Archaeological Assessments
考古通有限公司

Agreement No. CE 73 / 98
Investigation Study for Widening of Tolo/Fanling Highway between Island House Interchange and Fanling

Archaeological Impact Assessment Report

Prepared for the Antiquities and Monuments Office
Home Affairs Bureau
by
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Archaeological Impact Assessment Report

1. Introduction

The following is the Report on the Archaeological Impact Assessment (AIA) for the above cited study which has been conducted by ARCHAEOLOGICAL ASSESSMENTS on behalf of the Antiquities and Monuments Office (AMO).

1.1 The Proposed Works

The widening of Tolo / Fanling Highway is to take place between the Island House Interchange and Wo Hop Shek Interchange. The proposed work in North Tai Po also includes the widening of existing bridges and the construction of new bridges; a new viaduct at Tai Po North Interchange, realignment of the Tai Wo service road west, and new foot bridges in Kiu Tau, Ho Ka Yeun and Wo Hop Shek.

1.2 Objectives of the Archaeological Impact Assessment

The objectives of the assessment are the following:

- to identify all known and unknown archaeological resources within the Study Area
- to provide baseline information on these sites
- to identify any original landforms in the Study Area and assess their archaeological potential
- to design and implement field evaluation to clarify this potential
- to identify the adverse impacts resulting from the proposed Project to these resources
- and to propose measures as required to mitigate these direct or indirect impacts

1.3 Constraints on the Assessment

The constraints on the AIA design have been:

- Incomplete data due to unavailability of the 1998 survey report of the study area
- The fact that many areas of the study area have been heavily altered, and are therefore unlikely to retain original deposits in-situ
- The degree of disturbance which resulted from initial construction of the Tolo/ Fanling Highway

- The fact that the proposed work will have significant impact on the existing drainage system in the area.
- The issue of access to private land has been a particularly serious constraint on the assessment of the study area. Access has been denied to some parts of the area, preventing field evaluation and delaying completion of the assessment.

1.4 Extent of Existing and Potential Impacts

The study corridor is occupied by residential and village housing, parks, recreational areas, utility stations, cultivated and abandoned agricultural lands. The area has an extensive network of roads and rivers and streams which have been channeled.

The pattern of land use has implications for archaeological investigation as the degree of development in the area has greatly impacted on the original landforms. Bore hole data indicates that large areas of the original land surface are covered by fill. As a consequence, it is possible that in some portions of the study area archaeological features may have been degraded or even destroyed.

The proposed widening of the Highway and its associated works will further impinge on the original landforms and thus affect any potential archaeological deposits. The project may also have an affect on the natural drainage system and adversely affect archaeological deposits.

2. Geological, Topographical and Archaeological Background

2.1 Study Area Geology and Topography

The Tolo/ Fanling Highway stretches between Tai Po and Fanling, starting from the head of Tolo Harbour and including the island of Yuen Chau Tsai (Island House). The alignment proceeds along the northern volcanic foothills of Tai Mo Shan, heading north across the grandiorite outcrop between Tai Po Valley and Lam Tsuen Valley, where the topography is rather steep. At the head of the Lam Tsuen Valley the alignment changes direction and veers off to the north-east along the valley floor.

The main geology of the area consists of the volcanics characteristic of the surrounding mountainous hills and a grandiorite outcrop between Tai Po Valley and Lam Tsuen Valley. The area comprises the three large valleys of Tai Po, Lam Tsuen and Fanling.

In the Lam Tsuen Valley a thin alluvium layer covering grandiorite, has been eroded following rejuvenation of the river to form a complex set of dissected terraces, ranging from 1 to 10 meters in height. The Lam Tsuen River is flanked by Holocene alluvium between Tai Po and Mui Shue Hang.

In the northern part of the Study area, the Fanling Valley, alluvial Holocene and Pleistocene deposits have been distinguished. The Pleistocene deposits form fluvial terraces, whilst the younger alluvium occurs along the narrow courses of recent streams incised into the terraced surface.

The quartzphyric rhyolite outcrops above Sheung Wun Yiu are deeply weathered to a white clay which has been extensively excavated for use in manufacturing of the blue and white pottery.

At Wai Tau Tsuen excavations revealed a dark greenish grey basalt dyke about 50m wide which was homogeneously fine grained.

2.2 Archaeological Setting

2.2.1 The Prehistory of Hong Kong

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.

2.2.2 The Historic Period of Hong Kong

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. 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 dating from the Song dynasty have been found, including evidence of a customs post, lime production centres and human burials, finds include sherds and coin caches. In the Yuan dynasty (1271 – 1368 AD) the economy relied on salt production and pearl harvesting, that was centred around Tolo Harbour and Deep Bay; both government controlled. Only one site has been found, Ha Lo Wan on Chek Lap Kok which contained iron refining kilns.

During the Ming dynasty (1368 – 1644 AD) the local economy continued to prosper with industries such as 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, Hakka migrants began to arrive to supplement the then depleted population, and occupying the less fertile lands. Pearl, salt and incense production declined and the economy shifted towards a more fishing and farming oriented basis.This led to the growth of market towns, such as Tai Po, Yuen Long and Sheung Shui. Archaeological remains of forts and batteries built during the Qing dynasty to strengthen coastal defenses against pirates have been excavated, as well remains of farmsteads and fields have also been investigated.

To date, archaeological evidence has been found primarily in the 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.

2.3 Previous Archaeological Investigations

Several archaeological sites have been recorded from previous archaeological research in the Study Area. The preliminary report of the Territory-wide Archaeological Survey for the Tai Po -Fanling area indicated several inland sites; unfortunately, the final results of this survey were not yet available at the time of this assessment.

The following are known sites within the study area:

A. Yuen Chau Tsai (Island House) (Site No. 0701)
Prehistoric artefacts were discovered on this low-lying island to the East of Tai Po by J. Walden (1965-1967); the 1985 survey

(Peacock and Nixon 1988); and the comprehensive 1998 survey undertaken by ARCHAEOLOGICAL ASSESSMENTS. All of the above studies recovered many stone artefacts as well as chalky and hard geometric pottery, but failed to find any evidence of in-situ prehistoric deposits.

B. Wun Yiu Kilns (Site No. 0705)

Wun Yiu, located to the south of Tai Po Valley, is the only known Hong Kong kiln which produced Blue-and-White porcelain from at least the early Qing, if not Ming, period.. An archaeological investigation undertaken in 1995, recorded kilns, the remains of mined kaolin pits, water mills, an animal driven grinder, clay washing basins and workshops.

C. Wun Yiu Track way

Numerous track ways have been identified in Hong Kong. First recorded on British military maps their dating remains problematic, however, Peacock (1985) believes that such track ways may be associated with early farming and provisionally dates them to the T'ang and early Song Dynasty.

D. Wai Tau (site no. 0710).

Schofield originally recorded Wai Tau in 1936. "Double-f" pottery sherds, characteristic of the Bronze Age period in Hong Kong were found at the site. The 1984 survey also located similar material, but concluded that the archaeological site had been destroyed and that no deposits remained in-situ.

Although the following site does not lie within the Study Area, it indicates the potential of the lower hill slopes and the valley floor in the Tai Po Valley and supports the high archaeological potential of the Study area.

E. Lam Tsuen Valley

The archaeological survey conducted as part of the recent re-survey of the Territory, discovered prehistoric net impressed pottery as well as sherds dating from the Shang, Zhou, Song, Yuan, Ming and Qing Dynasties. (Tang Chung, 1988) The final report of the survey has not yet been submitted.

3. Archaeological Impact Assessment

3.1 Methodology

The assessment methodology consisted of the following tasks:

(1) Desktop Research

Desktop research was carried out to locate all known and potential sites of archaeological interest and historic landscape features using the following resources:

- Aerial photographs
- AMO files: unpublished and published excavation and survey reports
- AMO Monograph Series
- Journals of the Royal Asiatic Society
- Journals of the Hong Kong Archaeological Society
- Geotechnical and geological information
- Liaison with the District office, Tai Po, to initiate meetings with village representatives to gather local information and organise access to private land

(2) Field Evaluation

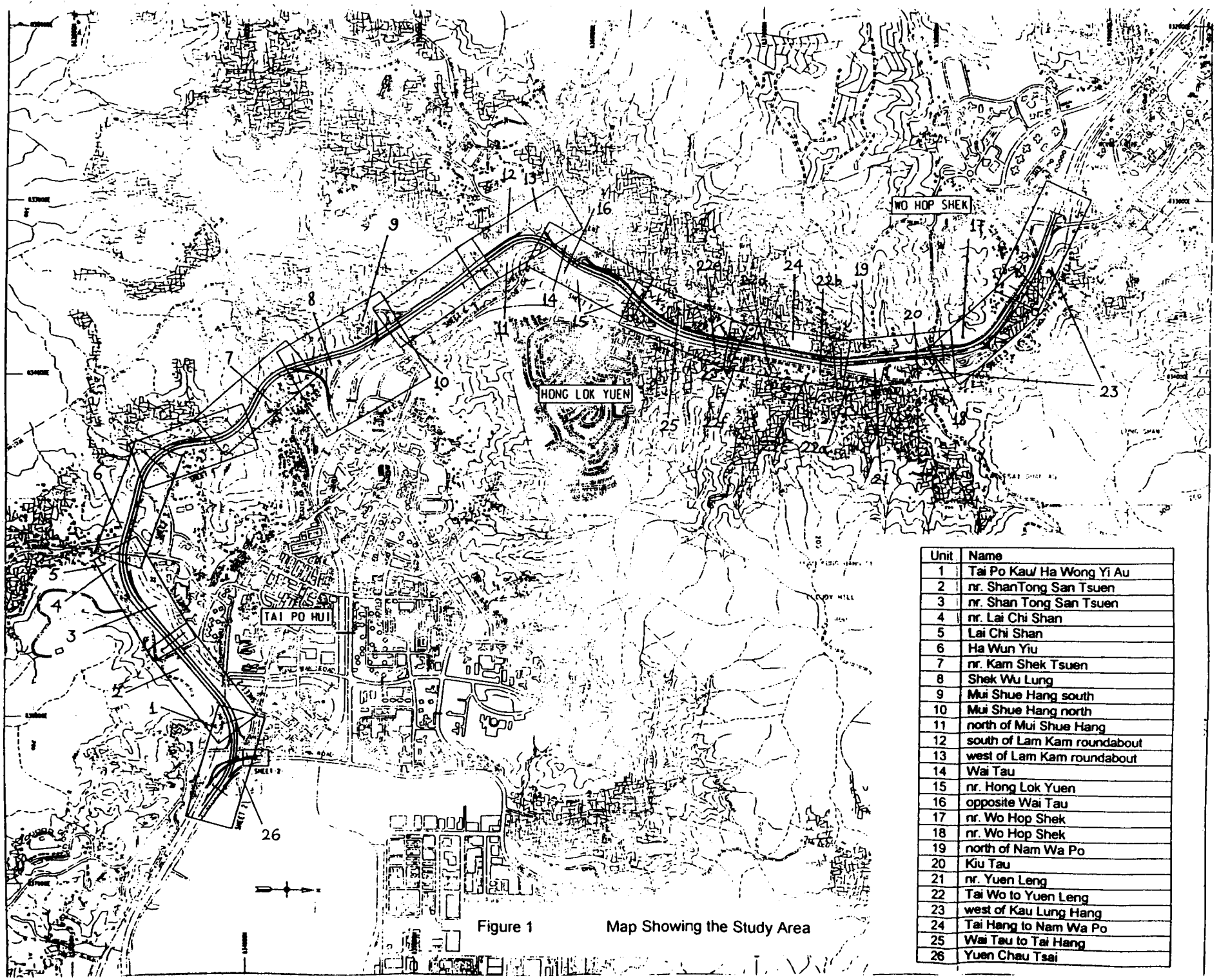
The field evaluation included:

- Ground surface examination of exposed areas in each unit, with particular attention to any sections with visible soil stratification.
- An auger survey was carried out to evaluate soil conditions and establish the horizontal and vertical distribution of any culturally modified soils. Systematic auger holes were positioned to provide maximum coverage of the study area.
- If the auger testing indicated major disturbances to the original landform, the site was excluded from further field evaluation.
- However, if auger testing showed in situ soil deposits, even without the evidence of a cultural deposit, an attempt was made to excavate a test pit . This test pit measured no less than 1m X 1m.

Unit	Name	Description
1	Tai Po Kau/ Ha Wong Yi Au	This area consists of a hill, the low area accessible by steps. The foothills on the eastern side are covered with grasses and banana trees. A house sits on an area of levelled land at the top. The hill has been cut for a track on the north side, and dense hill vegetation covers the remaining slopes. These western slopes are completely inaccessible due to fenced off railway land and private property. The low area is accessible by steps.
2	nr. ShanTong San Tsuen	This area is a hill slope modified by cultivation terracing, with cuts of approximately 2 meters. The hill is overgrown and not presently in use. A channeled stream runs through the unit.
3	nr. Shan Tong San Tsuen	This unit consists of a densely vegetated hill slope in a landscaped area along a nullah path. The west face of the hill appears less altered than the east, which has evidence of old terraces and abandoned graves. An abandoned structure was also located on a heavily terraced area. The base of the hill may also be altered.
4	nr. Lai Chi Shan	This is an altered, densely vegetated hill slope. Although located in close proximity to the kiln area it was modified during the road construction.
5	Lai Chi Shan	This unit comprises the village of Lai Chi Shan. Construction has completely covered land surfaces and altered the original landform.
6	Ha Wun Yiu	The area of Ha Wan Yiu is a known archaeological site. The limits of the site as defined by the AMO will be used in the assessment process.
7	nr. Kam Shek Tsuen	The road alignment will impact the hill slope, which is extremely steep and rocky. The lower hill slopes are also part of the study area but are completely covered in structures.
8	Shek Wu Lung	This area has very steep and rocky hill slopes, with structures located in lower areas. Terraced retaining walls are present and the area has been landscaped.
9	Mui Shue Hang south	Mui Shue Hang Tsuen is located in a valley and is presently under cultivation. Structures are located throughout the unit. The basic landform is unaltered with the exception of terraces and the agricultural plots.
10	Mui Shue Hang north	Terracing and ruins are found on the hill, whilst the lower hill slopes have been largely landscaped.
11	north of Mui Shue Hang	The lower hill slopes in this unit appear to have been landscaped. These areas are located between the Lam Tsuen River and the Tolo Highway. They can be classified as lower foot slopes which may have been affected by the construction of a water utility building.
12	south of Lam Kam roundabout	The hill slopes in this area are currently being used for agricultural land and are partially terraced. The valley floor is thick with vegetation. Structures can be found in the area.
13	west of Lam Kam roundabout	A large flat agricultural area with structures. A very large grave is located on the hill slope.
14	Wai Tau	This is a known archaeological site; however, the site has been modified by development to an unknown

		extent and requires clarification through field assessment.
15	nr. Hong Lok Yuen	This is a valley floor area with thick vegetation; the degree of modification by the construction of the railway and the electricity pylons is unknown. The area also supports nurseries, some concrete structures and quite a bit of rubbish.
16	opposite Wai Tau	The lower foot hill of these areas is covered in debris and appears to have been altered by the construction of the road and pumping station. A number of graves are located on the hill slope.
17	nr. Wo Hop Shek	This unit is a small hill, which appears relatively unaltered. The hill slopes are heavily vegetated.
18	nr. Wo Hop Shek	This unit consists of lower hill slopes, which appear to have been moderately altered by the road construction,
19	north of Nam Wa Po	This unit is made up of lower hill slopes, which have been leveled for domestic structures. The low area contains a large amount of waste material and agricultural plots; the degree of modification in this lower area may be relatively low.
20	Kiu Tau	This area may have been altered by the construction of the road. It supports nurseries and agricultural plots on both sides of the road. Only part of the area has been built on.
21	nr. Yuen Leng	This area is located between the highway and the railway tracks and may have been landscaped.
22	Tai Wo to Yuen Leng	This valley area has been developed and contains abandoned as well as in use agricultural plots
23	west of Kau Lung Hang	This valley floor is primarily devoted to agriculture land.
24	Tai Hang to Nam Wa Po	These areas of lower hill slopes and valley floors have a high degree of alternation as a result of development and road construction.
25	Wai Tau to Tai Hang	This part of the valley floor has been heavily utilised. The area contains nurseries, a car park, a container park, abandoned agricultural plots and a village.
26	Yuen Chau Tsai	This is the known archaeological site of Island House, which has already been assessed.

Table 1 Unit List and descriptions



Unit	Name
1	Tai Po Kau/ Ha Wong Yi Au
2	nr. ShanTong San Tsuen
3	nr. Shan Tong San Tsuen
4	nr. Lai Chi Shan
5	Lai Chi Shan
6	Ha Wun Yiu
7	nr. Kam Shek Tsuen
8	Shek Wu Lung
9	Mui Shue Hang south
10	Mui Shue Hang north
11	north of Mui Shue Hang
12	south of Lam Kam roundabout
13	west of Lam Kam roundabout
14	Wai Tau
15	nr. Hong Lok Yuen
16	opposite Wai Tau
17	nr. Wo Hop Shek
18	nr. Wo Hop Shek
19	north of Nam Wa Po
20	Kiu Tau
21	nr. Yuen Leng
22	Tai Wo to Yuen Leng
23	west of Kau Lung Hang
24	Tai Hang to Nam Wa Po
25	Wai Tau to Tai Hang
26	Yuen Chau Tsai

Figure 1 Map Showing the Study Area

(3) **Report Preparation and Presentation**

Reporting of the field data and mitigation recommendations has been carried out according to AMO guidelines and requirements. Data was recorded on standard forms, which will be handed to AMO in the form of the site archive, as well as presented in report form.

4. Results of the Desktop Assessment

4.1 Known Archaeological Sites

The known archaeological sites in the study area, were identified through desk top research, the following units were excluded from field evaluation as their archaeological potential has been documented and the need for their preservation is understood:

(1) Yuen Chau Tsai (Island House)

The site is registered administratively as a Site of Archaeological Interest. It has gained this status because of the many surface finds that have been collected in the area, over the years. An intensive archaeological survey undertaken in 1998 by Rogers, et al., revealed Bronze Age sherds and stone artefacts. While no clear cultural stratification could be established on or around the hill, test pit 1, located in the flat area behind the pier on the south-southeast side of the island, may represent an in situ deposit.

(2) Wun Yiu

Wun Yiu is a blue and white glazed porcelain production site. An intensive survey undertaken in 1995 by Au Ka-fat highlighted the importance of this site for the industrial history of Hong Kong. The survey revealed the extent of the ceramic production site with remains such as kilns, water mills, workshops, ox-grinders, ponds for washing clay and the clay mining area, located immediately to the south of Tolo Highway.

No evidence was found for the continuation of the Wun Yiu trackway into the study area.

(3) Wai Tau

Wai Tau was identified as an archaeological site many years ago on the basis of surface finds. By the time of the 1985 survey it was considered to have no in situ deposit and to have little archaeological potential remaining. This evaluation was denied access to the part of the site remaining after the construction of a power station on the site, and was therefore unable to clarify the issue further.

4.2 Areas of Archaeological Potential

Geological and geotechnical information, aerial photographs and known archaeological sites and landforms were used to identify areas of unmodified landscape and/or known archaeological potential. Each of these areas was given a separate unit number. Areas shown by desk based research to be on reclaimed land, to have been cut, or located in high density urban areas were considered severely modified and were excluded from this assessment.

Field visits to all units were undertaken to further assess the condition of the landform, the degree of development on the site and ease of accessibility. The designation of units and their numbers was adjusted as required and is presented in Table 1 and Figure 1.

5. Field Evaluation Results

5.1 Unit 1 (Tai Po Kau / Ha Wong Yi Yuen) (Figure 2)

Unit 1 is a hill located to the south-west of Island House, rising to a height of 28 meters. The north side has been cut adjacent to the railway track. The low area to the east is private farmland. Banana trees are evident, but one plot appeared abandoned. Although heavily overgrown by grasses, auger testing was possible. The eastern lower foothills were also covered by similar vegetation, rising to shrub and woodland coverage. The top of the hill, has been levelled for the building of a house, with much of the accessible land covered in debris. The remaining area is private land and has been fenced off making it inaccessible. Vegetation covers the remaining slopes. The western side proved completely inaccessible as it consisted of private property and land fenced off because of the railway.

The basic geology of the unit is volcanic: crystal tuff, with hornblende, Yim Tin Tsai Formation. A vein of Quartzphyric rhyolite is located nearby. This may explain the littering of the surface with an unusually high proportion of quartz. A channelled stream runs parallel to the road, adjacent to the low area on the east side of the hill. The unit was accessible by steps down from the road.

5.1.1 Field Walking

Field walking proved impossible in the low area to the east as a result of thick vegetation. A non-linear examination was conducted in areas of visible ground, and an additional four lines were also walked. Several hill

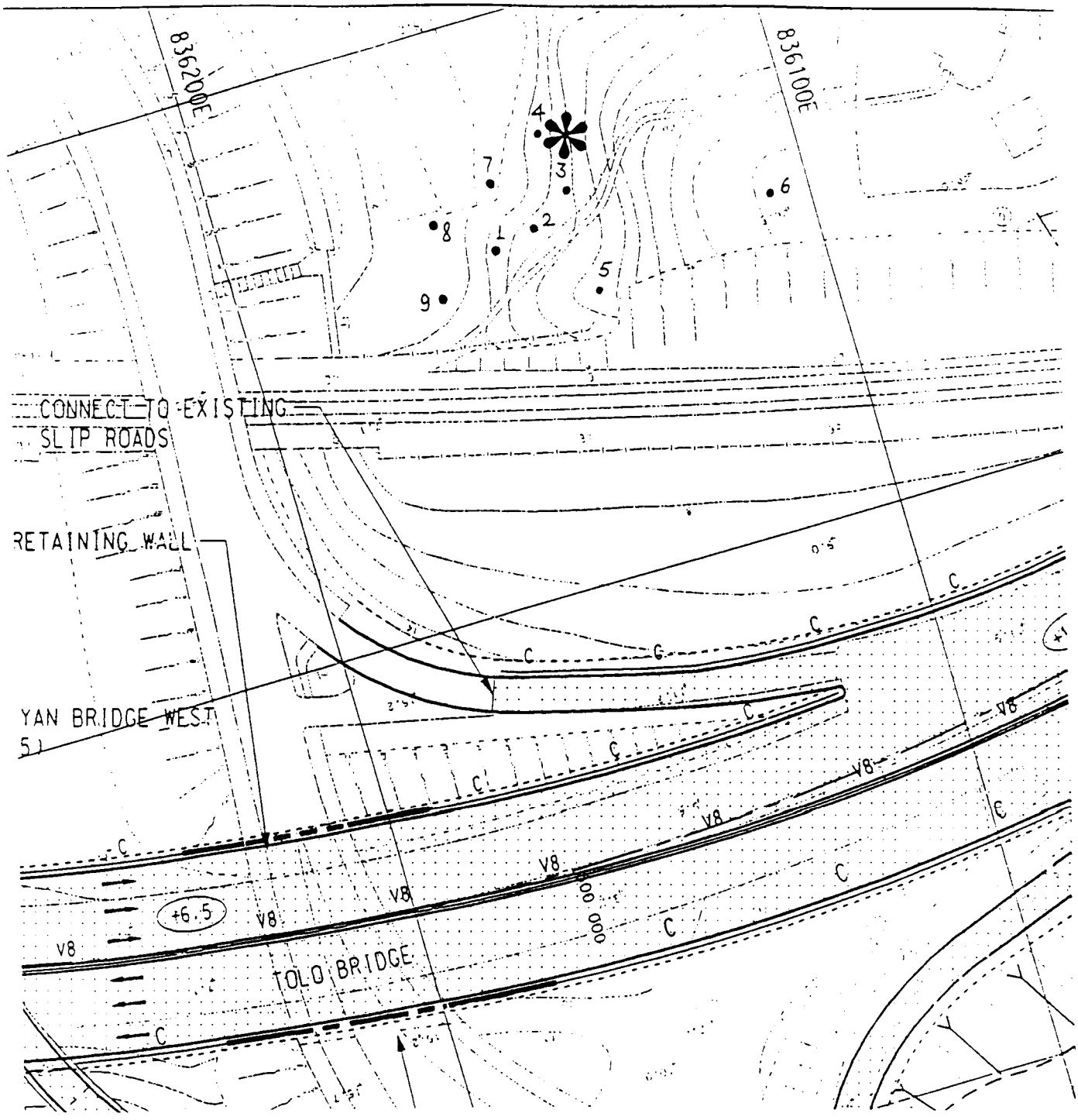


Figure 2 Unit 1: Map Showing Auger Hole Locations and Test Pit Location

Test Pit

Auger Hole

Layer	Level	Soil description	Colour	Interpretation
01	A: 0 B: +3 C: +7 D: +3	Dark yellowish brown very sandy gravelly SILT with cobbles and stones and building debris; plastic and nuts	10 YR 3/4	Topsoil
02	A: -4 B: -4 C: -1 D: -8	Yellowish red very sandy gravelly slightly clayey SILT with rocks; modern sherd and a cloth strip	5 YR 5/6	Hill wash
03	A: -40.5 B: -41.5 C:-39 D: -37.5	Very flat lying decomposing rock		Decomposing bedrock in situ

Table 2 Test Pit # 1 at Tai Po Kau (Unit 1)

slope cuts were visible in section and examined revealing colluvial deposits and in situ decomposing and decomposed rock. No artefacts or features of archaeological or historical significance were recovered.

5.1.2 Augering

Augering focused on the low area and the foot hill slopes. In these areas tests were carried out at intervals of 10-20 meters. The upper reaches of the hill were too steep for testing. All auger holes were abandoned at a maximum of 40 cm due to impenetrable rock.

Auger 1

Depth (cm)	Soil description	Colour
0 - 12	Dark yellowish brown LOAM	10 YR 4/4
12	Abandoned due to rock	

Auger 2

Depth (cm)	Soil description	Colour
0 - 5	Dark yellowish brown LOAM	10 YR 4/4
5 - 22	Dark yellowish brown loamy CLAY with parent material	10 YR 4/6
22	Abandoned due to rock	

Auger 3

Depth (cm)	Soil description	Colour
0 - 10	Dark brown clayey LOAM	7.5 YR 3/3
10 - 28	Dark yellowish brown CLAY with quartz inclusions	10 YR 3/6
28	Abandoned due to rock	

Auger 4

Depth (cm)	Soil description	Colour
0 - 18	Dark yellowish brown LOAM	10 YR 4/4
18	Abandoned due to rock	

Auger 5

Depth	Soil description	Colour
Cancelled due to building debris		

Figure 3 Unit 2: Map Showing Auger Hole Locations

Figure 4 Unit 3: Map showing Auger Hole Locations

Auger 6

Depth (cm)	Soil description	Colour
0-19	Dark yellowish brown gritty sandy CLAY	10 YR 3/4
19	Abandoned due to rock	

5.2.3 Test pit excavation

The lack of soil deposit in this unit did not warrant any test pit excavation. The area has been modified for terraced agriculture and any surviving archaeological potential is minimal.

5.3. Unit 3 (nr. Shan Tong San Tsuen) (Figure 4)

This unit consists of a hill slope immediately east of the Lam Tsuen River, covered by dense woodland vegetation. The south-east of the hill is cut by the Tolo Highway, and the east and west have been modified through extensive landscaping. The landscaping was carried out as part of the park running along the Lam Tsuen River. A channelled stream runs through the unit. Below the Tolo Highway, cut sections demonstrate in situ decomposing rock and parent material. The west face of the hill appears less altered than the east, which shows evidence of terracing, old graves and abandoned structures. Concrete foundations were located on a particularly wide terrace. Much of this eastern side of the hill is covered in building debris. The base of the hill has been altered for the construction of the path. The hill appears to have no current usage; it is, however, situated on the Wilson trail and is therefore part of a recreational landscape.

The local geology in this area is characterised by volcanic rock: crystal and lithic tuff, tuff-breccia and tuffite, Shing Mun Formation.

5.3.1 Field Walking

Opportunities for systematic field walking were severely limited by the vegetation covering the hill slope and the coverage of building debris in the east. Wherever possible a non-linear examination of the ground was conducted. This search recovered no archaeological artefacts or features.

5.3.2 Augering

The vegetation and debris, limited auger hole tests. An attempt was made to test a line running down the hill slope to ascertain soil depths and movement. The area immediately under the road was also tested. A total of six tests were carried out.

Auger 6

Depth	Soil description	Colour
0 - 8	Dark brown LOAM	7.5 YR 3/4
8 - 12	Reddish yellow clayey LOAM	7.5 YR 6/8
12	Abandoned due to decomposing bedrock and building debris	

5.1.3 Test Pit Excavation

Auger testing showed the hill slope to have a very shallow deposit of soil, underlain by rocks and decomposing parent material. As a result, there was no longer any potential for the presence of archaeological deposits. The low area contained alluvial deposits and would therefore appear to be an old streambed. This interpretation is supported by the existence of a modern channelled stream located immediately to the east of the area. A test pit was conducted to further investigate this area.

The test pit (Test Pit # 1) was located at the bottom of the hill, but in the alluvial valley. It measured 1 by 1.5 meters. The TBM 2130 was taken at the bottom step of the staircase leading from the Tai Po Kau road to the unit. The results are presented in Table 2 and the section in Figure 25. Plate 1 shows the location and the test pit.

This unit was of interest because of its proximity to Yuen Chau Tsai and the similarity of its landform. However, the assessment found that the hillslope area has no soil deposits with potential to contain archaeological deposits and that the low area is filled with reworked stream deposits.

5.2 Unit 2 (nr. Shan Tong San Tsuen) (Figure 3)

Unit 2 is a hill located on the eastern point of the Tai Po plain. The hill has been cut by the construction of the Tolo Highway to the north and is surrounded by roads to the east and south. The remaining land is heavily overgrown with vegetation. Abandoned agricultural plots can be seen on deeply cut terraces. The unit is presently not under cultivation and has no visible function. A channelled stream runs through the middle of the area. The local geology is volcanic: crystal tuff, with hornblende of the Yim Tin Tsai Formation.

5.2.1 Field Walking

Field walking was not carried out in this area as all land surfaces were covered in vegetation, therefore offering zero visibility.

5.2.2 Augering

Possible auger test loci were limited by the steep terracing and dense vegetation, which prevented access to most parts of the unit. Six tests were carried out in the remaining areas.

Auger 1

Depth (cm)	Soil description	Colour
0-32	Dark yellowish brown to yellowish brown loamy CLAY	10 YR 4/6 to 10 YR 5/8
32	Abandoned due to decomposing rock	

Auger 2

Depth (cm)	Soil description	Colour
0-22	Strong brown CLAY, with inclusions of parent material; decomposing bedrock; garbage and glass	7.5 YR 5/8
22	Abandoned due to decomposing rock	

Auger 3

Depth (cm)	Soil description	Colour
0-5	Dark yellowish brown loamy CLAY	10 YR 3/4
5-24	Dark yellowish brown CLAY with rock inclusions	10 YR 4/6
24	Abandoned due to rock	

Auger 4

Depth (cm)	Soil description	Colour
0-7	Yellowish brown CLAY	10 YR 5/8
7	Abandoned due to rock	

Auger 5

Depth (cm)	Soil description	Colour
0-5	Very dark brown CLAY	10 YR 2/2
5-21	Dark yellowish brown clayey LOAM with rock inclusions	10 YR 3/4
21	Abandoned due to rock	

Auger 1

Depth (cm)	Soil description	Colour
0 – 4	Dark yellowish brown CLAY	10 YR 3/4
4 – 20	Dark yellowish brown CLAY and decomposing rock fragments	10 YR 4/6
20	Abandoned due to decomposing bedrock	

Auger 2

Depth (cm)	Soil description	Colour
Abandoned due to rock and decomposing rock just below the surface		

Auger 3

Depth (cm)	Soil description	Colour
0 – 15	Yellowish red parent material and decomposing bedrock	5 YR 5/6
15.	Abandoned due to decomposing bedrock	

Auger 4

Depth (cm)	Soil description	Colour
0 – 8	Dark yellowish brown clayey LOAM	10 YR 4/4
8	Abandoned due to decomposing bedrock	

Auger 5

Depth (cm)	Soil description	Colour
0 – 67	Strong brown deeply weathered fine CLAY	7.5 YR 5/8
67	Abandoned due to rock and decomposing bedrock	

Auger 6

Depth (cm)	Soil description	Colour
0 – 10	Dark yellowish brown deeply weathered fine CLAY	10 YR 4/6
10 – 59	Strong brown deeply weathered fine CLAY	7.5 YR 5/8
59	Abandoned due to rock and decomposing rock	

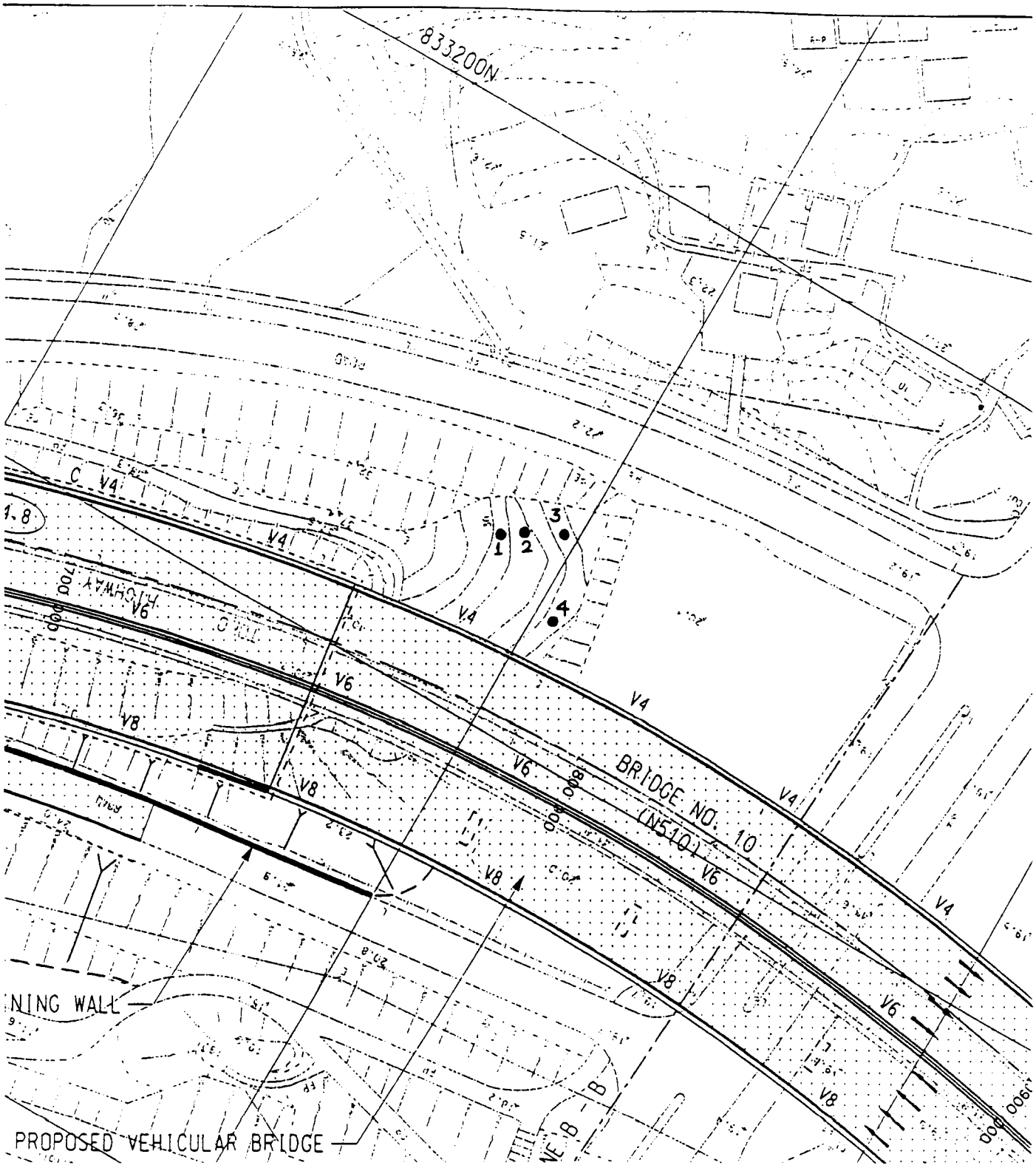


Figure 5 Unit 4: Map Showing Auger Hole Locations

5.3.3 Test pit excavation

The upper portions of the hill were shown to have a very thin layer of soil, with in-situ decomposing bedrock below. Testing of the northern foot slopes revealed a deposit of sterile clay above the bedrock. A test pit was, therefore, not undertaken. The presence of former structures and graves provide further evidence that alterations to the hill have been substantial.

5.4 Unit 4 (nr. Lai Chi Shan) (Figure 5)

Unit 4 consists of the remains of a hill slope located to the north of the village of Lai Chi Shan. The hill is completely modified having been cut on all sides during the construction of the Tolo Highway. Woodland vegetation covers the hill slope, and there are quantities of stone and concrete on the ground surface. This unit is of interest as it is located very close to the kiln site, however, drastic alterations to the landform has seriously affected this potential. There was no longer evidence of a water source in the immediate area. The basic geology is volcanic: crystal and lithic tuff, tuff-breccia and tuffite, Shing Mun Formation. Debris flow deposits are present nearby.

5.4.1 Field Walking

Visibility was very low due to the presence of surface stone and debris. Field walking was carried out and the entire surface of the unit was investigated in a non linear fashion. No finds were recovered.

5.4.2 Augering

Four auger tests were carried out to assess the degree of modification to the existing hill slope and the potential for archaeological deposits.

Auger 1

Depth (cm)	Soil description	Colour
Abandoned due to rock		

Auger 2

Depth (cm)	Soil description	Colour
Abandoned due to rock		

Auger 3

Depth (cm)	Soil description	Colour
Abandoned due to rock		

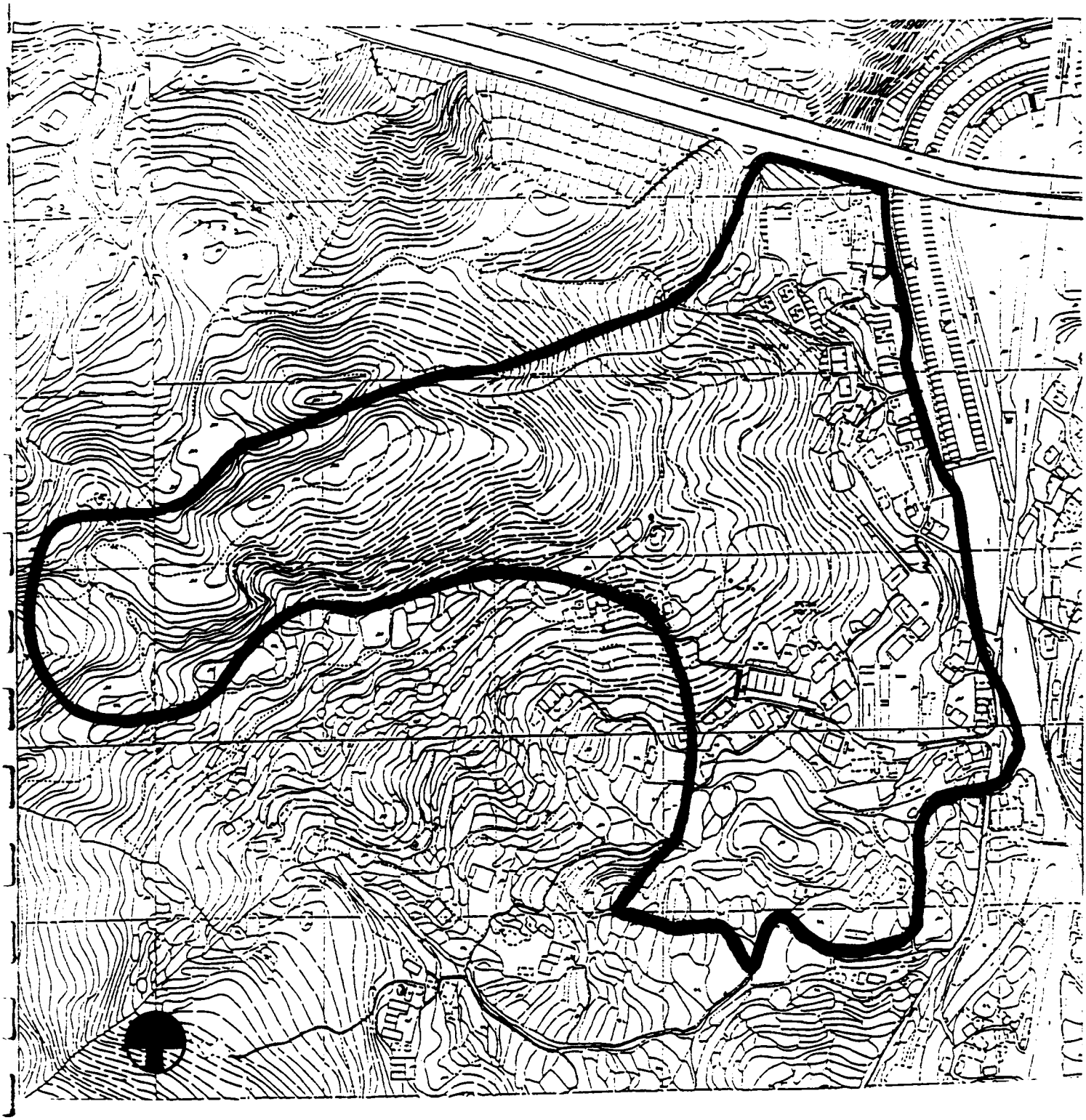


Figure 6 Unit 6: Wun Yiu

Auger 4

Depth (cm)	Soil description	Colour
Abandoned due to rock		

5.4.3 Test pit excavation

Auger testing revealed the surface of the hill to be impenetrable as a result of rock and rubble coverage. The landform of the hill has been completely altered by the construction of the surrounding roads. The potential for the presence of archaeological deposits was therefore considered to be extremely low, and a test pit was not conducted.

5.5 Unit 5 (Lai Chi Shan)

Unit 5 is the village of Lai Chi Shan. The area was visited during the field verification stage and was found to be completely covered in structures and concrete. Construction has altered the original landscape and there is no longer scope for fieldwork. The village is located on the east side of the Wun Yiu river and occupies lower foot slopes.The basic geology of the area is crystal and lithic tuff, tuff-breccia and tuffite; Shing Mung Formation. The area immediately south of the highway has alluvial and debris flow deposits. Two veins of quartzphyric rhyolite are also present.

Although the unit lies close to known sites and has similar topography, the built up nature and degree of resulting disturbance mean that archaeological potential is low.

5.6 Unit 6 (Ha Wun Yiu) (Figure 6)

This unit comprises the village of Ha Wun Yiu and is a known archaeological kiln site. The village is situated to the west of the Wun Yiu river. The river used to be deep enough for boats to reach Pan Chung village, but construction in the area has changed the velocity of the river. The archaeological site covers up to 50000 m^2 and was declared for protection by the AMO as site no.20 in 1983.The site is located on a depression between two hills with the river Wun Yiu running through.The basic geology of the unit is crystal and lithic tuff, tuff-breccia and tuffites of the Shing Mun formation with quartzphyric rhyolite.

Figure 7 Unit 9: Map Showing Auger Hole Locations

The investigations carried out so far in the Wun Yiu area attest to the presence of a substantial archaeological site. This site is listed by the Antiquities and Monuments Office as a known monument and is a protected site. The site boundary is delineated on the map provided. Under no circumstances should the site be impinged on.

5.7 Unit 7 (Kam Shek San Tsuen)

Unit 7 is the village of Kam Shek San Tsuen, located to the north of the present highway. The village is positioned along the foothills in the south-west of the Tai Po plain, in close proximity to the Lam Tsuen River. The Highway cuts across the peaks of the hills, whilst the village is located on the lower foot slopes and alluvial flat area at the base. Field evaluation showed the area to be almost entirely covered in concrete and structures. A large stream runs to the north-east, flanked by steep sides. The local geology is characterised by granodiorite.

The degree of concrete and structures in the area prevented fieldwork and suggest the original landform is highly altered.

5.8 Unit 8 (Shek Wu Lung)

Unit 8 is located adjacent to unit 7 and may have been utilised by its inhabitants. The land is located on a hill slope at heights varying between 20 and 40 meters above sea level. Here, the Tolo Highway has been elevated and runs over the unit. A substantial stream runs through the north of the unit. Much of the area is presently under cultivation, on terraces cut into the hill slope. Many of these terraces have stone retaining walls or concrete slopes. Some of the terraces are covered in concrete and structures. The vegetation consists of woodland and shrub. The basic geology of the area is granodiorite.

The area is built up, and for the most part inaccessible, as it is private land. Consequently, fieldwork could not be carried out. The archaeological potential of the area is limited as a result of the landform alterations resulting from construction and intense agricultural activities.

5.9 Unit 9 (Mui Shue Hang south) (Figure 7)

Mui Shui Hang is located to the north of Shek Wu Lung, and west of the Tai Po Tai Wo road. The highway has been elevated and runs above the area. The unit comprises a fairly flat area of land at the base of gently sloping foothills to the north and west, and steep hills to the south. The western hills are the site of a burial ground, while part of the flat area is under cultivation. Temporary structures occupy the centre and northern part of the unit, while the hill side has been cut for a path. A channelled

run-off stream controls the drainage in the north section of the unit. The basic geology of the unit is granodiorite, the majority of the deposits being formed by debris-flow.

5.9.1 Field Walking

The unit did not allow systematic field walking due to an abundance of temporary structures and dense vegetation. A ground surface investigation was carried out wherever possible. No surface finds were recovered.

5.9.2 Augering

Abandoned terraces in the southern section of the unit proved suitable for testing. The rest of the unit was either built up or covered in debris.

Auger 1

Depth (cm)	Soil description	Colour
0 – 82	Dark yellowish brown sandy CLAY with gravel; getting clayey with depth	10 YR 4/6
82	Abandoned due to decomposing bedrock	

Auger 2

Depth (cm)	Soil description	Colour
0 – 28	Dark yellowish brown very slightly clayey, slightly gravelly SILT (equidimensional to flat elongate)	10 YR 4/6
28	Abandoned due to rock	

Auger 3

Depth (cm)	Soil description	Colour
Abandoned after three attempts due to rubble at and below the surface		

Auger 4

Depth (cm)	Soil description	Colour
0 – 21	Yellowish brown sandy, slightly silty CLAY	10 YR 5/4
21 – 58	Brown sandy gravelly CLAY	10 YR 5/3
58 – 70	Olive grey gravelly, very slightly clayey SAND (equidimensional, occasionally sub rounded)	5 Y 4/2
70 – 88	Olive yellow very sandy CLAY	2.5 Y 6/6

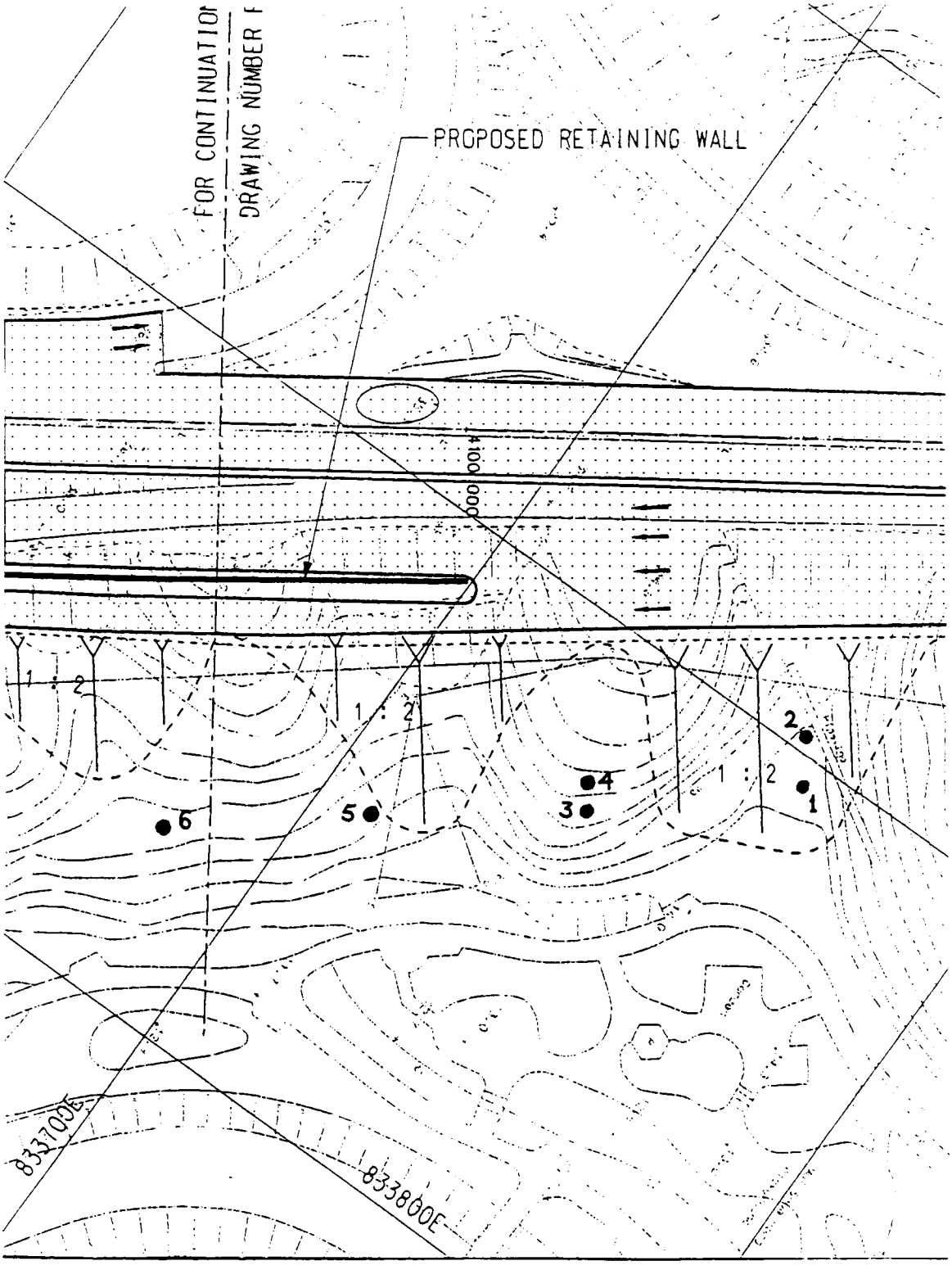


Figure 8 Unit 10: Map Showing Auger Hole Locations

88 – 164	Brownish yellow very silty CLAY	10 YR 6/6
164	Abandoned due to water table	

Auger 5

Depth (cm)	Soil description	Colour
0 – 10	Dark yellowish brown very silty, gravelly CLAY (sub rounded, equidimensional)	10 YR 4/4
10 – 30	Yellowish brown very silty CLAY with occasional quartz grains	10 YR 5/4
30 – 54	Brown slightly sandy, silty CLAY	10 YR 5/3
54 – 75	Yellowish brown very silty CLAY, with occasional quartz grains	10 YR 5/4
75	Abandoned due to rock	

Auger 6

Depth (cm)	Soil description	Colour
0 – 5	Dark brown slightly clayey SILT	10 YR 3/3
5 – 43	Yellowish brown slightly clayey, slightly sandy SILT	10 YR 5/4
43 – 53	Light olive brown clayey, slightly sandy gravelly SILT with quartz fragments	2.5 Y 5/3
53 – 62	Greyish brown slightly clayey SILT	2.5 Y 5/2
62	Abandoned due to rock	

5.9.3 Test pit excavation

It was not possible to get permission from landowners to excavate a test pit in this area. No evidence was found of archaeological material and the soil deposit appears to be of clays redeposited by water action. However, if the area were to be directly affected by works at any stage, further investigation is recommended.

5.10 Unit 10 (Mui Shue Hang north) (Figure 8)

Unit 10 is located between the Tolo Highway and the Lam Tsuen River. The area is comprised of a hill slope, varying in gradient from moderate to

the south and steep to the north. The hill slope appeared to have been completely landscaped, with visible evidence of cutting and terracing. Abandoned and decaying concrete structures can be found on terraces in the region of auger holes 3 and 4. The foot slopes and low area to the east have been completely altered by the construction of the Mui Shue Hang playground. The main water source in the area is the Lam Tsuen River; the vegetation is characterised by woodland, grasses and shrubs. The basic geology of the area is granodiorite, with alluvial deposits located adjacent to the river.

5.10.1 Field Walking

Linear field walking was not possible in this area due to the dense vegetation; however, a non-linear examination was carried out of all visible land surfaces. No archaeological features or artefacts were revealed.

5.10.2 Augering

A total of six auger holes were conducted on the hill slope to assess the degree of modification to the landform and to assess the potential for the presence of archaeological deposits. The results are presented below.

Auger 1

Depth (cm)	Soil description	Colour
0 – 12	Dark brown loamy CLAY	10 YR 3/3
12 –22	Dark yellowish brown decomposing granite	10 YR 3/6
22	Abandoned due to rock	

Auger 2

Depth (cm)	Soil description	Colour
0 – 32	Very dark brown gritty CLAY	10 YR 2/2
32 – 68	Dark yellowish brown coarse SAND (Fill)	10 YR 4/4
68 – 97	Dark yellowish brown coarse sandy CLAY with pieces of parent material	10 YR 4/6
97 – 110	Parent material and rock	
110	Abandoned due to rock	

Auger 3

Depth (cm)	Soil description	Colour
0 – 22	Yellowish red gritty sandy CLAY with pieces	5 YR 4/6 to

	of parent material	5 YR 5/8
22	Abandoned due to rock	

Auger 4

Depth (cm)	Soil description	Colour
0 – 66	Yellowish red deeply weathered sandy CLAY, gritty with pieces of parent material	5 YR 4/6
66	Abandoned due to decomposing parent material	

Auger 5

Depth (cm)	Soil description	Colour
0 – 50	Dark yellowish brown coarse sandy CLAY	10 YR 4/6
50	Abandoned due to rock and parent material	

Auger 6

Depth (cm)	Soil description	Colour
0 – 30	Reddish brown loamy CLAY	5 YR 4/4
30 – 46	Yellowish red coarse sandy CLAY with fragments of parent material	5 YR 4/6
46	Abandoned due to rock	

5.10.3Test pit excavation

Auger tests revealed the soil to be decomposing close to the surface on the hill slopes. The northern slopes, particularly those closest to the road appeared to have deposits of artificial fill. The presence of archaeological deposits was therefore considered extremely limited on the hill slopes, and no test pits were carried out. As mentioned above, there was no possibility for work in the low area as it was covered in concrete.

5.11 Unit 11 (north of Mui Shue Hang)

Unit 11 consists of the lower slopes of a small hill, the western side of which has been destroyed by cutting; the north through to the south is cut by roads. Also included in this unit are the gently rising lower slopes of a hill located to the south east. The western sides of these slopes have been heavily cut into and Water Services Department buildings are located in the north of the unit. The Lam Tsuen river runs to the north and appears to be the closest water source. The local geology is granodiorite with alluvial deposits located close to the banks of the river.

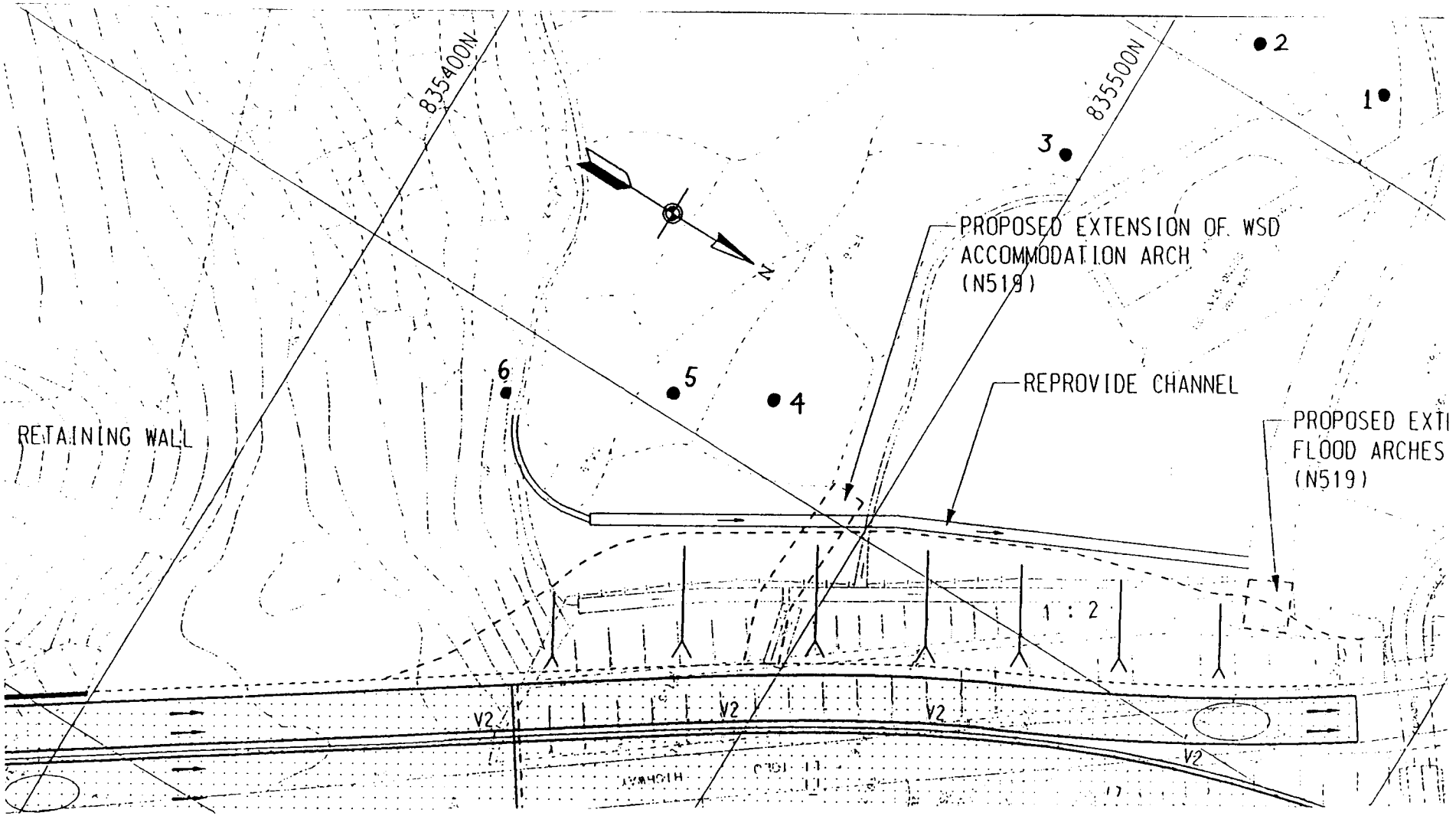


Figure 9 Unit 12: Map Showing Auger Hole Locations

The field visit showed the area to be fenced and built up with structures and concrete paving. The degree of concrete and structures in the area prevented fieldwork and suggests alterations to the original landform.

5.12 Unit 12 (south of Lam Kam roundabout) (Figure 9)

Unit 12 consists of the foothills, which slope into the base of the Lam Tsuen valley, and the associated flat area. The area consists of largely private gardens and partially abandoned fields. The hill slopes to the east of the unit contain graves. The land is bordered to the north and north east by roads. The north part of the unit contains the Lam Kam Pigging Station. The nearest water source is the Lam Tsuen river to the east; however, the area is very marshy. The basic geology is granodiorite, merging with a large alluvial deposit on the valley floor.

5.12.1 Field Walking

A survey could only be carried out in the eastern part of the area as the vegetation is very dense. It consists of high grasses, bushes and small trees. The eastern area was formerly used for agriculture as the ground surface is irregular and has irrigation channels. A small segment of the unit was examined in a non-linear fashion.

5.12.2 Augering

Auger testing was carried out on government land in this unit as no access was gained to any private lots. A total of six auger tests were conducted around and behind the Pigging Station.

Auger 1

Depth (cm)	Soil description	Colour
0 – 14	Yellowish brown clayey silty GRAVEL	10 YR 5/4
14	Abandoned due to rock	

Auger 2

Depth (cm)	Soil description	Colour
0 – 8	Light olive brown clayey silty GRAVEL	2.5 Y 5/4
8	Abandoned due to rock	

Auger 3

Depth (cm)	Soil description	Colour
0 – 23	Brown to dark brown slightly clayey SILT	10 YR 4/3

23 – 40	Olive brown slightly clayey sandy SILT	2.5 Y 4/4
40 – 58	Light olive brown sandy gravelly SILT	2.5 Y 5/6
58	Abandoned due to rock	

Auger 4

Depth (cm)	Soil description	Colour
0 – 22	Light olive brown GRAVEL with clayey silt	2.5 Y 5/4
22	Abandoned due to rock	

Auger 5

Depth (cm)	Soil description	Colour
0 – 64	Light olive brown slightly sandy silty CLAY	2.5 Y 5/4
64	At this level the water table was reached	

Auger 6

Depth (cm)	Soil description	Colour
0 – 28	Dark yellowish brown silty sandy CLAY	10 YR 4/4
28	At this level the water table was reached	

5.12.4 Test Pit Excavation

Permission was not received to undertake the excavation of a test pit at this location; however, the potential for archaeological deposits is considered to be low.

5.13. Unit 13 (west of Lam Kam roundabout)

This unit is part of the large alluvial Lam Tsuen Valley floor and is located near Kau Liu Ha village. The village is bordered by low foothills to the south. The foothills contain large graves, with some housing occupying the fringes. The unit is defined by a road to the west and the river to the north. The area is largely occupied by commercial nurseries. The Lam Tsuen River runs to the north of this unit and is the major water source in the area. The village of Kau Liu Ha is located on the alluvial plain between grandiorite and crystal lithic tuff, tuff-breccia and tuffites.

The area is private and is currently the site of a number of commercial nurseries, so no ground surface investigation could be carried out. The location of the unit and its landform suggests that monitoring and/or further archaeological investigation in the affected areas should be carried out.

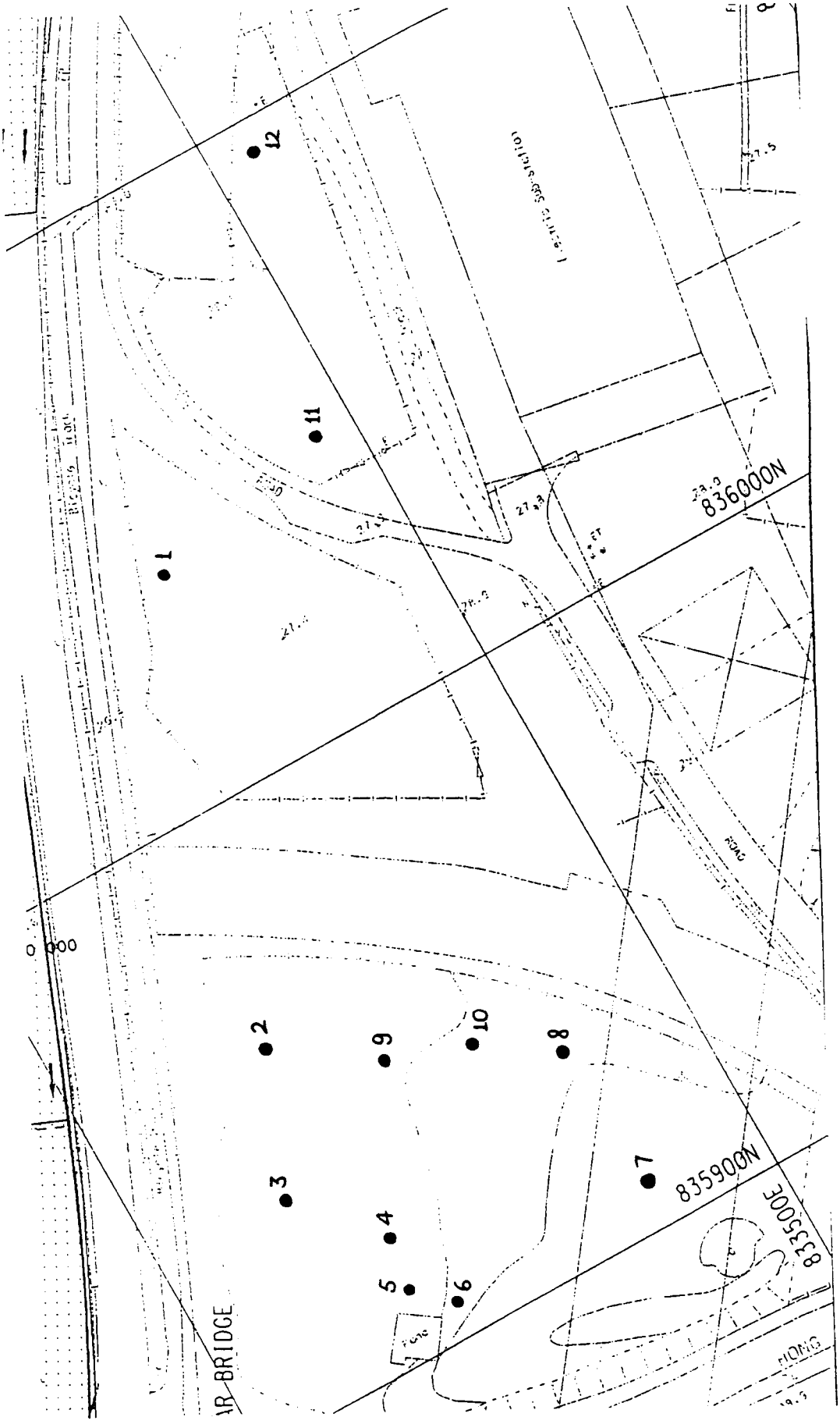


Figure 10 Unit 15: Map Showing Auger Hole Locations

5.14 Unit 14 (Wai Tau village)

This unit is located to the west of the Fanling Highway. The village of Wai Tau is located on a steep sided fairly low-lying hill. The area is completely built up, covered in concrete and structures. Areas of the hill slope have been cut and are either bare or have a coverage of trees. The geology of the area is divided into deposits of granodiorite, located immediately north west of the Highway; a basalt vein located to the west of the area, and deposits of block-bearing tuff and tuffite with hornfels. The closest water source is the substantial Lam Tsuen River, running adjacent to the unit.

The built up nature of the unit and the cutting of the hill slopes, modifying the original landscape, made assessment of the archaeological potential impossible. Access was denied to undertake an auger survey.

5.15 Unit 15 (nr. Hong Lok Yuen) (Figure 10)

This unit is situated in the valley floor area. The most southern portion of the unit is for the most part covered by woodland vegetation, part of which appears to be regularly maintained. A disused pond is also located nearby. There is a large grave located to the south east of this woodland. Further north, the vegetation gradually changes into shrub and grass, and is then met by an old concrete road, traversing the unit south east to north west. Most of the ground surface to the south of the road is covered in rubble, garbage, building and occupational debris. The volume of the debris increases on the north side of the road. Part of this land has been fenced off, but littering of the ground surface is highly visible.

It was possible to access small areas of the land between the old road and the nurseries, but these proved to be areas of rubble fill, or have high proportions of garbage. The entire northern section of the unit is covered in structures and areas of concrete which are associated with the nurseries. The landform in this area has been altered by the highway and roads, and also the electrical sub-station and pylons. A stream runs through the northern portion of the unit. Much of the southern portion is denoted as fill on the geographical maps, leading into terraced alluvium.

5.15 1 Field walking

Ground surface investigation was carried out wherever possible, however, the dense vegetation and rubble, along with the inaccessible private nurseries excluded large parts of the unit. Non-linear field walking did not reveal any surface deposits or artefacts.

5.15.2 Auger testing

Auger 1

Depth (cm)	Soil description	Colour
0 - 6	Brownish yellow rubble fill	10 YR 6/6

Auger 2

Depth (cm)	Soil description	Colour
0 - 3	Rubble	

Auger 3

Depth (cm)	Soil description	Colour
0 – 38	Dark yellowish brown clayey LOAM (a mix of dead wood stones and roots)	10 YR 3/4
38	Abandoned due to rocks	

Auger 4

Depth (cm)	Soil description	Colour
0 – 7	Brown loose fine LOAM	10 YR 4/3
7 – 18	Yellowish brown loose LOAM with small pieces of decomposing rock	10 YR 5/6
18	Abandoned due to decomposing rock	

Auger 5

Depth (cm)	Soil description	Colour
0 – 15	Yellowish brown fine loose loamy SILT	10 YR 5/4
15	Abandoned due to rock	

Auger 6

Depth (cm)	Soil description	Colour
0 – 8	Yellowish brown fine loamy SILT	10 YR 5/4
8	Abandoned due to rock and roots	

Auger 7

Depth (cm)	Soil description	Colour
0 – 22	Yellowish fine loamy SILT	10 YR 5/4 to 10 YR 6/4
22	Abandoned due to rock	

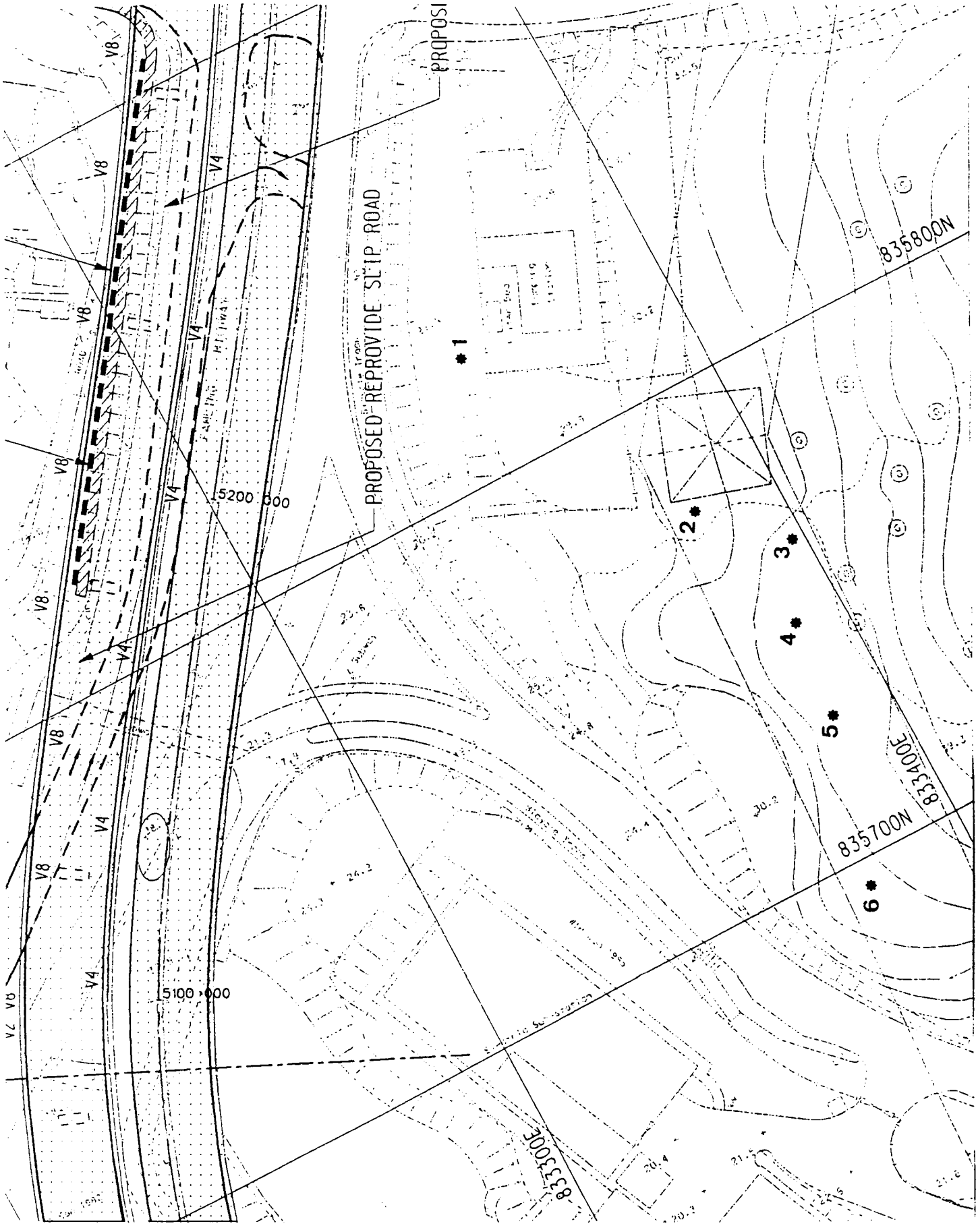


Figure 11 Unit 16: Map Showing Auger Hole Locations

Auger 8

Depth (cm)	Soil description	Colour
0 – 6	Brown fine loamy SILT	10 YR 5/3
6 – 28	Yellowish brown SILT	10 YR 5/4
28	Abandoned due to rock	

Auger 9

Depth (cm)	Soil description	Colour
Cancelled due to garbage		

Auger 10

Depth (cm)	Soil description	Colour
0 – 20	Yellowish brown SILT	10 YR 5/4
20	Abandoned due to rock	

Auger 11

Depth (cm)	Soil description	Colour
Cancelled after two attempts due to rubble		

Auger 12

Depth (cm)	Soil description	Colour
Cancelled due to debris		

5.15.3 Test pit excavation

Auger testing did not locate in situ soil deposits. Most of the area is rubble fill or very rocky. There was, therefore, no opportunity or justification for the excavation of test pits.

5.16 Unit 16 (opposite Wai Tau village) (Figure 11)

Unit 16 encompasses the area of the Wai Tau archaeological site, the boundary of which is delineated on a map in A.M.O. files. This site was first recorded by W. Schofield in his archaeological and geological notebooks of the 1920's-1930's (Peacock & Nixon, 1985, 170). No in situ archaeological deposit has ever been located at the site, however, hard geometric sherds indicative of the Bronze Age period have been recovered from the area. Peacock and Nixon (1985, 170) recorded the site as no. 0710 and noted that in prehistoric times the site may have been a river terrace overlooking the Lam Tsuen valley, then probably a lake.

This unit, located to the east of the Highway is a relatively unmodified low-lying hill. The hillside accommodates graves, an electric substation and pylons. The hill has been terraced. The east side of the hill was affected by the construction of Hong Lok Yuen. The nearest water source is the Lam Tsuen river located to the south of the site. The local geology is granodiorite cut by a north west trending a basalt vein (30-40 meters wide).

5.16.1 Field walking

Systematic field walking proved impossible due to the topography and vegetation of the area. A non-linear ground surface investigation was carried out wherever possible. No finds were recorded.

5.16.2 Augering

Auger 1

Depth (cm)	Soil decomposition	Colour
0 – 32	Brown SILT	10 YR 5/3
32 – 50	Light olive brown clayey SILT	2.5 Y 5/4
50 – 110	Yellowish brown clayey SILT; less clay content with increasing depth	10 YR 5/6
110	Abandoned due to decomposing bedrock	

Auger 2

Depth (cm)	Soil description	Colour
Abandoned after three attempts		

Auger 3

Depth (cm)	Soil description	Colour
0 – 21	Yellowish brown SILT; slightly clayey with small gravel fraction and larger pieces of decomposing rock	10 YR 5/8
21	Abandoned due to decomposing bedrock	

Auger 4

Depth (cm)	Soil description	Colour
0 – 14	Dark yellowish brown SILT with very small clay fraction	10 YR 4/6
14	Abandoned due to rock	

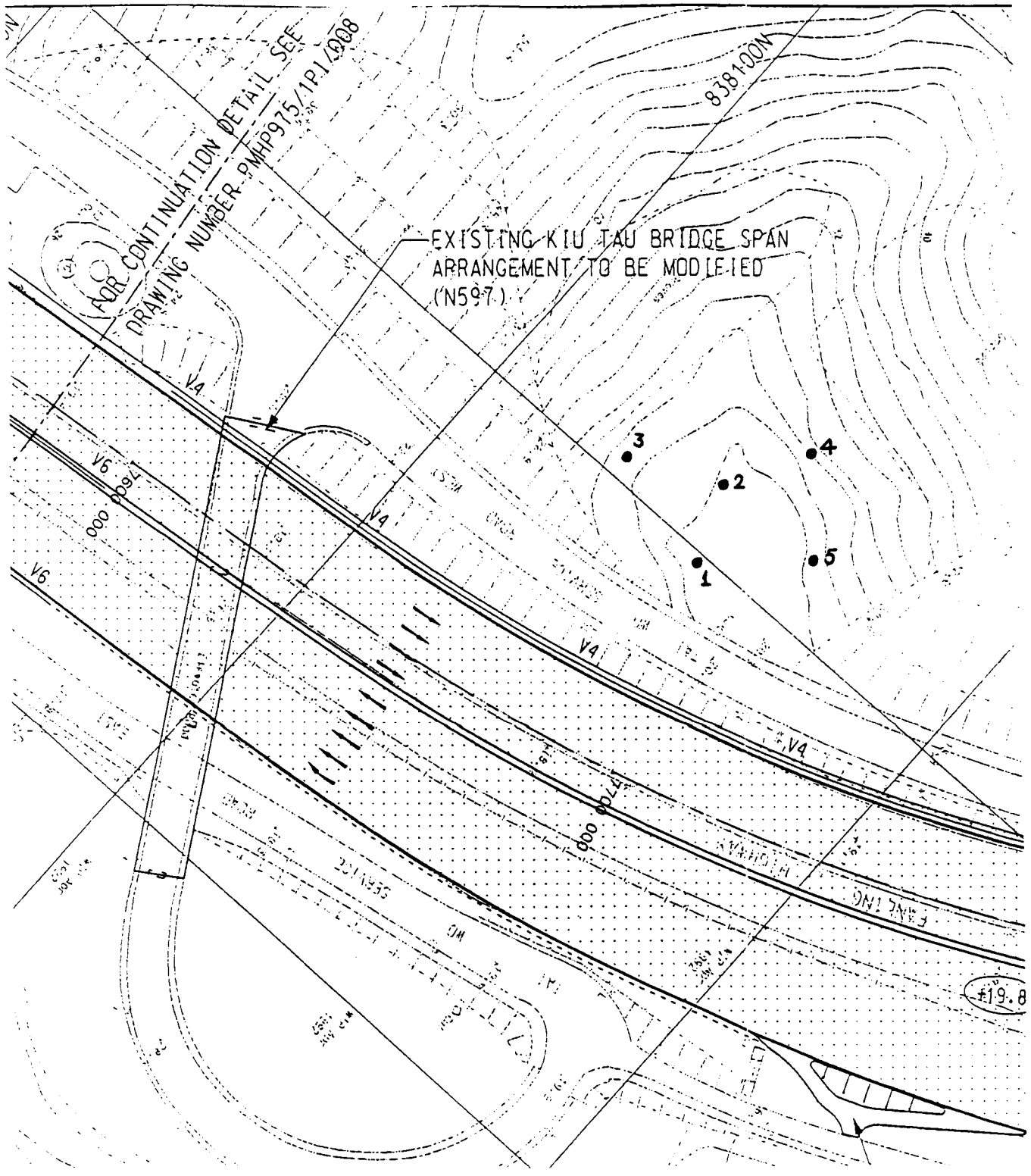


Figure 12 Unit 17: Map Showing Auger Hole Locations

Auger 5

Depth (cm)	Soil description	Colour
0 –36	Dark yellowish brown SILT with small clay fraction and some gravel fragments	10 YR 4/4
36 – 140	Strong brown SILT, very low clay content and with small angular gravel pieces	7.5 YR 5/8
140	Abandoned due to rock	

Auger 6

Depth (cm)	Soil description	Colour
0 – 45	Dark yellowish brown slightly clayey SILT	10 YR 4/6
45 – 62	Strong brown SILT with increasing clay fraction	7.5 YR 5/8
62	Abandoned due to rock	

5.16.3 Test pit excavation

Permission to test pit in this unit was denied. However, previous construction in the area appears to have altered this site, and auger hole testing did not reveal any cultural deposits. Given the past findings in the area it is recommended that any future works be monitored to allow the option of further data collection.

5.17 Unit 17 (nr. Wo Hop Shek) (Figure 12)

Unit 17 is an area of low lying land, surrounded on three sides by cut hill slopes; the fourth side is cut by the Tai Wo Service Road. Electricity poles run through the unit. The alignment was being extended at the time of the field visit. The ground is marshy and has a cover of grass and shrub vegetation, with occasional trees. Shrubs also occupy the hill slopes. The closest major water source is the river running to east of the unit, on the other side of the highway. The local geology is coarse ash crystal tuff (Tai Mo Shan Formation).

5.17.1 Field walking

Most areas were covered in very dense and high vegetation and allowed no opportunity for field walking. A non-linear examination was conducted

of earth excavated for the construction of electricity poles; no archaeological deposits, features or artefacts were revealed.

5.17.2 Augering

Auger 1

Depth (cm)	Soil description	Colour
0-8	Yellowish brown sandy CLAY	10 YR 5/4
8	Abandoned due to rock	

Auger 2

Depth (cm)	Soil description	Colour
0-7	Yellowish brown sandy CLAY with inclusions of parent material	10 YR 5/8
7	Abandoned due to rock	

Auger 3

Depth (cm)	Soil description	Colour
0-6	Yellowish brown slightly sandy CLAY	10 YR 5/4
6-60	Brownish yellow mottled sandy CLAY	10 YR 6/8
60-83	Dark yellowish brown gritty CLAY, with frequent inclusions of roots and chunks of parent material	10 YR 4/4
83	Abandoned due to rock	

Auger 4

Depth (cm)	Soil description	Colour
Cancelled after several attempts: rock		

Auger 5

Depth (cm)	Soil description	Colour
0-7	Light yellowish brown CLAY, slightly sandy and damp	10 YR 6/4
7-20	Brownish yellow CLAY; increasingly more wet	10 YR 6/6
20	Abandoned due to water table and rock	

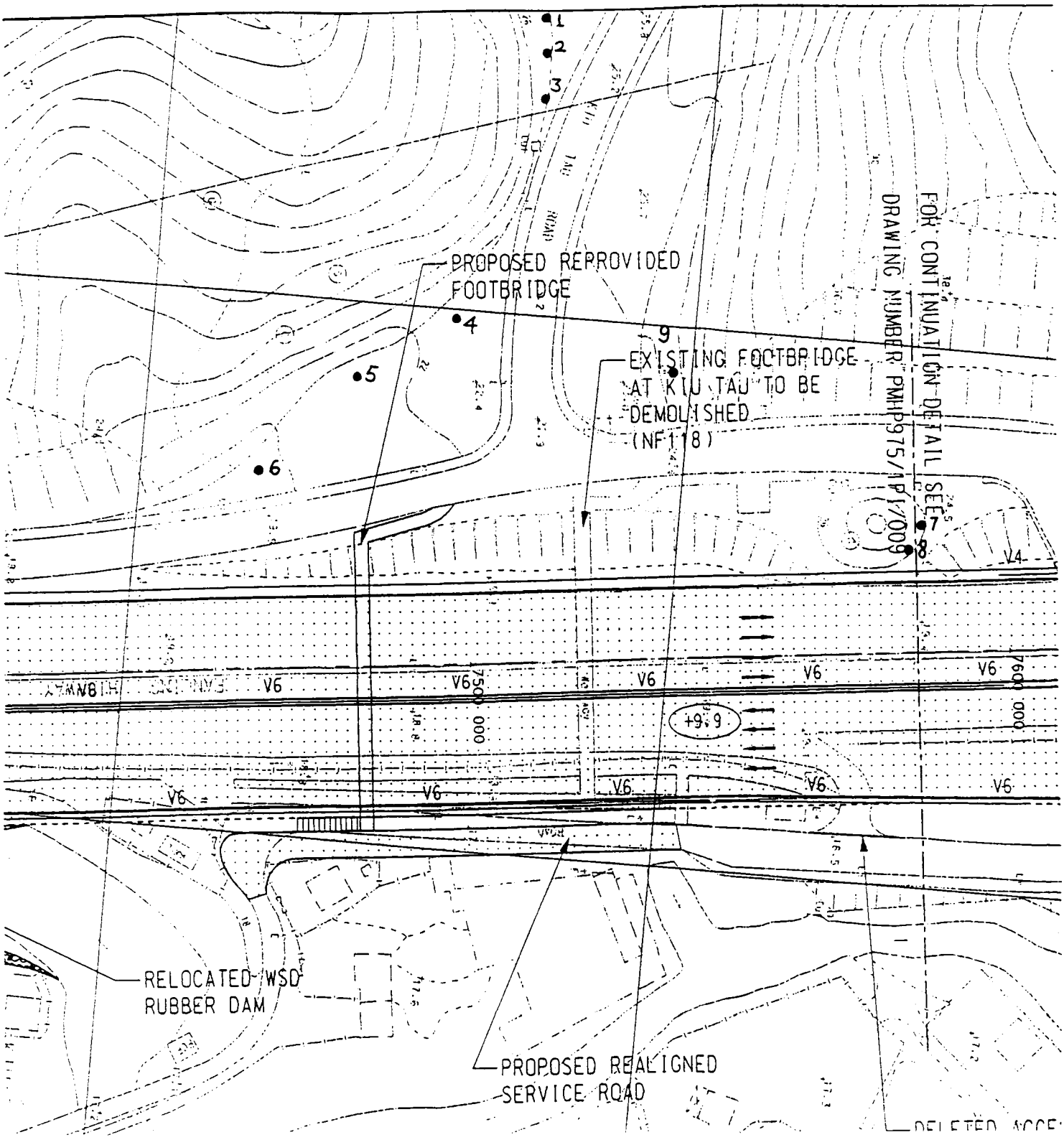


Figure 13 Unit 18: Map Showing Auger Hole Locations

5.17.3 Test pit excavation

Auger hole testing showed rock to be located fairly close to the surface and soil deposits to be limited in depth. The water table in this area is high, and overlies the surface in some areas. As a result of these factors, no attempt was made to undertake excavations.

5.18 Unit 18 (nr. Wo Hop Shek) (Figure 13)

Unit 18 is an area of flat land located west of the Tai Wo Service Road West and is dissected by the Kiu Tau road. Desk based research suggested that the original landform may have been a valley. Field assessment did not support this theory: the flat land is believed instead to be a result of cutting for the road. The slopes of the surrounding hills are very steep. Parts of the hills have been terraced for graves. Also included in this area is a small hill north east of this flat area. The hill appears to have been completely altered as it is surrounded on all sides by roads and cuttings. The west side of the hill has been used for graves. The area is quite heavily vegetated with trees and shrubs. The closest water source is the river that runs to the east. The geology is coarse ash crystal tuff (Tai Mo Shan Formation) with debris flow deposits to the west of Tai Wo service road and south of Kiu Tau Road.

5.18.1 Field walking

The majority of the land surfaces is covered in vegetation, which was not conducive to linear field walking. A non-linear examination was conducted where possible. No archaeological features or artefacts were recovered.

5.18.2 Augering

A total of nine auger holes were conducted to assess the sub surface conditions of the flat area, as well as the degree of alteration to the landforms of both areas, as a result of the road constructions.

Auger 1

Depth (cm)	Soil description	Colour
0 - 8	Yellowish brown coarse clayey SAND, probably hill wash	10 YR 5/8
8	Abandoned due to rock	

Auger 2

Depth (cm)	Soil description	Colour
0 - 22	Yellowish brown coarse clayey SAND	10 YR 5/8

22	Abandoned due to decomposing granite; 2 attempts	

Auger 3

Depth (cm)	Soil description	Colour
0 - 20	Yellowish brown clayey SAND	10 YR 5/8
20	Abandoned due to decomposing granite	

Auger 4

Depth (cm)	Soil description	Colour
0 - 21	Strong brown clayey SAND	7.5 YR 5/8
21	Abandoned due to rock and decomposing rock	

Auger 5

Depth (cm)	Soil description	Colour
0 - 12	Yellowish brown clayey SAND	10 YR 5/6
12	Abandoned due to rock	

Auger 6

Depth (cm)	Soil description	Colour
0 – 15	Dark yellowish brown clayey SAND	10 YR 4/6
15	Abandoned due to rock and decomposing rock	

Auger 7

Depth (cm)	Soil description	Colour
0 – 22	Yellowish brown sandy LOAM	10 YR 5/4
22	Abandoned due to rock	

Auger 8

Depth (cm)	Soil description	Colour
0 – 25	Light reddish brown fine decomposed CLAY, with frequent inclusions of decomposed rock and chunks of parent material	5 YR 6/4
25	Abandoned due to rock and decomposing rock	

Auger 9

Depth (cm)	Soil description	Colour
0 - 8	Dark yellowish brown loamy SAND	10 YR 4/6
8	Abandoned due to rock	

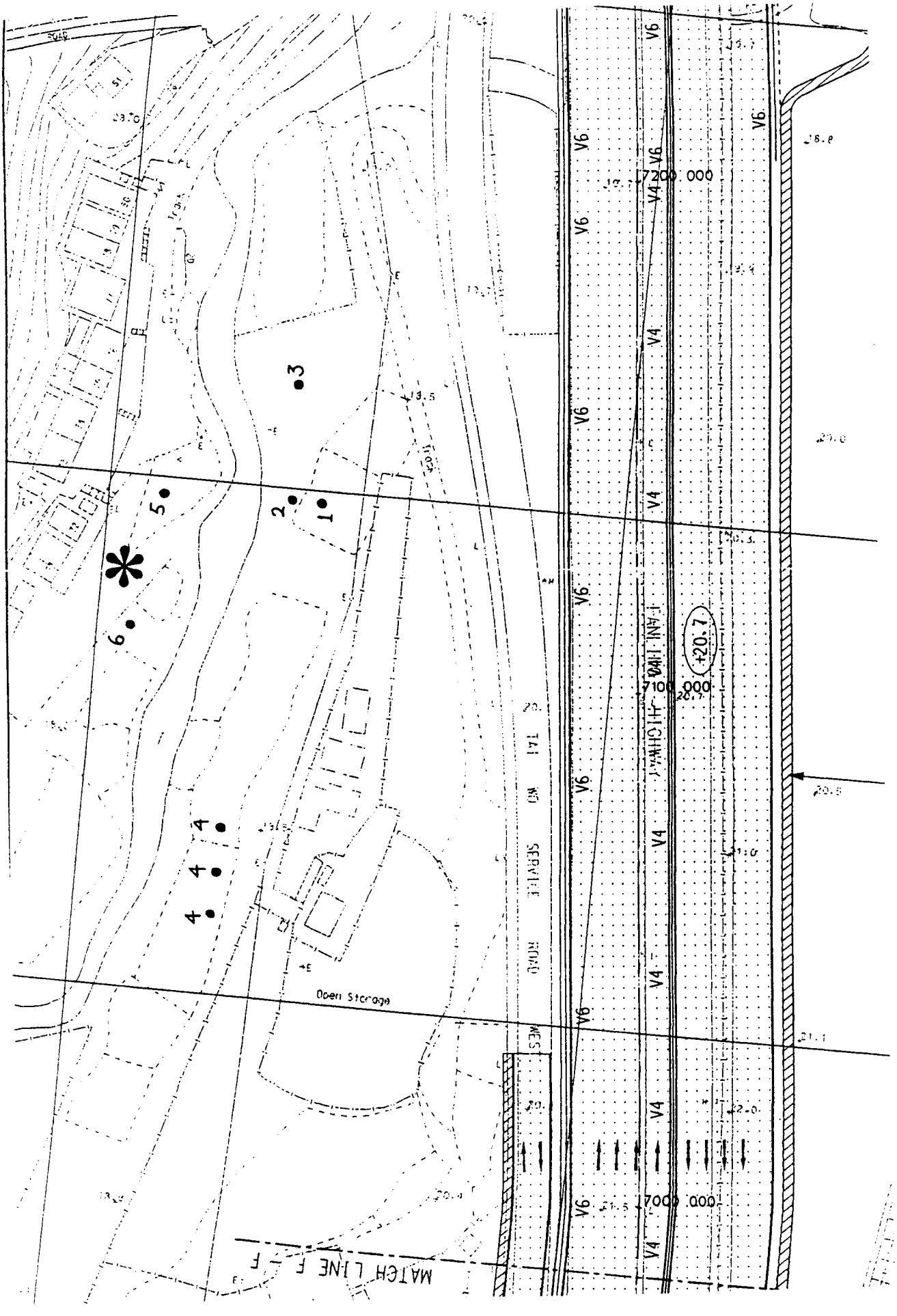


Figure 14 Unit 19: Map Showing Auger Hole Locations and Test Pit Location

5.18.2 Test pit excavation

Field visits and auger testing revealed unit 18 to be completely altered. Test pits were not warranted because of the modifications caused by road construction and the lack of soil deposits on the hill slopes and low areas.

5.19 Unit 19 (north of Nam Wa Po) (Figure 14)

Unit 19 is located in an alluvial valley north of Nam Wa Po and west of the Tai Wo Service Road West. Part of the land is presently under cultivation; however, most of the area consists of abandoned agricultural plots. The area to the south of the river, i.e. at the northern end of the unit is currently the site of a construction project, whilst much of the surrounding land is concrete or fill. The land to the west of the river is low and marshy. The vegetation is generally low and grassy, with some areas containing shrubs and trees. The river has been cleaned and lined and the river gravel dumped to the east of the river (comm. of local informant)

5.19.1 Field walking

Visibility was poor in the unit as a result of vegetation and concrete; there was therefore no opportunity for linear field walking. A non-linear examination was undertaken on any accessible pieces of land. No archaeological features or artefacts were recovered.

5.19.2 Augering

Auger 1

Depth (cm)	Soil Description	Colour
Abandoned immediately due to fill		

Auger 2

Depth	Soil Description	Colour
Abandoned immediately due to fill		

Auger 3

Depth	Soil Description	Colour
Abandoned immediately due to fill		

Auger 4

Depth	Soil Description	Colour
Abandoned after three attempts due to fill		

Auger 5

Depth	Soil Description	Colour
0-24	Brownish yellow loamy CLAY	10 YR 6/6
24-40	Yellowish brown fine clayey LOAM	10 YR 5/4
40-65	Brown fine clayey LOAM with quartz inclusions; tin can recovered at 47cm	10 YR 5/3
65-88	Light olive brown loamy CLAY	2.5 Y 5/6
88-130	Light olive brown CLAY with inclusions of mottled parent material; becoming gritty and damp with increase in depth	2.5 Y 5/6
130-158	Dark grey mottled silty CLAY	2.5 Y 4/0
158-166	Homogeneous dark grey silty CLAY	2.5 Y 4/0
166	Abandoned due to water table	

Auger 6

Depth (cm)	Soil Description	Colour
0-28	Light olive brown clayey LOAM	2.5 Y 5/6
28-55	Brown slightly sandy clayey LOAM	10 YR 5/3
55-112	Yellowish brown slightly sandy clayey LOAM	10 YR 5/6
112-131	Dark yellowish brown clayey LOAM	10 YR 4/6
131-167	Mottled brown sandy CLAY	10 YR 5/3
167	Abandoned due to end of auger	

Layer	Level	Soil description	Colour	Interpretation
01	A: 0 B: +3 C: +3 D: +2.5	Brown clayey SILT	10 YR 5/3	Topsoil
02	A: -12.5 B: -11.5 C: -20.5 D: -13.5	Light olive brown slightly gravelly SAND with sub-angular rounded pebbles; rubble and quartz fragments	2.5 Y 5/4	Fluvial Deposit
03	A: -19.5 B: -21 C: -27.5 D: -31	Light yellowish brown clayey SAND with the clay content increasing with depth	2.5 Y 6/4	Sub-soil
04	A: -40.5 B: -38.5 C: -30.5 D: -40	Brownish yellow very sandy CLAY	10 YR 6/6	Sub-soil
05	A: -48 B: -46.5 C: -50 D: -48.5	Light olive brown sandy CLAY	2.5 Y 5/6	Sub-soil
06	A: -62 B: -61.5 C: -63 D: -61	Brownish yellow very sandy CLAY	10 YR 6/6	Compacted surface
07	A: -67 B: -68 C: -65 D: -64	Olive yellow clayey SAND; increasing clay with depth	2.5 Y 6/6	Packed context
08		Yellowish brown very sandy CLAY	10 YR 5/8	Packed context
09	A: -87.5	Strong brown sandy CLAY (streaky decomposing clay)	7.5 YR 5/8	In-situ weathered deposit

Table 3 Test Pit #2 at Nam Wa Po (Unit 19)

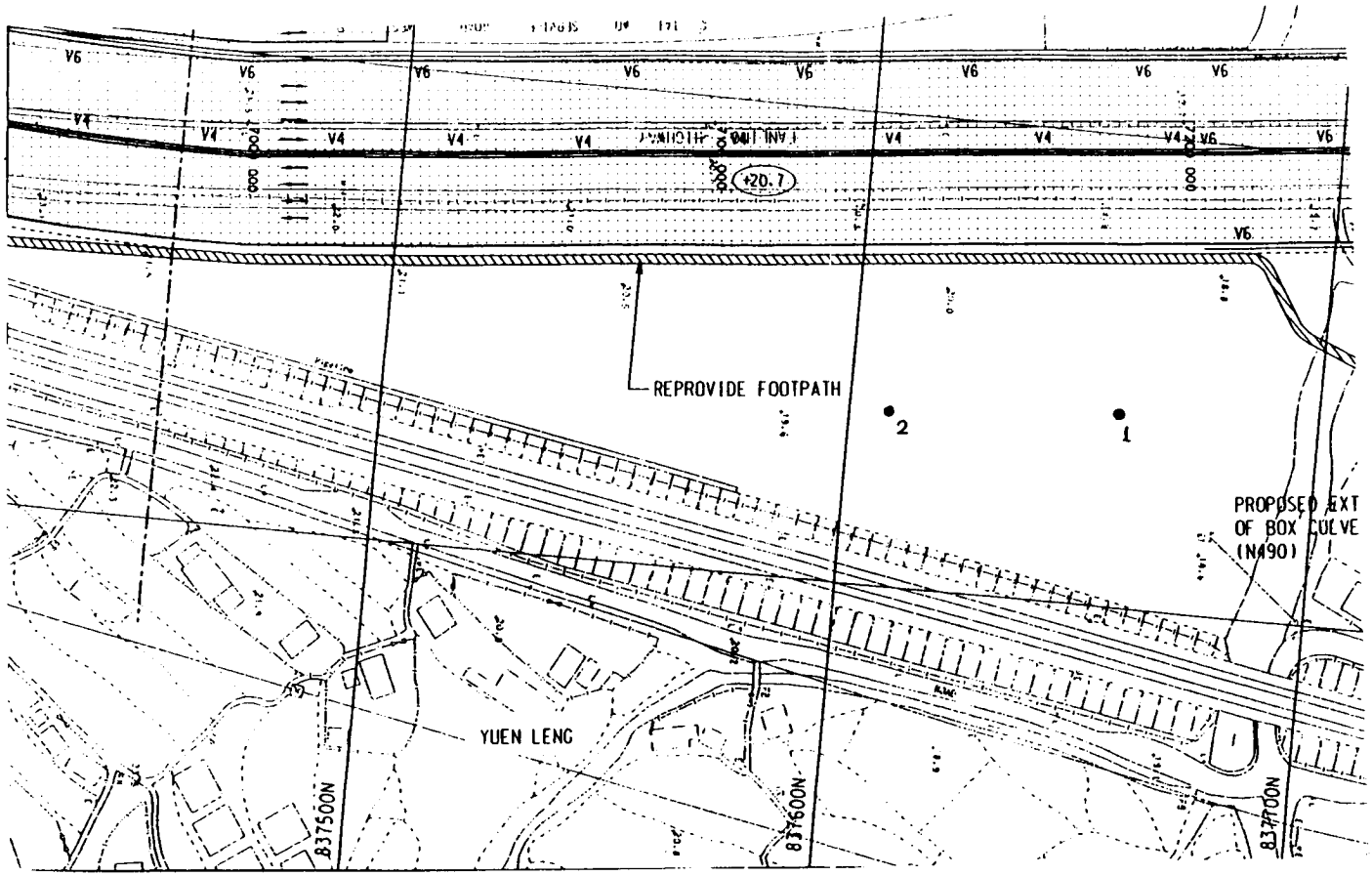


Figure 15 Unit 21: Map Showing Auger Hole Locations

5.19.3 Test Pit Excavation

A test pit (Test Pit # 2) was excavated in the alluvial terrace near a large stream at the foot of the hills. It measured 2 by 1.5 meters. The TBM was 1280. It was taken at a metal spike with concrete around it, near the trees beside the river. The findings are presented in Table 3 and the section in Figure 25.A. The results of the excavation revealed no evidence of an archaeological deposit, in situ or redeposited. All layers are non-cultural and appear to be river deposited. The test pit and its surroundings are illustrated in Plate 2.

5.20 Unit 20 (Kiu Tau)

Unit 20 is located in a valley of terraced alluvium. The area is dissected by a meandering road and bordered by the river to the north west and Fanling Highway to the south west. The southern portion of the unit is currently being utilised for a commercial nursery and is covered in cultivated plants, associated structures, and dump and concrete areas. The lands north of the road are partially fenced in and quite overgrown with trees and large shrubs or are waterlogged.

The land in unit 20 is private and inaccessible. The nursery completely covers the western area and provides no opportunity for fieldwork. In the event of concrete breaking in this area a watching brief may be deployed. Fieldwork was also not possible in the eastern area as a result of dense vegetation and water logging. The ground surface in this section was extremely uneven and suggests disturbance to the original landform.

5.21 Unit 21 (nr. Yuen Leng) (Figure 15)

This unit consists of an area sandwiched between the KCRC-Railway and the Fanling Highway. The infrastructure construction would have caused impacts in this area, however, geology maps and bore hole data could not confirm this suspicion. The area is currently abandoned and supports a dense vegetation and contains concrete structures. The local geology consists of terraced alluvium, including clay-silt, gravelly sandy, well to medium sorted deposits.

5.21.1 Fieldwalking

Linear walking was impossible due to vegetation and debris coverage; non-linear walking revealed no surface evidence of archaeology.

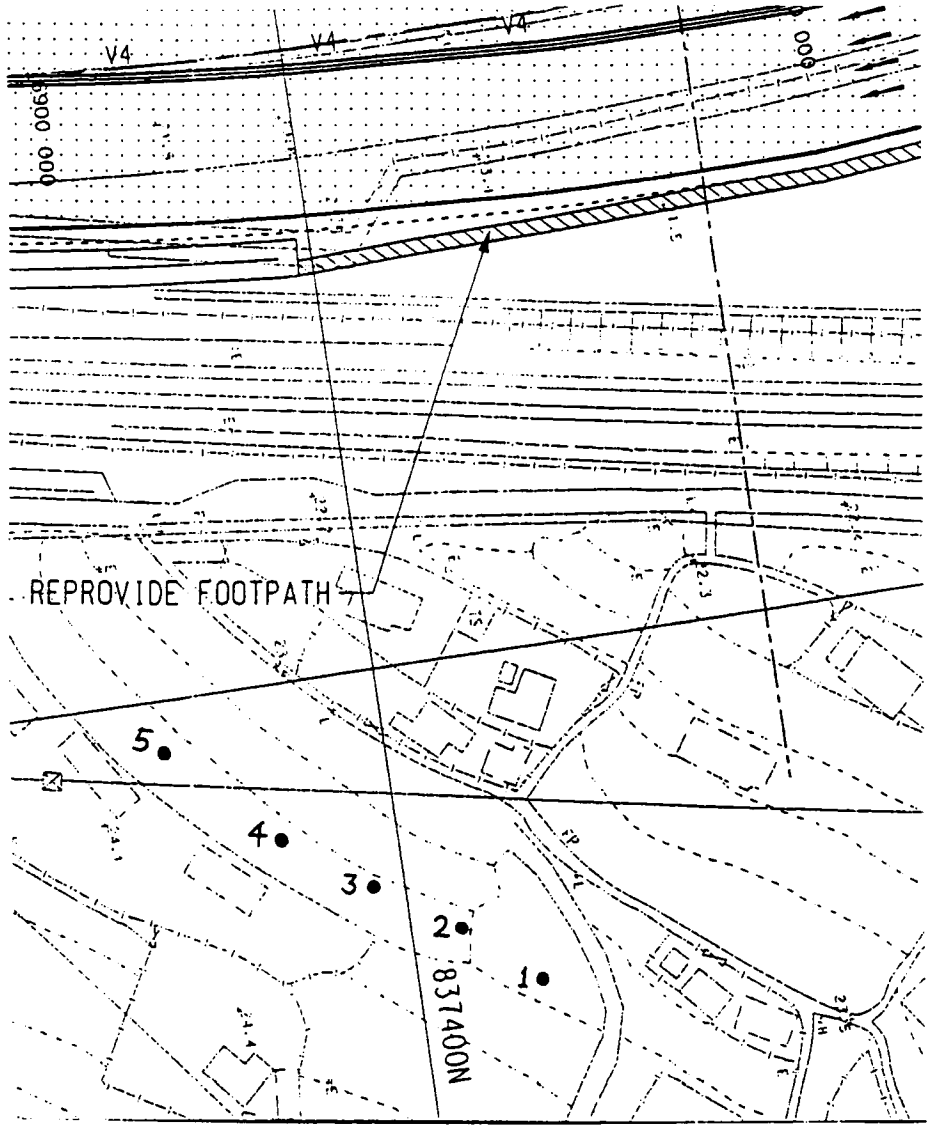


Figure 16 Unit 22b: Map Showing Auger Hole Locations

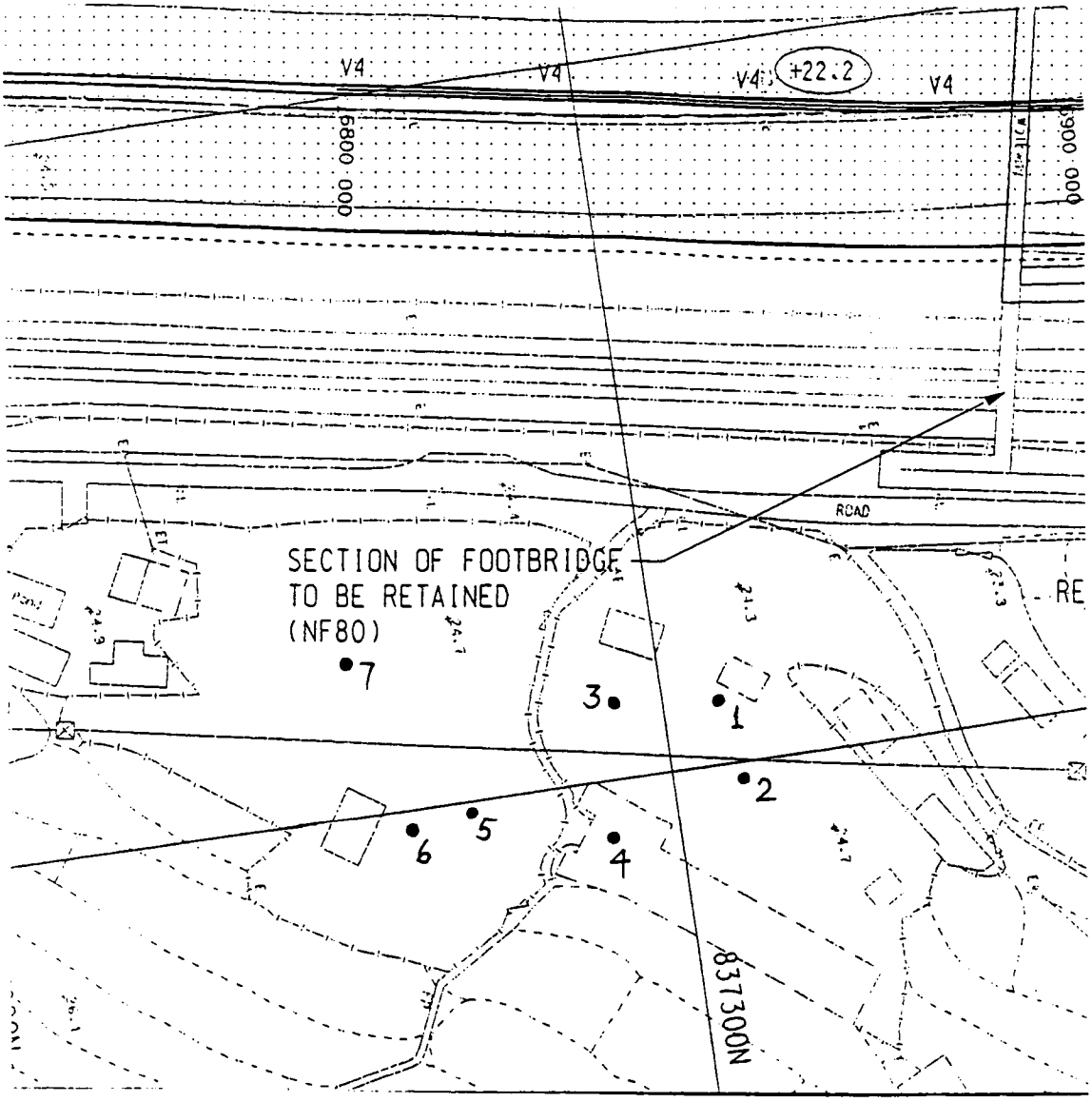


Figure 17 Unit 22c: Map Showing Auger Hole Locations

32 –70	Brownish yellow CLAY	10 YR 6/6
70 – 115	Brownish yellow mottled sandy CLAY; progressively getting wetter	10 YR 5/8
115	Water table was reached at this level	

Section 22.C (Figure 17)

This section of the unit is covered in abandoned agricultural plots, concrete paths and occasional structures; the watertable was visible in some areas.

Auger 1

Depth (cm)	Soil description	Colour
0 – 15	Dark brown loose LOAM	10 YR 3/3
15 – 22	Dark yellowish brown loose LOAM	10 YR 4/6
22 – 65	Light olive brown mottled sandy CLAY; progressively getting wetter	2.5 Y 5/6
65	Abandoned due to rock and water table	

Auger 2

Depth (cm)	Soil description	Colour
0 – 20	Brown wet sandy CLAY	10 YR 5/3
20 – 29	Light olive brown mottled sandy CLAY	2.5 YR 5/6
29 – 36	Light olive brown CLAY	2.5 YR 5/6
36	Abandoned due to rock	

Auger 3

Depth (cm)	Soil description	Colour
0 – 10	Brown very wet sandy CLAY	10 YR 5/3
10 – 45	Brownish yellow sand CLAY; progressively getting sandier	10 YR 6/6
45	Water table was reached at this level	

5.21.2 Augering

Auger hole testing was attempted, however, the unit proved to be impregnable.

5.21.3 Test Pit Excavation

No test pit was excavated because the units location and failed auger testing suggest major alterations to the area. No further monitoring is recommended.

5.22 Unit 22 (Tai Wo to Yuen Leng) (Figures 16 -21)

This unit was divided for study into 5 sections due to its size. It occupies largely the villages of Tai Wo and Yuen Leng. The area is moderately built up with village houses with some small plots of land under cultivation and large areas of abandoned agricultural fields. The unit is located on the alluvial plain, where in some areas the water table is very near the surface. The local surrounding geology consists of block bearing tuff and tuffites with hornfels, while the unit itself is located on terraced alluvium.

5.22.1 Field walking

Overall, the surface visibility in this unit was poor due to the heavy vegetation, the presence of concrete or its generally built up nature. Most of the agricultural fields are abandoned, but irrigation channels and bunds can still be seen.

5.22.2 Augering

Section 22.A

No work was carried out in this sector; the unit comprises the village of Yuen Leng and is built up. The fields in this sector are at present cultivated.

Section 22.B (Figure 16)

This area lies at the edge of Yuen Leng village, where new houses are being constructed. An area which was being bulldozed was augered.

Auger 1

Depth (cm)	Soil description	Colour
0 – 12	Brown clayey LOAM	10 YR 5/3
12	Abandoned due to rocks	

Auger 2

Depth (cm)	Soil description	Colour
0 – 15	Dark brown clayey LOAM with small stones	10 YR 3/3
15 – 28	Yellowish brown fine clayey LOAM (very compacted)	10 YR 5/4
28	Abandoned due to impenetrable soil	

Auger 3

Depth (cm)	Soil description	Colour
0 – 35	Dark brown damp clayey LOAM with lots of small stones and rubble	10 YR 3/3
35 – 50	Yellowish brown damp clayey LOAM with roof tile fragments	10 YR 5/6
50 – 70	Light olive brown very sandy CLAY	2.5 Y 5/6
70 – 140	Olive yellow wet clayey SAND; getting progressively wetter	2.5 Y 6/6
140	At this level water table was reached	

Auger 4

Depth (cm)	Soil description	Colour
0 – 12	Dark brown loamy CLAY	10 YR 3/3
12 – 45	Dark olive brown loamy CLAY	2.5 Y 5/6
45 – 60	Dark olive brown sandy CLAY; getting progressively sandier	2.5 Y 5/6
60 – 90	Olive yellow clayey SAND	2.5 Y 6/6
90 – 110	Wet brownish yellow CLAY with little sand; progressively getting wetter	10 YR 6/6
110	Water table was reached at this level	

Auger 5

Depth (cm)	Soil description	Colour
0 – 15	Dark brown sandy LOAM	10 YR 3/3
15 – 32	Yellowish brown Clayey LOAM	10 YR 5/8

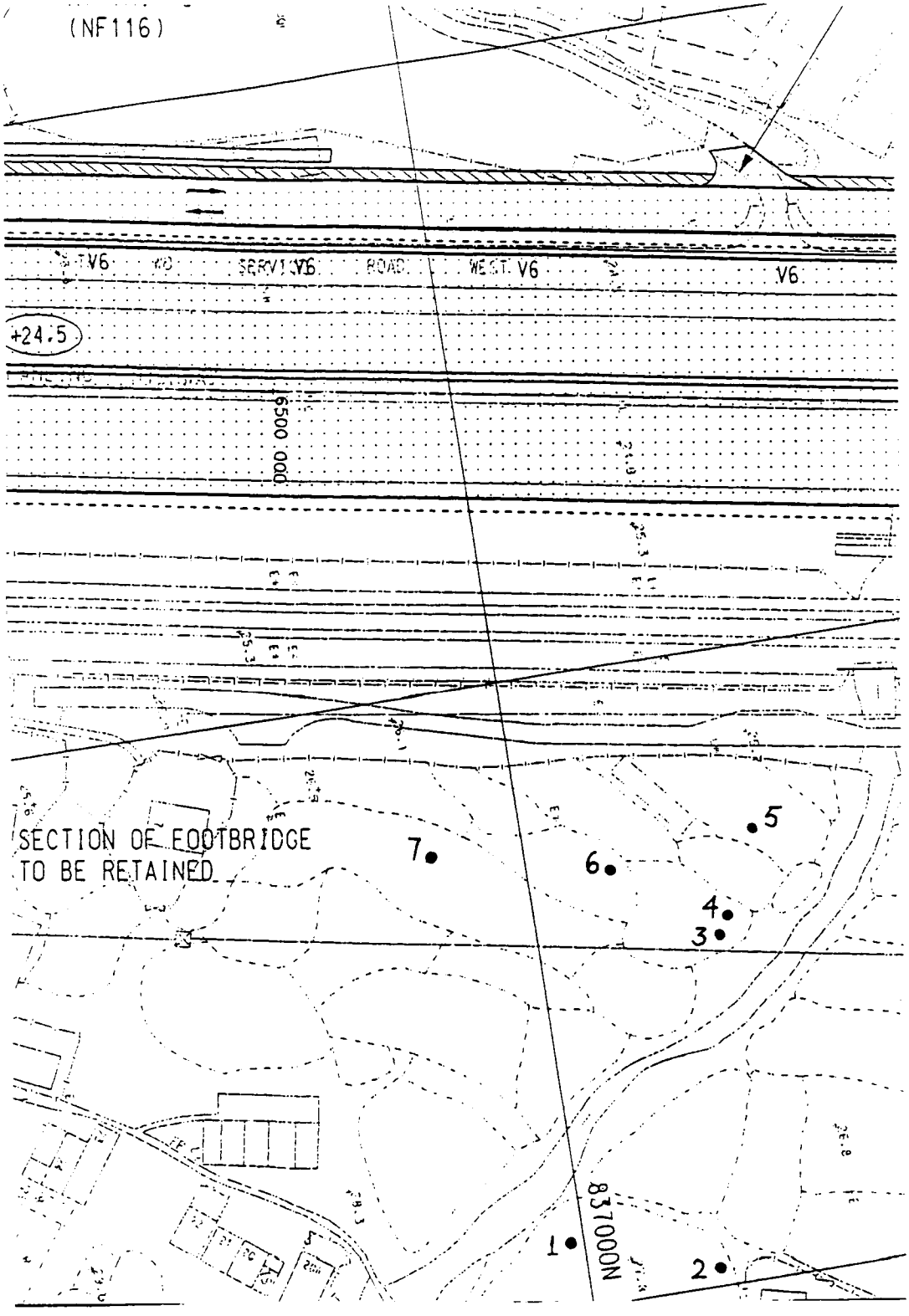


Figure 18 Unit 22d: Map Showing Auger Hole Locations

Auger 4

Depth (cm)	Soil description	Colour
0 – 35	Olive very wet sandy CLAY	5 Y 5/4
35	Water table was reached at this level	

Auger 5

Depth (cm)	Soil description	Colour
0 – 6	Greyish brown sandy CLAY	10 YR 5/2
6 – 20	Light olive brown sandy CLAY	2.5 Y 5/4
20	Water table was reached at this level	

Auger 6

Depth (cm)	Soil description	Colour
0 – 10	Dark greyish brown loose gritty sandy CLAY	10 YR 4/2
10 – 60	More gritty, less loose light olive brown sandy CLAY; progressively getting clayey	2.5 Y 5/6
60	Water table was reached	

Auger 7

Depth (cm)	Soil description	Colour
0 – 35	Yellowish brown loose clayey LOAM with gravel	10 YR 5/6
35 – 74	Brownish yellow mottled CLAY	10 YR 6/6
74	Water table was reached at this level	

Section 22.D (Figure 18)

This section is located to the north of Tai Wo village. The village was largely built in the 1960's. The area is located on either side of a stream, which has been channelled. To the south of the stream part of the land surface has been compacted and is currently being used for parking. A temporary structure houses an old man who gardens the surrounding land, which lies near to an area of dumped rubbish next to the parking lot. The north of the river is a sizeable area of largely abandoned fields with only a few patches still in cultivation.

Auger 1

Depth (cm)	Soil description	Colour
0 – 30	Yellowish brown loamy SILT with gravel	10 YR 5/4
30 – 50	Yellowish brown fine loamy SILT completely uniform	10 YR 5/6
50 – 63	Yellowish brown loose and homogeneous sandy CLAY with village ware sherds	10 YR 5/4
63 – 120	Brownish yellow sandy CLAY with gravel; getting progressively clayey	10 YR 6/8
120	Abandoned at end of auger, homogeneous light olive brown CLAY	2.5 Y 5/6

Auger 2

Depth (cm)	Soil description	Colour
0 – 23	Yellowish brown homogeneous well sorted sandy silty CLAY	10 YR 5/6
23 – 48	Yellowish fine silty CLAY	10 YR 4/6
48 – 64	Yellowish brown fine silty CLAY	10 YR 5/4
64 – 80	Yellowish brown fine sandy clay slightly damp	10 YR 5/6
80 – 110	Light olive brown gritty sandy clay with fragments of a rock	2.5 Y 5/4
110	Abandoned due to rock	

Auger 3

Depth (cm)	Soil description	Colour
0 – 15	Yellowish brown loose loamy SILT	10 YR 5/4
15	Abandoned due to rock	

Auger 4

Depth (cm)	Soil description	Colour
0 – 27	Yellowish brown fine loamy SILT with gravel	10 YR 5/6
27	Abandoned due to rock	

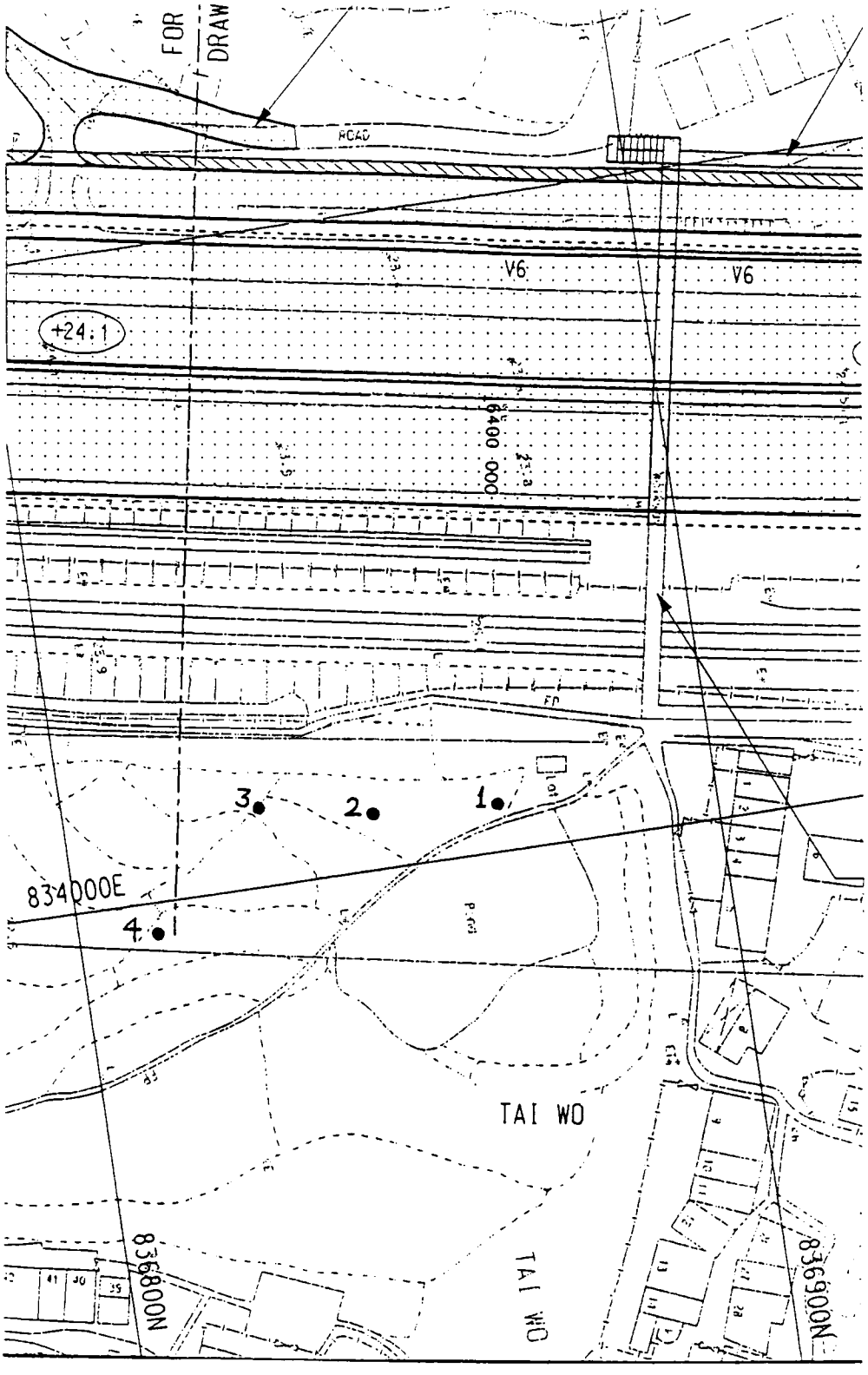


Figure 19 Unit 22e: Map Showing Auger Hole Locations

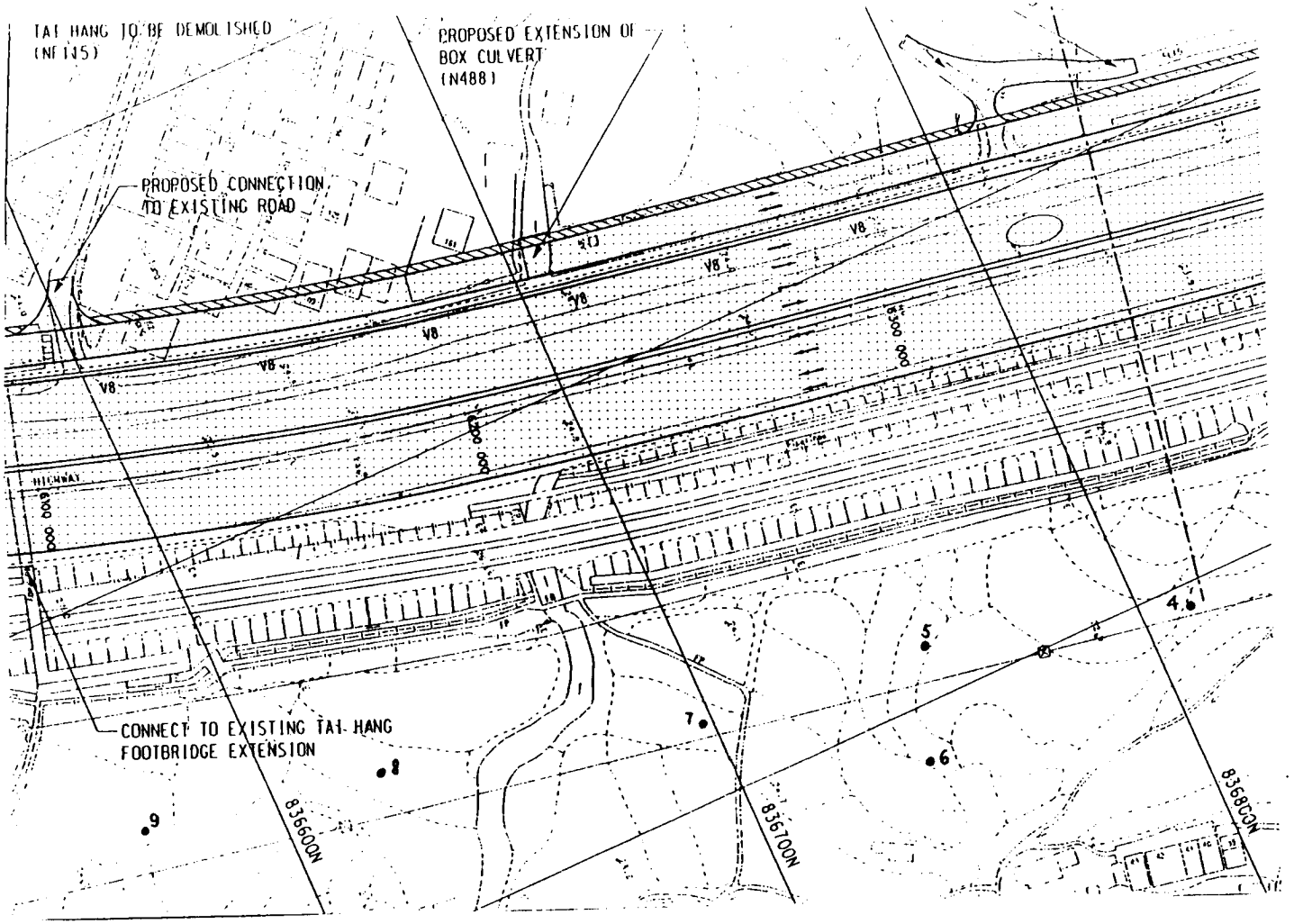


Figure 20 Unit 22e: Map Showing Auger Hole Locations

Auger 5

Depth (cm)	Soil description	Colour
0 – 34	Light olive brown fine loamy SILT with gravel	2.5 Y 5/4
34 – 41	Brownish yellow very silty CLAY	10 YR 6/6
41	Abandoned due to rock	

Auger 6

Depth (cm)	Soil description	Colour
0 – 33	Brown fine loamy SILT	10 YR 5/3
33	Abandoned due to rock	

Auger 7

Depth (cm)	Soil description	Colour
0 – 17	Light olive fine loamy SILT	2.5 Y 5/6
17	Abandoned due to rock	

Section 22.E (Figure 19 and 20)

The area consists largely of abandoned fields with a few temporary structures. High grass vegetation covers the unit at present. The agricultural irrigation system can still be seen and the water table in this area is very high. A large stream divides this sector. The northern part of this unit is very marshy and overgrown with high and dense grasses. To the east of the path the fields are still in use.

Auger 1

Depth (cm)	Soil description	Colour
The water table appeared immediately on the surface and the auger hole was abandoned		

Auger 2

Depth (cm)	Soil description	Colour
0 – 32	Light olive brown fine clayey SILT	2.5 Y 5/4
32 – 42	Light olive brown fine clayey SILT with quartz fragments	2.5 Y 5/6
42 – 59	Light olive brown gritty more clayey SILT; progressively getting damp with fragments of	2.5 Y 5/6

	decomposed parent material	
59	Abandoned due to rock	

Auger 3

Depth (cm)	Soil description	Colour
0 – 15	Dark brown silty CLAY	10 YR 3/3
15	Water table was reached at this level	

Auger 4

Depth (cm)	Soil description	Colour
0 – 52	Light olive brown crumbly clayey SILT	2.5 Y 5/4
52 – 116	Yellowish brown to brown CLAY with decomposing rock fragments ; progressively getting damper	10 YR 5/4 to 10 YR 5/3
116	Water table was reached at this level	

Auger 5

Depth (cm)	Soil description	Colour
0 – 16	Brown sandy CLAY	10 YR 5/3
16	Water table was reached at this level	

Auger 6

Depth (cm)	Soil description	Colour
0 – 23	Very wet light olive brown sandy CLAY	2.5 Y 5/4
23 – 45	Yellowish brown Clay with decomposing rock fragments	10 YR 5/4
45 – 82	Heavy brown CLAY with increasing decomposing rock fragments	10 YR 5/3
82	Abandoned due to decomposing rock	

Auger 7

Depth (cm)	Soil description	Colour
0 – 18	Light olive brown clayey SILT	2.5 Y 5/6
18 – 25	Olive yellow CLAY	2.5 Y 6/8
25	Abandoned due to decomposing bedrock	

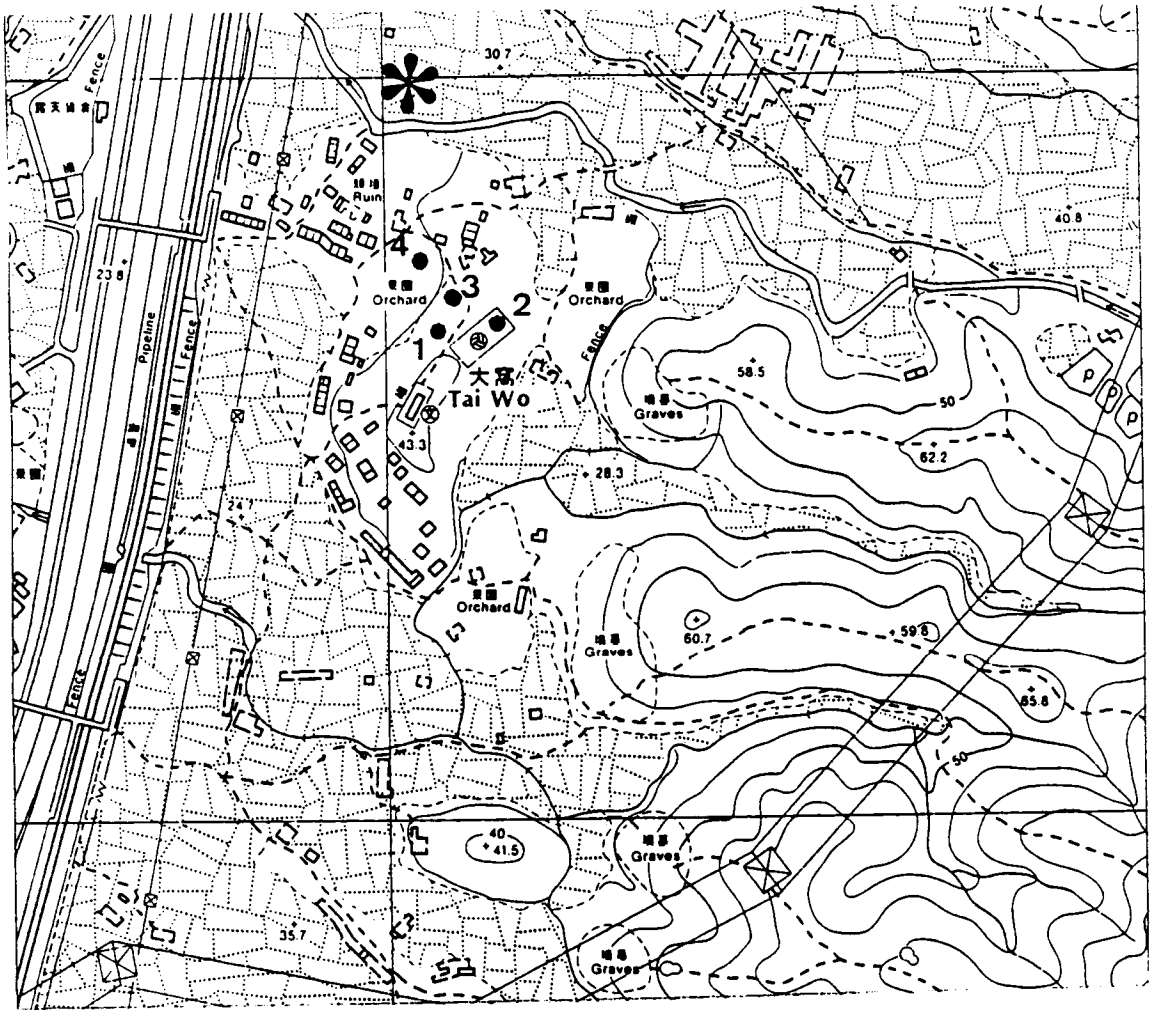


Figure 21 Unit 22f: Map Showing Auger Hole Locations and Test Pit Location

Auger 8

Depth (cm)	Soil description	Colour
0 – 30	Light olive brown sandy CLAY	2.5 Y 5/4
30 – 41	Light olive brown sandy CLAY; progressively getting clayey	2.5 Y 5/6
41 – 66	Clay with decomposing rock fragments	2.5 Y 5/6
66	Abandoned due to rock	

Auger 9

Depth (cm)	Soil description	Colour
0 – 43	Light olive brown gritty LOAM	2.5 Y 5/6
43 – 57	Light olive brown clayey LOAM	2.5 Y 5/6
57 – 67	Light olive brown sandy CLAY with decomposing rock	2.5 Y 5/4
67 – 131	Dark grey sandy CLAY; progressively getting wetter	10 YR 4/1
131 - 133	Very dark grey sandy CLAY	10 YR 3/1
133	Water table was reached at this level	

Section 22.F (Figure 21)

The auger testing in this section was positioned on the hillock located in the eastern section (1-4). Auger testing in the latter showed the hill slope to have a very shallow deposit of soil, underlain by rocks and decomposing parent material. As a result, there was no longer any potential for the presence of archaeological deposits.

Auger 1

Depth (cm)	Soil description	Colour
0 – 8	Brownish yellow sandy SILT with decomposed parent material	10 YR 6/6
8	Abandoned due to decomposing rock	

Auger 2

Depth (cm)	Soil description	Colour
0 – 12	Yellowish brown clayey SILT	10 YR 5/6

Layer	Level (in cms)	Soil description	Colour	Interpretation
01	A: 0 B: +8 C: +7 D: +9	Yellowish brown lenses of gravel and decomposing rock (fill) with building debris	10 YR 5/8	Dump fill
02	A: -3.5 B: +2 C: -2 D: +1	Dark greyish brown slightly sandy clayey sub-angular GRAVEL	10 YR 4/2	Topsoil
03	Top of 03: -8	Yellowish brown slightly sandy clayey SILT	10 YR 5/4	Alluvial deposit
04	A: -12.5 B: -11 C: -15.5 D: -13.5	Strong brown gravelly silty SAND with grey inclusions	7.5 YR 5/8	Alluvial deposit
05	A: -28 B: -31.5 C: -31.5 D: -28.5	Dark yellowish brown slightly clayey; very slightly rounded to sub-angular gravelly SILT with quartz fragments	10 YR 4/6	Alluvial deposit
06	A: -50.5 B: -50 C: -50 D: -49.5	Hard grey compacted surface with black flecs and two possible Qing ceramics		Compacted deposit
07	A: -50.5 B: -50 C: -50 D: -49.5	Yellowish brown clayey SILT with angular sand	10 YR 5/6	Weathered deposit

Table 4 Test Pit # 3 at Tai Wo (Unit 22)

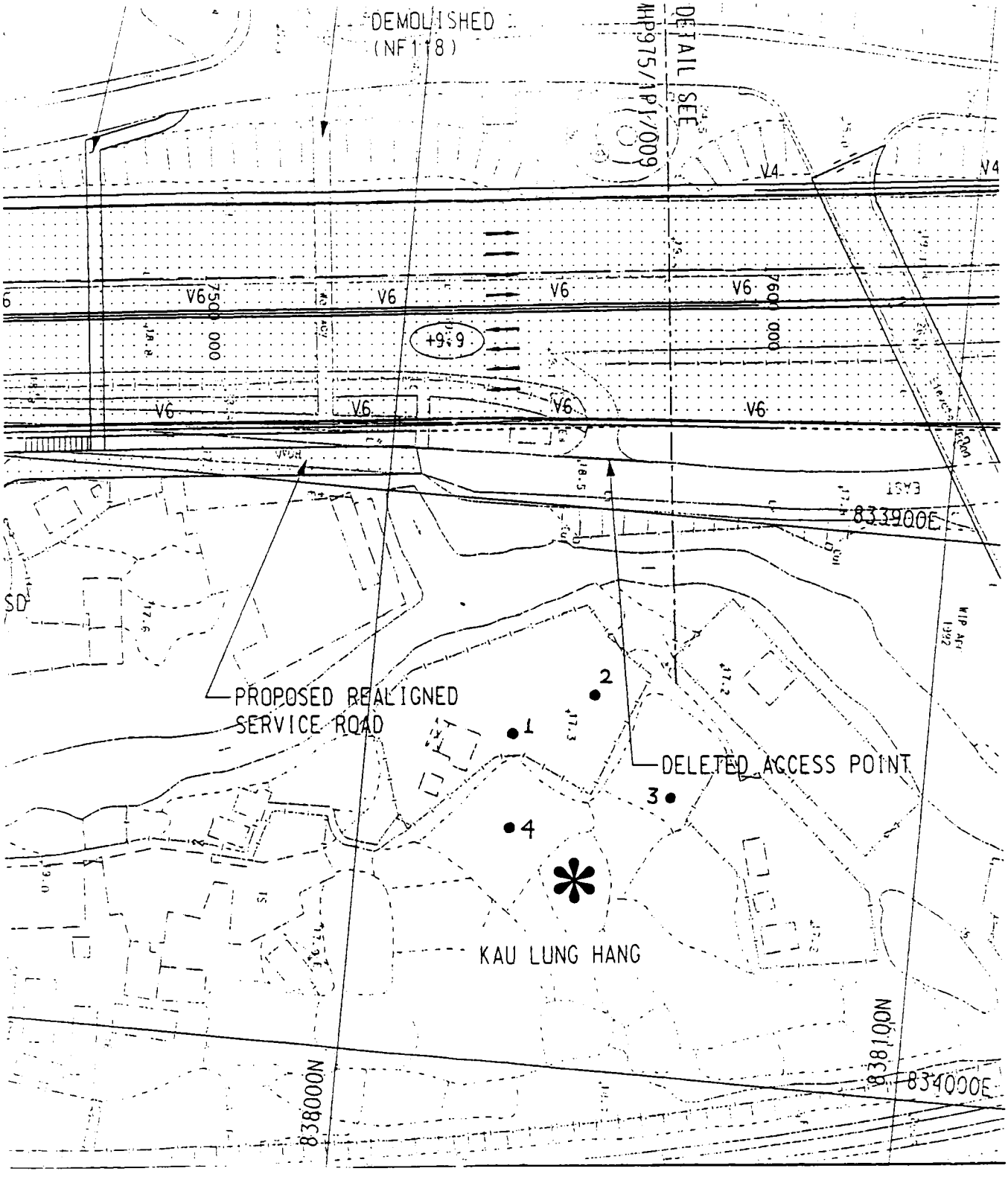


Figure 22 Unit 23: Map Showing Auger Hole Locations and Test Pit Location

12 – 44	Brownish yellow clayey SILT with flaky clay fragments	10 YR 6/8
44	Abandoned due to decomposing rock	

Auger 3

Depth (cm)	Soil description	Colour
0 – 10	Yellowish brown loose loamy SILT	10 YR 5/4
10	Abandoned due to rock / concrete/ debris	

Auger 4

Depth (cm)	Soil description	Colour
0 – 21	Yellowish brown loamy SILT	10 YR 5/4
21 – 36	Yellowish brown clayey SILT with clay lumps	10 YR 5/6
36	Abandoned due to rock	

5.22.3 Test Pit Excavation

In Section D auger hole testing revealed some village ware sherds in alluvial deposits at a depth of less than 1 m. A test pit was conducted to further investigate this area (Test Pit # 3). The test pit was located in the alluvial plain in the proximity of a large stream. It measured 2 by 1.5 meters. The TBM was 0420 and was taken at the left gate post of Mr Chan's house. The results are presented in Table 4 and the section in Figure 25. B. Plate 3 illustrates the location and the test pit.

The test pit revealed a deposit of Qing dynasty material (Figures 26 - 28). This deposit extends to the north and east and is visible in the form of surface material in the garden of Mr. Chan's house nearby. Local information is that it is the site of an early village which was abandoned after the river changed its course more than one hundred years ago. The archaeological deposit is outside the area of works as delineated on the maps, however, monitoring and avoidance are recommended to mitigate any possible negative impacts.

5. 23 Unit 23 (west of Kau Lung Hang) (Figure 22)

The unit lies in the village of Kau Lung Hang and the area directly to the north. This unit is also located on the alluvial plain and also contains a major stream which meanders along the Fanling Highway. The area is largely used for commercial nurseries and is occupied by many temporary sheds. A newly built petrol station and its access road have obliterated a large part of the area. The local surrounding geology consists of block

bearing tuff and tuffites with hornfels, while the unit itself is located on terraced alluvium.

5.23.1 Field walking

The dense vegetation, cultivated lands and nurseries did not lend themselves to systematic walking. Ground surface examination was carried out wherever possible. No finds were recorded.

5.23.2 Augering

Auger 1

Depth (cm)	Soil description	Colour
0 – 18	Olive brown silty LOAM	2.5 Y 4/4
18 – 32	Clayey SILT	2.5 Y 5/6
32	Abandoned due to rock	

Auger 2

Depth (cm)	Soil description	Colour
0 – 19	LOAM	10 YR 5/3
19 – 38	silty LOAM	10 YR 5/3
38 – 44	CLAY with decomposing parent material fragments	2.5 Y 5/6
44	Abandoned due to rock	

Auger 3

Depth (cm)	Soil description	Colour
0 – 30	Silty LOAM	2.5 Y 5/4
30 – 40	Clayey SILT	2.5 Y 5/6
40 – 56	Sandy CLAY	2.5 Y 6/4
56 – 105	Decayed parent material; SAND with gravel	2.5 Y 6/8
105 - 110	Coarser SAND	2.5 Y 6/3
110 – 120	Very fine white CLAY	5 Y 8/2
120	End of auger	

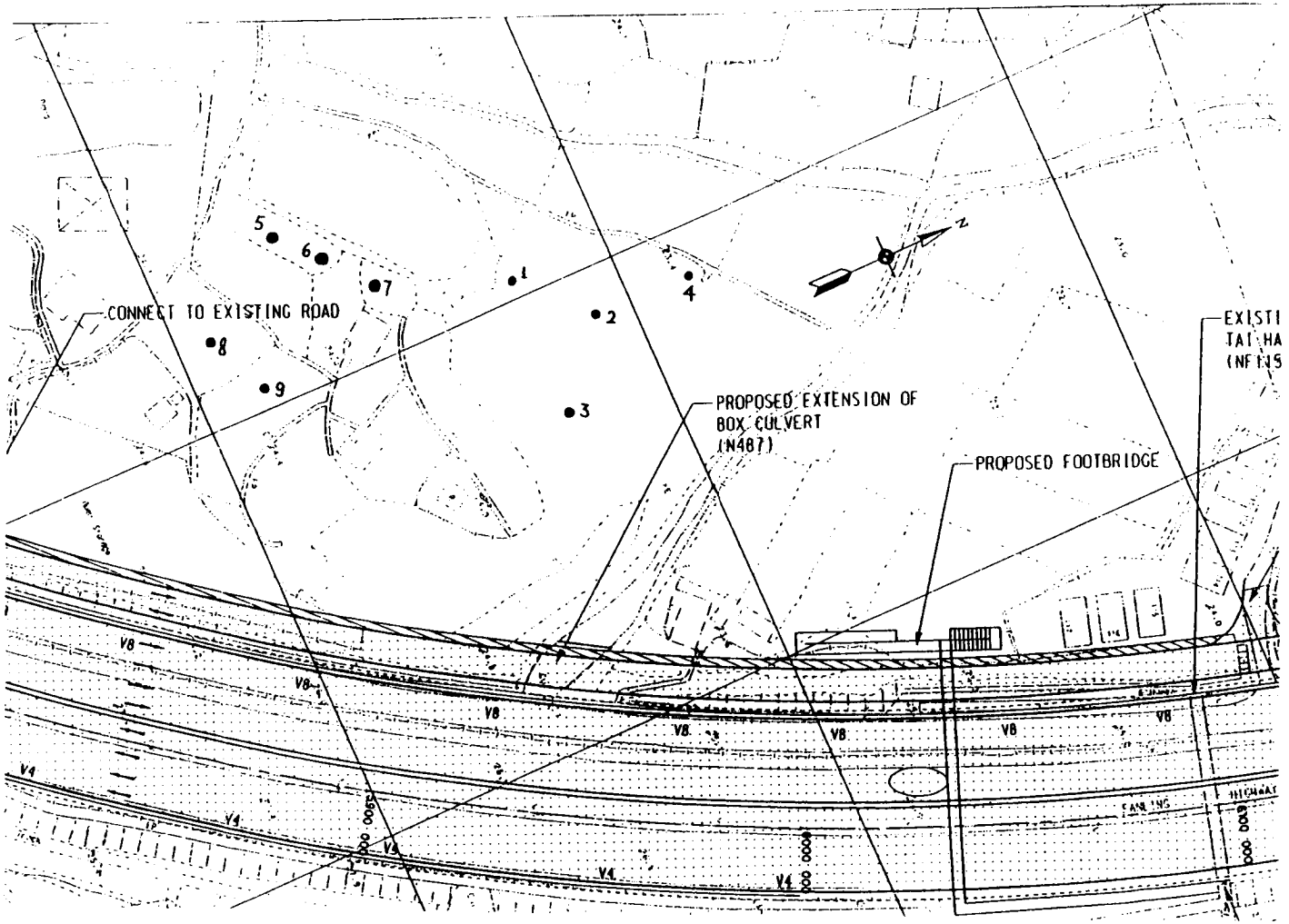


Figure 23 Unit 25: Map Showing Auger Hole Locations

Auger 4

Depth (cm)	Soil description	Colour
0 – 5	Dark brown slightly clayey SILT	10 YR 3/3
5 – 43	Yellowish brown slightly clayey slightly sandy SILT	10 YR 5/4
43 – 53	Light olive brown clayey, slightly sandy/gravelly SILT with quartz pieces	2.5 Y 5/3
53 – 62	Greyish brown slightly clayey SILT	2.5 Y 5/2
62	Abandoned due to rock	

5.23.2 Test pit excavation

Although no cultural soils were encountered in the auger testing, the soil stratigraphy indicated minimal disturbance. The area was private but permission was received from the owner to carry out a test pit excavation.

The test pit (Test Pit # 4) measured 1.5 by 2 meters and was conducted in a field north of a house and west of a concrete path; some slight terracing was noted in the field. The TBM was taken from the north east corner on the doorstep of a shed located to the west of the test pit. TBM= 1900. The results are presented in Table 5 and the section in Figure 25.C; the location and test pit are illustrated in Plate 4.

No archaeological material was found in the test pit. The stratigraphy appears to comprise river deposited material and have low archaeological potential.

5.24 Unit 24 (Tai Hang to Nam Wa Po)

The area between the village of Tai Hang and that of Nam Wa Po consists of village housing, abandoned agricultural plots and various abandoned areas used for storage. The northern portion is the site of a large new housing development. A small section of the unit, immediately to the north of Tai Hang village, is under cultivation. Permission to carry out fieldwork in this area was denied. It is recommended that this area be monitored if it is to be directly impacted by the road widening scheme.

5.25 Unit 25 (Wai Tau to Tai Hang) (Figure 23)

This unit consists primarily of the village of Tai Hang, plant nurseries and abandoned fields. Two historic walled villages with moats can be found in the unit; however, only one still contains the partial remains of a moat.

Layer	Level (in cms)	Soil description	Colour	Interpretation
01	A: 1525 B: 0 C: +1.5 D: +2.5	Loose brown silty CLAY	10 YR 5/3	Topsoil
02	A: -12 B: -18.5 C: -17.5 D: - 10.5	Brownish yellow slightly clay, silty gravelly (sub-rounded-angular) Water table appears in the western end of the trench Slightly lower then the top of 02	10 YR 6/6	Subsoil water table is reached
03		Black silty sandy CLAY; possibly organic This is the top of the ditch	10 YR 2/1	Ditch fill;
04		The ditch is located in the northern end of the trench The shape of the ditch can not be determined as the feature is submerged		Ditch
05	A: -31.5 B: -19.5 C: -32 D: -19.5	White (with red mottling) sandy very slightly clayey leached SILT	7.5 YR 8/0	Sub-soil
06	Water table at -107.5	Same as above with decomposing mottled rock increasing Water table is now also reached in the south-eastern end of the trench		Weathered deposit

Table 5 Test Pit # 4 at Kau Lung Hang (Unit 23)

Some of the areas are occupied by minor industrial buildings, container parks, sheds, warehouses and parking lots. In the centre of the unit former ponds have been used as dumps. The whole area is fairly low lying. A major river runs through the unit and irrigation channels divert the water to the agricultural lands currently being used as nurseries.

5.25.1 Field walking

Most of the area is built up or under cultivation and inaccessible, whilst the abandoned plots support dense vegetation or are covered by debris. Wherever possible non-systematic field walking was carried out. No finds were recorded.

5.25.2 Augering

Auger 1

Depth (cm)	Soil description	Colour
0 – 14	Yellowish brown CLAY with small gravel and sand fraction	10 YR 5/4
14	Abandoned due to rock/ gravel	

Auger 2

Depth (cm)	Soil description	Colour
0 – 38	Brownish yellow streaky CLAY with gravel and stone	10 YR 6/6
38	Abandoned due to dense gravel	

Auger 3

Depth (cm)	Soil description	Colour
Cancelled after three attempts		

Auger 4

Depth (cm)	Soil description	Colour
0 –21	Dark yellowish brown sandy CLAY with gravel and cobbles (angular to rounded) to 8 cm	10 YR 4/6
21	Abandoned due to rock	

Auger 5

Depth (cm)	Soil description	Colour
0 – 17	Brown CLAY with gravel	10 YR 5/3

17	Abandoned due to building debris	

Auger 6

Depth (cm)	Soil description	Colour
Cancelled due to dense gravel after three attempts		

Auger 7

Depth (cm)	Soil description	Colour
0 – 17	Brown sandy CLAY with gravel	10 YR 5/3
17	Abandoned due to rock	

Auger 8

Depth (cm)	Soil description	Colour
Cancelled due to dense gravel after three attempts		

Auger 9

Depth (cm)	Soil description	Colour
Cancelled due to impenetrable modern debris		

5.25.3 Test pit excavation

Permission was received from DLO and WSD to excavate two test pits in this unit on government land. Although the government land proved to represent the most modified and littered area, permission to access private land was not gained and the opportunity to test pit was therefore limited to the two excavated test pit areas.

Test pit 5 is located between a chicken coop and abandoned container, north of the Tai Hang village. The TBM (1140) was taken next to a lamppost to the south-east of the test pit excavation.

The results are presented in Table 6 and the section in Fig.25.D ; the location and test pit are illustrated in Plate 5. The test pit consisted of layers of fill with modern debris down to the water table.

Test pit 6 is located to the south-east of the southwestern moated village of Tai Hang. It is an area of abandoned nurseries and the area is littered with flower pots. TBM (0985) was taken on the south-east corner of the public toilet building.

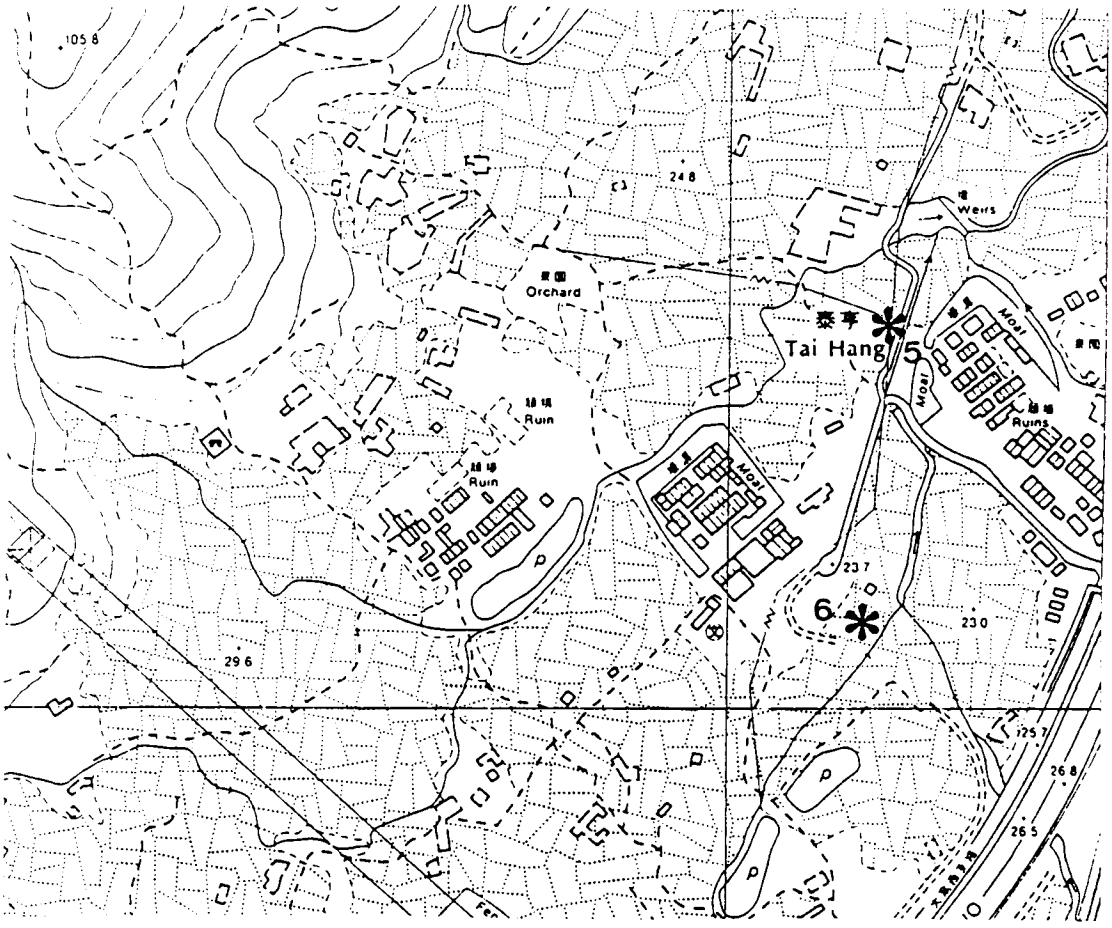


Figure 24 Unit 25. Map showing the test pit locations. (scale 1:5000)

Layer	Level (in cm)	Soil description	Colour	Interpretation
01	A: 0 B: -1 C: -2.5 D: -5.5	Dark greyish brown SILT, slightly clayey, slightly sandy, sub-angular; with modern debris	10YR 4/2	Topsoil
02	A: -5 B: -3 C: -4 D: -9	Yellowish brown SILT, very slightly clayey, gravelly, slightly sandy, sub-rounded-sub-angular; with modern debris	10 YR 5/4	Fill
03	A: -27 B: -21 C: -25.5 D: -29	Strong brown SILT, sandy/gravelly, angular-sub-angular; with a green brick	7.5 YR 4/6	Fill
04	A: -41 B: -30 C: -36 D: -36	Light olive brown SAND, gravelly, sub-rounded-sub-angular; with village ware and modern debris	2.5 Y 5/4	Fill
05	A: -44.5 B: -40 C: -46 D: -47	Olive yellow SILT, clayey and strong brown SILT, gravelly, slightly sandy, angular-sub-angular; the former silt deposit contains modern debris	2.5 Y 6/6 and 7.5 YR 5/8	Fill
06	A: -53 B: -53.5 C: -53.5 D: -54	Yellowish brown SILT, very slightly clayey; with modern debris	10 YR 5/6	Fill
07	A: -64.5 B: -60 C: -60 D: -64	Dark greyish brown SILT, clayey; with organic material and modern debris	2.5 Y 4/2 to 2.5 Y 5/2	Fill
08	A: -65 B: -72.5 C: -66.5 D: -66	Light olive brown SILT, sandy, clayey, sub-rounded-sub-angular	2.5 Y 5/4	Fill
09	A: -72.5 B: -70.5 C: -70.5 D: -71.5	Water table was reached at this level		

Table 6 Test Pit # 5 at Tai Hang (Unit 25)

Layer	Level (in cm)	Soil description	Colour	Interpretation
01	A: 0 B: -2 C: -3 D: -3	Dark yellowish brown SILT, gravelly, sub-rounded-sub-angular; with numerous micro-snails, modern potsherds, bricks, modern debris and rocks	10 YR 4/4	Topsoil
02	A: -4.5 B: -6.5 C: -7 D: -6.5	Dark brown SILT, slightly clayey, slightly sandy/gravelly, sub-rounded-sub-angular; with modern debris, tile fragments and green brick, making up 2/3 of the deposit. Water table was reached at this context (-42.5 to –44.5 cm below surface).	10 YR 4/3	Fill
03	A: N/A B: -11.5 C: -10 D: N/A	Brown SILT, very slightly clayey, very slightly sandy/gravelly, sub-rounded-sub-angular; with a few rocks and fragments of a modern flower pot	10 YR 5/4	Fill

Table 7 Test Pit #6 at Tai Hang (Unit 25)

The results are presented in Table 7 and the section in Fig.25.E; the location and test pit are illustrated in Plate 6. The test pit stratigraphy consisted of green building bricks and other building debris down to the level of the water table. The building debris may have come from repairs to traditional terraced houses to the north-west of the test pit area.

5.26 Unit 26 (Yuen Chau Tsai)

This unit is the archaeological site of Yuen Chau Tsai (Island House) which has been assessed and found to have continuing, if limited, archaeological potential (Rogers et al 1998).

6. Conclusions and Recommendations for Mitigation

(1) The following Units were assessed and found to have no archaeological potential and require no further investigation or monitoring:

- Unit 1 Tai Po Kau/Ha Wong Yi Au
- Unit 2 nr. Shan Tong San Tsuen
- Unit 3 nr. Shan Tong San Tsuen
- Unit 4 nr. Lai Chi Shan
- Unit 10 Mui Shue Hang north
- Unit 12 south of Lam Kam roundabout
- Unit 15 nr. Hong Lok Yuen
- Unit 17 nr. Wo Hop Shek
- Unit 18 nr. Wo Hop Shek
- Unit 19 north of Nam Wa Po
- Unit 21 nr. Yuen Leng
- Unit 22 Tai Wo to Yuen Leng (B,C,E, F)
- Unit 23 west of Kau Lung Hang

(2) Assessment of the following Units was not possible due to access problems or concrete coverage; these areas are heavily modified and their archaeological potential is rated to be low. No further investigation or monitoring is recommended:

- Unit 5 Lai Chi Shan
- Unit 7 nr. Kam Shek Tsuen
- Unit 8 Shek Wu Long
- Unit 11 north of Mui Shue Hang
- Unit 14 Wai Tau village
- Unit 22 Tai Wo to Yuen Leng (A)

(3) Assessment of the following Units was limited or not possible due to access problems; these areas have medium archaeological potential and it is recommended that they be further investigated if portions become available. It is further recommended that they be monitored if engineering works impact them directly:

- Unit 9 Mui Shue Hang south
- Unit 13 west of Lam Kam roundabout
- Unit 20 Kiu Tau
- Unit 24 Tai Hang to Nam Wa Po (southern end)
- Unit 25 Wai Tau to Tai Hang

(4) The Qing dynasty remains at Unit 22.D, Tai Wo, fall outside the area which will be impacted by the road widening. Care must be taken to ensure that the site is not impacted indirectly by the proposed works.

(5) Unit 16, Wai Tau, is a listed archaeological site; although assessment has revealed no archaeological material, it is recommended that the site be further investigated and/or monitored if road widening works are to impact it directly.

(6) The following Units are listed archaeological sites and declared monuments of importance.
Care must be taken in the design and implementation stages to ensure that they are not be impacted, directly or indirectly, in any way by the proposed works:

- Unit 6 Wun Yiu kiln
- Unit 26 Yuen Chau Tsai (Island House)

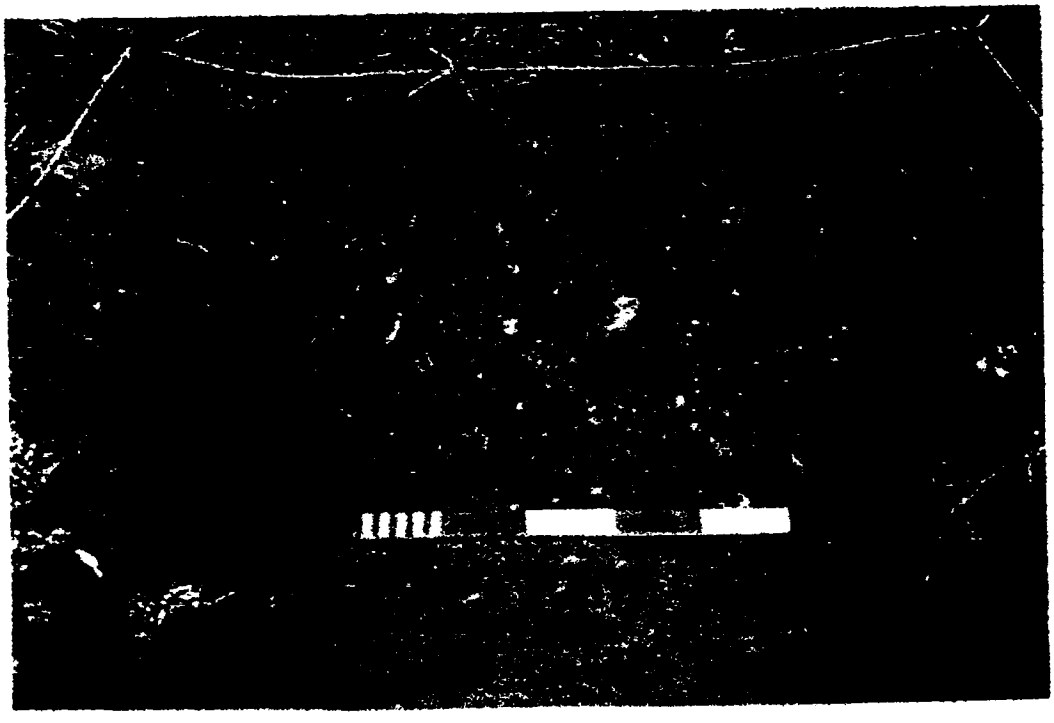


Plate 1 Test Pit 1: Tai Po Kau, Unit 1

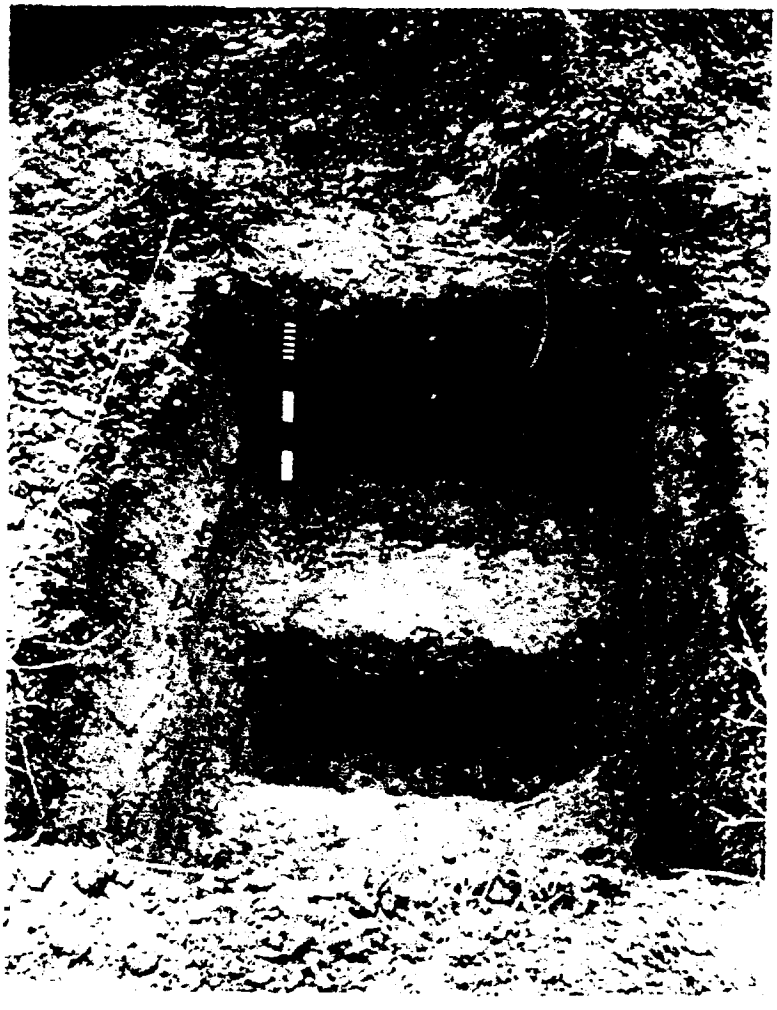


Plate 2 Test Pit 2: Nam Wa Po, Unit 19

Plate 3 Test Pit 3: Tai Wo, Unit 22

Plate 4 Test Pit 4: Kau Lung Hang, Unit 23

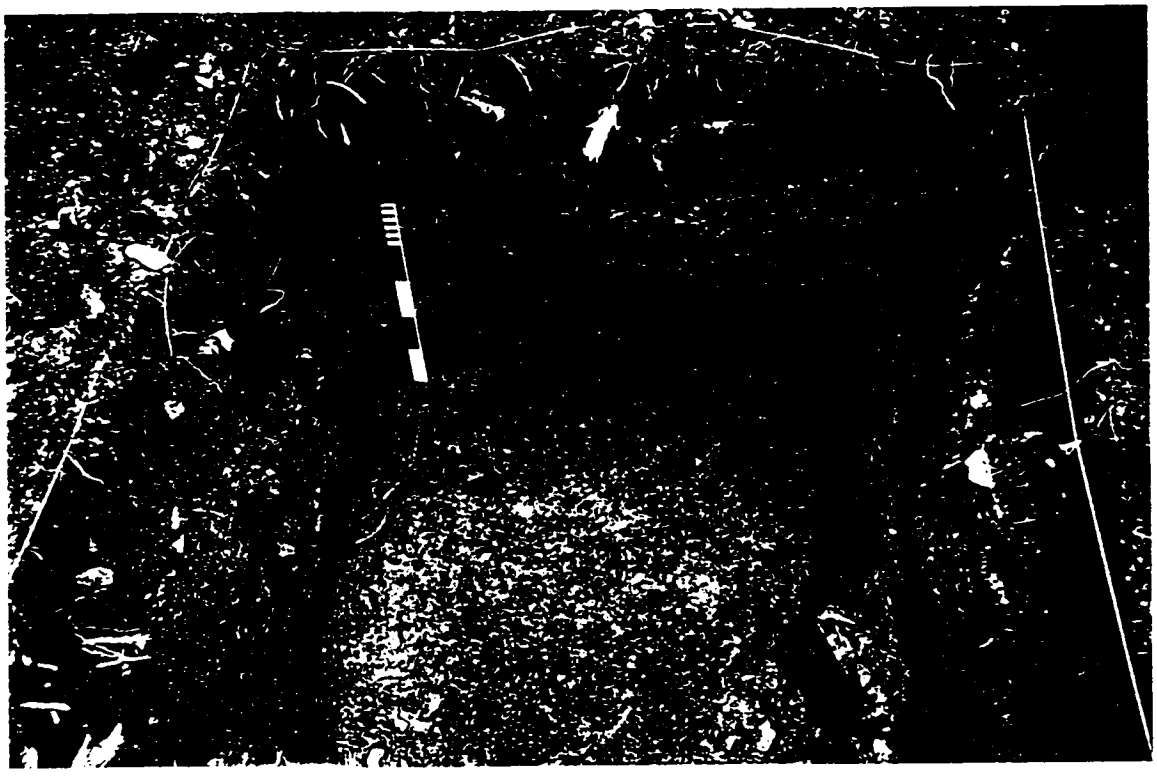


Plate 5 Test Pit 5 : Tai Hang, Unit 23

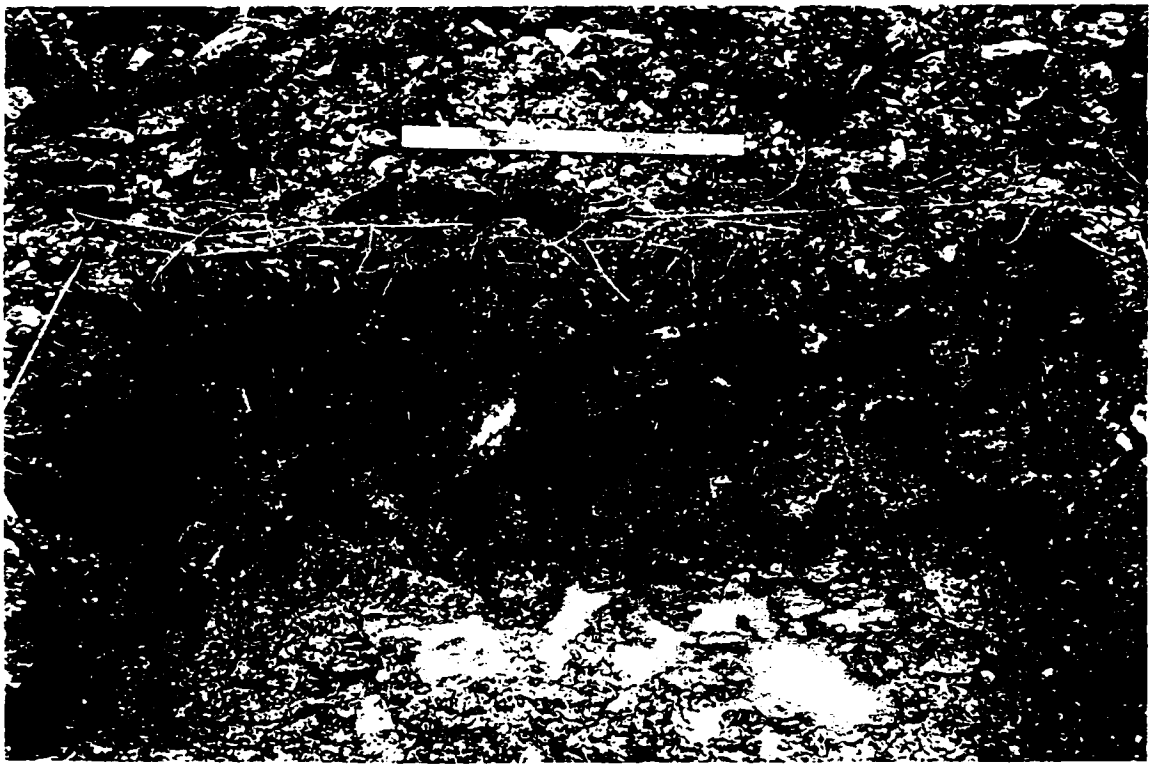


Plate 6 Test Pit 6 : Tai Hang, Unit 23

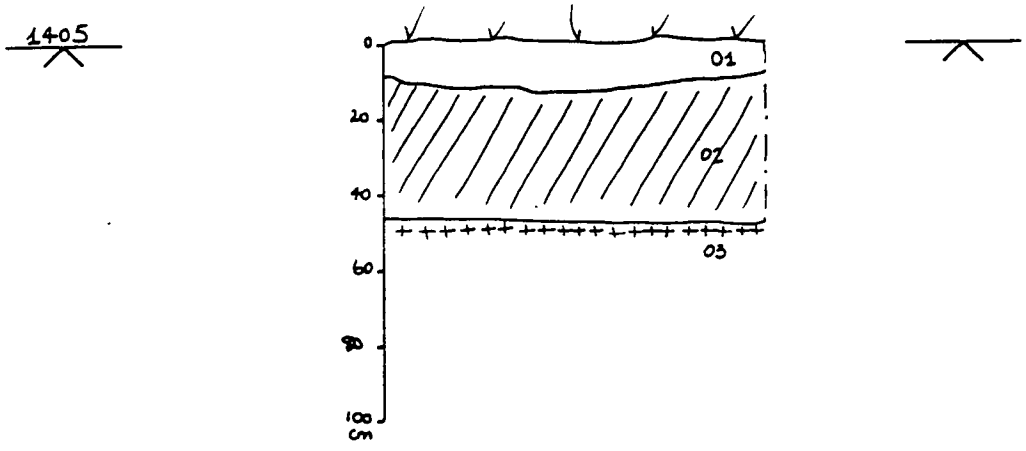
ARCHAEOLOGICAL ASSESSMENTS

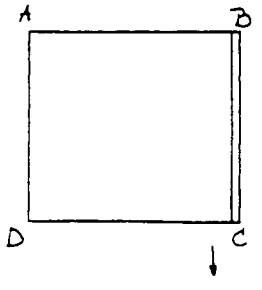
Test Pit Section Drawing

Project: **Tolo/Fanling Highway Widening**
Test Pit Number: **1**
Scale: **1:20**
TBM **2130**

Section: **west section**

Date: **14.05.99**





Key:

Topsoil
Rock
Fill
Colluvium
Alluvium
++ DECOMPOSING ROCK

Figure 25. Test pit # 1. Section drawing.

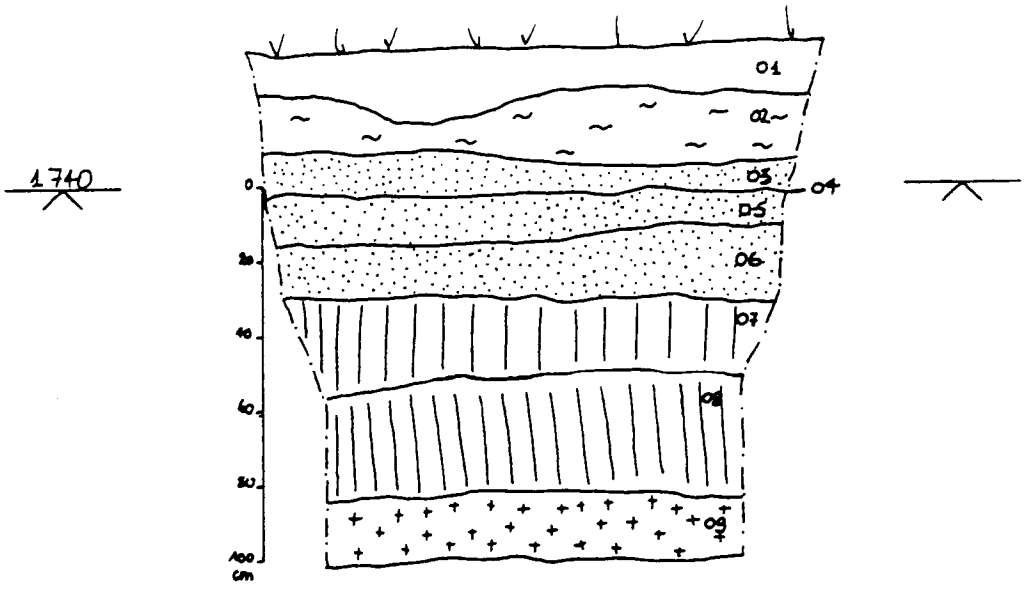
ARCHAEOLOGICAL ASSESSMENTS

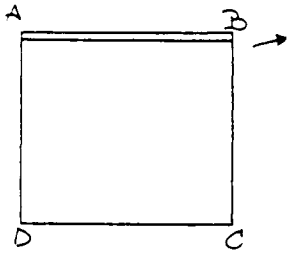
Test Pit Section Drawing

Project: **Tolo/Fanling Highway Widening**
Test Pit Number: **2**
Scale: **: 1:20**
TBM **1280**

Section: **west section**

Date: **12.05.99**





Key:

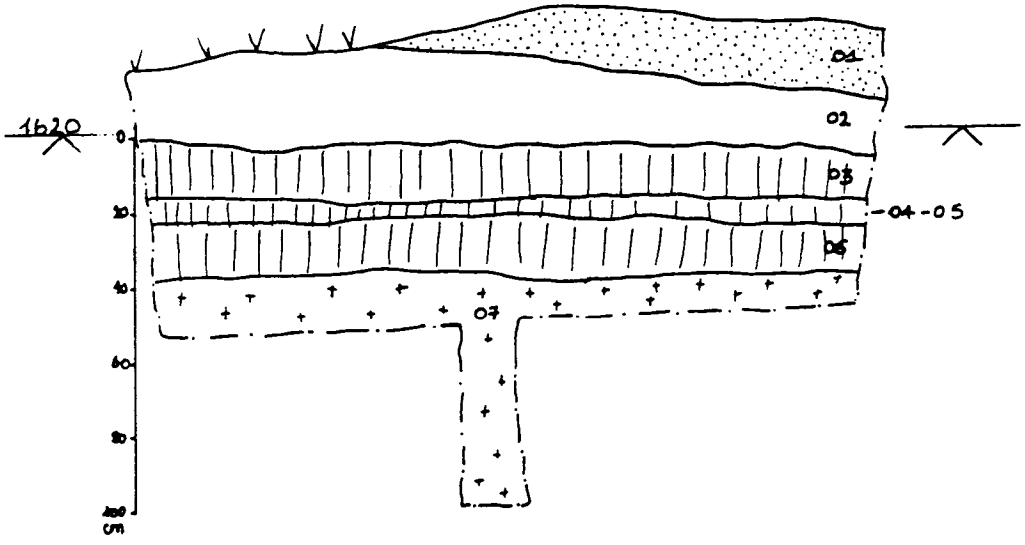
- Topsoil
- Rock
- Fill
- Colluvium
- Alluvium
- FLUVIAL DEPOSIT
- SUB-SOIL
- WEATHERED ROCK

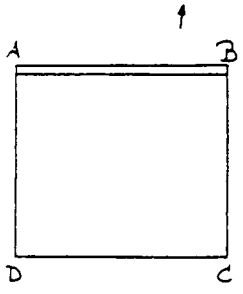
Figure 25.A Test pit # 2. Section drawing.

ARCHAEOLOGICAL ASSESSMENTS

Test Pit Section Drawing

Project: **Tolo/Fanling Highway Widening**
Test Pit Number: **3** Section: **north section**
Scale: **: 1:20**
TBM **0420** Date: **04.05.99**





Key:

- Topsoil
- Rock
- Fill
- Colluvium
- Alluvium
- WEATHERED ROCK

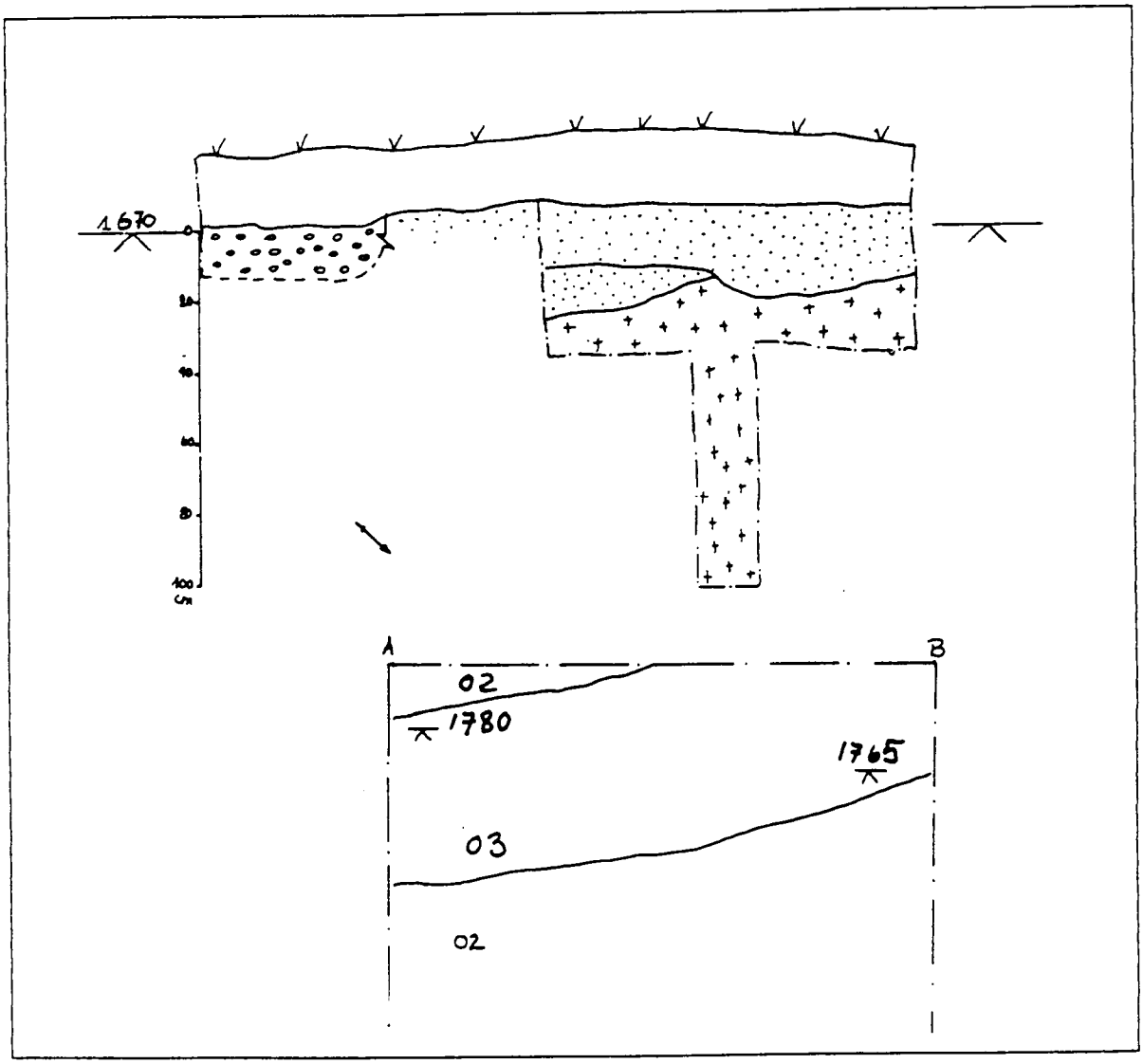
Figure 25.B Test pit # 3. Section drawing.

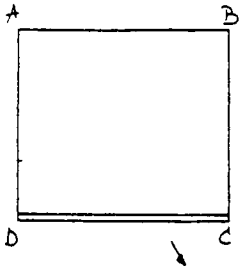
ARCHAEOLOGICAL ASSESSMENTS

Test Pit Section Drawing

Project: **Tolo/Fanling Highway Widening**
Test Pit Number: **4**
Section: **north section and plan of c.03**

Scale: : **1:20**
TBM **1900**
Date: **11.05.99**





Key:

Topsoil	Alluvium
Rock	SUBSOIL
Fill	WEATHERED ROCK
Colluvium	DITCH FILL

Figure 25.C Test pit # 4. Section drawing.

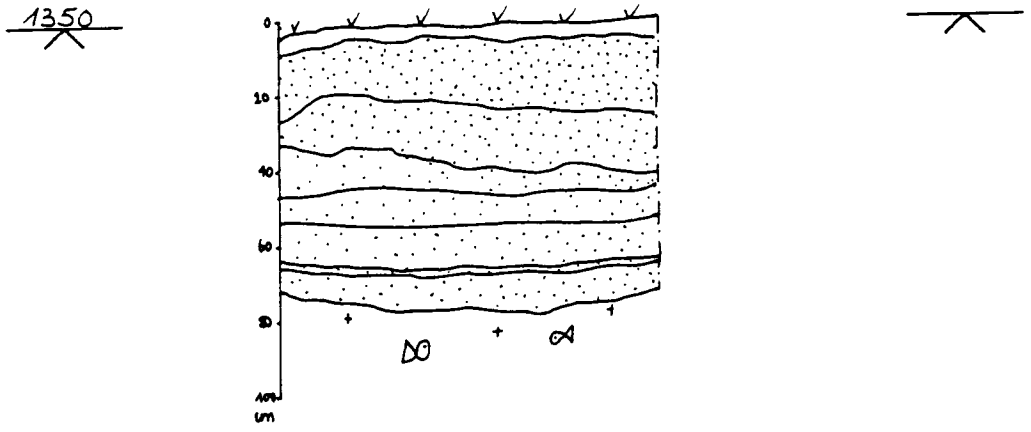
ARCHAEOLOGICAL ASSESSMENTS

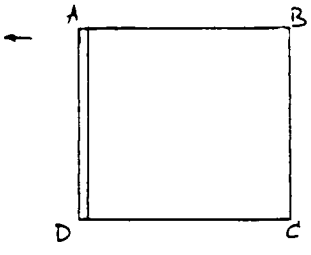
Test Pit Section Drawing

Project: **Tolo/Fanling Highway Widening**
Test Pit Number: **5**
Scale: : **1:20**
TBM **1140**

Section: **north section**

Date: **01.10.99**





Key:

- Topsoil
- Rock
- Fill
- Colluvium
- Alluvium
- ROCKS
- WATER TABLE

Figure 25.D Test pit # 5. Section drawing.

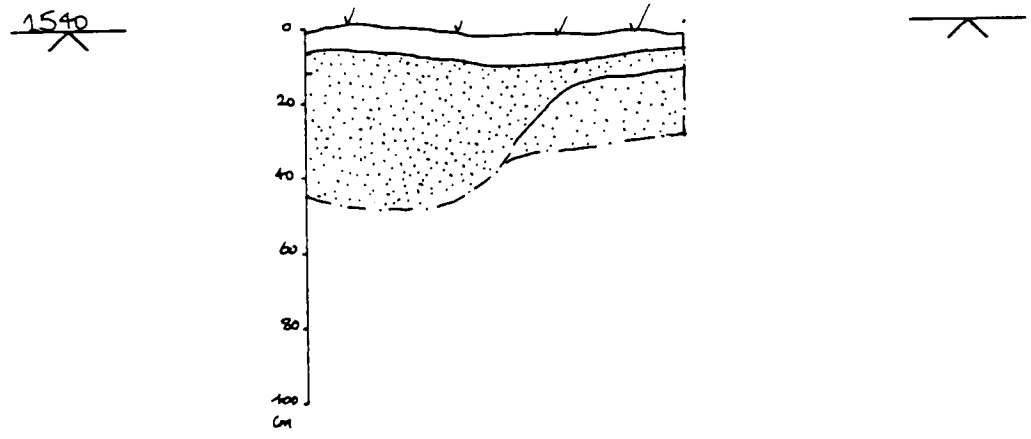
ARCHAEOLOGICAL ASSESSMENTS

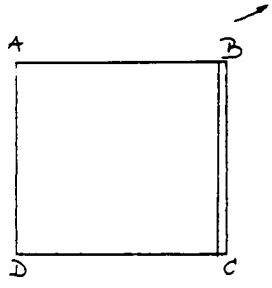
Test Pit Section Drawing

Project: **Tolo/Fanling Highway Widening**
Test Pit Number: **6**
Scale: **: 1:20**
TBM **0985**

Section: **north section**

Date: **02.10.99**





Key:

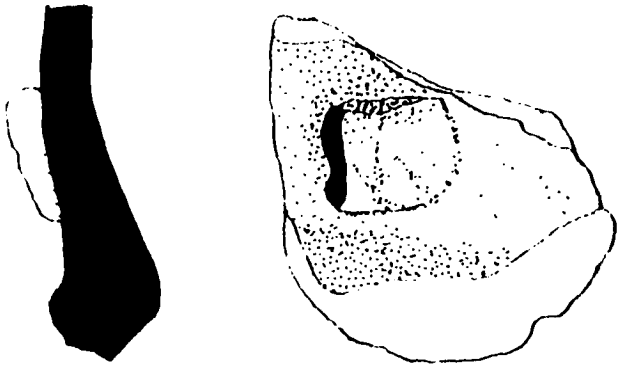
Topsoil
Rock
Fill
Colluvium
Alluvium

Figure 25.E Test pit # 6. Section drawing.

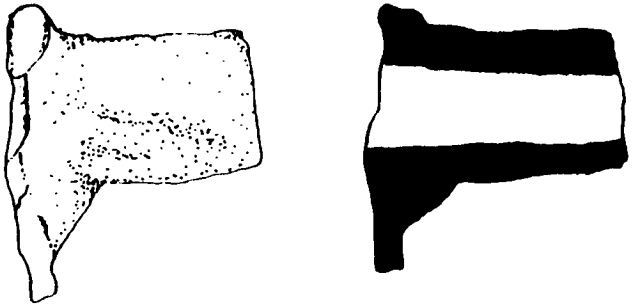
Tai Wo (Unit 22) Test Pit # 3

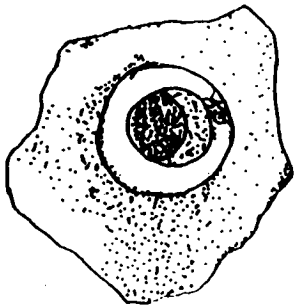
PORCELAIN RIM FORM from c. 05
1:1

STONEWARE HANDLE FORM from c. 05
1:1



STONEWARE SPOUT FORM from c. 07
1:1





STONEWARE LID FORM from c. 07
1:1

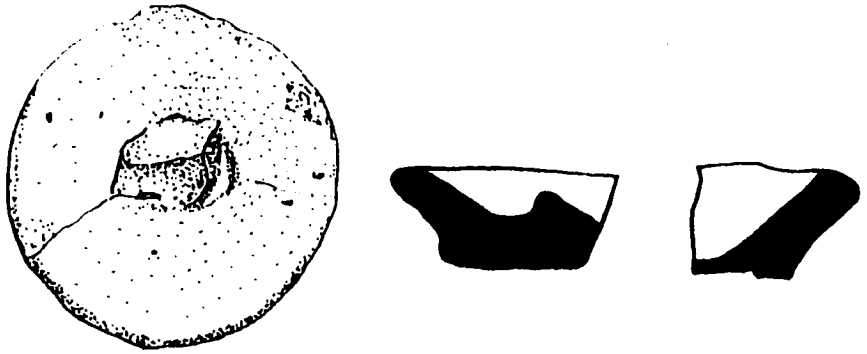


Figure 26 Artefacts From Test Pit # 3

Tai Wo (Unit 22) Test Pit # 3

RIM FORMS from c. 06
1:1

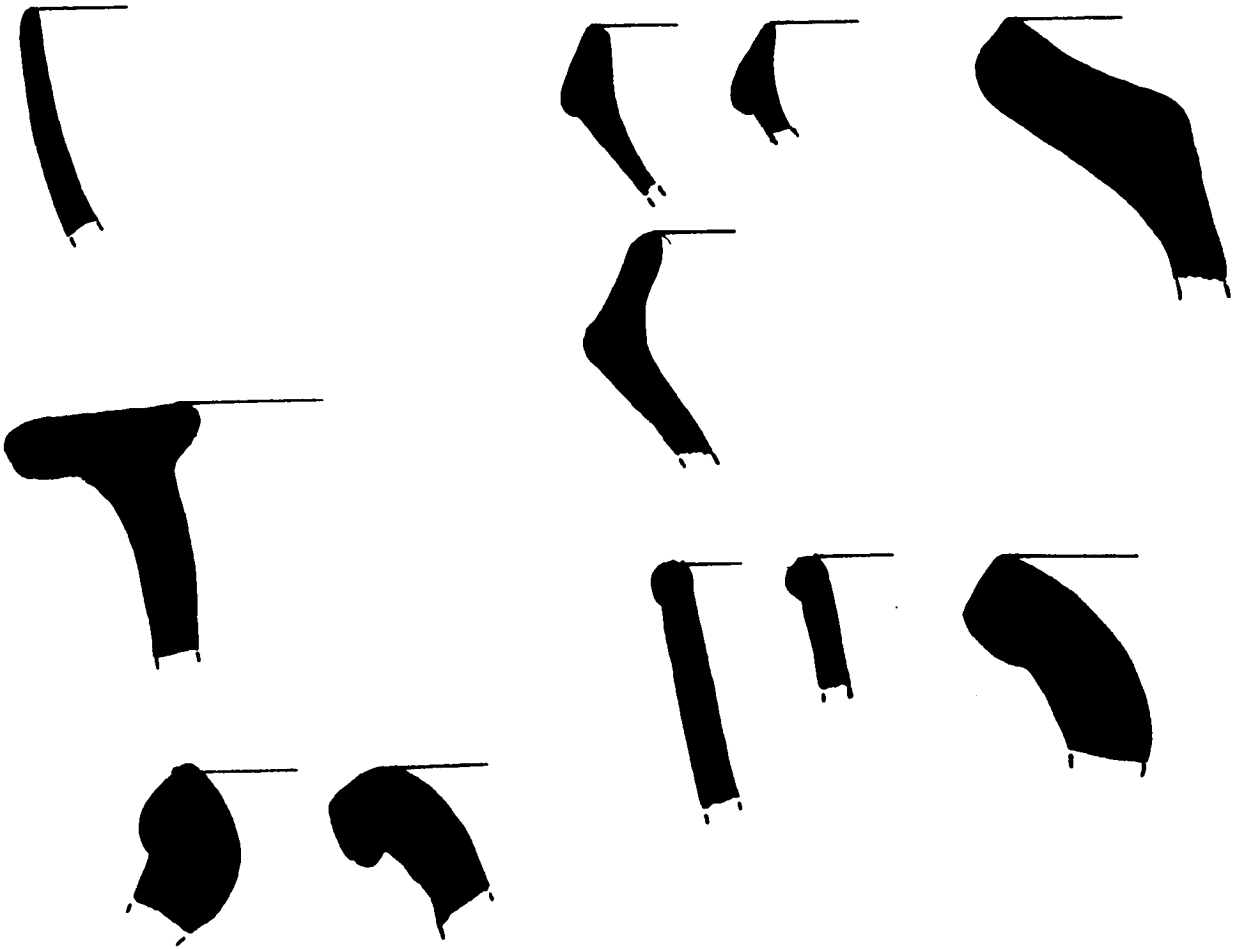


Figure 27 Artefacts From Test Pit # 3

Tai Wo (Unit 22) Test Pit # 3

BASE FORMS from c. 06
1:1

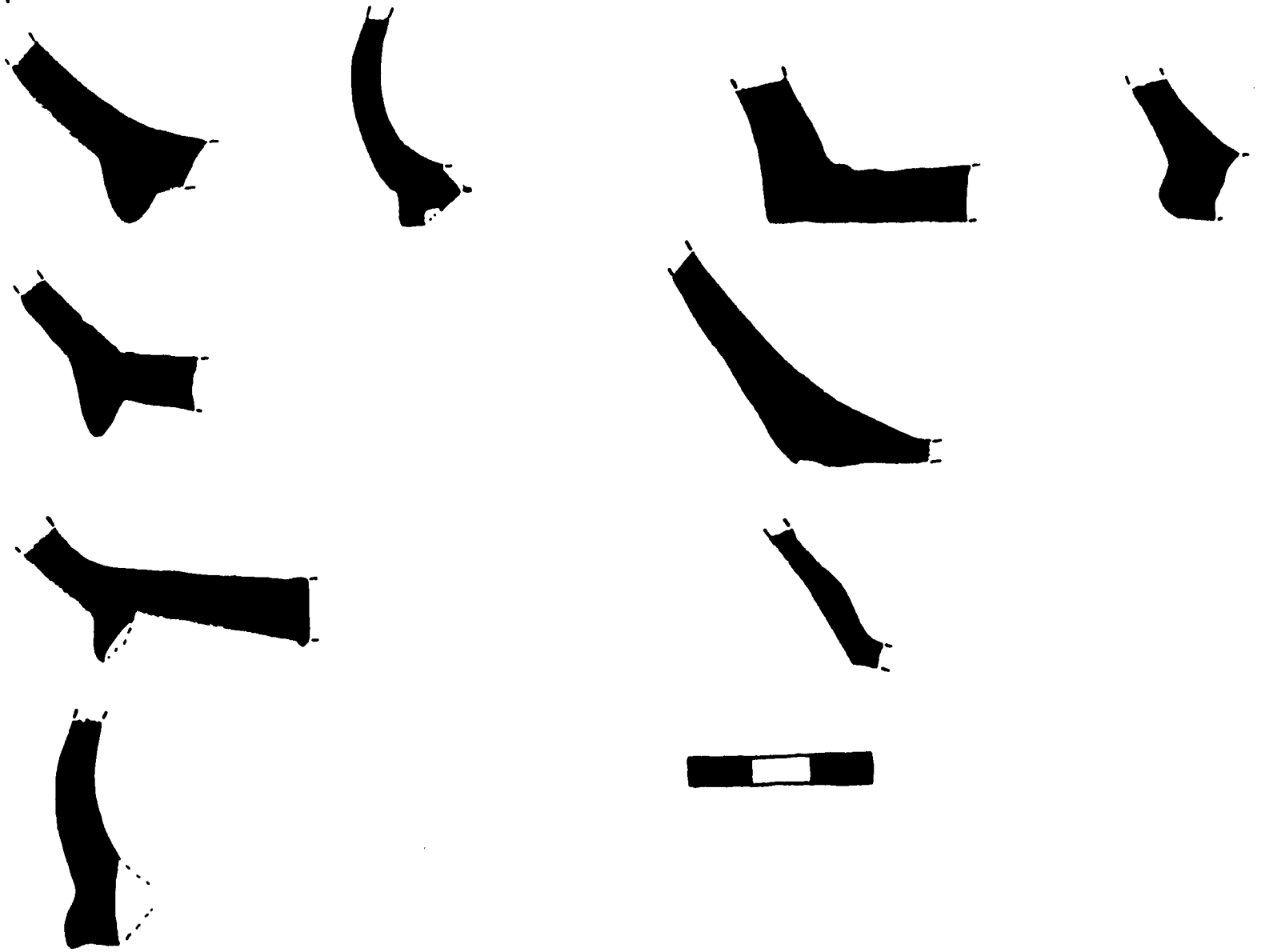


Figure 28 Artefacts From Test Pit # 3

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