Appendix II

Sewerage Impact Assessment

Hong Kong Shue Yan University
Wan Chai Campus Conversion
at No. 7 Wan Chai Gap Road, Hong Kong
SEWERAGE IMPACT ASSESSMENT

Reply to EPD's Comment Received in December, 2025

Item	Comments	Reply
1	Please supplement the sewage flow calculation before the conversion to demonstrate there is no significant change on sewage generation after the conversion. If there is an increase in sewage flow after the conversion, please also calculate the hydraulic calculation until FMH7014812 and include the sewage flow from surrounding catchments to demonstrate any impacts on downstream sewers.	- Please refer Section 5 of the revised report for your comment and approval.
2	Please provide the intake year.	- The intake year will be in First Quarter of 2027. - Please refer Section 1 of the revised report for your comment and approval.
3	Please supplement the tentative building plan and clarify how many students would live in one hostel room.	- Please refer Section 4 and Appendix 9 of the revised report for your comment and approval.

Item	Comments	
4	Please clarify if there is any staff in the proposed student hostel conversion. If affirmative, please include the UFF of J11 into the calculation.	- Workplace is assumed on Ground Floor under statutory submission with 22 employees counted in the proposed conversion. - Please refer Section 4 and Appendix 9 of the revised report for your comment and approval.
5	In section 5, Site No. 3, please revise the typo.	- Noted and revised. - Please refer Section 5 of the revised report for your comment and approval.
6	In section 5.1, please adopt the UFF of Residential to R2 domestic as 0.27 instead of 0.23 (for catchment wide planning in Wan Chai).	- Noted and revised. - Please refer Section 5 and Appendix 9 of the revised report for your comment and approval.
7	In Appendix 8, please review the pipe material.	- Please be clarified that cast iron pipe in fair condition would be adopted for public sewer.
8	In Appendix 9, please provide the reference of club house U.F.A of 74-84.	- Please refer Appendix 10 of the revised report for your information.

Item	Comments	
9	In Appendix 9, please supplement the 74-84 Kennedy Road backwash of swimming pools and update the hydraulic calculation.	- Please refer Section 5 and Appendix 10 of the revised report for your information.
10	Please clarify the discharge point of Amber Garden.	- The discharge point of Amber Garden shall be at FMH7048166. - Please refer Appendix 11 of the revised report for your information.
11	It is noted that this is a pre-submission document only. Please be reminded that EPD's advice will not pre-empt the decision of the requirements in the planning process. The applicant is reminded to submit a planning statement to demonstrate there is no adverse environmental impact to the proposed conversion for the campus.	- Noted.

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	:	December 2025 (Rev. 2)

Hong Kong Shue Yan University
Wan Chai Campus Conversion
at No. 7 Wan Chai Gap Road, Hong Kong
SEWERAGE IMPACT ASSESSMENT

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.

4) Calculation of Sewage Discharge from the Site

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	164	0.19	31.16
	Employee	22	0.28	6.16
			Total:	37.32

Table 1a : Sewage Discharge from the Site (1)

Daily Flow, (m^3/day)	Contribution Population	Catchment Inflow Factor	Peak Factor	Average Flow L/s	Peak Flow	
					m^3/s	L/s
37.32	138	1.00	6	0.432	0.003	2.59

Table 1b : Sewage Discharge from the Site (2)

Notes:

i) Unit Flow Factor is based on EPD's guideline Table T-1 (Refer Appendix 3).

ii) Unit Flow Factor for resident of "Hostel" has taken into account the domestic flow for Institutional and Special Class (0.19m^3/person/day).

iii) Unit Flow Factor for employee of "Hostel" has taken into account the commercial employee factor (0.08m^3/employee/day) and commercial activity factor (0.20m^3/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 exclude stormwater allowance (Refer Appendix 4).

v) Catchment inflow factor is based on EPD's guideline Table T-4 (Refer Appendix 5).

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 : Neibouring 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: Neibouring Development NOT included in the SIA

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 (0.27m^3/person/day).

ii) Unit Flow Factor used for "Clubhouse" has taken into account the commercial employee factor (0.08m^3/employee/day) and commercial activity factor (0.20m^3/employee/day for J11 Community, Social & Personal Services).

iii) Unit Flow Factor used for "Office" has taken into account the commercial employee factor (0.08m^3/employee/day).

iv) Unit Flow Factor used for "Retail" has taken into account the commercial employee factor (0.08m^3/employee/day) and commercial activity factor (0.20m^3/employee/day for J4 Wholesale and Retail).

v) Unit Flow Factor used for "Workshop, Playground, Library, Hall" has taken into account the commercial employee factor (0.08m^3/employee/day) and commercial activity factor (0.20m^3/employee/day for J11 Community, Social & Personal Services).

vi) Unit Flow Factor for "Restaurant, Canteen" has taken into account the commercial employee factor (0.08m^3/employee/day) and commercial activity factor (1.50m^3/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	Peak Flow, (L/s)
The proposed development, Site 01 to 15	729.0	2700.1	6	1.00	50.63

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

6) Existing Government Sewerage Installation near the Development

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

Length = 28m

I.L. (upstream) = 5.61

I.L. (downstream) = 4.75

Gradient = 28 / (5.61-4.75)

= 1: 33

for CI pipe, U = 0.014 *(refer Appendix 8)*

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

Full bore flow of DN150 C.I. pipe with a fall of 1:5

R = 0.25 D

$V = \frac{1}{0.014} \times (0.25 \times 0.225)^{\frac{2}{3}} (1/33)^{\frac{1}{2}}$

= 1.83 m/s

Discharge capacity

Q = AV

= $(0.785 \times 0.225^2) \times 1.83$

= 75.24 L/s

Utilization factor = 50.63 / 75.24

= 69.8 % (OK)

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*.

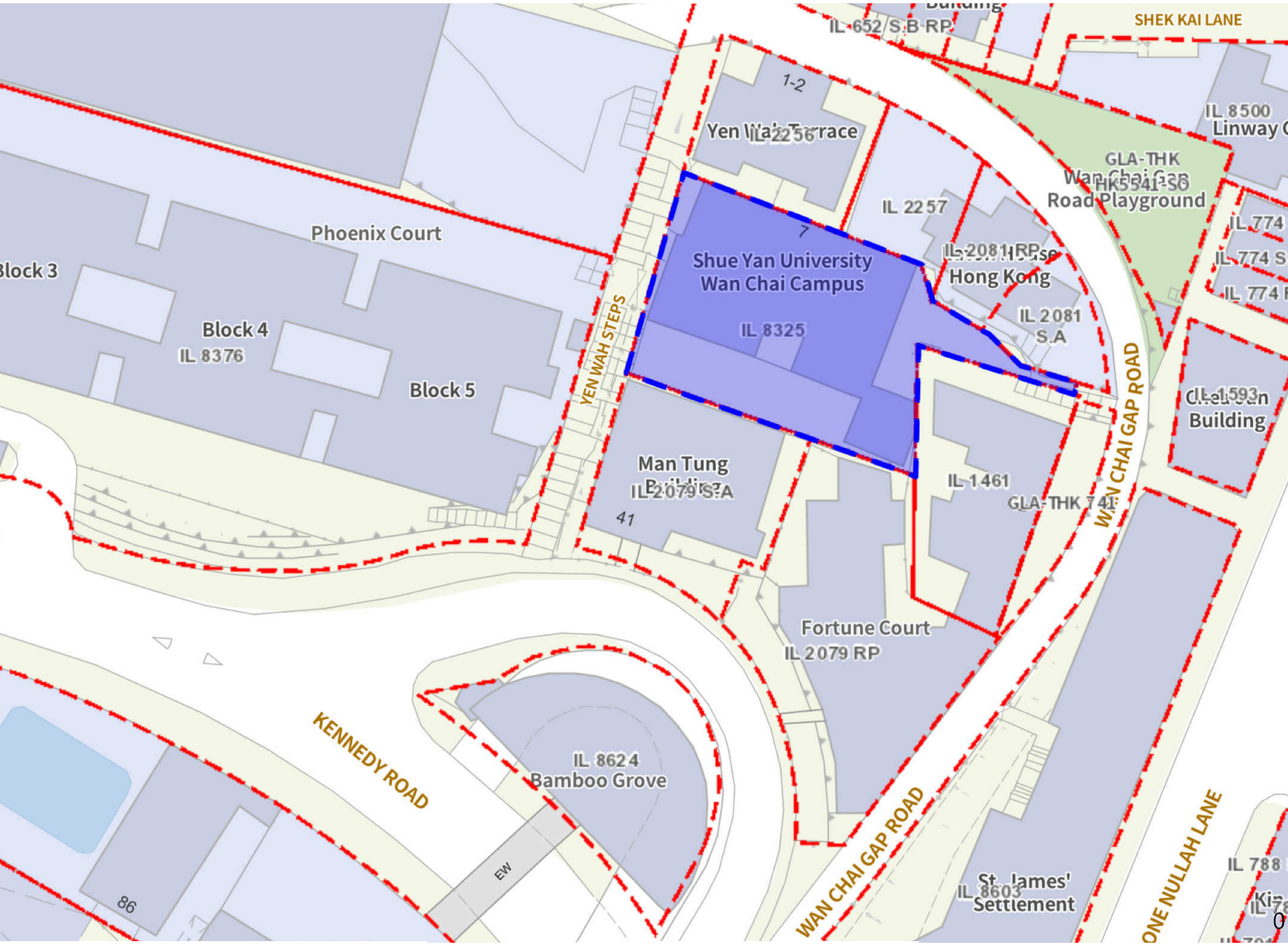
MH		Diameter	Slope	Capacity, Q	Peak Flow	Percentage of Usage	Sufficient? (Y/N)
U/S	D/S	mm		L/s	L/s		
Existing Arrangement							
FMH7007346	FMH7014802	150	5	65.20	21.08	32.3 %	Y
FMH7014802	FMH7014803	150	10	44.70	24.37	54.5 %	Y
FMH7014803	FMH7014804	150	9	47.11	24.37	51.7 %	Y
FMH7014804	FMH7062580	150	10	44.70	34.54	77.3 %	Y
FMH7062580	FMH7014807	150	10	44.70	34.54	77.3 %	Y
FMH7014807	FMH7015134	225	11	125.65	34.54	27.5 %	Y
FMH7015134	FMH7014811	225	27	80.20	36.79	45.9 %	Y
FMH7014811	FMH7014812	225	33	72.54	50.63	69.8 %	Y

Table 6 : Sewage Flow handled by the EX. Sewer

7) Conclusion

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

79-83
Stone Nullah Lane

1 Wan Chai Gap Road

3-5 Wan Chai Gap Road

THE SITE

Appendix 2 - DSD Record Plan

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

Appendix 2

DATE:	PART OF DRAINAGE RECORD PLAN 11-SW-140-2	SCALE 1:500
28-01-2025	Drainage Services Department Hong Kong & Islands	
FOR INFORMATION ONLY		

Appendix 3 - Unit Flow Factors

Table T-1 : Unit Flow Factors for Domestic Flows

	Unit	Datum (2002) (m^3/day)	Increase per Annum (m^3/day)	Planning for Future (m^3/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, Cental 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

Year	District Council district (DCD)	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$
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
	Whole Territory	**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.

1 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.

2 Household size refers to the number of household members in a domestic household.

3 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.

4 Economically active household is a domestic household with at least one member (excluding foreign domestic helpers) being economically active.

5 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 m^2))

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

Extracted from DSD's Sewerage Manual

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 : DEC 2025

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)	Daily Flow, (m^3/day)	Contribution Population	Average Flow, (L/s)
0	**The Proposed Development**	Hostel	-	-	-	-	-	(say)	164	-	0.19	31.16	115.4	0.361
	(Note 1)	Employee						(say)	22		0.28	6.16	22.8	0.071
1	6 Wan Chai Gap Road	Residential	24	2.4	-	-	57.6	(say)	58	-	0.27	15.66	58.0	0.181
2	43 Kennedy Road	Residential	20	2.4	-	-	48.0	(say)	48	-	0.27	12.96	48.0	0.150
3	74-84 Kennedy Road (Note 2)	Residential	348	2.4	-	-	835.2	(say)	836	-	0.27	225.72	836.0	2.613
		Club House	-	-	1025.48	3.3	33.8	(say)	34	All Types, Community, Social & Personal Services	0.28	9.52	35.3	0.110
		Pool										2.41	8.9	0.028
4	3-5 Wan Chai Gap Road	Serviced Apartment	73	2.4	-	-	175.2	(say)	175	-	0.27	47.25	175.0	0.547
5	41 Kennedy Road	Residential	28	2.4	-	-	67.2	(say)	67	-	0.27	18.09	67.0	0.209
6	1 Wan Chai Gap Road	Residential	18	2.4	-	-	43.2	(say)	43	-	0.27	11.61	43.0	0.134
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	597.9	1.869
		Restaurant	-	-	835.28	5.1	42.6	(say)	43	All Types, Restaurant	1.58	67.94	251.6	0.786
		Retail	-	-	296.22	3.5	10.4	(say)	11	All Types, Retail Trade	0.28	3.08	11.4	0.036
8	221 Queen's Road East				59.00	3.3	1.9	(say)	2	-	0.28	0.56	2.1	0.006
9	223-229A Queen's Road East	Residential	47	2.4	-	-	112.8	(say)	113	-	0.27	30.51	113.0	0.353
		Retail	-	-	179.15	3.5	6.3	(say)	7	All Types, Retail Trade	0.28	1.96	7.3	0.023

Project: **NO. 7 WAN CHAI GAP ROAD**

Date : **DEC 2025**

Item	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)	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	29.9	0.094
		Workshop, Playground, Library, Hall	-	-	3578.69	3.3	118.1	(say)	118	All Types, Community, Social & Personal Services	0.28	33.04	122.4	0.382
		Canteen	-	-	460.60	5.1	23.5	(say)	24	All Types, Restaurant	1.58	37.92	140.4	0.439
11	79-83 Stone Nullah Lane	Residential	12	2.4	-	-	28.8	(say)	29	-	0.27	7.83	29.0	0.091
		Office	-	-	130.09	3.4	4.4	(say)	5	All Types, All Economic Activities	0.08	0.40	1.5	0.005
		Retail	-	-	147.48	3.5	5.2	(say)	6	All Types, Retail Trade	0.28	1.68	6.2	0.019
12	75-77 Stone Nullah Lane	Residential	10	2.4	-	-	24.0	(say)	24	-	0.27	6.48	24.0	0.075
		Retail	-	-	97.64	3.5	3.4	(say)	4	All Types, Retail Trade	0.28	1.12	4.1	0.013
13	69-71 Stone Nullah Lane	Residential	44	2.4	-	-	105.6	(say)	106	-	0.27	28.62	106.0	0.331
		Office	-	-	269.51	3.4	9.2	(say)	9	All Types, All Economic Activities	0.08	0.72	2.7	0.008
		Retail	-	-	217.07	3.5	7.6	(say)	8	All Types, Retail Trade	0.28	2.24	8.3	0.026
14	239 Queen's Road East	Residential	96	2.4	-	-	230.4	(say)	231	-	0.27	62.37	231.0	0.722
		Retail	-	-	306.41	3.5	10.7	(say)	11	All Types, Retail Trade	0.28	3.08	11.4	0.036
		Club House	-	-	166.42	3.3	5.5	(say)	6	All Types, Community, Social & Personal Services	0.28	1.68	6.2	0.019
		Office	-	-	24.91	3.4	0.8	(say)	1	All Types, All Economic Activities	0.08	0.08	0.3	0.001
15	231-233 Queen's Road East	Retail	-	-	83.37	3.5	2.9	(say)	3	All Types, Retail Trade	0.28	0.84	3.1	0.010
		Office	-	-	1114.39	3.4	37.9	(say)	38	All Types, All Economic Activities	0.08	3.04	11.3	0.035

729.0

Notes:

1) Population of the proposed development was based on statutory submission in the proposed conversion.
2) There are 2 terminal foul water discharge points for No. 213 Queen's Road East. Assum each carry 50% of the site discharge.

Appendix 9 - Sewage Discharge Calculation

Project: **NO. 7 WAN CHAI GAP ROAD**

Date : **DEC 2025**

UTILIZATION CALCULATION OF EXISTING SEWERS

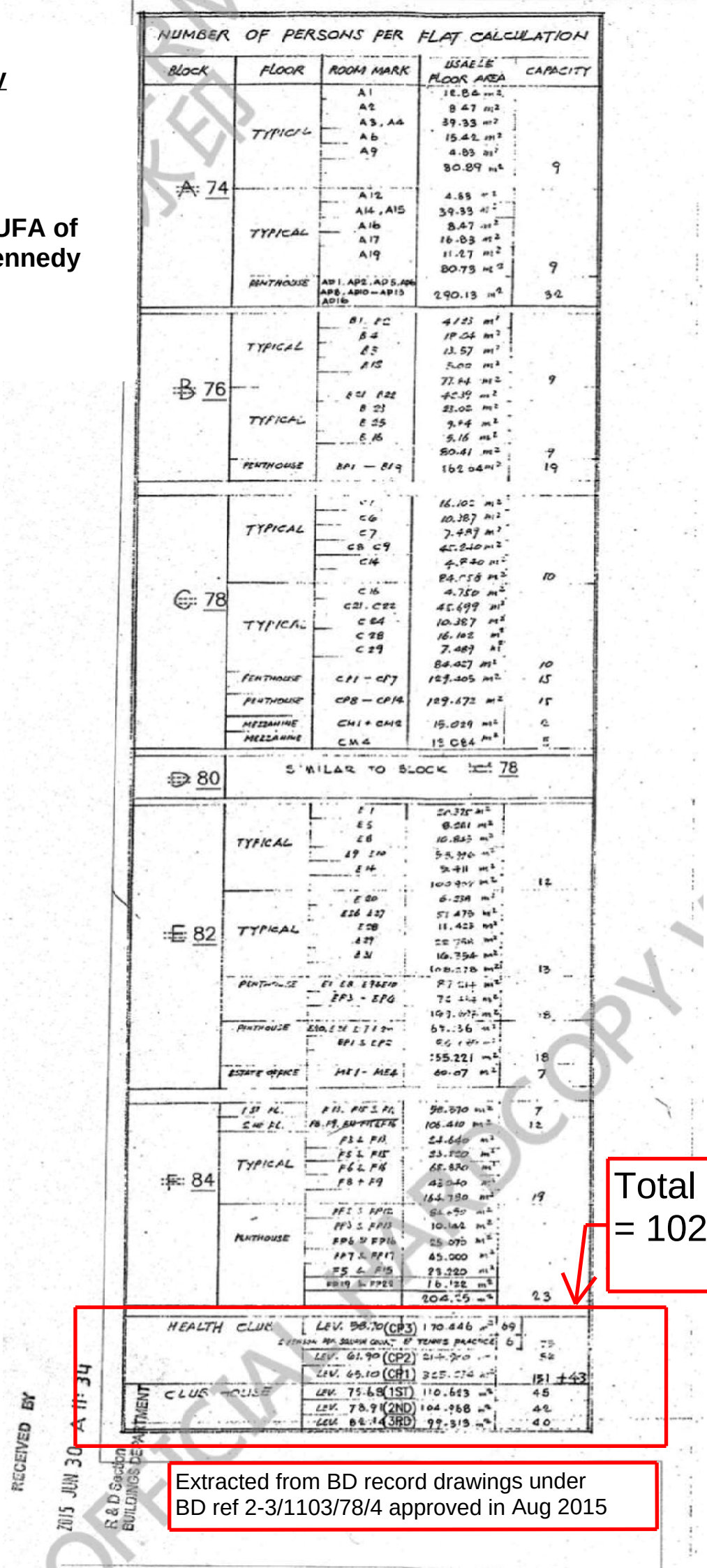
MH		Pipe Section			Mannings Coefficient	Invert Level		Slope	Velocity, v	Capacity, Q	Flow from Previous Section		Incomming Average Flow	Total Incomming Average Flow to U/S MH	Contribution Population	Peaking Factor	Peak Flow	Precentage of Usage	
U/S	D/S	Diameter	Length	Material		U/S	D/S		m/s	L/s		L/s	L/s	L/s			L/s		
		mm	m																
Existing Arrangement																			
FMH7007346	FMH7014802	150	20	CI	0.014	18.9	14.6	5	3.691	65.20	Site 0-3	0.00	3.51	3.51	1124.4	6	21.08	32.3	%
FMH7014802	FMH7014803	150	19	CI	0.014	14.6	12.7	10	2.531	44.70	Site 4	3.51	0.55	4.06	1299.4	6	24.37	54.5	%
FMH7014803	FMH7014804	150	24	CI	0.014	12.7	9.96	9	2.668	47.11	-	4.06	0.00	4.06	1299.4	6	24.37	51.7	%
FMH7014804	FMH7062580	150	11	CI	0.014	9.75	8.67	10	2.531	44.70	Site 5-6, 8 & 50% of Site 7	4.06	1.70	5.76	1842.0	6	34.54	77.3	%
FMH7062580	FMH7014807	150	3	CI	0.014	8.67	8.37	10	2.531	44.70	-	5.76	0.00	5.76	1842.0	6	34.54	77.3	%
FMH7014807	FMH7015134	225	6	CI	0.014	7.24	6.7	11	3.162	125.65	-	5.76	0.00	5.76	1842.0	6	34.54	27.5	%
FMH7015134	FMH7014811	225	9	CI	0.014	6.2	5.87	27	2.018	80.20	Site 9	5.76	0.38	6.13	1962.2	6	36.79	45.9	%
FMH7014811	FMH7014812	225	28	CI	0.014	5.61	4.75	33	1.825	72.54	Site 10-15	6.13	2.31	8.44	2700.1	6	50.63	69.8	%

Note:

1) Catchment inflow factort = 1.

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	USAELE FLOOR AREA	CAPACITY
A 74	TYPICAL	A1	12.84 m²	
		A2	8.47 m²	
		A3, A4	39.33 m²	
		A6	15.42 m²	
		A9	4.83 m²	
			80.89 m²	9
	TYPICAL	A12	4.83 m²	
		A14, A15	39.33 m²	
		A16	8.47 m²	
		A17	16.83 m²	
		A19	11.27 m²	
			80.73 m²	9
	PENTHOUSE	AP1, AP2, AP5, AP6, AP8, AP10–AP15, AP16	290.13 m²	32
B 76	TYPICAL	B1, B2	41.23 m²	
		B4	19.04 m²	
		B5	13.57 m²	
		B13	5.00 m²	
			77.44 m²	9
	TYPICAL	B21, B22	42.39 m²	
		B23	23.02 m²	
		B25	9.94 m²	
		B26	5.16 m²	
			80.41 m²	9
	PENTHOUSE	BP1 – BP9	162.04 m²	19
C 78	TYPICAL	C1	16.102 m²	
		C6	10.387 m²	
		C7	7.487 m²	
		C8, C9	45.240 m²	
		C14	4.750 m²	
			84.456 m²	10
	TYPICAL	C16	4.750 m²	
		C21, C22	45.699 m²	
		C24	10.387 m²	
		C28	16.102 m²	
		C29	7.487 m²	
			84.427 m²	10
	PENTHOUSE	CP1 – CP7	129.405 m²	15
	PENTHOUSE	CP8 – CP14	129.472 m²	15
	MEZZANINE	CM1 + CM2	15.029 m²	2
	MEZZANINE	CM4	15.084 m²	2
D 80	SIMILAR TO BLOCK C 78			
E 82	TYPICAL	E1	24.375 m²	
		E5	8.281 m²	
		E6	10.853 m²	
		E9, E10	53.376 m²	
		E14	9.411 m²	
			106.296 m²	12
	TYPICAL	E20	6.238 m²	
		E26, E27	51.479 m²	
		E28	11.423 m²	
		E29	22.748 m²	
		E31	16.394 m²	
			108.278 m²	13
	PENTHOUSE	E1, E8, E9&E10, EP3 – EP6	87.114 m²	
			72.443 m²	
			193.677 m²	18
	PENTHOUSE	E30, E31, E32, EP1 & EP2	67.36 m²	
			55.221 m²	18
	ESTATE OFFICE	MS1 – MS4	60.07 m²	7
F 84	1ST FL.	F11, F15 & F16	58.570 m²	7
	2ND FL.	F8, F9, F12, F13, F14	108.410 m²	12
	TYPICAL	F3 & F10	24.640 m²	
		F5 & F15	23.720 m²	
		F6 & F16	68.830 m²	
		F8 + F9	42.040 m²	
			163.780 m²	19
	PENTHOUSE	PF1 & FP12	21.450 m²	
		PF3 & FP13	10.142 m²	
		PF6 & FP16	25.070 m²	
		PF7 & FP17	45.000 m²	
		F5 & F15	23.220 m²	
		F12 & FP21	16.128 m²	
			204.75 m²	23
	HEALTH CLUB	LEV. 58.70 (CP3)	170.446 m²	69
		EXTENSION FOR SQUASH COURT & TENNIS PRACTICE	6	75
		LEV. 61.90 (CP2)	214.920 m²	52
	CLUB HOUSE	LEV. 65.10 (CP1)	325.274 m²	131 +43
		LEV. 75.68 (1ST)	110.613 m²	45
		LEV. 78.91 (2ND)	104.968 m²	42
		LEV. 82.14 (3RD)	99.513 m²	40

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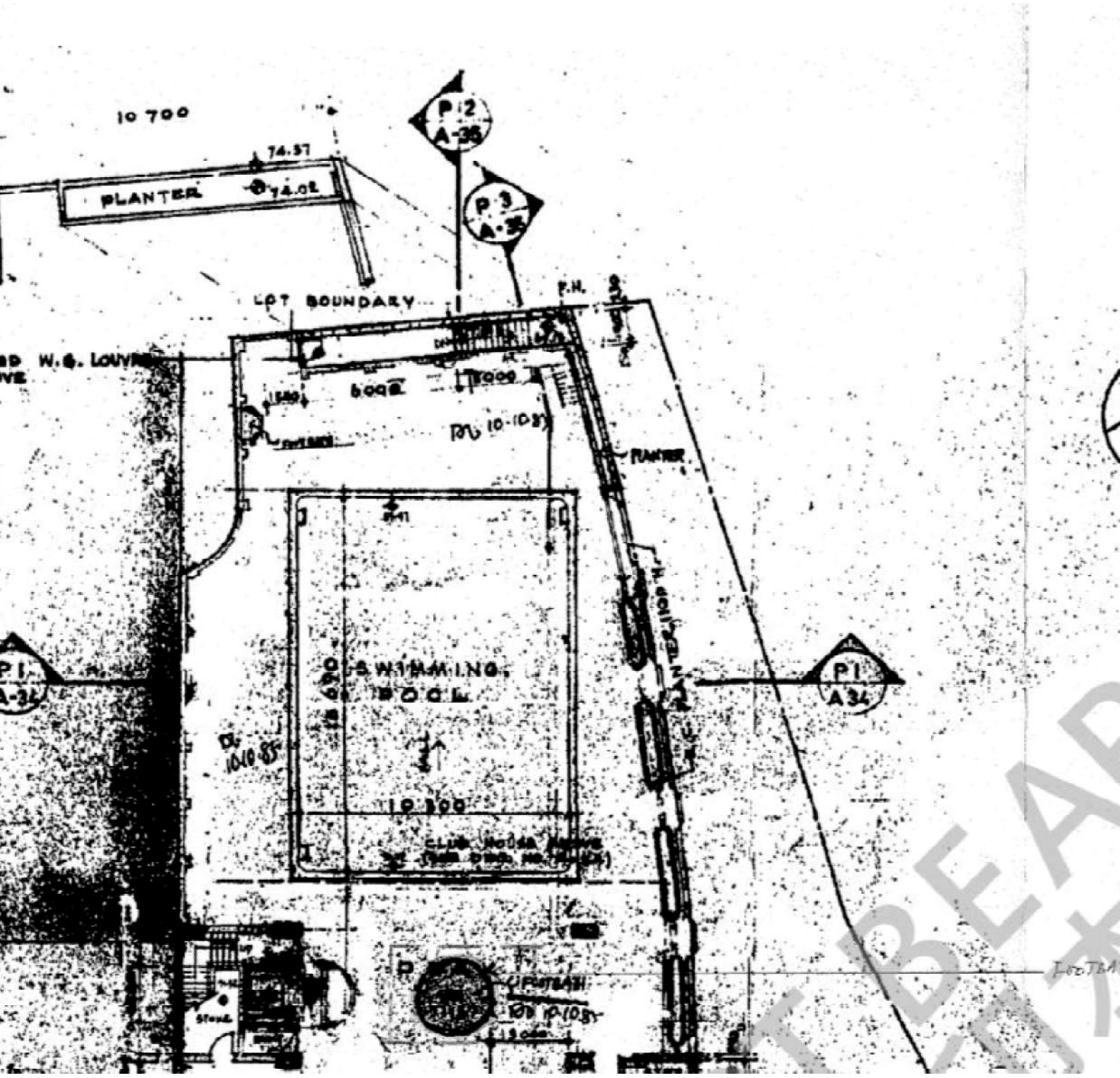
Total UFA = 1025.484 m2

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

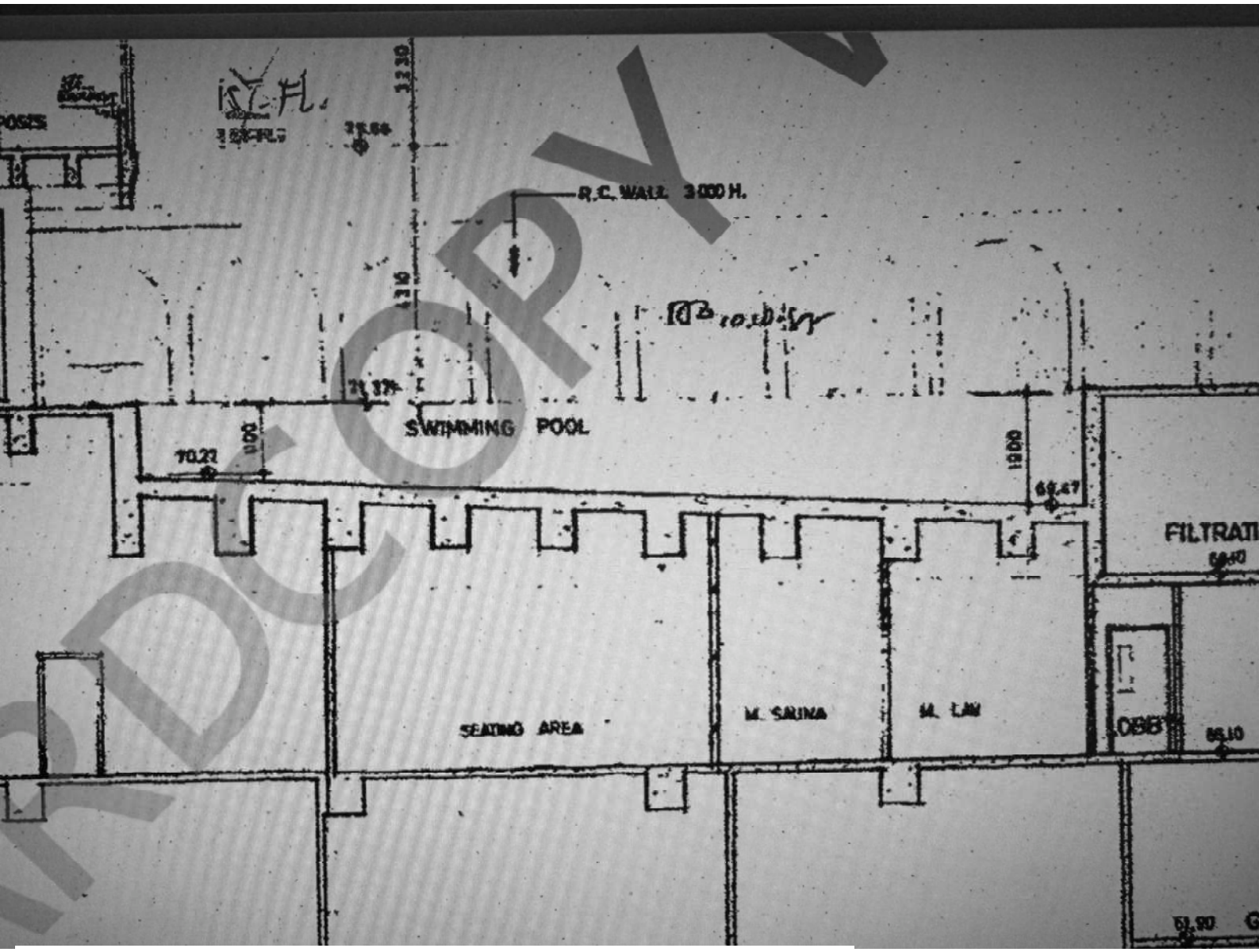
Appendix 10 - Supplementary Information for Existing Development

(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

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

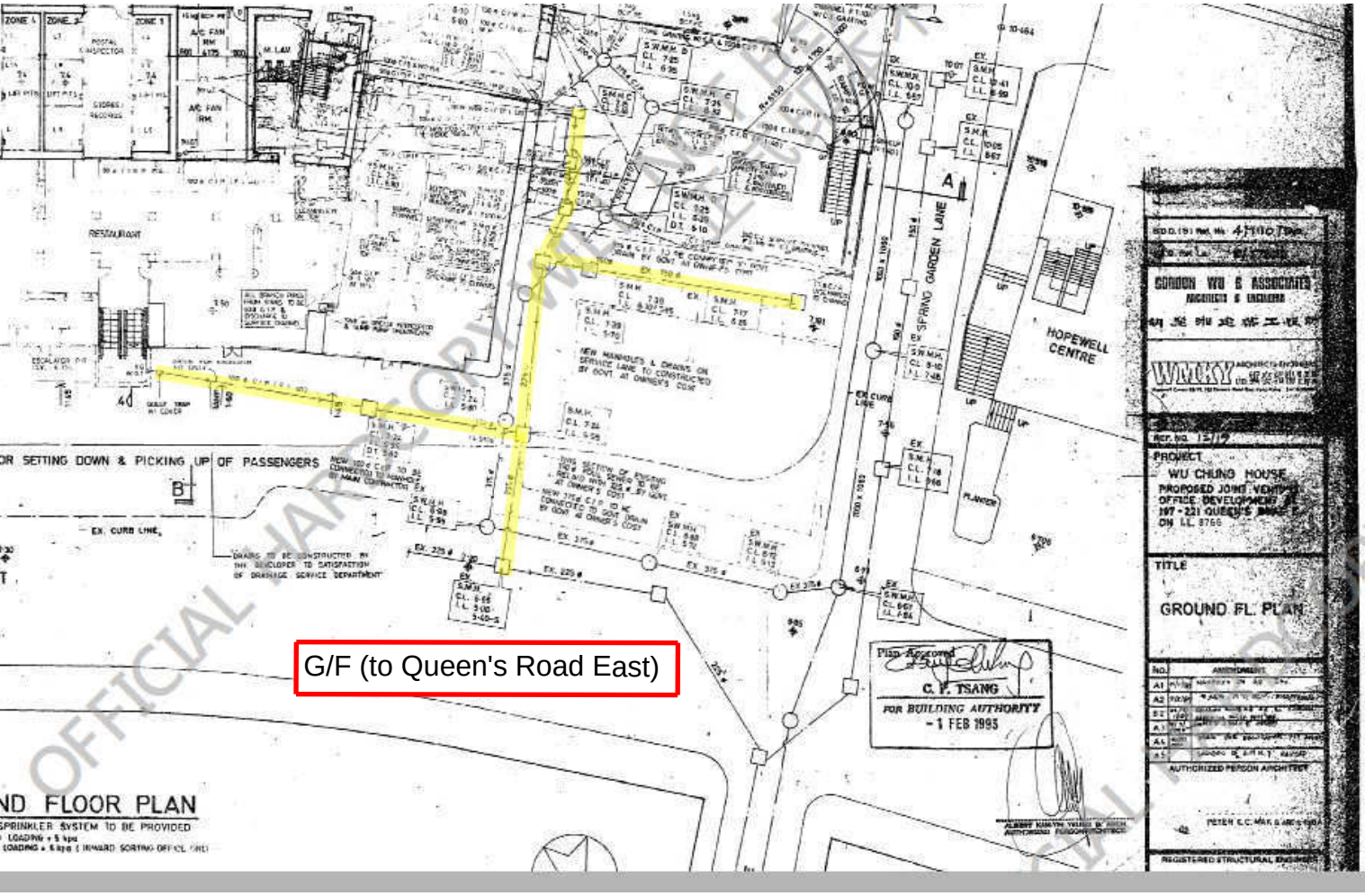


Calculation of Sewage Impact from Swimming Pool at No. 74-84 Kennedy Road

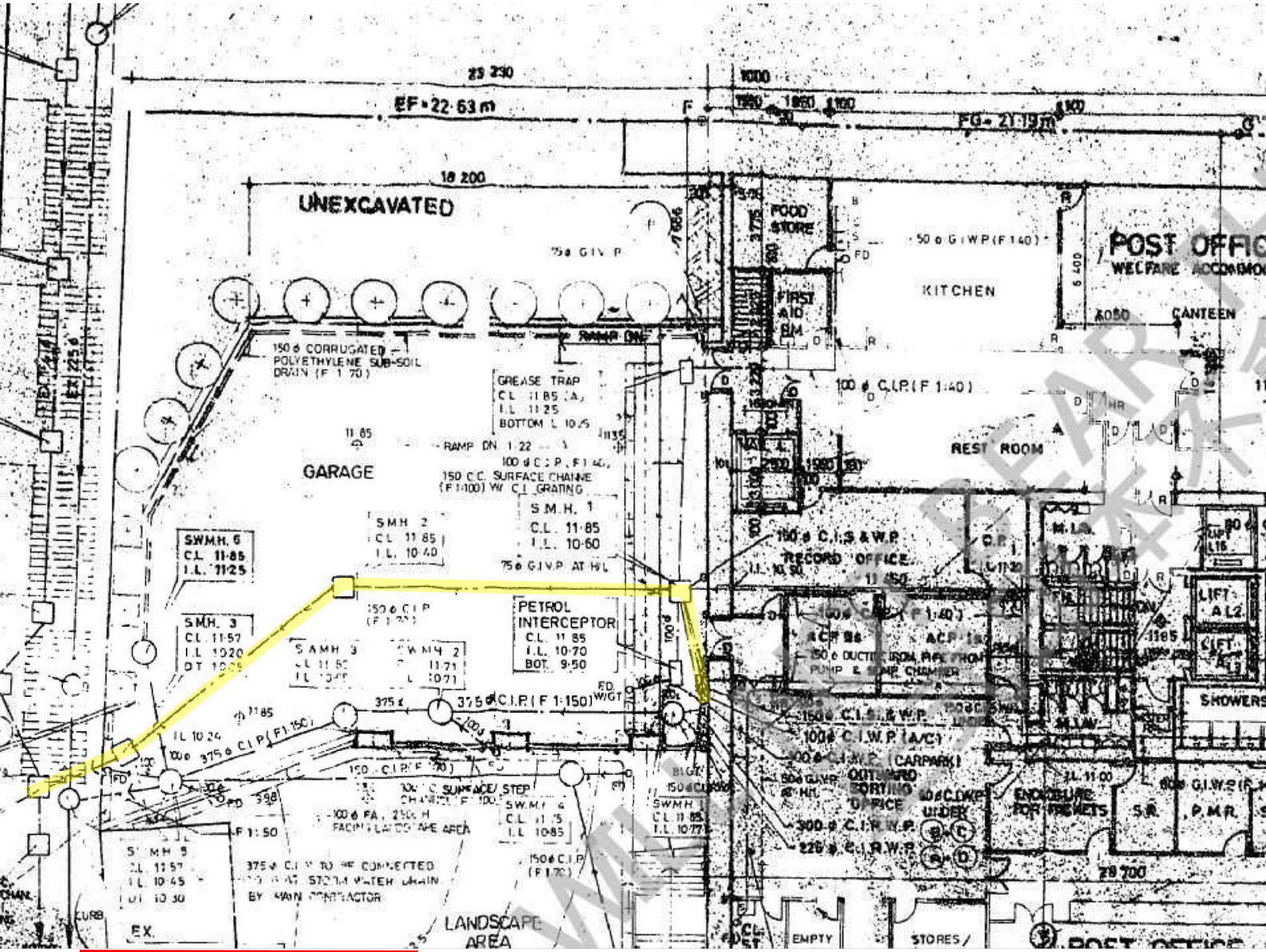
Pool Dimension	=	18.69m x 10.3m	
Pool Depth	=	1.1m - 1.9m	
Pool Volume	=	288.76	m3
Turnover Rate	=	*6*	*hours*
Filtration Rate Required	=	48.13	m3/hr
Backwash duration	=	3	min.
Backwash Volume	=	2.41	m3/day

Appendix 10 - Supplementary Information for Existing Development

(iii) 213 Queen's Road East - Terminal Seweage 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

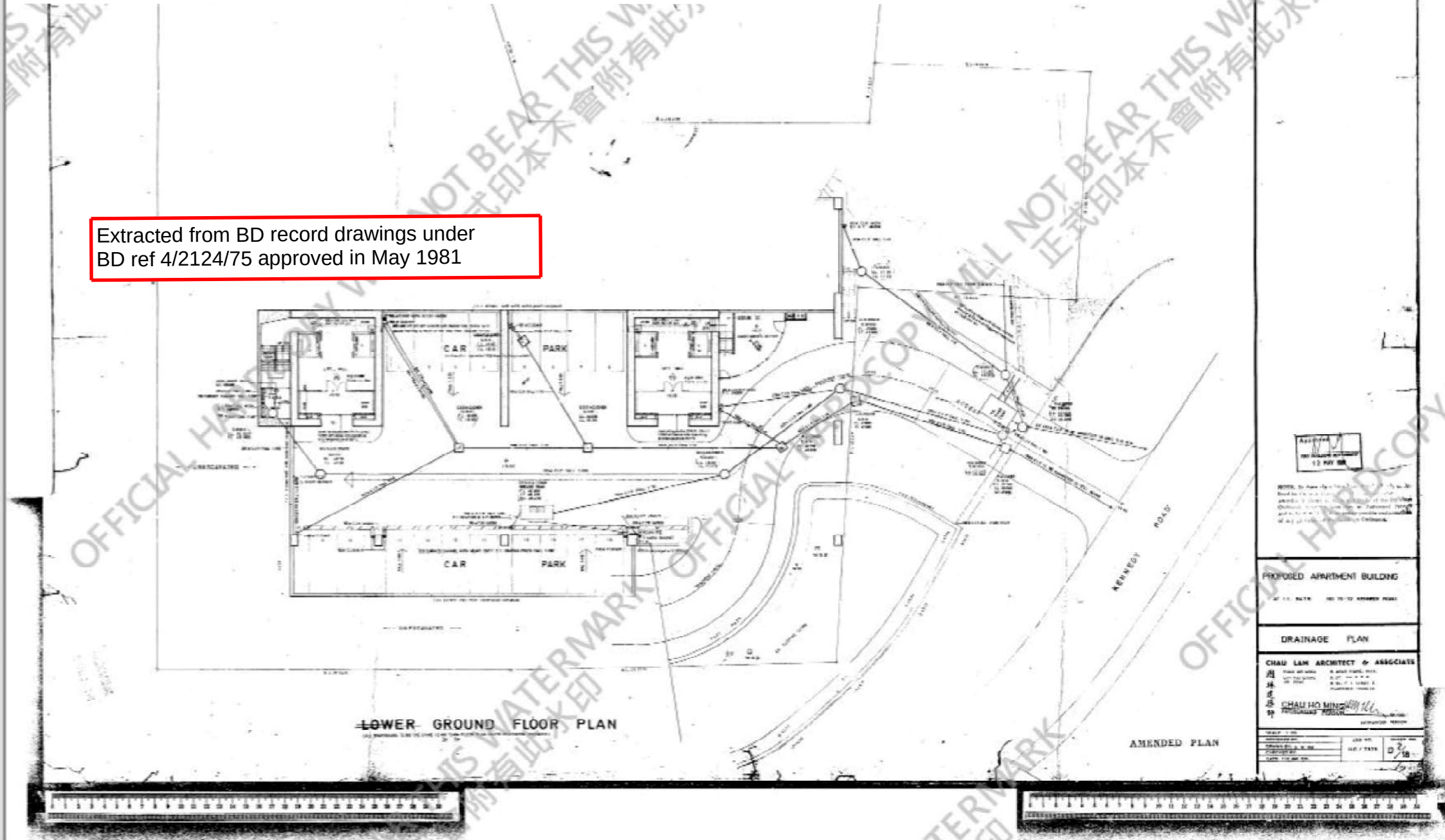
Appendix 10 - Supplementary Information for Existing Development

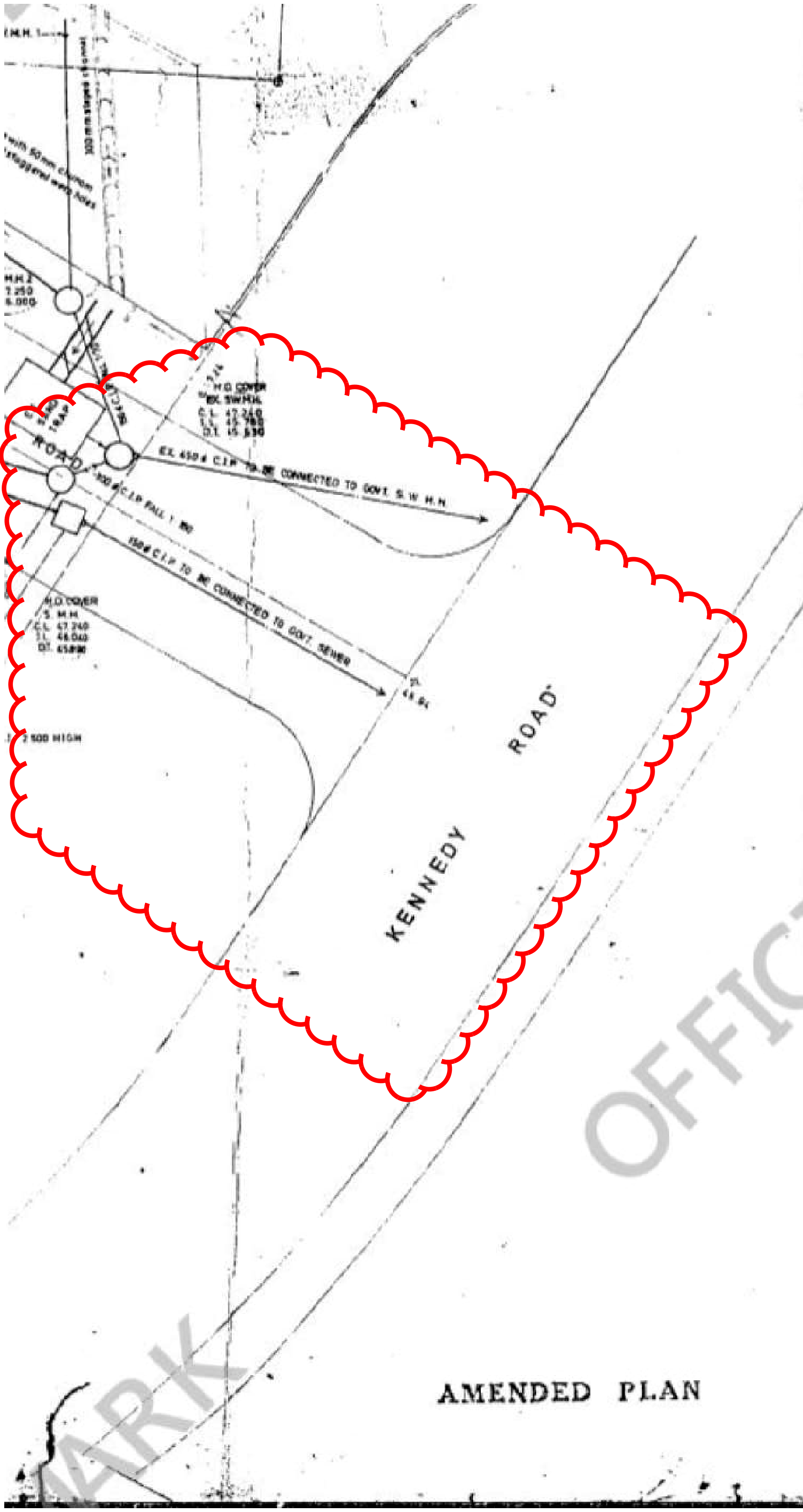
(iv) Roofed area of No. 221 Queen's Road East

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





AMENDED PLAN

Approved
PRO BUILDING AUTHORITY
12 MAY 1981

NOTE: As these plans have been [illegible] lined in [illegible] attention [illegible] Ordinance [illegible] Authorized Person and to [illegible] regarding possible contraventions of any provisions of the Buildings Ordinance.

PROPOSED APARTMENT BUILDING

AT I.L. 8476 NO. 70-72 KENNEDY ROAD

DRAINAGE PLAN

CHAU LAM ARCHITECT & ASSOCIATE

周林建築師

CHAU HO MING — B. ARCH (HONS.), H.K.I.A.

LAM MAI CHING — B. SC., A.M. S. C. E.

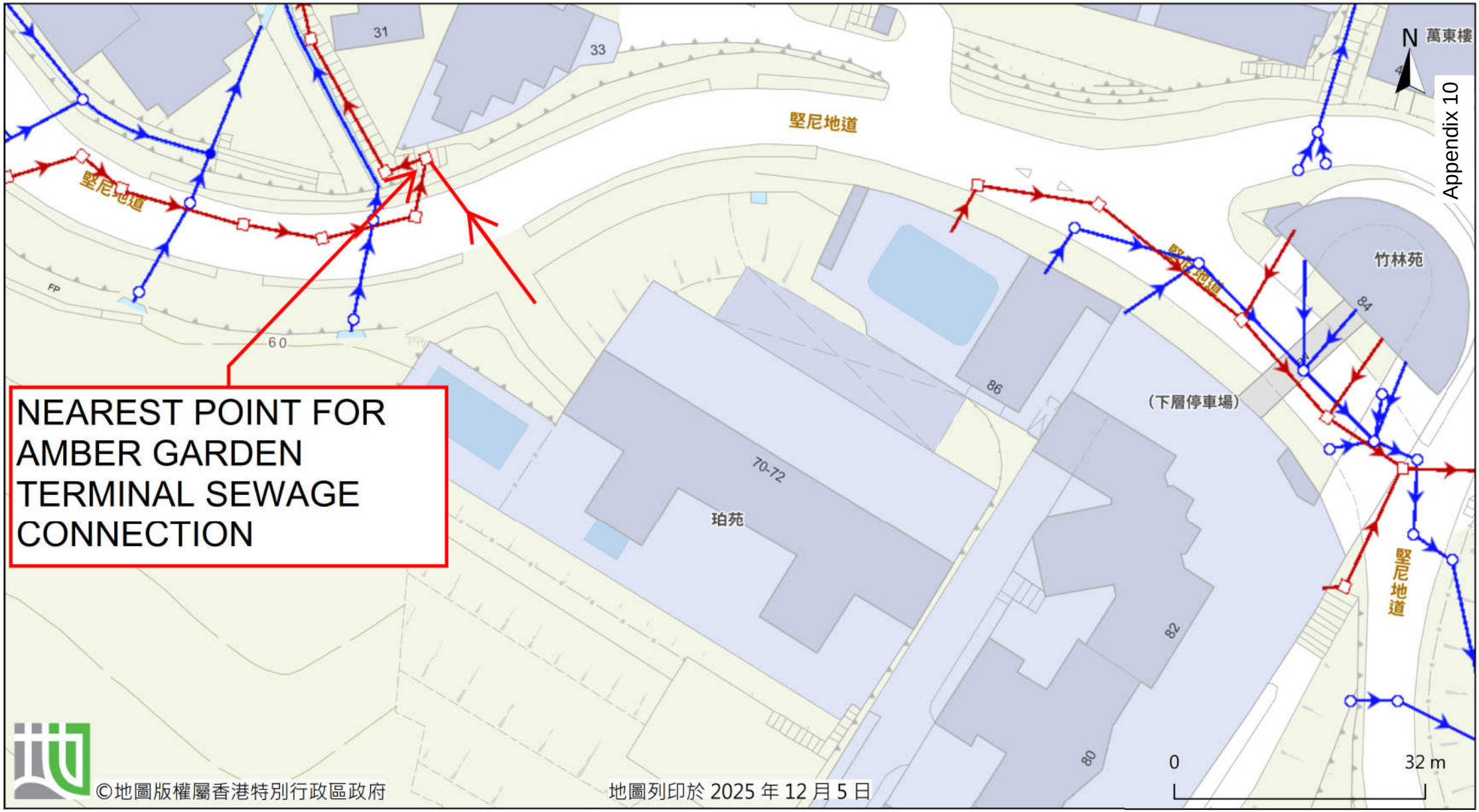
HO PENG — B. SC., F. I. STRUCT. E., CHARTERED ENGINEER

CHAU HO MING
AUTHORIZED PERSON
ARCHITECT
AUTHORIZED PERSON

SCALE: 1:100	JOB NO.	SHEET NO.
DESIGNED BY:	NC / 7323	D 2/18
DRAWN BY: C. W. WU		
CHECKED BY:		
DATE: 7 th MAY 1979		

GEOINFO MAP
地理資訊地圖

前往地圖: https://www.map.gov.hk/gm/geo:22.2733,114.1721?z=564



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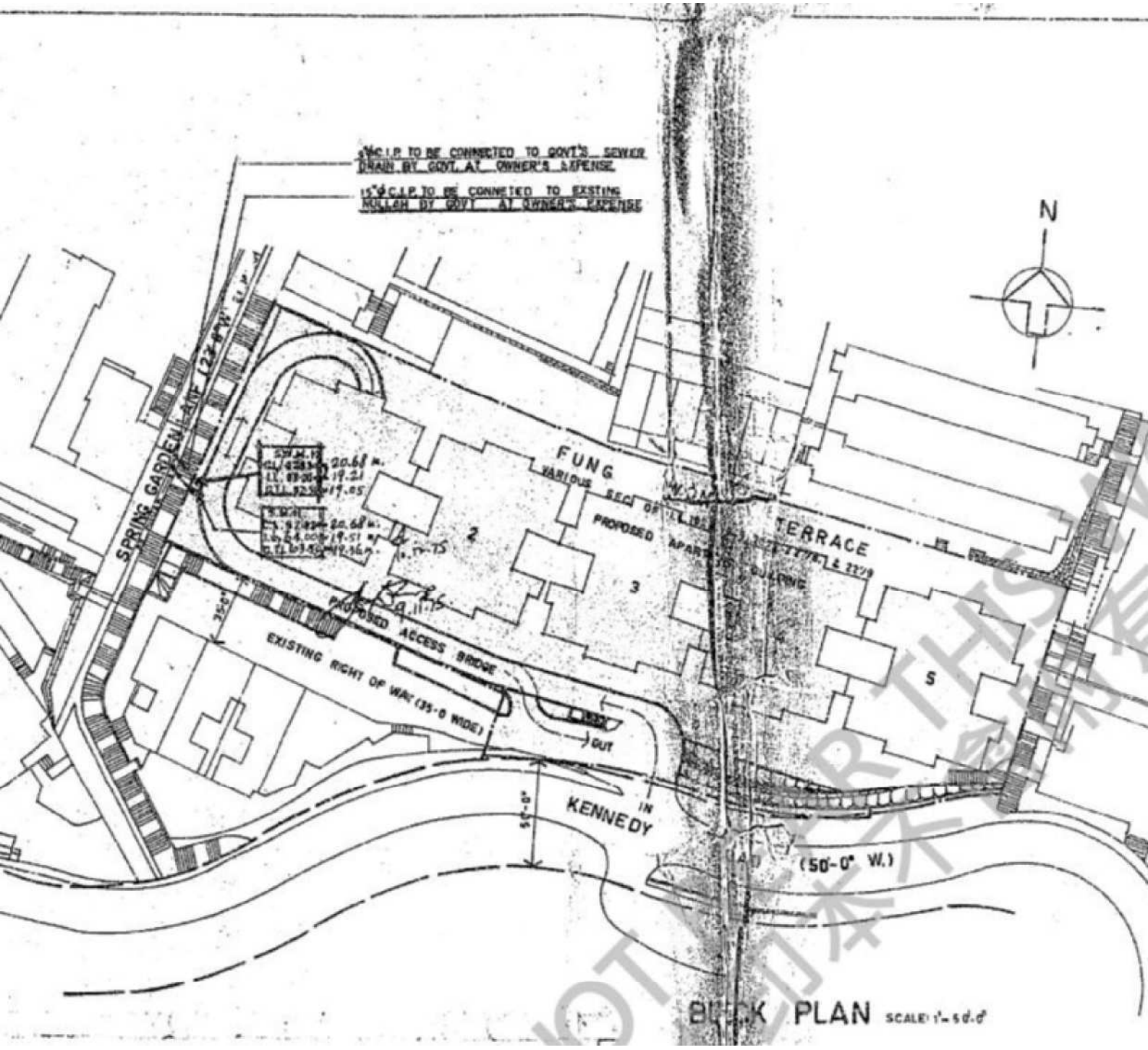
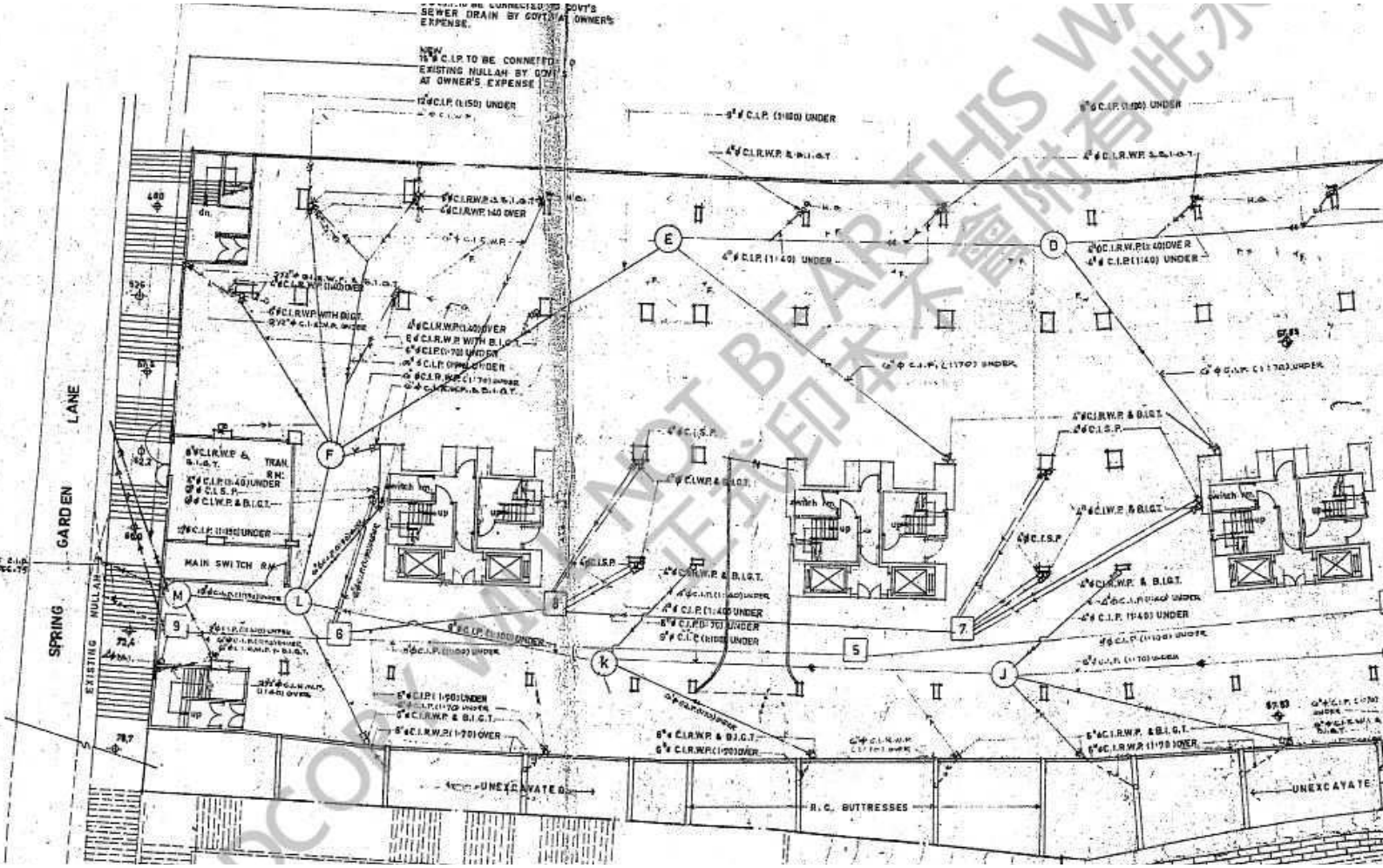
Appendix 11 -
Supplementary Information for Existing Development not Included in SIA

(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



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