

Attachment I

Revised Sewerage Impact Assessment

SEWERAGE IMPACT ASSESSMENT

FOR

HONG KONG SHUE YAN UNIVERSITY

WAN CHAI CAMPUS CONVERSION

AT

NO. 7 WAN CHAI GAP ROAD

HONG KONG

Architect : Wong Tung & Partners Limited

M/E Consultant : Kwong Wah Consultants Ltd.

Date : February 2026 (Rev. 3)

**Hong Kong Shue Yan University
Wan Chai Campus Conversion
at No. 7 Wan Chai Gap Road, Hong Kong
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1) Introduction

Hong Kong Shue Yan University – Wan Chai Campus, located at No. 7 Wan Chai Gap Road (*Refer Appendix 1*), was proposed to be converted to Hostel, providing 180 hostel places for students. Proposed intake year will be in first quarter of 2027.

This assessment is to analyze the adequacy of the capacity of existing sewer to cope with the sewage discharge from the Site and the existing sewage discharge from the upstream area. If necessary, mitigation measures for the sewage impact would be proposed.

2) Standards and Guidelines

This assessment will be carried out based on the following:

- Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning, EPD/TP 1/05 (hereafter EPD's guideline)
- DSD's Sewerage Manual

3) Existing Public Sewerage Facilities

According to the DSD record plan (*Refer Appendix 2*), there is a DN150 public sewer running along Wan Chai Gap Road. Terminal foul water connection for the Site was connected to this sewer at EX. FMH7007346.

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4) Calculation of Sewage Discharge from the Site

4.1 Sewage Discharge from the Site after Conversion

Sewage discharge from the Site is calculated as follow:

Usage	Unit	Population	Unit Flow Factor (m ³ / unit /day)	Daily Flow (m ³ / day)
Hostel	Person	185	0.19	35.15
	Employee	2	0.28	0.56
Total:				35.71

Table 1a : Daily Sewage Discharge from the Site

Daily Flow, (m ³ /day)	Contribution Population	Catchment Inflow Factor	Peak Factor	Average Flow L/s	Peak Flow	
					m ³ /s	L/s
35.71	132	1.00	8	0.413	0.003	3.31

Table 1b : Peak Sewage Discharge from the Site

Notes:

- i) Unit Flow Factor is based on EPD's guideline Table T-1 & T-2 (Refer Appendix 3).
- ii) Unit Flow Factor for resident of "Hostel" has taken into account the domestic flow for Institutional and Special Class (0.19m³/person/day).
- iii) Unit Flow Factor for employee of "Hostel" has taken into account the commercial employee factor (0.08m³/employee/day) and commercial activity factor (0.20m³/employee/day for J11 Community, Social & Personal Services).
- iv) Peak factor is based on EPD's guideline Table T-5 for sewers with population <1000 and include stormwater allowance (Refer Appendix 4).
- v) Catchment inflow factor is based on EPD's guideline Table T-4 (Refer Appendix 5).

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4.2 Sewage Discharge from the Site before Conversion

The site was used as School Campus before conversion. The existing sewage discharge is calculated as follow:

Usage	Unit	Population	Unit Flow Factor (m ³ / unit /day)	Daily Flow (m ³ / day)
Campus	Student	652	0.04	26.08
	Employee	22	0.28	6.16
Total:				32.24

Table 1c : Daily Sewage Discharge from the Site (Before Conversion)

Daily Flow, (m ³ /day)	Contribution Population	Catchment Inflow Factor	Peak Factor	Average Flow L/s	Peak Flow	
					m ³ /s	L/s
32.24	119	1.00	8	0.373	0.003	2.99

Table 1d : Peak Sewage Discharge from the Site(Before Conversion)

Notes:

- i) Unit Flow Factor is based on EPD's guideline Table T-2 (Refer Appendix 3).
- ii) Unit Flow Factor for resident of "Student" has taken into account the student flow (0.04m³/student/day).
- iii) Unit Flow Factor for employee of "Campus" has taken into account the commercial employee factor (0.08m³/employee/day) and commercial activity factor (0.20m³/employee/day for J11 Community, Social & Personal Services).
- iv) Peak factor is based on EPD's guideline Table T-5 for sewers with population <1000 and include stormwater allowance (Refer Appendix 4).
- v) Catchment inflow factor is based on EPD's guideline Table T-4 (Refer Appendix 5).
- vi) No. of Students and Employee shall refer Appendix 12.

4.3 Impact of Sewage Discharge due to the Conversion Works

Peak sewage discharge from the site would increase approximate 0.3L/s due to the conversion works.

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5) Calculation of Sewage Discharge from Upstream Development

Refer to DSD record plan (*Refer Appendix 2*), the existing public sewer between FMH7007346 and FMH7014812 was collecting the sewage discharged from the following development:

Site No.	Address
01	6 Wan Chai Gap Road
02	43 Kennedy Road
03	74-84 Kennedy Road
04	3-5 Wan Chai Gap Road
05	41 Kennedy Road
06	1 Wan Chai Gap Road
07	213 Queen's Road East *
08	221 Queen's Road East
09	223-229A Queen's Road East
10	85 Stone Nullah Lane
11	79-83 Stone Nullah Lane
12	75-77 Stone Nullah Lane
13	69-71 Stone Nullah Lane
14	239 Queen's Road East
15	231-233 Queen's Road East

Table 2 : Neighbouring Development to be included in the SIA

The following sites were excluded in this assessment as its sewage discharge was not connected to the sewer under concerned. Please refer *Appendix 11* for relevant drainage record plan.

No.	Address / Name
i	70-82 Kennedy Road (Amber Garden)
ii	39 Kennedy Road (Phoenix Court)

Table 3: Neighbouring Development NOT included in the SIA

**Hong Kong Shue Yan University
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5.1 Design Parameter

- a) The building information, i.e. usage and area, was obtained through BD record plan. If such information was not available, GeoInfo Map shall be referred.
- b) The population density is based on
 - i. Average household size by District Council district conducted by Census and Statistics Department (*refer Appendix 6*), and;
 - ii. Worker density by economic activity and planned usage type conducted by Planning Department (*refer Appendix 7*)
- c) Unit Flow Factor is based on EPD's guideline Table T-2 (*Refer Appendix 3*) and listed as follows:

Usage	Unit	Unit Flow Factor (m ³ / unit /day)
Residential	Person	0.27
Clubhouse	Employee	0.28
Office	Employee	0.08
Retail	Employee	0.28
Workshop, Playground, Library, Hall	Employee	0.28
Restaurant, Canteen	Employee	1.58

Table 3 : Unit Flow Factor

Notes:

- i) Unit Flow Factor for "Residential" has taken into account the domestic flow type R2 (0.27m³/person/day).*
- ii) Unit Flow Factor used for "Clubhouse" has taken into account the commercial employee factor (0.08m³/employee/day) and commercial activity factor (0.20m³/employee/day for J11 Community, Social & Personal Services).*
- iii) Unit Flow Factor used for "Office" has taken into account the commercial employee factor (0.08m³/employee/day).*
- iv) Unit Flow Factor used for "Retail" has taken into account the commercial employee factor (0.08m³/employee/day) and commercial activity factor (0.20m³/employee/day for J4 Wholesale and Retail).*

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- v) *Unit Flow Factor used for “Workshop, Playground, Library, Hall” has taken into account the commercial employee factor (0.08m³/employee/day) and commercial activity factor (0.20m³/employee/day for J11 Community, Social & Personal Services).*
- vi) *Unit Flow Factor for “Restaurant, Canteen” has taken into account the commercial employee factor (0.08m³/employee/day) and commercial activity factor (1.50m³/employee/day for J10 Restaurants and Hotels).*

5.2 Sewage Discharge Calculation

Sewage flow handled by the DN225 sewer between EX. FMH7014811 and EX. FMH7014812 was estimated in the following table.

Detailed calculation of sewage generation, peak flow estimation can be referred to *Appendix 9*.

Site No.	Daily Flow*, (m ³ /day)	Contribution Population	Peak Factor	Catchment Inflow Factor	Back Wash Flow (L/s)	Peak Flow, (L/s)
The proposed development, Site 01 to 15	725.0	2685	6	1.00	7.53	57.88

Table 5 : Sewage Flow handled by the EX. DN225 Sewer

* Sewage discharge due to back wash of swimming pool is excluded.

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6) Existing Government Sewerage Installation near the Development

Data of the EX. DN225 sewer between EX. FMH7014811 and EX. FMH7014812

$$\text{Length} = 28\text{m}$$

$$\text{I.L. (upstream)} = 5.61$$

$$\text{I.L. (downstream)} = 4.75$$

$$\text{Gradient} = 28 / (5.61 - 4.75)$$

$$= 1:33$$

for vitrified clay (V.C.) pipe, $U = 0.015$ (refer Appendix 8)

The handling capacity will be assessed by Manning's equation,

Full bore flow of DN225 V.C. pipe with a fall of 1:33

$$R = 0.25 D$$

$$V = \frac{1}{0.015} \times (0.25 \times 0.225)^{2/3} (1/33)^{1/2}$$

$$= 1.70 \text{ m/s}$$

Discharge capacity

$$Q = AV$$

$$= (0.785 \times 0.225^2) \times 1.70$$

$$= 67.71 \text{ L/s}$$

$$\text{Utilization factor} = 57.88 / 67.71$$

$$= 85.5 \% \text{ (OK)}$$

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The below table shows the handling capacity and utilization factor of the existing sewer from EX. FMH7007346 to EX. FMH70148152 after receiving the sewage discharge from the proposed development. Detailed calculation can be referred to *Appendix 9*.

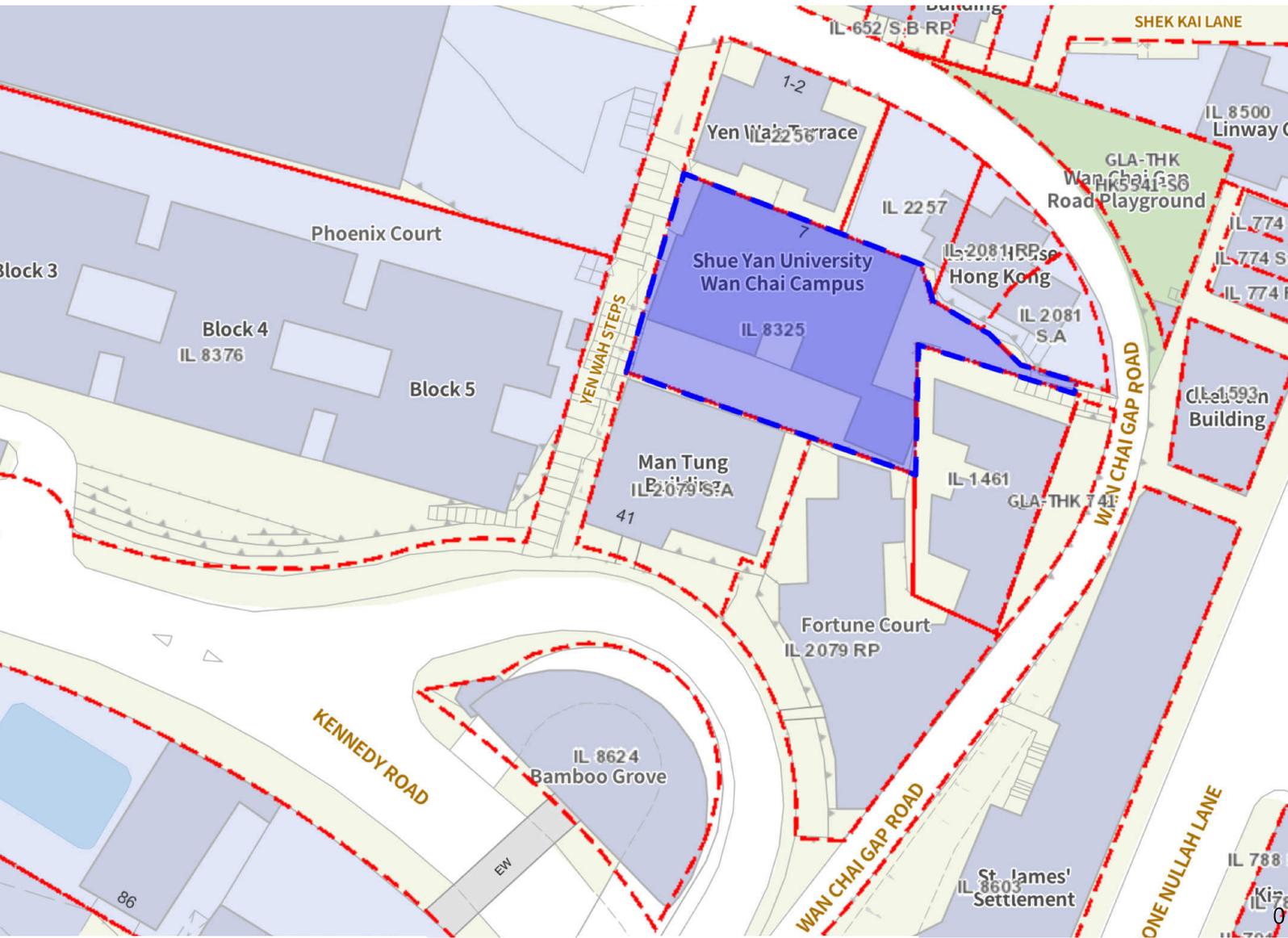
MH		Diameter	Slope	Capacity,	Peak	Percentage of Usage		Sufficient? (Y/N)
U/S	D/S			Q	Flow			
		mm		L/s	L/s			
Existing Arrangement								
FMH7007346	FMH7014802	150	5	60.85	24.97	41.0	%	Y
FMH7014802	FMH7014803	150	10	41.72	28.25	67.7	%	Y
FMH7014803	FMH7014804	150	9	43.97	28.25	64.3	%	Y
FMH7014804	FMH7062580	150	10	41.72	38.43	92.1	%	Y
FMH7062580	FMH7014807	150	10	41.72	38.43	92.1	%	Y
FMH7014807	FMH7015134	225	11	117.27	38.43	32.8	%	Y
FMH7015134	FMH7014811	225	27	74.85	40.68	54.3	%	Y
FMH7014811	FMH7014812	225	33	67.71	57.88	85.5	%	Y

Table 6 : Sewage Flow handled by the EX. Sewer

7) Conclusion

An additional 0.3L/s sewage discharge would be generated under peak flow condition due to the conversion works. After evaluation of the hydraulic assessment, it is found that the existing sewer is adequate to cater the sewage discharge from the Site and vicinity developments. As no significant impact on sewerage system is anticipated, mitigation measures is not recommended.

Appendix 1 - Site Location Plan



Appendix 2 - DSD Record Plan



Appendix 2

221 Queen's Road East

213 Queen's Road East

FMH7014812

223-229A Queen's Road East

231-233 Queen's Road East

239 Queen's Road East

69-71 Stone Nullah Lane

75-77 Stone Nullah Lane

1 Wan Chai Gap Road

3-5 Wan Chai Gap Road

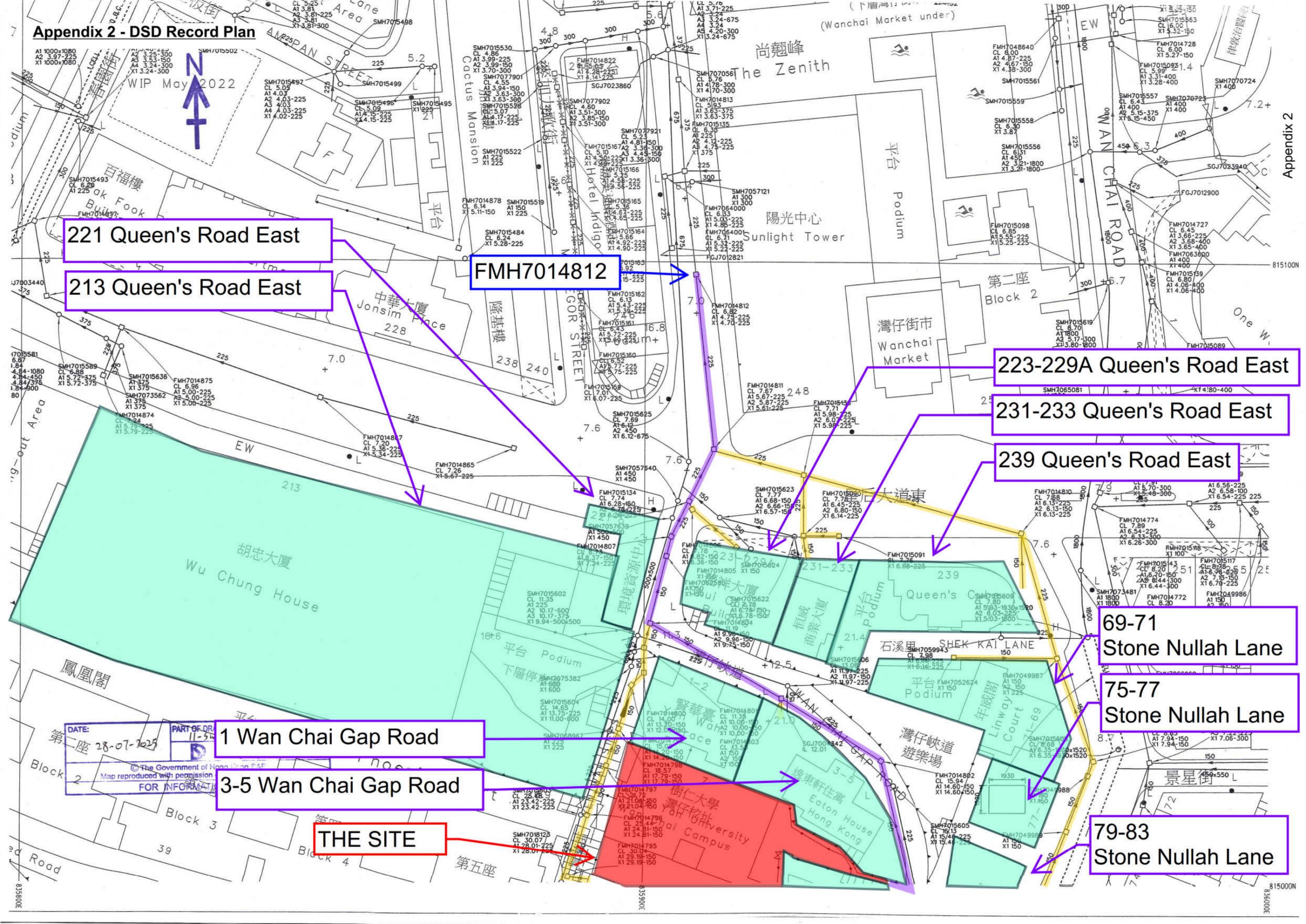
THE SITE

79-83 Stone Nullah Lane

DATE: 28-07-2025

PART OF DR 11-5

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FOR INFORMATION



THE SITE

41 Kennedy Road

74-84 KENNEDY ROAD

EX. SEWER CONNECTED FROM THE SITE TO FMH7007346

79-83 Stone Nullah Lane

85 Stone Nullah Lane

6 WAN CHAI GAP ROAD

43 KENNEDY ROAD

DATE: 29-01-2025

PART OF DRAINAGE RECORD PLAN 11-SW-14D-2

SCALE 1:500

Drainage Services Department Hong Kong & Islands

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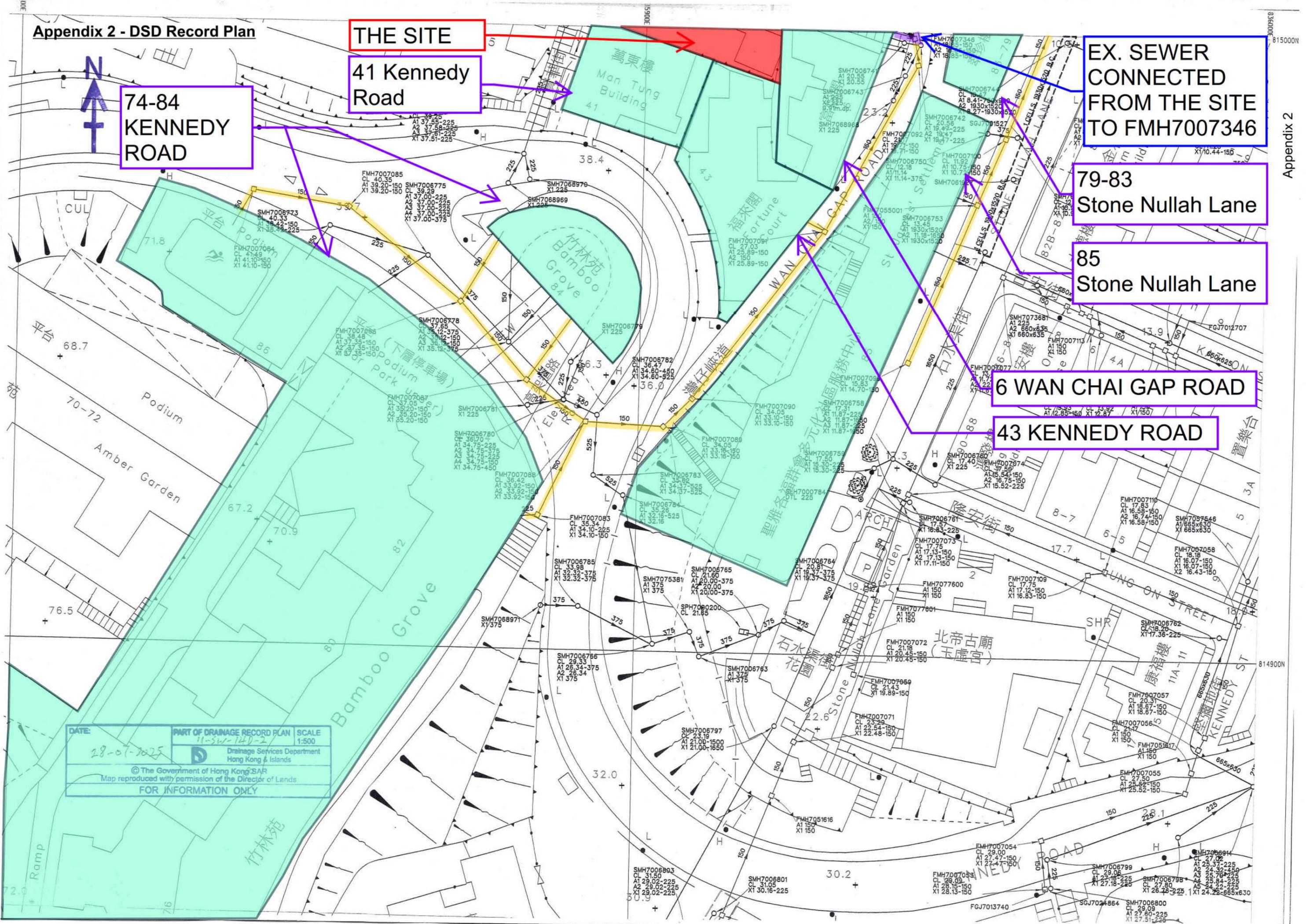


Table T-1 : Unit Flow Factors for Domestic Flows

	Unit	Datum (2002) (m³/day)	Increase per Annum (m³/day)	Planning for Future (m³/day)
Domestic (housing type specific)				
Public rental		0.190	-	0.190
Private R1	person	0.190	-	0.190
R2	person	0.270	-	0.270
R3	person	0.340	0.003	0.370
R4	person	0.340	0.003	0.370
Traditional village	person	0.150	-	0.150
Modern village	person	0.270	-	0.270
Institutional and special class	person	0.190	-	0.190
Temporary and non-domestic	person	0.150	-	0.150
Mobile residents	person	0.190	-	0.190
Domestic (catchment specific)				
General- Permanent housing (for catchment wide planning)				
- Sandy Bay	person	0.320	0.003	0.350
- Stanley, Discovery Bay	person	0.290	-	0.290
- Shek O	person	0.280	0.007	0.350
- Outlying Islands, Sai Kung	person	0.260	0.001	0.270
- Yuen Long, Mui Wo	person	0.230	0.002	0.250
- Aberdeen, Wan Chai, North Lantau	person	0.230	-	0.230
- Sha Tin, Tai Po	person	0.210	-	0.220
- San Wai	person	0.200	0.003	0.230
-Wah Fu, Shek Wu Hui	person	0.200	0.001	0.210
- Northwest Kowloon, Tuen Mun, Central, North Point	person	0.200	-	0.200
- Ap Lei Chau, Chai Wan, Shau Kei Wan, Central Kowloon, East Kowloon, Kwai Chung, Tsing Yi, Tseung Kwan O	person	0.190	-	0.190
General- Other housing (for catchment wide planning)				
- All catchments	person	0.175	-	0.175

Notes of Table T-1:

- (1) For planning a new sewerage system, the planning unit flow factors should be used. Adequate allowance should be provided in the proposed sewerage system to ensure that the sewerage system will be adequate for the worst possible future development scenarios.
- (2) Permanent housing comprises public rental housing, subsidized sales flats and private permanent housing (R1, R2, R3 and R4). Other housing consists of non-domestic, institutional & special classes, and temporary housing.

8. UNIT FLOW FACTORS – COMMERCIAL AND INSTITUTIONAL FLOWS

8.1 Commercial flows comprise flows due to commercial activities and due to employees. Flows from Job types J2 – J12 are classified as commercial flows. The unit flow factors of the 11 Job types are provided in **Table T-2** below. The derivation of the UFFs of employees and students were presented in **Appendix III**.

Table T-2 : Unit Flow Factors of Commercial Flows and Student Flows

	Unit (per)	Datum (2002) (m ³ /day)	Increase per Annum (m ³ /day)	Planning for Future (m ³ /day)
Commercial Employee	employee	0.080	-	0.080
Commercial activities				
(a) Specific trades:				
J2 Electricity Gas & Water	employee	0.250	-	0.250
J3 Transport, Storage & Communication	employee	0.100	-	0.100
J4 Wholesale & Retail	employee	0.200	-	0.200
J5 Import & Export	employee	-	-	-
J6 Finance, Insurance, Real Estate & Business Services	employee	-	-	-
J7 Agriculture & Fishing	employee	-	-	-
J8 Mining & Quarrying	employee	-	-	-
J9 Construction	employee	0.150	-	0.150
J10 Restaurants & Hotels	employee	1.500	-	1.500
J11 Community, Social & Personal Services	employee	0.200	-	0.200
J12 Public Administration	employee	-	-	-
(b) General –territorial average	employee	0.200	-	0.200
School student	person	0.040	-	0.040

Notes of Table T-2:

- (1) For planning of a new sewerage system, the planning unit flow factors should be used and the worst possible combination of commercial flows for the future development scenarios should be considered to ensure that the sewerage system under planning will be sustainable.
- (2) For job types J10 and J11, the “per-employee” unit flow factor takes into account the flows of customers and/or tenants.
- (3) The total unit flow generated from an employee in a particular trade is the sum of the unit flow factor of employee and the unit flow factor of commercial activities of a particular trade under consideration.

Appendix VIII for reference.

- 11.5 Under normal situation, peaking factors (excluding stormwater allowance) are applicable to planning sewerage facilities receiving flow from new upstream sewerage systems which essentially have no misconnections and defects for infiltration. If there is doubt about the service conditions of the upstream sewerage systems for the planning horizons under consideration, peaking factors (including stormwater allowance) should be used.

Table T-5 : Peaking Factors, P

Population Range	Peaking Factor (including stormwater allowance) for facility with existing upstream sewerage	Peaking Factor (excluding stormwater allowance) for facility with new upstream sewerage
(a) For sewers		
<1,000	8	6
1,000 – 5,000	6	5
5,000 – 10,000	5	4
10,000 – 50,000	4	3
>50,000	$\text{Max}\left(\frac{7.3}{N^{0.15}}, 2.4\right)$	$\text{Max}\left(\frac{6}{N^{0.175}}, 1.6\right)$
(b) Sewage Treatment Works, Preliminary Treatment Works and Pumping Stations		
<10,000	4	3
10,000 – 25,000	3.5	2.5
25,000 – 50,000	3	2
>50,000	$\text{Max}\left(\frac{3.9}{N^{0.065}}, 2.4\right)$	$\text{Max}\left(\frac{2.6}{N^{0.065}}, 1.6\right)$

Notes of Table T-5:

- (1) N is the contributing population in thousands.

- 11.6 Peaking factors for sewers in **Table T-5** are only applicable to sewerage facilities which collect predominantly gravity flows. If significant portions of the flow received by a sewage facility are pumped flows, the cumulative effects of peak pumped flows are required to be considered in estimating the total flows.
- 11.7 The recommended peaking factors are not applicable to the tunnel systems of the Harbour Area Treatment Scheme (HATS), the design and planning of which were considered separately in Environmental & Engineering Feasibility Assessment Studies in relation to the way forward for the HATS.

Notes of Table T-3:

- (1) Quantities of industrial discharges depend on the natures of individual industries. Local industrial discharges may vary significantly from one industrial premises to another and are best determined by updated flow survey data and water consumption records. The catchment-dependent unit flow factors for industrial flows in this table provide a means to estimate industrial flows for a catchment-wide sewerage facility, such as sewage treatment works and major sewage pumping stations. They may form a basis for refinement and adjustments when suitable latest survey results and water consumption data are available. They would be subject to periodic updates of EPD. As the actual per-employee unit flow factor of any local industrial area may vary significantly from these unit flow factors, caution must be taken in applying these factors direct to any local individual industrial premises.
- (2) The total unit flow generated from an employee in a particular trade is the sum of the flows due to the employee and the unit flow factor for a particular trade under consideration.
- (3) Yau Tong and San Po Kong are sub-catchments of the East Kowloon catchment. Figures are provided for reference for planning local sewage infrastructure.

10. CATCHMENT INFLOW FACTORS

10.1 Catchment Inflow Factors (P_{CIF}) are shown in **Table T-4** below. They are catchment-dependent and applicable to major sewerage facilities of a catchment. They indicate the net overall ingress of water or waste water to the sewerage system. They are not applicable to new catchments which are deemed to be free from misconnections and pipe defects. Caution must be taken in applying the P_{CIF} to sub-catchment sewerage. Flow measurement surveys would be required to confirm and identify the most appropriate P_{CIF} for estimating the average flow of a local sewerage facility.

Table T-4 : Catchment Inflow Factors, P_{CIF}

Catchment	Catchment Inflow Factor
Central, North Point, Sandy Bay, Wan Chai, Wah Fu, Stanley, Central Kowloon, Yuen Long, San Wai, North District, Tai Po, North Lantau, Mui Wo	1.00
Chai Wan, Tuen Mun, Kwai Chung, Tsing Yi, East Kowloon	1.10
Sha Tin	1.15
Tseung Kwan O	1.20
Shau Kei Wan	1.25
Aberdeen, Ap Lei Chau, Sai Kung, North West Kowloon	1.30
Cheung Chau, Shek O	1.50

Notes of Table T-4:

- (1) Catchment inflow factors will be updated regularly by EPD.
- (2) For calculating the total peak flow from a new development area within a catchment of high inflow factors, the catchment inflow factor may not be applicable to the new development. However, it will be applicable in assessing the downstream existing sewerage facilities.

Appendix 6 - Average Household Size

Table 130-06806 : Average household size and median monthly household income of households by District Council district

Statistics

		Average household size (1) (2)	Median monthly household income (1) (3)	Median monthly household income of economically active households (1) (3) (4)	Median monthly household income of economically active households (excluding foreign domestic helpers) (1) (3) (4)	
		No.	HK\$	HK\$	HK\$	
Year	District Council district (DCD)					
2024	Central and Western	2.5	42,400	60,000	59,500	
	Wan Chai (5)	2.4	40,800	58,300	57,000	
	Eastern (5)	2.6	32,500	45,600	45,100	
	Southern	2.9	36,000	46,400	45,400	
	Yau Tsim Mong	2.3	29,000	40,000	40,000	
	Sham Shui Po	2.5	24,500	33,200	33,000	
	Kowloon City	2.6	31,100	43,600	43,000	
	Wong Tai Sin	2.7	25,600	33,800	33,600	
	Kwun Tong	2.6	24,200	32,100	32,000	
	Kwai Tsing	2.7	25,500	33,900	33,600	
	Tsuen Wan	2.6	34,200	43,400	43,000	
	Tuen Mun	2.6	26,200	35,100	35,000	
	Yuen Long	2.7	30,000	36,900	36,400	
	North	2.6	25,800	33,900	33,700	
	Tai Po	2.7	31,300	40,800	40,400	
	Sha Tin	2.7	31,000	41,000	40,500	
	Sai Kung	2.8	41,200	50,000	50,000	
	Islands	2.6	31,000	39,500	39,100	
		<i>Whole Territory</i>	2.6	30,000	39,500	39,100

Notes

Figures are compiled based on the survey results of the General Household Survey (GHS) from January to December of the year concerned as well as the mid-year population estimates and may be regarded as referring to the overall situation of the whole year.

The GHS covers the land-based non-institutional population and thus does not cover (a) inmates of institutions; and (b) persons living on board vessels. The land-based non-institutional population constitutes about 99% of the Hong Kong Resident Population.

Median monthly household income are rounded to the nearest hundred.

- Domestic household consists of a group of persons who live together and make common provision for essentials for living. These persons need not be related. If a person makes provision for essentials for living without sharing with other persons, he/she is also regarded as a household. In this case, the household is a one-person household. A domestic household must have at least one member who is a Usual Resident. Households comprising Mobile Residents only are not classified as domestic households.
- Household size refers to the number of household members in a domestic household.
- Monthly household income refers to the total cash income, including earnings (before deduction of Mandatory Provident Fund contributions) from all jobs and other cash income received in the month before enumeration by all members of the household. Other cash income includes income generated from rent income, interest, dividends, regular/monthly pensions and insurance annuity benefits, regular contribution from persons outside the household, regular contribution from charities and all government subsidies.
- Economically active household is a domestic household with at least one member (excluding foreign domestic helpers) being economically active.
- The boundaries of the Wan Chai district and Eastern district adopted since 2016 are different from those adopted in 2015 and earlier years. Therefore, figures of the Wan Chai and Eastern districts for 2016 and thereafter are not strictly comparable with those for 2015 and earlier years in this table.

Source

General Household Survey
Social Analysis and Research Section,
Census and Statistics Department
(Enquiry telephone no. : 2887 5106
Enquiry e-mail : ghs@censtatd.gov.hk)

Release Date: 28 March, 2025

Extracted from "Commercial and Industrial Floor Space Utilization Survey" Conducted by Planning Department

Table 8: Worker Density by Economic Activity and Planned Usage Type (workers per GFA (in 100 m²))

Economic Activities	All Types	Planned Usage Types					
		Grade A Offices	Non-Grade A Offices	Flatted Factories	Specialized Factories	I/O Buildings	Private Commercials
Manufacturing	2.3	5.3	5.9	2.5	1.2	3.3	5.0
Storage	0.4	-	-	0.6	0.1*	-	-
Transport	3.8	3.9	8.0	2.4	0.7	5.7	13.3
Communications	16.1	6.6	11.9	29.4	1.1*	5.5	4.1
Wholesale Trade	2.2	5.6	5.2	1.9	0.4	4.5	2.5
Retail Trade	3.5	6.6	4.7	3.9	1.0	4.1	2.1
Import/Export Trade	3.3	4.9	4.6	2.8	1.2	4.1	2.8
Financial, Insurance, Real Estate & Business Services	5.5	6.0	6.5	3.4	0.5	4.4	5.0
Construction	5.3	6.4	7.8	5.2	0.3	4.3	7.1
Restaurants	5.1	4.5	6.0	3.9	2.1*	6.0*	5.1
Hotels and Boarding Houses	3.2	7.1	6.0	-	-	-	1.4
Community, Social & Personal Services	3.3	2.9	6.1	2.3	1.3	6.1	2.3
All Economic Activities	3.4	5.2	5.9	2.8	1.1	4.3	3.2

* Based on 10 or less establishments

Appendix 8 - Roughness Coefficient of Pipe

Table 6 : Values of n to be used with the Manning's equation

Surface	Best	Good	Fair	Bad
Uncoated cast-iron pipe	0.012	0.013	0.014	0.015
Coated cast-iron pipe	0.011	0.012 ^a	0.013 ^a	
Commercial wrought-iron pipe, black	0.012	0.013	0.014	0.015
Commercial wrought-iron pipe, galvanized	0.013	0.014	0.015	0.017
Smooth brass and glass pipe	0.009	0.010	0.011	0.013
Smooth lockbar and welded "OD" pipe	0.010	0.011 ^a	0.013 ^a	
Riveted and spiral steel pipe	0.013	0.015 ^a	0.017 ^a	
Vitrified sewer pipe	0.010 0.011	0.013 ^a	0.015	0.017
Common clay drainage tile	0.011	0.012 ^a	0.014 ^a	0.017
Glazed brickwork	0.011	0.012	0.013 ^a	0.015
Brick in cement mortar; brick sewers	0.012	0.013	0.015 ^a	0.017
Neat cement surfaces	0.010	0.011	0.012	0.013
Cement mortar surfaces	0.011	0.012	0.013 ^a	0.015
Concrete pipe	0.012	0.013	0.015 ^a	0.016
Wood stave pipe	0.010	0.011 ^a	0.012	0.013
Plank flumes				
Planed	0.010	0.012 ^a	0.013	0.014
Unplaned	0.011	0.013 ^a	0.014	0.015
With battens	0.012	0.015 ^a	0.016	
Concrete-lined channels	0.012	0.014 ^a	0.016 ^a	0.018
Cement-rubble surface	0.017	0.020	0.025	0.030
Dry-rubble surface	0.025	0.030	0.033	0.035
Dressed-ashlar surface	0.013	0.014	0.015	0.017
Semicircular metal flumes, smooth	0.011	0.012	0.013	0.015
Semicircular metal flumes, corrugated	0.0225	0.025	0.0275	0.030
Canals and ditches				
Earth, straight and uniform	0.017	0.020	0.0225 ^a	0.025
Rock cuts, smooth and uniform	0.025	0.030	0.033 ^a	0.035
Rock cuts, jagged and irregular	0.035	0.040	0.045	
Winding sluggish canals	0.0225	0.025 ^a	0.0275	0.030
Dredged-earth channels	0.025	0.0275 ^a	0.030	0.033

Appendix 9 - Sewage Discharge Calculation

Project: NO. 7 WAN CHAI GAP ROAD

Date : FEB 2026

SEWAGE DISCHARGE CALCULATION

Site No.	Address	Usage	Flat No.	Average Household Size	Usable Floor Area, m ²	Working Density, (employee / 100m ²)	Population (person or employee)		Usage Type	UFF, (m ³ /unit/day)	ADWF ^(Note 4) (m ³ /day)	Contribution Population	Average Flow, (L/s)	
0	The Proposed Development (Note 1)	Hostel	-	-	-	-	(say)	185	-	0.19	35.15	130	0.41	
		Employee					(say)	2		0.28	0.56	2	0.01	
1	6 Wan Chai Gap Road	Residential	24	2.4	-	-	57.6	(say)	58	-	0.27	15.66	58	0.18
2	43 Kennedy Road	Residential	20	2.4	-	-	48.0	(say)	48	-	0.27	12.96	48	0.15
3	74-84 Kennedy Road	Residential	348	2.4	-	-	835.2	(say)	836	-	0.27	225.72	836	2.61
		Club House Pool ^(Note 2)	-	-	1025.48	3.3	33.8	(say)	34	All Types, Community, Social & Personal Services	0.28	9.52	35	0.11
4	3-5 Wan Chai Gap Road	Serviced Apartment	73	2.4	-	-	175.2	(say)	175	-	0.27	47.25	175	0.55
5	41 Kennedy Road	Residential	28	2.4	-	-	67.2	(say)	67	-	0.27	18.09	67	0.21
6	1 Wan Chai Gap Road	Residential	18	2.4	-	-	43.2	(say)	43	-	0.27	11.61	43	0.13
7	213 Queen's Road East (Note 3)	Office	-	-	61131.12	3.3	2017.3	(say)	2018	All Types, Community, Social & Personal Services	0.08	161.44	598	1.87
		Restaurant	-	-	835.28	5.1	42.6	(say)	43	All Types, Restaurant	1.58	67.94	252	0.79
		Retail	-	-	296.22	3.5	10.4	(say)	11	All Types, Retail Trade	0.28	3.08	11	0.04
8	221 Queen's Road East				59.00	3.3	1.9	(say)	2	-	0.28	0.56	2	0.01
9	223-229A Queen's Road East	Residential	47	2.4	-	-	112.8	(say)	113	-	0.27	30.51	113	0.35
		Retail	-	-	179.15	3.5	6.3	(say)	7	All Types, Retail Trade	0.28	1.96	7	0.02

Project: NO. 7 WAN CHAI GAP ROAD

Date : FEB 2026

SEWAGE DISCHARGE CALCULATION (CONT'D)

Item	Address	Usage	Flat No.	Average Household Size	Usable Floor Area, m ²	Working Density, (employee / 100m ²)	Population (person or employe)		Usage Type	UFF, (m ³ /unit/day)	Daily Flow, (m ³ /day)	Contribution Population	Average Flow, (L/s)
10	85 Stone Nullah Lane	Office	-	-	3059.17	3.3	101.0	(say) 101	All Types, Community, Social & Personal Services	0.08	8.08	30	0.09
		Workshop, Playground, Library, Hall	-	-	3578.69	3.3	118.1	(say) 118	All Types, Community, Social & Personal Services	0.28	33.04	122	0.38
		Canteen	-	-	460.60	5.1	23.5	(say) 24	All Types, Restaurant	1.58	37.92	140	0.44
11	79-83 Stone Nullah Lane	Residential	12	2.4	-	-	28.8	(say) 29	-	0.27	7.83	29	0.09
		Office	-	-	130.09	3.4	4.4	(say) 5	All Types, All Economic Activities	0.08	0.40	1	0.00
		Retail	-	-	147.48	3.5	5.2	(say) 6	All Types, Retail Trade	0.28	1.68	6	0.02
12	75-77 Stone Nullah Lane	Residential	10	2.4	-	-	24.0	(say) 24	-	0.27	6.48	24	0.08
		Retail	-	-	97.64	3.5	3.4	(say) 4	All Types, Retail Trade	0.28	1.12	4	0.01
13	69-71 Stone Nullah Lane	Residential	44	2.4	-	-	105.6	(say) 106	-	0.27	28.62	106	0.33
		Office	-	-	269.51	3.4	9.2	(say) 9	All Types, All Economic Activities	0.08	0.72	3	0.01
		Retail	-	-	217.07	3.5	7.6	(say) 8	All Types, Retail Trade	0.28	2.24	8	0.03
14	239 Queen's Road East	Residential	96	2.4	-	-	230.4	(say) 231	-	0.27	62.37	231	0.72
		Retail	-	-	306.41	3.5	10.7	(say) 11	All Types, Retail Trade	0.28	3.08	11	0.04
		Club House	-	-	166.42	3.3	5.5	(say) 6	All Types, Community, Social & Personal Services	0.28	1.68	6	0.02
		Office	-	-	24.91	3.4	0.8	(say) 1	All Types, All Economic Activities	0.08	0.08	0	0.00
		Pool ^(Note 2)											
15	231-233 Queen's Road East	Retail	-	-	83.37	3.5	2.9	(say) 3	All Types, Retail Trade	0.28	0.84	3	0.01
		Office	-	-	1114.39	3.4	37.9	(say) 38	All Types, All Economic Activities	0.08	3.04	11	0.04

Notes:

- 1) Population of the proposed development was based on statutory submission in the proposed conversion.
- 2) Sewage discharge due to Swimming Pool Backwash is considered as Peak Flow. Flow rate calculation refer Appendix 10.
- 3) There are 2 terminal foul water discharge points for No. 213 Queen's Road East. Assum each carry 50% of the site discharge.
- 4) Catchment inflow factort = 1.

Project: NO. 7 WAN CHAI GAP ROAD

Date : FEB 2026

UTILIZATION CALCULATION OF EXISTING SEWERS

MH		Pipe Section			Mannings Coefficient	Invert Level		Slope	Velocity, v m/s	Capacity, Q L/s	Incomming ADWF ^(Note 2)		Total Incomming ADWF ^(Note 2) to U/S MH m ³ /day	Contribution Population	Peaking Factor	Swimming Pool Backwash ^(Note 3) L/s	Peak Flow L/s	Percentage of Usage	
U/S	D/S	Diameter mm	Length m	Material		U/S	D/S				Site No.	m ³ /day						Site No.	m ³ /day
Existing Arrangement																			
FMH7007346	FMH7014802	150	20	VC	0.015	18.9	14.6	5	3.445	60.85	Site 0-3	299.57	299.57	1110	6	4.17	24.97	41.0	%
FMH7014802	FMH7014803	150	19	VC	0.015	14.6	12.7	10	2.362	41.72	Site 4	47.25	346.82	1285	6	4.17	28.25	67.7	%
FMH7014803	FMH7014804	150	24	VC	0.015	12.7	9.96	9	2.490	43.97	-	0.00	346.82	1285	6	4.17	28.25	64.3	%
FMH7014804	FMH7062580	150	11	VC	0.015	9.75	8.67	10	2.362	41.72	Site 5-6, 8 & 50% of Site 7	146.49	493.31	1827	6	4.17	38.43	92.1	%
FMH7062580	FMH7014807	150	3	VC	0.015	8.67	8.37	10	2.362	41.72	-	0.00	493.31	1827	6	4.17	38.43	92.1	%
FMH7014807	FMH7015134	225	6	VC	0.015	7.24	6.7	11	2.951	117.27	-	0.00	493.31	1827	6	4.17	38.43	32.8	%
FMH7015134	FMH7014811	225	9	VC	0.015	6.2	5.87	27	1.884	74.85	Site 9	32.47	525.78	1947	6	4.17	40.68	54.3	%
FMH7014811	FMH7014812	225	28	VC	0.015	5.61	4.75	33	1.704	67.71	Site 10-15	199.22	725.00	2685	6	7.53	57.88	85.5	%

Note:

- 1) Catchment inflow factor = 1.
- 2) Sewage discharge due to Swimming Pool Backwash is not included in ADWF.
- 3) Sewage discharge due to Swimming Pool Backwash is considered as Peak Flow

**Appendix 10 -
Supplementary
Information
for Existing
Development**

**(i) Clubhouse UFA of
No. 74-84 Kennedy
Road**

NUMBER OF PERSONS PER FLAT CALCULATION					
BLOCK	FLOOR	ROOM MARK	USABLE FLOOR AREA	CAPACITY	
A: 74	TYPICAL	A1	18.86 m ²	9	
		A2	8.47 m ²		
		A3, A4	39.33 m ²		
		A6	15.42 m ²		
		A9	4.83 m ²		
	TYPICAL	A12	4.83 m ²	9	
		A14, A15	39.33 m ²		
		A16	8.47 m ²		
		A17	16.83 m ²		
		A19	11.27 m ²		
	PENTHOUSE	AP1, AP2, AP5, AP6, AP8, AP10 - AP13, AP16	290.13 m ²	32	
	B: 76	TYPICAL	B1, B2	4.23 m ²	9
			B3	19.04 m ²	
			B5	13.57 m ²	
			B13	5.00 m ²	
B21, B22			77.84 m ²		
TYPICAL		B23	42.39 m ²	9	
		B25	21.02 m ²		
		B25	9.84 m ²		
		B26	5.16 m ²		
		PENTHOUSE	BP1 - BP9		50.41 m ²
		162.04 m ²	19		
C: 78	TYPICAL	C1	16.102 m ²	10	
		C6	10.387 m ²		
		C7	7.487 m ²		
		C8, C9	45.210 m ²		
		C14	4.840 m ²		
	TYPICAL	C16	84.558 m ²	10	
		C21, C22	4.750 m ²		
		C24	45.699 m ²		
		C24	10.387 m ²		
		C28	16.102 m ²		
	PENTHOUSE	C29	7.487 m ²	10	
		CP1 - CP7	84.027 m ²		
		CP8 - CP14	129.472 m ²		15
		CP1 + CP2	15.029 m ²		2
		CP4	15.029 m ²		5
D: 80 SIMILAR TO BLOCK C: 78					
E: 82	TYPICAL	E1	50.325 m ²	12	
		E5	8.281 m ²		
		E8	10.845 m ²		
		E9, E10	55.396 m ²		
		E14	50.411 m ²		
	TYPICAL	E20	100.904 m ²	12	
		E26, E27	6.238 m ²		
		E28	57.475 m ²		
		E28	11.423 m ²		
		E27	20.754 m ²		
	PENTHOUSE	E29	16.354 m ²	13	
		E29	108.278 m ²		
		EP1, EP2, EP3, EP4	87.211 m ²		
		EP3 - EP6	75.114 m ²		
		EP7, EP8, EP9, EP10	197.075 m ²		18
PENTHOUSE	EP11, EP12, EP13, EP14	67.336 m ²	18		
	EP15, EP16	56.147 m ²			
	EP17, EP18	255.221 m ²			
ESTATE OFFICE	ME1 - ME4	60.07 m ²	7		
F: 84	TYPICAL	F11, F12, F13	98.870 m ²	7	
		F14, F15, F16, F17, F18	106.410 m ²		
		F12, F13	21.640 m ²		
		F15, F16	23.520 m ²		
		F17, F18	65.820 m ²		
	TYPICAL	F19, F20	42.040 m ²	19	
		F19, F20	163.780 m ²		
		FP1, FP2	61.650 m ²		
		FP3, FP4	10.184 m ²		
		FP5, FP6	25.075 m ²		
	PENTHOUSE	FP7, FP8	45.000 m ²	23	
		FP9, FP10	23.220 m ²		
		FP11, FP12	16.128 m ²		
		FP13, FP14	204.25 m ²		
HEALTH CLUB					
LEV. 58.70 (CP3)			170.846 m ²	69	
LEV. 61.90 (CP2)			211.200 m ²	78	
LEV. 65.10 (CH1)			325.274 m ²	151 + 43	
CLUB HOUSE					
LEV. 75.68 (1ST)			110.643 m ²	45	
LEV. 78.91 (2ND)			104.958 m ²	42	
LEV. 82.14 (3RD)			99.319 m ²	40	

**Total UFA
= 1025.484 m²**

HEALTH CLUB	LEV. 58.70 (CP3)	170.846 m ²	69
	LEV. 61.90 (CP2)	211.200 m ²	78
	LEV. 65.10 (CH1)	325.274 m ²	151 + 43
CLUB HOUSE	LEV. 75.68 (1ST)	110.643 m ²	45
	LEV. 78.91 (2ND)	104.958 m ²	42
	LEV. 82.14 (3RD)	99.319 m ²	40

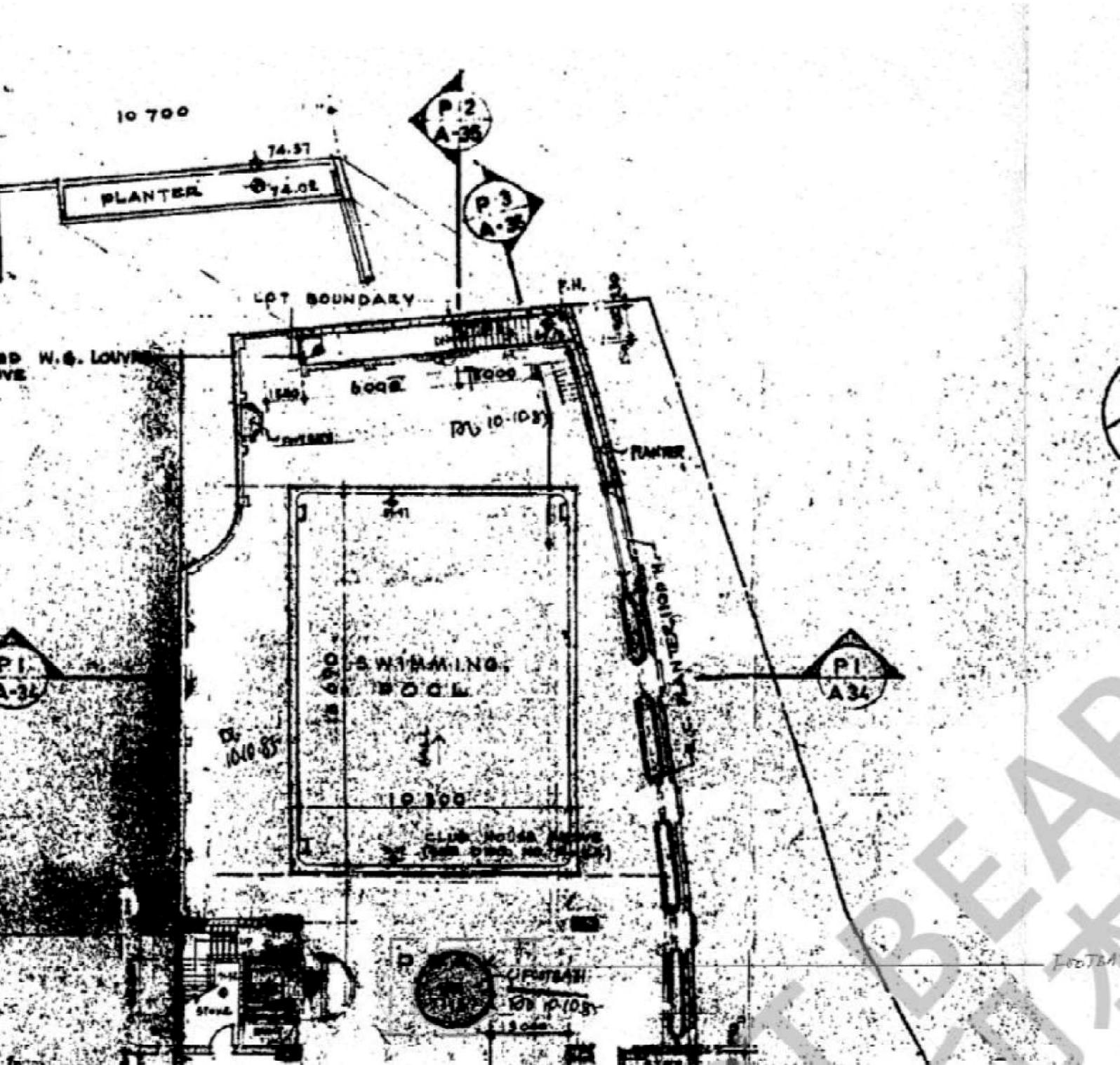
Extracted from BD record drawings under
BD ref 2-3/1103/78/4 approved in Aug 2015

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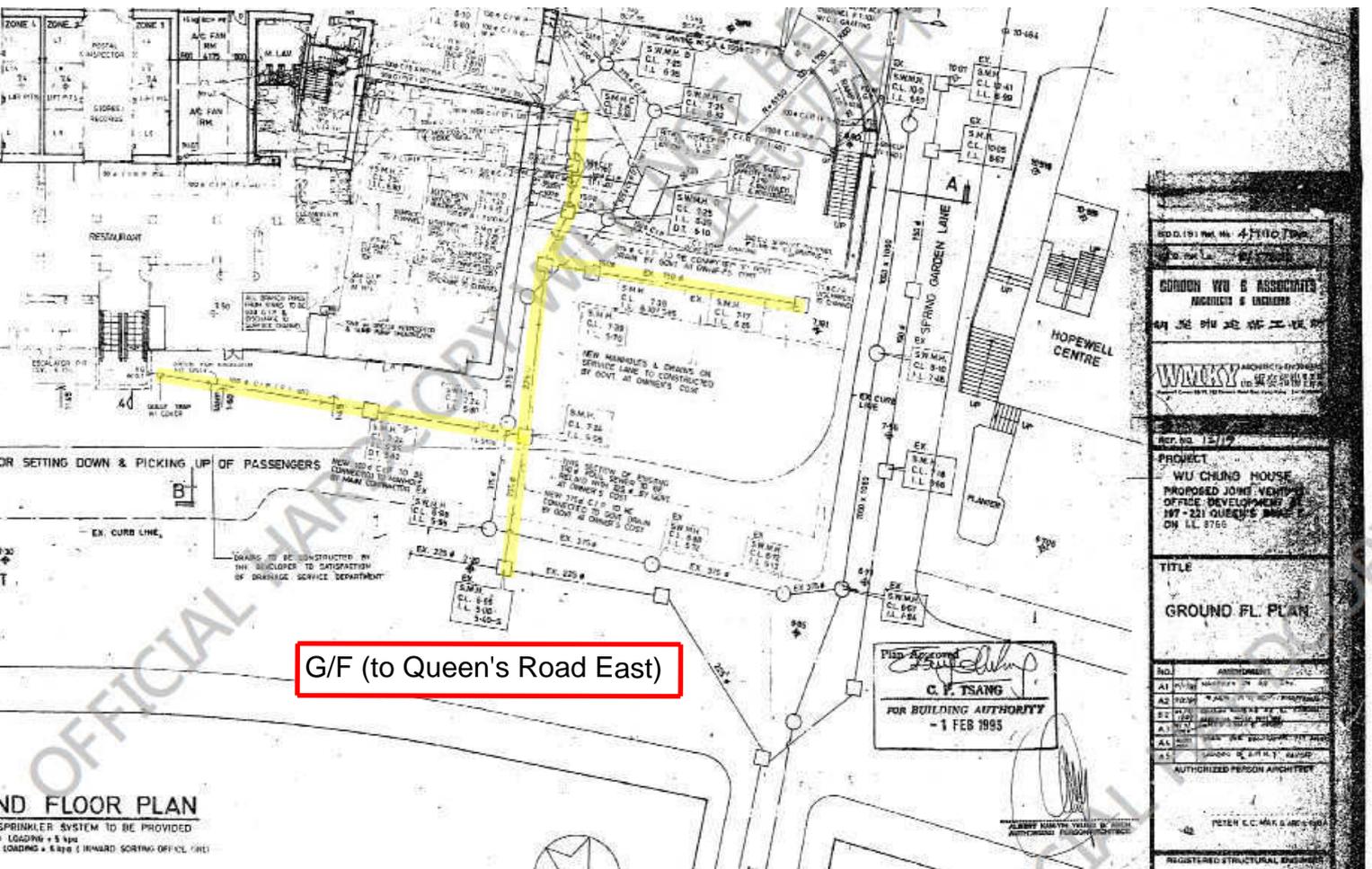
R & D Section
BUILDINGS DEPARTMENT

(ii) Pool of No. 74-84 Kennedy Road

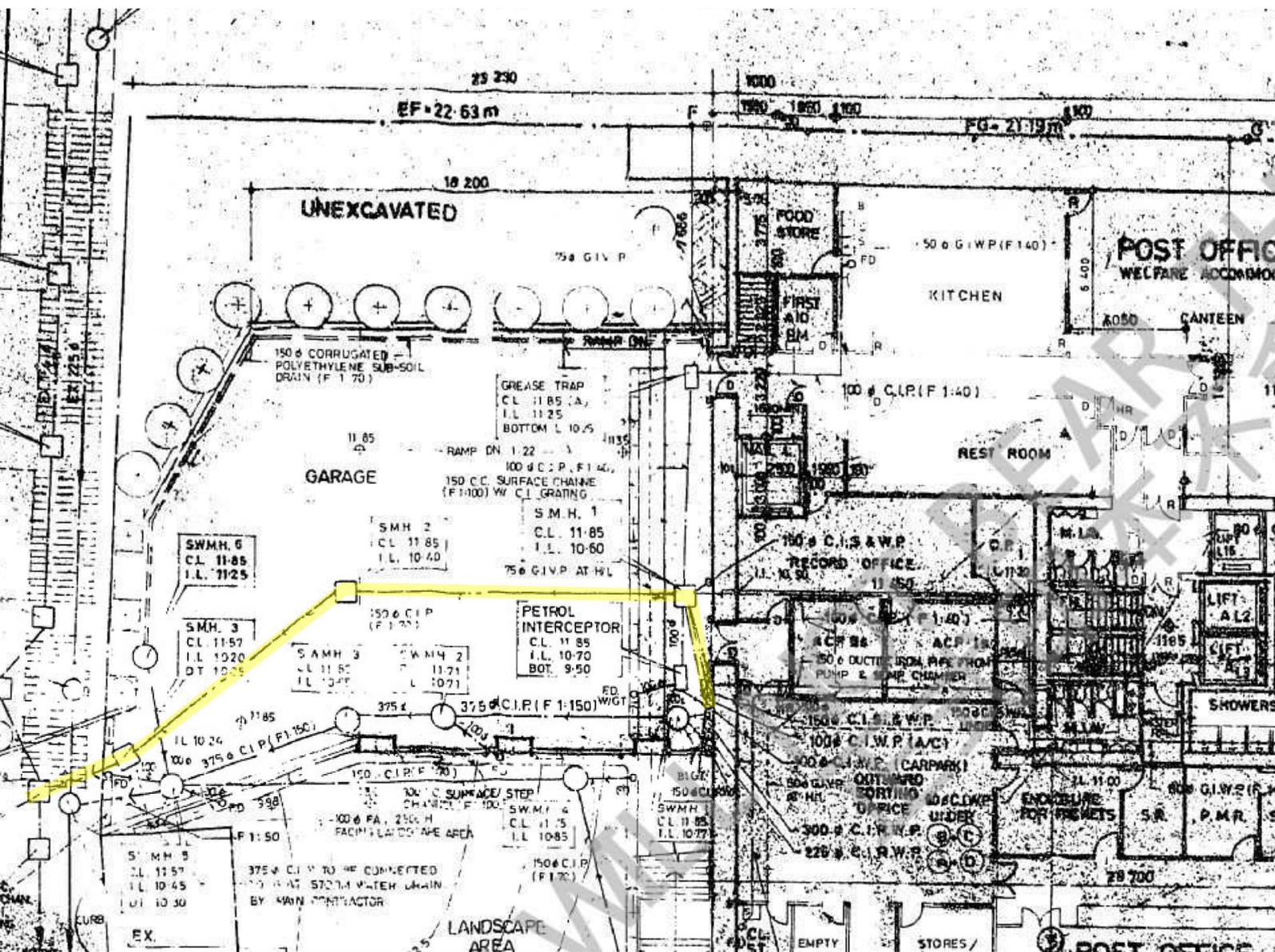


Extracted from BD record drawings under BD ref 2-3/1103/78/4 approved in Aug 2015

(iii) 213 Queen's Road East - Terminal Sewage Discharge Location



Extracted from BD record drawings under
BD ref 4/1110/80 approved in Aug 1990



2/F (to Yen Wah Steps)

Extracted from BD record drawings under BD ref 4/1110/80 approved in Aug 1990

(iv) Roofed area of No. 221 Queen's Road East



(v) Pool of No. 239 Queen's Road East

Calculation of Sewage Impact from Swimming Pool at No. 239 Queen's Road East

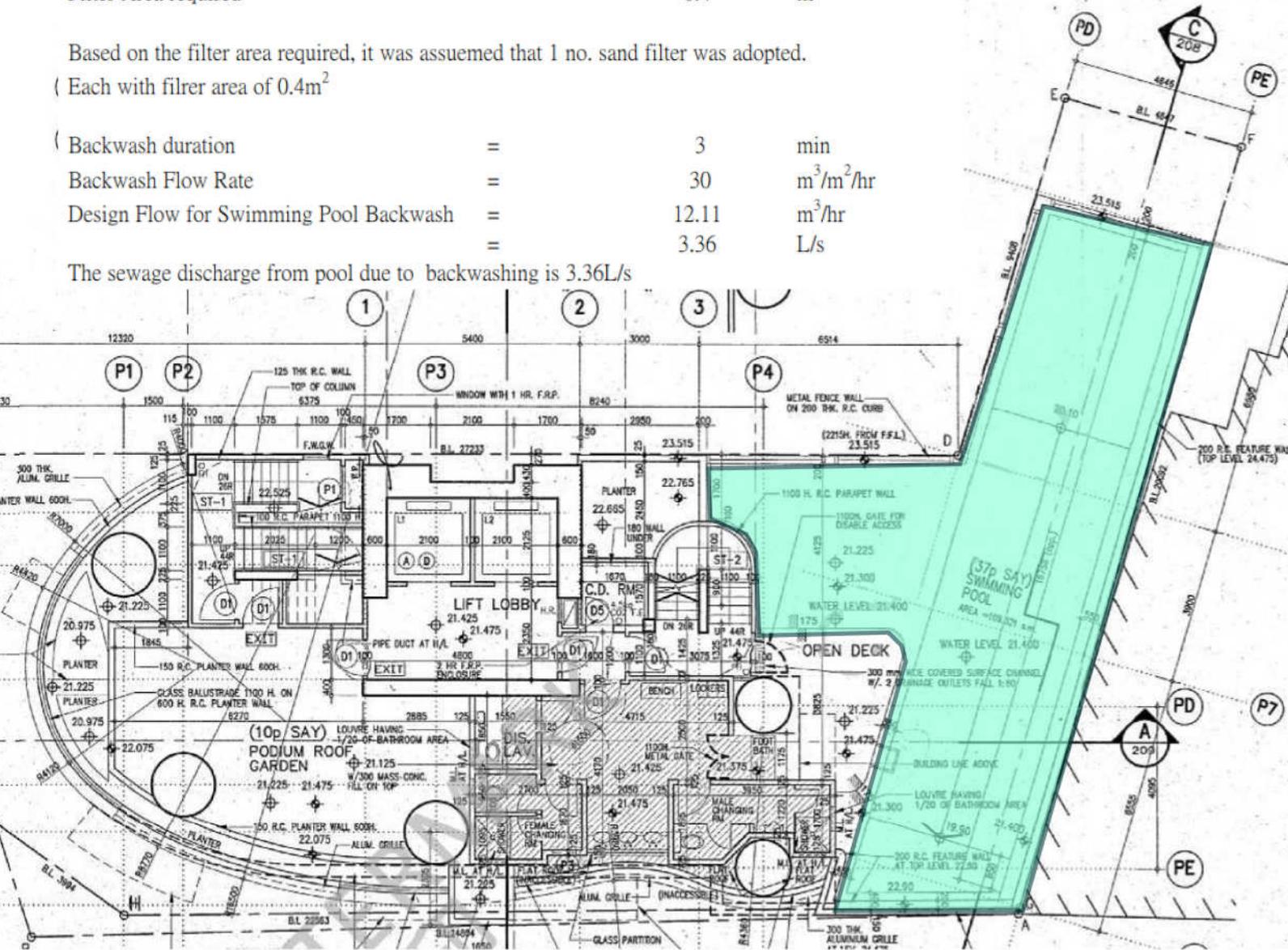
Pool Area	=	109.321	m ²
Pool Depth	=	0.1m, 1.3m-1.5m	
Pool Volume	=	116.23	m ³
Turnover Rate	=	6	hours
Filtration Rate Required	=	19.37	m ³ /hr
Surface Loading Rate of Filter	=	48	m ³ /m ² /hr
Filter Area required	=	0.4	m ²

Based on the filter area required, it was assumed that 1 no. sand filter was adopted.

(Each with filter area of 0.4m²

Backwash duration	=	3	min
Backwash Flow Rate	=	30	m ³ /m ² /hr
Design Flow for Swimming Pool Backwash	=	12.11	m ³ /hr
	=	3.36	L/s

The sewage discharge from pool due to backwashing is 3.36L/s

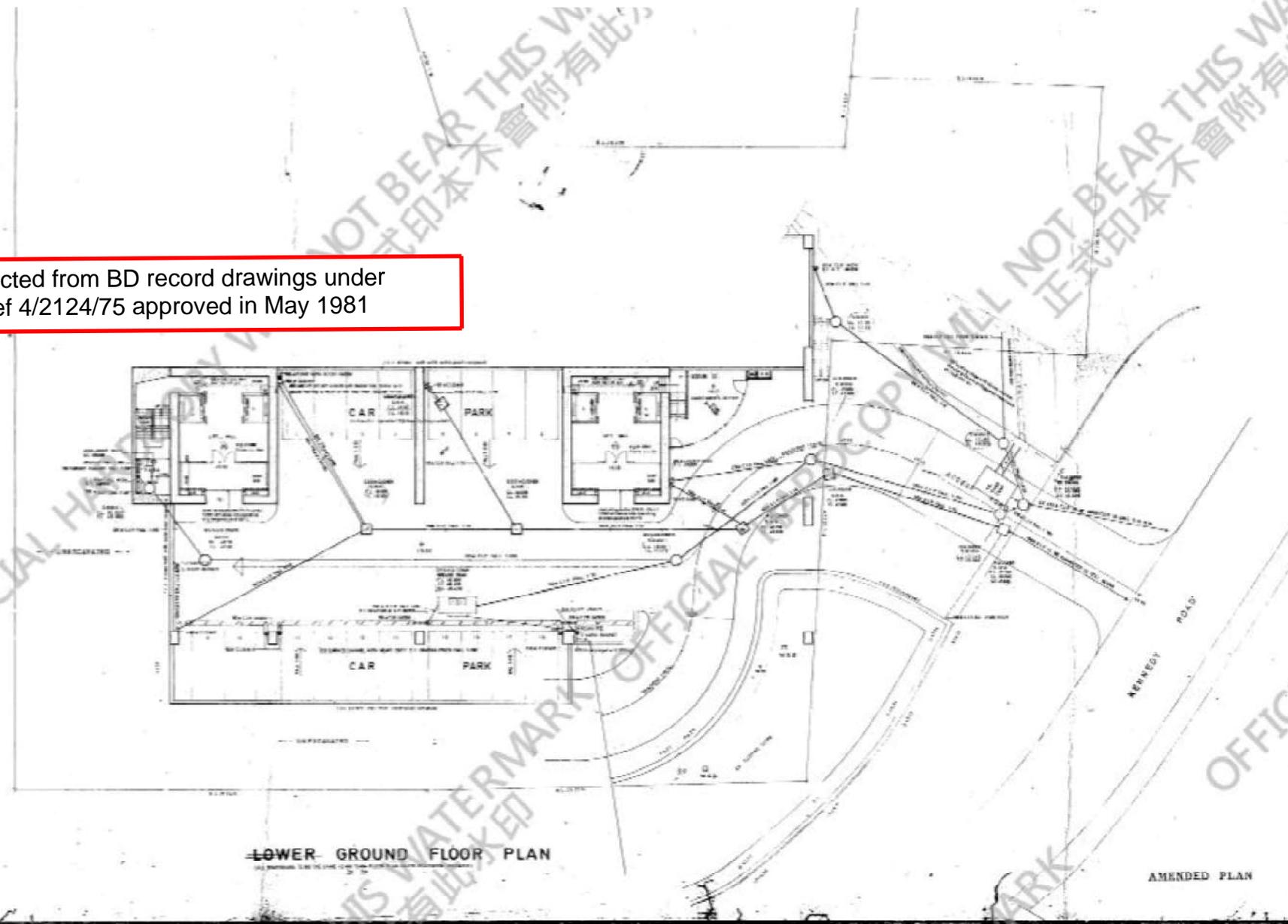


Extracted from BD record drawings under BD ref 2/3003/05 approved in Jan 2010

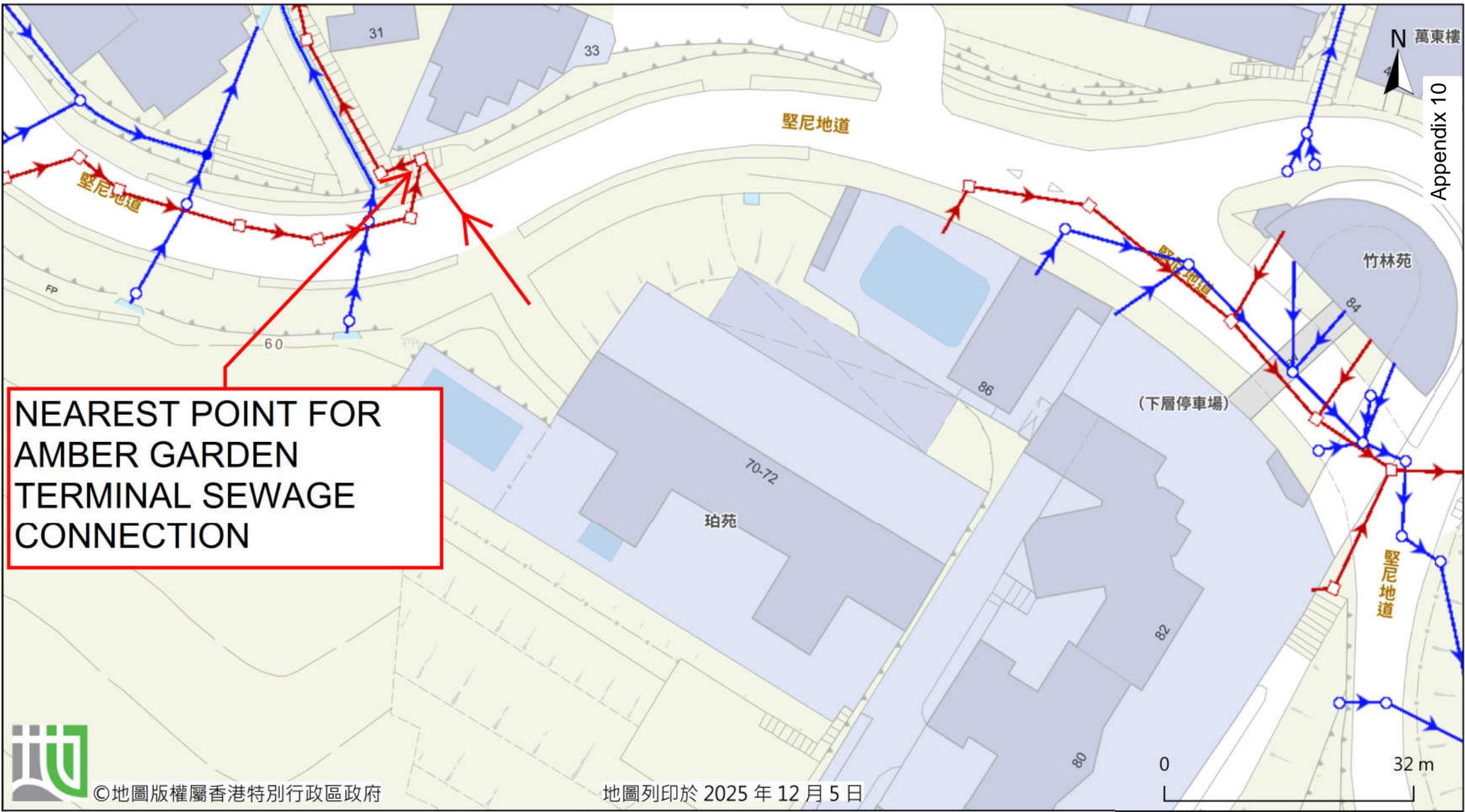
**Appendix 11 -
Supplementary Information for Existing Development not Included in SIA**

(i) Discharge Point of Amber Garden

Extracted from BD record drawings under
BD ref 4/2124/75 approved in May 1981



R.O. NO. 4/2124/75 S.D. NO. L.A. NO. DATE	
PROJECT NO. 1111 SHEET NO. 1111	
TITLE PROPOSED APARTMENT BUILDING	
DRAWN BY CHECKED BY DATE	
SCALE 1:100	
PROJECT NO. 1111 SHEET NO. 1111	
TITLE DRAINAGE PLAN	
CHAU LAM ARCHITECT & ASSOCIATES CHAU HO MIN REGISTERED ARCHITECT	
PROJECT NO. 1111 SHEET NO. 1111 DATE 11/11/11	

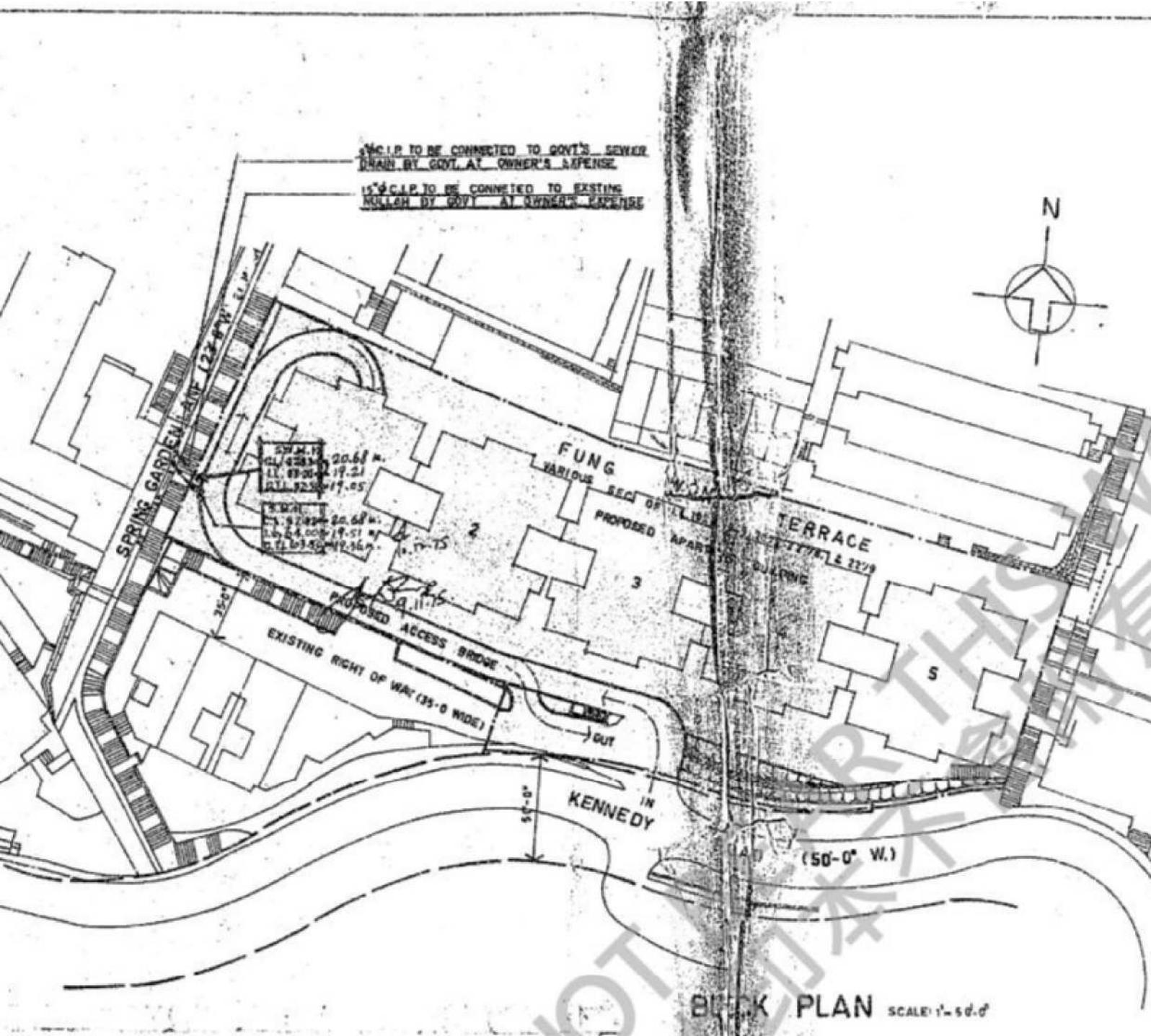


NEAREST POINT FOR
AMBER GARDEN
TERMINAL SEWAGE
CONNECTION

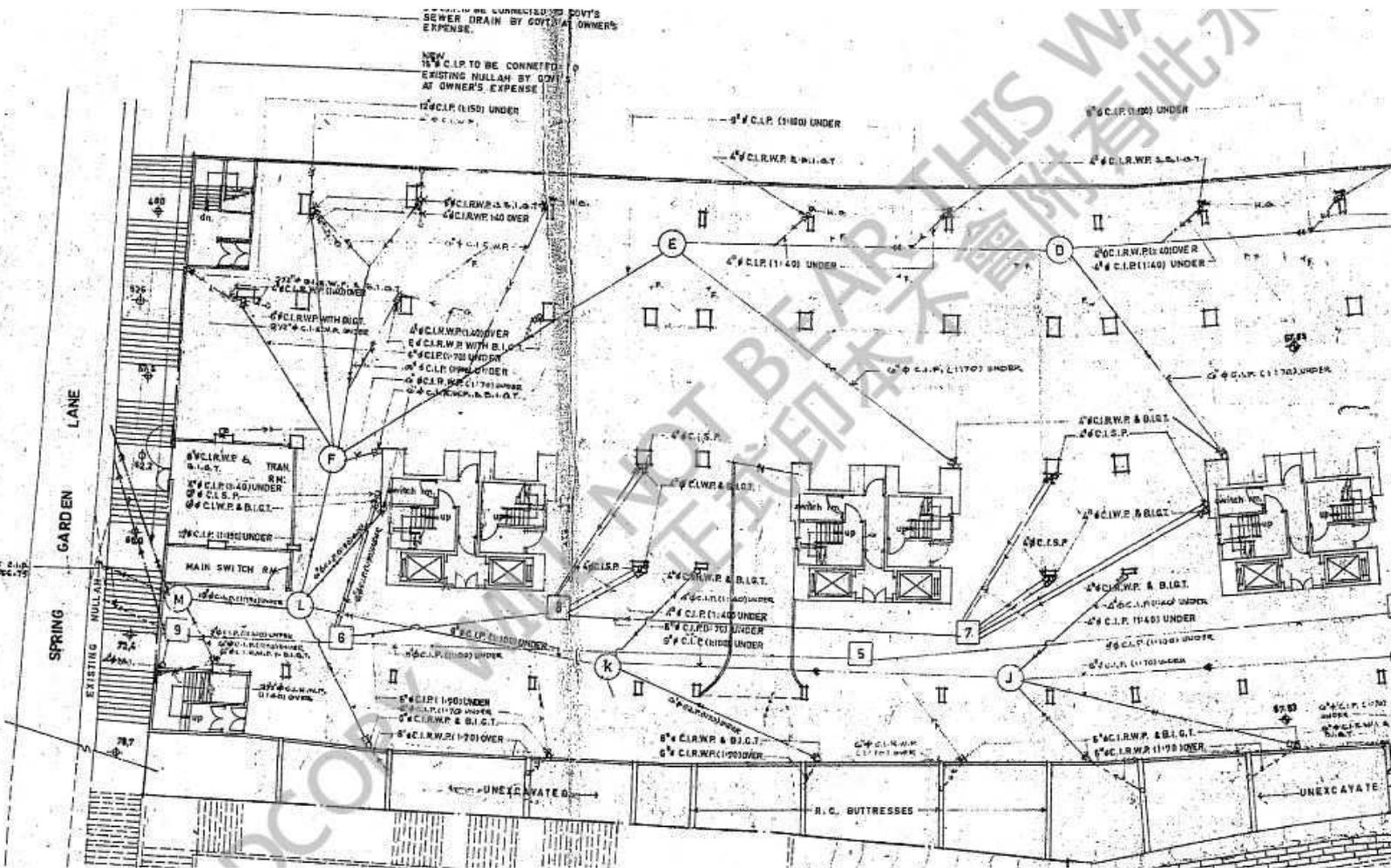
Appendix 10

**Appendix 11 -
Supplementary Information for Existing Development not Included in SIA**

(ii) Sewage Discharge point of No. 39 Kennedy Road (Phoenix Court)



Extracted from BD record drawings under
BD ref 4/2240/73 approved in June 1976



Extracted from BD record drawings under BD ref 4/2240/73 approved in June 1976

Appendix 12 - No. of Occupancy before Conversion

Project: NO. 7 WAN CHAI GAP ROAD

Date : FEB 2026

Proposed Conversion of Student Hostel for HKSYU Wanchai Campus - Existing Condition

Floor	Usage	Width m	Length m	Area m ²	Classroom Area for Students m ²	Occupancy Density	No. of Occupancy	
							student	staff
4/F	Classroom 1	8.5	6.1	51.85	42.70	1.1	39	1
	Laboratory	6.1	11.1	67.71	51.06	1.5	34	1
	Teacher's Resting Room	5.5	6.1	33.55	-	3.3/100m ²		2
	Classroom 2	6.1	8.4	51.24	38.64	1.1	35	1
3/F	Classroom 1	8.5	6.3	53.55	44.10	1.1	40	1
	Classroom 2	6.1	8.4	51.24	38.64	1.1	35	1
	Classroom 3	6.1	8.4	51.24	38.64	1.1	35	1
	Classroom 4	6.1	8.4	51.24	38.64	1.1	35	1
2/F	Classroom 1	8.5	6.3	53.55	44.10	1.1	40	1
	Classroom 2	6.1	8.4	51.24	38.64	1.1	35	1
	Classroom 3	6.1	8.4	51.24	38.64	1.1	35	1
	Classroom 4	6.1	8.4	51.24	38.64	1.1	35	1
1/F	Classroom 1	8.5	6.1	51.85	42.70	1.1	39	1
	Classroom 2	6.1	8.4	51.24	38.64	1.1	35	1
	Classroom 3	6.1	8.4	51.24	38.64	1.1	35	1
	Classroom 4	6.1	8.4	51.24	38.64	1.1	35	1
G/F	Classroom 1	8.5	6.1	51.85	42.70	1.1	39	1
	Classroom 2	6.1	8.4	51.24	38.64	1.1	35	1
	Classroom 3	6.1	8.4	51.24	38.64	1.1	35	1
	Head Master Office	5.5	6.1	33.55	-	3.3/100m ²	-	2
							652	22

Note

- 1) Each classroom was divided into 2 area, i.e. teacher area and student area.
- 2) Teacher area, i.e., the floor space required for the use of the teacher in classroom, is 1.5 m in width extending along the whole length of the wall in front of the students.
- 3) It is assumed 1 teaching staff is provided for each classroom.
- 4) The number of students is calculated based on 1.1 student/m² of the student area in classroom.
- 5) The number of students is calculated based on 1.5 student/m² of the student area in laboratory.
- 6) Number of staff is based on worker density listed in CISFU (refer Appendix 7).
Community, Social & Personal Services in All Type Usage (3.3 staff/100m²) is adopted in this calculation.