

Annex 2

Revised Drainage Impact Assessment

Proposed Temporary Open Storage of Vehicle with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land in “Agriculture” Zone, Various Lots in D.D. 115 and 116 and Adjoining Government Land, Au Tau, Yuen Long, New Territories

Drainage Impact Assessment

Nov 25



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Table of Contents

1	Introduction	1
1.1	Background	1
1.2	Application Site	1
2	Development Proposal	2
2.1	The Proposed Development	2
3	Assessment Criteria	2
4	Proposed Drainage System	5
4.1.	Proposed Channels	5
5	Conclusion	5

List of Table

Table 1 - Key Development Parameters	2
Table 2– Design Return Periods under SDM	2

List of Figure

Figure 1 – Site Location Plan
Figure 2 – Existing Drainage Plan
Figure 3 – Proposed Drainage System
Figure 4 – Catchment Plan
Figure 5 – Sections

List of Appendix

Appendix A1 – Design Calculation
Appendix B – Development Layout Plan
Appendix C – Reference Drawings
Appendix D – Site Photos

1 Introduction

1.1 Background

- 1.1.1 The applicant seeks planning permission from the Town Planning Board (the Board) under Section (S.) 16 of the Town Planning Ordinance (Cap. 131) (the Ordinance) to use Various Lots in D.D. 115 and D.D. 116 and Adjoining Government Land (GL), Au Tau, Yuen Long, New Territories (the Site) for ‘Proposed Temporary Open Storage of Vehicle with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land’.
- 1.1.2 This report aims to support the development in drainage aspect.

1.2 Application Site

- 1.2.1 The application site is situated beside Pok Oi Interchange. It has an area of approx. 14,250 m². The site location is shown in **Figure 1**.
- 1.2.2 The existing site is partly hard paved with level various from approx. +3.3mPD to + 5.6mPD. The proposed site is intent to **keep unpaved with gravel material after the development.**
- 1.2.3 There is an existing stream at the west of the application site, which would eventually discharge to 2.5m x 2m box culvert. **Figure 2** indicate the existing drainage system of the area.

2 Development Proposal

2.1 The Proposed Development

- 2.1.1 The total site area is approximately 14,250 m². The applicant intended to keep unpaved with gravel material after the development. The catchment plan is shown in Figure 4-2.

Proposed Development	
Total Site Area (m ²)	14,250
Unpaved Area after Development (m ²)	14,250

Table 1 – Site Development Area

3 Assessment Criteria

- 3.1.1 The Recommended Design Return Period based on Flood Level from SDM (Table 10) is adopted for this report. The recommendation is summarized in Table 2 below.

Description	Design Return Periods
Intensively Used Agricultural Land	2 – 5 Years
Village Drainage Including Internal Drainage System under a polder Scheme	10 Years
Main Rural Catchment Drainage Channels	50 Years
Urban Drainage Trunk System	200 Years
Urban Drainage Branch System	50 Years

Table 2– Design Return Periods under SDM

- 3.1.2 The proposed drainage system intended to collect runoff from internal site and external catchment. 1 in 10 years return period is adopted for the drainage design.

Drainage Impact Assessment

3.1.3 Stormwater drainage design will be carried out in accordance with the criteria set out in the Stormwater Drainage Manual published by DSD. The proposed design criteria to be adopted for design of this stormwater drainage system and factors which have been considered are summarised below.

1. Intensity-Duration-Frequency Relationship – The Recommended Intensity-Duration-Frequency relationship is used to estimate the intensity of rainfall. It can be expressed by the following algebraic equation.

$$i = \frac{a}{(t_d + b)^c}$$

The site is located within the HKO Zone. Therefore, for 10 years return period, the following values are adopted.

a	=	485
b	=	3.11
c	=	0.397

2. The peak runoff is calculated by the Rational Method
i.e. $Q_p = 0.278CiA$

where	Q_p	=	peak runoff in m ³ /s
	C	=	runoff coefficient (dimensionless)
	i	=	rainfall intensity in mm/hr
	A	=	catchment area in km ²

3. The run-off coefficient (C) of surface runoff are taken as follows:

1. Paved Area: C = 0.95
2. Unpaved Area: C = 0.35

4. Manning's Equation is used for calculation of velocity of flow inside the channels:

$$\text{Manning's Equation: } v = \frac{R^{\frac{1}{6}}}{n} R^{\frac{1}{2}} S_f^{\frac{1}{2}}$$

Where,

V = velocity of the pipe flow (m/s)

S_f = hydraulic gradient

n = manning's coefficient

R = hydraulic radius (m)

5. Colebrook-White Equation is used for calculation of velocity of flow inside the pipes:

$$\text{Colebrook-White Equation: } \underline{v} = -\sqrt{32gRS} \log \log \left(\frac{k_s}{14.8R} + \frac{1.255v}{R\sqrt{32gRS_f}} \right)$$

where,

V	=	velocity of the pipe flow (m/s)
S _f	=	hydraulic gradient
k _f	=	roughness value (m)
v	=	kinematics viscosity of fluid
D	=	pipe diameter (m)
R	=	hydraulic radius (m)

4 Proposed Drainage System

4.1. Proposed Channels

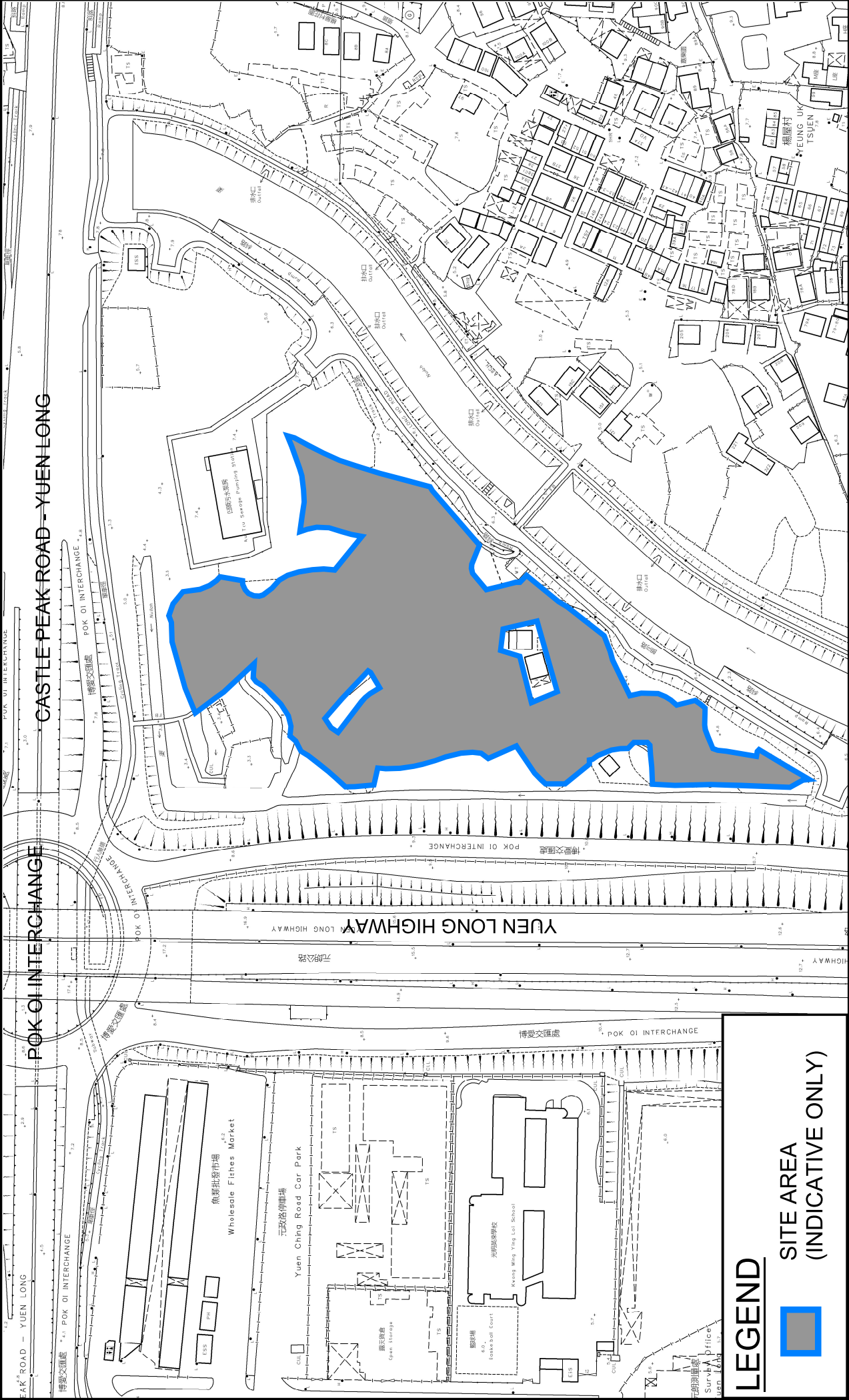
- 4.1.1 Proposed channels are designed for collection of runoff for internal and external catchment. They are proposed to discharge to approx. 10m width existing watercourse at the west.
- 4.1.2 The design calculations of proposed UChannel are shown in **Appendix A1**. The checking of utilization of existing 10m watercourse is also shown in Appendix A1, it shows the utilization is only 7%. As the development proposed to keep unpaved after development, no additional runoff is generated.
- 4.1.3 The alignment, size, gradient and details of the proposed drains are shown in **Figure 3**.
- 4.1.4 The catchment plan is shown in **Figure 4**.
- 4.1.5 Reference Drawings are shown in **Appendix C** for reference.

5 Conclusion

- 5.1.1 Drainage review has been conducted for the Proposed Development. With implementation of the proposed drainage system, no adverse drainage impact is anticipated.

- End of Text -

FIGURES



MARVELLOUS CONSTRUCTION & DESIGN COMPANY LIMITED		
	VER	DESCRIPTION
		DATE

**SITE AREA
(INDICATIVE ONLY)**



Proposed Temporary Open Storage of Vehicle with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land in "Agriculture" Zone

Various Lots in D.D. 115 and 116 and Adjoining Government Land, Au Tau, Yuen Long, New Territories

FIGURE 2

VER	DESCRIPTION	DATE

NOTES:
1. ALL LEVELS ARE IN METRES TO HONG KONG PRINCIPAL DATUM (m.p.d.) UNLESS NOTED OTHERWISE.
2. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
3. LOCATION OF CATCHPITS ARE APPROX. ONLY.
4. CONNECTION LEVELS ARE APPROX. ONLY AND SHALL BE VERIFIED ON SITE.

SITE AREA
(INDICATIVE ONLY)

EXISTING STREAM

PROPOSED CHANNEL

PROPOSED CATCHPIT

PROPOSED CATCHPIT
w/TRAP

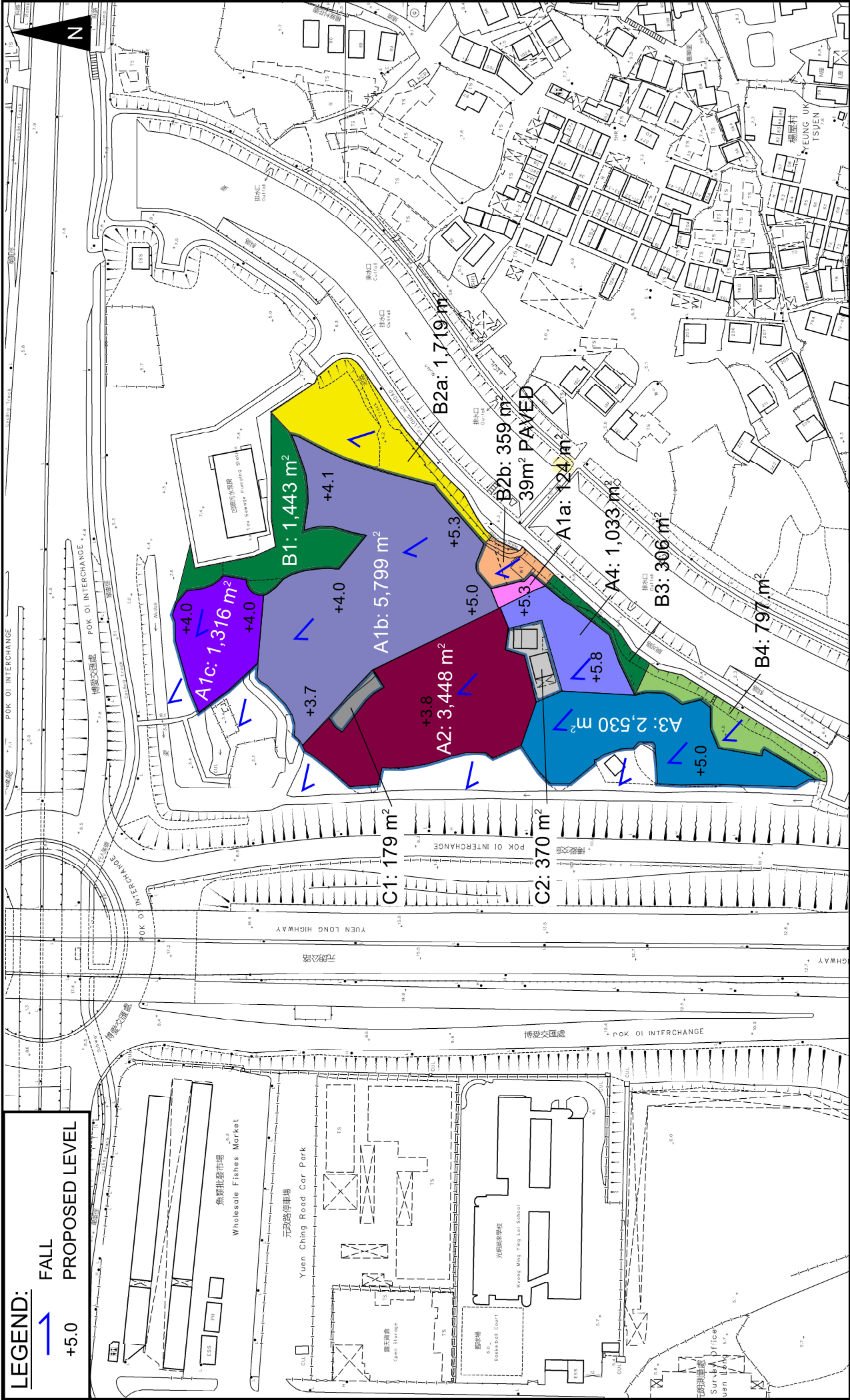
TYPICAL DETAIL FOR INTERCEPT
OF EXISTING WATERCOURSE
NTS

PROPOSED
CP1.03

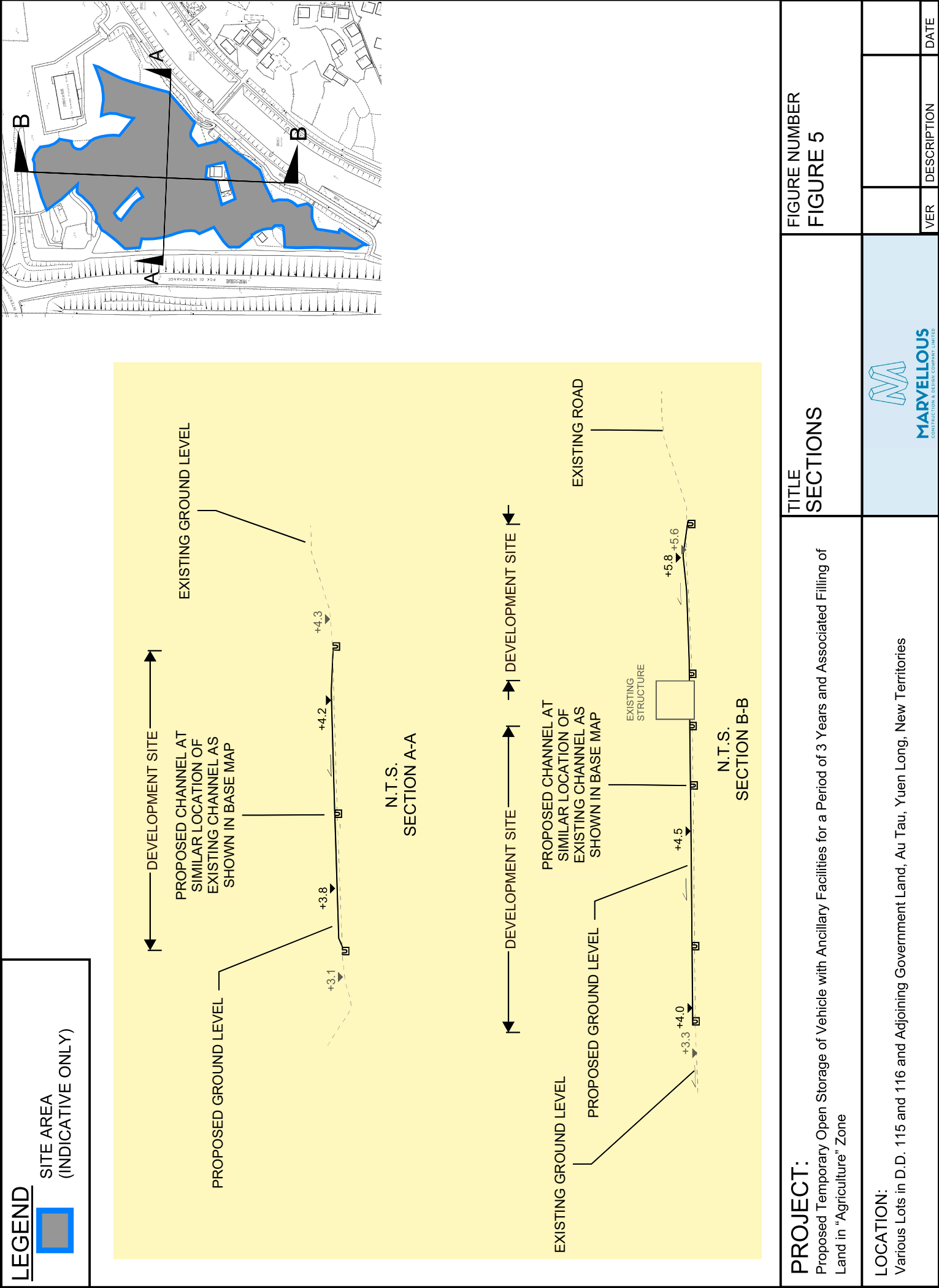
PROPOSED
CHANNEL

CONNECTION FROM CP1.03
EXISTING WATERCOURSE

DRAINAGE SCHEDULE										
US MH/PT	DS MH/PT	US GL	DS CL	Size	Gradient	Type	US IL	DS IL	US	Remark
SP01	CP1.01	5.8	5.3	300	200	UC	5.50	5.00	4.84	CP
CP1.01	CP1.01	5.3	5.3	300	200	UC	5.00	4.84	4.70	CP
CP1.02	CP1.02	5.3	5.0	300	200	UC	4.84	4.70	4.66	CP
CP1.02a	CP1.02a	5.0	4.5	525	200	UC	3.70	3.42	3.30	CP
CP1.02b	CP1.02b	4.5	4.0	525	200	UC	3.42	3.30	3.18	CP
CP1.03	CP1.03	4.0	3.7	525	200	UC	3.30	3.18	3.06	CP
CP1.03a	CP1.03a	3.7	3.7	525	300	UC	2.90	2.83	2.83	CP
CP1.03b	CP1.03b	3.7	3.7	525	300	UC	2.83	2.83	2.83	CP
CP1.04	CP1.04	5.3	5.3	300	200	UC	5.00	4.98	4.98	CP
CP1.04a	CP1.04a	5.3	5.0	300	200	UC	4.98	4.70	4.66	CP
CP1.04b	CP1.04b	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.05	CP1.05	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.05a	CP1.05a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.05b	CP1.05b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.06	CP1.06	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.06a	CP1.06a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.06b	CP1.06b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.07	CP1.07	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.07a	CP1.07a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.07b	CP1.07b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.08	CP1.08	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.08a	CP1.08a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.08b	CP1.08b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.09	CP1.09	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.09a	CP1.09a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.09b	CP1.09b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.10	CP1.10	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.10a	CP1.10a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.10b	CP1.10b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.11	CP1.11	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.11a	CP1.11a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.11b	CP1.11b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.12	CP1.12	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.12a	CP1.12a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.12b	CP1.12b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.13	CP1.13	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.13a	CP1.13a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.13b	CP1.13b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.14	CP1.14	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.14a	CP1.14a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.14b	CP1.14b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.15	CP1.15	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.15a	CP1.15a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.15b	CP1.15b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.16	CP1.16	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.16a	CP1.16a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.16b	CP1.16b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.17	CP1.17	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.17a	CP1.17a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.17b	CP1.17b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.18	CP1.18	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.18a	CP1.18a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.18b	CP1.18b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.19	CP1.19	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.19a	CP1.19a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.19b	CP1.19b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.20	CP1.20	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.20a	CP1.20a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.20b	CP1.20b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.21	CP1.21	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.21a	CP1.21a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.21b	CP1.21b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.22	CP1.22	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.22a	CP1.22a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.22b	CP1.22b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.23	CP1.23	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.23a	CP1.23a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.23b	CP1.23b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.24	CP1.24	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.24a	CP1.24a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.24b	CP1.24b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.25	CP1.25	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.25a	CP1.25a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.25b	CP1.25b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.26	CP1.26	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.26a	CP1.26a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.26b	CP1.26b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.27	CP1.27	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.27a	CP1.27a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.27b	CP1.27b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.28	CP1.28	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.28a	CP1.28a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.28b	CP1.28b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.29	CP1.29	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.29a	CP1.29a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.29b	CP1.29b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.30	CP1.30	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.30a	CP1.30a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.30b	CP1.30b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.31	CP1.31	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.31a	CP1.31a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.31b	CP1.31b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.32	CP1.32	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.32a	CP1.32a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.32b	CP1.32b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.33	CP1.33	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.33a	CP1.33a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.33b	CP1.33b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.34	CP1.34	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.34a	CP1.34a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.34b	CP1.34b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.35	CP1.35	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.35a	CP1.35a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.35b	CP1.35b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.36	CP1.36	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.36a	CP1.36a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.36b	CP1.36b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.37	CP1.37	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.37a	CP1.37a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.37b	CP1.37b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.38	CP1.38	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.38a	CP1.38a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.38b	CP1.38b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.39	CP1.39	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.39a	CP1.39a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.39b	CP1.39b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.40	CP1.40	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.40a	CP1.40a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.40b	CP1.40b	5.3	5.0	300	200	UC	4.66	4.66	4.66	CP
CP1.41	CP1.41	5.3	5.0	300	200	UC	5.00	4.70	4.66	CP
CP1.41a	CP1.41a	5.3	5.0	300	200	UC	4.70	4.66	4.66	CP
CP1.41b	CP1.41b									



PROJECT: Proposed Temporary Open Storage of Vehicle with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land in "Agriculture" Zone	TITLE CATCHMENT PLAN		FIGURE NUMBER FIGURE 4	
			VER	DESCRIPTION
LOCATION: Various Lots in D.D. 115 and 116 and Adjoining Government Land, Au Tau, Yuen Long, New Territories				DATE



APPENDIX

Appendix A1: Design Calculation

Zone

HKO

Return Period

1 in

10 years

n

0.014

Storm Constant

485

Ks

0.15

Viscosity

0.000001

Catchment Area Table (Area in m²)

Catchment	A1a	A1b	A1c	A2	A3	A4	B1	B2a	B2b	B3	B4	C1	C2	Total Site Area (Flow Development)
Total Area	124	5799	1316	3448	2539	1033	1443	1713	393	306	797	179	370	14505
Hard Paved Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unpaved Area	124	5799	1316	3448	2539	1033	1443	1713	393	306	797	179	370	14505
Extrnl. Area	434	2023.65	460.8	1208.8	883.6	361.15	955.95	601.61	148.06	107.10	278.95	62.25	351.90	4897.50

Pavement Type

Hard Paved

Unpaved

Rough Coefficient

0.05

0.35

Capacity Checking of Watercourse against Flow from Development

Utilization Rate = $\frac{\text{Total Flow from Development}}{\text{Capacity}} = \frac{0.39 \text{ m}^3/\text{s}}{0.39 \text{ m}^3/\text{s}} = 1.00$

Total Flow from Development = 0.39 m³/s

Utilization Rate = 7.0%

Total flow from Development Site only occupy 7% of nearby Watercourses.

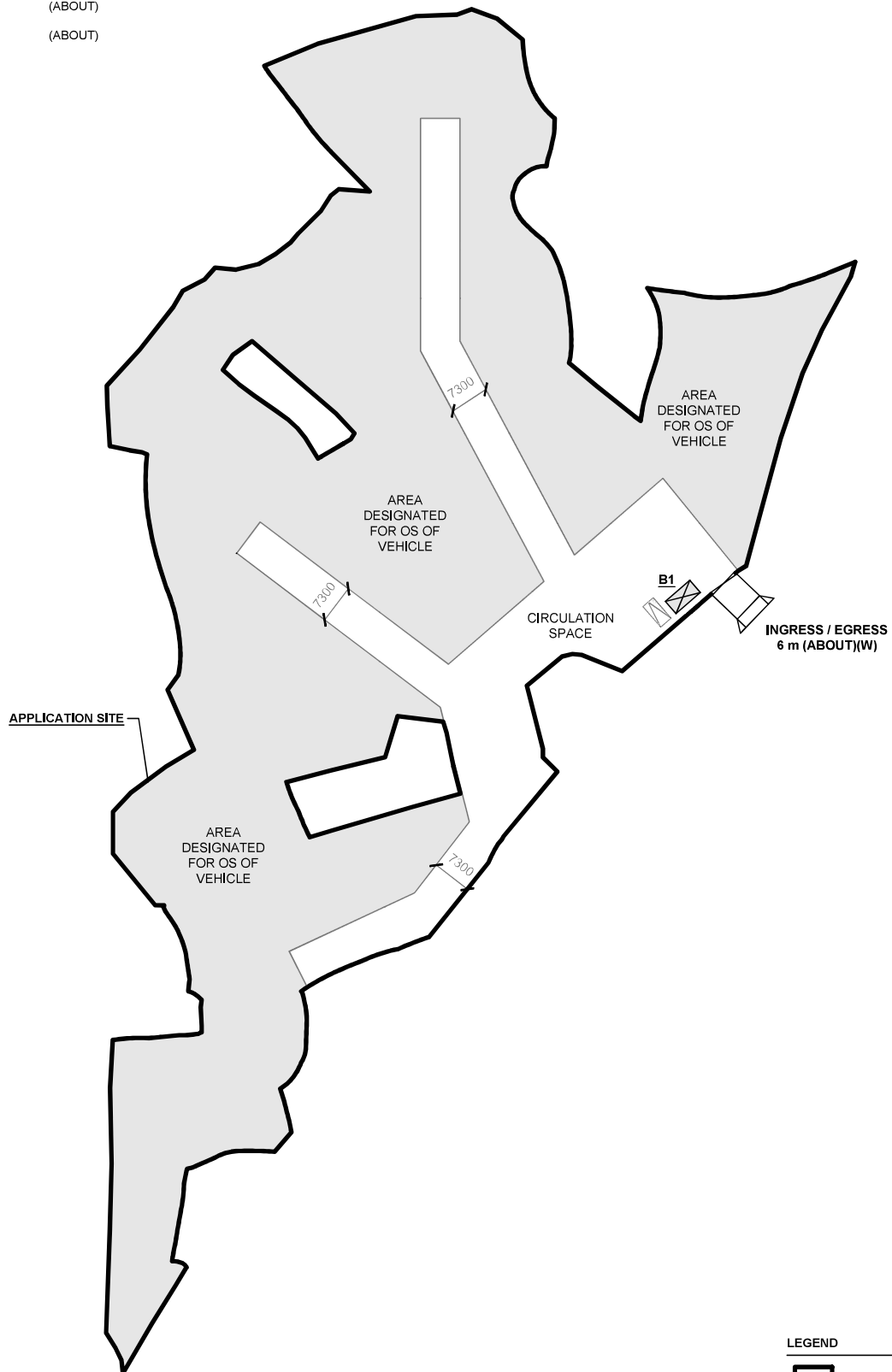
Calculation Table of Drainage System																							
US GL	DS GL	Size	Gradient	Type	US/L	DS/L	US/M/IT	Length	V	Capacity	Catchment	Catchment	Catchment	Catchment	Catchment	Catchment	Catchment	Catchment	TC	Inertity	Total Discharge	Utilization	Remark
US HR/IT	DS HR/IT	US HR/IT	US/L	DS/L	US/M/IT	Length	m	m/s	m ³ /s	P1	P2	P3	P4	P5	P6	P7	P8	Total Catchment m ²	min	mm/hr	m ³ /hr		
SP91	CPI-00	5.30	300	UC	5.30	5.00	SP	23.4	1.12	A4	B3	B2a	B2b	B3	B4	C1	C2	485.00	2.80	240	0.03	34.7%	
CPI-01	CPI-01	5.30	300	UC	5.00	4.84	CP	31.6	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	468.65	3.15	234	0.03	34.9%	
CPI-02	CPI-02	5.30	300	UC	4.84	4.70	CP	20.1	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	512.25	3.62	228	0.03	36.1%	
CPI-03	CPI-03	5.30	300	UC	4.70	4.56	CP	15.7	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	424.05	3.92	224	0.03	36.5%	
CPI-04	CPI-04	5.30	300	UC	4.56	4.42	CP	11.3	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.50	217	0.03	65.9%	
CPI-05	CPI-05	5.30	300	UC	4.42	4.28	CP	6.9	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-06	CPI-06	5.30	300	UC	4.28	4.14	CP	2.5	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-07	CPI-07	5.30	300	UC	4.14	4.00	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-08	CPI-08	5.30	300	UC	4.00	3.86	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-09	CPI-09	5.30	300	UC	3.86	3.72	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-10	CPI-10	5.30	300	UC	3.72	3.58	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-11	CPI-11	5.30	300	UC	3.58	3.44	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-12	CPI-12	5.30	300	UC	3.44	3.30	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-13	CPI-13	5.30	300	UC	3.30	3.16	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-14	CPI-14	5.30	300	UC	3.16	3.02	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-15	CPI-15	5.30	300	UC	3.02	2.88	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-16	CPI-16	5.30	300	UC	2.88	2.74	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-17	CPI-17	5.30	300	UC	2.74	2.60	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-18	CPI-18	5.30	300	UC	2.60	2.46	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-19	CPI-19	5.30	300	UC	2.46	2.32	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-20	CPI-20	5.30	300	UC	2.32	2.18	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-21	CPI-21	5.30	300	UC	2.18	2.04	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-22	CPI-22	5.30	300	UC	2.04	1.90	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-23	CPI-23	5.30	300	UC	1.90	1.76	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-24	CPI-24	5.30	300	UC	1.76	1.62	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-25	CPI-25	5.30	300	UC	1.62	1.48	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-26	CPI-26	5.30	300	UC	1.48	1.34	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-27	CPI-27	5.30	300	UC	1.34	1.20	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-28	CPI-28	5.30	300	UC	1.20	1.06	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-29	CPI-29	5.30	300	UC	1.06	0.92	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-30	CPI-30	5.30	300	UC	0.92	0.78	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-31	CPI-31	5.30	300	UC	0.78	0.64	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-32	CPI-32	5.30	300	UC	0.64	0.50	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-33	CPI-33	5.30	300	UC	0.50	0.36	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-34	CPI-34	5.30	300	UC	0.36	0.22	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-35	CPI-35	5.30	300	UC	0.22	0.08	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-36	CPI-36	5.30	300	UC	0.08	0.00	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-37	CPI-37	5.30	300	UC	0.00	0.00	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-38	CPI-38	5.30	300	UC	0.00	0.00	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-39	CPI-39	5.30	300	UC	0.00	0.00	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-40	CPI-40	5.30	300	UC	0.00	0.00	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-41	CPI-41	5.30	300	UC	0.00	0.00	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-42	CPI-42	5.30	300	UC	0.00	0.00	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-43	CPI-43	5.30	300	UC	0.00	0.00	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-44	CPI-44	5.30	300	UC	0.00	0.00	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-45	CPI-45	5.30	300	UC	0.00	0.00	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-46	CPI-46	5.30	300	UC	0.00	0.00	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-47	CPI-47	5.30	300	UC	0.00	0.00	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-48	CPI-48	5.30	300	UC	0.00	0.00	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-49	CPI-49	5.30	300	UC	0.00	0.00	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-50	CPI-50	5.30	300	UC	0.00	0.00	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-51	CPI-51	5.30	300	UC	0.00	0.00	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-52	CPI-52	5.30	300	UC	0.00	0.00	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-53	CPI-53	5.30	300	UC	0.00	0.00	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-54	CPI-54	5.30	300	UC	0.00	0.00	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-55	CPI-55	5.30	300	UC	0.00	0.00	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-56	CPI-56	5.30	300	UC	0.00	0.00	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-57	CPI-57	5.30	300	UC	0.00	0.00	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-58	CPI-58	5.30	300	UC	0.00	0.00	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75	214	0.03	64.2%	
CPI-59	CPI-59	5.30	300	UC	0.00	0.00	CP	0.0	1.12	0.69	A4	B3	B2a	B2b	B3	B4	C1	401.70	4.75				

APPENDIX B - PROPOSED SITE LAYOUT PLAN

DEVELOPMENT PARAMETERS

APPLICATION SITE AREA	: 14,250 m ²	(ABOUT)
COVERED AREA	: 18 m ²	(ABOUT)
UNCOVERED AREA	: 14,232 m ²	(ABOUT)
PLOT RATIO	: 0.001	(ABOUT)
SITE COVERAGE	: 0.1 %	(ABOUT)
NO. OF STRUCTURE	: 1	
DOMESTIC GFA	: NOT APPLICABLE	
NON-DOMESTIC GFA	: 18 m ²	(ABOUT)
TOTAL GFA	: 18 m ²	(ABOUT)
BUILDING HEIGHT	: 3 m	(ABOUT)
NO. OF STOREY	: 1	

STRUCTURE	USE	COVERED AREA	GFA	BUILDING HEIGHT
B1	GUARDROOM	18 m ² (ABOUT)	18 m ² (ABOUT)	3 m (ABOUT)(1-STOREY)
TOTAL		18 m ² (ABOUT)	18 m ² (ABOUT)	



PARKING PROVISIONS

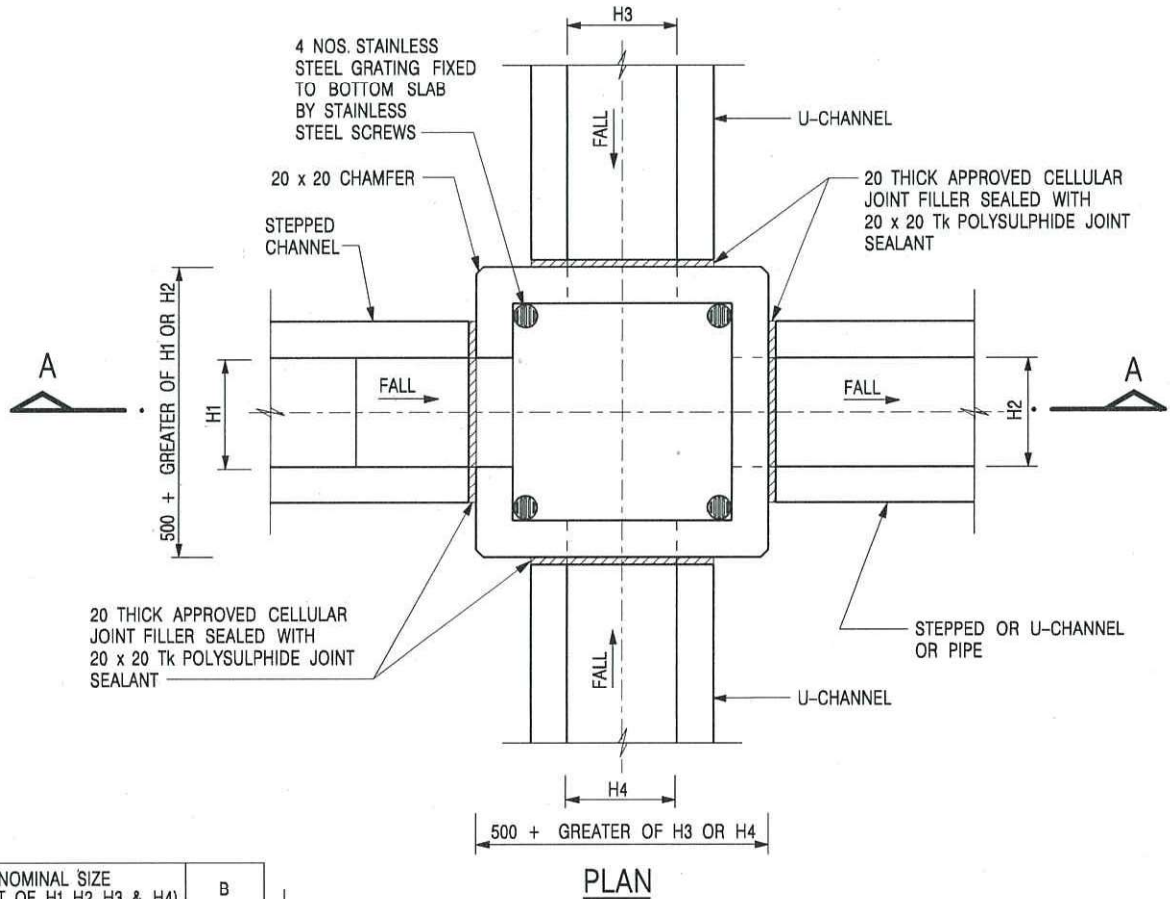
NO. OF PRIVATE CAR PARKING SPACE	: 1
DIMENSION OF PARKING SPACE	: 5 m (L) x 2.5 m (W)

LEGEND

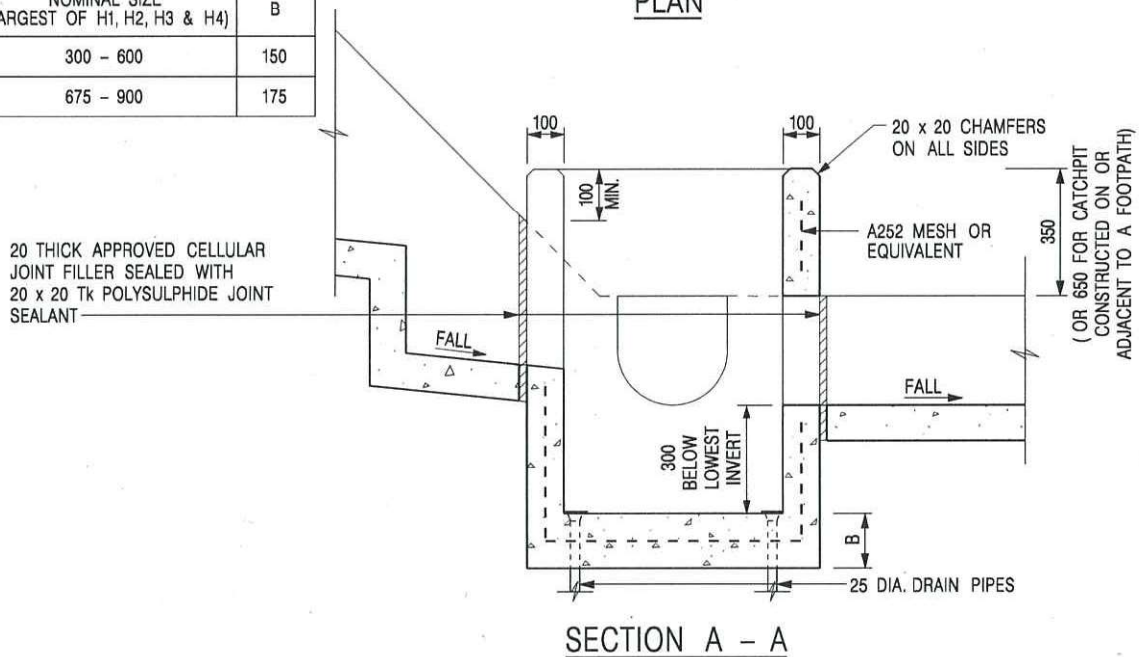
	APPLICATION SITE
	STRUCTURE
	OPEN STORAGE AREA
	PARKING SPACE (PC)
	INGRESS / EGRESS

PLANNING CONSULTANT 	PROJECT PROPOSED TEMPORARY OPEN STORAGE OF VEHICLE WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS AND ASSOCIATED FILLING OF LAND	ADDRESS VARIOUS LOTS IN D.D. 115 AND 116 AND ADJOINING GOVERNMENT LAND, AU TAU, YUEN LONG, NEW TERRITORIES	SCALE 1 : 1500 @ A4		TITLE LAYOUT PLAN		
			DRAWN BY MN	DATE 7.6.2024			
			REVISED BY	DATE	DWG NO. PLAN 10	VER. 001	

Appendix C - Reference Drawings



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



NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. REFER TO SHEET 2 FOR OTHER NOTES.

CATCHPIT WITH TRAP
(SHEET 1 OF 2)

-	FORMER DRG. NO. C2406J.	Original Signed	03.2015
REF.	REVISION	SIGNATURE	DATE



**CIVIL ENGINEERING AND
DEVELOPMENT DEPARTMENT**

SCALE 1 : 20

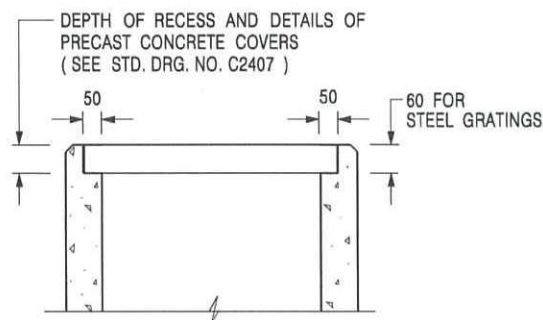
DATE JAN 1991

DRAWING NO.

C2406 /1

卓越工程 建設香港

We Engineer Hong Kong's Development



**ALTERNATIVE TOP SECTION
FOR PRECAST CONCRETE COVERS / GRATINGS**

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL CONCRETE SHALL BE GRADE 20 /20.
3. CONCRETE SURFACE FINISH SHALL BE CLASS U2 OR F2 AS APPROPRIATE.
4. FOR DETAILS OF JOINT, REFER TO STD. DRG. NO. C2413.
5. CONCRETE TO BE COLOURED AS SPECIFIED.
6. UNLESS REQUESTED BY THE MAINTENANCE PARTY AND AS DIRECTED BY THE ENGINEER, CATCHPIT WITH TRAP IS NORMALLY NOT PREFERRED DUE TO PONDING PROBLEM.
7. UPON THE REQUEST FROM MAINTENANCE PARTY, DRAIN PIPES AT CATCHPIT BASE CAN BE USED BUT THIS IS FOR CATCHPITS LOCATED AT SLOPE TOE ONLY AND AS DIRECTED BY THE ENGINEER.
8. FOR CATCHPITS CONSTRUCTED ON OR ADJACENT TO A FOOTPATH, STEEL GRATINGS (SEE DETAIL 'A' ON STD. DRG. NO. C2405 /2) OR CONCRETE COVERS (SEE STD. DRG. NO. C2407) SHALL BE PROVIDED AS DIRECTED BY THE ENGINEER.
9. IF INSTRUCTED BY THE ENGINEER, HANDRAILING (SEE DETAIL 'J' ON STD. DRG. NO. C2405 /5; EXCEPT ON THE UPSLOPE SIDE) IN LIEU OF STEEL GRATINGS OR CONCRETE COVERS CAN BE ACCEPTED AS AN ALTERNATIVE SAFETY MEASURE FOR CATCHPITS NOT ON A FOOTPATH NOR ADJACENT TO IT. TOP OF THE HANDRAILING SHALL BE 1 000 mm MIN. MEASURED FROM THE ADJACENT GROUND LEVEL.
10. MINIMUM INTERNAL CATCHPIT WIDTH SHALL BE 1 000 mm FOR CATCHPITS WITH A HEIGHT EXCEEDING 1 000 mm MEASURED FROM THE INVERT LEVEL TO THE ADJACENT GROUND LEVEL. AND, STEP IRONS (SEE DSD STD. DRG. NO. DS1043) AT 300 c/c STAGGERED SHALL BE PROVIDED. THICKNESS OF CATCHPIT WALL FOR INSTALLATION OF STEP IRONS SHALL BE INCREASED TO 150 mm.
11. FOR RETROFITTING AN EXISTING CATCHPIT WITH STEEL GRATING, SEE DETAIL 'G' ON STD. DRG. NO. C2405 /4.
12. SUBJECT TO THE APPROVAL OF THE ENGINEER, OTHER MATERIALS CAN ALSO BE USED AS COVERS / GRATINGS.

A	MINOR AMENDMENT.	Original Signed	04.2016
-	FORMER DRG. NO. C2406J.	Original Signed	03.2015
REF.	REVISION	SIGNATURE	DATE

**CATCHPIT WITH TRAP
(SHEET 2 OF 2)**



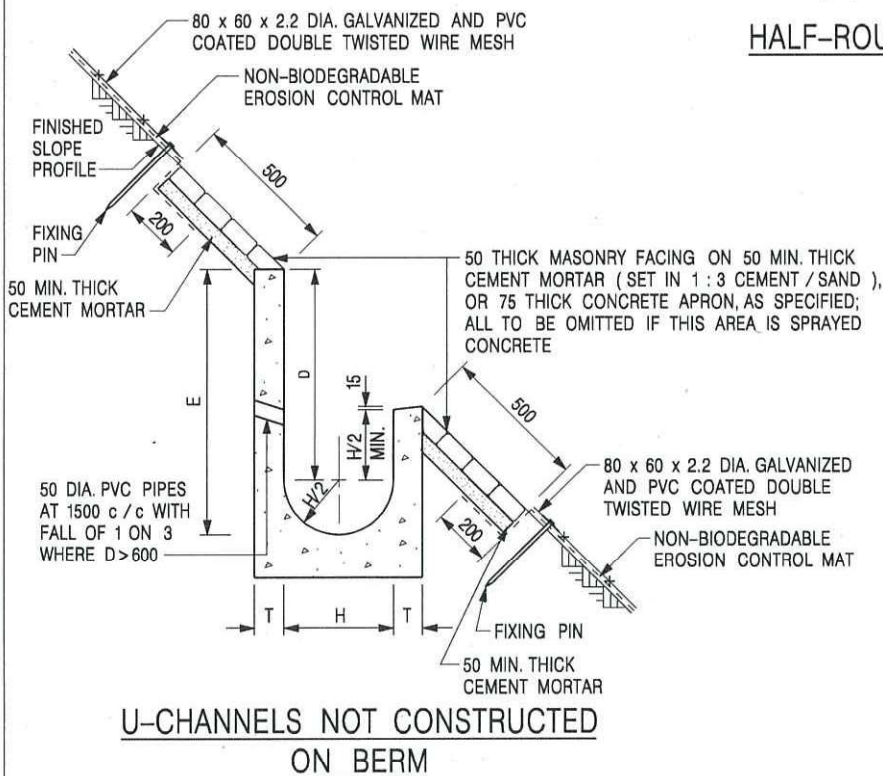
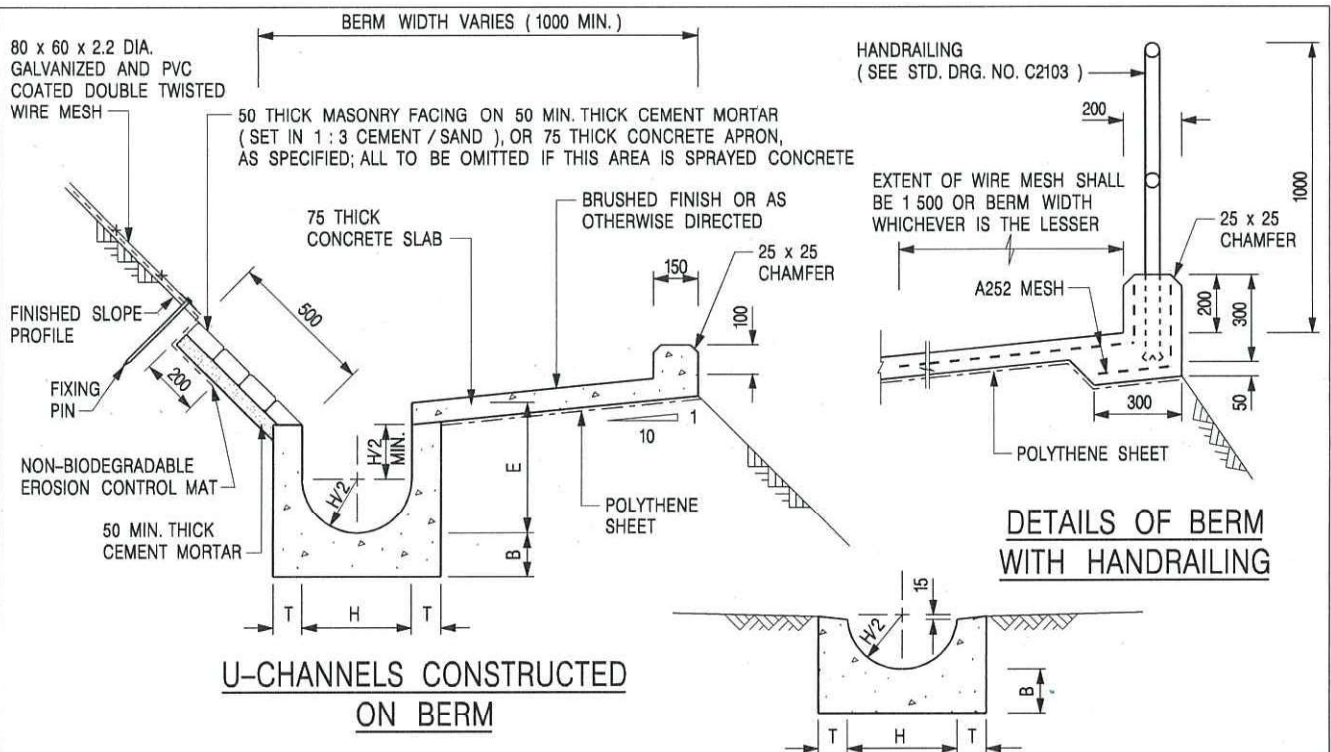
**CIVIL ENGINEERING AND
DEVELOPMENT DEPARTMENT**

SCALE 1 : 20

DATE JAN 1991

DRAWING NO.

C2406 /2A



NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL CONCRETE TO BE GRADE 20 / 20.
3. CONCRETE SURFACE FINISH SHALL BE CLASS U2, F2 OR BRUSHED FINISH AS DIRECTED.
4. SPACING OF EXPANSION JOINT IN CHANNELS, BERM SLABS AND APRONS TO BE 10 METRES MAXIMUM, SEE STD. DRG. NO. C2413 FOR DETAILS.
5. JOINTS FOR CHANNELS, BERM SLABS, APRONS AND WALLS, ETC. TO BE ON THE SAME ALIGNMENT.
6. FOR DIMENSIONS T, H, & B, SEE TABLE BELOW.
7. BIODEGRADABLE EROSION CONTROL MAT IF REQUIRED, SEE STD. DRG. NO. C2511/E.
8. CONCRETE TO BE COLOURED AS SPECIFIED.
9. CONCRETE U-CHANNEL CAN BE CAST IN-SITU OR PRECAST CONCRETE SUBJECT TO THE ENGINEER'S AGREEMENT ON THE DETAILS.
10. DETAILS OF EROSION CONTROL MAT AND WESH MESH ON BERM. (SEE STD DRG. NO. C2511/E)

NOMINAL SIZE H	T	B	REINFORCEMENT
300	80	100	A252 MESH PLACED CENTRALLY AND T=100 WHEN E > 650
375 - 600	100	150	
675 - 900	125	175	A252 MESH PLACED CENTRALLY

I	MINOR AMENDMENT.	Original Signed	07.2018
H	THICKNESS OF MASONRY FACING AMENDED.	Original Signed	01.2005
G	MINOR AMENDMENT.	Original Signed	01.2004
F	GENERAL REVISION.	Original Signed	12.2002
E	DRAWING TITLE AMENDED.	Original Signed	11.2001
D	MINOR AMENDMENT.	Original Signed	08.2001
C	150 x 100 UPSTAND ADDED AT BERM.	Original Signed	6.99
B	MINOR AMENDMENTS.	Original Signed	3.94
REF.	REVISION	SIGNATURE	DATE

DETAILS OF HALF-ROUND AND U-CHANNELS (TYPE A - WITH MASONRY APRON)



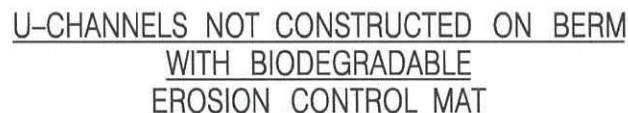
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE 1 : 25

DRAWING NO.

DATE JAN 1991

C2409I

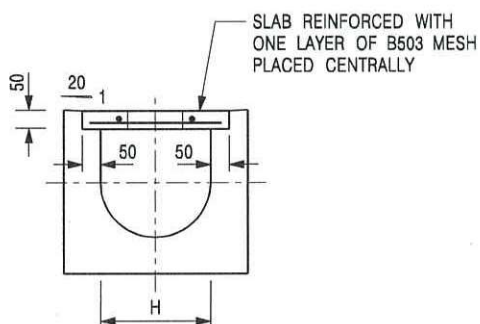


9. MINIMUM SIZE OF 10mm DIAMETER WITH 200mm LONG SHALL BE PROVIDED FOR BAMBOO STICK.

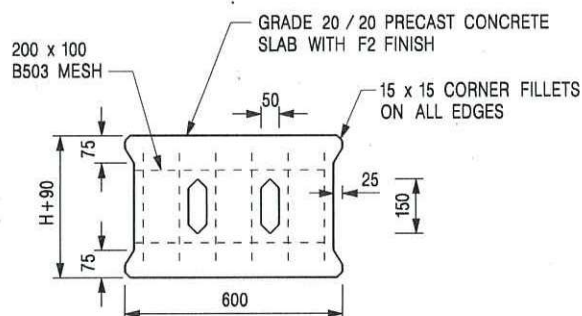
10. THE FIXING DETAILS OF NON-BIODEGRADABLE AND BIODEGRADABLE EROSION CONTROL MATS ON EXISTING BERM SHALL REFER TO STD. DRG. NO. C2511.

I	MINOR AMENDMENT.	Original Signed	07.2018
H	FIXING DETAILS OF BIODEGRADABLE EROSION CONTROL MAT ADDED.	Original Signed	12.2017
G	DIMENSION TABLE AMENDED.	Original Signed	01.2005
F	MINOR AMENDMENT.	Original Signed	01.2004
E	GENERAL REVISION.	Original Signed	12.2002
D	MINOR AMENDMENT.	Original Signed	08.2001
C	150 x 100 UPSTAND ADDED AT BERM.	Original Signed	6.99
B	MINOR AMENDMENT.	Original Signed	3.94
A	MINOR AMENDMENT.	Original Signed	10.92
REF.	REVISION	SIGNATURE	DATE

 CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT	
SCALE DIAGRAMMATIC	DRAWING NO. C24101
DATE JAN 1991	
We Engineer Hong Kong's Development	



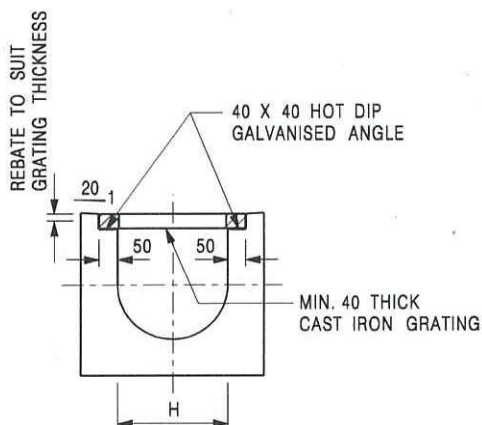
TYPICAL SECTION



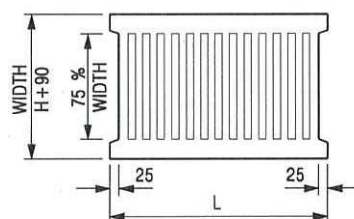
PLAN OF SLAB

U-CHANNELS WITH PRECAST CONCRETE SLABS

(UP TO H OF 525)



TYPICAL SECTION



L = 600mm FOR H ≤ 375mm
L = 400mm FOR H > 375mm

CAST IRON GRATING

(DIMENSIONS ARE FOR GUIDANCE ONLY, CONTRACTOR MAY SUBMIT EQUIVALENT TYPE)

U-CHANNEL WITH CAST IRON GRATING

(UP TO H OF 525)

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. H=NOMINAL CHANNEL SIZE.
3. ALL CAST IRON FOR GRATINGS SHALL BE GRADE EN-GJL-150 COMPLYING WITH BS EN 1561.
4. FOR COVERED CHANNELS TO BE HANDED OVER TO HIGHWAYS DEPARTMENT FOR MAINTENANCE, THE GRATING DETAILS SHALL FOLLOW THOSE AS SHOWN ON HyD STD. DRG. NO. H3156.

E	NOTES 3 & 4 AMENDED.	Original Signed	12.2014
D	NOTE 4 ADDED.	Original Signed	06.2008
C	MINOR AMENDMENT. NOTE 3 ADDED.	Original Signed	12.2005
B	NAME OF DEPARTMENT AMENDED.	Original Signed	01.2005
A	CAST IRON GRATING AMENDED.	Original Signed	12.2002
REF.	REVISION	SIGNATURE	DATE

COVER SLAB AND CAST IRON
GRATING FOR CHANNELS



**CIVIL ENGINEERING AND
DEVELOPMENT DEPARTMENT**

SCALE 1 : 20

DATE JAN 1991

DRAWING NO.

C2412E

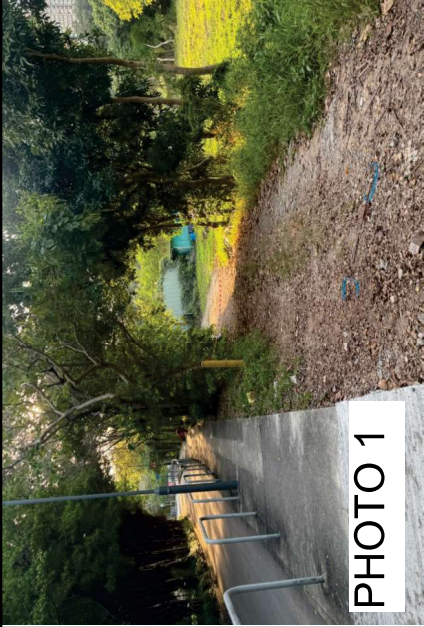


PHOTO 1



PHOTO 4



PHOTO 2



PHOTO 5



PHOTO 3



PHOTO 6

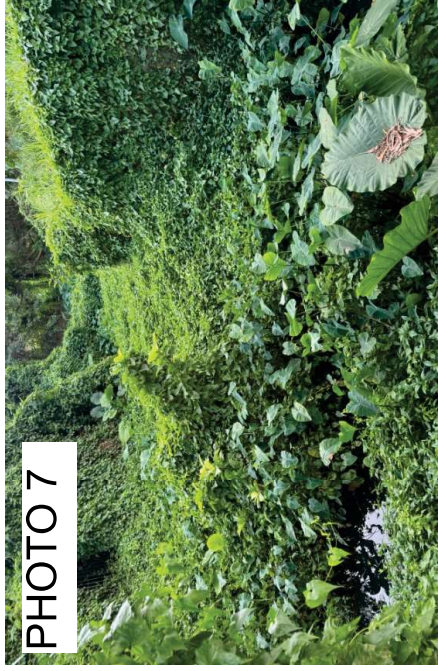
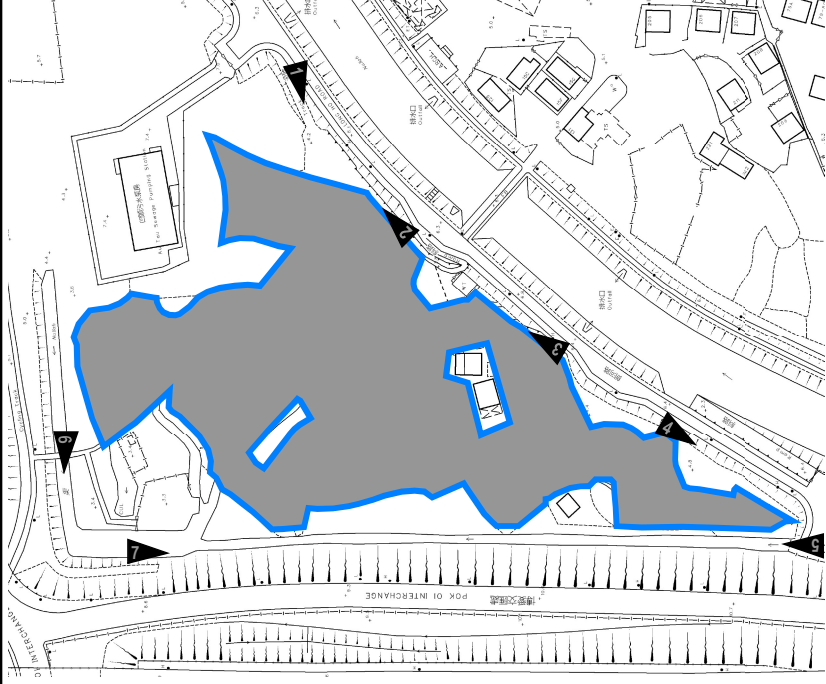
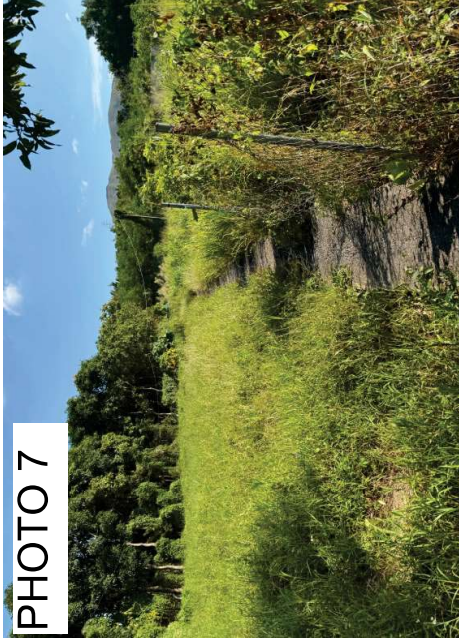
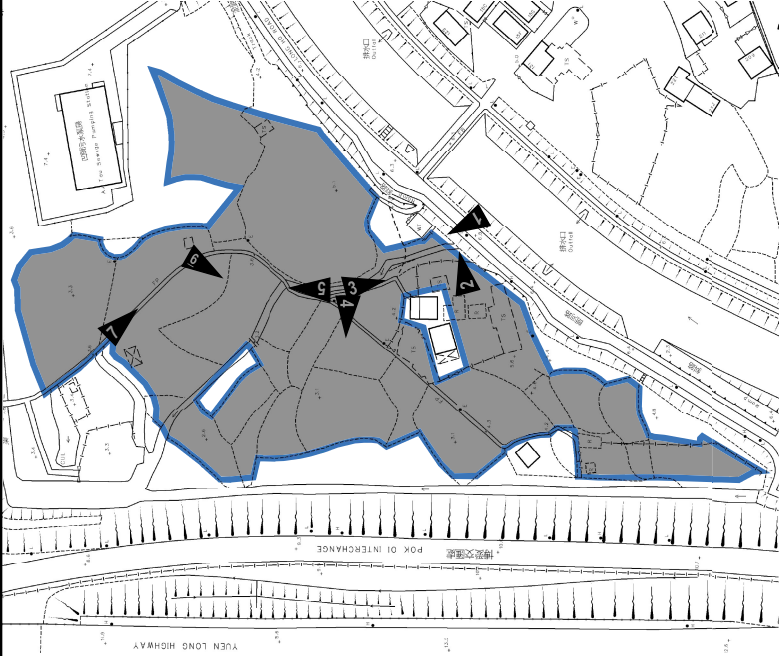
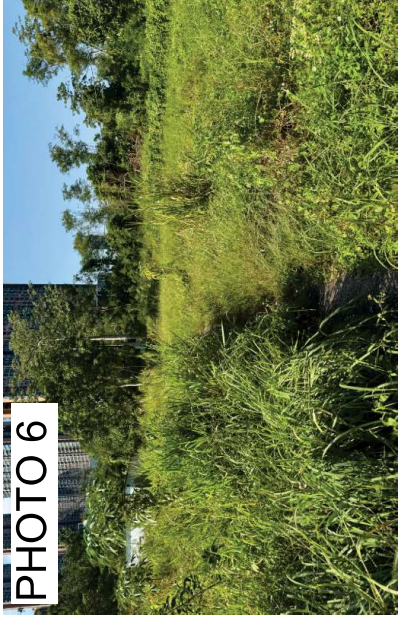
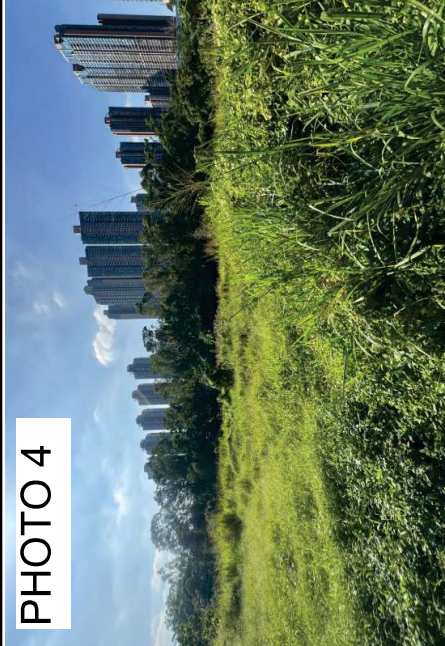
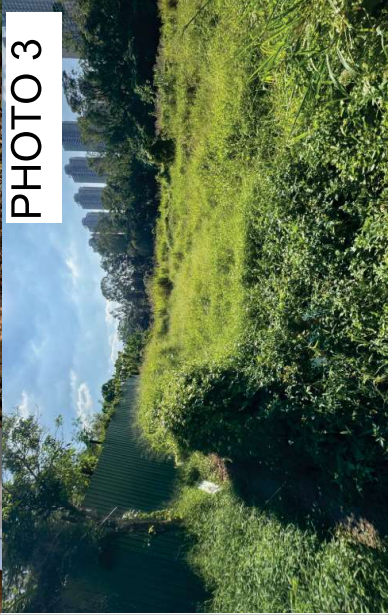
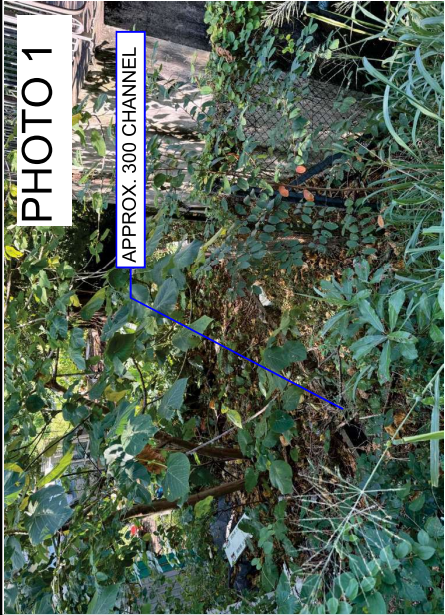


PHOTO 7

PROJECT: Proposed Temporary Open Storage of Vehicle with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land in "Agriculture" Zone	SITE PHOTOS		APPENDIX D	
			VER	DESCRIPTION
LOCATION: Various Lots in D.D. 115 and 116 and Adjoining Government Land, Au Tau, Yuen Long, New Territories				DATE



PROJECT:

Proposed Temporary Open Storage of Vehicle with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land in "Agriculture" Zone

LOCATION:

Various Lots in D.D. 115 and 116 and Adjoining Government Land, Au Tau, Yuen Long, New Territories

PHOTOS FOR LOCATION OF WATERCOURSE