1

THE BUILDING

1.1	**Project title**	From Valley to Plain: Conservation and Revitalisation from 'Ng To' to Kuk Po river and plain via multi-disciplinary, educational and action research	
1.2	**Purpose and nature of the project**	Working closely with the village community, professors from anthropology, architecture, planning, geography, life sciences and sustainable tourism will conduct research on Hakka socio-cultural history, architecture and settlement, river ecology, biodiversity and tourism impact. Restoring Ng To village houses will provide a base for multi-disciplinary on-site field studies, outdoor surveys, experiential learning and educational tours of the study area.	
1.3	**Premise owner**	Mr. Yeung Yuk Feng (楊玉峰), Owner of No. 41 (DD54 Lot 1358) Mr. Yeung Kwong Wah (楊廣華), Owner of No. 43 (DD54 Lot 1359, 1360)	
1.4	**Location**	No. 41 and 43, Ng To, Kuk Po, Luk Keng, N.T.	Fig. 1
1.5	**History**	Kuk Po (谷埔), has six villages including Kuk Po Lo Wai (谷埔□圍), Kuk Po San Uk Ha (谷埔新屋下), Yi To (二肚), Sam To (三肚), Sze To (四肚) and Ng To (五肚). Kuk Po Lo Wai is the oldest village. Most of the villagers are Hakkas (客家) including the Yeungs (楊), the Sungs (宋), the Chengs (鄭), the Lis (李), the Yaus (邱), the Hos (何) and the Ngs (吳). The Yeungs were the earliest settlers who moved to Kuk Po about 300 years ago. When the population of the clan increased, they branched out to Yi To, Sam To, Sze To and Ng To villages.[1] No. 41 and 43 were originally one-storey vernacular village houses and have been reconstructed in the 1960s.[2] Kuk Po once had a population of around 1,000 villagers who farmed rice and other crops to sell in nearby Sha Tau Kok. Numbers started dwindling in the 1960s as residents were offered an opportunity to start a new life in Britain. By the 80s, the majority of the remaining residents were elderly.[3] Nowadays, all the houses in Yi To, Sam To, Sze To and Ng To villages are vacant.	
1.6	**Architecture**	Having shared one unified building elevation and a continuous pitched roof, No. 41 and 43 were built as a two-storey house subdivided into three bays. The left bay is one smaller unit (No. 41) while the middle and the right bay combined to form a larger unit (No. 43). The main doors for the two units are located at the middle bay and left bay. Each unit has separate staircases connecting the ground floors and the upper floors. The interior space of the ground floor in each unit	Fig. 2 Fig. 3

[1] Antiquities and Monuments Offices, *Historic Building Appraisal, Yeung Ancestral Hall, Kuk Po Lo Wai, Luk Keng, item 1118*, 2010.

[2] According to informant Mr Yeung Yuk Feng, 7X years old, Owner of No. 41.

[3] Time Out Hong Kong, *Hong Kong's abandoned villages to explore*, retrieved November 15, 2021 from website: https://www.timeout.com/hong-kong/things-to-do/hong-kongs-near-abandoned-villages.

		can be defined as a front living and cooking space and smaller rooms at the rear, while the upper floors were subdivided into small rooms by timber partitions. It is very likely the building was constructed of concrete masonry commonly found in the rural area in that era. The flooring and cocklofts of upper floors was built by timber planking rested on rectangular joists. Concrete screed was laid on top of timber planking particularly at No. 41. The common Chinese-styled pitched roof was laid with pan tiles of two different sizes, locally known as "Hakka roofing", sit on timber battens and purlins. The building was decorated in a few loci. On top of the front facade is a parapet wall that spans the whole width of the elevation. Along the parapet wall are framed panels separated by short columns with simple ornamental cap and motifs in low relief. Number 1967, the construction year of the building, was inscribed on the middle panel, while the panels atop the two side bays feature low relief of circular pattens.	
1.7	Heritage status	The house is not accorded as historic building.	

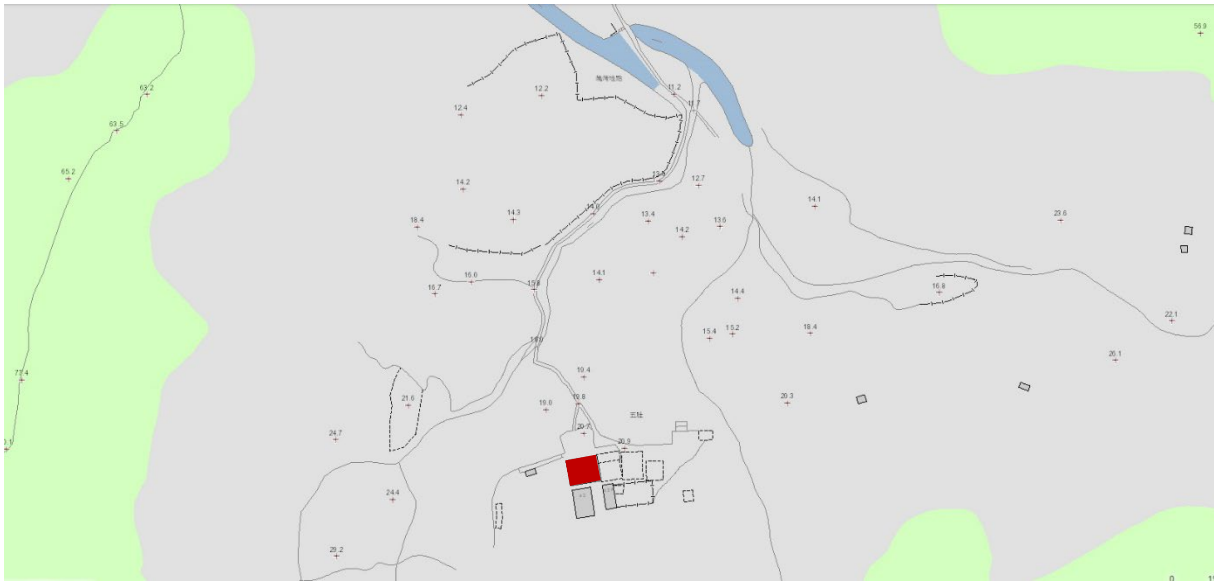


Fig. 1. Site map of No. 41 and 43, Ng To, Kuk Po, Luk Keng.
(Geographical Information System on Hong Kong Heritage, Hong Kong SAR Government)

Fig. 2. No. 41 and 43, Ng To in the surrounding.

Fig. 3. Front view of No. 41 and 43, Ng To, Luk Keng.

Fig. 4. Ground floor plan, upper floor plan, section and reflected ceiling plan of the building.

2

EXISTING CONDITION

2.1 General

The two-storey building comprised No. 41 and 43 is three-bay structure accommodating two individual living units. The building was constructed with external load-bearing walls of probably concrete masonry blocks, 255mm thick. The roof was greyish Hakka-styled pan tiles and reddish pan tiles on round China fir battens and purlins. The flooring of upper floor was built by concrete screed laid on timber planking rested on rectangular joists. Stairs between floors were constructed by timber. The building was crowned with ornamented parapet wall spanning the whole width of the façade.

The building was un-maintained. It was told that there has not been any major repair works carried out to the building since its completion in 1967.[4] The general condition of the walls appeared satisfactory. There was no observable spalling or cracks. Dirt stain and mold growth were noted at the external walls. The interior was dry, and had no noticeable mold or lichen growth. By visual inspection and hammer tapping, the timber roof of China fir purlins and battens had suffered termite attack and many were rotten. Cracks and hollowness were generally spotted on purlins, while mud tubes were found spreading all over the roof structures. The main ridge was otherwise in reasonable condition, except the portion at No. 43 settled slightly. The condition of roof tiles was reasonable for their age. The timber planking of the upper floors and cocklofts was in generally satisfactory condition, while some rectangular joists showed termite infestation checked by hammer tapping.

The decorated parapet wall on top of the front façade was deteriorated but was otherwise in reasonable condition. The motifs in low relief were still intact with traces of original colouring.

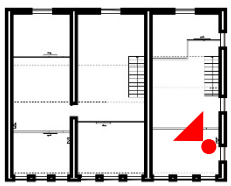
[4] According to informant Mr Yeung Yuk Feng, 7X years old, Owner of No. 41.

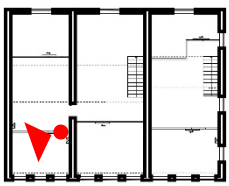
2.2 Specific defects

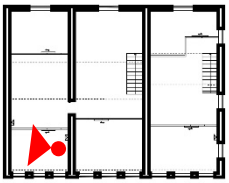
2.2.1 Rotten timbers

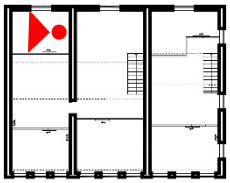
By visual inspection and hammer tapping, timber structures at the roofs of both No. 41 and 43, including the timber battens and purlins supporting the tiled roof, suffered termite infestation. Cracks were broadly observed on the purlins that also exhibited different degree of hollowness by hammer tapping. Mud tubes were found at the purlins and battens. A few spots on the purlins were noticed very papery, suggesting serious termite infestation in particular locations. It also appeared that the end of a few purlins at No. 43 sank slightly, including the ridge purlin, probably due to the decaying portion embedded inside the wall. The slight settlement of the ridge purlin subsequently resulted the deflection of the plastered ridge at No. 43. One of the purlins was marked "85. 5. 26 太平白蟻公司 p c o" in each unit, which likely indicated the date of last termite treatment to the timber roof structures. However, there was no termite monitoring or control devices found on site.

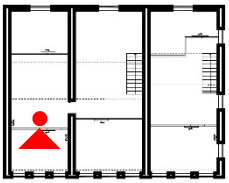
The rectangular joists of the upper floors were apparently made by harder wood and demonstrated better condition, as inspected by hammer tapping. Majority of the timber joists were in sound condition, while some of them suffered termite infestation evidenced by presence of mud tubes and hollow sound.

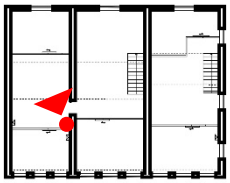


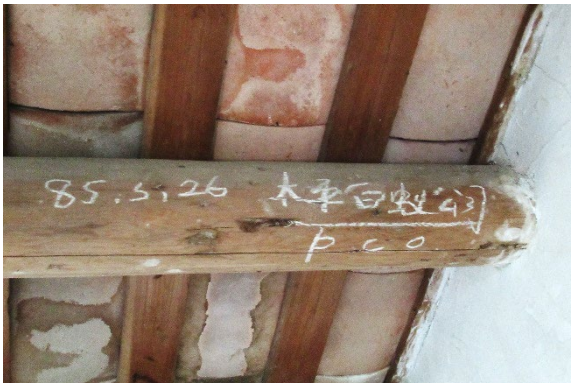








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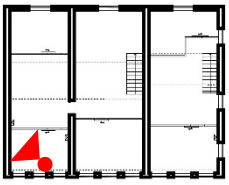
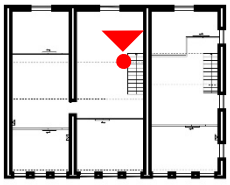
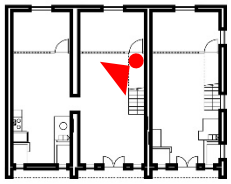
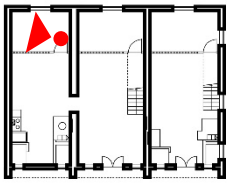
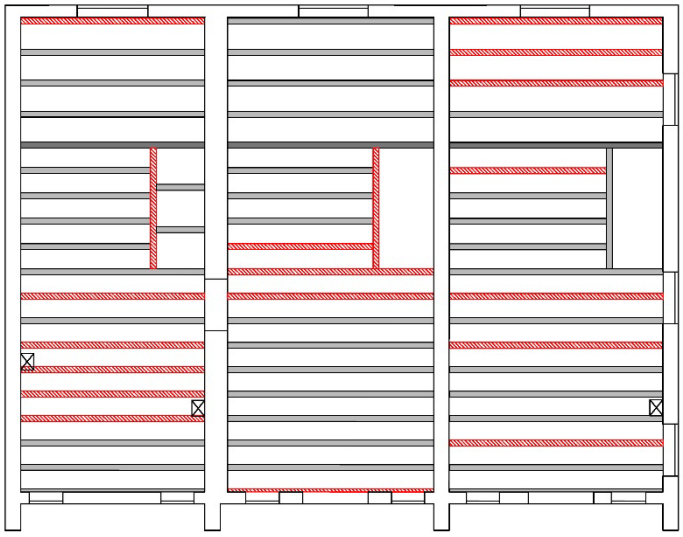










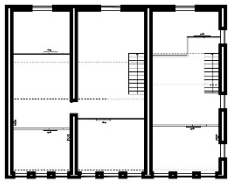
Reflected ceiling plan of ground floor. Rotten timber joists are highlighted.

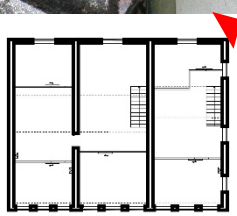
2.2.3 Tiled roofs

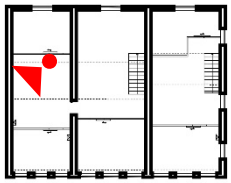
The Chinese-styled roofing appears stable and was in generally satisfactory condition.[5] The roof tiles was of a condition consistent with its age, broken or displaced tiles were not common. The main plastered ridge at No. 43 have settled because of the displaced ridge purlin underneath. Other portion of the main ridge and hanging ridges were in reasonable condition, without having noticeable cracks or severe deterioration.

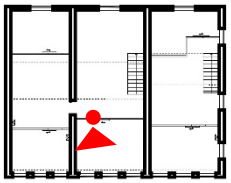
The bottom layer of reddish pan tiles was unreasonably laid in butt joint. Such tiling is purely decorative and does not perform as a water proofing layer. There was water seepage among the junction between the chimney and roofing at No. 41, leaving water and mold stain on the nearby wall.

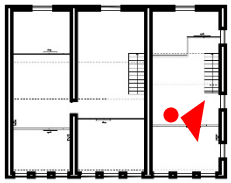
[5] Only the rear tiled roof was observable on site.





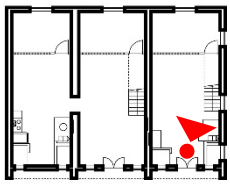


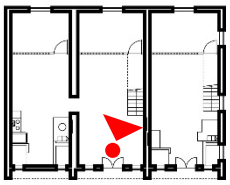




2.2.4 Timber stairs

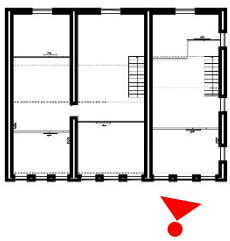
The stairs connecting the ground and upper floor was constructed of timber treads and risers fixed to timber stringer, which sit on a concrete plinth. The railing was made by metal. It was observed that the timber components did not suffer termite infestation, and was generally in a sound and satisfactory condition, except very few loosen pieces.

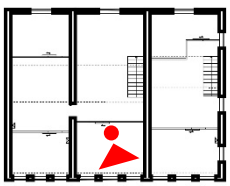




2.2.5 Metal windows

The metal windows were in unmaintained condition and none of them was operable. They are rusty, yet the components, including the ironmongeries and glass panes were kept intact.





3

PROPOSED WORKS

For the restoration and repair works, the general approach is to only carry out essential repairs, replacements and restorations to ensure the houses are safe, secure, clean and ready for the research activities by the project team that will take place in the interiors.

3.1 Carpentry and joinery

Rotten timber battens and purlins

(a) Take down defective timber battens and purlins at the roofs at No. 41 and 43;	Numerous purlins exhibited hollowness in hammer tapping test. Subject to available budget, they would be replaced by timber log of the same species, probably Chinese Fir, with priority given to those seriously rotten.
(b) Supply and install new timber battens and purlins at the roofs at No. 41 and 43; and	The exact quantities of defective battens and purlins to be replaced shall subject to further verification after opening up the roof, in particular the portion embedded inside the walls.
(c) Prepare the surface and apply wood preservative primer and protective finish coating to all timber battens and purlins.	Wood preservative primer with fungicidal and insecticidal treatment would be applied to all new or salvaged timber elements to prevent attack by termites, wood boring insects, fungi, woodrot and decay etc. The protective finish coating would be diffusion capable, water repelling and moisture regulating to allow breathable surfaces for woods.

Rotten timber joists and planking

(d) Take down defective timber joists at the upper floors at No. 41 and 43;

(e) Supply and install new timber joists at the upper floors at No. 41 and 43; and

(f) Prepare the surface and apply wood preservative primer and protective finish coating to all new timber joists and existing planking.

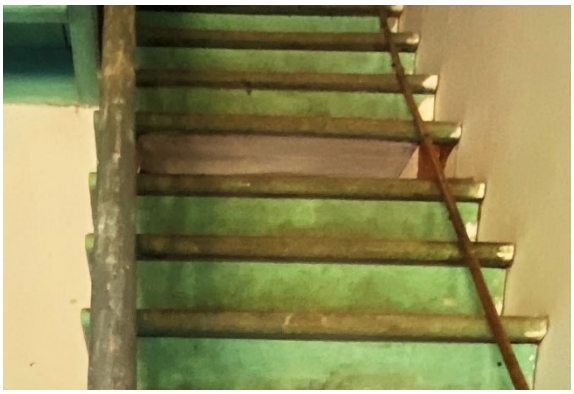
The timber planking on upper floors were in generally satisfactory condition, therefore only preservative treatment would be needed.

It is suggested to identify the species of existing timber joist by accredited laboratory to ensure like-for like replacement.

Timber stair

(g) Make good and repair the timber stairs at No. 41 and 43.

The timber stairs in both no. 41 and 43 were in generally satisfactory condition, therefore the works would only include replacement of missing pieces and fixing of loose timber components.



3.2 Roofing

(h) Dismantle existing tiled roof and re-lay salvaged and new tiles to the roofs at No. 41 and 43; and

(i) Supply and install lead flashing over the ridge purlins and at all hip ridges at No. 41 and 43.

Existing bottom layer of reddish pan tiles was unreasonably laid in butt joint. It is suggested to re-lay the pan tiles with lapping to improve the waterproofing performance of the roofing.

Despite insertion of lead flashing is modern intervention, it would effectively enhance the waterproofing performance of the roofing while inducing no change to the historical appearance.




3.3 Metalwork

(j) Make good and repair all existing windows, prepare surfaces and apply anti-corrosion primer and enamel paint.

The metal windows were inoperable mainly because of the rusty parts and lack of lubrication in the hinges. Therefore, works would removal of rust and exiting finishes, application of lubricant, and re-finishing.


3.4 Termite Control

(k) Design and install termite control and eradication system in accordance with the manufacturer's recommendations by termite specialist.

Termite infestation was the major defects found at timber purlins at roof and joists at the flooring of upper floors, causing severe damages to the structural members that definitely require replacement. To avoid costly repair in future, implementation of a termite control and eradication system is recommended.

3.5 Electricity

(l) Supply and install new electrical sockets and conduits to current standard

There is a necessity to upgrade the electrical system to facilitate utilization of the building as a study base for researchers.