



**Section 16 Planning Application for
Proposed Temporary Public Vehicle Park
(Excluding Container Vehicle) for a Period of
3 Years at Various Lots in D.D. 244,
Ho Chung, Sai Kung, New Territories**

Drainage Plan

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Report Ref.: P200R046-01 (Ver. 1)

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1 Introduction

- 1.1.1.1 The Applicant intends to develop a temporary public vehicle park (excluding container vehicle) (hereafter as “the proposed development”) for a period of 3 years at various lots in D.D. 244 (hereafter collectively called “the Site”), Ho Chung, Sai Kung, New Territories.
- 1.1.1.2 According to the Approved Ho Chung Outline Zoning Plan (“OZP”) No. S/SK-HC/13, the Site currently falls within land-use zonings, namely “Comprehensive Development Area” (“CDA”) and “Village Type Development” (“V”). A planning permission for the proposed public vehicle park (excluding container vehicle) is required on application to the Town Planning Board (“TPB”) under Section 16 of the Town Planning Ordinance.
- 1.1.1.3 In order to assess possible drainage impact may be generated from the proposed development, Skyline Consultants Limited (Skyline) has been commissioned to prepare a Drainage Plan to support this Section 16 planning application.
- 1.1.1.4 The objectives of this Drainage Plan are to assess the potential drainage impact that may be generated from the proposed development and recommend the mitigation measures, if necessary, to alleviate the impacts.

2 Site Description

2.1 Site Location

- 2.1.1.1 The Site is located adjacent to Ho Chung New Village, Sai Kung and west of Hiram's Highway. To the west of the Site is the existing village houses. To the north is a low-density residential development under construction. The Site abuts and has direct access to Hiram's Highway via an existing ingress/egress.
- 2.1.1.2 Currently, the Site is vacant and the plantation clusters and weeds are found within the Site. The Site is a piece of flat land with a gentle site level difference ranged from approx. +3.8 mPD to +4.4 mPD. The Site area is about 4,411 m².
- 2.1.1.3 **Figure 2-1** shows the Site location and its surrounding areas.

2.2 Proposed Development Scheme

- 2.2.1.1 The Site is intended to develop temporary public vehicle park (excluding container vehicle) for a period of 3 years.
- 2.2.1.2 Currently, the Site is unpaved area while the finished ground levels of the proposed development will approximately match with the existing levels. Hence, no landfilling is anticipated for the proposed development.
- 2.2.1.3 A layout plan is shown in **Annex A**.

2.3 Existing Drainage Conditions

- 2.3.1.1 A site survey was conducted in September 2026 to collect the information of the drainage characteristics, catchments, topography and existing drainage facilities in the vicinity. The land-based survey was conducted with reference to the survey map to identify the existing drainage facilities, flow path and surface type within the Site and its surroundings.
- 2.3.1.2 Based on the site survey and the review of the Government drainage plans (plan no.: 11-NE-5A-1) obtained from the Drainage Services Department ("DSD"), the Site is not currently served by any of public drainage facility. An off-site existing culvert with two 1,500mm diameter stormwater pipe was identified at the southern boundary of the Site (refer to **Figure 2-2**), where the surface runoff from the Site could be collected and discharged into the existing culvert.

3 Drainage Analysis

3.1 Assessment Methodology

3.1.1.1 Surface runoff from the proposed development is proposed to be discharged to the existing culvert (as shown in **Figure 3-1**).

3.1.1.2 The peak runoff values of the proposed development was calculated based on the Rational Method, and the recommended physical parameters including runoff coefficients and storm constants for different return periods as described in DSD's "*Stormwater Drainage Manual – Planning, Design and Management*" (SDM) published by DSD in 2018.

3.1.1.3 The drainage analysis has adopted the Rational Method for surface runoff estimation:

$$Q_p = 0.278 i \sum C_j A_j$$

where

Q_p is peak runoff (m^3/s);

i is rainfall intensity (mm/hr);

A_j is the j^{th} catchment (km^2);

C_j is the runoff coefficient of the j^{th} catchment (dimensionless).

3.1.1.4 Details of the Rational Method can be referred to SDM.

3.2 Assessment Assumptions

3.2.1.1 Based on a 1:10 year flood protection standard set out in the SDM and the estimated time of concentration, the appropriate rainfall intensities (i) were calculated based on linear interpolation of the intermediate table values.

3.2.1.2 The assumptions of this drainage analysis are summarised below:

- Rainstorm return period – 1 in 10 years (for temporary use)
- Runoff coefficient for developed (paved) area – 0.95
- Runoff coefficient for flatted grassland (heavysoil) – 0.25

3.3 Runoff Estimation

3.3.1.1 Given that there is no change in the drainage flow path of the Site in existing condition and after the proposed development, the catchment area contributed to the existing stormwater pipes shall remain unchanged. Meanwhile, modification would be made to the paving condition of the on-site area after the proposed development.

3.3.1.2 3 catchments (i.e., Catchments A to C) were identified based on the geographical characteristics of the Site and its nearby areas as shown in **Figure 3-1**.

- 3.3.1.3 Stormwater from the identified catchments will be collected by proposed concrete lined U-channels and discharged into the existing culvert at the southern boundary of the Site via underground circular pipe.
- 3.3.1.4 The runoff inside the U-channels will be discharged via terminal manhole (as shown in **Figure 3-2**) with sand trap located at the south-eastern side of the Site and then further convey to the existing culvert. Prior to convey the runoff to the existing culvert, proposed petrol interceptor should be passed through to collect the possible leakage petrol from the vehicle parking area.
- 3.3.1.5 The conceptual drainage layout is shown in **Figure 3-2**. Typical designs of U-channel, catchpit and sand trap are shown in **Figure 3-3** and **Figure 3-4**, respectively.

3.4 Assessment Results

- 3.4.1.1 A series of 450 mm diameter U-channels are proposed at the perimeter of the proposed development to collect the surface runoff of the Site and the off-site catchment areas. Estimated U-channels capacity and surface runoffs are detailed in **Annex B**.
- 3.4.1.2 The assessment results shown in **Annex B** have demonstrated that there is sufficient capacity for the proposed U-channels to receive surface runoff from the Site and relevant catchment areas as estimated.
- 3.4.1.3 With the provision of the proposed drainage system for eventual discharge into the existing culvert as shown in **Figure 3-2**, the proposed development would not cause adverse drainage impact on the local area, or increase in the flooding susceptibility of the adjacent areas.
- 3.4.1.4 Moreover, with reference to the Flooding Blackspots available in the DSD's website, the Site is not located within the flooding blackspots locations/ regions. Therefore, no unacceptable local drainage impact due to the proposed development is anticipated.

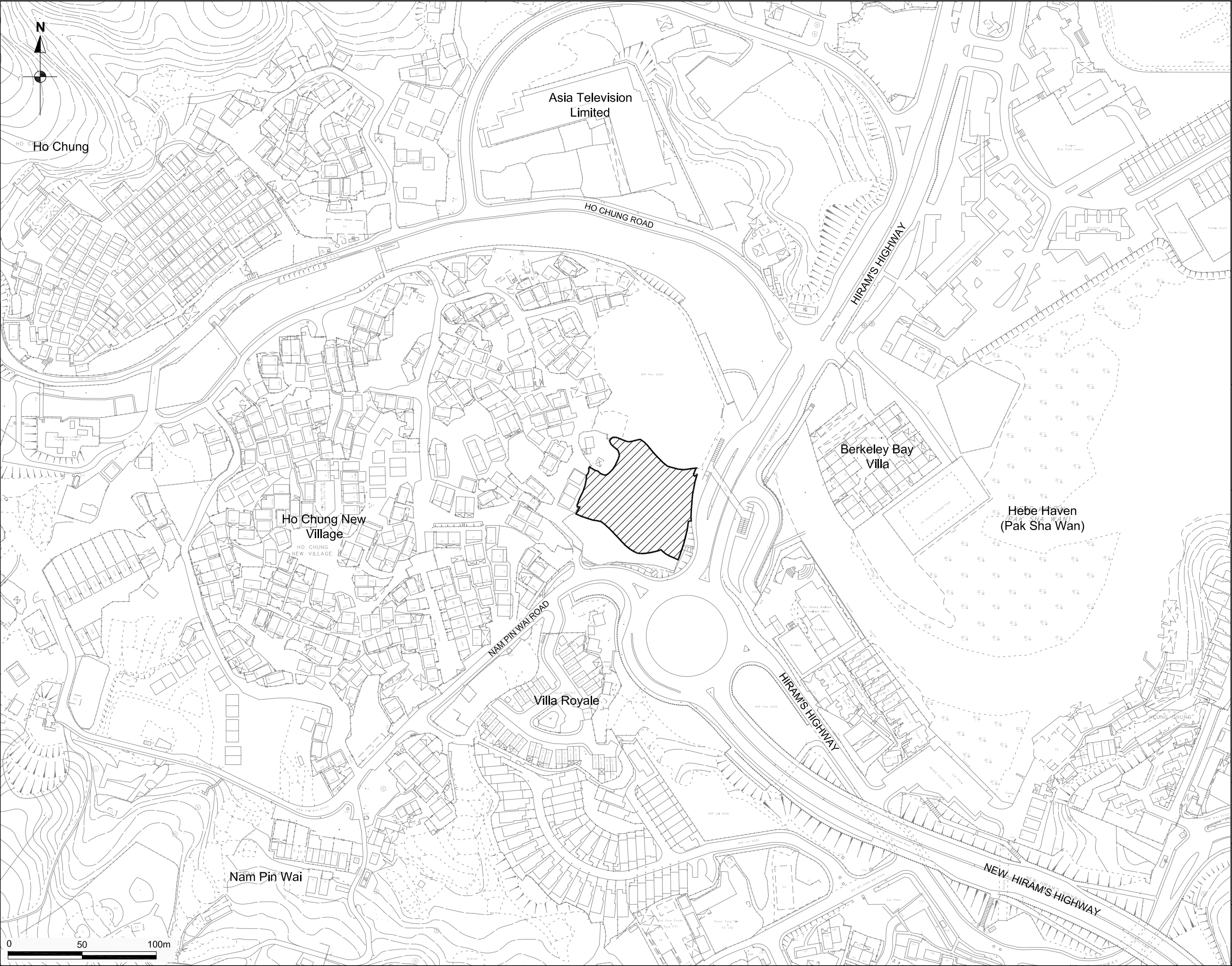
3.5 Recommendations

- 3.5.1.1 Surface runoff generated from the proposed development will be collected by a series of U-channels provided within the site for discharge into the existing culvert. The detailed arrangement of the local drainage system will be further designed at the detailed design stage.
- 3.5.1.2 The project proponent(s) will be responsible for the design and construction of the proposed drainage works. Engineer and contractor will be appointed to design the local and proposed drainage system during the detailed design stage. The detailed arrangement of the local drainage system and drainage connection will be further investigated. A detailed Drainage Proposal will be prepared and submitted to DSD during the detailed design stage.
- 3.5.1.3 To avoid any obstruction of the existing flow path, no solid boundary wall will be proposed.
- 3.5.1.4 The project proponent(s) will take up the maintenance responsibilities of any proposed drainage works to be constructed due to the proposed development.

4 Conclusion

- 4.1.1.1 A Drainage Plan has been prepared to evaluate the drainage impacts arising from the proposed development.
- 4.1.1.2 Given there is no material change in the drainage flow path of the Site in existing condition and after the proposed development, the catchment areas contributed to the existing drainage system shall remain unchanged.
- 4.1.1.3 For collecting surface runoff within the Site, an on-site drainage system will be provided. The detailed arrangements of these proposed drainage systems shall be further investigated during the detailed design stage.
- 4.1.1.4 In addition, with reference to the Flooding Blackspots available on the DSD's website, the Site is not located within the flooding blackspots locations/ regions. Therefore, no unacceptable local drainage impact due to the proposed development is anticipated.
- 4.1.1.5 In view of the above, it can be concluded that the proposed development will not result in any adverse local drainage impact.

Figures



PROJECT NO :
P200R_046

PROJECT TITLE :
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for Proposed Temporary Public
Vehicle Park (Excluding
Container Vehicle) for a Period of
3 Years at Various Lots in D.D.
244, Ho Chung, Sai Kung, New
Territories

Drainage Plan

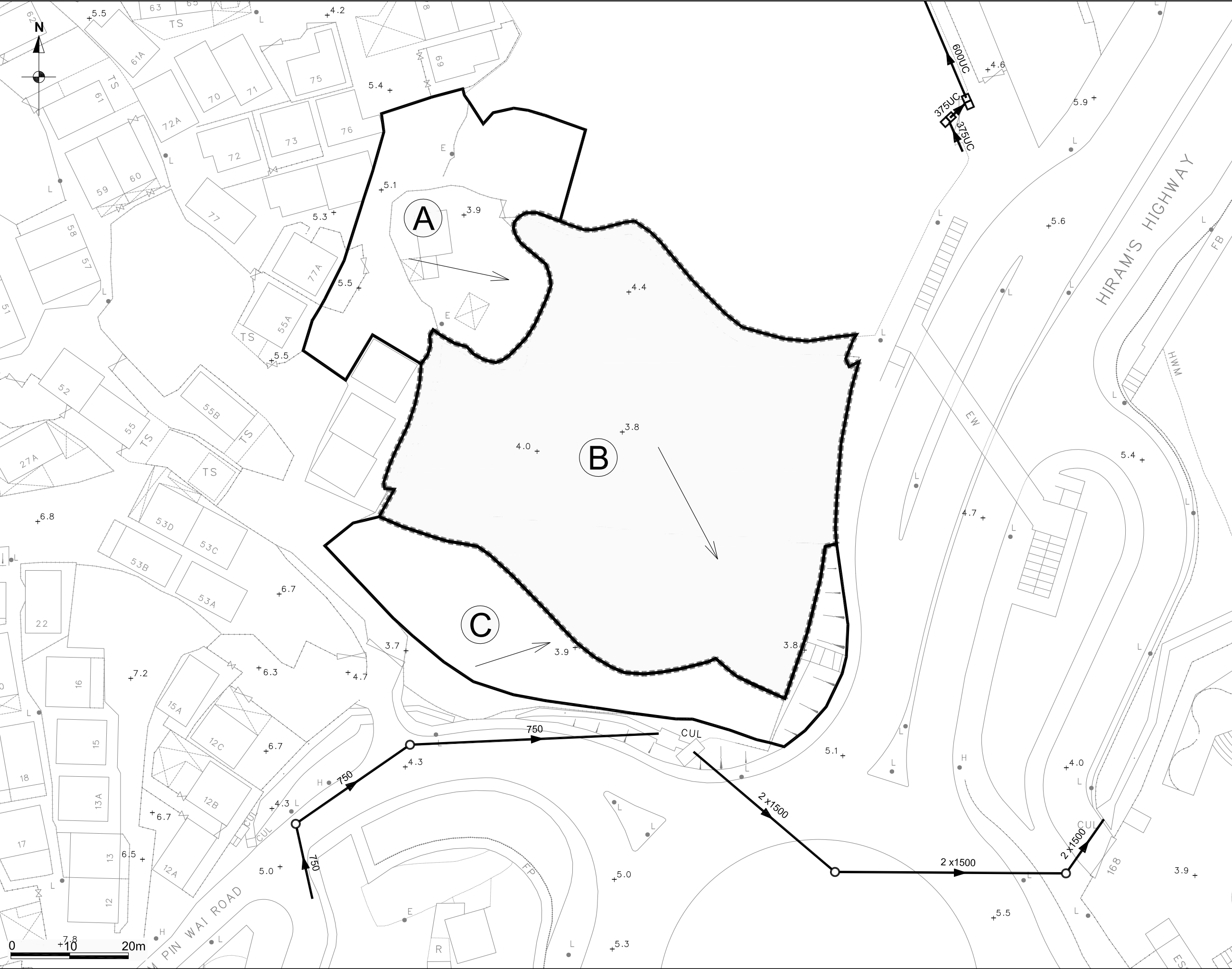
FIGURE TITLE :
Site Location

LEGEND :
[Hatched Box] Subject Site

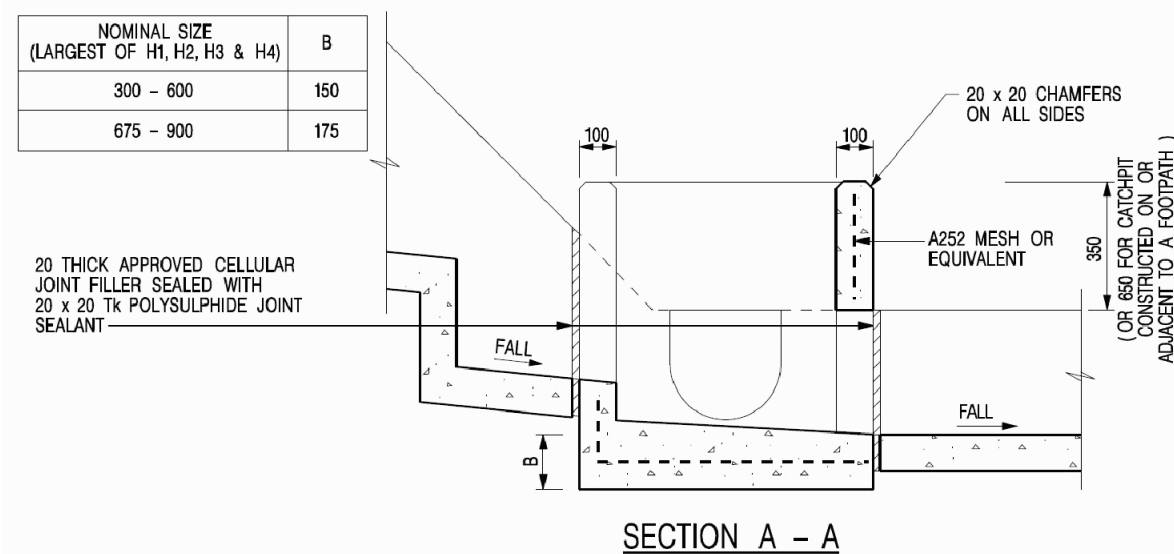
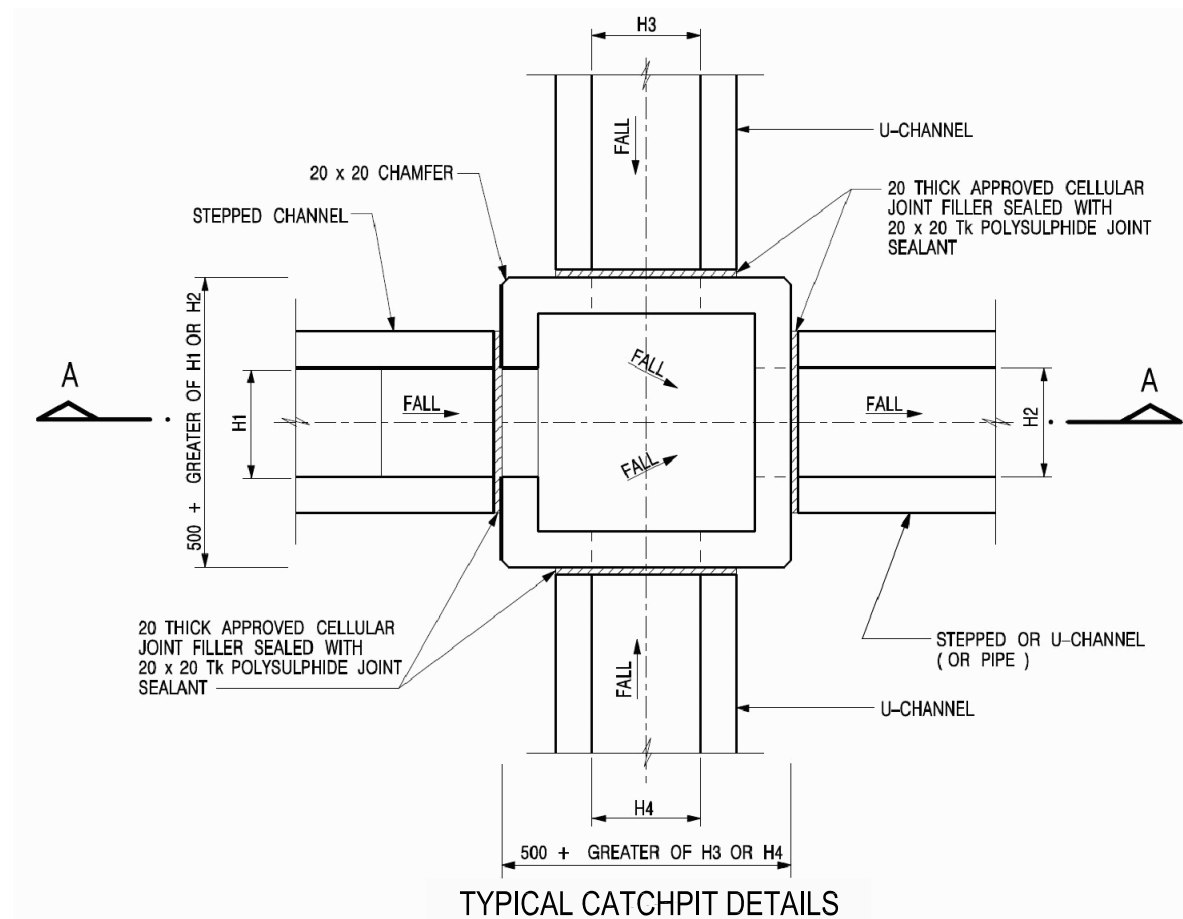
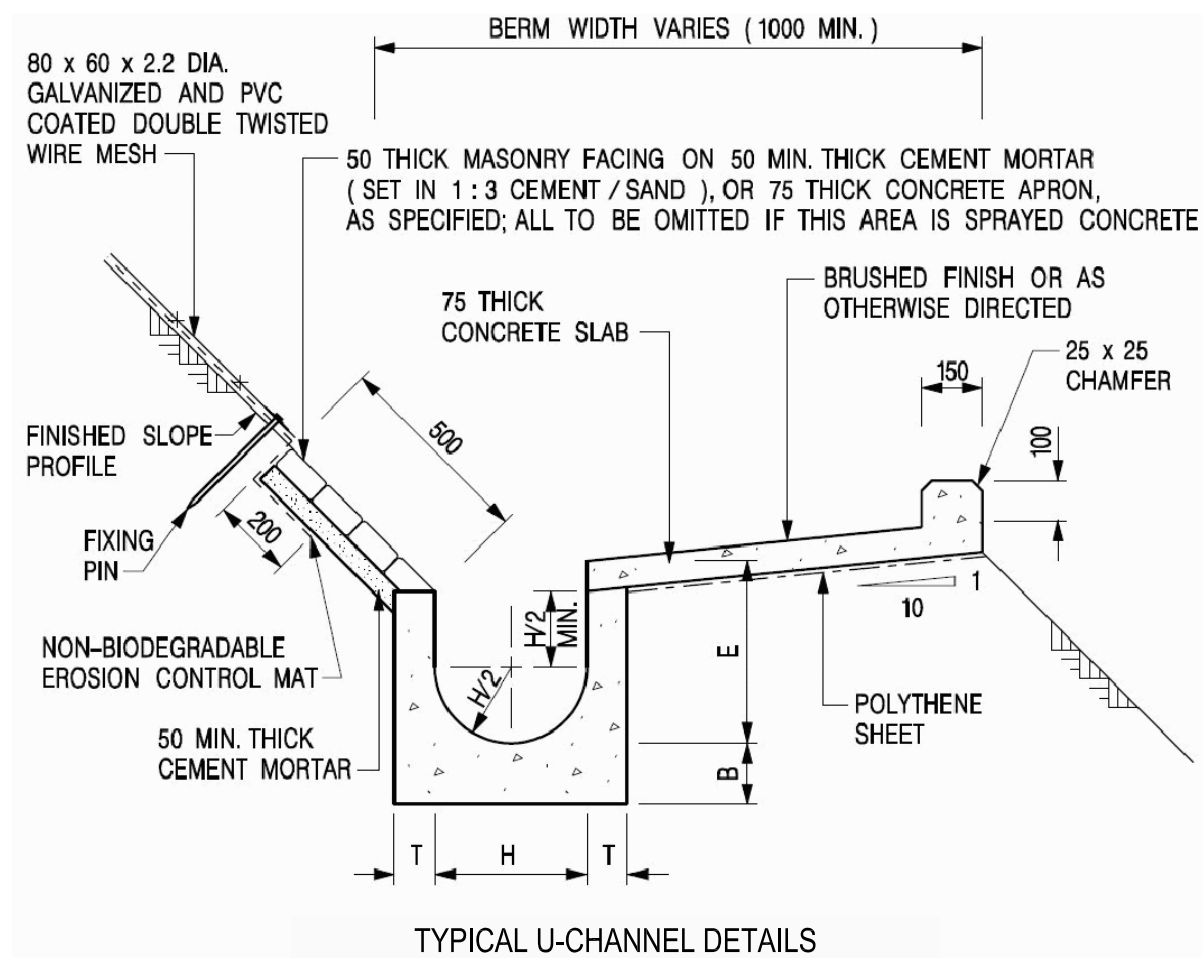
FIGURE NO :
2 - 1

DATE :
2026-09-24

CONSULTANT :
Skyline Consultants Ltd



PROJECT NO :	P200R_046
PROJECT TITLE :	Section 16 Planning Application for Proposed Temporary Public Vehicle Park (Excluding Container Vehicle) for a Period of 3 Years at Various Lots in D.D. 244, Ho Chung, Sai Kung, New Territories
Drainage Plan	
FIGURE TITLE :	Identified Catchment Areas
LEGEND :	Subject Site Catchment Boundary Catchment ID Flow Path Direction Existing Stormwater Drain
FIGURE NO :	3 - 1
DATE :	2026-09-24
CONSULTANT :	Skyline Consultants Ltd



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P200R_046

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Section 16 Planning Application for Proposed Temporary Public Vehicle Park (Excluding Container Vehicle) for a Period of 3 Years at Various Lots in D.D. 244, Ho Chung, Sai Kung, New Territories

Drainage Plan

FIGURE TITLE :

Typical Design of U-Channel and Catchpit

LEGEND :

FIGURE NO :

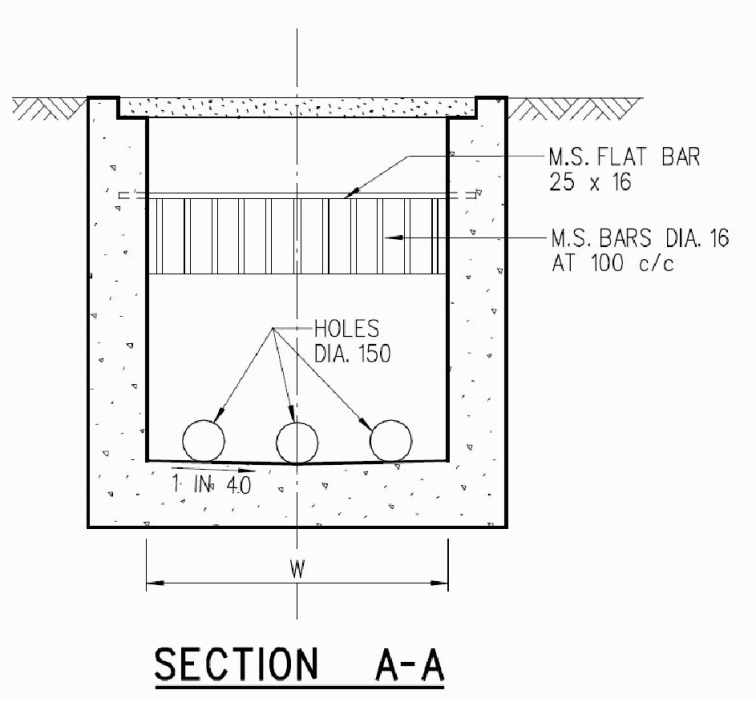
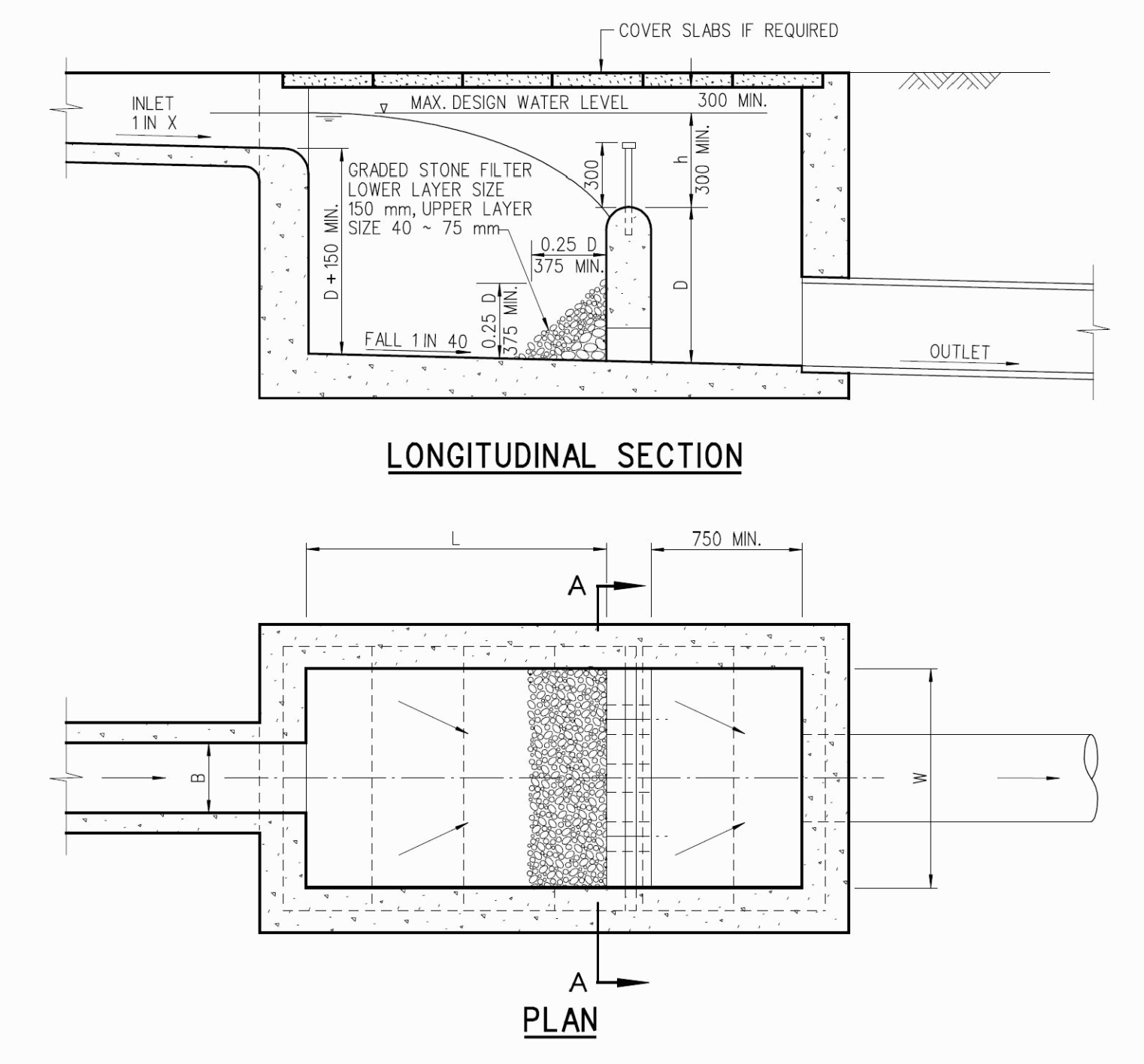
3 - 3

DATE :

2026-09-24

CONSULTANT :

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- NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES.
 2. NORMALLY FOR DRAINS OF 900 mm DIA. AND BELOW. FOR BIGGER DRAINS AND STEEP TERRAIN, SAND TRAP SHOULD BE SPECIALLY DESIGNED.
 3. SIZE
DEPTH : $D \leq 750$
WIDTH : $W \geq 3B$
LENGTH : $4.8D^{0.67} h^{0.5} X^{0.5} \geq 4B$
 4. GRADED STONE FILTER SHALL BE CRUSHER RUN GRANITE AGGREGATE.
 5. CAPACITY D W L TO BE ACCORDING TO SIZE AND NATURE OF CATCHMENT, PROVIDING DETENTION TIME NOT LESS THAN 5 MINUTES FOR MAX. DESIGN FLOW OF INLET.

PROJECT NO : P200R_046
PROJECT TITLE : Section 16 Planning Application for Proposed Temporary Public Vehicle Park (Excluding Container Vehicle) for a Period of 3 Years at Various Lots in D.D. 244, Ho Chung, Sai Kung, New Territories Drainage Plan
FIGURE TITLE : Typical Design of Sand Trap
LEGEND :
FIGURE NO : 3 - 4
DATE : 2026-09-24
CONSULTANT : Skyline Consultants Ltd

Annex A

Development Plan

Annex B

Drainage Analysis

Drainage Analysis

A. Calculation of Surface Runoff

Catchment ID	Surface Type	Catchment Area (A), m ²	Catchment Area (A), km ²	Average Slope (H), m/100m	Flow Path Length (L), m	Inlet Time (t ₀), min	Time of Concentration (t _c), min	Duration (t _d), min	a (10-yr return period)	b (10-yr return period)	c (10-yr return period)	Runoff Intensity (i) mm/hr	Runoff Coefficient (C)	C x A	Peak Runoff (Q _p), m ³ /s	Peak Runoff (Q _p), L/min
After Development																
A	90% Concrete + 10% Grassland (heavysoil), flat	1,430	0.00143	6.3	31	1.50	1.50	1.50	471.9	3.02	0.397	259	0.88	0.001258	0.091	5442
B	100% Concrete	4,411	0.00441	0.9	79	5.09	5.09	5.09	471.9	3.02	0.397	206	0.95	0.004190	0.239	14368
C	10% Concrete + 90% Grassland (heavysoil), flat	1,189	0.00119	0.3	22	2.06	2.06	2.06	471.9	3.02	0.397	248	0.32	0.000380	0.026	1571
															Total	21,381

Applied Equations

$$t_0 = \frac{0.14465L}{H^{0.2}A^{0.1}}$$

$$t_c = t_0 + t_f$$

$$i = \frac{a}{(t_d + b)^c}$$

$$Q_p = 0.278 C i A$$

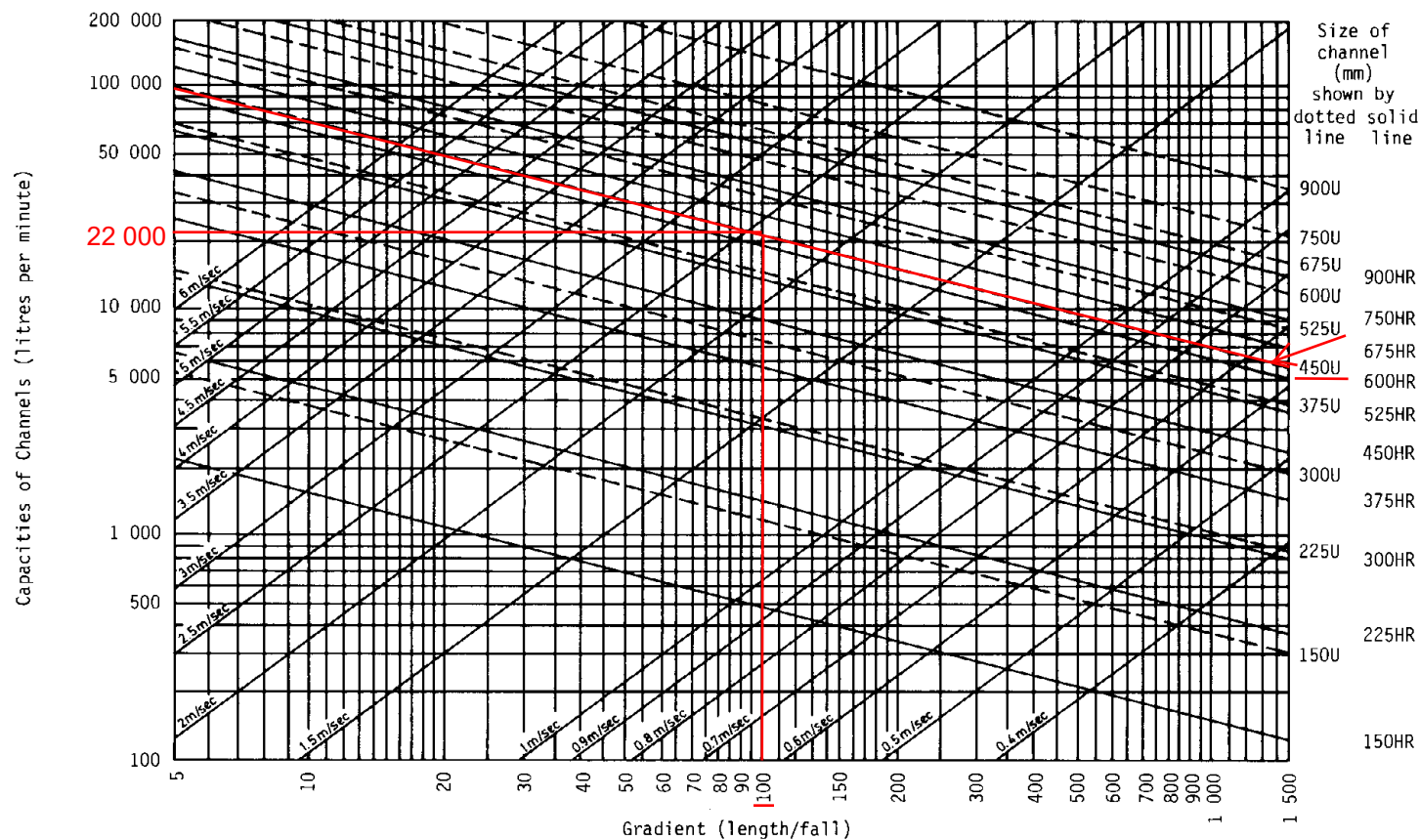
B. Proposed U-Channel Design

Gradient: 1/100

Proposed U-channel diameter: 450 mm

Maximum U-channel capacity: 22,000 L/min (Refer to the CEDD's "Geotechnical Manual for Slopes" - Figure 8.7, fifth reprint, January 2011)

As U-channel capacity (22000 L/min) > max. runoff (21381 L/min), the proposed U-channel is sufficient for discharge.



DESIGN METHOD USING CHART

(a) Normal channel Solution

1. Runoff
2. Gradient
3. Channel size
4. Velocity

Example :

1. Enter Runoff = 4 000 litre/min.
2. Enter Gradient = 1 in 40
3. Read channel required = 225 U or 300HR
4. Read velocity = 2.2 m/sec. (<4 m/sec. ∴OK)

(b) Stepped channel Solution

2. Runoff
3. Channel size
4. Gradient

Example :

1. Enter Velocity = 5 m/sec.
2. Enter Runoff = 20 000 litre/min.
3. Read required channel size = 300U
4. Read required gradient = 1 in 14

Figure 8.7 - Chart for the Rapid Design of Channels