



AECOM  
8F, Tower 2, Grand Central Plaza  
138 Shatin Rural Committee Road  
Shatin, N.T. Hong Kong

Attention: Mr. Chris Ho

**Your Reference**

**Agreement No. CE 33/2019 (EP)  
Independent Environmental Checker for Environmental Monitoring and Audit Works in  
Construction Phase for the First Phase Development of Kwu Tung North and Fanling  
North New Development Areas – Investigation**

**Our Reference**  
EC/TC/hc/414202/L0232

3/F Manulife Place  
348 Kwun Tong Road  
Kowloon  
Hong Kong

**Environmental Permit No. EP-466/2013/A & EP-468/2013/A:  
Baseline Condition Survey and Baseline Vibration Impact Assessment Report  
(Condition 2.6)**

T +852 2828 5757  
F +852 2827 1823  
mottmac.hk

4 June 2024

**BY EMAIL**

Dear Sir,

Reference is made to the revised submission of the Baseline Condition Survey and Baseline Vibration Impact Assessment Report in accordance with Condition 2.6 of the Environmental Permit (No. EP-466/2013/A & EP-468/2013/A) certified by the ET Leader on 4 June 2024.

We would like to inform you that we have no adverse comment on the captioned submission. Therefore we write to verify the captioned submission in accordance with the requirement stipulated in Condition 1.9 and 2.6 of EP-466/2013/A & EP-468/2013/A.

Should you have any queries, please contact the undersigned at 2828 5967.

Yours faithfully,  
For and on behalf of the  
Mott MacDonald Hong Kong Limited

Ir Thomas Chan  
Independent Environmental Checker  
T +852 2828 5967  
Thomas.Chan@mottmac.com

c.c.  
CEDD  
Wellab Ltd.

Mr. Ryan Chau  
Dr. Priscilla Choy/  
Ms. Ivy Tam

hichau@cedd.gov.hk  
priscilla.choy@wellab.com.hk  
ivy.tam@wellab.com.hk

Our Ref: WMA20002/AECOM/mm240604\_C2.6

**AECOM**

8/F Grand Central Plaza Tower 2  
138 Shatin Rural Committee Road  
Shatin, Hong Kong

**By Mail**  
4<sup>th</sup> June 2024

**Attn.: Mr. Chris Ho**

Dear Mr. Ho,

**Service Contract No. NDO 04/2019**

**Environmental Team for Environmental Monitoring and Audit Works in Construction Phase for the First Phase Development of Kwu Tung North and Fanling North New Development Areas**

- [EP-466/2013/A] Castle Peak Road Diversion (Condition 2.6)

- [EP-468/2013/A] Kwu Tung North New Development Area Road D1 to D5 (Condition 2.6)

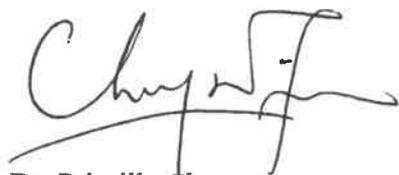
**Submission of Baseline Condition Survey and Baseline Vibration Impact Assessment Report**

I refer to the Baseline Condition Survey and Baseline Vibration Impact Assessment Report (Rev.7) (19 Mar 2024) submitted to us via email dated 4<sup>th</sup> June 2024.

I am pleased to inform you that I have no further comment and I hereby agree to certify the above document in accordance with the Environmental Permit (EP-466/2013/A and EP-468/2013/A), Condition 1.9.

If you need any further information, please call our Mr. Marco Ma at 2151 2073 or me at 2151 2089 / 9161 7287.

Yours faithfully,  
WELLAB Limited



Dr. Priscilla Choy  
Environmental Team Leader

c.c. CEDD (Attn: Mr. Ryan Chau)  
IEC - Mott MacDonald Hong Kong Ltd  
(Attn.: Mr. Thomas Chan)

By e-mail: [hlchau@cedd.gov.hk](mailto:hlchau@cedd.gov.hk)

By e-mail: [Thomas.Chan@mottmac.com](mailto:Thomas.Chan@mottmac.com)

**WELLAB LIMITED**

Room 1714 , Technology Park, 18 On Lai Street, Shatin, N.T., Hong Kong.  
Tel: (852)2898 7388 Fax: (852)2898 7076 E-mail: [wellab@wellab.com.hk](mailto:wellab@wellab.com.hk)  
Website: <http://www.wellab.com.hk>

**Contract No. ND/2019/02**

**Kwu Tung North New Development Area, Phase 1:  
Road and Drains between Kwu Tung North New  
Development Area and Shek Wu Hui**

**Baseline Condition Survey and  
Baseline Vibration Impact Assessment Report**

Rev. 7

19 Mar 2024

Project	Contract No. ND/2019/02 Kwu Tung North New Development Area, Phase 1: Road and Drains between Kwu Tung North New Development Area and Shek Wu Hui
Title	Baseline Condition Survey and Vibration Impact Assessment Report
Date	19 Mar 2024
Client	Chun Wo - Kwan Lee Joint Venture
Prepared by	Construction Technology Limited

Revision Table

Revision	Prepared by	Approved by	Date	Remarks
0	Michael Leung	Chong Yuk En	30 Apr 2022	-
1	Michael Leung	Chong Yuk En	31 May 2022	Revised according to AECOM comments
2	Michael Leung	Chong Yuk En	15 Jul 2022	Revised according to AECOM, ET & IEC comments
3	Michael Leung	Chong Yuk En	31 Aug 2022	No comment from ET & IEC
4	Michael Leung	Chong Yuk En	28 Feb 2023	Revised according to EPD & AMO comments
5	Michael Leung	Chong Yuk En	29 Nov 2023	Revised according to IEC comments
6	Michael Leung	Chong Yuk En	15 Dec 2023	Revised according to IEC comments
7	Michael Leung	Chong Yuk En	19 Mar 2024	Revised according to IEC comments

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## Signature Page

**Contract No. ND/2019/02**

**Kwu Tung North New Development Area, Phase 1:  
Road and Drains between Kwu Tung North New  
Development Area and Shek Wu Hui**

**Baseline Condition Survey and  
Vibration Impact Assessment Report**



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IR Chong Yuk En  
Registered Professional Engineer (Structural)  
R.P.E. No. RP0398020

Construction Technology Limited  
Tel: 39733588  
info@construction-tech.net

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## 1. BACKGROUND INFORMATION

### 1.1 Introduction

The Environmental Impact Assessment (EIA) Report (Register No.: AEIAR-175/2013) (approved EIA Report) for the North East New Territories New Development Areas (the Project) was approved on 18 October 2013 and an Environmental Permit (EP) EP No: EP-466/2013/A and EP-468/2013/A for the construction and operation of the Project.

The construction of the Project has been divided into a series of Works Contracts and Contract No. ND/2019/02 mainly comprises road and drainage works between Kwu Tung North New Development Area and Shek Wu Hui; construction of a sewage pumping station, a visitor centre for Long Valley Nature Park and a footbridge spanning across Sheung Yue River; and site formation of land and the associated engineering infrastructure works for a village resite area in Kwu Tung North New Development Area. (hereinafter referred to as “the Contract”).

Chun Wo - Kwan Lee Joint Venture (the Contractor) has been commissioned by the Civil Engineering and Development Department (CEDD) to carry out the construction works under this Contract. The Contract works commenced in Feb 2020 and are tentative completion at the end of 2024.

This Baseline Condition Survey and Baseline Vibration Impact Assessment to define the vibration limit of identified built heritage features, determine construction vibration monitoring and structural strengthening measures are required during construction phase; and maintain a record of the condition survey of graded historic buildings that may be affected by the Project.

## 1.2 Scope of Work

- 1.2.1 Referring to the Environmental Permit (EP) EP No: EP-466/2013/A and EP-468/2013/A condition 2.6 stated a baseline condition survey and baseline vibration impact assessment for the G202, G308 & HKT03.

The Environmental Monitoring and Audit Manual stated a baseline condition survey and vibration impact assessment should be conducted for sites G202, G203, G303, G308, HKT03 & KT57. Their corresponding location is shown in **Appendix A**.

- 1.2.2 This report aims to provide a baseline condition survey and baseline vibration impact assessment of the above mentioned cultural heritage. Other than that, the following information should be included:

- a) Determine a vibration limit;
- b) Determine tilting limits;
- c) Determine settlement limits; and
- d) Determine if any construction vibration, tilting, settlement monitoring and structural strengthening measures are required during the construction phase.

## 2 CONDITION SURVEY METHODOLOGY

### 2.1 General Approach

- 2.1.1 The visual inspection would be conducted for condition survey and vibration impact assessment. It shall be carried out to present a true and accurate record of the state of cultural heritages at the time of the inspection. This comprises a comprehensive inspection of the cultural heritages to establish their general condition. Particular emphasis was given to the presence of existing defects such as cracks, water leakage, corrosion, spalled concrete, surface spalling, signs of settlement and defective finishes.
- 2.1.2 The location and details of these defects were recorded on sketches and a schedule of defects accompanied by a comprehensive set of record photographs is presented in this report. The visual inspection also comprised a detailed crack mapping; with crack widths measured utilising a crack visual gauge.
- 2.1.3 The terminology used in the description of general structural element defects, excluding road pavement surfaces shall be interpreted as follows:

Table 2.1: General Defect Terms and Corresponding Descriptions

Defect Terminology	Descriptions
Fine crack	Crack below 1mm wide, and not being structural unless otherwise stated.
Moderate crack	Crack not wider than 2mm, and not being structural unless otherwise stated.
Wide crack	Crack wider than 2mm, and not being structural unless otherwise stated.
Minor spalled concrete	Spalling up to 0.1m <sup>2</sup> and sporadic. No reinforcement bar exposed unless otherwise stated.
Major spalled concrete	Spalling greater than 0.1m <sup>2</sup> and extensive. No reinforcement bar exposed unless otherwise stated.
Crazing	A network of fine cracks on the surface of a material.
Water stain	Stain on the surface caused by past water penetration The surface is dry.

Damp patch	Moisture saturated surface with no significant trace of water.
Water seepage	Water oozing out from the surface. The surface is wet.
Water leakage	Water oozing out from the surface. The surface is wet and/or with running water.
Verticality	A visual assessment of the verticality of the building.
Rust and pits	Discolouration and uneven steel surfaces caused by corrosion, and not being structural unless otherwise stated.
Serious corrosion	Corrosion of structural steel member that has resulted in a loss of section.

## 2.2 Condition Grading of Cultural Heritages

2.2.1 The condition grading of the cultural heritages shall be defined as follow: Table 2.2: Condition Grading of the Cultural Heritages

Grade	General Condition	Descriptions
1	Good	No significant visible deterioration, new or evidence of recent maintenance and / or repair / modification.
2	Fair	Dilapidated with significant visible deterioration.
3	Poor	Seriously dilapidated, significant visible deterioration, damage to major component
4	Very Poor	Spalling up to 0.1m <sup>2</sup> and sporadic. No reinforcement bar exposed unless otherwise stated.

## 2.3 Impact Assessment of Cultural Heritages

2.3.1 To assess the impact of the vibration from future construction works to the existing heritage, multiple factors should be taken into concern:

- a) Distance to the future construction site
- b) Surrounding environment of the heritage
- c) Current condition of the heritage

### 3 RECORD OF INSPECTION

#### 3.1 Basic Information to Cultural Heritages

The cultural heritages are located inside the future Kwu Tung North New Development Area, those heritages are in different nature. **Table 3.1** below summarizes the nature of those cultural heritages to the future Kwu Tung North New Development Area. Referring to the approved EIA Report (Register No.: AEIAR-175/2013) for the North East New Territories New Development Areas. The EIA report abstract in **Appendix A** would provide details of the cultural heritage.

Table 3.1: Basic Information of the Cultural Heritages

Site Code	Site Name	Nature of Cultural Heritage
G202	Earth God Shrine of Kam Tsin	Shrines (Grade 2)
G203	Enchi Lodge (Main Building & Ancillary Block)	Heritage Building (Grade 2)
G303	Yeung Yuen (also known as Yeung Garden)	Heritage Building (Grade 3)
G308	Yan Wah Lo	Heritage Building (Grade 3)
HKT03	Home of Loving Faithfulness	Building
KT57	Law grave	Grave

#### 3.2 Inspection Record

3.2.1 The available cultural heritages were inspected. **Table 3.2** below summarizes the location, date of inspection and the causes of unavailable in the remarks.

Table 3.2: Table of Inspected Items

Site Code	Date of Inspection	Remarks
G202	8 Apr 2022	Completed
G203	Not available	<p>The main contractor called and sent a request to the occupier for the baseline condition survey by registered post.</p> <p>The occupier stated they are not allowed for a visit.</p> <p>The main contractor will conduct a follow-up call to seeking of approval on monthly basis.</p>
G303	12 Apr 2022	Completed
G308	8 Apr 2022 & 13 Apr 2022	<p>Part of the building was locked and the neighbourhood said the owners moved out from Hong Kong.</p> <p>The main contractor will conduct a follow-up call and visit to seeking of approval on monthly basis.</p>
HKT03	12 Jun 2021, 7-13 Jun 2022	Completed
KT57	7 Apr 2022	Completed

### 3.3 Summary of Defects

3.3.1 The defects identified during the visual inspection and their corresponding photo ID are summarised in the table below. The plans in **Appendix B** showing the location of the defects and their corresponding Photo No. can be referred in **Appendix C**.

Table 3.3: Summary of Defects

Site Code	Description of Defects	Length (mm)	Width (mm)	Photo No.
G202	Wide Crack on Surface	45	10	G202-11
G202	Wide Crack on Surface	50	5	G202-12
G202	Wide Crack on Surface	109	5	G202-13
G202	Wide Crack on Surface	126	10	G202-14
G202	Wide Crack on Surface	150	5	G202-15
G202	Fine Crack on Surface	100	2	G202-16
G202	Wide Crack on Surface	440	30	G202-17
G202	Wide Crack on Surface	135	50	G202-18
G202	Moderate Crack on Surface	200	3	G202-19
G303	Fine Crack on Surface	350	1	G303-33
G303	Fine Crack on Surface	640	1	G303-34
G303	Fine Crack on Surface	200	1	G303-35
G303	Fine Crack on Surface	40	1	G303-36
G303	Fine Crack on Surface	250	1	G303-37
G303	Fine Crack on Surface	420	1	G303-38
G303	Moderate Crack on Surface	500	2	G303-39
G303	Moderate Crack on Surface	1138	2	G303-40
G303	Fine Crack on Surface	1520	1	G303-41
G303	Moderate Crack on Surface	2000	2	G303-42
G308	Moderate Crack on Surface	50	2	G308-28
G308	Moderate Crack on Surface	50	2	G308-29
G308	Wide Crack on Surface	70	20	G308-30
G308	Wide Crack on Surface	60	10	G308-31
G308	Wide Crack on Surface	70	5	G308-32
G308	Wide Crack on Surface	100	20	G308-33
G308	Wide Crack on Floor Surface	270	30	G308-34
G308	Moderate Crack on Surface	70	1	G308-35

<b>Site Code</b>	<b>Description of Defects</b>	<b>Length</b>	<b>Width</b>	<b>Photo No.</b>
G308	Moderate Crack on Surface	900	1	G308-36
G308	Moderate Crack on Surface	250	2	G308-37
G308	Wide Crack on Surface	250	3	G308-38
G308	Fine Crack on Surface	160	1	G308-39
G308	Wide Crack on Surface	100	5	G308-40
G308	Fine Crack	120	1	G308-41
G308	Moderate Crack on Surface	250	2	G308-42
G308	Moderate Crack on Surface	350	2	G308-43
HKT03	Missing bricks on the structure	200	300	HKT03-EG-9
HKT03	Missing bricks on the structure	200	300	HKT03-EG-10
HKT03	Peel off paint with moisture	900	200	HKT03-23
HKT03	Fine Crack on floor tiles	1000	1	HKT03-33
HKT03	Moderate Crack on Surface	800	2	HKT03-51
HKT03	Fine Crack on Surface	400	1	HKT03-52
HKT03	Fine Crack on Surface	400	1	HKT03-53
KT57	Moderate Crack on Surface	120	2	KT57-2
KT57	Moderate Crack on Surface	120	2	KT57-3

## 4 MONITORING

### 4.1 Monitoring Locations

4.1.1 The determination of vibration limit should be based on the above mentioned factors. If the cultural heritage is expected to suffer from potential hazards (e.g. collapse) due to future construction works, this report would propose a vibration, tilting and settlement monitoring scheme and structural strengthening measures for that particular heritage as required.

4.1.2 The monitoring points are proposed at the 4 sides of each cultural heritage buildings or in front of each shrines and graves. The location of the monitoring points should submit to RSS for approval prior to the commencement of construction works. Their corresponding monitoring location is shown in **Appendix E**.

4.1.3 The monitoring checkpoints shall be install with great care and adequate protection to avoid unnecessary disturbance or damage to nearby historic fabrics. No drilling or nails is recommended on the survey. The photo record should be submit to AMO upon installation for record.

4.1.4 The contractor explained G202, G203, G308 and KT57 were outside 100m distance to C2 site boundary, no regular monitoring are required for this built heritages, please refer to the **Appendix D** for the proposed road and drainage works location and distance to the built heritages.

### 4.2 Monitoring Levels

4.2.1 The vibration and building movement induced from the proposed works should be strictly monitored to ensure no disturbance and physical damage made to the heritage during the course of works. The vibration would be monitored based on the AMO's recommended Alert, Alarm and Action (3As) levels for Grade 2/3 Historical Structures. The **Table 4.1** are the provisional 3As trigger values which summarise the tilting, settlement and vibration limit are recommended.

Table 4.1: Alert, Alarm and Action Levels of Tilting, Vibration and Settlement

Type of Monitoring	Alert	Alarm	Action
Tilting	1:2000	1:1500	1:1000
Ground Settlement	15mm	20mm	25mm
Settlement	6mm	8mm	10mm
Vibration (PPV)	5mm/s	6mm/s	7.5mm/s

### 4.3 Monitoring Frequency

Table 4.2: Monitoring Frequency

Distance with Construction Works	Monitoring Plan
Within 50m	Daily assessment is required
Within 75m	Bi-daily assessment is required
Within 100m	Weekly assessment is required

### 4.4 Monitoring Action

The contractor shall act in accordance with the following in the case of trigger levels being reached. Also, the monitoring record should be submit to AMO on regular basis and alert AMO when monitoring reach Alert, Alarm and Action levels.

**4.4.1 If an Alert level is reached, the contractor shall:**

- a. Notify the project manager immediately.
- b. Propose a suitable plan of action which may include the installation of addition instruments and/or increasing the monitoring frequency.
- c. Within 7 days, submit a report to review the instrument responses, including differential deformations. Assess the effects on the monitored elements in the light of the relevant construction activities and predict further responses and their effect, based on the data trend to date.
- d. Within 7 days, submit a detailed plan of action to the project manager describing the measures to be taken in the event of an alarm trigger level being attained. The plan of action will be subject to the acceptance of the project manager.

**4.4.2 If an Alarm level is reached, the contractor shall:**

- a. Notify the project manager immediately.
- b. Undertake a joint inspection of the works with the project manager.
- c. Implement the alarm level trigger actions, phased as appropriate. So that the action level is not reached, in accordance with the detailed plan of action.
- d. Within 48 hours of exceeding an alarm trigger level, devise and submit an emergency plan describing the measures to be taken in the event of an action trigger level being attained.
- e. Meet the project manager to discuss the instrument response and review the effectiveness of the trigger level actions.
- f. As Discussed and agreed with the project manager, undertake additional measures in the affected area to avoid reaching the action level.
- g. Within 7 days, submit an updated report to review the instrument responses, including differential deformations. Assess the effects on the monitored elements in the light of relevant construction activities and predict further responses and their effect, based on the data trend to date.

**4.4.3 If an Action level is reached, the contractor shall:**

- a. Suspend all works within 50m of the instrument.
- b. Notify the project manager immediately.
- c. Undertake a joint inspection of the works with the project manager.
- d. Implement emergency trigger action(s) based on the emergency plan of trigger actions reviewed without objection by the project manager. These emergency trigger actions will include measures to diminish the the deformations and ground responses.
- e. Within 3 days, provide a complete report to examine the construction method and a detailed report to review the deformation and ground response history and the trigger actions adopted related to the construction activities.

## 5 CONCLUSION AND RECOMMENDATION

### 5.1 Condition Grading

5.1.1 From the results of the Condition Survey, the summary of the conclusions and condition grading for the following items are presented in the table below:

Table 5.1: Summary of Condition Grading

Site Code	Photo No.	Conclusion	Condition Grading
G202	G202-1 – G202-19	The shrine is in fair condition, with a majority of defects are surface cracks.	2 - Fair
G203	Not available	Not available	Not available
G303	G303-1 – G303-42	The building is in good condition, with a majority of defects are surface cracks.	1 - Good
G308	G308-1 – G308-44	The building is in fair condition, with a majority of defects are surface cracks and missing roof tiles near trees.	2 - Fair
HKT03 Entrance Gate	HKT03-EG-1 – HKT03-EG-10	The entry gate is in fair condition, with a majority of defects are missing bricks.	2 - Fair
HKT03	HKT03-1 – HKT03-53	The building is in good condition, with a majority of defects are surface cracks.	1 - Good
KT57	KT57-1 – KT57-10	The grave is in fair condition, with a majority of defects are surface cracks.	2 - Fair

## 5.2 Conclusion

- 5.2.1 Though defects were observed in some of the cultural heritages, they are assessed to be structurally feasible, with no immediate hazards to their structural performance from the future construction works.
- 5.2.2 Immediate action for structural strengthening of the cultural heritages is not required. However, visual assessment should be carried out concurrently with the vibration monitoring assessment, once significant deficiencies (e.g. tilting, differential settlement) were observed, the construction works should stop immediately and seek the structural engineer's advice for any remedial works.
- 5.2.3 Pre-condition survey and post-condition survey should be carried out to record condition of the heritage sites and survey report and submit to AMO for record.

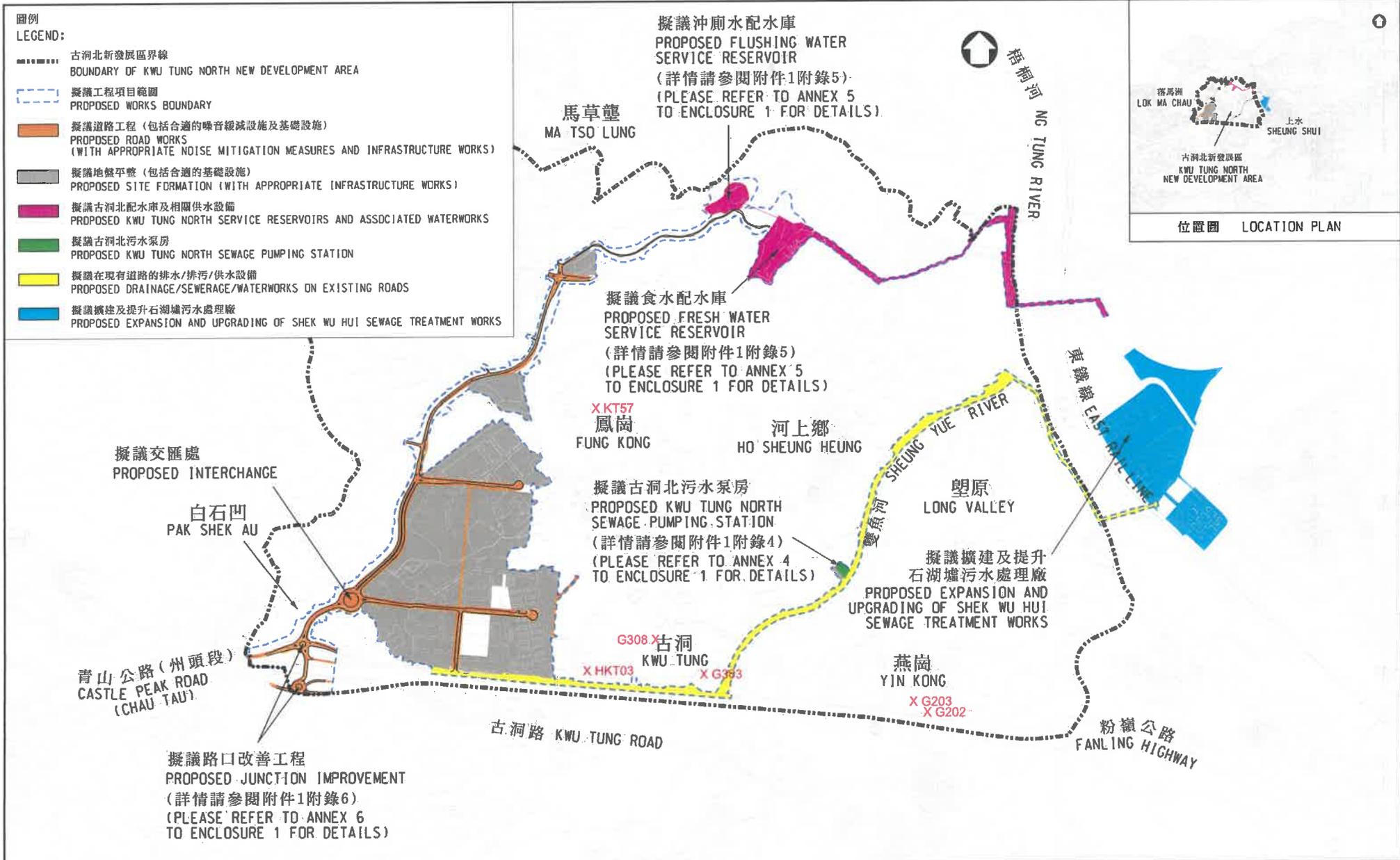
## 5.3 Recommendation

- 5.3.1 It is proposed that all the cultural heritage above mentioned be monitored in accordance with the Contract Particular Specification Section 39 Clause 39.01(2) and Alert, Alarm and Action levels for Grade 2/3 Historical Structures. Each surveyed cultural heritage is adopted to the vibration monitoring plan. The condition of the graded cultural heritage should be closely monitored.
- 5.3.3 The excavation works in close vicinity to the heritage sites should not jeopardize stability of the historic structures. It should not undermine or cause damage to foundation of historic structures. Foundation information of the historic structures shall be verified on site if needed, sufficient lateral support should be provided and dewatering (if required) should be carried out with great cautions to control ground movement and change of ground water regime at the heritage site.
- 5.3.4 The installation of temporary pile walls such as steel sheet piles, pipe piles or steel channel plankings, pile driving and similar operation are often included in the site formation and excavation and lateral support works. Such temporary pile walls, pile driving and similar operation if installed by percussive or vibratory methods, are likely to generate vibrations and settlements that may cause damage to adjacent buildings/structures/services, particularly those that are vulnerable to vibrations.

- 5.3.5 For the vibration monitoring of trial pile, test pile, pile driving and similar operation, the maximum ground-borne vibrations, measured in terms of peak particle velocity (PPV), should be recorded at every meter length of penetration of pile, at final set and at levels where obstructions are encountered. The monitoring readings should be taken by a properly calibrated device under the direction of the RSE with the agreement of the ER. If the measured ground-borne vibrations have been found to exceed the allowable values or if damage to either the structural or non-structural elements of the adjacent buildings/structures/services has been observed, all pile driving operations should be stopped and the agreed precautionary measures. The suspended pile driving operations should not be resumed without the prior agreement of the ER.

## **APPENDIX A - LOCATION PLAN**

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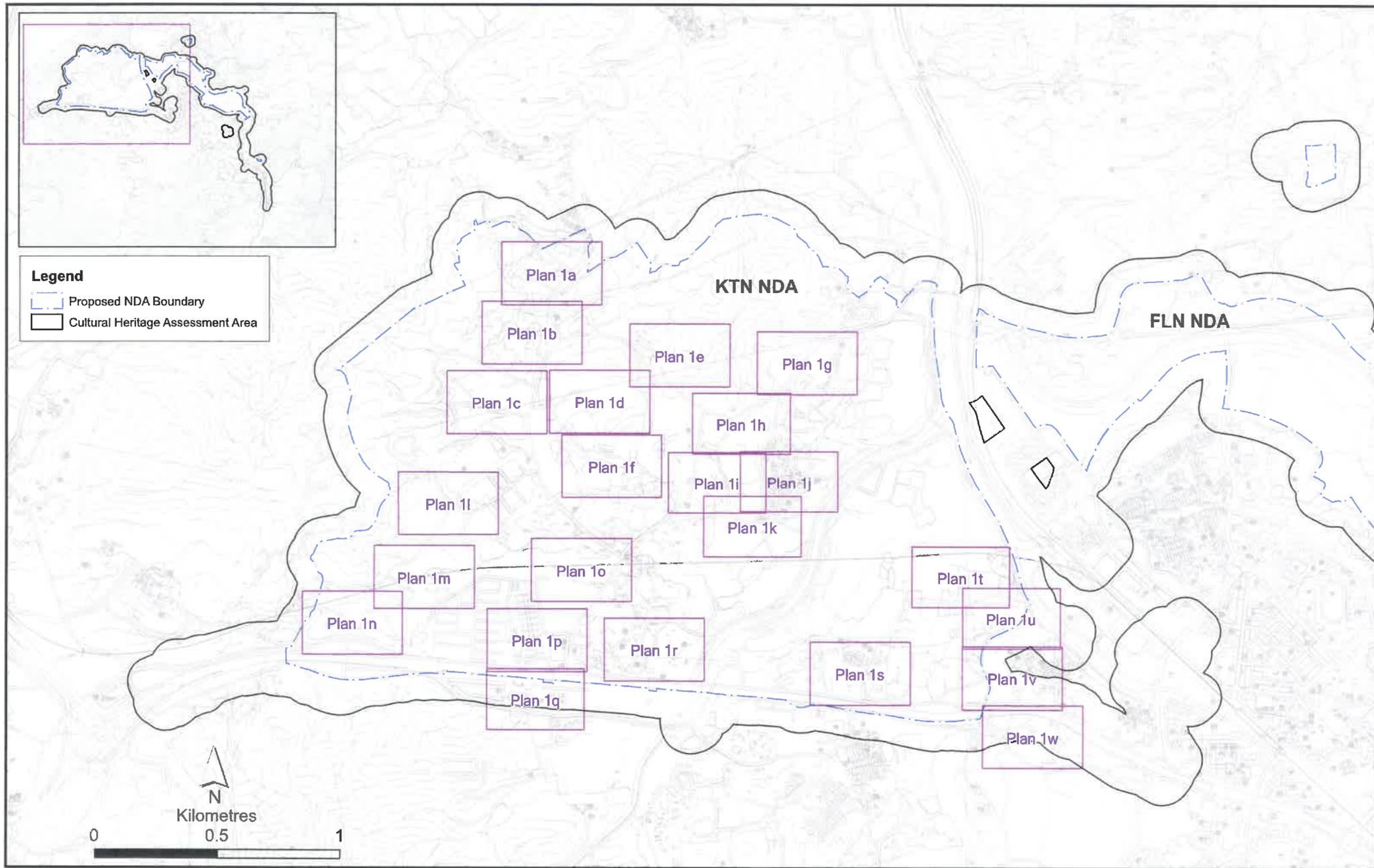


工務計劃項目第747CL號

古洞北新發展區及粉嶺北新發展區前期地盤平整和基礎設施工程-平面圖 (古洞北新發展區)

PWP ITEM NO. 747CL

ADVANCE SITE FORMATION AND INFRASTRUCTURE WORKS FOR KWU TUNG NORTH NEW DEVELOPMENT AREA AND FANLING NORTH NEW DEVELOPMENT AREA - LAYOUT PLAN (KWU TUNG NORTH NEW DEVELOPMENT AREA)



Job Title  
 Agreement No. CE 61/2007 (CE)  
 North East New Territories New Development Areas  
 Planning and Engineering Study - Investigation

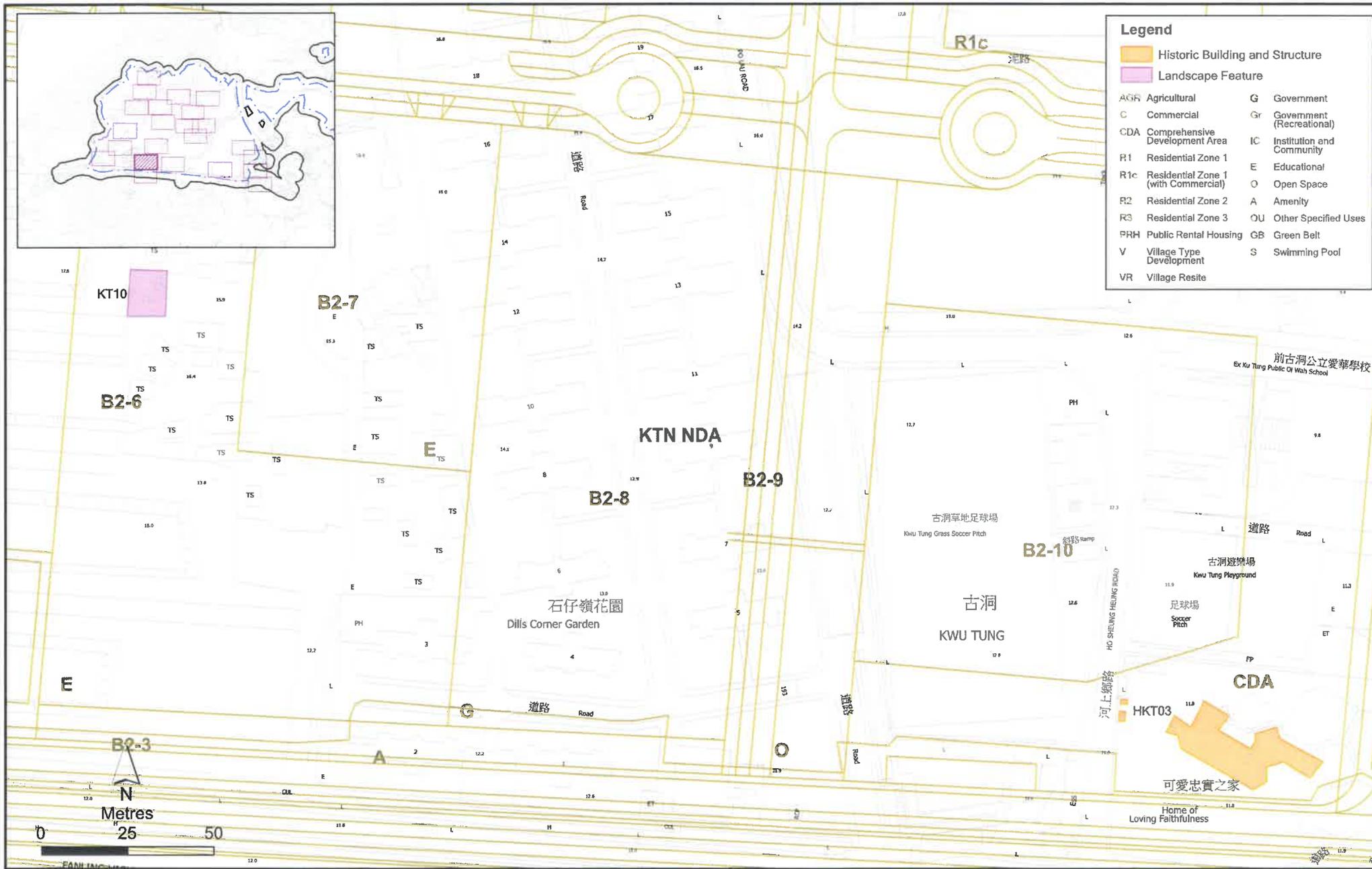
Drawing Title  
 Key Plan of Identified Built Heritage  
 Items in KTN NDA and Associated  
 Infrastructure Works CHAA

Rev	Description	Date	Drawn	Checked	Scale
4 <sup>th</sup> ISSUE		04/13	FT	Approved	1:14,000
3 <sup>rd</sup> ISSUE		01/13	Checked	LQ	
2 <sup>nd</sup> ISSUE		12/11	PW	LQ	
1 <sup>st</sup> ISSUE		10/10	Scale		

Drawing No.  
 Plan 1

Rev.

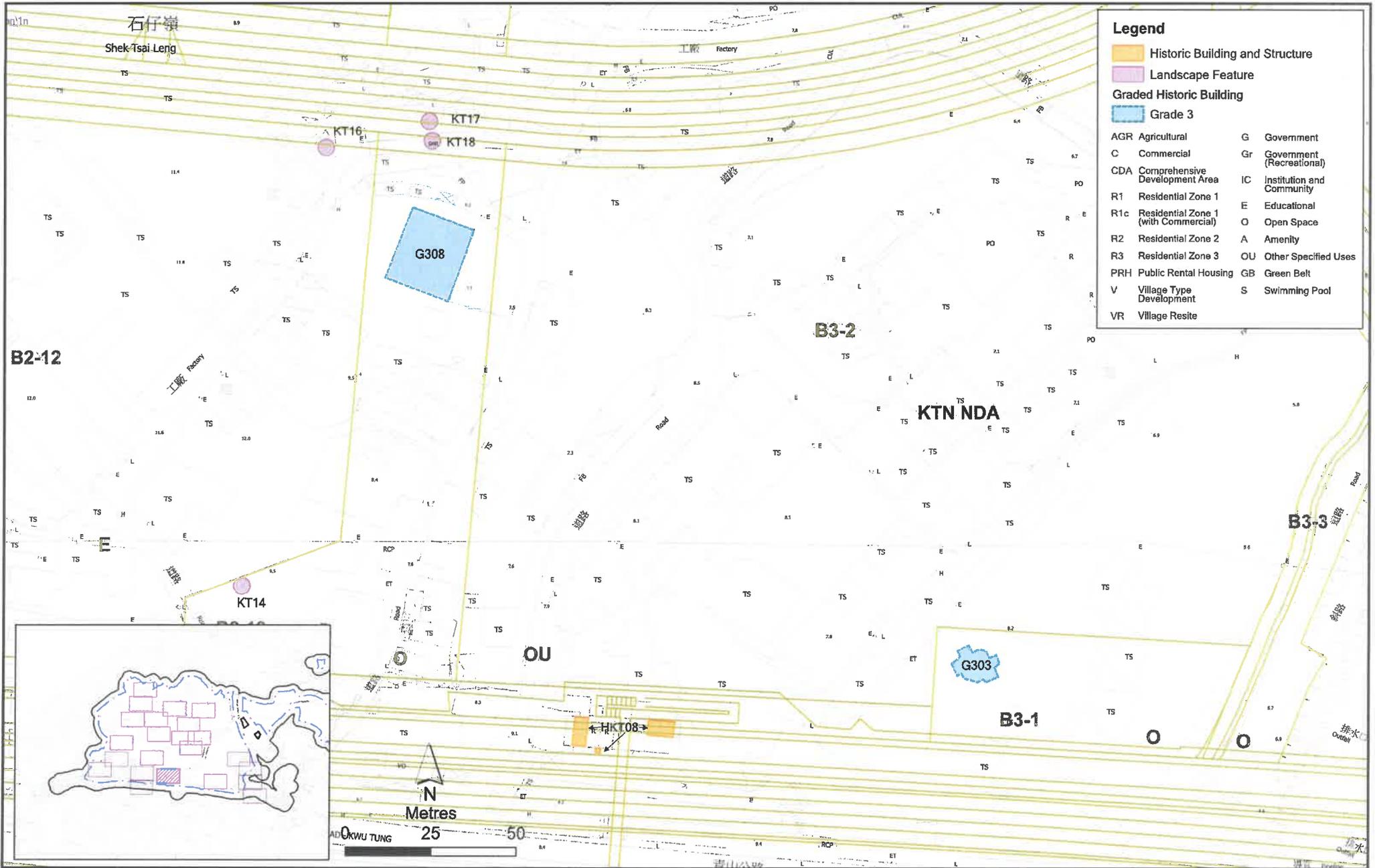




**Legend**

Historic Building and Structure	Landscape Feature
AGF Agricultural	G Government
C Commercial	Gr Government (Recreational)
CDA Comprehensive Development Area	IC Institution and Community
R1 Residential Zone 1	E Educational
R1c Residential Zone 1 (with Commercial)	O Open Space
R2 Residential Zone 2	A Amenity
R3 Residential Zone 3	OU Other Specified Uses
PRH Public Rental Housing	GB Green Belt
V Village Type Development	S Swimming Pool
VR Village Resite	

土木工程拓展署 CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT	規劃署 PLANNING DEPARTMENT	ARUP	Job Title	Drawing Title	Drawn	Date	Drawing No.
			Agreement No. CE 61/2007 (CE) North East New Territories New Development Areas Planning and Engineering Study - Investigation	Identified Built Heritage Items in KTN NDA and Associated Infrastructure Works CHAA	FT 04/13 Checked PW 01/13 Approved SC	04/13 01/13 10/10	Plan 1p Rev.
			Scale	1:1,000			

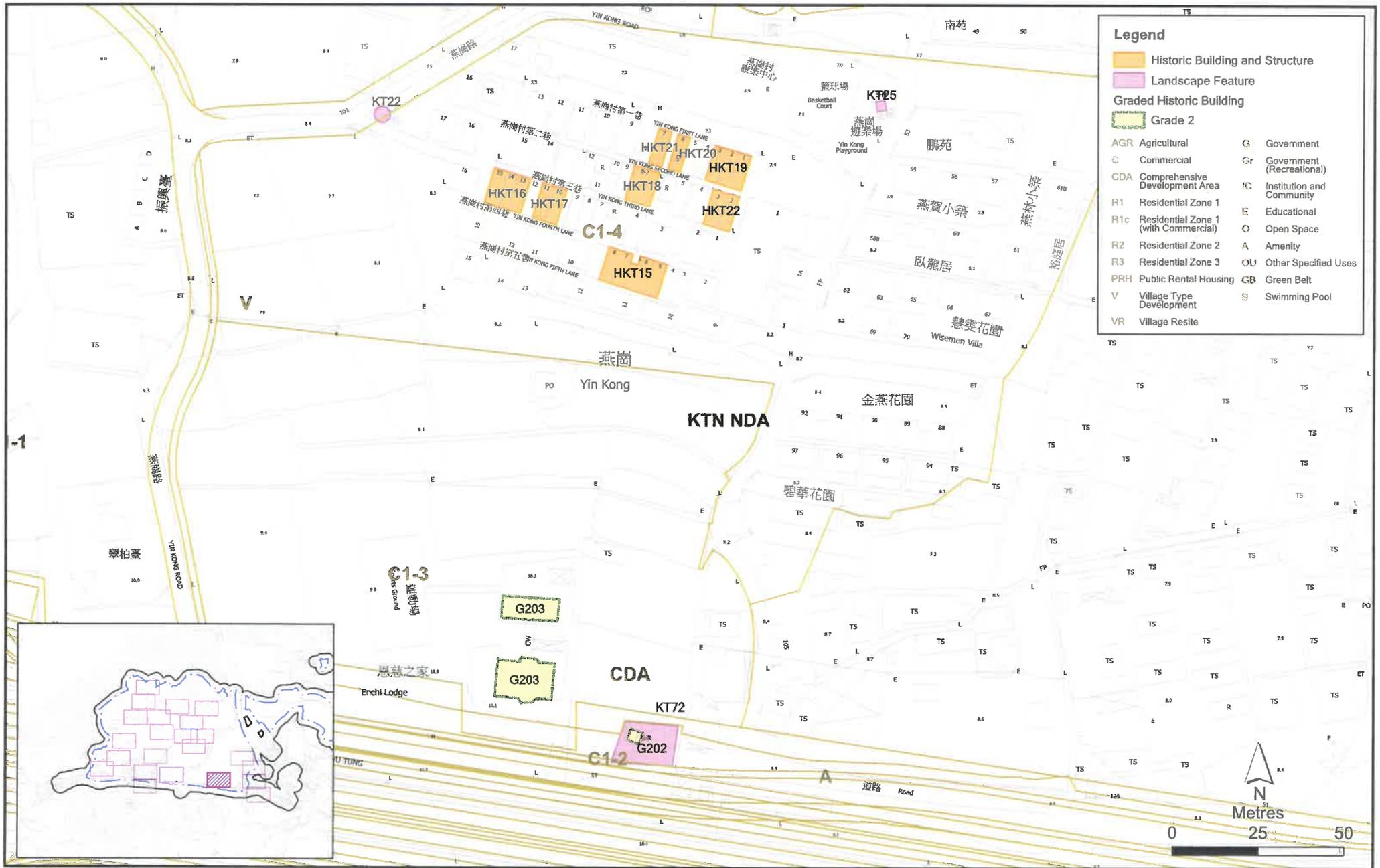


**ARUP**

Job Title  
 Agreement No. CE 61/2007 (CE)  
 North East New Territories New Development Areas  
 Planning and Engineering Study - Investigation

Drawing Title  
 Identified Built Heritage Items  
 in KTN NDA and Associated  
 Infrastructure Works CHAA

Drawn FT	Date 04/13	Drawing No.
Checked PW	Approved SC	Plan 1r
1 <sup>st</sup> ISSUE	10/10 Scale	1:1,000
2 <sup>nd</sup> ISSUE	Date	Rev.
3 <sup>rd</sup> ISSUE	Date	Rev.



**Legend**

- Historic Building and Structure
- Landscape Feature
- Graded Historic Building
- Grade 2

AGR Agricultural	G Government
C Commercial	Gr Government (Recreational)
CDA Comprehensive Development Area	IC Institution and Community
R1 Residential Zone 1	E Educational
R1c Residential Zone 1 (with Commercial)	O Open Space
R2 Residential Zone 2	A Amenity
R3 Residential Zone 3	OU Other Specified Uses
PRH Public Rental Housing	GB Green Belt
V Village Type Development	S Swimming Pool
VR Village Resite	

土木工程拓展署 CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT	規劃署 PLANNING DEPARTMENT	ARUP	Job Title	Drawing Title	Drawn	Date	Drawing No. Plan 1s
			Agreement No. CE 61/2007 (CE)	Identified Built Heritage Items in KTN NDA and Associated Infrastructure Works CHAA	FT	04/13	
			North East New Territories New Development Areas Planning and Engineering Study - Investigation		Checked	Approved	
			10/10	Scale	1:1,000	Rev.	
			10/10	Date			

## **APPENDIX B – PHOTO PLAN**

---

# CDA

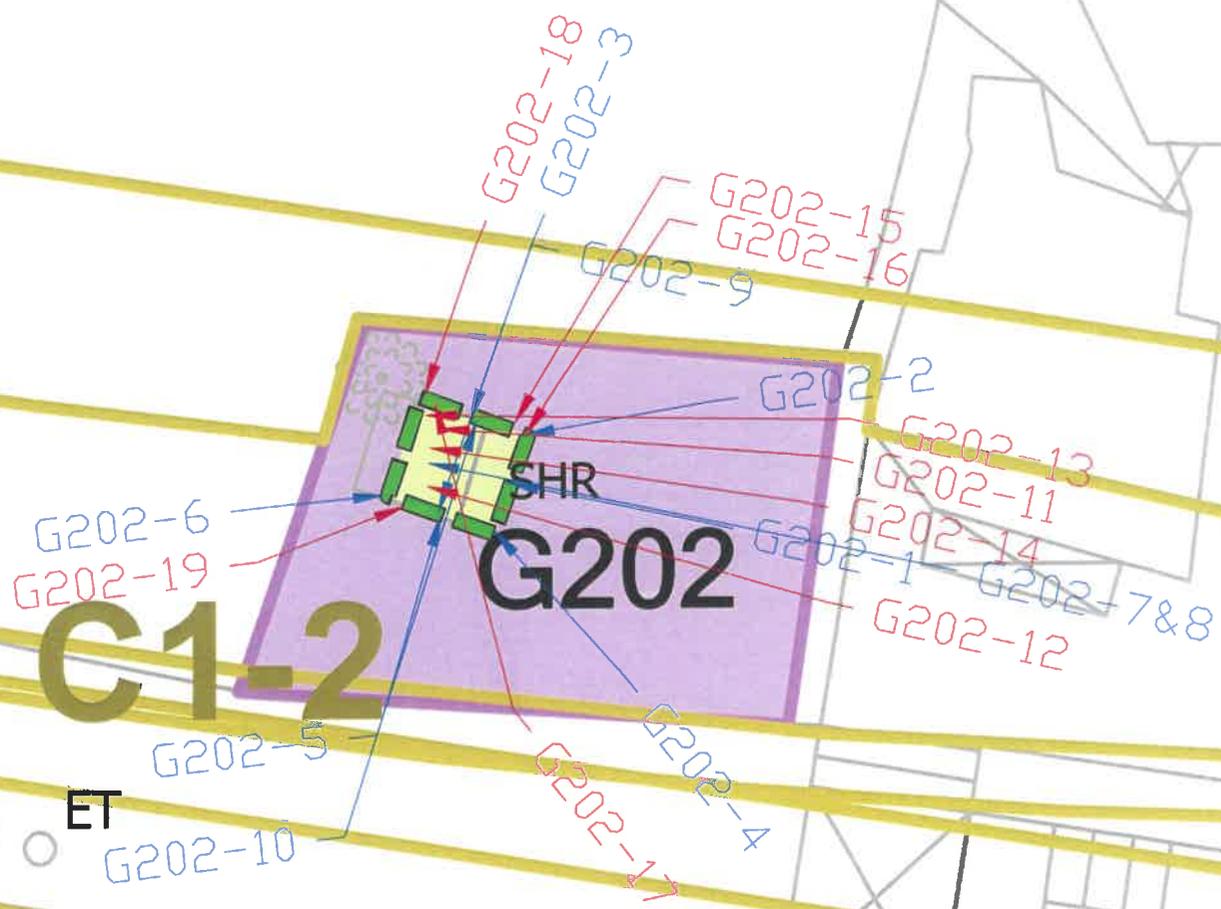


Photo Mark (General)  
Photo Mark (Defect)

8.2

ET

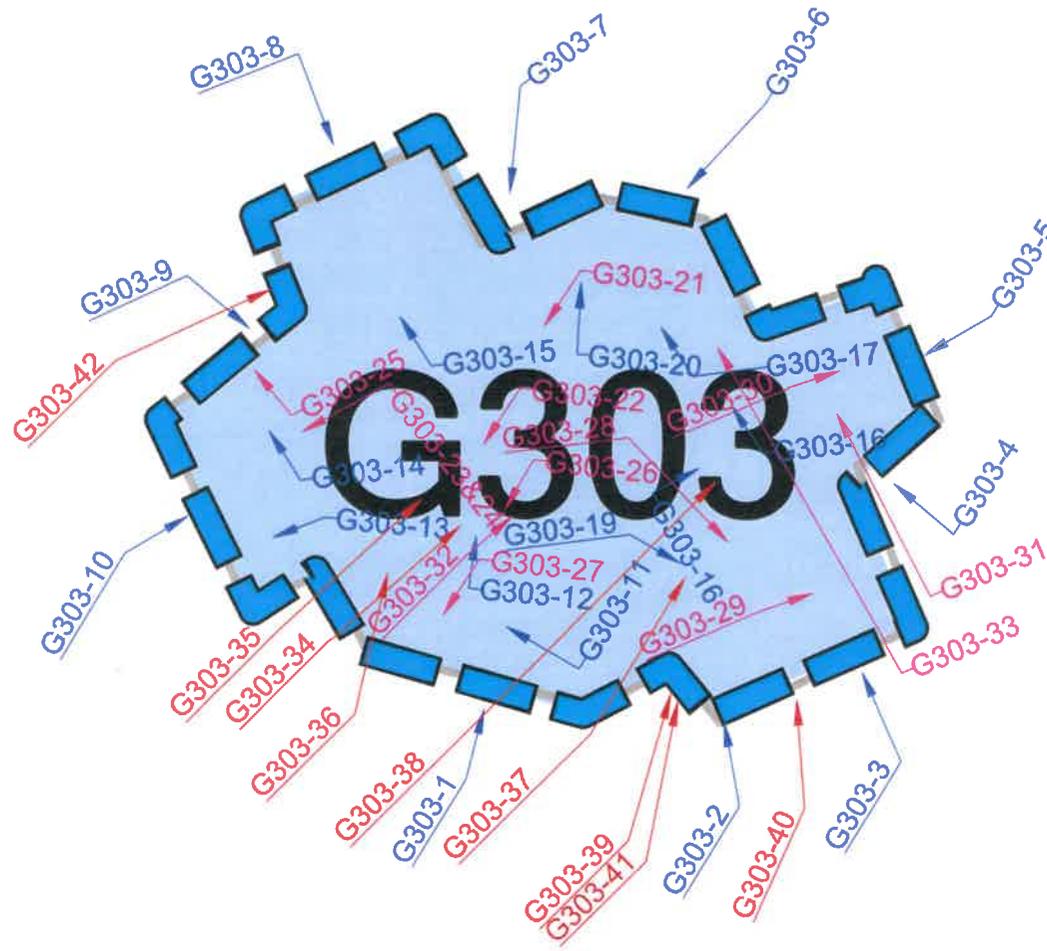


Photo Mark (General)  
Photo Mark (General) 2/F  
Photo Mark (Defect)

TS

TS

9.2

O E

L



# G308

7.7

Photo Mark (General)  
 Photo Mark (Defect)

7.5

Graves

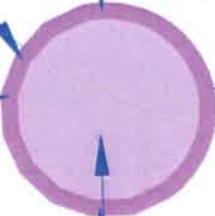
KT57-2

KT57-6

**KT57**

KT57-4&5

KT57-3



KT57-7

KT57-1

20

E

道路

Road

L

Photo Mark (General)

Photo Mark (Defect)

B2-10

古洞

KWU TUNG

古洞遊樂場

Kwu Tung Playground

11.9

足球場

Soccer Pitch

+12.6

HO SHEUNG HEUNG ROAD

12.8

HKT03-3

FP

CDA

HKT03-1,6-8

河上鄉路

HKT03-2

11.8

HKT03-5,9-10

HKT03-4

+11.9

可愛忠實之家

Home of Loving Faithfulness

+11.8

ESS

+12.0

道路

11.9

Drawn

Date

Drawing No.



## APPENDIX C – CONDITION SURVEY PHOTO

**Photographic Records**

Site Code: G202

Site Name: Earth God Shrine of Kam Tsin (金錢土地神壇)



Photo : G202-1 (General View)



Photo : G202-2 (General View)

**Photographic Records**

Site Code: G202

Site Name: Earth God Shrine of Kam Tsin (金錢土地神壇)



Photo : G202-3 (General View)



Photo : G202-4 (General View)

**Photographic Records**

Site Code: G202

Site Name: Earth God Shrine of Kam Tsin (金錢土地神壇)



Phot : G202-5 (General View)



Photo : G202-6 (General View)

**Photographic Records**

Site Code: G202

Site Name: Earth God Shrine of Kam Tsin (金錢土地神壇)



Photo : G202-7 (General View)



Photo : G202-8 (General View)

**Photographic Records**

Site Code: G202

Site Name: Earth God Shrine of Kam Tsin (金錢土地神壇)



Photo : G202-9 (General View)



Photo : G202-10 (General View)

**Photographic Records**

Site Code: G202

Site Name: Earth God Shrine of Kam Tsin (金錢土地神壇)



Photo : G202-11 Wide Crack on Surface



Photo : G202-12 Wide Crack on Surface

**Photographic Records**

Site Code: G202

Site Name: Earth God Shrine of Kam Tsin (金錢土地神壇)



Photo : G202-13 Wide Crack on Surface



Photo : G202-14 Wide Crack on Surface

**Photographic Records**

Site Code: G202

Site Name: Earth God Shrine of Kam Tsin (金錢土地神壇)



Photo : G202-15 Wide Crack on Surface



Photo : G202-16 Fine Crack on Surface

金

**Photographic Records**

Site Code: G202

Site Name: Earth God Shrine of Kam Tsin (金錢土地神壇)



Photo : G202-17 Wide Crack on Surface



Photo : G202-18 Wide Crack on Surface

**Photographic Records**

Site Code: G202

Site Name: Earth God Shrine of Kam Tsin (金錢土地神壇)



Photo : G202-19 Moderate Crack on Surface

**Photographic Records**

Site Code: G303

Site Name: Yeung Yuen (also known as Yeung Garden)



Photo: G303-1: Front View (South to North)



Photo: G303-2: Oblique View (South East to North West)

**Photographic Records**

Site Code: G303

Site Name: Yeung Yuen (also known as Yeung Garden)



Photo: G303-3: Oblique View (South East to North West)



Photo: G303-4: Side View (East to West)

**Photographic Records**

Site Code: G303

Site Name: Yeung Yuen (also known as Yeung Garden)



Photo: G303-5: Oblique View (North East to South West)



Photo: G303-6: Oblique View (North East to South West)

**Photographic Records**

Site Code: G303

Site Name: Yeung Yuen (also known as Yeung Garden)



Photo: G303-7: Front View (North to South)



Photo: G303-8: Oblique View (North West to South East)

**Photographic Records**

Site Code: G303

Site Name: Yeung Yuen (also known as Yeung Garden)



Photo: G303-9: Side View (West to East)



Photo: G303-10: Oblique View (South West to North East)

**Photographic Records**

Site Code: G303

Site Name: Yeung Yuen (also known as Yeung Garden)



Photo: G303-11: G/F Entrance



Photo: G303-12: G/F Living Room

**Photographic Records**

Site Code: G303

Site Name: Yeung Yuen (also known as Yeung Garden)

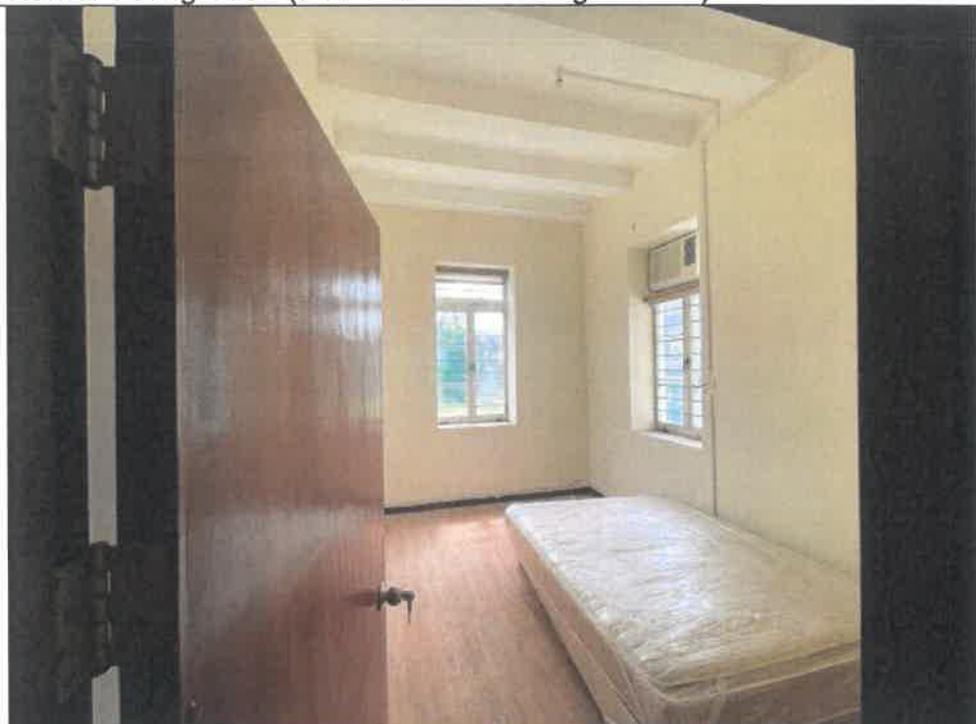


Photo: G303-13: G/F Bedroom



Photo: G303-14: G/F Toilet

**Photographic Records**

Site Code: G303

Site Name: Yeung Yuen (also known as Yeung Garden)



Photo: G303-15: G/F Living Room



Photo: G303-16: G/F Kitchen

**Photographic Records**

Site Code: G303

Site Name: Yeung Yuen (also known as Yeung Garden)



Photo: G303-17: G/F Kitchen



Photo: G303-18 G/F Toilet

**Photographic Records**

Site Code: G303

Site Name: Yeung Yuen (also known as Yeung Garden)



Photo: G303-19: G/F Bedroom



Photo: G303-20: G/F Staircase

**Photographic Records**

Site Code: G303

Site Name: Yeung Yuen (also known as Yeung Garden)



Photo: G303-21: 1/F Staircase



Photo: G303-22: 1/F Living Room

### Photographic Records

Site Code: G303

Site Name: Yeung Yuen (also known as Yeung Garden)



Photo: G303-23: 1/F Bedroom



Photo: G303-24: 1/F Bedroom Ceiling

**Photographic Records**

Site Code: G303

Site Name: Yeung Yuen (also known as Yeung Garden)



Photo: G303-25: 1/F Toilet



Photo: G303-26: 1/F Living Room

**Photographic Records**

Site Code: G303

Site Name: Yeung Yuen (also known as Yeung Garden)



Photo: G303-27: 1/F Balcony



Photo: G303-28: 1/F Bedroom

**Photographic Records**

Site Code: G303

Site Name: Yeung Yuen (also known as Yeung Garden)



Photo: G303-29: 1/F Toilet



Photo: G303-30: 1/F Balcony

### Photographic Records

Site Code: G303

Site Name: Yeung Yuen (also known as Yeung Garden)



Photo: G303-31: 1/F Balcony



Photo: G303-32: 1/F Balcony

**Photographic Records**

Site Code: G303

Site Name: Yeung Yuen (also known as Yeung Garden)



Photo: G303-33: 1/F Balcony



Photo: G303-34: Fine Crack on Surface

**Photographic Records**

Site Code: G303

Site Name: Yeung Yuen (also known as Yeung Garden)



Photo: G303-35: Fine Crack on Surface



Photo: G303-36: Fine Crack on Surface

**Photographic Records**

Site Code: G303

Site Name: Yeung Yuen (also known as Yeung Garden)



Photo: G303-37: Fine Crack on Surface



Photo: G303-38: Fine Crack on Surface

**Photographic Records**

Site Code: G303

Site Name: Yeung Yuen (also known as Yeung Garden)



Photo: G303-39: Moderate Crack on Surface



Photo: G303-40: Moderate Crack on Surface

**Photographic Records**

Site Code: G303

Site Name: Yeung Yuen (also known as Yeung Garden)



Photo: G303-41: Fine Crack on Surface



Photo: G303-42: Moderate Crack on Surface

**Photographic Records**

Site Code: G308

Site Name: Yan Wah Lo



Photo G308-1: Front View (East to West)



Photo G308-2: Front View (East to West)

**Photographic Records**

Site Code: G308

Site Name: Yan Wah Lo



Photo G308-3: Oblique View (South West to North East)



Photo G308-4: Oblique View (South East to North West)

**Photographic Records**

Site Code: G308

Site Name: Yan Wah Lo



Photo G308-5: Bottom View (South East to North West)



Photo G308-6: Bottom View (East to West)

**Photographic Records**

Site Code: G308

Site Name: Yan Wah Lo



Photo G308-7: Bottom View (South West to North East)



Photo G308-8: Bottom View (South West to North East)

**Photographic Records**

Site Code: G308

Site Name: Yan Wah Lo



Photo G308-9: Orientation: (East to West), A Window Is located next to the room above left



Photo G308-10: Orientation: (East to West), A Window Is located next to the room above right

**Photographic Records**

Site Code: G308

Site Name: Yan Wah Lo



Photo G308-11: Inside View



Photo G308-12: Inside View

**Photographic Records**

Site Code: G308

Site Name: Yan Wah Lo



Photo G308-13: Inside View



Photo G308-14: Inside View

**Photographic Records**

Site Code: G308

Site Name: Yan Wah Lo



Photo G308-15: Inside View



Photo G308-16: Inside View

**Photographic Records**

Site Code: G308

Site Name: Yan Wah Lo



Photo G308-17: Inside View



Photo G308-18: Inside View

**Photographic Records**

Site Code: G308

Site Name: Yan Wah Lo



Photo G308-19: Inside View



Photo G308-20: Inside View

**Photographic Records**

Site Code: G308

Site Name: Yan Wah Lo



Photo G308-21: Inside View



Photo G308-22: Inside View

**Photographic Records**

Site Code: G308

Site Name: Yan Wah Lo



Photo G308-23: Inside View



Photo G308-24: Inside View

**Photographic Records**

Site Code: G308

Site Name: Yan Wah Lo



Photo G308-25: Inside View



Photo G308-26: Inside View

**Photographic Records**

Site Code: G308

Site Name: Yan Wah Lo



Photo G308-27: Inside View



Photo G308-28: Moderate Crack

**Photographic Records**

Site Code: G308

Site Name: Yan Wah Lo



Photo G308-29: Moderate Crack

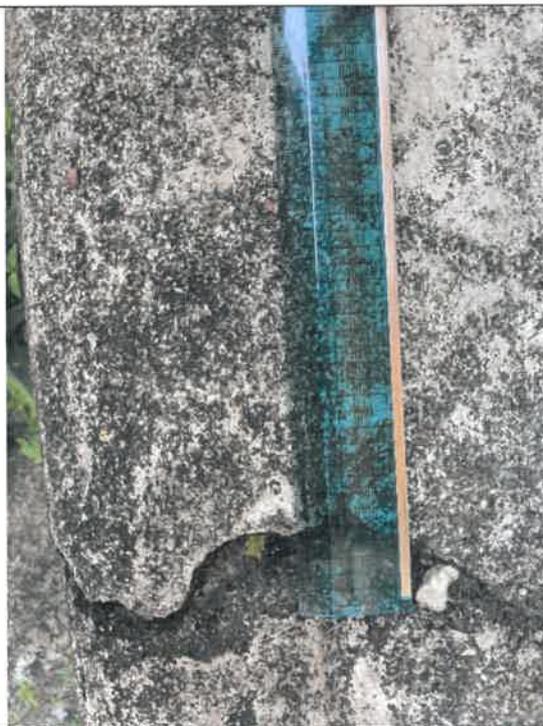


Photo G308-30: Wide Crack

**Photographic Records**

Site Code: G308

Site Name: Yan Wah Lo



Photo G308-31: Wide Crack



Photo G308-32: Wide Crack

**Photographic Records**

Site Code: G308

Site Name: Yan Wah Lo



Photo G308-33: Wide Crack



Photo G308-34: Wide Crack

**Photographic Records**

Site Code: G308

Site Name: Yan Wah Lo



Photo G308-35: Moderate Crack



Photo G308-36: Moderate Crack on Surface

**Photographic Records**

Site Code: G308

Site Name: Yan Wah Lo



Photo G308-37: Moderate Crack



Photo G308-38: Wide Crack

**Photographic Records**

Site Code: G308

Site Name: Yan Wah Lo

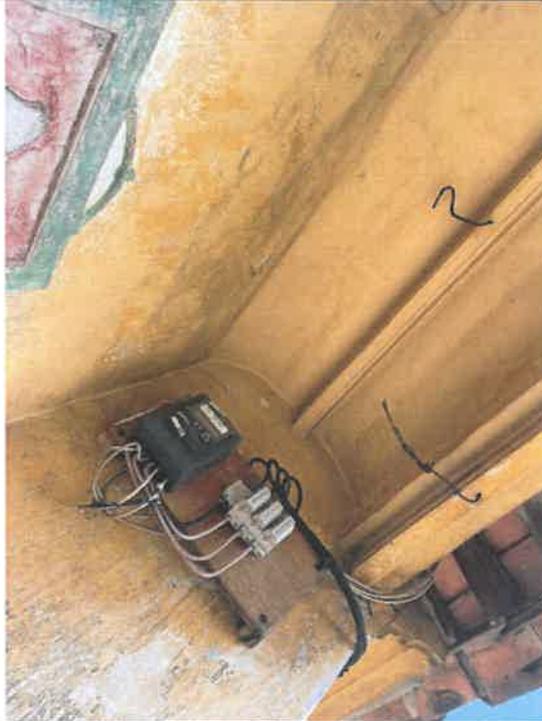


Photo G308-39: Fine Crack



Photo G308-40: Wide Crack

**Photographic Records**

Site Code: G308

Site Name: Yan Wah Lo



Photo G308-41: Fine Crack



Photo G308-42: Moderate Crack

**Photographic Records**

Site Code: G308

Site Name: Yan Wah Lo



Photo G308-43: Moderate Crack



Photo G308-44: Top View (East to West)

**Photographic Records**

Site Code: HKT03

Site Name: Home of Loving Faithfulness (Entrance Gate)



Photo 1- EG-1: Front View (West to East)



Photo 1- EG-2 Front View (East to West)

**Photographic Records**

Site Code: HKT03

Site Name: Home of Loving Faithfulness (Entrance Gate)



Photo 1- EG-3: Side View (North to South)



Photo 1- EG-4 Side View (South to North)

**Photographic Records**

Site Code: HKT03

Site Name: Home of Loving Faithfulness (Entrance Gate)



Photo 1- EG-5: Oblique View (South East to North West)



Photo 1- EG-6 Top tiles of the entrance gate

**Photographic Records**

Site Code: HKT03

Site Name: Home of Loving Faithfulness (Entrance Gate)



Photo 1- EG-7: Ridge of the entrance gate



Photo 1- EG-8 Stone base of the entrance gate

**Photographic Records**

Site Code: HKT03

Site Name: Home of Loving Faithfulness (Entrance Gate)



Photo 1- EG-9: Missing bricks on the structure



Photo 1-EG-10 Missing bricks on the structure

---

**Photographic Records**

Site Code: HKT03

Site Name: White House (Home of Loving Faithfulness)



Photo: HKT03-01 Front View (South to North)



Photo: HKT03-02 Side View (East to West)

**Photographic Records**

Site Code: HKT03

Site Name: White House (Home of Loving Faithfulness)



Photo: HKT03-03 Oblique View (North East to South West)



Photo: HKT03-04 Oblique View (South West to North East)

**Photographic Records**

Site Code: HKT03

Site Name: White House (Home of Loving Faithfulness)



Photo: HKT03-05 Oblique View (West to East)



Photo: HKT03-06 Front View (South to North)

**Photographic Records**

Site Code: HKT03

Site Name: White House (Home of Loving Faithfulness)



Photo: HKT03-07 Oblique View (South West to North East)



Photo: HKT03-08 Oblique View (South West to North East)

**Photographic Records**

Site Code: HKT03

Site Name: White House (Home of Loving Faithfulness)



Photo: HKT03-09 Side View (West to East)



Photo: HKT03-10 Side View (West to East)

**Photographic Records**

Site Code: HKT03

Site Name: White House (Home of Loving Faithfulness)



Photo: HKT03-11 Oblique View (North West to South East)



Photo: HKT03-12 Front View (North to South)

**Photographic Records**

Site Code: HKT03

Site Name: White House (Home of Loving Faithfulness)



Photo: HKT03-13 Oblique View (North East to South West)



Photo: HKT03-14 Oblique View (North West to South East)

**Photographic Records**

Site Code: HKT03

Site Name: White House (Home of Loving Faithfulness)



Photo: HKT03-15 Inside View



Photo: HKT03-16 Inside View

**Photographic Records**

Site Code: HKT03

Site Name: White House (Home of Loving Faithfulness)



Photo: HKT03-17 Inside View



Photo: HKT03-18 Inside View

**Photographic Records**

Site Code: HKT03

Site Name: White House (Home of Loving Faithfulness)



Photo: HKT03-19 Inside View



Photo: HKT03-20 Inside View

**Photographic Records**

Site Code: HKT03

Site Name: White House (Home of Loving Faithfulness)



Photo: HKT03-21 Inside View



Photo: HKT03-22 Inside View

**Photographic Records**

Site Code: HKT03

Site Name: White House (Home of Loving Faithfulness)



Photo: HKT03-23 Peel off paint with moisture



Photo: HKT03-24 Inside View

**Photographic Records**

Site Code: HKT03

Site Name: White House (Home of Loving Faithfulness)



Photo: HKT03-25 Inside View



Photo: HKT03-26 Inside View

**Photographic Records**

Site Code: HKT03

Site Name: White House (Home of Loving Faithfulness)



Photo: HKT03-27 Inside View



Photo: HKT03-28 Inside View

**Photographic Records**

Site Code: HKT03

Site Name: White House (Home of Loving Faithfulness)



Photo: HKT03-29 Inside View



Photo: HKT03-30 Inside View

**Photographic Records**

Site Code: HKT03

Site Name: White House (Home of Loving Faithfulness)



Photo: HKT03-31 Inside View



Photo: HKT03-32 Inside View

**Photographic Records**

Site Code: HKT03

Site Name: White House (Home of Loving Faithfulness)



Photo: HKT03-33 Crack on floor tiles



Photo: HKT03-34 Inside View

**Photographic Records**

Site Code: HKT03

Site Name: White House (Home of Loving Faithfulness)



Photo: HKT03-35 Inside View



Photo: HKT03-36 Inside View

**Photographic Records**

Site Code: HKT03

Site Name: White House (Home of Loving Faithfulness)



Photo: HKT03-37 Inside View



Photo: HKT03-38 Inside View

---

**Photographic Records**

Site Code: HKT03

Site Name: White House (Home of Loving Faithfulness)



Photo: HKT03-39 Inside View



Photo: HKT03-40 Inside View

**Photographic Records**

Site Code: HKT03

Site Name: White House (Home of Loving Faithfulness)



Photo: HKT03-41 Inside View



Photo: HKT03-42 Inside View

**Photographic Records**

Site Code: HKT03

Site Name: White House (Home of Loving Faithfulness)



Photo: HKT03-43 Inside View



Photo: HKT03-44 Inside View

**Photographic Records**

Site Code: HKT03

Site Name: White House (Home of Loving Faithfulness)



Photo: HKT03-45 Inside View



Photo: HKT03-46 Inside View

**Photographic Records**

Site Code: HKT03

Site Name: White House (Home of Loving Faithfulness)



Photo: HKT03-47 Inside View



Photo: HKT03-48 Inside View

**Photographic Records**

Site Code: HKT03

Site Name: White House (Home of Loving Faithfulness)



Photo: HKT03-49 Inside View



Photo: HKT03-50 Inside View

**Photographic Records**

Site Code: HKT03

Site Name: White House (Home of Loving Faithfulness)



Photo: HKT03-51 Moderate cracks on surface



Photo: HKT03-52 Fine cracks on surface

**Photographic Records**

Site Code: HKT03

Site Name: White House (Home of Loving Faithfulness)



Photo: HKT03-53 Fine cracks on surface

Empty rectangular area for additional notes or observations.

**Photographic Records**

Site Code: KT57

Site Name: Law grave



Photo KT57-1: Front View (South to North)



Photo KT57-2: back View (North to South)

**Photographic Records**

Site Code: KT57

Site Name: Law grave



Photo KT57-3: Side View (West to East)



Photo KT57-4: Side View (East to West)

**Photographic Records**

Site Code: KT57

Site Name: Law grave



Photo KT57-5: Oblique View (East to West)



Photo KT57-6: Oblique View (North West to South East)

**Photographic Records**

Site Code: KT57

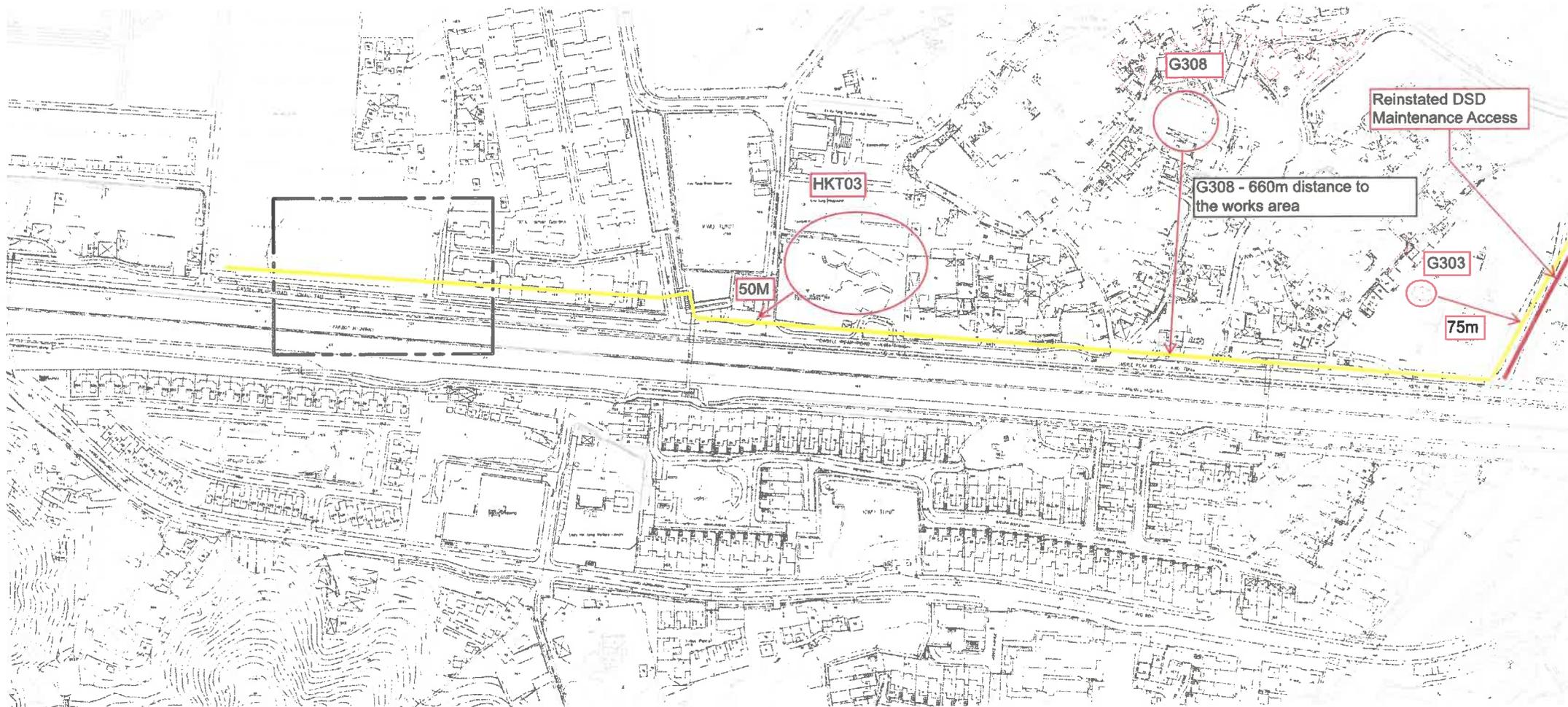
Site Name: Law grave



Photo KT57-7: Orientation: (South to North), A grave

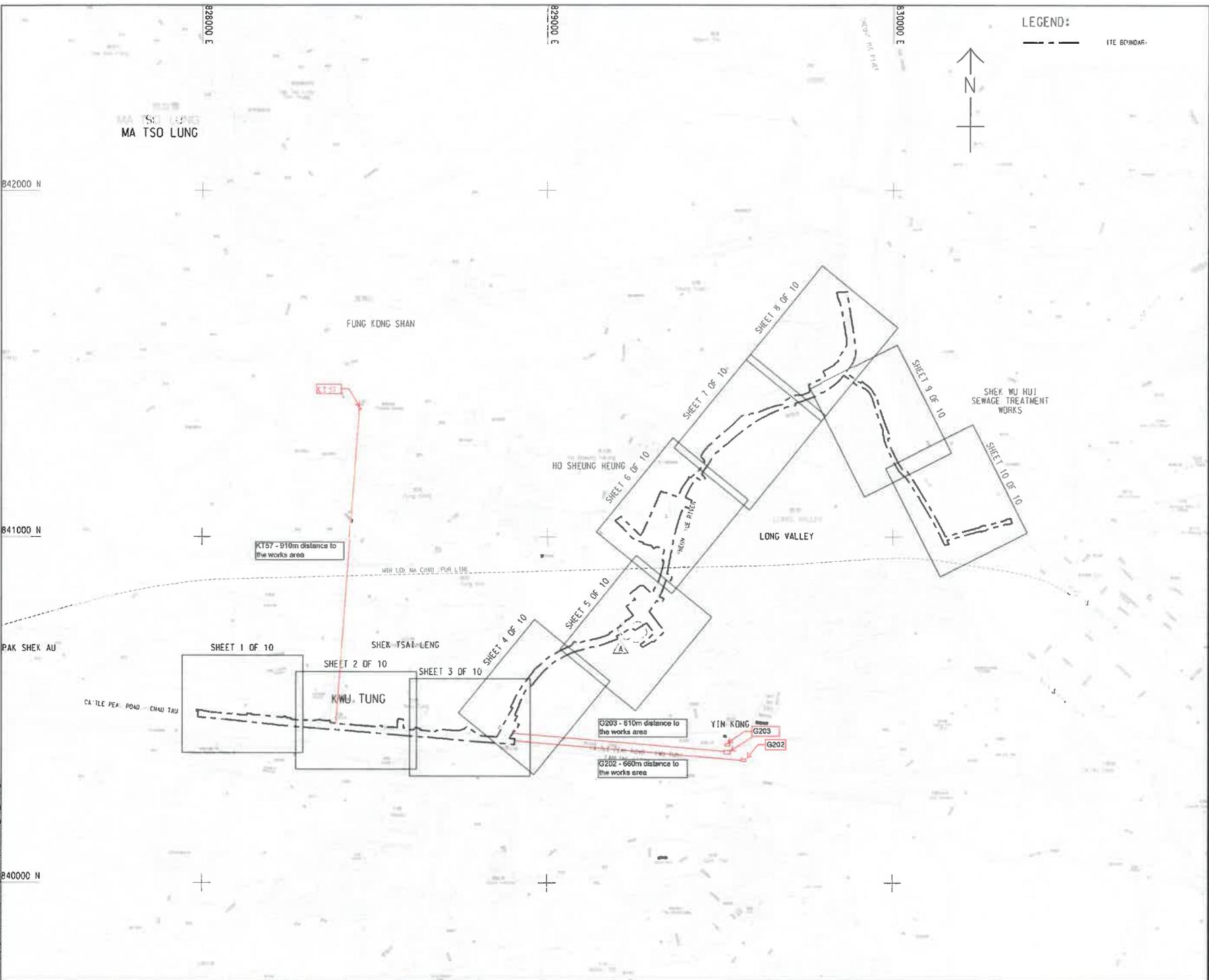
## **APPENDIX D - PROPOSED ROAD AND DRAINAGE WORKS NEAR THE GRADED BUILDINGS**

Proposed Drainage Works near the Graded Buildings @ ND/2019/02



Remarks: The contractor explained G202, G203, G308 & KT57 were outside 100m distance to C2 site boundary, no regular monitoring are required for this built heritages

Project Management Details: Designer: EBYH Cheung & CYCH Approved: EWA  
 Date: 2019/10/28  
 File Path: Z:\2019\10\28\_20191028\_001.dwg  
 D:\IT\2019\10\28\_20191028\_001.dwg



LEGEND:  
 --- 100M BOUNDARY

**AECOM**  
 PROJECT  
**DEVELOPMENT OF KWU TUNG NORTH AND FANLING NORTH NEW DEVELOPMENT AREAS, PHASE 1**

CONTRACT TITLE:  
**KWU TUNG NORTH NEW DEVELOPMENT AREA, PHASE 1: ROADS AND DRAINS BETWEEN KWU TUNG NORTH NEW DEVELOPMENT AREA AND SHEK WU HUI**

CLIENT  
**CEDD** 土木工程發展署  
 Civil Engineering and Development Department

CONSULTANT  
**AECOM** Aecom Company Ltd.  
 www.aecom.com

SUB-CONSULTANTS

ISSUE/REVISION

NO.	DATE	DESCRIPTION	BY	CHECKED
A	OCT-19	TENDER ADDENDUM NO. 2 CYCH		
B	SEP-19	TENDER DRAWING		
C				
D				
E				

SCALE  
 A1 : 8000  
 DIMENSION UNIT  
 METRE

KEY PLAN

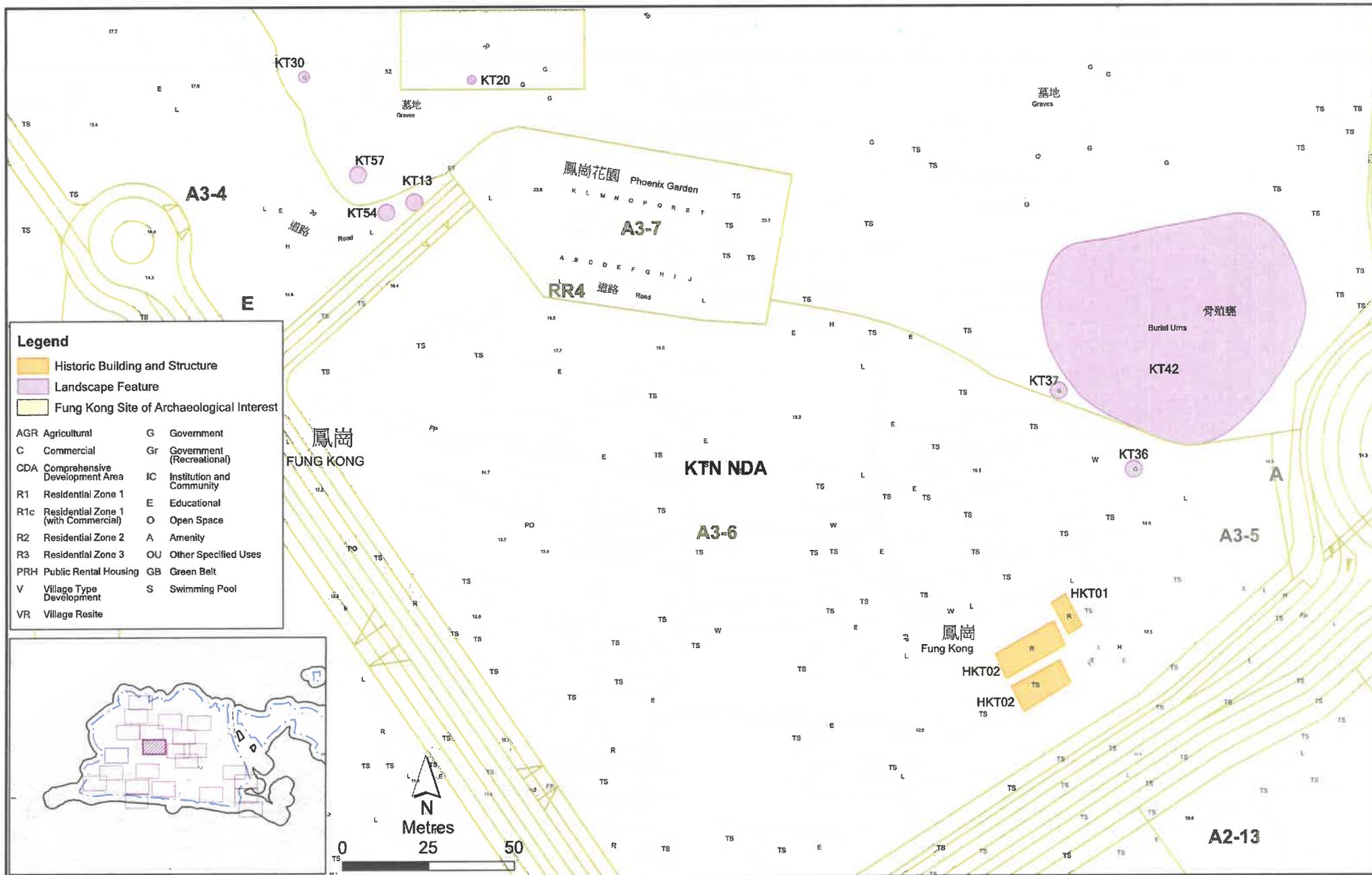
PROJECT NO.  
 60335576  
 CONTRACT NO.  
 ND/2019/02

SHEET TITLE  
 KEY PLAN

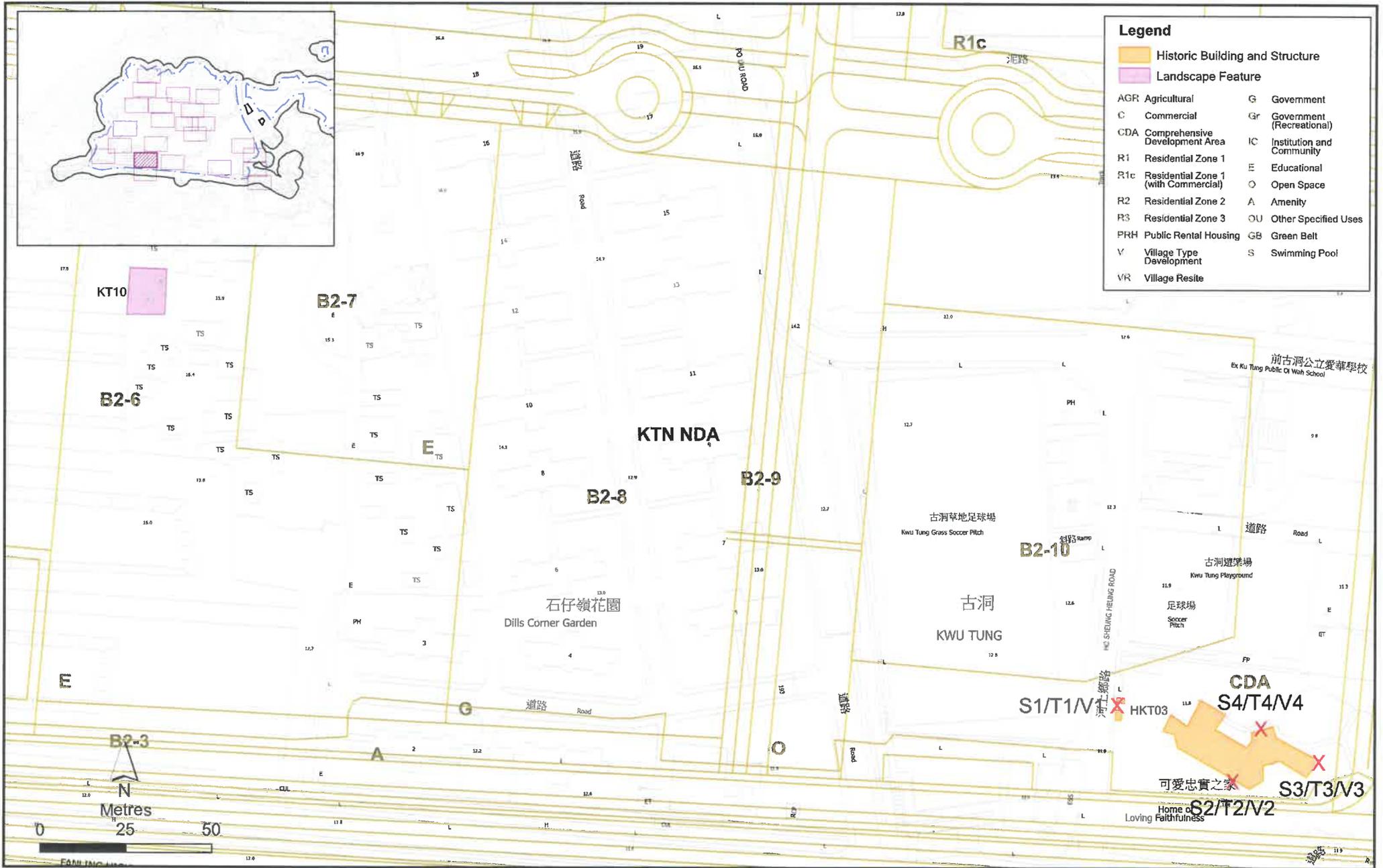
SHEET NUMBER  
 60335576/C2/C00/1000A

Remarks: The contractor explained G202, G203, G308 & KT57 were outside 100m distance to C2 site boundary, no regular monitoring are required for this built heritages

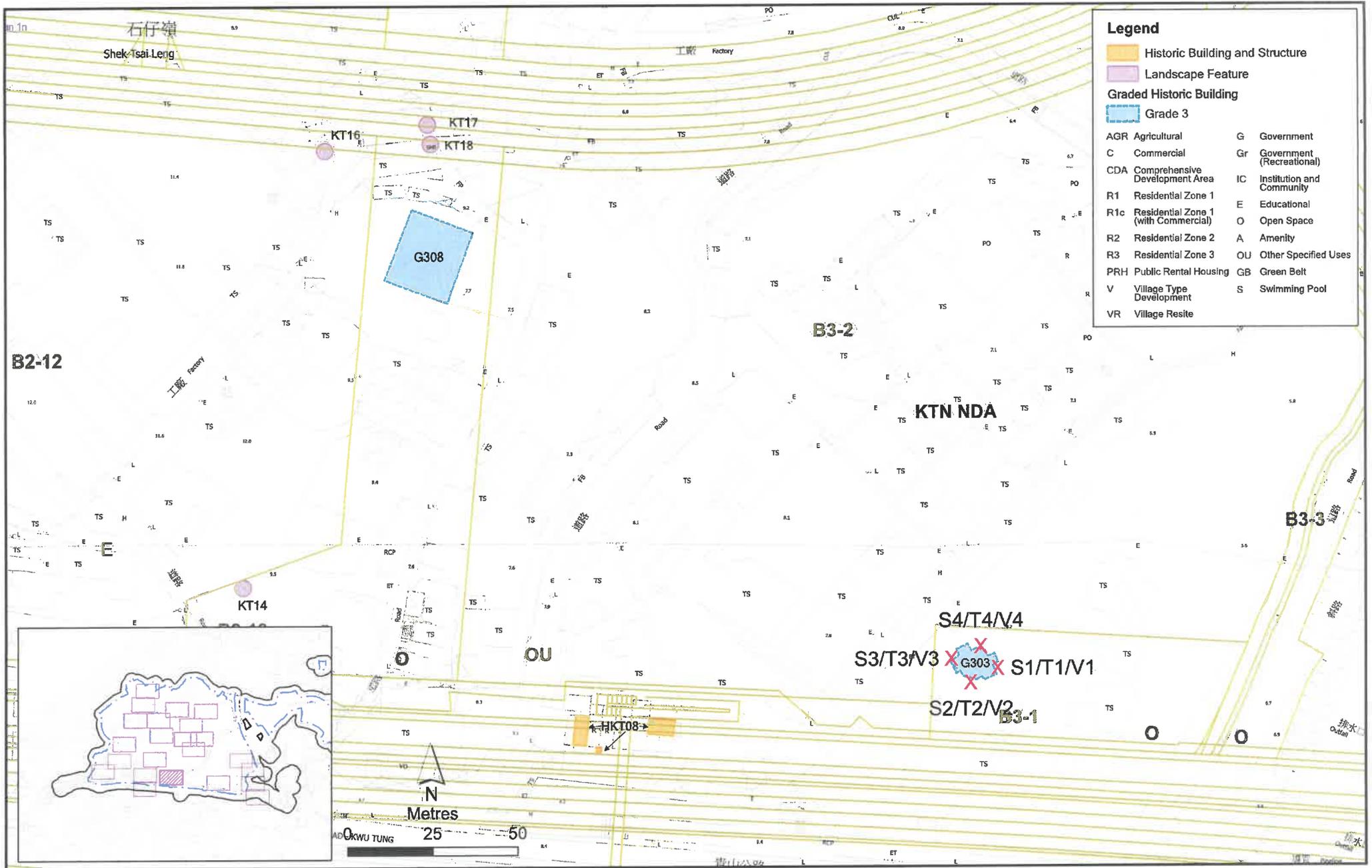
## **APPENDIX E - RECOMMENDED MONITORING LOCATIONS**



Remarks: The contractor explained G202, G203, G308 & KT57 were outside 100m distance to C2 site boundary, no regular monitoring are required for this built heritages



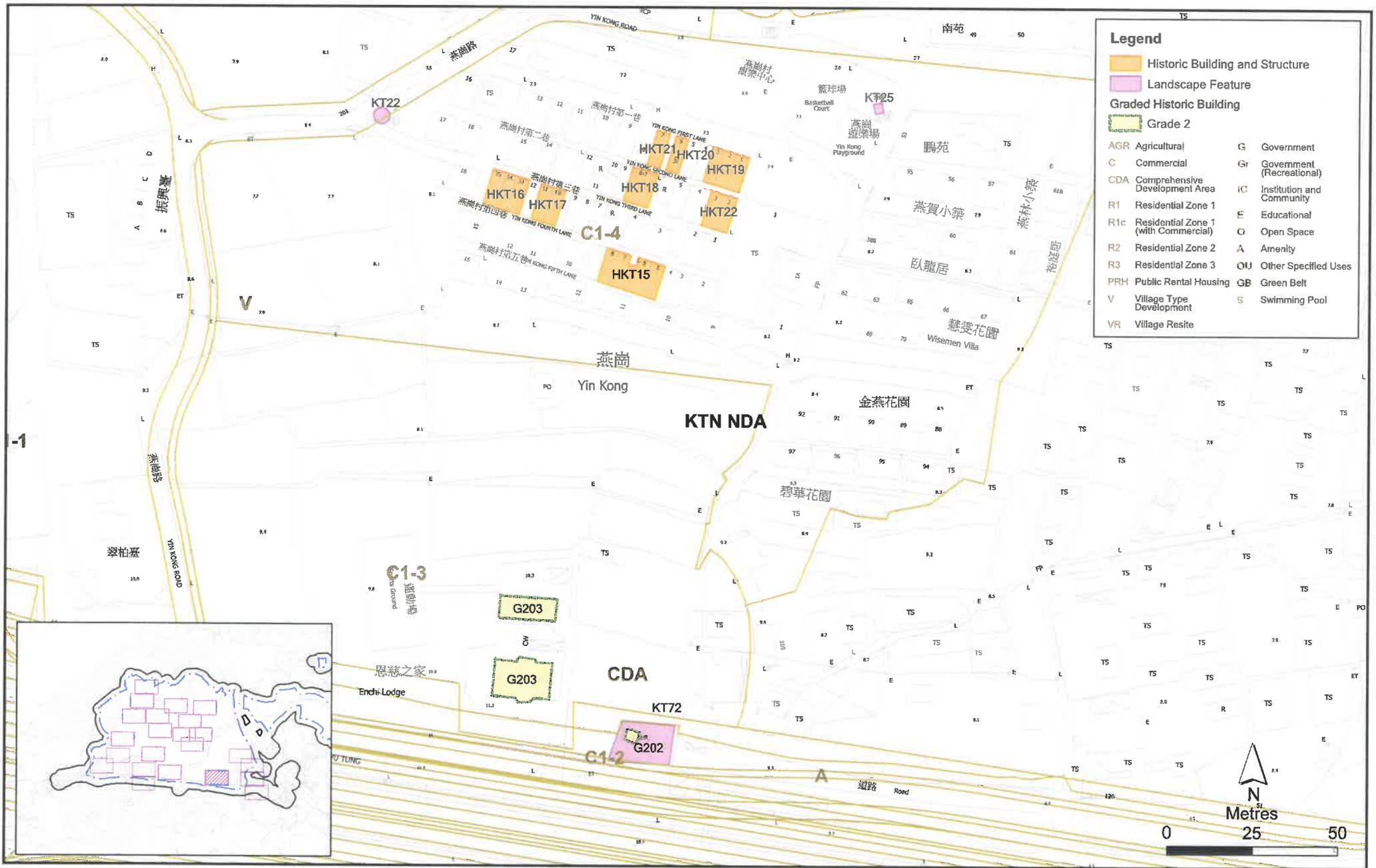
**Legend**  
 S1-S4 Settlement Marker  
 T1-T4 Tilting Marker  
 V1-V4 Vibration Monitoring Point



**Legend**

	Historic Building and Structure		
	Landscape Feature		
<b>Graded Historic Building</b>			
	Grade 3		
AGR	Agricultural	G	Government
C	Commercial	Gr	Government (Recreational)
CDA	Comprehensive Development Area	IC	Institution and Community
R1	Residential Zone 1	E	Educational
R1c	Residential Zone 1 (with Commercial)	O	Open Space
R2	Residential Zone 2	A	Amenity
R3	Residential Zone 3	OU	Other Specified Uses
PRH	Public Rental Housing	GB	Green Belt
V	Village Type Development	S	Swimming Pool
VR	Village Resite		

**Legend**  
 S1-S4 Settlement Marker  
 T1-T4 Tilting Marker  
 V1-V4 Vibration Monitoring Point



Remarks: The contractor explained G202, G203, G308 & KT57 were outside 100m distance to C2 site boundary, no regular monitoring are required for this built heritages