

ISSUE 1

## **TEMPORARY DRAINAGE PROPOSAL**

APPLICATION SITE OF THE PROPOSED  
TEMPORARY PLACE OF RECREATION, SPORTS OR  
CULTURE (HOBBY FARM) FOR A PERIOD OF 3  
YEARS AT LOTS 1430 (PART), 1431 (PART), 1439  
(PART) AND 1440 (PART) IN D.D.114, SHEK  
KONG, YUEN LONG, NEW TERRITORIES



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# 1 Introduction

## 1.1 Background

- 1.1.1 This report presents the Drainage Proposal for supporting the Proposed Temporary Place of Recreation, Sports or Culture (Hobby Farm) for a Period of 3 Years at Lots 1430 (Part), 1431 (Part), 1439 (Part) and 1440 (Part) in D.D.114, Shek Kong, Yuen Long, New Territories.
- 1.1.2 For the site location plan, please refer to the **Appendix A**.

## 1.2 Objectives of the Report

- 1.2.1 This report shall be prepared to include the following:
- Identify the potential drainage impact assessment from the proposed Application Site
  - recommend and implement all necessary measures to mitigate adverse drainage impacts arising from the application site

## 1.3 Report Structure

- 1.3.1 The report contains the following sections:
- Section 1 on Introduction;
  - Section 2 on Development Proposal;
  - Section 3 on Assessment Criteria;
  - Section 4 on Potential Drainage Impact; and
  - Section 5 on Conclusion.

# 2 Development Proposal

## 2.1 Location of the Application Site

- 2.1.1 The application Site is located within the Shek Kong, Yuen Long, New Territories, with an area of around 1,550m<sup>2</sup> and ground level varying between + 41.6mPD and + 42.4mPD. The layout plan is provided in **Appendix B**.
- 2.1.2 This application site is "Agriculture" zoning, the type of application is the Temporary Use/Development in Rural Areas for a Period of 3 Years.

### 3 Assessment Criteria

#### 3.1 Design Return Periods

- 3.1.1 The drainage system in the Application site is to collect surface flows and convey to downstream village drain. The recommended design return periods based on the flood levels for the various drainage systems depend on the drainage system, land use, hazard to public safety and community expectations. The recommended design return period is reproduced in Table 3-1 below:

**Table 3-1 Recommended Design Return Periods based on Flood Levels**

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

- 3.1.2 As per Storm Drainage Manuel (SDM) Section 6.6.2 Urban Drainage Branch and Urban Drainage Trunk Systems *“An ‘Urban Drainage Branch System’ is defined as a group or network of connecting drains collecting runoff from the urban area and conveying stormwater to a trunk drain, river or sea. For a simple definition, the largest pipe size or the equivalent diameter in case of a box culvert in a branch system will normally be less than 1.8m.*
- 3.1.3 *An ‘Urban Drainage Trunk System’ collects stormwater from branch drains and/or river inlets, and conveys the flow to outfalls in river or sea. Pipes with size or diameter equal to or larger than 1.8m are normally considered as trunk drains.”*
- 3.1.4 As per SDM, since the proposed U-channels are sized smaller than 1.8m, the drainage system would be defined as an urban drainage branch with recommended design return period of 50 years.
- 3.1.5 The 50 years design return period will be considered to ensure adequacy of the stormwater drainage system.

#### 3.2 Calculation Methodology for Runoff

- 3.2.1 Peak instantaneous runoff values before and after the development were calculated based on the Rational Method and with recommended physical parameters including runoff coefficient (C) and storm constants for different return periods referred to the SDM, based on the following equation:

$$Q_p = 0.278 C i A$$

where	$Q_p$	=	Peak Runoff, m <sup>3</sup> /s
	C	=	Runoff Coefficient
	i	=	Rainfall Intensity, mm/hr
	A	=	Catchment Area, km <sup>2</sup>

3.2.2 The paved area of the site will account for 1,550 m<sup>2</sup>. For conservative, the runoff coefficient of 1.0 is assumed, such that the all the run-off would be collected from the catchment area without any infiltration as the critical scenario.

3.2.3 Based on the storm constants for 50-year return period recommended in the SDM, the appropriate rainfall intensities (i) are calculated as detailed in **Appendix D**

### 3.3 Calculation Methodology for Pipe Capacity Checking

3.3.1 Because the catchment areas are less than 1ha, U-channels are recommended to be constructed to collect the stormwater runoff within the site. The collected stormwater should finally be diverted to the downstream via the proposed U-channel system.

3.3.2 For the worst-case scenario, bad condition of concrete pipe is assumed for the Manning's roughness coefficient (coefficient value is 0.016) for calculating capacities of concrete U-channel using Manning's Equation.

3.3.3 Manning's Equation for calculating the channel and pipe capacities is adopted.

## 4 Potential Drainage Impact

### 4.1 Existing Site Condition

4.1.1 The application Site is located within the Ping Shan Ping Shan, New Territories, with an area of around 1,550 m<sup>2</sup> and ground level varying between + 41.6mPD and + 42.4mPD.

4.1.2 Since the ground level of application site is generally higher than the adjacent ground surface.

4.1.3 No external catchment shall be considered in the calculation, only the application site with a projected area of 1,550 m<sup>2</sup> is considered as part of the catchment, external catchment for the ground to the east, south and north of the application site is generally higher. Since the overland flow from the adjacent lands shall be probably intercepted, shall be considered in the calculation.

### 4.2 Changes in Drainage Characteristics

4.2.1 The characteristics of the sub-catchment areas are remained unchanged due to the temporary development for the application site, which are paved area.

4.2.2 The application site is fully covered by concrete surface currently. This application does not propose adding any additional concrete area, the difference in surface runoff that can be attributed to this application is negligible. The change in sub-catchment is summarized in Table 4-2.

**Table 4-1 Change in sub-catchment within the site**

	BEFORE	AFTER
Grassland (m <sup>2</sup> )	0	0
Unpaved Area (m <sup>2</sup> )	0	0
Paved Area (m <sup>2</sup> )	1,550	1,550
Total Catchment Area (m <sup>2</sup> )	1,550	1,550

### 4.3 Potential Drainage Impact

- 4.3.1 The details of the proposed drainage works are illustrated in **Appendix C**.
- 4.3.2 To effectively convey stormwater away from the application site and minimize the potential impact to the drainage infrastructure of the village area, drainage works consists of U-channels, are proposed to convey the flow to the terminate catchpit with trap (TCP).
- 4.3.3 The runoff from the Application site is collected by U-channels along the boundary and discharged to the catchpit with trap (TCP), which is connected to the further downstream leading to the discharge point of the existing village drainage (existing 600mm u-channels by others) at the northern of the application site, and eventually lead to the existing village pool.
- 4.3.4 The 400mm U-channel receives stormwater from the surface and the upstream catchment. For Conservative, the critical scenario is considered for collecting all the flow leading to the 400mm U-channel. The design calculation of the proposed drainage is provided in **Appendix D**. The design calculation is summarized in Table 4-2.

**Table 4-2 Design calculation of the proposed drainage work**

DRAINAGE SYSTEM	ESTIMATED FLOW (M <sup>3</sup> /S)	CAPACITY (M <sup>3</sup> /S)	RESERVE CAPACITY
400mm UC	0.101	0.239	58%

Note:

[1] Rainfall increase due to climate change at the end of 21<sup>st</sup> century is considered according to stormwater drainage manual Table 28.

[2] The reserve capacity is calculated by assuming that the 400mm U-channel reach its full capacity for conservative.

- 4.3.5 The design runoff arise from the proposed Application Site is to be discharged into the proposed 400mm UC with the runoff anticipated to be 0.101m<sup>3</sup>/s, which is within the drainage capacity of the proposed 400mm u-channel of 0.239m<sup>3</sup>/s with gradient 1:100.
- 4.3.6 Since there are no changes in Drainage Characteristics, it is considered that the drainage discharge from the Application Site will not cause adverse impact to the entire downstream drainage system.
- 4.3.7 All u-channels & catch pits will be constructed according to the CEDD's standard drawings, please refer to the **Appendix E**.

## 5 Construction Stage

### 5.1 Temporary Drainage Arrangements

- 5.1.1 Proper measures shall be taken to maintain the existing drainage characteristics of the catchment areas and to minimize drainage impacts associated with the construction works. The principal drainage impacts which are associated with construction of the works have been identified as follows:
- (a) Erosion of ground materials;
  - (b) Sediment transportation to existing downstream drainage system; and
  - (c) Obstruction to drainage systems.
- 5.1.2 Regular inspections shall be carried out to ensure integrity of the works. These inspections shall cover works under construction as well as recently completed areas.

- 5.1.3 To ensure proper operation of the site drainage channels and desilting facilities, inspection of the perimeter drains shall be carried out on a weekly basis and the desilting facilities shall be cleaned on a daily basis.
- 5.1.4 If excavated materials are not possible to transport away the excavated material within the same day, the material should be covered by tarpaulin/impervious sheets. Stockpiles of construction materials (for examples aggregate, fill materials) of more than 50 m<sup>3</sup> in an open area shall also be covered with tarpaulin or similar fabric during rainstorms.
- 5.1.5 All runoff discharged into the existing drainage system will be settled in a silt trap to ensure no sediment will be discharged into the channel. Silt traps will normally be provided along the site drainage immediately upstream of the proposed discharge point to the existing Site. The silt traps will be inspected daily and immediately after each rainstorm.
- 5.1.6 Liaison will be carried out with relevant parties regarding temporary drainage arrangements to ensure that the drainage system is functioning adequately.

## 6 Conclusions

### 6.1 Conclusion

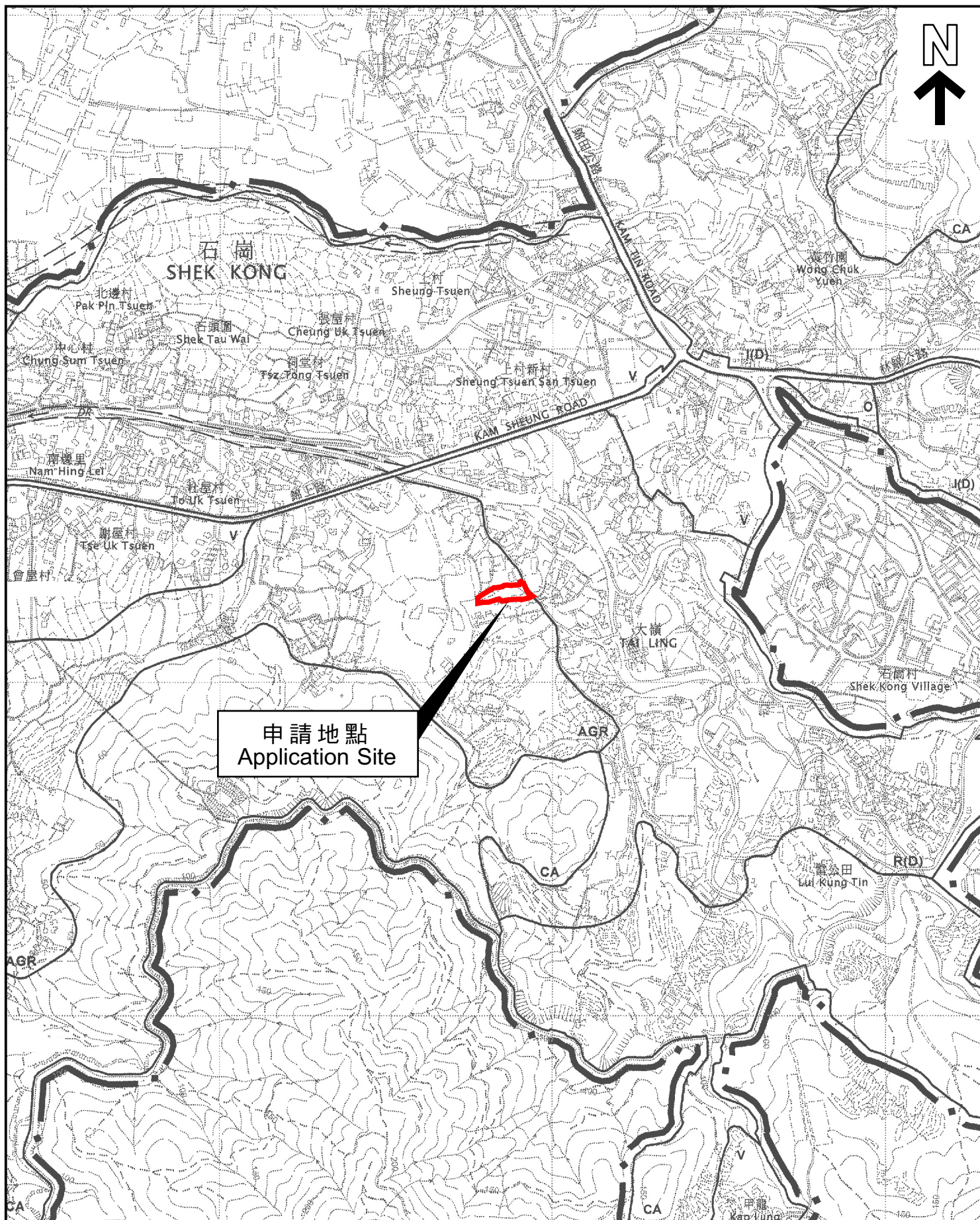
- 6.1.1 The analysed catchment area of 1,550 m<sup>2</sup> consists of the site area of the proposed Application Site and the adjacent slope feature.
- 6.1.2 U-channels are proposed to convey runoff from the application site for collection. The proposed U-channels are located along the site boundary which is subject to change to suit the building layout.
- 6.1.3 The assessment reviews the drainage pipe have the sufficient capacity to cater for the drainage flow from the Application Site.
- 6.1.4 Mitigation measures are proposed during the application site proposed Application Site and to ensure that the existing drainage system within the site will not be affected during the construction stage.

**END OF TEXT**



**APPENDIX A**  
**SITE LAYOUT PLAN**





**位置圖 LOCATION PLAN**

本摘要圖於2022年04月08日擬備，  
所根據的資料為於2006年10月17日  
核准的分區計劃大綱圖編號S/YL-SK/9

EXTRACT PLAN PREPARED ON  
08.04.2022 BASED ON OUTLINE ZONING  
PLAN No. S/YL-SK/9 APPROVED ON  
17.10.2006

申請地點界線只作識別用  
APPLICATION SITE BOUNDARY  
FOR IDENTIFICATION PURPOSE ONLY

參考編號  
REFERENCE No.

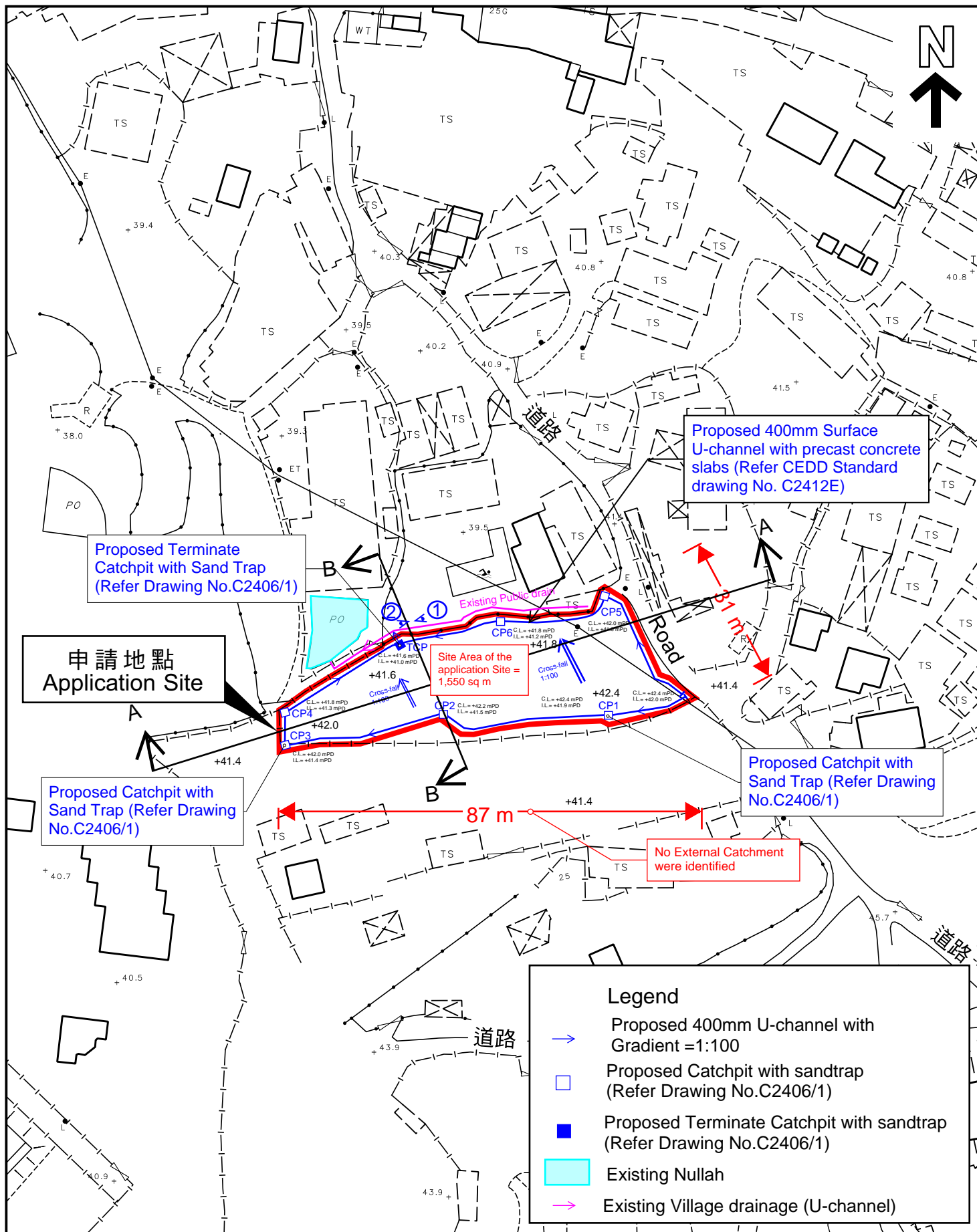
**A/YL-SK/327**



**APPENDIX B**  
**LAYOUT PLAN**



**APPENDIX C**  
**PROPOSED DRAINAGE PLAN**



平面圖 SITE PLAN

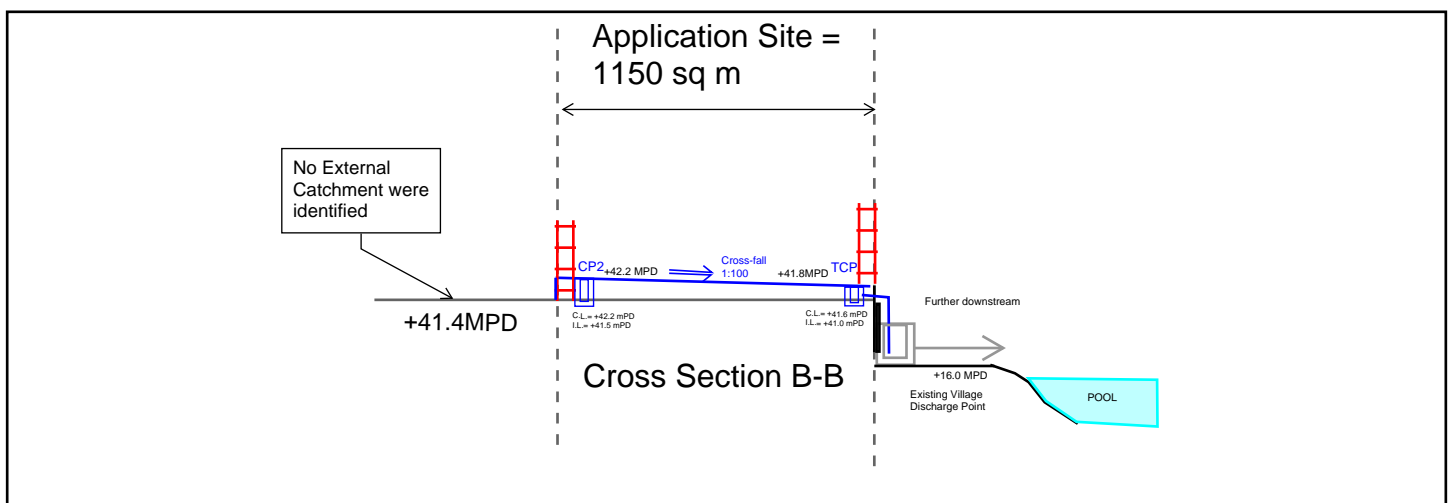
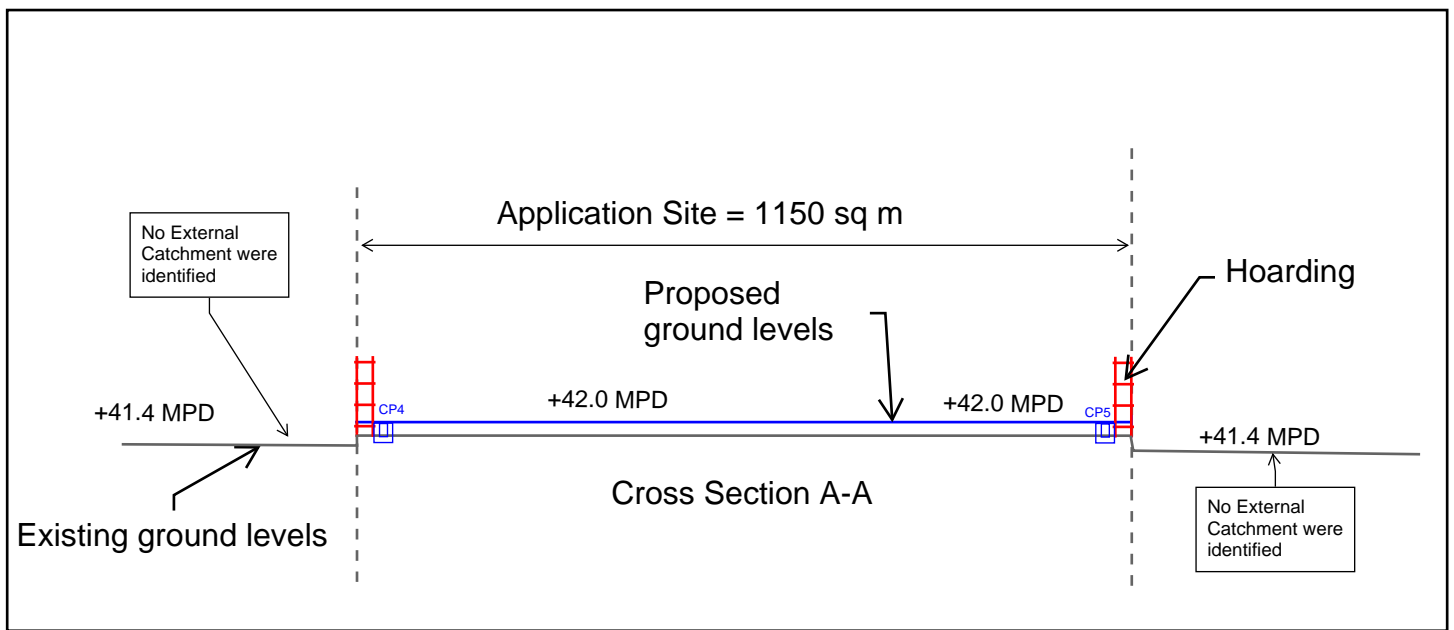
Appendix C -  
Proposed Drainage Plan

本摘要圖於2022年04月08日擬備，  
所根據的資料為測量圖編號6-NE-19B  
EXTRACT PLAN PREPARED ON  
08.04.2022 BASED ON SURVEY SHEET  
No. 6-NE-19B

申請地點界線只作識別用  
APPLICATION SITE BOUNDARY  
FOR IDENTIFICATION PURPOSE ONLY

參考編號  
REFERENCE No.

A/YL-SK/327



Site Photo 1 for existing village drainage



Site Photo 2 for existing village drainage

**APPENDIX D**  
**DESIGN CALCULATION OF THE PROPOSED DRAINAGE**

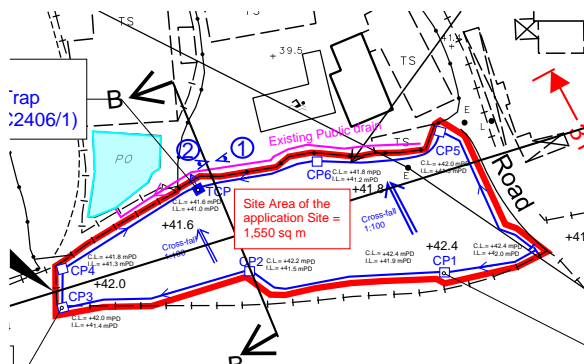


## Design Data

1. Design follows the Rational Method in accordance with Stormwater Drainage Manual 2018 (DSD)
2. For conservative, Runoff coefficient for paved / unpaved land is 1.
3. Design return period is 50 years.
4. For manning's equation coefficient  $n$  is 0.016.

### Check for Hydraulic Capacity:

Catchment	K	Area (A)
Application Site Area	1.00	1550.0
External Catchment Area	1.00	0.0 m <sup>2</sup>
Total Catchment Area	1.00	1550.0 m <sup>2</sup>



## Runoff estimation

Average slope, H

Catchment area, A

Distance between summit and point under consideration, L

Time of concentration of natural catchment,  $t_0$ Length of drain,  $L_i$ Velocity,  $V_i$ Flow time,  $t_f$ Time of concentration,  $t_c$ 

Storm constants for 200-year return period:

Extreme mean intensity,  $i_{200\text{yr}}$

Design flow, Q

### 400mm u-channel capacity

Diameter

Cross-sectional area of 400mm U-channel

## Gradient

flow velocity

### Design Capacity

## Reserve capacity

For conservative, all the U-channel along the site boundary shall be 400mm.

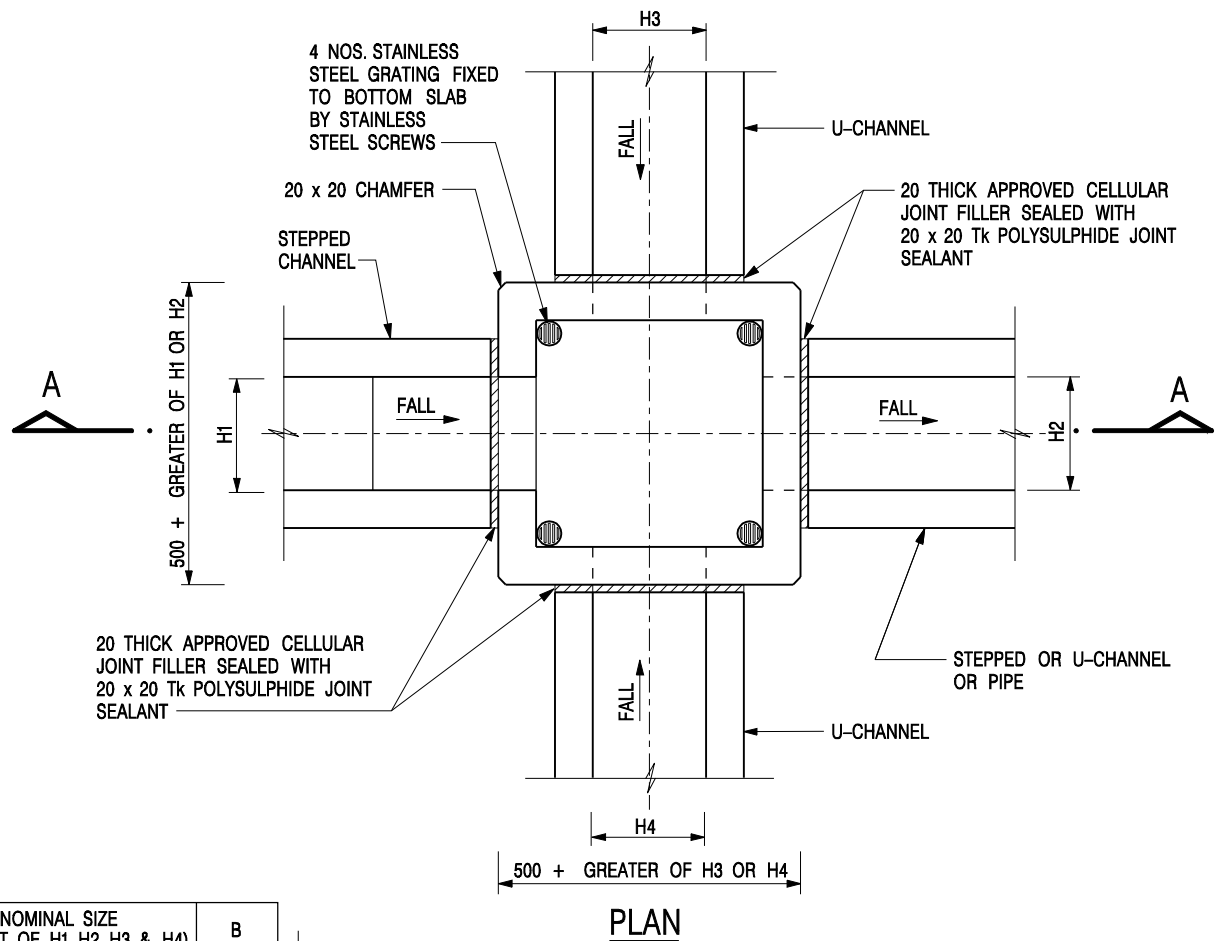
$$\begin{aligned}
 &= 1 / 100\text{m} \\
 &= 1550 \text{ m}^2 \\
 &= 30 \text{ m} \\
 &= 0.14465 \times \text{L} / (\text{H}^{0.2} \times \text{A}^{0.1}) \\
 &= 2.08 \text{ min.} \\
 &= 30 \text{ m} \\
 &= 1.676 \text{ m/s} \\
 &= \Sigma (\text{L}_j / \text{V}_j) \\
 &= 0.2982806 \text{ min.} \\
 &= t_o + t_f \\
 &= 2.38 \text{ min.} \\
 &= 451.3 \\
 &= 2.46 \\
 &= 0.337 \\
 &= a / (t_d + b)^c \\
 &= 235.13452 \text{ mm/hr} \\
 &< 405.000 \text{ mm/hr} \\
 &= 0.278 \text{ i } \Sigma \text{ K A} \\
 &= 0.101 \text{ m}^3/\text{s} \\
 &= 400 \text{ mm} \\
 &= 0.1428 \text{ m}^2 \\
 &= 0.01 \\
 &= 1.676 \text{ m/s} \\
 &= 0.239 \text{ m}^3/\text{s} \\
 &> 0.101 \text{ m}^3/\text{s} \quad \text{C} \\
 &= 58\%
 \end{aligned}$$

OK

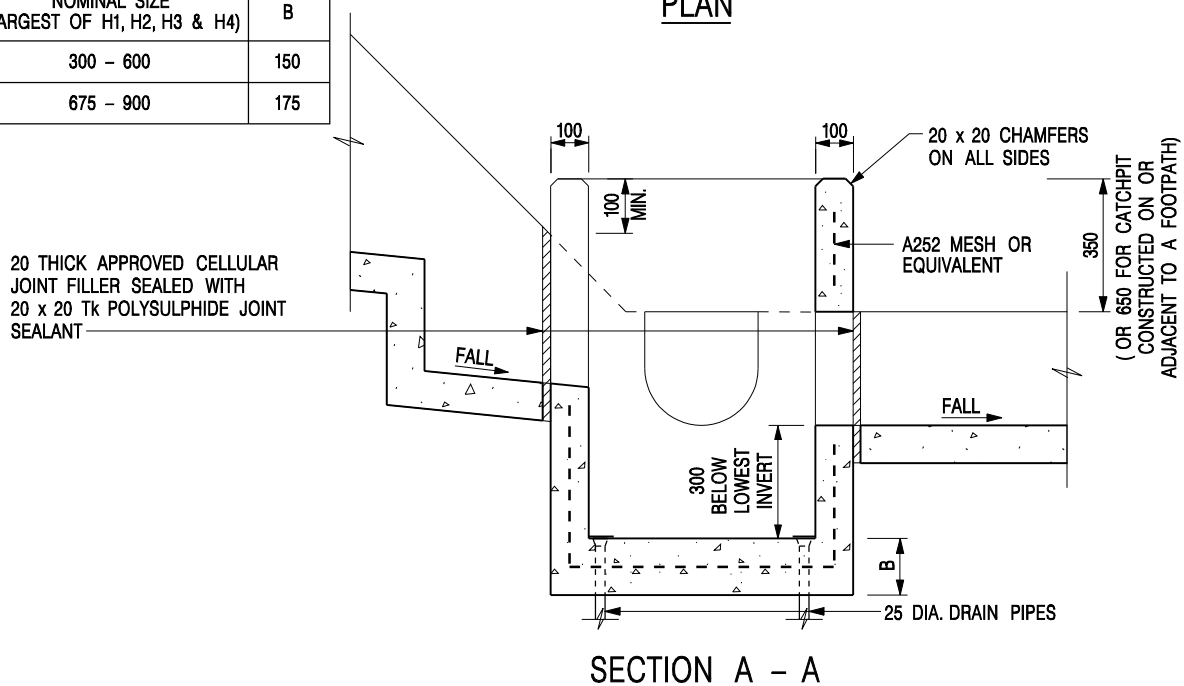
**APPENDIX E**

**TYPICAL STANDARD DRAWINGS OF U-CHANNEL AND CATCHPIT  
(EXTRACTED FROM CEDD, FOR REFERENCE ONLY)**






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

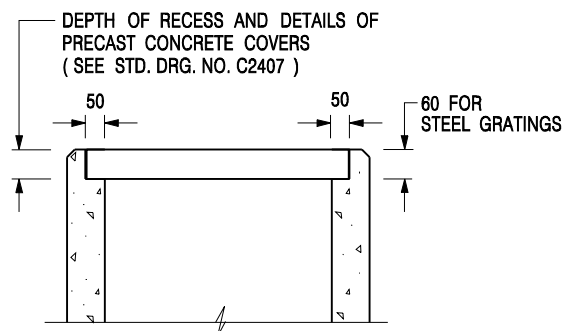


**NOTES:**

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

**CATCHPIT WITH TRAP**  
(SHEET 1 OF 2)

-	FORMER DRG. NO. C2406J.	Original Signed	03.2015
REF.	REVISION	SIGNATURE	DATE
 <b>CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT</b>		<b>SCALE</b> 1 : 20 <b>DATE</b> JAN 1991	
		<b>DRAWING NO.</b> <b>C2406 /1</b>	



### 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**

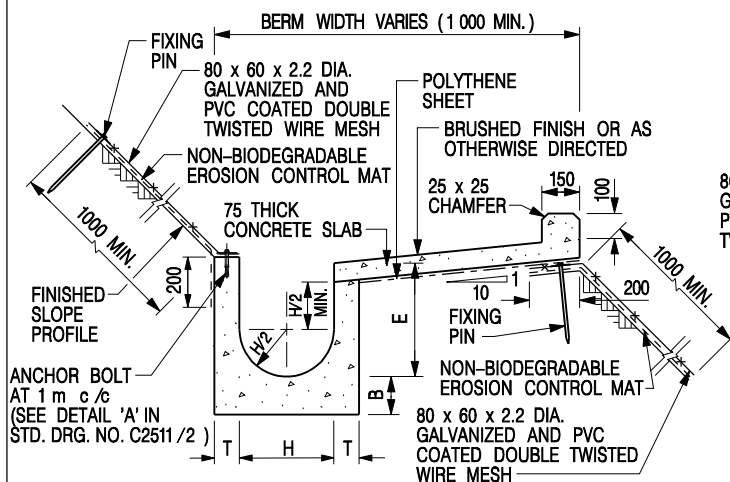
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**DATE** JAN 1991

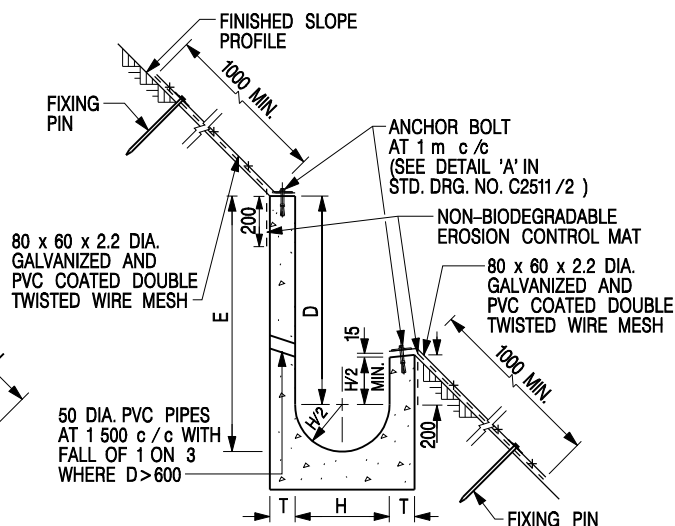
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**C2406 /2A**

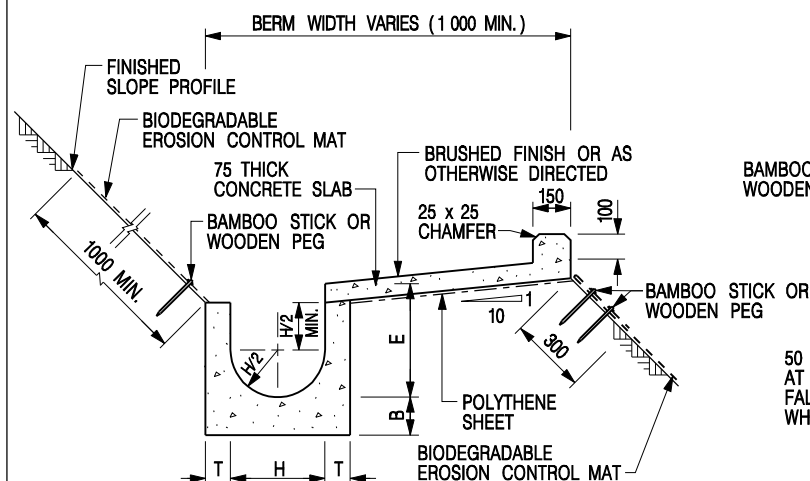




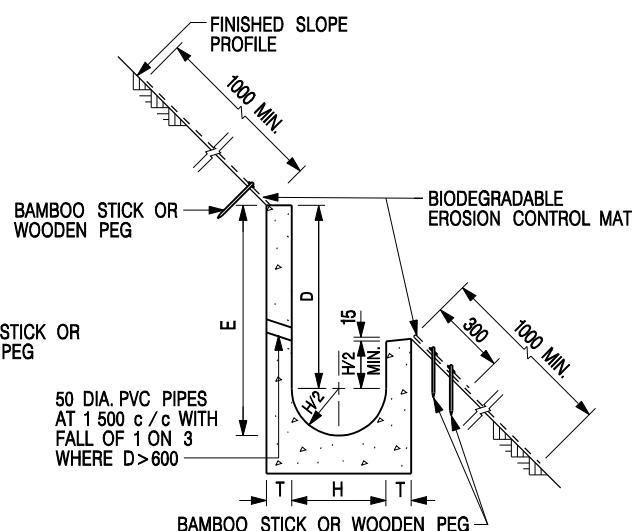
**U-CHANNELS CONSTRUCTED ON BERM  
WITH NON-BIODEGRADABLE  
EROSION CONTROL MAT**



**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

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

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



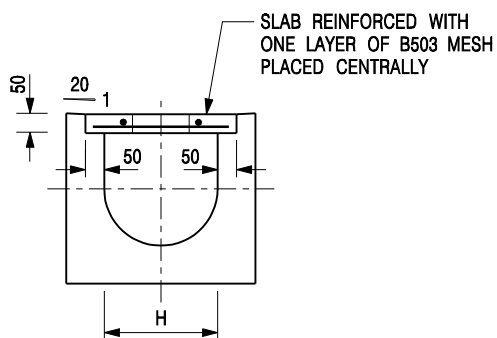
**CIVIL ENGINEERING AND  
DEVELOPMENT DEPARTMENT**

**SCALE** DIAGRAMMATIC

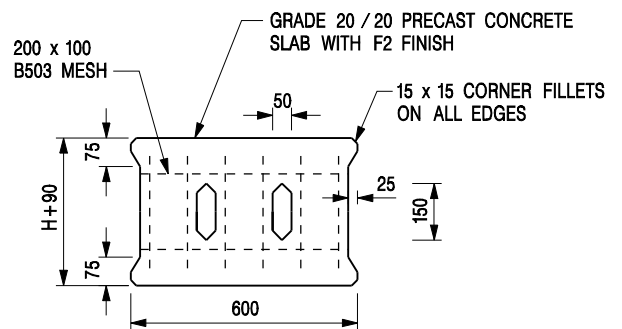
**DRAWING NO.**

**DATE** JAN 1991

**C24101**



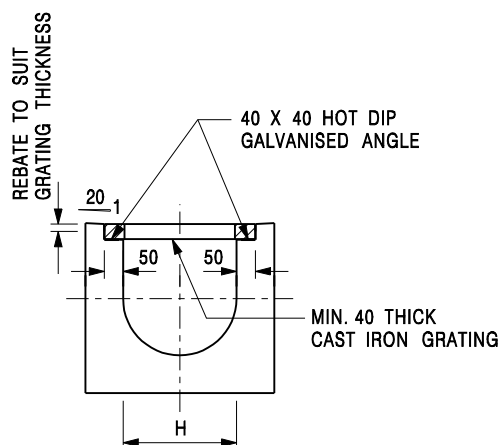
**TYPICAL SECTION**



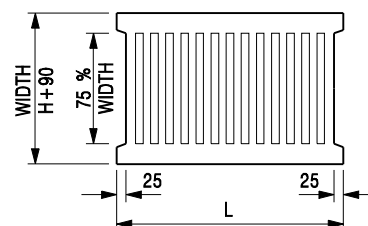
**PLAN OF SLAB**

### 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:**

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

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

**COVER SLAB AND CAST IRON  
GRATING FOR CHANNELS**



**CIVIL ENGINEERING AND  
DEVELOPMENT DEPARTMENT**

**SCALE** 1 : 20

**DATE** JAN 1991

**DRAWING NO.**  
**C2412E**

**APPENDIX F**  
**RESPONSE TO COMMENTS**

**Response to Comments on Temporary Drainage Proposal**

1. Comments from DSD/MN on 3 April 2023 .....2

**1. Comments from DSD/MN on 3 April 2023**

<b>No.</b>	<b>Comments</b>	<b>Response</b>
1.	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 and agreed. 400mm U-channel are provided along the site boundary to convey stormwater leading to the existing village drainage system. Please refer the captioned Temporary Drainage Proposal and the proposed drainage plan in the Appendix C for your consideration.
2.	Please demonstrate with hydraulic calculation that the 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 and provided. Please refer the captioned Temporary Drainage Proposal (Issue 2) and the hydraulic calculation in the Appendix D for your consideration.
3.	The applicant should check and ensure the hydraulic capacity of the existing drainage facilities would not be adversely affected by the captioned development.	Please refer to the Section 4.2. The characteristics of the sub-catchment areas are remained unchanged due to the temporary development for the application site, which are paved area. The application site is fully covered by concrete surface currently. This application does not propose adding any additional concrete area, the difference in surface runoff that can be attributed to this application is negligible.
4.	Since the adjacent lands around the application site are generally higher, the overland flow from the adjacent lands shall be probably intercepted and the external catchment shall be considered in the calculation.	Please be advised that the ground level of application site is generally higher than the adjacent ground surface. Therefore, no external catchment shall be considered in the calculation, only the application site with a projected area of 1,550 m <sup>2</sup> is considered as part of the catchment. Please refer to the section 4.1.
5.	Please indicate clearly the full alignment of the discharge path from the application site all the way down to the ultimate discharge point (e.g. a well-established stream course/public drainage system).	For the full alignment of the discharge path from the application site, please refer to the Appendix C – Proposed drainage plan.
6.	The gradients of the proposed U-channels should be shown on the drainage plan,	Noted and provided. Please refer to Appendix C - Proposed drainage plan.
7.	The proposal should indicate how the runoff (the flow direction) within the site would be discharged to the proposed u-channel.	Noted and provided. Please refer to Appendix C - Proposed drainage plan.
8.	The cover levels and invert levels of the	Noted and provided. The invert levels,



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	proposed u-channels, catchpits/sand traps should be shown on the drainage plan.	gradients and dimension of the proposed u-channels had been indicated in the Appendix C - Drainage Plan.
9.	Cross sections showing the existing and proposed ground levels of the captioned site with respect to the adjacent areas should be given.	Noted and provided. Please refer to Appendix C - Proposed drainage plan.
10.	Sand trap or provision alike should be provided before the collected runoff is discharged to the public drainage facilities.	Noted. Terminate catchpit with Sand traps is to be provided before discharging to the downstream village drainage facilities, to prevent blockages and for regular maintenance purpose. Please refer to Appendix C - Proposed drainage plan.
11.	Standard details should be provided to indicate the sectional details of the proposed u-channel and the catchpit/sand trap.	For the Standard details, please refer to the Appendix E - Typical Standard Drawings of U-Channel and Catchpit.
12.	Where walls or hoarding are erected or laid along the site boundary, adequate opening should be provided to intercept the existing overland flow passing through the site.	Noted. Adequate opening would be provided to the hoarding.
13.	The development should neither obstruct overland flow nor adversely affect existing natural streams, village drains, ditches and the adjacent areas, etc.	Noted.
14.	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. The owner of the existing drainage facilities would be consulted separately.