Appendix 5.1
Calculation of Non-point Source Pollution

Agreement No. CE 17/2019 (CE)
Technical Study on Partial Development of Fanling Golf Course Site – Feasibility Study

Catchment Information (Sub-Area 1)

Scenarios	Paved Area (km2)	Unpaved Area (km2)
Before Development	0.010	0.087
After Development	0.077	0.019

Rainfall Information

Season	Runoff value (mm/year)	Runoff value (m/d)
Annual	1386	0.0038

Notes:
According to "Stormwater Drainage Manual, annual rainfall in Hong Kong is around 2200mm. However, according to the report on "Update on Cumulative Water Quality and Hydrological Effect of Coastal Developments and Upgrading of Assessment Tool", only rainfall events of sufficient intensity and volume would give rise to runoff. It indicated that runoff percentage for the wet season is about 82% while dry season is only 44%. Therefore, only rainfall of 2200´(82%+44%)/2=1386mm can be generated into runoff and is adopted in this Study.

Event Mean Concentrations for Stormwater Runoff*

SS (g/m^3)	BOD_5 (g/m^3)	NH3-N (g/m^3)	Cu (g/m^3)	TP (g/m^3)	OrthoP (g/m^3)	Silicate (g/m^3)	TON (g/m^3)	TKN (g/m^3)
43.3	22.5	0.2	0.01	0.2	0.04	3.3	0.4	1.4

Notes:
Agreement No. CE 7/2005 (EP) Harbour Area Treatment Scheme Environmental Impact Assessment Study For The Provision of Disinfection Facilities At Stonecutters Island Sewage Treatment Works – Investigation

Rainfall Related Load

Scenarios	Paved Area (km2)	Unpaved Area (km2)	Average Daily Runoff - Paved (m3/d)	Average Daily Runoff - Unpaved (m3/d)	Total Daily Run off (m3/d)	SS (kg/d)	BOD_5 (kg/d)	NH3-N (kg/d)	Cu (kg/d)	TP (kg/d)	OrthoP (kg/d)	Silicate (kg/d)	TON (kg/d)	TKN (kg/d)
Before Development	0.010	0.087	36.8	115.0	151.8	6.6	3.4	0.03	0.002	0.03	0.006	0.5	0.06	0.2
After Development	0.077	0.019	279.2	25.7	304.9	10.6	5.5	0.05	0.002	0.05	0.010	0.8	0.10	0.3

Notes:
1. Silt traps will be implemented and 20% of removal efficiency of silt traps is assumed in this Study (Approved EIA report for "Agreement No. CE 61/2007 (CE) North East New Territories New Development Areas Planning and Engineering Study - Investigation"). Enhanced design or closer spacing between silt traps may increase the efficiency.

2. According to "Stormwater Drainage Manual, runoff coefficient depends on the impermeability, slope and retention characteristics of the ground surface. In this study, 0.95 of runoff coefficient is used for developed area and 0.35 is adopted for undeveloped area. Therefore, the change of runoff coefficient due to the development is 0.6.

3.SS (Suspended Solid); BOD5 (5-day Biochemical Oxygen Demand); NH3-N (Ammonia nitrogen); Cu (Copper); TP (Total Phosphorus); OrthoP (Ortho-phosphorus); TON (Total Oxidized Nitrogen); TKN (Total Kjeldahl Nitrogen); OrgN (Organic Nitrogen); TIN (Total Inorganic Nitrogen); TN (Total Nitrogen).

4. OrgN is equal to TKN minus NH3-N, TIN is equal to NH3-N plus TON. TN is equal to TKN plus TON.