APPENDIX 6-1

ESTIMATION OF SEWAGE FLOW FROM PROPOSED DEVELOPMENT

Unit Flow Factors and Peaking Factors

The sewage flow to be generated from the projected residential population, as well as the activities at the clubhouse and associated facilities will be estimated following to the EPD Guideline for Estimating Sewage Flows for Sewage Infrastructure Planning. The estimate of sewage flow is shown in Table (a) to (d).

Estimation of Sewage Flow from Development

Estimation of sewage to be generated from the clubhouse is included in Table (b) as there is no restaurant planned to be included in the clubhouse and the sewage from swimming pool is being calculated separately. Sewage from changing rooms has already be included as part of the sewage flow from the residential development.

Table (a) Estimated Sewage Flow from the Residential Development

Residential Unit	
Maximum Population	315
Unit Flow Factor(1)	0.37 m^3/head/d
Design Average Dry Weather Flow	0.37 x 315
	116.55 m^3/d
Peaking Factor	8 (for population < 1,000)
Design Flow	8 x 116.55
	932.40 m^3/d (10.79 l/s)

Table (b) Estimated Sewage Flow from Employees

Employees	
No. of employees	30
Unit Flow Factor(1)	0.28 m^3/head/d
Design Average Dry Weather Flow	0.28 x 30
	8.40 m^3/d
Peaking Factor	8 (for population < 1,000)
Design Flow for Employees	8 x 8.40
	67.20 m^3/d (0.77 l/s)

Table (c) Estimated Sewage Flow from Swimming Pool

Employees	
Pool Area	930 m^2
Pool Depth	1.3 m
Pool Volume	930 x 1.3
	1209 m^3
Turnover Rate	4 hrs
Surface Loading Rate of Filter	20 $m^3/m^2/hr$
Filter Areas Required	1209/4/20
	15.11 m^2
Backwash Duration	3 min/d
Backwash Flow Rate	30 $m^3/m^2/hr$
Design Flow for Swimming Pool Backwashing	30 x 15.11 x 3 / 60
	22.67 m^3/d (0.26 l/s)

Table (d) Estimated Sewage Flow from Proposed Development

Items	Units	Resident	Employee	Swimming Pool	Total
Overall Design Average Dry Weather Flow (ADWF)	m^3/d	116.55	8.40	22.67	147.62
Overall Design Peak Flow	m^3/d	932.40	67.20	22.67	1022.27
	l/s	10.79	0.77	0.26	11.82