Appendix 5

Sewerage Impact Assessment

SKYLINE

Section 16 Planning Application for the Proposed Partial Conversion of an Existing Building into Student Hostel at 10 Anchor Street, Tai Kok Tsui, Kowloon

Sewerage Impact Assessment Report

Prepared by Skyline Consultants Ltd

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Date: 15 July 2026

Report Ref.: P194R045-01 (Ver. 1)

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1 Introduction

1.1.1.1 The Applicant intends to partially convert an existing commercial building, Chow Yin Sum Trust Fund Building, into student hostel (hereafter called as "the proposed development") at 10 Anchor Street, Tai Kok Tsui, Kowloon (the Site).

1.1.1.2 Owing to the anticipated change in sewage generation arising from the proposed development, Skyline Consultants Limited (Skyline) has been commissioned to conduct a Sewerage Impact Assessment (SIA) to facilitate the consideration of this planning application.

1.1.1.3 The objectives of this SIA are to assess the potential sewerage impact arising from the proposed development and recommend the mitigation measures, if necessary, to alleviate the impacts.

2 Site Description

2.1 Site Location

2.1.1.1 The Site is bounded by Anchor Street to its south and surrounded by residential and commercial developments. The site area is approximately 166.7 m^2. The following uses or buildings are located in close proximity to the Site:

- North: low-rise residential developments;
- East: serviced apartment of Oootopia Tai Kok Tsui;
- South: Anchor Street Playground; and
- West: low-rise residential developments.

2.1.1.2 **Figure 2-1** shows the Site location and its surrounding areas.

2.2 Proposed Development Scheme

2.2.1.1 The proposed development involves partial conversion of an existing commercial building, from 1/F to 14/F, into a student hostel to accommodate a total of 112 beds. The shops at G/F level remain unchanged. There will be no change to the existing building bulk and building height. The schedule of the proposed development is listed in **Table 2-1** and the development plans are shown in **Annex A**.

Table 2-1 Proposed Development Schedule

Floor	Major Uses
G/F	Shop / Eating Place / Lobby (unchanged)
1/F – 14/F	Student Dormitory / Supporting Facilities
R/F	Plant Rooms

2.3 Existing Sewerage

2.3.1.1 The drainage plans (plan no.: 11-NW-19A-2) were obtained from the Drainage Services Department (DSD) to gather the background information on sewerage infrastructure in the vicinity of the Site. The relevant drainage data were extracted from the drainage plans and are presented in **Figure 2-2**.

2.3.1.2 According to the drainage plans from the Buildings Department, sewage generation from the existing commercial building is discharged into the existing 150 mm diameter sewers at manhole A14 (manhole no.: FMH4066430) along service lane at east of the Site. An existing 300 mm diameter sewers at manhole B1 (manhole no.: FMH4046424) located at the western boundary of the Site along Oak Street, which can serve the proposed development for sewage discharge (refer to **Figure 2-2**).

3 Sewerage Impact

3.1 Assessment Assumptions and Methodology

3.1.1.1 All sewage generation from the proposed development will be discharged into the existing 300 mm diameter sewer at manhole B1 (manhole no.: FMH4046424) via the 225 mm diameter connection pipe (refer to **Figure 3-1**). The adequacy in capacities of the existing downstream sewers and the 225 mm diameter connection pipe between proposed terminal manhole X1 and manhole B1 have been checked based on the estimation of the future sewage generation from the proposed development. The proposed pipe material of the connection pipe segment X1 to B1 will be HDPE.

3.1.1.2 This assessment is being conducted in accordance with "*Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning*" (hereafter as "GESF") published by Environmental Protection Department (EPD) in 2005.

3.2 Sewage Generation

3.2.1.1 To estimate the sewage flows of the proposed and existing developments, the planning units flow factors as stated in the GESF have been adopted.

3.2.1.2 The sewage generation from the proposed development includes the flow contributions employees and visitors. The estimated number of population of the proposed development are summarised in **Table 3-1**. The detailed calculations of sewage generations from the proposed development are provided in **Annex B** for reference.

Table 3-1 Population Estimation of Proposed Development

Type of People	No. of People	Unit Flow Factors (m^3/day)	Reference
Residents	112	0.190	"Institutional and special class" in GESF
Employees for Property Management	6	0.280	Commercial Employee + Commercial Activities (General–territorial average) in GESF
Employees for Eating Place	3.1	1.580	"Commercial Employee + Commercial Activities J10 - Restaurants & Hotels" in GESF
Employees for Shop & Services	2.1	0.280	"Commercial Employee + Commercial Activities: J4 Wholesale & Retail" in GESF

3.3 Sewerage Capacity

3.3.1.1 According to the "*Sewerage Manual – Key Planning Issues and Gravity Collection System (Third Edition)*" published by DSD in 2013, the capacities of respective sewers have been calculated based on Colebrook-White equation for circular pipes:

$$V = -\sqrt{(8gDs)}\log\left(\frac{ks}{3.7D} + \frac{2.5\,\mathrm{l}v}{D\sqrt{(2gDs)}}\right)$$

where V = mean velocity (m/s)
g = gravitational acceleration (m/s²)
D = pipe diameter (m)
k_s = hydraulic pipeline roughness (m) ("poor" condition of clayware slimed sewer was assumed)
v = kinematic viscosity of fluid (m²/s)
s = frictional slope (energy gradient due to frictional loss)

3.3.1.2 The sewerage impact on various segments of the sewer was evaluated by comparing the estimated peak flow against the capacity of the respective sewer segments. The detailed calculations are provided in **Annex C**.

4 Assessment Results

4.1 Existing Sewerage

4.1.1.1 Based on the results of the assessment, the total estimated daily flow of the proposed development will be approximately 37.0 m³/day. The final discharge point from the proposed development will be connected to the existing 300 mm diameter sewer at the manhole B1 (manhole no.: FMH4046424) (refer to **Figure 3-1**).

4.1.1.2 The capacity of each segment for the downstream sewers (i.e., from segment X1 to B4 as shown in **Figure 3-1**) between each manhole has been evaluated and are summarised in **Table 4-1**. The percentages of capacity used by the proposed development for the downstream sewers will be ranged from about 3% to 18%. Estimation of the flows and capacities are detailed in **Annex B** and **Annex C**, respectively.

Table 4-1 Estimated Downstream Sewer Capacities

Pipe Segment	Diameter, mm	Gradient	Pipe Capacity, m³/s	Estimated Peak Flow, m³/s	% of Capacity
X1 – B1	225	0.0517	0.130	0.003	3%
B1 – B2	300	0.0098	0.110	0.003	3%
B2 – B3	300	0.0052	0.063	0.003	5%
B3 – B4	300	0.0072	0.094	0.017	18%

4.1.1.3 The assessment results as presented in **Table 4-1** indicates that the sewage flow for segments B1 to B4 with 300 mm diameter will not exceed the capacity under the worst-case scenario. As such, no upgrading works on the existing sewerage network is required.

4.2 Proposed Sewerage Works

4.2.1.1 A new 225 mm diameter connection pipe between X1 to B1 is proposed and will be constructed with pipe material of HDPE.

4.2.1.2 After the proposed sewerage works for new sewer segment between N0 to N1 and proposed backdrop manhole at manhole N1, no adverse sewerage impact arising from the proposed development is anticipated.

5 Conclusion

5.1.1.1 This Sewerage Impact Assessment (SIA) aims to evaluate the sewerage impacts on the local sewerage network due to the operation of the proposed development.

5.1.1.2 The findings of the assessment have demonstrated that with the provision of the proposed sewerage works, there should be sufficient sewage capacity for the public sewers along Oak Street to handle sewage generation from the proposed development.

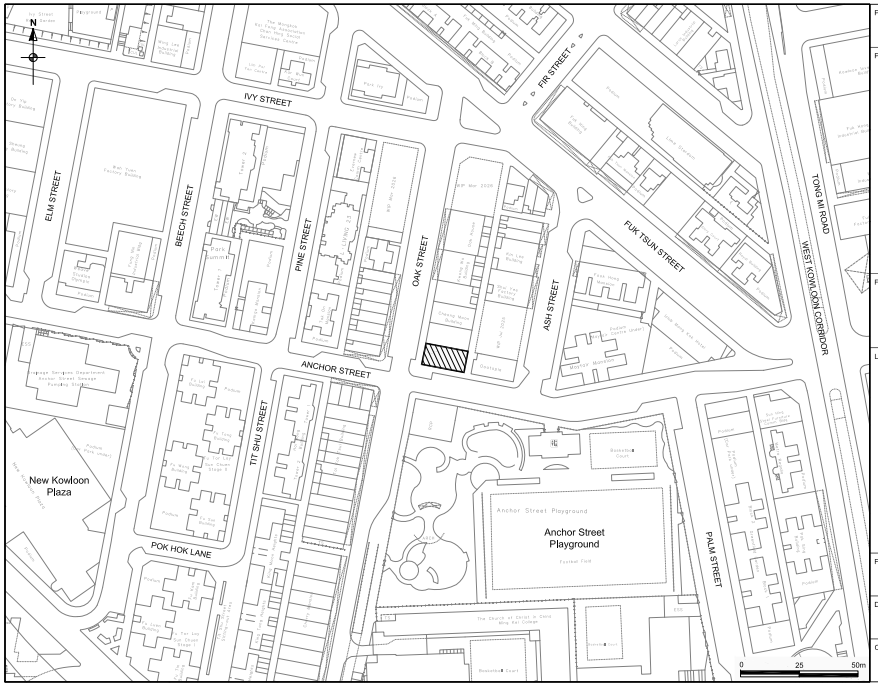
5.1.1.3 The project proponent will be responsible for the design and construction of the proposed sewerage works which will be further discussed with DSD at the detailed design stage of the project. The detailed technical studies will be submitted to relevant Government Departments for further consideration thereafter.

5.1.1.4 Since this SIA is carried out based on the current situation at the early planning stage, it should be taken into account that there may be other future planning or developments in the vicinity resulting in change of the sewerage network and to assess the sewerage impact on the further downstream sewers. Hence, this SIA Report will be updated and re-submitted to EPD and DSD for further review and comment at the detailed design stage of the project.

5.1.1.5 Based on the above, it is concluded that the sewerage impact arising from the proposed development should be acceptable.

Section 16 Planning Application for the Proposed
Partial Conversion of an Existing Building into Student Hostel
at 10 Anchor Street, Tai Kok Tsui, Kowloon
Sewerage Impact Assessment

Figures



PROJECT NO :
P194R_045

PROJECT TITLE :
Section 16 Planning Application for the Proposed Partial Conversion of an Existing Building into Student Hostel at 10 Anchor Street, Tai Kok Tsui, Kowloon

Sewerage Impact Assessment

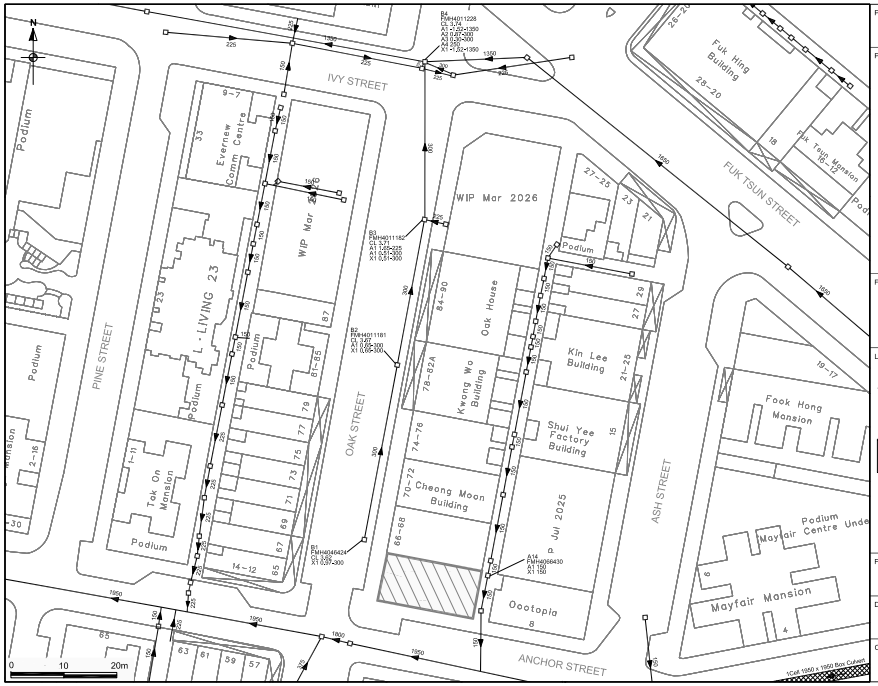
FIGURE TITLE :
Site Location

LEGEND :
Subject Site

FIGURE NO :
2 - 1

DATE :
2026-07-07

CONSULTANT :
Skyline Consultants Ltd



PROJECT NO :
P194R_045

PROJECT TITLE :
Section 16 Planning Application for the Proposed Partial Conversion of an Existing Building into Student Hostel at 10 Anchor Street, Tai Kok Tsui, Kowloon

Sewerage Impact Assessment

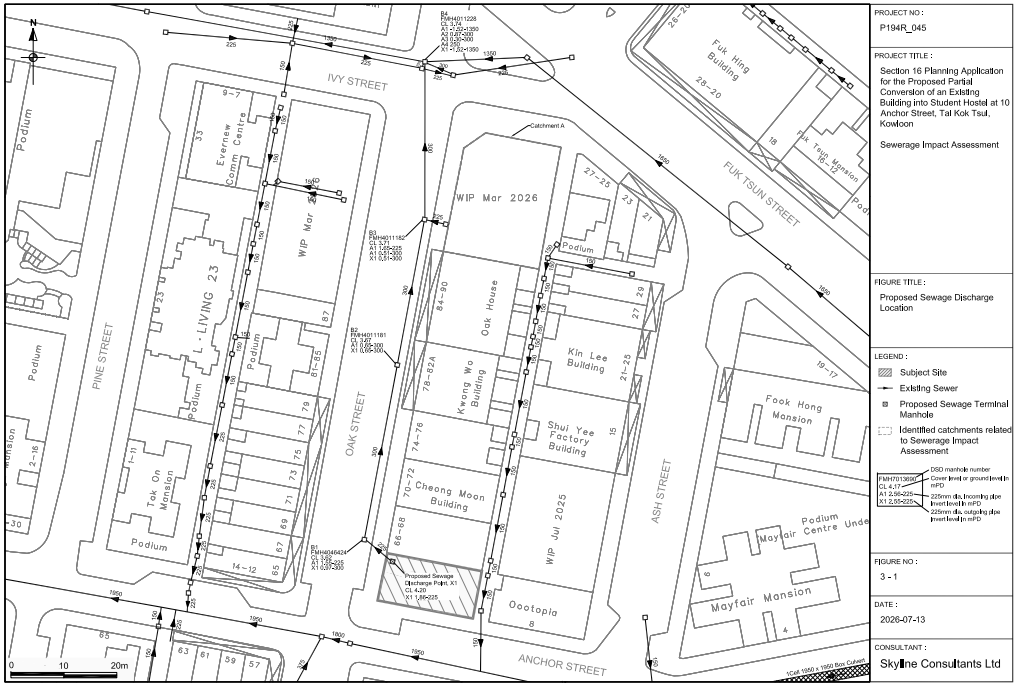
FIGURE TITLE :
Existing Sewerage

LEGEND :
Subject Site
Public Sewer
DSD manhole number
Cover level or ground level in mPD
225mm dia. incoming pipe invert level in mPD
225mm dia. outgoing pipe invert level in mPD

FIGURE NO :
2 - 2

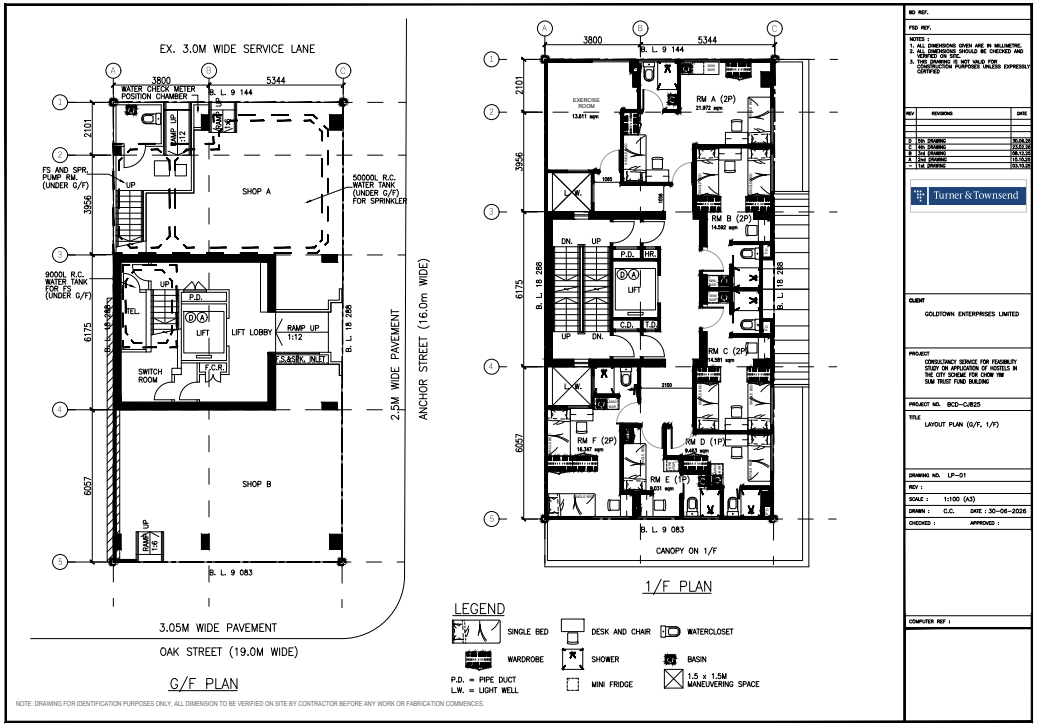
DATE :
2026-07-13

CONSULTANT :
Skyline Consultants Ltd



Annex A

Development Plans



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BD REF.

FSD REF.

NOTES :
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2. ALL DIMENSIONS SHOULD BE CHECKED AND VERIFIED ON SITE.
3. THIS DRAWING IS NOT VALID FOR CONSTRUCTION PURPOSES UNLESS EXPRESSLY CERTIFIED

REV	REVISIONS	DATE
A	5th. DRAWING	30.06.26
B	4th. DRAWING	27.03.26
C	3rd. DRAWING	13.03.26
D	2nd. DRAWING	06.12.25
E	2nd. DRAWING	15.10.25
F	1st. DRAWING	03.10.25

Turner & Townsend

CLIENT
GOLDTOWN ENTERPRISES LIMITED

PROJECT
CONSULTANCY SERVICE FOR FEASIBILITY STUDY ON APPLICATION OF HOSTELS IN THE CITY SCHEME FOR CHOW YIM SUM TRUST FUND BUILDING

PROJECT NO. BCD-C/825

TITLE
LAYOUT PLAN (G/F, 1/F)

DRAWING NO. LP-01

REV :

SCALE : 1:100 (A3)

DRAWN : C.C. DATE : 30-06-2026

CHECKED : APPROVED :

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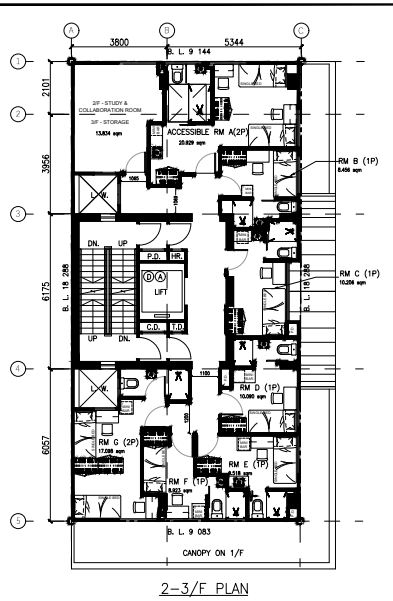

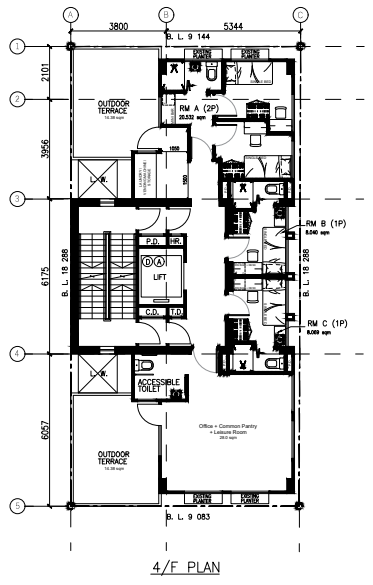

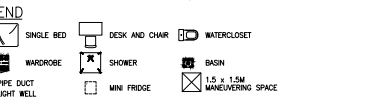

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D	2nd. DRAWING	06.12.25
E	2nd. DRAWING	15.10.25
F	1st. DRAWING	03.10.25

Turner & Townsend

CLIENT
GOLDTOWN ENTERPRISES LIMITED

PROJECT
CONSULTANCY SERVICE FOR FEASIBILITY STUDY ON APPLICATION OF HOSTELS IN THE CITY SCHEME FOR CHOW YIM SUM TRUST FUND BUILDING

PROJECT NO. BCD-C/825

TITLE
LAYOUT PLAN (2/F~ 4/F)

DRAWING NO. LP-02

REV :

SCALE : 1:100 (A3)

DRAWN : C.C. DATE : 30-06-2026

CHECKED : APPROVED :

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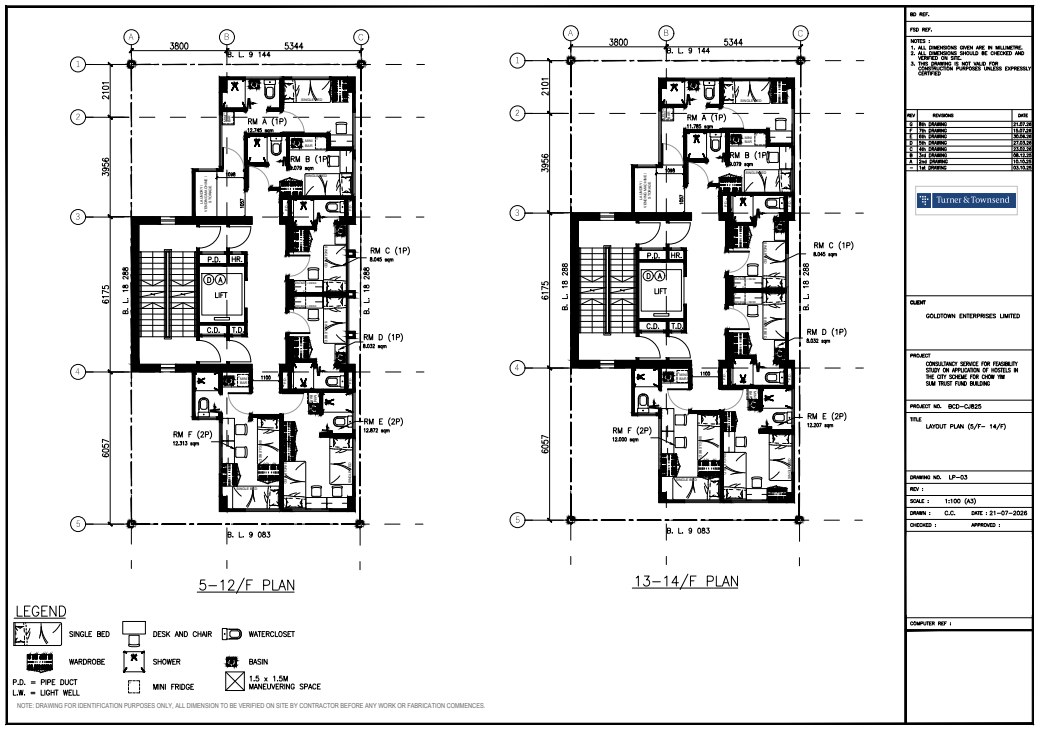

Annex B

Calculations of Sewage Generation

Sewerage Impact Assessment **Calculation of Sewage Generation**

1	**Estimation of Sewage Flow from the Proposed Development**			**Notes**
a)	**Generation from Residents**			
	Total number of residents	112	persons	Refer to total no. of bedspaces.
	Unit flow	0.190	m^3/person/day	Refer to the planning unit flow for "Institutional and Special Class" in Table T-1 of GESF (a).
	Estimated daily flow	21.3	m^3/day	
b)	**Generation from Employees Activities for Property Management**			
	Max. number of employees	6	persons	Advised by the project operators.
	Unit flow	0.280	m^3/person/day	Refer to the planning unit flow factor for "Commercial Employee" + "Commercial Activities: General–territorial average" in Table T-2 of GESF (a).
	Estimated daily flow	1.7	m^3/day	
c)	**Generation from Employees Activities for Eating Place**			
	Total eating place area (GFA)	61	m^2	Refer to building plans from the Buildings Department.
	Assumed worker density	5.1	workers per 100 m^2	Refer to worker density for "Restaurants" in Table 8 of CIFSUS (b).
	Total number of employees	3.1	persons	
	Unit flow	1.58	m^3/person/day	Refer to the planning unit flow factor for "Commercial Employee" + "Commercial Activities J10 - Restaurants & Hotels" in Table T-2 of GESF (a).
	Estimated daily flow	4.9	m^3/day	
d)	**Generation from Employees Activities for Shop & Services**			
	Total shop & services area (GFA)	61	m^2	Refer to building plans from the Buildings Department.
	Assumed worker density	3.5	workers per 100 m^2	Refer to worker density for "Retail Trade" in Table 8 of CIFSUS (b).
	Total number of employees	2.1	persons	
	Unit flow	0.28	m^3/person/day	Refer to the planning unit flow factor for "Commercial Employee" + "Commercial Activities: J4 Wholesale & Retail" in Table T-2 of GESF (a).
	Estimated daily flow	0.6	m^3/day	
	Total estimated daily flow	**28.5**	m^3/day	
	Catchment inflow factor	1.30		Refer to the Catchment Inflow Factor for "North West Kowloon" in Table T-4 of GESF (a).
	Estimated daily flow including catchment inflow factor	**37.0**	m^3/day	

2	**Generation from Catchment A** **(Assumed residential development at 31 Fuk Tsun Street)**			**Notes**
	Generation from Residents			
	Site Area	409	m^2	
	Plot ratio	9		Refer to the Approved Mong Kok Outline Zoning Plan No. S/K3/25.
	Total floor area	3681	m^2	
	Assumed flat size	20	m^2	Refer to smallest flat size category of private domestic flat in the Rating and Valuation Department.
	Total number of units	184	units	
	Assumed number of person in each unit	2.3	persons	Refer to average domestic household size in "2021 Population Census - Household Characteristics of Population in Tai Kok Tsui South District Council Constituency Area".
	Total number of residents	423	persons	
	Unit flow	0.270	m^3/person/day	Refer to the planning unit flow for "Private R2" in Table T-1 of GESF (a).
	Estimated daily flow	114.3	m^3/day	
	Total estimated daily flow	**114.3**	m^3/day	
	Catchment inflow factor	1.30		Refer to the Catchment Inflow Factor for "North West Kowloon" in Table T-4 of GESF (a).
	Estimated daily flow including catchment inflow factor	**148.6**	m^3/day	

Note:

(a) GESF - "*Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning*" published by Environmental Protection Department (EPD).

(b) CIFSUS - "*Commercial and Industrial Floor Space Utilization Survey*" published by Planning Department (PlanD).

Annex C

Calculations of Sewer Capacities

Sewerage Impact Assessment **Estimated Pipe Capacity and Adequacy Check for Sewerage**

Sewer Pipe	Manhole no.		Length	Level (out)	Level (in)	d	A_w	k_s [1]	v	s	g	V	Q_C	Q_d	PF [2]	Q_p	Is $Q_C > Q_p$?	Utilization of the Sewer Pipe	Notes
	Upstream	Downstream	m	mPD	mPD	m	m^2	m	m^2/s	-	m/s^2	m/s	m^3/s	m^3/day	-	m^3/s	Y/N	%	
Downstream Sewer																			
X1 - B1	Terminal Manhole	FMH4046424	6.0	1.86	1.55	0.225	0.040	0.0003	1.14E-06	0.0517	9.806	3.259	0.130	37.0	8	0.003	Y	3%	Qd = estimated daily flow of the proposed development.
B1 - B2	FMH4046424	FMH4011181	32.8	0.97	0.65	0.300	0.071	0.0006	1.14E-06	0.0098	9.806	1.551	0.110	37.0	8	0.003	Y	3%	Qd = estimated daily flow of the proposed development.
B2 - B3	FMH4011181	FMH4011182	27.1	0.65	0.51	0.300	0.071	0.0030	1.14E-06	0.0052	9.806	0.892	0.063	37.0	8	0.003	Y	5%	Qd = estimated flow of former segment B1-B2.
B3 - B4	FMH4011182	FMH4011228	29.0	0.51	0.30	0.300	0.071	0.0006	1.14E-06	0.0072	9.806	1.334	0.094	185.6	8	0.017	Y	18%	Qd = Sum of the flow of former segment B2-B3 and the Catchment A.

Note:
(1) Assume ks is for HDPE at "Poor" condition for the proposed 225 mm connection pipe and slimed sewers of clayware at "Poor" condition for the existing sewers.
(2) Adopted Peaking Factor (PF) is based on the contributing population of the upstream development(s) and referred to Table T-5 of GESF.

Legend
A_w = wetted area, m^2
k_s = equivalent sand roughness, m
υ = kinematic viscosity of fluid, m^2/s
s = slope of the total energy line
g = gravitational acceleration, m/s^2
V = velocity of flow calculated based on Colebrook-White Equation, m/s
Q_C = flow capacity, m^3/s
Q_d = estimated daily flow, m^3/day
PF = Peaking Factor
Q_p = estimated peak flow, m^3/s