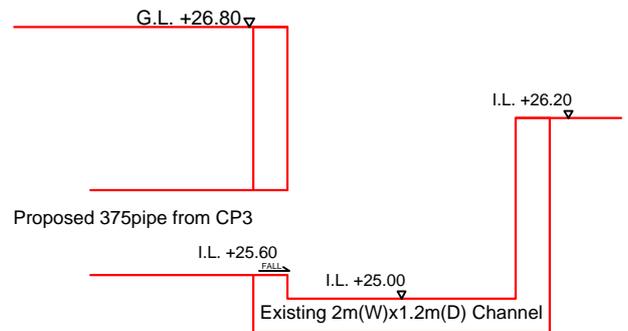


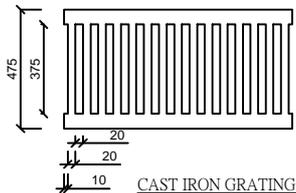
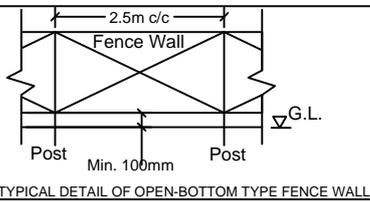
- Note:**
- Catchpits (CP3) with desilting facility shall follow CEDD standard drawing No. C24061.
 - Catchpit and UC follows Typical Details of Geotechnical Manual for Slope Fig.8.10 and Fig.8.11 respectively.
 - Open-bottom Fence Wall to be erected.
 - Excavation works is completed for leveling the site.
 - Debris and soil in the existing open channel shall be removed.

LEGEND

- CP Proposed CatchPit
- (a) Proposed 375UC (1:150) with Cast Iron Cover
- (b) Proposed 375mm dia. concrete pipe (1:100)
- Existing 2.5m(W)x1.2m(D) Open Channel
- ① Photo Viewport



CONNECTION DETAILS



正宏工程顧問公司

CHING WAN ENGINEERING CONSULTANT COMPANY

Project:
Proposed Temporary Open Storage of Mobile Toilet for a Period of 3 Years and Associated Filling of Land at Lots 1551, 1552, 1556 (Part) and 1557 (Part) in D.D. 118, Yuen Long, New Territories

(Application No.:A/YL-TT/617)

Title:

Drainage Proposal - LAYOUT

D01

Drawn by:

DM

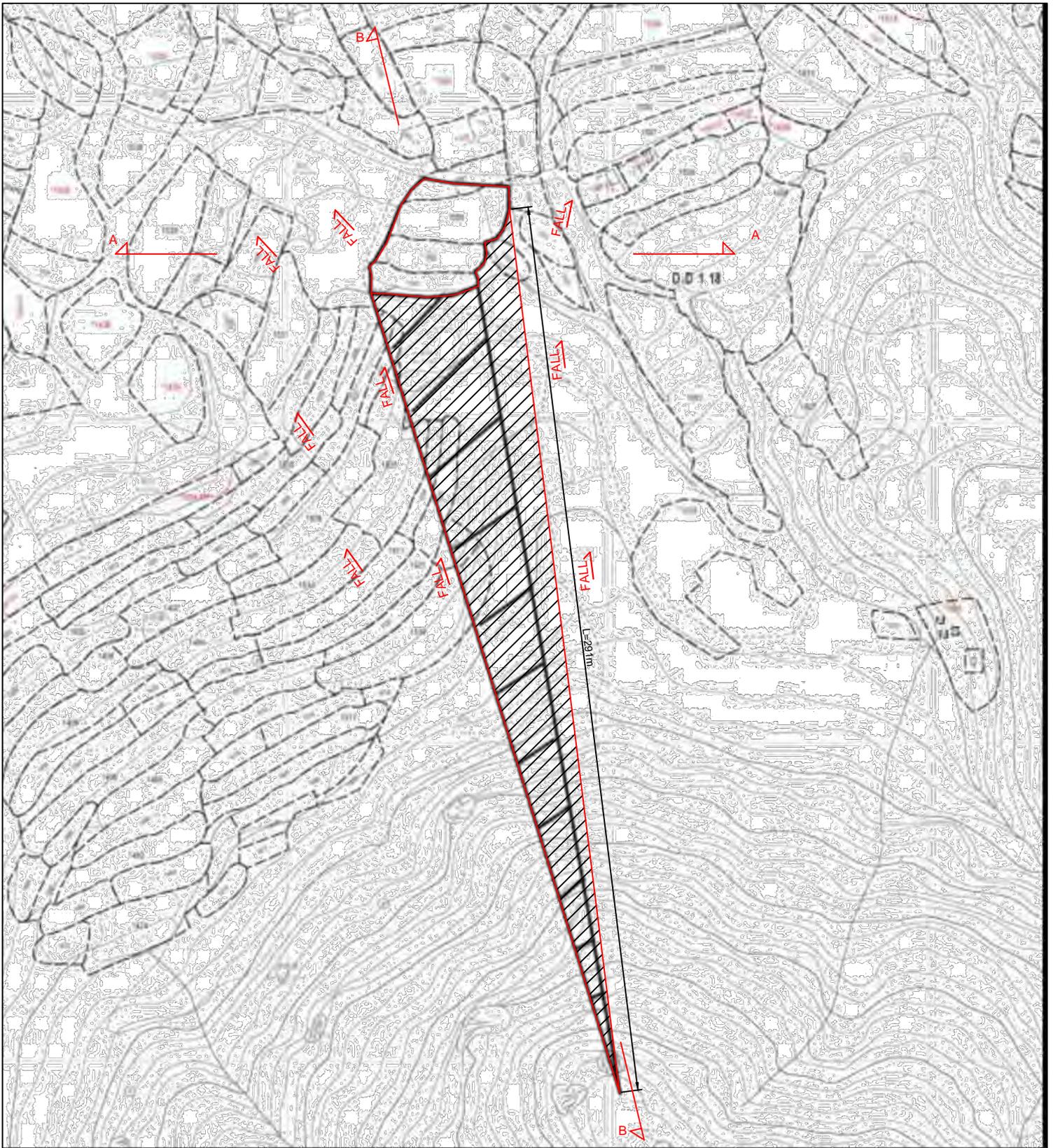
Date:

15-8-2025

Check by:

DM

Scale:



正宏工程顧問公司

CHING WAN ENGINEERING CONSULTANT COMPANY

Project:
Proposed Temporary Open Storage of Mobile Toilet for a Period of 3 Years and Associated Filling of Land at Lots 1551, 1552, 1556 (Part) and 1557 (Part) in D.D. 118, Yuen Long, New Territories

(Application No.:A/YL-TT/617)

Title:

Drainage Proposal -
 CATCHMENT AREA PLAN

D02

Drawn by:

DM

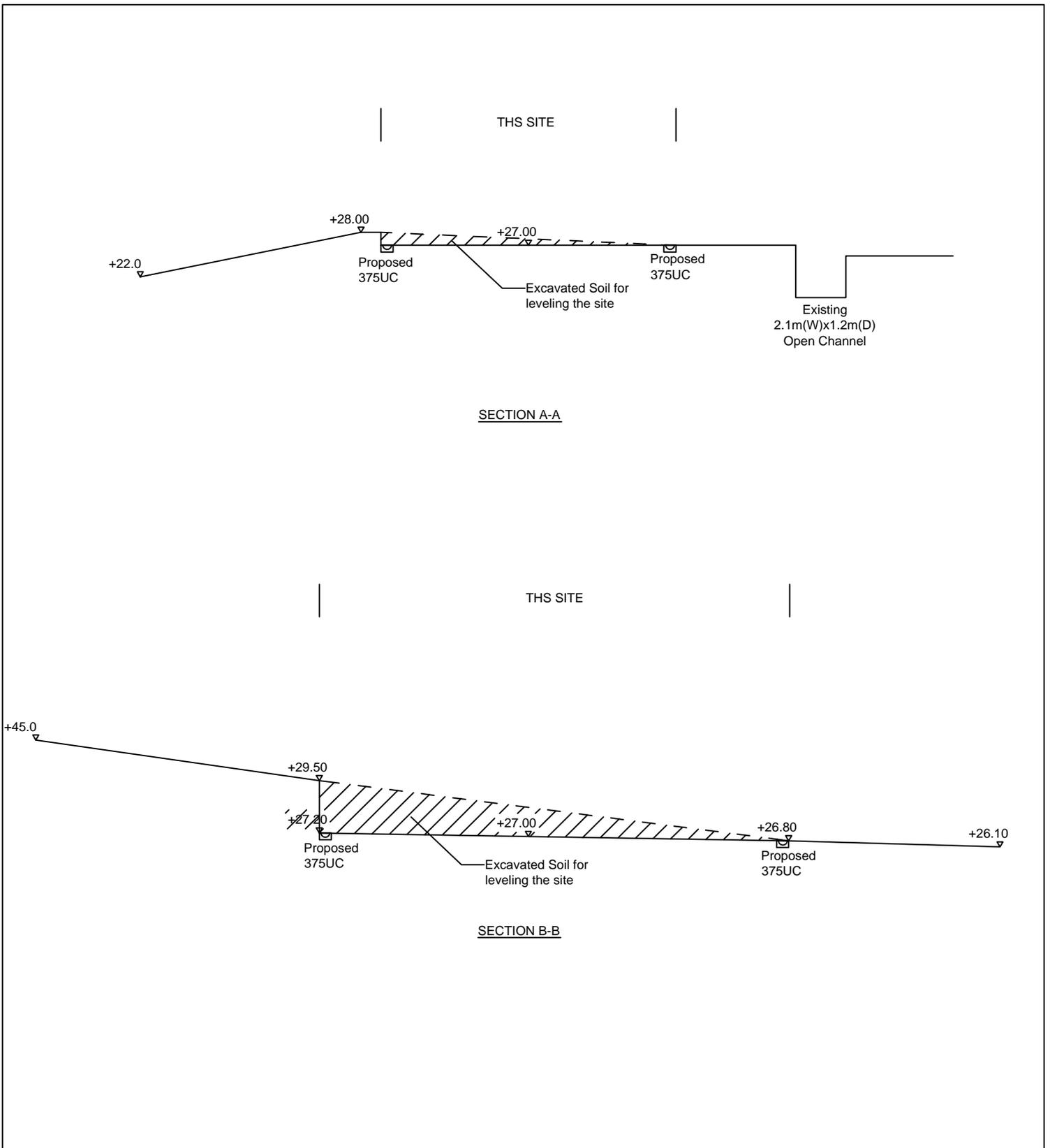
Date:

15-8-2025

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Scale:



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Proposed Temporary Open Storage of Mobile Toilet for a Period of 3 Years and Associated Filling of Land at Lots 1551, 1552, 1556 (Part) and 1557 (Part) in D.D. 118, Yuen Long, New Territories

(Application No.:A/YL-TT/617)

Title:

Drainage Proposal -
SECTIONS

D03

Drawn by:

DM

Date:

15-8-2025

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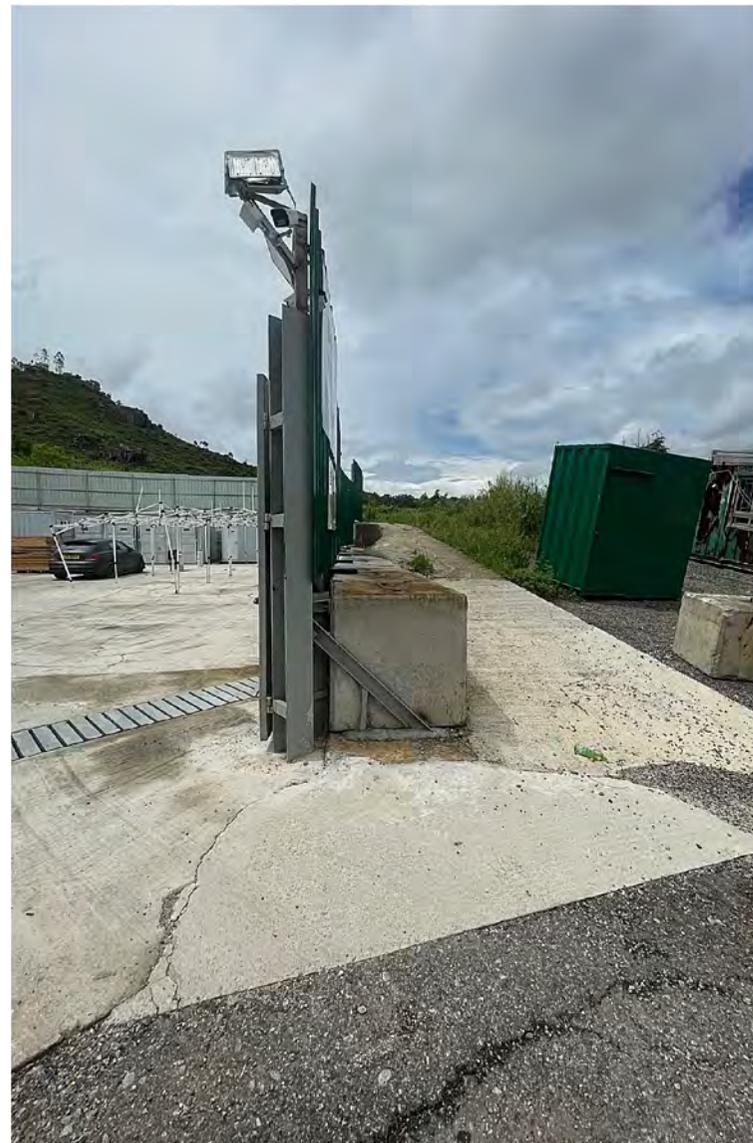
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Scale:

Photo 1



Photo 2



Debris and soil shall be removed

Photo 3

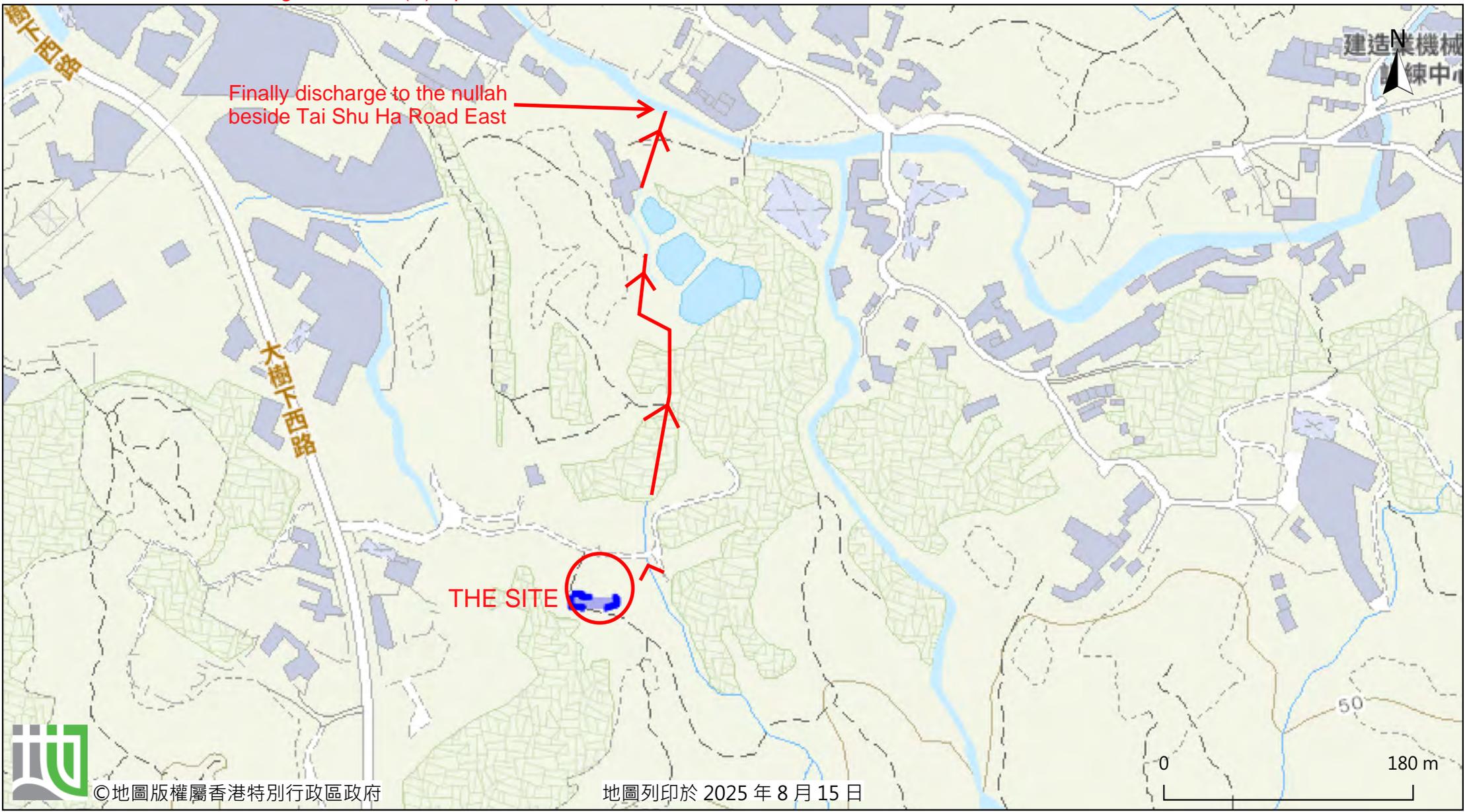


Photo 3a





Further downstream of Existing 2.5mx1.2m(D) Opn Channel



Outside Catchment Area 1, Area = 6520 m² (C= 0.25)
 THE SITE, Area = 1250 m² (C= 0.95)

**Calculation of Design Runoff of the Proposed Development,
 For the design of drains within the site, Catchment Area 1 + The Site**

$$\Sigma Q = \Sigma 0.278 C i A$$

$$\begin{aligned} A &= 6520+1250 \quad \text{m}^2 \\ &= 7770 \\ &= 0.00777 \quad \text{km}^2 \end{aligned}$$

$$\begin{aligned} t &= 0.14465 L/H^{0.2} A^{0.1} \\ &= 0.14465*291/1^{0.2}*7770^{0.1} \\ &= 17.186 \quad \text{min} \end{aligned}$$

$$\begin{aligned} i &= 1.16*a/(t+b)^c \quad (50 \text{ yrs return period, Table 3a, Corrigendum 2024,} \\ &= 1.16*505.5/(17.186+3.29)^{0.355} \quad \text{SDM) and (16\% increase due to climate change)} \\ &= 200.8 \quad \text{mm/hr} \end{aligned}$$

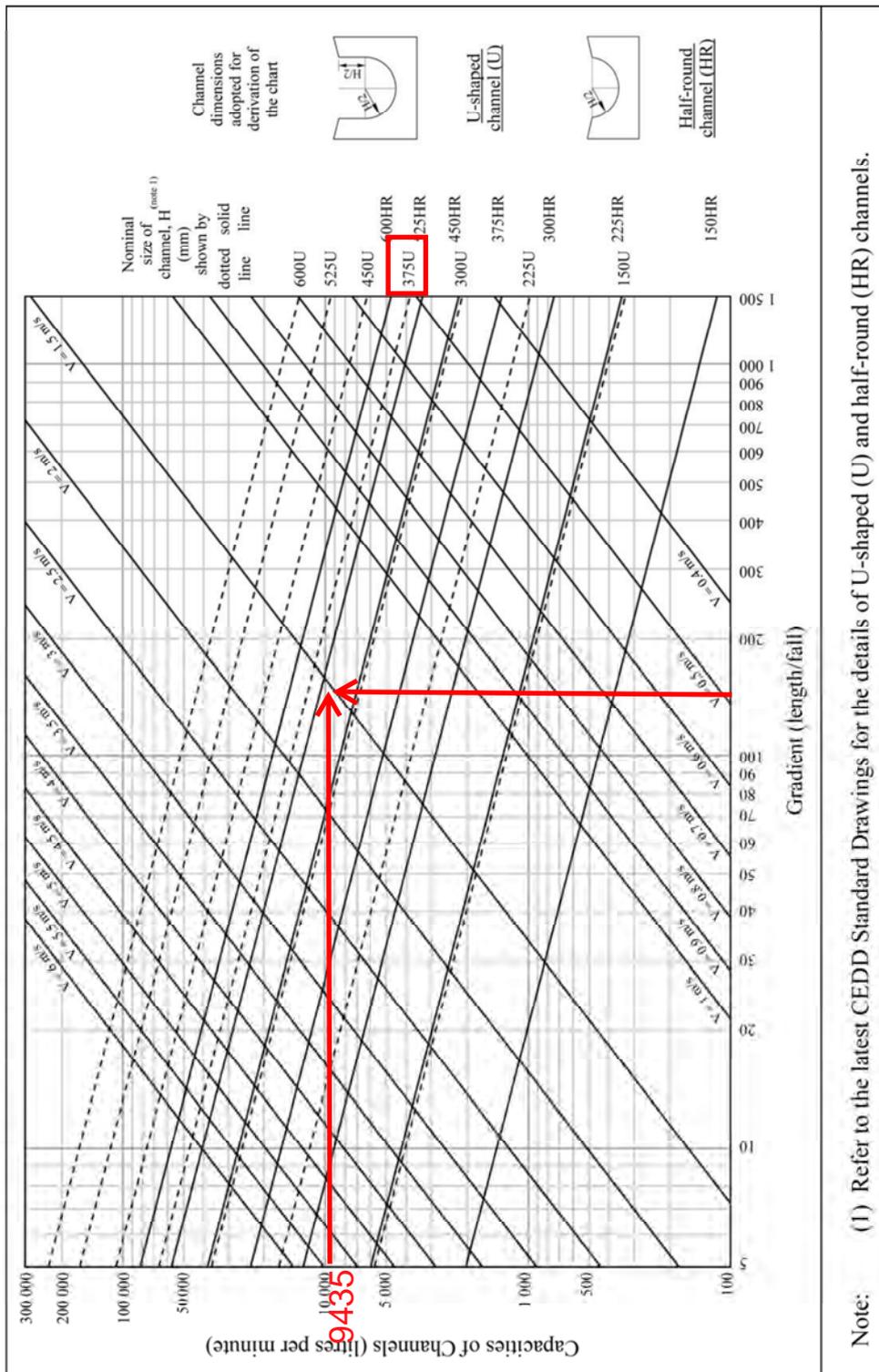
$$\begin{aligned} \text{Therefore, } Q &= 0.278*0.25*200.8*0.00652+0.278*0.95*200.8*0.00125 \\ &= 0.1573 \quad \text{m}^3/\text{sec} \\ &= \underline{9435} \quad \text{lit/min} \end{aligned}$$

Provide 375UC (1:150) is OK

GEO Technical Guidance Note No. 43 (TGN 43)
Guidelines on Hydraulic Design of U-shaped and Half-round Channels on Slopes

Issue No.: 1 Revision: - Date: 05.06.2014 Page: 3 of 3

Figure 1 - Chart for the rapid design of U-shaped and half-round channels up to 600 mm



Check 375mm dia. Pipes by Colebrook-White Equation

$$V = -\sqrt{(8gDs)} \log\left(\frac{ks}{3.7D} + \frac{2.51v}{D\sqrt{(2gDs)}}\right)$$

where :

V	=		mean velocity (m/s)	
g	=	9.81	m/s ² gravitational acceleration (m/s ²)	
D	=	0.375	m internal pipe diameter (m)	
ks	=	0.00015	m hydraulic pipeline roughness (m)	(Table14, from DSD SDM 2018, concrete pipe)
v	=	1.14E-06	m ² /s kinematic viscosity of fluid (m ² /s)	
s	=	0.01	hydraulic gradient	

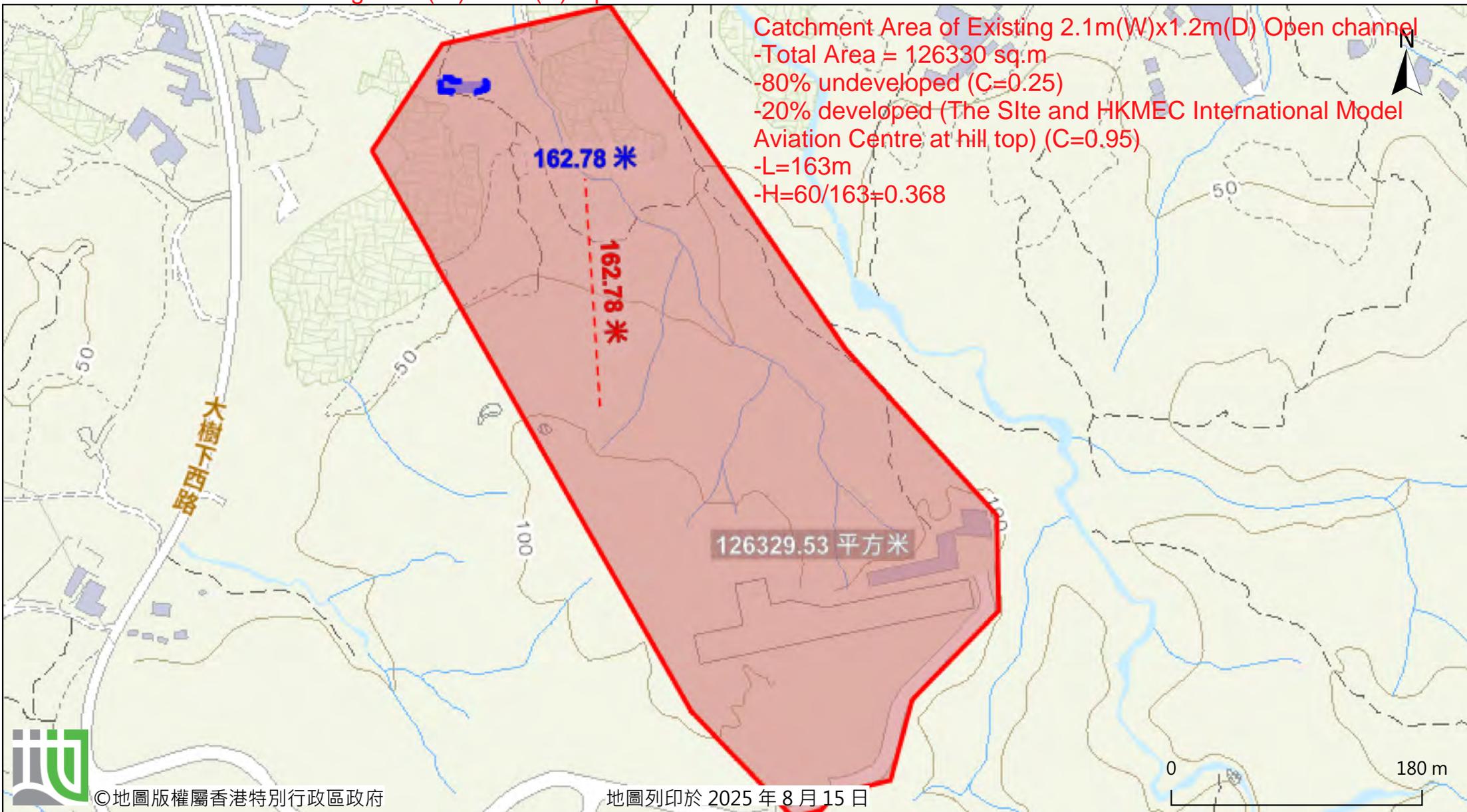
Therefore, design V of pipe capacity = 2.0971 m/s

Q= 0.8VA		(0.8 factor for sedimentation)
= 0.185	m ³ /s	
= 11118	lit/min	
> 9036	lit/min	Ok



前往地圖: <https://www.map.gov.hk/gm/geo:22.4172,114.0401?z=4514>

Catchment Area Plan of Existing 2.1m(W)x1.2m(D) Open channel



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地圖列印於 2025 年 8 月 15 日

Undeveloped Area, Area	=	101064	m ²	(C= 0.25)
Developed Area, Area	=	25266	m ²	(C= 0.95)

Calculation of Design Runoff to Existing 2.1m(W)x1.2m(D) Open Channel,

$$\Sigma Q = \Sigma 0.278 C i A$$

$$\begin{aligned} A &= 101064+25266 && \text{m}^2 \\ &= 126330 \\ &= 0.12633 && \text{km}^2 \end{aligned}$$

$$\begin{aligned} t &= 0.14465 L/ H^{0.2} A^{0.1} \\ &= 0.14465*163/0.368^{0.2}*126330^{0.1} \\ &= 15.881 && \text{min} \end{aligned}$$

$$\begin{aligned} i &= 1.16*a/(t+b)^c && \text{(50 yrs return period, Table 3a, Corrigendum 2024, SDM) and (16% increase due to climate change)} \\ &= 1.16*505.5/(15.881+3.29)^{0.355} \\ &= 205.5 && \text{mm/hr} \end{aligned}$$

$$\begin{aligned} \text{Therefore, } Q &= 0.278*0.25*205.5*0.101064+0.278*0.95*205.5*0.025266 \\ &= 2.8149 && \text{m}^3/\text{sec} \\ &= \underline{168892} && \text{lit/min} \end{aligned}$$

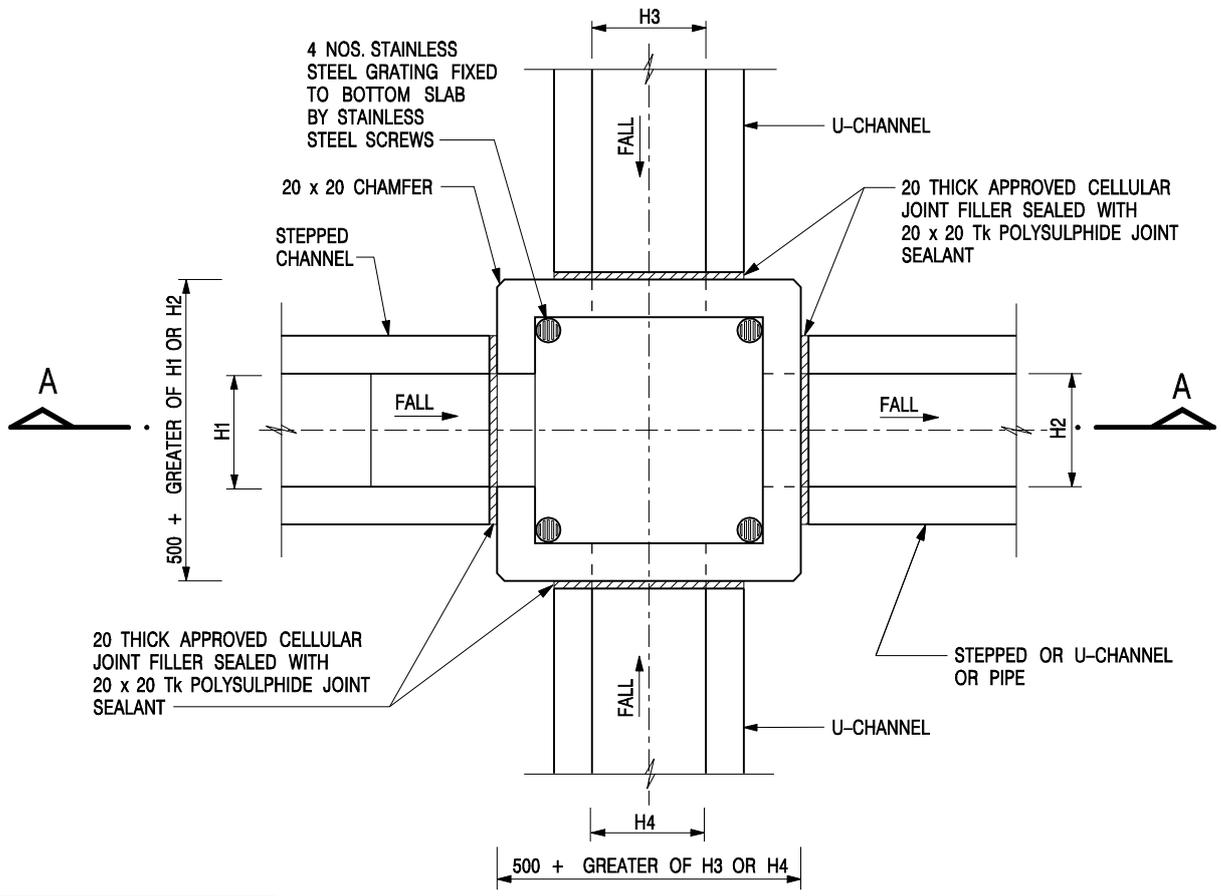
Calculation Maximum Capacity of Existing 2.1m(W)x1.2m(D) Open Channel

Manning Equation $V = R^{2/3} * S_f^{0.5} / n$

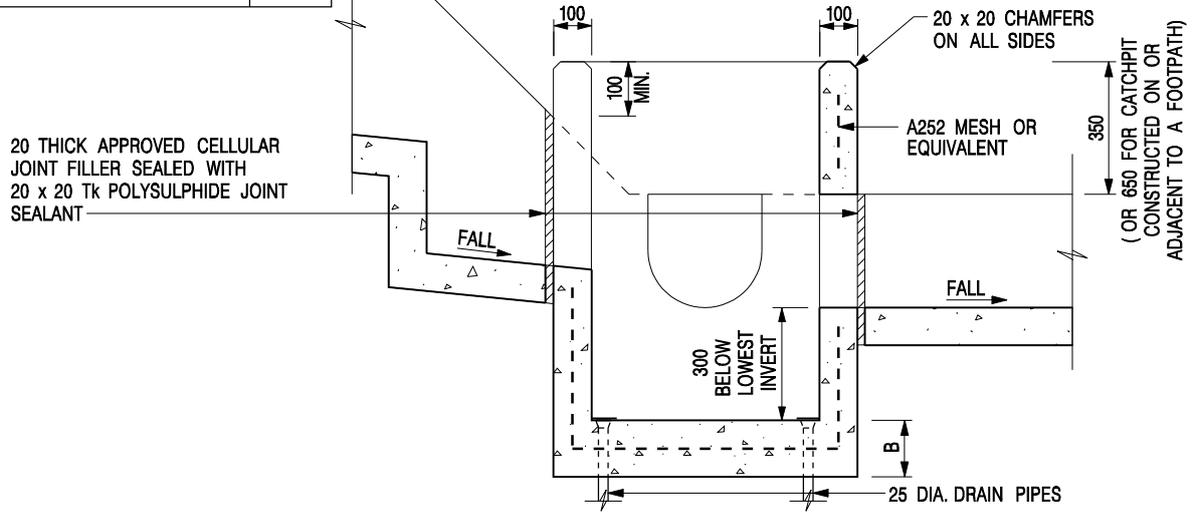
where	R	=	(WD)/(W+2D)	W=	2.1 m	
				D=	1 m	(200mm freeboard considered)
			= 0.512			
	n	=	0.017	s/m ^{1/3}		(Table 13 of Stormwater Drainage Manual)
	S _f	=	0.01			

$$\begin{aligned} \text{Therefore, } V &= 0.512^{2/3} * 0.01^{0.5} / 0.017 \\ &= 3.7656623 && \text{m/sec} \end{aligned}$$

$$\begin{aligned} \text{Maximum Capacity (Q}_{\text{max}}) &= V * A \\ &= 3.013 \\ &= 180752 && \text{m}^3/\text{sec} \\ &> 168892 && \text{OK} \end{aligned}$$



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



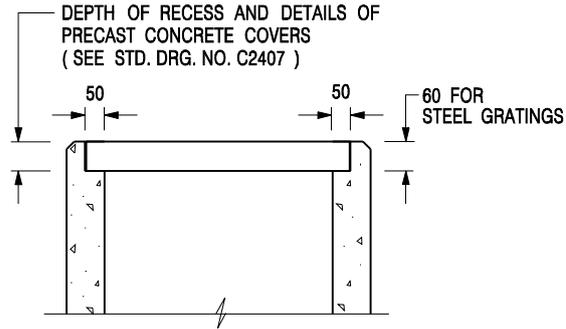
- NOTES:**
1. ALL DIMENSIONS ARE IN MILLIMETRES.
 2. REFER TO SHEET 2 FOR OTHER NOTES.

-	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 **DRAWING NO.** C2406 /1
DATE JAN 1991



**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
REF.	REVISION	SIGNATURE	DATE

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

 CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT	
SCALE 1 : 20	DRAWING NO. C2406 /2A
DATE JAN 1991	

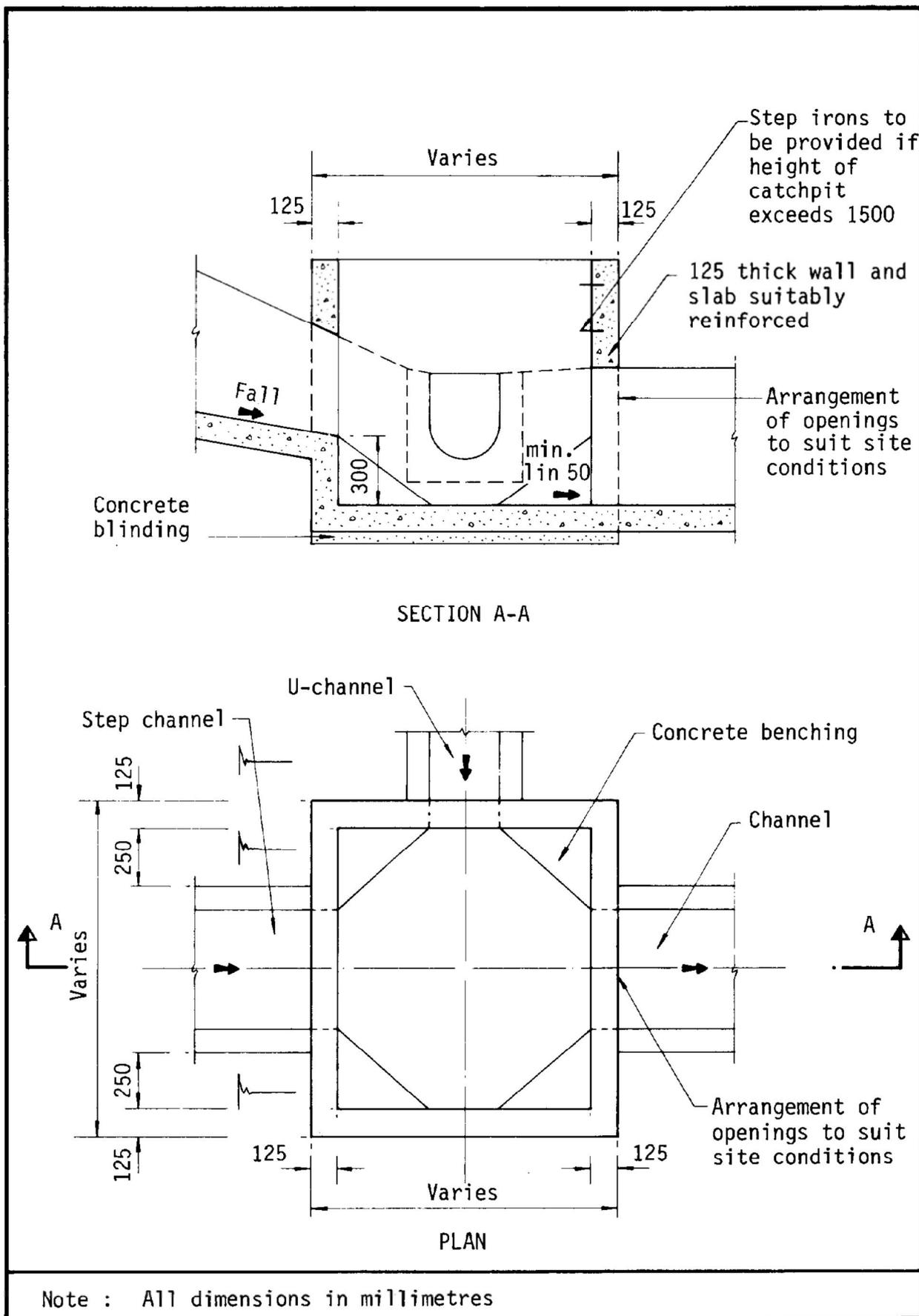
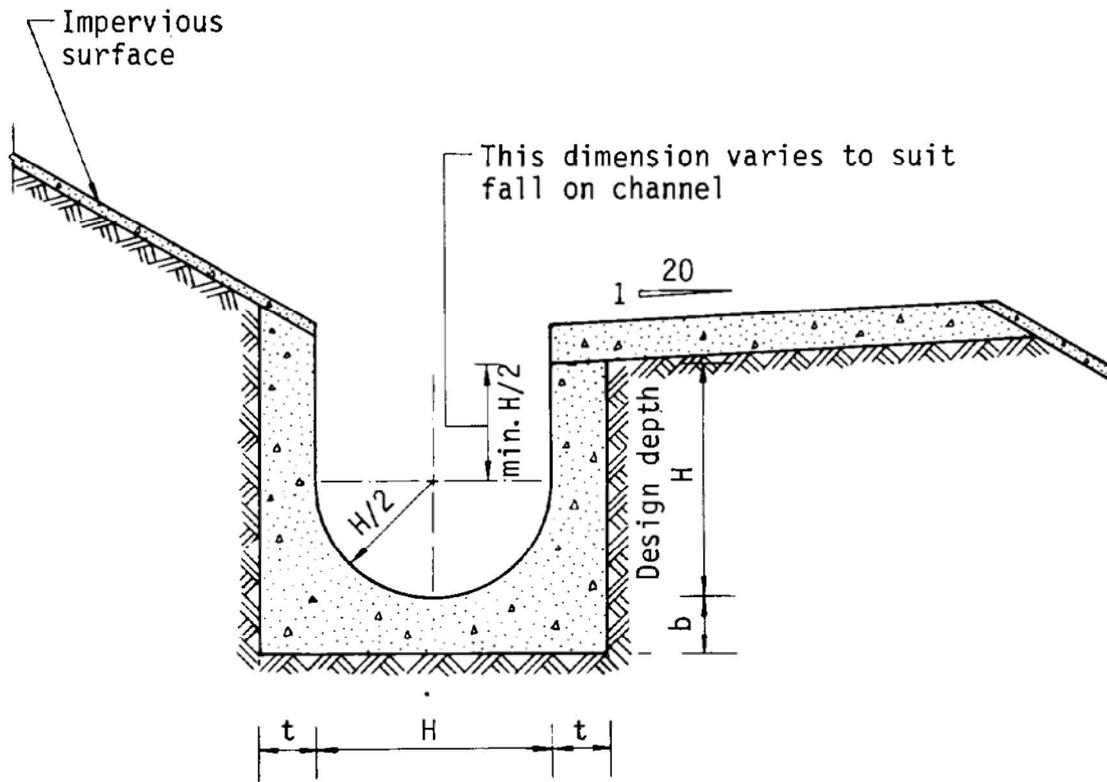


Figure 8.10 - Typical Details of Catchpits



Dimensions of U - channel

Nominal size of channel H (mm)	Thickness t (mm)	Thickness b (mm)
225 to 600	150	150
675 to 1200	175	225

Figure 8.11 - Typical U-channel Details