

**Temporary Public Vehicle Park for Private Cars & Light Goods Vehicles
for a Period of 3 Years and Associated Filling of Land
at
Lots 2804 (Part), 2826, 2827, 2844 & 2845RP (Part) in D.D.129 &
Adjoining Government Land, Sha Kong Wai, Yuen Long, N.T.**

Annex 1 Drainage Assessment

1.1 Introduction

A. Site particulars

- 1.1.1 The application site is situated at Sha Kong Wai. (**Figure 1**) It possesses an area of approximately 6,220m².
- 1.1.2 Part of the application site has been hard paved and previously occupied for recreation use. It is intended for public parking of private cars.
- 1.1.3 Sha Kong Wai is an indigenous village. It is noted that village houses were found to the north and west of the application site. A recreation use is found to the immediate east of the application site.

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

- 1.1.4 The subject site has been hard paved and occupied an area of approximately 6,220m². It has a very gradient sloping from north to south from about +6.0mPD to +3.8mPD.
- 1.1.5 As demonstrated in the calculation in **Annex 1.3** hereunder, 600mm surface U-channel will be capable to drain surface runoff accrued at the subject site and the same passing through the site from adjacent area.

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

- 1.1.6 The level of the land to the north is progressively higher. However, the land to the north is occupied by rows of village house (NTEHs) so that they block the surface runoff from the north. The level of the land to the south and west is lower than the application site. The land to the east of the site is occupied by a recreation use so that they have equipped with drainage facilities. A public culvert is found to the south of the site. However, the land to the northwest of the subject site reaches +6.6mPD which is higher than the Site.
- 1.1.7 As such, an external catchment has been identified to the northwest of the Site.

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

1.1.8 According to recent site inspection, there is a public culvert to the south of the application site (**Figure 4**).

1.2 Runoff Estimation & Proposed Drainage Facilities

A. Proposed drainage facilities

1.2.1 Subject to the calculations below, it is determined that 600mm surface U-channel is required along the site periphery to intercept storm water generated at the application site. (**Figure 4**)

1.2.2 The collected surface runoff will be conveyed to public culvert to the south of the application site via the proposed 600mm surface U-channel outside the application site. (**Figure 4**)

1.2.3 The calculations in **Annex 1.3** shows that the proposed 600mm surface U-channel has adequate capacity to cater for the surface runoff generated at the subject site.

1.2.4 All the proposed drainage facilities, including the section of surface channel proposed in between of the subject site to the open drain, will be provided and maintained at the applicant's own expense. Also, surface U-channel will be cleaned at regular interval to avoid the accumulation of rubbish/debris which would affect the dissipation of storm water.

1.2.5 The provision of the proposed surface U-channel will follow the gradient of the application site. All the proposed drainage facilities will be constructed and maintained at the expense of the applicant.

1.2.6 100mm openings has been provided at the toe of hoarding so as to allow unobstructed flow of surface runoff from adjacent area.

Annex 1.3 Drainage Calculation for the Proposed Provision of Drainage Facilities at Application Site

1. Runoff Estimation

1.1 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 9,000m²;
- ii. The value of run-off co-efficient (k) is taken as 0.9 because the external catchment is not hard paved in nature.

$$\text{Difference in Land Datum} = 6.6\text{m} - 3.8\text{m} = 2.8\text{m}$$

$$L = 260\text{m}$$

$$\therefore \text{Average fall} = 2.8\text{m in } 260\text{m} \text{ or } 1\text{m in } 92.86\text{m}$$

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

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

$$t_c = 0.14465 [260 / (1.08^{0.2} \times 9,000^{0.1})]$$

$$t_c = 14.9 \text{ minutes}$$

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 205 mm/hr

$$\text{By Rational Method, } Q = 0.9 \times 205 \times 9,000 / 3,600$$

$$\therefore Q = 461.25 \text{ l/s} = 27,675 \text{ l/min}$$

In accordance with the Chart or the Rapid Design of Channels in “Geotechnical Manual for Slopes”, 600mm surface U-channel at gradient 1:160 and 1:120 is considered adequate to dissipate all the stormwater accrued by the application site. The intercepted stormwater will then be discharged to the public drain to the east of the application site.

Annex 2 Minimal Traffic Impact

- 2.1 The application site is accessible via a well formed local track leading from Tin Wah Road.
- 2.2 Neither medium goods vehicle, heavy goods vehicles as defined in the Road Traffic Ordinance nor container tractor/trailer will be allowed to enter the application site.
- 2.3 The estimated traffic generation of the proposed development is as follows:

Use	<u>Average</u> Traffic Generation Rate (pcu/hr)	<u>Average</u> Traffic Attraction Rate (pcu/hr)	Traffic Generation Rate at <u>Peak Hours</u> (pcu/hr)	Traffic Attraction Rate at <u>Peak Hours</u> (pcu/hr)
Private car	11.25	11.25	65	50
Light goods vehicle	0.19	0.19	3	3
Total	11.44	11.44	68	53

Note 1: The operation hour of the application site is 7:00a.m. to 11:00p.m. from Mondays to Sundays including public holidays

Note 2: The pcu of private car and light goods vehicle are taken as 1 and 1.5 respectively.

Note 3: Morning peak is defined as 7:00a.m. to 9:00a.m. whereas afternoon peak is defined as 5:00p.m. to 7:00p.m.

- 2.4 In association with the intended parking purpose, adequate space for manoeuvring of vehicle would be provided. Referring to **Figure 3**, internal circulation path is provided which is adequate for internal movement. By virtue of the fact that the application site is directly linked to Tin Wah Road and Tin Ying Road with significant reserved capacity, the proposed development being applied would not aggravate the traffic condition in the vicinity.