

## 8 CULTURAL HERITAGE IMPACT ASSESSMENT

### 8.1 Introduction

8.1.1 This section presents a cultural heritage impact assessment of the project, identifying cultural heritage resources such as archaeological sites, built heritage structures and assessing potential direct and indirect impacts from proposed works on these resource, and recommending mitigation of impacts where required.

### 8.2 Environmental Legislation and Standards

8.2.1 The following two Ordinances are the main tools for the protection of Cultural Heritage in Hong Kong:

#### **Antiquities and Monuments Ordinance (Cap.53)**

8.2.2 The Antiquities and Monuments Ordinance (Cap. 53) was enacted in 1976 and provides the statutory framework to provide for the preservation of objects of historical, archaeological and palaeontological interest.

8.2.3 The Ordinance contains the statutory procedures for the Declaration of Monuments. The proposed monument can be any place, building, site or structure, which is considered to be of public interest by reason of its historical, archaeological or palaeontological significance.

8.2.4 Under Section 6 and subject to subsection (4) of the Ordinance, the following acts are prohibited in relation to certain monuments, except under permit;

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

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

8.2.6 No archaeological excavation may be carried out by any person, other than the Authority, without a licence issued by the Authority. A licence will only be issued if the Authority is satisfied that the applicant has sufficient scientific training or experience to enable him to carry out the excavation and search satisfactorily, has sufficient staff and financial support.

#### **Environmental Impact Assessment Ordinance (Cap. 499)**

8.2.7 The Environmental Impact Assessment Ordinance (EIAO) (Cap. 499) provides additional legislative protection to sites of cultural heritage which are threatened by development and the Environmental Protection Department is its authority. The Technical Memorandum contains the guidelines and criteria for the assessment of sites of cultural heritage interest.

### 8.3 Assessment Methodology

8.3.1 The impact assessment follows the Antiquities and Monuments Office *Criteria for Cultural Heritage Impact Assessment* and will fulfil the requirements as set out in Annex 10 and 19 of the Technical Memorandum on EIA Process (EIA Ordinance, Cap. 499, S.16), based on field surveys that were conducted for the project in November 2003 as described below.

#### **Archaeology**

8.3.2 Field Scan of the natural landscape in a systematic manner, with attention to areas of exposed soil and recent cuts, covering the area within the project.

8.3.3 Systematic Auger Survey of the identified areas, which will be impacted by proposed works in order to established soil sequence, the presence/ absence of cultural soils or deposits and their horizontal extent. A minimum of 40 auger holes at representative locations along the project alignment was adopted, with particular emphasis on the area within the Chung Hau Archaeological Site.

8.3.4 Test Pit Excavation in areas of archaeological potential identified by surface scan and auger testing; hand digging of pits measuring 2 by 2 metres in order to determine the presence/absence of archaeological deposits and their stratigraphy. A minimum of four test pits in locations identified by the field scan and auger testing should be adopted.

8.3.5 Detailed requirements for identified areas of archaeological potential are presented in **Table 8.1**.

**Table 8.1 Requirements for identified areas of archaeological potential**

Field Scan	Auger Survey	Test Pit Excavation
Required within the area boundary	A minimum of 40 auger holes at representative locations along the project alignment	A minimum of 4 test pits in locations identified by the field scan and auger testing

#### **Built Heritage**

8.3.6 Definition of features that fall within the scope of Built Heritage Survey:

- all pre 1950 structures, these include any built feature (apart from graves and historical land use features, which are dealt with separately), such as: domestic structures, ancestral halls, temples, shrines, monasteries and nunneries, village gates, wells, schools, historic walls, bridges and stone tablets.
- any post 1950 structure deemed to possess features containing architectural or cultural merit;
- All pre-war clan graves;
- Cultural landscape features, such as fung shui woods and ponds; and
- Historical land use features, such as historical tracks and pathways, stone walls and terraces, ponds and other agricultural features.

8.3.7 Detailed Recording of all Identified Built Heritage Resources in the following categories:

- Built structures;
- Graves;
- Cultural landscape features, such as fung shui woods and ponds; and
- Historical land use features.

#### 8.3.8 Interviews with local informants, including residents and village elders.

- The interviews should be used to gather information, such as, cultural and historical background of the structures and the villages; historical events associated with the structures and villages

#### 8.3.9 Systematic documentation of all recorded resources within each of the categories listed below must be undertaken.

##### i) For Built Structures

- A photographic record of each building or structure including the exterior (the elevations of all faces of the building premises, the roof, close up for special architectural details) and the interior (special architectural details) where possible, as well as the surroundings of the feature;
- The location of each recorded feature highlighted on a 1:1000 scale map;
- Written descriptions of each recorded feature, including: age of structure, details of architectural features, condition of the structure, past and present uses, architectural appraisal, notes on any modifications, direction faced and associations with historical/ cultural events or individuals; and
- A description of the surrounding environment; for isolated structures this must be done on an individual basis. The description for structures within a village can be covered by a village background summary, this must include physical and cultural attributes, such as orientation of villages to any identified fung shui features, general condition of structures, settlement history, historical economic activities and associated clans.

##### ii) For Graves

- The location of the each recorded feature highlighted on a 1:1000 scale map, direction faced;
- A written description of each recorded grave including its immediate surrounding environment such as trees, types of paving, concerned villages etc;
- A photographic record of each grave including general views, oblique views, close-up detail of calligraphy, ornamented features and construction patterns;
- A copy of the inscription; and
- Dimensions.

##### iii) For Cultural Landscape Features

- The location of each recorded feature highlighted on a 1:1000 scale map;
- Written description of each recorded feature, including information gathered from interviews with local informants; and
- A photographic record of each recorded features.

iv) For Historical Land Use Features

- The location of each recorded feature highlighted on a 1:1000 scale map;
- Written description of each recorded feature, including information gathered from interviews with local informants; and
- A photographic record of each feature.

8.3.10 The scope of the survey will cover the alignments and works areas as well as areas within close proximity to them, which shall be defined as being a distance of 20 metres on either side. Special attention shall be paid to the Chung Hau Archaeological Site, historic buildings and structures in the vicinity of the proposed project including the following historic building: the two historical watch towers at Luk Tei Tong and Chung Hau (Yuen Family Compound). It will also cover any Declared Monuments, graded buildings and historical villages identified in the desk-based research.

## 8.4 Baseline Conditions

### **Archaeology**

#### *Geological and Topographical Background*

8.4.1 Luk Tei Tong River, Tai Tei Tong River and Pak Ngan Heung River discharge water to River Silver, which is located at the heart of Mui Wo of Lantau Island. The superficial geology of the area is underlain by alluvium and debris flow deposits. The inferred solid geology of the general area comprises fine- to medium-grained granite and minor intrusion of feldsparphyric rhyolite. At Luk Tei Tong River, the inferred solid geology is fine-grained quartz syenite. Based on the results of site investigations, the sub-soil conditions are found to comprise the following strata included fill, debris flow deposit, alluvium, decomposed Granite, and bedrock. A thick debris flow deposit is locally found in Tai Tei Tong River.

#### *Archaeological Site*

8.4.2 Chung Hau Archaeological Site was identified as a site of archaeological interest by the Antiquities and Monuments Office (AMO). Tang Dynasty kiln debris was collected in previous surveys.

### **AIA Area 1: LUK TEI TONG RIVER**

#### Field Scan Results

- 8.4.3 The field scan at the Luk Tei Tong River alignment study area showed that the area supports high grasses and the visibility of the surface is poor. Portions of the study area showed water on surface. The stream bed as far as possible was scanned for artefacts. No finds were recorded within this alignment.

#### Auger Hole Tests Results

- 8.4.4 The Luk Tei Tong River study area alignments will have impact on the river and stream banks. Previous testing in the vicinity of this alignment and the Tai Tei Tong River alignment showed the area fairly recent sterile alluvial deposits with high water table. These areas were therefore excluded from further testing.

#### Test Pit Excavations

- 8.4.5 AIA Area 1 was excluded from test pit excavation.

### **AIA Area 2: TAI TEI TONG RIVER**

#### Field Scan Results

- 8.4.6 The Tai Tei Tong River study area alignment was walked in areas as close as possible to and within the study area. To the north of the river most of the area support agricultural fields and the surface visibility was good. To the south of the river high vegetation, such as grass and scrub obscured the surface visibility. The stream bed as far as possible was scanned for artefacts. No finds were recorded within this alignment.

#### Auger Hole Tests Results

- 8.4.7 The Tai Tei Tong River study area alignments will have impact on the river and stream banks. Previous testing in the vicinity of this alignment showed the area fairly recent sterile alluvial deposits with high water table. These areas were therefore excluded from further testing.

#### Test Pit Excavations

- 8.4.8 AIA Area 2 was excluded from test pit excavation.

### **AIA Area 3: PAK NGAN HEUNG RIVER**

#### Field Scan Results

- 8.4.9 The field scan at Pak Ngan Heung River study area alignment showed portions which support heavy vegetation or have surface water. The stream bed as far as possible was scanned for artefacts. No finds were recorded within this alignment.

## Auger Hole Tests Results

### 8.4.10 Six investigation areas within the Pak Ngan Heung River study area alignment are marked on **Figure 8.1**:

- Area A is located to the north of the alignment and has been terraced for agricultural purposes. A total of 10 auger hole tests (AH 7 to 16) were conducted in Area A. The auger hole tests ranged between 0.22 and 1.10 metre below the surface and all, but one test were abandoned due to rock encounter. The soil results indicated that the area consists of an alluvial deposit of silt and sand with cobbles and boulders. The finds in this area included a red tile fragment recovered from AH 8 at a depth of 0.24 metre below the surface and a red tile fragment from AH 14 found at a depth of 0.15 metre below the surface. Both finds are recent and are located within the agricultural topsoil of the area.
- Area B is located to the south of Area A between the road and the river. The area is abandoned and supports high grasses and some banana trees. A total of seven auger hole tests (AH 17 to 23) were conducted. The auger hole tests ranged between 0.09 and 0.91 metre below the surface and all tests were abandoned due to rock encounter. The soil results indicated that the area consists of an alluvial deposit of silt and sand with cobbles and boulders. The finds in this area included an undiagnostic sherd recovered from the surface of AH 20 and green glazed sherd dated to the Late Song Dynasty (A.D.1127-1279) found in AH 23 at a depth of 0.45 metre below the surface.
- Area C is located to the south of the road and west of the river. The northern part supports high grasses and a few trees, while the southern portion is very wet with surface water and ginger flower vegetation. A total of seven auger hole tests (AH 24 to 27 and 38 to 40) were carried out. The auger hole tests ranged between 0.24 and 0.54 metre below the surface and the tests were abandoned due to rock encounter and one failed to hold the soil. The soil results indicated that the area consists of an alluvial deposit of silt and sand with cobbles and boulders. The finds in this area include a provincial porcelain sherd body fragment found in AH 26 at a depth of 0.23 metre below the surface and a tiny sherd with eroding green glaze which possibly dates back to the Tang Dynasty (A.D. 618-907) was found in AH 38 at a depth of 0.15 metre below the surface.
- Area D is the proposed turning bay location. The area is abandoned and supports grasses. A total of ten auger hole tests (AH 28 to 37) were conducted. The auger hole tests ranged between 0.39 and 1.49 metres below the surface and the tests were abandoned due to rock encounter or when end of auger was reached. The soil results indicated that the area consists of an alluvial deposit of silt and sand with few cobbles and boulders. No finds were recovered from the auger testing programme in this area.
- The existing U-channel south of Butterfly Hill around the low-lying area of Ling Tsui Tau Tsuen into the Pak Ngan Heung River showed hill cutting, while the area to the extreme west, between Butterfly Hill and the Pak Ngan Heung River was available for testing, (Area E in **Figure 8.1**). A total of six auger hole tests (AH 1 to 6) were conducted in this area. The auger hole tests ranged between 0.05 and 0.94 metre below the surface and the tests were all abandoned due to rock encounter. The soil results indicated that the area consists of an alluvial deposit of silt and sand with cobbles and boulders. No finds were recovered from the auger testing programme in this area.

- Four extra auger hole tests (AH 41 to 44) were conducted to the south of the U-channel outside the study area in Area F (**Figure 8.1**) as requested by AMO. The results indicate the stratigraphy in this area consists of a large sand deposit. Two recent red tile fragments were retrieved from auger test 42 at a depth of approximately 0.17 metre. While no other artefacts were recovered, some sand strata were fiery red in colour and may be connected to Tang Kiln material previously found in the Chung Hau area (Ray Ma Pers. comm.).

### Test Pit Excavations

#### Test pit 1

- 8.4.11 The test pit measured 2 by 2 metres and was located within Area B near AH 20 and 22. The test pit was hand excavated to a depth between 0.25 and 0.65 metre. No auger hole was conducted to further verify the underlying stratigraphy as the test pit was abandoned due to boulders. The pit was back filled after recording. Temporary Bench Mark (TBM) (4.5m PD) was taken on the bridge crossing the Pak Ngan Heung River. The corners of the test pit are located at PD height between 3.9 and 3.96 metres.
- 8.4.12 A total of three contexts were recorded. Context 01 consisted of greyish brown very slightly gravelly and very slightly clayey silt. This topsoil included roots and eight tile fragments, one chipped tile disc and two glazed village ware sherds. The topsoil had a thickness of approximately 0.25 metre. Context 02 was yellowish brown very silty, slightly sandy and slightly gravelly clay. The alluvial layer contained cobbles and small rounded boulders as well as a single tiny glazed village ware sherd. This layer had a recorded thickness between 0.18 and 0.30 metre. Context 03 consisted of light greyish brown very clayey and slightly silty gravel with rounded cobbles and boulders. This alluvial layer was excavated for a thickness of maximum 0.45 metre and no finds were recorded within. The hand excavation was halted due to large boulders at a maximum depth of 0.78 metre below the surface. No auger hole test was attempted.

#### Test pit 2

- 8.4.13 The test pit measured 2 by 2 metres and was located within Area C. The test pit was hand excavated to a depth of 1.13 metres. The hand excavation of the pit was halted when water table was reached at a level of approximately 1.10 metres below the surface. An auger hole was conducted to further verify the underlying stratigraphy but after several attempts the auger hole test was abandoned as rock was reached at shallow depths. The pit was back filled after recording. TBM (4.5m PD) was taken on the bridge crossing the Pak Ngan Heung River. The corners of the test pit are located at PD height between 5.28 and 5.35 metres.
- 8.4.14 A total of six contexts were recorded. Context 01 was dark greyish brown sandy and slightly gravelly silt. The topsoil contained concrete fragments and plastic rubbish, and no artefacts were collected from this context. The topsoil had a thickness between 0.06 and 0.12 metre. Context 02 consisted of light greyish brown very slightly gravelly and very slightly clayey, silty sand with the occasional rounded to sub-rounded cobbles. This subsoil contained two small glazed village ware sherds and a small tile fragment and had a thickness of approximately 0.15 metre. Context 03 was yellowish brown compacted very slightly sandy and very slightly gravelly, clayey silt with abundance of rounded cobbles. This alluvial layer contained no artefacts and had a recorded thickness of 0.10 metre. The three above contexts are interpreted as the agricultural layer. Context 04 consisted of dark yellowish brown slightly gravelly sandy silt with abundance of rounded cobbles and a single plain eroded coarse ware

sherd. This fluvial layer had a thickness between 0.37 and 0.46 metre. Context 05 was light yellowish brown slightly clayey and very gravelly sterile alluvial silt with a thickness of approximately 0.35 metre. Context 06 consisted of light brownish grey slightly sandy and very silty gravel with rounded cobbles. Context 06 was recorded at a depth of approximately 1 metre below the surface. Water table was reached at a depth of approximately 1.10 metres. An auger test was conducted to further verify the underlying stratigraphy. Context 06 was recorded to a depth of 1.35 metres where rock was encountered and the auger test abandoned.

#### Test pit 3

- 8.4.15 The test pit measured 2 by 2 metres and was located within Area E. The test pit was hand excavated to a maximum depth of 1.28 metres below the surface. The test pit excavation was halted when water table was reached at a depth of approximately 1.25 metres below the surface. An auger hole was attempted to further verify the underlying stratigraphy, however it had to be abandoned due to boulders and cobbles. The pit was back filled after recording. TBM (4.5m PD) was taken on the bridge crossing the Pak Ngan Heung River. The corners of the test pit are located at PD height between 3.39 and 3.44 metres.
- 8.4.16 A total of six contexts were recorded. Context 01 was dark yellowish brown slightly sandy, gravelly and clayey silt with small sub-rounded cobbles. The topsoil had a thickness of approximately 0.05 metre and contained a small amount of modern rubbish. Context 02 was light greyish brown sandy, gravelly and cobbly very silty clay. This context represents the fill material of a pipe excavation on the southwest corner of the test pit. The fill contained a single small porcelain fragment. The fill had a thickness of 0.10 metre at the northeastern end of the test pit and 0.65 metre under the pipe. Context 03 was dark greyish brown very slightly gravelly, slightly sandy, silty alluvial clay. The layer included two pink tile fragments, one chipped tile disc, a glazed village ware rim and plain village ware sherd. Context 04 was grey very slightly gravelly, slightly clayey and slightly silty sand. The alluvial sands contained twelve small pink tile fragments, three glazed village ware sherds and single porcelain cup fragment. Context 05 was grey with light reddish yellow streaks very slightly gravelly, slightly silty and very sandy clay. This alluvial layer included two glazed village ware sherds and a porcelain fragment. Context 06 consisted of dark grey slightly clayey and slightly sandy gravel with clay patches and cobbles and boulders. This alluvial/ fluvial layer contained numerous village ware sherds (33 fragments of both glazed and unglazed sherds). This assemblage can be dated to the Tang Dynasty (AD. 618-907), the green glazed bowl fragment is the exception and may be younger in date (P. Lam personal communication). The sherds do not appear to have been transported over a long distance, and are interpreted as *in situ* deposit. The test pit excavation was halted when water table was reached while the context 06 continued.

#### Test pit 4

- 8.4.17 The test pit measured 2 by 2 metres and was located within Area D. The test pit was hand excavated to a depth between 0.98 and 1.05 metres. The test pit excavation was halted when water table was reached at a depth of approximately 1.02 metres below the surface. An auger hole was conducted to further verify the underlying stratigraphy and the pit was back filled after recording. TBM (4.5m PD) was taken on the bridge crossing the Pak Ngan Heung River. The corners of the test pit are located at PD height between 3.05 and 3.08 metres.
- 8.4.18 A total of six contexts were recorded. Context 01 was dark greyish brown very slightly clayey, very slightly gravelly sandy silt. The topsoil included roots and few pink small tile fragments



and a glazed village ware sherd and had a thickness between 0.14 and 0.20 metre. Context 02 consisted of light greyish brown very slightly gravelly, very slightly clayey, very sandy silt with nine small pink rounded tile fragments and two village ware fragments. This alluvial layer had a thickness of approximately 0.15 metre. Context 03 was recorded at a depth of 0.30 metre below the surface and consisted of yellowish brown gravelly and silty sand with the occasional decomposing cobble. The alluvial layer included a single glazed village ware sherd and had a thickness of approximately 0.28 metre. Context 04 was blueish grey very silty moist sand with the occasional sub-rounded cobble and had a thickness of approximately 0.23 metre. Context 05 was yellowish brown slightly silty, sandy wet and sterile gravel with the occasional cobble. This layer had a thickness of approximately 0.30 metre. Finally Context 06 was recorded at a depth of 1 metre below the surface and hand excavated to a depth of 1.06 metres below the surface when water table was reached. It consisted of wet and sterile grey sand/gravel. Context 07 was recorded within the auger test and consisted of dark grey wet gravelly sand at a depth of 1.24 metres below the surface.

### **Built Heritage**

- 8.4.19 There were no Declared Monuments within 20 metres of the proposed channel alignment. Two historic buildings, including the two historical watchtowers at Luk Tei Tong and Chung Hau (Yuen Family Compound) was found to locate next to the proposed alignment in Luk Tei Tong River.
- 8.4.20 A total of 14 resources were recorded in the field survey. The majority of the structures were located in the Yuen family compound at Chung Hau. Two other heritage resources were recorded, the historical watchtower at Luk Tei Tong and a shrine in Ling Tsui Tau Village.

#### **BH Area 1: LUK TEI TONG RIVER**

- 8.4.21 A total of 12 resources were identified and recorded within the survey boundary (AAHB-727 through 738). The location of the resources with respect to the alignment can be seen in **Figure 8.2**. As the alignment is in very close proximity to the recorded resources, the locations have also been marked on a base map (i.e. one not showing the alignment) for ease of identification, see **Figure 8.3**. All of the resources were located within the confines of the Yuen Family Compound, a privately owned residence. The compound was established by present owner's grandfather, Mr. Yuen Kwan Yu in the 1920s, who immigrated to Mui Wo from Guangdong. The buildings within the compound are constructed of cut granite blocks, the material for which was collected from Lai Chi Yuen Hill, Mui Wo. The compound contains a watchtower that was built for protection against pirates and thieves, according to the current owner.
- 8.4.22 Shortly after the establishment of the PRC (1949-50) over 200 people lived in the Yuen Compound. They were all clan members who came to Lantau from Guangdong. Most of them worked as farmers and later moved to other parts of Mui Wo. At this point, the Yuen family employed over 40 workers. They owned a rice field and there was a threshing floor in front of the pond. The rice was for consumption by the people living on the Compound and any excess was sold to villagers in Mui Wo or Cheung Chau. There is a modern house (built in about 1975 according to the current owner) located between buildings AAHB – 733 and 734. This house was built on the site of the original sugar cane processing shed, which was no longer in use since the 1970's.

- 8.4.23 Although not within the survey boundary, the watchtower at Luk Tei Tong was highlighted in the tender document and has been recorded as part of the field survey (AAHB-740). The construction of the tower has been dated to approximately 1930 by local informants. The tower was constructed for protection against bandits. The people of Luk Tei Tong came from Po On and Ng Wah. The clans of the village are Tsang, Kam, Lam, Wong and Wan. The tower is located approximately 220 metres from the nearest works area. The location of the tower is highlighted on **Figure 8.4**.
- 8.4.24 No grave or cultural / historical landscape resources were identified in the survey area.

#### **BH Area 2: TAI TEI TONG RIVER**

- 8.4.25 No built heritage, grave or cultural / historical landscape resources were identified in this survey area.

#### **AIA Area 3: PAK NGAN HEUNG RIVER**

- 8.4.26 This is not the site of an historical village. According to local informants, the area was settled by mainland immigrants after 1949. A shrine (AAHB-739) was identified in the survey and its location with respect to the proposed works areas can be seen in **Figure 8.1**. No grave or cultural / historical landscape resources were identified in the survey area.

### **8.5 Identification and Evaluation of Potential Impacts**

#### **Archaeology**

##### *Nature of Potential Impacts*

- 8.5.1 The nature of the impacts associated with the proposed drainage improvement works may include:
- (i) sub-surface impacts resulting in loss of archaeological deposits or strata;
  - (ii) major disruption of groundwater flow may result in displacement of artefacts in soft soil deposits; and
  - (iii) major soil borrowing in the vicinity of archaeological deposits or features may result in displacement of artefacts in soft soil deposits.

##### *Assessment of Impacts*

- 8.5.2 The majority of the datable finds were widely dispersed and represented displaced small pottery finds within alluvial deposit. However, during the excavation of Test Pit 3 in Area E, which lies within the boundary of Chung Hau Archaeological Site, a number of sherds dating to the Tang Dynasty were uncovered from a single context at depths between 1.2 and 1.8 metres. This context (Context 06) has been interpreted as being alluvial or fluvial in origin, the sherds recovered from it, however, showed no signs of water erosion. It is therefore, surmised that these finds represented an *in situ* assemblage. The likelihood of further Tang Dynasty deposits within the proposed U-channel at Ling Tsui Tau Village within the boundary of Chung Hau Archaeological Site is high.
- 8.5.3 An abandoned factory was located to the south of proposed U-channel within the works boundary and Chung Hau Archaeological Site. No test pits or auger hole were possible within the factory due to access constraints. Four auger hole tests conducted to the east of factory

building indicate that the abandoned building lies on a sandbar deposit. This sandbar deposit has archaeological potential, previous findings at Chung Hau Archaeological Site include Tang Dynasty kiln debris. Series of Tang Dynasty kilns are typically set into a sandbar deposit and are noted at several locations in Hong Kong. Additionally one of the auger hole tests brought up reddish soils (burnt soils), which are typically recorded in the vicinity of kilns. Based on findings from the field surveys, potential impacts would only be limited to the small areas of minor excavation works associated with the proposed 0.75m U-channel at Ling Tsui Tau Tsuen within the Chung Hau Archaeological Site.

**Built Heritage**

*Nature of Potential Impacts*

- 8.5.4 Any heritage resource located within close proximity to the works area may be adversely impacted through vibration and/ or receive direct damage from construction works.
- 8.5.5 The impacts associated with operational phase of the project would be of an aesthetic nature. In the sense that the surrounding environment of the historical villages may be altered through the construction of project associated features.

*Assessment of Impacts*

- 8.5.6 An assessment of the potential impacts is presented in **Table 8.2**.

**Table 8.2 Assessment of Potential Impacts to Recorded Resources**

Resource	Minimum Distance To Works Area	Intervening Landscape	Impact Assessment
Yuen Compound (AABH-727 through 738)	0 m	Village Structures	<p>There may be minor vibration impact on the existing retaining wall and identified buildings of the Yuen Compound associated with the proposed project during the construction of retaining wall and rubble seawall.</p> <p>There would be no adverse visual or aesthetic impacts associated with the proposed project during the construction or operation phases, as the project area is screened from the Yuen Compound by existing tree cover and retaining wall.</p> <p>No adverse impact to accessibility of the Yuen Compound will result as part of the Project as the entrance to the Compound will be retained.</p>

<b>Resource</b>	<b>Minimum Distance To Works Area</b>	<b>Intervening Landscape</b>	<b>Impact Assessment</b>
Shrine (AAHB-739)	>10m	Village structures	<p>There would be no adverse vibration impact associated with the proposed project during the construction phase, based on the nature of works and separation distance.</p> <p>No adverse impact to accessibility of the village shrine will result as part of the Project as the shrine is located at sufficient distance away from the alignment.</p>
Luk Tei Tong Watchtower (AAHB-740)	220m	Village structures	<p>There would be no vibration impact associated with the proposed project during the construction phase, based on the nature of works and large separation.</p> <p>There would be no visual or aesthetic impacts associated with the proposed project during the construction or operation phases, as the tower is located at large distance from the alignment.</p> <p>No impact to accessibility of the tower as it is located at large distance from the alignment</p>

## 8.6 Mitigation Measures

### **Archaeology**

- 8.6.1 Further archaeological investigation is recommended for the two areas within the Chung Hau Archaeological Sites, including the works area within Area E and the site of the abandoned factory as well as the works area not covered by the previous archaeological survey.
- 8.6.2 The construction of the proposed U-channel at Ling Tsui Tau Village should minimise any excavation works within the boundary of the Chung Hau Archaeological Site. Subject to the findings of the further investigation, a watching brief is recommended for any excavation works undertaken by a qualified archaeologist approved by AMO in order to record and collect any artefacts and/or archaeological data during excavation. If significant archaeological deposits are found, a rescue excavation may need to be undertaken.

### **Built Heritage**

- 8.6.3 Specific construction method should be selected to avoid vibration impact on the retaining wall and buildings of the Yuen Compound during construction of the proposed retaining wall and rubble seawall. Monitoring of vibration impacts should be conducted during the construction works to ensure no damage to the existing structures of the Compound.

## References

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