
Appendix H –

Water Supply Impact Assessment

Section 16 Planning Application for Proposed Mixed-Use Development with Minor Relaxation of Building Height Restriction at Lot 4354 in D.D. 124, Kiu Tau Wai, Yuen Long

Water Supply Impact Assessment

June 2026

Prepared by:

AECOM Asia Company Limited
11/F, Tower 2, Grand Central Plaza, 138 Shatin Rural Committee Road, Shatin
Hong Kong
aecom.com

© 2026 AECOM Asia Company Limited. All Rights Reserved.

This document has been prepared by AECOM Asia Company Limited ("AECOM") for sole use of our client (the "Client") in accordance with generally accepted consultancy principles, the budget for fees and the terms of reference agreed between AECOM and the Client. Any information provided by third parties and referred to herein has not been checked or verified by AECOM, unless otherwise expressly stated in the document. No third party may rely upon this document without the prior and express written agreement of AECOM.

Table of Contents

1. Introduction.....	1
1.1 Background.....	1
1.2 Objective of this Submission.....	1
1.3 Nomenclature.....	2
2. Development Proposal.....	3
2.1 The Proposed Development.....	3
3. Assessment Methodology	5
3.1 Unit Demand.....	5
3.2 Design Population.....	5
3.3 Peaking Factors.....	6
3.4 Fire-fighting.....	6
3.5 Design Velocity and Head of Flow.....	7
4. Potential Water Supply Impacts and Mitigation Measures	8
4.1 Review of Existing Water Supply System.....	8
4.2 Estimation of Development Water Demand.....	8
4.3 Proposed Water Supply System.....	9
4.4 Proposed Fire-Fighting System.....	9
5. Maintenance Responsibility.....	10
6. Conclusion.....	10

Tables

Table 1 – Nomenclature	2
Table 2 – Development Parameters of the Overall Development.....	3
Table 3 – Development Parameters of the Residential Development	4
Table 4 – Development Parameters of the Commercial Development.....	4
Table 5 – Unit Water Daily Demand	5
Table 6 – Design Population	6
Table 7 – Fire Fighting Requirements	6
Table 8 – Water Demand Estimations	8

Figures

WSIA/Figure 1	Site Location Plan
WISA/Figure 2	Master Layout Plan
WSIA/Figure 3	Existing Fresh Water Mains Layout Plan
WSIA/Figure 4	Planned Fresh Water Mains by WSD Layout Plan
WSIA/Figure 5	Existing Flushing Water Mains Layout Plan
WSIA/Figure 6	Proposed Flushing Water Mains Layout Plan
WSIA/Figure 7	Proposed Fresh Water Supply Lead-in Layout Plan

Annexes

Annex 1	Estimation of Fresh and Flushing Water Demands
Annex 2	Hydraulic Review of Fresh Water Mains
Annex 3	Hydraulic Review of Flushing Water Mains

1. Introduction

1.1 Background

- 1.1.1 AECOM Asia Company Limited (AECOM) was commissioned by the Applicant to conduct a Water Supply Impact Assessment (WSIA) in support of a Section 16 Application under the Town Planning Ordinance (Cap. 131), to facilitate a mixed-use development with residential and commercial uses at the Application Site, which is zoned "Commercial (2)" on the Outline Zoning Plan.
- 1.1.2 The Application Site is bounded by Ping Ha Road to the north, Kiu Cheong Road to the east and Hung Tin Road to the west. The location of the Application Site is indicated in **Figure 1**.

1.2 Objectives of this Submission

- 1.2.1 This report outlines the assessment results of the potential water supply impact caused by the Proposed Development at the Application Site. The main objectives of this assessment include the followings:
- (i) Review the existing water supply condition.
 - (ii) Outline the methodology adopted in this assessment.
 - (iii) Determine the water demand arising from the Proposed Development.
 - (iv) Assess the impact of the water demand arisen from the Proposed Development to the existing water supply system.
 - (v) Propose water supply mitigation measures where appropriate to mitigate the potential water supply impacts.
 - (vi) Discuss the responsibility of the construction and maintenance aspects of the proposed water supply system.

1.3 Nomenclature

1.3.1 The following abbreviations and shortened expressions in **Table 1** are adopted in this report.

ADWF	Average Dry Weather Flow
AECOM	AECOM Asia Company Limited
EPD	Environmental Protection Department
F&B	Food and Beverage
FSD	Fire Services Department
GESF	Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning Version 1.0 (EPD)
GFA	Gross Floor Area
HKPSG	Hong Kong Planning Standards and Guidelines
PPoF	People Per Unit
mPD	Metres above Principal Datum
PlanD	Planning Department
UFF	Unit Flow Factor
UDD	Unit Daily Demand
WSD	Water Supplies Department
WSIA	Water Supply Impact Assessment

Table 1 – Nomenclature

2. Development Proposal

2.1 The Proposed Development

- 1.1.3 The Application Site has an area of about 9,946 m² with a total plot ratio of about 8.0. The total Gross Floor Area (GFA) is about 79,568 m².
- 1.1.4 The proposed development consists of residential and commercial portions. It comprises two residential towers providing about 1,140 units and one commercial/office tower, all situated above a 5-storey commercial/retail podium.
- 1.1.5 The Master Layout Plan (MLP) of the Proposed Development is shown in **Figure 2**. The development schedule is summarized in **Table 2**, **Table 3** and **Table 4** below.

The Overall Development

Application Site Area (m ²) (about)	9,946 m ²
Total Plot Ratio (about)	8.0
<ul style="list-style-type: none"> • Domestic Plot Ratio (about) • Non-Domestic Plot Ratio (about) 	<ul style="list-style-type: none"> 5.2 2.8
Total GFA (about)	79,568 m ²
<ul style="list-style-type: none"> • Domestic GFA (about) • Non-Domestic GFA ⁽¹⁾ (about) <ul style="list-style-type: none"> ○ Commercial/Office Tower ○ Commercial/Retail Podium 	<ul style="list-style-type: none"> 51,697 m² 27,871 m² <ul style="list-style-type: none"> 18,581 m² 9,290 m²
Maximum Site Coverage (above ground) (not more than)	
<ul style="list-style-type: none"> • Podium <ul style="list-style-type: none"> Below 15m Over 15m but not exceeding 20m • Tower (Above 20m) 	<ul style="list-style-type: none"> Not more than 100% Not more than 60% Not more than 38.5% <ul style="list-style-type: none"> • Non-domestic: 11.5% • Domestic: 27%

Table 2 – Development Parameters of the Overall Development

Residential Portion

Building Height (at main roof)	Not more than 160mPD
Number of Storeys ⁽²⁾	38 storeys (above 5 levels of commercial/retail podium)
Number of Blocks	2
Number of Flats	1,140
Average Flat Size	45.3 m ²
Anticipated Population ⁽³⁾	3,192
Private Open Space (m ²) (not less than) ⁽⁴⁾	3,192 m ²

Residents' Clubhouse Facilities

Clubhouse GFA (m ²) (about) ⁽⁵⁾	2,250 m ²
No. of Storeys	1

Table 3 – Development Parameters of the Residential Development**Commercial Portion**

Building Height (at main roof)	Not more than 106mPD
Number of Storeys	
<ul style="list-style-type: none"> • Commercial/Office Tower ⁽⁶⁾ • Commercial/Retail Podium 	17 storeys (above 5 levels of commercial/retail podium) 5 storeys
Number of Blocks	1

Table 4 – Development Parameters of the Commercial Development**Remarks:**

- (1) Including 'Eating Place', 'Office', 'Place of Entertainment', 'Place of Recreation, Sports or Culture', 'School' (kindergarten, nursery, language, computer, commercial and tutorial schools, art school, ballet and other types of schools providing interest / hobby related courses) and 'Shop and Services'.
- (2) Excluding transfer plates and 1 level of refuge floor.
- (3) Assuming a person-per-flat ratio of 2.8 for Hung Shui Kiu/Ha Tsuen NDA as per the 2021 Population Census.
- (4) Not less than 1m² per person according to HKPSG.
- (5) The residents' clubhouse GFA is about 4.352% of the domestic GFA and is exempted from plot ratio calculation.
- (6) Excluding transfer plates.

3. Assessment Methodology

3.1 Unit Demand

- 3.1.1 Assumptions have been made for the fresh water and flushing water unit daily demand (UDD) for the Proposed Development. The UDD is used for estimating the water demand to support the development.
- 3.1.2 The unit flow factors adopted for water demand estimation and calculation are summarized in **Table 5**.

Development Types	Flow Type	Unit Demand (L/head/day)	
		Fresh Water	Flushing Water
Domestic	Residential R2	300	104
Non-domestic	Commercial	40 ⁽¹⁾	-
	Retail	-	50 ⁽²⁾

Remarks:

- (1) According to DI 1309 Table 2, the unit daily demand for service trades in Yuen Long is adopted for conservative assumption, due to the 100% residential population.
- (2) According to GESF Appendix III Section 3(a), the flushing water consumption for employees is 0.05m³/person/day.

Table 5 – Unit Water Daily Demand

3.2 Design Population

- 3.2.1 For the residential population, it is assumed that the design ratio is 2.8 persons per flat.
- 3.2.2 For the non-domestic population, the worker density adopted for business use has made reference to Table T-2 of Chapter 5: Industry, of the Hong Kong Planning Standards and Guidelines (HKPSG) published by the Planning Department (PlanD).

3.2.3 A summary of design population is summarized in **Table 6** below.

No. of Units	Design no. of residents		Design No. of Guests
	Design Ratio		
1,140	2.8 persons per flat		3,192
Design Non-Domestic Population			
Commercial Activities	GFA per worker (m ²) ⁽¹⁾	Proposed GFA (m ²) ⁽²⁾	No. of Employees
Clubhouse	20	2,250	113
Retail (F&B)	20	4,645	233
Retail (Non-F&B)	20	4,645	233
Office	20	18,581	930
Total			1,509

Remarks:

- (1) The commercial activities clubhouse and retail are assumed to be business type.
- (2) For assessment purposes, it is assumed that 50% of the retail GFA is allocated to Food and Beverage (F&B) use, while the remaining 50% is allocated to non-F&B use, as a conservative approach.

Table 6 – Design Population

3.3 Peaking Factors

3.3.1 The peaking demand factors below shall be adopted for design according to WSD DI 1309:

- Peak flow rate in fresh water distribution mains = 3 x mean daily demand (MDD)
- Peak flow rate in flushing water distribution mains = 2 x mean daily demand (MDD)

3.4 Fire-fighting

3.4.1 Water supply for fire-fighting service has been considered in this WSIA. Fire-fighting requirement for residential zone is 6,000m³/day with discharge pressure of 17m head. The fire hydrant should be of standard pattern with minimum output pressure of not less than 25 psi. With multiple hydrants operating at the same time, total output of not less than 4,000L/min shall last for 60 minutes. **Table 7** summarizes the fire-fighting requirements.

Requirements	Minimum Values
Minimum fresh water supply	6,000 m ³ /day
Discharge pressure head	17m
Minimum output not less than 25 psi	4,000 L/min (5,760m ³ /day) which lasts for an hour (i.e., 4,000x60 = 240,000L/hour/day or 240m ³ /hour/day)

Table 7 – Fire Fighting Requirements

3.5 Design Velocity and Head of Flow

3.5.1 The desirable flow velocities for hydraulic checking are as follows:

Maximum velocity (under peak flow condition)

Fresh water mains:

>DN700	≤ 3 m/s
DN700 – DN525	≤ 2.5 m/s
DN450 – DN375	≤ 2 m/s
DN300 – DN200	≤ 1.5 m/s

Flushing water mains:

≥DN1000	≤ 3 m/s
DN900 – DN800	≤ 2.5 m/s
DN700 – DN525	≤ 2 m/s
DN450 – DN300	≤ 1.5 m/s

Minimum velocity (under peak flow condition)

Fresh water mains: ≥ 0.9 m/s

Flushing water mains: ≥ 0.9 m/s

3.5.2 The pipeline shall have a minimum gradient of 1:400. Pipes shall be laid at a minimum separation of 300 mm away from existing utilities and underground structures.

3.5.3 The adopted minimum residual heads at extremity of the fresh water and flushing water supply system for the Proposed Development are as follow:

- Fresh water: 20m
- Flushing water: 15m

4. Potential Water Supply Impacts and Mitigation Measures

4.1 Review of Existing Water Supply System

Fresh Water Supply System

- 4.1.1 According to record plans obtained from the WSD, there is an existing DN100 fresh water distribution mains at the eastern side of the Application Site which tees-off from the existing DN450 fresh water main located along Ping Ha Road, as shown in **Figure 3**.

Flushing Water Supply System

- 4.1.2 There is an existing DN600 flushing water mains located along Ping Ha Road at the northern side of the Application Site, as shown in **Figure 5**.

4.2 Estimation of Development Water Demand

- 4.2.1 The water demand of the Development is estimated based on the aforementioned design parameters. The water demand estimation is calculated in **Table 8** below. The details can be referred to **Annex 1**.

Development Types	Water Demand (m ³ /day)	
	Fresh Water	Flushing Water
Domestic	958	332
Non-domestic	128	76
Total:	1,086	408

Remarks:

(1) Daily water demand does not include water demand for fire-fighting.

Table 8– Water Demand Estimations

- 4.2.2 The fresh water demand and flushing water demand required by the Proposed Development are estimated to be 1,086 m³/day and 408 m³/day respectively upon full occupation.

4.3 Proposed Water Supply System

Fresh Water Supply System

- 4.3.1 The hydraulic review of fresh water mains is shown in **Annex 2**. The results indicate that the existing DN600 fresh water main along Ping Ha Road can accommodate the water demand of the Proposed Development. A proposed DN200 lead-in which tees off from the existing DN600 will be provided to serve the Proposed Development.
- 4.3.2 The existing DN100 fresh water main in the southeast of the Application Site that tees off from the existing DN600 main along Ping Ha Road is proposed to be demolished.

Flushing Water Supply System

- 4.3.3 The hydraulic review of flushing water mains is shown in **Annex 3**. The results indicate that the existing DN600 flushing water main along Ping Ha Road is capable of accommodating the water demand of the Proposed Development.
- 4.3.4 According to WSD, there will be a planned flushing water system by WSD completed in 2030. An (Nominal Size) NS180 flushing water main to the east of the Application Site along Kiu Cheong Road will be constructed by WSD, which will tee off from the existing DN600.
- 4.3.5 It is proposed to tee off a proposed NS125 flushing water main from the planned NS180 main by WSD and connect to the eastern side of the Application Site to serve the Proposed Development. The proposed alignment is shown in **Figure 6**.
- 4.3.6 Before the completion of the NS180 main by WSD, Temporary Main for Flushing (TMF) will be applied to the Proposed Development.
- 4.3.7 The size of the proposed water supply systems, including both fresh water and flushing water within the site and associated fittings, will be further developed in the detailed design stage.

4.4 Proposed Fire-Fighting System

- 4.4.1 The provision of fire hydrants and fire mains is in accordance with the relevant stipulations in “Technical Circular No.4/2010: Fire Mains and Hydrants on New Trunk Roads and Elevated Highway Structures” published by Highway Department (HyD). The average spacing of fire hydrants to at-grade trunk road shall be at a distance of 100m. The detailed arrangement will be submitted to Fire Services Department (FSD) for approval during detailed design stage.
- 4.4.2 The provision of fire-fighting requirements is mentioned in Section 3.4. The water supply with discharge pressure of 1.7bar (17m head) and flow of 4,000L/min that lasts for one hour will be provided.
- 4.4.3 A DN600 fire-fighting lead-in is proposed to tee off from the existing DN600 fresh water main in the southeast of the Application Site.

5. Maintenance Responsibility

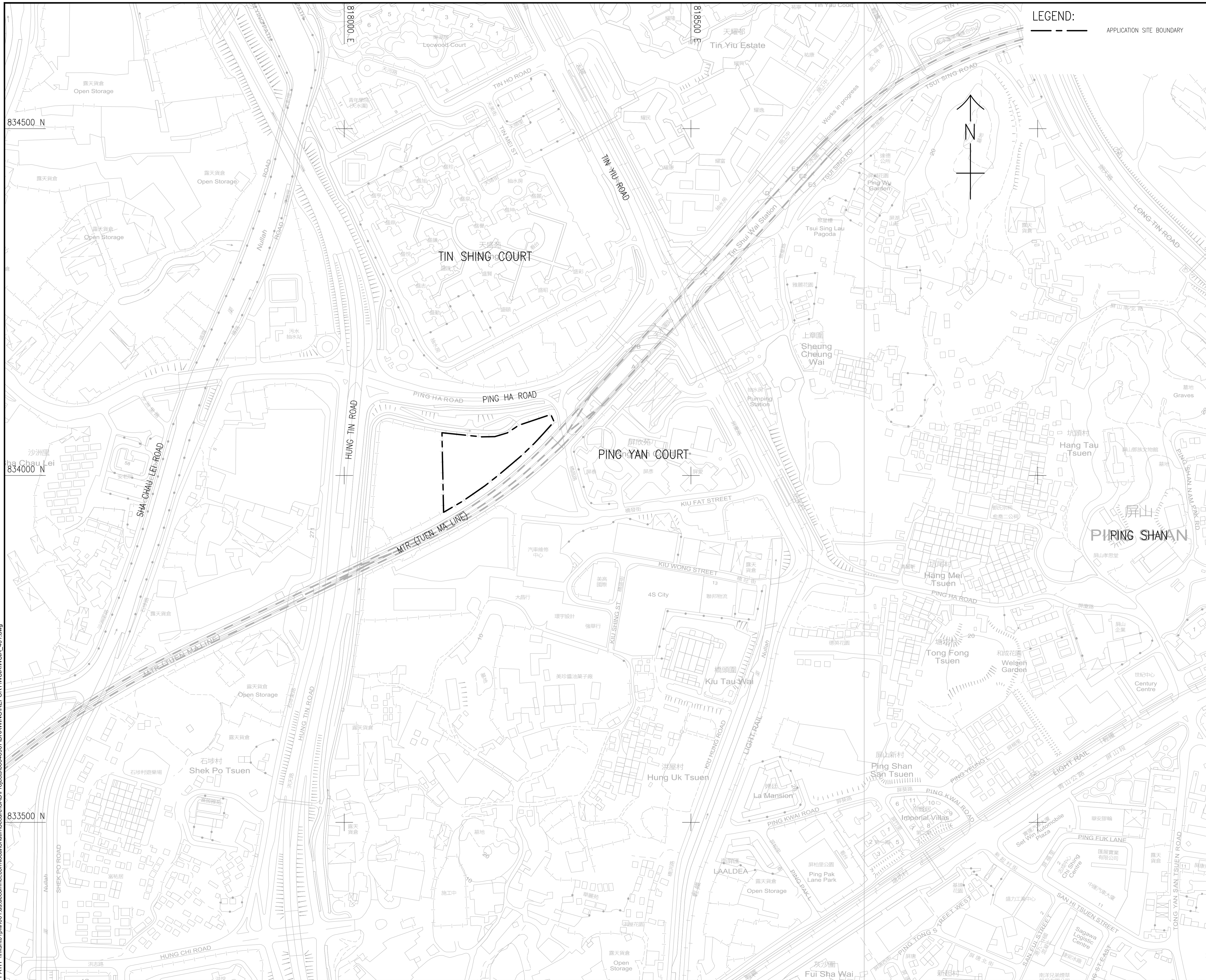
- 5.1.1 The Proposed Development will be responsible for construction and maintenance of all proposed water supply facilities within the Application Site boundary including all internal water mains, water supply lead-in valves and those proposed water distribution pipes.
- 5.1.2 The Proposed Development will be responsible for construction of all necessary connection works to the public water supply systems outside the Application Site boundary.
- 5.1.3 The water supply systems outside the site boundary are proposed to be handed over to WSD for future maintenance.

6. Conclusion

- 6.1.1 This WSIA report serves as a supporting document for proposed mix commercial/residential developments. The WSIA has been carried out to assess the potential water supply impact due to the Proposed Development.
- 6.1.2 The fresh water demand and flushing water demand required by the Proposed Development are estimated to be 1,086 m³/day and 408 m³/day respectively upon full occupation.
- 6.1.3 In terms of fresh water supply, the existing DN100 fresh water main in the southeast of the Application Site which tees off from the existing DN600 main along Ping Ha Road is proposed to be demolished. A proposed DN200 lead-in is proposed to tee off from the existing DN600 to serve the Proposed Development. In terms of flushing water supply, a proposed NS125 flushing water main is proposed to tee off from the planned NS180 main by WSD (expected for completion by 2030) and connect to the eastern side of the Application Site to serve the Proposed Development.
- 6.1.4 Temporary Main for Flushing (TMF) will be applied before the completion of the planned NS180 by WSD.
- 6.1.5 The proposed water supply systems are as shown in **Figure 4** and **Figure 6**. With the implementation of the proposed water supply arrangement, the proposed development will be acceptable in water supply terms.

End of Report

Figures



LEGEND:
 --- APPLICATION SITE BOUNDARY



PROJECT
 SECTION 16 PLANNING
 APPLICATION FOR
 PROPOSED MIXED-USE
 DEVELOPMENT WITH MINOR
 RELAXATION OF BUILDING
 HEIGHT RESTRICTION AT
 LOT 4354 IN D.D. 124,
 KIU TAU WAI, YUEN LONG

CLIENT
 業主

CONSULTANT
 工程顧問公司
 AECOM Asia Company Ltd.
 www.aecom.com

SUB-CONSULTANTS
 分判工程顧問公司

ISSUE/REVISION
 修訂

I/R	DATE	DESCRIPTION	CHK.

STATUS
 階段

SCALE
 比例
 A3 1 : 5000

DIMENSION UNIT
 尺寸單位
 METRES

KEY PLAN
 索引圖

PROJECT NO.
 項目編號
 60640967

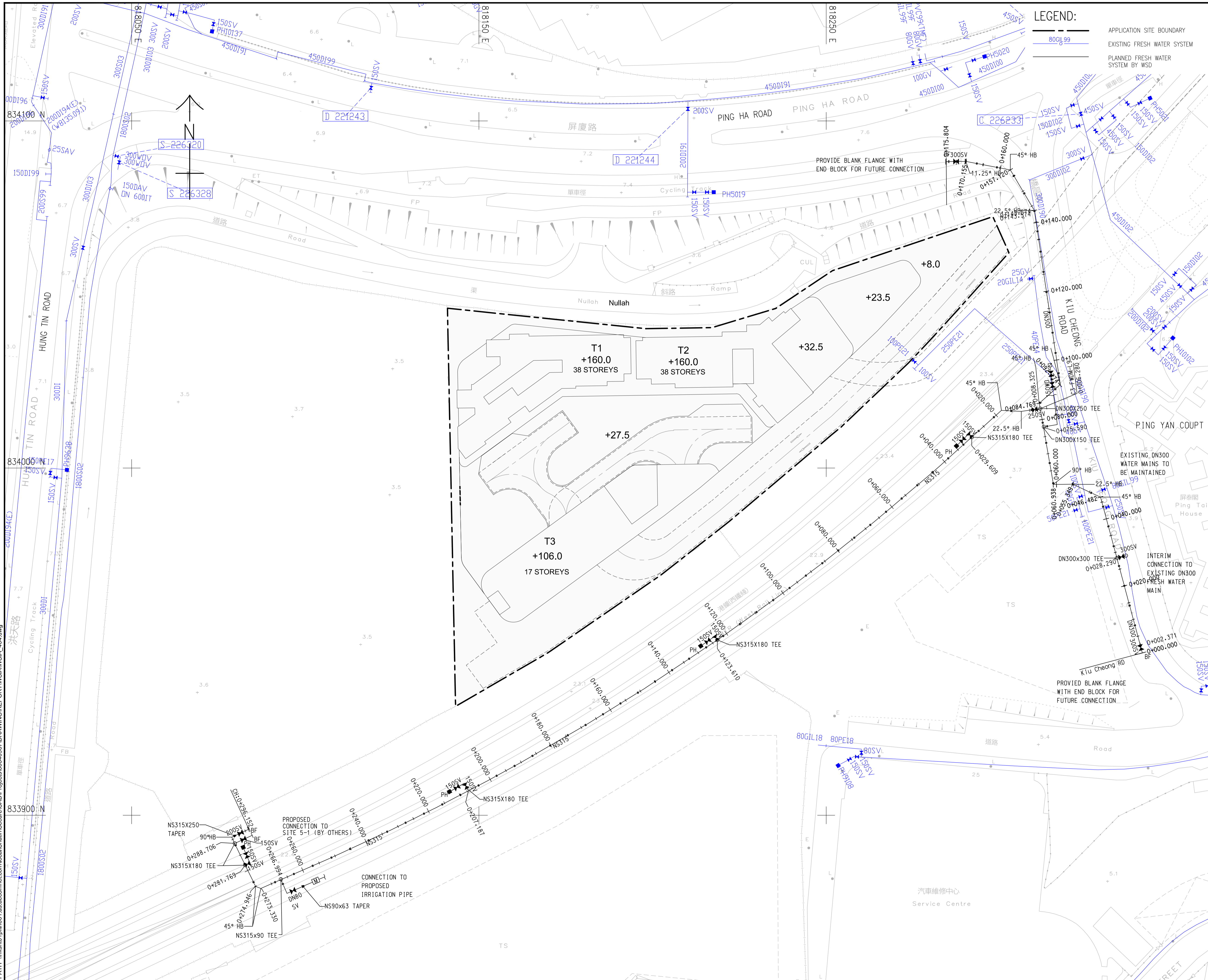
AGREEMENT NO.
 協議編號

SHEET TITLE
 圖紙名稱
 SITE LOCATION PLAN

SHEET NUMBER
 圖紙編號
 60640967/WSIA/FIGURE 1

This drawing has been prepared for the use of AECOM's client. It may not be used, modified, reproduced or relied upon by third parties, except as agreed by AECOM or as required by law. AECOM accepts no responsibility, and denies any liability whatsoever, for any party that uses or relies on this drawing without AECOM's express written consent. Do not scale this document. All measurements must be obtained from the related dimensions.

ISO A1 594mm x 841mm
 Approved: _____
 Checked: _____
 Designer: _____
 Project Management Initials: _____
 P14 File by: Setofc
 PATH: I:\msd\p\pin\001.as.aecomnet.com\local\Shatin\Secure\CAD\Projects\60640967\DRAWING\REPORT\WIA\WIA_404.dwg
 2011/2/26
 2011/2/26



LEGEND:

- APPLICATION SITE BOUNDARY
- EXISTING FRESH WATER SYSTEM
- PLANNED FRESH WATER SYSTEM BY WSD



PROJECT
 項目
 SECTION 16 PLANNING APPLICATION FOR PROPOSED MIXED-USE DEVELOPMENT WITH MINOR RELAXATION OF BUILDING HEIGHT RESTRICTION AT LOT 4354 IN D.D. 124, KIU TAU WAI, YUEN LONG

CLIENT
 業主

CONSULTANT
 工程顧問公司
 AECOM Asia Company Ltd.
 www.aecom.com

SUB-CONSULTANTS
 分判工程顧問公司

ISSUE/REVISION
 修訂

I/R	DATE	DESCRIPTION	CHK.

STATUS
 階段

SCALE
 比例
 A3 1: 1000

DIMENSION UNIT
 尺寸單位
 METRES

KEY PLAN
 索引圖

PROJECT NO.
 項目編號
 60640967

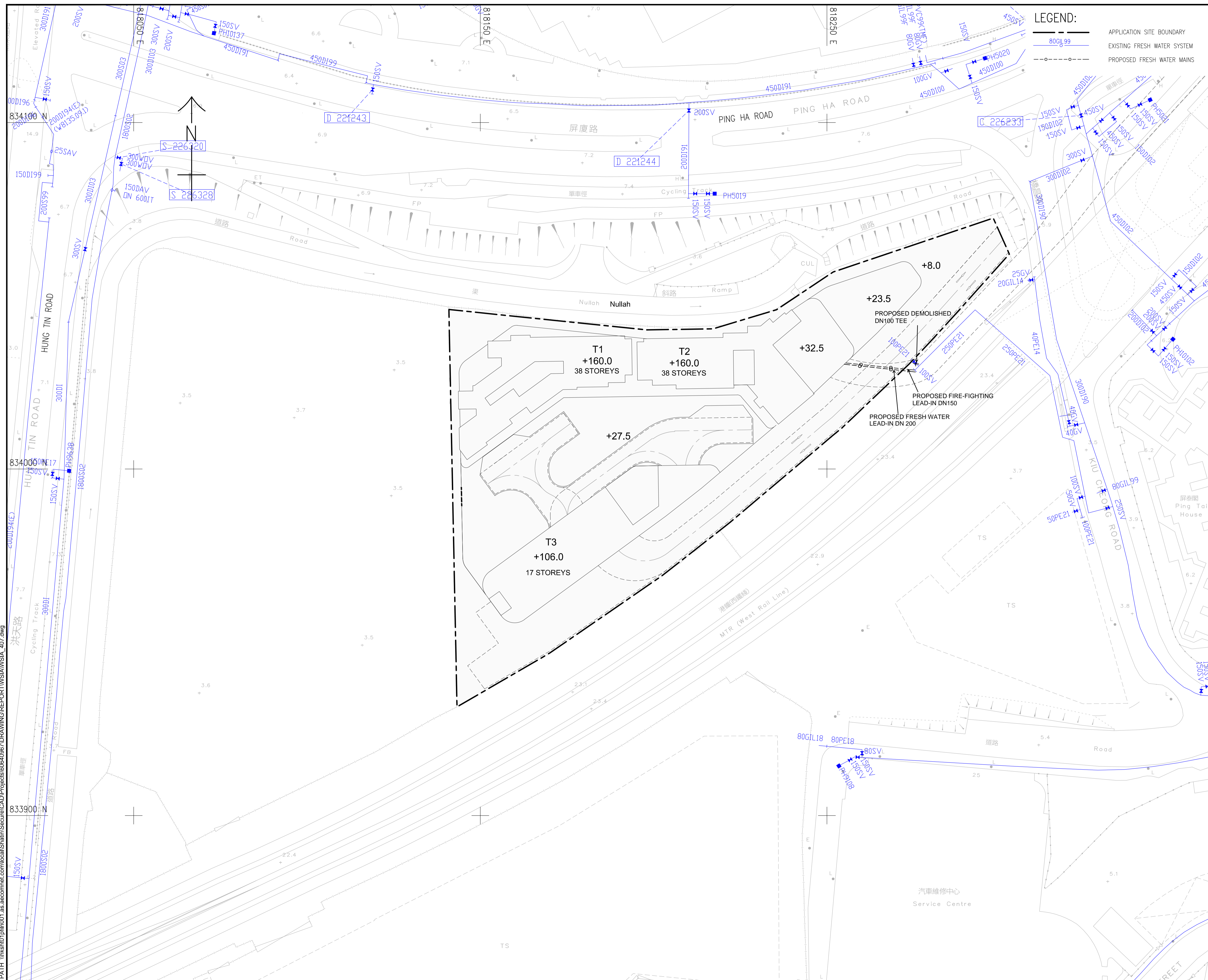
AGREEMENT NO.
 協議編號

SHEET TITLE
 圖紙名稱
 PLANNED FRESH WATER MAINS BY WSD LAYOUT PLAN

SHEET NUMBER
 圖紙編號
 60640967/WIA/FIGURE 4

This drawing has been prepared for the use of AECOM's client. It may not be used, modified, reproduced or relied upon by third parties, except as agreed by AECOM or as required by law. AECOM accepts no responsibility, and denies any liability whatsoever, for any party that uses or relies on this drawing without AECOM's express written consent. Do not scale this document. All measurements must be obtained from the noted dimensions.

ISO A1 594mm x 841mm
 Approved: _____
 Checked: _____
 Designer: _____
 Project Management Initials: _____
 2011/2026
 PATH: \\ms101\p\m\001.asd\acomet.com\local\Shatin\Secure\CAD\Projects\60640967\DRAWING\REPORT\WIA\WIA_407.dwg



LEGEND:

	APPLICATION SITE BOUNDARY
	EXISTING FRESH WATER SYSTEM
	PROPOSED FRESH WATER MAINS



PROJECT
 項目
 SECTION 16 PLANNING APPLICATION FOR PROPOSED MIXED-USE DEVELOPMENT WITH MINOR RELAXATION OF BUILDING HEIGHT RESTRICTION AT LOT 4354 IN D.D. 124, KIU TAU WAI, YUEN LONG

CLIENT
 業主

CONSULTANT
 工程顧問公司
 AECOM Asia Company Ltd.
 www.aecom.com

SUB-CONSULTANTS
 分判工程顧問公司

ISSUE/REVISION
 修訂

I/R	DATE	DESCRIPTION	CHK.
修訂	日期	內容摘要	核對

STATUS
 階段

SCALE
 比例
 A3 1 : 1000

DIMENSION UNIT
 尺寸單位
 METRES

KEY PLAN
 索引圖

PROJECT NO.
 項目編號
 60640967

AGREEMENT NO.
 協議編號

SHEET TITLE
 圖紙名稱
 PROPOSED FRESH WATER SUPPLY LEAD-IN LAYOUT PLAN

SHEET NUMBER
 圖紙編號
 60640967/WIA/FIGURE 7

This drawing has been prepared for the use of AECOM's client. It may not be used, modified, reproduced or relied upon by third parties, except as agreed by AECOM in writing. AECOM accepts no responsibility, and denies any liability whatsoever, for any party that uses or relies on this drawing without AECOM's express written consent. Do not scale this document. All measurements must be obtained from the stated dimensions.

Annex 1

Estimation of Fresh and Flushing Water Demands

Summary of Development Schedule and Water Demand:

Supply	Flow Type	Population	Unit Demand (L/head/day)			Total Demand (m ³ /d)	
			Domestic	Service Trade ⁽¹⁾	Retail ⁽²⁾	Fresh	Flushing
Fresh	Residential (R2)	3,192	300	-	-	958	-
	Retail (F&B and non F&B)	3,192	-	40	-	128	-
Flushing	Residential (R2)	3,192	104	-	-	-	332
	Retail (F&B and non F&B)	1,509	-	-	50	-	76
Required water demand						1,086	408

Remark:

(1) Fresh water supply allowance of commercial employees has been added for service trade use which based on domestic population of individual site.

(2) Flushing water demand estimation is adopting 0.050m³/person/day for commercial employees (retail and clubhouse), according to GESF Appendix III.

Annex 2

Hydraulic Review of Fresh Water Mains

Annex 2 - Hydraulic Review of Proposed Fresh Water Main

Hydraulic Review for Existing DN600		
Estimated Fresh Water Demand	1,086	m ³ /day
	0.0126	m ³ /s
Peak factor for distribution main	3.00	
Peak Flow rate	0.04	m ³ /s
Size of proposed water main	600	mm
Internal Diameter of DN600	586	mm
Cross Section Area	0.27	m ²
Peak Flow Velocity of water main (assumed)	2.50	m/s
Capacity of water main	0.67	m ³ /s
The percentage of watermain occupied by the development site's fresh water demand	5.59	%

Fresh water demand utilizes about 5.59% of the existing water main capacity.

Hydraulic Review for Existing DN250		
Estimated Fresh Water Demand	1,086	m ³ /day
	0.0126	m ³ /s
Peak factor for distribution main	3.00	
Peak Flow rate	0.04	m ³ /s
Size of Proposed water main	250	mm
Internal Diameter of DN250	233	mm
Cross Section Area	0.04	m ²
Required Peak Flow Velocity of water main	0.88	m/s
Peak Flow Velocity of water main (assumed)	1.50	m/s
Capacity of water main	0.06	m ³ /s
The percentage of watermain occupied by the development site's fresh water demand	58.96	%

Fresh water demand utilizes about 58.96% of the existing water main capacity.

Hydraulic Review for Proposed DN200 Lead-in to Proposed Development		
Estimated Fresh Water Demand	1,086.00	m ³ /day
	0.0126	m ³ /s
Peak factor for distribution main	3.00	
Peak Flow rate	0.04	m ³ /s
Nominal Size of proposed water main	200	mm
Internal Diameter of DN200	189	mm
Cross Section Area	0.03	m ²
Required Peak Flow Velocity of water main	1.34	m/s
Peak Flow Velocity of water main (assumed)	1.5	m/s
Capacity of water main	0.04	m ³ /s
The percentage of watermain occupied by the development site's fresh water demand	89.61	%

Annex 3

Hydraulic Review of Flushing Water Mains

Annex 3 - Hydraulic Review of Proposed Flushing Water Main

Hydraulic Review for Existing DN600		
Estimated Flushing Water Demand	408.0	m ³ /day
	0.0047	m ³ /s
Peak factor for distribution main	2	
Peak Flow rate	0.0094	m ³ /s
Size of proposed water main	600	mm
Internal Diameter of DN600	567	mm
Cross Section Area	0.252	m ²
Peak Flow Velocity of water main (assumed)	2	m/s
Capacity of water main	0.5050	m ³ /s
The percentage of watermain occupied by the development site's flushing water demand	1.87	%

Flushing water demand utilizes about 1.87% of the existing water main capacity.

Hydraulic Review for Planned NS180 by WSD		
Estimated Flushing Water Demand	408	m ³ /day
	0.0047	m ³ /s
Peak factor for distribution main	2	
Peak Flow rate	0.009	m ³ /s
Size of Planned water main	180	mm
Internal Diameter of NS180	150	mm
Cross Section Area	0.018	m ²
Peak Flow Velocity of water main (assumed)	2	m/s
Capacity of water main	0.0353	m ³ /s
The percentage of watermain occupied by the development site's flushing water demand	26.72	%

Flushing water demand utilizes about 26.72% of the existing water main capacity.

Hydraulic Review for Proposed NS125 Lead-in to Proposed Development		
Estimated Flushing Water Demand	408	m ³ /day
	0.0047	m ³ /s
Peak factor for distribution main	2	
Peak Flow rate	0.009	m ³ /s
Size of Proposed water main	125	mm
Internal Diameter of NS125	100	mm
Cross Section Area	0.01	m ²
Required Peak Flow Velocity of water main	1.20	m/s
Peak Flow Velocity of water main (assumed)	2	m/s
Capacity of water main	0.0157	m ³ /s
The percentage of watermain occupied by the development site's flushing water demand	60.13	%

Flushing water demand utilizes about 60.13% of the existing water main capacity.

