Appendix D

Revised Traffic Impact Assessment

Proposed Land Sharing Pilot Scheme

for a Site at Various Lots in D.D. 115, Tung Shing Lei,

Yuen Long, the New Territories

Traffic Impact Assessment

April 2024

10	Apr 2024	TCTH	DWTF
Issue	Date	Prepared by	Reviewed by

AECOM

Table of Contents

List of Tables

List of Figures

Annex

1 INTRODUCTION

1.1 Background

1.1.1 The Application Site is located at various lots in D.D. 115, Tung Shing Lei, Yuen Long as indicated in **Figure 1.1**. The Application Site is currently zoned "Residential (Group D)" ("R(D)") on the approved Nam Sang Wai Outline Zoning Plan No. S/YL-NSW/8 and covers a site area of approximately 40,947m ^{2}.

1.1.2 Part of the Application Site is the subject of an approved rezoning application under Town Planning Board (TPB) Application No. Y/YL-NSW/4 (i.e. hereafter referred to as the Approved Scheme). Under the Approved Scheme, TPB has agreed to rezone part of the Application Site from "R(D)" to "R(D)1" zone to facilitate the implementation of the residential development with plot ratio (PR) of not more than 0.34 and total (domestic) GFA of not more than 10,150m^2.

1.1.3 The Applicant now proposes a public and private housing development at the subject site (i.e. hereafter referred to as the Proposed Development / Proposed Scheme) under the Land Sharing Pilot Scheme (LSPS), which was put forward in the 2018 Policy Address as part of Government's multi-pronged strategy to increase land and housing supply in the short-to-medium term.

1.1.4 The proposal comprises (i) a public housing development with plot ratio of 4.45 and 1,868 units (with average flat size of 50 m^2), and (ii) a private housing development with plot ratio of 3.01 and 1,261 units (with average flat size of 39.8m^2).

1.1.5 AECOM was commissioned by the Applicant to prepare a Traffic Impact Assessment (TIA) report in support of the application.

1.2 Objectives

1.2.1 The main objectives of this report are as follows:-

- Outline the Proposed Development parameters and internal transport facilities;
- Review the current traffic condition in the vicinity;
- Estimate the future public transport demand of the Proposed Development;
- Estimate the potential traffic generations and attractions of the Proposed Development;
- Produce traffic forecasts on the surrounding road network at the adopted design year;
- Assess traffic impact on the surrounding road network induced from the Proposed Development; and
- Develop traffic improvement proposal(s) if necessary.

1.3 Structure of TIA Report

1.3.1 Following this introductory chapter, the TIA is structured as follows:

- **Chapter 2**: Proposed Development, describes the Proposed Development schedule and its internal traffic facilities provisions, access arrangement, etc.;
- **Chapter 3**: Existing Traffic Condition, reviews the current traffic conditions;
- **Chapter 4**: Traffic Impact Assessment, presents the traffic forecast of the Proposed Development and the results of capacity assessments of the identified critical junctions for scenarios without and with the Proposed Development;
- **Chapter 5**: Public Transport Services, reviews the existing public transport services provision in the vicinity of the Proposed Development, discusses the future public transport demand together with the required transport facilities;
- **Chapter 6**: Summary and Conclusion, summarizes the findings of the study and presents the conclusion of this TIA.

2 PROPOSED DEVELOPMENT

2.1 Development Schedule

2.1.1 The indicative development schedule of the Proposed Development is summarized in **Table 2.1** for technical assessment purpose**.**

Table 2.1 Indicative Development Schedule

Development Parameters	Public Housing Portion	Private Housing Portion
Application Site Area	21,375 m^2	17,401 m^2 (5)
Equivalent Total Plot Ratio	4.45	3.01
Domestic Portion		
Domestic GFA	About 93,400m^2	About 50,179 m^2
Domestic Plot Ratio	4.37	2.88
No. of Residential Towers	4	3
No. of Units	1,868 units(1)	1,261 units
Anticipated Population	About 5,231 persons(1)(2)	About 3,153 persons(6)
Average Flat Size	50 m^2 (3)	39.8 m^2
Non-Domestic Portion		
Non- Domestic GFA	18,850 m^2 • Retail (about 1,200 m^2) • GIC(4) (about 4,670 m^2) • Domestic & Retail Car Park (about 12,980m^2) • G/IC Car Park (N/A – Open Carpark on Ground Floor)	6,920 m^2 • Retail (1,245 m^2) • Kindergarten(7) (1,000m^2) • Transport Terminus (about 4,675 m^2)

Note:
(1) A 10% increase in the design population and flat production for the Public Housing Portion would be adopted for assessment purpose to allow for changes in flat mix, refinement of layout and design etc. in the detailed design stage.
(2) Person per flat ratio of 2.8 adopted.
(3) Average flat size of 50m^2 formulated in accordance with Paper No. DEVB(PL-CR)1-55/127/1 – Legislative Council Brief Land Sharing Pilot Scheme.
(4) G/IC GFA equivalent to 5% of total attainable domestic GFA of subsidised housing development as per Policy Address 2021, including SWD's suggested Neighbourhood Elderly Centre (about 303m2 of NOFA or about 667m2 of GFA); One team of Home Care Services (HCS) for Frail Elderly Persons (4-team size non-kitchen based) (about 257m2 of NOFA or about 565m2 of GFA). The final GFA and layout will be subject to detailed design of the relevant government departments.
(5) With the inclusion of compensation ponds of about 6,900m^2 which is not suitable for housing development thereon, the remaining effective site area is about 17,401m^2

(6) Adopting the same person per flat as per (i.e. 2.5) the recently approved application under Application No. A/YL-NSW/274.
(7) Refer to an 8-classroom private kindergarten

2.2 Development Access

2.2.1 Currently, the Application Site is served by a village road which branches off from existing Ho Chau Road. The village road is a 3.5m-5.5m wide single-track access road with no footpath on neither side of the carriageway; while Ho Chau Road is a 3.5m wide single-track access road with passing bays.

2.2.2 Under another approved planning application no. A/YL-NSW/274 for adjacent site, the existing Ho Chau Road is planned to be widened to a standard 7.3m wide single 2 lane 2-way carriageway between the adjacent site to the junction of Nam Sang Wai Road, as illustrated in **Figure 2.1** for indicative purpose. One 38m long bus/GMB bay is planned at widened Ho Chau Road to serve for the whole area. This can serve as bus/GMB bay for additional terminating bus /GMB routes serving the area if required in the future. In addition, a section of Nam Sang Wai Road near its junction with Castle Peak Road – Tam Mi was also planned to be widened as shown in **Figure 2.2**.

2.2.3 As shown in **Figure 2.1**, within the Application Site, an access road is proposed to connect the Application Site with widened Ho Chau Road. The access road would be a 7.3m-wide single 2-lane carriageway, with footpaths provided on each side of the carriageway.

2.3 Internal Transport Facilities

2.3.1 The parking and loading/unloading facilities of the Proposed Development will be provided in accordance with the requirements as stipulated in the latest Hong Kong Planning Standards and Guidelines (HKPSG) to cater for the transport demand. The respective requirements are summarized in **Table 2.2.**

Table 2.2 HKPSG Parking and Servicing Facilities Provisions Requirement

	HKPSG Requirements
Private Car Parking Spaces	
Private Housing – Private Car Parking Spaces	GPS x R1 x R2 x R3 For flat size < 40m^2 = 1 space per 4-7 flats x 0.5 x 1.00 x 1.00 = 0.5 spaces per 4-7 flats For flat size = 40m^2 -70m^2, = 1 space per 4-7 flats x 1.2 x 1.00 x 1.00 = 1.2 spaces per 4.7 flats For flat size = 70m^2 -100m^2, = 1 space per 4-7 flats x 2.4 x 1.00 x 1.00 = 2.4 spaces per 4-7 flats
Private Housing – Visitor Private Car Parking Spaces	5 spaces per block of more than 75 residential units
Public Housing – Private Car Parking Spaces	GPS x R1 x R2 = 1 space per 4-7 flats x 0.52 x 1.0 = 0.52 spaces per 4-7 flats

	HKPSG Requirements
	(*Assume all flats would be subject to the calculation of overall parking provision as the no. of "one person/ two person" flats is not determined at this stage)
Public Housing – Visitor Private Car Parking Spaces	5 spaces per block of more than 75 residential units
Commercial (Retail) – Private Car Parking spaces	1 car space per 150 – 300m^2 GFA
Commercial (Kindergarten) – Private Car Parking Spaces	0 to 1 car parking space per 4 to 6 classrooms
Motorcycle Parking Spaces	
Private Housing – Motorcycle Parking Spaces	1 space per 100-150 flats
Public Housing – Motorcycle Parking Spaces	1 space per 110-250 flats excluding one person/ two persons flats
Commercial – Motorcycle Parking Spaces	5% - 10% total provision for private cars
Bicycle Parking Spaces	
Public / Private Housing – Bicycle Parking Spaces	1 space for every 15 flats with flat size smaller than 70m^2
Private Light Bus/ Coach Parking Spaces	
G/IC Facilities– Parking Spaces	Nil
Public Housing – "Shared-use" LGV and Light Bus space	1 space per 260 flats
Loading and Unloading Bay	
Private Housing – Loading and Unloading Bay	1 space for every 800 flats subject to min. 1 bay per block
Public Housing – "Shared-use" coaches/ buses and M/HGV Loading and Unloading Bay	2 spaces around each residential block
Retail – Loading and Unloading Bay	1 loading/ unloading bay for goods vehicles for every 800 to 1200m^2 or part thereof, GFA
G/IC Facilities– Loading/ Unloading Bay	Nil
Lay-bys	
Kindergarten – Taxi / private cars lay-by	1 lay-by for taxis and private cars for every 5 to 8 classrooms

	HKPSG Requirements
Kindergarten – Small Coaches Layby	5 lay-bys for small coaches (each 3m x 7m)

2.3.2 Regarding the provision of taxi/ private cars/ school bus layby for kindergarten, reference has been made to planning application no. A/YL-NSW/274 and the provision rates are shown in **Table 2.3**.

Table 2.3 Adopted Servicing Facilities Provisions for Kindergarten

	Private Car/ Taxi Layby	School Bus Layby
Adopted Rates	5.63 spaces / 100 students	Minimum 5 laybys for small coaches

2.3.3 In light of the HKPSG requirements given in **Table 2.2** and **Table 2.3**, the proposed provision for the Public Housing Portion and Private Housing Portion according to the development schedules are summarized in **Table 2.4** and **Table 2.5.** Taken into consideration the proximity to public transport services, availably of public car parking space, traffic conditions and the illegal parking condition in the vicinity, it is proposed to adopt a GPS of 5 for calculating the residential carparking provision according to HKPSG. For other facilities, the mid-range provision requirements has been adopted.

Table 2.4 Required and Proposed Parking and Servicing Facilities Provisions for Public Housing Portion

	Parameters	Required Provision	Proposed Provision
Public Housing – Private Car Parking Spaces	2055 Flats(1)	153 – 268 spaces	214(2) spaces
Public Housing – Visitor Private Car Parking Spaces	4 Towers	20 spaces	20(3) spaces
Retail – Private Car Parking Spaces	1200 m^2	4 –8 spaces	6 spaces(4)
Private Car Parking Spaces(5)			240 spaces
Public Housing – Motorcycle Parking Spaces	2055 Flats(1)	9 – 19 spaces	14 spaces
Retail – Motorcycle Parking Spaces	4 - 8 spaces	1 space	1 space
Motorcycle Parking Spaces			15 spaces
Public Housing – Bicycle Parking Spaces	2055 Flats(1)	137 spaces	274 spaces(6)
G/IC Facilities (Incl. one NEC and one HCS, subject to detailed design) – Private Light Bus Parking Space	-	-	1 space (7) (3.5m x 8m each)
Public Housing – LGV and Light Bus Loading and Unloading Bay	2055 Flats(1)	8 bays	8 bays
Public Housing – "Shared-use" coaches/ buses and M/HGV Loading and Unloading Bay	4 Towers	8 bays	8 bays
Retail – Loading and Unloading Bay	1200 m^2	2 bays	2 bays

	Parameters	Required Provision	Proposed Provision
G/IC Facilities (Incl. one NEC and one HCS, subject to detailed design) – Shared Loading and Unloading Bay for Private Light Bus	-	-	1 bay(7) (3m x 9m)
		Loading and Unloading Bays	**19 spaces**

Notes: Round up figures adopted.
(1) A 10% increase in the design population and flat production for the Public Housing Portion would be adopted for assessment purpose to allow for changes in flat mix, refinement of layout and design etc. in the detailed design stage.
(2) GPS of 1 space per 5 flats is adopted.
(3) All the towers have more than 75 units per block.
(4) 1 car space per 200m^2 GFA is adopted.
(5) Nos. of accessible car parking spaces will be reserved for persons with disabilities in accordance with the HKPSG.
(6) 1 bicycle parking space for every 7.5 flats would be provided according to TD comments.
(7) Parking provision for GIC facilities suggested by Social Welfare Department.

Table 2.5 Required and Proposed Parking and Servicing Facilities Provisions for Private Housing Portion

	Parameters	Required Provision		Proposed Provision
Private Housing – Private Car Parking Spaces	544 Flats	FS ≤ 40m^2	39-68	228(1) spaces
	717 Flats	40m^2<FS≤70m^2	123-216	
	Total: 1,261 Flats	**162 – 284 spaces**		
Private Housing – Visitor Private Car Parking Spaces	3 Towers	15 spaces		15(3) spaces
Retail – Private Car Parking Spaces	1,245 m^2	5 – 9 spaces		7(4) spaces
Kindergarten – Private Car Parking Spaces	8 Classrooms	0 – 2 spaces		1 space
		Private Car Parking Spaces(2)		251 spaces
Private Housing – Motorcycle Parking Spaces	1,261 Flats	9 - 13 spaces		11 spaces
Retail – Motorcycle Parking Spaces	5 – 9 spaces	1 space		1 space
		Motorcycle Parking Spaces		12 spaces
Private Housing – Bicycle Parking Spaces	1,261 Flats(5)	85 spaces		85 spaces
Private Housing – Loading and Unloading Bay	3 Towers	3 bays		3 bays
Retail – Loading and Unloading Bay	1,245 m^2	2 bays		2 bays
		Loading and Unloading Bays		**5 spaces**

	Parameters	Required Provision	Proposed Provision
Kindergarten – Taxi / private cars lay-by	8 Classrooms (160 Students)	2 lay-bys for taxi / private cars	10 lay-bys(6)
Kindergarten – Small Coaches Layby	-	5 lay-bys for small coaches (each 3m x 7m)	5 lay-bys(6)

Notes: Round up figures adopted.
(1) GPS of 1 space per 5 flats is adopted.
(2) Nos. of accessible car parking spaces will be reserved for persons with disabilities in accordance with the HKPSG
(3) All the towers have more than 75 units per block. Hence 5 visitor car parking spaces per block would be provided.
(4) 1 car space per 200m^2 GFA is adopted.
(5) No. of flats with flat size smaller than 70 m^2
(6) Based on the adopted rates of provision for kindergarten as given in Table 2.3

2.4 Proposed Public Transport Terminus

2.4.1 In order to cater for the potential demand of public transport services arising from the Proposed Development, a Public Transport Terminus with 2 bus bays, 1 GMB bay and a taxi stand is proposed within the Private Housing Portion, as illustrated in **Figure 2.3**. The public transport demand and services will be discussed in **Chapter 5**.

3 EXISTING TRAFFIC CONDITION

3.1 Local Road Network

3.1.1 The existing road network in vicinity of the Application Site is shown in **Figure 3.1**.

3.1.2 Ho Chau Road provides the only access to the Application Site, which is currently a single-track access road of about 3.5m wide connecting with Nam Sang Wai Road on its eastern end.

3.1.3 Nam Sang Wai Road is a rural local road connecting Castle Peak Road – Tam Mi and Nam Sang Wai area. The section between Castle Peak Road – Tam Mi and Ho Chau Road is a single 2-lane carriageway, while the remaining section is a single-track access road.

3.1.4 Castle Peak Road – Tam Mi is a rural local road of single 2-lane carriageway running parallel to San Tin Highway on the western side, it connects Castle Peak Road – Yuen Long and Kam Tin Road at Au Tau Interchange on its southern end.

3.2 Traffic Survey

3.2.1 A total of 7 critical junctions were identified for assessment in this TIA, they are listed in **Table 3.1**. Layouts of existing junctions are presented in **Figures 3.2** to **3.8**.

Table 3.1 Critical Junctions

Ref.	Junction	Type	Fig. No.
J1	Castle Peak Road – Tam Mi / San Tam Road	Signal	**3.2**
J2	Castle Peak Road – Tam Mi / Unnamed Access Road to Cheung Chun San Tsuen	Priority	**3.3**
J3	Castle Peak Road – Tam Mi / Nam Sang Wai Road	Priority	**3.4**
J4	Au Tau Interchange	Roundabout	**3.5**
J5	Kam Tin Road / Tsing Long Highway	Signal	**3.6**
J6	Kam Tin Road / Kam Tin Bypass / Kam Ho Road Roundabout	Roundabout	**3.7**
J7	Pok Oi Interchange	Roundabout	**3.8**

3.2.2 Series of manual classified traffic counts surveys were carried out on 25 May 2021 to establish the current traffic condition in the vicinity. The surveys were undertaken during 7:30am – 9:30am and 5:00pm – 7:00pm at the critical junctions as listed in **Table 3.1**.

3.2.3 The identified morning (AM) and evening (PM) peak hour are from 7:45am to 8:45am and from 5:45pm to 6:45pm respectively. The 2021 observed AM and PM peak hour traffic flows are shown in **Figure 3.9**.

3.3 Junction and Road Link Assessment

3.3.1 Junction capacity analysis was carried out for the above surveyed junctions which are located in the vicinity of the Application Site to appraise the existing traffic condition based on the 2021 observed peak hour traffic flows.

3.3.2 Based on the turning flows at the above junctions, capacity assessments were carried out in accordance with the methodology documented in the appendices of Transport Planning and Design Manual (TPDM) Volume 2 Chapter 4 for priority junction / roundabout and Volume 4 for signal junction.

3.3.3 The existing junction performances of the critical junctions are summarized in **Table 3.2**. Capacity calculation sheets are attached in **Annex A**.

Table 3.2 Existing Junction Performance

Ref.	Junction	Indicator*	2021 Existing	
			AM Peak	PM Peak
J1	Castle Peak Road – Tam Mi / San Tam Road	RC	64%	72%
J2	Castle Peak Road – Tam Mi / Unnamed Access Road to Cheung Chun San Tsuen	DFC	0.14	0.10
J3	Castle Peak Road – Tam Mi / Nam Sang Wai Road	DFC	0.05	0.07
J4	Au Tau Interchange	DFC	0.60	0.52
J5	Kam Tin Road / Tsing Long Highway	RC	22%	21%
J6	Kam Tin Road / Kam Tin Bypass / Kam Ho Road Roundabout	DFC	0.59	0.54
J7	Pok Oi Interchange	DFC	0.80	0.81

* DFC = Design Flow / Capacity ratio for priority junction or roundabout;
RC= Reserved Capacity for signalized junction

3.3.4 At present, all critical junctions are operating within capacity.

3.3.5 The existing volume-to-capacity (v/c) ratio at the existing road links are also reviewed and summarized in **Table 3.3**. The locations of critical road links are also illustrated in **Figure 3.1**.

Table 3.3 Road Link Assessment

Link Index	Road Link	Dir.	Capacity (pcu/hr)	Observed Traffic Flows(1)			
				Traffic Flows		V/C Ratio	
				AM	PM	AM	PM
L1N	San Tam Road	NB	3600(2)	510	400	0.14	0.11
L1S		SB	3600(2)	1040	900	0.29	0.25
L2N	Castle Peak Road - Tam Mi (Between San Tam Road and Access Road to Cheung Chun San Tsuen)	NB	3600(2)	960	900	0.27	0.25
L2S		SB	3600(2)	1360	1250	0.38	0.35
L3N	Castle Peak Road - Tam Mi (Between Access Road to	NB	3600(2)	960	900	0.27	0.25

Link Index	Road Link	Dir.	Capacity (pcu/hr)	Observed Traffic Flows(1)			
				Traffic Flows		V/C Ratio	
				AM	PM	AM	PM
L3S	Cheung Chun San Tsuen and Nam Sang Wai Road)	SB	3600(2)	1390	1280	0.39	0.36
L4N	Castle Peak Road - Tam Mi (Between Nam Sang Wai Road and Au Tau Int')	NB	3600(2)	980	910	0.27	0.25
L4S		SB (Ground Level)	3600(2)	910	810	0.25	0.23
		SB (Flyover)	1800(8)	450	500	0.36	0.40
L5E	Castle Peak Road - Yuen Long (Between Pok Oi Int' and Long Yat Road)	EB	5400(3)	1950	1780	0.36	0.33
L5W		WB	5400(3)	1480	1600	0.27	0.30
L6E	Castle Peak Road - Yuen Long (Between Au Tau Int' and Pok Oi Int')	EB	5400(3)	1160	1000	0.21	0.19
L6W		WB	5400(3)	1440	1350	0.27	0.25
L7E	Kam Tin Road (Between Au Ta Int' and Tsing Long Highway Slip Road)	EB	3600(2)	1920	1580	0.53	0.44
L7W		WB	3600(2)	1730	2280	0.48	0.63
L8E	Kam Tin Road (Between Tsing Long Highway Slip Road and Kam Ho Road Roundabout)	EB	3600(2)	2010	1700	0.56	0.47
L8W		WB	3600(2)	1700	1970	0.47	0.55
L9	Kam Tin Road	Two-way	1800(4)	1340	1290	0.74	0.72
L10	Ho Chau Road	Two-way	130(5)	60	60	0.46	0.46
L11	Castle Peak Road - Yuen Long (Exit arm of Pok Oi Int')	EB	1800(6)	1020	860	0.57	0.48
L12N	Tai Lam Tunnel	NB	5400(3)	1850	3400	0.34	0.63
L12S		SB	5400(3)	4950	2200	0.92	0.41
L13E	Yuen Long Highway	EB	6100(7)	4210	4350	0.69	0.71
L13W		WB	6100(7)	4020	4020	0.66	0.66
L14N	Tsing Long Highway	NB	6100(7)	1770	3210	0.29	0.53
L14S		SB	6100(7)	4550	2050	0.75	0.34

Note:
(1) The observed traffic flows in critical road links are obtained from traffic counts.
(2) Road capacity for Dual 2-lane carriageway
(3) Road capacity for Dual 3-lane tunnel
(4) Road capacity for 6.75m wide Single 2-lane carriageway
(5) Road capacity for single track access road with passing bay
(6) Road capacity for 4m-wide Dual 1-lane carriageway
(7) Road capacity for Dual 3-Trunk Road
(8) Road capacity for single lane carriageway

4 TRAFFIC IMPACT ASSESSMENT

4.1 Trip Generation of Proposed Development

4.1.1 Estimates of trip generated by the Proposed Development are derived with reference to the trip generation and attraction rates as stipulated in Annex D of Transport Planning and Design Manual (TPDM) Volume 1 Chapter 3 published by Transport Department. The adopted trip rates and the estimated trip generation of the Proposed Development are presented in **Tables 4.1 , 4.2 and 4.3** respectively.

Table 4.1 Adopted Trip Rates

Land Use	Trip Rates				
	Unit	AM Peak		PM Peak	
		Gen.	Att.	Gen.	Att.
Private Housing(1) (FS=180m^2 mean)	pcu/hr/flat	0.2772	0.1769	0.1635	0.2394
Private Housing (1) (FS=60m^2 Mean)	pcu/hr/flat	0.0718	0.0425	0.0286	0.0370
Public Housing(1)	pcu/hr/flat	0.0622	0.0426	0.0297	0.0401
Commercial (Retail) (1)	pcu/hr/100 m^2 GFA	0.2296	0.2434	0.3100	0.3563
Kindergarten (2)	pcu/hr/100 students	26	26	1	1
Home Care Services (HCS) for Frail Elderly Persons	Pcu/hr	5(3)	5(3)	5(3)	5(3)

Notes:
(1) Trip rates adopted from TPDM
(2) Based on survey and estimated modal split at Zenith Kindergarten (Sha Tin) and Zenith Kindergarten (Yuen Long)
(3) Assume the vehicular trips by 2 private light buses will be generated and attracted within 1 hour, based on PCU factor of 1.5.

Table 4.2 Trip Generation and Attraction – Approved Scheme

Land Use	Trip Generation/ Attractions (pcu/hr)				
	Parameters	AM Peak		PM Peak	
		Gen.	Att.	Gen.	Att.
Approved Scheme (Y/YL-NSW/4)					
Private Housing	57 Houses (Avg. Flat Size = 178m^2)	16	11	10	14

4.1.2 To allow for changes in flat mix for Public Housing in detailed design stage, a 10% increase in the flat production (i.e. 1,868 x (1+10%) = 2,055 flats) is adopted for estimating the trip generation for Public Housing portion.

Table 4.3 Trip Generation and Attraction – Proposed Development

Land Use	Trip Generation/ Attractions (pcu/hr)				
	Parameters	AM Peak		PM Peak	
		Gen.	Att.	Gen.	Att.
Public Housing Portion					
Public Housing	2,055 Flats(1) (Avg. Flat Size = 50m^2)	128	88	62	83
Commercial (Retail)	1,200 m^2	3	3	4	5
Home Care Services (HCS) for Frail Elderly Persons	-	5	5	5	5
Sub-Total (Public Housing Portion)	**-**	**136**	**96**	**71**	**93**
Private Housing Portion					
Private Housing	1,261 Flats (Avg. Flat Size = 39.8m^2)	91	54	37	47
Commercial (Retail)	1,245 m^2	3	4	4	5
Kindergarten	8 Classrooms (160 students)(2)	42	42	2	2
Sub-Total (Private Housing Portion)	**-**	**136**	**100**	**43**	**54**
Total (SH + PH)	**-**	**272**	**196**	**114**	**147**

Note: (1) A 10% increase in flat production for Public Housing development is adopted.
(2) The proposed kindergarten could accommodate up to 160 pupils.

4.2 Design Year

4.2.1 The Proposed Development is tentatively scheduled for completion in 2031. According to Guidelines and Requirements of Traffic Impact Assessment (TIA) Studies, the TIA should assess at least 3 years after the planned completion of the Proposed Development. Hence, 2034 is adopted as the design year for this TIA.

4.3 Planned Junction Improvement Works

J1 – J/O Castle Peak Road – Tam Mi / San Tam Road

4.3.1 Junction improvement was proposed under planned development of Planning Application No. Y/YL-NSW/3. The approaching arm of eastbound Castle Peak Road – Tam Mi would be widened to 2 lanes to enhance the junction capacity.

4.3.2 Under another approved Planning Application No. A/YL-NSW/274, a junction improvement proposal at the J/O Castle Peak Road – Tam Mi / San Tam Road (J1) is recommended as shown in **Figure 4.1A** to allow U-turn movement from Castle Peak Road – Tam Mi northbound to southbound.

4.3.3 Under the feasibility study (CEDD Agreement No. CE10/2020(CE)) for Sha Po Public Housing Development, it is proposed to convert the J/O Castle Peak Road – Tam Mi / San Tam Road from existing signal-controlled junction into a roundabout arrangement. The planned layout of the roundabout is as shown in **Figure 4.1B**.

J2 – J/O Castle Peak Road – Tam Mi / Unnamed Access Road to Cheung Chun San Tsuen

4.3.4 A signalising proposal for the junction of Castle Peak Road – Tam Mi / Unnamed Access Road to Cheung Chun San Tsuen (J2) was proposed under approved Planning Application No. A/YL-KTN/604. In the improvement scheme, right-turning traffic movement from northbound Castle Peak Road – Tam Mi to the unnamed access road to Cheung Chun San Tsuen is allowed. The planned junction improvement for J2 is also shown in **Figure 4.1A**.

J4 – Au Tau Interchange

4.3.5 An improvement measure for Au Tau Interchange was proposed under the feasibility study (CEDD Agreement No. CE10/2020(CE)) for Sha Po Public Housing Development, the approach arm at Castle Peak Road – Yuen Long EB direction is proposed to be widened and be provided with one additional entry lane.

4.3.6 Under another approved Planning Application No. A/YL-KTN/604, it is proposed to widen Castle Peak Road SB direction so as to provide an exclusive left turn lane from Castle Peak Road SB into Kam Tin Road EB. The overall planned layout of Au Tau Interchange is as shown in **Figure 4.2.**

J5 – J/O Kam Tin Road / Tsing Long Highway Slip Road

4.3.7 Local road widening of the 3 approaching arms namely Kam Tin Road eastbound, Kam Tin Road westbound and slip road from Tsing Long Highway were gazetted by the Government in March 2016. The roadworks has been commenced in 2018 for completion in 2021.

J6 – J/O Kam Tin Road / Kam Tin Bypass / Kam Ho Road

4.3.8 A new segregated left turning lane from Kam Ho Road northbound to Kam Tin Road westbound and local widening of Kam Tin Road westbound were gazetted by the Government in March 2016. The roadworks has been commenced in 2018 for completion in 2021.

J7 – Pok Oi Interchange

4.3.9 According to the LegCo Paper for Panel on Housing (LC Paper No. CB(1)276/20-21 (01)) dated 2 November 2020, an exclusive left turn lane at Pok Oi Interchange for the left turn from Castle Peak Road to Yuen Long Highway was recommended to improve the junction performance. The planned improvement works was carried out by CEDD and has been completed in 2022. In addition, according to the proposal which was presented to Traffic and Transport Committee of the Yuen Long District Council, there is a planned road improvement works at Pok Oi interchange for providing traffic signals at approaches from Yuen Long Highway. The planned improvement scheme is shown in **Figure 4.3**.

4.4 Traffic Forecast

4.4.1 Apart from the Proposed Development, the other major newly completed and committed/planned developments in the vicinity of the Proposed Development would also be taken into account in the traffic forecast. All these future developments are listed in **Table 4.4.**

Table 4.4 Other Key New Completed and Future Developments in the Vicinity

Ref.	Development	Key Development Parameters	Estimated 2-way Trip Generation (pcu/hr)	
			AM Peak	PM Peak
1	Tung Shing Lei Development (A/YL-NSW/274)	• 1518 private residential units (average flat size = about 46m^2)	174	101
2	Approved Application No. A/YL-KTN/118-2 (Phase 1 & Phase 2)	• 3,657 private residential units (average flat size = about 70m^2)	419	242
3	Sha Po North Phase 2 Residential Development (A/YL-KTN/663)	• 1,154 private residential units (average flat size = about 42.57m^2)	58(1)	32(1)
4	Grand YOHO (A/YL/139-1)	• 2,508 private residential units (average flat size = about 60m^2) • 42,000m^2 retail GFA	147(2)	134(2)
5	Yuen Long Station Property Development (A/YL/209)	• 1,876 private residential units (average flat size = about 100m^2) • 9,900m^2 retail GFA	263	191
6	Nam Sang Wai Commercial Development (Y/YL-NSW/3)	• 38,300m^2 retail GFA • 700 hotel rooms	378	456
7	Kam Tin North Residential Development (A/YL-KTN/567)	• 200 flats (average flat size = about 65m^2)	28	17
8	Kam Tin South Priority Sites Development	• 8,100 units of public housing (average flat size = about 50m^2) • 2,200 units of private housing (average flat size = about 70m^2)	1,160	751
9	Au Tau Residential Development (Lot 1066 in DD 103)	• 333 private residential units • (average flat size = about 100m^2)	115	91
10	Kam Tin West Outlet Mall (A/YL-NSW/241)	• 37,171m^2 retail GFA	177	249
11	Sha Po South Residential Development (A/YL-KTN/698)	• 561 private residential units (average flat size = about 41.53m^2)	98	51
12	Approved comprehensive residential development (A/YL-KTN/604)	• 3,891 private residential units (average flat size = about 49m^2) • 5,500 m^2 retail GFA	558	334
13	Au Tau School Development (DD107 Lot 1928)	• International school development	250	10

Ref.	Development	Key Development Parameters	Estimated 2-way Trip Generation (pcu/hr)	
			AM Peak	PM Peak
14	Sha Po Public Housing Development	• 16,300 Flats(3) • 1 Primary School • 20,668 m^2 retail GFA • 5 Kindergarten • 38,384 m^2 Welfare Facilities • 19,267 m^2 GIC	2,183	1,628

Note:
(1) Additional traffic in addition to the development under application no. A/YL-KTN/118-2 (Source: http://www.tpb.gov.hk)
(2) Traffic generation/ attraction for 30% of units not yet occupied
(3) An assumption of 70% / 30% split for Public Rental Housing (PRH) and Home Ownership Scheme (HOS) is adopted for trip generation calculation.

Future Traffic Flows

4.4.2 For the future traffic forecasts, in-house local area traffic model (LATM) was developed by referencing Transport Department's 2019-based Base District Traffic Model (BDTM) "NTW1" covering Tuen Mun and Yuen Long Area.

4.4.3 The 2019 / 2026 / 2031 BDTM matrix was cordoned off and fine-tuned to produce a Local Area Traffic Model (LATM) for producing traffic flows within the study area. The coverage of the LATM is presented in **Figure 3.1**.

4.4.4 The 2021 BDTM cordoned matrix was derived by interpolation of the 2019 and 2026 BDTM cordoned matrix. The 2021 LATM has been validated against the 2021 traffic data in the area of influence to ensure that the base year LATM could satisfactorily replicate the base year traffic patterns and volumes before the model is used to produce future years traffic forecasts.

4.4.5 The 2021 / 2031 BDTM cordoned matrices were fed into the 2021 LATM for projecting the traffic flows from year 2021 to year 2034. In addition, the trip ends of traffic zones were adjusted and controlled to the estimated trips generated by the future developments in the vicinity as listed in **Table 4.4** to produce the 2034 reference traffic flows as shown in **Figure 4.4.**

4.4.6 The additional trip ends due to proposed development estimated in **Table 4.3** are then added to 2034 reference traffic flows to produce 2034 design traffic flows. **Figure 4.5** and **Figure 4.6** present the development traffic flows and 2034 design traffic flows.

4.5 Junction Assessment

4.5.1 The main criteria for assessing the traffic impact of critical junctions is whether the additional traffic generated would affect the capacity of junctions in the vicinity of the Proposed Development.

4.5.2 The operational performances of the 8 critical junctions as identified in Section 3 were assessed based on the traffic forecast and the planned junction improvement schemes as mentioned in Section 4. The results are summarized in **Table 4.5**. The junction calculation sheets are shown in **Annex A.**

Table 4.5 2034 Junction Performance

Ref.	Junction	2034 RC/DFC(1)			
		Reference Case		Design Case	
		AM Peak	PM Peak	AM Peak	PM Peak
J1	Castle Peak Road – Tam Mi / San Tam Road(2)	0.74	0.58	0.82	0.62
J2	Castle Peak Road – Tam Mi / Unnamed Access Road to Cheung Chun San Tsuen(3)	20%	39%	10%	33%
J3	Castle Peak Road – Tam Mi / Nam Sang Wai Road	0.60	0.28	1.41	0.63
J4	Au Tau Interchange (4)	0.80	0.72	0.83	0.74
J5	Kam Tin Road / Tsing Long Highway	44%	28%	26%	24%
J6	Kam Tin Road / Kam Tin Bypass / Kam Ho Road Roundabout	0.74	0.59	0.79	0.62
J7	Pok Oi Interchange (Signal NB)	16%	20%	14%	19%
	Pok Oi Interchange (Roundabout)	0.84	0.83	0.85	0.84
J8	Ho Chau Road / Tung Shing Lei Roundabout	0.15	0.08	0.28	0.20

(1) RC in % denotes "Reserve Capacity" for signalized junction; DFC decimal number denotes "Design Flow / Capacity" ratio for priority junction or roundabout.
(2) Roundabout proposal under Sha Po Public Housing Development **(Figure 4.1B)**
(3) Signalising proposal under approved Planning Application No. A/YL-KTN/604 (**Figure 4.1A)**
(4) With widening works at the approach arm of Castle Peak Road – Yuen Long (eastbound) under Sha Po Public Housing Development, and exclusive left-turn lane at Castle Peak Road – Tam Mi (southbound) under approved Planning Application No. A/YL-KTN/604 **(Figure 4.2)**

4.5.3 As shown in **Table 4.5**, all the assessed junctions (except Castle Peak Road – Tam Mi / Unnamed Access Road to Cheung Chun San Tsuen (J2) and Castle Peak Road- Tam Mi/ Nam Sang Wai Road (J3)) would be able to handle the future traffic demand with all planned improvement works implemented timely.

Improvement Recommendation –

J3 – J/O Castle Peak Road – Tam Mi / Nam Sang Wai Road

4.5.4 It is identified that the current left-in/ left-out arrangement at J/O Castle Peak Road – Tam Mi/ Nam Sang Wai Road (J3) would constrain the traffic routings from the Nam Sang Wai Road to detour via the J/O of Castle Peak Road Tam-Mi / San Tam Road (J1) (about 700m) before heading southward via Au Tau Interchange. Therefore, a junction improvement proposal to signalize the J/O Castle Peak Road – Tam Mi / Nam Sang Wai Road (J3) is recommended as shown in **Figure 4.7A** and **Figure 4.7B** to allow right-turn movement from Nam Sang Wai Road eastbound to Castle Peak Road – Tam Mi southbound. As such, the accessibility of the Application Site could be enhanced by reducing the detouring distance.

4.5.5 In addition, a U-turn facility for 8m-long vehicles is proposed at Nam Sang Wai Road such that traffic from Castle Peak Road – Tam Mi northbound can route via Nam Sang Wai Road northbound, U-turn to Nam Sang Wai Road southbound, and back to Ko Po Path. Additional land would be required from the government land lots.

4.5.6 Taken into consideration the diversion effect by the improvement scheme, the design traffic flow (with improvement) is shown in **Figure 4.8**. Capacity analysis for the affected junctions due to the improvement works were carried out and the results are presented in **Table 4.6**. The junction calculation sheets are shown in **Annex A.**

Table 4.6 2034 Junction Performance with Proposed Junction Improvement Works

Ref.	Junction	2034 RC/DFC(1) Design Case (With Improvement)	
		AM Peak	PM Peak
J1	Castle Peak Road – Tam Mi / San Tam Road(2)	0.68	0.56
J2	Castle Peak Road – Tam Mi / Unnamed Access Road to Cheung Chun San Tsuen(3)	30%	47%
J3	Castle Peak Road – Tam Mi / Nam Sang Wai Road(4)	27%	62%

(1) RC in % denotes "Reserve Capacity" for signalized junction;
(2) Roundabout proposal under Sha Po Public Housing Development **(Figure 4.1B)**
(3) Signalising proposal under approved Planning Application No. A/YL-KTN/604 (**Figure 4.1A)**
(4) Junction improvement scheme shown in **Figure 4.7B**

4.5.7 As shown, the performance for J1, J2 and J3 will be improved and operating within capacity upon completion of the proposed improvement works.

4.5.8 For the proposed junction layout of J/O Castle Peak Road – Tam Mi/ Nam Sang Wai Road (J3), queue length assessment is carried out and the results are shown in **Table 4.7**.

Table 4.7 Queue Length Assessment for J3

Approach	Direction	Average Queue Length (m)	
		AM	PM
Castle Peak Road – Tam Mi	Northbound	60	54
Castle Peak Road – Tam Mi	Southbound	66	54
Nam Sang Wai Road	Eastbound	48	24

4.5.9 The implementation responsibility of respective junction improvements is summarized in **Table 4.8**.

Table 4.8 Implementation of Junction Improvement Schemes

Ref.	Junction	Improvement	To Be Implemented under
J1	Castle Peak Road – Tam Mi / San Tam Road (**Figure 4.1A and 4.1B)**	Relocation of Signalized Pedestrian Crossing to allow U-turn movement	A/YL-NSW/274
		Roundabout Proposal	Sha Po Public Housing Development
J2	Castle Peak Road – Tam Mi / Shui Mei Road (**Figure 4.1A)**	Signalized Junction	A/YL-KTN/604 A/YL-KTN/663
J3	Castle Peak Road – Tam Mi/ Nam Sang Wai Road (**Figure 4.7B)**	Signalized Junction and widening at Nam Sang Wai Road	Proposed Development
J4	Au Tau Interchange (**Figure 4.2)**	Exclusive Left-turn Lane	A/YL-KTN/604 A/YL-KTN/663 A/YL-NSW/274 Proposed Development
		Widening of Castle Peak Road – Yuen Long EB Approach Arm	Sha Po Public Housing Development

4.6 Road Link Assessments

4.6.1 The critical road links along San Tam Road, Castle Peak Road- Tam Mi, Castle Peak Road – Yuen Long and Kam Tin Road as shown in **Figure 3.1** are also assessed and the volume-to-capacity (v/c) ratios are presented in **Table 4.9**.

Table 4.9 Road Link Assessments

Link Index	Road Link	Dir.	Capacity (pcu/hr)	Traffic Flows				V/C Ratio			
				Reference Case		Design Case		Reference Case		Design Case	
				AM	PM	AM	PM	AM	PM	AM	PM
L1N	San Tam Road	NB	3600(1)	1110	890	1150	910	0.31	0.25	0.32	0.25
L1S		SB	3600(1)	1850	1480	1850	1470	0.51	0.41	0.51	0.41
L2N	Castle Peak Road - Tam Mi (Between San Tam Road and Access Road to Cheung Chun San Tsuen)	NB	3600(1)	2000	1690	1780	1570	0.56	0.47	0.49	0.44
L2S		SB	3600(1)	2550	2070	2320	1940	0.71	0.58	0.64	0.54
L3N	Castle Peak Road - Tam Mi (Between Access Road to Cheung Chun San Tsuen and Nam Sang Wai Road)	NB	3600(1)	2290	1940	2070	1820	0.64	0.54	0.58	0.51
L3S		SB	3600(1)	2890	2290	2660	2170	0.80	0.64	0.74	0.60

Link Index	Road Link	Dir.	Capacity (pcu/hr)	Traffic Flows				V/C Ratio			
				Reference Case		Design Case		Reference Case		Design Case	
				AM	PM	AM	PM	AM	PM	AM	PM
L4N	Castle Peak Road - Tam Mi (Between Nam Sang Wai Road and Au Tau Interchange)	NB	3600(1)	2280	1970	2500	2150	0.63	0.55	0.69	0.60
L4S		SB (Ground Level)	3600(1)	2040	1470	2250	1590	0.57	0.41	0.63	0.44
		SB (Flyover)	1280(6)	980	850	1040	880	0.77	0.66	0.81	0.69
L5E	Castle Peak Road - Yuen Long (Between Pok Oi Int' and Long Yat Road)	EB	5400(2)	2820	3040	2850	3060	0.52	0.56	0.53	0.57
L5W		WB	5400(2)	2350	2350	2390	2380	0.44	0.44	0.44	0.44
L6E	Castle Peak Road - Yuen Long (Between Au Tau Int' and Pok Oi Int')	EB	5400(2)	2210	1890	2300	1940	0.41	0.35	0.43	0.36
L6W		WB	5400(2)	2970	2230	3080	2290	0.55	0.41	0.57	0.42
L7E	Kam Tin Road (Between Au Ta Int' and Tsing Long Highway Slip Road)	EB	3600(1)	2570	2040	2700	2110	0.71	0.57	0.75	0.59
L7W		WB	3600(1)	2360	2670	2460	2750	0.66	0.74	0.68	0.76
L8E	Kam Tin Road (Between Tsing Long Highway Slip Road and Kam Ho Road Roundabout)	EB	5400(2)	2790	2260	2920	2330	0.52	0.42	0.54	0.43
L8W		WB	3600(1)	2630	2490	2760	2560	0.73	0.69	0.77	0.71
L9	Kam Tin Road	Two-way	2200(3)	1800	1590	1820	1610	0.82	0.72	0.83	0.73
L10	Ho Chau Road	Two-way	2200(3)	410	260	920	560	0.19	0.12	0.42	0.25
L11	Castle Peak Road – Yuen Long (Exit arm of Pok Oi Int')	EB	1800(4)	1380	1150	1440	1180	0.77	0.64	0.80	0.66
L12N	Tai Lam Tunnel	NB	5400(2)	2560	4430	2650	4490	0.47	0.82	0.49	0.83
L12S		SB		5980	2830	6090	2890	1.11	0.52	1.13	0.54
L13E	Yuen Long Highway	EB	6100(5)	5860	6860	5920	6910	0.96	1.12	0.97	1.13
L13W		WB	6100(5)	7010	5980	7090	6020	1.15	0.98	1.16	0.99
L14N	Tsing Long Highway	NB	6100(5)	2440	4030	2530	4090	0.40	0.66	0.41	0.67
L14S		SB	6100(5)	5410	2620	5520	2680	0.89	0.43	0.90	0.44

Note:
(1) Road capacity for Dual 2-lane carriageway
(2) Road capacity for Dual 3-lane tunnel.
(3) Road capacity for 7.3m wide Single 2-lane carriageway
(4) Road capacity for 4m wide Dual 1-lane carriageway
(5) Road capacity for Dual 3-Trunk Road
(6) Road capacity for single lane rural road carriageway (3.5m-4m).

4.6.2 The assessment results in **Table 4.9** indicated that all the above road links are expected to operate within capacity except Tai Lam Tunnel (L12), Yuen Long Highway (L13). With the opening of future Route 11, it was anticipated that the traffic condition of both Tai Lam Tunnel and Yuen Long Highway could be significantly improved. Between the year 2031 (completion year of the development) and the opening year of Route 11, the V/C ratio of both Tai Lam Tunnel and Yuen Long Highway would reach 1.1 in both reference and design case, meaning that traffic speed would be reduced, but would still be manageable with V/C ratio under 1.2.

4.7 Sensitivity Analysis (I)

Without Approved Developments under Planning Application No. A/YL-KTN/663 (Phase 2) and A/YL-KTN/604 in Sha Po North and A/YL-NSW/274 in Tung Shing Lei

4.7.1 As mentioned in **Section 4.3**, junction improvement measures at Castle Peak Road – Tam Mi/ San Tam Road (J1) (introduction of U-turn movement), Castle Peak Road – Tam Mi/ Unnamed Access Road (J2) (signalisation) and Au Tau Interchange (J4) are proposed under the comprehensive residential developments under approved planning application No. A/YL-NSW/274 and A/YL-KTN/604 respectively.

4.7.2 In case of uncertain programme of the approved developments under planning application no. A/YL-KTN/663 (Phase 2), A/YL-KTN/604 and A/YL-NSW/274 as well as the relevant junction improvement measures at J1, J2, and J4, a sensitivity analysis has been carried out for the scenario without the aforementioned developments at Sha Po North and Tung Shing Lei and without the corresponding improvement works, to assess the traffic condition if the proposed junction improvement by others cannot be implemented timely before completion of the Proposed Development.

4.7.3 With similar methodology adopted as discussed in the above section, 2034 traffic forecast for Sensitivity Analysis (without approved Sha Po North and Tung Shing Lei developments under planning application no. A/YL-KTN/663 (Phase 2), A/YL-KTN/604 and A/YL-NSW/274) under Design case (With Proposed Scheme) is derived.

4.7.4 Operational performances of J1, J2 and J4 are assessed according to the traffic forecast. The results are summarized in **Table 4.10**. The junction calculation sheets are shown in **Annex A.**

Table 4.10 2034 Junction Performance – Sensitivity Analysis

Ref.	Junction	2034 RC/DFC(1)	
		Design Case (Sensitivity Test)	
		AM Peak	PM Peak
J1	Castle Peak Road – Tam Mi / San Tam Road	0.67	0.55
J2	Castle Peak Road – Tam Mi / Unnamed Access Road to Cheung Chun San Tsuen(2)	0.20	0.26
J4	Au Tau Interchange(3)	1.18	0.81

(1) RC in % denotes "Reserve Capacity" for signalized junction; DFC decimal number denotes "Design Flow / Capacity" ratio for priority junction or roundabout.
(2) Existing Layout (Priority Junction) – (**Without** Signalising proposal under approved Planning Application No. A/YL-KTN/604)
(3) **Without** exclusive left-turn lane at Castle Peak Road – Tam Mi (southbound) under approved Planning Application No. A/YL-KTN/604)

4.7.5 As shown in **Table 4.10**, all the assessed junctions (except Au Tau Interchange (J4)) would be able to handle the future traffic demand under Sensitivity Test Scenario.

4.7.6 As junction J4 will be overloaded with Design Flow/ Capacity ratio (DFC) of 1.18, the mitigation measures mentioned in **Section 4.3** and shown in **Figure 4.2** are deemed necessary.

4.8 Sensitivity Analysis (II)

With Potential Developments under Planning Application No. Y/YL-NSW/7, Y/YL-NSW/8 and Y/YL-NSW/9

4.8.1 Three potential private residential developments have been proposed under planning application no. Y/YL-NSW/7, Y/YL-NSW/8 and Y/YL-NSW/9, which are situated in the vicinity of the proposed development. A sensitivity test was therefore carried out to assess the traffic impact induced by these additional traffic generation.

4.8.2 For planning application no. Y/YL-NSW/7, as indicated in the planning application document, 1,997 units of flats with an average flat size of 50m^2 are being proposed. With reference to the standard traffic generation and attraction rates as given in the Annex C of Transport Planning and Design Manual (TPDM) Volume 1 Chapter 3, the trip generation of the development are presented in **Table 4.11**.

Table 4.11 Trip Generation and Attraction – Planning Application No. Y/YL-NSW/7

Land Use	Trip Generation/ Attractions (pcu/hr)				
	Parameters	AM Peak		PM Peak	
		Gen.	Att.	Gen.	Att.
Planning Application No. Y/YL-NSW/7					
Private Housing	1,997 Flats	**143**	**85**	**57**	**74**

4.8.3 For planning application Y/YL-NSW/8, 6,825 flats with an average flat size of 37.5m^2 along with 3,950m^2 of retail facilities and kindergarten site are being proposed. The same site was planned as an outlet mall with 37,171m^2 retail GFA under previously approved planning application A/YL-NSW/241 as shown in **Table 4.4**. As the approved planning application A/YL-NSW/241 has already been considered in the traffic forecast, only the difference in trip generation and attraction between these two development proposals would be added to the road network for assessment as shown in **Table 4.12**.

Table 4.12 Trip Generation and Attraction – Planning Application No. Y/YL-NSW/8

Land Use	Trip Generation/ Attractions (pcu/hr)				
	Parameters	AM Peak		PM Peak	
		Gen.	Att.	Gen.	Att.
Latest Planning Application No. Y/YL-NSW/8					
Private Housing	6,825 Flats	491	291	196	253
Retail	3,950m^2	10	10	13	15
GIC facilities	2 nos.	10	10	10	10
Kindergarten	1 Kindergarten (8 classrooms)	25	25	1	1
Total (A)	**-**	**536**	**336**	**220**	**279**
Approved Planning Application No. A/YL-NSW/241					
Retail (B)	37,171m^2	86	91	116	133
Difference (A) – (B)	-	**+450**	**+245**	**+104**	**+146**

4.8.4 For planning application Y/YL-NSW/9, 3,115 flats with an average flat size of 37.2m^2 along with 2,900m^2 of retail facilities, a primary school site, kindergarten sites and a relocated soy sauce factory are being proposed. The same site was planned as a retail facility with 38,300m^2 GFA and a hotel with 700 guest rooms. The difference in trip generation and attraction between these two development proposals are as shown in **Table 4.13**.

Table 4.13 Trip Generation and Attraction – Planning Application No. Y/YL-NSW/9

Land Use	Trip Generation/ Attractions (pcu/hr)				
	Parameters	AM Peak		PM Peak	
		Gen.	Att.	Gen.	Att.
Latest Planning Application No. Y/YL-NSW/9					
Private Housing	3,115 Flats	224	133	90	116
Retail	2,900 m^2	7	8	9	11
Reserved School Site (Primary School)	1 school	7	30	1	1
Kindergarten	1 kindergarten (8 classrooms)	25	25	1	1
Relocated Soy Sauce Factory	13,700m^2	0	4	10	2
Total (A)	**-**	**263**	**200**	**111**	**131**
Approved Planning Application No. Y/YL-NSW/3					
Retail	38,300m^2	88	94	119	137
Hotel	700 guest rooms	94	102	91	109
Total (B)	**-**	**182**	**196**	**210**	**246**
Difference (A) – (B)	**-**	**+81**	**+4**	**-99**	**-115**

4.8.5 The additional traffic generated from the three potential developments has been added into the 2034 design flow, producing the 2034 sensitivity test design flow and is presented in **Figure 4.9**. Operational performances of the critical junctions are reassessed according to the revised traffic forecast. The results are summarized in **Table 4.14**.

Table 4.14 2034 Junction Performance – Sensitivity Test (II) with Potential Developments under Planning Application No. Y/YL-NSW/7, Y/YL-NSW/8 and Y/YL-NSW/9

Ref.	Junction	2034 RC/DFC(1) Design Case (Sensitivity Test)	
		AM Peak	PM Peak
J1	Castle Peak Road – Tam Mi / San Tam Road(2)	0.77	0.58
J2	Castle Peak Road – Tam Mi / Unnamed Access Road to Cheung Chun San Tsuen(3)	15%	42%
J3	Castle Peak Road – Tam Mi / Nam Sang Wai Road	16%	55%
J4	Au Tau Interchange (4)	0.99	0.75
J5	Kam Tin Road / Tsing Long Highway	26%	23%
J6	Kam Tin Road / Kam Tin Bypass / Kam Ho Road Roundabout	0.80	0.62
J7	Pok Oi Interchange (Signal NB)	10%	16%
	Pok Oi Interchange (Roundabout)	0.91	0.86
J8	Ho Chau Road / Tung Shing Lei Roundabout	0.28	0.20

(1) RC in % denotes "Reserve Capacity" for signalized junction; DFC decimal number denotes "Design Flow / Capacity" ratio for priority junction or roundabout.
(2) Roundabout proposal under Sha Po Public Housing Development **(Figure 4.1B)**
(3) Signalising proposal under approved Planning Application No. A/YL-KTN/604 (**Figure 4.1A)**
(4) With widening works at the approach arm of Castle Peak Road – Yuen Long (eastbound) under Sha Po Public Housing Development, and exclusive left-turn lane at Castle Peak Road – Tam Mi (southbound) under approved Planning Application No. A/YL-KTN/604 **(Figure 4.2)**

4.8.6 As shown in **Table 4.14**, all the assessed junctions except Au Tau Interchange (J4) would be able to handle the future traffic demand with all planned improvement works implemented timely.

4.8.7 A sensitivity test for J3 has been carried out with consideration of adopting push button at pedestrian crossing at Ko Po Path. Under this arrangement, the number of stages of MOC could be reduced from three to two. As a result, the performance of J3 would be further improved as shown in **Table 4.14**.

Table 4.15 2034 Junction Performance – Sensitivity Test (IIA) with Potential Developments under Planning Application No. Y/YL-NSW/7, Y/YL-NSW/8 and Y/YL-NSW/9 for J3

Ref.	Junction	2034 RC/DFC(1) Design Case (Sensitivity Test)	
		AM Peak	PM Peak
J3	Castle Peak Road – Tam Mi / Nam Sang Wai Road	20%	55%

4.8.8 The critical road links along San Tam Road, Castle Peak Road- Tam Mi, Castle Peak Road – Yuen Long and Kam Tin Road as shown in **Figure 3.1** are also assessed and the volume-to-capacity (v/c) ratios are presented in **Table 4.16**.

Table 4.16 Road Link Assessments

Link Index	Road Link	Dir.	Capacity (pcu/hr)	Design Case (Sensitivity Test)			
				Traffic Flows		V/C Ratio	
				AM	PM	AM	PM
L1N	San Tam Road	NB	3600(1)	1150	910	0.32	0.25
L1S		SB	3600(1)	1880	1480	0.52	0.41
L2N	Castle Peak Road - Tam Mi (Between San Tam Road and Access Road to Cheung Chun San Tsuen)	NB	3600(1)	2000	1670	0.56	0.46
L2S		SB	3600(1)	2680	2020	0.74	0.56
L3N	Castle Peak Road - Tam Mi (Between Access Road to Cheung Chun San Tsuen and Nam Sang Wai Road)	NB	3600(1)	2290	1920	0.64	0.53
L3S		SB	3600(1)	3010	2270	0.84	0.63
L4N	Castle Peak Road - Tam Mi (Between Nam Sang Wai Road and Au Tau Interchange)	NB	3600(1)	2720	2250	0.76	0.63
L4S		SB (Ground Level)	3600(1)	2460	1640	0.68	0.46
		SB (Flyover)	1280(6)	1190	920	0.93	0.72
L5E	Castle Peak Road - Yuen Long (Between Pok Oi Int' and Long Yat Road)	EB	5400(2)	2900	3090	0.54	0.57
L5W		WB	5400(2)	2480	2400	0.46	0.44
L6E	Castle Peak Road - Yuen Long (Between Au Tau Int' and Pok Oi Int')	EB	5400(2)	2470	2030	0.46	0.38
L6W		WB	5400(2)	3370	2360	0.62	0.44
L7E	Kam Tin Road (Between Au Ta Int' and Tsing Long Highway Slip Road)	EB	3600(1)	2740	2120	0.76	0.59
L7W		WB	3600(1)	2490	2760	0.69	0.77
L8E	Kam Tin Road (Between Tsing Long Highway Slip Road and Kam Ho Road Roundabout)	EB	5400(2)	2960	2340	0.55	0.43
L8W		WB	3600(1)	2790	2570	0.78	0.71
L9	Kam Tin Road	Two-way	2200(3)	1880	1630	0.85	0.74
L10	Ho Chau Road	Two-way	2200(3)	920	560	0.42	0.25
L11	Castle Peak Road – Yuen Long (Exit arm of Pok Oi Int')	EB	1800(4)	1560	1240	0.87	0.69
L12N	Tai Lam Tunnel	NB	5400(2)	2760	4530	0.51	0.84
L12S		SB		6280	2920	1.16	0.54
L13E	Yuen Long Highway	EB	6100(5)	6010	6940	0.99	1.14
L13W		WB	6100(5)	7250	6050	1.19	0.99
L14N	Tsing Long Highway	NB	6100(5)	2640	4130	0.43	0.68
L14S		SB	6100(5)	5710	2710	0.94	0.44

Note:
(1) Road capacity for Dual 2-lane carriageway
(2) Road capacity for Dual 3-lane tunnel

(3) Road capacity for 7.3m wide Single 2-lane carriageway
(4) Road capacity for 4m wide Dual 1-lane carriageway
(5) Road capacity for Dual 3-Trunk Road
(6) Road capacity for single lane rural road carriageway (3.5m-4m).

4.8.9 The assessment results in **Table 4.16** indicated that all the above road links are expected to operate within capacity except Tai Lam Tunnel (L12), Yuen Long Highway (L13). With the opening of future Route 11, it was anticipated that the traffic condition of both Tai Lam Tunnel and Yuen Long Highway could be significantly improved. Between the year 2031 (completion year of the development) and the opening year of Route 11, the V/C ratio of both Tai Lam Tunnel and Yuen Long Highway would reach 1.1, meaning that traffic speed would be reduced, but would still be manageable with V/C ratio under 1.2.

5 PUBLIC TRANSPORT SERVICES

5.1 Existing Public Transport Facilities

5.1.1 Currently, there is no public transport serving the Application Site. The nearest railway station is Yuen Long Station which is located about 1km walking distance away from the Application Site and within 13 minutes' walk, as shown in **Figure 5.1** There are also bus stops and GMB stands in the public transport interchange (PTI) of Yuen Long Station. The public transport services at the PTI and bus stop at Long Yat Road are summarised in **Table 5.1**.

Table 5.1 Existing Public Transport Services near Yuen Long Station

Route No.	Origin / Destination			Frequency (min.)
Yuen Long Station Public Transport Interchange				
Franchised Bus				
53	Yuen Long Station	↔	Tsuen Wan (Nina Tower)	25 – 35
B1	Ma Wang Road (Shan Shui House)	↔	Lok Ma Chau Station	60
B1	Tin Tsz B/T	↔	Lok Ma Chau Station	5 – 15
B2	Yuen Long Station	↔	Shenzhen Bay Port	10 – 20
K65	Yuen Long Station	↔	Lau Fau Shan	9 – 16
Green Mini-Bus (GMB)				
32	Yuen Long Station (North) PTI	↔	Tan Kwai Tsuen	10 - 15
71	Yuen Long (Yuen Long Tai Hang Street)	↔	Shek Wu Tong (Ho Pui)	15
72	Yuen Long (Yuen Long Tai Hang Street)	↔	Lui Kung Tin	10
77	Tin Shui Wai	↔	Lok Ma Chau (San Tin) PTI / Lok Ma Chau Control Point	15
77A	Tin Shui Wai North (Grandeur Terrace)	↔	Pok Oi Hospital	15 - 20
77B	Tin Shui Wai	↔	Pok Oi Hospital / Sun Yuen Long Centre	15
77P	Tin Yiu Estate	↔	Lok Ma Chau (San Tin) PTI	15 (Mon – Fri)

Route No.	Origin / Destination			Frequency (min.)
79S	Tin Shui Wai (Grandeur Terrace)	↔	Lok Ma Chau Control Point	10 - 15
601	Yuen Long (Fung Cheung Road)	↔	Pak Wai Tsuen	10 - 20
601C	Yuen Long (Fung Cheung Road)	↻	Kam Sheung Road Station	20
602	Yuen Long (Fung Cheung Road)	↔	Tai Kong Po	15 - 20
602C	Yuen Long (Fung Cheung Road)	↻	Kam Sheung Road Station	20
603	Yuen Long (Fung Cheung Road)	↔	Fung Kat Heung	20 – 25
604	Yuen Long (Fung Cheung Road)	↔	Shan Ha Tsuen	10 – 20
609	Long Shin Estate	↻	Yuen Long Town	10
609	Pok Oi Hospital	↻	Yuen Long Town	10
609	Yuen Long Stadium	↻	Pok Oi Hospital	6 - 15
609B	Long Shin Estate	↻	Yuen Long Station	6 (Mon – Sat)
611A	Yuen Long Station	↻	Shan Pui Road	5
611B	Kwan Lok Lan	↻	Yuen Long Station	15
MTR Yuen Long Station (near Long Yat Road)(LR Yuen Long Stop)				
Franchised Bus				
54	Yuen Long (West)	↻	Sheung Tsuen (Shek Kong)	20 - 30
64K	Yuen Long (West)	↔	Tai Po Market	6 - 15
68	Park Yoho	↻	Yoho Mall	30
68E	Yuen Long Park	↔	Tsing Yi Station	15 – 30
68F	Yuen Long Park	↻	Park Yoho	30
68M	Tsuen Wan Station	↔	Yuen Long (West) B/T	5 – 15
68X	Hung Shui Kiu (Hung Fuk Estate)	↔	Mong Kok (Park Avenue)	9 – 25
68X	Yuen Long (West)	→	Mong Kok (Park Avenue)	AM Peak: 2 trips (Mon – Sat)
76K	Ching Ho Estate Bus Terminus	↔	Long Ping Estate B/T	20 – 30
77K	Yuen Long (Fung Cheung Road)	↔	Sheung Shui	20 – 30
261X	Tuen Mun Central	↔	Fanling (Cheung Wah)	AM/ PM Peaks: 4 trips for each direction
264R	Tai Po Market Station	↔	Tin Yiu B/T	30 (Sat, Sun and PH)
268A	Long Ping Estate	→	Kwun Tong Ferry	AM Peak: 2 trips only
268B	Long Ping Station	↔	Hung Hom (Hung Luen Road)	20 - 30
268C	Long Ping Station	↔	Kwun Tong Ferry	5 - 15
268P	Ma Wang Road (Shan Shui House)	↔	Kwun Tong Ferry	AM Peak: 3 trips (to Kwun Tong) PM Peak: 1 trip (to Ma Wang Road)
268X	Hung Shui Kiu (Hung Fuk Estate)	↔	West Kowloon Station	10 – 30
269D	Tin Fu	↔	Lek Yuen	5 – 25
276	Tin Tsz	↔	Sheung Shui	15 - 25
276P	Tin Shui Wai Station	↔	Sheung Shui	5 – 20
968	Yuen Long (West)	↔	Causeway Bay (Tin Hau)	3 – 15
968A	Yuen Long (West)	→	Causeway Bay (Tin Hau)	AM Peak: 2 trips

Route No.	Origin / Destination			Frequency (min.)
968X	Yuen Long (West)	↔	Quarry Bay (King's Road)	AM Peak: 4 trips (to Quary Bay); PM Peak: 2 trips (to Yuen Long (West))
A36	Long Ping Station	↔	Airport (Ground Transportation Centre)	15 - 60
E34B	Yuen Long	↔	Airport (Ground Transportation Centre)	7 - 25
E34P	Tin Shui Wai Town Centre	↔	Tung Chung (Yat Tung)	To Tung Chung (Yat Tung): 1 trip (AM Peak) To Tin Shui Wai Town Centre: 4 trips (AM/PM Peaks) (Mon – Sat)
K74	Tin Chui	↻	Au Tau	12 – 20
N269	Tin Tsz Estate	↔	Mei Foo	12 – 20 (Night Service)
N368	Yuen Long (West)	↔	Central (Macau Gerry Pier)	20 – 25 (Night Service)
NA34	HZMB Hong Kong Port	↔	Tin Shui Wai Town Centre B/T	To Tin Shui Wai Town Centre: 9 trips during midnight; To HZMB Hong Kong Port: 4 trips at early morning
Green Mini-Bus (GMB)				
36	Yuen Long (Fook Hong Street)	↔	Tai San Wai Rural Office	10 - 15
37	Yuen Long (Fook Hong Street)	↔	Yau Tam Mei Village Office	12 - 15
38	Yuen Long (Fook Hong Street)	↔	Yau Tam Mei West (near Ho Sang Farm)	10 - 15
608	Wang Toi Shan (Pat Heung)	↻	Yuen Long Fung Cheung Road	10 - 13
611	Shan Pui Road	↻	Fau Tsoi Street	8 - 15

5.2 Transport Demand and Proposed Transport Facilities

5.2.1 As mentioned in **Section 2.4.1**, a Public Transport Terminus is proposed within the Private Housing Portion to cater for the provision of public transport services for the future residents of the Proposed Development. The Public Transport Terminus would be handed over to Transport Department for future management and maintenance.

5.2.2 Referring to **Table 2.1**, the population of the Private Housing Portion development will be 3,153. For Public Housing Portion, a 10% increase in the design population and flat production would be adopted (i.e. 5,231 x (1+10%) = 5,755 persons). Hence, the overall population at the Proposed Development will be 8,908 persons.

5.2.3 Reference was made to the published "Travel Characteristics Survey (TCS) 2011 Final Report". According to the TCS Final Report, the daily mechanised trip rate per population is 1.83 trips and the morning peak hour accounted for about 12% of the daily trips. The percentage of using public transport is about 73% of the total trips. The estimated additional public transport demand in AM peak hour would thus be about 1,428 pax/hr (i.e. 8,908 x 1.83 x 0.12 x 0.73).

5.2.4 A passenger count survey was conducted at existing Park YOHO, which is considered a comparable reference as the Subject Site. Based on the surveyed results, about 45% are destined to MTR Station, 35% via Long-haul bus service (via 268M) and 20% to Yuen Long Town Centre are identified.

5.2.5 As the major public transport demand would be likely to be destined to MTR Station/ Yuen Long Town. A circular bus service is proposed between Yuen Long Station PTI and the development site, with terminating point at the development site and a bus stop at Yuen Long Station PTI for passenger boarding / alighting. Subject to future planning, the conceptual routing of the proposed bus service is diagrammatically shown in **Figure 5.2**. Based on the demand of 928 pax/hr (i.e. 1,428 x 65%) and a capacity of 90 persons/bus, the proposed headway is about 5 minutes.

5.2.6 For the demand of the long-haul bus services, the overall demand for the development sites is about 500 pax/hr (i.e. 1,428 x 35%). Based on a capacity of 90 persons/bus, this would be equivalent to about 6 bus trips/hour. Hence 6 bus trips of long-haul bus routes to/from urban areas (such as Hong Kong Island, Kowloon East and Kowloon) are proposed during the AM / PM peak hours. Passengers taking these bus services can also interchange with other bus routes to various districts via Tai Lam Bus Interchange.

5.2.7 As mentioned in **Section 2.4**, a Public Transport Terminus is proposed within the Private Housing Portion. The indicative layout of proposed Transport Terminus is shown in **Figure 2.3**. As shown in the indicative layout, 2 bus bays, 1 GMB bay and a taxi stand are provided. One of the bus bays would be designated to serve for the proposed bus service (to/from Yuen Long Station PTI), the other bus bay could serve the long-haul bus routes during the AM / PM peak hours, while the GMB bay would be reserved for the provision of GMB services if required in future.

5.2.8 Subject to the future planning of public transport services, the provisions of transport terminus within the Application Site will allow adequate hardware facility to serve the future public transport demand generated by the proposed development.

5.2.9 In addition, as mentioned in **Section 2.2.2**, one 38m long bus/GMB bay is planned at Ho Chau Road to serve for the whole area. This can serve as bus/GMB bay for additional terminating bus /GMB routes serving the area if required in the future.

5.3 Impact on Tuen Ma Line

5.3.1 Referring to **Section 5.2.4,** the public transport demand for Tuen Ma Line (formerly named as West Rail Line) would be around 643 pax/hr (ie 1,428 x 45%) in AM peak outbound direction.

5.3.2 Referring to Press Releases (2019). LCQ7: Loading of trains of West Rail Line[1], The patronage per direction of the West Rail Link in its critical link (i.e. from Kam Sheung Road to Tsuen Wan West) in year 2018 AM peak hour is 40,400 pax/hr.

[1] Press Releases (2019). LCQ7: Loading of trains of West Rail Line. Retrieved from HKSAR Government, Web site: https://www.info.gov.hk/gia/general/201905/08/P2019050800304.htm)

5.3.3 To forecast the patronage flow in year 2034, annual growth rate was estimated with reference to 2016-based Territorial Population and Employment Data Matrix (TPEDM) data which is available in Planning Department website. Below table shows the planning data of Tuen Mun, Yuen Long, Tin Shui Wai, and northwest New Territories.

Table 5.2 2016-based TPEDM Planning Data

Planning Data District	Year 2016	Year 2021	Year 2026
	Population	Population	Population
Tuen Mun	464,150	489,450	534,600
Yuen Long	164,500	175,200	180,000
Tin Shui Wai	286,250	285,200	281,100
Northwest New Territories	189,650	211,600	257,200
Total	**1,104,550**	**1,161,450**	**1,252,900**
Annual growth rate from year 2016 to 2021 = 1.0% **Annual growth rate from year 2021 to 2026 = 1.5%**			

5.3.4 By adopting the annual growth rate of 1% (from year 2018 to 2021) and annual growth rate of 1.5% (from year 2021 to year 2034), the forecasted patronage flow in the critical link (i.e. from Kam Sheung Road to Tsuen Wan West) in year 2034 AM peak hour is 50,513 pax/hr (i.e. $40,400 \times (1.01)^3 \times (1.015)^{13}$). By adopting the demand generated from the development, the overall patronage flow is 51,156 pax/hr (i.e. 50,513 + 643) in year 2034 AM peak.

5.3.5 As suggested by Transport Department, the carrying capacity of Tuen Ma Line upon full commission would be around 64,200 pax/hr and 45,700 pax/hr by adopting a passenger density level of 6 ppsm and 4 ppsm respectively.

5.3.6 As shown in **Table 5.3**, by adopting the 6 ppsm induced carrying capacity of 64,200 pax/hr, even with the development, the Tuen Ma Line is anticipated to be operating within capacity in year 2034.

Table 5.3 2034 Tuen Ma Line Impact Assessment

Passenger Density Level	Capacity (C) (pax/hr)	Patronage Forecast (V) (pax/hr)	V/C
6 ppsm	64,200	51,156	0.80
4 ppsm	45,700		1.12

5.4 Pedestrian Impact Assessment

Internal Footpaths and Pedestrian Crossing

5.4.1 To establish the future pedestrian demand at various internal critical footpaths as shown in **Figure 5.3**, different trip rates were adopted for estimating the pedestrian generation induced by the public housing portion and private housing portion of the proposed development as shown in **Table 5.4.**

Table 5.4 Pedestrian Trip Generation Rate (For Public Transport Trips and Walk Trips)

Land Use	AM Peak	
	Generation	Attraction
Private Residential (ppl/ unit)(1)	0.72	0.16
Public Residential (ppl/ unit)(2)	0.47	0.13

Note:
(1) Based on survey data for Yuen Long Park YOHO development. Such trip generation estimation covers the pedestrian trip to/from public transport and walk trips.
(2) Based on survey data for Long Sin Estate development. Such trip generation estimation covers the pedestrian trip to/from public transport and walk trips.

5.4.2 Based on trip rates as shown in **Table 5.4,** the pedestrian generation and attraction of both public and private residential portions of the proposed development during morning peak has been derived as shown in **Table 5.5**.

Table 5.5 Pedestrian Trip Generation for Proposed Development (For Public Transport Trips and Walk Trips)

Site	Parameters	AM Peak	
		Generation (pph)	Attraction (pph)
Private Residential	1,261 units	908	202
Public Residential	1,868 units(1)	966	267

Note:
(1) A 10% increase in the design population and flat production for the Public Housing Portion would be adopted for assessment purpose to allow for changes in flat mix, refinement of layout and design etc. in the detailed design stage.

5.4.3 With reference on the modal split data for work trips in Kam Tin area and school trips in Yuen Long District as reported in 2021 Population By-census published by the Census and Statistics Department, the assumed modal split of these pedestrian generations / attractions are summarized in **Table 5.6** below.

Table 5.6 Adopted Modal Split

Assumed Modal Split(1)	To / From Residential
Walk	6%
Public Transport	94%

Note:
(1) Private vehicle has not been included in the adopted modal split for residential portion as the trip rate for estimating residential trips covers only the pedestrian trip to/from public transport and walk trips.

5.4.4 By assuming that all the public transport pedestrian trips would be destined to the PTI in the proposed development, the additional pedestrian generation / attraction as given in **Table 5.5** were assigned to the road network, resulting in the 2034 design pedestrian flows. Based on the forecasted pedestrian flows, the footpath sections have been assessed and the results are summarized in **Table 5.7**.

Table 5.7 Summary of Pedestrian Flows at Critical Footpath Sections in Proposed Development

Critical Footpath Section	2034 AM Peak Design Pedestrian Flows (ped/hr)	Clear Minimum Width (m)	Effective Minimum Width (m)	Flow Rate (Ped/m/min)	Level of Service (LOS)
F1	1,233	1.8	0.8	25.7	C
F2	1,233	3.5	2.5	8.2	A
F3	2,343	2.5	1.5	26	C
F4	2,343	2.5	1.5	26	C
F5	134	2.5	1.5	1.5	A

5.4.5 As shown in **Table 5.7**, all the critical footpath sections would result in a level of service A-C under the 2034 design traffic pedestrian flows, which are better than the preferred upper end of LOS C as stated in TPDM and is therefore considered acceptable. The description of LOS from TPDM Volume 6 Chapter 10 is extracted and shown in **Table 5.8** for reference.

Table 5.8 Description of Level-of-Service (LOS)

LOS	Flow Rate (ped/min/m)	Description
A	≤ 16	Pedestrians basically move in desired paths without altering their movements in response to other pedestrians. Walking speeds are freely selected, and conflicts between pedestrians are unlikely.
B	16 - 23	Sufficient space is provided for pedestrians to freely select their walking speeds, to bypass other pedestrians and to avoid crossing conflicts with others. At this level, pedestrians begin to be aware of other pedestrians and to respond to their presence in the selection of walking paths.
C	23 - 33	Sufficient space is available to select normal walking speeds and to bypass other pedestrians primarily in unidirectional stream. Where reverse direction or crossing movement exist, minor conflicts will occur, and speed and volume will be somewhat lower.
D	33 - 49	Freedom to select individual walking speeds and bypass other pedestrians is restricted. Where crossing or reverse-flow movements exist, the probability of conflicts is high and its avoidance requires changes of speeds and position. The LOS provides reasonable fluid flow; however considerable friction and interactions between pedestrians are likely to occur.

E	49 - 75	Virtually, all pedestrians would have their normal walking speeds restricted. At the lower range of this LOS, forward movement is possible only by shuffling. Space is insufficient to pass over slower pedestrians. Cross- and reverse-movement are possible only with extreme difficulties. Design volumes approach the limit of walking capacity with resulting stoppages and interruptions to flow.

Existing Footpaths near Castle Peak Road – Tam Mi and Ko Po Path

5.4.6 A pedestrian count survey was conducted at existing footpaths near Castle Peak Road – Tam Mi and Ko Po Path during the AM peak hour from 07:00-09:00 on a typical weekday in November 2023. The location of the identified critical footpath sections along Castle Peak Road – Tam Mi and Ko Po Path is as shown in **Figure 5.4** and the existing flow is as shown in **Table 5.9.**

5.4.7 Given the long walking distance (over 1km) and the availability of public transport services in the vicinity of the subject site, it is assumed that no additional pedestrian trips would be induced by the proposed development to these existing footpaths near Castle Peak Road – Tam Mi and Ko Po Path.

5.4.8 A nominal growth of 1% per annum is applied to the 2023 observed pedestrian flows along existing footpath sections at Castle Peak Road – Tam Mi and Ko Po Path to produce the 2034 reference pedestrian flows. As no additional pedestrian generation / attraction were assigned to these existing footpaths, the reference pedestrian flows in 2034 would be equivalent to the 2034 design pedestrian flows. Based on the forecasted pedestrian flows, the footpath sections have been assessed and the results are summarized in **Table 5.9.**

Table 5.9 Summary of Pedestrian Flows at Critical Footpath Sections near Castle Peak Road – Tam Mi

Critical Footpath Section	2023 AM Peak Observed Pedestrian Flows (ped/hr)	2034 AM Peak Design Pedestrian Flows (ped/hr)	Clear Minimum Width (m)	Effective Minimum Width (m)	Flow Rate (Ped/m/min)	Level of Service (LOS)
F6	18	21	2.0	1.0	0.35	A
F7	18	21	3.2	2.2	0.16	A
F8	28	32	2.0	1.0	0.53	A
F9	30	34	2.0	1.0	0.57	A
F10	14	16	1.5	0.5	0.53	A
F11	16	18	2.0	1.0	0.30	A

5.4.9 As shown in **Table 5.9**, all the critical footpath sections would result in a level of service A under the 2034 design traffic pedestrian flows, which are better than the preferred upper end of LOS C as stated in TPDM and is therefore considered acceptable.

SUMMARY AND CONCLUSION

5.5 Summary

5.5.1 AECOM was commissioned by the Applicant to prepare a TIA in support of the Application for the Land Sharing Pilot Scheme.

5.5.2 The Application Site is located at various lots in D.D. 115, Tung Shing Lei, Yuen Long as indicated in **Figure 1.1**. The Application Site is currently zoned "Residential (Group D)" ("R(D)") on the approved Nam Sang Wai Outline Zoning Plan No. S/YL-NSW/8 and covers a site area of approximately 40,947m^2.

5.5.3 The Applicant now proposes a public and private housing development at the subject site under the Land Sharing Pilot Scheme (LSPS). The proposal comprises (i) a Public Housing development with plot ratio of 4.45 and 1,868 units (with average flat size of 50 m^2), and (ii) a private housing development with plot ratio of 3.01 and 1,261 units (with average flat size of 39.8m^2).

5.5.4 Within the Public Housing Portion, the Proposed Development will provide 214 car parking spaces; 20 visitor parking spaces, 14 motorcycle parking spaces, 274 bicycle parking spaces, 8 LGV and Light Bus loading/ unloading bays and 8 "shared-use" coaches/ bus and M/HGV loading/unloading bays for residential (Public Housing) portion according to the HKPSG. For the commercial portion, the Proposed Development will provide 6 car parking spaces, 1 motorcycle parking spaces, and 2 loading/ unloading bays for goods vehicles. For G/IC Facilities (including one NEC and HCS), 1 Private Light Bus Parking Space and 1 Shared Loading and Unloading Bay for Private Light Bus will be provided.

5.5.5 Within the Private Housing Portion, the Proposed Development will provide 228 car parking spaces; 15 visitor parking spaces, 11 motorcycle parking spaces, 85 bicycle parking spaces, and 3 loading/unloading bays for goods vehicles for residential (private housing) portion according to the HKPSG. For the commercial portion, the Proposed Development will provide 7 car parking spaces, 1 motorcycle parking spaces, and 2 loading/ unloading bays for goods vehicles. For the kindergarten, 1 private car parking spaces, 10 taxi/ private cars layby and 5 small coaches laybys would be provided.

5.5.6 In order to cater for the potential demand of public transport services arising from the Proposed Development, a Public Transport Terminus with 2 bus bays, 1 GMB bay and a taxi stand is proposed within the Private Housing Portion. Franchised bus services are proposed to serve the Proposed Development by circular route to Yuen Long Station PTI. In addition, long-haul bus routes to/from urban areas (such as Hong Kong Island, Kowloon East and Kowloon) are proposed during the AM / PM peak hours. Subject to the future planning of public transport services, the provision of transport terminus will allow adequate hardware facility to serve the future public transport demand generated by the proposed development.

5.5.7 Currently, the Application Site is served by a village road which branches off from existing Ho Chau Road. The village road is a 3.5m-5.5m wide single-track access road with no footpath on neither side of the carriageway; while Ho Chau Road is a 3.5m wide single-track access road with passing bays.

5.5.8 Under another approved planning application no. A/YL-NSW/274 for adjacent site, the existing Ho Chau Road is planned to be widened to a standard 7.3m wide single 2 lane 2-way carriageway between the adjacent site to the junction of Nam Sang Wai Road. One 38m long bus/GMB bay is planned at widened Ho Chau Road to serve for the whole area. This can serve as bus/GMB bay for additional terminating bus /GMB routes serving the area if required in the future. In addition, a section of Nam Sang Wai Road near its junction with Castle Peak Road – Tam Mi was also planned to be widened.

5.5.9 An access road is proposed within the Application Site to connect the Application Site with widened Ho Chau Road. The access road would be a 7.3m-wide single 2-lane carriageway, with footpaths provided on each side of the carriageway

5.5.10 In order to review the existing traffic condition, traffic count surveys were conducted at the following 8 identified critical junctions to investigate the traffic condition during commuting peak hours. At present, all the critical junctions are operating within capacity.

- J/O Castle Peak Road – Tam Mi / San Tam Road (J1)
- J/O Castle Peak Road – Tam Mi / Unnamed Access Road to Cheung Chun San Tsuen (J2)
- J/O Castle Peak Road – Tam Mi / Nam Sang Wai Road (J3)
- Au Tau Interchange (J4)
- J/O Kam Tin Road / Tsing Long Highway Slip Road (J5)
- J/O Kam Tin Road / Kam Tin Bypass / Kam Ho Road (J6)
- Pok Oi Interchange (J7)
- J/O Ho Chau Road / Tung Shing Lei (J8)

5.5.11 The Proposed Development will generate 2-way traffic of about 470 pcu/hr and 262 pcu/hr during the commuting AM and PM peak.

5.5.12 The Proposed Development is scheduled for completion in 2031 tentatively. Traffic forecast for design year 2034 was produced to assess the traffic impact arising from Proposed Development. The results of junction capacity assessments revealed that all junctions (except J2 and J3) would be able to handle the future traffic demand with all planned improvement works implemented.

5.5.13 A junction improvement proposal (**Figure 4.7B**) to signalize the J/O Castle Peak Road – Tam Mi / Nam Sang Wai Road (J3) is recommended to allow right-turn movement from Nam Sang Wai Road eastbound to Castle Peak Road – Tam Mi southbound. In addition, a U-turn facility for 7m-long vehicles is proposed at Nam Sang Wai Road such that traffic from Castle Peak Road – Tam Mi northbound can route via Nam Sang Wai Road northbound, U-turn to Nam Sang Wai Road southbound, and back to Ko Po Path. In view of the above, additional land would be required from the government land lots.

5.5.14 The performance for J/O Castle Peak Road – Tam Mi with San Tam Road (J1), Unnamed Access Road to Cheung Chun San Tsuen (J2) and Nam Sang Wai Road (J3) would be improved and operating within capacity upon completion of the proposed improvement works.

5.5.15 Road Link Assessment on the design case traffic flows indicated that all the above road links are expected to operate within capacity except Tai Lam Tunnel (L12), Yuen Long Highway (L13). With the opening of future Route 11, it was anticipated that the traffic condition of both Tai Lam Tunnel and Yuen Long Highway could be significantly improved. Between the year 2031 (completion year of the development) and the opening year of Route 11, the V/C ratio of both Tai Lam Tunnel and Yuen Long Highway would reach 1.1 in both reference and design case, meaning that traffic speed would be reduced, but would still be manageable with V/C ratio under 1.2.

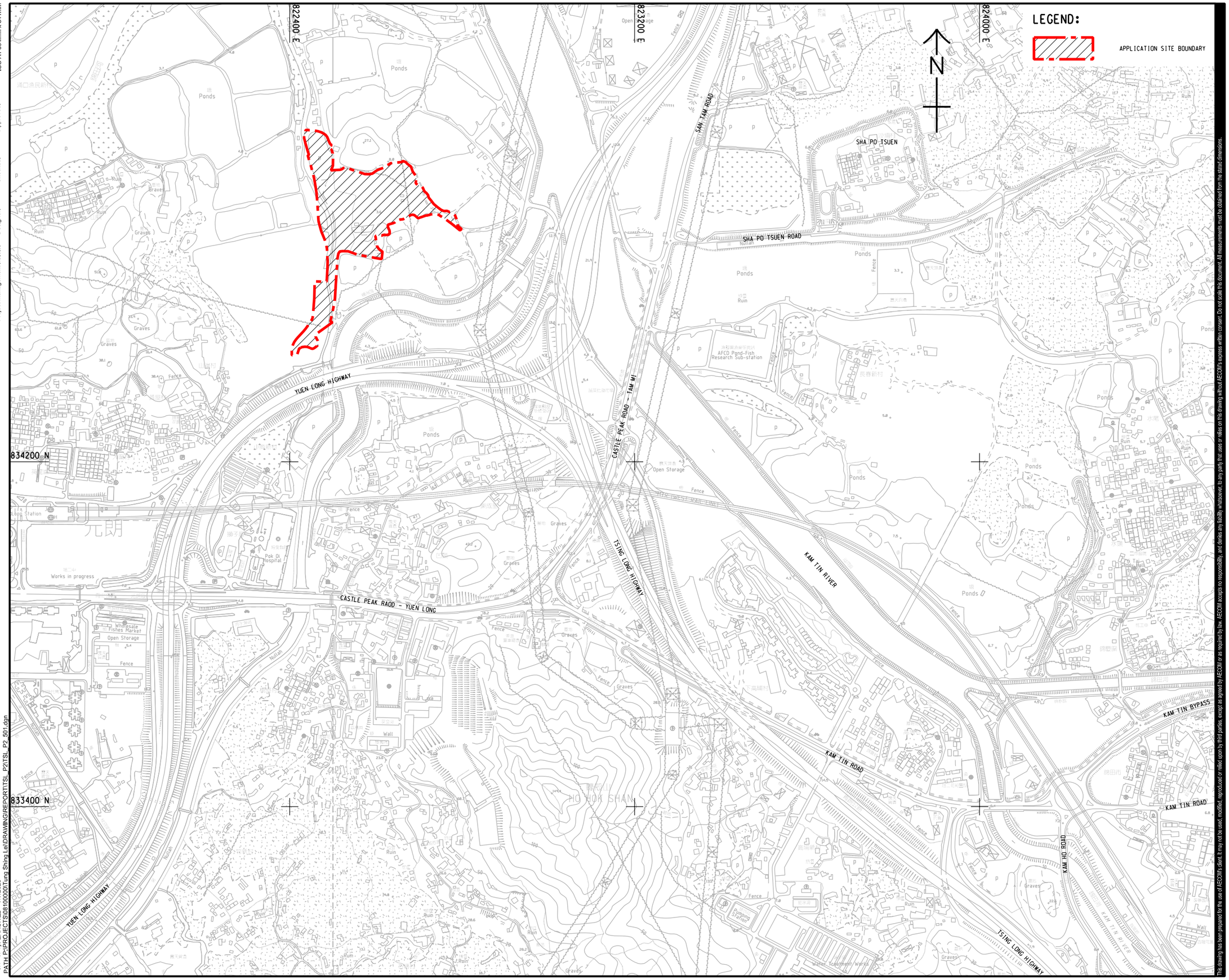
5.5.16 A sensitivity analysis has been carried out for the scenario without the approved Sha Po North and Tung Shing Lei developments under Application No. A/YL-KTN/663 (Phase 2), A/YL-KTN/604 and A/YL-NSW/274 respectively and without the improvement works at J1, J2, and J4, to assess the traffic condition if the proposed junction improvement by others cannot be implemented timely before completion of the Proposed Development. The junction assessment results reveal that the assessed junctions J1 and J2 would be able to handle the future traffic demand under the sensitivity test scenario. For J4, the aforementioned junction improvement measure (i.e. proposed exclusive left turn lane) is deemed necessary under the Sensitivity Analysis (i.e. without the approved Sha Po North and Tung Shing Lei developments under Application No. A/YL-KTN/663 (Phase 2), A/YL-KTN/604 and A/YL-NSW/274 respectively and without the relevant junction improvement works). Therefore the Applicant will implement the improvement measure of J4 accordingly.

5.5.17 An additional sensitivity test has been carried out for to assess the traffic impact induced by three potential private residential developments proposed under planning application no. Y/YL-NSW/7, Y/YL-NSW/8 and Y/YL-NSW/9. Junction assessment results reveal that all the assessed junctions (except J4) would be able to handle the future traffic demand under the sensitivity test scenario with all planned junction improvements implemented timely.

5.6 Conclusion

5.6.1 In light of the findings of this TIA, it is concluded that there is no insurmountable traffic impact imposed onto the local road network due to the Proposed Development. With the proposed mitigation measures in place, the Proposed Development is technically feasible in traffic terms.

Figure



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Designer:

Project Management Initials:

Plot File by: ZHAOHG2 7/7/2023
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PROJECT
項目

PROPOSED LAND SHARING PILOT SCHEME (LSPS) FOR A SITE AT VARIOUS LOTS IN D.D. 115, TUNG SHING LEI, YUEN LONG, THE NEW TERRITORIES

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I/R 修訂	DATE 日期	DESCRIPTION 事件摘要	CHK. 核對

STATUS
狀況

SCALE 比例
A3 1 : 8000

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號

CONTRACT NO. 合約編號

SHEET TITLE
圖紙名稱

SITE LOCATION PLAN

SHEET NUMBER
圖紙編號

TSL_P2_FIGURE 1.1

Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm

822200 E

822500 E

822800 E

834800 N

834500 N

LEGEND:

- APPLICATION SITE BOUNDARY
- SITE BOUNDARY FOR PRIVATE DEVELOPMENT
- SITE BOUNDARY FOR PUBLIC HOUSING DEVELOPMENT
- PUBLIC HOUSING PORTION
- PRIVATE HOUSING PORTION
- PROVISION OF PUBLIC ACCESS ROAD & COMPENSATION PONDS OUTSIDE PRIVATE & PUBLIC DEVELOPMENT SITES

N

T8 24s +100.00

GIC 2 STOREYS

T7 24s +100.00

RETAIL,GIC & CARPARK 2 STOREYS

T6 24s +100.00

T5 24s +100.00

T2 24s +99.90

CLUB HOUSE

T3 24s +99.90

T1 23s +99.90

PTT, RETAIL & KINDERGARTEN 2 STOREYS

OUTDOOR POOL

SEWAGE PUMPING STATION

PRIVATE GARDEN

WETLAND

PUBLIC HOUSING PORTION (ACCESS ROAD WITHIN SUBSIDIZED HOUSING PORTION TO BE IMPLEMENTED BY GOVERNMENT)

ACCESS ROAD PORTION (TO BE IMPLEMENTED BY THE APPLICANT)

DEVELOPMENT SITE OF APPLICATION NO. A/YL-NSW/274

PRIVATE HOUSING PORTION

PLANNED WIDENING OF HO CHAU ROAD UNDER APPROVED PLANNING APPLICATION NO. A/YL-NSW/274

PLANNED 38m LONG BUS/GMB LAYBY

VEHICULAR INGRESS EGRESS POINT

NAM SANG WAI ROAD

YUEN LONG HIGHWAY

TSING LONG HIGHWAY

SHAN PIN TSUEN

WONG UK TSUEN

Plot File by: ZHAOHC2 3/18/2024
PATH: P:\PROJECTS\0810000\0T\Tung Shing Lei\DRAWING\REPORT\TSL_P2\TSL_P2_502.dgn

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PROJECT
項目

PROPOSED LAND SHARING PILOT SCHEME (LSPS) FOR A SITE AT VARIOUS LOTS IN D.D. 115, TUNG SHING LEI, YUEN LONG, THE NEW TERRITORIES

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STATUS
階段

SCALE 比例
A3 1 : 3000

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號

CONTRACT NO. 合約編號

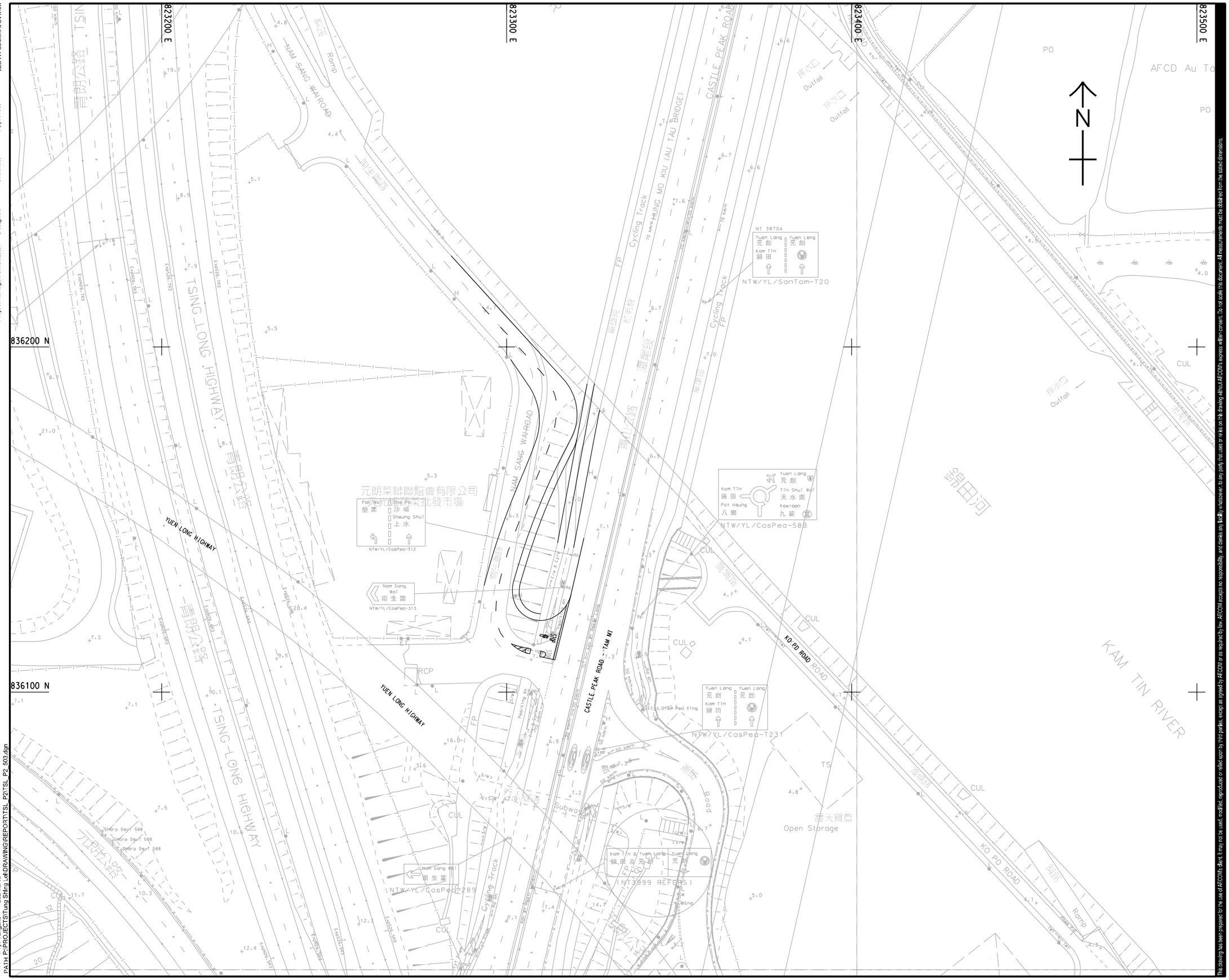
SHEET TITLE
圖紙名稱

PROPOSED WIDENING OF HO CHAU ROAD

SHEET NUMBER
圖紙編號

TSL_P2_FIGURE 2.1

Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm



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AECOM

PROJECT
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PROPOSED LAND SHARING PILOT SCHEME (LSPS) FOR A SITE AT VARIOUS LOTS IN D.D. 115, TUNG SHING LEI, YUEN LONG, THE NEW TERRITORIES

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STATUS
狀況

SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60530652

CONTRACT NO. 合約編號

SHEET TITLE
圖紙名稱
PLANNED REALIGNMENT OF NAM SANG WAI ROAD

SHEET NUMBER
圖紙名稱
TSL_P2_FIGURE 2.2

822450 E

822500 E

822550 E

834750 N

834700 N

LEGEND:

APPLICATION SITE BOUNDARY

SITE BOUNDARY FOR PRIVATE DEVELOPMENT

SITE BOUNDARY FOR SUBSIDIZED HOUSING DEVELOPMENT

TS511 TEMPORARY TRAFFIC SIGN

TRAFFIC SIGN NO.

N

SEWAGE PUMPING STATION

10 m

RAMP DN TO B/F

BUS STACKING AREA

TAXI BAY

GMB BAY

BUS STACKING AREA

BUS BAY

TAXI BAY

BUS BAY

RM1013

RM1115

RM1101

RM1019

RM1115

RM1013

GIVE WAY 讓

TS102

WETLAND

AECOM

PROJECT
項目

PROPOSED LAND SHARING PILOT SCHEME (LSPS) FOR A SITE AT VARIOUS LOTS IN D.D. 115, TUNG SHING LEI, YUEN LONG, THE NEW TERRITORIES

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STATUS
階段

SCALE 比例: A3 1 : 500

DIMENSION UNIT 尺寸單位: METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號

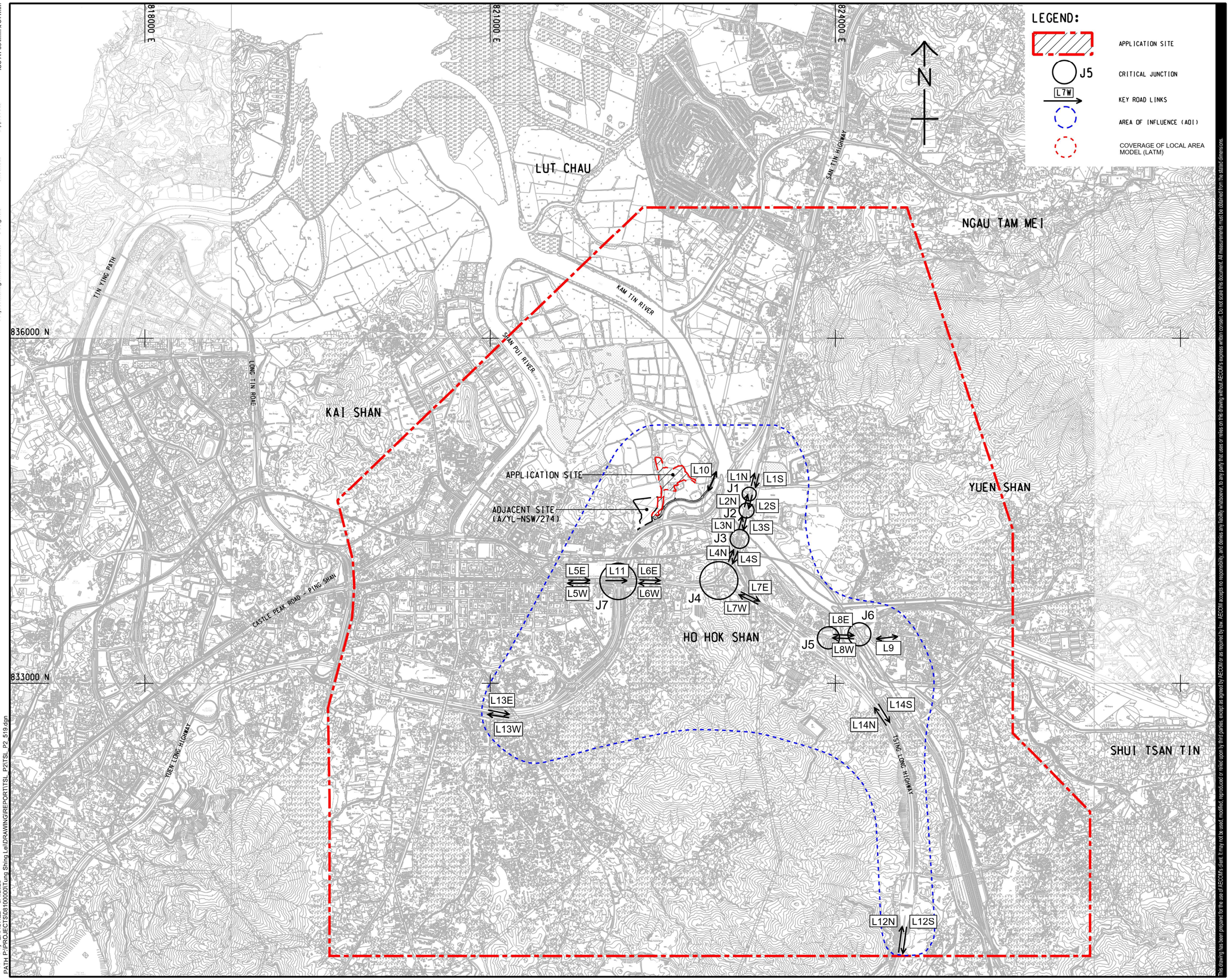
CONTRACT NO. 合約編號

SHEET TITLE
圖紙名稱

INDICATIVE LAYOUT OF PUBLIC TRANSPORT INTERCHANGE

SHEET NUMBER
圖紙編號

TSL_P2_FIGURE 2.3



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Project Management Initials:

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PROPOSED LAND SHARING PILOT SCHEME (LSPS) FOR A SITE AT VARIOUS LOTS IN D.D. 115, TUNG SHING LEI, YUEN LONG, THE NEW TERRITORIES

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STATUS
現狀

PRELIMINARY

SCALE 比例
A3 1 : 30000

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
次計圖

PROJECT NO. 項目編號

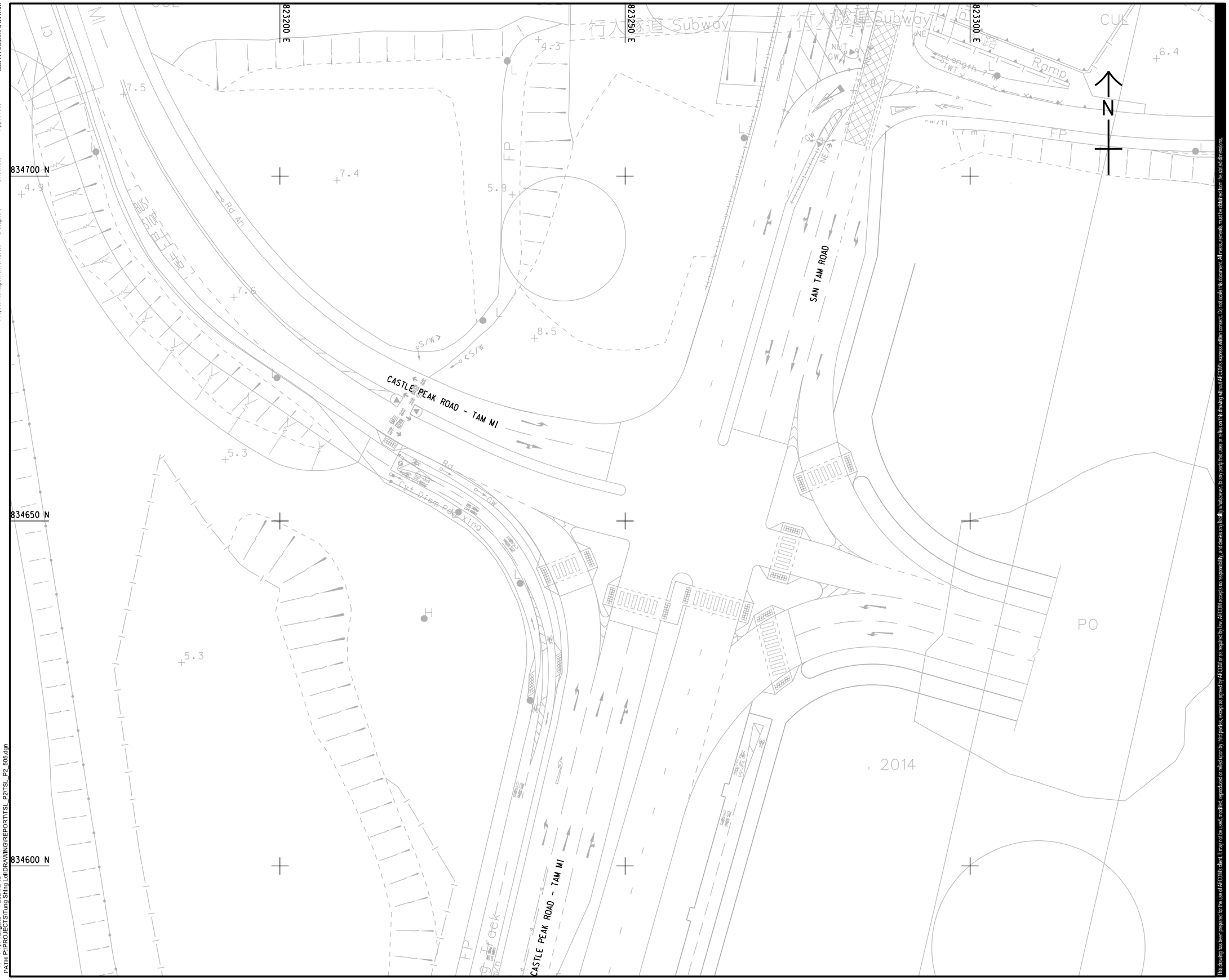
CONTRACT NO. 合約編號

SHEET TITLE
圖紙名稱

CRITICAL JUNCTIONS

SHEET NUMBER
圖紙編號

TSL_P2_FIGURE 3.1



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PROPOSED LAND SHARING PILOT SCHEME (LSPS) FOR A SITE AT VARIOUS LOTS IN D.D. 115, TUNG SHING LEI, YUEN LONG, THE NEW TERRITORIES

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STATUS
階段

SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

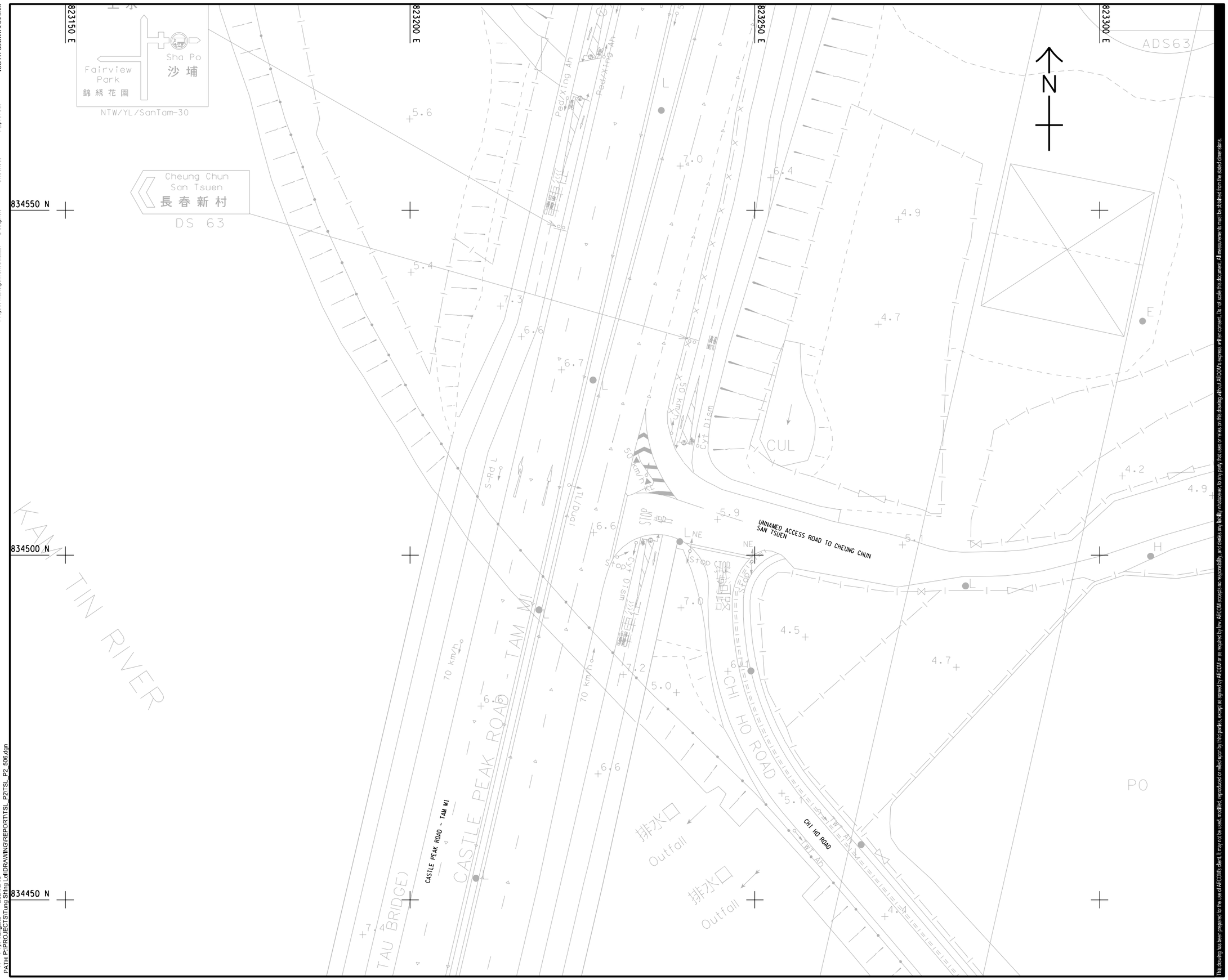
PROJECT NO. 工程項目號
60530652

CONTRACT NO. 合約編號

SHEET TITLE
圖紙名稱
EXISTING LAYOUT FOR JUNCTION OF CASTLE PEAK ROAD-TAM MI/SAN TAM ROAD (J1)

SHEET NUMBER
圖紙編號
TSL_P2_FIGURE 3.2

Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm



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PROPOSED LAND SHARING PILOT SCHEME (LSPS) FOR A SITE AT VARIOUS LOTS IN D.D. 115, TUNG SHING LEI, YUEN LONG, THE NEW TERRITORIES

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STATUS
階段

SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 工程項目號
60530652

CONTRACT NO. 合約編號

SHEET TITLE
圖紙名稱

EXISTING LAYOUT FOR JUNCTION OF CASTLE PEAK ROAD-TAM MI/ UNNAMED ACCESS ROAD TO CHEUNG CHUN SAN TSUEN (J2)

SHEET NUMBER
圖紙編號

TSL_P2_FIGURE 3.3

823100 E
823150 E
823200 E
823250 E
834300 N
834250 N
834200 N

Pok Wai 堅圍
Sheung Shui 沙埔 上水
NTW/YL/CasPea-312
Nam Sang Wai 南生圍
NTW/YL/CasPea-313
NTW/YL/CasPea-58B
Pat Heung 八鄉
Kowloon 九龍
Yuen Long 元朗
Kam Tin 錦田
NTW/YL/CasPea-T231
NTW/YL/CasPea-289
Kam Tin & Yuen Long 錦田及元朗
(NT3999 REFERS)

南生圍路 NAM SANG WAI ROAD
高埔路
KO PO ROAD
YUEN LONG HIGHWAY
CASTLE PEAK ROAD - TAM MI
行人隧道 Subway
道路 Road
露天貨倉 Open Storage
Cycling Track
Adv Wt Restr Zone
Cyt Dtsm Red Xing
Ped/Xing Ah
F/w & Cy/w
Rd Ah
Stop
50 km/h
70 km/h
CUL
RCP
FP
TS
TWT
L(TWT)
S/W
End

N

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PROJECT
PROPOSED LAND SHARING PILOT SCHEME (LSPS) FOR A SITE AT VARIOUS LOTS IN D.D. 115, TUNG SHING LEI, YUEN LONG, THE NEW TERRITORIES

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STATUS

SCALE: A3 1 : 1000
DIMENSION UNIT: METRES

KEY PLAN

PROJECT NO.: 60530652
CONTRACT NO.:

SHEET TITLE
EXISTING LAYOUT FOR JUNCTION OF CASTLE PEAK ROAD-TAM MI/NAM SANG WAI ROAD (J3)

SHEET NUMBER
TSL_P2_FIGURE 3.4

Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm

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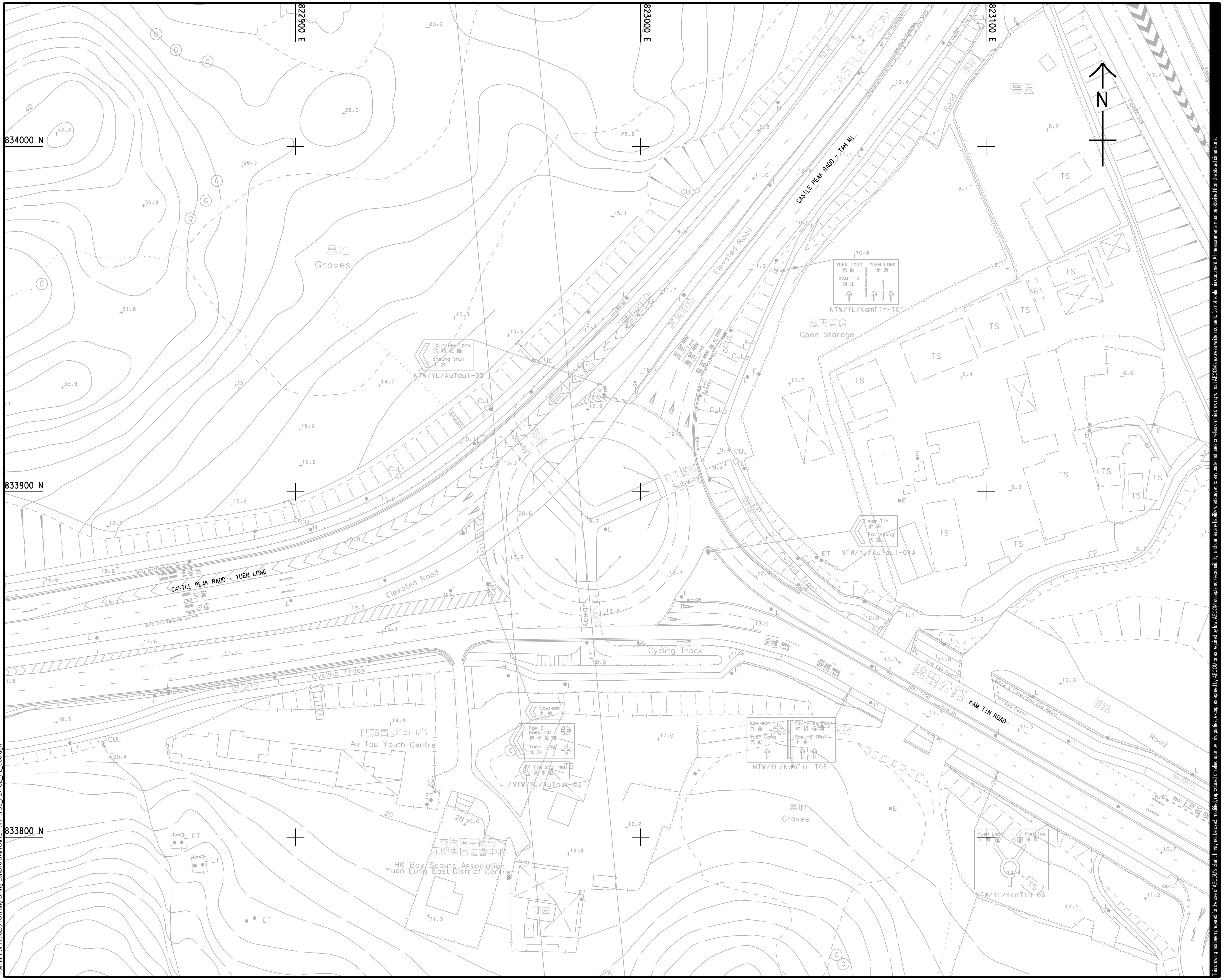

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STATUS

SCALE: A3 1 : 1000

DIMENSION UNIT: METRES

KEY PLAN

PROJECT NO.: 60530652

CONTRACT NO.

SHEET TITLE

EXISTING LAYOUT FOR AU TAU INTERCHANGE (J4)

SHEET NUMBER

TSL_P2_FIGURE 3.5

ISO A1 594mm x 841mm

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ISO A1 594mm x 841mm

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Designer:

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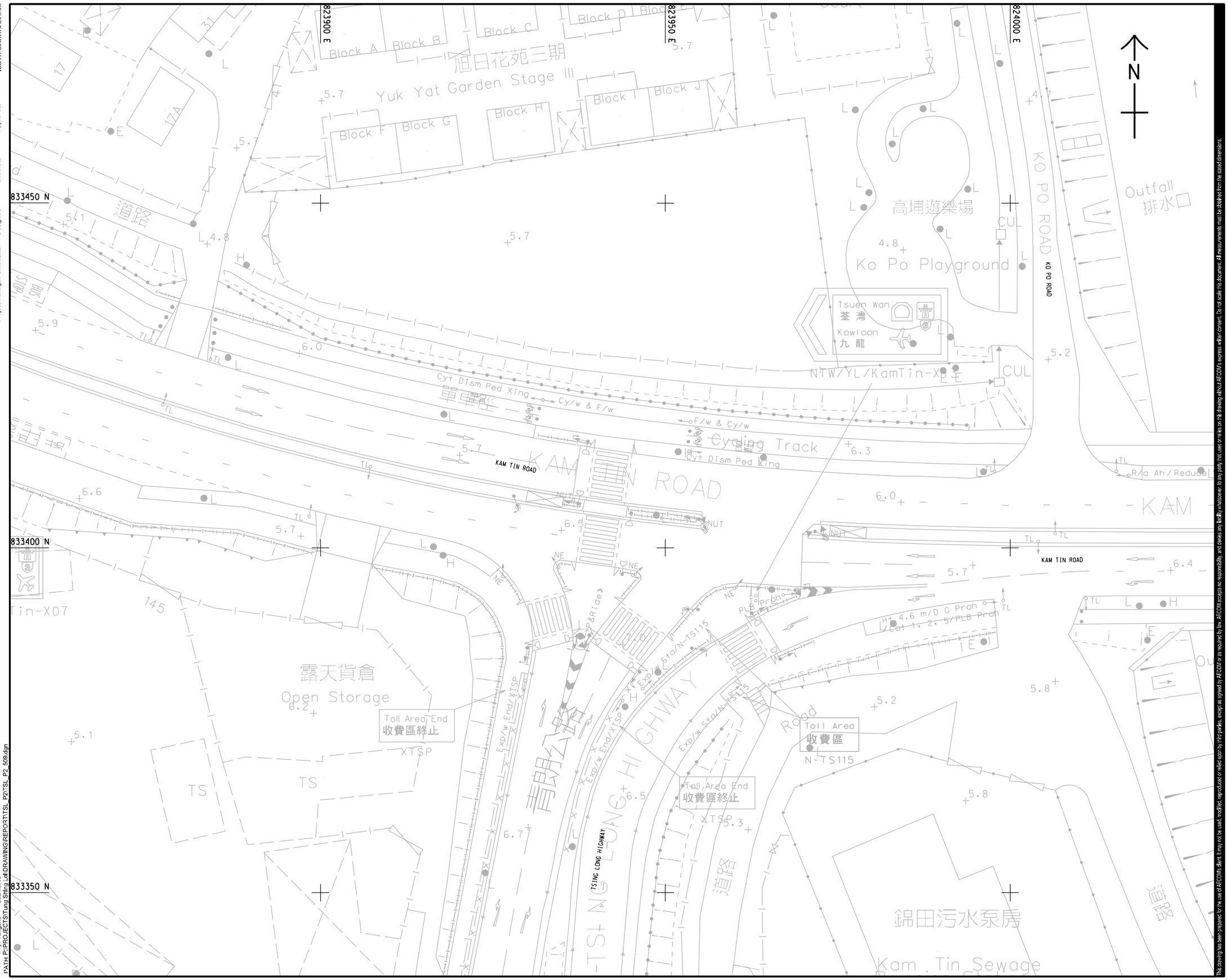

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項目

PROPOSED LAND SHARING PILOT SCHEME (LSPS) FOR A SITE AT VARIOUS LOTS IN D.D. 115, TUNG SHING LEI, YUEN LONG, THE NEW TERRITORIES

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STATUS
階段

SCALE 比例
A3 1 : 1000

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

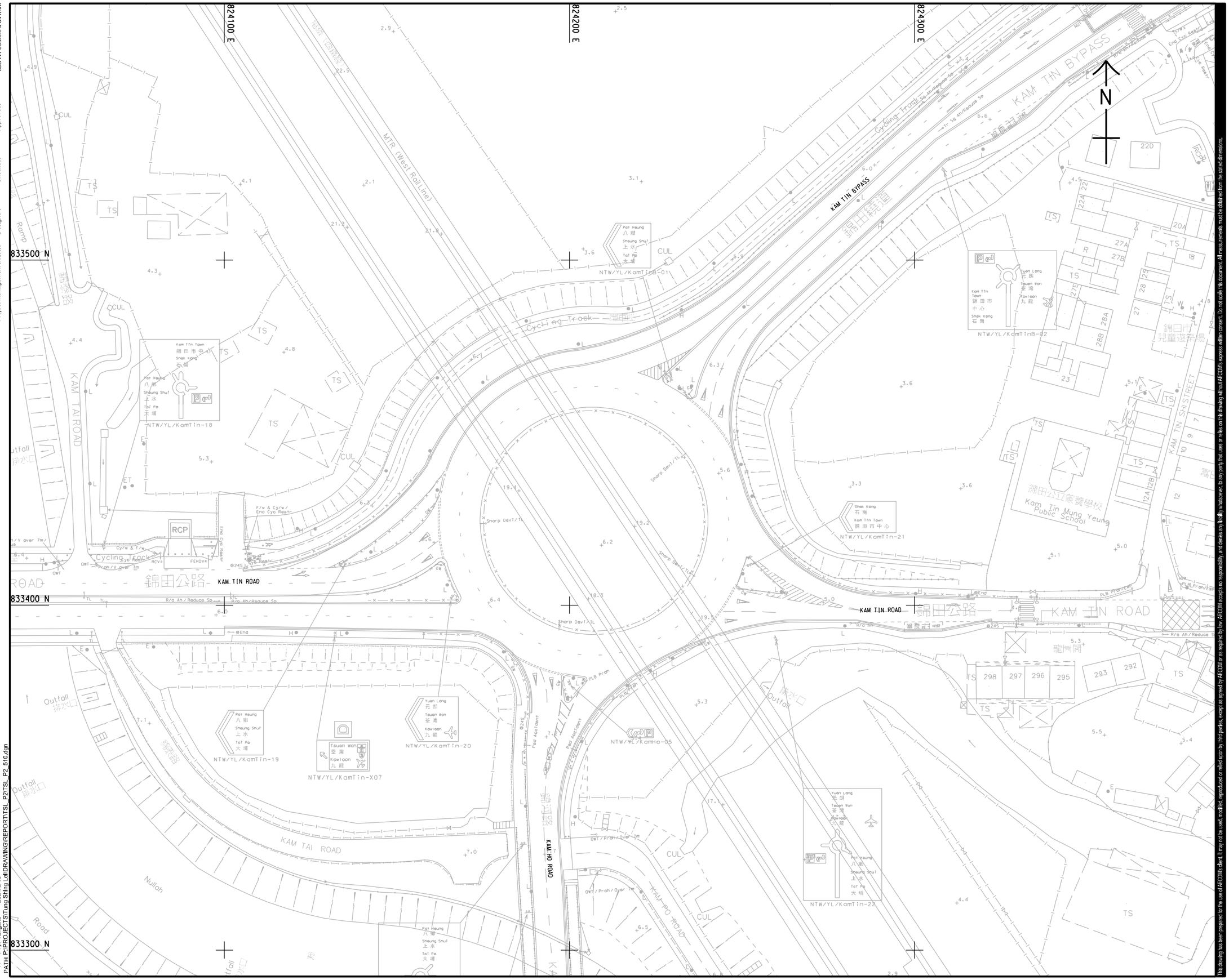
PROJECT NO. 工程項目號
60530652

CONTRACT NO. 合約編號

SHEET TITLE
圖紙名稱
EXISTING LAYOUT FOR JUCTION OF KAM TIN ROAD /TSING LONG HIGHEAY (J5)

SHEET NUMBER
圖紙編號
TSL_P2_FIGURE 3.6

Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm



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AECOM

PROJECT
項目

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STATUS
狀態

SCALE 比例
A3 1 : 1000

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 工程項目編號
60530652

CONTRACT NO. 合約編號

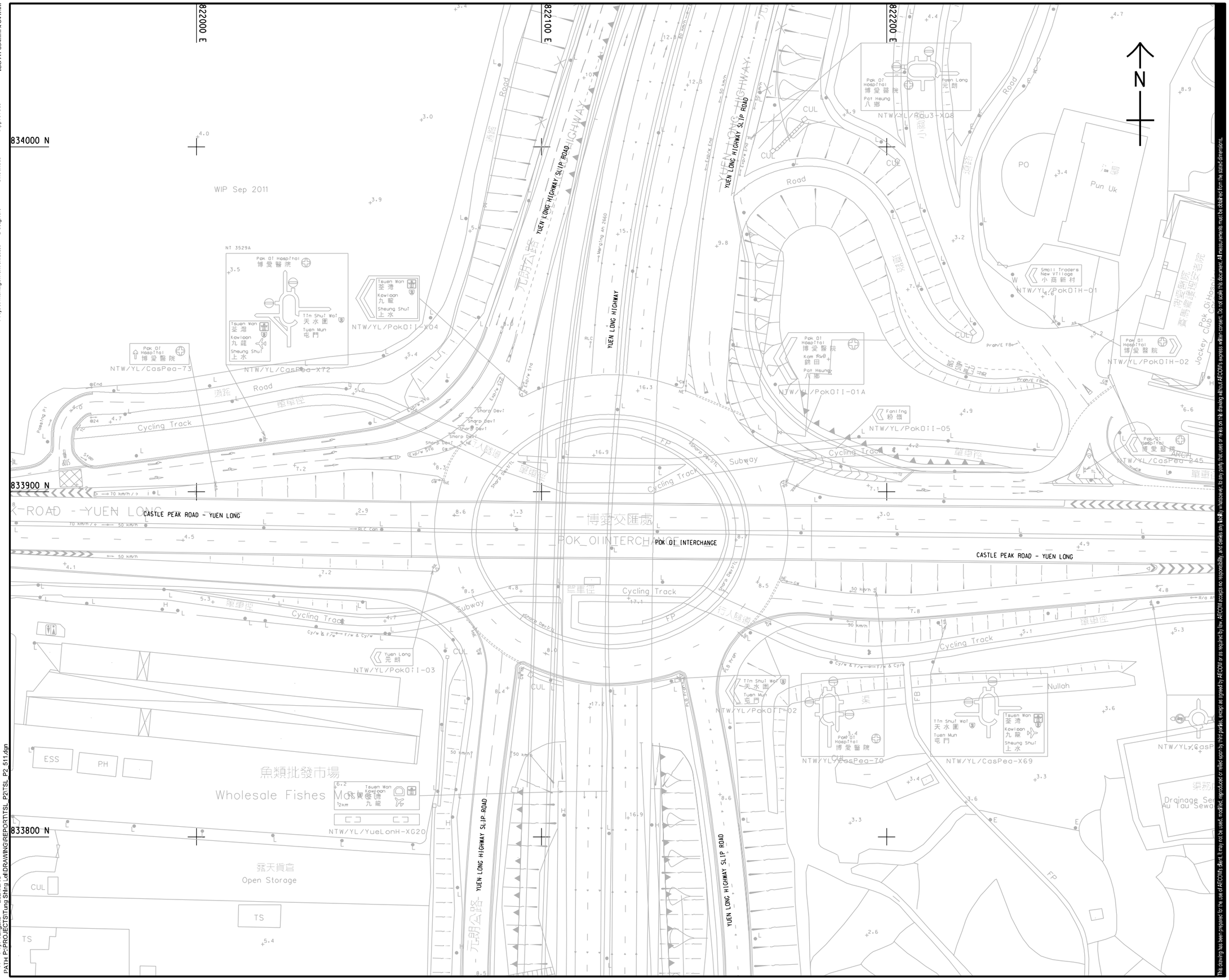
SHEET TITLE
圖紙名稱

EXISTING LAYOUT FOR KAM TIN ROAD/KAM TIN BYPASS/KAM HO ROAD ROUNDABOUT (J6)

SHEET NUMBER
圖紙編號

TSL_P2_FIGURE 3.7

Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm



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項目
PROPOSED LAND SHARING PILOT SCHEME (LSPS) FOR A SITE AT VARIOUS LOTS IN D.D. 115, TUNG SHING LEI, YUEN LONG, THE NEW TERRITORIES

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STATUS
狀況2

SCALE 比例
A3 1 : 1000

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

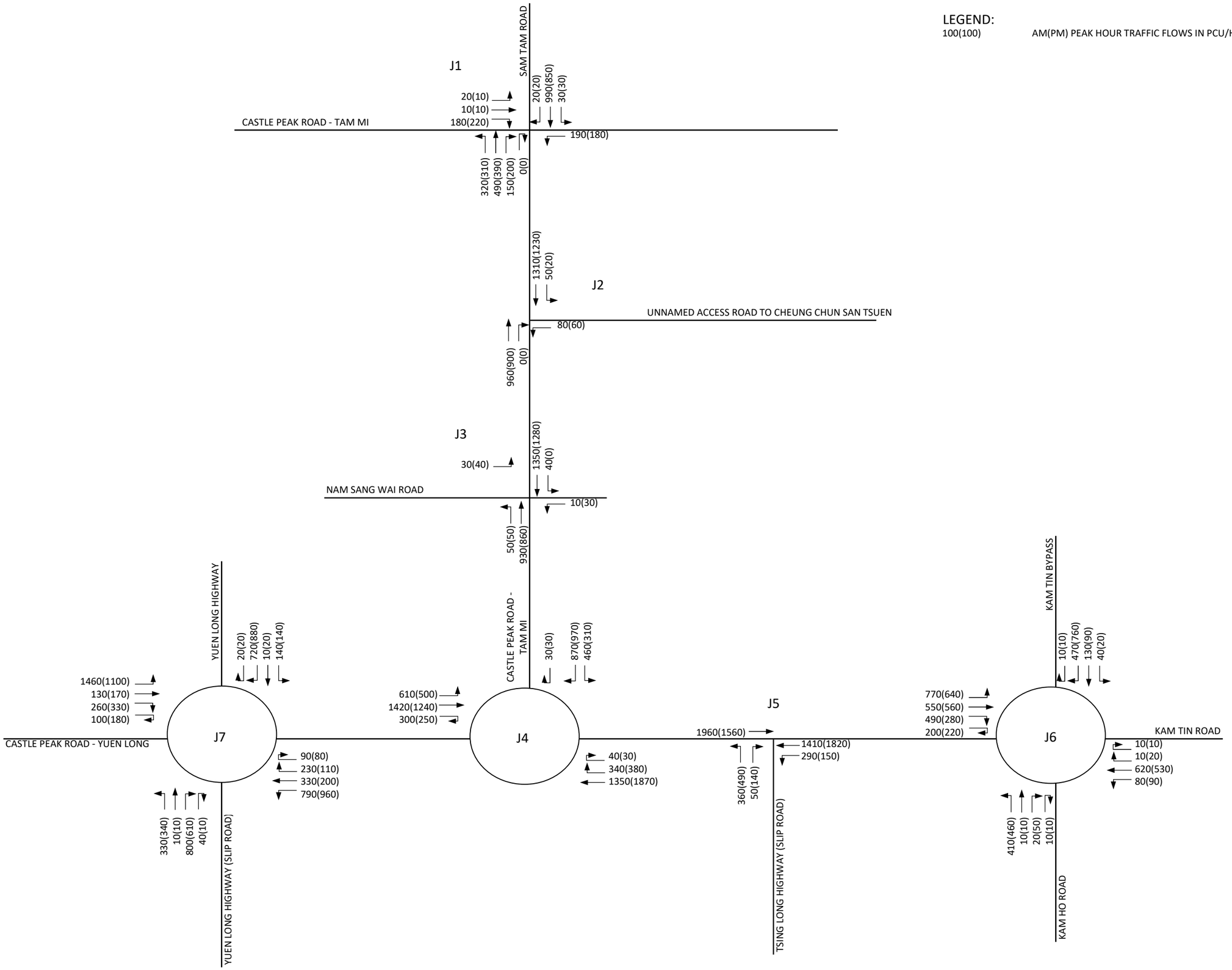
PROJECT NO. 項目編號
60530652

CONTRACT NO. 合約編號

SHEET TITLE
表頭名稱
EXISTING LAYOUT FOR POK OI INTERCHANGE (J7)

SHEET NUMBER
表單編號
TSL_P2_FIGURE 3.8

LEGEND:
100(100) AM(PM) PEAK HOUR TRAFFIC FLOWS IN PCU/HR



AECOM

PROJECT

PROPOSED LAND SHARING PILOT SCHEME (LSPS) FOR A SITE AT VARIOUS LOTS IN D.D.115, TUNG SHING LEI, YUEN LONG, THE NEW TERRITORIES

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STATUS

SCALE **DIMENSION UNIT**

N.T.S.

KEY PLAN

PROJECT NO. **CONTRACT NO.**

SHEET TITLE

2021 OBSERVED TRAFFIC FLOWS

SHEET NUMBER

TSL_P2 FIGURE 3.9

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

823100 E

823200 E

823300 E

834600 N

834500 N

834400 N

青朗公路 TSING LONG HIGHWAY

元朗公路 YUEN LONG HIGHWAY

TRAFFIC ISLAND TO BE SET BACK FOT U-TURN MOVEMENT

PEDESTRIAN CROSSING TO BE RELOCATED

CONTINUE TO MATCH WITH EXISTING

ONLY ONE TRAFFIC LANE TO BE PROVIDED

SLIP ROAD FROM PARK YOHO (RM1003)

SIGNALISED PEDESTRIAN CROSSING (PUSH BUTTON)

PLANNED PUBLIC ROAD UNDER A/YL-KTN/604

CASTLE PEAK ROAD - TAM MI

KAM TIN RIVER

CHI HO ROAD

NAM SANG Ramp

Tower 7A

Tower 7B

漁農自然護理署凹頭漁業辦事處
AFCD Au Tau Fisheries Office

排水口 Outfall

LEGEND:

C/W	CARRIAGEWAY
F/P	FOOTPATH
P/T	PLANTER
C/T	CYCLE TRACK
V	VERGE

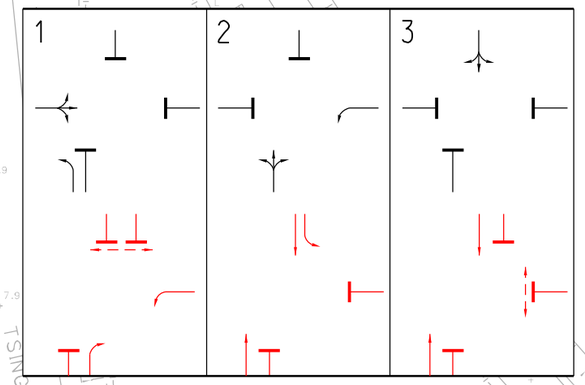
3.5m C/T | 1.0m V | 2.0m F/P | 3.5m C/T | 2.0m F/P

1m V | 3m C/T | 2m F/P

2.0m F/P | 1.3 C/W | 2.0m F/P | 3.5m C/T | 1.0m P/T

1.0m V | 2.5.0m F/P | 3.5 C/W

PROPOSED METHOD OF CONTROL



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$DATES

AECOM

PROJECT
項目

PROPOSED LAND SHARING PILOT SCHEME (LSPS) FOR A SITE AT VARIOUS LOTS IN D.D. 115, TUNG SHING LEI, YUEN LONG, THE NEW TERRITORIES

CLIENT
客戶

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顧問公司

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修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 核核

STATUS
阶段

SCALE 比例
A3 1 : 1000

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號

CONTRACT NO. 合約編號

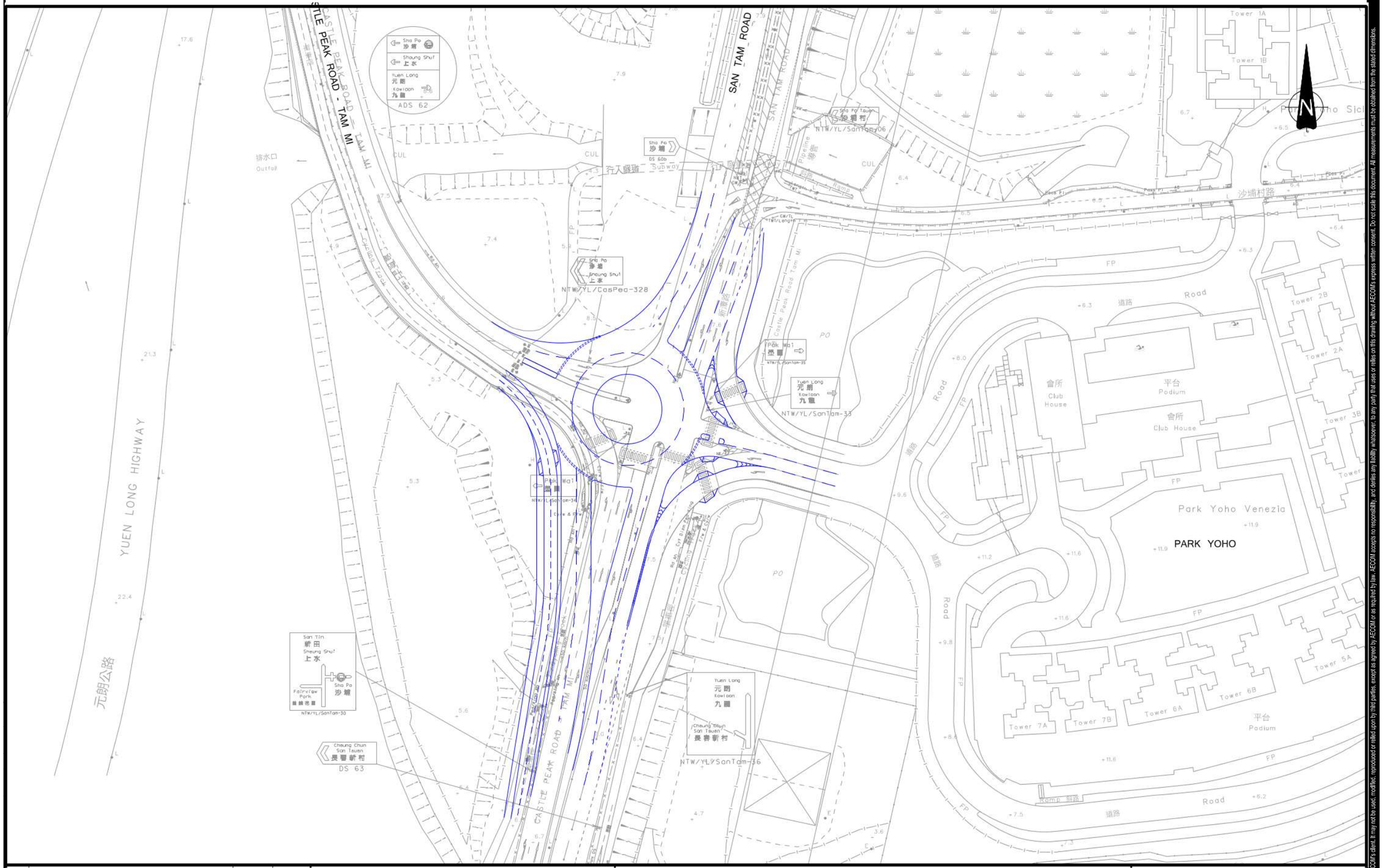
SHEET TITLE
圖紙名稱

PLANNED LAYOUT FOR J/O CASLTE PEAK ROAD - TAM MI / SAN TAM ROAD (J1) AND CASTLE PEAK ROAD - TAM MI / UNNAMED ACCESS ROAD TO CHEUNG CHUN SAN TSUEN (J2)

SHEET NUMBER
圖紙編號

TSL_FIGURE_4.1A

Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm



Note: Extracted from feasibility study (CEDD Agreement No. CE10/2020(CE)) for Sha Po Public Housing Development

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STATUS
狀況

SCALE 比例
N.T.S

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60223708

CONTRACT NO. 合約編號

SHEET TITLE
圖紙名稱

PLANNED IMPROVEMENT LAYOUT FOR JUNCTION OF CASLTE PEAK ROAD - TAM MI / SAN TAM ROAD (J1)

SHEET NUMBER
圖紙編號

TSL_FIGURE_4.1B

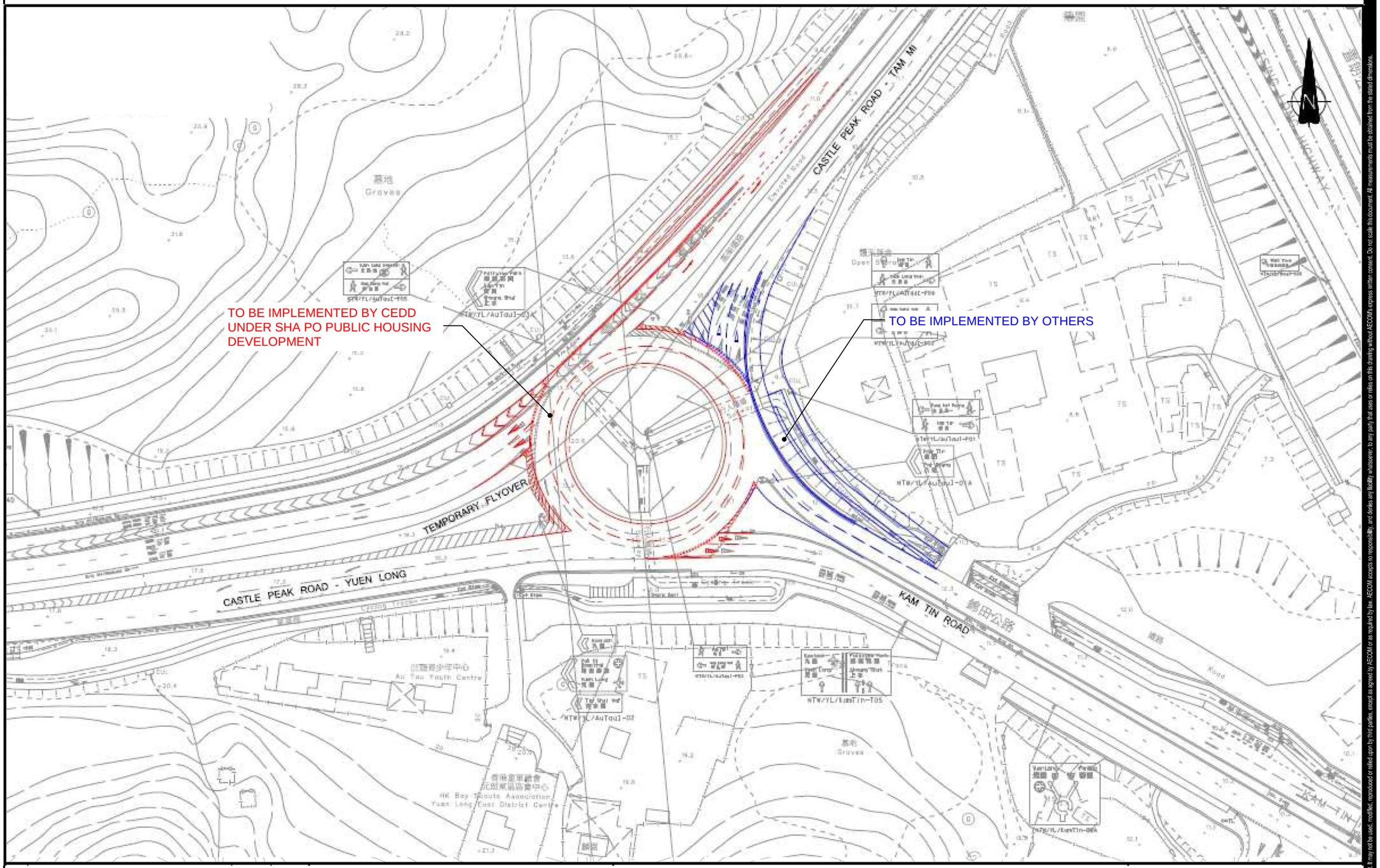
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



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PROJECT
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PROPOSED LAND SHARING PILOT SCHEME (LSPS) FOR A SITE AT VARIOUS LOTS IN D.D. 115, TUNG SHING LEI, YUEN LONG, THE NEW TERRITORIES

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STATUS
現況

SCALE 比例
N.T.S

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60223708

CONTRACT NO. 合約編號

SHEET TITLE
圖紙名稱

PLANNED LAYOUT FOR
AU TAU INTERCHANGE (J4)

SHEET NUMBER
圖紙編號

TSL_FIGURE_4.2

附圖三 - 擬議交通改善措施

北 N

往上水及九龍

元朗公路

Grand YOHO

博愛醫院

元朗公路與迴旋處交界處加設交通燈

效果:

1. 元朗公路 (南行) 和元朗公路 (北行) 入口的車輛有秩序地進出迴旋處；
2. 可制訂交通燈號預案，配合不同時段的車流。

擴闊迴旋處往凹頭單線支路至兩線支路

效果：

1. 增加出口交通容量；
2. 減少現時因車輛於迴旋處切線匯合而阻礙交通的問題

青山公路 (元朗段)

往元朗市

往凹頭

青山公路 (元朗段)

建造中的青山公路 (西行) 往元朗公路 (南行) 的左轉專用行車線 (1)

魚類批發市場
Wholesale Fishes Market

元政路停車場
Yuen Ching Road Car Park

元朗公路

往十八鄉交匯處、 元朗 (南) 及屯門

NTW2021019A (A3)

Note (1): Improvement works for exclusive left-turn lane from Castle Peak Road to Yuen Long Highway has been completed in 2022.

Source: Yuen Long District Council - Traffic and Transport Committee Discussion Paper No. 14/2022

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PROJECT
PROPOSED LAND SHARING PILOT SCHEME (LSPS) FOR A SITE AT VARIOUS LOTS IN D.D. 115, TUNG SHING LEI, YUEN LONG, THE NEW TERRITORIES

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I/R	DATE	DESCRIPTION	CHK.

STATUS

SCALE: N.T.S
DIMENSION UNIT: METRES

KEY PLAN

PROJECT NO.: 60530652
CONTRACT NO.:

SHEET TITLE
PLANNED JUNCTION IMPROVEMENT FOR POK OI INTERCHANGE

SHEET NUMBER
TSL_P2_FIGURE 4.3

ISO A1 594mm x 841mm
Approved:
Checked:
Designer:
Project Management Initials:

Plot File by: Tangsku 2021/8/18
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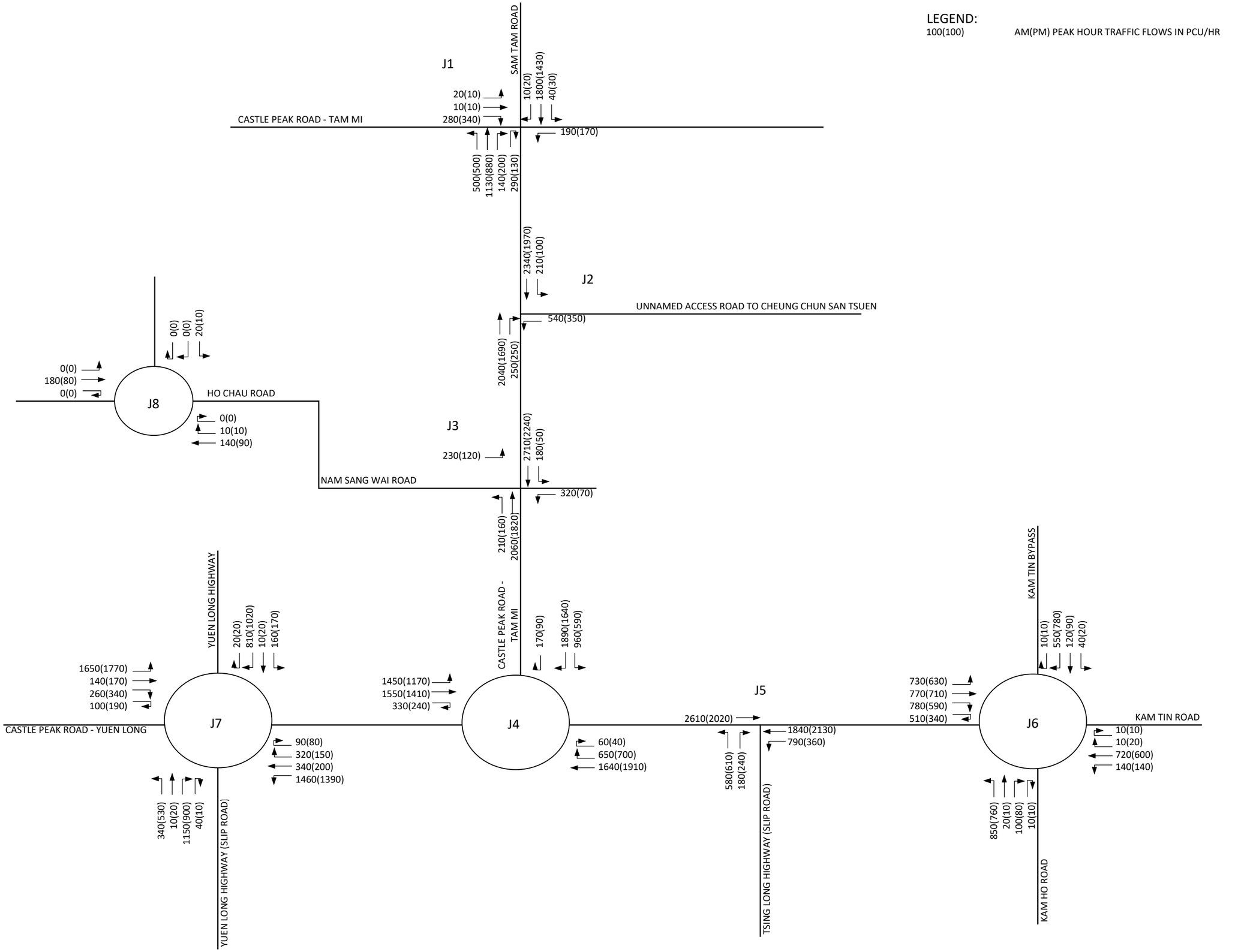

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PROPOSED LAND SHARING PILOT SCHEME (LSPS) FOR A SITE AT VARIOUS LOTS IN D.D.115, TUNG SHING LEI, YUEN LONG, THE NEW TERRITORIES

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STATUS

SCALE **DIMENSION UNIT**

N.T.S.

KEY PLAN

PROJECT NO. **CONTRACT NO.**

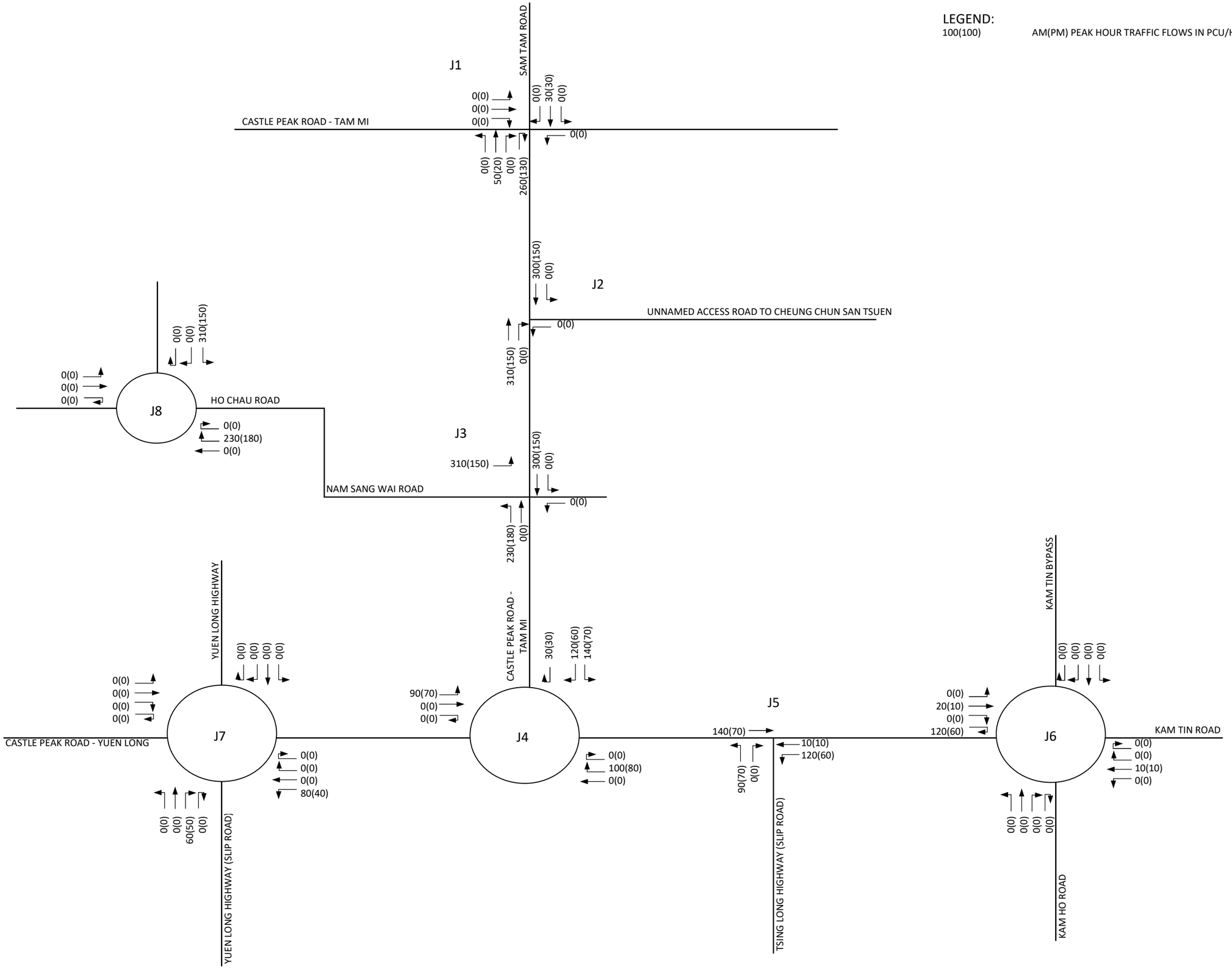
SHEET TITLE

2034 REFERENCE TRAFFIC FLOWS

SHEET NUMBER

TSL_P2 FIGURE 4.4

LEGEND:
100(100) AM(PM) PEAK HOUR TRAFFIC FLOWS IN PCU/HR



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PROPOSED LAND SHARING PILOT SCHEME (LSPS) FOR A SITE AT VARIOUS LOTS IN D.D.115, TUNG SHING LEI, YUEN LONG, THE NEW TERRITORIES

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STATUS

SCALE **DIMENSION UNIT**
N.T.S.

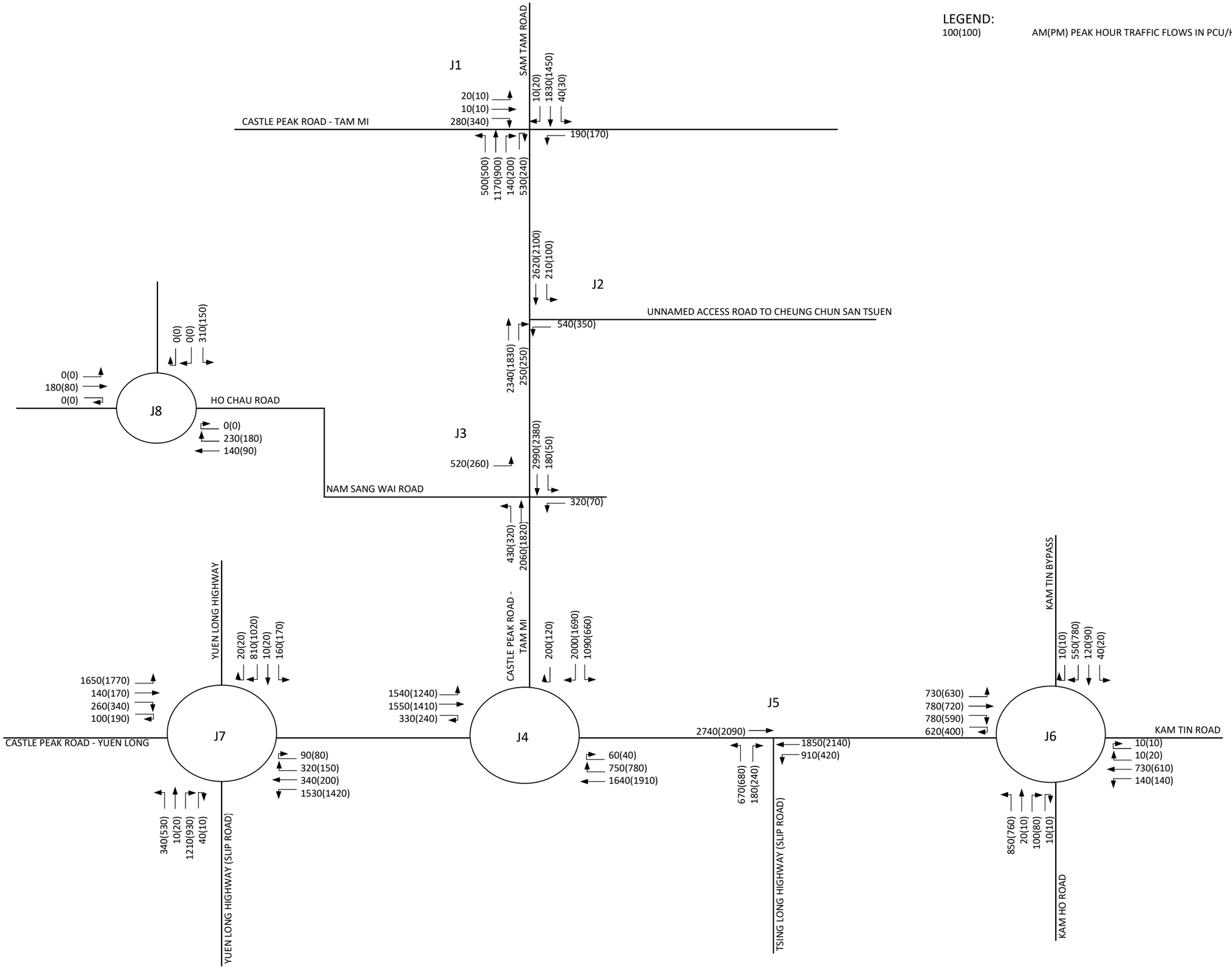
KEY PLAN

PROJECT NO. **CONTRACT NO.**

SHEET TITLE
DEVELOPMENT TRAFFIC FLOWS

SHEET NUMBER
TSL_P2 FIGURE 4.5

LEGEND:
100(100) AM(PM) PEAK HOUR TRAFFIC FLOWS IN PCU/HR



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PROJECT

PROPOSED LAND SHARING PILOT SCHEME (LSPS) FOR A SITE AT VARIOUS LOTS IN D.D.115, TUNG SHING LEI, YUEN LONG, THE NEW TERRITORIES

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STATUS

SCALE **DIMENSION UNIT**

N.T.S.

KEY PLAN

PROJECT NO. **CONTRACT NO.**

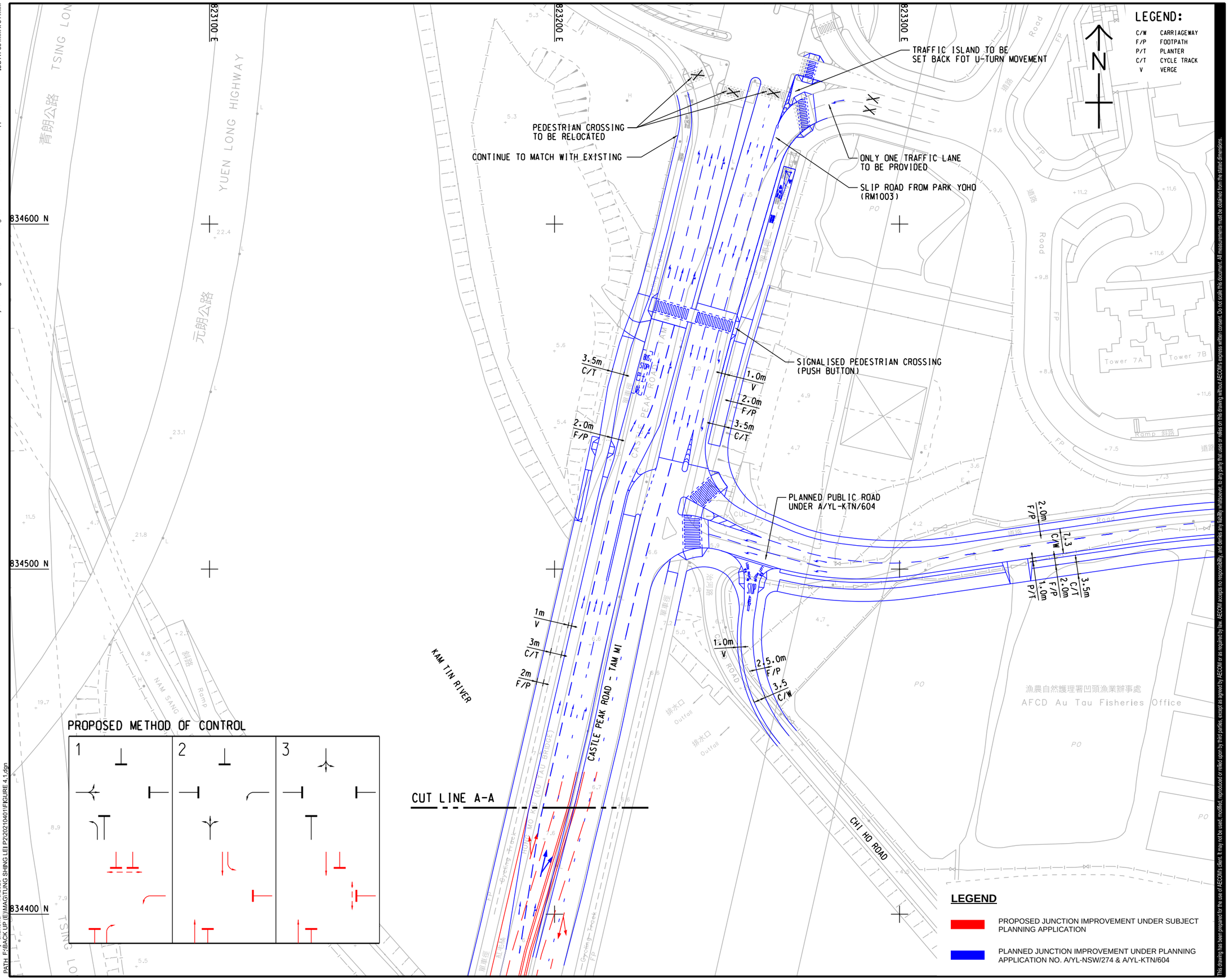
SHEET TITLE

2034 DESIGN TRAFFIC FLOWS

SHEET NUMBER

TSL_P2 FIGURE 4.6

Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm



PROPOSED METHOD OF CONTROL

LEGEND

PROPOSED JUNCTION IMPROVEMENT UNDER SUBJECT PLANNING APPLICATION

PLANNED JUNCTION IMPROVEMENT UNDER PLANNING APPLICATION NO. A/YL-NSW/274 & A/YL-KTN/604

Plot File by: chancwe 4/5/2023
PATH: F:\BACK UP\EMMA\TUNG SHING LEI P2\20210401\FIGURE 4.1.dgn

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PROJECT 項目

PROPOSED LAND SHARING PILOT SCHEME (LSPS) FOR A SITE AT VARIOUS LOTS IN D.D. 115, TUNG SHING LEI, YUEN LONG, THE NEW TERRITORIES

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STATUS 階段

SCALE 比例 A3 1 : 1000

DIMENSION UNIT 尺寸單位 METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號

CONTRACT NO. 合約編號

SHEET TITLE 圖紙名稱

PLANNED LAYOUT FOR J/O CASLTE PEAK ROAD - TAM MI / SAN TAM ROAD (J1) AND CASTLE PEAK ROAD - TAM MI / UNNAMED ACCESS ROAD TO CHEUNG CHUN SAN TSUEN (J2)

SHEET NUMBER 圖紙編號

TSL_FIGURE_4.7A

CUT LINE A-A

TURN-AROUND FACILITY FOR 8m VEHICLES

GLA-TYL 2957
(VACANT GOVERNMENT LAND)

STT 1723
(EXISTING WHOLESALE MARKET)

NAM SANG WAI ROAD

TSING LONG HIGHWAY

YUEN LONG HIGHWAY

CASTLE PEAK ROAD - TAM MI

KO PO ROAD

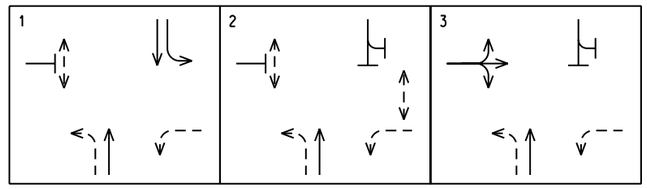
LEGEND:

PROPOSED JUNCTION IMPROVEMENT UNDER SUBJECT PLANNING APPLICATION

PROPOSED JUNCTION IMPROVEMENT UNDER PLANNING APPLICATION NO.A/YL-KTN/604

WIP
Nov 2019

PROPOSED METHOD OF CONTROL:



ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

Plot File by: chanxwa 26/3/2024
PATH: F:\BACK UP (E)\MAGIT\UNG SHING LEI P2\20210401\FIGURE 4.7.dgn

AECOM

PROJECT
項目

PROPOSED LAND SHARING PILOT SCHEME (LSPS) FOR A SITE AT VARIOUS LOTS IN D.D. 115, TUNG SHING LEI, YUEN LONG, THE NEW TERRITORIES

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STATUS
階段

PRELIMINARY

SCALE 比例
A3 1 : 1000

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號

CONTRACT NO. 合約編號

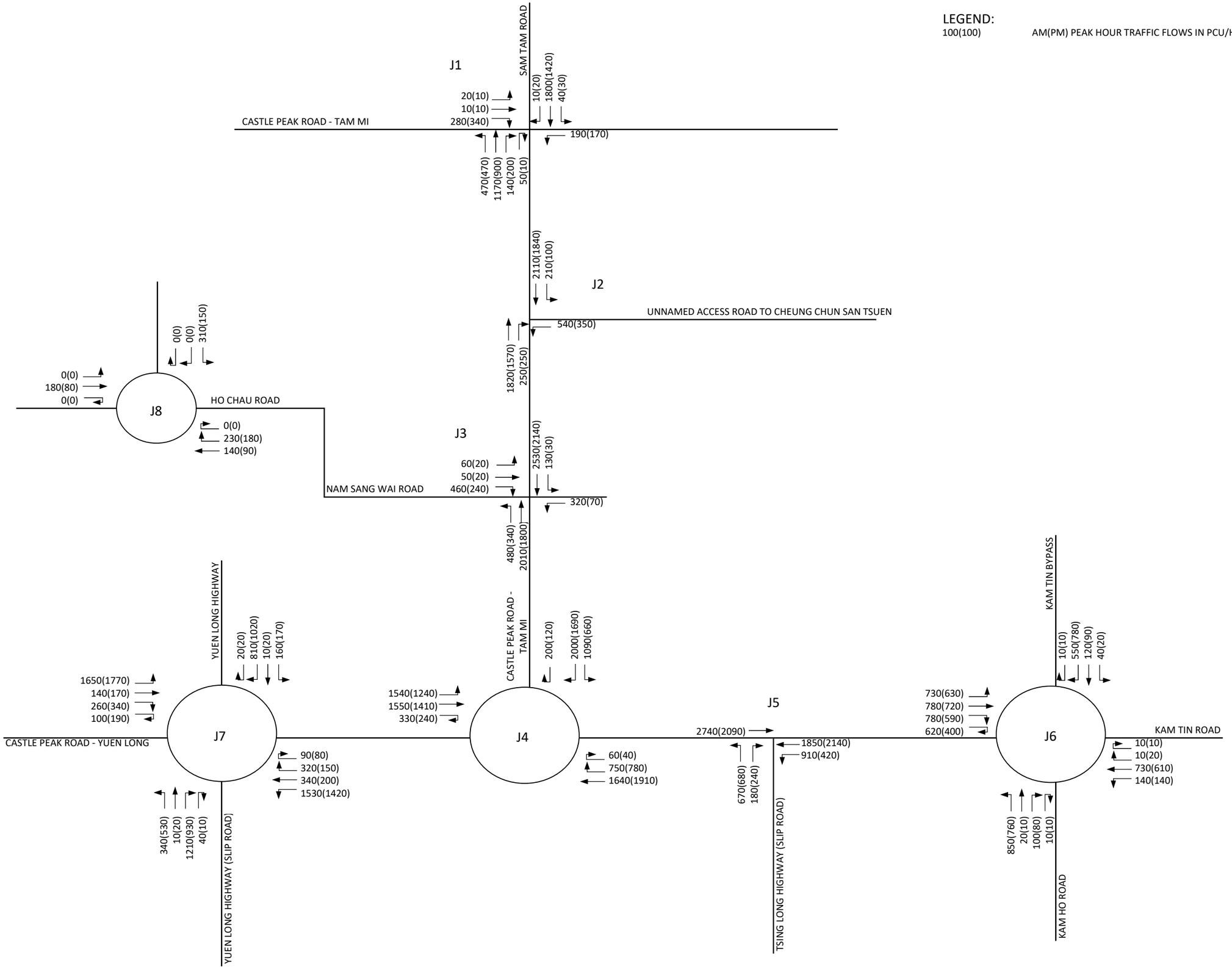
SHEET TITLE
圖紙名稱

PROPOSED LAYOUT FOR JUNCTION OF CASTLE PEAK ROAD - TAM MI / NAM SANG WAI ROAD (J3)

SHEET NUMBER
圖紙編號

FIGURE 4.7B

LEGEND:
100(100) AM(PM) PEAK HOUR TRAFFIC FLOWS IN PCU/HR



AECOM

PROJECT

PROPOSED LAND SHARING PILOT SCHEME (LSPS) FOR A SITE AT VARIOUS LOTS IN D.D.115, TUNG SHING LEI, YUEN LONG, THE NEW TERRITORIES

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SUB-CONSULTANTS

ISSUE/REVISION

STATUS

SCALE **DIMENSION UNIT**

N.T.S.

KEY PLAN

PROJECT NO. **CONTRACT NO.**

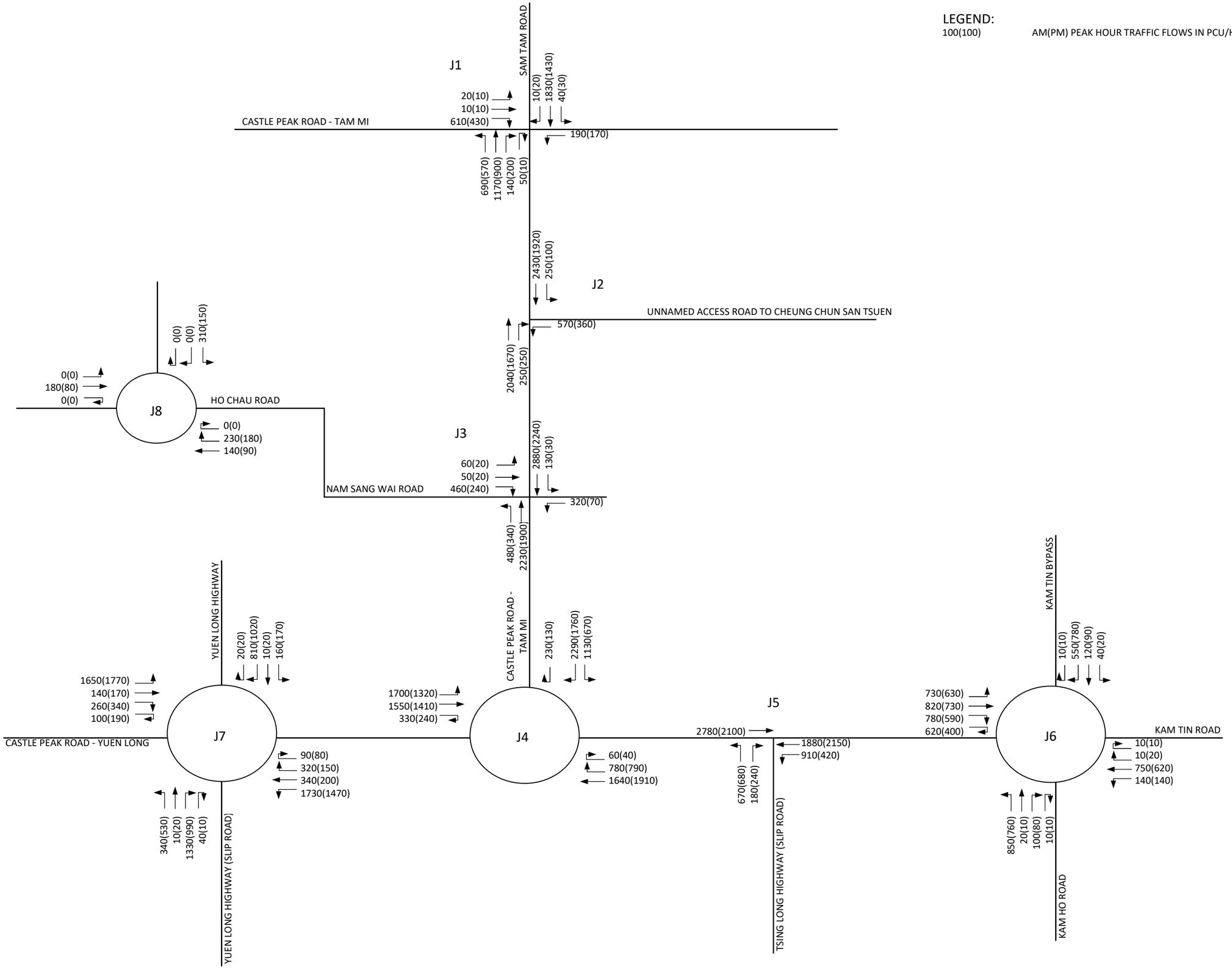
SHEET TITLE

2034 DESIGN TRAFFIC FLOWS
(WITH IMPROVEMENTS)

SHEET NUMBER

TSL_P2 FIGURE 4.8

LEGEND:
100(100) AM(PM) PEAK HOUR TRAFFIC FLOWS IN PCU/HR



AECOM

PROJECT

PROPOSED LAND SHARING PILOT SCHEME (LSPS) FOR A SITE AT VARIOUS LOTS IN D.D.115, TUNG SHING LEI, YUEN LONG, THE NEW TERRITORIES

CLIENT

CONSULTANT

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ISSUE/REVISION

STATUS

SCALE **DIMENSION UNIT**

N.T.S.

KEY PLAN

PROJECT NO. **CONTRACT NO.**

SHEET TITLE

2034 DESIGN TRAFFIC FLOWS
(SENSITIVITY TEST 2)

SHEET NUMBER

TSL_P2 FIGURE 4.9

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

821800 E

822200 E

822600 E

834800 N

834400 N

834000 N

LEGEND:

APPLICATION SITE BOUNDARY

PEDESTRIAN ROUTE

PEDESTRIAN ROUTE
(APPROX. 1km)

YUEN LONG STATION

YUEN LONG HIGHWAY

TSING LONG HIGHWAY

SHAN PUI

SHAN PIN TSUEN

WONG UK TSUEN

TSOI UK TSUEN

YING LUNG WAI

TAI WAI TSUEN

TUNG SHING LEI

Plot File by: ZHAOHQ2 7/7/2023
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PROPOSED LAND SHARING PILOT SCHEME (LSPS) FOR A SITE AT VARIOUS LOTS IN D.D. 115, TUNG SHING LEI, YUEN LONG, THE NEW TERRITORIES

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STATUS
階段

SCALE 比例
A3 1 : 4000

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號

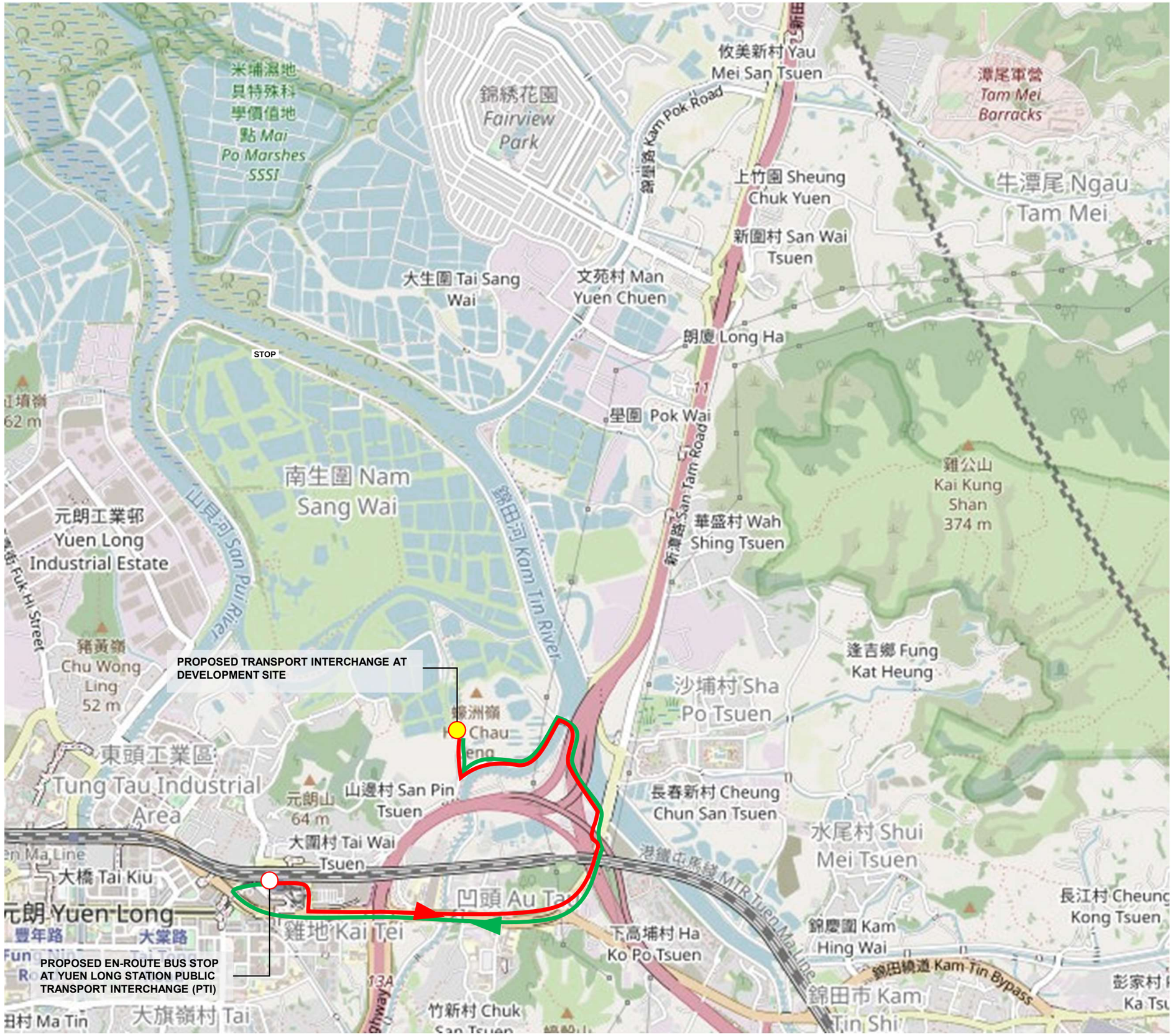
CONTRACT NO. 合約編號

SHEET TITLE
圖紙名稱

PEDESTRIAN ROUTE TO
TUEN MA LINE YUEN LONG STATION

SHEET NUMBER
圖紙編號

TSL_P2_FIGURE 5.1



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STATUS
狀況

SCALE 比例: N.T.S.

DIMENSION UNIT 尺寸單位: METRES

KEY PLAN
索賞圖

PROJECT NO. 項目編號: 60607989

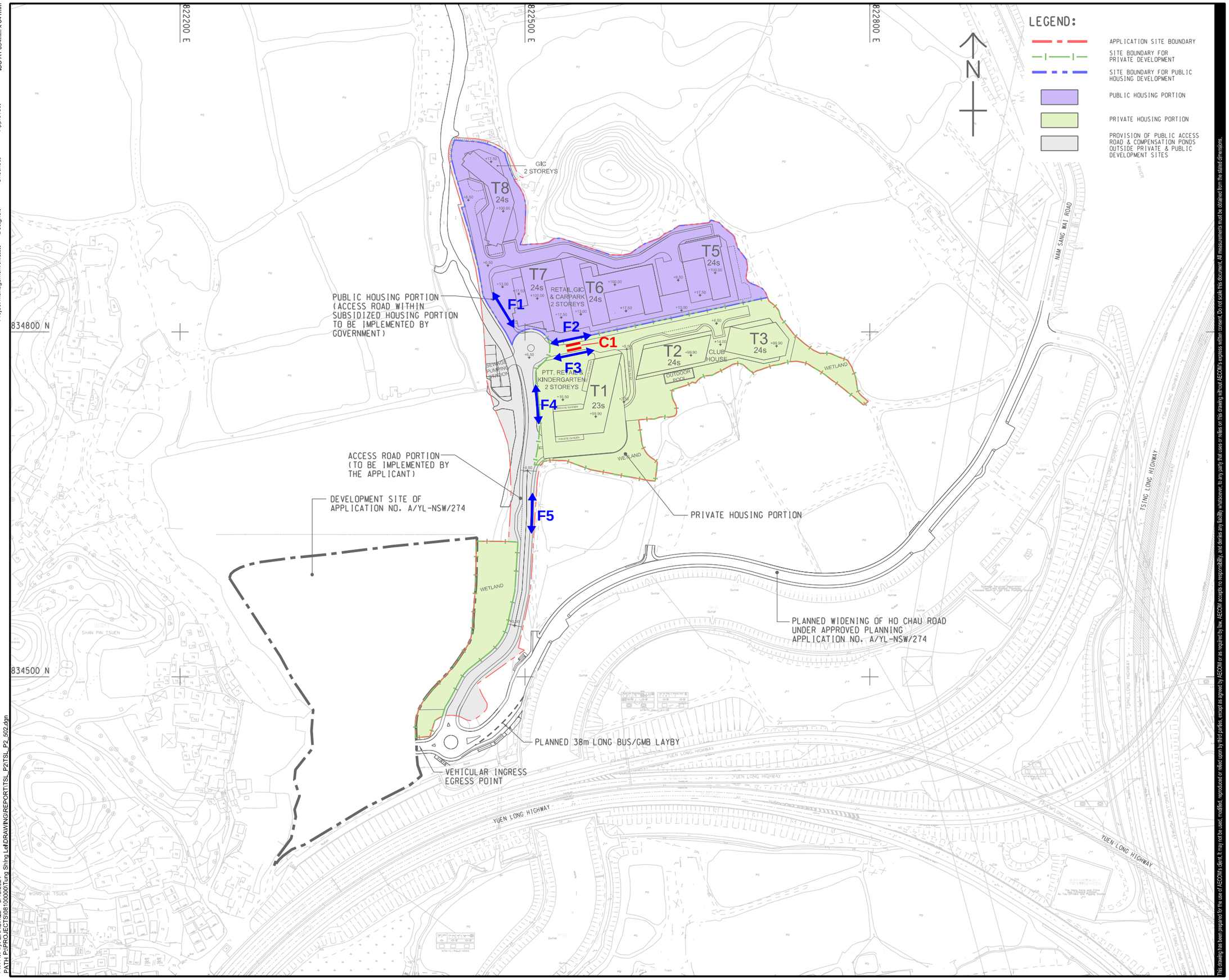
CONTRACT NO. 合約編號

SHEET TITLE
圖紙名稱

PROPOSED ROUTING OF BUS SERVICE BETWEEN DEVELOPMENT SITE AND YUEN LONG STATION PTI

SHEET NUMBER
圖紙編號

TSL_P2_FIGURE 5.2



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Approved:

Checked:

Designer:

Project Management Initials:

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PROPOSED LAND SHARING PILOT SCHEME (LSPS) FOR A SITE AT VARIOUS LOTS IN D.D. 115, TUNG SHING LEI, YUEN LONG, THE NEW TERRITORIES

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STATUS
階段

SCALE 比例
A3 1 : 3000

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號

CONTRACT NO. 合約編號

SHEET TITLE
圖紙名稱

CRITICAL FOOTPATH SECTIONS WITHIN PROPOSED DEVELOPMENT

SHEET NUMBER
圖紙編號

FIGURE 5.3

CUT LINE A-A

LEGEND:

PROPOSED JUNCTION IMPROVEMENT UNDER SUBJECT PLANNING APPLICATION

PROPOSED JUNCTION IMPROVEMENT UNDER PLANNING APPLICATION NO.A/YL-KTN/604

N

F6

F7

F8

F9

F10

F11

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PROPOSED LAND SHARING PILOT SCHEME (LSPS) FOR A SITE AT VARIOUS LOTS IN D.D. 115, TUNG SHING LEI, YUEN LONG, THE NEW TERRITORIES

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STATUS
階段

PRELIMINARY

SCALE 比例
A3 1 : 1000

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號

CONTRACT NO. 合約編號

SHEET TITLE
圖紙名稱

CRITICAL FOOTPATH SECTIONS NEAR CASTLE PEAK ROAD - TAM MI

SHEET NUMBER
圖紙編號

FIGURE 5.4

Plot File by: chancwa 26/3/2024
PATH: F:\BACK UP (E)\MAG\TUNG SHING LEI P2\20210401\FIGURE 4.7.dgn

Annex A

Junction Capacity Calculation Sheets

Observed Flow

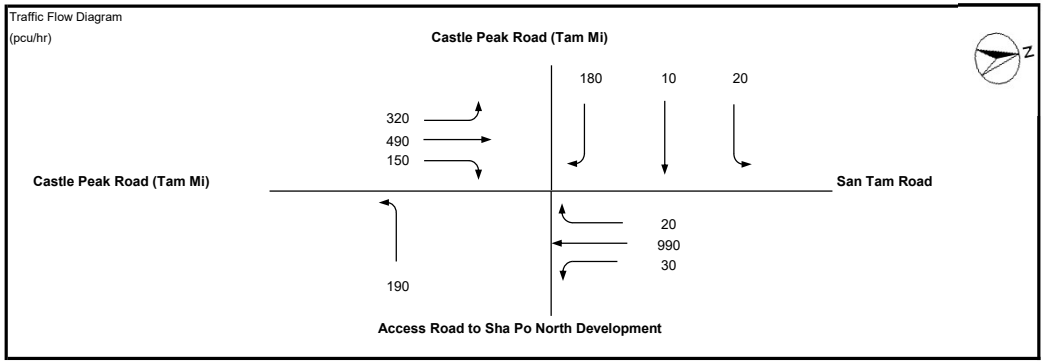
JUNCTION CAPACITY CALCULATION

AECOM

Junction J7 - Castle Peak Road -Tam Mi / San Tam Road	2021 AM Peak Hour Observed Traffic Flows	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: May 21

J7

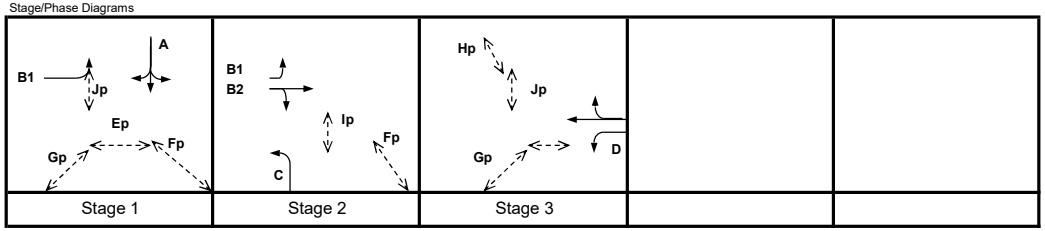
Traffic Flow Diagram (pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.489	
Lost time	L =	13	sec
Total Flow	=	20,570	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	48	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	25	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.803	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	64.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	28	sec
Y_{max}	$= 1-L/C$	=	0.892	

Stage/Phase Diagrams



I/G = 5 I/G = 6 I/G = 5

Critical Case : A,B2,D

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 64%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	1	3.500	1	17.25			1		0		1965	20			20	100%		1808	0.011	
	A	1	3.500	1		20	0	0		0		2105		10	180	190		95%	1965	0.097	0.097
	B1	1,2	3.500	1	30			1		0		1965	320			320	100%		1871	0.171	
	B2	2	3.500	1				0		0		2105		329		329			2105	0.156	0.156
	B2	2	3.500	1		12.5	0	0		0		2105		161	150	311		48%	1990	0.156	
	C	2	3.500	2	22.5			1		0		4070	190			190	100%		3816	0.050	
	D	3	3.500	1	30			1		0		1965	30			30	100%		1871	0.016	
	D	3	3.900	1				0		0		2145		506		506			2145	0.236	0.236
	D	3	3.900	1		20	0	0		0		2145		484	20	504		4%	2139	0.236	

Pedestrian Crossing				GM		FGM				
	Ep	1,3	min.	5	+	5	=	10	sec	
	Fp	1,2	min.	5	+	5	=	10	sec	
	Gp	1,3	min.	7	+	5	=	12	sec	
	Hp	3	min.	5	+	5	=	10	sec	
	Ip	2	min.	6	+	5	=	11	sec	
	Jp	1,3	min.	6	+	5	=	11	sec	

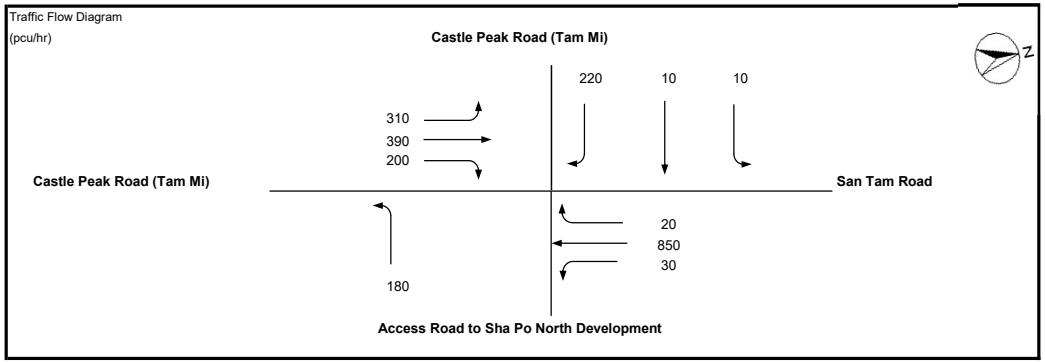
JUNCTION CAPACITY CALCULATION

AECOM

Junction J7 - Castle Peak Road -Tam Mi / San Tam Road	2021 PM Peak Hour Observed Traffic Flows	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: May 21

J7

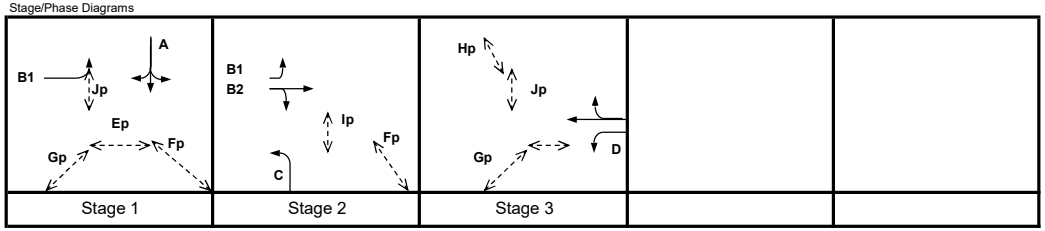
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.466	
Lost time	L =	13	sec
Total Flow	=	20,570	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	46	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	24	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.803	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	72.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	27	sec
Y_{max}	$= 1-L/C$	=	0.892	

Stage/Phase Diagrams



I/G = 5 I/G = 6 I/G = 5

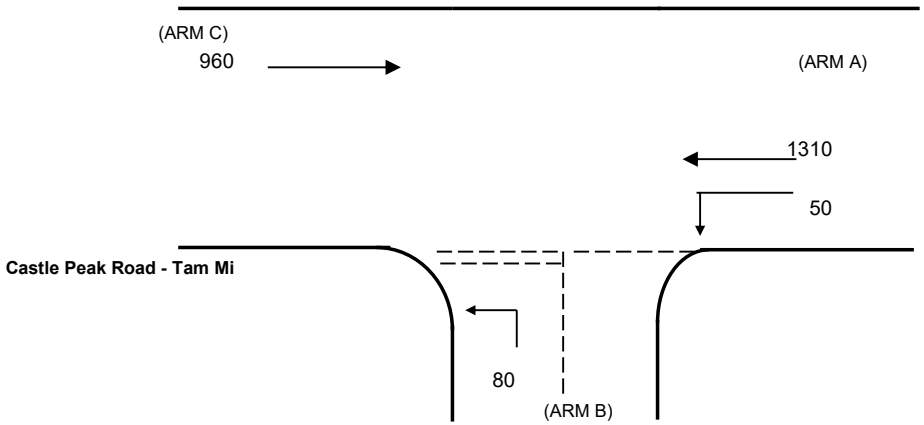
Critical Case : A,B2,D

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 72%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
	A	1	3.500	1	17.25			1		0		1965	10			10	100%		1808	0.006	
	A	1	3.500	1		20	0	0		0		2105		10	220	230		96%	1964	0.117	0.117
	B1	1,2	3.500	1	30			1		0		1965	310			310	100%		1871	0.166	
	B2	2	3.500	1				0		0		2105		307		307			2105	0.146	0.146
	B2	2	3.500	1		12.5	0	0		0		2105		83	200	283		71%	1940	0.146	
	C	2	3.500	2	22.5			1		0		4070	180			180	100%		3816	0.047	
	D	3	3.500	1	30			1		0		1965	30			30	100%		1871	0.016	
	D	3	3.900	1				0		0		2145		436		436			2145	0.203	0.203
	D	3	3.900	1		20	0	0		0		2145		414	20	434		5%	2138	0.203	

Pedestrian Crossing				GM		FGM				
	Ep	1,3	min.	5	+	5	=	10	sec	
	Fp	1,2	min.	5	+	5	=	10	sec	
	Gp	1,3	min.	7	+	5	=	12	sec	
	Hp	3	min.	5	+	5	=	10	sec	
	Ip	2	min.	6	+	5	=	11	sec	
	Jp	1,3	min.	6	+	5	=	11	sec	

Junction	J8 - Castle Peak Road / Unnamed Access Road to Cheung Chun San Tsuen	Scenario	2021 AM Peak Hour Observed Traffic Flows	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	Mar-24



NOTES : (GEOMETRIC INPUT DATA)
W = MAJOR ROAD WIDTH
W cr = CENTRAL RESERVE WIDTH
W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b

D = STREAM-SPECIFIC B-A
E = STREAM-SPECIFIC B-C
F = STREAM-SPECIFIC C-B
Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W =	14.6	(metres)
W cr =	2	(metres)
q a-b =	50	(pcu/hr)
q a-c =	1310	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b =	0	(metres)
Vr c-b =	0	(metres)
q c-a =	960	(pcu/hr)
q c-b =	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a = 0	(metres)
W b-c = 5	(metres)
Vl b-a = 0	(metres)
Vr b-a = 150	(metres)
Vr b-c = 150	(metres)
q b-a = 0	(pcu/hr)
q b-c = 80	(pcu/hr)

GEOMETRIC FACTORS :

D =	0.613919
E =	1.157326
F =	0.585955
Y =	0.496300

THE CAPACITY OF MOVEMENT :

Q b-a =	188
Q b-c =	584
Q c-b =	293
Q b-ac =	584

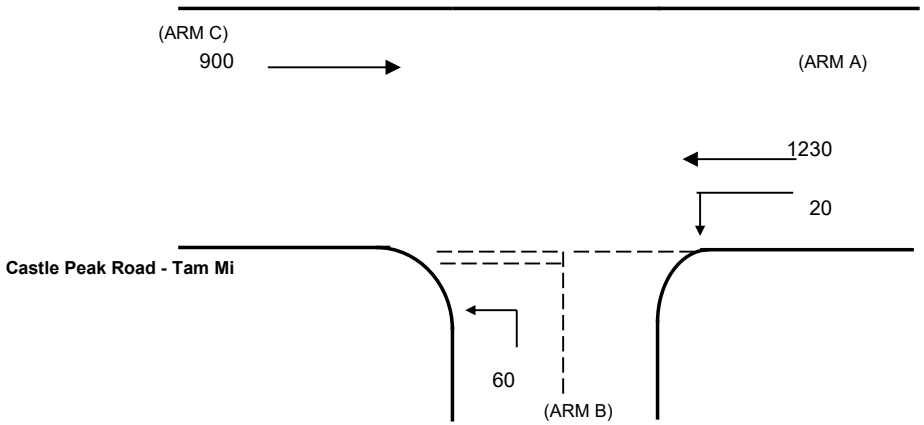
CRITICAL DFC = 0.14

COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a =	0.00
DFC b-c =	0.14
DFC c-b =	0.00
DFC b-ac =	0.00

Filename : - Castle Peak Road-Cheung Chun San Tsuen Road.xlsm / Obs_

Junction	J8 - Castle Peak Road / Unnamed Access Road to Cheung Chun San Tsuen	Scenario	2021 PM Peak Hour Observed Traffic Flows	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	Mar-24



NOTES : (GEOMETRIC INPUT DATA)
W = MAJOR ROAD WIDTH
W cr = CENTRAL RESERVE WIDTH
W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b

D = STREAM-SPECIFIC B-A
E = STREAM-SPECIFIC B-C
F = STREAM-SPECIFIC C-B
Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W =	14.6	(metres)
W cr =	2	(metres)
q a-b =	20	(pcu/hr)
q a-c =	1230	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b =	0	(metres)
Vr c-b =	0	(metres)
q c-a =	900	(pcu/hr)
q c-b =	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a = 0	(metres)
W b-c = 5	(metres)
Vl b-a = 0	(metres)
Vr b-a = 150	(metres)
Vr b-c = 150	(metres)
q b-a = 0	(pcu/hr)
q b-c = 60	(pcu/hr)

GEOMETRIC FACTORS :

D =	0.613919
E =	1.157326
F =	0.585955
Y =	0.496300

THE CAPACITY OF MOVEMENT :

Q b-a =	202
Q b-c =	603
Q c-b =	304
Q b-ac =	603

CRITICAL DFC = 0.10

COMPARISION OF DESIGN FLOW TO CAPACITY :

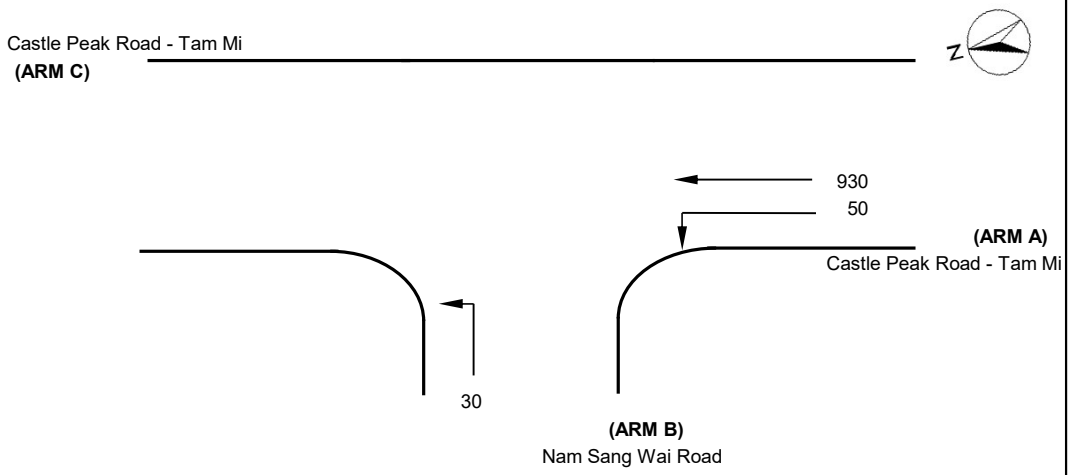
DFC b-a =	0.00
DFC b-c =	0.10
DFC c-b =	0.00
DFC b-ac =	0.00

Filename : - Castle Peak Road-Cheung Chun San Tsuen Road.xlsm / Obs_

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J3 - Castle Peak Road - Tam Mi / Nam Sang Wai Road	2021 AM Peak Hour Observed Traffic Flows	Designed By : MKCN	Checked By : SHSN	Job No. : -	Date : Mar 24



NOTES : (GEOMETRIC INPUT DATA) J3

- W = Major Road Width (6.4 - 20.0)
- W cr = Central Reserve width (1.2 - 9.0, kerbed central reserve only)
- W b-a = Lane width available to vehicle waiting in stream b-a (2.05 - 4.7)
- W b-c = Lane width available to vehicle waiting in stream b-c (2.05 - 4.7)
- W c-b = Lane width available to vehicle waiting in stream c-b (2.05 - 4.7)
- Vl b-a = Visibility to the left for vehicles waiting in stream b-a (22.0 - 250.0)
- Vr b-a = Visibility to the right for vehicles waiting in stream b-a (17.0 - 250.0)
- Vr b-c = Visibilitu to the right for vehicles waiting in stream b-c (17.0 - 250.0)
- Vr c-b = Visibility to the right for vehicles waiting in stream c-b (17.0 - 250.0)

- D = Stream-specific B-A
- E = Stream-specific B-C
- F = Stream-specific C-B
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	16 (metres)
W cr	=	0 (metres)
q a-b	=	50 (pcu/hr)
q a-c	=	930 (pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	0 (metres)
Vr c-b	=	0 (metres)
q c-a	=	0 (pcu/hr)
q c-b	=	0 (pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	0 (metres)
W b-c	=	4.07 (metres)
Vl b-a	=	40 (metres)
Vr b-a	=	35 (metres)
Vr b-c	=	40 (metres)
q b-a	=	0 (pcu/hr)
q b-c	=	30 (pcu/hr)

GEOMETRIC FACTORS :

D	=	0.566608
E	=	0.964637
F	=	0.585955
Y	=	0.448000

THE CAPACITY OF MOVEMENT :

Q b-a	=	268
Q b-c	=	569
Q c-b	=	343
Q b-ac	=	569

CRITICAL DFC = 0.05

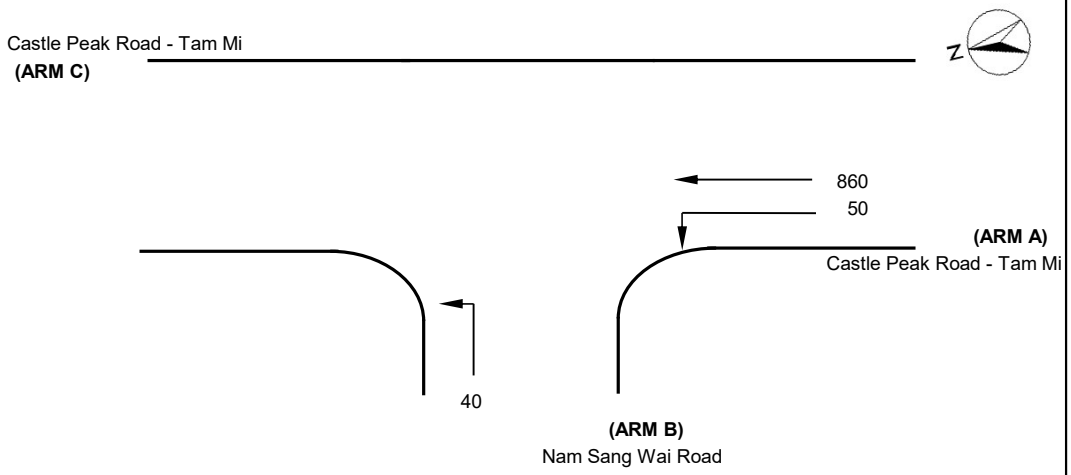
COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.00
DFC b-c	=	0.05
DFC c-b	=	0.00
DFC b-ac	=	0.05

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J3 - Castle Peak Road - Tam Mi / Nam Sang Wai Road	2021 PM Peak Hour Observed Traffic Flows	Designed By : MKCN	Checked By : SHSN	Job No. : -	Date : Mar 24



NOTES : (GEOMETRIC INPUT DATA) J3

- W = Major Road Width (6.4 - 20.0)
- W cr = Central Reserve width (1.2 - 9.0, kerbed central reserve only)
- W b-a = Lane width available to vehicle waiting in stream b-a (2.05 - 4.7)
- W b-c = Lane width available to vehicle waiting in stream b-c (2.05 - 4.7)
- W c-b = Lane width available to vehicle waiting in stream c-b (2.05 - 4.7)
- Vl b-a = Visibility to the left for vehicles waiting in stream b-a (22.0 - 250.0)
- Vr b-a = Visibility to the right for vehicles waiting in stream b-a (17.0 - 250.0)
- Vr b-c = Visibilitu to the right for vehicles waiting in stream b-c (17.0 - 250.0)
- Vr c-b = Visibility to the right for vehicles waiting in stream c-b (17.0 - 250.0)

- D = Stream-specific B-A
- E = Stream-specific B-C
- F = Stream-specific C-B
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	16 (metres)
W cr	=	0 (metres)
q a-b	=	50 (pcu/hr)
q a-c	=	860 (pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	0 (metres)
Vr c-b	=	0 (metres)
q c-a	=	0 (pcu/hr)
q c-b	=	0 (pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	0 (metres)
W b-c	=	4.07 (metres)
Vl b-a	=	40 (metres)
Vr b-a	=	35 (metres)
Vr b-c	=	40 (metres)
q b-a	=	0 (pcu/hr)
q b-c	=	40 (pcu/hr)

GEOMETRIC FACTORS :

D	=	0.566608
E	=	0.964637
F	=	0.585955
Y	=	0.448000

THE CAPACITY OF MOVEMENT :

Q b-a	=	274
Q b-c	=	580
Q c-b	=	350
Q b-ac	=	580

CRITICAL DFC = 0.07

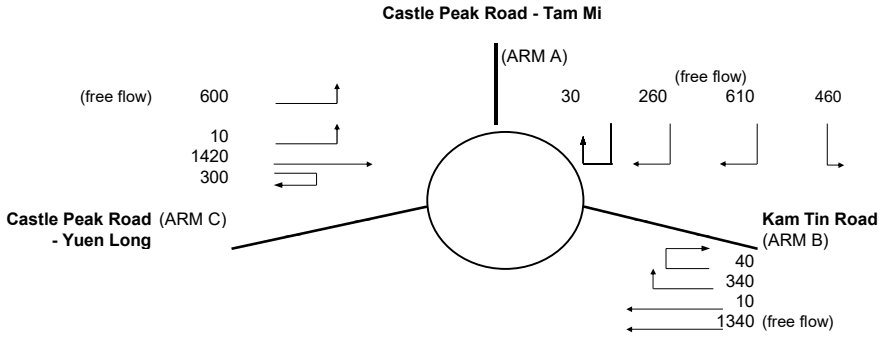
COMPARISION OF DESIGN FLOW TO CAPACITY :

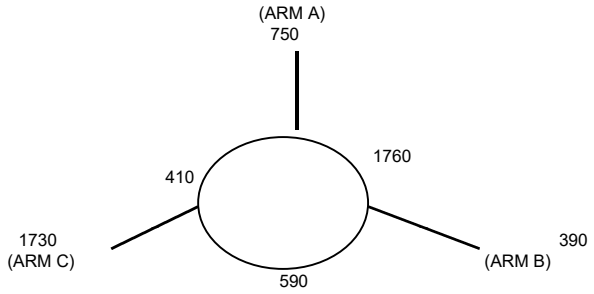
DFC b-a	=	0.00
DFC b-c	=	0.07
DFC c-b	=	0.00
DFC b-ac	=	0.07

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J10 - Au Tau Interchange	Scenario	2021 AM Peak Hour Observed Traffic Flows	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	Mar 2024





ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	7.00	7.00	7.30
E = Entry width (m)	10.00	7.00	10.50
L = Effective length of flare (m)	13.00	1.00	45.00
R = Entry radius (m)	50.00	100.00	100.00
D = Inscribed circle diameter (m)	65.00	65.00	65.00
A = Entry angle (degree)	45.00	30.00	20.00
Q = Entry flow (pcu/h)	750	390	1730
Qc= Circulating flow across entry (pcu/h)	1760	590	410
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.37	0.00	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.98	1.04	1.07
X2= V + ((E-V)/(1+2S))	8.73	7.00	9.91
M = EXP((D-60)/10)	1.65	1.65	1.65
F = 303*X2	2644	2121	3002
Td= 1+(0.5/(1+M))	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.69	0.60	0.74
Qe= K(F-Fc*Qc)	1405	1837	2896
DFC = Design flow/Capacity = Q/Qe	0.53	0.21	0.60

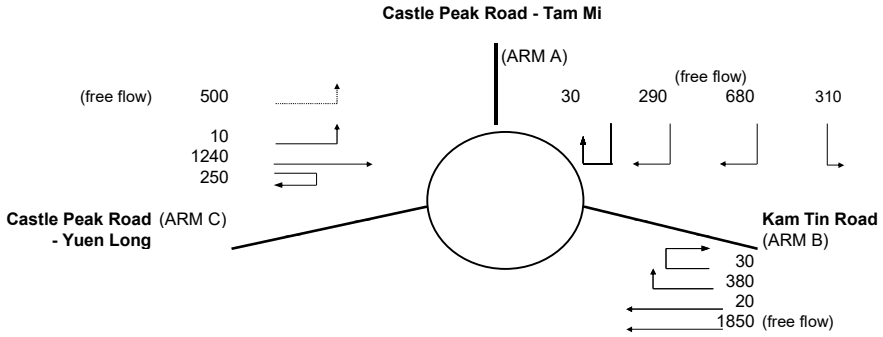
TOTAL ENTRY FLOWS = 4750 PCU

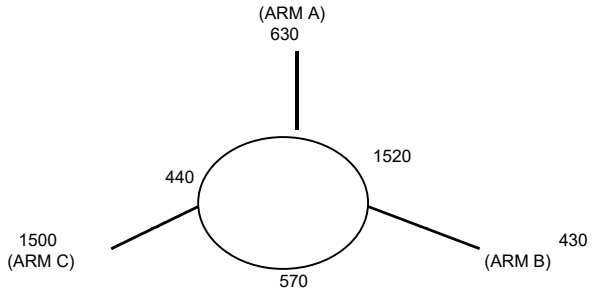
CRITICAL DFC = 0.60

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J10 - Au Tau Interchange	Scenario	2021 PM Peak Hour Observed Traffic Flows	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	Mar 2024





ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	7.00	7.00	7.30
E = Entry width (m)	10.00	7.00	10.50
L = Effective length of flare (m)	13.00	1.00	45.00
R = Entry radius (m)	50.00	100.00	100.00
D = Inscribed circle diameter (m)	65.00	65.00	65.00
A = Entry angle (degree)	45.00	30.00	20.00
Q = Entry flow (pcu/h)	630	430	1500
Qc= Circulating flow across entry (pcu/h)	1520	570	440
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.37	0.00	0.11
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.98	1.04	1.07
X2= V + ((E-V)/(1+2S))	8.73	7.00	9.91
M = EXP((D-60)/10)	1.65	1.65	1.65
F = 303*X2	2644	2121	3002
Td= 1+(0.5/(1+M))	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.69	0.60	0.74
Qe= K(F-Fc*Qc)	1566	1849	2872
DFC = Design flow/Capacity = Q/Qe	0.40	0.23	0.52

TOTAL ENTRY FLOWS = 5030 PCU

CRITICAL DFC = 0.52

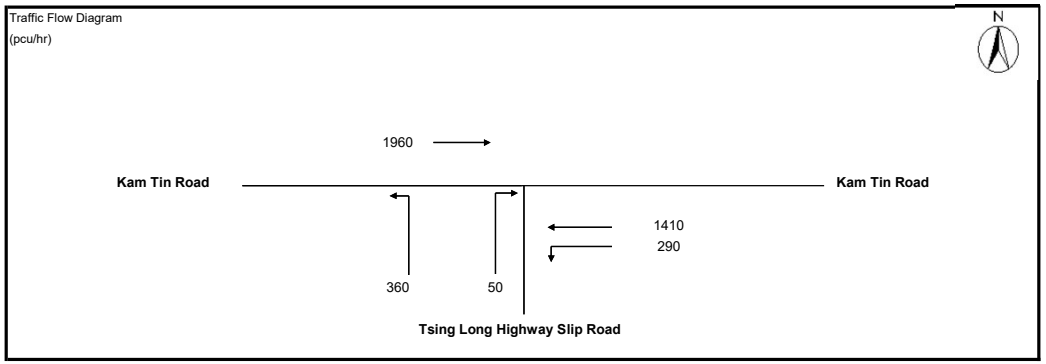
JUNCTION CAPACITY CALCULATION

AECOM

Junction J12 - Kam Tin Road / Tsing Long Highway Slip Road	2021 AM Peak Hour Observed Traffic Flows	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: May 21

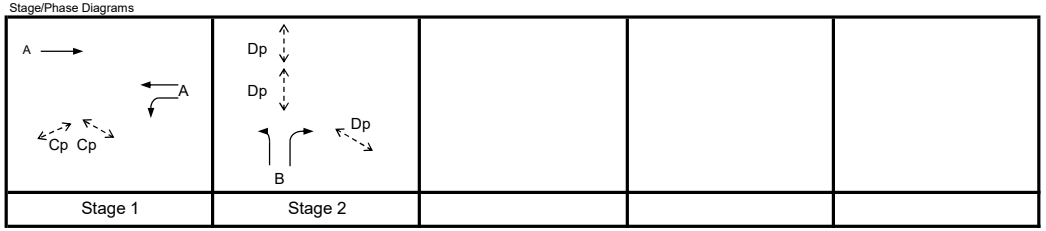
J12

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.670	
Lost time		L =	11	sec
Total Flow		=	16,755	pcu
Optimum Cycle C_o	= (1.5×L+5)/(1-Y)	=	65	sec
Min. Cycle Time C_m	= L/(1-Y)	=	33	sec
Y_{ult}	= 0.9-0.0075×L	=	0.818	
$R.C._{ult}$	= $(Y_{ult}-Y)/Yx100\%$	=	22.0	%
Practical Cycle Time C_p	= 0.9×L/(0.9-Y)	=	43	sec
Y_{max}	= 1-L/C	=	0.908	

Stage/Phase Diagrams



I/G = 8 I/G = 5

Critical Case : A,B

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 22%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
→	A	1	3.650	2				1		0		4100		1960		1960			4100	0.478	0.478
←	A	1	3.600	2				0		0	190	4230		1410		1410			4420	0.319	
↰	A	1	3.650	1	50			1		0		1980	290			290	100%		1922	0.151	
↰	B	2	4.000	1	20			1		0		2015	360			360	100%		1874	0.192	0.192
↱	B	2	3.650	2		35	0	0		0		4240			50	50		100%	4066	0.012	

Pedestrian Crossing				GM		FGM			
	Cp	1	min.	5	+	7	=	12	sec
	Dp	2	min.	5	+	10	=	15	sec

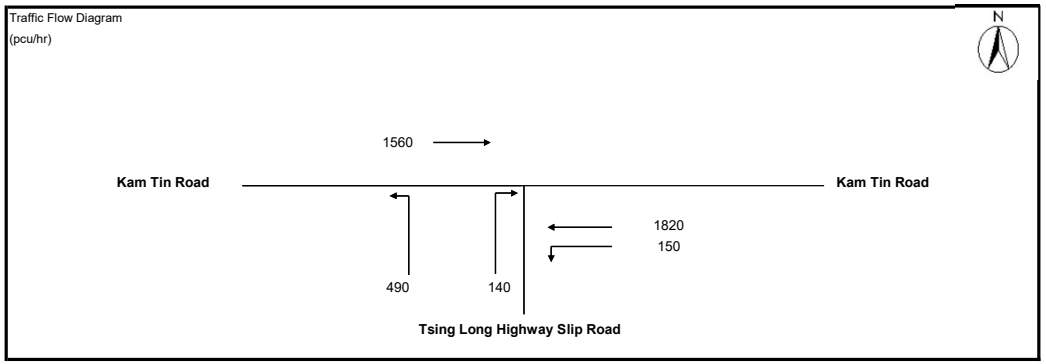
JUNCTION CAPACITY CALCULATION

AECOM

Junction J12 - Kam Tin Road / Tsing Long Highway Slip Road	2021 PM Peak Hour Observed Traffic Flows	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: May 21

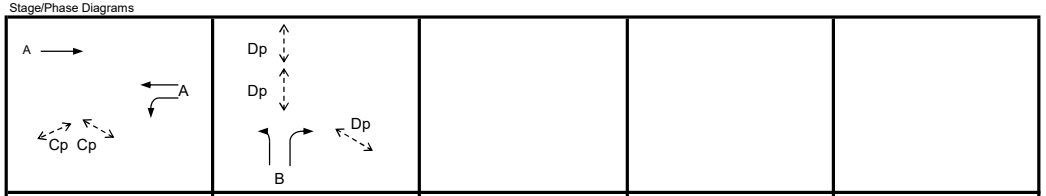
J12

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.673	
Lost time		L =	11	sec
Total Flow		=	16,755	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	66	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	34	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.818	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	21.4	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	44	sec
Y_{max}	$= 1-L/C$	=	0.908	

Stage/Phase Diagrams



I/G = 8 I/G = 5

Critical Case : A,B

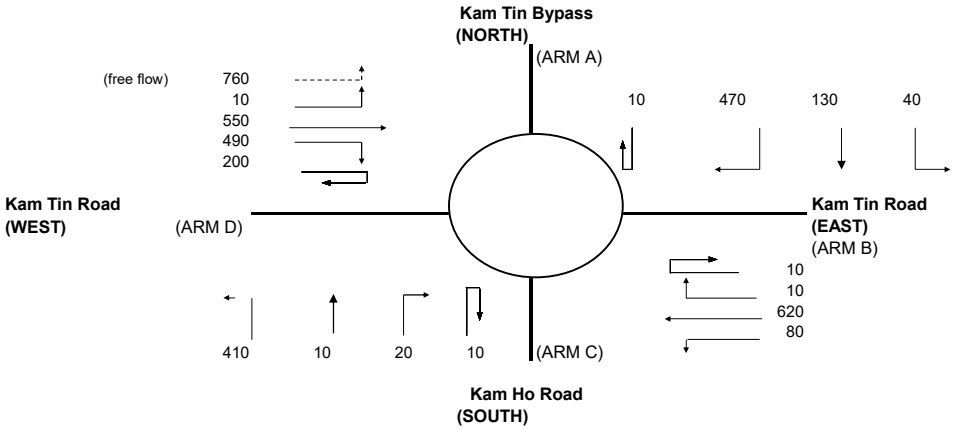
R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 21%

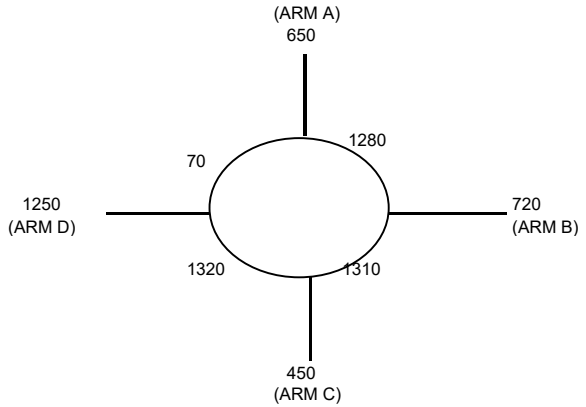
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
→	A	1	3.650	2				1		0		4100		1560		1560			4100	0.380	
←	A	1	3.600	2				0		0	190	4230		1820		1820			4420	0.412	0.412
↰	A	1	3.650	1	50			1		0		1980	150			150	100%		1922	0.078	
↰	B	2	4.000	1	20			1		0		2015	490			490	100%		1874	0.261	0.261
↱	B	2	3.650	2		35	0	0		0		4240			140	140		100%	4066	0.034	
Pedestrian Crossing				GM		FGM															
	Cp	1	min.	5	+	7	=	12	sec												
	Dp	2	min.	5	+	10	=	15	sec												

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J13 - Kam Tin Road / Kam Tin Bypass / Kam Ho Road	Scenario	2021 AM Peak Hour Observed Traffic Flows	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	Mar 2024





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	6.50	3.50	5.00	7.30
E = Entry width (m)	11.00	11.50	10.00	11.00
L = Effective length of flare (m)	15.00	10.50	9.50	13.00
R = Entry radius (m)	42.50	100.00	20.00	42.50
D = Inscribed circle diameter (m)	88.00	88.00	88.00	88.00
A = Entry angle (degree)	39.00	23.00	37.50	29.00
Q = Entry flow (pcu/h)	650	720	450	1250
Qc= Circulating flow across entry (pcu/h)	1280	1310	1320	70
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.48	1.22	0.84	0.46
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.99	1.06	0.97	1.03
X2= V + ((E-V)/(1+2S))	8.80	5.83	6.86	9.24
M = EXP((D-60)/10)	16.44	16.44	16.44	16.44
F = 303*X2	2665	1766	2079	2799
Td= 1+(0.5/(1+M))	1.03	1.03	1.03	1.03
Fc= 0.21*Td(1+0.2*X2)	0.60	0.47	0.51	0.62
Qe= K(F-Fc*Qc)	1892	1226	1366	2836
DFC = Design flow/Capacity = Q/Qe	0.34	0.59	0.33	0.44

TOTAL ENTRY FLOWS = 3830 PCU

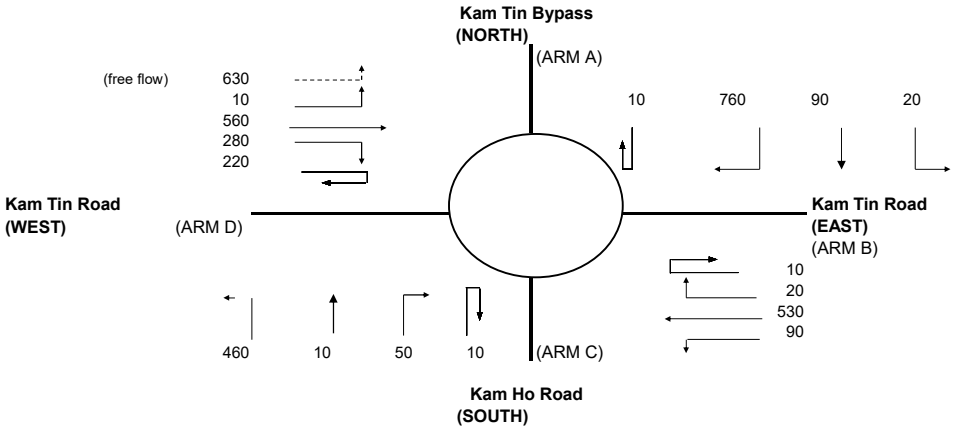
CRITICAL DFC = 0.59

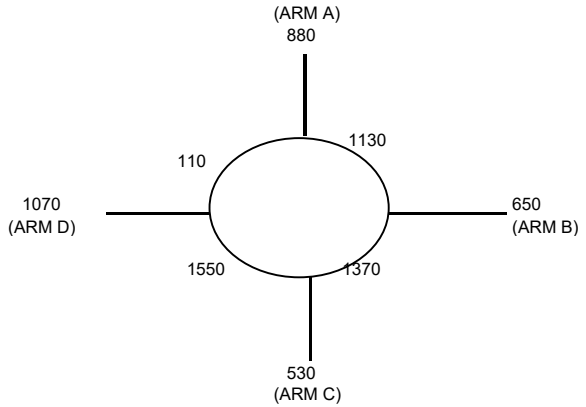
Filename : J13 - Kam Tin Road-Kam Tin Bypass-Kam Ho Road.xlsx / Obs_AM_Model

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J13 - Kam Tin Road / Kam Tin Bypass / Kam Ho Road	Scenario	2021 PM Peak Hour Observed Traffic Flows	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	Mar 2024





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	6.50	3.50	5.00	7.30
E = Entry width (m)	11.00	11.50	10.00	11.00
L = Effective length of flare (m)	15.00	10.50	9.50	13.00
R = Entry radius (m)	42.50	100.00	20.00	42.50
D = Inscribed circle diameter (m)	88.00	88.00	88.00	88.00
A = Entry angle (degree)	39.00	23.00	37.50	29.00
Q = Entry flow (pcu/h)	880	650	530	1070
Qc= Circulating flow across entry (pcu/h)	1130	1370	1550	110
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.48	1.22	0.84	0.46
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.99	1.06	0.97	1.03
X2= V + ((E-V)/(1+2S))	8.80	5.83	6.86	9.24
M = EXP((D-60)/10)	16.44	16.44	16.44	16.44
F = 303*X2	2665	1766	2079	2799
Td= 1+(0.5/(1+M))	1.03	1.03	1.03	1.03
Fc= 0.21*Td(1+0.2*X2)	0.60	0.47	0.51	0.62
Qe= K(F-Fc*Qc)	1981	1196	1252	2811
DFC = Design flow/Capacity = Q/Qe	0.44	0.54	0.42	0.38

TOTAL ENTRY FLOWS = 3760 PCU

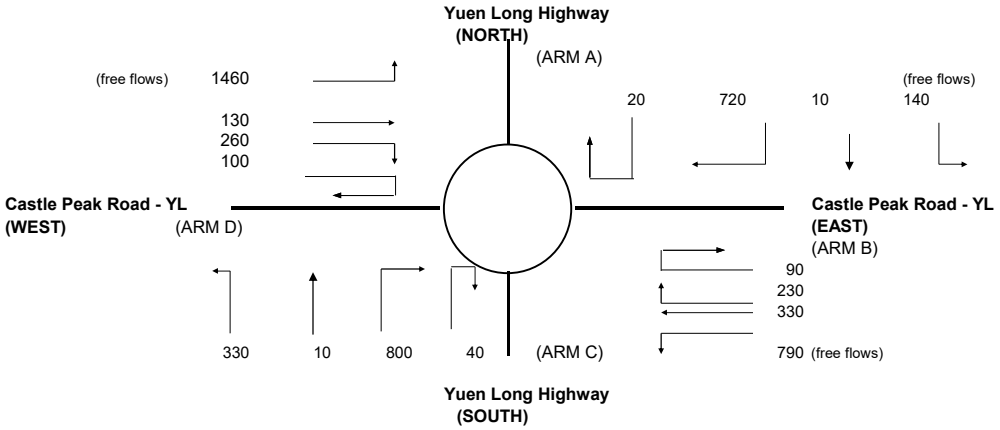
CRITICAL DFC = 0.54

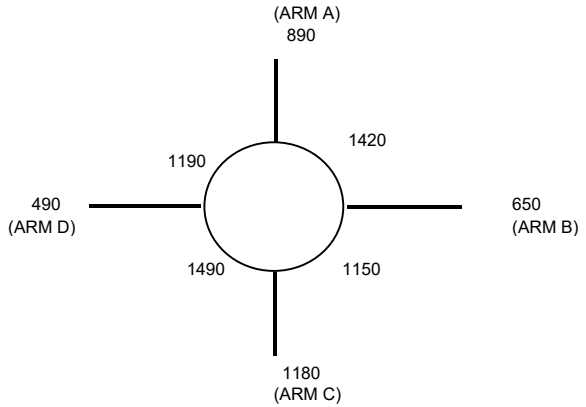
Filename : J13 - Kam Tin Road-Kam Tin Bypass-Kam Ho Road.xlsx / Obs_PM_Model

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J11 - Pok Oi Interchange	Scenario	2021 AM Peak Hour Observed Traffic Flows	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	Mar 2024





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	6.30	3.70	9.00	3.50
E = Entry width (m)	7.30	7.40	12.00	7.00
L = Effective length of flare (m)	13.00	4.00	5.00	5.00
R = Entry radius (m)	21.00	25.00	25.00	25.00
D = Inscribed circle diameter (m)	110.00	80.00	110.00	80.00
A = Entry angle (degree)	35.00	65.00	45.00	45.00
Q = Entry flow (pcu/h)	890	650	1180	490
Qc= Circulating flow across entry (pcu/h)	1420	1150	1490	1190
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.12	1.48	0.96	1.12
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.98	0.89	0.96	0.96
X2= V + ((E-V)/(1+2S))	7.10	4.63	10.03	4.58
M = EXP((D-60)/10)	148.41	7.39	148.41	7.39
F = 303*X2	2152	1404	3038	1388
Td= 1+(0.5/(1+M))	1.00	1.06	1.00	1.06
Fc= 0.21*Td(1+0.2*X2)	0.51	0.43	0.63	0.43
Qe= K(F-Fc*Qc)	1406	809	2006	843
DFC = Design flow/Capacity = Q/Qe	0.63	0.80	0.59	0.58

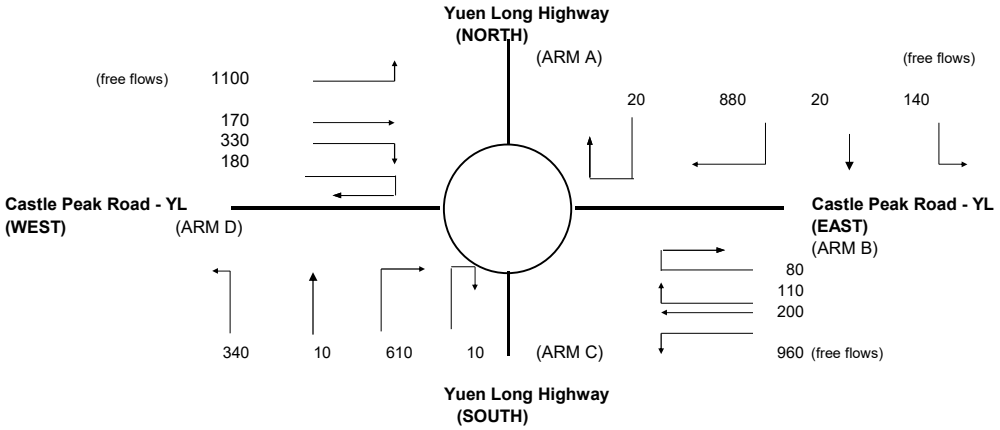
TOTAL ENTRY FLOWS = 5460 PCU

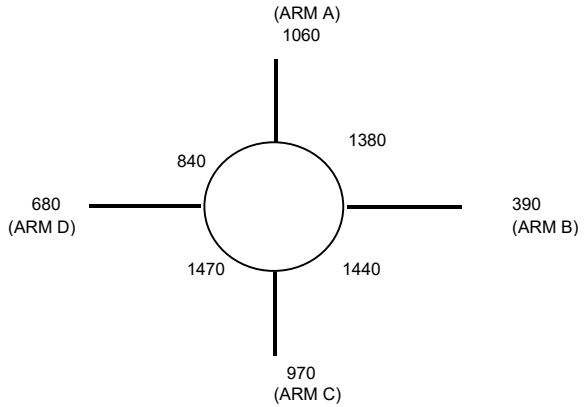
CRITICAL DFC = 0.80

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J11 - Pok Oi Interchange	Scenario	2021 AM Peak Hour Observed Traffic Flows	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	Mar 2024





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	6.30	3.70	9.00	3.50
E = Entry width (m)	7.30	7.40	12.00	7.00
L = Effective length of flare (m)	13.00	6.00	5.00	5.00
R = Entry radius (m)	21.00	25.00	25.00	25.00
D = Inscribed circle diameter (m)	110.00	80.00	110.00	80.00
A = Entry angle (degree)	60.00	50.00	45.00	45.00
Q = Entry flow (pcu/h)	1060	390	970	680
Qc= Circulating flow across entry (pcu/h)	1380	1440	1470	840
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.12	0.99	0.96	1.12
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.90	0.94	0.96	0.96
X2= V + ((E-V)/(1+2S))	7.10	4.94	10.03	4.58
M = EXP((D-60)/10)	148.41	7.39	148.41	7.39
F = 303*X2	2152	1498	3038	1388
Td= 1+(0.5/(1+M))	1.00	1.06	1.00	1.06
Fc= 0.21*Td(1+0.2*X2)	0.51	0.44	0.63	0.43
Qe= K(F-Fc*Qc)	1301	810	2018	986
DFC = Design flow/Capacity = Q/Qe	0.81	0.48	0.48	0.69

TOTAL ENTRY FLOWS = 5160 PCU

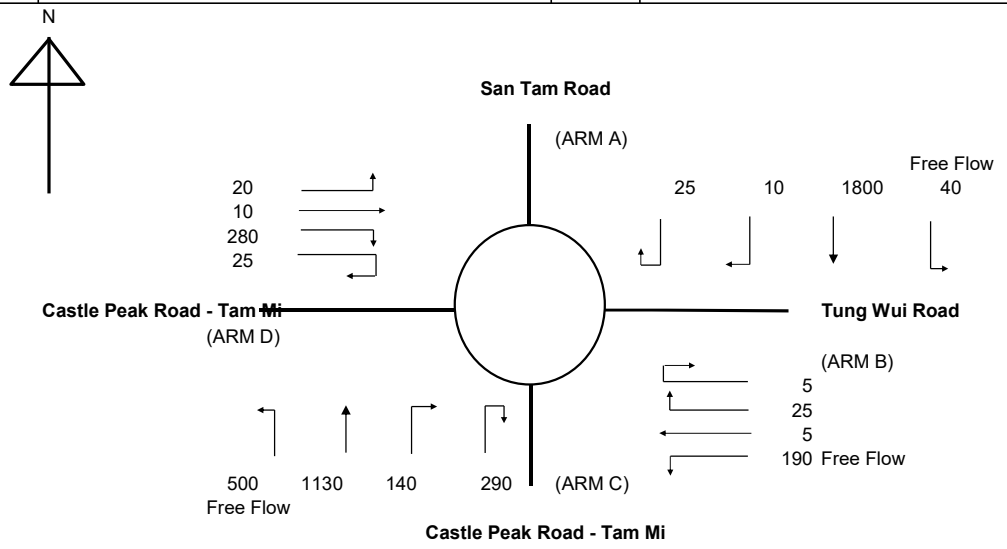
CRITICAL DFC = 0.81

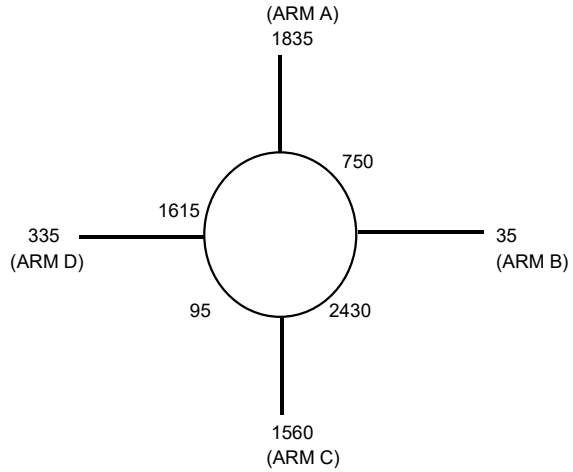
Reference Flow

ROUNDABOUT CAPACITY CALCULATIO

AECOM

Junction	J1 - Castle Peak Road - Tam Mi / San Tam Road	Scenario	2034 AM Reference Traffic Flows (Planned Layout)	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	22/Mar/24





ARM	A	B	C	D	
INPUT PARAMETERS:					
V = Approach half width (m)	10.30	4.00	8.70	4.10	
E = Entry width (m)	10.60	6.50	9.00	8.00	
L = Effective length of flare (m)	13.00	12.00	10.00	16.00	
R = Entry radius (m)	25.00	22.00	21.00	20.00	
D = Inscribed circle diameter (m)	44.00	44.00	44.00	44.00	
A = Entry angle (degree)	35.00	30.00	50.00	30.00	
Q = Entry flow (pcu/h)	1835	35	1560	335	*
Qc= Circulating flow across entry (pcu/h)	750	2430	95	1615	*
OUTPUT PARAMETERS:					
S = Sharpness of flare = 1.6(E-V)/L	0.04	0.33	0.05	0.39	
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.99	1.00	0.93	1.00	
X2= V + ((E-V)/(1+2S))	10.58	5.50	8.97	6.29	
M = EXP((D-60)/10)	0.20	0.20	0.20	0.20	
F = 303*X2	3206	1667	2719	1906	
Td= 1+(0.5/(1+M))	1.42	1.42	1.42	1.42	
Fc= 0.21*Td(1+0.2*X2)	0.93	0.62	0.83	0.67	
Qe= K(F-Fc*Qc)	2492	150	2463	822	
DFC = Design flow/Capacity = Q/Qe	0.74	0.23	0.63	0.41	

TOTAL ENTRY FLOWS 4495 PCU

CRITICAL DFC 0.74

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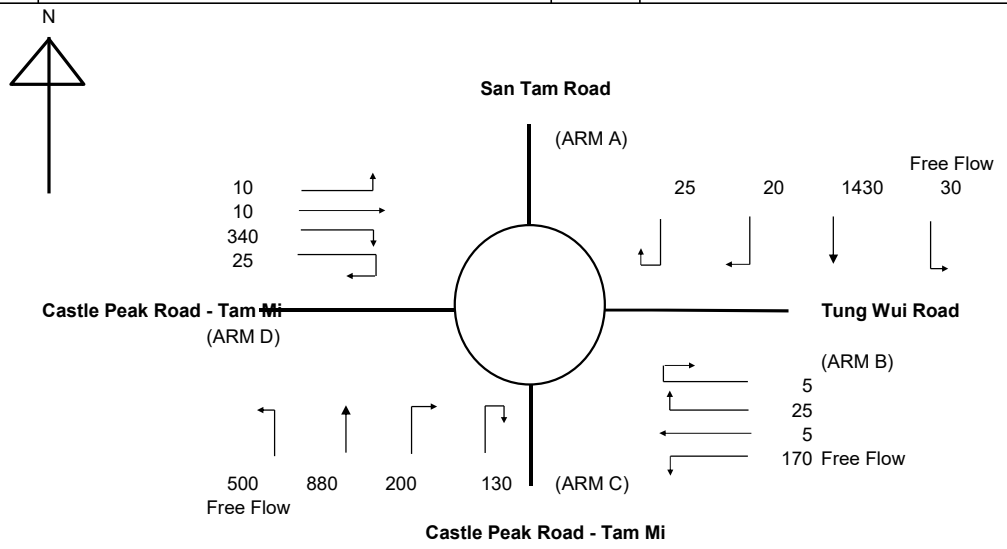
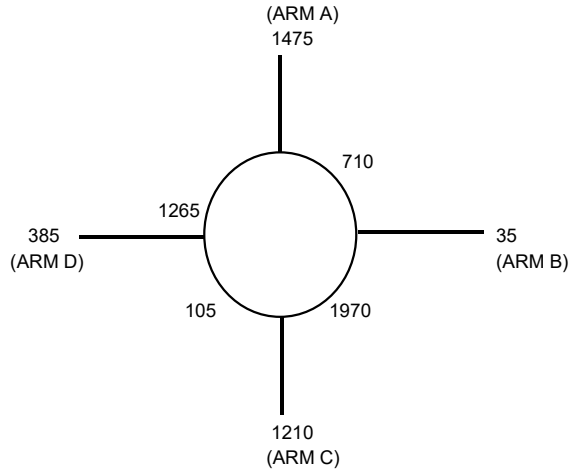
ROUNDABOUT CAPACITY CALCULATIO

AECOM

Junction	J1 - Castle Peak Road - Tam Mi / San Tam Road	Scenario	2034 AM Reference Traffic Flows (Planned Layout)	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	22/Mar/24





ARM	A	B	C	D	
INPUT PARAMETERS:					
V = Approach half width (m)	10.30	4.00	8.70	4.10	
E = Entry width (m)	10.60	6.50	9.00	8.00	
L = Effective length of flare (m)	13.00	12.00	10.00	16.00	
R = Entry radius (m)	25.00	22.00	21.00	20.00	
D = Inscribed circle diameter (m)	44.00	44.00	44.00	44.00	
A = Entry angle (degree)	35.00	30.00	50.00	30.00	
Q = Entry flow (pcu/h)	1475	35	1210	385	*
Qc= Circulating flow across entry (pcu/h)	710	1970	105	1265	*
OUTPUT PARAMETERS:					
S = Sharpness of flare = 1.6(E-V)/L	0.04	0.33	0.05	0.39	
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.99	1.00	0.93	1.00	
X2= V + ((E-V)/(1+2S))	10.58	5.50	8.97	6.29	
M = EXP((D-60)/10)	0.20	0.20	0.20	0.20	
F = 303*X2	3206	1667	2719	1906	
Td= 1+(0.5/(1+M))	1.42	1.42	1.42	1.42	
Fc= 0.21*Td(1+0.2*X2)	0.93	0.62	0.83	0.67	
Qe= K(F-Fc*Qc)	2528	438	2455	1057	
DFC = Design flow/Capacity = Q/Qe	0.58	0.08	0.49	0.36	

TOTAL ENTRY FLOWS 3805 PCU

CRITICAL DFC 0.58

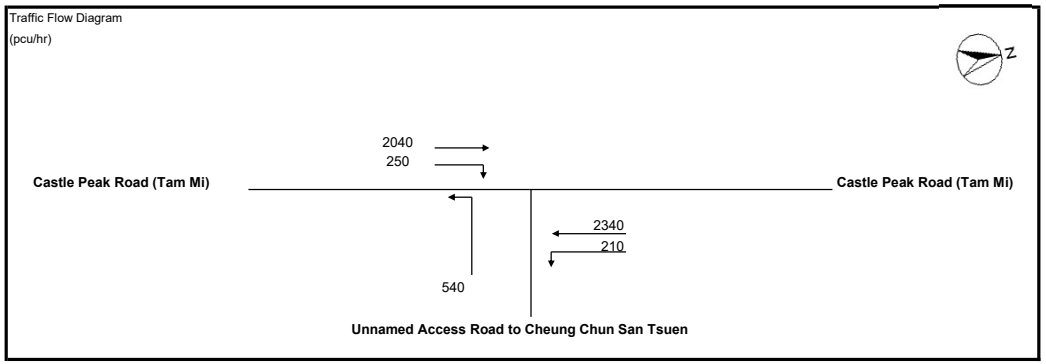
JUNCTION CAPACITY CALCULATION

AECOM

Junction J2 - Castle Peak Road / Unnamed Access Road to Cheung Chun San Tsu	2034 AM Peak Hour Reference Traffic Flows	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: May 21

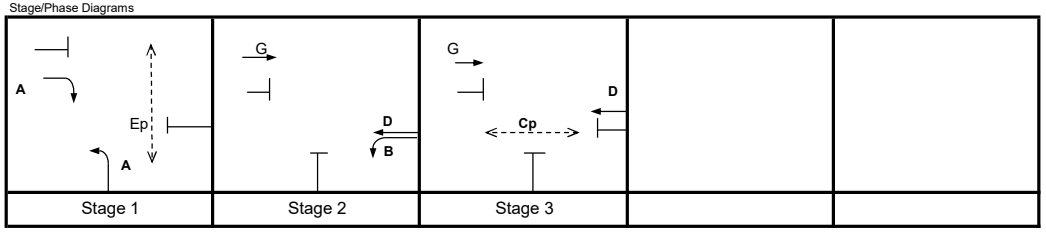
J2

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	120	sec
Sum(y)		Y =	0.693	
Lost time		L =	9	sec
Total Flow		=	16,495	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	60	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	29	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.833	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	20.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	39	sec
Y_{max}	$= 1-L/C$	=	0.925	

Stage/Phase Diagrams



I/G = 5 I/G = 6 I/G =

Critical Case : A,D

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 20%

CHECK CRITICAL !!!

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↓	A	1	3.500	1		12.5	0	0		0		2105			250	250		100%	1879	0.133	
→	G	2,3	3.500	2				1		0		4070		2040		2040			4070	0.501	
↰	A	1	3.650	2	20			1		0		4100	540			540	100%		3814	0.142	0.142
↰	B	2	3.650	1	15			1		0		1980	210			210	100%		1800	0.117	
←	D	2,3	3.650	2				0		0		4240		2340		2340			4240	0.552	0.552

Pedestrian Crossing				GM		FGM				
	Cp	3	min.	11	+	21	=	32	sec	
	Ep	1	min.	11	+	10	=	21	sec	

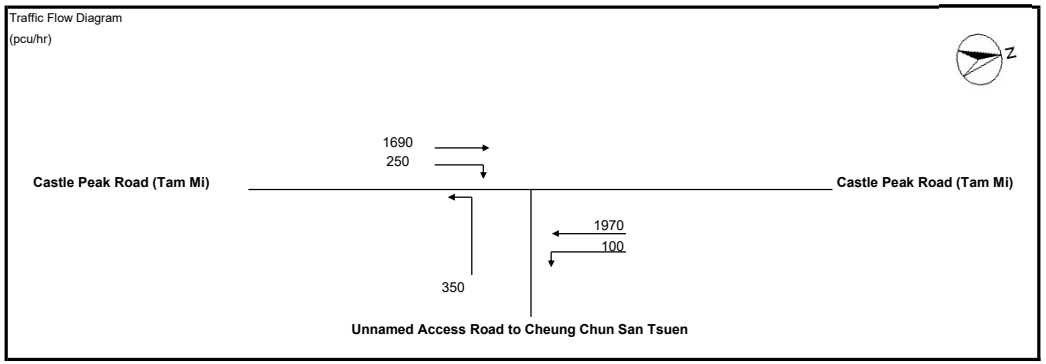
JUNCTION CAPACITY CALCULATION

AECOM

Junction J2 - Castle Peak Road / Unnamed Access Road to Cheung Chun San Tsu	2034 AM Peak Hour Reference Traffic Flows	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: May 21

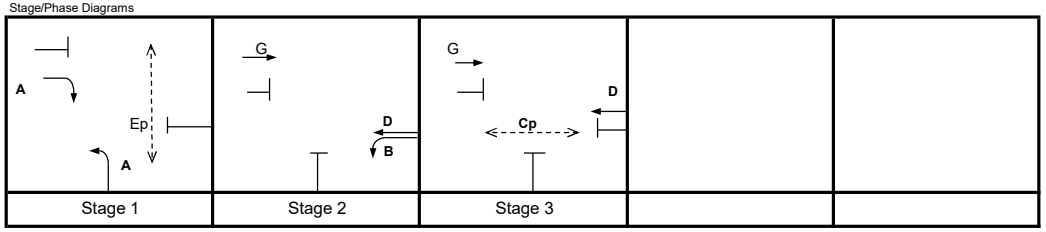
J2

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	120	sec
Sum(y)		Y =	0.598	
Lost time		L =	9	sec
Total Flow		=	16,495	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	46	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	22	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.833	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	39.3	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	27	sec
Y_{max}	$= 1-L/C$	=	0.925	

Stage/Phase Diagrams



Critical Case : A,D

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 39%

CHECK CRITICAL !!!

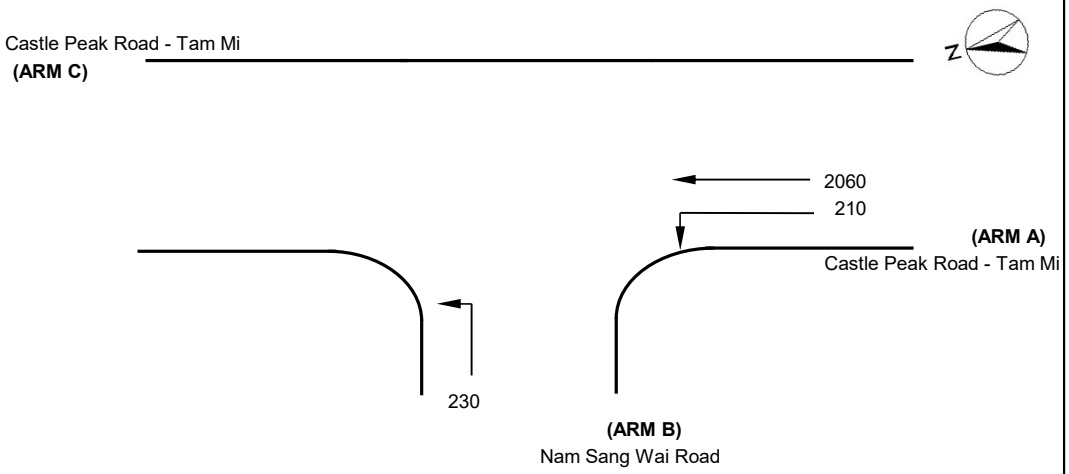
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↓	A	1	3.500	1		12.5	0	0		0		2105			250	250		100%	1879	0.133	0.133
→	G	2,3	3.500	2				1		0		4070		1690		1690			4070	0.415	
↰	A	1	3.650	2	20			1		0		4100	350			350	100%		3814	0.092	
↰	B	2	3.650	1	15			1		0		1980	100			100	100%		1800	0.056	
←	D	2,3	3.650	2				0		0		4240		1970		1970			4240	0.465	0.465

Pedestrian Crossing			GM		FGM				
	Cp	3	min.	11	+	21	=	32	sec
	Ep	1	min.	11	+	10	=	21	sec

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J3 - Castle Peak Road - Tam Mi / Nam Sang Wai Road	2034 AM Peak Hour Reference Traffic Flows	Designed By : MKCN	Checked By : SHSN	Job No. : -	Date : Mar 24



NOTES : (GEOMETRIC INPUT DATA) J3

- W = Major Road Width (6.4 - 20.0)
- W cr = Central Reserve width (1.2 - 9.0, kerbed central reserve only)
- W b-a = Lane width available to vehicle waiting in stream b-a (2.05 - 4.7)
- W b-c = Lane width available to vehicle waiting in stream b-c (2.05 - 4.7)
- W c-b = Lane width available to vehicle waiting in stream c-b (2.05 - 4.7)
- Vl b-a = Visibility to the left for vehicles waiting in stream b-a (22.0 - 250.0)
- Vr b-a = Visibility to the right for vehicles waiting in stream b-a (17.0 - 250.0)
- Vr b-c = Visibilitu to the right for vehicles waiting in stream b-c (17.0 - 250.0)
- Vr c-b = Visibility to the right for vehicles waiting in stream c-b (17.0 - 250.0)

- D = Stream-specific B-A
- E = Stream-specific B-C
- F = Stream-specific C-B
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	16	(metres)
W cr	=	0	(metres)
q a-b	=	210	(pcu/hr)
q a-c	=	2060	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	0	(metres)
Vr c-b	=	0	(metres)
q c-a	=	0	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	0	(metres)
W b-c	=	4.07	(metres)
Vl b-a	=	40	(metres)
Vr b-a	=	35	(metres)
Vr b-c	=	40	(metres)
q b-a	=	0	(pcu/hr)
q b-c	=	230	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.566608
E	=	0.964637
F	=	0.585955
Y	=	0.448000

THE CAPACITY OF MOVEMENT :

Q b-a	=	157
Q b-c	=	382
Q c-b	=	220
Q b-ac	=	382

CRITICAL DFC = 0.60

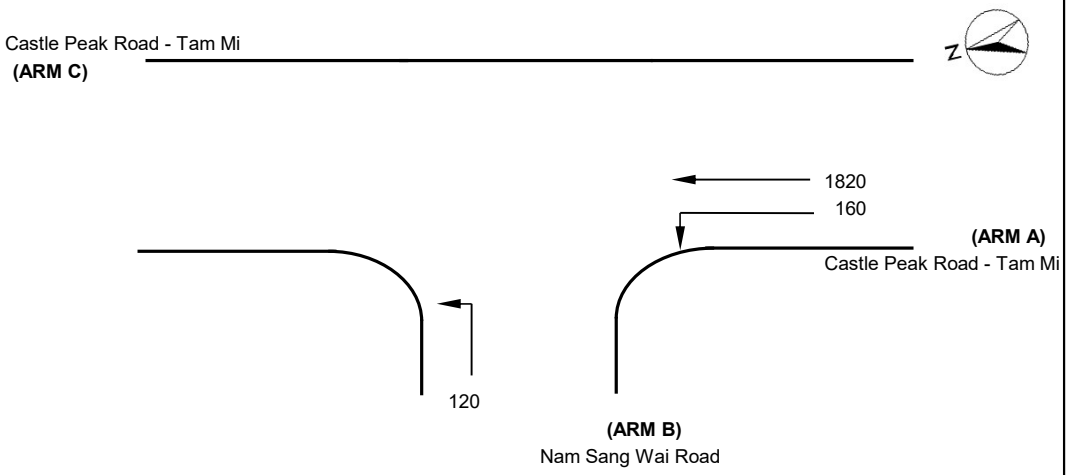
COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.00
DFC b-c	=	0.60
DFC c-b	=	0.00
DFC b-ac	=	0.60

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J3 - Castle Peak Road - Tam Mi / Nam Sang Wai Road	2034 PM Peak Hour Reference Traffic Flows	Designed By : MKCN	Checked By : SHSN	Job No. : -	Date : Mar 24



J3

NOTES : (GEOMETRIC INPUT DATA)

W	= Major Road Width (6.4 - 20.0)
W cr	= Central Reserve width (1.2 - 9.0, kerbed central reserve only)
W b-a	= Lane width available to vehicle waiting in stream b-a (2.05 - 4.7)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.7)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.7)
Vl b-a	= Visibility to the left for vehicles waiting in stream b-a (22.0 - 250.0)
Vr b-a	= Visibility to the right for vehicles waiting in stream b-a (17.0 - 250.0)
Vr b-c	= Visibilitu to the right for vehicles waiting in stream b-c (17.0 - 250.0)
Vr c-b	= Visibility to the right for vehicles waiting in stream c-b (17.0 - 250.0)
D	= Stream-specific B-A
E	= Stream-specific B-C
F	= Stream-specific C-B
Y	= (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	16	(metres)
W cr	=	0	(metres)
q a-b	=	160	(pcu/hr)
q a-c	=	1820	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	0	(metres)
Vr c-b	=	0	(metres)
q c-a	=	0	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	0	(metres)
W b-c	=	4.07	(metres)
Vl b-a	=	40	(metres)
Vr b-a	=	35	(metres)
Vr b-c	=	40	(metres)
q b-a	=	0	(pcu/hr)
q b-c	=	120	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.566608
E	=	0.964637
F	=	0.585955
Y	=	0.448000

THE CAPACITY OF MOVEMENT :

Q b-a	=	181
Q b-c	=	422
Q c-b	=	247
Q b-ac	=	422

CRITICAL DFC = 0.28

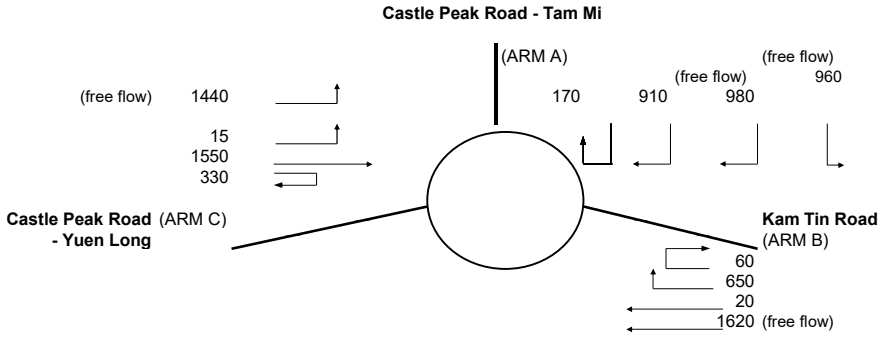
COMPARISION OF DESIGN FLOW TO CAPACITY :

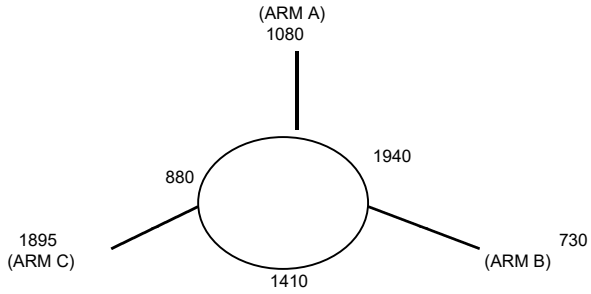
DFC b-a	=	0.00
DFC b-c	=	0.28
DFC c-b	=	0.00
DFC b-ac	=	0.28

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J4 - Au Tau Interchange	Scenario	2034 AM Peak Hour Reference Traffic Flows	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	Mar 2024





ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	6.50	7.00	7.30
E = Entry width (m)	11.00	7.00	9.70
L = Effective length of flare (m)	22.00	1.00	50.00
R = Entry radius (m)	45.00	100.00	100.00
D = Inscribed circle diameter (m)	65.00	65.00	65.00
A = Entry angle (degree)	20.00	5.00	20.00
Q = Entry flow (pcu/h)	1080	730	1895
Qc= Circulating flow across entry (pcu/h)	1940	1410	880
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.33	0.00	0.08
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.06	1.13	1.07
X2= V + ((E-V)/(1+2S))	9.22	7.00	9.38
M = EXP((D-60)/10)	1.65	1.65	1.65
F = 303*X2	2794	2121	2842
Td= 1+(0.5/(1+M))	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.71	0.60	0.72
Qe= K(F-Fc*Qc)	1504	1437	2374
DFC = Design flow/Capacity = Q/Qe	0.72	0.51	0.80

TOTAL ENTRY FLOWS = 6075 PCU

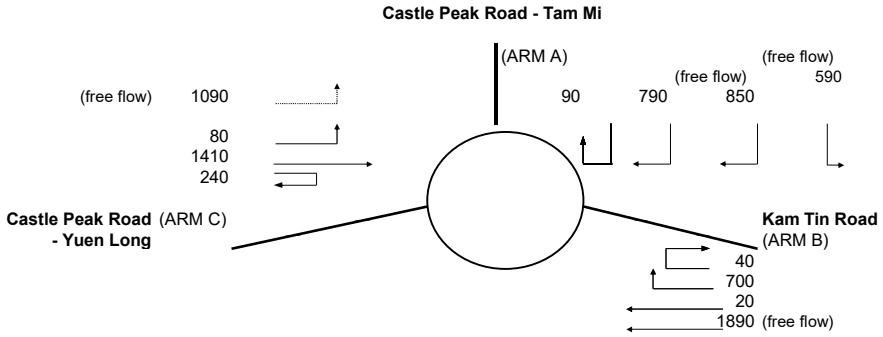
CRITICAL DFC = 0.80

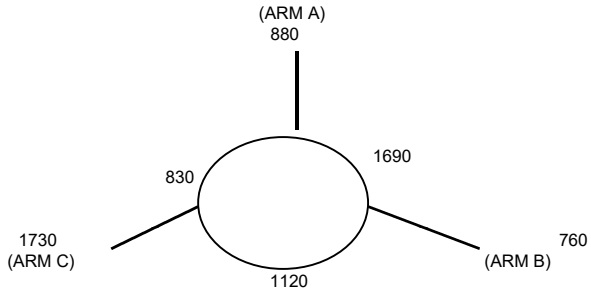
Filename : J10 - Au Tau Interchange.xlsx / RefA_AM

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J4 - Au Tau Interchange	Scenario	2034 PM Peak Hour Reference Traffic Flows	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	Mar 2024





ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	6.50	7.00	7.30
E = Entry width (m)	11.00	7.00	9.70
L = Effective length of flare (m)	22.00	1.00	50.00
R = Entry radius (m)	45.00	100.00	100.00
D = Inscribed circle diameter (m)	65.00	65.00	65.00
A = Entry angle (degree)	20.00	5.00	20.00
Q = Entry flow (pcu/h)	880	760	1730
Qc= Circulating flow across entry (pcu/h)	1690	1120	830
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.33	0.00	0.08
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.06	1.13	1.07
X2= V + ((E-V)/(1+2S))	9.22	7.00	9.38
M = EXP((D-60)/10)	1.65	1.65	1.65
F = 303*X2	2794	2121	2842
Td= 1+(0.5/(1+M))	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.71	0.60	0.72
Qe= K(F-Fc*Qc)	1692	1632	2412
DFC = Design flow/Capacity = Q/Qe	0.52	0.47	0.72

TOTAL ENTRY FLOWS = 5980 PCU

CRITICAL DFC = 0.72

Filename : J10 - Au Tau Interchange.xlsx / RefA_PM

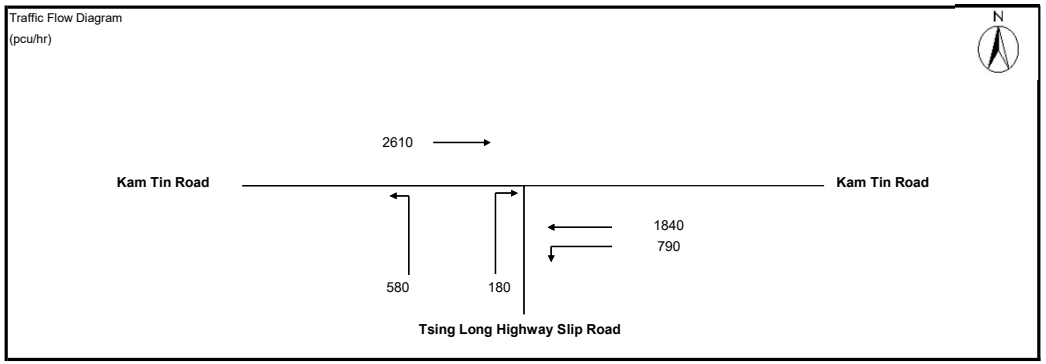
JUNCTION CAPACITY CALCULATION

AECOM

Junction J5 - Kam Tin Road / Tsing Long Highway Slip Road	2034 AM Peak Hour Reference Traffic Flows	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: May 21

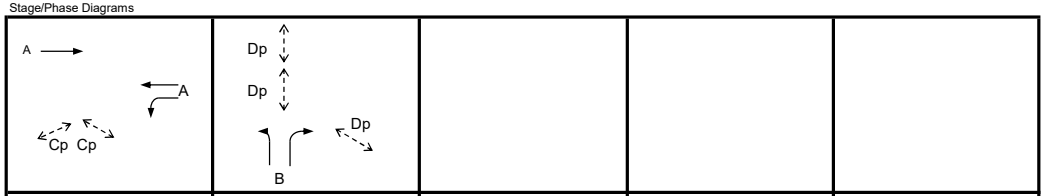
J5

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.570	
Lost time		L =	11	sec
Total Flow		=	20,960	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	50	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	26	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.818	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	43.5	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	30	sec
Y_{max}	$= 1-L/C$	=	0.908	

Stage/Phase Diagrams



I/G = 8 I/G = 5

Critical Case : A,B

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 44%

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MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
→	A	1	3.650	3				1		0		6220		2610		2610			6220	0.420	0.420
←	A	1	3.600	2				0		0	190	4230		1840		1840			4420	0.416	
↰	A	1	3.650	1	50			1		0		1980	790			790	100%		1922	0.411	
↰	B	2	3.650	2	25			1		0		4100	580			580	100%		3868	0.150	0.150
↱	B	2	3.650	2		40	0	0		0		4240			180	180		100%	4087	0.044	

Pedestrian Crossing			GM		FGM				
	Cp	1	min.	5	+	7	=	12	sec
	Dp	2	min.	5	+	10	=	15	sec

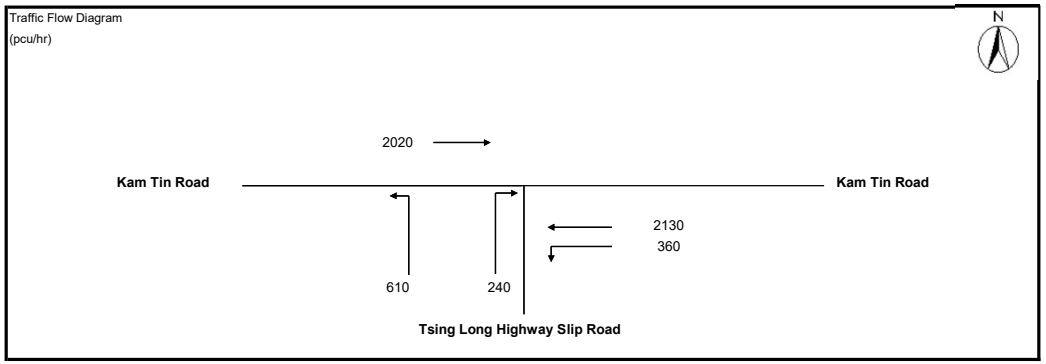
JUNCTION CAPACITY CALCULATION

AECOM

Junction J5 - Kam Tin Road / Tsing Long Highway Slip Road	2034 PM Peak Hour Reference Traffic Flows	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: May 21

J5

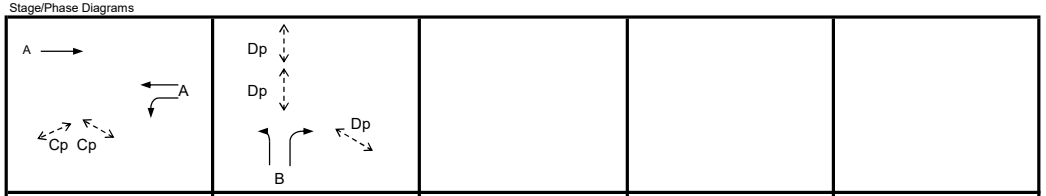
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	2	
Cycle time	C =	120	sec
Sum(y)	Y =	0.640	
Lost time	L =	11	sec
Total Flow	=	20,960	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	60	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	31	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.818	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	27.8	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	38	sec
Y_{max}	$= 1-L/C$	=	0.908	

Stage/Phase Diagrams



I/G = 8 I/G = 5

Critical Case : A,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 28%

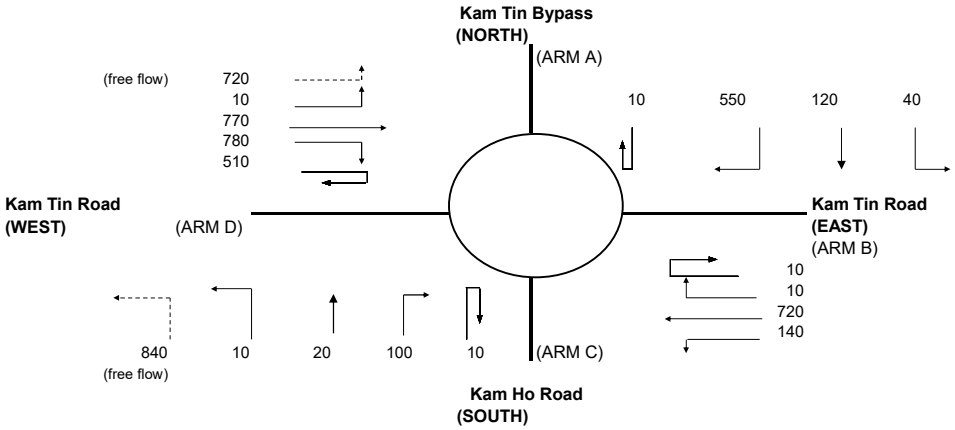
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
→	A	1	3.650	3				1		0		6220		2020		2020			6220	0.325	
←	A	1	3.600	2				0		0	190	4230		2130		2130			4420	0.482	0.482
↰	A	1	3.650	1	50			1		0		1980	360			360	100%		1922	0.187	
↰	B	2	3.650	2	25			1		0		4100	610			610	100%		3868	0.158	0.158
↱	B	2	3.650	2		40	0	0		0		4240			240	240		100%	4087	0.059	

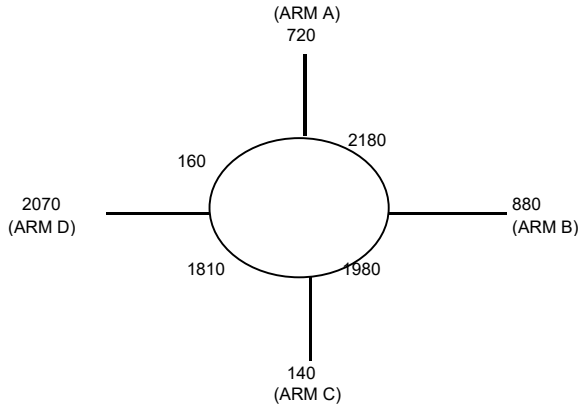
Pedestrian Crossing			GM		FGM				
	Cp	1	min.	5	+	7	=	12	sec
	Dp	2	min.	5	+	10	=	15	sec

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J6 - Kam Tin Road / Kam Tin Bypass / Kam Ho Road	Scenario	2034 AM Peak Hour Reference Traffic Flows	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	Mar 2024





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	6.50	7.30	9.00	7.30
E = Entry width (m)	11.00	10.00	10.00	11.00
L = Effective length of flare (m)	15.00	12.00	1.00	13.00
R = Entry radius (m)	42.50	70.00	20.00	42.50
D = Inscribed circle diameter (m)	88.00	88.00	88.00	88.00
A = Entry angle (degree)	39.00	30.00	37.50	29.00
Q = Entry flow (pcu/h)	720	880	140	2070
Qc= Circulating flow across entry (pcu/h)	2180	1980	1810	160
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.48	0.36	1.60	0.46
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.99	1.03	0.97	1.03
X2= V + ((E-V)/(1+2S))	8.80	8.87	9.24	9.24
M = EXP((D-60)/10)	16.44	16.44	16.44	16.44
F = 303*X2	2665	2688	2799	2799
Td= 1+(0.5/(1+M))	1.03	1.03	1.03	1.03
Fc= 0.21*Td(1+0.2*X2)	0.60	0.60	0.62	0.62
Qe= K(F-Fc*Qc)	1359	1554	1642	2779
DFC = Design flow/Capacity = Q/Qe	0.53	0.57	0.09	0.74

TOTAL ENTRY FLOWS = 4530 PCU

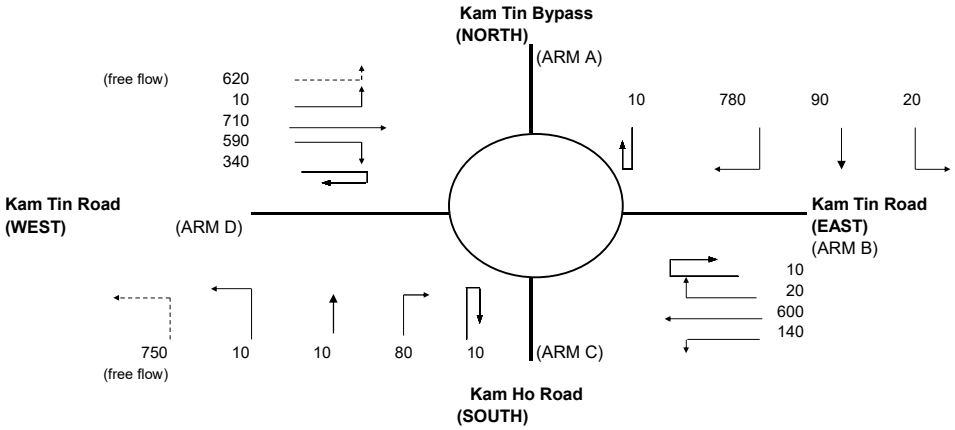
CRITICAL DFC = 0.74

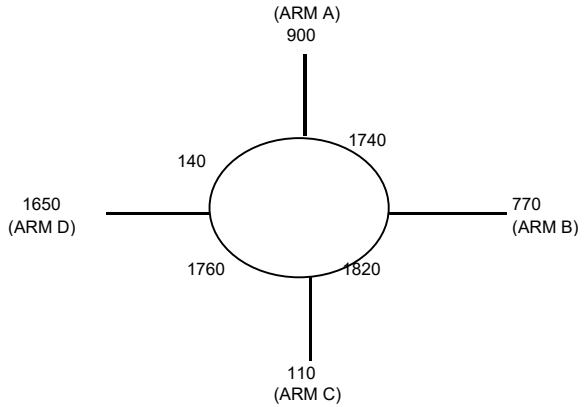
Filename : J13 - Kam Tin Road-Kam Tin Bypass-Kam Ho Road.xlsx / RefA_AM

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J6 - Kam Tin Road / Kam Tin Bypass / Kam Ho Road	Scenario	2034 PM Peak Hour Reference Traffic Flows	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	Mar 2024





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	6.50	7.30	9.00	7.30
E = Entry width (m)	11.00	10.00	10.00	11.00
L = Effective length of flare (m)	15.00	12.00	1.00	13.00
R = Entry radius (m)	42.50	70.00	20.00	42.50
D = Inscribed circle diameter (m)	88.00	88.00	88.00	88.00
A = Entry angle (degree)	39.00	30.00	37.50	29.00
Q = Entry flow (pcu/h)	900	770	110	1650
Qc= Circulating flow across entry (pcu/h)	1740	1820	1760	140
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.48	0.36	1.60	0.46
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.99	1.03	0.97	1.03
X2= V + ((E-V)/(1+2S))	8.80	8.87	9.24	9.24
M = EXP((D-60)/10)	16.44	16.44	16.44	16.44
F = 303*X2	2665	2688	2799	2799
Td= 1+(0.5/(1+M))	1.03	1.03	1.03	1.03
Fc= 0.21*Td(1+0.2*X2)	0.60	0.60	0.62	0.62
Qe= K(F-Fc*Qc)	1619	1653	1672	2792
DFC = Design flow/Capacity = Q/Qe	0.56	0.47	0.07	0.59

TOTAL ENTRY FLOWS = 4050 PCU

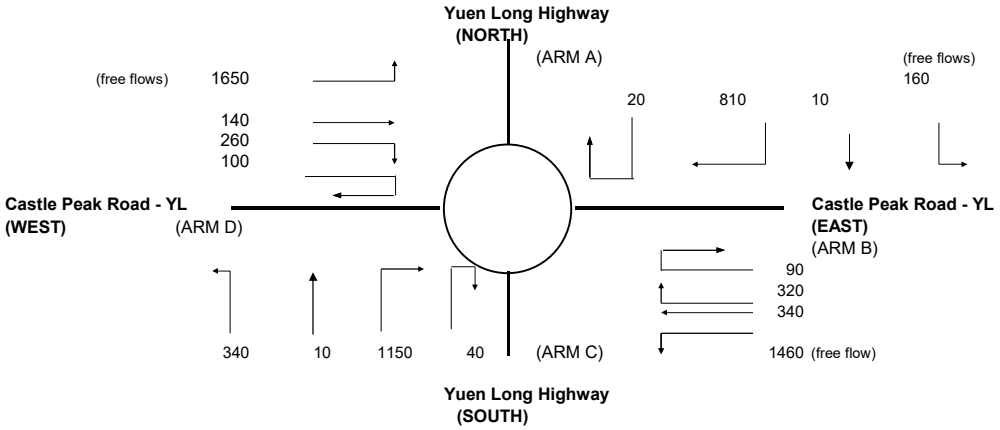
CRITICAL DFC = 0.59

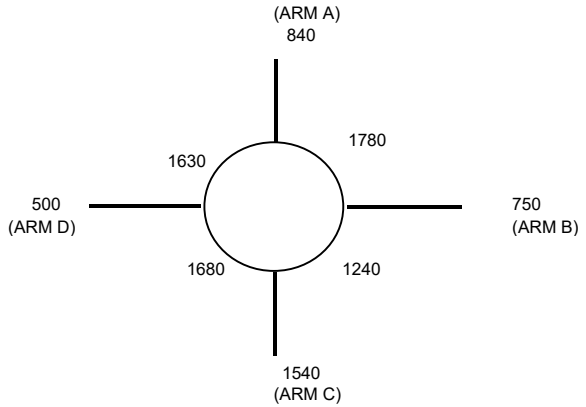
Filename : J13 - Kam Tin Road-Kam Tin Bypass-Kam Ho Road.xlsx / RefA_PM

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J7 - Pok Oi Interchange	Scenario	2034 AM Peak Hour Reference Traffic Flows	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	Mar 2024





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	6.30	3.70	9.00	3.50
E = Entry width (m)	7.30	7.40	12.00	7.00
L = Effective length of flare (m)	13.00	6.00	5.00	5.00
R = Entry radius (m)	21.00	25.00	25.00	25.00
D = Inscribed circle diameter (m)	110.00	80.00	110.00	80.00
A = Entry angle (degree)	35.00	50.00	45.00	45.00
Q = Entry flow (pcu/h)	840	750	1540	500
Qc= Circulating flow across entry (pcu/h)	1780	1240	1680	1630
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.12	0.99	0.96	1.12
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.98	0.94	0.96	0.96
X2= V + ((E-V)/(1+2S))	7.10	4.94	10.03	4.58
M = EXP((D-60)/10)	148.41	7.39	148.41	7.39
F = 303*X2	2152	1498	3038	1388
Td= 1+(0.5/(1+M))	1.00	1.06	1.00	1.06
Fc= 0.21*Td(1+0.2*X2)	0.51	0.44	0.63	0.43
Qe= K(F-Fc*Qc)	1226	893	1891	664
DFC = Design flow/Capacity = Q/Qe	0.69	0.84	0.81	0.75

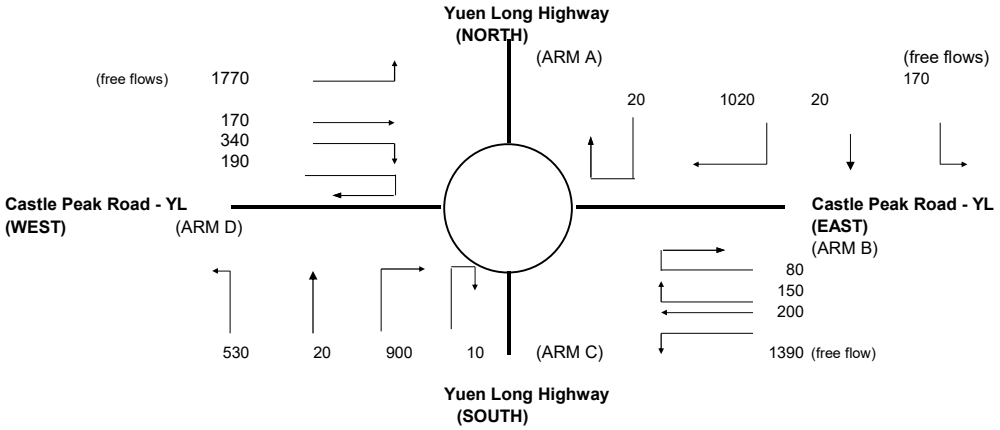
TOTAL ENTRY FLOWS = 5280 PCU

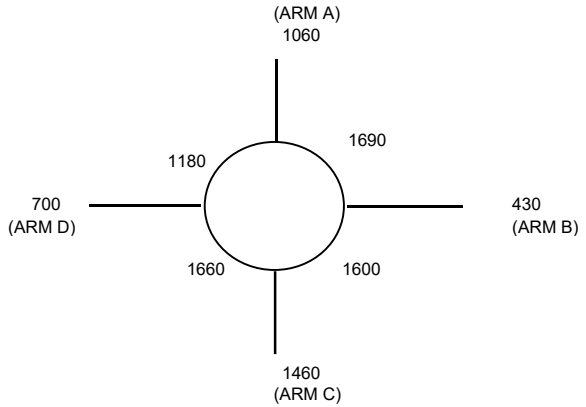
CRITICAL DFC = 0.84

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J7 - Pok Oi Interchange	Scenario	2034 PM Peak Hour Reference Traffic Flows	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	Mar 2024





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	6.30	3.70	9.00	3.50
E = Entry width (m)	7.30	7.40	12.00	7.00
L = Effective length of flare (m)	13.00	6.00	5.00	5.00
R = Entry radius (m)	21.00	25.00	25.00	25.00
D = Inscribed circle diameter (m)	110.00	80.00	110.00	80.00
A = Entry angle (degree)	35.00	50.00	45.00	45.00
Q = Entry flow (pcu/h)	1060	430	1460	700
Qc= Circulating flow across entry (pcu/h)	1690	1600	1660	1180
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.12	0.99	0.96	1.12
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.98	0.94	0.96	0.96
X2= V + ((E-V)/(1+2S))	7.10	4.94	10.03	4.58
M = EXP((D-60)/10)	148.41	7.39	148.41	7.39
F = 303*X2	2152	1498	3038	1388
Td= 1+(0.5/(1+M))	1.00	1.06	1.00	1.06
Fc= 0.21*Td(1+0.2*X2)	0.51	0.44	0.63	0.43
Qe= K(F-Fc*Qc)	1271	743	1903	847
DFC = Design flow/Capacity = Q/Qe	0.83	0.58	0.77	0.83

TOTAL ENTRY FLOWS = 5420 PCU

CRITICAL DFC = 0.83

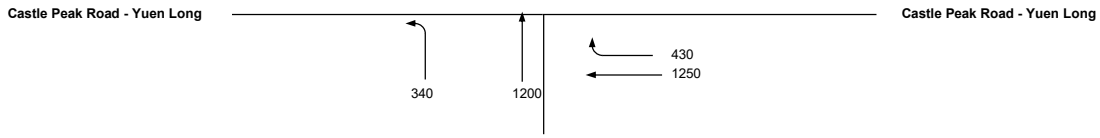
JUNCTION CAPACITY CALCULATION

AECOM

Junction J7 - Pok Oi Interchange (Yuen Long Highway NB Slip Road)	2034 AM Reference Trafic Flows	DESIGN: 0	CHECK: 0	JOB NO:	DATE: Nov 20

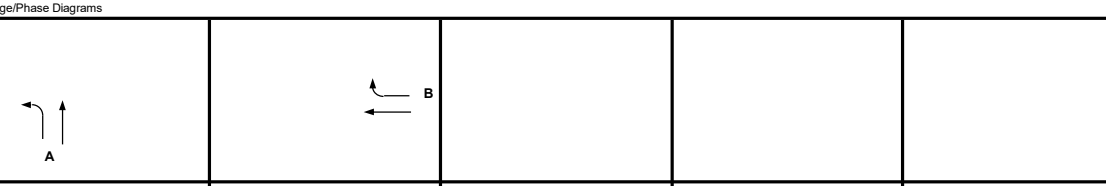
J7

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.724	
Lost time		L =	8	sec
Total Flow		=	9,020	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	62	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	29	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.840	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	16.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	41	sec
Y_{max}	$= 1-L/C$	=	0.933	

Stage/Phase Diagrams



I/G = 5 I/G = 5

Critical Case : A,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 16%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↰	A	1	5.000	1	25			0		0		2255	340	420		760	45%		2196	0.346	0.346
↑	A	1	5.000	1				0		0		2255		780		780			2255	0.346	
↑	B	2	5.000	1				0		0		2255		853		853			2255	0.378	
↱	B	2	5.000	1		25	0	0		0		2255		397	430	827		52%	2187	0.378	0.378

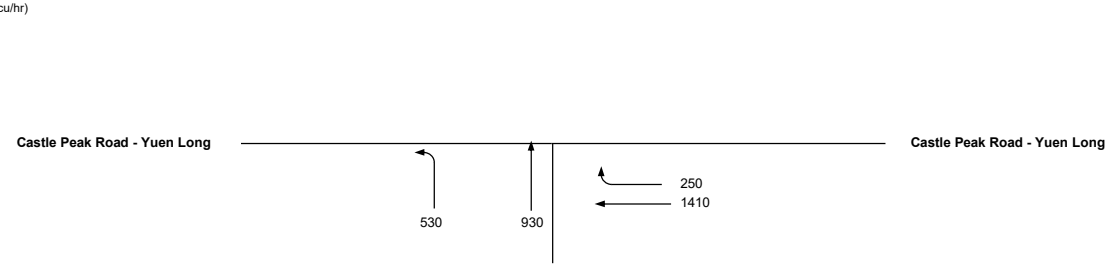
JUNCTION CAPACITY CALCULATION

AECOM

Junction J7 - Pok Oi Interchange (Yuen Long Highway NB Slip Road)	2034 PM Reference Trafic Flows	DESIGN: 0	CHECK: 0	JOB NO:	DATE: Nov 20

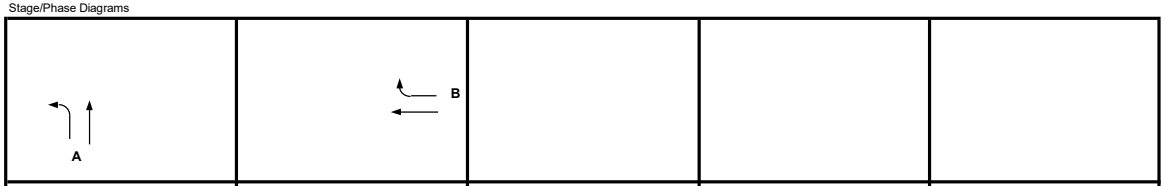
J7

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.702	
Lost time		L =	8	sec
Total Flow		=	9,020	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	57	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	27	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.840	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	19.6	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	36	sec
Y_{max}	$= 1-L/C$	=	0.933	

Stage/Phase Diagrams



Critical Case : A,B

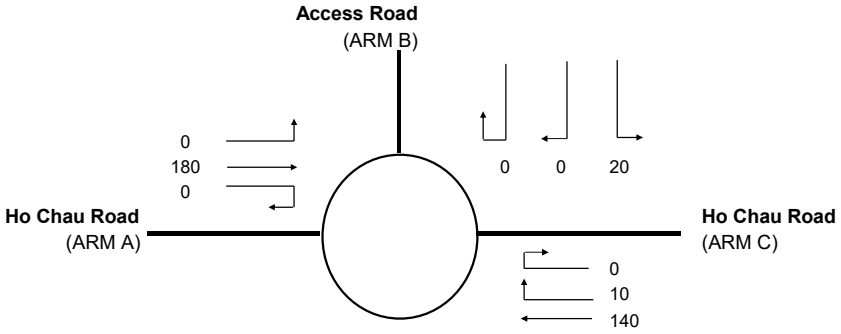
R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 20%

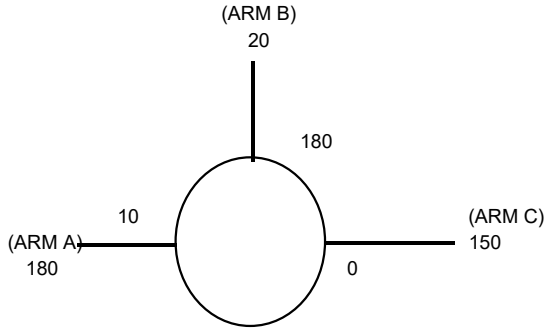
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↰	A	1	5.000	1	25			0		0		2255	530	184		714	74%		2159	0.331	0.331
↑	A	1	5.000	1				0		0		2255		746		746			2255	0.331	
↑	B	2	5.000	1				0		0		2255		838		838			2255	0.371	0.371
↱	B	2	5.000	1		25	0	0		0		2255		573	250	823		30%	2215	0.371	

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J8 - Ho Chau Road / Access Road	Scenario	2034 AM Peak Hour Reference Traffic Flows	Project No.	Prepared By	Checked By	Date
							22/Mar/24





ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	3.70	4.50	4.00
E = Entry width (m)	4.50	5.70	4.60
L = Effective length of flare (m)	4.50	4.00	2.50
R = Entry radius (m)	15.00	7.50	35.00
D = Inscribed circle diameter (m)	28.00	28.00	28.00
A = Entry angle (degree)	40.00	38.00	34.00
Q = Entry flow (pcu/h)	180	20	150
Qc= Circulating flow across entry (pcu/h)	10	180	0
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.28	0.48	0.38
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.95	0.89	1.01
X2= V + ((E-V)/(1+2S))	4.21	5.11	4.34
M = EXP((D-60)/10)	0.04	0.04	0.04
F = 303*X2	1276	1549	1315
Td= 1+(0.5/(1+M))	1.48	1.48	1.48
Fc= 0.21*Td(1+0.2*X2)	0.57	0.63	0.58
Qe= K(F-Fc*Qc)	1205	1279	1324
DFC = Design flow/Capacity = Q/Qe	0.15	0.02	0.11

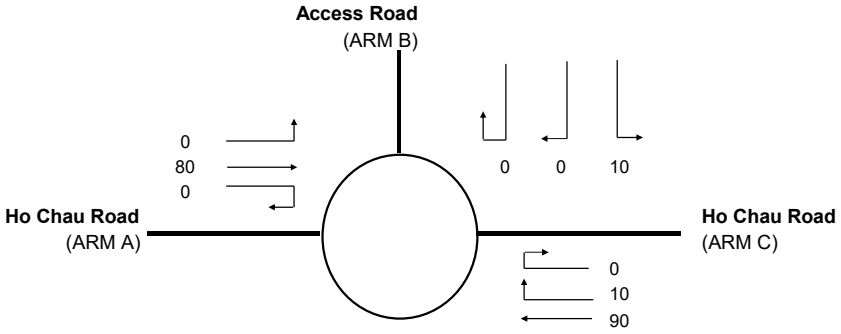
TOTAL ENTRY FLOWS = 350 PCU

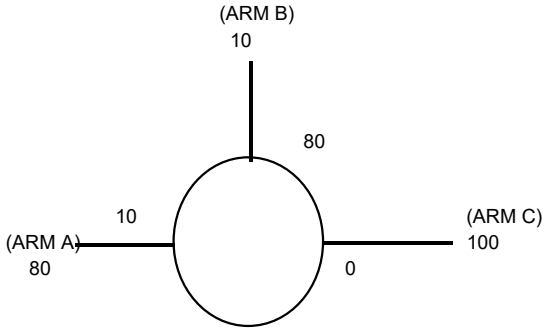
CRITICAL DFC = 0.15

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J8 - Ho Chau Road / Access Road	Scenario	2034 PM Peak Hour Reference Traffic Flows	Project No.	Prepared By	Checked By	Date
							22/Mar/24





ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	3.70	4.50	4.00
E = Entry width (m)	4.50	5.70	4.60
L = Effective length of flare (m)	4.50	4.00	2.50
R = Entry radius (m)	15.00	7.50	35.00
D = Inscribed circle diameter (m)	28.00	28.00	28.00
A = Entry angle (degree)	40.00	38.00	34.00
Q = Entry flow (pcu/h)	80	10	100
Qc= Circulating flow across entry (pcu/h)	10	80	0
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.28	0.48	0.38
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.95	0.89	1.01
X2= V + ((E-V)/(1+2S))	4.21	5.11	4.34
M = EXP((D-60)/10)	0.04	0.04	0.04
F = 303*X2	1276	1549	1315
Td= 1+(0.5/(1+M))	1.48	1.48	1.48
Fc= 0.21*Td(1+0.2*X2)	0.57	0.63	0.58
Qe= K(F-Fc*Qc)	1205	1335	1324
DFC = Design flow/Capacity = Q/Qe	0.07	0.01	0.08

TOTAL ENTRY FLOWS = 190 PCU

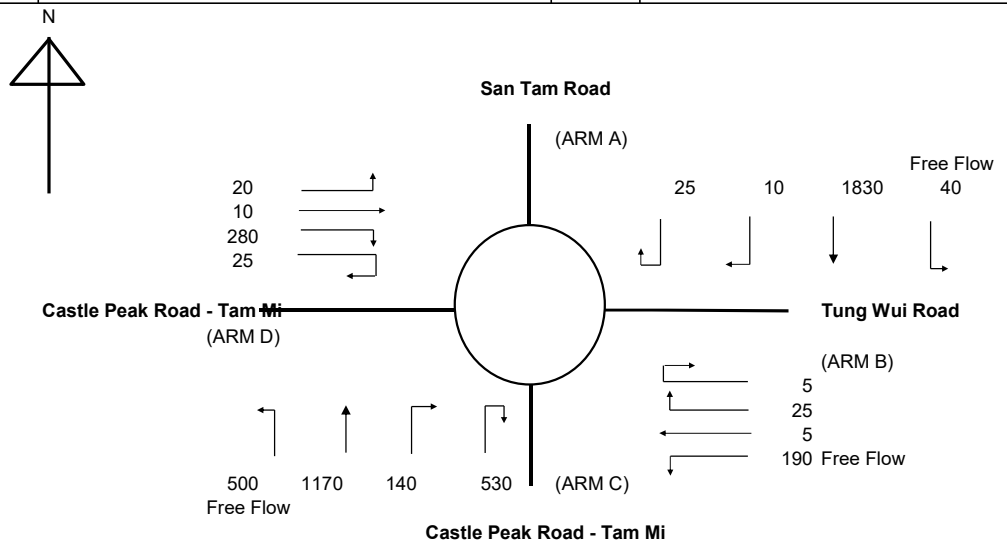
CRITICAL DFC = 0.08

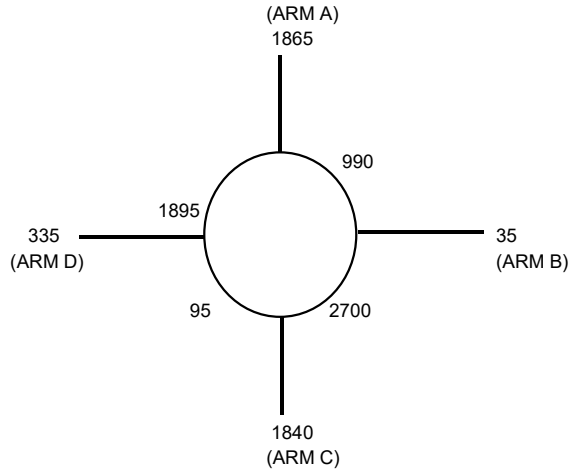
Design Flow

ROUNDABOUT CAPACITY CALCULATIO

AECOM

Junction	J1 - Castle Peak Road - Tam Mi / San Tam Road	Scenario	2034 AM Design Traffic Flows (Planned Layout)	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	22/Mar/24





ARM	A	B	C	D	
INPUT PARAMETERS:					
V = Approach half width (m)	10.30	4.00	8.70	4.10	
E = Entry width (m)	10.60	6.50	9.00	8.00	
L = Effective length of flare (m)	13.00	12.00	10.00	16.00	
R = Entry radius (m)	25.00	22.00	21.00	20.00	
D = Inscribed circle diameter (m)	44.00	44.00	44.00	44.00	
A = Entry angle (degree)	35.00	30.00	50.00	30.00	
Q = Entry flow (pcu/h)	1865	35	1840	335	*
Qc= Circulating flow across entry (pcu/h)	990	2700	95	1895	*
OUTPUT PARAMETERS:					
S = Sharpness of flare = 1.6(E-V)/L	0.04	0.33	0.05	0.39	
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.99	1.00	0.93	1.00	
X2= V + ((E-V)/(1+2S))	10.58	5.50	8.97	6.29	
M = EXP((D-60)/10)	0.20	0.20	0.20	0.20	
F = 303*X2	3206	1667	2719	1906	
Td= 1+(0.5/(1+M))	1.42	1.42	1.42	1.42	
Fc= 0.21*Td(1+0.2*X2)	0.93	0.62	0.83	0.67	
Qe= K(F-Fc*Qc)	2271	-20	2463	634	
DFC = Design flow/Capacity = Q/Qe	0.82	-1.78	0.75	0.53	

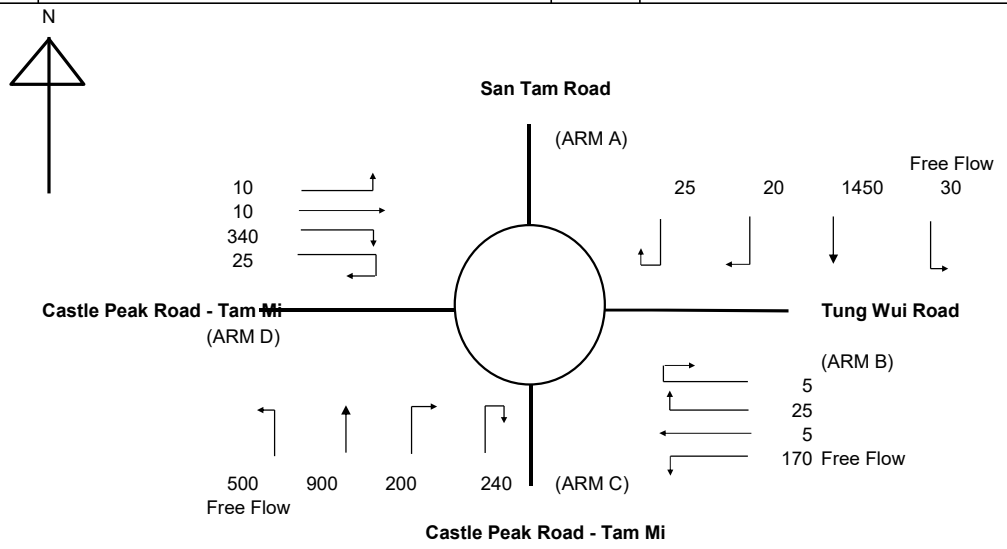
TOTAL ENTRY FLOWS 4805 PCU

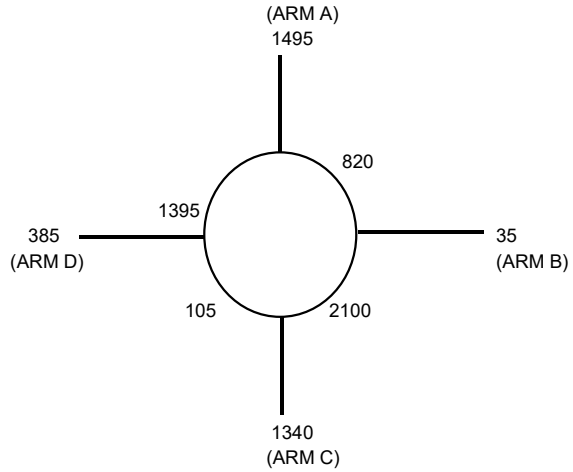
CRITICAL DFC 0.82

ROUNDABOUT CAPACITY CALCULATIO

AECOM

Junction	J1 - Castle Peak Road - Tam Mi / San Tam Road	Scenario	2034 PM Design Traffic Flows (Planned Layout)	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	22/Mar/24





ARM	A	B	C	D	
INPUT PARAMETERS:					
V = Approach half width (m)	10.30	4.00	8.70	4.10	
E = Entry width (m)	10.60	6.50	9.00	8.00	
L = Effective length of flare (m)	13.00	12.00	10.00	16.00	
R = Entry radius (m)	25.00	22.00	21.00	20.00	
D = Inscribed circle diameter (m)	44.00	44.00	44.00	44.00	
A = Entry angle (degree)	35.00	30.00	50.00	30.00	
Q = Entry flow (pcu/h)	1495	35	1340	385	*
Qc= Circulating flow across entry (pcu/h)	820	2100	105	1395	*
OUTPUT PARAMETERS:					
S = Sharpness of flare = 1.6(E-V)/L	0.04	0.33	0.05	0.39	
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.99	1.00	0.93	1.00	
X2= V + ((E-V)/(1+2S))	10.58	5.50	8.97	6.29	
M = EXP((D-60)/10)	0.20	0.20	0.20	0.20	
F = 303*X2	3206	1667	2719	1906	
Td= 1+(0.5/(1+M))	1.42	1.42	1.42	1.42	
Fc= 0.21*Td(1+0.2*X2)	0.93	0.62	0.83	0.67	
Qe= K(F-Fc*Qc)	2427	357	2455	969	
DFC = Design flow/Capacity = Q/Qe	0.62	0.10	0.55	0.40	

TOTAL ENTRY FLOWS 3955 PCU

CRITICAL DFC 0.62

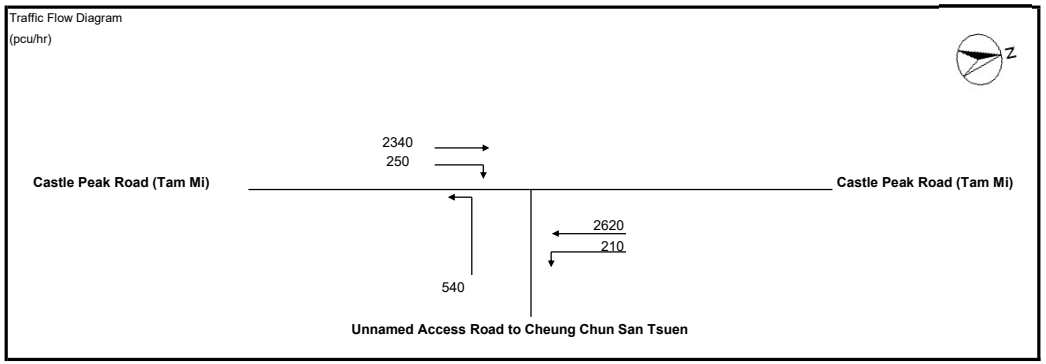
JUNCTION CAPACITY CALCULATION

AECOM

Junction J2 - Castle Peak Road / Unnamed Access Road to Cheung Chun San Tsu	2034 AM Peak Hour Design Traffic Flows	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: May 21

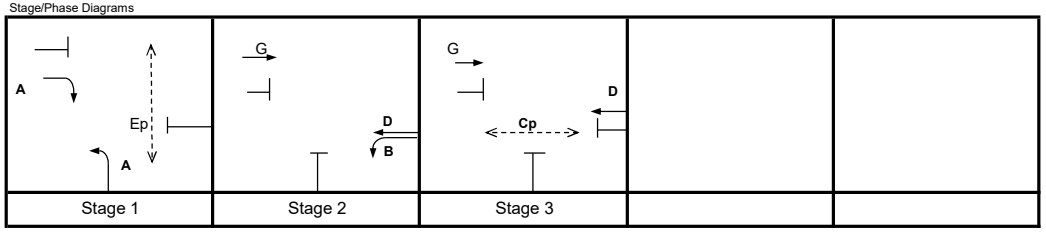
J2

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	120	sec
Sum(y)		Y =	0.760	
Lost time		L =	9	sec
Total Flow		=	16,495	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	77	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	37	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.833	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	9.6	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	58	sec
Y_{max}	$= 1-L/C$	=	0.925	

Stage/Phase Diagrams



Critical Case : A,D

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 10%

CHECK CRITICAL !!!

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↓	A	1	3.500	1		12.5	0	0		0		2105			250	250		100%	1879	0.133	
→	G	2,3	3.500	2				1		0		4070		2340		2340			4070	0.575	
↰	A	1	3.650	2	20			1		0		4100	540			540	100%		3814	0.142	0.142
↰	B	2	3.650	1	15			1		0		1980	210			210	100%		1800	0.117	
←	D	2,3	3.650	2				0		0		4240		2620		2620			4240	0.618	0.618

Pedestrian Crossing			GM		FGM				
	Cp	3	min.	11	+	21	=	32	sec
	Ep	1	min.	11	+	10	=	21	sec

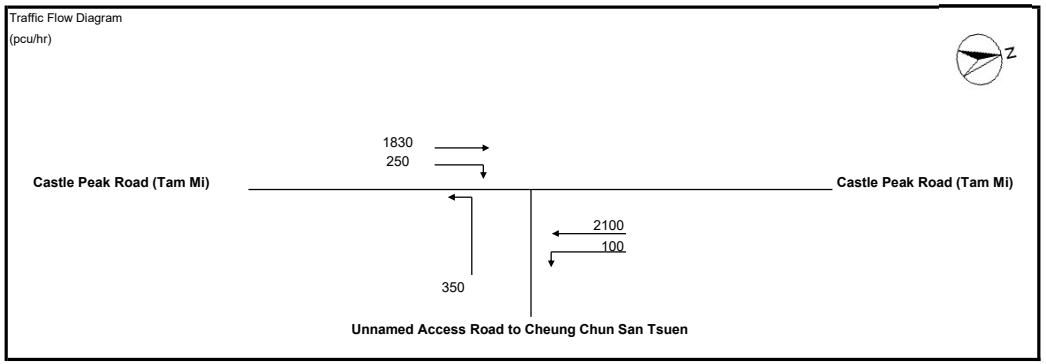
JUNCTION CAPACITY CALCULATION

AECOM

Junction J2 - Castle Peak Road / Unnamed Access Road to Cheung Chun San Tsu	2034 PM Peak Hour Design Traffic Flows	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: May 21

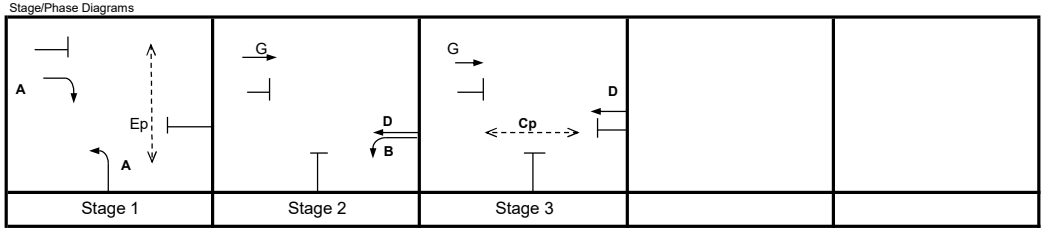
J2

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	120	sec
Sum(y)		Y =	0.628	
Lost time		L =	9	sec
Total Flow		=	16,495	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	50	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	24	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.833	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	32.5	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	30	sec
Y_{max}	$= 1-L/C$	=	0.925	

Stage/Phase Diagrams



I/G = 5 I/G = 6 I/G =

Critical Case : A,D

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 33%

CHECK CRITICAL !!!

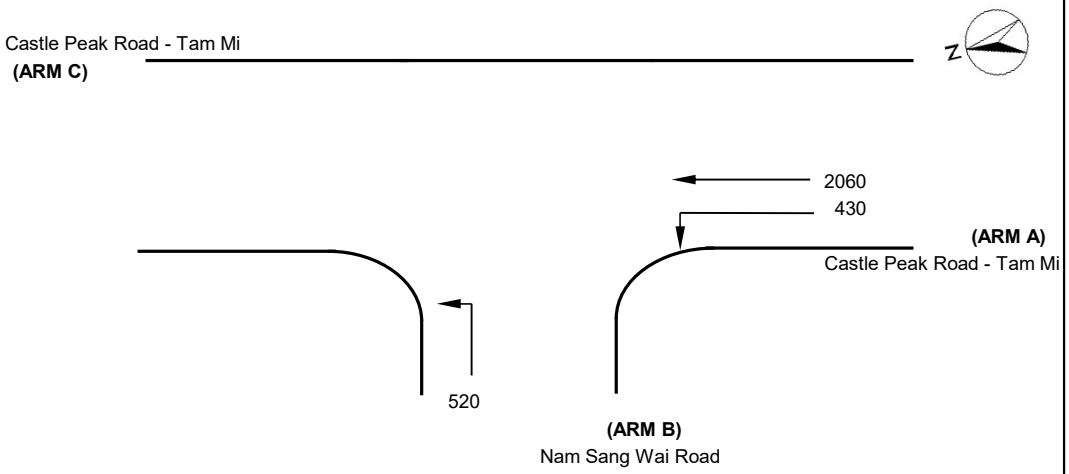
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↓	A	1	3.500	1		12.5	0	0		0		2105			250	250		100%	1879	0.133	0.133
→	G	2,3	3.500	2				1		0		4070		1830		1830			4070	0.450	
↰	A	1	3.650	2	20			1		0		4100	350			350	100%		3814	0.092	
↰	B	2	3.650	1	15			1		0		1980	100			100	100%		1800	0.056	
←	D	2,3	3.650	2				0		0		4240		2100		2100			4240	0.495	0.495

Pedestrian Crossing			GM		FGM				
	Cp	3	min.	11	+	21	=	32	sec
	Ep	1	min.	11	+	10	=	21	sec

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J3 - Castle Peak Road - Tam Mi / Nam Sang Wai Road	2034 AM Peak Hour Design Traffic Flows	Designed By : MKCN	Checked By : SHSN	Job No. : -	Date : Mar 24



NOTES : (GEOMETRIC INPUT DATA) J3

W	= Major Road Width (6.4 - 20.0)
W cr	= Central Reserve width (1.2 - 9.0, kerbed central reserve only)
W b-a	= Lane width available to vehicle waiting in stream b-a (2.05 - 4.7)
W b-c	= Lane width available to vehicle waiting in stream b-c (2.05 - 4.7)
W c-b	= Lane width available to vehicle waiting in stream c-b (2.05 - 4.7)
Vl b-a	= Visibility to the left for vehicles waiting in stream b-a (22.0 - 250.0)
Vr b-a	= Visibility to the right for vehicles waiting in stream b-a (17.0 - 250.0)
Vr b-c	= Visibilitu to the right for vehicles waiting in stream b-c (17.0 - 250.0)
Vr c-b	= Visibility to the right for vehicles waiting in stream c-b (17.0 - 250.0)
D	= Stream-specific B-A
E	= Stream-specific B-C
F	= Stream-specific C-B
Y	= (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	16	(metres)
W cr	=	0	(metres)
q a-b	=	430	(pcu/hr)
q a-c	=	2060	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	0	(metres)
Vr c-b	=	0	(metres)
q c-a	=	0	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	0	(metres)
W b-c	=	4.07	(metres)
Vl b-a	=	40	(metres)
Vr b-a	=	35	(metres)
Vr b-c	=	40	(metres)
q b-a	=	0	(pcu/hr)
q b-c	=	520	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.566608
E	=	0.964637
F	=	0.585955
Y	=	0.448000

THE CAPACITY OF MOVEMENT :

Q b-a	=	149
Q b-c	=	368
Q c-b	=	199
Q b-ac	=	368

CRITICAL DFC = 1.41

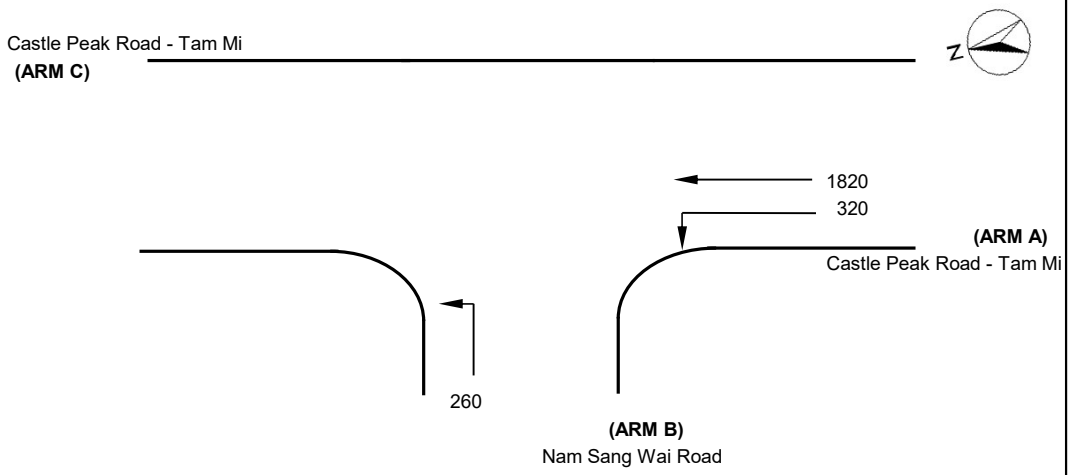
COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a	=	0.00
DFC b-c	=	1.41
DFC c-b	=	0.00
DFC b-ac	=	1.41

PRIORITY JUNCTION CAPACITY CALCULATION

AECOM

Junction J3 - Castle Peak Road - Tam Mi / Nam Sang Wai Road	2034 PM Peak Hour Design Traffic Flows	Designed By : MKCN	Checked By : SHSN	Job No. : -	Date : Mar 24



NOTES : (GEOMETRIC INPUT DATA) J3

- W = Major Road Width (6.4 - 20.0)
- W cr = Central Reserve width (1.2 - 9.0, kerbed central reserve only)
- W b-a = Lane width available to vehicle waiting in stream b-a (2.05 - 4.7)
- W b-c = Lane width available to vehicle waiting in stream b-c (2.05 - 4.7)
- W c-b = Lane width available to vehicle waiting in stream c-b (2.05 - 4.7)
- Vl b-a = Visibility to the left for vehicles waiting in stream b-a (22.0 - 250.0)
- Vr b-a = Visibility to the right for vehicles waiting in stream b-a (17.0 - 250.0)
- Vr b-c = Visibilitu to the right for vehicles waiting in stream b-c (17.0 - 250.0)
- Vr c-b = Visibility to the right for vehicles waiting in stream c-b (17.0 - 250.0)

- D = Stream-specific B-A
- E = Stream-specific B-C
- F = Stream-specific C-B
- Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	16	(metres)
W cr	=	0	(metres)
q a-b	=	320	(pcu/hr)
q a-c	=	1820	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	0	(metres)
Vr c-b	=	0	(metres)
q c-a	=	0	(pcu/hr)
q c-b	=	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	0	(metres)
W b-c	=	4.07	(metres)
Vl b-a	=	40	(metres)
Vr b-a	=	35	(metres)
Vr b-c	=	40	(metres)
q b-a	=	0	(pcu/hr)
q b-c	=	260	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.566608
E	=	0.964637
F	=	0.585955
Y	=	0.448000

THE CAPACITY OF MOVEMENT :

Q b-a	=	175
Q b-c	=	412
Q c-b	=	232
Q b-ac	=	412

CRITICAL DFC = 0.63

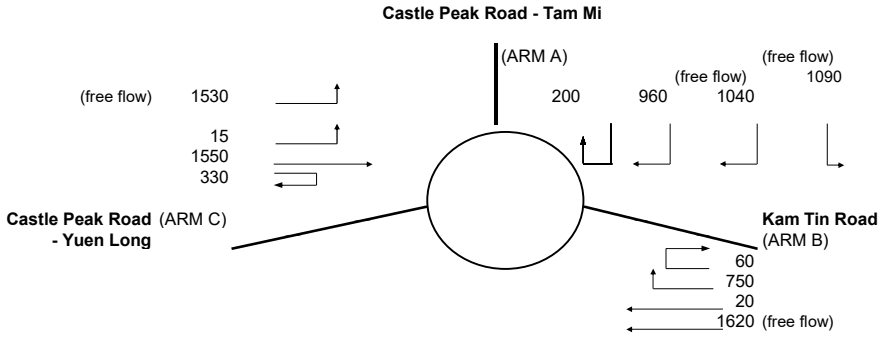
COMPARISION OF DESIGN FLOW TO CAPACITY :

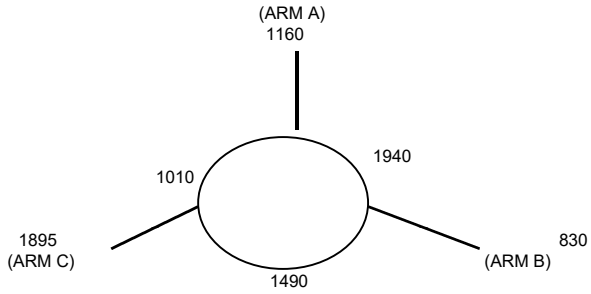
DFC b-a	=	0.00
DFC b-c	=	0.63
DFC c-b	=	0.00
DFC b-ac	=	0.63

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J4 - Au Tau Interchange	Scenario	2034 AM Peak Hour Design Traffic Flows	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	Mar 2024





ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	6.50	7.00	7.30
E = Entry width (m)	11.00	7.00	9.70
L = Effective length of flare (m)	22.00	1.00	50.00
R = Entry radius (m)	45.00	100.00	100.00
D = Inscribed circle diameter (m)	65.00	65.00	65.00
A = Entry angle (degree)	20.00	5.00	20.00
Q = Entry flow (pcu/h)	1160	830	1895
Qc= Circulating flow across entry (pcu/h)	1940	1490	1010
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.33	0.00	0.08
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.06	1.13	1.07
X2= V + ((E-V)/(1+2S))	9.22	7.00	9.38
M = EXP((D-60)/10)	1.65	1.65	1.65
F = 303*X2	2794	2121	2842
Td= 1+(0.5/(1+M))	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.71	0.60	0.72
Qe= K(F-Fc*Qc)	1504	1383	2273
DFC = Design flow/Capacity = Q/Qe	0.77	0.60	0.83

TOTAL ENTRY FLOWS = 6285 PCU

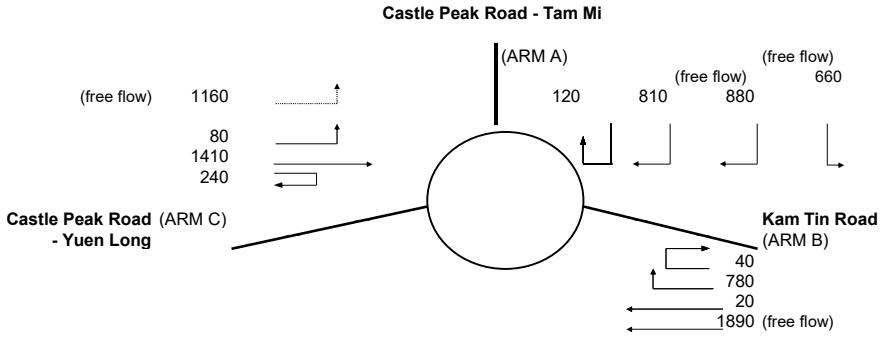
CRITICAL DFC = 0.83

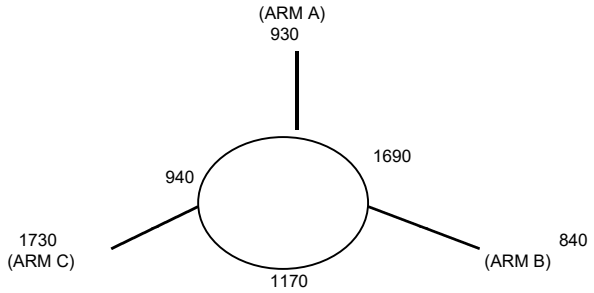
Filename : J10 - Au Tau Interchange.xlsx / DesAB_AM_OG

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J4 - Au Tau Interchange	Scenario	2034 PM Peak Hour Design Traffic Flows	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	Mar 2024





ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	6.50	7.00	7.30
E = Entry width (m)	11.00	7.00	9.70
L = Effective length of flare (m)	22.00	1.00	50.00
R = Entry radius (m)	45.00	100.00	100.00
D = Inscribed circle diameter (m)	65.00	65.00	65.00
A = Entry angle (degree)	20.00	5.00	20.00
Q = Entry flow (pcu/h)	930	840	1730
Qc= Circulating flow across entry (pcu/h)	1690	1170	940
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.33	0.00	0.08
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.06	1.13	1.07
X2= V + ((E-V)/(1+2S))	9.22	7.00	9.38
M = EXP((D-60)/10)	1.65	1.65	1.65
F = 303*X2	2794	2121	2842
Td= 1+(0.5/(1+M))	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.71	0.60	0.72
Qe= K(F-Fc*Qc)	1692	1599	2327
DFC = Design flow/Capacity = Q/Qe	0.55	0.53	0.74

TOTAL ENTRY FLOWS = 6110 PCU

CRITICAL DFC = 0.74

Filename : J10 - Au Tau Interchange.xlsx / DesAB_PM_OG

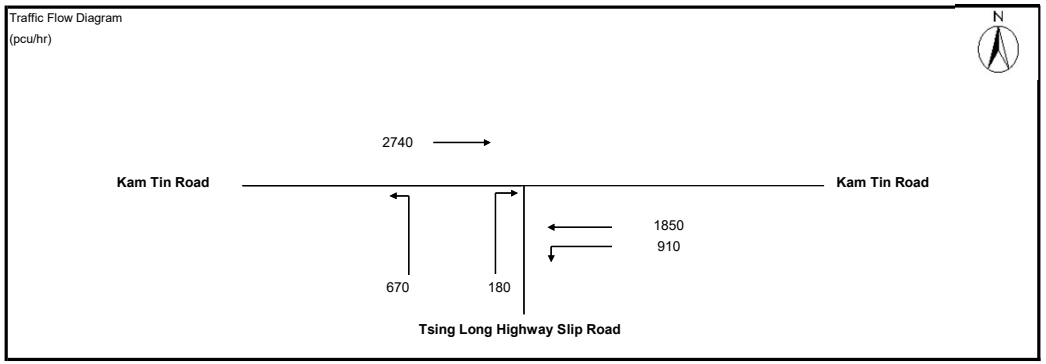
JUNCTION CAPACITY CALCULATION

AECOM

Junction J5 - Kam Tin Road / Tsing Long Highway Slip Road	2034 AM Peak Hour Design Traffic Flows	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: May 21

J5

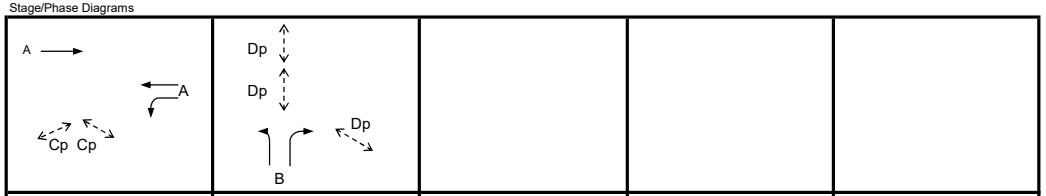
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	2	
Cycle time	C =	120	sec
Sum(y)	Y =	0.647	
Lost time	L =	11	sec
Total Flow	=	20,960	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	61	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	31	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.818	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	26.4	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	39	sec
Y_{max}	$= 1-L/C$	=	0.908	

Stage/Phase Diagrams



I/G = 8 I/G = 5

Critical Case : A,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 26%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
→	A	1	3.650	3				1		0		6220		2740		2740			6220	0.441	
←	A	1	3.600	2				0		0	190	4230		1850		1850			4420	0.419	
↰	A	1	3.650	1	50			1		0		1980	910			910	100%		1922	0.473	0.473
↰	B	2	3.650	2	25			1		0		4100	670			670	100%		3868	0.173	0.173
↱	B	2	3.650	2		40	0	0		0		4240			180	180		100%	4087	0.044	

Pedestrian Crossing			GM		FGM				
	Cp	1	min.	5	+	7	=	12	sec
	Dp	2	min.	5	+	10	=	15	sec

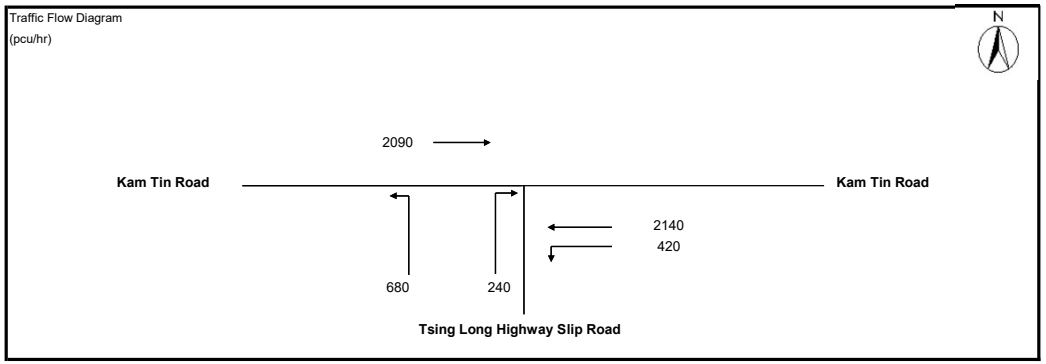
JUNCTION CAPACITY CALCULATION

AECOM

Junction J5 - Kam Tin Road / Tsing Long Highway Slip Road	2034 PM Peak Hour Design Traffic Flows	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: May 21

J5

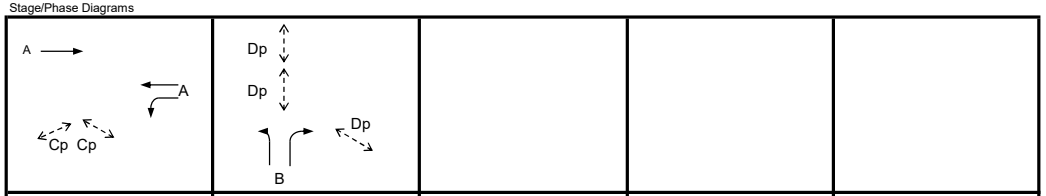
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	2	
Cycle time	C =	120	sec
Sum(y)	Y =	0.660	
Lost time	L =	11	sec
Total Flow	=	20,960	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	63	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	32	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.818	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	23.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	41	sec
Y_{max}	$= 1-L/C$	=	0.908	

Stage/Phase Diagrams



I/G = 8 I/G = 5

Critical Case : A,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 24%

).xlsm]

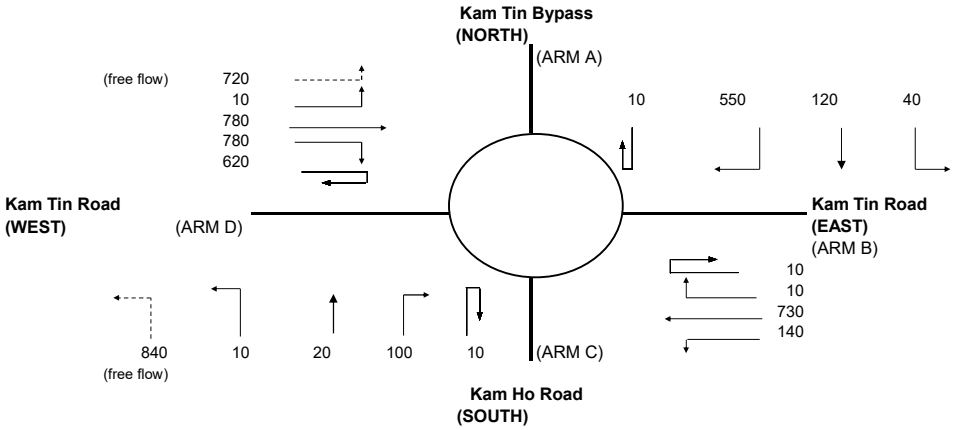
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
→	A	1	3.650	3				1		0		6220		2090		2090			6220	0.336	
←	A	1	3.600	2				0		0	190	4230		2140		2140			4420	0.484	0.484
↰	A	1	3.650	1	50			1		0		1980	420			420	100%		1922	0.218	
↰	B	2	3.650	2	25			1		0		4100	680			680	100%		3868	0.176	0.176
↱	B	2	3.650	2		40	0	0		0		4240			240	240		100%	4087	0.059	

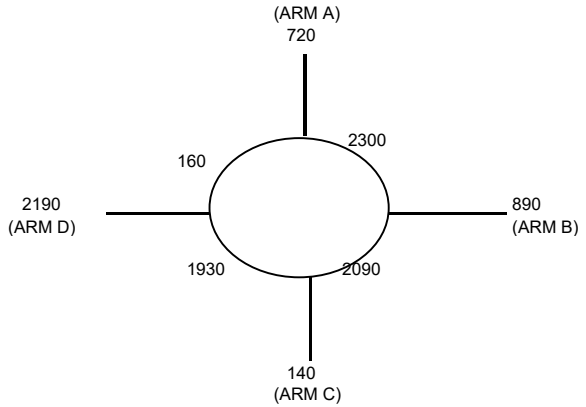
Pedestrian Crossing				GM		FGM			
	Cp	1	min.	5	+	7	=	12	sec
	Dp	2	min.	5	+	10	=	15	sec

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J6 - Kam Tin Road / Kam Tin Bypass / Kam Ho Road	Scenario	2034 AM Peak Hour Design Traffic Flows	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	Mar 2024





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	6.50	7.30	9.00	7.30
E = Entry width (m)	11.00	10.00	10.00	11.00
L = Effective length of flare (m)	15.00	12.00	1.00	13.00
R = Entry radius (m)	42.50	70.00	20.00	42.50
D = Inscribed circle diameter (m)	88.00	88.00	88.00	88.00
A = Entry angle (degree)	39.00	30.00	37.50	29.00
Q = Entry flow (pcu/h)	720	890	140	2190
Qc= Circulating flow across entry (pcu/h)	2300	2090	1930	160
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.48	0.36	1.60	0.46
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.99	1.03	0.97	1.03
X2= V + ((E-V)/(1+2S))	8.80	8.87	9.24	9.24
M = EXP((D-60)/10)	16.44	16.44	16.44	16.44
F = 303*X2	2665	2688	2799	2799
Td= 1+(0.5/(1+M))	1.03	1.03	1.03	1.03
Fc= 0.21*Td(1+0.2*X2)	0.60	0.60	0.62	0.62
Qe= K(F-Fc*Qc)	1287	1485	1570	2779
DFC = Design flow/Capacity = Q/Qe	0.56	0.60	0.09	0.79

TOTAL ENTRY FLOWS = 4660 PCU

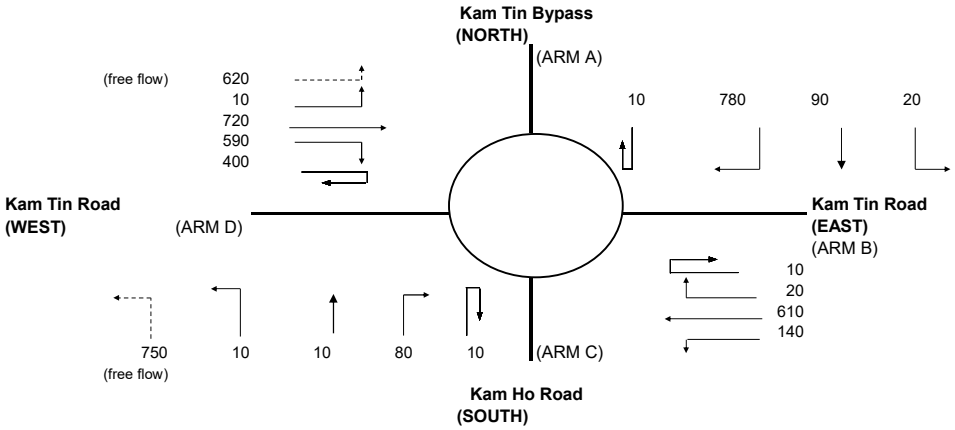
CRITICAL DFC = 0.79

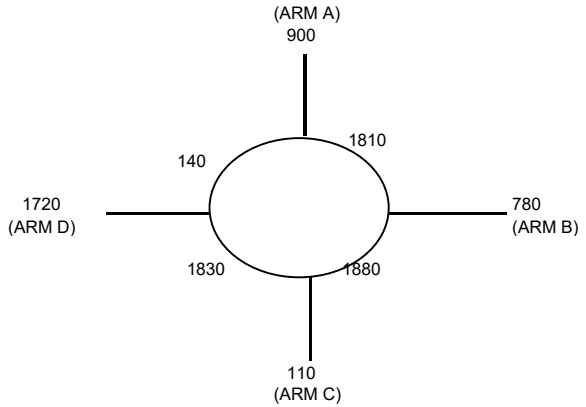
Filename : J13 - Kam Tin Road-Kam Tin Bypass-Kam Ho Road.xlsx / DesAB_AM_OG

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J6 - Kam Tin Road / Kam Tin Bypass / Kam Ho Road	Scenario	2034 PM Peak Hour Design Traffic Flows	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	Mar 2024





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	6.50	7.30	9.00	7.30
E = Entry width (m)	11.00	10.00	10.00	11.00
L = Effective length of flare (m)	15.00	12.00	1.00	13.00
R = Entry radius (m)	42.50	70.00	20.00	42.50
D = Inscribed circle diameter (m)	88.00	88.00	88.00	88.00
A = Entry angle (degree)	39.00	30.00	37.50	29.00
Q = Entry flow (pcu/h)	900	780	110	1720
Qc= Circulating flow across entry (pcu/h)	1810	1880	1830	140
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.48	0.36	1.60	0.46
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.99	1.03	0.97	1.03
X2= V + ((E-V)/(1+2S))	8.80	8.87	9.24	9.24
M = EXP((D-60)/10)	16.44	16.44	16.44	16.44
F = 303*X2	2665	2688	2799	2799
Td= 1+(0.5/(1+M))	1.03	1.03	1.03	1.03
Fc= 0.21*Td(1+0.2*X2)	0.60	0.60	0.62	0.62
Qe= K(F-Fc*Qc)	1578	1616	1630	2792
DFC = Design flow/Capacity = Q/Qe	0.57	0.48	0.07	0.62

TOTAL ENTRY FLOWS = 4130 PCU

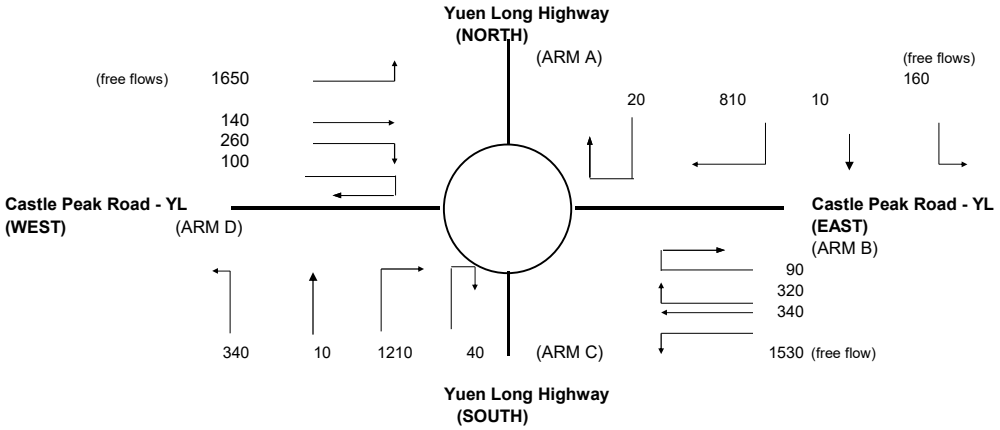
CRITICAL DFC = 0.62

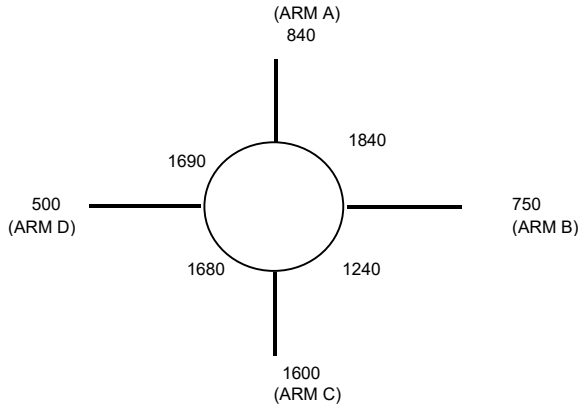
Filename : J13 - Kam Tin Road-Kam Tin Bypass-Kam Ho Road.xlsx / DesAB_PM_OG

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J7 - Pok Oi Interchange	Scenario	2034 AM Peak Hour Design Traffic Flows	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	Mar 2024





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	6.30	3.70	9.00	3.50
E = Entry width (m)	7.30	7.40	12.00	7.00
L = Effective length of flare (m)	13.00	6.00	5.00	5.00
R = Entry radius (m)	21.00	25.00	25.00	25.00
D = Inscribed circle diameter (m)	110.00	80.00	110.00	80.00
A = Entry angle (degree)	35.00	50.00	45.00	45.00
Q = Entry flow (pcu/h)	840	750	1600	500
Qc= Circulating flow across entry (pcu/h)	1840	1240	1680	1690
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.12	0.99	0.96	1.12
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.98	0.94	0.96	0.96
X2= V + ((E-V)/(1+2S))	7.10	4.94	10.03	4.58
M = EXP((D-60)/10)	148.41	7.39	148.41	7.39
F = 303*X2	2152	1498	3038	1388
Td= 1+(0.5/(1+M))	1.00	1.06	1.00	1.06
Fc= 0.21*Td(1+0.2*X2)	0.51	0.44	0.63	0.43
Qe= K(F-Fc*Qc)	1195	893	1891	639
DFC = Design flow/Capacity = Q/Qe	0.70	0.84	0.85	0.78

TOTAL ENTRY FLOWS = 5340 PCU

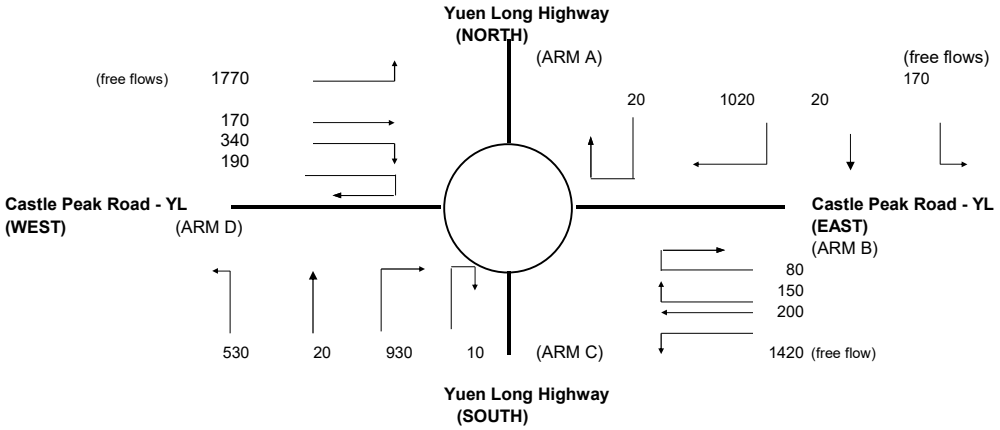
CRITICAL DFC = 0.85

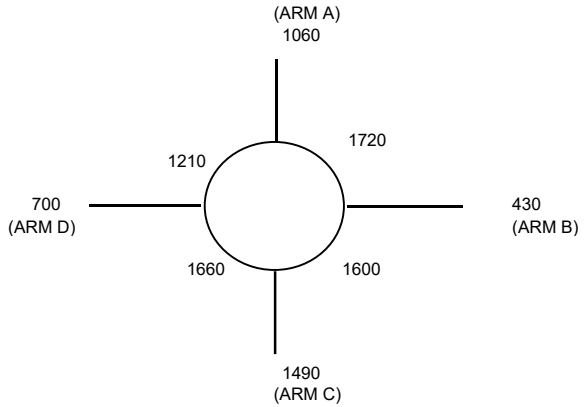
Filename : J11 - Pok Oi Interchange_(with Signal).xlsm / DesAB_AM

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J7 - Pok Oi Interchange	Scenario	2034 PM Peak Hour Design Traffic Flows	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	Mar 2024





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	6.30	3.70	9.00	3.50
E = Entry width (m)	7.30	7.40	12.00	7.00
L = Effective length of flare (m)	13.00	6.00	5.00	5.00
R = Entry radius (m)	21.00	25.00	25.00	25.00
D = Inscribed circle diameter (m)	110.00	80.00	110.00	80.00
A = Entry angle (degree)	35.00	50.00	45.00	45.00
Q = Entry flow (pcu/h)	1060	430	1490	700
Qc= Circulating flow across entry (pcu/h)	1720	1600	1660	1210
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.12	0.99	0.96	1.12
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.98	0.94	0.96	0.96
X2= V + ((E-V)/(1+2S))	7.10	4.94	10.03	4.58
M = EXP((D-60)/10)	148.41	7.39	148.41	7.39
F = 303*X2	2152	1498	3038	1388
Td= 1+(0.5/(1+M))	1.00	1.06	1.00	1.06
Fc= 0.21*Td(1+0.2*X2)	0.51	0.44	0.63	0.43
Qe= K(F-Fc*Qc)	1256	743	1903	835
DFC = Design flow/Capacity = Q/Qe	0.84	0.58	0.78	0.84

TOTAL ENTRY FLOWS = 5450 PCU

CRITICAL DFC = 0.84

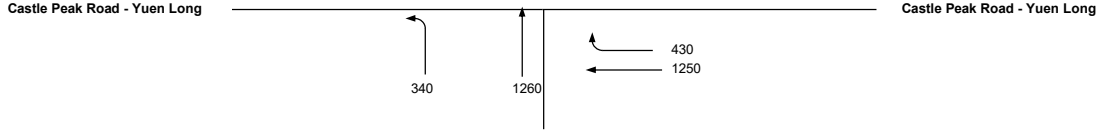
JUNCTION CAPACITY CALCULATION

AECOM

Junction J7 - Pok Oi Interchange (Yuen Long Highway NB Slip Road)	2034 AM Design Trafic Flows	DESIGN: 0	CHECK: 0	JOB NO:	DATE: Nov 20

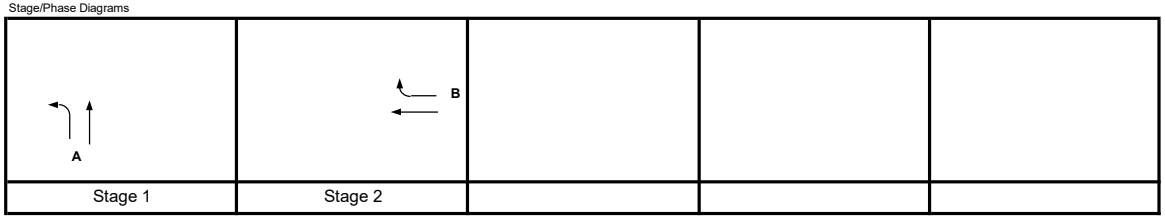
J7

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.738	
Lost time		L =	8	sec
Total Flow		=	9,020	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	65	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	30	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.840	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	13.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	44	sec
Y_{max}	$= 1-L/C$	=	0.933	

Stage/Phase Diagrams



Critical Case : A,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 14%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↰	A	1	5.000	1	25			0		0		2255	340	450		790	43%		2198	0.359	
↑	A	1	5.000	1				0		0		2255		810		810			2255	0.359	0.359
↑	B	2	5.000	1				0		0		2255		853		853			2255	0.378	
↱	B	2	5.000	1		25	0	0		0		2255		397	430	827		52%	2187	0.378	0.378

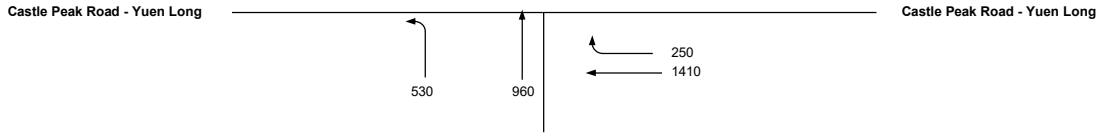
JUNCTION CAPACITY CALCULATION

AECOM

Junction J7 - Pok Oi Interchange (Yuen Long Highway NB Slip Road)	2034 PM Design Trafic Flows	DESIGN: 0	CHECK: 0	JOB NO:	DATE: Nov 20

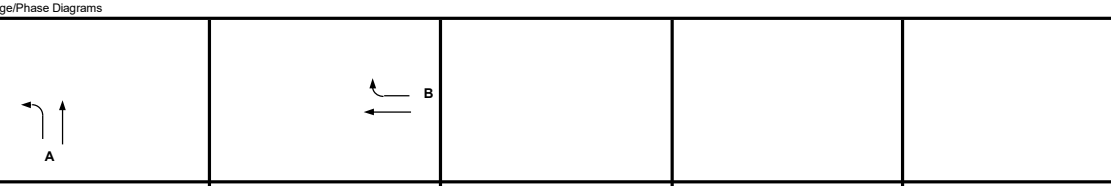
J7

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.709	
Lost time		L =	8	sec
Total Flow		=	9,020	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	58	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	27	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.840	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	18.5	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	38	sec
Y_{max}	$= 1-L/C$	=	0.933	

Stage/Phase Diagrams



Critical Case : A,B

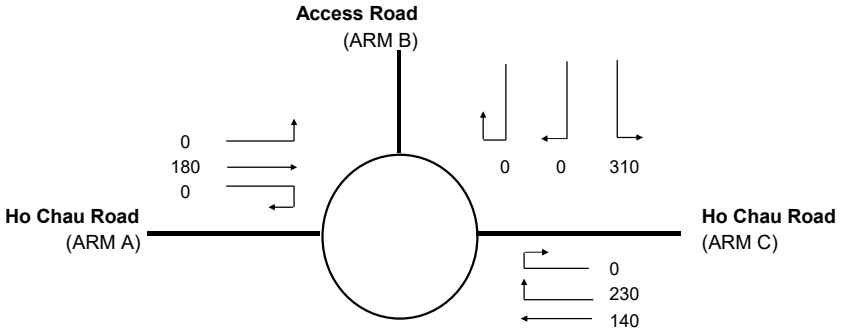
R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 19%

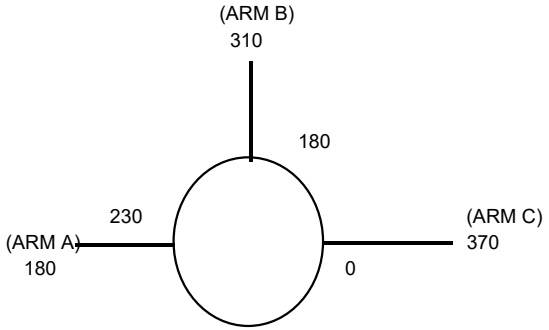
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↰	A	1	5.000	1	25			0		0		2255	530	199		729	73%		2161	0.337	0.337
↑	A	1	5.000	1				0		0		2255		761		761			2255	0.337	
↑	B	2	5.000	1				0		0		2255		838		838			2255	0.371	0.371
↱	B	2	5.000	1		25	0	0		0		2255		573	250	823		30%	2215	0.371	

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J8 - Ho Chau Road / Access Road	Scenario	2034 AM Peak Hour Design Traffic Flows	Project No.	Prepared By	Checked By	Date
							22/Mar/24





ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	3.70	4.50	4.00
E = Entry width (m)	4.50	5.70	4.60
L = Effective length of flare (m)	4.50	4.00	2.50
R = Entry radius (m)	15.00	7.50	35.00
D = Inscribed circle diameter (m)	28.00	28.00	28.00
A = Entry angle (degree)	40.00	38.00	34.00
Q = Entry flow (pcu/h)	180	310	370
Qc= Circulating flow across entry (pcu/h)	230	180	0
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.28	0.48	0.38
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.95	0.89	1.01
X2= V + ((E-V)/(1+2S))	4.21	5.11	4.34
M = EXP((D-60)/10)	0.04	0.04	0.04
F = 303*X2	1276	1549	1315
Td= 1+(0.5/(1+M))	1.48	1.48	1.48
Fc= 0.21*Td(1+0.2*X2)	0.57	0.63	0.58
Qe= K(F-Fc*Qc)	1086	1279	1324
DFC = Design flow/Capacity = Q/Qe	0.17	0.24	0.28

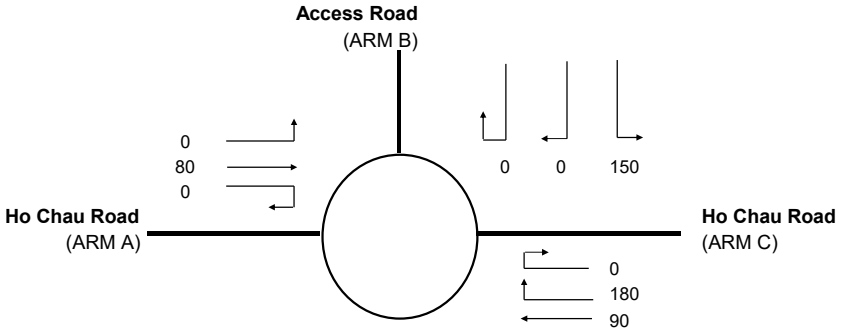
TOTAL ENTRY FLOWS = 860 PCU

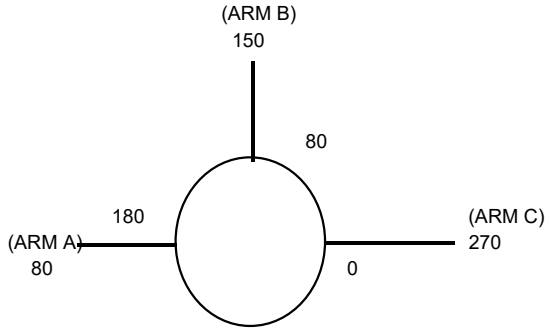
CRITICAL DFC = 0.28

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J8 - Ho Chau Road / Access Road	Scenario	2034 PM Peak Hour Design Traffic Flows	Project No.	Prepared By	Checked By	Date
							22/Mar/24





ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	3.70	4.50	4.00
E = Entry width (m)	4.50	5.70	4.60
L = Effective length of flare (m)	4.50	4.00	2.50
R = Entry radius (m)	15.00	7.50	35.00
D = Inscribed circle diameter (m)	28.00	28.00	28.00
A = Entry angle (degree)	40.00	38.00	34.00
Q = Entry flow (pcu/h)	80	150	270
Qc= Circulating flow across entry (pcu/h)	180	80	0
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.28	0.48	0.38
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.95	0.89	1.01
X2= V + ((E-V)/(1+2S))	4.21	5.11	4.34
M = EXP((D-60)/10)	0.04	0.04	0.04
F = 303*X2	1276	1549	1315
Td= 1+(0.5/(1+M))	1.48	1.48	1.48
Fc= 0.21*Td(1+0.2*X2)	0.57	0.63	0.58
Qe= K(F-Fc*Qc)	1113	1335	1324
DFC = Design flow/Capacity = Q/Qe	0.07	0.11	0.20

TOTAL ENTRY FLOWS = 500 PCU

CRITICAL DFC = 0.20

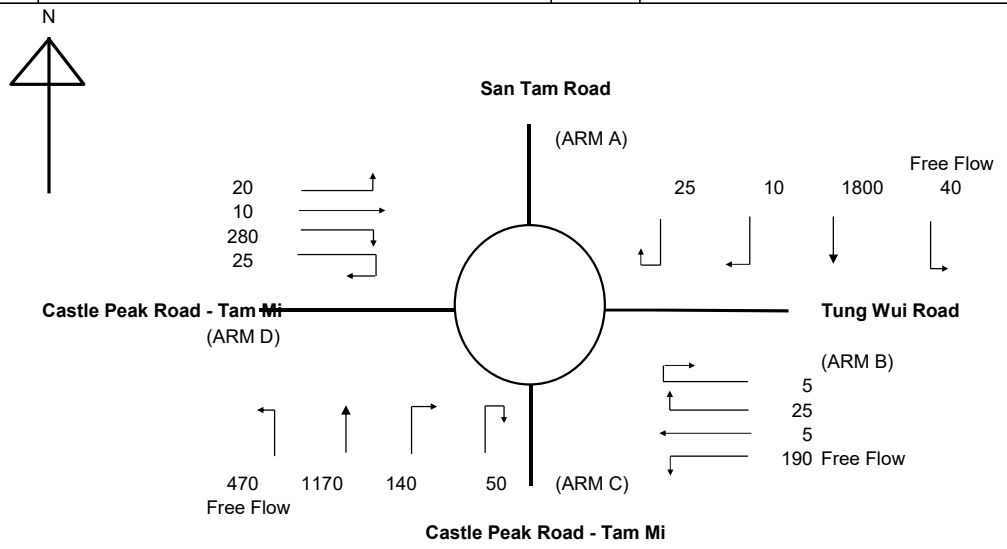
Design Flow

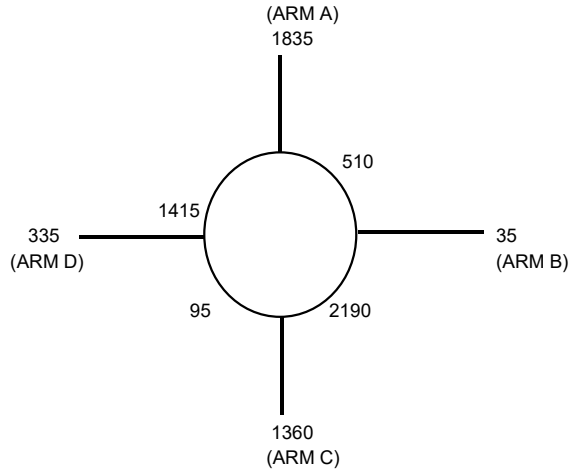
(With Improvements)

ROUNDABOUT CAPACITY CALCULATIO

AECOM

Junction	J1 - Castle Peak Road - Tam Mi / San Tam Road	Scenario	2034 AM Design Traffic Flows (Planned Layout) - With Improvement	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	22/Mar/24





ARM	A	B	C	D	
INPUT PARAMETERS:					
V = Approach half width (m)	10.30	4.00	8.70	4.10	
E = Entry width (m)	10.60	6.50	9.00	8.00	
L = Effective length of flare (m)	13.00	12.00	10.00	16.00	
R = Entry radius (m)	25.00	22.00	21.00	20.00	
D = Inscribed circle diameter (m)	44.00	44.00	44.00	44.00	
A = Entry angle (degree)	35.00	30.00	50.00	30.00	
Q = Entry flow (pcu/h)	1835	35	1360	335	*
Qc= Circulating flow across entry (pcu/h)	510	2190	95	1415	*
OUTPUT PARAMETERS:					
S = Sharpness of flare = 1.6(E-V)/L	0.04	0.33	0.05	0.39	
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.99	1.00	0.93	1.00	
X2= V + ((E-V)/(1+2S))	10.58	5.50	8.97	6.29	
M = EXP((D-60)/10)	0.20	0.20	0.20	0.20	
F = 303*X2	3206	1667	2719	1906	
Td= 1+(0.5/(1+M))	1.42	1.42	1.42	1.42	
Fc= 0.21*Td(1+0.2*X2)	0.93	0.62	0.83	0.67	
Qe= K(F-Fc*Qc)	2712	300	2463	956	
DFC = Design flow/Capacity = Q/Qe	0.68	0.12	0.55	0.35	

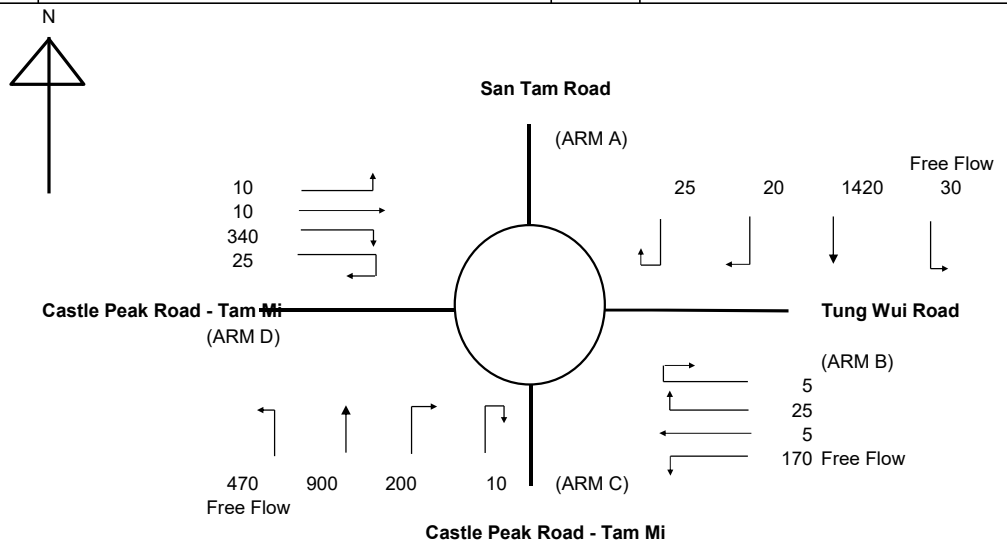
TOTAL ENTRY FLOWS 4265 PCU

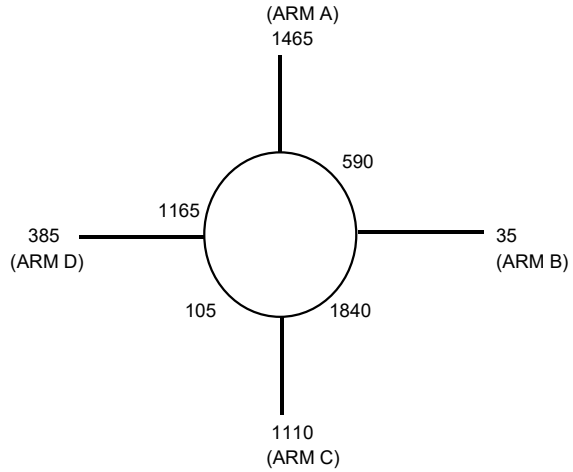
CRITICAL DFC 0.68

ROUNDABOUT CAPACITY CALCULATIO

AECOM

Junction	J1 - Castle Peak Road - Tam Mi / San Tam Road	Scenario	2034 PM Design Traffic Flows (Planned Layout) - With Improvement	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	22/Mar/24





ARM	A	B	C	D	
INPUT PARAMETERS:					
V = Approach half width (m)	10.30	4.00	8.70	4.10	
E = Entry width (m)	10.60	6.50	9.00	8.00	
L = Effective length of flare (m)	13.00	12.00	10.00	16.00	
R = Entry radius (m)	25.00	22.00	21.00	20.00	
D = Inscribed circle diameter (m)	44.00	44.00	44.00	44.00	
A = Entry angle (degree)	35.00	30.00	50.00	30.00	
Q = Entry flow (pcu/h)	1465	35	1110	385	*
Qc= Circulating flow across entry (pcu/h)	590	1840	105	1165	*
OUTPUT PARAMETERS:					
S = Sharpness of flare = 1.6(E-V)/L	0.04	0.33	0.05	0.39	
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.99	1.00	0.93	1.00	
X2= V + ((E-V)/(1+2S))	10.58	5.50	8.97	6.29	
M = EXP((D-60)/10)	0.20	0.20	0.20	0.20	
F = 303*X2	3206	1667	2719	1906	
Td= 1+(0.5/(1+M))	1.42	1.42	1.42	1.42	
Fc= 0.21*Td(1+0.2*X2)	0.93	0.62	0.83	0.67	
Qe= K(F-Fc*Qc)	2639	520	2455	1124	
DFC = Design flow/Capacity = Q/Qe	0.56	0.07	0.45	0.34	

TOTAL ENTRY FLOWS 3665 PCU

CRITICAL DFC 0.56

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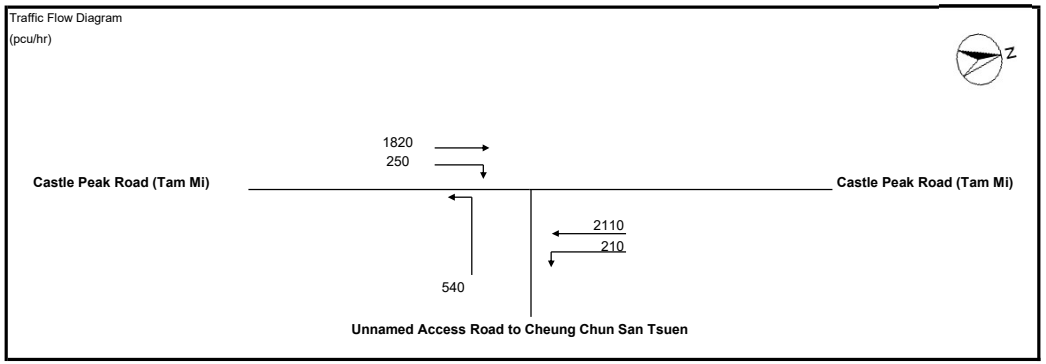
JUNCTION CAPACITY CALCULATION

AECOM

Junction J2 - Castle Peak Road / Unnamed Access Road to Cheung Chun San Tsu	2034 AM Peak Hour Design Traffic Flows - With Improvement	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: May 21

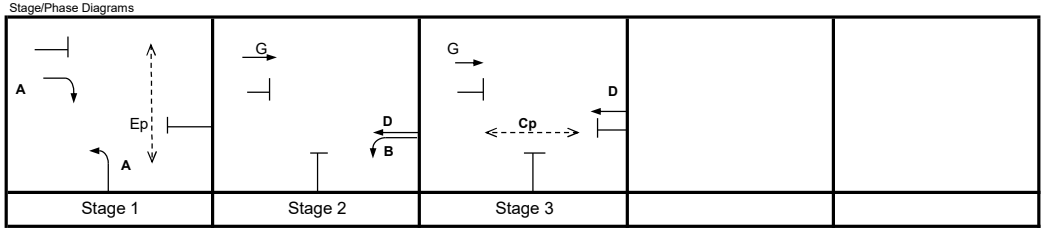
J2

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	3	
Cycle time		C =	120	sec
Sum(y)		Y =	0.639	
Lost time		L =	9	sec
Total Flow		=	16,495	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	51	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	25	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.833	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	30.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	31	sec
Y_{max}	$= 1-L/C$	=	0.925	

Stage/Phase Diagrams



I/G = 5 I/G = 6 I/G =

Critical Case : A,D

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 30%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↓	A	1	3.500	1		12.5	0	0		0		2105			250	250		100%	1879	0.133	
→	G	2,3	3.500	2				1		0		4070		1820		1820			4070	0.447	
↰	A	1	3.650	2	20			1		0		4100	540			540	100%		3814	0.142	0.142
↰	B	2	3.650	1	15			1		0		1980	210			210	100%		1800	0.117	
←	D	2,3	3.650	2				0		0		4240		2110		2110			4240	0.498	0.498

Pedestrian Crossing			GM		FGM				
	Cp	3	min.	11	+	21	=	32	sec
	Ep	1	min.	11	+	10	=	21	sec

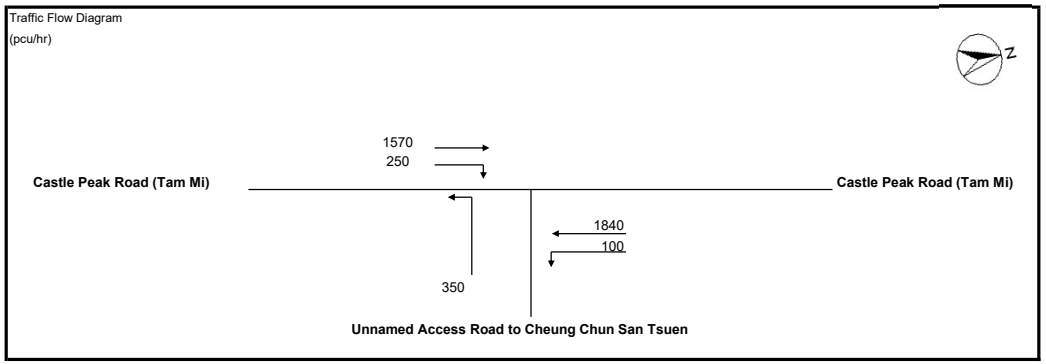
JUNCTION CAPACITY CALCULATION

AECOM

Junction J2 - Castle Peak Road / Unnamed Access Road to Cheung Chun San Tsu	2034 PM Peak Hour Design Traffic Flows - With Improvement	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: May 21

J2

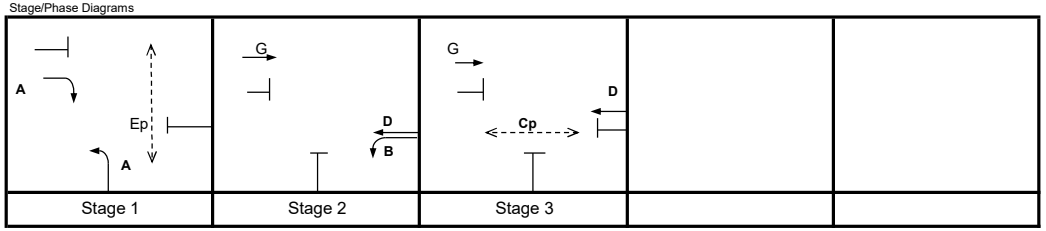
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.567	
Lost time	L =	9	sec
Total Flow	=	16,495	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	43	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	21	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.833	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	46.8	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	24	sec
Y_{max}	$= 1-L/C$	=	0.925	

Stage/Phase Diagrams



I/G = 5 I/G = 6 I/G =

Critical Case : A,D

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 47%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↓	A	1	3.500	1		12.5	0	0		0		2105			250	250		100%	1879	0.133	0.133
→	G	2,3	3.500	2				1		0		4070		1570		1570			4070	0.386	
↰	A	1	3.650	2	20			1		0		4100	350			350	100%		3814	0.092	
↰	B	2	3.650	1	15			1		0		1980	100			100	100%		1800	0.056	
←	D	2,3	3.650	2				0		0		4240		1840		1840			4240	0.434	0.434

Pedestrian Crossing			GM		FGM				
	Cp	3	min.	11	+	21	=	32	sec
	Ep	1	min.	11	+	10	=	21	sec

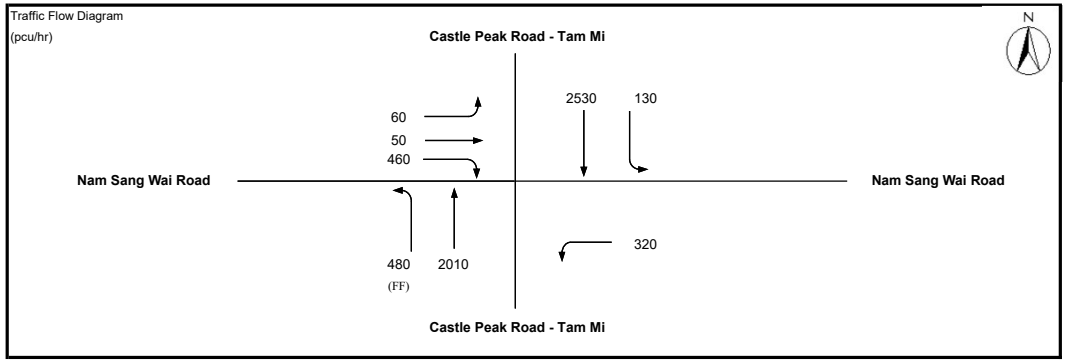
JUNCTION CAPACITY CALCULATION

AECOM

Junction J3 - Castle Peak Road - Tam Mi / Nam Sang Wai Road	2034 AM Design Traffic Flows with Improvement	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: Apr 24

J3

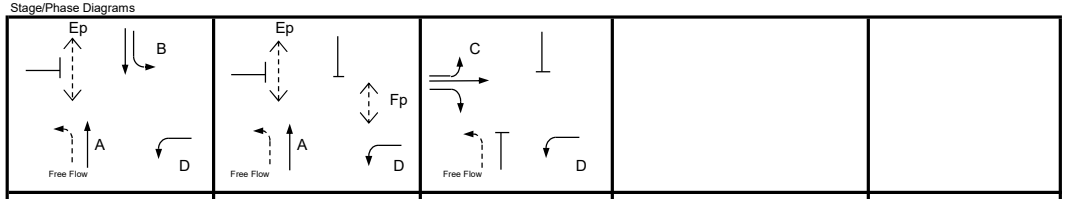
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.579	
Lost time	L =	22	sec
Total Flow	=	16,720	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	90	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	52	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.735	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	27.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	62	sec
Y_{max}	$= 1-L/C$	=	0.817	

Stage/Phase Diagrams



I/G = 9 G = 5 I/G = 5 I/G = 5

Critical Case : B,Fp,C

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 27%

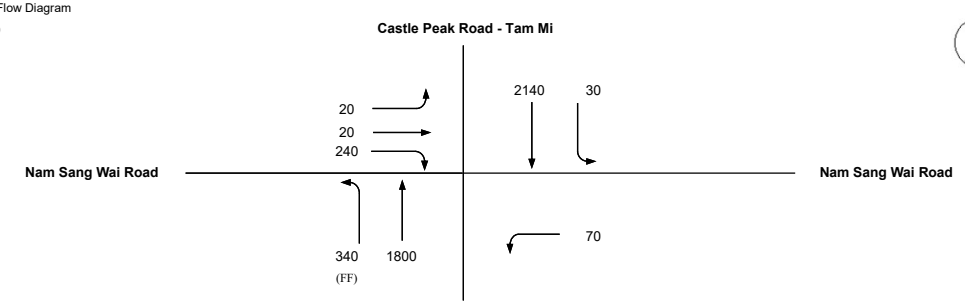
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	ADJ. SAT. FLOW	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR y	CRITICAL y	EFFECTIVE GREEN g=y/Yx(C-L) (sec)	ACTUAL GREEN G (sec)	DEGREE OF SATURATION X	Average Queue N
↑	A	1,2	3.750	2				1		0		4120	4120		2010		2010			4120	0.488		83	82	0.000	10
↓	B	1	3.400	1	35			1		0		1955	1955	130	712		842	15%		1942	0.434	0.434	73	72	0.000	11
↓	B	1	3.400	2				0		0		4190	4190		1818		1818			4190	0.434		73	72	0.000	12
↰	D	1,2,3	6.300	1	18			1		0		2245	2245	320			320	100%		2072	0.154			120		
↕	C	3	4.200	1	10	25	0	1		0		2035	2035	60	50	166	276	22%	60%	1904	0.145	0.145	25	24	0.000	7
↳	C	3	4.200	1		20	0	0		0		2175	2175			294	294		100%	2023	0.145		25	24	0.000	8
Pedestrian Crossing				GM		FGM																				
	Ep	1,2	min.	7	+	13	=	20	sec																	
	Fp	2	min.	5	+	5	=	10	sec													*				

JUNCTION CAPACITY CALCULATION

AECOM

Junction J3 - Castle Peak Road - Tam Mi / Nam Sang Wai Road	2034 PM Design Traffic Flows with Improvement	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: Apr 24

Traffic Flow Diagram
(pcu/hr)

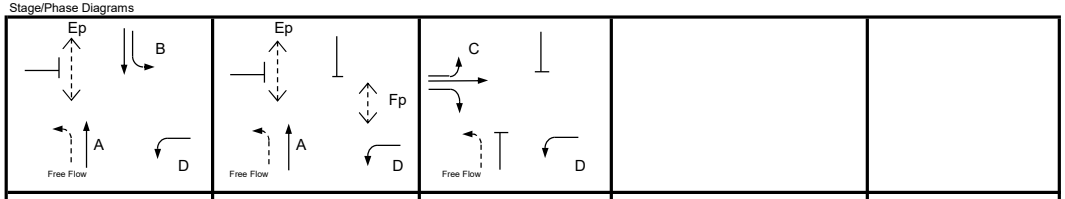


J3

No. of stages per cycle	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.508	
Lost time	L =	10	sec
Total Flow	=	16,720	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	41	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	20	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.825	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	62.4	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	23	sec
Y_{max}	$= 1-L/C$	=	0.917	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3		
I/G =	I/G = 6	I/G = 6		

Critical Case : A,C

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 62%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	ADJ. SAT. FLOW	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*	EFFECTIVE GREEN g=y/Yx(C-L) (sec)	ACTUAL GREEN G (sec)	DEGREE OF SATURATION X	Average Queue N
↑	A	1,2	3.750	2				1		0		4120	4120		1800		1800			4120	0.437	0.437	95	82	0.000	9
↓	B	1	3.400	1	35			1		0		1955	1955	30	659		689	4%		1951	0.353		77	76	0.000	8
↓	B	1	3.400	2				0		0		4190	4190		1481		1481			4190	0.353		77	76	0.000	9
↰	D	1,2,3	6.300	1	18			1		0		2245	2245	70			70	100%		2072	0.034			120		
↕	C	3	4.200	1	10	25	0	1		0		2035	2035	20	20	96	136	15%	71%	1912	0.071		15	14	0.000	4
↳	C	3	4.200	1		20	0	0		0		2175	2175			144	144		100%	2023	0.071	0.071	15	14	0.000	4

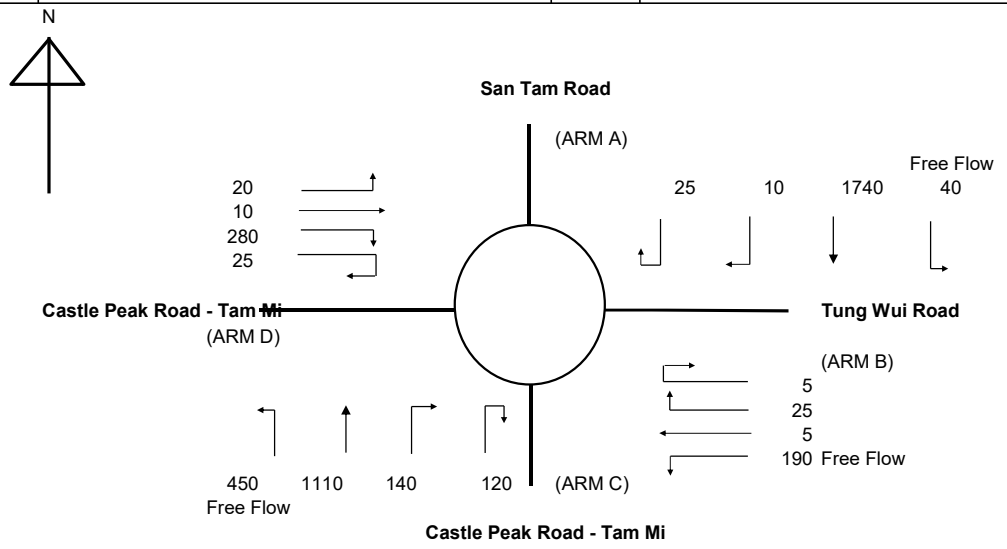
Pedestrian Crossing			GM		FGM				
Ep	1,2	min.	7	+	13	=	20	sec	
Fp	2	min.	5	+	5	=	10	sec	

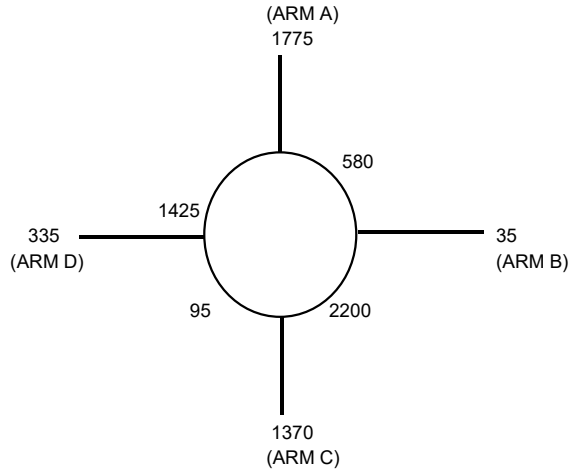
Design Flow - Sensitivity Test I

ROUNDABOUT CAPACITY CALCULATIO

AECOM

Junction	J1 - Castle Peak Road - Tam Mi / San Tam Road	Scenario	2034 AM Design Traffic Flows (Planned Layout) - Sensitivity Test (I)	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	22/Mar/24





ARM	A	B	C	D	
INPUT PARAMETERS:					
V = Approach half width (m)	10.30	4.00	8.70	4.10	
E = Entry width (m)	10.60	6.50	9.00	8.00	
L = Effective length of flare (m)	13.00	12.00	10.00	16.00	
R = Entry radius (m)	25.00	22.00	21.00	20.00	
D = Inscribed circle diameter (m)	44.00	44.00	44.00	44.00	
A = Entry angle (degree)	35.00	30.00	50.00	30.00	
Q = Entry flow (pcu/h)	1775	35	1370	335	*
Qc= Circulating flow across entry (pcu/h)	580	2200	95	1425	*
OUTPUT PARAMETERS:					
S = Sharpness of flare = 1.6(E-V)/L	0.04	0.33	0.05	0.39	
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.99	1.00	0.93	1.00	
X2= V + ((E-V)/(1+2S))	10.58	5.50	8.97	6.29	
M = EXP((D-60)/10)	0.20	0.20	0.20	0.20	
F = 303*X2	3206	1667	2719	1906	
Td= 1+(0.5/(1+M))	1.42	1.42	1.42	1.42	
Fc= 0.21*Td(1+0.2*X2)	0.93	0.62	0.83	0.67	
Qe= K(F-Fc*Qc)	2648	294	2463	949	
DFC = Design flow/Capacity = Q/Qe	0.67	0.12	0.56	0.35	

TOTAL ENTRY FLOWS 4195 PCU

CRITICAL DFC 0.67

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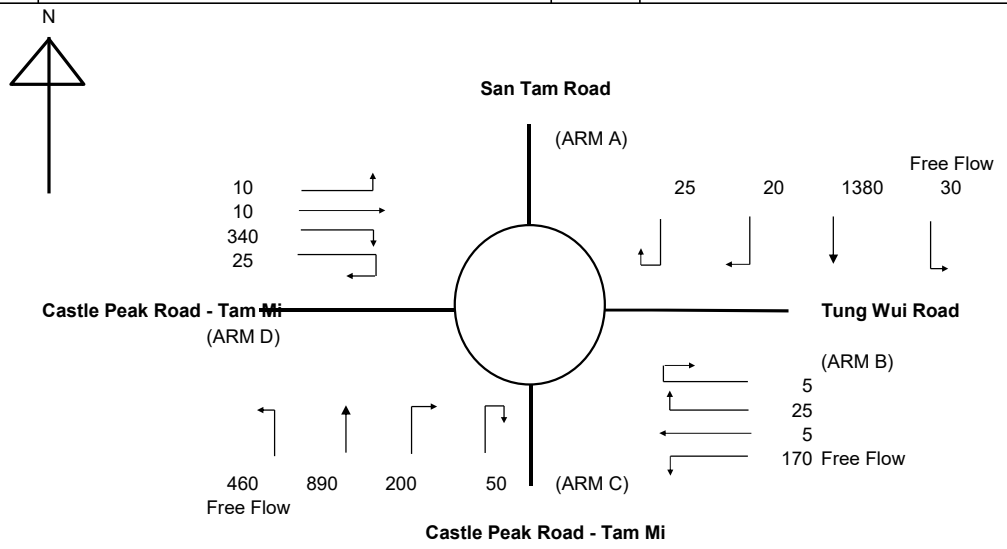
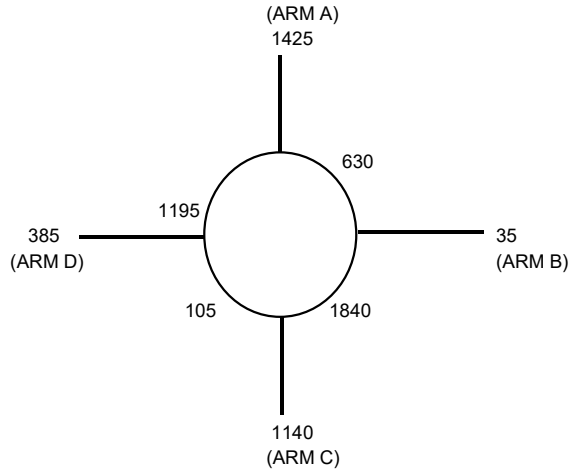
ROUNDABOUT CAPACITY CALCULATIO

AECOM

Junction	J1 - Castle Peak Road - Tam Mi / San Tam Road	Scenario	2034 PM Design Traffic Flows (Planned Layout) - Sensitivity Test (I)	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	22/Mar/24



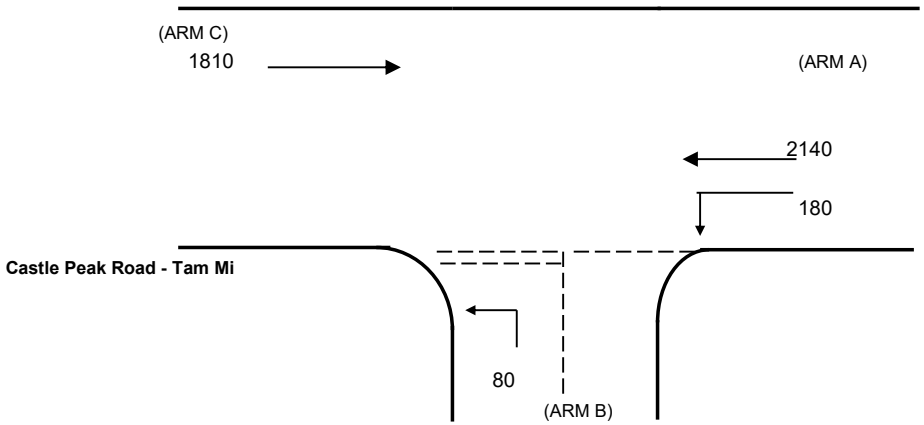


ARM	A	B	C	D	
INPUT PARAMETERS:					
V = Approach half width (m)	10.30	4.00	8.70	4.10	
E = Entry width (m)	10.60	6.50	9.00	8.00	
L = Effective length of flare (m)	13.00	12.00	10.00	16.00	
R = Entry radius (m)	25.00	22.00	21.00	20.00	
D = Inscribed circle diameter (m)	44.00	44.00	44.00	44.00	
A = Entry angle (degree)	35.00	30.00	50.00	30.00	
Q = Entry flow (pcu/h)	1425	35	1140	385	*
Qc= Circulating flow across entry (pcu/h)	630	1840	105	1195	*
OUTPUT PARAMETERS:					
S = Sharpness of flare = 1.6(E-V)/L	0.04	0.33	0.05	0.39	
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.99	1.00	0.93	1.00	
X2= V + ((E-V)/(1+2S))	10.58	5.50	8.97	6.29	
M = EXP((D-60)/10)	0.20	0.20	0.20	0.20	
F = 303*X2	3206	1667	2719	1906	
Td= 1+(0.5/(1+M))	1.42	1.42	1.42	1.42	
Fc= 0.21*Td(1+0.2*X2)	0.93	0.62	0.83	0.67	
Qe= K(F-Fc*Qc)	2602	520	2455	1104	
DFC = Design flow/Capacity = Q/Qe	0.55	0.07	0.46	0.35	

TOTAL ENTRY FLOWS 3645 PCU

CRITICAL DFC 0.55

Junction	J8 - Castle Peak Road / Unnamed Access Road to Cheung Chun San Tsuen	Scenario	2034 AM Design Flow - Sensitivity Test (I)	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	Mar-24



NOTES : (GEOMETRIC INPUT DATA)
W = MAJOR ROAD WIDTH
W cr = CENTRAL RESERVE WIDTH
W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b

D = STREAM-SPECIFIC B-A
E = STREAM-SPECIFIC B-C
F = STREAM-SPECIFIC C-B
Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W =	14.6	(metres)
W cr =	2	(metres)
q a-b =	180	(pcu/hr)
q a-c =	2140	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b =	0	(metres)
Vr c-b =	0	(metres)
q c-a =	1810	(pcu/hr)
q c-b =	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a = 0	(metres)
W b-c = 5	(metres)
Vl b-a = 0	(metres)
Vr b-a = 150	(metres)
Vr b-c = 150	(metres)
q b-a = 0	(pcu/hr)
q b-c = 80	(pcu/hr)

GEOMETRIC FACTORS :

D =	0.613919
E =	1.157326
F =	0.585955
Y =	0.496300

THE CAPACITY OF MOVEMENT :

Q b-a =	31
Q b-c =	400
Q c-b =	191
Q b-ac =	400

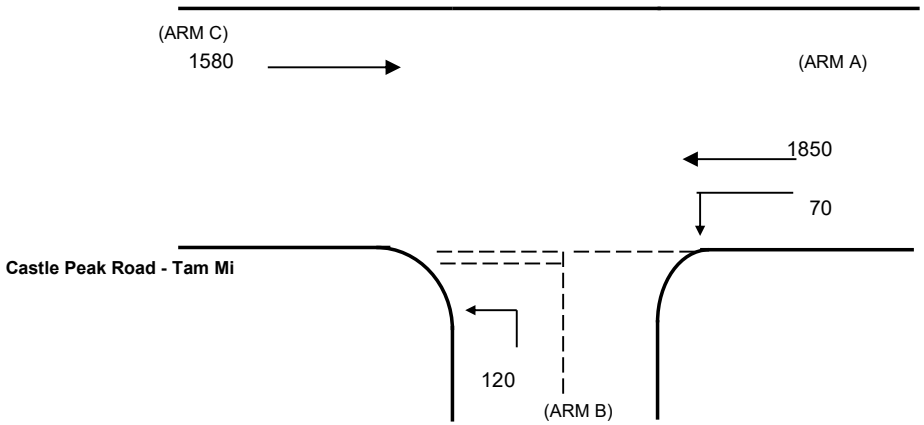
CRITICAL DFC = 0.20

COMPARISION OF DESIGN FLOW TO CAPACITY :

DFC b-a =	0.00
DFC b-c =	0.20
DFC c-b =	0.00
DFC b-ac =	0.00

Filename : stle Peak Road-Cheung Chun San Tsuen Road.xlsm / DesAB_Se

Junction	J8 - Castle Peak Road / Unnamed Access Road to Cheung Chun San Tsuen	Scenario	2034 PM Design Flow - Sensitivity Test (I)	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	Mar-24



NOTES : (GEOMETRIC INPUT DATA)
W = MAJOR ROAD WIDTH
W cr = CENTRAL RESERVE WIDTH
W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b

D = STREAM-SPECIFIC B-A
E = STREAM-SPECIFIC B-C
F = STREAM-SPECIFIC C-B
Y = (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W =	14.6	(metres)
W cr =	2	(metres)
q a-b =	70	(pcu/hr)
q a-c =	1850	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b =	0	(metres)
Vr c-b =	0	(metres)
q c-a =	1580	(pcu/hr)
q c-b =	0	(pcu/hr)

MINOR ROAD (ARM B)

W b-a = 0	(metres)
W b-c = 5	(metres)
Vl b-a = 0	(metres)
Vr b-a = 150	(metres)
Vr b-c = 150	(metres)
q b-a = 0	(pcu/hr)
q b-c = 120	(pcu/hr)

GEOMETRIC FACTORS :

D =	0.613919
E =	1.157326
F =	0.585955
Y =	0.496300

THE CAPACITY OF MOVEMENT :

Q b-a =	84
Q b-c =	470
Q c-b =	233
Q b-ac =	470

CRITICAL DFC = 0.26

COMPARISION OF DESIGN FLOW TO CAPACITY :

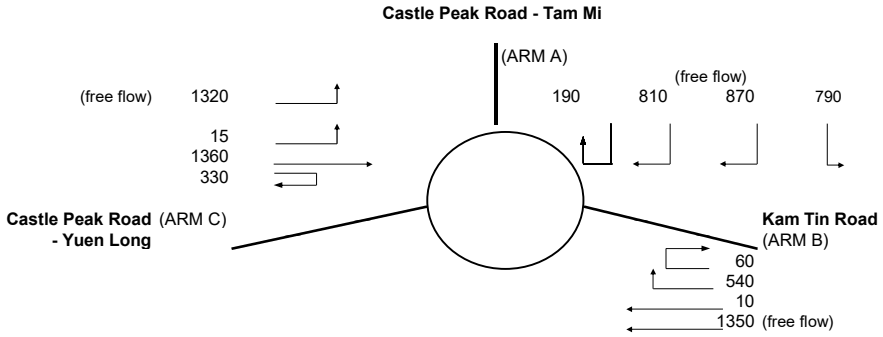
DFC b-a =	0.00
DFC b-c =	0.26
DFC c-b =	0.00
DFC b-ac =	0.00

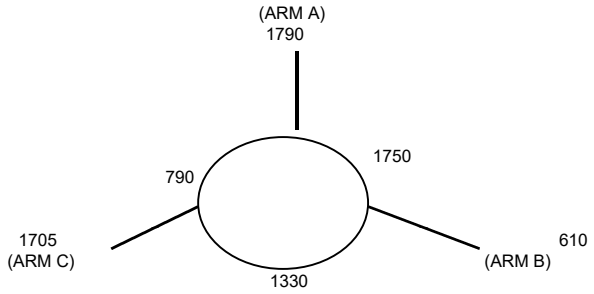
Filename : stle Peak Road-Cheung Chun San Tsuen Road.xlsm / DesAB_Se

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J4 - Au Tau Interchange	Scenario	2034 AM Peak Hour Design Traffic Flows - Sensitivity Test (I)	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	Mar 2024





ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	6.50	7.00	7.30
E = Entry width (m)	11.00	7.00	9.70
L = Effective length of flare (m)	22.00	1.00	50.00
R = Entry radius (m)	45.00	100.00	100.00
D = Inscribed circle diameter (m)	65.00	65.00	65.00
A = Entry angle (degree)	45.00	30.00	20.00
Q = Entry flow (pcu/h)	1790	610	1705
Qc= Circulating flow across entry (pcu/h)	1750	1330	790
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.33	0.00	0.08
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.98	1.04	1.07
X2= V + ((E-V)/(1+2S))	9.22	7.00	9.38
M = EXP((D-60)/10)	1.65	1.65	1.65
F = 303*X2	2794	2121	2842
Td= 1+(0.5/(1+M))	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.71	0.60	0.72
Qe= K(F-Fc*Qc)	1513	1376	2443
DFC = Design flow/Capacity = Q/Qe	1.18	0.44	0.70

TOTAL ENTRY FLOWS = 6075 PCU

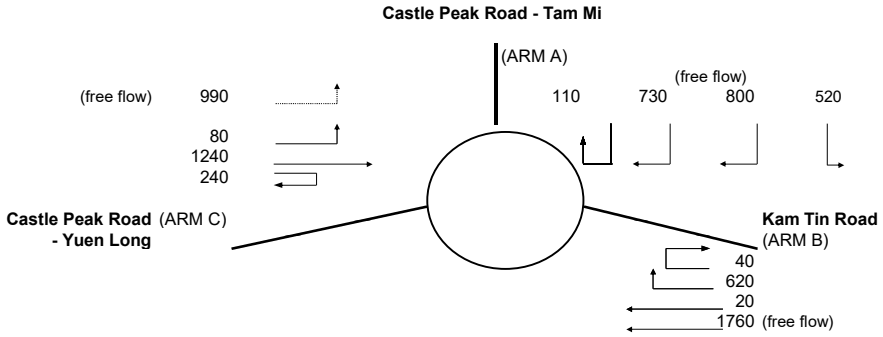
CRITICAL DFC = 1.18

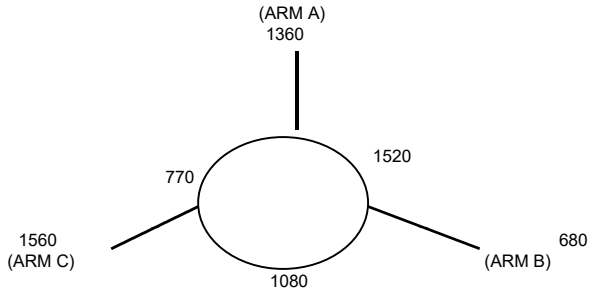
Filename : J10 - Au Tau Interchange.xlsx / DesAB_Sen1_AM

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J4 - Au Tau Interchange	Scenario	2034 PM Peak Hour Design Traffic Flows - Sensitivity Test (I)	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	Mar 2024





ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	6.50	7.00	7.30
E = Entry width (m)	11.00	7.00	9.70
L = Effective length of flare (m)	22.00	1.00	50.00
R = Entry radius (m)	45.00	100.00	100.00
D = Inscribed circle diameter (m)	65.00	65.00	65.00
A = Entry angle (degree)	45.00	30.00	20.00
Q = Entry flow (pcu/h)	1360	680	1560
Qc= Circulating flow across entry (pcu/h)	1520	1080	770
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.33	0.00	0.08
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.98	1.04	1.07
X2= V + ((E-V)/(1+2S))	9.22	7.00	9.38
M = EXP((D-60)/10)	1.65	1.65	1.65
F = 303*X2	2794	2121	2842
Td= 1+(0.5/(1+M))	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.71	0.60	0.72
Qe= K(F-Fc*Qc)	1672	1532	2458
DFC = Design flow/Capacity = Q/Qe	0.81	0.44	0.63

TOTAL ENTRY FLOWS = 6010 PCU

CRITICAL DFC = 0.81

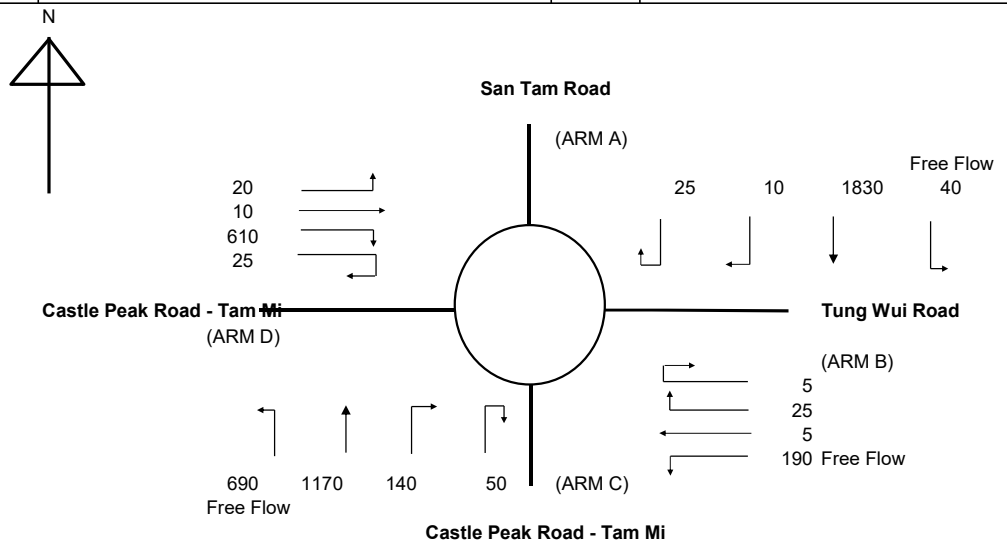
Filename : J10 - Au Tau Interchange.xlsx / DesAB_Sen1_PM

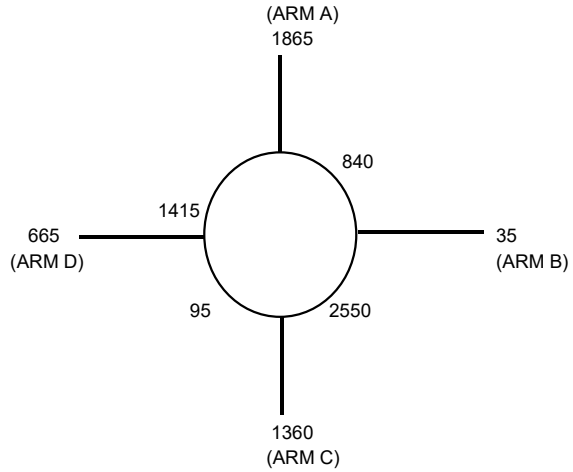
Design Flow - Sensitivity Test II

ROUNDABOUT CAPACITY CALCULATIO

AECOM

Junction	J1 - Castle Peak Road - Tam Mi / San Tam Road	Scenario	2034 AM Design Traffic Flows (Planned Layout) - Sensitivity Test (II)	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	22/Mar/24





ARM	A	B	C	D	
INPUT PARAMETERS:					
V = Approach half width (m)	10.30	4.00	8.70	4.10	
E = Entry width (m)	10.60	6.50	9.00	8.00	
L = Effective length of flare (m)	13.00	12.00	10.00	16.00	
R = Entry radius (m)	25.00	22.00	21.00	20.00	
D = Inscribed circle diameter (m)	44.00	44.00	44.00	44.00	
A = Entry angle (degree)	35.00	30.00	50.00	30.00	
Q = Entry flow (pcu/h)	1865	35	1360	665	*
Qc= Circulating flow across entry (pcu/h)	840	2550	95	1415	*
OUTPUT PARAMETERS:					
S = Sharpness of flare = 1.6(E-V)/L	0.04	0.33	0.05	0.39	
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.99	1.00	0.93	1.00	
X2= V + ((E-V)/(1+2S))	10.58	5.50	8.97	6.29	
M = EXP((D-60)/10)	0.20	0.20	0.20	0.20	
F = 303*X2	3206	1667	2719	1906	
Td= 1+(0.5/(1+M))	1.42	1.42	1.42	1.42	
Fc= 0.21*Td(1+0.2*X2)	0.93	0.62	0.83	0.67	
Qe= K(F-Fc*Qc)	2409	74	2463	956	
DFC = Design flow/Capacity = Q/Qe	0.77	0.47	0.55	0.70	

TOTAL ENTRY FLOWS 4845 PCU

CRITICAL DFC 0.77

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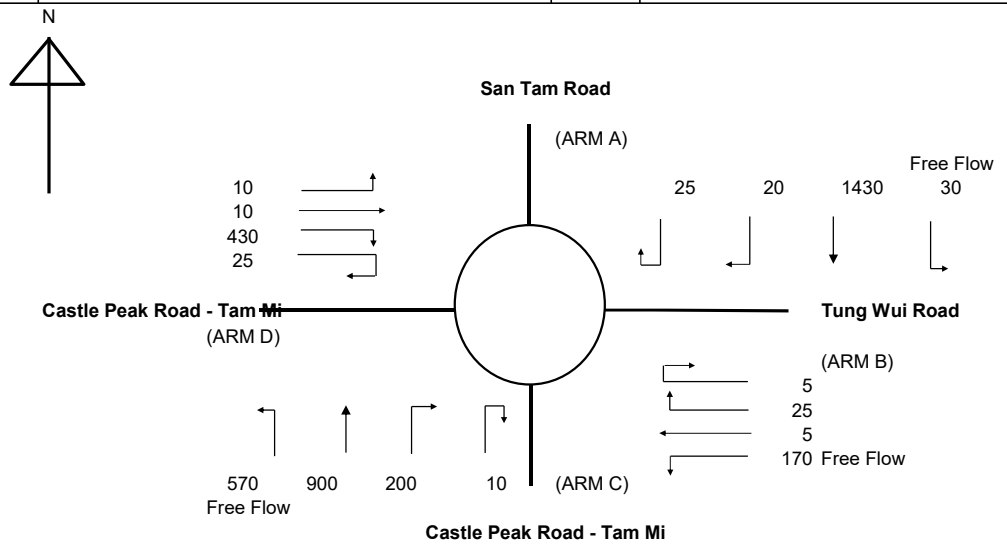
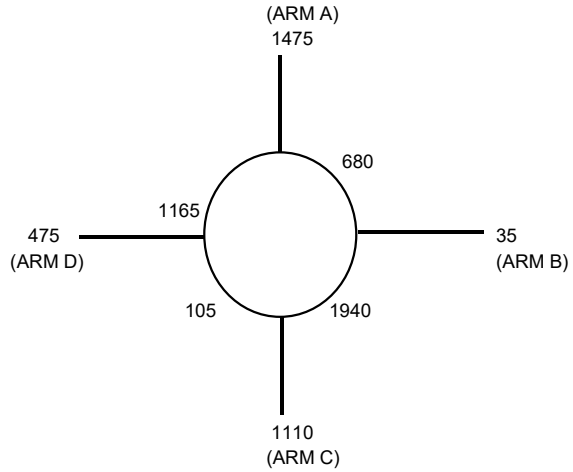
ROUNDABOUT CAPACITY CALCULATIO

AECOM

Junction	J1 - Castle Peak Road - Tam Mi / San Tam Road	Scenario	2034 PM Design Traffic Flows (Planned Layout) - Sensitivity Test (II)	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	22/Mar/24





ARM	A	B	C	D	
INPUT PARAMETERS:					
V = Approach half width (m)	10.30	4.00	8.70	4.10	
E = Entry width (m)	10.60	6.50	9.00	8.00	
L = Effective length of flare (m)	13.00	12.00	10.00	16.00	
R = Entry radius (m)	25.00	22.00	21.00	20.00	
D = Inscribed circle diameter (m)	44.00	44.00	44.00	44.00	
A = Entry angle (degree)	35.00	30.00	50.00	30.00	
Q = Entry flow (pcu/h)	1475	35	1110	475	*
Qc= Circulating flow across entry (pcu/h)	680	1940	105	1165	*
OUTPUT PARAMETERS:					
S = Sharpness of flare = 1.6(E-V)/L	0.04	0.33	0.05	0.39	
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.99	1.00	0.93	1.00	
X2= V + ((E-V)/(1+2S))	10.58	5.50	8.97	6.29	
M = EXP((D-60)/10)	0.20	0.20	0.20	0.20	
F = 303*X2	3206	1667	2719	1906	
Td= 1+(0.5/(1+M))	1.42	1.42	1.42	1.42	
Fc= 0.21*Td(1+0.2*X2)	0.93	0.62	0.83	0.67	
Qe= K(F-Fc*Qc)	2556	457	2455	1124	
DFC = Design flow/Capacity = Q/Qe	0.58	0.08	0.45	0.42	

TOTAL ENTRY FLOWS 3865 PCU

CRITICAL DFC 0.58

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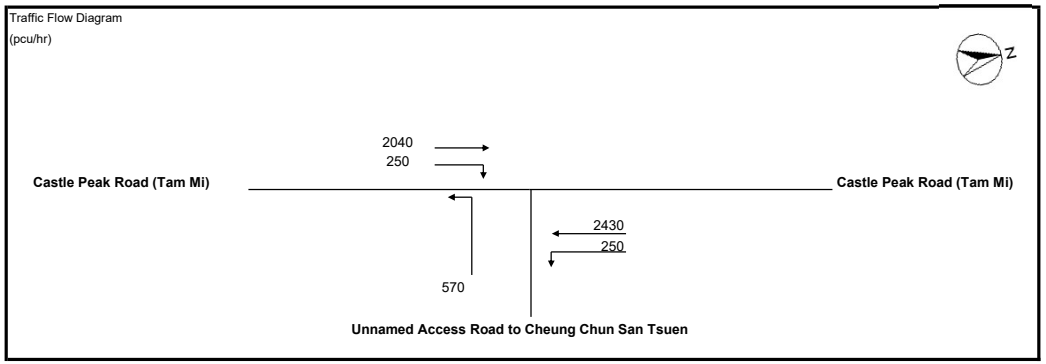
JUNCTION CAPACITY CALCULATION

AECOM

Junction J2 - Castle Peak Road / Unnamed Access Road to Cheung Chun San Tsu	2034 AM Peak Hour Design Traffic Flows - Sensitivity Test (II)	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: May 21

J2

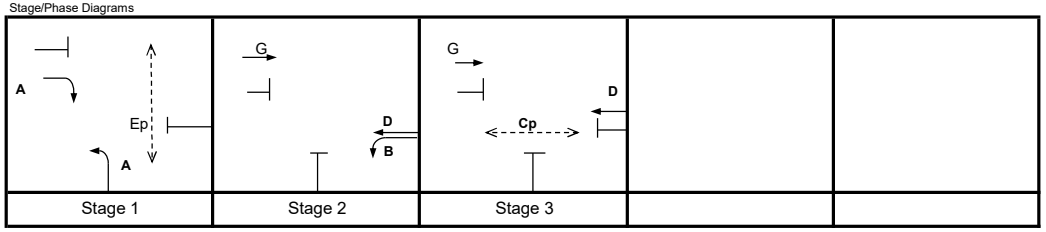
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.723	
Lost time	L =	9	sec
Total Flow	=	16,495	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	67	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	32	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.833	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	15.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	46	sec
Y_{max}	$= 1-L/C$	=	0.925	

Stage/Phase Diagrams



Critical Case : A,D

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 15%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↓	A	1	3.500	1		12.5	0	0		0		2105			250	250		100%	1879	0.133	
→	G	2,3	3.500	2				1		0		4070		2040		2040			4070	0.501	
↰	A	1	3.650	2	20			1		0		4100	570			570	100%		3814	0.149	0.149
↰	B	2	3.650	1	15			1		0		1980	250			250	100%		1800	0.139	
←	D	2,3	3.650	2				0		0		4240		2430		2430			4240	0.573	0.573

Pedestrian Crossing			GM		FGM				
	Cp	3	min.	11	+	21	=	32	sec
	Ep	1	min.	11	+	10	=	21	sec

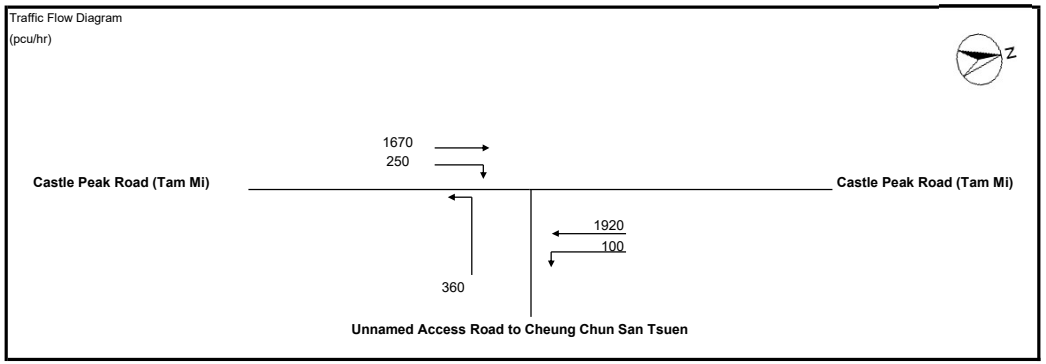
JUNCTION CAPACITY CALCULATION

AECOM

Junction J2 - Castle Peak Road / Unnamed Access Road to Cheung Chun San Tsu	2034 PM Peak Hour Design Traffic Flows - Sensitivity Test (II)	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: May 21

J2

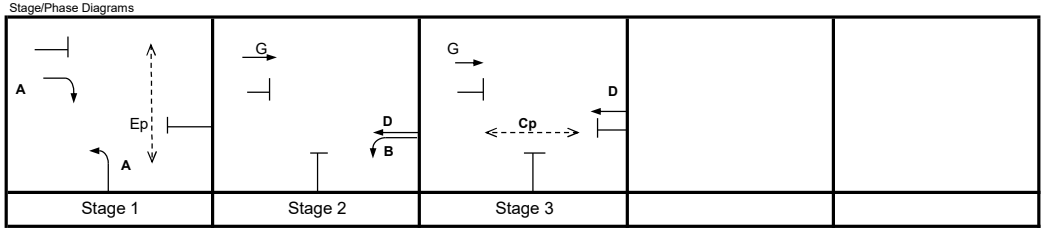
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.586	
Lost time	L =	9	sec
Total Flow	=	16,495	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	45	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	22	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.833	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	42.1	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	26	sec
Y_{max}	$= 1-L/C$	=	0.925	

Stage/Phase Diagrams



I/G = 5 I/G = 6 I/G =

Critical Case : A,D

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 42%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↓	A	1	3.500	1		12.5	0	0		0		2105			250	250		100%	1879	0.133	0.133
→	G	2,3	3.500	2				1		0		4070		1670		1670			4070	0.410	
↰	A	1	3.650	2	20			1		0		4100	360			360	100%		3814	0.094	
↰	B	2	3.650	1	15			1		0		1980	100			100	100%		1800	0.056	
←	D	2,3	3.650	2				0		0		4240		1920		1920			4240	0.453	0.453

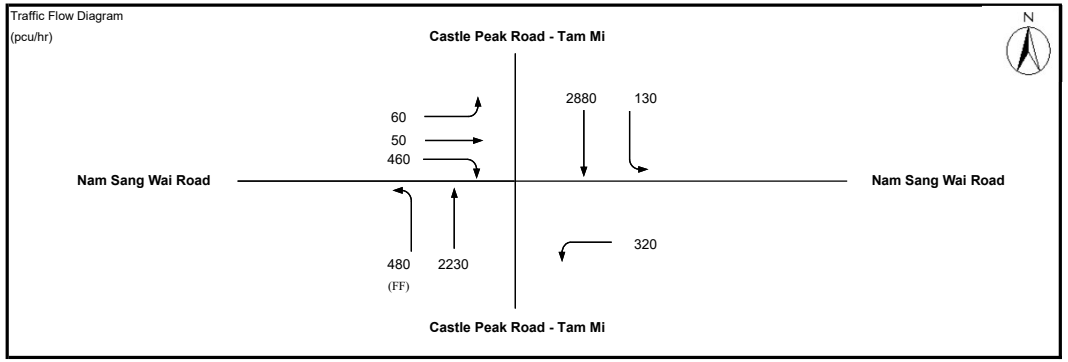
Pedestrian Crossing			GM		FGM				
	Cp	3	min.	11	+	21	=	32	sec
	Ep	1	min.	11	+	10	=	21	sec

JUNCTION CAPACITY CALCULATION

AECOM

Junction J3 - Castle Peak Road - Tam Mi / Nam Sang Wai Road	2034 AM Design Traffic Flows with Improvement	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: Nov 23

Traffic Flow Diagram
(pcu/hr)

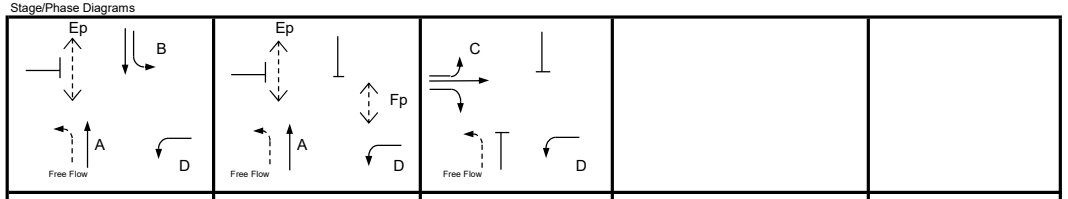


J3

No. of stages per cycle	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.636	
Lost time	L =	22	sec
Total Flow	=	16,720	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	104	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	60	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.735	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	15.6	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	75	sec
Y_{max}	$= 1-L/C$	=	0.817	

Stage/Phase Diagrams



Stage 1	Stage 2	Stage 3		
I/G = 9	G = 5	I/G = 5	I/G = 5	

Critical Case : B,Fp,C

$R.C._{(C)} = (0.9xY_{max}-Y)/Yx100\% =$ 16%

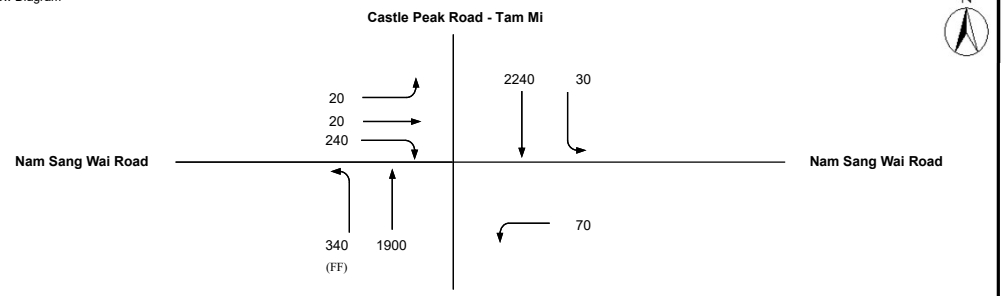
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	ADJ. SAT. FLOW	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↑	A	1,2	3.750	2				1		0		4120	4120		2230		2230			4120	0.541	
↓	B	1	3.400	1	35			1		0		1955	1955	130	824		954	14%		1944	0.491	0.491
↓	B	1	3.400	2				0		0		4190	4190		2056		2056			4190	0.491	
↰	D	1,2,3	6.300	1	18			1		0		2245	2245	320			320	100%		2072	0.154	
↕	C	3	4.200	1	10	25	0	1		0		2035	2035	60	50	166	276	22%	60%	1904	0.145	0.145
↳	C	3	4.200	1		20	0	0		0		2175	2175			294	294		100%	2023	0.145	
Pedestrian Crossing				GM		FGM																
	Ep	1,2	min.	7	+	13	=	20	sec													
	Fp	2	min.	5	+	5	=	10	sec													*

JUNCTION CAPACITY CALCULATION

AECOM

Junction J3 - Castle Peak Road - Tam Mi / Nam Sang Wai Road	2034 PM Design Traffic Flows with Improvement	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: Nov 23

Traffic Flow Diagram
(pcu/hr)

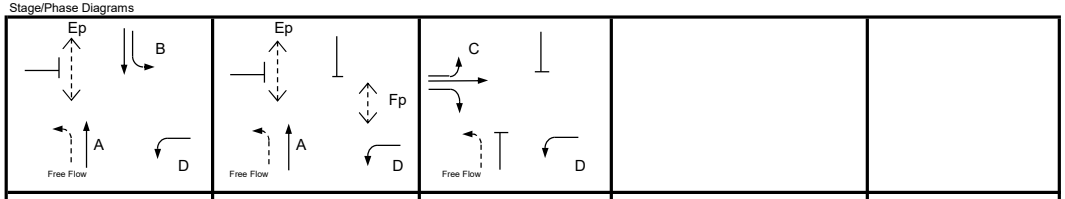


J3

No. of stages per cycle	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.532	
Lost time	L =	10	sec
Total Flow	=	16,720	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	43	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	21	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.825	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	55.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	24	sec
Y_{max}	$= 1-L/C$	=	0.917	

Stage/Phase Diagrams



I/G = I/G = 6 I/G = 6

Critical Case : A,C

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\%$ = 55%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	ADJ. SAT. FLOW	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↑	A	1,2	3.750	2				1		0		4120	4120		1900		1900			4120	0.461	0.461
↓	B	1	3.400	1	35			1		0		1955	1955	30	691		721	4%		1952	0.370	
↓	B	1	3.400	2				0		0		4190	4190		1549		1549			4190	0.370	
↰	D	1,2,3	6.300	1	18			1		0		2245	2245	70			70	100%		2072	0.034	
↕	C	3	4.200	1	10	25	0	1		0		2035	2035	20	20	96	136	15%	71%	1912	0.071	
↳	C	3	4.200	1		20	0	0		0		2175	2175			144	144		100%	2023	0.071	0.071

Pedestrian Crossing				GM		FGM				
	Ep	1,2	min.	7	+	13	=	20	sec	
	Fp	2	min.	5	+	5	=	10	sec	*

JUNCTION CAPACITY CALCULATION

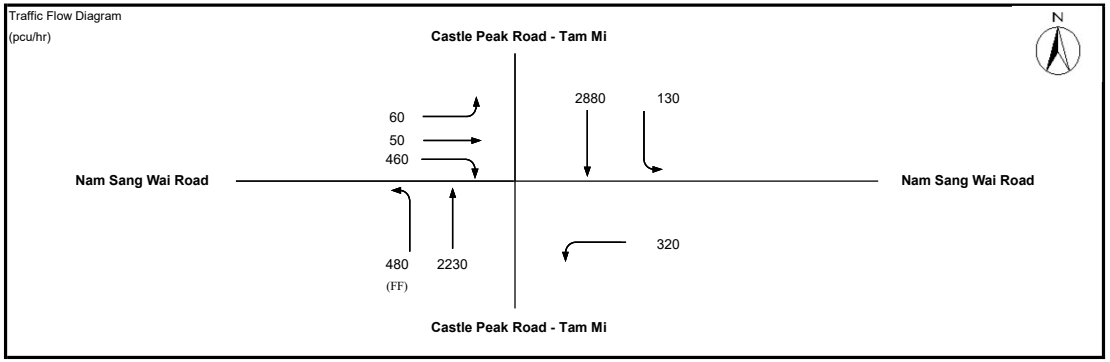
AECOM

Junction J3 - Castle Peak Road - Tam Mi / Nam Sang Wai Road	2034 AM Design Traffic Flows - Sensitivity Test (II)	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: May 23

J3

Traffic Flow Diagram

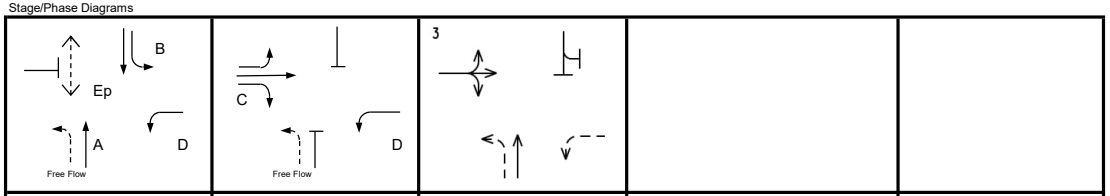
(pcu/hr)



No. of stages per cycle	N =	2	
Cycle time	C =	120	sec
Sum(y)	Y =	0.686	
Lost time	L =	10	sec
Total Flow	=	16,420	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	64	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	32	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.825	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	20.2	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	42	sec
Y_{max}	$= 1-L/C$	=	0.917	

Stage/Phase Diagrams



Stage 1	Stage 2	(Demand Dependent)		
I/G = 6	I/G = 6			

Critical Case : A,C

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 20%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	ADJ. SAT. FLOW	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↑	A	1	3.750	2				1		0		4120	4120		2230		2230			4120	0.541	0.541
↓	B	1	3.400	1	35			1		0	-300	1955	1655	130	718		848	15%		1644	0.516	
↓	B	1	3.400	2				0		0		4190	4190		2162		2162			4190	0.516	
↰	D	1,2	6.300	1	18			1		0		2245	2245	320			320	100%		2072	0.154	
↕	C	2	4.200	1	10	25	0	1		0		2035	2035	60	50	166	276	22%	60%	1904	0.145	0.145
↳	C	2	4.200	1		20	0	0		0		2175	2175			294	294		100%	2023	0.145	
Pedestrian Crossing				GM		FGM																
	Ep	1	min.	7	+	14	=	21	sec													

JUNCTION CAPACITY CALCULATION

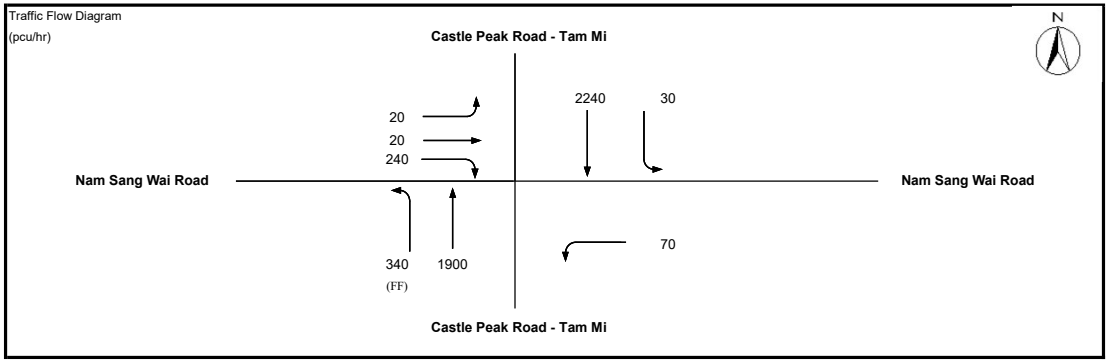
AECOM

Junction J3 - Castle Peak Road - Tam Mi / Nam Sang Wai Road	2034 AM Design Traffic Flows - Sensitivity Test (II)	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: May 23

J3

Traffic Flow Diagram

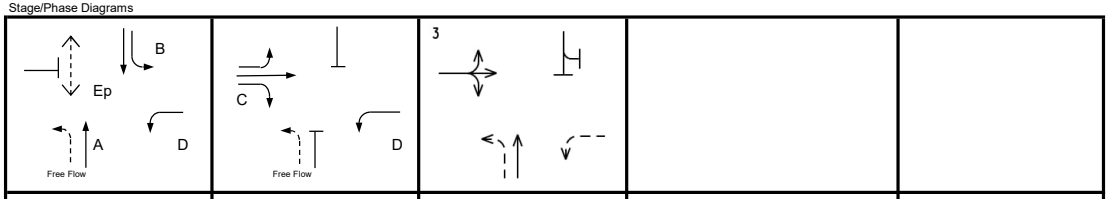
(pcu/hr)



No. of stages per cycle	N =	2	
Cycle time	C =	120	sec
Sum(y)	Y =	0.532	
Lost time	L =	10	sec
Total Flow	=	16,420	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	43	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	21	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.825	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	55.0	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	24	sec
Y_{max}	$= 1-L/C$	=	0.917	

Stage/Phase Diagrams



Stage 1	Stage 2	(Demand Dependent)		
I/G = 6	I/G = 6			

Critical Case : A,C

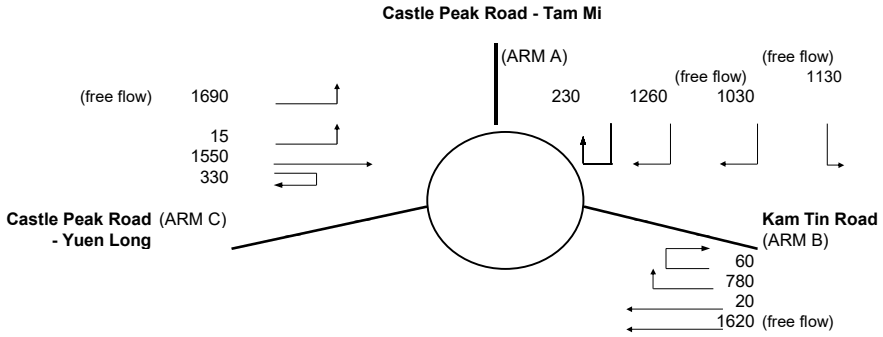
R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 55%

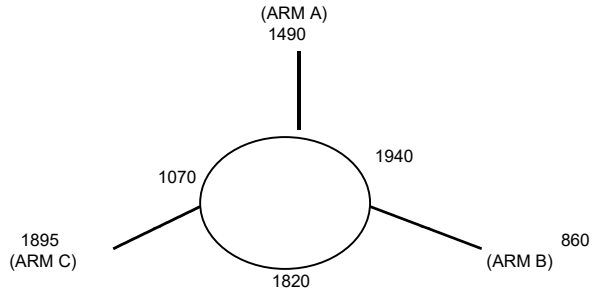
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	ADJ. SAT. FLOW	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↑	A	1	3.750	2				1		0		4120	4120		1900		1900			4120	0.461	0.461
↓	B	1	3.400	1	35			1		0	-300	1955	1655	30	612		642	5%		1652	0.389	
↓	B	1	3.400	2				0		0		4190	4190		1628		1628			4190	0.389	
↰	D	1,2	6.300	1	18			1		0		2245	2245	70			70	100%		2072	0.034	
↕	C	2	4.200	1	10	25	0	1		0		2035	2035	20	20	96	136	15%	71%	1912	0.071	0.071
↳	C	2	4.200	1		20	0	0		0		2175	2175			144	144		100%	2023	0.071	
Pedestrian Crossing				GM		FGM																
	Ep	1	min.	7	+	14	=	21	sec													

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J4 - Au Tau Interchange	Scenario	2034 AM Peak Hour Design Traffic Flows - Sensitivity Test (II)	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	Mar 2024





ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	6.50	7.00	7.30
E = Entry width (m)	11.00	7.00	9.70
L = Effective length of flare (m)	22.00	1.00	50.00
R = Entry radius (m)	45.00	100.00	100.00
D = Inscribed circle diameter (m)	65.00	65.00	65.00
A = Entry angle (degree)	20.00	5.00	20.00
Q = Entry flow (pcu/h)	1490	860	1895
Qc= Circulating flow across entry (pcu/h)	1940	1820	1070
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.33	0.00	0.08
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.06	1.13	1.07
X2= V + ((E-V)/(1+2S))	9.22	7.00	9.38
M = EXP((D-60)/10)	1.65	1.65	1.65
F = 303*X2	2794	2121	2842
Td= 1+(0.5/(1+M))	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.71	0.60	0.72
Qe= K(F-Fc*Qc)	1504	1160	2227
DFC = Design flow/Capacity = Q/Qe	0.99	0.74	0.85

TOTAL ENTRY FLOWS = 6605 PCU

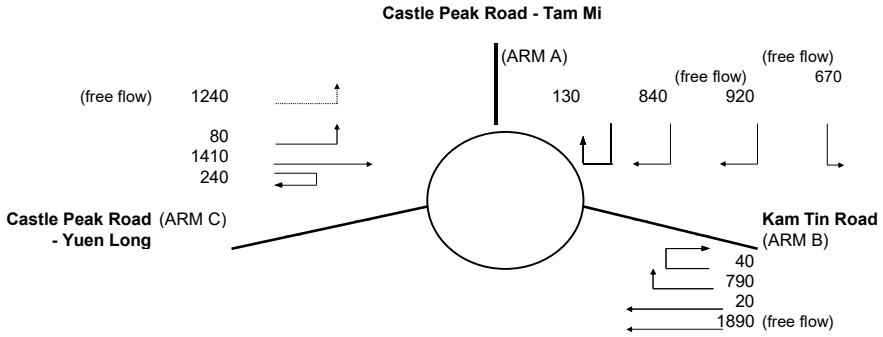
CRITICAL DFC = 0.99

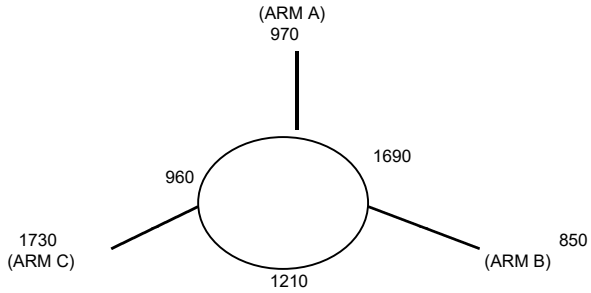
Filename : J10 - Au Tau Interchange.xlsx / DesAB_Sen_AM

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J4 - Au Tau Interchange	Scenario	2034 PM Peak Hour Design Traffic Flows - Sensitivity Test (II)	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	Mar 2024





ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	6.50	7.00	7.30
E = Entry width (m)	11.00	7.00	9.70
L = Effective length of flare (m)	22.00	1.00	50.00
R = Entry radius (m)	45.00	100.00	100.00
D = Inscribed circle diameter (m)	65.00	65.00	65.00
A = Entry angle (degree)	20.00	5.00	20.00
Q = Entry flow (pcu/h)	970	850	1730
Qc= Circulating flow across entry (pcu/h)	1690	1210	960
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.33	0.00	0.08
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.06	1.13	1.07
X2= V + ((E-V)/(1+2S))	9.22	7.00	9.38
M = EXP((D-60)/10)	1.65	1.65	1.65
F = 303*X2	2794	2121	2842
Td= 1+(0.5/(1+M))	1.19	1.19	1.19
Fc= 0.21*Td(1+0.2*X2)	0.71	0.60	0.72
Qe= K(F-Fc*Qc)	1692	1572	2312
DFC = Design flow/Capacity = Q/Qe	0.57	0.54	0.75

TOTAL ENTRY FLOWS = 6190 PCU

CRITICAL DFC = 0.75

Filename : J10 - Au Tau Interchange.xlsx / DesAB_Sen_PM

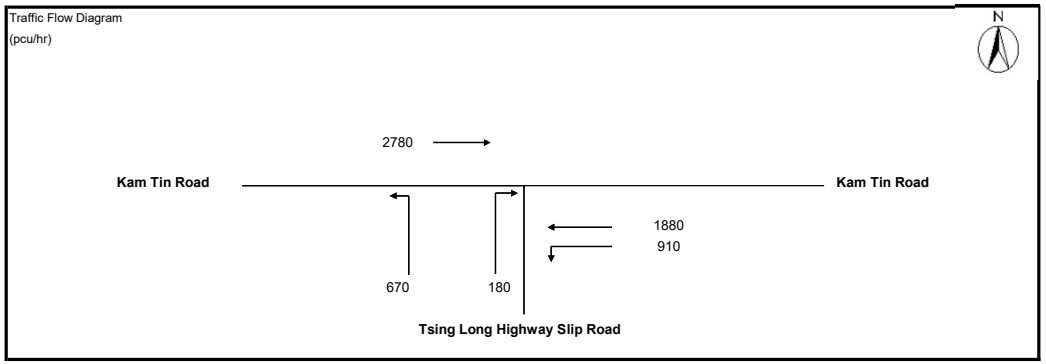
JUNCTION CAPACITY CALCULATION

AECOM

Junction J5 - Kam Tin Road / Tsing Long Highway Slip Road	2034 AM Peak Hour Design Traffic Flows - Sensitivity Test (II)	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: May 21

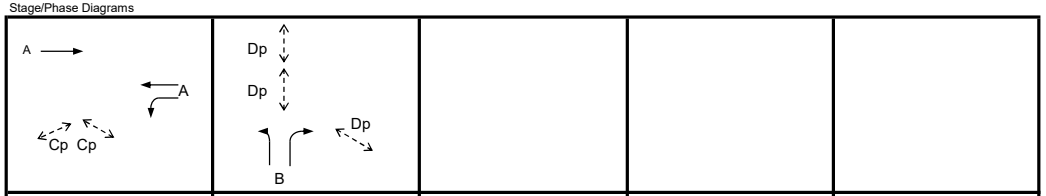
J5

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.647	
Lost time		L =	11	sec
Total Flow		=	20,960	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	61	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	31	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.818	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	26.4	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	39	sec
Y_{max}	$= 1-L/C$	=	0.908	

Stage/Phase Diagrams



I/G = 8 I/G = 5

Critical Case : A,B

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 26%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
→	A	1	3.650	3				1		0		6220		2780		2780			6220	0.447	
←	A	1	3.600	2				0		0	190	4230		1880		1880			4420	0.425	
↰	A	1	3.650	1	50			1		0		1980	910			910	100%		1922	0.473	0.473
↰	B	2	3.650	2	25			1		0		4100	670			670	100%		3868	0.173	0.173
↱	B	2	3.650	2		40	0	0		0		4240			180	180		100%	4087	0.044	

Pedestrian Crossing			GM		FGM				
	Cp	1	min.	5	+	7	=	12	sec
	Dp	2	min.	5	+	10	=	15	sec

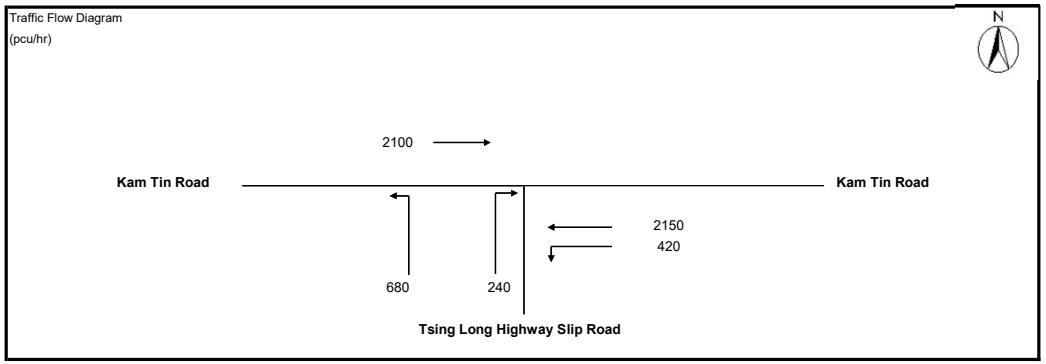
JUNCTION CAPACITY CALCULATION

AECOM

Junction J5 - Kam Tin Road / Tsing Long Highway Slip Road	2034 PM Peak Hour Design Traffic Flows - Sensitivity Test (II)	DESIGN: MKCN	CHECK: SHSN	JOB NO: -	DATE: May 21

J5

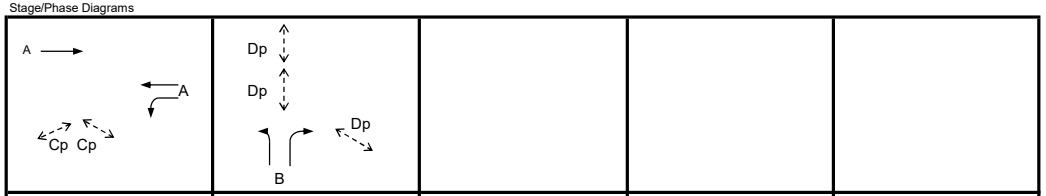
Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle	N =	2	
Cycle time	C =	120	sec
Sum(y)	Y =	0.662	
Lost time	L =	11	sec
Total Flow	=	20,960	pcu

Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	64	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	33	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.818	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	23.4	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	42	sec
Y_{max}	$= 1-L/C$	=	0.908	

Stage/Phase Diagrams



I/G = 8 I/G = 5

Critical Case : A,B

R.C.(C) = $(0.9xY_{max}-Y)/Yx100\%$ = 23%

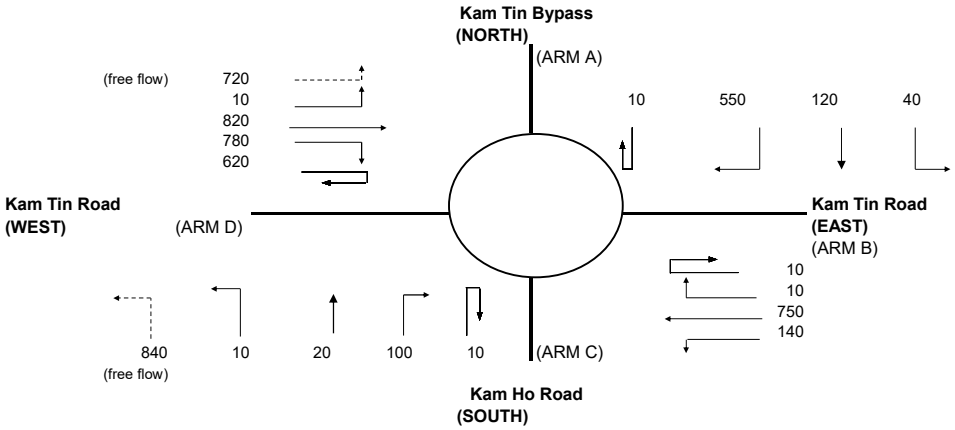
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
→	A	1	3.650	3				1		0		6220		2100		2100			6220	0.338	
←	A	1	3.600	2				0		0	190	4230		2150		2150			4420	0.486	0.486
↰	A	1	3.650	1	50			1		0		1980	420			420	100%		1922	0.218	
↰	B	2	3.650	2	25			1		0		4100	680			680	100%		3868	0.176	0.176
↱	B	2	3.650	2		40	0	0		0		4240			240	240		100%	4087	0.059	

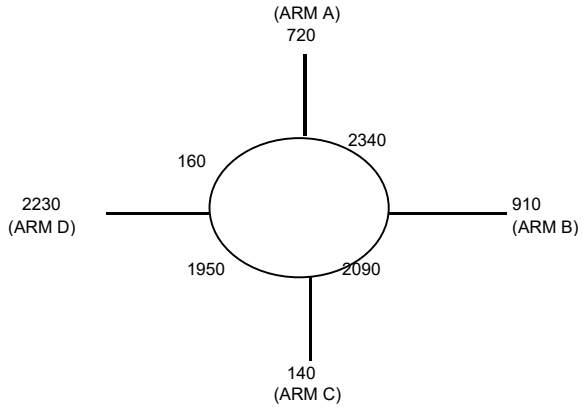
Pedestrian Crossing			GM		FGM				
	Cp	1	min.	5	+	7	=	12	sec
	Dp	2	min.	5	+	10	=	15	sec

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J6 - Kam Tin Road / Kam Tin Bypass / Kam Ho Road	Scenario	2034 AM Peak Hour Design Traffic Flows - Sensitivity Test (I)	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	Mar 2024





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	6.50	7.30	9.00	7.30
E = Entry width (m)	11.00	10.00	10.00	11.00
L = Effective length of flare (m)	15.00	12.00	1.00	13.00
R = Entry radius (m)	42.50	70.00	20.00	42.50
D = Inscribed circle diameter (m)	88.00	88.00	88.00	88.00
A = Entry angle (degree)	39.00	30.00	37.50	29.00
Q = Entry flow (pcu/h)	720	910	140	2230
Qc= Circulating flow across entry (pcu/h)	2340	2090	1950	160
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.48	0.36	1.60	0.46
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.99	1.03	0.97	1.03
X2= V + ((E-V)/(1+2S))	8.80	8.87	9.24	9.24
M = EXP((D-60)/10)	16.44	16.44	16.44	16.44
F = 303*X2	2665	2688	2799	2799
Td= 1+(0.5/(1+M))	1.03	1.03	1.03	1.03
Fc= 0.21*Td(1+0.2*X2)	0.60	0.60	0.62	0.62
Qe= K(F-Fc*Qc)	1264	1485	1558	2779
DFC = Design flow/Capacity = Q/Qe	0.57	0.61	0.09	0.80

TOTAL ENTRY FLOWS = 4720 PCU

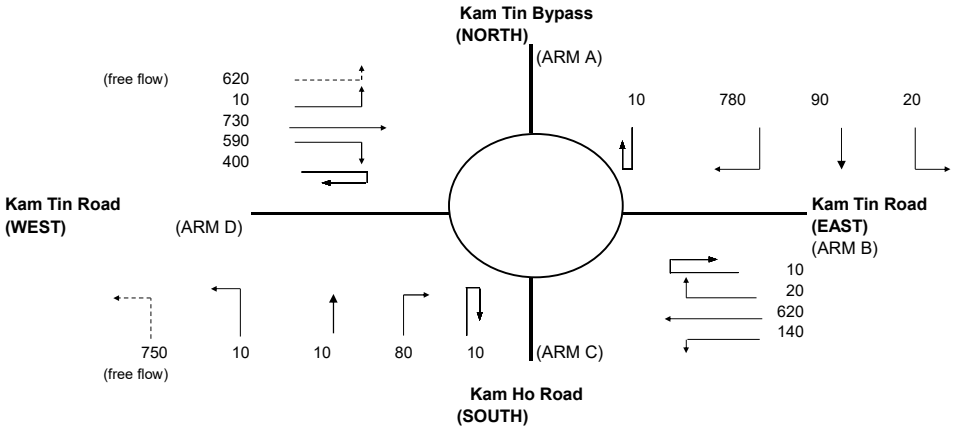
CRITICAL DFC = 0.80

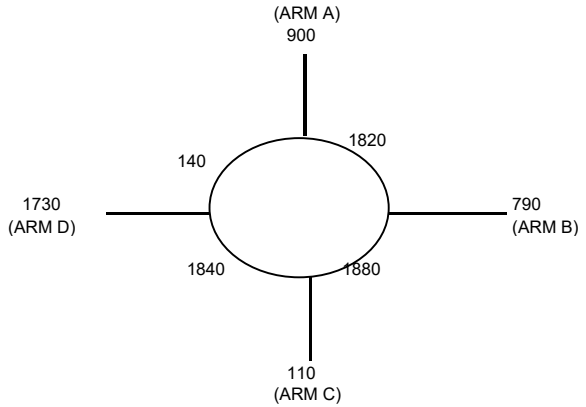
Filename : J13 - Kam Tin Road-Kam Tin Bypass-Kam Ho Road.xlsx / DesAB_Sen_AM

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J6 - Kam Tin Road / Kam Tin Bypass / Kam Ho Road	Scenario	2034 PM Peak Hour Design Traffic Flows - Sensitivity Test (I)	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	Mar 2024





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	6.50	7.30	9.00	7.30
E = Entry width (m)	11.00	10.00	10.00	11.00
L = Effective length of flare (m)	15.00	12.00	1.00	13.00
R = Entry radius (m)	42.50	70.00	20.00	42.50
D = Inscribed circle diameter (m)	88.00	88.00	88.00	88.00
A = Entry angle (degree)	39.00	30.00	37.50	29.00
Q = Entry flow (pcu/h)	900	790	110	1730
Qc= Circulating flow across entry (pcu/h)	1820	1880	1840	140
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.48	0.36	1.60	0.46
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.99	1.03	0.97	1.03
X2= V + ((E-V)/(1+2S))	8.80	8.87	9.24	9.24
M = EXP((D-60)/10)	16.44	16.44	16.44	16.44
F = 303*X2	2665	2688	2799	2799
Td= 1+(0.5/(1+M))	1.03	1.03	1.03	1.03
Fc= 0.21*Td(1+0.2*X2)	0.60	0.60	0.62	0.62
Qe= K(F-Fc*Qc)	1572	1616	1624	2792
DFC = Design flow/Capacity = Q/Qe	0.57	0.49	0.07	0.62

TOTAL ENTRY FLOWS = 4150 PCU

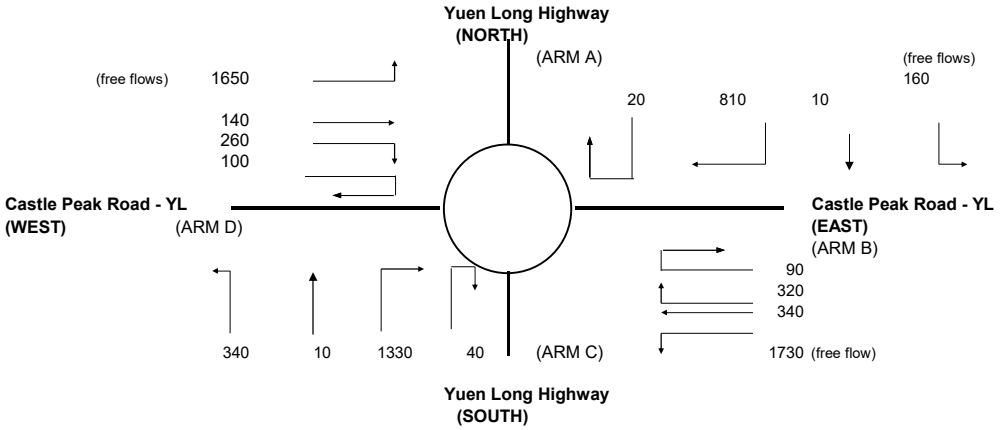
CRITICAL DFC = 0.62

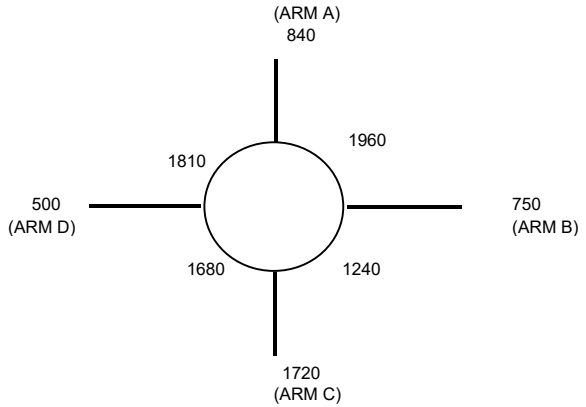
Filename : J13 - Kam Tin Road-Kam Tin Bypass-Kam Ho Road.xlsx / DesAB_Sen_PM

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J7 - Pok Oi Interchange	Scenario	2034 AM Peak Hour Design Traffic Flows - Sensitivity Test	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	Mar 2024





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	6.30	3.70	9.00	3.50
E = Entry width (m)	7.30	7.40	12.00	7.00
L = Effective length of flare (m)	13.00	6.00	5.00	5.00
R = Entry radius (m)	21.00	25.00	25.00	25.00
D = Inscribed circle diameter (m)	110.00	80.00	110.00	80.00
A = Entry angle (degree)	35.00	50.00	45.00	45.00
Q = Entry flow (pcu/h)	840	750	1720	500
Qc= Circulating flow across entry (pcu/h)	1960	1240	1680	1810
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.12	0.99	0.96	1.12
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.98	0.94	0.96	0.96
X2= V + ((E-V)/(1+2S))	7.10	4.94	10.03	4.58
M = EXP((D-60)/10)	148.41	7.39	148.41	7.39
F = 303*X2	2152	1498	3038	1388
Td= 1+(0.5/(1+M))	1.00	1.06	1.00	1.06
Fc= 0.21*Td(1+0.2*X2)	0.51	0.44	0.63	0.43
Qe= K(F-Fc*Qc)	1135	893	1891	590
DFC = Design flow/Capacity = Q/Qe	0.74	0.84	0.91	0.85

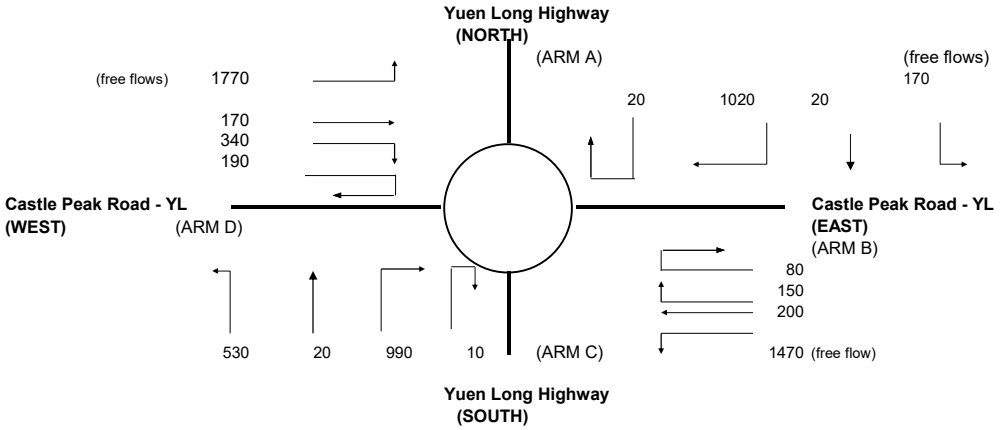
TOTAL ENTRY FLOWS = 5460 PCU

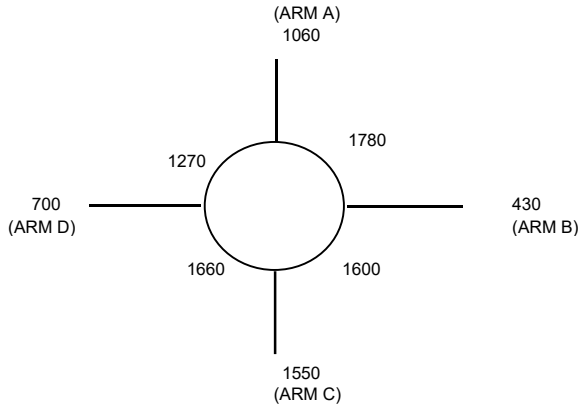
CRITICAL DFC = 0.91

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J7 - Pok Oi Interchange	Scenario	2034 PM Peak Hour Design Traffic Flows - Sensitivity Test	Project No.	Prepared By	Checked By	Date
				-	MKCN	SHSN	Mar 2024





ARM	A	B	C	D
INPUT PARAMETERS:				
V = Approach half width (m)	6.30	3.70	9.00	3.50
E = Entry width (m)	7.30	7.40	12.00	7.00
L = Effective length of flare (m)	13.00	6.00	5.00	5.00
R = Entry radius (m)	21.00	25.00	25.00	25.00
D = Inscribed circle diameter (m)	110.00	80.00	110.00	80.00
A = Entry angle (degree)	35.00	50.00	45.00	45.00
Q = Entry flow (pcu/h)	1060	430	1550	700
Qc= Circulating flow across entry (pcu/h)	1780	1600	1660	1270
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.12	0.99	0.96	1.12
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.98	0.94	0.96	0.96
X2= V + ((E-V)/(1+2S))	7.10	4.94	10.03	4.58
M = EXP((D-60)/10)	148.41	7.39	148.41	7.39
F = 303*X2	2152	1498	3038	1388
Td= 1+(0.5/(1+M))	1.00	1.06	1.00	1.06
Fc= 0.21*Td(1+0.2*X2)	0.51	0.44	0.63	0.43
Qe= K(F-Fc*Qc)	1226	743	1903	811
DFC = Design flow/Capacity = Q/Qe	0.86	0.58	0.81	0.86

TOTAL ENTRY FLOWS = 5510 PCU

CRITICAL DFC = 0.86

Filename : J11 - Pok Oi Interchange_(with Signal).xlsm / DesAB_Sen_PM

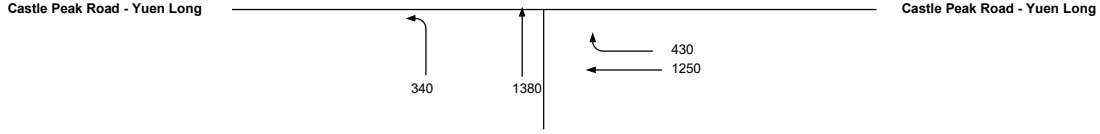
JUNCTION CAPACITY CALCULATION

AECOM

Junction J7 - Pok Oi Interchange (Yuen Long Highway NB Slip Road)	2034 AM Design Trafic Flows - Sensitivity Test (I)	DESIGN: 0	CHECK: 0	JOB NO:	DATE: Nov 20

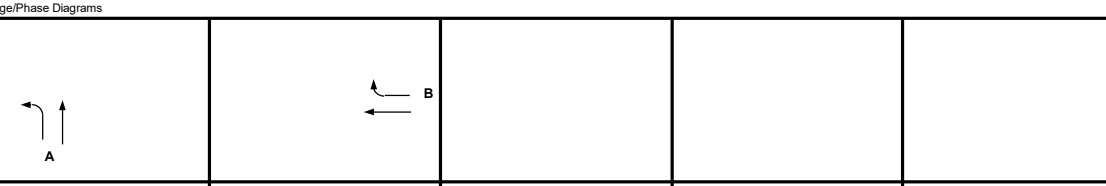
J7

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.764	
Lost time		L =	8	sec
Total Flow		=	9,020	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	72	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	34	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.840	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	9.9	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	53	sec
Y_{max}	$= 1-L/C$	=	0.933	

Stage/Phase Diagrams



Critical Case : A,B

R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 10%

MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↰	A	1	5.000	1	25			0		0		2255	340	510		850	40%		2202	0.386	
↑	A	1	5.000	1				0		0		2255		870		870			2255	0.386	0.386
↑	B	2	5.000	1				0		0		2255		853		853			2255	0.378	
↱	B	2	5.000	1		25	0	0		0		2255		397	430	827		52%	2187	0.378	0.378

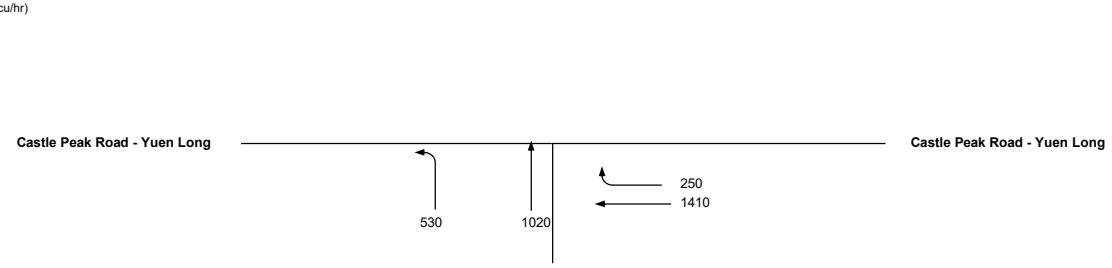
JUNCTION CAPACITY CALCULATION

AECOM

Junction J7 - Pok Oi Interchange (Yuen Long Highway NB Slip Road)	2034 PM Design Trafic Flows - Sensitivity Test (I)	DESIGN: 0	CHECK: 0	JOB NO:	DATE: Nov 20

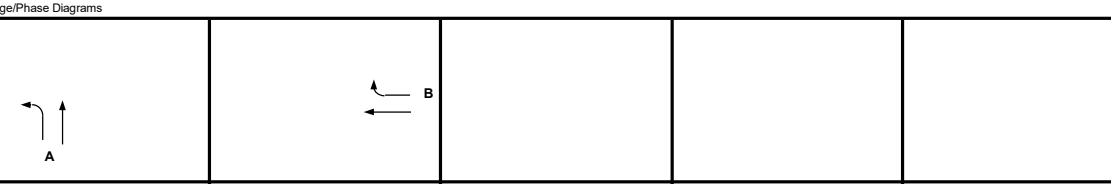
J7

Traffic Flow Diagram
(pcu/hr)



No. of stages per cycle		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.722	
Lost time		L =	8	sec
Total Flow		=	9,020	pcu
Optimum Cycle C_o	$= (1.5 \times L+5)/(1-Y)$	=	61	sec
Min. Cycle Time C_m	$= L/(1-Y)$	=	29	sec
Y_{ult}	$= 0.9-0.0075 \times L$	=	0.840	
$R.C._{ult}$	$= (Y_{ult}-Y)/Yx100\%$	=	16.3	%
Practical Cycle Time C_p	$= 0.9 \times L/(0.9-Y)$	=	40	sec
Y_{max}	$= 1-L/C$	=	0.933	

Stage/Phase Diagrams



Critical Case : A,B

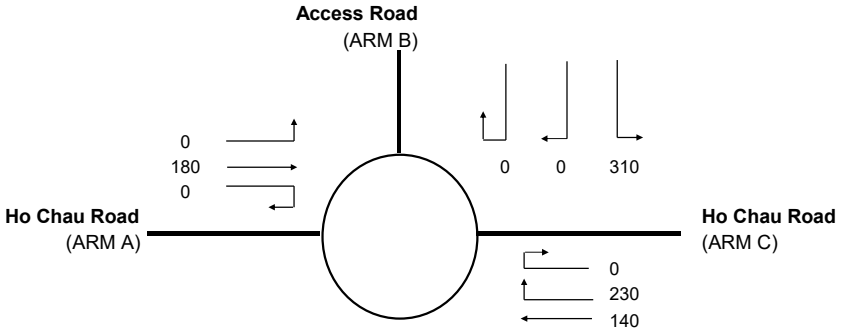
R.C.(C) $= (0.9xY_{max}-Y)/Yx100\% =$ 16%

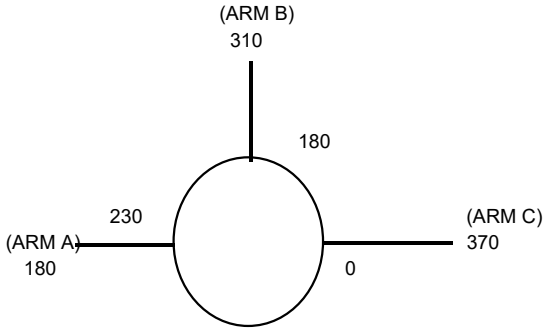
MOVEMENT	PHASE	STAGE	LANE WIDTH (m)	NO. OF LANES	RADIUS (m) LEFT	RADIUS (m) RIGHT	OPPOSING TRAFFIC	NEAR SIDE LANE	UPHILL GRADIENT (%)	GRADIENT EFFECT (pcu/hr)	ADDITIONAL CAPACITY (pcu/hr)	STRAIGHT-AHEAD SAT. FLOW (pcu/hr)	FLOW (pcu/hr) LEFT	FLOW (pcu/hr) STRAIGHT AHEAD	FLOW (pcu/hr) RIGHT	TOTAL FLOW (pcu/hr)	PROPORTION OF TURNING VEHICLES (%) LEFT	PROPORTION OF TURNING VEHICLES (%) RIGHT	REVISED SAT. FLOW (pcu/hr)	FLOW FACTOR *y*	CRITICAL *y*
↑	A	1	5.000	1	25			0		0		2255	530	229		759	70%		2164	0.351	0.351
↑	A	1	5.000	1				0		0		2255		791		791			2255	0.351	
↑	B	2	5.000	1				0		0		2255		838		838			2255	0.371	0.371
↱	B	2	5.000	1		25	0	0		0		2255		573	250	823		30%	2215	0.371	

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J8 - Ho Chau Road / Access Road	Scenario	2034 AM Peak Hour Design Traffic Flows	Project No.	Prepared By	Checked By	Date
							22/Mar/24





ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	3.70	4.50	4.00
E = Entry width (m)	4.50	5.70	4.60
L = Effective length of flare (m)	4.50	4.00	2.50
R = Entry radius (m)	15.00	7.50	35.00
D = Inscribed circle diameter (m)	28.00	28.00	28.00
A = Entry angle (degree)	40.00	38.00	34.00
Q = Entry flow (pcu/h)	180	310	370
Qc= Circulating flow across entry (pcu/h)	230	180	0
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.28	0.48	0.38
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.95	0.89	1.01
X2= V + ((E-V)/(1+2S))	4.21	5.11	4.34
M = EXP((D-60)/10)	0.04	0.04	0.04
F = 303*X2	1276	1549	1315
Td= 1+(0.5/(1+M))	1.48	1.48	1.48
Fc= 0.21*Td(1+0.2*X2)	0.57	0.63	0.58
Qe= K(F-Fc*Qc)	1086	1279	1324
DFC = Design flow/Capacity = Q/Qe	0.17	0.24	0.28

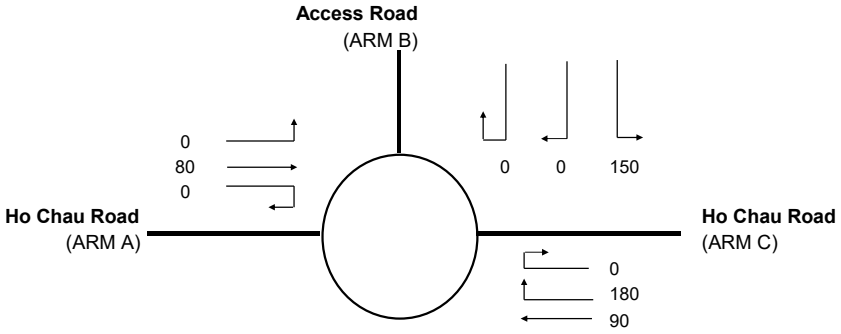
TOTAL ENTRY FLOWS = 860 PCU

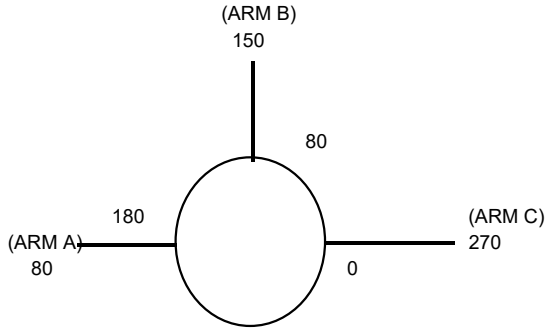
CRITICAL DFC = 0.28

ROUNDABOUT CAPACITY CALCULATION

AECOM

Junction	J8 - Ho Chau Road / Access Road	Scenario	2034 PM Peak Hour Design Traffic Flows	Project No.	Prepared By	Checked By	Date
							22/Mar/24





ARM	A	B	C
INPUT PARAMETERS:			
V = Approach half width (m)	3.70	4.50	4.00
E = Entry width (m)	4.50	5.70	4.60
L = Effective length of flare (m)	4.50	4.00	2.50
R = Entry radius (m)	15.00	7.50	35.00
D = Inscribed circle diameter (m)	28.00	28.00	28.00
A = Entry angle (degree)	40.00	38.00	34.00
Q = Entry flow (pcu/h)	80	150	270
Qc= Circulating flow across entry (pcu/h)	180	80	0
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.28	0.48	0.38
K = 1-0.00347(A-30)-0.978(1/R-0.05)	0.95	0.89	1.01
X2= V + ((E-V)/(1+2S))	4.21	5.11	4.34
M = EXP((D-60)/10)	0.04	0.04	0.04
F = 303*X2	1276	1549	1315
Td= 1+(0.5/(1+M))	1.48	1.48	1.48
Fc= 0.21*Td(1+0.2*X2)	0.57	0.63	0.58
Qe= K(F-Fc*Qc)	1113	1335	1324
DFC = Design flow/Capacity = Q/Qe	0.07	0.11	0.20

TOTAL ENTRY FLOWS = 500 PCU

CRITICAL DFC = 0.20

Annex B

Demarcation Plan of Public and Private Road

ANNEX B1

VILLAGE ROAD

INTERNAL ROAD

PUBLIC ROAD

LEGEND

- APPLICATION SITE BOUNDARY
- SITE BOUNDARY FOR PRIVATE HOUSING PORTION
- SITE BOUNDARY FOR PUBLIC HOUSING PORTION
- HO CHAU ROAD WIDENING WORKS UNDER APPROVED APPLICATION A/YL-NSW/274
- PUBLIC HOUSING PORTION
- PRIVATE HOUSING PORTION
- PROVISION OF PUBLIC ACCESS ROAD AND INFRASTRUCTURE TO BE MANAGED AND MAINTAINED BY GOVERNMENT DEPARTMENTS

T8 24s
GIC 2 STOREYS
T7 24s
RETAIL,GIC & CARPARK 2 STOREYS
T6 24s
T5 24s
T2 24s
CLUB HOUSE
T3 24s
OUTDOOR POOL
T1 23s
PTT, RETAIL & KINDERGARTEN 2 STOREYS
SEWAGE PUMPING STATION
WETLAND
WETLAND
YUEN LONG HIGHWAY
TSING LONG HIGHWAY

N

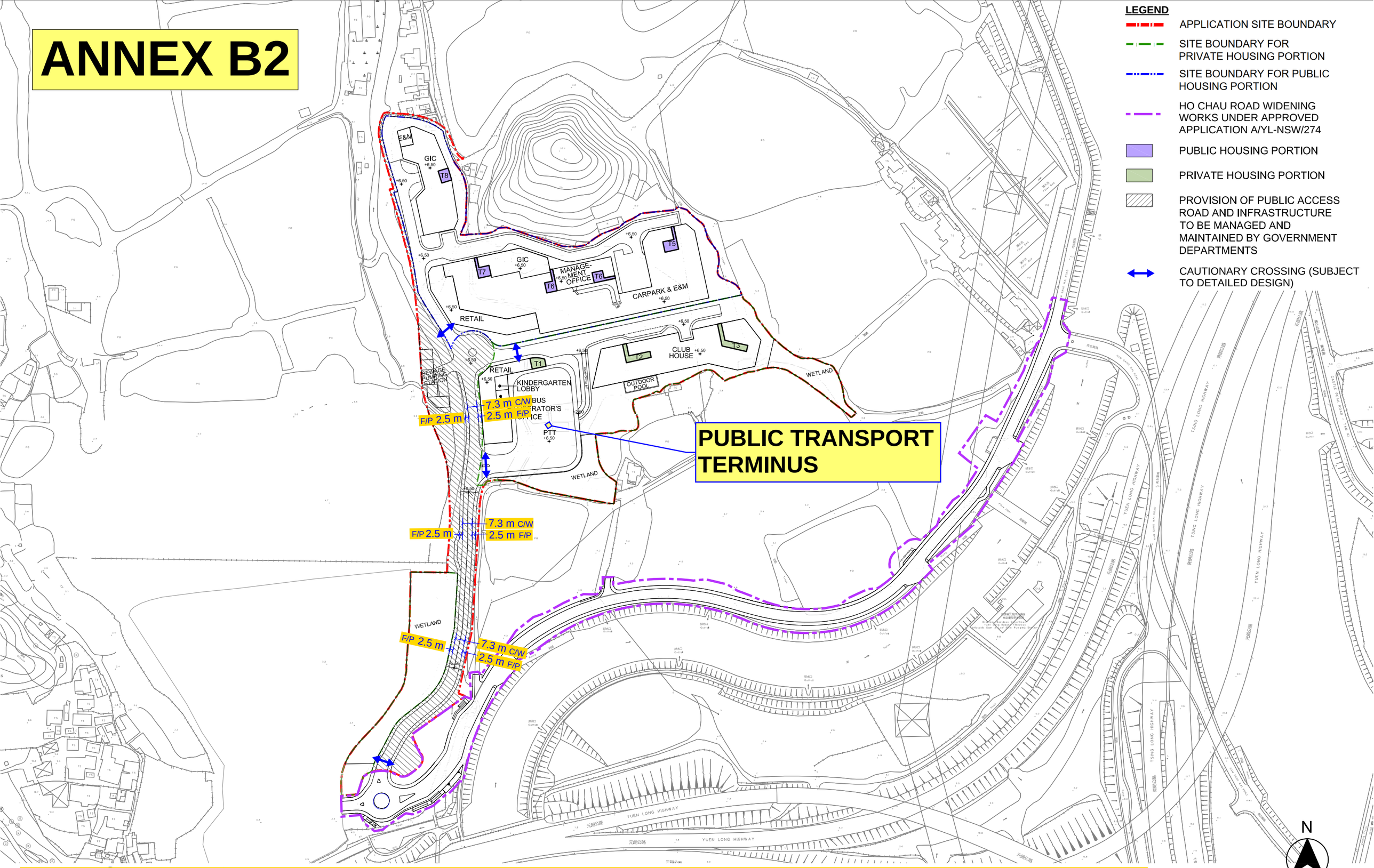
Site Demarcation Plan

TUNG SHING LEI "R(D)" ZONE

PROPOSED LAND SHARING PILOT SCHEME (LSPS) FOR A SITE AT VARIOUS LOTS IN D.D. 115, TUNG SHING LEI, YUEN LONG, THE NEW TERRITORIES

DATE : 15 MAR 2024
1 : 2500 (A3)

ANNEX B2



Annex B2 - LAYOUT PLAN OF PUBLIC ROAD WITH DIMENSIONS OF CARRIAGEWAY, FOOTPATH AND PEDESTRIAN CROSSING FACILITIES

TUNG SHING LEI "R(D)" ZONE

PROPOSED LAND SHARING PILOT SCHEME (LSPS) FOR A SITE AT VARIOUS LOTS IN D.D. 115,
TUNG SHING LEI, YUEN LONG, THE NEW TERRITORIES

DATE : 15 MAR 2024
1 : 2500 (A3)

ANNEX B3

Local Track Road to be managed and maintained by <u>Home Affairs Department</u> (Comments to be sought).

Public Access Road to be managed by <u>TD</u> and maintained by <u>HyD</u> (Comments to be sought).

PTI to be managed by <u>TD</u> and maintained by <u>HyD</u> (Comments to be sought).

Ho Chau Road Widening Works Under Approved Application A/YL-NSW/274

LEGEND :

- APPLICATION SITE BOUNDARY
- SITE BOUNDARY FOR PRIVATE HOUSING PORTION
- SITE BOUNDARY FOR PUBLIC HOUSING PORTION
- PUBLIC HOUSING PORTION
- PRIVATE HOUSING PORTION
- PROVISION OF PUBLIC ACCESS ROAD AND INFRASTRUCTURE TO BE MANAGED AND MAINTAINED BY GOVERNMENT DEPARTMENTS
- PTI TO BE MANAGED BY TD AND MAINTAINED BY HYD (COMMENTS TO BE SOUGHT)
- PUBLIC ACCESS ROAD TO BE MANAGED BY TD AND MAINTAINED BY HYD (COMMENTS TO BE SOUGHT)
- LOCAL TRACK ROAD TO BE MANAGED AND MAINTAINED BY HOME AFFAIRS DEPARTMENT (COMMENTS TO BE SOUGHT)
- HO CHAU ROAD WIDENING WORKS UNDER APPROVED APPLICATION A/YL-NSW/274

Annex B3 - DEMARCATION OF PUBLIC ACCESS ROAD, PUBLIC TRANSPORT INTERCHANGE AND LOCAL TRACK ROAD.

TUNG SHING LEI "R(D)" ZONE

PROPOSED LAND SHARING PILOT SCHEME (LSPS) FOR A SITE AT VARIOUS LOTS IN D.D. 115, TUNG SHING LEI, YUEN LONG, THE NEW TERRITORIES

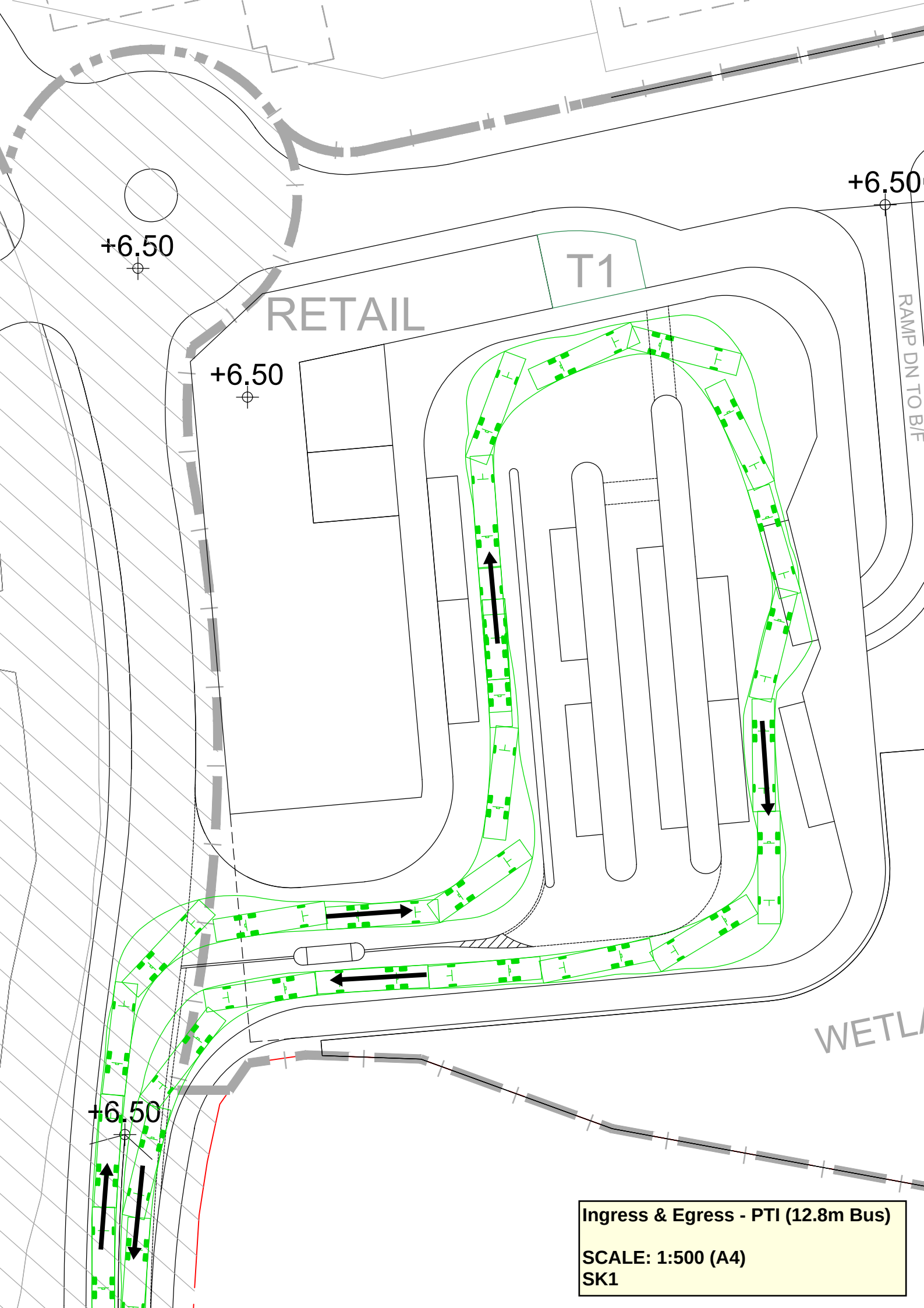
DATE : 15 MAR 2024

1 : 2500 (A3)

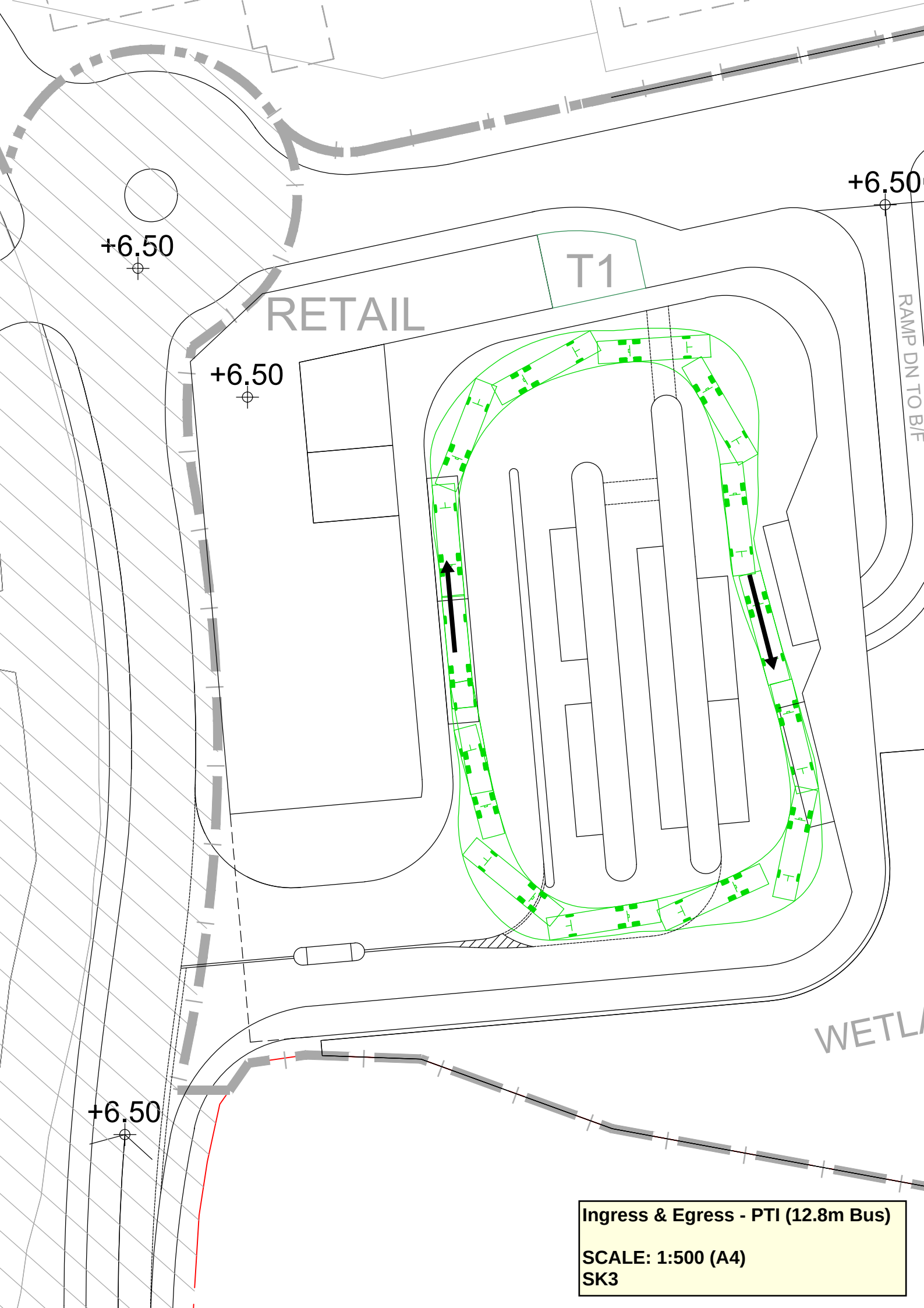
ARCHI+ ARCHIPLUS INTERNATIONAL LIMITED

Annex C

Swept Path Analysis

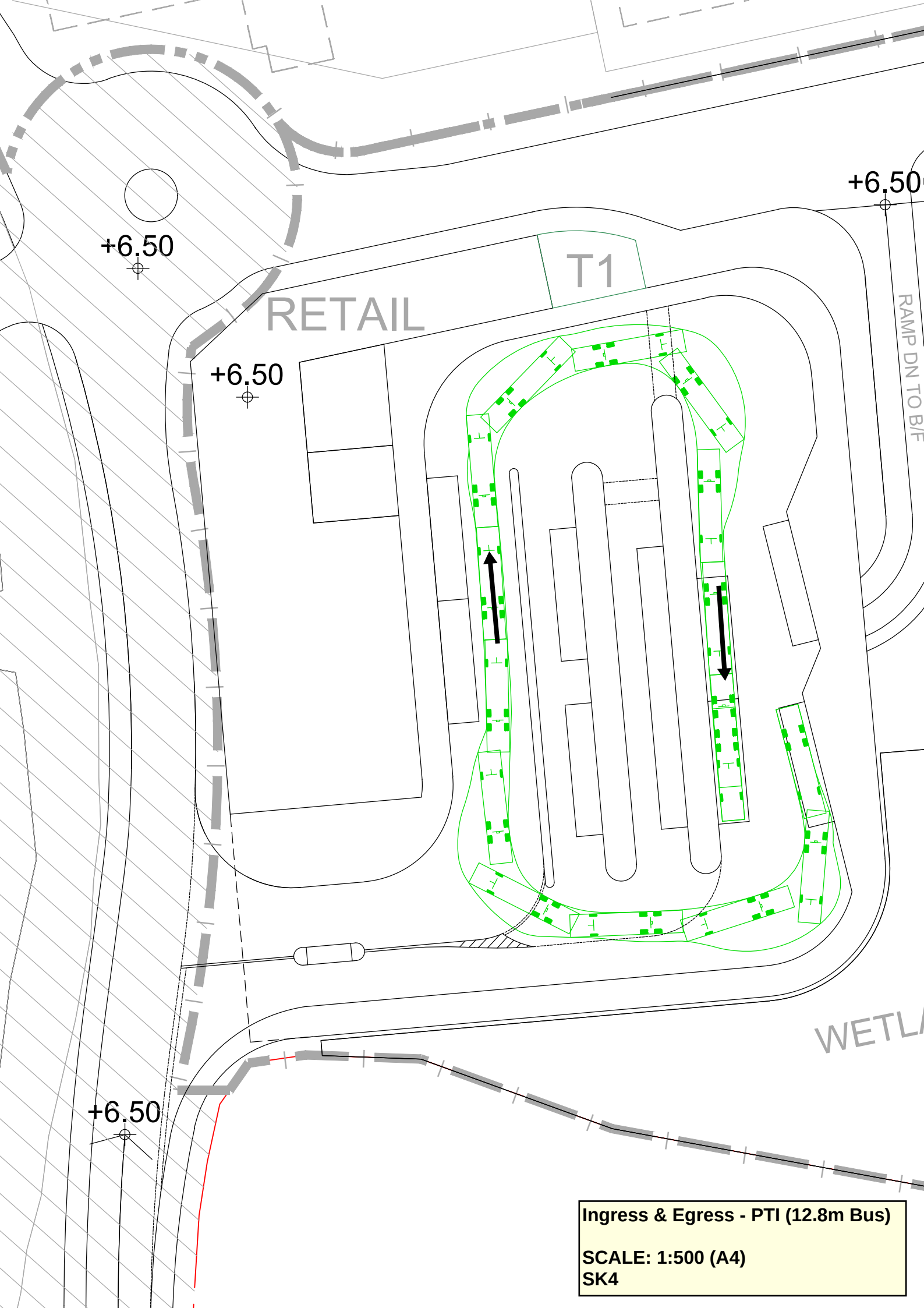

+6.50
+6.50
+6.50
+6.50
T1
RETAIL
RAMP DN TO B/F
WETL
Ingress & Egress - PTI (12.8m Bus)
SCALE: 1:500 (A4)
SK1


+6.50
+6.50
+6.50
+6.50
T1
RETAIL
RAMP DN TO B/F
WETL
Ingress & Egress - PTI (12.8m Bus)
SCALE: 1:500 (A4)
SK2



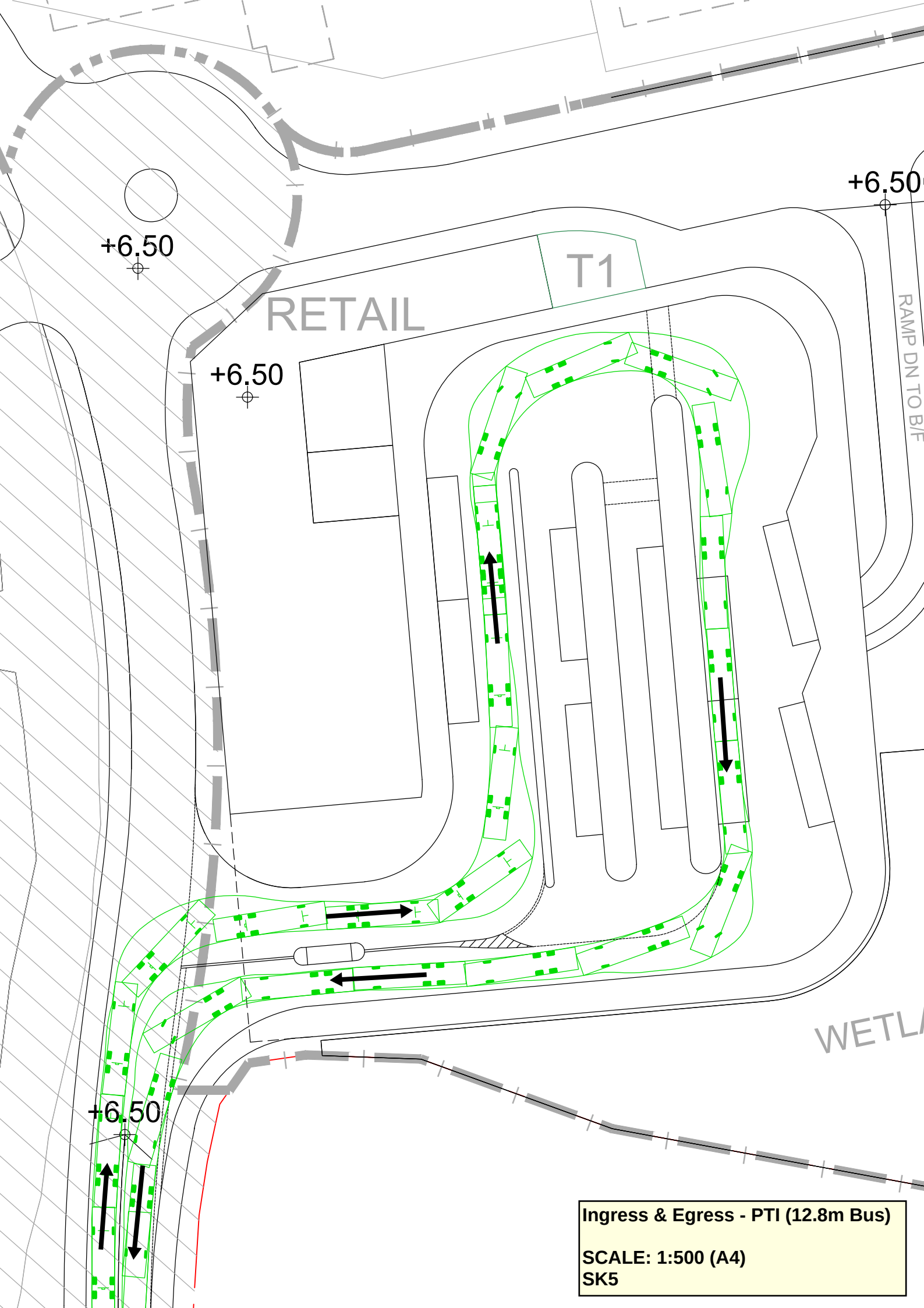
Ingress & Egress - PTI (12.8m Bus)

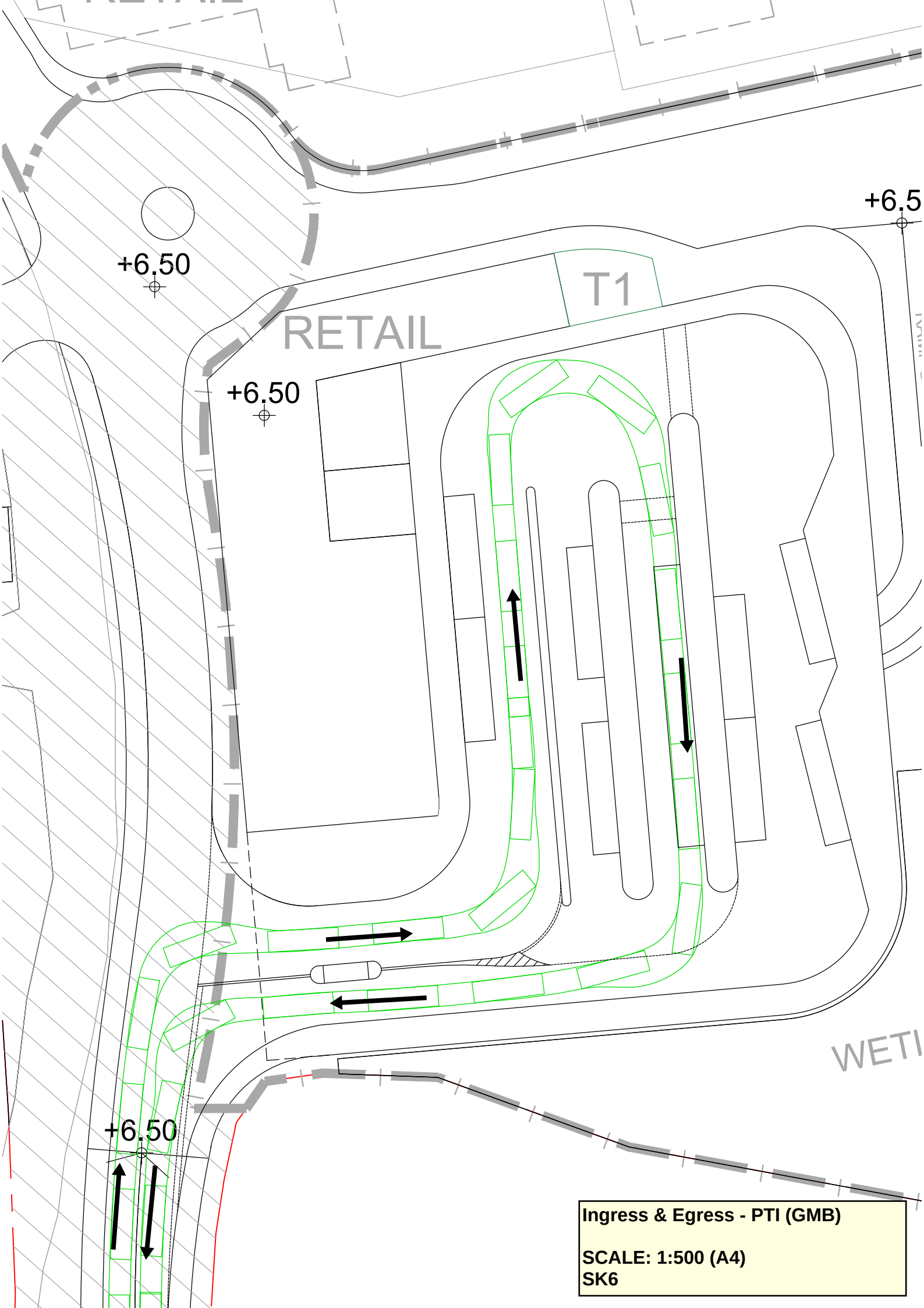
SCALE: 1:500 (A4)
SK3



Ingress & Egress - PTI (12.8m Bus)

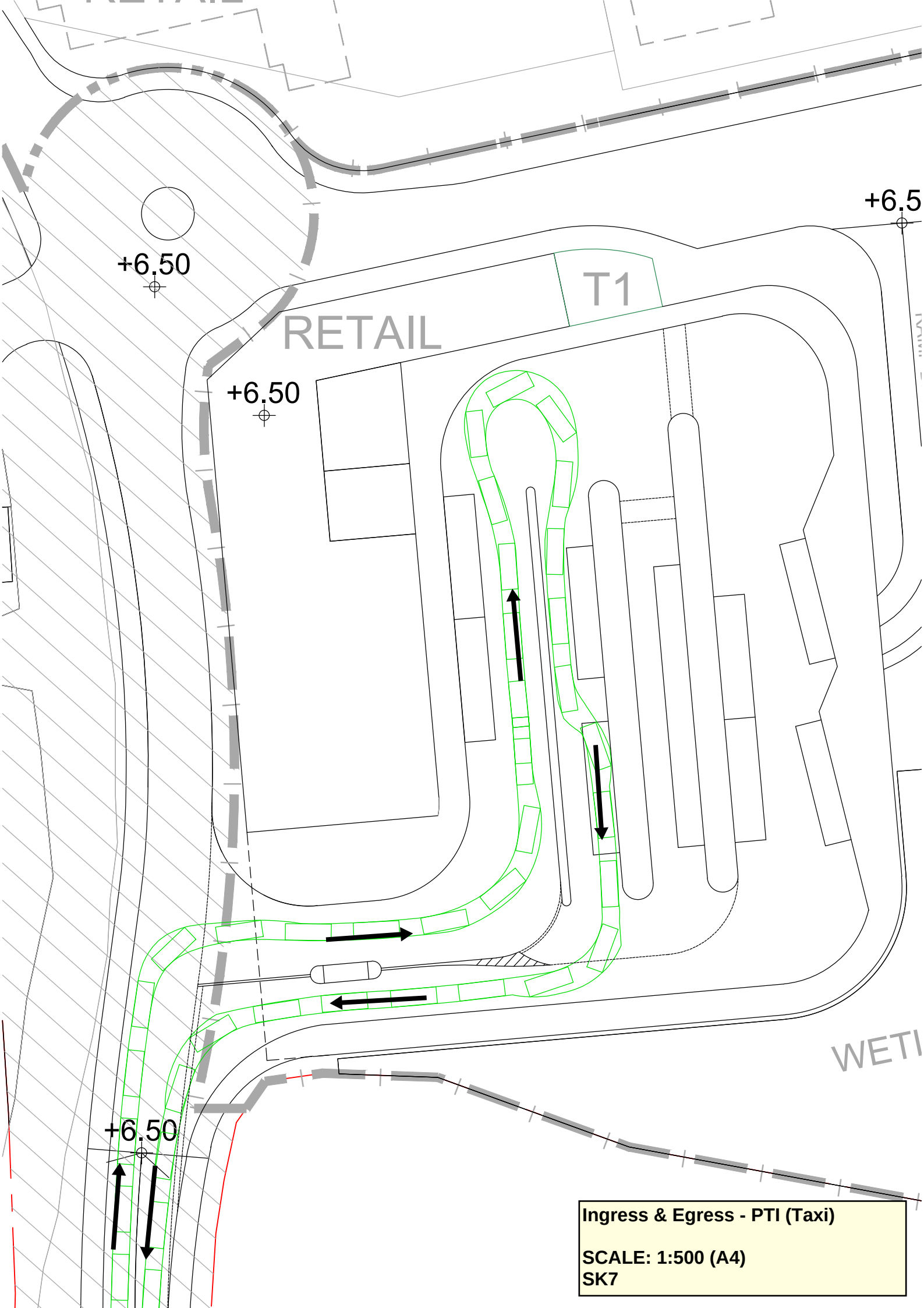
SCALE: 1:500 (A4)
SK4

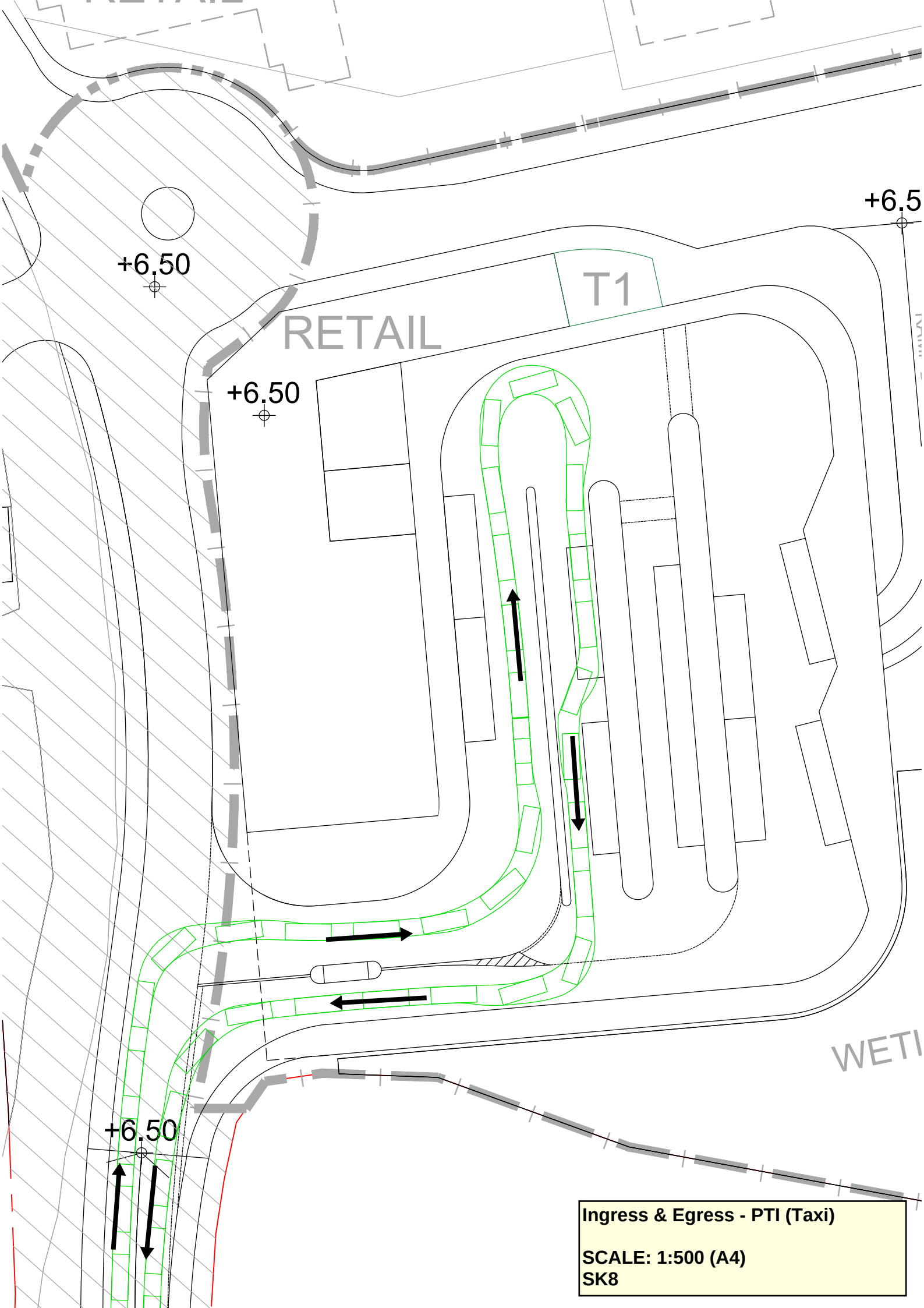

+6.50
+6.50
+6.50
+6.50
T1
RETAIL
RAMP DN TO B/F
WETL
Ingress & Egress - PTI (12.8m Bus)
SCALE: 1:500 (A4)
SK5

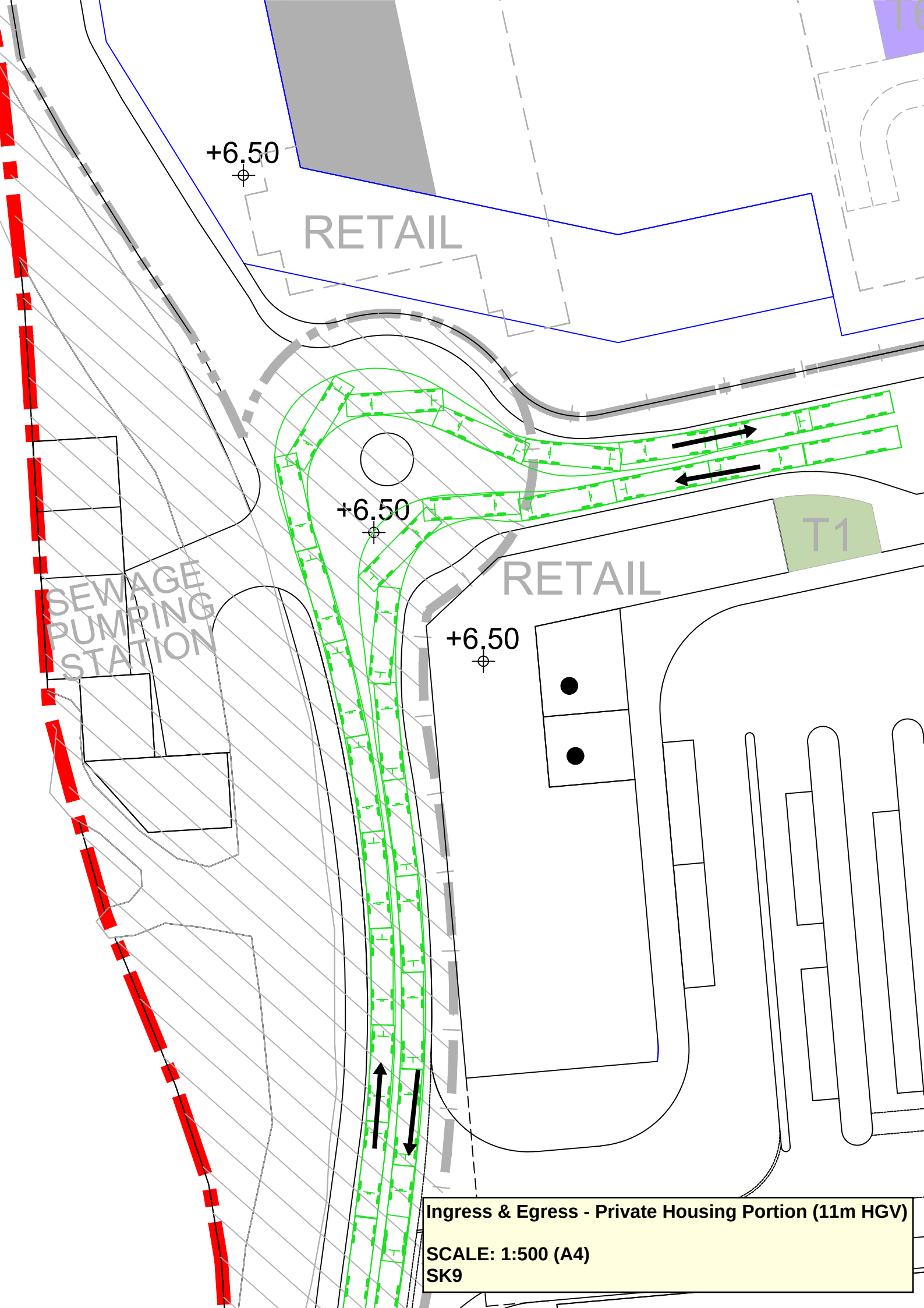


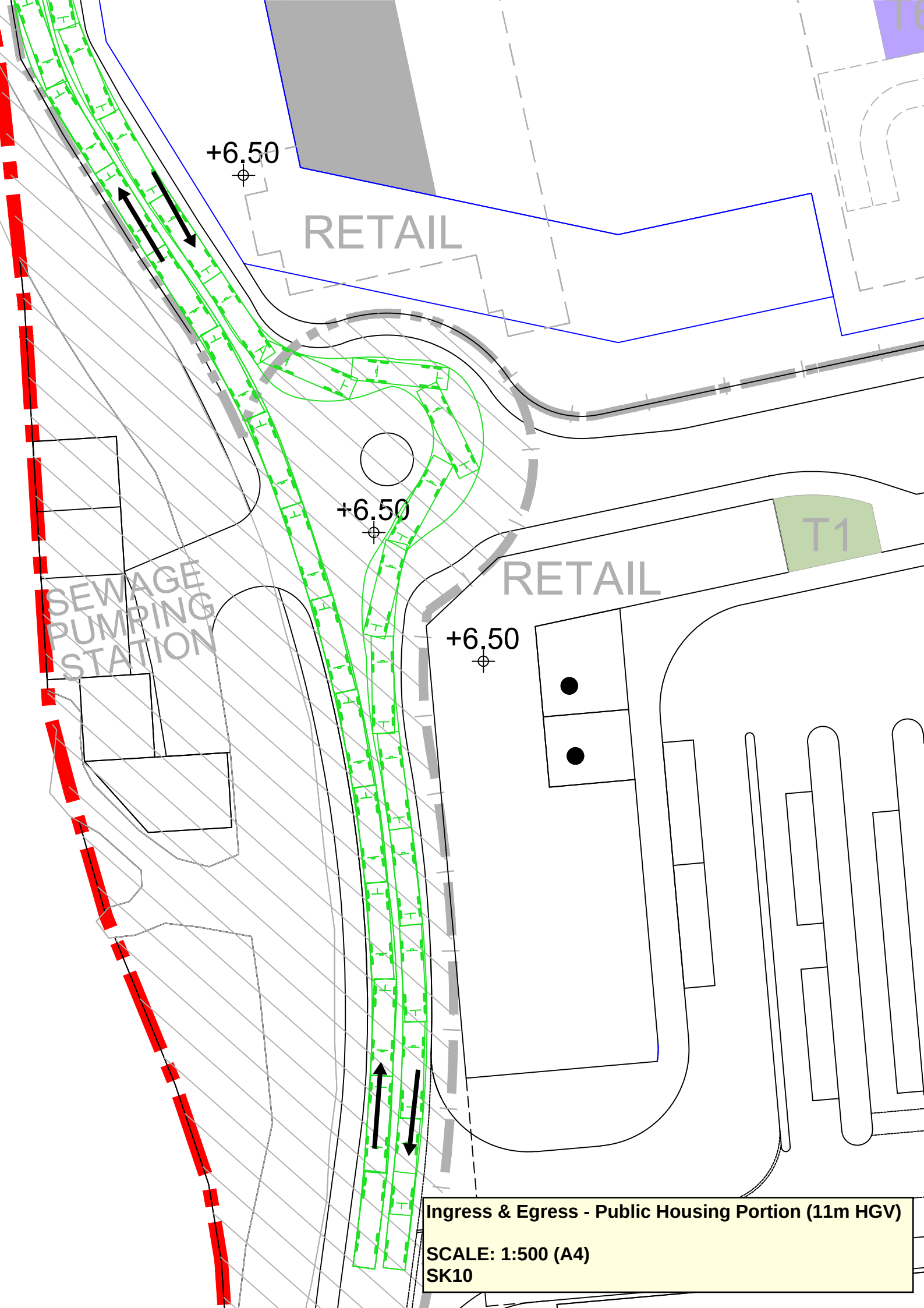
Ingress & Egress - PTI (GMB)

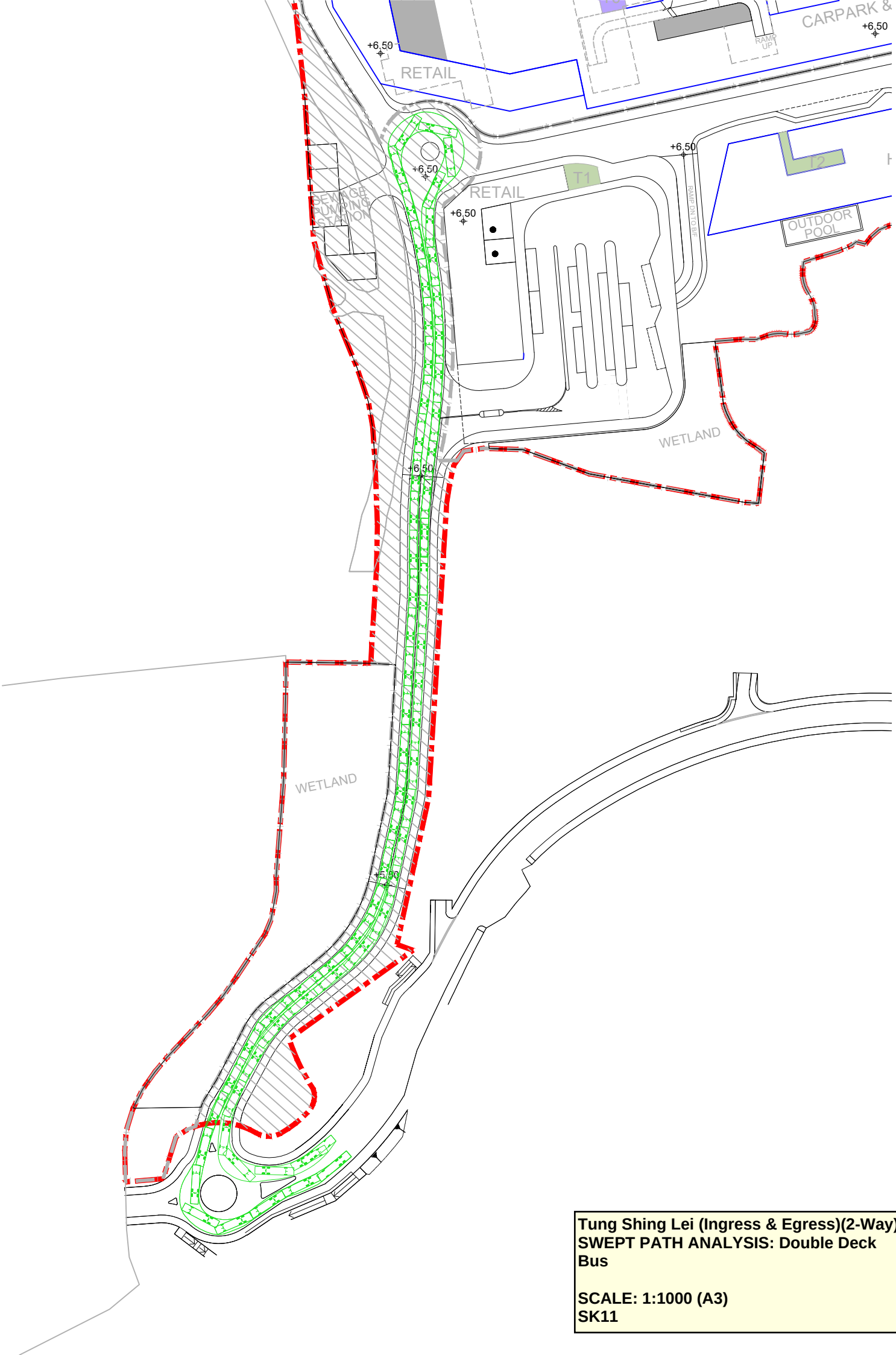
SCALE: 1:500 (A4)
SK6


+6.50
+6.50
+6.50
+6.5
T1
RETAIL
WETI
Ingress & Egress - PTI (Taxi)
SCALE: 1:500 (A4)
SK7


+6.50
+6.50
+6.50
+6.5
T1
RETAIL
WETI
Ingress & Egress - PTI (Taxi)
SCALE: 1:500 (A4)
SK8

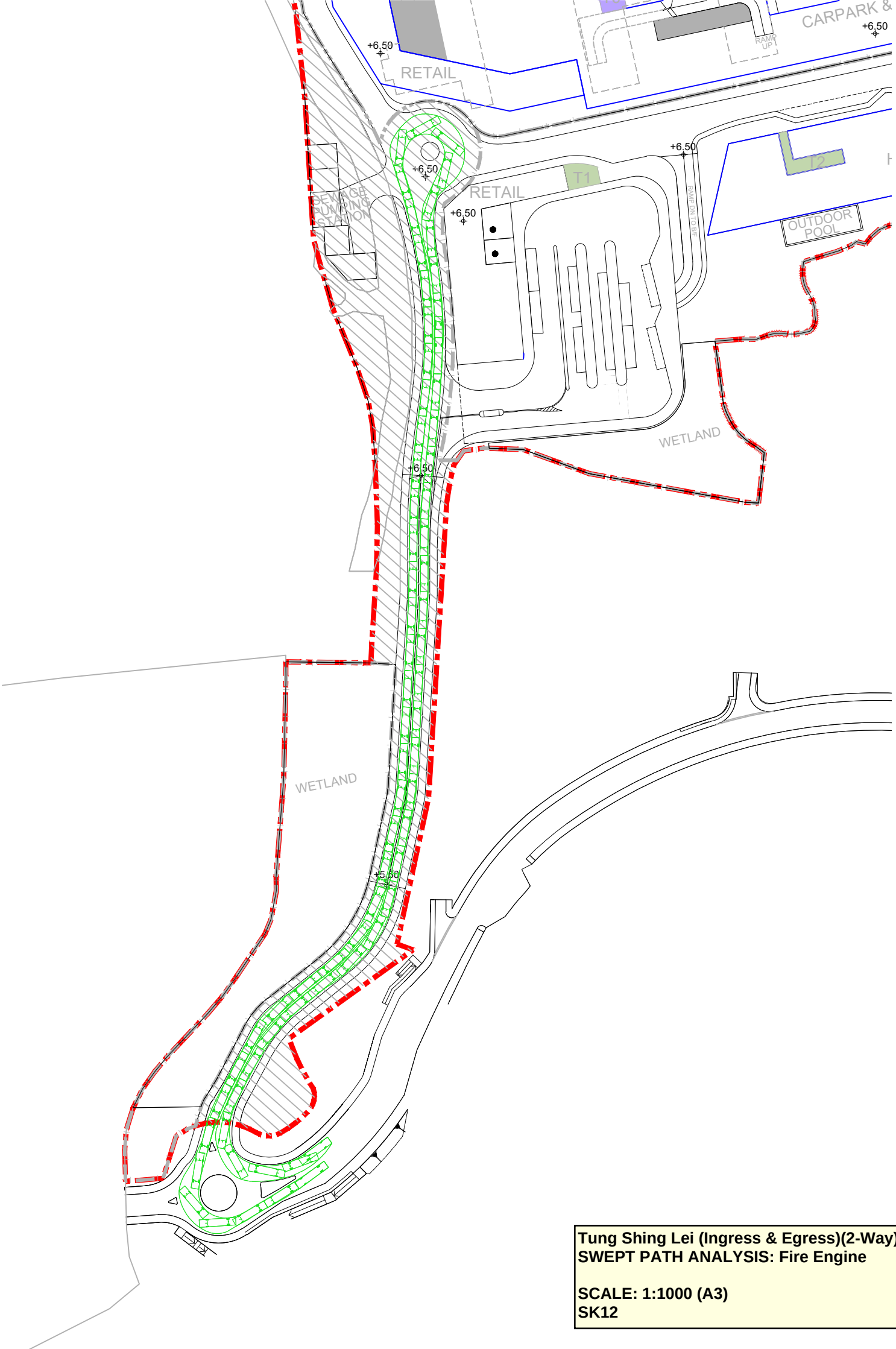

+6.50
RETAIL
+6.50
SEWAGE PUMPING STATION
T1
RETAIL
+6.50
Ingress & Egress - Private Housing Portion (11m HGV)
SCALE: 1:500 (A4)
SK9


+6.50
RETAIL
+6.50
SEWAGE PUMPING STATION
T1
RETAIL
+6.50
Ingress & Egress - Public Housing Portion (11m HGV)
SCALE: 1:500 (A4)
SK10



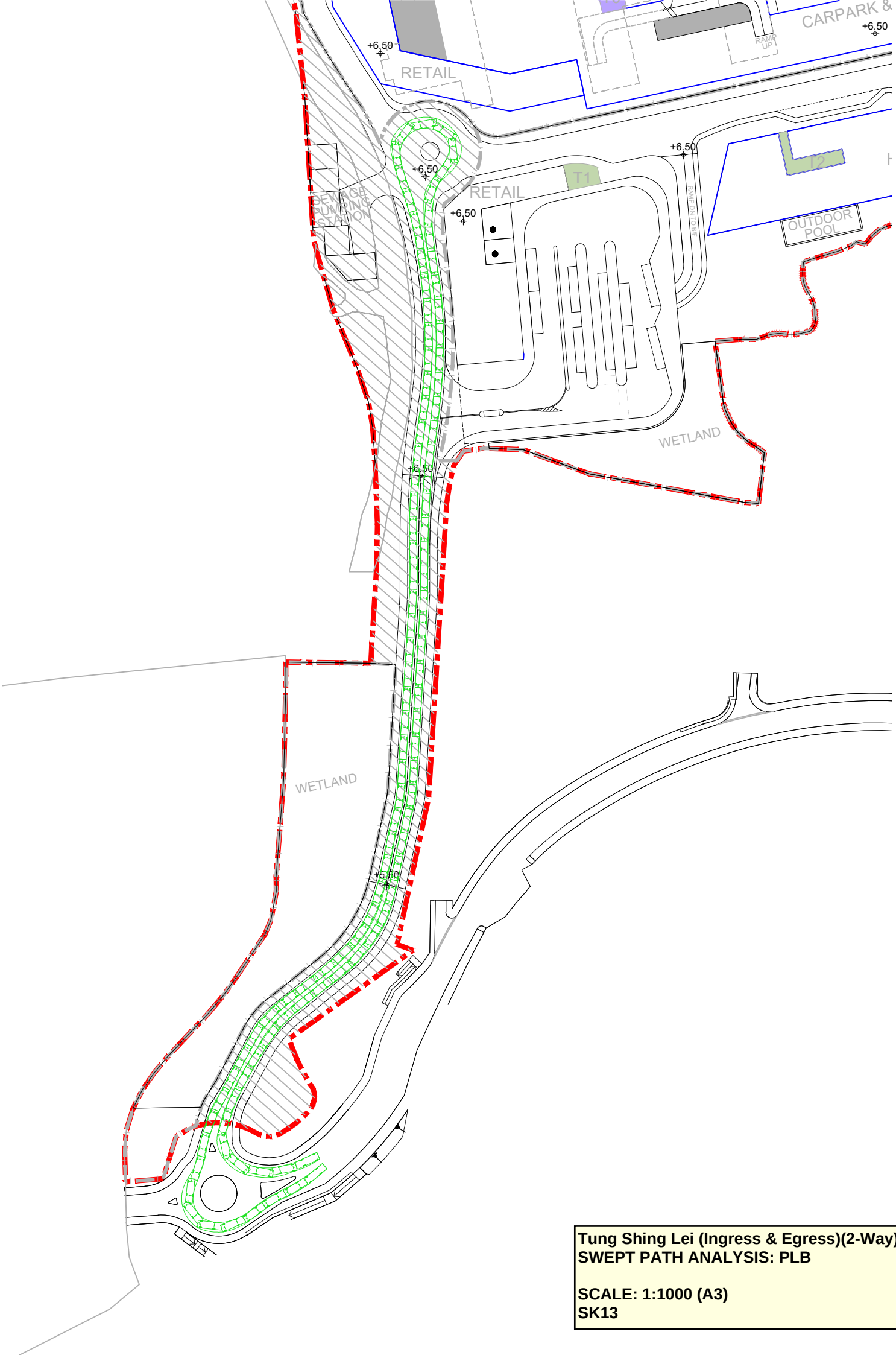
Tung Shing Lei (Ingress & Egress)(2-Way)
SWEPT PATH ANALYSIS: Double Deck Bus

SCALE: 1:1000 (A3)
SK11



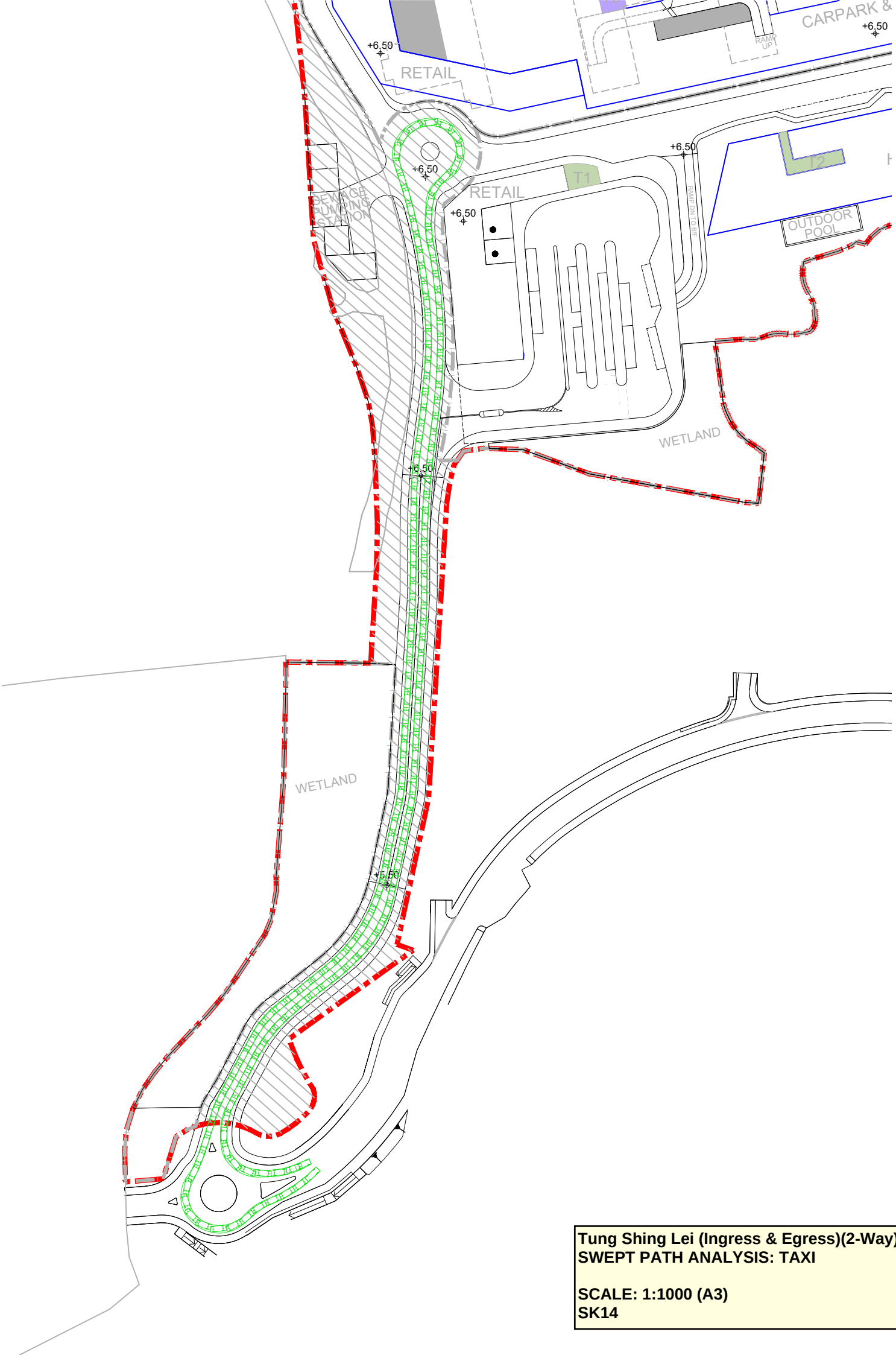
Tung Shing Lei (Ingress & Egress)(2-Way)
SWEPT PATH ANALYSIS: Fire Engine

SCALE: 1:1000 (A3)
SK12



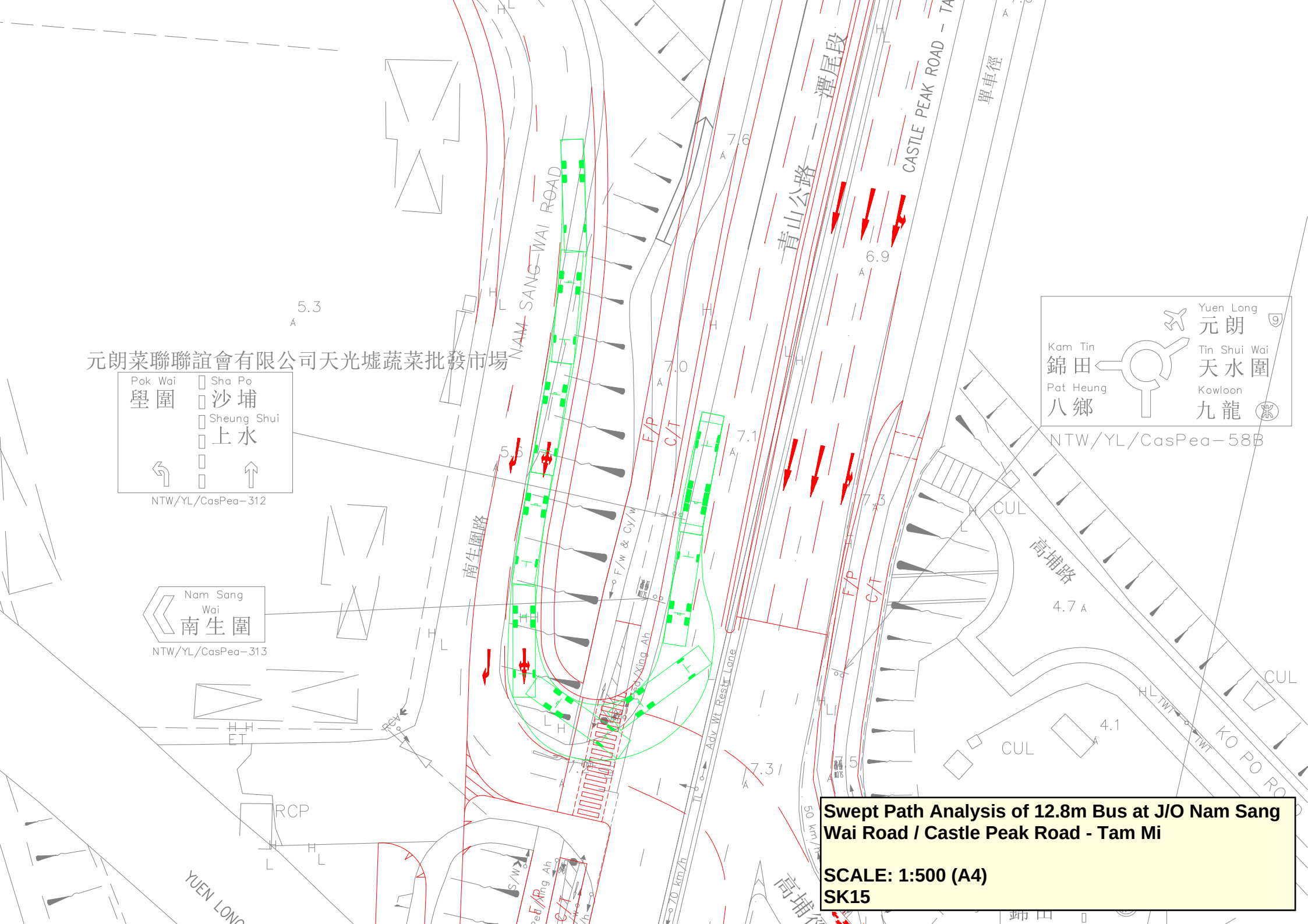
Tung Shing Lei (Ingress & Egress)(2-Way)
SWEPT PATH ANALYSIS: PLB

SCALE: 1:1000 (A3)
SK13



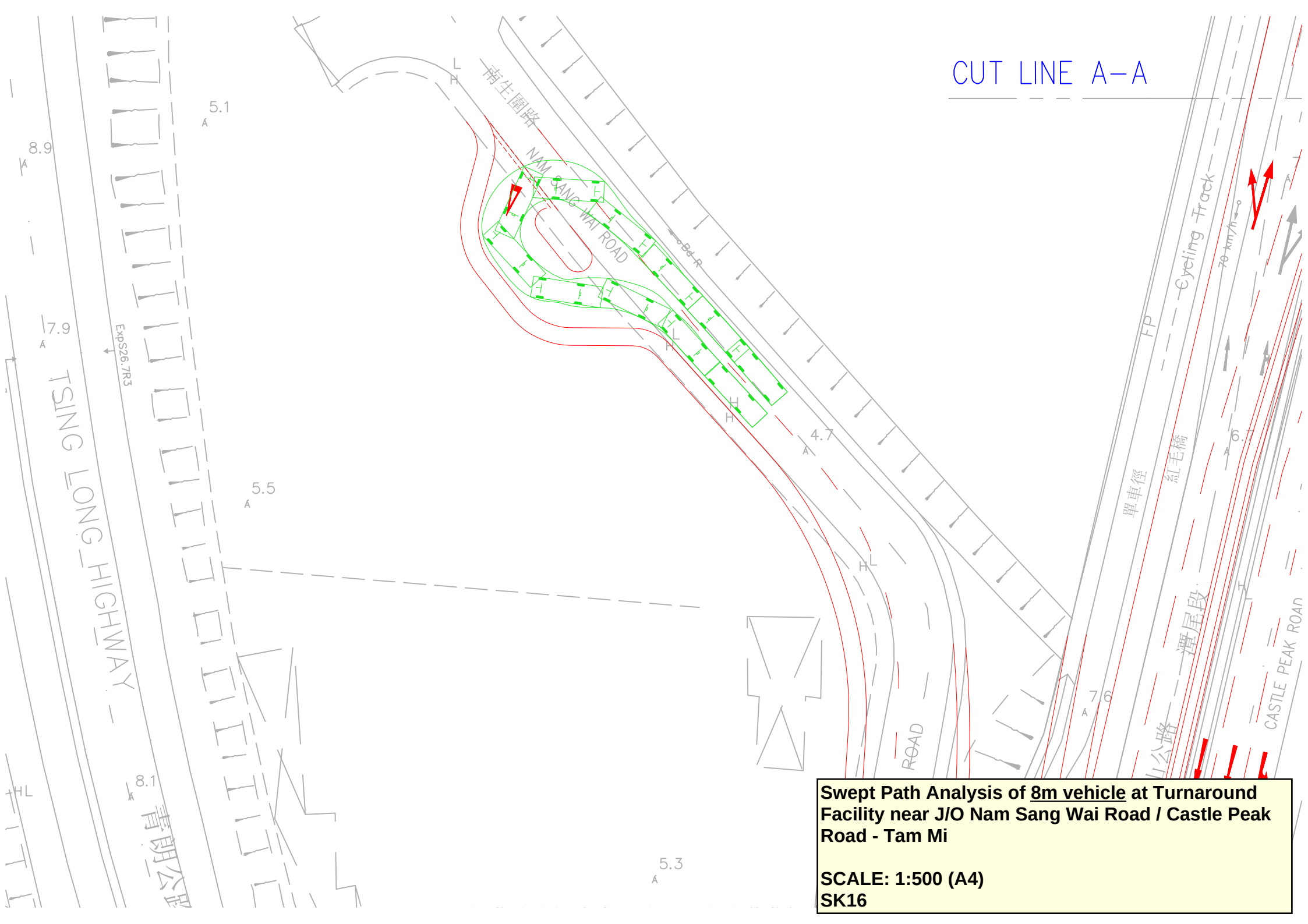
Tung Shing Lei (Ingress & Egress)(2-Way)
SWEPT PATH ANALYSIS: TAXI

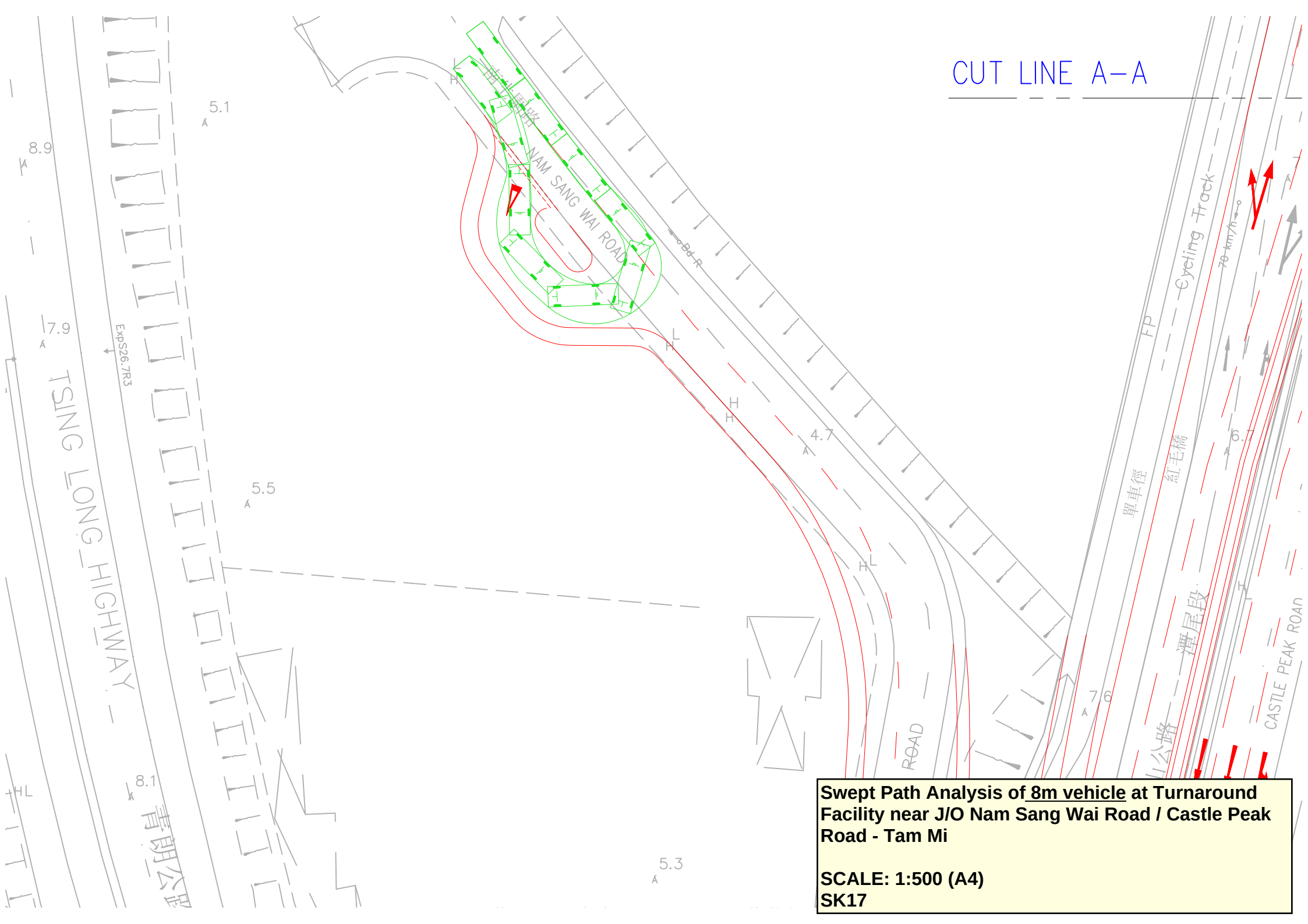
SCALE: 1:1000 (A3)
SK14



Swept Path Analysis of 12.8m Bus at J/O Nam Sang Wai Road / Castle Peak Road - Tam Mi

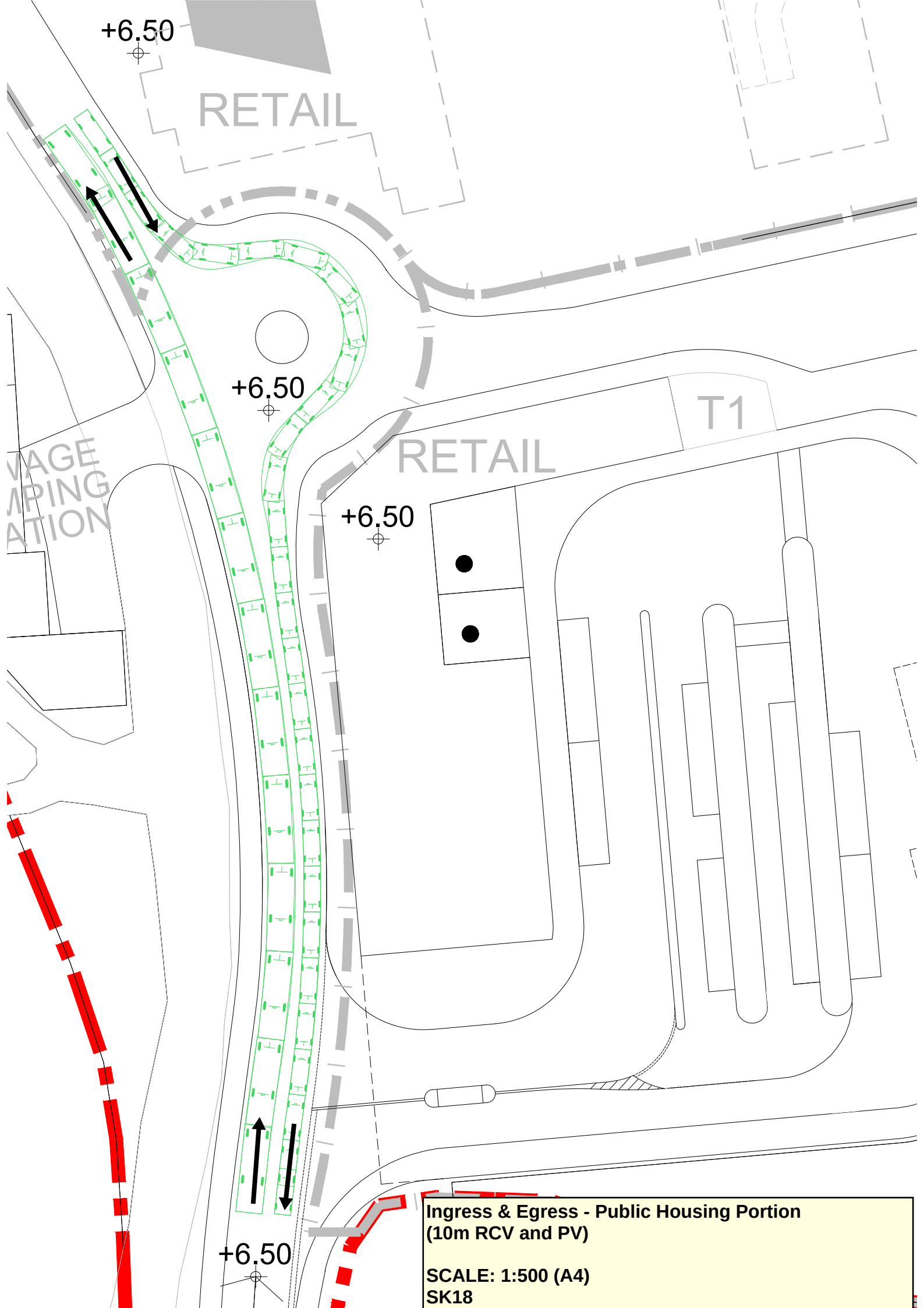
SCALE: 1:500 (A4)
SK15

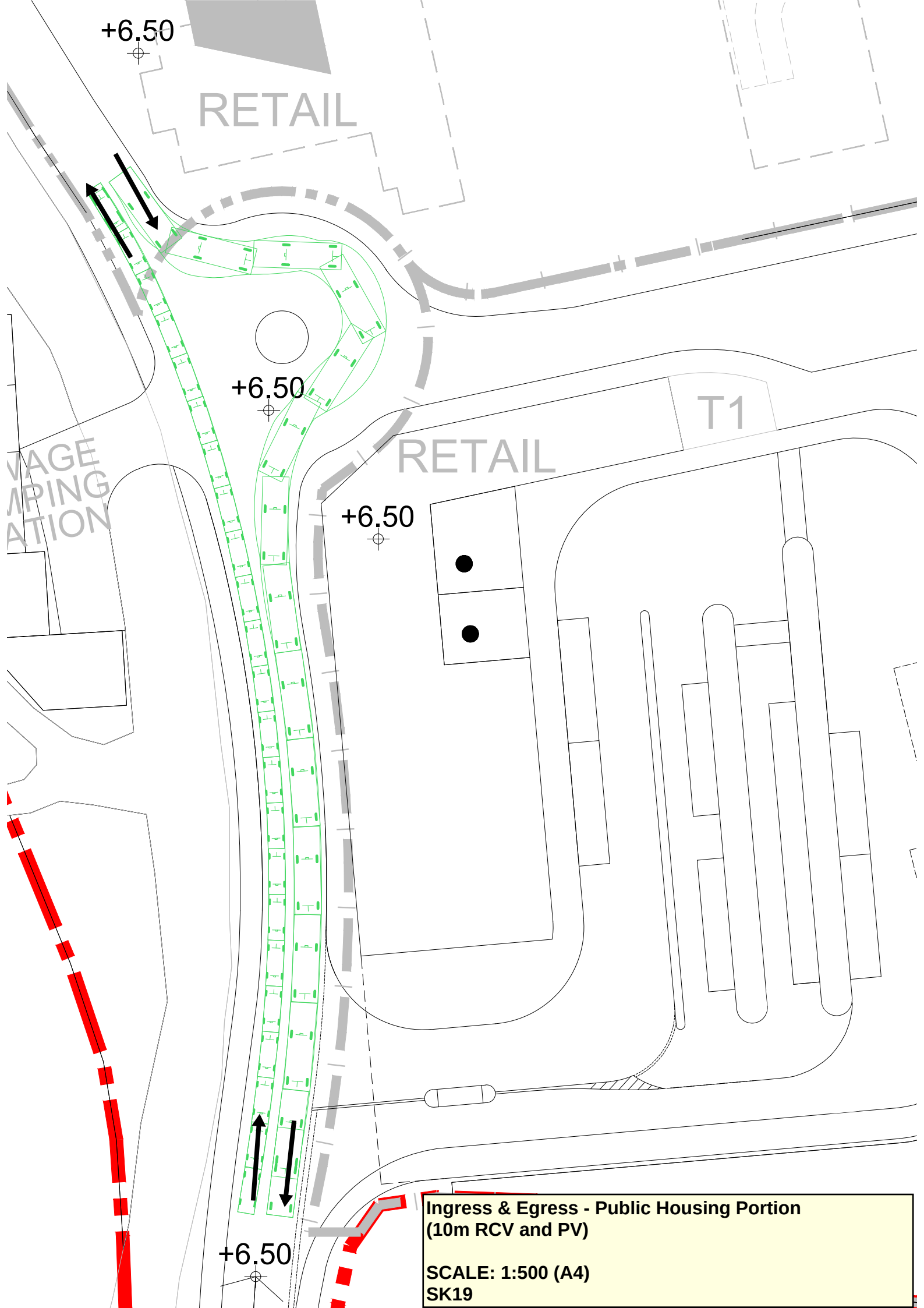

CUT LINE A–A
NAM SANG WAI ROAD
南生圍路
TSING LONG HIGHWAY
青朗公路
CASTLE PEAK ROAD
ROAD
Cycling Track
FP
單車徑
紅毛橋
潭尾段
5.1
8.9
7.9
5.5
4.7
6.1
7.6
8.1
5.3
ExpS26.7R3
Swept Path Analysis of 8m vehicle at Turnaround Facility near J/O Nam Sang Wai Road / Castle Peak Road - Tam Mi
SCALE: 1:500 (A4)
SK16

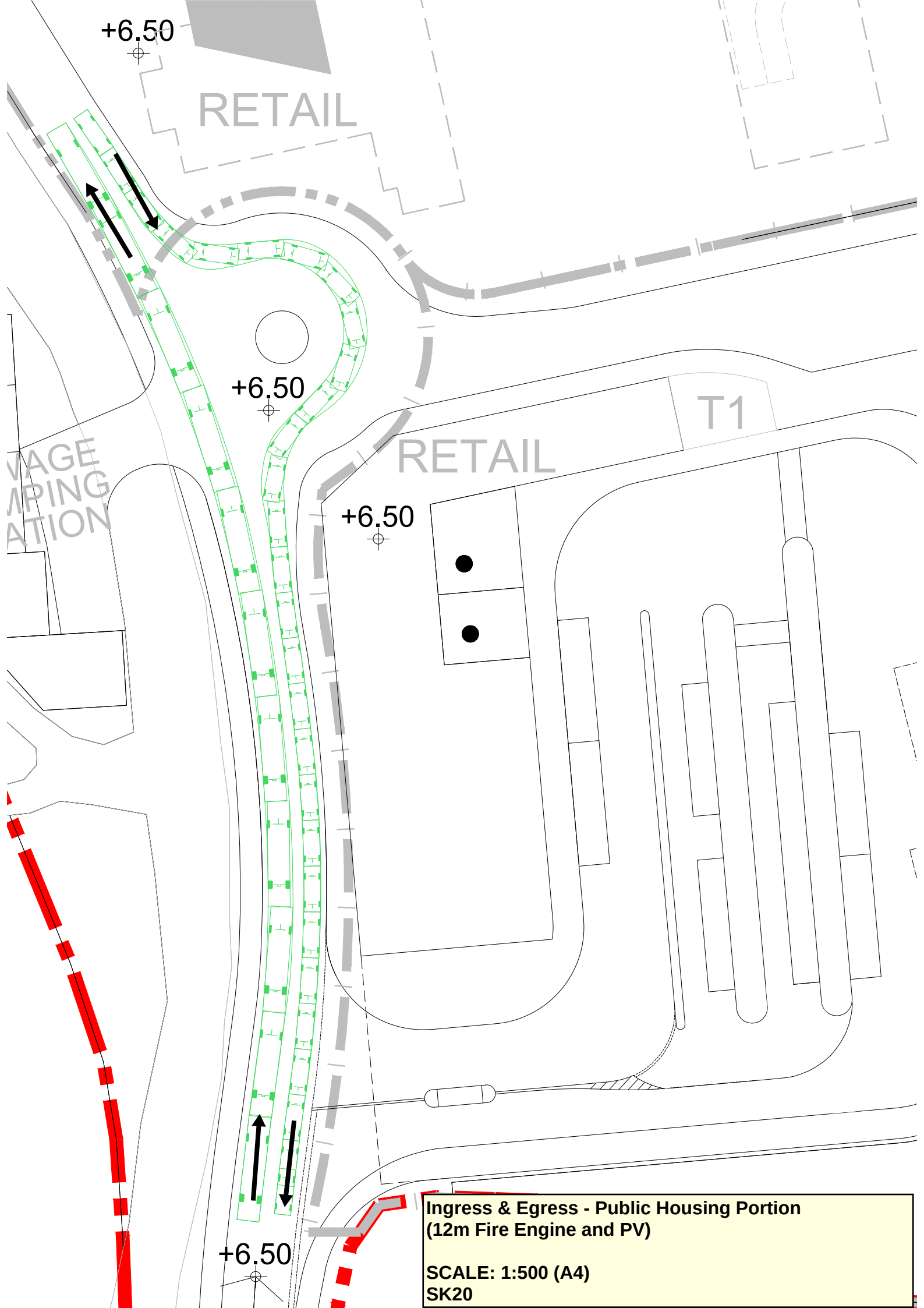


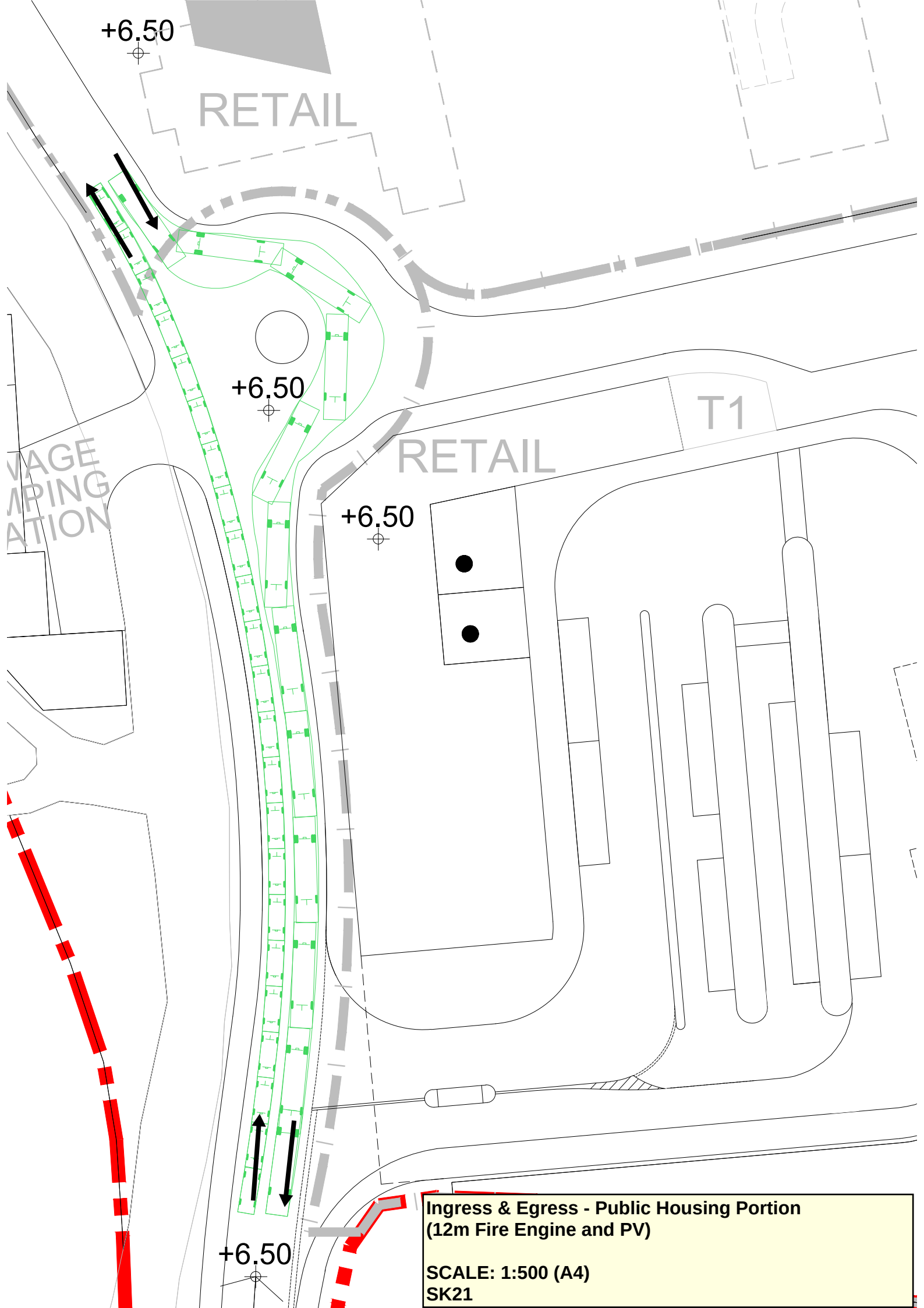
Swept Path Analysis of 8m vehicle at Turnaround Facility near J/O Nam Sang Wai Road / Castle Peak Road - Tam Mi

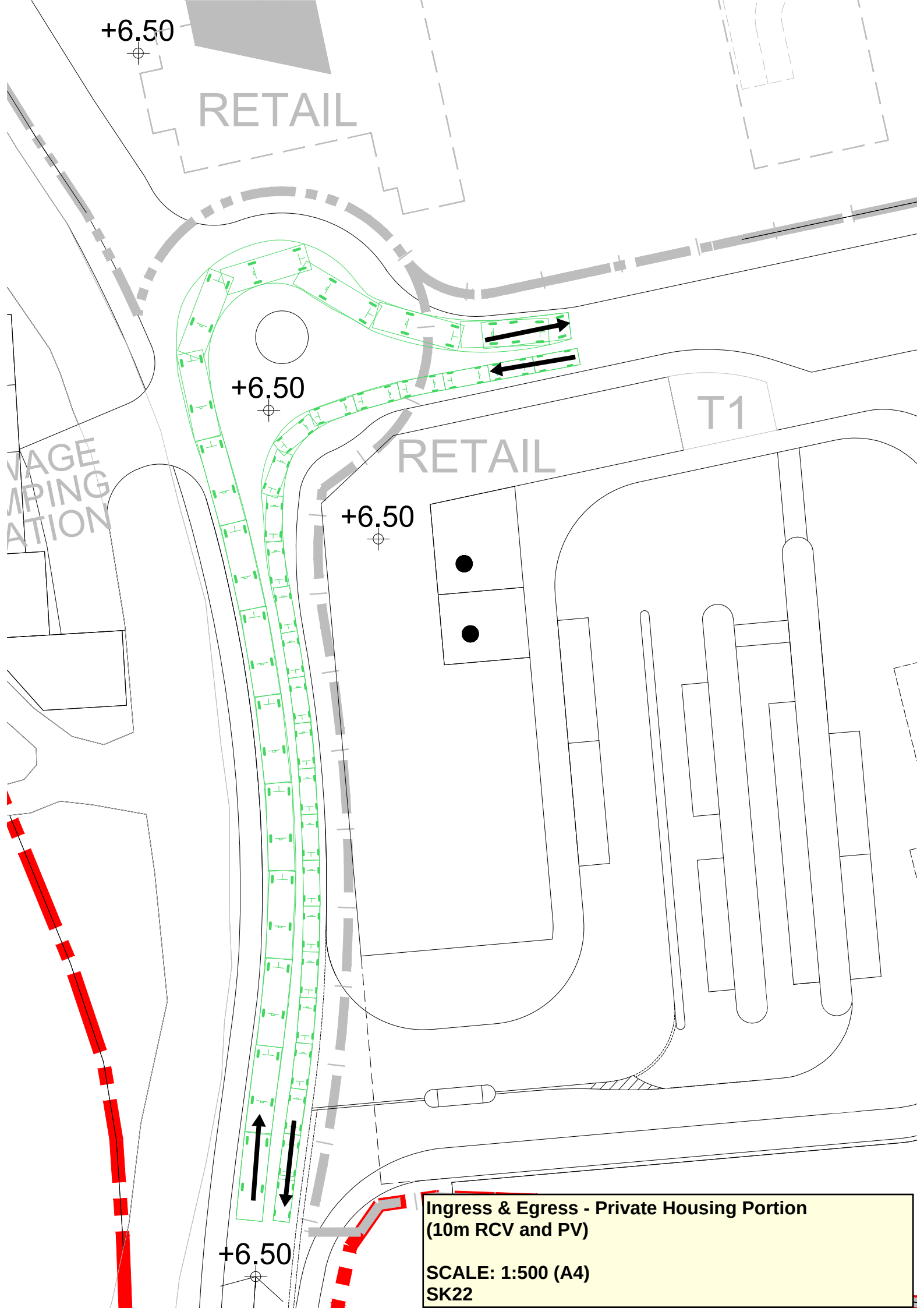
SCALE: 1:500 (A4)
SK17

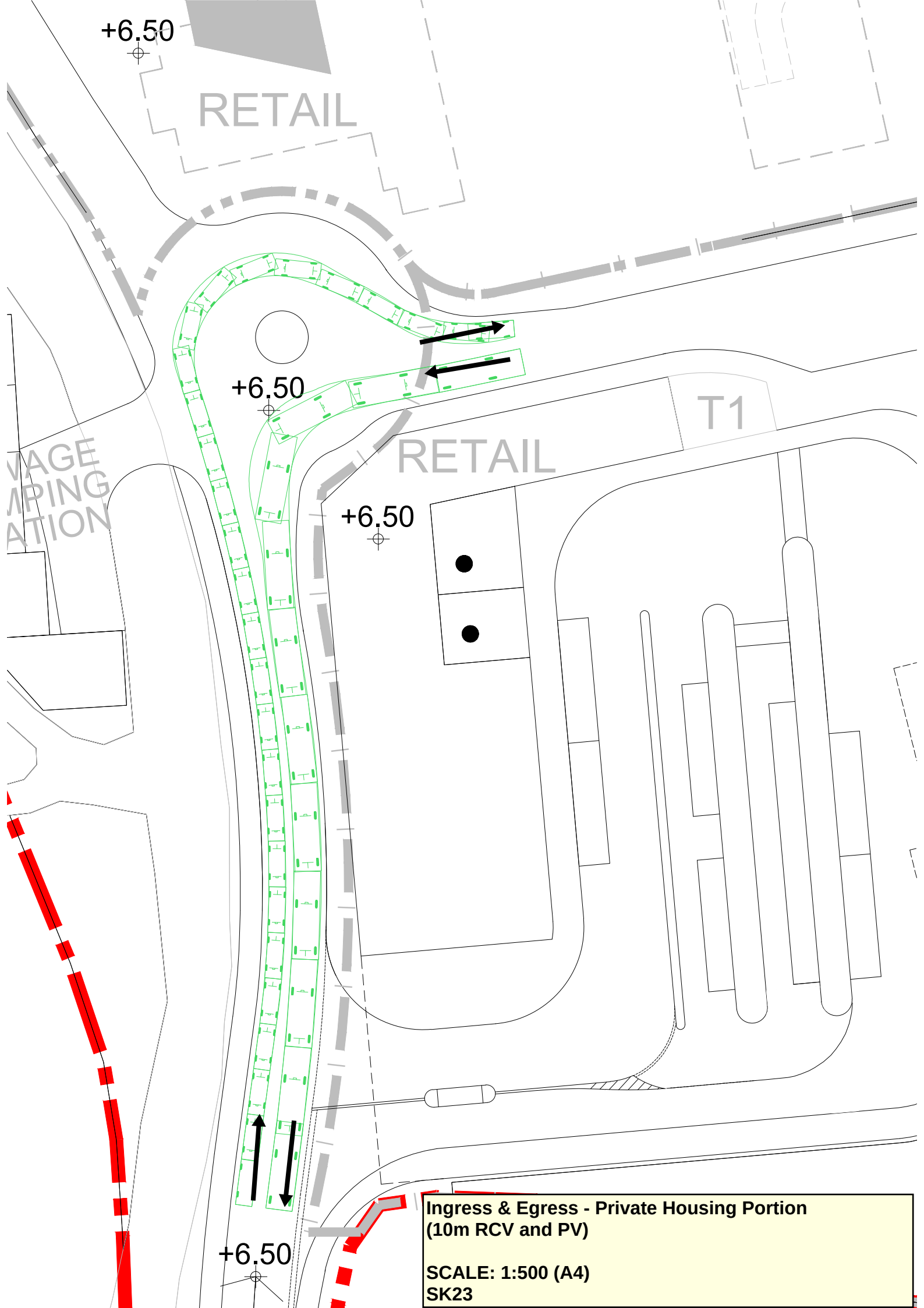

+6.50
RETAIL
+6.50
T1
RETAIL
+6.50
+6.50
Ingress & Egress - Public Housing Portion
(10m RCV and PV)
SCALE: 1:500 (A4)
SK18

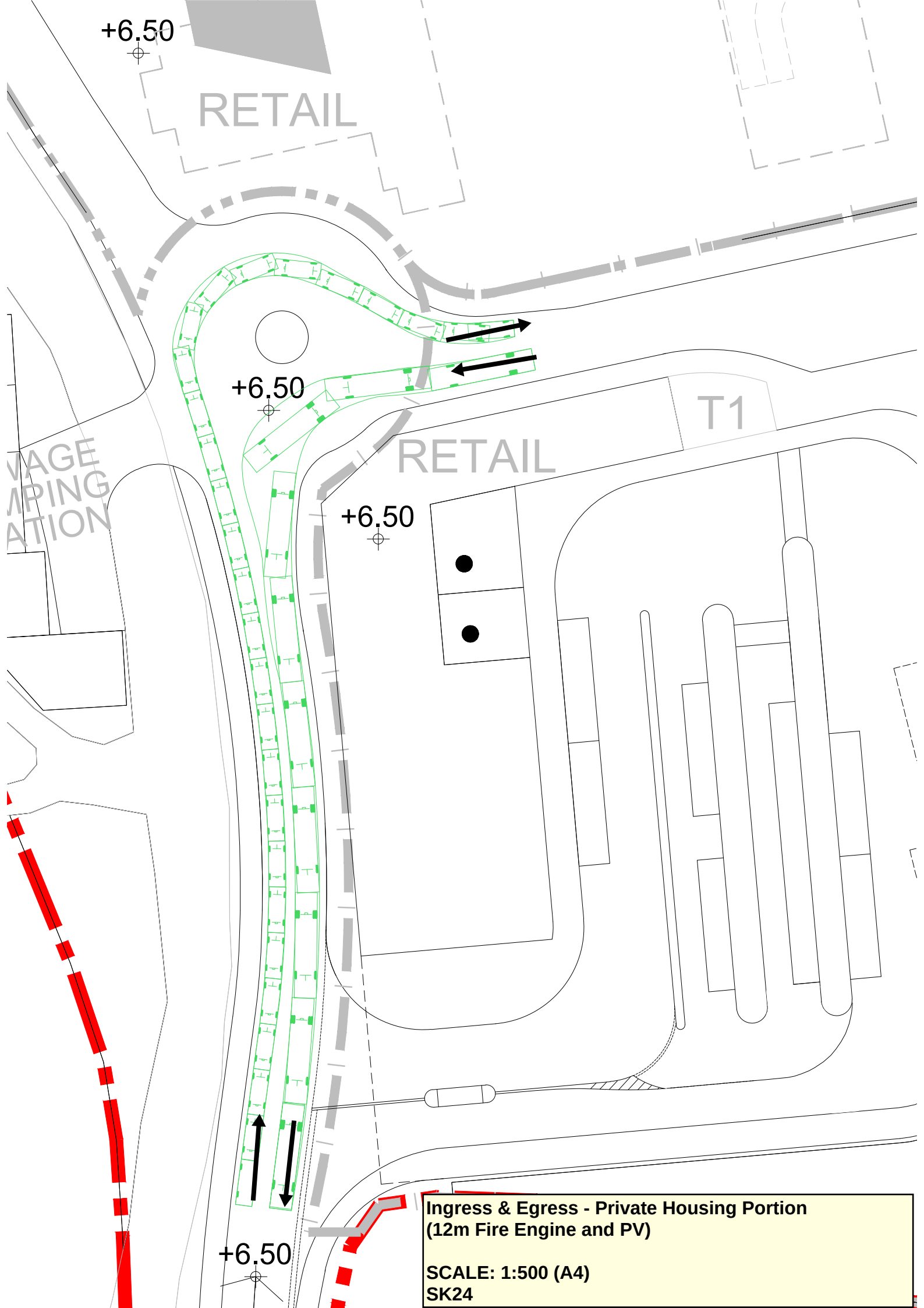

+6.50
RETAIL
+6.50
T1
RETAIL
+6.50
+6.50
Ingress & Egress - Public Housing Portion
(10m RCV and PV)
SCALE: 1:500 (A4)
SK19

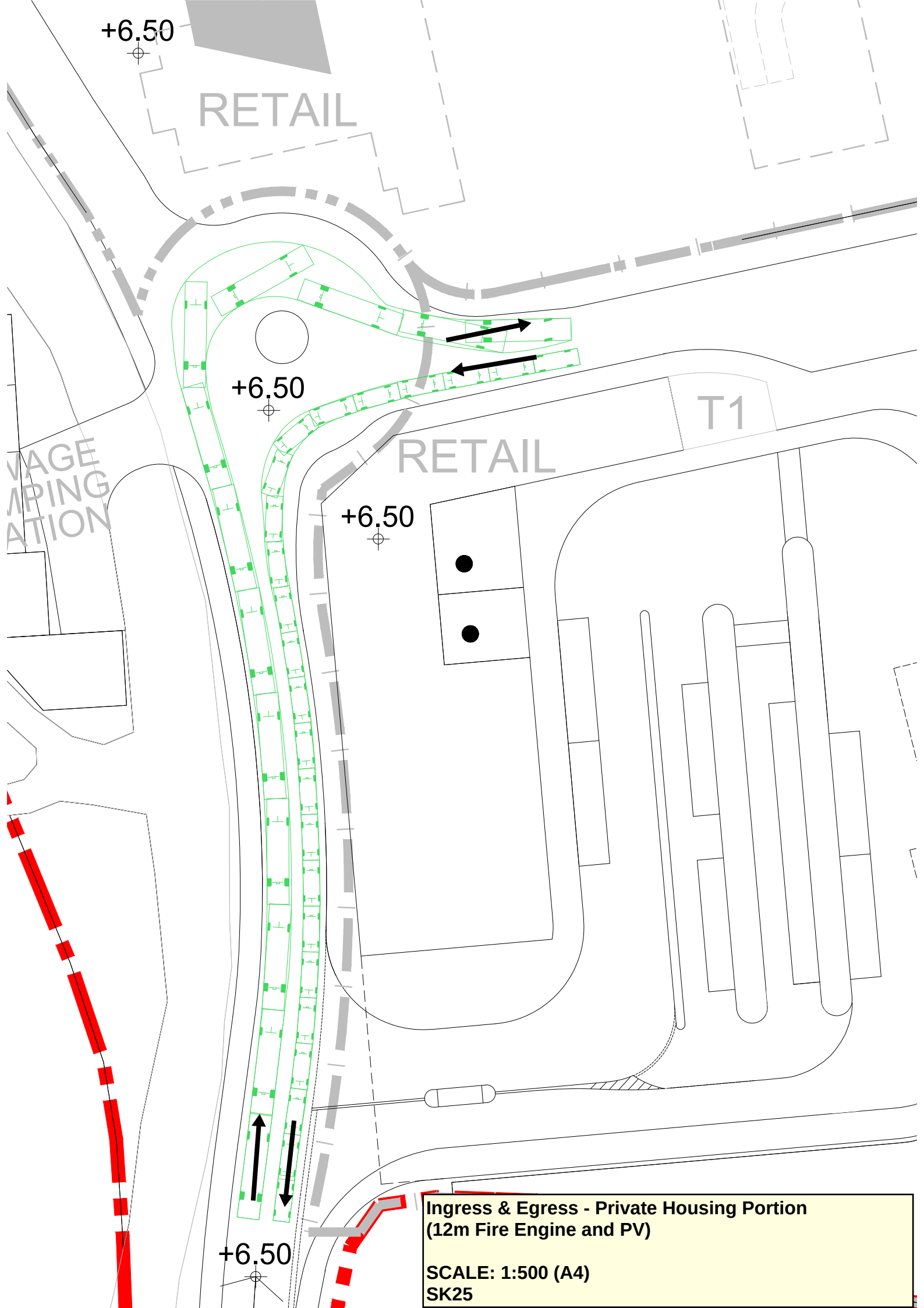

+6.50
RETAIL
+6.50
T1
RETAIL
+6.50
+6.50
Ingress & Egress - Public Housing Portion
(12m Fire Engine and PV)
SCALE: 1:500 (A4)
SK20


+6.50
RETAIL
+6.50
T1
RETAIL
+6.50
+6.50
Ingress & Egress - Public Housing Portion
(12m Fire Engine and PV)
SCALE: 1:500 (A4)
SK21


+6.50
RETAIL
+6.50
T1
RETAIL
+6.50
+6.50
Ingress & Egress - Private Housing Portion
(10m RCV and PV)
SCALE: 1:500 (A4)
SK22

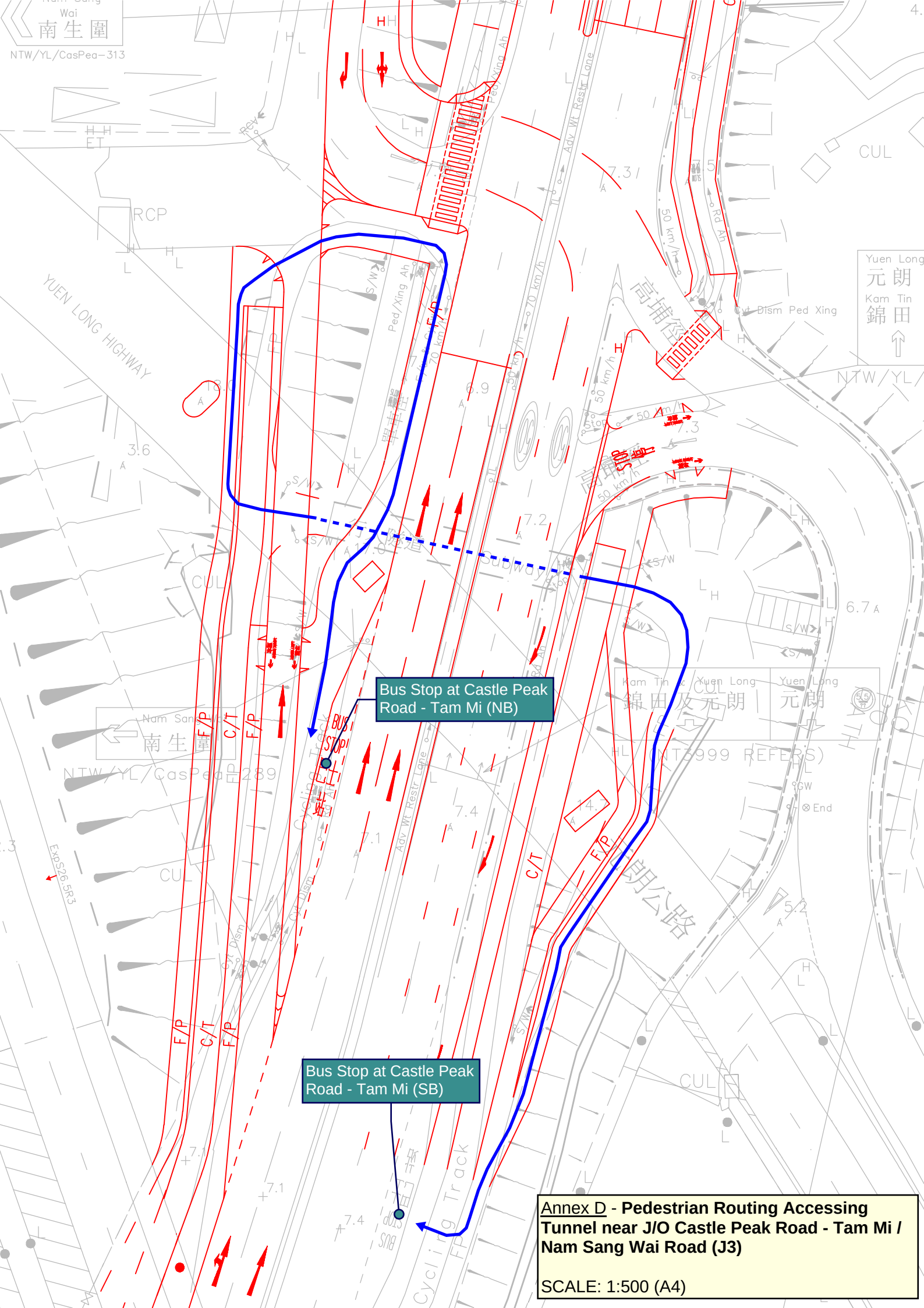

+6.50
RETAIL
+6.50
T1
RETAIL
+6.50
+6.50
Ingress & Egress - Private Housing Portion
(10m RCV and PV)
SCALE: 1:500 (A4)
SK23


+6.50
RETAIL
+6.50
T1
RETAIL
+6.50
+6.50
Ingress & Egress - Private Housing Portion
(12m Fire Engine and PV)
SCALE: 1:500 (A4)
SK24


+6.50
RETAIL
+6.50
T1
RETAIL
+6.50
+6.50
Ingress & Egress - Private Housing Portion
(12m Fire Engine and PV)
SCALE: 1:500 (A4)
SK25

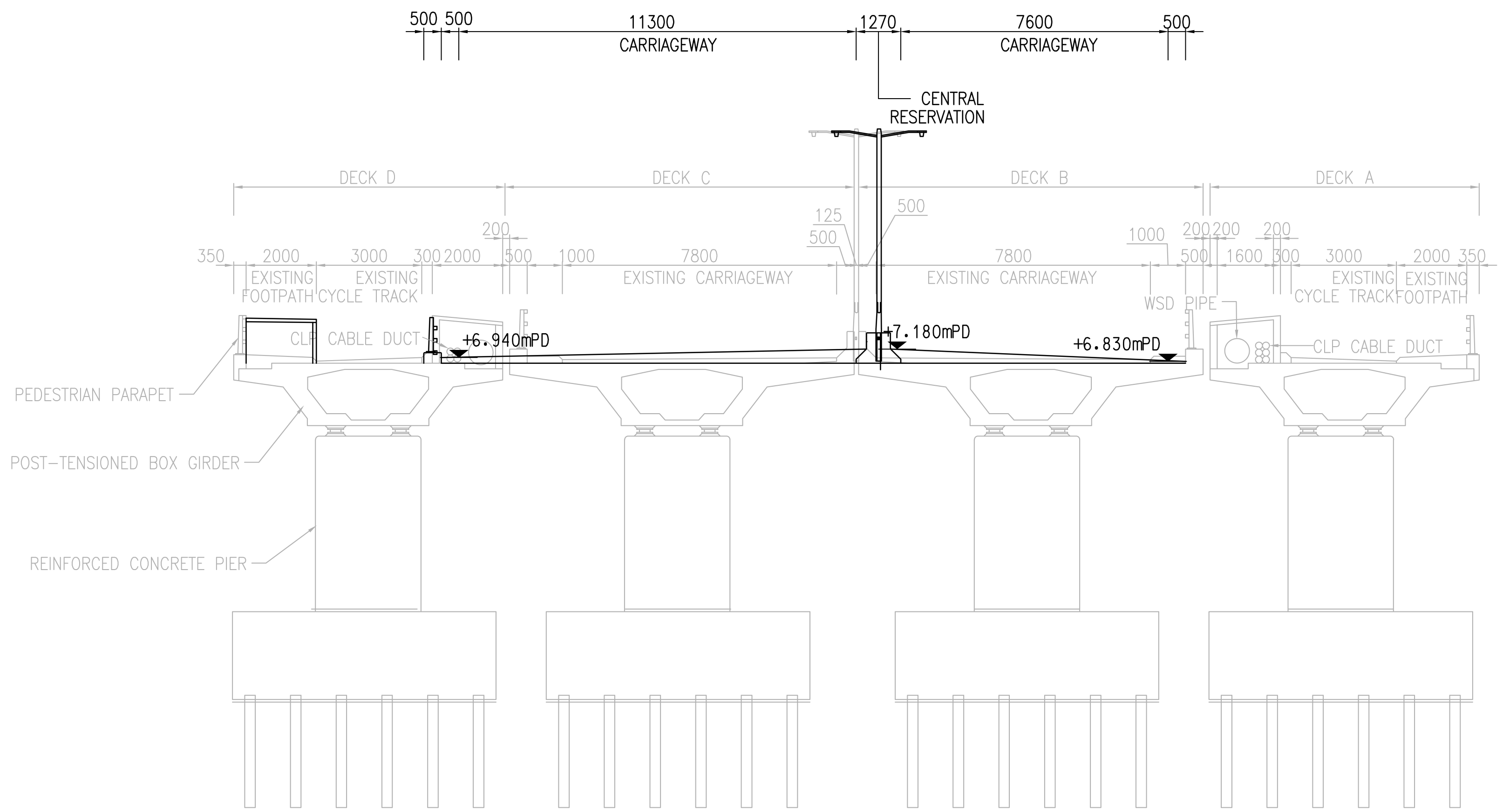
Annex D

Pedestrian Routing Accessing Tunnel near J/O Castle Peak Road – Tam Mi / Nam Sang Wai Road


Bus Stop at Castle Peak Road - Tam Mi (NB)
Bus Stop at Castle Peak Road - Tam Mi (SB)
YUEN LONG HIGHWAY
Subway
Cycling Track
Adv Wt Restr Lane
Ped Xing Ahead
Cvt Dism Ped Xing
50 km/h
70 km/h
F/P
C/T
CUL
RCP
NTW/YL/CasPea-313
NTW/YL/CasPea-289
Nam Sang Wai
南生圍
Yuen Long
元朗
Kam Tin
錦田
(NT5999 REFERS)
Annex D - Pedestrian Routing Accessing Tunnel near J/O Castle Peak Road - Tam Mi / Nam Sang Wai Road (J3)
SCALE: 1:500 (A4)

Annex E

Cross Section Drawing of Hung Mo Kiu



SECTION A-A

SCALE 1 : 100

AECOM

PROJECT 項目

PROPOSED LAND SHARING PILOT SCHEME (LSPS) FOR A SITE AT VARIOUS LOTS IN D.D.115, TUNG SHING LEI, YUEN LONG, THE NEW TERRITORIES

CLIENT 業主

SUN HUNG KAI REAL ESTATE AGENCY LTD. 新鴻基

CONSULTANT 工程顧問公司

AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS 分判工程顧問公司

ISSUE/REVISION 修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 複核

STATUS 階段

SCALE 比例 — A1 1 : 100

DIMENSION UNIT 尺寸單位 — MILLIMETRES

KEY PLAN 索引圖

PROJECT NO. 項目編號 — 60609253

CONTRACT NO. 合約編號

SHEET TITLE 圖紙名稱

APPENDIX E - CROSS SECTION OF HUNG MO KIU

SHEET NUMBER 圖紙編號

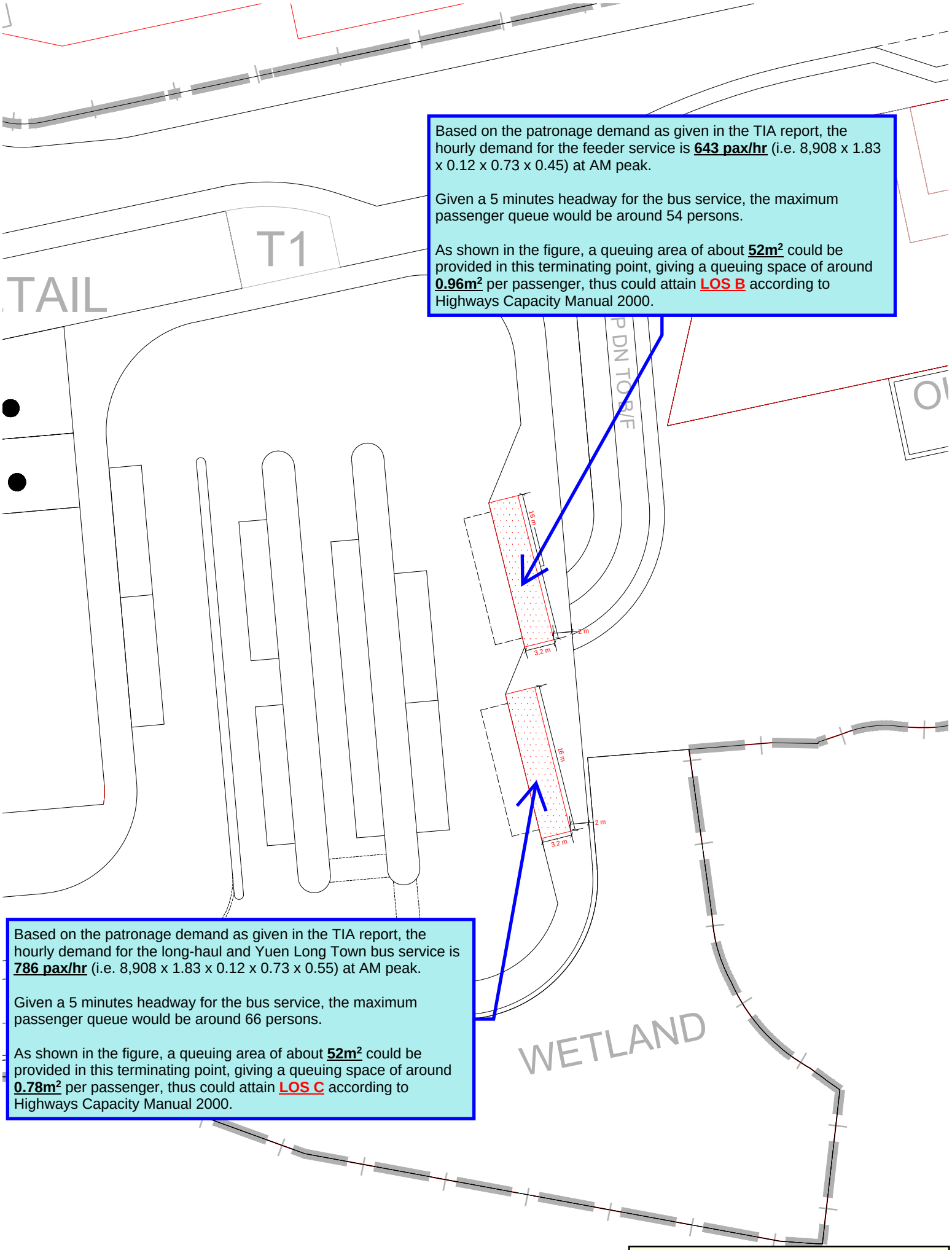
60609253/HYD/1007

ISO A1 594mm x 841mm Approved: Checked: Designer: Project Management Initials:

Plot File by: Wuming.Zeng 18/07/2022
PATH P:\PROJECTS\60609253\INCOMING\IN\CIVIL\2022\20220614\AM1\1007.dwg

Annex F

Queueing Assessment for Bus Services at Proposed PTI



Based on the patronage demand as given in the TIA report, the hourly demand for the feeder service is **643 pax/hr** (i.e. 8,908 x 1.83 x 0.12 x 0.73 x 0.45) at AM peak.

Given a 5 minutes headway for the bus service, the maximum passenger queue would be around 54 persons.

As shown in the figure, a queuing area of about **52m²** could be provided in this terminating point, giving a queuing space of around **0.96m²** per passenger, thus could attain **LOS B** according to Highways Capacity Manual 2000.

Based on the patronage demand as given in the TIA report, the hourly demand for the long-haul and Yuen Long Town bus service is **786 pax/hr** (i.e. 8,908 x 1.83 x 0.12 x 0.73 x 0.55) at AM peak.

Given a 5 minutes headway for the bus service, the maximum passenger queue would be around 66 persons.

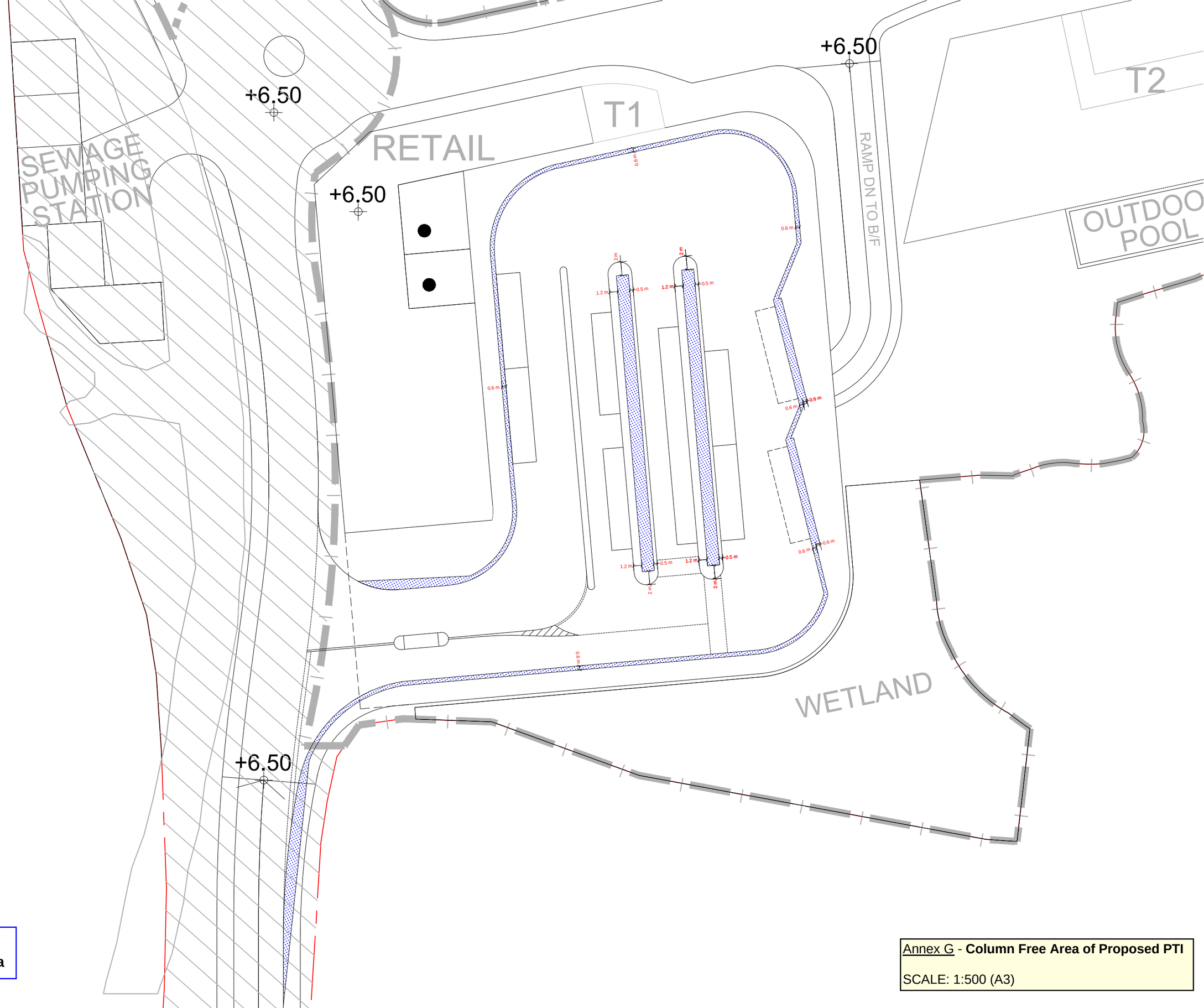
As shown in the figure, a queuing area of about **52m²** could be provided in this terminating point, giving a queuing space of around **0.78m²** per passenger, thus could attain **LOS C** according to Highways Capacity Manual 2000.

Annex F - **Queuing Assessment for Bus Services at Proposed PTI**

SCALE: 1:500 (A3)

Annex G

Column Free Area at Proposed PTI



Legend

Column-Free Area

Annex G - **Column Free Area of Proposed PTI**

SCALE: 1:500 (A3)