Annex C

Updated Report of the Sewerage Impact Assessment

Lot 4822 in D.D. 104, Kam Pok Road and Adjoining Government Land, Mai Po, Yuen Long

Sewerage Impact Assessment

March 2026

Date	Revision	Prepared by	Checked by	Approved by
July 2025	0	Robben Cheung	Casey Man	T.C Lam
Oct 2025	1	Robben Cheung	Casey Man	T.C Lam
Dec 2025	2	Robben Cheung	Casey Man	T.C Lam
Mar 2026	3	Alex Lau	Casey Man	T.C.Lam

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LIST OF APPENDICES

1. INTRODUCTION

1.1. Meinhardt Infrastructure & Environment Limited (MIEL) has been commissioned to conduct this Sewerage Impact Assessment ("SIA") to demonstrate the proposed medium-rise residential development on the Application Site is technically feasible in the sewage disposal aspect.

1.2. The Application Site (hereinafter referred to as "the Site") is located east of Kam Pok Road near Fairview Park in Yuen Long. The Site location is shown in **Appendix A**.

1.3. The objectives of this SIA are:

- Identification of existing sewerage facilities serving the concerned area;
- Description of methodology adopted in this assessment;
- Estimation of sewage flow from the subject development;
- Assessment of sewerage impact on the existing or/and planned sewerage facilities due to the increased sewage flow from the subject development; and
- Recommendation of on-site sewerage facilities (on-site sewage pumping station) to cater for the development if found necessary.

2. GENERAL SITE DESCRIPTION

2.1. The Site is bounded by Fung Chuk Road, Ha Chuk Yuen Road, Kam Pok Road and Ha San Wai Road covering a total land area of about 37,870m^2. It is located in the vicinity of Fairview Park, Villa Camellia, Helene Terrace, 3-storey village dwellings in Ha San Wai and Yau Pok Road Light Public Housing.

2.2. The existing topography of the Site is sloping gently from the north towards the south with ground level varies from +7.0mPD to +4.3mPD approximately.

3. DEVELOPMENT PROPOSAL

3.1. The proposed development comprises five medium-rise residential buildings with a domestic plot ratio of 1.5, and one 2-storey facility compound containing one club house, one 6-classroom kindergarten and an elderly activity centre. The building heights of these 5 residential towers are 16 residential storeys high. The total domestic GFA is about 56,805m^2. Upon completion in 2031, the proposed development will provide a total of 1,303 private high-quality flats.

3.2. The proposed development also includes a two-storey facility compound comprising a clubhouse (of about 2,272 m^2 exempted GFA) which includes a restaurant, an indoor swimming pool and an outdoor swimming pool; one 6-classroom kindergarten (of about 380m^2 non-domestic GFA); One elderly activity centre with NOFA is about 303m^2.

3.3. The proposed master layout plan is shown in **Appendix A**.

4. EXISTING AND PLANNED SEWERAGE SYSTEM

Existing Sewerage System

4.1. Based on the sewerage records, there are no existing sewers in the vicinity of the Site. The closest existing sewerage facility is Nam Sang Wai Sewage Pumping Station (NSWSPS), which is located

west of Pok Wai South Road. The collected sewage in NSWSPS is eventually conveyed to existing Yuen Long Sewage Treatment Works (YLSTW).

4.2. The designed capacity and the current average daily flow in terms of ADWF (m^3/day) of NSWSPS are shown in **Table 1**.

Table 1 – Capacity of NSWSPS

Sewerage Facility	Design Capacity (m^3/day)	Current Average Daily Flow (m^3/day)	Spare Capacity (m^3/day)
NSWSPS	42,921	3,900	39,021

Planned Sewerage System

4.3. According to the approved EIA report for "Yuen Long Effluent Polishing Plant – Investigation, Design and Construction" (EIA-259/2018), DSD proposed to upgrade existing YLSTW to Yuen Long Effluent Polishing Plant (YLEPP) to enhance its capacity and treatment level. The upgrade works would be carried out in 2 stages. Under Stage 1, YLSTW will be upgraded to YLEPP with treatment capacity of 100,000m^3/day. The project completion date of YLEPP – Stage 1 is mid-2027, which will be completed before the completion of the proposed development at the Site in 2031. The following Stage 2 works being planned to increase YLEPP treatment capacity to 180,000m^3/day by 2030 tentatively.

4.4. According to the approved Planning Application No. Y/YL-NSW/7, there will be gravity sewers ranging from 375mm to 600mm diameter located along Pok Wai West Road and Pok Wai South Road connecting to NSWSPS. These sewers from manhole WKT009 to manhole WKT015 are planned to serve the potential development in the surrounded area with a minimum capacity of 15,500m^3/d, which is an initial estimation by EPD, and Application Nos. Y/YL-MP/7, Y/YL-MP/8 and proposed development at Yau Mei San Tsuen with an estimated sewage flow of 1,256.86m^3/d, 1,258.27m^3/d and 962.28 m^3/d respectively. Apart from the abovementioned, 2 x 675mm gravity sewers are proposed under Approved Planning Application No. Y/YL-MP/10. The estimated sewage flow from Application Nos. Y/YL-MP/7, Y/YL-MP/8 and Yau Mei San Tsuen are shown in **Appendix B**. The proposed completion year of this rezoning development (Y/YL-NSW/7) is 2028.

5. ASSESSMENT METHODOLOGY AND PARAMETERS

5.1. Capacity assessment of the sewers, pumping station and sewage treatment plant is being carried out to assess the adequacy of the capacity in the existing or/and planning sewerage system. The design parameters and standards are shown in **Table 2** below.

Table 2 - Design Parameters and Standards

Design Standards/ Guidelines	• DSD Sewerage Design Manual, Part 1 & 2 (SDM) • EPD Guideline for Estimating Sewage Flows for Sewage Infrastructure Planning (GESF) • Data published by Census and Statistics Department (C&SD) • Commercial and Industrial Floor Space Utilization Survey (CIFSUS) by Planning Department

Flow Formula	Colebrook White Formula
Sewer Roughness Coefficient, Ks	1.5 mm
Unit Flow Factor	• 0.27m^3/d/head (Domestic, Private R2) • 0.28m^3/d/head (Commercial Employee plus "Community, Social & Personal Services", J11) • 1.58m^3/d/head (Commercial Employee plus "Restaurants & Hotels", J10) • 0.04m^3/d/head (School Student)
Contributing Population	Contributing Population = Calculated ADWF/0.27
Peaking Factors	Table T-5 of GESF
Catchment Inflow Factor	Table T-4 of GESF Catchment Inflow Factors (PCIF): Yuen Long =1.00
Average Household Size	2.7(reference to Table 150-12001: Projected number of domestic households and average household size of 2026 and 2031 whichever larger, by the Census and Statistics Department)
Staff Density of Club House	Table 8 of CIFSUS Community, Social & Personal Services: 2.3 workers per 100m^2 GFA
No. of Staff in Restaurant	15
No. of Student in Kindergarten	180 (6 classes of 30 students)
No. of Teacher in Kindergarten	23 (Pupil-Teacher Ratio is 8:1 under Key Statistics on Kindergarten Education)
Elderly Activity Centre Population	137.5 (4m^2/person) (with GFA of 550 m^2)

6. ESTIMATION OF SEWAGE FLOW

6.1. The estimation of sewage flow of the proposed development is shown in **Appendix C** and summarized in **Table 3** below.

Table 3 - Total Estimated Sewage Flow from the Proposed Development

Population Type	No. of Population	Unit Flow Factor (m^3/d/person)	Average Dry Weather Flow (m^3/d)
Residential Population	3,519	0.27	950.13
Staff of Clubhouse	53	0.28	14.84
Staff of Restaurant	15	1.58	23.70
Students in Kindergarten	180	0.04	7.20
Teachers in Kindergarten	23	0.28	6.44
Elderly Activity Centre Population	138	0.28	38.64
Outdoor Swimming Pool	-	-	7.03

Indoor Swimming Pool	-	-	8.44
Total	3,928	-	**1,056.42**

6.2. The estimated Average Dry Weather Flow (ADWF) from the proposed development is approximately 1,056.42m^3/day.

7. PROPOSED SEWERAGE SYSTEM

7.1. The sewage from the proposed development will be collected by the proposed gravity sewers within the Site and then conveyed to the proposed on-site sewage pumping station with the installed capacity not less the peak flow (3,180m3/day). The sewage will then be pumped by a twin DN150 rising mains to the gravity sewer and eventually be conveyed to NSWSPS.

7.2. Under normal circumstances, the sewage from the proposed rezoning development will be directed into NSWSPS via a proposed sewer line (PSL), which runs along the east of Kam Pok Road and Pok Wai Road South, ending at the existing manhole FSH1001886 that connects to NSWSPS, as depicted in Figure 2 in **Appendix D**.

7.3. There are five nearby up-zoning application nos. (Y/YL-NSW/7, Y/YL-MP/7, Y/YL-MP/8, Y/YL-MP/9 and Y/YL-MP/10) and a potential site development at Yau Mei San Tsuen. All six proposed developments are expected to be completed and populated by 2031 (Y/YL-NSW/7 is expected to be completed by 2028), coinciding with the timeline of this rezoning application.

7.4. To manage the cumulative impacts, there are two scenarios:

Scenario 1 – If this application is to be proceeded before all the six proposed developments (under application nos. Y/YL-NSW/7, Y/YL-MP/7, Y/YL-MP/8, Y/YL-MP/9 and Y/YL-MP/10 and the potential site development at Yau Mei San Tsuen) – The Applicant will be responsible for the construction entire section of the PSL, accounting for these six potential developments, subject to agreement with the Drainage Services Department (DSD) and Environmental Protection Department (EPD). The long-term maintenance responsibility for gravity sewers conveying sewage from multiple developers will be handed over to DSD. Figure 3 in **Appendix D** illustrates the schematic alignment and preliminary technical details of the PSL.

Scenario 2 - If application nos. Y/YL-NSW/7 and Y/YL-MP/10 are completed as planned by 2028 and 2031 respectively, or before the commencement of the current subject rezoning application, the Applicant will liaise directly with the developer involved to arrange the sharing of PSL works. Full implementation of the PSL will be proposed, subject to agreement from DSD and EPD.

Scenario 3 – Given application nos. Y/YL-MP/7, Y/YL-MP/8, Y/YL-MP/9 and the potential site development at Yau Mei San Tsuen do not have planned completion date, if any of or all the aforesaid 4 applications are completed before the commencement of this application, the approach of PSL works will be the same as that stipulated in Scenario 2. The Applicant will be responsible for the proposed upgrading works of the sewerage system to ensure adequate pipe capacity to cater for all the six proposed developments.

Figure 4 in **Appendix D** illustrates the schematic alignment and preliminary technical details of the PSL. The sewage will be pumped from NSWSPS to YLEPP eventually.

7.5. The hydraulic checking of the proposed rising mains is shown in **Appendix E**.

8. SEWERAGE IMPACT ASSESSMENT

8.1. The sewerage impact on NSWSPS and the gravity sewers due to the sewage flow generated by the proposed development within the Site has been assessed.

8.2. The results of the sewerage assessment on NSWSPS are summarized in **Table 4**. **Table 5-6** summarizes the implications of the gravity sewers in the two scenarios. The hydraulic calculations for the planned gravity sewers are shown in **Appendix F**.

Table 4 – Assessment Results of NSWSPS

Sewerage Facility	Design Capacity (m^3/day)	Current Average Daily Flow (m^3/day)	Estimated Future Average Daily Flow (m^3/day)(1)	Total Future Average Daily Flow (m^3/day)	Spare Capacity (m^3/day)
NSWSPS	42,921	3,900	20,033.83	23,933.83	18,987.17

(1) The estimated future flow includes the EPD initial estimation for the gravity sewers (i.e. 15,500m^3/d), the estimated sewage flow from Application No. Y/YL-MP7, Y/YL-MP8 (i.e. 1,256.86m3/d and 1,258.27m3/d respectively) and the potential development at Yau Mei San Tsuen (i.e. 962.28m^3/d) (Appendix B refers) and the sewage flow generated from this proposed development. (Appendix C refers).

Table 5 – Assessment Results of the Gravity Sewers (Scenario 1)

Nominal Diameter (mm)	Average Daily Flow (m^3/day)	Average Daily Flow (m^3/s)	Peaking Factor	Peak Daily Flow (m^3/s)	Gradient (1in X)	Flow Velocity (m/s)	Flow Capacity (m^3/s)
Proposed Gravity Sewers under this planning application							
1000	20,033.83	0.232	3.83	0.887	400	1.441	1.001

Table 6 – Assessment Results of the Gravity Sewers (Scenario 2)

	Nominal Diameter (mm)	Average Daily Flow (m^3/day) (1)	Average Daily Flow (m^3/s)	Peaking Factor	Peak Daily Flow (m^3/s)	Gradient (1in X)	Flow Velocity (m/s)	Flow Capacity (m^3/s)
Proposed Gravity Sewers under Y/YL-MP/10								
Existing Design	2 x 675	20,033.83	0.232	3.83	0.887	400	1.167	0.835
Proposed Upgrade	1000	20,033.83	0.232	3.83	0.887	241	1.858	1.113
Proposed Gravity Sewers under Y/YL-NSW/7								
Existing Design	600	20,033.83	0.232	3.83	0.887	300	1.241	0.342
Proposed Upgrade	1000	20,033.83	0.232	3.83	0.887	241	1.858	1.291

(1) The estimated future flow includes the EPD initial estimation for the gravity sewers (i.e. 15,500m^3/d), the estimated sewage flow from Application No. Y/YL-MP7, Y/YL-MP8 (i.e. 1,256.86m3/d and 1,258.27m3/d respectively) and the potential development at

Yau Mei San Tsuen (i.e. 962.28m^3/d) (Appendix B refers) and the sewage flow generated from this proposed development (Appendix C refers).

8.3. For scenario 1, the proposed DN1000 sewer has sufficient capacity to cater the sewage flow generated from the proposed development within the Site and the potential new developments.

8.4. For scenario 2, the results of the assessment have demonstrated that NSWSPS and the proposed gravity sewers (2 x DN675) under application no. Y/YL-MP/10 almost use up the capacity to cater the sewage flow generated from the proposed development within the Site. It is suggested to upgrade the sewer to DN1000. Besides, it is found that the existing design of the planned gravity sewers under application no. Y/YL-NSW/7 in scenario 1, i.e. DN600, has insufficient capacity to cater its planned ADWF of 20,033.83m^3/day. It is suggested to upgrade the sewer size to DN1000. The abovementioned upgrade will allow sufficient capacity to cater the planned sewage flow and the sewage flow generated by the proposed development within the Site. The Applicant will be responsible for the upgrading of the proposed gravity sewers.

8.5. After upgrade the planned gravity sewers, there will be no adverse sewerage impact on the planned gravity sewers, NSWSWS and YLEPP due to this proposed development is anticipated.

8.6. A comprehensive study on the technical feasibility focusing on the available underground space will be undertaken. Consideration will be given to construction feasibility, maintenance access, and future expansion possibilities to ensure the proposed rising mains can be safely and effectively accommodated within the constrained underground environment. Where necessary, coordination with relevant government departments, utility providers and other developments will be conducted to optimize the design and layout of the rising mains. The detailed design will be submitted at detailed design stage.

9. MAINTENANCE RESPONSIBILITY

9.1. All proposed sewers and sewerage facilities within the proposed development will be constructed, operated and maintained by the Applicant.

9.2. The proposed external twin DN150 rising mains will be constructed and maintained by the Applicant.

9.3. For the gravity sewers, both scenario 1 and scenario 2 are technically feasible. The Applicant will be responsible for the upgrading of the proposed gravity sewers. Maintenance of the proposed gravity sewers exclusively serving the development remains the responsibility of the Applicant at their own cost. Upon the proposed sewers becoming facilities that serve multiple users, the Applicant shall hand over the relevant sewer segments located on government land to the Drainage Services Department (DSD) for long-term maintenance.

10. CONCLUSION

10.1. This report has assessed the sewerage impact due to the proposed development of Lot No. 4822 in D.D. 104 and adjoining Government Land, Kam Pok Road, Mai Po, Yuen Long.

10.2. The sewage flow generated from the proposed development will be collected by proposed gravity sewers within the Site and then conveyed into the proposed sewer line via an on-site underground sewage pumping station. The sewage flow will continue to be conveyed by gravity sewers in one

of the two scenarios: scenario 1: DN1000 sewer and scenario 2: 2 x DN675 sewer and DN600 sewer (recommended to be upgraded to sewer DN1000).

10.3. The results of the assessment have demonstrated that both proposed scenario options are technically feasible from the sewerage engineering standpoint.

APPENDIX A –

SITE LOCATION AND PROPOSED MASTER LAYOUT PLAN

PLOTTED BY : $USER$

823200 E

823400 E

823600 E

823800 E

837500 N

837300 N

837100 N

FAIRVIEW PARK

YAU POK ROAD LIGHT PUBLIC HOUSING

KAM POK ROAD

FUNG CHUK ROAD

T6

TX ROOM & MAIN SWITCH ROOM

T5

SEWAGE PUMPING STATION

T3

T2

KINDERGARTEN & ELDERLY ACTIVITY CENTRE

OUTDOOR SWIMMING POOL

CLUBHOUSE

T1

HA CHUK YUEN ROAD

NGAU TAM MEI CHANNEL

YAU POK ROAD

CHUK YUEN TSUEN

SAN TIN HIGHWAY

HA SAN WAI ROAD

HELENE TERRACE

VILLA CAMELLIA

HA SAN WAI

LEGENDS:

APPLICATION SITE

Meinhardt Infrastructure and Environment Limited
邁進基建環保工程顧問有限公司

LOT 4822 IN D.D. 104, KAM POK ROAD AND ADJOINING GOVERNMENT LAND, MAI PO, YUEN LONG

LOCATION PLAN AND PROPOSED MASTER LAYOUT PLAN

FIGURE 1

Scale 1 : 1250(A1)

PLOT DRV : $PLTDRVL$

CAD FILE : $FILE$

PLOT DATE & TIME : $DATE$ $TIME$

APPENDIX A –

SITE LOCATION AND PROPOSED MASTER LAYOUT PLAN

Project	:	Lot 4822 in D.D. 104 and the adjoining Government Land, Kam Pok Road, Mai Po, Yuen Long	
Project No.	:	91469	
Prepared by	:	HSC	Checked by : CYM
Date	:	10/02/2026	Sheet No. : 1

Estimation of Sewage Flow from the Y/YL-MP 7

Residential Population

Residential Population (person)	=	3,316.00	
Unit Flow Factor (m^3/d/head)	=	0.37	Domestic - Private R3
ADWF (m^3/day)	=	1,226.92	
ADWF (l/s)	=	14.20	

Community Facilities

*Total Gross Floor Area (GFA) (m^2)	=	1,760.00	
Assumed Worker Density (workers per 100m^2 GFA)	=	3.30	Table 8 of CIFSUS - All Types - Community, Social & Personal Services
No. of Staff	=	58.08	
Unit Flow Factor (m^3/d/head)	=	0.28	Commercial - J11
ADWF (m^3/day)	=	16.26	
ADWF (l/s)	=	0.19	

Transport

*Total Gross Floor Area (GFA) (m^2)	=	2,000.00	Assumed 35% of Non-Domestic GFA
Assumed Worker Density (workers per 100m^2 GFA)	=	3.80	Table 8 of CIFSUS - All Types - Transport
No. of Staff	=	76.00	
Unit Flow Factor (m^3/d/head)	=	0.18	Commercial - J3
ADWF (m^3/day)	=	13.68	
ADWF (l/s)	=	0.16	

Total ADWF (m^3/day)	**=**	**1,256.86**
ADWF (l/s)	**=**	**14.55**

* Further to Development Proposal in Respect of Application No. Y/YL-MP/7 based on the further information received on 16.1.2026, 1760m2 will be used 'Shop and Services', 'Eating Place', 'School' (nursery/kindergarten/language, computer, commercial or tutorial schools/technical institutes/other types of schools providing interests and hobby related courses for subjects such as arts and ballet etc.), 'Place of Entertainment' and 'Place of Recreation, Sports or Culture' uses, and transport lay-by facilities with GFA of about 2,000 m2.

Project	:	Lot 4822 in D.D. 104 and the adjoining Government Land, Kam Pok Road, Mai Po, Yuen Long
Project No.	:	91469
Prepared by	:	HSC
Date	:	10/02/2026

Checked by : CYM
Sheet No. : 1

Estimation of Sewage Flow from the Y/YL-MP 8

Residential Population

Residential Population (person)	=	3,373.00	
Unit Flow Factor (m^3/d/head)	=	0.37	Domestic - Private R3
ADWF (m^3/day)	=	1,248.01	
ADWF (l/s)	=	14.44	

Transport

*Total Gross Floor Area (GFA) (m^2)	=	1,500.00	Assumed 35% of Non-Domestic GFA
Assumed Worker Density (workers per 100m^2 GFA)	=	3.80	Table 8 of CIFSUS - All Types - Transport
No. of Staff	=	57.00	
Unit Flow Factor (m^3/d/head)	=	0.18	Commercial - J3
ADWF (m^3/day)	=	10.26	
ADWF (l/s)	=	0.12	

Total ADWF (m^3/day)	**=**	**1,258.27**
ADWF (l/s)	**=**	**14.56**

* Further to Development Proposal in Respect of Application No. Y/YL-MP/8 based on the further information received on 16.1.2026, transport lay-by facilities with GFA of not less than 1,500 m2.

Project	:	Lot 4822 in D.D. 104 and the adjoining Government Land, Kam Pok Road, Mai Po, Yuen Long
Project No.	:	91469
Prepared by	:	HSC
Date	:	10/02/2026

Checked by : CYM
Sheet No. : 2

Estimation of Sewage Flow from the Proposed Development at Yau Mei San Tsuen

Residential Population

Residential Population (person)	=	3,564.00	
Unit Flow Factor (m^3/d/head)	=	0.27	Domestic - Private R2
ADWF (m^3/day)	=	962.28	
ADWF (l/s)	=	11.14	

Total ADWF (m^3/day)	**=**	**962.28**
ADWF (l/s)	**=**	**11.14**

APPENDIX C –

ESTIMATION OF SEWERAGE FLOW FOR THE PROPOSED DEVELOPMENT

Project	:	Lot 4822 in D.D. 104 and the Adjoining Government Land, Kam Pok Road, Mai Po, Yuen Long
Project No.	:	91469
Prepared by	:	HSC
Date	:	10/02/2026

Checked by : CYM
Sheet No. : 1

Estimation of Sewage Flow from the Proposed Development

Residential

No. of Units	=	1303	
Average Household size per unit	=	2.7	
Residential Population (person)	=	3519	
Unit Flow Factor (m^3/d/head)	=	0.27	Domestic - Private R2
ADWF (m^3/day)	=	950.13	
ADWF (l/s)	=	11.00	

Club House

No. of Storeys	=	2	
Gross Floor Area per storey	=	1136	
Total Gross Floor Area (GFA) (m^2)	=	2272	
Assumed Worker Density (workers per 100m^2 GFA)	=	2.3	Table 8 of CIFSUS - Private Commercials - Community, Social & Personal Services
No. of Staff	=	53	
Unit Flow Factor (m^3/d/head)	=	0.28	Commercial - J11
ADWF (m^3/day)	=	14.84	
ADWF (l/s)	=	0.17	

Restaurant

No. of Staff	=	15	
Unit Flow Factor (m^3/d/head)	=	1.58	Commercial - J10
ADWF (m^3/day)	=	23.70	
ADWF (l/s)	=	0.27	

Kindergarten

Nos. of Students	=	180	Assume 6 classes and 30 students in a class
Nos. of Teacher	=	23	Pupil-Teacher Ratio is around 8:1 under Key Statistics on Kindergarden Education
Unit Flow Factor - Student (m^3/d/head)	=	0.04	
Unit Flow Factor - Teacher (m^3/d/head)	=	0.28	Commercial - J11
ADWF (m^3/day)	=	13.64	
ADWF (l/s)	=	0.16	

Elderly Activity Centre

Population	=	138	
Unit Flow Factor - Elderly / Staff (m^3/d/head)	=	0.28	Commercial - J11
ADWF (m^3/day)	=	38.64	
ADWF (l/s)	=	0.45	

Project : Lot 4822 in D.D. 104 and the Adjoining Government Land, Kam Pok Road, Mai Po, Yuen Long
Project No. : 91469
Prepared by : HSC
Date : 10/02/2026

Checked by : CYM
Sheet No. : 1

Outdoor Swinning Pool

Swimming Pool Volume (m^3) (25m x 15m x 1.5m)	=	562.5
Turnover rate (hours)	=	6
Assumed Surface Loading Rate of Filter ($m^3/m^2/hr$)	=	20
Filter Area Required (m^2)	=	4.69
Duration of Backwash (min/day)	=	3.00
Assumed Backwash Flowrate ($m^3/m^2/hr$)	=	30.00
Volume of Backwash (m^3/day)	=	7.03
Assumed Discharge Duration (min)	=	3
Discharge Flow Rate (m^3/min)	=	2.34
Discharge Flow Rate (m^3/s)	=	0.04

B1.1.2 Outdoor Swimming Pool Turnver Rate - General Specification for Swimming Pool Water Treatment Installation

Indoor Swinning Pool

Swimming Pool Volume (m^3) (20m x 15m x 1.5m)	=	450
Turnover rate (hours)	=	4
Assumed Surface Loading Rate of Filter ($m^3/m^2/hr$)	=	20
Filter Area Required (m^2)	=	5.63
Duration of Backwash (min/day)	=	3.00
Assumed Backwash Flowrate ($m^3/m^2/hr$)	=	30.00
Volume of Backwash (m^3/day)	=	8.44
Assumed Discharge Duration (min)	=	3
Discharge Flow Rate (m^3/min)	=	2.81
Discharge Flow Rate (m^3/s)	=	0.05

B1.1.2 Indoor Swimming Pool Turnver Rate - General Specification for Swimming Pool Water Treatment Installation

Total ADWF (m^3/day)	**=**	**1056.42**
ADWF (l/s)	**=**	**12.23**

Table 150-12001 : Projected number of domestic households and average household size

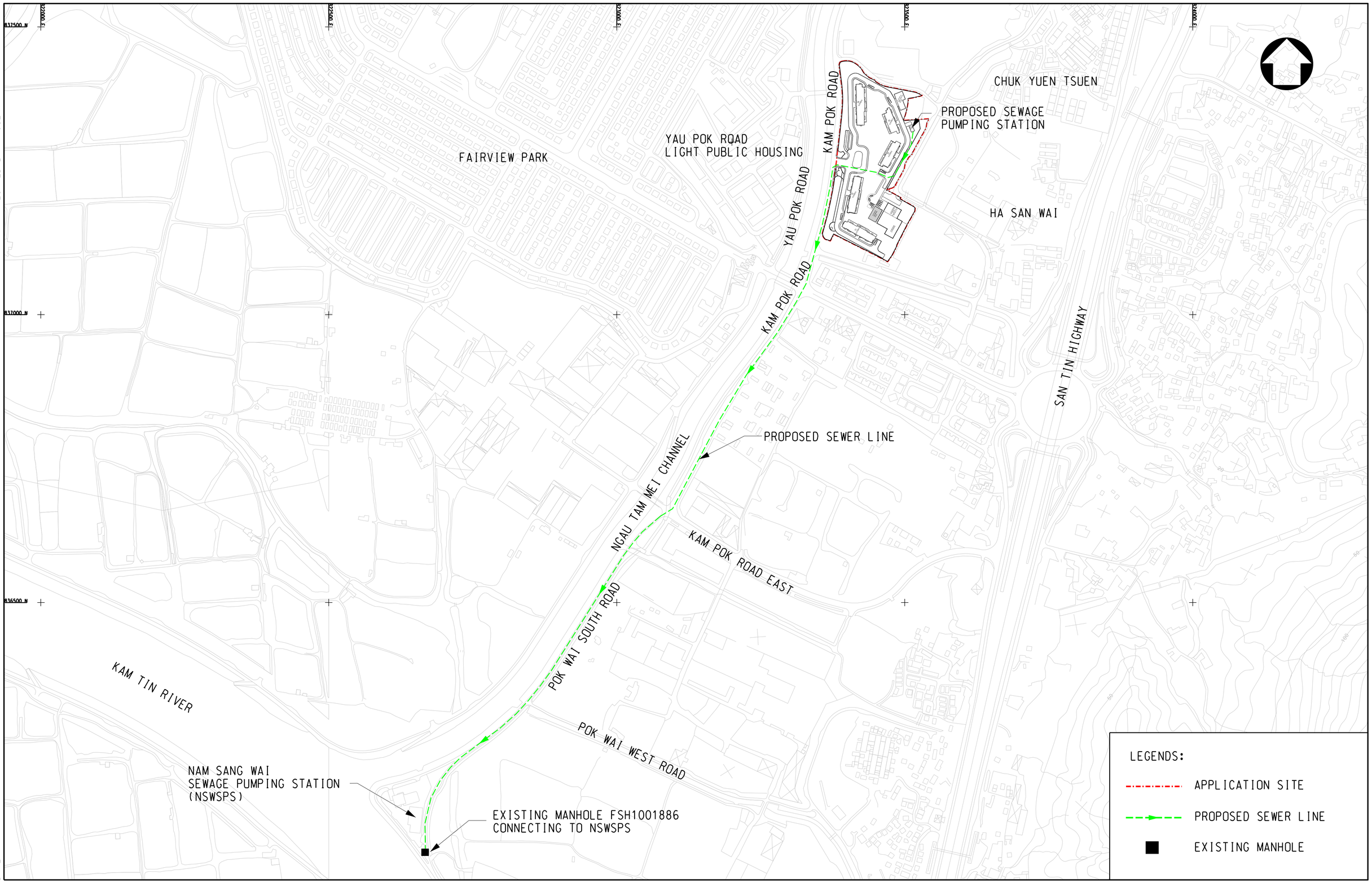
Statistics

	Domestic households	Average annual growth in domestic households over the past 5 years	Average household size
	Number	Number of domestic households	Number of persons
Year			
1981	1 244 700	-	3.9
1986	1 452 600	41 600	3.7
1991	1 582 200	25 900	3.4
1996	1 855 600	54 700	3.3
2001	2 053 400	39 600	3.1
2006	2 226 500	34 600	3.0
2011	2 368 800	28 500	2.9
2016	2 509 700	28 200	2.8
2021	2 674 200	32 900	2.7
2026 J	2 780 200	21 200	2.7
2031 J	2 884 800	20 900	2.6
2036 J	2 974 500	17 900	2.6
2041 J	3 042 800	13 700	2.6
2046 J	3 076 600	6 800	2.6

APPENDIX D –

LAYOUT PLAN FOR PROPOSED PRIVATE SEWAGE PUMPING STATION AND RISING MAINS

PLOTTED BY : $USER$



PLOT DRV : $PLTDRVL$

Meinhardt Infrastructure and Environment Limited
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LOT 4822 IN D.D. 104, KAM POK ROAD AND ADJOINING GOVERNMENT LAND, MAI PO, YUEN LONG

PROPOSED SEWERAGE ALIGNMENT

FIGURE 2

Scale 1 : 3000(A1)

CAD FILE : $FILE$

PLOT DATE & TIME : $DATE$ $TIME$

PLOTTED BY : $USER$

FAIRVIEW PARK

YAU POK ROAD
LIGHT PUBLIC HOUSING

KAM POK ROAD

CHUK YUEN TSUEN

PROPOSED SEWAGE
PUMPING STATION

HA SAN WAI

YAU POK ROAD

KAM POK ROAD

2x150ø RM

SAN TIN HIGHWAY

PROPOSED TWIN RISING MAINS
CONSTRUCTED AND MAINTAINED
BY THE APPLICANT

PROPOSED SEWER LINE

NGAU TAM MEI CHANNEL

PROPOSED CONVERSION CHAMBER
CONSTRUCTED BY THE APPLICANT

KAM POK ROAD EAST

1000ø

POK WAI SOUTH ROAD

PROPOSED GRAVITY SEWERS
CONSTRUCTED BY THE APPLICANT

KAM TIN RIVER

PROPOSED MANHOLE
CONSTRUCTED BY THE APPLICANT

POK WAI WEST ROAD

1000ø

NAM SANG WAI
SEWAGE PUMPING STATION
(NSWSPS)

EXISTING MANHOLE FSH1001886
CONNECTING TO NSWSPS

LEGENDS:

- APPLICATION SITE
- 2x150ø RM — PROPOSED RISING MAINS
- 1000ø — PROPOSED GRAVITY SEWERS
- CONVERSION CHAMBER
- PROPOSED MANHOLE
- EXISTING MANHOLE

PLOT DRV : $PLTDRVL$

Meinhardt Infrastructure and Environment Limited
邁進基建環保工程顧問有限公司

LOT 4822 IN D.D. 104, KAM POK ROAD AND ADJOINING GOVERNMENT LAND, MAI PO, YUEN LONG

PROPOSED SEWERAGE SYSTEM LAYOUT PLAN (SCENARIO 1)

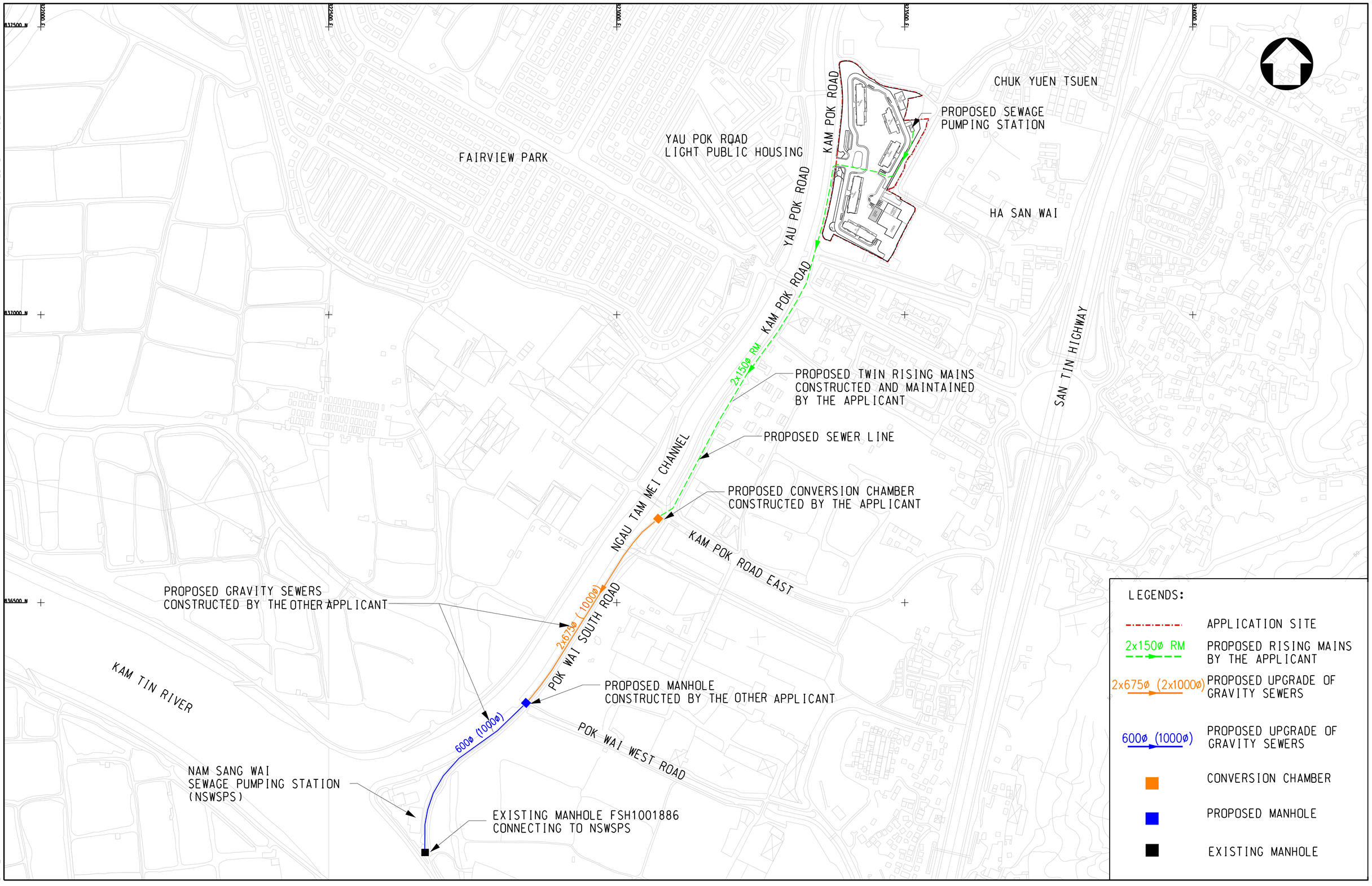
FIGURE 3

Scale 1 : 3000(A1)

CAD FILE : $FILE$

PLOT DATE & TIME : $DATE$ $TIME$

PLOTTED BY : $USER$



PLOT DRV : $PLTDRVL$

Meinhardt Infrastructure and Environment Limited
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LOT 4822 IN D.D. 104, KAM POK ROAD AND ADJOINING GOVERNMENT LAND, MAI PO, YUEN LONG

PROPOSED SEWERAGE SYSTEM LAYOUT PLAN (SCENARIO 2)

FIGURE 4

Scale 1 : 3000(A1)

CAD FILE : $FILE$

PLOT DATE & TIME : $DATE$ $TIME$

APPENDIX E –

HYDRAULIC ASSESSMENT FOR RISING MAINS

Project	:	Lot 4822 in D.D. 104 and Adjoining Government Land, Kam Pok Road, Mai Po, Yuen Long
Project No.	:	91469
Prepared by	:	HSC
Date	:	11/12/2025

Checked by : CYM
Sheet No. : 1

Hydraulic Assessment of Proposed Pump Rate

Total ADWF (m^3/d)	=	1,056.42
Contributing Population	=	3,912.67
Peaking Factor	=	4.00
Total PDWF (m^3/d)	=	4,225.68
Total PDWF (l/s)	=	48.91
Design Pump Capacity (l/s)	=	50.00

Design of Proposed Twin Rising Mains

Diameter (mm)	=	140.40
Flow Area of one Rising Main (m^2)	=	0.02
Flow in one Rising Main (m^3/s)	=	0.03
Flow Velocity in one Rising Main (m/s)	=	1.61

APPENDIX F –

HYDRAULIC ASSESSMENT FOR SEWERS

Hydraulic Checking for Gravity Sewers (Scenario 1)																	INITIAL	DATE	REV.
																	HSC	3/20/2026	-
PROJECT :	**Lot 4822 in D.D. 104 and Adjoining Government Land, Kam Pok Road, Yuen Long**																	Roughness Coefficient ks (mm)	1.5
Manholes		**Pipes Details**								**Pipe Capacity**		**Check for Capacity**						**Check for Self-cleansing Velocity**	
From	To	Internal Pipe Diameter (mm)	Upper Ground Level (mPD)	Lower Ground Level (mPD)	Upper Invert Level# (mPD)	Lower Invert Level# (mPD)	Pipe Length (m)	Existing Pipe (Y / N)	Minimum Hydraulic Gradient (1 in _)	Velocity (m/s)	Capacity (m3/s)	ADWF(m^3/s)	Contribution Population	Peaking Factor*	Peak Flow (m^3/s)	Ratio of the Peak flow to the Full Bore Capacity (%)	Pipe Capacity > Peak Flow?	Velocity in Full Pipe Condition (m/s)	Velocity >1 m/s?	**Remarks**
Conversion Chamber	NSWSPS	940.7	4.50	4.20	-2.00	-3.85	740.00	N	400	1.441	1.001	0.231873	74199.37	3.83	0.887183	88.61%	YES	1.441	OK	**DN 1000 Pipe**

Notes

* Peaking factors taken including stormwater allowance

Invert levels of the proposed sewerage system are subject to change during detailed design stage

The contribution population, peaking factors are determined according to GESF published by EPD

Roughness Coefficient ks of 1.5mm is adopted in the assessment.

All proposed sewers will be HDPE pipe

Hydraulic Checking for Gravity Sewers (Scenario 2)

INITIAL	DATE	REV.
HSC	3/20/2026	-

PROJECT : **Lot 4822 in D.D. 104 and Adjoining Government Land, Kam Pok Road, Yuen Long**

Roughness Coefficient ks (mm): 1.5

Manholes		Pipes Details								Pipe Capacity		Check for Capacity						Check for Self-cleansing Velocity		
From	To	Internal Pipe Diameter (mm)	Upper Ground Level (mPD)	Lower Ground Level (mPD)	Upper Invert Level# (mPD)	Lower Invert Level# (mPD)	Pipe Length (m)	Existing Pipe (Y / N)	Minimum Hydraulic Gradient (1 in _)	Velocity (m/s)	Capacity (m3/s)	ADWF(m^3/s)	Contribution Population	Peaking Factor*	Peak Flow (m^3/s)	Ratio of the Peak flow to the Full Bore Capacity (%)	Pipe Capacity > Peak Flow?	Velocity in Full Pipe Condition (m/s)	Velocity >1 m/s?	Remarks
Proposed Sewerage Works by Other Applicant(Including all planned sewage flow as mentioned in this report)																				
Conversion Chamber	WKT009	675	4.50	4.20	-0.78	-1.85	430.00	N	400	1.167	0.835	0.231873	74199.37	3.83	0.887183	106.22%	NO	1.167	OK	(2xDN675)
WKT009	WKT010	592.6	4.20	4.00	-1.85	-2.11	80.00	N	300	1.241	0.342	0.231873	74199.37	3.83	0.887183	259.23%	NO	1.241	OK	Existing Design
Proposed Sewerage Works by This Applicant (Upgrade tp DN1000 Pipe)																				
Conversion Chamber	WKT009	940.7	4.50	4.20	-0.78	-2.56	430.00	N	241	1.858	2.582	0.231873	74199.37	3.83	0.887183	34.36%	YES	1.858	OK	Proposed Upgrade to DN 1000 pipe
WKT009	WKT010	940.7	4.20	4.00	-2.56	-2.90	80.00	N	241	1.858	1.291	0.231873	74199.37	3.83	0.887183	68.72%	YES	1.858	OK	Proposed Upgrade to DN 1000 pipe
WKT010	WKT011	940.7	4.00	4.15	-2.90	-3.23	80.00	N	241	1.858	1.291	0.231873	74199.37	3.83	0.887183	68.72%	YES	1.858	OK	
WKT011	WKT012	940.7	4.15	4.20	-3.23	-3.42	45.00	N	241	1.858	1.291	0.231873	74199.37	3.83	0.887183	68.72%	YES	1.858	OK	
WKT012	WKT013	940.7	4.20	4.15	-3.42	-3.56	35.00	N	241	1.858	1.291	0.231873	74199.37	3.83	0.887183	68.72%	YES	1.858	OK	
WKT013	WKT014	940.7	4.15	4.10	-3.56	-3.69	30.00	N	241	1.858	1.291	0.231873	74199.37	3.83	0.887183	68.72%	YES	1.858	OK	
WKT014	WKT015	940.7	4.10	4.05	-3.69	-3.79	25.00	N	241	1.858	1.291	0.231873	74199.37	3.83	0.887183	68.72%	YES	1.858	OK	
WKT015	FSH1001886	940.7	4.05	5.35	-3.79	-3.85	15.00	N	245	1.843	1.281	0.231873	74199.37	3.83	0.887183	69.28%	YES	1.843	OK	

Notes

* Peaking factors taken including stormwater allowance

Invert levels of the proposed sewerage system are subject to change during detailed design stage

The contribution population, peaking factors are determined according to GESF published by EPD

Roughness Coefficient ks of 1.5mm is adopted in the assessment.

All proposed sewers will be HDPE pipe