銅鑼灣

Causeway Bay

Annex G

Replacement Pages of Supplementary Information for Water Supply Impact

Project Name: **Proposed Office Development at Caroline Hill Road, Causeway Bay**
Daily Water Demand Calculation

Calculation of Peak Daily Demand

1. AC Make-up Water

As per CT1A,
Estimated peak daily make-up water demand by T1T2 cooling tower = 843.02 m^3/day

As per CT1A,
Estimated peak daily make-up water demand by T3 cooling tower = 21.36 m^3/day

Total peak daily make-up water demand of CHR = 864.38 m^3/day

2. Water Consumption Estimation for Proposed Development

(Based on EPD Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning)

Design Assumption:

Global Unit Flow Factors as per Tables T-2 and T-3
Catchment Inflow Factor for Wan Chai (PCIF = 1.0) as per Table T-4

	Estimated Water Consumption for Caroline Hill Road	**Estimation**
(1)	GFA (m^2) for Office use	85,300
(2)	Assumed 60% for Usable Floor Area	51,180
(3)	Worker Density (No. of Worker per 100m^2)	3.2
(4)	No. of Employee	1,638
(5)	Unit flow factor (m^3/person/day) - J6 Financial, Insurance, Real Estate & Business Services	0.08
(6)	Sub-total Daily Water Consumption (m^3/day)	131.0
(7)	GFA (m^2) for Non Domestic	10,000
(8)	Assumed 60% for Usable Floor Area	6,000
(9)	50% GFA (m^2) for F&B	3,000
(10)	Worker Density (No. of Worker per 100m^2)	5.1
(11)	No. of Employee	153
(12)	Unit flow factor (m^3/person/day) - J10 Restaurant & Hotels	1.58
(13)	Sub-total Daily Water Consumption (m^3/day)	241.7
(14)	50% GFA (m^2) for Retail	3,000
(15)	Worker Density (No. of Worker per 100m^2)	2.1
(16)	No. of Employee	63
(17)	Unit flow factor (m^3/person/day) - J4 Wholesale & Retail	0.28
(18)	Sub-total Daily Water Consumption (m^3/day)	17.6
(19)	GFA (m^2) for GIC	3,100
(20)	Assumed 60% for Usable Floor Area	1,860
(21)	Worker Density (No. of Worker per 100m^2)	2.3
(22)	No. of Employee	43
(23)	Unit flow factor (m^3/person/day) - J11 Community, Social & Personal Services	0.28
(24)	Sub-total Daily Water Consumption (m^3/day)	12.0
(25)	**Total Daily Water Consumption (6)+(13)+(18)+(24), (m^3/day)**	402.4

3.Total Water Consumption Estimation for Proposed Development

AC Make-up Water + Daily water Consumption = 864.38 + 3x 402.4 (as per DI-1309, item 19 requirement)
= 2071.52 m^3/d

Calculation of Pipe Capacity

DN150 Water PE Pipe Capacity

Nominal Diameter (mm)	Internal Diameter (mm)	Pipe Material
200	200	DI
150	147	PE100 (OD180)

Q = AV
DN150 Water Pipe Capacity = $\pi (0.0736)^2$ (1.5) 1.5m/s as per WSD DI1309 requirement
(Assume 1.5 m/s) = 0.0255 m^3/s
= 2205.52 m^3/d

DN150 Water Pipe Capacity = $\pi (0.0736)^2$ (2.0)
(Assume 2.0 m/s) = 0.0340 m^3/s
= 2940.69 m^3/d

DN200 Water Ductile Iron Pipe Capacity

Q = AV
Ø200 Water Pipe Capacity = $\pi (0.100)^2$ (1.5) 1.5m/s as per WSD DI1309 requirement
(Assume 1.5 m/s) = 0.0471 m^3/s
= 4071.50 m^3/d

Ø150 Water Pipe Capacity = $\pi (0.100)^2$ (2.0)
(Assume 2.0 m/s) = 0.0628 m^3/s
= 5428.67 m^3/d

Since 2071.518 m^3/d < 2205.52 m^3/d therefore DN150 Water pipe is enough for the whole CHR development