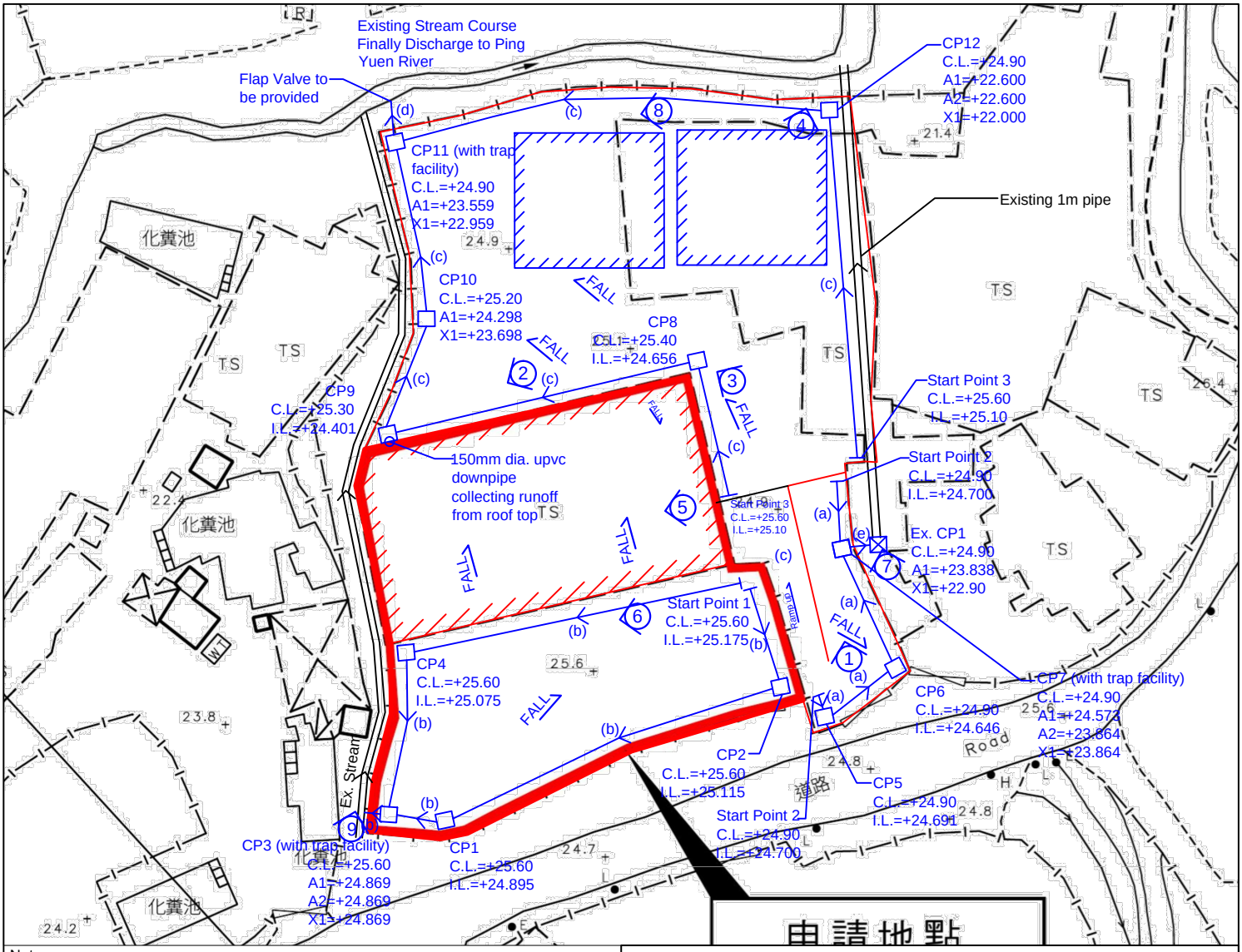


Note:

1. Catchpits (CP3, CP7 & CP11) with trap facility shall follow CEDD standard drawing No. C2406I.

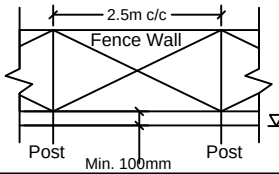
2. Catchpit and UC follows Typical Details of Geotechnical Manual for Slope Fig.8.10 and Fig.8.11 respectively.

3. Fence Wall to be erected (if any) shall be Open-bottom type.

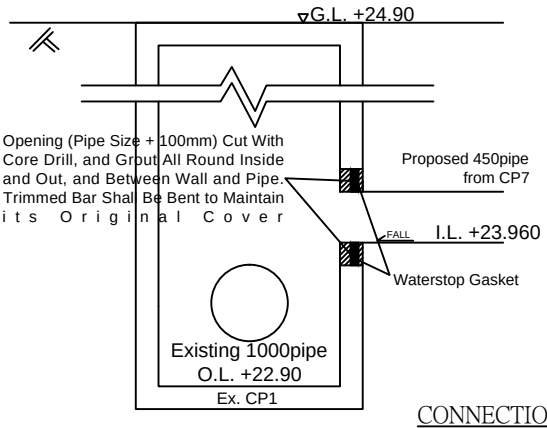
4. Maximum 200mm concrete filling for FTA281. Maximum 400mm concrete filling for FTA253.,

LEGEND

- Ex. 1m pipe/ Ex. Stream
- CP — Proposed CatchPit
- (a) Proposed 300HRUC (1:200) with Cast Iron Cover
- (b) Proposed 375UC (1:200) with Cast Iron Cover
- (c) Proposed 450UC (1:150) with Cast Iron Cover
- (d) Proposed 450mm dia. concrete pipe (1:200)
- (e) Proposed 300mm dia. concrete pipe (1:200)
- (1) Photo Viewport



TYPICAL DETAIL OF OPEN-BOTTOM TYPE FENCE WALL



CONNECTION DETAILS 1

正宏工程顧問公司

CHING WAN ENGINEERING CONSULTANT COMPANY

Title: Drainage Proposal - LAYOUT

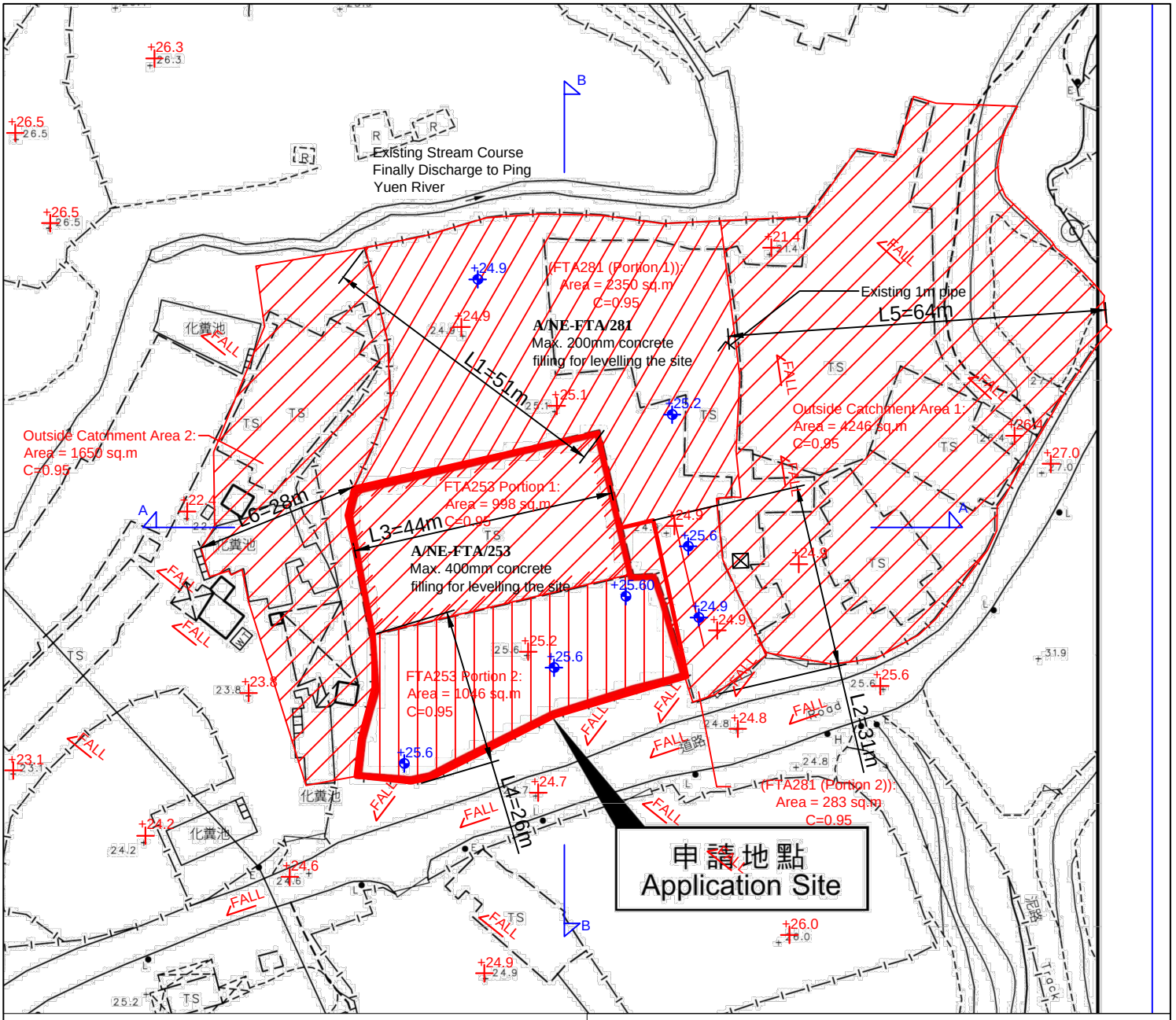
D01

Project:

Proposed Temporary Warehouse and Open Storage of Construction Materials with Ancillary Facilities and Associated Filling of Land for a Period of 3 Years at Various Lots in D.D. 87 and Adjoining Government Land, Ta Kwu Ling, Sheung Shui, New Territories
(Application Number:A/NE-FTA/281)

Proposed Temporary Warehouse (excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land at Lots 360B S.A (Part), 360B RP (Part), 360C S.A (Part), 360C RP (Part), 360D S.A (Part), 360D RP (Part) and 360E (Part) in D.D.87 and Adjoining Government Land, Kong Nga Po, Sheung Shui, New Territories
(Application Number:A/NE-FTA/253)

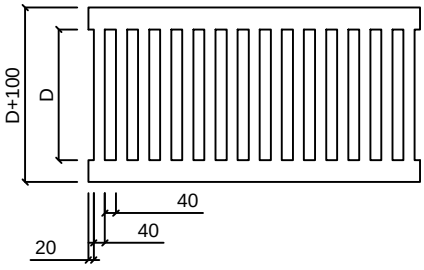
Drawn by:	Date:
DM	8-10-2026
Check by:	**Scale:**
DM	----



+24.9 Existing Level

+25.6 Proposed Level

H=0.2m (1:500 Fall)



CAST IRON GRATING (N.T.S.)

正宏工程顧問公司

CHING WAN ENGINEERING CONSULTANT COMPANY

Project:

Proposed Temporary Warehouse and Open Storage of Construction Materials with Ancillary Facilities and Associated Filling of Land for a Period of 3 Years at Various Lots in D.D. 87 and Adjoining Government Land, Ta Kwu Ling, Sheung Shui, New Territories
(Application Number:A/NE-FTA/281)

Proposed Temporary Warehouse (excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land at Lots 360B S.A (Part), 360B RP (Part), 360C S.A (Part), 360C RP (Part), 360D S.A (Part), 360D RP (Part) and 360E (Part) in D.D.87 and Adjoining Government Land, Kong Nga Po, Sheung Shui, New Territories
(Application Number:A/NE-FTA/253)

Title: Drainage Proposal - CATCHEMTN AREA PLAN (The Site)

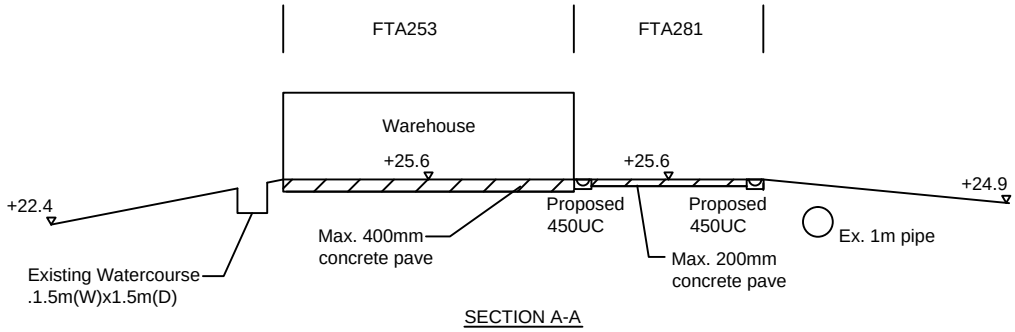
D02

Drawn by: DM

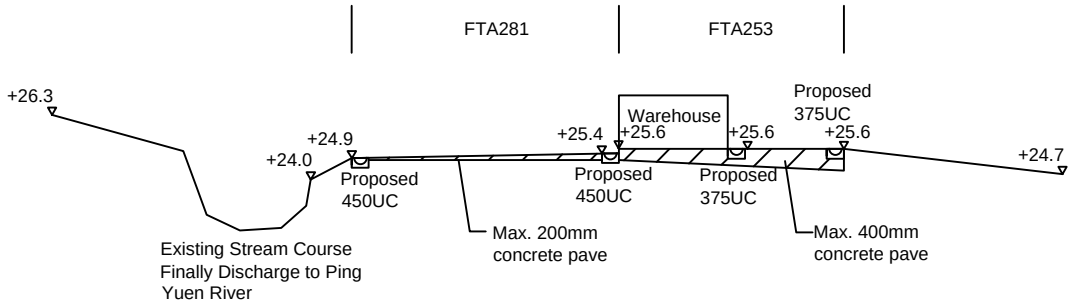
Date: 8–10–2026

Check by: DM

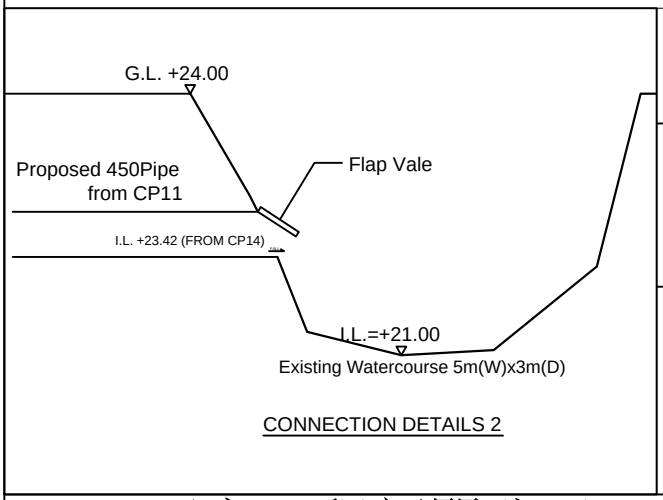
Scale: ————



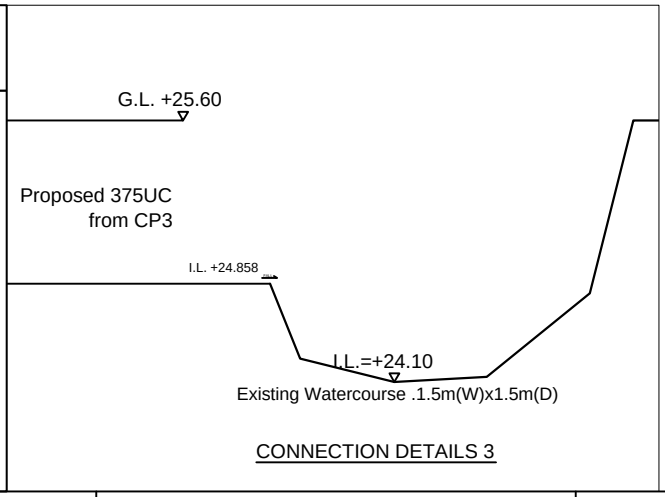
SECTION A-A



SECTION B-B



CONNECTION DETAILS 2



CONNECTION DETAILS 3

正宏工程顧問公司

CHING WAN ENGINEERING CONSULTANT COMPANY

Title: Drainage Proposal - SECTIONS

D03

Project:

Proposed Temporary Warehouse and Open Storage of Construction Materials with Ancillary Facilities and Associated Filling of Land for a Period of 3 Years at Various Lots in D.D. 87 and Adjoining Government Land, Ta Kwu Ling, Sheung Shui, New Territories
(Application Number:A/NE-FTA/281)

Proposed Temporary Warehouse (excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land at Lots 360B S.A (Part), 360B RP (Part), 360C S.A (Part), 360C RP (Part), 360D S.A (Part), 360D RP (Part) and 360E (Part) in D.D.87 and Adjoining Government Land, Kong Nga Po, Sheung Shui, New Territories
(Application Number:A/NE-FTA/253)

Drawn by:	Date:
DM	8–10–2026
Check by:	Scale:
DM	————

Photo 1



Photo 2



Photo 3

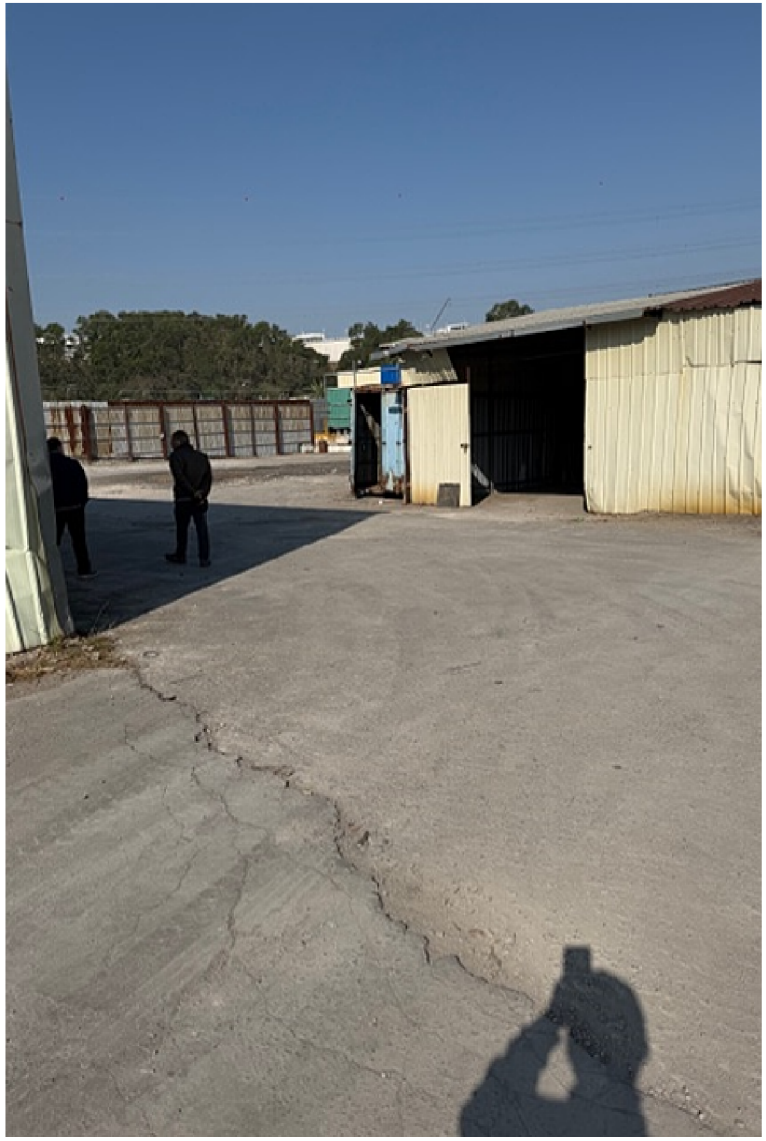


Photo 4



Photo 5



Photo 6



Photo 7



Photo 8



Photo 9



Runoff Calculation

After Development

	Catchment ID	Area (A) km2	Average Slope (H), m/100	Flow Path (L), m	Inlet time (to), min	Storm constants a	b	c	Runoff intensity (i), mm/hr	Runoff Coefficient (C)	Q=1.111*0.278CiA, (m3/s), extra 11.1% for climate change
Q1	FTA281 (Portion 1)	0.00235	0.2	51	5.896	474.6	2.9	0.371	211.833	0.95	0.1461
Q2	FTA281 (Portion 2)	0.000283	0.2	31	4.429	474.6	2.9	0.371	226.672	0.95	0.0188
Q3	FTA253 (Portion 1)	0.000998	0.2	44	5.542	474.6	2.9	0.371	215.090	0.95	0.0630
Q4	FTA253 (Portion 2)	0.001046	0.2	26	3.259	474.6	2.9	0.371	241.774	0.95	0.0742
Q5	Outside Catchment Area 1	0.004246	0.2	64	6.974	474.6	2.9	0.371	202.940	0.95	0.2528
Q6	Outside Catchment Area 2	0.00165	0.2	28	3.354	474.6	2.9	0.371	240.415	1.95	0.2389

For the design of drains inside FTA253 (Portion 2), Consider FTA253 (Portion 2), Q4

Q = **0.0742** m3/s

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

where $R = (\pi r^2/2+2r^2)/(\pi r+2r)$ r= 0.1875 m

$= 0.1302$ m A= 0.1255 m^2

$n = 0.016$ $s/m^{1/3}$ (Talbe 13 of Stormwater Drainage Manual)

$S_f = 0.005$ (1: 200)

Therefore, $V = 0.1302^{2/3}*0.005^{0.5}/0.016$

$= 1.135$ m/sec

Maximum Capacity (Q_{max}) $= V*A$

$=$ **0.1425** m^3/sec

$>$ **0.0742** m^3/sec

% Utilization = **52%** **<90%, OK**

Provide 375UC (1:200) denoted as (b) is OK

Check Existing 1.5m(W)x1.5m(D) existing stream, Consider FTA253 (Portion 2) + Outside Catchment Area 2, Q4+Q6

Q = **0.3131** m3/s

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

W= 1.5 m

where $R = A/(W+2D)$ D= 1.5 m

$= 0.5$ m A= 2.25 m^2

$n = 0.033$ $s/m^{1/3}$ (Talbe 13 of Stormwater Drainage Manual)

$S_f = 0.005$ (1: 200)

Therefore, $V = 0.5^{2/3}*0.005^{0.5}/0.033$

$= 1.350$ m/sec

Maximum Capacity (Q_{max}) $= V*A$

$=$ **3.0372** m^3/sec

$>$ **0.3131** m^3/sec

% Utilization = **10%** **<90%, OK**

Existing 1.5m(W)x1.5m(D) existing stream is OK

For the design of drains inside FTA281 (Portion 2), Consider FTA253 (Portion 2), Q2

Q = **0.0188** m3/s

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

where $R = (\pi r^2/2)/(\pi r)$ r= 0.15 m

$= 0.075$ m A= 0.0353 m^2

$n = 0.016$ $s/m^{1/3}$ (Talbe 13 of Stormwater Drainage Manual)

$S_f = 0.005$ (1: 200)

Therefore, $V = 0.075^{2/3}*0.005^{0.5}/0.016$

$= 0.786$ m/sec

Maximum Capacity (Q_{max}) $= V*A$

$=$ **0.0278** m^3/sec

$>$ **0.0188** m^3/sec

% Utilization = **68%** **<90%, OK**

Provide 300HRUC (1:200) denoted as (a) is OK

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/s2	gravitational acceleration (m/s2)
D	=	0.3	m	internal pipe diameter (m)
ks	=	0.00006	m	hydraulic pipeline roughness (m) (Table14, from DSD SDM 2018, concrete pipe)
v	=	1.14E-06	m2/s	kinematic viscosity of fluid (m2/s)
s	=	0.005		hydraulic gradient (1: 200)

Therefore, design V of pipe capacity = 1.359 m/s

Q= VA (0.8 factor for sedimentation)

= **0.096** m3/s

> **0.019** m3/s Ok

% of capacity utilization = **20%** **<90%, OK**

Provide 300mm dia. concrete pipe (1:200) denoted as (e) is OK

Design drain from Start Point 3 to CP11 via CP12 and from Start Point 3 to CP9, consider FTA281 (Portion 1), Q1

Q = **0.1461** m3/s

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

where $R = (\pi r^2/2 + 2r^2)/(\pi r + 2r)$ r= 0.225 m

$= 0.1563$ m A= 0.1808 m^2

$n = 0.016$ $s/m^{1/3}$ (Talbe 13 of Stormwater Drainage Manual)

$S_f = 0.0067$ (1: 150)

Therefore, $V = 0.1563^{2/3} * 0.0067^{0.5} / 0.016$

$= 1.480$ m/sec

Maximum Capacity (Q_{max}) $= V * A$

$=$ **0.2676** m^3/sec

$>$ **0.1461** m^3/sec

% Utilization = **55%** **<90%, OK**

Provide 450UC (1:150) denoted as (c) is OK

Design drain from CP9 to CP11 and Outfall, consider FTA281 (Portion 1) + FTA253 (Portion 1), Q1+Q3

Q = **0.2090** m3/s

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

where $R = (\pi r^2/2 + 2r^2)/(\pi r + 2r)$ r= 0.225 m

$= 0.1563$ m A= 0.1808 m^2

$n = 0.016$ $s/m^{1/3}$ (Talbe 13 of Stormwater Drainage Manual)

$S_f = 0.0067$ (1: 150)

Therefore, $V = 0.1563^{2/3} * 0.0067^{0.5} / 0.016$

$= 1.480$ m/sec

Maximum Capacity (Q_{max}) $= V * A$

$=$ **0.2676** m^3/sec

$>$ **0.2090** m^3/sec

% Utilization = **78%** **<90%, OK**

Provide 450UC (1:150) denoted as (c) is OK

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/s2	gravitational acceleration (m/s2)	
D	=	0.45	m	internal pipe diameter (m)	
ks	=	0.00006	m	hydraulic pipeline roughness (m)	(Table14, from DSD SDM 2018, concrete pipe)
v	=	1.14E-06	m2/s	kinematic viscosity of fluid (m2/s)	
s	=	0.005		hydraulic gradient	(1: 200)

Therefore, design V of pipe capacity = 1.756 m/s

Q= VA (0.8 factor for sedimentation)

= **0.279** m3/s

> **0.209** m3/s Ok

% of capacity utilization = **75%** **<90%, OK**

Provide 450mm dia. concrete pipe (1:200) denoted as (d) is OK

Check Ex. 1m Pipe, consider FTA281 (Portion 1) + FTA281 (Portion 2) + Outside Catchment Area, Q1+Q2+Q5

Q = **0.4177** m3/s

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/s2	gravitational acceleration (m/s2)	
D	=	1	m	internal pipe diameter (m)	
ks	=	0.00006	m	hydraulic pipeline roughness (m)	(Table14, from DSD SDM 2018, concrete pipe)
v	=	1.14E-06	m2/s	kinematic viscosity of fluid (m2/s)	
s	=	0.005		hydraulic gradient	(1: 200)

Therefore, design V of pipe capacity = 2.879 m/s

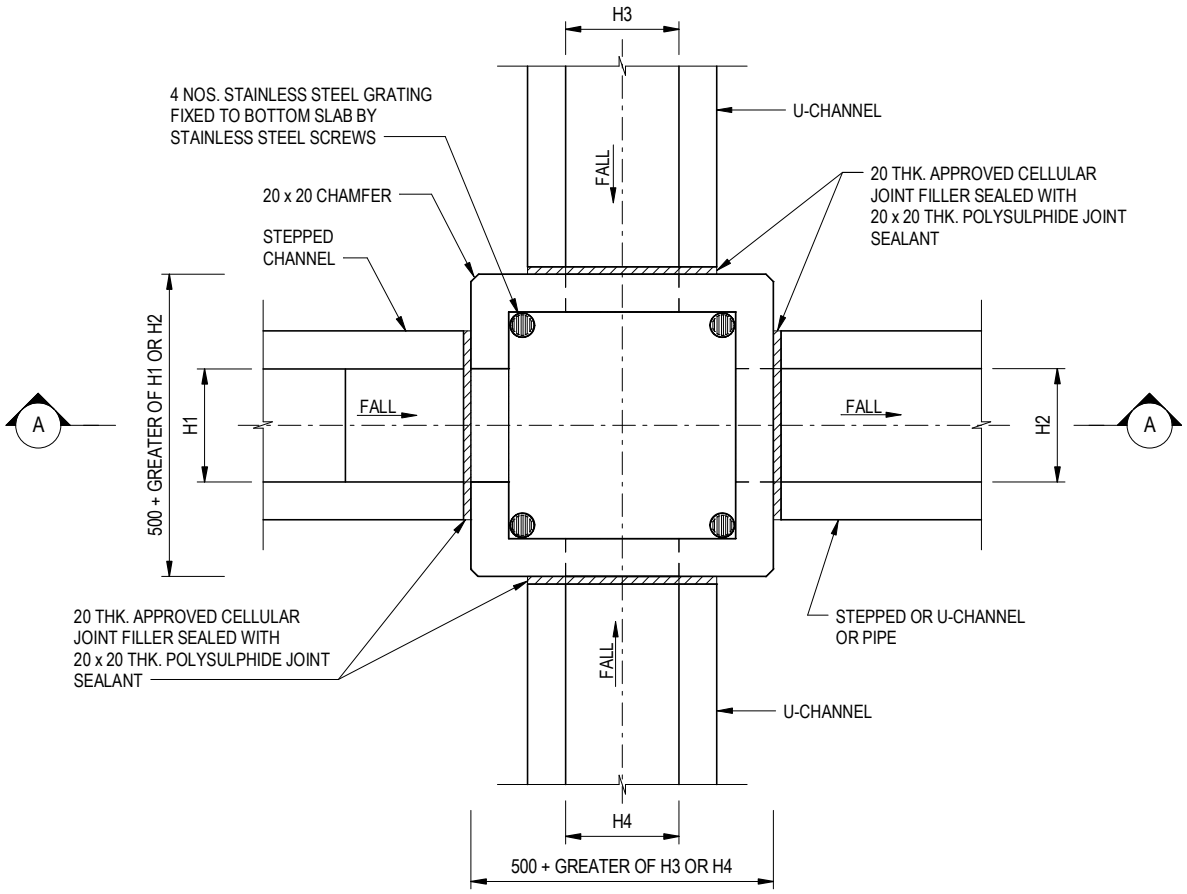
Q= VA (0.8 factor for sedimentation)

= **2.261** m3/s

> **0.418** m3/s Ok

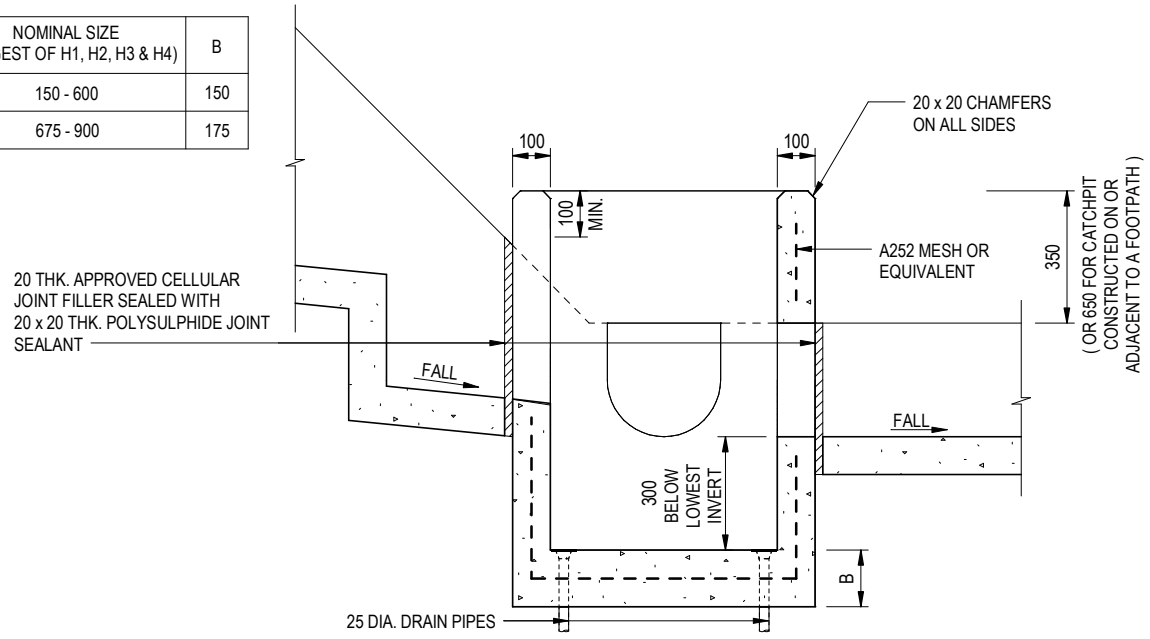
% of capacity utilization = **18%** **<90%, OK**

Existing 1000mm dia. concrete pipe (1:200) is OK



PLAN

NOMINAL SIZE (LARGEST OF H1, H2, H3 & H4)	B
150 - 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
A	BIM OBJECT REVISION.	Original Signed	12.2025
–	FORMER DRG. NO. C2406J.	Original Signed	03.2015

CATCHPIT WITH TRAP (SHEET 1 OF 2)

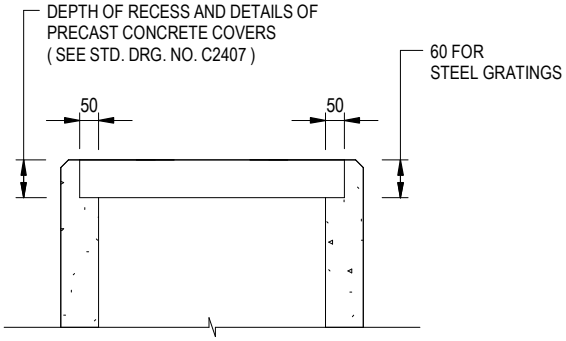
CEDD

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE 1 : 20

DATE JAN 1991

DRAWING NO. C2406 /1A



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 1000 mm MIN. MEASURED FROM THE ADJACENT GROUND LEVEL.

10. MINIMUM INTERNAL CATCHPIT WIDTH SHALL BE 1000 mm FOR CATCHPITS WITH A HEIGHT EXCEEDING 1000 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
B	BIM OBJECT REVISION.	Original Signed	12.2025
A	MINOR AMENDMENT.	Original Signed	04.2016
–	FORMER DRG. NO. C2406J.	Original Signed	03.2015

CATCHPIT WITH TRAP
(SHEET 2 OF 2)

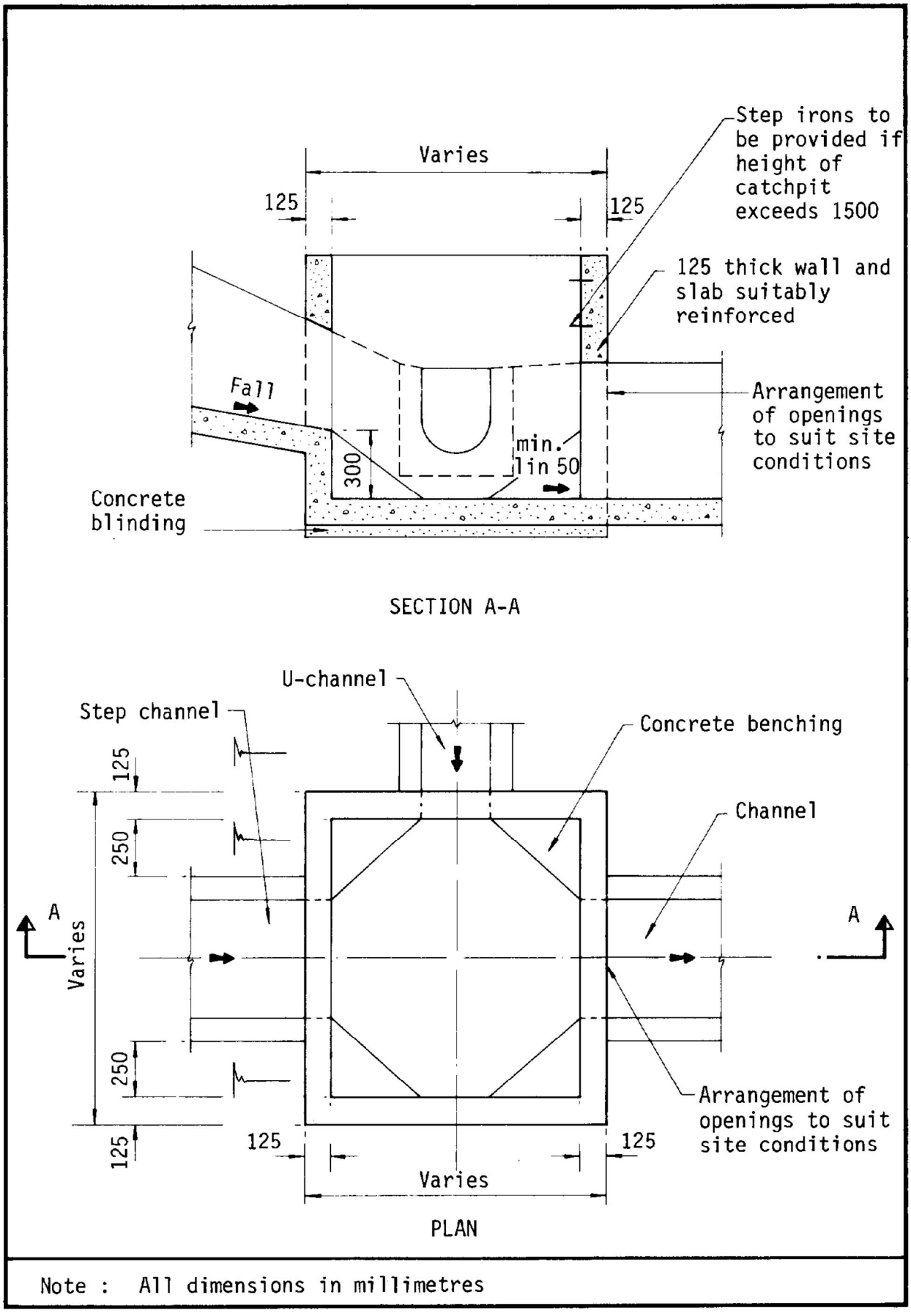
CEDD

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE 1 : 20

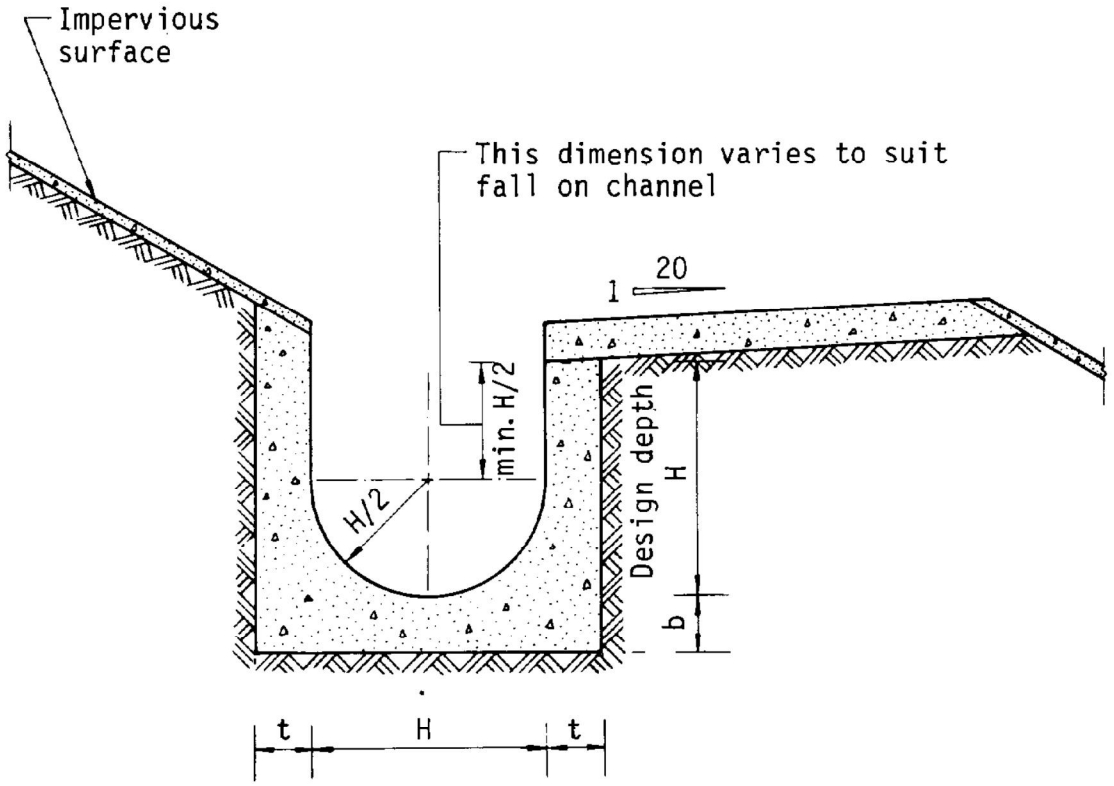
DATE JAN 1991

DRAWING NO.
C2406 /2B



Note : All dimensions in millimetres

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