

**Temporary Warehouse for Storage of Spare Parts and Recyclable Materials (Metal) for a Period of 3 Years
at
Lots 672 (Part), 673 (Part) & 674 (Part) in D.D. 125, Ha Tsuen, Yuen Long, N.T.**

Annex 1 DRAINAGE PROPOSAL

1.1 Existing Situation

A. Site particulars

- 1.1.1 The application site had been paved with sand and gravel and occupied an area of about 1,800m².
- 1.1.2 The application site will be occupied for warehouse for storage of spare parts and recyclable materials (metal).

B. Level and gradient of the application site & proposed surface channel

- 1.1.3 The highest point of the site is at the southern part which is about +8.4mPD. The lowest point of the site is at the northeastern part which is about +7.7mPD.

C. Catchment area of the proposed drainage provision at the application site

- 1.1.4 According to **Figure 5**, it is noted that the land to surrounding the application site commands a lower level or about the same level as the application site. Moreover, the land to the east of the site is occupied by an approved warehouse for storage of food provision (TPB Ref.: A/HSK/282) of which drainage facilities are available. The land to the northwest and north of the site were also covered with planning permissions (TPB Ref.: A/HSK/311 & 417). As such, no external catchment is identified.

D. Particulars of the existing drainage facilities to accept the surface runoff collected at the application site

- 1.1.5 As shown in **Figure 5**, an open drain is found to the north of the application site.

1.2 Runoff Estimation

- 1.2.1 Rational method is adopted for estimating the designed run-off

$$Q = k \times i \times A/3,600$$

Assuming that:

- i. The area of the entire catchment is approximately 1,800m²; (**Figure 5**)
- ii. Though the catchment is predominant rural in character, it is assumed that the

value of run-off co-efficient (k) is taken as 1.

$$\text{Difference in Land Datum} = 8.4\text{m} - 7.7\text{m} = 0.7\text{m}$$

$$L = 90\text{m}$$

$$\therefore \text{Average fall} = 0.7\text{m in } 90\text{m} \text{ or } 1\text{m in } 128.57\text{m}$$

According to the Brandsby-Williams Equation adopted from the “Stormwater Drainage Manual – Planning, Design and Management” published by the Drainage Services Department (DSD),

$$\text{Time of Concentration } (t_c) = 0.14465 [L / (H^{0.2} \times A^{0.1})]$$

$$t_c = 0.14465 [90 / (0.78^{0.2} \times 1,800^{0.1})]$$

$$t_c = 6.47 \text{ minutes}$$

With reference to the Intensity-Duration-Frequency Curves provided in the abovementioned manual, the mean rainfall intensity (i) for 1 in 50 recurrent flooding period is found to be 255mm/hr

$$\text{By Rational Method, } Q_1 = 1 \times 255 \times 1,800 / 3,600$$

$$\therefore Q_1 = 127.5 \text{ l/s} = 7,650 \text{ l/min} = 0.3\text{m}^3/\text{s}$$

In accordance with the Chart or the Rapid Design of Channels in “Geotechnical Manual for Slopes”, 375mm surface U-channel at 1:160 and 1:170 gradient is considered adequate to dissipate all the stormwater accrued by the application site and adjacent land.

1.3 Proposed Drainage Facilities

- 1.3.1 Subject to the calculations in 1.2 above, it is determined that proposed 375mm concrete surface U-channel at gradient of about 1:160 and 1:170 along the site periphery is adequate to intercept storm water passing through and generated at the application site (**Figure 5**).
- 1.3.2 The collected stormwater will then be discharged to the existing open drain to the north of the application site via the proposed 375mm surface U-channel outside the application site.
- 1.3.3 All the proposed drainage facilities will be provided and maintained at the applicant’s own expense. Also, surface channel will be cleaned at regular interval to avoid the accumulation of rubbish/debris which would affect the dissipation of storm water.

- 1.3.4 Sand trap or alike will be provided at the terminal catchpit to avoid the addition of load into public drainage.
- 1.3.5 All the proposed drainage facilities will be constructed and maintained at the expense of the applicant.
- 1.3.6 For the drainage works outside the jurisdiction of the applicant, the applicant will seek the consent of land owners or District Lands Office/Yuen Long for works outside application site prior to the commencement of works.
- 1.3.7 The development would neither obstruct overland flow nor adversely affect existing natural streams, village drains, ditches and the adjacent areas, etc.
- 1.3.8 All proposed works at the site periphery would not obstruct the flow of surface runoff from the adjacent areas, the provision of trees and surface channel at site boundary is detailed hereunder:
- (a) Soil excavation at site periphery, although at minimal scale, is inevitably for the provision of surface channel and landscaping. In the reason that the accumulation of excavated soil at the site periphery would obstruct the free flow of the surface runoff from the surroundings, the soil will be cleared at the soonest possible after the completion of the excavation process.
 - (b) In view of that soil excavation may be continued for several working days, surface channel will be dug in short sections and all soil excavated will be cleared before the excavation of another short section.
 - (c) No leveling work will be carried at the site periphery. The level of the site periphery will be maintained during and after the works. As such, the works at the site periphery would not either alter or obstructed the flow of surface runoff from adjacent areas.
 - (d) Openings will be provided at the toe of site hoarding so as to allow unobstructed flow of surface runoff from adjacent area.