

10. CULTURAL HERITAGE IMPACT ASSESSMENT

10.1 Introduction

10.1.1 This section evaluates and assesses the cultural heritage impact of the Development in accordance with the requirements stated in Clause 3.5.8 of the Study Brief and the criteria and guidelines stated in Section 2 of both Annexes 10 and 19 of the TM.

10.2 Objectives of the Cultural Heritage Impact Assessment (CHIA)

10.2.1 The objectives of the CHIA are the following:

- To identify landscape features within the Study Area, including sites of historical events, historical field patterns, tracks and fishponds and cultural elements such as fung shui woodlands and clan grave sites which will be affected by the proposed development;
- To identify direct and indirect impacts on the nearby historical buildings and structures in the following villages:
 - Ng Uk Tsuen, including the Tin Hau Temple and village houses;
 - Shing Uk Tsuen, village houses;
 - Tai Tseng Wai, village houses;
- To assess potential impacts including visual impacts on fung shui/visual corridors of the historical buildings and structures;
- To propose measures to mitigate against identified impacts.

10.3 CHIA Methodology

Desk-based Study

10.3.1 A desk-based review was undertaken to identify the known cultural heritage resources in the broader Study Area. Research gleaned existing information and included the following sources: published and unpublished AMO reports and files, Public Records Office, GEO bore hole data, GEO aerial photograph library, Lands Department maps and photographs and other relevant resources.

Historical Buildings and Structures Survey

10.3.2 A systematic survey of the Study Areas and potentially indirectly impacted adjacent areas was carried out in order to record all buildings and structures and parts thereof which were constructed before the year 1950 and/or otherwise qualify as having heritage value according to the AMO criteria. Identified cultural heritage resources were recorded on detailed recording forms, for both their architectural features and cultural and historical associations. Photographs were taken and the resources located on 1:1000 maps. The Survey is described in further detail in Section 10.5.

Historical Landscape Features Survey

10.3.3 Field inspections were undertaken to assess the status, function and conditions of the ponds at present. The results are presented in Section 10.6.

Assessment of Impacts and Recommendation of Mitigation

10.3.4 Data collected from the previous tasks was examined in the light of previous alterations to the original landscape and the predicted impacts of the planned development on the identified and potential heritage resources. The summary of the results of this assessment and resulting recommendations for mitigation are presented below in Section 10.7.

10.4 The Study Area

Geology and Topography

- 10.4.1 The Study Area is characterised entirely by extensive, reclaimed mud flats lying at approximately 4 m PD. The Study Area comprises almost entirely of undivided, mainly dark grey marine mud and partly silty marine sands (both belong to the Hang Hau Formation). These muds and thin stretches of sand are entirely Holocene in age and are evidence of rapid sedimentation in the Deep Bay area. Along the southern edge of the Study Area there is a strip of Holocene marine sands, which represent the earliest shoreline.
- 10.4.2 These sands in turn lie against Pleistocene terraced alluvium and debris flow deposits of the original landform, a north east pointing peninsula of Lok Ma Chau Formation metamorphosed sedimentary and volcanic rock. The peninsula rises to a height of 61.7 m. PD. Debris flow deposits and terraced alluvium (Pleistocene) form the lower parts of its slopes. The hills are gently sloping and consist of relatively fine grained deposits of cobbles and gravel in clayey silt. To the north west of Ng Uk Tsuen fine granite intrudes the main geology (Langford R.L., et al.1989).

Existing Impacts

- 10.4.3 The Study Area does not impact on the landmass and is thus entirely located in the ponds. The following impacts have occurred in the Study Area:
- Re-dividing of the ponds, changing of their shapes;
 - Temporary structures;
 - Surfacing of the roads (minimal).

Potential Impacts

- 10.4.4 The proposed works may have an adverse impact on the existing landscape. The following potential impacts may arise from construction:
- Destruction of sections of the existing ponds and bunds;
 - Irreversible change of historical landscape of ponds and bunds;
 - Visual impacts on the historical villages;
 - Indirect impacts on the graves, historical villages and/ or structures, etc.
 - Changes in water table levels and vibration caused by the development

10.5 Historical Buildings and Structures Survey

Introduction

- 10.5.1 The background, methodology and findings of the historical buildings survey will be presented in this section. The assessment of any impacts to the recorded resources will also be presented, as will recommendations for mitigation. It should be noted that the survey included the actual Study Area as well as three nearby villages, Ng Uk Tsuen, Shing Uk Tsuen and Tai Tseng Wai, which were highlighted in the study brief.

Potential for Cultural Heritage Resources in the Study Area

- 10.5.2 The village of Tai Tseng Wai was settled approximately 500 years ago. There are five surnames associated with the village; Cheng, Leung, Shing, Lam and Tang. All of the families came from Tai Peng, Tung Kwun in Guangdong. The Leung and Cheng families arrived first. The Shing, Lam and Tang arrived about 300 years ago. The people here supported themselves through fishing and farming in the area. Farming was abandoned approximately 20 years ago.
- 10.5.3 The village of Shing Uk Tsuen was settled approximately 400 years ago. It is a single family surname village, i.e. Shing. The families came from Guangdong province. The area behind the village was used to grow crops such as sweet potatoes and peanuts. Many of the men from the villages, traditionally worked abroad.
- 10.5.4 The village of Ng Uk Tsuen is a single surname village, Ng. The 1st generation ancestor was

called Ng Hung Lan, who came from Nam Tau. The current generation is the 29th. The Ng family of Ng Uk Tsuen is related to the Shing family of Shing Uk Tsuen by marriage. The villagers supported themselves through farming rice, in rented fields and through fishing and catching crabs in Deep Bay.

10.5.5 The three villages all share the gods hall in Tai Tseng Wai and the Tin Hau temple near Ng Uk Tsuen.

10.5.6 The fishponds in the Study Area were owned by people from Shek Ha in mainland China and some Tanka families. The ponds were first used in the 1920's for harvesting of shrimp, fish and crabs. The usage of the area as fishponds continues today. The aerial photographs did show evidence of a settlement that contained two structures in 1949, see Figure 10-2, more than a dozen units in 1963, see Figure 10-3 and no evidence of any units in 2000, see Figure 10-4. It is possible that these were the homes of the Tanka people who worked in the ponds.

Background

10.5.7 The Study Area consists of a series of ponds, separated by bunds. The structures currently in place here were all found to be of recent construction and of a temporary nature, see Figure 10-5. The three villages highlighted in the brief (as listed below) contained a total of 112 structures.

- Ng Uk Tsuen
- Shing Uk Tsuen
- Tai Tseng Wai

10.5.8 The recorded features included domestic structures, village gates, a temple, shrines and a village well. The villages were all easily accessible and this allowed for relatively straightforward identification of the historical and cultural resources. The field survey also included identification of burial associated sites and fung shui features, see sections 10.5.15 and 10.5.16 respectively.

Historical Buildings and Structures Survey Methodology

10.5.9 The structures within the Study Area as well as those in the villages were surveyed and assessed on an individual basis. The survey consisted of a field evaluation incorporating the collection of photographic, oral and written information, on the architecture and history of all historical structures to be impacted by the proposed development. This information was recorded on specially designed forms, (either a full ten page form, or in cases where the structure could be adequately described in less space, a one page summary form). These forms were designed to provide a complete documentation of all identifiable pre-1950 structures, as well as any more recent structures of cultural/ historical significance. Architectural features and structural modifications, as well as historical attributes, such as previous uses and past associations with local families or prominent personages are documented on the forms. The design of the forms is based on AMO and ICOMOS (International Charter for the Conservation and Restoration of Monuments and Sites) standards for the recording of historical resources with modifications to suit architectural styles and situations encountered in Hong Kong. The recording forms also include general information about the structure, such as location, building type, usage and ownership. The forms have been compiled to create a catalogue, which is included in this report, see Appendix 10-1. As well, a synopsis of each structure is presented below and the locations of the historical/ cultural resources highlighted on 1:1000 scale maps (see Figure 10-6, Figure 10-7 and Figure 10-8 and Figure 10-8a).

10.5.10 The data gathered from the field survey for the individual heritage resources along with the information from previous desk based research was used to prepare assessments of the historical resources and formulate mitigation recommendations.

Synopses of Recorded Structures and Village Summaries

10.5.11 All of the recorded structures were located in the three villages and are presented in synopsis form below. The actual Study Area was found to contain no cultural heritage resources of any kind.

Shing Uk Tsuen (Figure 10-6)

10.5.12 This village contains a number of traditional structures. Many of the domestic structures were courtyard style terraces. The majority of these structures were either abandoned or closed up and

not being used as houses. Many of the modern replacement structures date to the 1970's and 1980's. There is no current building activity going on in the village. There are still a number of cut stone pieces, taken from demolished buildings, in the village.

- FLW-01-01 Kwong Ling Tong (Tse Tong). A 1971 structure built on the site of an older Study Hall. Two storey concrete building, flat roof, balcony on first floor façade. Parapet with red star and 1971 on façade.
- FLW-01-02 Ruins of a single storey green brick shed. Front section partially intact, middle and rear destroyed. Pre-1950 in date.
- FLW-01-03 Green brick, end terrace, courtyard style house. Decorative canopy over main entrance door. Frieze panels in poor condition on façade and right wall and gable. Approximately 100 years old.
- FLW-01-04 Compound with Green brick house and attached structures. The house has traditional exterior maintained and tile and concrete roof.
- FLW-01-05 Tree and shrine. Large Banyan tree with small shrine about 1 metre in front (by entrance gate to village). Shrine consists of small standing stone with concrete enclosure and incense holder.
- FLW-01-06 Row of five green brick courtyard style terrace houses. Facades have been all been heavily modified, although interiors are relatively intact. The row is approximately 60 years old.
- FLW-01-07 Two green brick, courtyard style, terrace houses, one end/ one mid terrace. Modern entranceways and canopies have been added. Frieze decorations in poor condition. Roof is entirely flat. Approximately 65 years old.
- FLW-01-08 Green brick courtyard style house, end terrace (right end) structure on left hand side has been demolished. Decorative frieze and canopy intact. Pre-1950 in date.
- FLW-01-09 Concrete over pounded earth courtyard style structure. Concrete roof. Pre-1950 in date.
- FLW-01-10 Row of three green brick terrace houses (courtyard style). Left hand pair are intact, right hand side unit is ruinous (façade only remaining). All facades retain decorative canopies and friezes.
- FLW-01-11 A row of three green brick, courtyard style houses. Traditional facades (apart from modern gates on right hand two) with decorative features in poor condition. Pre-1950 in date.
- FLW-01-12 Four green brick houses, intermediate terrace, courtyard style. Single course of granite at foundation on façade. Traditional features retained.
- FLW-01-13 End terrace, green brick, courtyard style house. modern door. Decorative frieze and canopy in fair to poor condition. Pre-1950 in date.
- FLW-01-14 Two green brick, courtyard style terrace houses. The right hand unit is a ruin. Left hand unit has traditional interior (altar in rear). The units are 1950 in date.
- FLW-01-15 Small shed made of mixed colour bricks and pitched tile roof. No decorative features..
- FLW-01-16 Row of three green brick, courtyard style terrace houses. Only left hand unit is occupied, other two are ruins. Attached structure on right hand unit is also ruinous, stone and pounded earth material. Decorative canopies on above entranceways. Pre-1950 in date.
- FLW-01-17 Mixed brick terrace house. Single pitched roof, (tile and concrete) . Roughly cut stone foundation. Pre-1950 in date.
- FLW-01-18 Shing Ka Tse. Tse Tong. Two storey modern building. White pebble texture tiling on exterior.
- FLW-01-19 Abandoned brick and stone building. Very overgrown with vegetation. No windows or doors. . Pre-1950 in date.
- FLW-01-20 Row of three structures with two green brick courtyards style units with front section only remaining. Third structure almost completely collapsed.

- FLW-01-21 Row of five courtyard style houses, green brick. Relatively unaltered (except right hand two have metal gates). Decorative canopies above entranceways. Pre-1950 in date.
- FLW-01-22 Red and green brick two part structure. Arched doorway on right hand structure. Pre-1950 in date.
- FLW-01-23 Row of brick and concrete animal pens. Possibly about 50 years old in portions.
- FLW-01-24 Two green brick, courtyard style terrace houses. One end, one intermediate with adjoining unit demolished. Both units abandoned. Canopies and frieze on façade in poor condition.
- FLW-01-25 Green brick and stone house ruins. Stones in left hand wall are uncut, except on corner. Remains of interior, overgrown. Pre-1950 in date.

Tai Tseng Wai (Figure 10-7)

10.5.13 This village contained a number of older buildings. The majority of them were terrace houses, constructed of brick with no decorative features and a single pitched roof. The houses often had foundations of uncut or very roughly cut stones. A number of the houses were abandoned, used only for storage or housing family shrines. The traditional houses that were still being occupied often had alterations such as window additions, modern doors/gates and air conditioner units. As was seen in the village of Shing Uk Tsuen, most of the replacement village houses appear to have been constructed during the 1960's and 1970's.

- FLW-01-26 Shrine, concrete with paint and stucco. Recent construction
- FLW-01-27 Gate of village. Traditional and modern features. Incense holders and burners, exterior and interior. Shrine with village god figure to left of entryway.
- FLW-01-28 Single storey brick house, pitched roof. In use, no decorative features remaining. Pre-1950 in date.
- FLW-01-29 Gate within the village, leading to three houses. Mixed colour brick material with stone threshold. Small recess in interior wall with incense holder. The gate is attached to houses and appears to be of similar date, pre-1950.
- FLW-01-30 Row of two green brick courtyard style houses. Decorative canopy and frieze on façade. Tile and concrete roof. Pre-1950 in date.
- FLW-01-31 Green brick courtyard style, end terrace house. Decorative canopy and frieze. Pre-1950 in date.
- FLW-01-32 Courtyard end terrace, green brick house. No decorative features remaining. Pre-1950 in date.
- FLW-01-33 Green brick end terrace courtyard style house. Decorative canopy above door, molded frieze on façade. Pre-1950 in date.
- FLW-01-34 Green brick courtyard style house. Canopy above door. Pre-1950 in date.
- FLW-01-35 Pair of two-storey green brick terraces. Balcony over front section of structures. Pre-1950 in date.
- FLW-01-36 Section of brick wall
- FLW-01-37 Green brick courtyard unit. Parts of façade wall intact. Pre-1950 in date.
- FLW-01-38 Two green brick courtyard style houses. Interior collapsed. Pre-1950 in date.
- FLW-01-39 Modern Gods' Hall.
- FLW-01-40 Yee Hing Tong (Cheng Family Study Hall). one and a half stories (with loft). Entrance door off centre to left. Pre-1950 in date.
- FLW-01-41 Brick house next to the Study Hall. Only decorative feature, molding under eaves on façade. Pre-1950 in date.
- FLW-01-42 Three abandoned terrace houses, single pitched roofs, green brick and stone foundation. Houses date to pre 1900.
- FLW-01-43 Mixed brick house. Single pitched roof. No decorative features. Pre-1950 in date.

FLW-01-44	Three mixed brick houses. Single pitched roof. No decorative features. Terrace. Pre-1950 in date.
FLW-01-45	Two intermediate green brick terrace houses, single pitched roofs. Pre-1950 in date.
FLW-01-46	Five abandoned terrace houses. Green brick and stone foundations. Pre-1950 in date.
FLW-01-47	Green brick and pounded earth house, with rough cut stone foundation. Pre-1950 in date.
FLW-01-48	Ruins of three structures, green brick wall portions remaining.
FLW-01-49	Green brick terrace house, single roof. Stone foundation. Pre-1950 in date.
FLW-01-50	Brick and pounded earth terrace house, single pitched roof, partially collapsed. Pre-1950 in date.
FLW-01-51	Ruin of two houses, green brick and mud stone walls with stone foundations. Pre-1950 in date.
FLW-01-52	Green brick structure, end terrace, concrete added around foundation. Single pitched roof. Pre-1950 in date.
FLW-01-53	Ruins of a house, mud brick walls and wooden beams in very poor condition. Pre-1950 in date.
FLW-01-54	Green brick, intermediate terrace, single pitched roof. Pre-1950 in date.
FLW-01-55	Green brick terrace house with stone foundation, in very poor condition.
FLW-01-56	Mixed brick terrace house, single pitched roof. Poor condition. Pre-1950 in date.
FLW-01-57	Green brick house, part of former terrace. Single pitched roof. Pre-1950 in date.
FLW-01-58	Mixed brick house, single pitched roof. Not in use. Pre-1950 in date.
FLW-01-59	Two terrace houses, end terrace and intermediate. Green brick with stone foundation, some sand stone pieces. Pre-1950 in date.
FLW-01-60	Row of three terrace houses. Green brick, single pitched roof. Pre-1950 in date.
FLW-01-61	Ruin of green brick house, portions of walls remaining. Pre-1950 in date.
FLW-01-62	Three green brick terrace houses. Single pitched roofs. Pre-1950 in date.

Ng Uk Tsuen (Figure 10-8a and Figure 10-8b)

10.5.14 This village contained a number of traditional structures in various conditions, ranging from completely ruinous to inhabitable.

FLW-01-63	Tin Hau Temple, rebuilt in 1981. All modern features
FLW-01-64	Small earth god shrine consisting of wooden boards behind two stones, and brick incense holder
FLW-01-65	Courtyard terrace house. Decorative canopy and frieze on façade. Pre-1950 in date.
FLW-01-66	Two mixed brick terrace houses. Forecourts very overgrown. Single pitched roofs. Over 100 years in age.
FLW-01-67	Ruins of two courtyard terrace houses. Decorative canopies still intact, but poor condition. Over 100 years in age.
FLW-01-68	Courtyard style terrace house. mixed brick façade and rammed earth and render side walls. Collapsing roof. Pre-1950 in date.
FLW-01-69	Green brick and concrete (heavily altered) intermediate terrace. Canopy over doorway in fair condition. Portions of structure pre-1950 in date.
FLW-01-70	Section of brick wall and collapsed pounded earth section.
FLW-01-71	Green brick courtyard style unit with modern flat roof on front and added middle section on roof with access to front roof area.
FLW-01-72	Small single room pounded earth and render covered shed. Pitched tile roof. Modern door and windows.

- FLW-01-73 One mixed brick courtyard terrace house ruin Decorative canopy above door, very poor condition. Pre-1950 in date.
- FLW-01-74 Ruins of a green brick building, lower walls remaining in places.
- FLW-01-75 Two courtyard style houses. Mixed brick and portions of walls covered in render. Approximately 100 years in age.
- FLW-01-76 Modern Study Hall (Kwong Cheung Study Hall). Named after an ancestor.
- FLW-01-77 Row of four courtyard style terrace houses. Green brick. Over 100 years in age.
- FLW-01-78 Three green brick courtyard style terrace houses. Stone foundations visible in two units. Decorative canopies, poor condition. Pre-1950 in date.
- FLW-01-79 Modern Tse Tong (Wing Yick Tong). Two storey, tile exterior.
- FLW-01-80 Row of four courtyard terrace houses. Green brick, decorative canopies over the doorways. Pre-1950 in date.
- FLW-01-81 Green brick, courtyard terrace style house, in ruins. Façade intact with decorative canopy. Pre-1950 in date.
- FLW-01-82 Well with shrine. Concrete platform. Granite blocks well lining.
- FLW-01-83 Row of two green brick houses, courtyard terrace houses. Modern parapets 1965 and 1972 renovation dates. Original houses pre date 1950.
- FLW-01-84 Row of two green brick terrace houses. Decorative canopies intact. Fung shui wall opposite. Pre-1950 in date.
- FLW-01-85 Originally part of a row of eight terrace houses, two missing. green brick, mud brick, cement, modern materials. No decorative features. Built during the Japanese occupation according to local informant.
- FLW-01-86 Originally a row of eight terrace houses. Two green brick, mud brick, cement, modern materials. No decorative features. Built during the Japanese occupation according to local informant.
- FLW-01-87 Green brick terrace, no decorative features. Approximately 100 years old.
- FLW-01-88 Village entrance gate. Pale green brick with tile and concrete roof. Wooden loft inside two shrines.
- FLW-01-89 Earth god shrine in concrete area in front of rural committee building. Stones are set directly into the cement. Incense holder in ground.
- FLW-01-90 Large Pak Kung shrine. Green brick, cut stone and cement. Wok yee gable sides, recessed altar in rear wall, large platform for incense holder.
- FLW-01-91 Kam Yan public school. Not in current use. brick, concrete and chunam exterior. of the main entrance that were taken from a boat that ran aground in the area about 100 years ago.
- FLW-01-92 Shrine in a concrete open area, cut stone blocks and incense holder. Large whetstone also set into concrete.
- FLW-01-93 Mixed brick shed attached to rear of modern structure. Tile and concrete roof. Traditional building materials, but age indeterminate.

Burial Associated Sites

- 10.5.15 The elevated area behind the village of Ng Uk Tsuen, including the fung shui wood contains a number of graves, kam tap and coffin slots. The location of the grave area is highlighted in Figure 10-9. None of the graves lie within the Study Area.

Fung Shui Features

- 10.5.16 A large area of fung shui wood is located behind the village of Ng Uk Tsuen. There are a mixture of tree species and many mature specimens. It is forbidden to cut trees in the area (according to local informant. The location of the fung shui wood is illustrated in Figure 10-9. The limit of the fung shui wood is entirely outside of the Study Area.

Impact Assessment**Resources within the Study Area**

10.5.17 The following impacts were considered for any built heritage features within the Study Area; visual/ aesthetic, changes in water table and damage from vibration during construction.

10.5.18 No historical buildings or structures, archaeological deposits, fung shui features or burial features were recorded within the Study Area. The development will therefore have no direct impacts.

Resources outside the Study Area

Table 10-1 The impacts associated with cultural heritage resources outside the Study Area

Resource	Description	Orientation/ Distance	Impact
Ng Uk Tsuen Village (including the Tin Hau temple) (FLW-01-63 to FLW-01-93)	<ul style="list-style-type: none"> An historical village containing 37 recorded cultural heritage resources, including a Tin Hau temple The land between the village and the Study Area is wooded The land surrounding the Tin Hau temple contains working concrete fishponds and woodland 	Away from/ 250 m	No discernible impacts
Shing Uk Tsuen Village (FLW-01-01 to FLW-01-25)	<ul style="list-style-type: none"> An historical village containing 25 recorded cultural heritage resources There are numerous modern structures in the vicinity of the village 	Away from/ 200 m	No discernible impacts
Tai Tseng Wai Village (FLW-01-26 to FLW-01-62)	<ul style="list-style-type: none"> An historical village containing 31 recorded cultural heritage resources The village is situated in a lowlying area There are numerous modern structures in the vicinity of the village 	Away from/ 350 m	No discernible impacts
Burial Associated Sites	<ul style="list-style-type: none"> Graves and kam tap associated with the local villages Graves are located along hillsides overlooking the Study Area. The graves overlook the proposed development site. 	Varied/ 100 m	No discernible Impacts
Fung Shui Woods	<ul style="list-style-type: none"> Mixed species woodland located behind the village of Ng Uk Tsuen still regarded as having fung shui importance (according to local informants) 	Not Applicable/ 150 m	No discernible impacts

Mitigation Recommendations**Resources within the Study Area**

10.5.19 There were no recorded resources in the Study Area, therefore, none of the above-mentioned impacts are relevant and no mitigation measures are required.

Resources outside the Study AreaTable 10-2 *Mitigation Recommendations for Cultural Heritage Resources Outside the Study Area*

Resource	Assessment Factors	Mitigation Recommendation
Ng Uk Tsuen Village	<ul style="list-style-type: none"> The Study Area is not visible from the village because of woodland and modern buildings The village is oriented away from the Study Area 	<ul style="list-style-type: none"> No further mitigation measures are necessary
Shing Uk Tsuen Village	<ul style="list-style-type: none"> The Study Area is not clearly visible from the village, as it is located in an area containing many modern housing units The village is oriented away from the Study Area 	<ul style="list-style-type: none"> No further mitigation measures are necessary
Tai Tseng Wai Village	<ul style="list-style-type: none"> The Study Area is not clearly visible from the village as it is situated in a lowlying area and the area immediately surrounding the village contains numerous modern housing units The village is oriented away from the Study Area 	<ul style="list-style-type: none"> No further mitigation measures are necessary
Graves	<ul style="list-style-type: none"> the graves lie outside the boundaries of the proposed development the graves overlook the Study Area 	<ul style="list-style-type: none"> No further mitigation measures are necessary
Fung Shui Wood	<ul style="list-style-type: none"> The fung shui wood lies outside the boundaries of the proposed development 	<ul style="list-style-type: none"> No further mitigation measures are necessary

10.6 Historical Landscape Features Survey***Changing Historical Land use Patterns within the Deep Bay Area***

- 10.6.1 The earliest useful map of this portion of the New Territories is the cadastral survey carried out by Newland in 1903. This map shows the deeply indented coastline of the southern shores of Deep Bay, fringed by mangroves (Irving Richard T.A. and Leung Kai Wing 1987). The area of Fung Lok Wai is shown as swamp and marsh in 1903. The situation remains unchanged at least until 1913 as can be established from a topographical map (GEO old maps section).
- 10.6.2 By 1924 survey maps and an aerial photograph, see Figure 10-10 (GEO Ref.# Y00159) show a major reworking of the mangrove environment. The process of reclaiming mangrove swamp for rice cultivation was arduous and time-consuming. It required the clearance of paths in the mangroves along which bunds were constructed. These were built of mud dug from the swamp and piled over stones to a height of up to 3m and a width of 20m at the base. Sluice gates were built into the walls to control drainage.
- 10.6.3 After initial draining, several years passed before cultivation was possible, during which salinity levels were gradually lowered by flushing with fresh stream water (Irving and Leung 1987). When sufficiently low, a variety of brackish water tolerant rice known locally as “haam moon” was planted. This tolerant strain was relatively high yielding with a long growing season, which allowed only one harvest per year. The quality of the rice was poor and it was used primarily for the production of rice wine.

- 10.6.4 During the period between 1938 and 1945 the Deep Bay area was transformed into gei wai. The only known account of how gei wais are constructed can be found in Richard T. A. Irving and Leung Kai Wing's publication (1987). The gei wai's are shallow intertidal ponds enclosed in earth dykes with sluice gates. Each of the gei wai had channels running around its perimeter and across the centre which acted as sheltering areas for the shrimps. Between the channels were stands of mangrove, which were maintained for fuel wood. The gates allowed water to flood the gei wai at high tide in autumn and flush shrimp larvae into the pond. In April, when the shrimp were mature, the pond was drained at low tide and the shrimp caught in a net across the sluice gate. Over 20 kg of shrimp could be harvested from a gei wai each time, and each pond could be harvested many times from April to October when the season ended. The increase in reclamation for gei wais during these years seems to be related to the large number of refugees who came to Hong Kong following the Japanese invasion of China. Many of these new arrivals came from mangrove areas of the Pearl River such as His-hsiang, with a long tradition of shrimp cultivation in shallow ponds. It would seem likely that much of the knowledge and techniques were brought by such immigrants during this period.
- 10.6.5 By 1974 the land use of the area was converted to ponds for raising fresh water fish. These ponds are substantially deeper than gei wai, measuring about 2 m deep. They exhibit a different impact on the landscape being stripped of vegetation while the shrimp ponds have mangroves growing in them. Shrimps are introduced naturally into the gei wai; however, the fishponds are completely enclosed and are stocked by the introduction of selected species.
- 10.6.6 The tradition of fresh water fish cultivation in ponds goes back centuries in the New Territories. However, it was not until after the World War II and the introduction of pumping and stocking technology that intensive conversion to fishponds took place. The ponds are stocked with fry and then fertilized regularly until the fish are of marketable size. The pond is then drained and the fish netted.
- Recording of Historical Landscape Features within the Study Area**
- 10.6.7 Figure 10-11 shows the evolution of the bunds in the Study Area from 1924 to 2000.
- 10.6.8 In 1924 the areas along the landmass are small plots as can be established from the aerial photograph, see Figure 10-10 (GEO Ref.# Y00159) and according to local informants were used for brackish rice cultivation. The villagers rented these plots from the people of Shek Ha. The date of 1924 correlates with the local knowledge of the start of ponds about 80 years ago.
- 10.6.9 Even at this stage the basic plan of the Study Area of two parallel zones can be established. The most northern zone at this stage consists of large shallow plains divided by bunds. The southern zone has smaller divisions and was mainly for fish and shrimp production according to the villagers.
- 10.6.10 The same inherent pattern is evident in the 1949 aerial photograph (LD Ref# 6102 and 6181) and the 1957 topographical map (GEO old maps section). The strip along the landmass in 1949 was used for smaller agricultural cultivation, while the southern zone still had the small divisions but was in use as fish and shrimp ponds. The northern zone remained unchanged and still consisted of large marshy plains bordered by bunds.
- 10.6.11 The 1957 topographical map does not show the smaller plots along the landmass, but the zones are basically the same. While the aerial photograph dating back to 1963 shows that the small cultivation plots along the landmass were still in use (GEO Ref.#Y09690). The southern zone in 1963 shows along its southern border some small agricultural cultivation plots with smaller bunds and on its western side three largish ponds. However, the larger part of the southern zone consisted of very large gei wai's with some visible drainage channels.
- 10.6.12 The 1975 aerial photograph of the Study Area (LD Ref# 10972) shows flooded ponds at the southern end of the southern zone, while the rest are dry gei wai's. The strip along the landmass and around the small hill by this time had been converted to functioning ponds. An aerial photograph dating back to 1983 (GEO Ref.#48647) indicates that at this time the Study Area had been divided into small to medium size plots and these were functioning fish and shrimp ponds. The basic division of strip along the landmass, southern and northern zone remains.

10.6.13 Field evaluation of the Study Area in early 2001 concluded that the strip along the landmass too has been largely converted into functioning ponds. The local informant and evidence in the field indicates that the ponds have a depth of a couple of meters only, while no great conversion to fresh water ponds ever occurred. At present activities have largely ceased and most of the sluices seem to be no longer functional. Some of the bunds have been hardened for transport reasons, other bunds are more modest in appearance. These features are illustrated in the photographs in Figure 10-12.

10.6.14 The terminology used above to describe the landscape is ponds or gei wai's. The term gei wai is used for a shallow pond which has channels running around its perimeter and across its centre. These channels act as shelter areas for the shrimp. When ponds with gei wai characteristics could be established from the aerial photograph the term gei wai was used. However, if the gei wai or pond was filled with water and the shape of the pond could not be seen the more general term pond is used.

10.6.15 The use of different terms in this report refers to the specific shape of the pond or gei wai where it could be established. The literature and local knowledge both refer to shrimp and fish production as the function of the ponds in the Study Area.

Historical Landscape Features Impact Assessment

10.6.16 The literary evidence, local knowledge, maps and aerial photographs indicate that the area had a landscape of marshland at the beginning of the 20th century. The area has been in use for shrimp and fish cultivation from as early as 1924 as can be established from the aerial photograph. Although the basic pattern of bunds has been retained, the pond sizes and shapes have been extensively changed over time.

10.6.17 The proposed construction and associated works will have a direct impact on the bunds. Some of the larger bunds have more or less existed in their original pattern since the start of the shrimp and fish cultivation. They are indicated in red on Figure 10-11.

10.6.18 Upon the completion of the project, a large portion of the Site will be preserved as fish ponds, the existing fish pond landscape features will therefore be largely conserved. As the preserved fish ponds will be managed following traditional aquaculture management practices, the cultural heritage of traditional fish farming will also be conserved at the same time.

Mitigation Recommendations for Impacted Resources

10.6.19 Because of the lack of information concerning the materials and methods used to construct the oldest bunds. It is recommended that during site formation when a bund is cut or a 'section' is exposed, the section shall be recorded. It is recommended that this would be a requirement at the site formation stage.

10.7 Summary of the CHIA Findings and Recommendations

Historical Buildings and Structures Survey

Findings and Assessment

- There were no cultural heritage resources located in the Study Area. All structures were identified as modern squatter structures with no cultural heritage features
- The three villages highlighted in the study brief were found to contain 93 cultural heritage resources
- A number of graves were identified on the hill behind the village of Ng Uk Tsuen (outside of the Study Area)
- A fung shui wood was identified behind the village of Ng Uk Tsuen (outside of the Study Area)

Recommendations

- The Study Area contained no cultural heritage resources, thus, no mitigation measures are required
- The cultural heritage resources outside the Study Area were found to warrant no further mitigation measures based on the following factors:

- Adequate screening from the development site through existing woodlands, topographical setting and modern structures
- Sufficient distance from the development site
- Orientation away from the development site

Historical Landscape Features

Findings and Assessment

- 10.7.1 The assessment has found that although the basic pattern of the bunds was retained, the bunds have been extensively changed in size and shape.

Recommendations

- 10.7.2 In order to retrieve information concerning the composition of the bunds it is recommended that a brief recording exercise with methodology agreed with the Antiquities and Monuments Office be carried out during site formation.

10.8 References

1. AMO published and unpublished files
2. GEO Aerial Photograph Library and Old Maps Section
3. Lands Department Aerial Photographs
4. Chan Wai Yung 1993. An Analysis of the Policy on Building in tin Shui Wai New Town. Master of Public Administration Dissertation.
5. Irving Richard T.A. and Leung Kai Wing 1987. Land-use and land-use change in the reclaimed coastal areas of Deep Bay.
6. Irving Richard and Brian Morton 1988. A Geography of the Mai Po Marshes. World Wide Fund for Nature Hong Kong.
7. Langford R.L., K.W. Lai, R.S. Arthurton and R. Shaw 1989. Geology of the Western New Territories. (Hong Kong Geological Survey Memoir, 3), Geotechnical Control Office (CESD).
8. Lee Chi Ming, Ng Suk Wan and To Lap Kee 1987. City on heavenly waters. An Evaluation of tin Shui Wai New Town Development. MSc. Group workshop report.
9. Leung Wai Hung 1996. The Conservation of coastal wetlands, especially the mai Po Marshes, in Hong Kong: Problems and prospects. MSc Dissertation University of Hong Kong.
10. Melville D.S. and Brian Morton 1983. Mai Po Marshes. World Wildlife Fund Hong Kong.
11. Parish Faizal 1997. The Asian Region. An Overview of Asian Wetlands. Hails A.J. (Ed.) Wetlands, Biodiversity and the Ramsar Convention, Chapter 4.
12. Poon Sau Man 1997. Dredging and Reclamation Impact on Marine Environment in Deep Bay. MSc. Environmental Management University of Hong Kong.
13. da Silva Armando M. 1977. Native Management of Coastal Wetlands in Hong Kong: A Case Study of Wetland Change at Tin Shui Wai Agricultural Lot, New Territories. Geography PhD Dissertation University of Hawaii.
14. World Wildlife Fund 1985. The fascinating water's edge. Hong Kong.
15. Young Lew 1997. Mai Po Marshes: Conserving Wetland Biodiversity through Shrimp Farming. Hails A.J. (Ed.) Wetlands, Biodiversity and the Ramsar Convention, Chapter 4.