

## **9.0 HERITAGE IMPACT ASSESSMENT**

### **9.1 Objectives of the Heritage Impact Assessment**

9.1.1 The broad objectives of the heritage impact assessment are as follows:

- C identify the known and unknown sites or remains of archaeological, historical and cultural interest;
- C provide baseline information for these sites or remains;
- C identify the adverse impacts resulting from the proposed Project to these sites or remains of archaeological, historical and cultural interest; and
- C recommend measures to mitigate these direct or indirect impacts caused by the Project construction.

### **9.2 Assessment Methodology**

9.2.1 The methodology adopted for the cultural heritage assessment has efficiently assessed the potential of the different landscape units along the proposed alignment and at the sites of the pumping stations. The assessment has focused on a corridor either side of the route alignment. All other heritage features, such as historic buildings, clan graves or cultural landscapes found within this area has been recorded and reported.

9.2.2 The assessment methodology has been divided into distinctive sections, as follows:

- (i) compilation of a comprehensive inventory of archaeological sites, historic buildings and structures and landscape features within the broad study area. This comprised two key steps as follows:
  - C Desktop research -  
This included the collection of data regarding the geology and geomorphology of the area including geological maps, bore hole data, early maps of the area and aerial photographs. Information concerning the history of the study area was also collected from a number of sources including library research, collection of historical photographs and documents.
  - C Preliminary field assessment -  
This stage involved the review of further documentation by record and photograph of heritage resources within the study area including those previously identified and features newly identified in the field. The aim was to verify the continuing existence of historic buildings and structures and archaeological sites and to identify modifications to cultural landscapes as a result of land use. Additional information was obtained through interviews with local residents.

- (ii) design and implementation of field evaluation based upon the preliminary evaluation, comprising systematic field-walking, auger testing and possible test pit excavation as required, in addition to a historical buildings and structures survey.

### **9.3 Cultural Heritage Background**

#### **Background**

- 9.3.1 In accordance with the above methodology, desktop research and preliminary field study has been undertaken in order to identify the areas of cultural heritage value within the study area. Known historical buildings and structures and other cultural features, together with known archaeological sites and areas of archaeological potential have also been identified.

#### **Geological and Topographical Setting**

- 9.3.2 The study area consists of three narrow valleys filled with alluvium, cutting into the predominant granite of the area. Quartz veins occur widely in the granite base rock of the area and were mined in recent years. Numerous quartz artifacts and manufacturing waste from the Neolithic period found in the So Kwun Wat to Siu Lam area may be evidence of much longer exploitation of this resource.
- 9.3.3 The deposits in these 3 valleys are composed of loose, light yellowish silty sand with thin layers of silty clay, and vary in thickness from less than 1m to up to 5m. The coastal margin of the valleys was originally fringed with beach deposits; these have been altered by reclamation projects at So Kwun Wat and at the mouth of the Tai Lam Chung valley.

#### **So Kwun Wat Valley**

- 9.3.4 So Kwun Wat is located in a long narrow valley. The double raised sandbar at the mouth of the valley used to form a barrier between the water logged alluvial valley plain and open sea. It was adversely impacted by the construction of Castle Peak Road. The valley is surrounded by relatively steep rising granite hills. Lower foothills, rising to a height of approximately 30 to 40m, fringe the steep hills of white to pink granite with quartz veins and kaolinised granite deposits.

#### **Siu Lam Valley**

- 9.3.5 At Siu Lam the alluvium has accumulated behind a sand bar in a valley running to the northeast. It forms a flat plain rising steadily from about 3m PD near the coast to 15m PD inland. Here too the sandbar no longer exists because of the construction of Castle Peak Road, whilst a new development occupies the alluvial plain. The valley is surrounded by fine-grained granite with intrusive north-south trending basalt and quartz dykes.

#### **Tai Lam Chung Valley**

- 9.3.6 The Tai Lam Chung valley is long and narrow and surrounded by hills of fine to medium grained granite. The alluvium extends north into the valley and forms a flat plain 100 to 200 m wide at 2-5 m PD. (Langford et al.1989). At the mouth of the valley the construction of Castle Peak

Road prevents free flow of the river and accelerated fluvial deposits.

### **Archaeological Setting**

#### **The Prehistory of Hong Kong**

- 9.3.7 In the Hong Kong context “prehistory” refers to the period pre-dating the arrival of the Han Chinese, in approximately 221 BC. The prehistoric period is divided into the Middle Neolithic Period ( 4000 - 2500 BC ), the Late Neolithic Period ( 2500 - 1500 BC ) and the Bronze Age ( 1500 - 221 BC ). Sites are found in sand bars and on the lower hill slopes within sheltered bays throughout the territory. Sites have also been found on the tops of promontories and the edges of coastal marshes. The main finds from the prehistoric period include ceramic vessels, chipped and polished stone implements, shell, bone and bronze objects and occasional habitation remains in the form of fires and postholes.

#### **The Historical Period of Hong Kong**

- 9.3.8 The early historic periods ( 221 BC - 220 AD ) are not well represented in Hong Kong: little has been found from the Qin Dynasty and Southern Yue Kingdom; Han Dynasty material is present in the form of isolated finds, several sites and, most notably, in the form of the Lei Cheng Uk Han Tomb in Kowloon. Similarly, few artefacts have been recovered dated to the Six Dynasties and Sui Dynasty ( 222 – 618 AD). It is with the arrival of the Tang dynasty ( 618 – 907 AD ) that evidence appears of rapid growth in the local economy. The sea route to Guangzhou passed through the territory and a garrison was positioned at Tuen Mun to protect the maritime trade. Many sites have been found dating to this period, particularly lime kilns in coastal areas.
- 9.3.9 In the Song dynasty (960 –1279 AD ) immigration from China brought the main clans into the rural areas of the New Territories. A very limited number of archaeological sites of the Song dynasty have been found; several burials, sherds and coin caches and evidence of a customs post and lime production. In the Yuan dynasty (1271 – 1368 AD) the economy relied on salt production and pearl harvesting in Tolo Harbour and Deep Bay; both government controlled. Only one site has been found, at Ha Lo Wan on Chek Lap Kok with iron refining kilns. During the Ming dynasty (1368 – 1644 AD) the local economy continued to prosper with salt production, incense tree plantations and pearl harvesting. Archaeological evidence includes a pottery kiln site at Wun Yiu in Tai Po and trade ceramic deposits at Penny’s Bay, Lantau. The Qing dynasty (1644 – 1911 AD) brought the disruption of the Evacuation Order (1662 – 1669 AD). After repeal, the Hakka arrived to add to the depleted population, occupying less fertile lands. Pearl, salt and incense production declined and the economy shifted to more fishing and farming, and the growth of market towns, such as those at Tai Po, Yuen Long and Sheung Shui.
- 9.3.10 Archaeological remains have been found of forts and batteries built in the Qing dynasty to strengthen coastal defences against pirates. Remains have also been excavated of farmsteads and fields. To date, archaeological evidence has been found primarily in less developed parts of Hong Kong, where survey and excavation are more easily conducted. This evidence shows that archaeological sites are widely distributed across the territory, particularly in coastal areas.

This fact would suggest that there is also considerable potential for such sites within the urban areas.

### **Existing Land Use Patterns in the Study Area**

- 9.3.11 The Study Area houses several villages, Government and Institutional uses (schools, training centres, correctional facilities etc.) and residential areas, such as So Kwun Wat Tsuen, Ching Ka Tsuen, Tai Lam Chung Tsuen, Luen On San Tsuen, Wong Uk Tsuen and Wu Uk Tsuen. In the vicinity of So Kwun Wat Tsuen industrial and container storage areas are located along the sewer alignment. Siu Lam is the site of a brand new housing development, while to the east of the Tai Lam Chung River minor industries and storage facilities along with housing occupy the bank. Cultivated and abandoned land and areas of woodland and scrub can also be found throughout the Study Area.
- 9.3.12 This pattern of land use has implications for archaeological investigation, including issues of access to private land and clearance of dense vegetation. Concerns regarding areas potentially effected by industrial pollutants had to be addressed.

### **Previous Archaeological Findings**

- 9.3.13 The final report of the recent territory-wide Archaeological Survey for the area, by Zhongshan University, Anthropology Department, had not yet been submitted to the Government at the time of the assessment, although a brief preliminary report was available. On the accompanying map *Areas of Archaeological Interest* have been marked. These are areas where previous finds have been recorded and where the AMO has expressed particular interest due to landform and other predictive variables. Areas identified as *Archaeological Focal Areas* are parts of the present study area with high potential. It is recommended that the methodology presented below for specialist field survey should focus on these areas.

### **So Kwun Wat**

- 9.3.14 So Kwun Wat is the first place in Hong Kong to have been recognised as an archaeological site (pers.com. Dr. S.M. Bard) by Heanley in the 1930s. Heanley and Shellshear (1932) found the site to have an abundance of fragments of stone knives, quartz discs and many types of pottery characteristic of the Late Neolithic (2500-1500 BC) and Bronze Age (1500-100 BC) periods. They identified this site as a "*small industrial centre*".
- 9.3.15 Schofield (1938) describes the site as follows "*The prehistoric site is a low hill, partly grass covered, and has yielded hard and glazed pottery, pieces of quartz and stone rings, centres knocked out in ring making, masses of chips, lumps, and flaked disc of quartz, a few partly made cylindrical beads of green stone, and even a bronze arrowhead. All these lie scattered on the surface, or buried at a few inches depth.*" The Executive Officer of the AMO conducted a survey in 1978 of these low hills and found prehistoric and some Sung surface remains.
- 9.3.16 The Hong Kong Survey executed in 1984 (Peacock and Nixon, 1986: 98-100) noted that extreme erosion processes and deep and extensive terracing of the low hills will have effected

the likelihood of deposits surviving in situ. These processes may have resulted in the redeposition of archaeological material into the alluvial deposits of the valley.

- 9.3.17 The recent territory-wide Archaeological Survey discovered Ming Dynasty remains in the area of the Perowne Barracks (AMO, pers. comm.). Although these finds were recovered outside the study area, it raised the possibility of Ming occupation extending into the adjacent valley.

### **Siu Lam**

- 9.3.18 The archaeological site of Siu Lam was identified in 1937 and was described as being located just to the east of Siu Lam (Schofield, 1938). While the AMO has no record of the archaeological material found, the Hong Kong Archaeological Society has marked the site with a symbol for geometric Bronze Age pottery. The Hong Kong Survey in 1984 could not locate any remaining archaeological deposits in the area described by Schofield (Peacock and Nixon, 1986: 107-8).

- 9.3.19 The preliminary report of the recent Archaeological Survey reports the finding of remains from the Tang and Song periods.

### **Tai Lam Chung**

- 9.3.20 The recent Archaeological Survey preliminary report states that stone artifacts of an imported material were found on the slopes behind Wong Uk village in Tai Lam Chung. The finds are dated to the Late Neolithic period.

## **9.4 Historical Buildings, Structures and Landscape Features**

- 9.4.1 At the end of the 17<sup>th</sup> Century under the Manchu regime, people were encouraged to settle in the coastal regions of southern China. The village of So Kwun Wat, located in the western New Territories was originally founded, under light of this proposal, by members of two Hakka families, the Chan's from Tai Woo, Kiang Si and the Lee's from Tam Shui, Kwantung. At a later date, two more Hakka families, the Ching's and the Deng's, both from Fujian province, also founded villages in the immediate vicinity of So Kwun Wat, under the name of So Kwun Wat San Tseun and Ching Ka Tsuen. The Ching family village is currently located to the rear of modern So Kwun Wat, whilst the Deng village was abandoned at some point in the past, with only heavily overgrown ruins being visible today. Throughout the inhabited village areas, secondary usage of cut stones, sometimes substantial in size, can be seen, incorporated into buildings and other pieces of village architecture, such as, benches and walls and even scattered around the village in loose piles, awaiting reuse, as shown in Drawing 9.1. It is quite possible that this pattern of reuse was the result of the close proximity of the abandoned village as an easy source of building materials.

- 9.4.2 So Kwun Wat was the oldest established village in the Study Area and the other affected villages, Tai Lam Chung and Wong UK, were founded as offshoots at later periods. The age of Tai Lam Chung was estimated to go back for many generations by the local inhabitants, though they were not able to provide any specific dates.

- 9.4.3 The recent Historic Buildings Survey of the areas noted four buildings in the Tai Lam Chung area, three of which fall within the study area, as shown in Drawing 9.2. These are as follows:
- A. Wu Fat Wong Temple, Tai Lam Chung Tsuen;
  - B. An Ding Ga Suk ( Place of worship), Tai Lam Chung Tsuen; and
  - C. Wong Gwai An Tang Temple, Wong Uk Village.
- 9.4.4 Five buildings, which all fall within the study area, were also noted in the So Kwun Wat area, as follows:
- D. Dun Bun Hall-An Bu Hall, ancestral hall to the Li Family;
  - E. Gwai Fuk Hall, ancestral hall to the Chan Family;
  - F. Him Gwai Hall, ancestral hall to the Chan Family;
  - G. Tin Hau Temple; and
  - H. Ancestral Home to the Tsin Family.
- 9.4.5 The AMO had no records of Historical Buildings for the area of Siu Lam.
- 9.4.6 In addition, no *fung shui* woodland of high ecological value lies within the study area (Corlett pers. comm.). However, a wooded piece of area situated behind Tai Lam Chung Tsuen has local cultural value.
- 9.4.7 The Tai Lam Chung - Pat Heung Boulder Trackway enters the valley at what is now the northern end of the Tai Lam Chung Reservoir. The date of these trackways is uncertain, although in the view of Peacock in the 1986 Archaeological Survey they probably date to the period of agricultural development in the Tang and Song dynasties (Peacock and Nixon, 1986: 127-130). Investigations in the valley must be cognisant of the possible continuation of the trackway further into the So Kwun Wat Valley.

## **9.5 Field Evaluation**

### **Background**

- 9.5.1 Excavation of the substructures of the proposed pumping stations could affect or destroy any archaeological remains within its footprint. In addition, remains present outside the footprint but within the outline of the building foundations or services, are likely to be severely truncated by construction works. The excavation associated with the laying of the sewers and mains will cause disturbance to a depth of approximately 2m cutting a strip approximately 2m wide through any archaeological deposits.
- 9.5.2 The potential for impacts and the lack of historical and archaeological data from within the study area, combined with the rich history of the valleys as a whole, dictated that site investigations be implemented.
- 9.5.3 Thus, based upon the preliminary investigation, a programme of field investigations was proposed. The key factors which were taken into account during the design of the scope of the field survey were as follows:

- C the length and size of the study area dictated that a sampling strategy must be employed to maximise efficiency;
- C the linear nature of part of the study area requiring specialised sampling strategies, differing from that applied to the footprints of the pumping stations;
- C because the available reports of the recent Historical Buildings Survey for the area did not include Siu Lam, additional data collection was required in that area;
- C large portions of the study area are covered in concrete and thus a sufficient scope of survey had to be determined while avoiding these areas; and
- C areas of private land had to be avoided. In particular, this prohibited assessment of the original Tai Lam Chung Tsuen pumping station site.

### **Scope of the Field Surveys**

9.5.4 The site investigation programme comprised the following three main areas:

- (i) Additional Site Investigations for Historical and Cultural Heritage features, required to augment existing records.
- (ii) Archaeological Site Investigations of the areas around the pumping stations and the sewer and main alignments: sampling methodology was designed to identify areas of archaeological potential for further evaluation.
- (iii) Archaeological Site Investigations of the proposed Pumping Station sites: a detailed methodology was applied to the footprint areas to identify any potential archaeological deposits, which will be destroyed by construction, where access was possible.

9.5.5 The scope of the field work for each of these areas was as follows:

- i) Site Investigations for Historical and Cultural Heritage features:

For both village and rural landscape areas, a focused site investigation was carried out in the affected village areas and remaining rural landscapes which would be directly impacted by the proposed works to augment existing records.

The Historical Buildings and Structures recording form was designed to provide a complete documentation of all identifiable pre-1950 structures and any post 1950 buildings that are deemed to have particular historical or cultural relevance. This includes incorporating both their architectural features and historical attributes, such as previous uses, structural modifications and past associations with local families or prominent personages. The forms were based on AMO and ICOMOS (International Charter for the Conservation and Restoration of Monuments and Sites) standards for the recording of historical structures. They include general information, such as location, building type, usage and ownership, all of which is presented on the first page

of the form. An architectural description of the structure, both exterior and interior, where possible, including all visible features as well as alterations to the original structure make up the bulk of the form. Cultural and historical details of the building are also noted, where applicable. Finally, evaluation recommendations for the individual building or structure are supplied and any additional remarks are provided.

The historic structures were identified through visual inspection and interviews with the local residents. Once identified and marked on the map, the physical features of the structure both external and internal (with the permission of the occupant) were recorded and photographs of relevant features taken. The occupants were then asked about the history of the structure as well as any other related historical or cultural information, including estimated age of the building, previous uses and local family associations.

ii) Archaeological site investigations of the main sewer alignments:

A ground surface examination of exposed areas was carried out along the alignment. Auger tests were conducted at regular intervals along the alignment according to the Auger Testing Programme detailed below and if the results of ground surface examinations or auger testing indicated the presence of an archaeological deposit or of in situ soil deposits, a test pit excavation was excavated. The combined implementation of the methods, surface examination, auger testing and testpit excavation, was undertaken to identify the existence of any archaeological deposits, its lateral extent and its depth and stratigraphy.

iii) Archaeological site investigations of the proposed pumping station sites:

The footprints of the proposed pumping stations offered the opportunity to investigate large areas and, therefore, increase the likelihood of data retrieval. Thus, a systematic intensive auger survey was carried out around the perimeter of those pumping station footprint which had exposed surfaces. A total of four augers were scheduled for each site. The scope of the survey dictated that a single 2m by 1.5m testpit was excavated for further verification at each site, with the position based upon the data recovered by the auger sample.

The combined implementation of these two methods was undertaken to identify the existence of any archaeological deposit, its lateral extent and its depth and stratigraphy and on the basis of this information, further mitigation in the form of full excavation could be considered.

### **Auger Testing Programme**

9.5.6 The study area has been divided into a number of linear land parcels as shown in Drawings 9.3a and 9.3b. The identified parcels of land have been ranked as High, Medium and Low Potential Areas for the purposes of the sewer alignment investigation. Guidelines used for ranking criteria and requirement for each test are presented below:



- (i) High Potential Areas
  - C these are landforms or parts of landforms with high likelihood of archaeological evidence. This includes lower hill slopes where prehistoric material has been recovered in the past and areas of valley floor where there is the potential for historic remains and which have experienced minimal modification;
  - C the minimum spacing of the auger tests was intervals of 10m; and
  - C a test pit excavation was carried out if archaeological deposits or in situ soil deposits were found during the auger testing.
  
- ii) Medium Potential Areas
  - C these include landforms with archaeological potential which have been modified and areas with less potential but little alteration;
  - C the minimum spacing of the auger tests was intervals of 20m; and
  - C if the results of the auger testing indicate the presence of an archaeological deposit, a test pit excavation was carried out.
  
- iii) Low Potential Areas
  - C these are areas which may have had archaeological potential but which have been so heavily modified by construction that it is unlikely that any deposits could remain;
  - C the minimum spacing of the auger tests was intervals of 30m; and
  - C if the result of the auger testing indicates the presence of an archaeological deposit, a test pit excavation was carried out.

9.5.7 The auger testing programme was conducted within these parcels of land identified and the number of auger tests carried out in each parcel is presented in Drawings 9.3a and 9.3b, with areas covered by hard standing excluded from this survey. The minimum diameter of each auger hole was 12cm and the target depth for each hole was 3m.

9.5.8 In the case that an initial auger test hit rock or some other subsurface impediment at an early stage, or the test location proves impenetrable due to concrete, a minimum of two attempts were made within a radius of 1m, from the original location. If none of these were successful, the test site was abandoned.

## **9.6 Historical Buildings Field Survey Results and Assessment**

### **Background**

9.6.1 A comprehensive historical buildings survey was undertaken to augment previous reports and to systematically record any additional heritage resources within the study area in greater detail. A total of 54 buildings and structures were identified and recorded in the villages of So Kwun Wat, Tai Lam Chung and Wong Uk as part of the assessment survey, including the buildings identified in the Historic Buildings Survey detailed in Section 9.4. The completed recording forms are presented Appendix E and a synopsis of the buildings given below. The locations of the buildings and structures are shown in Drawings 9.4 to 9.9.

9.6.2 The occupation pattern and condition of the historic buildings was similar in all surveyed areas.

Many of the recorded domestic buildings were abandoned or being used for storage, with the owners living in newly built or completely renovated homes within the village. The public village buildings, such as study and ancestral halls and temples showed much more diversity in their conditions. In short, they were either completely modern renovations, unrenovated and abandoned, relatively unaltered and functioning in some part of their original capacity or altered to serve a completely different function. Building materials used in the historic structures varied greatly. A variety of sizes and styles of cut stone were prominent in the more substantial structures, with secondary usage being very common, especially in So Kwun Wat. Many of the structures contained some element of brickwork, both green and red. A large number of structures built on a more modest scale were essentially constructed from mud bricks, with a modern concrete overcoating. The latter was particularly apparent in Tai Lam Chung.

- 9.6.3 The physical environment at the time of the founding of the original village would have been that of an alluvial plain with close access to the sea. Remnants of this can be seen in the presence of a Tin Hau temple and the discovery of an historic shell midden in So Kwun Wat, containing a number of marine species of molluscs. No Fung Shui woodland of high ecological value lies within the study area (Corlett pers. comm.), however, an area situated behind Tai Lam Chung Tsuen has local cultural value.

#### **Summary of Historical Buildings and Structures**

- 9.6.4 A summary of the historical buildings and structures identified in the So Kwun Wat area are detailed below and shown in Drawings 9.4 to 9.7.

##### **So Kwun Wat - Ching Ka Tsuen (Drawing 9.4)**

- TMS-99-01 A Fung Shui shrine at the entrance of the village. The shrine has a bamboo screen at the rear and is still in use.
- TMS-99-02 The ancestral hall of the Ching family, identified in the Historical Buildings Survey (Section 9.4.4). The original structure was constructed approximately 400 years ago. The present replaced the old hall in 1994.
- TMS-99-03 A Fung Shui shrine at the entrance of the village. The shrine is still in use.

##### **So Kwun Wat - East Section (Drawing 9.5)**

- TMS-99-04 The Ancestral Hall of the Chan, identified in the Historical Buildings Survey (Section 9.4.4). The date of the building is estimated to be pre-1890's. The original structure remains largely unmodified, with moulded floral canopies above some windows, decorative ridges and floral painted friezes. The village has a strong connection to the tradition of Imperial Civil Service Examinations; this is reflected in the fact that the ancestral hall was also utilised as a study hall.
- TMS-99-05 A mud-brick village house estimated to be over 100 years old. The house is currently used as a storeroom. The building is in poor condition and is relatively

- unaltered apart from the modern roof construction.
- TMS-99-06 Small stone pigsty. The structure is no longer in use and is estimated to be a 100 years old by a local informant.
- TMS-99-07 A village house with an extension. Dated ca. 1900.
- TMS-99-08 Four village houses, 3 terraced and the fourth free-standing. The houses are dated to the 1960's, however, their traditional style, group value and setting are unique enough to include them into this assessment. Inside the houses some elements of the previous structures can still be noted.
- TMS-99-09 Tin Hau temple, identified in the Historical Buildings Survey (Section 9.4.4). The temple underwent major renovation works in 1991 and has few original elements visibly preserved.

**So Kwun Wat - Main Village** (Drawing 9.6)

- TMS-99-10 A ruinous stone shed. The structure has partially collapsed.
- TMS-99-11 A green brick, village house. In very poor condition, with only the shell of the structure remaining. The structure was associated with a village that was abandoned at some point in the past. The estimated date for the building is pre-1900.
- TMS-99-12 Chung Ying Study Hall. The building is in a dilapidated state, but has known few alterations to its original structure. The decorative elements are of a high quality. The study hall is presently used for storage. Date pre-1900.
- TMS-99-13 A green brick village house. The house is still in domestic use and has been relatively unaltered.
- TMS-99-14 A green brick village house. Similar terraced house as number 13. The wall are made out of stone up to about two metres with the rest constructed out of green brick. The building has known relatively few alterations. Presently the house is occupied. The building dates to pre-1950.
- TMS-99-15 Courtyard house. The brick building is constructed on a stone foundations. The bricks have been painted, while some of the walls are made of pise. The building has been abandoned and is currently used for storage. The date is estimated to be pre-1900.
- TMS-99-16 A semi-detached house dating from the 1920's. Most exterior features have been modernised. The rear of the structure and the left gable contain concrete moulding. Concrete and tile roof with undecorated ridge.
- TMS-99-17 Small, one roomed structure in the open, front courtyard of Nos. 16 and 18 and

believed to be of similar date. Entire exterior is covered in concrete.

- TMS-99-18 A semi-detached house dating from the 1920's. Concrete exterior with moulding trim on front, right gable and rear of building. Traditional, double panelled wooden door at main entrance. Concrete and tile roof with undecorated ridge.
- TMS-99-19 Stone village house with exterior covered in concrete. Right gable contains painted frieze. Date is pre-1950.
- TMS-99-20 Former study hall with abandoned stables at the rear. The building is set on a cut stone platform. The left side of the structure borders a water channel lined with large cut stones. The exterior of building has been heavily altered, though still retains some original features, such as sections of green brick wall and ceramic grilles. The interior of the building contains a number of notable original features, i.e. stone floors, and very large carved stone pillars on the ground floor and wall brackets, a carved panel of very high quality and frieze paintings on the 1<sup>st</sup> storey.
- TMS-99-21 A small shed with a double panelled wooden door. Tile and concrete roof. Age is not known, but estimated to be over 60 years.
- TMS-99-22 A cut stone original structure with a cut stone extension on the right hand side, with very poor pointing. The main section has been extended in height, by a decorative brick wall extension, of similar style to the brickwork seen in no. 24. Age of original structure is not known, but estimated to be c. 100 years.
- TMS-99-23 Ruins consisting only of foundations approximately 1 metre in height. The building materials include, pise, cut stone and green bricks.
- TMS-99-24 A semi-detached structure of varying styles. Traditional roof of tile and concrete. The walls are of cut stone and neatly pointed. A balcony with a corbelled brick balustrade has been added on the front of the building.
- TMS-99-25 Chan's Ancestral Hall, identified in the Historical Buildings Survey (Section 9.4.4). Completely renovated in 1996.
- TMS-99-26 A renovated gate with modern cut stone walls. Inscription on front for Lee's Ancestral Hall. Doorway contains a cut stone door step and stone door pillars. Date of original gate is not known.
- TMS-99-27 Abandoned public latrines approximately 50 to 60 years old. The walls are of cut stone.
- TMS-99-28 Village style house with concrete covered exterior walls. Traditional style wooden, double panelled door. Age estimated to be pre-1900, by local

informants

- TMS-99-29 Rebuilt house. Only original feature is section of green brick wall at the back of the building. Original structure estimated to be pre-1900.
- TMS-99-30 Mud brick structure, part of former Tse-Tong. Right hand section of wall has green brick along door frame. Age was estimated to be at least 75 years.
- TMS-99-31 A stone and green brick gate, approximately half a metre in width. At least one hundred years old (5 to 6 generations according to local informants). Was originally one of a pair of gates that led to an open courtyard. It should be noted that between the time of the survey and final report preparation, the gate was demolished, due to its deteriorated condition.
- TMS-99-51 Former Hum Ying Study Hall, identified in the Historical Buildings Survey (Section 9.4.4). Currently being used as a restaurant. The exterior consists of cut stone and green brick. With a concrete covering on the front of the building. Moulding under the eaves at front of structure. There is a double roof, front roof is undecorated, rear roof has geometric decorations on ridge. Interior contains features such as murals and woodwork.
- TMS-99-52 A row of terraced structures estimated to be c. 100 years old by local informants. Five units. The three on the right are similar in shape and form, the fourth is only partially intact and the fifth is similar to the first three.
- TMS-99-53 A modern gate, red brick. Two circular windows with lantern style lights, underneath. Stone inscription over the door.
- TMS-99-54 A modern Tse Tong of the Lee family, with a shrine to the first ancestor inside. Pebbly concrete walls and stone tile floors.

### **Tai Lam Chung Valley**

- 9.6.5 A summary of the historical buildings and structures identified in the Tai Lam Chung area are detailed below and shown in Drawings 9.7 and 9.8.

#### **Tai Lam Chung Tsuen (Drawing 9.7)**

- TMS-99-32 Modern Fung Shui shrine.
- TMS-99-33 Row of terraced units, dated to pre-1900 by local informants. The structure contains a single traditional style roof, but the fronts of the individual units have been heavily altered.
- TMS-99-34 Small traditional style village house, dated to pre-1900 by local informants. Traditional style roof. Modern extension built onto front of the structure.

- TMS-99-35 Small traditional style village house, c. 100 years old. Mud brick extension on the back of structure, Parapet added on front.
- TMS-99-36 Ruins of stone house, c. 100 years old. Abandoned in the 1960's. Only walls remaining.
- TMS-99-37 Ruins of structure. Foundation of stone and concrete visible, heavily overgrown.
- TMS-99-38 Ruins. Completely overgrown. Foundation of mud brick and stone visible.
- TMS-99-39 Structure with two rooms and covered courtyard in front. The structure has been heavily modified with modern addition in portions. The two original rooms are in very poor condition. The structure was dated pre-1900 by a local informant.
- TMS-99-40 A very small 1 roomed structure, c. 100 years old. Mud brick and concrete walls and foundation. Traditional style roof.
- TMS-99-41 Village style house with modern extension with parapet on front. Age of original structure c. 100 years according to local informant.
- TMS-99-42 Wu Fat Wong Temple, identified in the Historical Buildings Survey (Section 9.4.3). Completely rebuilt temple. No original features.
- TMS-99-43 An Ding Ga Suk, identified in the Historical Buildings Survey (Section 9.4.3). Inscription over door says that it was built 16 years after the fall of the Qing dynasty. Green brick and cut stone walls, panel decorations above main entrance. Tile and concrete roof with decorations.
- TMS-99-44 Ruins. Mud brick / stone foundation only remaining features.
- TMS-99-45 Two extensions on either side of a modern structure. Over 100 years old according to local informants. Traditional style roofs with undecorated ridges. Both structures in very poor condition.
- TMS-99-46 Traditional style village house attached to modern structure on front. Age c. 100 years. Mud brick walls with concrete covering.

#### **Tai Lam Chung Road (Drawing 9.8)**

- TMS-99-47 Modern concrete, Fung Shui shrine on Tai Lam Chung Road.

#### **Wong Uk**

- 9.6.6 A summary of the historical buildings and structures identified in Wong Uk are detailed below and shown in Drawing 9.9.

- TMS-99-48 Wong's Ancestral Hall, identified in the Historical Buildings Survey (Section 9.4.3). Built in the 1960's. The villagers used the ancestral halls in So Kwun Wat previously. Concrete structure with traditional style roof with decorations.
- TMS-99-49 Village house, estimated to have been built before 1910. Concrete covered walls with decorative mouldings along back of building under eaves. Low stone wall, to the right of the structure and in the back, incorporating secondary usage cut stones.
- TMS-99-50 Originally three stone village structures that have been altered through extensions and curtailment. At least 100 years old according to local informant.

**Assessment of Potential Impacts to Historic Buildings**

9.6.7 The proposed works for the affected villages will not directly impact on any of the historic structures identified. However, there may be indirect impacts, as the works will be carried out within 2 to 3 metres of many of the structures. Any possible damage will need to be mitigated against by means of a monitoring programme to be carried out during the construction period. The assessment of any indirect impacts of the project on historical buildings is provided in Table 9.1 below.

**Table 9.1: Assessment of Impacts on Historical Buildings**

Area	Building Nos.	Historical Building Survey Reference	Project in Proximity	Assessment
So Kwun Wat (Ching Ka Tsuen)	TMS-99-01	-	No	No further action
	TMS-99-02	Section 9.4.4, E	Yes	<b>Monitor</b>
	TMS-99-03	-	Yes	<b>Monitor</b>
So Kwun Wat (East Section)	TMS-99-04	Section 9.4.4, B	Yes	<b>Monitor</b>
	TMS-99-05	-	Yes	<b>Monitor</b>
	TMS-99-06	-	Yes	<b>Monitor</b>
	TMS-99-07	-	Yes	<b>Monitor</b>
	TMS-99-08	-	Yes	<b>Monitor</b>
	TMS-99-09	Section 9.4.4, D	No	Modern structure

**Table 9.1 Cont'd....**

Area	Building Nos.	Historical Building Survey Reference	Project in Proximity	Assessment
So Kwun Wat (Main Village)	TMS-99-10	-	N/A	Ruin
	TMS-99-11	-	N/A	Ruin
	TMS-99-12	-	Yes	<b>Monitor</b>
	TMS-99-13	-	Yes	<b>Monitor</b>
	TMS-99-14	-	Yes	<b>Monitor</b>
	TMS-99-15	-	Yes	<b>Monitor</b>
	TMS-99-16	-	Yes	<b>Monitor</b>
	TMS-99-17	-	No	No further action
	TMS-99-18	-	No	No further action
	TMS-99-19	-	Yes	<b>Monitor</b>
	TMS-99-20	-	Yes	<b>Monitor</b>
	TMS-99-21	-	Yes	<b>Monitor</b>
	TMS-99-22	-	Yes	<b>Monitor</b>
	TMS-99-23	-	N/A	Ruin
TMS-99-24	-	-	Yes	<b>Monitor</b>
So Kwun Wat (Main Village) Cont'd	TMS-99-25	Section 9.4.4, C	No	Modern structure
	TMS-99-26	-	Yes	<b>Monitor</b>
	TMS-99-27	-	No	No further action
	TMS-99-28	-	Yes	<b>Monitor</b>
	TMS-99-29	-	Yes	<b>Monitor</b>
	TMS-99-30	-	-	Yes
So Kwun Wat (Main Village)	TMS-99-31	-	N/A	Demolished
	TMS-99-51	Section 9.4.4, A	No	No further action
	TMS-99-52	-	Yes	<b>Monitor</b>
	TMS-99-53	-	No	No further action
	TMS-99-54	-	N/A	Modern Structure
Tai Lam Chung	TMS-99-32	-	No	No further action
	TMS-99-33	-	Yes	<b>Monitor</b>
	TMS-99-34	-	Yes	<b>Monitor</b>
	TMS-99-35	-	Yes	<b>Monitor</b>
	TMS-99-36	-	N/A	Ruin
	TMS-99-37	-	N/A	Ruin
	TMS-99-38	-	N/A	Ruin
	TMS-99-39	-	Yes	<b>Monitor</b>
	TMS-99-40	-	Yes	<b>Monitor</b>
	TMS-99-41	-	Yes	<b>Monitor</b>
	TMS-99-42	Section 9.4.3, A	N/A	Modern structure
	TMS-99-43	Section 9.4.3, B	Yes	<b>Monitor</b>
	TMS-99-44	-	N/A	Ruin
	TMS-99-45	-	No	No further action
TMS-99-46	-	No	No further action	
Tai Lam Chung Road	TMS-99-47	-	Yes	<b>Monitor</b>
Wong Uk	TMS-99-48	Section 9.4.3, C	No	No further action
	TMS-99-49	-	Yes	<b>Monitor</b>
	TMS-99-50	-	Yes	<b>Monitor</b>



N/A : Not applicable

### **Mitigation Recommendations**

9.6.8 Based upon the possibility of indirect impacts on certain structures during the construction phase, it is recommended that individual structures be monitored during the engineering works. This will involve the periodic inspection of the structures and the surrounding ground not less than once per week to ensure that pavement breaking and excavation works are not undermining the structures' foundations and overall site inspection to ensure that general construction activities, including stockpiling and equipment placement, are not affecting the structures in any way. Further details on the monitoring specifications are provided in Section 11 of this report. The specific monitoring programme is as follows:

C	So Kwun Wat (Ching Ka Tsuen)	Monitoring of the works when in the proximity of The Ching Family Ancestral Hall (TMS-99-02) and a Fung Shui Shrine (TMS-99-02/03);
C	So Kwun Wat (East Section)	Monitoring of the works when in the proximity of five historic structures, an ancestral hall, three domestic and one agricultural (TMS-99-04/05/06/07/08);
C	So Kwun Wat (Main Village)	Monitoring of the works when in the proximity of the following historic buildings: (TMS-99-12/13/14/15/16/19/ 20/21/22/24/26/28/29/30/52);
C	Tai Lam Chung Tsuen	Monitoring of the works when in the proximity of the following structures: row of terraced houses (TMS-99-33), small house (TMS-99-34), an abandoned house (TMS-99-35), domestic property (TMS-99-39), one room structure (TMS-99-40), village house (TMS-99-41) and the Wu's ancestral hall (An Ding Ga Suk) (TMS-99-43);
C	Tai Lam Chung Road	Fung Shui Shrine (TMS-99-47);
C	Wong UK	Monitoring of the works is recommended for two structures in this village, both domestic (TMS-99-49/50).

## **9.7 Archaeological Field Survey Results and Assessment**

### **Main Sewer Alignments**

9.7.1 As detailed in Drawing 9.3a and 9.3b, the main sewer alignment within the study area was divided into sectors, two within the So Kwun Wat area and seven within Siu Lam and the Tai Lam Chung valley, each designated in terms of their archaeological potential. Each sector was investigated through a series of auger tests and field walking to investigate the presence of surface deposits.

9.7.2 The layout of the study area was not suitable for line walking, the usual method applied for this exercise. However, where not restricted or prevented by vegetation, rubbish cover or ground modification, surface investigation was carried out in a systematic non-linear fashion, with particular focus on visible cuts and sections.

9.7.3 Results of both the field walking and auger testing for each of the sectors are provided below:

#### **So Kwun Wat - Sector 1**

9.7.4 This sector is an area of high potential archaeological value and includes the village of Ching Ka Tsuen, the marshy area to the southwest of the village and the lower slopes of the hillock. The sector area and location of the auger tests are shown in Drawing 9.10. The area comprises lower foothills and alluvial/ marshy flats and, although now abandoned, the flats were formerly used for agriculture. At the present the abandoned fields support high grasses and the visibility of the ground surface is hence poor. The lower foot slopes behind Ching Ka Tsuen have been cut by the construction of houses. The ground surface is littered with rubbish or has dense vegetation, which made it unsuitable for surface investigation. The other foot slopes examined to the west of the sector, have been terraced and some ruins were noted.

9.7.5 No surface finds were recovered during the field walking. The results of the auger tests are given in Appendix F. The augering did not reveal any cultural material.

#### **So Kwun Wat - Sector 2**

9.7.6 This sector was divided in three sub-sections, A, B and C, as shown in Drawing 9.11. Auger test locations for each of the sub-sectors are shown in Drawing 9.12 - 9.14 for A, B and C respectively. This sector contains the access road to So Kwun Wat and major container storage parks and minor industries are located to both sides of the road, leaving little soil surface uncovered. So Kwun Wat itself is separated into two main villages, the Chan clan village (the oldest) and the Lee clan village. In an areas to the north of Sector 2, the Deng family had occupied the rear of Chan's village but abandoned their houses because of the plague (local informant) or slowly died out. Their ruins and debris litter the surface. Testing for archaeological potential in both these areas was not possible due to concrete cover. The lower foot slopes behind these villages were relatively unmodified but dense vegetation and rubbish restricted the surface investigation in this area.

9.7.7 No surface finds were recovered during the field walking. The results of the auger tests are given in Appendix F. The augering did not reveal any cultural material.

#### **Siu Lam - Sector 3**

9.7.8 This sector in the Siu Lam valley is shown in Drawing 9.15, together with the auger test locations. The Siu Lam valley has been completely obliterated. The construction of Castle Peak Road and the new housing development has greatly impacted on subsurface deposits. Some survey work was carried out on the south western lower terraced hill slopes, however, rubbish and dense vegetation limited the ground surface investigation. The area to the south of Castle Peak Road where auger testing was carried out has been adversely affected by construction of the road. High grasses generally covered the area.

9.7.9 No surface finds were recovered during the field walking. The results of the auger tests are given in Appendix F. The augering did not reveal any cultural material.

#### **Tai Lam Chung Valley - Sector 4**

9.7.10 This sector is located to the west of the Tai Lam Chung Valley, as shown on Drawing 9.16, and consists of a small inlet and the hill fringes. The construction of Castle Peak Road and cutting into the hillside has adversely affected part of this sector. Rubbish and building debris proved impermeable to the east of the sector, whilst dense vegetation was prominent over most of this area.

9.7.11 No surface finds were recovered during the field walking. The results of the auger tests are given in Appendix F. The augering did not reveal any cultural material.

#### **Tai Lam Chung Valley - Sector 5**

9.7.12 This sector is located to the west of the Tai Lam Chung River, to the north of Sector 4. The area is shown in Drawing 9.17, together with the auger testing locations. The lower foot hills are covered in structures and houses, while some of the flat areas are used for gardens and limited agriculture. High grasses, low shrub and angular stones cover abandoned fields and the strip along the river appears to have been raised with dredged river material, containing large quantities of small to medium angular stones.

9.7.13 No surface finds were recovered during the field walking. The results of the auger tests are given in Appendix F. The augering did not reveal any cultural material.

#### **Tai Lam Chung Valley - Sector 6**

9.7.14 This sector is located to the west of the Tai Lam Chung River and is the most northern sector on this side. The details of this area are shown in Drawing 9.18. The lower foot hills are built up or show bedrock on the surface, while on the flat area some abandoned houses and fields were noted. A concrete path runs through the sector.

9.7.15 No surface finds were recovered during the field walking. The results of the auger tests are given in Appendix F. The augering did not reveal any cultural material.

#### **Tai Lam Chung Valley - Sector 7**

9.7.16 This sector is located to the east of the river and to the west of the access road to the Tai Lam

Chung Correctional Institution, as shown in Drawing 9.19. A section cut by fluvial action and visible from the water indicates that the area is artificially built up. The section shows rounded to angular pebbles and cobbles and modern debris.

9.7.17 No surface finds were recovered during the field walking. The results of the auger tests are given in Appendix F. The augering did not reveal any cultural material.

#### **Wu Uk - Sector 8**

9.7.18 This sector comprises the village of Wu Uk, which is relatively new, as shown in Drawing 9.20. The sector is completely built up and part of the sector which will be affected by the project is designated an open storage area and the surface has been covered with asphalt and concrete. Auger testing and surface examination was carried out along the foot hills.

9.7.19 No surface finds were recovered during the field walking. The results of the auger tests are given in Appendix F. The augering did not reveal any cultural material.

#### **Wong Uk - Sector 9**

9.7.20 This sector consists of a mixture of high and low archaeological potential areas in the village of Wong Uk and the open storage areas between Wong Uk and Wu Uk. The area is built up and covered in concrete or asphalt. Auger tests were located at the fringes of the hill behind the village and along the foot path leading to the village, as detailed in Drawing 9.21. The surface visibility proved poor overall as areas which were not under concrete were covered in rubbish or high grasses.

9.7.21 No surface finds were recovered during the field walking. The results of the auger tests are given in Appendix F. The augering did not reveal any cultural material. However, a sandy soil deposit with archaeological potential was identified in augers 3, 9 and 13. In conjunction with the previous discovery of Neolithic stone artefacts on the lower slopes of this area, the presence of such a deposit is of archaeological significance. As such, in accordance with the scope of the field work detailed in Section 9.5.3, a test pit of 2 metres by 1 metre was excavated, close to the auger number 3 location, as shown in Drawing 9.21. The results of the test pit are given in Appendix F and a stratigraphical section of the test pit is also provided in Drawing 9.22. As the sides of the test pit collapsed, a further two auger tests were conducted at both ends of the trench. The results of these are also included in Appendix F. The test pit and augers indicated a sterile sand deposit and no archaeological artefacts were found. Thus, no further action is required.

9.7.22 A summary of the impacts of the installation of the sewer alignment is provided in Table 9.2 below together with an indication of the mitigation measures required.

#### **Table 9.2: Summary of Impacts and Mitigation for the Sewer Alignments**

Sewer Alignments	Comments	Interface <sup>(1)</sup>	Impacts	Mitigation Recommendations
Sector 1 (So Kwun Wat - Ching Ka Tsuen)	The lower foot hills were found to have been seriously altered and contained little soil deposits.	No	No impact	No further action required
	In the valley soil deposits indicate a marshy habitat with scope for exploitation (both in historic and prehistoric times) but not occupation.	Yes	No impact	No further action required
Sector 2 (So Kwun Wat villages and access road)	Auger tests on the lower foot hills behind the villages of So Kwun Wat indicate weathering <i>in situ</i> and extensive hillwash.	No	No impact	No further action required
	The extensive alteration and obliteration of the area along the access road was clear in the field visit, auger testing and test pit excavation.	Yes	No impact	No further action required
Sector 3 (Siu Lam)	The area of Siu Lam has been highly altered, auger tests on the fringes of the hill slopes indicated cutting for terraces and road construction.	Yes	No impact	No further action required
Sector 4 (Tai Lam Chung Valley)	Although this sector was evaluated as being of medium archaeological potential due to its landform, the auger tests indicated little soil deposits on the lower hill slopes or bare rock on the surface.	Yes	No impact	No further action required
Sector 5 (Tai Lam Chung Valley)	The nature of the sector, with concrete platforms, housing and ponds, restricted the assessment of the area. Both auger holes and test pit excavation indicated extensive fill deposits.	No	No impact	No further action required

**Table 9.2 Cont'd....**

<b>Sewer Alignments</b>	<b>Comments</b>	<b>Interface<sup>(1)</sup></b>	<b>Impacts</b>	<b>Mitigation Recommendations</b>
Sector 6 (Tai Lam Chung Valley)	The auger testing confirmed the low archaeological potential of the area. The river bank is impermeable due to the artificial raising of the bank by fill.	Yes	No impact	No further action required
Sector 7 (Tai Lam Chung Valley)	The auger testing and test pit excavation confirmed the low archaeological potential of the area. The river bank section also showed an artificial raising of the river banks by fill.	Yes	No impact	No further action required
Sector 8 (Wu Uk)	The area is largely covered in concrete, the lower foot hills were tested and contained <i>in situ</i> decomposing bedrock and hillwash.	No	No impact	No further action required
Sector 9 (Wong Uk)	Auger tests on the lower foot hills behind Wong Uk indicated either little soil deposit, or <i>in situ</i> decomposing rock.	No	No impact	No further action required
	The open storage area had been artificially raised as can be seen from the stream cut running along the area and from the auger testing.	Yes	No impact	No further action required.
	The auger testing on the valley floor to the south of the village showed <i>in situ</i> , undisturbed sand deposits which warranted further investigation. However, the test pit indicated a sterile sand deposit.	Yes	No impact	No further action required.

Note (1): 'Interface' refers to whether the project directly passes through and area identified as having archaeological potential. Certain areas identified within the baseline have no direct interface with any of the project works.

**Inaccessible Areas**

9.7.23 A substantial proportion of the sewer alignment is currently under concrete and, thus, investigation of these areas was not included in this archaeological survey. It is recommended that during removal of concrete and the excavation of sewer trenches, particular attention should be paid to these areas. This will entail the monitoring of the soil as it is removed. Monitoring should comprise an area of not less than 2.5% of the total area and should be undertaken once per week, with each visit being for a period of not less than three hours. Focus should be on those areas under concrete which have been assessed as being of high archaeological potential, as follows:

- C Wong Uk Tsuen; and
- C Ching Ka Tsuen, So Kwun Wat.

9.7.24 In the event that archaeological artefacts appear, the finds will be collected, recorded and the location marked on a 1:1000 map. In the case of an archaeological feature being revealed, the feature will be recorded, drawn, photographed and samples taken where relevant. This will require the temporary cessation of works while the recording and retrieval process is carried out. Measures should be taken to ensure that the monitoring programme interferes as little as possible with the progress of the engineering works.

### **Pumping Stations**

9.7.25 Several of the proposed pumping stations could not be assessed during the archaeological survey for access and practicality reasons. The Tai Lam Correctional Institution and Luen On San Tsuen pumping stations were covered by hard standing and as such excluded from this stage of the investigation. The pumping station at Tai Lam Valley was also partially covered in hard standing and partially by a fish pond and thus excavation was not practicable. In addition, the Castle Peak Villas proposed pumping station site is situated in an area altered by construction activities and, therefore, was eliminated from the scope of the survey. However, in accordance with the scope of the investigation detailed in Section 9.5.3, the four auger test and one test pit were undertaken at each of the remaining sites. The findings of the assessment of the pumping stations are detailed in the sections below.

#### **So Kwun Wat Tsuen Pumping Station**

9.7.26 Four auger holes were attempted on the site at the locations shown in Drawing 9.13. However, the ground surface proved to be impermeable and the test could not be completed. A test pit, measuring 2 by 1.5 metres, was excavated and was located between the So Kwun Wat Access road and the river in a truck park near a tree with a shrine, as indicated on Drawing 9.13. The details of the test pit are given in Appendix G. A stratigraphical section and photograph of the test pit are also provided in Drawings 9.22 and 9.23 respectively. No archaeological deposits or artefacts were found during the survey. Subsequent to undertaking the investigation, the pumping station location was shifted slightly to the west but due to the proximity of the new site, it is considered that the tests carried out are representative for the new location.

#### **Tai Lam Valley Pumping Station**

9.7.27 No excavation on the Tai Lam Valley pumping station site was possible due to the presence of hard standing and the fish pond. However, a test pit excavated on the alternative site considered which is adjacent, as detailed in Section 12.0, did not reveal any archaeological deposits or artefacts and due to its adjacent location similar results would be expected. The details of the test pit are given in Appendix G. A stratigraphical section and photograph of the test pit are also provided in Appendix G.

### **Tai Lam Chung Tsuen Pumping Station**

9.7.28 Four auger tests were conducted in the area of the proposed pumping station, together with a test pit measuring 2 by 1.5 meters, which was located between the Tai Lam Chung Road and the river in a neglected garden with a few banana trees. The location of the test pit and auger tests can be seen in Drawing 9.19. A stratigraphical section and photograph of the test pit are also provided in Drawings 9.22 and 9.23 respectively. No archaeological deposits or artefacts were found during the survey.

9.7.29 A summary of the findings of the pumping stations investigation is provided in Table 9.3 below.

**Table 9.3: Summary of Archaeological Investigation at the Pumping Station Sites**

<b>Pumping Station</b>	<b>Comments</b>	<b>Mitigation Requirements</b>
So Kwun Wat Tsuen	The area consists of a thin layer of fill on top of rock and is devoid of any archaeological potential.	No further action required
Tai Lam Valley	The area is partially covered in concrete, while part is a pond area. No survey work was carried out.	No further action required as it is on the same artificially raised river bank as the alternative pumping station site adjacent
Tai Lam Chung Tsuen	The area has been artificially raised and does not have any archaeological potential.	No further action required.
Tai Lam Chung Correctional Institute	The area was not surveyed as it was covered by hard standing.	Monitoring during construction comprising an area of not less than 2.5% of the total area and undertaken once per week, with each visit being for a period of not less than three hours.
Luen On San Tsuen	The area is covered in concrete/buildings and was therefore not surveyed	Monitoring during construction comprising an area of not less than 2.5% of the total area and undertaken once per week, with each visit being for a period of not less than three hours.
Castle Peak Villas	Not required to be included in the survey.	No action required



## 9.8 Residual Impacts

9.8.1 Based upon the implementation of the recommended mitigation measures, no unacceptable residual impacts are predicted.

## 9.9 Summary of Findings and Recommendations

9.9.1 The locations of the proposed stations will not impact directly or indirectly on any areas with archaeological potential and in all other sectors of the Study Area the alignments will have no archaeological impacts. However, certain historical buildings and structures could be indirectly affected by the construction works.

9.9.2 The mitigation measures to address these impacts are as follows:

- C monitoring of the historic buildings and structures of concern; and
- C a monitoring programme should be planned and implemented in certain pumping station locations currently under hardstanding and in areas along the sewer alignment presently under concrete which have been assessed as having high archaeological potential, Wong Uk Tsuen, and Ching Ka Tsuen.

## 9.10 Environmental Monitoring and Audit

9.10.1 The excavation supervision works recommended as a result of the heritage impact assessment will be undertaken as part of the environmental monitoring and audit processes implemented during the construction phase. Further details of the specific EM&A requirements are detailed in Section 11 of this report and in the EM&A Manual.

## 9.11 References

AMO-files on So Kwun Wat, Siu Lam and Tai Lam Chung.

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