### **Appendix III**

Sewerage Impact Assessment



#### **EnviroSolutions & Consulting Ltd**

16/F & 17/F, 700 Nathan Road, Mong Kok, Kowloon Hong Kong Tel: No. +852 3960 7211

www.envirosc.com | www.simplyehs.com



Section 16 Planning Application for Proposed Concrete Batching Plant at 13-17 Wah Sing Street, Kwai Chung Sewerage Impact Assessment

Prepared for:

**Wah Sing Manager Company Ltd** 

October 2024



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#### 1 INTRODUCTION

#### 1.1 Project Background

- 1.1.1 It is planned to redevelop the existing building at 13-17 Wah Sing Street, Kwai Chung ("the Site") into a Concrete Batching Plant ("the Proposed CBP" or "the Proposed Development").
- 1.1.2 The Site is zoned Industrial ("I") under the Approved Kwai Chung Outline Zoning Plan ("OZP") No. S/KC/32. In accordance with schedule of "I" Zone on the OZP, the use of concrete batching plant falls into Column 2, which may be permitted with or without conditions on application to the Town Planning Board ("TPB"). Therefore, a planning application under Section 16 of the *Town Planning Ordinance* ("TPO") is required.
- 1.1.3 In order to support the planning application for the Proposed Development, EnviroSolutions & Consulting Ltd ("ESC") has been appointed to prepare this Sewerage Impact Assessment ("SIA") Report.

#### **1.2** Site Description

- 1.2.1 The Site is situated at 13-17 Wah Sing Street in Kwai Chung. As shown on **Figure 1-1**, its environs are summarised below:
  - To the North: Vanta Industrial Centre
  - To the East: Wah Sing Street, Boldwin Industrial Building
  - To the South: Wah Sing Street, The Venus Industrial Building
  - To the West: Gold King Industrial Building

#### 1.3 Project Description

- 1.3.1 The site area will be approx. 1,780m<sup>2</sup>. The indicative layout of the Proposed CBP can be referred to the Planning Statement.
- 1.3.2 The maximum hourly concrete production rate of the Proposed CBP will be approx. 400 m³/hour.

#### 1.4 Objectives of the Report

- 1.4.1 The objectives of this SIA Report are to:
  - Estimate the quantity of wastewater arising from the Proposed CBP and the nearby uses
  - Recommend the necessary mitigation measures to handle the associated wastewater.

#### 1.5 Reference Materials

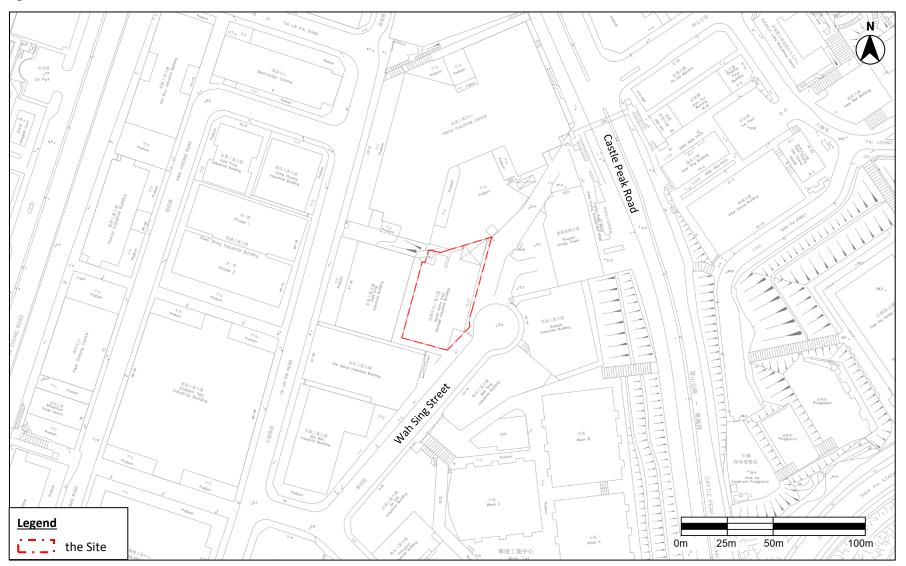
- 1.5.1 In evaluating the sewerage impacts arising from the Proposed CBP, the following sources have been referred to:
  - Drainage Services Department ("DSD") publication Sewerage Manual (with Eurocodes incorporated) (Part 1) Key Planning Issues and Gravity Collection System, 3rd Edition, May 2013



- DSD publication Sewerage Manual (Part 1) Corrigendum No. 1/2024, 28 March 2024
- Environmental Protection Department ("EPD") publication Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning Version 1.0, March 2005 ("GESF")
- Building (Standards of Sanitary Fitments, Plumbing, Drainage Works and Latrines)
   Regulations (Cap.123I)
- Practice Note for Professional Persons Drainage Plans subject to Comment by the Environmental Protection Department -Building (Standards of Sanitary Fitments, Plumbing, Drainage Works and Latrines) Regulations (ProPECC PN1/23)
- Sewerage data of GeoInfo Map checked on 17 October 2024



Figure 1-1 Site Location and its Environs





#### 2 EVALUATION OF SEWERAGE IMAPCT

#### 2.1 Existing Baseline Conditions

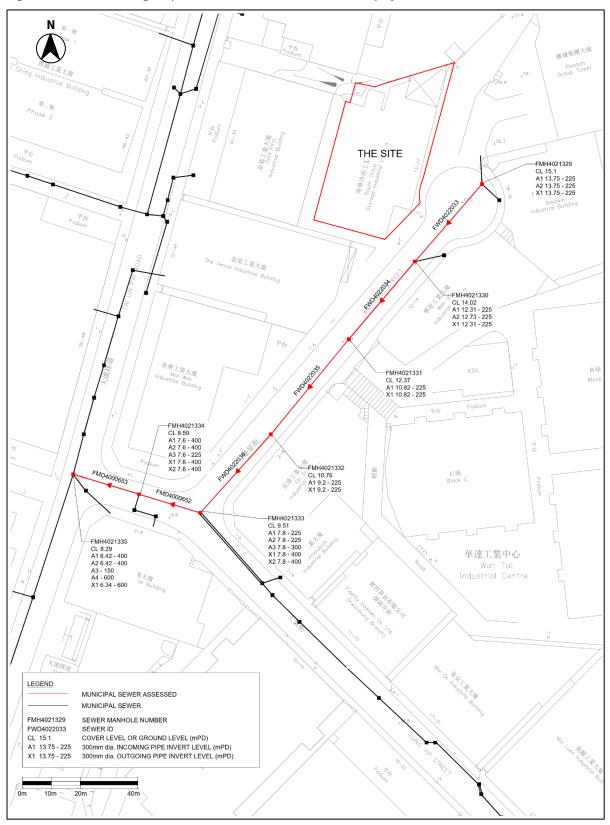
- 2.1.1 According to the sewerage data from GeoInfo Map checked on 17 October 2024, there are existing municipal sewers in the vicinity of the Site along Wah Sing Street at the east and south of the Site. The nearest foul manhole is Manhole FMH4021330 which is located to the southeast of the Site. The existing municipal sewerage system near the Site is shown on Figure 2-1.
- 2.1.2 Wastewater currently flows from the terminal manhole of the Site via a connection into the nearby sewerage system at Manhole FMH4021330. From there it flows along the 225mm diameter sewer to the southeast (underneath Wah Sing Street), which connects to the two 400mm diameter sewers (underneath Kung Yip Street) before joining a 600mm sewer underneath Tai Lin Pai Road. From there, wastewater will flow into the downstream sewerage system.

#### 2.2 Sewage Impact During the Operation Phase

- 2.2.1 During the operation of the Proposed CBP, the major source of wastewater will be industrial wastewater generated by wheel washing facilities and from concrete production, as well as sewage from toilets generated by the on-site staff and truck drivers.
- 2.2.2 Industrial wastewater generated from the operation of the Proposed CBP will be 100% be recycled, as advised by the Applicant. Sewage from toilets will be discharged into the public sewerage system underneath Wah Sing Street.



Figure 2-1 Drainage Pipe Manhole Facilities in the Vicinity of the Site





#### 3 SEWERAGE ANALYSIS

#### 3.1 Review of Sewage Handling

3.1.1 As mentioned in **Section 2.2**, sewage generated by the on-site staff and truck drivers, i.e. wastewater generated from the washrooms e.g. flushing, handwashing and micturition, will be the only wastewater source to be discharged into the municipal sewerage system underneath Wah Shing Street. For the other sources of wastewater including concrete production and vehicle washing, such industrial wastewater will be treated and recycled/reused, and will not be discharged.

#### 3.2 Assumptions

3.2.1 In order to assess the acceptability of the sewage impact arising from the Proposed CBP, the maximum sewage generated has been estimated based on the assumptions listed in **Table 3-1**, below. The Average Dry Weather Flows ("ADWFs") of the upstream, Proposed CBP and downstream catchments were estimated based on the Unit Flow Factors ("UFFs") recommended in the GESF and in *Commercial and Industrial Floor Space Utilization Survey* ("CIFSUS") published by the Planning Department ("PlanD").

Table 3-1 Parameters for Estimating Wastewater Generation from the Proposed CBP

PARAMETER	VALUE	REMARK				
GENERATION FR	OM ON-SITE STAFF					
No. of staff	20	Assumed based on the scale and nature of the Proposed CBP				
UFF of staff	0.23 m <sup>3</sup> /day/staff	UFF for "Commercial Employee + J9 Construction" in Table T-2 of GESF				
GENERATION FROM TRUCK DRIVERS						
Total no. of toilet visit	40 visits/ day	Assumed based on the scale and nature of the Proposed CBP				
UFF of drivers	0.0091 m³/day/driver	Assumed 200ml micturition <sup>[Note 1]</sup> + 7.5L flushing <sup>[Note 2]</sup> + $1.4L$ hand washing <sup>[Note 2]</sup>				
CATCHMENT IN	LOW FACTOR AND PEA	KING FACTOR				
Catchment Inflow Factor	1.10	Catchment inflow factor for Kwai Chung is adopted as stated in Table T-4 of GESF				
Peaking Factor	8 for <1,000 6 for 1,000 – 5,000 5 for 5,000 – 10,000	Peaking factor (including stormwater allowance) for facility with existing upstream sewerage is adopted as stated in Table T-5 of GESF				

#### Notes:

- 1. Human's micturition is assumed to be 200mL in accordance with p. 3081 of "Magill's Medical Guide", 6th ed.
- 2. BEAM Plus New Buildings Version 1.2 in July 2012.

#### 3.3 Methodology

3.3.1 To evaluate the capacities of sewers, the wastewater generation from the upstream and downstream catchments of the receiving sewers are estimated. This allows the acceptability of the sewerage impact arising from operation of the Proposed CBP to be determined.



3.3.2 Flow capacities for pipe segments between Manhole FMH4021329 and FMH4021335 along Wah Sing Street and Kung Yip Street were calculated using the Colebrook-White Equation for circular pipes, assuming full bore flow with no surcharge, as shown below:

$$V = -\sqrt{8gDs} * log \left(\frac{ks}{3.7D} + \frac{2.51v}{D\sqrt{2gDs}}\right)$$

where

V = mean velocity (m/s)

g = gravitational acceleration (m/s<sup>2</sup>)

D = internal pipe diameter (m)

ks = hydraulic pipeline roughness (m)

n = kinematic viscosity of fluid (m<sup>2</sup>/s)

s = hydraulic gradient (energy loss per unit length due to friction)

- 3.3.3 Sewerage systems are designed and sized to ensure that (when examined from any point) the downstream sections have sufficient capacity for the sewage flowing from all the sections upstream, provided that the capacity of the upstream sections is not exceeded. Thus, if the sewerage system can provide sufficient receiving capacity for the cumulative sewage quantities generated from the Proposed CBP and from the upstream catchments, there should be no unacceptable impact on the downstream sewerage system.
- 3.3.4 To evaluate the flow rate from on-site staff and truck drivers in the Proposed CBP, the UFFs recommended in GESF have been used.
- 3.3.5 Locations of the upstream and downstream catchments of the Site are shown in **Appendix A.** Sewage generation from the Site and the upstream and downstream catchments have been calculated and is detailed in **Appendix B**. Flow capacities for pipe segments of the receiving sewerage system are estimated via the Colebrook-White Equation and details are provided in **Appendix C**.

#### 3.4 Results and Discussion

- 3.4.1 Detailed sewage generation calculations are provided in **Appendix B**. The total estimated ADWF from the Proposed CBP is calculated to be 5.46m<sup>3</sup>/day (Catchment Inflow Factor of 1.1 for Kwai Chung inclusive), which will be discharged into Manhole FMH4021330.
- 3.4.2 To determine what impact this flow has on the existing sewerage system, the capacity of the downstream sewerage system has been evaluated. The utilisations when taking into consideration the sewage contributed by the Site as well as upstream/ downstream catchments between Manholes FMH4021329 and FMH4021335 are provided in **Appendix C**.
- 3.4.3 The pipe capacity utilization between Manholes FMH4021329 and FMH4021335 ranges from 19% to 83%. This shows that less than 100% of the available capacity will be used under the worst-case scenario.
- 3.4.4 Therefore, the sewerage analysis indicates there will be no unacceptable impact on the existing municipal sewerage system under the worst-case scenario with the existing flows and the peak sewage discharge from the Site. As such, no upgrading work for the existing network is required.



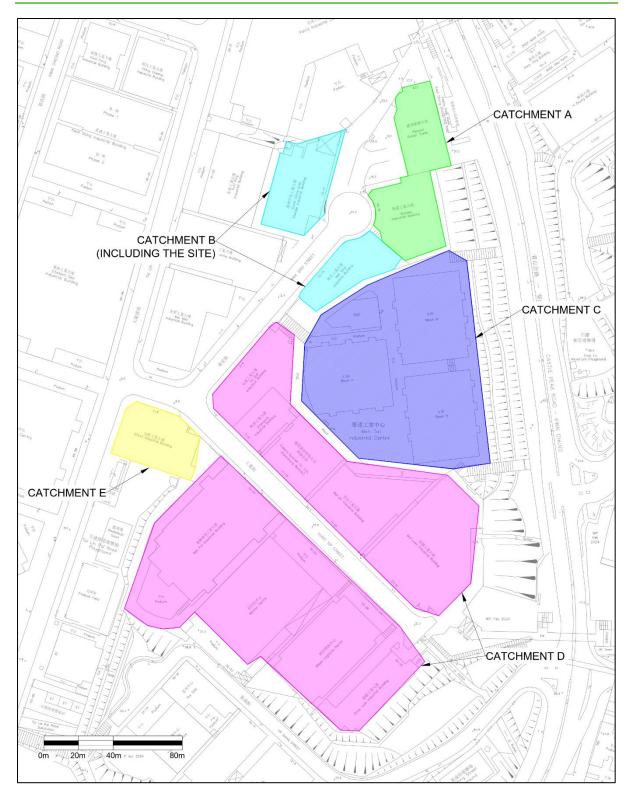
#### 4 CONCLUSION AND RECOMMENDATIONS

- 4.1.1 Potential sewerage impacts arising from the Site has been assessed. Sewage generated from the Site will be collected and conveyed to the municipal sewerage system beneath Wah Sing Street at the southeast of the Site.
- 4.1.2 The detailed sewage generation calculation shows that total estimated ADWF from the Site is calculated to be 5.46m³/day, which will be discharged into Manhole FMH4021330.
- 4.1.3 The capacity of the sewerage system has been evaluated while sewage from other properties/uses upstream and downstream discharged to the sewerage system between the Manhole FMH4021329 and FMH4021335 have been taken into account in the evaluation.
- 4.1.4 The utilisation of exiting sewer from FMH4021329 and FMH4021335 will be 19% to 83%. This shows that less than 100% of the available capacity will be used under the worst-case scenario.
- 4.1.5 Therefore, the sewerage analysis indicates there will be no unacceptable impact on the existing municipal sewerage system under the worst-case scenario with the existing flows and the peak sewage discharge from the Site. No upgrading works for the municipal sewerage system will be required for the Proposed Development.



**Appendix A** Location Plan of Catchment Areas







#### **Details of Catchments**

Buildings	Location	Class	Estimated Area (m²)
Catchment A			
Reason Group Tower	5F-12F, 15F-23F, 25F	Financial	20831.5
	5F-12F, 15F-23F, 25F	Community	1225.4
Boldwin Industrial Building	GF	Retail Trade	451.3
<u>-</u>	1F-24F	Financial	28881.2
	1F-24F	Manufactoring	3610.1
	1F-24F	Community	3610.1
Catchment B		·	
Wah Sing Industrial Building	1F	Restaurant	362.8
	GF, 2F-14F, 16F-25F	Financial	29023.9
Catchment C			
Wah Tat Industrial Centre			
Block A	1F-21F	Storage	20168.0
	1F-21F	Manufactoring	2016.8
	1F-21F	Financial	16134.4
	1F-21F	Community	2016.8
Block B	1F-21F	Financial	16189.5
	1F-21F	Community	4047.4
	1F-21F	Storage	20236.9
Block C	GF	Restaurant	372.8
STOCK C	1F-21F	Storage	19571.0
	1F-21F	Community	3914.2
	1F-21F	Financial	15656.8
Catchment D	11 211	mancial	15050.0
On Dak Industrial Building	1F-24F	Manufactoring	2954.3
	1F-24F	Storage	5908.6
	1F-24F	Financial	20680.1
Primoknit Industrial Building	GF	Manufactoring	333.3
Timokiit maastiai banamg	1F-11F	Financial	5132.3
	1F-11F	Storage	2199.6
Fidelity Godown Co. Ltd. (Kwaichung Branch)	1F-13F	Financial	1457.3
ridenty Godown Co. Etd. (Kwalchang Branch)	1F-13F	Storage	13115.7
Mai On Industrial Building	1F	Restaurant	348.6
war on maastrar banding	GF	Wholesale Trade	1220.2
	2F-9F, 11F-23F	Manufactoring	3660.7
	2F-9F, 11F-23F	Community	7321.4
	2F-9F, 11F-23F	Financial	25625.0
Mai Luen Industrial Building	GF	Wholesale Trade	2043.9
viai Lucii iliuustiiai bullullig	GF	Restaurant	615.4
	2F-9F, 11F-24F	Manufactoring	6769.2
	2F-9F, 11F-24F 2F-9F, 11F-24F	Storage	13538.5
	2F-9F, 11F-24F 2F-9F, 11F-24F	Community	6769.2
	· ·	Financial	40615.4
Chiap Luen Industrial Building	2F-9F, 11F-24F GF	Wholesale Trade	975.5
Cinap Lucii inuustriai bullullig	1F-18F	Manufactoring	1871.6
	1F-18F	Financial	9358.0
	1F-18F	Storage	5614.8
Wilson Logistics Centre	1F-18F 1F-14F	Storage	17409.0
MISON FORISHES CENTIE	1F-14F	Financial	7461.0
Matson Contro			
Watson Centre	1F-20F	Financial Storage	37115.1
W. L. F. J. J. J. L. B. B. B.	1F-20F	Storage Reguling Centre	15906.5
	GF	Storage - Recycling Centre	2293.9
Wah Fat Industrial Building	25.205	Ctorogo	22225 5
Wah Fat Industrial Building	2F-28F	Storage	23225.5
wan Fat Industrial Building	2F-28F 2F-28F 2F-28F	Storage Manufactoring Financial	23225.5 3870.9 50322.0



Catchment E						
Effort Industrial Building	GF	Wholesale Trade - Metalware Company	291.3			
	GF	Retail Trade - Convenient Store	145.7			
		Financial - Foreign Exchange Stores/ Real				
	GF	Estate Agencies/ Bank	437.0			
	1F-12F	Retail Trade	873.9			
	1F-12F	Financial	13109.1			
	1F-12F	Restaurant	873.9			
	1F-12F	Storage	873.9			
	1F-12F	Community	1747.9			



**Appendix B** Calculation of Sewage Flow Generation



culation of Sewage Generation from the Propos wnstream Catchments	cu CD	i , opsiream and	Remarks / Justification
Catchment A			
A1) Office			
Estimated Floor Area	=	49712.7 m <sup>2</sup>	
		21	Worker density by Industry Group (All Type) for "All Economic Activiti
Staff Occupancy Density	=	29.4 m <sup>2</sup> /staff	is 3.4 Staff in 100m <sup>2</sup> as stated in Table 8 of Ref.1.
No. of Staff	=	1,691 staff	
Unit flow Factor (UFF) per resident	=	0.080 m <sup>3</sup> /day/person	UFF for "Commercial Employee" in Table T-2 of Ref. 2 is adopted.
Estimated Total Average Daily Dry Weather Flow Rate	=	135.3 m <sup>3</sup> /day	
(2) Community			
Estimated Floor Area	=	4835.5 m <sup>2</sup>	
		20.2 34	Worker density by Industry Group (All Type) for "Community, Social &
Staff Occupancy Density	=	30.3 m <sup>2</sup> /staff	Personal Services" is 3.3 Staff in 100m <sup>2</sup> as stated in Table 8 of Ref.1.
No. of Staff	=	160 staff	
Unit flow Factor (UFF) per resident	=	0.280 m³/day/person	UFF for "Commercial Employee + J11 Community, Social & Personal Services" in Table T-2 of Ref. 2 is adopted.
Estimated Total Average Daily Dry Weather Flow Rate	=	44.8 m³/day	Services in Table 1-2 of Net. 215 adopted.
a) a)			
A3) Shop Estimated Floor Area	=	451.3 m <sup>2</sup>	
Estimated Floor Area	-	401.0 III	Worker density by Industry Group (All Type) for "Detail Type" - 2.5
Staff Occupancy Density	=	28.6 m <sup>2</sup> /staff	Worker density by Industry Group (All Type) for "Retail Trade" is 3.5 in 100m <sup>2</sup> as stated in Table 8 of Ref.1.
No. of Staff	=	16 staff	
	-		UFF for "Commercial Employee + J4 Wholesale & Retail" in Table T-2
Unit flow Factor (UFF) per resident	=	0.280 m <sup>3</sup> /day/person	Ref. 2 is adopted.
Estimated Total Average Daily Dry Weather Flow Rate	=	4.5 m³/day	
4) Factory/ Workshop Use			
Estimated Floor Area	=	3610.1 m <sup>2</sup>	
Staff Occupancy Density	=	43.5 m <sup>2</sup> /staff	Worker density by Industry Group (All Type) for "Manufacturing" is 2
	-		Staff in 100m <sup>2</sup> as stated in Table 8 of Ref.1.
No. of Staff	=	84 staff	
Unit flow Factor (UFF) per resident	=	0.730 m <sup>3</sup> /day/person	UFF for "Industrial Employee + Industrial Activities of Kwai Chung" in Table T-3 of Ref. 2 is adopted.
Estimated Total Average Daily Dry Weather Flow Rate	=	61.3 m³/day	
Total Estimated Flow	=	245.9 m <sup>3</sup> /day	
Catchment Inflow Factor	_	1.1	Catchement Inflow Factor for Kwai Chung in Table 1-4 of Ref. 2 is
Total Average Daily Dry Weather Flow of Catchment A	=	270.5 m <sup>3</sup> /day	adonted
Catchment B			
1) Proposed CBP			
No. of On-site Staff	=	20 persons	Assumed based on the scale and nature of the Proposed CBP.
Unit Flow Factor (UFF) per Staff	=	0.23 m³/day/person	UFF for "Commercial Employee + J9 Construction" in Table T-2 of Ref.
No. of Toilet Visit for Truck Drivers	=	40 visits	Assumed based on the scale and nature of the Proposed CBP.
Unit Flow Factor (UFF) per Drivers	=	0.0091 m <sup>3</sup> /day/person	Assumed 200ml micturition + 7.5L flushing + 1.4L hand washing.
Estimated Total Average Daily Dry Weather Flow Rate	=	5.0 m <sup>3</sup> /day	
2) <u>Office</u>			
Estimated Floor Area	=	29023.9 m <sup>2</sup>	
Staff Occupancy Density	=	29.4 m²/staff	
	=		Worker density by Industry Group (All Type) for "All Economic Activit is 3.4 Staff in 100m <sup>2</sup> as stated in Table 8 of Ref.1.
No. of Staff	= = =	987 staff	is 3.4 Staff in 100m <sup>2</sup> as stated in Table 8 of Ref.1.
	= = =		
No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate	= = =	987 staff 0.080 m³/day/person	is 3.4 Staff in 100m <sup>2</sup> as stated in Table 8 of Ref.1.
No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate	= = =	987 staff 0.080 m³/day/person 79.0 m³/day	is 3.4 Staff in 100m <sup>2</sup> as stated in Table 8 of Ref.1.
No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  33) Food & Beverage Estimated Floor Area	= = =	987 staff 0.080 m³/day/person 79.0 m³/day 362.8 m²	is 3.4 Staff in 100m <sup>2</sup> as stated in Table 8 of Ref.1.  UFF for "Commercial Employee" in Table T-2 of Ref. 2 is adopted.
No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  3) Food & Beverage Estimated Floor Area Staff Occupancy Density	= = = = =	987 staff 0.080 m³/day/person 79.0 m³/day 362.8 m² 19.6 m²/staff	is 3.4 Staff in 100m <sup>2</sup> as stated in Table 8 of Ref.1.  UFF for "Commercial Employee" in Table T-2 of Ref. 2 is adopted.
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No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  33) Food & Beverage Estimated Floor Area Staff Occupancy Density No. of Staff Unit flow Factor (UFF) per resident	= = =	987 staff 0.080 m³/day/person 79.0 m³/day  362.8 m²  19.6 m²/staff 19 staff 1.580 m³/day/person	is 3.4 Staff in 100m <sup>2</sup> as stated in Table 8 of Ref.1.  UFF for "Commercial Employee" in Table T-2 of Ref. 2 is adopted.  Worker density by Industry Group (All Type) for "Restaurants" is 5.1 in 100m <sup>2</sup> as stated in Table 8 of Ref.1.  UFF for "Commercial Employee + J10 Restaurants & Hotels" in Table 1
No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  13) Food & Beverage Estimated Floor Area Staff Occupancy Density No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate	= = = = =	987 staff 0.080 m³/day/person 79.0 m³/day  362.8 m² 19.6 m²/staff 19 staff 1.580 m³/day/person 30.0 m³/day	is 3.4 Staff in 100m <sup>2</sup> as stated in Table 8 of Ref.1.  UFF for "Commercial Employee" in Table T-2 of Ref. 2 is adopted.  Worker density by Industry Group (All Type) for "Restaurants" is 5.1 s in 100m <sup>2</sup> as stated in Table 8 of Ref.1.  UFF for "Commercial Employee + J10 Restaurants & Hotels" in Table 1 of Ref. 2 is adopted.  Catchement Inflow Factor for Kwai Chung in Table T-4 of Ref. 2 is
No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  33) Food & Beverage Estimated Floor Area Staff Occupancy Density No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  Total Estimated Flow	= = = = =	987 staff 0.080 m³/day/person 79.0 m³/day  362.8 m²  19.6 m²/staff 19 staff 1.580 m³/day/person 30.0 m³/day	UFF for "Commercial Employee" in Table T-2 of Ref. 2 is adopted.  Worker density by Industry Group (All Type) for "Restaurants" is 5.1 S in 100m <sup>2</sup> as stated in Table 8 of Ref.1.  UFF for "Commercial Employee + J10 Restaurants & Hotels" in Table T of Ref. 2 is adopted.



CSI processory Processory  Staff Occupancy Density  No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  = 240 staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  = 2016.8 m² Staff Occupancy Density No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  = 47980.8 m² Staff Occupancy Density No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  = 47980.8 m² Staff Occupancy Density No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  = 47980.8 m² Staff Occupancy Density No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  = 47980.8 m² Staff Occupancy Density No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  = 47980.8 m² Staff Occupancy Density No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  = 47980.8 m² Staff Occupancy Density No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  = 30.38 m²/staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  = 372.8 m² Staff Occupancy Density No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  = 372.8 m² Staff Occupancy Density No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  = 372.8 m² Staff Occupancy Density No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  = 310 m²/stay/person Staff Occupancy Density No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  = 310 m²/stay/person Staff Occupancy Density No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  = 314 St	Cottob was at C			
Staff Occupancy Density   250.0 m² / staff   100m² as stated in Table 8 of Ref.1.	Catchment C			
Salf Occupancy Density = 2.00.0 m²/staff Unit flow Factor (UFF) per resident = 0.180 m²/stay/person Estimated Total Average Daily Dry Weather Flow Rate = 4.12 m²/stay  No. of Salf   1.00m² as stated in Table 8 of Ref. 2.13 adopted.  C2) Factory Workshop Use Estimated Floor Area Salf Occupancy Density   2.015.8 m² No. of Salf   2.13 m²/staff Unit flow Actor (UFF) per resident   2.030 m²/stay/person Estimated Total Average Daily Dry Weather Flow Rate   2.049.0 m²/stay/person Estimated Floor Area Salf Occupancy Density   2.24 m²/staff Unit flow Actor (UFF) per resident   2.000 m²/stay/person Estimated Total Average Daily Dry Weather Flow Rate   2.000 m²/stay/person Estimated Total Average Daily Dry Weather Flow Rate   2.000 m²/stay/person Estimated Total Average Daily Dry Weather Flow Rate   2.000 m²/stay/person Estimated Total Average Daily Dry Weather Flow Rate   2.000 m²/stay/person Estimated Total Average Daily Dry Weather Flow Rate   2.000 m²/stay/person Estimated Total Average Daily Dry Weather Flow Rate   2.000 m²/stay/person Estimated Total Average Daily Dry Weather Flow Rate   2.000 m²/stay/person Estimated Total Average Daily Dry Weather Flow Rate   2.000 m²/stay/person Estimated Total Average Daily Dry Weather Flow Rate   2.000 m²/stay/person Estimated Total Average Daily Dry Weather Flow Rate   2.000 m²/stay/person Estimated Total Average Daily Dry Weather Flow Rate   2.000 m²/stay/person Estimated Total Average Daily Dry Weather Flow Rate   2.000 m²/stay/person Estimated Total Average Daily Dry Weather Flow Rate   2.000 m²/stay/person Estimated Total Average Daily Dry Weather Flow Rate   2.000 m²/stay/person Estimated Total Average Daily Dry Weather Flow Rate   2.000 m²/stay/person Estimated Total Average Daily Dry Weather Flow Rate   2.000 m²/stay/person Estimated Total Average Daily Dry Weather Flow Rate   2.000 m²/stay/person Estimated Total Average Daily Dry Weather Flow Rate   2.000 m²/stay/person Estimated Total Average Daily Dry Weather Flow Rate   2.000 m²/stay/person Estimated Total Average D	· · · · · · · · · · · · · · · · · · ·	=	59976.0 m <sup>2</sup>	
No. of Staff  Unit flow Factor (UFF) per resident  Estimated Total Average Daily Dry Weather Flow Rate  2 2016.8 m²  Staff Occopancy Density No. of Staff  Unit flow Factor (UFF) per resident  Estimated Total Average Daily Dry Weather Flow Rate  2 2016.8 m²  Staff Occopancy Density No. of Staff  Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  2 29.4 m²/staff No. of Staff  Occopancy Density No. of Staff	Staff Occupancy Density	=	250.0 m <sup>2</sup> /staff	Worker density by Industry Group (All Type) for "Storage" is 0.4 Staff in
Communications 'in Table T3 of Ref. 2 is adopted.  Collator // Morkshop Use  Estimated Floor Area  Staff Occupancy Density  No. of Staff  Unit floor Factor (UFF) por resident  Estimated Floor Area  Staff Occupancy Density  No. of Staff  No.	No. of Staff	=	240 staff	
Staff Docupancy Density   Staff Docupancy	Unit flow Factor (UFF) per resident	=	0.180 m <sup>3</sup> /day/person	
Staff Occupancy Density = 4.35 m²/staff unit flow Factor (UFF) per resident = 0.730 m²/day/person Estimated Floor Area = 4.780.8 m²    Staff Occupancy Density = 4.7980.8 m²    Staff Occupancy Density = 4.632 staff    Unit flow Factor (UFF) per resident   4.632 staff    Unit	Estimated Total Average Daily Dry Weather Flow Rate	=	43.2 m <sup>3</sup> /day	Sommer details in rest is a real to each test
Staff Occupancy Density = 4.35 m²/staff unit flow Factor (UFF) per resident = 0.730 m²/day/person Estimated Floor Area = 4.780.8 m²    Staff Occupancy Density = 4.7980.8 m²    Staff Occupancy Density = 4.632 staff    Unit flow Factor (UFF) per resident   4.632 staff    Unit	C2) Factory/ Workshop Use			
Saff in 2000" as stated in Table 8 of Ref.1.  Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  2 47880.8 m² Staff cocupancy Density Staff in 2000" as stated in Table 8 of Ref.1.  Worker density by Industry Group (All Type) for "As Incommic Activities of Kwal Chang" in Table To of Ref. 2 is adopted.  Worker density by Industry Group (All Type) for "All Economic Activities of Ref.1.  Worker density by Industry Group (All Type) for "All Economic Activities of Ref.1.  Worker density by Industry Group (All Type) for "Commercial Employee" in Table T-2 of Ref. 2 is adopted.  **Color Community**  Estimated Floor Area  Staff Occupancy Density  No. of Staff Unit flow Factor (UFF) per resident Unit flow Factor (UFF) per resident Unit flow Factor (UFF) per resident  Staff in 2000" as stated in Table 8 of Ref.1.  **Worker density by Industry Group (All Type) for "Community, Social & Personal Services" in Table T-2 of Ref. 2 is adopted.  **Worker density by Industry Group (All Type) for "Community, Social & Personal Services" in Table T-2 of Ref. 2 is adopted.  **Staff Occupancy Density  No. of Staff Unit flow Factor (UFF) per resident Unit flow Factor (UFF) per resident  Staff in 2000" as stated in Table 8 of Ref.1.  **Worker density by Industry Group (All Type) for "Community, Social & Personal Services" in Table T-2 of Ref. 2 is adopted.  **Staff in 2000" as stated in Table 8 of Ref.1.  **Worker density by Industry Group (All Type) for "Community, Social & Personal Services" in Table T-2 of Ref. 2 is adopted.  **Staff in 2000" as stated in Table 8 of Ref.1.  **Worker density by Industry Group (All Type) for "Restaurants" is 5.1 Sin 1000" as stated in Table 8 of Ref.1.  **Unit flow Factor (UFF) per resident  Staff in 2000" as stated in Table 8 of Ref.1.  **Unit flow Factor (UFF) per resident  Staff in 2000" as stated in Table 8 of Ref.1.  **Unit flow Factor (UFF) per resident  Staff in 2000" as stated in Table 8 of Ref.1.  **Unit flow Factor (UFF) per resident  Staff in 2000" as stat	-	=	2016.8 m <sup>2</sup>	
No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  2	Staff Occupancy Density	=	43.5 m <sup>2</sup> /staff	Worker density by Industry Group (All Type) for "Manufacturing" is 2.3  Staff in 100m <sup>2</sup> as stated in Table 8 of Ref 1
Estimated Total Average Daily Dry Weather Flow Rate  Estimated Floor Area  Self Occupancy Density  No of Staff Unit flow Factor (UFF) per resident Estimated Floor Area  Self Occupancy Density  No of Staff Unit flow Factor (UFF) per resident Estimated Floor Area  Self Occupancy Density  No of Staff Unit flow Factor (UFF) per resident Estimated Floor Area  Self Occupancy Density  No of Staff Unit flow Factor (UFF) per resident Estimated Floor Area  Self Occupancy Density  No of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  9978.4 m²  303 m²/staff No of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  92.4 m²/day  CS) Food & Beverage Estimated Floor Area  Self Occupancy Density  No of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  104.5 m²/day  Total Estimated Floor  Estimated Floor Area  Self Occupancy Density  Total Estimated Floor  Staff Occupancy Density  No of Staff Unit flow Factor (UFF) per resident  Estimated Total Average Daily Dry Weather Flow Rate  11.580 m²/day/person Estimated Floor  Estimated Floor Area  Self Occupancy Density  Total Estimated Floor  Staff Occupancy Density  No of Staff Unit flow Factor (UFF) per resident  Estimated Total Average Daily Dry Weather Flow Rate  11.580 m²/day  Catchment Inflow Factor (UFF) per resident  Estimated Total Average Daily Dry Weather Flow Rate  11.580 m²/day  Catchment Inflow Factor (UFF) per resident  Estimated Total Average Daily Dry Weather Flow Rate  11.580 m²/day  Catchment Inflow Factor (UFF) per resident  Estimated Total Average Daily Dry Weather Flow Rate  12.50 m²/day/person  Staff Occupancy Density  No of Staff  Unit flow Factor (UFF) per resident  12.60 m²/day/person  Staff Occupancy Density  No of Staff  Staff Occupancy Density  No of Staff  Staff Occupancy Density  No of Staff  Staff Occupancy Density  Staff	No. of Staff	=	47 staff	State in Table 5 of Ref. 1.
Estimated Total Average Daily Dry Weather Flow Rate = 34.3 m²/day  Staff Cocupancy Density = 29.4 m²/staff Unit flow Factor (UFF) per resident = 1.632 staff Unit flow Factor (UFF) per resident = 20.080 m²/day/person Estimated Floar Average Daily Dry Weather Flow Rate = 330.3 m²/staff Unit flow Factor (UFF) per resident = 20.080 m²/day/person Estimated Floar Average Daily Dry Weather Flow Rate = 330.3 m²/staff Unit flow Factor (UFF) per resident = 20.080 m²/day/person Estimated Floar Average Daily Dry Weather Flow Rate = 372.8 m² Estimated Floar Average Daily Dry Weather Flow Rate = 372.8 m² Unit flow Factor (UFF) per resident = 20.280 m²/day/person Estimated Floar Average Daily Dry Weather Flow Rate = 31.5 m²/staff Unit flow Factor (UFF) per resident = 1.580 m²/day/person Estimated Floar Average Daily Dry Weather Flow Rate = 31.6 m²/day  Catchment Inflow Factor (UFF) per resident = 1.580 m²/day/person Estimated Floar Average Daily Dry Weather Flow Rate = 31.6 m²/day  Catchment Inflow Factor (UFF) per resident = 1.580 m²/day/person Estimated Floar Average Daily Dry Weather Flow Rate = 31.6 m²/day  Catchment Inflow Factor (UFF) per resident = 31.6 m²/day  Catchment Inflow Factor (UFF) per resident = 31.6 m²/day  Catchment Inflow Factor (UFF) per resident = 31.0 m²/day  Estimated Floar Average Daily Dry Weather Flow Rate = 345.3 m²/day  Catchment Inflow Factor (UFF) per resident = 32.0 m²/day/person  Estimated Floar Average Daily Dry Weather Flow Rate = 345.3 m²/staff  No. of Staff = 348 staff  Unit flow Factor (UFF) per resident = 0.730 m²/day/person  Estimated Floar Average Daily Dry Weather Flow Rate = 32.0 m²/day  Diff for "Commercial Employee + 110 Restaurants & Hotels" in Table T-0 of Ref. 2 is adopted.  Diff for "Commercial Employee + 110 Restaurants & Hotels" in Table T-0 of Ref. 2 is adopted.  Festimated Floar Average Daily Dry Weather Flow Rate = 1.580 m²/day/person  Estimated Floar Average Daily Dry Weather Flow Rate = 250.0 m²/staff  Unit flow Factor (UFF) per resident = 0.730 m²/day/person  Estimated	Unit flow Factor (UFF) per resident	=	0.730 m <sup>3</sup> /day/person	1
Estimated Floor Area  Staff Occupancy Density = 29.4 m²/staff No. of Staff Unit Trow Vactor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate = 30.0 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 9978.4 m²  Staff Occupancy Density = 9978.4 m²  Staff Occupancy Density = 30.3 m²/staff Unit Tow Sactor (UFF) per resident = 0.280 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 92.4 m²/day  Staff Occupancy Density = 37.28 m²  Staff Occupancy Density = 37.28 m²  Staff Occupancy Density = 19.6 m²/staff Unit Tow Factor (UFF) per resident = 372.8 m²  Staff Occupancy Density = 19.6 m²/staff Unit Tow Factor (UFF) per resident = 372.8 m²  Staff Occupancy Density = 19.6 m²/staff Unit Tow Factor (UFF) per resident = 1.580 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 372.8 m²  Staff Occupancy Density = 19.6 m²/staff Unit Tow Factor (UFF) per resident = 1.580 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 31.6 m²/day  Total Estimated Flow = 332.1 m²/day  Catchment Inflow Factor (UFF) per resident = 1.580 m²/staff No. of Staff Unit Tow Factor (UFF) per resident = 0.730 m²/day/person Estimated Flow Area = 1.9460.1 m²  Staff Occupancy Density = 3.5 m²/staff No. of Staff = 3.70 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 3.70 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 3.70 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 3.70 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 3.70 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 3.70 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 3.70 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 3.70 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 3.70 m²/day/person Estimated	Estimated Total Average Daily Dry Weather Flow Rate	=	34.3 m³/day	
Estimated Floor Area  Staff Occupancy Density = 29.4 m²/staff No. of Staff Unit Trow Vactor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate = 30.0 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 9978.4 m²  Staff Occupancy Density = 9978.4 m²  Staff Occupancy Density = 30.3 m²/staff Unit Tow Sactor (UFF) per resident = 0.280 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 92.4 m²/day  Staff Occupancy Density = 37.28 m²  Staff Occupancy Density = 37.28 m²  Staff Occupancy Density = 19.6 m²/staff Unit Tow Factor (UFF) per resident = 372.8 m²  Staff Occupancy Density = 19.6 m²/staff Unit Tow Factor (UFF) per resident = 372.8 m²  Staff Occupancy Density = 19.6 m²/staff Unit Tow Factor (UFF) per resident = 1.580 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 372.8 m²  Staff Occupancy Density = 19.6 m²/staff Unit Tow Factor (UFF) per resident = 1.580 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 31.6 m²/day  Total Estimated Flow = 332.1 m²/day  Catchment Inflow Factor (UFF) per resident = 1.580 m²/staff No. of Staff Unit Tow Factor (UFF) per resident = 0.730 m²/day/person Estimated Flow Area = 1.9460.1 m²  Staff Occupancy Density = 3.5 m²/staff No. of Staff = 3.70 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 3.70 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 3.70 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 3.70 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 3.70 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 3.70 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 3.70 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 3.70 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 3.70 m²/day/person Estimated	C3) Office			
Solf Occupancy Density = 28.4 m²/staff  No. of Staff Unit flow factor (UFF) per resident = 1.632 staff Unit flow factor (UFF) per resident = 1.080 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 9978.4 m²  Staff Occupancy Density = 9978.4 m² Staff Occupancy Density = 3.03 m²/staff Unit flow factor (UFF) per resident = 0.280 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 92.4 m²/day  Staff Occupancy Density = 3.72.8 m² Staff Occupancy Density = 3.72.8 m² Staff Occupancy Density = 19.6 m²/staff Unit flow factor (UFF) per resident = 3.72.8 m² Staff Occupancy Density = 19.6 m²/staff Unit flow factor (UFF) per resident = 3.82.1 m²/day  Staff Occupancy Density = 1.580 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 3.1.5 m²/day  Total Estimated Flow Catchment to = 3.83.1 m²/day  Catchment to Total Average Daily Dry Weather Flow Rate = 1.48 staff Unit flow Factor (UFF) per resident = 0.730 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 3.65.3 m²/day  Catchment to Total Average Daily Dry Weather Flow Rate = 3.65.3 m²/day  Staff Occupancy Density = 1.9460.1 m²  Staff Occupancy Density = 1.9460.1 m²		=	47980.8 m <sup>2</sup>	
No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  1 0.080 m²/dav/person Estimated Floor Area  2 9978.4 m² Staff Occupancy Density 8 330 staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate 2 92.4 m²/day  CS) Food & Beverage Estimated Floor Area  2 372.8 m² Staff Occupancy Density 8 2 372.8 m² Staff Occupancy Density 9 2 4 m²/day  CS) Food & Beverage Estimated Floor Area 1 9 2.4 m²/day  Staff Occupancy Density 1 19.6 m²/staff Unit flow Factor (UFF) per resident 1 10 m² as stated in Table 8 of Ref.1.  Worker density by Industry Group (All Type) for "Community, Social & Personal Services" in Table T-2 of Ref. 2 is adopted.  Worker density by Industry Group (All Type) for "Community, Social & Personal Services" in Table T-2 of Ref. 2 is adopted.  Worker density by Industry Group (All Type) for "Restaurants" is 5.1 S in 100m² as stated in Table 8 of Ref.1.  Worker density by Industry Group (All Type) for "Restaurants" is 5.1 S in 100m² as stated in Table 8 of Ref.1.  Worker density by Industry Group (All Type) for "Restaurants" is 5.1 S in 100m² as stated in Table 8 of Ref.1.  Worker density by Industry Group (All Type) for "Restaurants" is 5.1 S in 100m² as stated in Table 8 of Ref.1.  Catchement Inflow Factor (UFF) per resident 2 1.1  Catchement Inflow Factor for Kwai Chung in Table T-4 of Ref. 2 is adopted.  Staff Occupancy Density 3 2.5 Staff Occupancy Density 4 3.5 m²/day  Catchement Inflow Factor for Kwai Chung in Table T-4 of Ref. 2 is adopted.  Worker density by Industry Group (All Type) for "Manufacturing" is 2. Staff In 100m² as stated in Table 8 of Ref.1.  Worker density by Industry Group (All Type) for "Manufacturing" is 2. Staff In 100m² as stated in Table 8 of Ref.1.  Worker density by Industry Group (All Type) for "Storage" is 0.4 Staff in 100m² as stated in Table 8 of Ref.1.  Worker density by Industry Group (All Type) for "Storage" is 0.4 Staff in 100m² as stated in Table 8 of Ref.1.  Worker density by Indus	Staff Occupancy Density	=	29.4 m <sup>2</sup> /staff	Worker density by Industry Group (All Type) for "All Economic Activities" is 3.4 Staff in 100m <sup>2</sup> as stated in Table 8 of Ref.1.
Estimated Total Average Daily Dry Weather Flow Rate = 130.6 m²/day  C4) Community Estimated Floor Area = 9978.4 m² Staff Occupancy Density = 30.3 m²/staff No. of Staff = 330 staff Unit flow Factor (UFF) per resident = 0.280 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 372.8 m² Staff Occupancy Density = 19.6 m²/staff Unit flow Factor (UFF) per resident = 1.580 m²/day/person Staff Occupancy Density = 19.6 m²/staff Unit flow Factor (UFF) per resident = 1.580 m²/day/person Estimated Flow = 372.8 m² Worker density by Industry Group (All Type) for "Community, Social & Personal Services" in Table T-2 of Ref. 2 is adopted.  Worker density by Industry Group (All Type) for "Community, Social & Personal Services" in Table T-2 of Ref. 2 is adopted.  Worker density by Industry Group (All Type) for "Community, Social & Personal Services" in Table T-2 of Ref. 2 is adopted.  Worker density by Industry Group (All Type) for "Restaurants" is 5.1 S in 100m² as stated in Table 8 of Ref. 2 is adopted.  Worker density by Industry Group (All Type) for "Restaurants" is 5.1 S in 100m² as stated in Table 8 of Ref. 2 is adopted.  Unit flow Factor (UFF) per resident = 1.580 m²/day/person Staff Occupancy Density = 332.1 m²/day  Catchment Inflow Factor for Kwai Chung in Table T-4 of Ref. 2 is adopted.  Catchment D  D1) Factory/ Workshop Use Staff Occupancy Density = 19460.1 m² Staff Occupancy Density = 43.5 m²/staff Unit flow Factor (UFF) per resident = 0.730 m²/day/person Staff in 100m² as stated in Table 8 of Ref. 1.  Unit flow Factor (UFF) per resident = 0.730 m²/day/person Staff in 100m² as stated in Table 8 of Ref. 2 is adopted.  Worker density by Industry Group (All Type) for "Manufacturing" is 2.5 in 100m² as stated in Table 8 of Ref. 2 is adopted.  Worker density by Industry Group (All Type) for "Storage" is 0.4 Staff in 100m² as stated in Table 8 of Ref. 1.  Unit flow Factor (UFF) per resident = 0.730 m²/day/person Staff in 100m² as stated in Table 8 of Ref. 1.  Unit flow Factor (UFF) per resident = 0.730 m²/d				
C4) Community Estimated Floor Area = 9978.4 m²  Staff Occupancy Density = 30.3 m²/staff No. of Staff Unit flow Factor (UFF) per resident = 0.280 m²/day/person Estimated Total Average Dally Dry Weather Flow Rate = 372.8 m²  Staff Occupancy Density = 19.6 m²/staff Unit flow Factor (UFF) per resident = 20 staff Unit flow Factor (UFF) per resident = 1.580 m²/day/person Estimated Total Average Dally Dry Weather Flow Rate = 31.6 m²/day  Total Estimated Total Average Dally Dry Weather Flow Rate = 31.6 m²/day  Catchment Inflow Factor (UFF) per resident = 1.580 m²/day/person Estimated Total Average Dally Dry Weather Flow Rate = 332.1 m²/day  Catchment Inflow Factor (UFF) per resident = 1.1  Total Average Dally Dry Weather Flow Rate = 31.6 m²/day  Catchment Inflow Factor (UFF) per resident = 1.1  Total Average Dally Dry Weather Flow of Catchment C = 3653 m²/day   Catchment D  D1) Factory/ Workshop Use Estimated Floor Area = 19460.1 m² Staff Occupancy Density = 43.5 m²/staff Unit flow Factor (UFF) per resident = 0.730 m³/day/person Estimated Flora Area = 19460.1 m² Staff Occupancy Density = 43.5 m²/staff Unit flow Factor (UFF) per resident = 0.730 m³/day/person Estimated Flora Area = 99212.1 m² Worker density by Industry Group (All Type) for "Manufacturing" is 2.5 Staff in 100m² as stated in Table 8 of Ref.1.  Worker density by Industry Group (All Type) for "Manufacturing" is 2.5 Staff in 100m² as stated in Table 8 of Ref.1.  Worker density by Industry Group (All Type) for "Manufacturing" is 2.5 Staff in 100m² as stated in Table 8 of Ref.1.  Worker density by Industry Group (All Type) for "Manufacturing" is 2.5 Staff in 100m² as stated in Table 8 of Ref.1.  Worker density by Industry Group (All Type) for "Manufacturing" is 2.5 Manufacturing is 2.5 Staff in 100m² as stated in Table 8 of Ref.1.  Worker density by Industry Group (All Type) for "Storage" is 0.4 Staff in 100m² as stated in Table 8 of Ref.1.  Worker density by Industry Group (All Type) for "Storage" is 0.4 Staff in 100m² as stated in Table 8 of Ref.1.  Worker d				UFF for "Commercial Employee" in Table T-2 of Ref. 2 is adopted.
Estimated Floor Area = 9978.4 m²  Staff Occupancy Density = 30.3 m²/staff  No. of Staff Unit flow Factor (UFF) per resident = 0.280 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 372.8 m²  Staff Occupancy Density = 19.6 m²/staff Unit flow Factor (UFF) per resident = 1.580 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 1.580 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 1.580 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 1.580 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 316 m²/day  Catchment Inflow Factor (UFF) per resident = 1.580 m²/day/person Estimated Flow = 332.1 m²/day  Catchment Inflow Factor D  D1) Factory/ Workshop Use Estimated Floor Area = 19460.1 m²  Staff Occupancy Density = 43.5 m²/staff Unit flow Factor (UFF) per resident = 327.0 m²/day/person Estimated Floor Area = 99212.1 m²  Staff Occupancy Density = 250.0 m²/staff Unit flow Factor (UFF) per resident = 327.0 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 327.0 m²/day  D2) Logistics/ Storage Estimated Total Average Daily Dry Weather Flow Rate = 39212.1 m² Staff Occupancy Density = 250.0 m²/staff Unit flow Factor (UFF) per resident = 327.0 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 327.0 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 327.0 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 327.0 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 327.0 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 327.0 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 327.0 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 327.0 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 327.0 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 327.0 m²/day/person Estimated Total Average Daily Dry Weather Flow Rate = 327.0 m²/day/person Estimated Total Average Daily Dry Weath	Estimated Total Average burly by Wedner How Rute		130.0 m /uay	
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No. of Staff  Unit flow Factor (UFF) per resident  Estimated Total Average Daily Dry Weather Flow Rate  = 372.8 m²  Staff Occupancy Density  No. of Staff  Unit flow Factor (UFF) per resident  = 372.8 m²  Staff Occupancy Density  Total Estimated Flow  Catchment Inflow Factor  Total Average Daily Dry Weather Flow Rate  = 332.1 m²/day  Catchment Inflow Factor  Total Average Daily Dry Weather Flow Rate  Estimated Floor Area  Staff Occupancy Density  Total Catchment Inflow Factor  Total Average Daily Dry Weather Flow Rate  Estimated Floor Area  Staff Occupancy Density  Factory/Workshop Use  Estimated Floor Area  Staff Occupancy Density  No. of Staff  Unit flow Factor (UFF) per resident  Estimated Total Average Daily Dry Weather Flow Rate  Estimated Total Average Daily Dry Weather Flow Rate  Estimated Total Average Daily Dry Weather Flow Rate  Estimated Total Average Daily Dry Weather Flow of Catchment C  D1) Factory/Workshop Use  Estimated Floor Area  Staff Occupancy Density  No. of Staff  Unit flow Factor (UFF) per resident  Estimated Total Average Daily Dry Weather Flow Rate  Es				Worker density by Industry Group (All Type) for "Community, Social &
Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  Estimated Floor Area  Staff Occupancy Density  Total Estimated Floor  Catchment Inflow Factor  Total Average Daily Dry Weather Flow of Catchment C  Staff Occupancy Density  Factory (Workshop Use  Estimated Floor Area  Staff Occupancy Density  Factory (Workshop Use  Estimated Floor Area  Staff Occupancy Density  Diplectory (Workshop Use  Estimated Floor Area  Staff Occupancy Density  No. of Staff  Unit flow Factor (UFF) per resident  Staff Occupancy Density  Factory (Workshop Use  Estimated Floor Area  Staff Occupancy Density  No. of Staff  Unit flow Factor (UFF) per resident  Estimated Floor Area  Staff Occupancy Density  No. of Staff  Unit flow Factor (UFF) per resident  Estimated Total Average Daily Dry Weather Flow Rate  Staff Occupancy Density  Staff Occupancy Density			·	Personal Services" is 3.3 Staff in 100m <sup>2</sup> as stated in Table 8 of Ref.1.
Estimated Total Average Daily Dry Weather Flow Rate = 92.4 m³/day  CS) Food & Beverage  Estimated Floor Area = 372.8 m²  Staff Occupancy Density = 19.6 m²/staff  Unit flow Factor (UFF) per resident = 1.580 m³/day/person  Estimated Flow Factor (UFF) per resident = 1.1				UFF for "Commercial Employee + J11 Community, Social & Personal
CS) Food & Beverage Estimated Floor Area = 372.8 m²  Staff Occupancy Density = 19.6 m²/staff Unit flow Factor (UFF) per resident = 1.580 m³/day/person Estimated Flow = 31.6 m³/day  Total Estimated Flow Factor = 1.1  Total Average Daily Dry Weather Flow Rate = 31.5 m³/day  Catchment Inflow Factor = 1.1  Total Average Daily Dry Weather Flow of Catchment C = 365.3 m³/day  Catchment Inflow Factor for Kwai Chung in Table T-4 of Ref. 2 is adopted.  Catchment D  D1) Factory/ Workshop Use Estimated Floor Area = 19460.1 m² Staff Occupancy Density = 43.5 m²/staff Unit flow Factor (UFF) per resident = 0.730 m³/day/person Estimated Total Average Daily Dry Weather Flow Rate = 327.0 m³/day  D2) Logistics/ Storage Estimated Floor Area = 99211.1 m² Staff Occupancy Density = 250.0 m²/staff No. of Staff = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 0.180 m³/day/person				Services" in Table T-2 of Ref. 2 is adopted.
Estimated Floor Area = 372.8 m²  Staff Occupancy Density = 19.6 m²/staff  No. of Staff Unit flow Factor (UFF) per resident = 1.580 m³/day/person Estimated Total Average Daily Dry Weather Flow Rate = 332.1 m³/day  Catchment Inflow Factor = 332.1 m³/day  Catchment D  D1) Factory/ Workshop Use Estimated Flor Area = 19460.1 m² Staff Occupancy Density = 43.5 m²/staff Unit flow Factor (UFF) per resident = 0.730 m³/day/person Estimated Total Average Daily Dry Weather Flow Rate = 327.0 m³/day  D2) Logistics/ Storage Estimated Floor Area = 99212.1 m² Staff Occupancy Density = 337.0 m³/day  D2) Logistics/ Storage Estimated Floor Area = 99212.1 m² Staff Occupancy Density = 250.0 m²/staff Unit flow Factor (UFF) per resident = 397.0 m³/day/person Estimated Floor Area = 99212.1 m² Staff Occupancy Density = 250.0 m²/staff Unit flow Factor (UFF) per resident = 397.0 m³/day/person Estimated Floor Area = 99212.1 m² Staff Occupancy Density = 250.0 m²/staff Unit flow Factor (UFF) per resident = 397.0 m³/day/person Estimated Floor Area = 99212.1 m² Unit flow Factor (UFF) per resident = 397.0 m³/day/person Estimated Floor Area = 99212.1 m² Unit flow Factor (UFF) per resident = 397.0 m³/day/person Estimated Floor Area = 99212.1 m² Unit flow Factor (UFF) per resident = 397.0 m³/day/person Estimated Floor Area = 99212.1 m² Estimated Floor Area = 99212.1 m² Unit flow Factor (UFF) per resident = 30.180 m³/day/person Estimated Floor Area = 397.0 m³/day/person Estimated Floor Area = 99212.1 m² Estimated Floor Area = 397.0 m³/day/person = 397.0 m³/day/person Estimated Floor Area = 397.0 m³/day/person = 397.0 m³/day	Estimated Total Average burly by Weather How Nate	_	32.4 III /uay	
Staff Occupancy Density = 19.6 m²/staff No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate = 1.580 m³/day/person Estimated Flow = 31.6 m³/day  Total Estimated Flow = 332.1 m³/day  Catchment Inflow Factor  Total Average Daily Dry Weather Flow of Catchment C = 365.3 m³/day  Catchment Inflow Factor  D1) Factory/ Workshop Use Estimated Floor Area Staff Occupancy Density = 1.9460.1 m² Staff Occupancy Density = 43.5 m²/staff Unit flow Factor (UFF) per resident = 327.0 m³/day  D2) Logistics/ Storage Estimated Floor Area = 99212.1 m² Staff Occupancy Density = 250.0 m³/staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resi		_	272.0 7	
No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  Total Estimated Flow Catchment Inflow Factor  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Estimated Floor  Estimated Floor Area  Staff Occupancy Density  Lonit flow Factor (UFF) per resident  Estimated Total Average Daily Dry Weather Flow Rate  Staff Occupancy Density  Estimated Total Average Daily Dry Weather Flow Rate  Staff Occupancy Density  Estimated Total Average Daily Dry Weather Flow Rate  Estimated Total Average Daily Dry Weather Flow Rate  Staff Occupancy Density  Estimated Floor Area  Staff Occupancy Density  Estimated Floor Area  Staff Occupancy Density  Staff Occupancy Density  Estimated Floor Area  Staff Occupancy Density  Staff Occupancy Density  Occupancy Density  Estimated Floor Area  Staff Occupancy Density  Occupancy Density  Estimated Floor Area  Staff Occupancy Density  Occupancy Density  Estimated Floor Area  Staff Occupancy Density  Occupancy Density  Occupancy Density  Occupancy Density  Estimated Floor Area  Staff Occupancy Density  Occupancy Density  Occupancy Density  Estimated Floor Area  Staff Occupancy Density  O				Worker density by Industry Group (All Type) for "Restaurants" is 5.1 Staff
Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  Total Estimated Flow Catchment Inflow Factor  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Tot			·	in 100m <sup>2</sup> as stated in Table 8 of Ref.1.
Estimated Total Average Daily Dry Weather Flow Rate = 31.6 m³/day  Total Estimated Flow = 332.1 m³/day  Catchment Inflow Factor = 1.1  Total Average Daily Dry Weather Flow of Catchment C = 365.3 m³/day  Catchment D  D1) Factory/ Workshop Use Estimated Floor Area = 19460.1 m²  Staff Occupancy Density = 43.5 m²/staff Unit flow Factor (UFF) per resident = 0.730 m³/day/person Estimated Total Average Daily Dry Weather Flow Rate = 327.0 m³/day  D2) Logistics/ Storage Estimated Floor Area = 99212.1 m²  Staff Occupancy Density = 250.0 m²/staff No. of Staff = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 0.180 m³/day/person  Staff Occupancy Density = 250.0 m²/staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 0.180 m³/day/person  Staff Occupancy Density = 317 ransport, Storage & Communications "in Table T-3 of Ref. 2 is adopted.  Staff Occupancy Density = 0.180 m³/day/person  Staff Occupancy Density = 0.180 m³/day/				UFF for "Commercial Employee + J10 Restaurants & Hotels" in Table T-2
Total Estimated Flow = 332.1 m³/day  Catchment Inflow Factor = 1.1  Total Average Daily Dry Weather Flow of Catchment C = 365.3 m³/day   Catchment D  D1) Factory/ Workshop Use Estimated Floor Area = 19460.1 m² Staff Occupancy Density = 43.5 m²/staff Unit flow Factor (UFF) per resident = 0.730 m³/day/person Estimated Total Average Daily Dry Weather Flow Rate = 327.0 m³/day  D2) Logistics/ Storage Estimated Floor Area = 99212.1 m² Staff Occupancy Density = 250.0 m²/staff No. of Staff = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 3100000000000000000000000000000000000				of Ref. 2 is adopted.
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Catchment Inflow Factor  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow of Catchment C  Total Average Daily Dry Weather Flow Catchment C  Total Catchment D  Worker density by Industry Group (All Type) for "Storage" is 0.4 Staff in 100m² as stated in Table 8 of Ref. 2. Worker density by Industry Group (All Type) for "Storage" is 0.4 Staff in 100m² as stated in Table 8 of Ref. 2. Worker density by Industry Group (All Type) for "Storage" is 0.4 Staff in 100m² as stated in Table 8 of Ref. 2. Worker density by Industry Group (All Type) for "Storage" is 0.4 Staff in 100m² as stated in Table 8 of Ref. 2. Worker density by Industry Group (All Type) for "Storage" is 0.4 Staff in 100m² as stated in Table 8 of Ref. 2. Worker density by Industry Group (All Type) for "Storage" is 0.4 Staff in 100m² as stated in Table 8 of Ref. 2. Worker density by Industry Group (All Type) for "Storage" in 1		=	332.1 m <sup>3</sup> /day	Catchament Inflow Factor for Kwai Chung in Tahla T-4 of Ref. 2 is
Catchment D  D1) Factory/ Workshop Use Estimated Floor Area = 19460.1 m²  Staff Occupancy Density = 43.5 m²/staff  No. of Staff Unit flow Factor (UFF) per resident = 0.730 m³/day/person Estimated Total Average Daily Dry Weather Flow Rate = 327.0 m³/day  D2) Logistics/ Storage Estimated Floor Area = 99212.1 m²  Staff Occupancy Density = 250.0 m²/staff No. of Staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 0.180 m³/day/person UFF for "Commercial Employee + Industrial Activities of Kwai Chung" in Table T-3 of Ref. 2 is adopted.  Worker density by Industry Group (All Type) for "Storage" is 0.4 Staff in 100m² as stated in Table 8 of Ref.1.  Worker density by Industry Group (All Type) for "Storage" is 0.4 Staff in 100m² as stated in Table 8 of Ref.1.  Worker density by Industry Group (All Type) for "Storage" is 0.4 Staff in 100m² as stated in Table 8 of Ref.1.  UFF for "Commercial Employee + J3 Transport, Storage & Communications" in Table T-3 of Ref. 2 is adopted.	Catchment Inflow Factor	=	1.1	_
D1) Factory/ Workshop Use Estimated Floor Area = 19460.1 m²  Staff Occupancy Density = 43.5 m²/staff  No. of Staff Unit flow Factor (UFF) per resident = 327.0 m³/day/person Estimated Floor Area = 99212.1 m²  Staff Occupancy Density = 250.0 m²/staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff UFF for "Commercial Employee + J3 Transport, Storage & Communications" in Table T-3 of Ref. 2 is adopted.	Total Average Daily Dry Weather Flow of Catchment C	=	365.3 m³/day	
D1) Factory/ Workshop Use Estimated Floor Area = 19460.1 m²  Staff Occupancy Density = 43.5 m²/staff  No. of Staff Unit flow Factor (UFF) per resident = 327.0 m³/day/person Estimated Floor Area = 99212.1 m²  Staff Occupancy Density = 250.0 m²/staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 0.180 m³/day/person UFF for "Industrial Employee + Industrial Activities of Kwai Chung" in Table T-3 of Ref. 2 is adopted.  Worker density by Industry Group (All Type) for "Storage" is 0.4 Staff in 100m² as stated in Table 8 of Ref.1.  Worker density by Industry Group (All Type) for "Storage" is 0.4 Staff in 100m² as stated in Table 8 of Ref.1.  UFF for "Commercial Employee + J3 Transport, Storage & Communications" in Table T-3 of Ref. 2 is adopted.	Catchment D			
Staff Occupancy Density = 43.5 m²/staff  No. of Staff Unit flow Factor (UFF) per resident = 0.730 m³/day/person Estimated Total Average Daily Dry Weather Flow Rate = 327.0 m³/day  D2) Logistics/ Storage Estimated Floor Area = 99212.1 m² Staff Occupancy Density = 250.0 m²/staff No. of Staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 0.180 m³/day/person  Worker density by Industry Group (All Type) for "Manufacturing" is 2. Staff in 100m² as stated in Table 8 of Ref. 2 is adopted.  Worker density by Industry Group (All Type) for "Manufacturing" is 2. Staff in 100m² as stated in Table 8 of Ref. 2 is adopted.  Worker density by Industry Group (All Type) for "Storage" is 0.4 Staff in 100m² as stated in Table 8 of Ref. 1.  Worker density by Industry Group (All Type) for "Storage" is 0.4 Staff in 100m² as stated in Table 8 of Ref. 2 is adopted.  Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 0.180 m³/day/person	D1) Factory/ Workshop Use			
Staff Occupancy Density = 43.5 m²/staff  No. of Staff  Unit flow Factor (UFF) per resident = 0.730 m³/day/person Estimated Total Average Daily Dry Weather Flow Rate = 327.0 m³/day  D2) Logistics/ Storage Estimated Floor Area = 99212.1 m²  Staff Occupancy Density = 250.0 m²/staff  No. of Staff Unit flow Factor (UFF) per resident = 397 staff Unit flow Factor (UFF) per resident = 0.180 m³/day/person  Staff Occupancy Density = 397 staff Unit flow Factor (UFF) per resident = 0.180 m³/day/person  Staff Occupancy Density = 397 staff Unit flow Factor (UFF) per resident = 0.180 m³/day/person  Staff in 100m² as stated in Table 8 of Ref. 1.  Worker density by Industry Group (All Type) for "Storage" is 0.4 Staff in 100m² as stated in Table 8 of Ref. 2 is adopted.		=		Worker density by Industry Group (All Type) for "Manufacturing" is 2.3
Unit flow Factor (UFF) per resident = 0.730 m³/day/person Estimated Total Average Daily Dry Weather Flow Rate = 327.0 m³/day  D2) Logistics/ Storage Estimated Floor Area = 99212.1 m²  Staff Occupancy Density = 250.0 m²/staff No. of Staff Unit flow Factor (UFF) per resident = 0.180 m³/day/person  UFF for "Industrial Employee + Industrial Activities of Kwai Chung" in Table T-3 of Ref. 2 is adopted.  Worker density by Industry Group (All Type) for "Storage" is 0.4 Staff in 100m² as stated in Table 8 of Ref.1.  UFF for "Commercial Employee + J3 Transport, Storage & Communications" in Table T-3 of Ref. 2 is adopted.	Staff Occupancy Density	=	·	
Estimated Total Average Daily Dry Weather Flow Rate = 327.0 m³/day/  D2) Logistics/ Storage Estimated Floor Area = 99212.1 m²  Staff Occupancy Density = 250.0 m²/staff No. of Staff Unit flow Factor (UFF) per resident = 0.180 m³/day/person  Table T-3 of Ref. 2 is adopted.  Worker density by Industry Group (All Type) for "Storage" is 0.4 Staff in 100m² as stated in Table 8 of Ref. 1.  UFF for "Commercial Employee + J3 Transport, Storage & Communications" in Table T-3 of Ref. 2 is adopted.				UFF for "Industrial Employee + Industrial Activities of Kwai Chung" in
D2) Logistics/ Storage Estimated Floor Area = 99212.1 m²  Staff Occupancy Density = 250.0 m²/staff  No. of Staff Unit flow Factor (UFF) per resident = 397 staff  UFF for "Commercial Employee + J3 Transport, Storage & Communications" in Table T-3 of Ref. 2 is adopted.				
Estimated Floor Area = 99212.1 m <sup>2</sup> Staff Occupancy Density = 250.0 m <sup>2</sup> /staff  No. of Staff  Unit flow Factor (UFF) per resident = 0.180 m <sup>3</sup> /day/person  Worker density by Industry Group (All Type) for "Storage" is 0.4 Staff i 100m <sup>2</sup> as stated in Table 8 of Ref.1.  UFF for "Commercial Employee + J3 Transport, Storage & Communications" in Table T-3 of Ref. 2 is adopted.	estimated Total Average Daily Dry Weather Flow Rate	=	327.U m³/day	
Staff Occupancy Density = 250.0 m²/staff  No. of Staff Unit flow Factor (UFF) per resident = 397 staff  Unit flow Factor (UFF) per resident = 0.180 m³/day/person  Worker density by Industry Group (All Type) for "Storage" is 0.4 Staff i 100m² as stated in Table 8 of Ref.1.  UFF for "Commercial Employee + J3 Transport, Storage & Communications" in Table T-3 of Ref. 2 is adopted.	· ·	_	00212.1 2	
No. of Staff = 397 staff  Unit flow Factor (UFF) per resident = 0.180 m³/day/person  UFF for "Commercial Employee + J3 Transport, Storage & Communications" in Table T-3 of Ref. 2 is adopted.				Worker density by Industry Group (All Type) for "Storage" is 0.4 Staff in
Unit flow Factor (UFF) per resident = 0.180 m³/day/person UFF for "Commercial Employee + J3 Transport, Storage & Communications" in Table T-3 of Ref. 2 is adopted.				100m <sup>2</sup> as stated in Table 8 of Ref.1.
Communications" in Table 1-3 of Ref. 2 is adopted.				
ii /uay				Communications" in Table T-3 of Ref. 2 is adopted.
l I	Lamaca . Sa. Average bury by weather flow hate	-	· === III /uay	



D3) Office			
Estimated Floor Area	=	197766.3 m <sup>2</sup>	Worker density by Industry Group (All Type) for "All Economic Activities
Staff Occupancy Density	=	29.4 m <sup>2</sup> /staff	is 3.4 Staff in 100m <sup>2</sup> as stated in Table 8 of Ref.1.
No. of Staff	=	6,725 staff	
Unit flow Factor (UFF) per resident	=	0.080 m³/day/person	UFF for "Commercial Employee" in Table T-2 of Ref. 2 is adopted.
Estimated Total Average Daily Dry Weather Flow Rate	=	538.0 m <sup>3</sup> /day	
D4) <u>Community</u>			
Estimated Floor Area	=	14090.7 m <sup>2</sup>	
Staff Occupancy Density	=	30.3 m <sup>2</sup> /staff	Worker density by Industry Group (All Type) for "Community, Social & Personal Services" is 3.3 Staff in 100m <sup>2</sup> as stated in Table 8 of Ref.1.
No. of Staff	=	465 staff	resonal services 13 3.3 Staff III Toolii as stated III Table 6 of Ref. 1.
Unit flow Factor (UFF) per resident	=	0.280 m <sup>3</sup> /day/person	UFF for "Commercial Employee + J11 Community, Social & Personal Services" in Table T-2 of Ref. 2 is adopted.
Estimated Total Average Daily Dry Weather Flow Rate	=	130.2 m³/day	Services III Table 1-2 of Net. 213 adopted.
D5) Food & Beverage			
Estimated Floor Area	=	1537.5 m <sup>2</sup>	
Staff Occupancy Density	_	19.6 m <sup>2</sup> /staff	Worker density by Industry Group (All Type) for "Restaurants" is 5.1 St
No. of Staff	=	79 staff	in 100m <sup>2</sup> as stated in Table 8 of Ref.1.
			UFF for "Commercial Employee + J10 Restaurants & Hotels" in Table T-:
Unit flow Factor (UFF) per resident	=	1.580 m³/day/person	of Ref. 2 is adopted.
Estimated Total Average Daily Dry Weather Flow Rate	=	124.8 m <sup>3</sup> /day	
D6) Wholesale			
Estimated Floor Area	=	4239.6 m <sup>2</sup>	
Staff Occupancy Density	=	19.6 m <sup>2</sup> /staff	Worker density by Industry Group (All Type) for "Wholesale Trade" is 2 Staff in 100m <sup>2</sup> as stated in Table 8 of Ref.1.
No. of Staff	=	217 staff	Stati II 100111 as stated III Table 8 of Ref.1.
Unit flow Factor (UFF) per resident	=	0.280 m <sup>3</sup> /day/person	UFF for "Commercial Employee + J4 Wholesale & Retail" in Table T-2 of Ref. 2 is adopted.
Estimated Total Average Daily Dry Weather Flow Rate	=	60.8 m <sup>3</sup> /day	Net. 213 audyteu.
Total Estimated Flow	=	1,252.3 m <sup>3</sup> /day	
Catchment Inflow Factor	=		Catchement Inflow Factor for Kwai Chung in Table T-4 of Ref. 2 is
		1.1	
Total Average Daily Dry Weather Flow of Catchment D	=		adopted.
Total Average Daily Dry Weather Flow of Catchment D		1,377.5 m <sup>3</sup> /day	adopted.
Catchment E			adopted.
Catchment E E1) Wholesale	=	1,377.5 m <sup>3</sup> /day	adopted.
Catchment E E1) Wholesale Estimated Floor Area	=	1,377.5 m <sup>3</sup> /day	
Catchment E  E1) Wholesale Estimated Floor Area Staff Occupancy Density	= = =	1,377.5 m <sup>3</sup> /day 291.3 m <sup>2</sup> 19.6 m <sup>2</sup> /staff	
Catchment E  E1) Wholesale Estimated Floor Area Staff Occupancy Density No. of Staff	= = = =	1,377.5 m <sup>3</sup> /day  291.3 m <sup>2</sup> 19.6 m <sup>2</sup> /staff  15 staff	Worker density by Industry Group (All Type) for "Wholesale Trade" is 2 Staff in 100m <sup>2</sup> as stated in Table 8 of Ref.1.
Catchment E  E1) Wholesale Estimated Floor Area Staff Occupancy Density	= = =	1,377.5 m <sup>3</sup> /day 291.3 m <sup>2</sup> 19.6 m <sup>2</sup> /staff	Worker density by Industry Group (All Type) for "Wholesale Trade" is 2 Staff in 100m <sup>2</sup> as stated in Table 8 of Ref.1.
Catchment E  E1) Wholesale Estimated Floor Area Staff Occupancy Density No. of Staff	= = = =	1,377.5 m <sup>3</sup> /day  291.3 m <sup>2</sup> 19.6 m <sup>2</sup> /staff  15 staff	Worker density by Industry Group (All Type) for "Wholesale Trade" is 2 Staff in 100m <sup>2</sup> as stated in Table 8 of Ref.1. UFF for "Commercial Employee + J4 Wholesale & Retail" in Table T-2 of
Catchment E  E1) Wholesale Estimated Floor Area Staff Occupancy Density No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate	= = = =	1,377.5 m³/day  291.3 m²  19.6 m²/staff  15 staff  0.280 m³/day/person	Worker density by Industry Group (All Type) for "Wholesale Trade" is 2 Staff in 100m <sup>2</sup> as stated in Table 8 of Ref.1. UFF for "Commercial Employee + J4 Wholesale & Retail" in Table T-2 of
Catchment E  E1) Wholesale Estimated Floor Area Staff Occupancy Density No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate	= = = =	1,377.5 m <sup>3</sup> /day  291.3 m <sup>2</sup> 19.6 m <sup>2</sup> /staff  15 staff  0.280 m <sup>3</sup> /day/person	Worker density by Industry Group (All Type) for "Wholesale Trade" is 2 Staff in 100m <sup>2</sup> as stated in Table 8 of Ref.1. UFF for "Commercial Employee + J4 Wholesale & Retail" in Table T-2 of Ref. 2 is adopted.
Catchment E  E1) Wholesale Estimated Floor Area Staff Occupancy Density No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  E2) Shop	= = = = = =	1,377.5 m <sup>3</sup> /day  291.3 m <sup>2</sup> 19.6 m <sup>2</sup> /staff  15 staff  0.280 m <sup>3</sup> /day/person  4.2 m <sup>3</sup> /day	Worker density by Industry Group (All Type) for "Wholesale Trade" is 2 Staff in 100m <sup>2</sup> as stated in Table 8 of Ref.1.  UFF for "Commercial Employee + J4 Wholesale & Retail" in Table T-2 of Ref. 2 is adopted.  Worker density by Industry Group (All Type) for "Retail Trade" is 3.5 St
Catchment E  E1) Wholesale Estimated Floor Area Staff Occupancy Density No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  E2) Shop Estimated Floor Area	= = = = = =	1,377.5 m <sup>3</sup> /day  291.3 m <sup>2</sup> 19.6 m <sup>2</sup> /staff  15 staff  0.280 m <sup>3</sup> /day/person  4.2 m <sup>3</sup> /day	Worker density by Industry Group (All Type) for "Wholesale Trade" is 2 Staff in 100m <sup>2</sup> as stated in Table 8 of Ref.1.  UFF for "Commercial Employee + J4 Wholesale & Retail" in Table T-2 of Ref. 2 is adopted.  Worker density by Industry Group (All Type) for "Retail Trade" is 3.5 St in 100m <sup>2</sup> as stated in Table 8 of Ref.1.
Catchment E  E1) Wholesale Estimated Floor Area Staff Occupancy Density No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  E2) Shop Estimated Floor Area Staff Occupancy Density	= = = = = =	1,377.5 m³/day  291.3 m²  19.6 m²/staff  15 staff  0.280 m³/day/person  4.2 m³/day  1019.6 m²  28.6 m²/staff	Worker density by Industry Group (All Type) for "Wholesale Trade" is 2 Staff in 100m <sup>2</sup> as stated in Table 8 of Ref.1.  UFF for "Commercial Employee + J4 Wholesale & Retail" in Table T-2 of Ref. 2 is adopted.  Worker density by Industry Group (All Type) for "Retail Trade" is 3.5 St in 100m <sup>2</sup> as stated in Table 8 of Ref.1.  UFF for "Commercial Employee + J4 Wholesale & Retail" in Table T-2 of
Catchment E  E1) Wholesale Estimated Floor Area Staff Occupancy Density No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  E2) Shop Estimated Floor Area Staff Occupancy Density No. of Staff	= = = = = = = = = = = = = = = = = = = =	291.3 m <sup>2</sup> 19.6 m <sup>2</sup> /staff  15 staff  0.280 m <sup>3</sup> /day/person  4.2 m <sup>3</sup> /day  1019.6 m <sup>2</sup> 28.6 m <sup>2</sup> /staff  36 staff	Worker density by Industry Group (All Type) for "Wholesale Trade" is 2 Staff in 100m <sup>2</sup> as stated in Table 8 of Ref.1.  UFF for "Commercial Employee + J4 Wholesale & Retail" in Table T-2 of Ref. 2 is adopted.  Worker density by Industry Group (All Type) for "Retail Trade" is 3.5 St
Catchment E  E1) Wholesale Estimated Floor Area Staff Occupancy Density No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  E2) Shop Estimated Floor Area Staff Occupancy Density No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate	= = = = = = = = = = = = = = = = = = = =	291.3 m <sup>2</sup> 19.6 m <sup>2</sup> /staff 15 staff 0.280 m <sup>3</sup> /day/person 4.2 m <sup>3</sup> /day  1019.6 m <sup>2</sup> 28.6 m <sup>2</sup> /staff 36 staff 0.280 m <sup>3</sup> /day/person	Worker density by Industry Group (All Type) for "Wholesale Trade" is 2 Staff in 100m <sup>2</sup> as stated in Table 8 of Ref.1.  UFF for "Commercial Employee + J4 Wholesale & Retail" in Table T-2 of Ref. 2 is adopted.  Worker density by Industry Group (All Type) for "Retail Trade" is 3.5 St in 100m <sup>2</sup> as stated in Table 8 of Ref.1.  UFF for "Commercial Employee + J4 Wholesale & Retail" in Table T-2 of
Catchment E  E1) Wholesale Estimated Floor Area Staff Occupancy Density No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  E2) Shop Estimated Floor Area Staff Occupancy Density No. of Staff Unit flow Factor (UFF) per resident	= = = = = = = = = = = = = = = = = = = =	291.3 m <sup>2</sup> 19.6 m <sup>2</sup> /staff  15 staff  0.280 m <sup>3</sup> /day/person  4.2 m <sup>3</sup> /day  1019.6 m <sup>2</sup> 28.6 m <sup>2</sup> /staff  36 staff  0.280 m <sup>3</sup> /day/person  10.1 m <sup>3</sup> /day	Worker density by Industry Group (All Type) for "Wholesale Trade" is 2 Staff in 100m <sup>2</sup> as stated in Table 8 of Ref.1.  UFF for "Commercial Employee + J4 Wholesale & Retail" in Table T-2 of Ref. 2 is adopted.  Worker density by Industry Group (All Type) for "Retail Trade" is 3.5 St in 100m <sup>2</sup> as stated in Table 8 of Ref.1.  UFF for "Commercial Employee + J4 Wholesale & Retail" in Table T-2 of
Catchment E  E1) Wholesale Estimated Floor Area Staff Occupancy Density No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  E2) Shop Estimated Floor Area Staff Occupancy Density No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  E3) Office Estimated Floor Area	= = = = = = = = = = = = = = = = = = = =	291.3 m <sup>2</sup> 19.6 m <sup>2</sup> /staff 15 staff 0.280 m <sup>3</sup> /day/person 4.2 m <sup>3</sup> /day  1019.6 m <sup>2</sup> 28.6 m <sup>2</sup> /staff 36 staff 0.280 m <sup>3</sup> /day/person 10.1 m <sup>3</sup> /day	Worker density by Industry Group (All Type) for "Wholesale Trade" is 2 Staff in 100m <sup>2</sup> as stated in Table 8 of Ref.1.  UFF for "Commercial Employee + J4 Wholesale & Retail" in Table T-2 of Ref. 2 is adopted.  Worker density by Industry Group (All Type) for "Retail Trade" is 3.5 St in 100m <sup>2</sup> as stated in Table 8 of Ref.1.  UFF for "Commercial Employee + J4 Wholesale & Retail" in Table T-2 of Ref. 2 is adopted.
Catchment E  E1) Wholesale Estimated Floor Area Staff Occupancy Density No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  E2) Shop Estimated Floor Area Staff Occupancy Density No. of Staff Unit flow Factor (UFF) per resident Estimated Floor Area Staff Occupancy Density Staff Office Estimated Floor Area Staff Occupancy Density	= = = = = = = = = = = = = = = = = = = =	291.3 m <sup>2</sup> 19.6 m <sup>2</sup> /staff 15 staff 0.280 m <sup>3</sup> /day/person 4.2 m <sup>3</sup> /day  1019.6 m <sup>2</sup> 28.6 m <sup>2</sup> /staff 36 staff 0.280 m <sup>3</sup> /day/person 10.1 m <sup>3</sup> /day	Worker density by Industry Group (All Type) for "Wholesale Trade" is 2 Staff in 100m <sup>2</sup> as stated in Table 8 of Ref.1.  UFF for "Commercial Employee + J4 Wholesale & Retail" in Table T-2 of Ref. 2 is adopted.  Worker density by Industry Group (All Type) for "Retail Trade" is 3.5 St in 100m <sup>2</sup> as stated in Table 8 of Ref.1.  UFF for "Commercial Employee + J4 Wholesale & Retail" in Table T-2 of Ref. 2 is adopted.
Catchment E  E1) Wholesale Estimated Floor Area Staff Occupancy Density No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  E2) Shop Estimated Floor Area Staff Occupancy Density No. of Staff Unit flow Factor (UFF) per resident Estimated Total Average Daily Dry Weather Flow Rate  E3) Office Estimated Floor Area	= = = = = = = = = = = = = = = = = = = =	291.3 m <sup>2</sup> 19.6 m <sup>2</sup> /staff 15 staff 0.280 m <sup>3</sup> /day/person 4.2 m <sup>3</sup> /day  1019.6 m <sup>2</sup> 28.6 m <sup>2</sup> /staff 36 staff 0.280 m <sup>3</sup> /day/person 10.1 m <sup>3</sup> /day	Worker density by Industry Group (All Type) for "Wholesale Trade" is 2 Staff in 100m <sup>2</sup> as stated in Table 8 of Ref.1.  UFF for "Commercial Employee + J4 Wholesale & Retail" in Table T-2 of Ref. 2 is adopted.  Worker density by Industry Group (All Type) for "Retail Trade" is 3.5 St in 100m <sup>2</sup> as stated in Table 8 of Ref.1.  UFF for "Commercial Employee + J4 Wholesale & Retail" in Table T-2 of Ref. 2 is adopted.  Worker density by Industry Group (All Type) for "All Economic Activities"



E4)	Food & Beverage			
	Estimated Floor Area	=	873.9 m <sup>2</sup>	
	Staff Occupancy Density	=	19.6 m <sup>2</sup> /staff	Worker density by Industry Group (All Type) for "Restaurants" is 5.1 Staff in 100m <sup>2</sup> as stated in Table 8 of Ref.1.
	No. of Staff	=	45 staff	
	Unit flow Factor (UFF) per resident	=	1.580 m <sup>3</sup> /day/person	UFF for "Commercial Employee + J10 Restaurants & Hotels" in Table T-2 of Ref. 2 is adopted.
	Estimated Total Average Daily Dry Weather Flow Rate	=	71.1 m <sup>3</sup> /day	
E5)	Logistics/ Storage			
	Estimated Floor Area	=	873.9 m <sup>2</sup>	
	Staff Occupancy Density	=	250.0 m <sup>2</sup> /staff	Worker density by Industry Group (All Type) for "Storage" is 0.4 Staff in 100m <sup>2</sup> as stated in Table 8 of Ref.1.
	No. of Staff	=	4 staff	
	Unit flow Factor (UFF) per resident	=	0.180 m <sup>3</sup> /day/person	UFF for "Commercial Employee + J3 Transport, Storage & Communications" in Table T-3 of Ref. 2 is adopted.
	Estimated Total Average Daily Dry Weather Flow Rate	=	0.7 m³/day	
E6)	<u>Community</u>			
	Estimated Floor Area	=	1747.9 m <sup>2</sup>	
	Staff Occupancy Density	=	30.3 m <sup>2</sup> /staff	Worker density by Industry Group (All Type) for "Community, Social & Personal Services" is 3.3 Staff in 100m <sup>2</sup> as stated in Table 8 of Ref.1.
	No. of Staff	=	58 staff	
	Unit flow Factor (UFF) per resident	=	0.280 m <sup>3</sup> /day/person	UFF for "Commercial Employee + J11 Community, Social & Personal Services" in Table T-2 of Ref. 2 is adopted.
	Estimated Total Average Daily Dry Weather Flow Rate	=	16.2 m <sup>3</sup> /day	
	Total Estimated Flow	=	139.2 m³/day	
	Catchment Inflow Factor	=	1.1	Catchement Inflow Factor for Kwai Chung in Table T-4 of Ref. 2 is adopted.
	Total Average Daily Dry Weather Flow of Catchment E	=	153.1 m³/day	

#### Reference:

- Commercial and Industrial Floor Space Utilization Survey, Planning Department, 2005
  Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning Version 1.0, Environmental Protection Department of HK Government, March 2005



**Appendix C** Calculation of Flow Capacity



Pipe Segment ID	Dine Segment h	between Manholes	Length	Level (In)	Level (Out)	d	r	A <sub>w</sub>	P <sub>w</sub>	R	s	k <sub>s</sub>	٧	Qc	ADWF	D	D	Q <sub>p</sub>	Catchment	Is Q <sub>c</sub> > Q <sub>p</sub> ?	% of capacity
ripe segment ib	ripe segment	between Mannoles	m	mPD	mPD	m	m	m <sup>2</sup>	m	m	-	mm	m/s	m³/s	m³/day	r <sub>c</sub>		m <sup>3</sup> /s		Y/N	%
FWD4022033	FMH4021329	FMH4021330	34.8	13.75	12.31	0.225	0.113	0.040	0.707	0.057	0.041	6	1.829	0.066	270.47	1002	6	0.019	Catchment A	Υ	29%
FWD4022034	FMH4021330	FMH4021331	34.7	12.31	10.82	0.225	0.113	0.040	0.707	0.057	0.043	6	1.864	0.067	395.81	1466	6	0.027	Catchments A to B	Y	41%
FWD4022035	FMH4021331	FMH4021332	41.9	10.82	9.20	0.225	0.113	0.040	0.707	0.057	0.039	6	1.769	0.064	761.08	2819	6	0.053	0.1	Υ	83%
FWD4022036	FMH4021332	FMH4021333	35.9	9.20	7.80	0.225	0.113	0.040	0.707	0.057	0.039	6	1.776	0.064	761.08	2819	6	0.053	Catchments A to C	Υ	83%
FMD4000652	FMH4021333	FMH4021334	21.4	7.80	7.60	0.400	0.200	0.126	1.257	0.100	0.009	6	1.294	0.293	2138.59	7921	5	0.124	Catchments A to D	Υ	42%
FMD4000653	FMH4021334	FMH4021335	23.1	7.60	6.42	0.400	0.200	0.126	1.257	0.100	0.051	6	3.027	0.686	2291.73	8488	5	0.133	Catchments A to E	Υ	19%

Legend

d = pipe diameter, m

r = pipe radius (m) = 0.5d

 $A_w$  = wetted area (m<sup>2</sup>) = (r<sup>2</sup>/2) (b + sinq)

 $P_w$  = wetted perimeter (m) = br

s = Slope of the total energy line

R = Hydraulic radius (m) = A<sub>w</sub>/P<sub>w</sub>

s = Slope of the total energy line

k<sub>s</sub> = hydraulic pipeline roughness, mm

V = Velocity of flow calculated based on Colebrook-White Equation, m/s

Q<sub>c</sub> = Flow Capacity (10% sedimentation incorporated), m<sup>3</sup>/s

 $Q_p$  = Estimated total peak flow from the Site during peak season,  $m^3/s$ 

P<sub>c</sub> = Contributing Population = ADWF/0.27

P = Peaking Factor (including stormwater allowance) for facility with existing upstream sewerage

ADWF = Total average dry weather flow, m<sup>3</sup>/day

#### Not

- 1. Whilst sewage generation from the Site is estimated based on the "Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning Version 1.0" (published by the Environmental Protection Department (EPD), 2005) using the best available information, the flow capacities of pipe segments are calculated based on Colebrook-White Equation.
- 2. The roughness value is referred to Table 5 of the "Sewerage Manual, Key Planning Issues and Gravity Collection System" published by the Drainage Services Department (DSD).
- 3. Pipe segments FMD4000652 and FMD4000653 contain two multiple parallel pipes. The flow capacity (Q<sub>C</sub>) is therefore doubled.







#### Accountability

We understand the importance of being accountable to each other and our clients.



#### **Passion**

We are completely passionate about providing practical solutions and outcomes that deliver for our clients.



#### Insight

We work in an environment that encourages and values insight as a critical quality which informs our decisions and our clients and supports practical solutions and project delivery.



#### Integrity

We behave with respect and honesty toward each other, our clients and our stakeholders.