Prepared for

Buddhist Cheung Ha Temple (佛教長霞淨院)

Prepared by

Ramboll Hong Kong Limited

REZONING REQUEST FROM "V" TO "G/IC(3)" FOR BUDDHIST CHEUNG HA TEMPLE, AT LOTS NO. 1087 AND 1130 IN DD6 AND ADJOINING GOVERNMENT LAND, TAI PO

SEWERAGE IMPACT ASSESSMENT

In association with

Toco Planning Consultants Ltd

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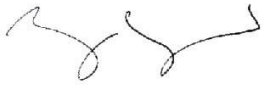
Signed	
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CHAPTERS

Page

1. INTRODUCTION 1-1
1.1 Background and Objectives 1-1
1.2 Purpose of this Submission 1-1
1.3 Project Location and the Environ 1-1
1.4 Project Description 1-1
2. SEWERAGE IMPACT ASSESSMENT 2-1
2.1 Introduction 2-1
2.2 Sources of Wastewater and Sewerage Infrastructure 2-1
2.3 Assessment of Sewage Impact 2-1
3. CONCLUSION 3-1
3.1 Overall Conclusion 3-1

TABLES

Table 2.1 Sewage Catchments Involved in this SIA 2-1

FIGURES

Figure 1.1 Location of the Application Site
Figure 1.2 Layout of the Application Site
Figure 2.1 Sources of Wastewater generated from the Application Site
Figure 2.2 Sources of Wastewater on site
Figure 2.3 Existing Sewerage Infrastructure in the Vicinity of the Application Site
Figure 2.4 Existing Sewerage Infrastructure north of Kam Shan
Figure 2.5 Catchments Identified in the Sewerage Network assessed under SIA for the Adequacy of Capacity (1 or 2)
Figure 2.6 Catchments Identified in the Sewerage Network assessed under SIA for the Adequacy of Capacity (2 or 2)

APPENDICES

Appendix 2.1 Details of Sewerage Impact Assessment
Appendix 2.2 DSD's Drainage Record Plan

1. INTRODUCTION

1.1 Background and Objectives

1.1.1 The Applicant operates the Buddhist Cheung Ha Temple (佛教長霞淨院), hereinafter referred to as the "Temple", at the present location at Nos. 43 - 45, Kam Shan Tsuen since 1928. The Temple has been in existence before the first Tai Po Outline Zoning Plan No. LTP/47 gazetted on 12 December 1980. The Application Site (or "the Site") falls within an area zoned "Village Type Development" ("V") on the approved Tai Po Outline Zoning Plan No. S/TP/30 ("OZP"). The Application Site includes two buildings that contain religious and columbarium uses, namely Religious Block A and Block B (i.e: Lot 1087 and 1130 in D.D.6.).

1.1.2 Buddhist Cheung Ha Temple is located in the suburban area of Tai Po at Kam Shan and is about 300 m south of Tai Wo MTR Station. See **Figure 1.1** for the site location, its boundary and the environ is presented in **Figure 1.2**, showing the general layout of the Temple.

1.1.3 This Section 12A Rezoning Application intends to facilitate regularisation of the Columbarium as part of Buddhist Cheung Ha Temple based on the existing site boundary.

1.2 Purpose of this Submission

1.2.1 This Sewerage Impact Assessment ("SIA") examines the potential sewage discharge impacts that would be associated with operations at the Application Site, particularly during the peak seasons of visitors (i.e. Ching Ming and Chung Yeung Festivals, and their shadow periods), so as to identify the appropriate mitigation measures and sewerage upgrade/ improvement, where necessary, to alleviate the impact.

1.2.2 Ramboll Hong Kong Ltd. has been commissioned by the Applicant to conduct this SIA, and to provide technical justifications on environmental fronts in the rezoning application.

1.3 Project Location and the Environ

1.3.1 The Application Site is located at Lots No. 1087 and 1130 in D.D. 6 and their adjoining Government land at Kam Shan, Tai Po. It can be accessed from Kam Shan Road via staircases which connect the Temple to Kam Shan Road. The Temple abuts village-typed residential developments along Kam Shan Road.

1.3.2 Buddhist Cheung Ha Temple operates between 09:00 and 17:30 in non-festival periods and between 07:00 and 19:00 during peak periods (i.e. one weekend before and after Ching Ming and Chung Yeung Festival).

1.4 Project Description

1.4.1 The ancillary columbarium has been in use since 1970s. It is expected that the columbarium will have 11,726 niches, all of which could be sold once the temple acquired a licence under the *Private Columbaria Ordinance (Cap. 630)* from the FEHD.

2. SEWERAGE IMPACT ASSESSMENT

2.1 Introduction

2.1.1 This section summarises an assessment of the sewerage impact during the operation phase. It also recommends measures to mitigate such impact where necessary.

2.2 Sources of Wastewater and Sewerage Infrastructure

Sewage Sources on-site

2.2.1 Buddhist Cheung Ha Temple (佛教長霞淨院) has toilets and hand-washing basins provided on-site for use by visitors. Each toilet is equipped with hand-washing basins inside.

2.2.2 Existing facilities within the application site that produce effluents include:

1. Washroom (1 male and 1 female)
2. Hand-washing basins (a total of 4 nos. including 3 nos. in the women's washroom and 1 no. in the men's washroom).

2.2.3 **Figure 2.1** shows the location of these sources of wastewater and effluent discharge network on-site. **Figure 2.2** presents photos of the facilities mentioned above. Discharges from toilets and hand-washing basins are diverted to the public sewers connecting to the Application Site (**Figure 2.1**).

Sewerage Infrastructure in the Vicinity

2.2.4 According to drainage record plans published by the Drainage Services Department (DSD), public sewers are available along Kam Shan Road as shown in **Figure 2.3** and **Figure 2.4**. DSD's drainage record plans are provided in **Appendix 2.2**.

2.2.5 Sewage from the Application Site is currently discharged to existing manhole G1 (FMH1001408) to the east of the Application Site, which then connects to manhole FMH1001060 along Kam Shan Road.

2.2.6 Since there is no change in the existing site layout or drainage system in this Application, the existing manholes will be kept as is.

2.3 Assessment of Sewage Impact

Sewage Catchment

2.3.1 As the existing sewerage network north of Kam Shan is connected with the downstream catchment system along Pak Shing Street (**Figure 2.4** and **Figure 2.5**), the relevant sewerage network upstream and downstream of the Application Site have been analysed in this SIA to confirm if there are adequate spare capacities in the relevant sewerage sections receiving flows from the Application Site. The sewage catchments involved in the SIA are given in **Table 2.1** below and shown in **Figure 2.5** and **Figure 2.6**, with details of the SIA appended in **Appendix 2.1**. Discharge from the Application Site is included as Catchment B2.

Table 2.1 Sewage Catchments Involved in this SIA

Catchment	ID	Constituent Population	Population
A	1	Kam Shan Tsuen Nos. 69 - 75, 77 - 81	101
	2	Kam Shan Tsuen Nos. 82 - 86	12

Catchment	ID	Constituent Population	Population
	3	Ye Yuen Estate (Kam Shan Tsuen Nos. 88 - 111)	202
	4	Kam Shek New Village Nos. 1 - 36	303
	5	Kam Shek New Village Nos. 37 - 110	619
	5.1	105 Café and Proposed Extension (Kam Shek New Village No. 105)	5
	6	Kam Shan Tusen Nos. 27B, 81D, 87	26
	7	Kam Shan Tsuen Nos. 112 - 169	488
	8	Kam Shan village houses	42
	9	Norwegian International School	220
	10	School of Everyday Life (former Buddhist Tai Kwong Middle School)	481
	11	Yat Wing Garden Phase 1 (201 - 239 Kam Shan)	328
	12	Yat Wing Garden Phase 2 (152 - 166 Shek Kwu Lung)	126
	13	Yat Wing Garden Phase 3 (168 - 173 Shek Kwu Lung) and 24A Shek Kwu Lung	51
	14	Shek Kwu Lung village houses	773
	15	Kam Shek Tsuen 130 - 138, 141	84
	16	Kam Shan 171A 171B, 172 - 175, 179 - 182 and Temporary Structures at Kam Yu Road	90
	17	Cypress (Block 1 to Block 10) at Shek Lin Road	84
	43	Pun Chun Yuen	-
B1	18	Kam Shan Tsuen No. 76 (Cheung Ha Temple office)	20
	19	Kam Shan Tsuen No. 65 – 66	12
	20	Kam Shan Tsuen Nos. 63 - 64	17
	21	Kam Shan Tsuen Nos. 61 - 62	17
	22	Kam Shan Tsuen Nos. 57 - 60	17
B2	23	Kam Shan Tsuen Nos. 43, 44 and 45 (Cheung Ha Temple)	9
C1	24	Kam Shan Tsuen Nos. 54, 54A, 55	23
C2	25	Kam Shan Tsuen Nos. 12 - 27 (Greenwich Garden)	90
	26	Kam Shan Tsuen Nos. 28 - 29 and nearby temporary structures	42
	27	Kam Shan Tsuen Nos. 30 - 33, 33A, 33B, 35 - 36	51
	28	Kam Shan Tsuen Nos. 37 - 42	51
C3	29	Kam Shan Tsuen Nos. 52, 52A, 52B	12
	30	Kam Shan Tsuen Nos. 1, 2, 3A and 3B	34
	31	Kam Shan Tsuen Nos. 5 - 11, 8A and 8B	76

Catchment	ID	Constituent Population	Population
	32	Kam Shan Tsuen Nos. 46 - 51	17
	33	Temporary structures near the junction of Hon Ka Road and Kam Shan Road	9
	34	Retail shops at the junction of Hon Ka Road and Kam Shan Road	6
D1	35	Pak Shing Street Public Toilet and Bathhouse	-
p	36	Shui On Building (1/F - 5/F)	56
	37	Bong Hing Building (2/F - 10/F)	224
	38	Fu Shin Home for the Aged (1/F, Bong Hing Building)	71
	39	Retail shops at the G/F of Shui On Building	4
	40	Restaurants at the G/F of Shui On Building	5
	41	Retail shops at the G/F of Bong Hing Building	24
	42	Restaurants at the G/F of Bong Hing Building	5

Notes:

1. *The population in the village type development was estimated based on the number of household within each house block multiplied by the average domestic household size acquired from 2023 General Household Survey (2.8 for Tai Po).*
2. *The contribution population from retail shops is estimated with reference to Table 2 in Chapter 5 of the Hong Kong Planning Standards and Guidelines (HKPSG).*
3. *The contribution population from restaurants is estimated with reference to Figure 9 of the Commercial and Industrial Floor Space Utilization Survey.*

Sewage Generated by the Application Site

2.3.2 Sewage arising from the Application Site will mainly be contributed by the washroom facilities in the temple, as listed out in **Figure 2.2**, generated by employees and visitors. The sewage flow rate of the employee of the site is expected to be 2.5 m^3/day, where the peak flow (with toilet flow) is expected to be 3.6 litre/sec.

2.3.3 Given a high transient population and limited toilets/ hand-washing facilities, the peak sewage flow was estimated using a facilities-constrained approach elaborated in **Appendix 2.1** instead of the conventional approach outlined in the "*Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning, v1*" published by EPD [ref: Report No: EPD/TP 1/05 dated March 2005].

Estimation of Average Dry-weather Flow ("ADWF") from Catchments

2.3.4 As per the EPD/TP 1/05, the average flow from each sewage catchment was estimated and presented in **Appendix 2.1** based on:

$$Q_{AVERAGE} = (Q_{DOMESTIC} + Q_{COMMERCIAL} + Q_{INSTITUTIONAL} + Q_{INDUSTRIAL}) \times P_{CIF}$$

where

$Q_{DOMESTIC}$ = Average dry weather domestic flow

$Q_{COMMERCIAL}$ = Average dry weather commercial flow

$Q_{INSTITUTIONAL}$ = Average dry weather institutional flow

$Q_{INDUSTRIAL}$ = Average dry weather industrial flow

P_{CIF} = Catchment inflow factor to account for overall ingress of water or wastewater to the sewerage system (1.00 for Tai Po)

2.3.5 The individual ADWF in each catchment are calculated by multiplying the population with the relevant unit flow factors given in Table T-1 and Table T-2 in EPD/TP 1/05 (**Appendix 2.1**).

Peak Flow Estimation for the Catchments

2.3.6 To account for diurnal and seasonal flow variation with stormwater allowance, the average dry weather flows from each catchment have been scaled up by the population dependent peaking factor given in Table T-5 in EPD/TP 1/05 (**Appendix 2.1**).

$$Q_{PEAK} = Q_{AVERAGE} \times P$$

where

Q_{PEAK} = Peak flow

$Q_{AVERAGE}$ = Average dry weather flow, ADWF

P = Peaking factor to account for the diurnal and seasonal flow variation with stormwater allowance

Overall Peak Flows from the Catchments

2.3.7 The estimated sewage generated from upstream and downstream catchments have been included in the calculations in **Appendix 2.1**.

Results of SIA

2.3.8 Results given in Table 4 of **Appendix 2.1** indicate that sewage contribution from the Application Site and catchment areas would be well within the capacities of the existing sewers along Kam Shan Road.

2.3.9 As such, no new sewerage network nor upgrading works are required. As all sewage will eventually be conveyed to Tai Po Sewage Treatment Works for treatment prior to marine disposal, no unacceptable local water quality impact is anticipated.

3. CONCLUSION

3.1 Overall Conclusion

3.1.1 A Section 12A Rezoning Application is necessary to facilitate regularisation of the present Columbarium, which has been in use since 1970s.

3.1.2 As the Columbarium has been established and in operation within the existing structures, no construction, addition or alteration works will be required. The Columbarium is projected to have a total of 11,726 sold niches after the temple has acquired the licence under the *Private Columbaria Ordinance (Cap. 630)* from the FEHD.

3.1.3 Public sewers have already been installed within the Application Site for disposal of sewage generated on-site. Given limited toilet facilities, and observed short stay of visitors, a surge in sewage generation during the peak seasons is not envisaged.

3.1.4 Results of this sewerage impact assessment, which takes into account the increase in visitors when all niches are sold, confirm that the existing sewerage catchment would have enough capacity to handle peak flows from the Application Site during peak seasons (Ching Ming or Chung Yeung Festivals) as well as peak flows from other relevant catchments. The increase in sewage flow in the receiving public sewers due to the Application Site would be within the capacities of the downstream pipes. Sewage generated from the Application Site will be conveyed to Tai Po Sewage Treatment Works for treatment.

Figure

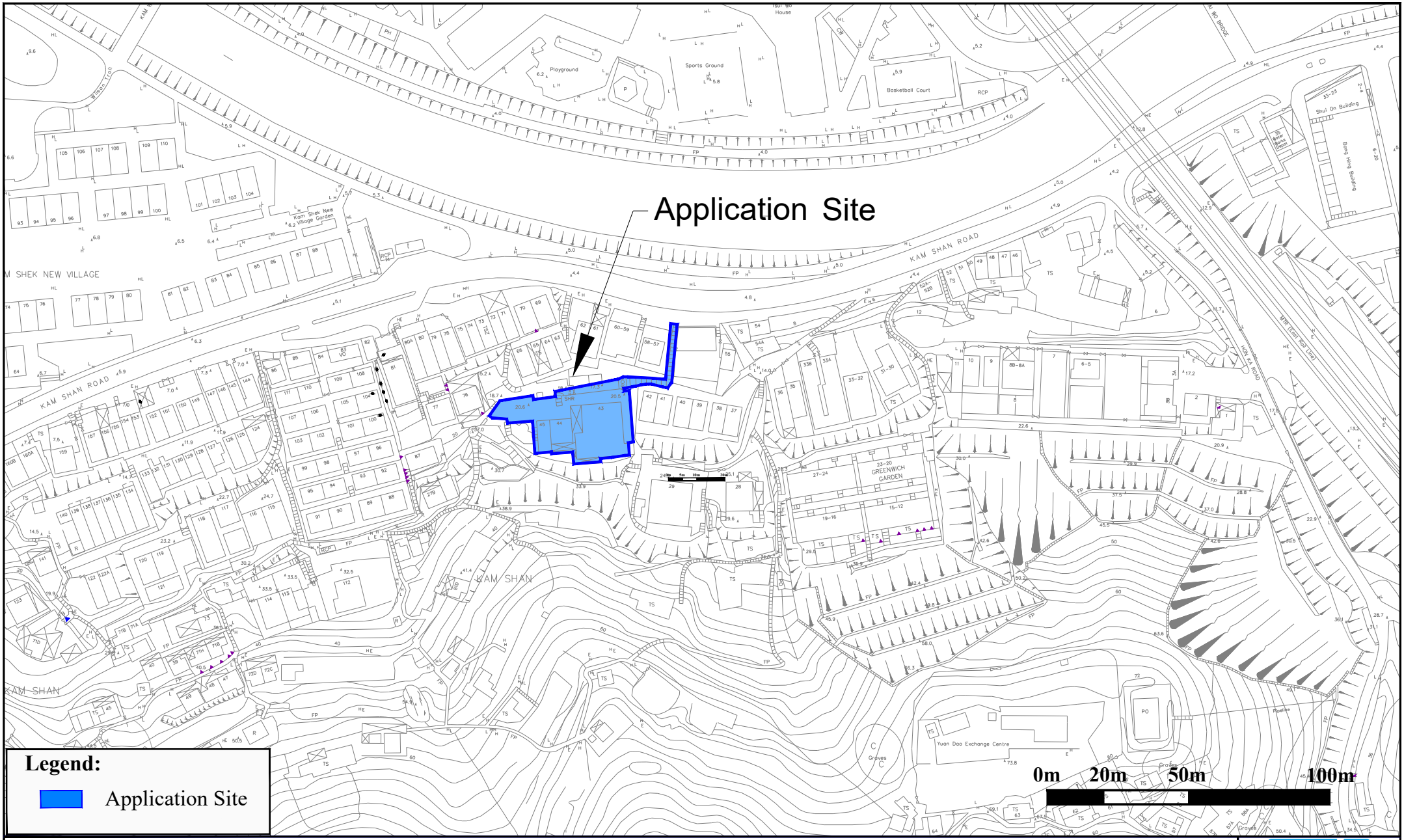


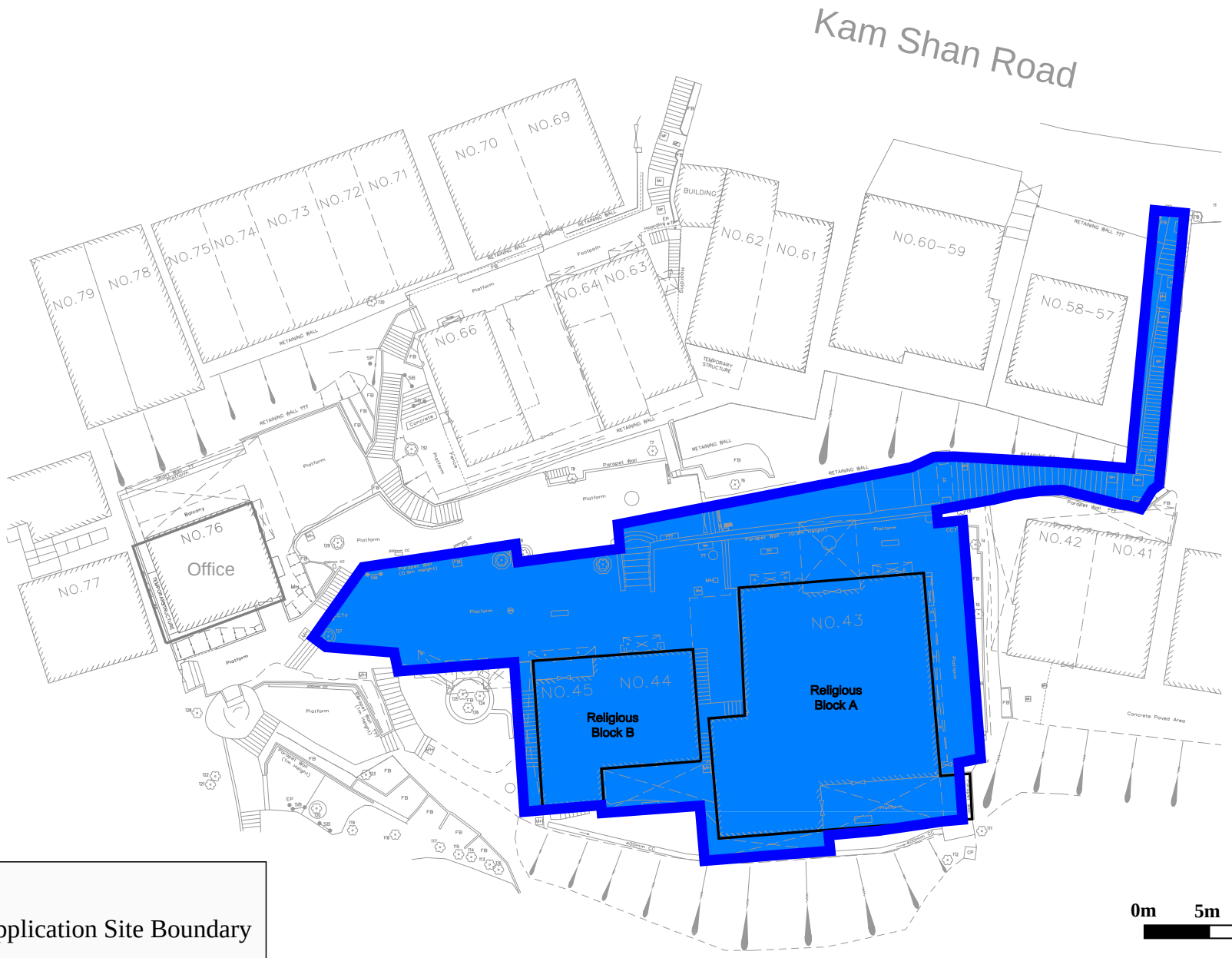
Figure: 1.1

Title: Location of Application Site

Project: Rezoning Request from "V" to "G/IC (3)" for Buddhist Cheung Ha Temple, at Lot Nos. 1087 and 1130 in DD6 and adjoining Government land, Tai Po

RAMBOLL

Drawn by:	JW
Checked by:	KY
Rev.:	1.3
Date:	Sep 2024



Legend:

Application Site Boundary

Figure:	1.2
Title:	Layout of Application Site
Project:	Rezoning Request from "V" to "G/IC (3)" for Buddhist Cheung Ha Temple, at Lot Nos. 1087 and 1130 in DD6 and adjoining Government land, Tai Po

RAMBOLL

Drawn by:	JW
Checked by:	KY
Rev.:	1.0
Date:	Aug 2024

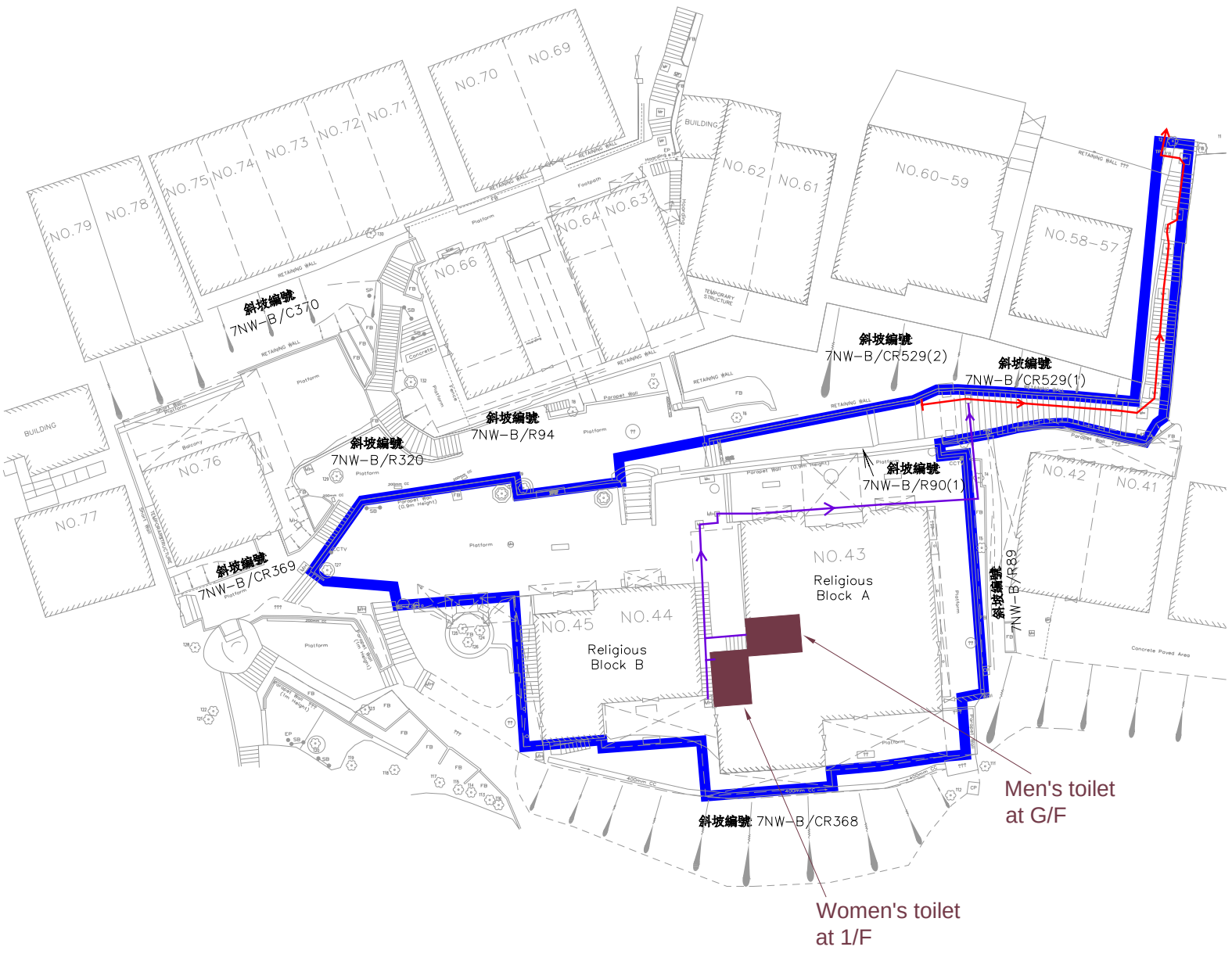


Figure: 2.1	RAMBOLL
Title: Sources of wastewater generated from the Application Site	Drawn by: JW Checked by: KY
Project: Rezoning Request from "V" to "G/IC (3)" for Buddhist Cheung Ha Temple, at Lot Nos. 1087 and 1130 in DD6 and adjoining Government land, Tai Po	Rev.: 1.0 Date: Aug 2024

Women's Toilet with washing basins (3 nos.) and water closets (4 nos.)

Men's Toilet with washing basin (1 no.), urinals (3 nos.) and water closet (1 no.)

Figure: 2.2	RAMBOLL
Title: Sources of Wastewater on site	Drawn by: JW
	Checked by: KY
Project: Rezoning Request from "V" to "G/IC (3)" for Buddhist Cheung Ha Temple, at Lot Nos. 1087 and 1130 in DD6 and adjoining Government land, Tai Po	Rev.: 1.0
	Date: May 2024

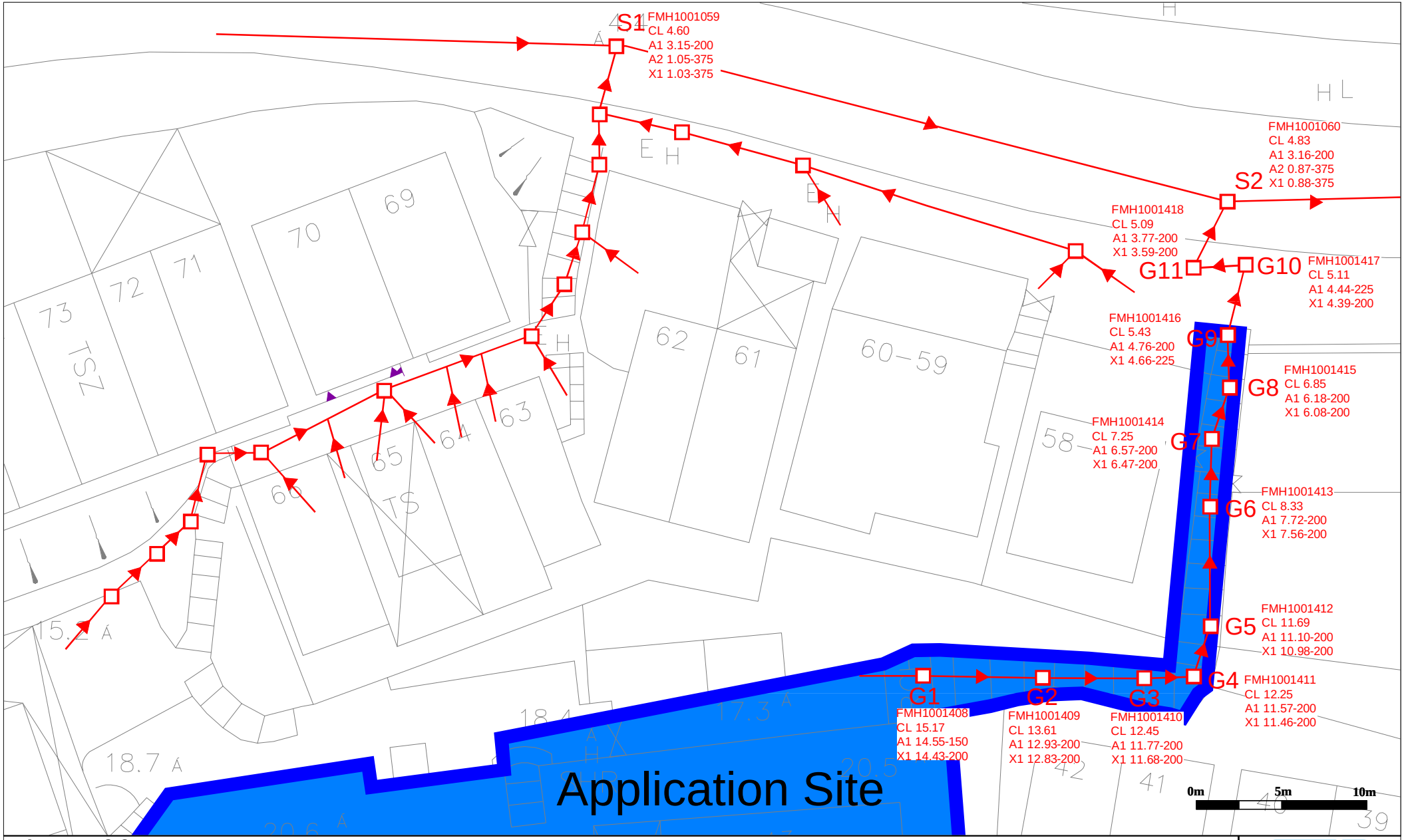


Figure: 2.3	RAMBOLL
Title: Existing Sewerage Infrastructure in the Vicinity of the Application Site	Drawn by: JW
	Checked by: KY
Project: Rezoning Request from "V" to "G/IC (3)" for Buddhist Cheung Ha Temple, at Lot Nos. 1087 and 1130 in DD6 and adjoining Government land, Tai Po	Rev.: 1.0
	Date: May-2024

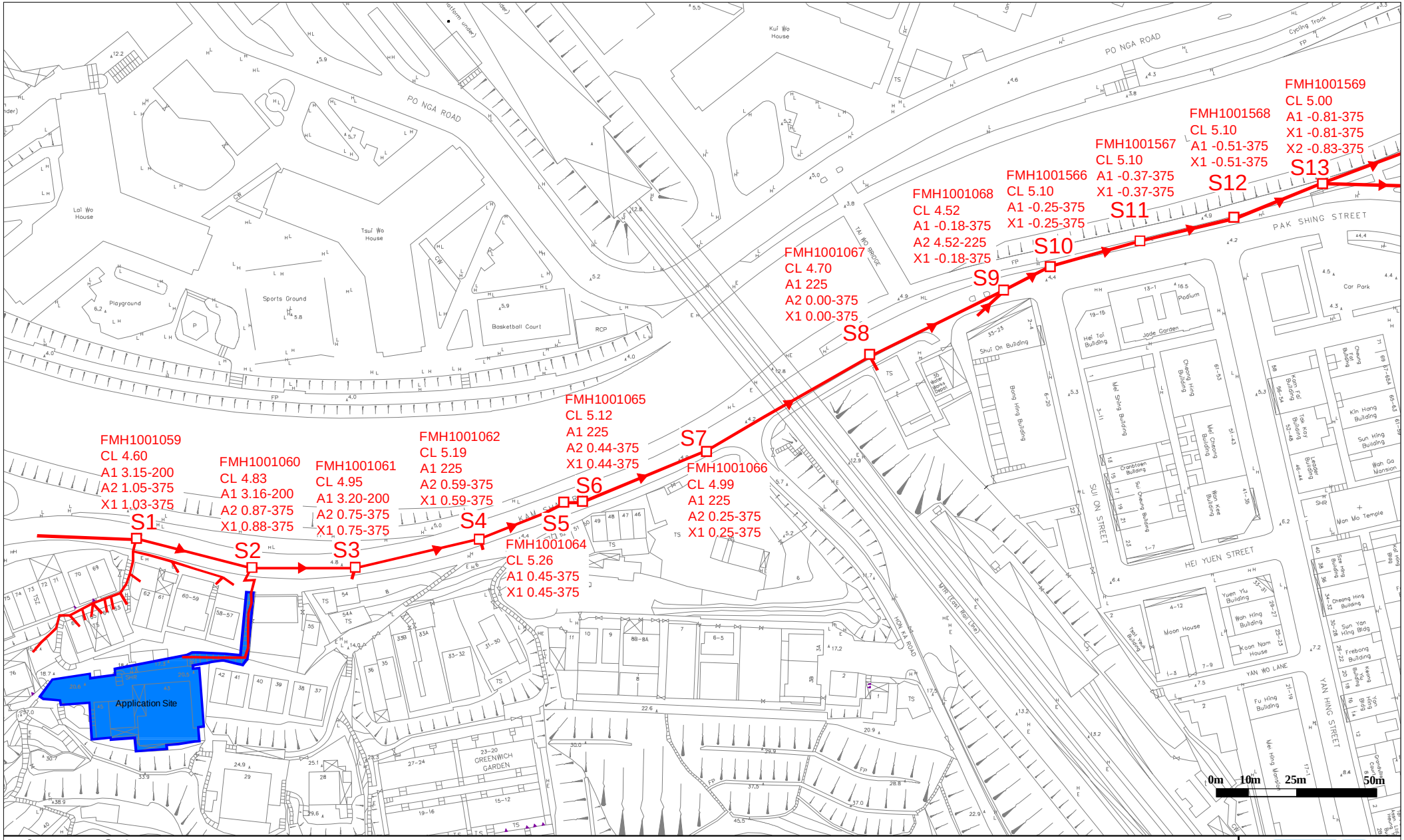


Figure: 2.4	RAMBOLL
Title: Existing Sewerage Infrastructure North of Kam Shan	Drawn by: JW
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	Date: May-2024

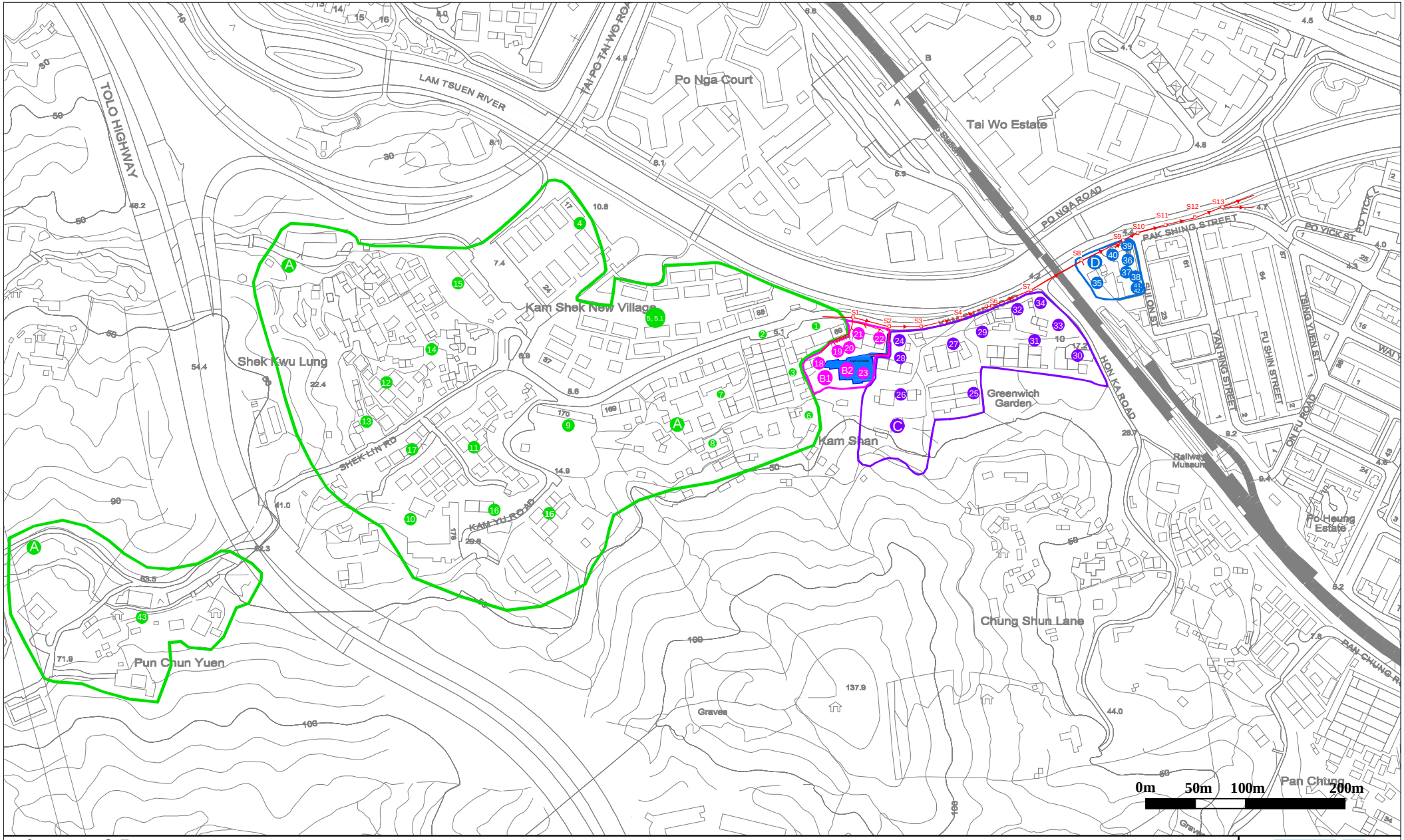

Figure: 2.5	RAMBOLL
Title: Catchments Identified in the Sewerage Network Assessed under SIA for the Adequacy of Capacity (1 of 2)	Drawn by: JW
	Checked by: KY
Project: Rezoning Request from "V" to "G/IC (3)" for Buddhist Cheung Ha Temple, at Lot Nos. 1087 and 1130 in DD6 and adjoining Government land, Tai Po	Rev.: 1.0
	Date: May-2024

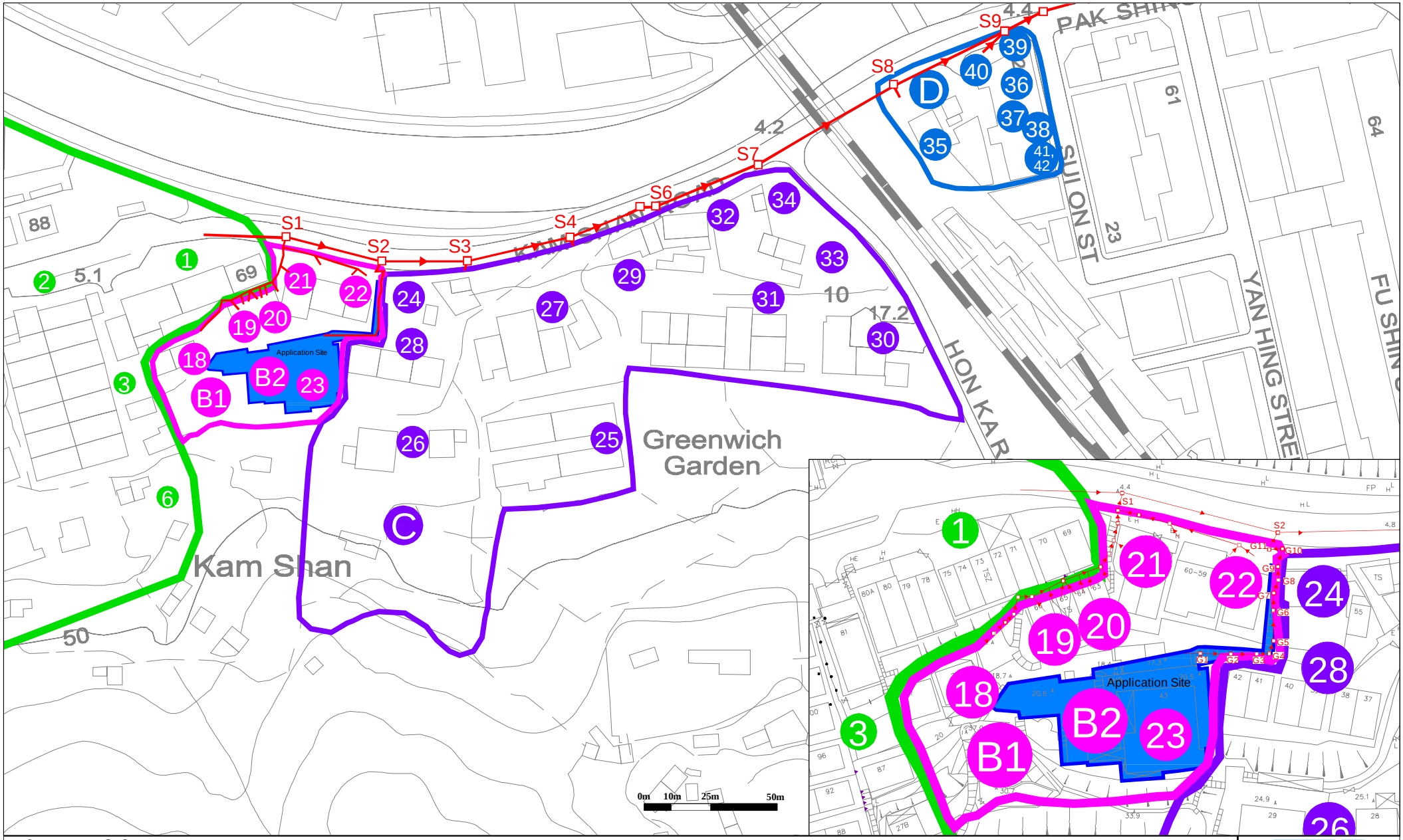

Figure: 2.6	RAMBOLL
Title: Catchments Identified in the Sewerage Network assessed under SIA for the Adequacy of Capacity (2 of 2)	Drawn by: JW
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Project: Rezoning Request from "V" to "G/IC (3)" for Buddhist Cheung Ha Temple, at Lot Nos. 1087 and 1130 in DD6 and adjoining Government land, Tai Po	Rev.: 1.0
	Date: May-2024

Appendix 2.1 Details of Sewerage Impact Assessment

Table 1 Estimated Sewage Generated from the Application Site

Application Site: Kam Shan Tsuen Nos. 43, 44 and 45 (Cheung Ha Temple)

2a. Assumed number of employees	=	9	people (Estimated from the no. of households and avg domestic household size of 2.8 in Tai Po)
2b. Design flow	=	8	m^3/person/day -- (refer to Table T-2 of GESF - J11 Community, Social & Personal Services)
2c. Sewage Generation rate	=	**72.0**	m^3/day
2d. Wash Basin (1 Male + 3 Female)	=	1.2	litre/sec (DU of 0.3 L/s per basin) (1)
2e. Single Urinals with cistern (3 Male)	=	1.2	litre/sec (DU of 0.4 L/s per urinal) (1)
2f. WC with cistern (1 Male + 4 Female)	=	9.0	litre/sec (DU of 1.8 L/s per WC) (1)
2g. Frequency of use (K) (2)	=	1.0	
2h. Wastewater Flow Rate (3)	=	**3.4**	litre/sec

Sub-total Application Site (Temple) discharged to Manhole G1 (FMH1001408) (Catchment B2)

Flow Rate	=	72.0	m^3/day
Contributing Population	=	267	people
Peaking factor	=	8	Refer to Table T-5 of GESF for population <1,000 including stormwater allowance
Peak Flow	=	**6.7**	litre/sec
Peak Flow with Toilet Flow	=	**10.0**	litre/sec

Note:

(1) Institution of Plumbing – Table 5 (which gives the discharge unit values (DU), in litres per second, for common appliances) under "Sanitary plumbing and drainage" on page 112 in *Plumbing Engineering Services Design Guide* (IoP Guide)

(2) Frequency of use (K) = 1.0 (congested use, e.g. toilets and/ or showers open to the public) for asessment of peak design flow, Institution of Plumbing – Table 6 under "Sanitary plumbing and drainage" on page 112 in IoP Guide

(3) Wastewater flow rate = K ´ $\sqrt{\sum}$DU (for assessment of peak design flow presented under "Sanitary plumbing and drainage" on page 112 in IoP Guide)

Table 2 Hydraulic Capacity of Existing Sewers at Kam Shan Road, Tai Po

Segment	Manhole Reference	Manhole Reference	Pipe Dia.	Pipe Length	Invert Level 1	Invert Level 2	g	k_s	s	v	V	Area	Q	Estimated Capacity
			mm	m	mPD	mPD	m/s^2	m		m^2/s	m/s	m^2	m^3/s	L/s
S1-S2	FMH1001059	FMH1001060	375	36.5	1.03	0.87	9.81	0.0006	0.004	0.000001	1.20	0.11	0.13	132
G1-G2	FMH1001408	FMH1001409	200	6.4	14.43	12.93	9.81	0.0006	0.235	0.000001	5.92	0.03	0.19	186
G2-G3	FMH1001409	FMH1001410	200	5.4	12.83	11.77	9.81	0.0006	0.197	0.000001	5.42	0.03	0.17	170
G3-G4	FMH1001410	FMH1001411	200	2.4	11.68	11.57	9.81	0.0006	0.046	0.000001	2.62	0.03	0.08	82
G4-G5	FMH1001411	FMH1001412	200	2.5	11.46	11.10	9.81	0.0006	0.142	0.000001	4.60	0.03	0.14	144
G5-G6	FMH1001412	FMH1001413	200	6.4	10.98	7.72	9.81	0.0006	0.511	0.000001	8.74	0.03	0.27	275
G6-G7	FMH1001413	FMH1001414	200	3.4	7.56	6.57	9.81	0.0006	0.293	0.000001	6.61	0.03	0.21	208
G7-G8	FMH1001414	FMH1001415	200	2.5	6.47	6.18	9.81	0.0006	0.114	0.000001	4.12	0.03	0.13	130
G8-G9	FMH1001415	FMH1001416	200	2.4	6.08	4.76	9.81	0.0006	0.555	0.000001	9.11	0.03	0.29	286
G9-G10	FMH1001416	FMH1001417	225	3.5	4.66	4.44	9.81	0.0006	0.063	0.000001	3.30	0.04	0.13	131
G10-G11	FMH1001417	FMH1001418	200	2.4	4.39	3.77	9.81	0.0006	0.261	0.000001	6.24	0.03	0.20	196
G11-S2	FMH1001418	FMH1001060	200	3.9	3.59	3.16	9.81	0.0006	0.112	0.000001	4.08	0.03	0.13	128
S2-S3	FMH1001060	FMH1001061	375	31.4	0.88	0.75	9.81	0.0006	0.004	0.000001	1.16	0.11	0.13	128
S3-S4	FMH1001061	FMH1001062	375	39.4	0.75	0.59	9.81	0.0006	0.004	0.000001	1.15	0.11	0.13	127
S4-S5	FMH1001062	FMH1001064	375	28.5	0.59	0.45	9.81	0.0006	0.005	0.000001	1.27	0.11	0.14	140
S5-S6	FMH1001064	FMH1001065	375	4.4	0.45	0.44	9.81	0.0006	0.002	0.000001	0.86	0.11	0.09	95
S6-S7	FMH1001065	FMH1001066	375	41.5	0.44	0.25	9.81	0.0006	0.005	0.000001	1.22	0.11	0.13	135
S7-S8	FMH1001066	FMH1001067	375	58.6	0.25	0.00	9.81	0.0006	0.004	0.000001	1.18	0.11	0.13	130
S8-S9	FMH1001067	FMH1001068	375	45.0	0.00	-0.18	9.81	0.0006	0.004	0.000001	1.14	0.11	0.13	126
S9-S10	FMH1001068	FMH1001566	375	16.4	-0.18	-0.25	9.81	0.0006	0.004	0.000001	1.18	0.11	0.13	130
S10-S11	FMH1001566	FMH1001567	375	28.5	-0.25	-0.37	9.81	0.0006	0.004	0.000001	1.17	0.11	0.13	129
S11-S12	FMH1001567	FMH1001568	375	30.2	-0.37	-0.51	9.81	0.0006	0.005	0.000001	1.23	0.11	0.14	136
S12-S13	FMH1001568	FMH1001569	375	28.5	-0.51	-0.81	9.81	0.0006	0.011	0.000001	1.86	0.11	0.21	205

Remarks: (1) g=gravitational acceleration; k_s=equivalent sand roughness; s=gradient; v=kinematic viscosity of water; V=mean velocity

(2) The value of k_s = 0.6mm is used for the calculation of slimed clayware sewer, poor condition with velocity of approximately 1.2 m/s (based on Table 5: Recommended roughness values in Sewerage Manual)

(3) The value of velocity (V) is referred to the Tables for the hydraulic design of pipes, sewers and channels (8th edition)

(4) Equation used: $$V = -\sqrt{(8gDs)}\log\left(\frac{k_s}{3.7D} + \frac{2.51v}{D\sqrt{(2gDs)}}\right)$$

Table 3a Calculation for Sewage Generation Rate of the Existing Surrounding (Catchment A)

Catchment A

1. Kam Shan Tsuen Nos. 69 - 75, 77 - 81

1a. Assumed number of residents	=	101	people (Estimated from the no. of households and avg domestic household size of 2.8 in Tai Po)
1b. Design flow	=	0.27	m^3/person/day -- (Modern Village in Table T-1 of GESF)
1c. Sewage Generation rate	=	**27.3**	m^3/day

2. Kam Shan Tsuen Nos. 82-86

2a. Assumed number of residents	=	12	people (Estimated from the no. of households and avg domestic household size of 2.8 in Tai Po)
2b. Design flow	=	0.27	m^3/person/day -- (Modern Village in Table T-1 of GESF)
2c. Sewage Generation rate	=	**3.2**	m^3/day

3. Ye Yuen Estate (Kam Shan Tsuen Nos. 88-111)

3a. Assumed number of residents	=	202	people (Estimated from the no. of households and avg domestic household size of 2.8 in Tai Po)
3b. Design flow	=	0.27	m^3/person/day -- (Modern Village in Table T-1 of GESF)
3c. Sewage Generation rate	=	**54.5**	m^3/day

4. Kam Shek New Village Nos. 1-36

4a. Assumed number of residents	=	303	people (Estimated from the no. of households and avg domestic household size of 2.8 in Tai Po)
4b. Design flow	=	0.27	m^3/person/day -- (Modern Village in Table T-1 of GESF)
4c. Sewage Generation rate	=	**81.8**	m^3/day

5. Kam Shek New Village Nos. 37-110

5a. Assumed number of residents	=	619	people (Estimated from the no. of households and avg domestic household size of 2.8 in Tai Po)
5b. Design flow	=	0.27	m^3/person/day -- (Modern Village in Table T-1 of GESF)
5c. Sewage Generation rate	=	**167.1**	m^3/day

5.1. 105 Café and Proposed Extension (Kam Shek New Village No. 105)

Reference: Planning application A/TP/679 (https://www.ozp.tpb.gov.hk/api/Perm/Gist?caseNo=A%2fTP%2f679&lang=EN&ext=pdf&dType=in)

5ia. Assumed Floor Area	=	99.4	m^2
5ib. Assumed floor area per employee	=	19.6	m^2 per employee -- (refer to Table 8 of CIFSUS - Restaurants)
5ic. Total number of employees	=	5	employees
5id. Design flow for commercial employee	=	1.58	m^3/employee/day -- (refer to Table T-2 of GESF - J10 Restaurants & Hotels)
5ie. Sewage Generation rate	=	**8**	m3/day

6. Kam Shan Tusen Nos. 27B, 81D, 87

6a. Assumed number of residents	=	26	people (Estimated from the no. of households and avg domestic household size of 2.8 in Tai Po)
6b. Design flow	=	0.27	m^3/person/day -- (Modern Village in Table T-1 of GESF)
6c. Sewage Generation rate	=	**7.0**	m^3/day

7. Kam Shan Tsuen Nos. 112-169

7a. Assumed number of residents	=	488	people (Estimated from the no. of households and avg domestic household size of 2.8 in Tai Po)
7b. Design flow	=	0.27	m^3/person/day -- (Modern Village in Table T-1 of GESF)
7c. Sewage Generation rate	=	**131.8**	m^3/day

8. Kam Shan Village Houses

8a. Assumed number of residents	=	42	people (Estimated from the no. of households and avg domestic household size of 2.8 in Tai Po)
8b. Design flow	=	0.27	m^3/person/day -- (Modern Village in Table T-1 of GESF)
8c. Sewage Generation rate	=	**11.3**	m^3/day

9. Norwegian International School

Reference: https://en.wikipedia.org/wiki/Norwegian_International_School

9a. Total number of teachers & staff	=	20	teachers & staff
9c. Design flow for teachers & staff	=	0.28	m^3/person/day -- (refer to Table T-2 of GESF - J11 Community, Social & Personal Services)
9b. Total number of students	=	200	students
9d. Design flow for students	=	0.04	m^3/person/day -- (School Student in Table T-2 of GESF)
9e. Sewage Generation rate	=	**13.6**	m^3/day

10. School of Everyday Life (former Buddhist Tai Kwong Middle School)

Reference:
https://www.schooland.hk/ss/btkchc#:~:text=%E8%B7%9F%E5%85%B6%E4%BB%96440%20%E9%96%93%E5%AD%B8%E6%A0%A1,2021%2F2022%20%E5%AD%B8%E5%B9%B4%E7%9A%84%E6%95%B8%E6%93%9A%E3%80%82
https://www.btkchc.edu.hk/image/catalog/school_plan/Report/2122_school_report.pdf

10a. Total number of teachers & staff	=	53	teachers & staff
10c. Design flow for teachers & staff	=	0.28	m^3/person/day -- (refer to Table T-2 of GESF - J11 Community, Social & Personal Services)
10b. Total number of students	=	428	students
10d. Design flow for students	=	0.04	m^3/person/day -- (School Student in Table T-2 of GESF)
10e. Sewage Generation rate	=	**32.0**	m^3/day

11. Yat Wing Garden Phase 1 (201-239 Kam Shan)

11a. Assumed number of residents	=	328	people (Estimated from the no. of households and avg domestic household size of 2.8 in Tai Po)
11b. Design flow	=	0.27	m^3/person/day -- (Modern Village in Table T-1 of GESF)
11c. Sewage Generation rate	=	**88.6**	m^3/day

12. Yat Wing Garden Phase 2 (152-166 Shek Kwu Lung)

12a. Assumed number of residents	=	126	people (Estimated from the no. of households and avg domestic household size of 2.8 in Tai Po)
12b. Design flow	=	0.27	m^3/person/day -- (Modern Village in Table T-1 of GESF)

Table 3a Calculation for Sewage Generation Rate of the Existing Surrounding (Catchment A)

12c. Sewage Generation rate	=	**34.0**	m^3/day

13. Yat Wing Garden Phase 3 (168-173 Shek Kwu Lung) and 24A Shek Kwu Lung

13a. Assumed number of residents	=	51	people (Estimated from the no. of households and avg domestic household size of 2.8 in Tai Po)
13b. Design flow	=	0.27	m^3/person/day -- (Modern Village in Table T-1 of GESF)
13c. Sewage Generation rate	=	**13.8**	m^3/day

14. Shek Kwu Lung Village Houses

14a. Assumed number of residents	=	773	people (Estimated from the no. of households and avg domestic household size of 2.8 in Tai Po)
14b. Design flow	=	0.27	m^3/person/day -- (Modern Village in Table T-1 of GESF)
14c. Sewage Generation rate	=	**208.7**	m^3/day

15. Kam Shek Tsuen 130-138, 141

15a. Assumed number of residents	=	84	people (Estimated from the no. of households and avg domestic household size of 2.8 in Tai Po)
15b. Design flow	=	0.27	m^3/person/day -- (Modern Village in Table T-1 of GESF)
15c. Sewage Generation rate	=	**22.7**	m^3/day

16. Kam Shan 171A 171B, 172 - 175, 179 - 182 and Temporary Structures at Kam Yu Road

16a. Assumed number of residents	=	90	people (Estimated from the no. of households and avg domestic household size of 2.8 in Tai Po)
16b. Design flow	=	0.27	m^3/person/day -- (Modern Village in Table T-1 of GESF)
16c. Sewage Generation rate	=	**24.3**	m^3/day

17. Cypress (Blocks 1 to 10) at Shek Lin Road

17a. Assumed number of residents	=	84	people (Estimated from the no. of households and avg domestic household size of 2.8 in Tai Po)
17b. Design flow	=	0.27	m^3/person/day -- (Modern Village in Table T-1 of GESF)
17c. Sewage Generation rate	=	**22.7**	m^3/day

43. Pun Chun Yuen

Reference: Planning Application A/TP/681 (https://www.ozp.tpb.gov.hk/api/Perm/Gist?caseNo=A%2fTP%2f681&lang=EN&ext=pdf&dType=in)

43a. Sewage Generation rate	=	**17.6**	m^3/day

Sub-total Catchment A discharged to Manhole S1 (FMH1001059)

Flow Rate	=	969.9	m^3/day
Contributing Population	=	3592	people
Peaking factor	=	6	Refer to Table T-5 of GESF for population 1,000-5,000 including stormwater allowance
Peak Flow	=	**67.4**	litre/sec

Table 3b Calculation for Sewage Generation Rate of the Existing Surrounding (Catchment B)

Catchment B1

18. Kam Shan Tsuen No. 76 (Cheung Ha Temple Office)

18a. Assumed number of employees	=	20	(as advised by Cheung Ha Temple)
18b. Design flow	=	0.28	m^3/person/day -- (refer to Table T-2 of GESF - J11 Community, Social & Personal Services)
18c. Sewage Generation rate	=	**5.6**	m^3/day

19. Kam Shan Tusen No. 65-66

19a. Assumed number of residents	=	12	people (Estimated from the no. of households and avg domestic household size of 2.8 in Tai Po)
19b. Design flow	=	0.27	m^3/person/day -- (Modern Village in Table T-1 of GESF)
19c. Sewage Generation rate	=	**3.2**	m^3/day

20. Kam Shan Tsuen Nos. 63-64

20a. Assumed number of residents	=	17	people (Estimated from the no. of households and avg domestic household size of 2.8 in Tai Po)
20b. Design flow	=	0.27	m^3/person/day -- (Modern Village in Table T-1 of GESF)
20c. Sewage Generation rate	=	**4.6**	m^3/day

21. Kam Shan Tsuen Nos. 61-62

21a. Assumed number of residents	=	17	people (Estimated from the no. of households and avg domestic household size of 2.8 in Tai Po)
21b. Design flow	=	0.27	m^3/person/day -- (Modern Village in Table T-1 of GESF)
21c. Sewage Generation rate	=	**4.6**	m^3/day

22. Kam Shan Tsuen Nos. 57-60

22a. Assumed number of residents	=	17	people (Estimated from the no. of households and avg domestic household size of 2.8 in Tai Po)
22b. Design flow	=	0.27	m^3/person/day -- (Modern Village in Table T-1 of GESF)
22c. Sewage Generation rate	=	**4.6**	m^3/day

Sub-total Catchment B1 discharged to Manhole S1 (FMH1001059)

Flow Rate	=	22.6	m^3/day
Contributing Population	=	84	people
Peaking factor	=	8	Refer to Table T-5 of GESF for population <1,000 including stormwater allowance
Peak Flow	=	**2.1**	litre/sec
Peak Flow with Basin	=	**2.1**	litre/sec

Sub-total Catchment A + B1 discharged to Manhole S1 (FMH1001059)

Flow Rate	=	992.5	m^3/day
Contributing Population	=	3676	people
Peaking factor	=	6	Refer to Table T-5 of GESF for population 1,000-5,000 including stormwater allowance
Peak Flow	=	**68.9**	litre/sec
Peak Flow with Basin	=	**68.9**	litre/sec

Catchment B2 (Application Site)

23. Kam Shan Tsuen Nos. 43, 44 and 45 (Cheung Ha Temple)

23a. Assumed number of employees	=	9	people (Estimated from the no. of households and avg domestic household size of 2.8 in Tai Po)
23b. Design flow	=	0.28	m^3/person/day -- (refer to Table T-2 of GESF - J11 Community, Social & Personal Services)
23c. Sewage Generation rate	=	**2.5**	m^3/day
23d. Wash Basin (1 Male + 3 Female)	=	1.2	litre/sec (DU of 0.3 L/s per basin)
23e. Single Urinals with cistern (3 Male)	=	1.2	litre/sec (DU of 0.4 L/s per urinal)
23f. WC with cistern (1 Male + 4 Female)	=	9.0	litre/sec (DU of 1.8 L/s per WC)
23g. Frequency of use (K)	=	1.0	
23h. Wastewater Flow Rate	=	**3.4**	litre/sec

Sub-total Catchment A + B1 + B2 discharged to Manhole S2 (FMH1001060)

Flow Rate	=	995.0	m^3/day
Contributing Population	=	3685	people
Peaking factor	=	6	Refer to Table T-5 of GESF for population 1,000-5,000 including stormwater allowance
Peak Flow	=	**69.1**	litre/sec
Peak Flow with Basin	=	**72.5**	litre/sec

Table 3c Calculation for Sewage Generation Rate of the Existing Surrounding (Catchment C)

Catchment C1

24. Kam Shan Tsuen Nos. 54, 54A, 55

24a. Assumed number of residents	=	23	people (Estimated from the no. of households and avg domestic household size of 2.8 in Tai Po)
24b. Design flow	=	0.27	m^3/person/day -- (Modern Village in Table T-1 of GESF)
24c. Sewage Generation rate	=	**6.2**	m^3/day

Sub-total Catchment A + B1 + B2 + C1 discharged to Manhole S3 (FMH1001061)

Flow Rate	=	1001.2	m^3/day
Contributing Population	=	3708	people
Peaking factor	=	6	Refer to Table T-5 of GESF for population 1,000-5,000 including stormwater allowance
Peak Flow	=	**69.5**	litre/sec
Peak Flow with Basin and Toilet Flow	=	**72.9**	litre/sec

Catchment C2

25. Kam Shan Tsuen Nos. 12 - 27 (Greenwich Garden)

25a. Assumed number of residents	=	90	people (Estimated from the no. of households and avg domestic household size of 2.8 in Tai Po)
25b. Design flow	=	0.27	m^3/person/day -- (Modern Village in Table T-1 of GESF)
25c. Sewage Generation rate	=	**24.3**	m^3/day

26. Kam Shan Tsuen Nos. 28 - 29 and nearby temporary structures

26a. Assumed number of residents	=	42	people (Estimated from the no. of households and avg domestic household size of 2.8 in Tai Po)
26b. Design flow	=	0.27	m^3/person/day -- (Modern Village in Table T-1 of GESF)
26c. Sewage Generation rate	=	**11.3**	m^3/day

27. Kam Shan Tsuen Nos. 30 - 33, 33A, 33B, 35 - 36

26a. Assumed number of residents	=	51	people (Estimated from the no. of households and avg domestic household size of 2.8 in Tai Po)
26b. Design flow	=	0.27	m^3/person/day -- (Modern Village in Table T-1 of GESF)
26c. Sewage Generation rate	=	**13.8**	m^3/day

28. Kam Shan Tsuen Nos. 37 - 42

26a. Assumed number of residents	=	51	people (Estimated from the no. of households and avg domestic household size of 2.8 in Tai Po)
26b. Design flow	=	0.27	m^3/person/day -- (Modern Village in Table T-1 of GESF)
26c. Sewage Generation rate	=	**13.8**	m^3/day

Sub-total Catchment A + B1 + B2 + C1 + C2 discharged to Manhole S4 (FMH1001062)

Flow Rate	=	1064.4	m^3/day
Contributing Population	=	3942	people
Peaking factor	=	6	Refer to Table T-5 of GESF for population 1,000-5,000 including stormwater allowance
Peak Flow	=	**73.9**	litre/sec
Peak Flow with Basin and Toilet Flow	=	**77.3**	litre/sec

Catchment C3

29. Kam Shan Tsuen Nos. 52, 52A, 52B

26a. Assumed number of residents	=	12	people (Estimated from the no. of households and avg domestic household size of 2.8 in Tai Po)
26b. Design flow	=	0.27	m^3/person/day -- (Modern Village in Table T-1 of GESF)
26c. Sewage Generation rate	=	**3.2**	m^3/day

30. Kam Shan Tsuen Nos. 1, 2, 3A and 3B

30a. Assumed number of residents	=	34	people (Estimated from the no. of households and avg domestic household size of 2.8 in Tai Po)
30b. Design flow	=	0.27	m^3/person/day -- (Modern Village in Table T-1 of GESF)
30c. Sewage Generation rate	=	**9.2**	m^3/day

31. Kam Shan Tsuen Nos. 5 - 11, 8A and 8B

31a. Assumed number of residents	=	76	people (Estimated from the no. of households and avg domestic household size of 2.8 in Tai Po)
31b. Design flow	=	0.27	m^3/person/day -- (Modern Village in Table T-1 of GESF)
31c. Sewage Generation rate	=	**20.5**	m^3/day

32. Kam Shan Tsuen Nos. 46 - 51

32a. Assumed number of residents	=	17	people (Estimated from the no. of households and avg domestic household size of 2.8 in Tai Po)
32b. Design flow	=	0.27	m^3/person/day -- (Modern Village in Table T-1 of GESF)
32c. Sewage Generation rate	=	**4.6**	m^3/day

33. Temporary structures near the junction of Hon Ka Road and Kam Shan Road

33a. Assumed number of residents	=	9	people (Estimated from the no. of households and avg domestic household size of 2.8 in Tai Po)
33b. Design flow	=	0.27	m^3/person/day -- (Modern Village in Table T-1 of GESF)
33c. Sewage Generation rate	=	**2.4**	m^3/day

34. Retail shops at the junction of Hon Ka Road and Kam Shan Road

34a. Assumed Floor Area	=	150	m^2
34b. Assumed floor area per employee	=	28.6	m^2 per employee -- (refer to Table 8 of CIFSUS - Retail Trade)
34c. Total number of employees	=	6	employees
34d. Design flow for commercial employee	=	0.28	m^3/person/day -- (refer to Table T-2 of GESF - J4 Wholesale & Retail)
34e. Sewage Generation rate	=	**1.7**	m^3/day

Sub-total Catchment A + B1 + B2 + C1 + C2 + C3 discharged to Manhole S7 (FMH1001066)

Flow Rate	=	1106.0	m^3/day
Contributing Population	=	4096	people
Peaking factor	=	6	Refer to Table T-5 of GESF for population 5,000-10,000 including stormwater allowance
Peak Flow	=	**76.8**	litre/sec
Peak Flow with Basin and Toilet Flow	=	**80.2**	litre/sec

Table 3d Calculation for Sewage Generation Rate of the Existing Surrounding (Catchment D)

Catchment D1

35. Pak Shing Street Public Toilet cum Bathhouse

35a. Wash Basin (Male + 5 Female)	=	2.4	litre/sec (DU of 0.3 L/s per basin)
35b. Single Urinals with cistern (6 Male)	=	2.4	litre/sec (DU of 0.4 L/s per urinal)
35c. WC with cistern (5 Male + 10 Female)	=	27.0	litre/sec (DU of 1.8 L/s per WC)
35d. Shower without plug (6 Male + 4 Female)	=	4.0	litre/sec (DU of 1.8 L/s per shower)
35d. Frequency of use (K)	=	1.0	
35e. Wastewater Flow Rate	=	**6.0**	litre/sec

Sub-total Catchment A + B1 + B2 + C1 to C3 + D1 discharged to Manhole S8 (FMH1001067)

Flow Rate	=	1106.0	m^3/day
Contributing Population	=	4096	people
Peaking factor	=	6	Refer to Table T-5 of GESF for population 5,000-10,000 including stormwater allowance
Peak Flow	=	**76.8**	litre/sec
Peak Flow with Basin and Toilet Flow	=	**86.2**	litre/sec

Catchment D2 **9.0**

36. Shui On Building (1/F - 5/F)

36a. Assumed number of residents	=	56	people (Estimated from the no. of households and avg domestic household size of 2.8 in Tai Po)
36b. Design flow	=	0.27	m^3/person/day -- (Private R2 in Table T-1 of GESF)
36c. Sewage Generation rate	=	**15.1**	m^3/day

37. Bong Hing Building (2/F - 10/F)

37a. Assumed number of residents	=	224	people (Estimated from the no. of households and avg domestic household size of 2.8 in Tai Po)
37b. Design flow	=	0.27	m^3/person/day -- (Private R2 in Table T-1 of GESF)
37c. Sewage Generation rate	=	**60.5**	m^3/day

38. Fu Shin Home for the Aged (1/F, Bong Hing Building)

38a. Assumed number of residents	=	71	residents
38b. Design flow for residents	=	0.19	m^3 resident/day -- (refer to Table T-1 of GESF - Domestic - Institutional and Special Class)
38a. Assumed number of employees	=	9	people
38b. Design flow for employees	=	0.28	m^3/person/day -- (refer to Table T-2 of GESF - J11 Community, Social & Personal Services)
38c. Sewage Generation rate	=	**16.0**	m^3/day

39. Retail shops at the G/F of Shui On Building

39a. Assumed Floor Area	=	100	m^2
39b. Assumed floor area per employee	=	28.6	m^2 per employee -- (refer to Table 8 of CIFSUS - Retail Trade)
39c. Total number of employees	=	4	employees
39d. Design flow for commercial employee	=	0.28	m3/person/day -- (refer to Table T-2 of GESF - J4 Wholesale & Retail)
39e. Sewage Generation rate	=	**1.0**	m^3/day

40. Restaurants at the G/F of Shui On Building

40a. Assumed Floor Area	=	100	m^2
40b. Assumed floor area per employee	=	19.6	m^2 per employee -- (refer to Table 8 of CIFSUS - Restaurant)
40c. Total number of employees	=	5	employees
40d. Design flow for commercial employee	=	1.58	m3/person/day-- (refer to Table T-2 of GESF - J10 Restaurants & Hotels)
40e. Sewage Generation rate	=	**7.9**	m^3/day

41. Retail shops at the G/F of Bong Hing Building

41a. Assumed Floor Area	=	681	m^2
41b. Assumed floor area per employee	=	28.6	m^2 per employee -- (refer to Table 8 of CIFSUS - Retail Trade)
41c. Total number of employees	=	24	employees
41d. Design flow for commercial employee	=	0.28	m^3/person/day -- (refer to Table T-2 of GESF - J4 Wholesale & Retail)
41e. Sewage Generation rate	=	**6.7**	m^3/day

42. Restaurants at the G/F of Bong Hing Building

41a. Assumed Floor Area	=	99	m^2
41b. Assumed floor area per employee	=	19.6	m^2 per employee -- (refer to Table 8 of CIFSUS - Restaurant)
41c. Total number of employees	=	5	employees
41d. Design flow for commercial employee	=	0.28	m3/employee/day -- (refer to Table T-2 of GESF - J10 Restaurants & Hotels)
41e. Sewage Generation rate	=	**1.4**	m3/day

Sub-total Catchment A + B1 + B2 + C1 to C3 + D1 + D2 discharged to Manhole S9 (FMH1001068)

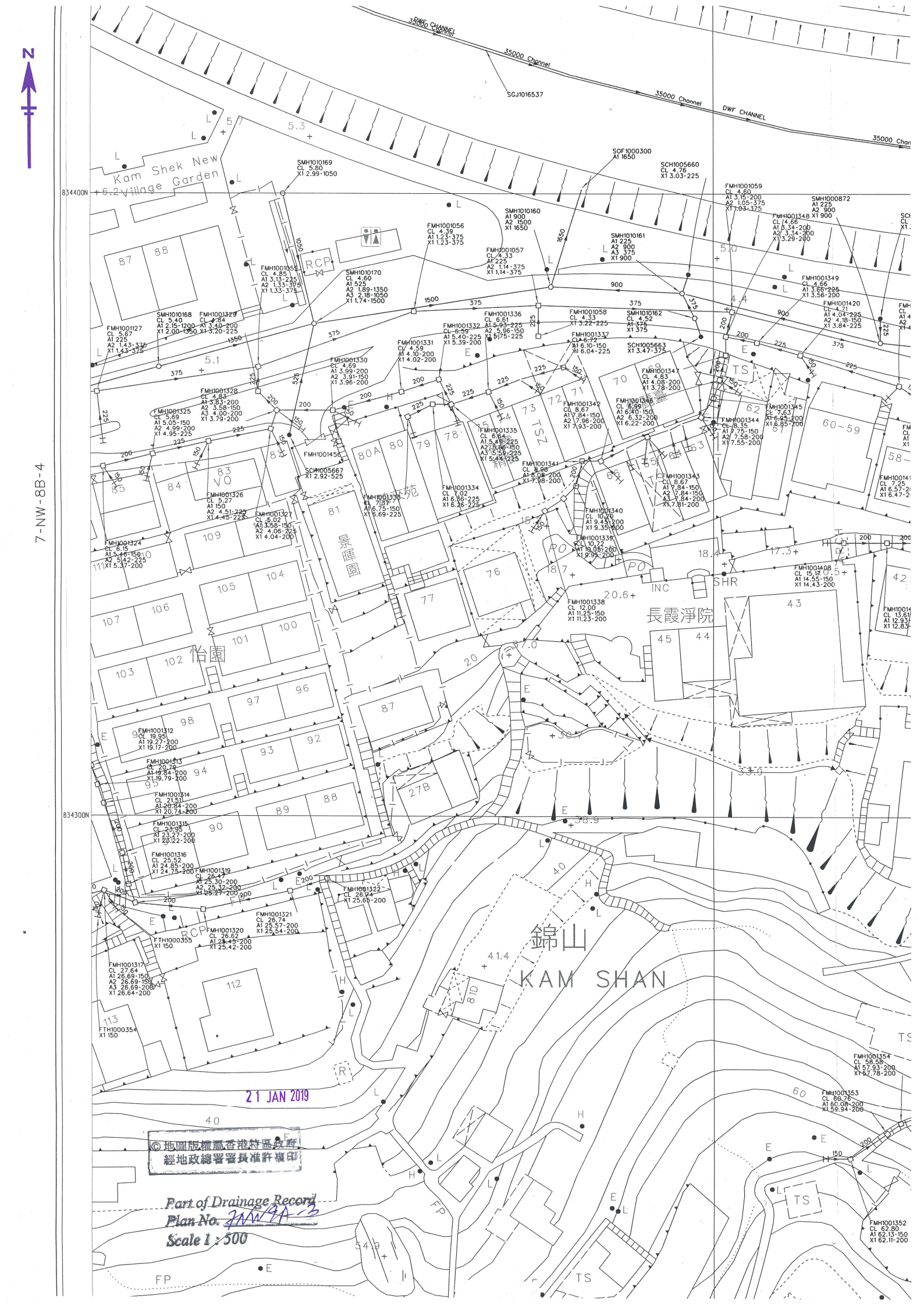
Flow Rate	=	1214.7	m^3/day
Contributing Population	=	4499	people
Peaking factor	=	6	Refer to Table T-5 of GESF for population 1,000-5,000 including stormwater allowance
Peak Flow	=	**84.4**	litre/sec
Peak Flow with Basin and Toilet Flow	=	**93.8**	litre/sec

Table 4 Comparision of the Hydraulic Capacity of Existing Sewers for Sewage generated from the Application Site and Surrounding Catchment Areas

Segment	Pipe Dia. (mm)	Pipe Length (m)	Gradient	Estimated Capacity (L/s)	Included Catchment	Peak Flow from the Application Site and Catchment Areas (L/s)	Contribution from the Application Site and the Surrounding Catchment Areas (%)	Status
S1-S2	375	36.5	0.004	132	A + B1	68.9	52.2%	OK
G1-G2	200	6.4	0.235	186	Application Site (B2)	10.0	5.4%	OK
G2-G3	200	5.4	0.197	170	Application Site (B2)	10.0	5.9%	OK
G3-G4	200	2.4	0.046	82	Application Site (B2)	10.0	12.2%	OK
G4-G5	200	9.0	0.142	144	Application Site (B2)	10.0	7.0%	OK
G5-G6	200	6.4	0.511	275	Application Site (B2)	10.0	3.7%	OK
G6-G7	200	3.4	0.293	208	Application Site (B2)	10.0	4.8%	OK
G7-G8	200	2.5	0.114	130	Application Site (B2)	10.0	7.8%	OK
G8-G9	200	2.4	0.555	286	Application Site (B2)	10.0	3.5%	OK
G9-G10	225	3.5	0.063	131	Application Site (B2)	10.0	7.7%	OK
G10-G11	200	2.4	0.261	196	Application Site (B2)	10.0	5.1%	OK
G11-S2	200	3.9	0.112	128	Application Site (B2)	10.0	7.8%	OK
S2-S3	375	31.4	0.004	128	A + B1 + B2	72.5	56.5%	OK
S3-S4	375	39.4	0.004	127	A + B1 + B2 + C1	72.9	57.4%	OK
S4-S5	375	28.5	0.005	140	A + B1 + B2 + C1 + C2	77.3	55.3%	OK
S5-S6	375	4.4	0.002	95	A + B1 + B2 + C1 + C2	77.3	81.4%	OK
S6-S7	375	41.5	0.005	135	A + B1 + B2 + C1 + C2	77.3	57.3%	OK
S7-S8	375	58.6	0.004	130	A + B1 + B2 + C1 + C2 + C3	80.2	61.5%	OK
S8-S9	375	45.0	0.004	126	A + B1+ B2 + C1 to C3 + D1	86.2	68.4%	OK
S9-S10	375	16.4	0.004	130	A + B1 + B2 + C1 to C3 + D1 + D2	93.8	72.0%	OK
S10-S11	375	28.5	0.004	129	A + B1 + B2 + C1 to C3 + D1 + D2	93.8	72.5%	OK
S11-S12	375	30.2	0.005	136	A + B1 + B2 + C1 to C3 + D1 + D2	93.8	69.0%	OK
S12-S13	375	28.5	0.011	205	A + B1 + B2 + C1 to C3 + D1 + D2	93.8	45.7%	OK

Remarks: The Application Site forms Catchment B2

Appendix 2.2 DSD's Drainage Record Plan



N
7-NW-8B-4
Kam Shek New Village Garden
35000 Channel
DWF CHANNEL
SGJ1016537
834400N
834300N
景暉園
怡園
長霞淨院
錦山
KAM SHAN
21 JAN 2019
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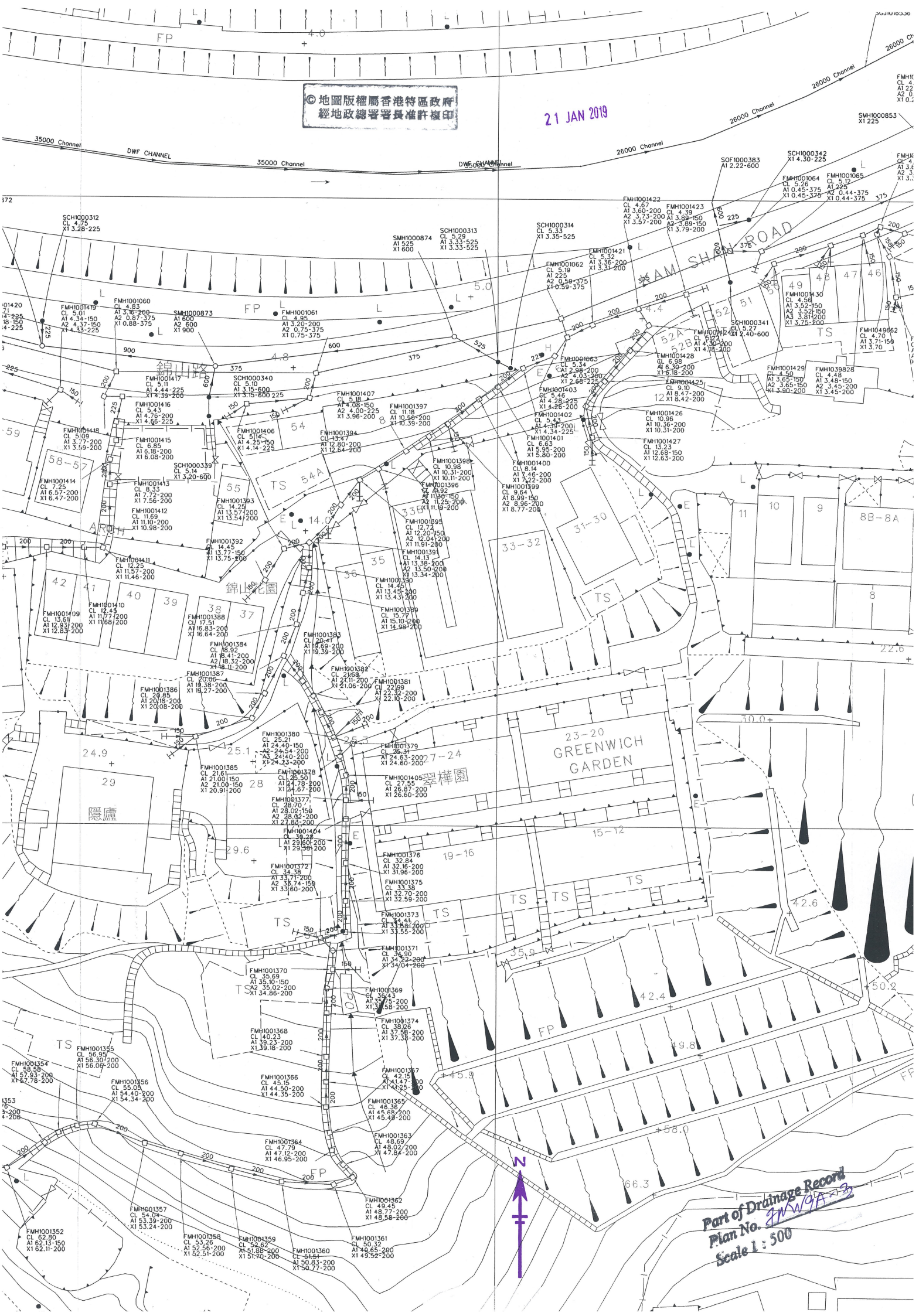
經地政總署署長准許複印
Part of Drainage Record
Plan No. 7NW9A-3
Scale 1 : 500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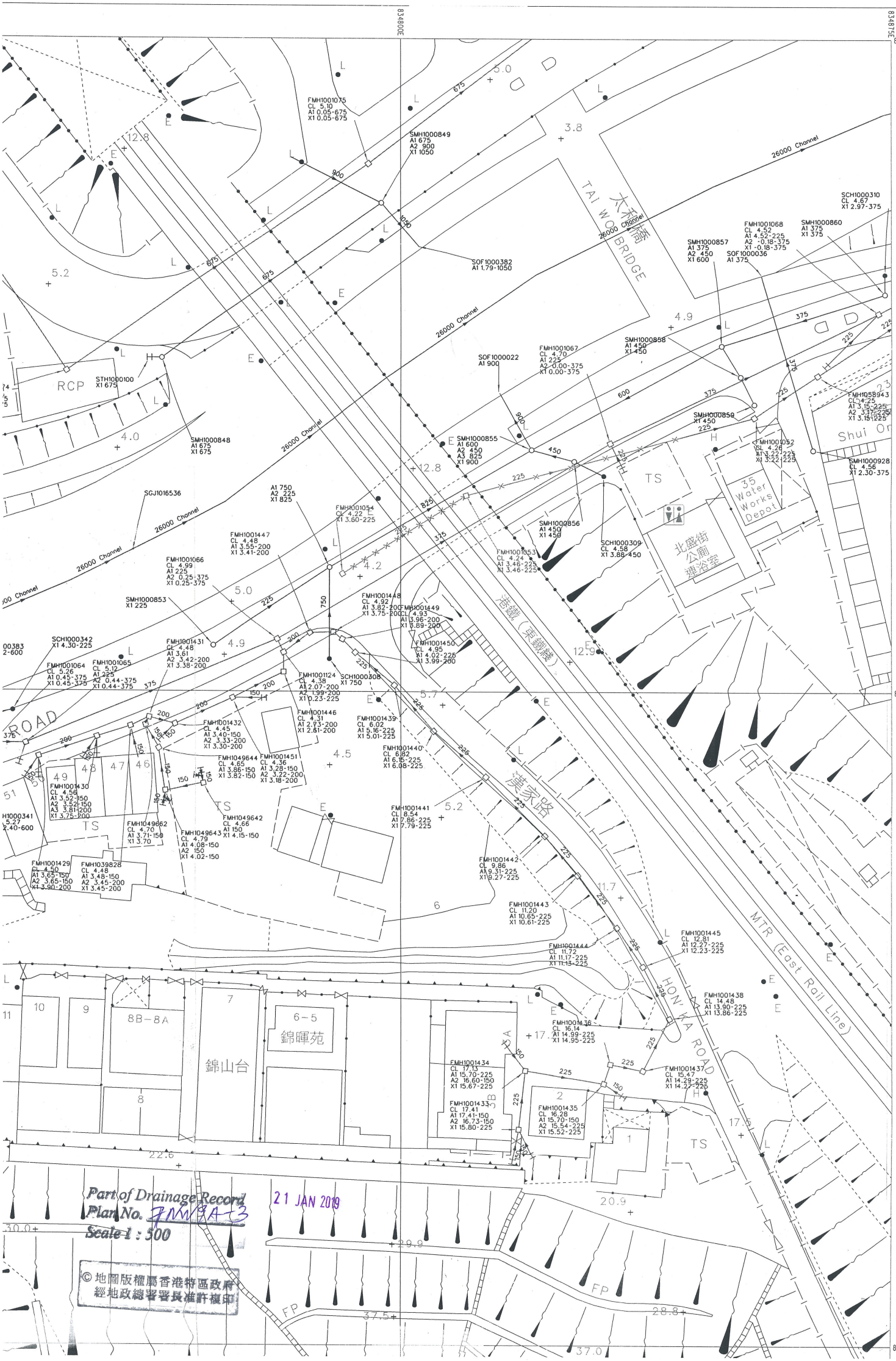
經地政總署署長准許複印
21 JAN 2019
35000 Channel
DWF CHANNEL
26000 Channel
KAM SHAN ROAD
錦山路
錦山花園
GREENWICH GARDEN
23-20
隱廬
翠樺園
TS
FP
Part of Drainage Record
Plan No. SW9A-3
Scale 1 : 500


834800E
834875E
834500N
834400N
834300N
TAI WO BRIDGE
大和橋
26000 Channel
港鐵(東鐵線)
漢家路
HON KA ROAD
MTR (East Rail Line)
Shui On
35 Water Works Depot
北盛街公廁連浴室
RCP
TS
錦山台
錦暉苑
8B-8A
6-5
FMH1001075 CL 5.10 A1 0.05-675 X1 0.05-675
SMH1000849 A1 675 A2 900 X1 1050
SOF1000382 A1 1.79-1050
STH1000100 X1 675
SMH1000848 A1 675 X1 675
SGJ1016536
SOF1000022 A1 900
FMH1001067 CL 4.70 A1 225 A2 0.00-375 X1 0.00-375
SMH1000858 A1 450 X1 450
SMH1000855 A1 600 A2 450 A3 825 X1 900
SMH1000859 X1 450
SMH1000856 A1 450 X1 450
SCH1000309 CL 4.58 X1 3.88-450
FMH1001053 CL 4.24 A1 3.46-225 X1 3.46-225
FMH1001052 CL 4.26 A1 3.22-225 X1 3.22-225
SMH1000928 CL 4.56 X1 2.30-375
FMH1058943 CL 4.25 A1 3.15-225 A2 3.15-225 X1 3.15-225
SCH1000310 CL 4.67 X1 2.97-375
FMH1001068 CL 4.52 A1 4.52-225 A2 -0.18-375 X1 -0.18-375
SMH1000860 A1 375 X1 375
SMH1000857 A1 375 A2 450 X1 600
SOF1000036 A1 375
A1 750 A2 225 X1 825
FMH1001054 CL 4.22 E X1 3.60-225
FMH1001447 CL 4.48 A1 3.55-200 X1 3.41-200
FMH1001066 CL 4.99 A1 225 A2 0.25-375 X1 0.25-375
SMH1000853 X1 225
FMH1001448 CL 4.92 A1 3.82-200 X1 3.75-200
FMH1001449 CL 4.93 A1 3.96-200 X1 3.89-200
FMH1001450 CL 4.95 A1 4.02-225 X1 3.99-200
SCH1000342 X1 4.30-225
FMH1001064 CL 5.26 A1 0.45-375 X1 0.45-375
FMH1001065 CL 5.12 A1 225 A2 0.44-375 X1 0.44-375
FMH1001431 CL 4.48 A1 3.61 A2 3.42-200 X1 3.38-200
FMH1001124 CL 4.38 A1 2.07-200 A2 1.99-200 X1 0.23-225
SCH1000308 X1 750
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FMH1001439 CL 6.02 A1 5.16-225 X1 5.01-225
FMH1001440 CL 6.82 A1 6.15-225 X1 6.08-225
FMH1001432 CL 4.45 A1 3.40-150 A2 3.33-200 X1 3.30-200
FMH1049644 CL 4.65 A1 3.86-150 X1 3.82-150
FMH1001451 CL 4.36 A1 3.28-150 A2 3.22-200 X1 3.18-200
FMH1001430 CL 4.56 A1 3.52-150 A2 3.52-150 A3 3.81-200 X1 3.75-200
FMH1049642 CL 4.66 A1 150 X1 4.15-150
FMH1049643 CL 4.79 A1 4.08-150 A2 150 X1 4.02-150
FMH1049662 CL 4.70 A1 3.71-150 X1 3.70
FMH1001441 CL 8.54 A1 7.86-225 X1 7.79-225
FMH1001442 CL 9.86 A1 9.31-225 X1 9.27-225
FMH1001443 CL 11.20 A1 10.65-225 X1 10.61-225
FMH1001444 CL 11.72 A1 11.17-225 X1 11.13-225
FMH1001445 CL 12.81 A1 12.27-225 X1 12.23-225
FMH1001438 CL 14.48 A1 13.90-225 X1 13.86-225
FMH1001436 CL 16.14 A1 14.99-225 X1 14.95-225
FMH1001434 CL 17.13 A1 15.70-225 A2 16.60-150 X1 15.67-225
FMH1001433 CL 17.41 A1 17.41-150 A2 16.73-150 X1 15.80-225
FMH1001435 CL 16.28 A1 15.70-150 A2 15.54-225 X1 15.52-225
FMH1001437 CL 15.47 A1 14.29-225 X1 14.27-225
FMH1039828 CL 4.48 A1 3.48-150 A2 3.45-200 X1 3.45-200
FMH1001429 CL 4.50 A1 3.65-150 A2 3.65-150 X1 3.90-200
SCH1000341 5.27 2.40-600
SCH1000383 2-600
Part of Drainage Record Plan No. FMW9A-3
Scale 1 : 500
21 JAN 2019
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7-NW-9A-4
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