Annex H

Alternative Sewerage Flow Calculation

CM010 - The Pulse Repulse Bay
Sewage Flows

Refer:
1. Approved GBP for Existing Building
2. Proposed Layouts for Future Redevelopment
3. PlanD "Commercial and Industrial Floorspace Utilization Survey" (CIFSUS) Report, Figure 9: Worker Density by Industry
4. EPD "Guidelines for the Estimation of Sewage Flow for Sewage Infrastructure Planning" (GESF),
Table T-2: Unit Flow Factors for Commercial Flows and Student Flows
5. Building (Standards of Sanitary Fitments, Plumbing Darinage Works and Latrines) Regulations (Cap. 123I, Section 7A):

Existing

Floor	Utilization	GFA (m^2)	Worker Density (No./100m^2)	No. of Workers/ Vistors (Calc)	(Say)	Commercial Activity	Unit Flow Factor (m^3/h/d)	Daily Flow (m^3/d)
Upper Ground Floor	Retail	3,697.255	3.5	129.40	130	J4	0.280	36.4
First Floor	Restaurant	3,603.360	5.1	183.77	184	J10	1.580	290.7
B1 Toilets - Male	Shopping			500	500	Person*	0.040	20.0
B1 Toilets - Female	Shopping			160	160	Person*	0.040	6.4
						Existing Total Daily Flow from B1/F (Part), UG/F & 1/F		**353.5**
						Average Dry Weather Flow (l/s)		4.1
						Contributing Population, P, @ 0.27m^3/peron/day		1,309
						Peaking Factor (1000<P<5,000)		5
						Existing Peak Discharge from B1/F (Part), U/G and 1/F of the Pulse (l/s)		**20.5**

Notes:

* - Unit users of Shopping Arcade assumed as School Students from Table T-2 of GESF
For Job Type J10, the "per-employee" unit flow factor takes into account the flows of customers.
Assessment based on existing building alone, so Catchment Inflow Factors not applicable
Assessment based on existing building alone, so Peaking Factors excluding stormwater allowance appropriate

Future

Floor	Utilization	GFA (m^2)	Worker Density (No./100m^2)	No. of Workers/ Vistors (Calc)	(Say)	Commercial Activity	Unit Flow Factor (m^3/h/d)	Daily Flow (m^3/d)
B1/F, UG/F & 1/F	Hotel	5663	3.2	181.22	182	J10	1.580	287.6
	Restaurant	340	5.1	17.34	18	J10	1.580	28.4
	Spa/Gym *(Personal Services)*	587	3.3	19.37	20	J11	0.280	5.6
						Future Total Daily Flow from B1/F (Part), UG/F & 1/F		**321.6**
						Average Dry Weather Flow (l/s)		3.7
						Contributing Population, P, @ 0.27m^3/person/day		1,191
						Peaking Factor (1000<P<5,000)		5
						Future Peak Discharge from B1/F (Part), U/G and 1/F of the Pulse (l/s)		**18.6**

Note:

For Job Types J10 and J11, the "per-employee" unit flow factor takes into account the flows of customers.
Assessment based on existing building alone, so Catchment Inflow Factors not applicable
Assessment based on existing building alone, so Peaking Factors excluding stormwater allowance appropriate