

Appendix 5.4 Key Assumptions for Compiling Non-Point Source Pollution from Surface Run-off

Greening to be Provided under this Project

According to the Hong Kong Planning Standards and Guidelines (HKPSG) and general guidelines for designing public open space, the percentages of greening (such as soft landscape and tree planting) to be provided for area to be developed under this Project would range from 30% to 70% for regional and district open space, 30% to 85% for local open space and 20% to 30% for new government facilities / school / residential development areas. Based on these percentages of greening, it is estimated that a minimum 112 ha of greening would be provided under this Project within the area to be developed.

Quantification of Surface Run-off

According to the "DSD Stormwater Drainage Manual", annual rainfall in Hong Kong is around 2200 mm. The EPD study namely "Update on Cumulative Water Quality and Hydrological Effect of Coastal Developments and Upgrading of Assessment Tool (Update Study)" suggested that only rainfall events of sufficient intensity and volume would give rise to run-off and that run-off percentage is about 44% and 82% for dry and wet season, respectively. Therefore, it is assumed that only 1386 mm of 2200 mm annual rainfall would be considered as effective rainfall that would generate construction site run-off (i.e. $1386\text{mm} = 2200\text{mm} \times (82\% + 44\%) / 2$).

More surface run-off would be generated from the paved area and less from the unpaved area. The total paved surface within the area to be developed under this Project is around 441 ha and 329 ha under the existing situation and after the Project completion, respectively. Assuming 0.9 as the run-off coefficient for paved areas while 0.3 as the run-off coefficient for unpaved surface, the average daily run-off generated under the existing situation is estimated to be about 14,137 m³/day (= $0.9 \times 1386\text{mm}/\text{year} \times 4\text{km}^2 + 0.3 \times 1386\text{mm}/\text{year} \times 0.41\text{km}^2$). Similarly, the average daily run-off generated during the Project operation would be about 12,520 m³/day. According to the Update Study, the typical concentration of suspended solids, biochemical oxygen demand, ammonia nitrogen, organic nitrogen, total nitrogen and total phosphorus in Hong Kong stormwater run-off would be 43.3 mg/L, 22.5 mg/L, 0.2 mg/L, 1.2 mg/L, 1.8 mg/L and 0.2 mg/L respectively. These typical run-off concentrations were applied to the daily run-off as mentioned above to estimate the non-point source pollution.