HERITAGE IMPACT ASSESSMENT REPORT (ISSUE 5)

CE 37/2016 (WS) - Implementation of Water Intelligent Network (WIN), Remaining District Metering Areas and Pressure Management Areas in Kowloon East, Sha Tin and Islands Major Supply Zones – Investigation, Design and Construction

B&V PROJECT NO. 194498

REPORT NO.: 194498/B&V/038/HIAR/ISSUE 5

PREPARED FOR

Water Supplies Department

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Table of Contents

– End –

Appendices

1 INTRODUCTION

1.1 Project Background

1.1.1 In the 1990s, maintenance of a considerable length of water mains approaching the end of their service life became increasingly difficult and costly. Given the poor condition of the water distribution network, replacement and rehabilitation (R&R) of the aged water mains was the most effective solution to rejuvenate the water distribution network to arrest the rapid rising trend of main bursting and leakage. A programme of R&R of water mains (R&R Programme) was launched in 2000 to replace and rehabilitate around 3 000 kilometres (km) of the aged water mains in Hong Kong. The R&R Programme was substantially completed in 2015. At present, the total length of water mains in Hong Kong is about 8 000 km.

1.1.2 Following the substantial completion of the R&R Programme, the condition of the water distribution network has been largely improved. The annual number of water main bursts has been reduced from the peak of about 2 500 in 2000 to 88 in 2017. The leakage rate has also been reduced from exceeding 25% in 2000 to about 15.2% in 2017.

1.1.3 Notwithstanding the completion of the R&R Programme, the water mains previously not covered in the R&R Programme will continue to age and deteriorate. Riding on the technological advancement of sensors, telemetry, network management software and data analysis in recent years, we consider it an opportune time to implement the Water Intelligent Network (WIN) to maintain the healthiness of the water distribution network. With WIN, we would be able to analyse the condition of the water distribution network and determine the most cost-effective means to maintain the healthiness of the network.

1.1.4 The essence of WIN is continuous monitoring of network performance in a holistic manner by utilising advanced technologies. Under WIN, the water distribution network will be divided into discrete district metering areas (DMA) and pressure management areas (PMA) of manageable size with high-technology monitoring and sensing equipment installed in each DMA and PMA network. Implementation of WIN enables the effective execution of measures under the four pillars of network management in an integrated and coordinated manner. These four pillars include (a) active leakage detection and control through the usage of the monitoring and sensing equipment installed in the network; (b) pressure management to reduce the pressure in the network of the PMAs; (c) quality and speedy repairs to water main leaks and bursts; and (d) asset management by reprovisioning of aged water mains which are beyond economic repair. WIN also enables detection of probable unauthorised consumption from the network.

1.1.5 Tremendous amount of flow and pressure data as well as other associated network data will be collected from the monitoring and sensing equipment of the DMAs and PMAs. An intelligent network management system (INMS) is being established for analysing the data collected for continuous monitoring of the condition of the network so as to assess the level of leakage and unauthorised consumption, and to enable timely determination of the priorities and the most effective network management measures for the DMAs and PMAs. For full implementation of WIN to cover the entire water distribution network in the territory, we will link up all DMAs and PMAs, which are either established or to be established to the INMS. By incorporating all the DMAs and PMAs into the INMS, WIN will eventually be established and will enable efficient network management to cover the water distribution network in the whole territory.

1.2 Background of Consultancy

1.2.1 Black & Veatch Hong Kong Limited (B&V) has been appointed by WSD to carry out the investigation, detailed design and construction supervision for the establishment of the remaining DMAs and PMAs, together with the installation of the necessary network monitoring and sensing equipment and the establishment of an intelligent network management system and development of associated analytical tools for the fresh water distribution systems (including distribution systems for temporary water mains for flushing), in Kowloon East, Sha Tin and Islands Major Supply Zones (MSZs). The layout plans of the extents of the three MSZs are provided in **Appendix A**.

1.2.2 The Project covers the supply zones (SZs) of the fresh water primary service reservoirs (FWPSRs), fresh water service reservoirs (FWSRs), fresh water tank (FWT), fresh water break pressure tank (FWBPT) and direct supply (DS) from the water treatment works (WTWs) in Kowloon East, Sha Tin and Islands MSZs and the scope of works comprises the review, design, construction, commissioning and monitoring of the underground DMA and PMA chambers and critical pressure point (CPP) chambers.

1.3 Objectives of Heritage Impact Assessment

1.3.1 The objectives of the Heritage Impact Assessment (HIA) are to identify and evaluate the potential heritage impact arising from the proposed works on Heritage Sites, including Sites of Archaeological Interest and built heritage in accordance with Development Bureau Technical Circular (Works) No. 6/2009 Heritage Impact Assessment Mechanism for Capital Works; if impacts are identified mitigation measures will be recommended as appropriate.

1.4 Authorship

1.4.1 Archaeological Assessments Limited was commissioned by B&V to undertake a HIA study brief and a HIA Report. Key personnel in undertaking the HIA are:

- Julie Van Den Bergh (Project director and main consultant)
- Kennis Yip and Kathy Chan (Researchers)

2 PROPOSED WORKS

2.1 General Description

2.1.1 The project consists of investigation, detailed design and construction supervision for the establishment of the remaining DMAs and the associated PMAs, together with the installation of the necessary network monitoring and sensing equipment and the establishment of an intelligent network management system and development of associated analytical tools for the fresh water distribution systems (including distribution systems for temporary water mains for flushing), in Kowloon East, Sha Tin and Islands Major Supply Zones (MSZs).

2.2 Type of Works

2.2.1 For the evaluation of heritage impacts, the chambers for the establishment of DMA and PMA are identified in view of the sub-surface construction and potential impact identification.

2.2.2 A chamber typically includes a below ground concrete chamber in which (1) a flow meter used for continuously measuring/monitoring the flow into and out of the district meter area is set, (2) a pressure reducing valve may also be included in the chamber at some locations which are checked in the hydraulic design having a possibility of pressure reduction and (3) some other associated and enabling works which are necessary for the completeness of the water networks and/or establishment of the DMA/PMA. Some associated and enabling works involve excavation. All the works involved excavation were assessed as of having excavation. The size of a chamber is ranging about 1.5 to 3 m wide x 1.5 to 5 m long x 2 to 4 m deep, which depends on the size and the depth of the existing water mains and the site conditions. The foreseeable maximum size of the chamber is adopted in the assessments.

2.3 Description of Construction Works On-site

2.3.1 The majority of the proposed works consist of construction of chambers located at existing roads, under the carriageways, pavements or footpaths and in location of existing water supply network.

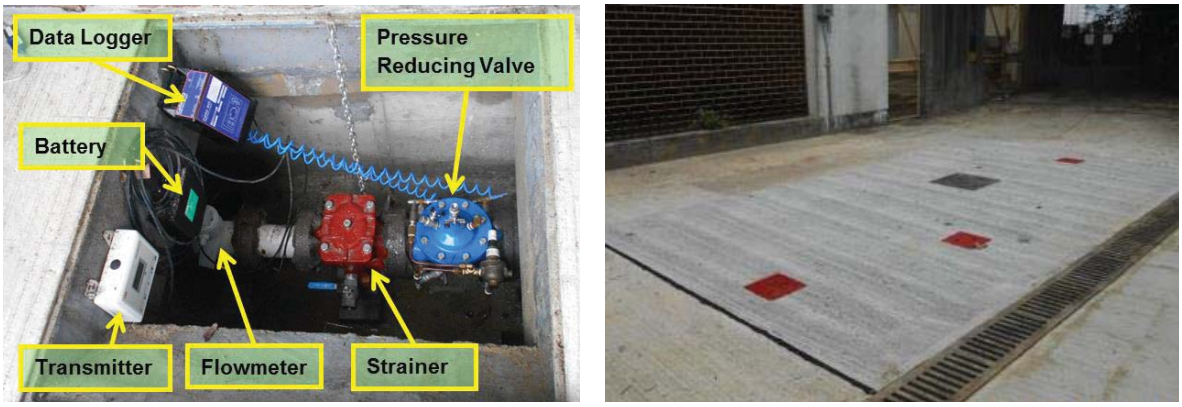
2.3.2 The chambers would be constructed for the installation of flow meters and/or other pressure management equipment on the existing water supply network. It is necessary to set out the exact location of the proposed chambers with reference to the design.

2.3.3 Before excavation, a detailed underground utility detection would be carried out by a competent person for locating the existing water mains and other underground utilities nearby for verifying the location of the construction. The exact location and dimensions of the existing water supply network are not known.

2.3.4 After identifying the locations, the concrete or the asphalt ground surface will be saw-cut and then broken down into pieces by breaker. Then, open trench excavation would be carried out by an excavator. The temporary support system will be provided, if necessary.

2.3.5 Having exposed the concerned section of the water mains, the chambers will be constructed by concreting and steel fixing for the subsequent installation of instrument (e.g. flowmeter and/or pressure reducing valve). After that, the connection with existing fresh water supply network will be carried out.

2.3.6 Finally, the excavated site area shall be backfilled with appropriate materials and reinstated the ground surface.



Photos 1 and 2 – Showing the Equipment Arrangement Installed in the Chamber and the Ground Surface Reinstatement after the Construction (approximate size: 1.5 – 3m wide x 1.5 – 5 m long x 2 – 4m deep)

3 METHODOLOGY

3.1 Identification – Near the Declared Monuments and Historic Buildings

Identification of Possible Impacts

3.1.1 A HIA checklist and a HIA Study Brief have been prepared and submitted previously to identify the potential affected heritage sites and the studies.

3.1.2 This Assignment covers the Kowloon East, Sha Tin and Islands MSZs. The historic buildings, which are located within the 50 m from the proposed works, have been identified with reference to the following lists obtained from AMO:

- Declared Monuments (as at 13 October 2017)
- List of 1,444 Historic Buildings in Building Assessment (as at 6 September 2018)
- List of new items and new categories with assessment results (as at 6 September 2018)

3.1.3 22 nos. of built heritages have been identified to fall within 50 m of 13 nos. of proposed chambers, as summarized in **Table 3-1** below.

3.1.4 No proposed works have been identified to fall within 50 m of Declared Monuments.

3.1.5 The detailed lists of identified historical buildings in the List of 1,444 Historic Buildings in Building Assessment and list of identified historical buildings in the List of New Items and New Categories with Assessment Results are presented in **Appendix B** and **Appendix C** respectively. Figures showing the identified built heritages with respect to the locations of the proposed works are presented in **Section 10**.

Table 3-1 Summary of Built Heritage Identified within 50 m of Proposed Chambers

Source of List	No. of Proposed Chambers Identified within 50 m of Built Heritage	No. of Built Heritage Identified	Distance between works boundary and Built Heritage (Range)
Declared Monuments	0	0	Outside 50m
List of 1,444 Historic Buildings in Building Assessment *(Details refer **Appendix B**)*	11	20	8-49m
List of new items and new categories with assessment results *(Details refer **Appendix C**)*	2	2	19-35m
Total	**13**	**22**	**-**

Considerations

3.1.6 In view that all the proposed works are mainly with the construction of chambers which are constructed below ground with superficial level, no permanent impact to the landscape and visual aspects of the historic buildings are expected.

3.1.7 The proposed works are generally situated away from the heritage sites as far as possible. For some proposed works near the identified historical buildings, the impacts on the structures or foundations of the historic buildings (e.g. cracks on walls, settlement of the structures, etc.) are considered negligible since the size of the works area for construction of the proposed works is relatively small and confined (i.e. about 1.5 to 3 m wide x 1.5 to 5 m long x 2 to 4 m deep). The construction method does not involve significant vibration since only small and localized excavations are involved.

Mitigation Measures

3.1.8 Out of all 21 nos. of built heritage identified, the nearest historic building i.e. St. John Hospital is 8m away from works boundary (see **Figure 13** in **Section 10**), the vibration generated during construction is considered minimal because the major concern would be vibration during excavating the road surface. In order to minimize the vibration, it is proposed to adopt saw-cutting method on the concrete or asphalt road surface first which would significantly reduce the concern. Also, the proposed works would be in a disturbed ground for the previous construction of the existing water mains. Therefore, the anticipated excavation involving the rock-breaking works and the vibration induced would be minimal. Extra care would be paid attention to those works identified to be near the heritage sites. Mitigation / precautionary measures should be proposed where necessary such as monitoring plan and checkpoints on a case by case basis subject to approval by AMO.

Conclusion

3.1.9 In view of the above, it is considered that the proposed works will **not have any long term adverse impacts** to the identified historic buildings in general and hence no in-depth assessed in this HIA Report would be required.

3.1.10 Notwithstanding this, as a precautionary measure a buffer zone of 5m should be set up around the historic buildings, and other appropriate precautionary measures shall be proposed before commencement of works where necessary subject to approval by AMO. In addition, signage identifying the graded historic buildings should be provided and care should be taken to avoid encroachment. Documentation would be provided to record the monitoring findings, if necessary. Also, should impacts to the identified historic buildings be identified during construction monitoring/mitigation plan would be proposed before the construction by the Contractor. If there is any observed impact or potential concern to the buildings, the works will be suspended and the advice from AMO will be sought. The works will be resumed subject to advice from AMO, if necessary.

3.2 Identification – Sites of Archaeological Interest (SAIs)

3.2.1 With reference to the List of Sites of Archaeological Interest (SAIs) in Hong Kong (as at Nov 2012), the proposed works located 50m of the SAIs and within SAIs have been identified.

Within 50m Circumferential Area from the Boundary of SAIs

3.2.2 The SAIs identified to be within 50 m of the proposed works have been identified and summarized below.

3.2.3 14 nos. of Sites of Archaeological Interest have been identified to fall within 50 m of 22 nos. of proposed chambers, as summarized in **Table 3-3** below. The detailed list of the identified Sites of Archaeological Interest is presented in **Appendix D**.

Table 3-3 Summary of Sites of Archaeological Interest (SAIs) Identified within 50 m of Proposed Chambers

No. of Chambers Identified within 50m Circumferential Area from the Boundary of SAI (*Details in Appendix D*)	No. of SAIs Identified Having Proposed Chambers within 50m Circumferential Area from the Boundary (*Details in Appendix D*)
22	**14**

3.2.4 In view that the proposed works for the construction of chambers is of a relative small scale, the works located outside the SAI but within 50m of the SAI is assessed to have insignificant impact to the SAI. Therefore, these works **are not assessed in depth** in this HIA Report.

3.2.5 Notwithstanding this, should antiquities and supposed antiquities be identified during the construction work, the works should be suspended and the relevant contractor should notify AMO immediately.

Within the SAIs

3.2.6 29 nos. of proposed chambers have been identified within the boundaries of 8 nos. of Sites of Archaeological Interest, as summarized in **Table 3-4** below. The detailed list of the identified Sites of Archaeological Interest is presented in **Appendix E**, with the figures as shown in **Section 10**.

Table 3-4 Summary of Proposed Chambers Identified within the Boundaries of Sites of Archaeological Interest (SAIs)

No. of Proposed Chambers Identified within SAIs (*Details in Appendix E*)	No. of SAIs Identified (*Details in Appendix E*)
29	**8**

Discussion and Recommendations

3.2.7 As the proposed works generally involves the installation of district meters, pressure reducing valves, CPPs and other enabling works along the existing fresh water mains, where the underground conditions have already been disturbed to unknown extent during the previous water main laying works, excavations for construction of the proposed works are acknowledged to be carried out within partially disturbed areas. Twenty-nine nos. of proposed works have been identified within the SAIs and are included in the heritage impact assessment (HIA).

3.2.8 Regarding the **HIA on the identified works areas located within SAIs**, an archaeological review including topographical, geological and archaeological background for each identified site of archaeological interest which may be affected are conducted by a qualified archaeologist. The assessment of the heritage impacts arising from works is based on the desk-based review and study of the proposed works and mitigation is recommended as necessary. The HIA report includes all the findings of the assessment and mitigation recommendations.

3.3 Works Identified to be Further Assessed and Investigated

3.3.1 The HIA is based on evaluation of proposed construction works within SAI boundaries and mitigation may be recommended. Nevertheless, during the construction if there is antiquity or supposed antiquity identified outside the recommended mitigation measures, the relevant contractor should notify AMO and the project proponent immediately for follow up action. In case there is any change in the scope and boundary of the proposed works which have not been covered in the HIA, the project proponent should consult AMO on the need of conducting further assessment and investigation.

4 CONSERVATION POLICIES

4.1 Hong Kong Legislation, Standards and Guidelines

4.1.1 Legislation, standards, guidelines and criteria relevant to the consideration of Heritage Impact Assessment in Hong Kong include the following:

- Antiquities and Monuments Ordinance (Cap. 53);
- Environmental Impact Assessment Ordinance (EIAO), including Technical Memorandum on Environmental Impact Assessment Process (TM-EIAO) Annexes 10 and 19, and Guidelines for Cultural Heritage Impact Assessment;
- Hong Kong Planning Standards and Guidelines (HKPSG);
- Proposed Graded and Graded Historic Buildings Classification; and
- Development Bureau Technical Circular (Works) No. 6/2009: Heritage Impact Assessment Mechanism for Capital Works Projects.

Antiquities and Monuments Ordinance

4.1.2 The Antiquities and Monuments Ordinance (Cap. 53) (the Ordinance) provides statutory framework for preservation of objects of historical, archaeological and paleontological interest. This Ordinance contains statutory procedures for the Declaration of Monuments. The proposed monument can be any place, building, site or structure, which is considered to be of public interest by reason of its historical, archaeological or paleontological significance.

4.1.3 Under Section 6 sub-section (1) and subject to sub-section (4) of the Ordinance, the following acts are prohibited in relation to certain monuments, except under permit granted by the Secretary for Development (the Authority):

- To excavate, carry on building works, plant or fell trees or deposit earth or refuse on or in a proposed monument or monument; and
- To demolish, remove, obstruct, deface or interfere with a proposed monument or monument.

4.1.4 The discovery of an antiquity or supposed antiquity, as defined in the ordinance must be reported to the Authority, or a designated person. The Ordinance also provides that, the ownership of every relic discovered in Hong Kong after the commencement of this ordinance shall vest in the HKSAR Government from the moment of discovery. The Authority on behalf of the HKSAR Government may disclaim ownership of the relic.

4.1.5 No archaeological excavation may be carried out by any person, other than the Authority and the designated person, without a licence issued by the Authority. A licence will only be issued if the Authority is satisfied that the applicant has sufficient scientific training or experience to enable him to carry out the excavation and search satisfactorily, is able to conduct, or arrange for, a proper scientific study of any antiquities discovered as a result of the excavation and search and has sufficient staff and financial support.

4.1.6 It should also be noted that the discovery of an antiquity under any circumstances must be reported to the Authority or designated person. The Authority may require that the antiquity or supposed antiquity is identified to the Authority and that any person who has discovered an antiquity or supposed antiquity should take all reasonable measures to protect it.

Environmental and Impact Assessment Ordinance

4.1.7 The EIAO was implemented on 1 April 1998. Its purpose is to avoid, minimise and control any adverse impact on the environment arising from designated projects, through the application of the EIA process and the Environmental Permit (EP) system. The relevant document pertaining to cultural heritage under the legislation is the "Technical Memorandum on Environmental Impact Assessment Process".

4.1.8 The general criteria and guidelines for evaluating and assessing impacts to Sites of Cultural Heritage are listed in Annexes 10 and 19 of the Technical Memorandum on Environmental Impact Assessment Process TM-EIAO. It is stated in Annex 10 that all adverse impacts to Sites of Cultural Heritage should be kept to an absolute minimum and that the general presumption of impact assessment should be in favour of the protection and conservation of all Sites of Cultural Heritage. Annex 19 provides the details of scope and methodology for undertaking Cultural Heritage Impact Assessment, including baseline study, impact assessment and mitigation measures.

Guidelines for Cultural Heritage Impact Assessment

4.1.9 The document, as issued by the AMO, outlines the specific technical requirement for conducting terrestrial archaeological and built heritage impact assessments and is based upon the requirements of the TM-EIAO. It includes the parameters and scope for the Baseline Study, specifically desk-based research and field evaluation. Besides, it also includes guidelines encompassing reporting requirements and archive preparation and submission in the form of Guidelines for Archaeological Reports and Guidelines for the Handling of Archaeological Finds and Archives.

4.1.10 The prerequisite conditions for conducting impact assessment and mitigation measures are presented in detail, including the prediction and evaluation of impacts based upon five levels of significance (Beneficial, Acceptable, Acceptable with Mitigation Measures, Unacceptable and Undetermined). The guidelines also state that preservation in totality must be taken as the first priority and if this is not feasible due to site constraints or other factors, full justification must be provided.

4.1.11 Mitigation measures will be proposed in cases with identified impacts and shall have the aim of minimising the degree of adverse impact and also where applicable providing enhancement to a heritage site through means such as enhancement of the existing environment or improvement to accessibility of heritage sites. The responsibility for the implementation of any proposed mitigation measures must be clearly stated with details of when and where the measures will be implemented and by whom.

Hong Kong Planning Standards and Guidelines

4.1.12 Chapter 10 of the HKPSG details the planning principles for the conservation of natural landscape and habitats, historical buildings and SAIs. The document states that the retention of significant heritage features should be adopted through the creation of conservation zones within which uses should be restricted to ensure the sustainability of the heritage features. The guidelines state that the concept of conservation of heritage features, should not be restricted to individual structures, but should endeavour to embrace the setting of the feature or features in both urban and rural settings.

4.1.13 The guidelines also address the issue of the preparation of plans for the conservation of historical buildings, SAIs and other antiquities. It is noted that the existing Declared Monuments and proposed Monuments be listed in the explanatory notes of Statutory Town Plans and that it be stated that prior consultation with AMO is necessary for any

redevelopment or rezoning proposals affecting these buildings and Sites of Archaeological Interest and their surrounding environments.

4.1.14 It is also noted that planning intention for non-statutory town plans at the sub-regional level should be include the protection of monuments, historical buildings, SAIs and other antiquities through the identification of such features on sub-regional layout plans. The appendices list the legislation and administrative controls for conservation, other conservation related measures in Hong Kong, and government departments involved in conservation.

Development Bureau Technical Circular (Works) No. 6/2009: Heritage Impact Assessment Mechanism for Capital Works Projects

4.1.15 This technical circular contains the procedures and requirements for assessing heritage impact arising from the implementation of new capital works projects. It is stated in the document that the works agent will provide a checklist to the AMO of any heritage sites (as defined in the technical circular) situated within or within the vicinity of the project boundary (usually to be defined as not more than 50m measured from the nearest point of the project boundary, including works areas).

4.1.16 The identification of the heritage sites should be undertaken at the earliest possible stage, preferably as part of the Technical Feasibility Statement. If the works boundary cannot be defined at this stage, the checklist should be provided as soon as the project boundary has been defined. Upon receipt of the above information from the works agent, AMO will determine if the proposed project will affect the heritage value of any heritage site and decide the necessity of conducting a Heritage Impact Assessment (HIA) based upon the submitted information.

4.1.17 If an HIA is required, the works agent shall submit a proposal for the scope of the HIA for AMO approval. Once the scope has been approved it will be the responsibility of the works agent to conduct the HIA.

5 REVIEW OF HERITAGE SITES UNDER HIA

5.1 Identified Heritage Sites

5.1.1 In accordance with the HIA Mechanism stipulated in Development Bureau Technical Circular (Works) No. 6/2009, the works agent needs to confirm with the AMO with there are any declared monuments, proposed monuments, sites and buildings graded by the Antiquities Advisory Board (AAB), SAIs or Government historic sites identified by AMO (hereafter together referred to as "heritage sites") within or in the vicinity of the project boundary.

5.1.2 Further to the study in the Section 3.1 and 3.2 above, a summary of listing the number of heritage sites that fall within 50m boundary of the proposed works is listed in the table below.

Type of Heritage Sites	Number of Identified Heritage Sites within 50m of the Proposed Works	Number of Proposed Works Involved
Declared Monuments	0	0
Proposed Monuments	0	0
Graded Historic Buildings (see **Appendices B** and **C**)	22	13*
Sites of Archaeological Interest (SAIs) (See **Appendices D** and **E**)	8 (with works within the SAIs) 14 (with works within 50m of the SAIs)	29 22
Government Historic Sites	0	0

Note: *The proposed works are only in vicinity of the Graded Historic Buildings / Declared Monuments.

5.1.3 The lists of the concerned proposed works and the identified heritage sites are provided in **Appendices B**, **C**, **D** and **E**.

5.2 Identified Heritage Sites For HIA

5.2.1 Adverse impacts on archaeology are usually limited to direct impacts; in this case from excavation of potential archaeological deposits within chamber locations. As such, the proposed chambers within SAIs have the potential to adversely impact on suspected archaeological deposits. Proposed direct impacts on chambers within 50m outside the areas of archaeological potential (close but not within SAIs) are deemed to have less impact on known archaeological potential.

5.2.2 The proposed works near the built heritage sites will be positioned away from the structures to avoid disturbance and physical damages during the course of the works. Moreover, the works are discrete and no major equipment is involved beyond the hand

breaker, small excavator and lorry. Hence no impact on built heritage is expected from the works.

5.2.3 Therefore, only those proposed works fall within the heritage sites listed below would be carried out further assessment. The following eight (8) heritage sites were identified as having proposed works within their boundary:

1.	Che Ha Site of Archaeological Interest	(AM00-1600)
2.	Shap Long Site of Archaeological Interest	(AM10-0002/A)
3.	Yung Shue Wan of Archaeological Interest	(AM77-0040)
4.	Hung Shing Ye Site of Archaeological Interest	(AM77-0042)
5.	Tung Wan Site of Archaeological Interest, Cheung Chau	(AM96-0752)
6.	San Tau Site of Archaeological Interest	(AM96-0772)
7.	Tai Long Wan Site of Archaeological Interest, Shek Pik	(AM98-0926)
8.	Tai Tung Site of Archaeological Interest	(AM00-1615)

5.2.4 A description of their relevant background information follows.

5.3 Che Ha Site of Archaeological Interest (AM00-1600)

Geology and Topographical Background

5.3.1 The Che Ha SAIs is situated within the Sha Tin MSZ near the north eastern coast of New Territories bordering Three Fathoms Cove. The SAI occupies a large area of agricultural land to the west-southwest of Che Ha Village and the west of Che Ha Village (**Figures 1-2**). The area sits on a low-lying land floored by Pleistocene and Holocene debris flow deposits (**Figure 1**) (GEO 1989).

Archaeological Background

5.3.2 Previous fieldworks focused on the cultivated land in between Che Ha, Kwun Hang, and Nai Chung villages and results suggest Ming/Qing period settlement of the area. While the artefacts predominantly dated to Ming/Qing period, occasional Song/Ming dynasty celadon sherds were also recorded (AMO 1998b; Mo 2001a).

5.3.3 Further investigations conducted within village land however, provided evidence for occupation since Middle Neolithic. In particular, at the northern outskirt of the village, three superimposed cultural layers dating to the Middle Neolithic, the Late Neolithic and the Late Ming periods were exposed. Fragments of painted pottery basin with foot ring, polished stone tools, and ceramics and tiles were found respectively in the three layers (Mo 2001b).

5.3.4 Test pits dug in a location at the north-eastern side of the village yielded a small quantity of Ming/Qing ceramics as well as further prehistoric artefacts, including a hard-geometric sherd with circle pattern, two stone tools, and a stone pounder (Au 2002d). The teams concluded however that neither significant nor in situ findings appeared in this north-eastern area (Mo 2001b; Au 2002d). The north-western edge of the village sits on an old pebble beach and produced no evidence for cultural remains nor features (AMO 2007b).

Existing Impacts and Discussion of Archaeological Potential of Proposed Work Areas

5.3.5 Two proposed work areas fall within Che Ha SAI; they are: F1 (F1 MOS-DM23-1/ PRV23-1) and F2 (F2 MOS-CPP (PMA23) (**Figure 2**). Both lie within untested parts of the village, namely F1 lies within a road at the south-west rim of the village whereas F2 is located in front of the main part of the village. Although the central and southern parts of the village

have not yet been tested, archaeological investigations conducted prior to small house construction between 2001 and 2007 (Mo 2001b; Au 2002d; AMO 2007b) show that in general archaeological remains or cultural deposits from the prehistoric to Qing dynasty may be recovered. The proposed works will be conducted on existing water mains and thus the areas can be assumed to have been disturbed to some degree. As the extent of the disturbance is not known but assumed to be smaller than the proposed impacts in general, the potential for isolated within disturbed stratum material or archaeological deposits/features remains.

5.4 Shap Long Site of Archaeological Interest, Lantau Island (AM10-0002/A)

Geology and Topographical Background

5.4.1 The Shap Long SAI borders Chi Ma Wan of Lantau Island (**Figure 4**). It is surrounded by Nam Shan on the north and Lo Yan Shan to the south. A former lagoon, now filled, sets in the south-east corner lies outside the SAI boundary. The main part of the Shap Long SAI sits on a low-lying area (around 3.4 to 4.3mPD) while the terraced hillslopes on edge which ascend to 24.4mPD are included on the fringe.

5.4.2 The geology of the SAI includes four main parts; a raised sandbar on the seafront; a central Holocene alluvial plain; and medium-grained granite hillslopes with Pleistocene and Holocene slope debris foot slopes along the north-west to the south (**Figure 3**; GEO 1995a).

Archaeological Background

5.4.3 The site was initially identified by Walter Schofield, possibly in 1935 (Ng 2008). The archaeological site marked as 'Shap Long Bay' in his hand-written notes included a number of other localities such as Chi Ma Wan, Cheung Sha Wan and Ngau Kwu Wan (Peacock and Nixon 1986). Therefore, finds retrieved from 'Shap Long Bay' cannot be pinpointed to a specific location. During the First Territory-wide Survey, field visits were paid to Shap Long in 1982 and 1983. Archaeologists collected a prehistoric quartz disc and a lime kiln debris on the surface of the terraced hillslopes and the sandbar (Peacock and Nixon 1986). The stratigraphy of the terraced slopes was deemed disturbed, and the authors suggested further research should be focused on the sandbar area (Peacock and Nixon 1986).

5.4.4 The Second Territory-wide Survey in 1997, conducted site walk only and no further finds were noted (Mower 1997).

Existing Impacts and Discussion of Archaeological Potential of Proposed Work Areas

5.4.5 Three proposed work areas F3, F4, and F5 are located inside the SAI (**Figure 4**) and the proposed works will be conducted around existing water mains and thus the areas can be assumed to have been disturbed to some degree. Proposed F4 is located at an elevation of ca. 3.5mPD on raised beach deposit where the archaeological deposits, according to results of the First Territory-wide Survey, still exist (Peacock and Nixon 1986). In addition, there is no evidence of major disturbance at the works location F4 which is located along a concrete village path.

5.4.6 Both F3 and F5 are located in different geological and topographical settings within the SAI. F3 (ca. 4mPD) lies within debris flow deposit at base of granite hillock and is separated from the raised beach deposit by the lagoon. The proposed F3 lies alongside a concrete footpath and is situated below Chi Ma Wan Road. F5 (22.8mPD) is situated on a

terraced granite hillslope alongside a house. The terracing will have affected potential archaeological deposits or features.

5.5 Yung Shue Wan Site of Archaeological Interest, Lamma Island (AM77-0040)

Geology and Topographical Background

5.5.1 Yung Shue Wan SAI covers two large valleys separated by a flat-topped plateau. It comprises the backbeach site at Sha Po Old Tsuen, and the plateau site at Yung Shue Ling, Sha Po New Village and Northern Lamma School. At the seaward end of the southern valley is the raised sandy backbeach formation. The plateau, which is known as Yung Shue Ling, stands at c.30mPD and is bounded to the north by Yung Shue Long valley, the backbeach and former lagoon of Sha Po Tsuen to the southwest, beaches and coastal area to the west and debris flow and terraced alluvium deposits of Tai Wan New Village to the south-south-east (**Figures 5 and 6; GEO 1988**).

Archaeological Background

5.5.2 Pre-war surface finds of bronze objects and Bronze Age pottery were collected on the Yung Shue Ling plateau by Schofield and Finn (Finn 1934a-1936b). However, subsequent excavations conducted by the HKAS in 1967, the 1985 First Territory-wide survey, the 1997 Second Territory-wide Survey and the 2000-2001 survey did not recover any significant subsurface findings, probably as a result of the impacts of agricultural terracing (Peacock and Nixon 1988:113-114, 116; GPICRA 1997:34-37, AMO 2001). A series of rescue excavations as a result of small house development were carried out on the lower plateau in Sha Po New Village between 2003 and 2010 (AMO 2005, Liu 2007, Atha and Yip 2016). Significant findings included the discovery of a series of post-holes, associated Bronze Age layer with both stone and ceramic finds. The evidence suggested the construction of a number of post-built, probably stilt-house type shelters and the existence of a quartz ornament workshop during the Bronze Age (Atha and Yip 2016). Recent investigations at the upper slope behind North Lamma School indicated that only a small number of the original Bronze Age deposits survived on the edge of the plateau top as a result of site formation work associated with the construction of the school (AAL 2016, 2017). Investigations were also carried out in the Yung Shue Long Valley and adjacent hillside with limited findings (GPICRA 1997, AMO 2001, AMO pers.comm.).

5.5.3 A nearly complete Bronze Age pot was found by villagers during the construction work of a small village house in Sha Po Tsuen in 1972. This led to the first archaeological investigation at the backbeach. Three test pits were excavated at the backbeach as a result of the discovery (Ho 1973:19-20). Subsequent research digs were carried out by the HKAS on the backbeach in 1988 and 1989 respectively. Large volumes of archaeological materials were recovered from multiple cultural layers and occasional features with dates spanning the Late Neolithic, Bronze Age, Han Dynasty, Six Dynasties, Tang, Song/Ming and Qing periods (Spry 1990, Meacham 1993). Important findings included the discovery of a Jin burial and several sandstone axe moulds relating to Bronze Age metallurgical activity on site (Meacham 1993).

5.5.4 Between 1994 and 2015, a series of rescue excavations, surveys and watching briefs were conducted in Yung Shue Wan. The excavations and surveys were mainly as a result of small house development, while several large-scale liner excavations and watching briefs were associated with government infrastructural improvements (e.g. AMO 1997, Au 2001a and 2001b, AAL 2003 and 2011a and 2011b, ERM 2004 and 2005, AMO 2015). Significant findings at the backbeach site included the evidence of Late Neolithic and Bronze Age stone workshops (AAL 2003, 2011a and 2011b) and a series of Six Dynasties-

Tang industrial kilns (Au 2001a, AAL 2003, 2011a and 2011b) thought to be associated with lime-salt production at the backbeach (Atha and Yip 2016).

5.5.5 Recent research suggests that the plateau site and backbeach site were in contemporary use during the Bronze Age albeit for different activities (Atha and Yip 2016).

Existing Impacts and Discussion of Archaeological Potential of Proposed Work Areas

5.5.6 There are 7 proposed works areas located within the Yung Shue Wan SAI (**Figure 7**). The proposed works will be conducted on existing water mains and thus the areas can be assumed to have been disturbed to some degree. None of the proposed works areas in Sha Po are located on backbeach deposits. The proposed work areas F6, F7 and F9 are all situated on recent beach deposits (**Figure 5**).

5.5.7 The proposed works area F8 is located by the major footpath of Tai Yuen Tsuen on slope deposits (**Figure 5**). A previous investigation included auger tests which were located on the opposite side of the footpath; no archaeological findings were recorded (AMO 2001).

5.5.8 The proposed works area F12 is situated by the staircase leading to the North Lamma School compound. Previous investigations showed that the original topography of the area was disturbed as a result of site formation work associated with the school (AAL 2016, 2017) (**Figure 5**).

5.5.9 Two of the proposed works areas are located at the boundary between Wang Long and Tai Wan: one of the proposed works area F11 is situated on a major path with various existing utility cables (Hong Kong Electric 2017) within decomposing hill wash, while the other proposed works area F10 is located by a major footpath along the former lower hill slope area of medium-grained granite, which was terraced for village houses built adjacent to the former low-lying paddy fields (**Figure 5**).

5.6 Hung Shing Ye Site of Archaeological Interest, Lamma Island (AM77-0042)

Geology and Topographical Background

5.6.1 In terms of topography, Hung Shing Ye SAI is located in a small south-west facing half-moon shaped bay to the south-east of Yung Shue Wan SAI (**Figure 6**). It is bounded to the north, east and south by steep hills of medium-grained granite and fine to medium grained-granite. The adjacent lower hillslopes, which comprises debris flow deposits, are bordered by the alluvial deposits running through the middle of the site at around 6 to 8mPD. A narrow strip of backbeach deposits with elevations around 5mPD, is located to the south of the alluvial plain (**Figure 8; GEO 1988**).

Archaeological Background

5.6.2 The Hung Shing Ye site of archaeological interest was first recorded by Heanley and Shellshear in the early 1930s and objects collected from the surface including stone, bronze and ceramic finds have been recorded since (Finn 1933-1936b, Chen 1957, Devenish 1962, Peacock and Nixon 1986).

5.6.3 In 1995, a rescue excavation was carried out prior to the beach facilities construction at the backbeach area in Hung Shing Ye (AMO 1995). A Late Neolithic cultural deposit was recorded in two of the test pits to the south of the backbeach area at elevations around 4.5mPD. A stone feature of unknown purpose and dated to the Late Neolithic was also identified in one of the test pits. It consisted of a group of stones arranged in an L-shape

alignment; this stone feature was preserved in situ. Apart from the Late Neolithic stone artefacts, coarse corded sherds and soft geometric sherds, as well as some disturbed Tang dynasty kiln debris were recorded in the test pits (AMO 1995).

5.6.4 Further testing in the form of field scan and augering was conducted as part of the Second Territory-wide Survey in 1997 at the lower terrace and in the southern part of the bay but no cultural layer or archaeological finds were identified (GIACR 1997).

Existing Impacts and Discussion of Archaeological Potential of Proposed Work Areas

5.6.5 The proposed works area F13 is located by a footpath on a concreted over open area in the north-western part of the bay (**Figure 9**). The proposed works will be conducted on existing water mains and thus the area can be assumed to have been disturbed to some degree. Although it is situated within the boundary of the Hung Shing Ye SAI, F13 is located on the edge of medium-grained granite and backbeach deposits (**Figure 8**). The previously identified archaeological deposits are situated at the backbeach at about 4.5mPD, the work location sits at a slightly higher elevation.

5.7 Tung Wan Site of Archaeological Interest, Cheung Chau (AM96-0752)

Geology and Topographical Background

5.7.1 Tung Wan SAI is situated in the middle part of Cheung Chau on a tombolo connecting between two granite islands (**Figure 10**). It is bounded by the hilly Pak She to the north, Cheung Chau Bay in the west, Tung Wan in the east, the small Kwun Yum Bay in the south-east, and the hillslopes of Tai Shek Kau and Lung Tsai to the south-west and south respectively. The current surface of the raised sandbar at the tombolo lies between 6 and 9mPD.

5.7.2 Towards the southern part of the tombolo beyond Tung Wan Road situated a small hillock reaching a maximum of 19mPD. The site further ascends towards the hillslopes of Nam She Tong in the south, reaching a maximum of 34mPD. In the south-western part of the SAI, the sandbar is interrupted by lower hillslopes of medium-grained granite beyond Tai San Street and descends to a small area of sandbar deposits at Chung Hing Back Street with elevations between 3.6 and 5mPD (**Figure 11; GEO 1995a**).

Archaeological Background

5.7.3 Although Tung Wan SAI was marked on the HKASoc Map indicating the presence of prehistoric remains, no significant findings were made until 2002 (Peacock and Nixon 1986, GIACR 1997, Au 2001c, Au 2002a). In 2002, cultural layer dated to the Middle Neolithic and a disturbed Late Neolithic layer were recorded during a small house investigation carried out at Chung Hing Back Street in the south-western part of the SAI (Au 2002b, 2002c). Following this major result, a series of investigations were carried out between 2002 and 2017, of which mostly occurred as a result of small house development or underground utility construction. These investigations however, did not identify any prehistoric cultural deposits (AMO 2007a, ERM 2008, HKIA 2011, AMO 2016, AMO 2017). In many cases, subject to various degrees of disturbance, a general soil sequence of disturbed layer with a mixture of Qing to modern and Late Neolithic to Bronze Age materials was found between modern fill layer/agricultural layer and sterile beach deposit (AMO 2007a, AMO 2016, AMO 2017).

5.7.4 Slope deposits, in some cases a disturbed layer of modern and Qing materials underneath modern fill, were also recorded in test pits located along the lower hill slopes (Au 2002c, AMO 2016). Note that an odd piece of disturbed Tang kiln bar was found among the late

Qing materials along the edge of hillslope located at Tai San Back Street, which suggested the presence of a kiln structure in the vicinity (AMO 2016).

5.7.5 In 2010, a well-preserved Middle Neolithic cultural layer was identified between 5.5 to 8mPD in the main part of the tombolo during an Archaeological Impact Assessment survey carried out around the Cheung Chau Theatre. Significant findings included the discovery of a stone bark cloth beater fragment, a piece of perforated and incised white foot ring sherd and over 600 pottery sherds and stoneware. All artefacts were recovered from the seven one by one metre or one by one and half metre test pits (Golder 2014). Subsequent large-scale rescue excavation at the theatre was conducted in early 2017 (AAB 2017); results should be forthcoming. Further evidence, which included 2 stone beaters and some painted pottery, for Middle Neolithic occupation was identified in a recent small house excavation at San Hing Back Street (AMO 2017).

5.7.6 In addition to the discovery of disturbed Bronze Age materials within various investigations on the tombolo, a Bronze Age cultural layer was identified for the first time at Tai San Street during AMO excavation for village house development in 2017, which yielded a stone mould, some hard pottery and coarse sherds, and some stoneware. It is also interesting to note that evidence for a Middle Neolithic deposit was absent as the Bronze Age layer is lying directly on top of a sterile natural beach deposit (AMO 2017).

Existing Impacts and Discussion of Archaeological Potential of Proposed Work Areas

5.7.7 A total of thirteen proposed works areas are located within the SAI boundary (**Figures 11 - 14**). With the exception of F14 and F23, all of the proposed works areas are situated on sandbar deposits on the tombolo (**Figure 10**). Based on previous archaeological findings, evidence for prehistoric occupation on the tombolo lies at approximately 5.5 to 8mPD (Golder 2014), which suggests that any surviving archaeological deposits will be impacted by the proposed works as each will involve groundworks up to approximately 0.8 to 2.5m in depth.

5.7.8 In spite of various degree of late Qing to modern disturbance (including house foundations) recorded on the heavily developed tombolo, evidence shows that *in situ* Middle Neolithic occupation may survive underneath the disturbed layers. Later prehistoric remains—Late Neolithic and Bronze Age deposits as opposed to Middle Neolithic—appear affected to greater extent. Two investigations conducted: an Archaeological Watching Brief programme which included six small pits, undertaken during rehabilitation and replacement of water mains on Cheung Chau were monitored to a maximum depth of 1.2m and revealed no significant archaeological materials (ERM 2008); and investigations conducted in two areas (one north and one south more or less in the middle of the site of interest)as part of improvement to existing roads and drains in Cheung Chau Old Town yielded no significant archaeological materials (HKIA 2011). The authors for the latter investigation however, expressed that the testing programme was limited and presents a limited view.

5.7.9 As for those works areas located along the lower hillslopes (F14 and F23) (**Figure 10**), previous findings in the area showed that the west-facing lower hillslopes are disturbed as a result of terracing and other development from Late Qing onwards (AMO 2016, ERM 2008).

5.8 San Tau Site of Archaeological Interest, Lantau Island (AM96-0772)

Geology and Topographical Background

5.8.1 The San Tau SAI is largely located on an extensive alluvial fan at between 2.2 to 5mPD, bordered by backbeach to the north and south-east, slope deposits to the west and south, and pockets of estuarine deposits along the east coast. The SAI rises from the eastern and northern coast towards the steep hillsides to the south and south-west. A stream is running through the site from the mountain in the south-west towards north-east into the sea (**Figures 15 and 16; GEO 1994**). The identified archaeological remains are located in the northern backbeach at around 5 to 6mPD and the alluvial deposit at between 2.2 and 7mPD behind the eastern beach respectively.

Archaeological Background

5.8.2 During the 1991 North Lantau Survey, within the south-eastern part of San Tau SAI, a small number Late Neolithic to Bronze Age sherds and stone artefacts were recovered from a 20cm thick layer in one of the test pits situated on the relatively low-lying alluvial plain. A few historical pottery sherds were also recorded (CUHK 1991).

5.8.3 The 1991 North Lantau Survey also investigated the backbeach north of Tin Sam but did not find evidence for archaeology (CUHK 1991). During a survey carried out as part of an archaeological impact assessment for the *Tung Chung and Tai Ho Comprehensive Feasibility Study* in 1997 however, possible evidence for a Tang dynasty cemetery with the discovery of 62 *Kaiyuan Tongbao* coins was recorded at the same backbeach. A Song dynasty cultural layer and a rich Tang dynasty deposit were also identified (Mott Connell 1998). The presence of Tang dynasty burials was confirmed later in the same year during the Second Territory-wide Survey. Two Tang dynasty burials, which produced grave goods including ceramic bowls, hairpin, bronze belt fittings, iron nail, knife and *Kaiyuan Tongbao* coins were recorded (AMO 1998a).

5.8.4 Between 2010 and 2012, a two-season survey-cum-excavations and geophysical surveys carried out on behalf of the Hong Kong Archaeological Society confirmed the existence of a substantial multi-phase Tang dynasty cemetery at the Tin Sam backbeach. A total of ten excavated graves and potential additional graves identified in the geophysical surveys, were recorded belonging to four different phases within Mid to Late Tang dynasty. The excavated graves included burial objects such as iron weapons of various forms, inscribed silver ingot, hairpins, glass finger ring, copper alloy belt fittings, iron harpoons, complete bowls, and stacks of Kaiyuan Tongbao coins. (Atha 2012, 2013; Atha and Yip 2017).

Existing Impacts and Discussion of Archaeological Potential of Proposed Work Areas

5.8.5 The proposed works area F27 is situated in the southern edge of the San Tau SAI (**Figure 16**) away from the finds' areas north of Tin Sam or south east alluvial area of the SAI. The proposed works area is located by a footpath at the lower north-east facing steep slope to the south-east of San Tau Village and is situated at the edge of a rhyolite dyke and debris flow deposits (**Figures 15 and 17**). The proposed works will be conducted around existing water mains and thus the area can be assumed to have been disturbed to some degree.

5.9 Tai Long Wan Site of Archaeological Interest, Shek Pik (AM98-0926)

Geology and Topographical Background

5.9.1 The Tai Long Wan SAI is situated on a south-east facing bay near Shek Pik on Lantau Island (**Figure 20**). The bay is backed by Keung Shan and Ling Hui Shan from the north and the west respectively. The site lies on a gentle hillslope that rises from the beach in the south at sea-level to 26.9mPD at the north. A roughly north-south running stream flows into the bay at the west side of the SAI. The hillslope is currently used for residential purpose. Abandoned farming land spans widely across the creek (Mower 1997). The underlying geology is comprised of Pleistocene and Holocene slope debris and siltstone, tuffite and tuff at the hillslope, Holocene alluvium at both sides of the stream, and Holocene beach deposits at the beach (**Figure 18**; GEO 1995b).

Archaeological Background

5.9.2 A field survey was conducted to the site during the Second Territory-wide Survey in 1997 (Mower 1997) but no subsurface investigation was undertaken. Beach and sandbar have been examined, but no surface finds were noted. Since no subsurface survey has been conducted within the SAI, the nature of the site, including its span of time, site type, cultural deposits and remains, remains unclear. While no archaeological material has been found at the SAI the topography and geological deposits are similar to major site of archaeological interest.

Existing Impacts and Discussion of Archaeological Potential of Proposed Work Areas

5.9.3 The proposed works area F28 lies at the roadside on the northern edge of the Tai Long Wan SAI at an elevation of 26.9mPD (**Figure 19**). The proposed works will be conducted around existing water mains and thus the area can be assumed to have been disturbed to some degree. The construction of road cut into the original landform to a certain depth which may have been impacted on potential under-lying archaeology.

5.10 Tai Tung Site of Archaeological Interest (AM00-1615)

Geology and Topographical Background

5.10.1 The Tai Tung SAI is situated to the southeast of Che Ha SAI and includes mainly Tai Tung Village which lies at elevations of 19.6 to 26.7mPD) (**Figure 22**). A stream runs from the Hunch Backs Hill along its north-west edge and separates the site from Ma Kwu Lam Village (**Figure 23**). The southeast and southwest sides of the site consist of sandstone and siltstone hillocks. The site's elevation is slighter lower in the north, ca. 18.8mPD, and ascends to the south, 26.5mPD. The site lies on Pleistocene and Holocene debris flow deposits and bordered by sandstone and siltstone in the south-west and the south-east (**Figure 21**) (GEO 1989).

Archaeological Background

5.10.2 The Tai Tung SAI was first identified in the 1997 Second Territory-wide Survey (AMO 1998b). A subsequent field investigation in 2000 examined the cultivated land to the eastern side of the village and revealed mixed artefacts principally dating to Late Ming dynasty, with occasional finds from Song and Qing periods (Mo 2001a).

5.10.3 In the same year, a field investigation (followed by rescue excavation in 2001) was conducted at the eastern edge of Tai Tung village as part of small house development identified Qing and a Late Ming dynasty cultural layers (Mo 2000; Mo 2001c). The results indicated that the site was settled since Late Ming dynasty and while the exact extent is

unknown, the excavators suggest the Late Ming settlement is underneath the current Tai Tung village (Mo 2001c).

5.10.4 It has to be noted however, that the 2000 and 2001 fieldworks conducted on the east of the village within SAI revealed a Late Ming dynasty cultural layer. Moreover, test pits excavated across the road to the west of Tai Tung and Ma Kwu Lam in agricultural land recovered prehistoric flint flakes mixed with Ming / Qing dynasty ceramics and tiles (Mo 2001a).

Existing Impacts and Discussion of Archaeological Potential of Proposed Work Areas

5.10.5 One proposed work area F29 lies on the western edge of the SAI adjacent to a major and village road (**Figure 22**). The area has existing utilities and some artificial fill and hill cutting occurred for the construction of the adjacent roads, thus the area can be assumed to have been disturbed to some degree. While the topography and geological deposits differ between the works location and previous finds location and some impacts may be inferred, the area is untested and some archaeological potential may still exist.

6 EVALUATION OF POTENTIAL ARCHAEOLOGICAL IMPACT

6.1 General

6.1.1 The proposed works consist of construction of chambers and other associated works below ground in relatively small and defined areas. The works coincides with locations of existing water mains and as such each works area has a level of existing impact which may have affected archaeological potential.

6.1.2 The archaeological review in section identified archaeological potential based on previous investigation and topographical and geological background within each site of archaeological interest. The existing information is used to determine whether the discrete area may contain archaeology.

6.1.3 For the site works requires mitigation measures which will be discussed in Section 7.

6.2 Che Ha Site of Archaeological Interest (AM00-1600)

Proposed Works Area	Proposed Works and Dimensions	Elevation (mPD) and Topography	Potential Archaeological Impact
F1 (MOS-DM23-1/ PRV23-1) **(F1)** **(Figures 1-2, 22)**	Construction of District Meter Chamber c.W170 x L170 x H200cm	Proposed works lie within Pleistocene and Holocene foot slope debris flow deposits at elevation of 12.3mPD at the west entrance to Che Ha Village.	The proposed works will occur within archaeological untested area of existing road alignment of Che Ha Village. Previous testing has shown prehistoric to historic archaeological deposits may occur in a relatively large area on similar geological and topographical setting as previous archaeological finds areas. The proposed works may impact in as yet unknown archaeological findings. ***Acceptable with mitigation.***

Proposed Works Area	Proposed Works and Dimensions	Elevation (mPD) and Topography	Potential Archaeological Impact
F2 (MOS-CPP (PMA23) (**F2**) (**Figures 1-2, 22**)	Construction of Critical Pressure Point c.W100 x L100 x H150cm	Proposed works lie within Pleistocene and Holocene foot slope debris flow deposits at elevation of 11.8mPD at the front Che Ha Village.	The proposed works will occur within archaeological untested, but paved area in front of Che Ha Village. Previous testing has shown prehistoric to historic archaeological deposits may occur in a relatively large area on similar geological and topographical setting. The proposed works may impact in as yet unknown archaeological findings. ***Acceptable with mitigation.***

6.3 Shap Long Site of Archaeological Interest, Lantau Island (AM10-0002/A)

Proposed Works Area	Proposed Works and Dimensions	Elevation (mPD) and Topography	Potential Archaeological Impact
F3 (SLM-DM01B-1 / PRV01B-1) (**F3**) (**Figures 3-4**)	Construction of District Meter (DM) c.W170 x L185 x H200cm	Proposed works are located on foot slope debris flow deposits at elevation of 4mPD. The works are situated alongside a road.	Although within the SAI boundary and limited known disturbance (footpath construction), the potential for archaeology is expected to be minimal due to its situation alongside the lagoon at the base of a hillslope. ***Acceptable impact.***
F4 (SLM-DM01C-1 / PRV01C-1) (**F4**) (**Figures 3-4**)	Construction of DM c.W170 x L170 x H200cm	Proposed works area is located on raised beach deposit at elevation of 3.4mPD adjacent to a concrete coastal path.	Besides existing utility works, there is no evidence for major disturbance at the works location and limited archaeological evidence indicates potential for archaeology exists in the raised beach area. The proposed works impact on area of archaeological potential. ***Acceptable with mitigation.***

Proposed Works Area	Proposed Works and Dimensions	Elevation (mPD) and Topography	Potential Archaeological Impact
F5 (SLM-CPP (PMA01C)) (**F5**) (**Figures 3-4**)	Construction of Critical Pressure Point c.W100 x L100 x H150cm	Proposed works are located on terraced granite hillslope at elevation of 22.8mPD.	The terracing of the hillslope is expected to have adversely impacted potential archaeology despite being within the boundary of the SAI. ***Acceptable impact.***

6.4 Yung Shue Wan Site of Archaeological Interest, Lamma Island (AM77-0040)

Proposed Works Area	Proposed Works and Dimensions	Elevation (mPD) and Topography	Potential Archaeological Impact
F6 (LI-DM01-1) (**F6**) (**Figures 5-7**)	Construction of District Meter c.W170 x L210 x H250cm	Proposed works will occur on recent beach deposits on the main street of Yung Shue Wan Village at elevation around 4.4mPD.	The recent beach deposit does not contain any historical or prehistorical evidence. ***Acceptable impact.***
F7 (LI-DM02-1) (**F7**) (**Figures 5-7**)	Construction of District Meter c.W170 x L210 x H250cm	Proposed works will occur on recent beach deposits on the main street of Yung Shue Wan Village at elevation around 4.4mPD.	The recent beach deposit does not contain any historical or prehistorical evidence. ***Acceptable impact.***
F8 (LI-DM03-1/PRV03-1), Enabling Works (3m Mains) (**F8**) (**Figures 5-7**)	Construction of District Meter and Enabling Works (3m Mains) c.W170 x L500 x H250cm	Proposed works will occur on debris flow deposits at foot of plateau at elevation around 10.5mPD	F8 lies alongside a major footpath in Tai Yuen Tsuen. Previous auger testing close by indicated a lack of cultural strata. ***Acceptable impact.***

Proposed Works Area	Proposed Works and Dimensions	Elevation (mPD) and Topography	Potential Archaeological Impact
F9 PRV (LI-DM03-2/PRV03-2) (**F9**) (**Figures 5-7**)	Construction of DM c.W170 x L185 x H200cm	Proposed works will occur on recent beach deposits on the main street of Yung Shue Wan Village at elevation around 4.1mPD.	The recent beach deposit does not contain any historical or prehistorical evidence. ***Acceptable impact.***
F10 PRV (LI-DM-07-1/LI-PRV07-1) (**F10**) (**Figures 5-7**)	Construction of DM c.W170 x L170 x H150cm	Proposed works will occur on terraced lower hill slope area of debris flow at elevation around 6.5mPD.	F10 lies on the edge of the SAI and is situated next to a concrete footpath along the terraced area with village houses. ***Acceptable impact.***
F11 (LI-DM09-1) (**F11**) (**Figures 5-7**)	Construction of DM c.W170 x L230 x H250cm	Proposed works will occur on terraced lower hill slope area of debris flow at elevation around 8mPD.	F11 is within a concrete path and has existing disturbance caused by various existing utility cables within hillwash. ***Acceptable impact.***
F12 CPP (LI-CPP (DMA09) (**F12**) (**Figures 5-7**)	Construction of Critical Pressure Point c.W100 x L100 x H100cm	Proposed works will occur on edge of top of plateau which was levelled ahead of school building construction at elevation around 29.8mPD.	Original topography of the area was disturbed as a result of site formation work associated with the school. ***Acceptable impact.***

6.5 Hung Shing Ye Site of Archaeological Interest, Lamma Island (AM77-0042)

Proposed Works Area	Proposed Works and Dimensions	Elevation (mPD) and Topography	Potential Archaeological Impact
F13 PRV (LI-DM04-1/PRV04-1) **(F13)** (**Figures 6, 8-9**)	Construction of District Meter c.W170 x L185 x H200cm	Proposed works are on edge of medium grained granite slope and back beach deposits at elevation around 6mPD.	Impacted by nearby footpath on a concreted open area with existing utility. Previous investigation focused on the south of the backbeach but some archaeological potential may exist at its northern end. ***Acceptable with mitigation.***

6.6 Tung Wan Site of Archaeological Interest, Cheung Chau (AM96-0752)

Proposed Works Area	Proposed Works and Dimensions	Elevation (mPD) and Topography	Potential Archaeological Impact
F14 CC-CPP (PMA04) (**F14**) (**Figures 10-11, 13**)	Construction of Critical Pressure Point (CPP) c.W100 x L100 x H100cm)	Proposed works are in middle part of tombolo along hill slope of a medium-grained granite small hillock at northern end of Police Station Path and at elevation of c.14.5mPD.	The tombolo area has high archaeological potential even if disturbance can be shown (by utilities in this case). Archaeological materials and deposits ranging from Qing dynasty to prehistory are potentially within the works area. Based on the previous findings, the hill slope along the small hillock in the middle part of the tombolo is considered to have some archaeological potential. However, potential archaeological deposits are expected to be relatively shallow on the hillslope and may have been disturbed by existing utility and sloping works. ***Acceptable impact.***

Proposed Works Area	Proposed Works and Dimensions	Elevation (mPD) and Topography	Potential Archaeological Impact
F15 Enabling works (DBV) (**F15**) (**Figures 10-12**)	Construction of enabling works for district boundary valve c.W170 x L170 x H200cm	Proposed works are on western side of the northern tombolo at a lane adjacent to house No.16, Pak She Street and situated within raised beach deposit at elevation of 6mPD	The tombolo area has high archaeological potential even if disturbance can be shown (by water mains in this case). Archaeological materials and deposits ranging from Qing dynasty to prehistory are potentially within the works area. ***Acceptable with mitigation.***
F16 CC-DM07G-1 & CC-PRV07-2 (**F16**) (**Figures 10-12**)	Construction of District Meter (DM) c.W170 x L210 x H250cm	Proposed works are located in the middle part of the northern tombolo along the edge of Kwok Man Road and within raised beach deposit at elevation of 7mPD.	The tombolo area has high archaeological potential even if disturbance can be shown (by water mains in this case). Archaeological materials and deposits ranging from Qing dynasty to prehistory are potentially within the works area. ***Acceptable with mitigation.***
F17 Enabling works (11m mains) (**F17**) (**Figures 10-12**)	Construction of enabling works for 11m of water mains c.W100 x L1200 x H200cm	Proposed works are at the eastern side of the northern tombolo at a lane along the edge of Kwok Man Road and within raised beach deposit at elevation of 6mPD.	The tombolo area has high archaeological potential even if disturbance can be shown (by water mains in this case). Archaeological materials and deposits ranging from Qing dynasty to prehistory are potentially within the works area. ***Acceptable with mitigation.***

Proposed Works Area	Proposed Works and Dimensions	Elevation (mPD) and Topography	Potential Archaeological Impact
F18 CC-DM07G-2 & CC-PRV07-3 (**F18**) (**Figures 10-12**)	Construction of DM c.W170 x L210 x H250cm	Proposed works are at the eastern side of the northern tombolo at a lane adjacent to house No.31, Bela Vista Villa along the edge of Kwok Man Road and within raised beach deposit at elevation of 5-6mPD.	The tombolo area has high archaeological potential even if disturbance can be shown (by water mains in this case). Archaeological materials and deposits ranging from Qing dynasty to prehistory are potentially within the works area. ***Acceptable with mitigation.***
F19 CC-DM07G-3 (**F19**) (**Figures 10-11, 13**)	Construction of DM c.W170 x L150 x H150cm	Proposed works are situated at western side of the middle part of the tombolo at Man Shun Lane, adjacent to house No. 66, San Hing Street and within raised beach deposit at elevation of 5.7mPD.	The tombolo area has high archaeological potential even if disturbance can be shown (by water mains in this case). Archaeological materials and deposits ranging from Qing dynasty to prehistory are potentially within the works area. ***Acceptable with mitigation.***
F20 CC-DM07G-4 (**F20**) (**Figures 10-12**)	Construction of DM c.W170 x L150 x H150cm	Proposed works are at western side of the northern tombolo along the edge of Kwok Man road and within raised beach deposit at elevation of 6mPD.	The tombolo area has high archaeological potential even if disturbance can be shown (by water mains in this case). Archaeological materials and deposits ranging from Qing dynasty to prehistory are potentially within the works area. ***Acceptable with mitigation.***

Proposed Works Area	Proposed Works and Dimensions	Elevation (mPD) and Topography	Potential Archaeological Impact
F21 CC-CPP (DMA07G) (**F21**) (**Figures 10-12**)	Construction of CPP c.W80 x L80 x H80cm	Proposed works are on western side of the northern tombolo at a lane adjacent to house No. 41, Pak She Back Street and within raised beach deposit at elevation of 7.8mPD.	The tombolo area has high archaeological potential even if disturbance can be shown (by water mains in this case). Archaeological materials and deposits ranging from Qing dynasty to prehistory are potentially within the works area. ***Acceptable with mitigation.***
F22 CC-DM07EA-2 (**F22**) (**Figures 10-11, 13**)	Construction of DM c.W170 x L210 x H250cm	Proposed works are on western side of the middle part of the tombolo in an open area adjacent to a structure and within raised beach deposit at elevation of 5.5mPD.	The tombolo area has high archaeological potential even if disturbance can be shown (by water mains in this case). Archaeological materials and deposits ranging from Qing dynasty to prehistory are potentially within the works area. ***Acceptable with mitigation.***
F23 CC-CPP (PMA07EA) (**F23**) (**Figures 10-11, 14**)	Construction of CPP c.W80 x L80 x H80cm	Proposed works are located along foothill area at the southern end of the tombolo at a lane behind house No.199, Tai San Back Street and within medium-grained granite/ raised beach deposit at elevation of 10mPD.	The tombolo area has high archaeological potential even if disturbance can be shown (by water mains in this case). Archaeological materials and deposits ranging from Qing dynasty to prehistory are potentially within the works area. ***Acceptable with mitigation.***

Proposed Works Area	Proposed Works and Dimensions	Elevation (mPD) and Topography	Potential Archaeological Impact
F24 CC-PRV04-1 & CCDM04-1 (**F24**) (**Figures 10-11, 13**)	Construction of DM c.W170 x L185 x H200cm	Proposed works are at eastern side of south-eastern tombolo within a lane behind playground. The works at 6-7mPD, are within raised beach deposit but possibly on a raised platform as the adjacent playground seaward side is 4.8mPD.	The tombolo area has high archaeological potential even if disturbance can be shown (artificial raising). Archaeological materials and deposits ranging from Qing dynasty to prehistory are potentially within the works area. ***Acceptable with mitigation.***
F25 CC-DM05-1 (**F25**) (**Figures 10-11, 13**)	Construction of DM c.W170 x L230 x H250cm	Proposed works are located at eastern side of the south-eastern tombolo at a lane at very bottom of a hillock and near the Cheung Chau Rock Carving. The works are within raised beach deposit at elevation of 6.2mPD.	The tombolo area has high archaeological potential even if disturbance can be shown (by water mains in this case). Archaeological materials and deposits ranging from Qing dynasty to prehistory are potentially within the works area. ***Acceptable with mitigation.***
F26 CC-DM07EA-1 (**F26**) (**Figures 10-11, 14**)	Construction of DM c.W170 x L210 x H250cm	Proposed works are at western side of southern tombolo at a lane near house No.30, Tai San Street and within raised beach deposit at elevation of 5mPD.	The tombolo area has high archaeological potential. Archaeological materials and deposits ranging from Qing dynasty to prehistory are potentially within the works area. ***Acceptable with mitigation.***

6.7 San Tau Site of Archaeological Interest, Lantau Island (AM96-0772)

Proposed Works Area	Proposed Works and Dimensions	Elevation (mPD) and Topography	Potential Archaeological Impact
F27 CPP (TC-CPP (PMA13 & DMA13A) (**F27**) (**Figures 15-17**)	Construction of Critical Pressure Point c.W100 x L100 x H150cm	Proposed works are located by a concrete footpath at the lower north-east facing steep slope to the south-east of San Tau Village. It is situated at the edge of a rhyolite dyke and debris flow deposits.	There are no discernable existing impacts and while it lies with the SAI boundary, but due to the fact that the topography is very different from previous find areas it is deemed of limited archaeological interest. ***Acceptable impact.***

6.8 Tai Long Wan Site of Archaeological Interest, Shek Pik (AM98-0926)

Proposed Works Area	Proposed Works and Dimensions	Elevation (mPD) and Topography	Potential Archaeological Impact
F28 (TLW-DM01A/PRV01A-1) (**F28**) (**Figures 18-20**)	Construction of District Meter c.W170 x L185 x H200cm	Proposed works area lies at the roadside on the northern edge of the Tai Long Wan SAI and at the edge of tuff, tuffites and debris flow deposits at an elevation of 26.9mPD.	While additional information is needed to ascertain the extent and range of the SAI, the proposed works are located in an area previously disturbed. ***Acceptable impact.***

6.9 Tai Tung Site of Archaeological Interest (AM00-1615)

Proposed Works Area	Proposed Works and Dimensions	Elevation (mPD) and Topography	Potential Archaeological Impact
F29 (F29 MOS-DM26-1 / PRV26-1) (**F29**) (**Figures 21-23**)	Construction of District Meter c.W170 x L210 x H250cm	Proposed works area lies at the roadside on the northern western edge of the Tai Tung Village and at the foot slope of sandstone and siltstone debris flow deposits at an elevation around 24mPD.	The archaeological potential in the SAI is defined as within the village but finds occurred within the agricultural field near the works area. The topography and geological deposits differ at the works location and finds location but some potential may exist. ***Acceptable with mitigation.***

7 MITIGATION RECOMMENDATIONS

7.1 General

7.1.1 Based on the archaeological review and the nature of the proposed works, mitigation is recommended at each works location in the following sections for each concerned works and identified heritage sites. The details of the mitigation measure are elaborated in Section 8.

7.1.2 Although disturbance from previous utility and /or water main works has been identified, archaeological watching brief is recommended to be conducted at some proposed works areas. The proposed works are expected to exceed the previous disturbance in size and depth generally, although the exact extent of the previous disturbance is uncertain, it is assumed that the upper 1.5m has known some disturbance. The location assessment is influenced by identification of other existing adverse impacts, proximity of previous findings, and topographical and geological situation of interest.

7.2 Che Ha Site of Archaeological Interest (AM00-1600)

Proposed Works Area	Proposed Works and Dimensions	Potential Archaeological Impact	Proposed Mitigation Recommendations
F1 (MOS-DM23-1/ PRV23-1) (**F1**) (**Figures 1-2, 22**)	Construction of District Meter Chamber c.W170 x L170 x H200cm	Within area of known disturbance (utility works) and area of archaeological potential within village edge previously untested. ***Acceptable with mitigation.***	The proposed works area is under concrete and disturbed by previous utility works, the works are relatively discrete and the works are away from the main archaeological deposit but within area of potential. It is recommended to monitor the excavations for the chamber during the construction phase as part of an **Archaeological Watching Brief**.

Proposed Works Area	Proposed Works and Dimensions	Potential Archaeological Impact	Proposed Mitigation Recommendations
F2 (MOS-CPP (PMA23) (**F2**) (**Figures 1-2, 22**)	Construction of Critical Pressure Point c.W100 x L100 x H150cm	Within area of known disturbance (utility works) and area of archaeological potential within village previously untested. ***Acceptable impact with mitigation.***	The proposed works area is under concrete and disturbed by previous utility works. The works are relatively discrete and the works are away from the main archaeological deposit but within area of potential. It is recommended to monitor the excavations for the chamber during the construction phase as part of an **Archaeological Watching Brief**.

7.3 Shap Long Site of Archaeological Interest, Lantau Island (AM10-0002/A)

Proposed Works Area	Proposed Works and Dimensions	Potential Archaeological Impact	Proposed Mitigation Recommendations
F3 (SLM-DM01B-1 / PRV01B-1) (**F3**) (**Figures 3-4**)	Construction of District Meter (DM) c.W170 x L185 x H200cm	Although within the SAI boundary and limited known disturbance (footpath construction), the potential for archaeology is expected to be minimal due to its situation alongside the lagoon at the base of a hillslope. ***Acceptable impact.***	After review, the construction environment and the procedures are considered acceptable. Insignificant impact is anticipated. No mitigation is required. However, if any antiquities or supposed antiquities are found during the construction work, the relevant contractor should notify AMO immediately.

Proposed Works Area	Proposed Works and Dimensions	Potential Archaeological Impact	Proposed Mitigation Recommendations
F4 (SLM-DM01C-1 / PRV01C-1) (**F4**) (**Figures 3-4**)	Construction of DM c.W170 x L170 x H200cm	There is no evidence for major disturbance at the works location except disturbance from existing utility, and limited archaeological evidence indicates potential for archaeology exists in the raised beach area. The proposed works impact on area of archaeological potential. ***Acceptable with mitigation.***	The proposed works area is under concrete and disturbed by existing utility works, the works are relatively discrete, main archaeological deposit is as yet determined and the works are within area of archaeological potential. It is recommended to monitor the excavations for the chamber during the construction phase as part of an **Archaeological Watching Brief**.
F5 (SLM-CPP (PMA01C)) (**F5**) (**Figures 3-4**)	Construction of Critical Pressure Point c.W100 x L100 x H150cm	The terracing of the hillslope is expected to have adversely impacted potential archaeology despite being within the boundary of the SAI. ***Acceptable impact.***	After review, the construction environment and the procedures are considered acceptable. Insignificant impact is anticipated. No mitigation is required. However, if any antiquities or supposed antiquities are found during the construction work, the relevant contractor should notify AMO immediately.

7.4 Yung Shue Wan Site of Archaeological Interest, Lamma Island (AM77-0040)

Proposed Works Area	Proposed Works and Dimensions	Potential Archaeological Impact	Proposed Mitigation Recommendations
F6 (LI-DM01-1) (**F6**) (**Figures 5-7**)	Construction of District Meter c.W170 x L210 x H250cm	The recent beach deposit does not contain any historical or prehistorical evidence. ***Acceptable impact.***	After review, the construction environment and the procedures are considered acceptable. Insignificant impact is anticipated. No mitigation is required. However, if any antiquities or supposed antiquities are found during the construction work, the relevant contractor should notify AMO immediately.
F7 (LI-DM02-1) (**F7**) (**Figures 5-7**)	Construction of DM c.W170 x L210 x H250cm	The recent beach deposit does not contain any historical or prehistorical evidence. ***Acceptable impact.***	After review, the construction environment and the procedures are considered acceptable. Insignificant impact is anticipated. No mitigation is required. However, if any antiquities or supposed antiquities are found during the construction work, the relevant contractor should notify AMO immediately.

Proposed Works Area	Proposed Works and Dimensions	Potential Archaeological Impact	Proposed Mitigation Recommendations
F8 (LI-DM03-1/PRV03-1), Enabling Works (3m Mains) (**F8**) (**Figures 5-7**)	Construction of DM and Enabling Works (3m Mains) c.W170 x L500 x H250cm	F8 lies alongside a major footpath in Tai Yuen Tsuen. Previous auger testing close by indicated a lack of cultural strata. ***Acceptable impact.***	After review, the construction environment and the procedures are considered acceptable. Insignificant impact is anticipated. No mitigation is required. However, if any antiquities or supposed antiquities are found during the construction work, the relevant contractor should notify AMO immediately.
F9 PRV (LI-DM03-2/PRV03-2) (**F9**) (**Figures 5-7**)	Construction of DM c.W170 x L185 x H200cm	The recent beach deposit does not contain any historical or prehistorical evidence. ***Acceptable impact.***	After review, the construction environment and the procedures are considered acceptable. Insignificant impact is anticipated. No mitigation is required. However, if any antiquities or supposed antiquities are found during the construction work, the relevant contractor should notify AMO immediately.
F10 PRV (LI-DM-07-1/LI-PRV07-1) (**F10**) (**Figures 5-7**)	Construction of DM c.W170 x L170 x H150cm	The proposed work area is terraced and deemed to have limited archaeological potential. ***Acceptable impact.***	After review, the construction environment and the procedures are considered acceptable. Insignificant impact is anticipated. No mitigation is required. However, if any antiquities or supposed antiquities are found during the construction work, the relevant contractor should notify AMO immediately.

Proposed Works Area	Proposed Works and Dimensions	Potential Archaeological Impact	Proposed Mitigation Recommendations
F11 (LI-DM09-1) (**F11**) (**Figures 5-7**)	Construction of DM c.W170 x L230 x H250cm	F11 falls within an area of debris flow which is disturbed by utilities and is deemed to have limited archaeological potential. ***Acceptable impact.***	After review, the construction environment and the procedures are considered acceptable. Insignificant impact is anticipated. No mitigation is required. However, if any antiquities or supposed antiquities are found during the construction work, the relevant contractor should notify AMO immediately.
F12 CPP (LI-CPP (DMA09) (**F12**) (**Figures 5-7**)	Construction of Critical Pressure Point c.W100 x L100 x H100cm	The proposed work area is disturbed by site formation and deemed to have limited archaeological potential. ***Acceptable impact.***	After review, the construction environment and the procedures are considered acceptable. Insignificant impact is anticipated. No mitigation is required. However, if any antiquities or supposed antiquities are found during the construction work, the relevant contractor should notify AMO immediately.

7.5 Hung Shing Ye Site of Archaeological Interest, Lamma Island (AM77-0042)

Proposed Works Area	Proposed Works and Dimensions	Potential Archaeological Impact	Proposed Mitigation Recommendations
F13 PRV (LI-DM04-1/PRV04-1) **(F13)** (**Figures 6, 8-9**)	Construction of District Meter c.W170 x L185 x H200cm	Within area of known disturbance (utility works) and area with some untested archaeological potential. ***Acceptable Impact with mitigation.***	The works area lies within concrete covered public path and was disturbed by previous utility works. The works are relatively discrete, and the works are within untested area of archaeological potential. It is recommended to monitor the excavations for the chamber during the construction phase as part of an **Archaeological Watching Brief**.

7.6 Tung Wan Site of Archaeological Interest, Cheung Chau (AM96-0752)

Proposed Works Area	Proposed Works and Dimensions	Potential Archaeological Impact	Proposed Mitigation Recommendations
F14 CC-CPP (PMA04) (**F14**) (**Figures 10-11, 13**)	Construction of Critical Pressure Point (CPP) c.W100 x L100 x H100cm	Proposed works are located in the middle part of the tombolo on hill slope of a medium-grained granite small hillock. In general, the tombolo area has high archaeological potential especially on the sandbar deposits. There is also potential of finding evidence of prehistoric occupation on such small hillock as evidenced by multiple prehistoric sites in Hong Kong. However, The location had been disturbed by utility work and sloping work. ***Acceptable Impact.***	Based on the previous findings, the hill slope along the small hillock in the middle part of the tombolo is considered to have some archaeological potential. Potential archaeological deposits are expected to be relatively shallow on the hillslope and may be disturbed by existing utility and sloping works. The proposed measurements of the CPP are shallow and small in scale and may not exceed the level of existing disturbance. Insignificant impact is anticipated. If any antiquities or supposed antiquities are found during the construction work, the relevant contractor should notify AMO immediately.

Proposed Works Area	Proposed Works and Dimensions	Potential Archaeological Impact	Proposed Mitigation Recommendations
F15 Enabling works (DBV) (**F15**) (**Figures 10-12**)	Construction of enabling works for district boundary valve c.W170 x L170 x H200cm	The proposed works are located in the western side in the northern part of the tombolo. Previous investigations show that the tombolo area has high archaeological potential even if existing disturbances are expected (e.g. AMO 2017, Au 2002c). There is potential of finding archaeological materials and deposits ranging from prehistory to Qing dynasty within the works area. ***Acceptable with mitigation.***	Following the review, the area is deemed to have archaeological potential despite known disturbances. Although the extent of disturbance from the existing water mains is unknown, it is expected that the footprint and depth of the proposed works will exceed that of the disturbance. Previous findings suggested that prehistoric deposits may survive underneath the modern disturbances, which could be over 1m below surface (e.g. Au 2002c). It is recommended to monitor the excavations for the chamber during the construction phase as part of an **Archaeological Watching Brief.**

Proposed Works Area	Proposed Works and Dimensions	Potential Archaeological Impact	Proposed Mitigation Recommendations
F16 CC-DM07G-1 & CC-PRV07-2 (**F16**) (**Figures 10-12**)	Construction of District Meter (DM) c.W170 x L210 x H250cm	The tombolo area is of archaeological interest even if some disturbance by utilities is known. The proposed works are located along the centre of the tombolo where the occurrence of previous finds have been more prevalent (for instance Golder 2013). Archaeological materials and deposits ranging from Qing dynasty to prehistory are potentially within the works area. ***Acceptable with mitigation.***	Previous findings indicate the area has archaeological potential despite known disturbances. It is expected that the footprint and depth of the proposed works will exceed that of the disturbance. Previous investigations in the middle part of the sandbar indicated that the Middle Neolithic deposit lies at 50-110cm below surface at c.5.75 to 7.8mPD (Golder 2013). It is expected that the suggested depth of the construction of the DM will impact on potential archaeological deposits. It is recommended to monitor the excavations for the chamber during the construction phase as part of an **Archaeological Watching Brief.**

Proposed Works Area	Proposed Works and Dimensions	Potential Archaeological Impact	Proposed Mitigation Recommendations
F17 Enabling works (11m mains) (**F17**) (**Figures 10-12**)	Construction of enabling works for 11m of water mains c.W100 x L1200 x H200cm	The tombolo area is of archaeological interest although the proposed impacts lie near the edge and closer to the waterline. Archaeological materials and deposits ranging from Qing dynasty to prehistory are potentially within the works area. ***Acceptable with mitigation.***	Despite known disturbances and its location near the water, area has some limited potential for archaeology. The depth of the proposed works may affect some previously undisturbed stratum and it is recommended to monitor the excavations for the chamber during the construction phase as part of an **Archaeological Watching Brief**.
F18 CC-DM07G-2 & CC-PRV07-3 (**F18**) (**Figures 10-12**)	Construction of DM c.W170 x L210 x H250cm	The tombolo area is of archaeological interest although the proposed impacts lie near the edge and closer to the waterline. Archaeological materials and deposits ranging from Qing dynasty to prehistory are potentially within the works area. ***Acceptable with mitigation.***	Despite known disturbances and its location near the water, area has some limited potential for archaeology. The depth of the proposed works may affect some previously undisturbed stratum and it is recommended to monitor the excavations for the chamber during the construction phase as part of an **Archaeological Watching Brief.**

Proposed Works Area	Proposed Works and Dimensions	Potential Archaeological Impact	Proposed Mitigation Recommendations
F19 CC-DM07G-3 (**F19**) (**Figure 10-11, 13**)	Construction of DM c.W170 x L150 x H150cm	The proposed works are located in the western side in the middle part of the tombolo. Previous investigations show that the tombolo area has high archaeological potential even if existing disturbances are expected (e.g. AMO 2017, Au 2002c). There is potential of finding archaeological materials and deposits ranging from prehistory to Qing dynasty within the works area. ***Acceptable with mitigation.***	After review, the area has archaeological potential despite known disturbances. Although the extent of disturbance from the existing water mains is unknown, the proposed measurements of the DM is relatively shallow (H150cm) and it is expected that the proposed works will not exceed the level of existing disturbance. Nevertheless, isolated archaeological materials and/or undisturbed stratum may still survive. **Archaeological Watching Brief** for the construction of the chamber is therefore recommended to retrieve any of such remains.

Proposed Works Area	Proposed Works and Dimensions	Potential Archaeological Impact	Proposed Mitigation Recommendations
F20 CC-DM07G-4 (**F20**) (**Figures 10-12**)	Construction of DM c.W170 x L150 x H150cm	The proposed works are located in the western side of the tombolo. Previous investigations show that the tombolo area has high archaeological potential even if existing disturbances are expected (e.g. AMO 2017, Au 2002c). There is potential of finding archaeological materials and deposits ranging from prehistory to Qing dynasty within the works area. ***Acceptable with mitigation.***	After review, the area has archaeological potential despite known disturbances. Although the extent of disturbance from the existing water mains is unknown, the proposed measurements of the DM is relatively shallow (H150cm) and it is expected that the proposed works will not exceed the level of existing disturbance. Nevertheless, isolated archaeological materials and/or undisturbed stratum may still survive. **Archaeological Watching Brief** for the construction of the chamber is therefore recommended to retrieve any of such finds.

Proposed Works Area	Proposed Works and Dimensions	Potential Archaeological Impact	Proposed Mitigation Recommendations
F21 CC-CPP (DMA07 G) (**F21**) (**Figures 10-12**)	Construction of CPP c.W80 x L80 x H80cm	The proposed works are located along the centre in the northern part of the tombolo. Previous investigations show that the tombolo area has high archaeological potential even if existing disturbances are expected (e.g. AMO 2017, Au 2002c). There is potential of finding archaeological materials and deposits ranging from prehistory to Qing dynasty within the works area. ***Acceptable with mitigation.***	After review, the area has archaeological potential despite known disturbances. Although the extent of disturbance from the existing water mains is unknown, the proposed measurements of the CPP is relatively shallow and it is expected that the proposed works will not exceed the level of existing disturbance. Nevertheless, isolated archaeological materials and/or undisturbed stratum may still survive. **Archaeological Watching Brief** for the construction of the CPP is therefore recommended to retrieve any of such remains.

Proposed Works Area	Proposed Works and Dimensions	Potential Archaeological Impact	Proposed Mitigation Recommendations
F22 CC-DM07EA-2 (**F22**) (**Figure 10-11, 13**)	Construction of DM c.W170 x L210 x H250cm	The proposed works are located in the western side of the tombolo. Previous investigations show that the tombolo area has high archaeological potential even if existing disturbances are expected (e.g. AMO 2017, Au 2002c). There is potential of finding archaeological materials and deposits ranging from prehistory to Qing dynasty within the works area. ***Acceptable with mitigation.***	After review, the area has archaeological potential despite known disturbances. Although the extent of disturbance from the existing water mains is unknown, it is expected that the footprint and depth of the proposed works (c.W170 x L210 x H250cm) will exceed that of the disturbance. Previous findings suggested that prehistoric deposits may survive underneath the modern disturbances, which could be over 1m below surface (e.g. Au 2002c). It is recommended to monitor the excavations for the chamber during the construction phase as part of an **Archaeological Watching Brief.**

Proposed Works Area	Proposed Works and Dimensions	Potential Archaeological Impact	Proposed Mitigation Recommendations
F23 CC-CPP (PMA07EA) (**F23**) (**Figure 10-11, 14**)	Construction of CPP c.W80 x L80 x H80cm	The proposed works are located partially on the sandbar deposits and partially along the edge of the hill slope of a medium-grained granite small hillock. In general, the tombolo area has high archaeological potential especially on the sandbar deposits. There is also potential of finding evidence of prehistoric occupation on such small hillock as evidenced by multiple prehistoric sites in Hong Kong. ***Acceptable with mitigation.***	Based on the review, the proposed works area has some archaeological potential. The extent of existing disturbance is unknown; but the potential archaeological deposits, especially those on the hillslopes, are expected to be relatively shallow and may have been disturbed by existing water main construction. In addition, the proposed measurements of the CPP are shallow and small in scale and may not exceed the level of existing disturbance. Having said that, isolated archaeological materials and/or pockets of in situ stratum may survive. **Archaeological Watching Brief** is therefore recommended during the construction work of the CPP to retrieve any of such remains.

Proposed Works Area	Proposed Works and Dimensions	Potential Archaeological Impact	Proposed Mitigation Recommendations
F24 CC-PRV04-1 & CCDM04-1 (**F24**) (**Figure 10-11, 13**)	Construction of DM c.W170 x L185 x H200cm	The tombolo area is of archaeological interest although the proposed impacts lie near the edge and closer to the waterline. and even if disturbance can be shown. Archaeological materials and deposits ranging from Qing dynasty to prehistory are potentially within the works area. ***Acceptable with mitigation.***	Despite known disturbances, and its location near the water, area has some limited potential for archaeology. The depth of the proposed works may affect some previously undisturbed stratum and it is recommended to monitor the excavations for the chamber during the construction phase as part of an **Archaeological Watching Brief.**
F25 CC-DM05-1 (**F25**) (**Figure 10-11, 13**)	Construction of DM c.W170 x L230 x H250cm	The tombolo area is of archaeological interest although the proposed impacts lie near the edge and closer to the waterline. Archaeological materials and deposits ranging from Qing dynasty to prehistory are potentially within the works area. ***Acceptable with mitigation.***	Despite known disturbances, and its location near the water, area has some limited potential for archaeology. The depth of the proposed works may affect some previously undisturbed stratum and it is recommended to monitor the excavations for the chamber during the construction phase as part of an **Archaeological Watching Brief.**

Proposed Works Area	Proposed Works and Dimensions	Potential Archaeological Impact	Proposed Mitigation Recommendations
F26 CC-DM07EA-1 (**F26**) (**Figure 10-11, 14**)	Construction of DM c.W170 x L210 x H250cm	The proposed works are located in the south-western part of the tombolo. Previous investigations show that the tombolo area has high archaeological potential even if existing disturbances are expected (e.g. AMO 2017, Au 2002c). There is potential of finding archaeological materials and deposits ranging from prehistory to Qing dynasty within the works area. ***Acceptable with mitigation.***	After review, the area has archaeological potential despite known disturbances. The area however, is relatively low-lying (5mPD), although the extent of disturbance from the existing water mains is unknown, it is possible that the potential deposits were disturbed by the existing water mains. In such case, isolated archaeological materials and/or pockets of undisturbed stratum may still survive and the maximum depth of the proposed works (250cm) will impact on untested potential deep archaeological remains. **Archaeological Watching Brief** during the excavation phase is therefore recommended to retrieve any of such materials.

7.7 San Tau Site of Archaeological Interest, Lantau Island (AM96-0772)

Proposed Works Area	Proposed Works and Dimensions	Potential Archaeological Impact	Proposed Mitigation Recommendations
F27 CPP (TC-CPP (PMA13 & DMA13A) (**F27**) (**Figures 15-17**)	Construction of Critical Pressure Point c.W100 x L100 x H150cm	There are no discernable existing impacts and while it lies with the SAI boundary, but due to the fact that the topography is very different from previous find areas it is deemed of limited archaeological interest. ***Acceptable impact.***	After review, the construction environment and the procedures are considered acceptable. Insignificant impact is anticipated. No mitigation is required. However, if any antiquities or supposed antiquities are found during the construction work, the relevant contractor should notify AMO immediately.

7.8 Tai Long Wan Site of Archaeological Interest, Shek Pik (AM98-0926)

Proposed Works Area	Proposed Works and Dimensions	Potential Archaeological Impact	Proposed Mitigation Recommendations
F28 (TLW-DM01A/PRV01A-1) (**F28**) (**Figures 18-20**)	Construction of District Meter c.W170 x L185 x H200cm	While additional information is needed to ascertain the extent and range of the SAI, the proposed works are located in an area previously disturbed. ***Acceptable impact.***	After review, the construction environment and the procedures are considered acceptable. Insignificant impact is anticipated. No mitigation is required. However, if any antiquities or supposed antiquities are found during the construction work, the relevant contractor should notify AMO immediately.

7.9 Tai Tung Site of Archaeological Interest (AM00-1615)

Proposed Works Area	Proposed Works and Dimensions	Potential Archaeological Impact	Proposed Mitigation Recommendations
F29 (F29 MOS-DM26-1 / PRV26-1) (**F29**) (**Figures 21-23**)	Construction of District Meter c.W170 x L210 x H250cm	The works area lies in an area of untested archaeological potential with some disturbance evidence. ***Acceptable Impact with mitigation.***	The untested works area lies away from the main identified archaeological deposit but in proximity to a secondary concentration of finds. The area is under concrete cover, may have known some disturbance but is deemed to have some archaeological potential. It is recommended to monitor the excavations for the chamber during the construction phase as part of an **Archaeological Watching Brief**.

8 DISCUSSION AND SUMMARY

8.1.1 The proposed constructions of chambers are relatively small in size and in locations currently under hard surface and known to have been previously disturbed to some extent. Twenty-nine (29) proposed works locations however, are within known Sites of Archaeological Interest and some adverse impact on potential archaeological artefacts and deposits can be expected. Level of determined archaeological potential of the proposed works areas is based mainly on availability of previous archaeological testing, similarity of topography or geological deposits with known potential and recorded archaeological deposits in the vicinity, while the nature of the works means that each location has some known disturbance from previous water works.

8.1.2 Based on existing information, mitigation was recommended at seventeen (17) works locations. The recommendation is archaeological watching brief (AWB) for proposed chamber areas where some archaeological data is expected.

8.1.3 The list of proposed works which requires archaeological watching brief is provided below.

- F1 (MOS-DM23-1/ PRV23-1) (F1)
- F2 (MOS-CPP (PMA23) (F2)
- F4 (SLM-DM01C-1 / PRV01C-1) (F4)
- F13 PRV (LI-DM4-1/PRV04-1) (F13)
- F15 Enabling works (DBV) (F15)
- F16 CC-DM07G-1 & CC-PRV07-2 (F16)
- F17 Enabling works (11m mains) (F17)
- F18 CC-DM07G-2 & CC-PRV07-3 (F18)
- F19 CC-DM07G-3 (F19)
- F20 CC-DM07G-4 (F20)
- F21 CC-CPP (DMA07G) (F21)
- F22 CC-DM07EA-2 (F22)
- F23 CC-CPP (PMA07EA) (F23)
- F24 CC-PRV04-1 & CCDM04-1 (F24)
- F25 CC-DM05-1 (F25)
- F26 CC-DM07EA-1 (F26)
- F29 (F29 MOS-DM26-1 / PRV26-1) (F29)

8.1.4 An archaeological watching brief (AWB) should be undertaken by a qualified and licensed archaeologist during excavation works at the construction stage. In this case, whereby the works are relatively small, the entire excavation process for the chamber should be inspected. Details of the AWB programme, methodology and the application of licence under the Antiquities and Monuments Ordinance (Cap. 53) for conducting the AWB should be prepared by an archaeologist and submitted to AMO for review and comment once the detailed construction programme has been finalized.

8.1.5 For other proposed works within 50m of the heritage sites, the impact to the concerned heritage is considered minimal. After reviewing the construction procedures, insignificant impact is anticipated during construction stage for all proposed works. If there is any antiquities or supposed antiquities found within the proposed works areas, AMO will be consulted and notified.

9 REFERENCE AND BIBLIOGRAPHY

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莫稚：《新界西沙鞋下村遺址村屋地考古調查工作報告》。 (Mo 2001b)

莫稚：《新界西沙大洞村遺址村屋地考古發掘工作報告》。 (Mo 2001c)

10 SUPPORTING ILLUSTRATIONS/MAPS

Works	Figure No.
F1 (MOS-DM23-1/ PRV23-1) (**F1**)	(**Figures 1-2, 22**)
F2 (MOS-CPP (PMA23) (**F2**)	(**Figures 1-2, 22**)
F3 (SLM-DM01B-1 / PRV01B-1) (**F3**)	(**Figures 3-4**)
F4 (SLM-DM01C-1 / PRV01C-1) (**F4**)	(**Figures 3-4**)
F5 (SLM-CPP (PMA01C)) (**F5**)	(**Figures 3-4**)
F6 (LI-DM01-1) (**F6**)	(**Figures 5-7**)
F7 (LI-DM02-1) (**F7**)	(**Figures 5-7**)
F8 (LI-DM03-1/PRV03-1), Enabling Works (3m Mains) (**F8**)	(**Figures 5-7**)
F9 PRV (LI-DM03-2/PRV03-2) (**F9**)	(**Figures 5-7**)
F10 PRV (LI-DM-07-1/LI-PRV07-1) (**F10**)	(**Figures 5-7**)
F11 (LI-DM09-1) (**F11**)	(**Figures 5-7**)
F12 CPP (LI-CPP (DMA09) (**F12**)	(**Figures 5-7**)
F13 PRV (LI-DM04-1/PRV04-1) **(F13)**	(**Figures 6, 8-9**)
F14 CC-CPP (PMA04) (**F14**)	(**Figures 10-11, 13**)
F15 Enabling works (DBV) (**F15**)	(**Figures 10-12**)
F16 CC-DM07G-1 & CC-PRV07-2 (**F16**)	(**Figures 10-12**)
F17 Enabling works (11m mains) (**F17**)	(**Figures 10-12**)
F18 CC-DM07G-2 & CC-PRV07-3 (**F18**)	(**Figures 10-12**)
F19 CC-DM07G-3 (**F19**)	(**Figure 10-11, 13**)
F20 CC-DM07G-4 (**F20**)	(**Figures 10-12**)
F21 CC-CPP (DMA07G) (**F21**)	(**Figures 10-12**)
F22 CC-DM07EA-2 (**F22**)	(**Figures 10-11, 13**)
F23 CC-CPP (PMA07EA) (**F23**)	(**Figures 10-11, 14**)
F24 CC-PRV04-1 & CCDM04-1 (**F24**)	(**Figures 10-11, 13**)
F25 CC-DM05-1 (**F25**)	(**Figures 10-11, 13**)
F26 CC-DM07EA-1 (**F26**)	(**Figures 10-11, 14**)
F27 CPP (TC-CPP (PMA13 & DMA13A) (**F27**)	(**Figures 15-17**)
F28 (TLW-DM01A/PRV01A-1) (**F28**)	(**Figures 18-20**)
F29 (F29 MOS-DM26-1 / PRV26-1) (**F29**)	(**Figures 21-23**)
Additional information: Drawings showing works within 50m boundary from Heritage Sites	
194498/B&V/AS/CC/30001	(Figure 24)
194498/B&V/AS/CC/30002	(Figure 25)
194498/B&V/AS/CC/30003	(Figure 26)
194498/B&V/AS/CC/30004	(Figure 27)

Works	Figure No.
194498/B&V/AS/CC/30005	(Figure 28)
194498/B&V/AS/CC/30006	(Figure 29)
194498/B&V/AS/CS/30001	(Figure 30)
194498/B&V/AS/CS/30002	(Figure 31)
194498/B&V/AS/CS/30003	(Figure 32)
194498/B&V/AS/DH/10001	(Figure 33)
194498/B&V/AS/DH/10002	(Figure 34)
194498/B&V/AS/LI/30001	(Figure 35)
194498/B&V/AS/LI/30002	(Figure 36)
194498/B&V/AS/LI/30004	(Figure 37)
194498/B&V/AS/MOS/20001	(Figure 38)
194498/B&V/AS/MOS/20002	(Figure 39)
194498/B&V/AS/MOS/20003	(Figure 40)
194498/B&V/AS/MOST/20001	(Figure 41)
194498/B&V/AS/MOST/20002	(Figure 42)
194498/B&V/AS/PEC/30001	(Figure 43)
194498/B&V/AS/PEC/30002	(Figure 44)
194498/B&V/AS/SHW/30001	(Figure 45)
194498/B&V/AS/SHW/30002	(Figure 46)
194498/B&V/AS/SLM/30001	(Figure 47)
194498/B&V/AS/SLM/30002	(Figure 48)
194498/B&V/AS/STN/20001	(Figure 49)
194498/B&V/AS/STN/20002	(Figure 50)
194498/B&V/AS/STNS/20001	(Figure 51)
194498/B&V/AS/STNS/20002	(Figure 52)
194498/B&V/AS/SW_B/30001	(Figure 53)
194498/B&V/AS/SW_B/30002	(Figure 54)
194498/B&V/AS/TC/30001	(Figure 55)
194498/B&V/AS/TC/30003	(Figure 56)
194498/B&V/AS/TO/30001	(Figure 57)
194498/B&V/AS/TO/30002	(Figure 58)

The figures are shown in the following pages.

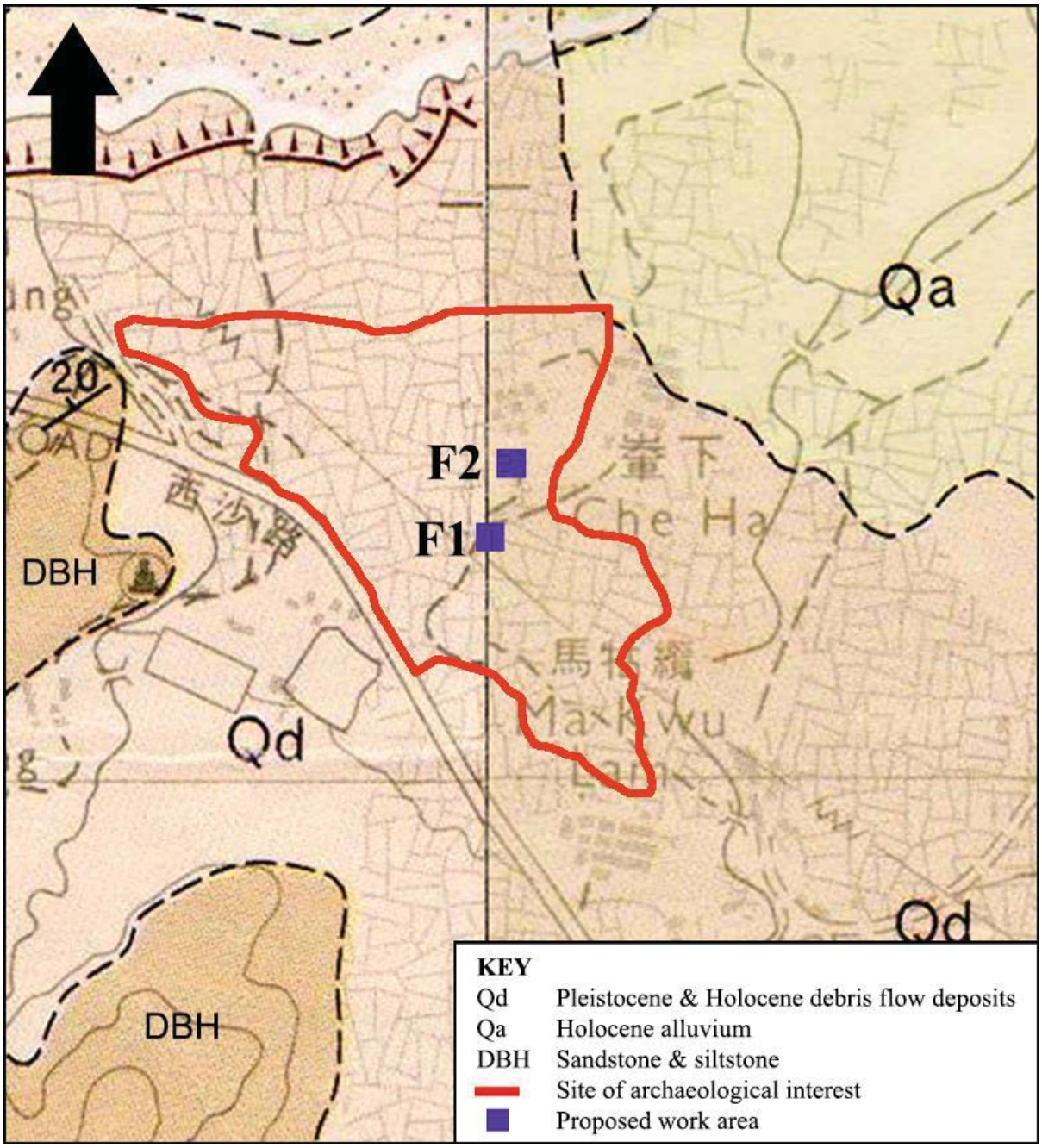
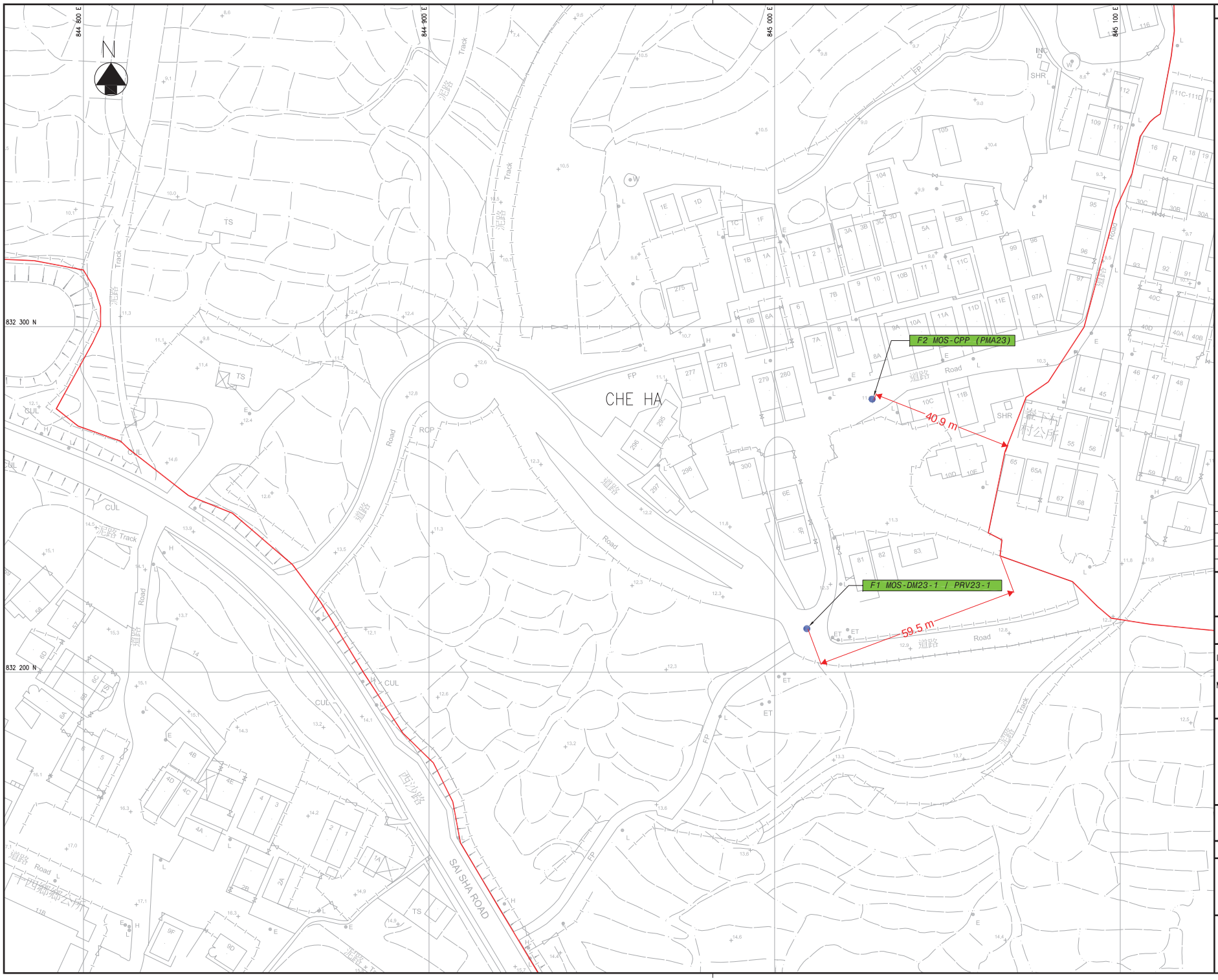


Figure 1 Geological Map showing Che Ha Site of Archaeological Interest and proposed works locations F1 and F2.

Figure 2 Topographical map showing detail of location of proposed works location F1 and F2 in Che Ha SAI.



LEGEND:

- PROPOSED WORKS
- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN SAI AND HIA STUDY (APPLIED TO ALL DRAWINGS)

Revision	Date	Description	Initial
A	09/18	REVISION	PLC

	Designed	Checked	Drawn	Checked
Initial	KT	FMA	SZ	YHL
Date	03/17	03/17	03/17	03/17

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITES FOR (MA ON SHAN ZONE)

Drawing No.
194498/B&V/AS/MOS/20003B

Revision
A

Scale
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A3 1 : 1000

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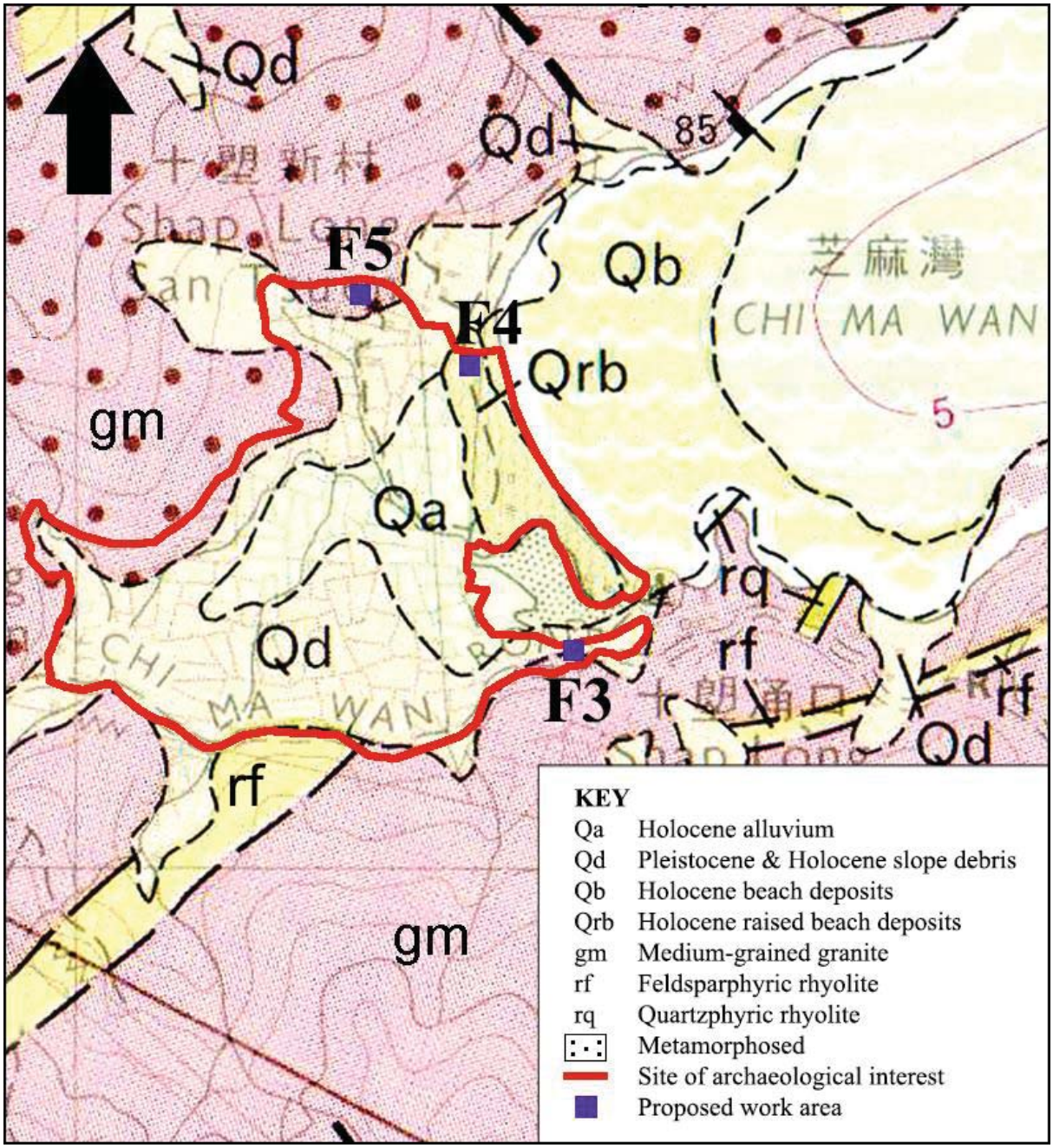
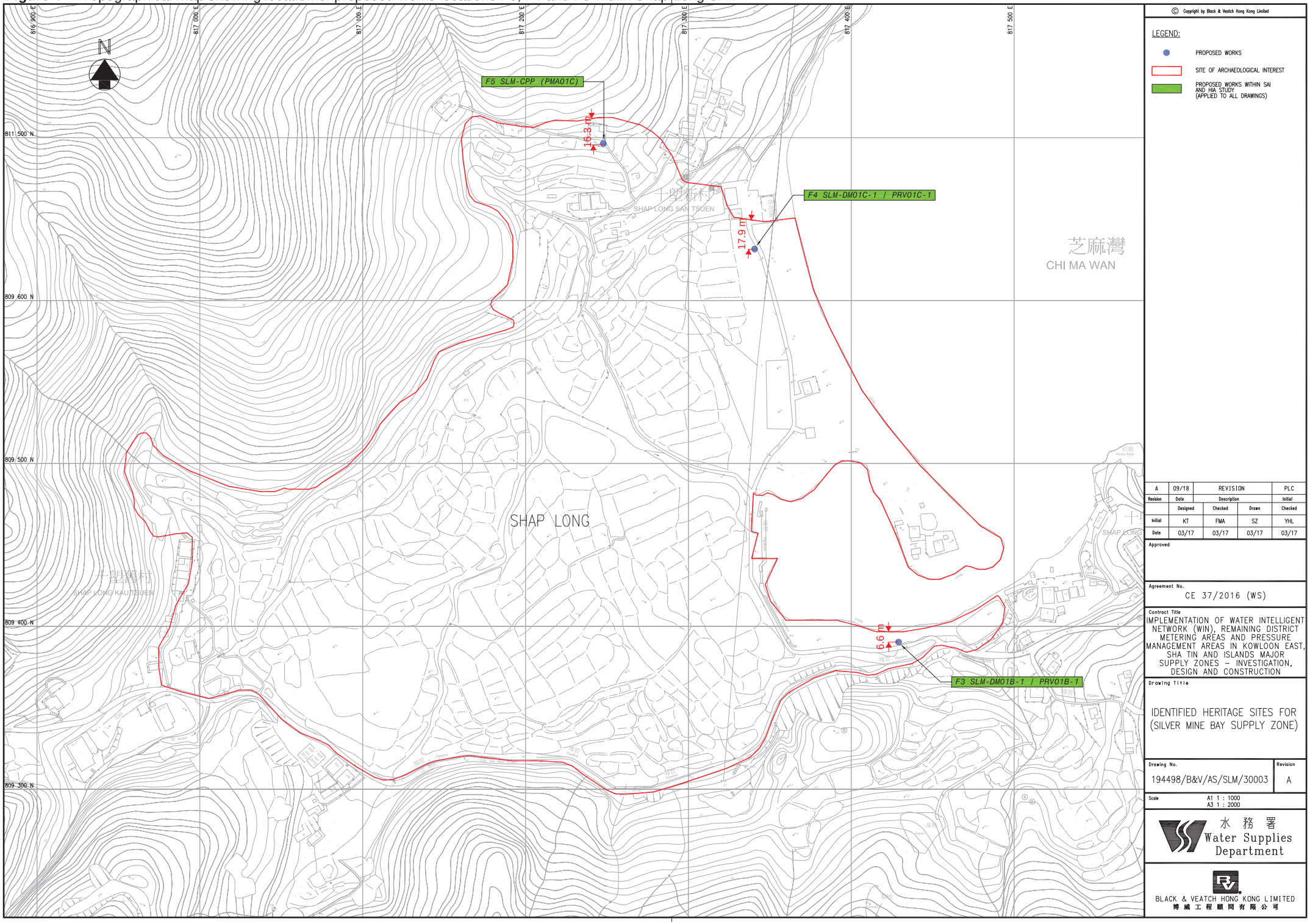


Figure 3 Geological map showing boundary of Shap Long SAI and proposed works locations F3, F4 and F5.

Figure 4 Topographical map showing location of proposed works locations F3, F4 and F5 within Shap Long SAI.



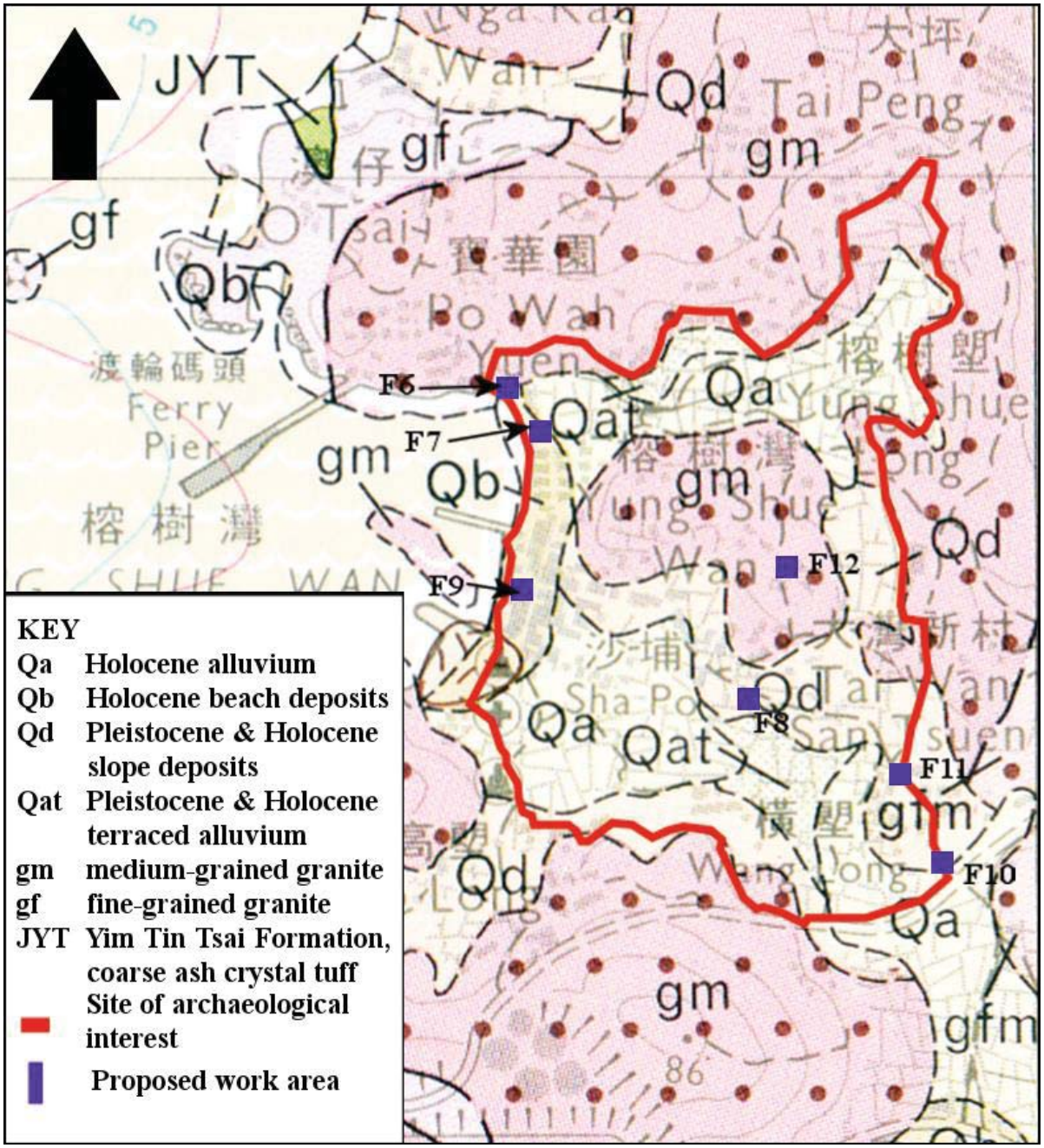
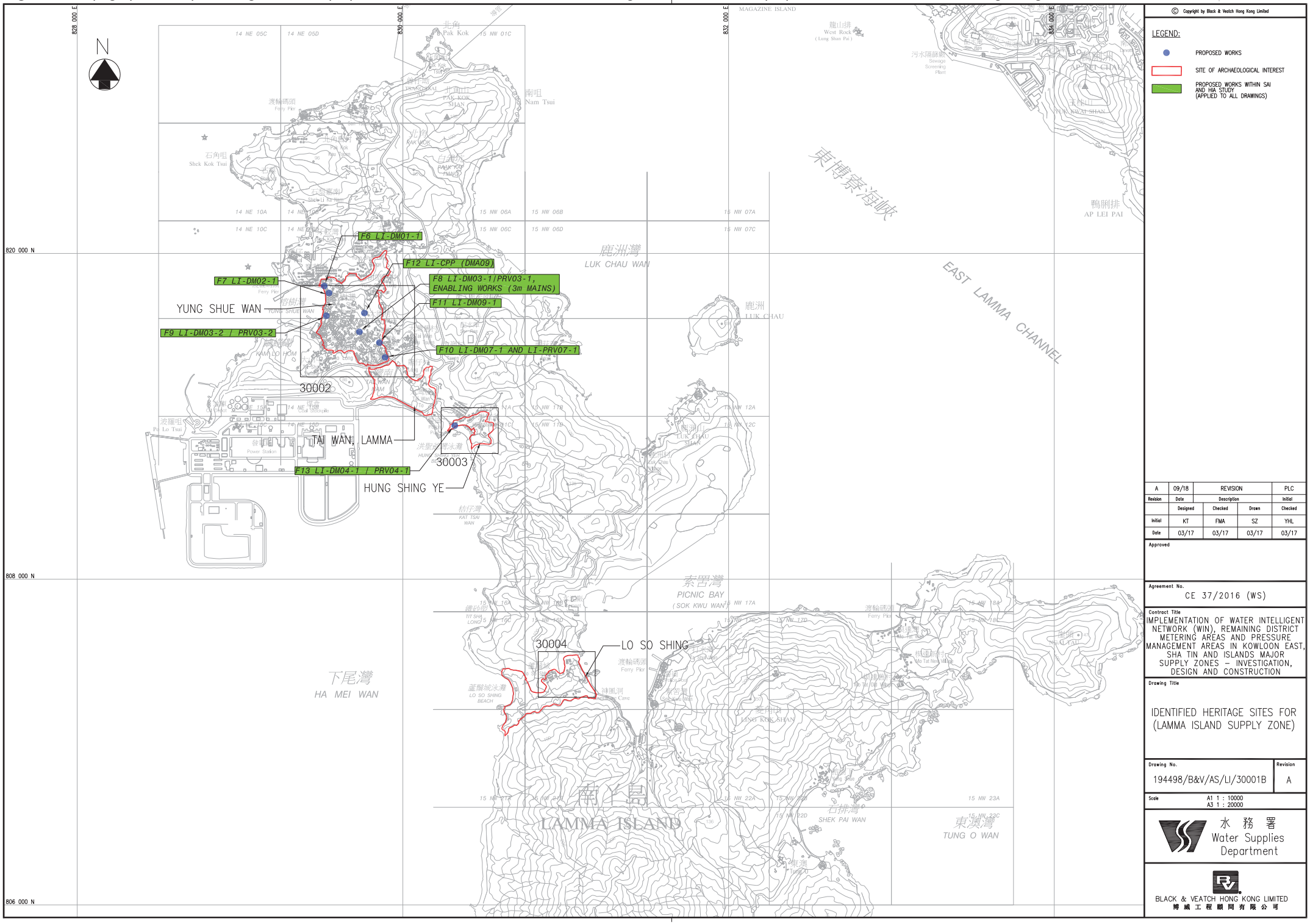


Figure 5 Geological map showing boundary of Yung Shue Wan SAI and proposed works locations F6 to F12.

Figure 6 Topographical map showing location of proposed works locations F6 to F12 within Yung Shue Wan SAI and proposed works location F13 in Hung Shing Ye SAI.



LEGEND:

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- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN SAI AND HIA STUDY (APPLIED TO ALL DRAWINGS)

Revision	Date	Description			Initial
A	09/18	REVISION			PLC
	Designed	Checked	Drawn	Checked	
Initial	KT	FMA	SZ	YHL	
Date	03/17	03/17	03/17	03/17	

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Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITES FOR (LAMMA ISLAND SUPPLY ZONE)

Drawing No.
194498/B&V/AS/LI/30001B

Revision
A

Scale
A1 1 : 10000
A3 1 : 20000

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Water Supplies Department

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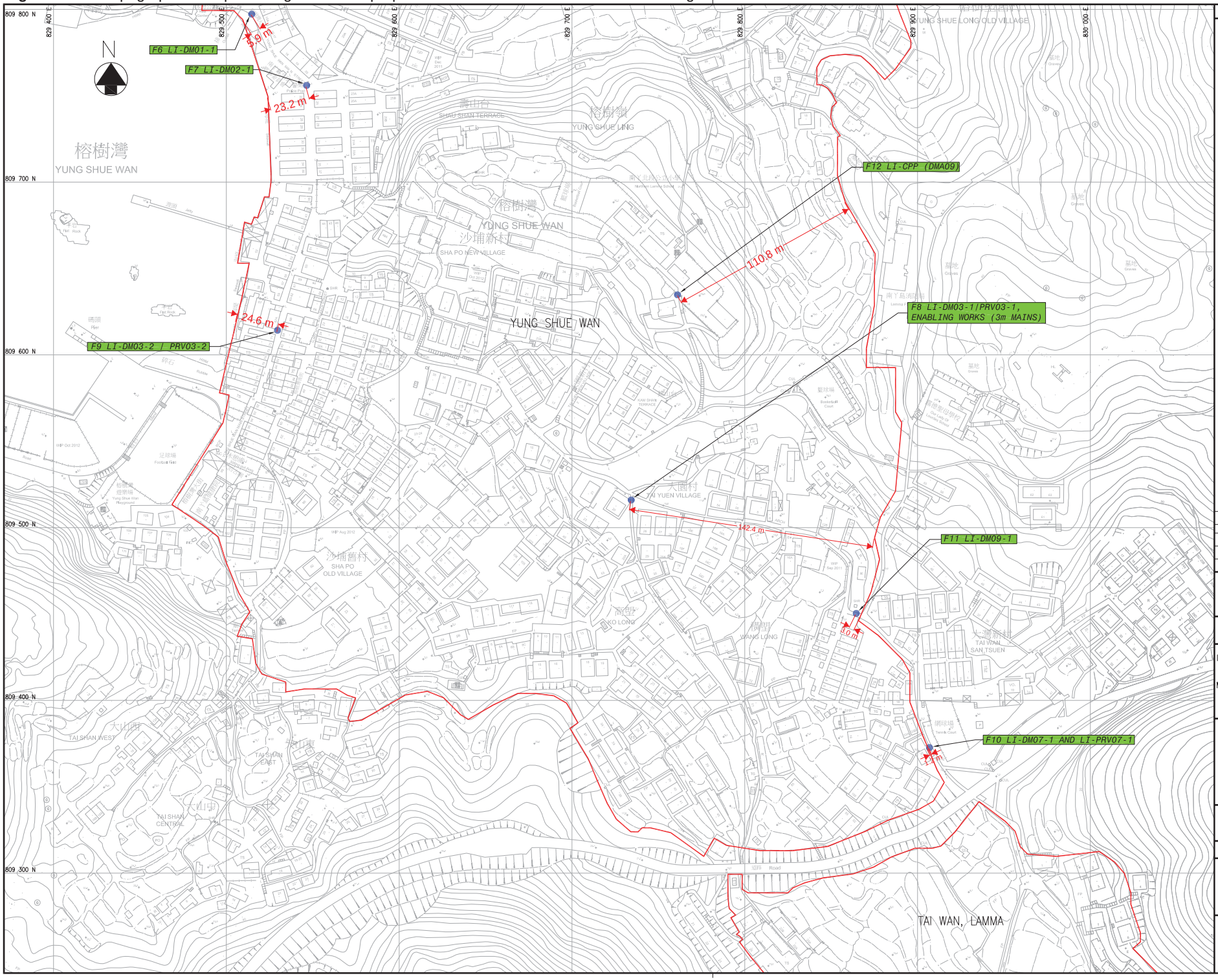
Figure 7 Topographical map showing location of proposed works locations F6 to F12 within Yung Shue Wan SAI.



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Revision	Date	Description	Initial
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Initial	KT	FMA	SZ	YHL
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Drawing Title
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Drawing No.
194498/B&V/AS/LI/30002B

Revision
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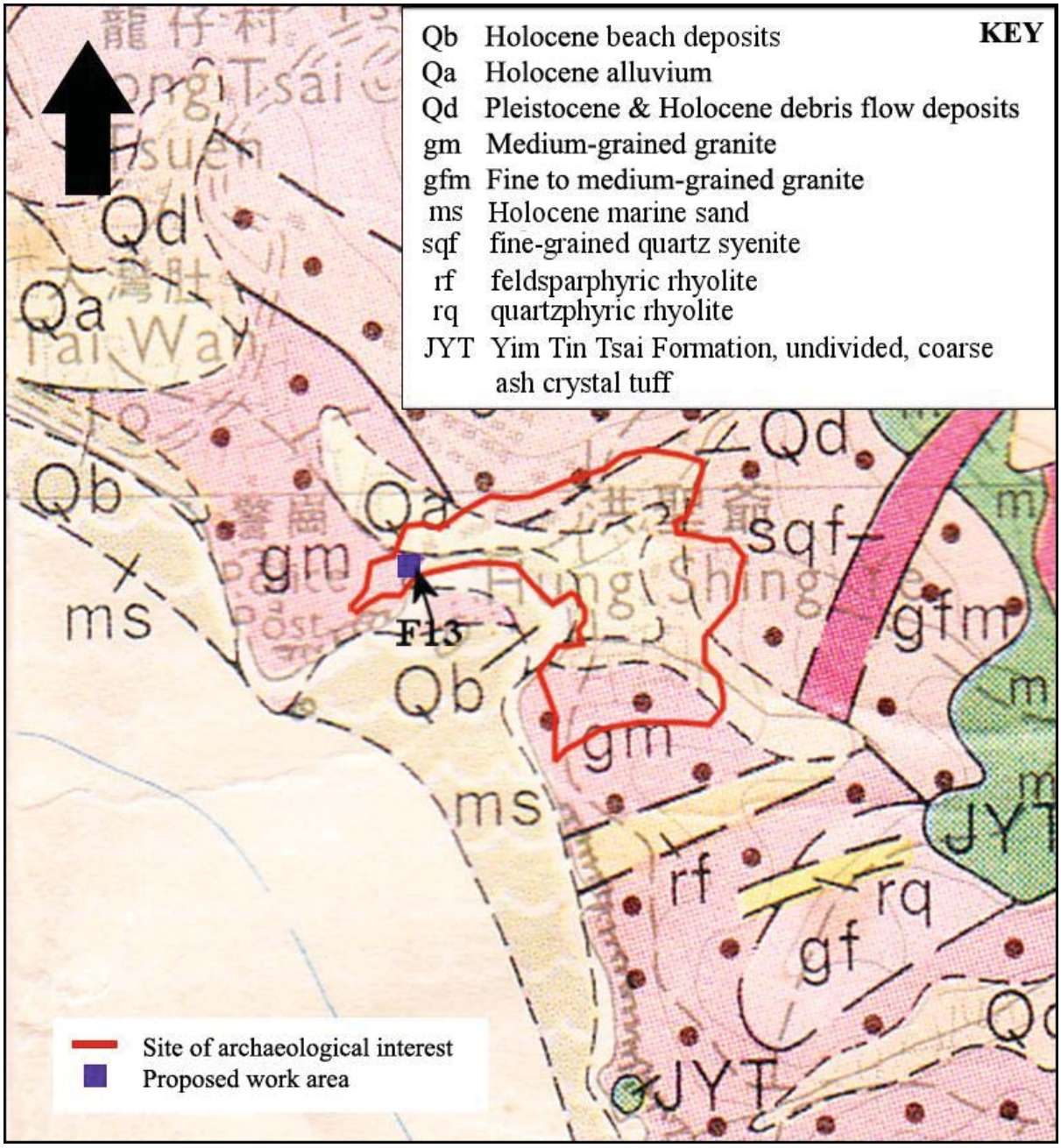
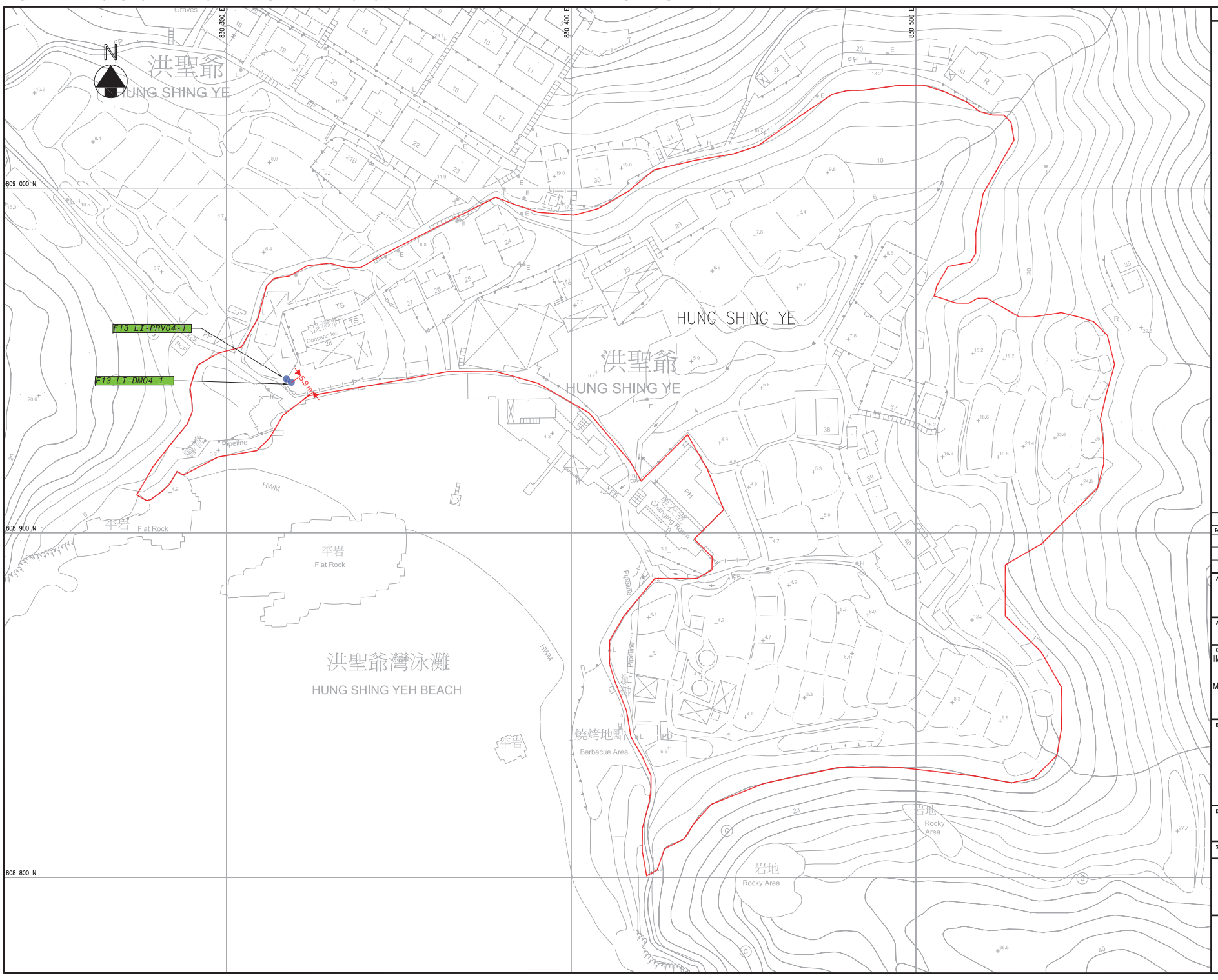


Figure 8 Geological map showing boundary of Hung Shing Ye SAI and proposed works location F13.

Figure 9 Topographical map showing location of proposed works location F13 within Hung Shing Ye SAI.



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Revision	Date	Description	Initial
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Drawing Title
IDENTIFIED HERITAGE SITES FOR (LAMMA ISLAND SUPPLY ZONE)

Drawing No.
194498/B&V/AS/LI/30003

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A3 1 : 1000

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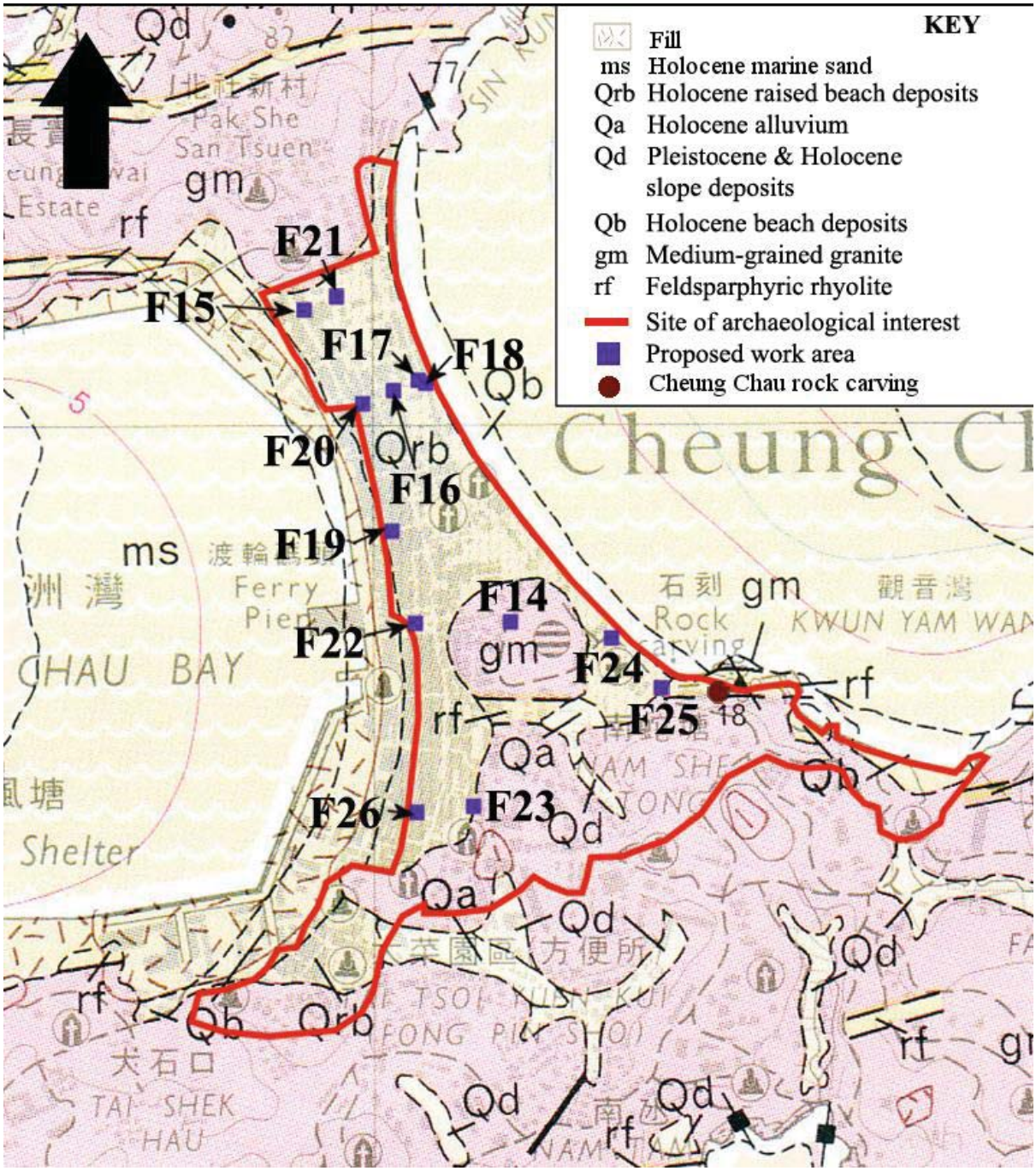
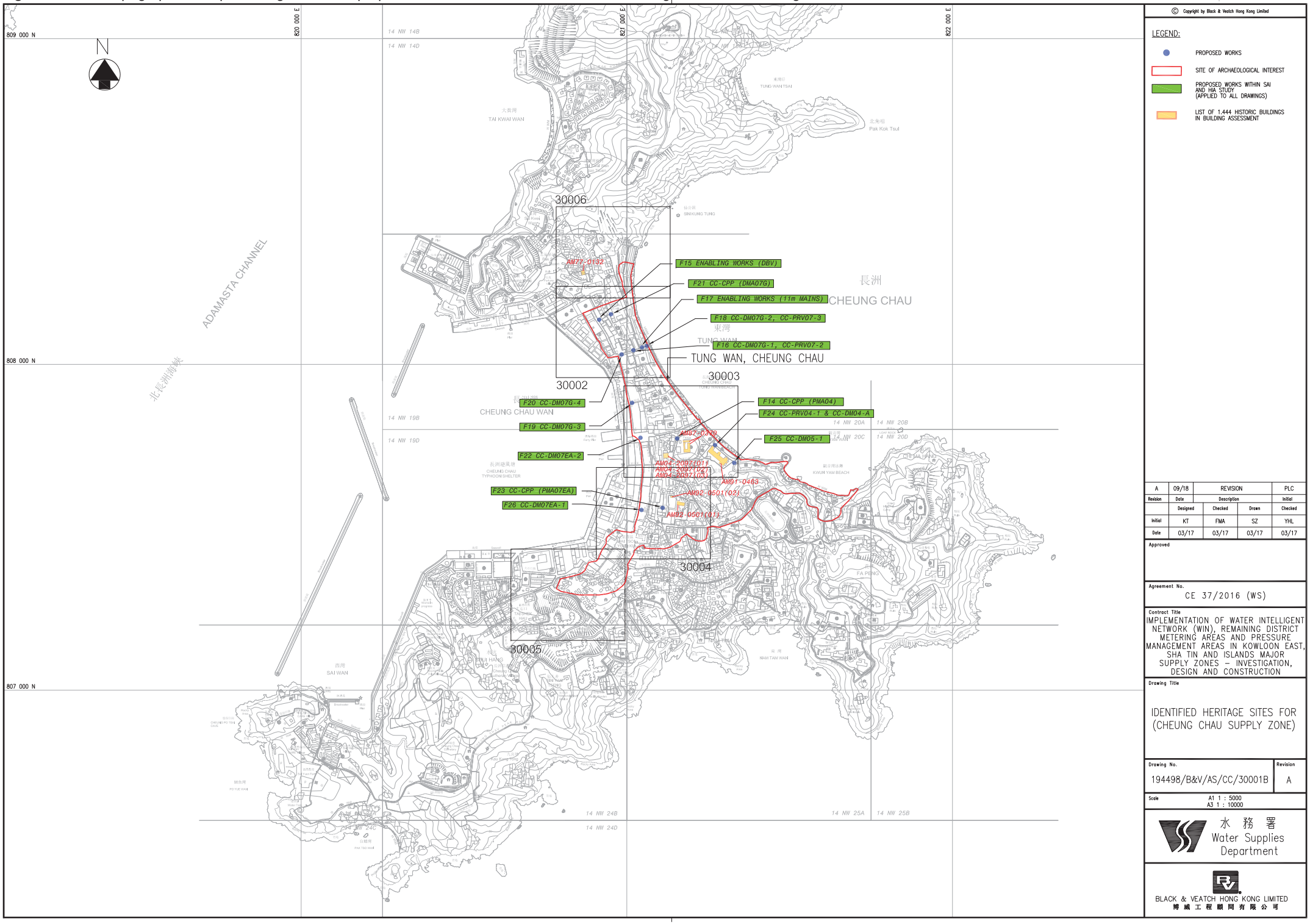


Figure 10 Geological map showing boundary of Tung Wan SAI in Cheung Chau and proposed works locations F14 to F26.

Figure 11 Topographical map showing location of proposed works locations F14 to F26 within Tung Wan SAI in Cheung Chau.



LEGEND:

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- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN SAI AND HIA STUDY (APPLIED TO ALL DRAWINGS)
- LIST OF 1,444 HISTORIC BUILDINGS IN BUILDING ASSESSMENT

Revision	Date	Description	Initial
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Drawing Title
IDENTIFIED HERITAGE SITES FOR (CHEUNG CHAU SUPPLY ZONE)

Drawing No.
194498/B&V/AS/CC/30001B

Revision
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Scale
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A3 1 : 10000

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Water Supplies Department

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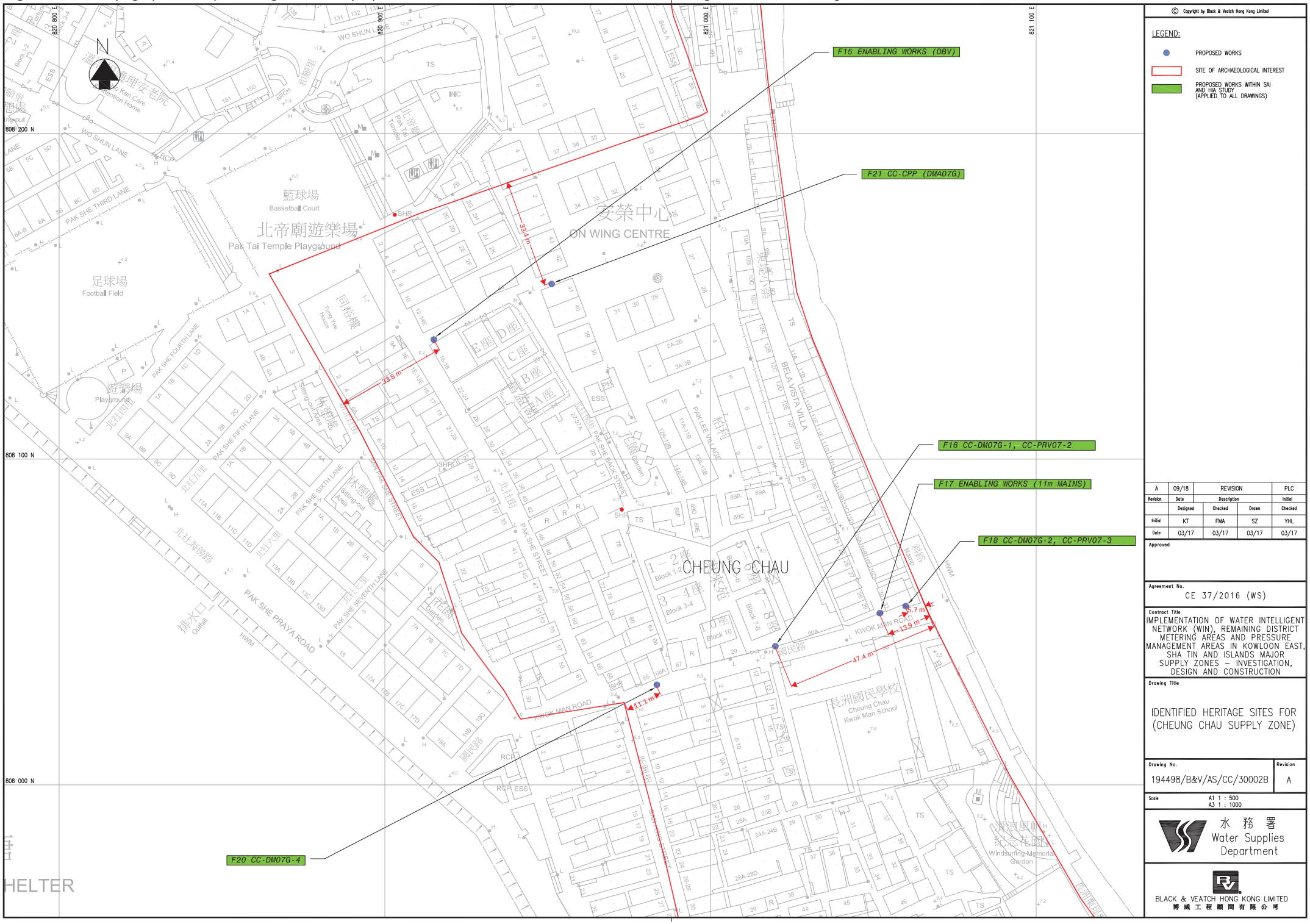
Figure 12 Topographical map showing location of proposed works locations F15-F18, F20-F21 within Tung Wan SAI in Cheung Chau.



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Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITES FOR (CHEUNG CHAU SUPPLY ZONE)

Drawing No.
194498/B&V/AS/CC/30002B

Revision
A

Scale
A1 1 : 500
A3 1 : 1000

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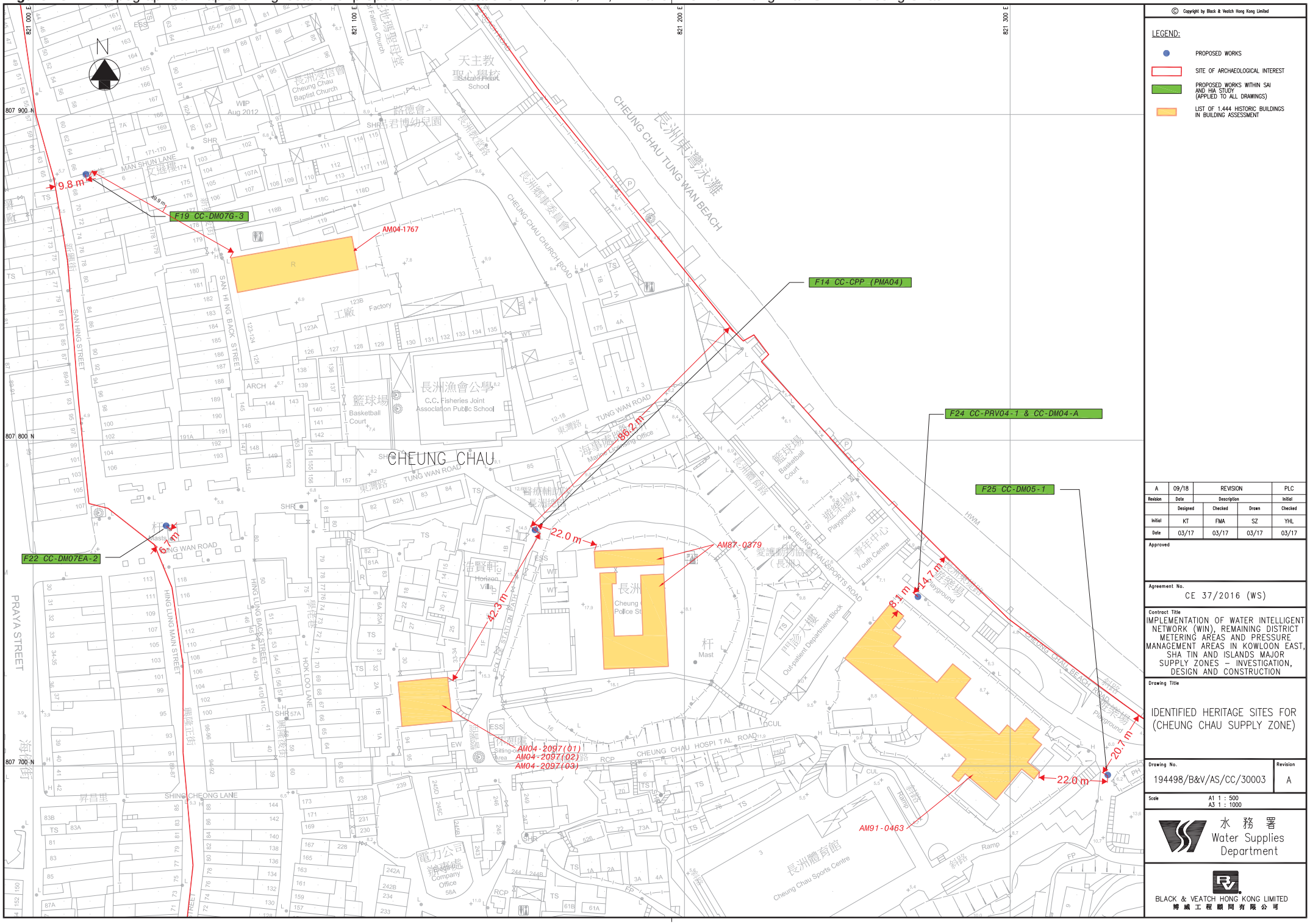
Figure 13 Topographical map showing location of proposed works locations F14, F19, F22, F24 and F25 within Tung Wan SAI in Cheung Chau.



LEGEND:

- PROPOSED WORKS
- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN SAI AND HIA STUDY (APPLIED TO ALL DRAWINGS)
- LIST OF 1,444 HISTORIC BUILDINGS IN BUILDING ASSESSMENT

Revision	Date	Description	Initial
A	09/18	REVISION	PLC

	Designed	Checked	Drawn	Checked
Initial	KT	FMA	SZ	YHL
Date	03/17	03/17	03/17	03/17

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITES FOR (CHEUNG CHAU SUPPLY ZONE)

Drawing No.
194498/B&V/AS/CC/30003

Revision
A

Scale
A1 1 : 500
A3 1 : 1000

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Water Supplies Department

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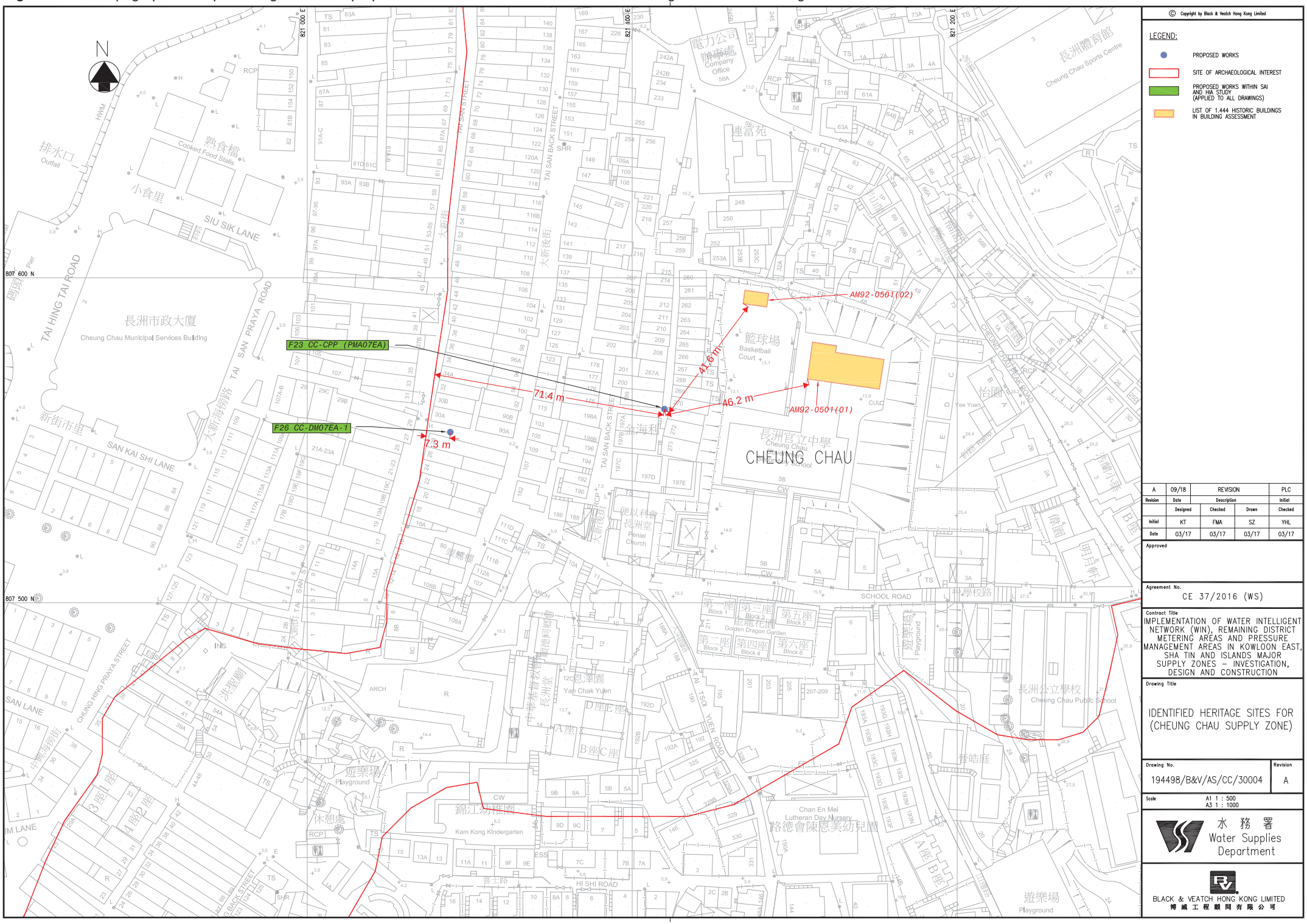
Figure 14 Topographical map showing location of proposed works locations F23 and F26 within Tung Wan SAI in Cheung Chau.



LEGEND:

- PROPOSED WORKS
- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN SAI AND HIA STUDY (APPLIED TO ALL DRAWINGS)
- LIST OF 1,444 HISTORIC BUILDINGS IN BUILDING ASSESSMENT

Revision	Date	Description	Initial
A	09/18	REVISION	PLC

	Designed	Checked	Drawn	Checked
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Date	03/17	03/17	03/17	03/17

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
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Drawing Title
IDENTIFIED HERITAGE SITES FOR (CHEUNG CHAU SUPPLY ZONE)

Drawing No.
194498/B&V/AS/CC/30004

Revision
A

Scale
A1 1 : 500
A3 1 : 1000

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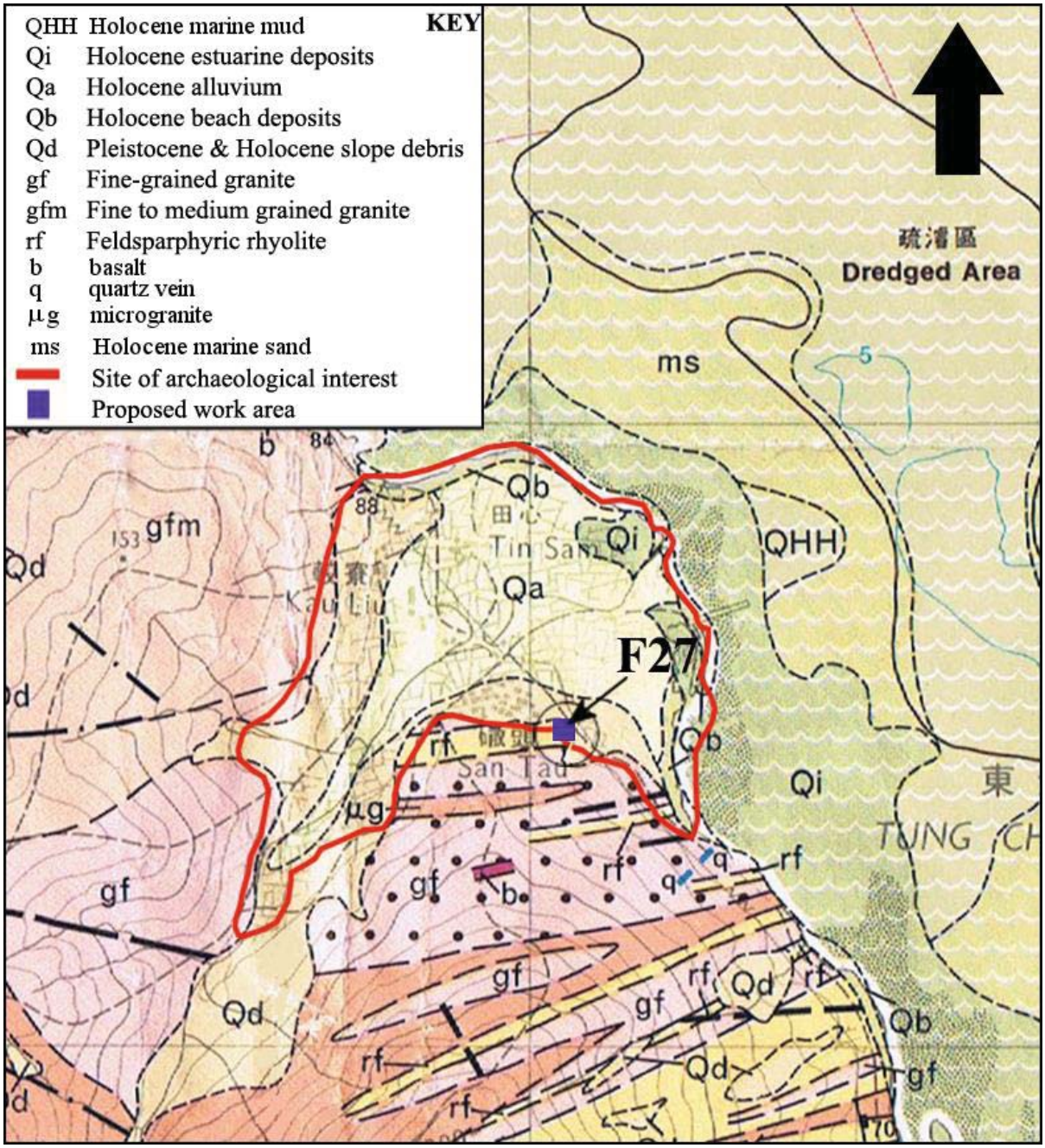


Figure 15 Geological map showing boundary of San Tau SAI and proposed works location F27.

Figure 16 Topographical map showing location of proposed works location F27 within San Tau SAI.

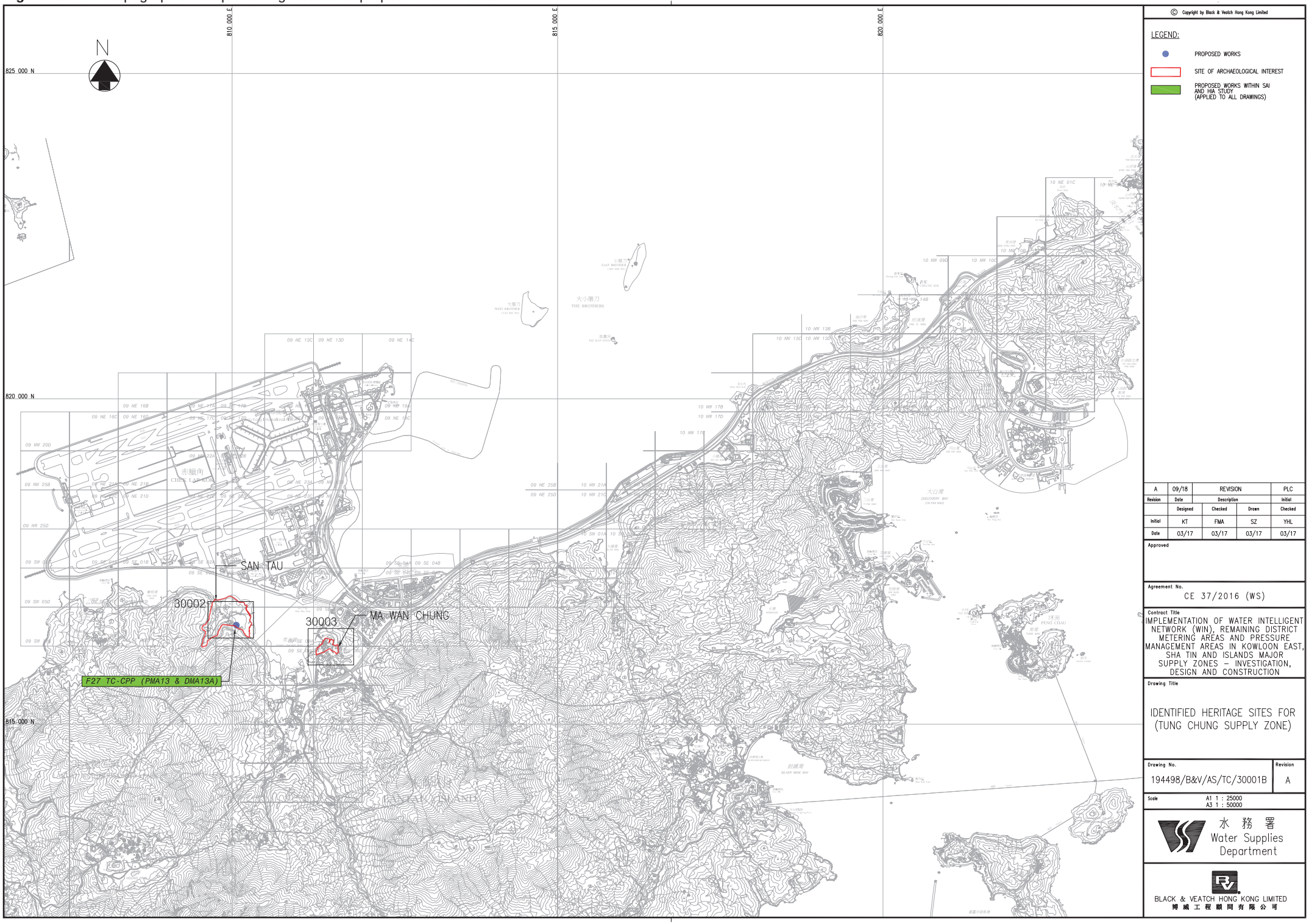
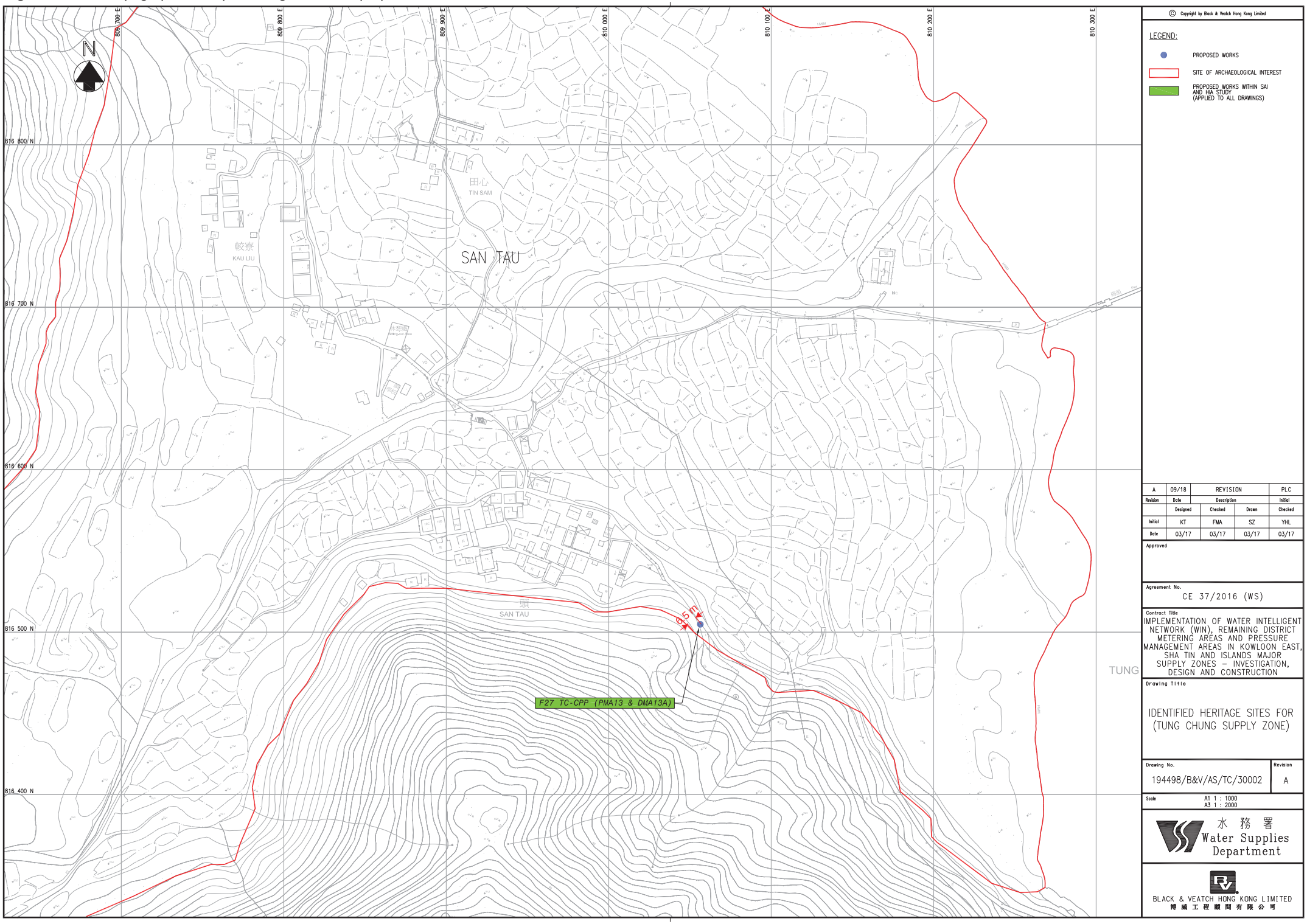


Figure 17 Topographical map showing location of proposed works location F27 within San Tau SAI.



LEGEND:

- PROPOSED WORKS
- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN SAI AND HIA STUDY (APPLIED TO ALL DRAWINGS)

Revision	Date	Description	Initial
A	09/18	REVISION	PLC

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Agreement No.
CE 37/2016 (WS)

Contract Title
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Drawing Title
IDENTIFIED HERITAGE SITES FOR (TUNG CHUNG SUPPLY ZONE)

Drawing No.
194498/B&V/AS/TC/30002

Revision
A

Scale
A1 1 : 1000
A3 1 : 2000

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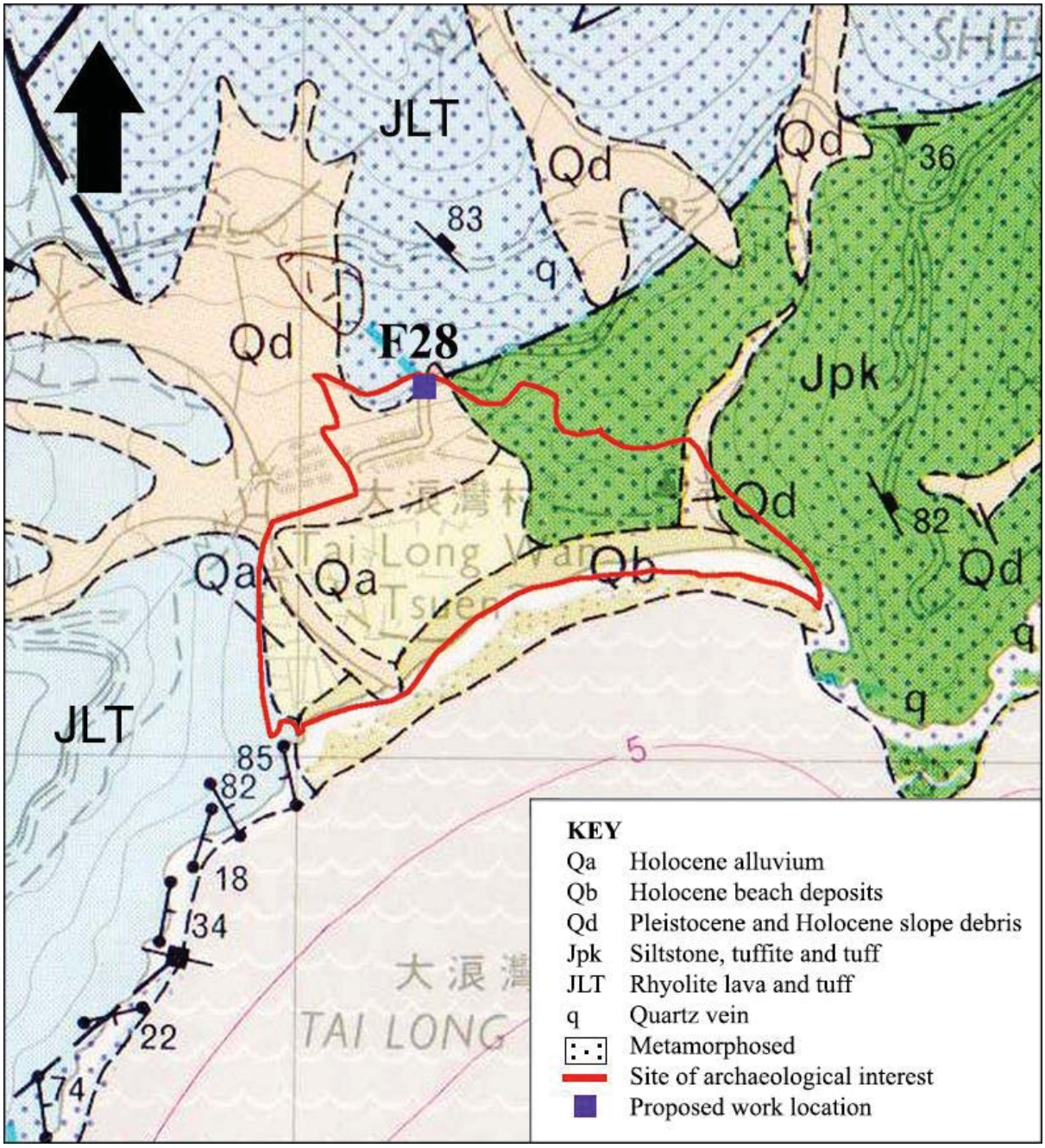


Figure 18 Geological map showing boundary of Tai Long Wan SAI in Shek Pik and proposed works location F28.

Figure 19 Topographical map showing location of proposed works location F28 within Tai Long Wan SAI at Shek Pik.

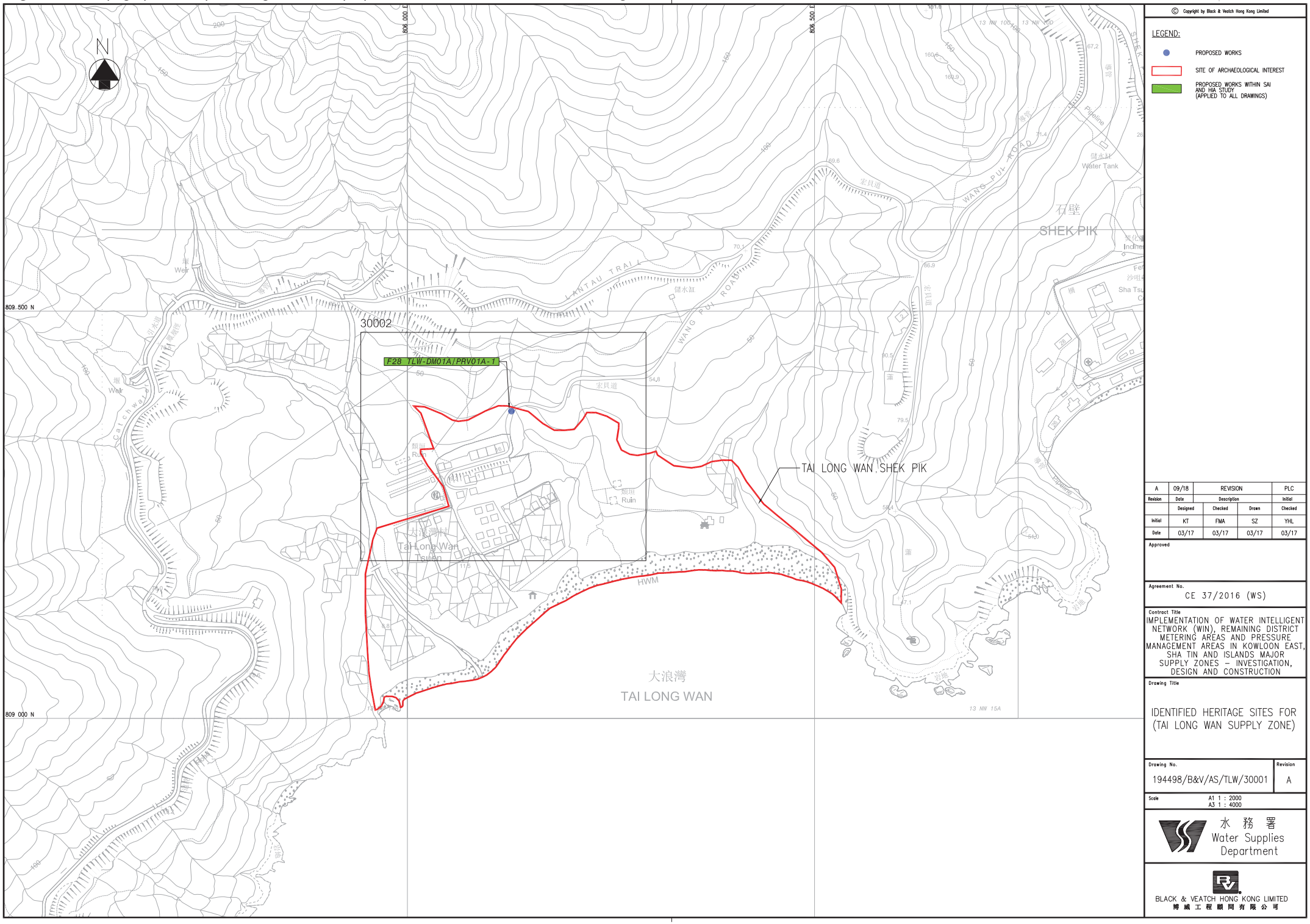
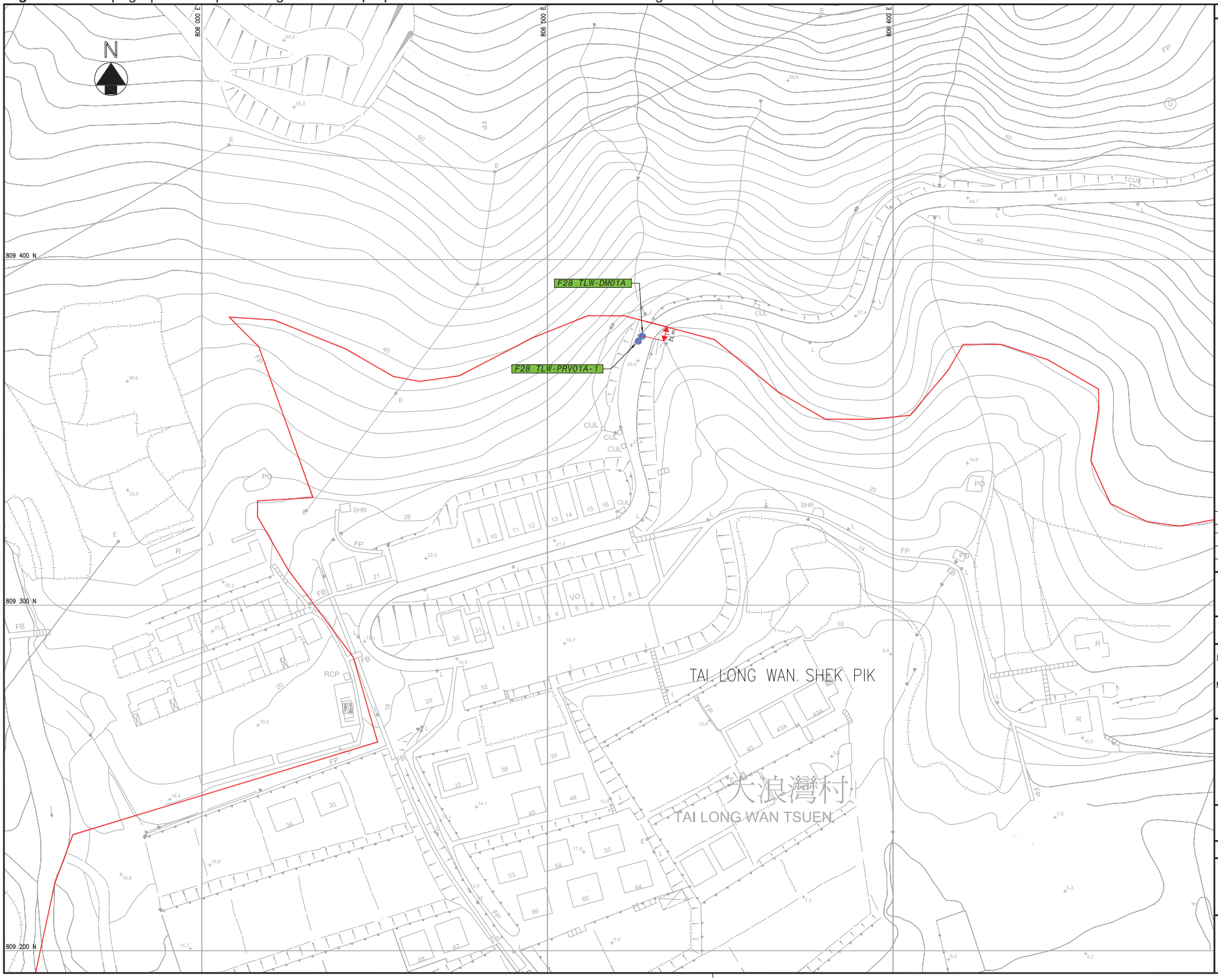


Figure 20 Topographical map showing location of proposed works location F28 within Tai Long Wan SAI at Shek Pik.



LEGEND:

- PROPOSED WORKS
- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN SAI AND HIA STUDY (APPLIED TO ALL DRAWINGS)

Revision	Date	Description	Initial
A	09/18	REVISION	PLC

	Designed	Checked	Drawn	Checked
Initial	KT	FMA	SZ	YHL
Date	03/17	03/17	03/17	03/17

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Agreement No.
CE 37/2016 (WS)

Contract Title
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Drawing Title
IDENTIFIED HERITAGE SITES FOR (TAI LONG WAN SUPPLY ZONE)

Drawing No.
194498/B&V/AS/TLW/30002

Revision
A

Scale
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A3 1 : 1000

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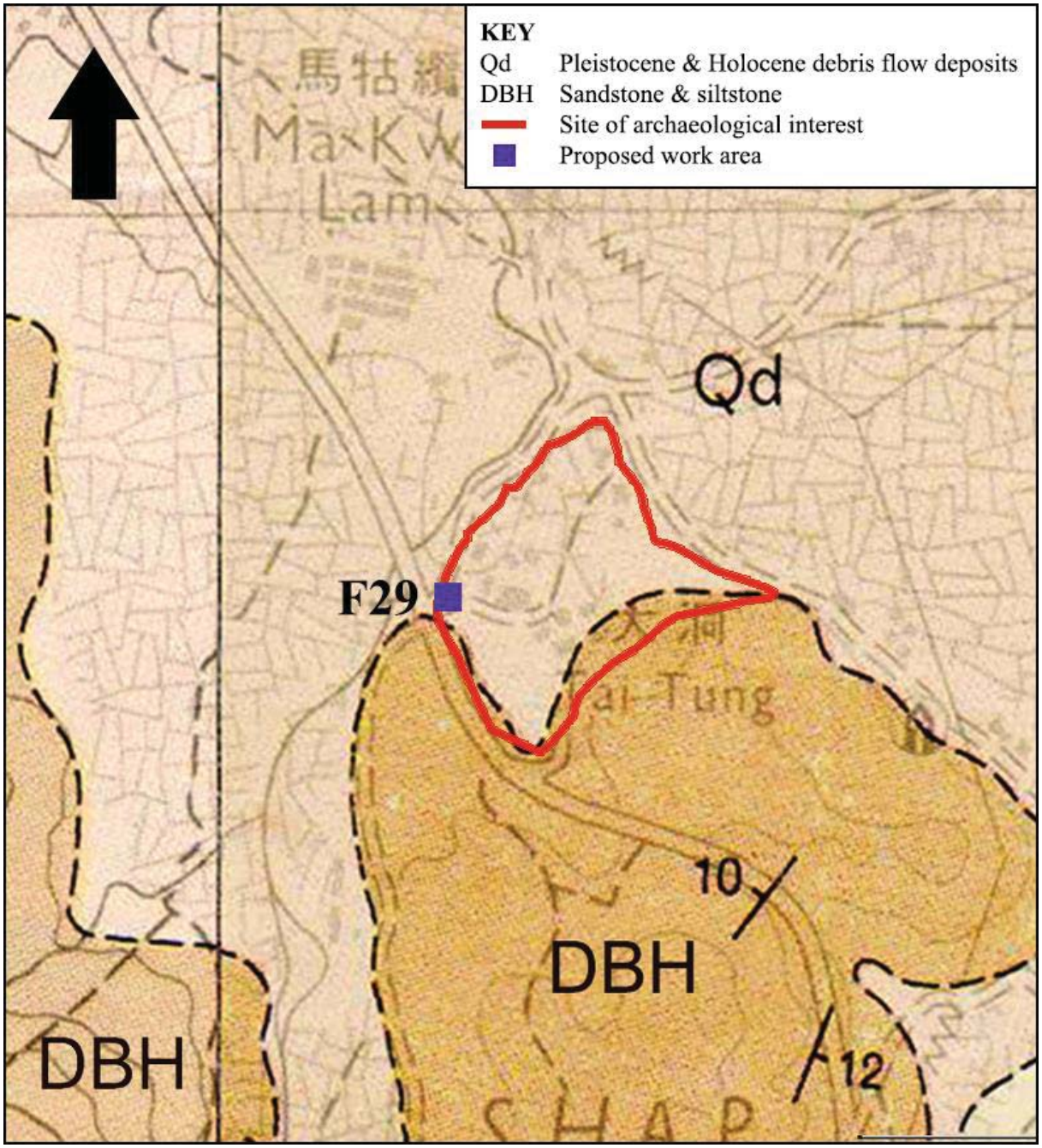

Figure 21 Geological map showing boundary of Tai Tung SAI and proposed works location F29.

Figure 22 Topographical map showing detail of location of proposed works location F29 within Tai Tung SAI and F1 and F2 in Che Ha SAI.

LEGEND:

- PROPOSED WORKS
- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN SAI AND HIA STUDY (APPLIED TO ALL DRAWINGS)

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Agreement No.
CE 37/2016 (WS)

Contract Title
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Drawing Title
IDENTIFIED HERITAGE SITES FOR (MA ON SHAN ZONE)

Drawing No.
194498/B&V/AS/MOS/20001B

Revision
A

Scale
A1 1 : 12000
A3 1 : 24000

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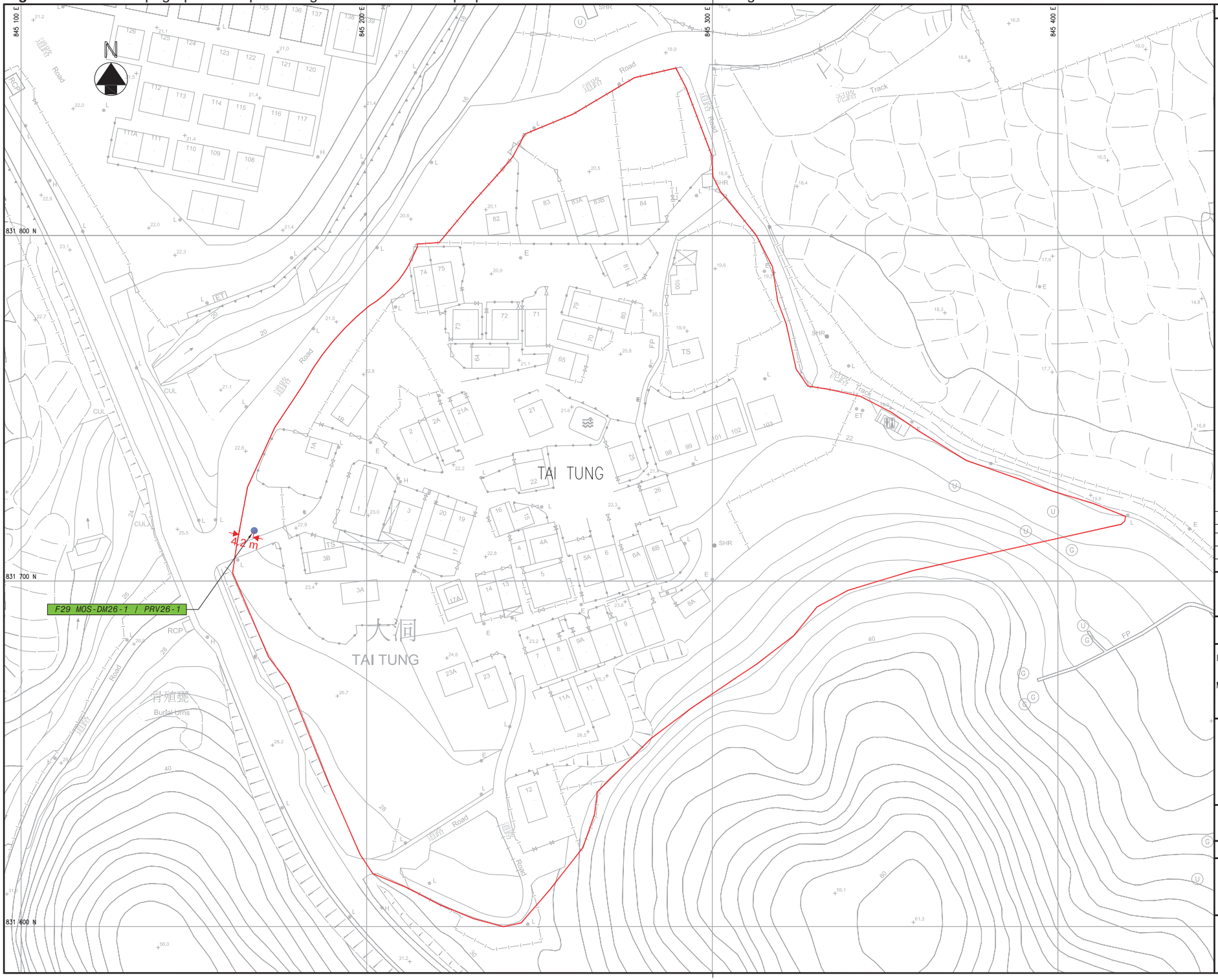
Figure 23 Topographical map showing detail of location of proposed works location F29 within Tai Tung SAI.



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- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN SAI AND HIA STUDY (APPLIED TO ALL DRAWINGS)

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	Designed	Checked	Drawn	Checked
Initial	KT	FMA	SZ	YHL
Date	03/17	03/17	03/17	03/17

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Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITES FOR (MA ON SHAN ZONE)

Drawing No.
194498/B&V/AS/MOS/20004

Revision
A

Scale
A1 1 : 500
A3 1 : 1000

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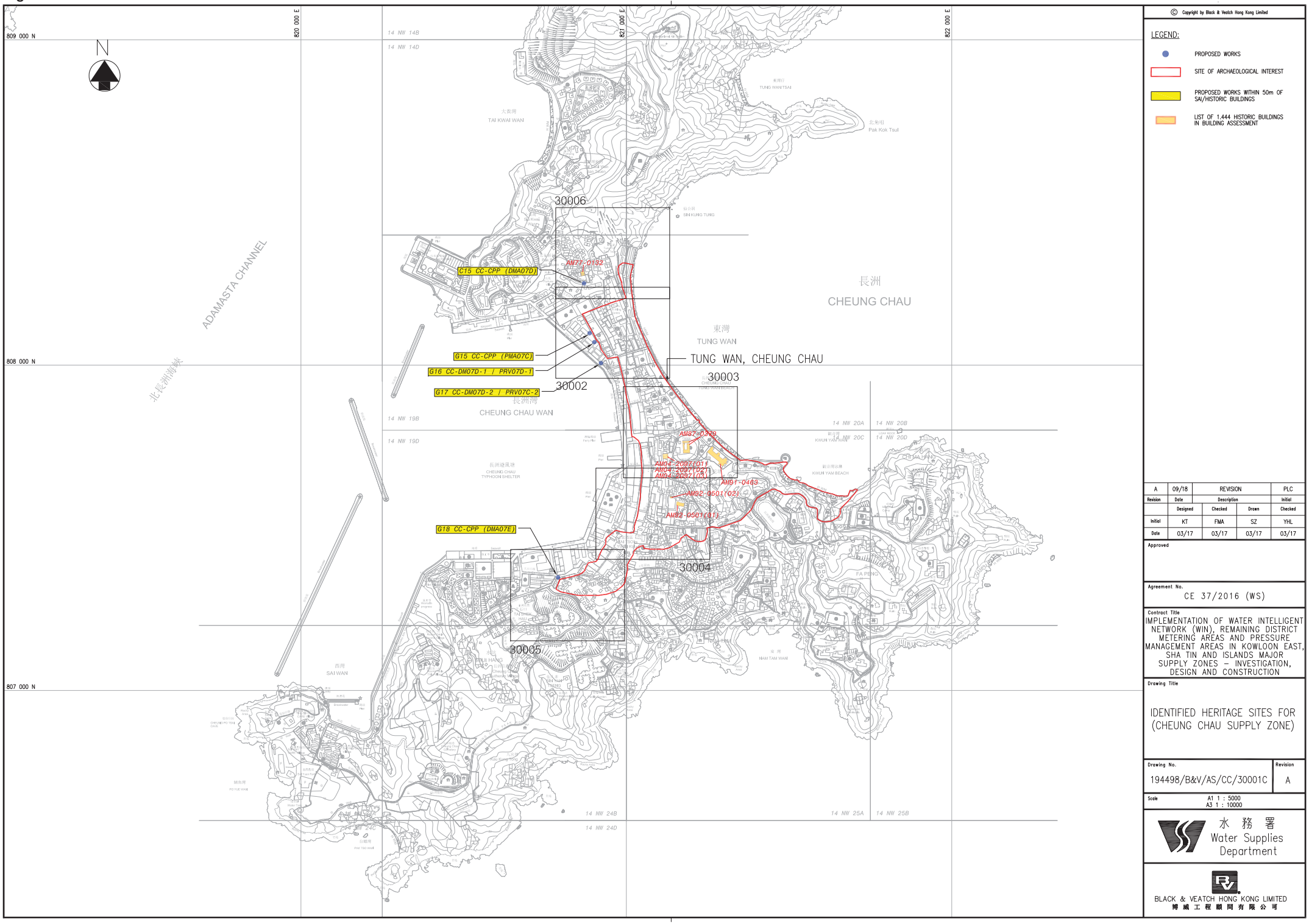
Drawings showing the locations of the identified proposed works outside SAI

- **Works outside SAI but within 50m of the boundary of SAI**
- **Works within 50m of historic buildings**

Figure 24



LEGEND:

- PROPOSED WORKS
- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN 50m OF SAI/HISTORIC BUILDINGS
- LIST OF 1,444 HISTORIC BUILDINGS IN BUILDING ASSESSMENT

Revision	Date	Description	Initial
A	09/18	REVISION	PLC

	Designed	Checked	Drawn	Checked
Initial	KT	FMA	SZ	YHL
Date	03/17	03/17	03/17	03/17

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITES FOR (CHEUNG CHAU SUPPLY ZONE)

Drawing No.
194498/B&V/AS/CC/30001C

Revision
A

Scale
A1 1 : 5000
A3 1 : 10000

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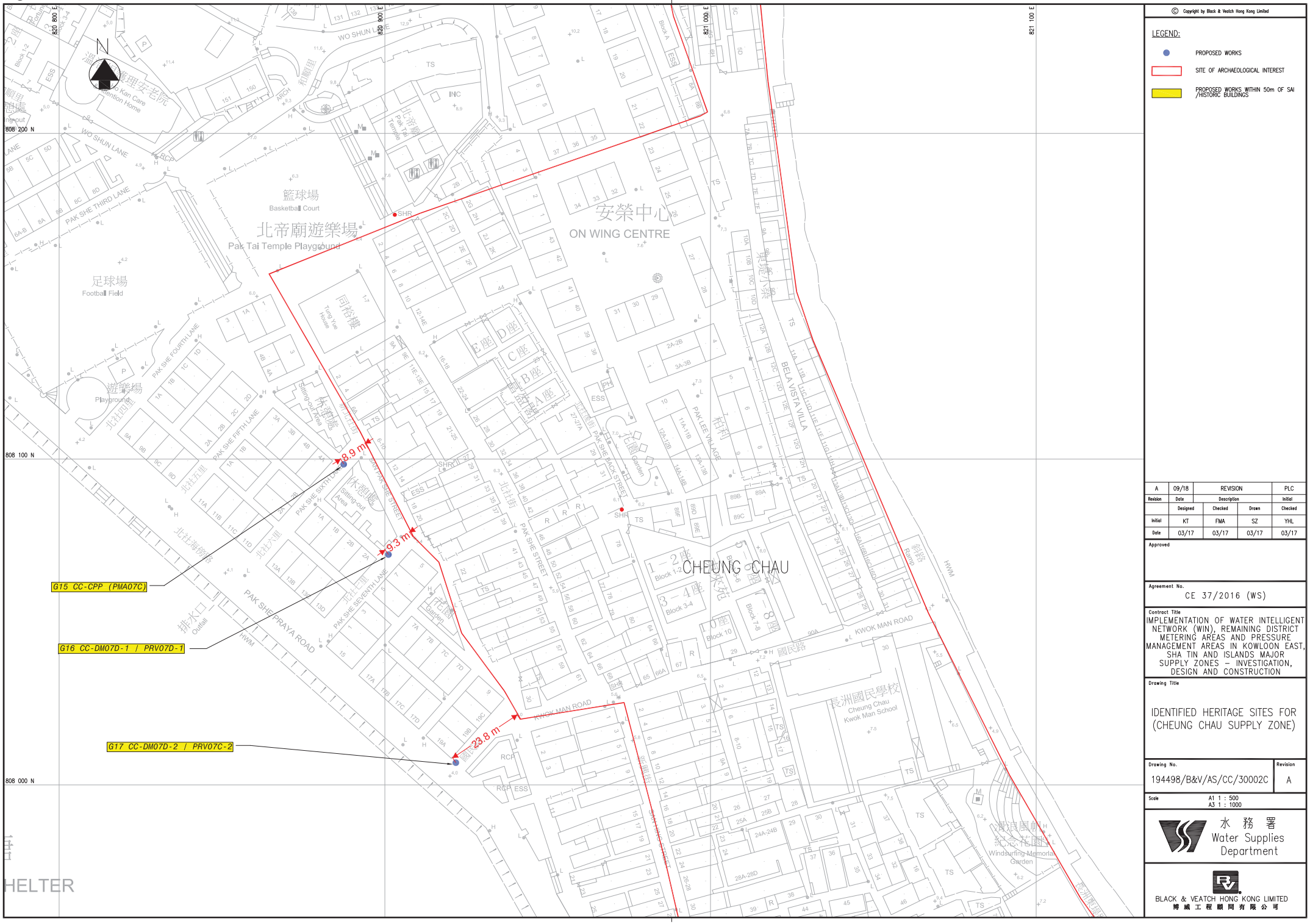
Figure 25



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LEGEND:

- PROPOSED WORKS
- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN 50m OF SAI /HISTORIC BUILDINGS

Revision	Date	Description	Initial
A	09/18	REVISION	PLC

	Designed	Checked	Drawn	Checked
Initial	KT	FMA	SZ	YHL
Date	03/17	03/17	03/17	03/17

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITES FOR (CHEUNG CHAU SUPPLY ZONE)

Drawing No.	Revision
194498/B&V/AS/CC/30002C	A

Scale
A1 1 : 500
A3 1 : 1000

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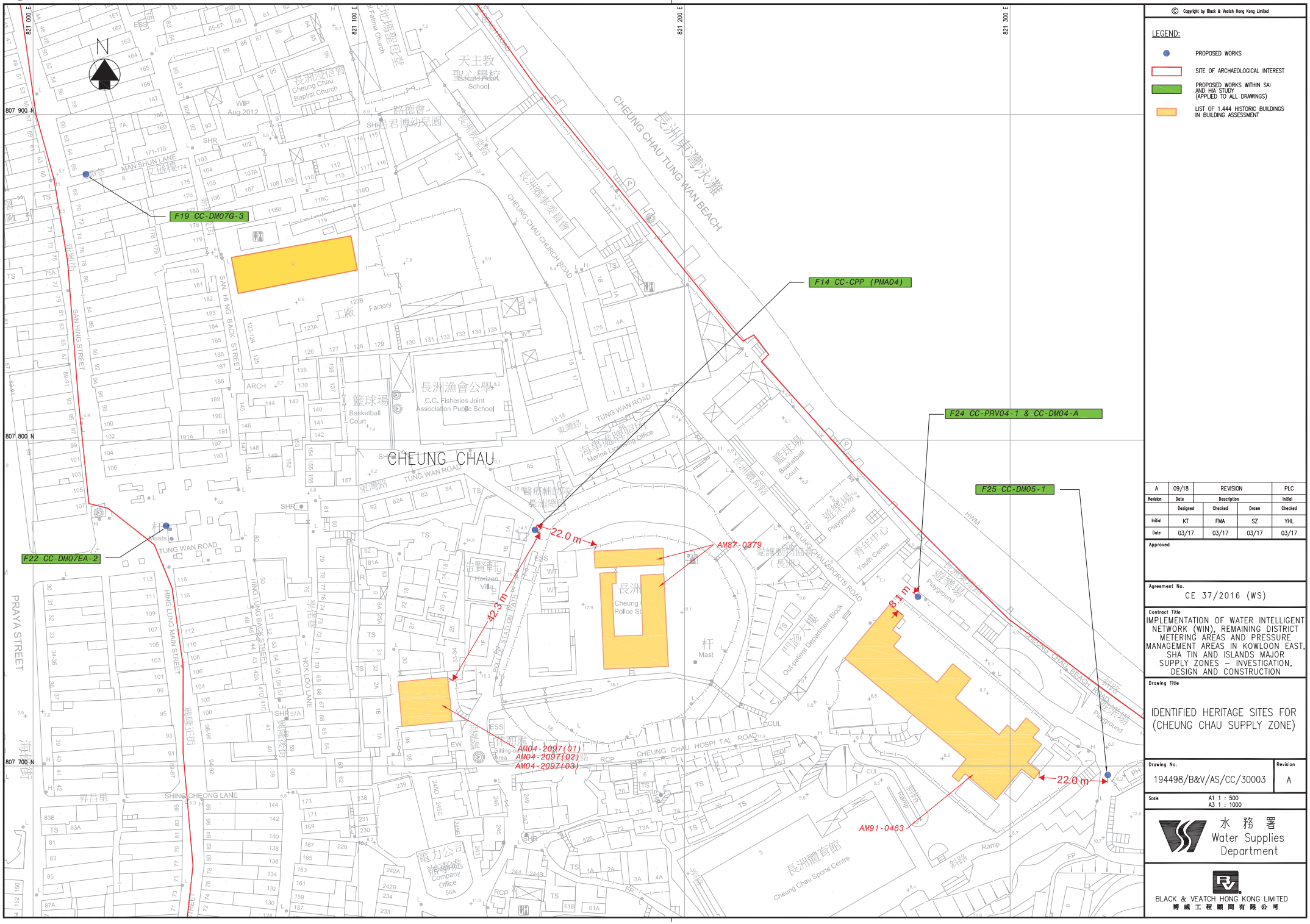
Figure 26



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LEGEND:

- PROPOSED WORKS
- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN SAI AND HIA STUDY (APPLIED TO ALL DRAWINGS)
- LIST OF 1,444 HISTORIC BUILDINGS IN BUILDING ASSESSMENT

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A	09/18	REVISION	PLC

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Initial	KT	FMA	SZ	YHL
Date	03/17	03/17	03/17	03/17

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITES FOR (CHEUNG CHAU SUPPLY ZONE)

Drawing No.
194498/B&V/AS/CC/30003

Revision
A

Scale
A1 1 : 500
A3 1 : 1000

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Water Supplies Department

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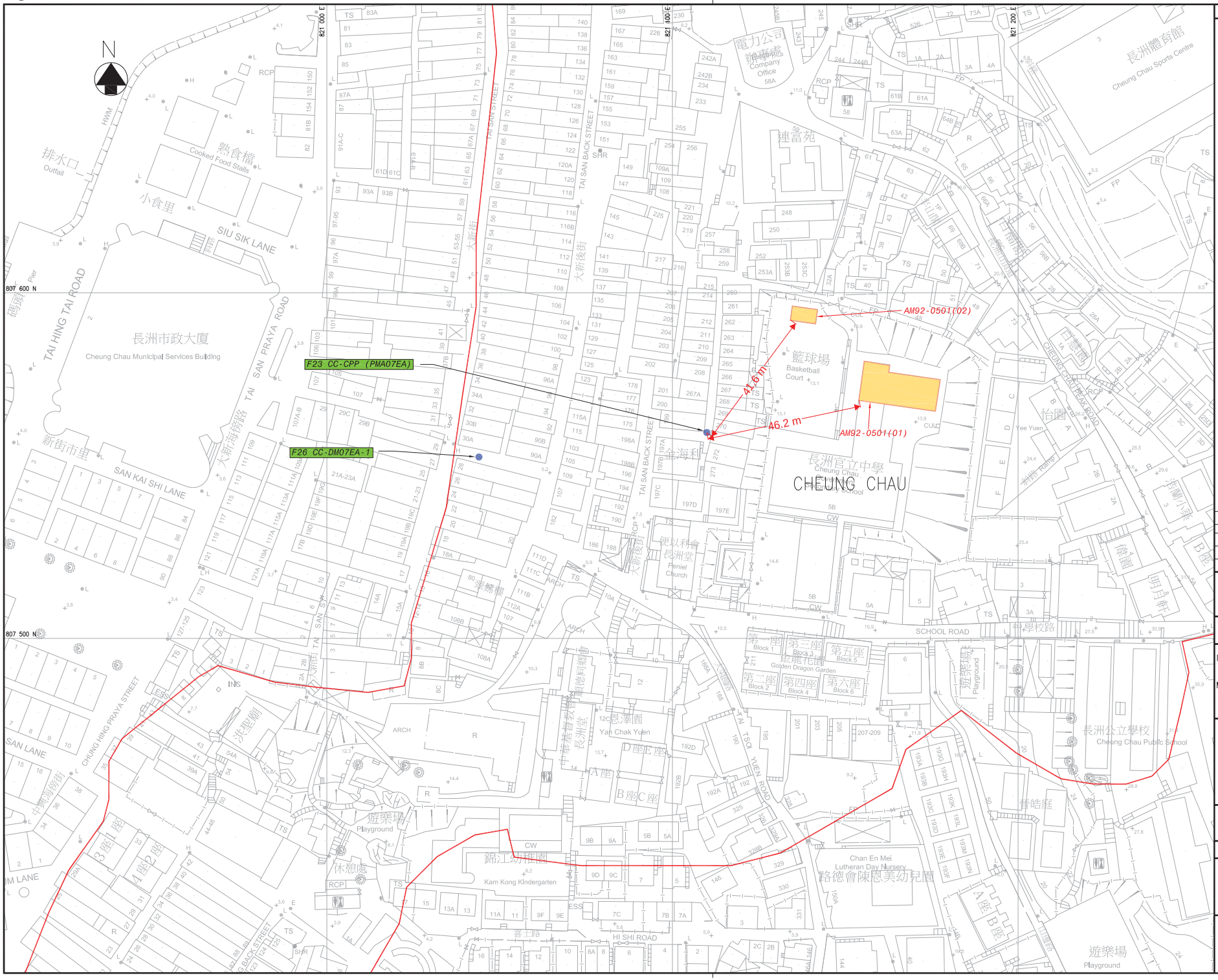
Figure 27



LEGEND:

- PROPOSED WORKS
- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN SAI AND HIA STUDY (APPLIED TO ALL DRAWINGS)
- LIST OF 1,444 HISTORIC BUILDINGS IN BUILDING ASSESSMENT

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	Designed	Checked	Drawn	Checked
Initial	KT	FMA	SZ	YHL
Date	03/17	03/17	03/17	03/17

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITES FOR (CHEUNG CHAU SUPPLY ZONE)

Drawing No.
194498/B&V/AS/CC/30004

Revision
A

Scale
A1 1 : 500
A3 1 : 1000

水務署
Water Supplies Department

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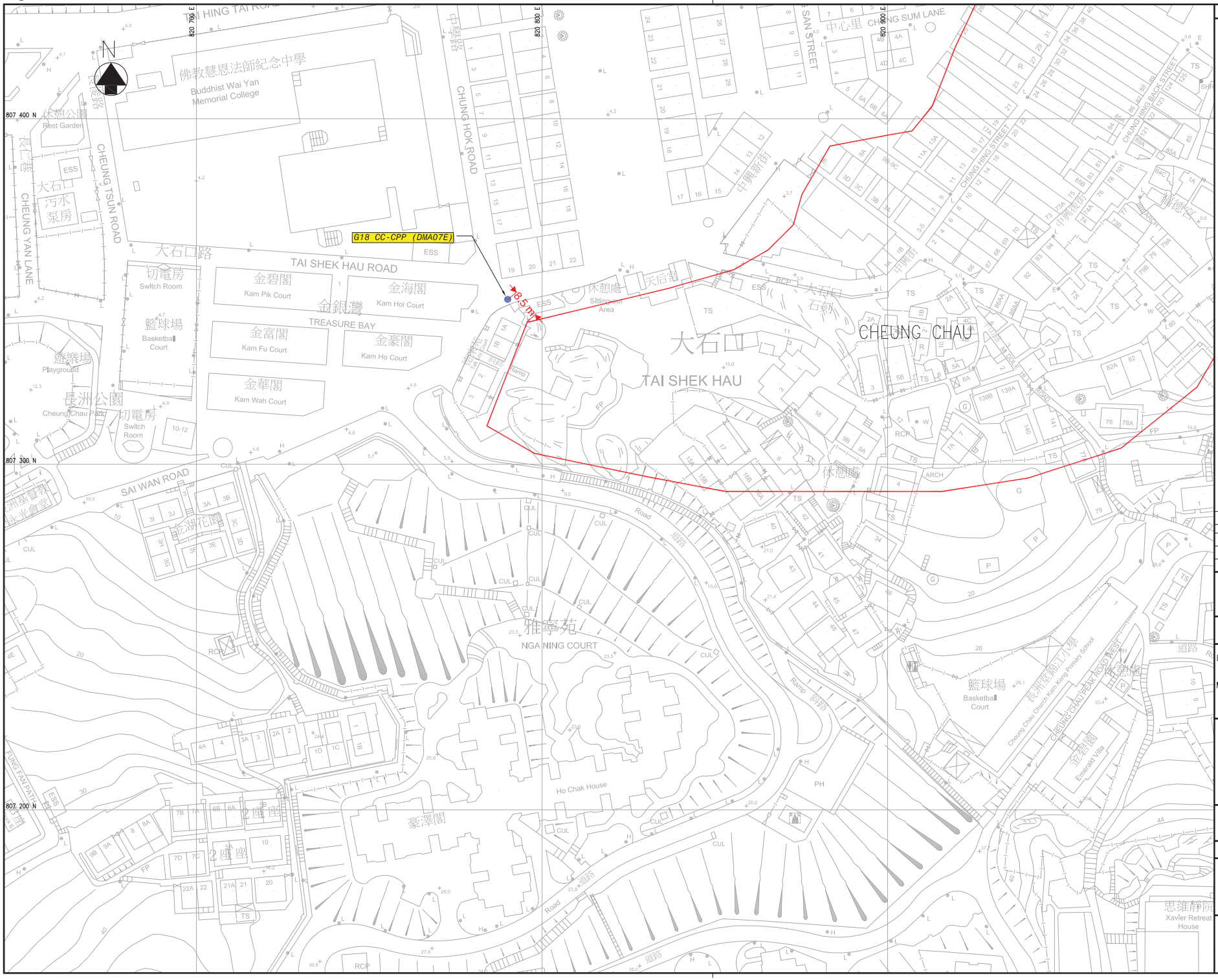
Figure 28



LEGEND:

- PROPOSED WORKS
- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN 50m OF SAI

Revision	Date	Description	Initial
A	09/18	REVISION	PLC

	Designed	Checked	Drawn	Checked
Initial	KT	FMA	SZ	YHL
Date	03/17	03/17	03/17	03/17

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITES FOR (CHEUNG CHAU SUPPLY ZONE)

Drawing No.
194498/B&V/AS/CC/30005

Revision
A

Scale
A1 1 : 500
A3 1 : 1000

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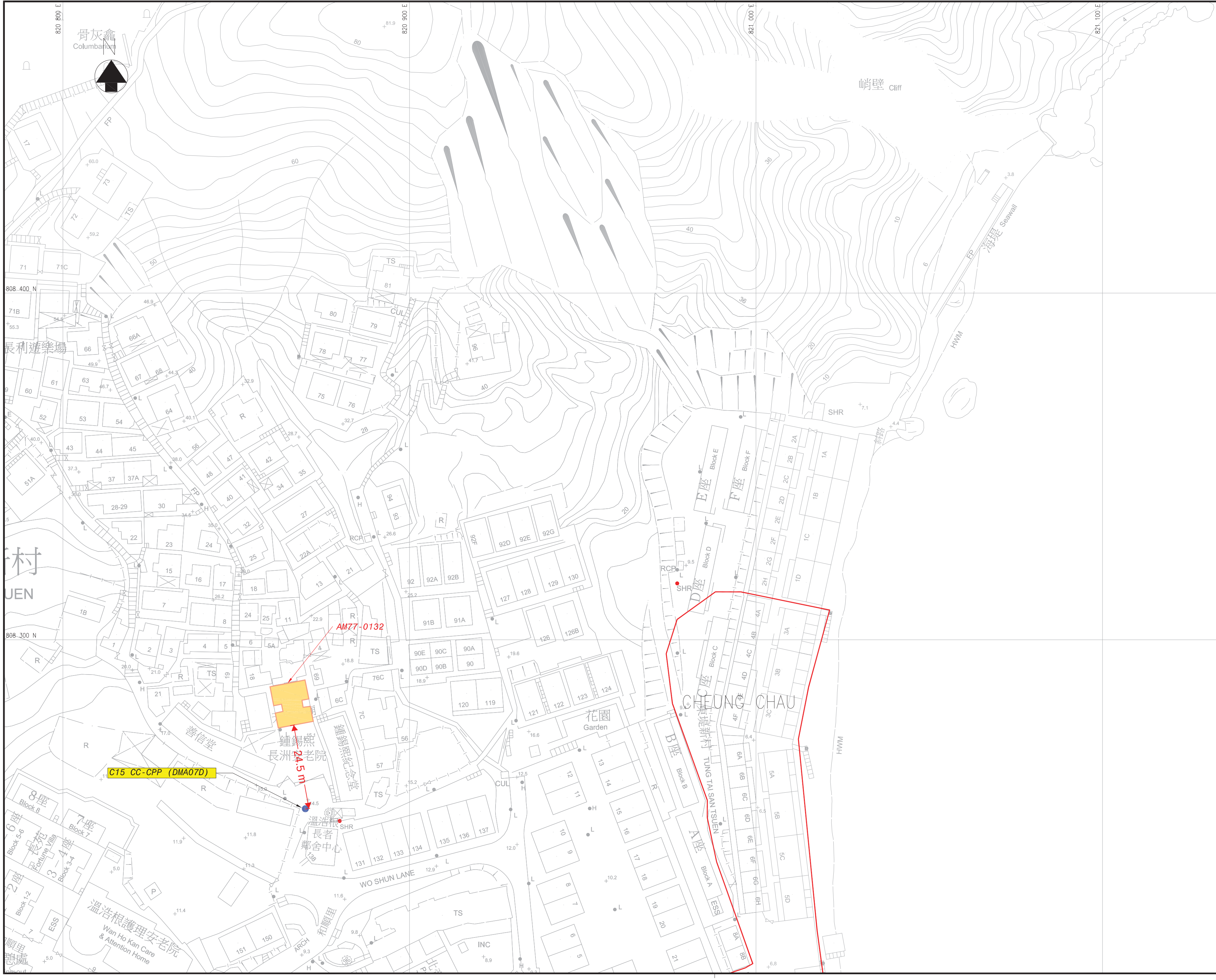
Figure 29



LEGEND:

- PROPOSED WORKS
- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN 50m OF SAI /HISTORIC BUILDINGS
- LIST OF 1,444 HISTORIC BUILDINGS IN BUILDING ASSESSMENT

A	09/18	REVISION	PLC
Revision	Date	Description	Initial

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Date	03/17	03/17	03/17	03/17

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Agreement No.
CE 37/2016 (WS)

Contract Title
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Drawing Title
IDENTIFIED HERITAGE SITES FOR (CHEUNG CHAU SUPPLY ZONE)

Drawing No. 194498/B&V/AS/CC/30006

Revision A

Scale A1 1 : 500 A3 1 : 1000

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BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

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Figure 30

LEGEND:

- PROPOSED WORKS
- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN 50m OF SAI

Revision	Date	Description	Initial
A	09/18	REVISION	PLC

	Designed	Checked	Drawn	Checked
Initial	KT	FMA	SZ	YHL
Date	03/17	03/17	03/17	03/17

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITES FOR (SHAM WAT SUPPLY ZONE)

Drawing No.
194498/B&V/AS/CS/30001

Revision
A

Scale
A1 1 : 12000
A3 1 : 24000

水務署
Water Supplies Department

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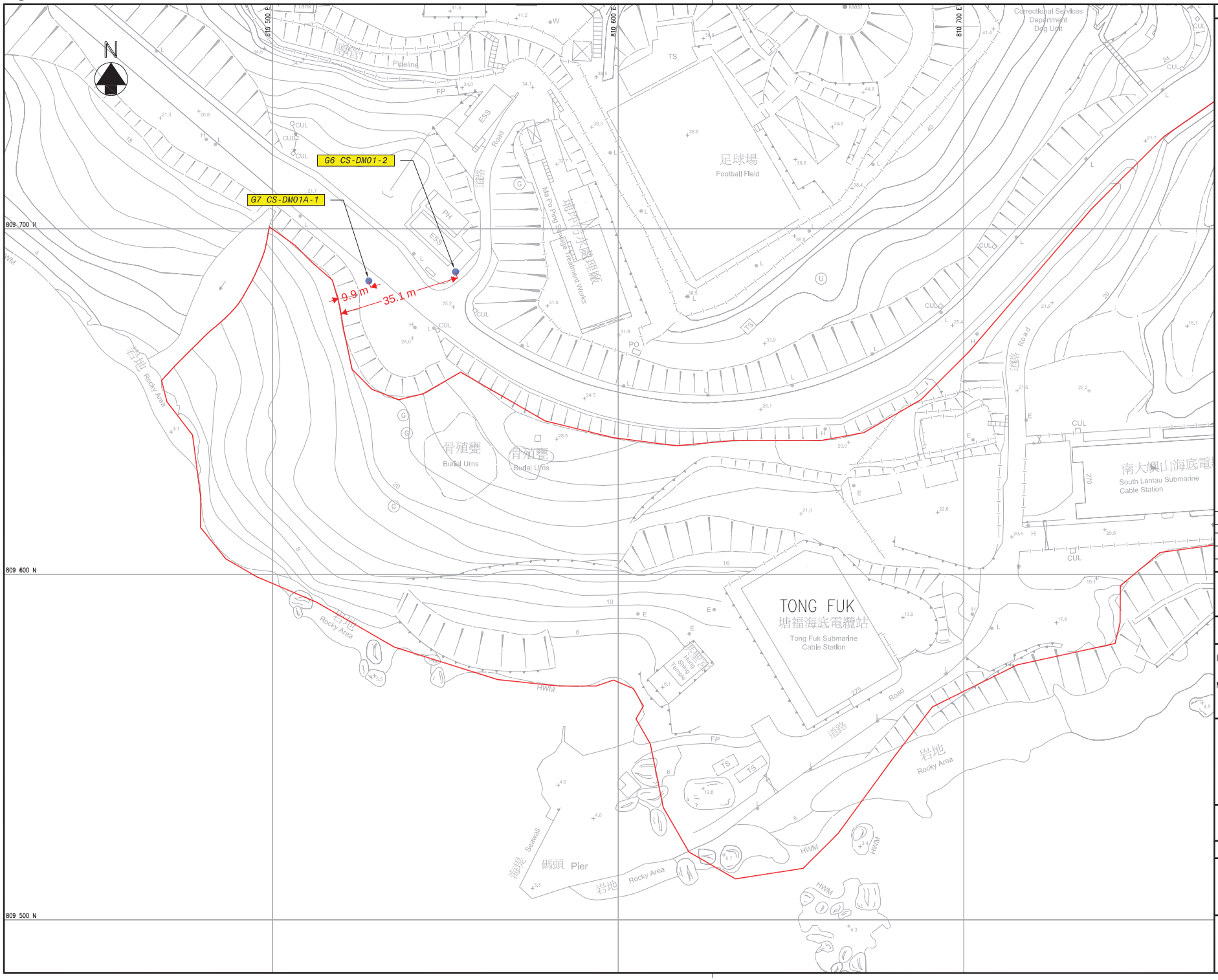
博威工程顧問有限公司

Figure 31



LEGEND:

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- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN 50m OF SAI /HISTORIC BUILDINGS

Revision	Date	Description	Initial
A	09/18	REVISION	PLC

	Designed	Checked	Drawn	Checked
Initial	KT	FMA	SZ	YHL
Date	03/17	03/17	03/17	03/17

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Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITES FOR (CHEUNG SHA SUPPLY ZONE)

Drawing No.
194498/B&V/AS/CS/30002

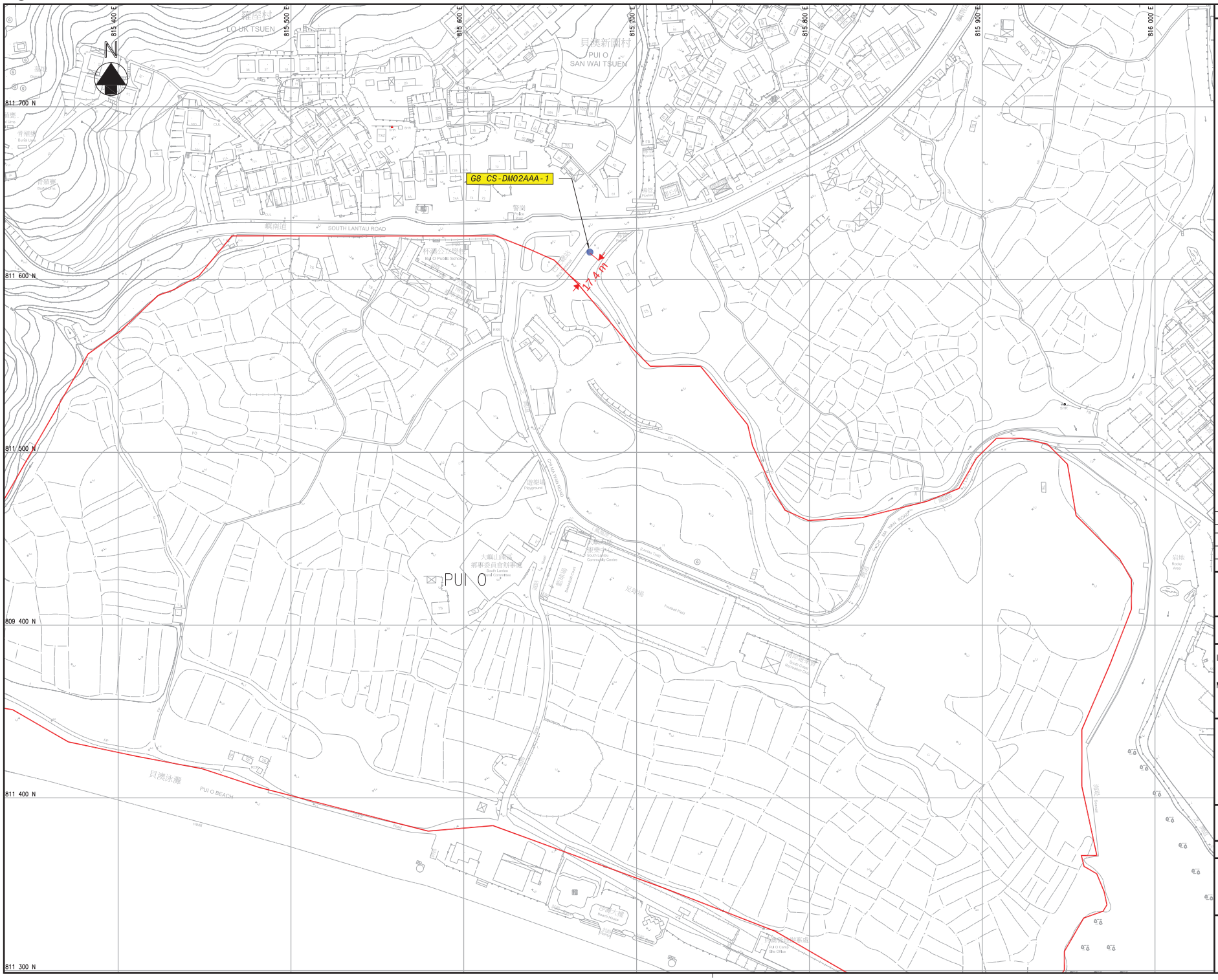
Revision
A

Scale
A1 1 : 500
A3 1 : 1000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Figure 32



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IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITES FOR (CHEUNG SHA SUPPLY ZONE)

Drawing No.
194498/B&V/AS/CS/30003

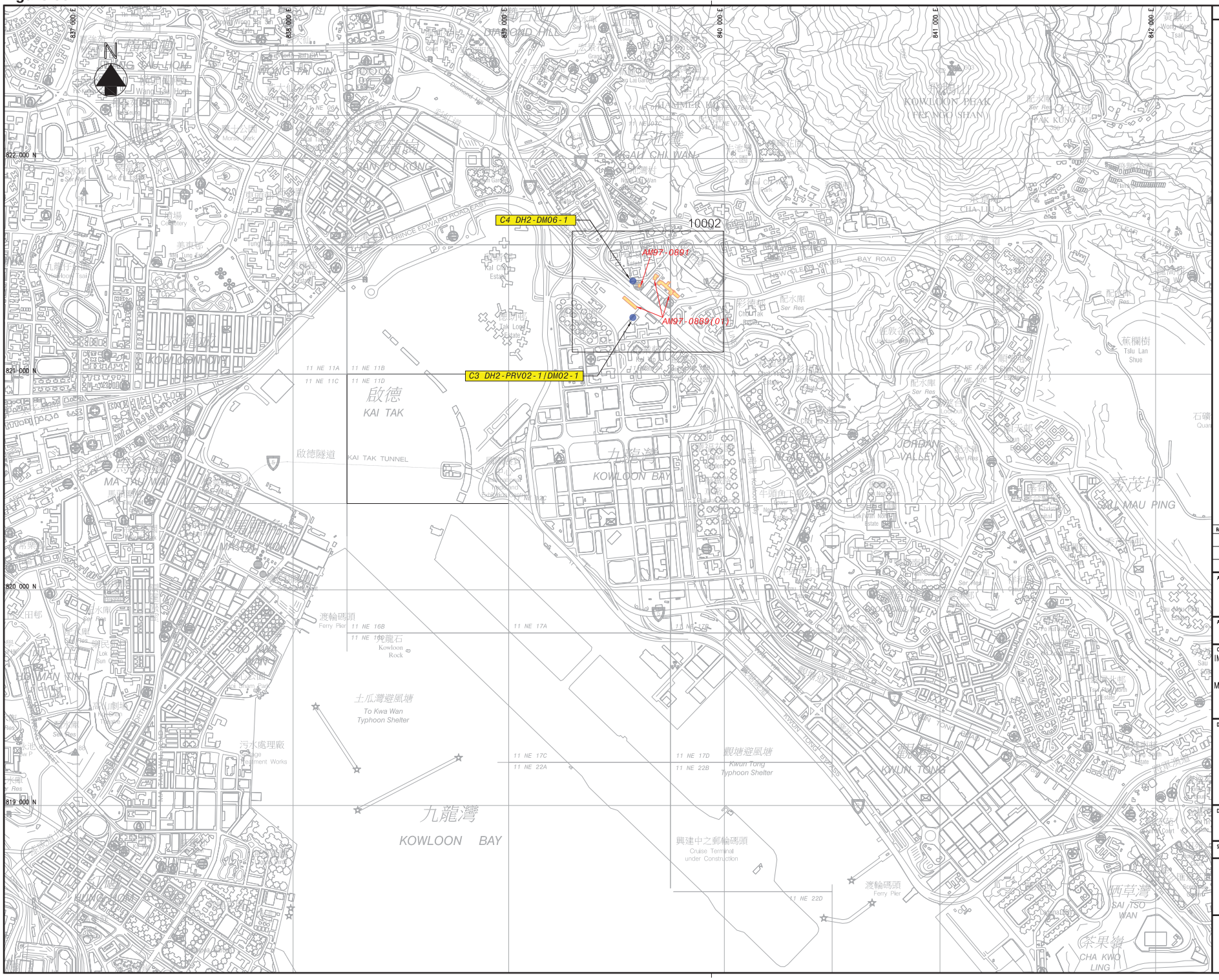
Revision
A

Scale
A1 1 : 1000
A3 1 : 2000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Figure 33



LEGEND:

- PROPOSED WORKS
- PROPOSED WORKS WITHIN 50m OF HISTORIC BUILDINGS
- LIST OF 1,444 HISTORIC BUILDINGS IN BUILDING ASSESSMENT

Revision	Date	Description			Initial
	Designed	Checked	Drawn	Checked	
Initial	KT	FMA	SZ	YHL	
Date	09/18	09/18	09/18	09/18	

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITE FOR (DIAMOND HILL NO.2 FWSR SUPPLY ZONE)

Drawing No.
194498/B&V/AS/DH/10001

Revision
–

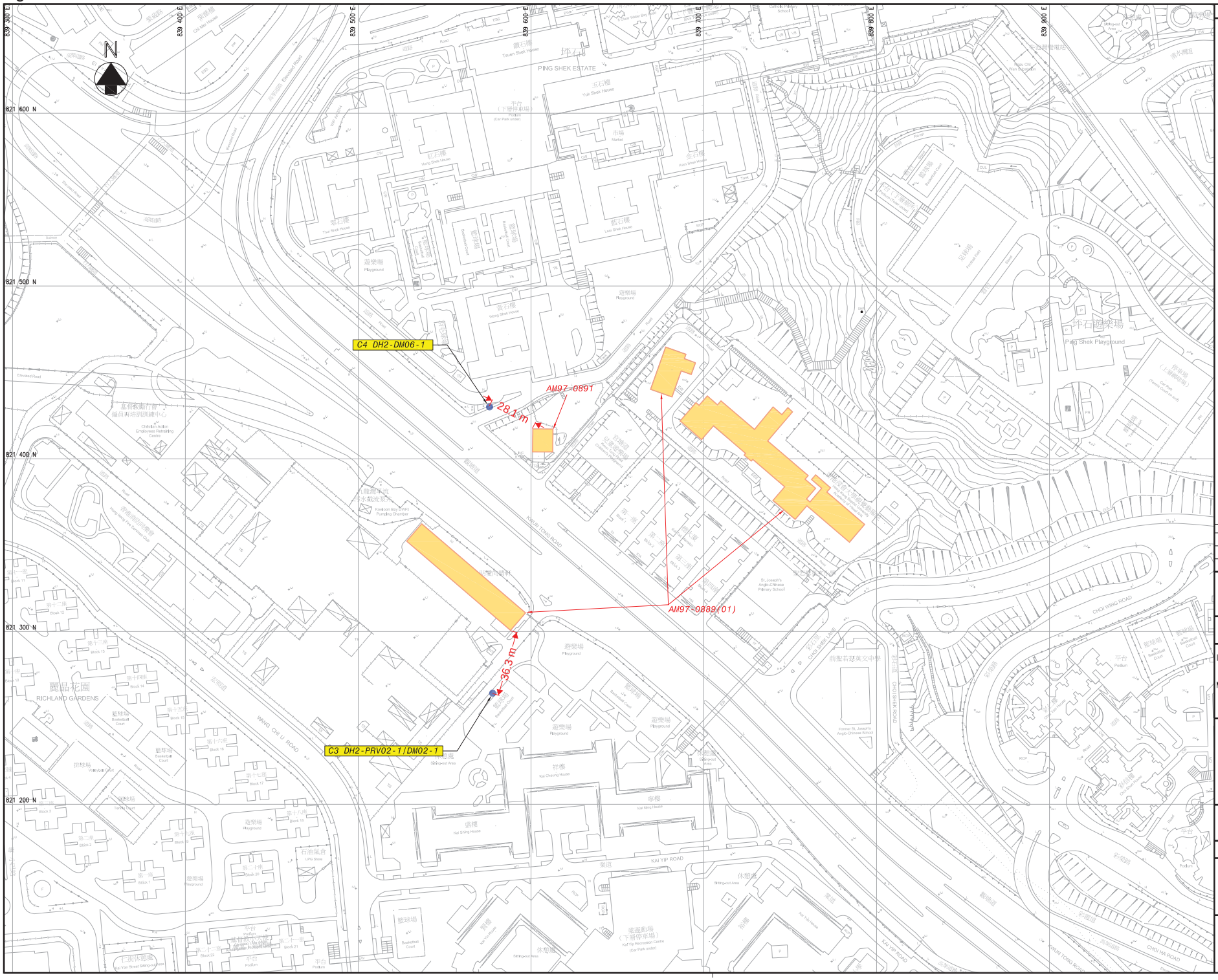
Scale
A1 1 : 8000
A3 1 : 16000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Y:\Daily Work\20180920\194498-BS\V-AS-DH-10001.dwg, Layout1, 9/25/2018 4:38:41 PM

Figure 34



LEGEND:

- PROPOSED WORKS
- PROPOSED WORKS WITHIN 50m OF HISTORIC BUILDINGS
- LIST OF 1,444 HISTORIC BUILDINGS IN BUILDING ASSESSMENT

Revision	Date	Description			Initial
	Designed	Checked	Drawn	Checked	
Initial	KT	FMA	SZ	YHL	
Date	09/18	09/18	09/18	09/18	

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITE FOR (DIAMOND HILL NO.2 FWSR SUPPLY ZONE)

Drawing No.
194498/B&V/AS/DH/10002

Revision
–

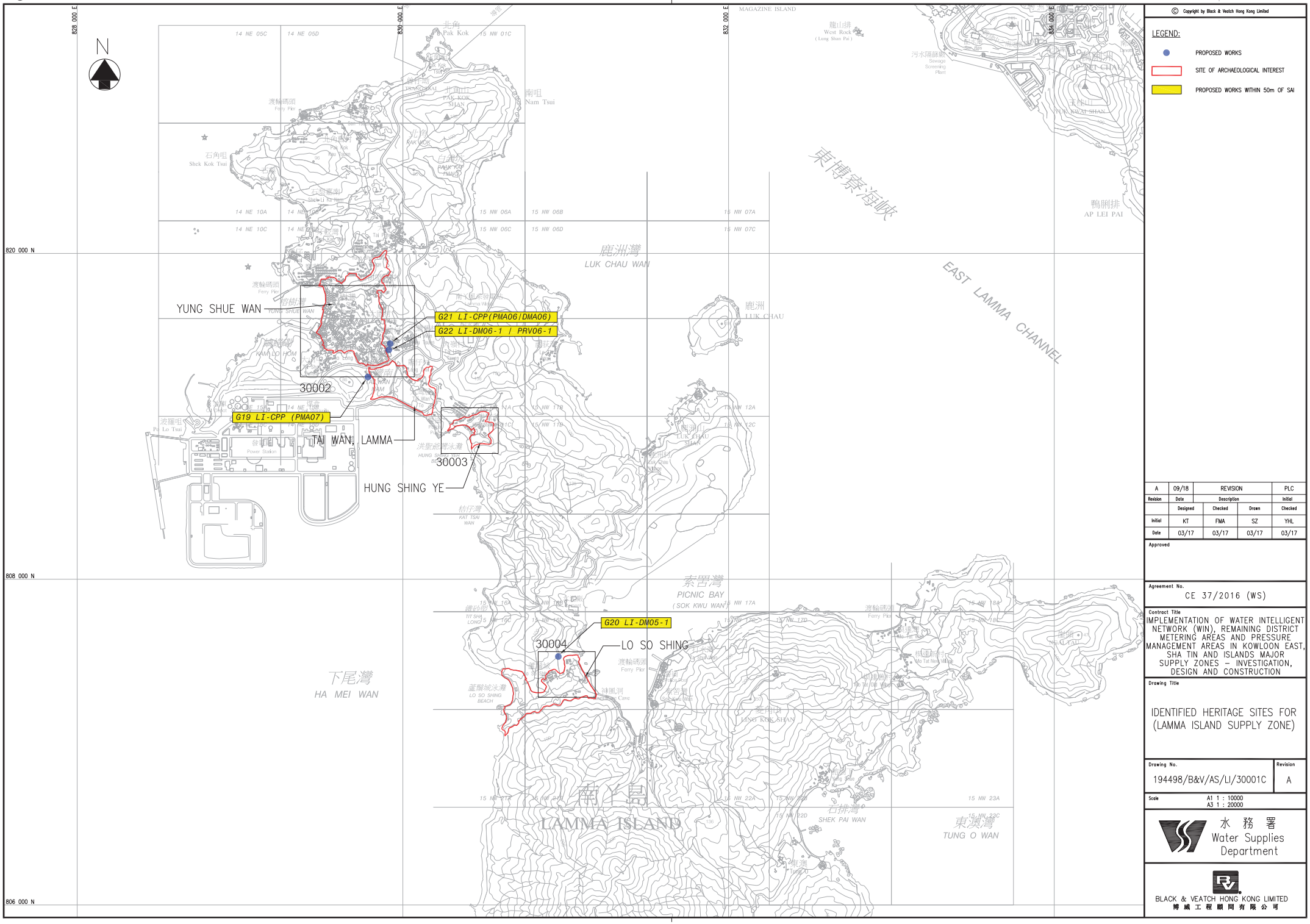
Scale
A1 1 : 1000
A3 1 : 2000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Y:\Daily Work\20180920\194498-B&V-AS-DH-10002.dwg, Layout1, 9/26/2018 11:51:27 AM

Figure 35



LEGEND:

- PROPOSED WORKS
- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN 50m OF SAI

Revision	Date	Description			Initial
A	09/18	REVISION			PLC
	Designed	Checked	Drawn	Checked	
Initial	KT	FMA	SZ	YHL	
Date	03/17	03/17	03/17	03/17	

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITES FOR (LAMMA ISLAND SUPPLY ZONE)

Drawing No.
194498/B&V/AS/LI/30001C

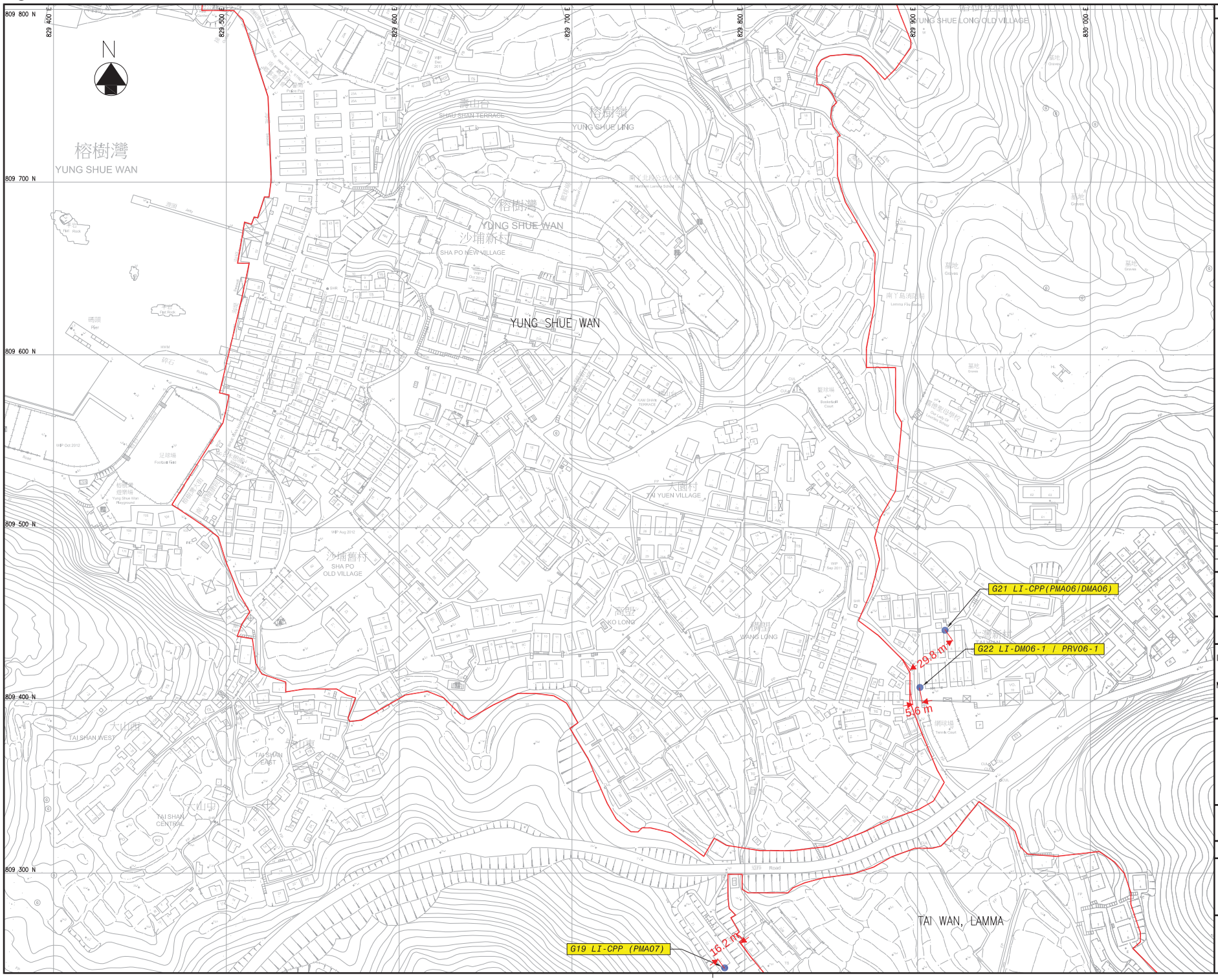
Revision
A

Scale
A1 1 : 10000
A3 1 : 20000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Figure 36



LEGEND:

- PROPOSED WORKS
- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN 50m OF SAI

Revision	Date	Description	Initial
A	09/18	REVISION	PLC

	Designed	Checked	Drawn	Checked
Initial	KT	FMA	SZ	YHL
Date	03/17	03/17	03/17	03/17

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITES FOR (LAMMA ISLAND SUPPLY ZONE)

Drawing No.
194498/B&V/AS/LI/30002C

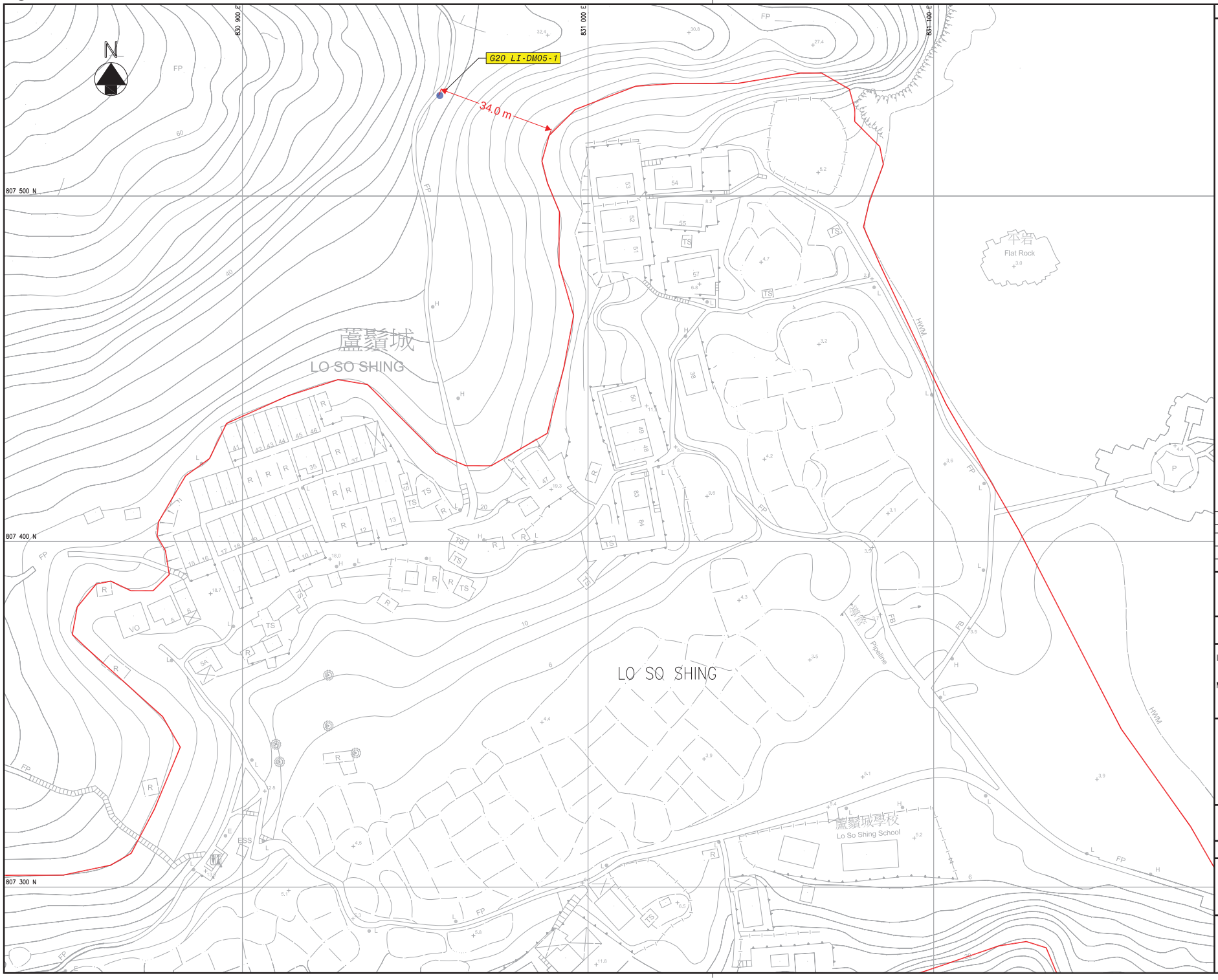
Revision
A

Scale
A1 1 : 1000
A3 1 : 2000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Figure 37



LEGEND:

- PROPOSED WORKS
- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN 50m OF SAI /HISTORIC BUILDINGS

Revision	Date	Description	Initial
A	09/18	REVISION	PLC

	Designed	Checked	Drawn	Checked
Initial	KT	FMA	SZ	YHL
Date	03/17	03/17	03/17	03/17

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITES FOR (LAMMA ISLAND SUPPLY ZONE)

Drawing No.	Revision
194498/B&V/AS/LI/30004	A

Scale
A1 1 : 500
A3 1 : 1000

水務署
Water Supplies Department

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博威工程顧問有限公司

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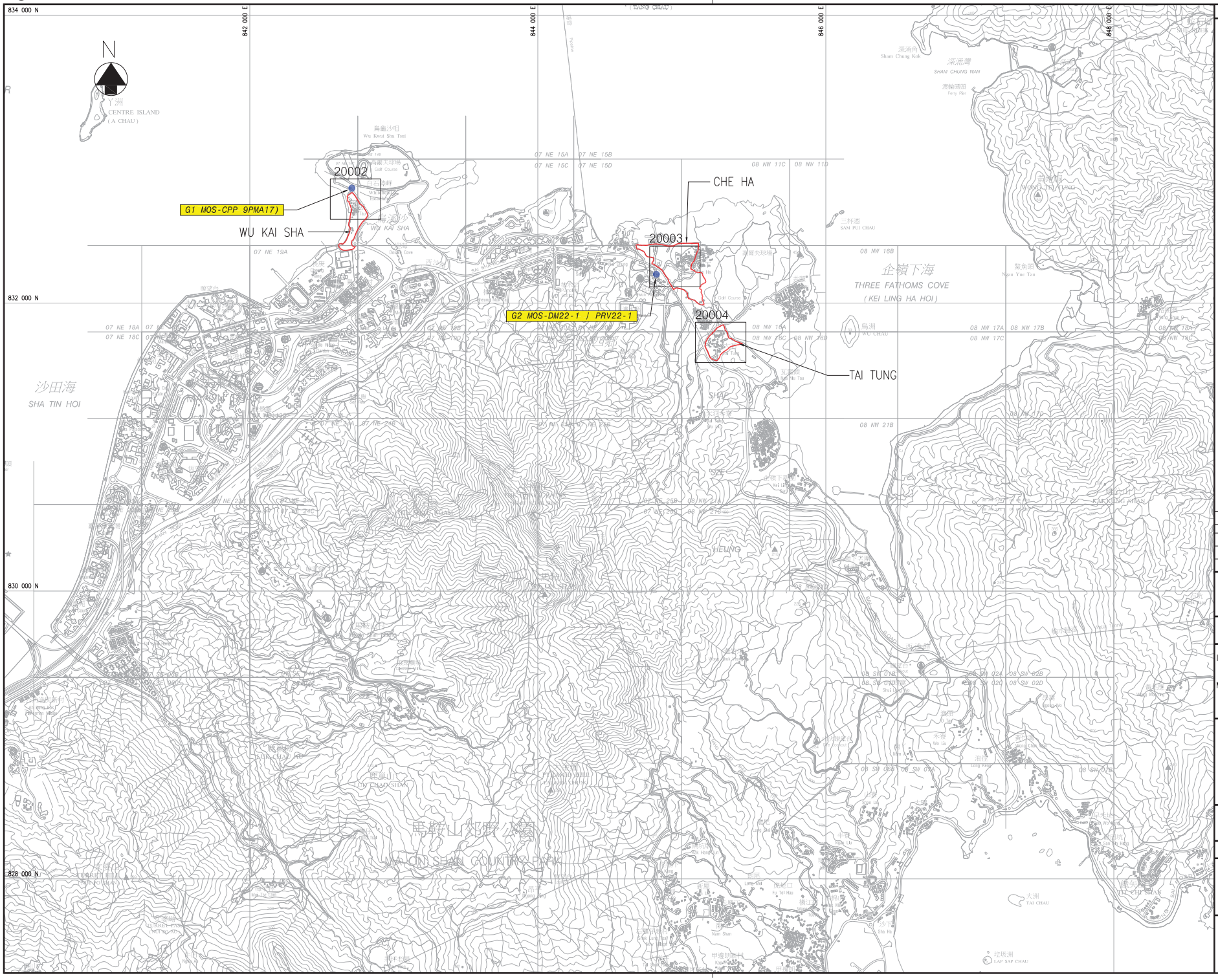
Figure 38



LEGEND:

- PROPOSED WORKS
- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN 50m OF SAI

Revision	Date	Description	Initial
A	09/18	REVISION	PLC

	Designed	Checked	Drawn	Checked
Initial	KT	FMA	SZ	YHL
Date	03/17	03/17	03/17	03/17

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITES FOR (MA ON SHAN ZONE)

Drawing No.
194498/B&V/AS/MOS/20001C

Revision
A

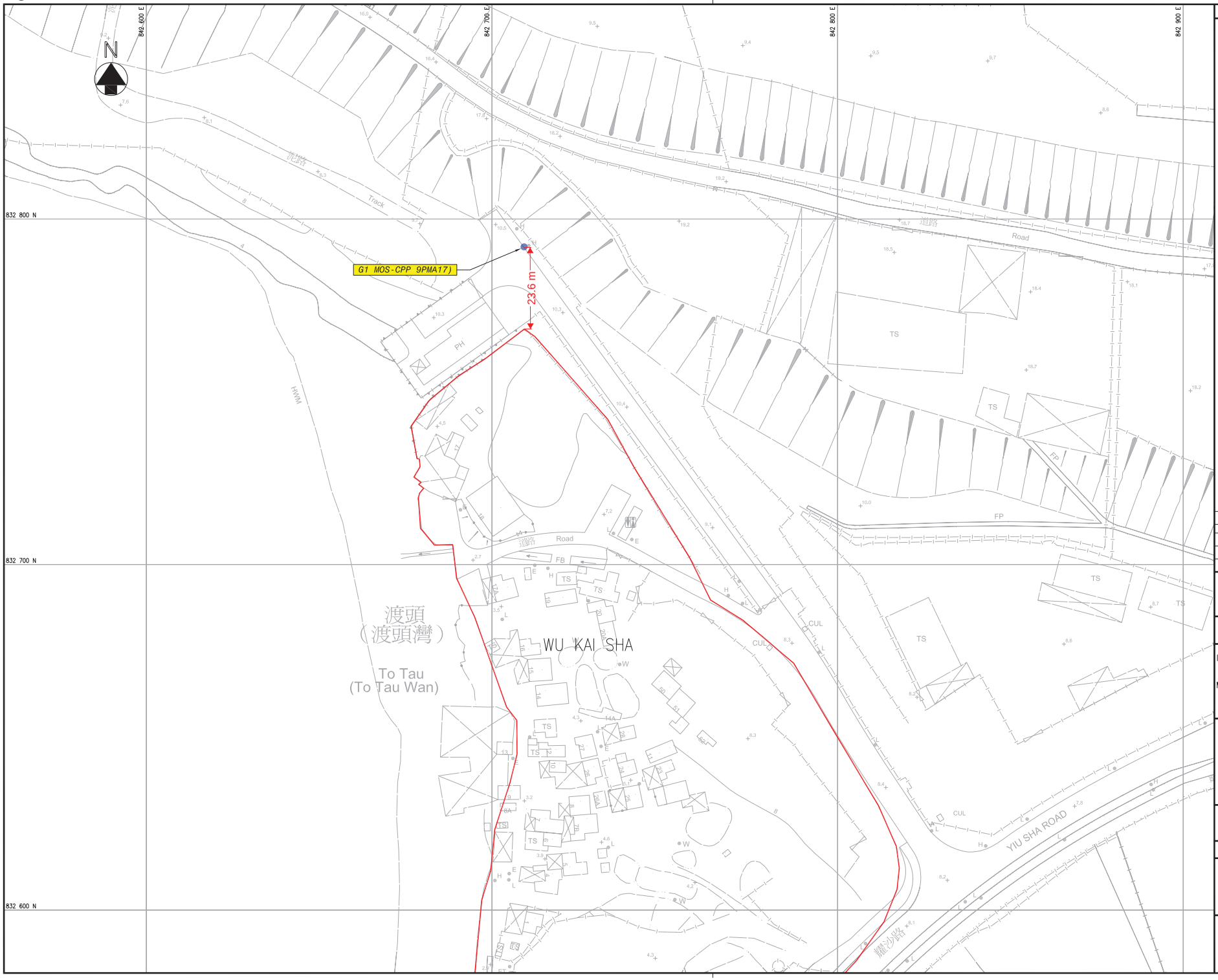
Scale
A1 1 : 12000
A3 1 : 24000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Y:\Daily Work\20181008\194498-B&V-AS-MOS-20001C.dwg, Layout1, 10/8/2018 11:03:31 AM

Figure 39



LEGEND:

- PROPOSED WORKS
- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN 50m OF SAI

Revision	Date	Description	Initial
A	09/18	REVISION	PLC

	Designed	Checked	Drawn	Checked
Initial	KT	FMA	SZ	YHL
Date	03/17	03/17	03/17	03/17

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITES FOR (MA ON SHAN ZONE)

Drawing No.
194498/B&V/AS/MOS/20002

Revision
A

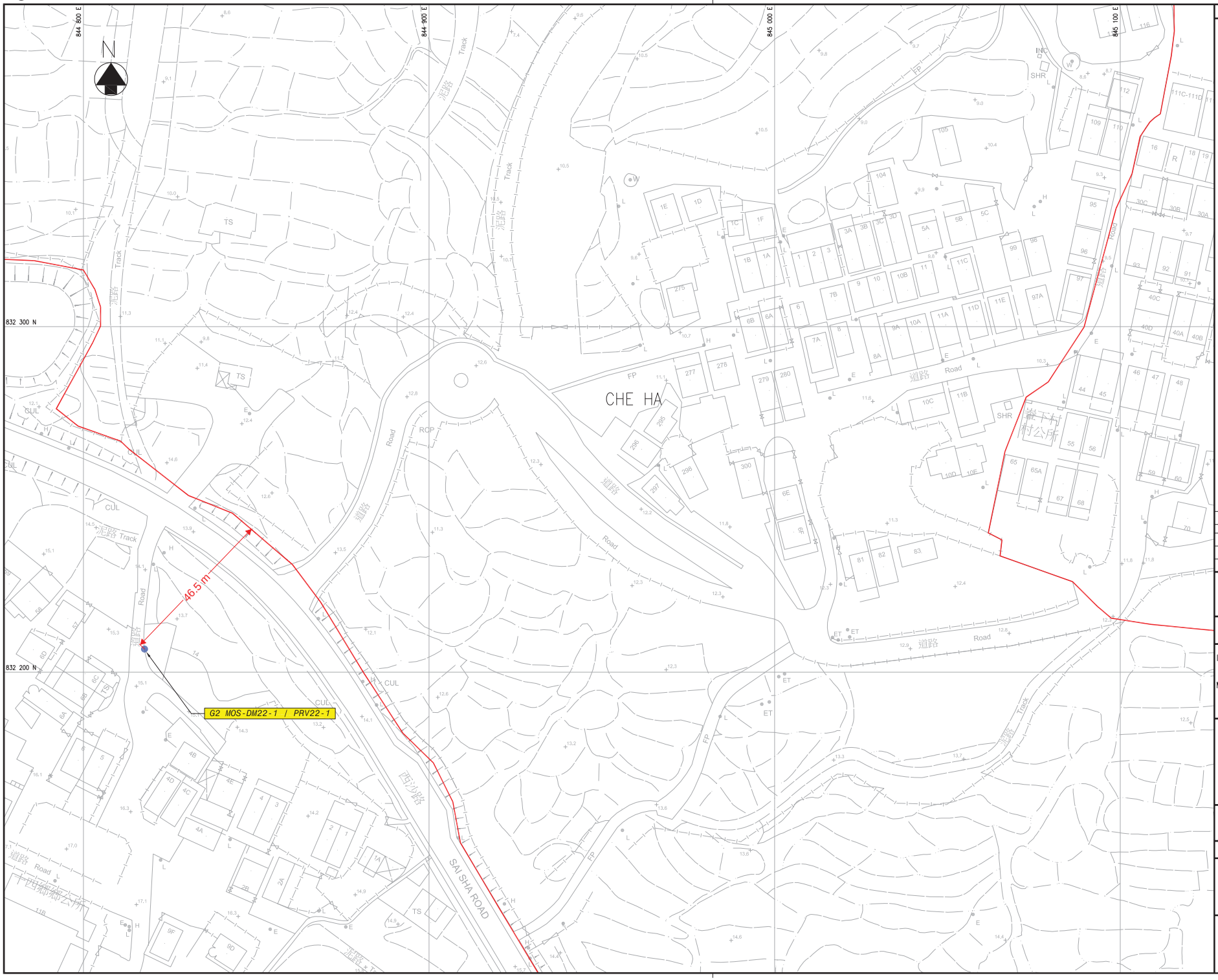
Scale
A1 1 : 500
A3 1 : 1000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Y:\Daily Work\20180920\194498-B&V-AS-MOS-20002.dwg, Layout1, 9/25/2018 2:54:47 PM

Figure 40



LEGEND:

- PROPOSED WORKS
- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN 50m OF SAI

Revision	Date	Description	Initial
A	09/18	REVISION	PLC

	Designed	Checked	Drawn	Checked
Initial	KT	FMA	SZ	YHL
Date	03/17	03/17	03/17	03/17

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITES FOR (MA ON SHAN ZONE)

Drawing No.
194498/B&V/AS/MOS/20003C

Revision
A

Scale
A1 1 : 500
A3 1 : 1000

水務署
Water Supplies Department

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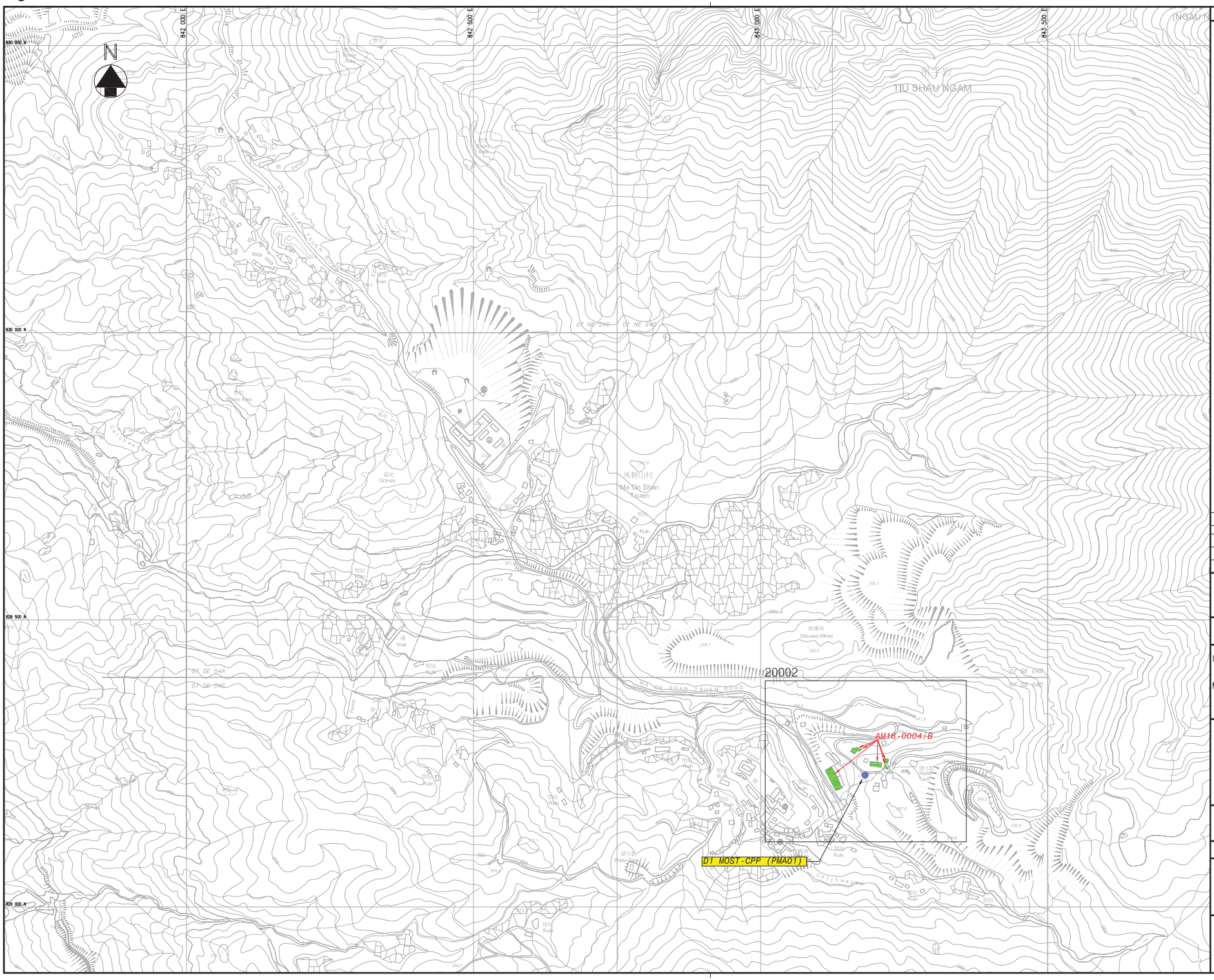
Figure 41



LEGEND:

- PROPOSED WORKS
- PROPOSED WORKS WITHIN 50m OF HISTORIC BUILDINGS
- NEW ITEMS IN ADDITION TO 1,444 HISTORIC BUILDINGS

Revision	Date	Description	Initial
A	09/18	REVISION	PLC

	Designed	Checked	Drawn	Checked
Initial	KT	FMA	SZ	YHL
Date	03/17	03/17	03/17	03/17

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITE FOR (MA ON SHAN TSUEN FWT SUPPLY ZONE)

Drawing No.
194498/B&V/AS/MOST/20001

Revision
A

Scale
A1 1 : 3000
A3 1 : 6000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

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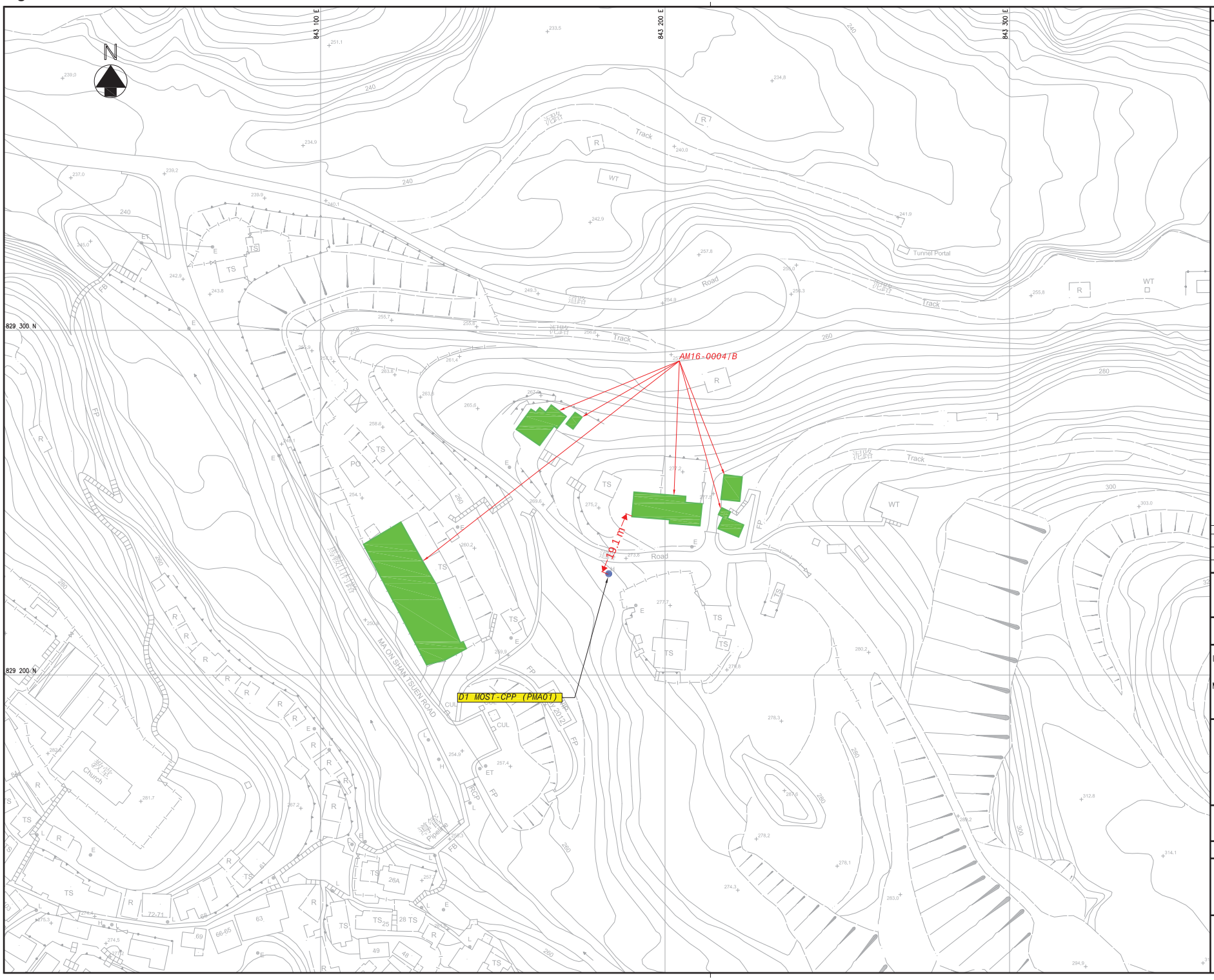
Figure 42



LEGEND:

- PROPOSED WORKS
- PROPOSED WORKS WITHIN 50m OF HISTORIC BUILDINGS
- NEW ITEMS IN ADDITION TO 1,444 HISTORIC BUILDINGS

Revision	Date	Description			Initial
	Designed	Checked	Drawn	Checked	
Initial	KT	FMA	SZ	YHL	
Date	09/18	09/18	09/18	09/18	

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITE FOR (MA ON SHAN TSUEN FWT SUPPLY ZONE)

Drawing No.
194498/B&V/AS/MOST/20002

Revision
–

Scale
A1 1 : 500
A3 1 : 1000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

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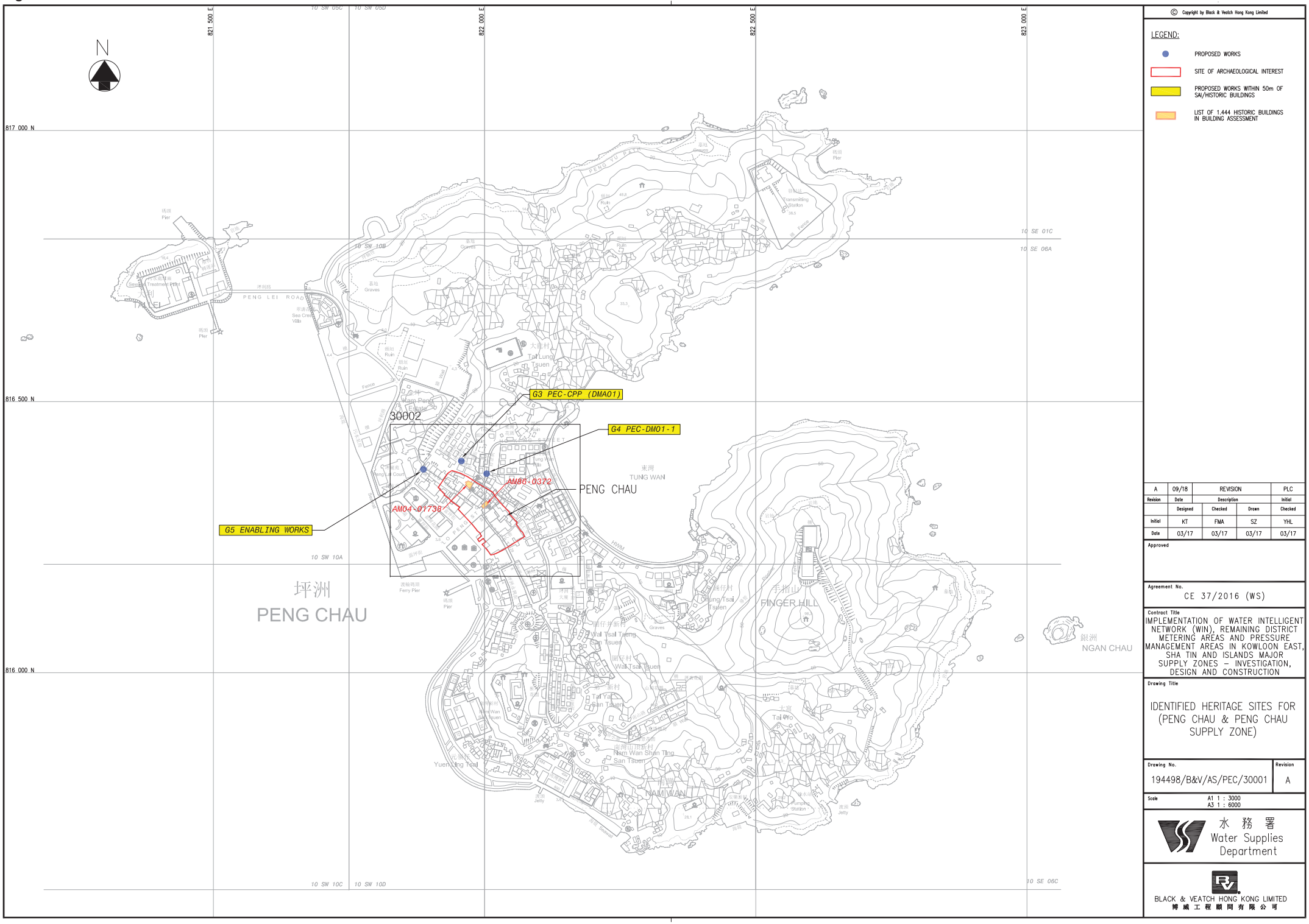
Figure 43



LEGEND:

- PROPOSED WORKS
- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN 50m OF SAI/HISTORIC BUILDINGS
- LIST OF 1,444 HISTORIC BUILDINGS IN BUILDING ASSESSMENT

Revision	Date	REVISION Description			PLC Initial
		Designed	Checked	Drawn	Checked
A	09/18	KT	FMA	SZ	YHL
Initial					
Date		03/17	03/17	03/17	03/17

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITES FOR (PENG CHAU & PENG CHAU SUPPLY ZONE)

Drawing No.
194498/B&V/AS/PEC/30001

Revision
A

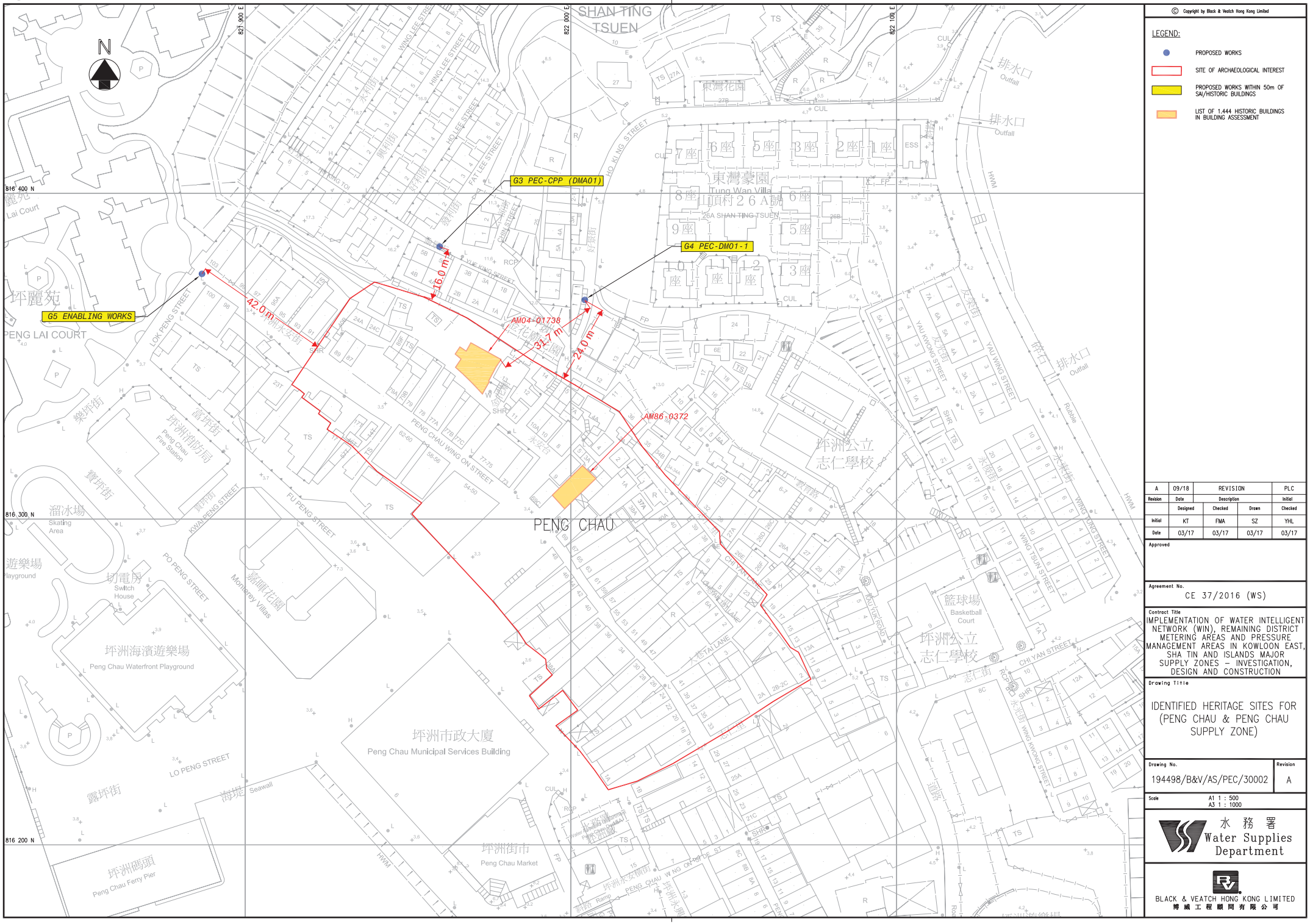
Scale
A1 1 : 3000
A3 1 : 6000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Y:\Daily Work\20180914\194498-B&V-AS-PEC-30001.dwg, Layout1, 9/18/2018 11:25:30 AM

Figure 44



LEGEND:

- PROPOSED WORKS
- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN 50m OF SAI/HISTORIC BUILDINGS
- LIST OF 1,444 HISTORIC BUILDINGS IN BUILDING ASSESSMENT

Revision	Date	Description	Initial
A	09/18	REVISION	PLC

	Designed	Checked	Drawn	Checked
Initial	KT	FMA	SZ	YHL
Date	03/17	03/17	03/17	03/17

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITES FOR (PENG CHAU & PENG CHAU SUPPLY ZONE)

Drawing No.
194498/B&V/AS/PEC/30002

Revision
A

Scale
A1 1 : 500
A3 1 : 1000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

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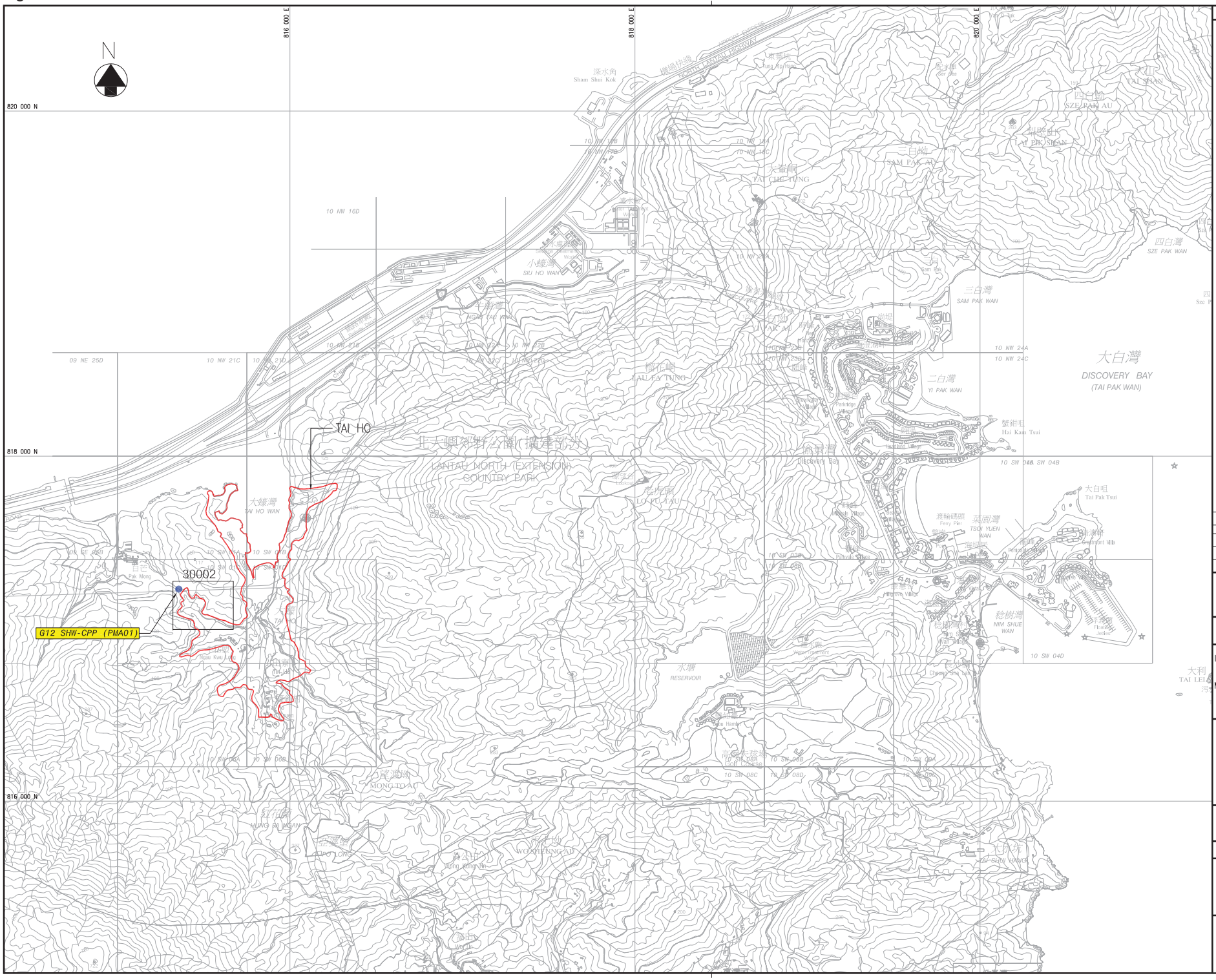
Figure 45



LEGEND:

- PROPOSED WORKS
- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN 50m OF SAI

Revision	Date	Description	Initial
A	09/18	REVISION	PLC

	Designed	Checked	Drawn	Checked
Initial	KT	FMA	SZ	YHL
Date	03/17	03/17	03/17	03/17

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITES FOR (SIU HO WAN SUPPLY ZONE)

Drawing No.
194498/B&V/AS/SHW/30001

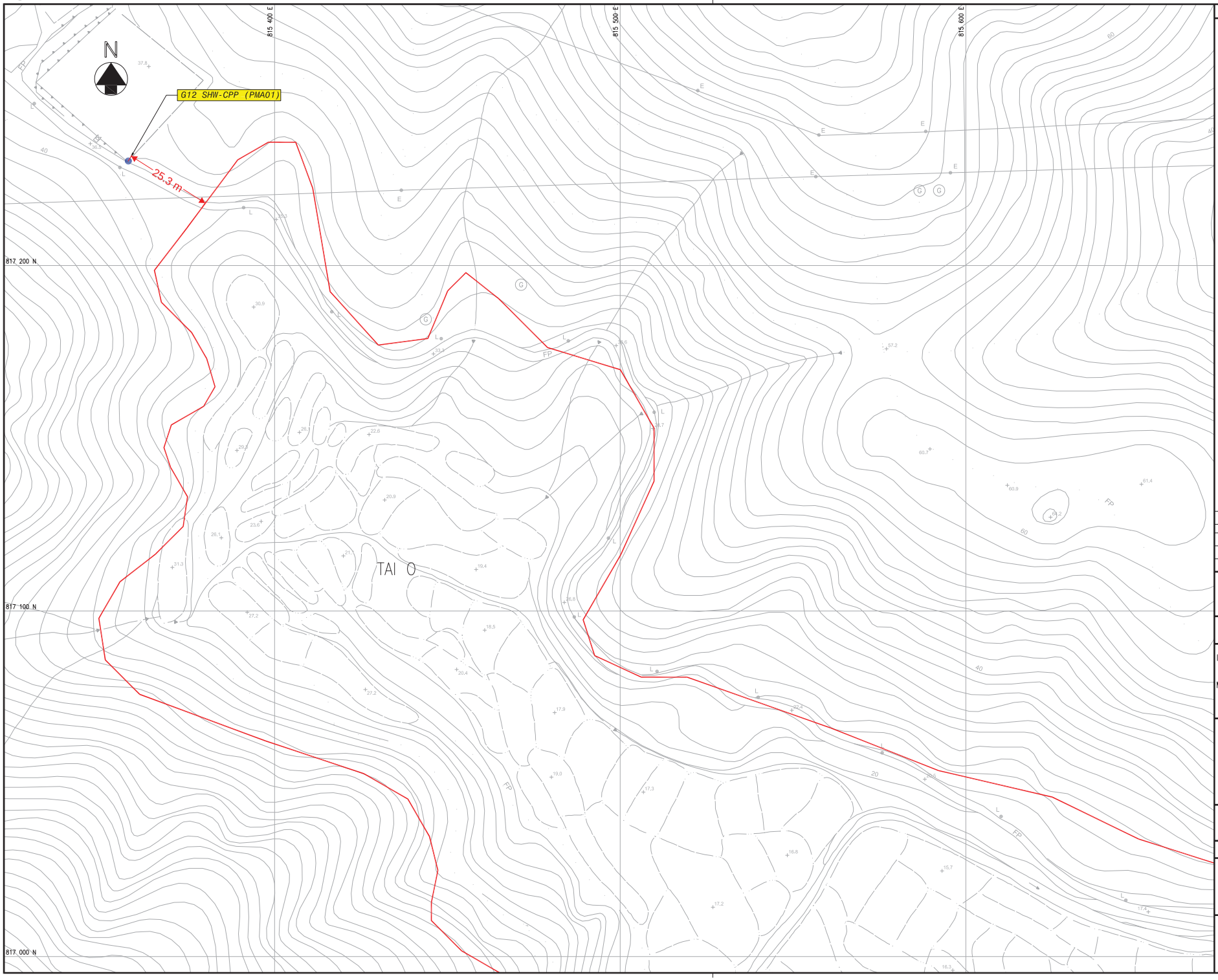
Revision
A

Scale
A1 1 : 10000
A3 1 : 20000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Figure 46



LEGEND:

- PROPOSED WORKS
- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN 50m OF SAI

Revision	Date	Description	Initial
A	09/18	REVISION	PLC

	Designed	Checked	Drawn	Checked
Initial	KT	FMA	SZ	YHL
Date	03/17	03/17	03/17	03/17

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITES FOR (SIU HO WAN SUPPLY ZONE)

Drawing No.
194498/B&V/AS/SHW/30002

Revision
A

Scale
A1 1 : 500
A3 1 : 1000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

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Figure 47

LEGEND:

- PROPOSED WORKS
- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN 50m OF SAI

Revision	Date	Description	Initial
A	09/18	REVISION	PLC

	Designed	Checked	Drawn	Checked
Initial	KT	FMA	SZ	YHL
Date	03/17	03/17	03/17	03/17

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITES FOR (SILVER MINE BAY SUPPLY ZONE)

Drawing No.
194498/B&V/AS/SLM/30001C

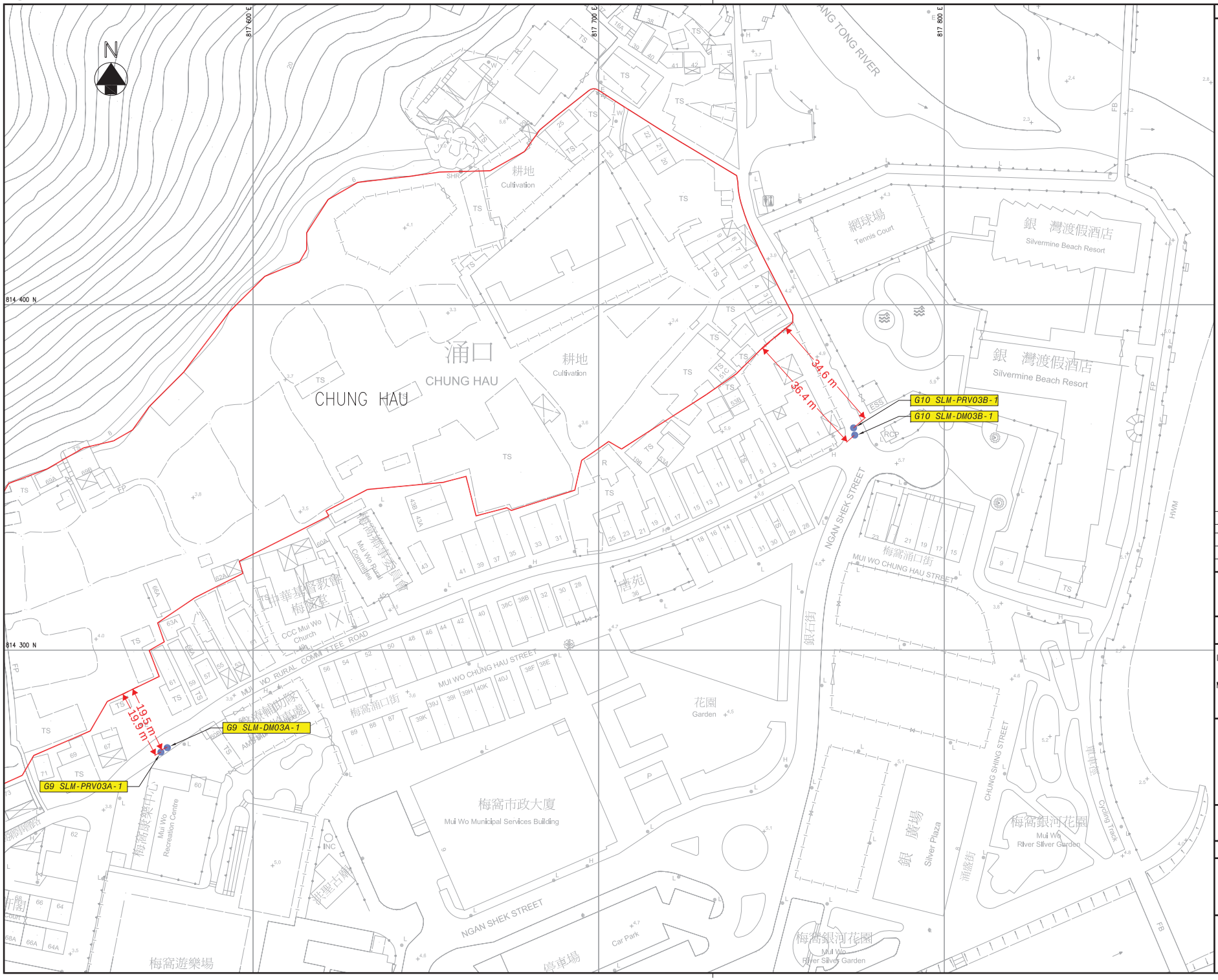
Revision
A

Scale
A1 1 : 12000
A3 1 : 24000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Figure 48



LEGEND:

- PROPOSED WORKS
- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN 50m OF SAI

Revision	Date	Description	Initial
A	09/18	REVISION	PLC

	Designed	Checked	Drawn	Checked
Initial	KT	FMA	SZ	YHL
Date	03/17	03/17	03/17	03/17

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITES FOR (SILVER MINE BAY SUPPLY ZONE)

Drawing No.
194498/B&V/AS/SLM/30002

Revision
A

Scale
A1 1 : 500
A3 1 : 1000

水 務 署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

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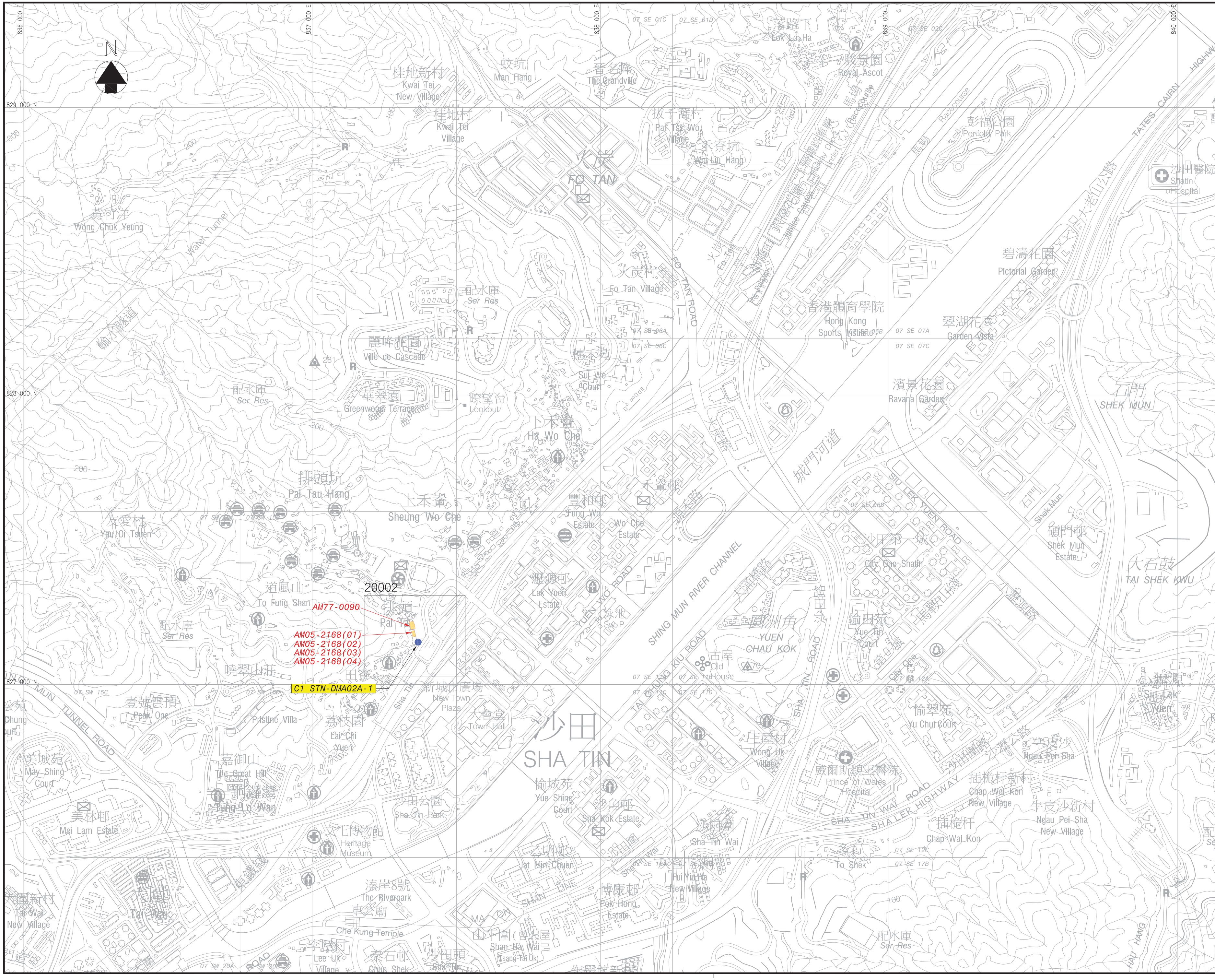
Figure 49



A	09/18	REVISION		PLC
Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	KT	FMA	SZ	YHL
Date	03/17	03/17	03/17	03/17

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITE FOR (SHA TIN NORTH FWSR SUPPLY ZONE)

Drawing No.
194498/B&V/AS/STN/20001

Revision
A

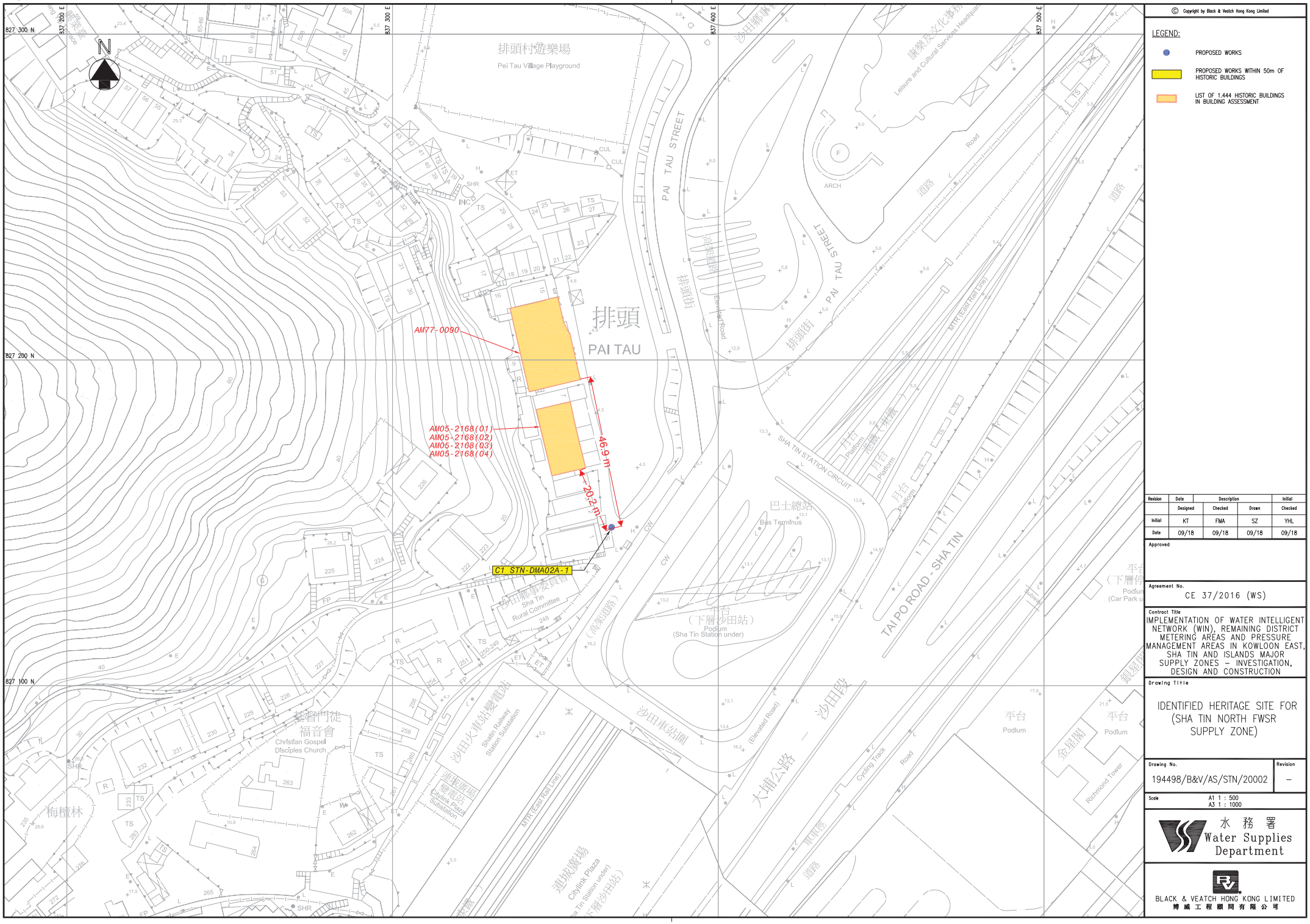
Scale
A1 1 : 6000
A3 1 : 12000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Y:\Daily Work\20180920f\194498-B&V-AS-STN-20001.dwg, Layout1, 9/26/2018 5:21:30 PM

Figure 50



LEGEND:

- PROPOSED WORKS
- PROPOSED WORKS WITHIN 50m OF HISTORIC BUILDINGS
- LIST OF 1,444 HISTORIC BUILDINGS IN BUILDING ASSESSMENT

Revision	Date	Description			Initial
	Designed	Checked	Drawn	Checked	
Initial	KT	FMA	SZ	YHL	
Date	09/18	09/18	09/18	09/18	

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITE FOR (SHA TIN NORTH FWSR SUPPLY ZONE)

Drawing No.
194498/B&V/AS/STN/20002

Revision
–

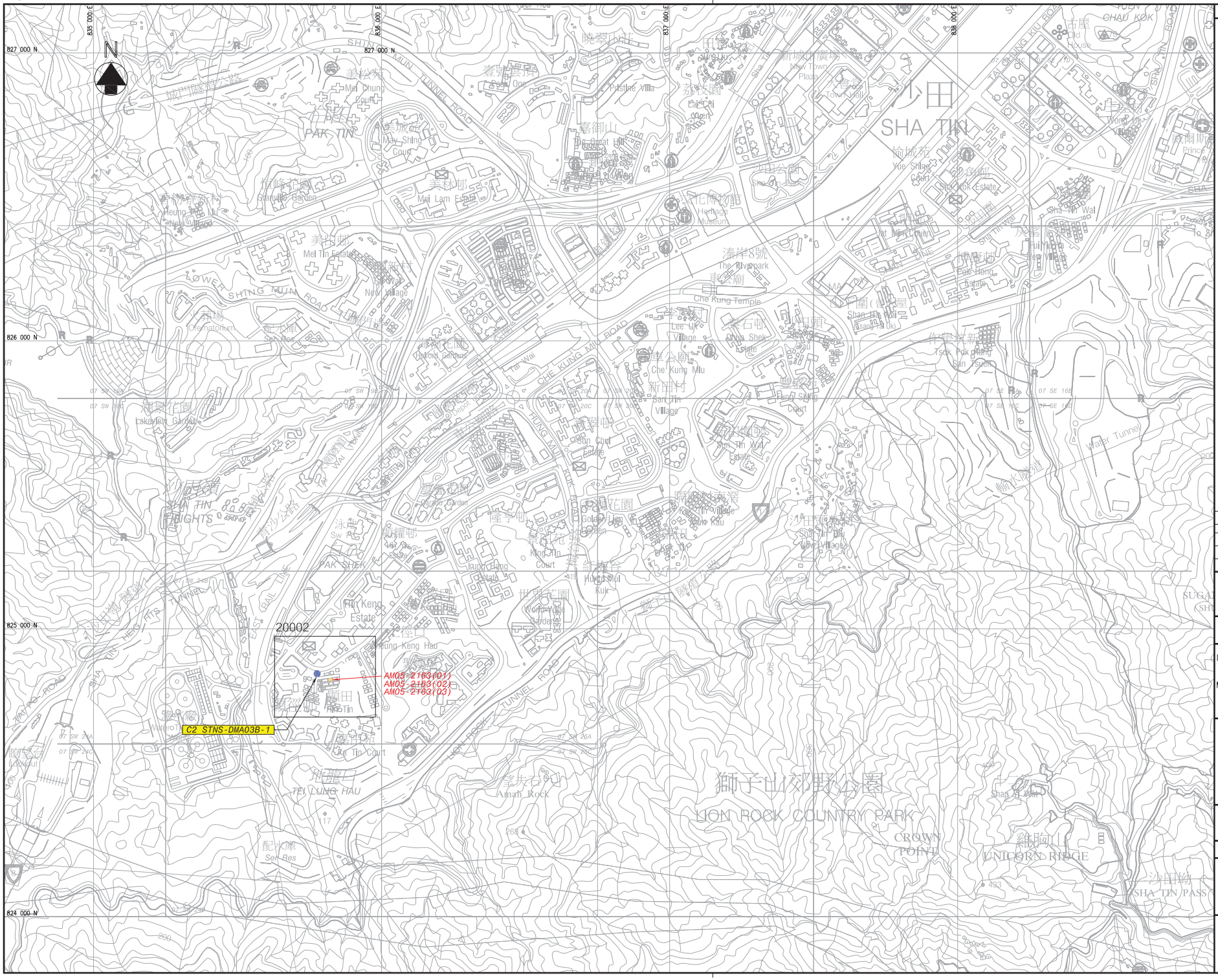
Scale
A1 1 : 500
A3 1 : 1000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Y:\Daily Work\20180920\194498-B&V-AS-STN-20002.dwg, Layout1, 9/26/2018 5:20:45 PM

Figure 51



LEGEND:

- PROPOSED WORKS
- PROPOSED WORKS WITHIN 50m OF HISTORIC BUILDINGS
- LIST OF 1,444 HISTORIC BUILDINGS IN BUILDING ASSESSMENT

Revision	Date	Description	Initial
A	09/18	REVISION	PLC

	Designed	Checked	Drawn	Checked
Initial	KT	FMA	SZ	YHL
Date	03/17	03/17	03/17	03/17

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITE FOR (SHA TIN SOUTH FWSR SUPPLY ZONE)

Drawing No.
194498/B&V/AS/STNS/20001

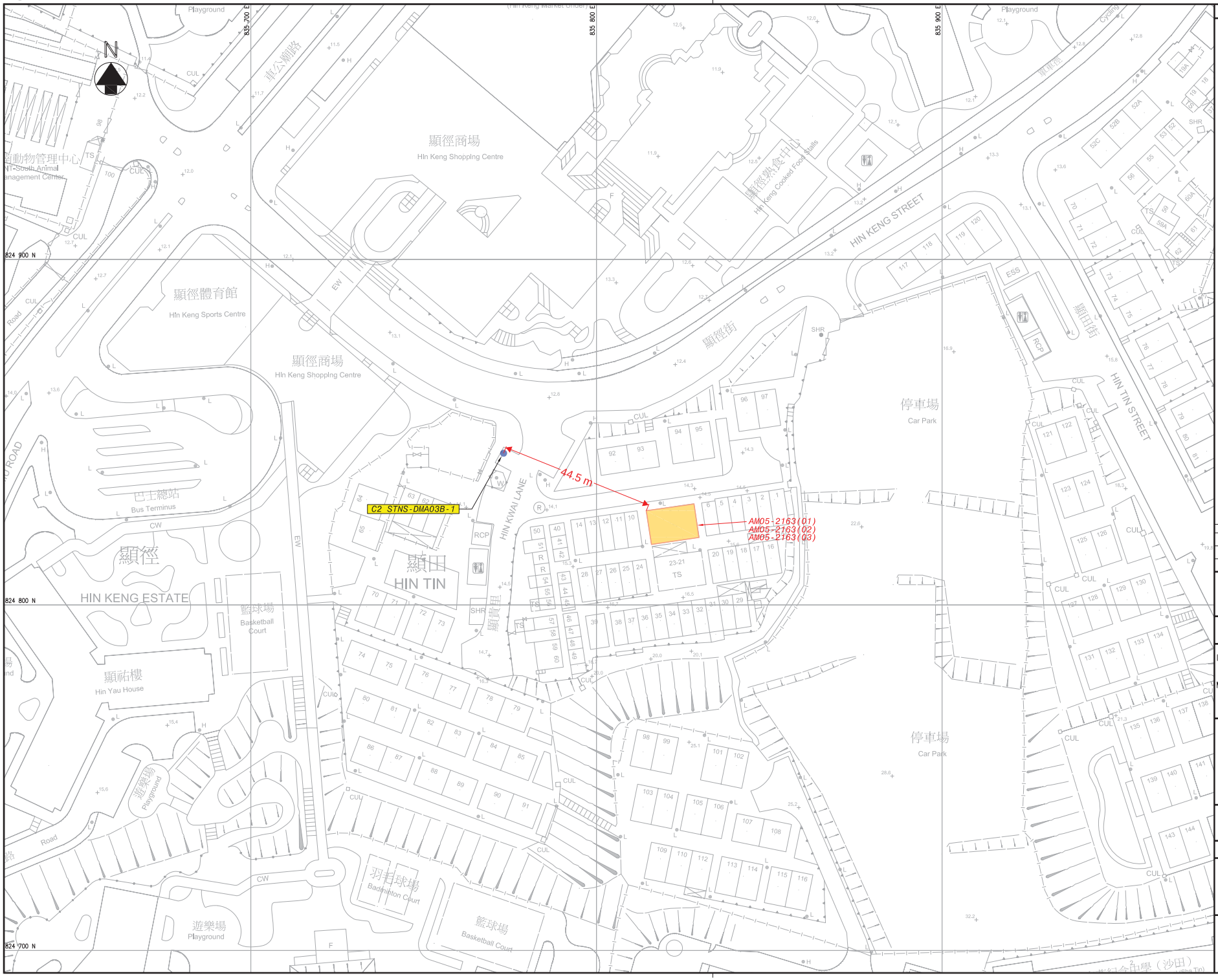
Revision
A

Scale
A1 1 : 6000
A3 1 : 12000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Figure 52



LEGEND:

- PROPOSED WORKS
- PROPOSED WORKS WITHIN 50m OF HISTORIC BUILDINGS
- LIST OF 1,444 HISTORIC BUILDINGS IN BUILDING ASSESSMENT

Revision	Date	Description			Initial
	Designed	Checked	Drawn	Checked	
Initial	KT	FMA	SZ	YHL	
Date	09/18	09/18	09/18	09/18	

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITE FOR (SHA TIN SOUTH FWSR SUPPLY ZONE)

Drawing No.
194498/B&V/AS/STNS/20002

Revision
–

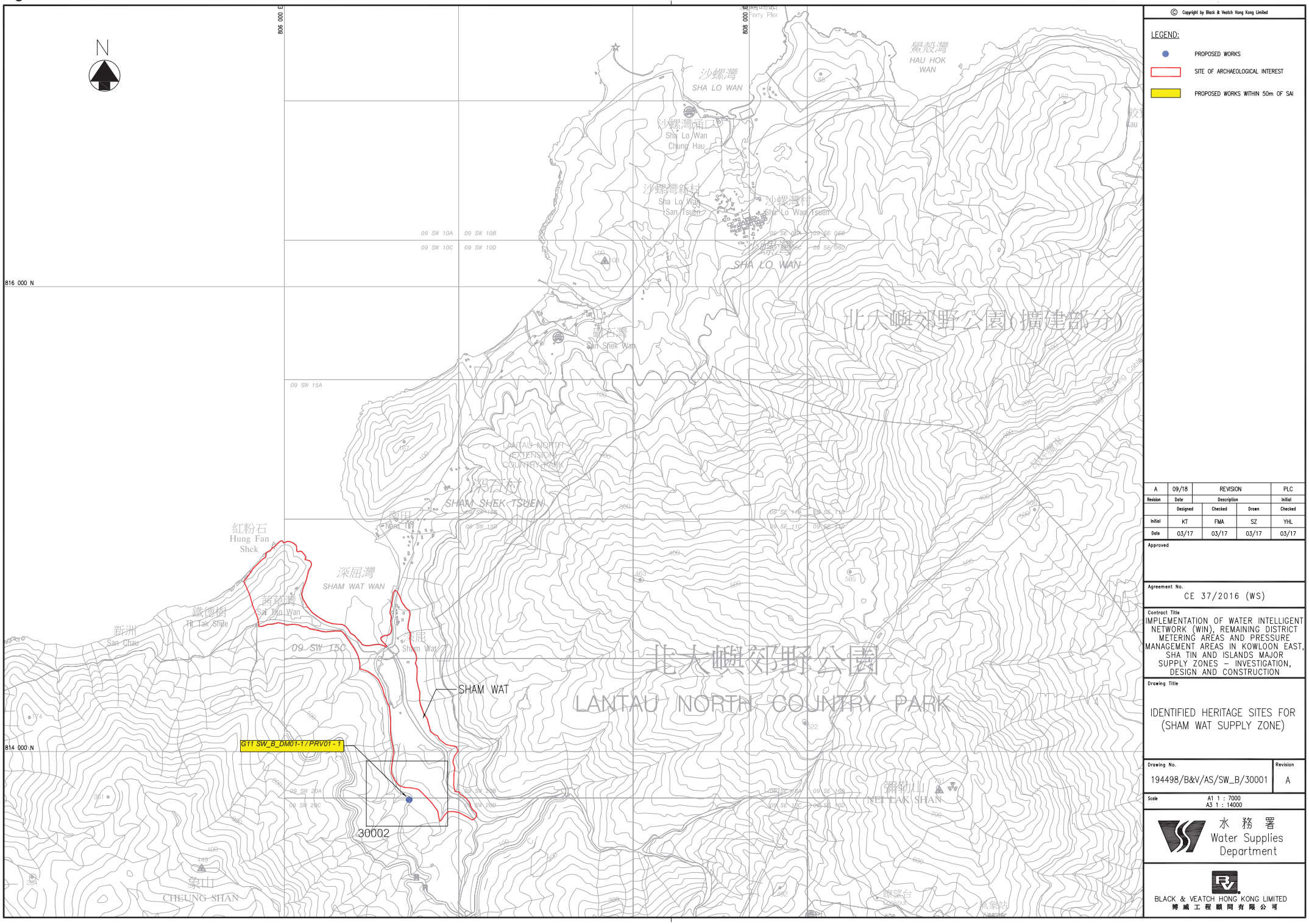
Scale
A1 1 : 500
A3 1 : 1000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Y:\Daily Work\20180920\194498-B&V-AS-STNS-20002.dwg, Layout1, 9/27/2018 10:09:23 AM

Figure 53



LEGEND:

- PROPOSED WORKS
- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN 50m OF SAI

Revision	Date	Description	Initial
A	09/18	REVISION	PLC

	Designed	Checked	Drawn	Checked
Initial	KT	FMA	SZ	YHL
Date	03/17	03/17	03/17	03/17

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITES FOR (SHAM WAT SUPPLY ZONE)

Drawing No.
194498/B&V/AS/SW_B/30001

Revision
A

Scale
A1 1 : 7000
A3 1 : 14000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
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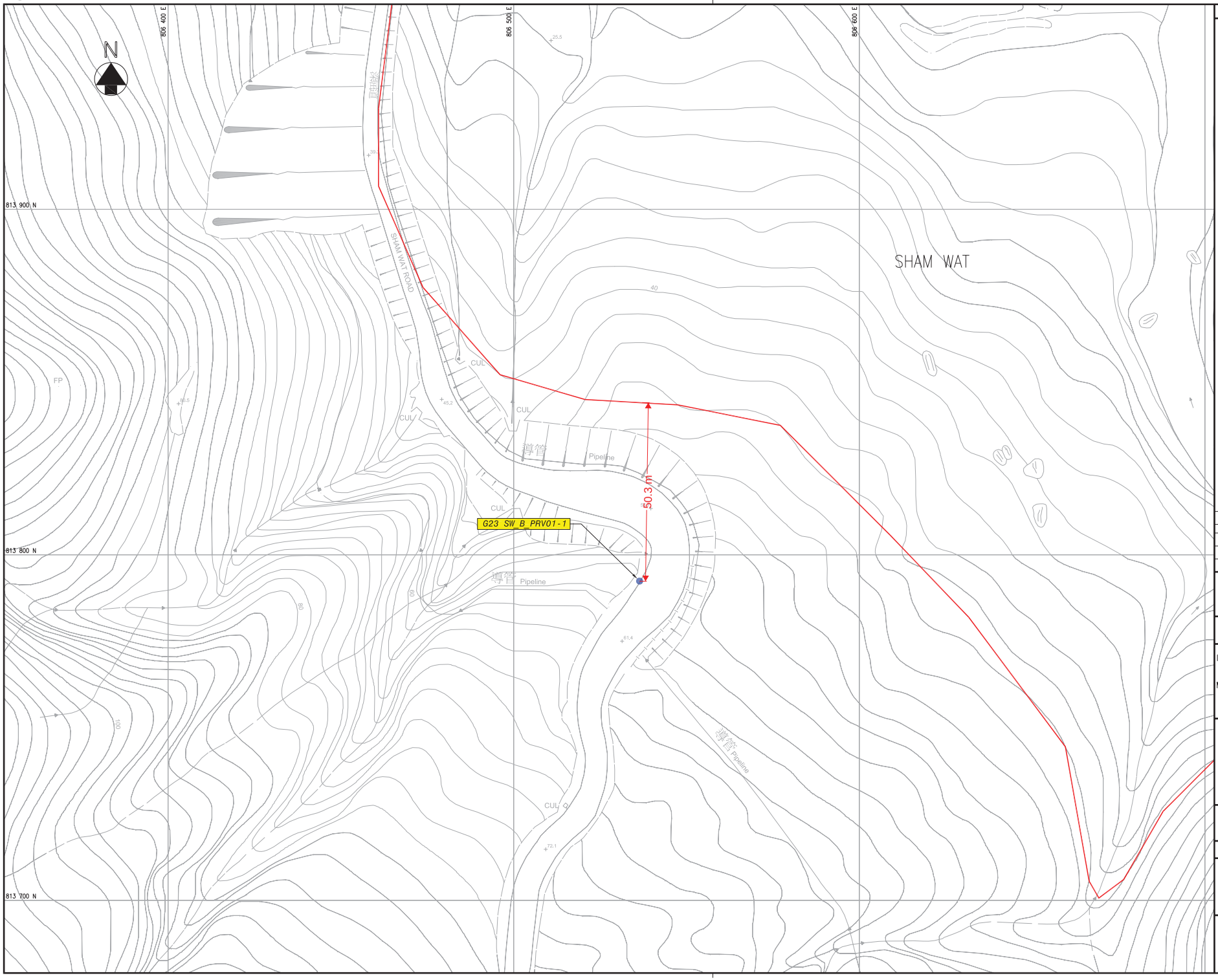
Figure 54



LEGEND:

- PROPOSED WORKS
- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN 50m OF SAI

Revision	Date	Description	Initial
A	09/18	REVISION	PLC

	Designed	Checked	Drawn	Checked
Initial	KT	FMA	SZ	YHL
Date	03/17	03/17	03/17	03/17

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITES FOR (SHAM WAT SUPPLY ZONE)

Drawing No.
194498/B&V/AS/SW_B/30002

Revision
A

Scale
A1 1 : 500
A3 1 : 1000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

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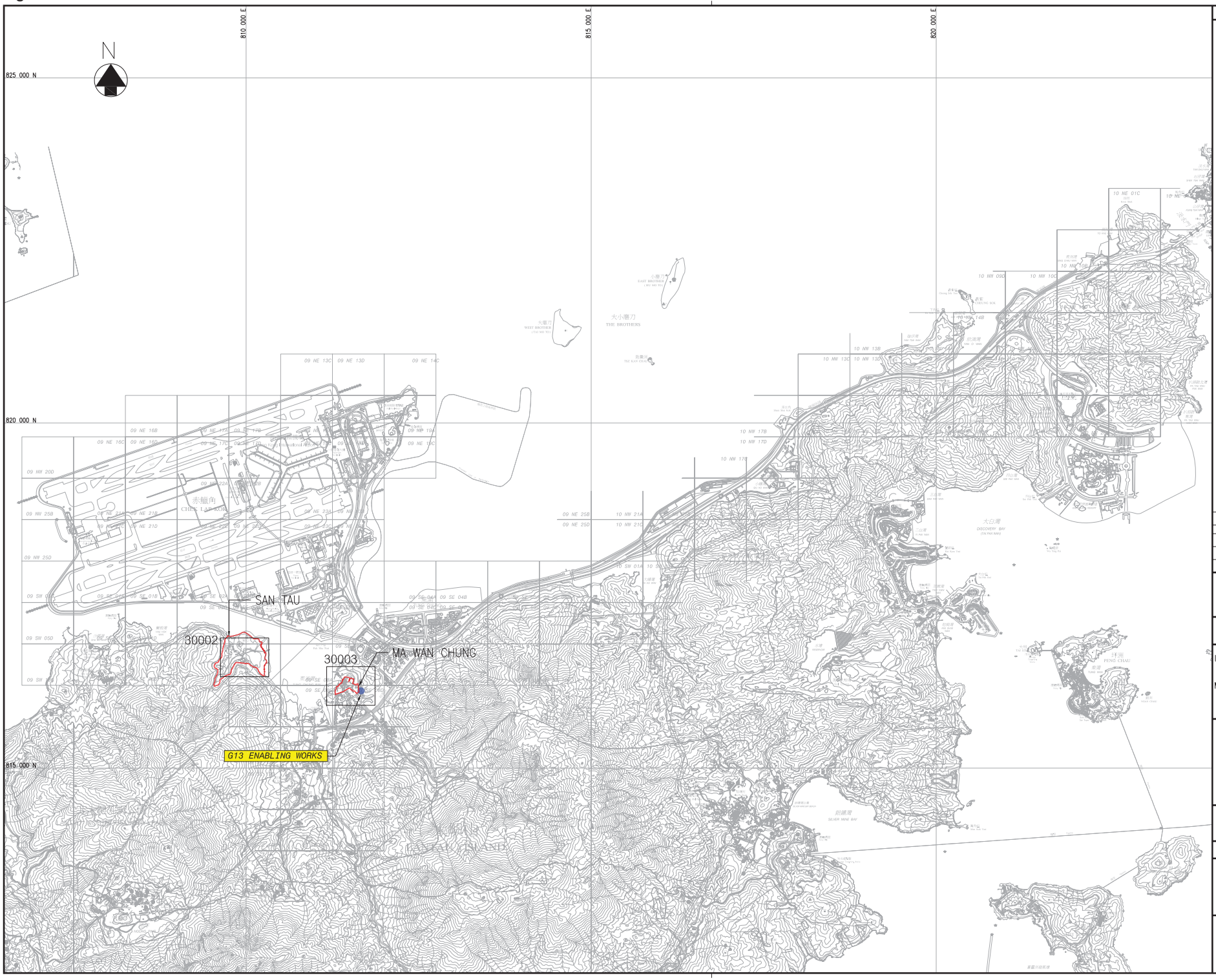
Figure 55



LEGEND:

- PROPOSED WORKS
- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN 50m OF SAI

Revision	Date	Description			Initial
A	09/18	REVISION			PLC
		Designed	Checked	Drawn	Checked
Initial		KT	FMA	SZ	YHL
Date		03/17	03/17	03/17	03/17

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITES FOR (TUNG CHUNG SUPPLY ZONE)

Drawing No.
194498/B&V/AS/TC/30001C

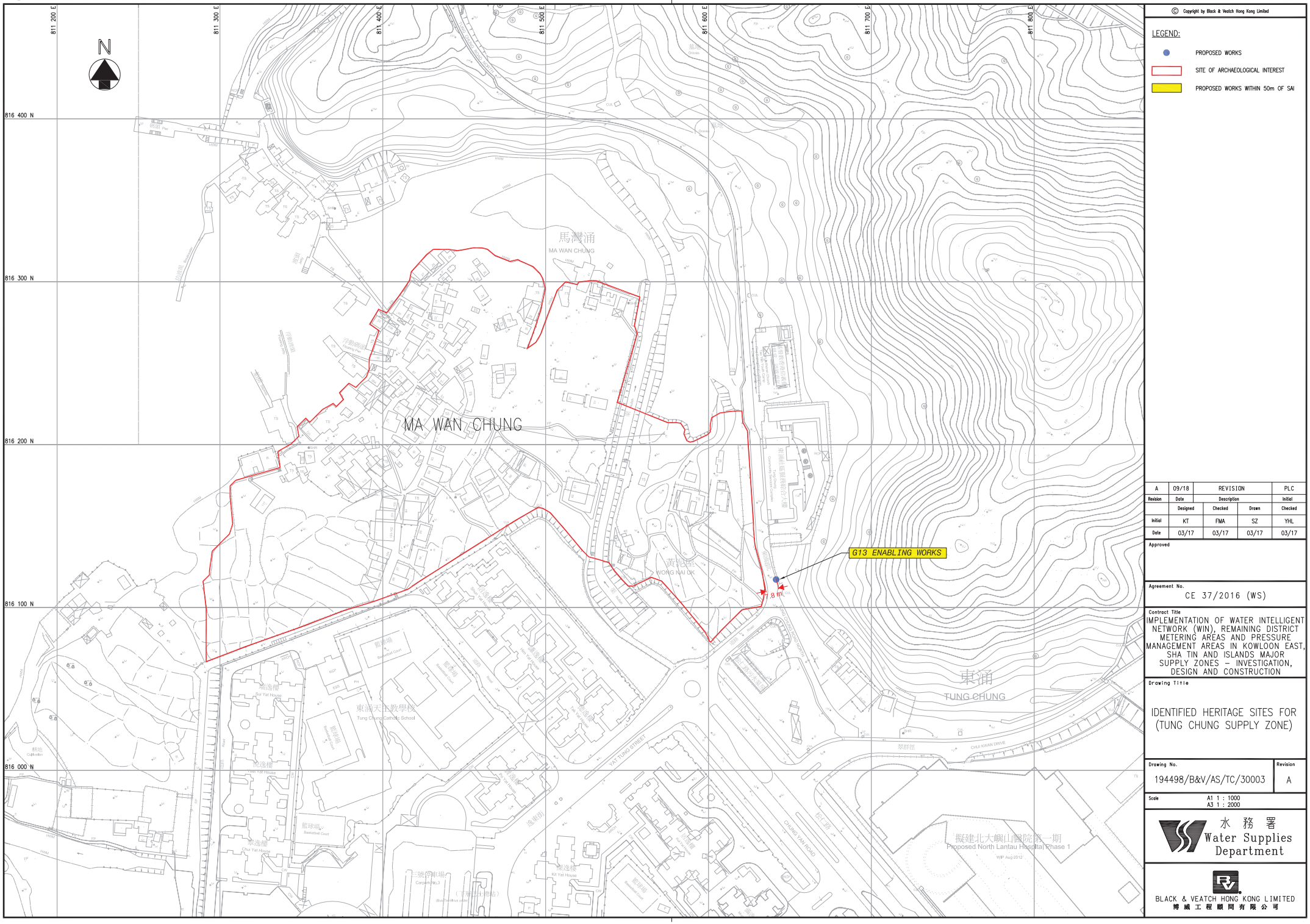
Revision
A

Scale
A1 1 : 25000
A3 1 : 50000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Figure 56



LEGEND:

- PROPOSED WORKS
- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN 50m OF SAI

Revision	Date	Description	Initial
A	09/18	REVISION	PLC

	Designed	Checked	Drawn	Checked
Initial	KT	FMA	SZ	YHL
Date	03/17	03/17	03/17	03/17

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITES FOR (TUNG CHUNG SUPPLY ZONE)

Drawing No.
194498/B&V/AS/TC/30003

Revision
A

Scale
A1 1 : 1000
A3 1 : 2000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

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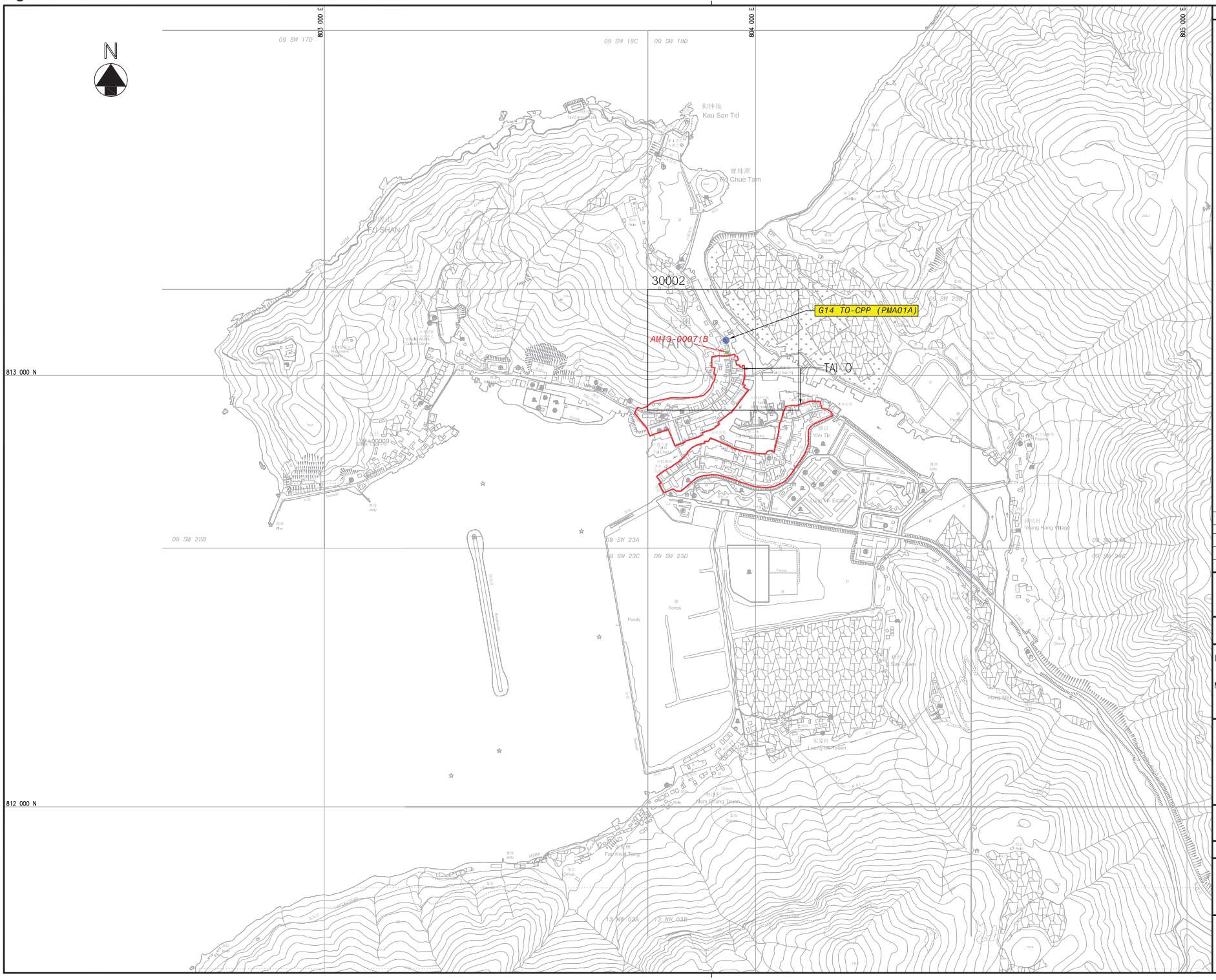
Figure 57



LEGEND:

- PROPOSED WORKS
- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN 50m OF SAI/HISTORIC BUILDING
- NEW ITEMS IN ADDITION TO 1.444 HISTORIC BUILDINGS

Revision	Date	Description	Initial
A	09/18	REVISION	PLC

	Designed	Checked	Drawn	Checked
Initial	KT	FMA	SZ	YHL
Date	03/17	03/17	03/17	03/17

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITES FOR (TAI O FWSR & TAI O SUPPLY ZONE)

Drawing No.
194498/B&V/AS/TO/30001

Revision
A

Scale
A1 1 : 4000
A3 1 : 8000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

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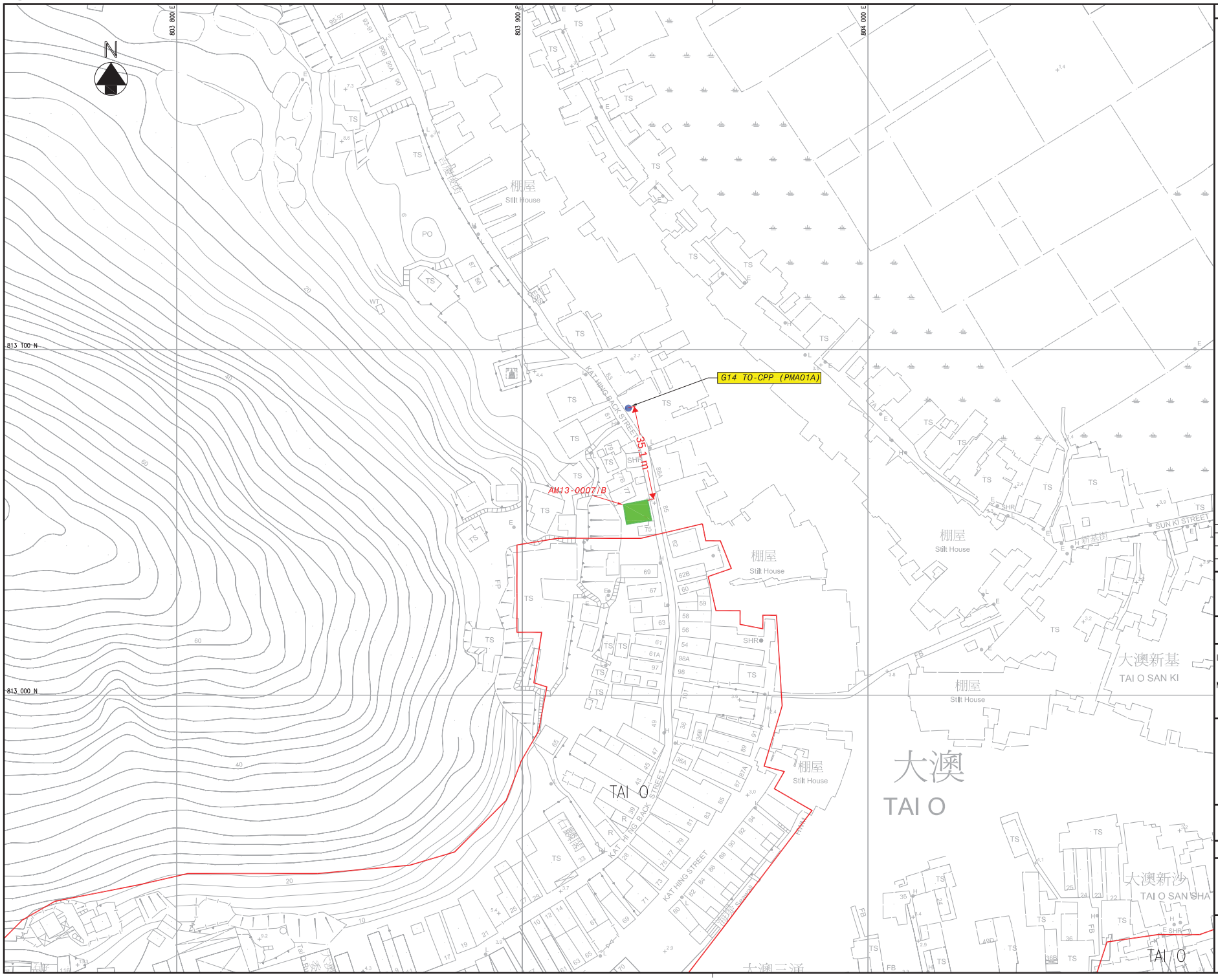
Figure 58



LEGEND:

- PROPOSED WORKS
- SITE OF ARCHAEOLOGICAL INTEREST
- PROPOSED WORKS WITHIN 50m OF SAI/HISTORIC BUILDING
- NEW ITEMS IN ADDITION TO 1,444 HISTORIC BUILDINGS

Revision	Date	Description			Initial
	Designed	Checked	Drawn	Checked	
Initial	KT	FMA	SZ	YHL	
Date	09/18	09/18	09/18	09/18	

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
IDENTIFIED HERITAGE SITES FOR (TAI O FWSR & TAI O SUPPLY ZONE)

Drawing No.
194498/B&V/AS/TO/30002

Revision
–

Scale
A1 1 : 500
A3 1 : 1000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

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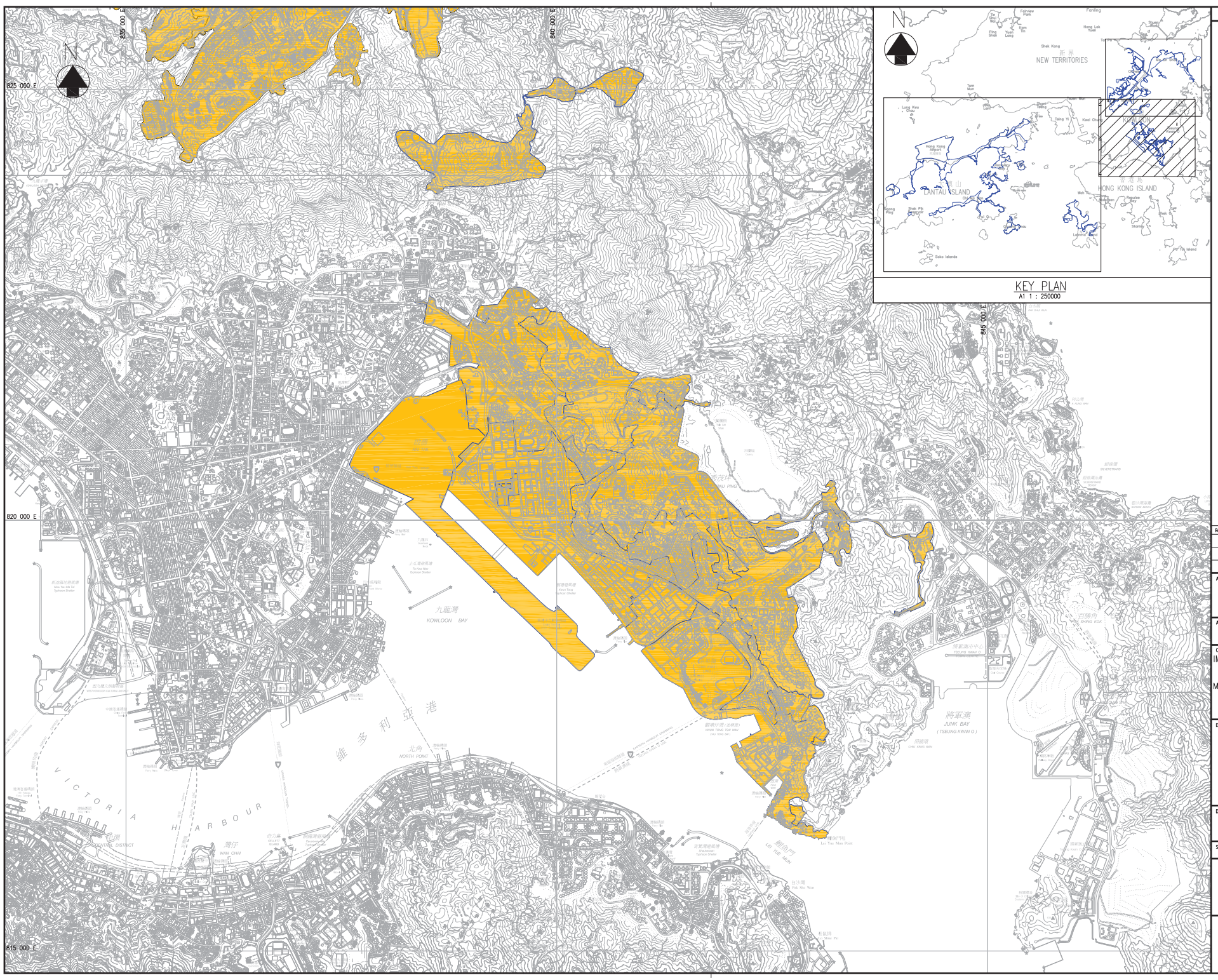
APPENDICES

APPENDIX A

General Layout



KEY PLAN
A1 1 : 250000

LEGEND:

STUDY AREA

Revision	Date	Description			Initial
	Designed	Checked	Drawn	Checked
Initial	KT	FMA	SZ	YHL
Date	01/17	01/17	01/17	01/17

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
GENERAL LAYOUT
(KOWLOON EAST MAJOR SUPPLY ZONE)

(SHEET 1 OF 3)

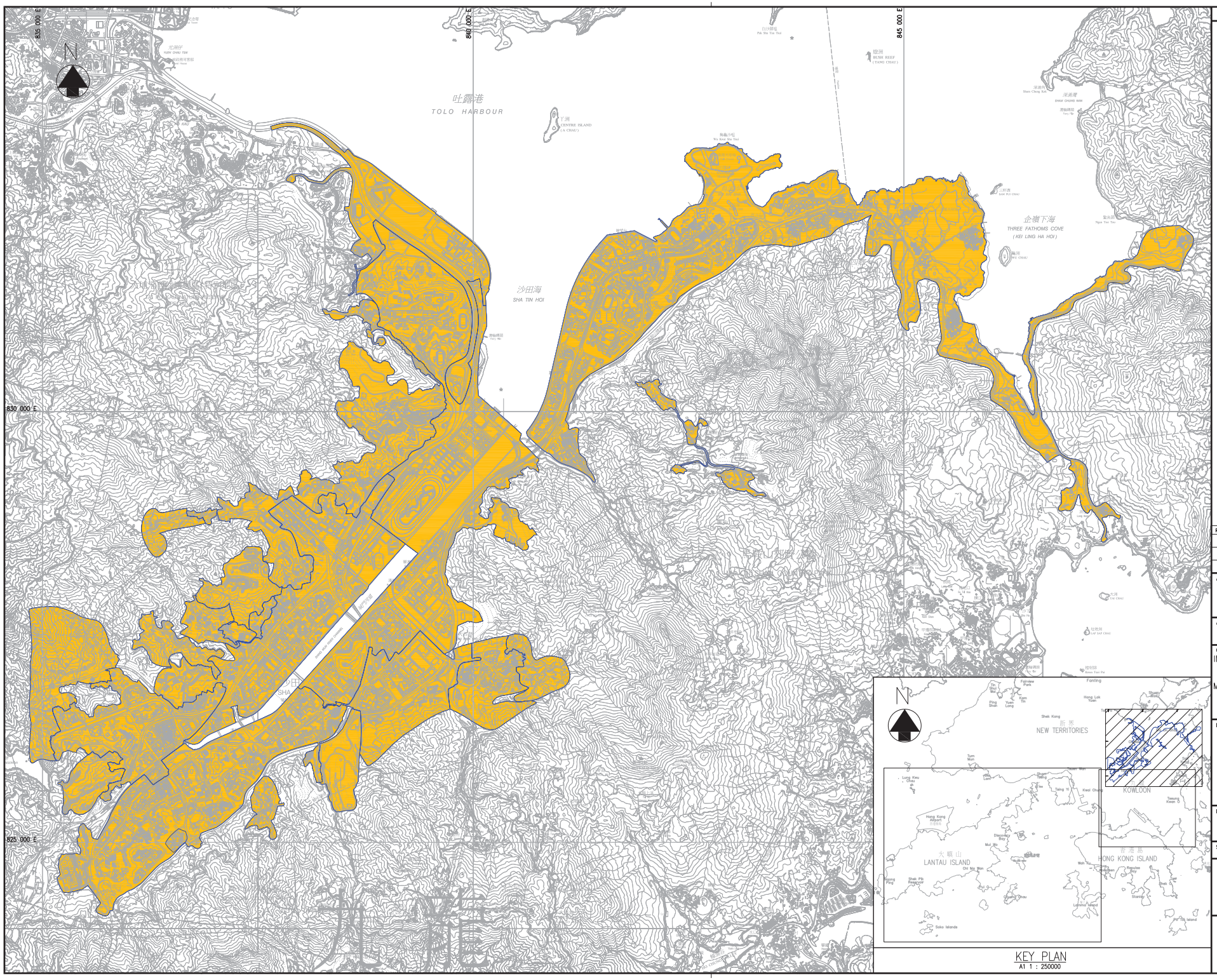
Drawing No.
194498/B&V/GEN/002

Revision
–

Scale
A1 1 : 20000
A3 1 : 40000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司



KEY PLAN
A1 1 : 250000

LEGEND:

STUDY AREA

Revision	Date	Description			Initial
	Designed	Checked	Drawn	Checked	
Initial	KT	FMA	SZ	YHL	
Date	01/17	01/17	01/17	01/17	

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
GENERAL LAYOUT
(SHA TIN MAJOR SUPPLY ZONE)

(SHEET 2 OF 3)

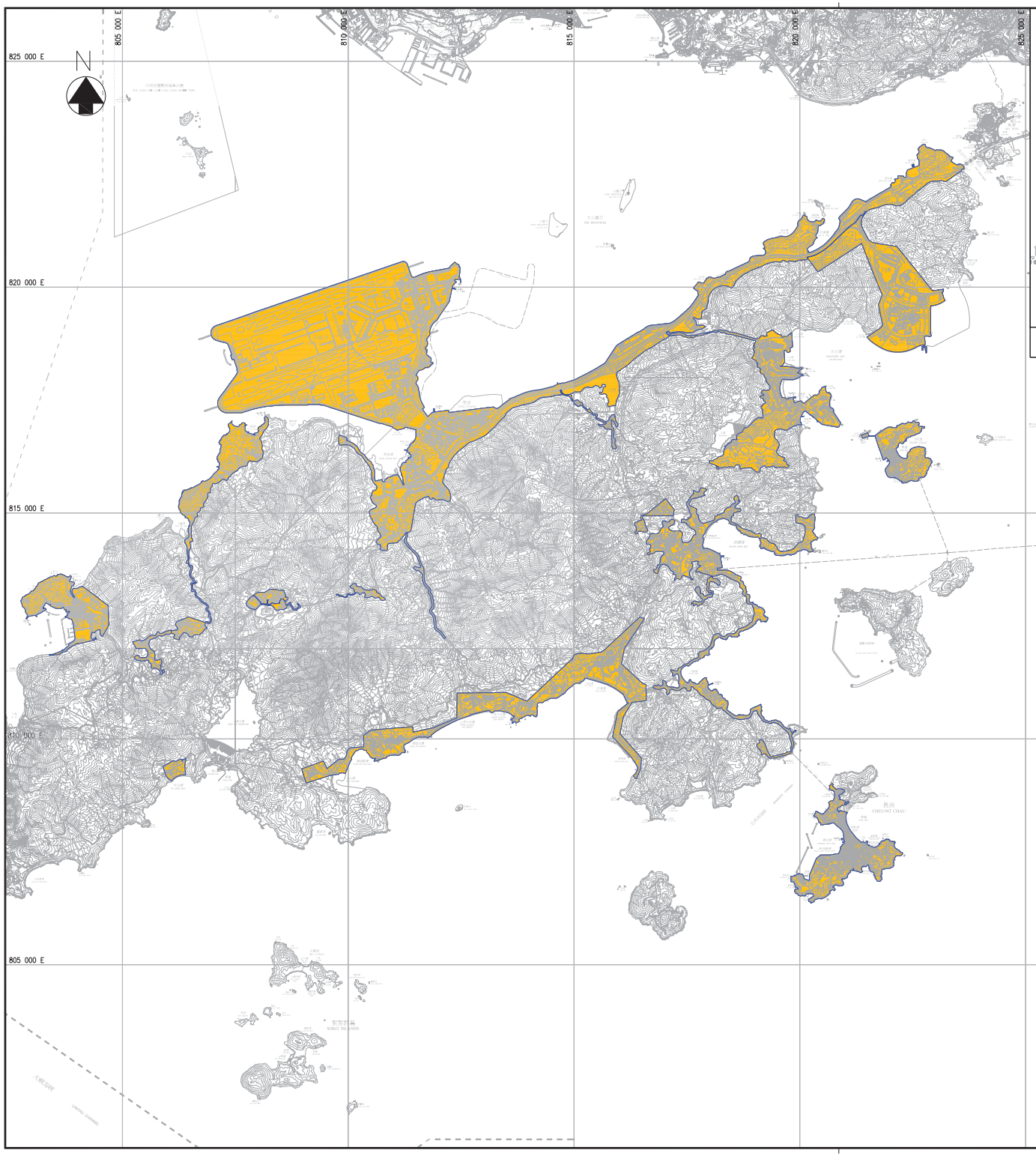
Drawing No.
194498/B&V/GEN/003

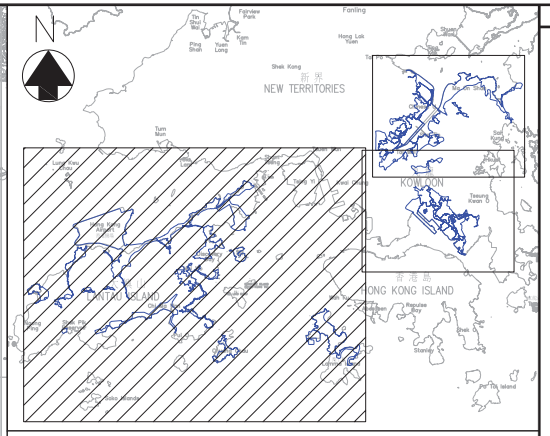
Revision
–

Scale
A1 1 : 20000
A3 1 : 40000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司





KEY PLAN
A1 1 : 250000

LEGEND:

STUDY AREA

Revision	Date	Description			Initial
	Designed	Checked	Drawn	Checked	
Initial	KT	FMA	SZ	YHL	
Date	01/17	01/17	01/17	01/17	

Approved

Agreement No.
CE 37/2016 (WS)

Contract Title
IMPLEMENTATION OF WATER INTELLIGENT NETWORK (WIN), REMAINING DISTRICT METERING AREAS AND PRESSURE MANAGEMENT AREAS IN KOWLOON EAST, SHA TIN AND ISLANDS MAJOR SUPPLY ZONES – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
GENERAL LAYOUT
(ISLANDS MAJOR SUPPLY ZONE)

(SHEET 3 OF 3)

Drawing No.
194498/B&V/GEN/004

Revision
–

Scale
A1 1 : 45000
A3 1 : 90000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

APPENDIX B

List of Proposed Works Identified within 50m of Historical Buildings in the List of 1,444 Historic Buildings in Building Assessment (as of 8 September 2018)

Agreement No. CE 37/2016 (WS)
Implementation of Water Intelligent Network (WIN),
Remaining District Metering Areas and Pressure Management Areas in Kowloon East, Sha Tin and Islands Major Supply Zones
- Investigation, Design and Construction

List of Proposed Works Identified within 50m of Historical Buildings in the List of 1,444 Historic Buildings in Building Assessment (as of 8 September 2018)

Item	Name / Type of Chamber in the Vicinity of Historical Building	AMO Research File Ref.	Name of Historic Building	Approx. Distance (m)	District	Confirmed Grading	B&V's Drawing No.
1	STN-DM02A-1	AM05-2168(04)	No. 6 Pai Tau	20	Sha Tin	Grade 2	194498/B&V/AS/STN/20001
		AM05-2168(01)	No. 5A Pai Tau	20	Sha Tin	Grade 2	194498/B&V/AS/STN/20001
		AM05-2168(02)	No. 5B Pai Tau	20	Sha Tin	Grade 2	194498/B&V/AS/STN/20001
		AM05-2168(03)	No. 5C Pai Tau	20	Sha Tin	Grade 2	194498/B&V/AS/STN/20001
		AM77-0090	Lam Ancestral Hall (Sha Tin)	47	Sha Tin	Grade 3	194498/B&V/AS/STN/20001
2	STNS-DMA03B-1	AM05-2163(03)	So Ancestral Hall	45	Sha Tin	Grade 3	194498/B&V/AS/STNS/20001
		AM05-2163(02)	Law Ancestral Hall (Sha Tin)	45	Sha Tin	Grade 3	194498/B&V/AS/STNS/20001
		AM05-2163(01)	Yeung Ancestral Hall (Sha Tin)	45	Sha Tin	Grade 3	194498/B&V/AS/STNS/20001
3	DH2-PRV02-1/DM02-1	AM97-0889(01)	Ex-Royal Air Force Station (Kai Tak), Headquarters Building	36	Kwun Tong	Grade 1	194498/B&V/AS/DH/10001
4	DH2-DM06-1	AM97-0891	Sam Shan Kwok Wong Temple	28	Kwun Tong	Grade 3	194498/B&V/AS/DH/10001
5	PEC-DM01-1	AM04-1738	I-Tsz	32	Islands	Grade 3	194498/B&V/AS/PEC/30001
6	CC-CPP (PMA04)	AM04-2097(01)	No. 91 Lai Chi Yuen	42	Islands	Grade 2	194498/B&V/AS/CC/30001
		AM04-2097(02)	No. 92 Lai Chi Yuen	42	Islands	Grade 2	194498/B&V/AS/CC/30001
		AM04-2097(03)	No. 93 Lai Chi Yuen	42	Islands	Grade 2	194498/B&V/AS/CC/30001
		AM87-0379	Cheung Chau Police Station	22	Islands	Grade 2	194498/B&V/AS/CC/30001
7	CC-PRV04-1/DM04-1	AM91-0463	St. John Hospital	8	Islands	Grade 3	194498/B&V/AS/CC/30001
8	CC-DM05-1			22			
9	CC-CPP (DMA07EA)	AM92-0501(01)	Cheung Chau Government Secondary School, Old Block	46	Islands	Grade 2	194498/B&V/AS/CC/30001
		AM92-0501(02)	Cheung Chau Government Secondary School, Caretaker's Residence	42	Islands	Grade 2	194498/B&V/AS/CC/30001
10	CC-CPP (DMA07D)	AM77-0132	Tin Hau Temple (Cheung Chau)	24	Islands	Grade 2	194498/B&V/AS/CC/30001
11	CC-DM07G-3	AM04-1767	Cheung Chau Theatre	49	Islands	Grade 3	194498/B&V/AS/CC/30003

APPENDIX C

List of Proposed Works Identified within 50m of Historical Buildings in the List of New Items and New Categories with Assessment Results (as at 8 September 2018)

Agreement No. CE 37/2016 (WS)
Implementation of Water Intelligent Network (WIN),
Remaining District Metering Areas and Pressure Management Areas in Kowloon East, Sha Tin and Islands Major Supply Zones
- Investigation, Design and Construction

List of Proposed Works Identified within 50m of Historical Buildings in the List of New Items and New Categories with Assessment Results (as at 8 September 2018)

Item	Name / Type of Chamber in the Vicinity of Historical Building	AMO Research File Ref.	Name of Historic Building	Approx. Distance (m)	District	Confirmed Grading	B&V's Drawing No.
1	MOST-CPP (PMA01)	AM16-0004/B	Site Structures at Mining Settlement, Ma On Shan Iron Mine, Sha Tin, N.T.	19	Sha Tin	Grade 3	194498/B&V/AS/MOST/20001
2	TO-CPP (PMA01A)	AM13-0007/B	Shrine with Stone Dog, Kat Hing Back Street	35	Islands	Grade 3	194498/B&V/AS/TO/30001

APPENDIX D

List of Proposed Works Identified within 50m from boundary of Sites of Archaeological Interest

Agreement No. CE 37/2016 (WS)
Implementation of Water Intelligent Network (WIN),
Remaining District Metering Areas and Pressure Management Areas in Kowloon East, Sha Tin and Islands Major Supply Zones
- Investigation, Design and Construction

List of Proposed Works Identified WITHIN 50m from boundary of Sites of Archaeological Interest

Item	Name / Type of Chamber within the Boundary of Site of Archaeological Interest	AMO Research File Ref.	Name of Site of Archaeological Interest	District	B&V's Drawing Ref. No
G1	MOS-CPP (PMA17)	AM00-1606	Wu Kai Sha Site of Archaeological Interest	Tai Po	194498/B&V/AS/MOS/20001
G2	MOS-DM22/ PRV22-1-1	AM00-1600	Che Ha Site of Archaeological Interest*	Tai Po	
G3	PEC-CPP(DMA01)	AM00-1598	Peng Chau Site of Archaeological Interest	Islands	194498/B&V/AS/PEC/30001
G4	PEC-DM01-1				
G5	ENABLING WORKS				
G6	CS-DM01-2	AM00-1603	Tong Fuk Site of Archaeological Interest	Islands	194498/B&V/AS/CS/30001
G7	CS-DM01A-1				
G8	CS-DM02AAA-1	AM78-0203	Pui O Site of Archaeological Interest	Islands	
G9	SLM-DM03A-1/PRV03A-1	AM98-0906	Chung Hau Site of Archaeological Interest	Islands	194498/B&V/AS/SLM/30001
G10	SLM-DM03B-1/PRV03B-1				
G11	SW_B-DM01-1/ PRV01-1	AM90-0430	Sham Wat Site of Archaeological Interest	Islands	194498/B&V/AS/SW_B/30001
G12	SHW-CPP(PMA01)	AM96-0729	Tai Ho Site of Archaeological Interest	Islands	194498/B&V/AS/SHW/30001
G13	ENABLING WORKS	AM96-0762	Ma Wan Chung Site of Archaeological Interest	Islands	194498/B&V/AS/TC/30001
G14	TO-CPP(PMA01A)	AM96-0736	Tai O Site of Archaeological Interest	Islands	194498/B&V/AS/TO/30001
G15	CC-CPP (PMA07C)	AM96-0752	Tung Wan Site of Archaeological Interest, Cheung Chau*	Islands	194498/B&V/AS/CC/30001
G16	CC-DM07D-1 / PRV07D-1				
G17	CC-DM07C-2 / PRV07C-2				
G18	CC-CPP (DMA07E)				
G19	LI-CPP (PMA07)	AM77-0041	Tai Wan Site of Archaeological Interest, Lamma	Islands	194498/B&V/AS/LI/30001
G20	LI-DM05-1	AM77-0043	Lo So Shing Site of Archaeological Interest	Islands	
G21	LI-CPP (PMA06/DMA06)	AM77-0040	Yung Shue Wan Site of Archaeological Interest, Lamma*	Islands	
G22	LI-DM06-1/PRV06-1				

Notes: Duplicated SAI also in Appendix E having the proposed works which is wholly/partly within SAI

APPENDIX E

List of Proposed Works Identified within the Sites of Archaeological Interest

Agreement No. CE 37/2016 (WS)
Implementation of Water Intelligent Network (WIN),
Remaining District Metering Areas and Pressure Management Areas in Kowloon East, Sha Tin and Islands Major Supply Zones
- Investigation, Design and Construction

List of Proposed Works Identified WITHIN the Sites of Archaeological Interest

Item	Name / Type of Chamber within the Boundary of Site of Archaeological Interest	AMO Research File Ref.	Name of Site of Archaeological Interest	District	B&V's Drawing Ref. No
F1	MOS-DM23-1/PRV23-1	AM00-1600	Che Ha Site of Archaeological Interest	Tai Po	194498/B&V/AS/MOS/20001
F2	MOS-CPP (PMA23)				
F3	SLM-DM01B-1/PRV01B-1	AM10-0002/A	Shap Long Site of Archaeological Interest	Islands	194498/B&V/AS/SLM/30001
F4	SLM-DM01C-1/PRV01C-1				
F5	SLM-CPP (PMA01C)				
F6	LI-DM01-1	AM77-0040	Yung Shue Wan Site of Archaeological Interest, Lamma	Islands	194498/B&V/AS/LI/30001
F7	LI-DM02-1				
F8	LI-DM03-1/PRV03-1, Enabling Works (3m mains)				
F9	LI-DM03-2/PRV03-2				
F10	LI-DM07-1 / LI-PRV07-1				
F11	LI-DM09-1				
F12	LI-CPP (DMA09)				
F13	LI-DM04-1/PRV04-1	AM77-0042	Hung Shing Ye Site of Archaeological Interest	Islands	194498/B&V/AS/LI/30001
F14	CC-CPP (PMA04)	AM96-0752	Tung Wan Site of Archaeological Interest, Cheung Chau	Islands	194498/B&V/AS/CC/30001
F15	Enabling Works (DBV)				
F16	CC-DM07G-1, CC-PRV07-2				
F17	Enabling works (11m mains)				
F18	CC-DM07G-2, CC-PRV07-3				
F19	CC-DM07G-3				
F20	CC-DM07G-4				
F21	CC-CPP (DMA07G)				
F22	CC-DM07EA-2				
F23	CC-CPP (PMA07EA)				
F24	CC-PRV04-1 / CC-DM04-1				
F25	CC-DM05-1				
F26	CC-DM07EA-1				
F27	TC-CPP(PMA13 & DMA13A)	AM96-0772	San Tau Site of Archaeological Interest	Islands	194498/B&V/AS/TC/30001
F28	TLW-DM01A-1/PRV-01A-1	AM98-0926	Tai Long Wan Site of Archaeological Interest, Shek Pik	Islands	194498/B&V/AS/TLW/30001
F29	MOS-DM26-1 / PRV26-1	AM00-1615	Tai Tung Site of Archaeological Interest	Tai Po	194498/B&V/AS/MOS/20001