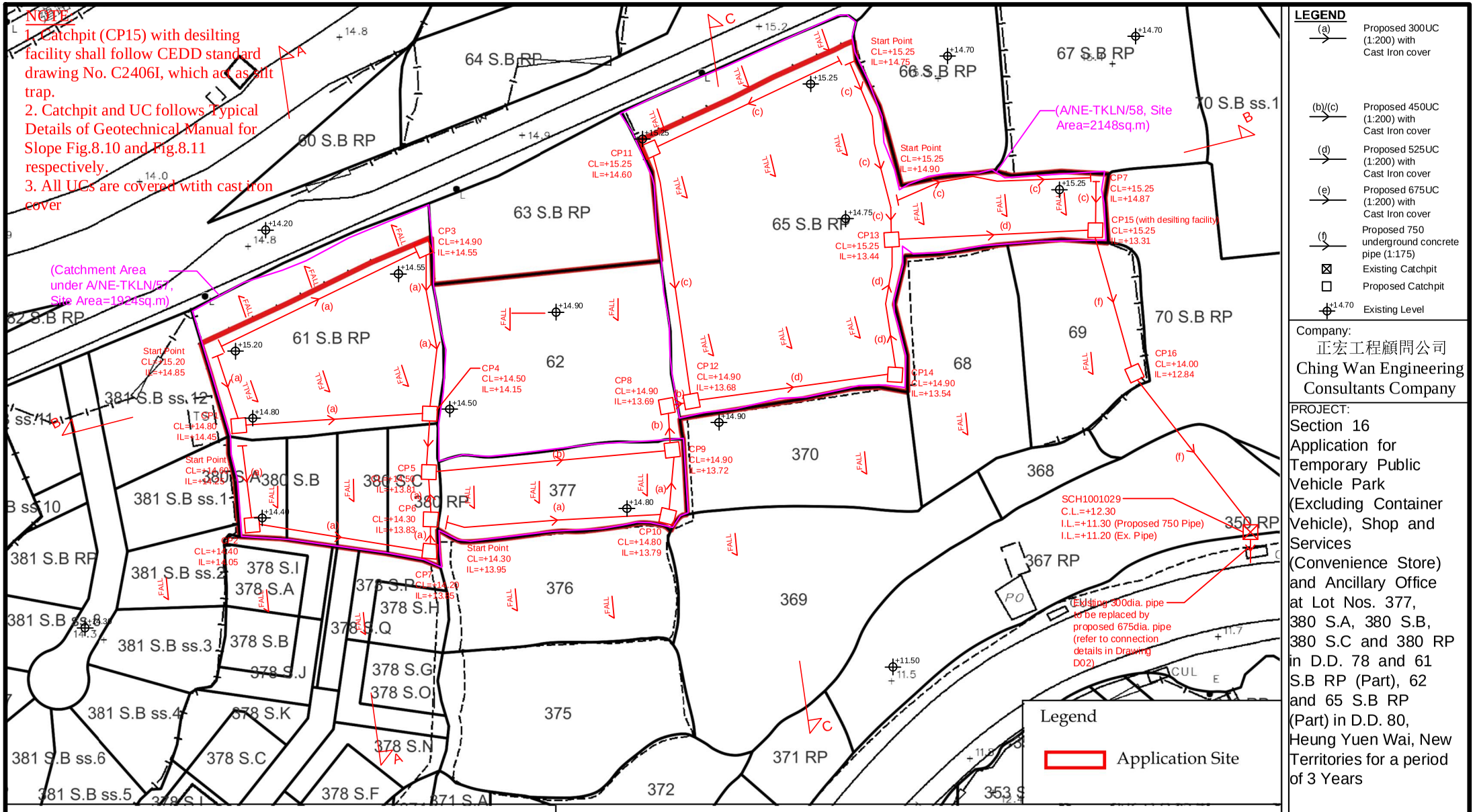
Annex 5



LEGEND

- (a) Proposed 300UC (1:200) with Cast Iron cover
- (b)/(c) Proposed 450UC (1:200) with Cast Iron cover
- (d) Proposed 525UC (1:200) with Cast Iron cover
- (e) Proposed 675UC (1:200) with Cast Iron cover
- (f) Proposed 750 underground concrete pipe (1:175)
- Existing Catchpit
- Proposed Catchpit
- +14.70 Existing Level

Company:
正宏工程顧問公司
Ching Wan Engineering Consultants Company

PROJECT:
Section 16 Application for Temporary Public Vehicle Park (Excluding Container Vehicle), Shop and Services (Convenience Store) and Ancillary Office at Lot Nos. 377, 380 S.A, 380 S.B, 380 S.C and 380 RP in D.D. 78 and 61 S.B RP (Part), 62 and 65 S.B RP (Part) in D.D. 80, Heung Yuen Wai, New Territories for a period of 3 Years

TITLE:
Drainage Proposal

Date: 17-7-2025

DWG NO. D01

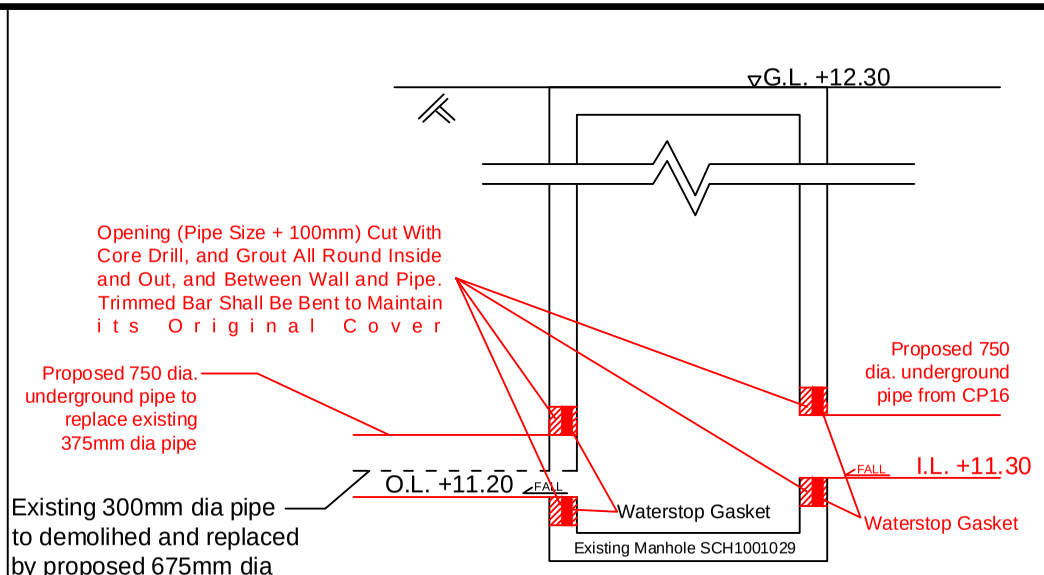
CH Planning and Development
nsultants Limited

Status

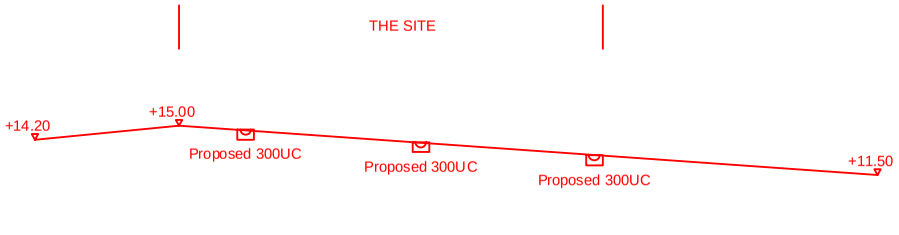
only. Not to scale.)

Section 16 Application for Temporary Public Vehicle Park (Excluding Container Vehicle), Shop and Services (Convenience Store) and Ancillary Office at Lot Nos. 377, 380 S.A, 380 S.B, 380 S.C and 380 RP in D.D. 78 and 61 S.B RP (Part), 62 and 65 S.B RP (Part) in D.D. 80, Heung Yuen Wai, New Territories for a period of 3 Years

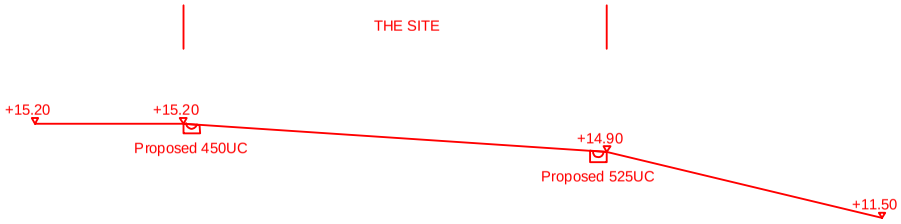
(Source: HK GEODATA STORE, HKSAR Government)



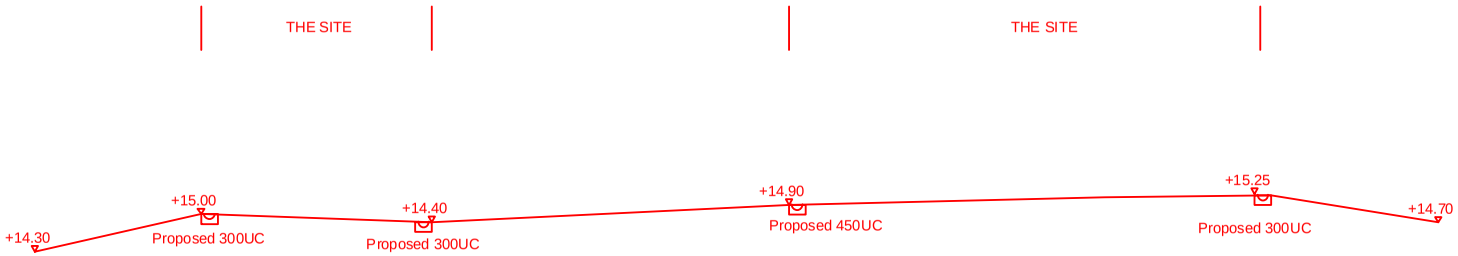
CONNECTION DETAILS



SECTION A-A



SECTION C-C



SECTION B-B

LEGEND

Company:
正宏工程顧問公司
Ching Wan Engineering Consultants Company

PROJECT:
Section 16 Application for Temporary Public Vehicle Park (Excluding Container Vehicle), Shop and Services (Convenience Store) and Ancillary Office at Lot Nos. 377, 380 S.A, 380 S.B, 380 S.C and 380 RP in D.D. 78 and 61 S.B RP (Part), 62 and 65 S.B RP (Part) in D.D. 80, Heung Yuen Wai, New Territories for a period of 3 Years

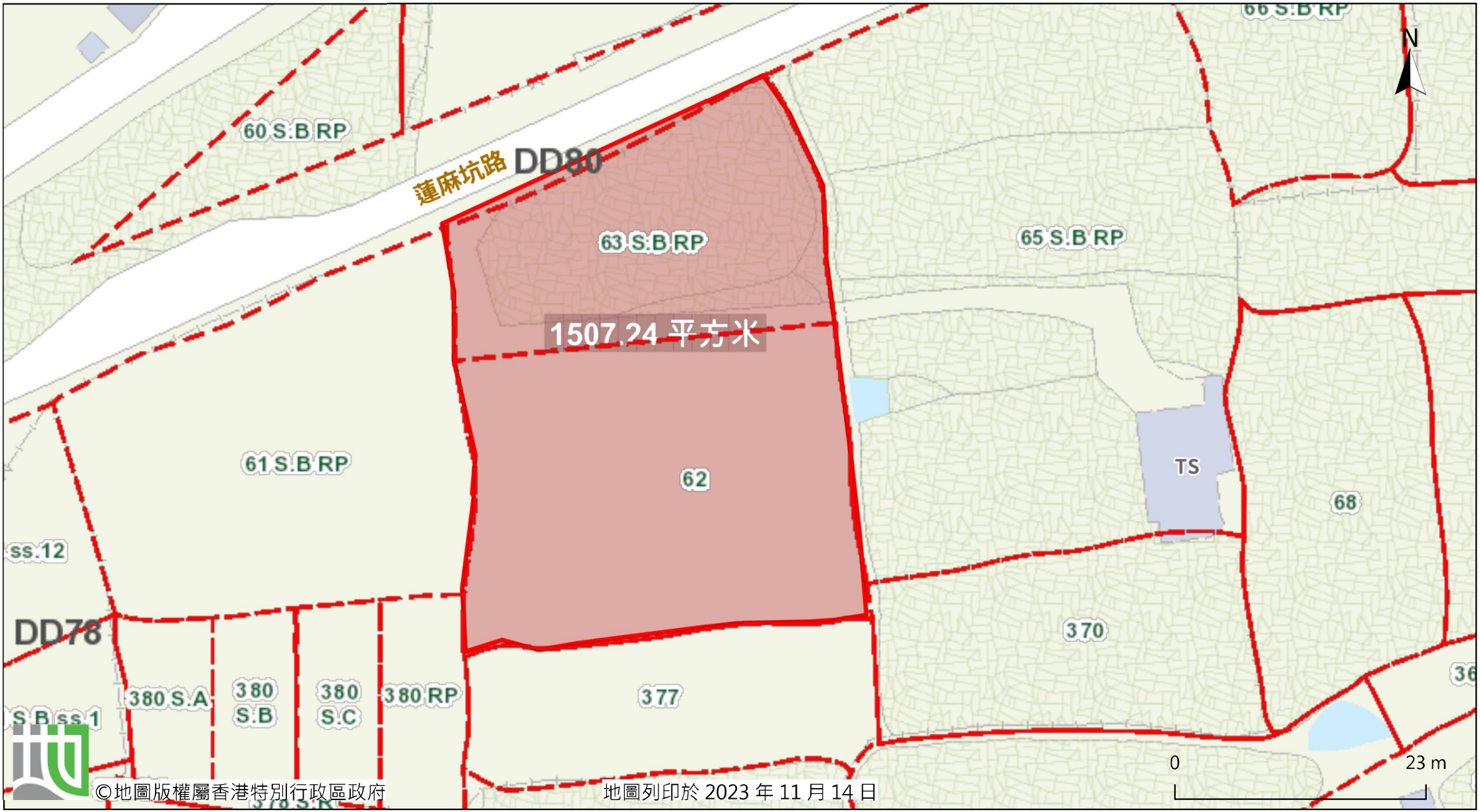
TITLE:
Section & Connection Details

Date:
17-7-2025

DWG NO.
D02

GEOINFO MAP
地理資訊地圖

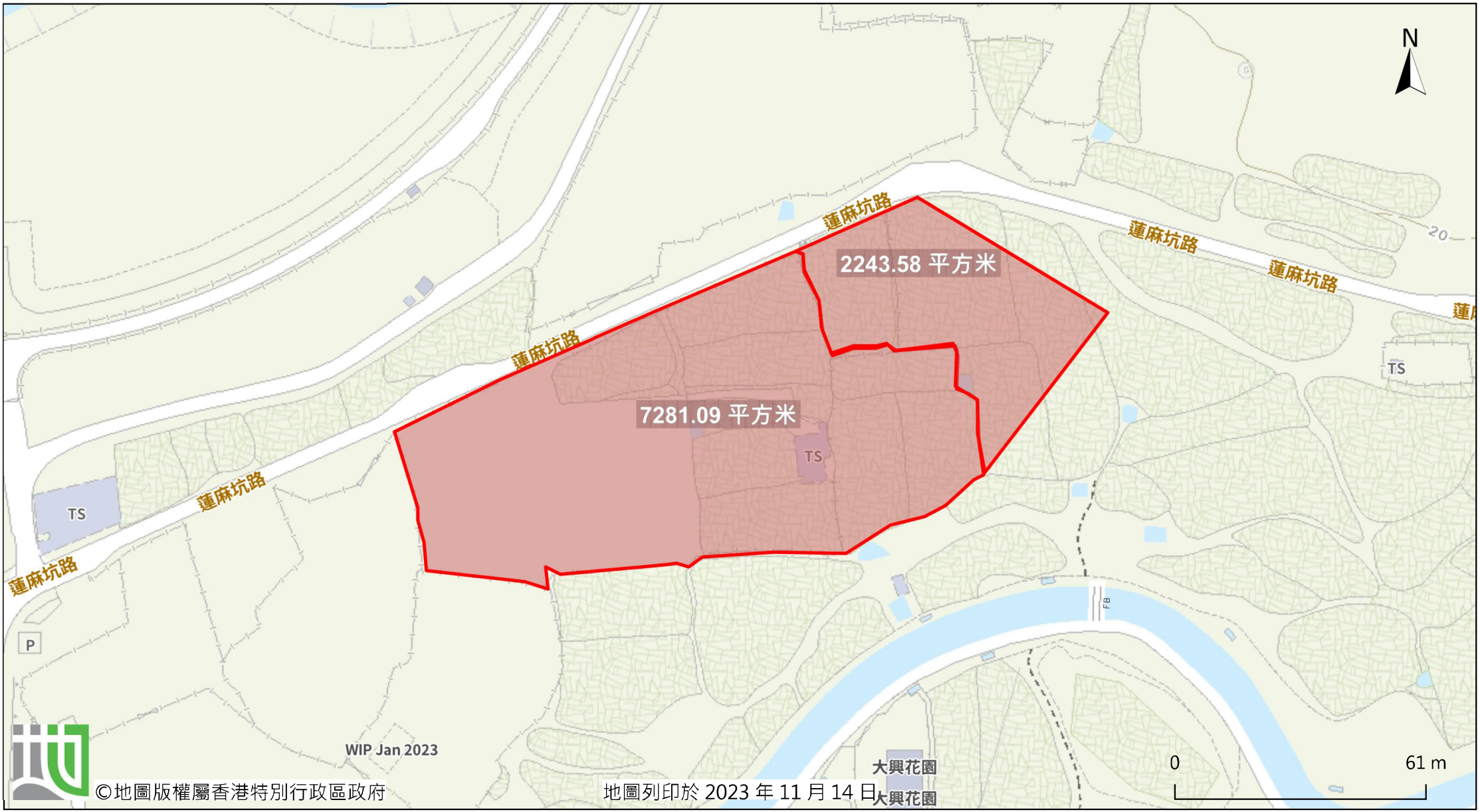
前往地圖: https://www.map.gov.hk/gm/geo:22.5540,114.1568?z=564



由「地理資訊地圖」網站提供: https://www.map.gov.hk

GEOINFO MAP
地理資訊地圖

前往地圖: https://www.map.gov.hk/gm/geo:22.5540,114.1573?z=1128



由「地理資訊地圖」網站提供: https://www.map.gov.hk

Catchment Area under A/NE-TKLN/57

Site Area = 962 m2 (1924/2)

Calculation of Runoff from the Proposed Development,

$Q = 0.278\ C\ i\ A$

$C = 0.95$ (P.42 of Stormwater Drainage Manual)

$A = 962\ m^2$

$= 0.000962\ km^2$

$t = 0.14465\ L/\ H^{0.2}A^{0.1}$

$= 0.14465*10/1^{0.2}*962^{0.1}$

$= 0.728$ min

$i = 1.111*a/(t+b)^c$ (50 yrs return period, Table 3d, Corrigendum 2024, SDM) and (11.1% increase due to climate change)

$= 1.111*474.6/(0.728+2.60)^{0.371}$

$= 326.9$ mm/hr

Therefore, $Q = 0.278*0.95*326.9*0.001924$

$= 0.083\ m^3/sec$

$= \mathbf{4983}$ lit/min

Provide 300UC (1:200) is OK

Catchment Area under A/NE-TKLN/57+Lot 62 & 63BRP

Lot 62 & 63BRP = 1507 m2 (C=0.95)

$Q = 0.278\ C\ i\ A$

$C = 0.95$ (P.42 of Stormwater Drainage Manual)

$A = 1507\ m^2$

$= 0.001507\ km^2$

take $i = 326.9$ mm/hr

Therefore, $Q = 0.278*0.95*326.9*0.001507$

$= 0.130\ m^3/sec$

$= 7806$ lit/min

For Catchment Area under A/NE-TKLN/57+Lot 62 & 63BRP

$Q = \mathbf{4983} + \mathbf{7806}$

$= \mathbf{12790}$ lit/min

Provide 450UC (1:200) is OK

A/NE-TKLN/58+Outside Catchment Area

Site Area	=	2148	m2	(C=0.95)
Outside Catchment Area	=	2244	m2	(C=0.25)

Q = 0.278 C i A

take i = 326.9 mm/hr

Therefore, Q = 0.278*0.95*326.9*0.002148+0.278*0.25*326.9*0.002244

= 0.236 m^3/sec

= **14186** lit/min

Provide 450UC (1:200) is OK

A/NE-TKLN/57+Lot 62 & 63BRP+A/NE-TKLN/58+Outside Catchment Area

Q = 12790 + 14186

= 26975 lit/min

Provide 525UC (1:200) is OK

Outfall (all catchment area

Site Area	=	7281	m2	(C=0.95)
Outside Catchment Area	=	2244	m2	(C=0.25)

Calculation of Runoff from the Proposed Development,

Q = 0.278 C i A

take i = 326.9 mm/hr

Therefore, Q = 0.278*0.95*326..9*0.007281+0.278*0.25*326.9*0.002244

= 0.680 m^3/sec

= **40775** lit/min

Provide 675UC (1:200) is OK

Check 750mm 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/s2	gravitational acceleration (m/s2)	
D	=	0.75	m	internal pipe diameter (m)	
ks	=	0.00015	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	=	0.00571429		hydraulic gradient	

Therefore, design V of pipe capacity = 2.4199 m/s

Q= 0.8VA (0.8 factor for sedimentation)
= 0.855 m3/s
= 51315 lit/min
> 40775 lit/min Ok

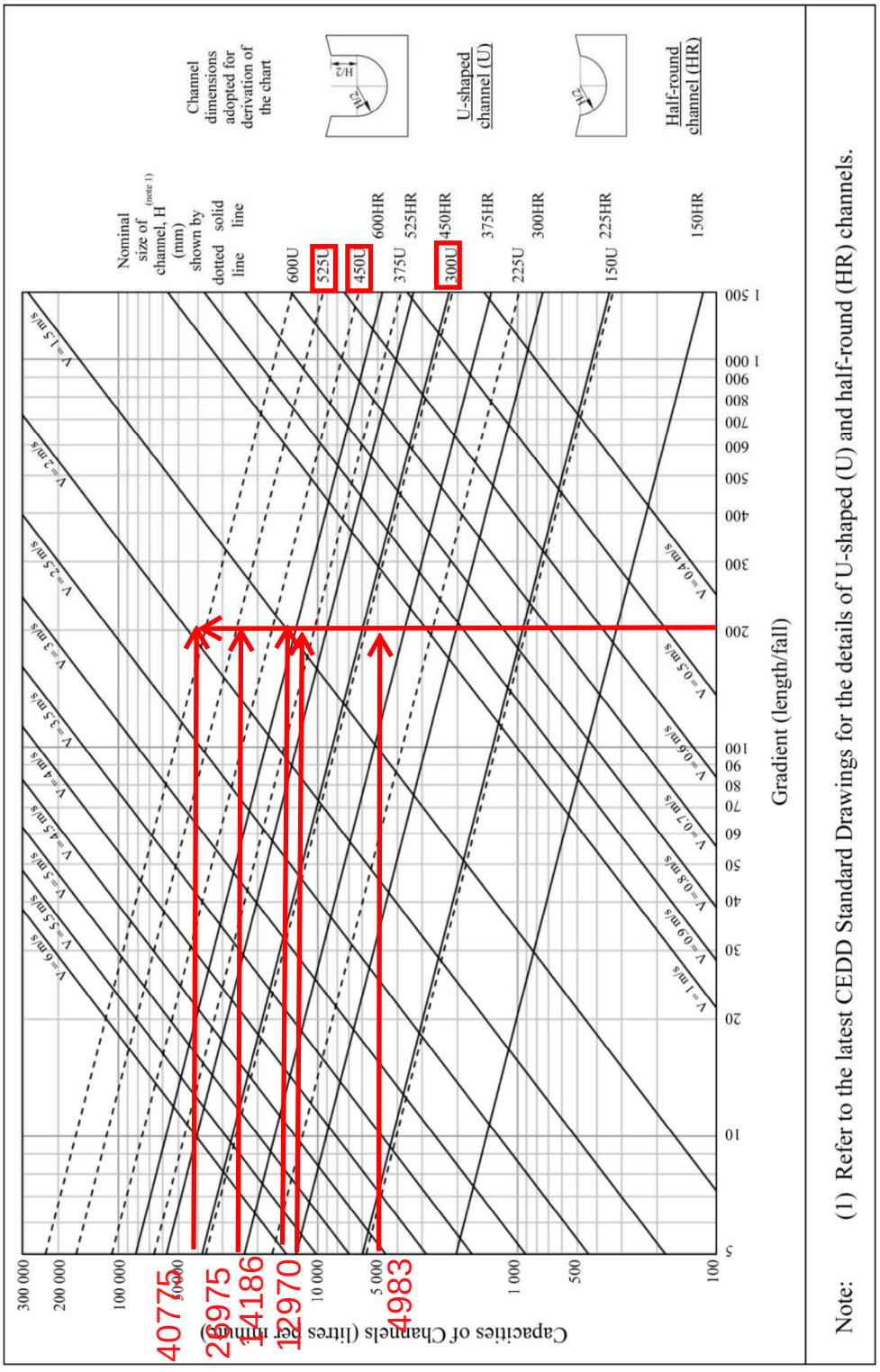
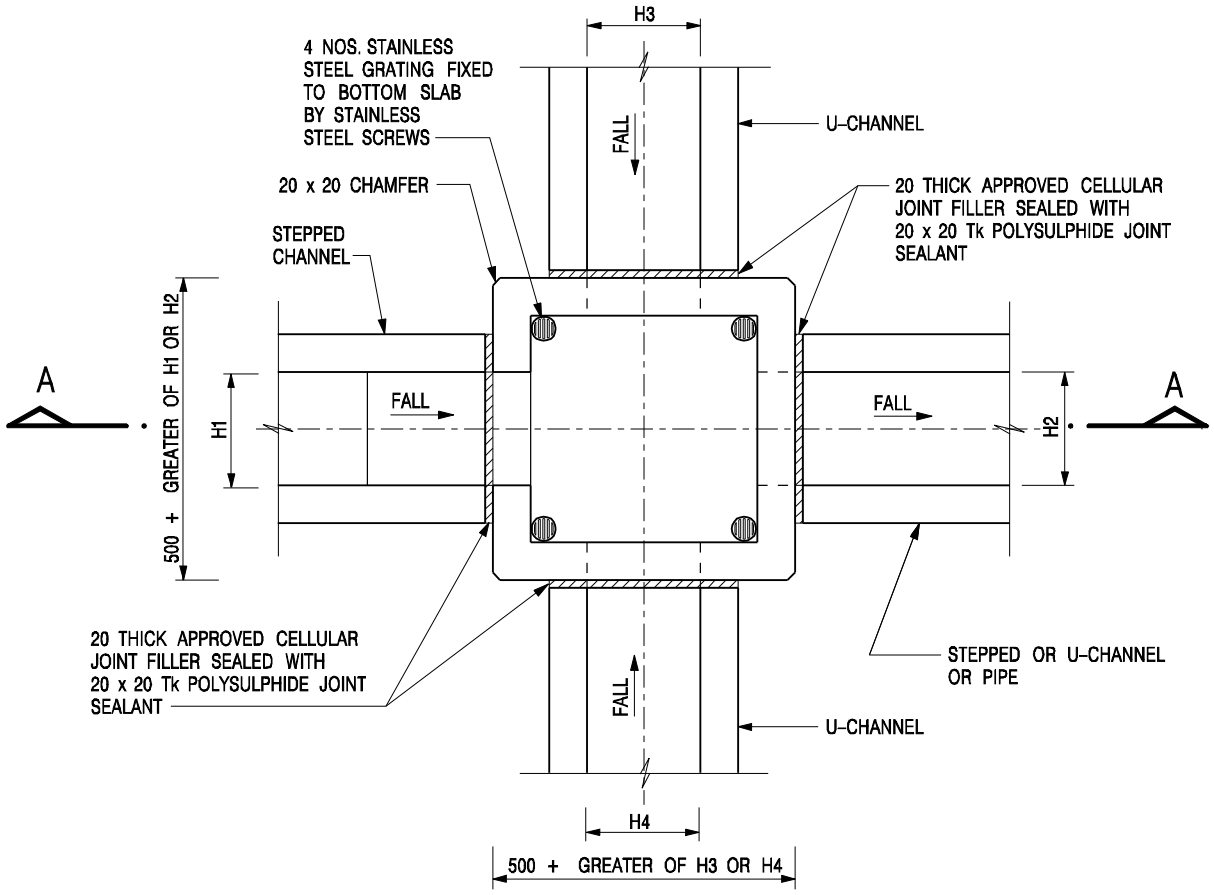


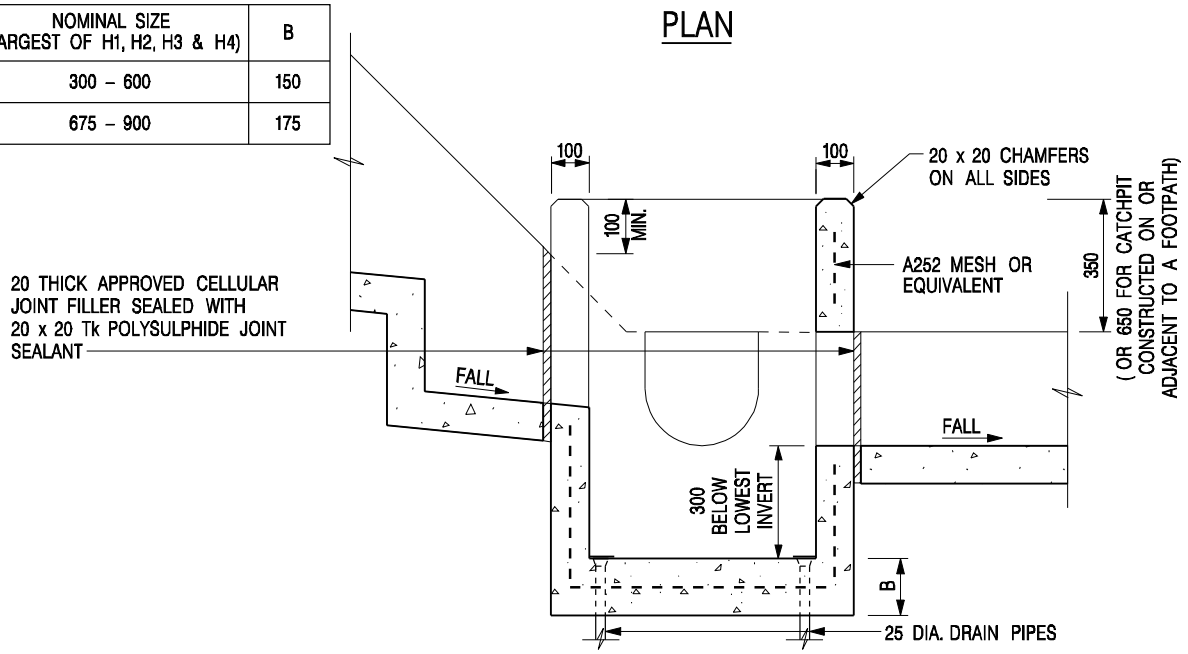
Figure 1 - Chart for the rapid design of U-shaped and half-round channels up to 600 mm

Note: (1) Refer to the latest CEDD Standard Drawings for the details of U-shaped (U) and half-round (HR) channels.



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

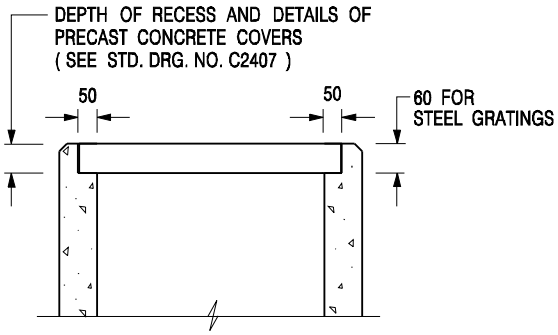
(SHEET 1 OF 2)

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE 1 : 20

DATE JAN 1991

DRAWING NO. C2406 /1



ALTERNATIVE TOP SECTION
FOR PRECAST CONCRETE COVERS / GRATINGS

NOTES:

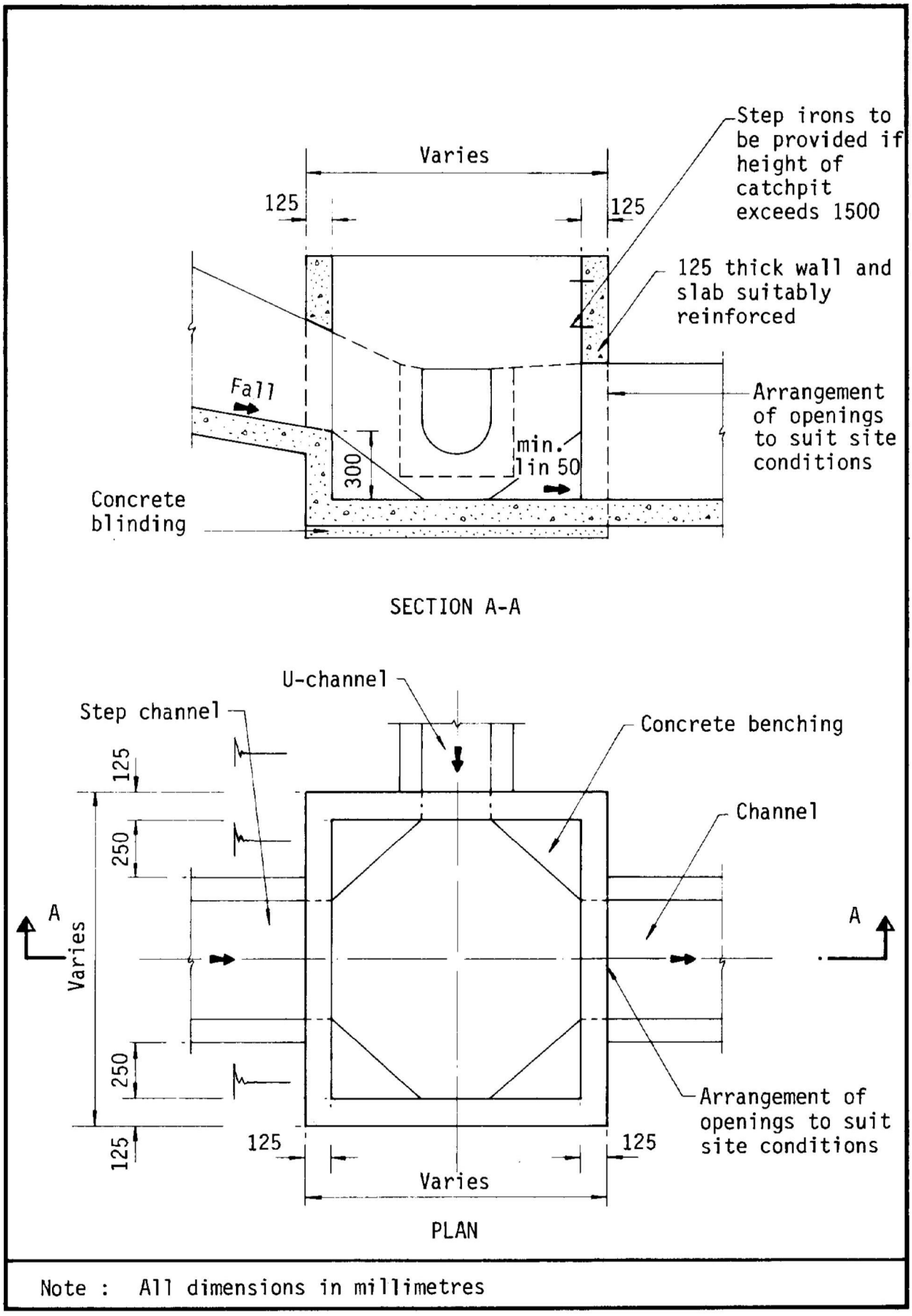
1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL CONCRETE SHALL BE GRADE 20 /20.
3. CONCRETE SURFACE FINISH SHALL BE CLASS U2 OR F2 AS APPROPRIATE.
4. FOR DETAILS OF JOINT, REFER TO STD. DRG. NO. C2413.
5. CONCRETE TO BE COLOURED AS SPECIFIED.
6. UNLESS REQUESTED BY THE MAINTENANCE PARTY AND AS DIRECTED 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)

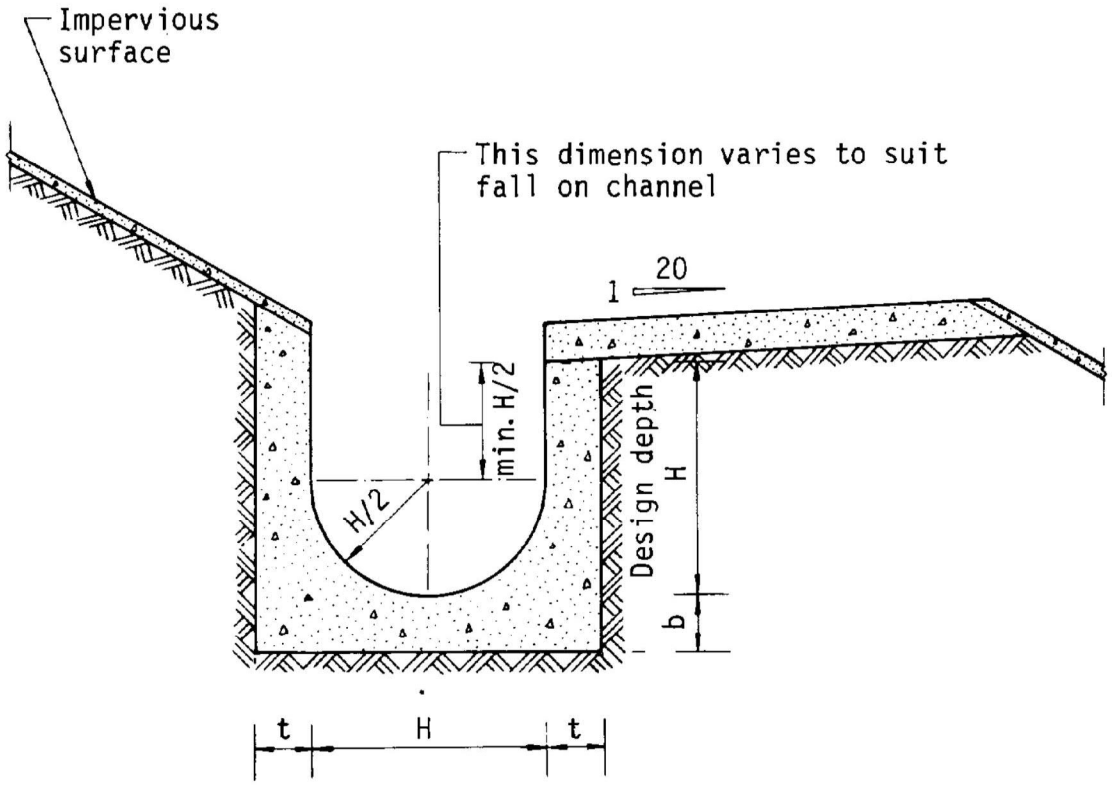
CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

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



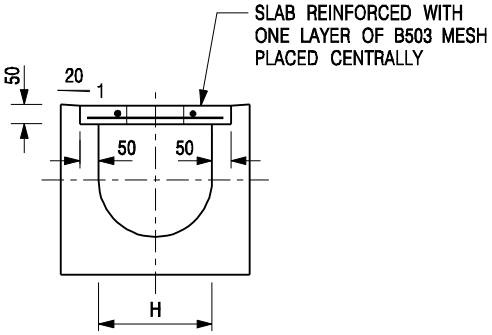
Note : All dimensions in millimetres

Figure 8.10 - Typical Details of Catchpits

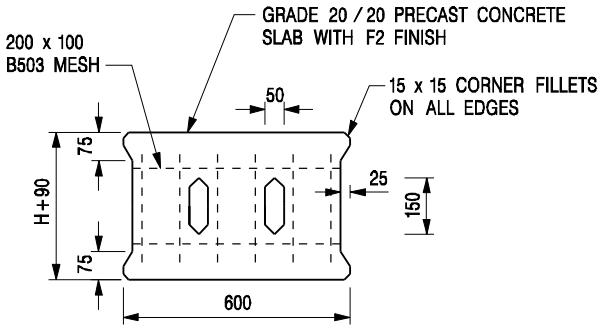


Dimensions of U - channel		
Nominal size of channel H (mm)	Thickness t (mm)	Thickness b (mm)
225 to 600	150	150
675 to 1200	175	225

Figure 8.11 - Typical U-channel Details



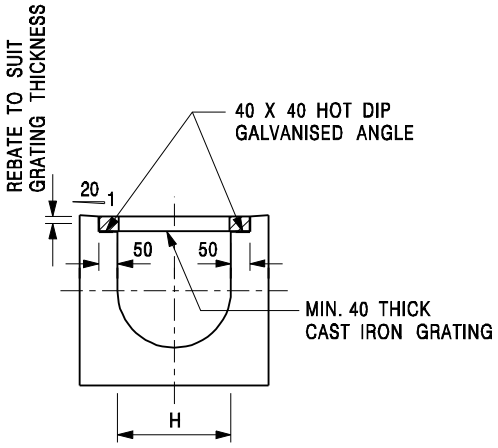
TYPICAL SECTION



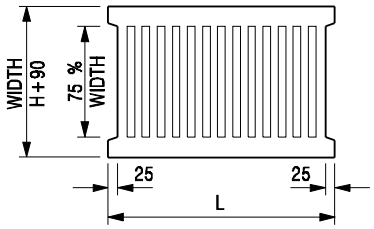
PLAN OF SLAB

U-CHANNELS WITH PRECAST CONCRETE SLABS

(UP TO H OF 525)



TYPICAL SECTION



L = 600mm FOR H ≤ 375mm
L = 400mm FOR H > 375mm

CAST IRON GRATING

(DIMENSIONS ARE FOR GUIDANCE ONLY, CONTRACTOR MAY SUBMIT EQUIVALENT TYPE)

U-CHANNEL WITH CAST IRON GRATING

(UP TO H OF 525)

NOTES:

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

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE 1 : 20

DATE JAN 1991

DRAWING NO. C2412E