**A/YL-KTN/1174 – Address DSD's comments**

| Item | Comments | Responses |
|---|---|---|
| A | Specific Comments | |
| 1 | The ground to the west of the application site is generally higher. Since the overland flow from the adjacent lands shall be probably intercepted, external catchment shall be considered in the calculation. According to the topography around the subject site, the catchment area shall be greater than the one adopted in the submitted hydraulic calculation. The applicant should update hydraulic calculation. | Please kindly note the development at west of the application site is fenced offed by its own solid fence wall. Photos of existing wall are shown in Appendix D for your perusal.<br><br>The drainage report is updated. An updated calculation with external catchment and catchment plan are updated in Appendix A and Figure 4 for your perusal. |
| 2 | Cross sections showing the proposed drainage facilities and existing and proposed ground levels of the captioned site with respect to the adjacent areas should be given. | Noted. Please find Figure 5 for your perusal. |
| 3 | The proposal should indicate how the runoff (the flow direction) within the site and from the adjacent areas would be discharged to the proposed drainage system. | Catchment plan with flow direction is updated in Figure 4 for your perusal. |
| 4 | Peripheral surface channels shall be provided along the site boundary to collect the surface runoff accrued on the application site and to intercept the overland flow from the adjacent lands. | Noted. Updated drainage plan in Figure 3 with surface channel along site boundary for your perusal. |
| 5 | The applicant should demonstrate with hydraulic calculation that all proposed drainage facilities are adequate to collect, convey and discharge the surface runoff accrued on the application site and the overland flow intercepted from the adjacent lands. | Noted. Updated calculation in Appendix A for your perusal. |

| | | |
|---|---|---|
| 6 | The applicant should demonstrate the existing facilities to be discharged to have sufficient capacity to cater for any additional flow generated due to the subject application. | Noted. Existing 1650 drain and its catchment is assessed in Appendix A and catchment plan in Figure 6 for your perusal. The catchments are assumed to be fully paved for conservative purposes. It has enough capacity to cater for existing and proposed flow.<br><br>In addition, according to checking, the flow from application site only occupy 0.9% capacity of existing 1650 drain. |
| 7 | The newly promulgated Stormwater Drainage Manual - Corrigendum shall be considered in the hydraulic calculation and Section 3.1.1. The applicant should review storm constants in Section 3.2.8 and the hydraulic calculation. | Noted. The storm constants are updated in Appendix A for your perusal. |
| 8 | The applicant should clarify flow velocity of all proposed drainage facilities. The flow velocity is suggested to be within a range, i.e. 0.75 m/s to 3.0 m/s. | Noted. The velocity are updated in Appendix A. It is within 0.75 m/s to 3.0 m/s. |
| 9 | Sand trap or provision alike should be clearly indicated on the proposed drainage plan and provided before the collected runoff is discharged to the public drainage facilities. | Noted. Terminal Manhole Type T3_1 is proposed before discharge to public drainage facilities. |
| 10 | For the construction details of the proposed drainage facilities, reference should be made to current CEDD's standard drawings. For the bedding of stormwater pipe, reference should be made to current DSD's standard drawing. The applicant should also note that Section B-B in thawing (No; LOT283/DD/001) and bedding detail in drawing (N0.: LOT283/DD/002) did not comply with standard drawings. | Noted. |
| 11 | The cover levels and invert levels of the proposed u-channels and catchpits/sand traps should be shown on the drainage plan. | Noted. |
| 12 | Drawing (No: LOT283/DD/001): Connection of the proposed stormwater pipe and the existing stormwater manhole | Noted. |

| | | |
|---|---|---|
| | SMH1012050 shall be designed and constructed such that there is no water leakage at the proposed connection | |
| 13 | Gradients of the proposed surface channels and stormwater pipe should be shown on the drainage plan. | Noted. |
| 14 | Catchpit should be provided at where a proposed surface channel changes direction/ gradient. | Noted. |
| 15 | With reference to our drainage record, invert level of existing drains connecting to manhole SMH1012050 is +2.65 mPD. According to the submitted hydraulic calculation in Appendix B of the submission, invert level of the proposed stormwater pipe at the connection to existing manhole SMH1012050 is +5.47 mPD. The applicant should review invert level of the proposed stormwater pipe so as to minimize need of modification of existing manhole SMH1012050 as backdrop manhole. | Noted. The invert level of drain to be discharge to SMH1012050 is proposed to be 1.65 x 0.75 = 1.23m above the IL of SMH1012050, which is at about the benching level of existing manhole. |
| 16 | Section 2.2.1: The applicant should clarify ID of the existing stormwater manhole to be discharged. | Noted. The site is proposed to discharge to existing manhole SMH1012050. |
| 17 | Section 3.1.1 & Drawing (No.: LOT283/DD/002): General Specification for Civil Engineering Works mentioned in the proposal is not up-to-date. | Noted. |
| 18 | The applicant should review roughness coefficient of concrete pipe and manhole spacing requirement in Sections 3.2.2 and 3.2.3 and the submitted hydraulic calculation. Reference shall be made to Stormwater Drainage Manual published by DSD. | The roughness coefficient is proposed to be 0.6 for precast concrete pipes with 'O' ring joints. |
| 19 | The applicant should clarify manhole ID in the submitted hydraulic calculation (ref. LOT283/GL/001). | Manhole ID are shown in updated Figure 3 for your perusal. |
| 20 | Appendix B. The applicant should clarify discrepancy of capacity of the proposed 300 mm dia. stormwater pipe. | Noted. Capacity of 300mm dia. Pipe is shown in Appendix A for your perusal. |

| B | General Comments | Responses |
|---|---|---|
| 1 | The proposed development should neither obstruct overland flow nor adversely affect any existing natural streams, Village drains, ditches and the adjacent areas, etc. | Noted. |
| 2 | Where walls or hoarding are erected are laid along the site boundary, adequate openings should be provided to intercept the existing overland flow passing through the site. | Please kindly note the existing fence/wall are proposed to be maintained. No existing flowpath is anticipated to be affected. |
| 3 | The applicant is required to rectify the drainage system if they are found to be inadequate or ineffective during operation. The applicant shall also be liable for and shall indemnify claims and demands arising out of damage or nuisance caused by a failure of the drainage system. | Noted. |
| 4 | The applicant should submit form HBP1 to this Division for application of technical audit for any proposed connection to DSD'S drainage facilities. | Noted. |
| 5 | Comments from HyD, TD and RMO shall be sought as part of the proposed drainage works would be carried out within highway polygon and on carriageway. | Noted. |
| 6 | The applicant should consult DLO/YL and seek consent from the relevant owners for any drainage works to be carried out outside his lot boundary before commencement of the drainage works. | Noted. |
| 7 | Precast concrete pipe should generally be used for stormwater connection. | Noted. |

Temporary Shop and Services for a Period of 5 Years, Lot 283 S.A RP (Part) in D.D. 109, Kam Tin, Yuen Long, New Territories

# Drainage Proposal

Jan 2026

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) for 'Temporary Shop and Services for a Period of 5 Years, Lot 283 S.A RP (Part) in D.D. 109, Kam Tin, Yuen Long, New Territories

1.1.2 This report aims to support the development in drainage aspect.

## 1.2 Application Site

1.2.1 The application site is located to near junction of Kam Tin Road and Kam Sheung Road. It has an area of approx. 572 $m^2$. The site location is shown in **Figure 1**.

1.2.2 The existing site is fully unpaved. Existing levels are approximately +6.15 mPD. No major site formation of the Application Site is anticipated.

1.2.3 There is an existing manhole and 1650mm pipe at Kam Tin Road which eventually discharge to Kam Tin River. **Figure 2** indicates the existing drainage system of the area.

# 2 Development Proposal

## 2.1 The Proposed Development

2.1.1 The total site area is approximately 572 $m^2$. The catchment plan is shown in **Figure 4**.

| Proposed Development Area (Approx.) | |
|---|---|
| Total Site Area ($m^2$) | 572 |
| Paved Area after Development ($m^2$) | 572 |

**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 50 years return period is adopted.

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 50 years return period, the following values are adopted.

| | | |
|---|---|---|
| a | = | 505.5 |
| b | = | 3.29 |
| c | = | 0.355 |

(Corrigendum No.1/2024)

The development is proposed for temporary use for a period of 5 years. 11.1% rainfall increase due to climate change is considered.

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 application site. The design calculation of proposed drains are shown in **Appendix A**. The catchment and checking of capacity of existing 1650mm drains downstream of manhole SMH1012050 are also shown in **Appendix A**. According to the checking, existing 1650mm drains has enough capacity and the flow from application site only occupy about 0.9% of its capacity.

4.1.2 The alignment, size, gradient and details of the proposed drains are shown in **Figure 3**. The catchment plan is shown in **Figure 4**.

4.1.3 Reference Drawings are shown in **Appendix C** for reference. Existing site photos are shown in **Appendix D**.

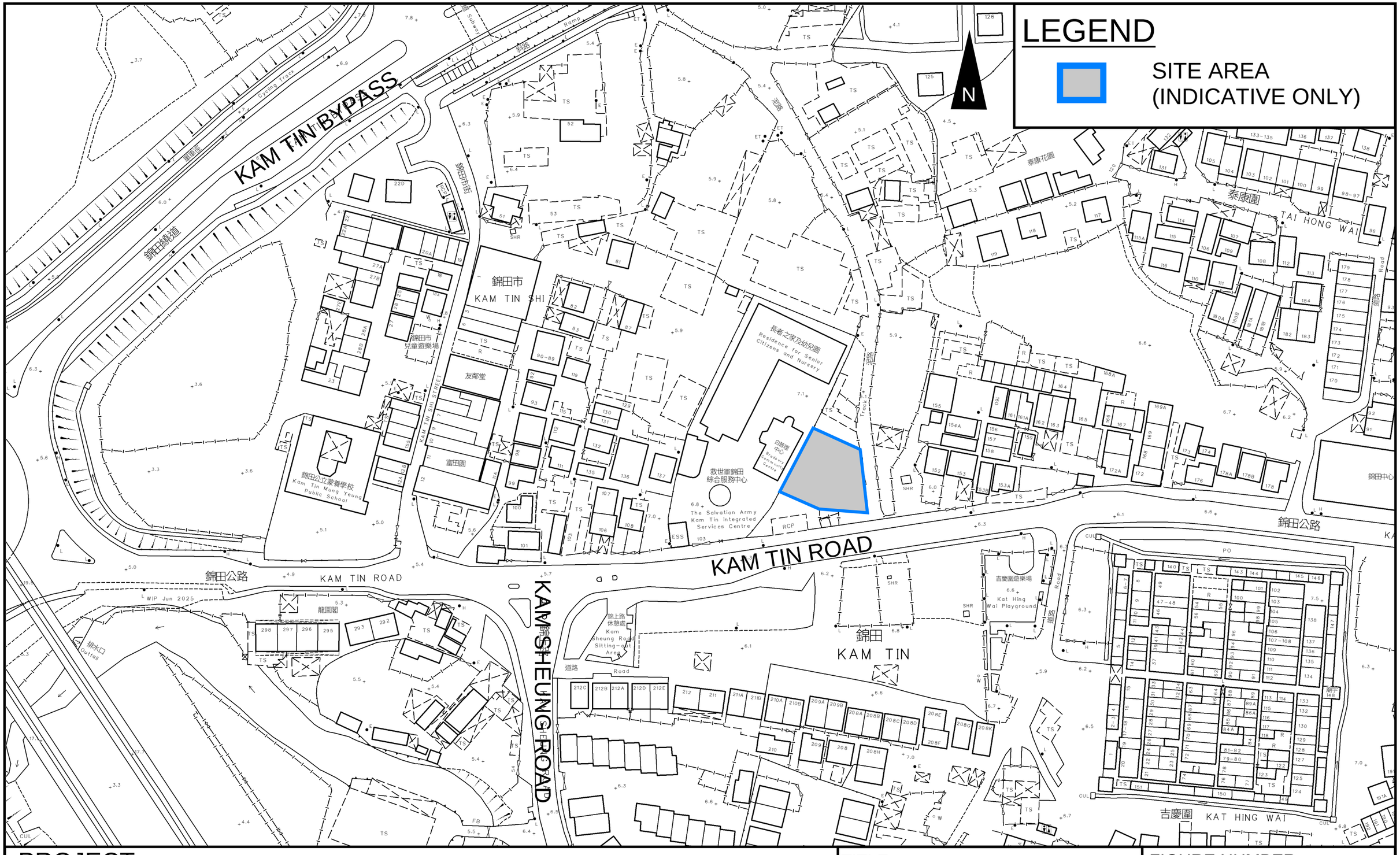
# 5 Conclusion

5.1.1 Drainage review has been conducted for the Proposed Development. The surface runoff will be collected by the proposed drains discharge to existing 1650mm drains and eventually discharge to Kam Tin River.

5.1.2 With implementation of the above drainage system, no unacceptable drainage impact is anticipated.

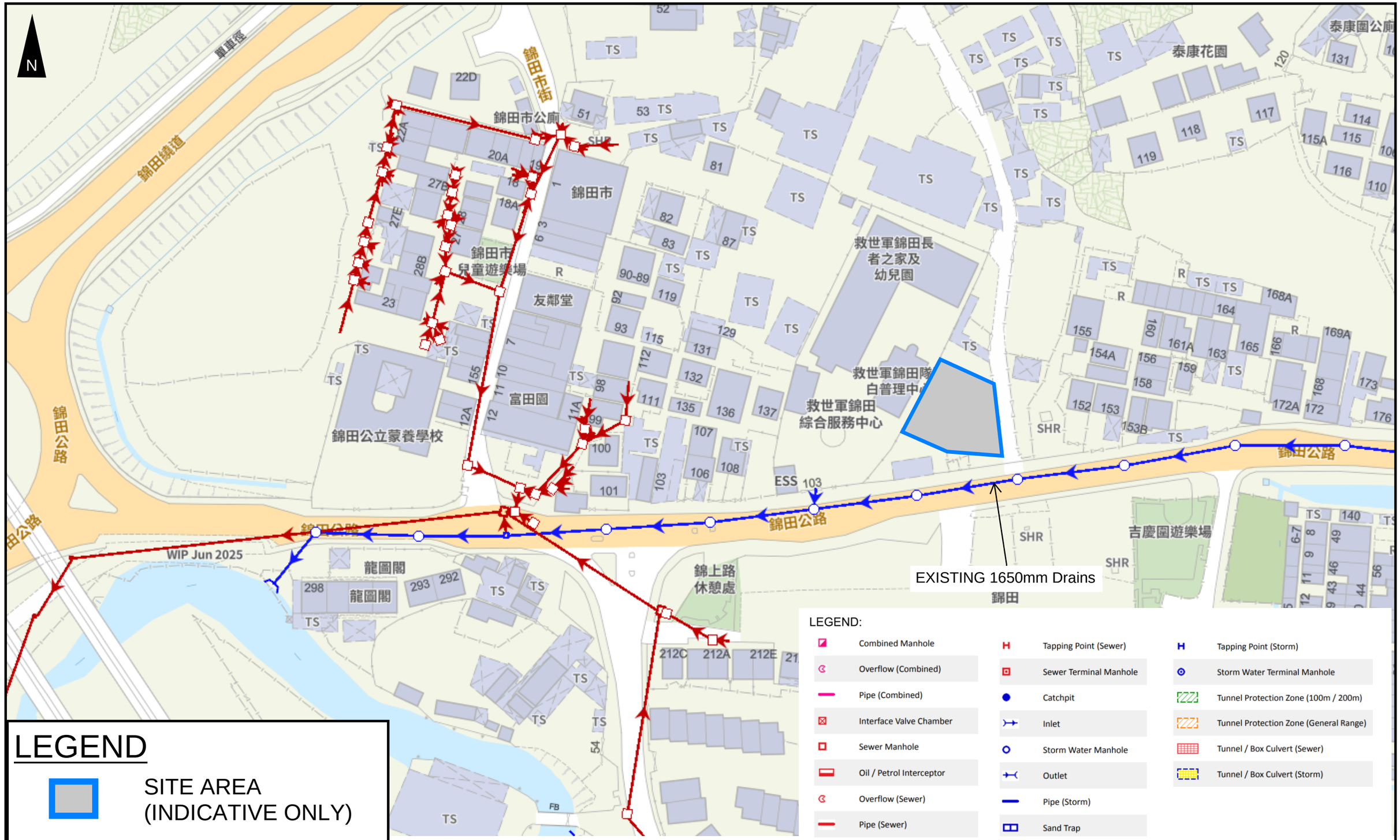
- End of Text -

# FIGURES




| | | |
|---|---|---|
| PROJECT:<br>Temporary Shop and Services for a Period of 5 Years | TITLE<br>SITE LOCATION PLAN | FIGURE NUMBER<br>FIGURE 1 |
| LOCATION:<br>Lot 283 S.A RP (Part) in D.D. 109, Kam Tin, Yuen Long, New Territories | | |

| VER | DESCRIPTION | DATE |
|---|---|---|
| | | |




## LEGEND

SITE AREA
(INDICATIVE ONLY)

**PROJECT:**
Temporary Shop and Services for a Period of 5 Years

**TITLE**
EXISTING DRAINAGE PLAN

**FIGURE NUMBER**
FIGURE 2

**LOCATION:**
Lot 283 S.A RP (Part) in D.D. 109, Kam Tin, Yuen Long, New Territories

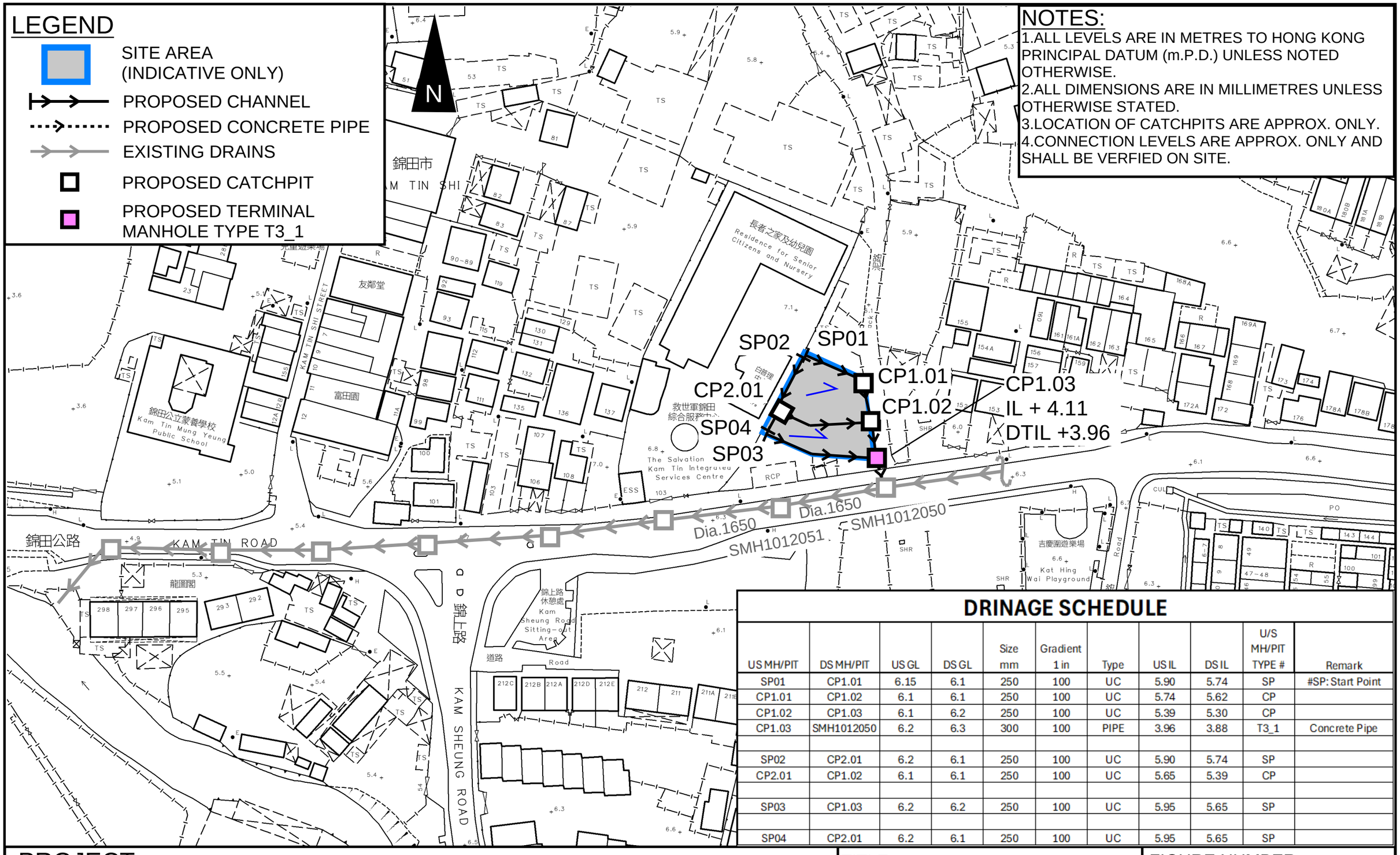
| VER | DESCRIPTION | DATE |
|---|---|---|

## LEGEND

- SITE AREA (INDICATIVE ONLY)
- PROPOSED CHANNEL
- PROPOSED CONCRETE PIPE
- EXISTING DRAINS
- PROPOSED CATCHPIT
- PROPOSED TERMINAL MANHOLE TYPE T3_1

## 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.




## 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 # | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| SP01 | CP1.01 | 6.15 | 6.1 | 250 | 100 | UC | 5.90 | 5.74 | SP | #SP: Start Point |
| CP1.01 | CP1.02 | 6.1 | 6.1 | 250 | 100 | UC | 5.74 | 5.62 | CP | |
| CP1.02 | CP1.03 | 6.1 | 6.2 | 250 | 100 | UC | 5.39 | 5.30 | CP | |
| CP1.03 | SMH1012050 | 6.2 | 6.3 | 300 | 100 | PIPE | 3.96 | 3.88 | T3_1 | Concrete Pipe |
| | | | | | | | | | | |
| SP02 | CP2.01 | 6.2 | 6.1 | 250 | 100 | UC | 5.90 | 5.74 | SP | |
| CP2.01 | CP1.02 | 6.1 | 6.1 | 250 | 100 | UC | 5.65 | 5.39 | CP | |
| | | | | | | | | | | |
| SP03 | CP1.03 | 6.2 | 6.2 | 250 | 100 | UC | 5.95 | 5.65 | SP | |
| | | | | | | | | | | |
| SP04 | CP2.01 | 6.2 | 6.1 | 250 | 100 | UC | 5.95 | 5.65 | SP | |

**PROJECT:**
Temporary Shop and Services for a Period of 5 Years

**LOCATION:**
Lot 283 S.A RP (Part) in D.D. 109, Kam Tin, Yuen Long, New Territories

TITLE
**PROPOSED DRAINAGE SYSTEM**

FIGURE NUMBER
**FIGURE 3**

| VER | DESCRIPTION | DATE |
|---|---|---|

LEGEND:

FALL

EXISTING SOLID FENCE WALL

EXISTING DEVELOPMENT WITH OWN DRAINAGE SYSTEM

+6.1

B1: Paved
89 m²

+6.15

A1: Paved
572 m²

+5.8 +5.3 +5.9 +6.3

KAM TIN ROAD 錦田公路

KAM SHEUNG ROAD 錦上路

KAM TIN SHI STREET 錦田市街

KAM TIN SHI 錦田市

KAM TIN 錦田

錦田公立蒙養學校 Kam Tin Mung Yeung Public School

錦田市兒童遊樂場

友鄰堂

富田園

龍圖閣

錦上路休憩處 Kam Sheung Road Sitting-out Area

吉慶圍遊樂場 Kat Hing Wai Playground

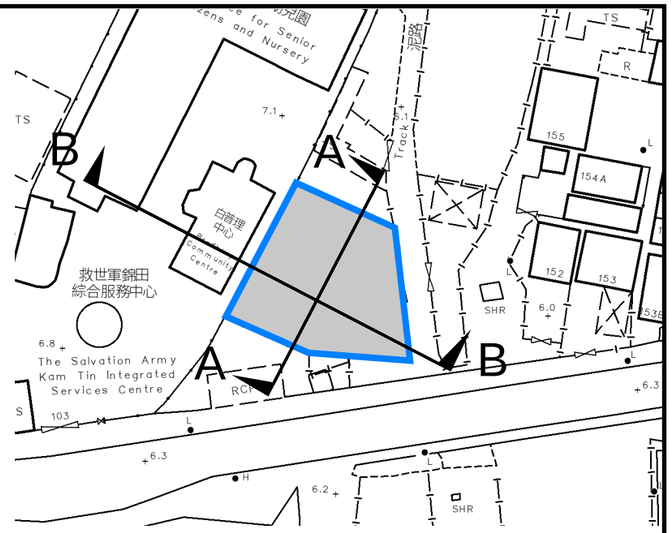
N

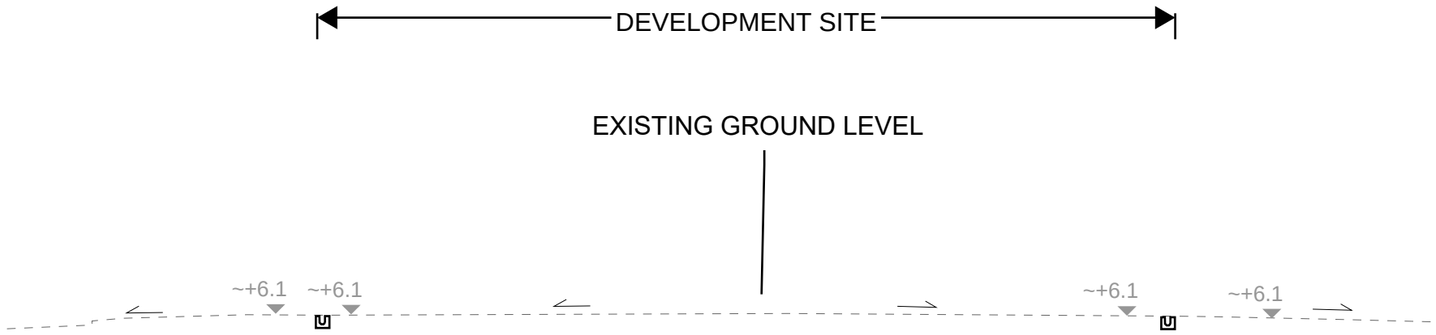
| | | |
|---|---|---|
| PROJECT:<br>Temporary Shop and Services for a Period of 5 Years | TITLE<br>CATCHMENT PLAN | FIGURE NUMBER<br>FIGURE 4 |
| LOCATION:<br>Lot 283 S.A RP (Part) in D.D. 109, Kam Tin, Yuen Long, New Territories | | |

| VER | DESCRIPTION | DATE |
|---|---|---|
| | | |

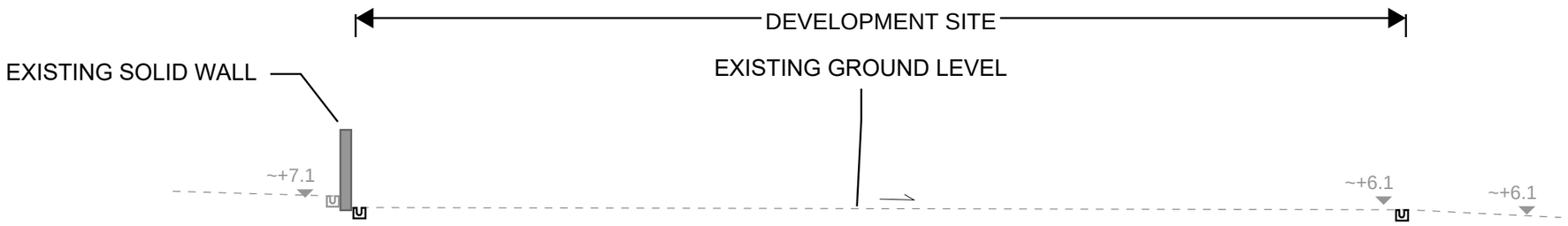
## LEGEND

SITE AREA
(INDICATIVE ONLY)




N.T.S.
SECTION A-A




N.T.S.
SECTION B-B

| | | |
|---|---|---|
| **PROJECT:**<br>Proposed Temporary Warehouse (excl. D.G.G.) with Ancillary Facilities and Associated Filling of Land for a Period of 3 Years in “Agriculture” Zone | TITLE<br>SECTIONS | FIGURE NUMBER<br>FIGURE 5 |
| **LOCATION:**<br>Lots 1266 (Pt.) and 1267 (Pt.) in D.D. 118, Tai Tong, Yuen Long, N.T. | | |

| VER | DESCRIPTION | DATE |
|---|---|---|
| | | |

LEGEND:

FALL

SMH1012050

CATCHMENT OF EXISTING MANHOLE SMH1012050

59,915 $m^2$

| | | |
|---|---|---|
| PROJECT:<br>Temporary Shop and Services for a Period of 5 Years | TITLE<br>CATCHMENT OF EXISTING MANHOLE | FIGURE NUMBER<br>FIGURE 6 |
| LOCATION:<br>Lot 283 S.A RP (Part) in D.D. 109, Kam Tin, Yuen Long, New Territories | | |

| VER | DESCRIPTION | DATE |
|---|---|---|
| | | |

# APPENDIX

# Appendix A: Design Calculation

**Zone**

| HKO |
|---|

| Return Period | 1 in | 50 | years |
|---|---|---|---|

| | |
|---|---|
| n | 0.014 |
| Ks | 0.6 |
| Viscosity | 0.000001 |

| Storm Constant | | |
|---|---|---|
| | HKO a | 505.5 |
| | HKO b | 3.29 |
| | HKO c | 0.355 |

**Catchment Area Table (Area in $m^2$)**

| Catchment | A1 | B1 | Catchment of SMH1012050 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Area | 572 | 89 | 59915 | | | | | | | | | | | | | | | |
| Hard Paved Area | 572 | 89 | 59915 | | | | | | | | | | | | | | | |
| Unpaved Area | 0 | 0 | 0 | | | | | | | | | | | | | | | |
| Equival. Area | 543.4 | 84.55 | 56919.25 | | | | | | | | | | | | | | | |

| 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 $m^3/s$ | Catchments | Total Equivalent Area $m^2$ | ToC min | Intensity mm/hr[##] | Total Discharge $m^3/s$ | Utilitization | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SP01 | CP1.01 | 6.15 | 6.10 | 250 | 100 | UC | 5.90 | 5.74 | SP | 16.3 | 1.40 | 0.08 | A1 | 543.40 | 1.10 | 332 | 0.05 | 64.2% | |
| CP1.01 | CP1.02 | 6.10 | 6.10 | 250 | 100 | UC | 5.74 | 5.62 | CP | 12.1 | 1.40 | 0.08 | A1,B1 | 627.95 | 1.29 | 327 | 0.06 | 73.1% | |
| CP1.02 | CP1.03 | 6.10 | 6.20 | 250 | 100 | UC | 5.39 | 5.30 | CP | 9.4 | 1.40 | 0.08 | A1,B1 | 627.95 | 1.77 | 316 | 0.06 | 70.6% | |
| CP1.03 | SMH1012050 | 6.20 | 6.30 | 300 | 100 | PIPE | 3.96 | 3.88 | T3_1 | 7.6 | 1.57 | 0.11 | A1,B1 | 627.95 | 1.88 | 313 | 0.05 | 49.2% | |
| | | | | | | | | | | | | | | | | | | | |
| SP02 | CP2.01 | 6.15 | 6.10 | 250 | 100 | UC | 5.90 | 5.74 | SP | 15.8 | 1.40 | 0.08 | A1 | 543.40 | 1.10 | 332 | 0.05 | 64.2% | |
| CP2.01 | CP1.02 | 6.10 | 6.10 | 250 | 100 | UC | 5.65 | 5.39 | CP | 26 | 1.40 | 0.08 | A1 | 543.40 | 1.46 | 323 | 0.05 | 62.5% | |
| | | | | | | | | | | | | | | | | | | | |
| SP03 | CP1.03 | 6.20 | 6.20 | 250 | 100 | UC | 5.95 | 5.65 | SP | 29.9 | 1.40 | 0.08 | A1 | 543.40 | 1.10 | 332 | 0.05 | 64.2% | |
| | | | | | | | | | | | | | | | | | | | |
| SP04 | CP2.01 | 6.20 | 6.10 | 250 | 100 | UC | 5.95 | 5.65 | SP | 29.9 | 1.40 | 0.08 | A1 | 543.40 | 1.10 | 332 | 0.05 | 64.2% | |
| SMH1012050 | SMH1012051 | 6.30 | 6.30 | 1650 | 250 | PIPE | 2.65 | 2.54 | Existing | 29 | 2.87 | 6.14 | A1,B1,Catchment of SMH1012050 | 57547.20 | 5.00 | 265 | 4.24 | 69.1% | Catchment of SMH1012050 see Figure 6 |
| Checking of Existing 1650 Pipe Against flow from Application Site | | | | | | | | | | | | | | | | | | | |
| SMH1012050 | SMH1012051 | 6.10 | 6.30 | 1650 | 250 | PIPE | 2.65 | 2.54 | Existing | 29 | 2.87 | 6.14 | A1,B1 | 627.95 | 1.96 | 312 | 0.05 | 0.9% | |

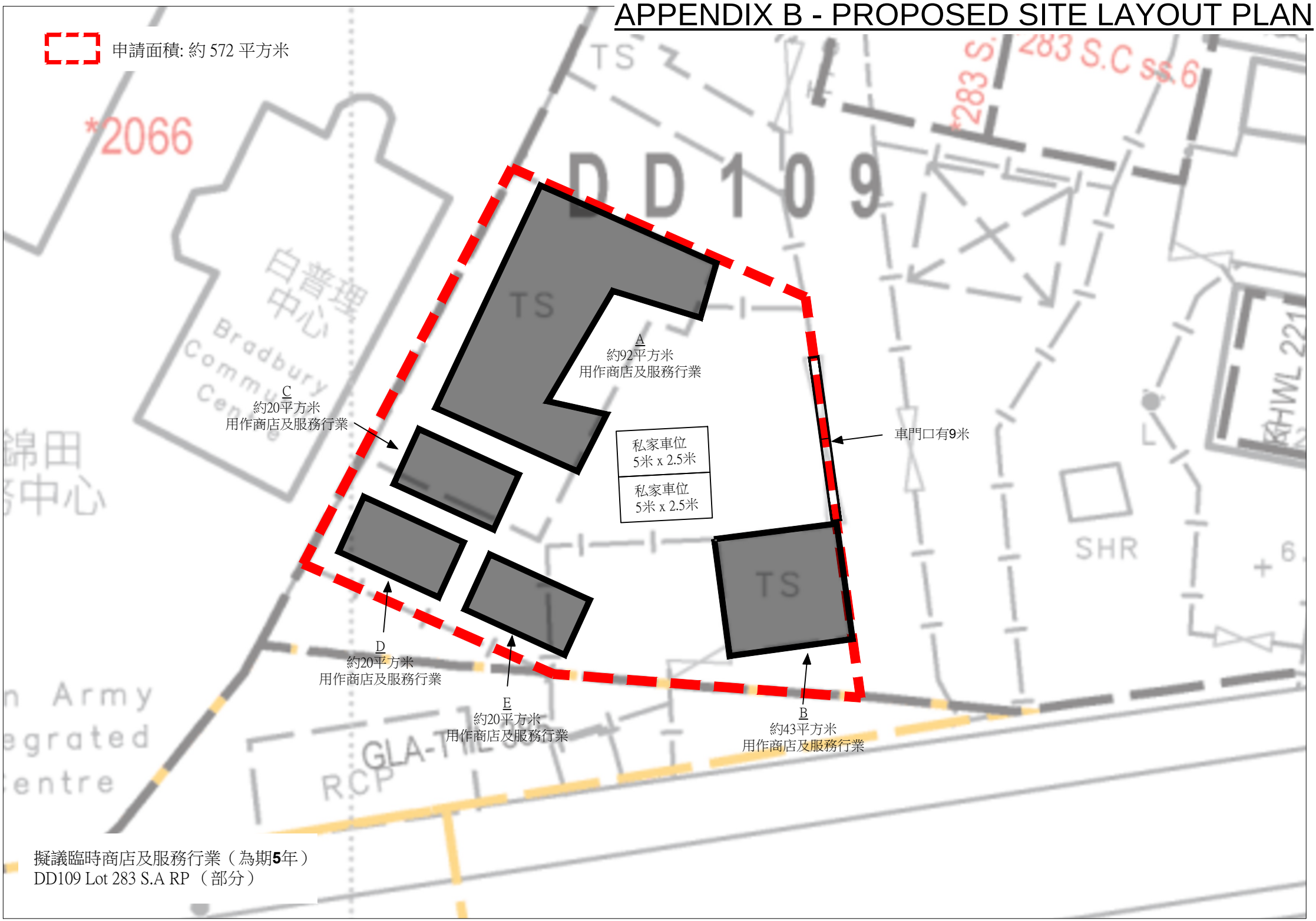
#SP: Start Point

## : With 11.1% rainfall increase as per Table 28 of SDM Corrigendum No. 1/2022.

**Time of Concentration Checking**

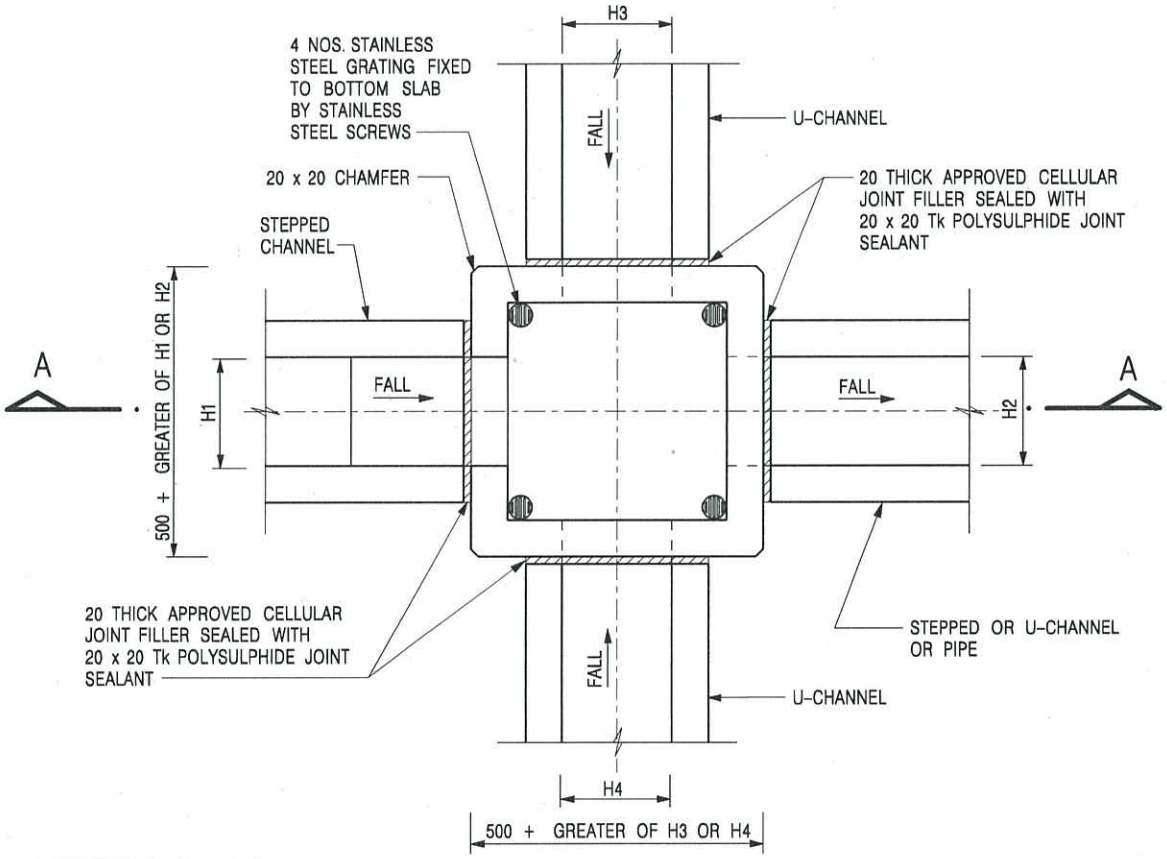
| Catchment | Flow Distance | Highest Level | Lowest Level | Gradient (per 100m) = (H1-H2)/L x 100 | to (min) = $0.14465L/(H^{0.2}A^{0.1})$ | tc = to + tf |
|---|---|---|---|---|---|---|
| A | L | H1 | H2 | | | |
| (m2) | (m) | (mPD) | (mPD) | | (min) | (min) |
| 572 | 10.5 | 6.17 | 6.15 | 0.190 | 1.1 | 1.1 |

# APPENDIX B - PROPOSED SITE LAYOUT PLAN



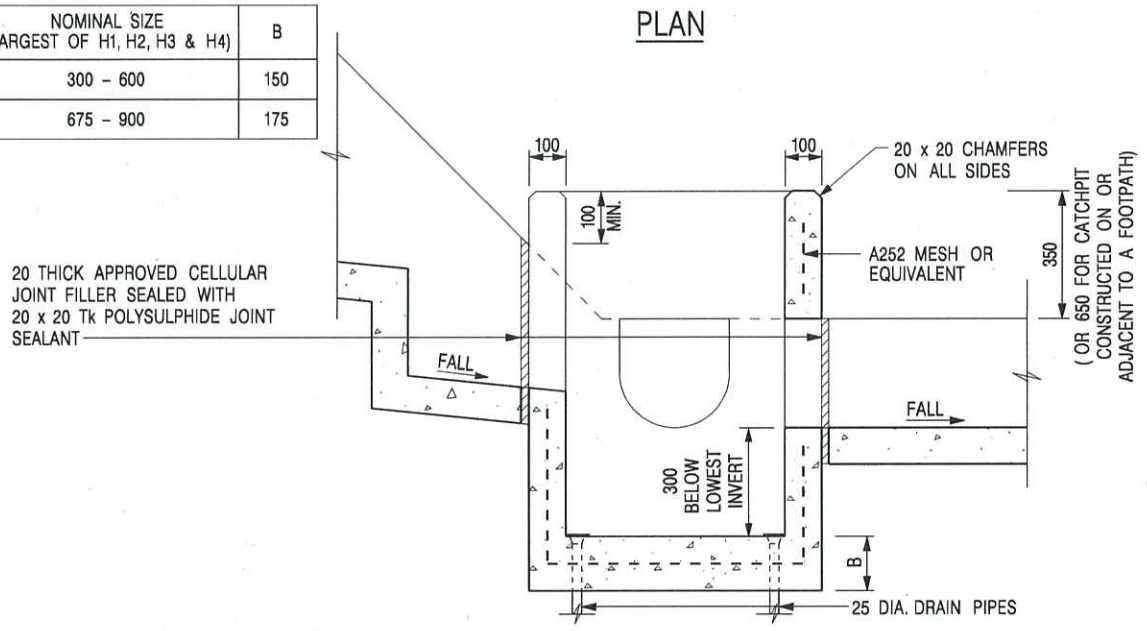

擬議臨時商店及服務行業（為期**5**年）
DD109 Lot 283 S.A RP （部分）

# 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)

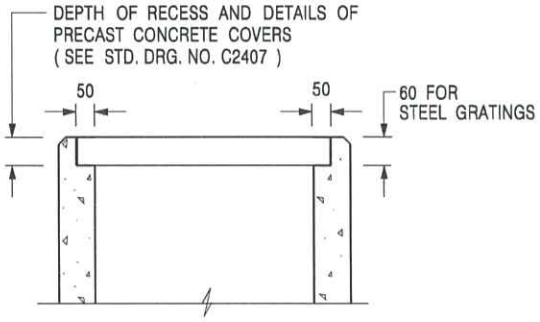
CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

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 |

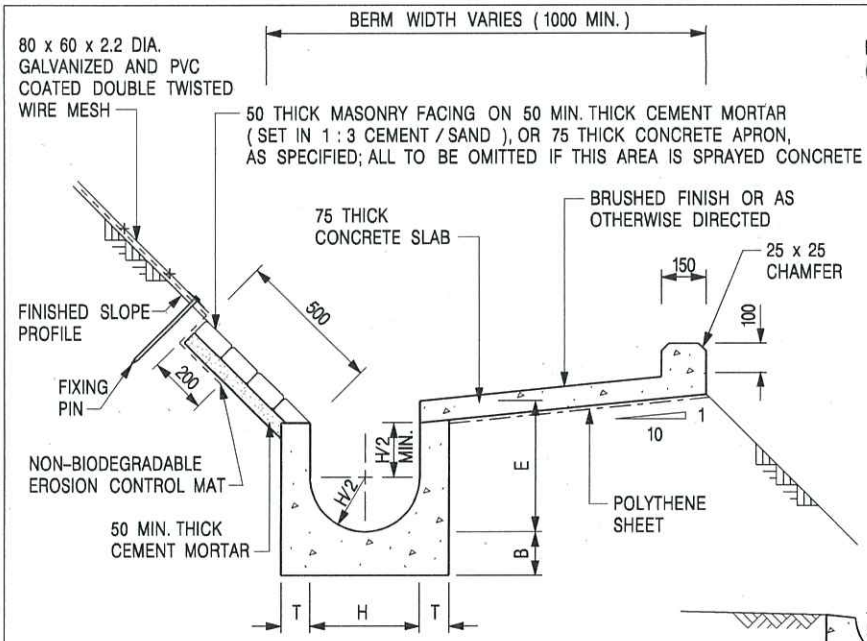
# CATCHPIT WITH TRAP
# (SHEET 2 OF 2)

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

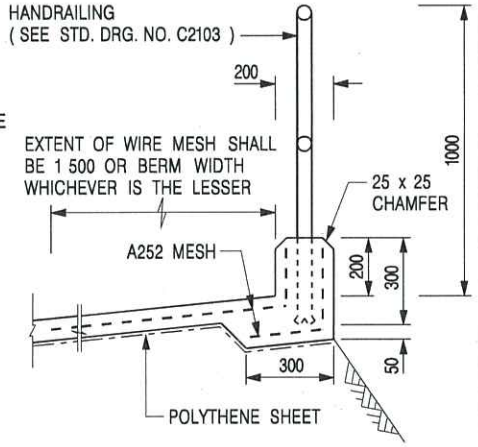
SCALE 1 : 20

DATE JAN 1991

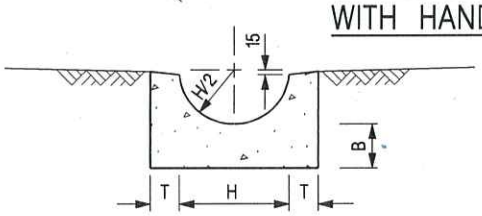
DRAWING NO. C2406 /2A



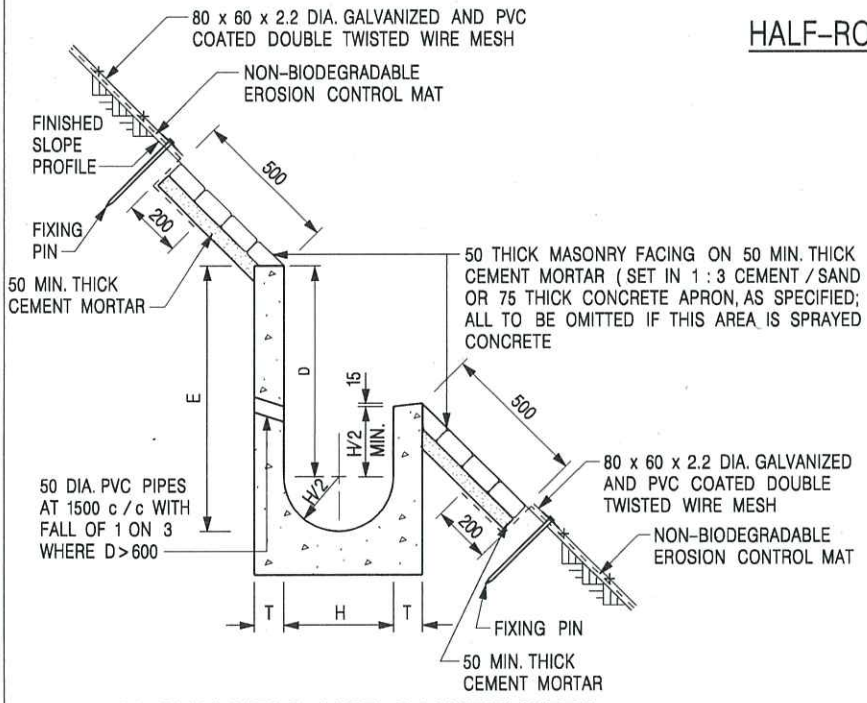

## U-CHANNELS CONSTRUCTED ON BERM




## 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 )

CEDD **CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT**

**SCALE** 1 : 25

**DATE** JAN 1991

**DRAWING NO.** C2409I

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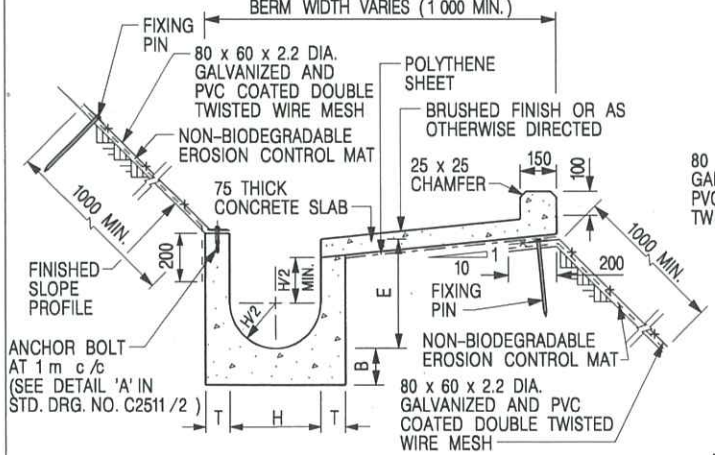
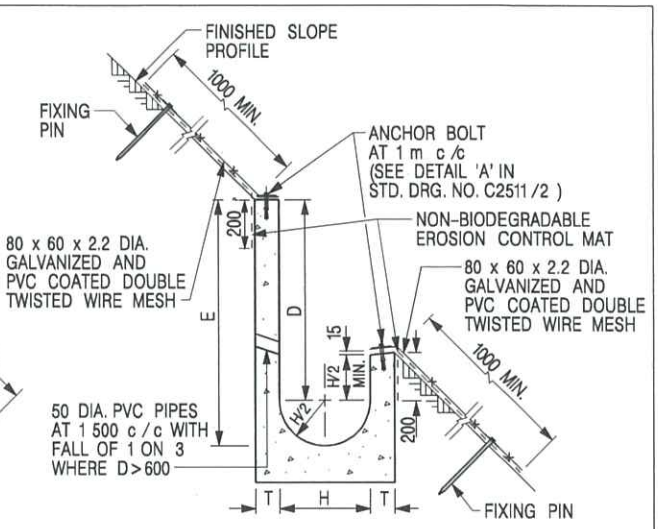
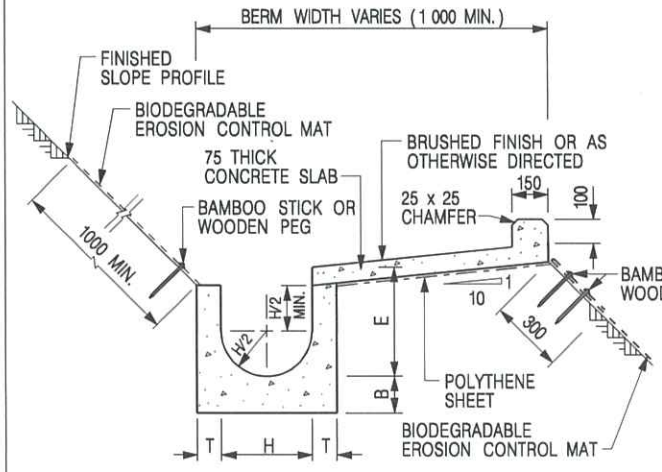


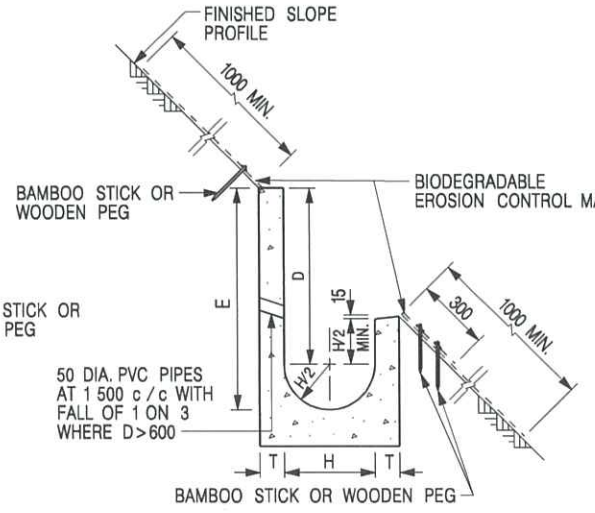

## U-CHANNELS CONSTRUCTED ON BERM WITH NON-BIODEGRADABLE EROSION CONTROL MAT




## 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

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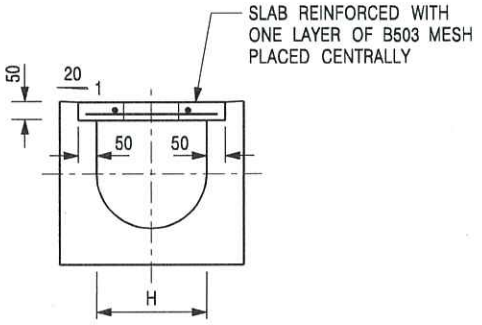
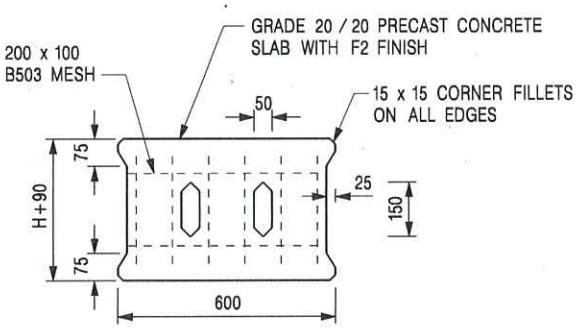


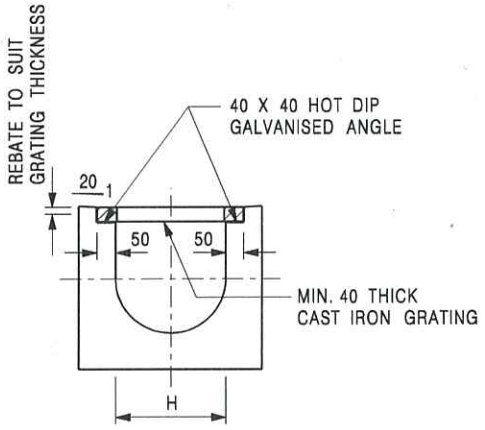

TYPICAL SECTION



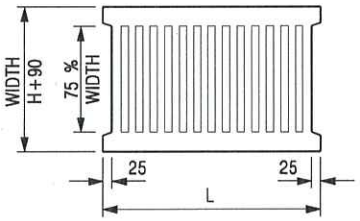

PLAN OF SLAB

## 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 |

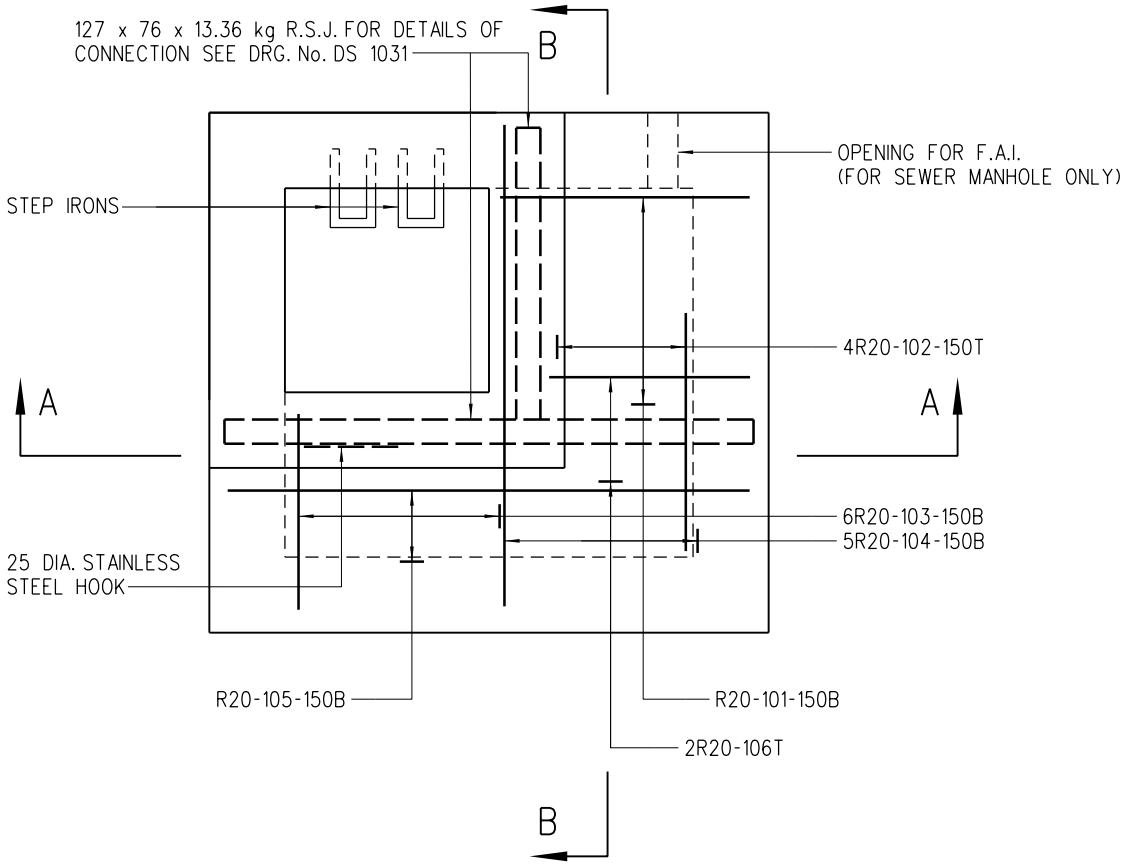
# COVER SLAB AND CAST IRON GRATING FOR CHANNELS

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE 1 : 20

DATE JAN 1991

DRAWING NO. C2412E




## PLAN

(OTHER DETAILS
NOT SHOWN FOR CLARITY)

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. NOTATION OF REINFORCEMENT : THE SEQUENCE OF DESCRIPTION OF IDENTIFICATION MARKS ON DRAWINGS FOR STEEL REINFORCING BARS FOR CONCRETE WORK IS AS FOLLOWS (NUMBER, TYPE, SIZE, MARK, SPACING, LOCATION OR COMMENT)
3. B DENOTES GRADE 500B RIBBED REINFORCEMENT.
4. R DENOTES GRADE 250 PLAIN REINFORCEMENT.
5. PIPE DIAMETER : NOT EXCEEDING 450 mm
6. NORMAL RANGE OF DEPTH : 1 750 mm TO 4 250 mm, TO BE MEASURED FROM ROAD SURFACE TO LOWEST INVERT.
7. USED IN : STORMWATER DRAIN AND SEWER
8. JUNCTION : POSITION OF JUNCTION TO BE DETERMINED IN EACH INDIVIDUAL CASE. CHANNELS IMMEDIATELY UNDER ACCESS TO MANHOLE SHOULD BE AVOIDED.
9. TOP TREATMENT : SEE DRAWING No. DS 1032
10. STEP IRON : SEE DRAWING No. DS 1043
11. FOUNDATION : FOUNDATION OF MANHOLE VARIES WITH SITE CONDITION. THEREFORE, IT SHOULD BE DETERMINED ON SITE BY THE ENGINEER.
12. CONCRETE MIX : GRADE 30/20
13. DIAMETER OF F.A.I. NORMALLY 100 mm
14. COVER TO REINFORCEMENT SHALL BE 40 mm UNLESS OTHERWISE STATED.
15. BARS INTERCEPTED BY PIPE TO BE CUT OFF AS DIRECTED ON SITE AND 20 mm DIAMETER TRIMMING BARS TO BE ADDED AS DIRECTED BY THE ENGINEER.
16. ALL BAR MARKS APPEARING ARE USED FOR REFERENCE IN THIS DRAWING ONLY.
17. RECESS WITH SQUARE STEEL ROD SHALL BE PROVIDED AT TOP OF MANHOLE CHAMBER FOR INSTALLING MONITORING DEVICE(S). DETAILS REFER TO DSD STANDARD DRAWING NO. DS 1099.

| REV. | DESCRIPTION | SIGNATURE | DATE |
|---|---|---|---|
| A | NOTE 17 ADDED | ORIGINAL SIGNED | 2.8.2022 |
| | NEW ISSUE | ORIGINAL SIGNED | 13.1.2016 |

# TERMINAL MANHOLE TYPE T3_1

DRAINAGE SERVICES DEPARTMENT

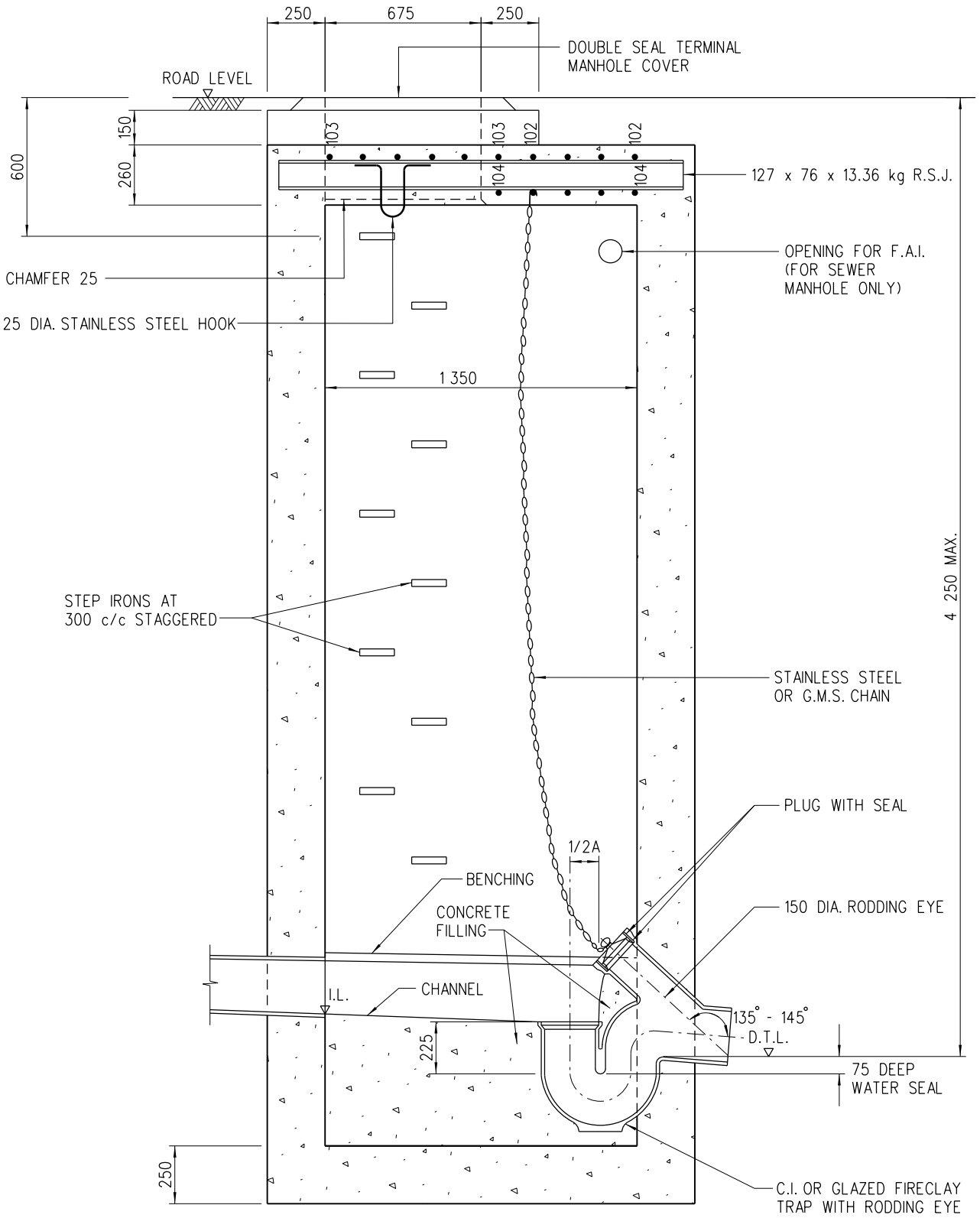
REFERENCE

DRAWING No.

DS 1092A

SCALE 1 : 25

( SHEET 1 OF 3 )




## SECTION A-A

| REV. | DESCRIPTION | SIGNATURE | DATE |
|---|---|---|---|
| A | NOTE 17 ADDED | ORIGINAL SIGNED | 2.8.2022 |
| | NEW ISSUE | ORIGINAL SIGNED | 13.1.2016 |

# TERMINAL MANHOLE TYPE T3_1

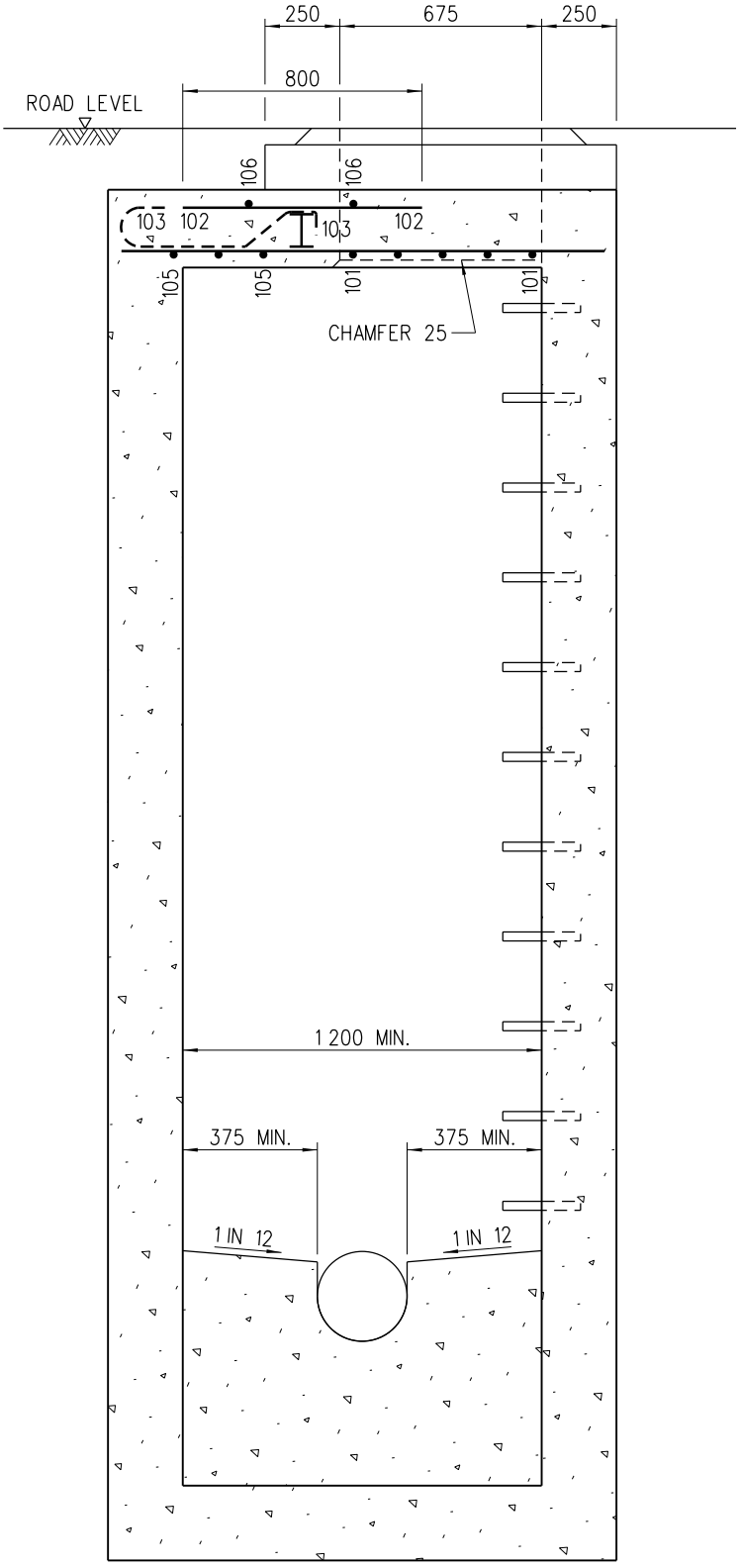
DRAINAGE SERVICES DEPARTMENT

REFERENCE

SCALE 1 : 25

DRAWING No. DS 1092A

( SHEET 2 OF 3 )




SECTION B-B

| REV. | DESCRIPTION | SIGNATURE | DATE |
|---|---|---|---|
| A | NOTE 17 ADDED | ORIGINAL SIGNED | 2.8.2022 |
| | NEW ISSUE | ORIGINAL SIGNED | 13.1.2016 |

# TERMINAL MANHOLE TYPE T3_1

DRAINAGE SERVICES DEPARTMENT

REFERENCE

DRAWING No.

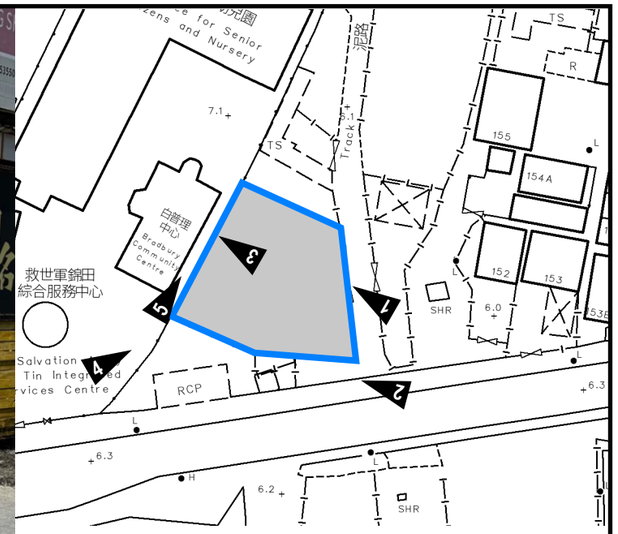
DS 1092A

( SHEET 3 OF 3 )

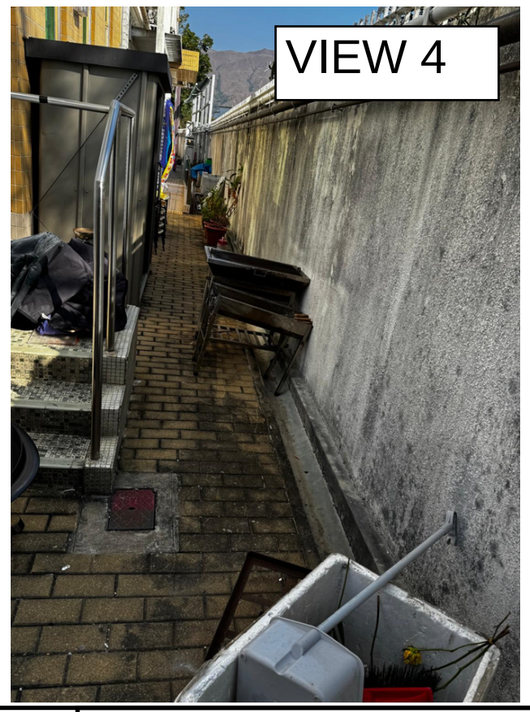
SCALE 1 : 25


VIEW 1

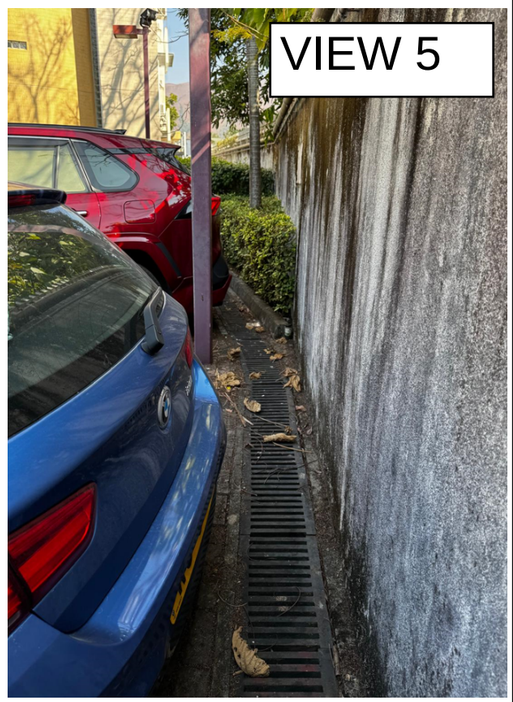

VIEW 2




VIEW 3



VIEW 4



VIEW 5

| | | |
|---|---|---|
| PROJECT:<br>Temporary Shop and Services for a Period of 5 Years | SITE PHOTOS | APPENDIX D |
| LOCATION:<br>Lot 283 S.A RP (Part) in D.D. 109, Kam Tin, Yuen Long, New Territories | | |

| VER | DESCRIPTION | DATE |
|---|---|---|
| | | |