寄件者:	Chong Hermose ███████████████
寄件日期:	2025年02月02日星期日 13:41
收件者:	tpbpd/PLAND
副本:	Gary Tat Leung LAM/PLAND
主旨:	A/YL-NSW/331：回應部門意見（排水建議書）
附件:	Temporary Drainage Proposal for A_YL-NSW_331 (Issue 2)..pdf
類別:	Internet Email

城規會/規劃處：

有關規劃申請： A/YL-NSW/331，現附上申請人回應部門的意見（排水建議書），請查收。

謝謝。

莊小姐
████████████

ISSUE 2

TEMPORARY DRAINAGE PROPOSAL

APPLICATION SITE OF THE PROPOSED
TEMPORARY SHOP AND SERVICES (SALES OF
HARDWARE ACCESSORIES) FOR A PERIOD OF 3
YEARS AT LOTS 772 (PART) AND 787 (PART) IN
D.D. 115, CASTLE PEAK ROAD-YUEN LONG
SECTION, YUEN LONG

PROJECT NO. AGLA/TDM/023

PREPARED FOR

APPLICATION NO. A/YL-NSW/331

28 JANUARY 2025

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A. Location Plan
B. Layout Plan
C. Proposed Drainage Plan
D. Design Calculation of the Proposed Drainage
E. Typical Standard Drawings of U-Channel and Catchpit
F. Response to Comments

LIST OF TABLES

1 Introduction

1.1 Background

1.1.1 This report presents the Drainage Proposal for supporting the Proposed Temporary Shop and Services (Sales of Hardware Accessories) for a Period of 3 Year at Lots 772 (Part) and 787 (Part) in D.D. 115, Castle Peak Road-Yuen Long Section, Yuen Long

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 Castle Peak Road-Yuen Long Section, Yuen Long with an area of around 435m^2 and ground level varying between + 8.0mPD and + 7.6mPD. 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^3/s

C = Runoff Coefficient

i = Rainfall Intensity, mm/hr

A = Catchment Area, km^2

3.2.2   The paved area of the site will account for 435 m². 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 adjacent ground surface from southern direction are generally higher than the ground level of application site. Therefore, there is no external catchment are considered as part of the catchment.

4.1.2   the application site with a projected area of 435 m²

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 (m²)	0	0
Paved Area (m²)	435	435
External Catchment Area (m²)	0	0
Total Catchment Area (m²)	435	435

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 terminate catchpit with trap (TCP), which is connected to the further downstream leading to the discharge point of the channel at the north-western direction of the application site, and eventually lead to the existing village drainage system.

4.3.4 The 300mm 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 300mm 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 (M³/S)	CAPACITY (M³/S)	RESERVE CAPACITY
300mm UC	0.037	0.079	65%

Note:

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

[2] The reserve capacity is calculated by assuming that the 300mm 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 300mm UC with the runoff anticipated to be 0.037m³/s, which is within the drainage capacity of the proposed 300mm u-channel of 0.079m³/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^3 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 435 m^2 consists of the site area of the proposed Application Site.

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
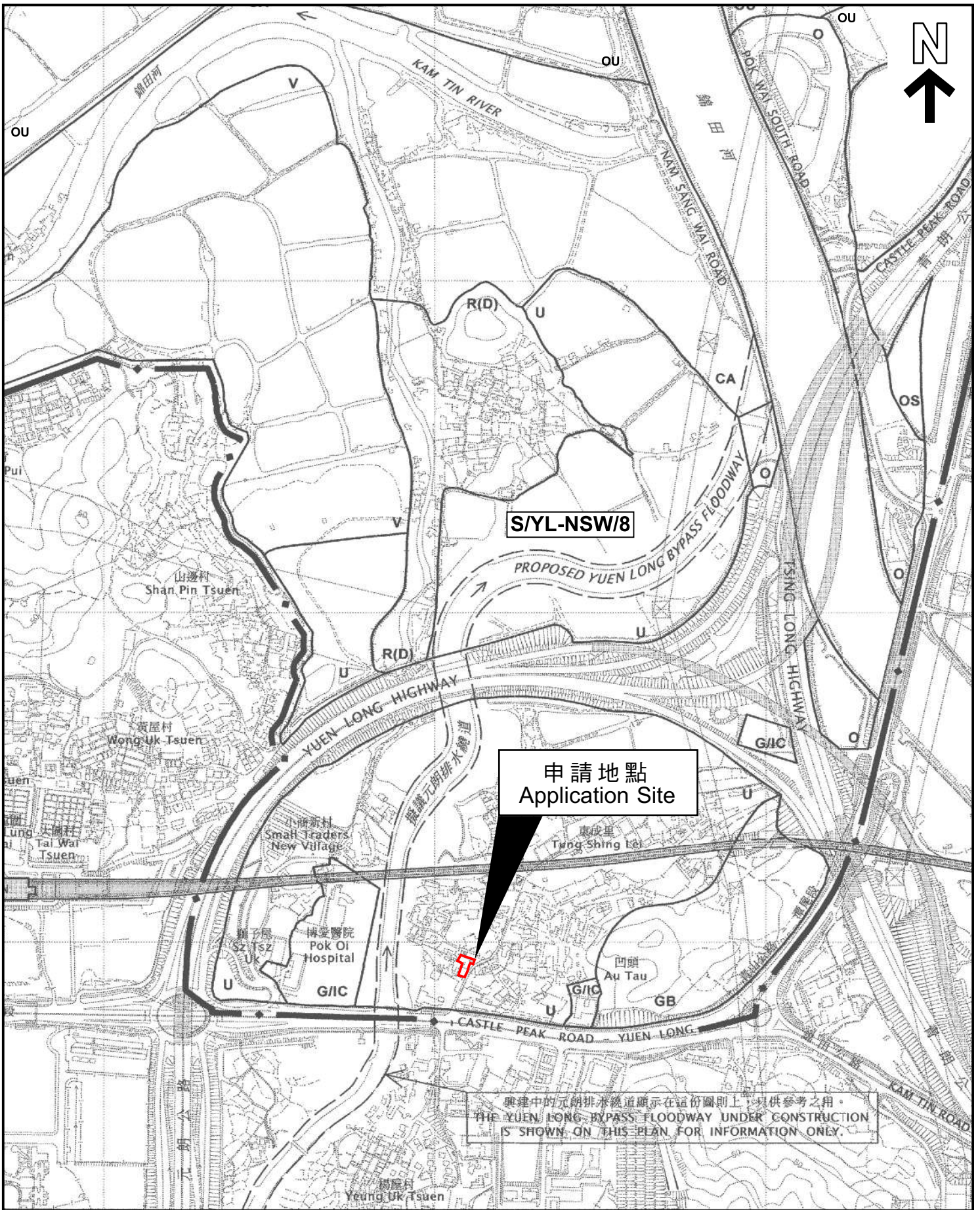
位置圖 LOCATION PLAN

申請地點
Application Site

S/YL-NSW/8

PROPOSED YUEN LONG BYPASS FLOODWAY

興建中的元朗排水繞道顯示在這份圖則上，只供參考之用。
THE YUEN LONG BYPASS FLOODWAY UNDER CONSTRUCTION
IS SHOWN ON THIS PLAN FOR INFORMATION ONLY.

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-NSW/331

SCALE 1 : 7 500 比例尺
米 METRES 100 0 100 200 300 米 METRES

APPENDIX B

LAYOUT PLAN

申請地點
Application Site

LONG FAI ROAD

朗暉路

YUEN-LONG-TUNG-SHING-LEI-ROAD

劉四宅
137

露天貨倉
Open Stora

偉濂園
151

瓊園
155

新港酒店
SUN KONG HOTEL

元朗東成里路

青山公路－元朗段

斜路
Ramp

斜路
Ramp

Cycling Track

單車徑
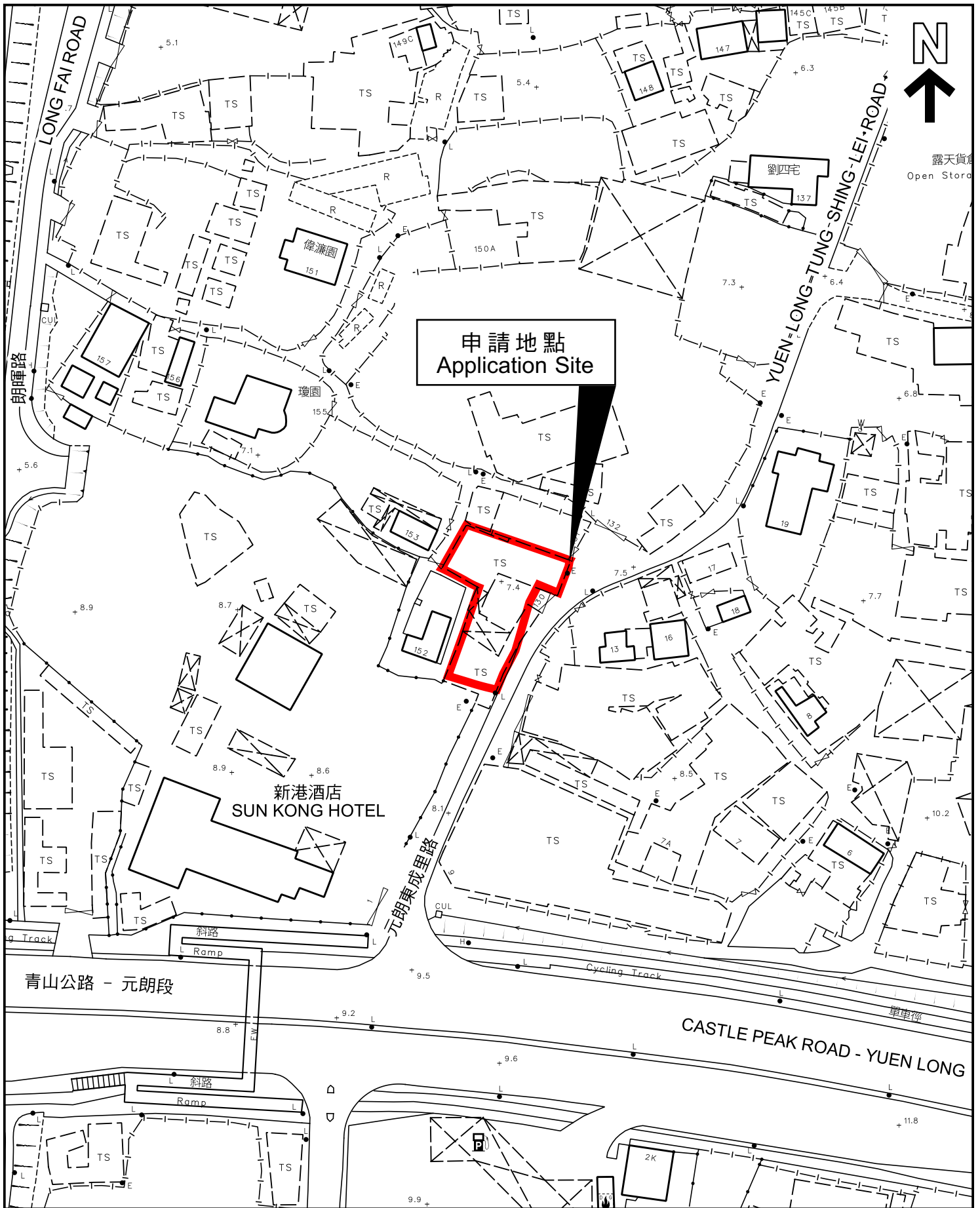
CASTLE PEAK ROAD - YUEN LONG

平面圖　SITE PLAN

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-NSW/331

APPENDIX C

PROPOSED DRAINAGE PLAN
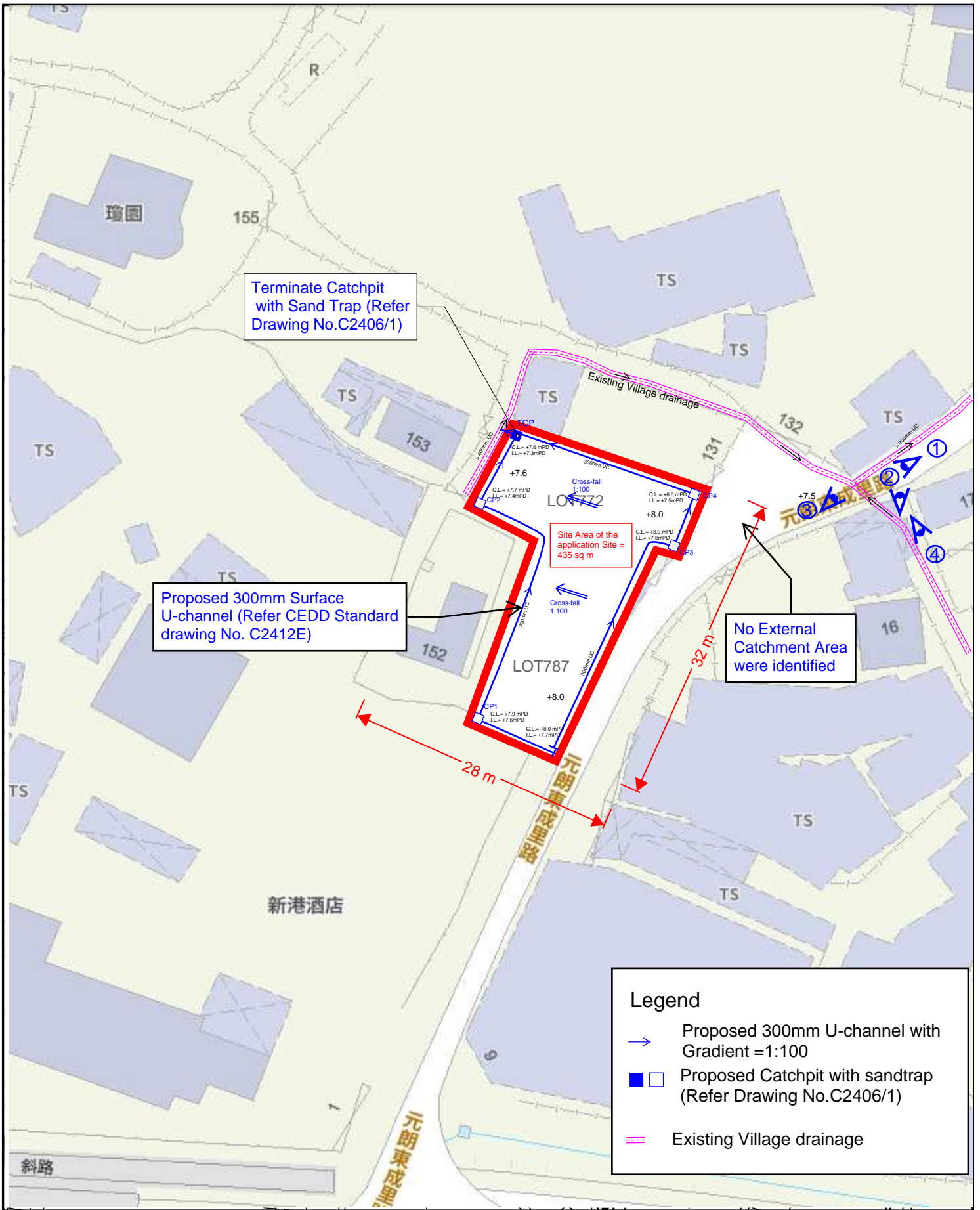
Terminate Catchpit with Sand Trap (Refer Drawing No.C2406/1)

Existing Village drainage

TCP

C.L.= +7.6 mPD
I.L.= +7.3mPD

+7.6

Cross-fall 1:100

300mm UC

LOT772

C.L.= +8.0 mPD
I.L.= +7.5mPD

CP4

+8.0

C.L.= +7.7 mPD
I.L.= +7.4mPD

CP2

Site Area of the application Site = 435 sq m

C.L.= +8.0 mPD
I.L.= +7.6mPD

CP3

Proposed 300mm Surface U-channel (Refer CEDD Standard drawing No. C2412E)

Cross-fall 1:100

152

300mm UC

LOT787

350mm UC

No External Catchment Area were identified

+8.0

CP1

C.L.= +7.9 mPD
I.L.= +7.6mPD

C.L.= +8.0 mPD
I.L.= +7.7mPD

+7.5

① ② ③ ④

28 m

32 m

元朗東成里路

瓊園

155

153

TS

R

132

131

16

17

9

1

新港酒店

斜路

Legend

→ Proposed 300mm U-channel with Gradient =1:100

■ □ Proposed Catchpit with sandtrap (Refer Drawing No.C2406/1)

Existing Village drainage

Appendix C - Drainage Plan

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-NSW/331

Appendix C - Drainage Plan

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-NSW/331

No public government drainage are existed adjacent to the application site

新村公立學校

東成里

博愛醫院

劉四宅
露天貨倉

偉溥園

璋園

元朗東成里路

凹頭

露天貨倉

新港酒店

耶穌基督後期聖徒教會

明芯安老院
B座

麗豪園

C座

凹頭青少年中心

露天貨倉

G座

祥康園

東華三院馬振玉紀念中學

香港童軍總會
元朗東區區會中心

楊屋村花園 香港童軍總會
乾新樓

齡園

0   131 m

地圖列印於 2023 年 5 月 2 日
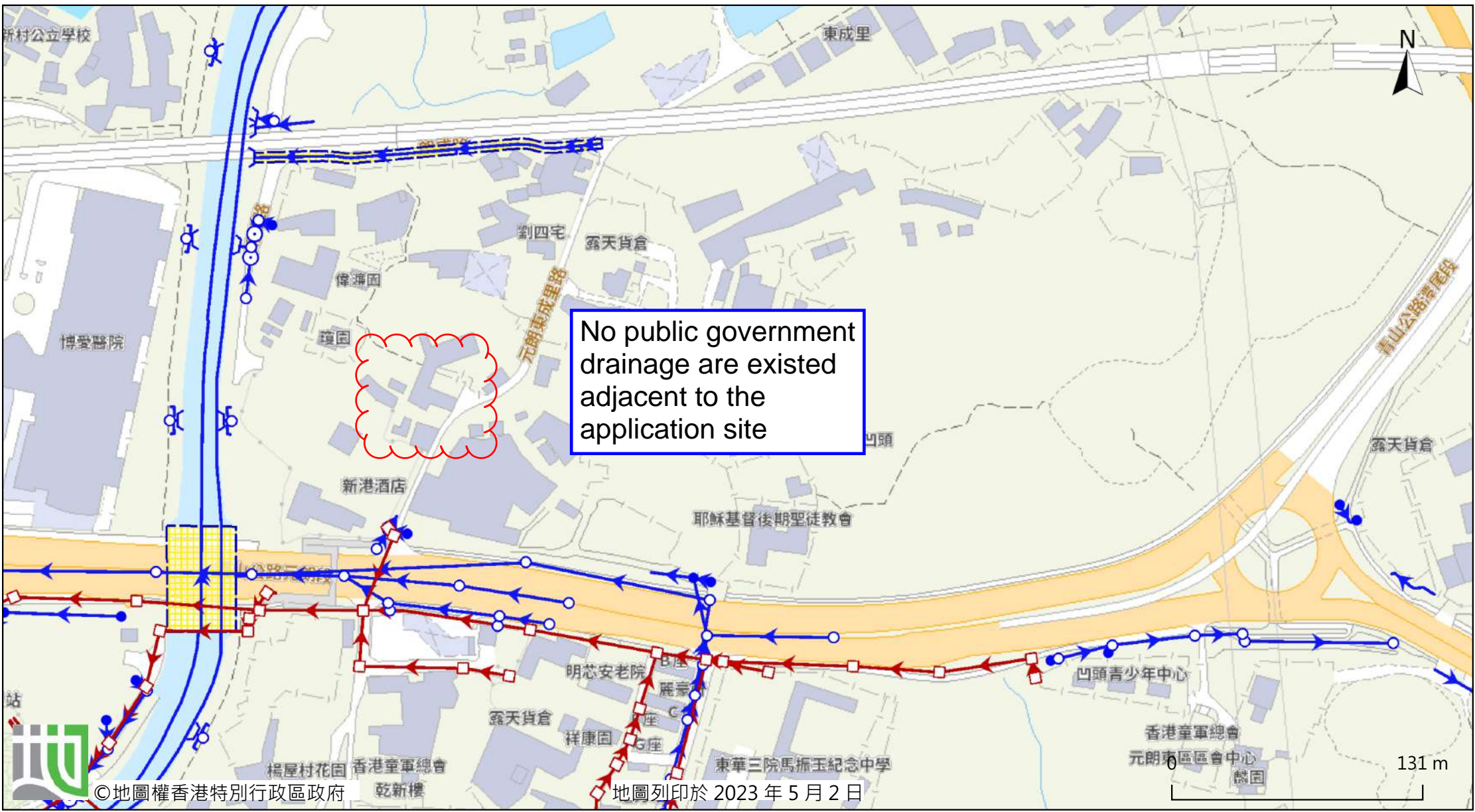
APPENDIX D

DESIGN CALCULATION OF THE PROPOSED DRAINAGE

Project

Subject   Application Site

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 coeffient n is 0.016.

Check for Hydraulic Capacity:

Catchment	K	Area (A)
Application Site Area	1.00	435.0
External Catchment Area	1.00	0.0 m^2
Total Catchment Area	1.00	435.0 m^2

Runoff estimation

Average slope, H		=	1 /100m
Catchment area, A		=	435 m^2
Distance between summit and point under consideration, L		=	31 m
SDM 7.5.2 — Time of concentration of natural catchment, t_o		=	$0.14465 \times L / (H^{0.2} \times A^{0.1})$
		=	2.44 min.
Length of drain, L_j		=	100 m
Velocity, V_j		=	0.978 m/s
SDM 7.5.2 — Flow time, t_f		=	$\Sigma (L_j / V_j)$
		=	1.70337897 min.
Time of concentration, t_c	g	=	$t_o + t_f$
		=	4.15 min.

SDM Table 3 — Storm constants for 50-year return period:

a = 474.6
b = 2.9
c = 0.371

SDM 4.3.2 — Extreme mean intensity, $i50_{yr}$ = $a / (t_d + b)^c$
= 205.96 mm/hr

SDM Table 28 — Extreme mean intensity at the end of 21st century   10.4%
= 227.38 mm/hr

GMS Fig 8.2 — < 405.000 mm/hr

SDM 7.5.2 — Design flow, Q = 0.278 i Σ K A
= 0.027 m^3/s

300mm u-channel capacity

Diameter		=	300 mm
Cross-sectional area of 300mm U-channel	= (PI x R ^2 /2) + R x R/2 =	=	0.0803 m^2
Gradient		=	0.01
Manning's Eq. — flow velocity		=	0.978 m/s
Design Capacity		=	0.079 m^3/s
		>	0.027 m^3/s OK
Reserve capacity		=	65%

For conservative, all the U-channel along the site boundary shall be 300mm.

APPENDIX E

TYPICAL STANDARD DRAWINGS OF U-CHANNEL AND CATCHPIT

(EXTRACTED FROM CEDD, FOR REFERNCE ONLY)

4 NOS. STAINLESS STEEL GRATING FIXED TO BOTTOM SLAB BY STAINLESS STEEL SCREWS

20 x 20 CHAMFER

STEPPED CHANNEL

H3

FALL

U–CHANNEL

20 THICK APPROVED CELLULAR JOINT FILLER SEALED WITH 20 x 20 Tk POLYSULPHIDE JOINT SEALANT

500 + GREATER OF H1 OR H2

H1

FALL

FALL

H2

A

A

20 THICK APPROVED CELLULAR JOINT FILLER SEALED WITH 20 x 20 Tk POLYSULPHIDE JOINT SEALANT

STEPPED OR U–CHANNEL OR PIPE

FALL

U–CHANNEL

H4

500 + GREATER OF H3 OR H4

PLAN

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

100

100

20 x 20 CHAMFERS ON ALL SIDES

100 MIN.

350 (OR 650 FOR CATCHPIT CONSTRUCTED ON OR ADJACENT TO A FOOTPATH)

A252 MESH OR EQUIVALENT

20 THICK APPROVED CELLULAR JOINT FILLER SEALED WITH 20 x 20 Tk POLYSULPHIDE JOINT SEALANT

FALL

FALL

300 BELOW LOWEST INVERT

B

25 DIA. DRAIN PIPES

SECTION A – A
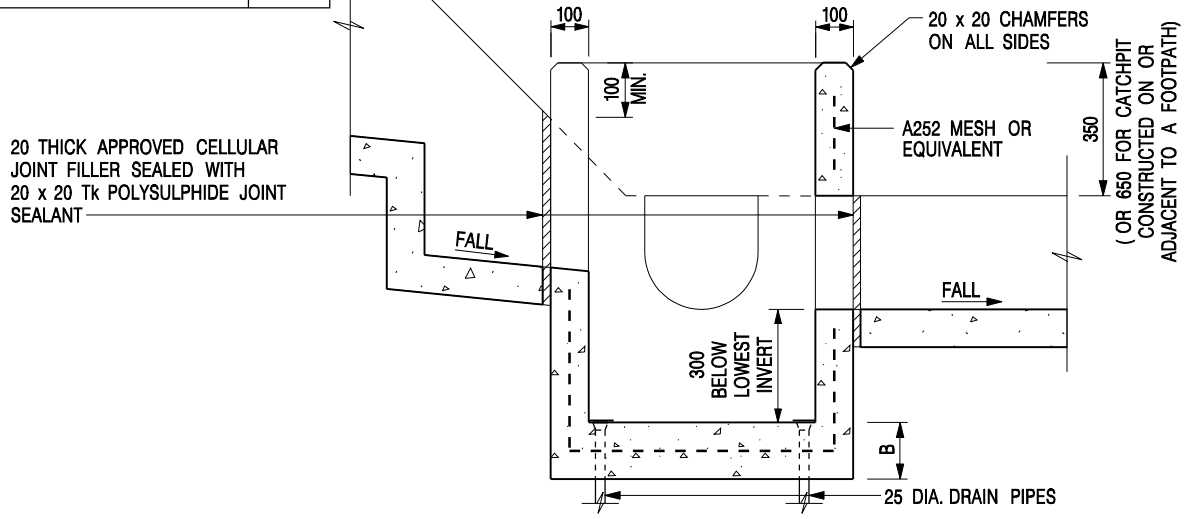
NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.

2. REFER TO SHEET 2 FOR OTHER NOTES.

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

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

DEPTH OF RECESS AND DETAILS OF
PRECAST CONCRETE COVERS
(SEE STD. DRG. NO. C2407)

50   50   60 FOR
                    STEEL GRATINGS

ALTERNATIVE TOP SECTION
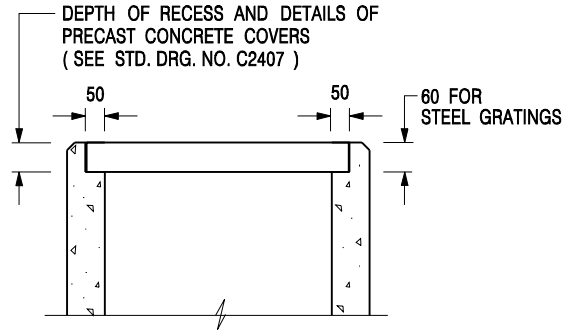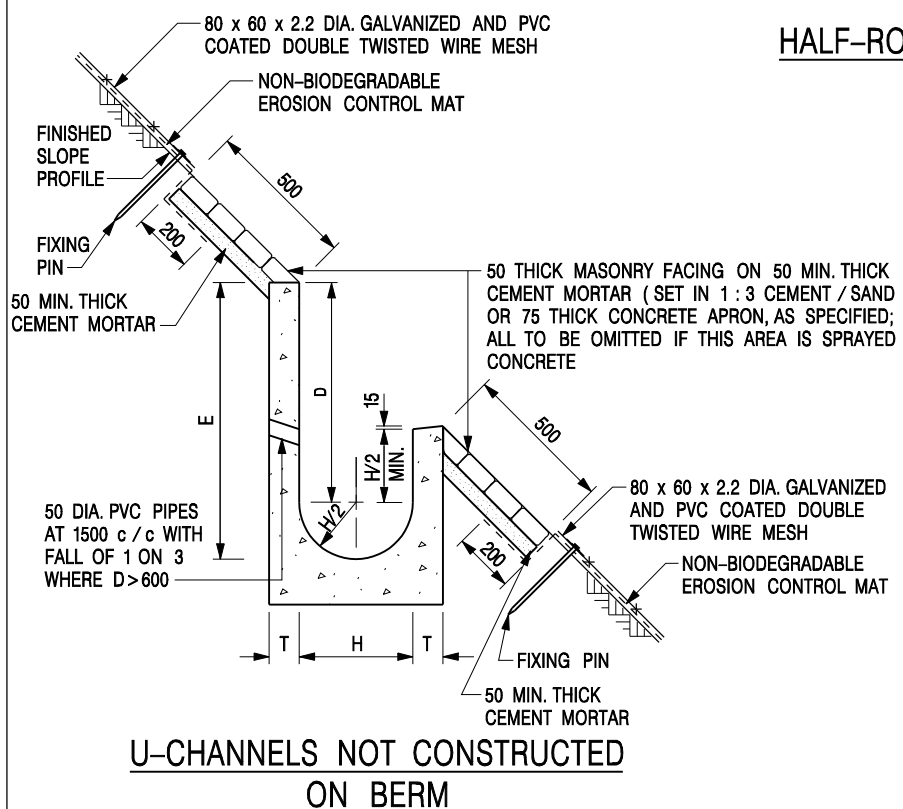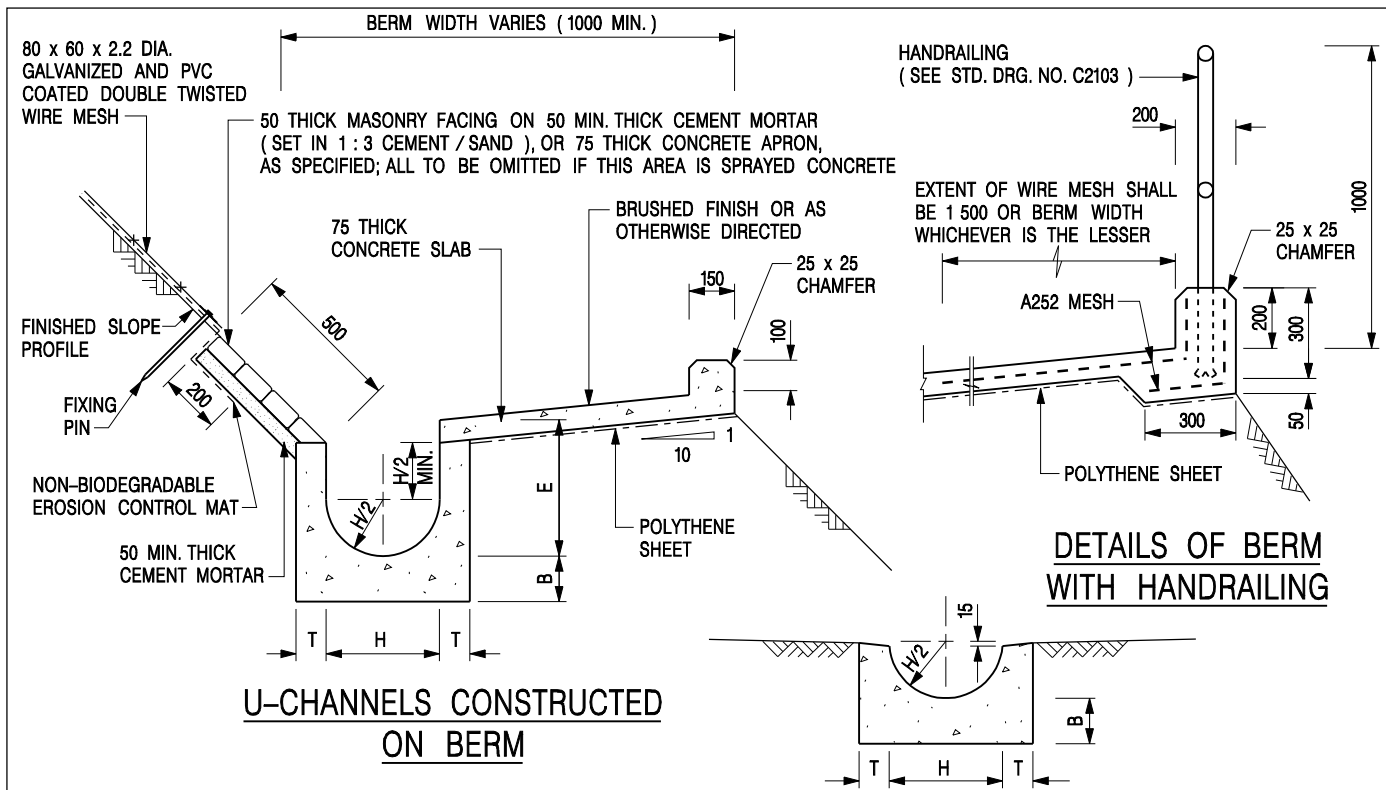## FOR PRECAST CONCRETE COVERS / GRATINGS

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

CEDD

SCALE 1 : 20

DATE JAN 1991

DRAWING NO.

C2406 /2A

BERM WIDTH VARIES (1000 MIN.)

80 x 60 x 2.2 DIA.
GALVANIZED AND PVC
COATED DOUBLE TWISTED
WIRE MESH

50 THICK MASONRY FACING ON 50 MIN. THICK CEMENT MORTAR
(SET IN 1 : 3 CEMENT / SAND), OR 75 THICK CONCRETE APRON,
AS SPECIFIED; ALL TO BE OMITTED IF THIS AREA IS SPRAYED CONCRETE

75 THICK
CONCRETE SLAB

BRUSHED FINISH OR AS
OTHERWISE DIRECTED

150

25 x 25
CHAMFER

FINISHED SLOPE
PROFILE

100

FIXING
PIN

500

200

10   1

NON-BIODEGRADABLE
EROSION CONTROL MAT

H/2 MIN.

H/2

E

B

50 MIN. THICK
CEMENT MORTAR

POLYTHENE
SHEET

T   H   T

U-CHANNELS CONSTRUCTED
ON BERM

HANDRAILING
(SEE STD. DRG. NO. C2103)

200

EXTENT OF WIRE MESH SHALL
BE 1 500 OR BERM WIDTH
WHICHEVER IS THE LESSER

25 x 25
CHAMFER

1000

A252 MESH

200

300

300

50

POLYTHENE SHEET

DETAILS OF BERM
WITH HANDRAILING

80 x 60 x 2.2 DIA. GALVANIZED AND PVC
COATED DOUBLE TWISTED WIRE MESH

NON-BIODEGRADABLE
EROSION CONTROL MAT

15

FINISHED
SLOPE
PROFILE

500

H/2

B

FIXING
PIN

200

T   H   T

50 MIN. THICK
CEMENT MORTAR

HALF-ROUND CHANNEL

50 THICK MASONRY FACING ON 50 MIN. THICK
CEMENT MORTAR (SET IN 1 : 3 CEMENT / SAND),
OR 75 THICK CONCRETE APRON, AS SPECIFIED;
ALL TO BE OMITTED IF THIS AREA IS SPRAYED
CONCRETE

E

D

15

H/2 MIN.

H/2

500

80 x 60 x 2.2 DIA. GALVANIZED
AND PVC COATED DOUBLE
TWISTED WIRE MESH

200

NON-BIODEGRADABLE
EROSION CONTROL MAT

50 DIA. PVC PIPES
AT 1500 c / c WITH
FALL OF 1 ON 3
WHERE D > 600

T   H   T

FIXING PIN

50 MIN. THICK
CEMENT MORTAR

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

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

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

BERM WIDTH VARIES (1 000 MIN.)

FIXING PIN

80 x 60 x 2.2 DIA. GALVANIZED AND PVC COATED DOUBLE TWISTED WIRE MESH

NON–BIODEGRADABLE EROSION CONTROL MAT

75 THICK CONCRETE SLAB

1000 MIN.

FINISHED SLOPE PROFILE

ANCHOR BOLT AT 1 m c/c (SEE DETAIL 'A' IN STD. DRG. NO. C2511/2)

200

H/2 MIN.

H/2

B

T H T

E

POLYTHENE SHEET

BRUSHED FINISH OR AS OTHERWISE DIRECTED

25 x 25 CHAMFER

150

100

10 1

FIXING PIN

200

1000 MIN.

NON–BIODEGRADABLE EROSION CONTROL MAT

80 x 60 x 2.2 DIA. GALVANIZED AND PVC COATED DOUBLE TWISTED WIRE MESH

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

FINISHED SLOPE PROFILE

1000 MIN.

FIXING PIN

ANCHOR BOLT AT 1 m c/c (SEE DETAIL 'A' IN STD. DRG. NO. C2511/2)

NON–BIODEGRADABLE EROSION CONTROL MAT

80 x 60 x 2.2 DIA. GALVANIZED AND PVC COATED DOUBLE TWISTED WIRE MESH

80 x 60 x 2.2 DIA. GALVANIZED AND PVC COATED DOUBLE TWISTED WIRE MESH

200

E

D

15

H/2 MIN.

H/2

200

1000 MIN.

50 DIA. PVC PIPES AT 1 500 c/c WITH FALL OF 1 ON 3 WHERE D>600

T H T

FIXING PIN

U–CHANNELS CONSTRUCTED ON BERM WITH BIODEGRADABLE EROSION CONTROL MAT

BERM WIDTH VARIES (1 000 MIN.)

FINISHED SLOPE PROFILE

BIODEGRADABLE EROSION CONTROL MAT

75 THICK CONCRETE SLAB

BAMBOO STICK OR WOODEN PEG

1000 MIN.

H/2 MIN.

H/2

E

B

T H T

BRUSHED FINISH OR AS OTHERWISE DIRECTED

25 x 25 CHAMFER

150

100

10 1

BAMBOO STICK OR WOODEN PEG

300

POLYTHENE SHEET

BIODEGRADABLE EROSION CONTROL MAT

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

FINISHED SLOPE PROFILE

1000 MIN.

BAMBOO STICK OR WOODEN PEG

BIODEGRADABLE EROSION CONTROL MAT

E

D

15

H/2 MIN.

H/2

300

1000 MIN.

50 DIA. PVC PIPES AT 1 500 c/c WITH FALL OF 1 ON 3 WHERE D>600

T H T

BAMBOO STICK OR WOODEN PEG

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

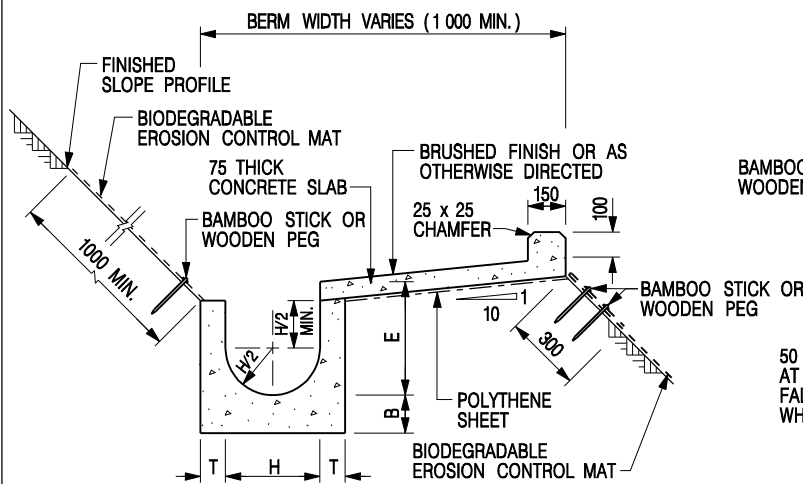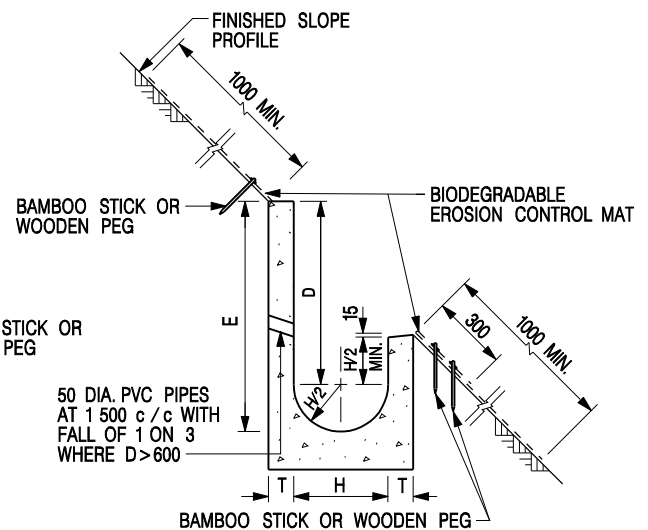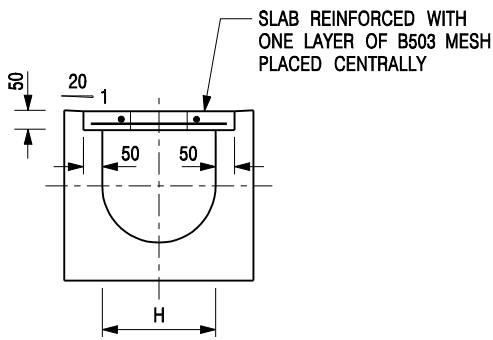# DETAILS OF HALF–ROUND AND U–CHANNELS (TYPE B – WITH EROSION CONTROL MAT APRON)

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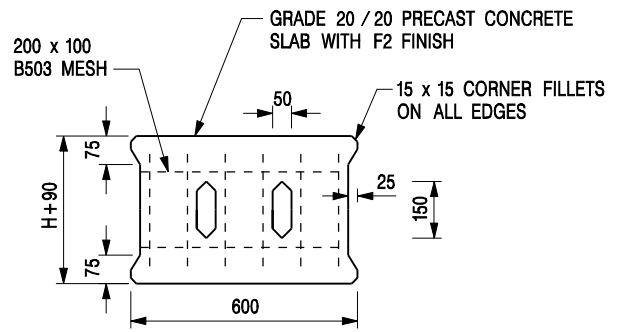## CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
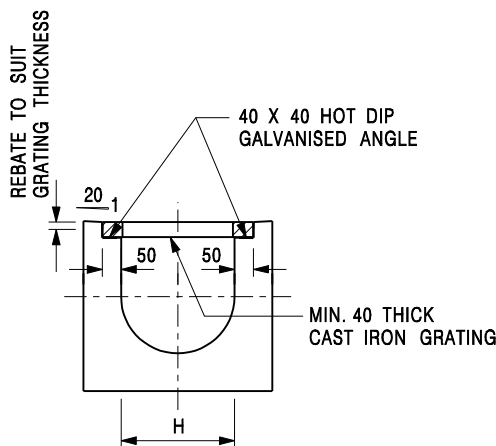
SCALE DIAGRAMMATIC

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TYPICAL SECTION

SLAB REINFORCED WITH ONE LAYER OF B503 MESH PLACED CENTRALLY

PLAN OF SLAB

GRADE 20 / 20 PRECAST CONCRETE SLAB WITH F2 FINISH

200 x 100 B503 MESH

15 x 15 CORNER FILLETS ON ALL EDGES

75
H+90
75
600
50
25
150

U-CHANNELS WITH PRECAST CONCRETE SLABS

(UP TO H OF 525)

REBATE TO SUIT GRATING THICKNESS

40 X 40 HOT DIP GALVANISED ANGLE

MIN. 40 THICK CAST IRON GRATING

TYPICAL SECTION

CAST IRON GRATING

WIDTH H+90
75 % WIDTH
25   25
L
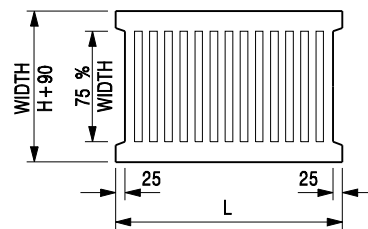
L = 600mm FOR H ≤ 375mm
L = 400mm FOR H > 375mm

(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

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SCALE 1 : 20

DATE JAN 1991

DRAWING NO. C2412E

APPENDIX F

RESPONSE TO COMMENTS

Response to Comments on draft Temporary Drainage Proposal

1.   Comments from DSD/MN

No.	Comments	Response
1.	The submitted drainage proposal does not include most of the essential information such as u- channels gradient, relevant hydraulic calculations, provision/ cover and invert levels of catchpits, cross sections of the site and adjacent areas, u-channel/catchpit standard details, etc.	Noted. Please refer to the captioned Drainage report. The assessment reviews the drainage pipe have the sufficient capacity to cater for the drainage flow from the Application Site.
2.	The applicant is required to submit a revised drainage proposal for vetting. In general, 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 with thanks. The revised drainage proposal are therewith submitted for your approval.