9
B10
B11
B12
B13
C1
C2
C3
C4
C5
C6
C7
C8
0 5 10 15 20 25
METRES
1 : 1000

LEGEND :

— · — ·	APPLICATION SITE
🟥	LOADING / UNLOADING BAYS RESERVED AS REFUSE COLLECTION VEHICLE AND REFUSE COLLECTION AREA
▭	PRIVATE CAR PARKING SPACES
➤	TRAFFIC ROUTING
◀	PEDESTRIAN ACCESS
◀	VEHICULAR ACCESS

Rev	Description	By	Date

Consultant

Project title

AGREEMENT NO.CE47/2020 (CE)
TERM CONSULTANCY FOR SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED HOUSING DEVELOPMENTS IN ZONE 2 (2021 - 2024) - FEASIBILITY STUDY

Drawing title

TASK ORDER NO. 9
SAN TIN
INDICATIVE MASTER LAYOUT PLAN

Drawing no. CE47/T09/TIA/201			Rev. -
Drawn CAD	Date JUN 2023	Checked VS	Approved YWY
Scale 1:1000 (A3)		Status -	

土木工程拓展署
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
西拓展處
WEST DEVELOPMENT OFFICE

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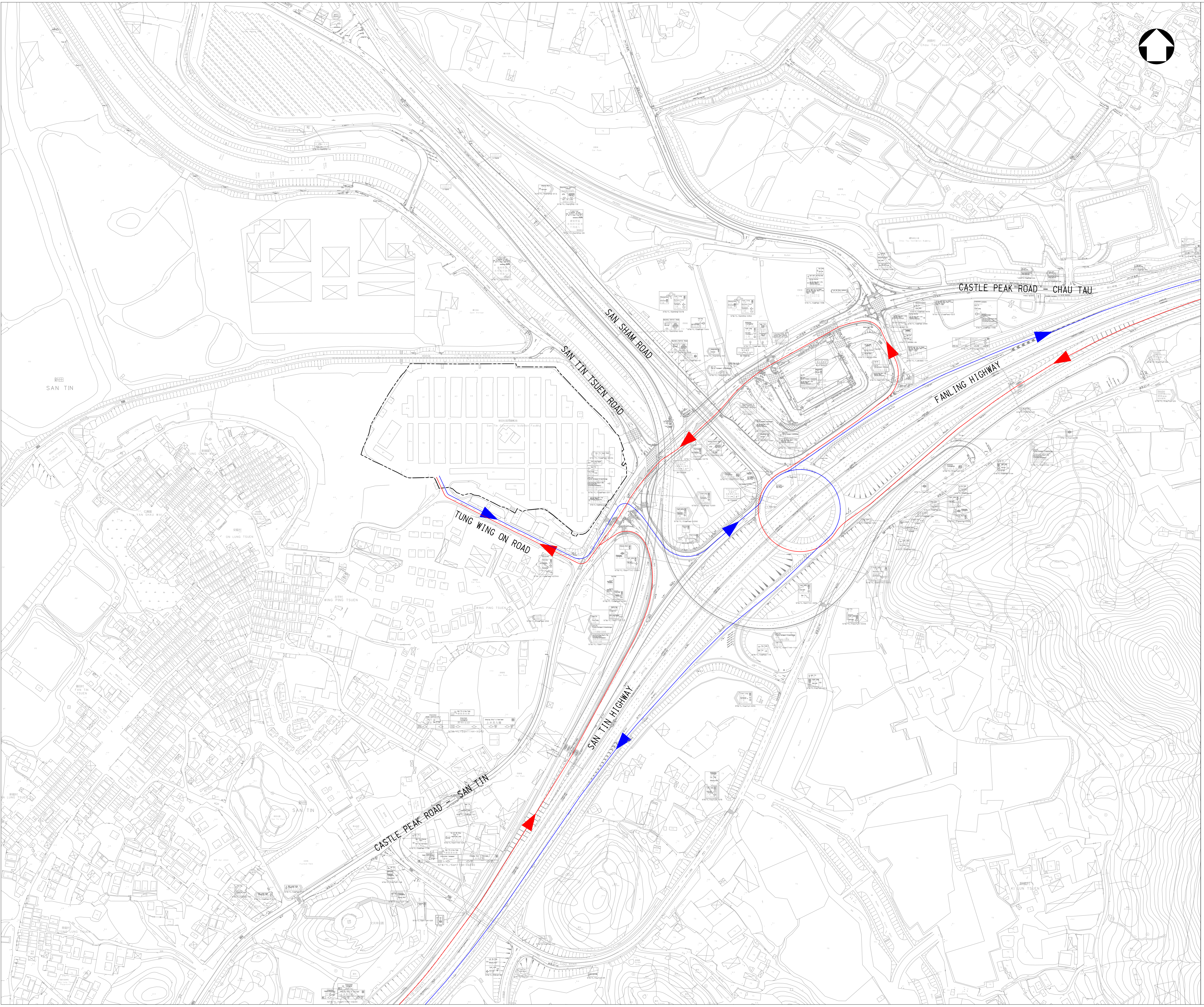
SAN SHAM ROAD
SAN TIN TSUEN ROAD
CASTLE PEAK ROAD - CHAU TAU
FANLING HIGHWAY
TUNG WING ON ROAD
SAN TIN HIGHWAY
CASTLE PEAK ROAD - SAN TIN
新田
SAN TIN

LEGEND :

▭	SITE BOUNDARY
🟥	INGRESS ROUTES
🟦	EGRESS ROUTES

Rev	Description	By	Date

Consultant

wsp

Project title

AGREEMENT NO.CE47/2020 (CE)

TERM CONSULTANCY FOR SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED HOUSING DEVELOPMENTS IN ZONE 2 (2021 - 2024) - FEASIBILITY STUDY

Drawing title

TASK ORDER NO. 9 - SAN TIN
INGRESS AND EGRESS ROUTINGS
FOR DEVELOPMENT TRAFFIC

Drawing no. CE47/T09/TIA/202			Rev. -
Drawn CAD	Date MAY 2023	Checked VS	Approved YWY
Scale 1:2000 (A1)		Status -	

土木工程拓展署
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
西拓展處
WEST DEVELOPMENT OFFICE

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Date : 8/14/2023
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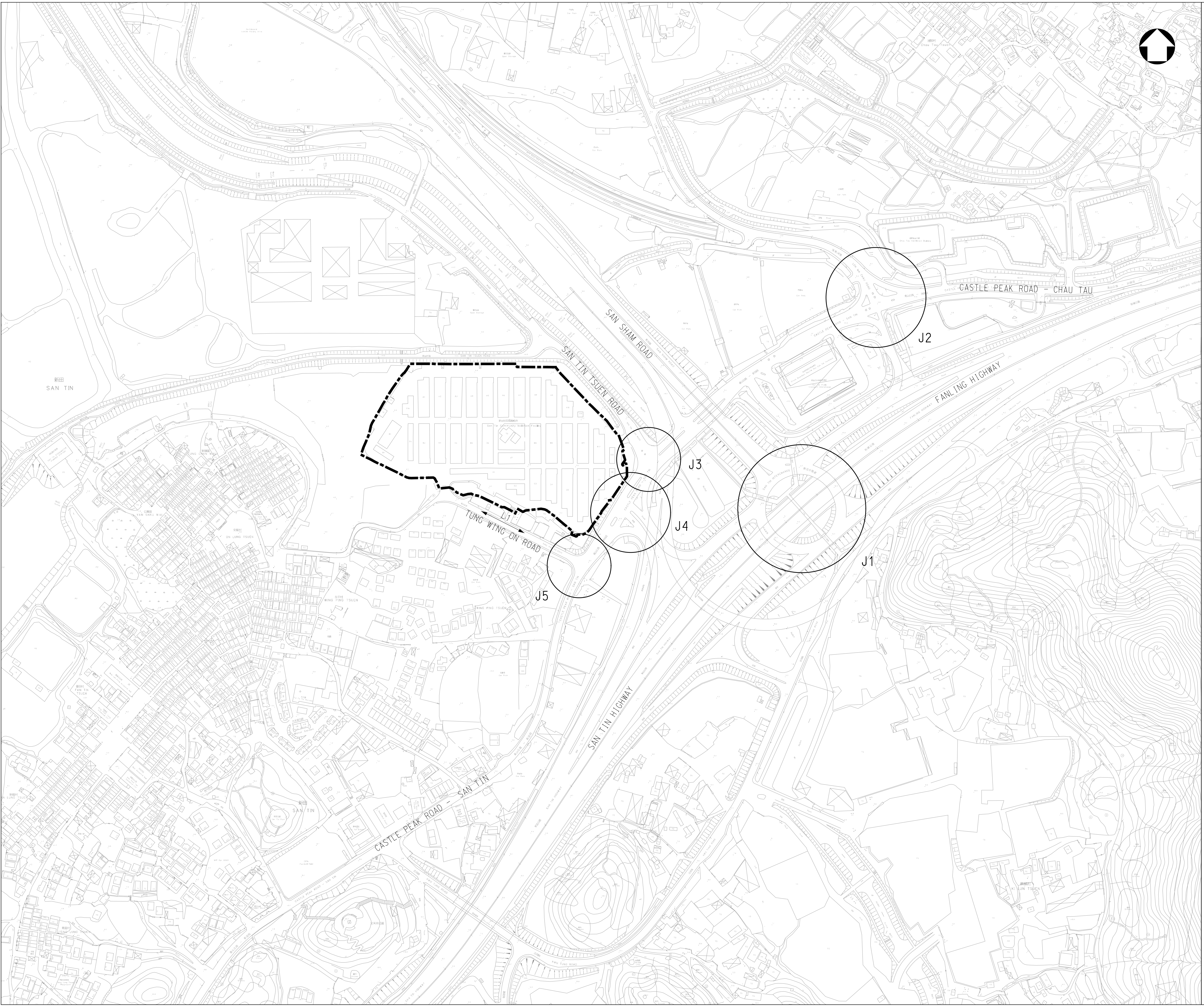
新田
SAN TIN
SAN TIN TSUEN ROAD
SAN SHAM ROAD
CASTLE PEAK ROAD - CHAU TAU
J2
FANLING HIGHWAY
J3
J4
J1
L1
TUNG WING ON ROAD
J5
SAN TIN HIGHWAY
CASTLE PEAK ROAD - SAN TIN

LEGEND :

▭	SITE BOUNDARY
J1 ○	KEY JUNCTIONS
L1 ↔	KEY ROAD LINKS

Rev	Description	By	Date

Consultant

wsp

Project title

AGREEMENT NO.CE47/2020 (CE)
TERM CONSULTANCY FOR SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED HOUSING DEVELOPMENTS IN ZONE 2 (2021 - 2024) - FEASIBILITY STUDY

Drawing title

TASK ORDER NO. 9 - SAN TIN CRITICAL JUNCTIONS AND ROAD LINK

Drawing no.			Rev.
CE47/T09/TIA/301			-
Drawn CAD	Date MAY 2023	Checked VS	Approved YWY
Scale 1:2000 (A1)		Status -	

土木工程拓展署
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
西拓展處
WEST DEVELOPMENT OFFICE

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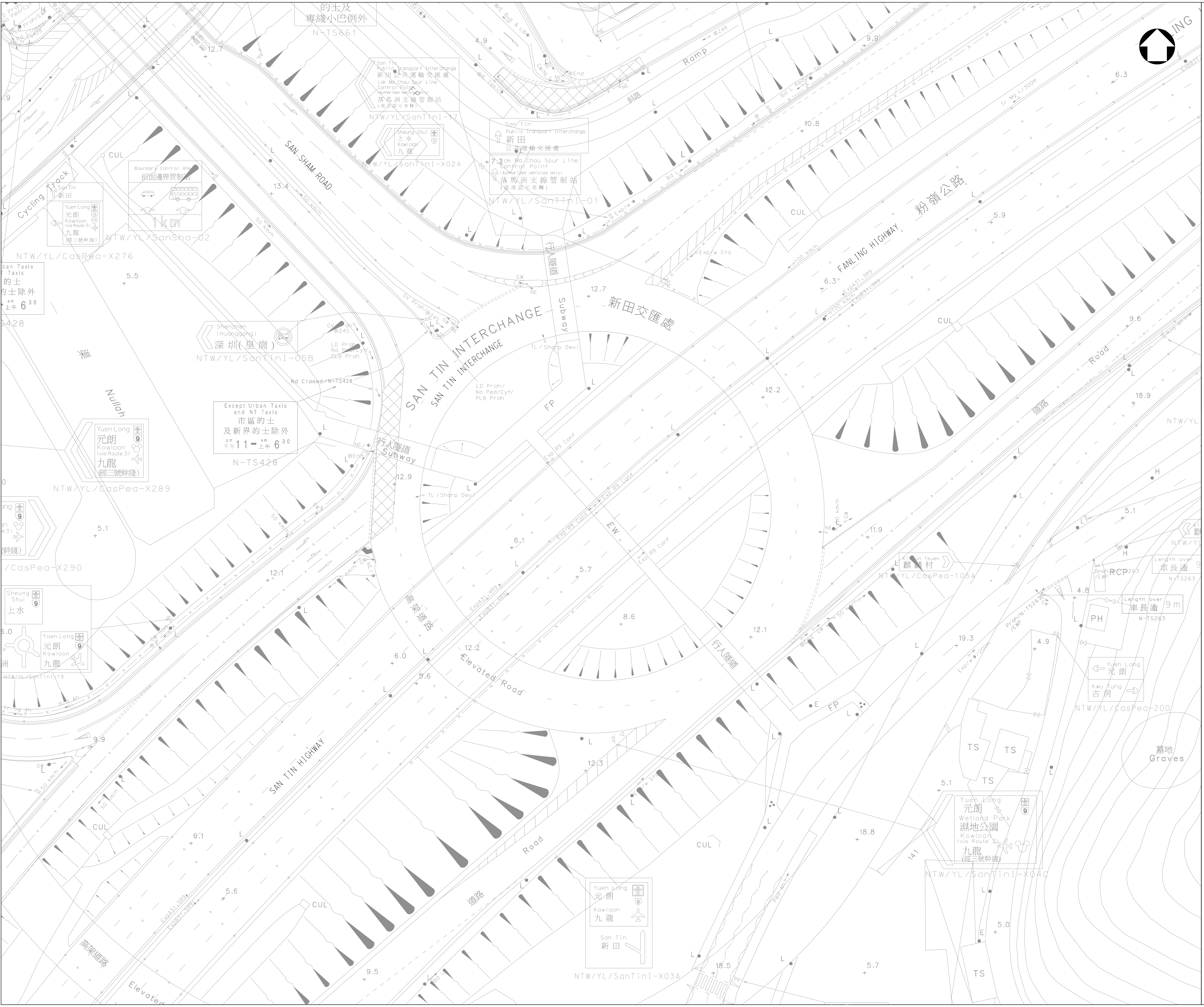
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新田交匯處
FANLING HIGHWAY
粉嶺公路
SAN SHAM ROAD
SAN TIN HIGHWAY
Elevated Road
高架道路
Subway
行人隧道
Nullah
Cycling Track
Ramp
Road
道路
墓地
Graves
CUL
FP
PH
TS
RCP
NTW/YL/SanTinI-01
NTW/YL/SanSha-02
NTW/YL/CasPea-X276
NTW/YL/CasPea-X289
NTW/YL/CasPea-X290
NTW/YL/SanTinI-05B
NTW/YL/CasPea-105A
NTW/YL/CasPea-200
NTW/YL/SanTinI-X03A
NTW/YL/SanTinI-X04C
NTW/YL/SanTinI-X02A
NTW/YL/SanTinI-17
N-TS428
N-TS263
N-TS661
Yuen Long 元朗
Kowloon 九龍
Sheung Shui 上水
San Tin 新田
Shenzhen (Huanggang) 深圳(皇崗)
Kwu Tung 古洞
Wetland Park 濕地公園
Lok Ma Chau Spur Line Control Point 落馬洲支線管制站
San Tin Public Transport Interchange 新田公共運輸交匯處
Boundary Control Ahead 前面邊界管制站
1km
Except Urban Taxis and NT Taxis 市區的士及新界的士除外
Length over 9m 車長逾

Rev | Description | By | Date

Consultant

Project title
AGREEMENT NO.CE47/2020 (CE)
TERM CONSULTANCY FOR SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED HOUSING DEVELOPMENTS IN ZONE 2 (2021 - 2024) - FEASIBILITY STUDY

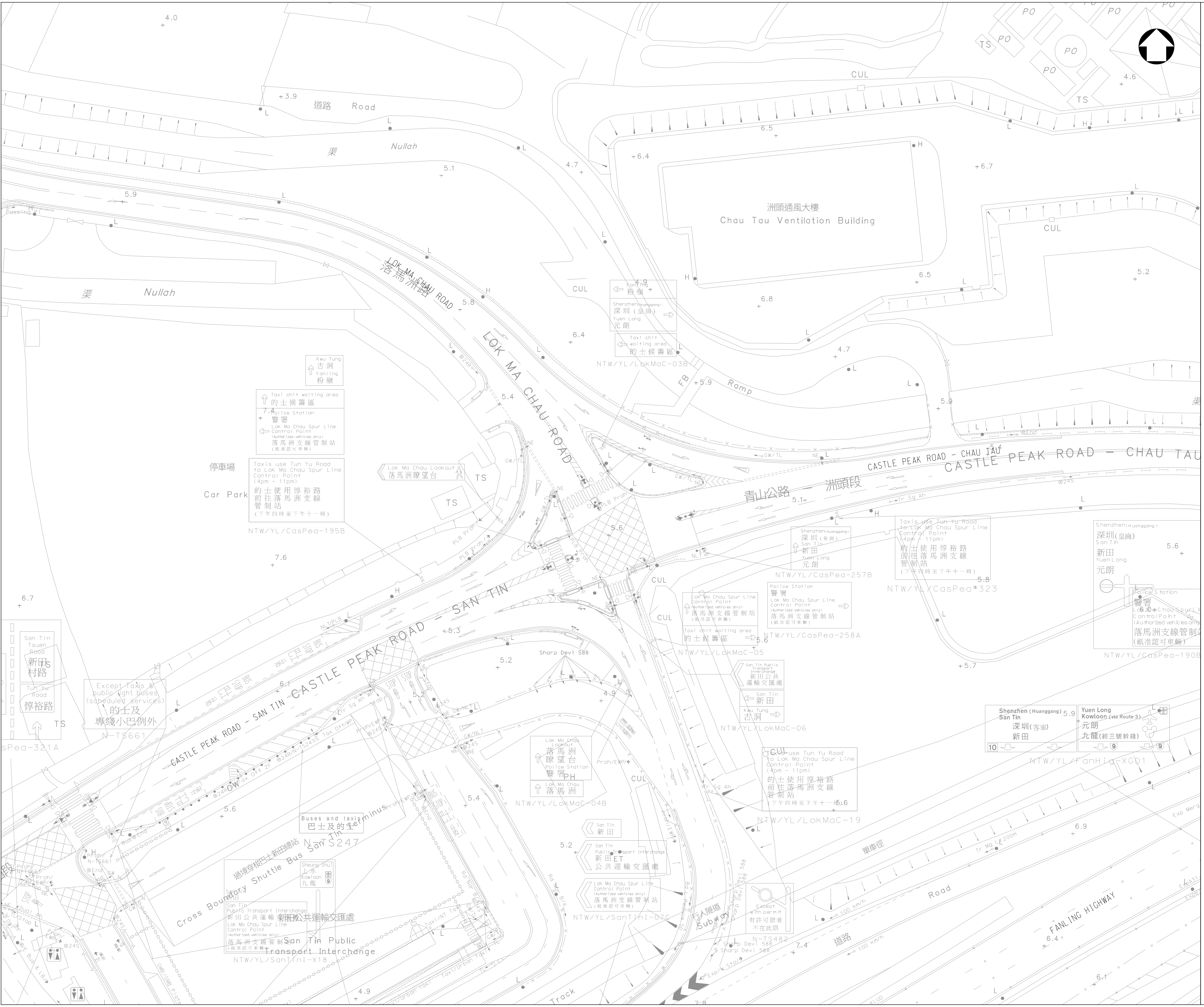
Drawing title
TASK ORDER NO. 9
SAN TIN
EXISTING JUNCTION LAYOUT OF SAN TIN INTERCHANGE (J1)

Drawing no.	Rev.
CE47/T09/TIA/302	-

Drawn	Date	Checked	Approved
CAD	MAY 2023	VS	YWY

Scale	Status
1:400 (A1)	-

土木工程拓展署
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
西拓展處
WEST DEVELOPMENT OFFICE



CASTLE PEAK ROAD - CHAU TAU
青山公路 — 洲頭段
CASTLE PEAK ROAD - SAN TIN
LOK MA CHAU ROAD
落馬洲路
洲頭通風大樓
Chau Tau Ventilation Building
Nullah
渠
道路 Road
Ramp
停車場
Car Park
FANLING HIGHWAY
San Tin Public Transport Interchange
新田公共運輸交匯處
Cross Boundary Shuttle Bus
過境穿梭巴士新田總站
San Tin Terminus
Buses and taxis
巴士及的士
Lok Ma Chau Lookout
落馬洲瞭望台
Sharp Devi 588
NTW/YL/CasPea-195B
NTW/YL/LokMaC-03B
NTW/YL/CasPea-257B
NTW/YL/CasPea-323
NTW/YL/CasPea-258A
NTW/YL/LokMaC-05
NTW/YL/LokMaC-06
NTW/YL/CasPea-190B
NTW/YL/FanHig-XG01
NTW/YL/LokMaC-04B
NTW/YL/LokMaC-19
NTW/YL/SanTinI-07C
NTW/YL/SanTinI-X18
N-TS661
N-TS482
CUL
TS
PO

Date : 7/27/2023
Filename : X:\PROPOSAL WDO Report\1_WIP\1.2 CAD\1.2.1 SHEET\CE47_T09_TIA_303.dgn

Rev	Description	By	Date

Consultant

wsp

Project title

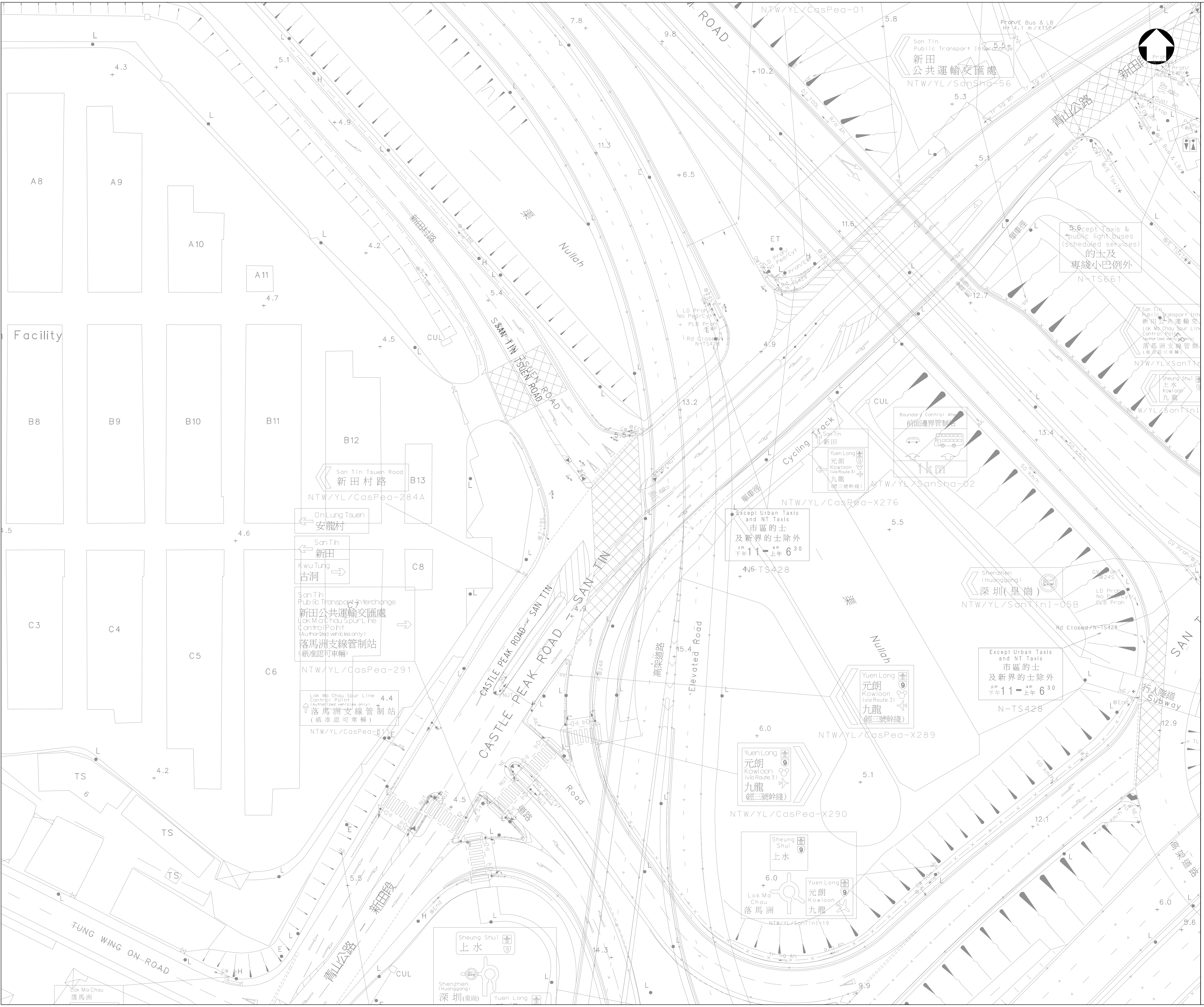
AGREEMENT NO.CE47/2020 (CE)
TERM CONSULTANCY FOR SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED HOUSING DEVELOPMENTS IN ZONE 2 (2021 - 2024) - FEASIBILITY STUDY

Drawing title

TASK ORDER NO. 9 - SAN TIN
EXISTING JUNCTION LAYOUT OF
CASTLE PEAK ROAD - CHAU TAU/
LOK MA CHAU ROAD (J2)

Drawing no.		Rev.	
CE47/T09/TIA/303		-	
Drawn CAD	Date MAY 2023	Checked VS	Approved YWY
Scale 1:400 (A1)		Status -	

土木工程拓展署
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
西拓展處
WEST DEVELOPMENT OFFICE


CASTLE PEAK ROAD – SAN TIN
CASTLE PEAK ROAD – SAN TIN
SAN TIN TSUEN ROAD
新田村路
ROAD
青山公路
新田段
TUNG WING ON ROAD
Nullah
渠
Elevated Road
高架道路
Cycling Track
單車徑
Subway
行人隧道
SAN T
Road
道路
Facility
A8
A9
A10
A11
B8
B9
B10
B11
B12
B13
C3
C4
C5
C6
C8
TS
CUL
ET
NTW/YL/CasPea-01
NTW/YL/SanSha-56
NTW/YL/CasPea-284A
NTW/YL/CasPea-291
NTW/YL/CasPea-B1
NTW/YL/CasPea-X276
NTW/YL/SanSha-02
NTW/YL/SanTin1-05B
NTW/YL/CasPea-X289
NTW/YL/CasPea-X290
NTW/YL/SanTin1-19
N-TS661
N-TS428
San Tin Public Transport Interchange
新田公共運輸交匯處
San Tin Tsuen Road
新田村路
On Lung Tsuen
安龍村
San Tin
新田
Kwu Tung
古洞
Lok Ma Chau Spur Line Control Point
(Authorized vehicles only)
落馬洲支線管制站
(祇准認可車輛)
Except Taxis & public light buses (scheduled services)
的士及專線小巴例外
Except Urban Taxis and NT Taxis
市區的士及新界的士除外
pm 下午 11 – am 上午 6 30
Boundary Control Area
前面邊界管制區
1 km
Shenzhen (Huanggang)
深圳(皇崗)
Yuen Long
元朗
Kowloon (via Route 3)
九龍 (經三號幹線)
Sheung Shui
上水
Lok Ma Chau
落馬洲
9
LD Proh
No Ped/Cyt
PLB Proh
Rd Closed/N-TS428
50 km/h
7.8
9.8
5.8
5.5
10.2
5.3
5.1
4.3
4.9
11.3
6.5
11.6
12.7
4.2
4.7
5.4
4.5
4.9
13.2
13.4
5.5
4.6
4.3
15.4
4.4
6.0
5.1
12.9
4.2
4.5
5.5
12.1
14.3
9.9
6.0
5.6
L
H
E

Rev	Description	By	Date

Consultant

wsp

Project title

AGREEMENT NO.CE47/2020 (CE)
TERM CONSULTANCY FOR SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED HOUSING DEVELOPMENTS IN ZONE 2 (2021 – 2024) – FEASIBILITY STUDY

Drawing title

TASK ORDER NO. 9 – SAN TIN
EXISTING JUNCTION LAYOUT OF CASTLE PEAK ROAD – SAN TIN/ SAN TIN TSUEN ROAD (J3)

Drawing no.			Rev.
CE47/T09/TIA/304			–
Drawn	Date	Checked	Approved
CAD	MAY 2023	VS	YWY
Scale		Status	
1:400 (A1)		–	

CEDD
土木工程拓展署
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
西拓展處
WEST DEVELOPMENT OFFICE

Date : 8/1/2023
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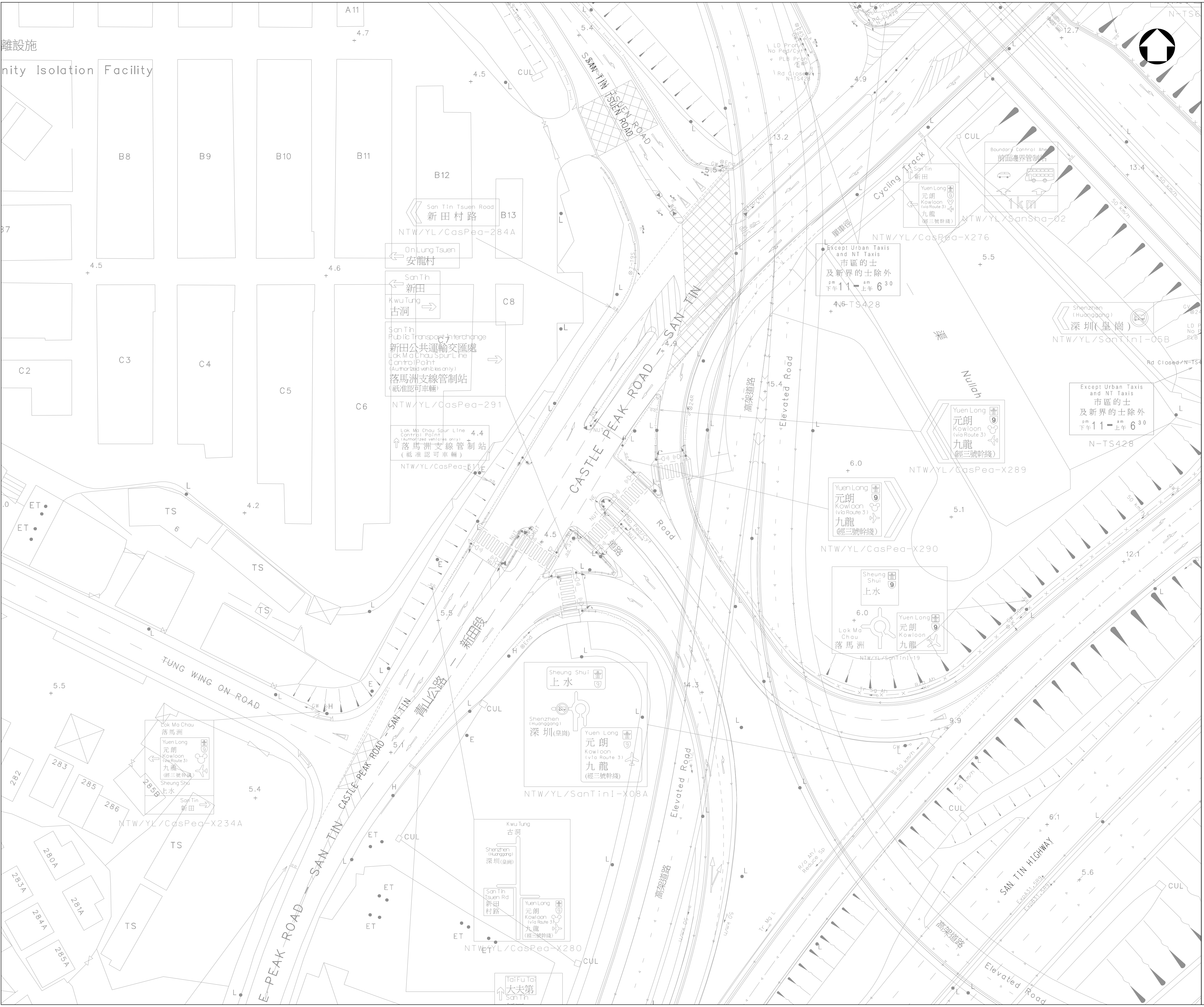
離設施
nity Isolation Facility
B8
B9
B10
B11
B12
B13
C2
C3
C4
C5
C6
C8
A11
CASTLE PEAK ROAD – SAN TIN
SAN TIN TSUEN ROAD
Cycling Track
Elevated Road
高架道路
Nullah
TUNG WING ON ROAD
SAN TIN HIGHWAY
青山公路
新田段
San Tin Tsuen Road
新田村路
NTW/YL/CasPea-284A
On Lung Tsuen
安龍村
San Tin
新田
Kwu Tung
古洞
San Tin
Public Transport Interchange
新田公共運輸交匯處
Lok Ma Chau Spur Line
Control Point
(Authorized vehicles only)
落馬洲支線管制站
(祇准認可車輛)
NTW/YL/CasPea-291
NTW/YL/CasPea-611E
Except Urban Taxis
and NT Taxis
市區的士
及新界的士除外
下午11－上午6³⁰
N-TS428
NTW/YL/CasPea-X276
Boundary Control Area
前面邊界管制區
1km
NTW/YL/SanSha-02
Shenzhen
(Huanggang)
深圳(皇崗)
NTW/YL/SanTinI-05B
Yuen Long
元朗
Kowloon
(via Route 3)
九龍
(經三號幹綫)
NTW/YL/CasPea-X289
NTW/YL/CasPea-X290
Sheung Shui
上水
Lok Ma Chau
落馬洲
NTW/YL/SanTinI-19
NTW/YL/SanTinI-X08A
NTW/YL/CasPea-X234A
NTW/YL/CasPea-X280
Tai Fu Tai
大夫第
San Tin Tsuen Rd
新田村路
Rd Closed N-TS428
50 km/h
TS
ET
CUL
L
H
E
4.7
4.5
5.4
13.2
4.9
12.7
13.4
5.5
4.6
6.0
5.1
15.4
12.1
9.9
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6.1
5.6
4.4
4.2
5.2
283
285
286
285B
282
280A
283A
281A
284A
285A

Rev | Description | By | Date

Consultant

wsp

Project title

AGREEMENT NO.CE47/2020 (CE)
TERM CONSULTANCY FOR SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED HOUSING DEVELOPMENTS IN ZONE 2 (2021 – 2024) – FEASIBILITY STUDY

Drawing title

TASK ORDER NO. 9 – SAN TIN
EXISTING JUNCTION LAYOUT OF CASTLE PEAK ROAD – SAN TIN/ SLIP ROAD FROM SAN TIN INTERCHANGE (J4)

Drawing no.			Rev.
CE47/T09/TIA/305			–
Drawn CAD	Date MAY 2023	Checked VS	Approved YWY
Scale 1:400 (A1)		Status –	

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西拓展處
WEST DEVELOPMENT OFFICE

Date : 8/1/2023
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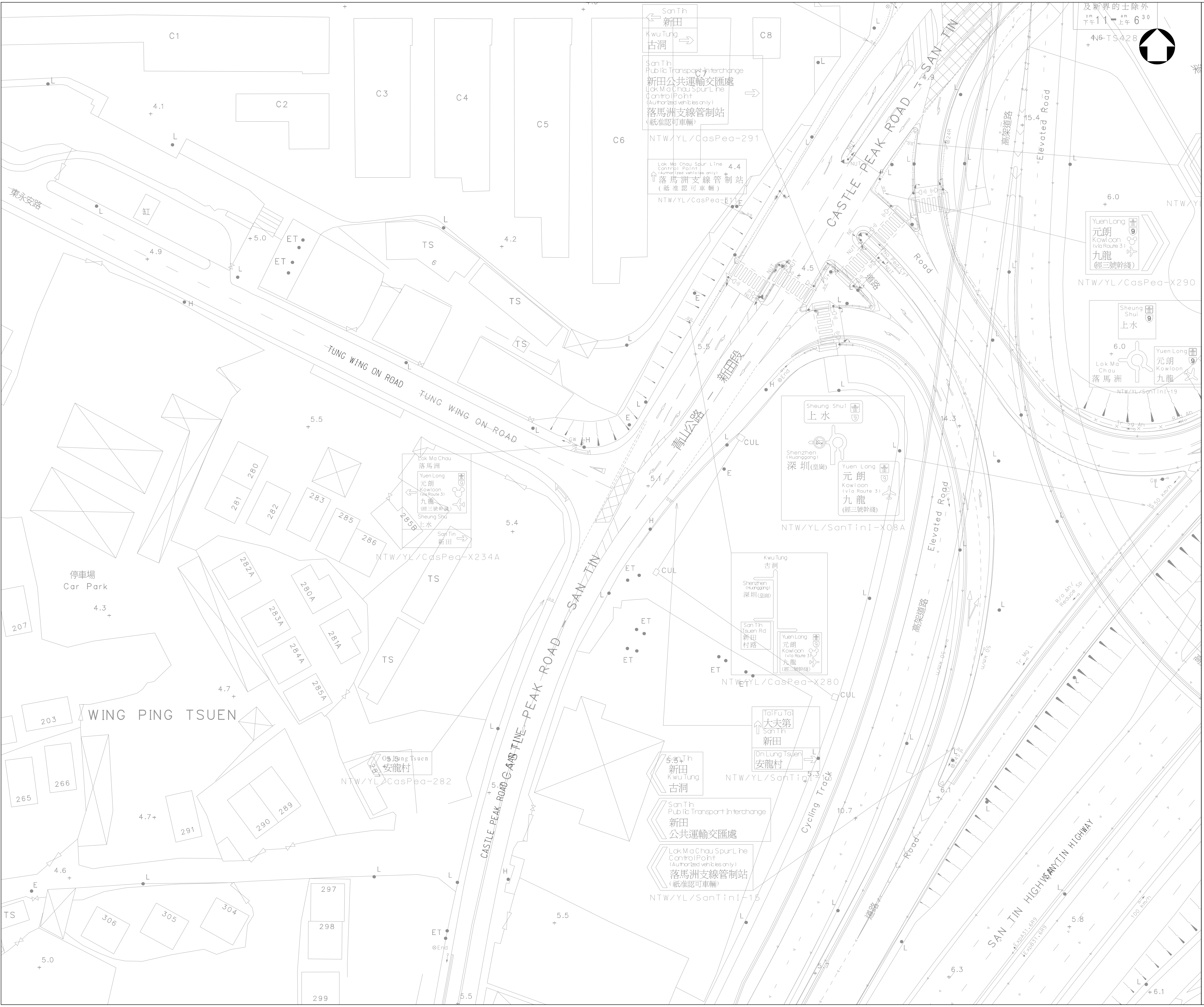
CASTLE PEAK ROAD - SAN TIN
CASTLE PEAK ROAD - SAN TIN
青山公路 新田段
TUNG WING ON ROAD
TUNG WING ON ROAD
東永安路
WING PING TSUEN
停車場
Car Park
Elevated Road
Elevated Road
高架道路
SAN TIN HIGHWAY
Cycling Track
C1
C2
C3
C4
C5
C6
C8
NTW/YL/CasPea-291
NTW/YL/CasPea-X290
NTW/YL/SanTinI-X08A
NTW/YL/CasPea-X234A
NTW/YL/CasPea-X280
NTW/YL/CasPea-282
NTW/YL/SanTinI-15
Lok Ma Chau Spur Line Control Point
落馬洲支線管制站
San Tin Public Transport Interchange
新田公共運輸交匯處
Sheung Shui 上水
Yuen Long 元朗
Kowloon 九龍
Shenzhen 深圳
Kwu Tung 古洞
San Tin 新田
Tai Fu Tai 大夫第
On Lung Tsuen 安龍村
Ong Tsuen 安龍村
CUL
TS
ET
4.1
4.2
4.3
4.5
4.6
4.7
4.9
5.0
5.4
5.5
6.0
6.3
10.7
14.3
15.4

Date : 8/1/2023
Filename : X:\PROPOSAL\WDO Report\1_WIP\1.2 CAD\1.2.1 SHEET\CE47_T09_TIA_306.dgn

Rev	Description	By	Date

Consultant

wsp

Project title

AGREEMENT NO.CE47/2020 (CE)
TERM CONSULTANCY FOR SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED HOUSING DEVELOPMENTS IN ZONE 2 (2021 - 2024) - FEASIBILITY STUDY

Drawing title

TASK ORDER NO. 9 - SAN TIN
EXISTING JUNCTION LAYOUT OF
CASTLE PEAK ROAD - SAN TIN/
TUNG WING ON ROAD (J5)

Drawing no.			Rev.
CE47/T09/TIA/306			-
Drawn	Date	Checked	Approved
CAD	MAY 2023	VS	YWY
Scale		Status	
1:400 (A1)		-	

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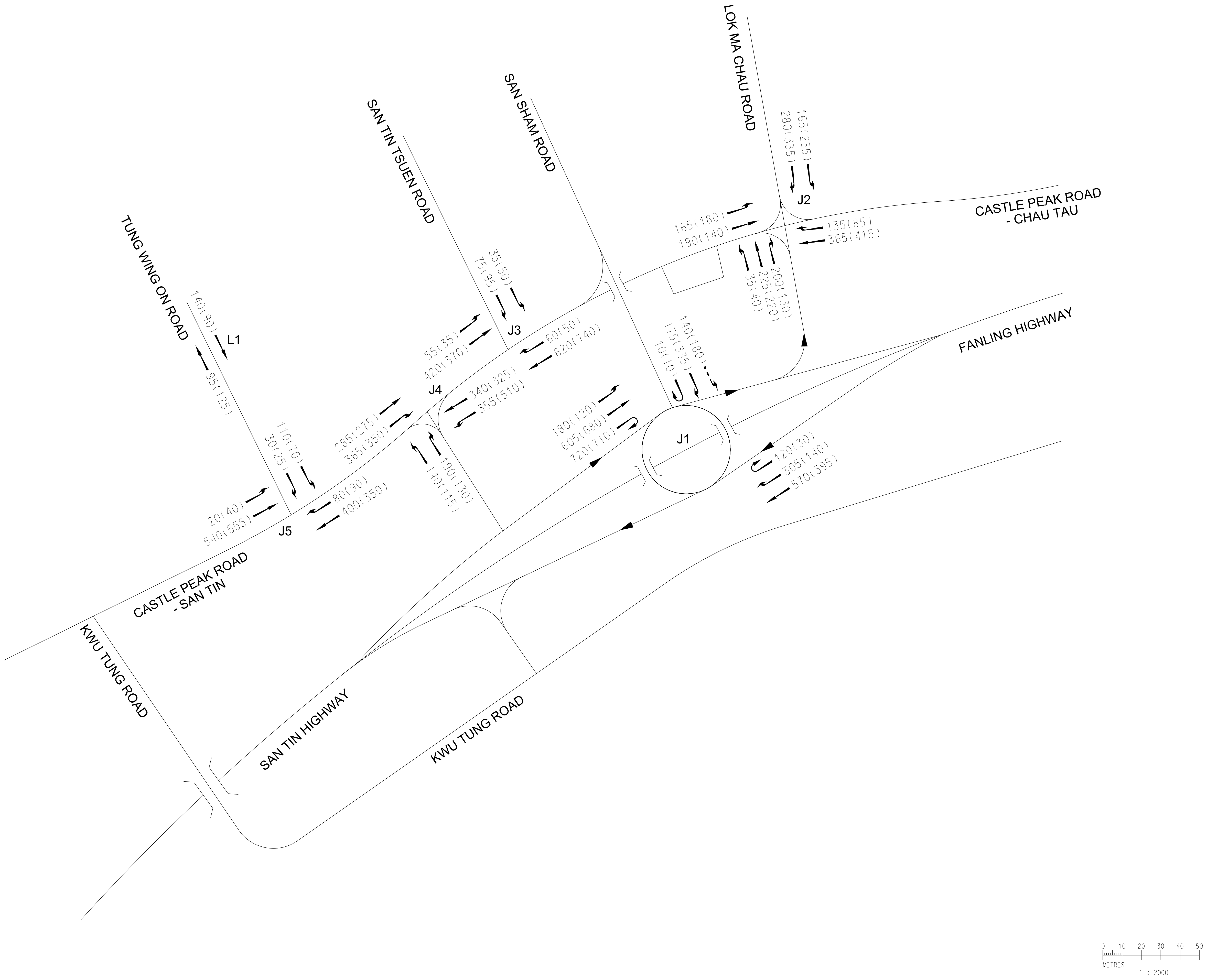
西拓展處
WEST DEVELOPMENT OFFICE

LEGEND :

1000(1000)	AM(PM) TRAFFIC FLOW (pcu/HR)


LOK MA CHAU ROAD
SAN SHAM ROAD
SAN TIN TSUEN ROAD
TUNG WING ON ROAD
CASTLE PEAK ROAD - CHAU TAU
FANLING HIGHWAY
CASTLE PEAK ROAD - SAN TIN
KWU TUNG ROAD
SAN TIN HIGHWAY
KWU TUNG ROAD
J1
J2
J3
J4
J5
L1
165(255)
280(335)
165(180)
190(140)
135(85)
365(415)
200(130)
225(220)
35(40)
140(180)
175(335)
10(10)
180(120)
605(680)
720(710)
120(30)
305(140)
570(395)
35(50)
75(95)
55(35)
420(370)
60(50)
620(740)
340(325)
355(510)
285(275)
365(350)
190(130)
140(115)
140(90)
95(125)
110(70)
30(25)
20(40)
540(555)
80(90)
400(350)
0 10 20 30 40 50
METRES
1 : 2000

Date : 7/27/2023
Filename : X:\PROPOSAL\WDO Report\1_WIP\1.2 CAD\1.2.1 SHEET\CE47_T09_TIA_307.dgn

Rev	Description	By	Date

Consultant

wsp

Project title

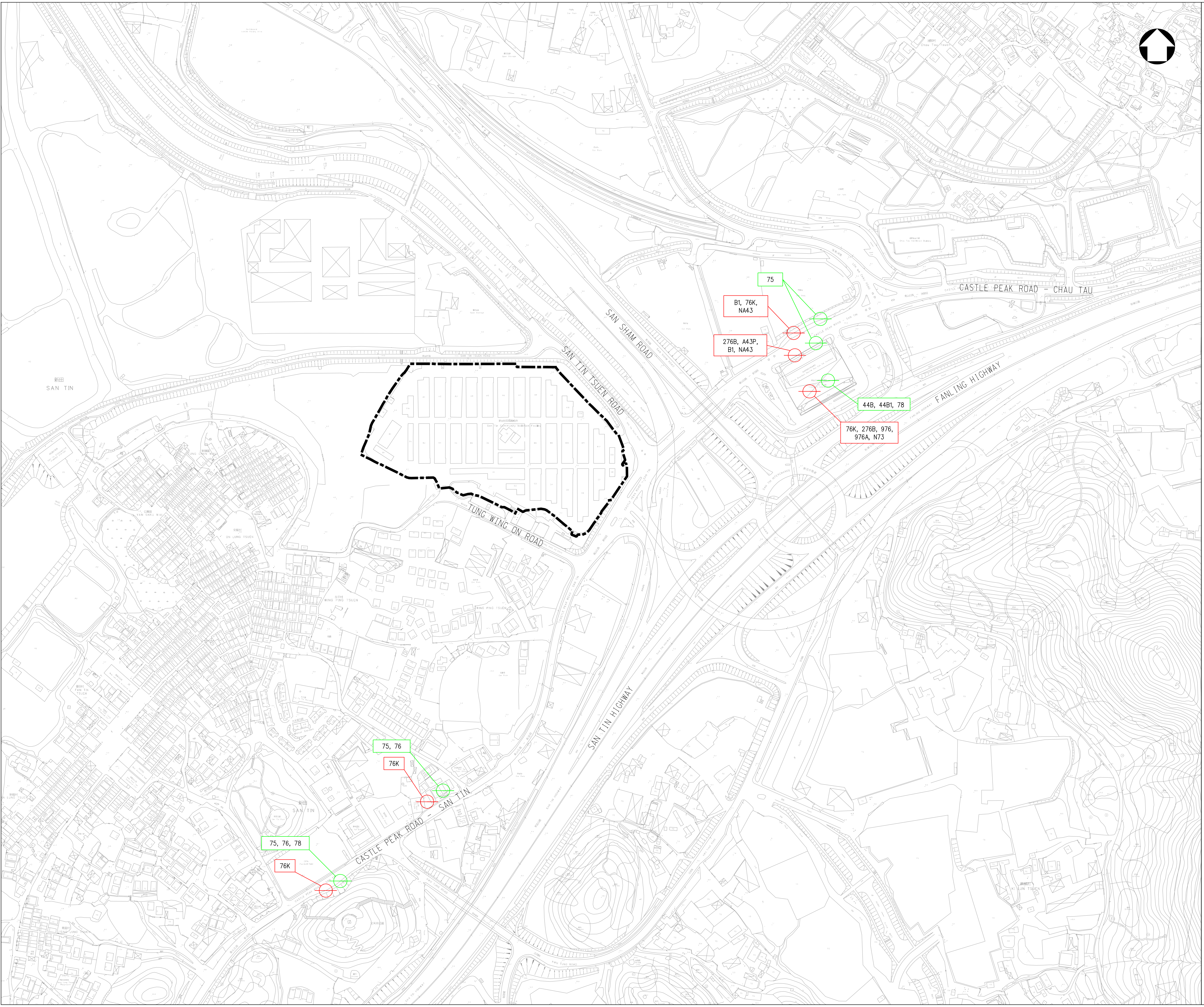
AGREEMENT NO.CE47/2020 (CE)
TERM CONSULTANCY FOR SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED HOUSING DEVELOPMENTS IN ZONE 2 (2021 - 2024) - FEASIBILITY STUDY

Drawing title

TASK ORDER NO. 9 - SAN TIN
2023 OBSERVED TRAFFIC FLOWS

Drawing no.			Rev.
CE47/T09/TIA/307			-
Drawn CAD	Date JUN 2023	Checked VS	Approved YWY
Scale 1:2000 (A3)		Status -	

土木工程拓展署
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
西拓展處
WEST DEVELOPMENT OFFICE


新田
SAN TIN
SAN SHAM ROAD
SAN TIN TSUEN ROAD
TUNG WING ON ROAD
CASTLE PEAK ROAD - CHAU TAU
FANLING HIGHWAY
SAN TIN HIGHWAY
CASTLE PEAK ROAD - SAN TIN
75
B1, 76K, NA43
276B, A43P, B1, NA43
44B, 44B1, 78
76K, 276B, 976, 976A, N73
75, 76
76K
75, 76, 78
76K

LEGEND :

- ▭ SITE BOUNDARY
- ⊖ BUS STOP
- ⊖ GMB STOP

Rev	Description	By	Date

Consultant

wsp

Project title

AGREEMENT NO.CE47/2020 (CE)

TERM CONSULTANCY FOR SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED HOUSING DEVELOPMENTS IN ZONE 2 (2021 - 2024) - FEASIBILITY STUDY

Drawing title

TASK ORDER NO. 9 - SAN TIN EXISTING PUBLIC TRANSPORT SERVICES

Drawing no. CE47/T09/TIA/308			Rev. -
Drawn CAD	Date MAY 2023	Checked VS	Approved YWY
Scale 1:2000 (A1)		Status -	

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西拓展處
WEST DEVELOPMENT OFFICE

Date : 8/14/2023
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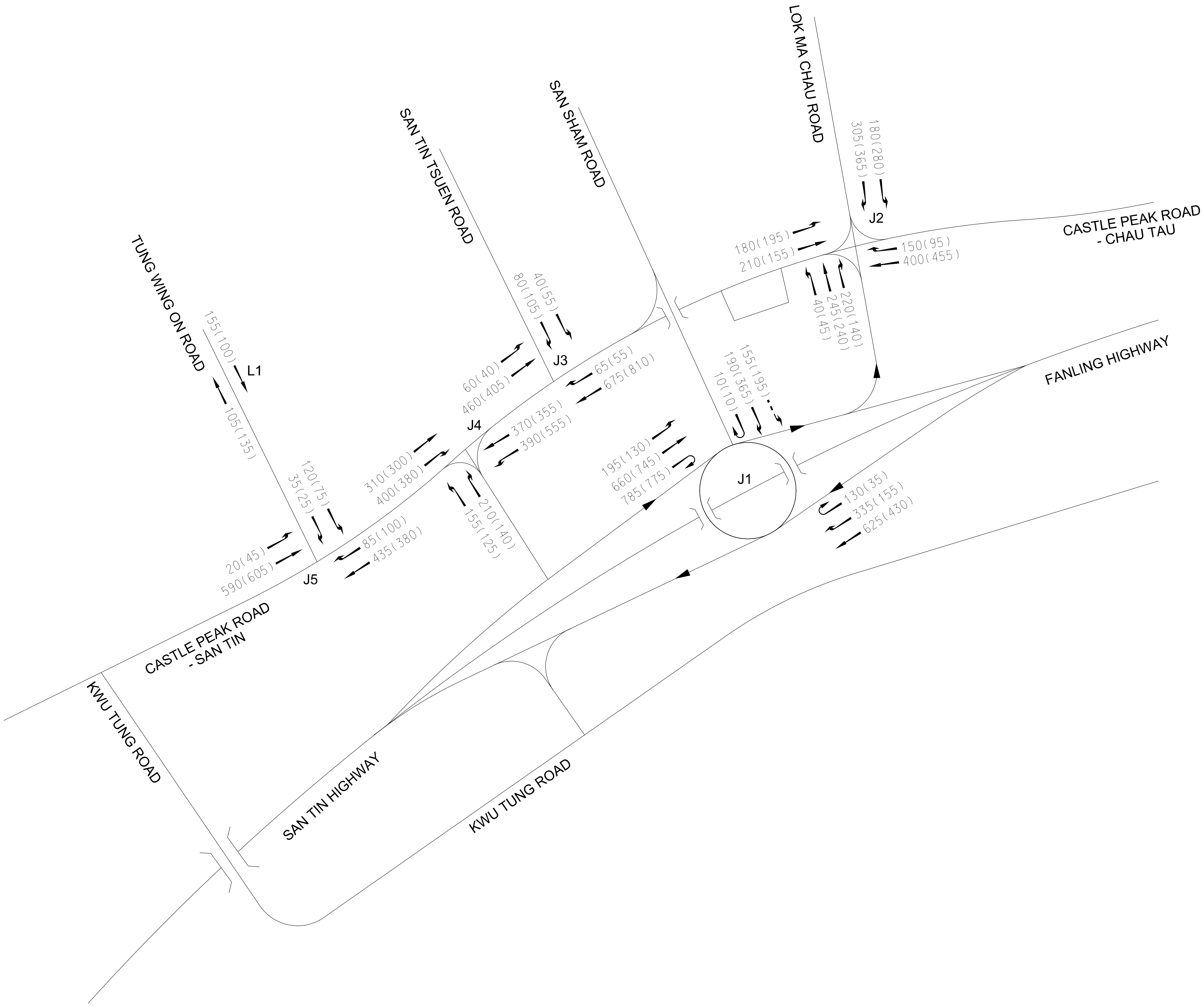
LOK MA CHAU ROAD
180(280)
305(365)
J2
180(195)
210(155)
150(95)
400(455)
CASTLE PEAK ROAD
- CHAU TAU
220(140)
245(240)
40(45)
SAN SHAM ROAD
SAN TIN TSUEN ROAD
40(55)
80(105)
J3
60(40)
460(405)
65(55)
675(810)
155(195)
190(365)
10(10)
FANLING HIGHWAY
J4
370(355)
390(555)
310(300)
400(380)
TUNG WING ON ROAD
155(100)
L1
105(135)
120(75)
35(25)
J5
20(45)
590(605)
85(100)
435(380)
210(140)
155(125)
195(130)
660(745)
785(775)
J1
130(35)
335(155)
625(430)
CASTLE PEAK ROAD
- SAN TIN
KWU TUNG ROAD
SAN TIN HIGHWAY
KWU TUNG ROAD

LEGEND :

1000(1000)	AM(PM) TRAFFIC FLOW (pcu/HR)

0 10 20 30 40 50
METRES
1 : 2000

Rev	Description	By	Date

Consultant

wsp

Project title

AGREEMENT NO.CE47/2020 (CE)
TERM CONSULTANCY FOR SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED HOUSING DEVELOPMENTS IN ZONE 2 (2021 - 2024) - FEASIBILITY STUDY

Drawing title

TASK ORDER NO. 9 - SAN TIN
2026 REFERENCE TRAFFIC FLOWS

Drawing no.			Rev.
CE47/T09/TIA/501			-
Drawn CAD	Date JUN 2023	Checked VS	Approved YWY
Scale 1:2000 (A3)		Status -	

土木工程拓展署
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
西拓展處
WEST DEVELOPMENT OFFICE

Date : 7/27/2023
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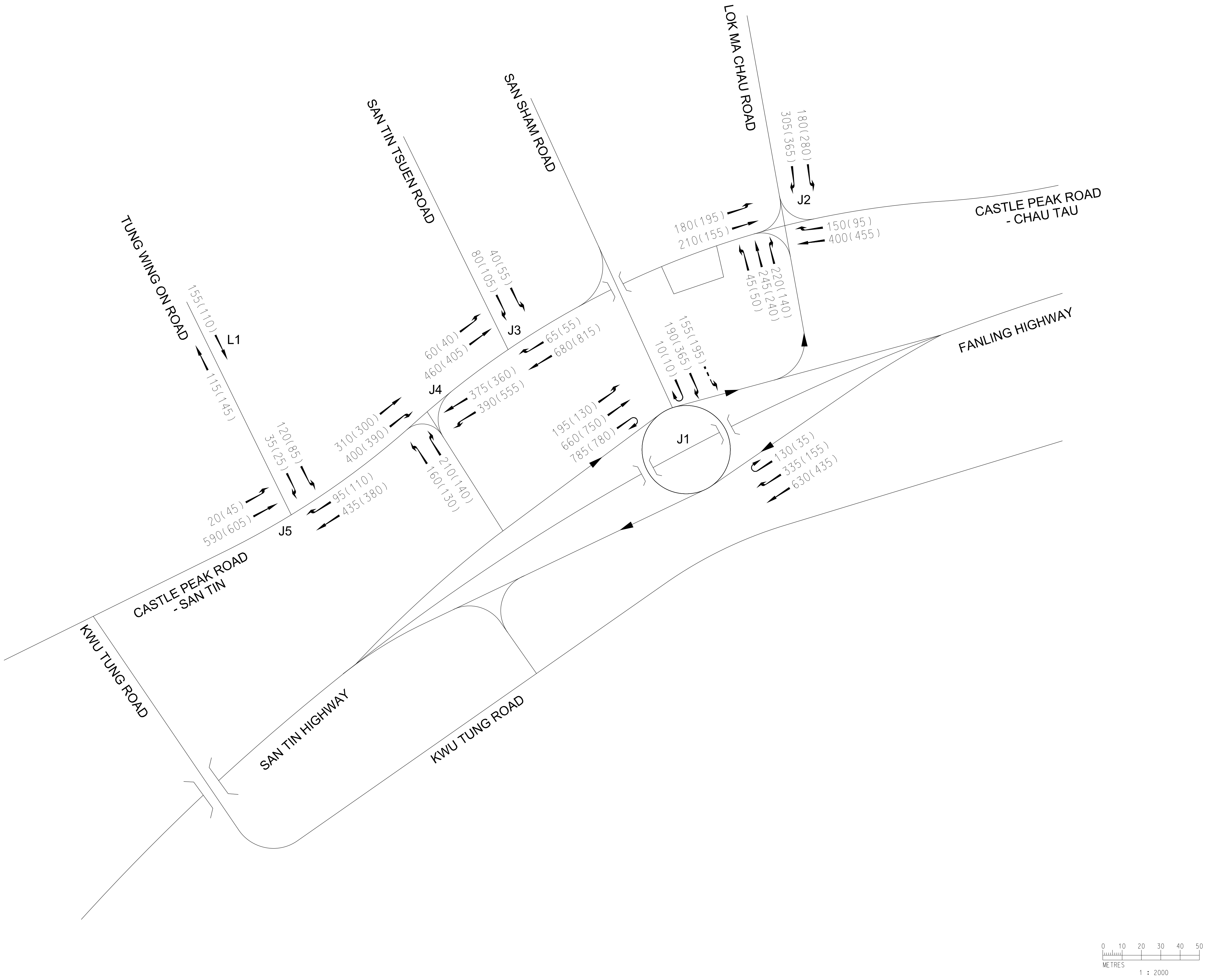
LOK MA CHAU ROAD
SAN SHAM ROAD
SAN TIN TSUEN ROAD
TUNG WING ON ROAD
CASTLE PEAK ROAD - CHAU TAU
FANLING HIGHWAY
CASTLE PEAK ROAD - SAN TIN
KWU TUNG ROAD
SAN TIN HIGHWAY
KWU TUNG ROAD
J1
J2
J3
J4
J5
L1
305(365)
180(280)
180(195)
210(155)
150(95)
400(455)
220(140)
245(240)
45(50)
155(195)
190(365)
10(10)
195(130)
660(750)
785(780)
130(35)
335(155)
630(435)
40(55)
80(105)
60(40)
460(405)
65(55)
680(815)
375(360)
390(555)
310(300)
400(390)
210(140)
160(130)
155(110)
115(145)
120(85)
35(25)
20(45)
590(605)
95(110)
435(380)
0 10 20 30 40 50
METRES
1 : 2000

LEGEND :

1000(1000)	AM(PM) TRAFFIC FLOW (pcu/HR)

Rev	Description	By	Date

Consultant

wsp

Project title

AGREEMENT NO.CE47/2020 (CE)
TERM CONSULTANCY FOR SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED HOUSING DEVELOPMENTS IN ZONE 2 (2021 - 2024) - FEASIBILITY STUDY

Drawing title

TASK ORDER NO. 9 - SAN TIN
2026 DESIGN TRAFFIC FLOWS

Drawing no.			Rev.
CE47/T09/TIA/502			-
Drawn CAD	Date JUN 2023	Checked VS	Approved YWY
Scale 1:2000 (A3)		Status -	

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APPENDIX A

Junction Calculation Sheet

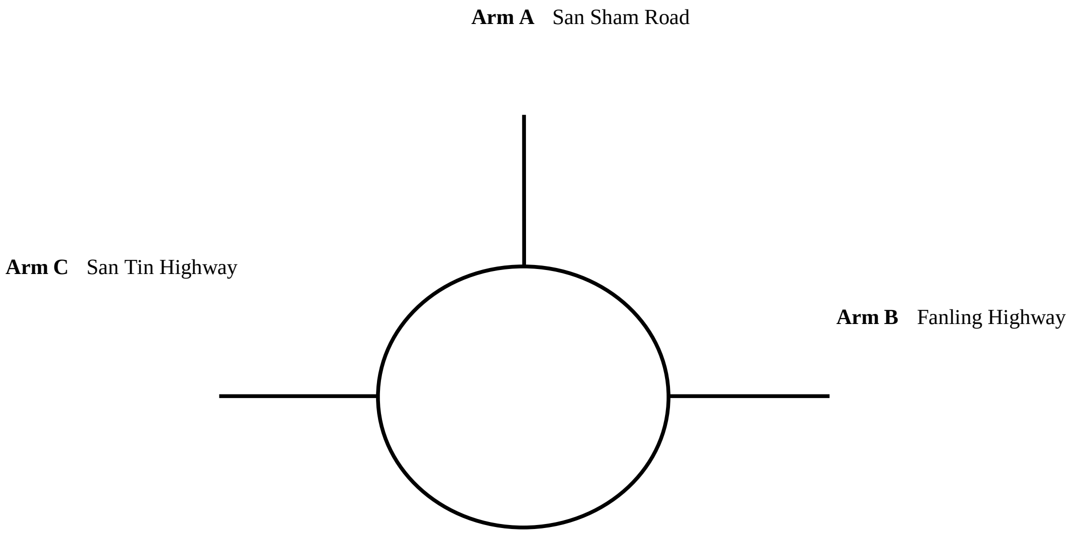
Roundabout Junction Capacity Calculation

Junction : San Tin Interchange

Junction No. : J01

Scenario : Observe

Design Year : 2023



Geometry							
	v	**e**	**L**	**r**	**D**	**Phi**	**S**
Arm A	7.8	11.1	32.0	38.2	100	30	0.17
Arm B	7.1	10.4	16.1	100.0	100	28	0.33
Arm C	11.4	10.4	1.0	30.7	100	30	-1.60

Calculation				
	K	**X_2**	**M**	**F**
Arm A	1.02	10.28	54.60	3115
Arm B	1.05	9.09	54.60	2755
Arm C	1.02	11.85	54.60	3592

Flow				
	Circ(AM)	**Entry(AM)**	**Circ(PM)**	**Entry(PM)**
Arm A	1445	185	1420	345
Arm B	905	995	1055	565
Arm C	435	1505	180	1510

	tD	**fc**	**QE(AM)**	**QE(PM)**
Arm A	1.01	0.65	2230	2247
Arm B	1.01	0.60	2317	2223
Arm C	1.01	0.71	3337	3522

DFC		
	AM	**PM**
Arm A	0.08	0.15
Arm B	0.43	0.25
Arm C	0.45	0.43
Crtical:	**Arm C**	**Arm C**
DFC:	**0.45**	**0.43**

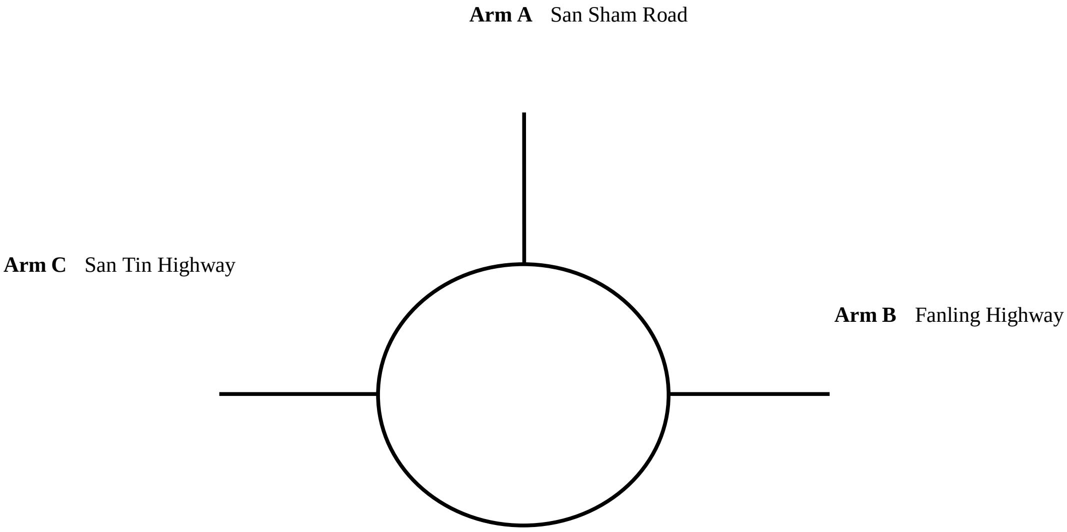
Roundabout Junction Capacity Calculation

Junction : San Tin Interchange

Junction No. : J01

Scenario : Reference

Design Year : 2026



Geometry							
	v	**e**	**L**	**r**	**D**	**Phi**	**S**
Arm A	7.8	11.1	32.0	38.2	100	30	0.17
Arm B	7.1	10.4	16.1	100.0	100	28	0.33
Arm C	11.4	10.4	1.0	30.7	100	30	-1.60

Calculation				
	K	**X_2**	**M**	**F**
Arm A	1.02	10.28	54.60	3115
Arm B	1.05	9.09	54.60	2755
Arm C	1.02	11.85	54.60	3592

Flow				
	Circ(AM)	**Entry(AM)**	**Circ(PM)**	**Entry(PM)**
Arm A	1575	200	1555	375
Arm B	985	1090	1150	620
Arm C	475	1640	200	1650

	tD	**fc**	**QE(AM)**	**QE(PM)**
Arm A	1.01	0.65	2144	2157
Arm B	1.01	0.60	2267	2164
Arm C	1.01	0.71	3308	3508

DFC		
	AM	**PM**
Arm A	0.09	0.17
Arm B	0.48	0.29
Arm C	0.50	0.47
Crtical:	**Arm C**	**Arm C**
DFC:	**0.50**	**0.47**

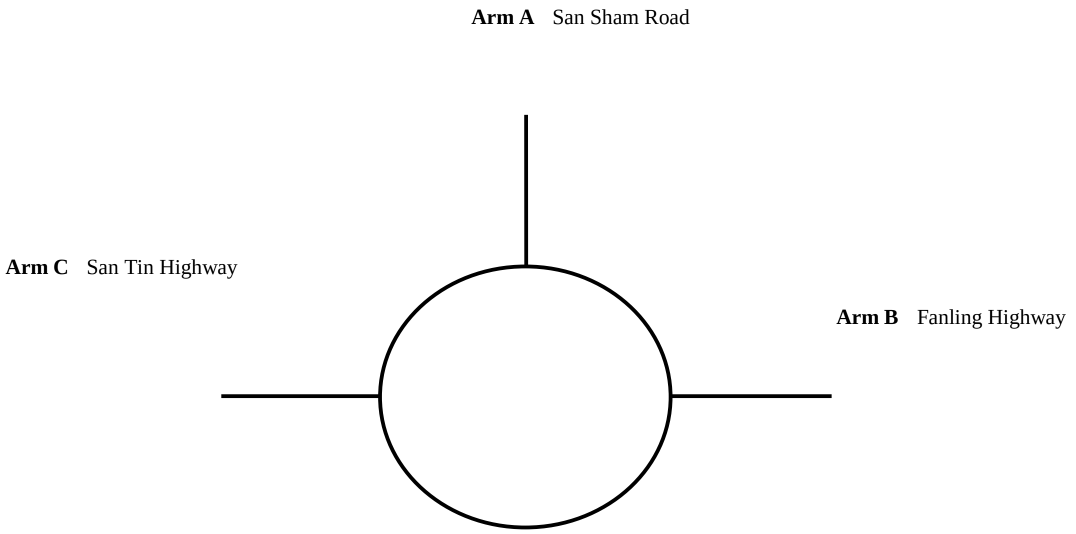
Roundabout Junction Capacity Calculation

Junction : San Tin Interchange

Junction No. : J01

Scenario : Design

Design Year : 2026



Geometry							
	v	**e**	**L**	**r**	**D**	**Phi**	**S**
Arm A	7.8	11.1	32.0	38.2	100	30	0.17
Arm B	7.1	10.4	16.1	100.0	100	28	0.33
Arm C	11.4	10.4	1.0	30.7	100	30	-1.60

Calculation				
	K	**X_2**	**M**	**F**
Arm A	1.02	10.28	54.60	3115
Arm B	1.05	9.09	54.60	2755
Arm C	1.02	11.85	54.60	3592

Flow				
	Circ(AM)	**Entry(AM)**	**Circ(PM)**	**Entry(PM)**
Arm A	1575	200	1565	375
Arm B	985	1095	1155	625
Arm C	475	1640	200	1660

	tD	**fc**	**QE(AM)**	**QE(PM)**
Arm A	1.01	0.65	2144	2151
Arm B	1.01	0.60	2267	2160
Arm C	1.01	0.71	3308	3508

DFC		
	AM	**PM**
Arm A	0.09	0.17
Arm B	0.48	0.29
Arm C	0.50	0.47
Crtical:	**Arm C**	**Arm C**
DFC:	**0.50**	**0.47**

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Castle Peak Road (Chau Tau) / Castle Peak Road (San Tin) / Lok Ma Chau Road

Junction No.: J02

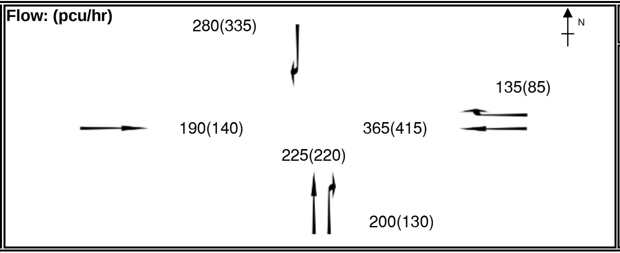
Scenario: Observe

Design Year: 2023

Movements		Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
					Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Lok Ma Chau Rd SB																	
	↲	E	4	4.5		17				1900	1900	280	0.15	0.15	335	0.18	0.18
Castle Peak Road Chau Tau EB																	
	→	A	1	3.9						2005	2005	190	0.09	0.09	140	0.07	
Lok Ma Chau Road NB																	
	↱	D	3	4.4		17		47%	37%	1975	1990	425	0.22	0.22	350	0.18	0.18
Castle Peak Road Chau Tau WB																	
	←	B	1,2	3.2						1935	1935	365	0.19		415	0.21	0.21
	↰	C	2	3.7		22				1990	1990	135	0.07	0.07	85	0.04	
Pedestrian Crossing																	
		Fp	1,2,4	MIN GREEN + FLASH =			5	+	5	=	10						
		Gp	1	MIN GREEN + FLASH =			7	+	6	=	13						
		Hp	3	MIN GREEN + FLASH =			7	+	5	=	12						

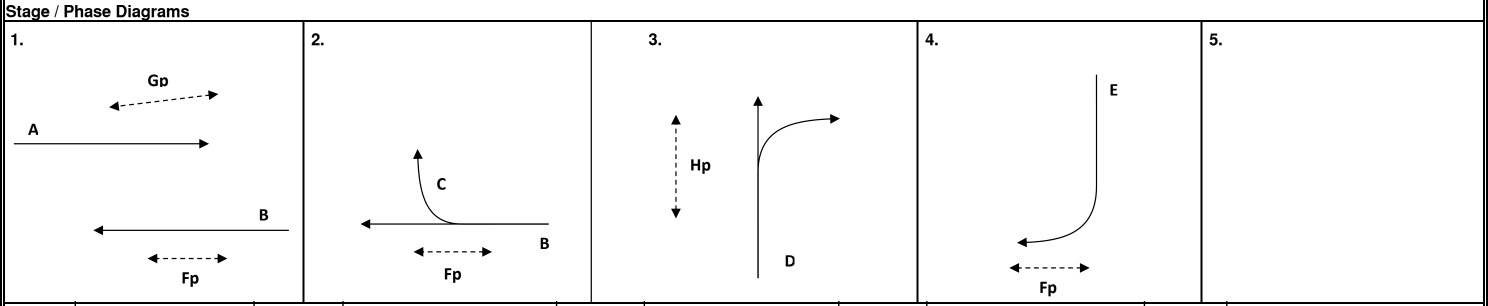
NOTES:

Flow: (pcu/hr)



Group	A,C,D,E	Group	B,D,E
Sum of Critical *y* ***Y***	0.53	Sum of Critical *y*	0.57
Lost Time ***L*** (sec)	19	Lost Time ***L*** (sec)	15
Cycle Time ***c*** (sec)	96	Cycle Time ***c*** (sec)	102
Practical *Y* ***Ypr***	0.72	Practical *Y* ***Ypr***	0.77
Reserve Capacity ***RC***	37%	Reserve Capacity ***RC***	35%

Stage / Phase Diagrams



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

Junction: Castle Peak Road (Chau Tau) / Castle Peak Road (San Tin) / Lok Ma Chau Ro

Junction No.: J02

TRAFFIC SIGNALS CALCULATION SHEET

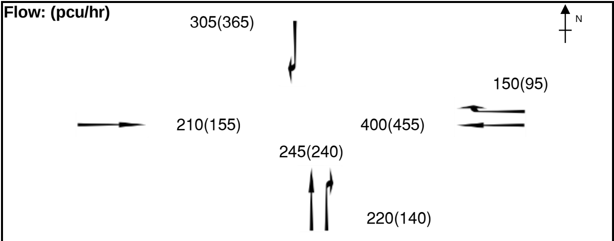
Junction: Castle Peak Road (Chau Tau) / Castle Peak Road (San Tin) / Lok Ma Chau Road — Junction No.: J02

Scenario: Reference — Design Year: 2026

Movements	Phase	Stage	Lane Width (m)	Radius for turning (m) Left	Radius for turning (m) Right	Gradient in %	Proportion Turning (%) AM	Proportion Turning (%) PM	Saturation Flow (pcu/hr) AM	Saturation Flow (pcu/hr) PM	AM Peak Design Flow (pcu/hr)	AM Peak Flow Factor y	AM Peak Critical y	PM Peak Design Flow (pcu/hr)	PM Peak Flow Factor y	PM Peak Critical y
Lok Ma Chau Rd SB																
↲	E	4	4.5		17				1900	1900	305	0.16	0.16	365	0.19	0.19
Castle Peak Road Chau Tau EB																
→	A	1	3.9						2005	2005	210	0.10	0.10	155	0.08	
Lok Ma Chau Road NB																
↱	D	3	4.4		17		47%	37%	1975	1990	465	0.24	0.24	380	0.19	0.19
Castle Peak Road Chau Tau WB																
←	B	1,2	3.2						1935	1935	400	0.21		455	0.24	0.24
↰	C	2	3.7		22				1990	1990	150	0.08	0.08	95	0.05	
Pedestrian Crossing																
	Fp	1,2,4	MIN GREEN + FLASH =			5	+	5	=	10						
	Gp	1	MIN GREEN + FLASH =			7	+	6	=	13						
	Hp	3	MIN GREEN + FLASH =			7	+	5	=	12						

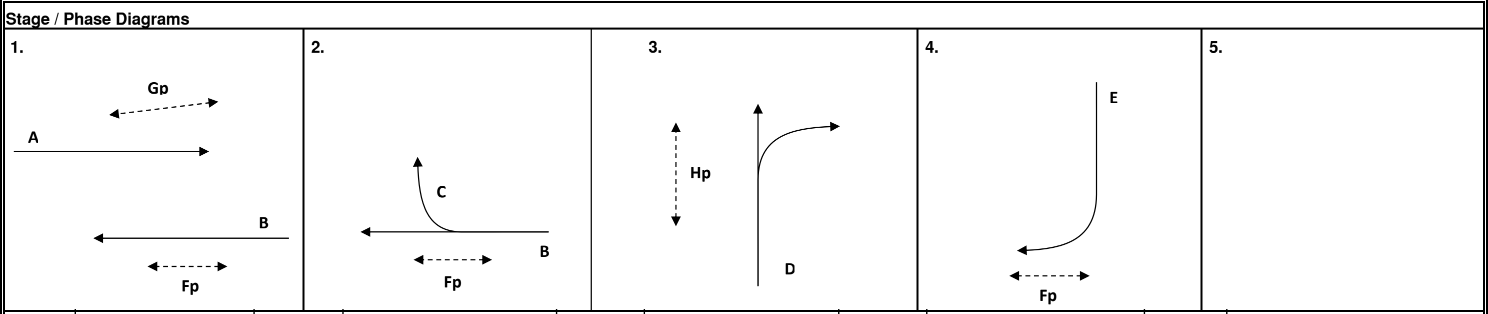
NOTES:

Flow: (pcu/hr)



Group	A,C,D,E	Group	B,D,E
Sum of Critical *y* ***Y***	0.58	Sum of Critical *y*	0.62
Lost Time ***L*** (sec)	19	Lost Time ***L*** (sec)	15
Cycle Time ***c*** (sec)	96	Cycle Time ***c*** (sec)	102
Practical *Y* ***Ypr***	0.72	Practical *Y* ***Ypr***	0.77
Reserve Capacity ***RC***	25%	Reserve Capacity ***RC***	24%

Stage / Phase Diagrams



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

Junction: Castle Peak Road (Chau Tau) / Castle Peak Road (San Tin) / Lok Ma Chau Ro

Junction No.: J02

TRAFFIC SIGNALS CALCULATION SHEET

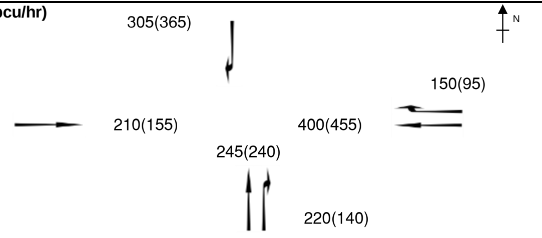
Junction: Castle Peak Road (Chau Tau) / Castle Peak Road (San Tin) / Lok Ma Chau Road
Junction No.: J02

Scenario: Design
Design Year: 2026

Movements		Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
					Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Lok Ma Chau Rd SB																	
	↲	E	4	4.5		17				1900	1900	305	0.16	0.16	365	0.19	0.19
Castle Peak Road Chau Tau EB																	
	→	A	1	3.9						2005	2005	210	0.10	0.10	155	0.08	
Lok Ma Chau Road NB																	
	↱	D	3	4.4		17		47%	37%	1975	1990	465	0.24	0.24	380	0.19	0.19
Castle Peak Road Chau Tau WB																	
	←	B	1,2	3.2						1935	1935	400	0.21		455	0.24	0.24
	↰	C	2	3.7		22				1990	1990	150	0.08	0.08	95	0.05	
Pedestrian Crossing																	
		Fp	1,2,4	MIN GREEN + FLASH =			5	+	5	=	10						
		Gp	1	MIN GREEN + FLASH =			7	+	6	=	13						
		Hp	3	MIN GREEN + FLASH =			7	+	5	=	12						

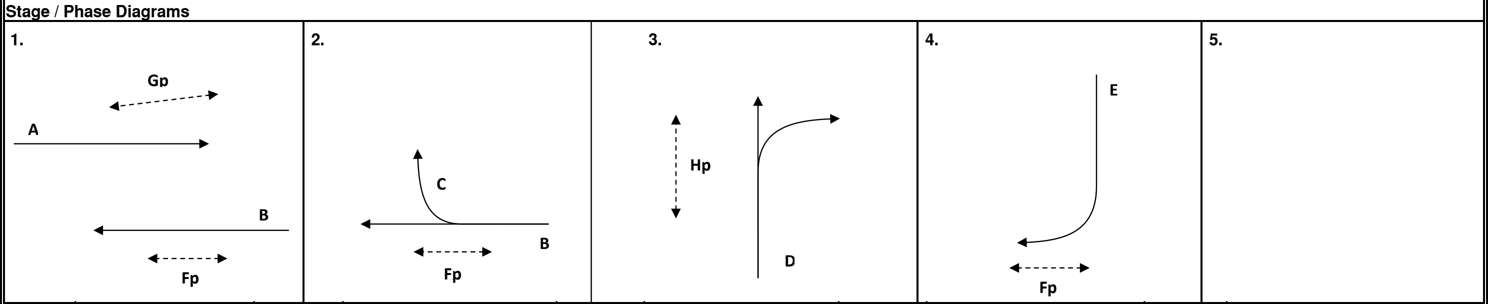
NOTES:

Flow: (pcu/hr)



Group	A,C,D,E	**Group**	B,D,E
Sum of Critical *y* ***Y***	0.58	Sum of Critical *y*	0.62
Lost Time ***L*** (sec)	19	Lost Time ***L*** (sec)	15
Cycle Time ***c*** (sec)	96	Cycle Time ***c*** (sec)	102
Practical *Y* ***Ypr***	0.72	Practical *Y* ***Ypr***	0.77
Reserve Capacity ***RC***	25%	Reserve Capacity ***RC***	24%

Stage / Phase Diagrams



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

Junction: Castle Peak Road (Chau Tau) / Castle Peak Road (San Tin) / Lok Ma Chau Ro

Junction No.: J02

Priority Junction Capacity Calculation

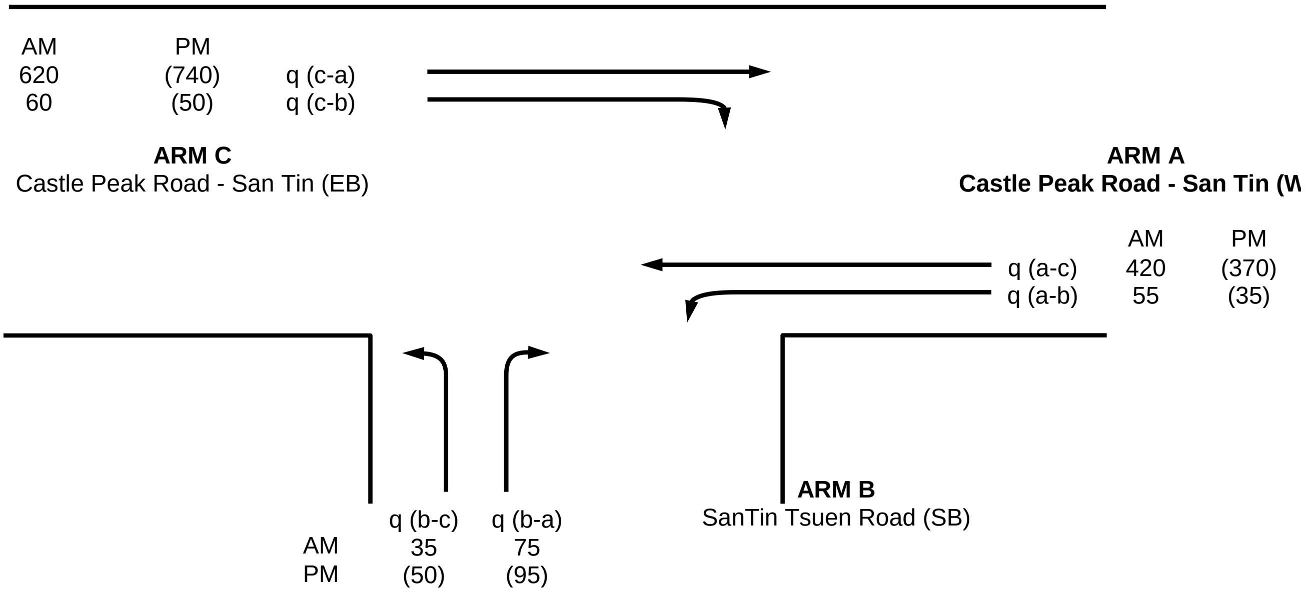
Junction : Castle Peak Road (San Tin) / San Tin Tsuen Road

Junction No. : J03

Scenario : Observe

Design Year : 2023

ARM A	Castle Peak Road - San Tin (WB)
ARM B	SanTin Tsuen Road (SB)
ARM C	Castle Peak Road - San Tin (EB)


AM
PM
620
(740)
q (c-a)
60
(50)
q (c-b)
ARM C
Castle Peak Road - San Tin (EB)
ARM A
Castle Peak Road - San Tin (W
AM
PM
q (a-c)
420
(370)
q (a-b)
55
(35)
ARM B
SanTin Tsuen Road (SB)
q (b-c)
q (b-a)
AM
35
75
PM
(50)
(95)

Geometry			Analysis					
Major Road Width	W	18.0	Traffic flows			AM		PM
Central Reserve Width	Wcr	4		q(c-a)		620		740
				q(c-b)		60		50
Lane Width	w(b-a)	4.5		q(a-b)		55		35
	w(b-c)	4.3		q(a-c)		420		370
	w(c-b)	3.8		q(b-a)		75		95
Visibilities				q(b-c)		35		50
	Vr(b-a)	55		f		0.32		0.34
	Vl(b-a)	88	Capacities					
	Vr(b-c)	61		Q(b-a)		545		544
	Vr(c-b)	142		Q(b-c)		687		695
Geometric Parameter				Q(c-b)		705		715
	D	0.979		Q(b-ac)		583		588
	E	1.005						
	F	1.037	DFC's					
	Y	0.379		b-a		0.14		0.17
				b-ac		0.19		0.25
				c-b		0.09		0.07
			Critical DFC			0.19		0.25

Priority Junction Capacity Calculation

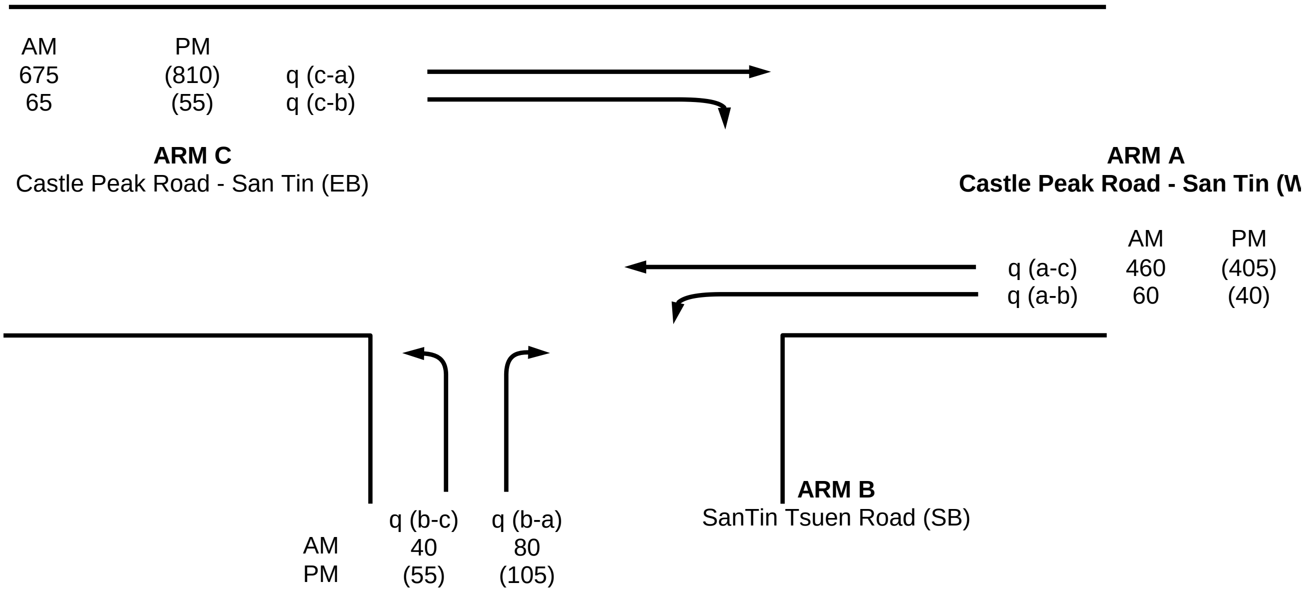
Junction : Castle Peak Road (San Tin) / San Tin Tsuen Road

Junction No. : J03

Scenario : Reference

Design Year : 2026

ARM A	Castle Peak Road - San Tin (WB)
ARM B	SanTin Tsuen Road (SB)
ARM C	Castle Peak Road - San Tin (EB)


AM
PM
675
(810)
q (c-a)
65
(55)
q (c-b)
ARM C
Castle Peak Road - San Tin (EB)
ARM A
Castle Peak Road - San Tin (W
AM
PM
q (a-c)
460
(405)
q (a-b)
60
(40)
ARM B
SanTin Tsuen Road (SB)
q (b-c)
q (b-a)
AM
40
80
PM
(55)
(105)

Geometry		
Major Road Width	W	18.0
Central Reserve Width	Wcr	4
Lane Width	w(b-a)	4.5
	w(b-c)	4.3
	w(c-b)	3.8
Visibilities		
	Vr(b-a)	55
	Vl(b-a)	88
	Vr(b-c)	61
	Vr(c-b)	142
Geometric Parameter		
	D	0.979
	E	1.005
	F	1.037
	Y	0.379

Analysis					
Traffic flows			AM		PM
	q(c-a)		675		810
	q(c-b)		65		55
	q(a-b)		60		40
	q(a-c)		460		405
	q(b-a)		80		105
	q(b-c)		40		55
	f		0.33		0.34
Capacities					
	Q(b-a)		533		532
	Q(b-c)		681		690
	Q(c-b)		698		709
	Q(b-ac)		575		578
DFC's					
	b-a		0.15		0.20
	b-ac		0.21		0.28
	c-b		0.09		0.08
Critical DFC			0.21		0.28

Priority Junction Capacity Calculation

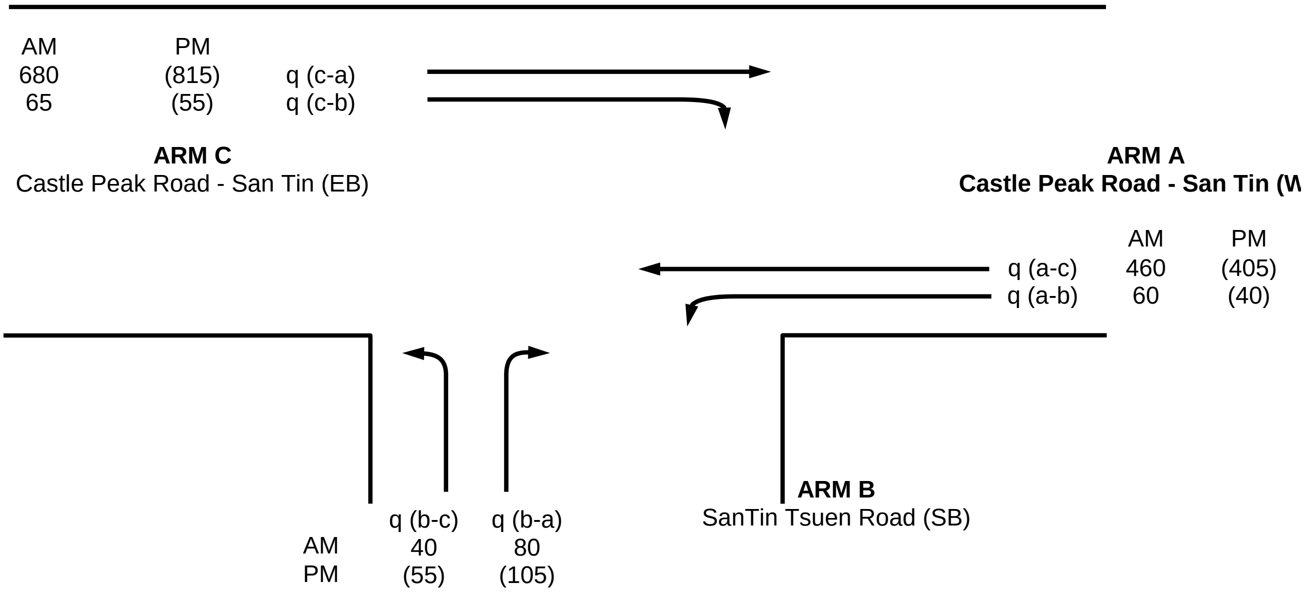
Junction : Castle Peak Road (San Tin) / San Tin Tsuen Road

Junction No. : J03

Scenario : Design

Design Year : 2026

ARM A	Castle Peak Road - San Tin (WB)
ARM B	SanTin Tsuen Road (SB)
ARM C	Castle Peak Road - San Tin (EB)


AM
PM
680
(815)
q (c-a)
65
(55)
q (c-b)
ARM C
Castle Peak Road - San Tin (EB)
ARM A
Castle Peak Road - San Tin (W
AM
PM
q (a-c)
460
(405)
q (a-b)
60
(40)
ARM B
SanTin Tsuen Road (SB)
q (b-c)
q (b-a)
AM
40
80
PM
(55)
(105)

Geometry			Analysis					
Major Road Width	W	18.0	Traffic flows			AM		PM
Central Reserve Width	Wcr	4		q(c-a)		680		815
				q(c-b)		65		55
Lane Width	w(b-a)	4.5		q(a-b)		60		40
	w(b-c)	4.3		q(a-c)		460		405
	w(c-b)	3.8		q(b-a)		80		105
Visibilities				q(b-c)		40		55
	Vr(b-a)	55		f		0.33		0.34
	Vl(b-a)	88	Capacities					
	Vr(b-c)	61		Q(b-a)		533		532
	Vr(c-b)	142		Q(b-c)		681		690
Geometric Parameter				Q(c-b)		698		709
	D	0.979		Q(b-ac)		575		577
	E	1.005						
	F	1.037	DFC's					
	Y	0.379		b-a		0.15		0.20
				b-ac		0.21		0.28
				c-b		0.09		0.08
			Critical DFC			0.21		0.28

TRAFFIC SIGNALS CALCULATION SHEET

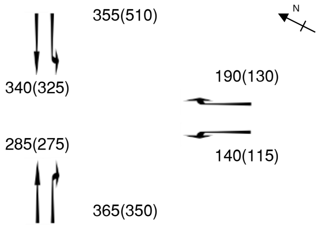
Junction: Castle Peak Road (San Tin) / Slip Road from San Tin Interchange — Junction No.: J04

Scenario: Observe — Design Year: 2023

Movements		Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
					Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Castle Peak Road - San Tin NB																	
	↑	A	2,3	3.6						1975	1975	285	0.14		275	0.14	
	↱	A	2,3	3.7		30				2020	2020	365	0.18	0.18	350	0.17	0.17
Castle Peak Road - San Tin SB																	
	↳	C	1,3,4	5.5	40					2085	2085	355	0.17		510	0.24	
	↓	B	1	3.9						2145	2145	171	0.08		164	0.08	0.08
	↓	B	1	3.6						2115	2115	169	0.08	0.08	161	0.08	
Slip Road From San Tin Interchange WB																	
	↲	E	4	3.7	20					1840	1840	140	0.08		115	0.06	
	↰	D	4	3.5		25				1985	1985	190	0.10	0.10	130	0.07	0.07
Pedestrian Crossing																	
		Fp	1,4	MIN GREEN + FLASH =			5	+	6	=	11						
		Gp	2,3,4	MIN GREEN + FLASH =			5	+	6	=	11						
		Hp	1,2,3	MIN GREEN + FLASH =			5	+	7	=	12						
		Ip	1	MIN GREEN + FLASH =			9	+	7	=	16						
		Jp	2	MIN GREEN + FLASH =			5	+	5	=	10						

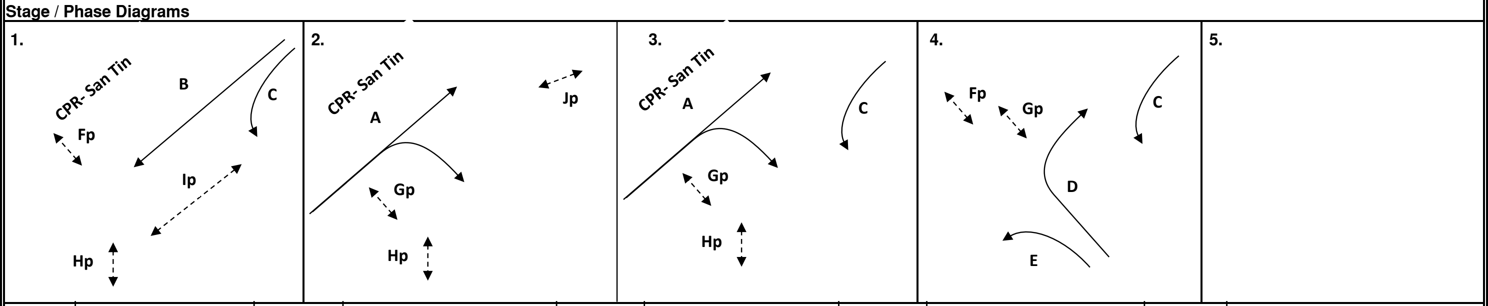
NOTES:

Flow: (pcu/hr)



Group	A,B,D	Group	A,B,D
Sum of Critical *y* ***Y***	0.36	Sum of Critical *y*	0.32
Lost Time ***L*** (sec)	15	Lost Time ***L*** (sec)	15
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.79	Practical *Y* ***Ypr***	0.79
Reserve Capacity ***RC***	>100%	Reserve Capacity ***RC***	>100%

Stage / Phase Diagrams



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

Junction: Castle Peak Road (San Tin) / Slip Road from San Tin Interchange

Junction No.: J04

TRAFFIC SIGNALS CALCULATION SHEET

Junction: Castle Peak Road (San Tin) / Slip Road from San Tin Interchange

Junction No.: J04

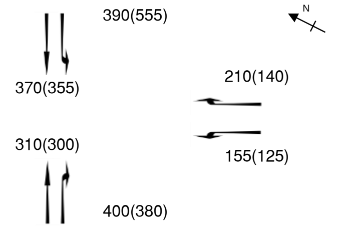
Scenario: Reference

Design Year: 2026

Movements		Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
					Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Castle Peak Road - San Tin NB																	
	↑	A	2,3	3.6						1975	1975	310	0.16		300	0.15	
	↱	A	2,3	3.7		30				2020	2020	400	0.20	0.20	380	0.19	0.19
Castle Peak Road - San Tin SB																	
	↳	C	1,3,4	5.5	40					2085	2085	390	0.19		555	0.27	
	↓	B	1	3.9						2145	2145	186	0.09		179	0.08	0.08
	↓	B	1	3.6						2115	2115	184	0.09	0.09	176	0.08	
Slip Road From San Tin Interchange WB																	
	↲	E	4	3.7	20					1840	1840	155	0.08		125	0.07	
	↰	D	4	3.5		25				1985	1985	210	0.11	0.11	140	0.07	0.07
Pedestrian Crossing																	
		Fp	1,4	MIN GREEN + FLASH =			5	+	6	=	11						
		Gp	2,3,4	MIN GREEN + FLASH =			5	+	6	=	11						
		Hp	1,2,3	MIN GREEN + FLASH =			5	+	7	=	12						
		Ip	1	MIN GREEN + FLASH =			9	+	7	=	16						
		Jp	2	MIN GREEN + FLASH =			5	+	5	=	10						

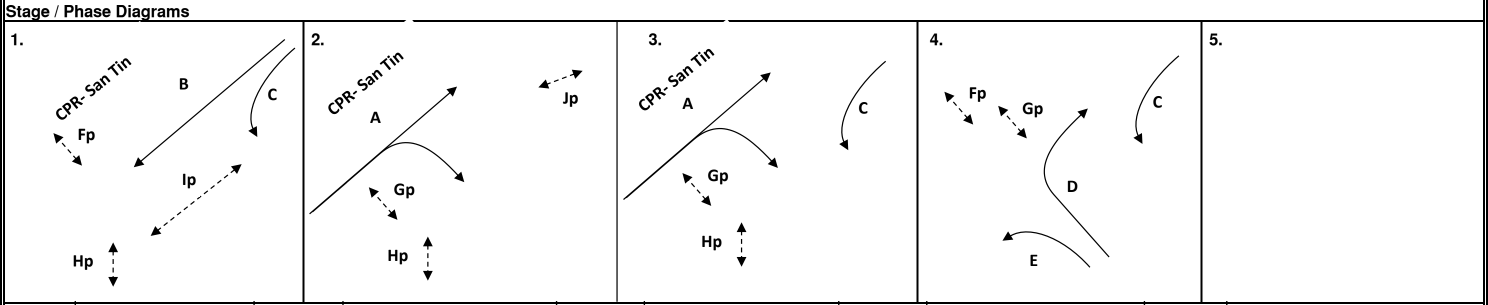
NOTES:

Flow: (pcu/hr)



Group		A,B,D	Group		A,B,D
Sum of Critical *y* ***Y***		0.39	Sum of Critical *y*		0.34
Lost Time ***L*** (sec)		15	Lost Time ***L*** (sec)		15
Cycle Time ***c*** (sec)		120	Cycle Time ***c*** (sec)		120
Practical *Y* ***Ypr***		0.79	Practical *Y* ***Ypr***		0.79
Reserve Capacity ***RC***		>100%	Reserve Capacity ***RC***		>100%

Stage / Phase Diagrams



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

Junction: Castle Peak Road (San Tin) / Slip Road from San Tin Interchange

Junction No.: J04

TRAFFIC SIGNALS CALCULATION SHEET

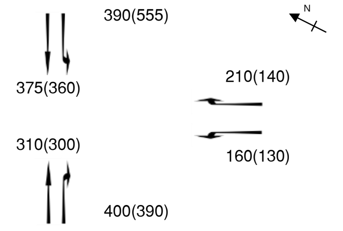
Junction: Castle Peak Road (San Tin) / Slip Road from San Tin Interchange
Junction No.: J04

Scenario: Design
Design Year: 2026

Movements		Phase	Stage	Lane Width (m)	Radius for turning (m)		Gradient in %	Proportion Turning (%)		Saturation Flow (pcu/hr)		AM Peak			PM Peak		
					Left	Right		AM	PM	AM	PM	Design Flow (pcu/hr)	Flow Factor y	Critical y	Design Flow (pcu/hr)	Flow Factor y	Critical y
Castle Peak Road - San Tin NB																	
	↑	A	2,3	3.6						1975	1975	310	0.16		300	0.15	
	↱	A	2,3	3.7		30				2020	2020	400	0.20	0.20	390	0.19	0.19
Castle Peak Road - San Tin SB																	
	↳	C	1,3,4	5.5	40					2085	2085	390	0.19		555	0.27	
	↓	B	1	3.9						2145	2145	189	0.09	0.09	181	0.08	
	↓	B	1	3.6						2115	2115	186	0.09		179	0.08	0.08
Slip Road From San Tin Interchange WB																	
	↲	E	4	3.7	20					1840	1840	160	0.09		130	0.07	0.07
	↰	D	4	3.5		25				1985	1985	210	0.11	0.11	140	0.07	
Pedestrian Crossing																	
		Fp	1,4	MIN GREEN + FLASH =			5	+	6	=	11						
		Gp	2,3,4	MIN GREEN + FLASH =			5	+	6	=	11						
		Hp	1,2,3	MIN GREEN + FLASH =			5	+	7	=	12						
		Ip	1	MIN GREEN + FLASH =			9	+	7	=	16						
		Jp	2	MIN GREEN + FLASH =			5	+	5	=	10						

NOTES:

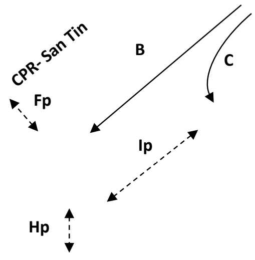
Flow: (pcu/hr)



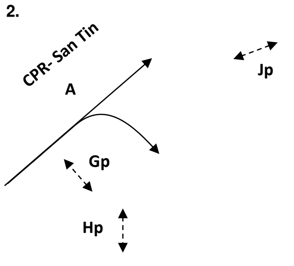
Group		A,B,D	**Group**		A,B,E
Sum of Critical *y* ***Y***		0.39	Sum of Critical *y*		0.35
Lost Time ***L*** (sec)		15	Lost Time ***L*** (sec)		15
Cycle Time ***c*** (sec)		120	Cycle Time ***c*** (sec)		120
Practical *Y* ***Ypr***		0.79	Practical *Y* ***Ypr***		0.79
Reserve Capacity ***RC***		>100%	Reserve Capacity ***RC***		>100%

Stage / Phase Diagrams

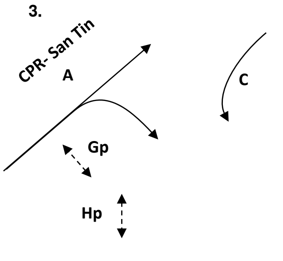
1.



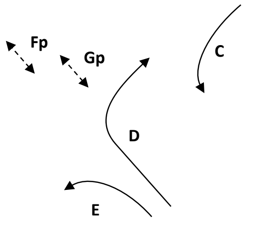
2.



3.



4.



5.

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

Junction: Castle Peak Road (San Tin) / Slip Road from San Tin Interchange

Junction No.: J04

Priority Junction Capacity Calculation

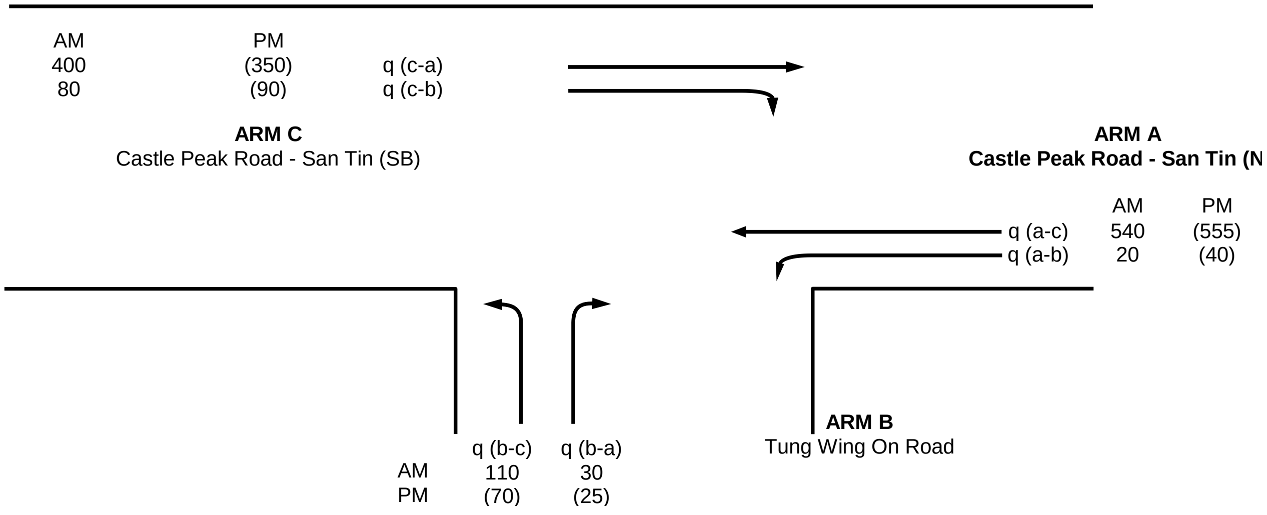
Junction : Castle Peak Road (San Tin) / Tung Wing On Road

Junction No. : J05

Scenario : Observe

Design Year : 2023

ARM A	Castle Peak Road - San Tin (NB)
ARM B	Tung Wing On Road
ARM C	Castle Peak Road - San Tin (SB)



AM
PM
400
(350)
q (c-a)
80
(90)
q (c-b)
ARM C
Castle Peak Road - San Tin (SB)
ARM A
Castle Peak Road - San Tin (N
AM
PM
q (a-c)
540
(555)
q (a-b)
20
(40)
ARM B
Tung Wing On Road
q (b-c)
q (b-a)
AM
110
30
PM
(70)
(25)

Geometry		
Major Road Width	W	11.0
Central Reserve Width	Wcr	0
Lane Width	w(b-a)	3.3
	w(b-c)	3.3
	w(c-b)	3.6
Visibilities		
	Vr(b-a)	40
	Vl(b-a)	100
	Vr(b-c)	40
	Vr(c-b)	65
Geometric Parameter		
	D	0.866
	E	0.893
	F	0.946
	Y	0.621

Analysis					
Traffic flows			AM		PM
	q(c-a)		400		350
	q(c-b)		80		90
	q(a-b)		20		40
	q(a-c)		540		555
	q(b-a)		30		25
	q(b-c)		110		70
	f		0.79		0.74
Capacities					
	Q(b-a)		364		363
	Q(b-c)		555		550
	Q(c-b)		585		578
	Q(b-ac)		499		485
DFC's					
	b-a		0.08		0.07
	b-ac		0.28		0.20
	c-b		0.14		0.16
Critical DFC			0.28		0.20

Priority Junction Capacity Calculation

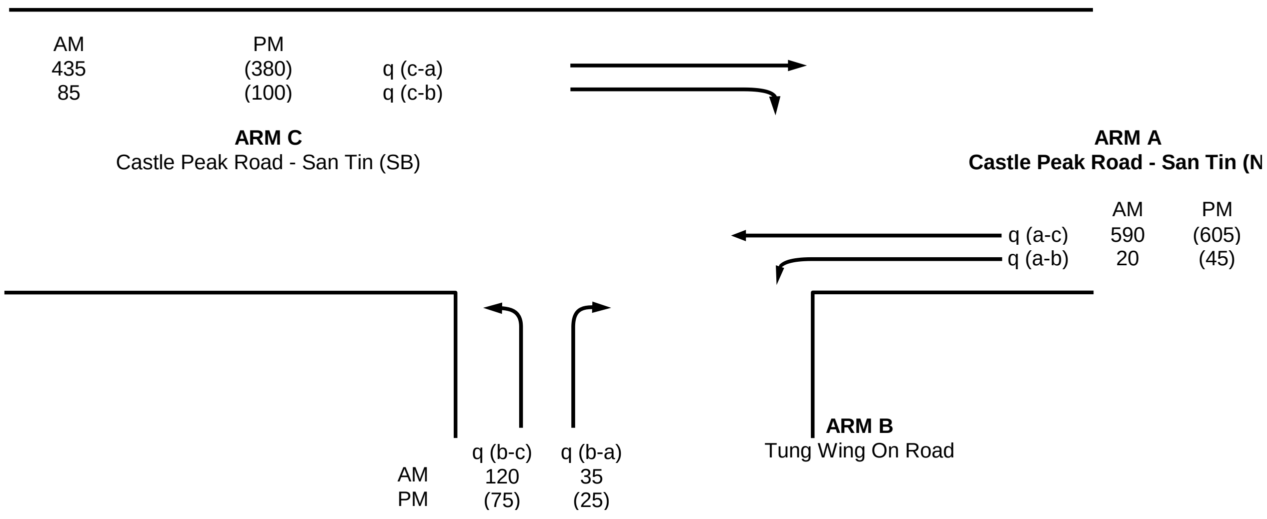
Junction : Castle Peak Road (San Tin) / Tung Wing On Road

Junction No. : J05

Scenario : Reference

Design Year : 2026

ARM A	Castle Peak Road - San Tin (NB)
ARM B	Tung Wing On Road
ARM C	Castle Peak Road - San Tin (SB)



AM
PM
435
(380)
q (c-a)
85
(100)
q (c-b)
ARM C
Castle Peak Road - San Tin (SB)
ARM A
Castle Peak Road - San Tin (N
AM
PM
q (a-c)
590
(605)
q (a-b)
20
(45)
ARM B
Tung Wing On Road
q (b-c)
q (b-a)
AM
120
35
PM
(75)
(25)

Geometry			Analysis			
Major Road Width	W	11.0	Traffic flows		AM	PM
Central Reserve Width	Wcr	0		q(c-a)	435	380
				q(c-b)	85	100
Lane Width	w(b-a)	3.3		q(a-b)	20	45
	w(b-c)	3.3		q(a-c)	590	605
	w(c-b)	3.6		q(b-a)	35	25
Visibilities				q(b-c)	120	75
	Vr(b-a)	40		f	0.77	0.75
	Vl(b-a)	100	Capacities			
	Vr(b-c)	40		Q(b-a)	349	347
	Vr(c-b)	65		Q(b-c)	545	540
Geometric Parameter				Q(c-b)	574	566
	D	0.866		Q(b-ac)	483	474
	E	0.893				
	F	0.946	DFC's			
	Y	0.621		b-a	0.10	0.07
				b-ac	0.32	0.21
				c-b	0.15	0.18
			Critical DFC		0.32	0.21

Priority Junction Capacity Calculation

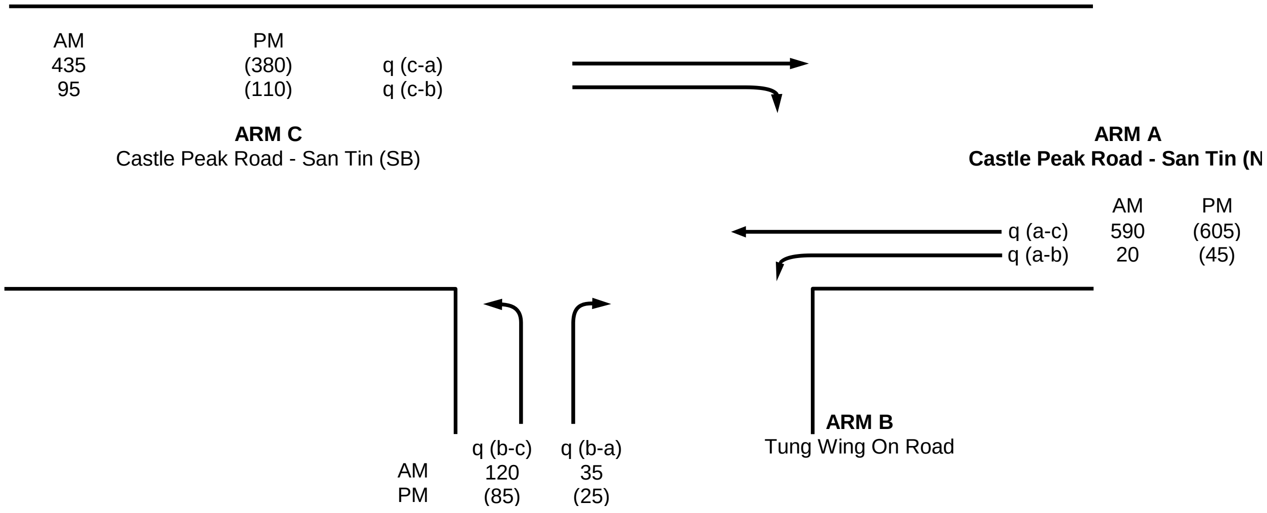
Junction : Castle Peak Road (San Tin) / Tung Wing On Road

Junction No. : J05

Scenario : Design

Design Year : 2026

ARM A	Castle Peak Road - San Tin (NB)
ARM B	Tung Wing On Road
ARM C	Castle Peak Road - San Tin (SB)



AM
PM
435
(380)
q (c-a)
95
(110)
q (c-b)
ARM C
Castle Peak Road - San Tin (SB)
ARM A
Castle Peak Road - San Tin (N
AM
PM
q (a-c)
590
(605)
q (a-b)
20
(45)
ARM B
Tung Wing On Road
q (b-c)
q (b-a)
AM
120
35
PM
(85)
(25)

Geometry			Analysis					
Major Road Width	W	11.0	Traffic flows			AM		PM
Central Reserve Width	Wcr	0		q(c-a)		435		380
				q(c-b)		95		110
Lane Width	w(b-a)	3.3		q(a-b)		20		45
	w(b-c)	3.3		q(a-c)		590		605
	w(c-b)	3.6		q(b-a)		35		25
Visibilities				q(b-c)		120		85
	Vr(b-a)	40		f		0.77		0.77
	Vl(b-a)	100	Capacities					
	Vr(b-c)	40		Q(b-a)		346		344
	Vr(c-b)	65		Q(b-c)		545		540
Geometric Parameter				Q(c-b)		574		566
	D	0.866		Q(b-ac)		482		478
	E	0.893						
	F	0.946	DFC's					
	Y	0.621		b-a		0.10		0.07
				b-ac		0.32		0.23
				c-b		0.17		0.19
			Critical DFC			0.32		0.23