

**FIRE SERVICES NOTES:**

1. HOSE REEL SYSTEM

- 1.1 HOSE REEL SHALL BE PROVIDED AT POSITIONS AS INDICATED ON PLANS.
- 1.2 THERE SHALL BE SUFFICIENT HOSE REELS TO ENSURE THAT EVERY PART OF THE BUILDING CAN BE REACHED BY A LENGTH OF NOT MORE THAN 30M OF HOSE REEL TUBING. ONE ACTUATING POINT AND ONE AUDIO WARNING DEVICE TO BE LOCATED AT EACH HR POINT. THE ACTUATING POINT SHOULD INCLUDE FACILITIES FOR THE FIRE PUMP START DEVICE INITIATION.
- 1.3 A MODIFIED HOSE REEL SYSTEM OF 2,000 LITRES WATER TANK TO BE PROVIDED FOR THE ENTIRE BUILDING AS INDICATED ON PLAN.
- 1.4 NO FIRE SERVICES INLET TO BE PROVIDED FOR THE MODIFIED HOSE REEL SYSTEM.
- 1.5 WATER SUPPLY FOR THE MODIFIED HOSE REEL SYSTEM TO BE SINGLE END FEED FROM THE GOVERNMENT TOWN MAIN.
- 1.6 TWO FIXED FIRE PUMPS (DUTY/STANDBY) TO BE PROVIDED AT F.S. & SPR. PUMP ROOM.
- 1.7 THE HR SYSTEM INSTALLED SHOULD BE IN ACCORDANCE WITH PARA. 5.14 OF THE CODE OF PRACTICE FOR MINIMUM FIRE SERVICE INSTALLATION AND EQUIPMENT 2012.
- 1.8 AN INSTRUCTION PLATE SHALL BE PROVIDED NEXT TO THE BREAK GLASS UNIT FOR OPERATION OF HOSE REEL.

2. AUTOMATIC SPRINKLER SYSTEM

- 2.1 AUTOMATIC SPRINKLER SYSTEM SUPPLIED BY A 135,000L SPRINKLER WATER TANK AND HAZARD CLASS OH3 SHALL BE PROVIDED TO THE ENTIRE BUILDING/ STRUCTURE IN ACCORDANCE WITH LPC RULES INCORPORATING BS EN12845: 2015 AND FSD CIRCULAR LETTER 5/2020. THE SPRINKLER TANK, SPRINKLER PUMP ROOM, SPRINKLER INLET AND SPRINKLER CONTROL VALVE GROUP SHALL BE CLEARLY MARKED ON PLANS.
- 2.2 THE CLASSIFICATION OF THE AUTOMATIC SPRINKLER INSTALLATION TO BE ORDINARY HAZARD GROUP 3.
- 2.3 ONE NUMBER 135,000 LITRES SPRINKLER WATER TANK TO BE PROVIDED AS INDICATED ON PLANS.
- 2.4 SPRINKLER CONTROL VALVE SET AND SPRINKLER INLET TO BE PROVIDED AS INDICATED ON PLANS.
- 2.5 TYPE OF STORAGE METHOD FOR THE BUILDING IS AS FOLLOWS:
  - (A) STORAGE CATEGORY: CATEGORY (I)
  - (B) STORAGE HEIGHT: NOT EXCEEDING 4M
  - (C) STORAGE: ST1

3. FIRE ALARM SYSTEM

- 3.1 FIRE ALARM SYSTEM SHALL BE PROVIDED THROUGHOUT THE ENTIRE BUILDING IN ACCORDANCE WITH BS 5839-1: 2017 AND FSD CIRCULAR LETTER N0.6/2021. ONE ACTUATING POINT AND ONE AUDIO WARNING DEVICE SHOULD BE LOCATED AT EACH HOSE REEL POINT. THE ACTUATION POINT SHOULD INCLUDE FACILITIES FOR FIRE PUMP START AND AUDIO / VISUAL WARNING DEVICE INITIATION.
- 3.2 AN ADDRESSABLE TYPE FIRE ALARM PANEL TO BE PROVIDED AND LOCATED INSIDE G/F F.S. & SPR. PUMP ROOM.

4. MISCELLANEOUS F.S. INSTALLATION

- 4.1 PORTABLE FIRE EXTINGUISHER WITH SPECIFIED TYPE AND CAPACITY TO BE PROVIDED AT LOCATIONS AS INDICATED ON PLANS.
- 4.2 SUFFICIENT EMERGENCY LIGHTING SHALL BE PROVIDED THROUGHOUT THE ENTIRE BUILDINGS/STRUCTURES IN ACCORDANCE WITH BS 5266-1:2016, BS EN 1838:2013 AND FSD CL 4/2021.
- 4.3 SUFFICIENT DIRECTIONAL AND EXIT SIGN SHALL BE PROVIDED IN ACCORDANCE WITH BS 5266: PART 1 AND FSD CIRCULAR LETTER 5/2008.
- 4.4 NO EMERGENCY GENERATOR TO BE PROVIDED FOR SERVING THE EMERGENCY POWER. DUPLICATED POWER SUPPLIES FOR ALL FIRE SERVICES INSTALLATIONS COMPRISING A CABLE CONNECTED FROM ELECTRICITY MAINS DIRECTLY BEFORE THE MAIN SWITCH.
- 4.5 WHEN A VENTILATION/ AIR CONDITIONING CONTROL SYSTEM TO A BUILDING IS PROVIDED, IT SHALL STOP MECHANICALLY INDUCED AIR MOVEMENT WITHIN A DESIGNATED FIRE COMPARTMENT.
- 4.6 NO DYNAMIC SMOKE EXTRACTION SYSTEM SHALL BE PROVIDED SINCE FIRE COMPARTMENT NOT EXCEEDING 7000 CUBIC METRES AND THE AGGREGATE AREA OF OPENABLE WINDOWS OF THE RESPECTIVE COMPARTMENT EXCEEDS 6.25% OF THE FLOOR AREA OF THAT COMPARTMENT.



ELEVATION A  
AREA: 244 m<sup>2</sup>



ELEVATION B  
AREA: 33 m<sup>2</sup>



ELEVATION C  
AREA: 246 m<sup>2</sup>

OPENABLE WINDOW AREA CALCULAION UNDER F.S.D. REQUIREMENT FOR COMPARTMENT EXCEEDING 7000m <sup>3</sup>	
LOCATION	<b>STRUCTURE B2</b>
GFA	<b>8,236 m<sup>2</sup></b>
OPENABLE WINDOW AREA REQUIRED	8,236 m <sup>2</sup> X 6.25% = <b>514.75 m<sup>2</sup> (ABOUT)</b>
OPENABLE WINDOW AREA PROVIDED	REFER TO ELEVATION A = <b>244 m<sup>2</sup></b> REFER TO ELEVATION B = <b>33 m<sup>2</sup></b> REFER TO ELEVATION C = <b>246 m<sup>2</sup></b>
<b>TOTAL = 526 m<sup>2</sup> &gt; 514.75 m<sup>2</sup></b>	

PROJECT  
PROPOSED WAREHOUSE (EXCLUDING DANGEROUS GODOWN) WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS AND ASSOCIATED FILLING OF LAND

SITE LOCATION  
VARIOUS LOTS IN D.D. 107 AND ADJOINING GOVERNMENT LAND, KAM TIN, YUEN LONG, NEW TERRITORIES

SCALE  
NOT TO SCALE @ A3

DRAWN BY	DATE
MN	18.12.2024
CHECKED BY	DATE

APPROVED BY	DATE
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DWG. TITLE  
FSIs PROPOSAL (1/2)

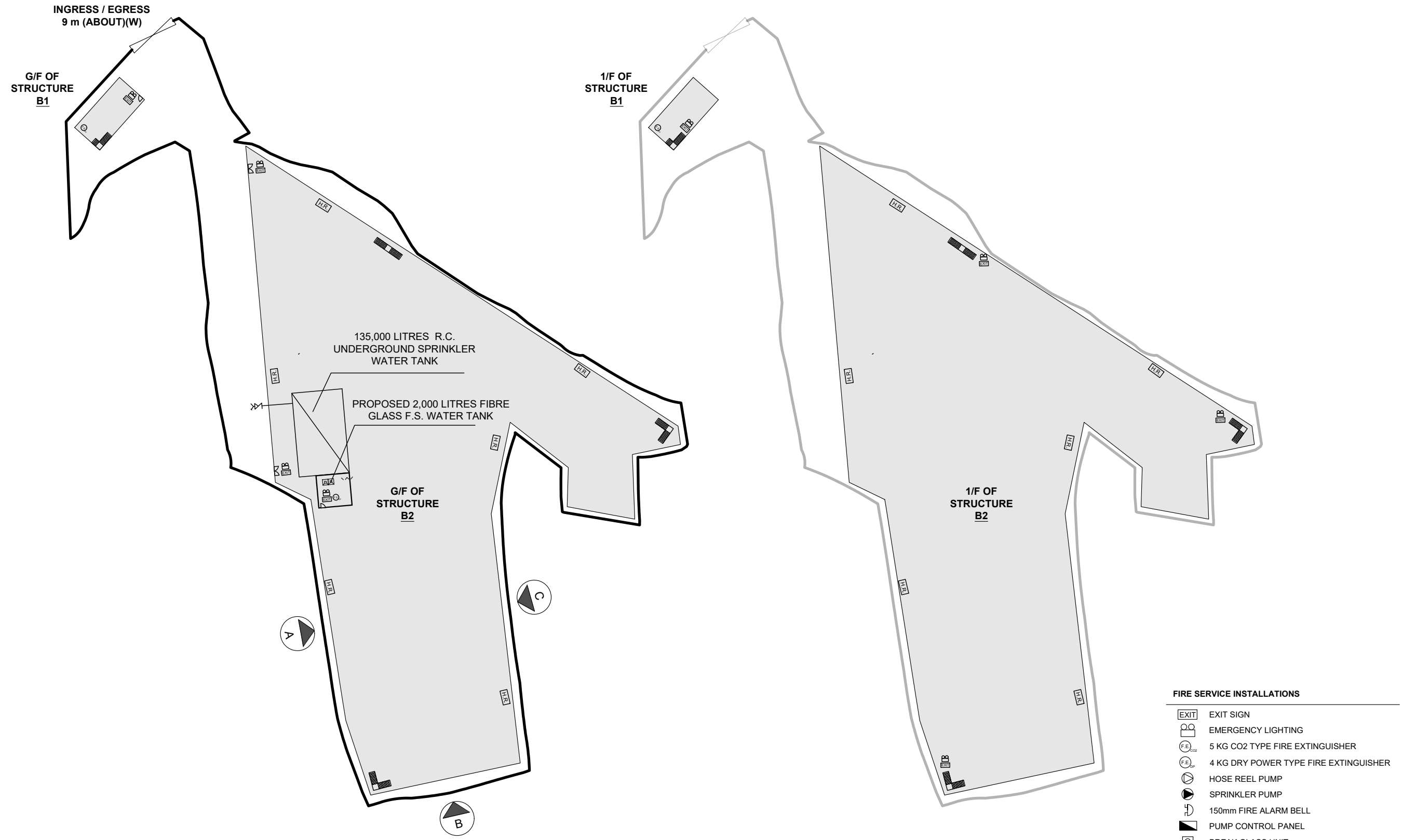
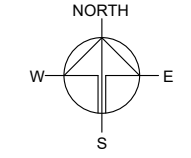
DWG NO.	VER.
APPENDIX I	001

**DEVELOPMENT PARAMETERS**

APPLICATION SITE AREA	: 5,685 m <sup>2</sup>	(ABOUT)
COVERED AREA	: 4,190 m <sup>2</sup>	(ABOUT)
UNCOVERED AREA	: 1,495 m <sup>2</sup>	(ABOUT)
PLOT RATIO	: 1.5	(ABOUT)
SITE COVERAGE	: 74 %	(ABOUT)
NO. OF STRUCTURE	: 2	
DOMESTIC GFA	: NOT APPLICABLE	
NON-DOMESTIC GFA	: 8,380m <sup>2</sup>	(ABOUT)
TOTAL GFA	: 8,380 m <sup>2</sup>	(ABOUT)
BUILDING HEIGHT	: 7 m - 13 m	(ABOUT)
NO. OF STOREY	: 2	

STRUCTURE	USE	COVERED AREA	GFA	BUILDING HEIGHT
B1	SITE OFFICE	72 m <sup>2</sup> (ABOUT)	144 m <sup>2</sup> (ABOUT)	7 m (ABOUT)(2-STOREY)
B2	WAREHOUSE (EXCLUDING D.G.G.) COVERED LOADING / UNLOADING AREA	4,118 m <sup>2</sup> (ABOUT)	8,236 m <sup>2</sup> (ABOUT)	13 m (ABOUT)(2-STOREY)
<b>TOTAL</b>		<b>4,190 m<sup>2</sup> (ABOUT)</b>	<b>8,380 m<sup>2</sup> (ABOUT)</b>	

\*D.G.G. - DANGEROUS GOODS GODOWN



**FIRE SERVICE INSTALLATIONS**

	EXIT SIGN
	EMERGENCY LIGHTING
	5 KG CO2 TYPE FIRE EXTINGUISHER
	4 KG DRY POWER TYPE FIRE EXTINGUISHER
	HOSE REEL PUMP
	SPRINKLER PUMP
	150mm FIRE ALARM BELL
	PUMP CONTROL PANEL
	BREAK GLASS UNIT
	VISUAL ALARM DEVICE
	2,000 LITRES FIBRE GLASS F.S. WATER TANK
	135,000 LITRES R.C. SPRINKLER WATER TANK
	HOSE REEL SET
	SPRINKLER CONTROL VALVE
	SPRINKLER INLET

PROJECT  
 PROPOSED WAREHOUSE (EXCLUDING DANGEROUS GODOWN) WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS AND ASSOCIATED FILLING OF LAND

SITE LOCATION  
 VARIOUS LOTS IN D.D. 107 AND ADJOINING GOVERNMENT LAND, KAM TIN, YUEN LONG, NEW TERRITORIES

SCALE  
 1 : 700 @ A3

DRAWN BY	DATE
MN	18.12.2024

CHECKED BY	DATE

APPROVED BY	DATE

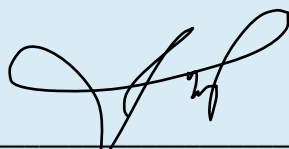
DWG. TITLE  
 FSIs PROPOSAL (2/2)

DWG NO.	VER.
APPENDIX I	001

Proposed Temporary Warehouse (excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land in Various Lots in D.D. 107 and Adjoining Government Land, Fung Kat Heung, Kam Tin, Yuen Long, New Territories

## Drainage Proposal

**December 24**



Prepared by: Yeung Toi Tung RP0666920  
Marvellous Construction & Design Company Limited  
For Harvest Hill (Hong Kong) Limited



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# 1 Introduction

## 1.1 Background

- 1.1.1 The applicant seeks planning permission from the Town Planning Board (the Board) to use Various Lots in D.D. 107 and Adjoining Government Land (GL), Fung Kat Heung, Kam Tin, Yuen Long, New Territories (the Site) for 'Proposed Temporary Warehouse (excluding Dangerous Goods Godown) 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 near Fung Kat Heung. It has an area of approx. 5,685 m<sup>2</sup>. The site location is shown in **Figure 1**.
- 1.2.2 A large portion of the site was mainly hard paved. The existing site levels are proposed to be raised to +5.6 mPD from +3.4~3.9 mPD in order to match with existing road level adjacent to the site.
- 1.2.3 There are an existing 1500mm pipes constructed by the applicant. One end of the pipes is in close proximity to the application site, the other end was connected to a branch channel to Kam Tin River. **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 5,685 m<sup>2</sup>. After the development the site would be fully paved. The catchment plan is shown in **Figure 4**.

Proposed Development	
Total Site Area (m <sup>2</sup> )	5,685
Paved Area after Development (m <sup>2</sup> )	5,685

**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

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<sub>f</sub> = 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:

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

where,

V	=	velocity of the pipe flow (m/s)
S <sub>f</sub>	=	hydraulic gradient
k <sub>f</sub>	=	roughness value (m)
ν	=	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 connect to existing 1500mm drains which eventually discharge to Kam Tin River. The utilization of the existing 1500mm drains is not more than 14% according to checking in **Appendix A**.
- 4.1.2 The design calculations of proposed UChannel are shown in **Appendix A**.
- 4.1.3 The alignment, size, gradient and details of the proposed drains are shown in **Figure 3**. The catchment plan is shown in **Figure 4**.
- 4.1.5 Reference Drawings are shown in **Appendix C** for reference.

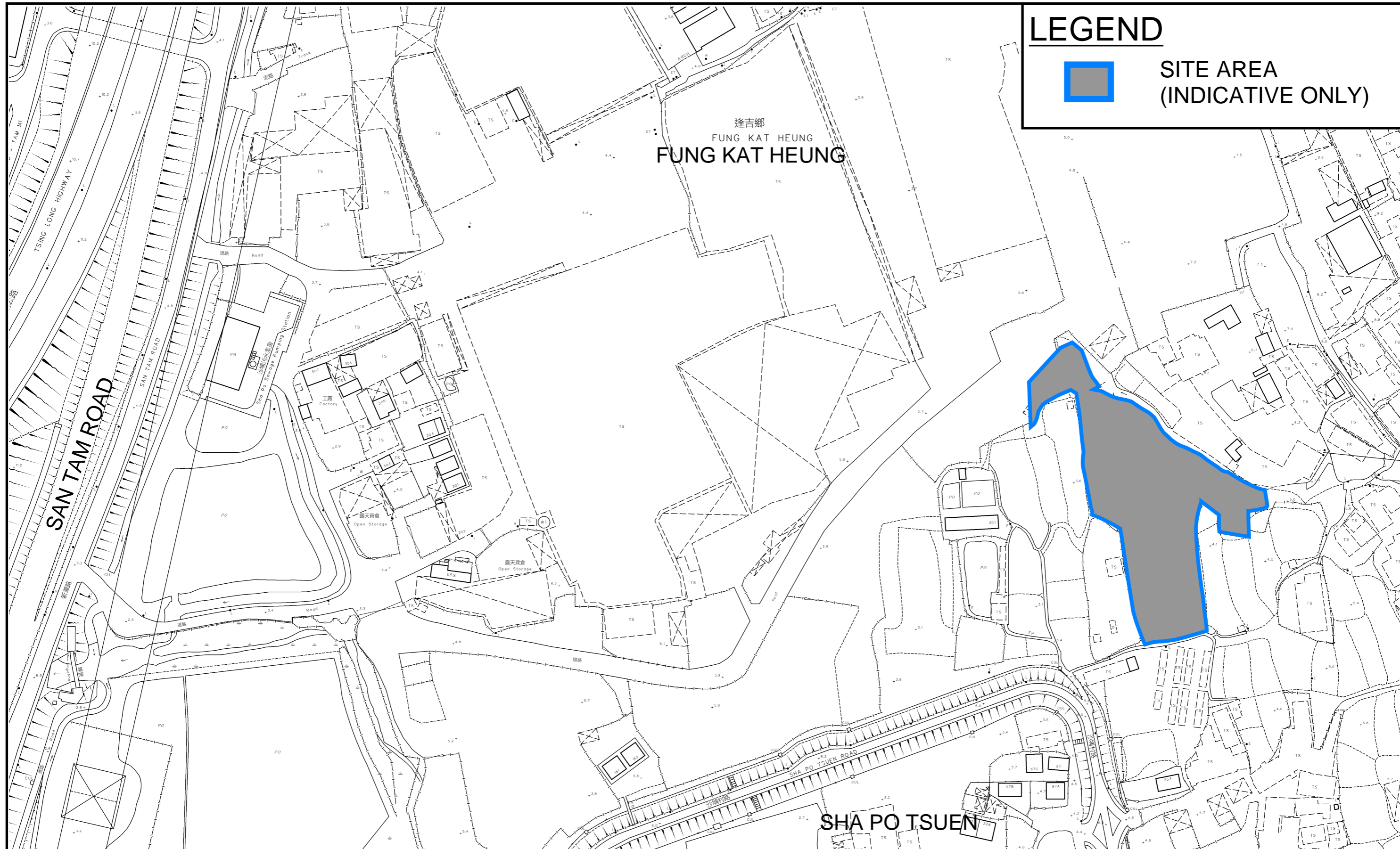
## 5 Conclusion

- 5.1.1 Drainage review has been conducted for the Proposed Development. The surface runoff will be collected by the proposed drains and discharged to existing drainage system. With implementation of the above drainage system, the no unacceptable drainage impact is anticipated.

- End of Text -

# FIGURES

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**PROJECT:**

Proposed Temporary Warehouse (excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land

**TITLE**  
SITE LOCATION PLAN

**FIGURE NUMBER**  
FIGURE 1



**LOCATION:**

Various Lots in D.D. 107 and Adjoining Government Land, Fung Kat Heung, Kam Tin, Yuen Long, New Territories



VER	DESCRIPTION	DATE

# LEGEND

-  SITE AREA (INDICATIVE ONLY)
-  EXISTING 1500mm CONCRETE PIPE (CONSTRUCTED BY APPLICANT)

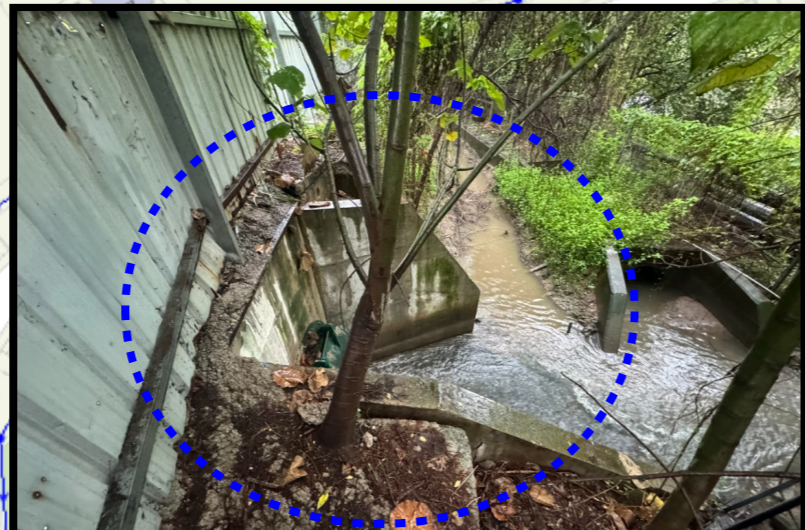
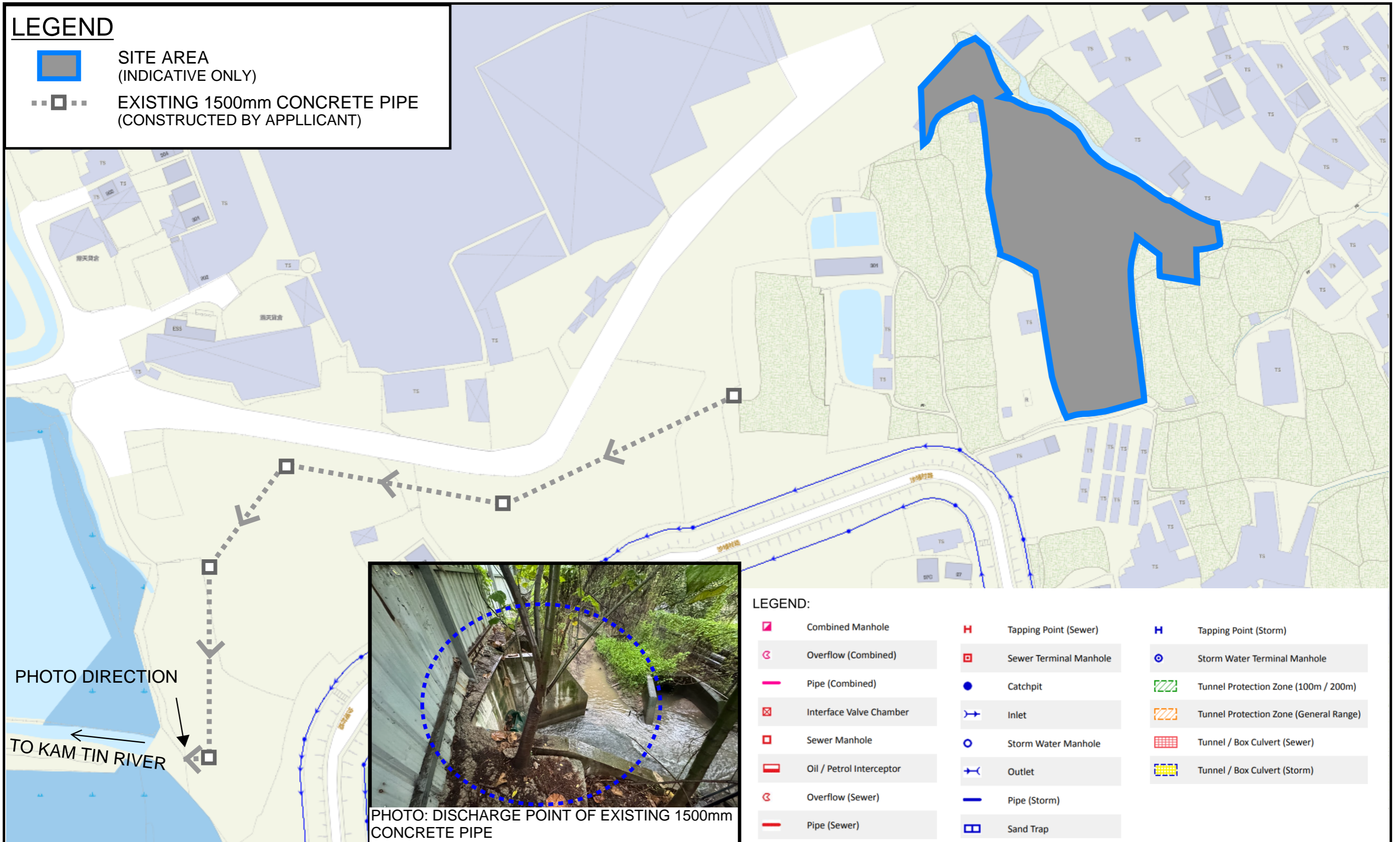
























PHOTO: DISCHARGE POINT OF EXISTING 1500mm CONCRETE PIPE

## LEGEND:

- |  |  |  |
|--|--|--|
|  Combined Manhole         |  Tapping Point (Sewer)  |  Tapping Point (Storm)                  |
|  Overflow (Combined)      |  Sewer Terminal Manhole |  Storm Water Terminal Manhole           |
|  Pipe (Combined)          |  Catchpit               |  Tunnel Protection Zone (100m / 200m)   |
|  Interface Valve Chamber  |  Inlet                  |  Tunnel Protection Zone (General Range) |
|  Sewer Manhole            |  Storm Water Manhole    |  Tunnel / Box Culvert (Sewer)           |
|  Oil / Petrol Interceptor |  Outlet                 |  Tunnel / Box Culvert (Storm)           |
|  Overflow (Sewer)         |  Pipe (Storm)           |  |
|  Pipe (Sewer)             |  Sand Trap              |  |

## PROJECT:

Proposed Temporary Warehouse (excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land

## TITLE

EXISTING DRAINAGE PLAN

## FIGURE NUMBER

FIGURE 2




## LOCATION:

Various Lots in D.D. 107 and Adjoining Government Land, Fung Kat Heung, Kam Tin, Yuen Long, New Territories



VER	DESCRIPTION	DATE

**LEGEND:**

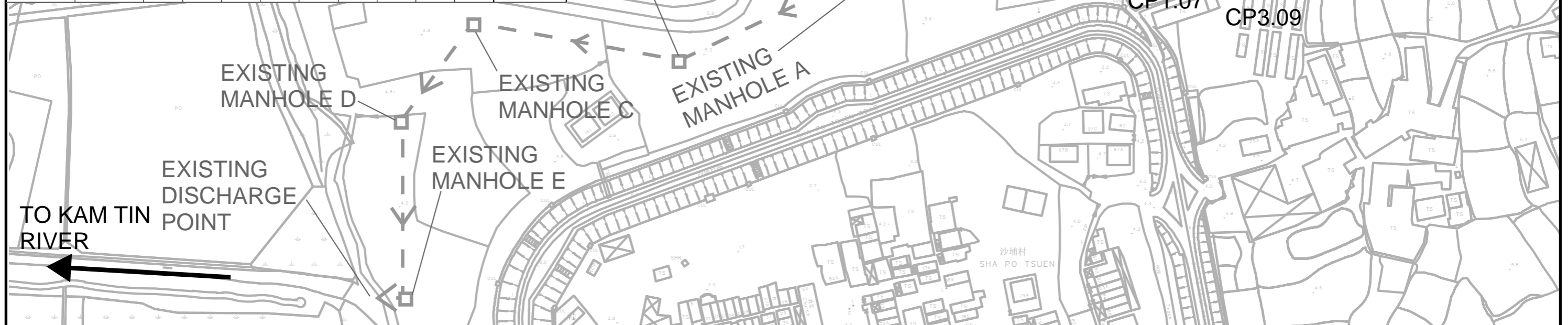
-  SITE AREA (INDICATIVE ONLY)
-  PROPOSED CHANNEL AND CATCHPIT
-  EXISTING 1500mm CONCRETE PIPE

**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. DRAINAGE SCHEDULE SHALL REFER TO FIGURE 3-2.
4. LOCATION OF CATCHPITS ARE APPROX. ONLY.
5. SOLID COVER ARE TO BE PROVIDED FOR ALL CATCHPIT.

**DRINAGE SCHEDULE**

US MH/PIT	DSMH/PIT	US GL	DS GL	Size mm	Gradient 1in	Type	US IL	DS IL	U/S MH/PIT TYPE#	Length m	Remark
SP01	CP1.01	5.6	5.6	300	250	UC	5.30	5.20	SP	24.8	#SP: Start Point
CP1.01	CP1.02	5.6	5.6	300	250	UC	5.20	5.13	CP	17.4	
CP1.02	CP1.03	5.6	5.6	300	250	UC	5.13	5.02	CP	28.5	
CP1.03	CP1.04	5.6	5.6	300	250	UC	5.02	4.79	CP	56.3	
CP1.04	CP1.05	5.6	5.6	525	250	UC	4.79	4.73	CP	14.8	
CP1.05	CP1.06	5.6	5.6	525	250	UC	4.73	4.51	CP	54.7	
CP1.06	CP1.07	5.6	3.8	600	300	UC	4.51	3.20	CP	3.0	
CP1.07	Manhole A	3.8	3.2	600	300	UC	3.20	2.60	CP	122.7	
SP02	CP2.01	5.6	5.6	300	250	UC	5.30	5.21	SP	22.0	
CP2.01	CP1.03	5.6	5.6	300	250	UC	5.21	5.18	CP	8.9	
SP03	CP3.01	5.6	5.6	525	250	UC	5.08	4.70	SP	94.0	
CP3.01	CP3.02	5.6	5.2	525	250	UC	4.70	4.67	CP	6.2	
CP3.02	CP3.03	5.2	5.2	525	250	UC	4.67	4.64	CP	9.2	
CP3.03	CP3.04	5.2	5.2	525	300	UC	4.64	4.60	CP	12.0	
CP3.04	CP3.05	5.2	5.2	525	300	UC	4.60	4.56	CP	12.6	
CP3.05	CP3.06	5.2	5.2	525	300	UC	4.56	4.53	CP	7.5	
CP3.06	CP3.07	5.2	5.2	525	300	UC	4.53	4.49	CP	13.0	
CP3.07	CP3.08	5.2	3.9	525	300	UC	4.49	3.38	CP	61.8	
CP3.08	CP3.09	3.9	3.8	525	300	UC	3.38	3.28	CP	26.7	
CP3.09	CP1.07	3.8	3.8	525	300	UC	3.28	3.27	CP	3.0	
Existing 1500mm Pipe											
Manhole A	Manhole B	5.7	5.8	1500	1142	PIPE	2.64	2.56	Existing	91.4	
Manhole B	Manhole C	5.8	5.5	1500	1087	PIPE	2.56	2.49	Existing	76.1	
Manhole C	Manhole D	5.5	5.1	1500	772	PIPE	2.49	2.42	Existing	54.1	
Manhole D	Manhole E	5.1	5.0	1500	1300	PIPE	2.42	2.37	Existing	65.0	
Manhole E	Existing Discharge Point	5.0	5.0	1500	267	PIPE	2.37	2.34	Existing	8.0	



**PROJECT:**

Proposed Temporary Warehouse (excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land

**TITLE**

PROPOSED DRAINAGE SYSTEM

**FIGURE NUMBER**

FIGURE 3


**LOCATION:**

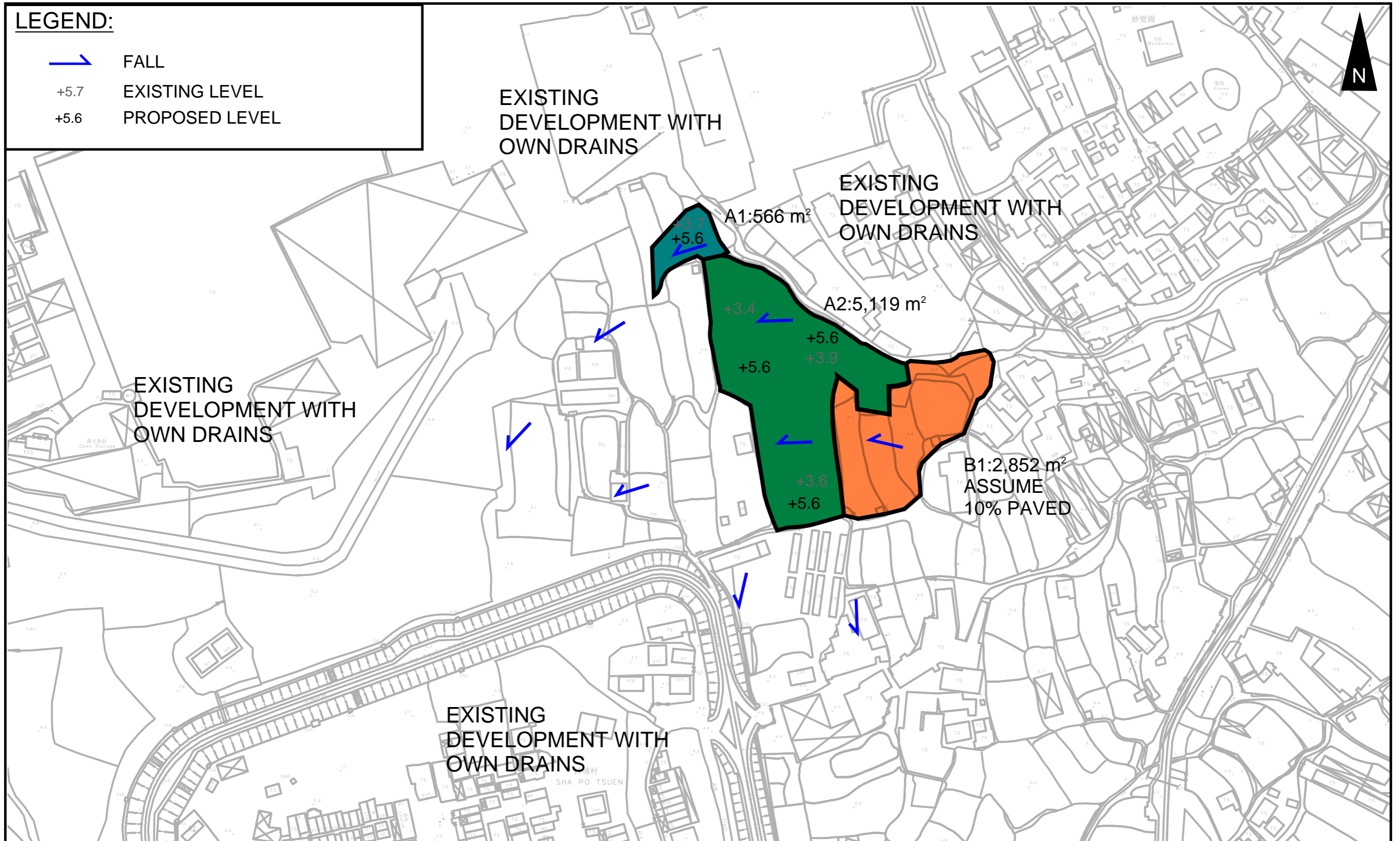
Various Lots in D.D. 107 and Adjoining Government Land, Fung Kat Heung, Kam Tin, Yuen Long, New Territories



VER	DESCRIPTION	DATE

**LEGEND:**

-  FALL
- +5.7 EXISTING LEVEL
- +5.6 PROPOSED LEVEL



**PROJECT:**

Proposed Temporary Warehouse (excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land

TITLE  
CATCHMENT PLAN

FIGURE NUMBER  
FIGURE 4


**LOCATION:**

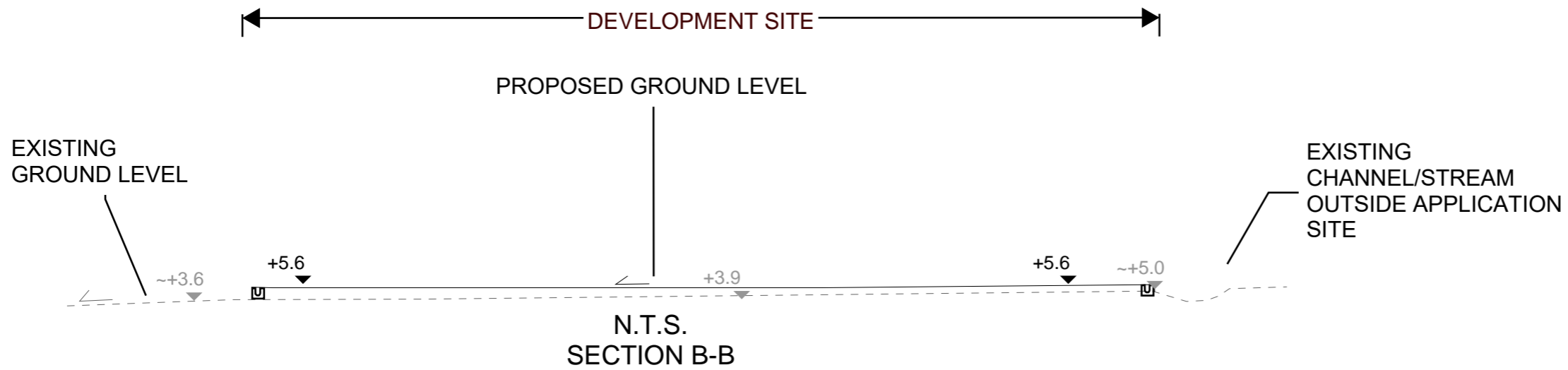
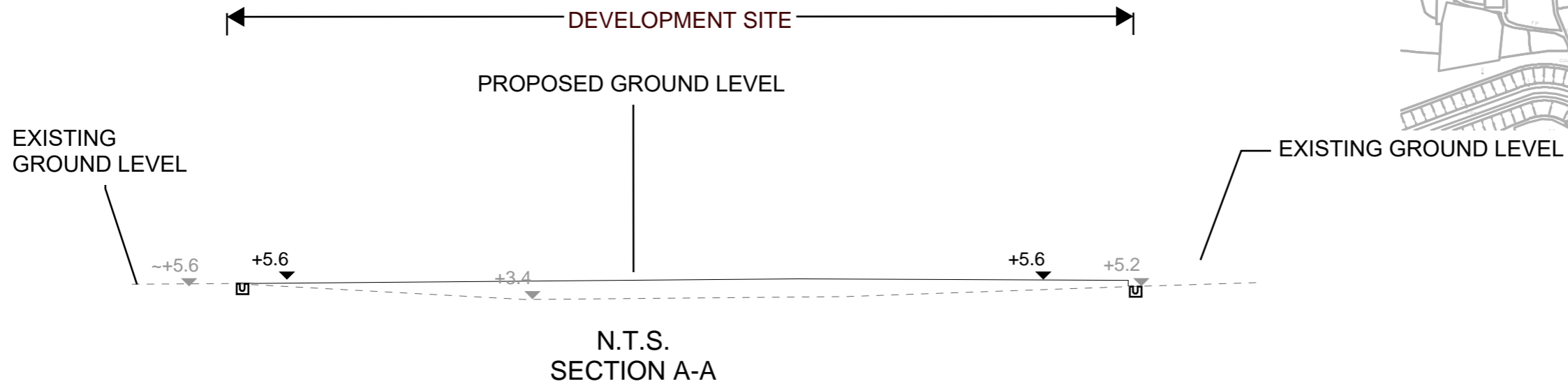
Various Lots in D.D. 107 and Adjoining Government Land, Fung Kat Heung, Kam Tin, Yuen Long, New Territories



VER	DESCRIPTION	DATE

**LEGEND**

 SITE AREA  
(INDICATIVE ONLY)



**PROJECT:**  
PROPOSED TEMPORARY WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN) WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS AND ASSOCIATED FILLING OF LAND

**TITLE**  
**SECTIONS**

**FIGURE NUMBER**  
**FIGURE 5**

**LOCATION:**  
VARIOUS LOTS IN D.D. 89 AND ADJOINING GOVERNMENT LAND, FU TEI AU, SHEUNG SHUI, NEW TERRITORIES



VER	DESCRIPTION	DATE

# APPENDIX

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## Appendix A: Design Calculation

<b>Zone</b>	HKO
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<b>Return Period</b>	1 in	10	years
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n	0.014
Ks	0.15
Viscosity	0.000001

<b>Storm Constant</b>	HKO a	485
	HKO b	3.11
	HKO c	0.397

### Time of Concentration Checking

Catchment	Flow Distance	Highest Level	Lowest Level	Gradient (per 100m) = (H1-H2)/L x 100	to (min) = 0.14465L / (H <sup>0.2</sup> A <sup>0.1</sup> )	tc = to + tf
A (m <sup>2</sup> )	L (m)	H1 (mPD)	H2 (mPD)		(min)	(min)
566	30	5.65	5.6	0.167	3.3	3.3



### Catchment Area Table (Area in m<sup>2</sup>)

Catchment	A1	A2	B1	Total Site Area (After Development)
Total Area	566	5119	2852	5685
Hard Paved Area	566	5119	285.2	5685
Unpaved Area	0	0	2566.8	0
Equival. Area	537.7	4863.05	1169.32	5400.75

<b>Pavement Type</b>	Hard Paved	Unpaved
<b>Runoff Coefficient</b>	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 <sup>3</sup> /s	Catchment ID1	Catchment ID2	Catchment ID3	Catchment ID4	Catchment ID5	Catchment ID6	Catchment ID7	Catchment ID8	Total Equivalent Area m <sup>2</sup>	ToC min	Intensity mm/hr	Total Discharge m <sup>3</sup> /s	Utilization	Remark
SP01	CP1.01	5.60	5.60	300	250	UC	5.30	5.20	SP	24.8	1.00	0.08	A1								537.70	3.30	232	0.03	43.2%	
CP1.01	CP1.02	5.60	5.60	300	250	UC	5.20	5.13	CP	17.4	1.00	0.08	A1								537.70	3.71	226	0.03	42.1%	
CP1.02	CP1.03	5.60	5.60	300	250	UC	5.13	5.02	CP	28.5	1.00	0.08	A1								537.70	4.00	223	0.03	41.4%	
CP1.03	CP1.04	5.60	5.60	300	250	UC	5.02	4.79	CP	56.3	1.00	0.08	A1								537.70	4.48	217	0.03	40.4%	
CP1.04	CP1.05	5.60	5.60	525	250	UC	4.79	4.73	CP	14.8	1.45	0.36	A1	A2							5400.75	5.42	207	0.31	87.0%	
CP1.05	CP1.06	5.60	5.60	525	250	UC	4.73	4.51	CP	54.7	1.45	0.36	A1	A2							5400.75	5.59	206	0.31	86.3%	
CP1.06	CP1.07	5.60	3.80	600	300	UC	4.51	3.20	CP	3	1.45	0.47	A1	A2	B1						6570.07	6.21	200	0.37	78.4%	
CP1.07	Manhole A	3.80	3.20	600	300	UC	3.20	2.60	CP	122.7	1.45	0.47	A1	A2	B1						6570.07	6.27	199	0.36	78.2%	
SP02	CP2.01	5.60	5.60	300	250	UC	5.30	5.21	SP	22	1.00	0.08	A1								537.70	3.30	232	0.03	43.2%	
CP2.01	CP1.03	5.60	5.60	300	250	UC	5.21	5.18	CP	8.9	1.00	0.08	A1								537.70	3.67	227	0.03	42.2%	
SP03	CP3.01	5.60	5.60	525	250	UC	5.08	4.70	SP	94	1.45	0.36	A2								4863.05	3.30	232	0.31	87.8%	
CP3.01	CP3.02	5.60	5.20	525	250	UC	4.70	4.67	CP	6.2	1.45	0.36	A2								4863.05	4.38	218	0.29	82.5%	
CP3.02	CP3.03	5.20	5.20	525	250	UC	4.67	4.64	CP	9.2	1.45	0.36	A2								4863.05	4.45	217	0.29	82.2%	
CP3.03	CP3.04	5.20	5.20	525	300	UC	4.64	4.60	CP	12	1.33	0.33	A2								4863.05	4.56	216	0.29	89.5%	
CP3.04	CP3.05	5.20	5.20	525	300	UC	4.60	4.56	CP	12.6	1.33	0.33	A2								4863.05	4.71	214	0.29	88.8%	
CP3.05	CP3.06	5.20	5.20	525	300	UC	4.56	4.53	CP	7.5	1.33	0.33	A2								4863.05	4.86	213	0.29	88.1%	
CP3.06	CP3.07	5.20	5.20	525	300	UC	4.53	4.49	CP	13	1.33	0.33	A2								4863.05	4.96	212	0.29	87.7%	
CP3.07	CP3.08	5.20	3.90	525	300	UC	4.49	3.38	CP	61.8	1.33	0.33	A2								4863.05	5.12	210	0.28	87.0%	
CP3.08	CP3.09	3.90	3.80	525	300	UC	3.38	3.28	CP	26.7	1.33	0.33	A2								4863.05	5.90	203	0.27	84.0%	
CP3.09	CP1.07	3.80	3.80	525	300	UC	3.28	3.27	CP	3	1.33	0.33	A2								4863.05	6.23	200	0.27	82.8%	

### Existing 1500mm Pipe

Manhole A	Manhole B	5.68	5.78	1500	1142	PIPE	2.64	2.56	Existing	91.37	1.42	2.51	A1	A2	B1						6570.07	7.68	189	0.34	13.7%	
Manhole B	Manhole C	5.78	5.53	1500	1087	PIPE	2.56	2.49	Existing	76.09	1.46	2.58	A1	A2	B1							6570.07	8.75	182	0.33	12.9%
Manhole C	Manhole D	5.53	5.11	1500	772	PIPE	2.49	2.42	Existing	54.05	1.74	3.07	A1	A2	B1							6570.07	9.62	177	0.32	10.5%
Manhole D	Manhole E	5.11	5.01	1500	1300	PIPE	2.42	2.37	Existing	65.02	1.33	2.35	A1	A2	B1							6570.07	10.14	174	0.32	13.5%
Manhole E	Existing Discharge Point	5.01	5.01	1500	267	PIPE	2.37	2.34	Existing	8	2.99	5.28	A1	A2	B1							6570.07	10.96	170	0.31	5.9%

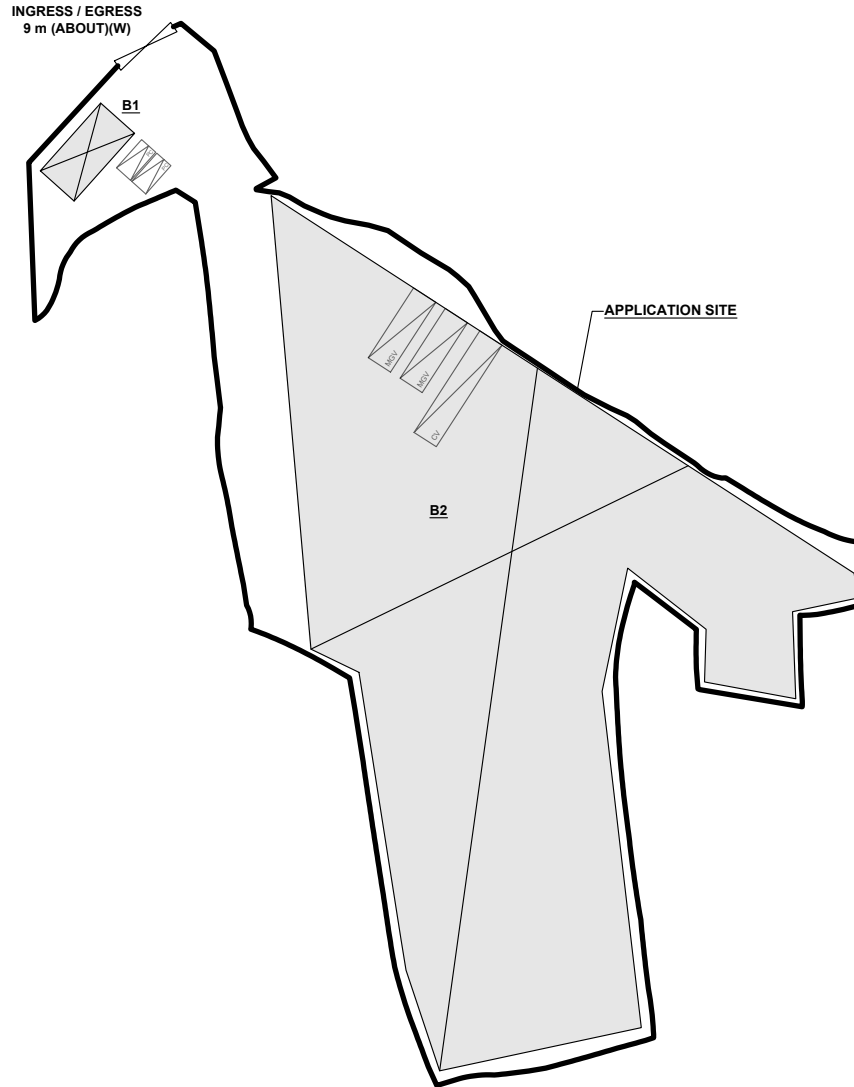
#SP: Start Point

# Appendix B - Development Layout Plan

## DEVELOPMENT PARAMETERS

APPLICATION SITE AREA	: 5,685 m <sup>2</sup>	(ABOUT)
COVERED AREA	: 4,190 m <sup>2</sup>	(ABOUT)
UNCOVERED AREA	: 1,495 m <sup>2</sup>	(ABOUT)
PLOT RATIO	: 1.5	(ABOUT)
SITE COVERAGE	: 74 %	(ABOUT)
NO. OF STRUCTURE	: 2	
DOMESTIC GFA	: NOT APPLICABLE	
NON-DOMESTIC GFA	: 8,380m <sup>2</sup>	(ABOUT)
TOTAL GFA	: 8,380 m <sup>2</sup>	(ABOUT)
BUILDING HEIGHT	: 7 m - 13 m (ABOUT)	
NO. OF STOREY	: 2	

B2	WAREHOUSE (EXCLUDING D.G.G.)	4,118 m <sup>2</sup> (ABOUT)	8,236 m <sup>2</sup> (ABOUT)	13 m (ABOUT) (2-STORY)
COVERED LOADING / UNLOADING AREA				
*D.G.G. - DANGEROUS GOODS GODOWN		TOTAL	<b>4,190 m<sup>2</sup> (ABOUT)</b>	<b>8,380 m<sup>2</sup> (ABOUT)</b>



## PARKING AND LOADING / UNLOADING PROVISIONS

NO. OF PRIVATE CAR PARKING SPACE	: 2
DIMENSION OF PARKING SPACE	: 5 m (L) x 2.5 m (W)
NO. OF L/UL SPACE FOR MEDIUM GOODS VEHICLE	: 2
DIMENSION OF L/UL SPACE	: 11 m (L) x 3.5 m (W)
NO. OF L/UL SPACE FOR CONTAINER VEHICLE	: 1
DIMENSION OF L/UL SPACE	: 16 m (L) x 3.5 m (W)

## LEGEND

	APPLICATION SITE
	STRUCTURE
	PARKING SPACE (PC)
	LOADING / UNLOADING SPACE (MGV)
	LOADING / UNLOADING SPACE (CV)
	INGRESS / EGRESS

PLANNING CONSULTANT



PROJECT

PROPOSED WAREHOUSE (EXCLUDING DANGEROUS GODOWN) WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS AND ASSOCIATED FILLING OF LAND

SITE LOCATION

VARIOUS LOTS IN D.D. 107 AND ADJOINING GOVERNMENT LAND, KAM TIN, YUEN LONG, NEW TERRITORIES

SCALE

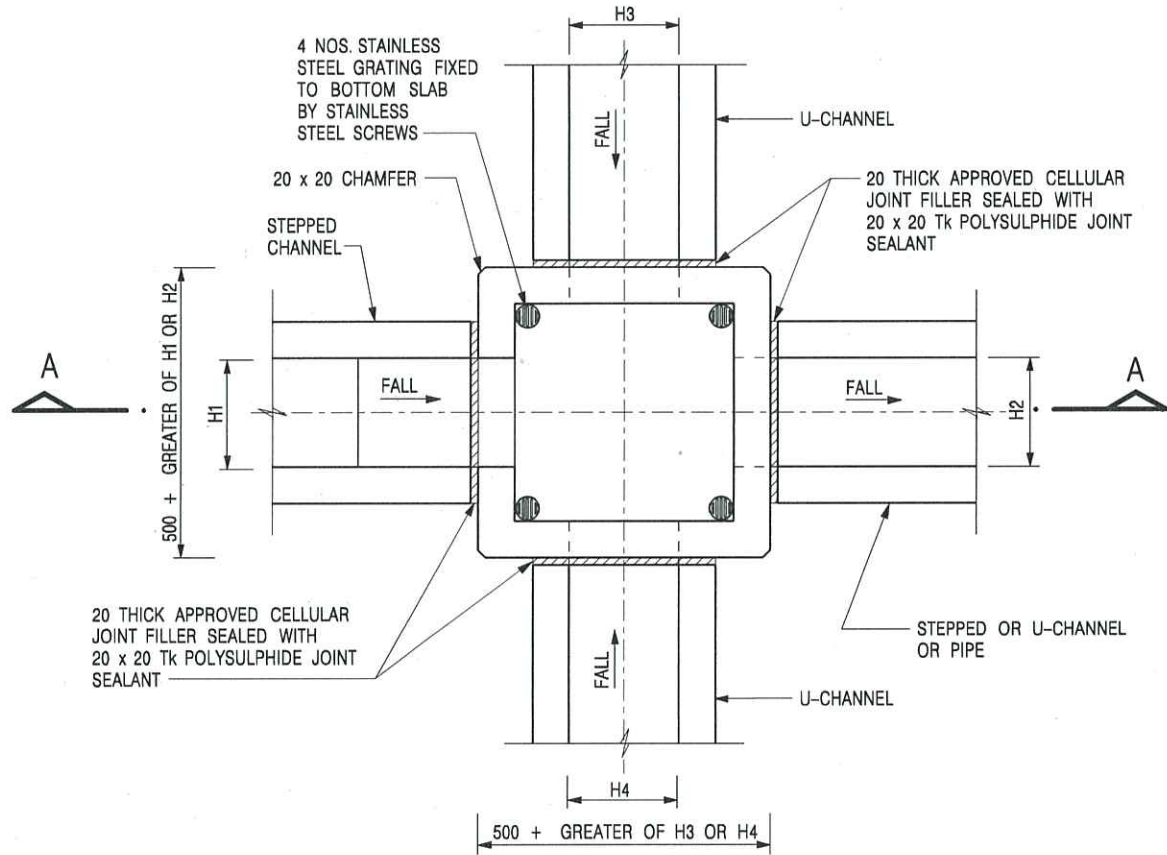
1 : 1000 @ A4

DRAWN BY	DATE
MN	13.12.2024
REVISED BY	DATE
APPROVED BY	DATE

DWG. TITLE  
LAYOUT PLAN

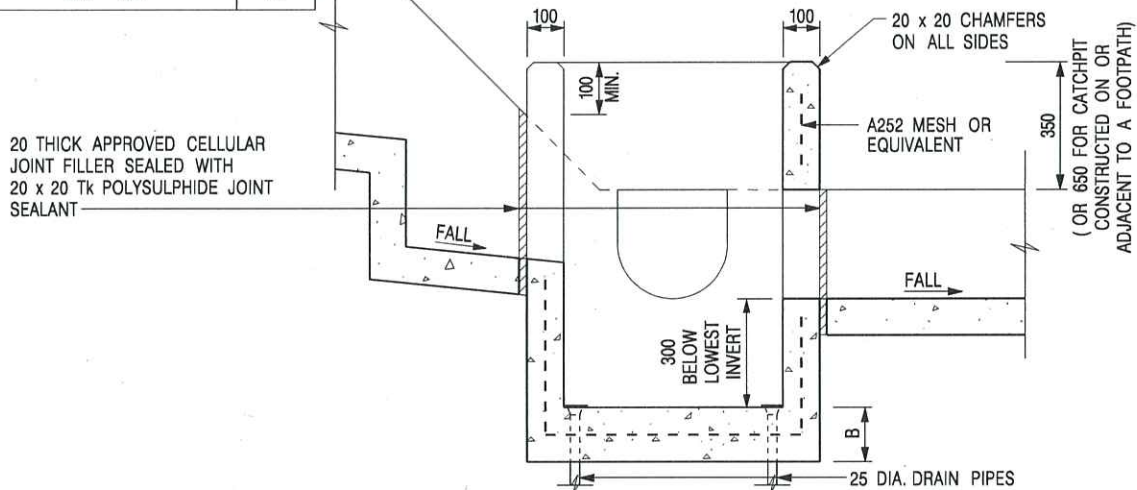
DWG NO.	VER.
PLAN 4	001

# 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.

CATCHPIT WITH TRAP  
(SHEET 1 OF 2)

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



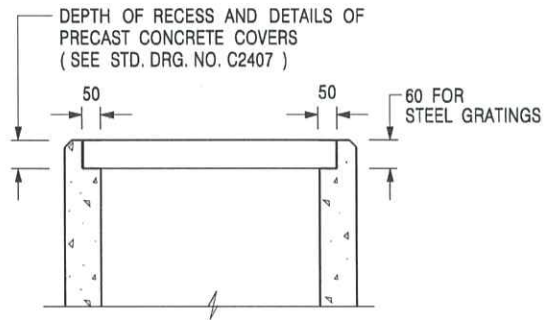
CIVIL ENGINEERING AND  
DEVELOPMENT DEPARTMENT

SCALE 1 : 20

DRAWING NO.

DATE JAN 1991

C2406 /1



**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
<b>REF.</b>	<b>REVISION</b>	<b>SIGNATURE</b>	<b>DATE</b>

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



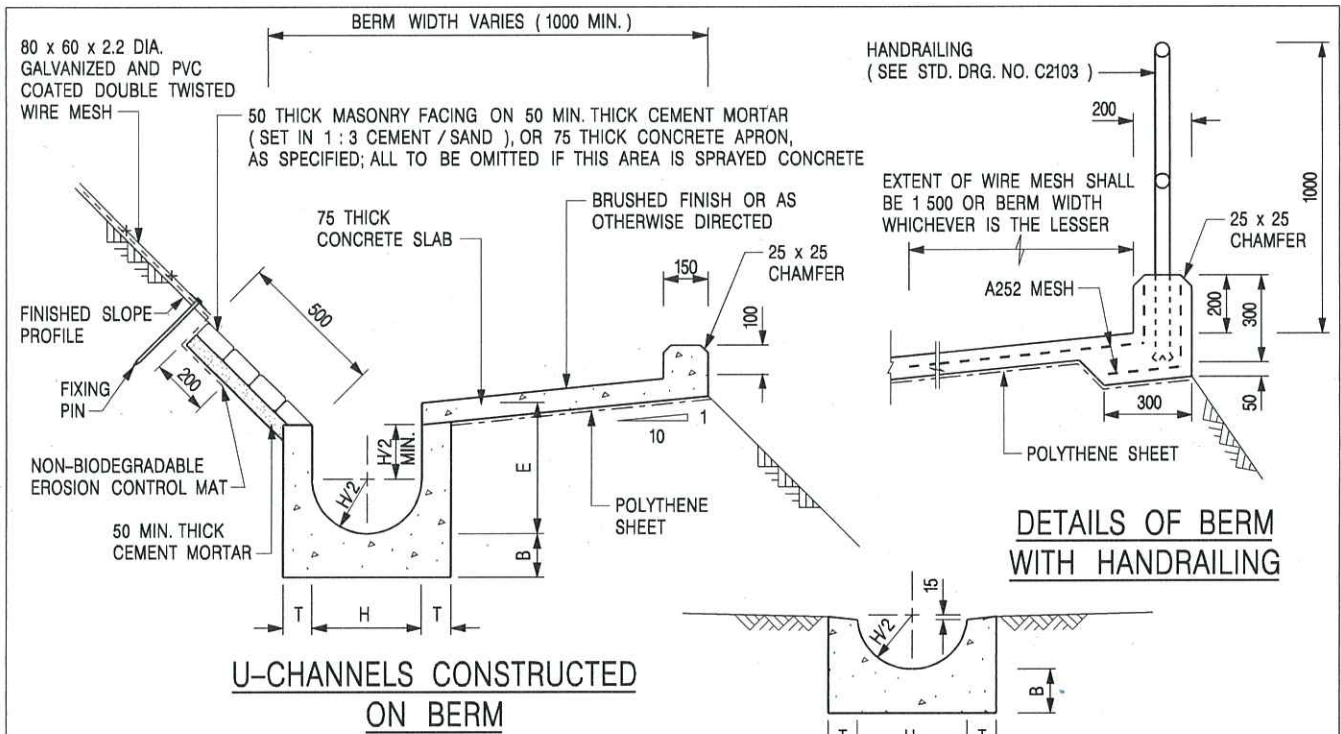
**CIVIL ENGINEERING AND  
DEVELOPMENT DEPARTMENT**

**SCALE** 1 : 20

**DRAWING NO.**

**DATE** JAN 1991

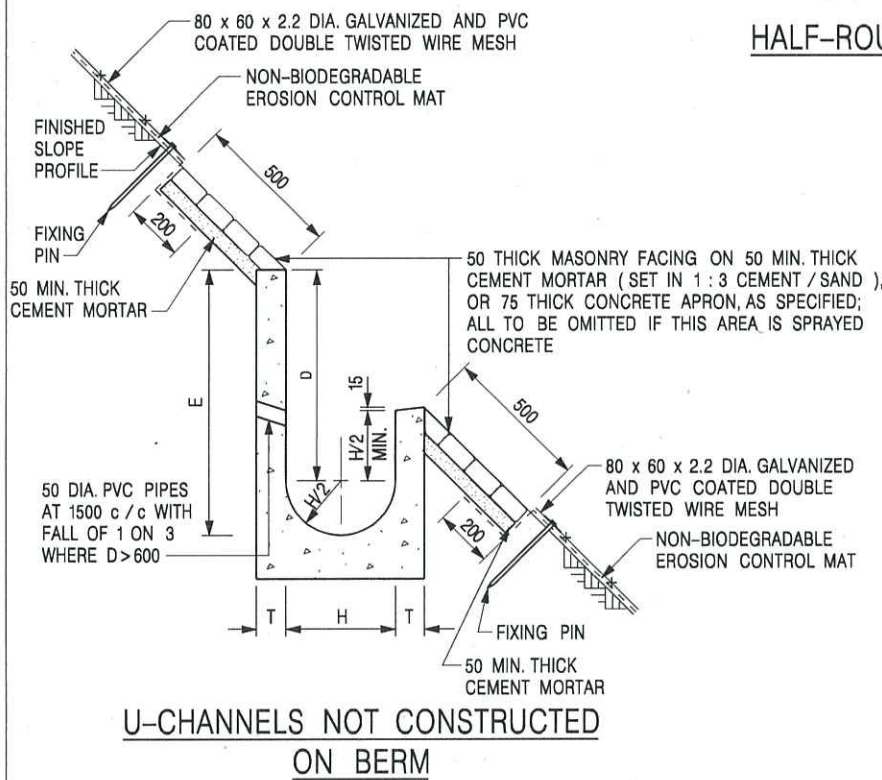
**C2406 /2A**



**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/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

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)**



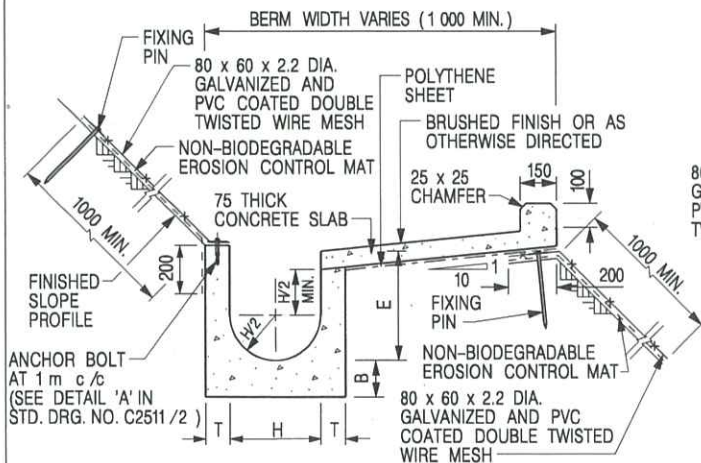
**CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT**

**SCALE** 1 : 25

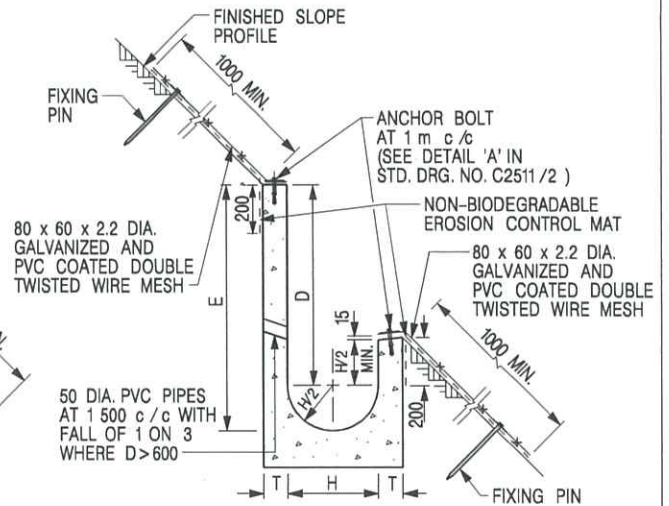
**DRAWING NO.**

**DATE** JAN 1991

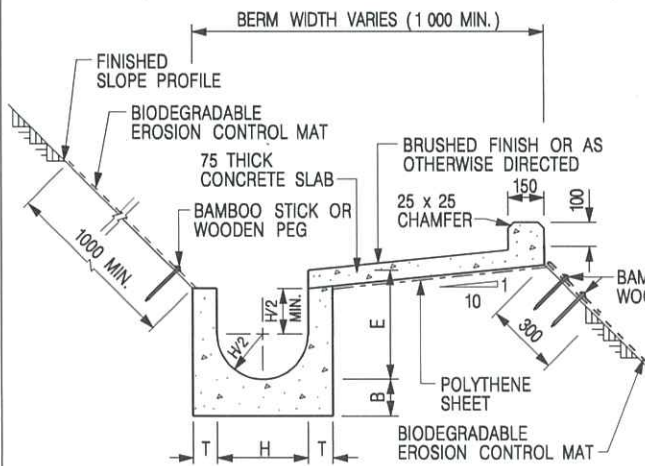
**C24091**



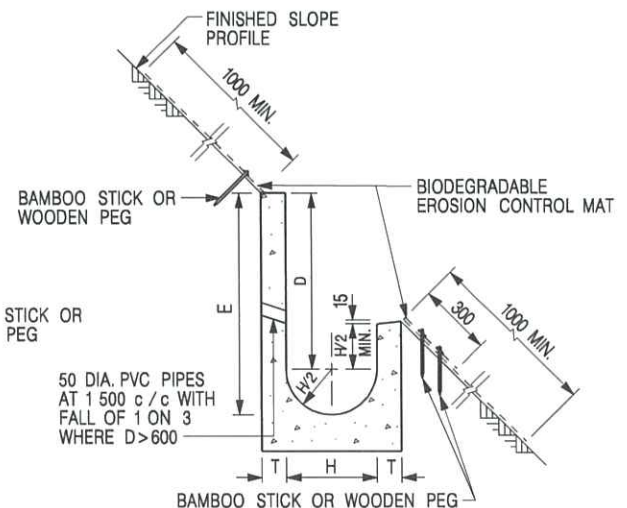
**U-CHANNELS CONSTRUCTED ON BERM WITH NON-BIODEGRADABLE EROSION CONTROL MAT**



**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:**

- ALL DIMENSIONS ARE IN MILLIMETRES.
- ALL CONCRETE TO BE GRADE 20 /20.
- CONCRETE SURFACE FINISH SHALL BE CLASS U2, F2 OR BRUSHED FINISH AS DIRECTED.
- SPACING OF EXPANSION JOINT IN CHANNELS, BERM SLABS AND APRONS TO BE 10 METRES MAXIMUM, SEE STD. DRG. NO. C2413 FOR DETAILS.
- JOINTS FOR CHANNELS, BERM SLABS, APRONS AND WALLS, ETC. TO BE ON THE SAME ALIGNMENT.
- FOR DIMENSIONS T, H, & B, SEE TABLE BELOW.
- FOR TYPICAL FIXING PIN DETAILS, SEE STD. DRG. NO. C2511/2.
- MINIMUM SIZE OF 25 x 50 x 300mm SHALL BE PROVIDED FOR WOODEN PEG.
- MINIMUM SIZE OF 10mm DIAMETER WITH 200mm LONG SHALL BE PROVIDED FOR BAMBOO STICK.
- 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)**



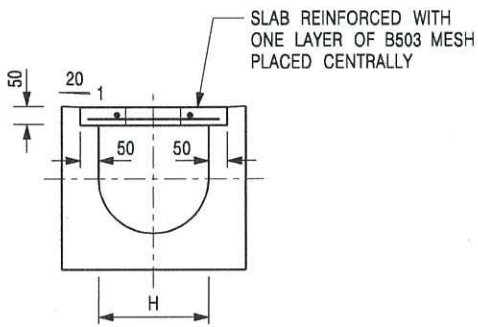
**CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT**

**SCALE** DIAGRAMMATIC

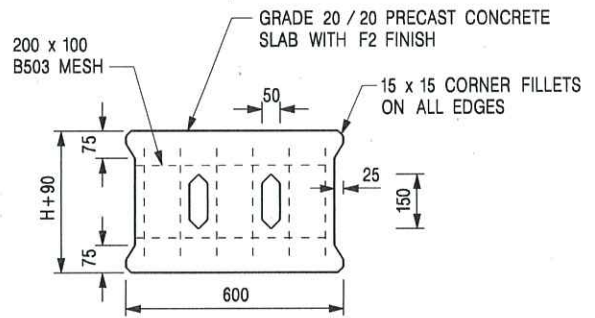
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**DATE** JAN 1991

**C24101**



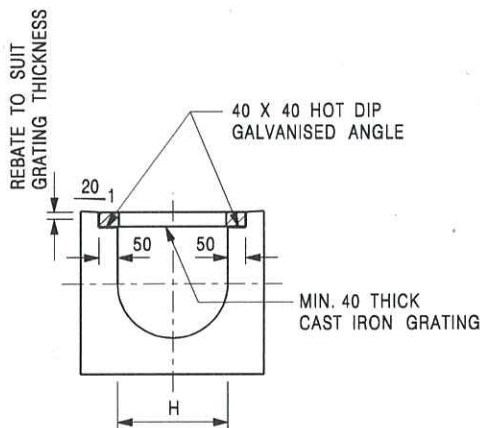
TYPICAL SECTION



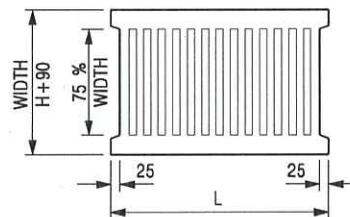
PLAN OF SLAB

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



CIVIL ENGINEERING AND  
DEVELOPMENT DEPARTMENT

SCALE 1 : 20

DRAWING NO.

DATE JAN 1991

C2412E