

7. ECOLOGY

7.1 Introduction

The previous *Tai Wai to Ma On Shan - Preliminary Environmental Review* (PER) concluded that virtually no natural habitats were identified within the proposed railway alignment, except a woodland near Wong Uk where a small edge area with low ecological value would be lost, constituting a low impact.

The MOS Study Brief, issued by the EPD, acknowledged the above findings and stated that no ecological impact assessment was required. However, it required that a brief updated description of the existing ecological conditions, within 500 m from either side and along the railway alignment and associated facilities, was prepared. This Section presents this ecological description.

7.2 Baseline Conditions

7.2.1 Methodology

The existing ecological conditions of the Study Area were collected through recent general habitat surveys undertaken in March 1999, to update the data from the previous PER using information from the vegetation map prepared by the World Wide Fund for Nature (WWF), Hong Kong and the latest available aerial photographs taken by the Lands Department where appropriate. The field surveys recorded the dominant species of each representative habitat type.

7.2.2 Habitat/Vegetation

With reference to the vegetation map prepared by the WWF, almost all the area covered by the proposed extension falls within the "High Density Urban" category. Virtually no natural habitats have been identified in the vicinity of the proposed alignment. The vegetation that has been found comprises mostly exotic species associated with landscape planting. No sites within or in the immediate vicinity of the work areas are identified as having ecological importance.

There are, however, some natural habitats within the Study Area, including *fung shui* woodland, secondary woodland, plantation woodland, shrubland, shrubland/woodland mosaic and wasteland, as shown in *Figures 7.2a-d*. It should be noted that a figure has not been included for the section between City One Station and Shek Mun Station as this area is urbanised and no natural terrestrial resources were identified within this section.

A brief description of the general ecological conditions of these habitats are given below.

Fung Shui Woodland

The only potential ecologically sensitive receiver that would be slightly affected is a small *Fung Shui* woodland which was identified in the previous *Tai Wai to Ma On Shan - Preliminary Environmental Review* (PER) near Wong Uk in Shatin (see *Figure 7.2a*). The MOS Extension will encroach on approximately 250 m² of this woodland, constituting approximately 5% of the total woodland area of about 0.5 ha.

The woodland is surrounded by a public garden, from which it is partially fenced off. It is considered that the woodland has been modified extensively in the past, as indicated by the presence of several abandoned huts, graves, and fruit trees within the woodland. The species found in the peripheral area include *Castanopsis fissa* and *Casuarina equisetifolia*. Other species dominant in this area include common pioneer tree species such as *Sapium discolor*, *Sapium sebiferum*, *Mallotus paniculatus* and *Macaranga tanarius*, indicating that this part of the woodland is quite young. Within the woodland core, the species found are typical of other lowland woodlands all over Hong Kong, such as: the trees *Bridelia tomentosa*, *Ficus microcarpa*, *Bischofia javanica* and *Antidesma bunius*; the shrubs *Ligustrum sinense*, *Sageretia theezans*, *Psychotria rubra* and *Phyllanthus reticulatus*; and the climbers *Uvaria microcarpa*, *Uvaria grandiflora* and *Desmos cochinchinensis*. A list of species recorded in the woodland during the field visits is shown in *Table 7.2a*. No rare or endangered plant species were identified.

As stated above, the woodland is surrounded by a public garden. In addition to man-made structures, the amenity garden has a mixture of vegetation types planted for ornamental/landscape purposes. However, as this is not a natural habitat, it is considered inappropriate to classify the vegetation/habitat type of this area.

Table 7.2a Plant Species Recorded At the Fung Shui Woodland

<i>Ailanthus fordii</i>	<i>Ficus hispida</i>	<i>Morinda umbellata</i>
<i>Alchornea trewioides</i>	<i>Dimocarpus longan</i>	<i>Machilus chinensis</i>
<i>Alocasia macrorrhiza</i>	<i>Elephantopus tomentosa</i>	<i>Mallotus paniculatus</i>
<i>Antidesma bunius</i>	<i>Ficus microcarpa</i>	<i>Mussendanea pubescens</i>
<i>Aporosa chinensis</i>	<i>Ficus variegata</i>	<i>Paederia scandens</i>
<i>Bischofia javanica</i>	<i>Ficus virens</i>	<i>Passiflora foetida</i>
<i>Bridelia tomentosa</i>	<i>Ilex asprella</i>	<i>Phyllanthus cochinchinensis</i>
<i>Caesalpinia spp.</i>	<i>Ilex rotunda</i>	<i>Phyllanthus reticulatus</i>
<i>Callicarpa loureiri</i>	<i>Illigera celebica</i>	<i>Psychotria rubra</i>
<i>Castanopsis fissa</i>	<i>Ipomoea carica</i>	<i>Pueraria phaseoloides</i>
<i>Casuarina equisetifolia</i>	<i>Lantana camara</i>	<i>Sageretia theezans</i>
<i>Celtis philippensis</i>	<i>Leucanea leucocephala</i>	<i>Sapium discolor</i>
<i>Celtis sinensis</i>	<i>Liriope spicata</i>	<i>Sapium sebiferum</i>
<i>Clematis spp.</i>	<i>Litsea glutinosa</i>	<i>Sterculia lanceolata</i>

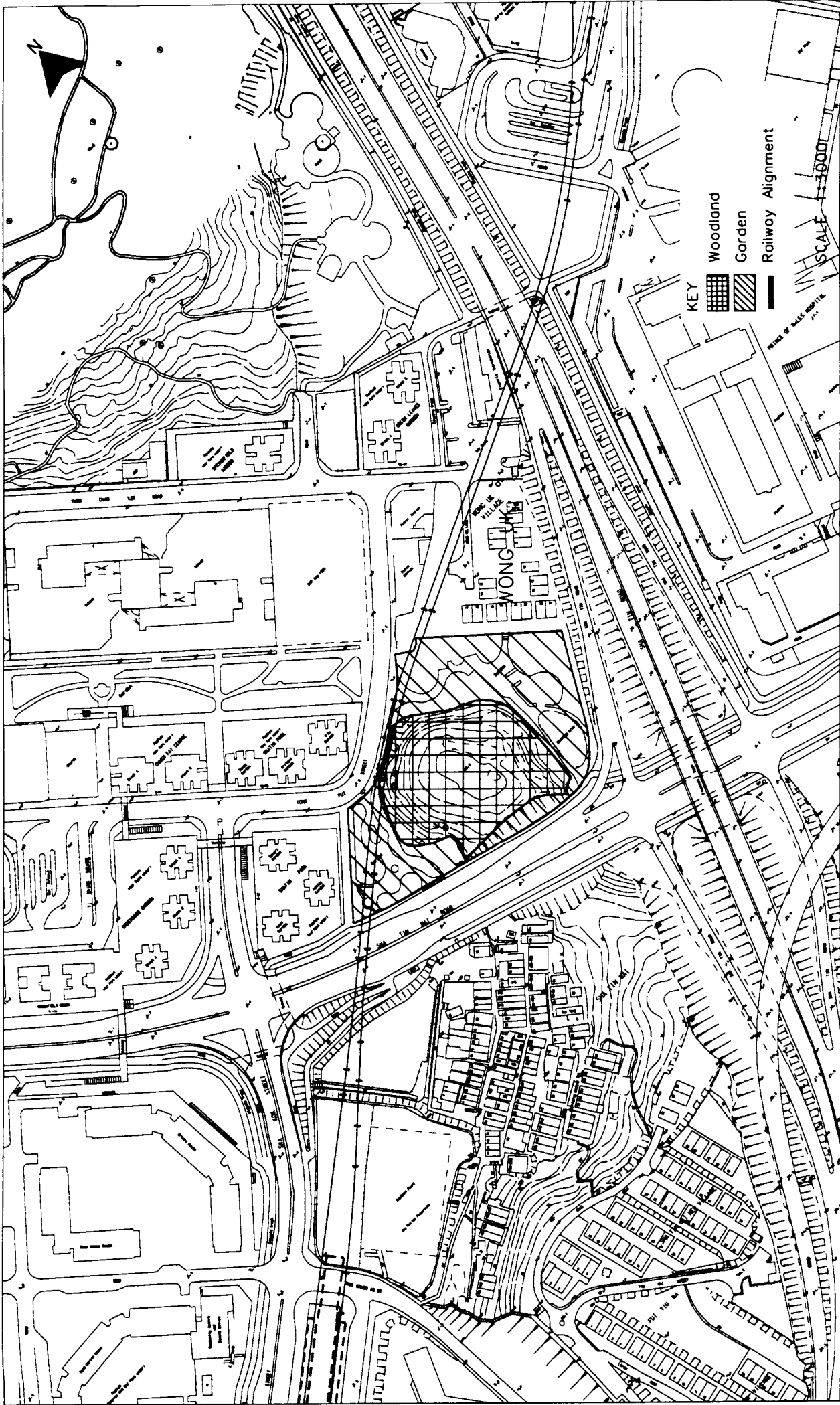
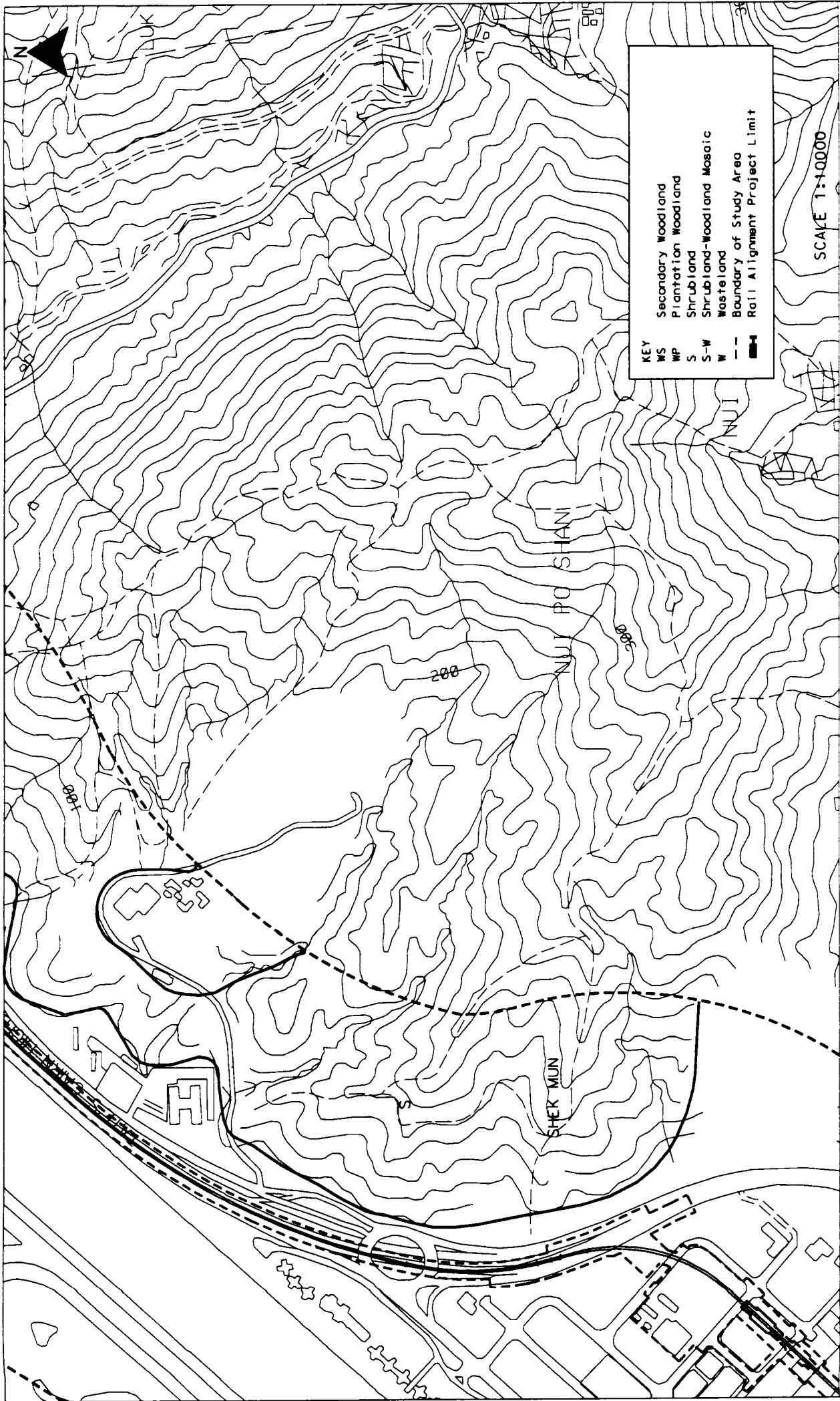


FIGURE 7.20

WOODLAND NEAR WONG UK

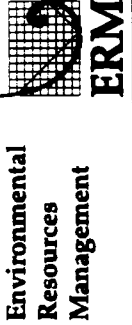
Environmental
Resources
Management





KEY	
MS	Secondary Woodland
WP	Plantation Woodland
S	Shrubland
S-W	Shrubland-Woodland Mosaic
W	Waste land
--	Boundary of Study Area
---	Rail Alignment Project Limit

SCALE 1:10,000



HABITAT MAP ALONG MA ON SHAN SECTION
OF THE STUDY AREA (SHEK MUN)

FIGURE 7.2b

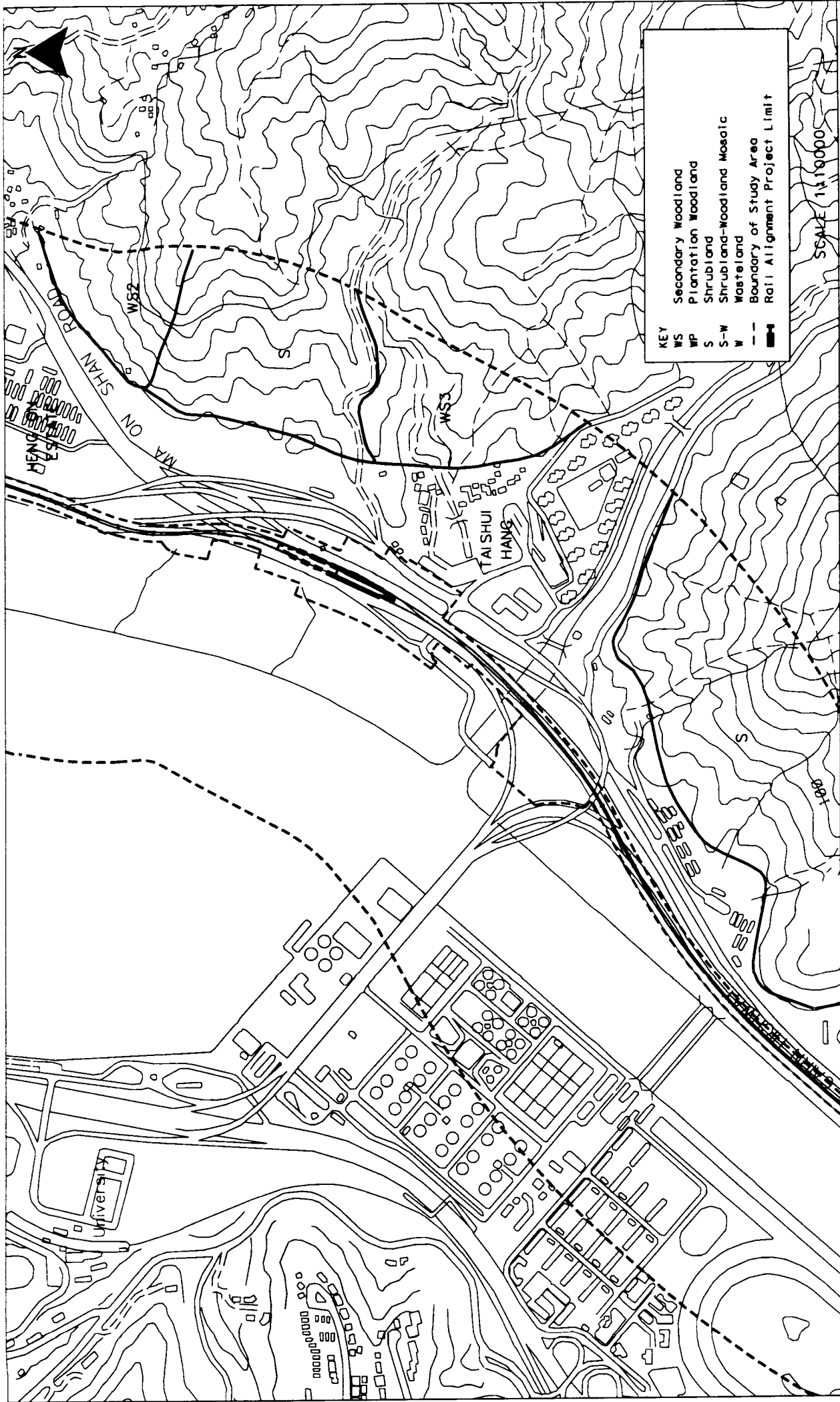


FIGURE 7.2C
 HABITAT MAP ALONG MA ON SHAN SECTION
 OF THE STUDY AREA (MA ON SHAN ROAD)

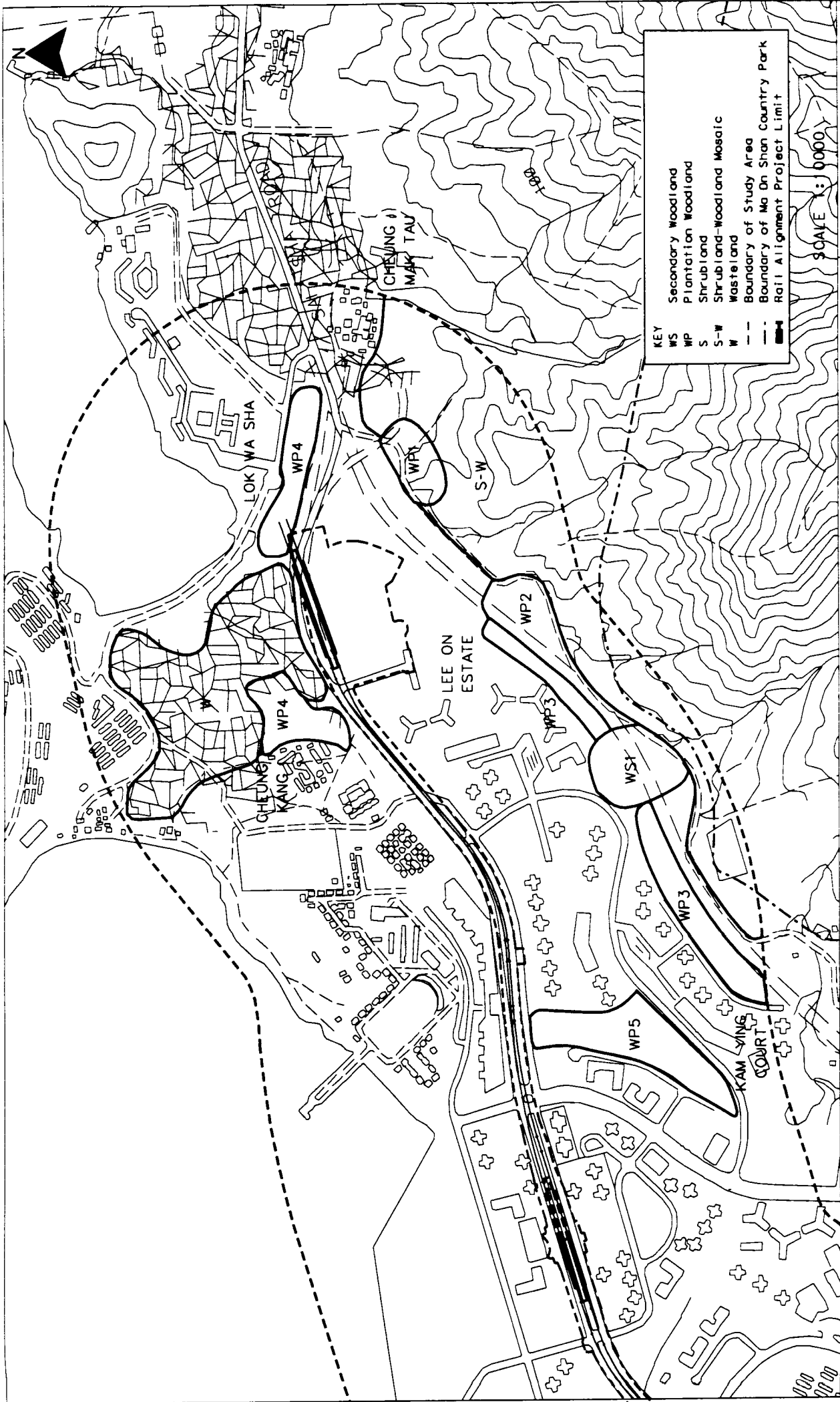


FIGURE 7.2d
 HABITAT MAP ALONG MA ON SHAN SECTION
 OF THE STUDY AREA (LEE ON ESTATE)

<i>Cratogeomys ligustrinum</i>	<i>Lygodium japonica</i>	<i>Symplocos glauca</i>
<i>Dalbergia balansae</i>	<i>Macaranga tanarius</i>	<i>Syzygium jambos</i>
<i>Desmos cochinchinensis</i>	<i>Microcos paniculata</i>	<i>Thunbergia</i> spp.
<i>Dicranopteris linearis</i>	<i>Mikania micrantha</i>	<i>Uvaria grandiflora</i>
<i>Embelia longifolia</i>	<i>Miscanthus floridulus</i>	<i>Uvaria microcarpa</i>

Birds observed within the woodland during the survey were only ubiquitous species (eg Tree Sparrow *Passer montanus* and Crested Bulbul *Pycnonotus jocosus*) that are well-adapted to disturbed conditions.

Other animal groups of special ecological interest are not expected to be supported in the woodland because of the frequent human activities, and the isolated nature and small size of the woodland. The woodland is considered to be of low ecological value.

Secondary Woodland (WS)

Three patches of secondary woodland were found within the Study Area: between Kam Ying Court and Lee On Estate (WS1); along Ma On Shan Road near Heng On Tsuen (WS2); and on the hill slope in close proximity to the Tai Shui Hang Village (WS3).

WS1

Owing to a lack of substantial human interference, and with the area being close to the floristically diverse Ma On Shan, a rich flora was recorded in this woodland. The trees ranged from 6-8 m in height, and intertwined with climbers forming a closed canopy. Dominant species such as the trees *Litsea cubeba*, *Listsea glutinosa*, *Alangium chinense*, *Cratogeomys Liquestrum*, *Bridelia tomentosa* and *Rhus succedanea*, as well as the climber *Smilax china*, *Tetracera asiatica* and *Desmos cochinchinensis* were found. The under-storey growth was well-developed including typical shade-tolerant shrubs such as *Ilex asprella*, *Ilex pubescens*, *Psychotria rubra* and *Tarenna attenuata*, as well as the saplings of the tree species mentioned above.

WS2

This woodland has a semi-closed canopy layer with the height of trees ranging from 10-15 m in height. Tree species such as *Macaranga tanarius*, *Aleurites moluccana*, *Sterculia lanceolata*, *Bombax malabricum*, *Eucalyptus robusta* and *Delonix regia* were dominant. The under-storey growth was mild including *Diospyros vaccinioides*, *Lantana camara* and *Psychotria rubra*, as well as Climbing plants such as *Mikania micrantha* and *Desmos cochinchinensis*.

WS3

This woodland is located on the hill slope near to the Tai Shui Hung Village and is mainly composed of native tree species that form a closed canopy and have dense under-storey cover. The size of the trees within the woodland varies with species, ranging from 5 to

20 m in height and 10 cm to 50 cm in diameter (at breast height). The tree species commonly found within the woodland include *Cinnamomum camphora*, *Macaranga tanarius*, *Eucalyptus robusta*, *Acacia confusa*, *Acacia mangium*, *Sterculia lanceolata* and *Mallotus paniculatus*. The under-storey of the woodland is dominated by the shrubs *Lantana camara* and *Psychotria rubra*, and the herbs *Alocasia macrorrhiza* and *Ageratum conyzoides*.

Plantation Woodland (WP)

Plantation woodland found within the Study Area is mainly established on previously disturbed areas including a cut slope behind the residential blocks (opposite to Yiu On Estate and behind Kam Ying Court), and a quarry on the eastern end of the proposed alignment. The identified plantation woodlands are described below:

WP1

This woodland, which is situated on the hill-slope next to the proposed interchange near Cheung Muk Tau, is a *Pinus* plantation. The trees are evenly spaced, with an average height of approximately 14 m. A clear stratification is absent with the under-storey covered mainly by common herbaceous species, such as climber *Ipomoea caririca*, grass *Cyrtococcum patens* and herb *Elephantopus tomentosus*. It is a rather young plantation woodland.

WP2

This plantation woodland, which is found on the former quarry at the eastern end of the alignment is dominated by *Pinus elliotti* and *Pinus massoniana*, and is believed to be planted as part of the restoration program for the former quarry. The structure of this woodland exhibits a clear stratification pattern: the top canopy is dominated by *Pinus* spp. with an average height of 20 m; *Acacia confusa* and some pioneer trees species such as *Mallotus paniculatus* and *Scheffera octophylla* form the sub-canopy which is 12 m tall; and the under-storey is covered by a mix of native and weedy species, such as the shade-tolerant shrubs *Psychotria rubra*, *Litsea rotundifolia*, the climbing plants *Tetracera asiatica*, *Smilax china*, as well as young trees or common native woodland species such as *Litsea glutinosa* and *Sapium discolor*.

WP3

Established on the cut slope behind the residential blocks, this plantation woodland is mainly planted with *Acacia confusa* and *Tritania conferta*. Since the woodland is close to urbanised residential areas, signs of human activity within the woodland are prominent. The trees are distributed approximately 2-3 m apart, with an average height of approximately 12 m. Only limited vegetation growth was found in the under-storey with herbaceous plants such as the herbs *Elephantopus tomentosus*, *Triumfetta bartramia*, and the grass species *Cyrtococcum patens* noted. Saplings of pioneer tree species such as *Macaranga tanarius* and *Bredelia tomentosa* were found occasionally at the edge of the woodland.

WP4

The woodland is located beside Cheung Kang and on the road side at Lok Wo Sha. Dominant tree species such as *Acacia confusa* and pioneer tree species such as *Macaranga tanarius* and *Mallotus paniculatus* were found. The average height of the trees was approximately 10 m. Under-storey growth is very limited with the herb *Elephantopus tomentosus* and the grass *Cyrtococcum patens* noted.

WP5

This woodland is situated on a slope along Kam Ying Road. The trees ranged from 8-15 m in height and the woodland was dominated by *Acacia confusa* and *Macaranga tanarius*. The under-storey growth was limited and plant species such as *Alocassia macrorrhiza*, *Lantana camara* and *Mikania micrantha* were found.

Shrubland (S)

Shrubland is mainly located along the foothill area of Ma On Shan. The vegetation within this habitat is dominated by common shrub species such as *Ilex asprella*, *Melastoma sanguineum* and *Diospyros vaccinioides*, climber *Celastrus hindii*, *Dalbergia balansae*, *Buettneria aspera* and herb *Dianella ensifolia*, *Helicteres angustifolia*, *Liriope spicata*. The vegetation is approximately 2-5 m in height. This shrubland is in close proximity to a bicycle trail, however, only limited disturbance was observed in the shrubland.

Wasteland (W)

This wasteland is located between Whitehead and Cheung Kang and covered by grassy and climbing vegetation. Similar to other disturbed areas in Hong Kong, the soil condition, habitat heterogeneity and structural complexity of the wasteland habitat are very poor. Species common in disturbed area such as the climbers *Pueraria lobata*, *Pueraria phaseoloides*, *Ipomoea cairica* and *Mikania micrantha*, as well as the grasses *Digitaria* spp., *Eleusine indica* and *Bothriochloa distachya* were found. Exotic tree species *Casuarina equisetifolia* and *Eucalyptus citriodora* were also found occasionally in the wasteland.

Shrubland-Woodland Mosaic (SW)

The identified shrubland-woodland mosaic is located on the hill slope near Lee On Estate. Part of the area falls within the Ma On Shan Country Park, forming a continuous dense vegetation cover ranging from 3-5 m in height. This habitat is mixed with native scrub and tree species and has a diverse species composition and structural complexity which may provide habitats for wildlife.

Dominant species such as the trees *Sapium discolor*, *Litsea cubeba*, *Mallotus paniculatus* and *Rhus chinensis*; the shrubs *Ilex asprella* and *Melastoma sanguineum*; the climbers *Celastrus hindii*, *Dalbergia ballansae* and *Buettneria aspera*; the herbs *Dianella*

ensifolia, *Helicteres angustifolia*, *Liriope spicata*; as well as the grasses *Miscanthus floridulus*, *Cymbopogon* spp. and *Arundinella* spp. were found. This shrubland-woodland mosaic is intact with only limited anthropogenic intervention, and therefore has a high potential to evolve into a woodland habit if the physical conditions remain unchanged. However, it is threatened by hill-fire that may occur accidentally from a nearby graveyard, as patches of the fern *Dicranopteris linearis* (a fire indicator species) were observed in the area.

7.2.3 Other Ecological Resources

Ma On Shan Country Park

Ma On Shan Country Park is located higher up the slope of Hunchback Hills on the south-eastern side of the proposed alignment. The Ma On Shan Country Park is known to support a diverse flora and fauna including many protected or rare species, such as rhododendron and civets. Development within country parks is governed by the *Country Park Ordinance (Cap 208)*.

7.3 Conclusions

A brief description of the existing baseline ecological conditions is presented, based on recent field surveys to update the information contained in the previous PER. The surveys confirm that there have been no significant changes to the baseline conditions, and therefore supports the conclusion from the previous PER that low ecological impact is expected from the construction and operation of the MOS Extension.