

TABLE OF CONTENTS

1.	Introduction.....	2
	Background	2
	Objectives.....	2
2.	Environmental Legislation, Standards and Guidelines.....	2
3.	Assessment Methodology.....	3
	Scope of Ecological Assessment	3
	Impact Assessment.....	4
4.	Baseline Condition.....	4
	Site of Conservation Interest.....	4
	Habitat Type and Vegetation.....	5
	Fauna	6
	Ecological Value	7
5.	Potential Ecological Impacts.....	10
6.	Mitigation Measures.....	11
7.	Environmental Monitoring and Audit.....	12
8.	References	13

List of Tables

Table 3.1	Coverage of Different Habitat Types within the Study Area	5
Table 4.1	Ecological Value of Woodland / Tall Shrubland and Low Shrubland in the Study Area...	7
Table 4.2	Ecological Value of Drainage Channel and Developed Area in the Study Area	8
Table 4.3	Evaluation of Floral Species of Conservation Interest Recorded Within the Study Area .	9
Table 4.4	Evaluation of Faunal Species of Conservation Interest Recorded Within Study Area	9
Table 5.1	Summary of Potential Direct Ecological Impacts to the Identified Habitats and Species of Conservation Interest	10

List of Figures

Figure A1	Habitat Map 1
Figure A2	Habitat Map 2

List of Appendices

Annex 3.1	Representative Photographs of Habitats Recorded within the Study Area
Annex 3.2	Photographs of Species of Conservation Interest Recorded within the Study Area
Annex 3.3	Flora Recorded within the Study Area
Annex 3.4	Fauna Recorded within the Study Area

1. INTRODUCTION

Background

- 1.1 For the construction of West Island Line (WIL), it was estimated that approximately 1,100 kg of explosive would be used at the peak period and delivered daily to various work fronts. A magazine site is therefore proposed to store the explosive
- 1.2 This proposed underground magazine site has a flat platform by Victoria Road, where the portals of the access tunnels to the magazine storage chambers are located. Deep inside the access tunnels, there are eight magazine storage chambers and a detonator store.

Objectives

- 1.3 This section presents the result of the assessment of potential ecological impacts resulting from the proposed underground magazine. Desktop literature review of existing information and ecological field surveys were undertaken to establish the ecological baseline information and evaluate the ecological importance of habitats or flora / fauna species found within 500m of the proposed works areas. The potential impacts arising from the proposed works was identified and assessed, and mitigation measures were recommended if necessary.

2. ENVIRONMENTAL LEGISLATION, STANDARDS AND GUIDELINES

- 2.1 Guidelines, standards, documents and HKSAR Government ordinances and regulations listed in the following sections were referred to during the course of the study.
- 2.2 *The Country Parks Ordinance* (Cap. 208) provides for the designation and management of country parks and special areas. Country parks are designated for the purpose of nature conservation, countryside recreation and outdoor education. Special Areas are created mainly for the purpose of nature conservation.
- 2.3 The *Forests and Countryside Ordinance* (Cap. 96) prohibits felling, cutting, burning or destroying of trees and growing plants in forests and plantations on Government land. Related subsidiary Regulations prohibit the selling or possession of listed restricted and protected plant species. The list of protected species in Hong Kong which comes under the Forestry Regulations was last amended on 11 June 1993 under the *Forestry (Amendment) Regulation 1993* made under *Section 3* of the *Forests and Countryside Ordinance*.
- 2.4 Under the *Wild Animals Protection Ordinance* (Cap. 170), designated wild animals are protected from being hunted, whilst their nests and eggs are protected from injury, destruction and removal. All birds and most mammals, including marine cetaceans, are protected under this Ordinance. The Second Schedule of the Ordinance, which lists all the animals protected was last revised in June 1992.
- 2.5 The *Protection of Endangered Species of Animals and Plants Ordinance* (Cap. 586) provides protection for certain plant and animal species through controlling or prohibiting trade in the species.
- 2.6 The amended *Town Planning Ordinance* (Cap. 131) provides for the designation of coastal protection areas, Sites of Special Scientific Interest (SSSIs), Conservation Area, Country Park, Green Belt or other specified uses that promote conservation or protection of the environment. The authority responsible for administering the Town Planning Ordinance is the Town Planning Board.
- 2.7 *Chapter 10 of the Hong Kong Planning Standards and Guidelines (HKPSG)* covers planning considerations relevant to conservation. This chapter details the principles of conservation, the conservation of natural landscape and habitats, historic buildings, archaeological sites and other antiquities. The appendices list the legislation and administrative controls for conservation, other conservation related measures in Hong Kong and government

departments involved in conservation.

- 2.8 *Annex 16 of the Environmental Impact Assessment Ordinance Technical Memorandum (EIAO TM)* sets out the general approach and methodology for assessment of ecological impacts arising from a project or proposal, to allow a complete and objective identification, prediction and evaluation of the potential ecological impacts. *Annex 8* recommends the criteria that can be used for evaluating habitat and ecological impact.
- 2.9 *EIAO Guidance Note No. 6/2002* clarifies the requirements of ecological assessments under the *EIAO*. *EIAO Guidance Note No. 7/2002* provides general guidelines for conducting ecological baseline surveys in order to fulfill requirements stipulated in the *EIAO TM*. *EIAO Guidance Note No. 11/2004* introduces general methodologies for conducting marine ecological baseline surveys.
- 2.10 *List of Wild Animals Under State Protection* details Category I and Category II protected animal species under Mainland Chinese Legislation.
- 2.11 *List of Wild Plants Under State Protection* details Category I and Category II protected plant species under Mainland Chinese Legislation.
- 2.12 The *China Red Data Book of Endangered Animals* states the taxonomic, conservation status and distribution information of the endangered animal species in mainland China. The book also includes detailed descriptions on habitat, behavior, abundance and threats to survival of the species concerned.
- 2.13 The *China Plant Red Data Book: Rare and Endangered Plants* states the taxonomic, conservation status and distribution information of the endangered flora species in mainland China.
- 2.14 *The International Union for Conservation of Nature and Natural Resources (IUCN) Red List of Threatened Species* provides taxonomic, conservation status and distribution information on taxa that have been evaluated using the IUCN Red List Categories and Criteria. This system is designed to determine the relative risk of extinction, and the main purpose of the IUCN Red List is to catalogue and highlight those taxa that are facing a higher risk of global extinction. The IUCN Red List also includes information on taxa that are either close to meeting the threatened thresholds or that would be threatened were it not for an ongoing taxon-specific conservation programme.

3. ASSESSMENT METHODOLOGY

Scope of Ecological Assessment

- 3.1 Available existing literature documenting the ecological information in and within 500 vicinity of proposed works area (hereafter called as 'study area') was reviewed. Terrestrial ecological surveys in the study area were conducted from February to April 2007. The surveys comprised the followings:

Habitat Survey

- 3.2 A Habitat survey was undertaken to determine the types, size and locations of habitats in the study area. The habitat surveys were conducted via a desktop review of the latest available aerial photographs and other relevant maps/plans available, followed by field checks carried out from February to April 2007 throughout the ecological survey. Representative photographs of habitat types in the study area were taken.
- 3.3 A vegetation survey was conducted by direct observation to record species present and relative abundance of species in different habitat types in representative parts of the study area. The position of any plant species of conservation interest was recorded.
- 3.4 The habitat/vegetation surveys of the study area focused mainly on areas that would be directly

impacted by the proposed works, and also on other nearby areas of potential ecological importance in the study area.

Avifauna Survey

- 3.5 Avifaunal surveys of the study area were undertaken, with species present and relative abundance of species in different habitat types recorded. The surveys comprised general walk-transects of the study area, with particular attention paid to areas within and adjacent to proposed works sites, and also habitats likely to support high densities, or species of conservation interest. Birds were recorded visually and aurally. The location of bird species of conservation interest were recorded, along with any notable behavior (e.g. breeding, breeding behavior such as nesting and presence of recently fledged juveniles, roosting, feeding activities). Avifaunal surveys were undertaken monthly from February to April 2007, and night time surveys were conducted in March 2007.

Herpetofauna & Mammal Survey

- 3.6 A herpetofauna/mammal survey of the study area was conducted. The survey recorded species present and relative abundance of species. Amphibians were searched for by direct observation, searching potential microhabitats, searching for tadpoles in aquatic habitats and listening for calling animals. Reptiles were searched for by direct observation, searching potential microhabitats, and searching for signs of animals (e.g., snake-skins). Mammals (including bats) were searched for by direct observation, searching potential microhabitats, listening for calling animals, and searching for signs of animals (e.g., burrows and faeces). The locations of any herpetofaunal and mammal species of conservation interest were recorded.
- 3.7 The herpetofauna/mammal surveys were conducted monthly in the wet season (April 2007) at the study area, including a day time and a night time survey.

Terrestrial Insect Survey

- 3.8 Species present and relative species abundance of adult butterflies and odonates were recorded by direct observation in the study area. The location of any species of conservation interest was recorded. Terrestrial insect surveys were conducted monthly from February to April 2007.

Impact Assessment

- 3.9 Potential ecological impacts arising from the Project were assessed following *EIAO TM Annex 16* guidelines and the impacts evaluated based on criteria in *EIAO TM Annex 8*.

4. BASELINE CONDITION

Site of Conservation Interest

- 4.1 Areas located to the south and east of the proposed underground magazine site are zoned as Green Belt (GB) under the Kennedy Town & Mount Davis Outline Zoning Plan (S/H1/14). This zone includes the sloping area in Mount Davis where difficult topography and steep hillsides prevent it from intensive urban development or recreational uses. It forms a visually and aesthetically pleasant background to the area.
- 4.2 Under the Mid-Levels West Outline Zoning Plan (S/H11/13), Lung Fu Shan Country Park is approximately 1.4 km away from the boundary of the proposed works area, which is outside the study area of the current Project.

Habitat Type and Vegetation

- 4.3 A habitat map of the study area is given in **Figure A1**. Representative photographs of habitats are given in **Annex 3.1**. Photographs of species of conservation importance are illustrated in **Annex 3.2**. Flora species recorded from the study area are listed in **Annex 3.3**. A summary of the overall coverage of habitat types within the study area is shown in **Table 3.1**. The more detailed description of habitats and vegetation communities in the study area is given in the following sections.

Table 3.1 Coverage of Different Habitat Types within the Study Area

Habitat Type	Area (ha)
Woodland	20.50
Developed Area	19.92
Tall Shrubland	8.86
Low Shrubland	8.84
Drainage Channel	0.19 (approximately 960 m long)
Total	58.31

Woodland / Tall Shrubland

- 4.4 Vegetation in these areas is dominated by trees ranged from 4-10 m in height and was of moderate diversity. The species composition of these two habitats is similar and would therefore be discussed collectively under this section. Woodland habitat was recorded from Mount Davis above the Victoria Road, while patches of tall shrublands were recorded from the areas near the coast and on the upper Mount Davis. The proposed works area is situated in a tall shrubland which is established from an abandoned squatter area covered with rubbles and demolished materials.
- 4.5 There were totally 86 species of flora recorded in these two habitats. Typically recorded plant species including tree species *Macaranga tanarius*, *Mallotus paniculatus*, *Bridelia tomentosa*, *Sterculia lanceolata*, *Broussonetia papyrifera*, *Celtis sinensis*, *Leucaena leucocephala*, *Machilus* spp., shrub species *Lantana camara*, *Ligustrum sinense*, *Maesa perlaris*, and climber species *Bauhinia glauca*, and *Tetracera asiatica*. Most of these plant species are common and widespread in Hong Kong.
- 4.6 The tall shrubland habitat within the study area was found to support three plant species of conservation interest. Hong Kong Pavetta (*Pavetta hongkongensis*, 香港大沙葉) is listed under Forestry Regulation of Forests and Countryside Ordinance (Cap. 96). The locally common Silver-back Artocarpus (*Artocarpus hypargyreus*, 白桂木) is not listed under any local or mainland legislation, but is classified as vulnerable in the IUCN Red Data List (IUCN, 2006). Silver-back Artocarpus is also recorded in China Plant Red Data Book and Illustrations of Rare & Endangered Plants in Guangdong Province (Hu, 2003).
- 4.7 A colony of a locally rare fern, *Phymatodes scolopendria* (瘤蕨), was recorded from rock crevices at the margin of the tall shrubland habitat. The distribution of this species in Hong Kong is highly restricted and was previously recorded from a few localities in Hong Kong including Mount Davis, Chek Chau, Round Island, Clear Water Bay, etc. (Corlett et. al., 2000; Lee et. al., 2003). The locations of the above floral species of conservation interest are indicated in **Figure A1** and **A2**.

Low Shrubland

- 4.8 The upper slopes of Mount Davis, along with adjacent ridges and hilltops, are found to be more exposed habitats. Vegetation growing in these areas was relatively low in diversity with height generally not more than 3 m. Totally 40 floral species were recorded within the low shrubland. Typically recorded species from this habitat included shrub species such as *Schefflera heptaphylla*, *Bridelia tomentosa*, *Celtis sinensis*, *Ilex pubescens*, *Itea chinensis*,

Lantana camara, *Litsea cubeba*, and climbers *Berchemia racemosa*, *Cansjera rheedii*, *Embelia laeta*.

Drainage Channel

- 4.9 Approximately three sizeable water channels were recorded from the study area on the upper slope along Victoria Road. They are probably modified from natural seasonal hill streams originated from Mount Davis to form concrete cascaded channels. Water quality was found to be fair, however, no fish fauna was observed during the surveys and that might possibly be due to steep gradient and rapid flow rate of the channel.

Developed Area

- 4.10 Developed areas recorded in the study area included roads, man-made slopes, residential, and educational buildings. A total of 109 plant species were found in developed area. Trees and shrubs commonly found on man-made slope above Victoria Road included *Lantana camara*, *Macaranga tanarius*, *Melastoma candidum*, *Mikania micrantha*, *Parthenocissus himalayana*. Other vegetations in this habitat included common roadside trees/shrubs *Aleurites moluccana*, *Casuarina spp.*, *Eucalyptus spp.*, and amenity plants *Allamanda neriifolia*, *Hibiscus rosa-sinensis*, *Araucaria heterophylla*, *Bauhinia blakeana*, *Bombax ceiba* and occasional ruderal weeds (e.g., *Ageratum conyzoides*, *Bidens spp.* and *Lantana camara*).

Fauna

- 4.11 Terrestrial fauna recorded in the study area during the surveys are listed in **Annex 3.4**.

Avifauna

- 4.12 Field surveys conducted under this project recorded 19 avifaunal species in the study area. The commonly recorded species reflected the mix of habitat types in the study area, with disturbed habitats such as developed areas/engineered slopes supporting typical urban species such as Red-whiskered Bulbul (*Pycnonotus jocosus*), Chinese Bulbul (*Pycnonotus sinensis*), Magpie Robin (*Copsychus saularis*) and Japanese White-eye (*Zosterops japonicus*). Three of the recorded species are considered of conservation interest. Details on their distribution and conservation status are described in below sections:
- 4.13 Little Egrets (*Egretta garzetta*, 小白鷺) were recorded foraging and flying along the rocky coastline east of Sulphur Channel in April 2007. Little Egrets are locally very common, and the large, secure population in Hong Kong is considered of regional significance by Fellowes *et al.* (2002).
- 4.14 Black Kite (*Milvus migrans*, 黑鷲) was recorded at flight in the study area throughout the survey period. Although locally very common, Black Kites are considered of conservation importance in Hong Kong due to the restricted number of nesting and roosting sites (Fellowes *et al.*, 2002), with the current breeding population believed to be about 30 pairs. They are also a Category II protected species under Mainland Chinese Legislation.
- 4.15 One individual of Greater Coucal (*Centropus sinensis*, 褐翅鴉鵒) was heard calling from the tall shrubland habitats in March and April 2007. Greater Coucal is relatively common and widespread residents in Hong Kong, and are not considered of conservation interest by Fellowes *et al.* (2002). All Coucal species are, however, Category II protected species in Mainland China, where they are thought to be under threat from over-hunting (Zheng and Wang, 1998).

Herpetofauna

- 4.16 Two species of amphibian were identified from developed area in the study area during the surveys in April 2007. All of which are common and widespread in Hong Kong, including Asiatic Painted Frog (*Kaloula pulchra pulchra*) and Brown Tree Frog (*Polypedates megacephalus*). None of the recorded species are considered of conservation importance.

- 4.17 Three species of reptile including Bowring's Gecko (*Hemidactylus bowringii*), Four-clawed Gecko (*Gehyra mutilata*), Long-tailed Skink (*Mabuya longicaduata*) were recorded from developed area and shrubland habitats in the study area during the surveys (March and April 2007), all of which are common and widespread native species. None of the recorded species are considered of conservation importance.

Mammals

- 4.18 One species of mammal (Pallas's Squirrel, *Callosciurus erythraeus styani*, 赤腹松鼠) was recorded from tall shrubland habitats in the study area in February and March 2007 surveys. Pallas's Squirrel is common and widespread in Hong Kong, and is protected under the Wild Animals Protection Ordinance (Cap. 170), and therefore considered of conservation importance.

Terrestrial invertebrates

- 4.19 Eleven species of butterfly including *Papilio polytes*, *Papilio helenus*, *Faunis enumeus* and *Delias pasithoe* were recorded from developed area, tall shrubland, and low shrubland habitats of the study area throughout the surveys. These species are locally common and none of the recorded species are considered of conservation importance. No odonata species were recorded during the surveys.

Ecological Value

- 4.20 In accordance with the *EIAO TM Annex 8* criteria, the ecological importance of recorded habitats has been evaluated in **Tables 4.1 – 4.2** below.

Table 4.1 Ecological Value of Woodland / Tall Shrubland and Low Shrubland in the Study Area

Criteria	Woodland / Tall Shrubland	Low Shrubland
Naturalness	Although secondary in nature and subject to disturbance in the past, the habitat is largely natural.	Habitat is largely natural but secondary in nature.
Size	Areas of woodland and tall shrubland habitat within study area are approximately 20.5 and 8.86 ha respectively.	Area of this habitat within study area is approximately 8.84 ha.
Diversity	Moderate	Low
Rarity	Three plant species of conservation interest (<i>Artocarpus hypargyreus</i> , <i>Phymatodes scolopendria</i> and <i>Pavetta hongkongensis</i>) were recorded in tall shrubland habitat. One faunal species of conservation interest (<i>Callosciurus erythraeus styani</i>) was recorded in tall shrubland habitat.	No species of conservation interest was recorded in this habitat during the surveys.
Recreatability	Secondary woodland and tall shrubland have moderate recreatability, although it would take several decades to become mature.	Low shrubland has moderate recreatability, although it would take several decades to mature.

Criteria	Woodland / Tall Shrubland	Low Shrubland
Fragmentation	The habitats are not fragmented on the Mount Davis. Scattered and isolated habitats near the shore are fragmented from the Mount Davis by the Victoria Road and developed areas.	Habitat is not fragmented.
Ecological linkage	Habitats are not structurally or functionally linked to any high ecological value resources.	Habitat is not structurally or functionally linked to any high ecological value resources.
Potential value	Moderate	Moderate
Nursery / breeding ground	No record of significant nursery or breeding ground was found in the survey.	No record of significant nursery or breeding ground was found in the survey.
Age	More than twenty years	More than ten years
Abundance/ Richness of Wildlife	Low	Low
Ecological value	Moderate	Low to moderate

Table 4.2 Ecological Value of Drainage Channel and Developed Area in the Study Area

Criteria	Drainage Channel	Developed Area
Naturalness	Created habitat.	Created habitat.
Size	Area of this habitat within study area is approximately 0.19 ha (960 m).	Area of this habitat within study area is approximately 19.92 ha.
Diversity	Very low	Moderate
Rarity	No species of conservation interest was recorded in this habitat during the surveys.	No species of conservation interest was recorded in this habitat during the surveys.
Re-creatability	Easily re-creatable	Easily re-creatable
Fragmentation	Not fragmented	Moderately fragmented
Ecological linkage	Habitat is not structurally or functionally linked to any high ecological value resources.	Habitat is not structurally or functionally linked to any high ecological value resources.
Potential value	Very low	Very low
Nursery / breeding ground	No record of significant nursery or breeding ground was found in the survey.	No record of significant nursery or breeding ground was found in the survey.
Age	N/A	N/A
Abundance/ Richness of Wildlife	Very Low	Low
Ecological value	Very low	Low

- 4.21 Although subject to disturbance in the past, woodland and tall shrubland habitats in the study area have moderately diverse species composition, and support 3 floral and 1 faunal species of conservation interest. As such woodland and tall shrubland habitat is considered of moderate ecological value.
- 4.22 The species composition in low shrubland is less diverse, however, it forms parts of the potential habitats for wild fauna due to its close proximity to the surrounding tall shrubland and woodland habitats. Low shrubland in the study area is therefore considered to have a low to moderate ecological value.

- 4.23 Drainage channels in the study area are highly modified habitats supporting low diversity of plants and animals and are considered of very low ecological value.
- 4.24 Although moderately diverse plant species are recorded in the developed area which has been highly modified and disturbed within the study area, most of these plants are widely found in other areas of Hong Kong. Developed area is therefore considered of low ecological value.
- 4.25 In accordance with the *EIAO TM Annex 8* criteria, the species of conservation interest are evaluated in **Tables 4.3** and **4.4** below.

Table 4.3 Evaluation of Floral Species of Conservation Interest Recorded Within the Study Area

Common Name	Scientific Name	Growth Form	Protection Status	Rarity ^[3]	Distribution in Hong Kong ^[3]
Silver-back Artocarpus	<i>Artocarpus hypargyreus</i>	Tree	Vulnerable ^[1] CPRDB ^[4]	Common	Widely distributed
Hong Kong Pavetta	<i>Pavetta hongkongensis</i>	Shrub	Listed in Cap 96 ^[2]	Common	Widely distributed
-	<i>Phymatodes scolopendria</i>	Herb	-	Rare	Restricted

Note:

[1] IUCN (2006)

[2] Listed under *Forestry Regulation (under Forests and Countryside Ordinance Cap. 96)*

[3] Corlett *et al.* (2000)

[4] Listed under the *China Plant Red Data Book: Rare and Endangered Plants*

Table 4.4 Evaluation of Faunal Species of Conservation Interest Recorded Within Study Area

Common Name	Scientific Name	Conservation Status ^[1]	Protection Status ^[2]	Distribution
Avifauna				
Little Egret	<i>Egretta garzetta</i>	PRC (RC)	Listed in Cap 170 ^[3]	Locally common and widespread.
Black Kite	<i>Milvus migrans</i>	(RC)	Listed in Cap 170 ^[3] and Cap 586 ^[4] ; Category II ^[5] .	Locally common and widespread but with restricted roosting and breeding sites.
Greater Coucal	<i>Centropus sinensis</i>	-	Listed in Cap 170 ^[3] ; Category II ^[5] . Vulnerable ^[6]	Locally common and widespread.
Mammals				
Pallas's Squirrel	<i>Callosciurus erythraeus</i>	-	Listed under Cap 170 ^[3] .	Common and widespread.

Note:

[1] RC – Regional Concern (Habitat loss/damage in Hong Kong would pose significant threat to regional survival); PGC – Potential Global Concern (Large, secure populations in Hong Kong are of global significance). Letters in parentheses indicate that assessment of status is based on restrictedness of breeding and/or roosting sites rather than general occurrence. Refer to Fellowes *et al.* (2002) for further explanation of status.

[2] Information taken from various sources including Karsen *et al.* (1998), Carey *et al.* (2001), and Fellowes *et al.* (2002),

[3] Protected under the *Wild Animals Protection Ordinance Cap.170*

[4] Listed under *Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586)*

[5] List of Wild Animals under State Protection

[6] Listed under the *China Red Data Book of Endangered Animals*

5. POTENTIAL ECOLOGICAL IMPACTS

- 5.1 Habitats falling within the footprint of two proposed portal entrances, existing access path to be widened as well as the new access ramp to be built would be directly and permanently impacted.
- 5.2 The site formation works and construction of new access ramp would be confined within a tall shrubland habitat, while the excavation of the two tunnel portals would be conducted on a man-made retaining wall structure located under the existing access path. The proposed access path to be widened would largely be built on the existing access path and minor slope cutting would be required on the existing woodland habitat located to the north side of the access path.
- 5.3 Plant species of conservation importance directly affected by the proposed works would include two individuals of the locally common Hong Kong Pavetta (*Pavetta hongkongensis*) located in the tall shrubland habitat of the study area. They are situated within the footprint of the proposed tunnel portal and access entrance. A summary of the potential direct ecological impact to the identified habitats and species of conservation interest is presented in **Table 5.1**.

Table 5.1 Summary of Potential Direct Ecological Impacts to the Identified Habitats and Species of Conservation Interest

Ecological Resources	Potential Direct Ecological Impact
Habitats	
Woodland	A small area (0.02 ha) of woodland habitat would be affected by minor slope cutting works associated with the widening of access path. Vegetation including mature trees and understorey within the access widening area would be affected.
Tall Shrubland	Most part of the proposed works related to the underground magazine, including the car park, turning zone for emergency services as well as the access ramp, would be conducted within the tall shrubland habitat. The associated works would also include site formation, slope works and establishment of security fence. Removal of vegetation (0.21 ha) would be required during site formation works.
Low Shrubland	No direct impact is expected due to the proposed works.
Developed Area	The proposed main entrance and access path widening works would be conducted partly within the footprint of the existing access path. Ecological impact to this man-made habitat would be limited.
Drainage Channel	No direct impact is expected due to the proposed works.
Species of Conservation Interest	
Hong Kong Pavetta (<i>Pavetta hongkongensis</i> , 香港大沙葉)	Recorded from tall shrubland habitat. Two shrubs identified within the proposed works site would be affected. One of them is located in the area between the portals and the other is to the north of the proposed main entrance.
Silver-back Artocarpus (<i>Artocarpus hypargyreus</i> , 白桂木)	Recorded from tall shrubland habitat. Two individuals of Silver-back Artocarpus are located to the southern boundary of the proposed works area. No direct impact is expected due to the proposed works.
<i>Phymatodes scolopendria</i> (瘤蕨)	Recorded from the margin of tall shrubland habitat near the shore.

Ecological Resources	Potential Direct Ecological Impact
	No direct impact is expected due to the proposed works.
Little Egret (<i>Egretta garzetta</i> , 小白鷺)	Recorded near the coast of Sulphur Channel and at flight over the marine area. No direct impact is expected due to the proposed works.
Black Kite (<i>Milvus migrans</i> , 黑鳶)	Recorded at flight over woodland and tall shrubland. No direct impact is expected due to the proposed works.
Greater Coucal (<i>Centropus sinensis</i> , 褐翅鴉鵲)	Calls recorded from tall shrubland habitat. No direct impact is expected due to the proposed works.
Pallas's Squirrel (<i>Callosciurus erythraeus</i> , 赤腹松鼠)	Recorded from woodland habitat. No direct impact is expected due to the proposed works.

5.4 Indirect impacts on the habitats and associated fauna could be resulted from the increase in human disturbance during the construction phase including the surface run-off, dust, noise, and general increase in human activity from the construction site. These impacts are considered relatively minor, as construction phase disturbance impacts would be temporary and generally short-lived in nature. The wildlife potentially displaced or disturbed by the proposed works would be able to utilize nearby less disturbed habitats during the construction phase.

5.5 Improvement in access and operation of magazine may lead to an increase in the human population of the area, which would increase disturbance levels. Due to the semi-urban nature and existing high levels of disturbance from traffic of Victoria Road, operation phase disturbance is expected to have limited ecological impact.

6. MITIGATION MEASURES

6.1 Impacts to the tall shrubland and woodland habitats would result from site clearance, site formation and excavation for the construction works for the underground magazine site. Wherever possible, proposed works have been designed to avoid or minimise direct impacts to natural habitats in the study area.

6.2 Planting of vegetation would be provided to compensate for the unavoidable loss of woodland (0.02 ha) and tall shrubland (0.21 ha) habitats affected by the proposed magazine site. Given the limited area available on site, a total area of 0.19 ha of native trees and shrubs would be planted to compensate for the loss in woodland and tall shrubland habitats on-site within the magazine site area after the decommissioning of the facility. In general, the compensatory planting would make use of native plant species with flowers/fruits attractive to wildlife. With this mitigation no unacceptable residual impact is anticipated. The proposed compensatory planting would enhance the biodiversity of the area in the long run.

6.3 The two individuals of Hong Kong Pavetta (*Pavetta hongkongensis*) located within the footprint of the proposed tunnel portal and access entrance would be transplanted to a suitable nearby tall shrubland or woodland habitats prior to the construction phase. Transplantation would be supervised by a suitably qualified ecologist/horticulturalist.

6.4 Tree preservation would also be taken into account in the Project and trees located within the works area would be preserved as far as practicable. If tree felling is unavoidable, feasibility of tree transplantation and compensatory planting should be explored. Details of tree preservation are discussed in Landscape and Visual Assessment Section.

6.5 All the existing trees and species of conservation importance (i.e. the two identified Silver-back Artocarpus, *Artocarpus hypargyreus*) located near the proposed works site would be fenced off and the trunk would be protected with hessian sacking as far as possible.

6.6 To minimize the noise disturbance to the wildlife near the works area during the construction

phase, noise control measures including the use of quiet excavation methods, quiet construction plant and temporary noise barriers would be implemented as appropriate.

- 6.7 Standard good site practice measures should be implemented throughout the construction phase. The measures should include:
- Placement of equipment or stockpile in designated works areas and access routes selected on existing disturbed land to minimise disturbance to natural habitats.
 - Construction activities should be restricted to work areas that would be clearly demarcated. The work areas should be reinstated after completion of the works.
 - Waste skips should be provided to collect general refuse and construction wastes. The wastes would be disposed of timely and properly off-site.
 - General drainage arrangements should include sediment and oil traps to collect and control construction site run-off.
 - Open burning on works sites is illegal, and should be strictly prohibited.

7. EVALUATION OF RESIDUAL IMPACTS

- 7.1 With the proposed mitigation measures in place above, no adverse residual impact resulting from the construction of proposed underground magazine site is expected.

8. ENVIRONMENTAL MONITORING AND AUDIT

- 8.1 The implementation of all the mitigation measures should be subject to regular monitoring and audit.
- 8.2 The transplantation of flora species of conservation interest affected by the proposed work would be monitored regularly for health and growing condition. Monitoring of transplanted individuals should cover 4 months and be conducted twice a month at the first 2 months and then once a month for the remaining months. This exercise should be conducted by suitably qualified botanist/ecologist with at least 5 years relevant experience appointed by the project Proponent.

9. CONCLUSIONS

- 9.1 The ecological surveys on terrestrial ecological resources undertaken in this study identified five habitat types within the Assessment Area comprising woodland, tall shrubland, low shrubland developed area and drainage channel. The woodland and tall shrubland are considered to have moderate ecological value, while all other habitats are of low-moderate to very low value.
- 9.2 Three species of flora and four species of fauna of conservation interest were identified within the assessment area close to works areas.
- 9.3 Potential ecological impacts resulting from the proposed underground magazine site during both construction and operation were identified and evaluated. Key impacts included the direct loss of woodland and tall shrubland within the works area, and direct impact on one flora species of conservation interest, Hong Kong Pavetta (*Pavetta hongkongensis*). Compensatory planting of 0.19 ha of trees and transplantation of the flora species of conservation interest were recommended. Other indirect impacts arising from the proposed underground magazine site would be minor and temporary, and could be minimized through implementation of proper mitigation measures.

10. REFERENCES

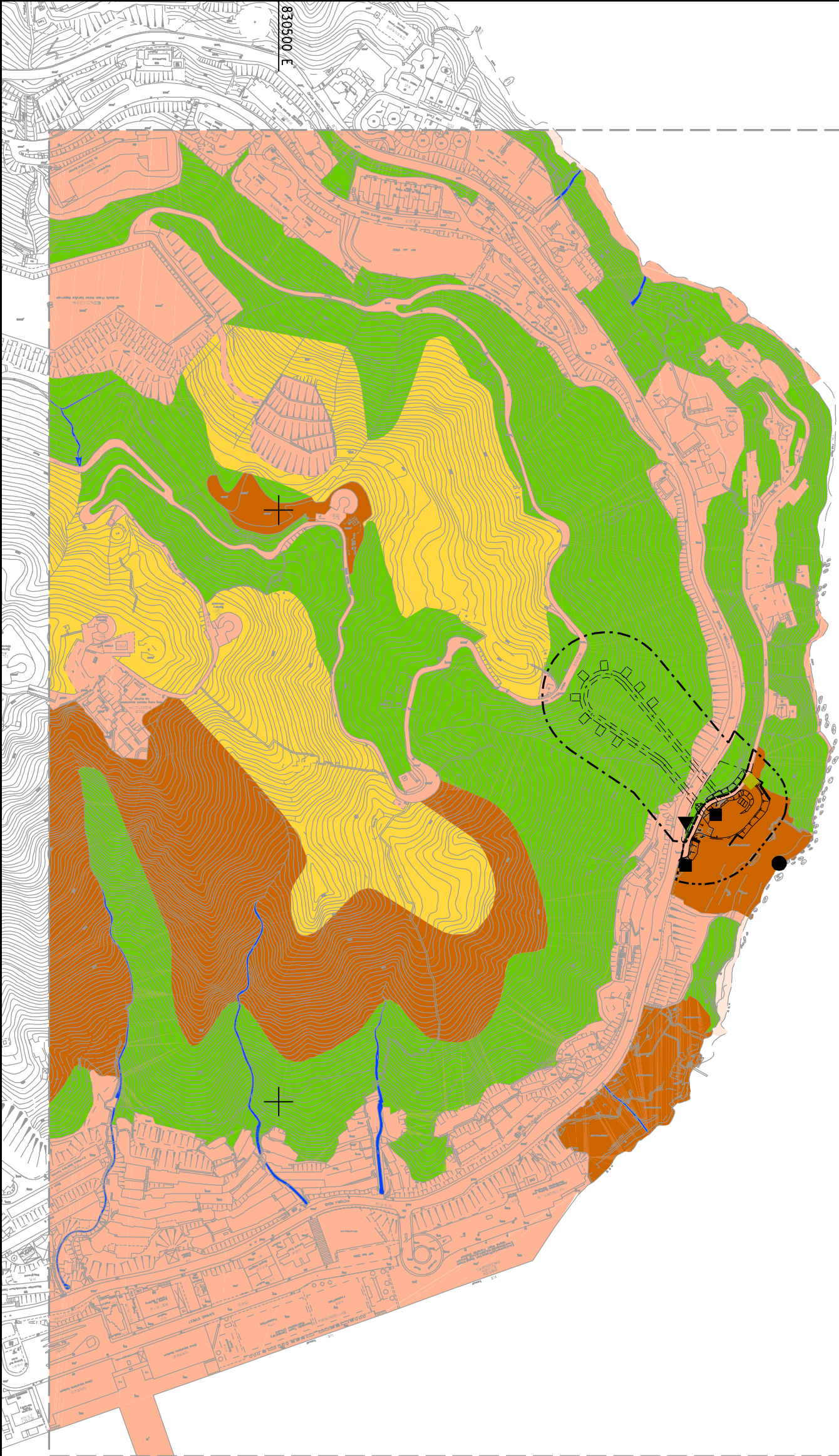
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WEST ISLAND LINE ENVIRONMENTAL IMPACT ASSESSMENT

HABITAT MAP 1

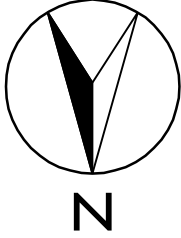


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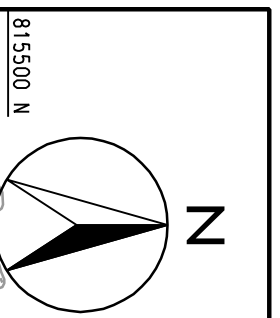


經海海峽
 SULPHUR CHANNEL
 (LAI MONG HOI HAP)

LEGEND:

- WORKS AREA
- UNDERGROUND WORKS AREA
- STUDY BOUNDARY
- WATERCOURSE
- DEVELOPED AREA
- WOODLAND
- TALL SHRUBLAND
- LOW SHRUBLAND
- PAVETTA HONGKONGENSIS
- ARTOCARPUS HYPARGYREUS
- PHYMATODES SCOLOPENDRIA
- CALLOSCURUS ERYTHRAEUS

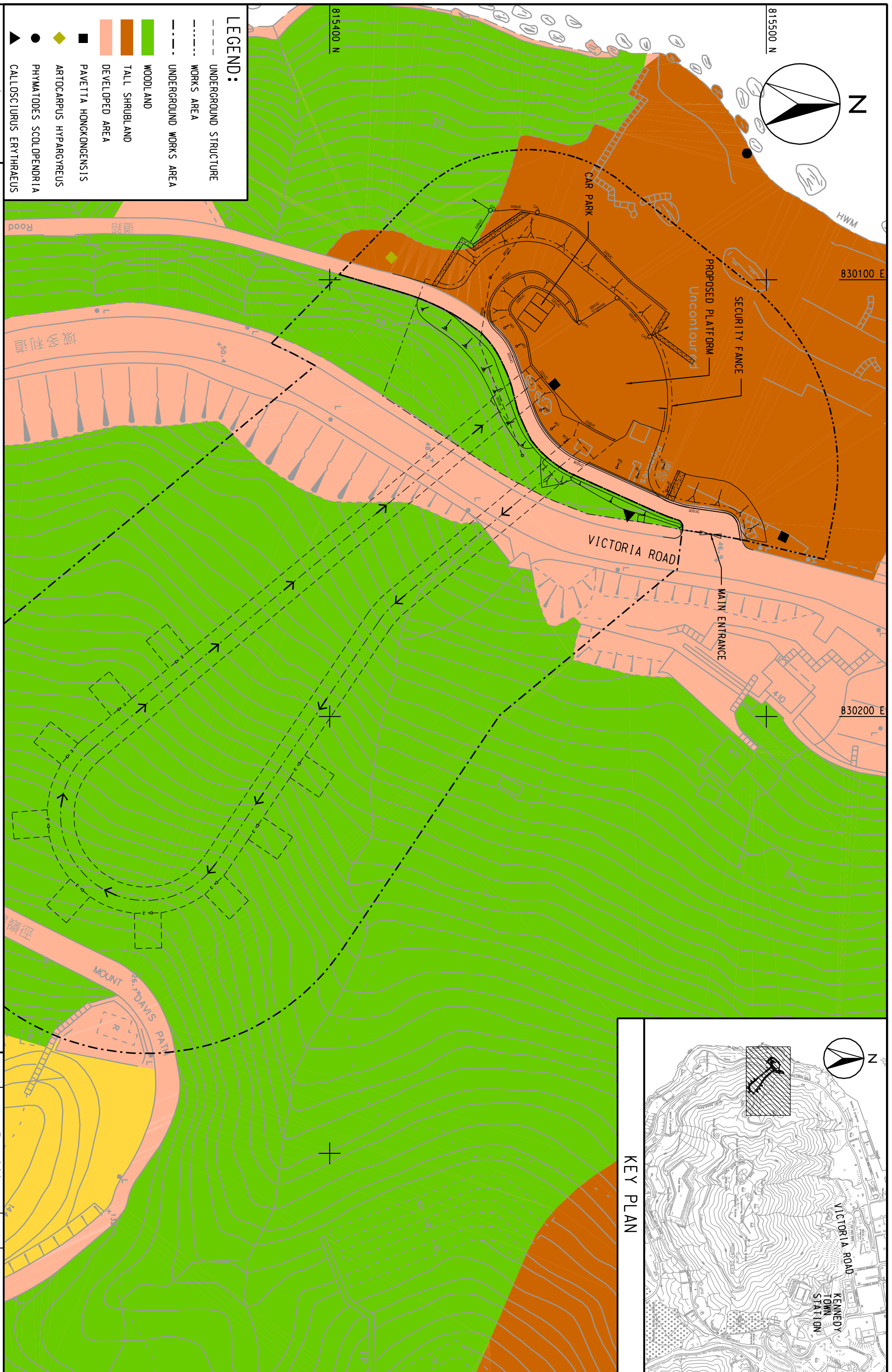
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		REV	



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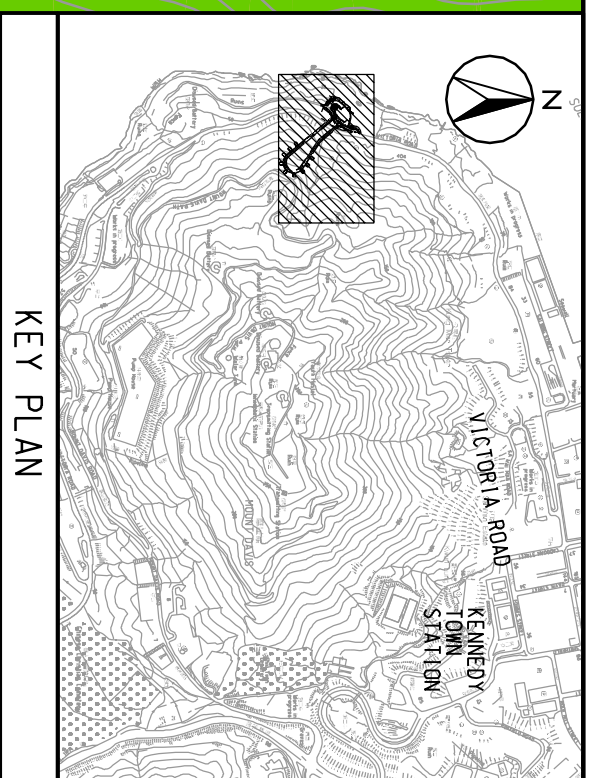
830100 E

830200 E



LEGEND:

- UNDERGROUND STRUCTURE
- WORKS AREA
- UNDERGROUND WORKS AREA
- WOODLAND
- TALL SHRUBLAND
- DEVELOPED AREA
- PAVETTA HONGKONGENSIS
- ARTOCARPUS HYPARGYREUS
- PHYMATODES SCOLOPENDRIA
- CALLOSCIURUS ERYTHRAEUS



KEY PLAN

WEST ISLAND LINE ENVIRONMENTAL IMPACT ASSESSMENT

HABITAT MAP 2

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SCALE	A3 1:800	DATE	DEC. 2007
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JOB NO.	60017115	DRAWING NO.	FIGURE A2
		REV	-



Woodland (on Mount Davis; uphill of Victoria Road)



Tall Shrubland (located within the proposed works area)

ENSR MAUNSELL ENSR Asia (HK) Ltd	AECOM	West Island Line Environmental Impact Assessment		SCALE	N.T.S.	DATE	APR 2007
		Representative Photographs of Habitats Recorded within the Study Area		CHECK	JLAM	DRAWN	GLAM
				JOB NO.	60017115	DRAWING No.	Annex 3.1



Developed Area (built-up area along Victoria Road)



Developed Area (engineered slope along Victoria Road)

ENSR MAUNSELL ENSR Asia (HK) Ltd	AECOM	West Island Line Environmental Impact Assessment		SCALE	N.T.S.	DATE	APR 2007
		Representative Photographs of Habitats Recorded within the Study Area		CHECK	JLAM	DRAWN	GLAM
				JOB NO.	60017115	DRAWING No.	Annex 3.1



Low Shrubland (on Mount Davis)



Drainage Channel (at the west of Bayanihan Kennedy Town Centre)

ENSR MAUNSELL ENSR Asia (HK) Ltd	AECOM	West Island Line Environmental Impact Assessment		SCALE	N.T.S.	DATE	APR 2007
		Representative Photographs of Habitats Recorded within the Study Area		CHECK	JLAM	DRAWN	GLAM
				JOB NO.	60017115	DRAWING No.	Annex 3.1



Hong Kong Pavetta (*Pavetta hongkongensis*, 香港大沙葉) (Plant 1 located near portals)



Close Up View of Plant 1

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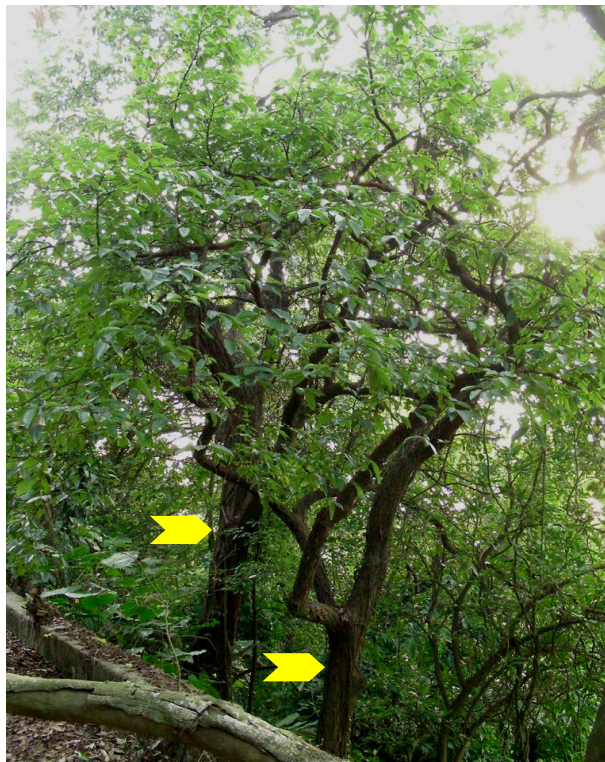
West Island Line Environmental Impact Assessment

**Photographs of Species of Conservation Interest
Recorded within the Study Area**

SCALE	N.T.S.	DATE	APR 2007
CHECK	JLAM	DRAWN	GLAM
JOB NO.	60017115	DRAWING No.	Annex 3.2
		Rev	-



Hong Kong Pavetta (*Pavetta hongkongensis*, 香港大沙葉) (Plant 2 located near main entrance)



Silver-back Artocarpus (*Artocarpus hypargyreus*, 白桂木)

ENSR MAUNSELL ENSR Asia (HK) Ltd	AECOM	West Island Line Environmental Impact Assessment Photographs of Species of Conservation Interest Recorded within the Study Area	SCALE	N.T.S.	DATE	APR 2007
			CHECK	JLAM	DRAWN	GLAM
			JOB NO.	60017115	DRAWING No.	Annex 3.2



A Colony of *Phymatodes scolopendria* (瘤蕨)



Close Up View of *Phymatodes scolopendria* (瘤蕨)

ENSR MAUNSELL ENSR Asia (HK) Ltd	AECOM	West Island Line Environmental Impact Assessment Photographs of Species of Conservation Interest Recorded within the Study Area	SCALE	N.T.S.	DATE	APR 2007	
			CHECK	JLAM	DRAWN	GLAM	
			JOB NO.	60017115	DRAWING No.	Annex 3.2	Rev



Pallas's Squirrel (*Callosciurus erythraeus*, 赤腹松鼠)

ENSR MAUNSELL ENSR Asia (HK) Ltd	AECOM	West Island Line Environmental Impact Assessment Photographs of Species of Conservation Interest Recorded within the Study Area	SCALE	N.T.S.	DATE	APR 2007
			CHECK	JLAM	DRAWN	GLAM
			JOB NO.	60017115	DRAWING No.	Annex 3.2

Annex 3.3 Flora Recorded within the Study Area

(Code for Abundance: xxxx=abundant; xxx=frequent; xx=occasional; x=scarce)

Plant Species	Growth Form	Status	Tall Shrub / Woodland	Low Shrubland	Developed Area
<i>Achyranthes aspera</i>	herb	common	xx		
<i>Adiantum capillus-veneris</i>	herb	common	x		
<i>Ageratum conyzoides</i>	herb	exotic, common			xx
<i>Albizia lebbek</i>	tree	common			x
<i>Aleurites moluccana</i>	tree	common	xx		xx
<i>Aglaonema modestum</i>	perennial herb	exotic, cultivated	xx		
<i>Allamanda nerifolia</i>	shrub	common			xx
<i>Alocasia odora</i>	perennial herb	common	xx		xxxx
<i>Amaranthus viridis</i>	herb	common			xx
<i>Aporosa dioca</i>	tree	common	xx	xx	
<i>Araucaria heterophylla</i>	tree	introduced, common			xx
<i>Ardisia crenata</i>	shrub	common	x		
<i>Artocarpus hypargyreus</i>	tree	common, Recorded in China Plant Red Data Book and Illustration of Rare & endangered plant in Guangdong Province	xx		
<i>Asparagus cochinchinensis</i>	climber	common		x	
<i>Asparagus densiflorus cv. Sprengeri</i>	climbing herb	exotic			xx
<i>Axonopus compressus</i>	herb	cultivated, common			x
<i>Bambusa sp.</i>	bamboo	common	xx		xx
<i>Bauhinia blakeana</i>	tree	common			xx
<i>Bauhinia championi</i>	woody climber	common	xx		
<i>Bauhinia glauca</i>	climber	common	xxx		x
<i>Bauhinia spp.</i>	tree	common			xx
<i>Bauhinia variegans</i>	tree	common	xxx		
<i>Berchemia racemosa (Berchemia floribunda)</i>	climbing shrub	common	xx	xx	
<i>Bidens alba</i>	herb	common			xxx
<i>Bidens bipinnata</i>	herb	common			x
<i>Bidens pilosa</i>	herb	exotic, common			x
<i>Bombax ceiba</i>	tree	common	x		xx
<i>Borreria spp.</i>	herb	common			xx
<i>Bougainvillea spectabilis</i>	climbing shrub	exotic, cultivated	x		xxx
<i>Breynia fruticosa</i>	shrub	very common		x	xx
<i>Bridelia tomentosa</i>	tree	common	xxx	xx	xx
<i>Broussonetia papyrifera</i>	tree	common	xxx		xx
<i>Calamus tetradactylus</i>	climbing palm	common	xx	xx	
<i>Callicarpa kochiana</i>	shrub	common	xx		xx
<i>Callicarpa nudiflora</i>	shrub	common	xx		xx
<i>Cansjera rheedii</i>	climbing shrub	common		x	x
<i>Carica papaya</i>	tree	exotic, common			xx
<i>Carmona microphylla</i>	shrub	exotic, common			x
<i>Caryota ochlandra</i>	shrub	common			xx
<i>Cassytha filiformis</i>	climber	very common			x
<i>Casuarina spp.</i>	tree	exotic, common			xxx
<i>Celastrus monospermus</i>	climber: vine	common	xx		
<i>Celtis sinensis</i>	tree	very common	xxx	xx	xxx
<i>Chrysalidocarpus lutescens</i>	tree	very common	xx		
<i>Cinnamomum camphora</i>	tree	very common	xx	xx	
<i>Cinnamomum parthenoxylon</i>	large tree	common	xx		
<i>Citrus grandis</i>	tree	widely planted	x		x
<i>Citrus reticulata</i>	tree	common			x
<i>Clausena lansium</i>	tree	common	xx		

Annex 3.3 Flora Recorded within the Study Area

(Code for Abundance: xxxx=abundant; xxx=frequent; xx=occasional; x=scarce)

Plant Species	Growth Form	Status	Tall Shrub / Woodland	Low Shrubland	Developed Area
<i>Cocculus orbiculatus</i>	climber: vine	common	xx	x	x
<i>Cyclea</i> spp.	climber: vine	common			xx
<i>Cyclosorus dentatus</i>	herb	restricted	x		
<i>Cyperus alternifolius</i> subsp. <i>flabelliformis</i>	herb	exotic, restricted, cultivated and naturalized	x		x
<i>Daemonorops margaritae</i>	climbing palm	very common	x		
<i>Dalbergia hancei</i>	climber	common	xx		xx
<i>Desmodium heterocarpon</i>	herb	very common			x
<i>Desmos chinensis</i>	woody climber	common	xx		
<i>Dieffenbachia picta</i>	shrub	widely planted	x		
<i>Dimocarpus longan</i> (<i>Euphoria longan</i>)	tree	common and widely planted, wild plant under State protection (category II)	xx		xx
<i>Diploclisia glaucescens</i>	woody vine	common	x		
<i>Dracaena</i> spp.	shrub	exotic	xx		
<i>Eleusine indica</i>	herb	exotic, common			xx
<i>Embelia laeta</i>	climber	very common		xx	xx
<i>Embelia ribes</i>	climber	common	xx		
<i>Emilia sonchifolia</i>	herb	exotic, common			xx
<i>Eriobotrya japonica</i>	tree	cultivated	x		
<i>Eucalyptus</i> spp.	tree	introduced, common			xx
<i>Euphorbia hirta</i>	herb	exotic, common			xx
<i>Euphorbia thymifolia</i>	herb	common			xx
<i>Ficus elastica</i>	tree	introduced, common			x
<i>Ficus hirta</i>	shrub	common	xx		x
<i>Ficus hispida</i>	tree	common	xx	xx	xx
<i>Ficus microcarpa</i>	tree	common	xx		xx
<i>Ficus pumila</i>	climber	very common	xx		xx
<i>Ficus rumphii</i>	tree	common			x
<i>Ficus superba</i>	tree	common	x		xx
<i>Ficus variegata</i>	shrub	common	xx		xx
<i>Ficus virens</i>	tree	common	xx		xx
<i>Gardenia jasminoides</i> var. <i>fortuniana</i>	shrub	exotic			x
<i>Glochidion eriocarpum</i>	shrub	common		x	
<i>Gnetum luofuense</i>	vine	common	xx	x	
<i>Gordonia axillaris</i>	shrub	common		x	
<i>Hedyotis corymbosa</i>	herb	very common			x
<i>Hibiscus rosa-sinensis</i>	shrub	exotic, common			xxx
<i>Hydrocotyle sibthorpioides</i>	herb	common			xx
<i>Ilex pubescens</i>	shrub	very common		xx	
<i>Ipomoea cairica</i>	climber	exotic, common	xx		
<i>Ipomoea triloba</i>	climber: twining herb	common			xx
<i>Itea chinensis</i>	shrub or small tree	common		xx	
<i>Kyllinga monocephala</i>	herb	common			x
<i>Lantana camara</i>	shrub	exotic, common	xxx	xx	xxx
<i>Lepidagathis incurva</i>	herb	common			xx
<i>Leucaena leucocephala</i>	tree	introduced, common	xxx		xxx
<i>Ligustrum sinense</i>	tree	common	xxx	xx	xxx
<i>Litsea cubeba</i>	tree	common		xx	
<i>Litsea glutinosa</i>	shrub	very common	xx	xx	xx
<i>Litsea monopetala</i>	tree	restricted	xx	x	
<i>Livistona chinensis</i>	tree	cultivated			xx
<i>Lonicera macrantha</i>	climber: vine	common		x	
<i>Lophatherum gracile</i>	herb	common	xx		
<i>Lygodium japonicum</i>	climber	very common	xx		

Annex 3.3 Flora Recorded within the Study Area

(Code for Abundance: xxxx=abundant; xxx=frequent; xx=occasional; x=scarce)

Plant Species	Growth Form	Status	Tall Shrub / Woodland	Low Shrubland	Developed Area
<i>Macaranga tanarius</i>	tree	very common	xxxx	xx	xxxx
<i>Machilus</i> spp.	tree	-	xxx		
<i>Maesa perlarius</i>	climber: vine	common	xxx		
<i>Mallotus paniculatus</i>	tree	very common	xxx	xx	x
<i>Mallotus repandus</i>	climbing shrub	common	xx		x
<i>Malvastrum coromandelianum</i>	subshrub	common			xx
<i>Mangifera indica</i>	tree	introduced, common	x		
<i>Melastoma candidum</i>	herb	common			xx
<i>Melia azedarach</i>	tree	introduced, common			xx
<i>Michelia alba</i>	tree	widely planted			x
<i>Microcos paniculatus</i>	tree	common	xx		x
<i>Mikania micrantha</i>	climber	exotic, common	xxx	x	xxx
<i>Millettia</i> spp.	climber	-			xx
<i>Mimosa pudica</i>	herb	exotic, common			xx
<i>Morinda parvifolia</i>	climbing shrub	common		xx	
<i>Morus alba</i>	tree	introduced, common	x		x
<i>Murraya paniculata</i>	shrub	exotic, common	x	x	
<i>Musa paradisiaca</i>	shrub	exotic, common	xx		xx
<i>Nephrolepis auriculata</i>	herb	very common			xx
<i>Oxalis corniculata</i>	perennial herb	common			xx
<i>Paederia scandens</i>	climber: vine	common	xx	xx	xxx
<i>Parthenocissus himalayana</i>	climber	common	xx		xx
<i>Passiflora foetida</i>	climber	exotic, common			x
<i>Pavetta hongkongensis</i>	tree or shrub	common, Plant Scheduled Forestry Regulation of Forests and Countryside Ordinance (Cap 96)	x		
<i>Phyllanthus emblica</i>	shrub	very common		xx	
<i>Phyllanthus reticulatus</i>	climber	very common	xx		xx
<i>Phyllodium pulchellum</i>	shrub	common		x	
<i>Phymatodes scolopendria</i>	herb	rare	xx		
<i>Pilea microphylla</i>	herb	very common			xx
<i>Plumbago zeylanica</i>	herb	restricted	x		
<i>Plumerai rubra</i> var. <i>acutifolia</i>	tree	introduced, common			xx
<i>Pogonatherum crinitum</i>	perennial herb	common			x
<i>Psidium guajava</i>	tree	common			x
<i>Psychotria asiatica</i>	shrub	common	xx		
<i>Pteris ensiformis</i>	herb	common	xx		
<i>Pteris multifida</i>	herb	common	x		
<i>Pteris vittata</i>	herb	very common	x		x
<i>Punica granatum</i>	shrub	cultivated			x
<i>Pyrrosia adnascens</i>	herb	common	xx		
<i>Ravenala madagascariensis</i>	tree	cultivated			x
<i>Rhaphiolepis indica</i>	shrub	common			xx
<i>Rhus succedanea</i>	tree	very common		xx	
<i>Rhynchelytrum repen</i>	herb	very common			xx
<i>Roystonea regia</i>	tree	widely planted			x
<i>Rubus reflexus</i>	climber	very common		xx	
<i>Sageretia thea</i>	shrub	very common		xx	
<i>Sapium sebiferum</i>	tree	common	x		x
<i>Schefflera arboricola</i>	shrub	exotic, planted			xx
<i>Schefflera heptaphylla</i> (<i>Schefflera octophylla</i>)	tree	very common	xx	xxx	
<i>Scolopia saeva</i>	tree	common	x		

Annex 3.3 Flora Recorded within the Study Area

(Code for Abundance: xxxx=abundant; xxx=frequent; xx=occasional; x=scarce)

Plant Species	Growth Form	Status	Tall Shrub / Woodland	Low Shrubland	Developed Area
<i>Scoparia dulcis</i>	herb	exotic, common			xx
<i>Smilax china</i>	climbing shrub	very common		xx	
<i>Smilax corbularia</i>	climbing shrub	Common		x	
<i>Solanum nigrum</i>	herb	exotic, common	xx		xx
<i>Solanum torvum</i>	shrub	exotic, common			x
<i>Solena amplexicaulis</i>	climber	very common			x
<i>Sonchus oleraceus</i>	herb	very common			x
<i>Stachytarpheta jamaicensis</i>	herb	exotic, common			xx
<i>Sterculia lanceolata</i>	shrub	very common	xxx	xx	xx
<i>Syngonium podophyllum</i>	climber	exotic, common	xx		xxx
<i>Syzygium jambos</i>	tree	introduced, common	xx		x
<i>Tetracera asiatica</i>	climber	very common	xxx		
<i>Thunbergia alata</i>	herbaceous vine	restricted, cultivated or naturalised		x	
<i>Urceola rosea</i>	woody vine	common	xx		
<i>Vitex quinata</i>	tree	common			xx
<i>Wedelia trilobata</i>	herb	introduced, common			xxx
<i>Youngia japonica</i>	herb	very common			xxx
<i>Zanthoxylum scandens</i>	climbing shrub	common		xx	

Appendix 3.4 - Fauna Recorded Within the Study Area

Avifauna

Common Name*	Scientific Name	Distribution in Hong Kong	Level of Concern ¹	Protection Status in China ²	China Red Data Book	IUCN Red List	Woodland	Tall Shrubland	Low Shrubland	Developed Area	Rocky shore/Sea
Little Egret	<i>Egretta garzetta</i>	Common	PRC (RC)	-	-	-					+
Black Kite**	<i>Milvus migrans</i>	Common	(RC)	Class II	-	-	+	+++			
Eurasian Tree Sparrow	<i>Passer montanus</i>	Abundant	-	-	-	-				+	
Spotted Dove	<i>Streptopelia chinensis</i>	Abundant	-	-	-	-		+		+	
Greater Coucal	<i>Centropus sinensis</i>	Common	-	Class II	Vulnerable	-		++			
Little Swift	<i>Apus affinis</i>	Abundant	-	-	-	-	+++				
Red-whiskered Bulbul	<i>Pycnonotus jocosus</i>	Abundant	-	-	-	-		+++			
Chinese Bulbul	<i>Pycnonotus sinensis</i>	Abundant	-	-	-	-		+	++		
Oriental Magpie Robin	<i>Copsychus saularis</i>	Abundant	-	-	-	-		++		+	
Violet Whistling Thrush	<i>Myophonus caeruleus</i>	Common	-	-	-	-		+		+	
Blue Whistling Thrush	<i>Myophonus caeruleus</i>	Common	-	-	-	-		+	+		
Grey-backed Thrush	<i>Turdus hortulorum</i>	Common	-	-	-	-		+			
Yellow-browed Warbler	<i>Phylloscopus inornatus</i>	Common	-	-	-	-		+			
Common Tailorbird	<i>Orthotomus sutorius</i>	Common	-	-	-	-		+			
Black-throated Laughingthrush	<i>Garrulax chinensis</i>	Common	-	-	-	-	+				
Masked Laughingthrush	<i>Garrulax perspicillatus</i>	Abundant	-	-	-	-		+++			
Great Tit	<i>Parus major</i>	Common	-	-	-	-		+			
Japanese White-eye	<i>Zosterops japonica</i>	Abundant	-	-	-	-		+++			
Jungle Crow	<i>Corvus macrorhynchus</i>	Common	-	-	-	-		+			

Note:

1. Fellowes et al. (2002); RC=Regional Concern; LC=Local Concern; PRC=Potential Regional Concern.

Letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence.

2. *List of Wild Animals Under State Protection* (promulgated by State Forestry Administration and Ministry of Agriculture on 14 January, 1989).

[國家重點保護野生動物名錄(1989年1月14日林業局及農業部發佈施行)]

* All wild birds are protected under the *Wild Animal Protection Ordinance* (Cap. 170)

**Protected under *Protection of Endangered Species of Animals and Plants Ordinance* (Cap. 586)

*** Relative Abundance: "+" = Rare, "++" = Uncommon, "+++" = Common, "++++" = Abundant

Annex 3.4 - Fauna Recorded Within the Study Area

Butterfly

Common Name	Scientific Name	Distribution in Hong Kong	Protection Status in Hong Kong	Tall Shrubland	Low Shrubland	Developed Area
Papilionidae						
Common Mormon	<i>Papilio polytes</i>	Common	-	++		
Red Helen	<i>Papilio helenus</i>	Common	-	++		+
Common Bluebottle	<i>Graphium sarpedon</i>	Common	-	+		
Spangle	<i>Papilio protenor</i>	Common	-	+		
Pieridae						
Red-base Jezebel	<i>Delias pasithoe</i>	Common	-	+++		+
Lemon Emigrant	<i>Catopsilia pomona pomona</i>	Common	-	+		
Nymphalidae						
Great Eggfly	<i>Hypolimnas bolina</i>	Common	-	+		
Sailer	<i>Neptis sp.*</i>	-	-	+		
Angled Castor	<i>Ariadne ariadne</i>	Common	-	+		
Satyridae						
Dark Evening Brown	<i>Melanitis phedima</i>	Common	-	+		
Amathusiidae						
Large Faun	<i>Faunis enumeus</i>	Common	-	+	+	

Note

* Identified up to genus level only. Among the 6 species of *Neptis sp.* recorded in Hong Kong, 2 of which are common, 2 are rare and the rest lack status information.

Herpetofauna

Common Name	Scientific Name	Distribution in Hong Kong	Protection Status in Hong Kong	Tall Shrubland	Developed Area
Reptile					
Bowring's Gecko	<i>Hemidactylus bowringii</i>	Common	-	++	+
Four-clawed Gecko	<i>Gehyra mutilata</i>	Widely but thinly	-	+	+
Long-tailed Skink	<i>Mabuya longicaudata</i>	Common	-		+
Amphibian					
Asiatic Painted Frog	<i>Kaloula pulchra pulchra</i>	Common	-		+
Brown Tree Frog	<i>Polypedates megacephalus</i>	Common	-		+

Mammal

Common Name	Scientific Name	Distribution in Hong Kong	Protection Status in Hong Kong	Tall Shrubland
Pallas's Squirrel	<i>Callosciurus erythraeus</i> **	Common	Cap. 170	+

Notes: **Protected under Wild Animal Protection Ordinance (Cap. 170)

*** Relative Abundance (apply to all tables): "+" = Rare, "++" = Uncommon, "+++" = Common, "++++" = Abundant