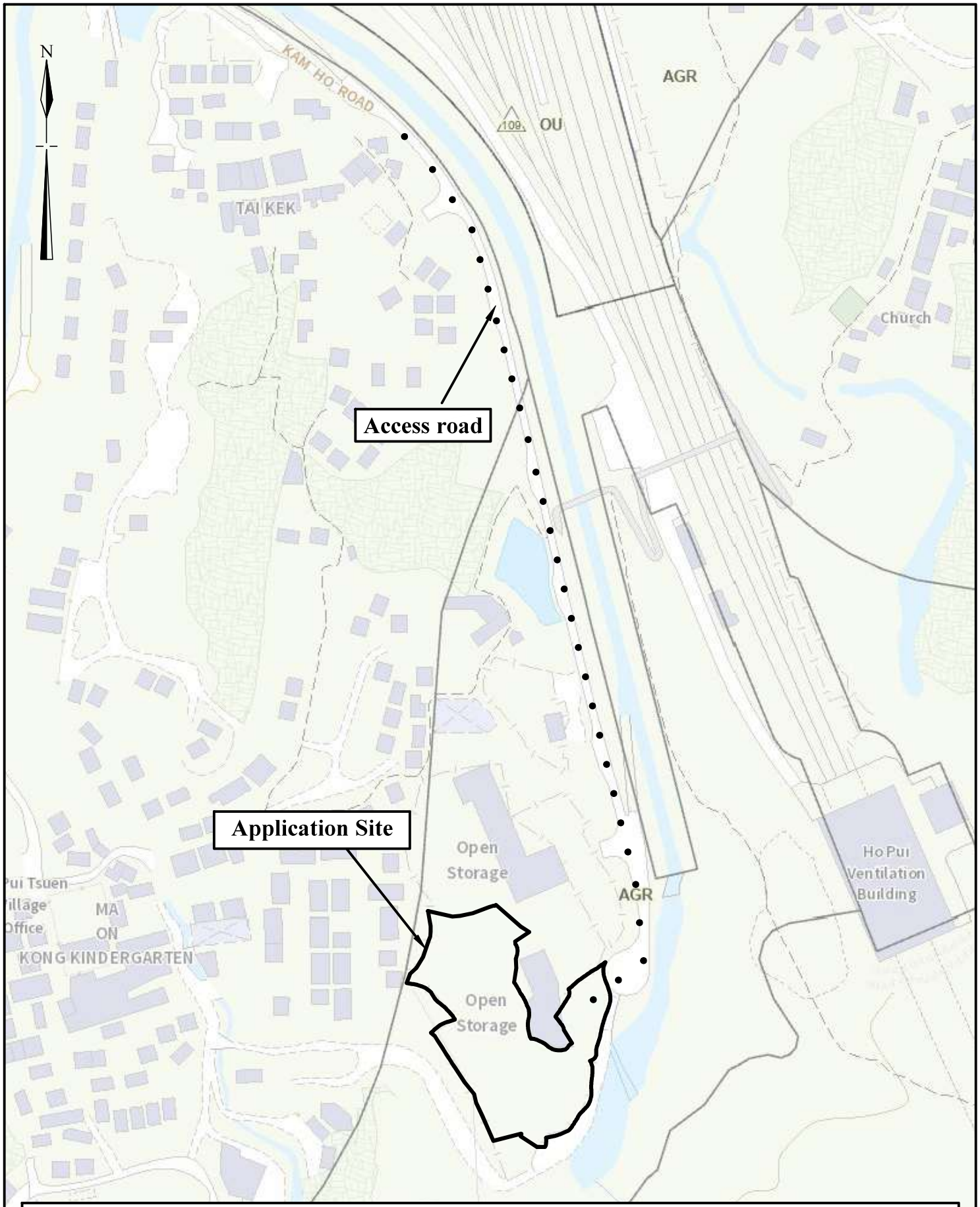
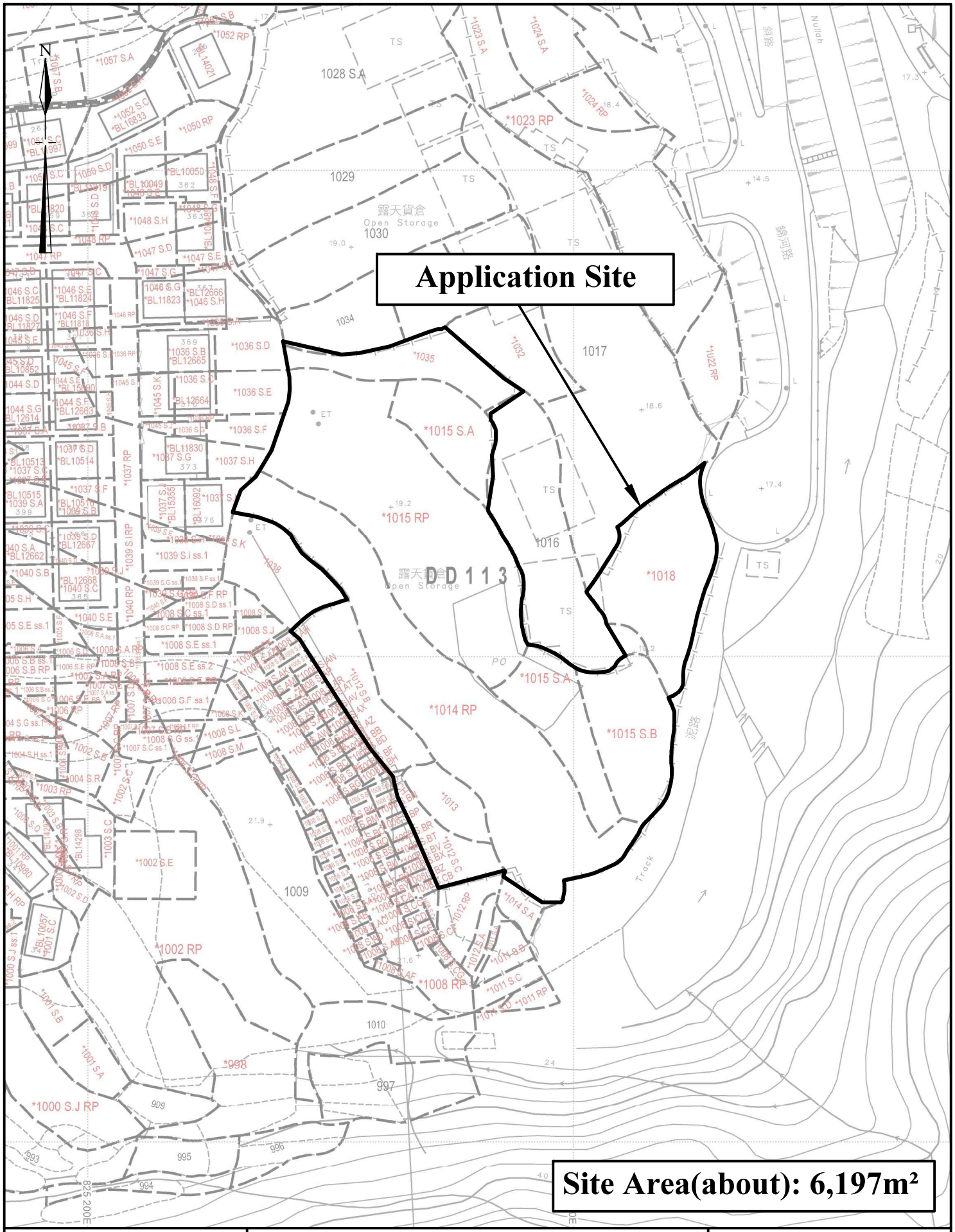
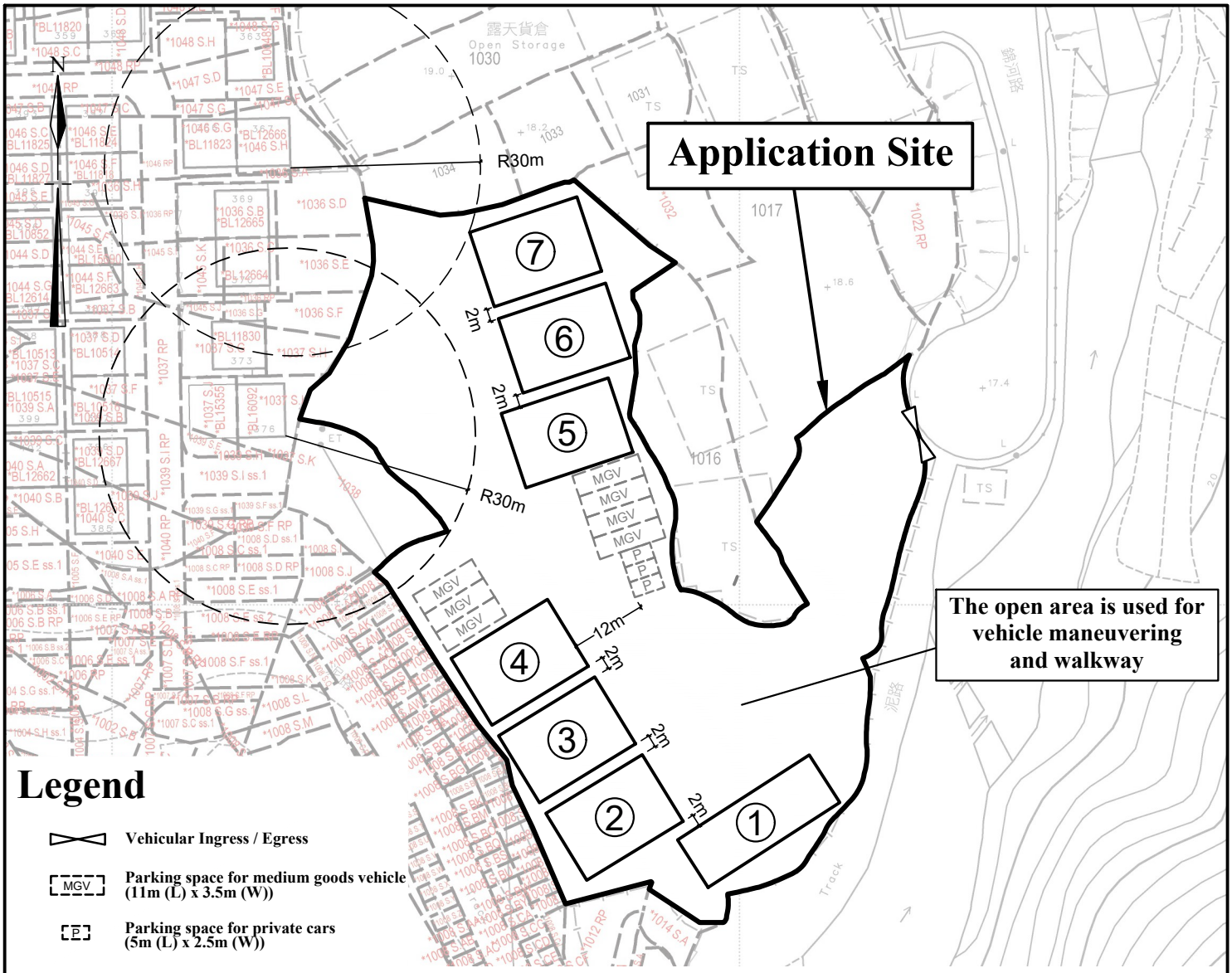



**Extracted from Approved Kam Tin South Outline Zoning Plan No. S/YL-KTS/15**

| | | |
|---|---|---|
| **1:1000** | **Location Plan**<br>**Lots 1012 S.B, 1012 S.C, 1013, 1014RP, 1015 S.A, 1015 S.B, 1015 RP, 1016(part), 1018, 1034(part) and 1035 in D.D. 113 Yuen Long, N.T.** | **Goldrich Planners & Surveyors Ltd.** |
| **February 2025** | | **Plan 1**<br>**( P 25012 )** |



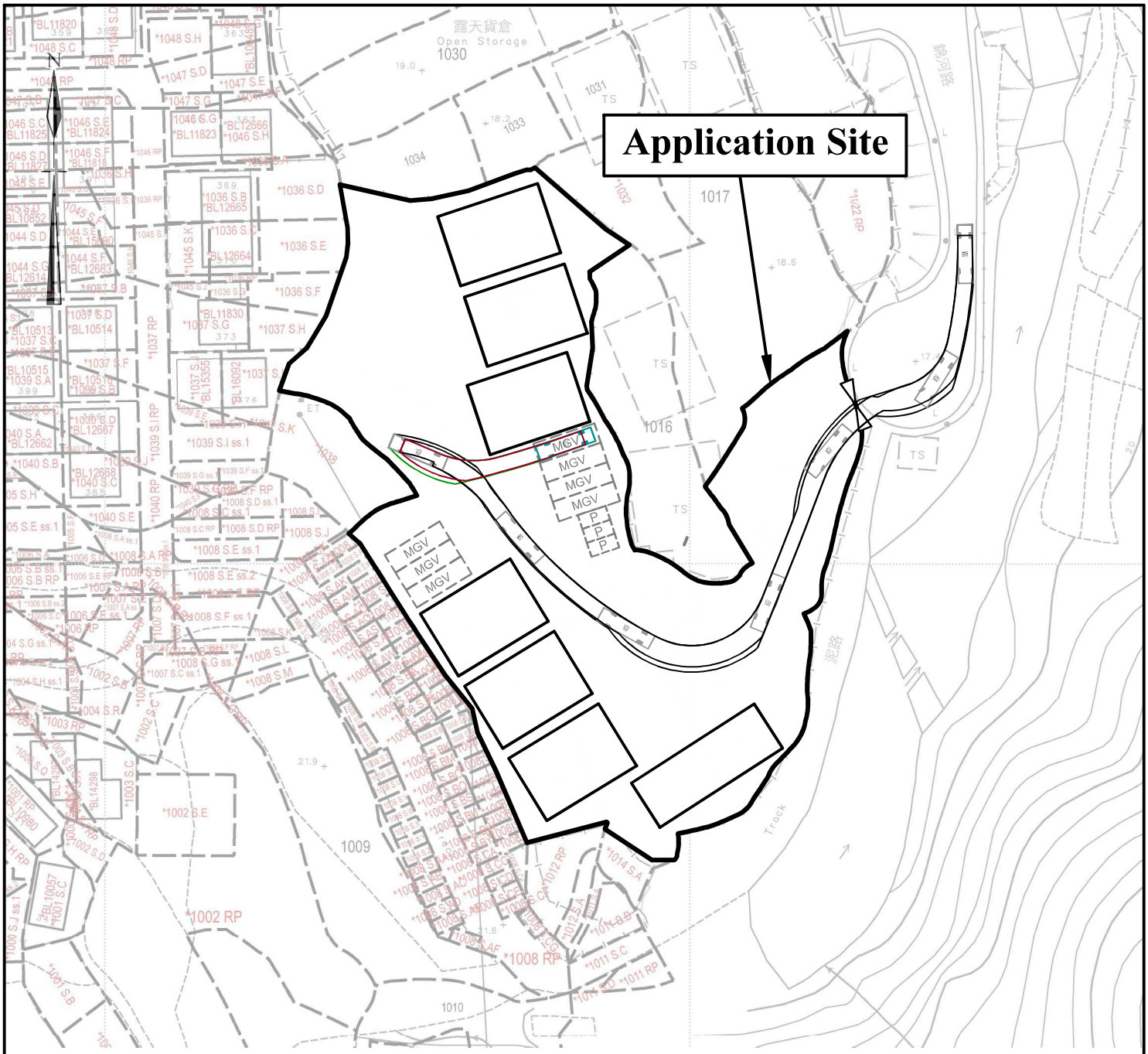

| | | |
|---|---|---|
| 1:1000 | **Lot Index Plan** | **Goldrich Planners & Surveyors Ltd.** |
| **February 2025** | **Lots 1012 S.B, 1012 S.C, 1013, 1014RP, 1015 S.A, 1015 S.B, 1015 RP, 1016(part), 1018, 1034(part) and 1035 in D.D. 113 Yuen Long, N.T.** | **Plan 2 ( P 25012 )** |




# Site Area(about): 6,197m²

| No. | Uses | Covered Area (about) | Floor Area (about) | Storeys | Height |
|---|---|---|---|---|---|
| 1 | Warehouse with Ancillary Office | 225 m² | 225 m² | 1 | 11m |
| 2 | Warehouse with Ancillary Office | 225 m² | 225 m² | 1 | 11m |
| 3 | Warehouse with Ancillary Office | 225 m² | 225 m² | 1 | 11m |
| 4 | Warehouse with Ancillary Office | 225 m² | 225 m² | 1 | 11m |
| 5 | Warehouse with Ancillary Office | 225 m² | 225 m² | 1 | 11m |
| 6 | Warehouse with Ancillary Office | 225 m² | 225 m² | 1 | 11m |
| 7 | Warehouse with Ancillary Office | 225 m² | 225 m² | 1 | 11m |
| Total | | 1,575 m² | 1,575 m² | | |

| | | |
|---|---|---|
| 1:1000 | **Layout Plan** | Goldrich Planners & Surveyors Ltd. |
| March 2025 | Lots 1012 S.B, 1012 S.C, 1013, 1014RP, 1015 S.A, 1015 S.B, 1015 RP, 1016(part), 1018, 1034(part) and 1035 in D.D. 113 Yuen Long, N.T. | Plan 3 ( P 25012 ) |




# Legend

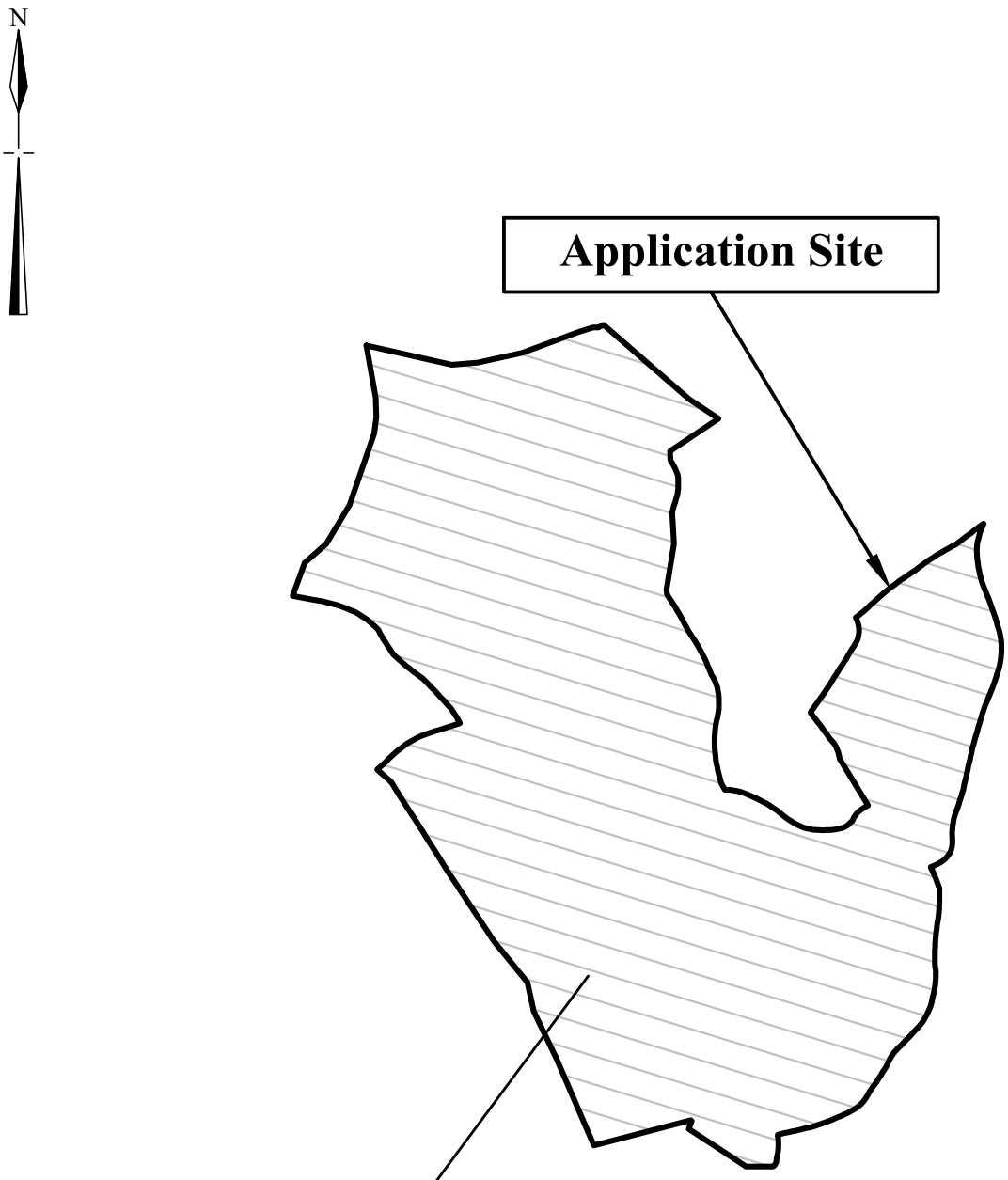
Vehicular Ingress / Egress

MGV — Parking space for medium goods vehicle (11m (L) x 3.5m (W))

P — Parking space for private cars (5m (L) x 2.5m (W))

MGV — Medium goods vehicle (10m (L) x 2.5m (W))

| | | |
|---|---|---|
| 1:1000 | **Swept Path Analysis**<br>Lots 1012 S.B, 1012 S.C, 1013, 1014RP, 1015 S.A, 1015 S.B, 1015 RP, 1016(part), 1018, 1034(part) and 1035 in D.D. 113 Yuen Long, N.T. | Goldrich Planners & Surveyors Ltd. |
| March 2025 | | Plan 4<br>( P 25012 ) |




**Site Area(about): 6,197m²**

| | | |
|---|---|---|
| 1:1000 | **Plan Showing Proposed Filling of Land** | Goldrich Planners & Surveyors Ltd. |
| June 2025 | Lots 1012 S.B, 1012 S.C, 1013, 1014RP, 1015 S.A, 1015 S.B, 1015 RP, 1016(part), 1018, 1034(part) and 1035 in D.D. 113 Yuen Long, N.T. | Plan 5 ( P 25012 ) |

**Response-to-Comments**

**Comments from DSD on drainage proposal under previous application No. A/YL-KTS/1084**

Contact person: Mr. Jeff TSE (Tel: 3965 8921)

| | **Comments** | | **Responses** |
|---|---|---|---|
| 1. | Please make reference to the latest Technical Note No. 1 issued by DSD for more details in preparing the drainage proposal and upgrade all drainage facilities size accordingly. | | Noted. The drainage facilities size is made reference to the latest Technical Note No. 1 issued by DSD. |
| 2. | Please indicate the existing ground level at cross sections for review. Please be reminded that the proposed peripheral surface channels shall be provided along the site boundary at the original/existing level (instead of the revised level) to collect the surface runoff accrued on the application site and to intercept the overland flow from the adjacent lands. | | Please refer to the sections of Plan 6.1. |
| 3. | The minimum size of the existing stream course should be indicated on the drainage plan for review. The applicant should check and ensure the hydraulic capacity of the existing drainage facilities would not be adversely affected by the captioned development. Please also provide more photos at different locations and views showing the condition of the existing 600mm pipe and the existing stream course for review. | | Noted. The minimum size of the existing stream course is indicated on the drainage plan (both Plan 6.1 and 6.2). Please also refer to the Viewpoint Photos. |
| 4. | According to the photo provided, it is noted that some vegetation/silts nearby the outlet, please consider removing such silts and provide updated photo for review. | | The vegetation/silts are removed. Please refer to Viewpoint Photo 1. |
| 5. | The existing 600mm pipe and the existing stream course, to which the applicant proposed to discharge the stormwater from the subject site was not maintained by this office. The applicant(s) shall resolve any conflict/disagreement arisen for discharging the runoff from the application site(s) to the proposed discharge point(s). In the case that it is a local village drains, DO/YL should be consulted. Moreover, the applicant(s) should ensure that this | | Noted. |

| | | | |
|---|---|---|---|
| | drainage system and the existing downstream drains/channels/streams have adequate capacity to convey the additional runoff from the application site(s). Regular maintenance should be carried out by the applicant(s) to avoid blockage of the system. | | |
| 6. | The development should neither obstruct overland flow and nor adversely affect existing natural streams, village drains, ditches and the adjacent areas, etc. | | Noted. |
| 7. | The applicant should 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). | | Noted. |

N

A

G.L. 19.4
I.L. 18.65

G.L. 19.4
I.L. 18.27

CP1
G.L. 19.4
I.L. 18.13

CP2
G.L. 19.4
I.L. 18.06

Proposed 750UC
1:200

Proposed 750UC
1:200

CP7
G.L. 19.4
I.L. 18.49

Proposed 750UC
1:200

CP8
G.L. 19.4
I.L. 18.34

CP9
G.L. 19.4
I.L. 18.29

Proposed 750UC
1:200

B

+19.5

CP3
G.L. 19.3
I.L. 17.77

Proposed 750UC
1:200

CP4
G.L. 19.3
I.L. 17.72

Proposed 750UC
1:200

Proposed 750UC
1:200

Proposed 600
underground Pipe
1:200

CP5
G.L. 19.2
I.L. 17.67

Proposed 750UC
1:200

CP6
G.L. 19.2
I.L. 17.74

Proposed 750UC
1:200

Proposed 750UC
1:200

Proposed 750UC
1:200

Proposed 750UC
1:200

CP10
G.L. 19.3
I.L. 18.01

Proposed 750UC
1:200

CP11
G.L. 19.3
I.L. 17.9

Proposed 750UC
1:200

CP12
G.L. 19.3
I.L. 17.73

CP13
G.L. 19.2
I.L. 17.65

CP14
G.L. 19.2
I.L. 17.64

G.L. 18.7
I.L. 17.88

G.L. 18.7
I.L. 17.83

**Application Site**

Existing
underground
600 pipe
1:200

B1

Pipe outlet

Existing
Stream course
(min. 1.8m)

A1

Track

泥路

TS

ET

376

18.6

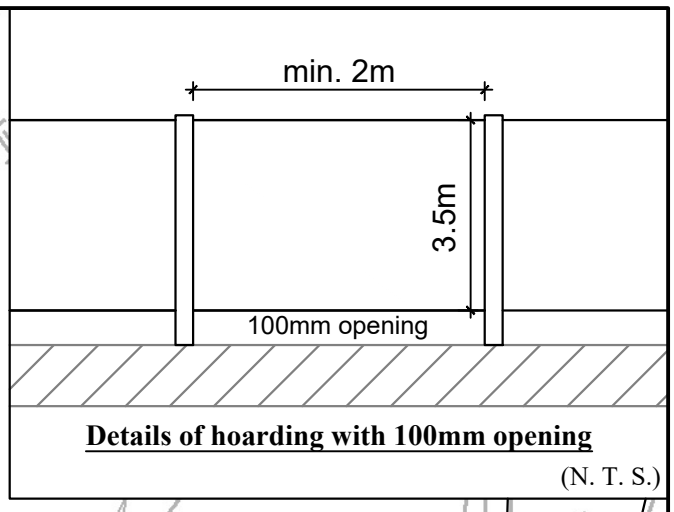
17.4

21.3

## Legend

- Catch-pit
- Catch-pit with trap
- U-Channel
- U-Channel with C.I. cover
- Underground Pipe
- hoarding with 100mm opening
- Solid wall erected by NTEH owners
- Vehicle Ingress / Egress
- Viewpoint of drainage Photograph

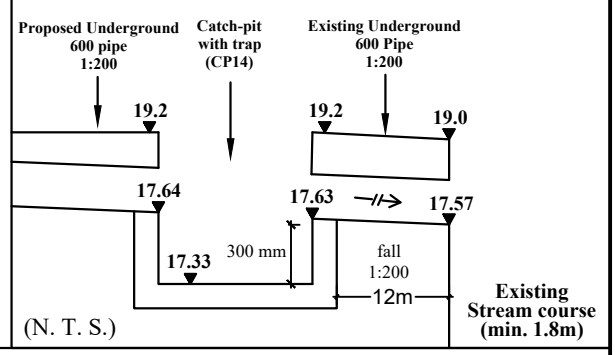
**Site Area(about): 6,197m²**




**Details of hoarding with 100mm opening**

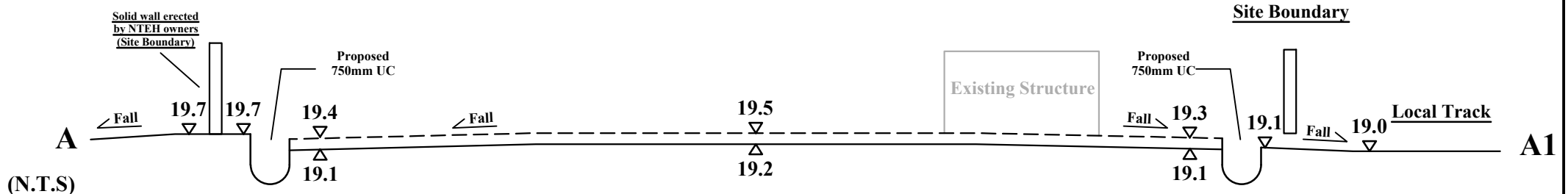
(N. T. S.)

**Connection details of proposed outfall between CP14 and existing stream course**



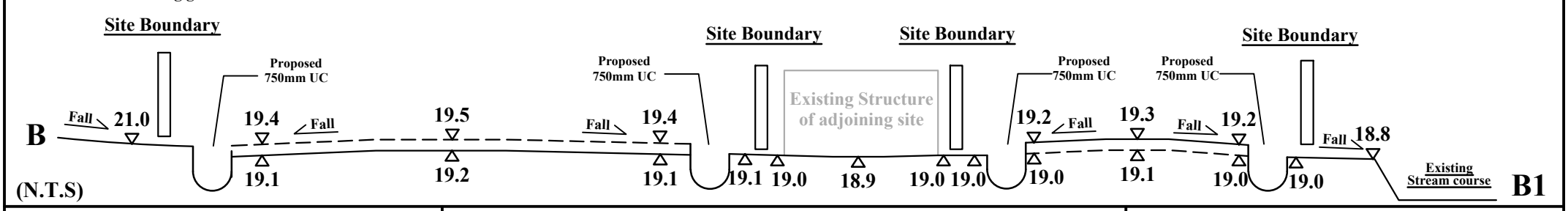

(N. T. S.)

Proposed ground level
Existing ground level



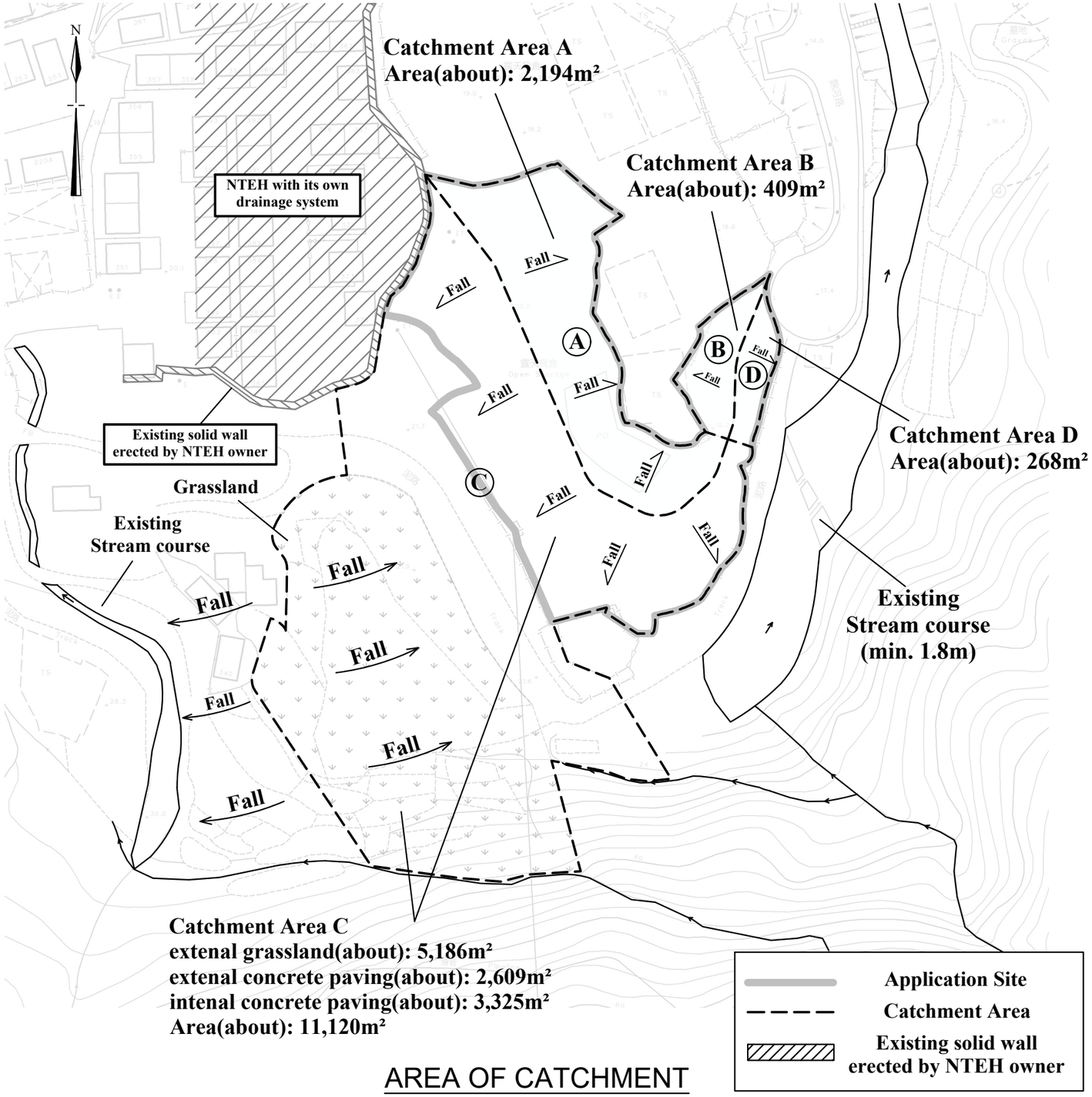

(N.T.S)

Proposed ground level
Existing ground level

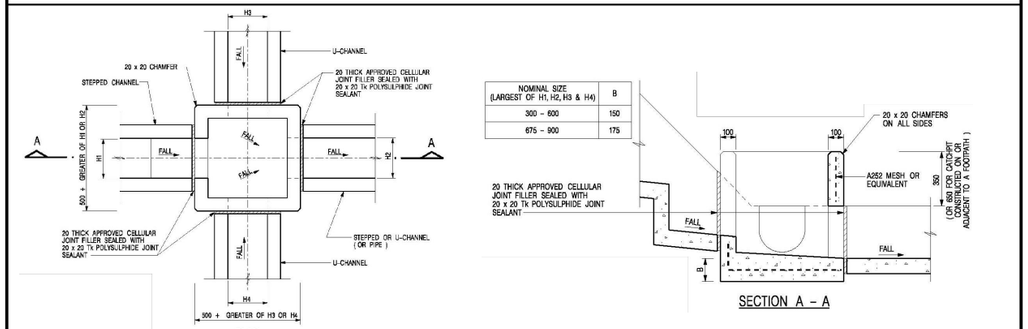



(N.T.S)

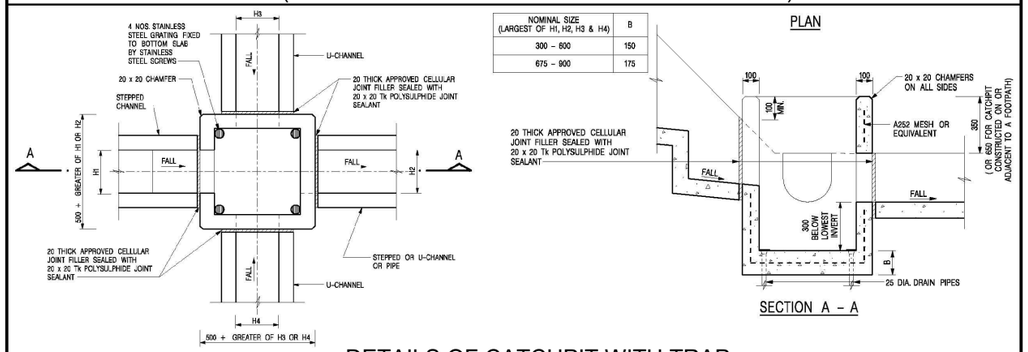
| | | |
|---|---|---|
| 1:500 (A3) | **Drainage Proposal** | Goldrich Planners & Surveyors Ltd. |
| January 2026 | Lots 1012 S.B, 1012 S.C, 1013, 1014RP, 1015 S.A, 1015 S.B, 1015 RP, 1016(part), 1018, 1034(part) and 1035 in D.D. 113 Yuen Long, N.T. | Plan 6.1 ( P 25012 ) |



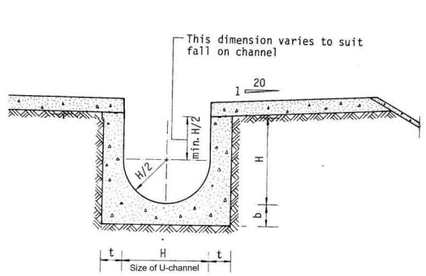

AREA OF CATCHMENT
(N.T.S)



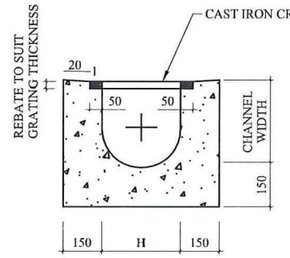

TYPICAL DETAILS OF CATCHPIT
(REFER TO CEDD'S STANDARD DWG. C2406/1)



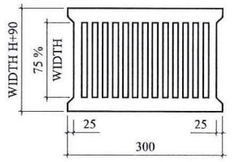

DETAILS OF CATCHPIT WITH TRAP
(REFER TO CEDD'S STANDARD DWG. C2406/1)




TYPICAL DETAILS OF U-CHANNEL
(Refer to DSD'S technical note to prepare a drainage submission)




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

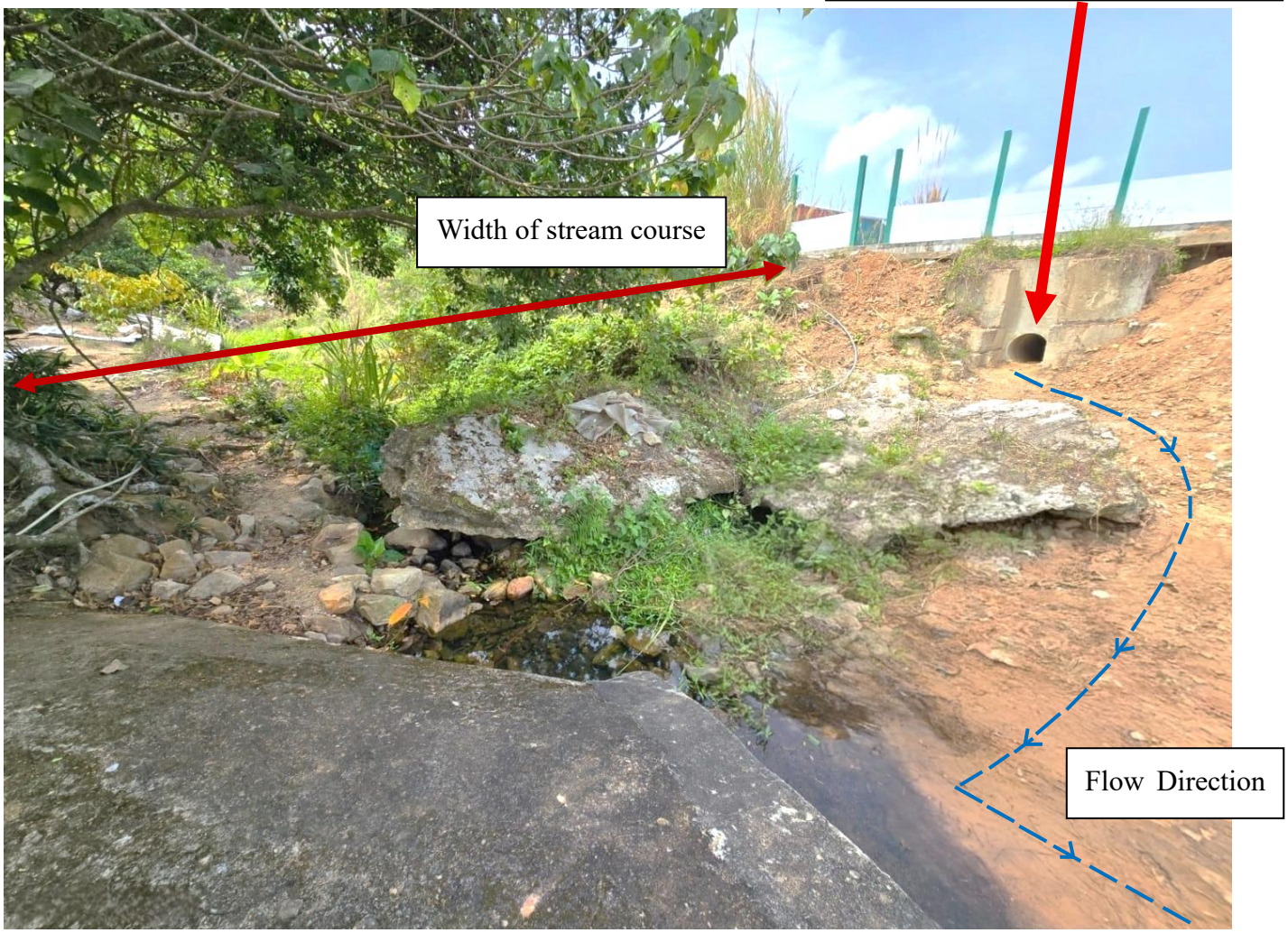



CAST IRON CRATING
(HEAVY DUTY)

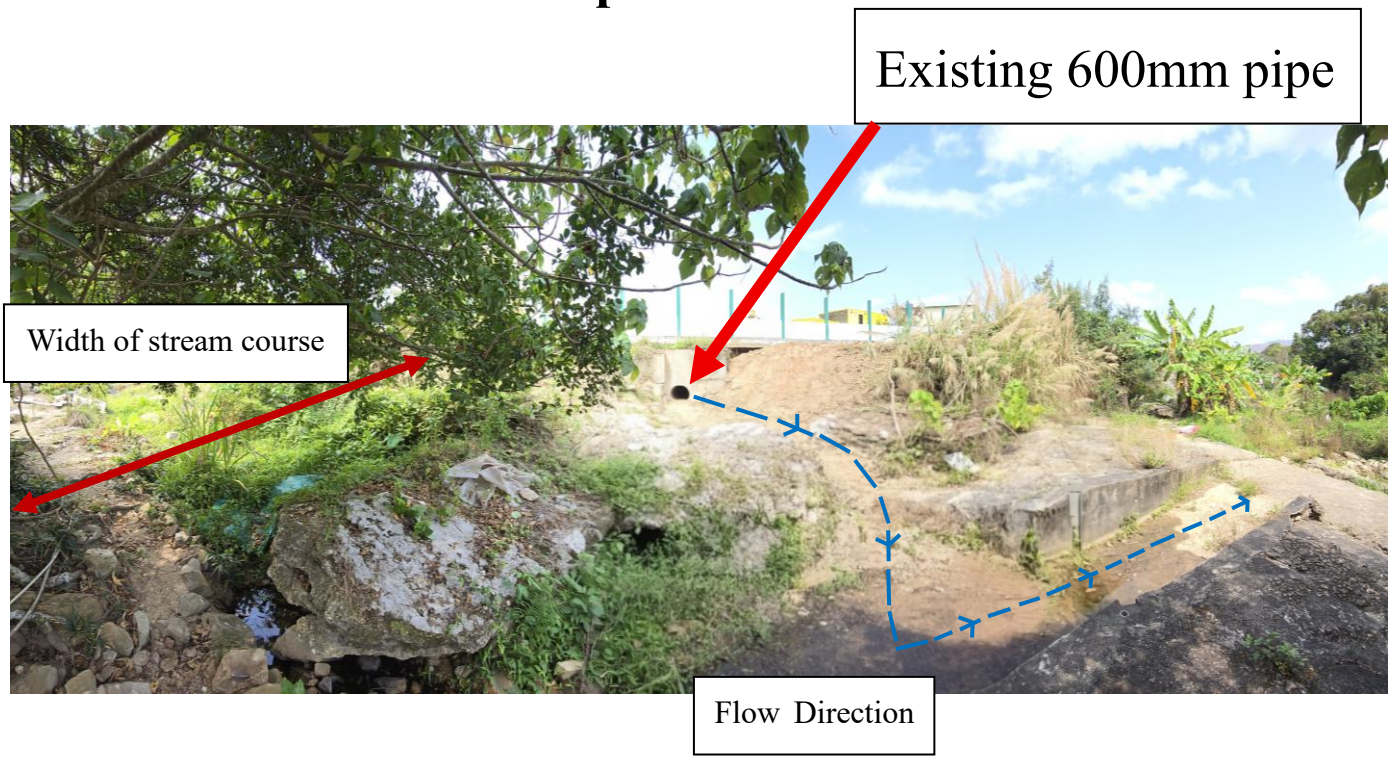
| | | |
|---|---|---|
| N.T.S | **Drainage Proposal**<br>**Lots 1012 S.B, 1012 S.C, 1013, 1014RP, 1015 S.A, 1015 S.B, 1015 RP, 1016(part), 1018, 1034(part) and 1035 in D.D. 113 Yuen Long, N.T.** | **Goldrich Planners & Surveyors Ltd.** |
| January 2026 | | **Plan 6.2 ( P 25012 )** |

# Viewpoint Photo 1

# Viewpoint Photo 2



# Viewpoint Photo 3



# Viewpoint Photo 4

# Viewpoint Photo 5

## 1 For Catchment Area A

| | | | | Ref. |
|---|---|---|---|---|
| Area, A | = | 2194 | $m^2$ | |
| Average slope, H | = | 0.1 | m per 100m | |
| Distance on the line of natural flow, L | = | 22 | m | |
| Time of concentraction, $t_o$ | = | $0.14465L / (H^{0.2}A^{0.1})$ = 0.14465 (22) / (0.1^0.2*2194^0.1) | | SDM 7.5.2 (d) |
| | = | 2.3 | min | |

## 2 For Proposed UC in Catchment Area A

| | From | To |
|---|---|---|
| Ground level (mPD) | 19.40 | 19.20 |
| Invert level (mPD) | 18.27 | 17.67 |

| | | | | |
|---|---|---|---|---|
| Width of u-channel, w | = | 750 | mm | |
| Length of u-channel, $L_c$ | = | 119.4 | m | |
| Depth of vertical part of u-channel, d | = | 1155 | mm | |
| Gradient of u-channel, $S_f$ | = | (18.27-17.67)/119.4 = 0.005 | | |
| Cross-Section Area, a | = | $0.5 \pi r^2 + w d$ = 0.5 x 3.14 x 375^2 + 750 x 1155 | | |
| | = | 1.087 | $m^2$ | |
| Wetted Perimeter, p | = | $\pi r + 2 d$ = 3.14 x 375 + 2 x 1155 | | |
| | = | 3.488 | m | |
| Hydralic radius, R | = | a / p | | SDM 8.2.1 |
| | = | 0.312 | m | |

## 3 Use Manning Equation for estimating velocity of stormwater

| | | | | |
|---|---|---|---|---|
| Take n | = | 0.016 | for concrete lined channels:- | SDM Table 13 |
| Allowable velocity, v | = | $R^{1/6} x (RS_f)^{1/2}/n$ = (0.312)^1/6 x (0.312 x 0.005)^1/2 / 0.016 | | SDM Table 12 |
| | = | 2.04 | m/s | |
| Time of flow, $t_f$ | = | 1.0 | min | |

## 4 Use "Rational Method" for calculation of design flow

| | | | | |
|---|---|---|---|---|
| Design intensity, i | = | $a / (t_o + t_f + b)^c$ | | SDM 4.3.2 |
| | = | 505.5 / (2.3+1+3.29)^0.355 | for return period T = 50 years | Corrigendum 1/2024 |
| | = | 259 | | SDM Table 3a |

| Type of surface | Runoff Coefficient C | Catchment Area A ($m^2$) | C x A |
|---|---|---|---|
| Flat Glassland(heavy soil) | 0.25 | 0.0 | 0.0 |
| Concrete Paving | 0.95 | 2194.0 | 2084.3 |
| | | SUM = | 2084.3 |

SDM 7.5.2 (b)

| | | | | |
|---|---|---|---|---|
| Upstream flow, $Q_u$ | = | 0 | $m^3/s$ | |
| Design flow, $Q_d$ | = | $1.16 \times 0.278i \Sigma C_i A_i + Q_u$ where $A_i$ is in $km^2$ | | SDM 7.5.2 (a) |
| | = | 1.16 x 0.278 x 259 x 2084.3 / 1000000 + 0 | | Corrigendum 1/2022 |
| | = | 0.174 | $m^3/s$ | |
| Allowable flow, $Q_a$ | = | a x v | | |
| | = | 1.087 x 2.04 | | |
| | = | 2.214 | $m^3/s$ | |
| | > | $Q_d$ (O.K.) | | |

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

| | | |
|---|---|---|
| Scale: NA | **Hydraulic Calculation** | Goldrich Planners & Surveyors Ltd. |
| March 2026 | Lots 1012 S.B, 1012 S.C, 1013, 1014 RP, 1015 S.A, 1015 S.B, 1015 RP, 1016 (Part), 1018, 1034 (Part) and 1035 in D.D.113, Kam Tin, Yuen Long, New Territories | Page 1 (P25012) |

1 For Catchment Area B

Ref.

Area, A = 409 $m^2$
Average slope, H = 0.1 m per 100m
Distance on the line of natural flow, L = 12 m

Time of concentraction, $t_o$ = $0.14465L / (H^{0.2}A^{0.1})$ = 0.14465 (12) / (0.1^0.2*409^0.1) — SDM 7.5.2 (d)
= 1.5 min

2 For Proposed UC in Catchment Area B

| | From | To |
|---|---|---|
| Ground level (mPD) | 18.70 | 19.20 |
| Invert level (mPD) | 17.88 | 17.67 |

Width of u-channel, w = 750 mm
Length of u-channel, $L_c$ = 42.5 m
Depth of vertical part of u-channel, d = 1155 mm
Gradient of u-channel, $S_f$ = (17.88-17.67)/42.5 = 0.005

Cross-Section Area, a = $0.5 \pi r^2 + w d$ = 0.5 x 3.14 x 375^2 + 750 x 1155
= 1.087 $m^2$
Wetted Perimeter, p = $\pi r + 2 d$ = 3.14 x 375 + 2 x 1155
= 3.488 m
Hydralic radius, R = a / p — SDM 8.2.1
= 0.312 m

3 Use Manning Equation for estimating velocity of stormwater

Take n = 0.016 for concrete lined channels:- — SDM Table 13
Allowable velocity, v = $R^{1/6} x (RS_f)^{1/2}/n$ = (0.312)^1/6 x (0.312 x 0.005)^1/2 / 0.016 — SDM Table 12
= 2.02 m/s
Time of flow, $t_f$ = 0.4 min

4 Use "Rational Method" for calculation of design flow

Design intensity, i = $a / (t_o + t_f + b)^c$ — SDM 4.3.2
= 505.5 / (1.5+0.4+3.29)^0.355 for return period T = 50 years — Corrigendum 1/2024
= 283 — SDM Table 3a

| Type of surface | Runoff Coefficient C | Catchment Area A ($m^2$) | C x A |
|---|---|---|---|
| Flat Glassland(heavy soil) | 0.25 | 0.0 | 0.0 |
| Concrete Paving | 0.95 | 409.0 | 388.6 |
| | | SUM = | 388.6 |

SDM 7.5.2 (b)

Upstream flow, $Q_u$ = 0 $m^3/s$

Design flow, $Q_d$ = $0.278i \Sigma C_i A_i + Q_u$ where $A_i$ is in $km^2$ — SDM 7.5.2 (a)
= 1.16 x 0.278 x 283 x 388.55 / 1000000 + 0 — Corrigendum 1/2022
= 0.035 $m^3/s$

Allowable flow, $Q_a$ = a x v
= 1.087 x 2.02
= 2.196 $m^3/s$

> $Q_d$ (O.K.)

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

## 1 For Connection between CP5 and CP14

Ref.

Area, A = **0** $m^2$
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*0^0.1) — SDM 7.5.2 (d)
= 0.0 min

## 2 For Proposed Pipe after CP5

Size(Diameter) w = **600** mm
Length of Pipe = **6** m
Design the pipe to 9/10 full bore capactity, then
Area of ventilated portion = 0.1 of pipe area
$\frac{1}{2} r^2 \theta - \frac{1}{2} r^2 \sin(\theta) = 0.1 \pi r^2$
$\theta - \sin(\theta) = 0.2 \pi$
$\theta$ = 1.63 rad = $93.4^O$ (By trial and error)

Area A = $0.9 \pi r^2$
= 0.9 x 3.14 x 600^2 — SDM 8.2.1
= 1017360 $mm^2$
= 1.017 $m^2$

Wetted Perimeter P = $2 \pi r - r \theta$ = 2792 mm
Hydralic radius R = A/P
364.4 mm

## 3 Use Manning Equation for estimating velocity of stormwater

Fall S = 1: **200**
Take n = 0.016 for concrete lined channels:- — SDM Table 13
Allowable velocity, v = $R^{1/6} x (RS_f)^{1/2}/n$ = (0.364)^1/6 * (0.364/200)^1/2 / 0.016 — SDM Table 12
= 2.25 m/s
Time of flow, $t_f$ = 0.04 min

## 4 Use "Rational Method" for calculation of design flow

Design intensity, i = $a / (t_o + t_f + b)^c$ — SDM 4.3.2
= 505.5 / (0.0+0.04+3.29)^0.355 for return period T = 50 years — Corrigendum 1/2024
= 330 — SDM Table 3a

SDM 7.5.2 (b)

| Type of surface | Runoff Coefficient C | Catchment Area A ($m^2$) | C x A |
|---|---|---|---|
| Flat Glassland(heavy soil) | 0.25 | **0.0** | 0.0 |
| Concrete Paving | 0.95 | **0.0** | 0.0 |
| Macadam Roadways | 0.425 | **0.0** | 0.0 |
| Wooded Areas | 0.105 | **0.0** | 0.0 |
| | | SUM = | 0.0 |

Upstream flow, $Q_u$ = **0.209** $m^3/s$

Design flow, $Q_d$ = $0.278i \Sigma C_f A_i + Q_u$ where $A_i$ is in $km^2$ — SDM 7.5.2 (a)
= 1.16 x 0.278 x 330 x 0 / 1000000 + 0.209 — Corrigendum 1/2022
= 0.209 $m^3/s$

Allowable flow, $Q_a$ = a x v
= 1.02 x 2.25
= 2.294 $m^3/s$

> $Q_d$ (O.K.)

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

| | Ref. |
|---|---|

## 1 For Catchment Area C

Area, $A$ = 11120 $m^2$
Average slope, $H$ = 0.1 m per 100m
Distance on the line of natural flow, $L$ = 35 m

Time of concentraction, $t_o$ = $0.14465L / (H^{0.2}A^{0.1})$ = 0.14465 (35) / (0.1^0.2*11120^0.1) — SDM 7.5.2 (d)
= 3.2 min

## 2 For Proposed UC in Catchment Area C

| | From | To |
|---|---|---|
| Ground level (mPD) | 19.40 | 19.20 |
| Invert level (mPD) | 18.65 | 17.64 |

Width of u-channel, $w$ = 750 mm
Length of u-channel, $L_c$ = 203 m
Depth of vertical part of u-channel, $d$ = 1185 mm
Gradient of u-channel, $S_f$ = (18.65-17.64)/203 = 0.005

Cross-Section Area, $a$ = $0.5\ \pi r^2 + w\,d$ = 0.5 x 3.14 x 375^2 + 750 x 1185
= 1.110 $m^2$
Wetted Perimeter, $p$ = $\pi\ r + 2\,d$ = 3.14 x 375 + 2 x 1185
= 3.548 m
Hydralic radius, $R$ = $a / p$ — SDM 8.2.1
= 0.313 m

## 3 Use Manning Equation for estimating velocity of stormwater

Take $n$ = 0.016 for concrete lined channels:- — SDM Table 13
Allowable velocity, $v$ = $R^{1/6} x (RS_f)^{1/2}/n$ = (0.313)^1/6 x (0.313 x 0.005)^1/2 / 0.016 — SDM Table 12
= 2.03 m/s
Time of flow, $t_f$ = 1.7 min

## 4 Use "Rational Method" for calculation of design flow

Design intensity, $i$ = $a / (t_o + t_f + b)^c$ — SDM 4.3.2
= 505.5 / (3.2+1.7+3.29)^0.355 for return period T = 50 years — Corrigendum 1/2024
= 240 — SDM Table 3a

| Type of surface | Runoff Coefficient C | Catchment Area A ($m^2$) | C x A |
|---|---|---|---|
| Flat Glassland(heavy soil) | 0.25 | 5186.0 | 1296.5 |
| Concrete Paving | 0.95 | 5934.0 | 5637.3 |
| | | SUM = | 6933.8 |

SDM 7.5.2 (b)

Upstream flow, $Q_u$ = 0 $m^3/s$

Design flow, $Q_d$ = $0.278i\ \Sigma\ C_iA_i + Q_u$ where $A_i$ is in $km^2$ — SDM 7.5.2 (a)
= 1.16 x 0.278 x 240 x 6933.8 / 1000000 + 0 — Corrigendum 1/2022
= 0.537 $m^3/s$

Allowable flow, $Q_a$ = a x v
= 1.11 x 2.03
= 2.254 $m^3/s$

> $Q_d$ (O.K.)

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

1 For Catchment Area D

| | | | | Ref. |
|---|---|---|---|---|
| Area, A | = | 268 | $m^2$ | |
| Average slope, H | = | 0.1 | m per 100m | |
| Distance on the line of natural flow, L | = | 10 | m | |
| Time of concentraction, $t_o$ | = | 0.14465L / ($H^{0.2}A^{0.1}$) = 0.14465 (10) / (0.1^0.2*268^0.1) | | SDM 7.5.2 (d) |
| | = | 1.3 | min | |

2 For Proposed UC in Catchment Area D

| | From | To |
|---|---|---|
| Ground level (mPD) | 18.70 | 19.20 |
| Invert level (mPD) | 17.83 | 17.64 |

| | | | | |
|---|---|---|---|---|
| Width of u-channel, w | = | 750 | mm | |
| Length of u-channel, $L_c$ | = | 37.5 | m | |
| Depth of vertical part of u-channel, d | = | 1185 | mm | |
| Gradient of u-channel, $S_f$ | = | (17.83-17.64)/37.5 = 0.005 | | |
| Cross-Section Area, a | = | 0.5 $\pi r^2$ + w d = 0.5 x 3.14 x 375^2 + 750 x 1185 | | |
| | = | 1.110 | $m^2$ | |
| Wetted Perimeter, p | = | $\pi$ r + 2 d = 3.14 x 375 + 2 x 1185 | | |
| | = | 3.548 | m | |
| Hydralic radius, R | = | a / p | | SDM 8.2.1 |
| | = | 0.313 | m | |

3 Use Manning Equation for estimating velocity of stormwater

| | | | | |
|---|---|---|---|---|
| Take n | = | 0.016 | for concrete lined channels:- | SDM Table 13 |
| Allowable velocity, v | = | $R^{1/6}$x $(RS_f)^{1/2}$/n = (0.313)^1/6 x (0.313 x 0.005)^1/2 / 0.016 | | SDM Table 12 |
| | = | 2.05 | m/s | |
| Time of flow, $t_f$ | = | 0.3 | min | |

4 Use "Rational Method" for calculation of design flow

| | | | | |
|---|---|---|---|---|
| Design intensity, i | = | a / ($t_o$ + $t_f$ +b)$^c$ | | SDM 4.3.2 |
| | = | 505.5 / (1.3+0.3+3.29)^0.355 for return period T = 50 years | | Corrigendum 1/2024 |
| | = | 287 | | SDM Table 3a |

| Type of surface | Runoff Coefficient C | Catchment Area A ($m^2$) | C x A | SDM 7.5.2 (b) |
|---|---|---|---|---|
| Flat Glassland(heavy soil) | 0.25 | 0.0 | 0.0 | |
| Concrete Paving | 0.95 | 268.0 | 254.6 | |
| | | SUM = | 254.6 | |

| | | | | |
|---|---|---|---|---|
| Upstream flow, $Q_u$ | = | 0 | $m^3/s$ | |
| Design flow, $Q_d$ | = | 0.278i Σ $C_iA_i$ + $Q_u$ where $A_i$ is in $km^2$ | | SDM 7.5.2 (a) |
| | = | 1.16 x 0.278 x 287 x 254.6 / 1000000 + 0 | | Corrigendum 1/2022 |
| | = | 0.024 | $m^3/s$ | |
| Allowable flow, $Q_a$ | = | a x v | | |
| | = | 1.11 x 2.05 | | |
| | = | 2.274 | $m^3/s$ | |
| | > | $Q_d$ (O.K.) | | |

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

| | | |
|---|---|---|
| Scale: NA | **Hydraulic Calculation** | Goldrich Planners & Surveyors Ltd. |
| March 2026 | Lots 1012 S.B, 1012 S.C, 1013, 1014 RP, 1015 S.A, 1015 S.B, 1015 RP, 1016 (Part), 1018, 1034 (Part) and 1035 in D.D.113, Kam Tin, Yuen Long, New Territories | Page 5 (P25012) |

## 1 For Connection between CP14 to existing stream course

Ref.

Area, A = **0** $m^2$
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*0^0.1) — SDM 7.5.2 (d)
= 0.0 min

## 2 For Pipe after Cp14

Size(Diameter) w = **600** mm
Length of Pipe = **12** m
Design the pipe to 9/10 full bore capactity, then
Area of ventilated portion = 0.1 of pipe area
$½ r^2 \theta - ½ r^2 \sin(\theta) = 0.1 \pi r^2$
$\theta - \sin(\theta) = 0.2 \pi$
$\theta$ = 1.63 rad = $93.4^O$ (By trial and error)

Area A = $0.9 \pi r^2$
= 0.9 x 3.14 x 600^2 — SDM 8.2.1
= 1017360 $mm^2$
= 1.017 $m^2$

Wetted Perimeter P = $2 \pi r - r \theta$ = 2792 mm
Hydralic radius R = A/P
364.4 mm

## 3 Use Manning Equation for estimating velocity of stormwater

Fall S = 1: **200**
Take n = 0.016 for concrete lined channels:- — SDM Table 13
Allowable velocity, v = $R^{1/6} x (RS_f)^{1/2}/n$ = (0.364)^1/6 * (0.364/200)^1/2 / 0.016 — SDM Table 12
= 2.25 m/s
Time of flow, $t_f$ = 0.089 min

## 4 Use "Rational Method" for calculation of design flow

Design intensity, i = $a / (t_o + t_f + b)^c$ — SDM 4.3.2
= 505.5 / (0.0+0.09+3.29)^0.355 for return period T = 50 years — Corrigendum 1/2024
= 328 — SDM Table 3a

| Type of surface | Runoff Coefficient C | Catchment Area A ($m^2$) | C x A |
|---|---|---|---|
| Flat Glassland(heavy soil) | 0.25 | **0.0** | 0.0 |
| Concrete Paving | 0.95 | **0.0** | 0.0 |
| Macadam Roadways | 0.425 | **0.0** | 0.0 |
| Wooded Areas | 0.105 | **0.0** | 0.0 |
| | | SUM = | 0.0 |

SDM 7.5.2 (b)

Upstream flow, $Q_u$ = **0.770** $m^3/s$

Design flow, $Q_d$ = $0.278i \Sigma C_f A_i + Q_u$ where $A_i$ is in $km^2$ — SDM 7.5.2 (a)
= 1.16 x 0.278 x 328 x 0 / 1000000 + 0.77 — Corrigendum 1/2022
= 0.770 $m^3/s$

Allowable flow, $Q_a$ = a x v
= 1.02 x 2.25
= 2.294 $m^3/s$

> $Q_d$ (O.K.)

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