

Your Ref.: A/NE-SSH/155

Our Ref.: P23055B/TL24437

19 August 2024

The Secretary  
Town Planning Board  
15/F., North Point Government Offices  
333 Java Road, North Point, Hong Kong

By Post and E-mail  
tpbpd@pland.gov.hk

Dear Sir,

**Submission of Further Information**

**Proposed Temporary Private Vehicle Park (Private Cars) for a Period of 3 Years in  
“Village Type Development” Zone, Lot Nos. 537 (Part), 538 (Part), 540 S.A (Part)  
and 541 S.A (Part) in D.D. 218, Ma Kwu Lam Village, Sai Kung North, New Territories**

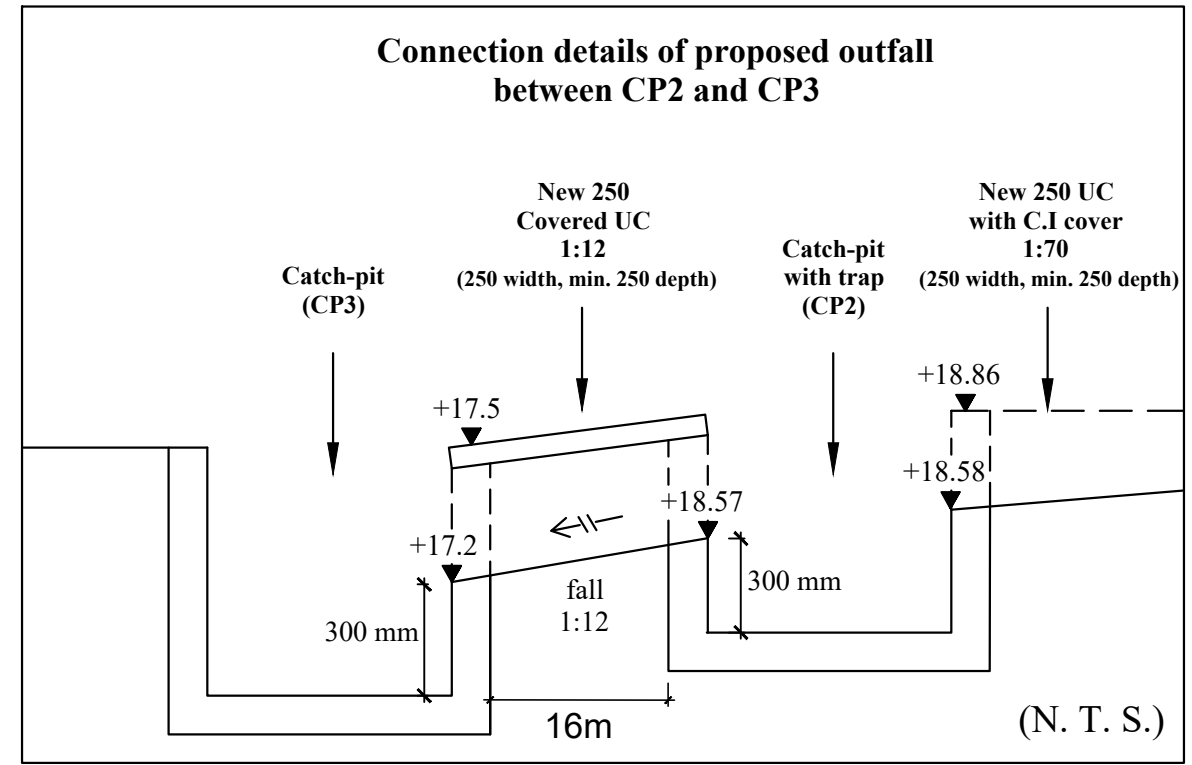
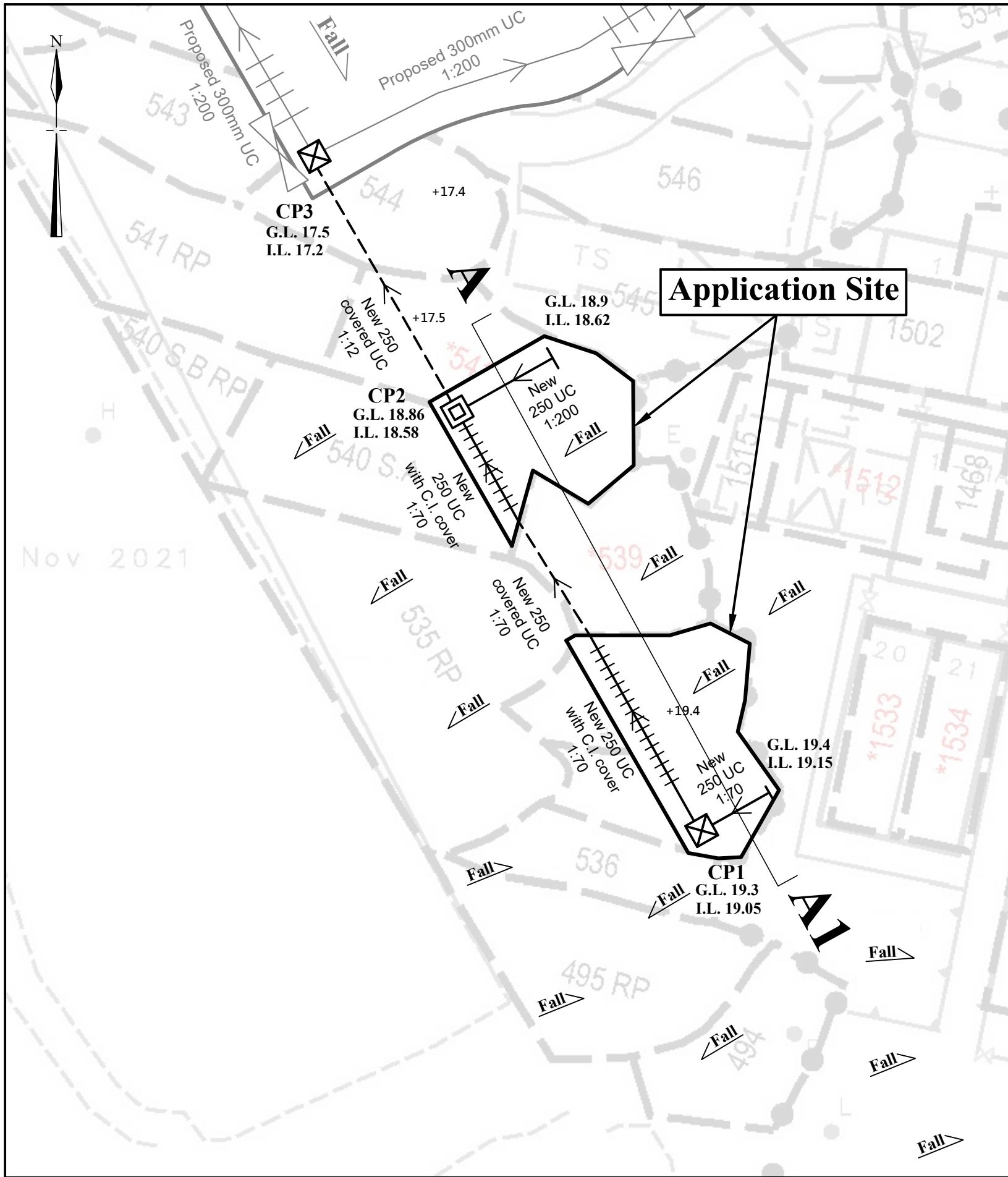
We would like to submit an updated drainage proposal (Plans 4.1c, 4.2c and 4.3) and drainage calculation for the captioned application.

Yours faithfully,  
For and on behalf of  
Goldrich Planners & Surveyors Ltd.



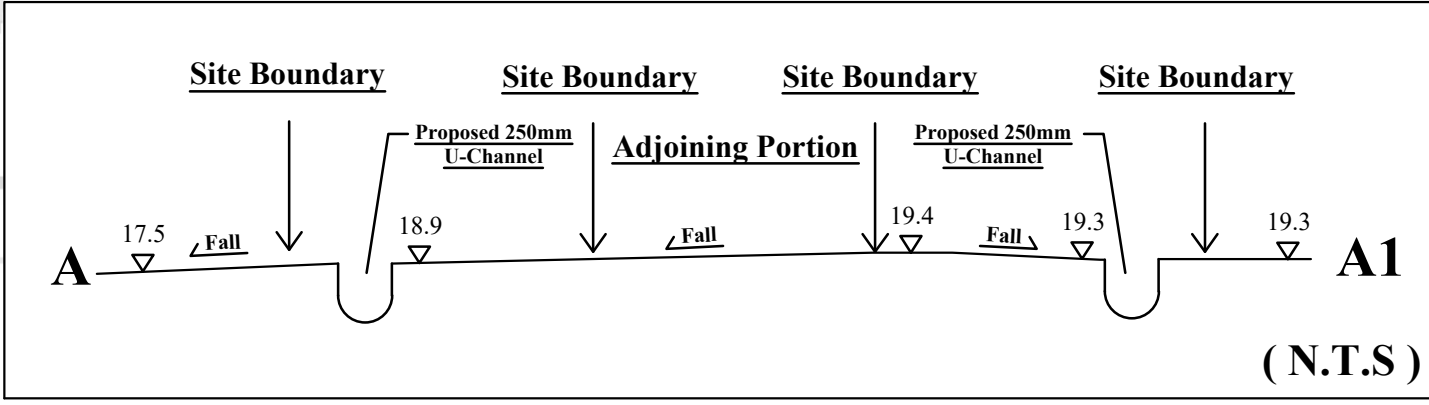
Francis Lau

Encl.



**Legend**

- ☒ Proposed Catch-pit
- ☐ Proposed Catch-pit with trap
- Proposed U-Channel
- - - Proposed Covered U-Channel
- ++++ U-Channel with C.I. cover
- ⋈ Vehicular Ingress / Egress

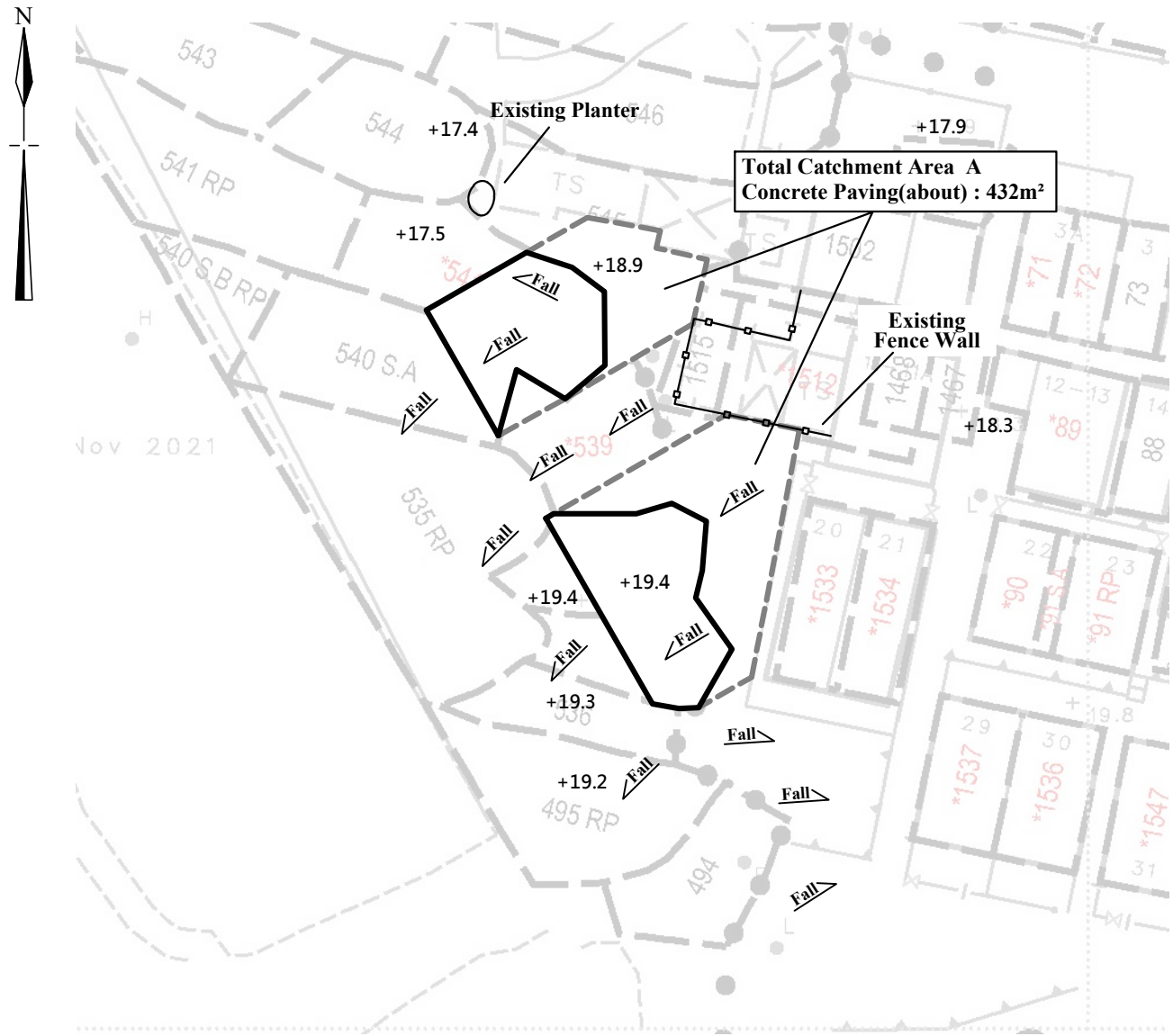


1:300 (A3)
July 2024

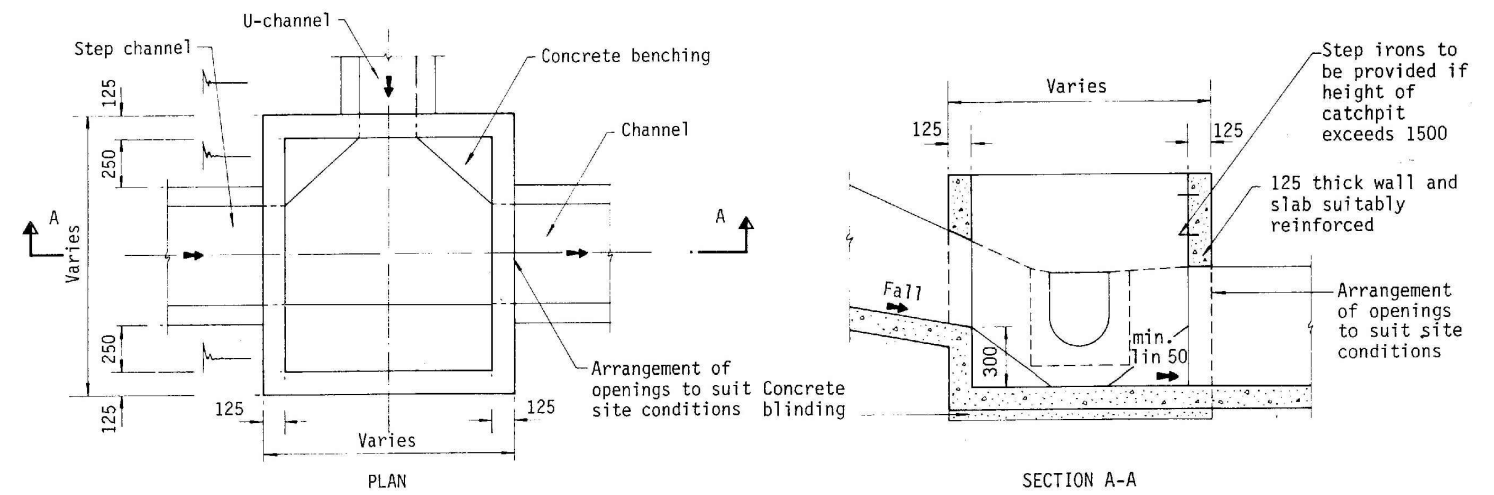
**Drainage Proposal**

Lots 537(part), 538(part), 540 S.A(part)  
and 541 S.A(part) in D.D.218  
Ma Kwu Lam, Sai Kung North, N.T

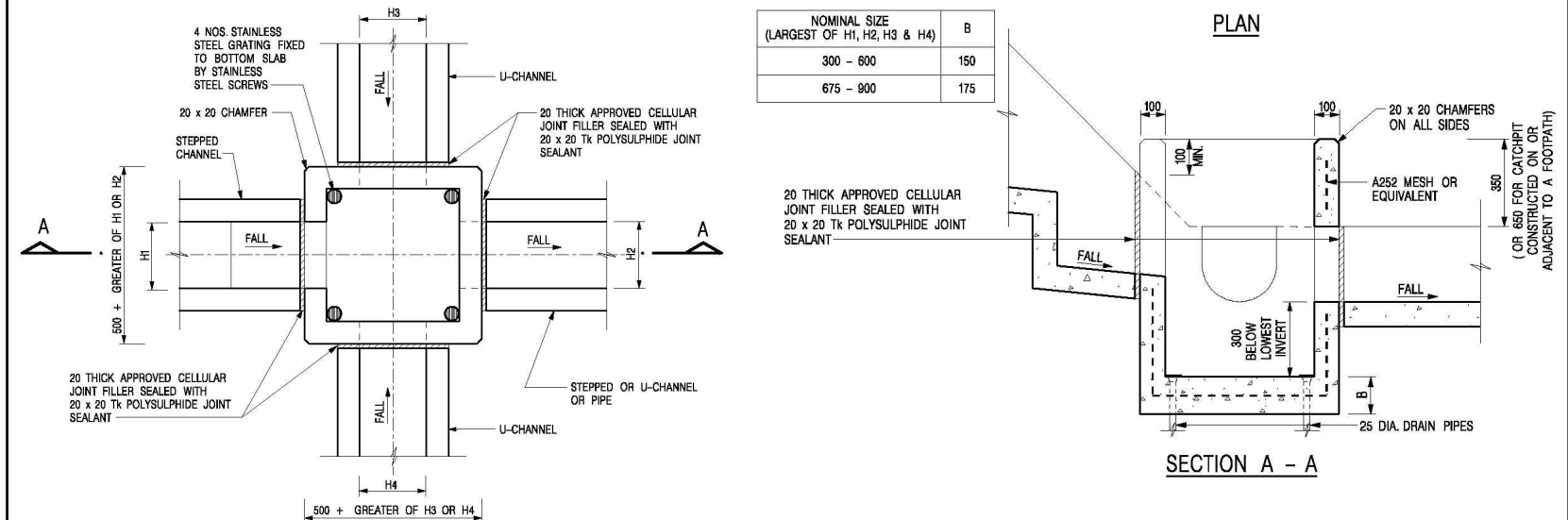
Goldrich Planners & Surveyors Ltd.
Plan 4.1c ( P 23055B )



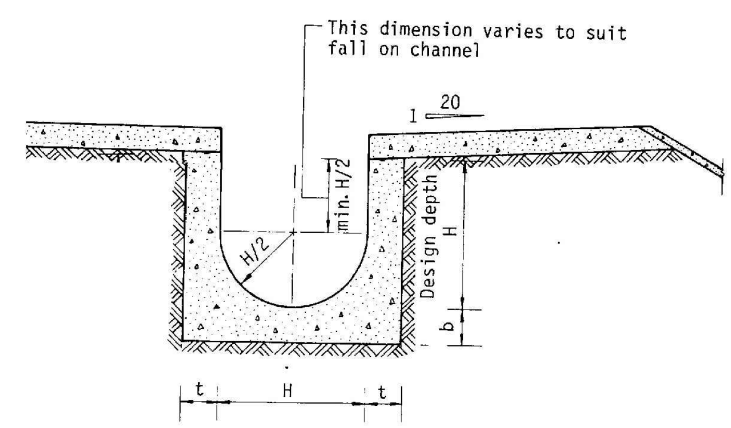
**AREA OF CATCHMENT  
(N.T.S)**



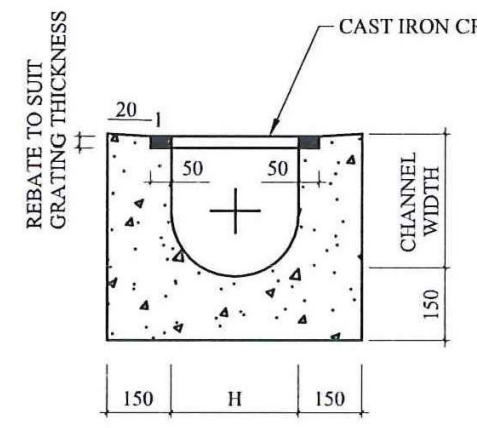
**TYPICAL DETAILS OF CATCHPIT**



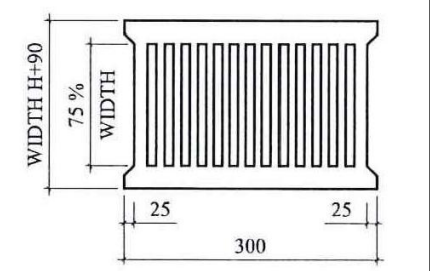
**DETAILS OF CATCHPIT WITH TRAP  
(REFER TO CEDD'S STANDARD DWG. C2406/1)**



**TYPICAL DETAILS OF U CHANNEL**



**TYPICAL SECTION OF U-CHANNEL WITH COVER  
(N.T.S.)**



**CAST IRON CRATING  
(HEAVY DUTY)**

1:500 (A3)

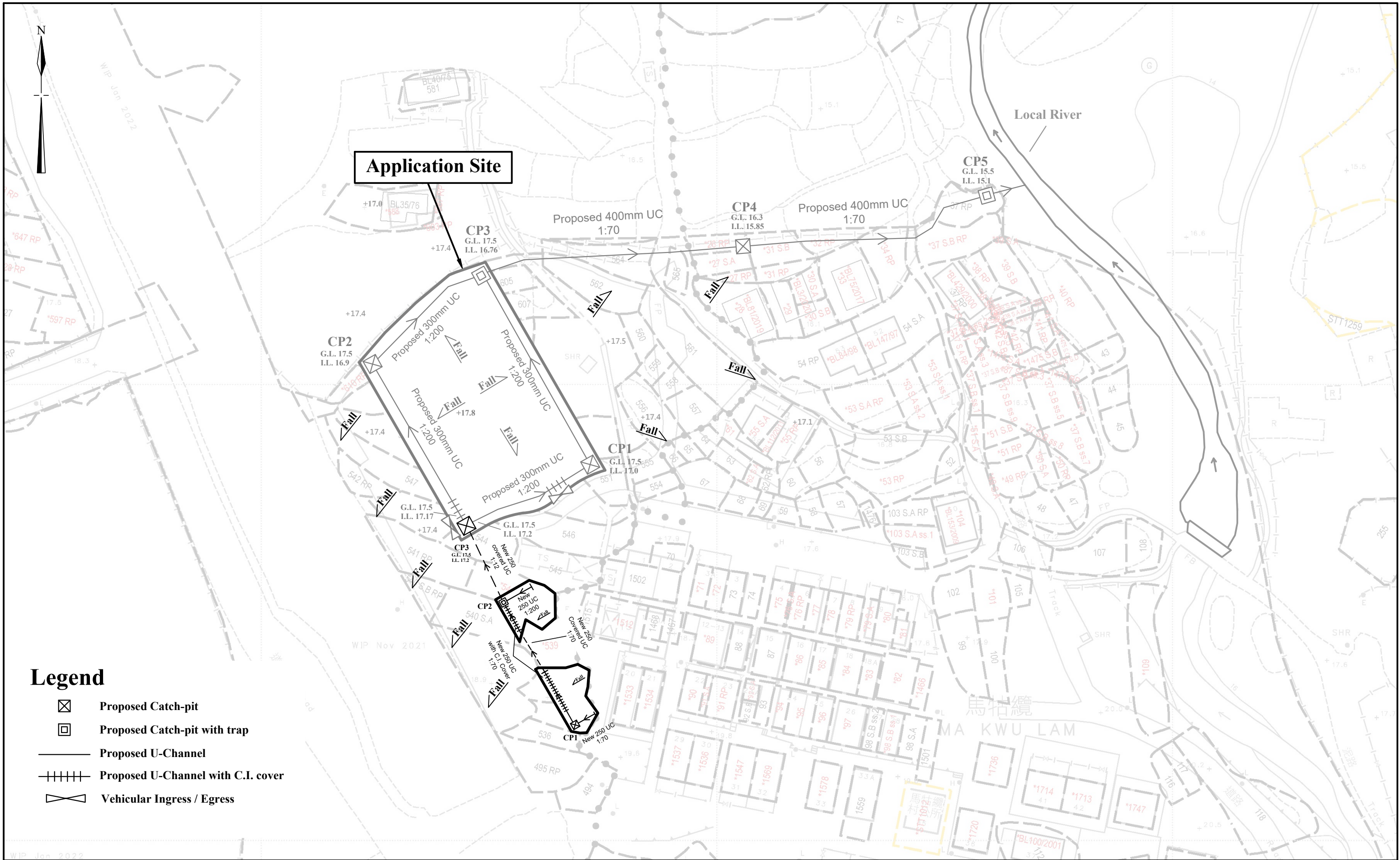
August 2024

**Drainage Proposal**

Lots 537(part), 538(part), 540 S.A(part)  
and 541 S.A(part) in D.D.218  
Ma Kwu Lam, Sai Kung North, N.T

Goldrich Planners & Surveyors Ltd.

Plan 4.2c  
( P 23055B )



**Legend**

- ☒ Proposed Catch-pit
- ☐ Proposed Catch-pit with trap
- Proposed U-Channel
- ++++ Proposed U-Channel with C.I. cover
- ⌞ Vehicular Ingress / Egress

1:750 (A3)

August 2024

# Drainage Proposal

Lots 537(part), 538(part), 540 S.A(part)  
and 541 S.A(part) in D.D.218  
Ma Kwu Lam, Sai Kung North, N.T

Goldrich Planners &  
Surveyors Ltd.

Plan 4.3  
( P 23055B )

1 For Catchment Area A

Area, A = 432 m<sup>2</sup>  
 Average slope, H = 0.1 m per 100m  
 Distance on the line of natural flow, L = 18.6 m

Time of concentration,  $t_0 = 0.14465L / (H^{0.2}A^{0.1}) = 0.14465 (18.6) / (0.1^{0.2} \times 432^{0.1})$   
 = 2.3 min

SDM 7.5.2 (d)

2 For Proposed U-Channel in catchment area A

	From	To
Ground level (mPD)	19.30	18.86
Invert level (mPD)	19.05	18.58

Width of u-channel, w = 250 mm  
 Length of u-channel, L<sub>c</sub> = 33 m  
 Depth of vertical part of u-channel, d = 155 mm  
 Gradient of u-channel, S<sub>f</sub> = (19.05-18.58)/33 = 0.014

Cross-Section Area, a =  $0.5 \pi r^2 + w d = 0.5 \times 3.14 \times 125^2 + 250 \times 155$   
 = 0.063 m<sup>2</sup>  
 Wetted Perimeter, p =  $\pi r + 2 d = 3.14 \times 125 + 2 \times 155$   
 = 0.703 m  
 Hydraulic radius, R = a / p  
 = 0.090 m

SDM 8.2.1

3 Use Manning Equation for estimating velocity of stormwater

Take n = 0.016 for concrete lined channels:-  
 Allowable velocity, v =  $R^{1/6} \times (RS_f)^{1/2} / n = (0.09)^{1/6} \times (0.09 \times 0.014)^{1/2} / 0.016$   
 = 1.50 m/s  
 Time of flow, t<sub>f</sub> = 0.4 min

SDM Table 13  
 SDM Table 12

4 Use "Rational Method" for calculation of design flow

Design intensity, i =  $a / (t_0 + t_f + b)^c$   
 =  $505.5 / (2.3 + 0.4 + 3.29)^{0.355}$  for return period T = 50 years  
 = 268

SDM 4.3.2  
 SDM Table 3(a)

Type of surface	Runoff Coefficient C	Catchment Area A (m <sup>2</sup> )	C x A
Flat Glassland (heavy soil)	0.25	0.0	0.0
Concrete Paving	0.95	432.0	410.4
			SUM = 410.4

SDM 7.5.2 (b)

Upstream flow, Q<sub>u</sub> = 0 m<sup>3</sup>/s

Design flow, Q<sub>d</sub> =  $0.278i \sum C_f A_j + Q_u$  where A<sub>j</sub> is in km<sup>2</sup>  
 =  $0.278 \times 268 \times 410.4 / 1000000 + 0$   
 = 0.031 m<sup>3</sup>/s

SDM 7.5.2 (a)

Allowable flow, Q<sub>a</sub> = a x v  
 = 0.063 x 1.5  
 = 0.095 m<sup>3</sup>/s

> Q<sub>d</sub> (O.K.)

Reference was made to Stormwater Drainage Manual (SDM) by DSD

1 For Catchment Area B

Area, A = 0 m<sup>2</sup>  
 Average slope, H = 0.1 m per 100m  
 Distance on the line of natural flow, L = 0 m

Time of concentration,  $t_o = 0.14465L / (H^{0.2}A^{0.1}) = 0.14465 (0) / (0.1^{0.2} \times 0^{0.1})$   
 = 0.0 min

Ref.  
  
  
  
SDM 7.5.2 (d)

2 For Proposed U-Channel in catchment area B

	From	To
Ground level (mPD)	18.86	17.50
Invert level (mPD)	18.58	17.20

Width of u-channel, w = 250 mm  
 Length of u-channel,  $L_c = 16$  m  
 Depth of vertical part of u-channel, d = 175 mm  
 Gradient of u-channel,  $S_f = (18.58 - 17.2) / 16 = 0.086$

Cross-Section Area,  $a = 0.5 \pi r^2 + w d = 0.5 \times 3.14 \times 125^2 + 250 \times 175$   
 = 0.068 m<sup>2</sup>  
 Wetted Perimeter,  $p = \pi r + 2 d = 3.14 \times 125 + 2 \times 175$   
 = 0.743 m  
 Hydraulic radius,  $R = a / p$   
 = 0.092 m

SDM 8.2.1

3 Use Manning Equation for estimating velocity of stormwater

Take n = 0.016 for concrete lined channels:-  
 Allowable velocity,  $v = R^{1/6} \times (RS_f)^{1/2} / n = (0.092)^{1/6} \times (0.092 \times 0.086)^{1/2} / 0.016$   
 = 3.74 m/s  
 Time of flow,  $t_f = 0.1$  min

SDM Table 13  
 SDM Table 12

4 Use "Rational Method" for calculation of design flow

Design intensity,  $i = a / (t_o + t_f + b)^c$   
 =  $505.5 / (0 + 0.1 + 3.29)^{0.355}$  for return period T = 50 years  
 = 329

SDM 4.3.2  
 SDM Table 3(a)

Type of surface	Runoff Coefficient C	Catchment Area A (m <sup>2</sup> )	C x A
Flat Glassland (heavy soil)	0.25	0.0	0.0
Concrete Paving	0.95	0.0	0.0
SUM =			0.0

SDM 7.5.2 (b)

Upstream flow,  $Q_u = 0.031$  m<sup>3</sup>/s

Design flow,  $Q_d = 0.278i \sum C_i A_i + Q_u$  where  $A_i$  is in km<sup>2</sup>  
 =  $0.278 \times 329 \times 0 / 1000000 + 0.031$   
 = 0.031 m<sup>3</sup>/s

SDM 7.5.2 (a)

Allowable flow,  $Q_a = a \times v$   
 =  $0.068 \times 3.74$   
 = 0.255 m<sup>3</sup>/s

>  $Q_d$  (O.K.)

Reference was made to Stormwater Drainage Manual (SDM) by DSD