
Appendix 5

Sewerage Impact Assessment

S16 Planning Application for Proposed Residential Development cum Residential Care Home for the Elderly and Shop and Services

Sewerage Impact Assessment Report

July 2026

Submitted to

Fonnie Holdings Limited

Prepared By

Meinhardt Infrastructure and Environment Ltd

Date	Revision	Prepared By	Checked By	Approved By
04 March 2025	0	Parisa TSUI	Adi LEE	Adi LEE
20 March 2026	1	Parisa TSUI	Adi LEE	Adi LEE
13 July 2026	2	Parisa TSUI	Adi LEE	Adi LEE

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1 INTRODUCTION

1.1 Project Background

- 1.1.1 The Applicant, Fonnies Holdings Limited intends to develop the residential development cum Resident Care Home for the Elderly and Shop and Services (hereafter as “the Proposed Development”) in D.D.94 and the adjoining Government land in Hang Tau Tai Po, Kwu Tung South (hereafter as “the Application Site”).
- 1.1.2 This planning application is submitted under Section 16 of the Town Planning Ordinance (“the Ordinance”) for the proposed development with minor relaxation of plot ratio and building height restrictions in the prevailing Draft Kwu Tung South Outline Zoning Plan No. S/NE-KTS/21.
- 1.1.3 Meinhardt Infrastructure and Environment Limited (MIEL) was commissioned by the Applicant to conduct a Sewerage Impact Assessment (SIA) to support the Section 16 Planning Application of the proposed development, and to assess the environmental impact due to / upon the proposed development.

1.2 Objective of the Report

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

1.3 Report Structure

- 1.3.1 The remaining chapters of this report are shown below:
- Chapter 2 – Site Description
 - Chapter 3 – Sewerage Impact Assessment
 - Chapter 4 – Result and Discussion
 - Chapter 5 – Conclusion

2 SITE DESCRIPTION

2.1 Site Location and Its Environs

- 2.1.1 The Proposed Development will be located at the various lots in D.D.94 and the adjoining Government land in Hang Tau Tai Po, Kwu Tung South.
- 2.1.2 The Proposed Development is currently occupied by unused structures including a 2-story house, a pavilion, swimming pool and landscape garden. The proposed development is located in the “Comprehensive Development Area” Zone bounded by “Agriculture” (AGR) Zone, “Residential (Group D)” (R(D)) Zone and “Government Institution or Community” (G/IC) Zone according to the Draft Kwu Tung South Outline Zoning Plan (OZP) (OZP No.: S/NE-KTS/21). Existing land uses in the surroundings include low-rise village type development and temporary structures.
- 2.1.3 **Figure 2.1** shows the Application Site location and its environs.

2.2 Proposed Development

- 2.2.1 The Proposed Development includes four residential towers, a retail, a residential care homes for the elderly, a clubhouse & aboveground carpark, and surrendered area, with a total site area of about 17,990.9 m². The development schedule of the Proposed Development is tabulated in **Table 2-1**. The layout plans of the Application Site are shown in **Appendix A**.

Table 2.1 Proposed Development Schedule

	Development Items	Design Parameter
The Proposed Development	No. of Tower	4
	No. of Flat Unit	334
	No. Clubhouse & Aboveground Carpark	1
	No. of Swimming Pool	1
	No. of RCHE	1
	No. of Retail	1
	Site Area (Including 1,076m ² surrendered area)	17,990.9m ²

- 2.2.2 Based on the information provided by the Project Architect, the estimated maximum population of the Proposed Development is tabulated in **Table 2-2**.

Table 2-2 Estimated Population of the Proposed Development

Type of User	Estimated Population
Residents	936
Management Staff (Including Clubhouse & RCHE)	50
Employees (Retail/Shop)	14
RCHE Residents	100

- 2.2.3 According to the latest programme, the year of population intake of the Proposed Development is expected to be Year 2031.

2.3 Existing Sewerage Condition

- 2.3.1 The background information on the current sewerage infrastructure in vicinity of the Application Site obtained from the GeoInfo Map and provided by EPD have been reviewed. The Application Site and the nearest public sewer are shown in **Figure 2.1**.
- 2.3.2 The Application Site is currently served by the public sewerage facilities along Hang Tau Road (eastern side of the Application Site) to the existing Hang Tau Sewage Pumping Station (HTSPS) (Station no. XPS1001532) and further discharge to Tsung Pak Long Sewage Pumping Station (TPLSPS) through 200mm dia. Rising main; and 300mm dia. to 600mm dia. gravity sewers.

2.4 Existing Sewage Pumping Station

- 2.4.1 According to the information provided by DSD in **Appendix D**, the design dry weather flow of the HTSPS is 1,970m³/day, maximum daily flow is 2,290m³/day, and the average daily flow is around 300m³/day, while the design dry weather flow of the TPLSPS is 21,070m³/day, maximum daily flow is 4,007m³/day, and the average daily flow is around 1041m³/day.
- 2.4.2 The impacts on the capacities of the existing sewage pumping stations with the Proposed Development have been evaluated by comparing the average daily flow against the design dry weather flow of HTSPS and TPLSPS.

3 SEWERAGE IMPACT ASSESSMENT

3.1 Calculation Assumptions

- 3.1.1 Sewage flows from the population of the Proposed Development, as well as the existing, and planned development, have been adopted using the Unit Flow Factors (UFF) as recommended in the Guideline for Estimating Sewage Flows for Sewage Infrastructure Planning (hereafter as “GESF”) published by EPD in 2005. The adopted UFF for the calculation are tabulated in **Table 3-1** below.

Table 3-1 Unit Flow Factors Adopted for the Assessment

Type of People	Unit Flow Factors (m ³ /person/day)	Category
General Resident	0.37	Domestic (Private R3)
Resident of Existing Village House	0.27	Domestic (Modern Village)
Employees (Retail)	0.28	Commercial Employee + J4 (Wholesale & Retail)
Employees (Management, School, Clubhouse & RCHE Staff, and Participants)	0.28	Commercial Employee + J11 (Community, Social & Personal Services)
Student	0.04	School Student
Employees (Restaurants)	0.28	Commercial Employee + J10 (Restaurants & Hotels)
RCHE Residents	0.19	Special Class

- 3.1.2 According to currently available information from Outline Zoning Plan (OZP) and the available SIA reports of other planned developments from Planning Department (Planning Enquiry Counters), a total eleven planned developments are identified in the vicinity of the Application Site as listed in **Table 3-2**. In order to take into account for the cumulative impact from the planned development, only those planned developments with an anticipated completion time on or prior to the Proposed Development (i.e. on or before Year 2031), have been considered in the calculation. The anticipated completion time of the development proposal of planned developments were assumed to coincide with the population intake year. Details of anticipated completion year and sewage to be generated from the planned developments and the correspondence concerned manholes connected to these planned developments are tabulated in **Table 3-3**.

Table 3-2 Sewage Generation of the Planned Developments

Planned Development	Anticipated Completion Time of the Development Proposal	ADWF (m ³ /day)	Swimming Pool Backwash (l/s)	Manhole*	Included in Calculation? (Yes/No)
A/NE-KTS/460	2021 ^[3]	2.22 ^[1]	-	FMH1029682	Yes
A/NE-KTS/466	2022 ^[3]	49 ^[2]	-	FMH1029681	Yes
A/NE-KTS/525 (local STP)	2028 ^[3]	45.8 ^[2]	-	FMH1029681	Yes
A/NE-KTS/538 (septic tank)	2027 ^[3]	4.5 ^[2]	-	FMH1029681	Yes
A/NE-KTS/541	2032 ^[3]	2.22 ^[1]	-	FMH1029681	Yes
Y/NE-KTS/15 (Formerly A/NE-KTS/484)	2024 ^[3]	792 ^[2]	8.3 ^[2]	FMH1021544	Yes
A/NE-KTS/506 (Formerly Y/NE-KTS/12)	2028 ^[3]	2166.4 ^[2]	8.3 ^[2]	FMH1021544	Yes
Y/NE-KTS/14 and Y/NE-KTS/17	2025 & 2027 ^[3]	1074 ^[2]	14.4 ^[2]	FMH1021544	Yes
Y/KTN/2	2026 ^[3]	492 ^[2]	3.5 ^[2]	FMH1021543	Yes
Y/FSS/19	2028 ^[3]	798.9 ^[2]	5.8 ^[2]	FMH1021561	Yes
Tai Tau Leng Public Housing	2032 ^[4]	3057 ^[2]	-	FMH1021561	No

Note:

[*] The receiving manhole for the planned development's sewage discharge.

[1] Source of Information from Outline Zoning Plan.

[2] Source of Information: latest available SIAs of planning developments. The estimate may be subject to further adjustments based on specific designs of individual developments.

[3] Source of Information from available SIA reports of other planned developments from Planning Department (Planning Enquiry Counters)

[4] Source of information from

https://www.districtcouncils.gov.hk/north/doc/2020_2023/en/committee_meetings_doc/ldhwc/22666/n_ldhwc_2023_009_ch.pdf

- 3.1.3 The sewage generated from the surrounding developments including existing developments, public toilet, planned developments anticipated completion time on or before 2031 (Population intake year of the Proposed Development, see **Section 2.2.3**), and the Proposed Development will be considered in the calculation. The details calculations of sewage generation have been provided in **Appendix B** for reference.
- 3.1.4 Sewer upgrading works proposed by other planned developments, including A/NE-KTS/506, A/NE-KTS/565 and Y/FSS/19, are derived from the respective Sewerage Impact Assessment (SIA) reports available at the Planning Department (Planning Enquiry Counters). These upgrading works from the SIA reports have been incorporated into the calculations, as summarized in **Table 3-3**.

Table 3-3 Proposed Sewerage Upgrading Works by Responsible Projects

Manhole		Pipe Length (m)	Existing Pipe Size (mm)	Upgraded Pipe Size (mm)	Responsible Planned Development
FMH1021545	FMH1021546	44.9	600	750	A/NE-KTS/506
FMH1021551	FMH1021552	31.1	600	750	A/NE-KTS/506
FMH1021552	FMH1021553	37.6	600	750	A/NE-KTS/506
FMH1021553	FMH1021554	50.3	600	750	A/NE-KTS/506
FMH1021554	FMH1021555	32.5	600	750	A/NE-KTS/506
FMH1021555	FMH1021556	33	600	750	A/NE-KTS/506
FMH1021556	FMH1021557	17.6	600	750	A/NE-KTS/506
FMH1021557	FMH1021558	9.3	600	750	A/NE-KTS/506
FMH1021558	FMH1021559	13.7	600	675	A/NE-KTS/565
FMH1021559	FMH1021560	13	600	750	A/NE-KTS/506
FMH1021560	FMH1021561	11.3	600	750	A/NE-KTS/506
FMH1021561	FMH1021562	13.3	600	800	A/NE-KTS/506
FMH1021562	FMH1021563	8.8	600	750	A/NE-KTS/506
FMH1021563	FMH1021564	13.4	600	750	A/NE-KTS/506
FMH1021564	FMH1021565	10.7	600	750*	A/NE-KTS/506
FMH1021565	FMH1021566	7.3	600	900	Y/FSS/19

Note:

[*] For the sewer section between FMH1021560 and FMH1021561, a further upgrade to the ultimate pipe diameter of 800 mm is required under the Proposed Development, as discussed in **Section 4.1.5**.

3.2 Sewerage Capacity

- 3.2.1 According to the "Sewerage Manual – Key Planning Issues and Gravity Collection System" (Sewerage Manual) published by DSD in 2013, the capacities of respective sewers have been calculated based on the Colebrook-White equation as below:

$$V = -\sqrt{(8gDs)} \log\left(\frac{k_s}{3.7D} + \frac{2.5 \nu}{D\sqrt{(2gDs)}}\right)$$

where V = mean velocity (m/s)
g = gravitational acceleration (m/s²)
D = pipe diameter (m)
k_s = hydraulic pipeline roughness (m)
(k_s = 3mm is adopted for the "poor" condition of claywareslimes sewers)
ν = kinematic viscosity of fluid (m²/s)
s = frictional slope (energy gradient due to frictional loss)

- 3.2.2 The sewerage impact on various segments of the sewer has been evaluated by comparing the estimated peak flow against the capacity of the respective sewer segments. The detailed calculations are provided in **Appendix C**.

3.3 Assessment of the Sewerage Capacity

- 3.3.1 Three scenarios as listed below are assessed in the estimation and the calculation are detailed in **Appendix C**. The categories of the three scenarios are summarized in **Table 3-4**.

Table 3-4 Different Scenario for Sewerage Impact Assessment

Scenario	Estimation Assumption
1	Existing development, and Planned developments anticipated intake year at 2031 (Upgraded Sewers by Responsible Planned Developments)*
2	Proposed development, Existing development, and planned developments anticipated intake year at 2031 (Upgraded Sewers by Responsible Planned Developments)*
3	Proposed development, Existing development, and planned developments anticipated intake year at 2031 (Upgraded Sewers by Responsible Planned Developments & Upgraded Sewers by Proposed Development)*

Note: [*] Proposed sewer upgrading works by (A/NE-KTS/506 and Y/FSS/19) are incorporate in the calculation.

4 RESULT AND DISCUSSION

4.1 Sewerage Capacity Check

- 4.1.1 All assessment scenarios have incorporated the sewer upgrading works proposed by A/NE-KTS/506, A/NE-KTS/565, and Y/FSS/19.
- 4.1.2 Under Scenario 1, the capacity of the sewers has adequate capacity to cater for all existing and planned development completion year on or before 2031.
- 4.1.3 Under Scenario 2, when the additional sewage flow from the Proposed Development is included in the assessment, four sewer sections are projected to exceed their hydraulic capacity, as detailed below:
- The section between manholes FMH1028569 and FMH1028568, with a capacity utilization of **126%**;
 - The section between manholes FMH1021544 and FMH1021543, with a capacity utilization of **101%**;
 - The section between manholes FMH1021546 and FMH1021547, with a capacity utilization of **101%**; and
 - The section between manholes FMH1021560 and FMH1021561, with a capacity utilization of **100%**.
- 4.1.4 As these sections would operate beyond their design capacity, mitigation measures shall be provided. The capacity estimation is detailed in **Appendix D**. The location plan and catchment area of the concerned sewers is indicated in **Figure 4.1a** and **4.1b**.
- 4.1.5 Under Scenario 3, in order to mitigate the overloading identified in Scenario 2, the following upgrading of the existing sewer main is recommended:
- Sewer between manholes FMH1028569 and FMH1028568: **From 400mm to 500mm**
 - Sewer between manholes FMH1021544 and FMH1021543: **From 500mm to 600mm**
 - Sewer between manholes FMH1021546 and FMH1021547: **From 600mm to 650mm**
 - **Sewer between manholes FMH1021560 and FMH1021561: From 600mm to 800mm**
(If the 750 mm upgrade under A/NE-KTS/506 has been completed, the Applicant will implement the remaining upgrade from 750 mm to 800 mm)
- 4.1.6 Following implementation of the recommended upgrades listed in **Section 4.1.5**, the capacity utilization of the affected sewer sections under Scenario 3 will be reduced to the following levels:
- Sewer between manholes FMH1028569 and FMH1028568: **70%**
 - Sewer between manholes FMH1021544 and FMH1021543: **62%**
 - Sewer between manholes FMH1021546 and FMH1021547: **82%**
 - Sewer between manholes FMH1021560 and FMH1021561: **85%**

4.1.7 Alternatively, twin pipes may be provided for the concerned sewers as mitigation measures to enhance capacity for sewage conveyance. Upon completion of the proposed upgrading works, there will be no adverse impacts on the sewerage system arising from the proposed development. Detail of the upgraded capacity estimation is detailed in **Appendix C**. The pipe location as shown in **Figure 4.1**. The proposed upgrading works will be undertaken by the Applicant, except for any section already covered by the upgrading works committed under other planned developments.

4.1.8 The responsibility for the proposed upgrading works is allocated as follows. The upgrades at FMH1028569 and FMH1028568, FMH1021544 and FMH1021543, and FMH1021546 and FMH1021547 shall be undertaken by the Applicant. The FMH1021560 and FMH1021561 section is to be upgraded to 750 mm under A/NE-KTS/506; if that upgrade has not commenced, the Applicant will implement the full upgrade to the ultimate 800 mm, otherwise only the remaining 750 mm to 800 mm.

4.2 Construction and Maintenance of Sewerage System

4.2.1 The terminal manhole and the sewers connecting the property to the terminal manhole shall be constructed and maintained by the Applicant while the public sewers and the sewers linking the terminal manhole to the public sewer shall be constructed and maintained by DSD.

4.3 Capacity of Sewers from Proposed Development to Hang Tau Sewage Pumping Station

4.3.1 A new 200 mm diameter sewer pipe will be installed to connect the terminal manhole of the Proposed Development to the existing 300mm dia. sewer at manhole no. FMH1029683, as shown in **Figure 3.1**. The capacity of the existing sewers along Hang Tau Road and further downstream up to TPLSPS has been checked based on the estimation of existing sewage and future sewage from the Proposed Development and other planned development anticipated completion time on or before 2031 at upstream and downstream.

4.3.2 The estimated daily flow generated from the proposed development is approximately 383.2 m³/day. The peak flow with the swimming pool backwash of the Proposed Development is approximately 6.37 l/s. The sewage from the Proposed Development will discharge to the existing manhole (FMH1029683). The utilization of the sewers from FMH1029683 to FMH1029680 is approximately 56%. Flow estimation and capacity checking are detailed in **Appendix B** and **Appendix C**, respectively.

4.3.3 The assessment results as presented in **Appendix C** indicates that sewer segment from FMH1029683 to FMH1029680 has enough sewage capacity to cater with the peak discharge flows from the Proposed Development and the surrounding existing and planned developments with population intake prior to the Proposed Development.

4.4 Capacity of Hang Tau Sewage Pumping Station and Tsung Pak Long Sewage Pumping Station

Hang Tau Sewage Pumping Station

4.4.1 Sewage generated from the Proposed Development and the surrounding existing and planned developments (including A/NE-KTS/460, A/NE-KTS/466, A/NE-KTS/525, A/NE-KTS/538 and A/NE-KTS/541) will be conveyed to HTSPS. In order to evaluate whether HTSPS has sufficient capacity to accommodate the additional sewage arising from the Proposed Development, the impact on HTSPS has been assessed against two criteria: (i)

the total Average Dry Weather Flow (ADWF) against the design daily flow; and (ii) the estimated peak flow against the installed pump rate.

- 4.4.2 As shown in **Table 4.1**. The total ADWF reaching HTSPS is approximately 801.8 m³/day, representing about 40.7% of the design daily flow of 1,970 m³/day. Therefore, HTSPS retains approximately 59.3% spare daily capacity.

Table 4.1 Design Capacity against ADWF

Description	ADWF (m ³ /day)	
Average Daily HTSPS ^[1] (A)	300 (average daily flow)	
ADWF from Planned Developments (B) ^[2]	A/NE-KTS/460	2.22
	A/NE-KTS/466	49
	A/NE-KTS/525	45.8
	A/NE-KTS/538	4.5
	A/NE-KTS/541	2.22
	ADWF from Proposed Development	383.24 + 1.15 ^[3] = 384.4
Total Planned ADWF (A+B)	801.8	
Design Daily Flow of HTSPS ^[1] (C)	1,970	
Utilization ((A)+(B) / (C))	40.7%	

Note:

[1] The information is provided by DSD in Appendix D.

[2] Sewage flows from the planned surrounding developments are based on the available information from Outline Zoning Plan and latest available SIAs of planning developments.

[3] Swimming Pool (m³/day), assuming a backwash duration of 3 minutes per day.

- 4.4.3 As shown in **Table 4.2**, the estimated peak flow reaching HTSPS is approximately 56.1 l/s, representing a utilization of approximately 82.0% of the installed pump rate of 68.4 l/s.

Table 4.2 Estimated Peak Flow to HTSPS against Installed Pump Rate of the HTSPS

Description	Items	
Installed Pump Rate of HTSPS (A)	1970 x 3 ^[3] = 68.4 l/s	
Maximum Daily Flow ^[1] (B)	2290 m ³ /day	
Peak Flow from Planned Developments ^[2] (C1)	A/NE-KTS/460	2.22 x 4 ^[3] = 8.9 m ³ /day
	A/NE-KTS/466	49 x 4 ^[3] = 196 m ³ /day
	A/NE-KTS/525	45.8 x 4 ^[3] = 183.2 m ³ /day
	A/NE-KTS/538	4.5 x 4 ^[3] = 18 m ³ /day
	A/NE-KTS/541	2.22 x 4 ^[3] = 8.9 m ³ /day
Peak Flow from Existing Development (C2)	Goodwood Park	13.69 x 4 ^[3] = 54.8 m ³ /day
Peak Flow from Proposed Development (C3)	Proposed Development	383.24 x 4 ^[3] = 1533.0 m ³ /day
Total Flow to HTSPS (D) = (B)+(C)	4292.7 m ³ /day	
Backwash (peak) from Swimming Pool (E)	6.37 l/s	
Total Peak Flow to HTSPS (F) = (D)+(E)	56.1 l/s	
Utilization (F) / (A)	82.0%	

Note:

[1] The information is provided by DSD in Appendix D.

[2] Sewage flows from the planned surrounding developments are based on the available information from Outline Zoning Plan and latest available SIAs of planning developments.

[3] Based on GESF, Table T-5: Peaking Factors, P, (b) Sewage Treatment Works, Preliminary Treatment Works and Pumping Stations, population range <10000 (P=4); 10,000 – 25,000 (P=3.5); 25,000 – 50,000 (P=3).

4.4.4 As both the daily flow and the peak flow remain within the available capacity of HTSPS, no adverse impact is anticipated arising from the Proposed Development. The velocity estimation of the raising main from HTSPS to FMH1028600 is assessed and is indicated in **Appendix C**.

Tsung Pak Long Sewage Pumping Station

- 4.4.5 The total sewage flow to TPLSPS is the sum of maximum daily flow, peak flow from the planned development (i.e. A/NE-KTS/460, A/NE-KTS/466, A/NE-KTS/525, A/NE-KTS/538, A/NE-KTS/541, Goodwood Park, La Regent Park, Y/NE-KTS/15 (formerly A/NE-KTS/484), A/NE-KTS/506 (formerly Y/NE-KTS/12), Y/NE-KTS/14 and Y/NE-KTS/17, Y/KTN/2, and Y/FSS/19) and the peak flow from our proposed development. The total sewage flow to **TPLSPS** is approximate 28,782.1 m³/day, which contribute to approximately 45.5% of capacity of the **TPLSPS**. **Table 4.3** summarizes the sewage generation from the surrounding development and the Proposed Development.
- 4.4.6 According to **Table 4.3**, the TPLSPS will still have approximately 54.5% of its capacity to cater for future additional sewage. Hence, no adverse impact upon the TPLSPS is anticipated after receiving the sewage flow from the Proposed Development.

Table 4.3 Sewage Contribution on the TPLSPS

Items	Flow (m ³ /day)	
Sewage Flow to Tsung Pak Long Sewage Pumping Station (TPLSPS)		
Maximum daily flow (A) ^[2]	4007	
Peak Flow from Planned Developments (B1) ^[1]	A/NE-KTS/460	2.22 x 8 ^[4] = 17.8
	A/NE-KTS/466	49 x 8 ^[4] = 392
	A/NE-KTS/525	45.8 x 8 ^[4] = 366.4
	A/NE-KTS/538	4.5 x 8 ^[4] = 36
	A/NE-KTS/541	2.22 x 8 ^[4] = 17.8
	Y/NE-KTS/15 (formerly A/NE-KTS/484)	792 x 4 ^[4] + 1.49 ^[3] = 3169.5
	A/NE-KTS/506 (formerly Y/NE-KTS/12)	2166.4 x 4 ^[4] + 1.49 ^[3] = 8667.1
	Y/NE-KTS/14 and Y/NE-KTS/17	1074 x 4 ^[4] + 2.59 ^[3] = 4298.6
	Y/KTN/2	492 x 4 ^[4] + 0.63 ^[3] = 1968.6
Peak Flow from Existing Development (B2) ^[1]	Y/FSS/19	798.9 x 4 ^[4] + 1.04 ^[3] = 3196.6
	Goodwood Park	13.69 x 6 ^[4] = 82.1
	La Regent Park	43.66 x 6 ^[4] = 262
Total Peak Flow (B) = (B1) + (B2)	Total (B)	22474.5
Peak Proposed Development (C)	383.24 x 6 ^[4] + 1.15 ^[3] = 2300.6	
Total Peak Flow to TPLSPS (D) = (A) + (B) + (C)	28,782.1	
Design Flow for TPLSPS	21,070	
Peak Wet Weather Flow (E)	21070 x 3 ^[5] = 63210	
Used Capacity of TPLSPS (D/E)	45.5%	

Note:

[1] Sewage flow from planned surrounding developments is based on the available information from Outline Zoning Plan and latest available SIAs of planning developments.

[2] The design dry weather flow is provided by DSD. The advice from DSD is extracted from previous study report which is provided in **Appendix D**.

[3] Swimming Pool (m^3/day), assuming a backwash duration of 3 minutes per day.

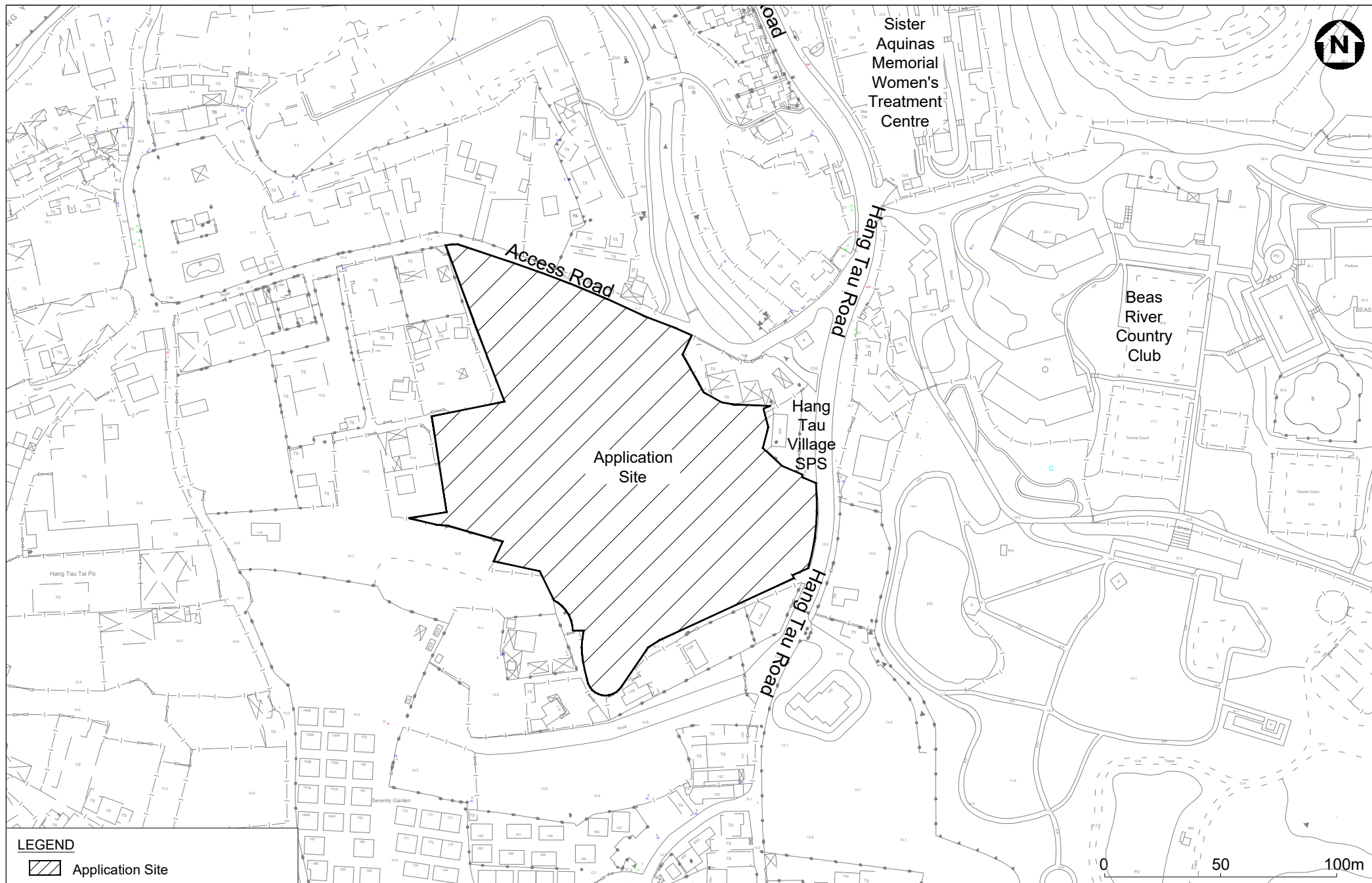
[4] Based on GESF, Table T-5: Peaking Factors, P, (a) For sewers, population range <1,000 (P=8); 1,000-5,000 (P=6); 5,000-10,000 (P=4).

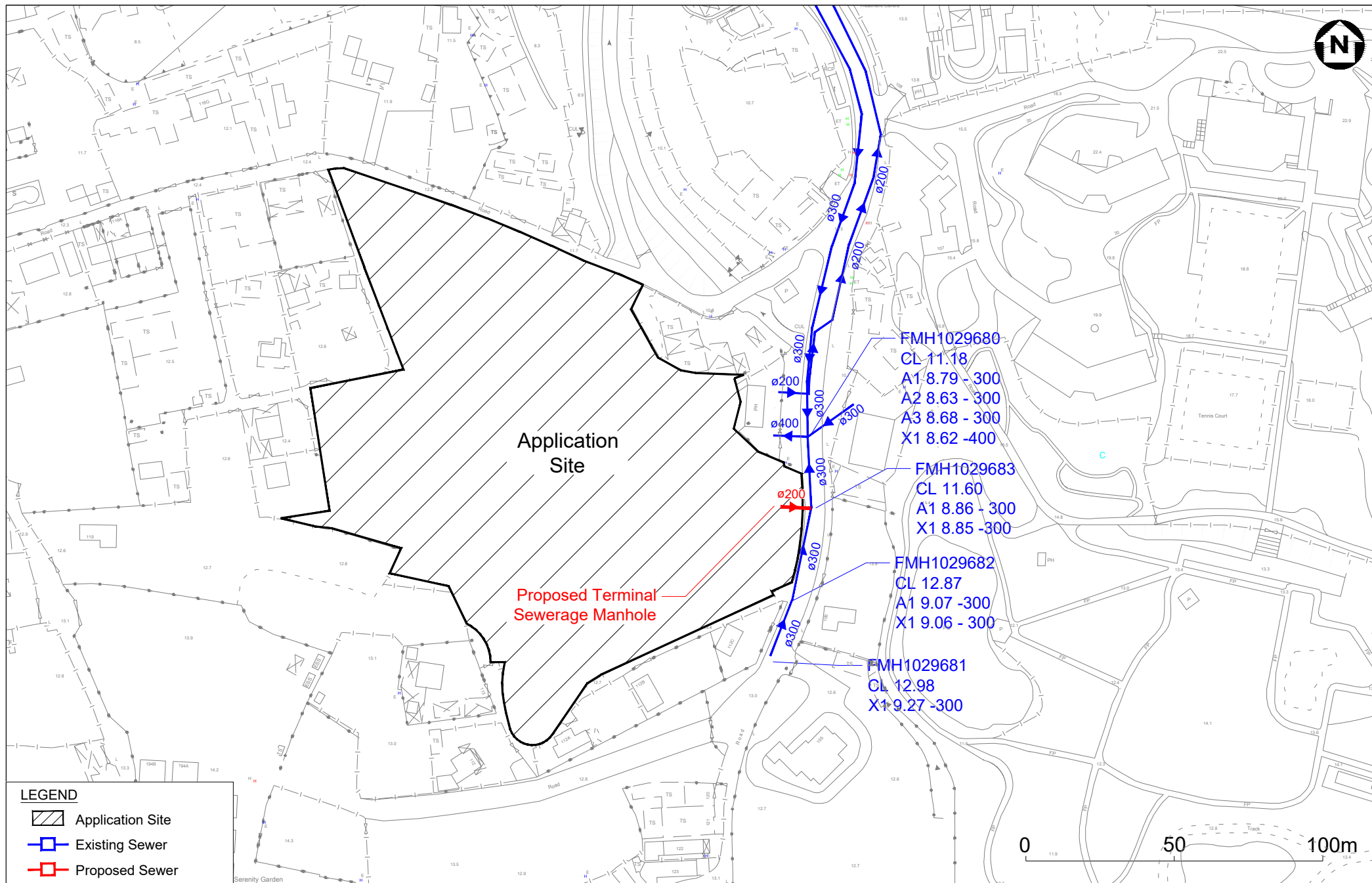
[5] Based on GESF, Table T-5: Peaking Factors, P, (b) Sewage Treatment Works, Preliminary Treatment Works and Pumping Stations, population range <10000 (P=4); 10,000 – 25,000 (P=3.5); 25,000 – 50,000 (P=3).

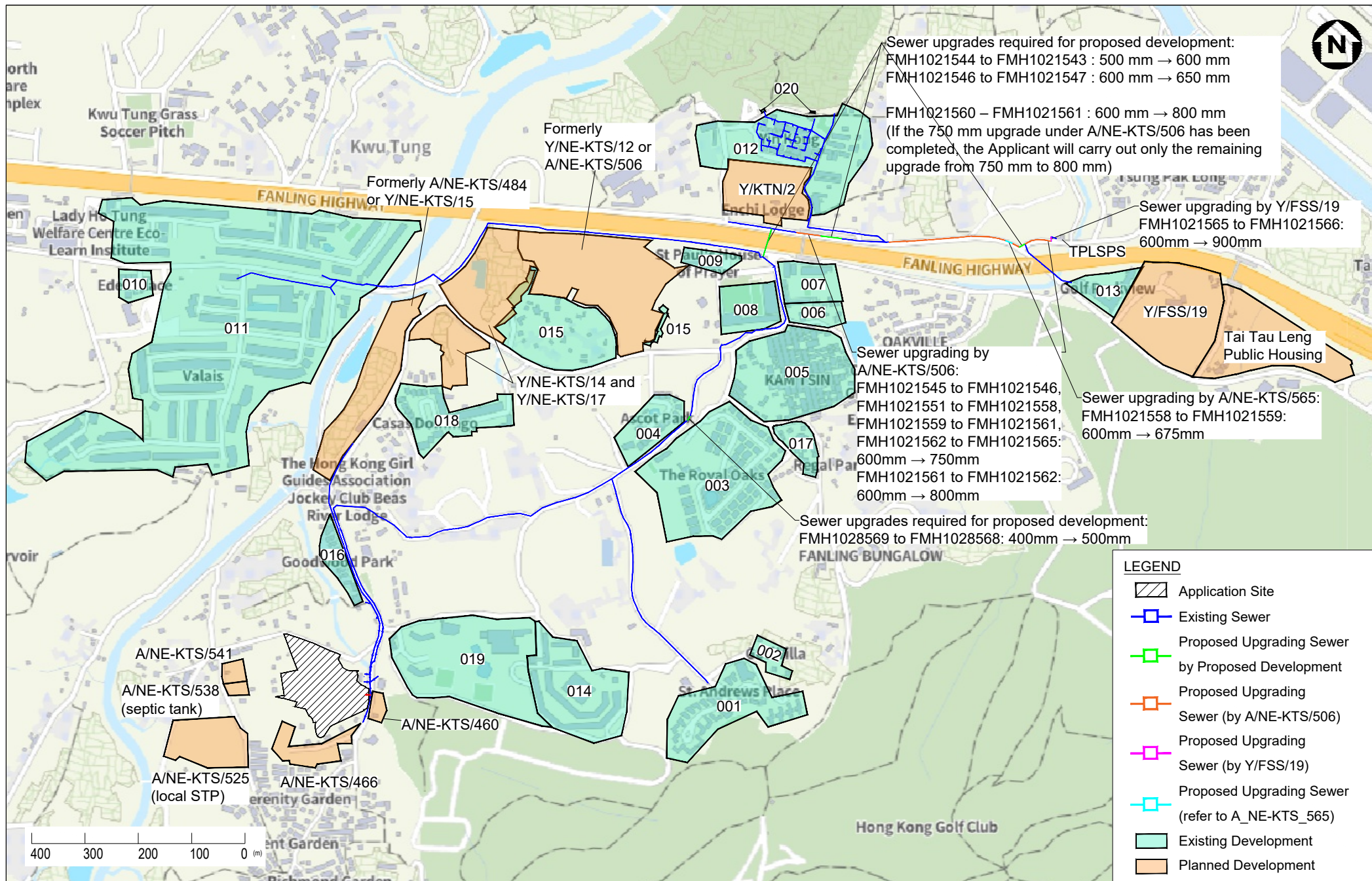
5 CONCLUSION

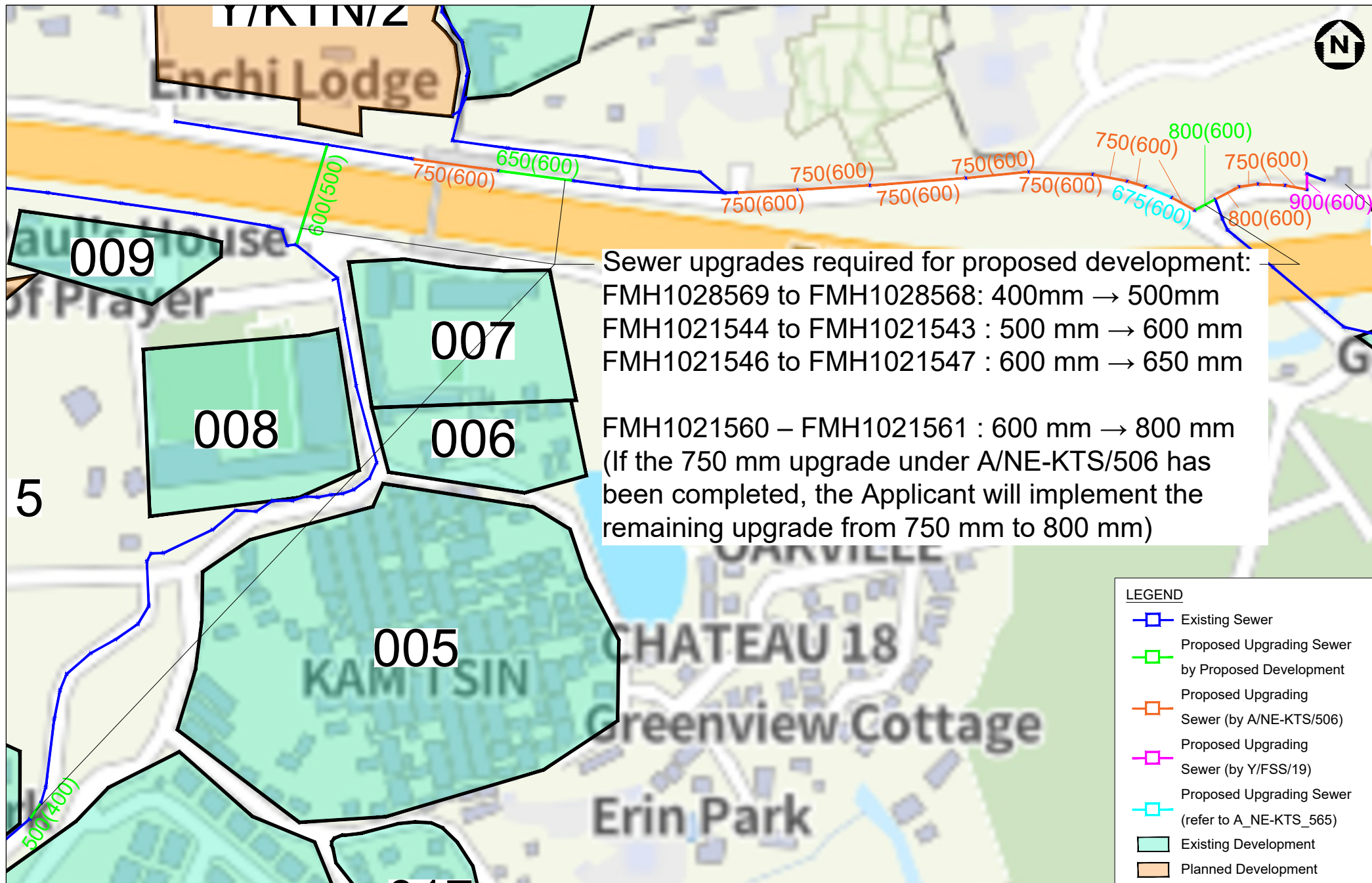
- 5.1.1 A Sewerage Impact Assessment (SIA) has been conducted to evaluate the possible impacts on the public sewerage network arising from the Proposed Development.
- 5.1.2 According to the sewerage assessment based on the information obtained from DSD and EPD, four existing sewers are incapable due to the Proposed Development. Therefore, upgrading work for the concerned pipe is required for the Proposed Development.
- 5.1.3 Both HTSPS and TPLSPS will still have spare capacity after receiving the additional sewage from the Proposed Development.
- 5.1.4 To sum up, it is concluded that the sewerage impact arising from the Proposed Development should be acceptable with the proposed upgrading works.

Figures



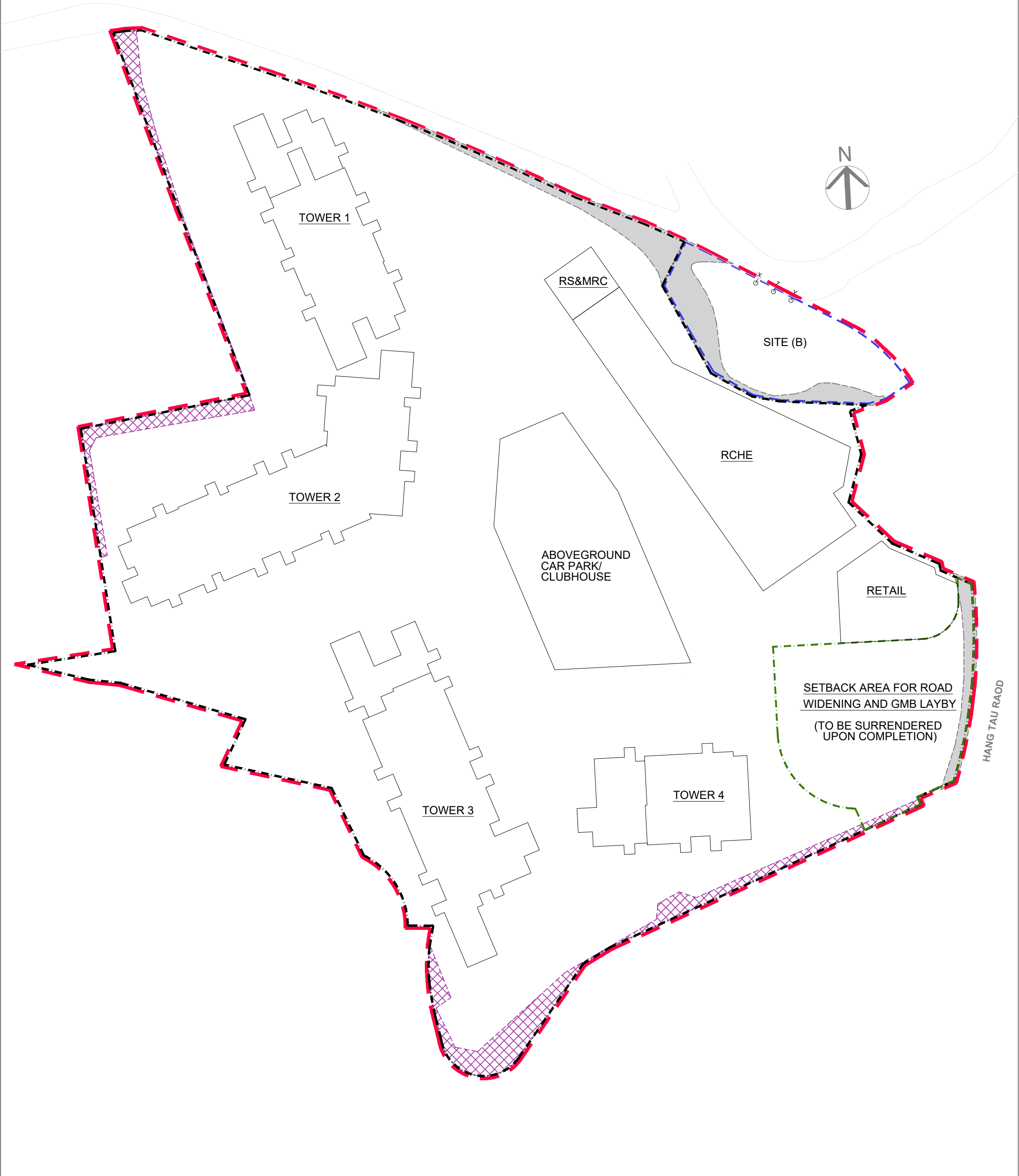






Appendix A

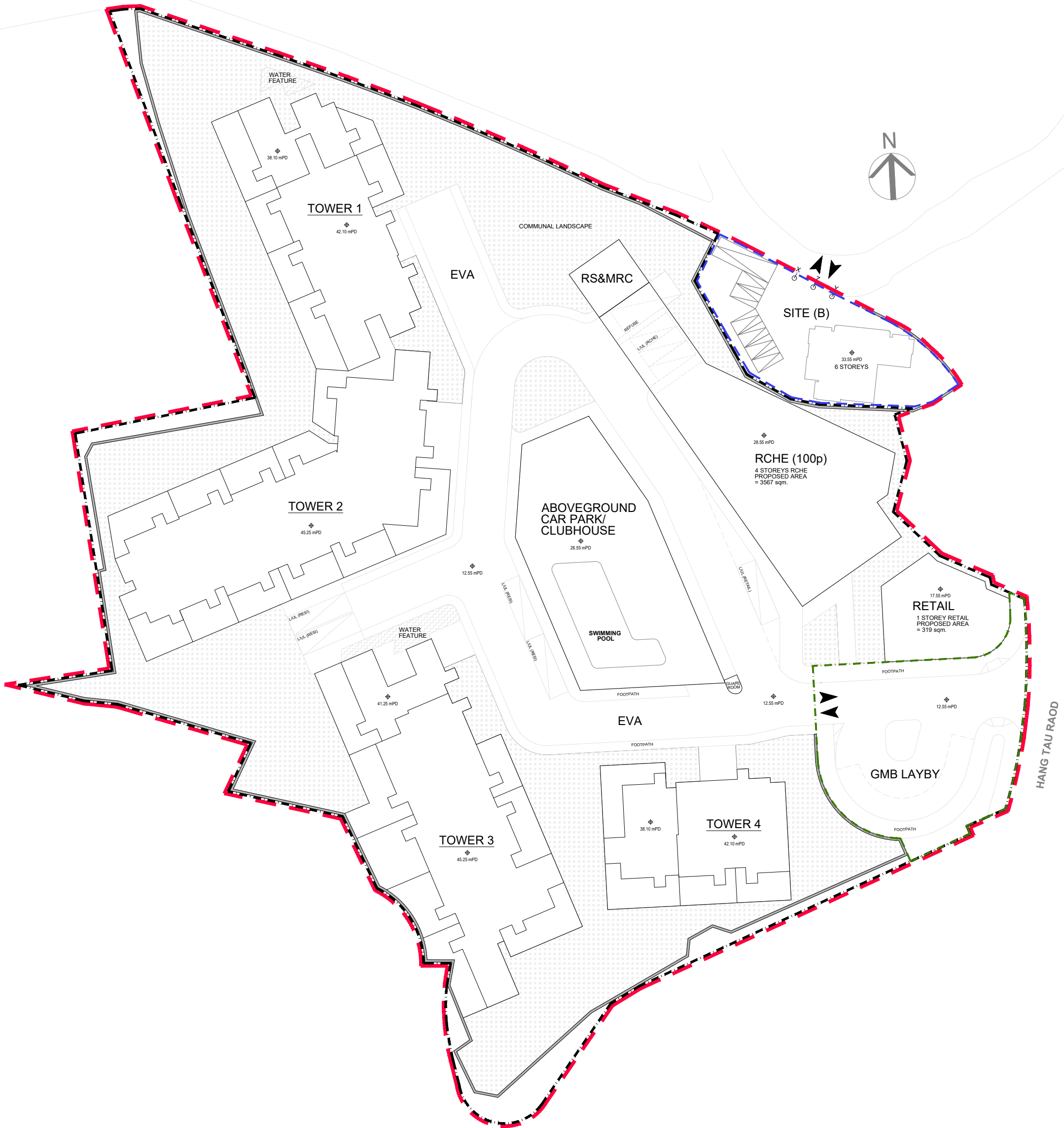
General Layout Plans of the Development



LOT PLAN

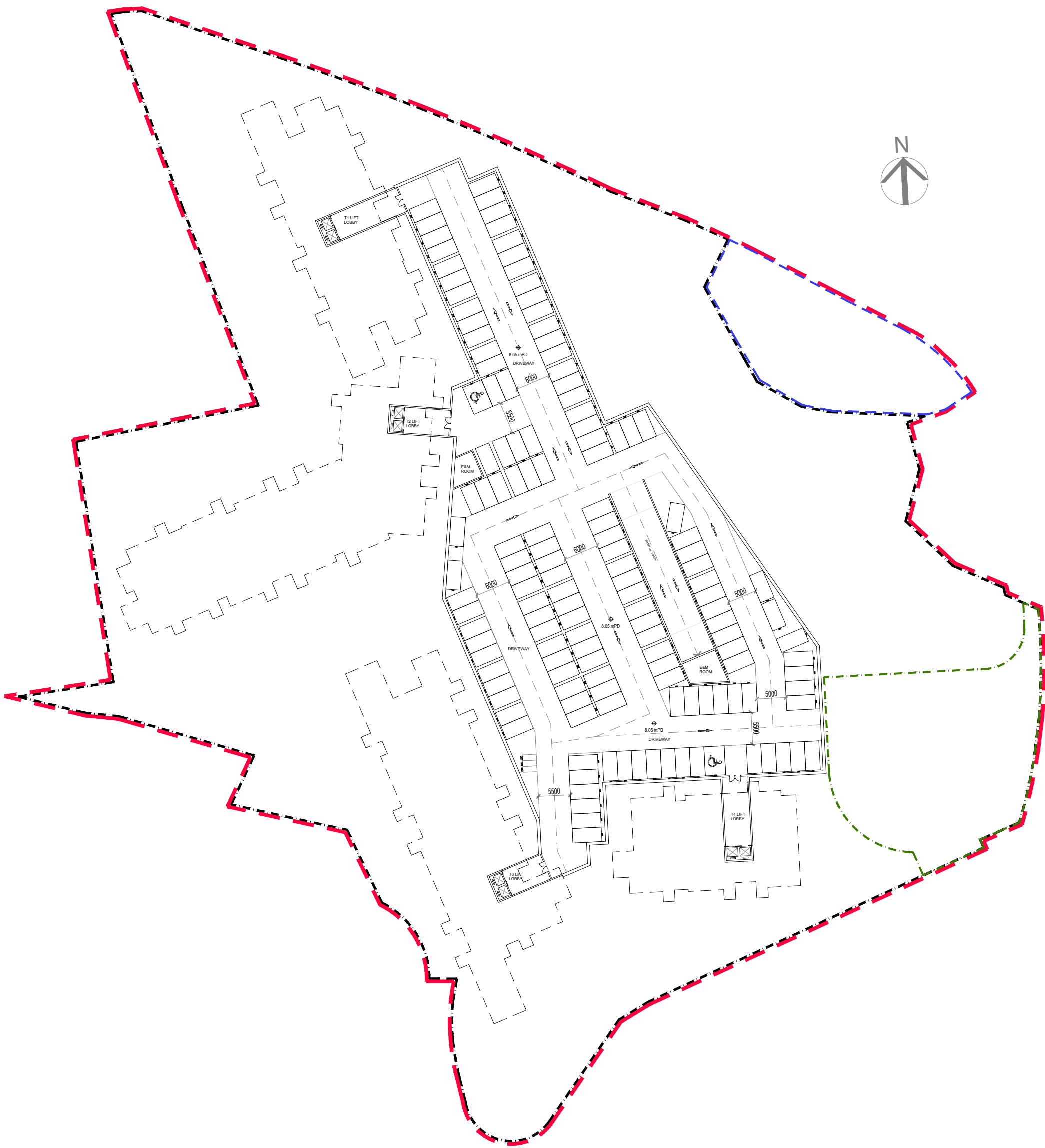
- LEGEND
- CDA Zone Boundary
 - Application Site Boundary
 - Site (B) Boundary
 - Surrender Area
 - Right of Ways for Adjacent "R(D)" Zone
 - Government Land

Master Layout Plan for Residential Development at Various Lots
in D.D. 92 and D.D. 94 and Adjoining Government Land in "CDA" zone
Hang Tau Tai Po, Kwu Tung South, New Territories



MASTER LAYOUT PLAN

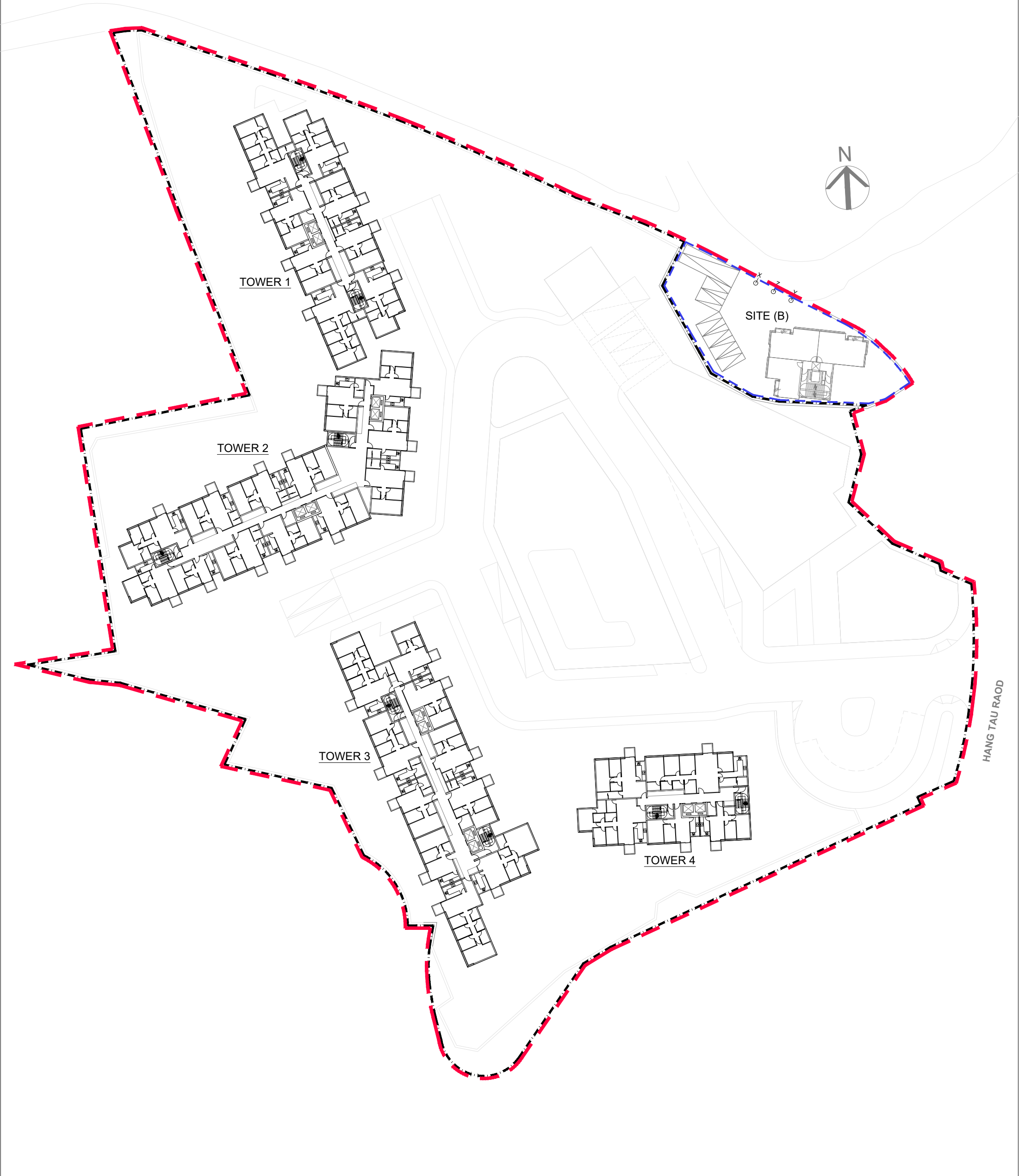
Master Layout Plan for Residential Development at Various Lots
in D.D. 92 and D.D. 94 and Adjoining Government Land in "CDA" zone
Hang Tau Tai Po, Kwu Tung South, New Territories



B1/F FLOOR PLAN

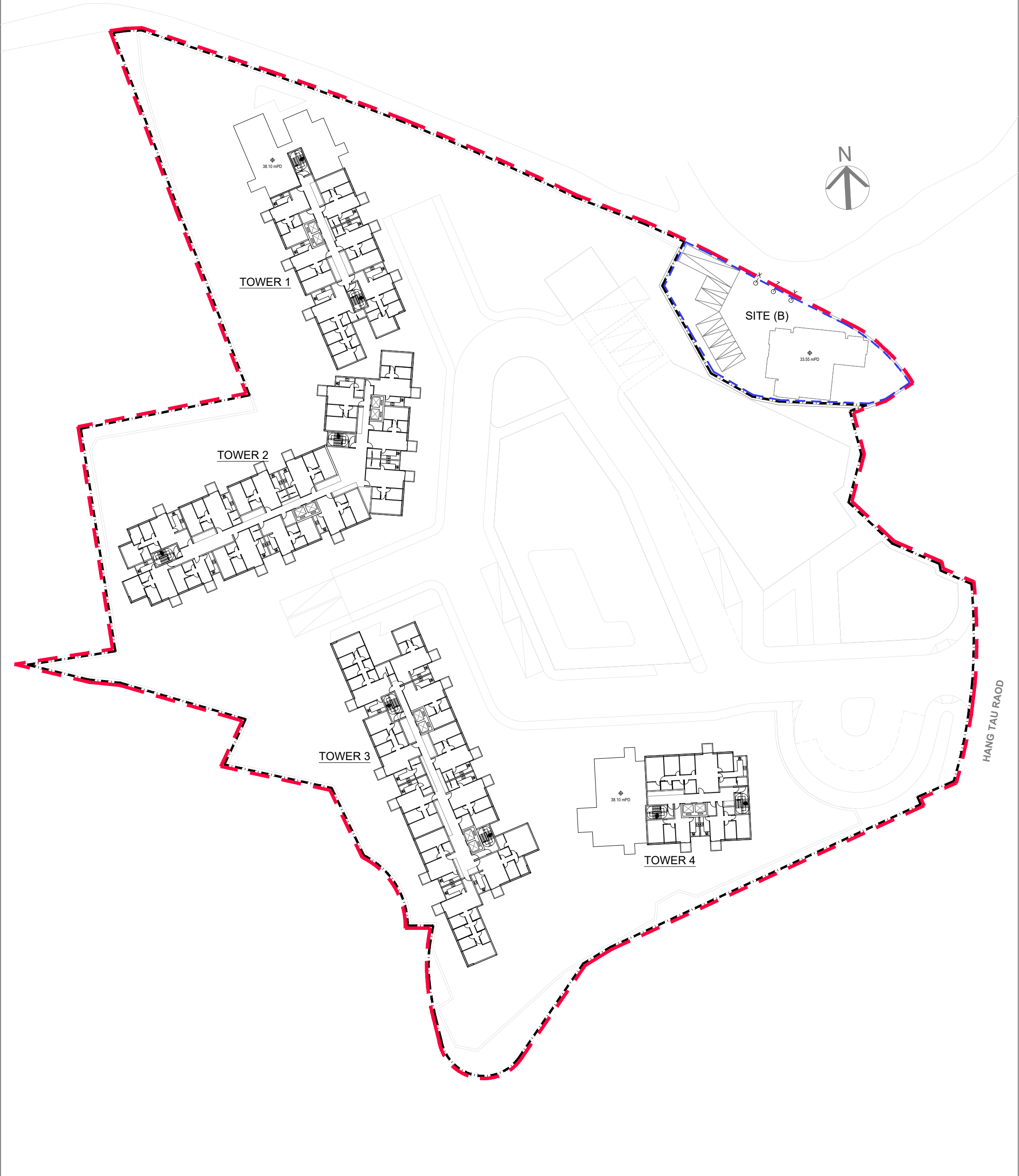
LEGEND

- CDA Zone Boundary
- Application Site Boundary
- Site (B) Boundary
- Surrender Area



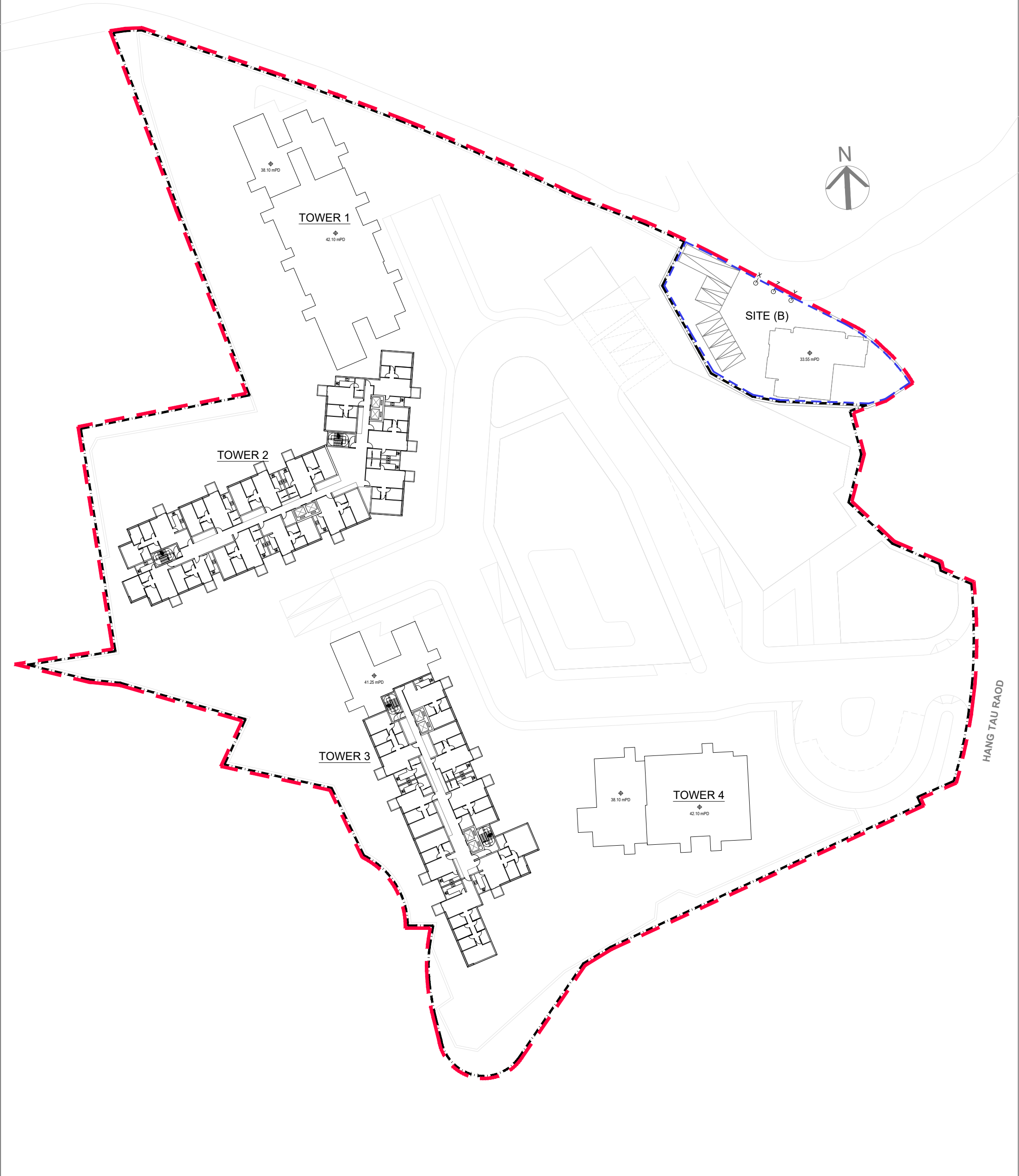
TYPICAL FLOOR PLAN (1/F to 7/F)

- LEGEND
- CDA Zone Boundary
 - - - Application Site Boundary
 - - - Site (B) Boundary



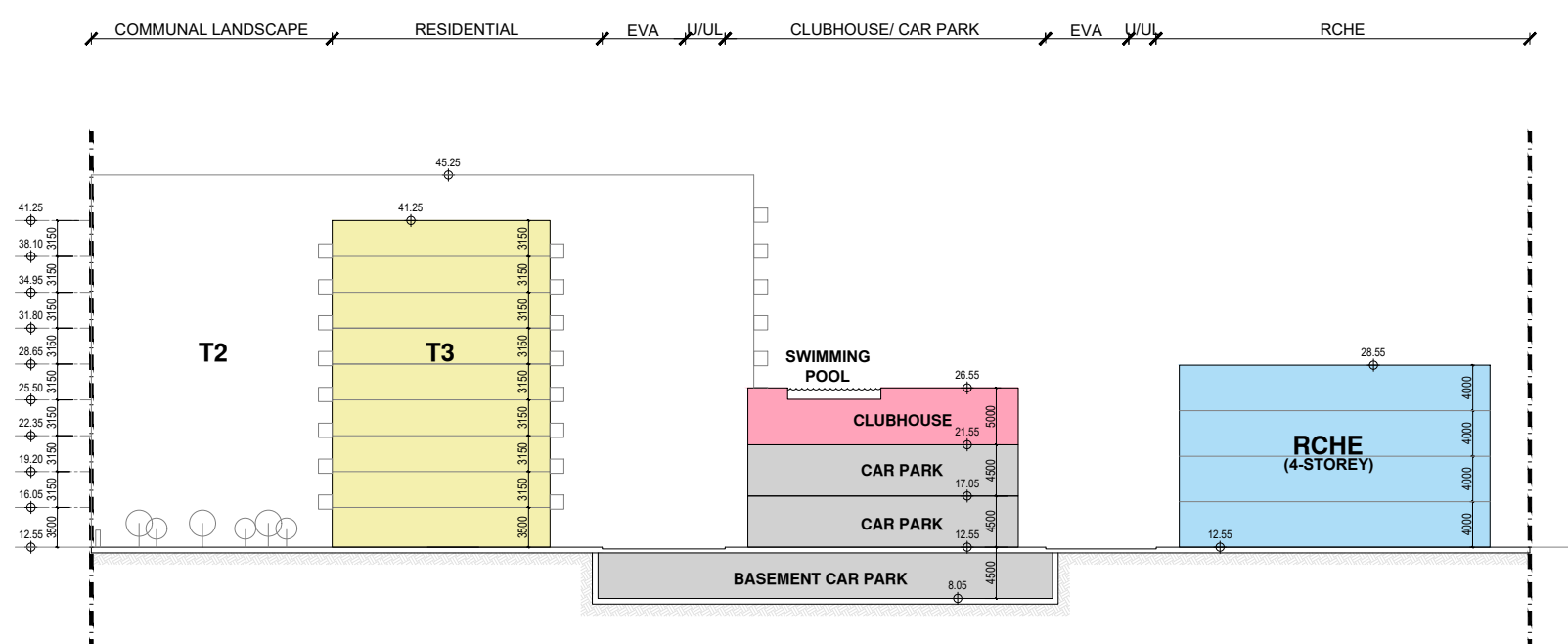
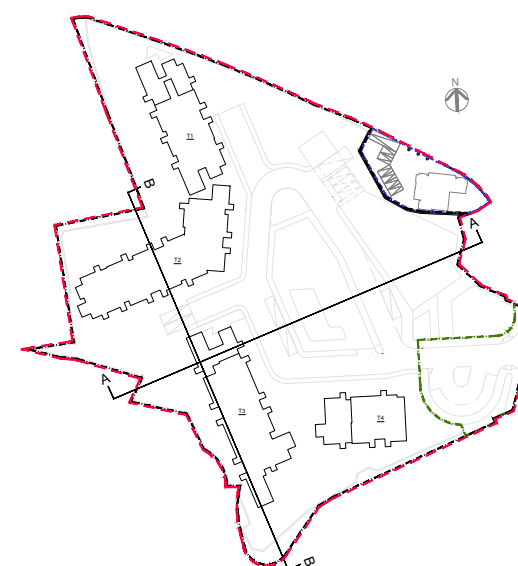
8/F FLOOR PLAN

- LEGEND
- CDA Zone Boundary
 - Application Site Boundary
 - Site (B) Boundary

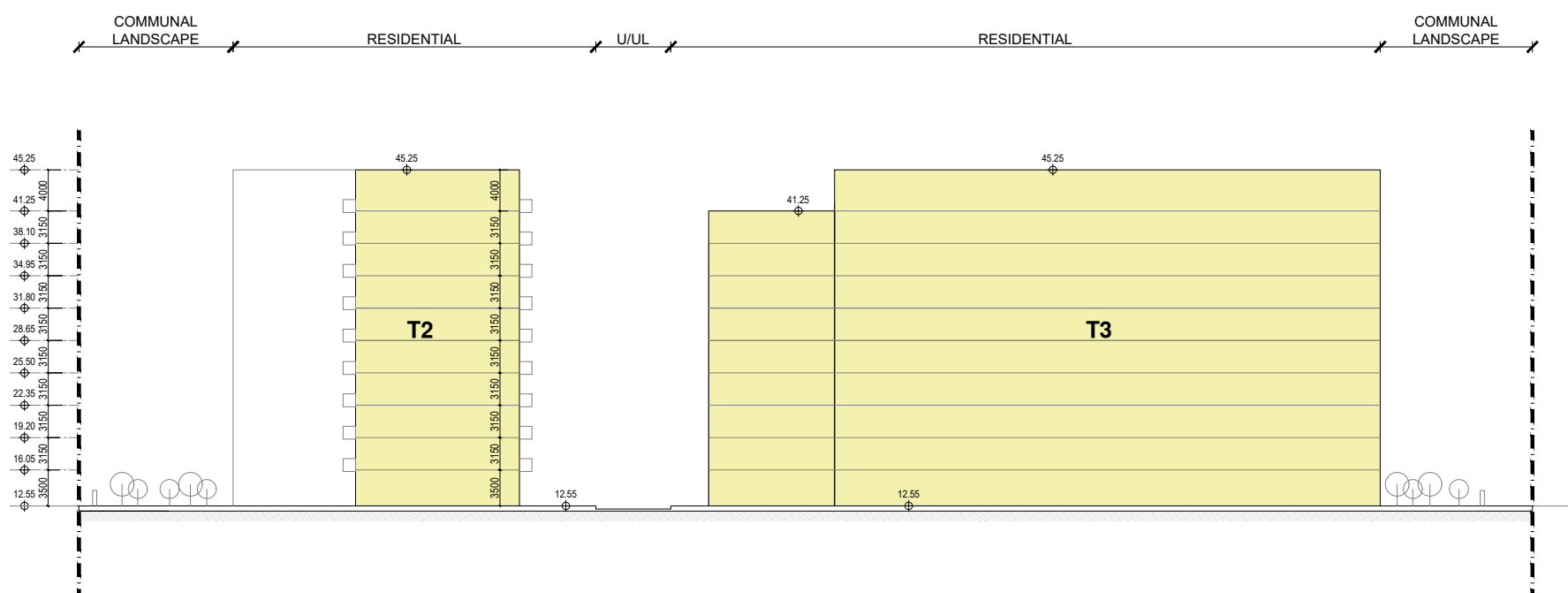


9/F FLOOR PLAN

- LEGEND
- CDA Zone Boundary
 - Application Site Boundary
 - Site (B) Boundary

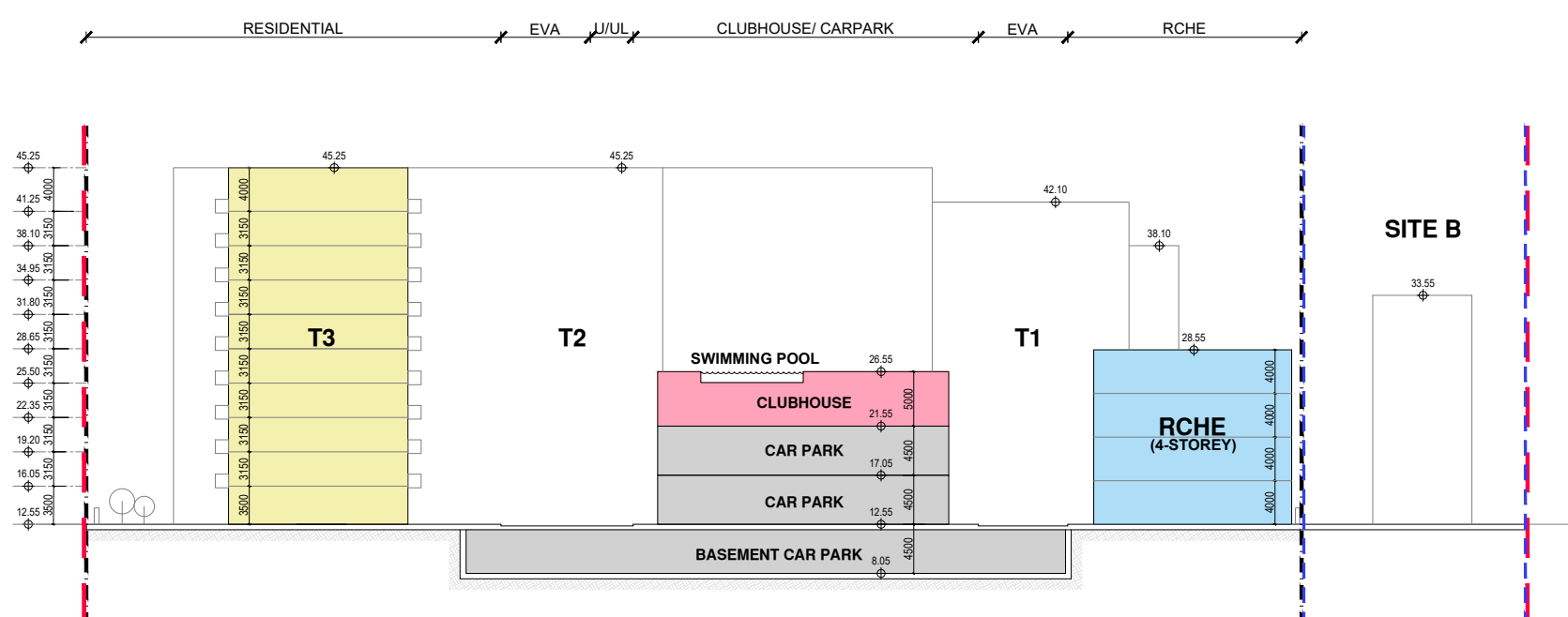
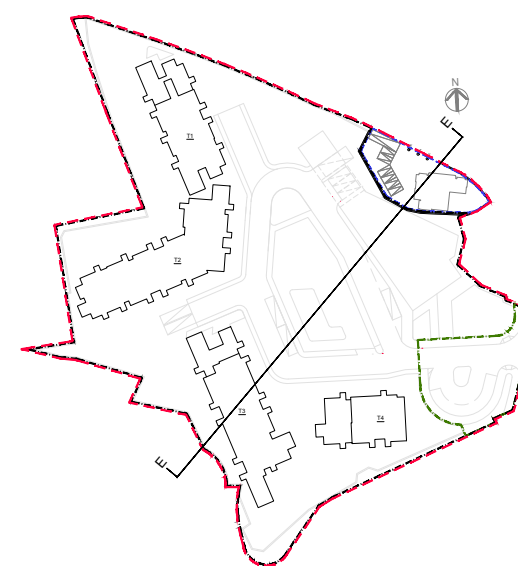


SCHEMATIC SECTION A



SCHEMATIC SECTION B

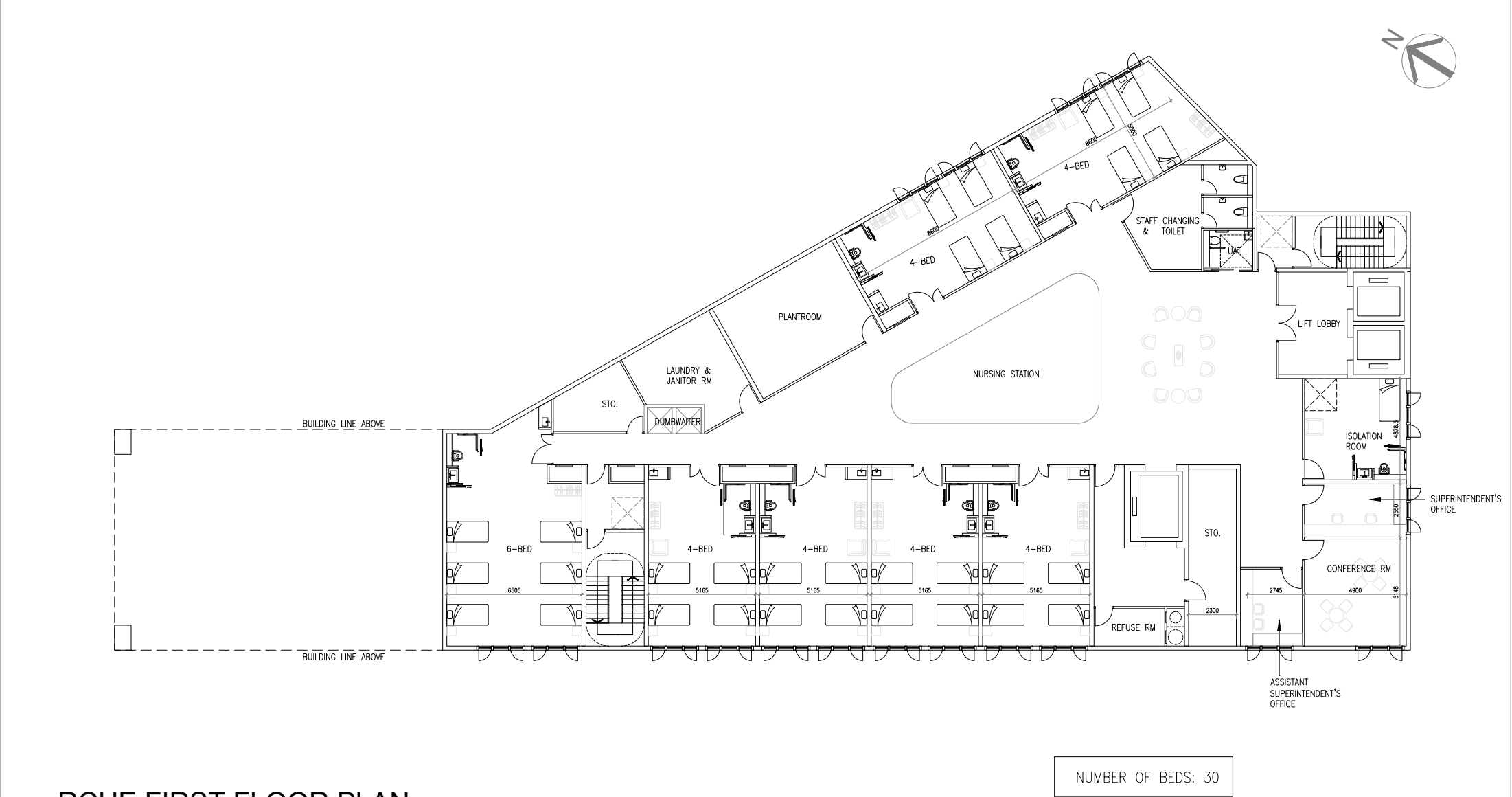
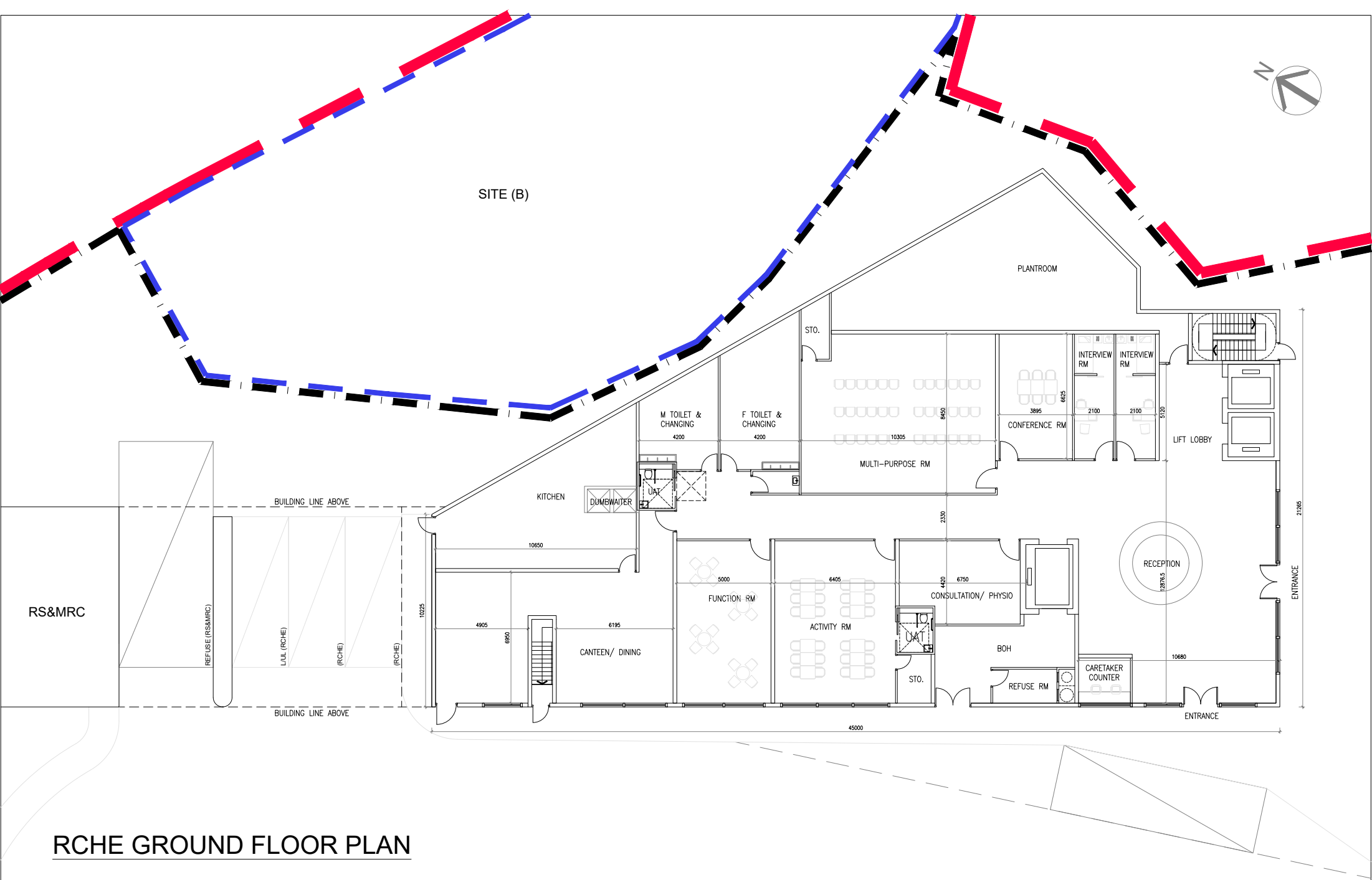
- LEGEND
- CDA Zone Boundary
 - Application Site Boundary

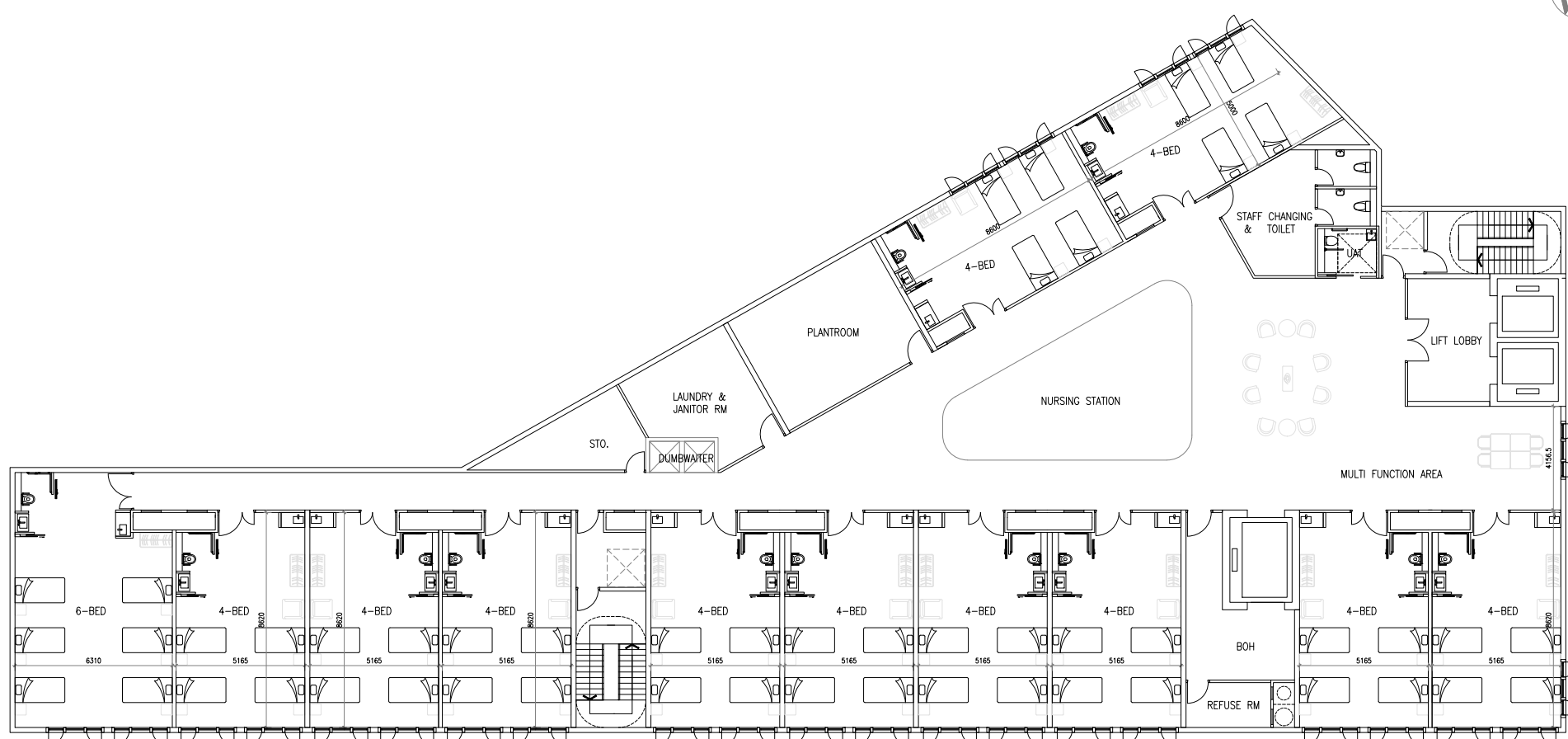


SCHEMATIC SECTION E

LEGEND

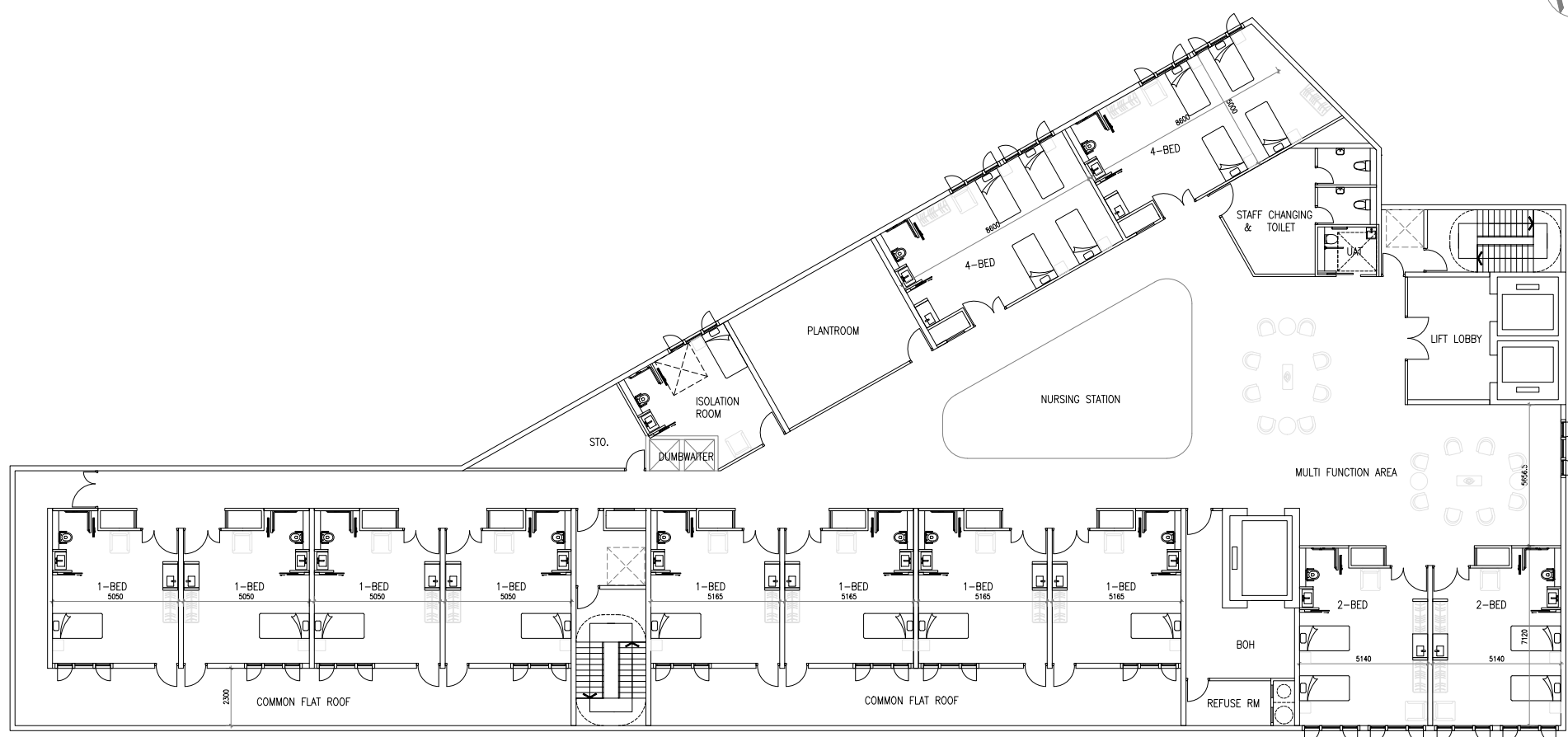
- CDA Zone Boundary
- Application Site Boundary
- Site (B) Boundary





NUMBER OF BEDS: 50

RCHE SECOND FLOOR PLAN

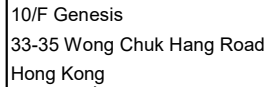


NUMBER OF BEDS: 20

RCHE THIRD FLOOR PLAN

Appendix B

Calculation of Peak Flow



25-Jun-26

1) Catchment Area Plan refers to Drawing Nos.

 Meinhardt Infrastructure & Environment Ltd. 10/F Genesis 33-35 Wong Chuk Hang Road Hong Kong	Contract: S16 Planning Application for Proposed Residential Development cum Residential Care Home for the Elderly and Shop and Services			Job Ref: -														
	Subject: Sewerage Impact Assessment			Calc. Sheet No. 1														
	Drawing Ref. -	Calculations by PT	Checked by ST	Date: 25-Jun-26														
Ref.																		
1.5 Estimation of Sewage Flow from Existing Development																		
001) St Andrews Place 雙魚河																		
<table border="1"> <tr> <td>No. of Unit</td> <td>26</td> </tr> <tr> <td>Average household size (head/unit)</td> <td>2.8</td> </tr> <tr> <td>No. of person (head)</td> <td>73</td> </tr> <tr> <td>Category of unit flow factors</td> <td>R3</td> </tr> <tr> <td>Unit flow factors (m³/head/day)</td> <td>0.37</td> </tr> <tr> <td>ADWF (m³/d)</td> <td>27.01</td> </tr> <tr> <td>ADWF (l/s)</td> <td>0.31</td> </tr> </table>		No. of Unit	26	Average household size (head/unit)	2.8	No. of person (head)	73	Category of unit flow factors	R3	Unit flow factors (m ³ /head/day)	0.37	ADWF (m ³ /d)	27.01	ADWF (l/s)	0.31	(Midland Realty) (Hong Kong 2021 Population By-census - Main Results) (GESF)		
No. of Unit	26																	
Average household size (head/unit)	2.8																	
No. of person (head)	73																	
Category of unit flow factors	R3																	
Unit flow factors (m ³ /head/day)	0.37																	
ADWF (m ³ /d)	27.01																	
ADWF (l/s)	0.31																	
Be accounted to FMH1028584																		
002) Golf Villa 金錢花園別墅																		
<table border="1"> <tr> <td>No. of Unit</td> <td>18</td> </tr> <tr> <td>Average household size (head/unit)</td> <td>2.8</td> </tr> <tr> <td>No. of person (head)</td> <td>51</td> </tr> <tr> <td>Category of unit flow factors</td> <td>R3</td> </tr> <tr> <td>Unit flow factors (m³/head/day)</td> <td>0.37</td> </tr> <tr> <td>ADWF (m³/d)</td> <td>18.87</td> </tr> <tr> <td>ADWF (l/s)</td> <td>0.22</td> </tr> </table>		No. of Unit	18	Average household size (head/unit)	2.8	No. of person (head)	51	Category of unit flow factors	R3	Unit flow factors (m ³ /head/day)	0.37	ADWF (m ³ /d)	18.87	ADWF (l/s)	0.22	(Centaline Property) (Hong Kong 2021 Population By-census - Main Results) (GESF)		
No. of Unit	18																	
Average household size (head/unit)	2.8																	
No. of person (head)	51																	
Category of unit flow factors	R3																	
Unit flow factors (m ³ /head/day)	0.37																	
ADWF (m ³ /d)	18.87																	
ADWF (l/s)	0.22																	
Be accounted to FMH1028584																		
003) The Royal Oak 御林皇府																		
<table border="1"> <tr> <td>No. of Unit</td> <td>44</td> </tr> <tr> <td>Average household size (head/unit)</td> <td>2.8</td> </tr> <tr> <td>No. of person (head)</td> <td>124</td> </tr> <tr> <td>Category of unit flow factors</td> <td>R3</td> </tr> <tr> <td>Unit flow factors (m³/head/day)</td> <td>0.37</td> </tr> <tr> <td>ADWF (m³/d)</td> <td>45.88</td> </tr> <tr> <td>ADWF (l/s)</td> <td>0.53</td> </tr> </table>		No. of Unit	44	Average household size (head/unit)	2.8	No. of person (head)	124	Category of unit flow factors	R3	Unit flow factors (m ³ /head/day)	0.37	ADWF (m ³ /d)	45.88	ADWF (l/s)	0.53	(Midland Realty) (Hong Kong 2021 Population By-census - Main Results) (GESF)		
No. of Unit	44																	
Average household size (head/unit)	2.8																	
No. of person (head)	124																	
Category of unit flow factors	R3																	
Unit flow factors (m ³ /head/day)	0.37																	
ADWF (m ³ /d)	45.88																	
ADWF (l/s)	0.53																	
Discharged to FMH1028570																		
004) Ascot Park 翡翠園																		
<table border="1"> <tr> <td>No. of Unit</td> <td>16</td> </tr> <tr> <td>Average household size (head/unit)</td> <td>2.8</td> </tr> <tr> <td>No. of person (head)</td> <td>45</td> </tr> <tr> <td>Category of unit flow factors</td> <td>R3</td> </tr> <tr> <td>Unit flow factors (m³/head/day)</td> <td>0.37</td> </tr> <tr> <td>ADWF (m³/d)</td> <td>16.65</td> </tr> <tr> <td>ADWF (l/s)</td> <td>0.19</td> </tr> </table>		No. of Unit	16	Average household size (head/unit)	2.8	No. of person (head)	45	Category of unit flow factors	R3	Unit flow factors (m ³ /head/day)	0.37	ADWF (m ³ /d)	16.65	ADWF (l/s)	0.19	(Midland Realty) (Hong Kong 2021 Population By-census - Main Results) (GESF)		
No. of Unit	16																	
Average household size (head/unit)	2.8																	
No. of person (head)	45																	
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ADWF (l/s)	0.19																	
Discharged to FMH1028570																		
005) Kam Tsin Village 金錢村																		
<table border="1"> <tr> <td>ADWF (m³/d)</td> <td>1147</td> </tr> <tr> <td>ADWF (l/s)</td> <td>13.28</td> </tr> </table>		ADWF (m ³ /d)	1147	ADWF (l/s)	13.28	(CE 58/2020(DS) SIA Report (Arup) [Jun 2022]) Discharged to FMH1028523												
ADWF (m ³ /d)	1147																	
ADWF (l/s)	13.28																	

 Meinhardt Infrastructure & Environment Ltd. 10/F Genesis 33-35 Wong Chuk Hang Road Hong Kong	Contract: S16 Planning Application for Proposed Residential Development cum Residential Care Home for the Elderly and Shop and Services			Job Ref: -																																				
	Subject: Sewerage Impact Assessment			Calc. Sheet No. 1																																				
	Drawing Ref. -	Calculations by PT	Checked by ST	Date: 25-Jun-26																																				
Ref.																																								
	006) Kam Tsin Village Ho Tung Kindergarten 金錢村何東幼稚園 <table border="1"> <tr> <td>No. of Student</td> <td>64</td> <td>(Schooland)</td> </tr> <tr> <td>Category of unit flow factors</td> <td>School student</td> <td></td> </tr> <tr> <td>Unit flow factors (m³/head/day)</td> <td>0.04</td> <td>(GESF)</td> </tr> <tr> <td>No. of Staff</td> <td>6</td> <td>(Schooland)</td> </tr> <tr> <td>Category of unit flow factors</td> <td>J11</td> <td></td> </tr> <tr> <td>Unit flow factors (m³/head/day)</td> <td>0.28</td> <td>(GESF)</td> </tr> <tr> <td>ADWF (m³/d)</td> <td>4.24</td> <td></td> </tr> <tr> <td>ADWF (l/s)</td> <td>0.05</td> <td></td> </tr> </table> Discharged to FMH1028523				No. of Student	64	(Schooland)	Category of unit flow factors	School student		Unit flow factors (m ³ /head/day)	0.04	(GESF)	No. of Staff	6	(Schooland)	Category of unit flow factors	J11		Unit flow factors (m ³ /head/day)	0.28	(GESF)	ADWF (m ³ /d)	4.24		ADWF (l/s)	0.05													
No. of Student	64	(Schooland)																																						
Category of unit flow factors	School student																																							
Unit flow factors (m ³ /head/day)	0.04	(GESF)																																						
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ADWF (m ³ /d)	4.24																																							
ADWF (l/s)	0.05																																							
	007) Kam Tsin Village Ho Tung School 金錢村何東學校 <table border="1"> <tr> <td>No. of classroom</td> <td>10</td> <td>(Schooland)</td> </tr> <tr> <td>No. of student per classroom</td> <td>30</td> <td></td> </tr> <tr> <td>No. of Student</td> <td>300</td> <td></td> </tr> <tr> <td>Category of unit flow factors</td> <td>School student</td> <td></td> </tr> <tr> <td>Unit flow factors (m³/head/day)</td> <td>0.04</td> <td>(GESF)</td> </tr> <tr> <td>No. of Staff</td> <td>26</td> <td>(Schooland)</td> </tr> <tr> <td>Category of unit flow factors</td> <td>J11</td> <td></td> </tr> <tr> <td>Unit flow factors (m³/head/day)</td> <td>0.28</td> <td>(GESF)</td> </tr> <tr> <td>ADWF (m³/d)</td> <td>19.28</td> <td></td> </tr> <tr> <td>ADWF (l/s)</td> <td>0.22</td> <td></td> </tr> </table> Discharged to FMH1028522				No. of classroom	10	(Schooland)	No. of student per classroom	30		No. of Student	300		Category of unit flow factors	School student		Unit flow factors (m ³ /head/day)	0.04	(GESF)	No. of Staff	26	(Schooland)	Category of unit flow factors	J11		Unit flow factors (m ³ /head/day)	0.28	(GESF)	ADWF (m ³ /d)	19.28		ADWF (l/s)	0.22							
No. of classroom	10	(Schooland)																																						
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ADWF (m ³ /d)	19.28																																							
ADWF (l/s)	0.22																																							
	008) De La Salle Secondary School NT 新界喇沙中學 <table border="1"> <tr> <td>No. of classroom</td> <td>25</td> <td>(Schooland)</td> </tr> <tr> <td>No. of student per classroom</td> <td>30</td> <td></td> </tr> <tr> <td>No. of Student</td> <td>750</td> <td></td> </tr> <tr> <td>Category of unit flow factors</td> <td>School student</td> <td></td> </tr> <tr> <td>Unit flow factors (m³/head/day)</td> <td>0.04</td> <td>(GESF)</td> </tr> <tr> <td>No. of Staff</td> <td>86</td> <td>(School Website)</td> </tr> <tr> <td>Category of unit flow factors</td> <td>J11</td> <td></td> </tr> <tr> <td>Unit flow factors (m³/head/day)</td> <td>0.28</td> <td>(GESF)</td> </tr> <tr> <td>ADWF (m³/d)</td> <td>54.08</td> <td></td> </tr> <tr> <td>ADWF (l/s)</td> <td>0.63</td> <td></td> </tr> </table> Discharged to FMH1028520				No. of classroom	25	(Schooland)	No. of student per classroom	30		No. of Student	750		Category of unit flow factors	School student		Unit flow factors (m ³ /head/day)	0.04	(GESF)	No. of Staff	86	(School Website)	Category of unit flow factors	J11		Unit flow factors (m ³ /head/day)	0.28	(GESF)	ADWF (m ³ /d)	54.08		ADWF (l/s)	0.63							
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No. of student per classroom	30																																							
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ADWF (m ³ /d)	54.08																																							
ADWF (l/s)	0.63																																							
	009) St Paul's House of Prayer 沙爾德聖保祿女修會聖保祿樂靜院 <table border="1"> <tr> <td>No. of person (head)</td> <td>50</td> <td>(SRSPC)</td> </tr> <tr> <td>Category of unit flow factors</td> <td>R3</td> <td></td> </tr> <tr> <td>Unit flow factors (m³/head/day)</td> <td>0.37</td> <td>(GESF)</td> </tr> <tr> <td>ADWF (m³/d)</td> <td>18.5</td> <td></td> </tr> <tr> <td>ADWF (l/s)</td> <td>0.21</td> <td></td> </tr> <tr> <td>Management Staff</td> <td>15</td> <td></td> </tr> <tr> <td>Category of unit flow factors</td> <td>J11</td> <td></td> </tr> <tr> <td>Unit flow factors (m³/head/day)</td> <td>0.28</td> <td>(GESF)</td> </tr> <tr> <td>ADWF (m³/d)</td> <td>4.2</td> <td></td> </tr> <tr> <td>ADWF (l/s)</td> <td>0.05</td> <td></td> </tr> <tr> <td>Total ADWF (m³/d)</td> <td>22.7</td> <td></td> </tr> <tr> <td>Total ADWF (l/s)</td> <td>0.26</td> <td></td> </tr> </table> Discharged to FMH1021544				No. of person (head)	50	(SRSPC)	Category of unit flow factors	R3		Unit flow factors (m ³ /head/day)	0.37	(GESF)	ADWF (m ³ /d)	18.5		ADWF (l/s)	0.21		Management Staff	15		Category of unit flow factors	J11		Unit flow factors (m ³ /head/day)	0.28	(GESF)	ADWF (m ³ /d)	4.2		ADWF (l/s)	0.05		Total ADWF (m ³ /d)	22.7		Total ADWF (l/s)	0.26	
No. of person (head)	50	(SRSPC)																																						
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 Meinhardt Infrastructure & Environment Ltd. 10/F Genesis 33-35 Wong Chuk Hang Road Hong Kong	Contract: S16 Planning Application for Proposed Residential Development cum Residential Care Home for the Elderly and Shop and Services			Job Ref: -																				
	Subject: Sewerage Impact Assessment			Calc. Sheet No. 1																				
	Drawing Ref. -	Calculations by PT	Checked by ST	Date: 25-Jun-26																				
Ref.																								
	010) Eden Place 桃苑 <table border="1" style="margin-left: 20px;"> <tr> <td>No. of Unit</td> <td>8</td> <td rowspan="7"> (Midland Realty) (Hong Kong 2021 Population By-census - Main Results) (GESF) </td> </tr> <tr> <td>Average household size (head/unit)</td> <td>2.8</td> </tr> <tr> <td>No. of person (head)</td> <td>23</td> </tr> <tr> <td>Category of unit flow factors</td> <td>R3</td> </tr> <tr> <td>Unit flow factors (m³/head/day)</td> <td>0.37</td> </tr> <tr> <td>ADWF (m³/d)</td> <td>8.51</td> </tr> <tr> <td>ADWF (l/s)</td> <td>0.10</td> </tr> </table> Be accounted to FMH1021544				No. of Unit	8	(Midland Realty) (Hong Kong 2021 Population By-census - Main Results) (GESF)	Average household size (head/unit)	2.8	No. of person (head)	23	Category of unit flow factors	R3	Unit flow factors (m ³ /head/day)	0.37	ADWF (m ³ /d)	8.51	ADWF (l/s)	0.10					
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ADWF (m ³ /d)	8.51																							
ADWF (l/s)	0.10																							
	011) Valais 天巒 <table border="1" style="margin-left: 20px;"> <tr> <td>No. of Unit</td> <td>330</td> <td rowspan="7"> (Midland Realty) (Hong Kong 2021 Population By-census - Main Results) (GESF) </td> </tr> <tr> <td>Average household size (head/unit)</td> <td>2.8</td> </tr> <tr> <td>No. of person (head)</td> <td>924</td> </tr> <tr> <td>Category of unit flow factors</td> <td>R3</td> </tr> <tr> <td>Unit flow factors (m³/head/day)</td> <td>0.37</td> </tr> <tr> <td>ADWF (m³/d)</td> <td>341.88</td> </tr> <tr> <td>ADWF (l/s)</td> <td>3.96</td> </tr> </table> Be accounted to FMH1021544				No. of Unit	330	(Midland Realty) (Hong Kong 2021 Population By-census - Main Results) (GESF)	Average household size (head/unit)	2.8	No. of person (head)	924	Category of unit flow factors	R3	Unit flow factors (m ³ /head/day)	0.37	ADWF (m ³ /d)	341.88	ADWF (l/s)	3.96					
No. of Unit	330	(Midland Realty) (Hong Kong 2021 Population By-census - Main Results) (GESF)																						
Average household size (head/unit)	2.8																							
No. of person (head)	924																							
Category of unit flow factors	R3																							
Unit flow factors (m ³ /head/day)	0.37																							
ADWF (m ³ /d)	341.88																							
ADWF (l/s)	3.96																							
	012) Yin Kong Village 燕崗村 <table border="1" style="margin-left: 20px;"> <tr> <td>No. of building</td> <td>94</td> <td rowspan="2">(Base Map)</td> </tr> <tr> <td>No. of storey</td> <td>3</td> </tr> <tr> <td>No. of Unit</td> <td>282</td> <td rowspan="7"> (Hong Kong 2021 Population By-census - Main Results) (GESF) </td> </tr> <tr> <td>Average household size (head/unit)</td> <td>2.8</td> </tr> <tr> <td>No. of person (head)</td> <td>790</td> </tr> <tr> <td>Category of unit flow factors</td> <td>R3</td> </tr> <tr> <td>Unit flow factors (m³/head/day)</td> <td>0.37</td> </tr> <tr> <td>ADWF (m³/d)</td> <td>292.3</td> </tr> <tr> <td>ADWF (l/s)</td> <td>3.38</td> </tr> </table> Be accounted to FMH1021550				No. of building	94	(Base Map)	No. of storey	3	No. of Unit	282	(Hong Kong 2021 Population By-census - Main Results) (GESF)	Average household size (head/unit)	2.8	No. of person (head)	790	Category of unit flow factors	R3	Unit flow factors (m ³ /head/day)	0.37	ADWF (m ³ /d)	292.3	ADWF (l/s)	3.38
No. of building	94	(Base Map)																						
No. of storey	3																							
No. of Unit	282	(Hong Kong 2021 Population By-census - Main Results) (GESF)																						
Average household size (head/unit)	2.8																							
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Category of unit flow factors	R3																							
Unit flow factors (m ³ /head/day)	0.37																							
ADWF (m ³ /d)	292.3																							
ADWF (l/s)	3.38																							
	013) Golf Parkview (高爾夫景園) <table border="1" style="margin-left: 20px;"> <tr> <td>No. of Unit</td> <td>48</td> <td rowspan="7"> (Midland Realty) (Hong Kong 2021 Population By-census - Main Results) (GESF) </td> </tr> <tr> <td>Average household size (head/unit)</td> <td>2.8</td> </tr> <tr> <td>No. of person (head)</td> <td>135</td> </tr> <tr> <td>Category of unit flow factors</td> <td>R3</td> </tr> <tr> <td>Unit flow factors (m³/head/day)</td> <td>0.37</td> </tr> <tr> <td>ADWF (m³/d)</td> <td>49.95</td> </tr> <tr> <td>ADWF (l/s)</td> <td>0.58</td> </tr> </table> Be accounted to FMH1021561				No. of Unit	48	(Midland Realty) (Hong Kong 2021 Population By-census - Main Results) (GESF)	Average household size (head/unit)	2.8	No. of person (head)	135	Category of unit flow factors	R3	Unit flow factors (m ³ /head/day)	0.37	ADWF (m ³ /d)	49.95	ADWF (l/s)	0.58					
No. of Unit	48	(Midland Realty) (Hong Kong 2021 Population By-census - Main Results) (GESF)																						
Average household size (head/unit)	2.8																							
No. of person (head)	135																							
Category of unit flow factors	R3																							
Unit flow factors (m ³ /head/day)	0.37																							
ADWF (m ³ /d)	49.95																							
ADWF (l/s)	0.58																							
	014) Beas River Equestrian (雙魚河馬術中心) <table border="1" style="margin-left: 20px;"> <tr> <td>ADWF (m³/d)</td> <td>272</td> <td rowspan="2"> (Sewage Treatment Preliminary Proposal for Proposed Works at Beas River Equestrian Centre (M&P) [Jan 2026]) </td> </tr> <tr> <td>ADWF (l/s)</td> <td>3.15</td> </tr> </table> Discharged to FMH1028584				ADWF (m ³ /d)	272	(Sewage Treatment Preliminary Proposal for Proposed Works at Beas River Equestrian Centre (M&P) [Jan 2026])	ADWF (l/s)	3.15															
ADWF (m ³ /d)	272	(Sewage Treatment Preliminary Proposal for Proposed Works at Beas River Equestrian Centre (M&P) [Jan 2026])																						
ADWF (l/s)	3.15																							

 Meinhardt Infrastructure & Environment Ltd. 10/F Genesis 33-35 Wong Chuk Hang Road Hong Kong	Contract: S16 Planning Application for Proposed Residential Development cum Residential Care Home for the Elderly and Shop and Services			Job Ref: -																									
	Subject: Sewerage Impact Assessment			Calc. Sheet No. 1																									
	Drawing Ref. -	Calculations by PT	Checked by ST	Date: 25-Jun-26																									
Ref.																													
	015) Village areas at north of Kam Hang Road at Kam Tsin <table border="1" style="margin-top: 10px;"> <tr> <td>No. of building</td> <td>84</td> <td rowspan="3">(Base Map)</td> </tr> <tr> <td>No. of storey</td> <td>2</td> </tr> <tr> <td>No. of Unit</td> <td>168</td> </tr> <tr> <td>Average household size (head/unit)</td> <td>2.8</td> <td>(Hong Kong 2021 Population By-census - Main Results)</td> </tr> <tr> <td>No. of person (head)</td> <td>471</td> <td></td> </tr> <tr> <td>Category of unit flow factors</td> <td>Modern Village</td> <td></td> </tr> <tr> <td>Unit flow factors (m³/head/day)</td> <td>0.27</td> <td>(GESF)</td> </tr> <tr> <td>ADWF (m³/d)</td> <td>127.17</td> <td></td> </tr> <tr> <td>ADWF (l/s)</td> <td>1.47</td> <td></td> </tr> </table> Be accounted to FMH1021544				No. of building	84	(Base Map)	No. of storey	2	No. of Unit	168	Average household size (head/unit)	2.8	(Hong Kong 2021 Population By-census - Main Results)	No. of person (head)	471		Category of unit flow factors	Modern Village		Unit flow factors (m ³ /head/day)	0.27	(GESF)	ADWF (m ³ /d)	127.17		ADWF (l/s)	1.47	
No. of building	84	(Base Map)																											
No. of storey	2																												
No. of Unit	168																												
Average household size (head/unit)	2.8	(Hong Kong 2021 Population By-census - Main Results)																											
No. of person (head)	471																												
Category of unit flow factors	Modern Village																												
Unit flow factors (m ³ /head/day)	0.27	(GESF)																											
ADWF (m ³ /d)	127.17																												
ADWF (l/s)	1.47																												
	016) Goodwood Park (高爾夫景園) <table border="1" style="margin-top: 10px;"> <tr> <td>No. of Unit</td> <td>13</td> <td>(Midland Realty)</td> </tr> <tr> <td>Average household size (head/unit)</td> <td>2.8</td> <td>(Hong Kong 2021 Population By-census - Main Results)</td> </tr> <tr> <td>No. of person (head)</td> <td>37</td> <td></td> </tr> <tr> <td>Category of unit flow factors</td> <td>R3</td> <td></td> </tr> <tr> <td>Unit flow factors (m³/head/day)</td> <td>0.37</td> <td>(GESF)</td> </tr> <tr> <td>ADWF (m³/d)</td> <td>13.69</td> <td></td> </tr> <tr> <td>ADWF (l/s)</td> <td>0.16</td> <td></td> </tr> </table> Be accounted to FMH1029663				No. of Unit	13	(Midland Realty)	Average household size (head/unit)	2.8	(Hong Kong 2021 Population By-census - Main Results)	No. of person (head)	37		Category of unit flow factors	R3		Unit flow factors (m ³ /head/day)	0.37	(GESF)	ADWF (m ³ /d)	13.69		ADWF (l/s)	0.16					
No. of Unit	13	(Midland Realty)																											
Average household size (head/unit)	2.8	(Hong Kong 2021 Population By-census - Main Results)																											
No. of person (head)	37																												
Category of unit flow factors	R3																												
Unit flow factors (m ³ /head/day)	0.37	(GESF)																											
ADWF (m ³ /d)	13.69																												
ADWF (l/s)	0.16																												
	017) La Regent Park 匯駿山莊 <table border="1" style="margin-top: 10px;"> <tr> <td>No. of Unit</td> <td>42</td> <td>(Midland Realty)</td> </tr> <tr> <td>Average household size (head/unit)</td> <td>2.8</td> <td>(Hong Kong 2021 Population By-census - Main Results)</td> </tr> <tr> <td>No. of person (head)</td> <td>118</td> <td></td> </tr> <tr> <td>Category of unit flow factors</td> <td>R3</td> <td></td> </tr> <tr> <td>Unit flow factors (m³/head/day)</td> <td>0.37</td> <td>(GESF)</td> </tr> <tr> <td>ADWF (m³/d)</td> <td>43.66</td> <td></td> </tr> <tr> <td>ADWF (l/s)</td> <td>0.51</td> <td></td> </tr> </table> Be accounted to FMH1028548				No. of Unit	42	(Midland Realty)	Average household size (head/unit)	2.8	(Hong Kong 2021 Population By-census - Main Results)	No. of person (head)	118		Category of unit flow factors	R3		Unit flow factors (m ³ /head/day)	0.37	(GESF)	ADWF (m ³ /d)	43.66		ADWF (l/s)	0.51					
No. of Unit	42	(Midland Realty)																											
Average household size (head/unit)	2.8	(Hong Kong 2021 Population By-census - Main Results)																											
No. of person (head)	118																												
Category of unit flow factors	R3																												
Unit flow factors (m ³ /head/day)	0.37	(GESF)																											
ADWF (m ³ /d)	43.66																												
ADWF (l/s)	0.51																												
	018) Casas Domingo 嘉麗山莊 <table border="1" style="margin-top: 10px;"> <tr> <td>No. of Unit</td> <td>44</td> <td>(Midland Realty)</td> </tr> <tr> <td>Average household size (head/unit)</td> <td>2.8</td> <td>(Hong Kong 2021 Population By-census - Main Results)</td> </tr> <tr> <td>No. of person (head)</td> <td>124</td> <td></td> </tr> <tr> <td>Category of unit flow factors</td> <td>R3</td> <td></td> </tr> <tr> <td>Unit flow factors (m³/head/day)</td> <td>0.37</td> <td>(GESF)</td> </tr> <tr> <td>ADWF (m³/d)</td> <td>45.88</td> <td></td> </tr> <tr> <td>ADWF (l/s)</td> <td>0.53</td> <td></td> </tr> </table> Be accounted to FMH1029640				No. of Unit	44	(Midland Realty)	Average household size (head/unit)	2.8	(Hong Kong 2021 Population By-census - Main Results)	No. of person (head)	124		Category of unit flow factors	R3		Unit flow factors (m ³ /head/day)	0.37	(GESF)	ADWF (m ³ /d)	45.88		ADWF (l/s)	0.53					
No. of Unit	44	(Midland Realty)																											
Average household size (head/unit)	2.8	(Hong Kong 2021 Population By-census - Main Results)																											
No. of person (head)	124																												
Category of unit flow factors	R3																												
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 Meinhardt Infrastructure & Environment Ltd. 10/F Genesis 33-35 Wong Chuk Hang Road Hong Kong	Contract: S16 Planning Application for Proposed Residential Development cum Residential Care Home for the Elderly and Shop and Services			Job Ref: -																																																																																		
	Subject: Sewerage Impact Assessment			Calc. Sheet No. 1																																																																																		
	Drawing Ref. -	Calculations by PT	Checked by ST	Date: 25-Jun-26																																																																																		
Ref.																																																																																						
019) Beas River Country Park <table border="1"> <tr><td colspan="2">Arena Room</td></tr> <tr><td>Total number of the people (participants)</td><td>120</td></tr> <tr><td>Category of unit flow factors</td><td>J11</td></tr> <tr><td>Unit flow factors (m³/head/day)</td><td>0.28</td></tr> <tr><td>ADWF (m³/d)</td><td>33.6</td></tr> <tr><td>ADWF (l/s)</td><td>0.39</td></tr> <tr><td>Area (m²)</td><td>275</td></tr> <tr><td>Floor area per staff (m²)</td><td>31.25</td></tr> <tr><td>Total number of staff</td><td>9</td></tr> <tr><td>Category of unit flow factors</td><td>J10</td></tr> <tr><td>Design flow for staff</td><td>1.58</td></tr> <tr><td>ADWF (m³/d)</td><td>13.9</td></tr> <tr><td>ADWF (l/s)</td><td>0.16</td></tr> <tr><td colspan="2">Conference Suite</td></tr> <tr><td>Total number of the people (participants)</td><td>20</td></tr> <tr><td>Category of unit flow factors</td><td>J11</td></tr> <tr><td>Unit flow factors (m³/head/day)</td><td>0.28</td></tr> <tr><td>ADWF (m³/d)</td><td>5.6</td></tr> <tr><td>ADWF (l/s)</td><td>0.06</td></tr> <tr><td>Area (m²)</td><td>35</td></tr> <tr><td>Floor area per staff (m²)</td><td>31.25</td></tr> <tr><td>Total number of staff</td><td>1</td></tr> <tr><td>Category of unit flow factors</td><td>J10</td></tr> <tr><td>Design flow for staff</td><td>1.58</td></tr> <tr><td>ADWF (m³/d)</td><td>1.8</td></tr> <tr><td>ADWF (l/s)</td><td>0.02</td></tr> <tr><td colspan="2">The Lawn</td></tr> <tr><td>Total number of the people (participants)</td><td>360</td></tr> <tr><td>Category of unit flow factors</td><td>J11</td></tr> <tr><td>Unit flow factors (m³/head/day)</td><td>0.28</td></tr> <tr><td>ADWF (m³/d)</td><td>100.8</td></tr> <tr><td>ADWF (l/s)</td><td>1.17</td></tr> <tr><td>Area (m²)</td><td>805</td></tr> <tr><td>Floor area per staff (m²)</td><td>31.25</td></tr> <tr><td>Total number of staff</td><td>26</td></tr> <tr><td>Category of unit flow factors</td><td>J11</td></tr> <tr><td>Unit flow factors (m³/head/day)</td><td>0.28</td></tr> <tr><td>ADWF (m³/d)</td><td>8.8</td></tr> <tr><td>ADWF (l/s)</td><td>0.10</td></tr> <tr><td>Total ADWF (m³/d)</td><td>164</td></tr> <tr><td>Total ADWF (l/s)</td><td>1.90</td></tr> </table> Discharged to FMH1029680					Arena Room		Total number of the people (participants)	120	Category of unit flow factors	J11	Unit flow factors (m ³ /head/day)	0.28	ADWF (m ³ /d)	33.6	ADWF (l/s)	0.39	Area (m ²)	275	Floor area per staff (m ²)	31.25	Total number of staff	9	Category of unit flow factors	J10	Design flow for staff	1.58	ADWF (m ³ /d)	13.9	ADWF (l/s)	0.16	Conference Suite		Total number of the people (participants)	20	Category of unit flow factors	J11	Unit flow factors (m ³ /head/day)	0.28	ADWF (m ³ /d)	5.6	ADWF (l/s)	0.06	Area (m ²)	35	Floor area per staff (m ²)	31.25	Total number of staff	1	Category of unit flow factors	J10	Design flow for staff	1.58	ADWF (m ³ /d)	1.8	ADWF (l/s)	0.02	The Lawn		Total number of the people (participants)	360	Category of unit flow factors	J11	Unit flow factors (m ³ /head/day)	0.28	ADWF (m ³ /d)	100.8	ADWF (l/s)	1.17	Area (m ²)	805	Floor area per staff (m ²)	31.25	Total number of staff	26	Category of unit flow factors	J11	Unit flow factors (m ³ /head/day)	0.28	ADWF (m ³ /d)	8.8	ADWF (l/s)	0.10	Total ADWF (m³/d)	164	Total ADWF (l/s)	1.90
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020) Yin Kong Public Toilet <table border="1"> <tr><td>ADWF (l/s)</td><td>26.80</td></tr> </table> Discharged to FMH1021550 (Proposed Development at Lot 2579 in D.D. No. 92, Kwu Tung South - SIA Report (Binnies) [Mar 2025])					ADWF (l/s)	26.80																																																																																
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 Meinhardt Infrastructure & Environment Ltd. 10/F Genesis 33-35 Wong Chuk Hang Road Hong Kong	Contract: S16 Planning Application for Proposed Residential Development cum Residential Care Home for the Elderly and Shop and Services			Job Ref: -													
	Subject: Sewerage Impact Assessment			Calc. Sheet No. 1													
	Drawing Ref. -	Calculations by PT	Checked by ST	Date: 25-Jun-26													
Ref.																	
1.6 Estimation of Sewage Flow from Planning Development																	
Project: A/NE-KTS/460																	
<table border="1"> <tr> <td>No. of Unit</td> <td>2</td> </tr> <tr> <td>Average household size (head/unit)</td> <td>2.8</td> </tr> <tr> <td>No. of person (head)</td> <td>6</td> </tr> <tr> <td>Category of unit flow factors</td> <td>R3</td> </tr> <tr> <td>Unit flow factors (m³/head/day)</td> <td>0.37</td> </tr> <tr> <td>ADWF (m³/d)</td> <td>2.22</td> </tr> <tr> <td>ADWF (l/s)</td> <td>0.03</td> </tr> </table>		No. of Unit	2	Average household size (head/unit)	2.8	No. of person (head)	6	Category of unit flow factors	R3	Unit flow factors (m ³ /head/day)	0.37	ADWF (m ³ /d)	2.22	ADWF (l/s)	0.03	(QZP) (Hong Kong 2021 Population By-census - Main Results) (GESF)	
No. of Unit	2																
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ADWF (l/s)	0.03																
Be accounted to FMH1029682																	
Project: A/NE-KTS/466																	
<table border="1"> <tr> <td>ADWF (m³/d)</td> <td>49</td> </tr> <tr> <td>ADWF (l/s)</td> <td>0.57</td> </tr> </table>		ADWF (m ³ /d)	49	ADWF (l/s)	0.57	(A/NE-KTS/466 SIA Report [May 2019])											
ADWF (m ³ /d)	49																
ADWF (l/s)	0.57																
Be accounted to FMH1029681																	
Project: A/NE-KTS/525 (local STP)																	
<table border="1"> <tr> <td>ADWF (m³/d)</td> <td>45.8</td> </tr> <tr> <td>ADWF (l/s)</td> <td>0.53</td> </tr> </table>		ADWF (m ³ /d)	45.8	ADWF (l/s)	0.53	(Provided by EPD)											
ADWF (m ³ /d)	45.8																
ADWF (l/s)	0.53																
Be accounted to FMH1029681																	
Project: A/NE-KTS/538 (septic tank)																	
<table border="1"> <tr> <td>ADWF (m³/d)</td> <td>4.5</td> </tr> <tr> <td>ADWF (l/s)</td> <td>0.05</td> </tr> </table>		ADWF (m ³ /d)	4.5	ADWF (l/s)	0.05	(Provided by EPD)											
ADWF (m ³ /d)	4.5																
ADWF (l/s)	0.05																
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Project: Y/NE-KTS/15 (formerly A/NE-KTS/484)																	
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	Subject: Sewerage Impact Assessment			Calc. Sheet No. 1
	Drawing Ref. -	Calculations by PT	Checked by ST	Date: 25-Jun-26
Ref.				
1.7 Estimation of Sewage Flow from Proposed Development				
1) Residential Building				
No. of person (head)		936		(GESF)
Category of unit flow factors		R3		
Unit flow factors (m ³ /head/day)		0.37		
ADWF (m ³ /d)		346.32		
ADWF (l/s)		4.01		
2) Management Staff (Including Clubhouse & RCHE)				
No. of Staff		50		(GESF)
Category of unit flow factors		J11		
Unit flow factors (m ³ /head/day)		0.28		
ADWF (m ³ /d)		14		
ADWF (l/s)		0.16		
3) Shop				
No. of Staff		14		(GESF)
Category of unit flow factors		J4		
Unit flow factors (m ³ /head/day)		0.28		
ADWF (m ³ /d)		3.92		
ADWF (l/s)		0.05		
4) Swimming Pool				
Pool Volume (m ³)		220		(Cap. 132CA - Open Air pool)
Turnover Rate (hr)		6		
Flow factors (m ³ /hr)		36.67		
Flow factors (l/s)		10.19		
Surface Loading Rate of Filter (m ³ /m ² /hr)		48		
Filter Area Required (m ²)		0.76		
Backwash Duration (mins/day)		3		
Backwash flow rate (m ³ /m ² /hr)		30		
Volume of Swimming Pool Backwashing (m ³ /d)		1.15		
Volume of Swimming Pool Backwashing (l/s)		6.37		
5) RCHE Residents				
No. of residents (beds)		100		(GESF)
Category of unit flow factors		Special class		
Unit flow factors (m ³ /head/day)		0.19		
ADWF (m ³ /d)		19.0		
ADWF (l/s)		0.22		

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Appendix C

Calculation of Flow Capacity

 Meinhardt Infrastructure & Environment Ltd. 10/F Genesis 33-35 Wong Chuk Hang Road Hong Kong	Contract: Proposed Amendments to the Kwu Tung South Outline Zoning Plan for Residential Development at Various Lots in D.D. 92 and D.D 94 and Adjoining Government Land in "CDA" Zone, Hang Tau Tai Po, Kwu Tung South, New Territories												Job Ref: -																																																																																																																																		
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Sewerage Impact Assessment (Appendix D) Scenario 1: Existing development, and Planned developments anticipated intake year at 2031 (Upgraded Sewers by Responsible Planned Developments) Foulwater Drains Capacity Design Check (By Colebrook White Equation) By Colebrook White Equation $V = -\sqrt{(8gDs)} \log \left(\frac{k_s}{3.7D} + \frac{2.51\nu}{D\sqrt{(2gDs)}} \right)$ V = mean velocity (m/s) g = gravitational acceleration (m/s²) D = internal pipe diameter (m) k_s = hydraulic pipeline roughness (m) ν = kinematic viscosity of fluid (m²/s) s = hydraulic gradient (energy loss per unit length due to friction) <table><thead><tr><th>Planned Development</th><th>ADWF (m³/d)</th><th>ADWF (L/s)</th><th>Manhole</th><th>Existing Development</th><th>Manhole</th></tr></thead><tbody><tr><td>A/NE-KTS/460</td><td>2.22</td><td>-</td><td>0.03 FMH1029682</td><td>1 St Andrews Place 聖</td><td>27.01</td></tr><tr><td>A/NE-KTS/466</td><td>49</td><td>-</td><td>0.57 FMH1029681</td><td>2 Golf Villa 金錢花園</td><td>18.87</td></tr><tr><td>A/NE-KTS/525 ⁽¹⁾</td><td>45.8</td><td>-</td><td>0.53 FMH1029681</td><td>3 The Royal Oak 御林</td><td>45.88</td></tr><tr><td>A/NE-KTS/538 ⁽¹⁾</td><td>4.5</td><td>-</td><td>0.05 FMH1029681</td><td>4 Ascot Park 翡翠園</td><td>16.65</td></tr><tr><td>Y/NE-KTS/15 (formerly A/NE-KTS/484)</td><td>792</td><td>8.3</td><td>9.17 FMH1021544</td><td>5 Kam Tsin Village 金</td><td>1147</td></tr><tr><td>A/NE-KTS/506 (formerly Y/NE-KTS/12)</td><td>2166.4</td><td>8.3</td><td>25.07 FMH1021544</td><td>6 Kam Tsin Village Hc</td><td>4.24</td></tr><tr><td>A/NE-KTS/541 ⁽¹⁾</td><td>2.22</td><td>-</td><td>0.03 FMH1029681</td><td>7 Kam Tsin Village Hc</td><td>19.28</td></tr><tr><td>Y/NE-KTS/14 and Y/NE-KTS/17</td><td>1074</td><td>14.4</td><td>12.43 FMH1021544</td><td>8 De La Salle Second</td><td>54.08</td></tr><tr><td>Y/KTN/2</td><td>492</td><td>3.5</td><td>5.69 FMH1021543</td><td>9 St Paul's House of F</td><td>22.7</td></tr><tr><td>Y/FSS/19</td><td>798.9</td><td>5.8</td><td>9.25 FMH1021561</td><td>10 Eden Place 桃苑</td><td>8.51</td></tr><tr><td></td><td></td><td></td><td></td><td>11 Valais 天德</td><td>341.88</td></tr><tr><td></td><td></td><td></td><td></td><td>12 Yin Kong Village 燕</td><td>292.3</td></tr><tr><td></td><td></td><td></td><td></td><td>13 Golf Parkview (高爾</td><td>49.95</td></tr><tr><td></td><td></td><td></td><td></td><td>14 Beas River Equestri</td><td>272</td></tr><tr><td></td><td></td><td></td><td></td><td>15 Village areas at nort</td><td>127.17</td></tr><tr><td></td><td></td><td></td><td></td><td>16 Goodwood Park</td><td>13.69</td></tr><tr><td></td><td></td><td></td><td></td><td>17 La Regent Park</td><td>43.66</td></tr><tr><td></td><td></td><td></td><td></td><td>18 Casas Domingo</td><td>45.88</td></tr><tr><td></td><td></td><td></td><td></td><td>19 Beas River Country</td><td>164</td></tr><tr><td></td><td></td><td></td><td></td><td>20 Toilet</td><td>-</td></tr></tbody></table>																		Planned Development	ADWF (m³/d)	ADWF (L/s)	Manhole	Existing Development	Manhole	A/NE-KTS/460	2.22	-	0.03 FMH1029682	1 St Andrews Place 聖	27.01	A/NE-KTS/466	49	-	0.57 FMH1029681	2 Golf Villa 金錢花園	18.87	A/NE-KTS/525 ⁽¹⁾	45.8	-	0.53 FMH1029681	3 The Royal Oak 御林	45.88	A/NE-KTS/538 ⁽¹⁾	4.5	-	0.05 FMH1029681	4 Ascot Park 翡翠園	16.65	Y/NE-KTS/15 (formerly A/NE-KTS/484)	792	8.3	9.17 FMH1021544	5 Kam Tsin Village 金	1147	A/NE-KTS/506 (formerly Y/NE-KTS/12)	2166.4	8.3	25.07 FMH1021544	6 Kam Tsin Village Hc	4.24	A/NE-KTS/541 ⁽¹⁾	2.22	-	0.03 FMH1029681	7 Kam Tsin Village Hc	19.28	Y/NE-KTS/14 and Y/NE-KTS/17	1074	14.4	12.43 FMH1021544	8 De La Salle Second	54.08	Y/KTN/2	492	3.5	5.69 FMH1021543	9 St Paul's House of F	22.7	Y/FSS/19	798.9	5.8	9.25 FMH1021561	10 Eden Place 桃苑	8.51					11 Valais 天德	341.88					12 Yin Kong Village 燕	292.3					13 Golf Parkview (高爾	49.95					14 Beas River Equestri	272					15 Village areas at nort	127.17					16 Goodwood Park	13.69					17 La Regent Park	43.66					18 Casas Domingo	45.88					19 Beas River Country	164					20 Toilet	-
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Assumptions: 1. Pipe roughness, k_s ⁽²⁾= 3 mm (Refer to Sewerage Manual Part 1 - Table 5, assume "Clayware" under normal condition) 0.3 2. Gravitational acceleration, g = 9.81 m/s² 3. Kinematic viscosity, ν = 1.00E-06 m²/s (Transitional flow and water at 15 degree celcius) 4. Catchment Inflow Factor, P_{CF}= 1 (Refer to Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning -Table T4 - North District)																																																																																																																																															
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A/NE-KTS/466, A/NE-KTS/525, A/NE-KTS/538, A/NE-KTS/541	FMH1029681	FMH1029682	300	22	12.980	9.270	12.870	9.070	110	1.18	1	376	8	9.40	9.40	83.8	1.19	11%	OK																																																																																																																												
A/NE-KTS/460	FMH1029682	FMH1029683	300	31	12.870	9.060	11.600	8.860	155	1.20	1	384	8	9.61	9.61	70.6	1.00	14%	OK																																																																																																																												
Goodwood Park	FMH1029683	FMH1029680	300	24	11.600	8.850	11.180	8.680	141	1.36	1	435	8	10.87	10.87	73.9	1.05	15%	OK																																																																																																																												
	FMH1028600	FMH1028601	300	22	24.840	23.470	22.920	21.620	12	1.36	1	435	8	10.87	10.87	254.1	3.59	4%	OK																																																																																																																												
	FMH1028601	FMH1028602	300	19	22.920	21.620	21.230	20.080	12	1.36	1	435	8	10.87	10.87	249.9	3.54	4%	OK																																																																																																																												
	FMH1028602	FMH1028603	300	38.8	21.230	20.070	19.240	17.640	16	1.36	1	435	8	10.87	10.87	220.2	3.12	5%	OK																																																																																																																												
	FMH1028603	FMH1028591	300	20.2	19.240	17.630	19.070	17.200	47	1.36	1	435	8	10.87	10.87	128.3	1.82	8%	OK																																																																																																																												
	FMH1028591	FMH1028590	300	18.2	19.070	17.190	18.580	16.610	31	1.36	1	435	8	10.87	10.87	157.1	2.22	7%	OK																																																																																																																												
	FMH1028590	FMH1028589	300	27.3	18.580	16.600	17.010	15.560	26	1.36	1	435	8	10.87	10.87	171.7	2.43	6%	OK																																																																																																																												
	FMH1028589	FMH1028588	300	29.1	17.010	15.540	16.170	14.720	35	1.36	1	435	8	10.87	10.87	147.7	2.09	7%	OK																																																																																																																												

Pipe Information										Capacity and Velocity Check									
Pipe Segment	From	To	Pipe (d)	Pipe (m)	Ground Level	Invert Level (out)	Ground Level	Invert Level (in)	Slope (s)	Cumulative Sewage Flow (Q _a)	Catchment Inflow Factor (P _{car}) ^[3]	Population (CP) ^[4]	Peak Factor (PF) ^[5]	Cumulative Sewage Flow (Q _a)	Peak Flow with Swimming Pool and Public Toilet	Pipe Full Flow (Q _f)	Pipe Full Flow (v)	Utilization	Flow Capacity
	Manhole ID Upstream	Manhole ID Downstream	Diameter mm	Length m	(US) mPD	(US) mPD	(DS) mPD	(DS) mPD	Gradient 1 in	l/s				l/s	l/s	Capacity l/s	Velocity m/s	%	Check
	FMH1028588	FMH1028587	300	30.9	16.170	14.710	15.730	14.380	94	1.36	1	435	8	10.87	10.87	90.8	1.29	12%	OK
	FMH1028587	FMH1028586	400	25.3	15.730	14.300	15.480	13.750	46	1.36	1	435	8	10.87	10.87	279.2	2.22	4%	OK
	FMH1028586	FMH1028585	400	24.9	15.480	13.750	15.440	13.670	311	1.36	1	435	8	10.87	10.87	107.1	0.85	10%	OK
	FMH1028585	FMH1028584	400	24.6	15.440	13.660	15.340	13.560	246	1.36	1	435	8	10.87	10.87	120.6	0.96	9%	OK
St Andrews Place, Golf Villa, Beas River Equestrian, Beas River Country Park	FMH1028584	FMH1028583	400	15.3	15.340	13.550	15.410	13.500	306	6.94	1	2220	6	41.62	41.62	108.1	0.86	39%	OK
	FMH1028583	FMH1028582	400	32.4	15.410	13.490	15.560	13.390	324	6.94	1	2220	6	41.62	41.62	105.0	0.84	40%	OK
	FMH1028582	FMH1028581	400	35.4	15.560	13.380	15.680	13.280	354	6.94	1	2220	6	41.62	41.62	100.4	0.80	41%	OK
	FMH1028581	FMH1028580	400	17.2	15.680	13.270	15.820	13.210	287	6.94	1	2220	6	41.62	41.62	111.7	0.89	37%	OK
	FMH1028580	FMH1028570	400	38.2	15.820	13.200	16.130	13.100	382	6.94	1	2220	6	41.62	41.62	96.7	0.77	43%	OK
The Royal Oak, Ascot Park	FMH1028570	FMH1028569	400	32.8	16.130	13.090	16.490	12.980	298	7.66	1	2451	6	45.96	45.96	109.5	0.87	42%	OK
	FMH1028569	FMH1028568	400	9.1	16.490	12.970	16.420	12.960	910	7.66	1	2451	6	45.96	45.96	62.5	0.50	74%	OK
	FMH1028568	FMH1028567	400	7.7	16.420	12.950	16.390	12.920	257	7.66	1	2451	6	45.96	45.96	118.0	0.94	39%	OK
	FMH1028567	FMH1028566	400	35.7	16.390	12.910	17.620	12.800	325	7.66	1	2451	6	45.96	45.96	104.9	0.83	44%	OK
	FMH1028566	FMH1028565	400	14.2	17.620	12.790	18.210	12.750	355	7.66	1	2451	6	45.96	45.96	100.3	0.80	46%	OK
	FMH1028565	FMH1028564	400	8.3	18.210	12.740	18.360	12.710	277	7.66	1	2451	6	45.96	45.96	113.7	0.90	40%	OK
	FMH1028564	FMH1028563	400	15.8	18.360	12.700	18.290	12.660	395	7.66	1	2451	6	45.96	45.96	95.1	0.76	48%	OK
	FMH1028563	FMH1028562	400	13.9	18.290	12.650	18.050	12.600	278	7.66	1	2451	6	45.96	45.96	113.4	0.90	41%	OK
	FMH1028562	FMH1028561	400	13.4	18.050	12.590	17.820	12.550	335	7.66	1	2451	6	45.96	45.96	103.3	0.82	45%	OK
	FMH1028561	FMH1028560	400	10	17.820	12.540	17.600	12.510	333	7.66	1	2451	6	45.96	45.96	103.5	0.82	44%	OK
La Regent Park	FMH1028560	FMH1028548	400	22.6	17.600	12.500	17.660	12.270	98	8.17	1	2613	6	48.99	48.99	191.0	1.52	26%	OK
	FMH1028548	FMH1028547	400	3.7	17.660	12.210	17.220	12.130	46	8.17	1	2613	6	48.99	48.99	278.5	2.22	18%	OK
	FMH1028547	FMH1028546	400	5.4	17.220	12.100	17.080	11.930	32	8.17	1	2613	6	48.99	48.99	336.1	2.67	15%	OK
	FMH1028546	FMH1028545	400	27.8	17.080	11.920	14.780	11.110	34	8.17	1	2613	6	48.99	48.99	323.3	2.57	15%	OK
	FMH1028545	FMH1028544	400	15	14.780	11.100	13.280	10.500	25	8.17	1	2613	6	48.99	48.99	378.9	3.02	13%	OK
	FMH1028544	FMH1028543	400	9.7	13.280	10.490	12.930	10.150	29	8.17	1	2613	6	48.99	48.99	354.7	2.82	14%	OK
	FMH1028543	FMH1028542	400	9.3	12.930	10.140	12.540	9.890	37	8.17	1	2613	6	48.99	48.99	310.6	2.47	16%	OK
	FMH1028542	FMH1028541	400	9.4	12.540	9.880	12.160	9.520	26	8.17	1	2613	6	48.99	48.99	370.7	2.95	13%	OK
	FMH1028541	FMH1028540	400	6.3	12.160	9.510	12.080	9.430	79	8.17	1	2613	6	48.99	48.99	213.3	1.70	23%	OK
	FMH1028540	FMH1028528	400	5.3	12.080	9.420	11.810	9.290	41	8.17	1	2613	6	48.99	48.99	296.6	2.36	17%	OK
	FMH1028528	FMH1028527	400	5.9	11.810	9.280	11.900	9.170	54	8.17	1	2613	6	48.99	48.99	258.6	2.06	19%	OK
	FMH1028527	FMH1028526	300	5.2	11.900	9.160	11.440	9.030	40	8.17	1	2613	6	48.99	48.99	278.2	1.97	18%	OK
	FMH1028526	FMH1028525	400	5.1	11.440	9.020	11.320	8.760	20	8.17	1	2613	6	48.99	48.99	427.8	3.40	11%	OK
	FMH1028525	FMH1028524	400	9.2	11.320	8.740	11.110	8.710	307	8.17	1	2613	6	48.99	48.99	107.9	0.86	45%	OK
Kam Tsin Village	FMH1028524	FMH1028523	400	8.1	11.110	8.700	10.830	8.630	116	21.44	1	6861	5	107.20	107.20	175.9	1.40	61%	OK
	FMH1028523	FMH1028522	500	41.3	10.830	8.620	10.230	8.250	112	21.44	1	6861	5	107.20	107.20	324.3	1.65	33%	OK
	FMH1028522	FMH1028521	500	35.2	10.230	8.240	9.790	7.930	114	21.44	1	6861	5	107.20	107.20	321.5	1.64	33%	OK
	FMH1028521	FMH1028520	500	20.8	9.790	7.920	9.640	7.620	69	21.44	1	6861	5	107.20	107.20	411.6	2.10	26%	OK
Kam Tsin Village Ho Tung Kindergarten, Kam Tsin Village Ho Tung School, De La Salle Secondary School NT	FMH1028520	FMH1021544	500	27.2	9.640	7.610	10.030	7.480	209	22.34	1	7149	5	111.70	111.70	236.7	1.21	47%	OK

Pipe Information										Capacity and Velocity Check									
Pipe Segment	From	To	Pipe (d)	Pipe (m)	Ground Level	Invert Level (out)	Ground Level	Invert Level (in)	Slope (s)	Cumulative Sewage Flow (Q _a)	Catchment Inflow Factor (P _{CI}) ^[2]	Population (CP) ^[4]	Peak Factor (PF) ^[5]	Cumulative Sewage Flow (Q _a)	Peak Flow with Swimming Pool and Public Toilet	Pipe Full Flow (Q _f)	Pipe Full Flow (v)	Utilization	Flow Capacity
	Manhole ID Upstream	Manhole ID Downstream	Diameter mm	Length m	(US) mPD	(US) mPD	(DS) mPD	(DS) mPD	Gradient 1 in	l/s				l/s	l/s	Capacity l/s	Velocity m/s	%	Check
Y/NE-KTS/15 (formerly A/NE-KTS/484), A/NE-KTS/506 (formerly Y/NE-KTS/12), Y/NE-KTS/14 and Y/NE-KTS/17, Eden Place, Valais, Village areas at north of Kam Hang Road at Kam Tsin, Casas Domingo, St Paul's House of Prayer	FMH1021544	FMH1021543	500	54.9	10.030	7.440	10.130	6.860	95	75.33	1	24106	4	301.33	332.33	352.2	1.79	94%	OK
Y/KTN/2	FMH1021543	FMH1021545	600	45.1	10.130	6.410	9.750	6.060	129	81.03	1	25928	4	324.10	358.60	489.7	1.73	73%	OK
[6]	FMH1021545	FMH1021546	750	44.9	9.750	5.960	9.230	5.870	499	81.03	1	25928	4	324.10	358.60	448.9	1.02	80%	OK
	FMH1021546	FMH1021547	600	39	9.230	5.850	8.790	5.670	217	81.03	1	25928	4	324.10	358.60	377.4	1.33	95%	OK
	FMH1021547	FMH1021548	600	24.8	8.790	5.670	8.420	5.020	38	81.03	1	25928	4	324.10	358.60	900.5	3.18	40%	OK
	FMH1021548	FMH1021549	600	8.1	8.420	5.000	8.330	4.830	48	81.03	1	25928	4	324.10	358.60	805.7	2.85	45%	OK
	FMH1021549	FMH1021550	600	44.9	8.330	4.830	8.110	4.480	128	81.03	1	25928	4	324.10	358.60	490.7	1.74	73%	OK
Yin Kong Village, Toilet	FMH1021550	FMH1021551	600	5.6	8.110	-	8.080	4.480	-	84.41	1	27011	4	337.64	398.94	-	-	-	OK
[6]	FMH1021551	FMH1021552	750	31.1	8.080	4.470	7.930	4.370	311	84.41	1	27011	4	337.64	398.94	568.9	1.29	70%	OK
[6]	FMH1021552	FMH1021553	750	37.6	7.930	4.350	7.740	4.240	342	84.41	1	27011	4	337.64	398.94	542.6	1.23	74%	OK
[6]	FMH1021553	FMH1021554	750	50.3	7.740	4.230	7.450	4.060	296	84.41	1	27011	4	337.64	398.94	583.3	1.32	68%	OK
[6]	FMH1021554	FMH1021555	750	32.5	7.450	4.060	7.370	3.930	250	84.41	1	27011	4	337.64	398.94	634.7	1.44	63%	OK
[6]	FMH1021555	FMH1021556	750	33	7.370	3.930	7.340	3.840	367	84.41	1	27011	4	337.64	398.94	523.8	1.19	76%	OK
[6]	FMH1021556	FMH1021557	750	17.6	7.340	3.840	7.280	3.780	293	84.41	1	27011	4	337.64	398.94	585.8	1.33	68%	OK
[6]	FMH1021557	FMH1021558	750	9.3	7.280	3.780	7.190	3.750	310	84.41	1	27011	4	337.64	398.94	569.8	1.29	70%	OK
[7]	FMH1021558	FMH1021559	675	13.7	7.190	3.740	7.110	3.680	228	84.41	1	27011	4	337.64	398.94	502.4	1.40	79%	OK
[6]	FMH1021559	FMH1021560	750	13	7.110	3.680	7.030	3.650	433	84.41	1	27011	4	337.64	398.94	481.8	1.09	83%	OK
[6]	FMH1021560	FMH1021561	750	11.3	7.030	3.650	7.120	3.630	565	84.41	1	27011	4	337.64	398.94	421.8	0.95	95%	OK
Y/FSS/19, Golf Parkview [6]	FMH1021561	FMH1021562	800	13.3	7.120	3.630	7.340	3.600	443	94.23	1	30155	4	376.93	444.03	565.0	1.12	79%	OK
[6]	FMH1021562	FMH1021563	750	8.8	7.340	3.600	7.490	3.600	-	94.23	1	30155	4	376.93	444.03	-	-	-	OK
[6]	FMH1021563	FMH1021564	750	13.4	7.490	3.600	7.510	3.530	191	94.23	1	30155	4	376.93	444.03	725.4	1.64	61%	OK
[6]	FMH1021564	FMH1021565	750	10.7	7.510	3.530	7.370	3.480	214	94.23	1	30155	4	376.93	444.03	686.1	1.55	65%	OK
[8]	FMH1021565	FMH1021566	900	7.3	7.370	3.470	7.380	3.460	730	94.23	1	30155	4	377.93	445.03	600.9	0.94	74%	OK
	FMH1021566	XPS1000860	600	9.9	7.380	3.450	7.380	3.450	-	94.23	1	30155	4	377.93	445.03	-	-	-	OK

Note:

[1] A conservative approach has been adopted, assuming that sewage discharge from the development will be discharged into the public sewage system.

[2] ks = 3mm is adopted for the "poor" condition of concrete siled sewers. (Refer to Sewerage Manual - Key Planning Issues and Gravity Collection System by DSD, Table 5 : Recommended Roughness Values ks)

[3] Catchment Inflow factors, PCIF = 1 for North District. (Refer to Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning by EPD, Table T-4 : Catchment Inflow Factors, PCIF)

[4] Contribution Population= Calculation total average flow (m3/day)/0.27 (m3/person/day), where the calculated total average flow Qaverage = Qd x PCIF. (Refer to Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning by EPD, Section 12.1)

[5] The peaking factor of 8 is adopted, when population range is <1,000 (including stormwater allowance). (Refer to Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning by EPD, Table T-5 : Peaking Factors, P)

The peaking factor of 6 is adopted, when population range is 1,000 - 5,000 (including stormwater allowance). (Refer to Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning by EPD, Table T-5 : Peaking Factors, P)

The peaking factor of 5 is adopted, when population range is 5,000-10,000 (including stormwater allowance). (Refer to Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning by EPD, Table T-5 : Peaking Factors, P)

The peaking factor of 4 is adopted, when population range is 10,000-50,000 (including stormwater allowance). (Refer to Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning by EPD, Table T-5 : Peaking Factors, P)

[6] Upgraded by A/NE-KTS/506

[7] Upgraded by others, refer to A/NE-KTS/565

[8] Upgraded by Y/FSS/19

 Meinhardt Infrastructure & Environment Ltd. 10/F Genesis 33-35 Wong Chuk Hang Road Hong Kong	Contract: Proposed Amendments to the Kwu Tung South Outline Zoning Plan for Residential Development at Various Lots in D.D. 92 and D.D 94 and Adjoining Government Land in "CDA" Zone, Hang Tau Tai Po, Kwu Tung South, New Territories													Job Ref: -																																																																																																																																																																																																																																																																																																																																																																	
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Sewerage Impact Assessment (Appendix D) Scenario 2: Proposed development, Existing development, and planned developments anticipated intake year at 2031 (Upgraded Sewers by Responsible Planned Developments) Foulwater Drains Capacity Design Check (By Colebrook White Equation) By Colebrook White Equation $V = -\sqrt{(8gDs)} \log\left(\frac{k_s}{3.7D} + \frac{2.51\nu}{D\sqrt{(2gDs)}}\right)$ V = mean velocity (m/s) g = gravitational acceleration (m/s²) D = internal pipe diameter (m) k_s = hydraulic pipeline roughness (m) ν = kinematic viscosity of fluid (m²/s) s = hydraulic gradient (energy loss per unit length due to friction)																<table><tr><td colspan="3">Planned Development</td><td colspan="2">ADWF (m³/d)</td><td colspan="2">ADWF (L/s)</td><td colspan="3">Manhole</td><td colspan="3">Existing Development</td><td colspan="3">Manhole</td></tr><tr><td colspan="3">A/NE-KTS/460</td><td colspan="2">2.22</td><td colspan="2">-</td><td colspan="3">0.03 FMH1029682</td><td colspan="3">1 St Andrews Place 聖</td><td colspan="3">27.01 0.31 FMH1028584</td></tr><tr><td colspan="3">A/NE-KTS/466</td><td colspan="2">49</td><td colspan="2">-</td><td colspan="3">0.57 FMH1029681</td><td colspan="3">2 Golf Villa 金鐘花園另</td><td colspan="3">18.87 0.22 FMH1028584</td></tr><tr><td colspan="3">A/NE-KTS/525 ⁽¹⁾</td><td colspan="2">45.8</td><td colspan="2">-</td><td colspan="3">0.53 FMH1029681</td><td colspan="3">3 The Royal Oak 御林</td><td colspan="3">45.88 0.53 FMH1028570</td></tr><tr><td colspan="3">A/NE-KTS/538 ⁽¹⁾</td><td colspan="2">4.5</td><td colspan="2">-</td><td colspan="3">0.05 FMH1029681</td><td colspan="3">4 Ascot Park 翡翠園</td><td colspan="3">16.65 0.19 FMH1028570</td></tr><tr><td colspan="3">Y/NE-KTS/15 (formerly A/NE-KTS/484)</td><td colspan="2">792</td><td colspan="2">8.3</td><td colspan="3">9.17 FMH1021544</td><td colspan="3">5 Kam Tsin Village 金</td><td colspan="3">1147 13.28 FMH1028523</td></tr><tr><td colspan="3">A/NE-KTS/506 (formerly Y/NE-KTS/12)</td><td colspan="2">2166.4</td><td colspan="2">8.3</td><td colspan="3">25.07 FMH1021544</td><td colspan="3">6 Kam Tsin Village Hc</td><td colspan="3">4.24 0.05 FMH1028520</td></tr><tr><td colspan="3">A/NE-KTS/541 ⁽¹⁾</td><td colspan="2">2.22</td><td colspan="2">-</td><td colspan="3">0.03 FMH1029681</td><td colspan="3">7 Kam Tsin Village Hc</td><td colspan="3">19.28 0.22 FMH1028520</td></tr><tr><td colspan="3">Y/NE-KTS/14 and Y/NE-KTS/17</td><td colspan="2">1074</td><td colspan="2">14.4</td><td colspan="3">12.43 FMH1021544</td><td colspan="3">8 De La Salle Second</td><td colspan="3">54.08 0.63 FMH1028520</td></tr><tr><td colspan="3">Y/KTN/2</td><td colspan="2">492</td><td colspan="2">3.5</td><td colspan="3">5.69 FMH1021543</td><td colspan="3">9 St Paul's House of F</td><td colspan="3">22.7 0.26 FMH1021544</td></tr><tr><td colspan="3">Y/FSS/19</td><td colspan="2">798.9</td><td colspan="2">5.8</td><td colspan="3">9.25 FMH1021561</td><td colspan="3">10 Eden Place 桃苑</td><td colspan="3">8.51 0.10 FMH1021544</td></tr><tr><td colspan="3"></td><td colspan="2"></td><td colspan="2"></td><td colspan="3"></td><td colspan="3">11 Valais 天恩</td><td colspan="3">341.88 3.96 FMH1021544</td></tr><tr><td colspan="3">Proposed development</td><td colspan="2">383.24</td><td colspan="2">6.37</td><td colspan="3">4.44 FMH1029683</td><td colspan="3">12 Ym Kong Village 燕</td><td colspan="3">292.3 3.38 FMH1021550</td></tr><tr><td colspan="3"></td><td colspan="2"></td><td colspan="2"></td><td colspan="3"></td><td colspan="3">13 Golf Parkview (高爾</td><td colspan="3">49.95 0.58 FMH1021561</td></tr><tr><td colspan="3"></td><td colspan="2"></td><td colspan="2"></td><td colspan="3"></td><td colspan="3">14 Beas River Equestri</td><td colspan="3">272 3.15 FMH1028584</td></tr><tr><td colspan="3"></td><td colspan="2"></td><td colspan="2"></td><td colspan="3"></td><td colspan="3">15 Village areas at nort</td><td colspan="3">127.17 1.47 FMH1021544</td></tr><tr><td colspan="3"></td><td colspan="2"></td><td 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FMH1028584			A/NE-KTS/466			49		-		0.57 FMH1029681			2 Golf Villa 金鐘花園另			18.87 0.22 FMH1028584			A/NE-KTS/525 ⁽¹⁾			45.8		-		0.53 FMH1029681			3 The Royal Oak 御林			45.88 0.53 FMH1028570			A/NE-KTS/538 ⁽¹⁾			4.5		-		0.05 FMH1029681			4 Ascot Park 翡翠園			16.65 0.19 FMH1028570			Y/NE-KTS/15 (formerly A/NE-KTS/484)			792		8.3		9.17 FMH1021544			5 Kam Tsin Village 金			1147 13.28 FMH1028523			A/NE-KTS/506 (formerly Y/NE-KTS/12)			2166.4		8.3		25.07 FMH1021544			6 Kam Tsin Village Hc			4.24 0.05 FMH1028520			A/NE-KTS/541 ⁽¹⁾			2.22		-		0.03 FMH1029681			7 Kam Tsin Village Hc			19.28 0.22 FMH1028520			Y/NE-KTS/14 and Y/NE-KTS/17			1074		14.4		12.43 FMH1021544			8 De La Salle Second			54.08 0.63 FMH1028520			Y/KTN/2			492		3.5		5.69 FMH1021543			9 St Paul's House of F			22.7 0.26 FMH1021544			Y/FSS/19			798.9		5.8		9.25 FMH1021561			10 Eden Place 桃苑			8.51 0.10 FMH1021544													11 Valais 天恩			341.88 3.96 FMH1021544			Proposed development			383.24		6.37		4.44 FMH1029683			12 Ym Kong 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Assumptions: 1. Pipe roughness, k_s [2]= 3 mm 0.3 (Refer to Sewerage Manual Part 1 - Table 5, assume "Clayware" under normal condition) 2. Gravitational acceleration, g = 9.81 m/s² 3. Kinematic viscosity, ν = 1.00E-06 m²/s (Transitional flow and water at 15 degree celcius) 4. Catchment Inflow Factor, P_{CF}= 1 (Refer to Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning -Table T4 - North District)																																																																																																																																																																																																																																																																																																																																																																															
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A/NE-KTS/525, A/NE-KTS/538, A/NE-KTS/541</td><td>FMH1029681</td><td>FMH1029682</td><td>300</td><td>22</td><td>12.980</td><td>9.270</td><td>12.870</td><td>9.070</td><td>110</td><td>1.18</td><td>1</td><td>376</td><td>8</td><td>9.40</td><td>9.40</td><td>83.8</td><td>1.19</td><td>11%</td><td>OK</td></tr><tr><td>A/NE-KTS/460</td><td>FMH1029682</td><td>FMH1029683</td><td>300</td><td>31</td><td>12.870</td><td>9.060</td><td>11.600</td><td>8.860</td><td>155</td><td>1.20</td><td>1</td><td>384</td><td>8</td><td>9.61</td><td>9.61</td><td>70.6</td><td>1.00</td><td>14%</td><td>OK</td></tr><tr><td>Proposed development, Goodwood Park</td><td>FMH1029683</td><td>FMH1029680</td><td>300</td><td>24</td><td>11.600</td><td>8.850</td><td>11.180</td><td>8.680</td><td>141</td><td>5.79</td><td>1</td><td>1854</td><td>6</td><td>34.77</td><td>41.13</td><td>73.9</td><td>1.05</td><td>56%</td><td>OK</td></tr><tr><td></td><td>FMH1028600</td><td>FMH1028601</td><td>300</td><td>22</td><td>24.840</td><td>23.470</td><td>22.920</td><td>21.620</td><td>12</td><td>5.79</td><td>1</td><td>1854</td><td>6</td><td>34.77</td><td>41.13</td><td>254.1</td><td>3.59</td><td>16%</td><td>OK</td></tr><tr><td></td><td>FMH1028601</td><td>FMH1028602</td><td>300</td><td>19</td><td>22.920</td><td>21.620</td><td>21.230</td><td>20.080</td><td>12</td><td>5.79</td><td>1</td><td>1854</td><td>6</td><td>34.77</td><td>41.13</td><td>249.9</td><td>3.54</td><td>16%</td><td>OK</td></tr><tr><td></td><td>FMH1028602</td><td>FMH1028603</td><td>300</td><td>38.8</td><td>21.230</td><td>20.070</td><td>19.240</td><td>17.640</td><td>16</td><td>5.79</td><td>1</td><td>1854</td><td>6</td><td>34.77</td><td>41.13</td><td>220.2</td><td>3.12</td><td>19%</td><td>OK</td></tr><tr><td></td><td>FMH1028603</td><td>FMH1028591</td><td>300</td><td>20.2</td><td>19.240</td><td>17.630</td><td>19.070</td><td>17.200</td><td>47</td><td>5.79</td><td>1</td><td>1854</td><td>6</td><td>34.77</td><td>41.13</td><td>128.3</td><td>1.82</td><td>32%</td><td>OK</td></tr><tr><td></td><td>FMH1028591</td><td>FMH1028590</td><td>300</td><td>18.2</td><td>19.070</td><td>17.190</td><td>18.580</td><td>16.610</td><td>31</td><td>5.79</td><td>1</td><td>1854</td><td>6</td><td>34.77</td><td>41.13</td><td>157.1</td><td>2.22</td><td>26%</td><td>OK</td></tr><tr><td></td><td>FMH1028590</td><td>FMH1028589</td><td>300</td><td>27.3</td><td>18.580</td><td>16.600</td><td>17.010</td><td>15.560</td><td>26</td><td>5.79</td><td>1</td><td>1854</td><td>6</td><td>34.77</td><td>41.13</td><td>171.7</td><td>2.43</td><td>24%</td><td>OK</td></tr><tr><td></td><td>FMH1028589</td><td>FMH1028588</td><td>300</td><td>29.1</td><td>17.010</td><td>15.540</td><td>16.170</td><td>14.720</td><td>35</td><td>5.79</td><td>1</td><td>1854</td><td>6</td><td>34.77</td><td>41.13</td><td>147.7</td><td>2.09</td><td>28%</td><td>OK</td></tr></table>																Pipe 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Park	FMH1029683	FMH1029680	300	24	11.600	8.850	11.180	8.680	141	5.79	1	1854	6	34.77	41.13	73.9	1.05	56%	OK		FMH1028600	FMH1028601	300	22	24.840	23.470	22.920	21.620	12	5.79	1	1854	6	34.77	41.13	254.1	3.59	16%	OK		FMH1028601	FMH1028602	300	19	22.920	21.620	21.230	20.080	12	5.79	1	1854	6	34.77	41.13	249.9	3.54	16%	OK		FMH1028602	FMH1028603	300	38.8	21.230	20.070	19.240	17.640	16	5.79	1	1854	6	34.77	41.13	220.2	3.12	19%	OK		FMH1028603	FMH1028591	300	20.2	19.240	17.630	19.070	17.200	47	5.79	1	1854	6	34.77	41.13	128.3	1.82	32%	OK		FMH1028591	FMH1028590	300	18.2	19.070	17.190	18.580	16.610	31	5.79	1	1854	6	34.77	41.13	157.1	2.22	26%	OK		FMH1028590	FMH1028589	300	27.3	18.580	16.600	17.010	15.560	26	5.79	1	1854	6	34.77	41.13	171.7	2.43	24%	OK		FMH1028589	FMH1028588	300	29.1	17.010	15.540	16.170	14.720	35	5.79	1	1854	6	34.77	41.13	147.7	2.09	28%	OK																																																																																																
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A/NE-KTS/460	FMH1029682	FMH1029683	300	31	12.870	9.060	11.600	8.860	155	1.20	1	384	8	9.61	9.61	70.6	1.00	14%	OK																																																																																																																																																																																																																																																																																																																																																												
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	FMH1028602	FMH1028603	300	38.8	21.230	20.070	19.240	17.640	16	5.79	1	1854	6	34.77	41.13	220.2	3.12	19%	OK																																																																																																																																																																																																																																																																																																																																																												
	FMH1028603	FMH1028591	300	20.2	19.240	17.630	19.070	17.200	47	5.79	1	1854	6	34.77	41.13	128.3	1.82	32%	OK																																																																																																																																																																																																																																																																																																																																																												
	FMH1028591	FMH1028590	300	18.2	19.070	17.190	18.580	16.610	31	5.79	1	1854	6	34.77	41.13	157.1	2.22	26%	OK																																																																																																																																																																																																																																																																																																																																																												
	FMH1028590	FMH1028589	300	27.3	18.580	16.600	17.010	15.560	26	5.79	1	1854	6	34.77	41.13	171.7	2.43	24%	OK																																																																																																																																																																																																																																																																																																																																																												
	FMH1028589	FMH1028588	300	29.1	17.010	15.540	16.170	14.720	35	5.79	1	1854	6	34.77	41.13	147.7	2.09	28%	OK																																																																																																																																																																																																																																																																																																																																																												

Pipe Information										Capacity and Velocity Check									
Pipe Segment	From	To	Pipe (d)	Pipe (m)	Ground Level	Invert Level (out)	Ground Level	Invert Level (in)	Slope (s)	Cumulative Sewage Flow (Q _a)	Catchment Inflow Factor (P _{car}) ^[3]	Population (CP) ^[4]	Peak Factor (PF) ^[5]	Cumulative Sewage Flow (Q _a)	Peak Flow with Swimming Pool and Public Toilet	Pipe Full Flow (Q _f)	Pipe Full Flow (v)	Utilization	Flow Capacity
	Manhole ID Upstream	Manhole ID Downstream	Diameter mm	Length m	(US) mPD	(US) mPD	(DS) mPD	(DS) mPD	Gradient 1 in	l/s				l/s	l/s	Capacity l/s	Velocity m/s	%	Check
	FMH1028588	FMH1028587	300	30.9	16.170	14.710	15.730	14.380	94	5.79	1	1854	6	34.77	41.13	90.8	1.29	45%	OK
	FMH1028587	FMH1028586	400	25.3	15.730	14.300	15.480	13.750	46	5.79	1	1854	6	34.77	41.13	279.2	2.22	15%	OK
	FMH1028586	FMH1028585	400	24.9	15.480	13.750	15.440	13.670	311	5.79	1	1854	6	34.77	41.13	107.1	0.85	38%	OK
	FMH1028585	FMH1028584	400	24.6	15.440	13.660	15.340	13.560	246	5.79	1	1854	6	34.77	41.13	120.6	0.96	34%	OK
St Andrews Place, Golf Villa, Beas River Equestrian, Beas River Country Park	FMH1028584	FMH1028583	400	15.3	15.340	13.550	15.410	13.500	306	11.37	1	3639	6	68.23	74.60	108.1	0.86	69%	OK
	FMH1028583	FMH1028582	400	32.4	15.410	13.490	15.560	13.390	324	11.37	1	3639	6	68.23	74.60	105.0	0.84	71%	OK
	FMH1028582	FMH1028581	400	35.4	15.560	13.380	15.680	13.280	354	11.37	1	3639	6	68.23	74.60	100.4	0.80	74%	OK
	FMH1028581	FMH1028580	400	17.2	15.680	13.270	15.820	13.210	287	11.37	1	3639	6	68.23	74.60	111.7	0.89	67%	OK
	FMH1028580	FMH1028570	400	38.2	15.820	13.200	16.130	13.100	382	11.37	1	3639	6	68.23	74.60	96.7	0.77	77%	OK
The Royal Oak, Ascot Park	FMH1028570	FMH1028569	400	32.8	16.130	13.090	16.490	12.980	298	12.10	1	3871	6	72.58	78.94	109.5	0.87	72%	OK
	FMH1028569	FMH1028568	400	9.1	16.490	12.970	16.420	12.960	910	12.10	1	3871	6	72.58	78.94	62.5	0.50	126%	Fail
	FMH1028568	FMH1028567	400	7.7	16.420	12.950	16.390	12.920	257	12.10	1	3871	6	72.58	78.94	118.0	0.94	67%	OK
	FMH1028567	FMH1028566	400	35.7	16.390	12.910	17.620	12.800	325	12.10	1	3871	6	72.58	78.94	104.9	0.83	75%	OK
	FMH1028566	FMH1028565	400	14.2	17.620	12.790	18.210	12.750	355	12.10	1	3871	6	72.58	78.94	100.3	0.80	79%	OK
	FMH1028565	FMH1028564	400	8.3	18.210	12.740	18.360	12.710	277	12.10	1	3871	6	72.58	78.94	113.7	0.90	68%	OK
	FMH1028564	FMH1028563	400	15.8	18.360	12.700	18.290	12.660	395	12.10	1	3871	6	72.58	78.94	95.1	0.76	83%	OK
	FMH1028563	FMH1028562	400	13.9	18.290	12.650	18.050	12.600	278	12.10	1	3871	6	72.58	78.94	113.4	0.90	70%	OK
	FMH1028562	FMH1028561	400	13.4	18.050	12.590	17.820	12.550	335	12.10	1	3871	6	72.58	78.94	103.3	0.82	76%	OK
	FMH1028561	FMH1028560	400	10	17.820	12.540	17.600	12.510	333	12.10	1	3871	6	72.58	78.94	103.5	0.82	76%	OK
La Regent Park	FMH1028560	FMH1028548	400	22.6	17.600	12.500	17.660	12.270	98	12.60	1	4032	6	75.61	81.97	191.0	1.52	43%	OK
	FMH1028548	FMH1028547	400	3.7	17.660	12.210	17.220	12.130	46	12.60	1	4032	6	75.61	81.97	278.5	2.22	29%	OK
	FMH1028547	FMH1028546	400	5.4	17.220	12.100	17.080	11.930	32	12.60	1	4032	6	75.61	81.97	336.1	2.67	24%	OK
	FMH1028546	FMH1028545	400	27.8	17.080	11.920	14.780	11.110	34	12.60	1	4032	6	75.61	81.97	323.3	2.57	25%	OK
	FMH1028545	FMH1028544	400	15	14.780	11.100	13.280	10.500	25	12.60	1	4032	6	75.61	81.97	378.9	3.02	22%	OK
	FMH1028544	FMH1028543	400	9.7	13.280	10.490	12.930	10.150	29	12.60	1	4032	6	75.61	81.97	354.7	2.82	23%	OK
	FMH1028543	FMH1028542	400	9.3	12.930	10.140	12.540	9.890	37	12.60	1	4032	6	75.61	81.97	310.6	2.47	26%	OK
	FMH1028542	FMH1028541	400	9.4	12.540	9.880	12.160	9.520	26	12.60	1	4032	6	75.61	81.97	370.7	2.95	22%	OK
	FMH1028541	FMH1028540	400	6.3	12.160	9.510	12.080	9.430	79	12.60	1	4032	6	75.61	81.97	213.3	1.70	38%	OK
	FMH1028540	FMH1028528	400	5.3	12.080	9.420	11.810	9.290	41	12.60	1	4032	6	75.61	81.97	296.6	2.36	28%	OK
	FMH1028528	FMH1028527	400	5.9	11.810	9.280	11.900	9.170	54	12.60	1	4032	6	75.61	81.97	258.6	2.06	32%	OK
	FMH1028527	FMH1028526	300	5.2	11.900	9.160	11.440	9.030	40	12.60	1	4032	6	75.61	81.97	278.2	1.97	29%	OK
	FMH1028526	FMH1028525	400	5.1	11.440	9.020	11.320	8.760	20	12.60	1	4032	6	75.61	81.97	427.8	3.40	19%	OK
	FMH1028525	FMH1028524	400	9.2	11.320	8.740	11.110	8.710	307	12.60	1	4032	6	75.61	81.97	107.9	0.86	76%	OK
Kam Tsin Village	FMH1028524	FMH1028523	400	8.1	11.110	8.700	10.830	8.630	116	25.88	1	8281	5	129.38	135.75	175.9	1.40	77%	OK
	FMH1028523	FMH1028522	500	41.3	10.830	8.620	10.230	8.250	112	25.88	1	8281	5	129.38	135.75	324.3	1.65	42%	OK
	FMH1028522	FMH1028521	500	35.2	10.230	8.240	9.790	7.930	114	25.88	1	8281	5	129.38	135.75	321.5	1.64	42%	OK
	FMH1028521	FMH1028520	500	20.8	9.790	7.920	9.640	7.620	69	25.88	1	8281	5	129.38	135.75	411.6	2.10	33%	OK
Kam Tsin Village Ho Tung Kindergarten, Kam Tsin Village Ho Tung School, De La Salle Secondary School NT	FMH1028520	FMH1021544	500	27.2	9.640	7.610	10.030	7.480	209	26.77	1	8568	5	133.87	140.24	236.7	1.21	59%	OK

Pipe Information										Capacity and Velocity Check									
Pipe Segment	From	To	Pipe (d)	Pipe (m)	Ground Level	Invert Level (out)	Ground Level	Invert Level (in)	Slope (s)	Cumulative Sewage Flow (Q _a)	Catchment Inflow Factor (P _{CI}) ^[1]	Population (CP) ^[4]	Peak Factor (PF) ^[5]	Cumulative Sewage Flow (Q _a)	Peak Flow with Swimming Pool and Public Toilet	Pipe Full Flow (Q _f)	Pipe Full Flow (v)	Utilization	Flow Capacity
	Manhole ID Upstream	Manhole ID Downstream	Diameter mm	Length m	(US) mPD	(US) mPD	(DS) mPD	(DS) mPD	Gradient 1 in	l/s				l/s	l/s	Capacity l/s	Velocity m/s	%	Check
Y/NE-KTS/15 (formerly A/NE-KTS/484), A/NE-KTS/506 (formerly Y/NE-KTS/12), Y/NE-KTS/14 and Y/NE-KTS/17, Eden Place, Valais, Village areas at north of Kam Hang Road at Kam Tsin, Casas Domingo, St Paul's House of Prayer	FMH1021544	FMH1021543	500	54.9	10.030	7.440	10.130	6.860	95	79.77	1	25525	4	319.07	356.43	352.2	1.79	101%	Fail
Y/KTN/2	FMH1021543	FMH1021545	600	45.1	10.130	6.410	9.750	6.060	129	85.46	1	27348	4	341.85	382.71	489.7	1.73	78%	OK
[6]	FMH1021545	FMH1021546	750	44.9	9.750	5.960	9.230	5.870	499	85.46	1	27348	4	341.85	382.71	448.9	1.02	85%	OK
	FMH1021546	FMH1021547	600	39	9.230	5.850	8.790	5.670	217	85.46	1	27348	4	341.85	382.71	377.4	1.33	101%	Fail
	FMH1021547	FMH1021548	600	24.8	8.790	5.670	8.420	5.020	38	85.46	1	27348	4	341.85	382.71	900.5	3.18	43%	OK
	FMH1021548	FMH1021549	600	8.1	8.420	5.000	8.330	4.830	48	85.46	1	27348	4	341.85	382.71	805.7	2.85	47%	OK
	FMH1021549	FMH1021550	600	44.9	8.330	4.830	8.110	4.480	128	85.46	1	27348	4	341.85	382.71	490.7	1.74	78%	OK
Yin Kong Village, Toilet	FMH1021550	FMH1021551	600	5.6	8.110	-	8.080	4.480	-	88.84	1	28430	4	355.38	423.04	-	-	-	OK
[6]	FMH1021551	FMH1021552	750	31.1	8.080	4.470	7.930	4.370	311	88.84	1	28430	4	355.38	423.04	568.9	1.29	74%	OK
[6]	FMH1021552	FMH1021553	750	37.6	7.930	4.350	7.740	4.240	342	88.84	1	28430	4	355.38	423.04	542.6	1.23	78%	OK
[6]	FMH1021553	FMH1021554	750	50.3	7.740	4.230	7.450	4.060	296	88.84	1	28430	4	355.38	423.04	583.3	1.32	73%	OK
[6]	FMH1021554	FMH1021555	750	32.5	7.450	4.060	7.370	3.930	250	88.84	1	28430	4	355.38	423.04	634.7	1.44	67%	OK
[6]	FMH1021555	FMH1021556	750	33	7.370	3.930	7.340	3.840	367	88.84	1	28430	4	355.38	423.04	523.8	1.19	81%	OK
[6]	FMH1021556	FMH1021557	750	17.6	7.340	3.840	7.280	3.780	293	88.84	1	28430	4	355.38	423.04	585.8	1.33	72%	OK
[6]	FMH1021557	FMH1021558	750	9.3	7.280	3.780	7.190	3.750	310	88.84	1	28430	4	355.38	423.04	569.8	1.29	74%	OK
[7]	FMH1021558	FMH1021559	675	13.7	7.190	3.740	7.110	3.680	228	88.84	1	28430	4	355.38	423.04	502.4	1.40	84%	OK
[6]	FMH1021559	FMH1021560	750	13	7.110	3.680	7.030	3.650	433	88.84	1	28430	4	355.38	423.04	481.8	1.09	88%	OK
[6]	FMH1021560	FMH1021561	750	11.3	7.030	3.650	7.120	3.630	565	88.84	1	28430	4	355.38	423.04	421.8	0.95	100%	Fail
Y/FSS/19, Golf Parkview [6]	FMH1021561	FMH1021562	800	13.3	7.120	3.630	7.340	3.600	443	98.67	1	31574	4	394.68	468.14	565.0	1.12	83%	OK
[6]	FMH1021562	FMH1021563	750	8.8	7.340	3.600	7.490	3.600	-	98.67	1	31574	4	394.68	468.14	-	-	-	OK
[6]	FMH1021563	FMH1021564	750	13.4	7.490	3.600	7.510	3.530	191	98.67	1	31574	4	394.68	468.14	725.4	1.64	65%	OK
[6]	FMH1021564	FMH1021565	750	10.7	7.510	3.530	7.370	3.480	214	98.67	1	31574	4	394.68	468.14	686.1	1.55	68%	OK
[8]	FMH1021565	FMH1021566	900	7.3	7.370	3.470	7.380	3.460	730	98.67	1	31574	4	395.68	469.14	600.9	0.94	78%	OK
	FMH1021566	XPS1000860	600	9.9	7.380	3.450	7.380	3.450	-	98.67	1	31574	4	395.68	469.14	-	-	-	OK

Note:

[1] A conservative approach has been adopted, assuming that sewage discharge from the development will be discharged into the public sewage system.

[2] ks = 3mm is adopted for the "poor" condition of concrete slied sewers. (Refer to Sewerage Manual - Key Planning Issues and Gravity Collection System by DSD, Table 5 : Recommended Roughness Values ks)

[3] Catchment Inflow factors, PCIF = 1 for North District. (Refer to Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning by EPD, Table T-4 : Catchment Inflow Factors, PCIF)

[4] Contribution Population= Calculation total average flow (m3/day)/0.27 (m3/person/day), where the calculated total average flow Qaverage = Qd x PCIF. (Refer to Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning by EPD, Section 12.1)

[5] The peaking factor of 8 is adopted, when population range is <1,000 (including stormwater allowance). (Refer to Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning by EPD, Table T-5 : Peaking Factors, P)

The peaking factor of 6 is adopted, when population range is 1,000 - 5,000 (including stormwater allowance). (Refer to Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning by EPD, Table T-5 : Peaking Factors, P)

The peaking factor of 5 is adopted, when population range is 5,000-10,000 (including stormwater allowance). (Refer to Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning by EPD, Table T-5 : Peaking Factors, P)

The peaking factor of 4 is adopted, when population range is 10,000-50,000 (including stormwater allowance). (Refer to Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning by EPD, Table T-5 : Peaking Factors, P)

[6] Upgraded by A/NE-KTS/506

[7] Upgraded by others, refer to A/NE-KTS/565

[8] Upgraded by Y/FSS/19

 Meinhardt Infrastructure & Environment Ltd. 10/F Genesis 33-35 Wong Chuk Hang Road Hong Kong	Contract: Proposed Amendments to the Kwu Tung South Outline Zoning Plan for Residential Development at Various Lots in D.D. 92 and D.D 94 and Adjoining Government Land in "CDA" Zone, Hang Tau Tai Po, Kwu Tung South, New Territories														Job Ref: -						
	Subject: Sewerage Impact Assessment														Calc. Sheet No. -						
	Drawing Ref. -				Calculations By AL						Checked By AL						Date 6/25/2026				
Sewerage Impact Assessment (Appendix D) Scenario 3: Proposed development, Existing development, and planned developments anticipated intake year at 2031 (Upgraded Sewers by Responsible Planned Developments & Upgraded Sewers by Proposed Development) Foulwater Drains Capacity Design Check (By Colebrook White Equation) By Colebrook White Equation $V = -\sqrt{(8gDs)} \log \left(\frac{k_s}{3.7D} + \frac{2.51\nu}{D\sqrt{(2gDs)}} \right)$ V = mean velocity (m/s) g = gravitational acceleration (m/s²) D = internal pipe diameter (m) k_s = hydraulic pipeline roughness (m) ν = kinematic viscosity of fluid (m²/s) s = hydraulic gradient (energy loss per unit length due to friction)	Planned Development				ADWF (m³/d)		ADWF (L/s)		Manhole		Existing Development				Manhole						
	A/NE-KTS/460				2.22		-		0.03		FMH1029682		1 St Andrews Place 聖		27.01		0.31		FMH1028584		
	A/NE-KTS/466				49		-		0.57		FMH1029681		2 Golf Villa 金錢花園		18.87		0.22		FMH1028584		
	A/NE-KTS/525 ^[1]				45.8		-		0.53		FMH1029681		3 The Royal Oak 御林		45.88		0.53		FMH1028570		
	A/NE-KTS/538 ^[1]				4.5		-		0.05		FMH1029681		4 Ascot Park 翡翠園		16.65		0.19		FMH1028570		
	Y/NE-KTS/15 (formerly A/NE-KTS/484)				792		8.3		9.17		FMH1021544		5 Kam Tsin Village 金		1147		13.28		FMH1028523		
	A/NE-KTS/506 (formerly Y/NE-KTS/12)				2166.4		8.3		25.07		FMH1021544		6 Kam Tsin Village Hc		4.24		0.05		FMH1028520		
	A/NE-KTS/541 ^[1]				2.22		-		0.03		FMH1029681		7 Kam Tsin Village Hc		19.28		0.22		FMH1028520		
	Y/NE-KTS/14 and Y/NE-KTS/17				1074		14.4		12.43		FMH1021544		8 De La Salle Second		54.08		0.63		FMH1028520		
	Y/KTN/2				492		3.5		5.69		FMH1021543		9 St Paul's House of F		22.7		0.26		FMH1021544		
	Y/FSS/19				798.9		5.8		9.25		FMH1021561		10 Eden Place 桃苑		8.51		0.10		FMH1021544		
													11 Valais 天德		341.88		3.96		FMH1021544		
	Proposed development				383.24		6.37		4.44		FMH1029683		12 Yin Kong Village 燕		292.3		3.38		FMH1021550		
													13 Golf Parkview (高爾		49.95		0.58		FMH1021561		
													14 Beas River Equestri		272		3.15		FMH1028584		
													15 Village areas at nort		127.17		1.47		FMH1021544		
													16 Goodwood Park		13.69		0.16		FMH1029663		
													17 La Regent Park		43.66		0.51		FMH1028548		
													18 Casas Domingo		45.88		0.53		FMH1021544		
													19 Beas River Country		164		1.90		FMH1028584		
													20 Toilet		-		26.80		FMH1021550		
	Assumptions:																				
1. Pipe roughness, k _s ^[2] = 3 mm 0.3 (Refer to Sewerage Manual Part 1 - Table 5, assume "Clayware" under normal condition)																					
2. Gravitational acceleration, g = 9.81 m/s²																					
3. Kinematic viscosity, ν = 1.00E-06 m²/s (Transitional flow and water at 15 degree celcius)																					
4. Catchment Inflow Factor, P _{CF} = 1 (Refer to Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning -Table T4 - North District)																					
Pipe Information										Capacity and Velocity Check											
Pipe Segment	From	To	Pipe (d)	Pipe (m)	Ground Level	Invert Level (out)	Ground Level	Invert Level (in)	Slope (s)	Culmulative Sewage Flow (Q _s)	Catchment Inflow Factor (P _{CF}) ^[3]	Population (CP) ^[4]	Peak Factor (PF) ^[5]	Culmulative Sewage Flow (Q _p)	Peak Flow with Swimming Pool and Public Toilet	Pipe Full Flow (Q _f)	Pipe Full Flow (v)	Utilization	Flow Capacity		
	Manhole ID Upstream	Manhole ID Downstream	Diameter mm	Length m	(US) mPD	(US) mPD	(DS) mPD	(DS) mPD	Gradient 1 in	l/s				l/s	l/s	Capacity l/s	Velocity m/s	%	Check		
A/NE-KTS/466, A/NE-KTS/525, A/NE-KTS/538, A/NE-KTS/541	FMH1029681	FMH1029682	300	22	12.980	9.270	12.870	9.070	110	1.18	1	376	8	9.40	9.40	83.8	1.19	11%	OK		
A/NE-KTS/460	FMH1029682	FMH1029683	300	31	12.870	9.060	11.600	8.860	155	1.20	1	384	8	9.61	9.61	70.6	1.00	14%	OK		
Proposed development, Goodwood Park	FMH1029683	FMH1029680	300	24	11.600	8.850	11.180	8.680	141	5.79	1	1854	6	34.77	41.13	73.9	1.05	56%	OK		
	FMH1028600	FMH1028601	300	22	24.840	23.470	22.920	21.620	12	5.79	1	1854	6	34.77	41.13	254.1	3.59	16%	OK		
	FMH1028601	FMH1028602	300	19	22.920	21.620	21.230	20.080	12	5.79	1	1854	6	34.77	41.13	249.9	3.54	16%	OK		
	FMH1028602	FMH1028603	300	38.8	21.230	20.070	19.240	17.640	16	5.79	1	1854	6	34.77	41.13	220.2	3.12	19%	OK		
	FMH1028603	FMH1028591	300	20.2	19.240	17.630	19.070	17.200	47	5.79	1	1854	6	34.77	41.13	128.3	1.82	32%	OK		
	FMH1028591	FMH1028590	300	18.2	19.070	17.190	18.580	16.610	31	5.79	1	1854	6	34.77	41.13	157.1	2.22	26%	OK		
	FMH1028590	FMH1028589	300	27.3	18.580	16.600	17.010	15.560	26	5.79	1	1854	6	34.77	41.13	171.7	2.43	24%	OK		
	FMH1028589	FMH1028588	300	29.1	17.010	15.540	16.170	14.720	35	5.79	1	1854	6	34.77	41.13	147.7	2.09	28%	OK		

Pipe Information										Capacity and Velocity Check									
Pipe Segment	From	To	Pipe (d)	Pipe (m)	Ground Level	Invert Level (out)	Ground Level	Invert Level (in)	Slope (s)	Cumulative Sewage Flow (Q _a)	Catchment Inflow Factor (P _{car}) ^[3]	Population (CP) ^[4]	Peak Factor (PF) ^[5]	Cumulative Sewage Flow (Q _a)	Peak Flow with Swimming Pool and Public Toilet	Pipe Full Flow (Q _f)	Pipe Full Flow (v)	Utilization	Flow Capacity
	Manhole ID Upstream	Manhole ID Downstream	Diameter mm	Length m	(US) mPD	(US) mPD	(DS) mPD	(DS) mPD	Gradient 1 in	l/s				l/s	l/s	Capacity l/s	Velocity m/s	%	Check
	FMH1028588	FMH1028587	300	30.9	16.170	14.710	15.730	14.380	94	5.79	1	1854	6	34.77	41.13	90.8	1.29	45%	OK
	FMH1028587	FMH1028586	400	25.3	15.730	14.300	15.480	13.750	46	5.79	1	1854	6	34.77	41.13	279.2	2.22	15%	OK
	FMH1028586	FMH1028585	400	24.9	15.480	13.750	15.440	13.670	311	5.79	1	1854	6	34.77	41.13	107.1	0.85	38%	OK
	FMH1028585	FMH1028584	400	24.6	15.440	13.660	15.340	13.560	246	5.79	1	1854	6	34.77	41.13	120.6	0.96	34%	OK
St Andrews Place, Golf Villa, Beas River Equestrian, Beas River Country Park	FMH1028584	FMH1028583	400	15.3	15.340	13.550	15.410	13.500	306	11.37	1	3639	6	68.23	74.60	108.1	0.86	69%	OK
	FMH1028583	FMH1028582	400	32.4	15.410	13.490	15.560	13.390	324	11.37	1	3639	6	68.23	74.60	105.0	0.84	71%	OK
	FMH1028582	FMH1028581	400	35.4	15.560	13.380	15.680	13.280	354	11.37	1	3639	6	68.23	74.60	100.4	0.80	74%	OK
	FMH1028581	FMH1028580	400	17.2	15.680	13.270	15.820	13.210	287	11.37	1	3639	6	68.23	74.60	111.7	0.89	67%	OK
	FMH1028580	FMH1028570	400	38.2	15.820	13.200	16.130	13.100	382	11.37	1	3639	6	68.23	74.60	96.7	0.77	77%	OK
The Royal Oak, Ascot Park	FMH1028570	FMH1028569	400	32.8	16.130	13.090	16.490	12.980	298	12.10	1	3871	6	72.58	78.94	109.5	0.87	72%	OK
	FMH1028569	FMH1028568	500	9.1	16.490	12.970	16.420	12.960	910	12.10	1	3871	6	72.58	78.94	113.2	0.58	70%	OK
	FMH1028568	FMH1028567	400	7.7	16.420	12.950	16.390	12.920	257	12.10	1	3871	6	72.58	78.94	118.0	0.94	67%	OK
	FMH1028567	FMH1028566	400	35.7	16.390	12.910	17.620	12.800	325	12.10	1	3871	6	72.58	78.94	104.9	0.83	75%	OK
	FMH1028566	FMH1028565	400	14.2	17.620	12.790	18.210	12.750	355	12.10	1	3871	6	72.58	78.94	100.3	0.80	79%	OK
	FMH1028565	FMH1028564	400	8.3	18.210	12.740	18.360	12.710	277	12.10	1	3871	6	72.58	78.94	113.7	0.90	68%	OK
	FMH1028564	FMH1028563	400	15.8	18.360	12.700	18.290	12.660	395	12.10	1	3871	6	72.58	78.94	95.1	0.76	83%	OK
	FMH1028563	FMH1028562	400	13.9	18.290	12.650	18.050	12.600	278	12.10	1	3871	6	72.58	78.94	113.4	0.90	70%	OK
	FMH1028562	FMH1028561	400	13.4	18.050	12.590	17.820	12.550	335	12.10	1	3871	6	72.58	78.94	103.3	0.82	76%	OK
	FMH1028561	FMH1028560	400	10	17.820	12.540	17.600	12.510	333	12.10	1	3871	6	72.58	78.94	103.5	0.82	76%	OK
La Regent Park	FMH1028560	FMH1028548	400	22.6	17.600	12.500	17.660	12.270	98	12.60	1	4032	6	75.61	81.97	191.0	1.52	43%	OK
	FMH1028548	FMH1028547	400	3.7	17.660	12.210	17.220	12.130	46	12.60	1	4032	6	75.61	81.97	278.5	2.22	29%	OK
	FMH1028547	FMH1028546	400	5.4	17.220	12.100	17.080	11.930	32	12.60	1	4032	6	75.61	81.97	336.1	2.67	24%	OK
	FMH1028546	FMH1028545	400	27.8	17.080	11.920	14.780	11.110	34	12.60	1	4032	6	75.61	81.97	323.3	2.57	25%	OK
	FMH1028545	FMH1028544	400	15	14.780	11.100	13.280	10.500	25	12.60	1	4032	6	75.61	81.97	378.9	3.02	22%	OK
	FMH1028544	FMH1028543	400	9.7	13.280	10.490	12.930	10.150	29	12.60	1	4032	6	75.61	81.97	354.7	2.82	23%	OK
	FMH1028543	FMH1028542	400	9.3	12.930	10.140	12.540	9.890	37	12.60	1	4032	6	75.61	81.97	310.6	2.47	26%	OK
	FMH1028542	FMH1028541	400	9.4	12.540	9.880	12.160	9.520	26	12.60	1	4032	6	75.61	81.97	370.7	2.95	22%	OK
	FMH1028541	FMH1028540	400	6.3	12.160	9.510	12.080	9.430	79	12.60	1	4032	6	75.61	81.97	213.3	1.70	38%	OK
	FMH1028540	FMH1028528	400	5.3	12.080	9.420	11.810	9.290	41	12.60	1	4032	6	75.61	81.97	296.6	2.36	28%	OK
	FMH1028528	FMH1028527	400	5.9	11.810	9.280	11.900	9.170	54	12.60	1	4032	6	75.61	81.97	258.6	2.06	32%	OK
	FMH1028527	FMH1028526	300	5.2	11.900	9.160	11.440	9.030	40	12.60	1	4032	6	75.61	81.97	278.2	1.97	29%	OK
	FMH1028526	FMH1028525	400	5.1	11.440	9.020	11.320	8.760	20	12.60	1	4032	6	75.61	81.97	427.8	3.40	19%	OK
	FMH1028525	FMH1028524	400	9.2	11.320	8.740	11.110	8.710	307	12.60	1	4032	6	75.61	81.97	107.9	0.86	76%	OK
Kam Tsin Village	FMH1028524	FMH1028523	400	8.1	11.110	8.700	10.830	8.630	116	25.88	1	8281	5	129.38	135.75	175.9	1.40	77%	OK
	FMH1028523	FMH1028522	500	41.3	10.830	8.620	10.230	8.250	112	25.88	1	8281	5	129.38	135.75	324.3	1.65	42%	OK
	FMH1028522	FMH1028521	500	35.2	10.230	8.240	9.790	7.930	114	25.88	1	8281	5	129.38	135.75	321.5	1.64	42%	OK
	FMH1028521	FMH1028520	500	20.8	9.790	7.920	9.640	7.620	69	25.88	1	8281	5	129.38	135.75	411.6	2.10	33%	OK
Kam Tsin Village Ho Tung Kindergarten, Kam Tsin Village Ho Tung School, De La Salle Secondary School NT	FMH1028520	FMH1021544	500	27.2	9.640	7.610	10.030	7.480	209	26.77	1	8568	5	133.87	140.24	236.7	1.21	59%	OK

Pipe Information										Capacity and Velocity Check									
Pipe Segment	From	To	Pipe (d)	Pipe (m)	Ground Level	Invert Level (out)	Ground Level	Invert Level (in)	Slope (s)	Cumulative Sewage Flow (Q _a)	Catchment Inflow Factor (P _{car}) ^[3]	Population (CP) ^[4]	Peak Factor (PF) ^[5]	Cumulative Sewage Flow (Q _a)	Peak Flow with Swimming Pool and Public Toilet	Pipe Full Flow (Q _f)	Pipe Full Flow (v)	Utilization	Flow Capacity
	Manhole ID Upstream	Manhole ID Downstream	Diameter mm	Length m	(US) mPD	(US) mPD	(DS) mPD	(DS) mPD	Gradient 1 in	l/s				l/s	l/s	Capacity l/s	Velocity m/s	%	Check
Y/NE-KTS/15 (formerly A/NE-KTS/484), A/NE-KTS/506 (formerly Y/NE-KTS/12), Y/NE-KTS/14 and Y/NE-KTS/17, Eden Place, Valais, Village areas at north of Kam Hang Road at Kam Tsin, Casas Domingo, St Paul's House of Prayer	FMH1021544	FMH1021543	600	54.9	10.030	7.440	10.130	6.860	95	79.77	1	25525	4	319.07	356.43	571.4	2.02	62%	OK
Y/KTN/2	FMH1021543	FMH1021545	600	45.1	10.130	6.410	9.750	6.060	129	85.46	1	27348	4	341.85	382.71	489.7	1.73	78%	OK
[6]	FMH1021545	FMH1021546	750	44.9	9.750	5.960	9.230	5.870	499	85.46	1	27348	4	341.85	382.71	448.9	1.02	85%	OK
	FMH1021546	FMH1021547	650	39	9.230	5.850	8.790	5.670	217	85.46	1	27348	4	341.85	382.71	466.7	1.41	82%	OK
	FMH1021547	FMH1021548	600	24.8	8.790	5.670	8.420	5.020	38	85.46	1	27348	4	341.85	382.71	900.5	3.18	43%	OK
	FMH1021548	FMH1021549	600	8.1	8.420	5.000	8.330	4.830	48	85.46	1	27348	4	341.85	382.71	805.7	2.85	47%	OK
	FMH1021549	FMH1021550	600	44.9	8.330	4.830	8.110	4.480	128	85.46	1	27348	4	341.85	382.71	490.7	1.74	78%	OK
Yin Kong Village, Toilet	FMH1021550	FMH1021551	600	5.6	8.110	-	8.080	4.480	-	88.84	1	28430	4	355.38	423.04	-	-	-	OK
[6]	FMH1021551	FMH1021552	750	31.1	8.080	4.470	7.930	4.370	311	88.84	1	28430	4	355.38	423.04	568.9	1.29	74%	OK
[6]	FMH1021552	FMH1021553	750	37.6	7.930	4.350	7.740	4.240	342	88.84	1	28430	4	355.38	423.04	542.6	1.23	78%	OK
[6]	FMH1021553	FMH1021554	750	50.3	7.740	4.230	7.450	4.060	296	88.84	1	28430	4	355.38	423.04	583.3	1.32	73%	OK
[6]	FMH1021554	FMH1021555	750	32.5	7.450	4.060	7.370	3.930	250	88.84	1	28430	4	355.38	423.04	634.7	1.44	67%	OK
[6]	FMH1021555	FMH1021556	750	33	7.370	3.930	7.340	3.840	367	88.84	1	28430	4	355.38	423.04	523.8	1.19	81%	OK
[6]	FMH1021556	FMH1021557	750	17.6	7.340	3.840	7.280	3.780	293	88.84	1	28430	4	355.38	423.04	585.8	1.33	72%	OK
[6]	FMH1021557	FMH1021558	750	9.3	7.280	3.780	7.190	3.750	310	88.84	1	28430	4	355.38	423.04	569.8	1.29	74%	OK
[7]	FMH1021558	FMH1021559	675	13.7	7.190	3.740	7.110	3.680	228	88.84	1	28430	4	355.38	423.04	502.4	1.40	84%	OK
[6]	FMH1021559	FMH1021560	750	13	7.110	3.680	7.030	3.650	433	88.84	1	28430	4	355.38	423.04	481.8	1.09	88%	OK
[6]	FMH1021560	FMH1021561	800	11.3	7.030	3.650	7.120	3.630	565	88.84	1	28430	4	355.38	423.04	500.4	1.00	85%	OK
Y/FSS/19, Golf Parkview [6]	FMH1021561	FMH1021562	800	13.3	7.120	3.630	7.340	3.600	443	98.67	1	31574	4	394.68	468.14	565.0	1.12	83%	OK
[6]	FMH1021562	FMH1021563	750	8.8	7.340	3.600	7.490	3.600	-	98.67	1	31574	4	394.68	468.14	-	-	-	OK
[6]	FMH1021563	FMH1021564	750	13.4	7.490	3.600	7.510	3.530	191	98.67	1	31574	4	394.68	468.14	725.4	1.64	65%	OK
[6]	FMH1021564	FMH1021565	750	10.7	7.510	3.530	7.370	3.480	214	98.67	1	31574	4	394.68	468.14	686.1	1.55	68%	OK
[8]	FMH1021565	FMH1021566	900	7.3	7.370	3.470	7.380	3.460	730	98.67	1	31574	4	395.68	469.14	600.9	0.94	78%	OK
	FMH1021566	XPS1000860	600	9.9	7.380	3.450	7.380	3.450	-	98.67	1	31574	4	395.68	469.14	-	-	-	OK

Note:

[1] A conservative approach has been adopted, assuming that sewage discharge from the development will be discharged into the public sewage system.

[2] ks = 3mm is adopted for the "poor" condition of concrete slied sewers. (Refer to Sewerage Manual - Key Planning Issues and Gravity Collection System by DSD, Table 5 : Recommended Roughness Values ks)

[3] Catchment Inflow factors, PCIF = 1 for North District. (Refer to Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning by EPD, Table T-4 : Catchment Inflow Factors, PCIF)

[4] Contribution Population= Calculation total average flow (m3/day)/0.27 (m3/person/day), where the calculated total average flow Qaverage = Qd x PCIF. (Refer to Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning by EPD, Section 12.1)

[5] The peaking factor of 8 is adopted, when population range is <1,000 (including stormwater allowance). (Refer to Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning by EPD, Table T-5 : Peaking Factors, P)

The peaking factor of 6 is adopted, when population range is 1,000 - 5,000 (including stormwater allowance). (Refer to Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning by EPD, Table T-5 : Peaking Factors, P)

The peaking factor of 5 is adopted, when population range is 5,000-10,000 (including stormwater allowance). (Refer to Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning by EPD, Table T-5 : Peaking Factors, P)

The peaking factor of 4 is adopted, when population range is 10,000-50,000 (including stormwater allowance). (Refer to Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning by EPD, Table T-5 : Peaking Factors, P)

[6] Upgraded by A/NE-KTS/506

[7] Upgraded by others, refer to A/NE-KTS/565

[8] Upgraded by Y/FSS/19

**Meinhardt Infrastructure & Environment Ltd.**

10/F Genesis
33-35 Wong Chuk Hang Road
Hong Kong

Contract:

Proposed Amendments to the Kwu Tung South Outline
Zoning Plan for Residential Development at Various Lots in
D.D. 92 and D.D 94 and Adjoining Government Land in "CDA"
Zone, Hang Tau Tai Po, Kwu Tung South, New Territories

Job Ref:

-

Subject:

Sewerage Impact Assessment

Calc. Sheet No.

-

Drawing Ref.

-

Calculations By

AL

Date

6/25/2026

Sewerage Impact Assessment**Raising Main**Sewers Velocity Check

$$V = 4Q/\pi D^2$$

V = velocity (m/s)

Q = Flow(m³/s)

D = internal pipe diameter (m)

Assumption:

Proposed development	383.24 m ³ /d	4.44 L/s
A/NE-KTS/460	2.22 m ³ /d	0.03 L/s
A/NE-KTS/466	49 m ³ /d	0.57 L/s
A/NE-KTS/525	45.8 m ³ /d	0.53 L/s
A/NE-KTS/538	4.5 m ³ /d	0.05 L/s
A/NE-KTS/541	2.22 m ³ /d	0.03 L/s
HTVSPS Average Daily F	300 m ³ /d	3.47 L/s
Sum	786.98 m ³ /d	9.11 L/s

Q = Proposed + Planned Development + Existing daily flow

According to DSD Sewerage Manual, self cleansing for small diameter sewers of diameter less than 300mm can generally be achieved by ensuring either that a velocity of at least 0.7m/s. For sewers of diameter up to 900mm, it should be designed to achieve a self-cleansing velocity of 1.0m/s in full pipe condition.

Pipe Segment	Pipe	Sewage Flow	Velocity	Full Flow Velocity
	Diameter			If >0.7, OK
	mm	l/s	m/s	Check
FRD1002660	200	9.11	2.90	OK
FRD1005420	200	9.11	2.90	OK
FRD1005421	200	9.11	2.90	OK
FRD1005422	200	9.11	2.90	OK
FRD1002661	200	9.11	2.90	OK
FRD1002661	200	9.11	2.90	OK
FRD1005441	200	9.11	2.90	OK
FRD1005460	200	9.11	2.90	OK
FRD1005461	200	9.11	2.90	OK
FRD1005480	200	9.11	2.90	OK
FRD1002662	200	9.11	2.90	OK
FRD1002600	200	9.11	2.90	OK
FRD1002601	200	9.11	2.90	OK
FRD1002603	200	9.11	2.90	OK
FRD1002605	200	9.11	2.90	OK
FRD1002606	200	9.11	2.90	OK
FRD1002609	200	9.11	2.90	OK
FRD1002610	200	9.11	2.90	OK
FRD1002611	200	9.11	2.90	OK
FRD1002612	200	9.11	2.90	OK
FRD1002614	200	9.11	2.90	OK

Appendix D

Advice from DSD

[REDACTED]

From: Keith Qi LIU/MND/DSD <qliu@dsd.gov.hk>
Sent: Thursday, July 9, 2026 4:00 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: Re: Enquiry on Installed Pump Rate – Hang Tau Sewage Pumping Station (Project Ref: A/NE-KTS/465-1)

Dear Parisa,

Please find the below information for your necessary reference.

The daily capacity of Hang Tau Sewage Pumping Station is **1970m3/day**.

Regards,
Keith LIU
E/N1
DSD
3965 8905 / 6050 0267

From: [REDACTED]
Sent: Tuesday, July 7, 2026 11:31 AM
To: Keith Qi LIU/MND/DSD <qliu@dsd.gov.hk>
Cc: [REDACTED]
Subject: [Internet]Enquiry on Installed Pump Rate – Hang Tau Sewage Pumping Station (Project Ref: A/NE-KTS/465-1)

=====

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This email has been verified against its claimed domain but "FAILED". The identity of the sender is forged.

=====

Dear Mr. Liu,

Thank you for your comment on the Sewerage Impact Assessment for our captioned project (A/NE-KTS/465-1).

In order to follow up on your comment, could you kindly provide the installed pump rate of the Hang Tau Sewage Pumping Station (HTSPS)?

We would appreciate your reply by 15 July 2025.

Should you require any further information, please feel free to contact [REDACTED].

Best Regards,

[REDACTED]
Environmental Consultant

MEINHARDT
www.meinhardt-china.com



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This message has been analyzed by Deep Discovery Email Inspector.

[REDACTED]

From: David Tsz Wai LAW/ST1/DSD <twlaw@dsd.gov.hk>
Sent: Monday, October 6, 2025 2:55 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: Re: [Internet]RE: Request for Information on Tsung Pak Long Sewage Pumping Station

Dear [REDACTED]

Please find the below information:

Tsung Pak Long SPS

Design daily flow = 21,070 m³

Average daily flow = 1,041 m³

Maximum daily flow = 4,007 m³

Thanks

Best Regards
[REDACTED]

From: [REDACTED]
Sent: Thursday, September 11, 2025 5:31 PM
To: David Tsz Wai LAW/ST1/DSD <twlaw@dsd.gov.hk>
Cc: [REDACTED]
Subject: [Internet]RE: [Internet]RE: Request for Information on Tsung Pak Long Sewage Pumping Station

=====

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=====

Dear Mr. Law,

Further to our phone conversation, we would like to request information on the Tsung Pak Long Sewage Pumping Station to address the EPD's comments on the Sewerage Impact Assessment report. Thank you.

Following are the details we would like to request:

1. Average daily flow (m³)
2. Design daily flow (m³)
3. Maximum daily flow (m³)
4. Peak wet weather flow (m³)

For your reference, the EPD's comments on the Sewerage Impact Assessment Report are as follows:

Table 4-2:

- Please update the flows for the existing and planned developments and revise SPS used capacity.

We would greatly appreciate your support in providing the above information. Please feel free to let us know if any further clarification is required.

Best Regards,
[REDACTED]

From: David Tsz Wai LAW <twlaw@dsd.gov.hk>

Sent: Wednesday, February 12, 2025 3:56 PM

To: [REDACTED]

Subject: Re: [Internet]RE: Request for the Design Flow & Average Daily Flow for Hang Tau Sewage Pumping Station (no. XPS1001532)

Dear Ms. Tsui

Design flow remain unchanged. average daily flow is around 300m3.

From: [REDACTED]

To: "twlaw@dsd.gov.hk" <twlaw@dsd.gov.hk>

Cc: [REDACTED]

Date: 12/02/2025 15:41

Subject: [Internet]RE: Request for the Design Flow & Average Daily Flow for Hang Tau Sewage Pumping Station (no. XPS1001532)

Serial No.:

=====

This email was delivered via the Internet, which may not be trustworthy as it claimed to be. You are advised not to click the URLs or open the attachment unless you know it is safe.

This email has been verified against its claimed domain but "FAILED". The identity of the sender cannot be confirmed.
=====

Dear Mr. Law,

Since the original email of information obtain cannot be found, the attachment has been extracted from the Appendix E of SIA report (Application No. Y/NE-KTS/13, "Proposed Amendments to the Kwu Tung South Outline Zoning Plan for Residential Development at Various Lots in D.D. 92 and D.D. 94 and Adjoining Government Land in "CDA" Zone, Hang Tau Tai Po, Kwu Tung South, New Territories").

I apologize for the inconvenience caused by the missing original email.

If you have any further queries, please kindly contact the undersigned at 2859 5652. Thank you.

Best Regards,
[REDACTED]
[REDACTED]

Sent: Wednesday, February 12, 2025 2:56 PM

To: twlaw@dsd.gov.hk

Cc: [REDACTED]

Subject: Request for the Design Flow & Average Daily Flow for Hang Tau Sewage Pumping Station (no. XPS1001532)

Dear Mr. Law,

We are the Environmental Consultant on behalf of Fannie Holdings Limited, conducting the drainage and sewage impact assessment for Section 16 application of the Town Planning Ordinance for the at the various lots in D.D.92 and D.D.94 and the adjoining Government land in Hang Tau Tai Po, Kwu Tung.

Based on the SIA report (Application No. Y/NE-KTS/13, "Proposed Amendments to the Kwu Tung South Outline Zoning Plan for Residential Development at Various Lots in D.D. 92 and D.D. 94 and Adjoining Government Land in "CDA" Zone, Hang Tau Tai Po, Kwu Tung South, New Territories"), the Average Daily Water Flow (ADWF) for the Hang Tau Sewage Pumping Station (HTSPS) (no. XPS1001532) is 430m3 in 2020, and the Design daily flow is 1970m3, as provided by DSD. We would like to confirm whether these value are still current or if there have been any updates.

Attached please find the project location and the authorization letter.

If you have any further queries, please kindly contact the undersigned at 2859 5652. Thank you.

Best Regards,

[Redacted Signature]

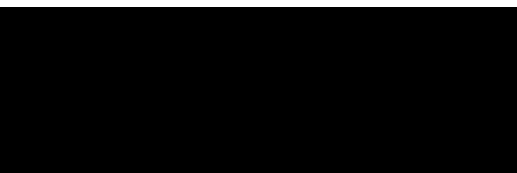
Environmental Consultant

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