Annex 1

Revised Drainage Impact Assessment

Proposed Temporary Place of Recreation, Sports or Culture, Eating Place, Barbecue Site and Holiday Camp with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land in "Agriculture" and "Open Space" Zones and an Area Shown as 'Road', Various Lots in D.D. 17 and Adjoining Government Land, Ting Kok, Tai Po, New Territories

Drainage Impact Assessment

Jul 2025

Prepared by: YEUNG TOI TUNG RP0666920
Marvellous Construction & Design Company Limited

Table of Contents

List of Table

List of Figure

List of Appendix

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. 17 and Adjoining Government Land (GL), Ting Kok, Tai Po, New Territories (the Site) for 'Proposed Temporary Place of Recreation, Sports or Culture, Eating Place, Barbecue Site and Holiday Camp 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 Ting Kok Road near Shan Liu Road and adjacent to Plover Cove. It has an area of approx. 38,338 m^2. The site location is shown in **Figure 1**.

1.2.2 The existing site is mainly unpaved with level various from approx. +3.3mPD to + 5.6mPD. The proposed site is intent to be partly paved for site formation of structure, footpath, skateboard ground, caravan site, vehicle parking spaces, and L/UL and circulation area.

1.2.3 There is an existing stream at the west of the application site. The Plover Cove is at the east and south of the application site. **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 38,338 m^2. After the development the site would be partially paved. The catchment plan is shown in **Figure 4**.

Proposed Development	
Total Site Area (m^2)	38,338
Paved Area after Development (m^2)	15,970

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.

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

11.1% rainfall increase due to climate change according to Table 28 of SDM Corrigendum No. 1/2022.

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:

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:

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

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. The design calculations of proposed UChannel and capacity checking against site flow are shown in **Appendix A**.

4.1.2 The channels are proposed to be discharged to Plover Cove and existing stream. The alignment, size, gradient and details of the proposed drains are shown in **Figure 3**.

4.1.3 The proposed stormwater drainage system shall be completed prior to the commencement of other construction works, including site clearance and land filling works.

4.1.4 The catchment plan is shown in **Figure 4**.

4.1.5 Reference Drawings are shown in **Appendix C** for reference.

4.2 Maintenance Responsibilities

4.2.1 The proposed stormwater drainage system is to be maintained by the development.

4.2.2 The development should carry out inspection to all drainage components before wet season (April). It is also required to carry out routine inspection monthly in wet season and quarterly in dry season and carry out necessary maintenance works to ensure the drainage system is able to function properly.

The maintenance work includes the followings :-

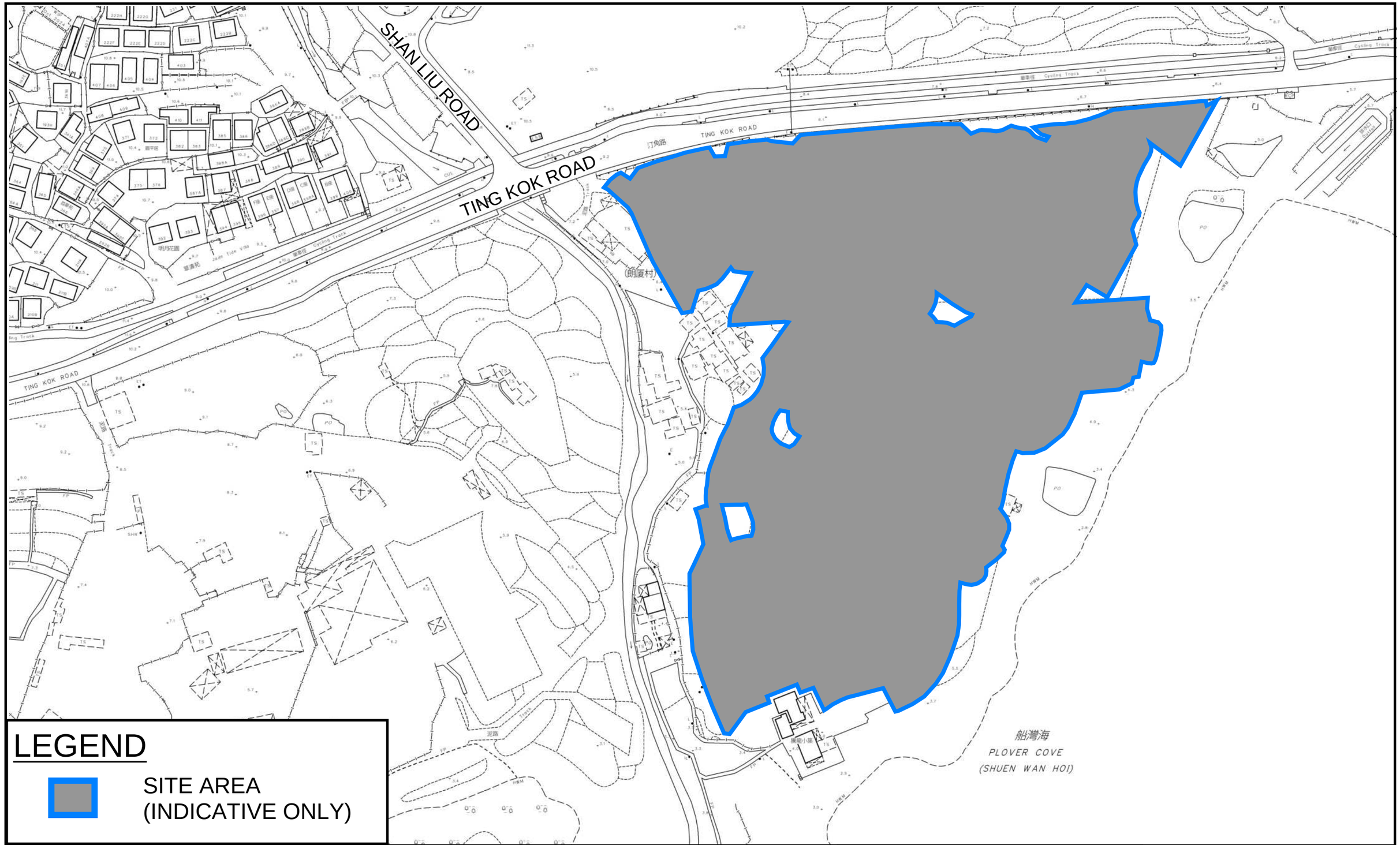
- Cleaning of drains, catchpits and outlets.
- Remove debris, sediments and vegetation to prevent blockage
- Look for signs of damages, such as crack and repair as if it would affect the system to function properly.

5 Conclusion

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

- End of Text -

FIGURES



LEGEND

SITE AREA
(INDICATIVE ONLY)

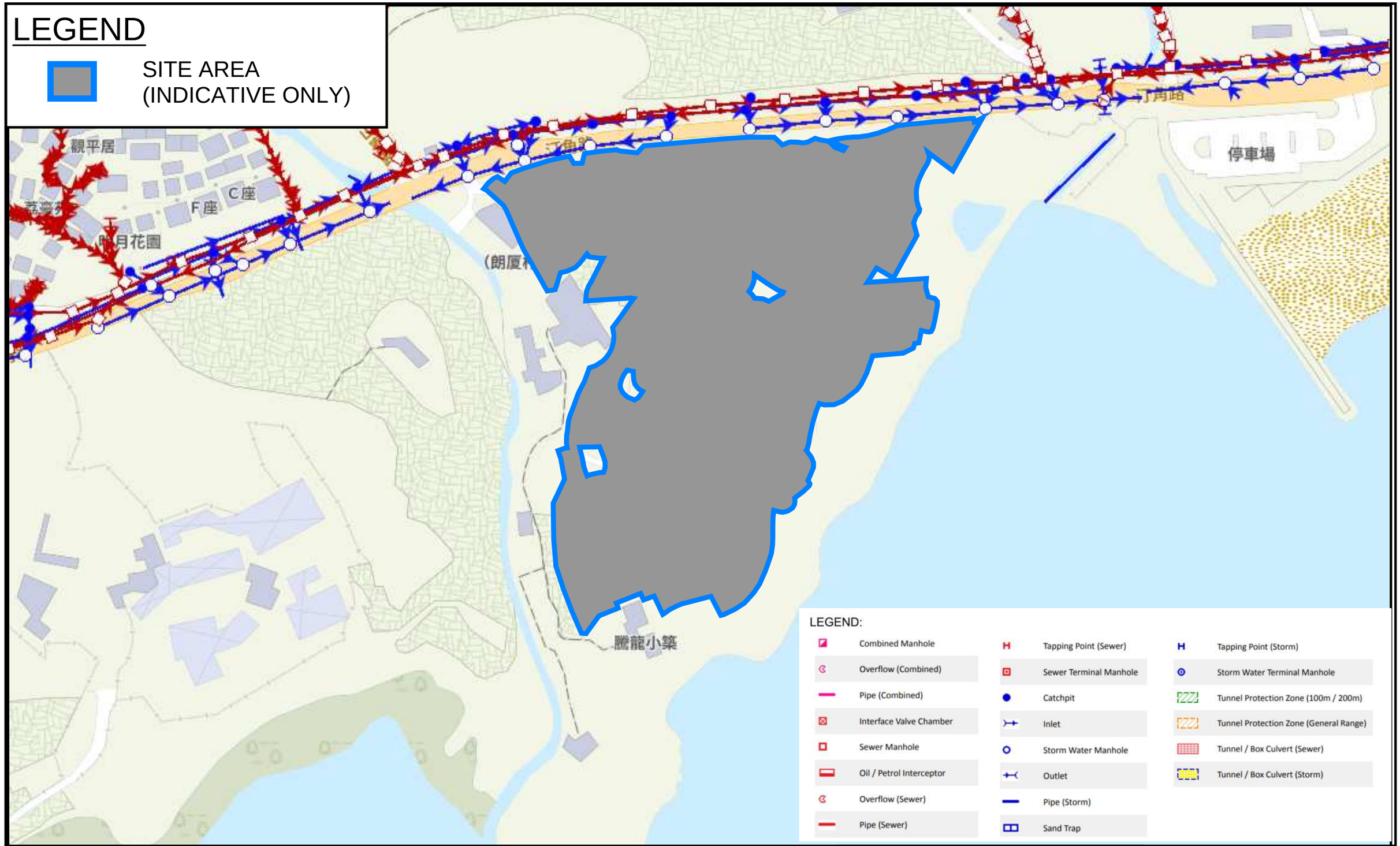
PROJECT:
Proposed Temporary Place of Recreation, Sports or Culture, Eating Place, Barbecue Site and Holiday Camp with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land in “Agriculture” and “Open Space” Zones and an Area Shown as ‘Road’

LOCATION:
Various Lots in D.D. 17 and Adjoining Government Land, Ting Kok, Tai Po, New Territories

TITLE
SITE LOCATION PLAN

FIGURE NUMBER
FIGURE 1

VER	DESCRIPTION	DATE



PROJECT:
Proposed Temporary Place of Recreation, Sports or Culture, Eating Place, Barbecue Site and Holiday Camp with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land in “Agriculture” and “Open Space” Zones and an Area Shown as ‘Road’

LOCATION:
Various Lots in D.D. 17 and Adjoining Government Land, Ting Kok, Tai Po, New Territories

TITLE
EXISTING DRAINAGE PLAN

FIGURE NUMBER
FIGURE 2

VER	DESCRIPTION	DATE

LEGEND

SITE AREA (INDICATIVE ONLY)

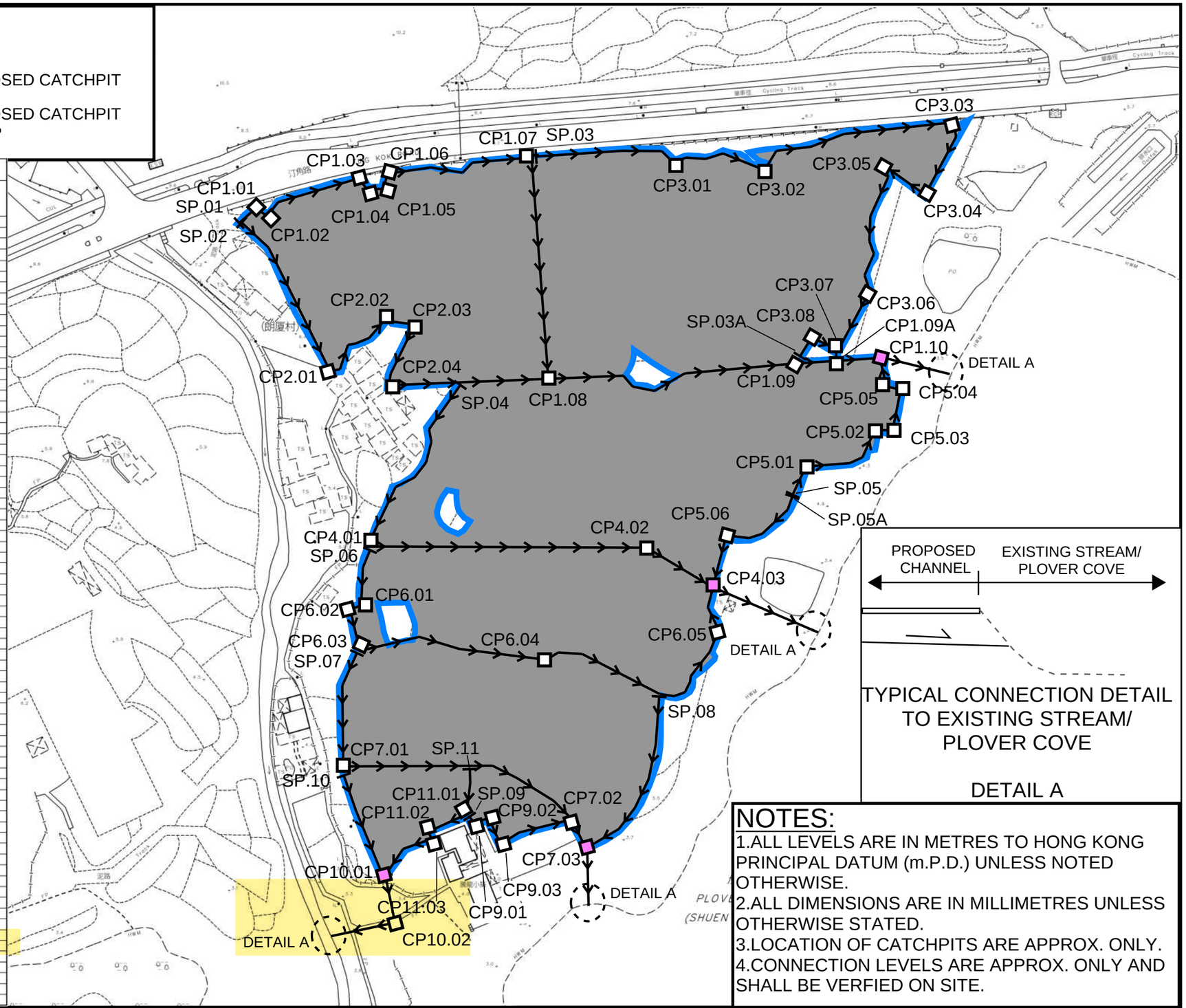
PROPOSED CHANNEL

PROPOSED CATCHPIT

PROPOSED CATCHPIT w/TRAP

DRINAGE SCHEDULE

US MH/PIT	DS MH/PIT	US GL	DS GL	Size mm	Gradient 1 in	Type	US IL	DS IL	U/S MH/PIT TYPE #	Length m	Remark
SP01	CP1.01	8.8	8.8	600	200	UC	8.20	8.16	SP	8.0	#SP: Start Point
CP1.01	CP1.02	8.8	8.8	600	200	UC	8.16	8.14	CP	5.0	
CP1.02	CP1.03	8.8	8.5	600	200	UC	8.14	7.90	CP	36.5	
CP1.03	CP1.04	8.5	8.0	600	200	UC	7.90	7.40	CP	5.1	
CP1.04	CP1.05	8.0	8.0	600	200	UC	7.40	7.37	CP	5.9	
CP1.05	CP1.06	8.0	8.0	600	200	UC	7.37	7.34	CP	5.6	
CP1.06	CP1.07	8.0	7.7	600	200	UC	7.34	7.07	CP	53.8	
CP1.07	CP1.08	7.7	5.7	600	200	UC	7.07	5.10	CP	81.0	
CP1.08	CP1.09	5.7	5.4	825	200	UC	4.86	4.40	CP	92.0	
CP1.09	CP1.09A	5.4	4.6	825	200	UC	4.40	3.78	CP	14.9	
CP1.09A	CP1.10	4.6	4.4	825	200	UC	3.78	3.58	CP	16.7	
CP1.10	Plover Cove	4.4	3.5	900	200	UC	3.50	2.60	CP	24.6	
SP02	CP2.01	8.8	6.3	525	100	UC	8.28	5.78	SP	62.7	
CP2.01	CP2.02	6.3	5.9	600	100	UC	5.70	5.30	CP	31.4	
CP2.02	CP2.03	5.9	5.9	675	250	UC	5.23	5.18	CP	10.6	
CP2.03	CP2.04	5.9	5.9	675	250	UC	5.18	5.09	CP	23.9	
CP2.04	CP1.08	5.9	5.7	675	250	UC	5.09	4.86	CP	57.6	
SP03	CP3.01	7.7	6.6	675	200	UC	7.03	5.93	SP	51.4	
CP3.01	CP3.02	6.6	6.1	675	200	UC	5.93	5.43	CP	34.5	
CP3.02	CP3.03	6.1	5.4	675	200	UC	5.43	4.73	CP	73.0	
CP3.03	CP3.04	5.4	5.6	675	200	UC	4.73	4.58	CP	28.9	
CP3.04	CP3.05	5.6	5.7	675	300	UC	4.58	4.52	CP	17.7	
CP3.05	CP3.06	5.7	4.7	675	200	UC	4.52	4.03	CP	47.8	
CP3.06	CP3.07	4.7	5.0	675	200	UC	4.03	3.90	CP	24.7	
CP3.07	CP1.09A	5.0	4.6	675	200	UC	3.90	3.89	CP	3.0	
SP03A	CP3.08	5.4	5.3	600	100	UC	4.80	4.70	SP	7.9	
CP3.08	CP3.07	5.3	5.0	600	100	UC	4.70	4.40	CP	9.7	
SP04	CP4.01	5.1	5.2	825	400	UC	4.28	4.10	SP	69.9	
CP4.01	CP4.02	5.2	5.0	825	400	UC	4.10	3.85	CP	100.5	
CP4.02	CP4.03	5.0	3.1	825	200	UC	3.85	2.28	CP	27.5	
CP4.03	Plover Cove	3.1	2.8	825	200	UC	2.28	1.98	CP	41.5	
SP05	CP5.01	4.9	4.6	525	200	UC	4.38	4.08	SP	11.2	
CP5.01	CP5.02	4.6	4.4	525	200	UC	4.08	3.88	CP	32.6	
CP5.02	CP5.03	4.4	4.4	525	200	UC	3.88	3.85	CP	5.9	
CP5.03	CP5.04	4.4	4.4	525	200	UC	3.85	3.77	CP	15.6	
CP5.04	CP5.05	4.4	4.4	525	200	UC	3.77	3.75	CP	4.5	
CP5.05	CP1.10	4.4	4.4	525	200	UC	3.75	3.70	CP	8.4	
SP05A	CP5.06	4.9	4.9	675	200	UC	4.23	4.07	SP	30.8	
CP5.06	CP4.03	4.9	3.1	675	200	UC	4.07	2.43	CP	18.9	
SP06	CP6.01	5.2	5.0	450	150	UC	4.75	4.55	SP	20.5	
CP6.01	CP6.02	5.0	5.0	450	200	UC	4.55	4.53	CP	4.1	
CP6.02	CP6.03	5.0	5.1	450	200	UC	4.53	4.45	CP	15.4	
CP6.03	CP6.04	5.1	5	450	200	UC	4.45	4.11	CP	68.7	
CP6.04	CP6.05	5	3.3	450	200	UC	4.11	2.85	CP	78.0	
CP6.05	CP4.03	3.3	3.1	450	200	UC	2.85	2.65	CP	16.7	
SP07	CP7.01	5.1	4.9	525	200	UC	4.58	4.36	SP	42.1	
CP7.01	CP7.02	4.9	3	525	200	UC	4.36	2.48	CP	88.3	
CP7.02	CP7.03	3	3.3	525	200	UC	2.48	2.41	CP	13.2	
CP7.03	Plover Cove	3.3	2.9	525	200	UC	2.41	2.31	CP	19.8	
SP08	CP7.03	4.9	3.3	525	200	UC	4.38	2.78	SP	63.9	
SP09	C9.01	4.1	4.1	375	200	UC	3.73	3.71	SP	2.8	
C9.01	C9.02	4.1	4.1	375	200	UC	3.71	3.68	CP	5.7	
C9.02	C9.03	4.1	4	375	200	UC	3.68	3.63	CP	10.4	
C9.03	CP7.02	4	3	375	200	UC	3.63	2.63	CP	27.2	
SP10	CP10.01	4.9	3.5	375	200	UC	4.53	3.13	SP	37.5	
CP10.01	CP10.02	3.5	3.3	375	200	UC	3.13	2.93	CP	17.2	
CP10.02	Plover Cove	3.3	3.3	375	200	UC	2.93	2.81	CP	23.5	
SP11	CP11.01	4.5	4.1	375	200	UC	4.13	3.73	SP	16.3	
CP11.01	CP11.02	4.1	4.1	375	200	UC	3.73	3.65	CP	15.1	
CP11.02	CP11.03	4.1	4.1	375	200	UC	3.65	3.64	CP	2.8	
CP11.03	CP10.01	4.1	3.5	375	200	UC	3.64	3.13	CP	22.3	



TYPICAL CONNECTION DETAIL TO EXISTING STREAM/ PLOVER COVE

DETAIL A

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 VERFIED ON SITE.

PROJECT:

Proposed Temporary Place of Recreation, Sports or Culture, Eating Place, Barbecue Site and Holiday Camp with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land in “Agriculture” and “Open Space” Zones and an Area Shown as ‘Road’

LOCATION:

Various Lots in D.D. 17 and Adjoining Government Land, Ting Kok, Tai Po, New Territories

TITLE
PROPOSED DRAINAGE SYSTEM

FIGURE NUMBER
FIGURE 3

VER	DESCRIPTION	DATE

LEGEND:

FALL

B1: 201 m²
Paved 101 m²
Unpaved 101 m²

B2: 367 m²
Paved 184 m²
Unpaved 184 m²

A1: 6,685 m²
Paved 3,971 m²
Unpaved 2,714 m²

A2: 9,917 m²
Paved 3,645 m²
Unpaved 6,272 m²

C1: Unpaved 125 m²

B5:Unpaved 198 m²

D1:Unpaved 338 m²

B3: Paved 916 m²

B4:Paved 1699 m²

A3: 9,683 m²
Paved 4,412 m²
Unpaved 5,271 m²

C2: Unpaved 106 m²

A4: 4,879 m²
Paved 1,024 m²
Unpaved 3,855 m²

D2:Unpaved 372 m²

C3: Unpaved 154 m²

A5: 5,331 m²
Paved 2,197 m²
Unpaved 3,314 m²

A7: 1,225 m²
Paved 527 m²
Unpaved 698 m²

D4:Unpaved 694 m²

D3:Unpaved 472 m²

A6: 670 m²
Paved 296 m²
Unpaved 374 m²

+9.0 +7.3 +5.6 +5.9 +4.6 +6.5 +6.1 +5.7 +5.6 +5.3 +4.6 +5.1 +5.3 +5.3 +4.7 +5.2 +4.3 +4.7

TING KOK ROAD

船灣海 (SHUEN WAN HOI)

PROJECT:

Proposed Temporary Place of Recreation, Sports or Culture, Eating Place, Barbecue Site and Holiday Camp with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land in “Agriculture” and “Open Space” Zones and an Area Shown as ‘Road’

LOCATION:

Various Lots in D.D. 17 and Adjoining Government Land, Ting Kok, Tai Po, New Territories

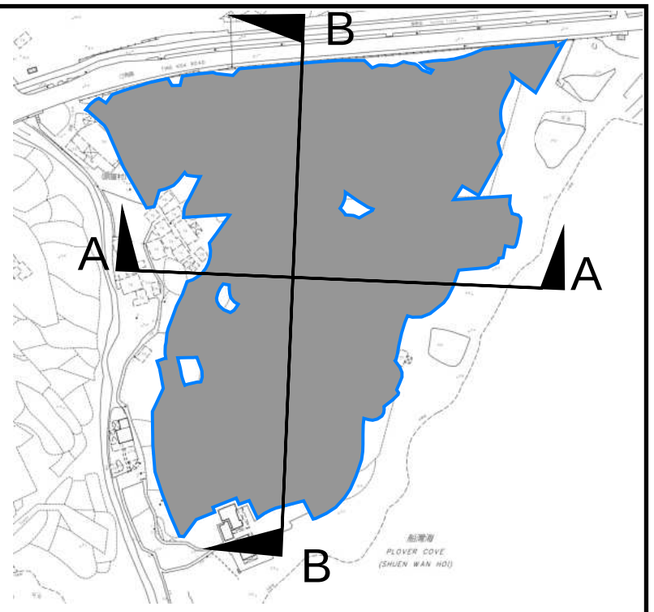
TITLE
CATCHMENT PLAN

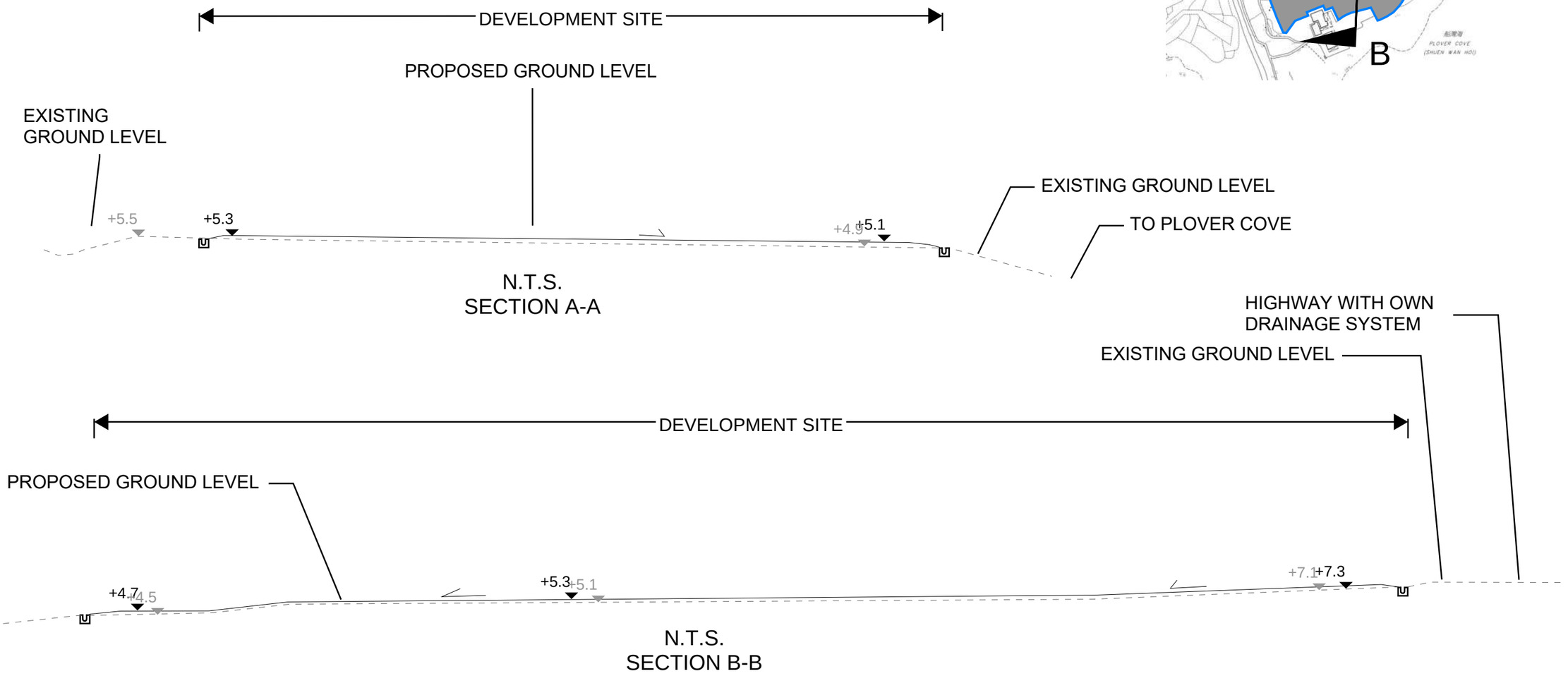
FIGURE NUMBER
FIGURE 4

VER	DESCRIPTION	DATE

LEGEND

SITE AREA
(INDICATIVE ONLY)





N.T.S.
SECTION A-A

N.T.S.
SECTION B-B

PROJECT:

Proposed Temporary Place of Recreation, Sports or Culture, Eating Place, Barbecue Site and Holiday Camp with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land in “Agriculture” and “Open Space” Zones and an Area Shown as ‘Road’

LOCATION:

Various Lots in D.D. 17 and Adjoining Government Land, Ting Kok, Tai Po, New Territories

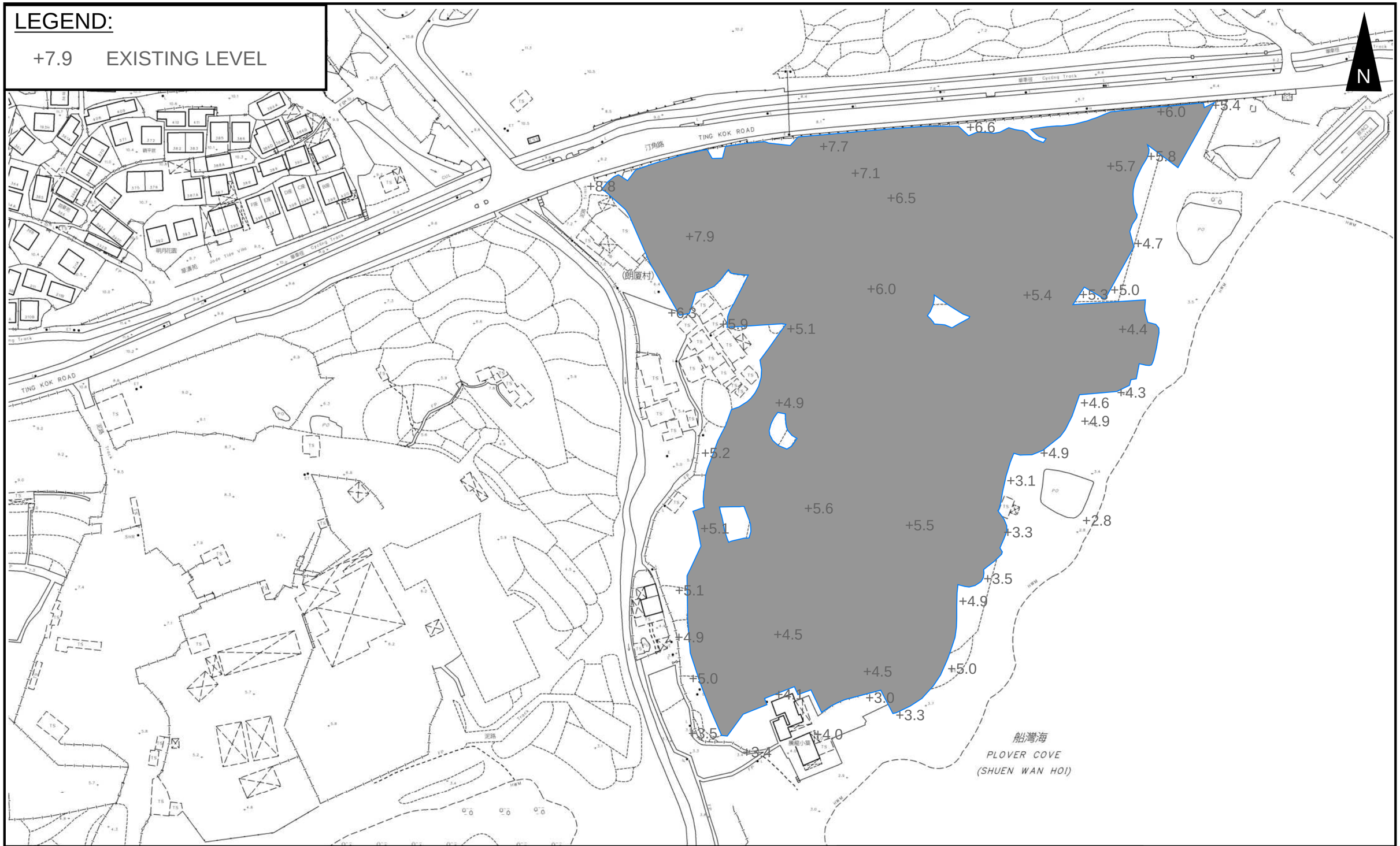
TITLE
SECTION

FIGURE NUMBER
FIGURE 5

VER	DESCRIPTION	DATE

LEGEND:

+7.9 EXISTING LEVEL



PROJECT:

Proposed Temporary Place of Recreation, Sports or Culture, Eating Place, Barbecue Site and Holiday Camp with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land in “Agriculture” and “Open Space” Zones and an Area Shown as ‘Road’

LOCATION:

Various Lots in D.D. 17 and Adjoining Government Land, Ting Kok, Tai Po, New Territories

TITLE

Existing Levels

FIGURE NUMBER

FIGURE 6

VER	DESCRIPTION	DATE

APPENDIX

Appendix A: Design Calculation

Zone

HKO

Return Period	1 in	10	years

n	0.014
Ks	0.15
Viscosity	0.000001

Storm Constant		
	HKO a	485
	HKO b	3.11
	HKO c	0.397

Catchment Area Table (Area in m^2)

Catchment	A1	A2	A3	A4	A5	A6	A7	A3a	B1	B2	B3	B4	B5	C1	C2	C3	D1	D2	D3	D4
Total Area	6685	9917	9682.6	4878.8	5331.4	670.4	1225.4	5092	201	367	916	1699	198	125	106	154	388	372	472	694
Hard Paved Area	3971	3645	4411.6	1023.8	2197.4	296.4	527.4	2515	100.5	184	916	1699	0	0	0	0	0	0	0	0
Unpaved Area	2714	6272	5271	3855	3134	374	698	2577	100.5	184	0	0	198	125	106	154	388	372	472	694
Equival. Area	4722.35	5657.95	6035.87	2321.86	3184.43	412.48	745.33	3291.2	130.65	238.55	870.20	1614.05	69.30	43.75	37.10	53.9	135.8	130.2	165.2	242.9

Pavement Type	Hard Paved	Unpaved
Runoff Coefficient	0.95	0.35

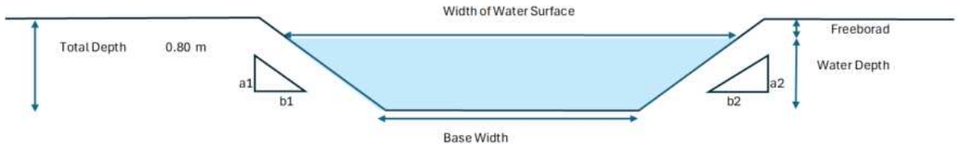
Calculation Table of Drainage System

US MH/PIT	DS MH/PIT	US GL	DS GL	Size mm	Gradient 1 in	Type	US IL	DS IL	U/S MH/PIT TYPE #	Length m	V m/s ##	Capacity m^3/s	Catchment ID1	Catchment ID2	Catchment ID3	Catchment ID4	Catchment ID5	Catchment ID6	Catchment ID7	Catchment ID8	Catchment ID9	Total Equivalent Area m^2	ToC min	Intensity mm/hr ###	Total Discharge m^3/s	Utilitization
SP01	CP1.01	8.80	8.80	600	200	UC	8.20	8.16	SP	8	1.65	0.48	A1	B1								4853.00	1.00	307	0.41	86.7%
CP1.01	CP1.02	8.80	8.80	600	200	UC	8.16	8.14	CP	5	1.65	0.48	A1	B1								4853.00	1.08	305	0.41	86.0%
CP1.02	CP1.03	8.80	8.50	600	200	UC	8.14	7.90	CP	36.5	1.65	0.48	A1	B1								4853.00	1.13	304	0.41	85.6%
CP1.03	CP1.04	8.50	8.00	600	200	UC	7.90	7.40	CP	5.1	1.65	0.48	A1	B1								4853.00	1.50	294	0.40	82.8%
CP1.04	CP1.05	8.00	8.00	600	200	UC	7.40	7.37	CP	5.9	1.65	0.48	A1	B1								4853.00	1.55	292	0.39	82.5%
CP1.05	CP1.06	8.00	8.00	600	200	UC	7.37	7.34	CP	5.6	1.65	0.48	A1	B1								4853.00	1.61	291	0.39	82.0%
CP1.06	CP1.07	8.00	7.70	600	200	UC	7.34	7.07	CP	53.8	1.65	0.48	A1	B1								4853.00	1.67	290	0.39	81.7%
CP1.07	CP1.08	7.70	5.70	600	200	UC	7.07	5.10	CP	81	1.65	0.48	A1	B1								4853.00	2.21	278	0.37	78.2%
CP1.08	CP1.09	5.70	5.40	825	200	UC	4.86	4.40	CP	92	2.05	1.12	A1	A2	B1	B3	C1					11424.90	3.02	262	0.83	74.4%
CP1.09	CP1.09A	5.40	4.60	825	200	UC	4.40	3.78	CP	14.9	2.05	1.12	A1	A2	B1	B3	B5	C1				11494.20	3.77	251	0.80	71.6%
CP1.09A	CP1.10	4.60	4.40	825	200	UC	3.78	3.58	CP	16.7	2.05	1.12	A1	A2	B1	B2	B3	B5	C1			11732.75	3.89	249	0.81	72.5%
CP1.10	Plover Cove	4.40	3.50	900	200	UC	3.50	2.60	CP	24.6	2.17	1.41	A1	A2	A3a	B1	B2	B3	A5	C1	D1	18274.88	4.03	247	1.25	88.9%
SP02	CP2.01	8.80	6.30	525	100	UC	8.28	5.78	SP	62.7	2.14	0.47	A1									4722.35	1.00	307	0.40	85.1%
CP2.01	CP2.02	6.30	5.90	600	100	UC	5.70	5.30	CP	31.4	2.34	0.68	A1	B3								5592.55	1.49	294	0.46	67.5%
CP2.02	CP2.03	5.90	5.90	675	250	UC	5.23	5.18	CP	10.6	1.60	0.59	A1	B3								5592.55	1.71	289	0.45	76.6%
CP2.03	CP2.04	5.90	5.90	675	250	UC	5.18	5.09	CP	23.9	1.60	0.59	A1	B3								5592.55	1.82	286	0.44	75.9%
CP2.04	CP1.08	5.90	5.70	675	250	UC	5.09	4.86	CP	57.6	1.60	0.59	A1	B3								5592.55	2.07	280	0.44	74.4%
SP03	CP3.01	7.70	6.60	675	200	UC	7.03	5.93	SP	51.4	1.79	0.66	A2	B2								5896.50	1.00	307	0.50	76.9%
CP3.01	CP3.02	6.60	6.10	675	200	UC	5.93	5.43	CP	34.5	1.79	0.66	A2	B2								5896.50	1.48	294	0.48	73.6%
CP3.02	CP3.03	6.10	5.40	675	200	UC	5.43	4.73	CP	73	1.79	0.66	A2	B2								5896.50	1.80	286	0.47	71.7%
CP3.03	CP3.04	5.40	5.60	675	200	UC	4.73	4.58	CP	28.9	1.79	0.66	A2	B2								5896.50	2.48	272	0.45	68.1%
CP3.04	CP3.05	5.60	5.70	675	300	UC	4.58	4.52	CP	17.7	1.46	0.53	A2	B2								5896.50	2.75	267	0.44	81.8%
CP3.05	CP3.06	5.70	4.70	675	200	UC	4.52	4.03	CP	47.8	1.79	0.66	A2	B2								5896.50	2.95	264	0.43	65.9%
CP3.06	CP3.07	4.70	5.00	675	200	UC	4.03	3.90	CP	24.7	1.79	0.66	A2	B2								5896.50	3.40	256	0.42	64.1%
CP3.07	CP1.09A	5.00	4.60	675	200	UC	3.90	3.89	CP	3	1.79	0.66	A2	B2								5896.50	3.63	253	0.41	63.2%
SP03A	CP3.08	5.40	5.30	600	100	UC	4.80	4.70	SP	7.9	2.34	0.68	A2									5657.95	1.00	307	0.48	71.4%
CP3.08	CP3.07	5.30	5.00	600	100	UC	4.70	4.40	CP	9.7	2.34	0.68	A2									5657.95	1.06	306	0.48	71.1%
SP04	CP4.01	5.10	5.20	825	400	UC	4.28	4.10	SP	69.9	1.45	0.79	A3	B4								7649.92	1.00	307	0.65	82.6%
CP4.01	CP4.02	5.20	5.00	825	400	UC	4.10	3.85	CP	100.5	1.45	0.79	A3	B4	C2							7687.02	1.81	286	0.61	77.4%
CP4.02	CP4.03	5.00	3.10	825	200	UC	3.85	2.28	CP	27.5	2.05	1.12	A3	B4	C2							7687.02	2.96	263	0.56	50.3%
CP4.03	Plover Cove	3.10	2.80	825	200	UC	2.28	1.98	CP	41.5	2.05	1.12	A3	A4	B4	C2	C3	D2				10192.98	3.45	255	0.72	64.7%
SP05	CP5.01	4.90	4.60	525	200	UC	4.38	4.08	SP	11.2	1.51	0.34	A3a									3291.20	1.00	307	0.28	83.9%
CP5.01	CP5.02	4.60	4.40	525	200	UC	4.08	3.88	CP	32.6	1.51	0.34	A3a									3291.20	1.12	304	0.28	82.9%
CP5.02	CP5.03	4.40	4.40	525	200	UC	3.88	3.85	CP	5.9	1.51	0.34	A3a									3291.20	1.48	294	0.27	80.3%
CP5.03	CP5.04	4.40	4.40	525	200	UC	3.85	3.77	CP	15.6	1.51	0.34	A3a									3291.20	1.55	293	0.27	79.9%
CP5.04	CP5.05	4.40	4.40	525	200	UC	3.77	3.75	CP	4.5	1.51	0.34	A3a									3291.20	1.72	288	0.26	78.7%
CP5.05	CP1.10	4.40	4.40	525	200	UC	3.75	3.70	CP	8.4	1.51	0.34	A3a									3291.20	1.77	287	0.26	78.4%
SP05A	CP5.06	4.90	4.90	675	200	UC	4.23	4.07	SP	30.8	1.79	0.66	A3	C2								6072.97	1.00	307	0.52	79.2%
CP5.06	CP4.03	4.90	3.10	675	200	UC	4.07	2.43	CP	18.9	1.79	0.66	A3	C2								6072.97	1.29	299	0.51	77.1%
SP06	CP6.01	5.20	5.00	450	150	UC	4.75	4.55	SP	20.5	1.58	0.26	A4	C3								2375.76	1.00	307	0.20	79.1%
CP6.01	CP6.02	5.00	5.00	450	200	UC	4.55	4.53	CP	4.1	1.37	0.22	A4	C3								2375.76	1.22	301	0.20	89.5%
CP6.02	CP6.03	5.00	5.10	450	200	UC	4.53	4.45	CP	15.4	1.37	0.22	A4	C3								2375.76	1.27	300	0.20	89.1%
CP6.03	CP6.04	5.10	5.00	450	200	UC	4.45	4.11	CP	68.7	1.37	0.22	A4	C3								2375.76	1.45	295	0.19	87.6%
CP6.04	CP6.05	5.00	3.30	450	200	UC	4.11	2.85	CP	78	1.37	0.22	A4	C3								2375.76	2.29	276	0.18	82.0%
CP6.05	CP4.03	3.30	3.10	450	200	UC	2.85	2.65	CP	16.7	1.37	0.22	A4	C3								2375.76	3.24	259	0.17	76.9%
SP07	CP7.01	5.10	4.90	525	200	UC	4.58	4.36	SP	42.1	1.51	0.34	A5									3184.43	1.00	307	0.27	81.2%
CP7.01	CP7.02	4.90	3.00	525	200	UC	4.36	2.48	CP	88.3	1.51	0.34	A5									3184.43	1.46	295	0.26	77.8%
CP7.02	CP7.03	3.00	3.30	525	200	UC	2.48	2.41	CP	13.2	1.51	0.34	A5	A6								3596.91	2.44	273	0.27	81.4%
CP7.03	Plover Cove	3.30	2.90	525	200	UC	2.41	2.31	CP	19.8	1.51	0.34	A5	A6	D3							3762.11	2.58	270	0.28	84.3%
SP08	CP7.03	4.90	3.30	525	200	UC	4.38	2.78	SP	63.9	1.51	0.34	A5									3184.43	1.00	307	0.27	81.2%
SP09	C9.01	4.10	4.10	375	200	UC	3.73	3.71	SP	2.8	1.21	0.14	A6									412.48	1.00	307	0.04	25.8%
C9.01	C9.02	4.10	4.10	375	200	UC	3.71	3.68	CP	5.7	1.21	0.14	A6									412.48	1.04	306	0.04	25.7%
C9.02	C9.03	4.10	4.00	375	200	UC	3.68	3.63	CP	10.4	1.21	0.14	A6									412.48	1.12	304	0.03	25.5%
C9.03	CP7.02	4.00	3.00	375	200	UC	3.63	2.63	CP	27.2	1.21	0.14	A6									412.48	1.26	300	0.03	25.2%
SP10	CP10.01	4.90	3.50	375	200	UC	4.53	3.13	SP	37.5	1.21	0.14	A7									745.33	1.00	307	0.06	46.6%
CP10.01	CP10.02	3.50	3.30	375	200	UC	3.13	2.93	CP	17.2	1.21	0.14	A7	D4								988.23	1.78	287	0.08	57.7%
CP10.02	Plover Cove	3.30	3.30	375	200	UC	2.93	2.81	CP	23.5	1.21	0.14	A7	D4								988.23	1.78	287	0.08	57.7%
SP11	CP11.01	4.50	4.10	375	200	UC	4.13	3.73	SP	16.3	1.21	0.14	A7									745.33	1.00	307	0.06	46.6%
CP11.01	CP11.02	4.10	4.10	375	200	UC	3.73	3.65	CP	15.1	1.21	0.14	A7									745.33	1.22	301	0.06	45.6%
CP11.02	CP11.03	4.10	4.10	375	200	UC	3.65	3.64	CP	2.8	1.21	0.14	A7									745.33	1.43	295	0.06	44.8%
CP11.03	CP10.01	4.10	3.50	375	200	UC	3.64	3.13	CP	22.3	1.21	0.14	A7									745.33	1.47	294	0.06	44.6%

#SP: Start Point

##:with 10% reduction in flow area

Capacity Checking of Existing Stream from CP10.01



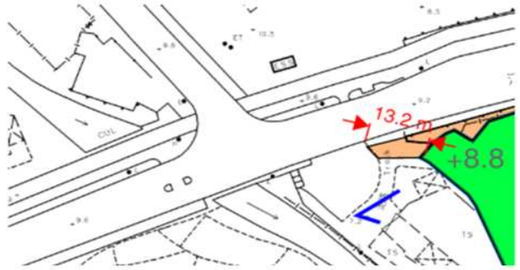
a1	1	
b1	6.1	
a2	1	
b2	4.8	
Total Depth	0.80	m
Base Width	3.20	m
Assumed Water Depth	0.50	m
Freeboard	0.30	m

Assumed Water Depth	Freeboard	Base Width*	Width of Water Surface	Flow Area	Wetted Perimeter	Hydralic Radius	Manning's Roughness	Gradient	Velocity	Capacity
m	m	m	m	m^2	m	m		1 in	m/s	m^3/s
0.50	0.30	3.20	8.64	2.96	8.73	0.34	0.035	200	0.98	2.91

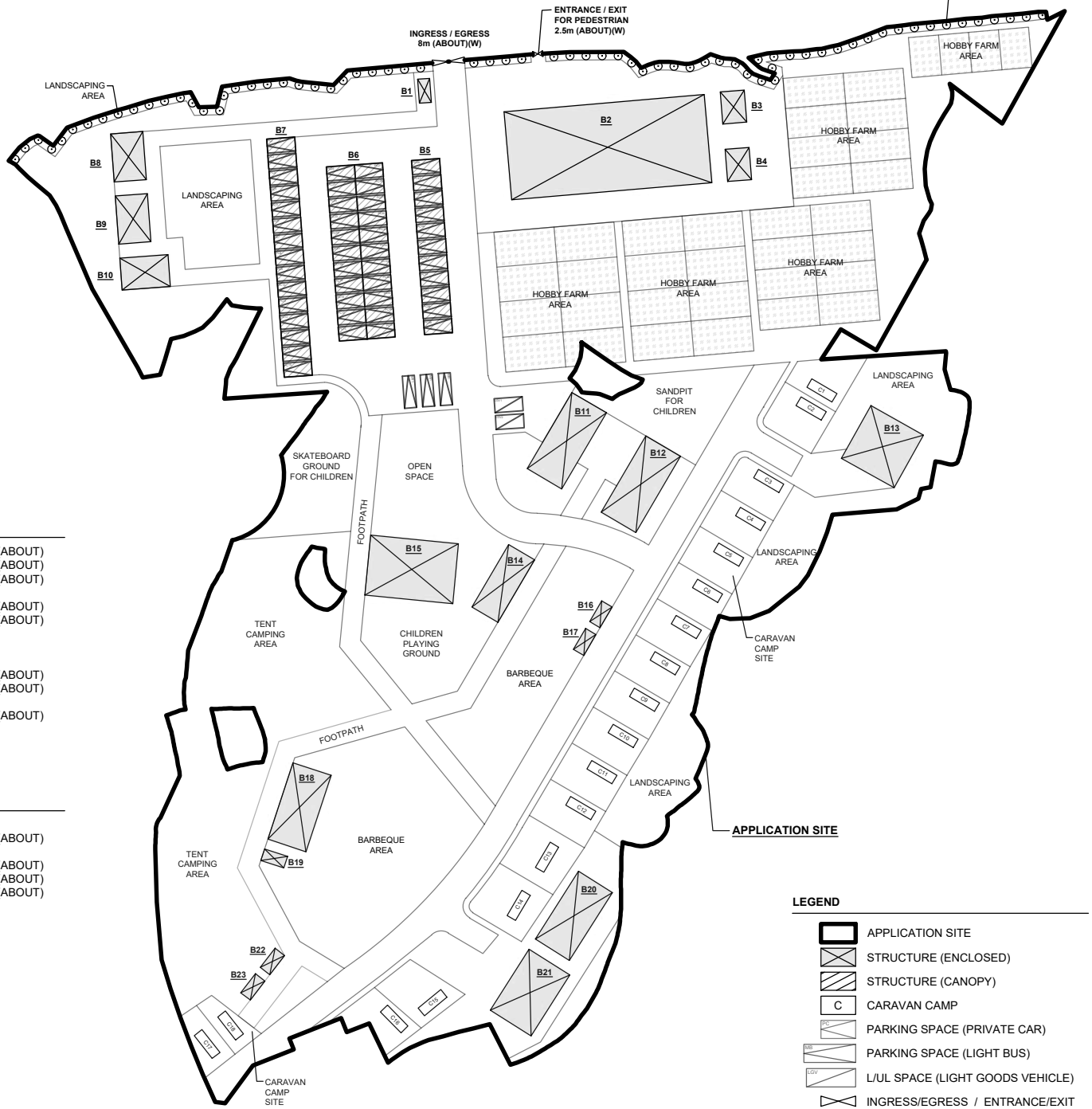
Total Flow from The Application Site = 0.06 m^3/s
Utilization Rate = 2.1%
Total flow from CP10.01 only occupy 2.1% of the existing stream.

Time of Concentration Checking

Catchment	Flow Distance	Highest Level	Lowest Level	Gradient (per 100m) = (H1-H2)/L x 100	to (min) = 0.14465L/ ($H^{0.2}A^{0.1}$)	tc = to + tf
A	L	H1	H2			
(m2)	(m)	(mPD)	(mPD)		(min)	(min)
44	13.2	9.3	8.8	3.788	1.0	1.0



APPENDIX B - PROPOSED SITE LAYOUT PLAN



W E S

DEVELOPMENT PARAMETERS

APPLICATION SITE AREA	: 38,338 m^2	(ABOUT)
COVERED AREA	: 4,669 m^2 + 318.6#m^2	(ABOUT)
UNCOVERED AREA	: 33,350.4 m^2	(ABOUT)
PLOT RATIO	: 0.13	(ABOUT)
SITE COVERAGE	: 13%	(ABOUT)
NO. OF STRUCTURE	: 23 + 18#	
DOMESTIC GFA	: NOT APPLICABLE	
NON-DOMESTIC GFA	: 4,669 m^2 + 318.6#m	(ABOUT)
TOTAL GFA	: 4,669 m^2 + 318.6#m	(ABOUT)
BUILDING HEIGHT	: 3 m - 6 m	(ABOUT)
NO. OF STOREY	: 1	

#CARAVAN AREA

CARAVAN CAMP SITE

NO. OF CARAVAN CAMP SITE	: 18	
TOTAL AREA OF CARAVAN CAMP SITE	: 318.6# m^2	(ABOUT)
DIMENSION OF SITE	: 2.44 m (W) X 7.26 (L)	(ABOUT)
COVERED AREA	: 17.7 m^2 EACH	(ABOUT)
HEIGHT OF CARAVAN	: 2.8 m^2 EACH	(ABOUT)

PARKING AND LOADING/UNLOADING PROVISIONS

NO. OF PRIVATE CAR PARKING SPACE	: 48
DIMENSION OF PARKING SPACE	: 5 m (L) X 2.5 m (W)
NO. OF LIGHT BUS PARKING SPACE	: 3
DIMENSION OF PARKING SPACE	: 8 m (L) X 3 m (W)
NO. OF L/UL SPACE FOR LGV	: 2
DIMENSION OF L/UL SPACE	: 7 m (L) X 3.5 m (W)

LEGEND

- APPLICATION SITE
- STRUCTURE (ENCLOSED)
- STRUCTURE (CANOPY)
- C — CARAVAN CAMP
- PARKING SPACE (PRIVATE CAR)
- PARKING SPACE (LIGHT BUS)
- L/UL SPACE (LIGHT GOODS VEHICLE)
- INGRESS/EGRESS / ENTRANCE/EXIT

PLANNING CONSULTANT

R-Riches Property Consultants Ltd.

PROJECT

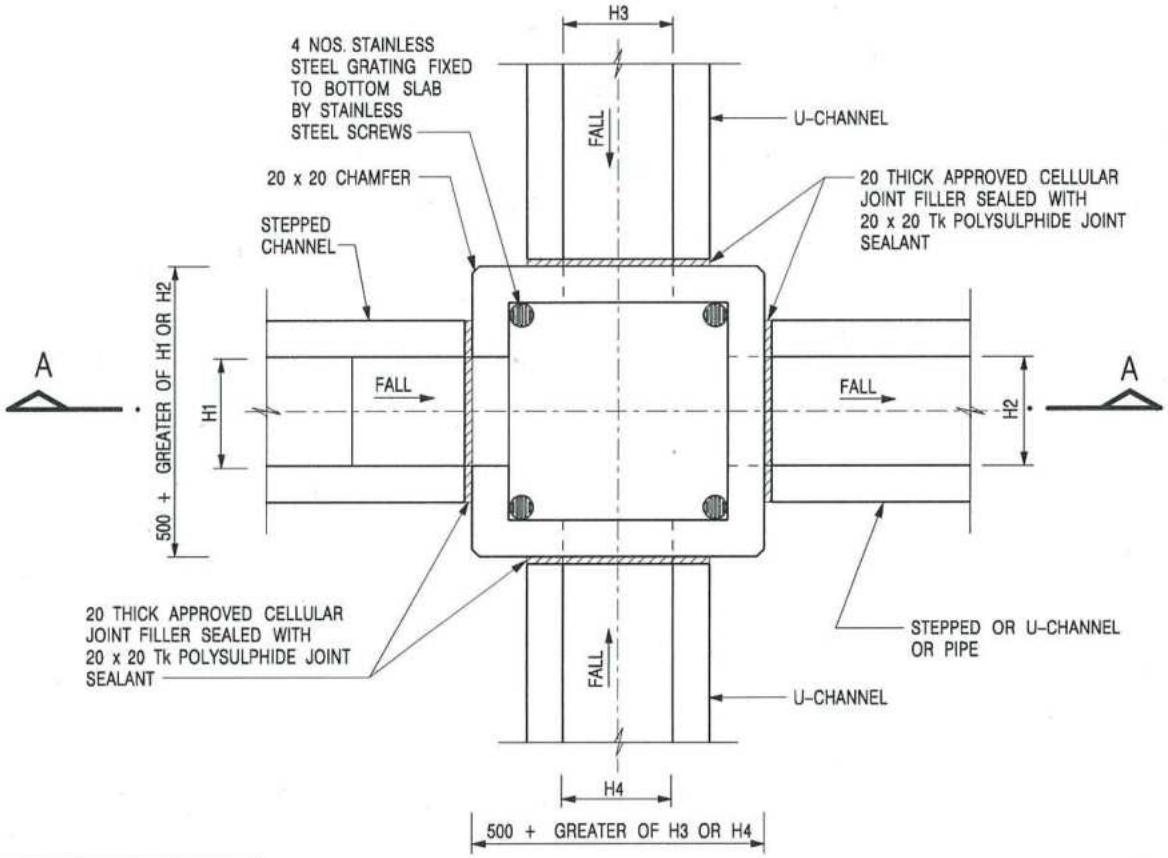
PROPOSED TEMPORARY PLACE OF RECREATION, SPORTS OR CULTURE, EATING PLACE, BARBECUE SITE AND HOLIDAY CAMP WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS AND ASSOCIATED FILLING OF LAND

SITE LOCATION

VARIOUS LOTS IN D.D. 17 AND ADJOINING GOVERNMENT LAND TING KOK, NEW TERRITORIES

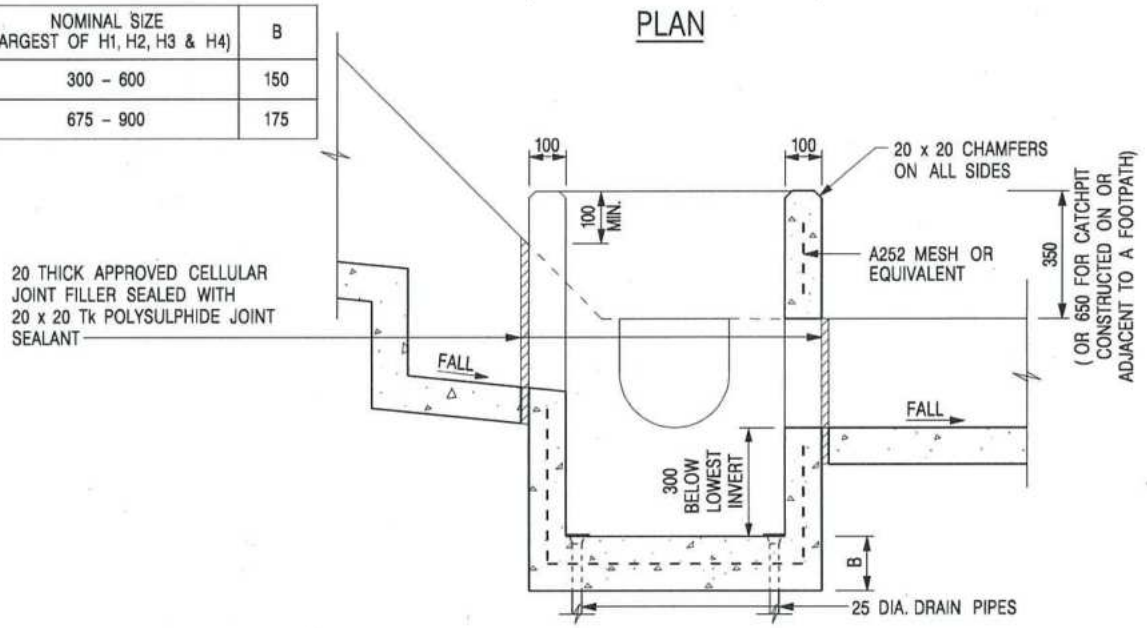
SCALE	1 : 1500 @ A4
DRAWN BY	MN
DATE	4.11.2024
CHECKED BY	
DATE	
APPROVED BY	
DATE	
DWG. TITLE	LAYOUT PLAN
DWG NO.	PLAN 4
VER.	001

Appendix C - Reference Drawings



PLAN

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



SECTION A – A

NOTES:

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

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

CATCHPIT WITH TRAP

(SHEET 1 OF 2)

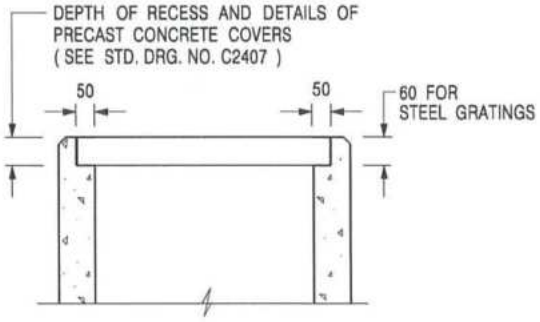
CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

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.

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

CATCHPIT WITH TRAP
(SHEET 2 OF 2)

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

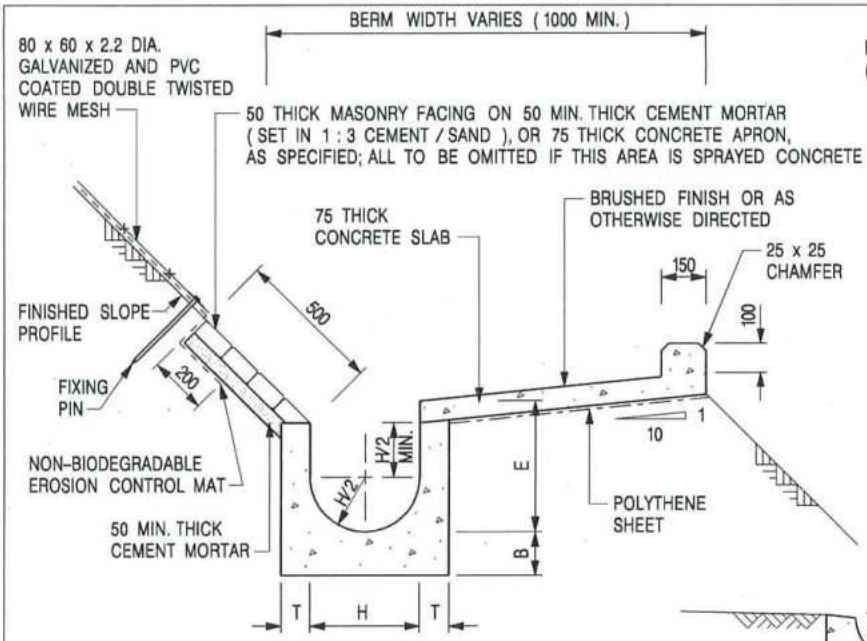
SCALE 1 : 20

DATE JAN 1991

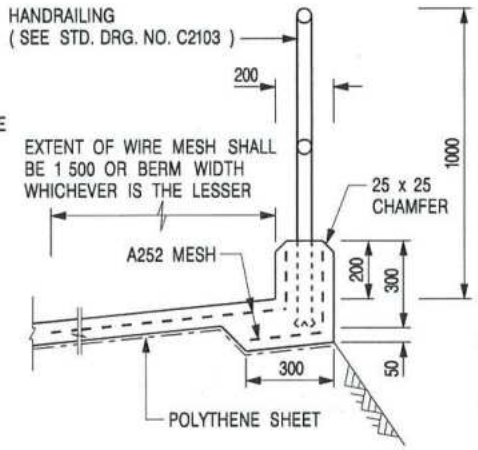
DRAWING NO. C2406 /2A

卓越工程 建設香港

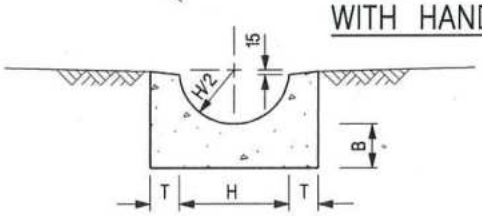
We Engineer Hong Kong's Development



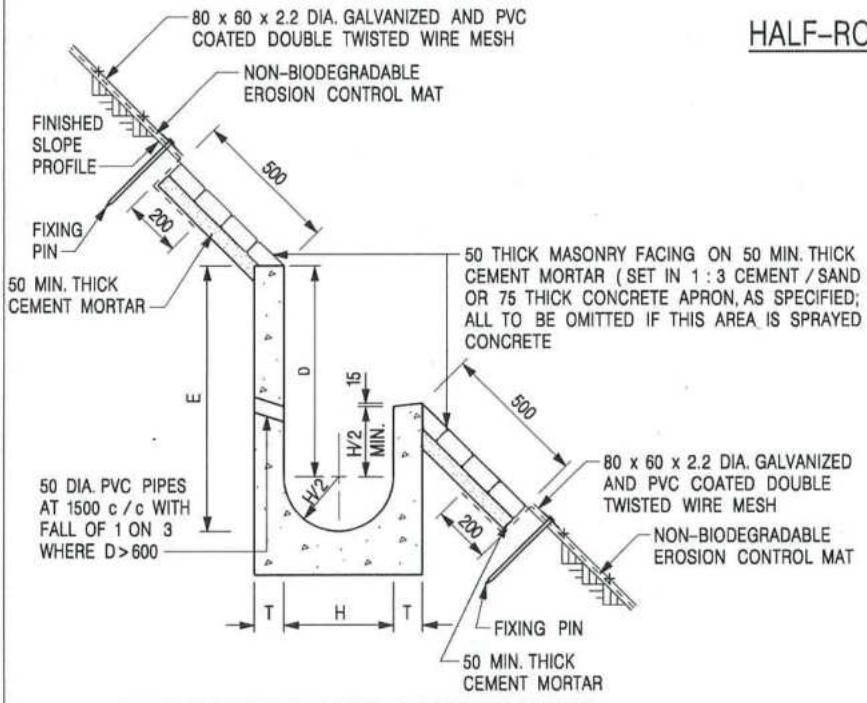
U-CHANNELS CONSTRUCTED ON BERM



DETAILS OF BERM WITH HANDRAILING



HALF-ROUND CHANNEL



U-CHANNELS NOT CONSTRUCTED ON BERM

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. C2511/1E.
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. C2511/1E)

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

REF.	REVISION	SIGNATURE	DATE
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

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

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

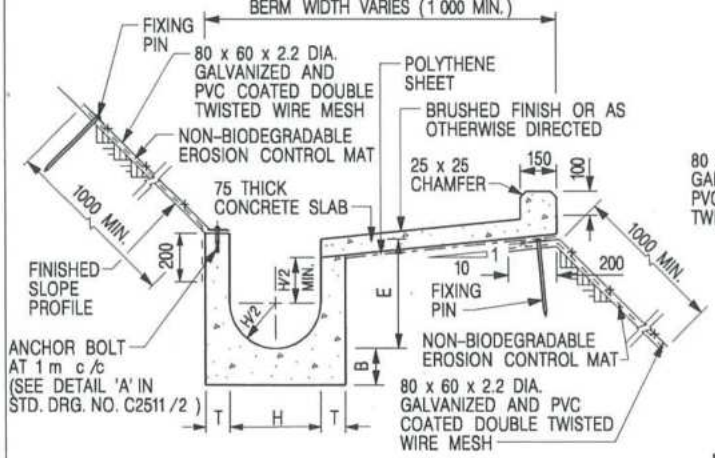
SCALE 1 : 25

DATE JAN 1991

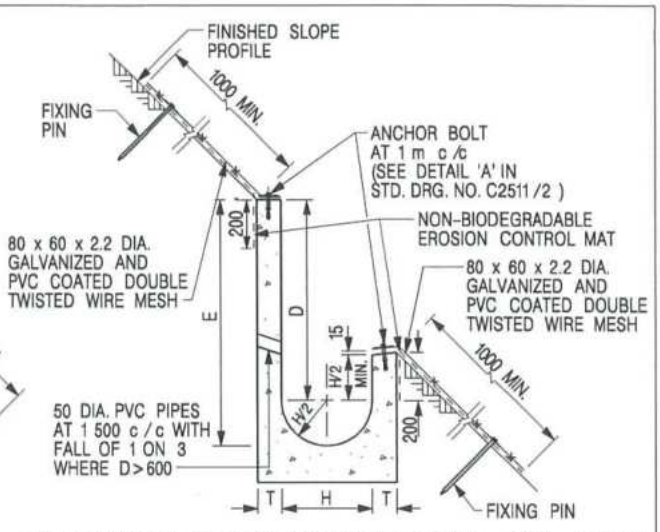
DRAWING NO. C2409I

卓越工程 建設香港

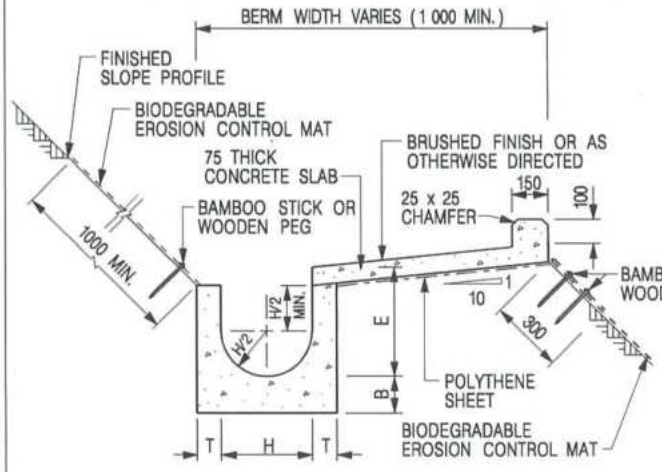
We Engineer Hong Kong's Development



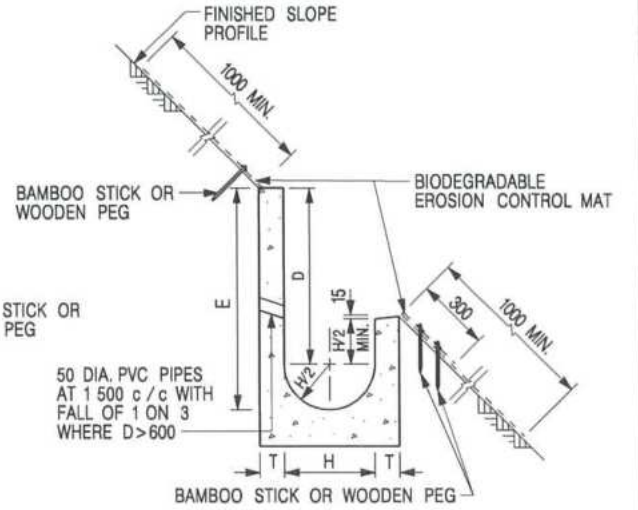
U-CHANNELS CONSTRUCTED ON BERM WITH NON-BIODEGRADABLE EROSION CONTROL MAT



U-CHANNELS NOT CONSTRUCTED ON BERM WITH NON-BIODEGRADABLE EROSION CONTROL MAT



U-CHANNELS CONSTRUCTED ON BERM WITH BIODEGRADABLE EROSION CONTROL MAT



U-CHANNELS NOT CONSTRUCTED ON BERM WITH BIODEGRADABLE EROSION CONTROL MAT

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. FOR TYPICAL FIXING PIN DETAILS, SEE STD. DRG. NO. C2511/2.
8. MINIMUM SIZE OF 25 x 50 x 300mm SHALL BE PROVIDED FOR WOODEN PEG.
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. C2511/1.

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

REF.	REVISION	SIGNATURE	DATE
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

DETAILS OF HALF-ROUND AND U-CHANNELS (TYPE B - WITH EROSION CONTROL MAT APRON)

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

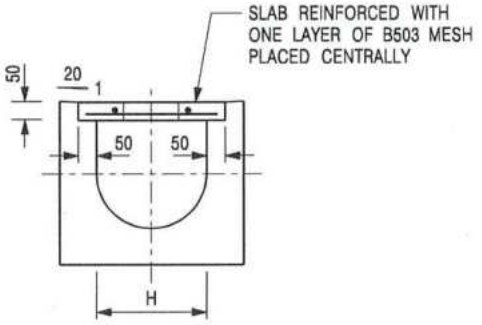
SCALE DIAGRAMMATIC

DATE JAN 1991

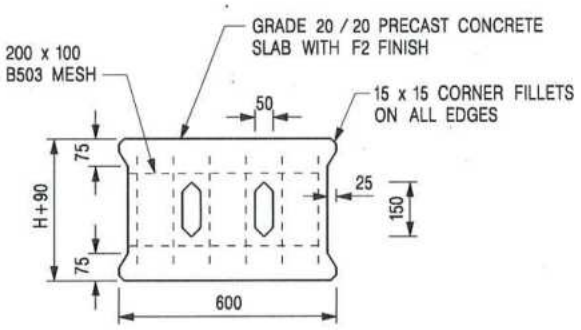
DRAWING NO. C2410I

卓越工程 建設香港

We Engineer Hong Kong's Development



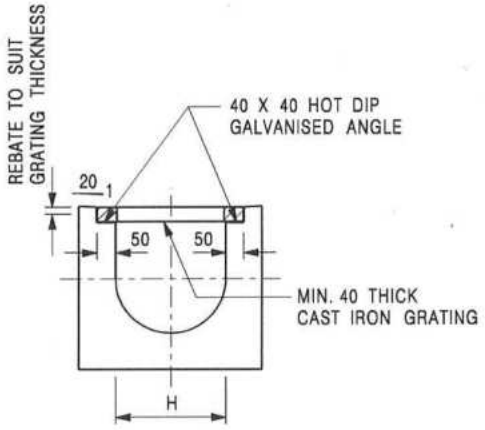
TYPICAL SECTION



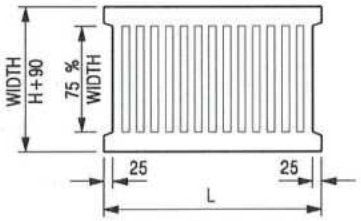
PLAN OF SLAB

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.

REF.	REVISION	SIGNATURE	DATE
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

COVER SLAB AND CAST IRON GRATING FOR CHANNELS

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE 1 : 20

DATE JAN 1991

DRAWING NO. C2412E


PHOTO 1


PHOTO 2


PHOTO 3


PHOTO 4

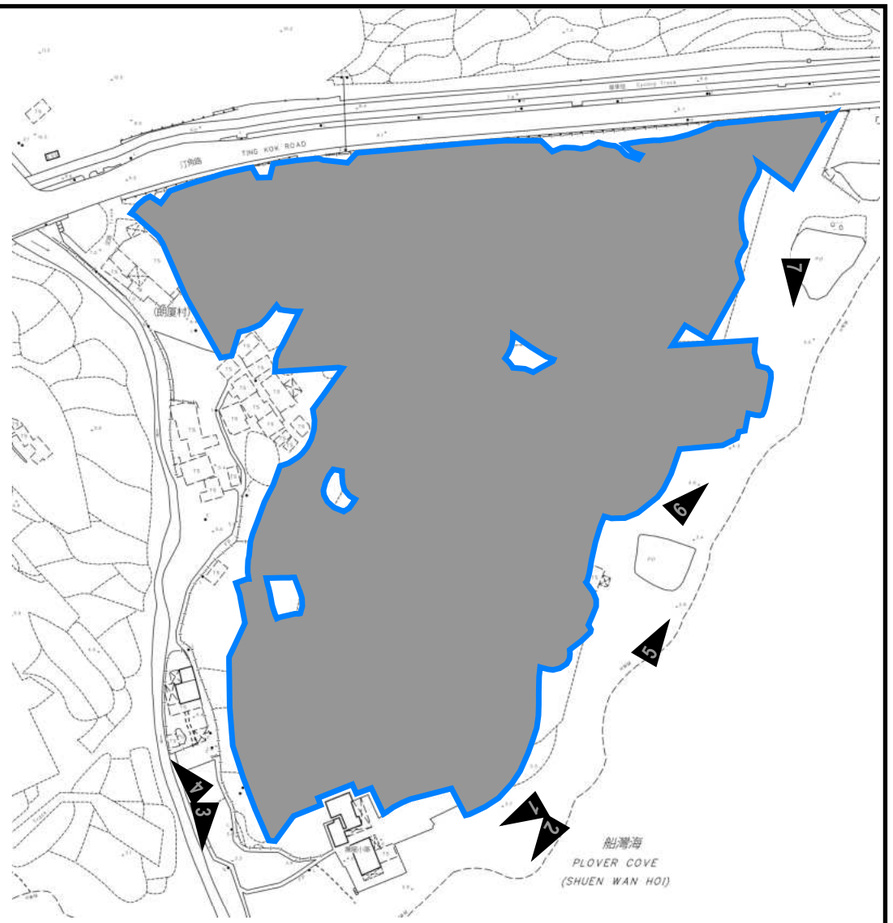



PHOTO 5


PHOTO 6


PHOTO 7

PROJECT:
Proposed Temporary Place of Recreation, Sports or Culture, Eating Place, Barbecue Site and Holiday Camp with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land in “Agriculture” and “Open Space” Zones and an Area Shown as ‘Road’

LOCATION:
Various Lots in D.D. 17 and Adjoining Government Land, Ting Kok, Tai Po, New Territories

SITE PHOTOS OF EXISTING DRAINAGE SYSTEM

APPENDIX D

VER	DESCRIPTION	DATE