[redacted]

寄件者: pang hingyeun [redacted]
寄件日期: 2026年07月08日星期三 15:25
收件者: [redacted] tpbpd/PLAND; pang hingyeun
主旨: 回覆: A/NE-TKP/3
附件: Department Comments.pdf; D.D. 293 Lot Nos. 662 S.A, 664 S.B, 668 S.B, 669 RP & 664 S.A, 667 S.C, 668 S.A, 669 S.B, 671 S.B & 654 S.A RP, 658 RP, 659, 660 RP, 661 RP & 65.pdf; D.D. 293 Lot Nos. 741 S.A, 742 S.A & 742 S.B & 742 S.C, 752 S.A, 753 S.A.pdf; D.D. 293 Lot Nos. 753 RP, 777 S.B, 778 S.C & 777 S.A, 778 S.D, 779 S.C.pdf; D.D. 293 Lot Nos. 753 S.B & 777 S.C.pdf; DD 293 DIA Report.pdf; Appendix A.pdf; Appendix B.pdf; Appendix C.pdf; D.D. 293 To Kwa Peng Discharge Point Construction Proposal.pdf

類別: Internet Email

Dear Ms. Lee,

We have attached relevant documents to respond to the department's comments.

1. Please refer to the Drainage Proposal and the calculation.
2. Please refer to the construction proposal.
3. The drawings in Appendix A, convert the UPVC Pipe to a Concrete pipe.
4. We will take responsibility for resolve any conflict / disagreement with relevant lot owner (s) and seek permission from DLO / YL for laying new drains / channels and / or modifying / upgrading existing ones in other private lots or on Government Land, where required, outside the application site(s).

Thank You !

Regards,
H.Y.Pang

從 Outlook 傳送

A/NE-TKP/3

We responded to the relevant department' s comments.

Comments from Environmental Protection Department

1. There are no natural streams at or near the proposed works location; therefore, the proposed works will not affect any natural streams.
2. The application does not involve any drainage channel or river training/treatment, or any diversion/realignment works, including stream diversion.
3. For the proposed stormwater drainage channel, we will use a small excavator to excavate the proposed location first, then use manual methods to set up formwork and tie rebar, followed by manual mixing and the placing of concrete by injection.
4. We may use a small excavator for the works, while the remaining works will be carried out manually.
5. The construction materials we will use are steel bars (rebar) and concrete.
6. As this is a small-scale project, we will not need to construct any transportation access roads.
7. The construction area will not involve clearing any vegetation, mangroves, or wetland plants.

Comments from Drainage Services Department

a. The proposed drainage works, whether located within or outside the application site parcel, will be constructed and maintained at our own expense.
b. Please refer to the attached draft drawings.
c. Please refer to the calculation.

Comments from Water Supplies Department (WSD)

Considering that this project requires excavation of approximately 1 meter beneath the existing ordinary galvanized iron water pipe to construct a 1.2-meter-wide drainage/relief channel for in-situ steel fixing and concrete placement, we consulted with professionals, we will implement the following heavy-duty protective scheme to meet the Water Services Department safety standards and to mitigate risks from construction vibrations and chemical/corrosive effects from cement.

1. **Heavy-duty cross-trench steel beam suspension system**
   Before excavation, we will install a steel I-beam suspension system across the excavation area. The beam length must be no less than 3 meters, with a section size of 150 × 150 mm or above. Both ends of the steel beam must be securely bearing on sound ground located at least 0.8 meters from the channel edges.
   During manual excavation underneath, professional nylon lifting slings (together with rubber protective pads) will be used to firmly suspend the galvanized iron pipe from the steel beam, ensuring that when the bottom of the pipe is excavated to a depth of 1 meter, the pipe experiences zero displacement.
2. **Installation of standard trench shoring system**
   As the excavation proceeds downward by 1 meter using hand tools, standard steel trench shoring plates and struts will be installed simultaneously along both sides of the trench. This is to prevent collapse of the soil on the pedestrian walkway sides and to maintain the stability of the original soil supporting the suspended pipe at both ends.

3. **Multi-layer protection and chemical corrosion isolation for the pipe**
   For the exposed sections of the galvanized iron pipe, the pipe will first be wrapped with thick impact-resistant foam and then fitted with 12 mm plywood protective guard boxes. This prevents accidental impact to the pipe when workers are tying rebar, transporting reinforcement bars, or nailing/setting wooden formwork within the 1.2-meter-wide trench.
   In addition, in strict compliance with the Waterworks/Water Services Facility Regulations, outside the protective covers, we will fully seal the pipe with anti-corrosion protective film (e.g., bituminous anti-corrosion tapes) to prevent the strong alkaline cement splashes generated during concreting from corroding the iron.
4. **Controlled vibration measures during concreting**
   During the concrete placement for the drainage channel, workers will use a vibrator (vibration poker/rod) to compact the concrete. However, it is strictly prohibited to allow the vibrator to come into direct or indirect contact with the suspended water pipe or the hanging steel beam, to avoid strong vibration transmission that could lead to leakage at the threaded coupling interfaces.
5. **Permanent concrete cradle for the pipe (to prevent future settlement)**
   After completion of the channel structure and removal of formwork, during pipe backfilling it is strictly prohibited to directly backfill soil over/against the pipe.
   We will fill the gap between the channel top and the bottom of the pipe with low-strength concrete (Grade 10/20) or non-shrink cement, thereby providing a permanent concrete pipe cradle (pipe support) for the galvanized pipe and eliminating hazards caused by later settlement of the pedestrian walkway that could lead to pipe failure.
6. **24-hour emergency response and contingency mechanism**
   During excavation and concreting works, the staff will regularly monitor the pipe elevation/level. A pipe repair clamp (half coupling clamp / haff section) will be kept on-site at all times. Staffs will also be required to be familiar with the Water Services Department's 24-hour emergency hotline to ensure the community's water supply remains safe throughout the works.

<u>Comments from Electrical and Mechanical Services Department (EMSD)</u>

Before construction begins, we will contact the power supplier (i.e., CLP Power) for the requisition of cable plans (and overhead line alignment drawings, where applicable) to find out whether there is any underground cable and/or overhead line within and/or in the vicinity of the concerned site. They should also be reminded to observe the Electricity Supply Lines (Protection) Regulation and the "Code of Practice on Working near Electricity Supply Lines" established under the Regulation when carrying out works in the vicinity of the electricity supply lines.

Drainage Assessment Report

Project:
Proposed Village Housing

Location:
D.D. 293 Lot Nos. 662 S.A, 664 S.B, 668 S.B, 669 RP & 664 S.A, 667 S.C, 668 S.A, 669 S.B, 671 S.B & 654 S.A RP, 658 RP, 659, 660 RP, 661 RP & 658 S.B, 658 S.C, 660 S.B, 660 S.C, 661 S.B, 662 S.B, 662 S.C, To Kwa Peng, Sai Kung North, New Territories.

Proposed by

M&D Planning and Construction Consultant Ltd.

Date: 25 June 2026

1. Introduction

This report assesses the drainage design for the proposed village housing development, with particular focus on the use of a **surface channels and 1200mm open channel** for stormwater management.

2. Design Criteria

2.1. Gravity Pipe

In General, drainage design will be carried out in accordance with the criteria set out in the Stormwater Drainage Manual (Drainage Services Department, 2018) and Corrigendum No. 1/2022 and Corrigendum No. 1/2024. The proposed design criteria to be adopted for design of this stormwater drainage and factors which have been considered are discussed below.

1. All hydraulic design is based on Stormwater Drainage Manual and Sewerage Manual published by Drainage Services Department and the relevant Building Regulations.

2. Return periods – The following Return Period has been adopted.

   Stormwater drainage 1 in 200 years

3. Run-off estimated for internal storm drainage has been based on the Rational Method as recommended in the Stormwater Drainage Manual with a run-off coefficient of C=0.95 for paved area and C=0.35 for grassland. However, a standard time of entry five minutes under urban conditions has been adopted instead of using Brands by Williams formula to estimate the time of concentration as this was derived originally from data for moderately sized rural catchment and include flow time natural water courses.

4. Stormwater drains should be of concrete pipes with flexible joints.

5. Colebrook-White Equation and Manning's Equation are given below for calculation of flow velocity of pipes and u-channels respectively.

   Colebrook-White Equation: $$\bar{v} = -\sqrt{32gRS}\,\log\left(\frac{k_s}{14.8R} + \frac{1.255v}{R\sqrt{32gRS_f}}\right)$$

   Manning's Equation: $$\bar{v} = \frac{R^{1/6}}{n}\sqrt{RS_f}$$

6. The roughness value used for

   Precast Concrete Pipes in Colebrook White Equation k_s = 0.6mm

   Manning's Equation N = 0.018mm

7. Wherever possible, the following limiting design velocities in pipelines will be used:-

   Minimum Design Full-bore Velocity = 0.75 m/s

   Maximum Design Full-bore Velocity = 4.00 m/s

2.2. U-Channel

The u-channels are designed adopting the same methodology as that for gravity pipes as detailed in Section 2.1. Manning's Equation will be adopted to evaluate the hydraulic capacities of the drainage channels.

3. Drainage Design

3.1. Drainage Catchment

The drainage catchment plan is included in **Appendix A**.

3.2. U-Channel Design

The hydraulic calculation of u-channels design is included in **Appendix B**.

3.3. U-Channel and Catchpit Details

The U-Channel and Catchpit are included in **Appendix C**.

Appendix A

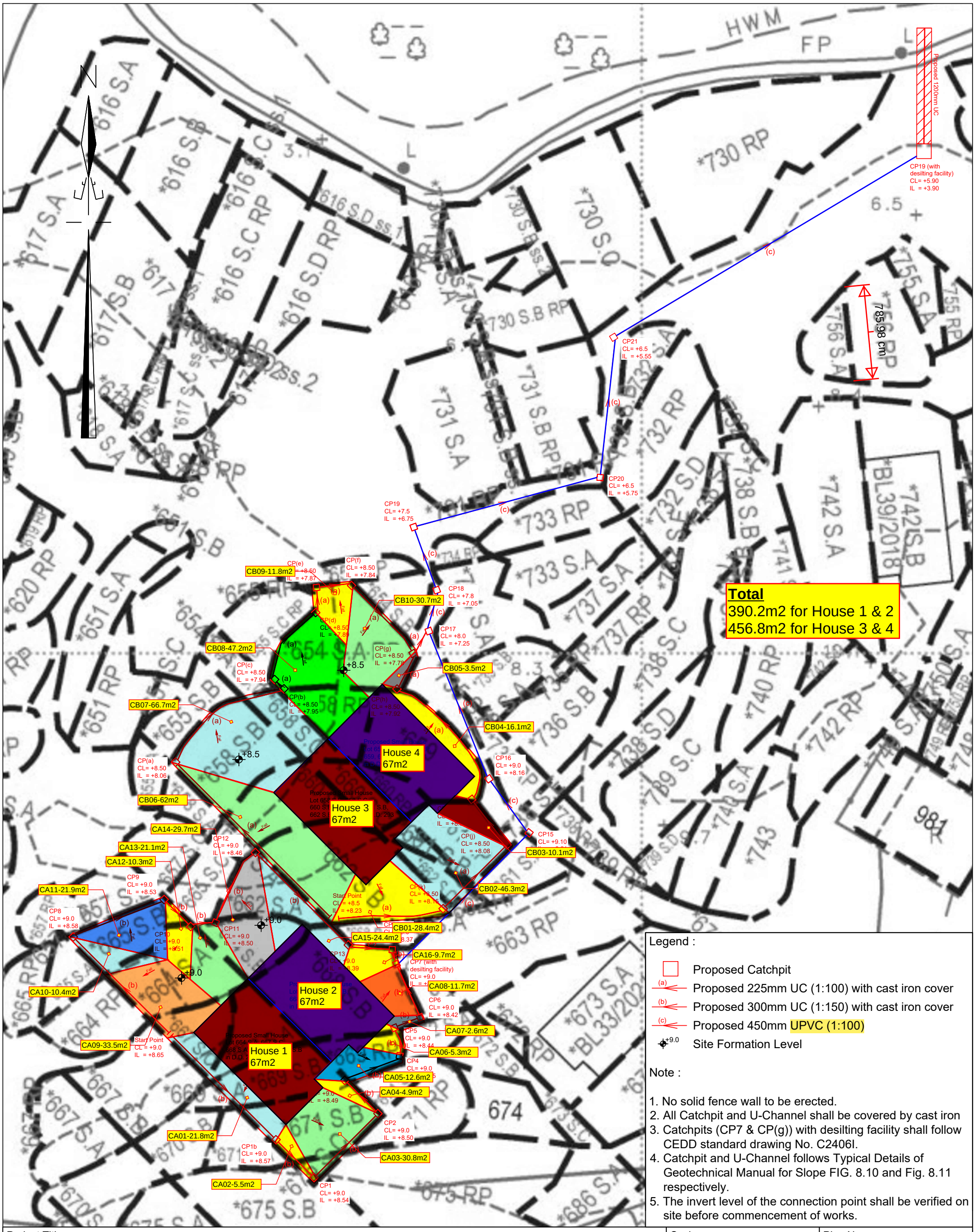
Catchment Plan

Appendix B

U-Channel Hydraulic Calculations

Appendix C

U-Channel and Catchpit Details



Legend :

- Proposed Catchpit
- (a) Proposed 225mm UC (1:100) with cast iron cover
- (b) Proposed 300mm UC (1:150) with cast iron cover
- (c) Proposed 450mm UPVC (1:100)
- +9.0 Site Formation Level

Note :

1. No solid fence wall to be erected.
2. All Catchpit and U-Channel shall be covered by cast iron
3. Catchpits (CP7 & CP(g)) with desilting facility shall follow CEDD standard drawing No. C2406I.
4. Catchpit and U-Channel follows Typical Details of Geotechnical Manual for Slope FIG. 8.10 and Fig. 8.11 respectively.
5. The invert level of the connection point shall be verified on site before commencement of works.

Project Title :

D.D. 293 Lot Nos. 662 S.A, 664 S.B, 668 S.B, 669 RP & 664 S.A, 667 S.C, 668 S.A, 669 S.B, 671 S.B & 654 S.A RP, 658 RP, 659, 660 RP, 661 RP & 658 S.B, 658 S.C, 660 S.B, 660 S.C, 661 S.B, 662 S.B, 662 S.C, To Kwa Peng, Sai Kung North, New Territories.

Scale :	Plan No. :
Not to scale	CW/TKP/DP/04
Date :	Survey Sheet No. :
25-04-2026	8-NE-16A

Drawing Title :

Proposed Stormwater Drainage Plan

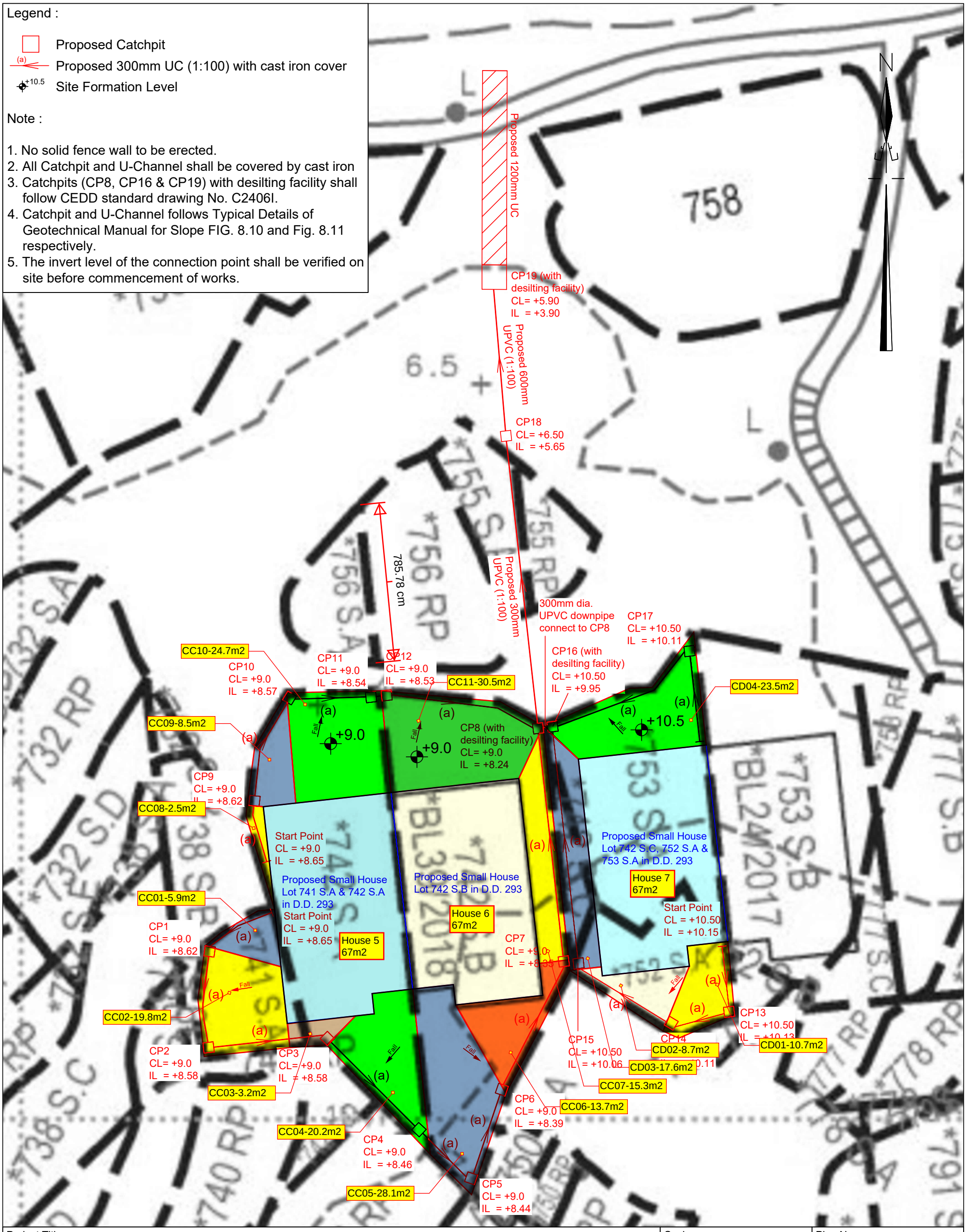
卓 弘 測 量 服 務 公 司
CHUO WANG SURVEY SERVICES COMPANY

Legend :

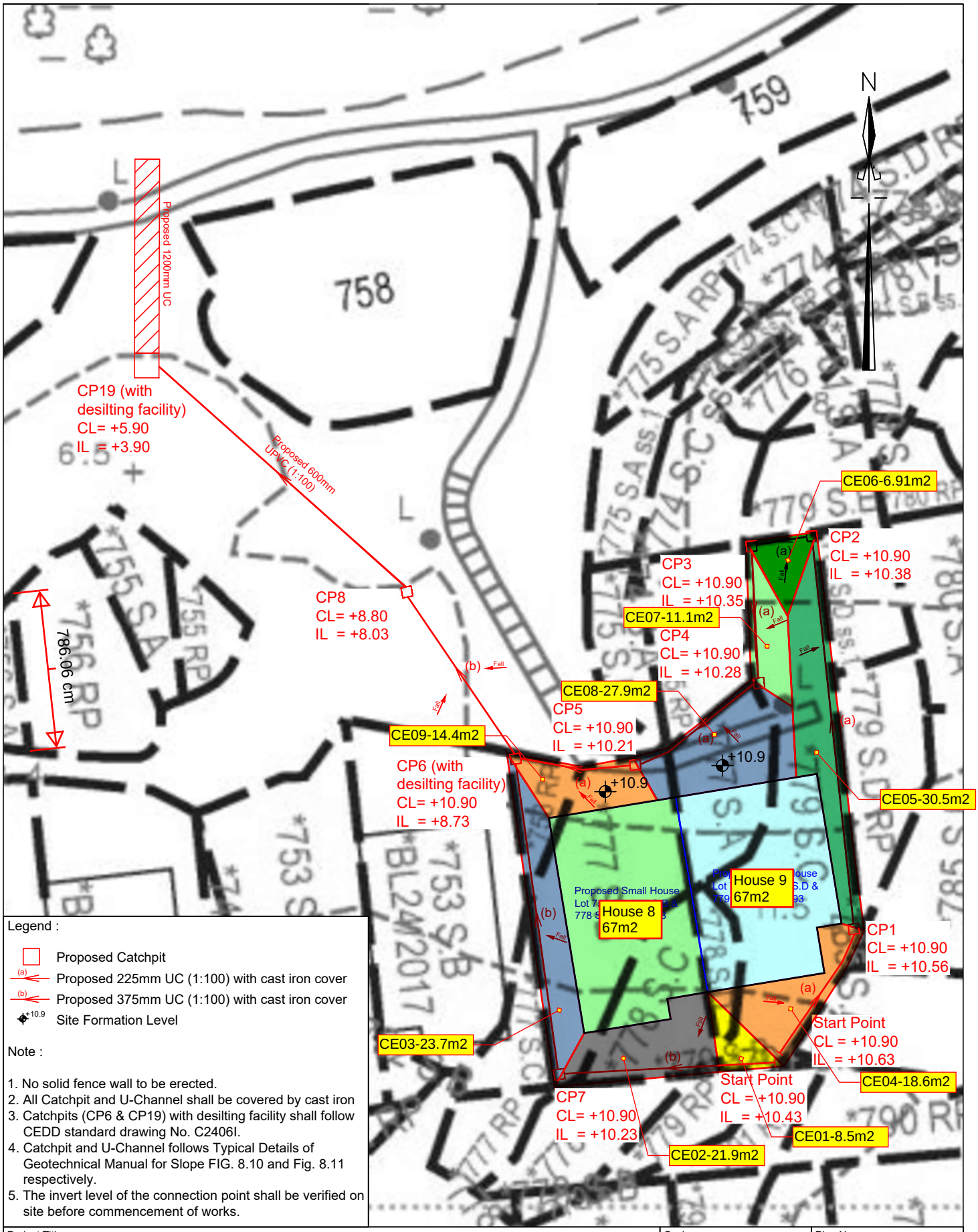
- Proposed Catchpit
- (a) Proposed 300mm UC (1:100) with cast iron cover
- +10.5 Site Formation Level

Note :

1. No solid fence wall to be erected.
2. All Catchpit and U-Channel shall be covered by cast iron
3. Catchpits (CP8, CP16 & CP19) with desilting facility shall follow CEDD standard drawing No. C2406I.
4. Catchpit and U-Channel follows Typical Details of Geotechnical Manual for Slope FIG. 8.10 and Fig. 8.11 respectively.
5. The invert level of the connection point shall be verified on site before commencement of works.



Project Title : D.D. 293 Lot Nos. 741 S.A, 742 S.A & 742 S.B & 742 S.C, 752 S.A, 753 S.A, To Kwa Peng, Sai Kung North, New Territories.	Scale : Not to scale	Plan No. : CW/TKP/DP/01
	Date : 25-04-2026	Survey Sheet No. : 8-NE-16A
Drawing Title : Proposed Stormwater Drainage Plan	卓 弘 測 量 服 務 公 司 CHUO WANG SURVEY SERVICES COMPANY	



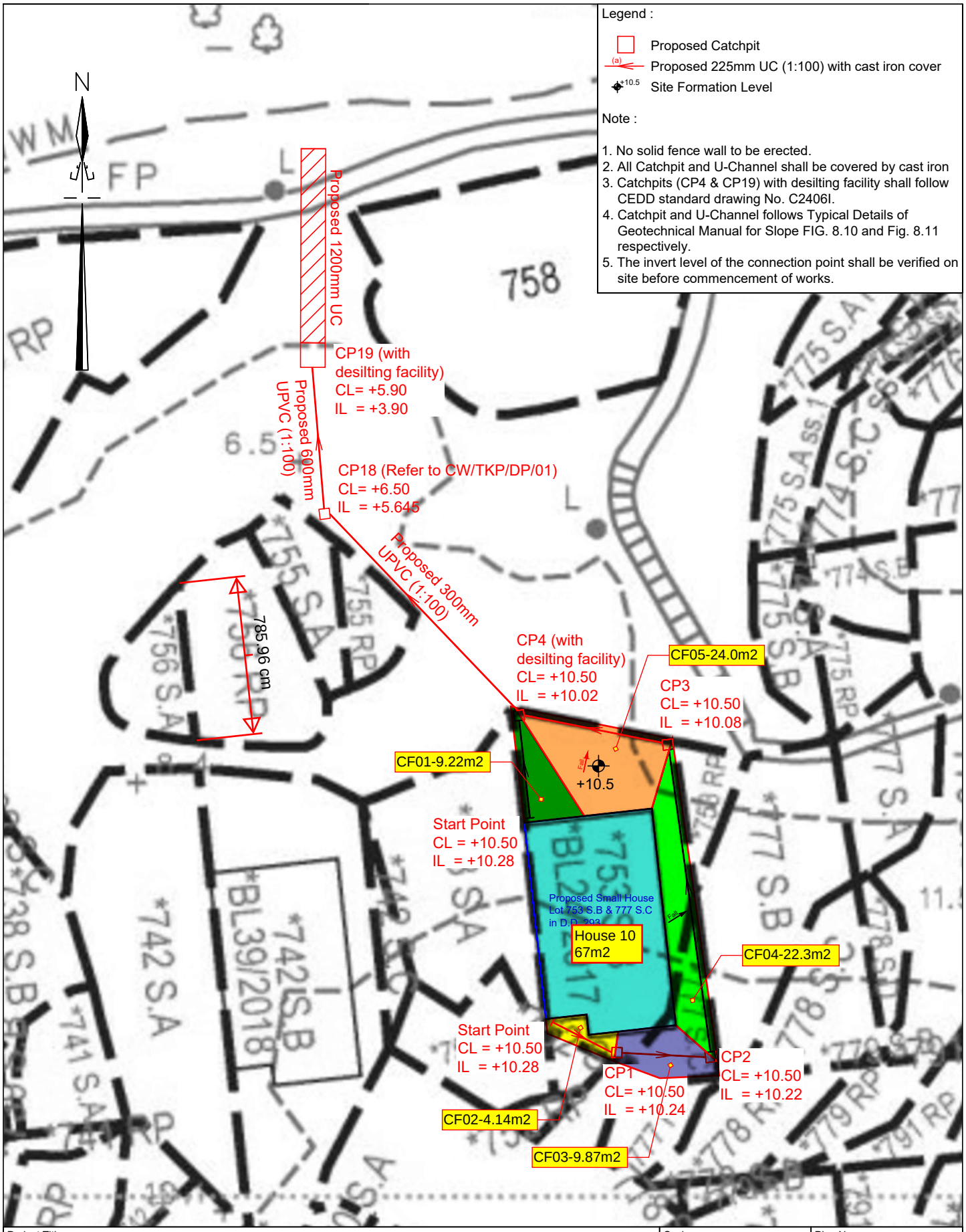
Legend :

- Proposed Catchpit
- (a) Proposed 225mm UC (1:100) with cast iron cover
- (b) Proposed 375mm UC (1:100) with cast iron cover
- +10.9 Site Formation Level

Note :

1. No solid fence wall to be erected.
2. All Catchpit and U-Channel shall be covered by cast iron
3. Catchpits (CP6 & CP19) with desilting facility shall follow CEDD standard drawing No. C2406I.
4. Catchpit and U-Channel follows Typical Details of Geotechnical Manual for Slope FIG. 8.10 and Fig. 8.11 respectively.
5. The invert level of the connection point shall be verified on site before commencement of works.

Project Title : D.D. 293 Lot Nos. 753 RP, 777 S.B, 778 S.C & 777 S.A, 778 S.D, 779 S.C, To Kwa Peng, Sai Kung North, New Territories.	Scale : Not to scale	Plan No. : CW/TKP/DP/03
	Date : 25-04-2026	Survey Sheet No. : 8-NE-16A
Drawing Title : Proposed Stormwater Drainage Plan	卓 弘 測 量 服 務 公 司 CHUO WANG SURVEY SERVICES COMPANY	



Project Title : D.D. 293 Lot No. 753 S.B & 777 S.C To Kwa Peng, Sai Kung North, New Territories.	Scale : Not to scale	Plan No. : CW/TKP/DP/02
	Date : 25-04-2026	Survey Sheet No. : 8-NE-16A
Drawing Title : Proposed Stormwater Drainage Plan	卓弘測量服務公司 CHUO WANG SURVEY SERVICES COMPANY	

D.D. 293, TO KWA PENG, SAI KUNG NORTH, NEW TERROTORIES
U-CHANNEL DESIGN CALCULATION

Design assumptions and parameters

1. The time of entry is taken as 5 minutes.
2. The channel is designed with a rainfall return period of 1 in 200 years. (a = 501.4; b = 2.45; c = 0.348)
3. A uniformly distributed rainfall with an intensity determined by the intensity-duration-frequency relationship is used.
4. Rainfall increase due to Climate Change for Mid 21st Century of 11.1% is adopted.
5. Adopted runoff coefficients: (Paved areas: 0.95; unpaved areas: 0.15)
6. Rational method is adopted for runoff estimation.
7. The Manning's equation is adopted for channel capacity estimation.
8. Adopted Manning's coefficient for concrete channels: 0.018 $s/m^{1/3}$

Design calculation for capacity of U-channel

Channel no.	Catchment	Incremental paved catchment area, A_{ip} (m^2)	Incremental unpaved catchment area, A_{iu} (m^2)	Cumulative paved catchment area, A_{cp} (m^2)	Cumulative unpaved catchment area, A_{cu} (m^2)	Length of designed channel section (m)	Time of flow, t_f (min)	Time of concentration, t_c (min)	Rainfall intensity, I (mm/hr)	Rainfall intensity with Climate Change , I (mm/hr)	Design runoff, Q_d (m^3/s)	Channel width, W (mm)	Upstream ground level (mPD)	Downstream ground level (mPD)	Upstream channel invert (mPD)	Downstream channel invert (mPD)	Critical channel sectional area, A (m^2)	Wetted perimeter, P (m)	Hydraulic radius, R (m)	Gradient, S_f (1 in)	Flow velocity, V (m/s)	Channel capacity, Q_c (m^3/s)	%	$Q_c > Q_d$?
Start Point to CP1b	House 1, CA01	88.8	0.0	88.8	0	12.03	0.262	5.26	246.297	273.636	0.006	225	9.000	9.000	8.650	8.570	0.073	1.053	0.070	150	0.767	0.056	11.41%	OK
CP1b to CP1	House 1, CA01, CA02	5.5	0.0	94.3	0	3.94	0.076	5.34	245.458	272.704	0.007	225	9.000	9.000	8.570	8.540	0.091	1.213	0.075	131	0.864	0.079	8.60%	OK
CP1 to CP2	House 1, CA01, CA02, CA03	30.8	0.0	125.1	0	7.02	0.154	5.49	243.789	270.850	0.009	225	9.000	9.000	8.540	8.500	0.098	1.273	0.077	176	0.759	0.074	12.01%	OK
CP2 to CP3	House 1, CA01, CA02, CA03, CA04	4.9	0.0	130.0	0	3.39	0.102	5.59	242.713	269.654	0.009	225	9.000	9.000	8.500	8.490	0.107	1.353	0.079	339	0.556	0.060	15.54%	OK
CP3 to CP4	House 1, CA01, CA02, CA03, CA04, CA05	12.6	0.0	142.6	0	4.62	0.081	5.67	241.873	268.721	0.010	225	9.000	9.000	8.490	8.450	0.109	1.373	0.080	115	0.957	0.105	9.67%	OK
CP4 to CP5	House 1, CA01, CA02, CA03, CA04, CA05, CA06	5.3	0.0	147.9	0	1.96	0.044	5.72	241.421	268.219	0.010	225	9.000	9.000	8.450	8.440	0.118	1.453	0.081	196	0.745	0.088	11.87%	OK
CP5 to CP6	House 1, CA01, CA02, CA03, CA04, CA05, CA06, CA07	2.6	0.0	150.5	0	1.81	0.027	5.75	241.140	267.906	0.011	225	9.000	9.000	8.440	8.420	0.121	1.473	0.082	91	1.101	0.133	8.02%	OK
CP6 to CP7	House 1, CA01, CA02, CA03, CA04, CA05, CA06, CA07, CA08	11.7	0.0	162.2	0	4.36	0.059	5.80	240.541	267.241	0.011	225	9.000	9.000	8.420	8.360	0.125	1.513	0.083	73	1.236	0.155	7.40%	OK
Start Point to CP8	CA09, CA10	43.9	0	43.9	0	11.03	0.245	5.25	246.476	273.835	0.003	225	9.000	9.000	8.650	8.580	0.073	1.053	0.070	158	0.749	0.055	5.78%	OK
CP8 to CP9	CA09, CA10, CA11	21.9	0	65.8	0	7.71	0.162	5.41	244.695	271.856	0.005	225	9.000	9.000	8.580	8.530	0.089	1.193	0.075	154	0.793	0.071	6.68%	OK
CP9 to CP10	CA09, CA10, CA11, CA12	10.3	0	76.1	0	2.64	0.050	5.46	244.155	271.256	0.005	225	9.000	9.000	8.530	8.510	0.100	1.293	0.078	132	0.879	0.088	6.17%	OK
CP10 to CP11	CA09, CA10, CA11, CA12, CA13	21.1	0	97.2	0	1.62	0.034	5.49	243.794	270.855	0.007	225	9.000	9.000	8.510	8.500	0.105	1.333	0.079	162	0.801	0.084	8.28%	OK
CP11 to CP12	CA09, CA10, CA11, CA12, CA13, CA14	29.7	0	126.9	0	6.34	0.130	5.62	242.421	269.329	0.009	225	9.000	9.000	8.500	8.460	0.107	1.353	0.079	159	0.813	0.087	10.36%	OK
CP12 to CP13	CA09, CA10, CA11, CA12, CA13, CA14, CA15	24.4	0	151.3	0	10.40	0.203	5.82	240.332	267.009	0.011	225	9.000	9.000	8.460	8.390	0.116	1.433	0.081	149	0.853	0.099	10.77%	OK
CP13 to CP14	CA09, CA10, CA11, CA12, CA13, CA14, CA15, CA16, House 2	76.7	0	228.0	0	3.23	0.064	5.89	239.686	266.291	0.016	225	9.000	9.000	8.390	8.370	0.132	1.573	0.084	161	0.837	0.110	14.52%	OK
CP14 to CP7	CA09, CA10, CA11, CA12, CA13, CA14, CA15, CA16, House 2	0.0	0	228.0	0	0.74	0.010	5.90	239.586	266.181	0.016	225	9.000	9.000	8.370	8.360	0.136	1.613	0.084	74	1.244	0.170	9.45%	OK

D.D. 293, TO KWA PENG, SAI KUNG NORTH, NEW TERROTORIES
DRAIN PIPE DESIGN CALCULATION

MANHOLE		PIPE			INVERT LEVEL		FINISHED ROAD LEVEL	PIPE BEDDING	PIPE								PAVED CATCHMENT AREA (m^2)		UNPAVED CATCHMENT AREA (m^2)		DISCHARGE FROM OTHERS		TIME OF FLOW, tf (MIN)	TIME OF CONC., tc (MIN)	INTENSITY (mm/HOUR)	DISCHARGE WITH CLIMATE CHANGE 11.1%, Q (m^3/s)	% OF CAPACITY	Qc>Q?
MANHOLE NO.	MANHOLE TYPE	LENGTH	DIAMETER	GRADIENT	INLET	OUTLET			ROUGHNESS Ks (mm)	PERCENTAGE AREA ALLOWANCE FOR SEDIMENT	FLOW AREA, A (m^2)	WETTED PERIMETER, P(m)	HYDRAULIC RADIUS, R(m)	FULL FLOW VELOCITY, V (m/s)	0.75<V<3?	CAPACITY WITH SEDIMENT, Qc (m^3/s)	PIPE MATERIAL	INCREMENTAL	CUMULATIVE	INCREMENTAL	CUMULATIVE	INCREMENTAL	CUMULATIVE						
		m	mm	1 IN	mPD	mPD	mPD																					
CP7	Trapped Catchpit					8.360	9.000											390.2000	390.2000		0.0000		0.0000						
		15.05	300	100				S I	0.60	0.10	0.07	0.94	0.08	1.57	OK	0.10	CONCRETE							0.160	5.000	255.820	0.029	29.3%	OK
CP15	Catchpit				8.210	8.210	9.100												390.2000		0.0000		0.0000						
		5.10	300	102				S I	0.60	0.10	0.06	0.94	0.07	1.45	OK	0.08	CONCRETE							0.058	5.058	255.253	0.029	35.1%	OK
CP16	Catchpit				8.160	8.160	9.000												390.2000		0.0000		0.0000						
		12.78	300	14				S I	0.60	0.05	0.07	0.94	0.07	4.08	Not OK	0.26	CONCRETE							0.052	5.111	254.751	0.029	11.2%	OK
CP17	Catchpit				7.250	7.250	8.000											456.8000	847.0000		0.0000		0.0000						
		3.06	300	15				S I	0.60	0.05	0.07	0.94	0.07	3.91	Not OK	0.25	CONCRETE							0.013	5.124	254.626	0.063	25.3%	OK
CP18	Catchpit				7.050	7.050	7.800												847.0000		0.0000		0.0000						
		5.07	300	17				S I	0.60	0.05	0.07	0.94	0.07	3.72	Not OK	0.24	CONCRETE							0.023	5.146	254.410	0.063	26.6%	OK
CP19	Catchpit				6.750	6.750	7.500												847.0000		0.0000		0.0000						
		15.55	300	16				S I	0.60	0.05	0.07	0.94	0.07	3.88	Not OK	0.25	CONCRETE							0.067	5.213	253.777	0.063	25.5%	OK
CP20	Catchpit				5.750	5.750	6.500												847.0000		0.0000		0.0000						
		11.28	300	56				S I	0.60	0.10	0.06	0.94	0.07	1.96	OK	0.11	CONCRETE							0.096	5.309	252.879	0.063	55.9%	OK
CP21	Catchpit				5.550	5.550	6.500												847.0000		0.0000		0.0000						
		29.13	300	18				S I	0.60	0.05	0.07	0.94	0.07	3.64	Not OK	0.23	CONCRETE							0.133	5.443	251.652	0.062	26.9%	OK
CP22	Trapped Catchpit				3.900		5.900												847.0000		0.0000		0.0000						

D.D. 293, TO KWA PENG, SAI KUNG NORTH, NEW TERROTORIES
U-CHANNEL DESIGN CALCULATION

Design assumptions and parameters

1. The time of entry is taken as 5 minutes.
2. The channel is designed with a rainfall return period of 1 in 200 years. (a = 501.4; b = 2.45; c = 0.348)
3. A uniformly distributed rainfall with an intensity determined by the intensity-duration-frequency relationship is used.
4. Rainfall increase due to Climate Change for Mid 21st Century of 11.1% is adopted.
5. Adopted runoff coefficients: (Paved areas: 0.95; unpaved areas: 0.15)
6. Rational method is adopted for runoff estimation.
7. The Manning's equation is adopted for channel capacity estimation.
8. Adopted Manning's coefficient for concrete channels: 0.018 $s/m^{1/3}$

Design calculation for capacity of U-channel

Channel no.	Catchment	Incremental paved catchment area, A_{ip} (m^2)	Incremental unpaved catchment area, A_{iu} (m^2)	Cumulative paved catchment area, A_{cp} (m^2)	Cumulative unpaved catchment area, A_{cu} (m^2)	Length of designed channel section (m)	Time of flow, t_f (min)	Time of concentration, t_c (min)	Rainfall intensity, I (mm/hr)	Rainfall intensity with Climate Change , I (mm/hr)	Design runoff, Q_d (m^3/s)	Channel width, W (mm)	Upstream ground level (mPD)	Downstream ground level (mPD)	Upstream channel invert (mPD)	Downstream channel invert (mPD)	Critical channel sectional area, A (m^2)	Wetted perimeter, P (m)	Hydraulic radius, R (m)	Gradient, S_f (1 in)	Flow velocity, V (m/s)	Channel capacity, Q_c (m^3/s)	%	$Q_c > Q_d$?
Start Point to CP1	CC01	5.9	0.0	5.9	0	12.03	0.427	5.43	244.483	271.620	0.000	225	9.000	9.000	8.650	8.620	0.073	1.053	0.070	401	0.469	0.034	1.23%	OK
CP1 to CO2	CC01, CC02	19.8	0.0	25.7	0	3.94	0.068	5.49	243.754	270.811	0.002	225	9.000	9.000	8.620	8.580	0.080	1.113	0.072	99	0.968	0.078	2.37%	OK
CP2 to CP3	CC01, CC02, CC03	3.2	0.0	28.9	0	7.02	0.111	5.61	242.577	269.503	0.002	225	9.000	9.000	8.580	8.500	0.089	1.193	0.075	88	1.051	0.094	2.20%	OK
CP3 to CP4	CC01, CC02, CC03, CC04	20.2	0.0	49.1	0	3.39	0.051	5.66	242.047	268.914	0.003	225	9.000	9.000	8.500	8.460	0.107	1.353	0.079	85	1.112	0.119	2.93%	OK
CP4 to CP5	CC01, CC02, CC03, CC04	0.0	0.0	49.1	0	4.62	0.113	5.77	240.889	267.627	0.003	225	9.000	9.000	8.460	8.440	0.116	1.433	0.081	231	0.684	0.079	4.37%	OK
CP5 to CP6	CC01, CC02, CC03, CC04, CC05	28.1	0.0	77.2	0	1.96	0.020	5.79	240.690	267.406	0.005	225	9.000	9.000	8.440	8.390	0.121	1.473	0.082	39	1.672	0.202	2.70%	OK
CP6 to CP7	CC01, CC02, CC03, CC04, CC05, CC06, House 6	80.7	0.0	157.9	0	1.81	0.019	5.81	240.496	267.191	0.011	225	9.000	9.000	8.390	8.350	0.132	1.573	0.084	45	1.581	0.208	5.34%	OK
CP7 to CP8	CC01, CC02, CC03, CC04, CC05, CC06, CC07, House 6	15.3	0.0	173.2	0	4.36	0.043	5.85	240.066	266.714	0.012	225	9.000	9.000	8.350	8.240	0.141	1.653	0.085	40	1.708	0.241	5.07%	OK
Start Point to CP9	House 5, CC08	69.5	0	69.5	0	11.03	0.375	5.37	245.048	272.249	0.005	225	9.000	9.000	8.650	8.620	0.073	1.053	0.070	368	0.490	0.036	13.89%	OK
CP9 to CP10	House 5, CC08, CC09	8.5	0	78.0	0	7.71	0.166	5.54	243.264	270.266	0.006	225	9.000	9.000	8.620	8.570	0.080	1.113	0.072	154	0.774	0.062	8.98%	OK
CP10 to CP11	House 5, CC08, CC09, CC10	24.7	0	102.7	0	2.64	0.042	5.58	242.824	269.777	0.007	225	9.000	9.000	8.570	8.540	0.091	1.213	0.075	88	1.056	0.096	7.58%	OK
CP11 to CP12	House 5, CC08, CC09, CC10	0.0	0	102.7	0	1.62	0.034	5.62	242.465	269.379	0.007	225	9.000	9.000	8.540	8.530	0.098	1.273	0.077	162	0.790	0.077	9.42%	OK
CP12 to CP8	House 5, CC08, CC09, CC10, CC11	30.5	0	133.2	0	6.34	0.049	5.67	241.956	268.813	0.009	225	9.000	9.000	8.530	8.240	0.100	1.293	0.078	22	2.161	0.217	4.36%	OK

D.D. 293, TO KWA PENG, SAI KUNG NORTH, NEW TERROTORIES
DRAIN PIPE DESIGN CALCULATION

MANHOLE		PIPE			INVERT LEVEL		FINISHED ROAD LEVEL	PIPE BEDDING	PIPE								PAVED CATCHMENT AREA (m^2)		UNPAVED CATCHMENT AREA (m^2)		DISCHARGE FROM OTHERS		TIME OF FLOW, tf (MIN)	TIME OF CONC., tc (MIN)	INTENSITY (mm/HOUR)	DISCHARGE WITH CLIMATE CHANGE 11.1%, Q (m^3/s)	% OF CAPACITY	Qc>Q?
MANHOLE NO.	MANHOLE TYPE	LENGTH	DIAMETER	GRADIENT	INLET	OUTLET			ROUGHNESS Ks (mm)	PERCENTAGE AREA ALLOWANCE FOR SEDIMENT	FLOW AREA, A (m^2)	WETTED PERIMETER, P(m)	HYDRAULIC RADIUS, R(m)	FULL FLOW VELOCITY, V (m/s)	0.75<V<3?	CAPACITY WITH SEDIMENT, Qc (m^3/s)	PIPE MATERIAL	INCREMENTAL	CUMULATIVE	INCREMENTAL	CUMULATIVE	INCREMENTAL	CUMULATIVE						
		m	mm	1 IN	mPD	mPD	mPD																					
CP8	Trapped Catchpit					8.240	9.000											433.9000	433.9000		0.0000		0.0000						
		14.04	300	100				S I	0.60	0.10	0.07	0.94	0.08	1.57	OK	0.10	CONCRETE							0.149	5.000	255.820	0.033	32.5%	OK
CP18	Catchpit				8.100	5.650	6.500											136.5300	570.4300		0.0000		0.0000						
		7.02	300	100				S I	0.60	0.10	0.06	0.94	0.07	1.47	OK	0.08	CONCRETE							0.080	5.080	255.048	0.043	50.7%	OK
CP22	Trapped Catchpit				5.580	3.900	5.900												570.4300		0.0000		0.0000						

D.D. 293, TO KWA PENG, SAI KUNG NORTH, NEW TERROTORIES
U-CHANNEL DESIGN CALCULATION

Design assumptions and parameters

1. The time of entry is taken as 5 minutes.
2. The channel is designed with a rainfall return period of 1 in 200 years. (a = 501.4; b = 2.45; c = 0.348)
3. A uniformly distributed rainfall with an intensity determined by the intensity-duration-frequency relationship is used.
4. Rainfall increase due to Climate Change for Mid 21st Century of 11.1% is adopted.
5. Adopted runoff coefficients: (Paved areas: 0.95; unpaved areas: 0.15)
6. Rational method is adopted for runoff estimation.
7. The Manning's equation is adopted for channel capacity estimation.
8. Adopted Manning's coefficient for concrete channels: 0.018 $s/m^{1/3}$

Design calculation for capacity of U-channel

Channel no.	Catchment	Incremental paved catchment area, A_{ip} (m^2)	Incremental unpaved catchment area, A_{iu} (m^2)	Cumulative paved catchment area, A_{cp} (m^2)	Cumulative unpaved catchment area, A_{cu} (m^2)	Length of designed channel section (m)	Time of flow, t_f (min)	Time of concentration, t_c (min)	Rainfall intensity, I (mm/hr)	Rainfall intensity with Climate Change , I (mm/hr)	Design runoff, Q_d (m^3/s)	Channel width, W (mm)	Upstream ground level (mPD)	Downstream ground level (mPD)	Upstream channel invert (mPD)	Downstream channel invert (mPD)	Critical channel sectional area, A (m^2)	Wetted perimeter, P (m)	Hydraulic radius, R (m)	Gradient, S_f (1 in)	Flow velocity, V (m/s)	Channel capacity, Q_c (m^3/s)	%	$Q_c > Q_d$?
Start Point to CP7	CE01, CE02	30.4	0.0	30.4	0	10.47	0.125	5.12	247.833	275.343	0.002	225	10.900	10.900	10.430	10.230	0.100	1.293	0.078	52	1.396	0.140	1.58%	OK
CP7 to CP6	CE01, CE02, CE03, House 8	90.7	0.0	121.1	0	15.31	0.075	5.20	246.980	274.395	0.009	225	10.900	10.900	10.230	8.730	0.145	1.693	0.086	10	3.383	0.492	1.78%	OK
Start Point to CP1	CE04	18.6	0	18.6	0	7.00	0.134	5.13	247.729	275.226	0.001	225	10.900	10.900	10.630	10.560	0.055	0.893	0.062	100	0.869	0.048	2.81%	OK
CP1 to CP2	CE04, CE05, House 9	97.5	0	116.1	0	19.11	0.352	5.49	243.849	270.916	0.008	225	10.900	10.900	10.560	10.380	0.071	1.033	0.069	106	0.905	0.064	12.90%	OK
CP2 to CP3	CE04, CE05, House 9, CE06	6.9	0	123.0	0	2.53	0.038	5.52	243.449	270.472	0.009	225	10.900	10.900	10.380	10.350	0.112	1.393	0.080	84	1.124	0.125	7.00%	OK
CP3 to CP4	CE04, CE05, House 9, CE06, CE07	11.1	0	134.1	0	6.30	0.095	5.62	242.443	269.354	0.010	225	10.900	10.900	10.350	10.280	0.118	1.453	0.081	90	1.100	0.130	7.32%	OK
CP4 to CP5	CE04, CE05, House 9, CE06, CE07, CE08	27.9	0	162.0	0	6.95	0.108	5.73	241.322	268.108	0.011	225	10.900	10.900	10.280	10.210	0.134	1.593	0.084	99	1.071	0.144	7.99%	OK
CP5 to CP6	CE04, CE05, House 9, CE06, CE07, CE08, CE09	14.4	0	176.4	0	5.50	0.016	5.74	241.155	267.923	0.012	225	10.900	10.900	10.210	8.730	0.150	1.733	0.086	4	5.634	0.844	1.48%	OK

D.D. 293, TO KWA PENG, SAI KUNG NORTH, NEW TERROTORIES
DRAIN PIPE DESIGN CALCULATION

MANHOLE		PIPE			INVERT LEVEL		FINISHED ROAD LEVEL	PIPE BEDDING	PIPE								PAVED CATCHMENT AREA (m^2)		UNPAVED CATCHMENT AREA (m^2)		DISCHARGE FROM OTHERS		TIME OF FLOW, tf (MIN)	TIME OF CONC., tc (MIN)	INTENSITY (mm/HOUR)	DISCHARGE WITH CLIMATE CHANGE 11.1%, Q (m^3/s)	% OF CAPACITY	Qc>Q?
MANHOLE NO.	MANHOLE TYPE	LENGTH	DIAMETER	GRADIENT	INLET	OUTLET			ROUGHNESS Ks (mm)	PERCENTAGE AREA ALLOWANCE FOR SEDIMENT	FLOW AREA, A (m^2)	WETTED PERIMETER, P(m)	HYDRAULIC RADIUS, R(m)	FULL FLOW VELOCITY, V (m/s)	0.75<V<3?	CAPACITY WITH SEDIMENT, Qc (m^3/s)	PIPE MATERIAL	INCREMENTAL	CUMULATIVE	INCREMENTAL	CUMULATIVE	INCREMENTAL	CUMULATIVE						
		m	mm	1 IN	mPD	mPD	mPD																					
CP6	Trapped Catchpit					8.730	10.900											297.5100	297.5100		0.0000		0.0000						
		9.42	300	100				S I	0.60	0.10	0.07	0.94	0.08	1.57	OK	0.10	CONCRETE							0.100	5.000	255.820	0.022	22.3%	OK
CP8	Catchpit				8.636	8.030	8.800												297.5100		0.0000		0.0000						
		16.42	300	100				S I	0.60	0.10	0.06	0.94	0.07	1.47	OK	0.08	CONCRETE							0.186	5.186	254.031	0.022	26.3%	OK
CP22	Trapped Catchpit				7.866	3.900	5.900												297.5100		0.0000		0.0000						

D.D. 293, TO KWA PENG, SAI KUNG NORTH, NEW TERROTORIES
U-CHANNEL DESIGN CALCULATION

Design assumptions and parameters

1. The time of entry is taken as 5 minutes.
2. The channel is designed with a rainfall return period of 1 in 200 years. (a = 501.4; b = 2.45; c = 0.348)
3. A uniformly distributed rainfall with an intensity determined by the intensity-duration-frequency relationship is used.
4. Rainfall increase due to Climate Change for Mid 21st Century of 11.1% is adopted.
5. Adopted runoff coefficients: (Paved areas: 0.95; unpaved areas: 0.15)
6. Rational method is adopted for runoff estimation.
7. The Manning's equation is adopted for channel capacity estimation.
8. Adopted Manning's coefficient for concrete channels: 0.018 $s/m^{1/3}$

Design calculation for capacity of U-channel

Channel no.	Catchment	Incremental paved catchment area, A_{ip} (m^2)	Incremental unpaved catchment area, A_{iu} (m^2)	Cumulative paved catchment area, A_{cp} (m^2)	Cumulative unpaved catchment area, A_{cu} (m^2)	Length of designed channel section (m)	Time of flow, t_f (min)	Time of concentration, t_c (min)	Rainfall intensity, I (mm/hr)	Rainfall intensity with Climate Change , I (mm/hr)	Design runoff, Q_d (m^3/s)	Channel width, W (mm)	Upstream ground level (mPD)	Downstream ground level (mPD)	Upstream channel invert (mPD)	Downstream channel invert (mPD)	Critical channel sectional area, A (m^2)	Wetted perimeter, P (m)	Hydraulic radius, R (m)	Gradient, S_f (1 in)	Flow velocity, V (m/s)	Channel capacity, Q_c (m^3/s)	%	$Q_c > Q_d$?
Start Point to CP4	House 10, CF01	76.2	0.0	76.2	0	4.87	0.043	5.04	248.768	276.382	0.006	225	10.500	10.500	10.280	10.020	0.044	0.793	0.056	19	1.869	0.082	6.75%	OK
Start Point to CP1	CF02	4.1	0	4.1	0	3.32	0.062	5.06	248.551	276.140	0.000	225	10.500	10.500	10.280	10.240	0.044	0.793	0.056	83	0.888	0.039	0.77%	OK
CP1 to CP2	CF02, CF03	9.9	0	14.0	0	4.17	0.117	5.18	247.219	274.660	0.001	225	10.500	10.500	10.240	10.220	0.053	0.873	0.061	209	0.595	0.032	3.22%	OK
CP2 to CP3	CF02, CF03, CF04	22.3	0	36.3	0	15.16	0.299	5.48	243.935	271.012	0.003	225	10.500	10.500	10.220	10.080	0.058	0.913	0.063	108	0.845	0.049	5.34%	OK
CP3 to CP4	CF02, CF03, CF04, CF05	24.0	0	60.3	0	7.02	0.129	5.61	242.574	269.500	0.004	225	10.500	10.500	10.080	10.020	0.089	1.193	0.075	117	0.910	0.081	5.29%	OK

D.D. 293, TO KWA PENG, SAI KUNG NORTH, NEW TERROTORIES
DRAIN PIPE DESIGN CALCULATION

MANHOLE		PIPE			INVERT LEVEL		FINISHED ROAD LEVEL	PIPE BEDDING	PIPE																			
MANHOLE NO.	MANHOLE TYPE	LENGTH	DIAMETER	GRADIENT	INLET	OUTLET			ROUGHNESS Ks (mm)	PERCENTAGE AREA ALLOWANCE FOR SEDIMENT	FLOW AREA, A (m^2)	WETTED PERIMETER, P(m)	HYDRAULIC RADIUS, R(m)	FULL FLOW VELOCITY, V (m/s)	0.75<V<3?	CAPACITY WITH SEDIMENT, Qc (m^3/s)	PIPE MATERIAL	PAVED CATCHMENT AREA (m^2)		UNPAVED CATCHMENT AREA (m^2)		DISCHARGE FROM OTHERS		TIME OF FLOW, tf (MIN)	TIME OF CONC., tc (MIN)	INTENSITY (mm/HOUR)	DISCHARGE WITH CLIMATE CHANGE 11.1%, Q (m^3/s)	% OF CAPACITY	Qc>Q?
																		INCREMENTAL	CUMULATIVE	INCREMENTAL	CUMULATIVE	INCREMENTAL	CUMULATIVE						
		m	mm	1 IN	mPD	mPD	mPD																					
CP4	Trapped Catchpit					10.020	10.500											136.5300	136.5300		0.0000		0.0000						
		13.50	300	100				S I	0.60	0.10	0.07	0.94	0.08	1.57	OK	0.10	CONCRETE							0.143	5.000	255.820	0.010	10.2%	OK
CP18	Catchpit				9.885	5.645	6.500												136.5300		0.0000		0.0000						

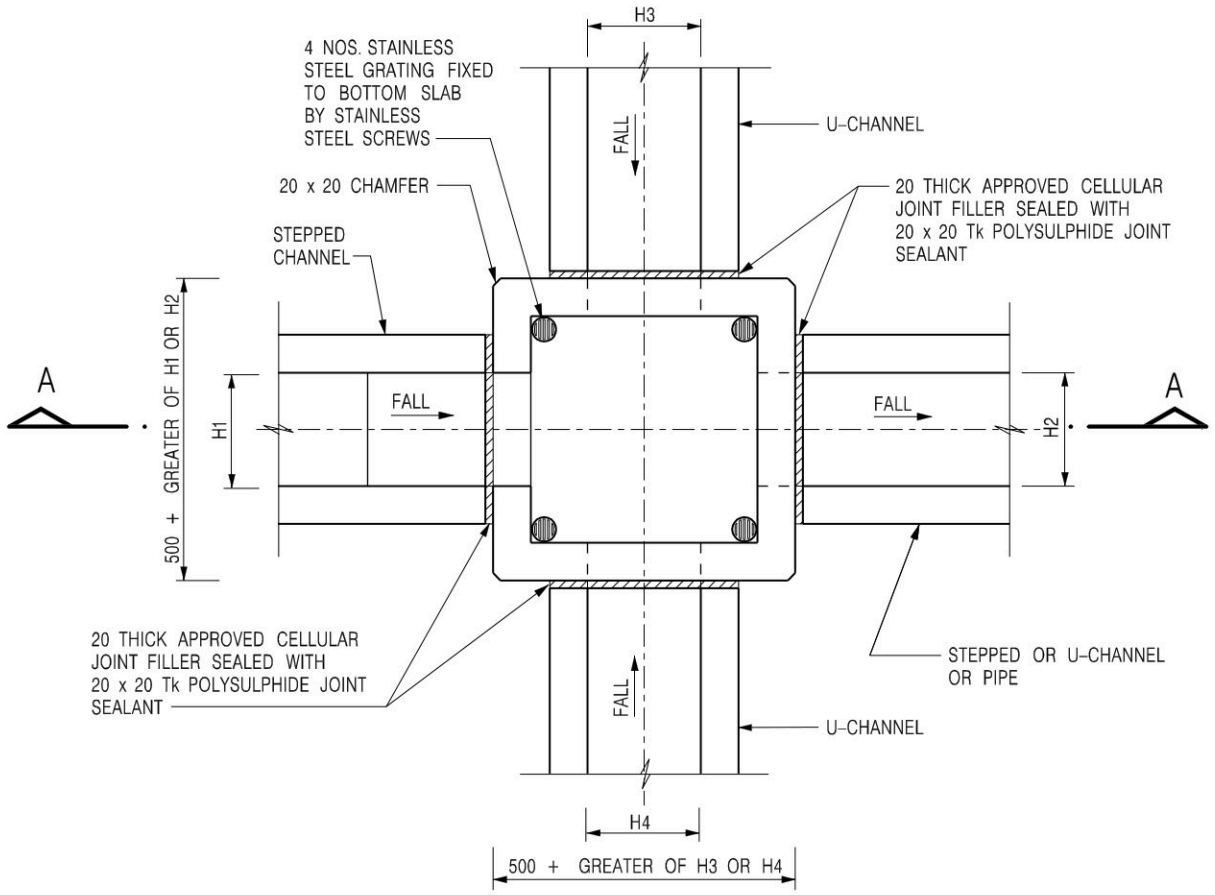
D.D. 293, TO KWA PENG, SAI KUNG NORTH, NEW TERROTORIES
U-CHANNEL DESIGN CALCULATION

Design assumptions and parameters

1. The time of entry is taken as 5 minutes.
2. The channel is designed with a rainfall return period of 1 in 200 years. (a = 501.4; b = 2.45; c = 0.348)
3. A uniformly distributed rainfall with an intensity determined by the intensity-duration-frequency relationship is used.
4. Rainfall increase due to Climate Change for Mid 21st Century of 11.1% is adopted.
5. Adopted runoff coefficients: (Paved areas: 0.95; unpaved areas: 0.15)
6. Rational method is adopted for runoff estimation.
7. The Manning's equation is adopted for channel capacity estimation.
8. Adopted Manning's coefficient for concrete channels: 0.018 $s/m^{1/3}$

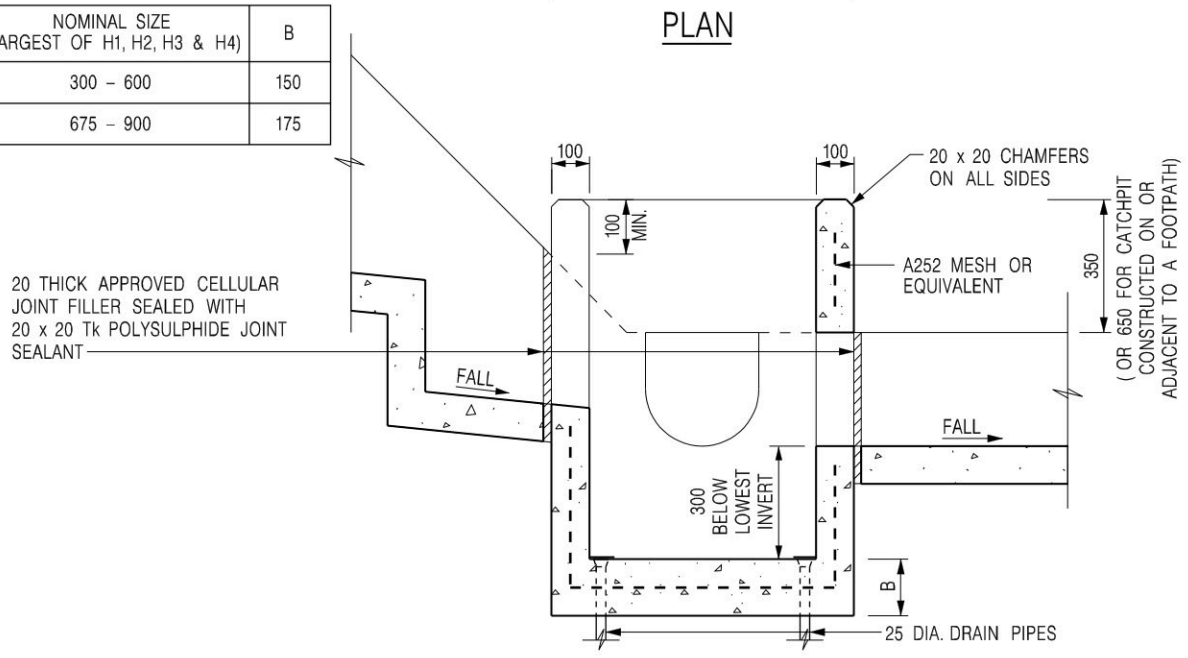
Design calculation for capacity of U-channel

Channel no.	Catchment	Incremental paved catchment area, A_{ip} (m^2)	Incremental unpaved catchment area, A_{iu} (m^2)	Cumulative paved catchment area, A_{cp} (m^2)	Cumulative unpaved catchment area, A_{cu} (m^2)	Length of designed channel section (m)	Time of flow, t_f (min)	Time of concentration, t_c (min)	Rainfall intensity, I (mm/hr)	Rainfall intensity with Climate Change , I (mm/hr)	Design runoff, Q_d (m^3/s)	Channel width, W (mm)	Upstream ground level (mPD)	Downstream ground level (mPD)	Upstream channel invert (mPD)	Downstream channel invert (mPD)	Critical channel sectional area, A (m^2)	Wetted perimeter, P (m)	Hydraulic radius, R (m)	Gradient, S_f (1 in)	Flow velocity, V (m/s)	Channel capacity, Q_c (m^3/s)	%	$Q_c > Q_d$?
CP19 to Existing Stream	All	1714.9	0.0	1714.9	0	9.62	0.078	5.08	248.375	275.945	0.125	1200	5.900	5.900	3.900	3.852	2.245	5.885	0.382	200	2.067	4.641	2.69%	OK



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.

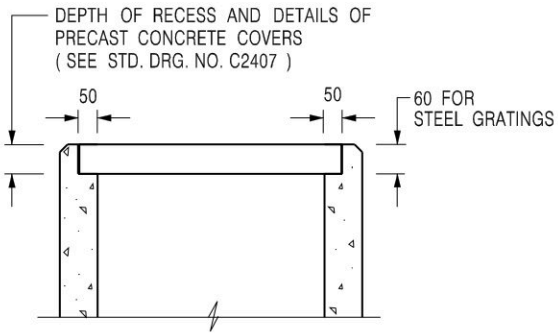
REF.	REVISION	SIGNATURE	DATE
–	FORMER DRG. NO. C2406J.	Original Signed	03.2015

CATCHPIT WITH TRAP

(SHEET 1 OF 2)

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE	1 : 20	DRAWING NO.
DATE	JAN 1991	C2406 /1



ALTERNATIVE TOP SECTION
FOR PRECAST CONCRETE COVERS / GRATINGS

NOTES:

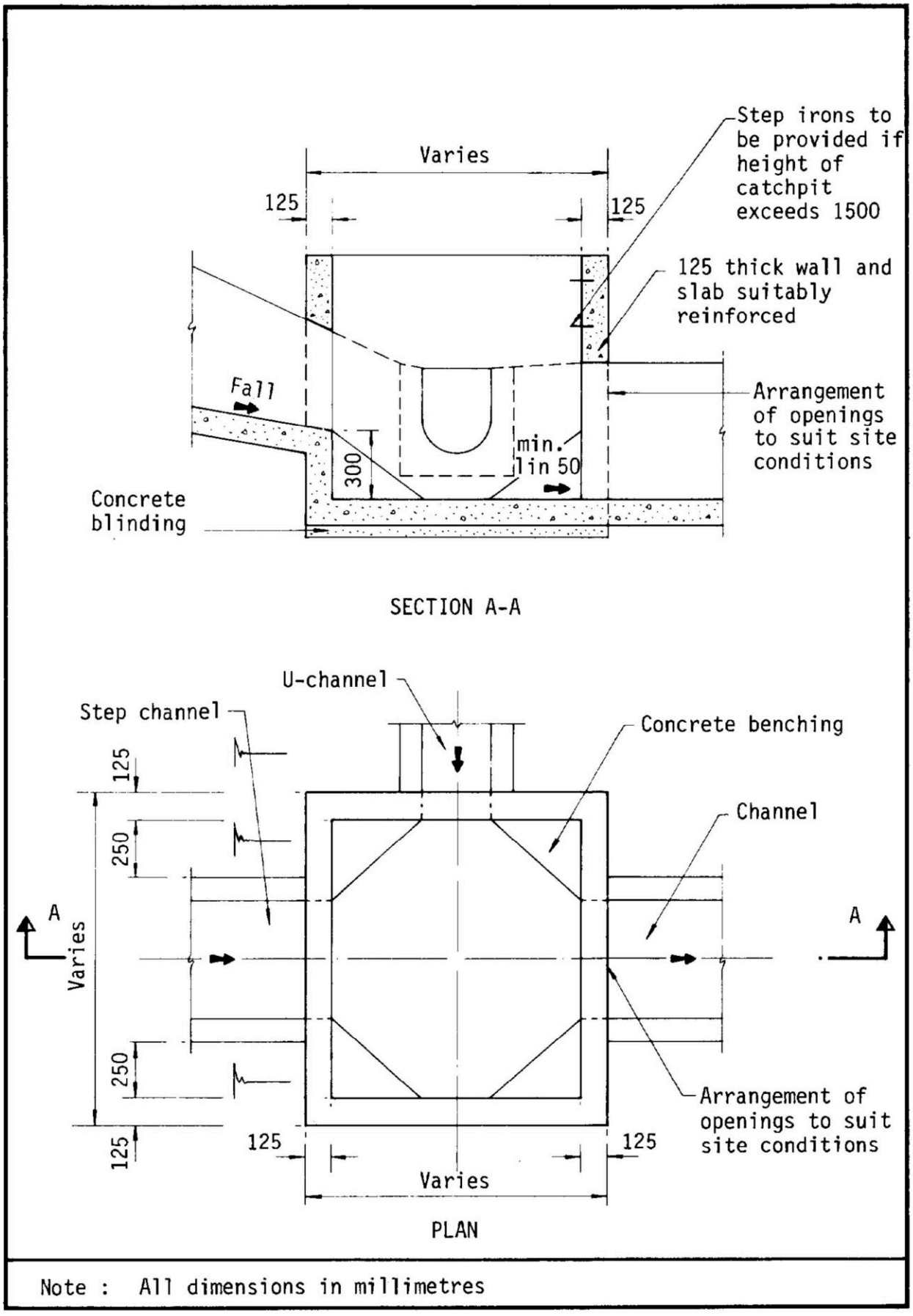
1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL CONCRETE SHALL BE GRADE 20 /20.
3. CONCRETE SURFACE FINISH SHALL BE CLASS U2 OR F2 AS APPROPRIATE.
4. FOR DETAILS OF JOINT, REFER TO STD. DRG. NO. C2413.
5. CONCRETE TO BE COLOURED AS SPECIFIED.
6. UNLESS REQUESTED BY THE MAINTENANCE PARTY AND AS DIRECTED 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) 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 'G' ON STD. DRG. NO. C2405; 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 'F' ON STD. DRG. NO. C2405.
12. SUBJECT TO THE APPROVAL OF THE ENGINEER, OTHER MATERIALS CAN ALSO BE USED AS COVERS / GRATINGS.

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

CATCHPIT WITH TRAP
(SHEET 2 OF 2)

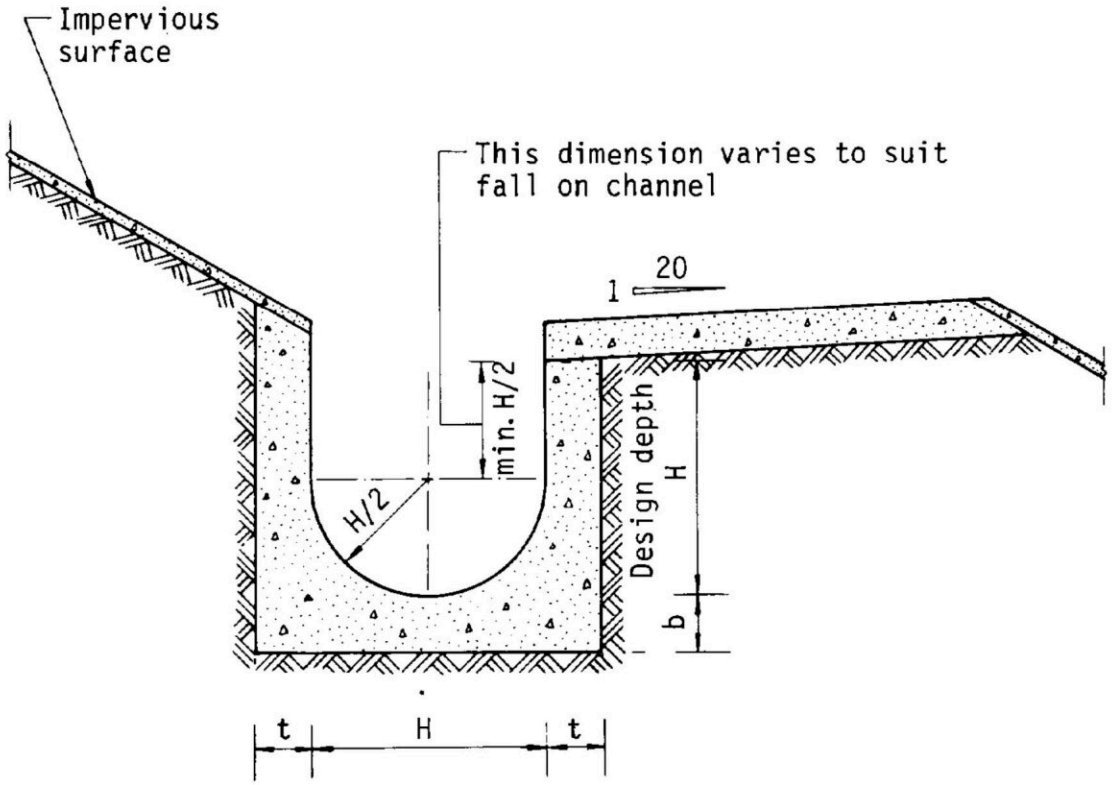
CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE 1 : 20	DRAWING NO. C2406 /2
DATE JAN 1991	



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

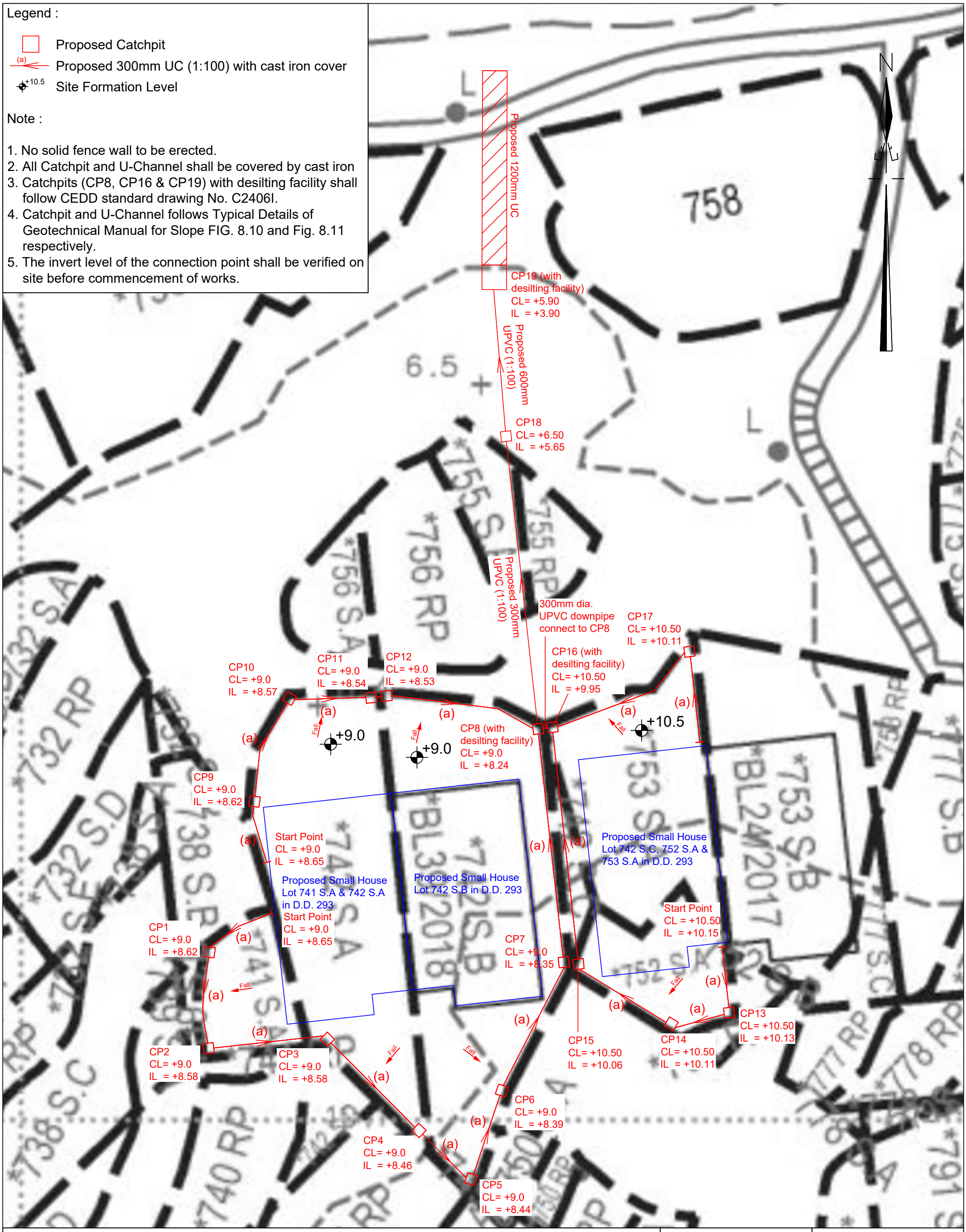
Figure 8.11 - Typical U-channel Details

Legend :

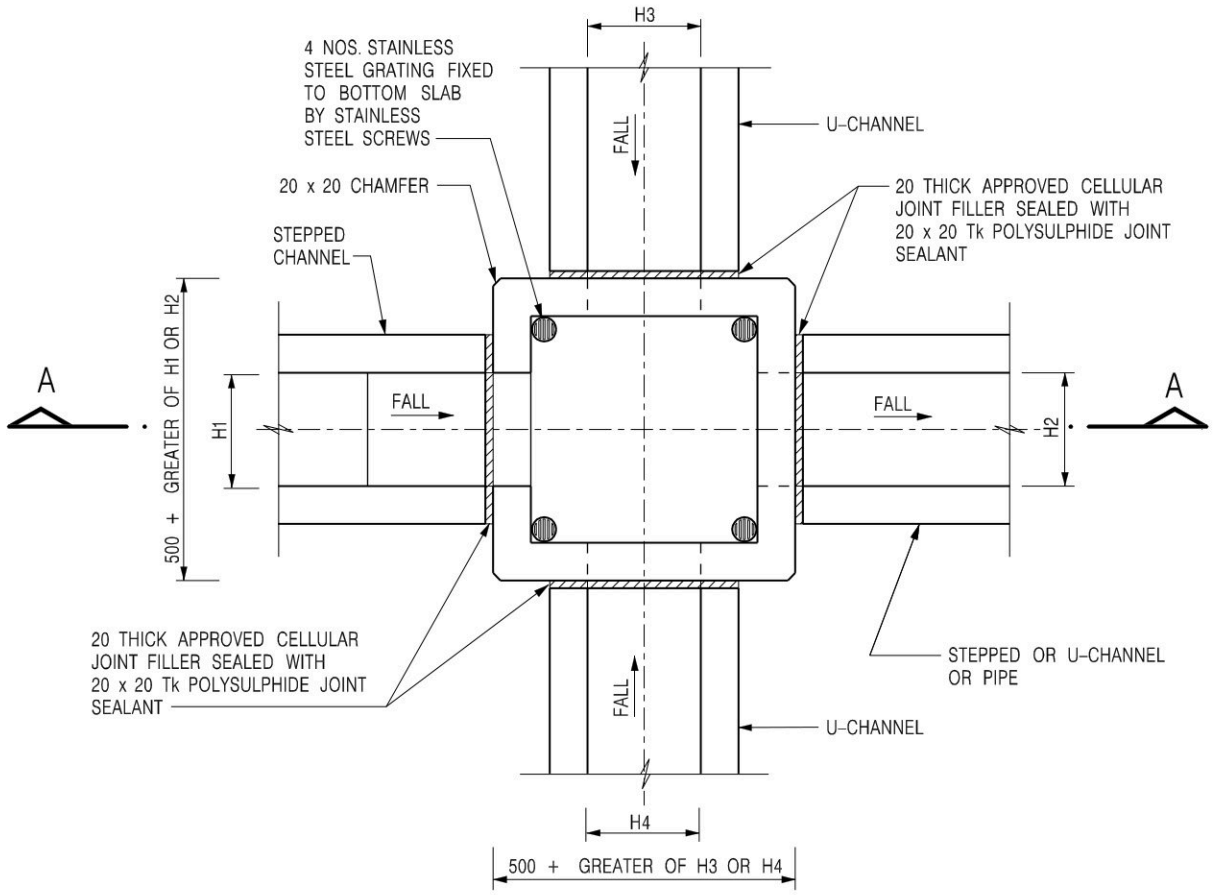
- Proposed Catchpit
- (a) Proposed 300mm UC (1:100) with cast iron cover
- +10.5 Site Formation Level

Note :

1. No solid fence wall to be erected.
2. All Catchpit and U-Channel shall be covered by cast iron
3. Catchpits (CP8, CP16 & CP19) with desilting facility shall follow CEDD standard drawing No. C2406I.
4. Catchpit and U-Channel follows Typical Details of Geotechnical Manual for Slope FIG. 8.10 and Fig. 8.11 respectively.
5. The invert level of the connection point shall be verified on site before commencement of works.

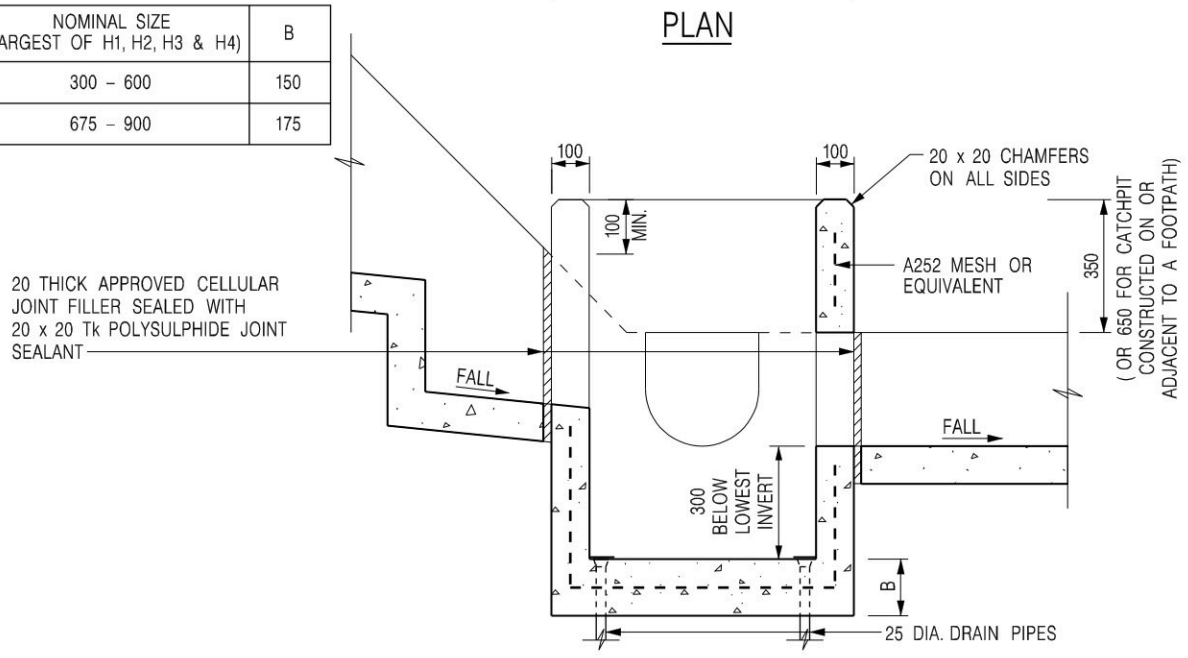


Project Title : D.D. 293 Lot Nos. 741 S.A, 742 S.A & 742 S.B & 742 S.C, 752 S.A, 753 S.A, To Kwa Peng, Sai Kung North, New Territories.	Scale : Not to scale	Plan No. : CW/TKP/DP/01
	Date : 25-04-2026	Survey Sheet No. : 8-NE-16A
Drawing Title : Proposed Stormwater Drainage Plan	卓 弘 測 量 服 務 公 司 CHUO WANG SURVEY SERVICES COMPANY	



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.

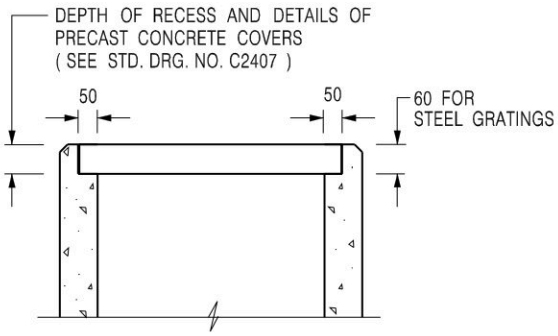
REF.	REVISION	SIGNATURE	DATE
–	FORMER DRG. NO. C2406J.	Original Signed	03.2015

CATCHPIT WITH TRAP

(SHEET 1 OF 2)

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE	1 : 20	DRAWING NO.
DATE	JAN 1991	C2406 /1



ALTERNATIVE TOP SECTION
FOR PRECAST CONCRETE COVERS / GRATINGS

NOTES:

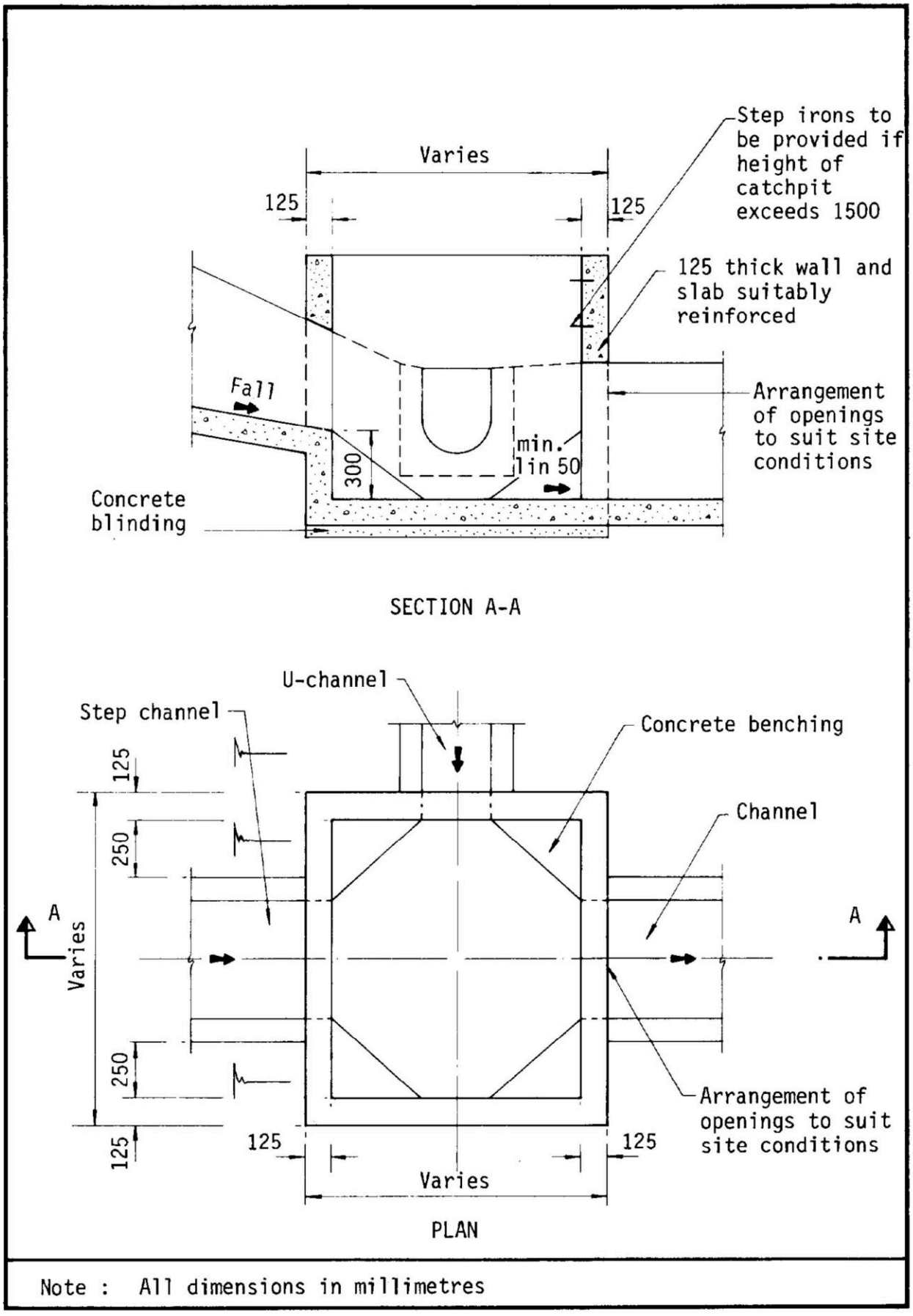
1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL CONCRETE SHALL BE GRADE 20 /20.
3. CONCRETE SURFACE FINISH SHALL BE CLASS U2 OR F2 AS APPROPRIATE.
4. FOR DETAILS OF JOINT, REFER TO STD. DRG. NO. C2413.
5. CONCRETE TO BE COLOURED AS SPECIFIED.
6. UNLESS REQUESTED BY THE MAINTENANCE PARTY AND AS DIRECTED 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) 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 'G' ON STD. DRG. NO. C2405; 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 'F' ON STD. DRG. NO. C2405.
12. SUBJECT TO THE APPROVAL OF THE ENGINEER, OTHER MATERIALS CAN ALSO BE USED AS COVERS / GRATINGS.

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

CATCHPIT WITH TRAP
(SHEET 2 OF 2)

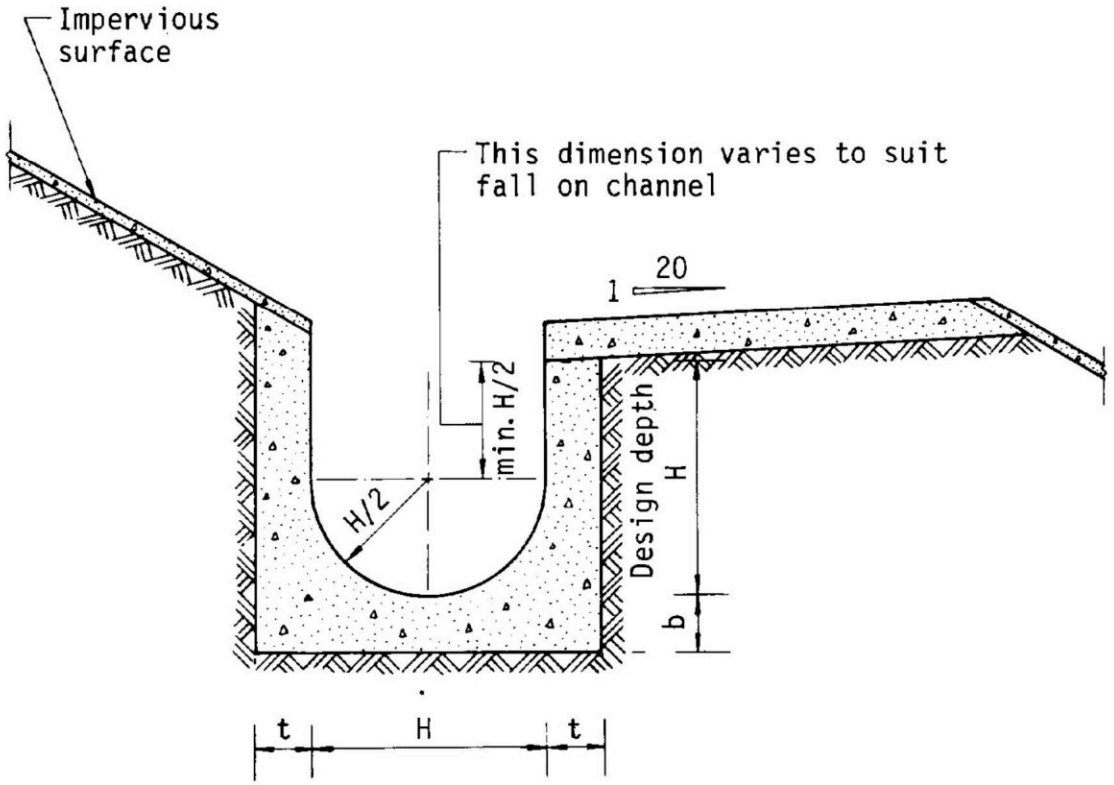
CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE 1 : 20	DRAWING NO. C2406 /2
DATE JAN 1991	



Note : All dimensions in millimetres

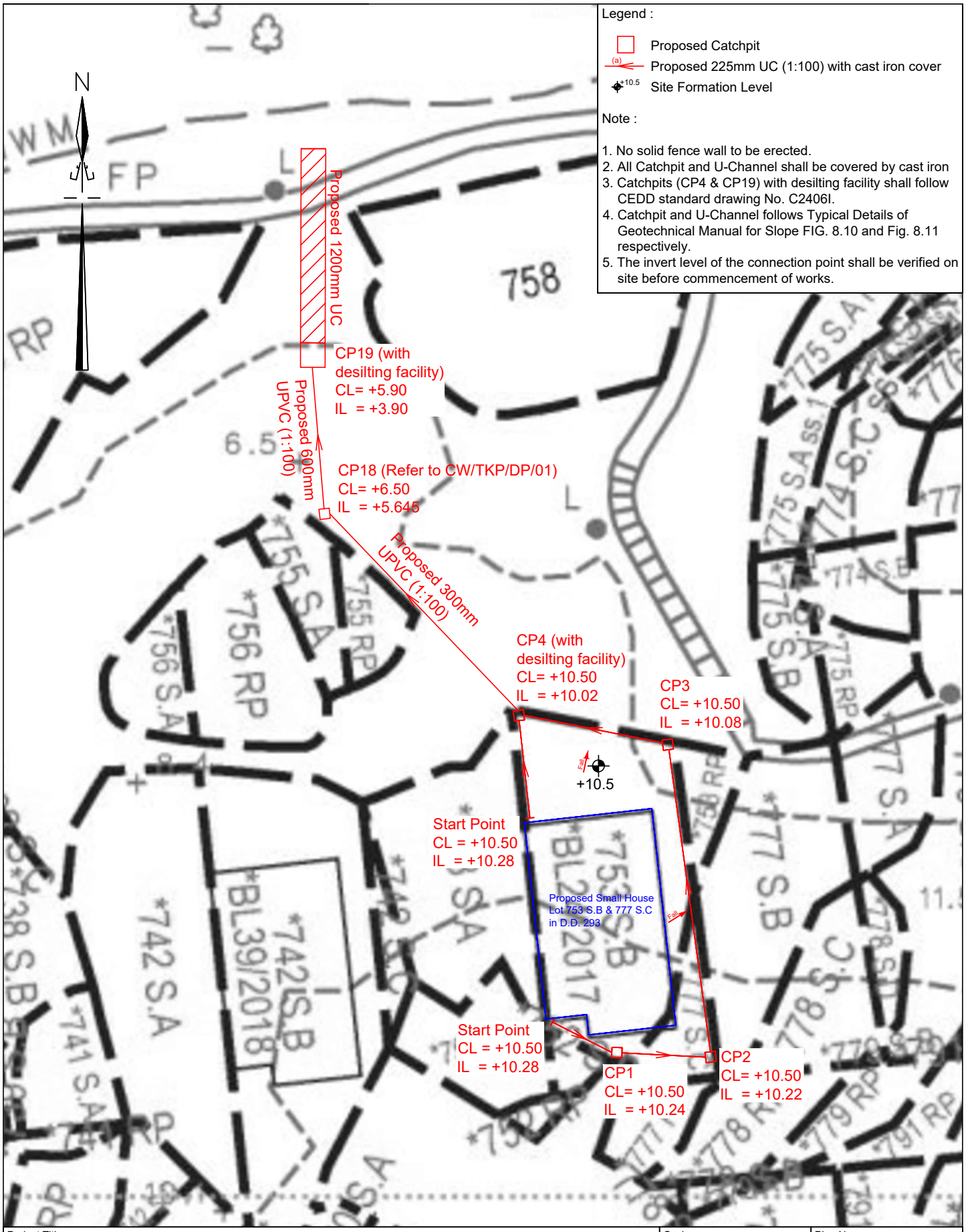
Figure 8.10 - Typical Details of Catchpits



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



Project Title :

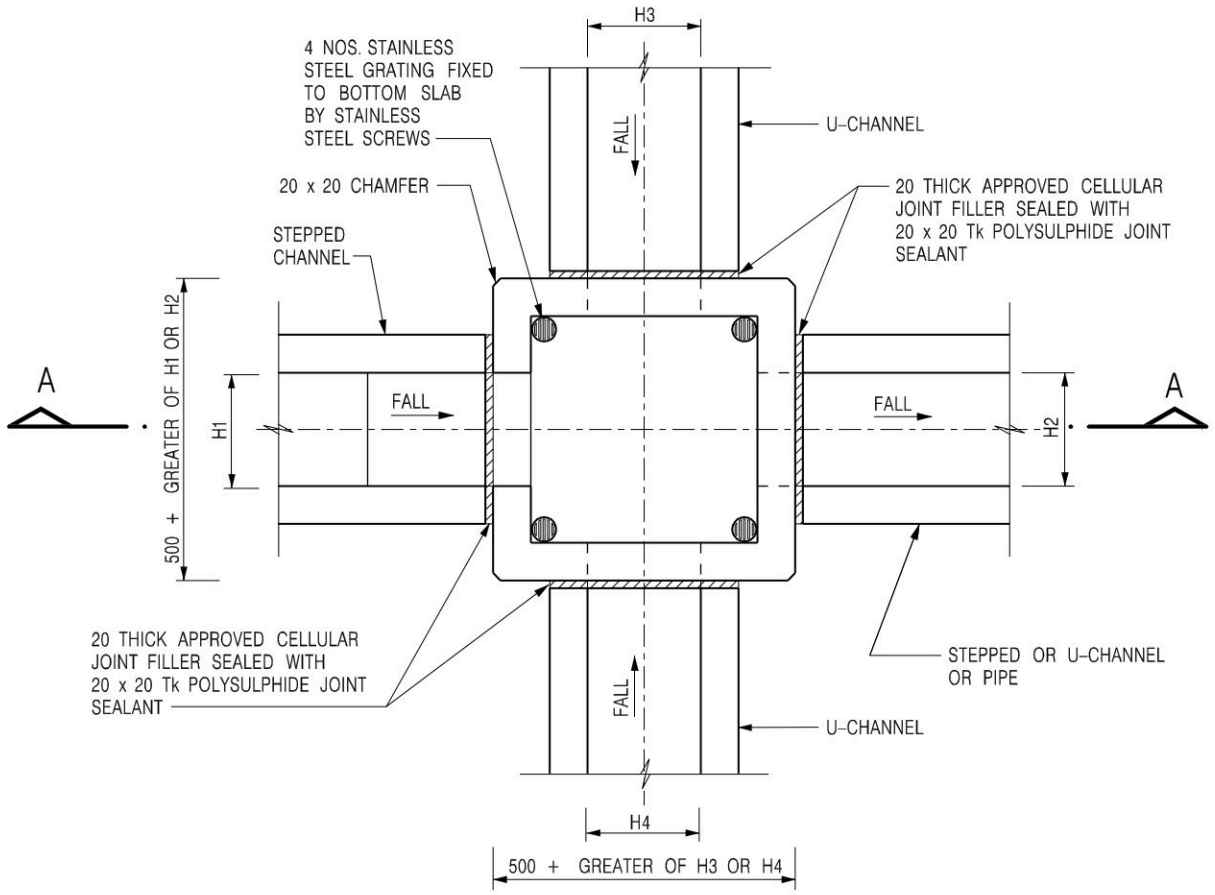
D.D. 293 Lot No. 753 S.B & 777 S.C
To Kwa Peng, Sai Kung North, New Territories.

Scale :	Plan No. :
Not to scale	CW/TKP/DP/02
Date :	Survey Sheet No. :
25-04-2026	8-NE-16A

Drawing Title :

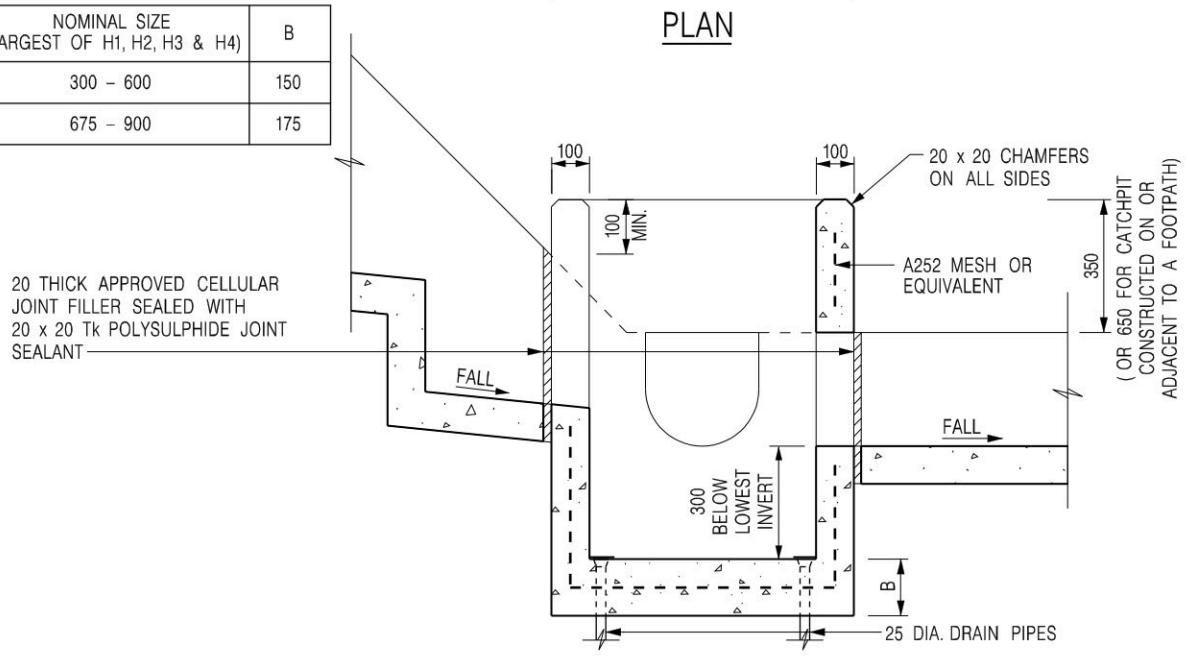
Proposed Stormwater Drainage Plan

卓 弘 測 量 服 務 公 司
CHUO WANG SURVEY SERVICES COMPANY



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.

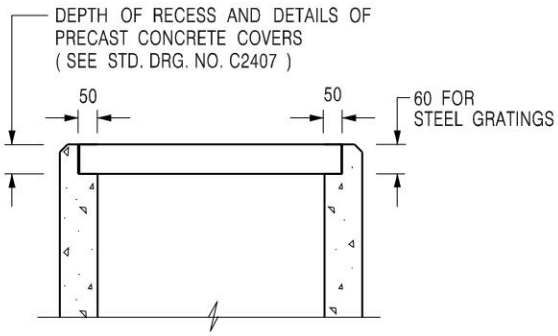
REF.	REVISION	SIGNATURE	DATE
–	FORMER DRG. NO. C2406J.	Original Signed	03.2015

CATCHPIT WITH TRAP

(SHEET 1 OF 2)

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE	1 : 20	DRAWING NO.
DATE	JAN 1991	C2406 /1



ALTERNATIVE TOP SECTION
FOR PRECAST CONCRETE COVERS / GRATINGS

NOTES:

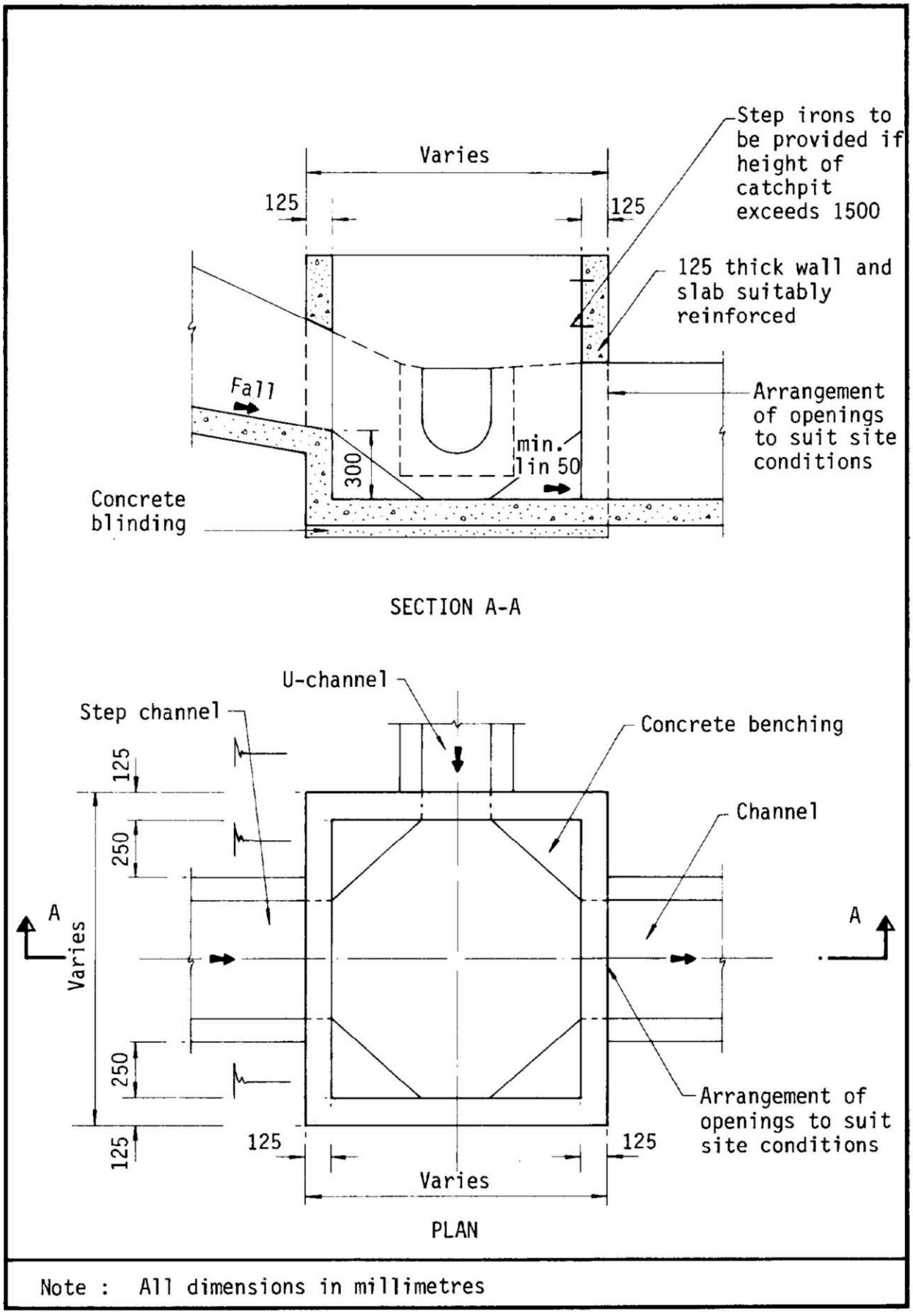
1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL CONCRETE SHALL BE GRADE 20 /20.
3. CONCRETE SURFACE FINISH SHALL BE CLASS U2 OR F2 AS APPROPRIATE.
4. FOR DETAILS OF JOINT, REFER TO STD. DRG. NO. C2413.
5. CONCRETE TO BE COLOURED AS SPECIFIED.
6. UNLESS REQUESTED BY THE MAINTENANCE PARTY AND AS DIRECTED 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) 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 'G' ON STD. DRG. NO. C2405; 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 'F' ON STD. DRG. NO. C2405.
12. SUBJECT TO THE APPROVAL OF THE ENGINEER, OTHER MATERIALS CAN ALSO BE USED AS COVERS / GRATINGS.

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

CATCHPIT WITH TRAP
(SHEET 2 OF 2)

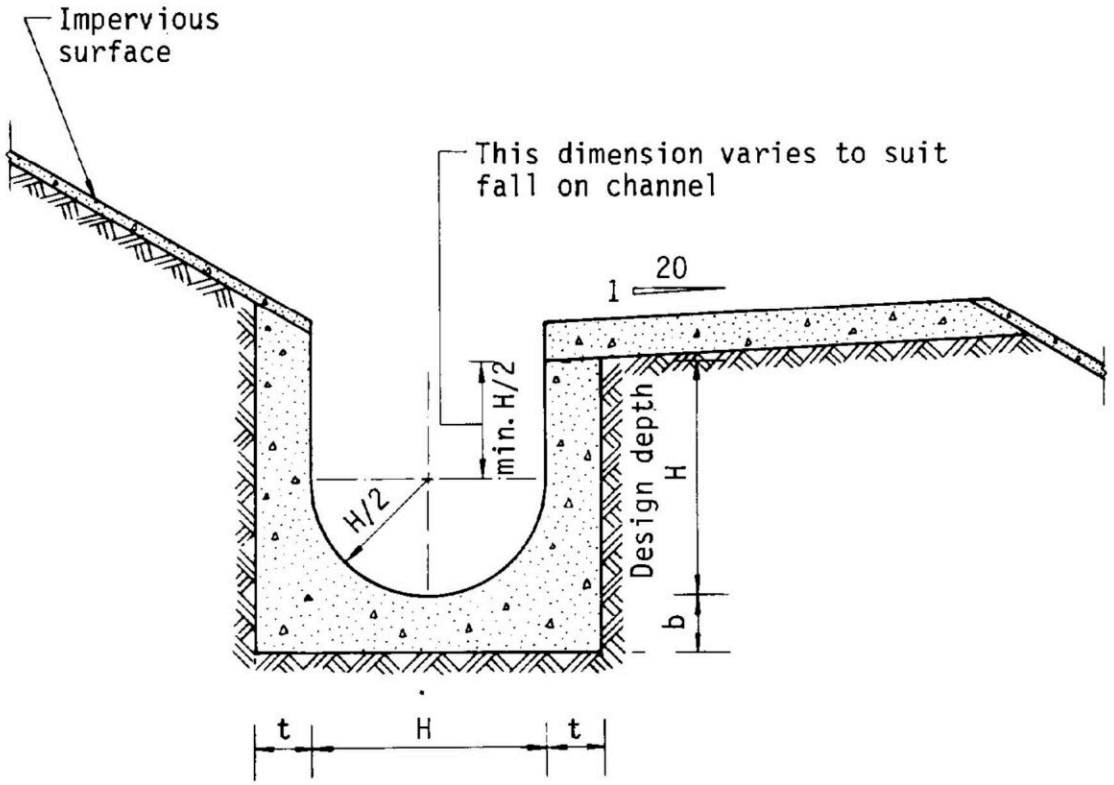
CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE 1 : 20	DRAWING NO. C2406 /2
DATE JAN 1991	



Note : All dimensions in millimetres

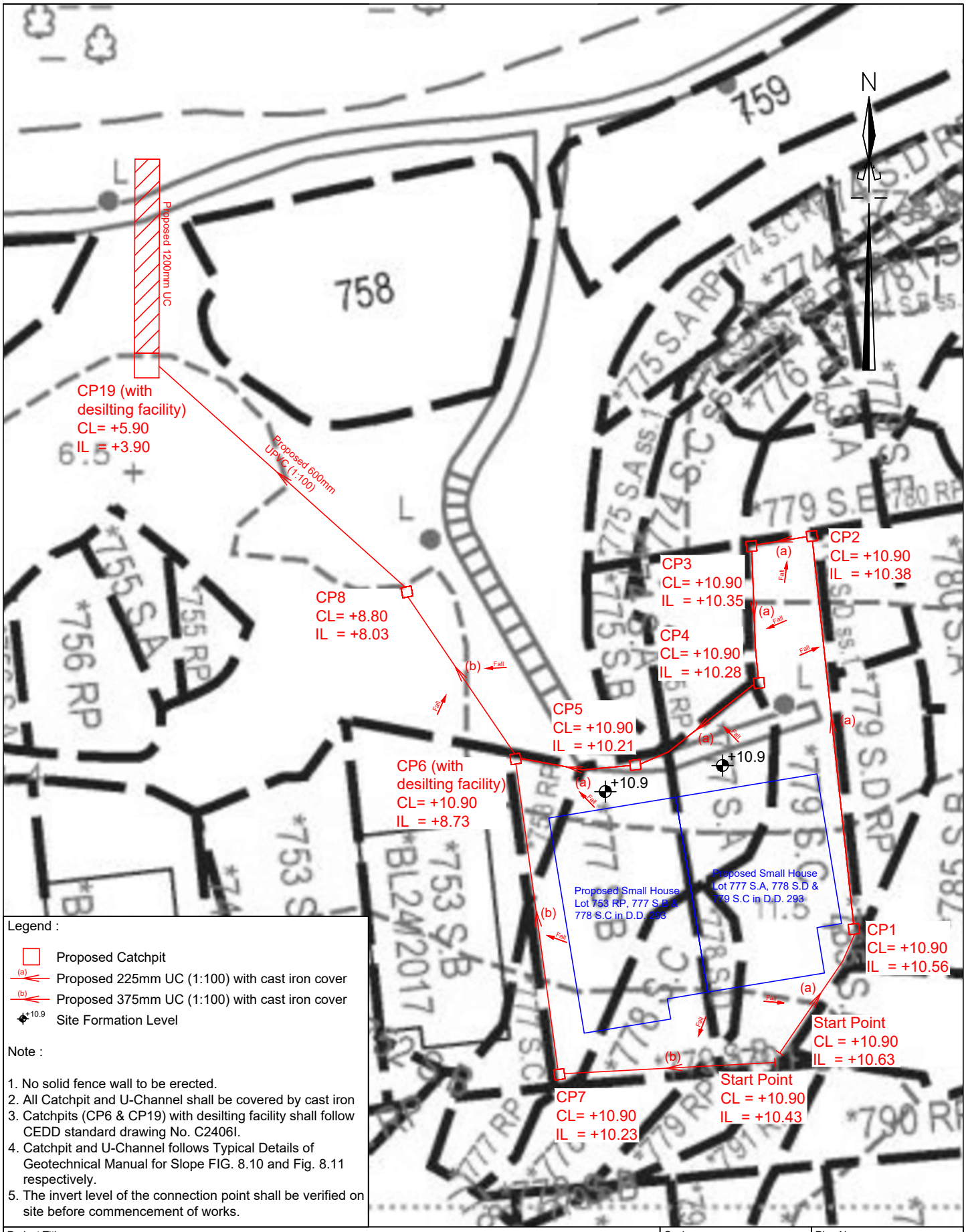
Figure 8.10 - Typical Details of Catchpits



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



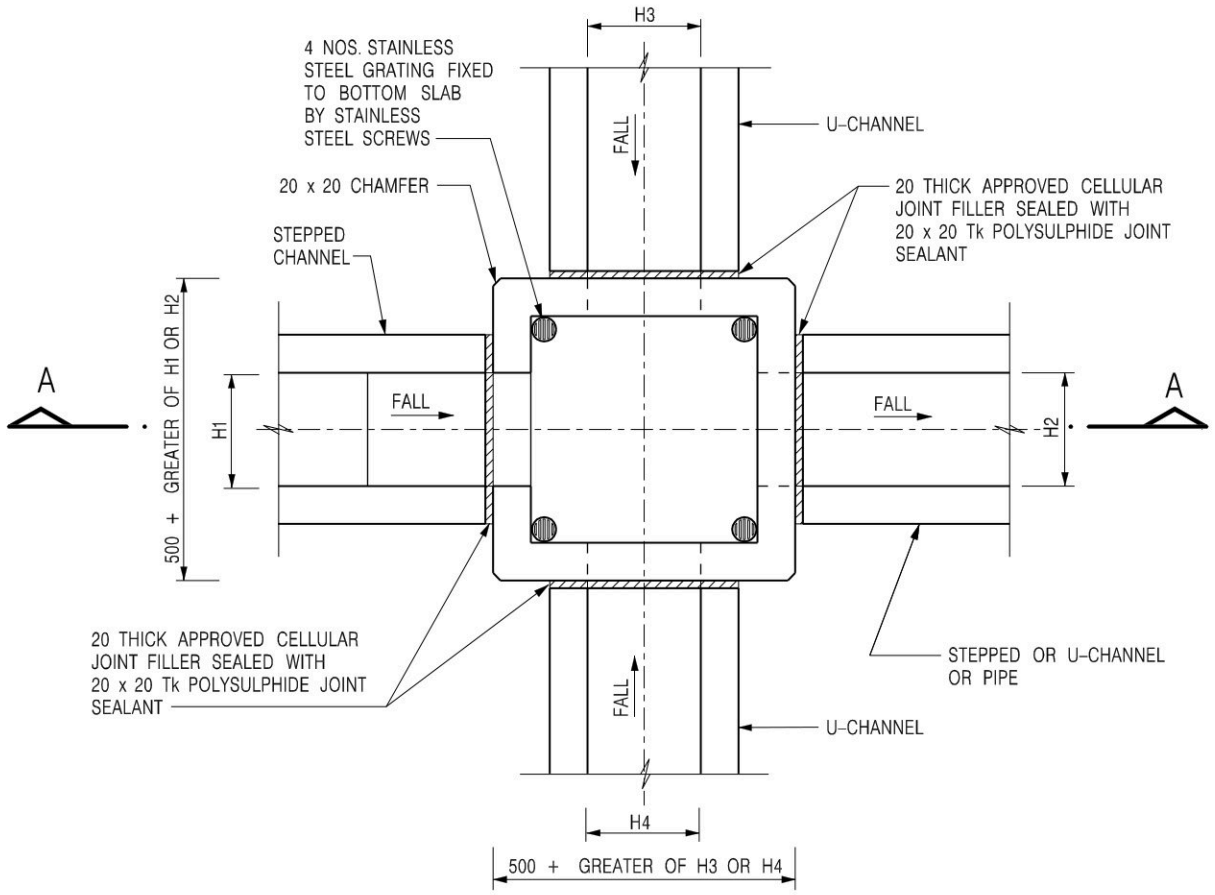
Legend :

- Proposed Catchpit
- (a) Proposed 225mm UC (1:100) with cast iron cover
- (b) Proposed 375mm UC (1:100) with cast iron cover
- +10.9 Site Formation Level

Note :

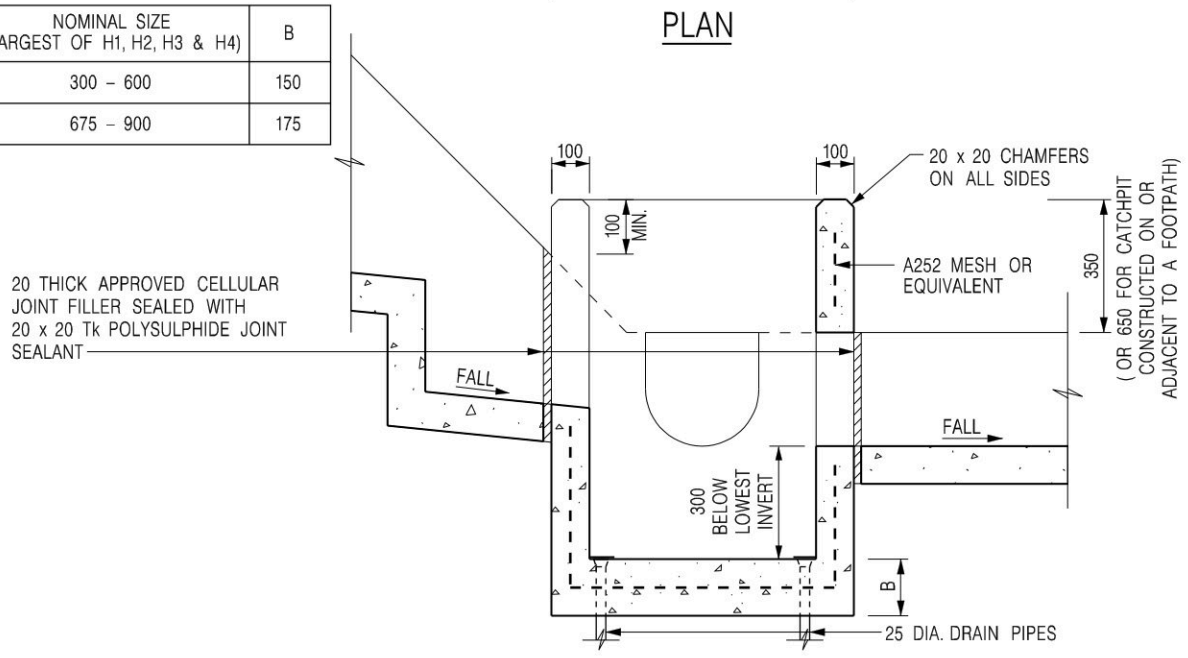
1. No solid fence wall to be erected.
2. All Catchpit and U-Channel shall be covered by cast iron
3. Catchpits (CP6 & CP19) with desilting facility shall follow CEDD standard drawing No. C2406I.
4. Catchpit and U-Channel follows Typical Details of Geotechnical Manual for Slope FIG. 8.10 and Fig. 8.11 respectively.
5. The invert level of the connection point shall be verified on site before commencement of works.

Project Title : D.D. 293 Lot Nos. 753 RP, 777 S.B, 778 S.C & 777 S.A, 778 S.D, 779 S.C, To Kwa Peng, Sai Kung North, New Territories.	Scale : Not to scale	Plan No. : CW/TKP/DP/03
	Date : 25-04-2026	Survey Sheet No. : 8-NE-16A
Drawing Title : Proposed Stormwater Drainage Plan	卓 弘 測 量 服 務 公 司 CHUO WANG SURVEY SERVICES COMPANY	



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.

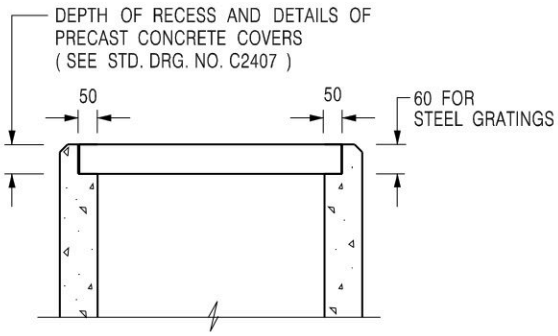
REF.	REVISION	SIGNATURE	DATE
–	FORMER DRG. NO. C2406J.	Original Signed	03.2015

CATCHPIT WITH TRAP

(SHEET 1 OF 2)

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE	1 : 20	DRAWING NO.
DATE	JAN 1991	C2406 /1



ALTERNATIVE TOP SECTION
FOR PRECAST CONCRETE COVERS / GRATINGS

NOTES:

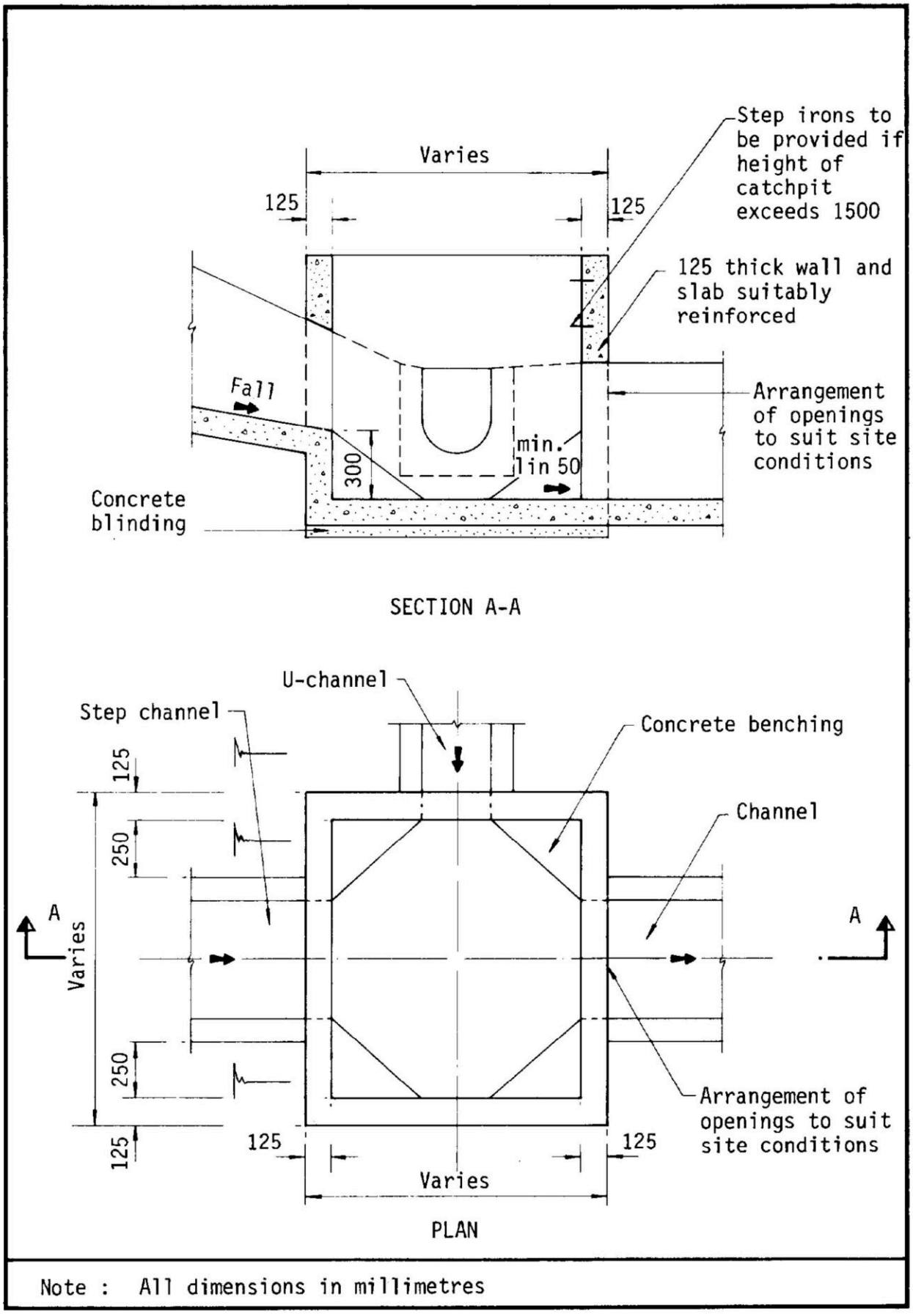
1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL CONCRETE SHALL BE GRADE 20 /20.
3. CONCRETE SURFACE FINISH SHALL BE CLASS U2 OR F2 AS APPROPRIATE.
4. FOR DETAILS OF JOINT, REFER TO STD. DRG. NO. C2413.
5. CONCRETE TO BE COLOURED AS SPECIFIED.
6. UNLESS REQUESTED BY THE MAINTENANCE PARTY AND AS DIRECTED 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) 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 'G' ON STD. DRG. NO. C2405; 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 'F' ON STD. DRG. NO. C2405.
12. SUBJECT TO THE APPROVAL OF THE ENGINEER, OTHER MATERIALS CAN ALSO BE USED AS COVERS / GRATINGS.

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

CATCHPIT WITH TRAP
(SHEET 2 OF 2)

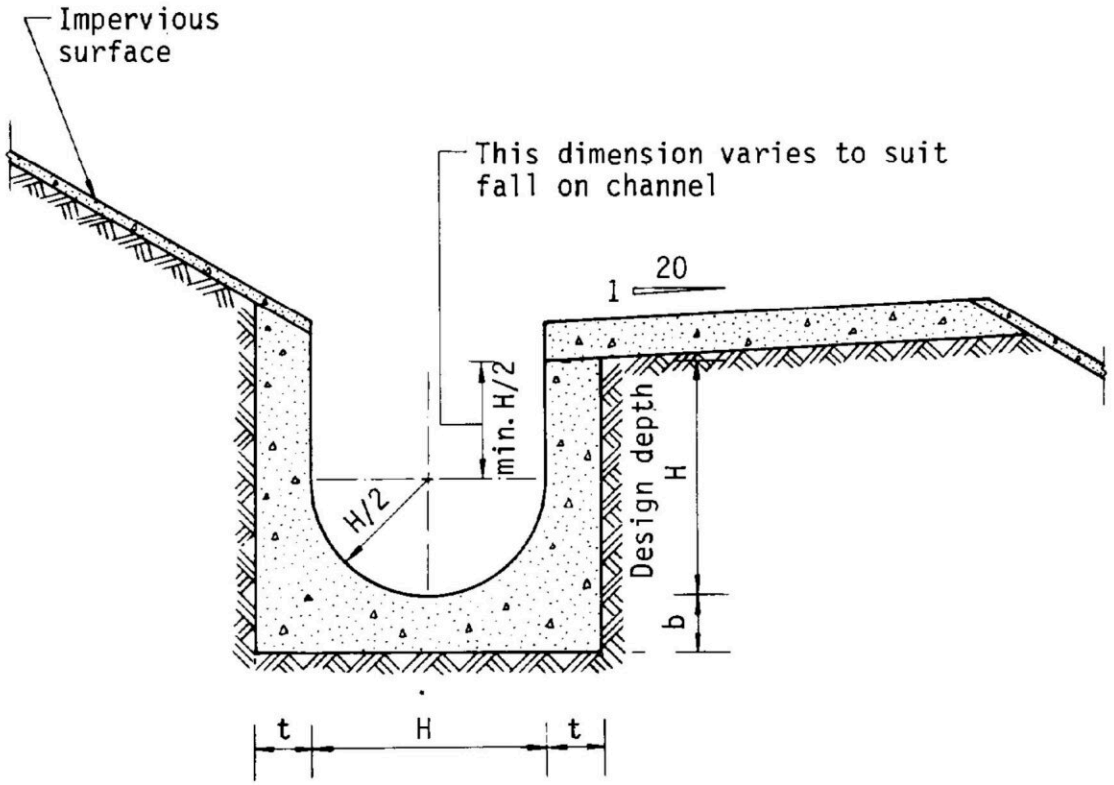
CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE 1 : 20	DRAWING NO. C2406 /2
DATE JAN 1991	



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



Project Title :

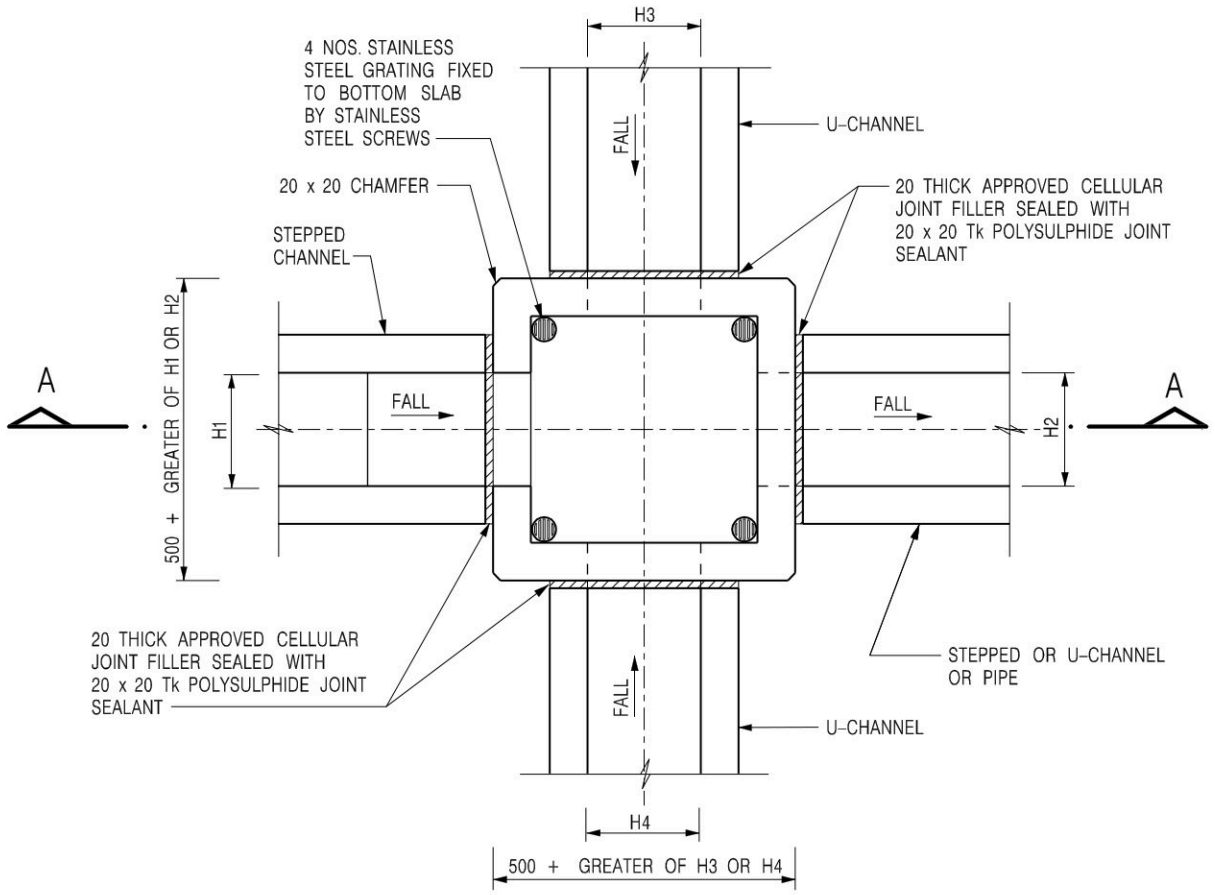
D.D. 293 Lot Nos. 662 S.A, 664 S.B, 668 S.B, 669 RP & 664 S.A, 667 S.C, 668 S.A, 669 S.B, 671 S.B & 654 S.A RP, 658 RP, 659, 660 RP, 661 RP & 658 S.B, 658 S.C, 660 S.B, 660 S.C, 661 S.B, 662 S.B, 662 S.C, To Kwa Peng, Sai Kung North, New Territories.

Scale :	Plan No. :
Not to scale	CW/TKP/DP/04
Date :	Survey Sheet No. :
25-04-2026	8-NE-16A

Drawing Title :

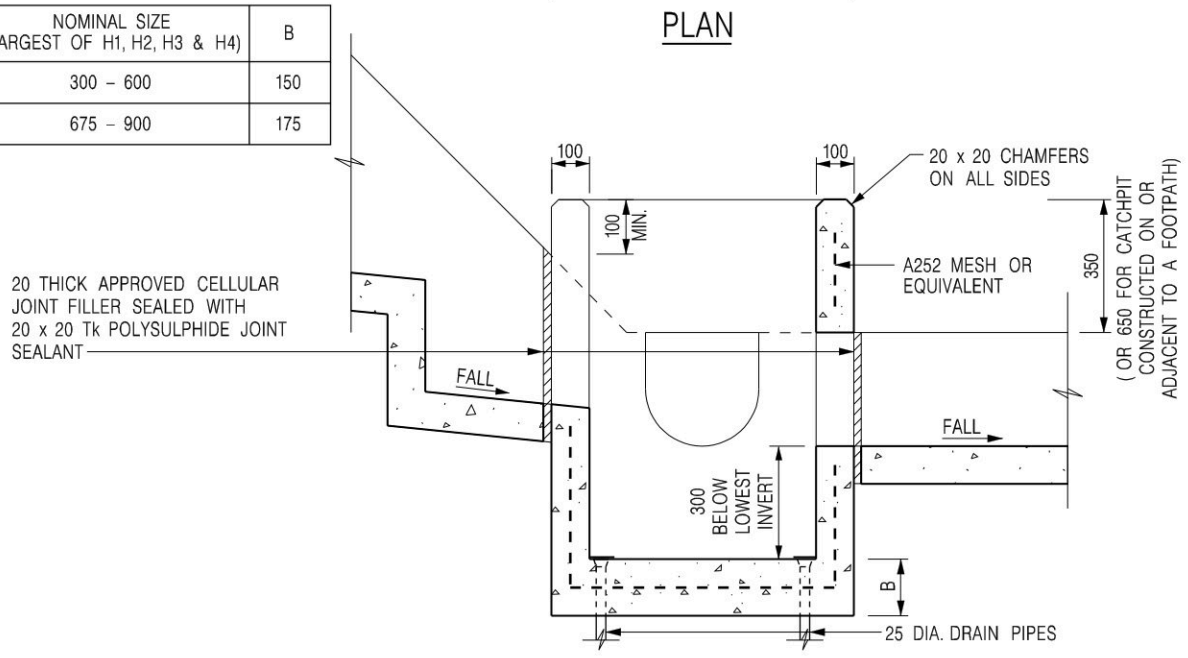
Proposed Stormwater Drainage Plan

卓 弘 測 量 服 務 公 司
CHUO WANG SURVEY SERVICES COMPANY



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.

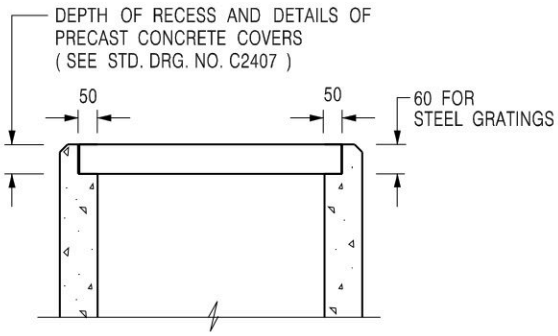
REF.	REVISION	SIGNATURE	DATE
–	FORMER DRG. NO. C2406J.	Original Signed	03.2015

CATCHPIT WITH TRAP

(SHEET 1 OF 2)

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE	1 : 20	DRAWING NO.
DATE	JAN 1991	C2406 /1



ALTERNATIVE TOP SECTION
FOR PRECAST CONCRETE COVERS / GRATINGS

NOTES:

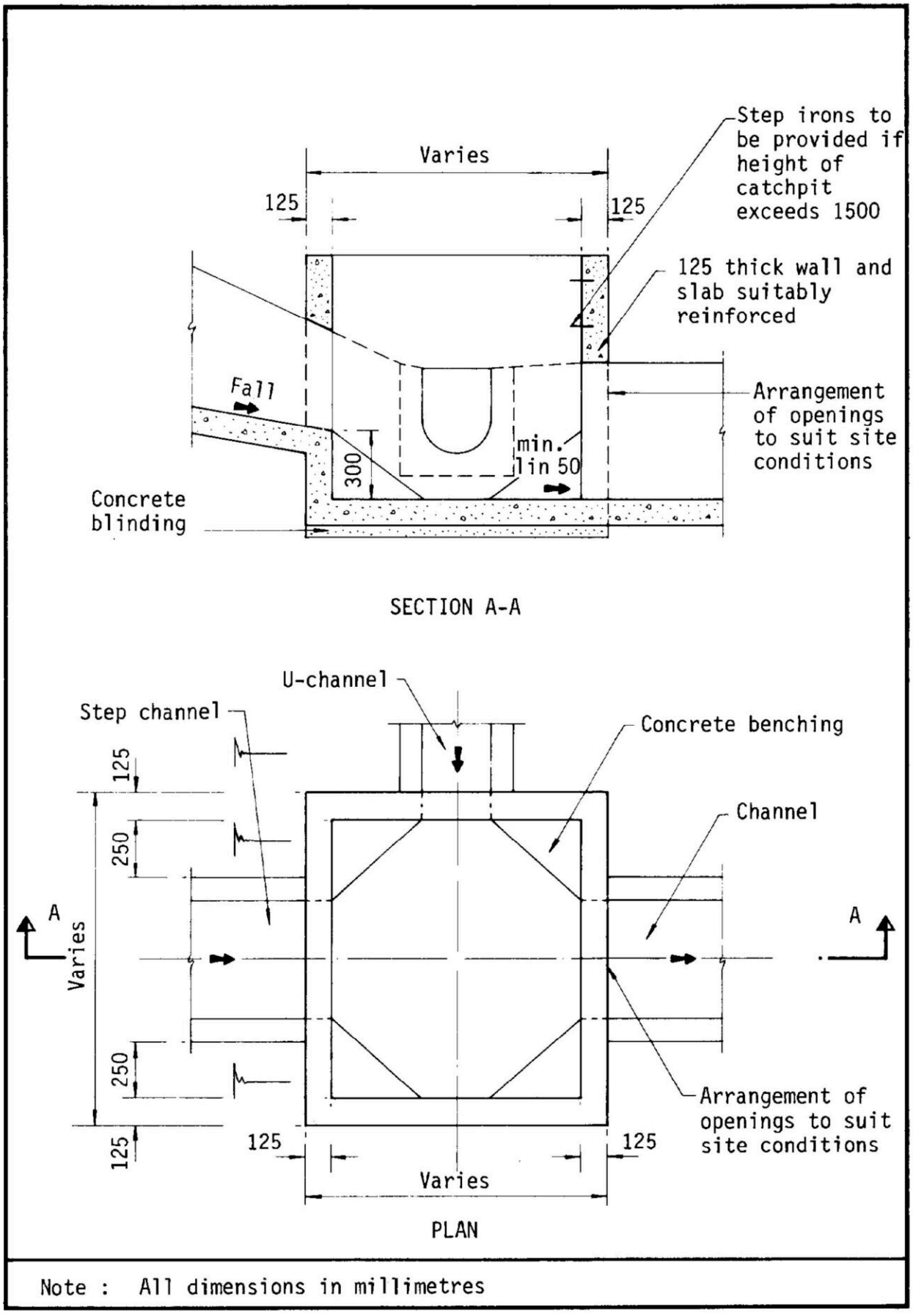
1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL CONCRETE SHALL BE GRADE 20 /20.
3. CONCRETE SURFACE FINISH SHALL BE CLASS U2 OR F2 AS APPROPRIATE.
4. FOR DETAILS OF JOINT, REFER TO STD. DRG. NO. C2413.
5. CONCRETE TO BE COLOURED AS SPECIFIED.
6. UNLESS REQUESTED BY THE MAINTENANCE PARTY AND AS DIRECTED 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) 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 'G' ON STD. DRG. NO. C2405; 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 'F' ON STD. DRG. NO. C2405.
12. SUBJECT TO THE APPROVAL OF THE ENGINEER, OTHER MATERIALS CAN ALSO BE USED AS COVERS / GRATINGS.

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

CATCHPIT WITH TRAP
(SHEET 2 OF 2)

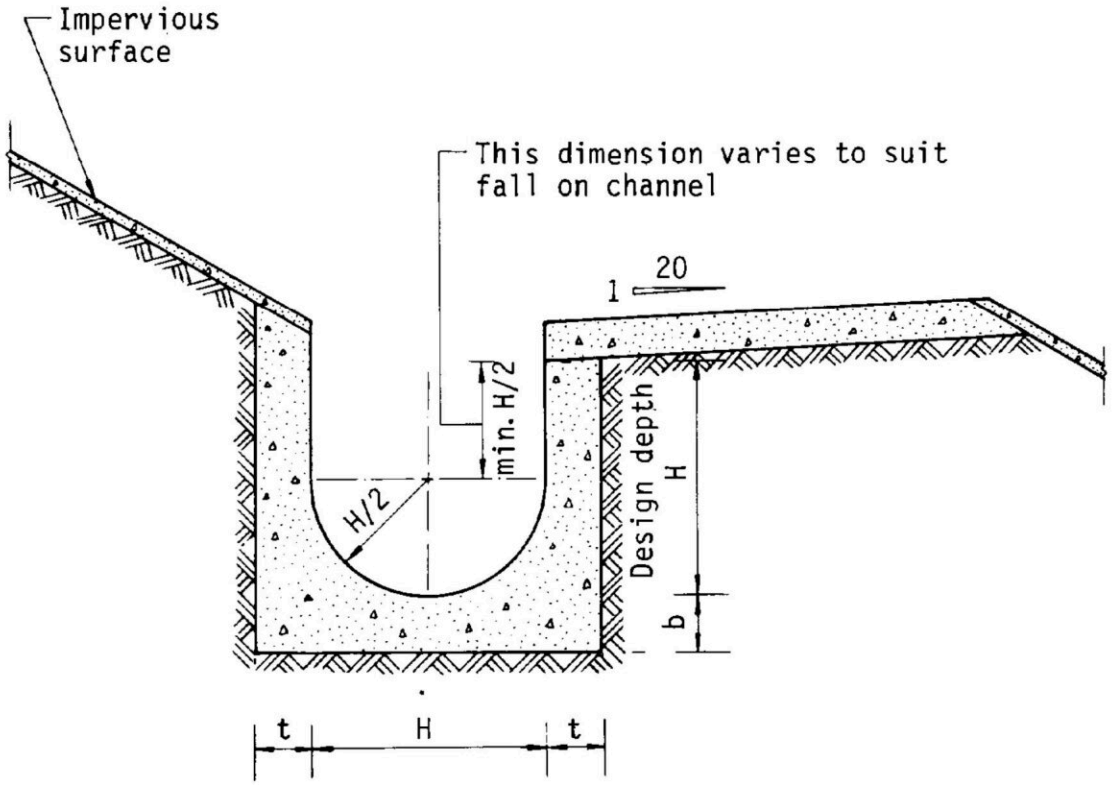
CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE 1 : 20	DRAWING NO. C2406 /2
DATE JAN 1991	



Note : All dimensions in millimetres

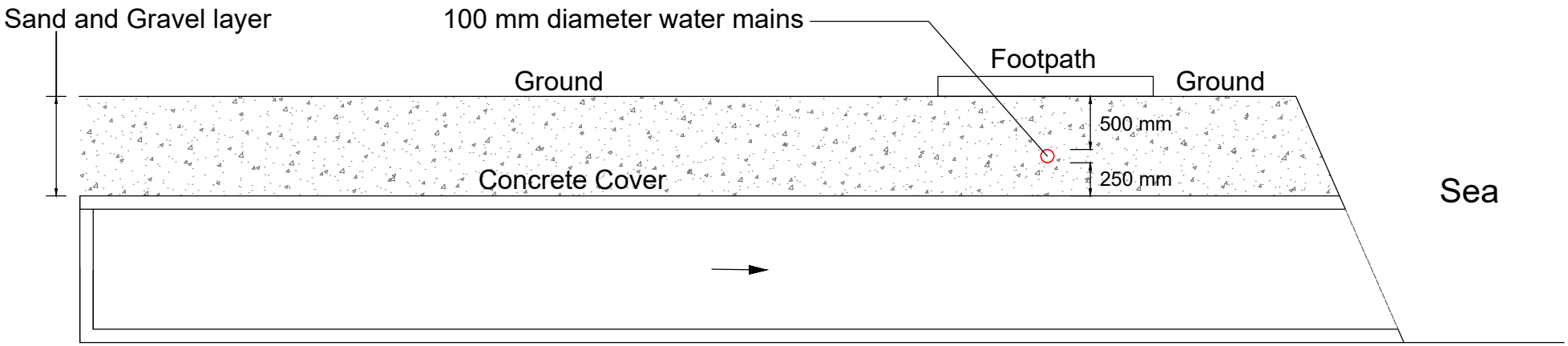
Figure 8.10 - Typical Details of Catchpits



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



Proposed Stormwater Drain Discharge Point

Project Title : Proposed Stormwater Drain Discharge Point	Scale : Not to scale	Plan No. : CW/TKP/LOP
	Date : 03-07-2026	Survey Sheet No. : 8-NE-16A
Drawing Title : Construction Proposal	CHUO WANG SURVEY SERVICES COMPANY	