寄件者: Eva Ka Yan TAM/PLAND
寄件日期: 2025年04月10日星期四 14:47
收件者: tpbpd/PLAND
副本: Momo Hei Ching CHOW/PLAND; 陳灝然
主旨: Fw: A/YL-TT/697補充資料
附件: DRD Proposal.pdf; 排水設施狀況記錄.pdf

From: [redacted]
Sent: Thursday, April 10, 2025 2:15 PM
To: Eva Ka Yan TAM/PLAND <ekytam@pland.gov.hk>
Cc: Momo Hei Ching CHOW/PLAND <mhcchow@pland.gov.hk>
Subject: A/YL-TT/697補充資料

敬啟者

就上述檔案，現提交補充資料。

前規劃申請 A/YL-TT/625 於27/11/2024 被撤銷，由於申請人未能在 27/11/2024 或以前履行附帶條件 (b)項，提交排水設施的狀況記錄。

當時申請人已提交過兩次排水設施的狀況記錄，但都被渠務署拒絕。是次規劃已做好有關排水設施的狀況記錄，可參閱附件。

Approved Section 16 Planning Application for the Proposed Temporary Private Vehicle Park and Shop & Services for a Period of 3 Years in "Village Type Development" zone, Lot 3307 in D.D. 120 and Adjoining Government Land, Tai Tong, Yuen Long

Drainage Proposal

Job number 277952

Ove Arup & Partners Hong Kong Ltd
Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong
Kowloon
Hong Kong
www.arup.com

ARUP

Contents

1 Introduction

1.1 Background

Ove Arup & Partners Hong Kong Ltd is conducting a Drainage Proposal to comply with the planning conditions of the Approved Section 16 Planning Application for the Proposed Temporary Private Vehicle Park and Shop & Services at Lot 3307 in D.D. 120 and Adjoining Government Land, Tai Tong, Yuen Long (Planning Application No. A/YL-TT/509). This Planning Application also includes a proposed access road at government land next to the proposed car park for connecting the car park to Sham Chung Road.

The Application Site is located within a "Village Type Development" ("V") zone on the Draft Tai Tong Outline Zoning Plan No. S/YL-TT/17.

1.2 Objectives

The objective of this report is to provide an assessment of the impact of storm water flow generation as a result of the proposed temporary private vehicle park at the Application Site on the connecting public drainage system adjacent to the Application Site and to propose mitigation measures (if any). This report is also to provide drainage design of the proposed drainage works for the Application Site.

This Drainage Proposal is prepared referring to the DSD guideline: *Technical Note to prepare a "Drainage Submission" relating to applications for temporary change of land use such as temporary storage area, car parks, workshops small factories…etc. under S.16 of the Town Planning Ordinance* ("The Guideline").

2 Project Outline

2.1 Subject Development

The Application Site is located at Tai Tong, Yuen Long, bounded by Tai Tong Road at east, a vacant government land at south. The north and west boundary of the Application Site is next to private village land. Site location plan is shown in **Appendix A - Plan 1** and basic development parameters are appended in below **Table 2.1**:

Development Parameters	**Existing Site (Lot 3307, for proposed Private Vehicle Park)**	**Government Land (for proposed Access Road)**	**Proposed Private Vehicle Park**	**Proposed Access Road at Government Land**
Area (m^2)	650	60	650	60
% of Hard-paved Area/ Unpaved Area	Hard-paved Area: 0% Unpaved Area: 100%	Hard-paved Area: 100% Unpaved Area: 0%	Hard-paved Area: 100% Unpaved Area: 0%	Hard-paved Area: 100% Unpaved Area: 0%
Statutory Land Use Zoning	"V"	"V"	"V"	"V"

Table 2.1 Summary of Development Parameters

Satellite Photograph of the Application Site

2.2 Project Interface

No foreseeable interaction or conflict with other development projects in the vicinity of the Application Site was identified when this drainage proposal was conducted.

3 Existing Drainage

3.1 Existing Drainage Network

The Application Site is a vacant land with vegetation. Surface run-off from the Application Site is collected by a 600D U-channel within the vacant government land next to the Application Site south boundary. This 600D U-channel is running along the Application Site south boundary towards west and it is collecting stormwater from existing village houses and finally discharge to a nullah along Sham Chung Road via a flap valve.

Detailed existing drainage network information is shown in **Plan 2 of Appendix A.**

The site investigation photo record of the existing drainage condition is presented in **Appendix A**.

The catchment associated with the existing drainage system were identified based on the existing topography. Catchment Plans of existing Site and proposed development are shown in **Appendix B**.

The capacity checking of existing drainage system is presented in **Appendix C Table 1**.

4 Assumptions and References

4.1 Climate Change

Climate change is taken into account in existing drainage system capacity check calculation. 10.4% Rainfall intensity increase for mid 21st century (2041-2060) is included referring to SDM 2018, table 28.

4.2 Desilting

Referring to SDM 2018 section 9.3(a), 10% reduction in flow area is adopted in capacity checking of pipe/channel for taking into account of the effects to flow capacity due to materials deposited on the pipe/channel bed.

5 Local Drainage Impact Assessment for the Proposed Development

5.1 Assessment Results

The whole site area will be changed from unpaved to hard paved for the Proposed Temporary Private Vehicle Park and Shop & Services Development. The capacity of existing 600D U-channel on the south of the Application Site has been checked to include additional surface run-off from the Application Site due to the increase of hard paved area of the Site. The capacity checking of existing 600D U-channel is presented in **Appendix C Table 2** and the checking result shows that there is no adverse impact by the change in catchment characteristic.

5.2 Proposed Drainage System

Surface run-off from the private vehicle park is intercepted by a 150mm kerb along car park perimeter and discharge to a proposed 300D U-channel at private vehicle park entrance via 1： 80 fall at ground level and finally discharges to the existing 600D U-channel via a 300ø connection pipe. The proposed 300D U-channel is covered with heavy duty grating at the run-in/out. Capacity checking of the proposed 300D perimeter U-channel is presented in **Appendix C Table 3**.

The proposed drainage system is presented in **Appendix D**.

5.3 Flooding Susceptibility

The proposed site ground level is approximately around +8.6mPD which is much higher than the design extreme sea level of 1 in 200 return period which is +4.77mPD referring to DSD storm drainage manual Table 8. On the other hand,

there is no record of flood blackspot found for the Application Site or the adjacent area. There is slim chance of the Application Site been affected by backwater effect under extreme weather .

6 Conclusion

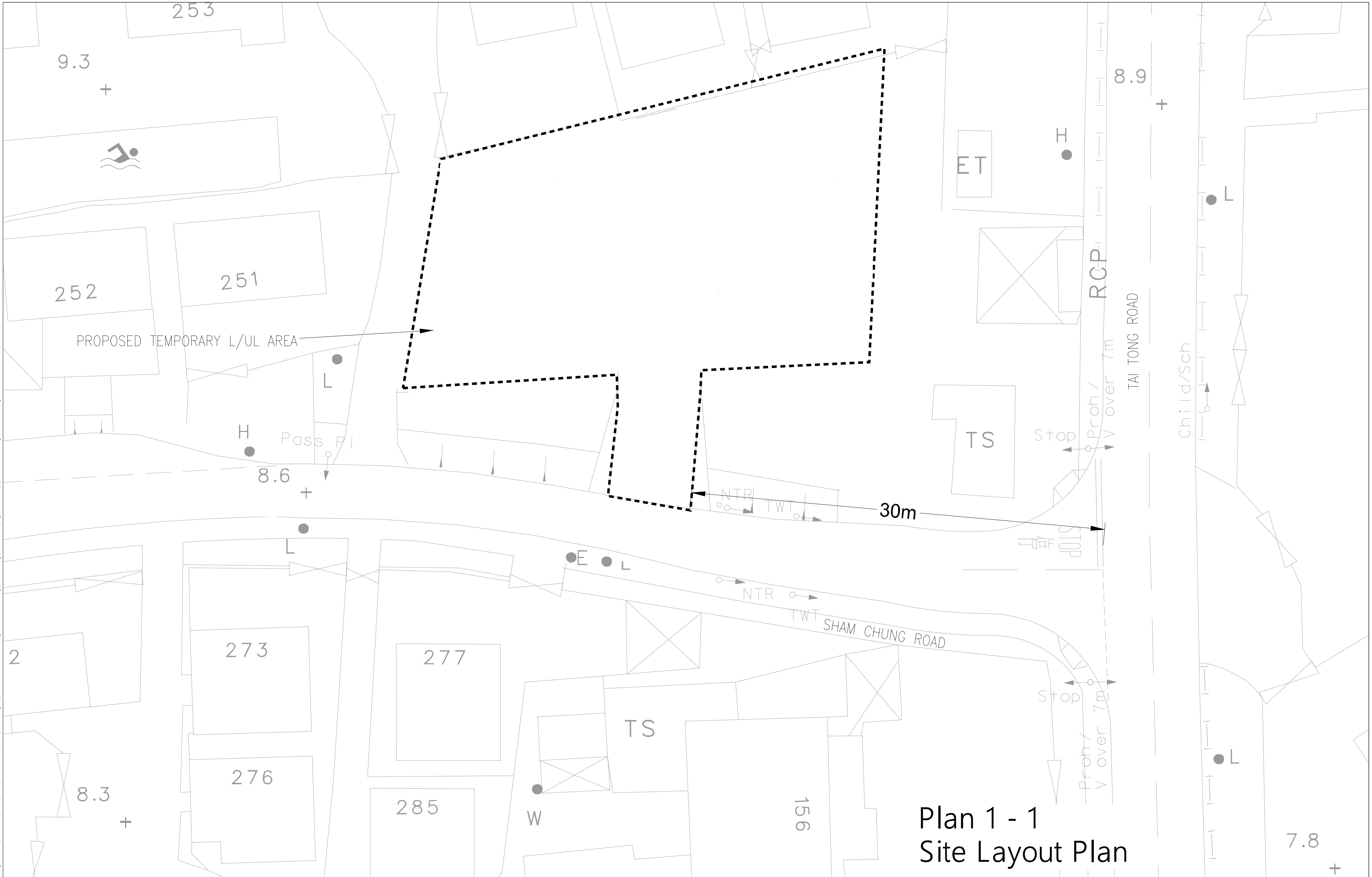
Capacity of the existing public drainage system adjacent to the Proposed Temporary Private Vehicle Park and Shop and Services has been checked. The hydraulic capacity of the existing 600D U-channel on the south of the Application Site along Sham Chung Road is sufficient.

A 300D U-channel is proposed to collect surface run-off from the Application Site and connects to the existing 600D U-channel via a proposed 300ø precast concrete pipe.

There is slim chance of the Application Site been affected by backwater effect under extreme weather.

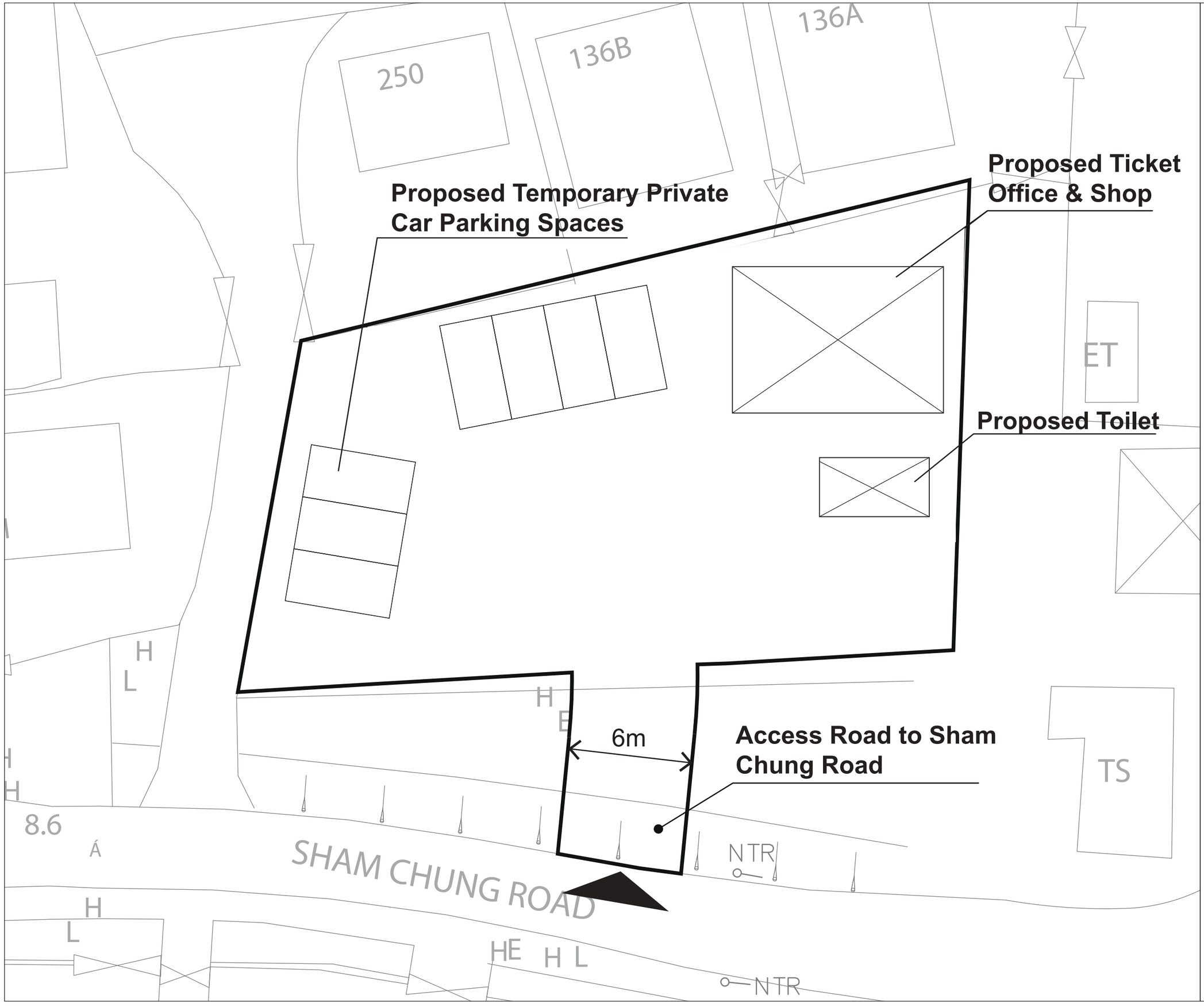
Appendix A

Plans



Plan 1 - 1
Site Layout Plan

Job Title: Temporary Planning Application for Car Parking Use at Tai Tong			FIGURE 1
Date: 30DEC20	Scale: 1:250 @ A3	Drawing Title: REVISED LAYOUT PLAN	ARUP
Drawn: KPHW	Job No.		



Lengend:

- Application Site
- Access from Sham Chung Road
- Proposed Ticket Office & Shop

N

0 1 2 3 4 5 6m

Rev	Description	By	Date

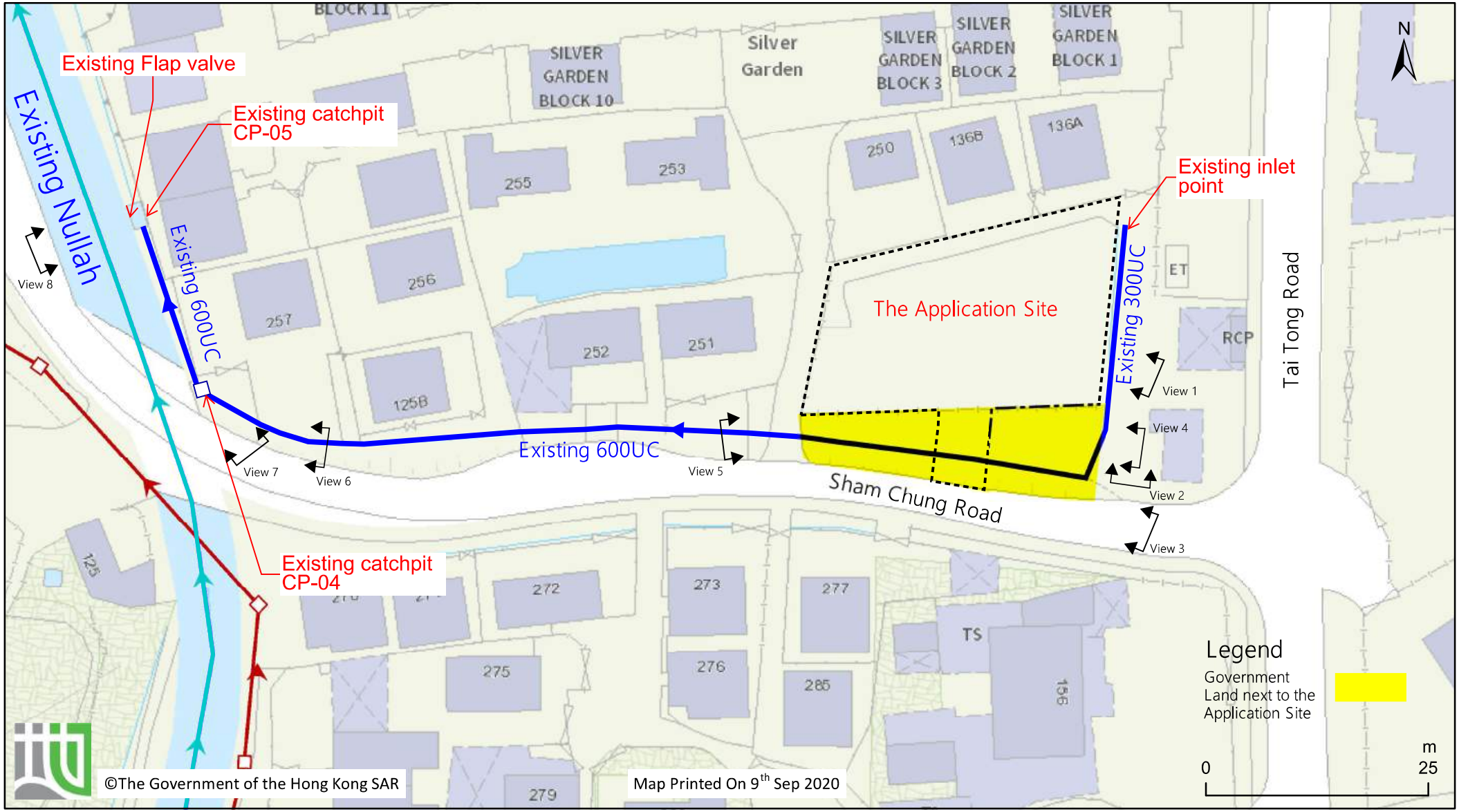
Consultant

ARUP

Contract No. and Title

Drawing title

Drawing no.			Rev.
Drawn	Date	Checked	Approved
Scale 1:500 @ A3		Status	



Plan 2
Existing Drainage Network


View 1


View 2
GOVERNMENT LAND


View 3


View 4


View 5

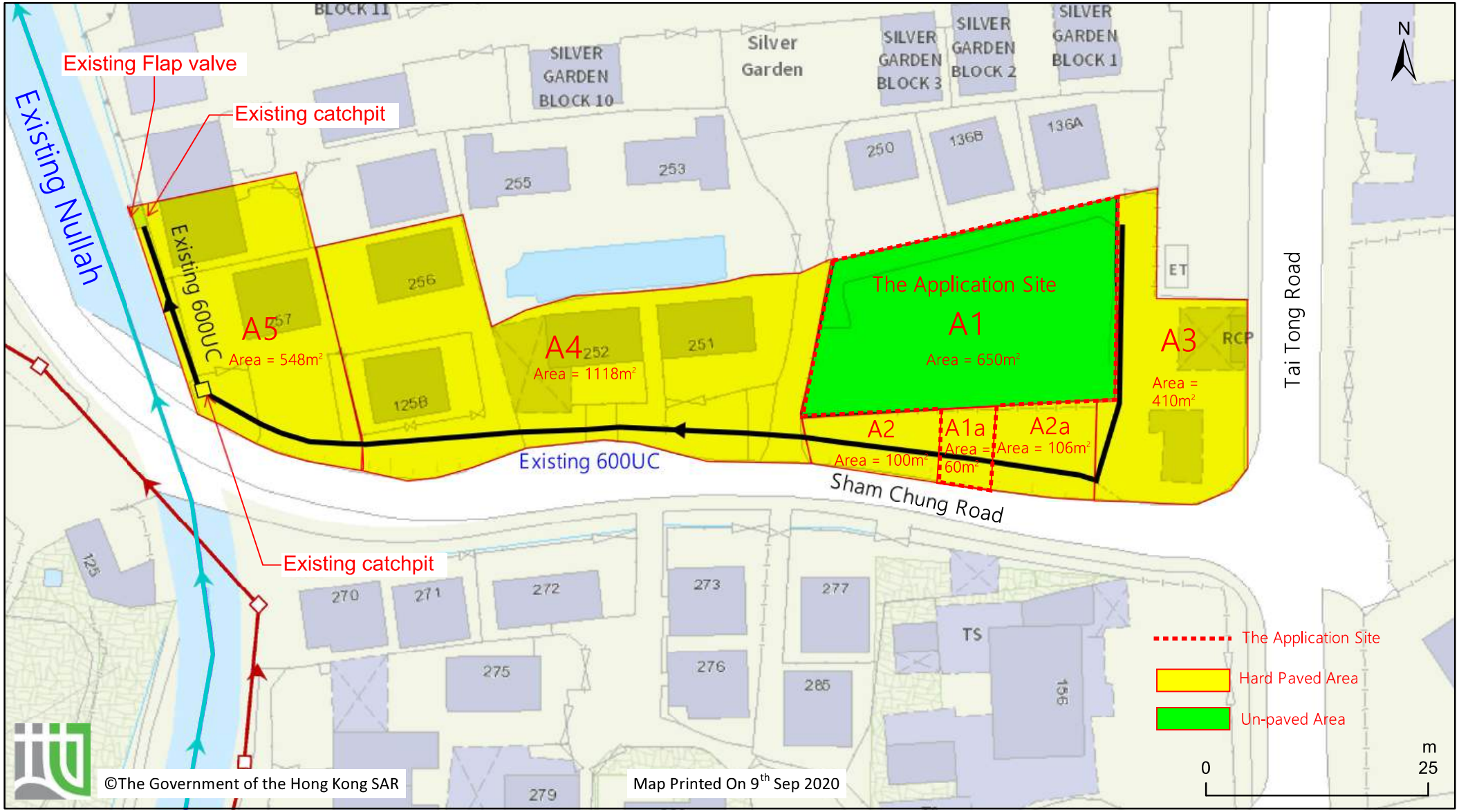

View 6


View 7
257 號

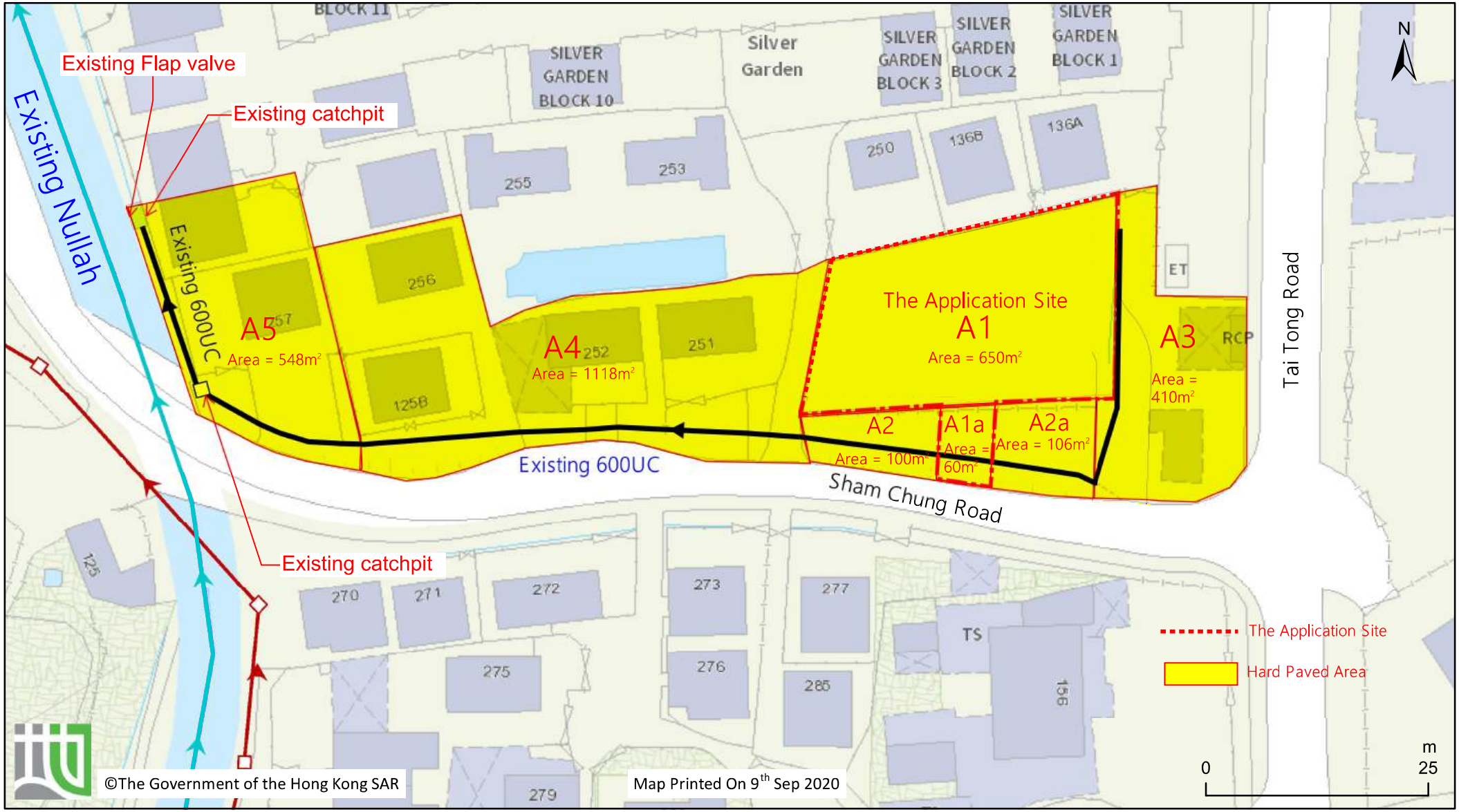

View 8

Appendix B

Catchment Plan



Existing Drainage Catchment Plan



Proposed Drainage Catchment Plan

Appendix C

Drainage Capacity Checking Calculation

Appendix D

Proposed Drainage Scheme

ARUP Ove Arup & Partners Calculation Sheet

Job Title: Proposed Temporary Private Vehicle Park and Shop & Services, Lot 3307 in D.D. 120 and Adjoining Government Land, Tai Tong, Yuen Long

Job No. : Sheet :

Made by : CW Date : 5-Aug-2021

Drainage Proposal

Capacity Checking for Existing Drainage

Runoff Coeff., C = 0.95 (Paved)
0.25 (natural grass land)

Return Period = 50 years Urban Drainage Branch Systems

Rainfall Intensity, $I = a / (T_c + b)^c$ (Gumbel solution)
T = 50 years
where : a = 451.3 (Table 3, Stormwater Drainage Manual, Fifth Edition)
b = 2.46
c = 0.337

Inlet Time, $T_0 = 0.14465\ L / H^{0.2} / A^{0.1}$ (Bransby Williams Equation)
where : L = Longest distance measured on the line of natural flow between the submit and the point under consideration (m)
H = Average slope (m per 100m)
A = Sub-catchment area (m2)

Peak Runoff ,Q = IA

Pipe Capacity Q_p=VA

$$\bar{V} = -\sqrt{32gRS_f}\,\log\left[\frac{k_s}{14.8R} + \frac{1.255v}{R\sqrt{32gRS_f}}\right]$$

(By Colebrook-White Equation)

Roughness Coeff., Ks = 0.60 mm (Circular Box culvert / pre-cast concrete pipe)

Ks = 3.30 mm (channel, Trowel finish)

Kinematic Viscosity, u = 0.0000012 m^2/s

Acceleration due to gravity g = 9.81 m/s^2

Climate Change Factor (%) = 10.40% (Table 28, Stormwater Drainage Manual, for rainfall increase at Mid 21st Century 2041 – 2060)

Table 1 Capacity Checking of Existing 600D U-channel on the South of the Site to Collect Flows from Existing Site (T = 50 years)

Contributing Catchment	Area (m^2)			Accumulated Factored Area A, (m^2)	L (m)	H (m/100m)	T_o (min.)	T_f (min.)	T_c (min.)	I (mm/hr)	I (mm/hr) incl. Climate C	Q (m^3/s) incl. Climate C	Existing Downstream Drainage														Flow %
	steep natural slope	flat grassland	Paved										Upstream Stormwater Manhole Ref	Downstream Stormwater Manhole Ref	size of channel / culvert / pipe width (m)	height (m)	Length (m)	US GL (mPD)	Invert Level US (mPD)	Invert Level DS (mPD)	Slope (S_f)	A (m^2)	P (m)	R = A/P (m)	$32gRS_f$ m^2/s^2	Capacity (m^3/s)	Velocity (m/s)	
A3			410	390	-	-	2.00	0.24	2.24	267.95	295.82	0.03	Exisitng inlet point	CP-01a(EX.)	0.30	-	30.00	8.700	8.400	7.800	0.0200	0.07	0.72	0.10	0.63	0.15	2.11	21%
A1		650		2387	-	-	2.24	0.16	2.39	265.01	292.57	0.19	CP-01a(EX.)	CP-04 (EX.)	0.60	-	18.00	8.100	7.500	7.380	0.0067	0.29	1.44	0.20	0.42	0.55	1.92	35%
A1a			60												(Existing U-channel)												
A2			100																								
A2a			106																								
A4			1,118																								
A5			548																								
				2387	-	-	2.39	0.73	3.12	252.78	279.07	0.19			0.60	-	84.00	8.500	7.380	6.820	0.0067	0.29	1.44	0.20	0.42	0.55	1.92	33%
															(Existing U-channel)												
				2387	-	-	3.12	0.17	3.30	250.18	276.20	0.18	CP-04 (EX.)	CP-05 (EX.)	0.60	-	20.00	8.500	6.820	6.687	0.0067	0.29	1.44	0.20	0.42	0.55	1.92	33%
															(Existing U-channel)												

Drainage Proposal

Capacity Checking for Proposed Drainage

Runoff Coeff., C = 0.95 (Paved)
0.25 (natural grass land)

Return Period = 50 years Urban Drainage Branch Systems

Rainfall Intensity, $I = a / (T_c + b)^c$ (Gumbel solution)
T = 50 years
where : a = 451.3 (Table 3, Stormwater Drainage Manual, Fifth Edition)
b = 2.46
c = 0.337

Inlet Time, $T_o = 0.14465\ L / H^{0.2} / A^{0.1}$ (Bransby Williams Equation)
where : L = Longest distance measured on the line of natural flow between the submit and the point under consideration (m)
H = Average slope (m per 100m)
A = Sub-catchment area (m2)

Peak Runoff ,Q = IA

Pipe Capacity $Q_p = VA$

$$V = -\sqrt{32gRS_f}\,\log\left[\frac{k_s}{14.8R} + \frac{1.255v}{R\sqrt{32gRS_f}}\right]$$

(By Colebrook-White Equation)

Roughness Coeff., Ks = 0.60 mm (Circular Box culvert / pre-cast concrete pipe)

Ks = 3.30 mm (channel, Trowel finish)

Kinematic Viscosity, u = 0.0000012 m^2/s

Acceleration due to gravity g = 9.81 m/s^2

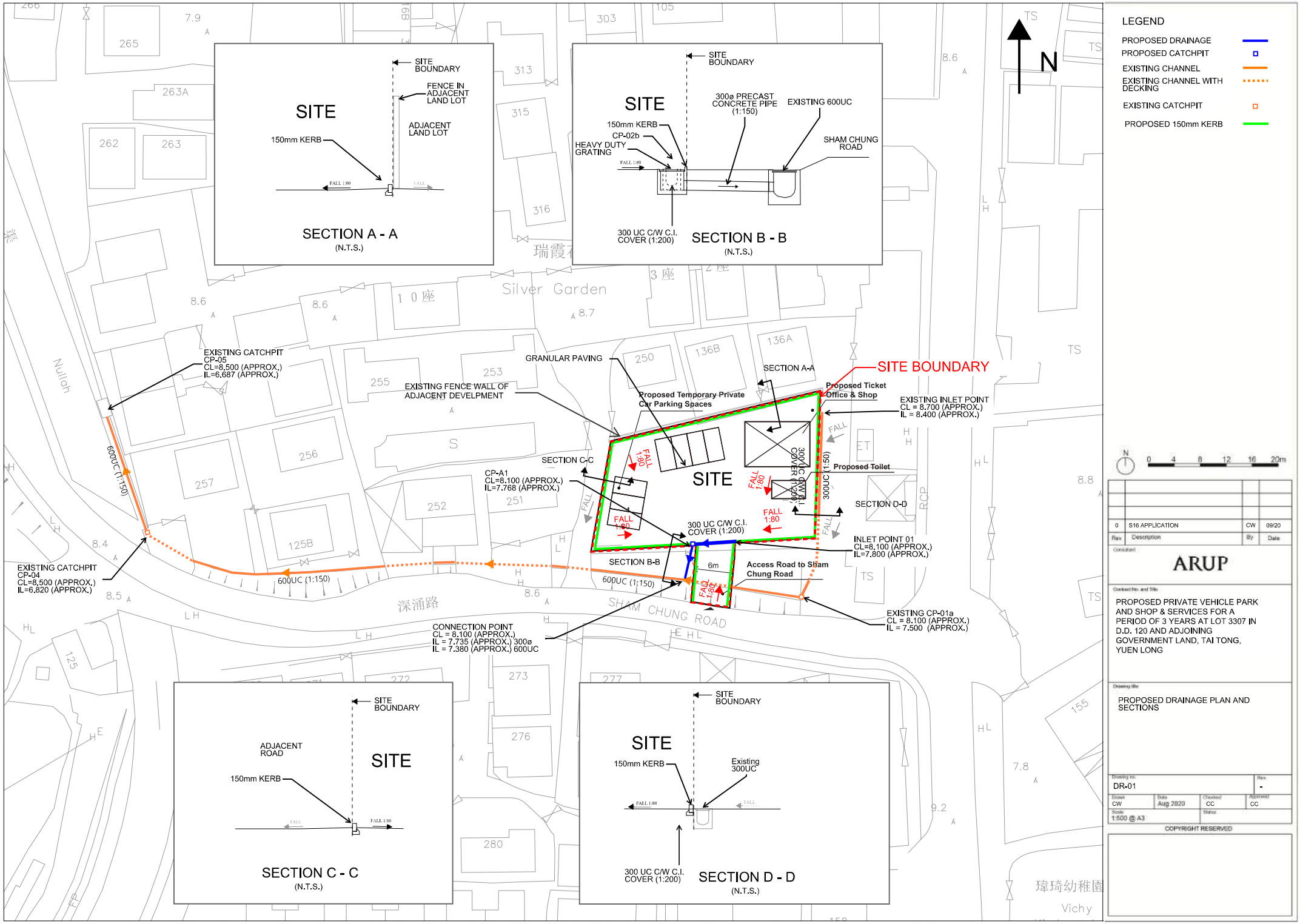
Climate Change Factor (%) = 10.40% (Table 28, Stormwater Drainage Manual, for rainfall increase at Mid 21st Century 2041 – 2060)

Table 2 Capacity Checking of Existing 600D U-channel on the South of the Site to Collect Flows from Proposed Temporary Car Park (T = 50 years)

Contributing Catchment	Area (m^2)			Accumulated Factored Area A, (m^2)	L (m)	H (m/100m)	T_o (min.)	T_f (min.)	T_c (min.)	I (mm/hr)	I (mm/hr) incl. Climate C	Q (m^3/s) incl. Climate C	Existing Downstream Drainage														Flow %
	steep natural slope	flat grassland	Paved										Upstream Stormwater Manhole Ref	Downstream Stormwater Manhole Ref	size of channel / culvert / pipe width (m)	height (m)	Length (m)	US GL (mPD)	Invert Level US (mPD)	Invert Level DS (mPD)	Slope (S_f)	A (m^2)	P (m)	R = A/P (m)	$32gRS_f$ m^2/s^2	Capacity (m^3/s)	Velocity (m/s)	
A3			410	390	-	-	2.00	0.24	2.24	267.95	295.82	0.03	Exisitng inlet point	CP-01a(EX.)	0.30	-	30.00	8.700	8.400	7.800	0.0200	0.07	0.72	0.10	0.63	0.15	2.11	21%
A1 A1a A2 A2a A4 A5			650 60 100 106 1,118 548	2842	-	-	2.24	0.16	2.39	265.01	292.57	0.23	CP-01a(EX.)	Connection point	0.60 (Existing U-channel)	-	18.00	8.100	7.500	7.380	0.0067	0.29	1.44	0.20	0.42	0.55	1.92	42%
				2842	-	-	2.39	0.73	3.12	252.78	279.07	0.22	Connection point	CP-04 (EX.)	0.60 (Existing U-channel)	-	84.00	8.500	7.380	6.820	0.0067	0.29	1.44	0.20	0.42	0.55	1.92	40%
				2842	-	-	3.12	0.17	3.30	250.18	276.20	0.22	CP-04 (EX.)	CP-05 (EX.)	0.60 (Existing U-channel)	-	20.00	8.500	6.820	6.687	0.0067	0.29	1.44	0.20	0.42	0.55	1.92	39%

Table 3 Capacity Checking of Proposed Drainage System in the Proposed Tempoary Car Park (T = 50 years)

Contributing Catchment	Area (m^2)			Accumulated Factored Area A, (m^2)	L (m)	H (m/100m)	T_o (min.)	T_f (min.)	T_c (min.)	I (mm/hr)	I (mm/hr) incl. Climate C	Q (m^3/s) incl. Climate C	Existing Downstream Drainage														Flow %
	steep natural slope	flat grassland	Paved										Upstream Stormwater Manhole Ref	Downstream Stormwater Manhole Ref	size of channel / culvert / pipe width (m)	height (m)	Length (m)	US GL (mPD)	Invert Level US (mPD)	Invert Level DS (mPD)	Slope (S_f)	A (m^2)	P (m)	R = A/P (m)	$32gRS_f$ m^2/s^2	Capacity (m^3/s)	Velocity (m/s)	
A1			650	618	-	-	2.00	0.10	2.10	270.58	298.72	0.05	Inlet point 01	CP-A1	0.30 (Proposed U-Channel)	-	6.50	8.100	7.800	7.768	0.0050	0.07	0.72	0.10	0.16	0.08	1.05	67%
				618	-	-	2.10	0.08	2.18	268.98	296.95	0.05	CP-A1	Connection point	0.30 (Proposed PC pipe)	-	6.50	8.100	7.768	7.735	0.0050	0.07	0.72	0.10	0.16	0.10	1.33	53%


SECTION A - A
(N.T.S.)
SITE BOUNDARY
FENCE IN ADJACENT LAND LOT
SITE
ADJACENT LAND LOT
150mm KERB
FALL 1:80
SECTION B - B
(N.T.S.)
SITE BOUNDARY
SITE
300ø PRECAST CONCRETE PIPE (1:150)
EXISTING 600UC
SHAM CHUNG ROAD
150mm KERB
CP-02b
HEAVY DUTY GRATING
300 UC C/W C.I. COVER (1:200)
SECTION C - C
(N.T.S.)
SITE BOUNDARY
ADJACENT ROAD
SITE
150mm KERB
SECTION D - D
(N.T.S.)
SITE BOUNDARY
SITE
150mm KERB
Existing 300UC
300 UC C/W C.I. COVER (1:200)
Silver Garden
Nullah
深涌路
SHAM CHUNG ROAD
瑞霞花園
瑋琦幼稚園
Vichy
EXISTING CATCHPIT CP-05 CL=8,500 (APPROX.) IL=6,687 (APPROX.)
EXISTING FENCE WALL OF ADJACENT DEVELPMENT
GRANULAR PAVING
Proposed Temporary Private Car Parking Spaces
SECTION A-A
SITE BOUNDARY
Proposed Ticket Office & Shop
EXISTING INLET POINT CL = 8.700 (APPROX.) IL = 8.400 (APPROX.)
SECTION C-C
CP-A1 CL=8.100 (APPROX.) IL=7.768 (APPROX.)
SITE
Proposed Toilet
SECTION D-D
300 UC C/W C.I. COVER (1:200)
INLET POINT 01 CL=8.100 (APPROX.) IL=7.800 (APPROX.)
SECTION B-B
6m
Access Road to Sham Chung Road
EXISTING CP-01a CL = 8.100 (APPROX.) IL = 7.500 (APPROX.)
CONNECTION POINT CL = 8.100 (APPROX.) IL = 7.735 (APPROX.) 300ø IL = 7.380 (APPROX.) 600UC
EXISTING CATCHPIT CP-04 CL=8.500 (APPROX.) IL=6.820 (APPROX.)
600UC (1:150)
FALL 1:80
LEGEND
PROPOSED DRAINAGE
PROPOSED CATCHPIT
EXISTING CHANNEL
EXISTING CHANNEL WITH DECKING
EXISTING CATCHPIT
PROPOSED 150mm KERB
N
0 4 8 12 16 20m
0 S16 APPLICATION CW 09/20
Rev Description By Date
ARUP
PROPOSED PRIVATE VEHICLE PARK AND SHOP & SERVICES FOR A PERIOD OF 3 YEARS AT LOT 3307 IN D.D. 120 AND ADJOINING GOVERNMENT LAND, TAI TONG, YUEN LONG
PROPOSED DRAINAGE PLAN AND SECTIONS
DR-01
Drawn CW
Date Aug 2020
Checked CC
Approved CC
Scale 1:500 @ A3
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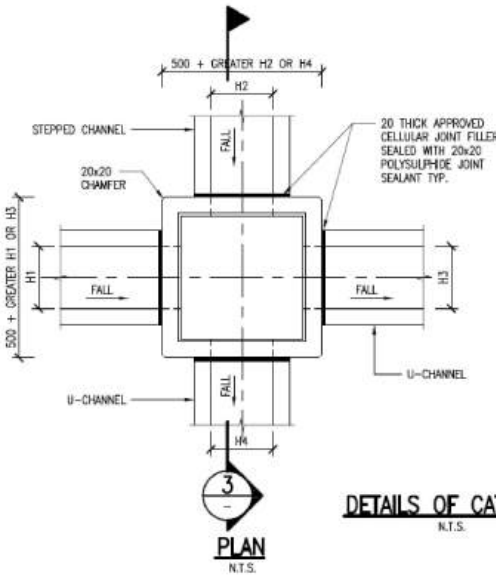
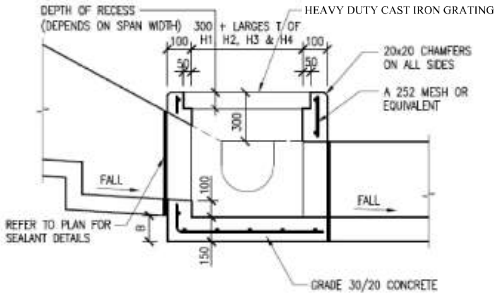


PLAN
N.T.S.

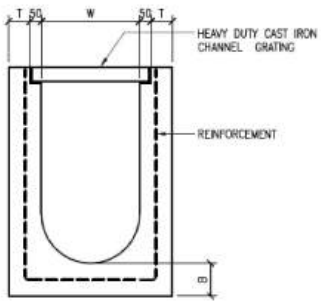
DETAILS OF CATCHPIT
N.T.S.



SECTION 3
N.T.S.

DIMENSIONS FOR CATCHPIT

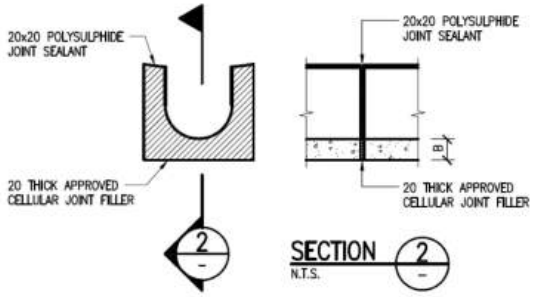
NOMINAL SIZE (LARGEST OF H1, H2, H3, & H4)	B
300–600	150
675–900	175
1000	200



DETAILS FOR U-CHANNEL
N.T.S.

DIMENSIONS AND REINFORCEMENT FOR U-CHANNELS

NOMINAL SIZE H	T	B	REINFORCEMENT
≤ 300	75	100	A252 MESH PLACED CENTRALLY AND
375 - 600	100	150	T=100 WHEN E>650
675 - 900	100	175	A252 MESH PLACED CENTRALLY
1000	100	200	A252 MESH PLACED CENTRALLY



SECTION 2
N.T.S.

EXPANSION JOINT FOR U-CHANNELS/ STEPPED CHANNELS
N.T.S.

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.

2. CONCRETE SURFACE FINISH SHALL BE CLASS U2, F2 OR BRUSHED FINISHED AS APPROPRIATE.

3. ALL MESH REINFORCEMENT SHALL COMPLY WITH RELEVANT BRITISH STANDARDS INCLUDING BS4482, BS4483, BS4466 AND BS4102.

4. CONCRETE GRADE OF ALL CATCHPITS TO BE GRADIE 30D/20.

5. CONCRETE GRADE OF ALL CAHNNELS TO BE GRADE 20D/20.

6. SPACING OF EXANSION JOINT IN CHANNELS, TO BE 10 METERS MAXIMUM.

7. JOINTS FOR CHANNELS TO BE ON THE SAME ALIGNMENT.

N 0 4 8 12 16 20m

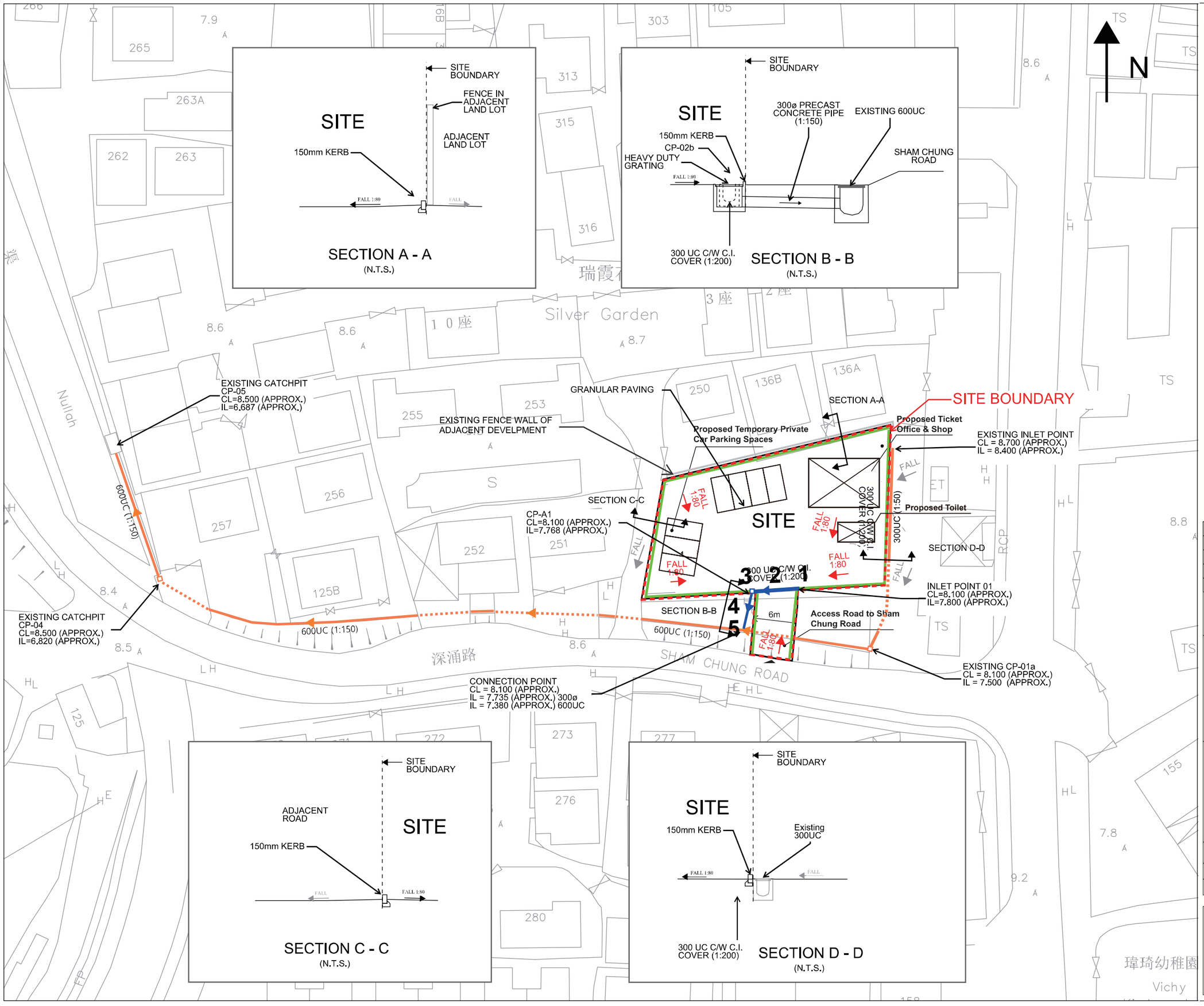
Rev	Description	By	Date
0	S16 APPLICATION	CW	09/20

Consultant
ARUP

Contract No. and Title
PROPOSED PRIVATE VEHICLE PARK AND SHOP & SERVICES FOR A PERIOD OF 3 YEARS AT LOT 3307 IN D.D. 120 AND ADJOINING GOVERNMENT LAND, TAI TONG, YUEN LONG

Drawing title
PROPOSED DRAINAGE DETAILS

Drawing no.: DR-02
Rev.: -
Drawn: CW
Date: Aug 2020
Checked: CC
Approved: CC
Scale: 1:500 @ A3
Status:



LEGEND

- PROPOSED DRAINAGE
- PROPOSED CATCHPIT
- EXISTING CHANNEL
- EXISTING CHANNEL WITH DECKING
- EXISTING CATCHPIT
- PROPOSED 150mm KERB

N 0 4 8 12 16 20m

Rev	Description	By	Date
0	S16 APPLICATION	CW	09/20

Consultant

ARUP

Contract No. and Title

PROPOSED PRIVATE VEHICLE PARK AND SHOP & SERVICES FOR A PERIOD OF 3 YEARS AT LOT 3307 IN D.D. 120 AND ADJOINING GOVERNMENT LAND, TAI TONG, YUEN LONG

Drawing title

排水設施狀況記錄

Drawing no.	Rev.
DR-01	-

Drawn	Date	Checked	Approved
CW	Aug 2020	CC	CC

Scale: 1:500 @ A3

Status:

1

2

3

3

4

5